



Final

**NAVAL BASE POINT LOMA
INTEGRATED NATURAL RESOURCES
MANAGEMENT PLAN
INRMP and Appendices**

November 2012



FINAL

**INTEGRATED NATURAL RESOURCES
MANAGEMENT PLAN**

NAVAL BASE POINT LOMA, CALIFORNIA

NOVEMBER 2012

ANNUAL REVIEW AND COORDINATION PAGE

This page is used to certify the annual review and coordination of the Integrated Natural Resources Management Plan (INRMP) for Naval Base Point Loma, California.

By their signature, the certifying official acknowledges that the annual review and coordination of the INRMP has occurred for the specified year.

Approving Official:

S. F. Adams
Captain, U.S. Navy
Commanding Officer

Date

INRMP APPROVING OFFICIAL SIGNATURE PAGE

This Integrated Natural Resources Management Plan (INRMP), November 2012, has been prepared in cooperation with the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service, in accordance with regulations, standards, and procedures of the Department of Defense (DoD), specifically DoD Instruction 4715.03 *Natural Resources Conservation Program*, the U.S. Navy, specifically Chief of Naval Operations Instruction (OPNAVINST) 5090.1C CH-1 *Environmental Readiness Program Manual*, and the Sikes Act, as amended (16 United States Code [U.S.C.] §670a). This INRMP provides for management and stewardship of all natural resources present on the installation.

To the extent that resources permit, the U.S. Fish and Wildlife Service, California Department of Fish and Game, NOAA National Marine Fisheries Service, and the U.S. Navy by signature of their agency representative do hereby agree to enter a cooperative program for the conservation, protection, and management of natural resources present on Naval Base Point Loma (NBPL). The intention of this agreement is to develop functioning, sustainable ecological communities on NBPL that integrate the interests and missions of the agencies charged with conservation, protection, and management of natural heritage in the public interest. This agreement may be modified and amended by mutual agreement of the authorized representatives of the signing agencies. This agreement will become effective upon the date of the last signatory and shall continue in full force until terminated by written notice to the other parties, in whole or in part, by any of the parties signing this agreement.

By their signatures below, or an enclosed letter of concurrence, all parties grant their concurrence with and acceptance of the following document.

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Commanding Officer

Date

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Navy Region Southwest Commander

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INRMP APPROVING OFFICIAL SIGNATURE PAGE

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Mr. Rodney McInnis
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National Marine Fisheries Service

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Executive Summary

The purpose of this Integrated Natural Resources Management Plan (INRMP) is to chart a course for natural resources management on Naval Base Point Loma (NBPL), which includes NBPL on peninsula facilities and off peninsula facilities that consist of NBPL Old Town Center, the Miramar Pipeline, the Mount Soledad Signal Station, Joint Regional Correctional Facility, La Jolla Nautical Mile, and eleven Naval housing areas (four on peninsula, and five off peninsula) (see **Figures ES-1** and **ES-2**). This INRMP was prepared in accordance with the Sikes Act as amended through 2012, Department of Defense (DoD) Instruction 4715.03 *Natural Resources Conservation Program*, Chief of Naval Operations Instruction (OPNAVINST) 5090.1C CH-1 *Environmental Readiness Program Manual*, and the most recent series of DoD, and Department of Navy (DoN) guidance on the Sikes Act and INRMPs. The U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) Fisheries, and the California Department of Fish and Game (CDFG) have had the opportunity to review this INRMP in accordance with the Sikes Act, DoD Instruction 4715.03, and the 2006 Memorandum of Understanding between the DoD, USFWS, and the International Association of Fish and Wildlife Agencies for a *Cooperative Integrated Natural Resource Management Program on Military Installations*.

This INRMP is organized according to the guidelines provided by the Office of the Under Secretary of Defense in August 2006, guidelines provided by DoN in April 2006, and OPNAVINST 5090.1C CH-1, and strives to fully integrate and coordinate the natural resources program with other NBPL plans and activities. This INRMP provides a description of NBPL on and off peninsula facilities (e.g., location, history, and mission), information about the surrounding physical and biotic environment, and an assessment of the impacts on natural resources as a result of mission activities. Furthermore, the INRMP recommends various management practices, in compliance with federal, state, and local standards, designed to mitigate impacts of the mission on local ecosystems.

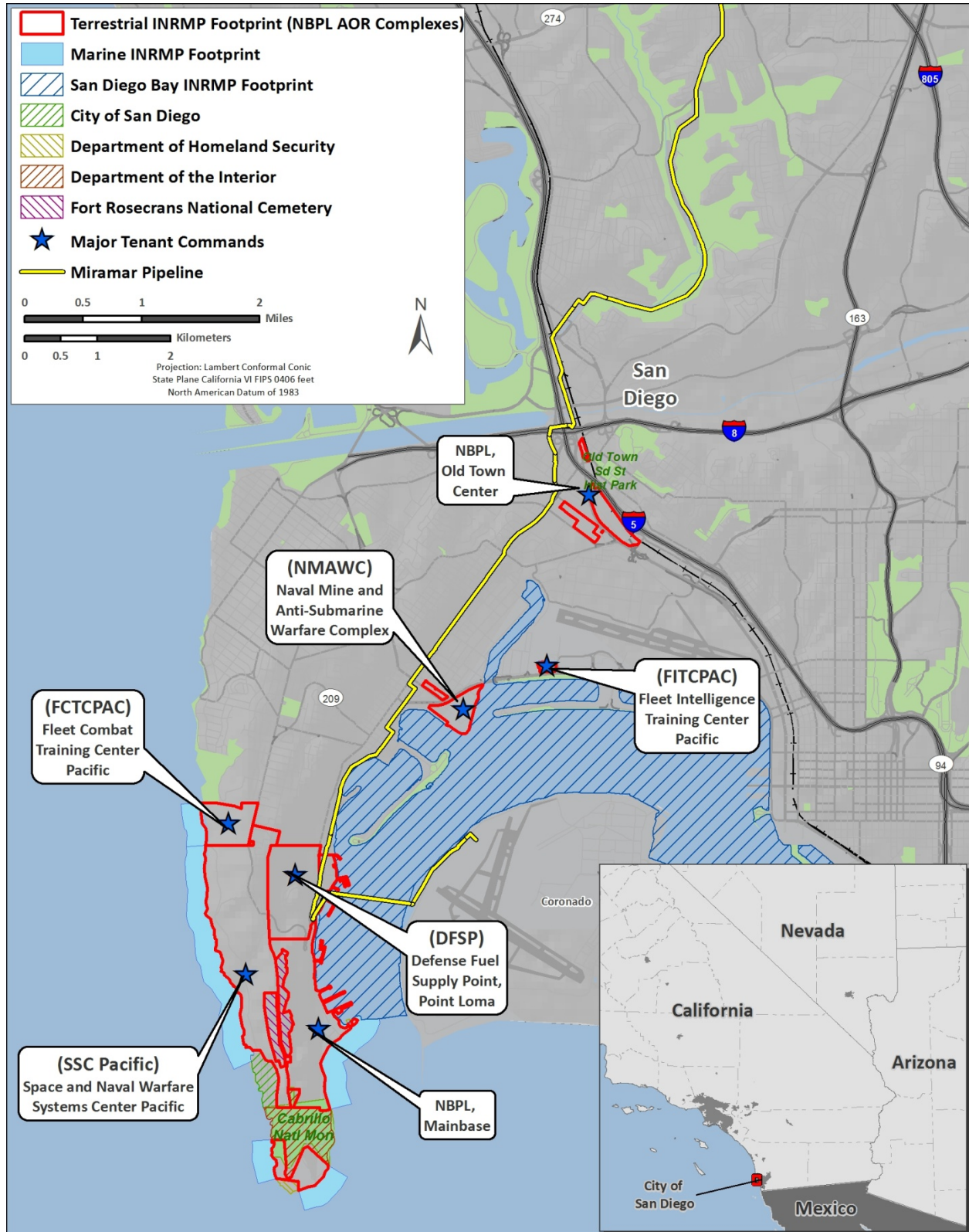
The NBPL INRMP goal is to provide for no net loss to the military mission by managing natural resources in an adaptive ecosystem-based approach, to support multiple use and biological integrity.

The recommended management strategies in habitat areas could benefit federally listed, proposed, or candidate species so that such habitat could be considered for exemption under a future, proposed designation of critical habitat. Adequate special management or protection is provided by a legally operative INRMP that addresses the maintenance and improvement of the primary constituent elements important to the species and manages the long-term conservation of the species. Three USFWS criteria are used to determine if such special management and protection are provided: (1) there is a conservation benefit, (2) there are assurances that the management plans will be implemented, and (3) there are assurances that the conservation efforts will be effective. These three criteria will be met through the strategies presented in this INRMP and are addressed for each species in **Appendix E** (Benefits for Endangered Species).

This INRMP is a guide for the management and stewardship of all natural resources present on NBPL, while ensuring the successful accomplishment of the military mission. A multiple-use approach is used to allow for the presence of mission-oriented activities while efficiently managing the natural resources to conserve biodiversity and environmental quality. The INRMP presents practicable alternatives and recommendations that can ensure minimal impact on the military mission of NBPL while providing for the management and stewardship of natural resources and the conservation and enhancement of existing ecosystems on the installation. Consequently, in some cases, the implementation of certain recommendations might balance the improvement of installation natural resources in deference to the safety and efficiency of the mission.

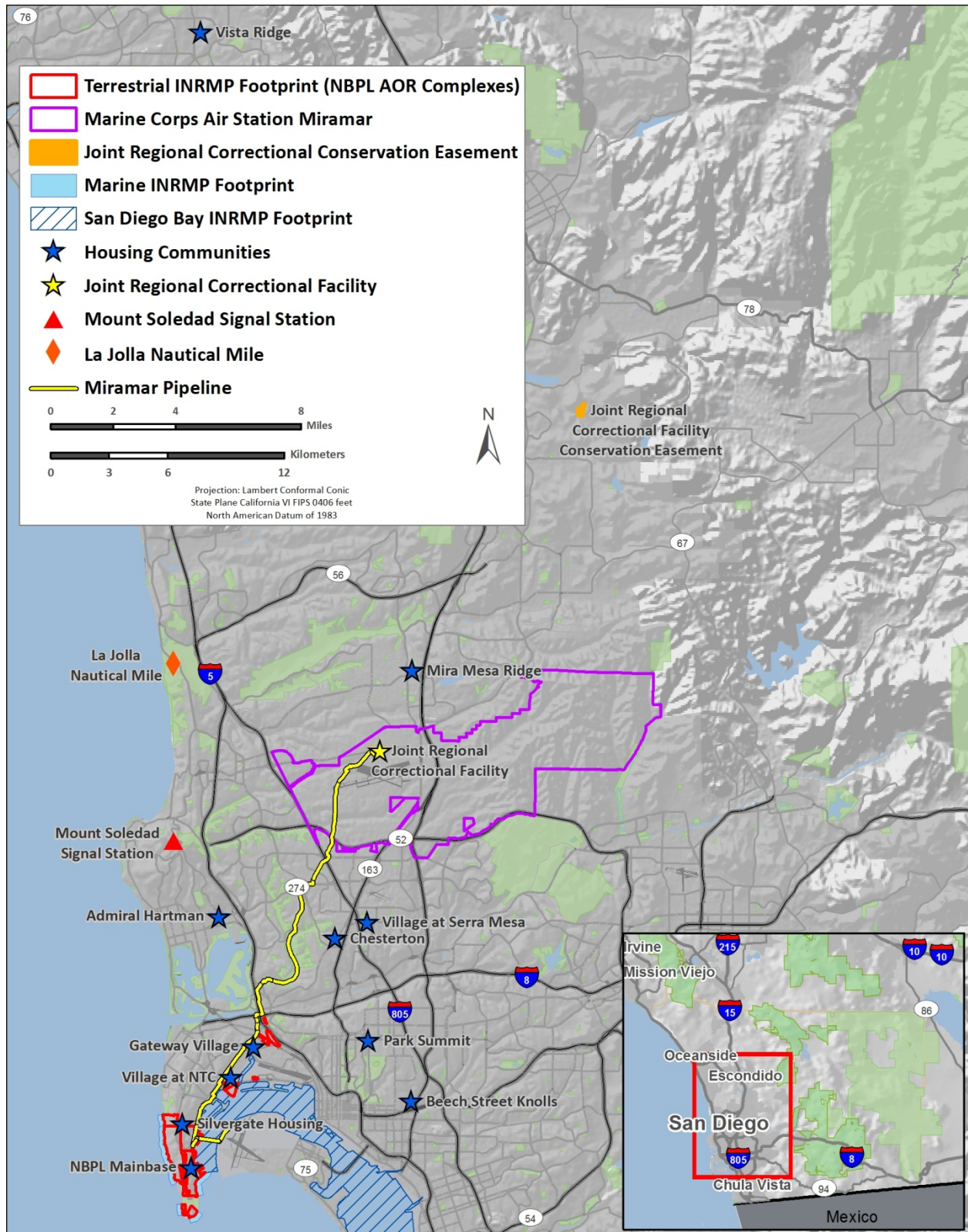
Throughout the development of this INRMP, management concerns were identified in a number of natural resources subject areas. Some of these natural resources concerns could have an adverse impact on the NBPL mission or future planning operations. One of the purposes of this INRMP is to identify goals and objectives for the installation and to obtain workable and useful solutions for each concern. Concerns involving natural resources constraints to planning and mission operations are discussed in detail in **Chapters 4** (on peninsula) and **5** (off peninsula) of this INRMP. **Appendix D** provides a list of projects to be implemented based on the concerns discussed in **Chapters 4** and **5**.

Natural resources constraints to NBPL are presented in **Figures ES-3** through **ES-7**. Constraints included on figures include known locations of federally listed and other special status species, areas preferentially managed for special status species, and areas with a regulatory driver (e.g., *Chorizanthe orcuttiana*, Great Blue Heron, boundaries of the Point Loma Ecological Conservation Area [PLECA], and jurisdictional waters). Constraints figures were not created for those areas lacking natural resources or natural resources constraints.



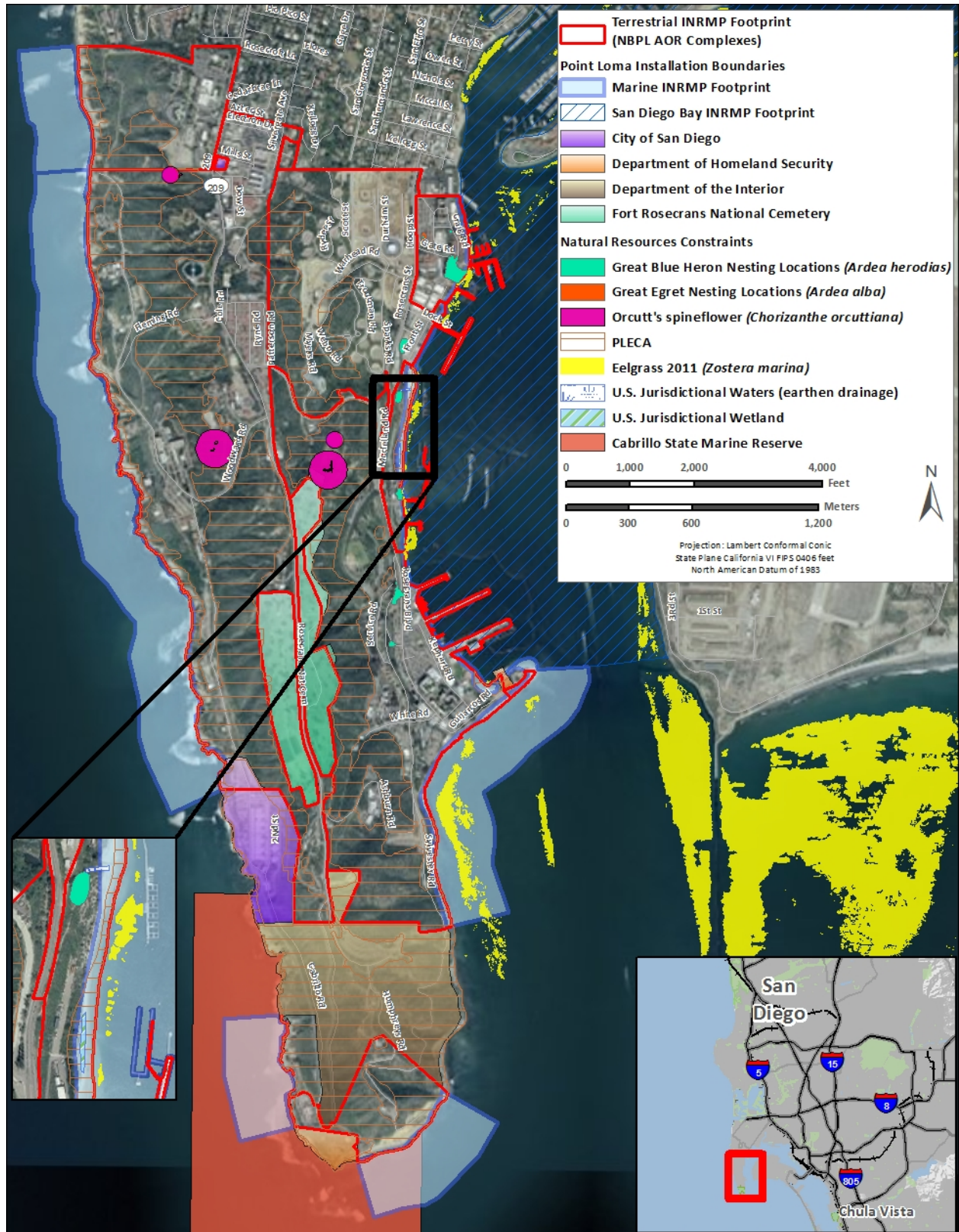
Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure ES-1: Major Complexes and Agencies on Naval Base Point Loma



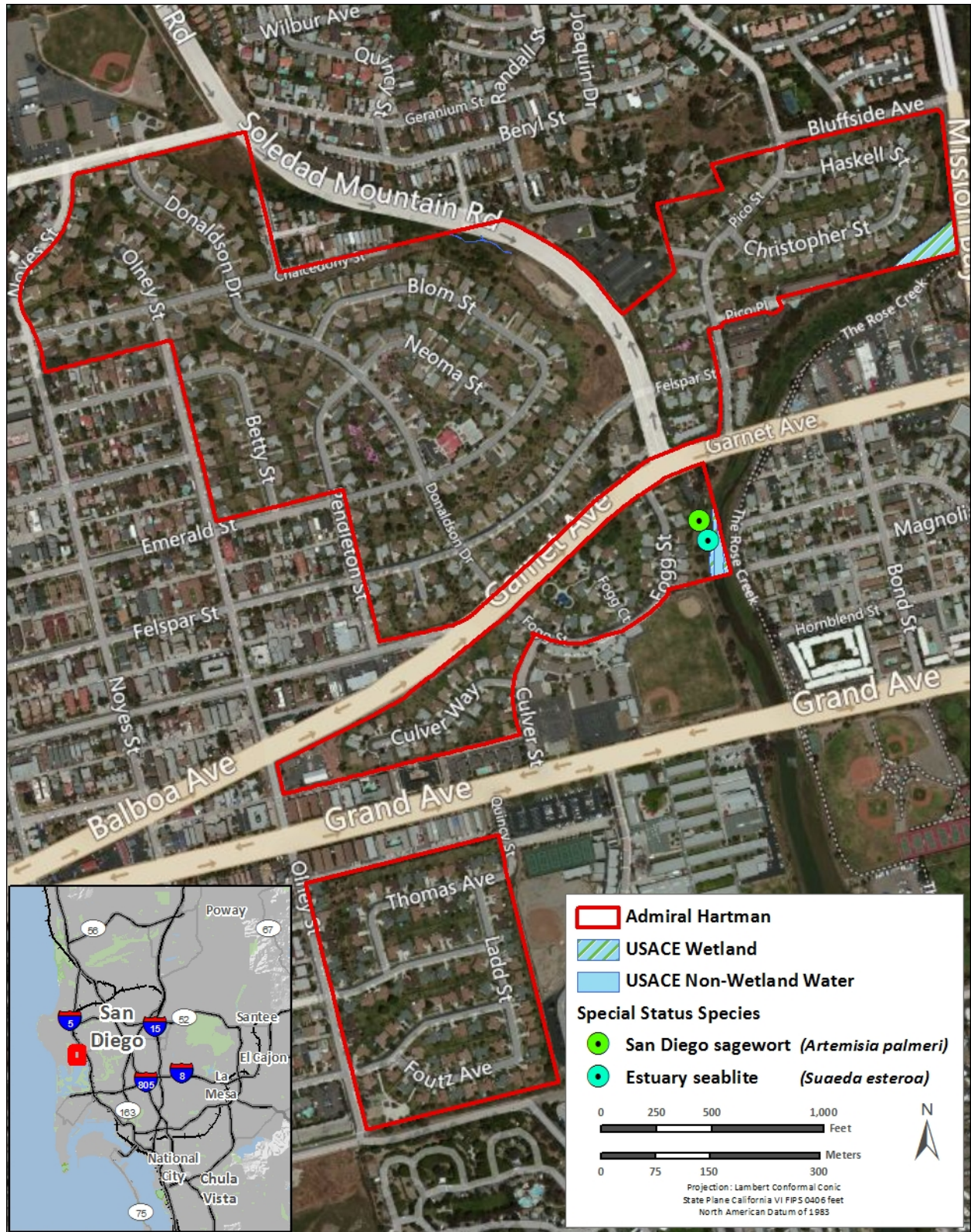
Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure ES-2: Navy Housing Communities, Miramar Pipeline, Mount Soledad Signal Station and La Jolla Nautical Mile



Source: Imagery (i-cubed), Copyright: © 2010 i-cubed, Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure ES-3: Natural Resources Constraints on NBPL on Peninsula



Source: Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers, Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure ES-4: Natural Resources Constraints on NBPL off Peninsula Facilities - Admiral Hartman Housing Area



Figure ES-5: Natural Resources Constraints on NBPL off Peninsula Facilities - Beech Street Knolls Housing Area



Figure ES-6: Natural Resources Constraints on NBPL off Peninsula Facilities – Chesterton Housing Area



Figure ES-7: Natural Resources Constraints on NBPL off Peninsula Facilities – Villages at Serra Mesa Housing Area

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**FINAL INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
NAVAL BASE POINT LOMA, CALIFORNIA**

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1. Overview

1.1 Purpose and Scope of Plan

The purpose of this Integrated Natural Resources Management Plan (INRMP) is to chart a course for natural resources management on Naval Base Point Loma (NBPL), which includes NBPL on peninsula facilities and off peninsula facilities that consist of NBPL Old Town Center, the Miramar Pipeline, the Mount Soledad Signal Station, Joint Regional Correctional Facility, La Jolla Nautical Mile, and eleven Naval housing areas (four on peninsula, and five off peninsula). This INRMP is consistent with the Sikes Act (16 United States Code [U.S.C.] 670a et seq.), guidance and regulations provided in the Department of Defense (DoD) Instruction 4715.03 (*Natural Resources Conservation Program*), Chief of Naval Operational Instructions (OPNAVINST) 5090.1C CH-1 (*Environmental Readiness Program Manual*), and more recent Department of Navy (DoN), DoD, and INRMP guidance. These guidance documents collectively require a plan and management approach that integrates mission support, ecosystem or landscape-level management, and environmental compliance and stewardship. This INRMP was developed based on a thorough review of the existing 2002 NBPL INRMP, review of new data pertaining to NBPL, the Mount Soledad Signal Station, the Miramar Pipeline, NBPL Old Town Center, Joint Regional Correctional Facility, La Jolla Nautical Mile, and Naval housing areas now under the jurisdiction of Navy Region Southwest, and detailed discussions with Naval Facilities Engineering Command Southwest (NAVFAC SW) natural resources staff and various INRMP stakeholders. The plan strives to integrate INRMP activities with other installation plans and activities, and provides explicit goals and objectives to which natural resources initiatives and projects will contribute. The projects and initiatives contained in this plan include a combination of ongoing natural resources management activities from previous years and new projects and activities identified as priorities during the review process.

This INRMP is a revision of the existing INRMP (U.S. Navy 2002), includes a discussion of the natural resources on NBPL, and reviews natural resources activities undertaken at NBPL, based on data collected and reports prepared since the completion of the July 2002 INRMP. In addition, the revised INRMP evaluates off peninsula areas including Mount Soledad Signal Station, the Miramar Pipeline, NBPL Old Town Center, Joint Regional Correctional Facility, La Jolla Nautical Mile, and housing areas under the jurisdiction of NAVFAC SW. This INRMP is organized according to the guidelines provided by the Office of the Under Secretary of Defense in August 2006, DoD Instruction 4715.03 (DoD 2011), DoN guidance pertaining to development and implementation of INRMPs (U.S. Navy 2006a), and NAVFAC SW, and strives to fully integrate and coordinate the natural resources program with other NBPL plans and activities. This INRMP provides a description of the installation (e.g., location, history, and mission), information about the surrounding physical and biotic environment, and an assessment of the impacts on natural resources as a result of mission activities. Furthermore, the INRMP recommends various management practices, in compliance with federal, state, and local standards, designed to avoid and minimize negative impacts and to enhance the positive effects of the installation's mission on local ecosystems.

As stated above, this INRMP addresses NBPL, which includes all properties addressed in the July 2002 INRMP, off peninsula sites including the Mount Soledad Signal Station, the Miramar Pipeline, NBPL Old Town Center, Joint Regional Correctional Facility, La Jolla Nautical Mile, and eleven housing sites per guidance contained within Commander Navy Region Southwest notice 11000 (2008) (see **Figures 1-1** and **1-2**). The housing sites include: Silvergate Housing, Naval Submarine Base, Admiral Hartman, Beech Street Knolls, Chesterton, Gateway Villas, Mira Mesa Ridge, Park Summit, Village at Naval Training Center, Vista Ridge, and Village at Serra Mesa. None of these housing areas were addressed in the July 2002 INRMP because they were not under NBPL jurisdiction.

NBPL, including off peninsula facilities, supports a population of approximately 178,085 military and civilian personnel (U.S. Navy 2009a). The on peninsula installation consists of lands owned by the Commander Naval Installation Command (CNIC) and is occupied by major areas that include NBPL Mainbase; NBPL Old Town Center; Space and Naval Warfare Systems Center Pacific (SSC Pacific); Fleet Combat Training Center Pacific (FCTCPAC); Naval Mine and Anti-Submarine Warfare Complex (NMAWC); Fleet Intelligence Training Center Pacific (FITCPAC); and Defense Fuel Supply Point, Point Loma (DFSP). The off peninsula installation consists of the Mount Soledad Signal Station, the Miramar Pipeline, NBPL Old Town Center, Joint Regional Correctional Facility (on Marine Corps Air Station [MCAS] Miramar), La Jolla Nautical Mile, and eleven Naval housing areas (four on peninsula, and five off peninsula). In addition, NBPL hosts 71 tenant commands.

The installation manages approximately 1,918 acres as shown in **Table 1-1**:

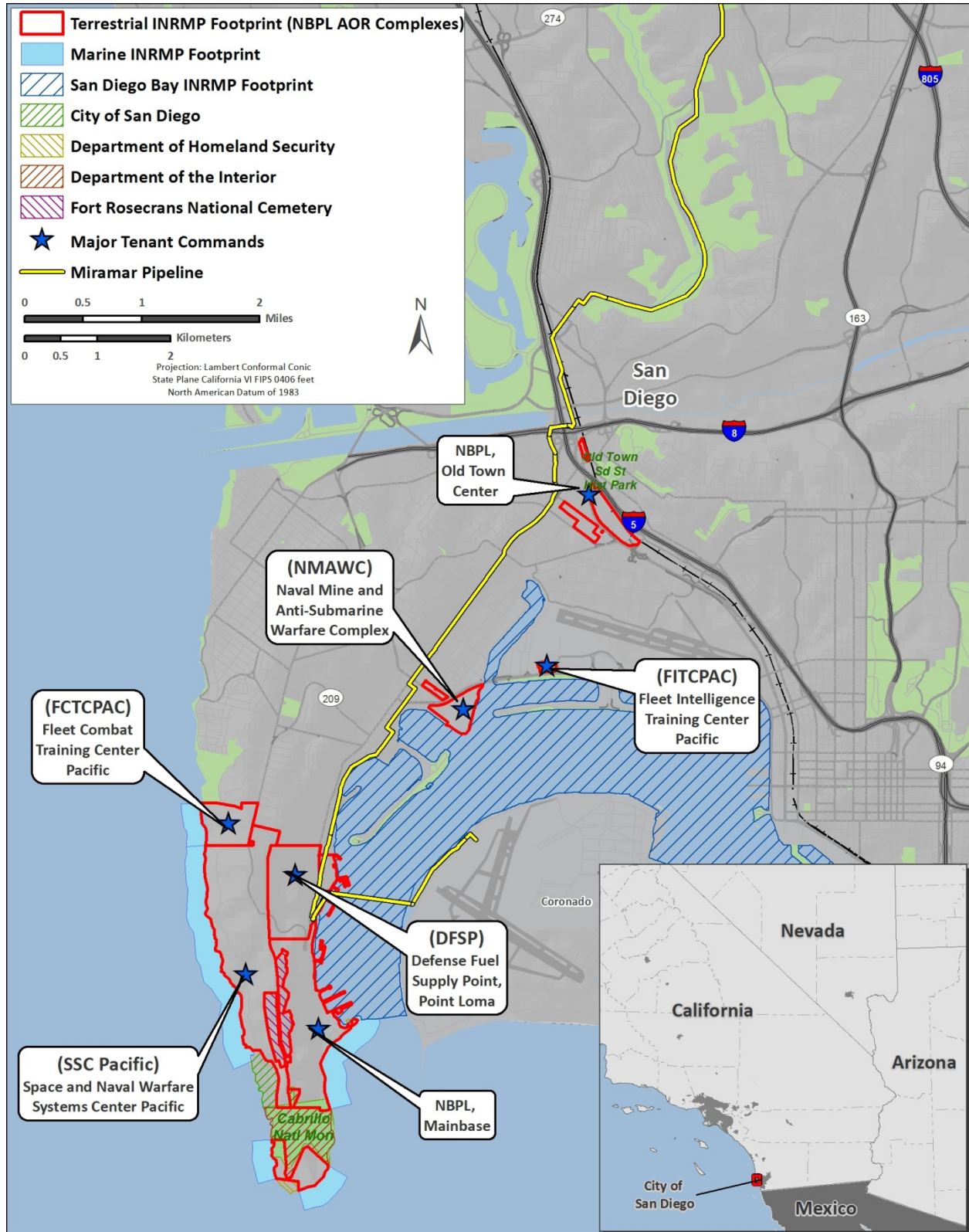
Table 1-1: NBPL Facilities

NBPL Facility	NBPL Facility Sizes (acres)
NBPL Mainbase	301
Space and Naval Warfare Systems Center Pacific (SSC Pacific)	615
Fleet Combat Training Center Pacific (FCTCPAC)	94
Naval Mine and Anti-submarine Warfare Complex (NMAWC)	63
Fleet Intelligence Training Center Pacific (FITCPAC)	7
Defense Fuel Supply Point (DFSP) Point Loma	217
NBPL Old Town Center	59
Miramar Pipeline	19.39
Mount Soledad Signal Station	6
Joint Regional Correctional Facility Southwest	23
La Jolla Nautical Mile	0.04
Eleven Navy Housing Communities	521
Total	1,918.43

Source: U.S. Navy 2011b, U.S. Navy 2009a, USFWS 2009

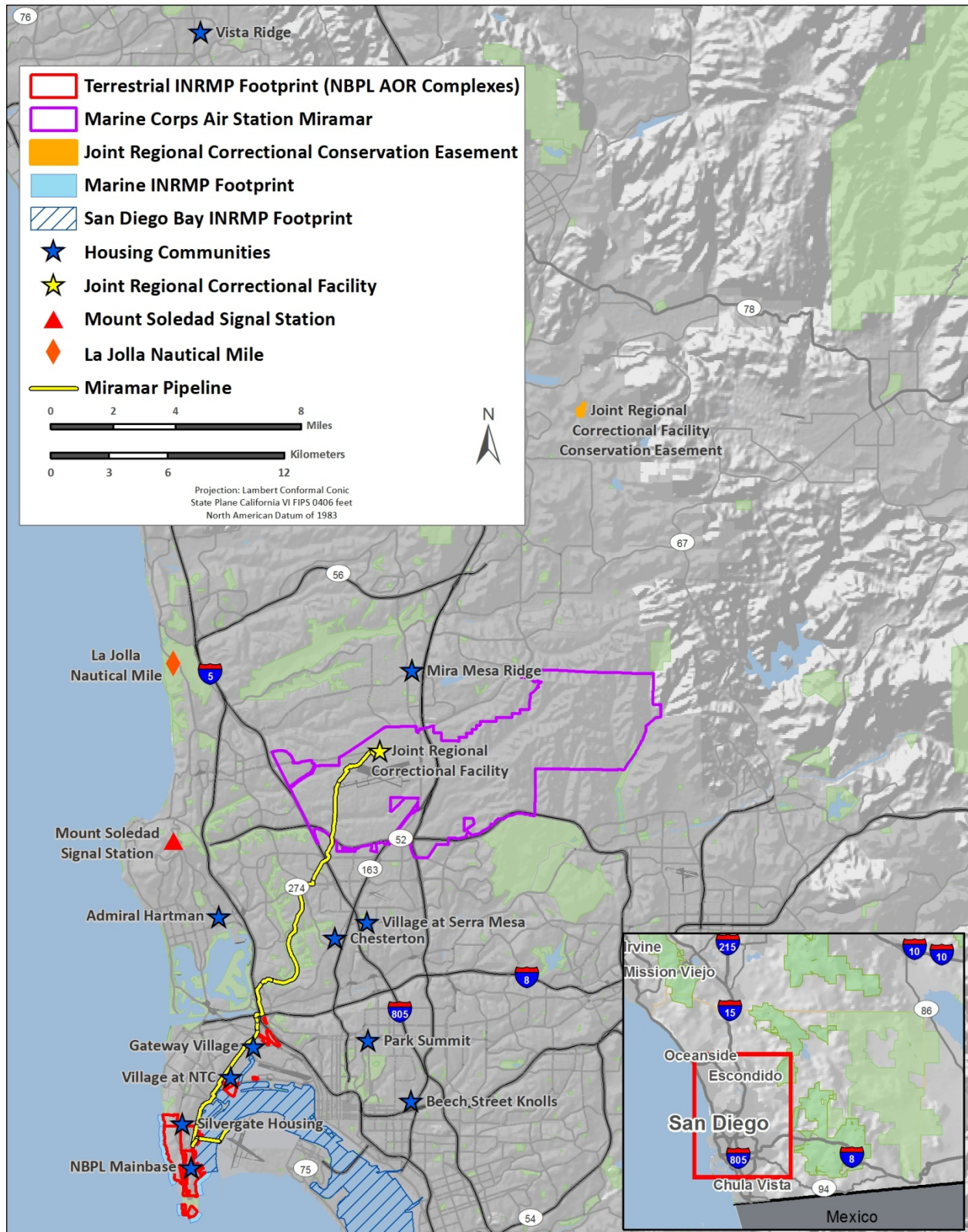
In addition to terrestrial resources, aquatic and marine resources up to 300 yards (274 meters) seaward (beyond the mean lower low water line) of the NBPL peninsula are addressed in this INRMP. An additional 687 acres of in-water resources are within the NBPL boundary, as shown in the Marine INRMP footprint in **Figure 1-1**. Other in-water areas adjacent to NBPL properties north of Ballast Point are addressed in the San Diego Bay INRMP (U.S Navy et al. 2011).

All facilities within NBPL lie within San Diego County, California (see **Figures 1-1** and **1-2**).



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 1-1: Major Complexes and Agencies on Naval Base Point Loma



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 1-2: Navy Housing Communities, Miramar Pipeline, Mount Soledad Signal Station and La Jolla Nautical Mile

1.2 Authority

This INRMP update is consistent with guidance and regulations provided in the Sikes Act, DoD Instruction 4715.03 (*Natural Resources Conservation Program*, 2011), OPNAVINST 5090.1C CH-1 (*Environmental Readiness Program Manual*, 2011), and more recent DoN (U.S. Navy 2006a) and DoD and INRMP guidance. These guidance documents collectively require a plan and management approach that integrates mission support, multipurpose use, ecosystem or landscape-level management, and environmental compliance and stewardship. The Sikes Act is one of the primary drivers behind the NBPL natural resources management program and INRMP.

According to the Sikes Act, the purposes of a military conservation program are conservation and rehabilitation of natural resources, sustainable multipurpose use of those resources, and public access to military lands, subject to safety requirements and military security. Moreover, the conservation program must be consistent with the mission-essential use of the installation and its lands. The Sikes Act requires the preparation of an INRMP to facilitate the conservation program. The 2006 Memorandum of Understanding between the DoD, USFWS, and the International Association of Fish and Wildlife Agencies for a *Cooperative Integrated Natural Resource Management Program on Military Installations* (DoD et al. 2006) requires that the INRMP be cooperatively developed with the U.S. Fish and Wildlife Service (USFWS) and the state fish and wildlife agency, which for NBPL is the California Department of Fish and Game (CDFG). The resulting plan reflects the mutual agreement of all three parties concerning conservation, protection, and management of natural resources on the installation.

The Sikes Act states that “the Secretary of each military department shall prepare and implement an integrated natural resources management plan for each military installation in the United States under the jurisdiction of the Secretary, unless the Secretary determines that the absence of significant natural resources on a particular installation makes preparation of such a plan inappropriate.” DoD Instruction 4715.03 prescribes procedures for integrated management of natural resources, including preparing an INRMP as required by the Sikes Act. DoD Instruction 4715.03 also states that “INRMPs shall be prepared, maintained, and implemented for all lands and waters under DoD control that have suitable habitat for conserving and managing natural resources.”

The 2006 Chief of Naval Operations (CNO) guidance, (U.S. Navy 2006a) further establishes the that “INRMPs must address natural resources management on those lands and near-shore areas owned by the U.S. and administered by the Navy; used by the Navy via license, permit, or lease for which the Navy has been assigned management responsibility; or withdrawn from the public domain for use by the Navy for which the Navy has been assigned management responsibility” (U.S. Navy 2006a). OPNAVINST 5090.1C CH-1 requires the preparation of INRMPs and prescribes Navy policies, procedures, and standards to “restore, improve, conserve, and properly use natural resources on Navy-administered lands.” The NBPL INRMP revision is consistent with and was developed according to these guidance.

1.3 INRMP Vision, Goal, and Objectives

According to the Sikes Act, the vision of an installation INRMP is to ensure the sustainability of all ecosystems within the installation, and to ensure a no net loss of the capability of the installations to support the military mission (U.S. Navy 2006a). To meet the intent of the Sikes Act, the DoD adopted ecosystem management as the basis for future management of DoD lands and waters through applying the principles of adaptive management and through collaborating with parties both inside and outside the fence (DoD 2011). In addition, the DoN developed guidance for developing and implementing INRMPs at Navy installations in 1998 (U.S. Navy 2006a). This guidance was revised in 2006 based on lessons learned from the first round of INRMPs developed by the Navy, which included the following (U.S. Navy 2006a):

1. Increasing the ties between natural resource management and military readiness.
2. Establishing a consistent funding policy and project review process.
3. Improving the efficiency of INRMP review and coordination.
4. Increasing the effective implementation of INRMPs.
5. Expanding opportunities for involvement with all INRMP stakeholders.

The 2006 guidance also stressed the need for clear INRMP goals and objectives to guide natural resources management on an installation while ensuring a no net loss to the mission. The guidance defines goals as “broad guiding principles for the [installation natural resources] program” and objectives as “measurable targets for achieving the goals” (U.S. Navy 2006a). In addition, the guidance states that the INRMP will provide parameters to determine “the effectiveness of the natural resources program outlined in the INRMP through ensuring that the plan includes quantifiable, scientifically valid parameters that will demonstrate achievement of objectives,” or INRMP projects (U.S. Navy 2006a).

The NBPL INRMP goal is to provide for no net loss to the military mission by managing natural resources in an adaptive ecosystem-based approach, to support multiple use and biological integrity.

Objectives and management strategies are identified in **Chapter 4** for NBPL on peninsula, and **Chapter 5** for off peninsula facilities.

1.4 Stewardship and Compliance

For this INRMP, the terms compliance and stewardship have specific meanings as criteria for implementing project lists. Project rankings are assigned based on whether an activity is mandatory to comply with a legal requirement, such as the ESA, Clean Water Act (CWA), or Migratory Bird Treaty Act (MBTA). Alternatively, a project may be considered good land stewardship but is not considered an obligation for NBPL to be found in compliance with environmental laws. Projects considered necessary to comply with the law are generally funded within budget constraints, whereas stewardship projects are ranked lower for funding consideration when projects compete among multiple installations.

The budget programming hierarchy for this INRMP is based on both DoD and Navy funding level classifications. The DoD programming and budgeting priorities for conservation programs are detailed in DoD Instruction 4715.03 (*Natural Resources Conservation Program*, 2011). The Instruction divides programming and budget requirements into two categories: Recurring and Non-recurring. Compliance activities are in the Recurring category and the Non-recurring Current and Maintenance Compliance categories. Stewardship activities are in the Enhancement Actions Beyond Compliance category.

The Navy programming hierarchy is based on DoD funding level classifications. The projects recommended in this INRMP have been prioritized based on the Navy programming hierarchy of Environmental Readiness Levels (ERLs) (U.S. Navy 2006a). ERL 3 and 4 projects are compliance driven (DoD Class 0, I, II) and ERL 1 and 2 projects are under the stewardship category. **Section 7.2** Priority Setting and Funding Classification describes ERLs and DoD Classes in more detail. Funding is routinely programmed three years in advance of project implementation.

1.5 Revisions and Annual Reviews

The Sikes Act requires that INRMPs must be reviewed for operation and effect no less than once every 5 years by the installation, the USFWS, and the state fish and wildlife agency (in this case, the CDFG). In

addition, coordination with the National Oceanic and Atmospheric Administration (NOAA) is recommended for management of marine resources. The DoD and DoN have provided specific guidance on the joint review and coordination process and timeframe (DUSD[I&E] 2002, OPNAVINST 5090.1C CH-1 2011).

According to the 2006 CNO guidance, (U.S. Navy 2006a), INRMPs must also be reviewed by installations at least once per year to verify the following:

- Current information on INRMP conservation metrics, as described in the Navy Conservation Website
- All ERL 4 “must fund” projects and activities have been budgeted for and implementation is on schedule
- All required trained natural resources positions are filled or are in the process of being filled
- Projects and activities for the upcoming year have been identified and included in the INRMP - an updated project list does not necessitate INRMP revision
- All required coordination has occurred
- All significant changes to the installation’s mission requirements or its natural resources have been identified.

For additional information on Navy Natural Resources Metrics, refer to **Appendix K**. If an INRMP review for operation and effect results in significant differences from the previous plan and additional NEPA analysis, NBPL must solicit public review and comments (U.S. Navy 2006a). The NEPA process may be used to meet public review requirements if the public is provided a meaningful opportunity to comment on the Draft INRMP. After soliciting public comments, NBPL must afford USFWS, NOAA, and the CDFG the opportunity to review all public comments. If an existing INRMP requires only limited revisions that are not expected to result in significant environmental effects other than those anticipated for the existing INRMP, then neither NEPA analysis or public review are necessary (U.S. Navy 2006a).

A series of DoD memoranda and tools provide additional guidance by defining INRMP coordination, reporting, implementation, and miscellaneous Sikes Act requirements. The Deputy Under Secretary of Defense (Installations and Environment) (DUSD[I&E]) has developed several memos that include: outlining INRMP coordination, reporting, and implementation requirements (*Implementation of the Sikes Act Improvement Act: Updated Guidance*, 2002); a memo providing policy on the scope of INRMP review, public comment and Endangered Species Act (ESA) consultation (*Memorandum providing policy on scope of INRMP review, public comment on INRMP review, and Endangered Species Act consultation on INRMPs*, 2004); a memo providing policy for the applicability of the Sikes Act on DoD lands leased to a non-DoD party (*Memorandum providing policy on the applicability of the Sikes Act INRMP requirement for DoD lands leased to a non-DoD party*, 2005a); and a memo outlining best practices for INRMP implementation (*Best practices for Integrated Natural Resources Management (INRMP) Implementation*, 2005b). In addition, DoD developed a handbook to assist resource managers with developing and implementing INRMPs (*Conserving Biodiversity on Military Lands: A Guide for Natural Resources Managers*, 2008).

1.6 INRMP Implementation and Responsibilities

Successfully implementing an INRMP requires the support of natural resources personnel, other installation staff, command personnel, and installation tenants. The following section discusses the responsibilities for INRMP implementation within the U.S. Navy.

1.6.1 Internal Navy Stakeholders

The following is a list of internal stakeholders and their role in supporting the installation and the development, revision, and implementation of this INRMP. Policy leadership and liaison with non-Navy partners is provided by the Commander, Navy Region Southwest, NAVFAC SW, and NBPL.

1.6.1.1 Chief of Naval Operations (CNO)

The CNO serves as the principal leader and overall Navy program manager for the development, revision, and implementation of this INRMP. The CNO provides policy, guidance and resources for the development, revision, and implementation of the INRMP and associated NEPA documentation. The CNO approves all INRMP projects prior to submittal to regulatory agencies for signature (U.S. Navy 2006a).

1.6.1.2 Commander of Navy Installations Command (CNIC)

The CNIC reviews the entire INRMP. Their role is to ensure that installations comply with DoD, Navy, and CNO policy on INRMPs and their associated NEPA documentation. They also ensure the programming of resources necessary to maintain and implement INRMPs, participate in the development and revision of INRMPs, and provide overall program management oversight for all natural resources program elements. CNIC reviews and endorses projects recommended for INRMP implementation prior to submittal for signature, and evaluates and validates EPR-web project proposals (U.S. Navy 2006a).

1.6.1.3 Navy Region Southwest

Regional Commanders ensure that installations comply with DoD, Navy, and CNO policy on INRMPs and their associated NEPA documentation. They ensure that installations under their control undergo annual reviews and formal five-year evaluations. They ensure the programming of resources necessary to maintain and implement INRMPs, which involves the evaluation and validation of EPR-web based project proposals and the funding of installation natural resources management staff. Navy Region Southwest maintains close liaison with the INRMP signatory partners (USFWS, NOAA and CDFG) and other INRMP stakeholders. They provide endorsement of the INRMP through the Regional Commander signature (U.S. Navy 2006a).

1.6.1.4 Installation Commanding Officers

Installation Commanding Officers ensure the preparation, completion, and implementation of INRMPs and associated NEPA documentation. Their role is to: act as stewards of natural resources under their jurisdiction and integrate natural resources requirements into the day-to-day decision-making process; ensure natural resources management and INRMPs comply with all natural resources related federal regulations, directives, instructions, and policies; involve appropriate tenant, operational, training, or testing commands in the INRMP review process to ensure no net loss of military mission; designate a Natural Resources Manager/Coordinator responsible for the management efforts related to the preparation, revision, implementation, and funding for INRMPs, as well as coordination with subordinate

commands and installations; involve appropriate Navy Judge Advocate General or Office of the General Counsel legal counsel to provide advice and counsel with respect to legal matters related to natural resources management and INRMPs; and endorse INRMPs via Commanding Officer signature.

1.6.1.5 Public Affairs Office

The Public Affairs Office is involved in aspects of the environmental program at NBPL. This includes being informed of the public notice process required in various NEPA analysis processes.

1.6.1.6 Office of Counsel

The Office of the General Counsel, Commander Navy Region Southwest, provides legal services to NBPL on a variety of environmental matters. Particularly pertinent to natural resources management, is their review of NEPA documentation and legal interpretations involving compliance with natural resources laws as they pertain to base operations.

1.6.1.7 Naval Facilities Engineering Command Southwest (NAVFAC SW)

Public Works Department

The NBPL Facilities Planning Office, Public Works Department (PWD), is responsible for the comprehensive oversight and planning of all land use issues relating to NBPL. Their role for this INRMP is to provide document review to confirm that this INRMP describes compatible land uses.

Environmental Division

The NBPL Environmental Division, as delegated by command directive, is responsible for the preparation and implementation of this INRMP. Acting through the Natural Resources Manager, NBPL Environmental Division is responsible for the management of natural resources as part of the overall NBPL environmental program. NBPL natural resources staff provides technical support. This INRMP is the direct “vehicle” for accomplishment of many of the responsibilities of the Commanding Officer.

Business Line Team Leader (N45)

Natural resources business line team specialists (N45) provide technical support and contractual oversight in the development, revision and implementation of this INRMP. In addition, NAVFAC SW is responsible for providing support for natural resources management at NBPL when requested. NAVFAC SW personnel such as the NEPA and INRMP coordinators, have natural resources programming and/or technical support roles in developing this INRMP.

1.6.1.8 Other Installation and Tenant Organizations, and Partners

In addition to the directorates and offices mentioned above, INRMP implementation requires assistance from, or coordination with, a variety of other installation organizations, tenants, and contract personnel. Other installation partners consulted for natural resources activities on NBPL include the Department of Homeland Security U.S. Coast Guard (USCG), Department of Veterans Affairs (DVA), and Lincoln Clark (responsible for developing and managing family housing under the Public-Private Venture [PPV]).

1.6.2 External Stakeholders

External stakeholders are signatories to the INRMP, as well as collaborators in INRMP implementation.

1.6.2.1 U.S. Fish and Wildlife Service

In accordance with the Sikes Act, the USFWS is a signatory agency to installation INRMPs. The mission of the USFWS is, working with others, to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. The USFWS provides technical assistance to the DoN regarding regulatory and biological issues. In addition, the DoD and DoN consult formally and informally with the USFWS on the impacts of Navy activities on federally listed species and designated critical habitat. The USFWS office with responsibility is the Carlsbad Field Office, located in Carlsbad, California. The Carlsbad Fish and Wildlife Office lies within the Pacific Southwest Region (Region 8), with headquarters in Sacramento, California.



1.6.2.2 California Department of Fish and Game

Also in accordance with the Sikes Act, the CDFG is a signatory agency to this INRMP. The mission of the department is to “manage California’s diverse fish, wildlife, and plant resources and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public” (CDFG 2010). The CDFG oversees the management and use of the state’s forests and parks, fisheries, and wildlife. It has statewide responsibilities for assessing and restoring water quality and habitat; managing and regulating recreational boating, fishing, and hunting; and managing wetlands, wildlife, and rare, threatened, and endangered species. Although NBPL is federal property, CDFG still has cooperative management jurisdiction over the fish and wildlife within the State of California (DoD et al. 2006). To meet cooperative management, CDFG is encouraged to participate in the development, review and update, and implementation of this INRMP; collaborate on joint management project to ensure ecosystem-based management of lands managed by federal and state agencies; to provide technical assistance to the DoD in managing natural resources (e.g., interjurisdictional fisheries and coastal resources) within the scope of State responsibility and expertise; and to coordinate with DoD when revising the state wildlife conservation plan (DoD et al. 2006).



1.6.2.3 National Oceanic and Atmospheric Administration

Although not required in the Sikes Act, the NOAA is a signatory agency to this INRMP. NOAA is dedicated to protecting and preserving the nation’s living marine resources through scientific research, fisheries management, enforcement and habitat conservation. NOAA's National Marine Fisheries Service (NOAA Fisheries) is the lead federal agency responsible for the stewardship of the nation’s offshore living marine resources and their habitat. The mission of NOAA Fisheries is to ensure healthy fisheries and habitat for the benefit of all Americans by managing, conserving, and protecting fish, whales, dolphins, sea turtles, and other living creatures in the ocean. NOAA Fisheries works within the Magnuson-Stevens Fishery Conservation and Management Act, the Marine Mammal Protection Act, and the ESA to fulfill its mission of promoting healthy ecosystems.



1.6.2.4 Other External Organizations and Partners

In addition to the external organizations mentioned above, INRMP implementation will also require the assistance from, or coordination with, the Department of Interior National Park Service (NPS) and the City of San Diego.

1.7 Integration of Other Installation Plans and Programs with INRMP

The recognition of internal and external factors demands that natural resources management on NBPL be integrated with other disciplines, programs, and planning beyond the scope of traditional fish and wildlife management on Navy installations. Internal factors include meeting mission requirements, and other environmental requirements (e.g., CWA); external factors include increasing population growth and development in the San Diego Metro area, and increased pressure on federal and state lands to maintain green spaces and wildlife habitat in the face of increased development.

1.7.1 Navy Plans and Programs

Table 1-2 lists the installation plans that were reviewed in the development of this INRMP. Note that the INRMP is not intended to compile detailed information on each plan and its contents.

Table 1-2: Planning Documents Incorporated in the NBPL INRMP

Title	Date
Point Loma Natural Resources Management Plan	1994
Memorandum of Understanding Between The Federal Land Owners on Point Loma, San Diego, City of San Diego, and U.S. Fish and Wildlife Service – Point Loma Ecological Conservation Area (PLECA)	2005
Naval Base Point Loma and Cabrillo National Monument (CNM) Joint Wildland Fire Management Plan (JWFMP)	2006
Installation Appearance Plan (IAP)	2008
Naval Base Point Loma Vegetation Management Plan (VMP)	2008
Naval Base Point Loma Erosion Control Plan (ECP)	2008
Activity Overview Plan (AOP)	2009
Emergency Response Plan	2009
Integrated Pest Management Plan (IPMP) for the San Diego Metro Area Installations (SDMAI)	2009
Naval Base Point Loma Survivable Space Implementation Plan: Historic Structures	2010
Marine Corps Air Station INRMP Miramar, California (Draft)	2010
Environmental Management System	2010
Integrated Cultural Resources Management Plan (ICRMP)	2011
Site Management Plan for Naval Base Point Loma (Preliminary Draft)	2011
San Diego Bay INRMP (Draft)	2011
Heron and Egret Management Plan for the Navy Metro Area	2012
Encroachment Action Plan (EAP) (Draft)	2012

1.7.2 Regional Plans and Initiatives

1.7.2.1 California Wildlife Action Plan

In order to receive federal funds through the State Wildlife Grants Program, Congress charged each state with developing a statewide comprehensive wildlife conservation plan by 01 October 2005 thru the Consolidated Appropriations Act of 2005 (Public Law 108-447). The State Wildlife Grants Program provides federal money to every state and territory for cost-effective conservation aimed at preventing wildlife from becoming endangered (Public Law 108-447).

Congress also directed that the strategies must identify and be focused on the “species of greatest conservation need,” yet address the full array of wildlife and wildlife-related issues (CDFG 2009a). The California Wildlife Action Plan was completed in 2007 and identified statewide and regional conservation issues based on regional landscape types, regional habitats, and ecosystem level species needs and requirements, rather than prescribing management actions using a species-by-species approach (CDFG 2007). NBPL falls within the south coast region and the plan identified five (5) key stressors affecting wildlife and their habitats in this region including (CDFG 2007):

- Growth and development
- Water management conflicts and degradation of aquatic ecosystems
- Invasive species
- Altered fire regimes
- Recreational pressures.

Marine stressors identified in this region include:

- Overfishing
- Degradation of marine habitats
- Invasive species
- Pollution
- Human disturbance.

The conservation actions identified by the CDFG for the south coast region were taken into consideration when preparing this document. The plan identified conservation actions to be undertaken to restore and protect wildlife and their habitats in this region including reducing habitat fragmentation, protecting and restoring coastal wetlands, and protecting sensitive and wildlife habitats (CDFG 2007). The management strategies presented within this INRMP were developed with these conservation actions in mind and complement conservation activities contained within the California Wildlife Action Plan as follows:

- The INRMP management strategies are consistent with a number of Statewide and South Coast region-specific conservation actions.
- NBPL works with a number of local, state, and federal agencies and non-profits on a number of statewide and regional conservation management efforts (ASBS, PLECA).
- NBPL has an active Integrated Pest Management Program and coordinates with other agencies to improve effectiveness through information sharing and landscape planning efforts.
- NBPL seeks encroachment buffer opportunities and works with state, federal, and conservation organizations.

- NBPL considers natural resources conservation education a high priority in managing natural resources.
- NBPL has started to consider the most current projections of the effects of global warming in their conservation planning and ecosystem restoration work.
- NBPL seeks to adequately fund projects and staff to sufficiently manage sensitive species and important wildlife habitats on NBPL.
- NBPL collaborates with local agencies and organizations to develop and implement the Fire Management Plan (2006) to restore the ecological integrity of the region's ecosystems while minimizing loss of property and life.

In addition, the plan listed the Quino checkerspot butterfly (*Euphydryas editha quino*) as a species at risk in the south coast region; however, the butterfly has not been observed on NBPL (CDFG 2007).

1.7.2.2 Multiple Species Conservation Program

Section 10(a)(1)(B) of the ESA (16 U.S.C. 1531–1544) and the California Natural Community Conservation Plan Act of 1991 (California Fish and Game Code 2800-2835) require the development of Habitat Conservation Plans (HCPs), or Natural Community Conservation Plans (NCCPs) under California law, to manage multiple species and their habitats in a given geographical area. Section 10(a)(1)(B) of the ESA defines HCPs as “planning documents required as part of an application for an incidental take permit... [that] describe the anticipated effects of the proposed taking; how those impacts will be minimized, or mitigated; and how the HCP is to be funded” (USFWS 2009). In addition, HCPs provide management recommendations for listed and nonlisted species (i.e., candidate species) and their habitats (USFWS 2009). HCP “planning is a cooperative process that often involves local, state, and Federal agencies and the public... [that] encourage[s] the active participation and support of landowners and others in the conservation and stewardship of natural resources in the plan area during plan development using appropriate measures, including incentives” (City of San Diego 1998).

The Multiple Species Conservation Program (MSCP) plan for a 900-square-mile area in southwestern San Diego County was completed in August 1998. The goal of the 1998 plan is to contribute “to [the] preservation of regional biodiversity through coordination with other habitat conservation planning efforts throughout southern California” and to manage projects using an ecosystem-based approach as opposed to the traditional project-by-project approach (City of San Diego 1998). The MSCP for southwestern San Diego County recommends developing conservation reserves throughout the county that connect various regions of species habitat to encourage protection of regional biodiversity (City of San Diego 1998). In addition, the plan states that Federal and state governments will “contribute 36,510 acres of existing federal and state lands, excluding military lands, to permanent habitat conservation and management; acquire 13,500 acres of privately owned habitat lands in the MSCP preserve from willing sellers; and manage and monitor the Federal and state share of the MSCP preserve” (City of San Diego 1998).

The Point Loma Naval Complex and other military lands are within the MSCP study area but are being planned separately. At this time, NBPL is not required to contribute, or acquire lands, to meet MSCP goals. However, NBPL strives to ensure that its land use and regional planning efforts are complementary with surrounding biodiversity conservation efforts such that NBPL lands help support the region's habitat conservation needs while also providing continued support of the military mission. To this end, NBPL has entered into a cooperative agreement with the City of San Diego and other agencies to create the Point Loma Ecological Conservation Area. This conservation area is addressed in the MSCP and was modeled after regional planning programs, such as the MSCP, with the goal of conserving large areas of land using an ecosystem approach while allowing smart growth in the region.

Habitat conservation efforts within the City of San Diego's MSCP preserve area, referred to as the Multi-Habitat Planning Area (MHPA) focus on acquiring critical areas of sensitive habitat and securing wildlife corridors with the MHPA and initiating monitoring efforts. The MHPA delineates core biological resource areas and corridors targeted for conservation. The City's MSCP study area includes 206,124 acres within the City's jurisdiction. The City's planned MHPA totals 56,831 acres, with 52,012 acres (90%) targeted for preservation (approximately 30% of the planned regional preserve) (City of San Diego 2011).

A few small holdings of military properties within the City of San Diego have been included in the MSCP MHPA. Portions of the open space within the Admiral Hartman, Beech Street Knolls, Village at Serra Mesa, and Chesterton housing area parcels are within the MSCP MHPA. While these lands are shown pictorially in the MHPA, nothing in the MSCP Subarea Plan or implementing ordinances applies to federally-owned military property (City of San Diego 1997). Nonetheless, the natural resource management goals and activities on NBPL lands are compatible with those of the MSCP. Projects planned or implemented to meet sustainability objectives on military properties within and adjacent to MSCP lands include: (1) special status species education, survey and monitoring, and habitat improvement; (2) wetlands and watershed management, monitoring, maintenance, and rehabilitation as necessary; (3) wildlife and habitat management; (4) exotic and invasive species management; and (5) wildland fire management.

1.7.2.3 San Diego Bay INRMP

In November 2011, the Navy partnered with the San Diego Unified Port District (SDUPD) to release an INRMP for the San Diego Bay. The purpose of the plan was to develop an ecosystem-based plan for the San Diego Bay that incorporates natural resources, natural and human uses of the San Diego Bay, and the missions of each stakeholder who manages, or operates, within the San Diego Bay (U.S. Navy et al. 2011). The overall goal of the plan is to “flesh out a progression towards... [a San Diego Bay] that is wilder, with softer shorelines, richer and more abundant in native life... that, while used for thriving urban, commercial, and military needs, has an increasing proportion of use... [that include] public access, recreation, education and enjoyment of the myriad benefits of a healthy, dynamic ecosystem” (U.S. Navy et al. 2011). Five core strategies, with over 1,000 individual strategies, for management of San Diego Bay resources were developed including (U.S. Navy et al. 2011):

- Managing and restoring habitats, populations, and ecosystem processes
- Planning and coordinating projects and activities compatible with natural resources
- Improving information sharing, coordination and dissemination
- Conducting research and long-term monitoring that supports decision-making
- Putting in place a Stakeholders' Committee and Focus Subcommittees for collaborative, ecosystem-based problem solving in pursuit of the goal and objectives.

The strategies and objectives outlined within the San Diego Bay INRMP pertaining to NBPL activities within the San Diego Bay have been incorporated into this INRMP. All NBPL bayside marine resources north of Ballast Point are managed within the San Diego Bay INRMP and are not discussed further within this INRMP. In addition, projects identified in the San Diego Bay INRMP will not be included within this INRMP.

1.7.2.4 San Diego River Conservancy

In 2006, the San Diego River Conservancy developed a strategic plan to guide activities over the next five years, and to develop goals and objectives to provide wildlife habitat and species restoration and protection, wetlands protection and restoration. Habitat loss through urban development and non-native species invasion is the primary threat to the conservation of biological diversity in the San Diego River Area. This INRMP is compatible with Project 1 of Program Area 3: “Reduce, control, and where feasible, eradicate invasive non-native species while restoring Area habitats to native function.” Objectives were grouped into four program areas to better facilitate project development and include: (1) land conservation, (2) recreation and education, (3) natural and cultural resources preservation and restoration, and (4) water quality and natural flood conveyance (San Diego River Conservancy 2006). At this time, NBPL is not required to contribute, or acquire lands, to meet Conservancy goals.

1.7.2.5 Cabrillo National Monument General Management Plan

The 1996 Cabrillo National Monument General Management Plan (GMP) added staff and facilities to adequately protect and interpret the monument’s significant resources. Two natural resources objectives were outlined in the GMP (NPS 2006b). One of the vegetation management objectives in line with this INRMP is to restore and protect native vegetation through specific management strategies within the park and on adjacent Navy property. The strategies to achieve this objective are:

- Continued efforts to restore native habitat by removing nonnative (exotic) species
- Active participation by staff members in the management and care of the PLECA
- Emphasis on restoration of the natural environment and habitat using endemic plant species and investigation of other techniques to achieve its objectives.

The GMP has not been updated since 1996; however, CNM developed a State of the Parks Report which discusses the status and trends of natural and cultural resources (NPS 2012).

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2. Location, Military Use, and Natural Resources Management

NBPL is located within San Diego County, California and is composed of several facilities (see **Figure 1-1** and **Table 1-1**). In addition, NBPL includes the Miramar Pipeline, Mount Soledad Signal Station, Joint Regional Correctional Facility at MCAS Miramar, La Jolla Nautical Mile, and eleven Navy housing areas located at NBPL and around metro San Diego (see **Figure 1-2**).

The mission of NBPL is “to enable and sustain Fleet, Fighter, and Family readiness through consistent, standardized, and reliable shore support while preserving the critical resources necessary to secure the future of our forces.”

The various military mission of the activities located on NBPL provide research, development, testing, training, technical assistance, and operations in support of the U.S. Pacific Fleet. Following are location, history, and mission statements for each of the facilities listed in **Table 1-1** and discussed in the Activity Overview Plan (U.S. Navy 2009a).

2.1 Naval Base Point Loma on Peninsula Facilities

2.1.1 Naval Base Point Loma, Mainbase

2.1.1.1 Location

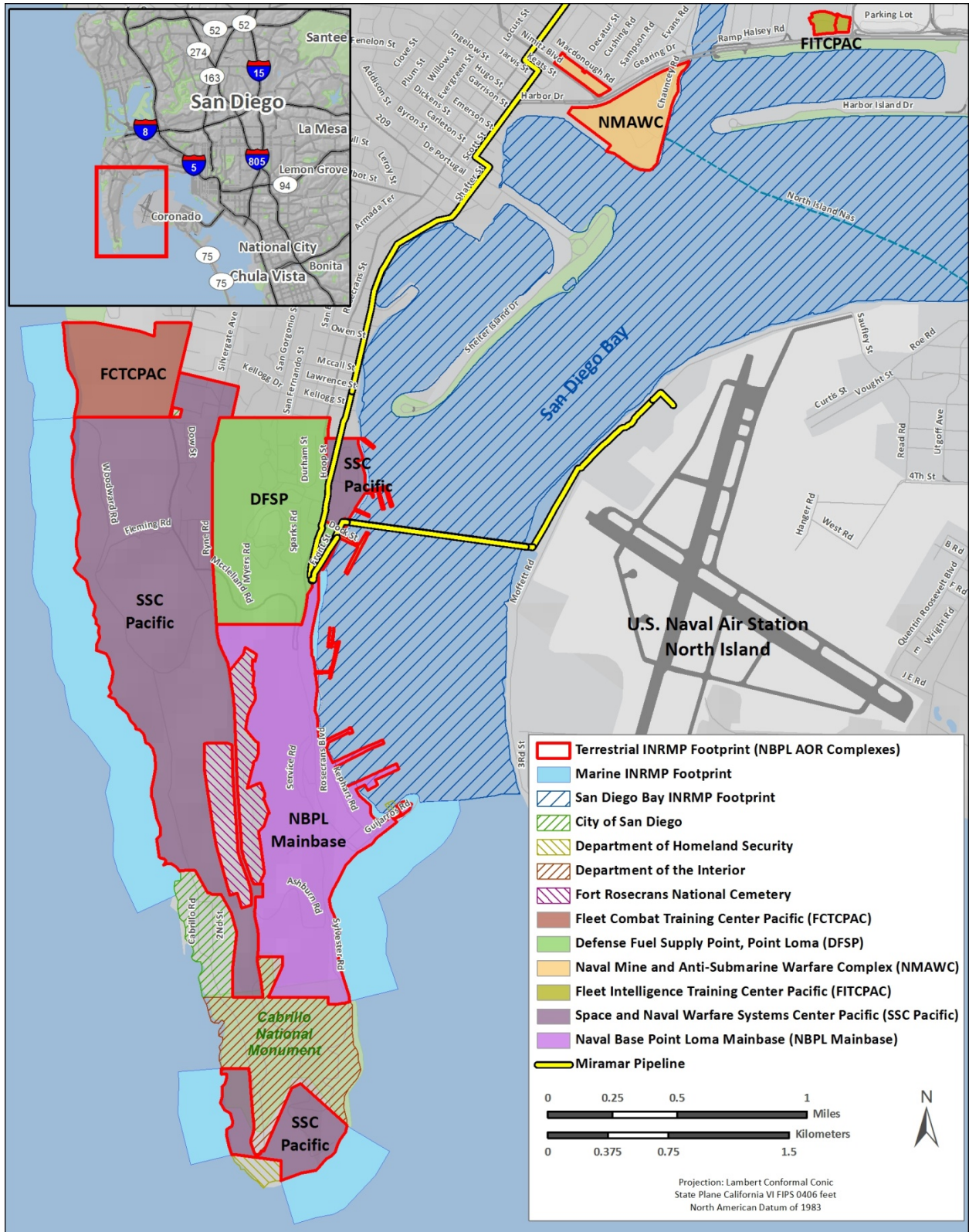
Four of the major complexes, which include NBPL, Mainbase, SSC Pacific, and FCTCPAC, and DFSP Point Loma, occupy most of the land on the southern half of the Point Loma peninsula (see **Figure 2-1**). The northern half of Point Loma peninsula is occupied by the residential neighborhoods of Point Loma, Loma Portal, and Ocean Beach; Point Loma Nazarene University; a support facility for the University of California, Scripps Institution of Oceanography; Sunset Cliffs Park; and Shelter Island. Other major occupants on the Point Loma peninsula are the Ballast Point Coast Guard Station, CNM, Fort Rosecrans National Cemetery, and the Point Loma Wastewater Treatment Plant located on land managed by the City of San Diego.

2.1.1.2 History

Prehistoric Era Naval Base Point Loma

Prehistoric human activity in the Point Loma area appears to have concentrated on the extraction of marine resources including a variety of fish, shellfish, and some terrestrial mammal species. The presence of ground stone items in a number of the archaeological collections indicates that plant processing might also have occurred. In general terms, the investigated sites on Point Loma appear to represent short-term habitation or special-use localities. One limitation to long-term settlement of Point Loma might have been the unpredictable availability of potable water; however, based on the complexity of two excavated sites on Main Base, aboriginal populations established at least two camps that produced evidence of a duration of occupation or of repeated visits by foraging groups (U.S. Navy 2002).

San Diego’s prehistoric sequence is generally divided into three cultural periods: San Dieguito, 12,000 before present (B.P.) to 7,500 B.P.; La Jolla, 7,500 B.P. to 3,000 B.P.; and Late Prehistoric, 2,000 B.P. to historic contact (in 1769). San Diego’s earliest human inhabitants are believed to have arrived circa 10,000 to 12,000 years ago. The so-called San Dieguito cultural horizon is archaeologically defined on the basis of a distinctive lithic assemblage encountered during the excavation of a reference



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 2-1: Naval Base Point Loma Major Areas

site on the San Dieguito River called the Harris site (Rogers 1929, 1939; Rogers et al. 1966). The San Dieguito people were band-level hunter/gatherers who might have had a cultural affiliation with Great Basin big game hunting traditions. It is believed that this group of people abandoned drying inland lakes of the present California desert and arrived in San Diego County circa 9,000 years ago, as documented at the Harris site (Warren and True 1961, Warren 1966), and two Agua Hedionda sites. To date, there is no evidence the people associated with the San Dieguito cultural tradition occupied lands now associated with NBPL (U.S. Navy 2002).

The archaeological periods represented on Point Loma appear to be La Jolla and Late Prehistoric in association. Radiocarbon dates from seven sites on Point Loma produced results between 6,600 B.P. and circa 600 B.P., with the heaviest period of occupation dating between 3,000 and 1,300 B.P. These dates correspond with the proposed model of lagoon and bay siltation, which modified coastal settlement and resource extraction patterns for aboriginal populations (U.S. Navy 2002).

The La Jolla period archaeological complex appears to have centered around the coastal margin with particular concentration around lagoon environments. The La Jollans created a cobble-based stone tool assemblage, which has been interpreted to demonstrate less selectivity when choosing raw materials. In addition, the finished tools from this cultural horizon do not reflect the variety and quality of the flaked stone assemblage associated with the San Dieguito phase. The La Jolla horizon economy was focused on foraged marine resources, gathered plant materials, and hunting of small game. Rabbit appears to compose the most common meat source, although large game might have been taken, as indicated by preserved skeletal evidence left at a kill site on Point Loma. Sites located along the coastal margin produce a rich collection of invertebrates such as clams, scallops, and large gastropods. Fish remains are also found in these middens (U.S. Navy 2002).

In addition to the presence of formal flaked stone tool differences, the La Jolla period sites often include a well-developed ground stone tradition. Commonly seen implements include hand stones labeled manos and base or platform stones called metates. These items come in a variety of forms from relatively simple, marginally altered natural stones to shaped, extensively worn items (U.S. Navy 2002).

Yuman/Shoshonean influences from the desert regions began between 3,000 B.P. and 2,000 B.P. This so-called Late period is quite distinctive archaeologically because it marks the introduction of ceramic technology to San Diego and a more intensive and formal development of the ground stone tradition begun during the La Jolla period. Ground stone processing on bedrock and portable processing platforms, including mortars on bedrock and stone bowls in the “portable” form, accelerated during the Late period with the appearance of a more intensive plant foraging tradition and focus on the seasonal availability of pine and oak seeds. The Late period also brought about a widespread use of arrow technology in the form of smaller projectile points rather than the heavier dart technology, which appears to have been the prevalent hunting technology during the La Jolla and San Dieguito phases. The evidence for a transition to arrows comes primarily from the decrease in projectile size and in the development of notching as a means of affixing arrows to their shafts. The Late period also introduced the presence of volcanic glass from Obsidian Butte, in the Imperial Valley region. Late period people introduced the practice of cremation of the dead, participated in elaborate kinship systems, and carried on trade with surrounding groups (Kroeber 1976, Rogers 1945). These are the people who were contacted by colonial Spanish forces as they moved north into Alta California (present-day California) (U.S. Navy 2002).

Naval Base Point Loma On Peninsula Facilities Historic Era

Historic-era occupation of Point Loma began in 1795 with the undertaking of the initial construction efforts at Fort Guijarros, an event that marked a long series of military occupations on this landform, with two brief periods of use as a whaling station. The first official U.S. military presence was with the

dedication of the Point Loma Military Reservation in 1852. The reservation was later called Fort Rosecrans.

Improvements in battleship firing technology by the British resulted in an almost immediate obsolescence of the completed emplacements at Point Loma by 1915. The ability of ships to fire more accurately and to change firing angles created a serious vulnerability with the systems developed in the mid to late 19th century.

In 1932 the Army decided that Fort Rosecrans would be retained as a military base. While there was uncertainty with respect to its long-term status, anti-aircraft guns were installed on Point Loma by 1930 with two batteries of four 155-millimeter guns in each. These gun batteries were known as Battery Point Loma, on the west side of the peninsula below the Cabrillo Lighthouse, and Battery Gillespie, in the northwest corner of the reservation. In 1935, the garrison at Fort Rosecrans consisted of 22 men.

From 1936 to 1940 the Army revitalized Fort Rosecrans to address the threat of World War II. Battery Strong was constructed in 1937, to defend against attack from long-range and carrier-borne aircraft and battleships. The battery also included a series of underground bunkers with ammunition magazines as well as electrical generators and storage and operation facilities. The onset of World War II in 1939 initiated the construction of temporary buildings to accommodate 2,022 enlisted personnel. The San Diego harbor was dredged between 1936 and 1940 producing 20 acres of fill, which was added to Ballast Point, creating areas for drilling troops.

After Pearl Harbor was attacked, fortification of Fort Rosecrans became a priority. Battery Ashburn was constructed beginning at the end of 1941 and was equipped with two 16-inch guns, the largest in the harbor defense system in the United States. The guns were mounted in large concrete casements that could withstand a direct hit. Troops were drilled daily and small boats were used for target practice offshore, as Fort Rosecrans remained at the ready. The end of World War II saw dramatic decrease in the military activities at Ballast Point. Changes in military technology spelled the end of this type of coastal defense system.

During the 1950s, a number of decisions were made regarding Fort Rosecrans. Fort Rosecrans was officially transferred to the Navy in 1957 and they took possession of the installation in 1959. Fort Rosecrans was redefined as the Naval Electronics Laboratory, Naval Ocean Systems Center, and the Naval Submarine Base. Regionalization of the Navy in 1998 placed seven major complexes, five significant complexes, and many other commands under the management of NBPL. NBPL manages the lands, and in some instances the buildings, of these commands.

2.1.1.3 Mission

The mission of Mainbase is to provide support to the U.S. Pacific Fleet Submarine Force and other sea-going and shore-based commands. Mainbase provides shore facilities, three deep draft piers, industrial maintenance support buildings, the Arco dry dock, bachelor quarters and dining facilities, submarine training facilities, torpedo retrievers and support craft, a torpedo/missile magazine complex, and the attendant support infrastructure of utilities, roads, and grounds. Mainbase is home to Commander, Third Fleet; Commander, Submarine Squadron Eleven; Commander Submarine Development Squadron Five; Commander, Military Sealift Command Pacific, six attack submarines, and the Submarine Training Center Detachment.

2.1.1.4 Administrative Facilities

Mainbase occupies approximately 301 acres on land from the Point Loma ridge to San Diego Bay. Much of the land composing Mainbase is on unstable hillsides with more than 25 percent slopes. Of the existing land area, approximately 114 acres are currently being used to support the mission of Mainbase, while the remaining natural acres are not suitable for development, primarily because the terrain is so steep. Large areas of vacant land must be maintained as buffers between ordnance storage and handling points on Mainbase and all public access routes and facilities. These zones, known as Explosive Safety Quantity Distance (ESQD) arcs, minimize the risk to the public in the event of an explosive accident at Mainbase. Another constraint to development on Mainbase is the electromagnetic interference (EMI) free zone surrounding the deperming facility at MSF. Mainbase land uses include: operations, training, administration, housing, storage, and shops.

Tenants conduct administrative activities in 21 buildings at NBPL Mainbase. Sealift Logistics Command Pacific (SEALOGPAC) occupies administrative offices in Buildings 100, 122, 139, 215, 262, 544, and 570. NBPL Mainbase occupies administrative offices in Buildings 100, 102, 138, 140, 500, 506, 507, 510, 539, and 546. Southwest Regional Maintenance Center (SWRMC) occupies an administrative office in Building 137. Commander, Submarine Squadron 11 (CSS-11) occupies administrative space in Buildings 137 and 633. Personnel Support Detachment (PSD) San Diego occupies Building 400 and Naval Education and Training Professional Development and Technology Center (NETPDTC) occupies administrative space in Building 138 (U.S. Navy 2009a).

Operations support at NBPL Mainbase is conducted by five tenants in 19 buildings. Naval Special Clearance Team One (NSCT-1) occupies Ordnance Operations Buildings in 19, 43, 44A, 47, and 380. Ordnance Operations Buildings are facilities used for ammunition storage, handling, and disposal. The Army Explosive Ordnance Disposal (EOD) conducts operations in Buildings 46, 69, 96, 112, 123, and 256. There is also a new pier F-122 that was built for EOD / marine mammals south of the fuel pier and north of the MSF piers. Navy Munitions Command CONUS West Division (NMCCWD), formerly known as Naval Weapons Station Seal Beach (NWSSB) Detachment SD, occupies ordnance operations facilities in Buildings 263 and 512 and inert warehouses in Buildings 259 and 262. In addition, NMCCWD occupies several outdated weapons storage facilities that are still in use (U.S. Navy 2009a).

At NBPL Mainbase, Port Operation functions are conducted by four tenants in several buildings. NBPL Mainbase conducts Port Operations in Buildings 174 and 551; SWRMC in Building 633; CSS-11 in Buildings 100, 376, and 511; NMCCWD in Buildings 259, 260, 262, 264, 512, and 558; and Naval Undersea Warfare Central Division in Buildings 104, 16, 38, 41, 42, and 46 (U.S. Navy 2009a).

In addition to square feet (SF) requirements at NBPL Mainbase, the Basic Facility Requirement (BFR) requires adequate Feet of Berthing (FB) to berth ships and submarines. NBPL Mainbase has three general purpose berthing piers and two small craft berthing piers. Currently, Piers 5002 and 5003 provide a combined 780 feet of Small Craft Berthing (U.S. Navy 2009a).

At NBPL Mainbase, six tenants conduct training in six facilities. Substance Abuse Rehabilitation Program (SARP) conducts academic instruction in Building 500; Submarine Learning Center (SUBLEARNCEN) Detachment San Diego provides applied instruction in Building 544 and Operational Trainer Facilities in Buildings 540, 544, and 548; SWRMC operates an auditorium in Building 137; and NBPL Mainbase operates an auditorium in Building 138. NBPL Mainbase also houses an Outdoor Small Arms Range (U.S. Navy 2009a).

2.1.1.5 Recreation

Hunting and Fishing. No hunting is allowed on NBPL. Fishing is permitted from the east corner of building 539 to approximately 600 feet (183 meters) to the concrete barrier adjacent to the Pacific ocean. Rod and Reel is the only fishing permitted at NBPL, and anglers must obtain a California Sport Fishing License prior to fishing on the base (NBPL 2007).

Outdoor Recreation. Outdoor recreation on Navy lands is limited due to the mission of the installation. Security and any necessary training is a primary concern. The existing outdoor recreational opportunities at NBPL include a scenic overlook through coastal sage scrub adjacent to Catalina Boulevard near the SSC Pacific TRANSDEC Pool. Military personnel may use all approved public areas.

Hiking and jogging trails at Mainbase have been developed into the naturally vegetated areas and the undeveloped beach areas. A 1.1-mile Bayside Trail is on the east side of CNM.

2.1.2 Space and Naval Warfare Systems Center Pacific (SSC Pacific)

2.1.2.1 Location

SSC Pacific occupies the largest portion of land of the eight major areas, with almost 615 acres in four main locations: Topside, Bayside, Seaside, and South Tip (see **Figure 2-1**).

2.1.2.2 History

WWII: During the World War II era, the Navy presence on the Point Loma peninsula of San Diego grew from a small radio station to an established research facility. Founded in 1940, the U.S. Navy Radio and Sound Laboratory (NRSL) worked to improve radar, radio transmission and reception, and sonar. NRSL's success with the design and arrangement of ship antennas eventually led NRSL to an ongoing mission for antenna development (SSC Pacific 1990).

After WWII: National leaders praised wartime research and development efforts and agreed that peacetime research and development (R&D) was vital to the nation. After the war, organization of research changed. The Navy bureaus took over management as well as sponsorship of the laboratories. In San Diego, NRSL and University of California Division of War Research became the Navy Electronics Laboratory (NEL). In Pasadena, the facilities previously operated as part of Caltech's wartime rocket and torpedo development work were transferred to become the Naval Ordnance Test Station (NOTS) Pasadena Annex (SSC Pacific 1990).

The Naval Ocean Systems Center (NOSC) in San Diego was formed in 1977 by the merger of two separate Navy laboratories: the Naval Electronics Laboratory Center (NELC) and the Naval Undersea Center (NUC). Part of NOSC traces its ancestry back to 1940 when NRSL was established at San Diego, and part traces its ancestry to 1943 with the establishment of NOTS at Inyokern, CA, in the high desert country northwest of the Mojave Desert (SSC Pacific 1990).

1980s: Throughout the 1980s, NOSC continued to serve the U.S. Navy through state-of-the-art efforts in research and development. Important new systems developed in NOSC's major product lines included the Advanced Combat Direction System (ACDS) and the Tactical Flag Command Center; submarine broadcast, ship-to-shore, and satellite communications systems; over-the-horizon radars and the Integrated Undersea Surveillance System (IIUSS); and the Mk 50 torpedo and the Mk 116 ASW Control System. Additionally, NOSC planned and coordinated submarine ice exercises in the Arctic and developed ice-avoidance sonar (SSC Pacific 1990).

In 1992, NOSC was part of the major re-organization of the Navy's research, development and acquisition community. The weapons development and Arctic submarine warfare work was transferred to Navy centers on the East Coast, in return for acquisition of navigation and air C3 work. NOSC consolidated with several other organizations to form the Naval Command, Control and Ocean Surveillance Center (NCCOSC) Research, Development, Test and Evaluation Division (NRaD). Program work became more focused on command, control, communications and intelligence (C3I) (Global 2011).

In a final base closure action in 1996, the NCCOSC In-Service Engineering West Coast Division (NISE West, composed of the former Naval Electronic Systems Engineering Centers in San Diego and Vallejo and the Naval Electronic Engineering Activity Pacific, which included facilities in Hawaii, Guam and Japan) was merged into NRaD, forming a full-spectrum organization that not only developed the Navy's electronic technology but installed and maintained it for its useful lifetime (Global 2011).

In 1997, with the disestablishment of NCCOSC and the establishment of direct oversight by Space and Naval Warfare Systems Command, the Center was named Space and Naval Warfare Systems Center San Diego (SSC San Diego) (Global 2011).

2.1.2.3 Mission

SSC Pacific is one of the Navy's principal research, development, test, and evaluation centers, SSC Pacific facilities include: waterfront access and berthing capabilities, storage areas, research laboratories, and public works shops. The mission of SSC Pacific is to provide the war fighter with knowledge and superiority by developing, delivering, and maintaining effective, capable and integrated command, control, communications, computer, intelligence, surveillance, and reconnaissance (C4ISR) systems (U.S. Navy 2009a).

2.1.2.4 Administrative Facilities

SSC Pacific occupies a majority of the facilities in several distinct areas within the Point Loma Complex (PLC). These areas are referred to as the Bayside, Seaside, Topside, Barracks, Cliffside, and Monument areas. Most of these areas are accessed through separate gates along Point Loma. The Seaside, Cliffside and Monument areas are within the boundaries of the Point Loma Ecological Conservation Area (PLECA) and have much vegetation. The Bayside area contains several piers and hosts many waterfront activities including the Marine Mammal program. Most of SSC's facilities are laboratories and administration. SSC does occupy space at the Old Town Campus as well.

2.1.2.5 Recreation

Outdoor recreation at SSC Pacific is limited to walking, running, jogging, and bicycling on existing roadways and to passive recreation at a few picnic areas.

2.1.3 Naval Mine and Anti-submarine Warfare Complex (NMAWC)

2.1.3.1 Location

NMAWC covers approximately 63 acres of land and includes 1,750 feet of frontage property on San Diego Bay west of Harbor Island and northeast of Shelter Island (see **Figure 2-1**). It is bordered on the north by Harbor Drive, a major thoroughfare. Nimitz Boulevard intersects Harbor Drive at the main entrance to NMAWC. The south, east, and west sides of the activity are bordered by tidelands administered by the San Diego Unified Port District. These tidelands are used as a commercial fishing basin with related shoreside support facilities.

2.1.3.2 Mission

NMAWC's mission is to provide tactical, technical, and military training in a safe and stimulating environment to forge skilled antisubmarine warfare professionals capable of supporting fleet requirements.

2.1.3.3 Administrative Facilities

Current land use includes buildings and facilities associated with the training operations, bachelor quarters, administration and recreation facilities, a marina, and picnic areas. NMAWC administration is provided in Buildings 1, 2, 7, 17A, 17B, 50, and 59. Buildings 1 and 59 provide administration for a variety of training activities. NMAWC also operates two operational piers, Pier 548 and Pier 619. Port operations are supported by a boat shop in Building 19 (U.S. Navy 2009a).

2.1.4 Fleet Combat Training Center, Pacific (FCTCPAC)

2.1.4.1 Location

FCTCPAC occupies 94 acres of land in the northwestern corner of NBPL, contiguous with Point Loma Nazarene University and the residential community of Point Loma (see **Figure 2-1**).

2.1.4.2 Mission

The FCTCPAC provides training and supports operational commanders in electronic warfare doctrine and tactics. FCTCPAC's mission is to provide training in the operation and employment of specified tactical combat direction and control systems in naval warfare and to support operational commanders in the evaluation, development, and analysis of naval warfare doctrines and tactics.

2.1.4.3 Administrative Facilities

Facilities occupied by FCTCPAC include Buildings C-60, 58, 56, 50, 59, 24, 61, 62, 63, 71, 74, 67, 69, and 20. FCTCPAC facilities support training, operations, administration, supply and storage, and the community. Development is limited to approximately 35 percent of the 94 acres because slopes exceed 20 percent over the remainder of the area. The steep slopes serve a valuable function as an electronic warfare signal test range.

2.1.4.4 Recreation

FCTCPAC has two tennis courts, an exercise/jogging course, and several passive recreational areas

2.1.5 Fleet Intelligence Training Center, Pacific (FITCPAC)

2.1.5.1 Location

FITCPAC occupies approximately 7 acres of developed land directly north of Harbor Island and west of the San Diego International Airport (Lindbergh Field) (see **Figure 2-1**). This command is north of Harbor Drive and south of Barnett Avenue.

2.1.5.2 History

FITCPAC was established in 1945 as the Combat Information Center (CIC) Indoctrination School, presenting radar and CIC lectures to prospective executive and commanding officers. The school was redesignated FITCPAC in 1976 and averaged 9,000 U.S. and allied students per year enrolled in more than 50 courses, and conducted numerous annual tactical battle group exercises.

2.1.5.3 Mission

FITCPAC's trained active and reserve professionals provide intelligence training, guidance, and support to Pacific Fleet operating forces using innovative training and delivery methodologies.

2.1.5.4 Administrative Facilities

Current land use includes training facilities and administrative buildings 600 and 564.

2.1.6 Fleet Industrial Supply Center Defense Fuel Support Point (DFSP Point Loma)

2.1.6.1 Location

DFSP Point Loma, which comprises 217 acres, is located in the northwestern portion of NBPL and is the primary fuel storage and dispensing facility for the southwest United States and the eastern Pacific.

2.1.6.2 History

DFSP Point Loma was first established as a U.S. Navy coaling station in 1901. As the U.S. Navy changed from coal to liquid fuels, the facility was modified and expanded to store and dispense the required fuel products (U.S. Navy 2007a).

The first bulk fuel storage tank at DFSP Point Loma was constructed in 1919; between 1932 and 1939, the riveted steel aboveground fuel storage tanks were constructed and placed into service. The underground storage tanks were added to the facility between 1932 and 1954. During World War II, the DoD installed concrete "splinter" walls around the aboveground tanks to protect them from bomb shrapnel. The piping for the tanks was covered with soil excavated from the "Moat," a large, lined spill containment basin on the DFSP, to protect the piping from aerial attack. The facility has operated continuously since the early 1900s. The DFSP Point Loma facility is being upgraded by replacing the aging tanks and infrastructure with new, DoD-standard bulk storage tanks, piping, and support facilities. Construction of the tanks and pumping station has begun and project details are discussed in the 2011 Preliminary Draft Site Management Plan for NBPL (U.S. Navy 2011a).

2.2 Naval Base Point Loma off Peninsula Facilities Locations

2.2.1 Naval Base Point Loma Old Town Center

2.2.1.1 Location

NBPL Old Town Center (SPAWAR Headquarters), located on Route 5 (Pacific Highway), covers approximately 59 acres of land in the Old Town section of San Diego (see **Figure 1-1**).

2.2.1.2 History

SPAWAR is headquartered in old buildings previously known as the Air Force Plant 19 (AFP 19) complex near Old Town and Lindbergh Field.

In 1933, Consolidated Aircraft signed a long-term lease with the City of San Diego for use of a portion of Lindbergh Field. In October 1935, Reuben H. Fleet dedicated a manufacturing plant on the west side of Pacific Highway that housed Fleet's Consolidated Aircraft Corporation which relocated from Buffalo, New York. Sometime later the property (AFP 19) on the east side of Pacific Highway was acquired by the Air Force. The U.S. Government acquired fee title to the property and construction of AFP 19 began in November 1940. The plant opened in 1941. It was built as an assembly plant for the B-24 Liberator bomber, to augment primary design and assembly at the Lindbergh Field Plant. Employment at the plant peaked at 45,000 in 1942. In 1943, Consolidated Aircraft merged with Vultee Aircraft and became Consolidated Vultee Aircraft Corporation (Convair) (CSMD 2008).

In 1947 AFP 19 was sold to Mr. C.W. Carlstrom by the War Assets Administration for use as an industrial complex. The facilities were conveyed to General Dynamics Corporation and leased to the government. The plant was used throughout the Korean War under contract to the Air Force for Aircraft production. In 1953, the Air Force condemned the property. The plant was reacquired by the Air Force in 1957 and was operated by General Dynamics for Aircraft production. At this time four new buildings were constructed to support Atlas missile manufacturing and assembly. They also supported Atlas/Centaur and Shuttle/Centaur tanks and Atlas refurbishment. The plant was under fee ownership of the United States with direct DoD control through Wright Patterson Air Force Base, Ohio (CSMD 2008).

During the 1980s, the plant performed fabrication, minor assembly, and subassembly work for the Ground Launched Tomahawk Cruise Missile, Transporter Erector Launcher (TEL), and Launcher Control Center. The plant was transferred to the DoN in late 1992. The plant continued production under the Command, Control, and Ocean Surveillance Center (CSMD 2008).

The relocation of SPAWAR's headquarters from Crystal City, in the Washington, D.C., area to San Diego occurred as a result of a 1995 Base Realignment and Closure (BRAC) decision. The move of the SPAWAR headquarters staff and an associated program executive office staff, which began in April 1996, resulted in the establishment of more than 1,000 new jobs in San Diego (CSMD 2008).

SPAWAR officially completed its move and transition from the Washington, D.C. area and opened its San Diego headquarters in a special Transition Ceremony on October 1, 1997. The ceremony was held in front of the newly renovated SPAWAR headquarters building (Building #4) in Old Town, located at 4301 Pacific Highway (formerly the old AFP 19 complex) (CSMD 2008).

SPAWAR facilities are currently concentrated in four major areas: Topside, Bayside, and Seaside, on the NBPL peninsula; and at the Old Town SPAWAR headquarters complex. Extensive in-service engineering facilities, on the Old Town Campus, provide a full range of systems engineering, management, logistics, installation, and technical support (CSMD 2008).

2.2.1.3 Mission

The mission of NBPL Old Town Center is to provide the war fighter with knowledge and superiority by developing, delivering, and maintaining effective, capable, and integrated command, control, communications, computer, intelligence, and surveillance systems. SPAWAR provides information technology and space systems for today's Navy and DoD activities while planning and designing for the

future. Because SPAWAR Headquarters (HQ) is primarily developed and does not support any natural or cultural resources, it is not included on most maps in this plan.

2.2.1.4 Administrative Facilities

SPAWAR Command HQ occupies approximately 300,000 square feet of Administration in Buildings 1, 2, 3, 4, and 27. SSC Pacific occupies a small administrative footprint in Buildings 1 and 2 (U.S. Navy 2009a).

The Old Town Complex operations support is conducted by contractor staff (Trandes Corporation) in Building 2. Trandes Corporation contractor staff overhaul and provide repair services for advanced Naval communications equipment for SSC Pacific. Trandes performs Fleet depot level maintenance of communications and electronics equipment components for SSC Pacific in Old Town Complex Building 2.

United Launch Alliance (ULA) is a major federal contractor for advanced technology in aeronautics, space systems, and information technology. ULA utilizes the ground floor of Building 3 for missile assembly and administration, a portion of the second floor for administration, and a small portion of the third floor for parts storage and tooling (U.S. Navy 2009a).

2.2.2 Miramar Pipeline

2.2.2.1 Location

The Miramar Pipeline extends from DFSP on NBPL to the north adjacent to the western shore of the San Diego Bay for approximately 4.5 miles. The pipeline then extends for approximately 16 miles across San Diego County to Miramar Station operated by Kinder-Morgan Energy Partners (KMEP) and finally ends at MCAS Miramar where fuel is transferred into storage tanks for operations and support. Another segment of the pipeline extends from DFSP to the east for approximately 3,675 feet across the San Diego Bay onto Naval Base Coronado. The pipeline then follows the western shore of the Naval Base Coronado, Naval Air Station North Island to the northeast for approximately 4,100 feet (see **Figure 1-2**).

2.2.2.2 History

The Miramar Pipeline was installed in 1954 to support the first master jet base known as Naval Air Station Miramar (now MCAS Miramar). The pipeline moves over 100 million gallons of fuel per year. The Miramar Pipeline supports the fueling operations for the United States Navy 3rd Fleet ships and Naval Air Station North Island aircraft. Several sections of the pipeline have been or are in the process of being repaired because of exposed pipeline or required maintenance (U.S. Navy 2009a and 2009b). An Environmental Assessment has been scheduled for the long-term maintenance of the pipeline.

2.2.3 Mount Soledad Signal Station

2.2.3.1 Location

The Mount Soledad Signal Station Mount Soledad is approximately 6 acres, and is located on Mount Soledad to the east of La Jolla and west of Interstate 5 and can be accessed by Mount Soledad Mountain Road and Soledad Park Road (see **Figure 1-2**).

2.2.3.2 Mission

The primary mission of the Mount Soledad Signal Station is to support emergency service organizations with reliable communications. The Mount Soledad Signal Station is an unmanned facility. Mount Soledad tenants include: the Naval Computer and Telecommunications Station, San Diego (NCTSSD); Fleet Area Control and Surveillance Facility (FACSFAC), SPAWAR Systems Center, San Diego; and NAVFAC SW. Other non-DoD tenants include: the U.S. Secret Service, the State of California, the San Diego Association of Governments, the County of San Diego, Cook Pagin, Omnipoint Communication/T-Mobile, the Federal Aviation Administration, the City of San Diego, and NOAA.

2.2.3.3 Administrative Facilities

The station is an unmanned facility with two buildings on unfenced and primarily undeveloped land.

2.2.4 Joint Regional Correctional Facility (on MCAS Miramar)

2.2.4.1 Location

Joint Regional Correctional Facility encompasses 23 acres in the northwestern corner of MCAS Miramar, approximately 18 miles to the northwest of the Point Loma peninsula in Miramar, California (USFWS 2009). MCAS Miramar is to the east of Interstate 805, to the west of Interstate 15, and to the north of State Route 52. As a tenant command on MCAS Miramar, activities conducted at or around the Joint Regional Correctional Facility comply with the MCAS Miramar INRMP.

2.2.4.2 History

The Joint Regional Correctional Facility was commissioned in 1989 and houses up to 400 male and female prisoners. The 2005 BRAC consolidated four corrections facilities into one joint southwest regional confinement facility at MCAS Miramar. The correction facility currently serves as a Level I and Level II confinement facility for all male and female DoD services, and Level III for all female prisoners. As a result of the BRAC 2005 Commission and the facility's expanded utilization, the Navy completed a construction project that will increase the facility's capacity by 200 prisoners, while reducing excess infrastructure at other locations (U.S. Navy 2009a).

2.2.4.3 Mission

The mission of Joint Regional Correctional Facility is to ensure the safety, security, good order, and discipline of male and female prisoners and detained personnel from all military services; to retrain and restore the maximum number of personnel to honorable service; and to prepare discharged prisoners for return to civilian life as productive citizens.

2.2.4.4 Administrative Facilities

The facility encompasses 208,000 SF, is staffed with 31 civilian and 173 military personnel, and has a capacity to house 400 male and female prisoners.

2.2.5 La Jolla Nautical Mile

2.2.5.1 Location

The La Jolla Nautical Mile consists of three towers located in and adjacent to the Torrey Pines State Reserve (see **Figure 1-2**). One tower is located near the southern boundary of the State Reserve on the Pacific Coast. A second tower is located near the southern boundary of the Torrey Pines Golf Course adjacent to the Pacific Coast, and the third tower is located to the east adjacent to north Torrey Pines Road. There were originally four towers, but one of the eastern towers has been removed (U.S. Navy 2009a).

2.2.5.2 History

The La Jolla Nautical Mile which was built in 1926 consisted of two sets of two towers separated by exactly one mile that were used to determine the speed and position of ships offshore. After one of the range markers was removed, the range became unusable from an operational standpoint. Modern radars and global positioning system (GPS) technologies have replaced older range technologies, so the Nautical Mile is no longer required to support DoD military missions (U.S. Navy 2009a).

2.2.5.3 Administrative Facilities

This is an unmanned facility with no buildings.

2.2.6 Navy Housing Areas

The National Authorization Act for Fiscal Year 1996 gave the DoN legal authority to work with the private sector to build and renovate family housing. The goal has been to leverage private investment to construct or renovate family housing faster and cheaper than by traditional means. The Navy entered into a partnership with Lincoln Property Company/Clark Realty Capital, LLC in 2001 to develop, build, and manage homes on Navy property under a 50-year ground lease.

There are currently eleven NBPL Navy Housing Areas throughout the San Diego metropolitan area that came under NBPL jurisdiction in 2006 under a PPV (see **Figure 1-2**). A real estate summary was developed for each housing area under NBPL jurisdiction between the late 1980s and mid-1990s. According to the real estate summaries, the PPV housing areas under NBPL jurisdiction compose approximately 521 acres (U.S. Navy 2011b).

Table 2-1 provides the number of units in each of the housing areas and the year(s) that they were built.

2.2.7 Other Entities on Point Loma Not Included As Part of Naval Base Point Loma

2.2.7.1 Ballast Point Coast Guard Station

The USCG occupies 11.5 acres of land at two locations on the peninsula (see **Figure 2-1**). Originally there were two lighthouses located in this location. The Ballast Point Coast Guard Station occupies 2.8 acres adjacent to Mainbase. At Ballast Point, operation buildings support berthing arrangements for Coast Guard ships. The Coast Guard's lighthouse at the southwestern tip of Point Loma was built in 1891. The 8.7-acre parcel on which the lighthouse and associated buildings sit ("the Point Loma Annex") bisects SSC Pacific's South Tip area of use.

Table 2-1: NBPL Military Housing Areas

Housing Area	Acreage	Number of Units	Year Built
Silvergate Housing	4.2	4	1916 and 2009 ¹
Naval Submarine Base	3.0	8	1904
Admiral Hartman	143.7	434	1960
Beech Street Knolls	6.5	72	1991
Chesterton	137.5	457	1960/1996
Gateway Village	43.9	460	2005/2006
Mira Mesa Ridge	6.6	65	1995
Park Summit	0.5	30	1992
Village at Naval Training Center	74.5	500	2002/2003
Village at Serra Mesa	98.0	900	2003/2006
Vista Ridge	2.6	24	1992

Source: U.S. Navy 2011b

Note:

1. Silvergate Housing was originally constructed in 1916, but was demolished at a later date. The housing area was rebuilt in 2009.

2.2.7.2 Cabrillo National Monument

The NPS operates CNM, a small urban 160-acre park located on the southern tip of NBPL, accessible by SR-209/Catalina Boulevard 364 days per year from 9:00 AM to 5:00 PM (see **Figure 2-1**) (NPS 2006a). CNM is a popular tourist attraction and approximately one million visitors come annually for the view of San Diego, San Diego Bay, and the Pacific Ocean. Managed under the National Park System, the CNM conserves many plant and animal species whose habitats are in jeopardy due to the intense development and urban encroachment in Southern California.

Tide pools at CNM are managed by NPS through an interagency agreement with the U.S. Army Corps of Engineers (USACE). A museum, auditorium with regularly scheduled films and lectures, nature and hiking trails, tide pools, and the Old Point Loma Lighthouse are among the attractions of the monument.

Approximately 60 acres of tide pools are located on the Pacific Ocean side of the peninsula. These tidal pools are surveys and monitored by the NPS through a cooperative research with CNM. The tide pools at CNM are the best-protected examples of publicly accessible tide pools on the southern California mainland and are a popular and important resource for students at all grade levels. Approximately 12 acres of tide pools at CNM are closed to all visitors for restoration purposes. The tide pools to the north of CNM are also off limits to the public.

2.2.7.3 City of San Diego Wastewater Treatment Facility

The City of San Diego Metropolitan Wastewater Management Department (MWWD) operates a 42-acre facility located on the Point Loma peninsula on the west side of Point Loma, between the CNM on the south and SSC Pacific on the north. The main sewer interceptor from the City of San Diego runs the length of Point Loma to the plant.

2.2.7.4 Fort Rosecrans National Cemetery

The Fort Rosecrans National Cemetery is a DVA Cemetery located on a 71-acre site on Point Loma (see **Figure 2-1**). The burial ground existed on Point Loma prior to 1847 and became an Army Post cemetery in the 1860s. It became the Fort Rosecrans National Cemetery in 1934, and was placed under the DVA National Cemetery System in 1973. More than 80,000 veterans are buried there. The site is designated California State Historic Landmark Number 55.

Birding is a popular year-round activity at both the CNM and the Fort Rosecrans National Cemetery with the busiest times during spring and fall migrations. Whale watching is a popular activity during the winter (December to February).

2.2.7.5 University of California Research Vessel Support Facility

The University of California owns the support facility for a research vessel operated by the Scripps Institution of Oceanography. The University of California facility is located to the north of SSC Pacific on land out-leased by the United States.

2.2.7.6 Point Loma Ecological Conservation Area

In 1994 the Navy worked with the USFWS, City of San Diego, CDFG, and the Audubon Society to produce the Point Loma Natural Resources Management Plan (PLNRMP). The plan was developed in response to earlier discussions and agreements between the Navy and the USFWS concerning the state of uncoordinated development projects and the need for a planned biological reserve on Point Loma. The PLNRMP's primary objectives were to identify and evaluate sensitive biological communities associated with the Point Loma Ecological Reserve (PLER) (now designated as the PLECA) and their long-term viability, as well as, to develop a management plan to assure the long-term protection and perpetuation of these sensitive biological communities.

The PLECA, which includes approximately 668 acres on Point Loma, is the core of natural resources management on the peninsula. The PLECA is discussed at length throughout this Plan. Management policies are outlined in the 1995 MOU that established the PLECA and the updated 2005 MOU (see **Appendix L**).

2.3 Other Operations and Activities

2.3.1 Transportation and Utilities

NBPL is primarily located on the Point Loma peninsula at the entrance to San Diego Bay in metropolitan San Diego. The peninsula is approximately 4 miles west of downtown San Diego. Principal highways in the vicinity include Interstate 5 and Interstate 8, the San Diego Trolley, Coaster Commuter Rail, Amtrak Intercity Rail, and Local/Express Buses. Currently, there is no installation provided transportation on NBPL.

Electricity and natural gas are purchased from the San Diego Gas & Electric Company (SDG&E) for NBPL facilities (DESC 2007). The Southern California Gas Company is the primary supplier of natural gas to SDG&E, and based on current land uses, the average use of natural gas in the downtown planning area is estimated to be 5.3 million cubic feet (150,079 cubic meters) per day (NAVFAC SW 2006).

The San Diego MWW system provides treatment of wastewater from NBPL. MWW manages the Metropolitan Sewerage System, which serves the Greater San Diego population of approximately 2.2 million people. The 16 cities and districts that compose this region generate approximately 904,000 cubic yards/560 acre-feet (691,000 cubic meters) per day of wastewater (NAVFAC SW 2006).

The City of San Diego Metropolitan Water District provides potable water to the NBPL Navy Public Works Center (PWC) for domestic and fire fighting use. The water distribution system feeds Point Loma with 10- and 12-inch main lines that connect to 8-, 10-, and 12-inch distribution lines (DESC 2007). The metropolitan San Diego area consumes an estimated 243,000 acre-feet (300 million cubic meters) of water per year (NAVFAC SW 2006). In 2000, the San Diego County Water Authority (SDCWA) utilized demographic data and regional growth forecasts to develop an Urban Water Management Plan to assess future water demand. The analysis predicted that projected water demand would not exceed water supply for the county through the year 2020 (NAVFAC SW 2006).

2.3.2 Waterfront Operations

Port Operation's primary focus is to provide safe, efficient, and timely berthing services to five home-ported submarines, numerous visiting submarines and surface ships, and six Mine Counter Measure vessels. Secondary missions include the Facility Response Team (FRT). The FRT includes coxswains, navigators, engineers, and welders and is manned 24 hours per day. The FRT provides immediate Oil Spill Response for more than 4 square nautical miles of San Diego Bay in compliance with strict environmental and hazardous material standards (CNIC 2009a).

The Coastal Zone Management Act (CZMA) of 1972 (16 USC Section 1451) encourages coastal states to be proactive in managing coastal zone uses and resources. CZMA established a voluntary coastal planning program; participating states submit a Coastal Management Plan (CMP) to NOAA for approval. Under the CZMA, federal agency actions within or outside the coastal zone that affect any land or water use or natural resource of the coastal zone shall be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved state management programs. Each state defines its coastal zone in accordance with the CZMA. Excluded from any coastal zone are lands the use of which by law is subject solely to the discretion of the federal government or which is held in trust by the federal government (16 USC 1453). Although NBPL is federal government property and excluded from the coastal zone, the Navy conducts an effects test as part of its determination of an action's effects for purposes of federal consistency review under the CZMA. This test is used to determine whether the action (even if conducted entirely within a federal enclave) would affect any coastal use or resource.

In California, the California Coastal Commission (CCC) and local governments have the responsibility of managing California's coastal resources. The California Coastal Act is the center of California's CMP, which was certified in 1978. Other legislation guiding the program can be found in Proposition 20 (Coastal Initiative, 1972), California Coastal Plan (1975), McAteer-Petris Act, Suisun Marsh Preservation Act, and Conservancy Act. The enforceable policies of the California CMP can be found in Chapter 3 of the California Coastal Act and include public access, recreation, marine environment, land resources, development, and industrial development.

A General Consistency Determination for repair and maintenance activities and other types of general activities on naval bases in the San Diego Bay area was developed and approved by the California Coastal Commission in August 1998 (Consistency Determination No. CD-070-98). The periodic replacement and repair of piers and shoreline structures was found to be consistent with the marine resource, habitat, access, recreational, and shoreline structure policies of the California CMP.

As this INRMP revision is a programmatic document, no consultation with the CCC is required at this time. However, where appropriate, the Navy will ensure that 1) all proposed development activities have obtained Federal Consistency Review, 2) human activities in the coastal zone are not adversely affecting the coastal and marine environment, and 3) regulations are being enforced.

2.3.3 Security and Perimeter Buffer Requirements

Force Protection's mission is to deter, detect, and defend the installation's personnel and assets against hostile actions. This is accomplished through the effective integration of anti-terrorism, physical security, law enforcement, and installation access.

ATFP design guidance requires specific setbacks to minimize impacts on personnel and facilities in the event of a terrorist attack. These guidelines include a 148-foot setback between the station perimeter and high occupancy buildings (e.g., housing facilities and training and administrative facilities), and an 82-foot setback between station parking areas or roads and high occupancy buildings (U.S. Navy 2009a).

In January 2009, the DoN revised guidance for the *Navy Physical Security and Law Enforcement Program* (OPNAVINST 5530.14E). The revised policy states the "objective of the Navy Security Program is to safeguard personnel, property, facilities and materiel and to enforce laws, rules, and regulations at Navy installations, activities, and operational commands." To ensure physical security at U.S. Navy installation, the instruction requires installations to perform the following (DoN 2009):

- Conduct physical security surveys annually;
- Conduct daily security checks;
- Conduct security inspections for all critical areas at least every two years;
- Conduct a vulnerability assessment of all housing areas, facilities and other activities annually;
- Conduct threat assessments through coordination with local, state and other Federal agencies;
- Establish a risk management process;
- Develop an education program on security;
- Maintain an external entry and restricted area access control program to ensure security to and from the installation; and
- Employ barriers and patrol craft to ensure water boundaries are protected.

2.3.4 Installation Restoration Sites

The DoD established the Installation Restoration Program (IRP) in 1986 to provide guidance and funding for the investigation and remediation of hazardous waste sites caused by previous disposal activities at military bases. The fundamental goal of IRP is to protect human health, safety, and the environment (U.S. Navy 2009a).

The IRP is carried out in accordance with all federal, state and local laws. The primary federal laws are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA). CERCLA was passed in 1980 and required the cleanup, or remediation of hazardous waste sites created by historical disposal practices. SARA amended CERCLA in 1986 and increased the Superfund trust fund to \$8.5 billion, as well as increased state involvement in the Superfund program, encouraged greater citizen participation, increased the focus

on cleanup on human health, and provided new enforcement authority and settlement tools. In addition, through the SARA amendment the hazard ranking system was revised to reflect the increased focus on human health. Congress gave the U. S. Environmental Protection Agency (EPA) responsibility for overseeing compliance with this law (U.S. Navy 2009a).

The purpose of the Navy IRP is to identify, investigate, assess, characterize, and clean up or control releases of hazardous substances; and to reduce the risk to human health and the environment from past waste disposal operations and hazardous material spills at Navy/Marine Corps activities in a cost effective manner. The goal of IRP is to move all sites to the No Further Action category (U.S. Navy 2009a).

The installation recognizes that adverse impacts to natural resources addressed in this INRMP may result from the release of hazardous substances, pollutants, and contaminants into the environment. The DoN IRP is responsible for identifying CERCLA releases, Resource Conservation and Recovery Act releases, and past releases; considering risks and assessing impacts to human health and the environment, including impacts to endangered species, migratory birds, and biotic communities; and developing and selecting response actions when a release may result in an unacceptable risk to human health and the environment (U.S. Navy 2006a).

When appropriate, the regional or installation's natural resources management staff will help the Installation Restoration Program Remedial Project Manager identify potential impacts to natural resources caused by the release of these contaminants (U.S. Navy 2006a).

Regional or installation natural resources staff will also participate, as appropriate, in IRP decision-making process by communicating natural resource issues on the installation to the Remedial Project Manager, attending Restoration Advisory Board meetings, reviewing and commenting on IRP documents, and ensuring that response actions, to the maximum extent practicable, are undertaken in a manner that minimizes impacts to natural resources on the installation (U.S. Navy 2006a). When appropriate, the regional or installation natural resources staff will make recommendations to the Installation Restoration Program regarding cleanup strategies and site restoration. During initial monitoring protocols, the natural resources manager may suggest sampling and testing be accomplished so as to not impact sensitive or critical areas. Also during site restoration, the natural resources manager has the opportunity to recommend site restoration practices that are outlined within the INRMP. Examples include, landfill caps restored to grasslands, excavation areas restore to wetland/pond areas, and treated water located to enhance a pond area (U.S. Navy 2006a).

There are currently 37 identified IR sites and one munitions response site on NBPL. Of these sites, 17 have received regulatory closure and require no further action. Nineteen sites are active, and one site is being managed under the Brownfields program. Future use of an active site could require Navy Remedial Program Manager (RPM) concurrence and could require further site characterization and/or removal/remedial action, but additional evaluation and RPM concurrence is required (U.S. Navy 2009a).

The Site Management Plan (U.S. Navy 2011e) for NBPL is under development and once completed will include maps of IR sites on the installation.

Open IR sites on NBPL include the following:

- SUBASE Site 14: Ball Field (Old Refuse Disposal Area)
- SUBASE Site 15: Building 527 Weapons Storage (Submarine Base Rubble Disposal Area)
- SUBASE Site 18: Torpedo Shop

- SUBASE UST 105: Deperming Bldg 2 UST
- SPAWAR Site 5: North Coast Rubble Disposal Area
- SPAWAR Site 6: Bldg A-86 Rubble Disposal Area
- SPAWAR Site 7: Bldg A-44 Rubble Disposal Area
- SPAWAR Site 8: Bldg A-34 Rubble Disposal Area
- SPAWAR Site 9: Bldg A-34 Plating Waste Disposal Area (PWC B-34 Plating)
- SPAWAR Site 10: Sewage Sludge Spreading Area
- SPAWAR Site 11: South Coast Rubble Disposal Area
- SPAWAR Site 20: Old ICSTF Radar Complex Station (Central Coast Rubble Disposal Area). Collocated with Munitions Response Site 1.
- SPAWAR Site 23: Abrasive Blast Grit Disposal Area
- NTC UST 3: NEX Gas Station
- OTC Site 10: Bldg 33 Liquid/Sludge
- OTC Site 11: Bldg 3 Sewer Line Break
- OTC Site 100: Taylor Street Complex
- FCTC Site 1: Rubble Disposal Area

2.3.5 Public Access

Although provision of public access is addressed in the Sikes Act, security concerns in the aftermath of September 11, 2001, have greatly restricted public access on DoD facilities. Access to NBPL outdoor recreation facilities is restricted to the following military personnel and their families, and civilian personnel:

- Active-duty military and their family members
- Retired military and their family members
- Reservists
- DoD Civilian Employees
- Retired DoD Civilian Employees and family members.

Access to CNM by the public is via SR-209/Catalina Boulevard. Public access is not allowed in the PLECA on NBPL. Outside the PLECA, it might be feasible to allow entry to recreational areas to promote understanding and appreciation of the natural resources of Point Loma. Excessive or uncontrolled access, however, can result in habitat degradation through trampling and erosion (e.g., along trails) and disruption of breeding and other critical wildlife functions at certain times of the year.

2.3.6 Agricultural Outleasing

Not applicable to NBPL.

2.4 Achieving Success and No Net Loss of Military Mission

Implementation of this INRMP by NBPL will ensure that natural resources will continue to support the NBPL mission, as well as to ensure that future growth, development, and redevelopment activities planned for the installation do not adversely affect natural resources on NBPL. Supporting the elements contained within the PLECA MOU, IAP, and conservation elements contained within individual site development plans will require not only that the INRMP be implemented, but that development is conducted in an environmentally sensitive way (i.e., smart growth) through cooperation between environmental, engineering, and planning personnel.

This INRMP strives to integrate natural resources management with other installation plans and activities. It also establishes goals that represent a long-term vision for the health and quality of NBPL's natural resources. The INRMP goals may be revised over time to reflect changing missions and environmental conditions. Any future changes in mission, training activity, or technology should be analyzed to assess their impact on natural resources. As new installation plans and DoN guidance and regulations are developed, they will be integrated with the goals and management actions of this INRMP. The INRMP will be reviewed, assessed, and modified as needed on a regular basis to ensure continued integration with other management plans or changes in the military mission.

2.5 Military Land Use

Although NBPL has a large amount of acreage, there is limited future expansion potential due to man-made and environmental constraints. Existing development, utility connections, installation restoration (IR) sites, operational constraints, ATFP requirements and real estate out-grants are key man-made constraints affecting future development. Environmental constraints which limit future development include sensitive species and habitats, topography exceeding 25 percent slope, and landslide potential areas.

The Activity Overview Plan (U.S. Navy 2009a) for NBPL rated the development potential for NBPL by ranking the natural and man-made constraints into three future development potential zones: high, moderate, and low.

- Areas with low development potential include active IR sites, the Deperming/Degaussing Station, Accident Potential Zone (APZ)-1, 75 Community Noise Equivalent Level (CNEL) and geotechnical constraints including earthquake faults, areas prone to landslide and liquefaction, and slopes greater than 25 percent
- Areas with moderate development potential include areas with cultural resources, ESQD arcs, Radiation/Safety Hazards, APZ-2, 65 CNEL, the Point Loma Ecological Conservation Area, 100-year floodplain, and sensitive species
- Areas with high development potential include closed IR sites, areas with Electromagnetic Control Zones and Deperming Ranges, and unconstrained areas.

These development potential zones determine where new construction or structural additions to existing buildings are most feasible.

Approximately 14 percent of the NBPL is composed of low development potential areas, while approximately 50 percent is classified as moderate development potential. The remaining 36 percent of acreage in the NBPL is classified as high development potential, with the majority of high development potential land within the SSC Pacific. Since most of the high development potential areas on NBPL

occur in areas that are already developed, future development will most likely be in the form of infill (NBPL 2009).

Off peninsula facilities including the NMAWC, NBPL Old Town Center, FITCPAC, Joint Regional Correctional Facility, and the Mount Soledad Signal Station are all considered to have low potential for future development (NBPL 2009).

2.6 Future Land Use

In general, most of the easily developable land on Point Loma is already developed, and NBPL is near its limit of growth, within economic feasibility and the Navy's various missions. Flat buildable land with no restrictions exists at SSC Pacific, and Mainbase has some small parcels of relatively flat land adjacent to steep hillsides. There is the potential for limited development on the west slopes of Point Loma, but this area is constrained by criteria related to EMI (WESTDIV 1987). Point Loma has an EMI control zone in the Seaside area of SSC and EMI free zones in the Model Range/Barracks area of SSC and at the MSF Degaussing Pier. These zones are required to support sensitive radar and RF transmission activity required by the missions of SSC and MSF. Several military projects that have the potential to affect natural resources at NBPL have been initiated or are proposed for construction, and below is a listing of some of the projects outlined in the AOP (U.S. Navy 2009a). Inclusion of these projects in the INRMP is for disclosure purposes only. Individual projects will go through the appropriate site approval process, including all appropriate environmental analysis under the NEPA.

- Demolish Buildings 4 & 15 at MSF.
- Upgrade Magnetic Silencing Facility for MCM's.
- Construct MCM Maintenance Facility.
- Expand Parking Structures 608 & 636.
- Construct Improvements to 560 Battery Ashburn.
- Seaside Fencing & Clear Zones Construct ISR Lab.
- Construct GIS facility, model range.
- Construct Networks Lab, Tide Pool Area.
- Construct command and control lab, Seaside.
- Construct Atmospheric Propagation Lab.
- Marine Mammal Surgical Center.
- Construct Sewer Improvements, Model Range Area.
- Construct New Lab, Barracks Area.
- Demolish Buildings 2, 10 and 59 at FASW.
- Fire Protection Pipeline.
- Demolish Building 2 at Navy Fleet Industrial Supply Center (FISC).
- Replace Fuel Storage Tanks.
- Automated Gate and Lighting for Old Town Complex Staging Area.
- Relocation of Emergency Operations Control Center from Broadway Complex to Bldg 600.

- Expansion of Joint Regional Correctional Facility.
- Demolish buildings 26, 46, 69, 70 & 93 at FISC/Sub base.
- Demolish Building 158.
- Dredging Prep NBPL.
- Replace DFSP to MCAS Miramar fuel line.
- Dredging NBPL maintenance dredging.
- P-503, Marine Mammal Surgical Center alteration and addition.
- Upgrade DFSP Point Loma fuel pier to meet seismic requirements. Proposed to occur in Fiscal Year (FY) 13.
- Demo Buildings 349, 392, and 394 located outside McClelland Gate next to SSC Facility Bldg 341. The project consists of removal and demolition of 29 antiquated World War II era wood framed buildings currently housing public works shops functions, energy-consuming buildings and to consolidate the relevant Public Works functions into a new centralized building.
- Noise assessment for the for the proposed EOD activity, which was completed in June 2010 by the Army Public Health Command Operational Noise Program located in Aberdeen Maryland.
- Sections of the Miramar Pipeline at La Playa will be removed and will run down Rosecrans.
- Sections of the Miramar Pipeline will be moved out of the San Diego riverbed and will run along one of the bridge overpasses

2.7 Government Regulatory Requirements for Natural Resources Management

2.7.1 Planning Jurisdictions

NBPL lies within San Diego County, California. The San Diego County Department of Planning and Land Use determines and regulates land use in the unincorporated areas within San Diego County through the Zoning Ordinance regulations. Specific parameters and regulations for land development are addressed in Section 4000 – 4920 of the San Diego County Zoning Ordinance (County of San Diego 2009). Information pertaining to San Diego County zoning regulations can be found at: <http://www.co.sandiego.ca.us/dplu/zoning/index.html>.

2.7.2 Federal, State and Local Laws and Regulations

See **Appendix B** for a complete list of federal, state, DoD and DoN laws, regulations and guidance.

National Environmental Policy Act

The National Environmental Policy Act (NEPA, Public Law [P.L.] 91-190, 42 U.S.C. 4321-4347 as amended) was enacted to prevent environmental damage by ensuring that federal agency decision makers give environmental factors appropriate weight before taking any discretionary actions. NEPA requires the preparation of a report that studies the effects of a proposed federal agency action and evaluates whether the action “significantly affects the quality of the human environment” (42 U.S.C. 4332). Elements of the report include an analysis of project alternatives and analysis of cumulative effects on each resource topic. The analysis is used as a decision making tool on whether to proceed with the proposed action. NBPL had developed policy to guide the site approval and project review process

conducted on the installation (NBPL 2010). For further information pertaining to how NBPL complies with NEPA is discussed in **Section 6.7**.

Endangered Species Act

Section 7 of the ESA requires all federal agencies to enter into consultation with the USFWS or the NOAA Fisheries whenever proposed actions might affect federally listed threatened and endangered species of plants and animals. Section 7 consultations will be initiated if warranted, otherwise, written documentation that there are no effects on threatened or endangered species will be generated by NBPL and kept in project files. The USFWS policy does not use the term “mitigation” because it is not mentioned in the ESA. In the context of consultation under the ESA, conservation measures are voluntary actions proposed by the project proponent to minimize and avoid impacts to listed species and provide alternative or protected habitat that promote conservation.

At NBPL Mainbase, proposed projects, operations, or other actions, are scrutinized for potential impacts to threatened and endangered species through a review process. The natural resources manager will use the installation’s INRMP as a tool to identify at an early stage the potential impacts of planned Navy actions on endangered or threatened species and provide a basis for altering the action to prevent or minimize those impacts. USFWS or NOAA Fisheries (or both) could require changes or minimization measures that could impact the military mission through delays and additional costs. It is imperative that the installation initiate early environmental/natural resources review of proposed actions, in order to assess risks, develop alternatives, and correctly identify minimization measures costs both in terms of time and dollars.

The following is a list of the biological opinions issued by USFWS or NOAA Fisheries containing requirements for managing threatened and endangered species at NBPL:

- FWS-SDG-08B0468-09F0477, Biological Opinion for Construction of the Joint Regional Confinement Facility Southwest by Expansion and Alternation of the Naval Consolidated Brig, Marine Corps Air Station Miramar, San Diego County, California

Migratory Bird Treaty Act

The MBTA (16 U.S.C. 703-712) protects all migratory birds and prohibits the taking of migratory birds, their young, nests, and eggs, except as permitted by the USFWS. The USFWS recommends that NBPL avoid impacting birds protected under the MBTA by surveying for nesting birds in areas proposed for disturbance and if necessary, waiting until the nesting and fledging process is complete. Alternatively, the USFWS recommends conducting activities outside of nesting areas or outside of the general migratory bird-nesting season that extends from mid-February through the end of August, to help avoid direct impacts. The MBTA implements various treaties and conventions between the United States and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds is unlawful.

Prohibited Acts: Unless permitted by regulations, the MBTA provides that it is unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture, or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or receive any migratory bird, part, nest, egg or product, manufactured or not.

On March 15, 2005, the USFWS published in the Federal Register (FR 70(49):12710-12716) a final list of the bird species to which the MBTA does not apply because they are not native to the United States and have been introduced by humans everywhere they occur in the nation. The list is required by the

Migratory Bird Treaty Reform Act of 2004. The actual list of migratory birds protected by the MBTA is published in the CFR (Title 50, Part 10.13). When it became law in 2004, the Reform Act excluded any species not specifically included on the Title 50, Part 10 list from protection. In addition, DoD and the USFWS entered into an MOU in July 2006, to Promote the Conservation of Migratory Birds, in accordance with Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (DoD 2007). This MOU describes specific actions that should be taken by DoD to advance migratory bird conservation; avoid or minimize the take of migratory birds; and ensure DoD operations other than military readiness activities are consistent with the MBTA. The MOU also describes how the USFWS and DoD will work together cooperatively to achieve these ends. The MOU does not authorize the take of migratory birds; the USFWS, however, may develop incidental take authorization for federal agencies that complete an Executive Order MOU.

As of the date of this INRMP, there are no active MBTA permits for NBPL. Refer to **Section 4.2.4.5** for additional information on migratory bird management at NBPL.

Clean Water Act

Regulatory authority for Section 404 of the CWA has been delegated by the EPA to the USACE. Section 404 regulates the discharge of dredge or fill material into the waters of the United States and adjacent wetlands. USACE has set up the Nationwide Permit Program (NWP) to streamline the permit process for activities similar in nature and with minimal impacts. The NWP Program is re-evaluated every five years; NEPA is performed and each NWP is re-evaluated. If the thresholds determined for the NWP will be exceeded or conditions cannot be met, the NWP does not apply and the proposed action will have to be proposed as an Individual Permit (IP). An IP requires a public notice, an alternatives analysis (the 404(b)(1) analysis), and a NEPA document specific to the proposed project. USACE is currently implementing a National policy for “no net loss of values and functions” for wetland water of the US.

USACE has a three-step mitigation sequencing procedure (MOA between USACE and EPA, February 7, 1990). First, the project proponent must demonstrate avoidance and minimization of impacts to waters of the US to the maximum extent possible. Avoidance includes demonstrating there is no practicable alternative which would have less adverse impact. Minimization requires consideration be given to redesigning or staging a project to reduce impacts. Compensatory mitigation is only authorized for unavoidable impacts and must replace the loss of values and functions of the waters of the US proposed for impact. Compensatory mitigation includes creation, restoration, enhancement or preservation. All impacts must be avoided or minimized before compensating mitigation will be considered. In some cases, mitigation banking is the appropriate approach to compensating mitigation (33 CFR S 320.4[r]).

All projects requiring USACE permits are reviewed by the Project Review Board. A current list of active USACE permits for NBPL can be obtained from the Work Induction Board NEPA Planner.

Essential Fish Habitat

The Magnuson-Stevens Fishery and Management Conservation Act (MSFCMA, 16 U.S.C. 1801 - 1884), as amended on October 11, 1996, requires the delineation of essential fish habitat (EFH) by regional fishery management councils with assistance from the NOAA Fisheries. EFH has been defined as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” EFH must be identified in fishery management plans or amendments to federally managed fish species. NOAA Fisheries published the final regulations for implementing the EFH provisions of the MSFCMA on 17 January 2002. At that time the Pacific Fishery Management Council (PFMC) delineated EFH for two southern California coast fishery types: coastal pelagic species and Pacific Coast groundfish.

Coastal pelagic fish are those species that are schooling fish not associated with the ocean bottom and that migrate in coastal waters. The federally managed coastal pelagic species include market squid (*Loligo opalescens*) and finfish such as northern anchovy, Pacific sardine, Pacific mackerel (*Scomber japonicus*), and jack mackerel (*Trachurus symmetricus*). The east-west geographic boundary of EFH in southern California for each individual coastal pelagic finfish and market squid is described as all estuarine and marine waters that extend from the shoreline along the coasts of California to the offshore limits of the exclusive economic zone (EEZ) and above the thermocline where the sea surface temperatures range between 50 degrees Fahrenheit and 79 degrees Fahrenheit. The northern boundary is more dynamic and variable due to the seasonal cooling of the sea surface temperature (PFMC 1998a).

Pacific Coast groundfish species typically live on or near the bottom of the ocean and because of this they are described as groundfish or bottomfish. The groundfish management series consists of 83 species from groups that include rockfish (*Sebastes* spp.), flatfish, sharks and skates, roundfish, and many others.

Section 305(b)(2) of the amended MSFCMA directs each federal agency to consult with NOAA Fisheries with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any EFH identified under the MSFCMA. The Navy and NOAA Fisheries signed an agreement in 2001 which allows the Navy's NEPA and Fish and Wildlife Coordination Act process to satisfy EFH analysis requirements. Therefore, the Navy will notify NOAA Fisheries in writing as early as practicable regarding actions that may adversely affect EFH. Notification will facilitate discussion of measures to conserve EFH. For any Federal action that may adversely affect EFH, Federal agencies must provide NOAA Fisheries with a written assessment of the effects of that action on EFH. The level of detail required in the assessment is commensurate with the magnitude of potential adverse impacts, so an action that may only result in minor impacts would only require a brief assessment. Mandatory contents of the assessment are outlined in 50 CFR 600.920.e.3.

The Point Loma groundfish EFH includes all the waters from the mean higher high water line, and the upriver extent of saltwater intrusion in river mouths, along the coast of California seaward to the boundary of the U.S. EEZ (PFMC 1998b).

The Pacific Coast Groundfish Fishery Management Plan (1998) describes the seven units of EFH as units of "composite" EFHs. The seven habitat types proposed as "composites" have distributions that are relatively stationary and measurable over time and space. The seven EFH habitats include estuarine, rocky shelf, non-rocky shelf, canyon, continental slope/basin, neritic zone, and oceanic zone. The estuarine composite is defined as waters, substrates, and associated biological communities within bays and estuaries of the EEZ. The entire San Diego Bay, as well as the ocean side of NBPL is considered EFH. The San Diego Bay EFH is covered under the San Diego Bay INRMP (U.S. Navy et al. 2011).

Marine Mammal Protection Act

All marine mammals are protected by the Marine Mammal Protection Act (MMPA) of 1972, as amended. The MMPA prohibits the take (hunting, killing, capture or harassment) of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products. The USFWS is responsible for the following marine mammals: sea and marine otters, walrus, polar bear, three species of manatees, and dugong. The USFWS may authorize and permit take (with limitations and mitigation measures) of marine mammals under their purview. Those mammals that are truly marine inhabitants, cetaceans and pinnipeds, other than walrus, are the responsibility of NMFS.

As of the date of this INRMP, there are no active MMPA consultations. A current list of active consultations can be obtained from the Work Induction Board NEPA Planner.

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3. Regional Ecological Setting

NBPL lies within the Mediterranean Ecosystem Division (Ecological Unit [EU] 261) of the Humid Temperate Ecosystem Domain (EU 200) (see **Figure 3-1**) (Bailey 1995). The South Coast Region of EU 261 is characterized with average temperatures ranging from 46 to 68 degrees Fahrenheit. Annual rainfall on NBPL averages 9.5 inches (CNM 2011); most of this precipitation occurs between November and early April. Humidity averages approximately 70 percent. Days are warm and sunny and nights moderate, with warm summers and mild winters. Prevailing northwest winds are moderated by the Pacific Ocean. Seasonal Santa Ana winds bring hot winter winds from the east. In addition, this region is recognized as one of the world's hotspots for fauna diversity (CDFG 2007). The region is home to 476 vertebrate animal species, which is approximately 38 percent of all the vertebrate species found in California. The coastal California area is also a major migration route for both water and land birds (Bailey 1995).

NBPL also lies within the California Coastal Chaparral Forest Shrub Province (CCCFSP) that is characterized by discontinuous coastal plains, low mountains, interior valleys, land-surface forms (Bailey 1995). The CCCFSP is adjacent to the Pacific Ocean, ranging from San Francisco to San Diego. Elevation ranges from mean sea level (MSL) to 2,400 feet and covers approximately 0.3 percent of the United States, or 10,300 square miles (Bailey 1995). Soils are characterized as mostly Alfisols and Mollisols, which have very low acidity and are quite fertile when the region is not experiencing drought conditions (Bailey 1995).

3.1 Ecological Drivers

Ecological drivers are environmental factors that exert a major influence on the fitness of individual organisms and their populations, and help constitute the physio-chemical template of an ecosystem (Winters et al. 2004). Environmental factors such as, geology, glacial history, climate or precipitation regime, flow regime and stream gradient determine the natural form and function of environments, such as aquatic, riparian, and wetland ecosystems. Ecological drivers control physical features such as land slope and aspect, stream form and gradient, thermal and moisture regimes, soil depth and fertility, and stream substrate and chemistry that constrain biological composition and processes (Winters et al. 2004). For example, combinations of ecological drivers can be analyzed to provide information on the landscape structure, which may be conducive to the presence and abundance of aquatic, riparian, and wetland resources (Winters et al. 2004).

3.1.1 Water Resources

The San Diego Region experiences a Mediterranean climate, and precipitation follows a strong seasonal pattern. More than 90 percent of the annual precipitation typically occurs during the six-month period of November through April. Likewise, the majority of evaporation, approximately 80 percent, occurs during the summer and autumn months and ranges from approximately 3.7 feet per year in coastal valleys to more than 4.2 feet per year in inland valleys (RWMG 2007).

The San Diego Region is comprised of eleven parallel and similar hydrologic units that discharge into coastal bays, estuaries, lagoons, and the Pacific Ocean (RWMG 2007). Precipitation and streamflows are highly seasonal with approximately 90 percent of the Region's streamflow occurring from December through May. Groundwater, inland surface waters, and coastal waters within the Region support a wide variety of water supply uses, recreational uses, and important ecosystems and habitats (RWMG 2007).

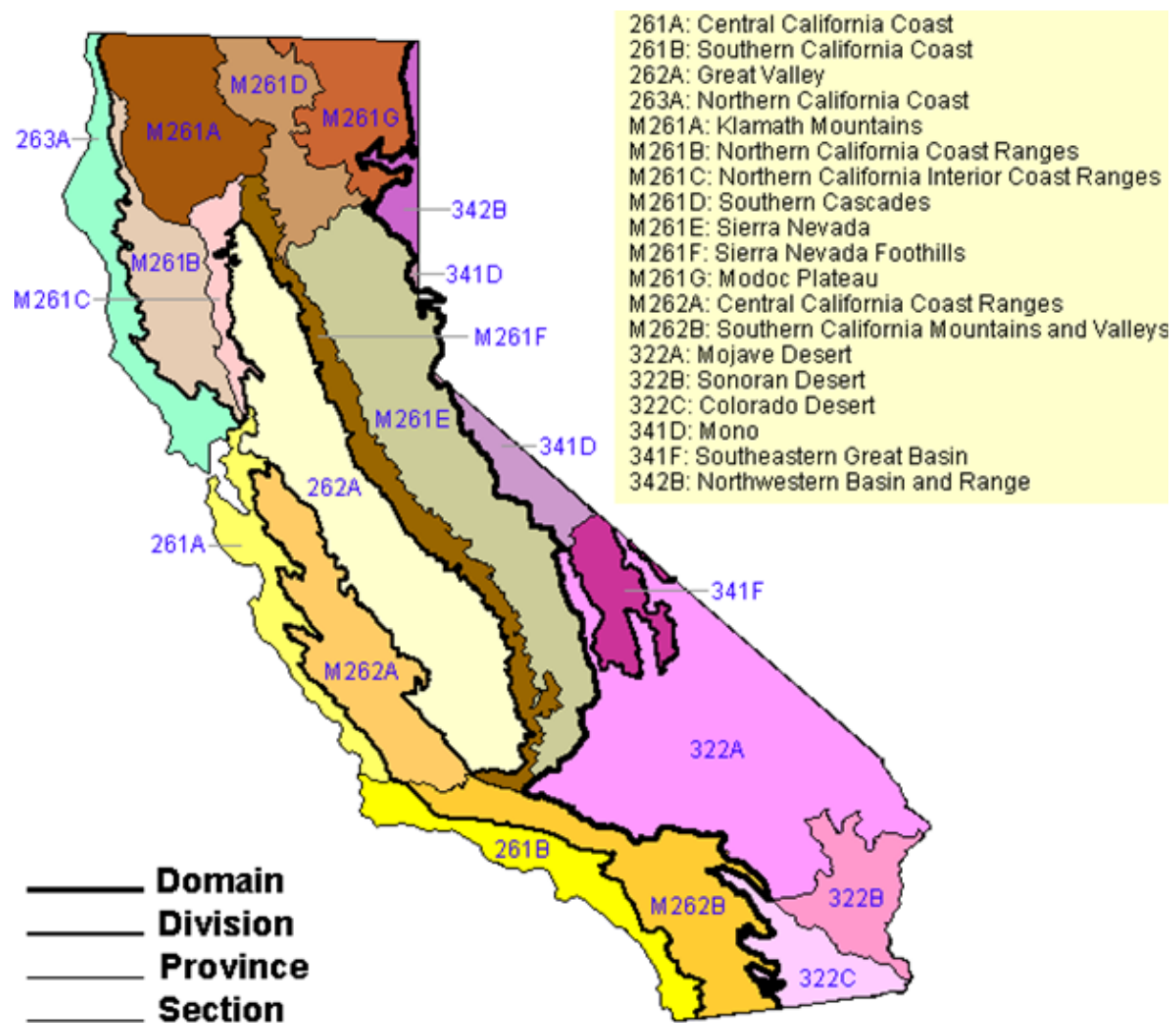


Figure 3-1: California Ecosystem Division

Regional water resources are comprised of surface water in the form of streamflow and coastal waters, and groundwater driven by localized alluvial aquifers (semi-consolidated, or consolidated sediments, and fractured rock) (RWMG 2007). Surface water within the region is characterized by streamflow (primarily driven by precipitation runoff), accounting for the majority of surface flow in streams and rivers, and coastal waters which support wildlife habitats, endangered species, and recreational uses. Groundwater resources support regional municipal, agricultural and industrial processes. In addition, riparian habitat and groundwater-dependent vegetation are known to exist in the Region (RWMG 2007).

The U.S. Geological Survey (USGS) and U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS) developed *Federal Guidelines, Requirements, and Procedures for the National Watershed Boundary Dataset*, which establishes interagency guidelines, requirements, and procedures that created a national, consistent, seamless, and hierarchical hydrologic unit dataset based on topographic and hydrologic features across the United States (USGS and USDA NRCS 2009). This Watershed Boundary Dataset (WBD), at a 1:24,000 scale in the conterminous United States consists of digital geographic data that include two additional levels of detailed hydrologic unit boundaries nested within existing or modified 1:250,000-scale hydrologic units. The WBD serves as interagency guidance

for developing digital geographic data for Watersheds (5th-level, 10-digit hydrologic units) and Sub watersheds (6th-level, 12-digit hydrologic units) to be incorporated into the WBD. The guidelines are designed to provide a consistent framework for local, regional, and national needs in states, Tribal Lands, Pacific Islands, Puerto Rico, and the U.S. Virgin Islands to accurately delineate watersheds.

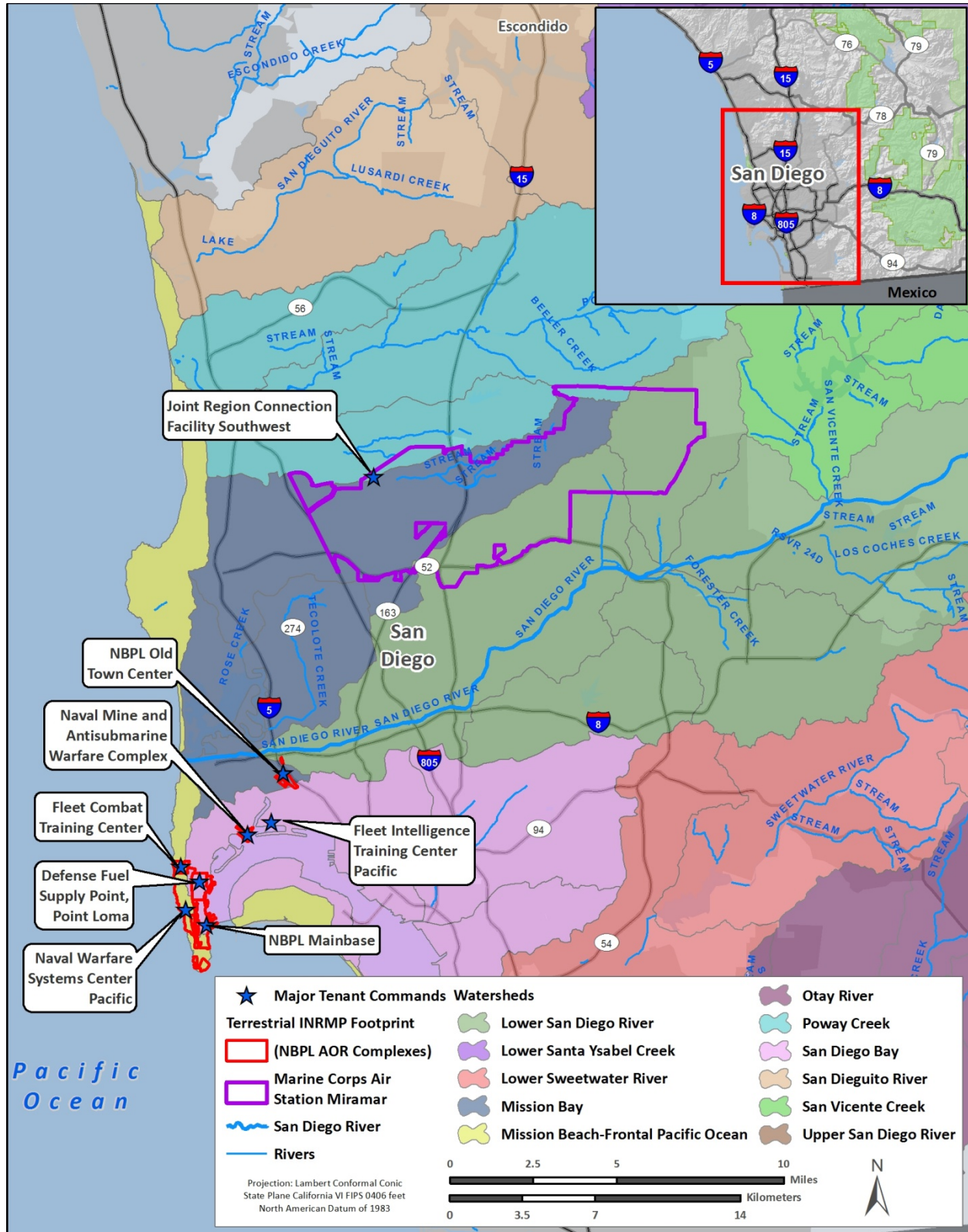
In 2009, the WBD was revised based on NRCS guidance entitled *Federal Standard for Delineation of Hydrologic Unit Boundaries, Version 2.0*, dated October 1, 2004, and through contributions of the WBD Technical Support Team, as requested by the Subcommittee on Spatial Water Data. According to the revised WBD, NBPL lies within the Laguna-San Diego Coastal Basin 180703 (3,860 square miles) of the Southern Subregion 1807 (11,100 square miles), which is further located in the California Region 18 (135,960 square miles). The Laguna-San Diego Coastal Basin drainage system is further defined by eleven hydrologically connected watersheds stemming from the Moro Canyon drainage basin near Laguna Beach to the California-Baja California international boundary, and ultimately discharging into the Pacific Ocean. These eleven watersheds include (see **Figure 3-2**):

- Lower Santa Ysabel Creek watershed (1807030402): 85,599 acres
- San Dieguito watershed (1807030403): 50,016 acres
- Poway Creek watershed (1807030404): 60,256 acres
- Upper San Diego River watershed (1807030405): 27,708 acres
- San Vicente Creek watershed (1807030406): 52,778 acres
- Lower San Diego River watershed (1807030407): 103,561 acres
- Lower Sweetwater River watershed (1807030409): 79,836 acres
- Otay River watershed (1807030410): 90,838 acres
- Mission Bay watershed (1807030411): 39,569 acres
- San Diego Bay watershed (1807030412): 60,007 acres
- Mission Beach-Frontal Pacific Ocean watershed (1807030413): 12,174 acres.

3.1.2 Fire

According to the California Wildlife Action Plan, wildfire is a natural and important ecological process in the South Coast that allows vegetation to grow and store energy via biomass production (CDFG 2007). Growth is restricted by the availability of other resources, particularly precipitation, and energy stored as vegetative biomass that is released as it is consumed by herbivores, detritivores, and fire (Millington 2003). Widespread forest management practices, as well as increases in human-caused wildfires, have altered fire regimes, and in some cases caused dramatic changes in regional habitats. Efforts to establish fire regimes that mimic historical fire patterns and frequencies, while also minimizing loss of property and life, are important to maintain and restore wildlife habitat. Dry conditions, along with annual hot, dry Santa Ana winds, make the San Diego Region's ecosystems fire-prone (CDFG 2007).

The South Coast has experienced several drought years within the last decade, which has left the regional ecosystem especially dry and vulnerable to fire (CDFG 2007). Furthermore, the expansion of residential development into rural and natural areas has increased the incidence of human caused fire. In the 1990s early 2000s, and 2007, extensive wildfires affected the entire region, and costs from property loss and fire suppression have risen to billions of dollars annually. In 2003, almost 400,000 acres burned, costing more than \$1.2 billion for fire suppression efforts and to repair damages resulting from the fires (CDFG 2007).



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 3-2: Naval Base San Diego Watershed Hydrologic Units

The causes and ecological consequences of wildfires differ among the region's ecological communities. In sage scrub, chaparral, and grassland systems, lightning-induced fires are fairly infrequent; however, human-caused fires have resulted in unnaturally high fire frequencies, especially along roads and near the urban-wildland interface, with some locations experiencing three fires within a period of 15 to 20 years (CDFG 2007). Increased fire frequencies favor non-native Mediterranean grasses that were introduced to the region with the arrival of European settlers and livestock. Once established, these grasses grow in a dense-thatch pattern that chokes out native vegetation and lowers habitat quality for wildlife, while providing ample fuel for the cycle of frequent burning. Attempts at fire prevention have not stopped the region's scrub and chaparral lands from burning, and it is the rate of human-caused fire and the Santa Ana wind conditions, rather than fuel build-up, that determines the extent and frequency of wildfire in these systems. Although frequent fires can promote the spread of non-native grasses, the effect of fire on native ecosystems depends on fire frequency and duration (CDFG 2007).

3.1.3 Drought

According to the California Natural Resource Conservation Service (CA-NRCS), drought is a normal, recurrent feature of climate. It occurs almost everywhere, although its features vary from region to region. Droughts in California typically occur gradually over several years. California's extensive water supply system can mitigate the effects of short-term dry periods; however, California's dependence on water for agriculture, industry, and recreation makes drought planning an economic necessity. When a drought occurs, the impacts are felt first by those most reliant on annual rainfall (CA-NRCS 2007).

Most definitions of a drought refer to abnormal dryness, as opposed to normal dryness that occurs during the summer in the southwestern United States (McNab and Karl 1991). The strongest drought signals occur during seasons when substantial precipitation is expected, but fails to fall. Therefore, if precipitation is the carrier of the drought signal, then climate describes the long-term characteristics of this signal. The climatic factors associated with drought, which include various aspects of local climate (e.g. anticipated precipitation, temperature, atmospheric water vapor, atmospheric circulation patterns, sources of moisture, vertical movement of air, storms, atmosphere and ocean and land-surface boundaries, and climatic anomalies), are related to atmospheric circulations that could extend well beyond the local area. Drought commonly is perceived as an abnormally long period without precipitation; however, decreased frequency of precipitation is not the only climatic factor that causes precipitation deficiencies. Droughts also are associated with weather systems resulting in minimal precipitation. For example, if minimal precipitation is delivered by an anticipated storm along a coastline, then a severe drought could ensue (McNab and Karl 1991).

3.1.4 Invasive Flora and Fauna

Relatively few non-native species were introduced to California prior to settlement by Spaniards in the 1700s. With the beginning of European settlement, non-native species were carried to California attached to the hulls of ships, submerged in the ships' ballast, or carried along in shipments of grain. Today, there are many different ways in which non-native invasive species are introduced to the State. Commercial shipping remains a major source of unintentional introductions, along with smaller commercial fishing boats and recreational watercraft (CDFG 2007). People traveling between natural areas, farms or waterways for work or recreation unintentionally spread invasive species on their vehicles, boats, equipment and even clothing. Both historically and today, non-native plant species have been introduced purposely for erosion control, livestock forage, landscaping and aquarium or garden ornamentals without an understanding of the potential consequences of those introductions (CDFG 2007). In addition, various animal species brought into California as sources of food, fur or pets, have turned into major pests (CDFG 2007).

Even though in general Californians have benefited from the introduction of flora and fauna, many introduced species can severely impact the state's environment and economy (CDFG 2009b). Invasive species (plant and animal) threaten the diversity of native species through competition for resources, predation, parasitism, interbreeding with native populations, transmitting diseases, or causing physical or chemical changes to the invaded habitat (CDFG 2007). In addition, invasive plants outcompete native species for light, water, and soil, and may also offer inferior habitat and nutritional values for native animal species and sometimes alter ecosystem processes, such as natural fire regimes (CDFG 2007). Likewise, "invasive animals outcompete, prey upon, or disturb the habitat of native wildlife and may spread diseases" (CDFG 2007).

Through their impacts on natural ecosystems, agricultural and other developed lands, and water delivery and flood protection systems, invasive species may also negatively affect the economy, human health, and wildlife and wildlife habitats. A large population of an invasive species can start from a very small number of individuals that may easily go unnoticed and become a multimillion-dollar problem for the state. Early detection and rapid response are the most effective and cost efficient responses to invasive species, after prevention (CDFG 2009).

3.1.5 Ecological and Natural Resources Disease

Ecological and natural resources diseases refer to those diseases that have an effect on flora and fauna species health, fecundity, and ultimately diversity. The National Biological Information Infrastructure (NBII) identifies four hot topic diseases impacting wildlife species populations including chronic wasting disease (CWD), avian flu, whirling disease and West Nile virus (WNV) (NBII 2009). Of these, only WNV and avian flu have the potential to occur on NBPL. NBII describes avian flu as a disease that is usually an inapparent or nonclinical viral infection of wild birds that is caused by a group of viruses known as type A influenzas. Avian influenza is caused by this collection of slightly different viruses rather than by a single virus type. Avian influenza viruses have been found in many bird species, but are most often found in aquatic birds, particularly ducks, shore birds, and gulls, which are considered the natural reservoirs for avian influenza viruses (NBII 2009).

The WNV is an insect-borne flavivirus that is commonly found in Africa, western Asia and the Middle East, and never reported in the Western Hemisphere before 1999 (Reisen et. al. 2004). It has been detected in at least 48 species of mosquitoes, over 250 species of birds, and at least 18 mammalian species, including humans (USGS 2009a).

The University of California Cooperative Extension (CCE) identifies and keeps track of the impact of plant diseases on native and agricultural plant species. A couple of the diseases that the extension tracks include sudden oak death, and witch broom/mistletoe infestations. The California Oak Mortality Task Force (COMTF) is a non-profit organization formed in 2000 to analyze the cause and determine solutions for reducing oak mortality in California (COMTF 2009). The organization defines sudden oak death as a forest disease caused by the *Phytophthora ramorum* pathogen resulting in the dieback of tanoak (*Lithocarpus densiflorus*) and oak tree (*Quercus* spp.) species in California and Oregon (COMTF 2009). Some of the species identified by COMTF in California include coast live oak (*Q. agrifolia*), California black oak (*Q. kelloggii*), Shreve oak (*Q. parvula*), canyon live oak (*Q. chrysolepis*), California bay laurel (*Umbellularia californica*), Douglas-fir (*Pseudotsuga menziesii*), and coast redwood (*Sequoia sempervirens*) (COMTF 2009). Likewise, septoria leaf blight (*Septoria quercicola*) and oak anthracnose (*Apiognomonia errabuna*) are fungi which affect the leaves of oak species (CCE 2005).

3.1.6 Climate and Climate Change

The metropolitan areas of Southern California have a Mediterranean climate, characterized by mild, sometimes wet winters and warm, very dry summers (NOAA 2009). California owes its climate to a

semi-permanent high-pressure area located over the eastern Pacific Ocean, which deflects storms northward and secures fair weather for the region. During the winter months, this high-pressure area breaks down allowing the jet stream to steer mid-latitude weather systems along a more southern track of the prevailing westerly winds (NOAA 2009). For this reason, the vast majority of precipitation comes from winter storms between November and March (NOAA 2009).

General characteristics of Southern California's climate are shaped by the influences of (NOAA 2009):

- **Winter storms**, where cold air associated with deep troughs of low pressure become modified by the mild ocean waters.
- **Summer monsoon**, where a strong upper ridge builds over the four corners region or the Great Basin. The resulting easterly or southeasterly flow on the south side of this high, draws warm air from Mexico into the Southwest U.S.
- **Marine layer**, in the form of dense fog or radiation fog, starts with a semi-permanent high pressure over the eastern Pacific Ocean, which produces persistent northwest winds that parallel the West Coast.
- **Sea breeze**, where the sun warms both the ground and ocean at the same rate. However, since the heat in the ground is not absorbed well, it returns heat to the warm air. As the air cools, it begins to collect, resulting in an increase in pressure, creating a "high" wind pressure.
- **Santa Ana Winds**, where strong, dry offshore winds blow from east or northeast. These winds are strongest below passes and canyons of the coastal ranges of Southern California.
- **Hurricanes**, where sea surface temperatures rise above 80 degrees Fahrenheit (°F), providing the necessary energy required for the formation of a hurricane. However, since the California Current is a cool ocean current that parallels the California Coast, hurricanes normally do not occur in the region.
- **El Niño and La Niña**, where air pressure rises over the western Pacific Ocean and lowers over the eastern Pacific. This change weakens or even reverses the trade winds and as a result brings heavy rains and strong winds to the region. La Niña is the opposite of the El Niño.
- **Global warming (Greenhouse Effect)**, where the observed average temperature of the earth is rising as a result of increased levels of carbon dioxide and other gases being released into the atmosphere, which could impact global climates.
- **Sun, earth, sea, space, and optical phenomena**, where naturally occurring phenomena such as solar and lunar phenomena, optics, astronomy, space weather in the form of aurora borealis or solar flares, ocean behavior beyond sea state, earthquakes, and volcanoes can reshape or temporarily modify the regional climate.

The California Climate Change Center (CCCC) has determined that during the last 50 years, winter and spring temperatures have been warmer, spring snow levels in lower- and mid-elevation mountains have dropped, snowpack has been melting one to four weeks earlier, and flowers are blooming one to two weeks earlier (CCCC 2006). These regional changes are consistent with global trends. During the past 100 years, average temperatures have risen more than 1 °F worldwide (CCCC 2006).

Continued climate change in California could result in an increase in extreme climate conditions, which pose the most serious human health and ecological risk (CCCC 2006). By 2100, if temperatures rise to the higher warming range, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and above 95°F in Sacramento (CCCC 2006). Higher temperatures, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada

spring snowpack by as much as 70 to 90 percent (CCCC 2006). This loss of snowpack would pose challenges to water managers, hamper hydropower generation, and nearly eliminate snow-related recreational activities (CCCC 2006).

Hydrologic conditions in the San Diego Region, and in the Colorado River Basin could be altered as a result of global climate change (based on conditions observed over the past century) (RWMG 2007). Listed below are seven key probable global changes identified in the San Diego Regional Water Management Group (RWMG), 2007 Integrated Regional Water Management Plan (IRWMP), which potentially have an effect on the hydrologic conditions of the Region (RWMG 2007):

- **Snowpack Changes:** Snowpack in the Sierra Nevada Mountains represents California's largest water storage component. Decreased snowpack in the Sierras will result in increased runoff during October through March, adversely affecting California's water storage and potentially affecting the amount of imported water available to the Region.
- **Hydrologic Patterns:** Global warming may result in a shift in storm tracks.
- **Storm Intensity:** Flood management, erosion, and water quality impacts could occur if climate change results in increased precipitation intensity and a reduction in healthy plant cover.
- **Sea Level Rise:** Sea level rises associated with global warming could increase coastal erosion, impacting ecosystems and tidal wetlands. Sea level rises would also increase salinity intrusion into various bays, adversely impacting the quality of State Water Project supplies delivered to the Region.
- **Water Temperatures:** Increased air temperatures and modified storm patterns may result in increased reservoir water temperatures, adversely affecting cold water and other species and increasing the intensity of algae blooms.
- **Water Demand:** Potential global warming effects on vegetation evapotranspiration are currently unknown. While increased temperature results in increased evapotranspiration, this may be partially offset by the fact that increased atmospheric carbon dioxide can result in reduced vegetation water consumption.
- **Energy Demand:** Global warming effects may result in increased energy demands that will require increased conservation and efficiency measures.

Climate is a primary determinant of fire patterns, and climate change may add a significant variable to efforts to understand historical fire regimes and to find management measures that can maintain the region's mosaic of habitats (CDFG 2007). Additionally, the expansion of residential communities into fire-dependent ecosystems creates a conflict between maintaining ecological integrity and protecting property (CDFG 2007).

Finally, noxious and invasive weeds currently infest more than 20 million acres of California farmland (CCCC 2006). Climate change may cause noxious and invasive weed ranges to shift into, and alter native plant ranges. Continued climate change could also result in the abundance of many pests, lengthen their breeding seasons, and increase pathogen growth rates (CCCC 2006).

Impacts to the San Region as presented in the San Diego Foundation Regional Focus 2050 Study include sea level rise, increased risk of large wildfires, increasingly uncertain water supplies from the Sacramento Delta and Colorado River imports, increased energy demands, increased pressure on wildlife populations (particularly special status species), and public health issues associated with heat waves and an increase in some infectious diseases like WNV. The authors relied on analysis of results from three climate models (the National Center for Atmospheric Research's Parallel Climate Model, NOAA's Geophysical Fluids

Dynamics Laboratory version 2.1, and the French Centre National de Recherches Meteorologiques) to predict the impacts to San Diego weather (e.g., precipitation and El Nino), sea level and coastal impacts, impacts to regional drinking water sources, projected changes in wildfire, threats to regional biodiversity and ecological processes, effects of climate change on public health, and potential infrastructure impacts (e.g., electricity generation and use) (SDF 2008). The full report can be accessed by visiting the San Diego Foundation website (www.sdfoundation.org) or using the following link: <http://www.sdfoundation.org/Portals/0/Newsroom/PDF/Reports/Focus2050glossySDF-limateReport.pdf>.

3.2 Ecosystem Function

Ecosystem function is the culmination of four basic fundamental processes: water cycling, mineral cycling, energy flow, and community dynamics (also called succession), that operate simultaneously in order to create a functioning ecosystem (Keppel 2003). Ecosystem function is also dependent on abiotic and biotic resources. Abiotic (non-living) resources consist of sunlight, temperature, precipitation, fire, water or moisture, and soil or water chemistry (Keppel 2003). Biotic (living) resources include members from each trophic level in the food chain (primary producers, herbivores, carnivores, omnivores, and detritivores) (Keppel 2003). In other words, ecosystem function is the interaction between organisms and their physical environment (Keppel 2003). Modification to any one of these processes, or removal of a resource, could potentially change the entire function of the ecosystem. For example, to have an effective water or mineral cycle, or adequate energy flow, an ecosystem must have communities of living organisms. For living things to thrive, they need effective energy flow to feed them (interlocking food chains or food-web), a water cycle that supplies adequate moisture, and a mineral cycle that supplies vital nutrients (Keppel 2003).

3.3 Ecosystem Management

Conceptually, ecosystem management is an appropriate strategy for managing installation natural resources. Pragmatically, the approach is not currently defined well enough to develop an integrated management plan that will guide natural resources management. Additionally, the intricately connected components of the NBPL ecosystem are not well understood across time and across large geographic areas. Also, there is an ongoing need for coordination between NBPL and other agencies, and between the NBPL and interested and affected public entities during plan development and implementation to effectively manage the ecosystem.

The guiding philosophy of this INRMP is to take an ecosystem approach to managing the natural resources present on NBPL. The interdisciplinary approach taken by this INRMP follows an ecosystem model, in which all appropriate components are integrated by their function. Ecosystem management is emphasized because it is recognized that the mission of the NBPL is inextricably linked to local, regional, and global ecological integrity. Sustaining ecosystem integrity is also the best way to protect biodiversity, ensure sustainable use, and minimize the effort and cost of management. Native and natural communities, and the processes that sustain them, are unique expressions of the evolutionary and geological histories that are essential to sustaining current system function and resilience. While habitat with the potential to dramatically alter ecosystem form and function is limited at NBPL, it is still a priority of this installation to manage according to this paradigm.

Ecosystem-based management also must consider human functions and needs within the foundation of establishing natural resources management actions. A useful perspective in modeling ecological and social needs together into this INRMP is through the application of an ecological economics perspective. Ecological economics (EE) is not traditional natural resources and environmental economics (Costanza et al. 1997). EE is a departure from the traditional ways that ecologists, land managers, and economists have considered the economic and ecological needs of a particular system by thinking about economic

and ecological theory together from an interdisciplinary perspective. In the case of the NBPL, the EE perspective can be applied to better understand the operational, social, and ecological requirements at unit locations. This INRMP brings together some of the insight from economic thought and operational necessity with the insight of ecology to present a clearer perspective on the relationship between Navy operations, crew morale, community responsibilities, and ecological functions and the interactions which bind them.

This EE perspective can be applied to merge the needs of the operational mission and the social environment of NBPL with the ecological functions of the installation and the region. From this perspective, six central themes have been developed to guide the ecological management perspective used in formulating the goals, objectives, and management actions in this INRMP. EE themes included in the development of the natural resources management actions include sustainability, broad ecological values, uncertainty, multiple methodologies, cooperative efforts, and land ethic.

Ecosystems provide services that are of utility to wildlife, plants, and humans. Healthy ecosystem functions are often viewed separately from human communities; however human society is inextricably linked to ecosystem structure and function. For example, regulation of hydrological flow is beneficial to human communities to provide drinking water, irrigation, or industrial applications that drive our society. A list of the ecosystem services and the functions (with examples) they provide are provided below (see **Table 3-1**).

As described above, it is the goal of ecosystem management at NBPL to conserve biodiversity by managing the ecosystem rather than focusing on a single biotic or abiotic component of the ecosystem. Ecosystem-focused management at NBPL encompasses both the function and the structure of the ecosystem and the processes that link them.

Objective: Develop an effective natural resources management approach that integrates all ecological components into a comprehensive management program.

Strategies:

1. Foster landscape-scale thinking among NBPL staff and provide them with appropriate training if needed.
2. Use the GIS to store, manage, analyze, interpret, and report data in a scientifically valid, efficient, and cost-effective manner.
3. Develop new, and enhance existing, databases, and acquire applicable databases from outside sources for application in GIS. Implement actions identified in the INRMP once plans are developed or revised.
4. Use this INRMP as a beginning point to develop an ecosystem management approach to natural resources management.
5. Work with offsite land managers to develop partnerships that would allow the restoration of habitat for federally listed species on their lands.
6. Define and identify the ecosystems and explain the purpose and goals of the management with specific success criteria, adaptive management, and reporting requirements.

Table 3-1: Ecosystem Services and Functions

Ecosystem Service	Ecosystem Functions	Examples of Benefits
Gas regulation	Regulation of atmospheric chemical composition	Carbon dioxide/oxygen balance, ozone for ultraviolet light protection, and sulfur oxide levels
Climate regulation	Regulation of global temperature, precipitation, and other biological mediated climatic processes at global or local levels	Greenhouse gas regulation, dimethyl sulphide production affecting cloud formation
Disturbance regulation	Capacitance, damping, and integrity of ecosystem response to environmental fluctuations	Storm protection, flood control, drought recovery, and other aspects of habitat response to environment variability mainly controlled by vegetation structure
Water regulation	Regulation of hydrological flows	Provisioning of water for agricultural (e.g., irrigation) or industrial (e.g., milling) processes or transportation
Water supply	Storage and retention of water	Provisioning of water by watersheds, reservoirs, and aquifers
Erosion control and sediment retention	Retention of soil within an ecosystem	Prevention of loss of soil by wind, runoff, or other removal processes; storage of silt in lakes and wetlands
Soil formation	Soil formation processes: weathering of rock and the accumulation of organic material	Provisioning of soil for agricultural production and to support development of habitat for wildlife
Nutrient cycling	Storage, internal cycling, processing, and acquisition of nutrients	Nitrogen fixation and other elemental or nutrient cycles; potential sequestering of soil carbon to reduce greenhouse gas effect
Waste treatment	Recovery of mobile nutrients and removal or breakdown of excess nutrients and compounds	Waste treatment, pollution control, and detoxification
Pollination	Movement of floral gametes	Provisioning of pollinators for the reproduction of plant populations
Biological control	Trophic-dynamic regulations of populations	Keystone predator control of prey species and reduction of herbivory by top predators
Refugia	Habitat for resident and transient populations	Nurseries, habitat for migratory species, or regional habitats for locally harvested species or overwintering grounds
Food production	The portion of gross primary production extractable as food	Production of fish, game, crops, nuts, and fruits by hunting, gathering, subsistence farming, or fishing
Raw materials	The portion of gross primary production extractable as raw materials	The production of lumber, fuel, or fodder
Genetic resources	Sources of unique biological materials and products	Medicine, products for materials science, genes for resistance to plant pathogens

Ecosystem Service	Ecosystem Functions	Examples of Benefits
		and crop pests, and ornamental species
Recreation	Providing opportunities for recreational activities	Ecotourism, sport fishing, and other outdoor recreational activities
Cultural	Providing opportunities for non-commercial uses	Aesthetic, artistic, educational, spiritual, and scientific values of ecosystems

Source: Costanza et al. 1997

4. Naval Base Point Loma On Peninsula

4.1 Purpose, Approach and Rationale

Natural resources management at NBPL strives to integrate biodiversity conservation and an ecosystem-based approach into an adaptive management framework compatible with the military mission. As a result, the natural resources program consists of multiple resource disciplines that are frequently interconnected and share similar objectives. Management projects and plans often consist of multiple program elements with several different resource experts collaborating together. This section describes the various natural resources Program Elements along with their primary goals and objectives.

A number of items have been identified in subject areas that affect the natural resources present on and immediately adjacent to NBPL. The purpose of this section is to identify goals, objectives, and strategies for natural resources management on NBPL.

The goal for management of natural resources at NBPL **is to provide for no net loss to the military mission by managing natural resources in an adaptive ecosystem-based approach, to support multiple use and biological integrity.**

Specific concerns or threats, current management, and the management strategy for each natural resources area are described below. The management strategies include an objective and individual strategies, or projects. A summary of the strategies as well as the estimated time frame for completion is presented in **Appendix D, Table D-1.**

Some of the strategies described in this section will be accomplished through interactive partnerships with other federal, state, and local organizations. Natural resources staff at NBPL will initiate partnerships based on the benefits to the regional ecosystem and the local environment.

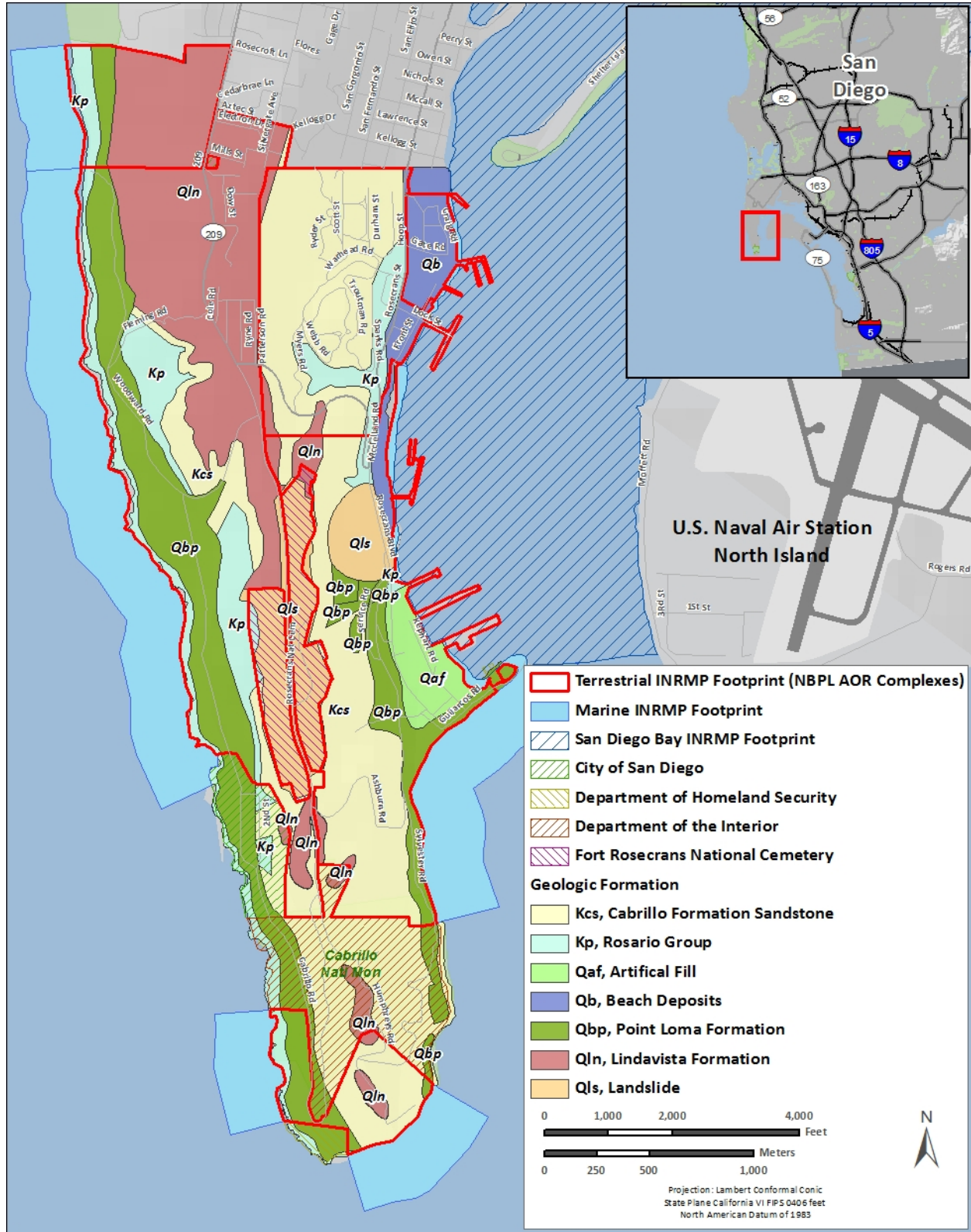
4.2 Natural Resources Current Conditions and Management

4.2.1 Topography, Geology and Seismicity

The Point Loma peninsula extends four miles into the Pacific Ocean, providing shelter to the San Diego Bay. The rugged peninsula is divided by several natural drainages and canyons. Slopes ranging from 40 to 75 percent are common (U.S. Navy 2002). The west side of the peninsula slopes up from the Pacific Ocean, exposing a rugged coastline with eroded sandstone cliffs above vast rocky benches, boulder fields, and small sandy beaches. Slopes gradually increase for a short distance from the ocean, then increase rapidly to the ridge in the center of the peninsula. Slopes on the east side of the peninsula also increase rapidly from the Bay to the central ridge. Elevations along the top of the ridge average 350 feet above mean sea level (amsl) and in a few locations rise to over 420 feet amsl.

The Point Loma peninsula lies within the Peninsular Ranges Geomorphic Province, which consists of north/south-trending mountain ranges and associated valleys with a belt of marine terraces along the coast. Overall, the geology of the peninsula is made up of marine sandstone and siltstone (see **Figure 4-1**). The following geology information has been taken from 2002 Naval Base Point Loma Integrated Natural Resources Management Plan.

The Rosario Group, which lies along the Pacific Ocean coastline to the tip of the peninsula, was deposited during the upper Cretaceous period. The Point Loma Formation, an intermediate part of the Rosario Group, is found along the sea cliffs above the Pacific Ocean on the peninsula. This formation extends to the tip of Point Loma where it has an exposed thickness of 270 feet.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-1: Geology of Naval Base Point Loma

The Cabrillo Formation is the uppermost part of the Rosario Group. On Point Loma, this formation is common and found from the southern tip to the northeastern section of land. It generally overlies the Point Loma Formation. The Cabrillo Formation is 266 feet thick at its type locality.

The Bay Point Formation widely occurs along the Pacific coastline and along the San Diego Bay near Fort Rosecrans, Ballast Point, and La Playa (MSF degaussing facility north to SSC Pacific). It is mostly composed of marine and non-marine fossiliferous sandstone.

Two landslide deposits on the east side of the peninsula, north of Fort Rosecrans, are gravity slides resulting from basal erosion of steep slopes, groundwater saturation, surface-water erosion, and poorly consolidated rock .

Artificial fill occurs beneath the Fort Rosecrans National Cemetery and along the bayside from Fort Rosecrans to La Playa. Small inclusions of beach sand are found along La Playa/SSC Pacific to the MSF deperming facility.

Several seismic faults emerging from three main fault zones, Rose Canyon, La Nacion and Point Loma, are beneath San Diego County. These fault zones are considered potentially active and the potential for severe earthquakes in the County exists, but no historic ground surface ruptures have been recorded in these fault zones. Faults occurring in proximity to NBPL are shown in **Figure 4-2**. Earthquake hazard is rated on a scale from 0 (least hazard) to 4 (most hazard). The International Conference of Building assigned San Diego County with Seismic Zone 3 rating, and the NAVFAC Design Manual 2 assigned a Zone 4 rating.

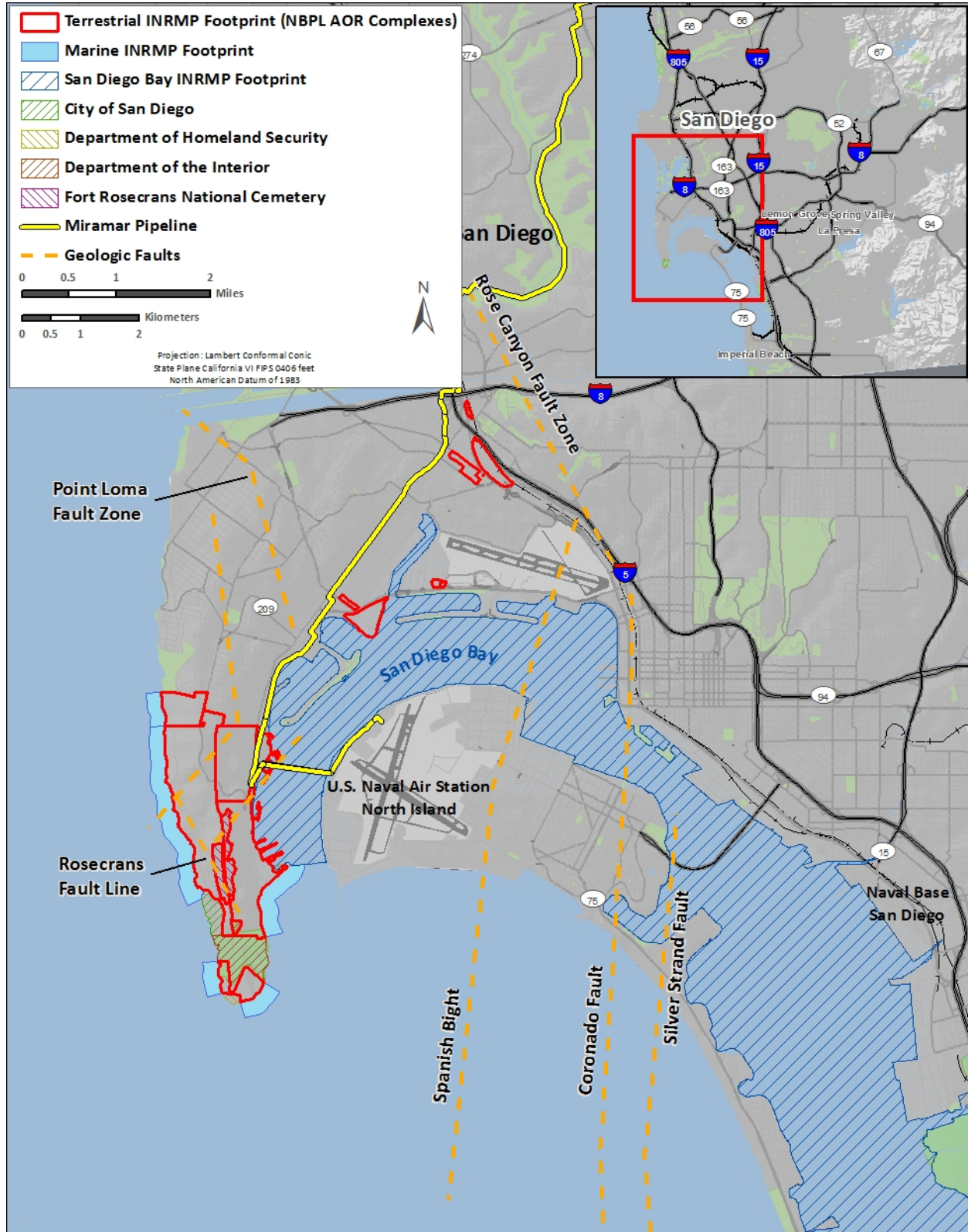
The Point Loma fault crosses northern Point Loma along the route of Nimitz Boulevard, and the Fort Rosecrans fault, which consists of a series of step-faults running along the Point Loma ridge extends from north of the Installation boundary south to the hillside above Ballast Point . Combined, these faults make up the Point Loma Fault Zone.

4.2.2 Watershed Management

Watershed management is important to natural resources management because it directly affects both surface water and groundwater quality and is critical to maintain valuable aquatic habitats.

Healthy, stable soils are the foundation of a healthy ecosystem. As soils lose their structure and begin to erode, other systems also begin to fail. Vegetation and wildlife decline in numbers and diversity, and the quality of surface water declines as it becomes loaded with eroded sediments. Some soil types, such as those found at NBPL, took centuries to develop and are not easily replaced or repaired if lost or damaged. Inherent in the clay and sandy nature of NBPL's soils is a risk of significant erosion when vegetation is removed or, soil structures are disturbed. The fragile nature of these soils make the protection of NBPL's soils vital for maintaining many of the functional systems that make up a healthy ecosystem.

The Point Loma peninsula has distinct watersheds on both the Bay and ocean sides due to its unique topography. The east side of the peninsula is in the San Diego Bay Watershed and the western side is in the Mission Beach-Frontal Pacific Ocean Watershed. The rugged terrain on the peninsula is enhanced by numerous natural drainages that channel runoff to sea level. The City of San Diego maintains a reservoir located on Catalina Boulevard east of Fleet Combat Training Center, Pacific, just past Guard Post 2 before reaching Electron Drive heading south on Cabrillo. In addition, two large potable water reservoirs are located on the east side of Cabrillo Memorial Drive on Point Loma. One is located north of Fort Rosecrans National Cemetery and the other is south of Ashburn Road where it joins Cabrillo Memorial Drive. The Transducer Evaluation Center (TRANSDEC) which is an open-air pool designed and used for testing hydrophones and other uses, is located on SSC Pacific.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-2: Faults in the Vicinity of Naval Base Point Loma

4.2.2.1 Soils

There are four main soil series on the Point Loma peninsula including the Carlsbad, Gaviota, Hambright, and Reiff (USDA 1973). The peninsula also has small areas of coastal beaches, marina loamy coarse sand, rough broken land, steep gullied land, and terrace escarpments (USDA 1973). **Figure 4-3** provides a map of soils occurring on Point Loma. The following text provides general description of the primary soils mapped on Point Loma and NBPL.

The Carlsbad series soils are moderately well drained and well-drained gravelly loamy sands that are found on slopes of 2 to 30 percent. The soil is moderately deep (generally from 21 to 39 inches) over a hardpan. These soils formed in material weathered in place from soft ferruginous sandstone. In general, vegetation cover is mainly chamise (*Adenostoma fasciculatum*), black sage (*Salvia mellifera*), laurel sumac (*Malosma laurina*), grasses and forbs. On Point Loma, this soil type lies beneath the Fort Rosecrans National Cemetery, developed lands, and a small amount of coastal sage scrub (USDA 1973).

The Gaviota series consists of well-drained, shallow fine sandy loams that formed in material weathered from marine sandstone. These soils are on uplands and have slopes of 15 to 30 percent. The elevation ranges from 300 to 500 feet. Vegetation on this soil in San Diego County is mainly chamise, cactus (*Opuntia* spp.), scrub oak (*Quercus dumosa*), laurel sumac, California buckwheat (*Eriogonum fasciculatum*), grasses and forbs. This soil is mapped over a large area on Point Loma. Corresponding vegetation communities on Point Loma include maritime succulent scrub, southern maritime chaparral, and coastal sage scrub (USDA 1973).

The Hambright series consists of well-drained, shallow gravelly clay loams that formed in material derived from shaly breccias (a clastic sedimentary rock composed of large angular fragments). These soils are located in mountainous areas and have slopes of 30 to 75 percent. The vegetation is primarily chamise, grasses, and forbs. Vegetation associated with this soil on Point Loma is characterized by southern maritime chaparral and maritime succulent scrub (USDA 1973).

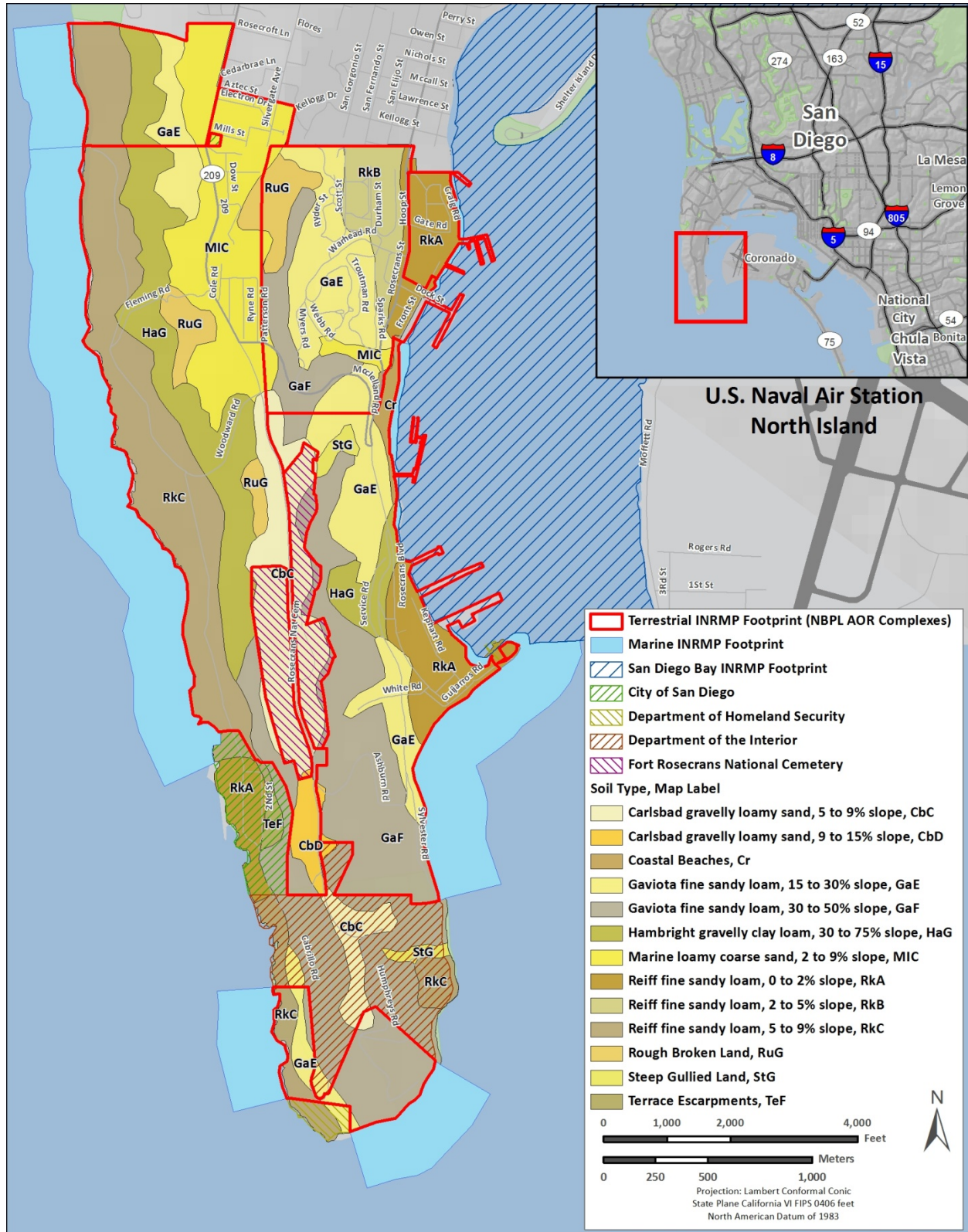
The Reiff series soils occur on alluvial fans and ocean terraces. They are well-drained, very deep (as thick as 90 inches on shoreline cliffs) fine sandy loams that formed in alluvium derived from granitic rock. Slopes are from 0 to 9 percent. On Point Loma, maritime succulent scrub is the dominant vegetation association found on undisturbed Reiff soils (USDA 1973).

4.2.2.2 Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific National Pollutant Discharge Elimination System (NPDES) permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy.

Specific Concerns

- Altered fire regime.
- Erosion and sedimentation from anthropogenic activities, or excess stormwater runoff.
- Development/anthropogenic disturbances.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-3: Soils at Naval Base Point Loma

Current Management

OPNAVINST 5090.1C CH-1 requires that installation sources of dust, runoff, silt, and erosion debris be controlled to prevent damage to land, water resources, equipment, and facilities, including adjacent properties. An erosion-and-sediment-control plan must be implemented where appropriate. Maintenance of vegetative cover is consistent with ecosystem management goals expressed earlier. Other materials can be used including gravel, fabrics, riprap, and recycled concrete and pavement that are environmentally safe and compatible with the site. Where bare ground is necessary, other measures for dust, sedimentation, and erosion control should be implemented (e.g., check dams, wind breaks, diversions). To minimize land maintenance expenditures and help ensure environmental compliance, physically intensive activities should be located on those areas least susceptible to erosion. The erosion potential of a site and adjacent water resources need to be identified and analyzed in preparing development, training, and land use plans.

In 2008, an Erosion Control Plan (ECP) was developed for NBPL. The goal of the plan is to protect facilities and natural resources on NBPL by minimizing the potential for excessive erosion. Damage to facilities and infrastructure negatively impacts Navy operations on NBPL. In addition, erosion negatively impacts native plant communities that are rare in coastal southern California. These plant communities provide habitat for many sensitive plant and animal species on the Point Loma peninsula (U.S. Navy 2008d).

The plan also includes BMPs to control erosion on NBPL. BMPs were developed for planning and monitoring construction projects, stabilizing soils during construction projects, ensuring the landscape design does not increase erosion potential during and after construction, and measures to ensure water quality is not impacted during construction (U.S. Navy 2008d). Management strategies below are based on strategies presented in the ECP.

Management Objectives and Strategy

Objective: Protect soils and waterways from the adverse effects of stormwater runoff from development by maintaining soils and reducing runoff, erosion, and gully formation to the maximum extent feasible.

Strategies:

1. Monitor and rehabilitate degraded soil resources. Soil resources will be monitored, evaluated, and rehabilitated. Survey results will be analyzed to assist with identification of degraded soil or eroded areas.
2. Update ECP (U.S. Navy 2008d) as needed.
3. Do not leave slopes exposed, including during construction and training activities.
4. Develop and disseminate informational materials and a short seminar on the erosion control BMPs and watershed protection issues.
5. Educate personnel who are likely to impact the watersheds on erosion and sedimentation BMPs and watershed protection issues.
6. Develop and use an erosion and sedimentation questionnaire designed to gauge the effectiveness of the informational materials and short seminar.
7. Survey areas where soil erosion and compaction might occur to ensure that BMPs within the ECP (U.S. Navy 2008d) are implemented and are effective.

8. Periodically review erosion control BMPs to ensure that they are still adequate to control adverse erosion and sedimentation on NBPL. Conduct surveys to determine whether activities on NBPL are adversely impacting soil and water resources on NBPL as a result of erosion and sedimentation.
9. Conduct surveys of all drainages within the installation to identify erosion, sediment accumulations, or other threats to stream stability.
10. Develop actions specific to each unstable drainage that can be undertaken to assist with recovery.
11. Periodically evaluate drainages to ensure that drainages are not adversely impacted by installation activities.
12. Ensure that erosion and sedimentation from activities conducted on NBPL does not flow into the San Diego Bay.

4.2.3 Habitat Management

Habitat management is a broad term that encompasses a whole range of management issues that affect fish and wildlife, threatened and endangered species, and ecosystem goals.

The Point Loma peninsula has a high diversity and abundance of wildlife, as well as many plant species that provide many ecological, aesthetic, and recreational values to the Navy and the general public. The value and sensitivity of the natural habitats located on the Point Loma peninsula have increased due to the combined factors of a geographically isolated peninsula and the fragmentation associated with urbanization. Due to its isolation from other significant stands of natural vegetation, geographic position along the coast, maritime climatic influence, and relatively low level of development as a result of the existing military mission, Point Loma functions as an insular, or island setting (U.S. Navy 1994).

Because Point Loma peninsula functions as an island, any habitats occurring in the reserve are more susceptible to disturbances than habitats with similar characteristics located elsewhere in less isolation. The following sections provide descriptions of habitats occurring on and bordering the peninsula section of NBPL.

4.2.3.1 Terrestrial Habitats and Vegetation Communities

Ten terrestrial vegetation community types were mapped in 2008 on the peninsula section of NBPL (U.S. Navy 2009d). The community types include the intertidal zone bordering the peninsula. A total of 375 plant species have been identified in the undeveloped areas of Point Loma, this excludes the intertidal areas. Of that, sixty percent of the species, a total of 224, are native to Southern California.

Vegetation surveys of NBPL were completed in 2008 (U.S. Navy 2008a) and 2009 (U.S. Navy 2009d), and a draft vegetation classification was completed in 2010 (NPS 2010). The vegetation classification system used in this INRMP meets the standards of the National Vegetation Classification System as required by the Federal Geographic Data Committee. This vegetation classification system differs from the NatureServe habitat classification detailed on the Navy Conservation Website because the NatureServe database is incomplete for California.

Table 4-1 provides a list of terrestrial communities along with acreages within the boundaries of NBPL based on the 2009 Navy surveys. Upon completion of the Draft 2010 NPS Vegetation Classification report, updated classifications and acreages will be available for alliances and associations on NBPL.

Table 4-1: Vegetation Communities and Land Cover Types on Naval Base Point Loma (on Peninsula) based on 2009 Navy Survey

Vegetation Community / Land Cover Type	Acres
Low shrublands	602.5
- Southern coastal bluff scrub	36.1
- Maritime succulent scrub	275.6
- Diegan coastal sage scrub	118.3
- Diegan coastal sage scrub / southern maritime chaparral	55.3
- Southern maritime chaparral	116.2
- Maritime succulent scrub / southern maritime chaparral	1.0
Woodlands and forests	18.3
- Torrey pine forest	1.2
- Eucalyptus woodland	17.1
Others	92.6
- Southern foredunes	1.6
- Ruderal	91.0
Total Vegetated Acres	713.4

Source: U.S. Navy 2009d

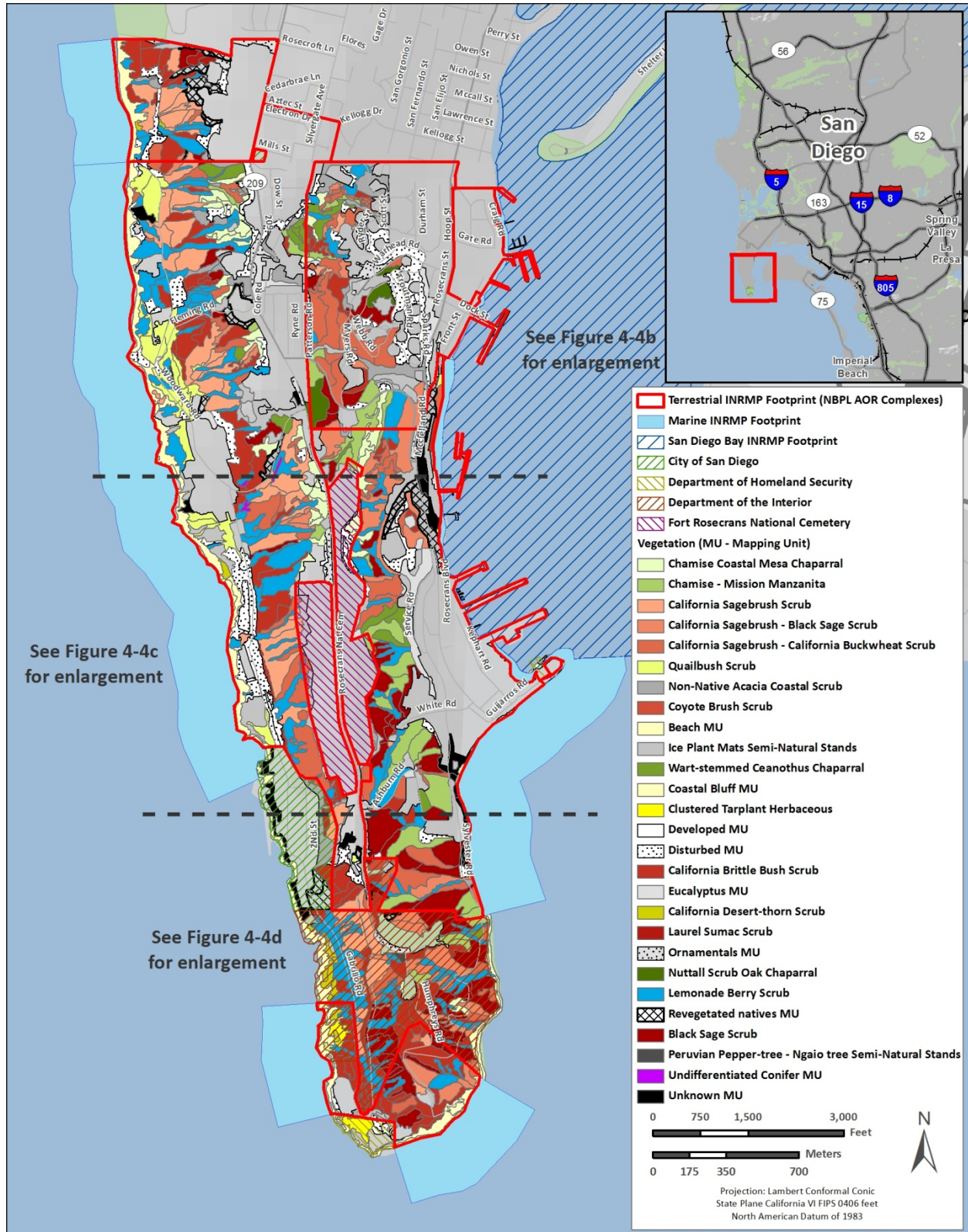
Figures 4-4a through **4-4d** show the distribution of vegetation communities and land cover types on NBPL based on the Draft 2010 NPS Vegetation Classification.

A comprehensive list of the plant species observed on Point Loma based on the 2009 Navy surveys is included in **Appendix G**.

Note that 2009 Navy survey vegetation community data in **Table 4-1** does not correspond to Draft 2010 NPS Vegetation Classification data shown in **Figures 4-4a** through **4-4d**. Upon completion of the Draft 2010 NPS Vegetation Classification report, updated classifications and acreages will be available for alliances and associations on NBPL.

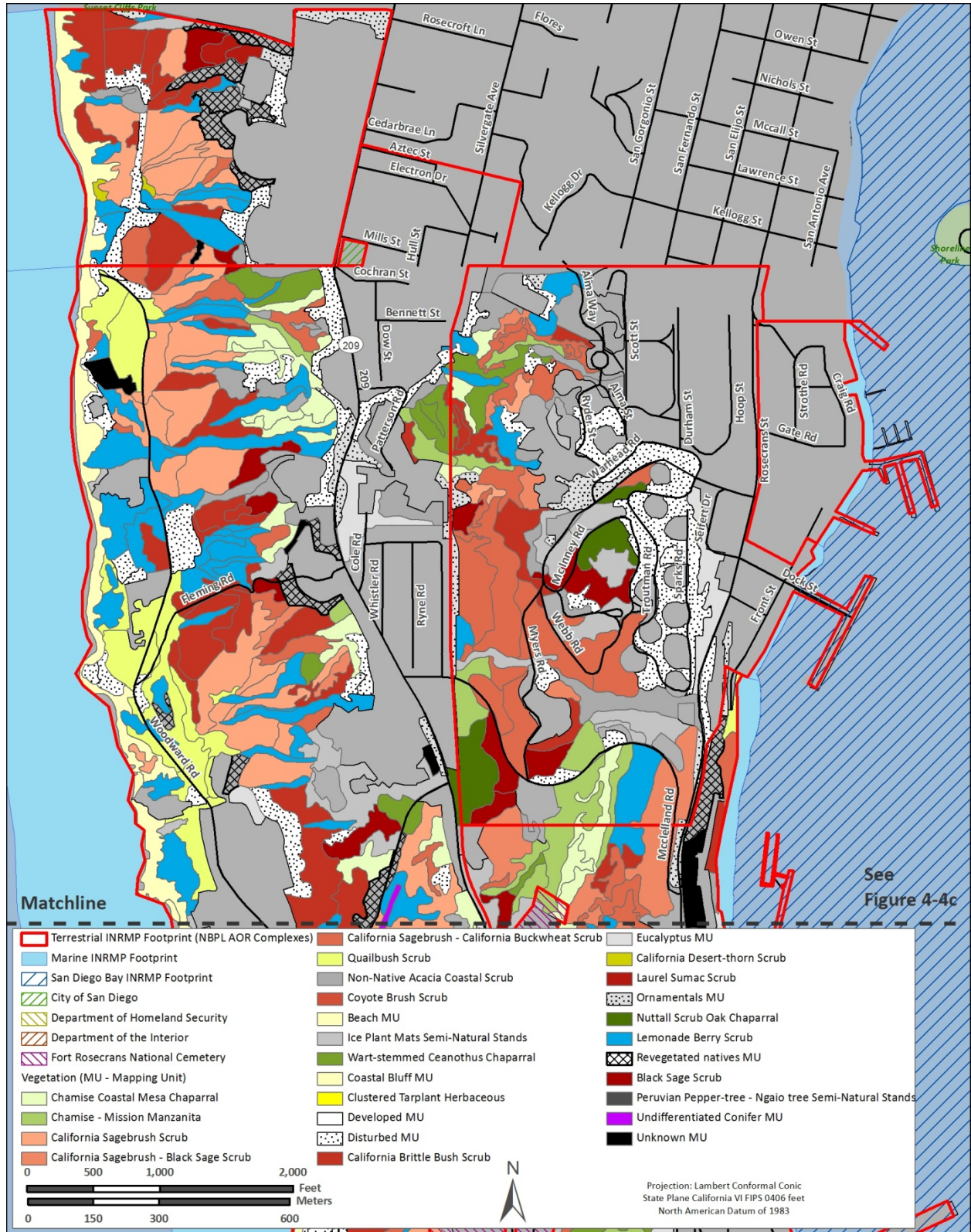
Specific Concerns

- Invasive species encroaching on native species habitats.
- Altered fire regime.
- Development and other anthropogenic influence.
- Erosion and sedimentation from either anthropogenic or natural causes.
- Climate change (e.g., changes in temperature or sea level rise).
- Overuse, or improper use, of fertilizers.



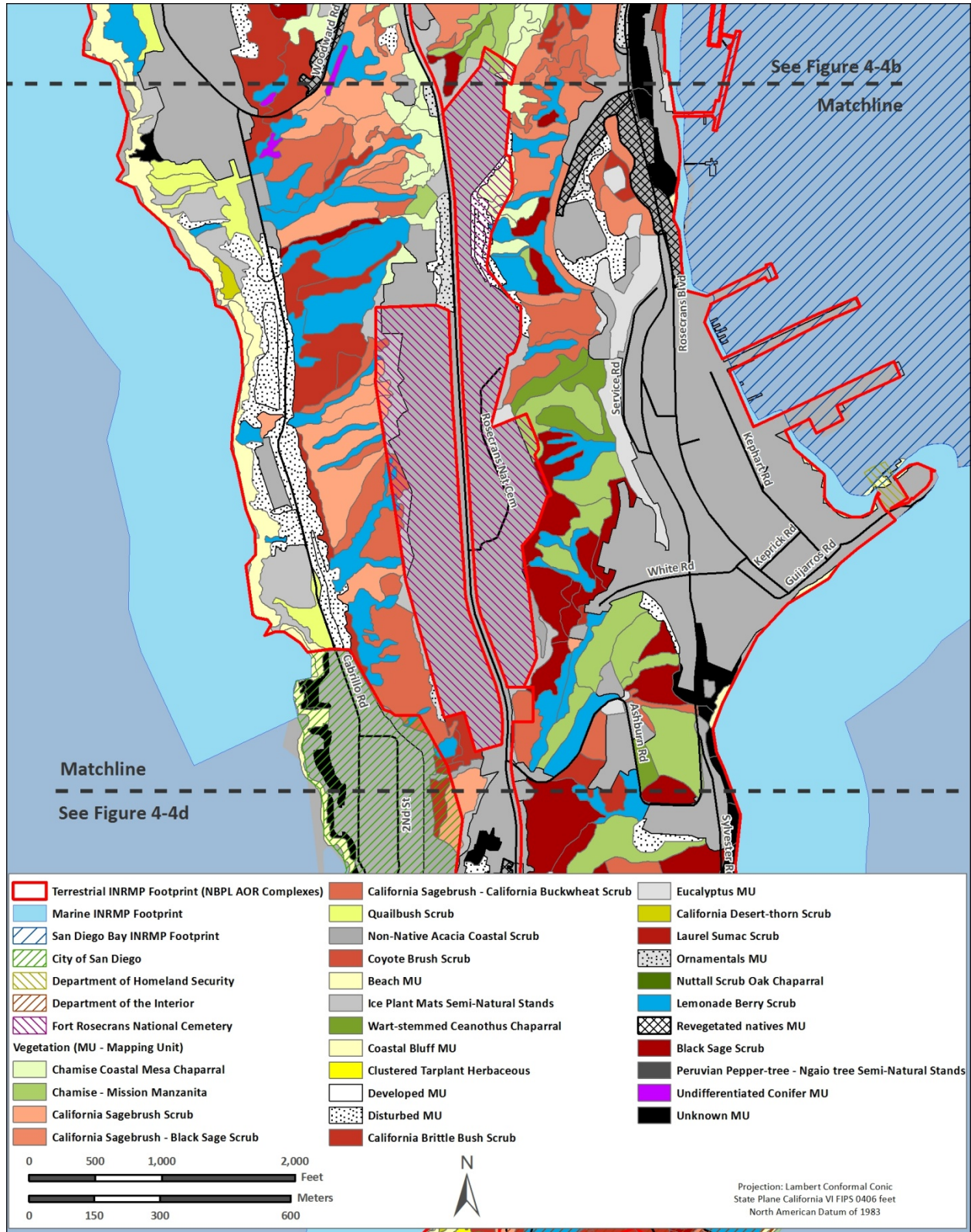
Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-4a: Overview of Vegetation Communities and Land Cover Types on NBPL Based on 2010 NPS Vegetation Classification



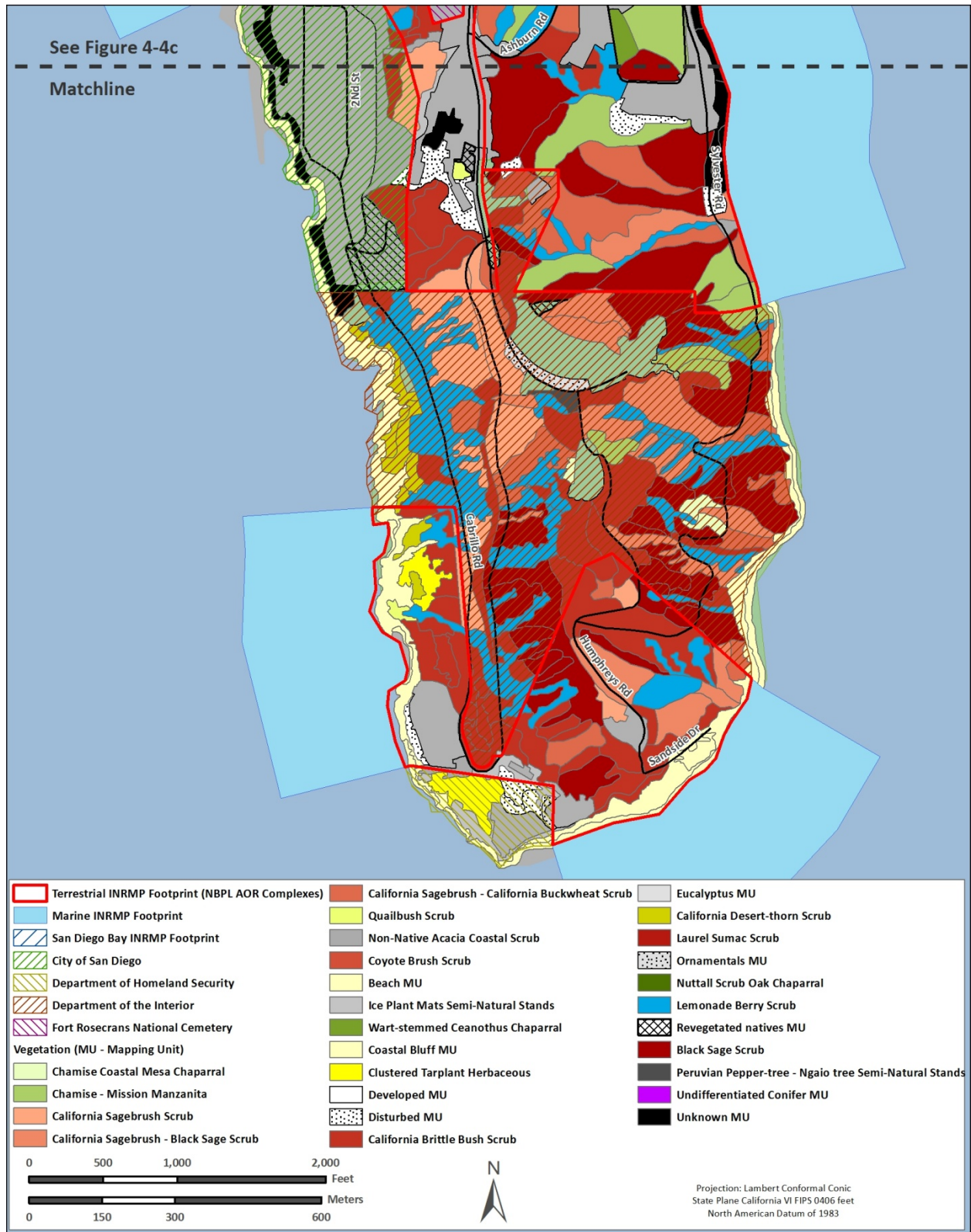
Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-4b: Vegetation Communities and Land Cover Types on the North Section of NBPL Based on 2010 NPS Vegetation Classification



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-4c: Vegetation Communities and Land Cover Types on the Central Section of NBPL Based on 2010 NPS Vegetation Classification



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-4d: Vegetation Communities and Land Cover Types on the Southern Section of NBPL Based on 2010 NPS Vegetation Classification

Current Management

Current management for native habitats and special status natural communities includes implementation of the ECP (U.S. Navy 2008d), the habitat restoration and sensitive species management components in the VMP (U.S. Navy 2008a), landscaping plant list (**Appendix J**), and the JWFMP (U.S. Navy 2006b). Projects implemented under these plans include invasive species removal, species surveys, installation of erosion control material, and revegetation.

The primary goal of the NBPL Vegetation Management Plan is to preserve habitat supporting sensitive plant and animal species on NBPL (U.S. Navy 2008a). This goal is in alignment with several of the natural resources goals discussed for the PLECA, including: 1) maintaining functional ecosystems; 2) maintaining viable populations of target sensitive plant and animal populations (as they relate to vegetation management); 3) maintaining habitat linkages between critical biological resources areas; and 4) maintaining full range of vegetation communities and natural succession in ecologically significant areas, with a focus on habitats that are viable and of limited distribution in a regional context (U.S. Navy 2008a). The INRMP objectives were developed based on the Vegetation Management Plan and PLER (PLECA) Natural Resources Management Plan.

The following objectives were identified within the VMP to guide landscape management decisions in an effort to achieve the overall goal:

- Control current infestations of invasive species and prevent introduction and spread of potentially problematic non-native species
- Create landscaping guidelines and make recommendations for enforcement.

Coordination meetings with adjacent landowners, regulatory agencies, and other stakeholders are held as specified in the plans including the ECP, VMP, landscaping plant list, and the JWFMP, or as needed. Removing invasive exotic plants, planting native species, and restoring habitat activities are conducted through coordination with the installation biologist.

The 1996 Cabrillo National Monument General Management Plan (NPS 2006b) added staff and facilities to adequately protect and interpret the monument's significant resources. The vegetation management objective in line with this INRMP is to restore and protect native vegetation through specific management strategies within the park and on adjacent Navy property. CNM would continue efforts to restore native habitat by removing nonnative (exotic) species, staff persons would actively participate in the management and care of the PLECA, emphasize restoration of the natural environment and habitat using endemic plant species, and investigate other techniques to achieve this objective. The GMP has not been updated since 1996; however, CNM drafted a State of the Parks Report which discusses the status and trends of natural and cultural resources (NPS 2012).

Additional detailed information on habitat restoration efforts on NBPL is available in the VMP (U.S. Navy 2008a). Updated information on habitat restoration will be included in annual updates to this INRMP in **Appendix O**. The NBPL ECP provides guidelines for soil resources management.

Management Objective and Strategy

Objective: Continue to implement the VMP, ECP, and JWFMP recommendations for habitat enhancement.

Strategies:

1. Conduct long-term resource monitoring to detect changes caused by military activities.
2. Continue invasive and noxious weed identification and control as necessary.
3. Complete evaluation and prioritization of active erosion sites.
4. Update vegetation mapping.
5. Ensure that natural resources staff responsible for plant community conservation update training regarding management of these resources on a military installation on an annual basis.
6. Develop specifications and standards for reseeded/revegetation of disturbed sites for use in contracts, maintenance, and other projects.
7. Periodically review management to ensure it still meets ecosystem management goals.
8. Identify and actively restore degraded habitat within PLECA as outlined in Erosion Control Plan updates.

4.2.3.2 Wetlands and Floodplains

Wetlands, as defined by the EPA and the USACE, are “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (USACE 1987). Technical guidance for identifying and delineating wetlands that may be subject to regulatory jurisdiction is also provided by USACE’s Regional Supplement for the Arid West Region (USACE 2008). Wetlands are an important natural system because of the diverse biological and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge, pollution treatment, nutrient cycling, provision of wildlife habitat and niches for unique flora and fauna, stormwater storage, and erosion protection.

As a result, wetlands are protected as a subset of the “waters of the United States” under Section 404 of the CWA. The term “waters of the United States” has broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats (including wetlands). Waters of the United States are areas regulated under the CWA and also include coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, vernal pools, and waters that if degraded or destroyed could affect interstate commerce. Jurisdiction over Waters of the United States is determined on a case-by-case basis by the USACE.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill materials into the waters of the United States, including wetlands. Therefore, even an inadvertent encroachment into wetlands or other waters of the United States resulting in displacement or movement of soil or fill materials has the potential to be viewed as a violation of the CWA if an appropriate permit has not been issued by the USACE. In addition, wetlands are protected under Executive Order (EO) 11990, *Protection of Wetlands* (43 *Federal Register* 6030), the purpose of which is to reduce adverse impacts associated with the destruction or modification of wetlands.

Wetland management strategies vary depending primarily on the wetland type, size, location and condition. A wetland’s value is decided by the quality of the functions and services it provides, including its biomass production, habitat, erosion control, stormwater storage, water quality protection, aquifer recharge potential, and low flow augmentation. Some of the factors used to measure the quality of these

functions are the wetland's size, its location in the watershed, the amount of development in the watershed, vegetative structure and composition, rate of water flow through the wetland, the size of natural buffers, and surrounding land uses. Regardless of the habitat value, wetland areas are almost always poor choices for building sites or for most activities, other than providing non-consumptive enjoyment of the outdoors. Installation natural resources staff will ensure during the program/project review process that program/project managers are aware of the laws and regulations regarding the protection of wetlands. Refer to **Section 2.7.2** for additional information on regulatory compliance related to the CWA.

The limits of the USACE CWA Section 404 jurisdiction over Point Loma include shoreward as well as seaward waters of the U.S. Fresh water limits of Section 404 of CWA are to the ordinary high water mark and any adjacent wetlands. In tidal waters, USACE jurisdiction goes to the high tide line and jurisdiction goes to mean high water mark in traditionally navigable waters.

Specific Concerns

- Development/anthropogenic disturbances.
- Invasive species encroaching into wetland habitat.
- Climate change (e.g., changes in temperature or sea level rise).
- Erosion and sedimentation from either anthropogenic or natural causes.
- Pollution from anthropogenic activities, or erosion and sedimentation.

Current Management

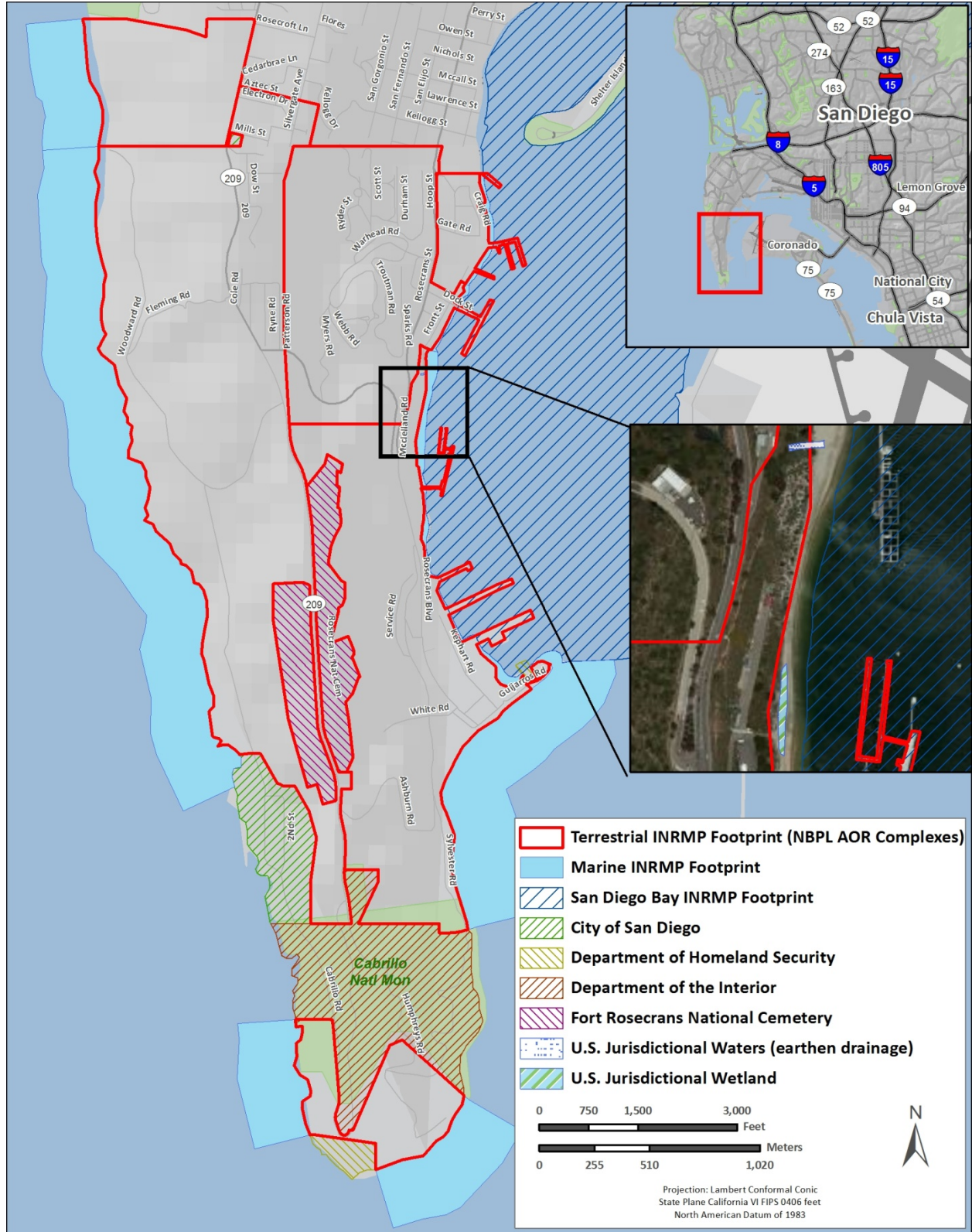
The latest wetland delineation was conducted on NBPL in 2009. A total of 0.4 acres of wetlands and 2.0 acres of non-wetlands waters were delineated during the survey as shown in **Figure 4-5** (U.S. Navy 2009e). Delineations will be conducted every five years or on a project-by-project basis. As long as delineations are conducted and associated Jurisdictional Determinations are obtained on NBPL on a regular basis and information from the delineations is maintained in the GIS database, management of wetlands will not pose an issue at NBPL.

The major goal in wetland and floodplain management is to minimize the impact that NBPL has on wetlands and floodplains. The natural resources staff strives to enhance healthy, functional wetlands. When possible, it is the goal to enhance wetland functions to maximize functions and services (e.g., floodwater retention, water quality protection). It is also the goal to maximize floral diversity of wetland communities, which, in turn, maximizes the faunal diversity of the ecosystem. Through achieving these goals, and through mitigating for unavoidable impacts to wetlands, NBPL can manage for no net loss of wetland and floodplain acreage, functions, and values.

According to OPNAVINST 5090.1C CH-1, the Navy will comply with the national goal of no net loss of wetlands, and will avoid loss of size, function and value of wetlands.

Management Objective and Strategy

Objective: Maintain healthy, functional waters of the U.S. on NBPL, including wetlands, and prevent indirect or unplanned encroachments.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-5: Wetlands and non-Wetland Waters of the United States on NBPL on Peninsula

Strategies:

1. Update the wetland inventory data, including wetland distribution and categories.
2. Conduct Environmental Review for activities that could affect wetlands looking specifically for indirect impacts to wetlands and waters of the U.S.
3. Plan development and training activities to avoid wetland impacts to the maximum extent possible and mitigate unavoidable impacts on wetland functions.
4. Implement proper BMPs on all construction, maintenance, and demolition projects to maintain water quality and protect surface waters and wetlands from excessive sediment-laden runoff.
5. Remain in compliance with the CWA and implement procedures to manage for a no net loss of wetland and floodplain functions and services.
6. Reduce habitat fragmentation and control the spread of invasive species.
7. Periodically review the natural resources management program to ensure that management actions do not adversely impact waters of the U.S., including wetlands.
8. In the vicinity of waters of the U.S., regularly evaluate and correct any loss of vegetation or soil to prevent erosional damage that could impacts waters of the U.S.

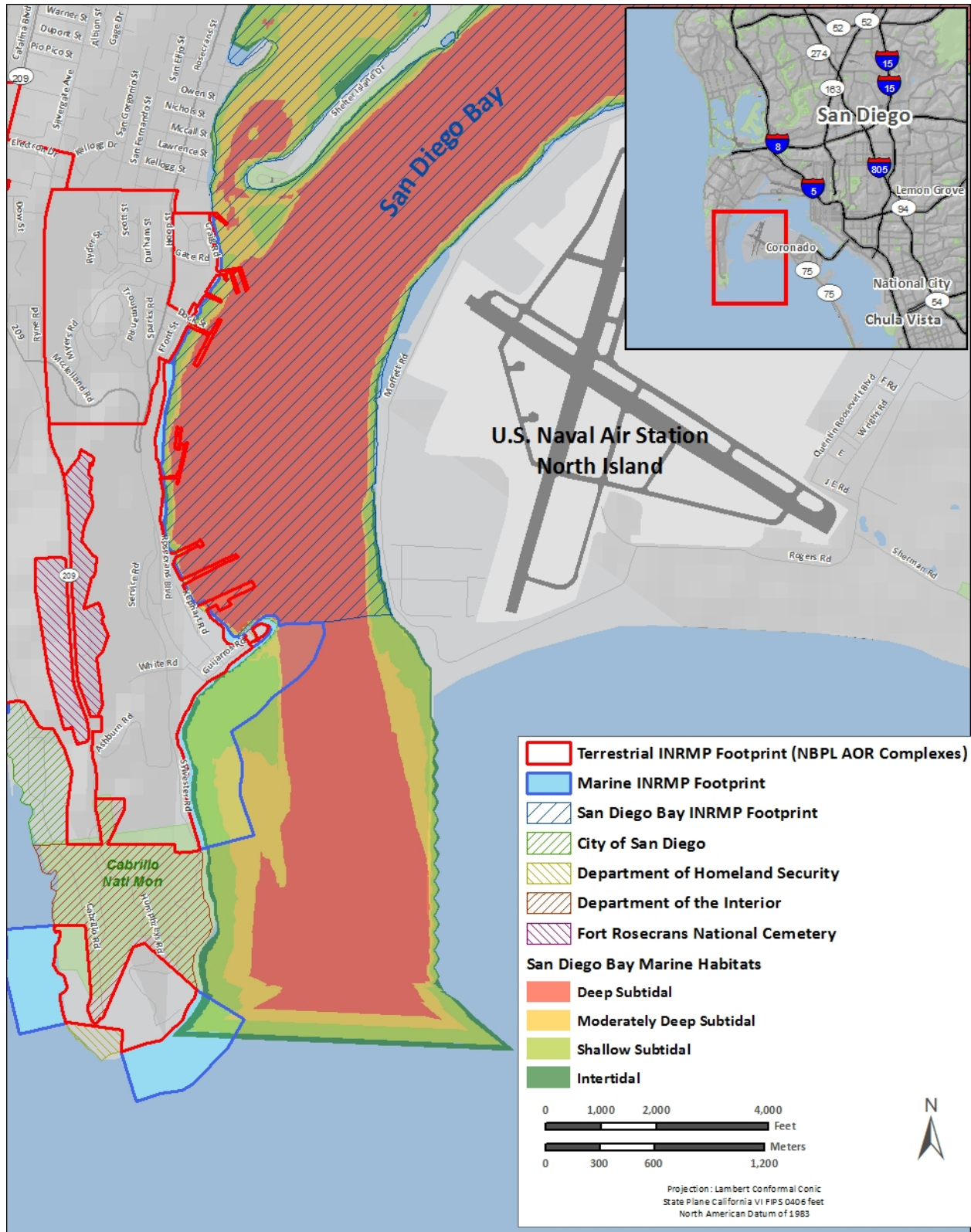
4.2.3.3 Marine Habitats

The San Diego Bay is the largest bay between San Francisco Bay and Scammon's Lagoon in central Baja California, including approximately 12,000 acres of marine habitat (San Diego Unified Port District 1990). As discussed in Chapter 1, this INRMP only focuses on the 274 meters of the San Diego Bay extending from the NBPL peninsula. The San Diego Bay INRMP footprint includes the northeastern portion of NBPL (see **Figure 4-6**). A more specific description of the marine habitat in the San Diego Bay is discussed in the San Diego Bay INRMP, which was developed in cooperation between the Navy and SDUPD along with their government and non-government partners.

The San Diego Bay provides a unique habitat that supports a diverse assemblage of coastal marine fish, fish nurseries, and juvenile fish. The San Diego Bay is a highly productive habitat with at least 150 species of marine and terrestrial plants, more than 70 species of fish, 300 species of resident or migratory birds, and at least 650 species of marine, estuarine, and salt marsh invertebrates.

Most of the undeveloped coastline of Point Loma consists of rocky intertidal habitat, with isolated sandy and cobble beaches. The term intertidal refers to the part of the shoreline that is under water during high tides and exposed to air during low tides. Rocky intertidal tide pools are formed when water gets trapped in small depressions in the rock when the tide recedes. These pools, along with the rocky benches, scattered boulders and isolated sandy beaches found on Point Loma are habitat for a diverse assemblage of marine plants, algae, and animals that are specially adapted to tolerate exposure to air and large wave forces. Over 300 species of algae and invertebrates have been documented in the rocky intertidal area of Point Loma.

Habitats within the San Diego Bay are categorized by depth with respect to the tides, then by substrate, water clarity, and other factors. Habitat types within the San Diego Bay include deep subtidal and shallow subtidal (see **Figure 4-6**). The following is a summary of the deep subtidal, moderately deep subtidal, shallow subtidal, vegetated shallow subtidal, and intertidal habitats.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-6: Marine Habitats in San Diego Bay near NBPL

Deep Subtidal (deeper than -20 feet (6 meters) mean lower low water [MLLW]): Surface water, water column, and sediments for areas greater than 20 feet (6 meters) in depth, constituting approximately 4,440 acres (34 percent) of the bay surface area are deep subtidal. This includes navigational channels. The majority of the deep subtidal zone has been dredged since the 1940s. Dredging has caused an approximate 100 percent gain in acreage of deep subtidal area in the bay.

Moderately Deep Subtidal (-12 to -20 feet [-4 to -6 meters] MLLW): The south-central Bay and the inlets of the north Bay are categorized as moderately deep subtidal, accounting for approximately 2,219 acres (17 percent) of the San Diego Bay. This habitat type extends from the approximate lower depth of most eelgrass (*Zostera marina*) beds to the approximate edge of the shipping channel.



Naval Base Point Loma and the San Diego Bay

Credit: Summer Adleberg

Shallow Subtidal (-2.2 to -12 feet [-0.7 to -4 meters] MLLW): Approximately 28 percent of the Bay (3,734 acres) is categorized as shallow subtidal. For years, the margin of San Diego Bay has been filled for shoreline construction activities and surrounding developments; therefore, much of the shallow subtidal habitat historically present has disappeared.

Vegetated Subtidal (0 to -23 feet [0 to -7 meters] below MLLW): A very important and productive benthic habitat in San Diego Bay is formed by beds of eelgrass. Eelgrass is found at varying depths, depending on levels of light and water turbidity. The vegetated shallow subtidal areas of the bay are composed mainly of beds of eelgrass. Eelgrass habitat in San Diego Bay has been significantly reduced over the decades. Eelgrass is the preferred food source of the black brant goose (*Branta bernicla*), and its numbers are often indicators of the health and abundance of eelgrass populations in the bay.

Intertidal (+7.8 to -2.2 feet [+2.4 to -0.7 meters] MLLW): Intertidal habitat encompasses the area between high and low tides and is subject to varying degrees of tidal submergence. Approximately 976 acres (7 percent) of intertidal habitat is present in the Bay.

4.2.3.4 Rocky Intertidal Zone

The CNM rocky intertidal area consists of a small tidepool area (less than 1 mile, or 1.5 km of shoreline) that has been studied by researchers since the late 1970s (NPS 2006a). In the 1980s, NPS developed a program to monitor the nearshore ecosystems (kelp forest and intertidal) of the Channel Islands National Park (CHIS). The goals of this program were to:

- Determine present and future health of natural area ecosystems
- Establish empirical limits of variation in natural area resources
- Diagnose abnormal conditions to identify issues in time to develop effective mitigation
- Identify potential agents of abnormal change.

By 1990, the monitoring program was expanded to include the CNM and was renamed the Cabrillo Rocky Intertidal Monitoring Program (CRIMP). Since 1990, data on 13 key species of invertebrates and

plants in the CNM have been collected. The CRIMP study area within the CNM was divided into three zones representing different amounts of human use from the highest (Zone I) to the lowest (Zone III). CRIMP monitoring has been conducted biannually since 1990, except for spring 1996, when a gap in funding led to a gap in sampling.

By the mid 1990s, it was determined that populations of 7 of the 13 key species had either declined or disappeared entirely from the area. In response, the Tidepool Protection, Education, and Restoration Program (TPERP) was initiated to reverse this trend. The purpose of TPERP is to restore the intertidal area under its administration while permitting visitors to continue visiting it. TPERP consists of three divisions which include education and enforcement, restoration through area closure, and monitoring and research.

In 1995, the U.S. Navy began a similar monitoring program north of CNM on Point Loma (NPS 2006a). The Navy contracted the initial set up and monitoring of these sites, and now the monitoring is managed through an agreement with CNM. Navy staff participate in the surveys every spring and fall. In addition, the Multi-Agency Rocky Intertidal Network (MARINE) was established in 1997 to foster communication among the various governmental and academic bodies that were monitoring the rocky intertidal region in southern California. In 2001, review of CRIMP was conducted, and a list of goals for future monitoring efforts by the CRIMP was developed. These goals include the following:

1. To collect long-term, baseline information on the “ecological health” of the rocky intertidal area, and to determine normal limits of variation.
2. To ensure that the program is low cost, volunteers will be used. Volunteers will receive limited training, but oversight will be conducted by experience staff.
3. To determine differences between the three zones, which experience very different amounts of visitation, and to determine the effects of the closure of Zone III.
4. To ensure compatibility with other programs in southern California (e.g. Channel Islands National Park and the Multi-Agency Rocky Intertidal Monitoring Network, MARINE).
5. To detect large changes in community structure reasonably quickly. Correlation of this temporal data with other factors (environmental, anthropogenic) should guide further research to determine causation of trends of concern.
6. To provide for baseline data in case of an acute disturbance (e.g. oil spill, sewage spill, riprap), and to serve as an opportunity for public education and outreach.

The rocky intertidal zone at NBPL is vulnerable to a wide variety of negative anthropogenic impacts (NPS 2006a). The specific effects of these different types of human activities and development can vary among taxa and scales (temporal, spatial, and level [i.e., individual vs. population vs. community composition]), and consequently the “vital signs” used to detect impacts varies (NPS 2006a).

The 1996 Cabrillo National Monument General Management Plan (GMP) added staff and facilities to adequately protect and interpret the monument’s significant resources. Two tidepool objectives were developed:

1. Manage visitor use patterns and activities to protect and restore the tidepools as much as possible to a healthy, functioning ecosystem.
2. Educate the public to the fragility of tidepool life, how visitors may enjoy them, and the reasons for restrictions in use.

The strategies to achieve these objectives are to monitor using the baseline study, manage tidepools to reduce visitor impacts, increase ranger/staff presence, and expand the number of interpretive exhibits. The GMP has not been updated since 1996; however, CNM developed a State of the Parks Report which discusses the status and trends of natural and cultural resources (NPS 2012).

Specific Concerns

- Invasive marine species.
- Trampling from high human recreational use in public access areas (CNM receives over 100,000 visitors annually) has a negative effect on the habitat.
- Artificial structures impeding species habitat.
- Sedimentation alteration.
- Pollution from stormwater runoff and inundation from long-shore transport of sand from up-current beach replenishment projects.
- Harvesting of intertidal species.
- Climate change (e.g., changes in temperature or sea level rise).
- Pollution from oil spills and other hazardous wastes into the San Diego Bay.

Current Management

NBPL entered into a cooperative research agreement with the NPS in 2008 to conduct surveys and monitoring on tide pools on both the CNM property and on NBPL oceanside. As part of this agreement, NBPL agreed to provide management and recovery plans, technical reports and publications, various literature, maps, and other materials containing detailed information regarding the natural resources at NBPL (NBPL 2009). In addition, NBPL Instruction 5090.1, Base Fishing Regulation, prohibits harvesting of intertidal species (2007).

Management Objective and Strategy

Objective: Protect the Rocky Intertidal Zone around the Point Loma peninsula by conserving natural communities, maintaining species diversity, and maintaining species habitat.

Strategies:

1. Inventory and monitor populations of rocky intertidal floral and faunal species (including avian, terrestrial, and marine species). Document all changes to species populations in the base GIS database.
2. Develop and maintain the GIS database, and share information collected on species within the rocky intertidal zone with the MARINE, and other regional partners.
3. Establish an education program for military personnel and recreational users who perform activities in the rocky intertidal region of NBPL.
4. Develop strategies to control the following species in the event they become invasive, or adversely impact species in the rocky intertidal zone:
 - a. Brown alga (*Sargassum horneri*).
 - b. *Caulerpa taxifolia*.
5. Follow protocols outlined within the Spill Prevention Control and Countermeasures plan for NBPL.

4.2.3.5 Wildland Fire

Federal wildland fire policy requires that all federal lands with burnable vegetation have a fire plan and resources to safely mitigate losses. This policy was adopted by the DoD Wildland Fire Policy Working Group in 1996. DoD fire policy was developed by DoD Instruction 6055.06 Fire and Emergency Services Program.

Specific Concerns

The Naval Base Point Loma and Cabrillo National Monument Joint Wildland Fire Management Plan (JWFMP) identified the following concerns for fire management on NBPL (U.S. Navy 2006b).

- A significant post-fire erosion or flooding problem could adversely impact the natural vegetation and steep, unstable terrain of NBPL, as well as the harbor and waters surrounding it.
- Even though a wildland fire has not occurred on NBPL through most of the 20th century, there is still a potential for wildfire. Point Loma is rich in archeological and historic resources and wildfire poses a threat to these resources.
- A serious wildfire on Point Loma is most likely to occur under the most extreme weather conditions when wildland fire-fighting resources are already committed and unavailable.
- The current staffing at the Federal Fire Department (FFD) does not meet standards of the National Wildfire Coordinating Group and compliance with Federal Fire Policy with regard to the recommended number of firefighters assigned to an engine while fighting a wildland fire.
- The density of eucalyptus trees and their proximity to structures creates a hazardous fuel condition at the Fort Rosecrans Historic District.
- There is evidence that the plant communities of Point Loma are changing due to an extended fire-free period, but it is not known if the current fire-free interval is outside the norms of the "natural" fire regime, and if any animal or plant has been permanently lost from the peninsula as a result. There may be future effects on wildlife or microbiota that cannot be assessed because they are not known at this time.
- Maintaining a natural fire regime is unlikely in a wildland-urban interface. NBPL properties are isolated from most natural sources of ignition by urban development, and there is a higher probability of human ignitions for the same reason.
- The wildfire risks to succulents abundant in the maritime succulent scrub flora should be weighed against the risk of closure of the shrub canopy, erosion, or exposure to unplanned fires that burn on their own terms rather than within conservation objectives.
- Effective wildland fire policy for Point Loma requires interagency coordination; however the primary interagency group, the PLECA, has not taken on wildland fire management as part of its mission.

Current Management

NBPL developed a JWFMP with NPS in June 2006 (U.S. Navy 2006b). The purpose of the JWFMP as stated in the Executive Summary, is to protect personnel, facilities, and natural and cultural resources from the impacts of wildland fire; prioritize assets to be protected in the event of a fire; ensure the perpetuation of native terrestrial habitats, fire adapted plant communities, and rare species; and minimize the total cost of fire pre-suppression and suppression practices on lands owned by the U.S. Navy and NPS

on Point Loma (U.S. Navy 2006b). The JWFMP also outlines key fire management issues for the NBPL peninsula, and provides recommendations for managing fire at NBPL.

The 2006 JWFMP identifies all the concerns presented above as issues for NBPL, and proposes a number of strategies to address these concerns, in particular several projects to research how wildland fire will impact the NBPL ecosystem. The JWFMP implementation program includes exotic tree and shrub removal and site enhancement with erosion control and plants recommend plant list. To ensure the continued implementation of this program, funding efforts are coordinated with Public Works to remove eucalyptus. Approximately 0.5 acres are enhanced annually under this program.

Management Objectives and Strategy

Preparedness and Prevention

Objective: Support a Wildland Fire Management Program to protect high-value natural resources areas from catastrophic wildfire while conserving resources and military operational flexibility.

Strategies:

1. Conduct an Annual Preparedness Meeting prior to each fire season with the Federal Fire Department, National Park Service, City of San Diego, U.S. Navy personnel, and possibly U.S. Forest Service and Naval Air Station North Island Meteorological Division to discuss the JWFMP and wildland fire management guidelines.
2. Educate the NBPL community and CNM visitors about wildland fire. This can be accomplished through posting fire prevention signs around NBPL and CNM, and developing fire prevention messages and handouts for NBPL personnel and CNM visitors.
3. Review the NBPL JWFMP (U.S. Navy 2006b) at least annually and update plan according to DoD Instruction 6055.06.

Restoration

Objective: Over the long term, restore the above- and below-ground plant and animal communities to a condition such that the species diversity and density of a reference condition (as can be surmised based on long-term monitoring plots and historic data) can be maintained.

Strategies:

1. Monitor trends in vegetation condition and extent on restoration sites.
2. Remove exotic species and revegetate with approval by the installation biologist.

Research and Monitoring

Objective: Conduct research and monitoring to guide fire management, and improve the scientific soundness of decisions, and the future adaptive management of fire.

Strategies:

1. Develop and conduct a study to determine gap abundance and distribution within the shrub canopy as a first step to understanding the dynamics and needs of species that require habitats that are rich in resources (such as light and nutrients), but without strong interspecific competition.

2. Develop and conduct a study of invertebrate dependencies on post-fire herbs and short-lived shrubs. This type of research is relevant for management considering the potential presence of species such as the endemic Jerusalem cricket (*Stenopelmatus fuscus*) on the peninsula.
3. Develop and conduct a study to identify invertebrate and lichens bioindicator species to measure ecosystem health and fire history.
4. Develop and conduct a study to determine whether cliff spurge is reproducing on NBPL, and if the species is reproducing, how fire would affect the demography and population structure. The abundance of cliff spurge on Point Loma is significant in that these individuals represent the northerly mainland distribution edge and one of the few populations in the United States.
5. Develop and conduct a study to determine the effect of the long fire-free period on community structure and demography of fire-dependent species such as *Ceanothus verrucosus* and *Ceanothus tomentosus*. Determine whether obligate seeders have sufficient presence in the seedbank to regenerate the stand after a fire.
6. Develop and conduct a study to use ecological modeling and decision theory to evaluate the risks and benefits from alternative management options.
7. Develop and conduct a study of the concept of resilience monitoring of species and communities into a more focused research program through the use of management focus species.

4.2.3.6 Critical Habitat

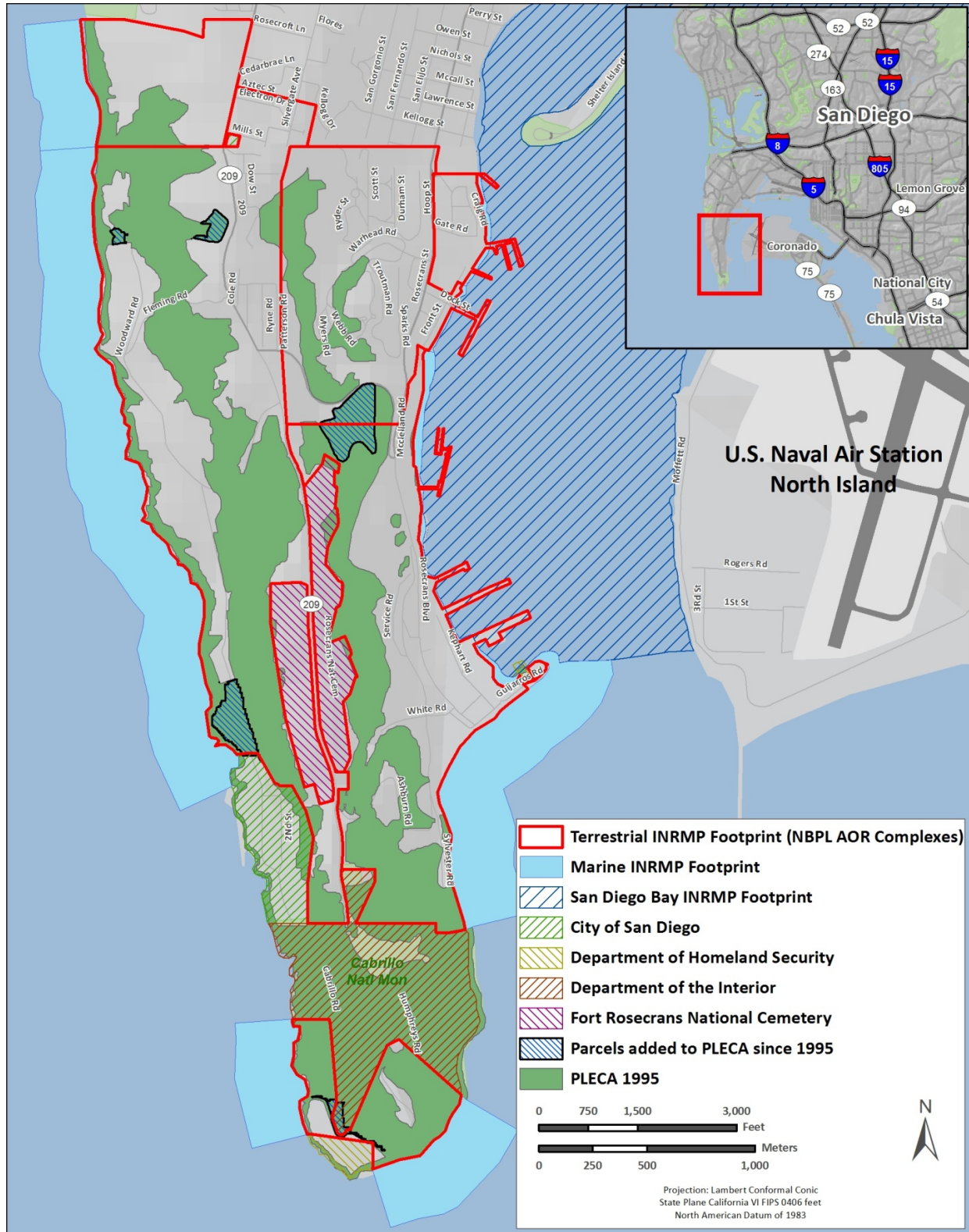
No critical habitat has been designated by USFWS on NBPL. The only listed species that is a permanent resident on NBPL is Orcutt's spineflower (*Chorizanthe orcuttiana*); see **Appendix E** for benefits provided to this species. However, USFWS has not designated critical habitat for the spineflower.

4.2.3.7 Other Regulatory or Habitat Planning Designation

Point Loma Ecological Conservation Area (PLECA)

The 1994 Point Loma Natural Resources Management Plan (PLNRMP) designed the PLECA, referring to it then as the Point Loma Ecological Reserve (PLER). This reflected an initial goal for the PLER to be formally designate by CNO as an Ecological Reserve Area (ERA), as defined in the NAVFAC P-73 Manual. In 1995, the PLER design was implemented as a cooperative management area under the PLER MOU. The 1995 MOU was signed by the then eight federal landowners on Point Loma (five separate Navy commands, NPS, USCG and DVA) and the City of San Diego, with USFWS also a signatory as a non-voting observer. In 2005, the MOU was revised and renewed to recognize the Navy administrative consolidation as NBPL during the 1998 CNRSW regionalization, and to incorporate protocols and corrected understandings that had evolved during the ten-year implementation of the 1995 MOU. Among these was the determination that the PLER did not meet the NAVFAC P-73 criteria for an ERA. Within this understanding, the 2005 MOU renamed the PLER as the Point Loma Ecological Conservation Area.

As presently defined, the PLECA boundary encompasses significant portions of NBPL, the large majority of the CNM (NPS), and smaller parts of the USCG lighthouse facility, Fort Rosecrans National Cemetery (DVA), and City of San Diego Point Loma Waste Water Treatment Plant. The PLECA lies wholly within the approximately 1500-acre extent of southern Point Loma peninsula originally encompassed within the late-19th and early-20th-century Fort Rosecrans Military Reservation. Approximately 60 percent of the planning area is comprised of natural or disturbed vegetation. **Figure 4-7** shows the 2010 boundary of the PLECA. The breakdown of PLECA acreage by landowner is provided in **Table 4-2**.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-7: Point Loma Ecological Conservation Area (PLECA)

Note: Several parcels shown are proposed and not officially approved by command. Boundaries are approximate and have not been surveyed.

Table 4-2: PLECA Acreage by Agency

PLECA Agency	Boundary Defined in PLNRMP	Banked Parcels Since 1995	Total Acreage
Naval Base Point Loma	497.1	29.83	526.93
U.S. National Park Service (Cabrillo National Monument)	127.3	2.32	129.62
City of San Diego	8.9	0	8.9
Department of Veterans Affairs	1.1	0	1.1
U.S. Coast Guard	1.5	0	1.5
TOTAL	635.9	32.15	668.05

Source: U.S. Navy 2002

The PLECA was modeled after other regional planning programs, such as the State of California's NCCP and San Diego County's MSCP. The goal of these programs is to conserve large areas of land using an ecosystem approach while allowing smart growth in the region. As designed under the 1994 PLNRMP, the PLECA MOU implements a comparable, but non-regulatory, ecosystem-based approach to protect sensitive biological communities on the signatories' lands, ensure their long-term viability and perpetuation, avoid incremental habitat loss, and provide for long-term habitat conservation and enhancement within the PLECA boundaries. The biological objectives for the PLECA are to maintain functional ecosystems; maintain viable populations of the target plant and animal species; maintain functional wildlife corridors and habitat linkages between critical biological resource areas; maintain the full range of native vegetation communities and successional phases in ecologically significant areas, with a focus on habitats that are viable and of limited distribution in a regional context (U.S. Navy 1994). This INRMP seeks to meet several of these management goals, including expanding the interpretation program, creating a review process for proposed development projects, and developing and implementing an erosion control plan, a revegetation/restoration plan, a fire management plan, an exotic plant control plan, and an integrated natural resources management plan.

To administer the PLECA process, the MOU established a PLECA Working Group comprised of a principal and alternate representative from each of the five signatory landowners, and the non-voting USFWS observer. As a non-regulatory agreement, the MOU is a voluntary collaboration among the signatory landowners to cooperatively oversee the PLECA for the conservation and enhancement of the sensitive habitats within the management area. The PLECA Working Group serves as a forum to ensure individual landowners will not inadvertently undertake management actions that are incompatible with the interest of their neighbors and the long-term conservation of the peninsula's native habitats. Within this collaboration, each agency's mission takes precedence the MOU, but with each landowner seeking to manage in conformance with the MOU's goals. Maintenance of the PLECA under the MOU is expected to help accomplish landscape-scale goals for the conservation of viable natural communities on NBPL. The 2005 MOU is included in **Appendix L**.

Under the MOU, the PLECA Working Group is currently modifying the ostensible PLECA boundary to better reflect the original PLNRMP design's assumptions about habitat type and quality, to excise paved and other developed areas from within the boundary, and to provide for manageable margins and setbacks along road shoulders and around buildings. Land additions to the PLECA may be recommended to improve habitat viability by expanding its area, to establish connectivity between parcels, or to increase the contiguity between tenuously linked parcels or habitat zones. Boundary adjustments may also be recommended by USFWS if the land is no longer necessary to fulfill the agency's mission. Removal of land from the PLECA can be done to only accommodate the landowner's mission and requires an area of

equal size and equal or higher ecological value (very high, high, moderate, or low as defined by the 1994 PLNRMP Habitat Evaluation Model) will be added to offset the loss.

Through the period since 1995, the PLECA Working Group has recommended a number of small outside parcels have been added to the PLECA. Under the MOU protocols, such additions require formal consent of the landowner. Minor additions or adjustments have been approved on CNM and the Fort Rosecrans National Cemetery. Navy command approval, or disapproval, for all parcels recommended for addition on NBPL is still pending. These latter include one along Gatchel Road subsequently assessed by the CNRSW Natural Resources Program as not meeting the basic PLNRMP criteria for inclusion in the PLECA. Conversely, another located just south of McClellan Road that was originally recommended for reason of it's no longer being required for a planned MILCON has subsequently gained critical importance for protective management as the identified core of the *Chorizanthe orcuttiana* population on Point Loma. There are also determinations pending on additions and realignment of PLECA boundaries within the P-401 MILCON project area, partly in response to the presence there of a large concentration of *Piperia cooperi*. One goal for implementation of this INRMP is to process parcels still recommended as additions to the PLECA for approval by CO NBPL.

California Coastal National Monument (CCNM)

The California Coastal National Monument (CCNM) includes, by President Proclamation on January 11, 2000, all unappropriated or unreserved lands or interest in lands owned or controlled by the United States in the form of islands, rocks, pinnacles above mean high tide within 12 nautical miles of the shoreline of the state of California. The Secretary of the Interior manages the CCNM through the BLM. The western offshore portion of NBPL is within the CCNM; therefore, the Navy is a "steward" in partnership with BLM to share information that assists in the management of this portion of the CCNM.

Through an MOU with BLM (BLM No. CA-939-08-02), the Navy agrees to designate a contact person to serve as the Navy liaison with CCNM, cooperate in defining monitoring and research needs, develop a strategy to implement protection, monitoring, and research needs consistent with the NBPL INRMP, avoid and minimize negative impacts as practicable and consistent with the Navy mission, provide BLM with reasonable access, and report to BLM annually on know impacts to CCNM and Navy activities and/or actions.

4.2.4 Fish and Wildlife Management

4.2.4.1 Invertebrates

A comprehensive survey for sensitive insects throughout NBPL was conducted in 1993 and 1994, 2005 and 2007, and another survey was completed in 2010. Close to 300 terrestrial insect species were identified on NBPL. A survey for invertebrates was conducted at the DFSP fuel farm in 2005 and 2007. A total of 164 species were identified during these surveys, and no sensitive invertebrate species were identified (U.S. Navy 2007b). The list of terrestrial invertebrate species identified on NBPL is included in **Appendix G**.

The wandering skipper butterfly (*Panoquina errans*), USFWS special status species, has been documented to occur in the beach area to the north of MSF (Platter-Rieger et al. 1996). The data and a map from the 2010 survey are not available for inclusion in this version of the INRMP; however, this data will be included in the next update of this INRMP.

In addition, a survey was completed in 2009 by the San Diego Natural History Museum (SDNHM) Entomology Department. Field methods used during the survey included pitfall traps, pan traps (bee

bowls), overnight light traps, Malaise traps, leaf litter sampling, hand and beating or sweep netting, and walking transects for butterflies (SDNHM 2010). The list of species identified during the survey is presented in **Appendix G**.

Over 300 species of invertebrates have been documented in Cabrillo National Monument (Zedler 1976, 1978, Pers. Com. Benjamin Pister 2012). The National Park Service has been in the process of updating this species list. A rocky intertidal monitoring program was established by Dr. Gary Davis (NPS) and Dr. Jack Engle (University of California Santa Barbara [UCSB]) at Cabrillo National Monument in 1990 (Engle and Davis 2000a, 2000b). These programs are ongoing and both have included scientists from NPS (Cabrillo National Monument and Channel Islands National Park) as well as academia (UCSB, Scripps Institute of Oceanography at University of California San Diego). The techniques used in these monitoring efforts are consistent with those used at over 60 sites in southern California that are linked in MARINE, a cooperative organization administered by the Minerals Management Service.

Management of abalone is discussed further in **Section 4.2.5.5**.

4.2.4.2 Pollinators

A pollinator is an animal or insect that transfers pollen grains from flower to flower (DoD 2010a). Pollinators are responsible for pollinating 80 percent of the crops we consume, as well as the majority of plants and fruits consumed by wildlife. Examples of pollinators in the San Diego region include bees, bats, butterflies, moths, beetles, flies, and birds.

The relationship between the fate of pollinators and the ability of installations to meet readiness and stewardship obligations has been a focus of the DoD Legacy Resources Management Program (DoD Legacy) since the early 2000s. The DoD recognizes that pollinators ensure that native landscapes on installations do not become barren, or overrun with invasive species (DoD Legacy 2010a). The DoD also acknowledges that habitat restoration and invasive species removal go hand in hand. Through enhancing and restoring pollinator habitat by restoring native plant communities and removing and controlling invasive species, DoD installation can save money, protect threatened and endangered species, and contribute to biodiversity. Some of the projects funded by the DoD Legacy program include a demonstration project at Dyess Air Force Base, Texas to determine the impact of habitat restoration on pollinator populations through removal of invasive plant species and replacing invasive species with native flora; and development of management plans for use on installation golf courses to reduce course impacts on pollinator populations (DoD Legacy 2010b).

Unfortunately, pollinator populations have been declining since at least the 1950s. The decline in pollinator populations is associated with the excessive and improper use of pesticides, parasites, disease, habitat loss, habitat fragmentation, landscape deterioration, and climate change (DoD Legacy 2010a).

For more information on DoD's work to support pollinators, visit <http://www.DoDpollinators.org>. Another good source for information on enhancing pollinator populations can be found within The Pollinator Partnership™/North American Pollinator Protection Campaign (NAPPC) publication *Selecting Plants for Pollinators. A Regional Guide for Farmers, Land Managers, and Gardeners in the California Coastal Chaparral Forest and Shrub Province Along the Southern California Coast* available online at: <http://www.pollinator.org/PDFs/Calif.Coastal.Chaparral.rx2.pdf>.

Specific Concerns

- Improper use of pesticides.
- Development/anthropogenic disturbances.
- Invasive species (flora and fauna).

- Habitat loss and/or changes.
- Erosion and sedimentation.
- Altered fire regime.
- Climate change (e.g., changes in temperature or sea level rise).

Current Management

NBPL is not currently managing for pollinator species beyond following protocols within the NBPL IPMP for application of pesticides/herbicides. Steps that NBPL can undertake to help ensure that populations of pollinators do not continue to decline include the following (DoD Legacy 2010a, The Pollinator Partnership™/NAPPC 2010):

- Restore land with plants that attract pollinators, and include pollinator-friendly plants in gardens
- Provide connectivity between vegetation areas by creating corridors of perennials, shrubs, and trees that provide pollinators shelter and food as they move through the landscape
- Provide windbreakers and nesting areas, such as bat boxes or sites without high vegetation for bee nests
- Control invasive plants with an integrated pest management approach
- Monitor sites over time, noting pollinator species present and habitat composition
- Inventory and become knowledgeable of local pollinators
- Maintain a minimum of lawn areas that support recreational needs
- Restrict the use of pesticides and herbicides when possible
- Provide water sources in large open areas
- Maintain natural meadows and openings that provide habitats for sun-loving wildflowers and grasses.

A 2011 Cooperative Agreement with SERG, San Diego State University Foundation will use available data on soil, plant, and topography associations in areas with the species to identify and map potential expansion areas on Point Loma. SERG will also research overlaps between known NBPL arthropods/pollinators and known pollinators of Orcutt's spineflower species to reveal pollinator habitat/resource requirements and potential restrictions to pollinator availability.

Management Objective and Strategy

Objectives: Maintain and enhance pollinator populations and their habitat when not in conflict with health and safety, or the military mission.

Strategies:

1. Inventory and monitor populations of pollinators.
2. Develop BMPs to ensure that pollinator species are not adversely impacted by NBPL activities.
3. Identify and develop pollinator friendly landscapes.
4. Develop and distribute outreach and education materials on pollinators.
5. Revegetate with native species contained on the recommended plant list.
6. Control the spread of invasive species.

7. Collaborate with other agencies and researchers to investigate the relationship between pollinators and ecosystem health at a landscape level.
8. Develop and implement management program that supports bee relocation as opposed to bee eradication.

4.2.4.3 Fish

All NBPL bayside marine resources north of Ballast Point are managed within the San Diego Bay INRMP and are not discussed further here.

The San Diego Bay, which includes approximately 12,000 acres of marine habitat, is the largest bay between San Francisco Bay and Scammon's Lagoon in central Baja California. The bay provides a unique habitat to support diverse assemblages of coastal marine fish and supports fish nurseries and large numbers of juvenile fish. A four-year study, initiated in 1994, identified 79 species of fish captured over 16 sampling dates between July 1994 and April 1998 (Allen 1998). The baywide study by Allen (1998) was sponsored jointly by the Navy and the San Diego Unified Port District, and involved quarterly sampling at locations in four ecoregions of San Diego Bay: north, north-central, south-central, and south.

The most abundant species detected during the four-year study included: Northern anchovy (*Engraulis mordax*), topsmelt (*Atherinops affinis*), slough anchovy (*Anchoa delicatissima*), Pacific sardine (*Sardinops saga*), and shiner surfperch (*Cymatogaster aggregata*). Species that dominated the biomass during the survey included: California grunion (*Leuresthes tenuis*), round stingrays (*Urolophus halleri*), and spotted sand bass (*Paralabrax maculatofasciatus*). Other species identified during the survey included: black surfperch (*Embiotoca jacksoni*), giant kelpfish (*Heterostichus rostratus*), cheekspot goby (*Ilypnus gilberti*), dwarf surfperch (*Micrometrus minimus*), kelp bass (*Paralabrax clathratus*), spotted sand bass (*Paralabrax maculatofasciatus*), barred sand bass (*Paralabrax nebulifer*), California halibut (*Paralichthys californicus*), barred pipefish (*Syngnathus auliscus*), and bay pipefish (*Syngnathus leptorhynchus*).

Another study completed by the Vantuna Research Group was conducted in 2008 following the same methodologies employed during the 1994 and 1998 study. During this study 48 species of fish were identified including slough anchovy, topsmelt, shiner surfperch, salema (*Xenistius californiensis*) and arrow goby (*Clevelandia ios*). In terms of biomass, round stingrays dominated the catch, followed by spotted sand bass, topsmelt, slough anchovy, and California butterfly ray (*Gymnura marmorata*) (U.S. Navy 2009f).

A large kelp forest extending for approximately 5 miles with a width of approximately 0.62 miles occurs off the western shore of Point Loma. The kelp forest provides habitat for numerous fish species, many of which are commercially important. A number of species associated with the kelp forest use the tide pools at NBPL as a nursery ground, and juveniles of these fish can be found in the intertidal area at low tide. Some species spend their entire lives in the tide pools at NBPL.

4.2.4.4 Reptiles and Amphibians

The diversity and abundance of reptile species on Point Loma vary with habitat type. Reptiles are often restricted by vegetation communities and soil types, although some of these species will forage in adjacent communities. Some species are more ubiquitous and use a variety of vegetation types for foraging and shelter.

Amphibians commonly rely on moisture for at least a portion of their life cycle; many require a permanent water source for habitat and reproduction. Terrestrial amphibians have adapted to more arid

conditions and are not always dependent on a perennial or standing source of water. These species will burrow beneath the soil or leaf litter during the day and during the dry season in order to avoid desiccation.

Dr. Robert Fischer along with Ted Case conducted an inventory of herpetofauna that lasted from 1995 to 2001 (Atkinson et. al. 2003). The results of these surveys were summarized in the *Sampling Design Optimization and Establishment of Baselines for Herpetofauna Arrays at the Point Loma Ecological Reserve* (Atkins et. al. 2003). Seventeen pitfall trap arrays were scattered throughout the Point Loma peninsula and an inventory was compiled for each of the four seasons. A total of 1,696 herpetofauna observations were made and of those a total of 1,398 individuals were captured and identified during a single year of surveys (Atkins et. al. 2003). Species commonly captured in the arrays include southern alligator lizard (*Elgaria multicarinatus*), orangethroat whiptails (*Cnemidophorus hyperythrus*), western fence lizard (*Sceloporus occidentalis*), and side-blotched lizards (*Uta stansburiana*).

In addition, pitfall trap surveys were conducted on NBPL from 2002 to 2010 where 2,572 reptiles and amphibians were captured. Snake population numbers are low during these surveys because the sampling design was for lizards not snakes; however, the sampling design will be modified for future surveys. Species observed during the survey are presented in **Table 4-3**.

Table 4-3: Reptile and Amphibian Species Observed on NBPL during 2002 to 2010 Pitfall Trap Surveys

Common Name	Scientific Name	Total Observed/Captured from 2002 to 2010
California legless lizard	<i>Anniella pulchra</i>	4
Orange-throated whiptail	<i>Aspidoscelis hyperythrus</i>	389
Garden slender salamander	<i>Batrachoseps pacificus</i>	73
Southern pacific rattlesnake	<i>Crotalus viridis</i>	1
Western ringneck snake	<i>Diadophis punctatus</i>	6
Southern alligator lizard	<i>Elgaria multicarinata</i>	213
Night snake	<i>Hypsiglena torquata</i>	2
California kingsnake	<i>Lampropeltis getula</i>	8
California striped racer	<i>Masticophis lateralis</i>	8
Gopher snake	<i>Pituophis catenifer</i>	1
Western fence lizard	<i>Sceloporus occidentalis</i>	902
Side-blotched Lizard	<i>Uta stansburiana</i>	965

Source: Pitfall Totals CABR 2010

Results of the species identified during the 2005 to 2007 DFSP fuel farm were similar to the species identified during the 2010 survey with the exception of visual observation of a Belding's orange-throated whiptail (*Cnemidophorus hyperythrus*), a CDFG species of species concern (U.S. Navy 2007b).

A comprehensive list of the herpetofauna species observed on Point Loma is included in **Appendix G**.

Green sea turtles (*Chelonia mydas*) are known to forage in San Diego Bay and along the Pacific coast of Baja California. No green sea turtles have been documented to nest on the west coast. They do not breed or nest in San Diego Bay, as they need undisturbed beaches for nesting such as those found along the coast of Mexico (U.S. Navy 2010).

The population of green sea turtles in San Diego Bay numbers approximately 30 to 60 individuals; however, there is limited information about their movements or behavior (U.S. Navy 2010). It is unknown how often they leave San Diego Bay or where they reside when they are outside the South San Diego Bay Power Plant channel. Female green sea turtles are believed to migrate from San Diego Bay to nesting grounds in Mexico prior to nesting season while the remaining male adults and subadults continue to be present within San Diego Bay. Eelgrass beds and associated algae and invertebrates known to be food for turtles are extensive in the south and south central San Diego Bay. Information on turtle foraging has broadened the general understanding of targeted food items as well as expanded the idea that adult green sea turtles are more omnivorous than previously thought. Considering foraging studies, resident turtles near Navy managed areas along the San Diego Bay may be utilizing invertebrates within deeper areas of San Diego Bay in conjunction with eelgrass and algae as food sources (U.S. Navy 2010).

Potential habitat for green sea turtles within San Diego may be utilized during foraging but are not considered suitable for nesting. Foraging by green sea turtles is likely concentrated to eelgrass beds and to lesser extent invertebrate communities in South and South Central Bay considering the concentration of the majority of such habitat is within those areas. Potential foraging areas outside the Bay associated with kelp beds or eelgrass are primarily located adjacent to the mouth of San Diego Bay (Zuniga Jetty) and north towards Naval Base Coronado, Naval Air Station North Island. Because very little is known about foraging patterns of green sea turtles within San Diego Bay and the majority of sightings have been concentrated in the South Bay Power Plant channel inferences about movement patterns remain conjecture (U.S. Navy 2010).

4.2.4.5 Birds

The San Diego Bay provides the largest expanse of protected bay waters in southern California as part of the Pacific Flyway used by millions of birds traveling between northern breeding grounds and southern wintering sites. It is one of a dwindling number of stopover sites used by migrants to replenish their energy during their long journey, and the large populations of over-wintering birds depend on its resources for food, shelter, resting, and staging before migration. The bay also serves as the northern range of some tropical species, including several that breed and nest locally (U.S. Navy et al. 2011).

NBPL provides foraging and nesting habitat for several resident and seasonal birds. A total of 358 bird species, including sensitive species, have been documented on Point Loma (see **Appendix G**). Nomenclature for bird species follows the American Ornithologists' Union (1998). These lists have been assembled from various master plans and natural resource management plans for NBPL and supplemented by lists compiled for the San Diego County Bird Atlas Project initiated in 1997 by the San Diego Natural History Museum. The National Park Service has been conducting shorebird and seabird censuses at Cabrillo National Monument since 1990 (U.S. Navy 2009d).

Avian and raptor species that use the available habitat on Point Loma during the breeding season include Peregrine Falcon (*Falco peregrines anatum*), Red-tailed Hawk (*Buteo jamaicensis*), American Kestrel (*Falco sparverius*), Northern Harrier (*Circus cyaneus*), Cooper's Hawk (*Accipiter cooperii*), Red-shouldered Hawk (*Buteo lineatus*), Osprey (*Pandion*



Juvenile Osprey at NBPL
Credit: Mary F. Platter-Rieger

haliaetus), White-tailed Kite (*Elanus leucurus*), Sharp-shinned Hawk (*Accipiter striatus*), Ferruginous Hawk (*Buteo regalis*), Northern Rough-winged Swallow (*Stelgidopteryx serripennis*), Say's Phoebe (*Sayornis saya*), Great Egret (*Ardea alba*), Northern Flicker (*Colaptes auratus*), American Robin (*Turdus migratorius*), Red-breasted Nuthatch (*Sitta canadensis*), House Sparrow (*Passer domesticus*), Great Horned Owl (*Bubo virginianus*) and Barn Owl (*Tyto alba*) (U.S. Navy 2009d).

Point Loma is an important resource along the Pacific Flyway for migratory birds. Over 40 species of Wood-warblers (family *Parulidae*) have been recorded on Point Loma during spring and fall migrations. Orange-crowned Warbler (*Vermivora celata*), Lucy's Warbler (*Vermivora luciae*), Black-throated Gray Warbler (*Dendroica nigrescens*), Pine Warbler (*Dendroica pinus pinus*), and Painted Redstart (*Myioborus pictus pictus*) are common visitors to the area. Tanagers (family *Thraupidae*) are summer residents on the peninsula. Hepatic (*Piranga flava*), Summer (*Piranga rubra*), Scarlet (*Piranga olivacea*), and Western (*Piranga ludoviciana*) Tanagers, as well as a Golden-winged Warbler (*Vermivora chrysoptera*) have been observed in several habitats on NBPL.

Special status bird species, such as the federally threatened Coastal California Gnatcatcher (*Poliophtila californica californica*) and Western Snowy Plover (*Charadrius alexandrinus nivosus*), and the federally endangered Least Bell's Vireo (*Vireo bellii pusillus*) and California Least Tern have been recorded intermittently on NBPL. State-listed threatened species such as the Swainson's Hawk (*Buteo swainsonii*), California Black Rail (*Laterallis jamaicensis coturniculus*), and Bank Swallow (*Riparia riparia*) also use habitats on Point Loma. The California Brown Pelican (*Pelecanus occidentalis californicus*) frequently uses NBPL docks and structures and forages in the waters administered by NBPL (Pers. Com. Sandy Vissman 2011).

Specific Concerns

- Development/anthropogenic disturbances.
- Invasive species (flora and fauna).
- Habitat loss and/or changes.
- Erosion and sedimentation.
- Altered fire regime.
- Climate change (e.g., changes in temperature or sea level rise).
- Predation by native and nonnative species.

Current Management

The MBTA (16 U.S.C. 703-712) protects all migratory birds and prohibits the taking of migratory birds, their young, nests, and eggs, except as permitted by the USFWS. The USFWS recommends that NBPL avoid impacting birds protected under the MBTA by surveying for nesting birds in areas proposed for disturbance and if necessary, waiting until the nesting and fledging process is complete. Alternatively, the USFWS recommends conducting activities outside of nesting areas or outside of the general migratory bird-nesting season that extends from mid-February through the end of August, to help avoid direct impacts.

To reduce potential impacts to NBPL's operations and infrastructure support, avoidance and minimization management strategies have been developed for projects that may impact Herons and/or their nests. Mitigation includes planting Torrey pine trees, and not planting eucalyptus trees at Heron nest sites. Once planted, these sites are analyzed to determine their feasibility and appropriateness for supporting Torrey pines (e.g., soil, slope aspect).

Management guidelines set forth in the 2012 Heron and Egret Management Plan include (1) restriction of non-essential activity adjacent to active Heron nests; (2) conservation of nesting habitat; (3) continued monitoring of nesting locations, phenology (timing) of nesting, reproductive effort, and success; and (4) construction of parking covers or shelters to lessen impact of Heron droppings. These management issues will likely be revisited by NBPL.

NBPL has planted trees to ensure Herons and Egrets have nesting substrate. Eucalyptus trees are being removed as many reach maturity and falling limbs and trees become a safety issue for humans. Suitable nesting trees are planted in areas where Herons are likely to nest (see **Figure 4-10**).

In addition, natural resource managers on NBPL can achieve effective stewardship of native ecosystems by incorporating relevant data and knowledge on wildlife populations in their land-use decisions. Migratory and resident bird species are relatively sensitive and conspicuous indicators of ecosystem condition and the status of their populations can therefore serve as an index of proper stewardship. The purpose of this project is to monitor parameters and long-term patterns of Neotropical migratory bird (NMB) populations on NBPL using the Monitoring Avian Productivity and Survivorship (MAPS) program. There are four objectives for this study: (a) measurement of an index of sizes and trends of various NMB populations, (b) estimation of demographic and survivorship parameters for NMB species, (c) estimation of annual productivity patterns for these species, and (d) augmentation of existing distributional information for “sensitive” avian species.

As military installations consolidate, the demand for expansion and use of the installation will increase. Therefore, establishment of baseline information on NMB relative density and habitat use will enhance the military's ability to provide sound guidelines in natural resource management and environmental compliance for the personnel and activities utilizing military land.

The NMB information will support compliance with the Migratory Bird Treaty Act, Executive Order 13186, 50 Code of Federal Regulations (CFR) 21.15, Authorization of Take Incidental to Military Readiness Activities and MOU between DoD, and USFWS to Promote the Conservation of Migratory Birds of July 2006, and the goals of the Partners in Flight program.

MAPS was established in 1989 by The Institute for Bird Populations (IBP). MAPS utilizes a standardized constant-effort mist-netting protocol at a network of stations. Each station consists of ten 12-meter mist nets distributed uniformly but opportunistically within the interior eight hectare (ha) of a 20-ha study area. Typically, one 12-meter, 36-millimeter-mesh mist net is operated at each net site for six morning hours per day, for one day during each of six to ten consecutive 10-day periods. Starting dates vary between May 1 and June 10 (later at more northerly latitudes and higher elevations) and operation continues through the ten-day period ending August 8. Standardization from year to year and continuation of the study for at least five consecutive years at each station are necessary in order to provide reliable productivity indices and survivorship estimates. All birds captured during the program are identified to species, age, and sex using criteria in Pyle (1997) and, if unmarked, are ringed with a uniquely numbered aluminum ring provided by the U.S. Geological Survey/Biological Resources Division (USGS/BRD) Bird Banding Laboratory.

Primary threats to Heron populations on NBPL include human alterations and/or removal of nesting habitat, repeated disturbance of nesting colonies at critical periods during the nesting cycle, predation, contaminants, and disease. Currently, while potential predators are present within the San Diego Bay area, little predation has been observed at the heron colonies on NBPL (U.S. Navy 2012b).

Several of the current nesting colonies in eucalyptus trees along Sylvester Road contribute an enormous amount of fecal material on sidewalks and parked vehicles. Removal of the ornamental, non-native

eucalyptus trees on NBPL may have a negative effect on Great Blue Heron colonies and removal may also constitute non-compliance with the MBTA. Planned removal of existing nest trees is associated with restoration plans. While Torrey pine requires many years to reach maturity and suitability as nesting habitat for herons, identifying suitable areas for long-term Heron colony placement will ensure that nesting habitat will be available in the future (U.S. Navy 2012b).

Currently, efforts to accomplish this task are ongoing. A Heron colony mitigation site has been selected and is being planted with Torrey pine trees since nesting herons have the ability to use many different nesting substrates. In the short-term, planting faster growing native or approved species may be necessary to offset immediate losses in Heron nesting habitat. Future artificial nesting structures are not recommended unless specific structures have significant supporting data to strongly suggest the successful use of the structures by the nesting heron and egret species. Installation biologists will determine if specific bird and/or nest surveys should be conducted for each project or activity during the NEPA process (U.S. Navy 2012b).

Management Objective and Strategy

Objective: Maintain and enhance populations, and nesting and foraging habitats of migratory birds on NBPL.

Strategies:

1. Identify any actions that require an MBTA permit and, if necessary, obtain appropriate permit for intentional take of migratory birds.
2. Develop effective management for minimizing the unintentional take of migratory birds.
3. Conduct regular (approximately every 1-2 years) surveys to determine what species of migratory birds may have potential to be on NBPL.
4. Once finalized, implement monitoring protocols contained within the DoD Coordinated Bird Monitoring Plan. Contribute to date to the Coordinated Bird Monitoring Database.
5. Coordinate with the USGS to conduct one breeding season (March – November) following a standard MAPS survey at Naval Base Point Loma/Cabrillo National Monument. The survey should follow the procedures developed by the Institute for Bird Populations protocol as described in the MAPS Manual, or the most current version at the time of the surveys). This project supports the MOU between the DoD and USFWS to promote the conservation of migratory birds by implementing an existing, nationwide bird monitoring program.
6. Continue monitoring listed species as described in this INRMP and adapt monitoring and management actions as needed.
7. Develop migratory bird specific BMPs and ensure these BMPs are included in project plans.
8. Revise and implement Heron and Egret Management Plan.
9. Develop and enhance partnerships, and distribute outreach and education materials on migratory birds.
10. Revegetate with native species contained on the recommended plant list, and control the spread of invasive species.

4.2.4.6 Bird/Wildlife Aircraft Strike Hazard

Not applicable to NBPL.

4.2.4.7 Mammals

Point Loma exhibits many naturally vegetated areas that provide cover and foraging opportunities for several mammals. Most mammals found on Point Loma are nocturnal and are difficult to detect during daytime surveys.

Thirty mammalian species have been recorded on Point Loma (see **Appendix G**). Some of the species, such as the Pacific kangaroo rat (*Dipodomys agilis*) that were historically documented on the peninsula have not been verified in recent years on Point Loma. Nomenclature for mammals follows Jones et al. 1982. Commonly detected species include northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), deer mouse (*Peromyscus eremicus*), California vole (*Microtus californicus*), and western harvest mouse (*Reithrodontomys megalotis*). Bobcat (*Felis rufus*) and coyote (*Canis latrans*) were historically documented on the peninsula and coyote have been observed by installation staff in recent years. Bobcat is believed to no longer occur. Gray fox (*Urocyon cinereoargenteus*) was observed during studies on Point Loma conducted by Dr. Robert Fisher and Chris Brown (2001).

In 1997, a bat survey of species of Point Loma identified western mastiff bat (*Eumops perotis californicus*), Mexican free-tailed bat (*Tadarida brasiliensis*), and several myotis (*Myotis* spp.) foraging over the area (Brown and Berry 1997). An acoustic survey of bat species performed during the winter of 2002 on the Point Loma peninsula confirmed the presence of the Mexican free-tailed bat and identified three new species which included; the Western red bat (*Lasiurus blossevillii*), the big brown bat (*Eptesicus fuscus*) and the big free-tailed bat (*Nyctinomops macrotis*). Most bats in southern California, including the western mastiff bat and some myotis species, are considered CDFG species of special concern. Historically it has been documented that red bat (*Lasiurus borealis teliotus*) and Mexican long-tongued bat (*Choeronycteris mexicana*) have had a presence on NBPL. In recent years bats found near Point Loma, such as Shelter Island and the neighborhood directly north of NBPL, have been taken to rehabilitators. These species, which may potentially occur on NBPL, include the Mexican long-tongued bat and pocketed free-tailed bat (*Nyctinomops femorosaccus*).

Another bat survey was conducted in 2005 and 2007 at the DFSP fuel farm; however, no bats were observed during these surveys (U.S. Navy 2007b).

4.2.4.8 Marine Mammals

Marine mammals known to occur within 300 yards (274 m) offshore include harbor seals (*Phoca vitulina*) and California sea lions (*Zalophus californianus*). Buoys, the bait barge, and various wharves are often used as haul-outs. During marine mammal surveys conducted in 2007 and 2008 five marine mammal species including harbor seals, California sea lion, bottlenose dolphin (*Tursiops truncatus*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), and common dolphin (*Delphinus* sp.) were observed in the vicinity of the Point Loma Naval Complex, both within San Diego Bay and along the coast (U.S. Navy 2009d).

The waters off the Point Loma shore provide an important migration corridor for gray whales (*Eschrichtius robustus*) and they are often seen making their annual migration to sheltered lagoons in Baja California for calving. Occasionally whales have come closer to the shore near the statue of Cabrillo (U.S. Navy et al. 2011).

Specific Concerns

- Habitat loss and/or changes.
- Stranding on beaches.
- Climate change (e.g., changes in temperature or sea level rise).

Current Management

Natural resources personnel at NBPL conducted quarterly marine mammal surveys from 2007-2008 to determine species of marine mammals present in the outer San Diego Bay and within the vicinity of NBPL. The most recent surveys were conducted in 2008. Beginning in 2009, an ongoing marine mammal survey is being conducted in San Diego Bay. In addition to surveying for marine mammals, the surveyors are collecting discrete water samples for chlorophyll analysis as well as continuous water quality data (chlorophyll, temperature, salinity, etc.). A series of informal small boat surveys in north San Diego Bay were conducted by the U.S. Pacific Fleet in 2010 and 2011.

The Navy follows regional stranding and injured wildlife protocol established by the Southwest Region Marine Mammal Stranding Network. An MOU between the NOAA National Marine Fisheries Service and the U.S. Navy, *Assist in Marine Mammal Stranding Investigations* (Agreement No. PR-055), requires the development of Regional Stranding Investigation Assistance Plans. The Regional Stranding Investigation Assistance Plan is being developed at the regional level with the Navy Stranding Response Coordinators. In addition, NBPL Instruction 5090.1, Base Fishing Regulation, requires compliance with federal and state laws concerning fish and wildlife, including marine mammals (2007).

Management Objective and Strategy

Objective: Protect and enhance populations of marine mammals at NBPL.

Strategies:

1. Conduct regular (approximately every 2 years) surveys for marine mammals that may be present within NBPL boundaries.
2. Continue monitoring listed species as described in this INRMP and adapt monitoring and management actions as needed. Use monitoring information and other information gleaned to guide adaptive management.
3. Develop and distribute outreach and education materials on marine mammals.
4. Follow injured wildlife protocol.
5. Coordinate with NMFS to ensure Navy marine mammal stranding protocol is current and consistent with theirs.

4.2.4.9 General Fish and Wildlife Management

For the purposes of this INRMP, fish and wildlife management is defined as manipulation of the environment and fish and wildlife populations to produce desired objectives. The primary goal of fish and wildlife management at NBPL is to maintain populations at levels compatible with land use objectives while promoting the existence, importance, and benefits of fish and wildlife species.

The basis of managing a rich assemblage of nongame wildlife is to provide a mosaic of habitats that are structurally and biologically diverse. In managing for a diversity of habitats and diversity within those habitats, the potential exists for numerous species to be found. NBPL should employ these basic techniques for managing wildlife.

- *Monitoring Fish and Wildlife.* Creating, monitoring, and updating GIS data on wildlife species will allow NBPL to store, retrieve, present, and analyze the data to make informed management decisions.

- *Managing for Migratory Birds.* Impacts on birds protected under the MBTA will be avoided through surveying for nesting birds in areas proposed for disturbance and, if necessary, waiting until the nesting and fledging process is complete. Alternatively, the USFWS recommends that conducting activities outside of nesting areas or outside of the general migratory bird-nesting season can help avoid direct impacts.
- *Protecting Sensitive Areas.* NBPL should maintain biological diversity by protecting, to the extent practical, sensitive areas that provide unique habitat niches. Protection measures might include restricting vehicle movement, and protecting habitats of exceptional biological value by establishing protective buffers and maintaining healthy and diverse ecosystems.

Specific Concerns

- Improper use of pesticides.
- Habitat loss (e.g., from anthropogenic activities or from nonnative and invasive species).
- Invasive species displacing native species.
- Altered fire regime.
- Climate change (e.g., changes in temperature or sea level rise).
- Predation by native and nonnative species.

Current Management

Opportunities for the management of fish and wildlife species on NBPL are primarily accomplished by managing habitats. NBPL natural resources personnel coordinate with CDFG, USFWS, and NPS to identify, prioritize and implement habitat enhancement projects targeted for particular species or groups of species (i.e., migratory birds). Projects to manage wildlife habitat include invasive plant control, enhancing and protecting wetlands, and conducting surveys (e.g. migratory nesting bird survey).

Habitat loss has a direct correlation to a decline or loss of fish and wildlife populations. Installation INRMPs are meant to be used as tools in operational, training, and construction planning endeavors to minimize or prevent loss of habitat, thus preserving species diversity and populations.

Management Objective and Strategy

Objective: Employ a systematic approach to managing wildlife resources, using a process that includes inventory, monitoring, modeling, management, assessment, and evaluation.

Strategies:

1. Ensure that the natural resources staff members responsible for wildlife management and conservation obtain focused training regarding management of these resources as related to conservation on a military installation on an annual basis.
2. Continue documenting species that are incidentally observed during candidate species surveys.
3. Periodically review the monitoring program to ensure it still meets ecosystem management goals
4. Survey and monitor herpetofauna populations using guidelines from Partners in Amphibian and Reptile Conservation (PARC) and once finalized, implement DoD PARC Strategic Plan.
5. Implement DoD PIF Strategic Plan (<http://www.dodpif.org/plans/stratplan.php>).
6. Install bird and bat boxes.

7. Revegetate areas on base with native species using species on the recommended plant list, and control the spread of invasive species.
8. Ensure compliance with NBPL instructions for fishing and NEPA.
9. Evaluate predator control and develop strategies to control invasive predators (e.g. feral cats).
10. Maintain and promote partnerships with agencies and groups involved in wildlife management.

4.2.5 Special Status Species (Federally Listed and Other Special Status Species)

Special status species include those species that are federally listed endangered, threatened, or candidate; state listed endangered, threatened, candidate or species of special concern; birds on the federal Birds of Conservation Concern list; and plants identified by the California Native Plant Society (CNPS) as having a California Rare Plant Rank. Special Status Species on NBPL are listed in **Table 4-4**.

Table 4-4: Special Status Species Observed or with the Potential to Occur on NBPL on Peninsula

Common Name	Scientific Name	Federal Status	State Status	NBPL Presence
Plants				
Orcutt's spineflower	<i>Chorizanthe orcuttiana</i>	FE	SE	Documented Occurrences
Invertebrates				
Black abalone	<i>Haliotis cracherodii</i>	FE		Unknown
White abalone	<i>Haliotis sorenseni</i>	FE		Unknown
Birds				
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	FT	SSC	Occasional (non-breeder)
Coastal California Gnatcatcher	<i>Polioptila californica californica</i>	FT	SSC	Occasional migrant
California Least Tern	<i>Sterna antillarum browni</i>	FE	SE	Forages in Bay
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	FE	SE	Occasional migrant
Swainson's Hawk	<i>Buteo swainsonii</i>	BCC	ST	Migrant
California Black Rail	<i>Laterallis jamaicensis coturniculus</i>	BCC	ST	Occasional migrant
Bank Swallow	<i>Riparia riparia</i>		ST	Rare migrant
Bald Eagle	<i>Haliaeetus leucocephalus</i>		SE	Low potential to occur
Great Egret*	<i>Ardea alba</i>			Breeding
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	BCC		Breeding
Osprey*	<i>Pandion haliaetus</i>			Breeding
California Brown Pelican*	<i>Pelicanus occidentalis californicus</i>			Year-round foraging
Amphibians and Reptiles				
Orange-throated whiptail	<i>Aspidoscelis hyperythra</i>		SSC	Stable population
Mammals				
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	FE	SSC	Low potential to occur

Source: U.S. Navy 2009d

Note: * Species actively managed for compliance with requirements such as Migratory Bird Treaty Act (MBTA)

Key: Federal Status: FE = Federal Endangered, FT = Federal Threatened, BBC = Birds of Conservation Concern State Status: SE = State Endangered, ST = State Threatened, SSC = Species of Special Concern

An installation's overall ecosystem management strategy must provide for protection and recovery of federally listed species. Under the ESA, an "endangered species" is defined as any species that is in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The USFWS has also presented an updated list of species that are regarded as candidates for possible listing under the ESA. Although candidate species receive no statutory protection under the ESA, the USFWS believes it is important to advise government agencies, industry, and the public that these species are at risk and could warrant protection under the ESA.

The intent of this section is to identify objectives and strategies to manage NBPL using a regional ecosystem-based approach that manages special status species while protecting the operational functionality of the mission. While single-species management is not promoted as a general philosophical management approach on the installation, specific controls are used to protect special status species beyond management of the ecosystem. Other procedures in place for management of special status species are modifying the ecosystem and human interactions within this environment.

Specific Concerns

- Habitat loss resulting from urban development and habitat fragmentation.
- Invasive species encroaching on native species habitats.
- Habitat loss due to either anthropogenic or natural causes.
- Erosion and sedimentation from either anthropogenic or natural causes.
- Climate change (e.g., changes in temperature or sea level rise).
- Predation by native and nonnative species.

Current Management

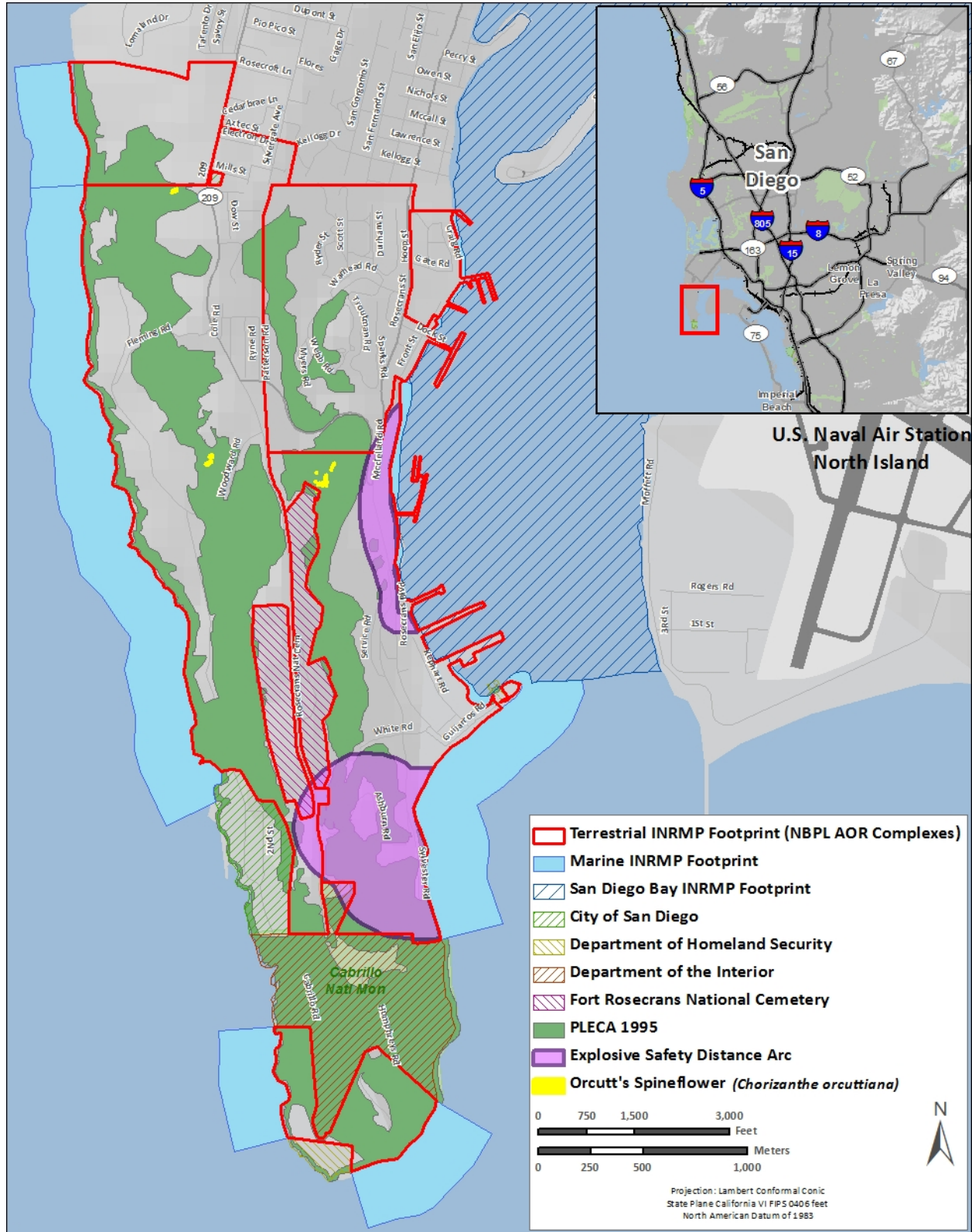
The only federally listed species that occurs on NBPL is the Orcutt's spineflower. NBPL will continue to conduct species surveys and monitor as deemed necessary and subject to available funding. Habitat enhancement projects, including invasive species removal, erosion control, and revegetation of native plants have been successful and will continue.

Management needs of special status species and their habitats are based on results contained within surveys performed in 2006 for NBPL. Current management for each individual special status species is discussed further in the following sections. Projects impacting special status species and habitat will continue to be reviewed by the interdisciplinary Project Review Board; if applicable, site-specific surveys will be conducted. Management strategies will be developed or revised based on the recommendations of those surveys. A Sensitive Species Management Plan within the VMP addresses specific threats, status, location, and management recommendations (U.S. Navy 2008a).

4.2.5.1 Federally Listed Species

Six federally listed species have the potential to occur on NBPL (see **Table 4-4**). Two federally listed species, black abalone and white abalone, are being evaluated for presence on Point Loma.

Of these, NBPL actively manages for Orcutt's spineflower (*Chorizanthe orcuttiana*). The Navy also coordinates with the USFWS to ensure that impacts of in-water activities at NBPL that may affect California Least Tern foraging, are minimized. Ongoing participation in the PLECA, and efforts to conserve native habitat and reduce the spread of invasive species may indirectly benefit the other listed species. **Figure 4-8** identifies areas where access is restricted due to the presence of sensitive cultural or biological resources.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-8: Federally Listed Species on Naval Base Point Loma

Orcutt's spineflower



Orcutt' spineflower

Credit: Calflora

Orcutt's spineflower is currently listed as endangered by both USFWS (November 6, 1996) and CDFG. CNPS also considers it to be rare and endangered (CNPS 2000). Orcutt's spineflower is a diminutive, herbaceous annual in the Polygonaceae family. Its yellowish stems are prostrate and may grow up to 15 centimeters in length, but typically only grow from 3 to 6 centimeters in length. This species is found on sandy soils developed from eroded coastal bluffs, within openings in chaparral and coastal sage scrub communities (CNPS 2000). Orcutt's spineflower tends to occur in loose, sandy soil in openings within maritime chaparral and coastal sage scrub below 150 meters (U.S. Navy 2009d). It is frequently found on gentle slopes, growing on the drip line of shrubs. This species has been mapped on Corralitos loamy sand and loamy alluvial sand in the Huerhuero complex in Encinitas by Craig Reiser and Kyle Ince. Several of species of *Chorizanthe* are known to occur on Point Loma including fringed spineflower (*C. fimbriata*), prostrate spineflower (*C. procumbens*), and Turkish rugging (*C. staticoides*). All of these species have involucrel cups with 6 awns, while Orcutt's spineflower has an inflorescence with a three-angled involucrel tube and hooked awns. It is easily distinguished from California spineflower (*Mucronea californica*) by these hooked awns; its yellow flower is very difficult to see (Hickman 1993).

Flowering generally commences in March and continues through April when several too many decumbent, open inflorescences are produced. Although little is known about the reproductive system of Orcutt's spineflower, it is known to produce one seeded fruit in the late spring and early summer. After the winter rains begin, the seeds germinate and develop small rosettes of narrowly oblanceolate leaves.

This species is known from only eight extant occurrences in (one in Encinitas, CA, two in Del Mar, CA and five on NBPL). Major threats to Orcutt's spineflower are coastal urbanization (resulting in loss of habitat), exotic plant species, and trampling due to local foot traffic (CNPS 2012). At one time, Orcutt's spineflower was thought to be extinct. A survey conducted by Bauder in 2010 confirmed three population of Orcutt's spineflower on NBPL, and one at Torrey Pines State Reserve (Bauder and Sakrison 2010). The populations on NBPL include one on Mainbase, which has been detected from 1997 to the present, and two on SSC Pacific-managed land (Bauder and Sakrison 2010). The Point Loma populations have been monitored since 1998 in accordance with a USFWS permit (Bauder 1998).

NBPL currently supports nearly all known extant populations of this species. Annual monitoring and habitat enhancement (invasive species removal) is a priority. Monitoring plots have been installed at several Orcutt's spineflower populations to track annual and long-term fluctuations in population numbers and distribution. Enhancement projects will continue to record site characteristics to determine habitat requirements. Currently, the removal of invasive species, particularly acacia and iceplant, in open, sandy sites with an Orcutt's spineflower seed bank, promotes seed germination (SERG 2011). A 2011 Cooperative Agreement with Soils and Ecology Research Group (SERG), San Diego State University Foundation will use available data on soil, plant, and topography associations in areas with the species to identify and map potential expansion areas on Point Loma. SERG will also research overlaps between known NBPL arthropods/pollinators and known pollinators of Orcutt's spineflower species to reveal pollinator habitat/resource requirements and potential restrictions to pollinator availability.

Least Bell's Vireo

The Least Bell's Vireo is a federal and state listed endangered species. Least Bell's Vireo is a small, nondescript vireo, with generally gray plumage, rounded wings with pale white wing bars and narrow white eye rings. Juveniles are distinguished from adults by whiter plumage and more distinct wing bars. This species has a distinctive song and is most easily located through its vocalizations. Least Bell's Vireo is a migratory songbird that winters in Baja California, Mexico, arriving in California from mid-March to April and departing for Baja California again in September. Breeding season generally ranges from March through July. Males establish breeding territories that range in size from 0.5 to 4 acres. Nests are commonly located on branches approximately 1.5 to 5 feet above the ground. Most pairs produce only one brood per season but have been documented to produce up to four in one season. Least Bell's Vireo is parasitized throughout its breeding range by Brown-headed Cowbirds (*Molothrus ater*), which are the cause of a substantial proportion of nest failures (U.S. Navy 2011b).



Least Bell's vireo

Credit: U.S. Fish and Wildlife Service

These birds are restricted to dense riparian habitats that usually have a canopy of willows (*Salix* spp.) and an understory comprised of mule fat (*Baccharis salicifolia*), wild rose (*Rosa californica*), and other riparian species. Least Bell's Vireos select riparian areas with dense shrub cover and a well-developed understory for nesting. Degradation of riparian habitat due to invasion by exotic plants, grazing practices, and other causes have decreased the amount of available habitat for Least Bell's Vireo (U.S. Navy 2011b).

The Least Bell's Vireo has been reported as a fall migrant in several vegetation communities on Point Loma. Because appropriate riparian vegetation for breeding is absent on Point Loma, Least Bell's Vireo is unlikely to nest there, and the birds reported were most likely migrating to or from nesting sites.

Due to the absence of appropriate riparian vegetation for breeding, NBPL does not conduct focused surveys for Least Bell's Vireo. Current management includes: annual migratory bird surveys via Monitoring Avian Productivity and Survival (MAPS) stations, which support collection of migratory bird data on NBPL as well as within San Diego Bay to support San Diego Metro installations (NB Point Loma, NB Coronado, and NB San Diego). This data will be used to analyze population trends for Least Bell's Vireo and other migratory bird species on NBPL. In addition, NBPL uses the Project Review Board for all projects to avoid and minimize potential impacts and "takes" of migratory, resident, and special status bird species, and their habitats.

Coastal California Gnatcatcher

The Coastal California Gnatcatcher is a federally threatened species and a CDFG species of special concern. The Coastal California Gnatcatcher is a small, slate-colored bird with a long, black tail that is edged and tipped with white, which it flicks erratically as it perches. The bird has a distinct kitten-like mewing call, which distinguishes the California Gnatcatcher from the Black-tailed Gnatcatcher (*Poliophtila melanura*). During the breeding season, the male develops a black cap that distinguishes it from the female. The Coastal California Gnatcatcher is a non-migratory songbird found on the coastal slopes of southern California. It ranges from Ventura County south to northwest Baja California, Mexico. The breeding season of the Coastal California Gnatcatcher extends from late February through August with the peak of nesting occurring from mid-March through mid-May. The breeding territory size of the

Coastal California Gnatcatcher ranges from 2 to 14 acres, with home ranges expanding from 13 to 39 acres during the non-breeding season. Nest parasitism by Brown-headed Cowbirds has been documented. Typically, there is a high rate of nest failure each breeding season. This is offset by rapid and persistent re-nesting efforts; a breeding pair may attempt to nest as many as ten times in a year, producing up to three successful broods in a season. There is evidence that this bird is also susceptible to nest predation by various animals such as snakes, coyotes, fox (*Urocyon* spp.), rodents, and other birds, such as Western Scrub-jays (*Aphelocoma californica*) (U.S. Navy 2011b).



Coastal California Gnatcatcher

Credit: U.S. Fish and Wildlife Service

The Coastal California Gnatcatcher is strongly associated with coastal sage scrub habitats below 820 feet in coastal areas and between 820 and 1,640 feet in inland areas; however, not all types of coastal sage scrub communities are used or preferred. This bird appears to be most abundant in areas dominated by California sagebrush and California buckwheat (see **Figure 4-4a**). The bird's numbers are generally low in coastal habitats dominated by black sage, white sage (*Salvia apiana*), or lemonadeberry; in inland areas, habitats dominated by black sage may be used more regularly. Coastal sage scrub vegetation occurs on the gentle coastal slopes and mesas of southern California, which are prime locations for agriculture and development.

Nesting Coastal California Gnatcatchers have not been reported from Point Loma since 1915. Three well-documented sightings and multiple casual sightings have occurred of single and paired Coastal California Gnatcatchers on Point Loma. In February 1993, a single male juvenile was observed at CNM. A pair of Coastal California Gnatcatchers was observed in September 1995 in a large patch of coastal sage scrub on the southern end of Point Loma at CNM. In September 1998, a pair was also observed adjacent to Battery Humphrey. Point Loma may be sufficiently isolated from the nearest known populations of nesting Coastal California Gnatcatchers, in Clairemont and La Jolla, to prevent immigration of a sufficient number of birds to establish a breeding population. The Pacific Coast Conservation Alliance and San Diego Natural History Museum conducted surveys in 2004 and 2005; one gnatcatcher was detected each year. The report summarized recent California Coastal Gnatcatcher observations and discussed the potential for a resident population. The researchers hypothesized the lack of a resident population may be a result of dispersal obstacles from the mainland (Santa Ana winds and lack of contiguous habitat).

Current management for Coastal California Gnatcatcher includes focused USFWS protocol breeding season surveys conducted every three years. This project includes development of a potential habitat map for the federally threatened Coastal California Gnatcatcher on NBPL. When possible, these surveys will be coordinated with other members of the PLECA. In addition, annual bird surveys are conducted via MAPS stations, which support collection of migratory bird data on NBPL as well as within San Diego Bay to support San Diego Metro installations (NB Point Loma, NB Coronado, and NB San Diego). This data, along with triennial breeding season surveys data will be used to analyze population trends for Coastal California Gnatcatcher and other migratory bird species. NBPL also uses the Project Review Board for all projects to avoid and minimize potential impacts and "takes" of migratory, resident, and special status bird species, and their habitats.

California Least Tern

The California Least Tern is a federal and state listed endangered species and a CDFG fully protected species. The California Least Tern breeding range extends from San Francisco Bay into Baja California, Mexico. Winter range occurs largely in Central and South America, with winter migration beginning in

the late summer or early fall. The California Least Tern is a subspecies of a more widely distributed species of Least Tern (*Sterna antillarum*). California Least Terns are characterized by a black cap and nape, white forehead, an orange bill with a dark tip, white under parts, and a deeply forked tail. Body size can reach up to nine inches. This tern nests colonially along the coast and historically preferred colony sites located on barrier dunes at river mouths, at lagoon entrances, and along sandy strips of



California Least Tern

Credit: U.S. Fish and Wildlife Service

sparse coastal strand vegetation. Human encroachment of these areas has forced the birds to seek alternative colony sites and nest wherever flat, sandy ground with little or no vegetation cover is available. California Least Terns exhibit high nesting site tenacity and fidelity; however, colony sites may be abandoned if they become too overgrown with vegetation, if they are flooded by high tides or fresh water, if predation on chicks and adults is high, or if humans encroach. California Least Terns feed mostly on small-bodied fresh and saltwater fish, but also consume small crustaceans and insects (U.S. Navy 2011b).

The primary reasons for the failure of breeding colonies adjacent to San Diego Bay are bird and mammal predation, loss of preferred habitat, and human disturbance. Limited nesting sites are available throughout their breeding range, and the species is continually being forced into larger and larger colonies. Additional adverse impacts to the terns can occur if in-water construction activities inhibit or prevent foraging opportunities for the tern or disrupt nesting pairs in the colony. Efforts to monitor the species, control predators, protect habitat, and create colony sites have resulted in genuine population increases in California. California Least Tern populations are monitored yearly under an on-going Navy-funded monitoring program on Navy training facilities, coordinated by the San Diego Zoological Society (under Navy contract N68711-04-LT-A0062).

Currently, local nesting colonies are located at Liberty Station, formerly known as Naval Training Center, San Diego; Naval Base Coronado, Naval Air Station North Island; Naval Base Coronado, Naval Amphibious Base Coronado; Lindbergh Field (San Diego International Airport); D Street Fill in Chula Vista; Chula Vista Wildlife Reserve; Grand Caribe Isle; the levees at the Western Salt Works; and the Tijuana Slough National Wildlife Refuge.

During 2006 breeding bird surveys, the California Least Tern was observed carrying fish in their bills, suggesting breeding activity across the bay, and a mated pair of Least Terns was observed in courtship display. California Least Terns are known breeders at the Naval Base Coronado, Naval Air Station North Island, across the San Diego Bay from NBPL. Observed birds were likely breeding on Naval Air Station North Island or some other nesting area close by (U.S. Navy 2009d).

Due to the absence of nesting habitat on NBPL, focused California Least Tern surveys are not conducted. Current management includes annual migratory bird surveys via MAPS stations, which support collection of migratory bird data on NBPL as well as within San Diego Bay to support San Diego Metro installations (NB Point Loma, NB Coronado, and NB San Diego). This data will be used to analyze population trends for California Least Terns and other migratory bird species on NBPL. In addition, NBPL uses the Project Review Board for all in-water projects per requirements of the California Least Tern MOU (FWS-SDG-08B0211-08I0203 December 18, 2007).

Per the California Least Tern MOU, construction activities that generate noise or turbidity are restricted during the California Least Tern season to avoid impairing their foraging activities. The San Diego Bay INRMP strategy for the California Least Tern is to expand the topics covered under Least Tern MOUs as

a mechanism to reach consensus and streamline this regulatory process. It recommends establishing a timeline for re-addressing matters covered in Least Tern MOUs as a result of new studies, management experience, and status of the Tern (U.S. Navy et al. 2011).

Western Snowy Plover

The Western Snowy Plover is federally listed as threatened and is a CDFG species of special concern. The winter range of the Western Snowy Plover is along the west coast of the United States and the Baja California coast. Its summer range includes the California and Nevada desert areas in addition to California coastal areas and islands. It inhabits sandy ocean beaches and the drying margins of lagoons. It also inhabits tidal mud flats during migration and in winter. The Western Snowy Plover also opportunistically uses sinks, playas, and receding lakeshores in desert regions (U.S. Navy 2011b).



Western Snowy Plover

Credit: U.S. Navy

The Western Snowy Plover feeds by quickly running and picking up food or probing beaches at the surf line. Its diet includes marine worms, small crustaceans, snails, and other invertebrates.

Human development and disturbance of sandy beaches and other coastal habitats has caused a decline in the species. However, this species' adaptability to nesting in interior regions of southern California gives it hope for survival as a breeder in the region (U.S. Navy 2011b).

No breeding Western Snowy Plovers have been reported on Point Loma, although breeding colonies have been reported from Naval Base Coronado Naval Air Station North Island, Lindbergh Field, and the Coronado Cays.

Due to the absence of nesting habitat on NBPL, focused Western Snowy Plover surveys are not conducted. Current management includes annual migratory bird surveys via MAPS stations, which support collection of migratory bird data on NBPL as well as within San Diego Bay to support San Diego Metro installations (NB Point Loma, NB Coronado, and NB San Diego). This data will be used to analyze population trends for Western Snowy Plovers and other migratory bird species on NBPL.

Pacific Pocket Mouse

Historically, the Pacific pocket mouse was known from trapping sites in Los Angeles, Orange, and San Diego Counties. Most trapping of this subspecies was conducted in 1931-1932. In San Diego County, three historic locations for Pacific pocket mouse are known: the San Onofre area, Santa Margarita River estuary, and the lower Tijuana River valley. They have not been detected on Point Loma. Since 1971, no definitive observations were recorded anywhere until July 1993, when six adults and 19-30 juveniles were trapped in Dana Point headlands (U.S. Navy 2011b).



Pacific Pocket Mouse

Credit: San Diego Zoo

The Pacific pocket mouse was emergency listed as an endangered species on February 3, 1994 in response to its rediscovery after over 20 years without a recorded observation. On September 29, 1994, USFWS made the final determination of the endangered status for the Pacific pocket mouse (USFWS

1994). Critical habitat for the Pacific pocket mouse has not been designated. CDFG also lists the Pacific pocket mouse as a species of special concern.

The Pacific pocket mouse is a small burrowing mammal that is endemic to coastal southern California from Marina del Rey, Los Angeles County, to the extreme south of San Diego County. It is associated with coastal plant communities and has not been found more than two miles inland from the coast, or above 600 feet elevation (U.S. Navy 2011b).

Pacific pocket mouse has been found exclusively in sandy soils derived from marine terraces near the Pacific Ocean. The most common habitat type today is open coastal sage scrub, but it has also been found in coastal strand, coastal dunes, and river alluvium. The largest known population, in Dana Point headlands, Orange County, inhabits vegetation dominated by California buckwheat and California sagebrush (USFWS 1994). A 2001 study reported several locations with relatively high habitat quality for Pacific pocket mouse in the PLECA. However, most of these locations were very limited in area and isolated at scattered (unconnected) sites (Dodd et al. 2001).

Pacific pocket mice generally hibernate from September through April and breed from April through July. They construct underground burrows in the sandy substrates where they reside during periods of inactivity. They feed primarily on the seeds of grasses and forbs and may also consume leafy vegetation and soil-dwelling insects (U.S. Navy 2011b).

After listing, numerous small-mammal surveys have been conducted within the historic range of the Pacific pocket mouse. Additional confirmed populations have been discovered through these efforts, both on Marine Corps Base (MCB) Camp Pendleton in 2008 (pers. Com. Cheryl S. Brehme 2011).

In May 2001, five consecutive nights of focused trapping surveys on Point Loma were conducted in accordance with USFWS protocols (Dodd et al. 2001). The survey area included either side of Gatchell Road, from Woodward Road south to the City of San Diego Point Loma Wastewater Treatment Plant. No Pacific pocket mice were captured during the study. A larger survey conducted in 1996-1997 also did not detect the species (Dodd et al. 2001) and small mammal trapping surveys at numerous locations at Point Loma by different investigators in 1999, 2001, and 2003 also failed to capture the Pacific pocket mouse (U.S. Navy 2007b).

Although the Pacific pocket mouse has not been documented on Point Loma and the nearest known extant populations are located on MCB Camp Pendleton, there is a low potential that the species occurs in various suitable habitats on Point Loma.

Due to the lack of documentation of Pacific pocket mouse occurrence on Point Loma, NBPL does not conduct focused Pacific pocket mouse surveys, or actively manage the species. However, as of early 2012, the NPS is collaborating with San Diego State University on a small mammal trapping project which includes NBPL lands. Data are being used to analyze habitat fragmentation on protected areas throughout San Diego County. In addition, the NPS has continuously recorded data since 2001 on all incidental small mammal captures during reptile and amphibian surveys at 17 sampling arrays throughout the peninsula.

4.2.5.2 Other Special Status Species

In addition to federal threatened and endangered species, NBPL recognizes species that occur at a lesser level of rarity. Some of these species may also be federally listed. **Table 4-4** lists other special status species and their corresponding CDFG or other federal status. No focused management or surveys currently take place on NBPL for the other special status species.

California Brown Pelican

The California Brown Pelican is listed as a state endangered species. This former federally listed species was delisted in 2009 and is currently protected under the MBTA. The ESA requires that USFWS, in cooperation with state agencies, implement a monitoring program for not less than five years following a delisting. To date, a monitoring plan for the California Brown Pelican has not been released.



Brown Pelican

Credit: U.S. Fish and Wildlife Service

The California Brown Pelican is found in estuaries, marine subtidal and pelagic waters along the Pacific Coast from British Columbia south to northern South America. This large water bird (approximately 50 inches in length) is characterized by a seven-foot wingspan; long, pouched bill; gray-brown body; and white head. Pelicans will rest on water or rocks (either offshore or on mainland), but also use mudflats, sandy beaches, wharves, and jetties. Pelicans roost, feed, and nest in flocks. Late in November, birds migrate to breeding colonies on Anacapa Island, San Clemente Island, and the Los Coronados Islands in Baja California, Mexico. Breeding occurs from March to April. Beginning in mid-May, California Brown Pelicans disperse along the entire California coast. Nests are built from small mounds of sticks or debris on rocky or low, brushy slopes of undisturbed islands, usually on the ground.

California Brown Pelicans feed almost entirely on fish, caught by diving from twenty to forty feet above the surface of the water. Occasionally, they feed on crustaceans, carrion, and young of their own species. The severe decline in the California Brown Pelican from the 1960s to early 1970s can be traced directly to the contamination of their food supply with DDT and other contaminants; throughout the 1980s and 1990s, oils spills were also a significant threat to this species (U.S. Navy 2011b).

The California Brown Pelican frequently uses NBPL docks and structures and forages in the waters administered by NBPL (Pers. Com. Sandy Vissman 2011). Breeding only occurs at offshore islands.

Bald Eagle

The Bald Eagle (*Haliaeetus leucocephalus*) is a state endangered species that is also protected under the MBTA, the Bald and Golden Eagle Protection Act (16 U.S.C. 668a –d), and by the state as a California fully protected species. They are usually rare winter visitors in San Diego County. Inland large bodies of water within southern California where they are known to overwinter in low numbers include Big Bear Lake, Lake Mathews, Lake Henshaw, San Luis Rey River Valley, Sweetwater Reservoir, Cuyamaca Reservoir, and Salton Sea. Bald Eagle observations on Point Loma have been fall migrants. Their summer range includes much of North America. Large bodies of water with abundant fish and old growth forest or snags are required for Bald Eagles to feed and reproduce. Fish are the primary prey species, although Bald Eagles will eat waterfowl and carrion.



Bald Eagle

Credit: U.S. Fish and Wildlife Service

The decline in the number of Bald Eagles was attributed to habitat destruction and DDT poisoning. The successful management of the habitat and reduction in the use of such harmful pesticides as DDT have allowed for an increase in Bald Eagle numbers. The U.S. Fish and Wildlife Service delisted the Bald

Eagle in 2006 due to the recent increase in their numbers (U.S. Navy 2002). Bald Eagles are considered rare migrants on Point Loma.

Bald Eagles are a casual migrant at NBPL. One immature Bald Eagle was recorded on 16 Nov 1987 (R. E. Webster, *American Birds* 42:135, 1988).

Swainson's Hawk

Swainson's Hawks and their nests are considered threatened by the State of California. Swainson's Hawks are similar in size to Red-tailed Hawks but with narrower wings. Their plumage is highly variable, but all morphotypes have pale wing linings and dark flight feathers. They range across the central and western United States and western Canada. There have been significant declines of Swainson's Hawks in southern California, where populations may be down 90 percent since the 1940s.



Swainson's Hawk

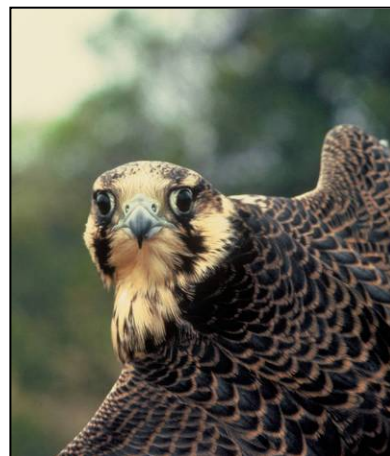
Credit: U.S. Fish and Wildlife Service

This species prefers prairies and open lands with scattered trees or ranch yard groves in desert grassland or agricultural areas. It often feeds by hopping on the ground, eating insects such as grasshoppers or crickets; it also soars and catches mice, rabbits, lizards, frogs, and birds (U.S. Navy 2011b).

Swainson's Hawks were observed during migration on Point Loma. There are no reports of Swainson's Hawks breeding in the vicinity.

American Peregrine Falcon

The American Peregrine Falcon is a state endangered species. This former federally listed species was delisted in 1999. The ESA requires that USFWS, in cooperation with state agencies, implement a monitoring program for not less than five years following a delisting. The monitoring plan, which was developed in cooperation with the Peregrine Falcon recovery team and interested scientists, was completed in December 2003. The plan proposes surveys every three years for a total of five surveys to monitor population trends and nesting success.



Peregrine Falcon

Credit: U.S. Fish and Wildlife Service

On 6 August 2009 the California Fish and Game Commission (FGC) unanimously voted to remove the American Peregrine Falcon from California's endangered species list (FGC 2009). The Commission's decision must be reviewed by the Office of Administration Law before the species can be officially removed from California's endangered species list (FGC 2009).

The decline of the Peregrine Falcon is attributed to widespread use of the pesticide DDT, which caused the birds to lay eggs too thin to withstand incubation. DDT was banned in the early 1970s and a recovery program for the species began soon after.

Peregrine falcons forage on a variety of birds including pigeons, ducks, grebes, coots, sandpipers, other raptors, and songbirds. They will also forage on small mammals, fish, and insects. In 1981, researchers estimated the breeding population in California to be 39 pairs. Nesting sites are typically located on high

cliffs, in trees, or on man-made structures. The same nest site may be used for many years. The Peregrine Falcon is most often seen as a rare fall and winter and casual spring visitor in San Diego County (U.S. Navy 2011b).

Captive-bred Peregrine Falcons were released from an artificial nest at a Point Loma hack site. One female from this hack site mated and successfully nested each year on the Coronado Bridge from 1989 until she died in 2000.

The pair at Point Loma is the only pair of Peregrine Falcons known to have bred in 2001 in the San Diego area. The pair was checked by Santa Cruz Predatory Bird Research Group in early 2001 and found to have young in the nest. A pair of nesting Peregrine Falcons was also observed on the cliff at the tip of Point Loma during the 2006 breeding birds surveys conducted at NBPL (U.S. Navy 2009d). It is unconfirmed, but assumed that this was the same pair observed during the 2001 survey.

California Black Rail

The California Black Rail (*Laterallis jamaicensis coturniculus*) is a state threatened and California fully protected species. This bird gleans isopods, insects, and other arthropods from the surface of mud and vegetation in saltwater, brackish, and freshwater marshes. Freshwater marsh vegetation used by this species includes pickleweed (*Salicornia* spp.), sedges (*Carex* spp.), and saltgrass (*Distichlis* spp.) in brackish marshes, and bulrushes (*Scirpus* spp.) and cattails (*Typha* spp.) (U.S. Navy 2011b).



California Black Rail

Credit: University of California Davis.

California Black Rails occur year-round in San Francisco Bay and the Sacramento-San Joaquin delta in northern California, along the Colorado River, near the Salton Sea, and in other desert locales in southern California. They are considered a rare transient and migrant to San Diego County. PSBS reported California Black Rail as a year-round resident of intertidal flats on Point Loma and as a possible breeding population. This species was a former local resident in coastal wetlands from Santa Barbara to San Diego and still rarely winters in this range. The species has declined due to loss of coastal and inland marsh habitats, and marsh habitats along the Colorado River (U.S. Navy 2011b).

Recent sightings have not been documented on Point Loma. A comprehensive record search of this species' presence in San Diego County indicates the likelihood of this species establishing itself on Point Loma is very low; however, it may occasionally migrate through the area.

Bank Swallow

Nesting colonies of Bank Swallows are considered threatened by the State of California. Most breeding colonies are found along the banks of Central Valley streams, particularly along the Sacramento River. As a migratory bird, it is most commonly seen in the interior of California west of the deserts. Bank Swallows are casual migrants to coastal southern California in winter, arriving from South America in early April, with numbers peaking in early May. By mid-September most Bank Swallows have left the state.

Bank Swallows nest colonially in vertical sandy banks or cliffs near streams, rivers, ponds, lakes, or the ocean. During nesting season, bank swallows prey upon insects over riparian areas; during migration they feed upon insects over brushland, grassland, and agricultural fields (U.S. Navy 2011b).

The Bank Swallow's range is estimated to have been reduced by half since 1900. Loss of nesting habitat from channelization and stabilization of banks along rivers used for nesting is the primary reason for the decline of the species in California. Bank Swallows are a rare migrant to San Diego County and are not expected to nest on Point Loma.

Herons and Egrets

While not state-listed avian species, the Great Egret and the Great Blue Heron (*Ardea herodias*) are protected by the MBTA. A Heron and Egret survey conducted in 2008 resulted in the detection of nesting Great Egret and the Great Blue Heron on NBPL (U.S. Navy 2012b). **Figure 4-9** shows the locations of Great Egret and Great Blue Heron nesting locations mapped in 2008.

NBPL's mission does not directly conflict with the presence of Herons; however, NBPL has set aside potential tree planting areas for nesting (see **Figure 4-10**) for those projects with the potential to impact Herons or their nests.

Great Egret

The Great Egret has historically been documented as a non-breeding winter visitor to San Diego. In 1988 this species was documented as breeding in San Diego County for the first time and in 2000 this species was documented on the Point Loma Peninsula. While several breeding colonies exist within the county this species is still primarily considered a wintering visitor. The breeding colony on Point Loma has been the only confirmed breeding colony within 20 miles. In the 2008 surveys, 14 Great Egret pairs were confirmed to be nesting near the SSC Pacific entrance (U.S. Navy 2012b). **Table 4-5** includes the number of Great Egret breeding pairs/active nests on NBPL.



Great Egret

Credit: U.S. Fish and Wildlife Service

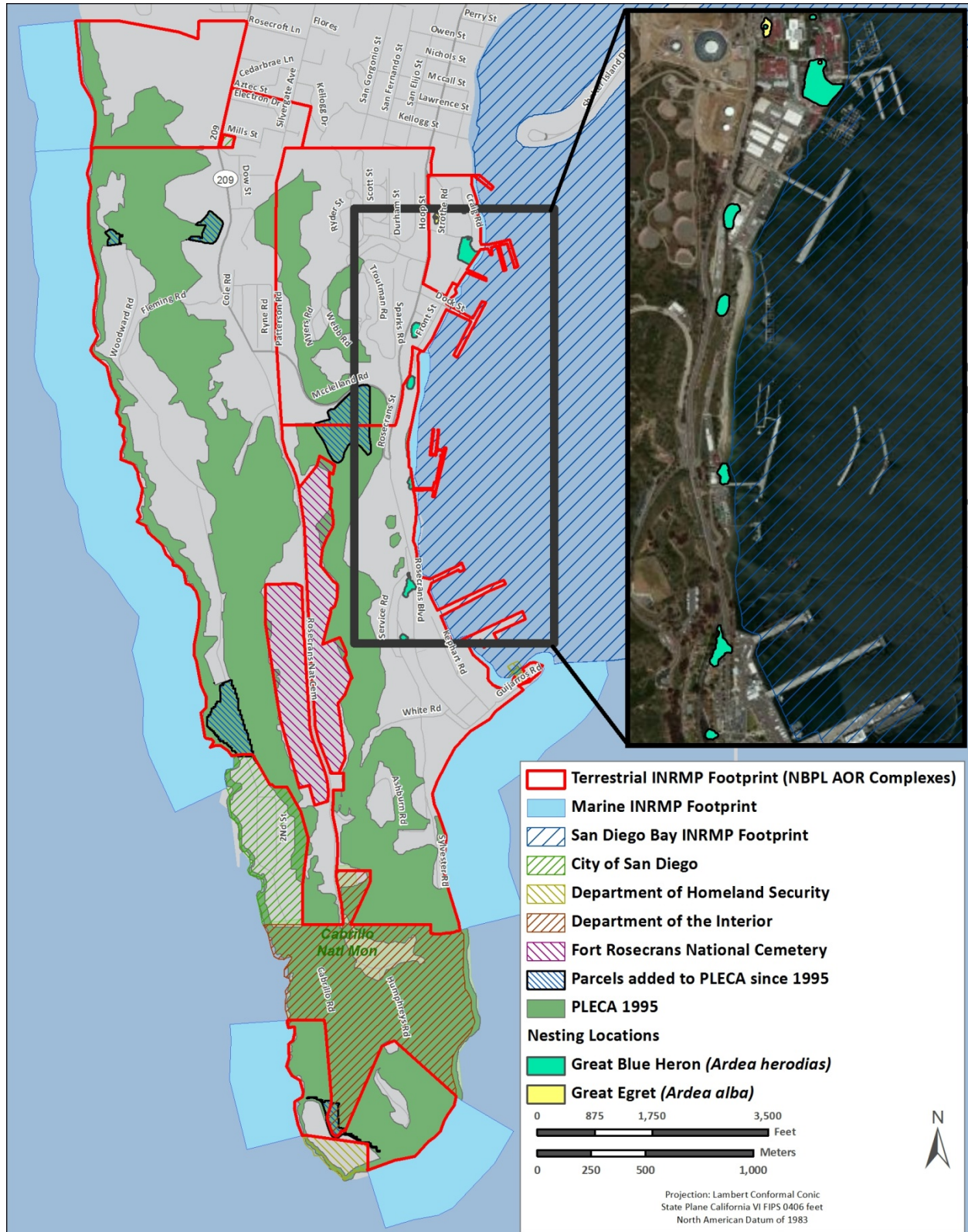
Great Blue Heron

The Great Blue Heron is a non-migratory bird species in southern California, but is migratory in other parts of its range. Several breeding colonies have been documented in the San Diego Bay over the years. Breeding colonies were followed between 1997 and 2001 on Point Loma; Naval Base Coronado, Naval Air Station North Island; Spreckels Park, Coronado; Glorietta Boulevard at Miguel Avenue, Coronado; and Hitachi Crane, National City. On NBPL the breeding colony has been studied since 1977. Surveys conducted in 2008 confirmed that a total of 58 nests of Great Blue Heron were located on NBPL (U.S. Navy 2012b). **Table 4-5** includes the number of Great Blue Heron breeding pairs/active nests on NBPL.



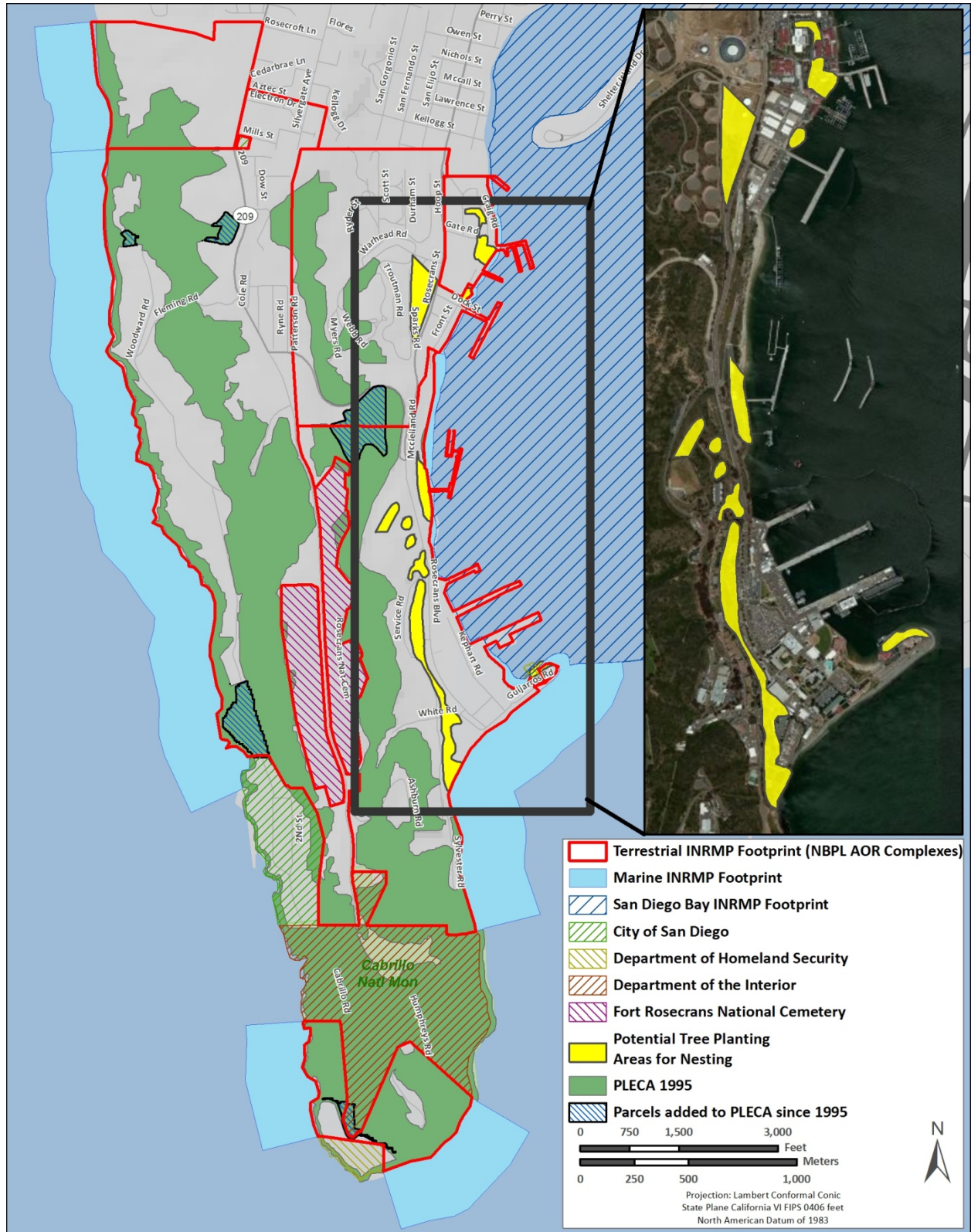
Great Blue Heron

Credit: U.S. Fish and Wildlife Service



Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-9: Heron and Egret Nesting Locations



Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-10: Heron and Egret Potential Tree Planting Areas for Nesting on NBPL

Table 4-5: Numbers of Breeding Pairs/Active Nests for Heron and Egret Species on Naval Base Point Loma (1977 – 2009)

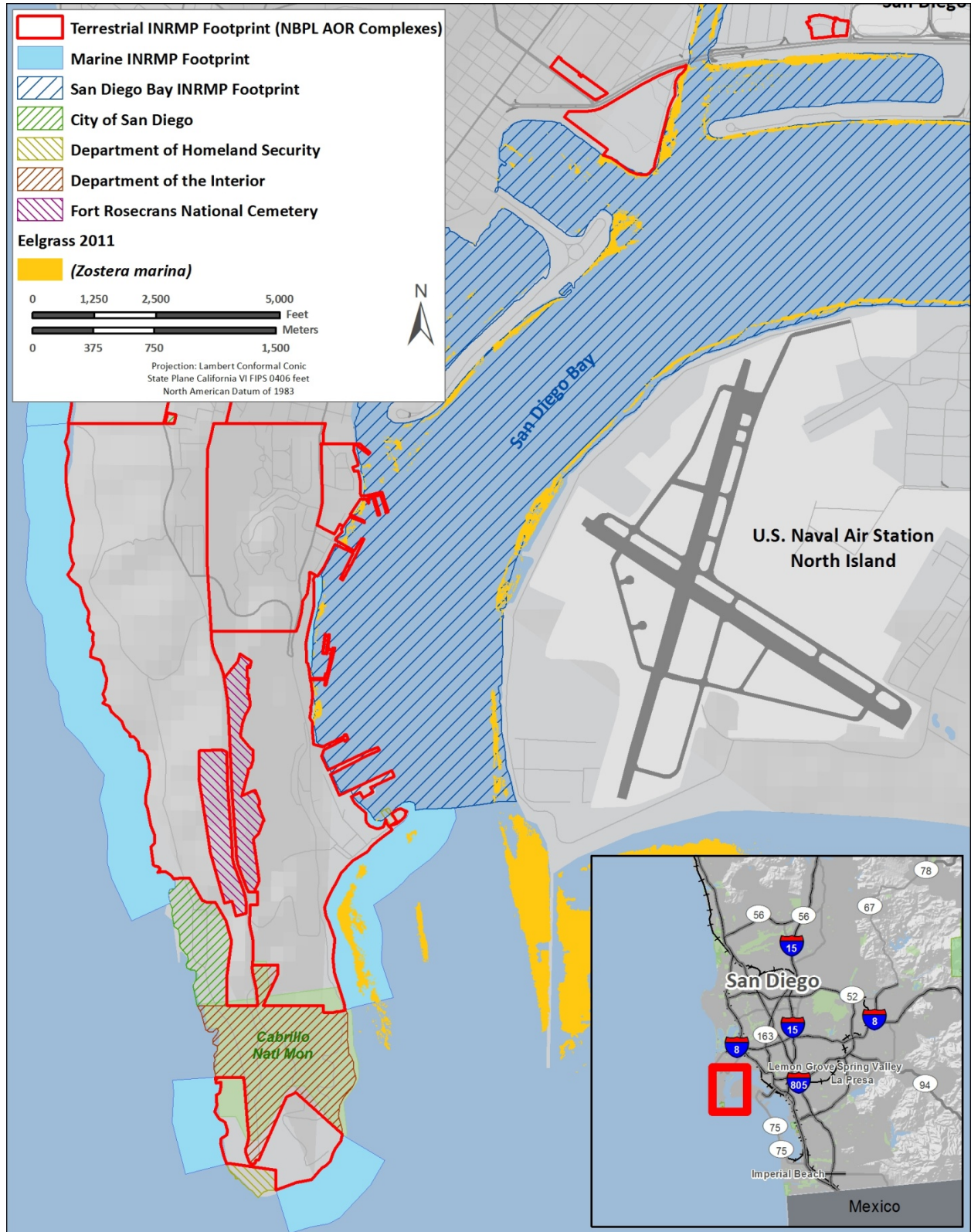
Year	Great Blue Heron	Great Egret
1977	26	0
1978	29	0
1979	31	0
1980	37	0
1990	61	0
1991	49	0
1999	54	0
2000	N/A	1
2001	N/A	N/A
2002	N/A	2
2003	N/A	3
2006	39	10
2007	46	11
2008	48	14
2009	28	11

Source: U.S. Navy 2012b

Eelgrass

Eelgrass is a perennial flowering aquatic plant submerged in bays and shallow coastal zones. Eelgrass beds found extensively throughout the bay appear to be very important in supporting juvenile and adult fish populations. While not an endangered or threatened species, is protected under the Magnuson-Stevens Fishery and Management Conservation Act (MSFCMA) and its presence in the waters adjacent to NBPL initiates management concerns regarding offshore activities because it is important to many species. Juvenile fish use eelgrass as cover. Hoffman (1986) concluded that nearly twice as many individual fish and fish species were found over eelgrass beds than in nonvegetated areas. Birds such as Black Brant (*Branta bernicla*) and the federally and state listed California Least Tern (*Sterna antillarum browni*), forage over eelgrass beds.

Eelgrass beds were mapped south of the MSF degaussing facility and adjacent to the MSF deperming facility, SSC Pacific and FITCPAC, and around the perimeter of ASW. Locations of eelgrass in proximity to NBPL are shown in **Figure 4-11**. Eelgrass beds are vulnerable to human activities such as dredging. Transplantation projects have been widely used to mitigate impacts to this species. Long-term feasibility of transplantation projects has been reviewed in numerous studies were adopted in 1991 under the Southern California Eelgrass Mitigation Policy by federal and state agencies that standardize the need, ratio, and techniques to be considered for compensatory projects. This mitigation policy is provided in **Appendix L**.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 4-11: Location of Eelgrass near Naval Base Point Loma

The Navy Region Southwest San Diego Bay Eelgrass Mitigation Banking Instrument was established on 2 July 2008 between the CNRSW (Bank Sponsor), the Los Angeles District of the USACE, and NOAA Fisheries. The Banking Instrument sets forth the agreement for the establishment, use, operation, maintenance, and monitoring of a 4.38 hectare (10.82 acres) Eelgrass Mitigation Bank (Bank) located at five sites in the north and south-central ecoregions of San Diego Bay. Each of the sites is referred to as Navy Eelgrass Mitigation Sites (NEMS) 1, 2, 4, 5 and 6. NEMS 1, 4, and 6 are located near Delta Beach, south of the Coronado Naval Amphibious Base, Coronado. NEMS 5 is located on the west side of Naval Base Coronado, Naval Air Station North Island, and NEMS 2 is located next to the marine mammal pens at SPAWAR. The sites consist of eelgrass habitat created in excess of regulatory requirements at specific mitigation site(s) associated with a Navy project. The purpose of the mitigation bank is to provide compensation for unavoidable impacts to eelgrass habitat. Future impacts to eelgrass occurring in the north or north-central part of San Diego Bay can be mitigated through the application of credits available in the Bank (U.S. Navy 2008b).

In 2008, an eelgrass inventory and bathymetry update was conducted in the San Diego Bay. The report found that eelgrass distribution with the Bay was approximately 1,319 acres (U.S. Navy 2008c). The report compared eelgrass distribution between 1993 and 2008 and observed the following populations changes: an eelgrass expansion of 572 acres (54 percent) between 1993 and 1999, from 1,061.2 acres in 1993 to 1,633.7 acres in 1999. The expansion between 1999 and 2004 was 441.1 acres, a 27 percent expansion. From 2004 to 2008, eelgrass suffered a 37 percent decline in eelgrass from 2,077.6 acres to 1,319 acres (U.S. Navy 2008c).

In addition, the report states that the greatest extent of eelgrass is found within the shallow southern ecoregion of the Bay with more extensive eelgrass also being found on the shallower fringes of the western Bay shorelines (including NBPL). Fairly extensive eelgrass beds also exist at the mouth of San Diego Bay within the shallows outside of Ballast Point and along Zuniga Jetty on Naval Air Station North Island where clear water supports a broad-leaved population of eelgrass between Point Loma and Zuniga Jetty (U.S. Navy 2008c).

Rare Plants

The 2006 survey of NBPL detected 19 CNPS sensitive species (U.S. Navy 2009d). CNPS California Rare Plant Rank 1B includes plants that are rare throughout their range and meet the requirements for state listing. Examples of plant species observed on NBPL that are California Rare Plant Rank 1B species include aphanisma (*Aphanisma blitoides*), Nuttall's lotus (*Lotus nuttallianus*), and snake cholla. Cliff spurge is a California Rare Plant Rank 2 plant species, meaning it is rare in California, but common elsewhere. Lewis's evening primrose (*Camissonia lewisii*) is a California Rare Plant Rank 3 species, which includes plants for which insufficient information exists to assign them to another list or they are taxonomically problematic. Seaside calandrinia (*Calandrinia maritima*), ashy spike-moss (*Selaginella cinerascens*), and San Diego County viguiera (*Bahiopsis laciniata*) are California Rare Plant Rank 4 species, which includes plants of limited distribution that are not rare from a statewide perspective, but their status should be regularly monitored to determine if changes are taking place.

The Sensitive Species Management Plan within the VMP (U.S. Navy 2008a) provides species-specific management recommendations for the following species: Shaw's agave (*Agave shawii*), aphanisma, golden-spine cereus (*Bergerocactus emoryi*), snake cholla, wart-stemmed ceanothus (*Ceanothus verrucosus*), Orcutt's spineflower, California spineflower (*Mucronea californica*), sea dahlia (*Coreopsis maritime*), and chaparral rein orchid (*Piperia cooperi*). Those species were chosen because of federal or CNPS rank. A summary of the rare plants found during the 2006 survey is found in **Table 4-6**.

Table 4-6: Rare Plants Found on NBPL

Common Name	Scientific Name	CNPS California Rare Plant Rank
Red sand-verbena	<i>Abronia maritima</i>	4
Shaw's agave	<i>Agave shawii</i>	2
Golden-spine cereus	<i>Bergerocactus emoryi</i>	2
Wart-stemmed ceanothus	<i>Ceanothus verrucosus</i>	2
Orcutt's spineflower*	<i>Chorizanthe orcuttiana</i>	1B
Sea dahlia	<i>Coreopsis maritima</i>	2
Del Mar Mesa sand aster	<i>Corethrogyne filaginifolia var. incana</i>	1B
Snake cholla	<i>Cylindropuntia californica var. californica</i>	1B
Santa Catalina Island buckwheat	<i>Eriogonum giganteum spp. Giganteum</i>	4
Cliff spurge	<i>Euphorbia misera</i>	2
Coast barrel cactus	<i>Ferocactus viridescens</i>	2
Nuttall's lotus	<i>Lotus nuttallianus</i>	1B
California spineflower	<i>Mucronea californica</i>	4
Coast woolly-heads	<i>Nemacaulis denudata var. denudata</i>	1B
Short-lobed broomrape	<i>Orobanche parishii spp. Brachyloba</i>	1B
Torrey pine	<i>Pinus torreyana spp. Torreyana</i>	1B
Chaparral rein orchid	<i>Piperia cooperi</i>	4
Nuttall's scrub oak	<i>Quercus dumosa</i>	1B
San Diego County viguiera	<i>Viguiera laciniata</i>	4

Source: U.S. Navy 2009d

Note: **Chorizanthe orcuttiana* is also federally and state listed as endangered.

4.2.5.3 General Management for Special Status Species

Management Objective and Strategy

Objective: Minimize the potential for adverse effects on special status species and their associated ecosystems while protecting the operational functionality of the installation mission by using an ecosystem-based management approach.

Strategies:

1. Investigate the need for implementing research projects to understand ecological requirements of special status species.
2. Continue use of the established Environmental Review process to identify actions that result in adverse effects on special status species or their habitats.
3. Coordinate with the proponent to ensure NEPA and other regulatory requirements are met to reduce adverse effects.
4. Review and update species lists to reflect presence of threatened, endangered, and other special status species.

5. Conduct regular surveys for special status species that may be present on NBPL. Current survey and monitoring for special status species are discussed in **Section 4.2.5.1**
6. Continue monitoring special status species as described in this INRMP and adapt monitoring and management actions as needed. Use monitoring information and other information to guide adaptive management.
7. Continue coordination with PLECA members and other stakeholders to develop appropriate habitat goals and management actions to achieve those goals and establish success criteria and reporting requirements.
8. Augment education program currently conducted at NBPL for military personnel who might have contact with sensitive species or their habitats.
9. Initiate habitat improvement projects to conserve biodiversity and protect plant and animal habitats, as funding is available and when such projects will not adversely affect the military mission (e.g., noxious weeds, or invasive species removal; habitat disturbance where such disturbance will promote native plant growth; preventing habitat disturbance when this will promote nonnative plant growth; and revegetation with native plants).
10. Implement erosion control best management practices (BMPs) to ensure adverse environmental impacts to special status species habitat do not occur.
11. Revegetate with native species included on the NAVFAC SW recommended plant list. Include sensitive plant species in the NAVFAC SW recommended plant list.
12. Review the status of strategies prescribed within this INRMP during the annual INRMP metrics review meeting. Revise strategies based on the review to ensure that goals and objectives for management of special status species are still adequate.
13. Maintain accurate, usable, and informative GIS and other data for ease in management planning and documentation.

4.2.5.4 ESA Consultation and Mission Requirements

Management Objective and Strategy

Objective: Maximize effectiveness and efficiency of the NBPL Endangered Species Program to achieve the best conservation possible while sustaining the installation mission.

Strategies:

1. Prioritize management issues within and between species, and within the overall natural resources program to guide management actions and funding expenditures.
2. Coordinate with USFWS and NMFS to identify actions that impact training capabilities, and identify activities that could adversely affect listed species. Adapt measures as warranted and consult with USFWS to receive incidental take coverage where appropriate.
3. Ensure that NBPL remains in compliance with the ESA by using the Project Review Board for all projects to avoid and minimize potential impacts.
4. Promote species recovery and ensure essential habitat is conserved by providing proper funding, providing a benefit to the species, and ensuring effectiveness of management strategies employed.
 - a. Focused USFWS protocol breeding season surveys for Coastal California Gnatcatchers will be conducted every three years. This includes development of a potential habitat map for the federally threatened Coastal California Gnatcatcher on NBPL.

- b. Orcutt's spineflower monitoring will occur annually. In addition, habitat enhancement, habitat requirements, and pollinator research will continue.
5. Maintain accurate, usable, and informative GIS data for ease in management planning and documentation.

4.2.5.5 Abalone Management

NBPL also supports efforts to recover abalone species in southern California. CDFG developed a recovery and management plan for abalone species in 2005 (CDFG 2005). Abalone species identified within the plan include red abalone (*Haliotis rufescens*), green abalone (*H. fulgens*), pink abalone (*H. corrugate*), white abalone (*H. sorenseni*), pinto abalone (*H. kamtschatkana*), black abalone (*H. cracherodii*), and flat abalone (*H. walallensis*) (CDFG 2005). In addition, SSC Pacific has a program, which includes abalone cultures and outplanting, to support recover efforts listed in the 2005 plan (Lapota et al. 2000). Key locations identified in the 2005 plan for recovery of red, green, pink, black, pinto and flat abalone species at NBPL include:

- La Jolla (Point La Jolla to Bird Rock)
- Point Loma (Mission Bay to Rathay Point)
- Point Loma (Rathay Point to Ballast Point).

Specific Concerns

- Overharvesting.
- Pollution from oil spills and other hazardous wastes into the San Diego Bay.

Current Management

The Navy currently has a Cooperative Research Agreement in place with the National Park Service to conduct rocky intertidal surveys on NBPL in conjunction with MARINE. As part of the rocky intertidal monitoring on NBPL, site specific black abalone surveys are conducted every spring and fall in accordance with the MARINE program Core Survey protocols. Data collected from these surveys has not been analyzed to date; however, the natural resources managers at NBPL plan to analyze this data over the next couple of years. Recent reports from neighboring NPS property indicates that black abalone remains extirpated from CNM (NPS 2012).

Currently, the only regular abalone management exists through the two rocky intertidal sites on NBPL. In addition, SSC Pacific conducts a program to manage red and green abalone through operation of an abalone growing facility.

Management Objective and Strategy

Objective: Protect and enhance populations of abalone at NBPL.

Strategies:

1. Ensure compliance with federal and state regulations.
2. Ensure compliance with NBPL instructions for fishing.
3. Decrease harvesting at NBPL.

4. Follow recommendations for management of abalone contained within the Abalone Recovery and Management Plan. Recommendations include (CDFG 2005):
 - a. Conducting detailed surveys of abalone habitat.
 - b. Assessing population changes.
 - c. Continuing to support abalone aquaculture projects.
 - d. Conducting studies to determine if abalone populations can be relocated.
 - e. Develop and implement abalone management measures (e.g., seasonal closures for fishing, and catch limits).
5. Develop and maintain GIS database, and share information collected from management of abalone with CDFG and other regional partners.
6. Develop and implement a strategy to reduce population impacts from oil spills and other hazardous waste in San Diego Bay.
7. Develop and maintain a GIS database.

4.2.6 Exotic and Invasive Species Management

Invasive species management is a large part of pest management activities. The Federal Noxious Weed Act and EO 13112 require federal agencies to control noxious and invasive species on federal lands. The federal Noxious Weed Act, enacted January 3, 1975, established a federal program to control the introduction and spread of foreign noxious weeds into the United States. Amendments in 1990 established management programs for undesirable plants (including noxious weeds) on federal lands. There are several plant species that are considered noxious and control is mandatory for those found on the federal list. EO 13112 requires that federal agencies prevent the introduction of invasive species, detect and control populations of invasive species, and restore native species and habitat conditions in ecosystems that have been invaded. Invasive species are alien species (not native to the ecosystem) whose introduction does, or is likely to, cause economic or environmental harm, or harm to human health.

In 2006, the California Invasive Plant Council (Cal-IPC) updated the 1999 *Exotic Pest Plants of Greatest Ecological Concern in California* inventory list (Cal-IPC 2006). The updated Cal-IPC inventory ranks invasive species using a *High, Moderate, Limited, or Evaluated but not listed* scale based on ecological impact of the species (Cal-IPC 2006). Invasive species were ranked based on four criteria that included (1) ecological impact of the species on native California ecosystems, (2) potential for species to either be or become invasive, (3) species distribution, and (4) documented levels of the species within a region or ecosystem (Cal-IPC 2006). A description of each ranking level based on these four criteria as defined by Cal-IPC is presented below:

High: These species have severe ecological impacts on ecosystems, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. These species are usually widely distributed ecologically, both among and within ecosystems.

Moderate: These species have substantial and apparent—but generally not severe—ecological impacts on ecosystems, plant and animal communities, and vegetation structure. Their reproductive biology is conducive to moderate to high rates of dispersal, though establishment is generally dependent on ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

Limited: The ecological impacts of these species are minor or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasion. Ecological amplitude and distribution are generally limited (these species may be locally persistent and problematic).

Evaluated but not listed: In general, this designation is for plant species that did not have enough information to warrant a rating, or the information available indicated that the plant species does not currently have significant impacts within California.

Alert: This is an additional designation for some species in either the high or moderate category, but whose evaluation is limited. The designation alerts managers to species that are capable of rapidly invading unexploited ecosystems, based on initial localized observations and on observed ecological behavior in similar ecosystems elsewhere.

Table 4-7 lists invasive plant species observed on NBPL.

Additionally, *Caulerpa taxifolia* is an aggressive non-native alga that displaces numerous native marine plants and animals and causes negative economic impacts to the fishing and tourist industries. The *Caulerpa* invasion in Agua Hedionda in San Diego County demonstrates that *Caulerpa* poses an immediate and dire threat to the nearshore marine ecosystem of Southern California, especially to native eelgrass beds, which are critical habitat for numerous marine species (CDFG 2007).

Four invertebrate invasive species have also been documented in the rocky intertidal zones at Point Loma. These include *Polyandrocarpa zorritensis*, *Styela clava*, *Styela plicata*, and *Symplegma reptans* (Pers. Com. Jessica Bredvick 2012).

Specific Concerns

- Anthropogenic disturbances (e.g. foot traffic).
- Landscaping on and off base.
- Rapid spread of invasive non-native plants that displace native species and degrade habitat for native floral and faunal species.
- Climate change (e.g., changes in temperature or sea level rise).

Current Management

The VMP (U.S. Navy 2008a) includes an invasive plant management plan and the objectives and strategies have been incorporated into the INRMP. Updates to the invasive plant management plan will be incorporated into the INRMP and NBPL has developed a program to monitor and control the spread of existing infestations of invasive species, and to determine if new species populations have become established. Assessments of invasive species populations are conducted annually during the rainy season to determine extent of invasive species populations on NBPL. Once assessed, species are prioritized for treatment based on the extent of the infestation, and where the populations are located (e.g., next to listed species habitat).

Table 4-7: Invasive Plants Observed on NBPL

Common Name	Scientific Name	Cal-IPC Rank	Management Priority
Acacia	<i>Acacia</i> sp.	Limited	AT
Tree of heaven	<i>Ailanthus altissima</i>	Moderate	M
European beach grass	<i>Ammophila arenaria</i>	High	M
Giant reed	<i>Arundo donax</i>	High	AT
Australian saltbush	<i>Atriplex semibaccata</i>	Moderate	M
Fivehook bassia	<i>Bassia hyssopifolia</i>	Limited	M
Black mustard	<i>Brassica nigra</i>	Moderate	AT
Asian mustard	<i>Brassica tournefortii</i>	High	AT
Foxtail chess, Red brome	<i>Bromus madritensis</i> ssp. <i>rubens</i>	High	M
Hottentot fig	<i>Carpobrotus edulis</i>	High	M
Tocolote	<i>Centaurea melitensis</i>	Moderate	M
Crown daisy	<i>Chrysanthemum coronarium</i>	Moderate	AT
Bull thistle	<i>Cirsium vulgare</i>	Moderate	M
Rock-rose	<i>Cistus incanus</i>	---	M
Poison hemlock	<i>Conium maculatum</i>	Moderate	M
Selloa pampas grass	<i>Cortaderia selloana</i>	High	M
Pampas grass	<i>Cortaderia</i> sp.	High	M
Cotoneaster	<i>Cotoneaster</i> sp.	Moderate	M
Cardoon, Artichoke thistle	<i>Cynara cardunculus</i>	Moderate	M
Artichoke	<i>Cynara scolymus</i>	---	M
Bermuda grass	<i>Cynodon dactylon</i>	Moderate	M
Scotch broom	<i>Cytisus scoparius</i>	High	M
Portuguese broom	<i>Cytisus striatus</i>	Moderate	M
German ivy	<i>Delairea odorata</i>	High	M
Veldt grass	<i>Ehrharta</i>	Moderate	M
Eucalyptus	<i>Eucalyptus</i>	Limited – Moderate	AT
Fennel	<i>Foeniculum vulgare</i>	High	AT
French broom	<i>Genista monspessulana</i>	High	M
English ivy	<i>Hedera helix</i>	High	M
St. John's wort	<i>Hypericum perforatum</i>	Moderate	AT
Crystalline ice plant	<i>Mesembryanthemum crystallinum</i>	Moderate	M
Slender-leaved ice plant	<i>Mesembryanthemum nodiflorum</i>	Need more info	M
Myoporum	<i>Myoporum laetum</i>	Moderate	AT
Tree tobacco	<i>Nicotiana glauca</i>	Moderate	AT
Kikuyugrass	<i>Pennisetum clandestinum</i>	Limited	M

Common Name	Scientific Name	Cal-IPC Rank	Management Priority
Crimson fountain grass	<i>Pennisetum setaceum</i>	Moderate	AT
Hardinggrass	<i>Phalaris aquatica</i>	Moderate	M
Smilgrass	<i>Piptatherum miliaceum</i>	Limited	AT
Firethorn	<i>Pyracantha</i> sp.	Limited	M
Castor bean	<i>Ricinus communis</i>	Limited	AT
Black locust	<i>Robinia pseudoacacia</i>	Limited	M
Russian thistle	<i>Salsola tragus</i>	Limited	M
Peruvian pepper tree	<i>Schinus molle</i>	Limited	M
Brazilian pepper tree	<i>Schinus terebinthifolius</i>	Limited	M
Milk thistle	<i>Silybum marianum</i>	Limited	M
Spanish broom	<i>Spartium junceum</i>	High	M
Salt cedar	<i>Tamarix ramosissima</i>	High	AT
Woolly mullein	<i>Verbascum thapsus</i>	Limited	M
Greater periwinkle	<i>Vinca major</i>	Moderate	M

Source: U.S. Navy 2011b, Pers. Comm. Chris Gillespie 2011

Key: AT = Actively Treating; M = Monitoring

Specific species targeted for treatment include the following: acacia, giant reed, black mustard (*Brassica nigra*), Sahara mustard (*Brassica tournefortii*), iceplant (*Mesembryanthemum crystallinum*), sandspur (*Cenchrus* spp.), chrysanthemum (*Chrysanthemum* spp.), veldt grass (*Ehrharta* spp.), eucalyptus, sweat fennel, Canary Island St. John's wort (*Hypericum canariense*), myoporum (*Myoporum laetum*), tree tobacco (*Nicotiana glauca*), fountain grass (*Pennisetum setaceum*), smilo grass (*Piptatherum miliaceum*), castor bean (*Ricinus communis*), natal grass (*Rhynchelytrum repens*), and tamarisk. Invasive species are treated on NBPL using herbicide applications (NAVFAC SW 2009).

Additionally, potential infestations of marine invasives, such as *Caulerpa taxifolia* are managed using NMFS and CDFG established protocols for pre- and post-construction surveys, which are applicable for projects conducted under federal or state permits and authorizations issued by the U.S. Army Corps of Engineers or Regional Water Quality Control Boards.

NBPL is actively monitoring for and controlling invasive species. All proposed actions are vetted through the NBPL Public Works Officer's Work Induction Board as required in NBPL Instruction 5090.2 (*Policy and Procedures for Conducting Environmental Review Process at Naval Base Point Loma, San Diego*). At that time projects are reviewed for potential impacts including invasive species

Management Objectives and Strategy

Reduce Spread and Introduction of Invasive and Exotic Species

Objective: Minimize nonnative species encroachment in areas where severe to moderate encroachment occurs, and in new areas of encroachment where infestation might be spreading but is not yet severe.

Strategies:

1. Annually review and update recommended plant list.

2. Implement an Invasive Species Management Plan (ISMP) (or Biosecurity Plan) to control the spread of invasive species on NBPL.
3. Conduct annual surveys to determine whether controls on existing infestations of species have been effective, and whether new populations have become established.
4. Develop and implement a review process for all projects that include a landscaping component to ensure nonnative species are not introduced.
5. Develop outreach and education materials for distribution within the NBPL community.
6. Continue implementing NMFS and CDFG established protocols for survey for *Caulerpa taxifolia* on applicable marine projects.

Early Detection and Rapid Response

Objective: Enhance current early detection and rapid response management capabilities.

Strategies:

1. Ensure the ISMP; bio-security plan establishes early detection protocol and rapid response options.
 - a. Establish adequate monitoring locations to detect invasive species introduction and spread.
 - b. Develop a communication network as a rapid response tool to quarantine specific invaders and identify the pathway.
 - c. Support rapid response by determining funding sources, contract vehicles, and cooperative mechanisms that can be accessed quickly.
 - d. Prepare Instructions that includes measures to prevent the introduction of invasive non-native species, detect early and respond rapidly to new introductions, and control and monitor established populations.
2. Prepare educational materials for NBPL military and civilian employees, contractors, and other visitors as a tool in early detection of non-native terrestrial species.

Project Planning

Objective: Ensure control and management of invasive species is included in project planning and maintenance projects.

Strategies:

1. Address non-native species in NEPA and other ground disturbing project plans as required by NBPL Instruction 5090.2.
 - a. Ensure funding is secured for non-native removal during all phases (including post-project), if applicable.
 - b. Monitor projects to ensure personnel are following BMPs, conservation measures, and other guidelines and requirements.

2. Manage roads, access routes, and new construction sites to minimize the spread of invasive non-native species and insure that road or access routes are not created without authorization and project review approval.
 - a. Require that maintenance or repair of existing roads stay within established footprints.
 - b. Clean roadside mowing equipment of adhering dirt and vegetation between mowing cycles.
 - c. Schedule roadside mowing to minimize weedy species seed distribution.
3. Investigate including clause in contracts that requires project proponents to fund restoration projects to compensate for development of habitat.
4. Check project to make sure personnel are following guidelines.

Coordination with Regional Agencies

Objective: Promote cooperative interagency efforts to collect and analyze comprehensive monitoring data, including shared funding and staffing.

Strategies:

1. Coordinate with regional and local agencies on efforts undertaken by NBPL to control the spread of invasive and exotic species.

4.2.7 Grounds and Landscape Maintenance

Environmentally and economically beneficial landscaping practices can reduce maintenance costs while also providing wildlife habitat. Planting windbreaks around buildings and parking areas, establishing wildflower areas, and reducing mowing are all ways to spend dollars more wisely, educate the public about the benefits of reduced maintenance, and become better stewards of the environment. In managing natural resources in the cantonment area, NBPL acknowledges its responsibilities as listed in the White House Memorandum, *Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds* (Office of the President 1994). The memorandum's requirements include the following:

- Using regionally native plants for landscaping
- Using construction practices that minimize adverse effects on the natural habitat
- Reduce pollution by reducing the use of fertilizer and pesticides, using integrated pest management, recycling green waste, and minimizing runoff
- Implementing water-efficient practices
- Creating demonstrations of these practices to promote their use elsewhere.

Specific Concerns

- Water use conservation requirements.

Current Management

The installation's representative biologist and NAVFAC landscape architect monitor landscaping and grounds projects to ensure that all projects follow the guidance contained in the recommended plant list (see **Appendix J**). This guidance includes (U.S. Navy 2009d):

1. Ensuring that landscape designs and plant lists are reviewed and approved by the installation biologist during the planning phase of the project.
2. Ensuring that projects near native habitat, sensitive species, or other special circumstances may require a greater percentage of California native plants or have other stipulations that require a minimum of 80 percent of the species planned within each stratum (herbaceous, shrubs, trees, etc.) constitute California native species from the recommended plant list. In addition, the other 20 percent of species within each stratum shall constitute drought tolerant plants included on the recommended plant list.
3. Allowing for use of additional native species in landscaping designs contingent upon approval by the installation biologist or NAVFAC landscape architect.
4. Ensuring that project designers verify whether approved plants are available in desired quantity and size for each project prior to specifying on plans or scopes of work.
5. Coordinate landscaping maintenance (pruning, tree removal, etc.) with staff biologist to reduce conflicts with migratory bird requirements.

Management Objective and Strategy

Objectives: Maintain an aesthetically pleasing and cultural landscape on NBPL that preserves natural ecosystem functions, conserves water in landscaped areas, and promotes pollinator species.

Strategies:

1. Provide professional advice to assist the grounds landscaping and maintenance program in the use of native species as identified in the recommended plant list.
2. Maintain and annually update the list of recommended plants that can be used in landscaping.
3. Develop and implement BMPs for grounds maintenance at NBPL (e.g., water conservation). Periodically review the VMP (U.S. Navy 2008a) to ensure plan BMPs still meet installation needs.
4. Restore native plant communities and collect seeds of native species for submittal to Natural History Museum.
5. Develop monitoring metrics, and set targets to ensure management strategies are meeting goals and objectives.

4.2.8 Pest Management

Authority for pest management activities on NBPL is directed under the Federal Insecticide, Fungicide and Rodenticide Act as amended (7 U.S.C. 136r-1), DoD Instruction 4150.07, San Diego Metro Area Navy Installations Integrated Pest Management Plan, December 2009, and OPNAVINST 6250.4B, Pest Management Programs. IPM is a sustainable approach that incorporates the use of multiple techniques to prevent or suppress pests in a given situation. Although IPM emphasizes the use of nonchemical

strategies, chemical control might be an option used in conjunction with other methods. IPM strategies depend on surveillance to establish the need for control and to monitor the effectiveness of management efforts. DoD Instruction 4150.07 establishes annual goals, or measures of merit, for IPM that include the following:

- *Goal 1.* 100 percent of DoD installations will have current pest management plans.
- *Goal 2.* Maintain the 55 percent pesticide use reduction achieved from 1993-2003 (in pounds of active ingredient).
- *Goal 3.* 100 percent of all installation DoD and contract pesticide applicators will be appropriately certified or licensed.

In addition, OPNAVINST 6250.4B directs the Navy and Marine Corps to (DoN 1998):

- a. Prevent pests from adversely affecting military operations and missions;
- b. Safeguard human health and morale by controlling pests that transmit diseases, annoy personnel, or represent a hazard to public health or safety;
- c. Maintain and extend the service life of facilities, structures, and materiel by preventing economic pest damage;
- d. Enhance the natural environment through the careful protection and management of ecosystems, endangered and threatened species, wildlife, watersheds and water quality in order to maintain optimal biodiversity;
- e. Ensure pesticide use is safe and consistent with label directions;
- f. Use the principles of IPM to avoid and minimize the use of pesticides when nonchemical alternatives are available and cost effective;
- g. Comply with quarantine laws and regulations as related to protecting plants, animals and human health; and
- h. Comply with laws and regulations concerning pesticide storage, application, disposal of hazardous wastes, and transport of hazardous materials and substances.

Specific Concerns

- Impacts to birds from feral cat populations.
- Overuse of pesticides and herbicides.

Current Management

The IPMP for San Diego Metro Area Installations (SDMAI), which includes a site-specific plan for NBPL, describes pest management requirements, identifies pests for SDMAI, outlines roles and responsibility for IPM at each SDMAI, outlines procedures for pest control at each facility, and describes the administrative, safety, and environmental requirements of the program. Specific aspects of the program include pest identification, pesticide management (includes storage, transportation, and use and disposal), environmental health and safety, emergency pest management, and available program resources (U.S. Navy 2009g). Authority for all installation pest management activity is coordinated by the installation IPM Coordinator and is in accordance with OPNAVINST 5090.1C CH-1, Chapter 17, *Pesticide Compliance Ashore*. Pesticides to be applied on the installation must be approved by the regional NAVFAC pest management consultant and included in the installation pesticide authorized use

list. All pesticides that are to be applied to natural areas should also be reviewed and approved by the natural resources manager.

Threatened, endangered, or candidate species can be directly or indirectly affected by pest control activities. The following pest management operations require natural resource manager review:

- Weed and outdoor pest control in endangered/threatened species habitats and natural areas
- Outdoor large area insecticide fogging
- Pesticide applications to, over or adjacent to water bodies, waterways, or wetlands
- Installation of bird barriers, exclusion devices, or repelling devices
- Wildlife and feral animal control
- Invasive species control.

Natural resources managers will obtain any necessary approvals, consultations, or permits. No pest management activities will violate the practices described for threatened, endangered, or candidate species by the California Department of Pesticide Regulation. NBPL will use the California Department of Pesticide Regulation Endangered Species Project web site (<http://www.cdpr.ca.gov/docs/es/index.htm>) to determine the best chemicals to control pest species and their use limitation.

In addition, management of feral animals is a component of pest management at NBPL. Feral animals, especially feral cats and dogs, pose a potential threat to public health and safety. They also pose a threat to wildlife, especially federally listed species and migratory birds. Existing Navy policy included in Secretary of Navy Instruction (SECNAVINST) 6401.1A of 16 August 1994 regarding veterinary health services prohibits dogs, cats, and other privately owned or stray animals from running free on military installations. The CNO issued a policy letter on 10 January 2002 that clarifies the application of SECNAVINST 6401-1A. An objective of the existing policy is to control feral animals in a humane manner to prevent injury or disease to Navy personnel and eliminate adverse impacts on native wildlife. The instruction requires Navy commands to institute proactive pet management procedures in order to prevent establishment of free-roaming cat and dog populations.

Management Objectives and Strategy

Implementation of the Pest Management Plan

Objective: Ensure compliance with environmental legislation, regulations, and guidelines.

Strategies:

1. Update the SDMAI as necessary to ensure that the plan reflects changes in pest populations and current management issues. Incremental updates to the plan will be conducted annually.
2. Implement pest management controls from the SDMAI and other pest-related guidance and plans.
3. Conduct surveys of pests that pose a potential health risk to humans or natural resources.
4. Implement the control of wildlife and the effective elimination of concentrated and diseased populations.
5. Monitor pest and invasive species populations. Track usage of active ingredients and man-hours spent controlling pest and invasive species during implementation to ensure that the management strategies are sufficient.

Management of Feral Animals

Objective: Reduce populations of feral animals on NBPL as required by SECNAVINST 6401.1A.

Strategies:

1. Develop and implement a program to control feral animals on NBPL. Control populations of feral animals on NBPL.
2. Conduct surveys to determine impact of feral animals on native species on NBPL.

4.2.9 Outdoor Recreation and Public Access

NBPL provides some outdoor recreation opportunities for military personnel and their families, and DoD civilian employees. Recreational use of natural resources is an integral part of ecosystem management. The outdoor recreation program is based on providing quality experiences while sustaining ecosystem integrity. Among the outdoor recreation activities provided are a few recreational fields, tennis courts, picnic areas, swimming pools, hiking, jogging, cycling, wildlife viewing, and recreational fishing.

In addition, troops from the Boy Scouts of American occasionally use NBPL for camping. However, to minimize Boy Scout camping impacts, camping is limited to the all ready developed smugglers cove picnic area on NBPL.

Unfortunately, high levels of recreational use can have negative impacts on the environment so constant monitoring of recreational use is necessary to ensure permanent damage to the natural and cultural resources does not occur.

Specific Concerns

- Overuse of recreational areas on NBPL.
- Erosion and sedimentation from recreational activities.
- Altered fire regime.
- Overharvesting fish.

Current Management

NBPL Instruction 5090.1 outlines fishing regulations for recreational fishing at the base. The regulation describes the need for, and how to obtain a fishing license; the regulations pursuant to fishing on NBPL; and a list of violations and resulting administrative actions. In addition, recreational access is required to be compliant with the requirements associated with the provisions of the American With Disabilities Act of 1990 as amended and the Disabled Sportsman Access Act as amended.

Management Objective and Strategy

Objective: Provide quality outdoor recreation experiences while sustaining ecosystem integrity, and not conflicting with mission priorities.

Strategies:

1. Continue to limit public access and outdoor recreation for reasons that include general security and liability issues, the presence of federally endangered and threatened species, and fire safety.

2. Develop an outdoor recreation plan for NBPL. Seek opportunities for natural resources-based outdoor recreation to improve quality of life for Navy personnel, allow close partnership with the local community, and improve knowledge of the natural world and the Navy's stewardship of natural resources.
3. Identify and evaluate suitable outdoor recreation opportunities for installation personnel in undeveloped areas that do not contain or have the potential to impact sensitive species.
4. Ensure compliance with NBPL instructions for fishing.
5. Develop and distribute outreach and education materials for recreational users of NBPL.

4.2.10 Law Enforcement of Natural Resources Laws and Regulations

Specific Concerns

- Unauthorized access or activities in natural areas, or areas used by nesting birds or marine mammals, may disrupt and limit the viability of native populations or habitats.
- Gaps in communication between NBPL Environmental Division and NBPL Force Protection, related to enforcement of closure areas or other areas requiring special protection, could result in mismanagement of natural resources, or non-compliance with federal environmental regulations.

Current Management

NBPL has established the following objectives for enforcement: (1) Enforce laws and regulations pertaining to the implementation of the natural resources program; (2) Integrate natural resources enforcement into the overall natural resources program; and (3) Use enforcement personnel to enhance the natural resources program at NBPL.

There are no game wardens stationed at NBPL. The DoD police have the authority of the Commander (exclusive jurisdiction) and of the Sikes Act to enforce all federal laws relating to the management of natural resources at NBPL, including the ESA and MBTA.

Management Objective and Strategy

Objective: Ensure compliance with state and federal natural resources laws and regulations.

Strategies:

1. Provide training to personnel responsible for enforcement of applicable laws and regulations.
2. Continue to protect rare, threatened, endangered, and candidate species and the natural communities.
3. Cooperate with other agencies, particularly the USFWS and CDFG, to ensure that natural resources laws are adequately enforced.
4. Periodically review federal and state laws and regulations to ensure natural resources laws and regulations are adequately enforced.

4.2.11 Environmental Awareness and Outreach

Conservation awareness is instrumental in creating conditions needed to manage natural resources. The NBPL approach to awareness stresses education. It provides military personnel and the public with insights into installation natural environments and conservation challenges. The more people know about the unique and valuable natural resources on the installation, the more responsibly they act toward using them.

Education also promotes awareness of critical environmental projects and the rationale behind them. Activities such as fish stocking, land rehabilitation, and wildfire suppression can be accomplished with little conservation awareness effort since installation personnel, recreationists, and the general public support these easily understood efforts. However, such issues as protection of sensitive areas for little known plant and wildlife species, prescribed burning, and permit fees and their uses require effective conservation communication to get positive support and, perhaps more importantly, to avoid adverse reactions from various users. A conservation awareness program must be directed to both installation and external interests if it is to be effective. Natural resources personnel should work with volunteers, whenever feasible, to use their skills and build their interest in the installation natural resources program.

Specific Concerns

- Communication about the natural resources of NBPL, environmental regulations, and protocols for situations where wildlife is trapped or injured, or birds are nesting or roosting in unwanted areas, may not be effectively conveyed due to staff turnover.

Current Management

The Sikes Act requires each military service to support environmental education for personnel and for the public where and when it is compatible with military safety and security needs.

Conservation awareness on NBPL is conveyed through interpretive signs. The conservation effort on site will continue to expand as this INRMP and subsequent natural resource management programs are undertaken to ensure efficient and thorough management of the natural resources on base. Educational brochures and training videos are being planned. Conservation efforts at NBPL address energy, water resources, recycling, pollution prevention, and public outreach and education.

Management Objective and Strategy

Objective: Provide people on the installation and in the surrounding community with an understanding of the NBPL natural resources program.

Strategies:

1. Periodically review outreach and education materials to ensure that each is still current and meeting goals of outreach and education program.
2. Reach out to local community groups for volunteers.
3. Establish a watchable wildlife program.
4. Educate the local community, as well as installation personnel and tenants about the installation natural resources program. Develop and distribute educational materials about the NBPL, Mainbase natural resources program to stakeholders near NBPL, Mainbase (e.g. neighborhoods, county, etc.).

5. Provide decision makers with the information they need to make educated decisions about installation natural resources.

4.2.12 Geographic Information Systems Management, Data Integration, Access and Reporting

GIS is a computer system for capturing, storing, checking, integrating, manipulating, analyzing, and displaying data related to positions on the Earth's surface. GIS is used to create information layers used to develop and manipulate maps. GIS data are represented as different layers each containing data on a particular kind of feature (e.g., soils, wetlands, roads) from surveys, inventories, and other projects with spatial information. Each feature is linked to a position on the graphical image of a map. The data layers are organized to create maps and to perform statistical analysis.

GIS will also provide support for the entire environmental program and the training community. NBPL will use GIS for complex analyses such as project siting, data interpolations, and risk assessments.

GIS software enables installation staff to capture, store, update, manipulate, analyze, and display all forms of geographically referenced data and tabular information about NBPL. The management of reports in one central database enables users to quickly respond to data calls and identify gaps in natural resources management. The training of the NBPL Environmental, Facilities Management, and Training staff and the allocation of their time to data entry, mapmaking, analysis of data, and interpretation of the results will determine the success of the installation GIS.

Once fully developed, the installation central databases can be used for projects such as the following:

- Providing maps
- Selecting suitable areas for construction activities
- Planning land rehabilitation projects
- Providing special maps for Environmental Awareness materials
- Ensuring avoidance of cultural resources during ground-disturbing projects
- Ensuring avoidance of rare species habitats and other areas of special concern during construction projects
- Identifying site options for use during NEPA evaluation of alternative sites
- Calculating drainages and water flows
- Determining Neotropical bird habitat preferences.

Specific Concerns

- GIS maps and shapefiles may not have appropriate metadata that identifies who, when, and for what purposes the data were collected.
- Natural resource management decisions could be misguided if there are information gaps in the natural resources database, or if the database is not kept current.

Current Management

Currently, there is no central repository for GIS data and reports, research, and other documentation. GIS data is submitted to Navy Assessment Management or the GIS IDIQ contractor. CNIC and NAVFAC guidance on metadata is being developed, but has not yet been finalized.

Management Objective and Strategy

Objective: Collect, store, develop, and maintain data about historical conditions, trends, and current status for critical indicators of ecological integrity and sustainability.

Strategies:

1. Use GIS and other natural resources data as benchmarks for developing future natural resources management goals and objectives.
2. Ensure that central database information is available to biologists, planners, contractors, and others in a quick and timely manner.
3. Annually review GIS data to advise resource managers of needs to update data sets during budget planning and programming.
4. Develop specific language that will be included in all contracts to ensure all spatial data produced are fully compatible with the installation GIS database.
5. Develop a standardized system for recording and mapping significant resource observations (e.g., plants, wildlife, erosion, damage) when incidentally encountered.
6. Provide annual funding for one person to be responsible for updating and maintaining the GIS database. This should include the necessary hardware, software, and training for the use of GIS.

5. Naval Base Point Loma Off Peninsula

5.1 Current Condition of Natural Resources

5.1.1 NBPL Old Town Center

NBPL Old Town Center consists of approximately 54 acres of highly developed land within Old Town San Diego. The facility is completely developed and has only sparse ornamental vegetation that may support casual migratory species (e.g., Short-eared Owl (*Asio flammeus*), and urbanized mammals including feral cats (*Felis catus*), black rat (*Rattus rattus*), and the house mouse (*Mus musculus*).

5.1.2 Miramar Pipeline

The pipeline is 16.5 miles and has a 5-10 foot easement along the length of its route. It is an eight inch diameter single wall pipe made from carbon steel, which transfers Diesel Fuel Marine (DFM) and Jet Propellant 5 (JP-5) in both directions (DFSP and MCAS Miramar) and has nine active valve chambers to control flow. Additionally, Miramar Station provides an opportunity for fuel to be received from the Kinder-Morgan Energy Partners (KMEP) Pipeline and transferred to both MCAS Miramar and the DFSP fuel facility. The pipeline is operated seven days a week primarily by the DFSP with KMEP and MCAS Miramar having control and shared operational responsibility. **Figure 5-1** illustrates the route for the Miramar Pipeline.

The pipeline is maintained through “pigging” of the line. Pigging is used to determine anomalies that may cause a failure in the line. When combined with periodic testing using pressure or volume held over time pigging creates a reliable system for leak detection.

A survey of natural resources along the pipeline was completed in late 2011 (U.S Navy 2011c). Results of that survey will be incorporated into the next INRMP update.

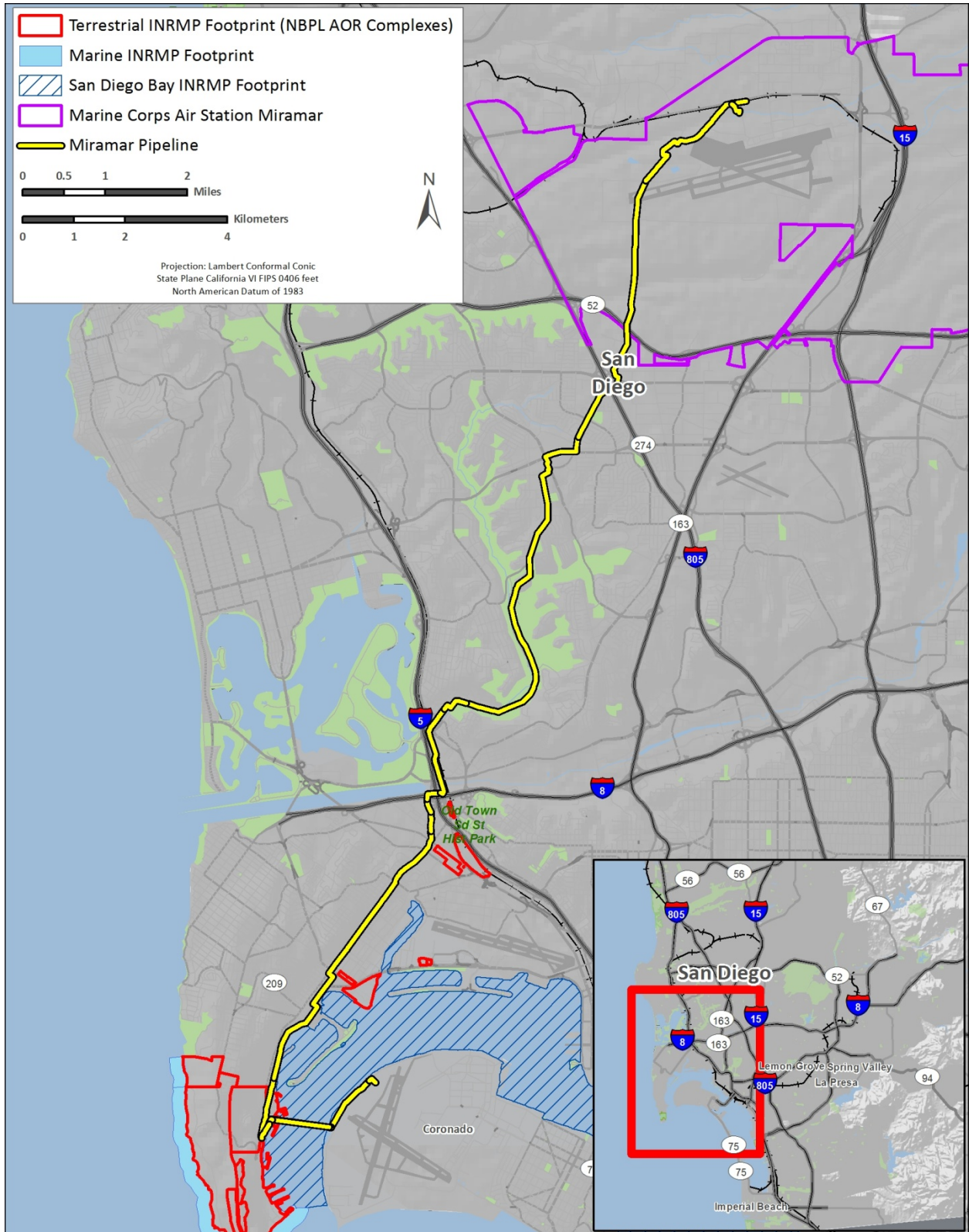
Several vegetative communities have been identified along the Miramar Pipeline. An estimate of vegetation approximately 500 feet on either side of the pipeline was made by Navy staff in 2010 (Munson 2010) (see **Figures 5-2a** through **5-2l** and **Table 5-1**).

5.1.3 Mount Soledad Signal Station

Information concerning the current conditions present at Mount Soledad Signal Station is not available; however, a survey of natural resources present on the facility is being conducted. Once the survey is completed, natural resources information pertaining to the signal station will be incorporated into this INRMP.

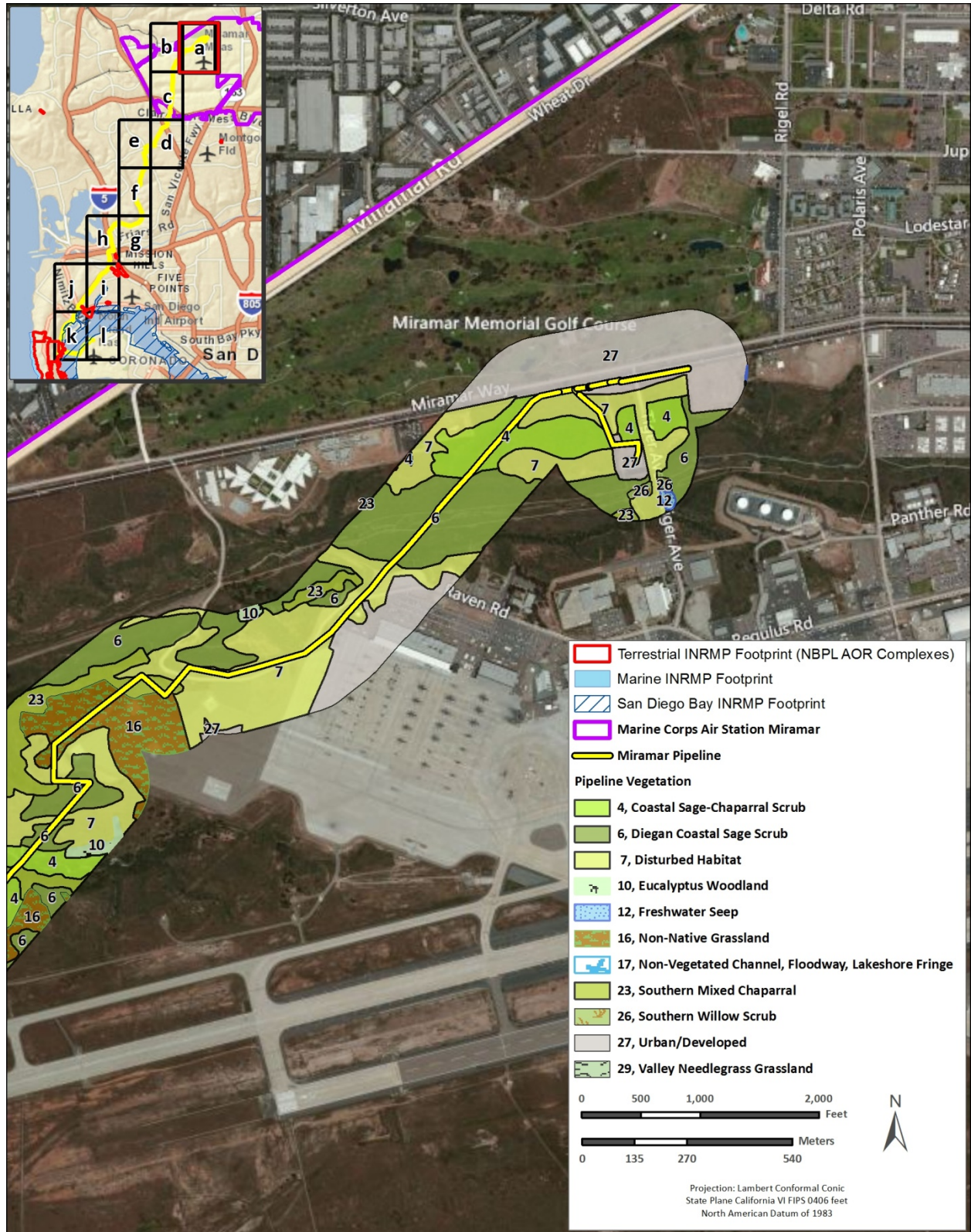
5.1.4 Joint Regional Correctional Facility

As a tenant command on MCAS Miramar, activities conducted at or around the Joint Regional Correctional Facility comply with the MCAS Miramar INRMP. The MCAS Miramar INRMP is in the process of being revised, and a complete discussion of natural resources surrounding the facility is addressed in the INRMP revision. The revision provides the basis and criteria for protecting and managing natural resources using landscape and ecosystem perspectives, consistent with the military mission on MCAS Miramar (MCAS Miramar 2010).



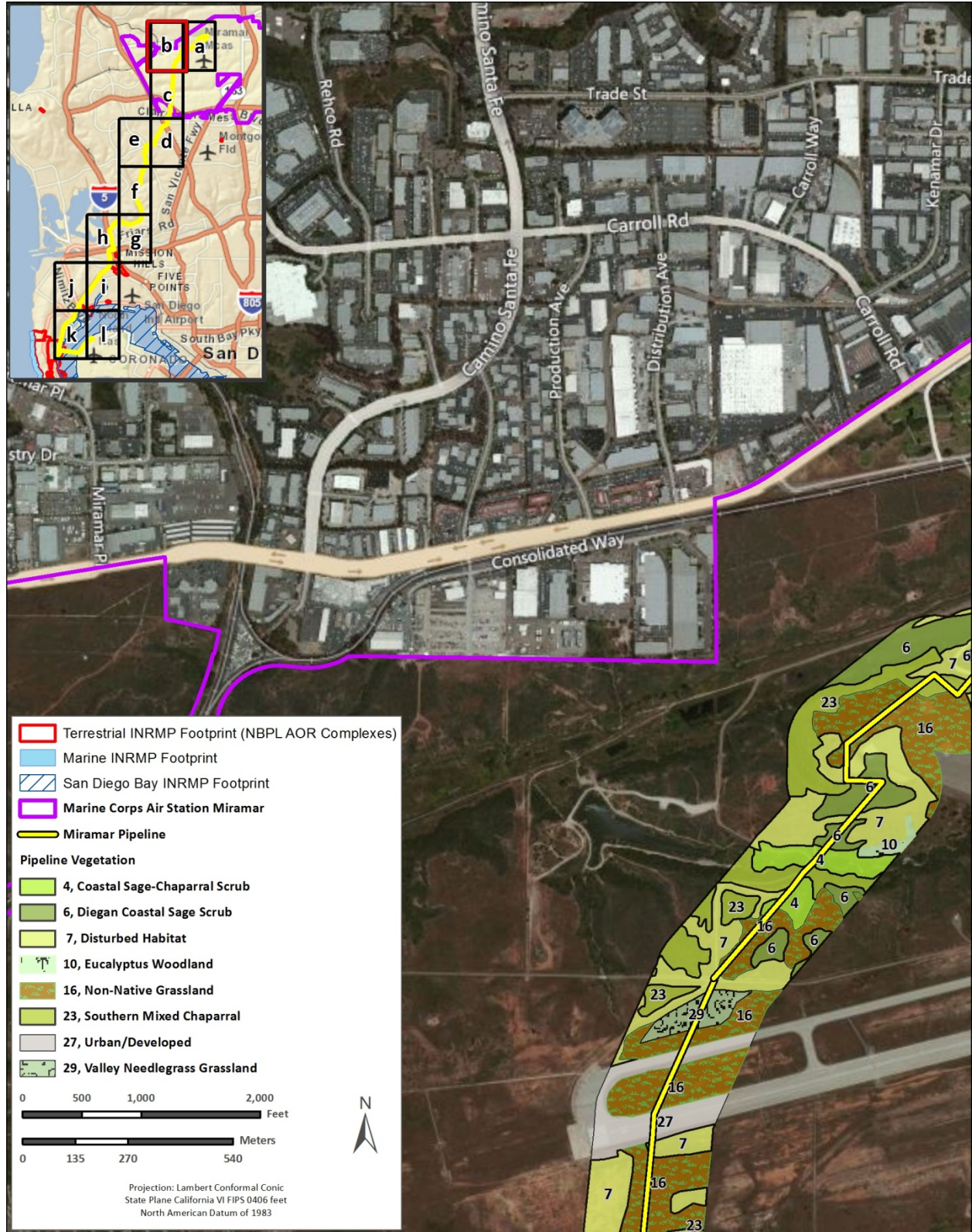
Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-1: Miramar Pipeline Route and Right-of-way



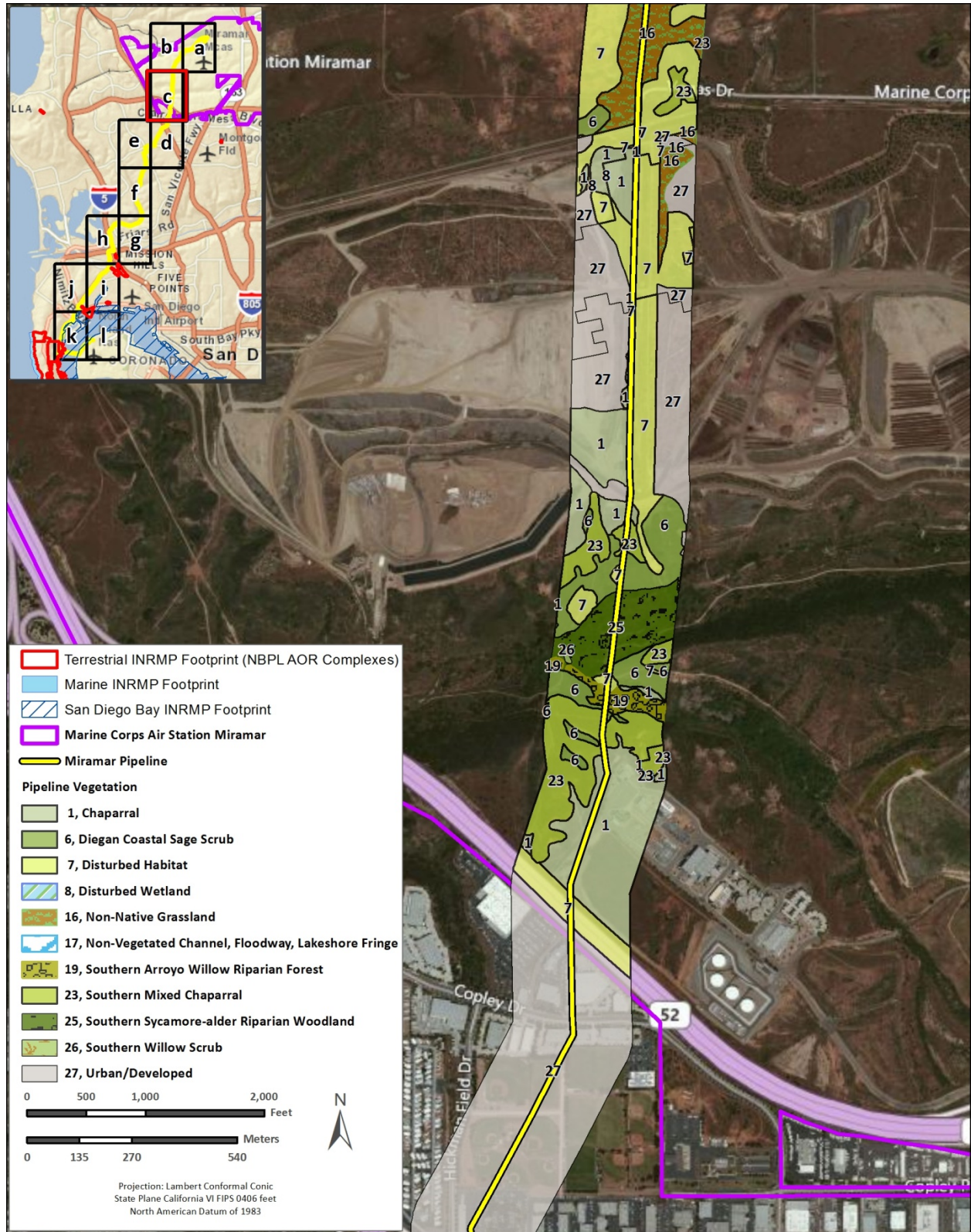
Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2a: Vegetative Communities Along the Miramar Pipeline



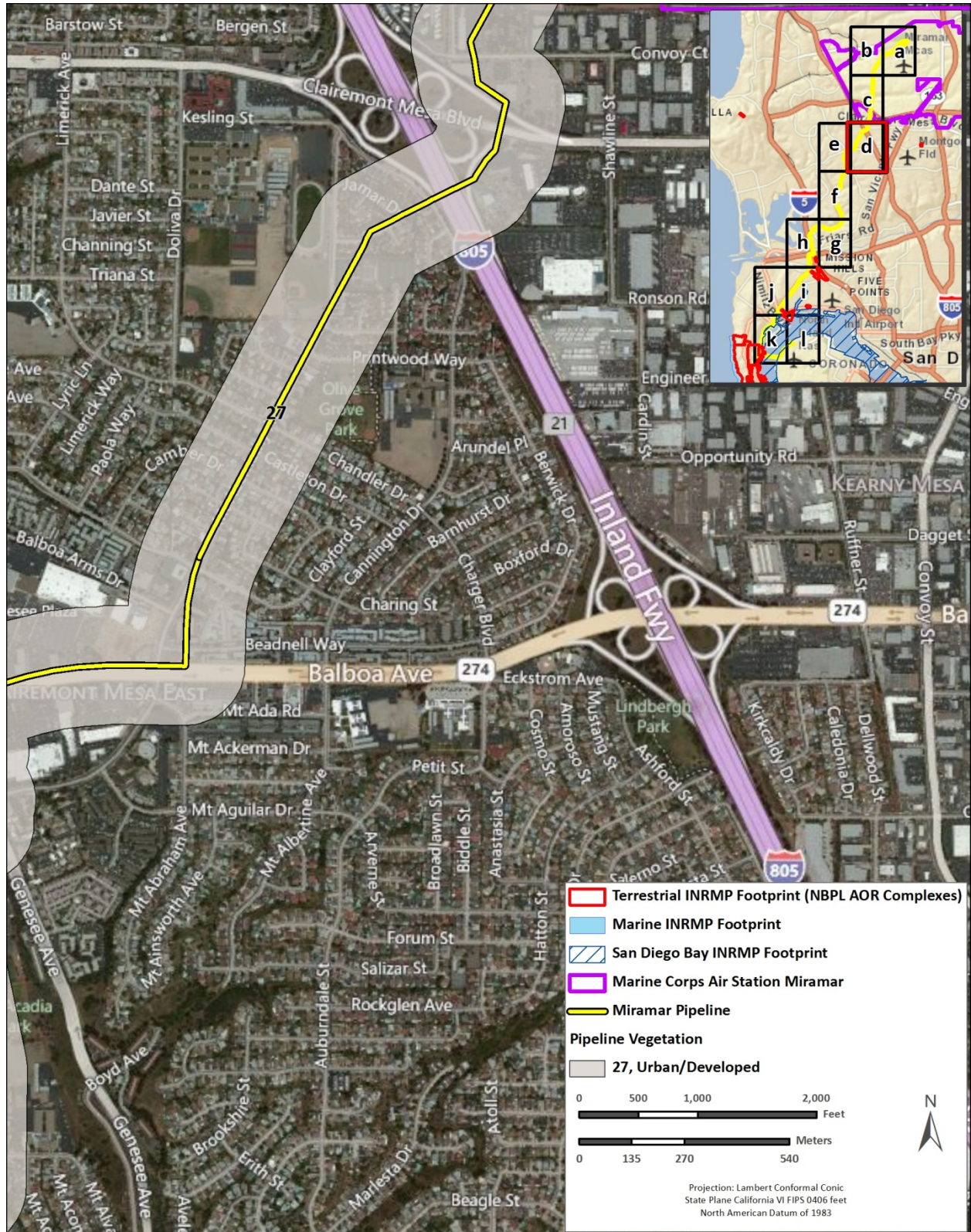
Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2b: Vegetative Communities Along the Miramar Pipeline



Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2c: Vegetative Communities Along the Miramar Pipeline



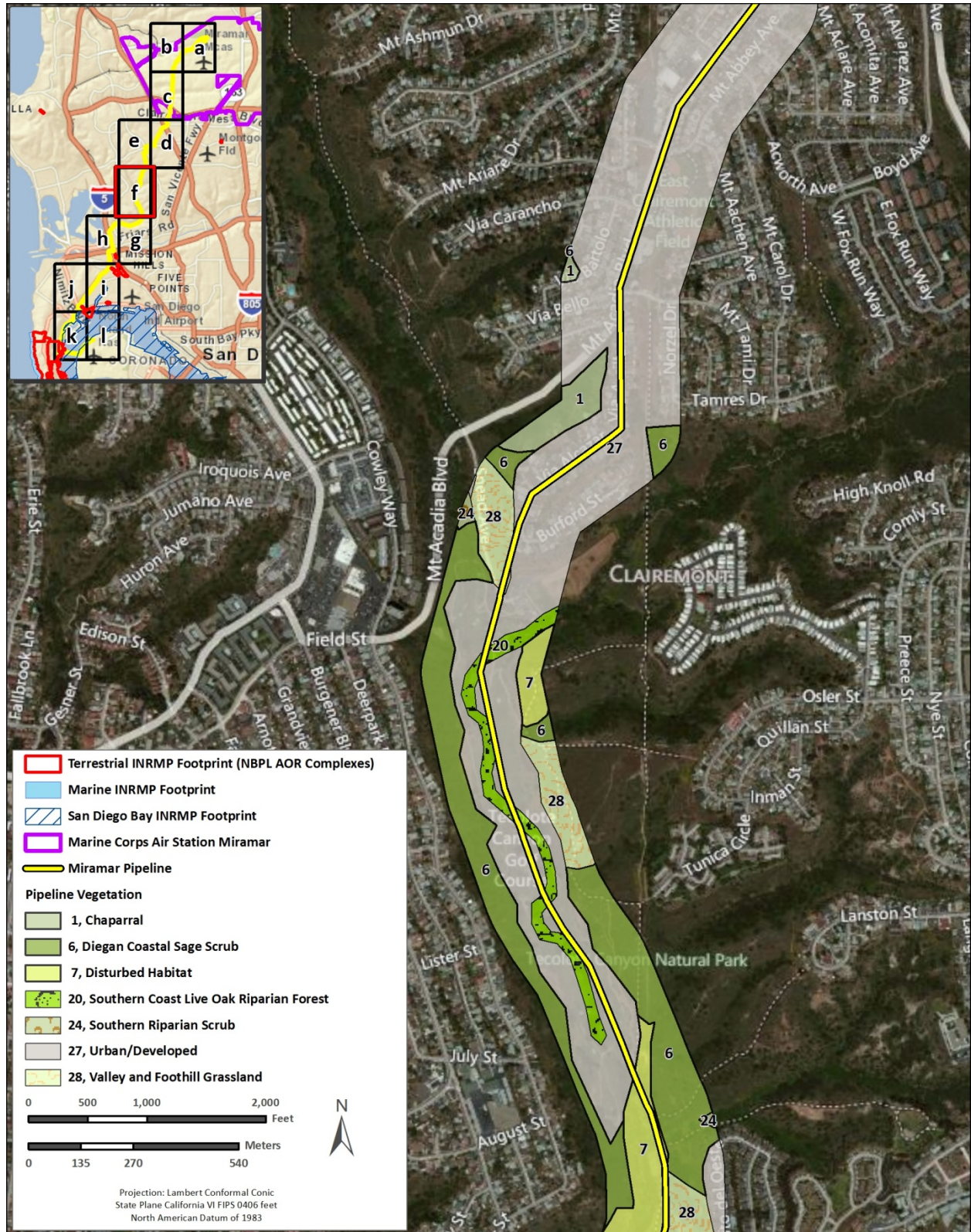
Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2d: Vegetative Communities Along the Miramar Pipeline



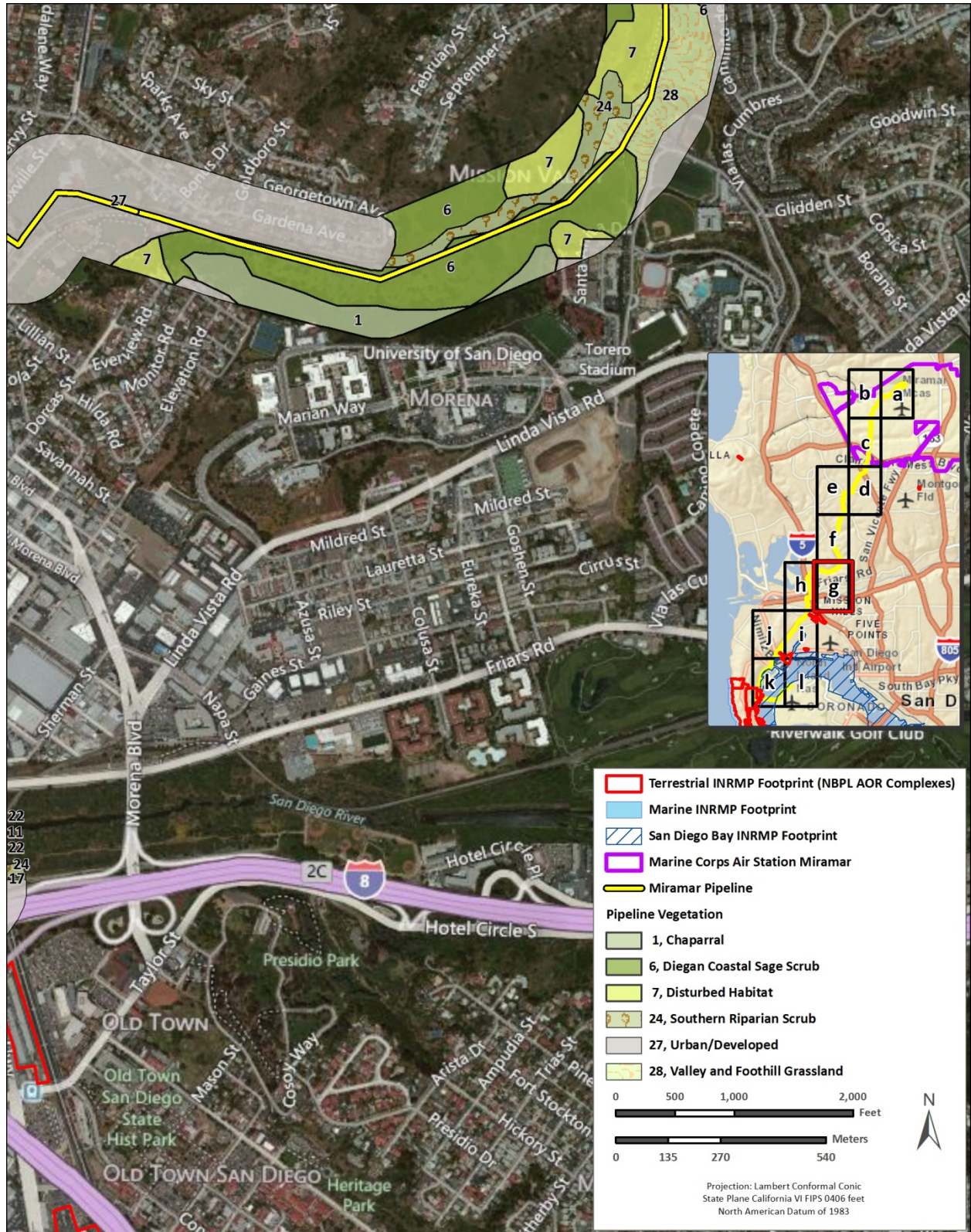
Source: Bing Maps Hybrid, 2010

Figure 5-2e: Vegetative Communities Along the Miramar Pipeline



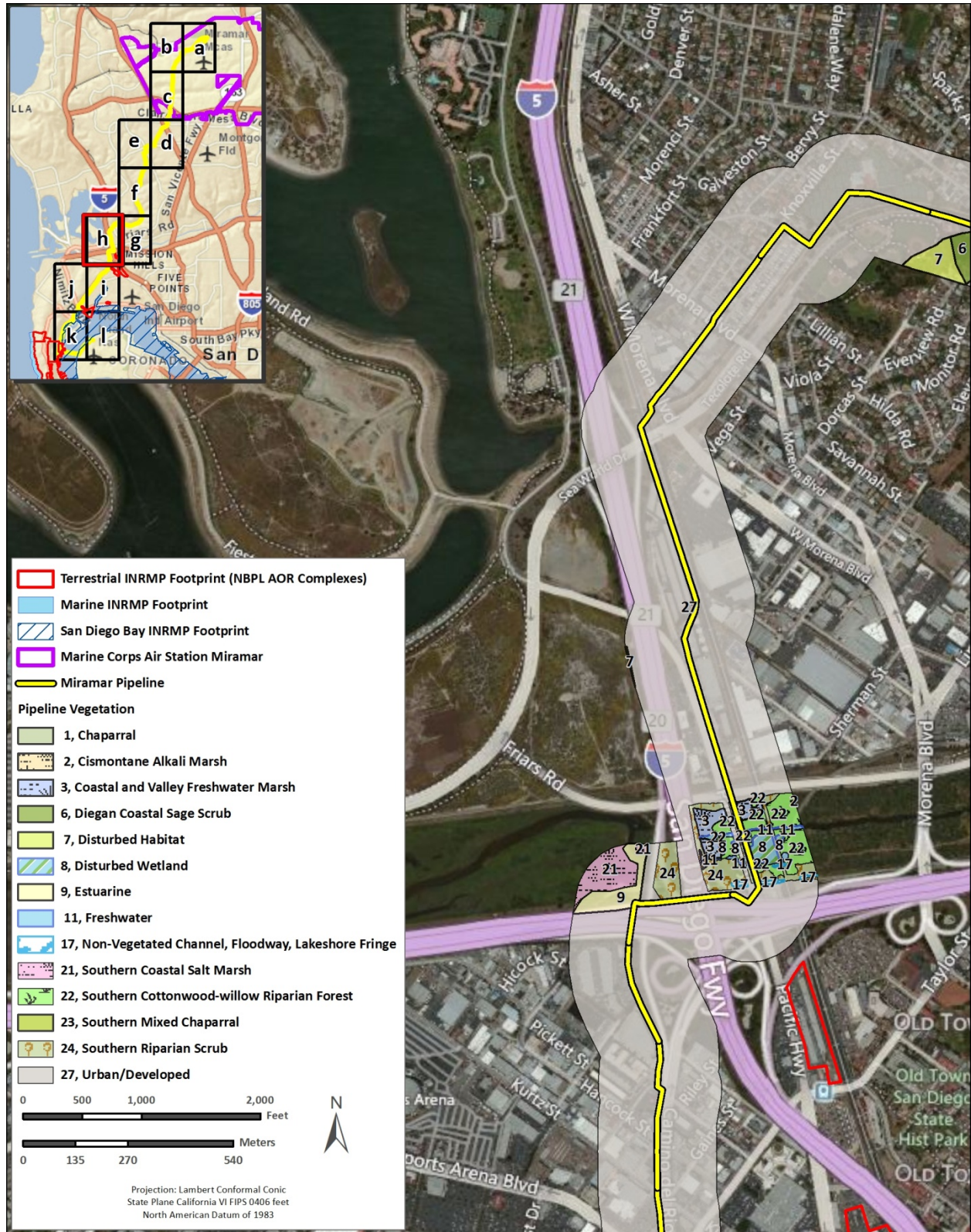
Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2f: Vegetative Communities Along the Miramar Pipeline



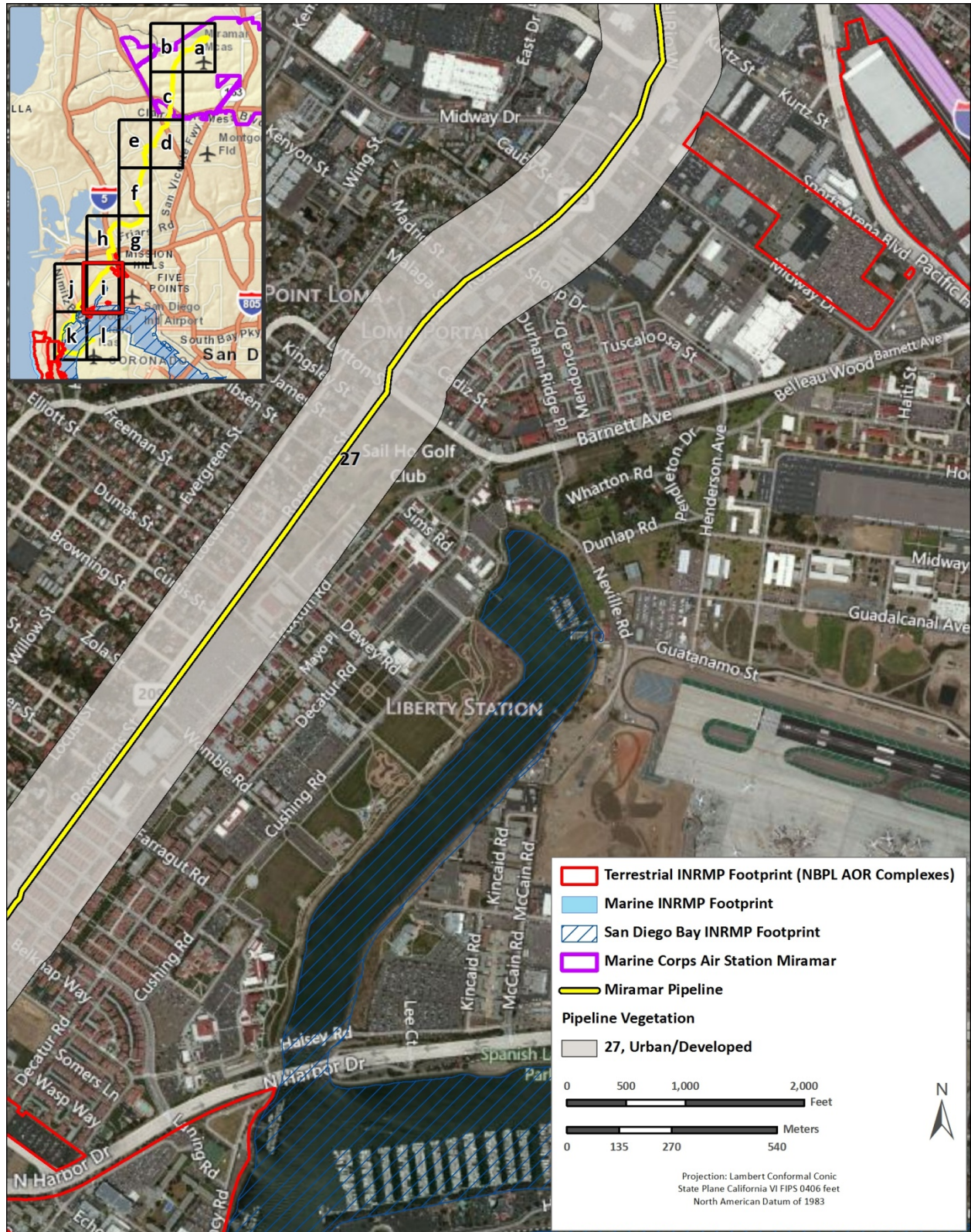
Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2g: Vegetative Communities Along the Miramar Pipeline



Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2h: Vegetative Communities Along the Miramar Pipeline



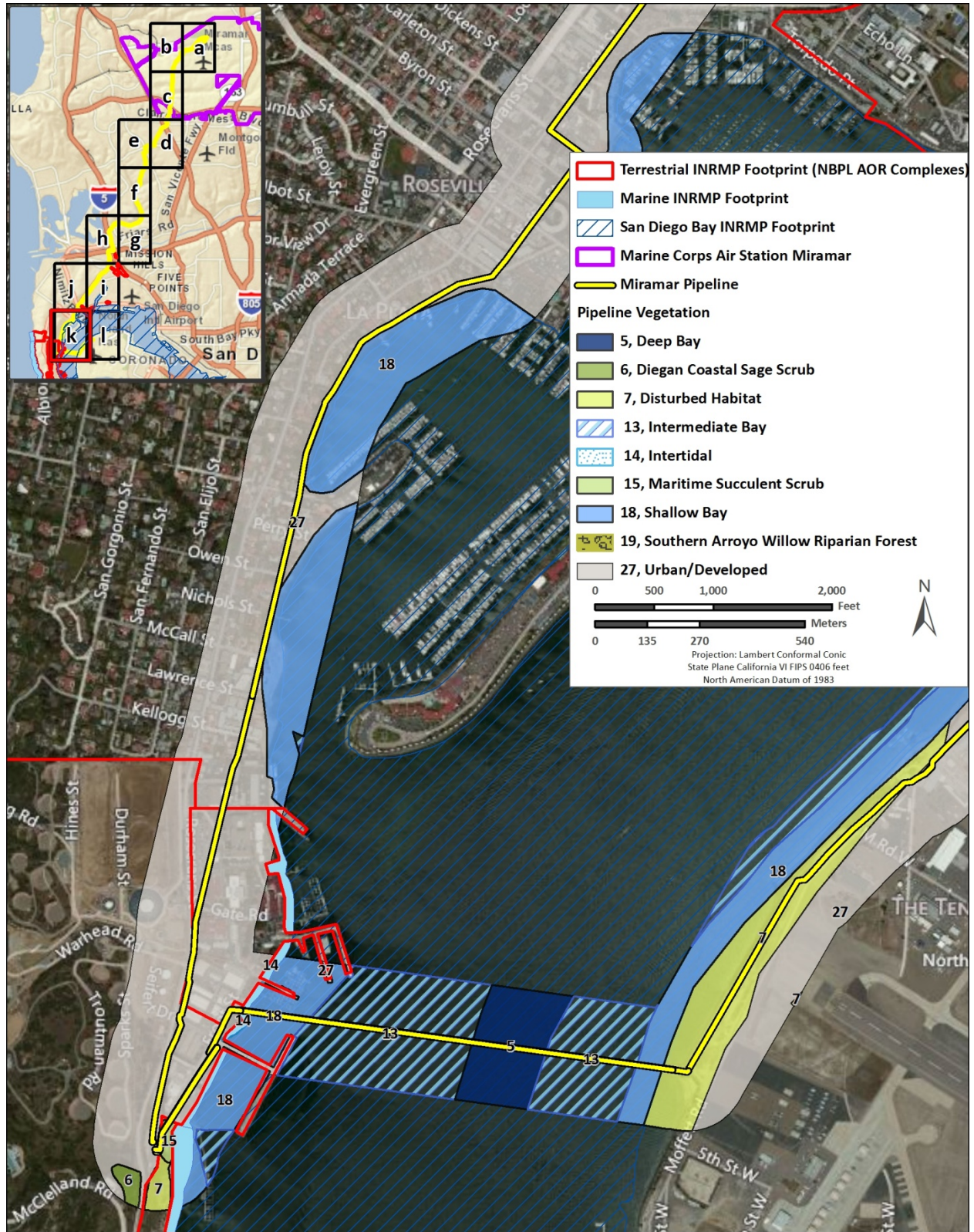
Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2i: Vegetative Communities Along the Miramar Pipeline



Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2j: Vegetative Communities Along the Miramar Pipeline



Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2k: Vegetative Communities Along the Miramar Pipeline



Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-2I: Vegetative Communities Along the Miramar Pipeline

Table 5-1: Vegetative Communities along Miramar Pipeline

Vegetative Community	Holland Code	Acreage along Pipeline
Eucalyptus	11100	1.7
Disturbed wetland	11200	1.6
Disturbed habitat	11300	178.9
Urban/Developed	12000	1467.7
Subtidal	13112	0.4
Deep bay	13121	14.9
Intermediate bay	13122	70.9
Shallow bay	13123	62.8
Estuarine	13130	2.5
Freshwater	13140	0.6
Channel	13200	0.3
Maritime succulent scrub	32400	2.5
Diegan coastal sage scrub	32500	191.3
Chaparral	37000	51.4
Southern mixed chaparral	37120	41.0
Southern maritime chaparral	37C30	4.5
Coastal sage-Chaparral scrub	37G00	23.6
Valley and foothill grassland	42000	21.2
Valley needlegrass grassland	42110	4.0
Non-native grassland	42200	54.5
Coastal salt marsh	52120	2.4
Freshwater marsh	52410	2.3
Coast live oak riparian forest	61310	10.0
Arroyo willow riparian forest	61320	3.0
Cottonwood-willow riparian forest	61330	5.0
Sycamore-alder riparian woodland	62400	11.4
Southern riparian scrub	63300	18.6
Southern willow scrub	63320	0.1

Source: Munson 2010, Holland 1986

Note: The approximately 1,000 foot width of the survey area is larger than the Navy-held easement.

While the MCAS Miramar INRMP does not highlight every tenant on the air station, the INRMP does highlight the Biological Opinion-related commitments undertaken on the station. Conservation Measures 9, 11, and 12 in Biological Opinion FWS-SDG-08B0468-09F0477 (USFWS 2009) call for offsetting impacts by acquiring land or credits off-base or restoring degraded habitat on MCAS Miramar. A permanent conservation easement of 8.9 acres of coastal sage scrub habitat on the Sycamore Westridge Parcel of the San Dieguito River Park was completed in late 2009 to offset impacts to Coastal California Gnatcatchers and their habitat (City of San Diego 2009), as shown in **Figures ES-2 and 1-2**. Since Joint

Regional Correctional Facility is managed through NBPL, any long-term habitat restoration, maintenance, and monitoring of this easement will be conducted by either NBPL or NAVFAC SW personnel (MCAS Miramar 2010).

5.1.5 La Jolla Nautical Mile

Three of the four towers are on developed property; tower 4 is on state land within a coastal sage scrub vegetation community. Additional information concerning the current conditions present at La Jolla Nautical Mile is not available; however, a survey of natural resources has been programmed in FY12. Once the survey is completed, natural resources information pertaining to the La Jolla Nautical Mile will be incorporated into the next INRMP update.

5.1.6 NBPL Housing Areas

5.1.6.1 Silvergate Housing Area

Topography, Geology and Seismicity

Silvergate Housing area is located on a peninsula of land with the Pacific Ocean to the west and San Diego Bay to the east. The Rose Canyon Fault, which runs through the middle of San Diego Bay, is the main fault zone affecting the seismicity of this area.

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Grinding of the plates, earthquakes, past volcanic activity, and weathering processes, have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006b). Seismic structures running close by include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

See **Figure 5-3** for an overview of faults that traverse the NBPL housing areas, and **Figure 5-4** contains the geology for Silvergate Housing area.

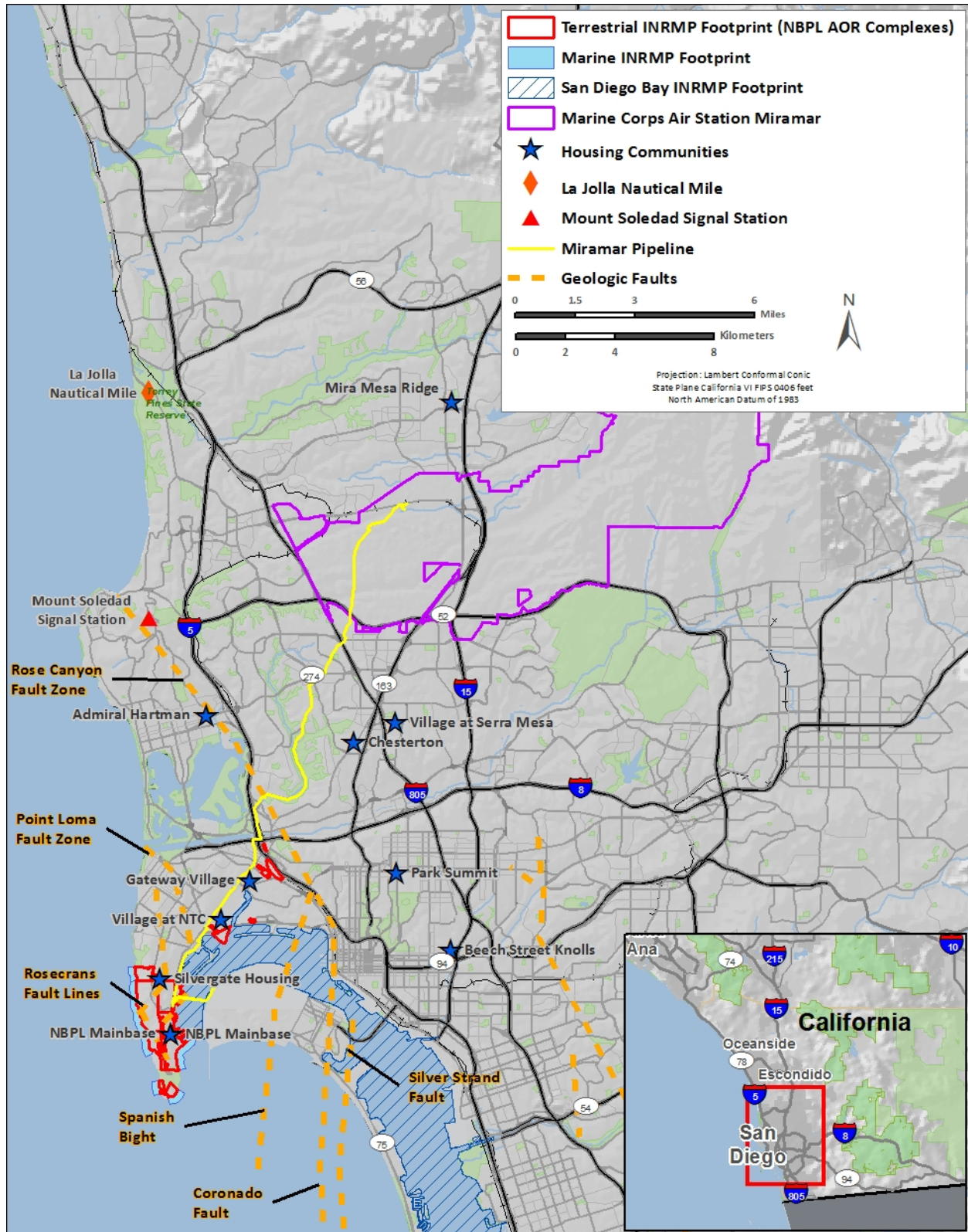
Water Resources

The Silvergate Housing area occurs on a peninsula between the Pacific Ocean and the San Diego Bay. No connections to adjacent wetlands or other waters are associated with this location (U.S. Navy 2011b).

Soils

The NRCS mapped two soil types in the Silvergate Housing area (NRCS 2011). Soil in the Silvergate Housing area is shown in **Figure 5-5**. Soils at Naval Silvergate Housing consist of:

- **Gaviota fine sandy loam (GaE)**. 17 percent of the Silvergate Housing area is composed of Gaviota fine sandy loam, with 9 to thirty percent slopes.
- **Marina loamy coarse sand (MIC)**. 83 percent of the Silvergate Housing area is composed of Marina loamy coarse sands, with 2 to 9 percent slopes.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-3: Faults that Traverse the Naval Base Point Loma Housing Areas



Source: ESRI StreetMap USA 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-4: Geology of Silvergate Housing Area



Source: ESRI StreetMap USA 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-5: Soils at Silvergate Housing

Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy. All water used by Silvergate Housing is supplied by the City of San Diego.

Terrestrial Habitat

The Silvergate Housing area supports ornamental vegetation typical of residential landscaping and is mapped as Developed/Ornamental (U.S. Navy 2011b). The Silvergate Housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees.

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. No wetlands or other jurisdictional waters of the United States occur at the Silvergate Housing area and it does not occur within a floodplain (U.S. Navy 2011b).

There is no critical habitat for any listed species at the Silvergate Housing area.

Vegetation

The Silvergate Housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees typical of residential landscaping (U.S. Navy 2011b).

Wildlife

No mammalian species were observed on Silvergate Housing during the 2009 natural resources survey (U.S. Navy 2011b).

Native bird species observed within the Silvergate Housing area during the 2009 natural resources inventory include the Mourning Dove (*Zenaida macroura marginella*), Lesser Goldfinch (*Spinus psaltria*), House Finch (*Carpodacus mexicanus*), and Common Raven (*Corvus corax*). One nonnative species observed within the housing area was the House Sparrow (U.S. Navy 2011b).

No reptiles or amphibians were documented in the Silvergate Housing area during the 2009 natural resources inventory (U.S. Navy 2011b).

Special Status Species

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. No special status species were observed on the Villages at Silvergate housing area during the 2009 survey (U.S. Navy 2011b).

Invasive and Exotic Species

No invasive species were identified at the Silvergate Housing area during the 2009 survey.

5.1.6.2 Naval Submarine Base Housing Area

Topography, Geology and Seismicity

The Naval Submarine Base housing area is located on a peninsula of land with the Pacific Ocean to the west and San Diego Bay to the east. The housing area is on the eastern side of this peninsula, just above the San Diego Bay. The Rose Canyon Fault, which runs through the middle of San Diego Bay, is the main fault zone affecting the seismicity of this area.

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Grinding of the plates, earthquakes, past volcanic activity, and weathering processes have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006b). Seismic structures in close proximity include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

Figure 5-6 contains the geology for Naval Submarine Base housing area.

Water Resources

No surface water resources occur within the Naval Submarine Base housing area.

Soils

Soils underlying the Naval Submarine Base housing area include the Hambright gravelly clay loam (HaG) with thirty to seventy five percent slopes (see **Figure 5-7**). The Hambright series consists of shallow, well-drained soils formed in material weathered from basic igneous rocks. These soils are well drained, have medium to very rapid runoff and moderate permeability (NRCS 2011).

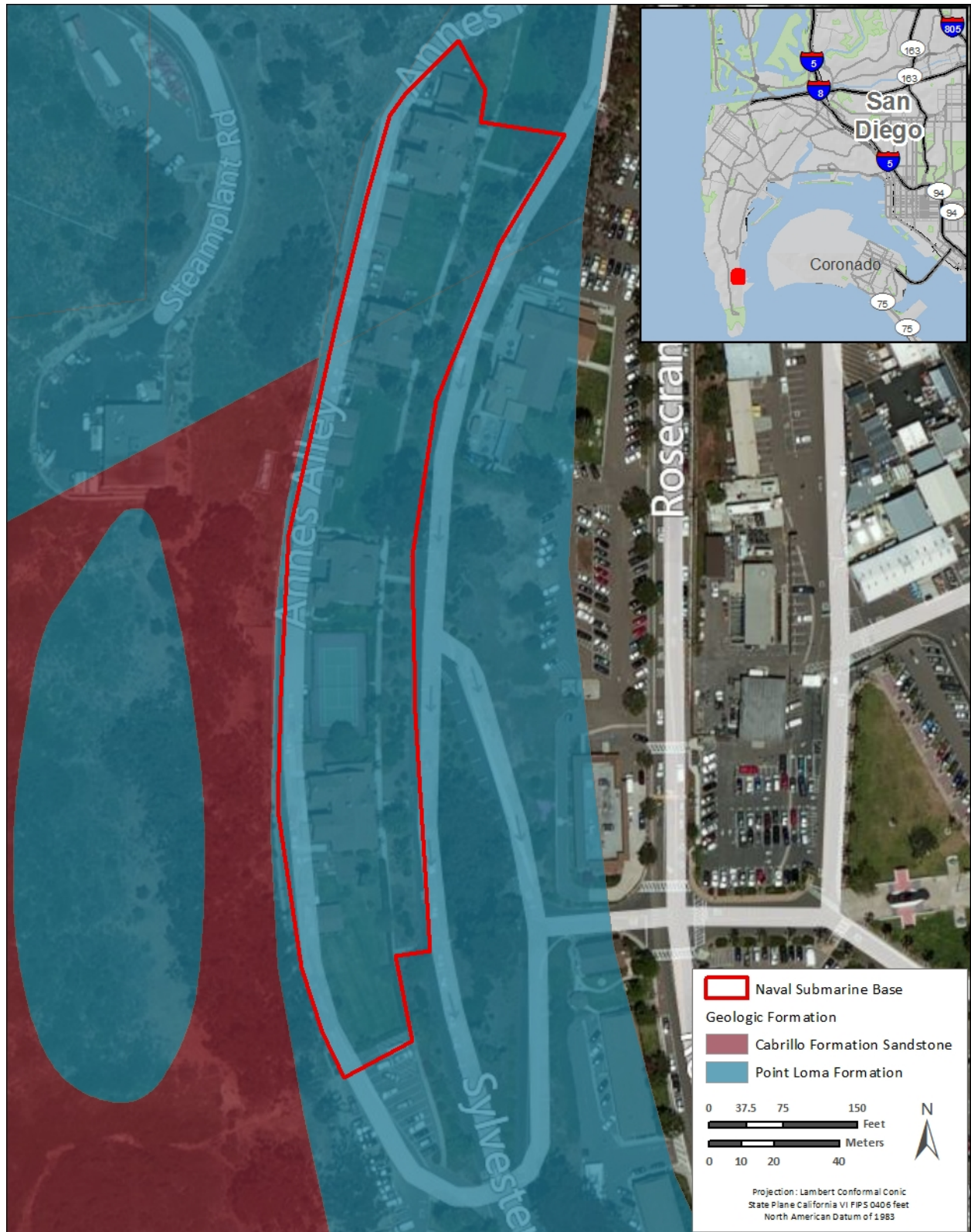
Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy. All water used by Naval Submarine Base housing is supplied by the City of San Diego.

Terrestrial Habitat

The Naval Submarine Base housing area supports ornamental vegetation typical of residential landscaping and is mapped as "Developed/Ornamental" (U.S. Navy 2011b). The Naval Submarine Base housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees.

There are two Black-crowned Night Heron (*Nycticorax nycticorax hoactli*) rookeries in the stand of eucalyptus to the east and adjacent to the Naval Submarine Base housing area that contain a minimum of ten nests (U.S. Navy 2011b).



Source: ESRI StreetMap USA 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-6: Geology of Naval Submarine Base Housing Area



Source: ESRI StreetMap USA 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-7: Soils at Naval Submarine Base Housing Area

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. No wetlands or other waters of the United States occur within the Naval Submarine Base housing area and it does not occur within a floodplain (U.S. Navy 2011b).

There is no critical habitat for any listed species on the Naval Submarine Base.

Vegetation

The Naval Submarine Base housing area supports ornamental vegetation typical of residential landscaping (U.S. Navy 2011b).

Wildlife

No mammalian species were observed on Naval Submarine Base during the 2009 natural resources survey (U.S. Navy 2011b).

During 2009 surveys, a variety of native bird species were observed including: Great Blue Heron, Green Heron (*Butorides virescens*), Black-crowned Night Heron, Red-tailed Hawk, Mourning Dove, Anna's Hummingbird (*Calypte anna*), Nuttall's Woodpecker (*Picoides nuttallii*), Black Phoebe (*Sayornis nigricans*), Cassin's Kingbird (*Tyrannus vociferans*), Western Bluebird (*Sialia mexicana occidentalis*), Northern Mockingbird (*Mimus polyglottos polyglottos*), California Towhee (*Pipilo crissalis*), Spotted Towhee (*Pipilo maculatus*), Song Sparrow (*Melospiza melodia*), Hooded Oriole (*Icterus cucullatus*), House Finch, and Lesser Goldfinch (U.S. Navy 2011b). Nonnative avian species observed within the housing area include European Starling and House Sparrow (U.S. Navy 2011b).

No reptiles or amphibians were documented in the Naval Submarine Base housing area during the 2009 natural resources inventory (U.S. Navy 2011b).

Special Status Species

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. One special status species, the Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*) was also observed in the Naval Submarine Base housing area.

Southern California Rufous-crowned Sparrow

The Southern California Rufous-crowned Sparrow is on the CDFG watch list. On November 15, 1994 it was reviewed as a candidate for federal listing as threatened or endangered but lacked data on biological vulnerability (59 Federal Register [FR] 58982 59028). This species is an approximately 15-cm-long sparrow with a gray head, dark reddish crown, distinct whitish eye ring, rufous line extending back from eye, a single black whisker stripe on each side, and a long rounded tail. It is gray-brown above, with reddish streaks; gray below; interior forms are more grayish, coastal forms are dark reddish; juveniles are buffier than are adults, and are dark brown above, with a streaked crown and breast and sometimes two pale wing bars (NatureServe 2010). It ranges from Ventura County south to northwest Baja California, Mexico. It is often found on rocky



Southern California Rufous-crowned Sparrow

Credit: Smithsonian National Museum of Natural History

hillsides and steep slopes of grass and brush. The Southern California Rufous-crowned Sparrow nests on the ground at the base of rocks, tufts of grass, or saplings; or 0.3-1 meters above ground in branches of shrub or tree. The diet consists of insects and grass seeds. The largest threat to the Southern California Rufous-crowned Sparrow is habitat loss, degradation, and fragmentation. Populations are becoming increasingly isolated due to urbanization and agricultural development in Los Angeles, Orange, Riverside, San Diego, and San Bernardino counties. Over the last one hundred years fire suppression has also led to loss of habitat, as Rufous-crowned Sparrows prefer more open scrub areas as opposed to dense tracts of scrub or chaparral (U.S. Navy 2011b).

Invasive and Exotic Species

The non-native, invasive species hottentot fig occurs on the eastern edge of the Naval Submarine Base (U.S. Navy 2011b).

5.1.6.3 Admiral Hartman Housing Area

Topography, Geology and Seismicity

Admiral Hartman housing area is located in the City of San Diego community of Pacific Beach, and is approximately two miles inland from the Pacific Ocean.

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Grinding of the plates, earthquakes, past volcanic activity, and weathering processes have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006b). Seismic structures in close proximity include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

Water Resources

Rose Creek is located within the open space area, to the east and south of the housing area, and drains into Mission Bay (U.S. Navy 2011b).

Soils

The NRCS mapped six soil types on SSTC South (NRCS 2011). Mapped soil types for the main, northern portion of Admiral Hartman include the following (see Figure 5-8):

- ***Corralitos loamy sand (CsB)***. This soil occurs on approximately 21.1 percent of the northern portion of Admiral Hartman. This soil has slopes from zero to five percent. The Corralitos series consists of deep, somewhat excessively drained soils that formed in recent sandy alluvium derived from acid sandstone and related rocks. Corralitos soils are on alluvial fans and in small valleys and have slopes of 0 to 15 percent. These soils are somewhat excessively drained, and have slow runoff and rapid permeability. Some areas are subject to localized flooding and deposition (NRCS 2011).



Source: ESRI StreetMap USA 2007 Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-8: Soils at Admiral Hartman

- **Huerhuero-Urban land complex (HuC).** This soil mapping unit occurs on approximately 43.5 percent of the northern portion of Admiral Hartman. This soil has slopes from two to nine percent. This soil complex occurs on marine terraces at elevations between 0 to 400 feet. The landscape has been altered through cut and fill operations and leveled for construction of buildings. Between the leveled sites are moderately steep escarpments that are easily eroded (NRCS 2011).

Approximately 48.3 percent of the northern portion of Admiral Hartman is mapped as Huerhuero-Urban land complex with slopes from 9 to 30 percent.

- **Lagoons of San Diego area.** Approximately 0.1 percent of the northern portion of Admiral Hartman encompasses area of open water within lower Rose Canyon Creek.
- **Made land (Md).** This soil mapping unit occurs on approximately 0.6 percent of the northern portion of Admiral Hartman. This soil type is generally level and consists of smooth, level areas that have been filled with excavated and transported soil material, paving material, and soil material dredged from lagoons, bays, and harbors (NRCS 2011).
- **Olivenhain-Urban land complex (OkE).** This soil mapping unit occurs on approximately 20.7 percent of the northern portion of Admiral Hartman. This soil slopes from 9 to 30 percent. The Olivenhain-Urban land complex occurs on marine terraces at elevations between 100 to 600 feet. The landscape has been altered through cut-and-fill operations and leveled for construction of buildings. The material exposed in the cuts is cobbly loam alluvium and the fill material consists of cobbly loam and/or cobbly clay loam (NRCS 2011).

Mapped soil types for the smaller, southern portion of Admiral Hartman include:

- **Huerhuero-Urban land complex (HuC).** This soil mapping unit occurs on approximately 38.1 percent of the southern portion of Admiral Hartman. This soil has slopes from two to nine percent.
- **Made land (Md).** This soil mapping unit occurs on approximately 61.9 percent of the southern portion of Admiral Hartman. This soil type is generally level.

Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy.

All water used by Admiral Hartman housing is supplied by the City of San Diego.

Terrestrial Habitat

The Admiral Hartman housing area is one of 4 sites within NBPL that contain open space with native vegetation. Open space exists on nine acres of the Admiral Hartman site along the northern and eastern boundaries of the site. Sixty plant species were found within the Admiral Hartman open space during the 2009 natural resources inventory. Of those, 30 are native species (U.S. Navy 2011b).

The open space along the eastern boundary of the site contains a marsh vegetation habitat dominated by alkalai heath (*Frankenia salina*), jaumea (*Jaumea carnosa*) and saltgrass. The vegetation cover in the drainage area to the west of Rose Creek includes patches of riparian trees and shrubs such as mule fat, willow, and acacia; however, these areas are too small to support stable habitat communities (U.S. Navy 2011b).

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. The Admiral Hartman housing area has 0.74 total acres of wetland and 0.20 acres of other jurisdictional waters of the U.S. (see **Figure 5-9**) (U.S. Navy 2011b). According to publically available data, Admiral Hartman lies within the 100 year floodplain of Rose Canyon Creek.

There is no federal designated critical habitat for the listed species on NBPL.

Although the Admiral Hartman housing area is located in a heavily developed coastal area, a small piece in the southeast parcel is within a San Diego MSCP dedicated preserved portion of the MHPA. This area of the parcel is where Rose Creek discharges into Mission Bay (Fiesta Bay) through the Rose Inlet. This segment of the MHPA comprises an area where the City of San Diego's Mission Bay Park Master Plan calls for the creation of new wetlands where Rose Creek meets the ocean in Mission Bay (City of San Diego 2002).

Vegetation

Admiral Hartman supports ornamental vegetation typical of residential landscaping (see **Figure 5-10**).

Native flora species observed in open space areas during surveys include: fourwing saltbush (*Atriplex canescens*), pickleweed, estuary suaeda (*Suaeda esteroa*), laurel sumac, lemonadeberry, western ragweed (*Ambrosia psilostachya*), California sagebrush, San Diego sagewort (*Artemisia palmeri*), coyote bush (*Baccharis pilularis*), broom baccharis, horseweed (*Conyza canadensis*), California encelia, coast goldenbush (*isocoma menziesii*), osmadenia (*Osmadenia tenella*), cocklebur (*Xanthium strumarium*), saltwort (*Batis maritima*), peppergrass (*Lepidium* sp.), dodder (*Cuscuta californica*), California broom (*Lotus scoparius*), black sage, woolly bluecurls (*Trichostema lanatum*), dot seed plantain (*plantago erecta*), western sycamore (*Platanus racemosa*), California buckwheat, red willow (*Salix laevigata*), three-square (*Schoenoplectus californicus*) and cattail (U.S. Navy 2011b).

Nonnative vegetation within the Admiral Hartman open space area includes: hottentot fig, iceplant, Russian thistle, Peruvian pepper tree (*Schinus molle*), Brazilian pepper tree (*Schinus terebinthifolius*), crown daisy (*Glebionis coronaria*), bristly ox-tongue (*Picris echioides*), prickly sow thistle (*Sonchus asper* ssp. *asper*), common sow thistle (*Sonchus oleraceus*), radish (*Raphanus sativus*), castor bean, sourclover (*Melitous indicus*), Canary Island date palm (*Phoenix canariensis*), century plant (*Calochortus* sp.), smooth brome (*Bromus hordeaceus*), ryegrass (*Lolium* sp.), smilo grass, St. Augustine grass (*Stenotaphrum secundatum*) and annual beard grass (*Polypogon monspeliensis*) (U.S. Navy 2011b).

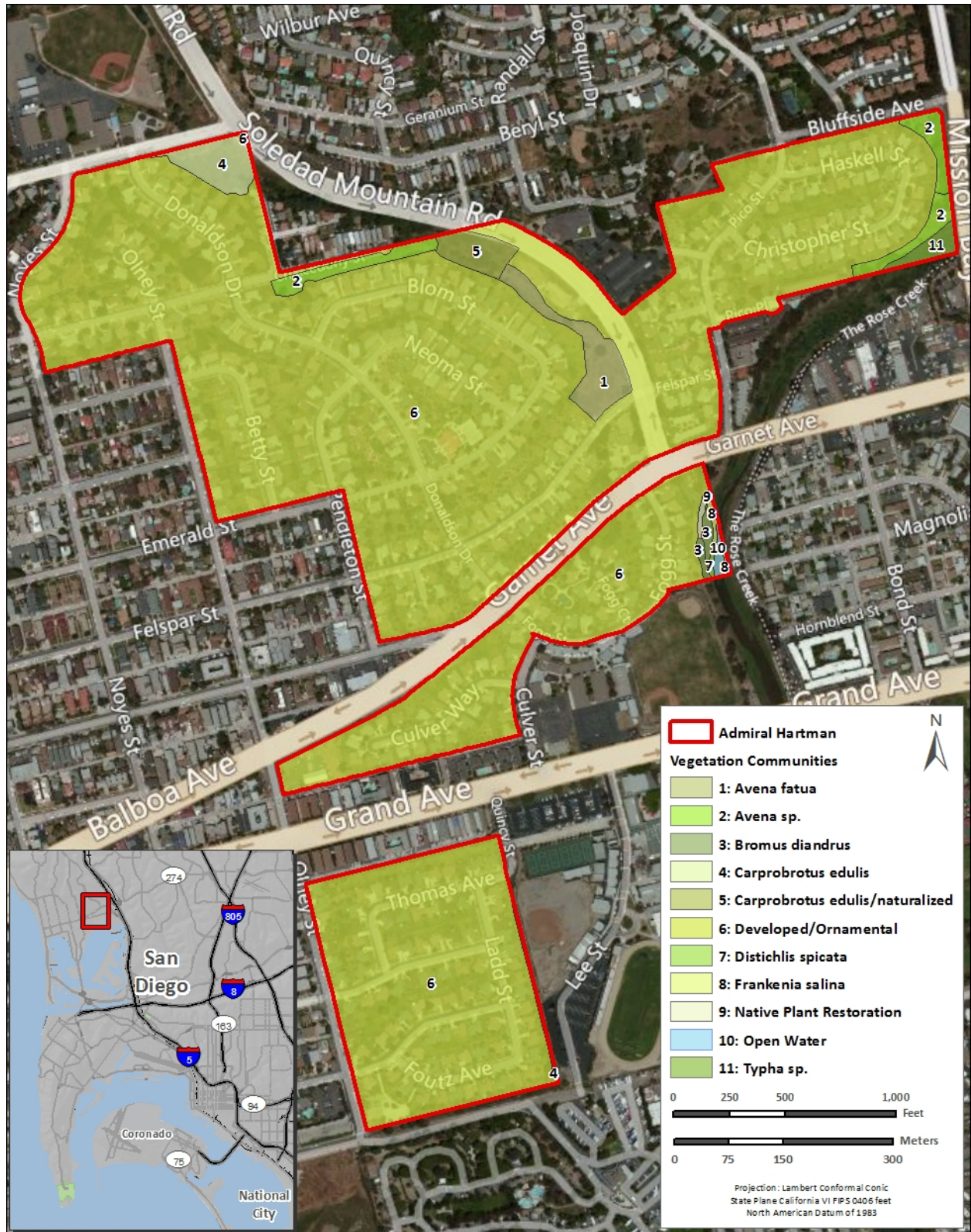
Aquatic Vegetation

Hydrophytic vegetation found in and around Rose Creek include *Typha* sp. association plants found in the marsh habitat in lower Rose Creek including cattails and bulrush, and the alkali heath-Jaumea vegetation association which was found on the east and west sides of lower Rose Creek in open water.



Source: ESRI StreetMap USA 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-9: Wetlands and non-Wetland Waters of the United States on Admiral Hartman



Source: ESRI StreetMap USA 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-10: Vegetative Communities at Admiral Hartman

Wildlife

One mammalian species, a domestic cat (*Felis catus*), was observed on Admiral Hartman during the 2009 natural resources survey (U.S. Navy 2011b). However, desert cottontail (*Sylvilagus audubonii*) and California ground squirrels (*Spermophilus beecheyi nudipes*) could be expected to utilize portions of the open space area (U.S. Navy 2006b).

Native bird species observed within the Admiral Hartman housing area during the 2009 natural resources inventory include: Great Blue Heron, Green Heron, Snowy Egret (*Egretta thula*), Killdeer, Mourning Dove, Anna's Hummingbird, Common Raven and Northern Mockingbird. The House Sparrow, a nonnative species, was also observed (U.S. Navy 2011b).

One reptile species, the western fence lizard, was documented in the Admiral Hartman housing area during the 2009 natural resources inventory. There is a low potential for the following sensitive reptile species to occur based on marginally suitable habitat: Belding's orange-throated whiptail (*Aspidoscelis hyperythrus beldingi*), Coronado skink (*Plestiodon skiltonianus interparietalis*), coast patch nosed snake (*Salvadora hexalepis virgultea*) and red diamond rattlesnake (*Crotalus ruber*) (U.S. Navy 2011b).

No amphibian species were observed on site.

There were a total of eighteen invertebrate species observed in the Admiral Hartman housing area during the 2009 survey including: checkered white butterfly (*Pontia protodice*), cabbage white butterfly (*Peris rapae*), acmon blue butterfly (*Icaricia acmon acmon*), parolid moths (Family Pyralidae), water striders (Family Gerridae), skimmers (Family Libellulidae), crickets (Family Gryllidae), long-legged flies (Family Dolichopodidae), house flies (Family Muscidae), Argentine ants (*Linepithema humile*), spider wasps (Family Pompilidae), sphecid wasps (Family Sphecidea), sweat bees (Family Halictidae), bees (Family Apidae), and honey bees (*Apis mellifera*) (U.S. Navy 2011b).

Dot-seed plantain, a host plant for the federally endangered Quino checkerspot butterfly (QCB, *Euphydryas editha quino*), was observed on site, however this species is not expected to occur due to the distance from known QCB populations.

Special Status Species

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. One formerly federally listed species, the California Brown Pelican was observed flying over the Admiral Hartman housing area.

There is a low potential for the following sensitive avian species to occur at the Admiral Hartman housing area: Least Bell's Vireo, Yellow-rumped Warbler (*Dendroica coronate*), Yellow Breasted Chat (*Icteria virens*), Peregrine Falcon, and Bell's Sage Sparrow (*Amphispiza belli belli*). Sharp-shinned Hawks (*Accipiter striatus*) also have the potential to occur in this area (U.S. Navy 2011b).

One San Diego sagewort, a CNPS California Rare Plant Rank 4 plant, was observed in the Admiral Hartman housing area open space (see **Figure 5-11**). California Rare Plat Rank 4 plants have limited distribution and are on a watch list. The plants in this category are of limited distribution or infrequent throughout a broader area in California, and their vulnerability or susceptibility to threat appears relatively low at this time. Very few of the plants constituting Rank 4 meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and few, if any, are eligible for state listing (CNPS 2010).

Two species of rare plants were documented in the open space area. One San Diego sagewort plant was found on the western bank of Rose Creek near the inlet, and appears to be within a previously restored area. One estuary seablite (*Suaeda esteroa*) plant was found within brome and St. Augustine grass adjacent to open water.

California Brown Pelican

The California Brown Pelican was delisted from the USFWS and CDFG threatened and endangered species lists due to population recovery along the California coast. The most recent population estimate of the Brown Pelican subspecies that ranges from California to Mexico along the Pacific Coast is approximately 70,680 nesting pairs, which equates to 141,360 breeding birds (USFWS 2009). They nest in four distinct geographic areas: (1) The Southern California Bight (SCB), which includes southern California and northern Baja California, Mexico; (2) southwest Baja California; (3) the Gulf of California, which includes coastlines of both Baja California and Sonora, Mexico; and (4) mainland Mexico further south along the Pacific coastline. During the late 1960s and early 1970s, the SCB population declined to fewer than 1,000 pairs and reproductive success was nearly zero. Preliminary estimates of nesting pairs in 2006 suggest a large and healthy total breeding population for California and the Pacific coast of Mexico (USFWS 2009). Existing populations appear to be stable in Mexico and throughout the subspecies range, food supplies are assured by the Coastal Pelagic Species Fishery Management Plan, and the majority of essential nesting and roosting habitat throughout the subspecies' range is protected (USFWS 2009). California Brown Pelicans have a long bill, extensible gular pouch, and all four toes joined by extensive webbing. During their first year, California Brown Pelicans are brown with a white belly. Over the next few years they attain adult characteristics. In adults, the upperparts are gray to gray-brown, the belly is black-brown, and the remainder of the undersurface is striped black and silver. The head and neck coloration of adults varies seasonally. The head is pale yellow and the neck is white during the postbreeding season. The head is yellow and neck is dark brown just before breeding. The head is white (sometimes speckled with dark feathers) and neck is brown when birds are nesting. Wingspan is about 2 meters (79 inches).



California Brown Pelican

Credit: California Academy of Sciences

San Diego Sagewort

San Diego sagewort, a California Rare Plant Rank 4 species, is a deciduous shrub associated with riparian areas of San Diego County and Baja California, Mexico. Found along creeks and drainages at the coast, inland it can be found with coastal sage scrub. San Diego sagewort is ranked by CNPS at a 4.2 status, indicating that it is watch listed and fairly endangered in California. There are many reports of San Diego sagewort throughout San Diego County, including Peñasquitos and Escondido creeks, in Steele Canyon and Alpine. San Diego sagewort is most impacted by channeling and diverting waterways in San Diego County, particularly the San Diego River (U.S. Navy 2011b).



San Diego sagewort

Credit: Salvatore Zimmiti

Estuary Seablite

Estuary seablite, a California Rare Plant Rank 1B species, is a perennial subshrub and is part of the Chenopodiaceae family. It flowers in late summer to fall. The distribution is rather widespread from Santa Barbara County into northwestern Mexico. This plant can be found within the salt marsh at the Marine Biological Study Area and inhabits coastal salt marshes, tidal banks, swamps, and channel margins; its typical elevation is under 10 feet. It is present within the salt marsh at SSTC South. Estuary seablite is ranked by CNPS as a 1B status, most likely due to its recent decline and generally diminishing habitat (U.S. Navy 2011b).



Estuary Seablite

*Credit: W. Ferren and
S. Whitmore*

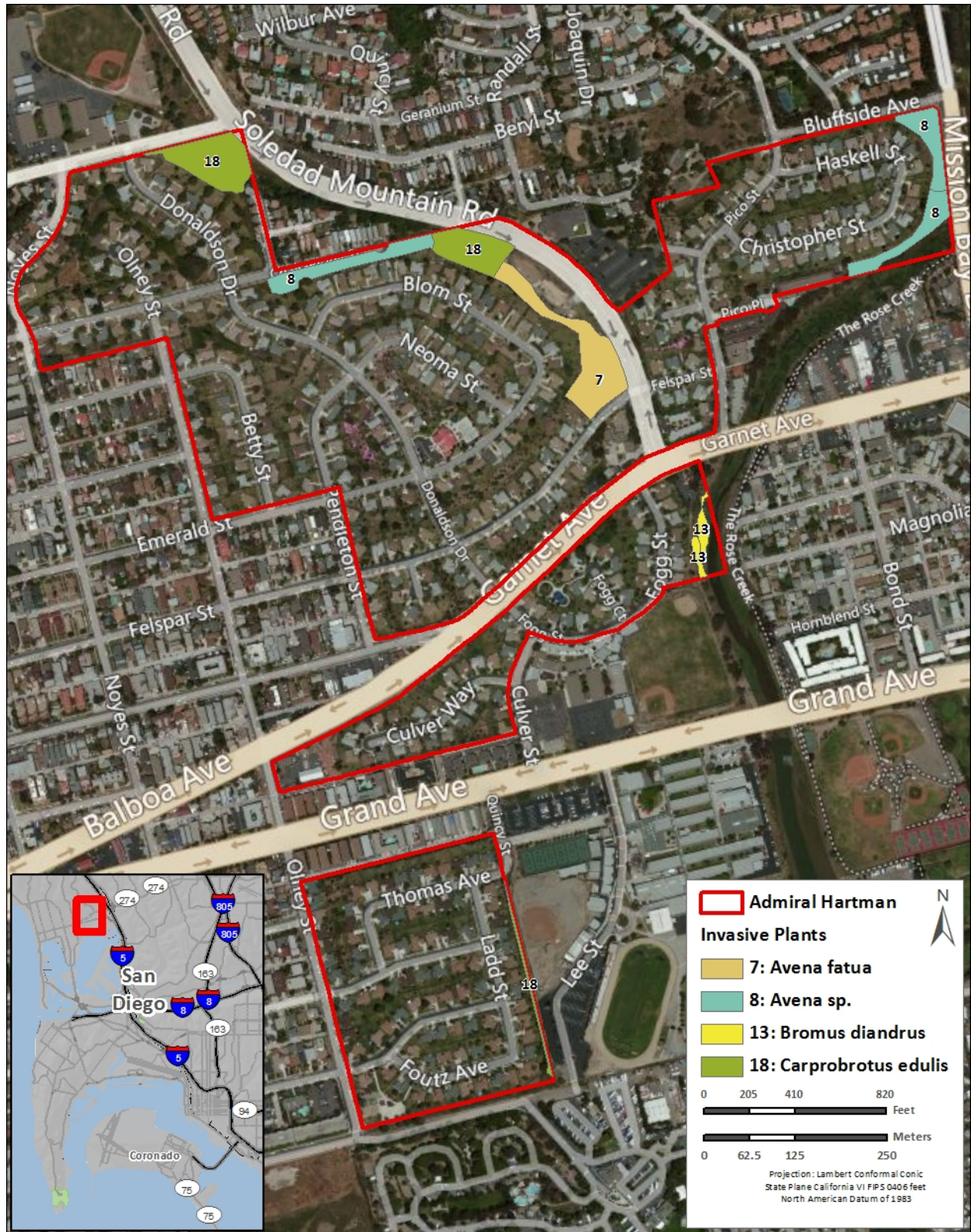
The Jepson Interchange website (University of California Berkeley) has recorded observations of this species at multiple locations within San Diego County including some near Chula Vista and Imperial Beach and a few at Silver Strand and Coronado. The main threat that this species faces is habitat reduction. Whether it is from development, recreation, or exotic species encroachment, the favored habitats of estuary seablite are often modified. This leads to very few untouched natural areas of coastal wetlands, and thus this species' scarcity. Minimizing the destructive effects of activities whenever possible as well as establishing certain restrictions where populations currently exist are actions that protect the species (U.S. Navy 2011b).

Invasive and Exotic Species

Invasive plant species cover an area totaling eight acres in the Admiral Hartman housing and open space areas (U.S. Navy 2011b). The invasive plant species were found in all parts of the open space area except for the marsh areas within the Rose Creek drainage (see **Figure 5-12**). Species of invasive plants include hottentot fig, fennel, black mustard, myoporum, tamarisk, eucalyptus, wild oats (*Avena* sp.), slender wild oat (*Avena barbata*), ripgut grass (*Bromus diandrus*), foxtail chess (*Bromus madritensis* ssp. *rubens*), selloa pampas grass (*Cortaderia selloana*), Italian ryegrass (*Lolium multiflorum*), fountain grass and Mexican fan palm (*Washingtonia robusta*) (U.S. Navy 2011b).



Figure 5-11: Special Status Species at Admiral Hartman



Source: ESRI StreetMap USA 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-12: Invasive Species at Admiral Hartman

5.1.6.4 Beech Street Knolls Housing Area

Topography, Geology and Seismicity

Beech Street Knolls is located within the City of San Diego, in the community of South Park, where Beech Street ends to the east.

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Grinding of the plates, past volcanic activity, and weathering processes have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006b). Seismic structures in close proximity include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

Water Resources

No surface water resources occur within the Beech Street Knolls housing area.

Soils

Mapped soil types for Beech Street Knolls include the following (see **Figure 5-13**) (U.S. Navy 2011b):

- **Redding-Urban land complex (RhC).** This soil mapping unit occurs on approximately 72 percent of Beech Street Knolls. This soil has slopes from two to nine percent. This soil is found on marine terraces between 200 to 500 feet. The landscape has been altered through cut-and-fill operations and leveled for construction of buildings. The material exposed is cobbly hardpan; the fill is a mixture of cobbly and gravelly loam and clay. Between the leveled sites are moderately steep escarpments that are easily eroded (NRCS 2011).
- **Terrace escarpment (TeF).** This soil mapping unit occurs on approximately 28 percent of Beech Street Knolls. Terrace escarpments consist of steep to very steep escarpments, and occur on the nearly even fronts of terraces or alluvial fans. In most places there is four to ten inches of loamy or gravelly soil over soft marine sandstone, shale or gravelly sediments (NRCS 2011).

Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy. All water used by Beech Street Knolls housing is supplied by the City of San Diego.

Terrestrial Habitat

The Beech Street Knolls housing area is one of four sites within NBPL that has open space with native vegetation. Open space exists on three acres of the Beech Street Knolls site around the perimeter of the

housing area. Forty-three plant species were found within Beech Street Knolls open space during the 2009 natural resources inventory. Of those species, 20 are native species (U.S. Navy 2011b).

The open space area along the northern portion has a high presence of acacia and eucalyptus, with brome, wild oat and mustard. There are two small patches of coastal sage scrub found in the open space: near the northern edge dominated by lemonadeberry and scrub oak (*Quercus berberidifolia*); and in the southeastern corner where California adolphia (*Adolphia californica*) and California sagebrush are dominates (U.S. Navy 2011b).

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. No wetlands or other waters of the United States occur within the Beech Street Knolls housing area and it does not occur within a floodplain (U.S. Navy 2011b).

There is no federal designated critical habitat for any of the listed species in the NBPL housing areas.

A portion of the open space within the Beech Street Knolls housing area parcel is within the San Diego MSCP MHPA, and the parcel is surrounded on the north and east by dedicated preserved portions of the MHPA. This relatively small segment of the MHPA preserve comprises a northwest arm of the largely urbanized Chollas Valley. The valley is drained by Chollas Creek, which empties into San Diego Bay.

Vegetation

Beech Street Knolls supports ornamental vegetation typical of residential landscaping in addition to native and nonnative species (see **Figure 5-14**).

Native flora species observed during surveys include: laurel sumac, lemonadeberry, California sagebrush, San Diego sagewort, mulefat, common encelia, cudweed (*Gnaphalium* sp.), big coast prickly-pear (*Opuntia oricola*), chaparral honeysuckle (*Lonicera interrupta*), California broom (*Lotus scoparius*), scrub oak, chaparral mallow (*Malacothamnus fasciculatus*), low bush monkey flower (*Mimulus aurantiacus*), pipestems (*Clematis lasiantha*), California adolphia, chamise, toyon (*Heteromeles arbutifolia*), red willow, nightshade (*Solanum americanum*), Mohave yucca (*Yucca shidigera*), and fescue (*Festuca* sp.) (U.S.Navy 2011b).

Nonnative vegetation within the Beech Street Knolls open space area includes: Brazilian pepper tree, thistle (*Cirsium* spp.), common sow thistle, acacia, red eye acacia (*Acacia cyclops*), sourclover, filaree (*Erodium* sp.), pin-clover (*Erodium botrys*), horehound (*Marrubium vulgare*), scarlet pimpernel (*Anagallis arvensis*), pittosporum (*Pittosporum* sp.), and smooth brome (U.S. Navy 2011b).

One rare plant species was observed in the open space. Approximately 100 California adolphia plants were found in the southeastern corner of the housing area, which is part of a larger community of California sagebrush and California adolphia that surrounds the housing area.

Wildlife

No mammalian species were observed on Beech Street Knolls during the 2009 natural resources survey (U.S. Navy 2011b). However, desert cottontail and California ground squirrels could be expected to utilize portions of the open space area (U.S. Navy 2006b). One sensitive mammalian species, the northwestern San Diego pocket mouse, has low to moderate potential to occur in the open space area. The San Diego woodrat has a low potential to occur (U.S. Navy 2006b).



Source: ESRI StreetMap USA 2007, Bing Maps Aerial 2010; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-13: Soils at Beech Street Knolls

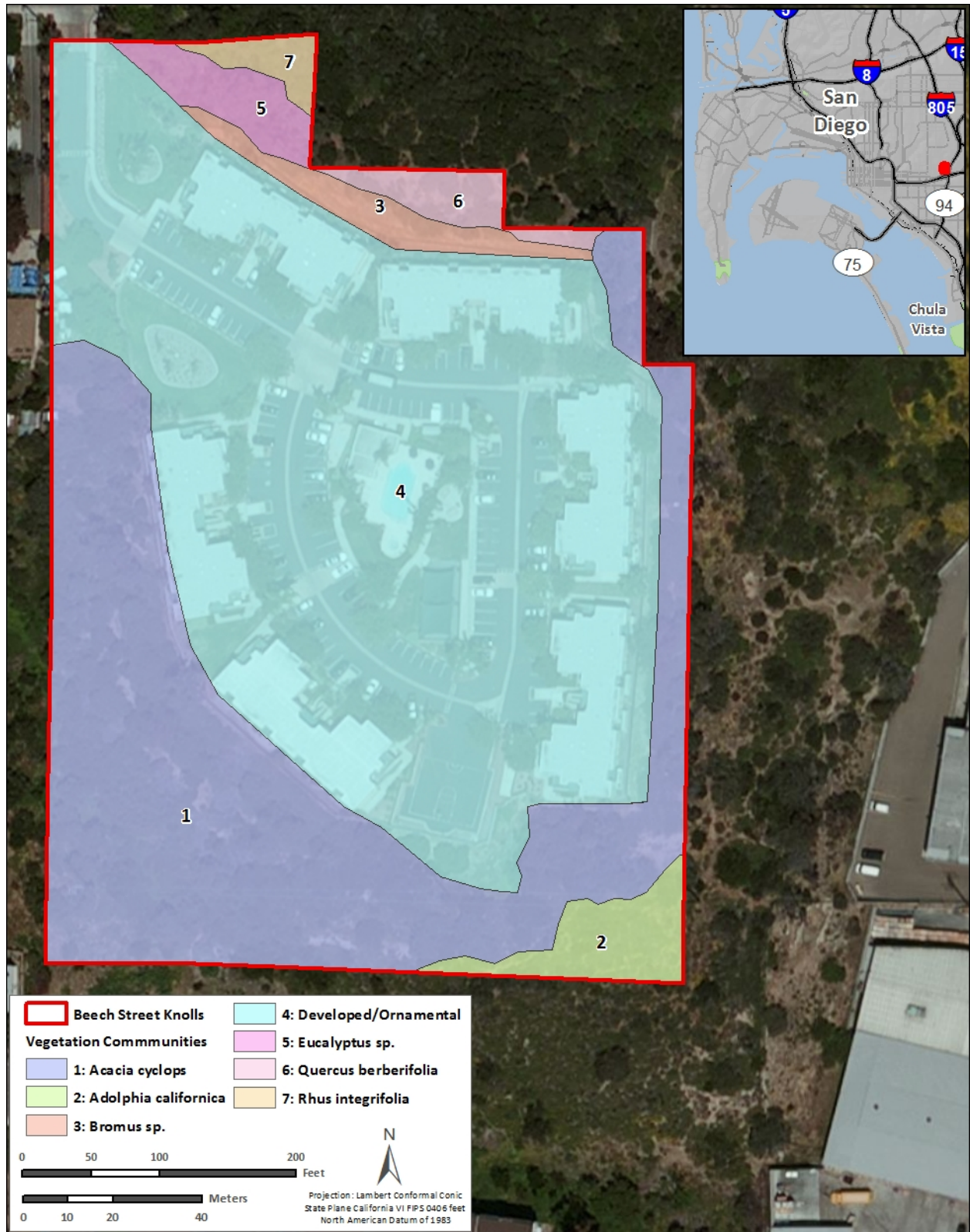


Figure 5-14: Vegetative Communities at Beach Street Knolls

Native bird species observed within the Beech Street Knolls housing area during the 2009 natural resources inventory include: Great Blue Heron, Green Heron, Snowy Egret, Killdeer, Mourning Dove, Anna's Hummingbird, Common Raven, and Northern Mockingbird. The House Sparrow, a nonnative species, was also observed (U.S. Navy 2011b).

One reptile species, the western fence lizard, was documented in the Beech Street Knolls housing area during the 2009 natural resources inventory.

No amphibian species were observed on site.

There were a total of thirteen invertebrate species observed in the Beech Street Knolls housing area during the 2009 survey including: paralid moths, leaf beetles (Family Chrysomelidae), dermestid beetles (Family Dermestidae), spittlebugs (Family Cercopidae), aphids (Family Aphididae), long-legged flies, house flies, Argentine ants, true wasps (Family Vespidae), sphecid wasps and honey bees (U.S. Navy 2011b).

Special Status Species

There is a low potential for the following special status avian species to occur at the Beech Street Knolls housing area: Coastal California Gnatcatcher, Southern California Rufous-crowned Sparrow, Peregrine Falcon, Loggerhead Shrike, and Bell's Sage Sparrow. Sharp-shinned Hawks have potential to occur in this area (U.S. Navy 2011b).

There is a low potential for the following special status reptile species to occur based on marginally suitable habitat: Belding's orange-throated whiptail, coast horned lizard, Coronado skink, coast patch nosed snake, and red diamond rattlesnake (U.S. Navy 2011b).

The plants that comprise Rank 2 are rare, threatened or endangered in California but more common elsewhere. Except for being common beyond the boundaries of California, the plants of Rank 2 would have appeared on Rank 1B. From the federal perspective, plants common in other states or countries are not eligible for consideration under the provisions of the ESA. All of the plants constituting Rank 2 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing (CNPS 2010).

Coastal California Gnatcatcher



Coastal California Gnatcatcher
Credit: U.S. Fish and Wildlife Service

The Coastal California Gnatcatcher is a federally threatened species and a CDFG species of special concern. The Coastal California Gnatcatcher is a small, slate-colored bird with a long, black tail that is edged and tipped with white, which it flicks erratically as it perches. The bird has a distinct kitten-like mewing call, which distinguishes the California Gnatcatcher from the Black-tailed Gnatcatcher. During the breeding season, the male develops a black cap that distinguishes it from the female. The Coastal California Gnatcatcher is a non-migratory songbird found on the coastal slopes of southern California. It ranges from Ventura County south to northwest Baja California, Mexico. The breeding season of the Coastal California Gnatcatcher extends from late February through August with the peak of nesting occurring from mid-March through mid-May.

The breeding territory size of the Coastal California Gnatcatcher ranges from 2 to 14 acres, with home

ranges expanding from 13 to 39 acres during the non-breeding season. Nest parasitism by Brown-headed Cowbirds has been documented. Typically, there is a high rate of nest failure each breeding season. This is offset by rapid and persistent re-nesting efforts; a breeding pair may attempt to nest as many as ten times in a year, producing up to three successful broods in a season. There is evidence that this bird is also susceptible to nest predation by various animals such as snakes, coyotes, fox, rodents, and other birds, such as Western Scrub-jays (U.S. Navy 2011b).

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. There is a low potential for the Coastal California Gnatcatcher to occur in the open space surrounding Beech Street Knolls due to a small area of potentially suitable habitat. This species has been documented north of the site but was not detected during the 2009 natural resources inventory (U.S. Navy 2011b).

California adolphia

California adolphia, a California Rare Plant Rank 2 species, is shrub native to coastal San Diego County and Baja California, Mexico. It is found in chaparral, coastal sage scrub and grassland. The Sierra Club of San Diego (Sierra Club 2010) has recorded observations of this species at multiple locations within San Diego County; including some near Spring Valley and North Park and a few at Los Penasquitos Canyon, Otay Mesa and Mt. Soledad. The main threat for this species is urban development into native environments. Healthy populations are still present in San Diego County, and in some areas it is the dominant shrub. However, these populations are vulnerable and should be protected whenever possible (U.S. Navy 2011b).



California adolphia

Credit: Robert Lavmon CNPS

California adolphia was observed in the Beech Street Knolls open space area (see **Figure 5-15**).

Invasive and Exotic Species

Invasive plant species cover an area totaling 2.3 acres in the Beech Street Knolls housing and open space areas (see **Figure 5-16**) (U.S. Navy 2011b). Nonnative invasive flora includes: hottentot fig, black mustard, eucalyptus, wild oat (*Avena fatua*), ripgut grass, foxtail chess, seloa pampas grass, tocolote, short pod mustard (*Hirschfeldia incana*), and Mexican fan palm (U.S. Navy 2011b).



Source: ESRI StreetMap USA 2007; Imagery (i-cubed), Copyright: © 2010 i-cubed; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-15: Special Status Species at Beech Street Knolls

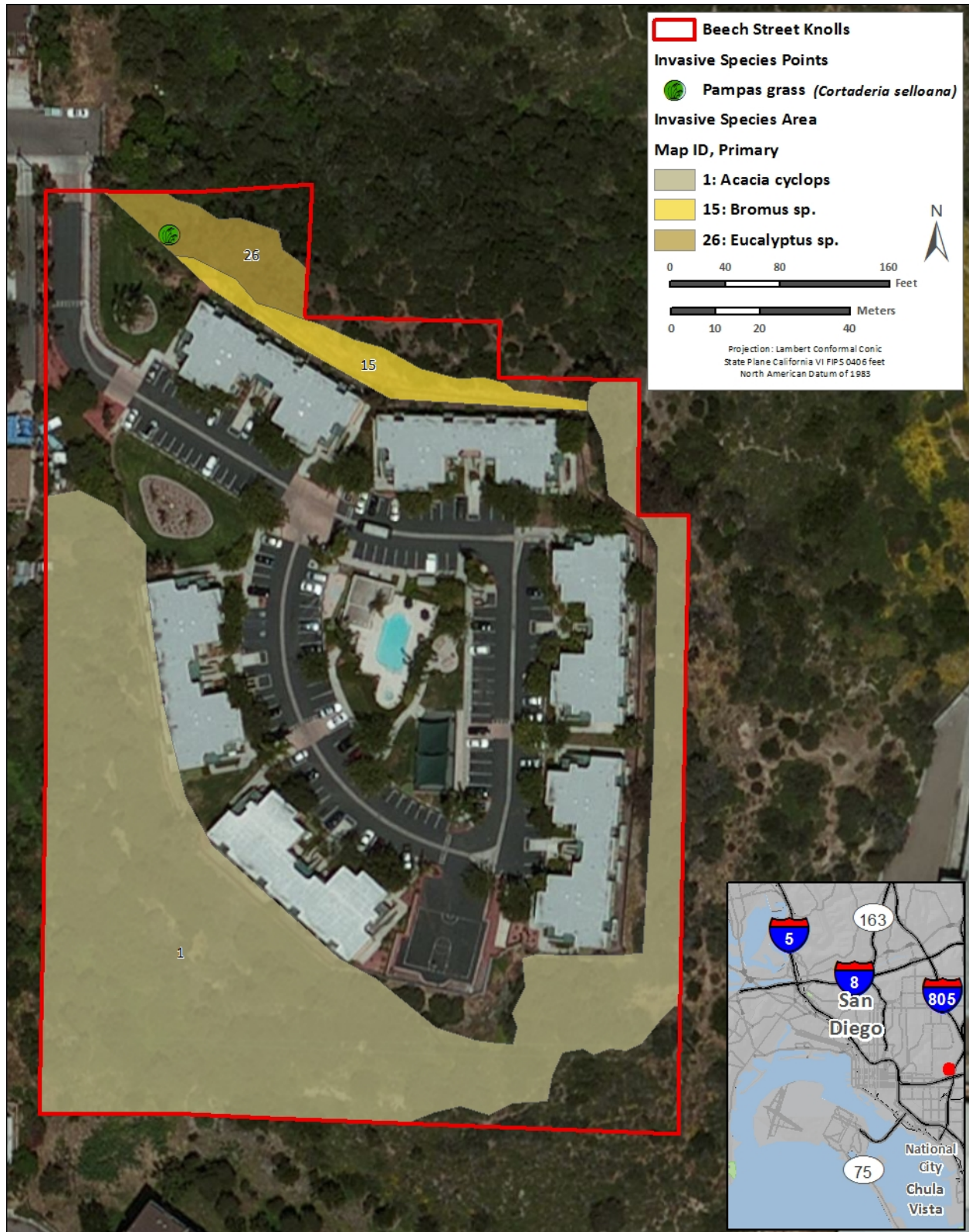


Figure 5-16: Invasive Species at Beech Street Knolls

5.1.6.5 Chesterton Housing Area

Topography, Geology and Seismicity

The Chesterton housing area is located within the City of San Diego in the community of Linda Vista west of 163 and Interstate 805. The canyon on the northern perimeter of the housing complex is an arm of Tecolote Canyon which has been separated from the main canyon by Genesee Avenue. San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Grinding of the plates, earthquakes, past volcanic activity and weathering processes have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006b). Seismic structures in close proximity include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand (see **Figure 5-3**). The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

Water Resources

This area contains one USGS blue-line stream, an unnamed tributary of the Tecolote Creek. Water enters the creek from precipitation and as runoff from the developed area, and drains into a culvert at the western end of the site (U.S. Navy 2011b).

Soils

The NRCS mapped three soil types on Chesterton housing area (NRCS 2011) that consist of the following (see **Figure 5-17**):

- ***Chesterton fine sandy loam (CifB)***. This soil mapping unit occurs on approximately 0.1 percent of Chesterton. This soil has slopes from 2 to 5 percent. The Chesterton series are moderately well-drained, very slowly permeable soils on uplifted marine sediments and old terraces. They are gently sloping to moderately steep. These soils are moderately well-drained, have slow to medium runoff and very slow permeability. The duripan is probably impervious in places (NRCS 2011).
- ***Chesterton-Urban land complex (HgC)***. This soil mapping unit occurs on approximately 95.3 percent of Chesterton. This soil has slopes from 2 to 9 percent.
- ***Terrace escarpments (TeF)***. This soil mapping unit occurs on approximately 4.7 percent of Chesterton. This soil type is generally steep to very steep.

Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy. All water used by Chesterton housing is supplied by the City of San Diego.



Source: ESRI StreetMap USA, 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-17: Soils at Chesterton

Terrestrial Habitat

The Chesterton housing area is one of four sites within NBPL housing units that has open space with native vegetation. Open space exists on eleven acres of the Chesterton site in a sloped canyon along the northern boundary of the site. Seventy-two plant species were found within the Chesterton open space during the 2009 natural resources inventory. Of those species, thirty-nine are native species (U.S. Navy 2011b).

The open space in the housing area contains several vegetation communities including patches of coastal sage scrub, nonnative vegetation and nonnative grassland along the slopes, with riparian/ wetland and nonnative vegetation at the bottom of the canyon (see **Figure 5-18**). The northeastern slopes consist of patches of native vegetation including laurel sumac, California buckwheat and a large amount of weedy species. The north facing slopes range from herbaceous weedy vegetation on shallow slopes to scrub oak, lemonadeberry, laurel sumac and eucalyptus on steep slopes. South facing slopes in the western end contain coastal sage scrub dominated by California buckwheat, California sagebrush and a patch of cane bluestem (*Bothriochloa barbinodis*). The area adjacent to the housing area boundary walls in the south are dominated by nonnative species such as hottentot-fig, bromes, wild oats, rat-tail fescue (*Vulpia myuros* var. *hirsuta*), tocolote and short pod mustard.

The vegetation cover in the drainage area at the bottom of the canyon includes patches of riparian trees and shrubs such as mule fat, willow, Mexican fan palm, Brazilian pepper tree, eucalyptus and pampas grass (U.S. Navy 2011b).

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. The Chesterton housing area has 0.78 total acres of wetland, and 0.02 acres of other jurisdictional waters of the U.S. Chesterton is not located within a floodplain (see **Figure 5-19**) (U.S. Navy 2011b).

There is no federal designated critical habitat for the listed species on NBPL (U.S. Navy 2011b).

Portions of the open space within the Chesterton housing area parcel are within the San Diego MSCP MHPA, and the Chesterton housing area is just beyond the eastern extent of a preserved portion of the MHPA. Open space in the northwest portion of the Chesterton parcel is connected to open space in an adjacent parcel with dedicated preserved portions of the MHPA. This preserved portion of the MHPA is the eastern-most segment of a relatively large, though somewhat discontinuous, section of MHPA preserve that continues on the west side of Genesee Avenue. These MHPA areas are intended to preserve Tecolote Canyon, a relatively undeveloped canyon and its drainage, Tecolote Creek, which empties into Mission Bay.

Vegetation

Chesterton supports ornamental vegetation typical of residential landscaping (U.S. Navy 2011b). Native flora species observed during surveys include: bigelow spike moss (*Selaginella* sp.), laurel sumac, lemonadeberry, western poison oak (*Toxicodendron diversilobum*), western ragweed, California sagebrush, mulefat, broom baccharis, California aster (*Corethrogyne filaginifolia*), golden tarplant (*Deindra fasciculata*), bicolored cudweed (*Gnaphalium bicolor*), white everlasting (*Gnaphalium canescens* ssp. *microcephalum*), telegraph weed (*Heterotheca grandiflora*), odora (*Porophyllum gracile*), stephanomeria (*Stephanomeria* sp.), felt leaved yerba santa (*Eriodictyon crassifolium*), bladderpod (*Isomeris arborea*), wild honeysuckle, finger-leaf morning glory (*Calystegia macrostegia* ssp. *arida*),

dodder, wild cucumber (*Marah macrocarpus*), dove weed (*Croton setigerus*), California broom, scrub oak, Nuttall's scrub oak (*Quercus dumosa* Nutt.), black sage, chaparral mallow, wishbone bush (*Mirabilis laevis*), low bush monkeyflower, fringed spineflower, California buckwheat, willow dock (*Rumex salicifolius*), chamise, toyon, red willow, arroyo willow, melic grass (*Melica frutescens*) and knotgrass (*Paspalum distichum*) (U.S. Navy 2011b).

Nonnative vegetation within the Chesterton open space area includes: Russian thistle (*Salsola tragus*), Brazilian pepper tree, fennel, Italian thistle (*Carduus pycnocephalus*), tocolote, flax-leaf fleabane (*Conyza bonariensis*), crown daisy, common sow thistle, black mustard, short pod mustard, radish, jade plant (*Crassula argentea*), spotted spurge (*Chamaesyce maculata*), castor bean, red eye acacia, white sweet clover (*Melilotus albus*), sourclover, common olive (*Olea europaea*), Canary Island date palm, Washington palm, century plant (*Agave americana*), weed mariposa (*Calochortus weedii* var. *weedii*), giant reed (*Arundo donax*), slender wild oat, ripgut grass, smooth brome (*Bromus hordeaceus*), foxtail chess, pampas grass, seloa pampas grass, wild barley (*Hordeum brachyantherum*), Italian ryegrass, fountain grass, natal grass and rattail fescue (U.S. Navy 2011b). Hydrophytic vegetation in the tributary includes: red willow, arroyo willow, Mexican fan palms, Brazilian pepper tree and western ragweed.

Wildlife

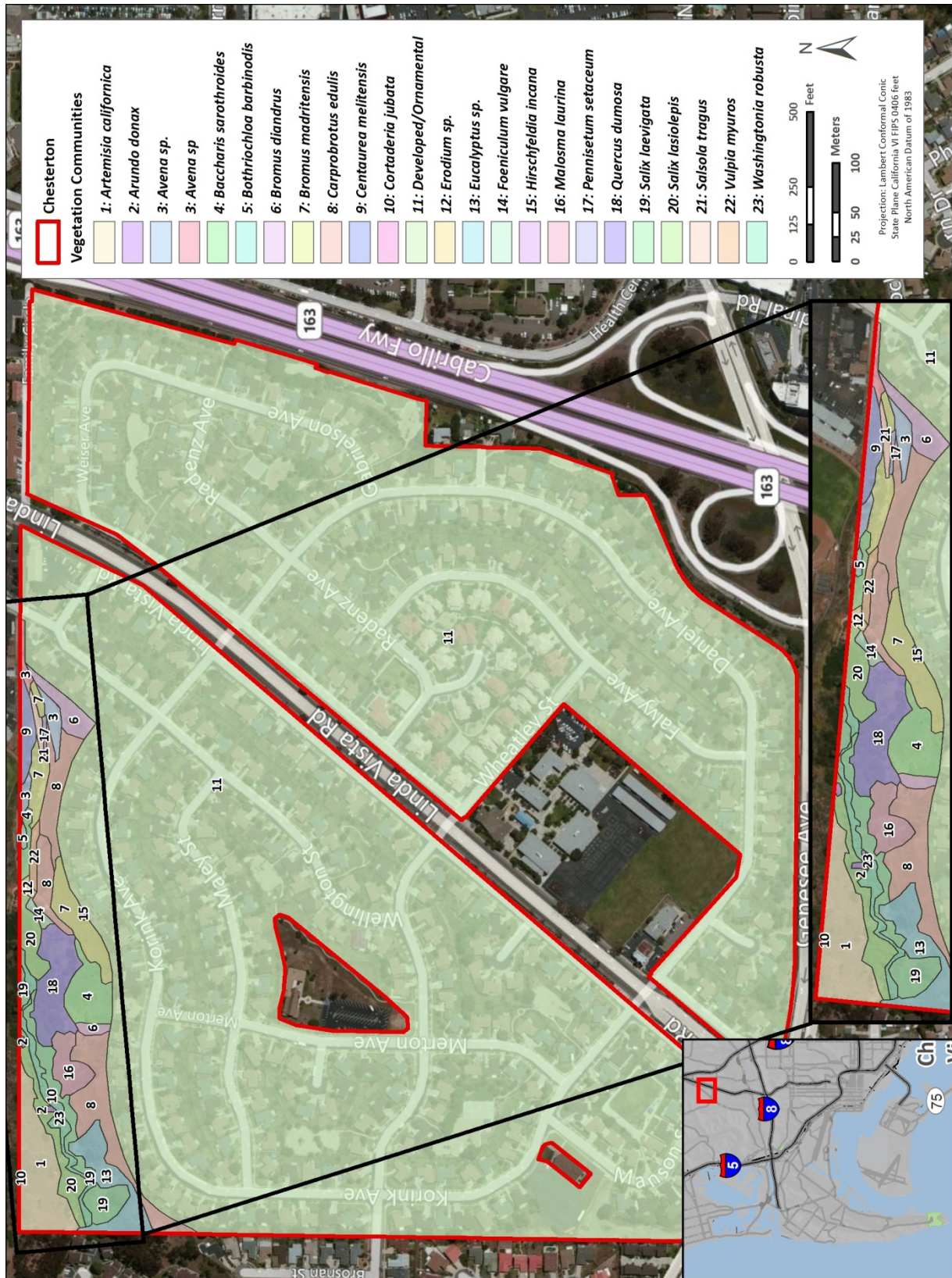
No mammalian species were observed on Chesterton during the 2009 natural resources survey, however survey methods did not include trapping (U.S. Navy 2011b). However, desert cottontail and California ground squirrels could be expected to utilize portions of the open space area (U.S. Navy 2006b). One sensitive mammalian species, the northwestern San Diego pocket mouse, has low to moderate potential to occur in the open space area. The sensitive San Diego woodrat has a high potential to occur here due to the presence of woodrat nests (species unknown) (U.S. Navy 2006b).

Native bird species observed within the Chesterton housing area during the 2009 natural resources inventory include: Red-shouldered Hawk, Mourning Dove, Anna's Hummingbird, California Quail, Nuttall's Woodpecker, Cassin's Kingbird, Western Scrub-jay, American Crow, Common Raven, Cliff Swallow, Bewick's Wren (*Thryomanes bewickii*), Wrentit (*Chamaea fasciata*), Northern Mockingbird, Common Yellowthroat (*Geothlypis trichas*), California Towhee, Spotted Towhee, Song Sparrow, Black Headed Grosbeak (*Pheucticus melanocephalus*), Lesser Goldfinch and House Finch (U.S. Navy 2011b).

No amphibians were observed on site. There were a total of 25 invertebrate species observed in the Chesterton housing area, including: Sara orangetip butterfly (*Anthocharis sara*), orange sulphur butterfly (*Colias eurytheme*), checkered white butterfly, acmon blue butterfly, mourning cloak butterfly (*Nymphalis antiopa antiopa*), water striders, weevils (Family Curculionidae), jewel beetles (Family Buprestidae), leafhoppers (Family Cicadellidae), skimmers, narrow-winged damselflies (Family Coenagrionidae), shorthorn grasshoppers (Family Acrididae), house flies and bee flies (Family Bombyliidae), fungus gnats (Family Mycetophilidae), Argentine ants, yellow-faced bees (Family Colletidae), leafcutting bees (Family Megachilidae), sphecid wasps, sweat bees, and honey bees (U.S. Navy 2011b).

Special Status Species

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. Coastal California Gnatcatchers were observed in the northwestern portion of the open space area at three locations during focused surveys in both the breeding and non-breeding seasons. Two birds were observed together on the north slope of the canyon, and two other individuals were observed on two different days up the slope (see **Figure 5-20**) (U.S. Navy 2011b).



Source: ESRI StreetMap USA, 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references. (See GIS Reference List).

Figure 5-18: Vegetative Communities at Chesterton

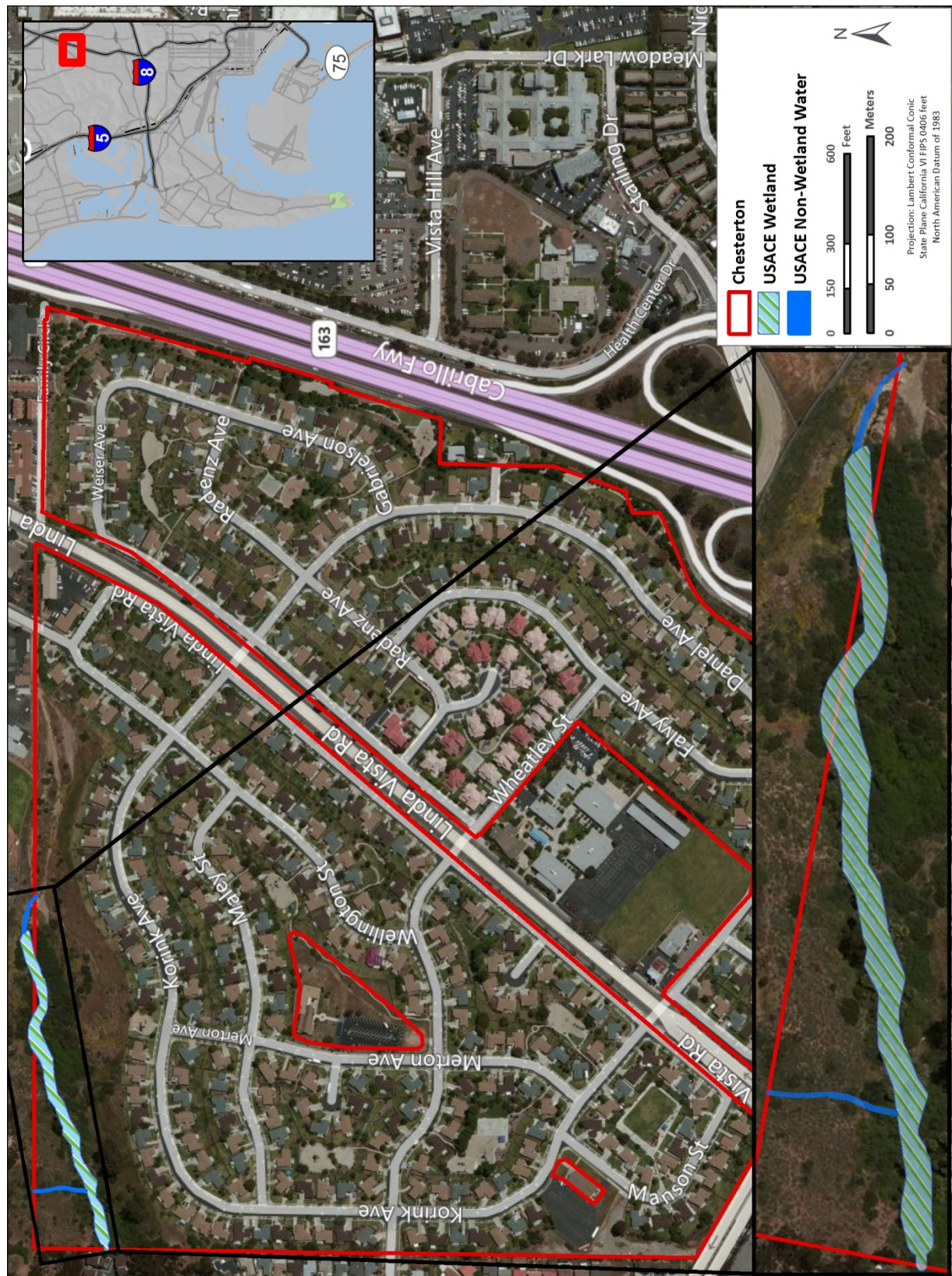


Figure 5-19: Wetlands and non-Wetland Waters of the United States on Chesterton

There is a low potential for the following avian species to occur at the Chesterton housing area: Least Bell's Vireo, Yellow-rumped Warbler, Yellow Breasted Chat, Southern California Rufous-crowned Sparrow, Peregrine Falcon, Loggerhead Shrike, and Bell's Sage Sparrow. Sharp-shinned Hawks have the potential to occur in this area (U.S. Navy 2011b).

One sensitive reptile species, the Belding's orange-throated whiptail, a California Species of Special Concern and a subspecies of the orange-throated whiptail was documented in the Chesterton housing area during the 2009 natural resources inventory. There is a low potential for other sensitive reptile species to occur based on marginally suitable habitat: coast horned lizard, Coronado skink, coast patch nosed snake and red diamond rattlesnake (U.S. Navy 2011b).

Two rare plant species were found within the Chesterton housing area. Thirteen San Diego barrel cacti (*Ferocactus viridescens*) were found in the northwestern portion of the open space, located on a north-facing slope. Also present was a stand of Nuttall's scrub oak, located near the northern boundary of the site (see **Figure 5-21**).

San Diego barrel cactus

The San Diego barrel cactus, a California Rare Plant Rank 2 species, is a stem succulent native to San Diego County and Baja California, Mexico. It is found in association with coastal sage scrub, grasslands and edges of vernal pool complexes. San Diego barrel cactus is listed by CNPS at a 2.1 status indicating that it is rare, threatened or endangered in California but more common elsewhere, and seriously endangered in California. This species can still be found at many locations in San Diego County, with the largest extant population at Otay Mesa. Once very common on the coast, development has caused this species to decline rapidly (U.S. Navy 2011b). All populations should be protected.



San Diego barrel cactus
Credit: Deborah Leonard

Nuttall's scrub oak

Nuttall's scrub oak is a California Rare Plant Rank 1B species. This evergreen shrub in the oak family (Fagaceae) grows less than ten feet tall and blooms from February to April. This species is found near the coast in Santa Barbara, Orange and San Diego Counties and in Baja California, Mexico at elevations below 1,300 feet. It grows in chaparral, coastal sage scrub, and closed-cone coniferous forest habitats in sandy clay loam (U.S. Navy 2011b). It prefers coastal chaparral with a relatively open canopy in flat areas, but grows in dense stands on north-facing slopes. In San Diego County, it is known to grow as far inland as Camp Elliot and Otay Mesa, being replaced by the similar scrub oak (*Q. berberidifolia*) in higher, drier locations. Nuttall's scrub oaks can be distinguished from the scrub oak by its acorn, which is less than 0.4 inches wide and moderately tubercled, with a thin cup, and by its leaves, which tend to be smaller, spinier, and more undulated with densely matted gray hairs (U.S. Navy 2011b).

Invasive and Exotic Species

Invasive plant species cover an area totaling six acres in the Chesterton housing and open space areas (see **Figure 5-22**) (U.S. Navy 2011b). Sixteen of the nonnative species found are considered invasive exotic, including giant reed, slender wild oat, black mustard, ripgut grass, foxtail chess, Italian thistle, hottentot fig, tocolote, seloa pampas grass, jubata grass, fennel, short pod mustard, wild barley, Italian ryegrass, fountain grass, tamarisk and Mexican fan palm. Pampas grass, Mexican fan palm and giant reed were also observed in the bottom of the canyon (U.S. Navy 2011b).



Source: ESRI StreetMap USA, 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-20: Special Status Species (Wildlife) at Chesterton

(Note: Coastal California Gnatcatcher sightings likely represent same individual/pair observed on different days.)



Source: ESRI, StreetMap USA, 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers, Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-21: Special Status Species (Plants) on Chesterton



Source: ESRI, StreetMap, USA, 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references. [See GIS Reference List].

Figure 5-22: Invasive Species at Chesterton

5.1.6.6 Gateway Village Housing Area

Topography, Geology and Seismicity

The Gateway Village housing area is located within the City of San Diego in the community of Point Loma, adjacent to Rosecrans Street and Barnett Avenue.

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Grinding of the plates, earthquakes, past volcanic activity, and weathering processes have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006b). Seismic structures in close proximity include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

Water Resources

There are no naturally occurring streams or other watercourses within the Gateway Village housing area (MCAS Miramar 2006). Site drainage on Gateway Village is controlled by a series of collection basins and stormwater drainages that discharge into San Diego Bay or the Pacific Ocean.

Soils

Underlying the Gateway Village housing area, soils are comprised of Urban land (NRCS 2011). Urban land consists of closely built up areas in cities. This soil has been so altered by urban works that identification of the original soil type is not possible (NRCS 2011).

Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy. All water used by Gateway Village housing is supplied by the City of San Diego.

Terrestrial Habitat

The Gateway Village housing area supports ornamental vegetation typical of residential landscaping and is mapped as Developed/Ornamental (U.S. Navy 2011b, MCAS Miramar 2006). The Gateway Village housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees.

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. No wetlands or other waters of the United States occur within the Gateway Village housing area.

There is no critical habitat for any of the listed species in the NBPL housing areas.

Vegetation

The Gateway Village housing area is characterized by turf grass lawns and landscaped areas are comprised of several planted ornamental trees typical of residential landscaping (MCAS Miramar 2006).

Wildlife

No mammalian species were observed on Gateway Village during the 2009 natural resources survey (U.S. Navy 2011b).

Native bird species observed within the Gateway Village housing area during the 2009 natural resources inventory include: Great Blue Heron, Black Phoebe and House Finch. One non-native species, the House Sparrow, was observed during the surveys (U.S. Navy 2011b).

No reptiles or amphibians were documented in the Gateway Village housing area during the 2009 natural resources inventory (U.S. Navy 2011b).

Special Status Species

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. No special status species were observed on the Gateway Village housing area during the 2009 survey (U.S. Navy 2011b).

Invasive and Exotic Species

No invasive species were identified at the Gateway Village housing area during the 2009 survey (U.S. Navy 2011b).

5.1.6.7 Mira Mesa Ridge Housing Area

Topography, Geology and Seismicity

The Mira Mesa Ridge housing area is located within the City of San Diego in the community of Mira Mesa, west of Interstate 15.

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Grinding of the plates, earthquakes, past volcanic activity, and weathering processes have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006b). Seismic structures in close proximity include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

Water Resources

There are no naturally occurring streams or other watercourses within the Mira Mesa Ridge housing area (U.S. Navy 2011b). Site drainage on Mira Mesa Ridge is controlled by a series of collection basins and stormwater drainages that eventually discharge into San Diego Bay or the Pacific Ocean.

Soils

The NRCS mapped two soil types in Mira Mesa Ridge housing area (see **Figure 5-23**) (NRCS 2011). Soils in the Mira Mesa Ridge housing area consist of:

- **Redding gravelly loam (RdC).** Approximately 7.4 percent of the Mira Mesa Ridge housing area is composed of Marina loamy coarse sands, with two to nine percent slopes.
- **Redding cobbly loam (ReE).** Approximately 92.6 percent of the Mira Mesa Ridge housing area is composed of Marina loamy coarse sands, with nine to thirty percent slopes.

Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy. All water used by Mira Mesa Ridge housing is supplied by the City of San Diego.

Terrestrial Habitat

The Mira Mesa Ridge housing area supports ornamental vegetation typical of residential landscaping and is mapped as Developed/Ornamental (U.S. Navy 2011b). The Mira Mesa Ridge housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees.

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. No wetlands or other waters of the United States occur within the Mira Mesa Ridge housing area, and the Mira Mesa Ridge housing area does not occur within a floodplain (U.S. Navy 2011b).

There is no critical habitat for any of the listed species in Mira Mesa Ridge housing areas.

Vegetation

The Mira Mesa Ridge housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees typical of residential landscaping (U.S. Navy 2011b).



Figure 5-23: Soils at Mira Mesa Ridge

Wildlife

No mammalian species were observed on Mira Mesa Ridge during the 2009 natural resources survey (U.S. Navy 2011b).

No native or non-native bird species were observed within the Mira Mesa Ridge housing area during the 2009 natural resources inventory (U.S. Navy 2011b).

No reptiles or amphibians were documented in the Mira Mesa Ridge housing area during the 2009 natural resources inventory (U.S. Navy 2011b).

Special Status Species

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. No special status species were observed on the Mira Mesa Ridge housing area during the 2009 survey (U.S. Navy 2011b).

Invasive and Exotic Species

No invasive species were identified at the Mira Mesa Ridge housing area during the 2009 survey (U.S. Navy 2011b).

5.1.6.8 Park Summit Housing Area

Topography, Geology and Seismicity

The Park Summit housing area is located within the City of San Diego, in the community of Hillcrest at the corner of University Avenue and Florida Street.

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Grinding of the plates, earthquakes, past volcanic activity, and weathering processes have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006b). Seismic structures in close proximity include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

Water Resources

There are no naturally occurring streams or other watercourses within the Park Summit housing area (U.S. Navy 2011b). Site drainage on Park Summit is controlled by a series of collection basins and stormwater drainages that discharge into San Diego Bay or the Pacific Ocean.

Soils

The soil mapping unit underlying the Park Summit housing area is the Redding-Urban land complex (RhE), nine to thirty percent slopes (NRCS 2011).

Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy. All water used by Park Summit housing is supplied by the City of San Diego.

Terrestrial Habitat

The Park Summit housing area supports ornamental vegetation typical of residential landscaping and is mapped as Developed/Ornamental (U.S. Navy 2011b). The Park Summit housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees.

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. No wetlands or other waters of the United States occur within the Park Summit housing area, and the Mira Mesa Ridge housing area does not occur within a floodplain (U.S. Navy 2011b).

There is no critical habitat for the listed species in the NBPL housing areas.

Vegetation

The Park Summit housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees typical of residential landscaping (U.S. Navy 2011b).

Wildlife

No mammalian species were observed on Park Summit during the 2009 natural resources survey (U.S. Navy 2011b).

Bird species observed in the Park Summit housing area during the 2009 natural resources inventory include the Mourning Dove and Common Raven (U.S. Navy 2011b).

No reptiles or amphibians were documented in the Park Summit housing area during the 2009 natural resources inventory (U.S. Navy 2011b).

Special Status Species

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. No special status species were observed on the Park Summit housing area during the 2009 survey (U.S. Navy 2011b).

Invasive and Exotic Species

No invasive species were identified at the Park Summit housing area during the 2009 survey (U.S. Navy 2011b).

5.1.6.9 Villages at Naval Training Center Housing Area

Topography, Geology and Seismicity

The Villages at Naval Training Center consist of three separate housing areas that are located within the City of San Diego in the community of Point Loma. The largest of the three housing areas is located between Rosecrans Street to the west and the San Diego Bay to the east. There are two much smaller housing areas located across a channel in the San Diego Bay, north of Harbor Drive.

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Grinding of the plates, earthquakes, past volcanic activity, and weathering processes, have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006b). Seismic structures running close by include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

Water Resources

There are no naturally occurring streams or other watercourses within the Villages at Naval Training Center housing area (U.S. Navy 2011b). Site drainage on the Villages at Naval Training Center is controlled by a series of collection basins and stormwater drainages that discharge into San Diego Bay.

Soils

The soil mapping unit underlying the Villages at Naval Training Center housing area is Urban land (NRCS 2011).

Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy. All water used by the Villages at Naval Training Center housing is supplied by the City of San Diego.

Terrestrial Habitat

The Villages at Naval Training Center housing area supports ornamental vegetation typical of residential landscaping and it is mapped as Developed/Ornamental (U.S. Navy 2011b). The Villages at Naval Training Center housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees.

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. No wetlands or other waters of the United States occur within the Villages at Naval Training Center housing area, and they do not occur within a floodplain (U.S. Navy 2011b).

There is no critical habitat for any of the listed species in the NBPL housing areas.

Vegetation

The Villages at Naval Training Center housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees typical of residential landscaping (U.S. Navy 2011b).

Wildlife

No mammalian species were observed on Villages at Naval Training Center during the 2009 natural resources survey (U.S. Navy 2011b).

Native bird species that were observed in the Villages at Naval Training Center housing area during the 2009 natural resources inventory include: California Gull (*Larus californicus*), Common Raven and House Finch (U.S. Navy 2011b).

No reptiles or amphibians were documented in the Villages at Naval Training Center housing area during the 2009 natural resources inventory (U.S. Navy 2011b).

Special Status Species

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. No special status species were observed on the Villages at Naval Training Center housing area during the 2009 survey (U.S. Navy 2011b).

Invasive and Exotic Species

No invasive species were identified at the Villages at Naval Training Center housing area during the 2009 survey (U.S. Navy 2011b).

5.1.6.10 Vista Ridge Housing Area

Topography, Geology and Seismicity

Vista Ridge is located within the City of Vista, north of State Route 78 and east of Melrose Avenue.

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Seismic structures in close proximity include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

Water Resources

There are no naturally occurring streams or other watercourses within the Vista Ridge housing area (U.S. Navy 2011b). Site drainage on Vista Ridge is controlled by a series of collection basins and stormwater drainages that eventually discharge into San Diego Bay or the Pacific Ocean.

Soils

The NRCS mapped two soil types in the Vista Ridge housing area (see **Figure 5-24**) (NRCS 2011). Soils in the Vista Ridge housing area consist of:

- **Fallbrook sandy loam (FaD).** 26.3 percent of the Vista Ridge housing area is composed of Fallbrook sandy loam, with nine to 15 percent slopes. The Fallbrook series consists of deep, well-drained soils that formed in material weathered from granitic rocks. Fallbrook soils are on rolling hills and have slopes of 5 to 75 percent. This soil is well drained, with medium to very rapid runoff and moderately slow permeability (NRCS 2011).
- **Placentia sandy loam (PeC).** 73.6 percent of the Vista Ridge housing area is composed of Placentia sandy loam, with five to nine percent slopes. Placentia soils are nearly level to moderately sloping and are on fans and terraces at elevations of 50 to 2,500 feet. They formed in alluvium from granite and other rocks of similar composition and texture. This soil is well or moderately well drained, has slow to rapid runoff and has very slow permeability (NRCS 2011).

Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy. All water used by Vista Ridge housing is supplied by the Vista Irrigation District. Approximately thirty percent of this water comes from Lake Henshaw in San Diego County and the remaining seventy percent is imported from the Colorado River (Vista 2010).



Figure 5-24: Soils at Vista Ridge

Terrestrial Habitat

The Vista Ridge housing area supports ornamental vegetation typical of residential landscaping and is mapped as Developed/Ornamental (U.S. Navy 2011b). The Vista Ridge housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees.

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. No wetlands or other waters of the United States occur within the Vista Ridge housing area, and the Vista Ridge housing area does not occur within a floodplain (U.S. Navy 2011b).

There is no critical habitat for any of the listed species in the NBPL housing areas.

Vegetation

The Vista Ridge housing area is characterized by turf grass lawns and landscaping with several planted ornamental trees typical of residential landscaping (U.S. Navy 2011b).

Wildlife

No mammalian species were observed on Vista Ridge during the 2009 natural resources survey (U.S. Navy 2011b).

No native bird species were observed within the Vista Ridge housing area during the 2009 natural resources inventory. One non-native bird, the House Sparrow, was observed (U.S. Navy 2011b).

No reptiles or amphibians were documented in the Vista Ridge housing area during the 2009 natural resources inventory (U.S. Navy 2011b).

Special Status Species

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. No special status species were observed on the Vista Ridge housing area during the 2009 survey (U.S. Navy 2011b).

Invasive and Exotic Species

No invasive species were identified at the Vista Ridge housing area during the 2009 natural resources survey (U.S. Navy 2011b).

5.1.6.11 Village at Serra Mesa Housing Area

Topography, Geology and Seismicity

The Village at Serra Mesa housing area is within the City of San Diego limits, in the community of Serra Mesa, with Interstate 805 just to the west.

San Diego County lies almost entirely within the Peninsular Ranges geomorphic province (Burns 1997) and rides atop the Pacific Plate, following a northwesterly path while grinding against the North American Plate. Grinding of the plates, earthquakes, past volcanic activity, and weathering processes have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2006b). Seismic structures in close proximity include the Rose Canyon Fault Branch, which runs north to south along the eastern side of the Silver Strand. The Rose Canyon Fault is considered the most potentially damaging fault in the area (U.S. Navy 2006b) and is believed to have the potential to produce a 7.5 magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times.

Water Resources

Jurisdictional waters within the Village at Serra Mesa drain into Murray Canyon Creek, located west of the housing area. Murray Canyon Creek drains south into Mission Valley and the San Diego River.

Soils

Mapped soil types for the Village at Serra Mesa include the following (see **Figure 5-25**) (NRCS 2011):

- ***Chesterton-Urban land complex (HgC)***. Approximately 71.4 percent of Villages at Serra Mesa are mapped as Chesterton-Urban land complex, two to nine percent slopes. This complex occurs on ridges and in swales between 50 to 400 feet. The landscape has been altered through cut and fill operations and leveled for construction of buildings. The material exposed in the cuts is ferruginous sandstone and iron hardpan, while the fill material consists of fine sandy loam, sandy clay and ferruginous sandstone (NRCS 2011).
- ***Olivenhain cobbly loam (OhE)***. Approximately 1.8 percent of Villages at Serra Mesa are mapped as Olivenhain cobbly loam, nine to thirty percent slopes.
- ***Redding-Urban land complex (RhC)***. Approximately 11 percent of Villages at Serra Mesa are mapped as Redding-Urban land complex, two to nine percent slopes.
- ***Terrace escarpments (TeF)***. Approximately 15.4 percent of the Villages at Serra Mesa consist of Terrace escarpments.

Water and Sediment Quality

All NBPL industrial facilities are subject to requirements contained within the NBPL-specific NPDES permit (Permit CA 0109363) for stormwater. However, construction activities that are greater than 1 acre are subject to requirements in the U.S. Navy statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and it is by way of compliance with such permits that water quality is managed by the U.S. Navy. All water used by Village at Serra Mesa housing is supplied by the City of San Diego.

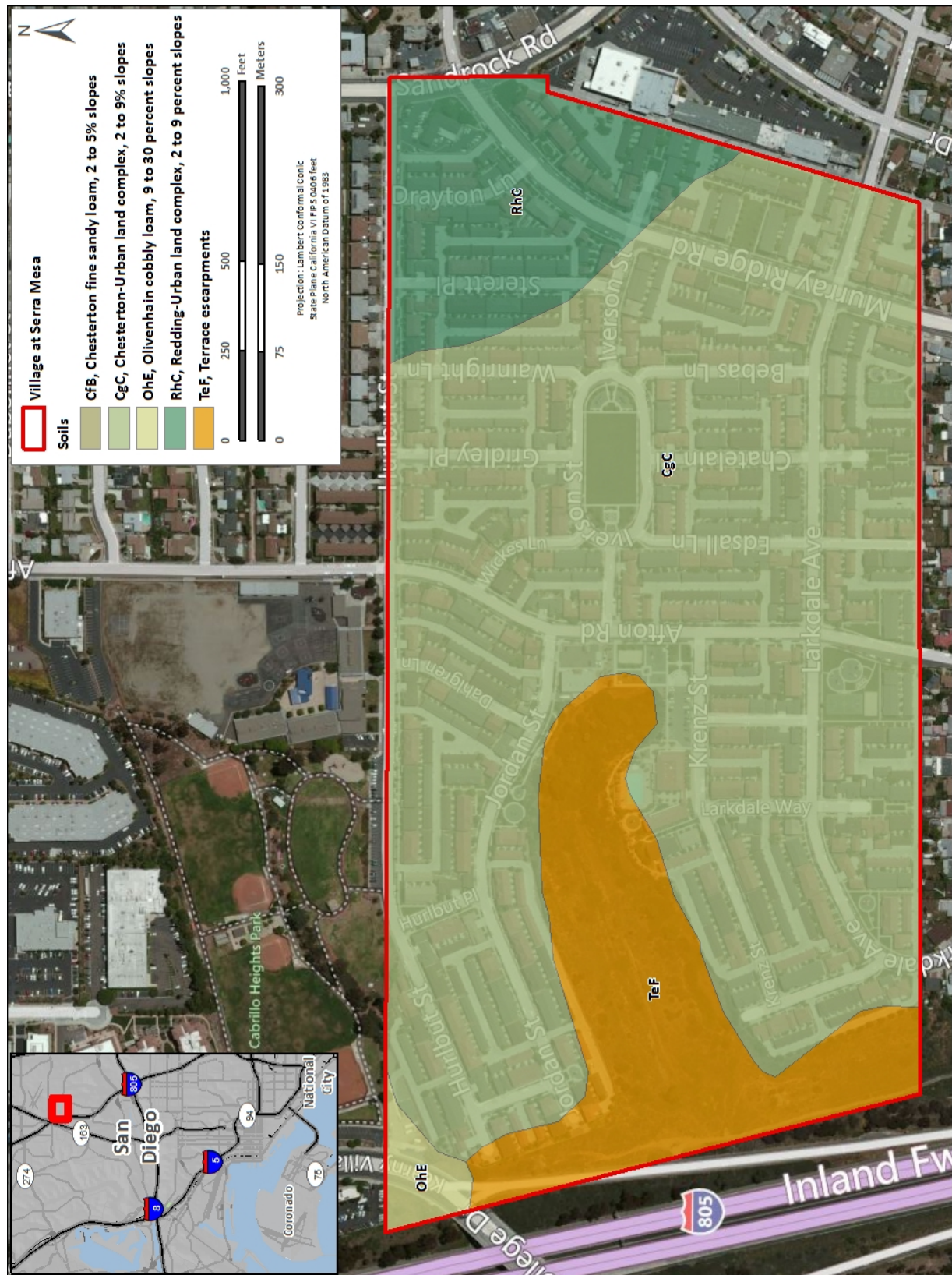


Figure 5-25: Soils at Village at Serra Mesa

Terrestrial Habitat

The Villages at Serra Mesa housing area is one of four sites within NBPL that has open space with native vegetation. Open space exists on thirteen acres of the Villages at Serra Mesa site along a north-south running canyon between 46 meters (150 feet) to 137 meters (450 feet) wide, just north of State Route 163. Twenty-nine plant species were found within the Villages at Serra Mesa open space during the 2009 natural resources inventory. Of those species, 18 are native species (U.S. Navy 2011b).

The slopes of the open space in the housing area consist of coastal sage scrub, the bottom drainage consists of riparian vegetation and the boundary with the residential community has patches of nonnative vegetation (see **Figure 5-26**). The coastal sage scrub near the boundary fence is dominated by lemonadeberry, with California sagebrush, California buckwheat, felt leaved yerba santa and broom baccharis. Riparian species in the canyon bottom consists of cattail, three-square, willows, Brazilian pepper tree, and pampas grass. Nonnative areas occur immediately adjacent to the fence and consist of disturbed habitat that is zero to twenty-five feet in width, and includes hottentot-fig, Brazilian pepper tree, brome grass, wild oat, short pod mustard and fountain grass (U.S. Navy 2011b).

Regulatory or Habitat Planning Designation

A wetland evaluation and jurisdictional delineation for all NBPL housing areas was performed in conjunction with the 2009 natural resources inventory. The Villages at Serra Mesa housing area has 0.74 total acres of wetland, and 0.20 acres of other jurisdictional waters of the U.S. (U.S. Navy 2011b). There is a drainage which is fed from precipitation and residential area runoff. The drainage runs primarily east to west and connects to a primary drainage through a concrete lined outfall and culvert at the western end of the drainage. Wetlands are present along the bottom of the drainage (see **Figure 5-27**).

There is no federal designated critical habitat for any of the listed species in the NBPL housing areas.

A small portion of the open space within the Villages at Serra Mesa housing area parcel is within the San Diego MSCP MHPA. There is some connectivity with other portions of the MHPA that generally follow a section of Murray Canyon Creek. There is very little dedicated preserve within this part of the MHPA, and overall this segment is relatively small and surrounded by urban development. Murray Canyon Creek flows into the San Diego River where there is a larger portion of the MHPA preserve.

Vegetation

The Village at Serra Mesa supports ornamental vegetation typical of residential landscaping (U.S. Navy 2011b).

Native flora species observed during surveys include: laurel sumac, lemonadeberry, California sagebrush, golden tarplant, broom baccharis, common encelia, golden yarrow (*Eriophyllum confertiflorum* var. *confertiflorum*), coast goldenbush, shore cactus (*Opuntia littoralis*), wild cucumber, California broom, black sage, low bush monkeyflower, California buckwheat, toyon, narrow leaved willow (*Salix exigua*), red willow, bulrush (*Scirpus* sp.) and cattail (U.S. Navy 2011b).

Nonnative vegetation within the Village at Serra Mesa open space area includes: hottentot-fig, fennel, tocolote, black mustard, short pod mustard, Canary Island date palm, Washington fan palm, giant reed, smooth brome and seloia pampas grass (U.S. Navy 2011b).

Hydrophytic vegetation found in the drainage includes: arroyo willow, narrow-leaved willow, bulrush, cattails, Mexican fan palms, Brazilian pepper trees, pampas grass and broom baccharis.



Source: ESRI StreetMap USA 2007, Bing Maps Hybrid 2010. Map contains the most current data to date which may change, and is compiled from a variety of references (see GIS reference list).

Figure 5-26: Vegetative Communities at Village and Serra Mesa



Figure 5-27: Wetlands and non-Wetland Waters of the United States on Serra Mesa

Wildlife

One mammalian species, unsupervised domestic dogs (*Canis familiaris*), were observed in the open space of the Village at Serra Mesa during the 2009 natural resources survey (U.S. Navy 2011b). Desert cottontail and California ground squirrels could be expected to utilize portions of the open space area (U.S. Navy 2006b). One sensitive mammalian species, the northwestern San Diego pocket mouse, has low to moderate potential to occur in the open space area. The San Diego woodrat has a high potential to occur here due to presence of woodrat (species unknown) nests (U.S. Navy 2006b).

Native bird species observed within the Village at Serra Mesa housing area during the 2009 natural resources inventory include: Forster's Tern (*Sterna forsteri*), Mourning Dove, Anna's Hummingbird, Black Phoebe, Say's Phoebe, Cassin's Kingbird, Western Scrub-jay, American Crow, Common Raven, Cliff Swallow, Bushtit (*Psaltriparus minimus*), House Wren (*Troglodytes aedon*), Bewick's Wren, Wrentit, Northern Mockingbird, California Thrasher (*Toxostoma redivivum*), Common Yellowthroat, Song Sparrow, California Towhee, Lesser Goldfinch and House Finch (U.S. Navy 2011b). The European Starling and House Sparrow, which are nonnative species, were also observed (U.S. Navy 2011b).

No reptiles or amphibians were documented in the Village at Serra Mesa housing area during the 2009 natural resources inventory (U.S. Navy 2011b).

There were a total of 29 invertebrate species observed in the Village at Serra Mesa housing area, including: checkered white butterfly, Behr's metalmark butterfly (*Apodemia virgulti*), mourning cloak butterfly, pyralid moths, seed bugs (Family Lygaeidae), weevils, jewel beetles, soft-winged flower beetles (Family Melyridae), ground beetles (Family Carabidae), dermestid beetles, ladybird beetles (Family Coccinellidae), leafhoppers, aphids, flesh flies (Family Sarcophagidae), long-legged flies, house flies, robber flies (Family Asilidae), ichneumonid wasps (Family Ichneumonidae), Argentine ants, yellow-faced bees, spider wasps, bees and honey bees (U.S. Navy 2011b).

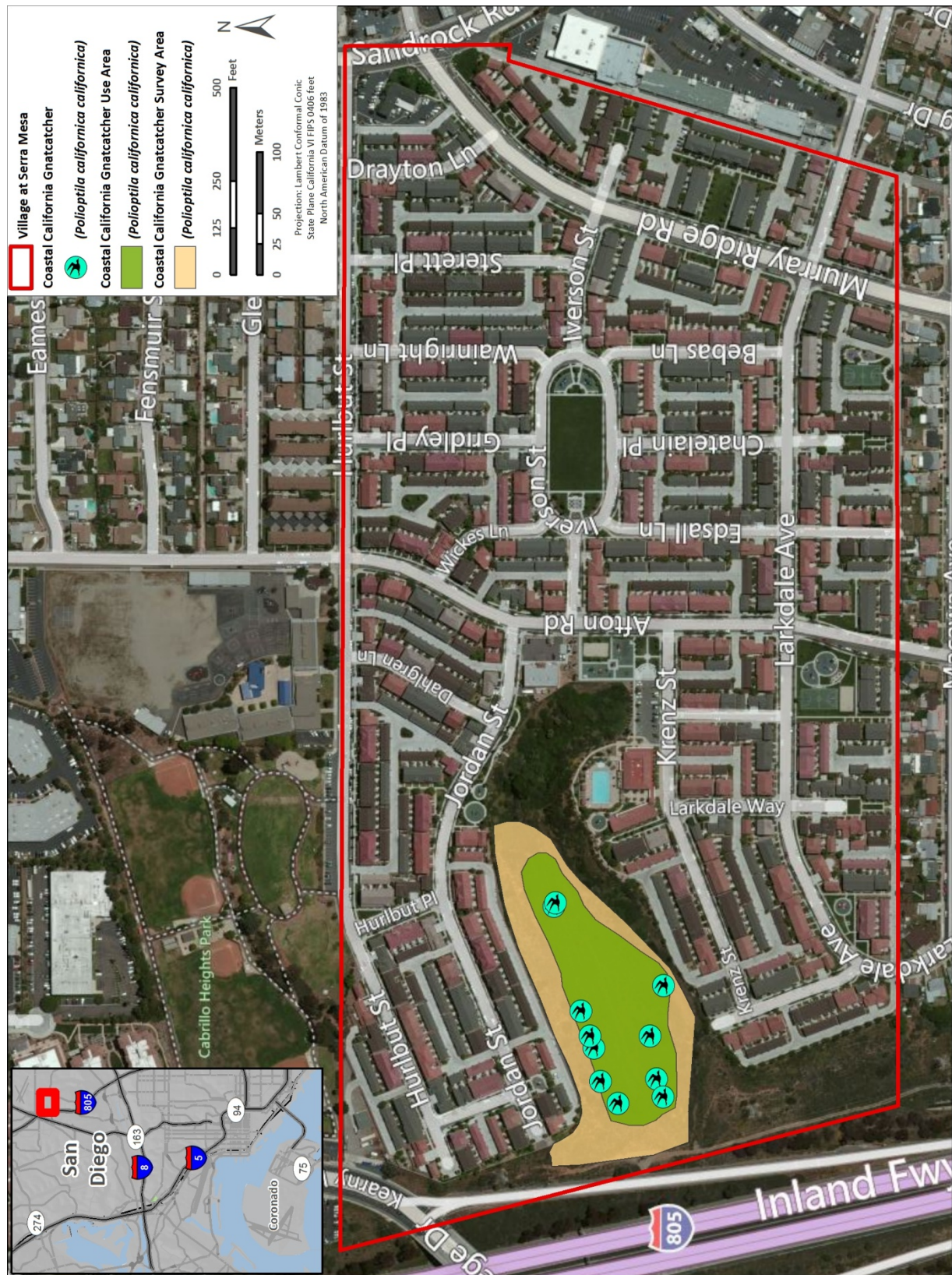
Special Status Species

The first survey for special status species was conducted during the 2009 natural resources survey of NBPL housing areas. The Village at Serra Mesa hosts suitable habitat for the federally endangered Coastal California Gnatcatcher, and three birds were observed on the slopes of the canyon during recent surveys, including one adult pair and at least one juvenile (see **Figure 5-28**).

There is a low potential for the following sensitive avian species to occur at the Village at Serra Mesa housing area: Least Bell's Vireo, Yellow-Rumped Warbler, Yellow Breasted Chat, Southern California Rufous-crowned Sparrow, Peregrine Falcon, Loggerhead Shrike, and Bell's Sage Sparrow. Sharp-shinned Hawks also have the potential to occur in this area (U.S. Navy 2011b).

There is a low potential for the following sensitive reptile species to occur based on marginally suitable habitat: Belding's orange-throated whiptail, coast horned lizard, Coronado skink, coast patch nosed snake and red diamond rattlesnake (U.S. Navy 2011b).

A host plant for QCB, the dot-seed plantain, was identified at the Village at Serra Mesa housing area. The QCB is not expected to occur in this area due to the small amount of open space, lack of suitable soils and vegetation, and relative isolation of open space in association with a high level of urban development in this area (U.S. Navy 2011b).



Source: ESRI StreetMap USA, 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

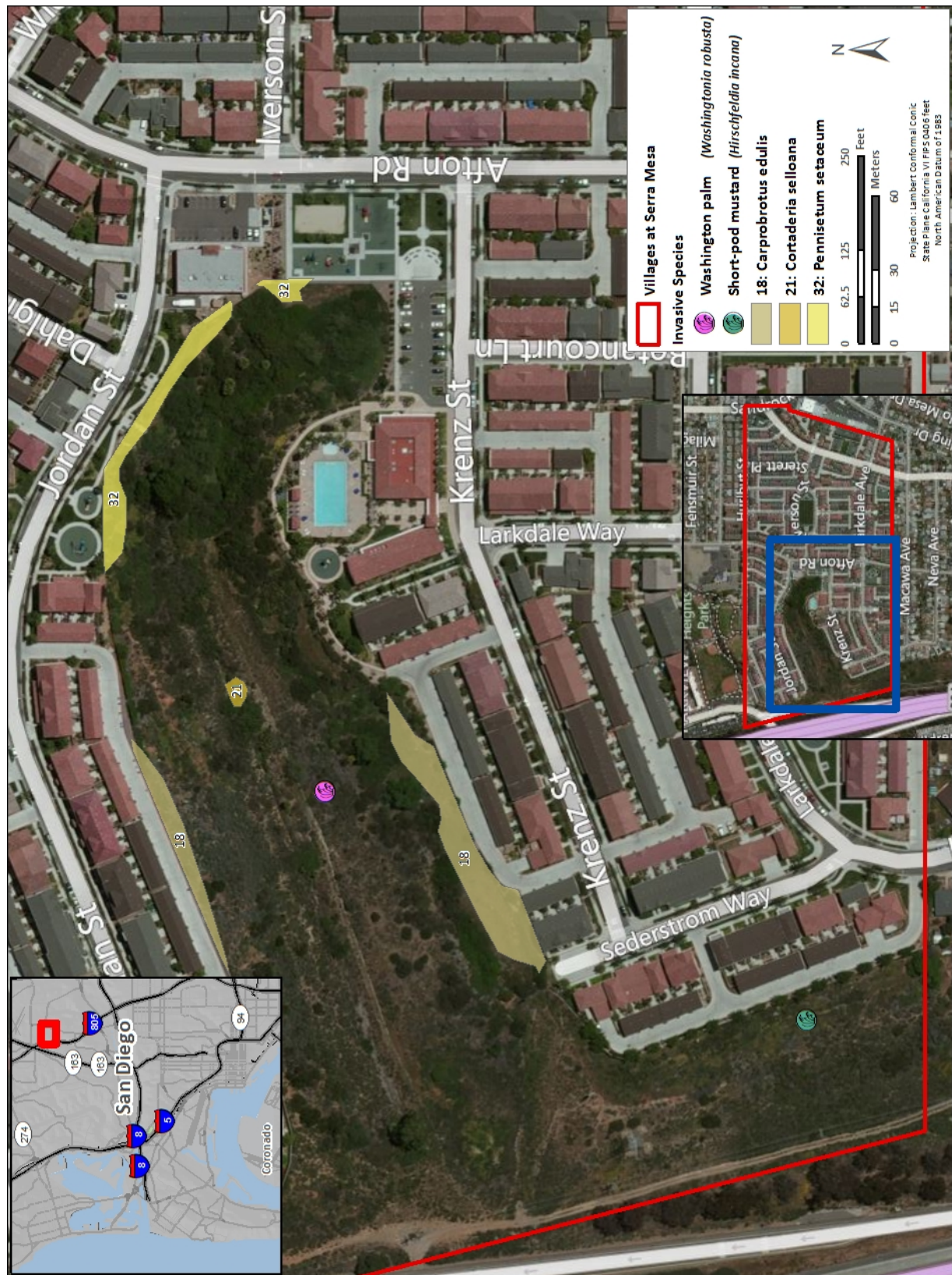
Figure 5-28. Special Status Species at Village at Serra Mesa

(Note: Coastal California Gnatcatcher sightings likely represent same individual/pair observed on different days.)

The estuary seablite, a California Rare Plant Rank 1B plant occurs in the Village at Serra Mesa housing areas. Rank 1B includes plants that are rare, threatened, or endangered in California, and are rare throughout their range with the majority of them endemic to California. Most of the plants of Rank 1B have declined significantly over the last century. Rank 1B plants constitute the majority of the plants in the CNPS Inventory with more than 1,000 plants assigned to this category of rarity. All of the plants constituting Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing (CNPS 2010).

Invasive and Exotic Species

Invasive plant species cover an area totaling 0.8 acres in the Village at Serra Mesa open space areas (see **Figure 5-29**) (U.S. Navy 2011b). Five of the nonnative species found are considered invasive exotic, including giant reed, hottentot fig, tocolote, seloa pampas grass, fennel and short pod mustard. Fennel, giant reed grass and pampas grass were also observed in the bottom of the canyon (U.S. Navy 2011b).



Source: ESRI, StreetMap, USA, 2007; Bing Maps Hybrid, (c) 2010 Microsoft Corporation and its data suppliers; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 5-29: Invasive Species at Village at Serra Mesa

5.2 Natural Resources Management Strategy

5.2.1 Purpose, Approach and Rationale

Natural resources management at NBPL strives to integrate biodiversity conservation and an ecosystem-based approach into an adaptive management framework compatible with the military mission. As a result, the natural resources program consists of multiple resource disciplines that are frequently interconnected and share similar objectives. Management projects and plans often consist of multiple program elements with several different resource experts collaborating together. This section describes the various natural resources Program Elements along with their primary goals and objectives.

5.2.2 Natural Resources Management Goals and Objectives for Off Peninsula Facilities

A number of items have been identified in subject areas that affect the natural resources present on off peninsula NBPL. The purpose of this section is to identify goals, objectives, and strategies for natural resources management on NBPL.

The overriding goal for management of natural resources at NBPL is to **provide for no net loss to the military mission by managing natural resources in an adaptive ecosystem-based approach, to support multiple use and biological integrity.**

Specific concerns or threats, current management, and the management strategy for each natural resources area are described below. The management strategies include an objective and individual strategies, or projects. A summary of the strategies as well as the estimated time frame for completion is presented in **Appendix D, Table D-2.**

Some of the strategies described in this section will be accomplished through interactive partnerships with other federal, state, and local organizations. Natural resources staff at NBPL will initiate partnerships based on the benefits to the regional ecosystem and the local environment.

5.2.3 Watershed Management for Off Peninsula Facilities

Watershed management is important to natural resources management because it directly affects both surface water and groundwater quality and is critical to maintain valuable aquatic habitats.

Healthy, stable soils are the foundation of a healthy ecosystem. As soils lose their structure and begin to erode, other systems also begin to fail. Vegetation and wildlife decline in numbers and diversity, and the quality of surface water declines as it becomes loaded with eroded sediments. Some soil types, such as those found at NBPL, took centuries to develop and are not easily replaced or repaired if lost or damaged. Inherent in the clay and sandy nature of NBPL's soils is a risk of significant erosion when vegetation is removed or, soil structures are disturbed. The fragile nature of these soils make the protection of NBPL's soils vital for maintaining many of the functional systems that make up a healthy ecosystem.

Specific Concerns

- Development/anthropogenic disturbances.

Current Management

OPNAVINST 5090.1C CH-1 requires that installation sources of dust, runoff, silt, and erosion debris be controlled to prevent damage to land, water resources, equipment, and facilities, including adjacent properties. An erosion-and-sediment-control plan must be implemented where appropriate. Maintenance of vegetative cover is consistent with ecosystem management goals expressed earlier. Other materials can be used including gravel, fabrics, riprap, and recycled concrete and pavement that are environmentally safe and compatible with the site. Where bare ground is necessary, other measures for dust, sedimentation, and erosion control should be implemented (e.g., check dams, wind breaks, diversions). To minimize land maintenance expenditures and help ensure environmental compliance, physically intensive activities should be located on those areas least susceptible to erosion. The erosion potential of a site and adjacent water resources need to be identified and analyzed in preparing development, training, and land use plans. Project proposals are catalogued by the tenant liaison and go through the Site Approval Process (see **Section 6.7**).

NBPL operates under an ECP (U.S. Navy 2008d) and a JWFMP (U.S. Navy 2006b), which includes guidelines for managing soil and water resources on base; however, none of the off peninsula facilities are included within these plans.

Management Objective and Strategy

Objective: Protect soils by maintaining soils and reducing runoff, erosion, and gully formation.

Strategies:

1. Educate PPV and landscaping personnel on erosion and sedimentation BMPs and watershed protection issues.
2. Ensure that personnel at off peninsula facilities (e.g., Miramar Pipeline and Mount Soledad Signal Station) are aware of the ECP and provided the resources to implement the BMPs within the plan.
3. Periodically review erosion control BMPs to ensure that they are still adequate to control adverse erosion and sedimentation on off peninsula NBPL facilities, particularly the housing areas. Conduct surveys to determine whether activities on NBPL are adversely impacting soil and water resources on NBPL through erosion and sedimentation.

5.2.4 Habitat Management for Off Peninsula Facilities

5.2.4.1 Terrestrial Habitats and Vegetation Communities

Habitat management is a broad term that encompasses a whole range of management issues that affect fish and wildlife, threatened and endangered species, and ecosystem goals.

Specific Concerns

- Invasive species encroaching on native species habitats.
- Altered fire regime.
- Development/anthropogenic influence.
- Erosion and sedimentation from either anthropogenic or natural causes.
- Climate change (e.g., changes in temperature or sea level rise).
- Overuse, or improper use, of fertilizers.

Current Management

Management of native habitats at NBPL includes their enhancement by the removal of invasive exotic plant species and planting of native species, as well as habitat restoration of disturbed areas. Removing invasive exotic plants, planting native species, and restoring habitat activities are conducted through coordination with the installation biologist. The NBPL ECP (U.S. Navy 2008d) provides guidelines for soil resources management. Project proposals are catalogued by the tenant liaison and go through the Site Approval Process (see **Section 6.7**).

Management Objective and Strategy

Objective: Develop and implement a program for natural land and habitat restoration and rehabilitation.

Strategies:

1. Continue invasive and noxious weed identification and control as necessary.
2. Ensure PPV personnel at the housing areas, and personnel at Mount Soledad Signal Station implement management strategies from this INRMP at their facilities.
3. Once vegetation surveys are completed at Miramar Pipeline, and at Mount Soledad Signal Station, incorporate survey data into this INRMP and implement management strategies.
4. Develop specifications and standards for reseeding/revegetation of disturbed sites for use in contracts, maintenance, and other projects.
5. Periodically review program to ensure it still meets ecosystem management goals.

5.2.4.2 Wetlands and Floodplains

Wetland management strategies vary depending primarily on the wetland type, size, location and condition. A wetland's value is decided by the quality of the functions and services it provides, including its biomass production, habitat, erosion control, stormwater storage, water quality protection, aquifer recharge potential, and low flow augmentation. Some of the factors used to measure the quality of these functions are the wetland's size, its location in the watershed, the amount of development in the watershed, vegetative structure and composition, rate of water flow through the wetland, the size of natural buffers, and surrounding land uses. Regardless of the habitat value, wetland areas are almost always poor choices for building sites or for most activities, other than providing non-consumptive enjoyment of the outdoors. Installation natural resources staff will ensure during the program/project review process that program/project managers are aware of the laws and regulations regarding the protection of wetlands.

Specific Concerns

- Development/anthropogenic disturbances.
- Invasive species encroaching into wetland habitat.
- Climate change (e.g., changes in temperature or sea level rise).
- Erosion and sedimentation from either anthropogenic or natural causes.
- Pollution from anthropogenic activities, or erosion and sedimentation.

Current Management

Wetland delineations are conducted as needed on NBPL based on mission and development initiatives. Delineations will be conducted every five years or on a project-by-project basis. Project proposals are catalogued by the tenant liaison and go through the Site Approval Process (see **Section 6.7**).

As long as delineations are conducted and associated Jurisdictional Determinations are obtained on NBPL on a regular basis and information from the delineations is maintained in the GIS database, management of wetlands should not pose an issue at NBPL.

The major goal in wetland and floodplain management is to minimize the impact that NBPL has on wetlands and floodplains. The natural resources staff strives to enhance healthy, functional wetlands. When possible, it is the goal to enhance wetland functions to maximize functions and services (e.g., floodwater retention, water quality protection). It is also the goal to maximize floral diversity of wetland communities, which, in turn, maximizes the faunal diversity of the ecosystem. Through achieving these goals, and through mitigating for unavoidable impacts to wetlands, NBPL can manage for no net loss of wetland and floodplain acreage, functions, and values. According to OPNAVINST 5090.1C CH-1, the Navy will comply with the national goal of no net loss of wetlands, and will avoid loss of size, function and value of wetlands. According to the most recent surveys (U.S. Navy 2011b):

- Admiral Hartman housing area has 0.74 total acres of wetland and 0.20 acres of other jurisdictional waters of the U.S.
- Chesterton housing area has 0.78 total acres of wetland, and 0.02 acres of other jurisdictional waters of the U.S.
- Villages at Serra Mesa housing area has 0.74 total acres of wetland, and 0.20 acres of other jurisdictional waters of the United States

Management Objective and Strategy

Objective: Maintain healthy, functional waters of the United States on NBPL, including wetlands and non-wetland waters of the United States, and prevent indirect or unplanned encroachments.

Strategies:

1. Update the wetland and non-wetland waters of the United States delineation data, including distribution and categories, for the Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa housing areas.
2. Once completed, include wetland delineation data for Miramar Pipeline in the INRMP. Ensure that data is digitized and incorporated into the Geodatabase for NBPL.
3. Plan development activities to avoid direct and indirect wetland impacts to the maximum extent possible and mitigate unavoidable impacts on wetland functions.
4. Remain in compliance with the CWA and implement procedures to manage for a no net loss of waters of the U.S. and floodplain acreage, functions, and values. Ensure PPV personnel at the housing areas implement management strategies from this INRMP at the NBPL housing areas.
5. Reduce habitat fragmentation and control the spread of invasive species.
6. Periodically review the natural resources management program to ensure that management actions do not adversely impact waters of the U.S., including wetlands. In the vicinity of waters

of the U.S., regularly evaluate and correct any loss of vegetation or soil to prevent erosional damage that could directly or indirectly impact waters of the U.S.

5.2.4.3 Wildland Fire

Federal wildland fire policy requires that all federal lands with burnable vegetation have a fire plan and resources to safely mitigate losses. This policy was adopted by the DoD Wildland Fire Policy Working Group in 1996 and made the DoD fire policy through DoD Instruction 6055.06 Fire and Emergency Services Program.

Specific Concerns

- Altered fire regime.

Current Management

Wildland fire management differs at each NBPL housing location. Housing areas on the NBPL peninsula are managed under the JWFMP (U.S Navy 2006b). Off peninsula housing is supported by the City of San Diego Fire and Police departments as well as privately hired security patrol. Project proposals are catalogued by the tenant liaison and go through the Site Approval Process (see **Section 6.7**).

Management Objective and Strategy

Objective: Protect high-value natural resources areas from catastrophic wildfire while conserving resources.

Strategies:

1. Use hand tools to prune, cut, and thin vegetation within 50 feet of buildings. Vegetation management will be conducted outside the breeding season for migratory birds, or the vegetation will be searched in advance for nests.
2. Ensure PPV personnel at the housing areas implement management strategies from this INRMP.
3. Educate the NBPL community and PPV staff about wildland fire. This can be accomplished through posting fire prevention signs, and developing fire prevention messages and handouts for housing residents, Navy staff, and PPV staff.

5.2.4.4 Critical Habitat

No critical habitat has been designated by USFWS on NBPL off peninsula facilities.

5.2.5 Fish and Wildlife Management for Off Peninsula Facilities

For the purposes of this INRMP, wildlife management is defined as manipulation of the environment and wildlife populations to produce desired objectives. The primary goal of wildlife management at NBPL is to maintain wildlife populations at levels compatible with land use objectives while promoting the existence, importance, and benefits of nongame species.

5.2.5.1 General Fish and Wildlife Management

The basis of managing a rich assemblage of nongame wildlife is to provide a mosaic of habitats that are structurally and biologically diverse. In managing for a diversity of habitats and diversity within those habitats, the potential exists for numerous species to be found. NBPL should employ these basic techniques for managing wildlife.

- *Monitoring Wildlife.* Creating, monitoring, and updating GIS data on wildlife species will allow NBPL to store, retrieve, present, and analyze the data to make informed management decisions.
- *Managing for Migratory Birds.* Impacts on birds protected under the MBTA will be avoided through surveying for nesting birds in areas proposed for disturbance and, if necessary, waiting until the nesting and fledging process is complete. Alternatively, the USFWS recommends that conducting activities outside of nesting areas or outside of the general migratory bird-nesting season can help avoid direct impacts.
- *Protecting Sensitive Areas.* NBPL should maintain biological diversity by protecting, to the extent practical, sensitive areas that provide unique habitat niches. Protection measures might include restricting vehicle movement, and protecting habitats of exceptional biological value by establishing protective buffers and maintaining healthy and diverse ecosystems.

Specific Concerns

- Improper use of pesticides.
- Habitat loss for special status and other wildlife species.
- Introduction and proliferation of invasive species.
- Climate change (e.g., sea level rise).
- Predation from native and nonnative species.
- Altered fire regime.

Current Management

Opportunities for the management of fish and wildlife species on NBPL are primarily accomplished by managing habitats. NBPL natural resources personnel coordinate with CDFG and USFWS to identify, prioritize and implement habitat enhancement projects targeted for particular species or groups of species (i.e., migratory birds). Projects to manage wildlife habitat include invasive plant control, enhancing and protecting wetlands, and conducting surveys (e.g. migratory nesting bird survey). Project proposals are catalogued by the tenant liaison and go through the Site Approval Process (see **Section 6.7**).

Habitat loss has a direct correlation to a decline or loss of fish and wildlife populations. Installation INRMPs are meant to be used as tools in operational, training, and construction planning endeavors to minimize or prevent loss of habitat, thus preserving species diversity and populations at respective installations.

Management Objective and Strategy

Objective: Employ a systematic approach to managing wildlife resources, using a process that includes inventory, monitoring, modeling, management, assessment, and evaluation.

Strategies:

1. Ensure that PPV personnel are aware and have been trained on the goals and objectives contained within this INRMP for fish and wildlife management.
2. Survey for and monitor herpetofauna populations using guidelines recommended by PARC, when performing species surveys at Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa housing areas.
3. Once completed, include natural resources inventory data for Miramar Pipeline in the INRMP. Ensure that wetland inventory data is digitized and incorporated into the Geodatabase for NBPL.
4. Install bird and bat boxes where feasible around housing communities and off peninsula facilities.
5. Revegetate off peninsula facility areas with native species using species on the recommended plant list.
6. Control the spread of invasive species.

5.2.5.2 Pollinators

Specific Concerns

- Improper use of pesticides.
- Development/anthropogenic disturbances.
- Invasive species (flora and fauna).
- Habitat loss and/or changes.
- Erosion and sedimentation.
- Climate change (e.g., changes in temperature).

Current Management

NBPL is not currently managing for pollinator species beyond following protocols within the NBPL IPMP for application of pesticides/herbicides. Steps that NBPL can undertake to help ensure that populations of pollinators do not continue to decline include the following (DoD Legacy 2010a, The Pollinator PartnershipTM/NAPPC 2010):

- Restore land with plants that attract pollinators, and include pollinator-friendly plants in gardens
- Provide connectivity between vegetation areas by creating corridors of perennials, shrubs, and trees that provide pollinators shelter and food as they move through the landscape
- Provide windbreakers and nesting areas, such as bat boxes or sites without high vegetation for bee nests
- Control invasive plants with an integrated pest management approach
- Monitor sites over time, noting pollinator species present and habitat composition
- Inventory and become knowledgeable of local pollinators
- Maintain a minimum of lawn areas that support recreational needs
- Restrict the use of pesticides and herbicides when possible
- Provide water sources in large open areas
- Maintain natural meadows and openings that provide habitats for sun-loving wildflowers and grasses.

Management Objective and Strategy

Objectives: Maintain and enhance pollinator populations and their habitat when not in conflict with health and safety, or the military mission.

Strategies:

1. Develop and distribute outreach and education materials on pollinators.
2. Revegetate with native species contained on the recommended plant list.
3. Control the spread of invasive species.

5.2.5.3 Migratory Birds

The MBTA protects all migratory birds and prohibits the taking of migratory birds, their young, nests, and eggs, except as permitted by the USFWS. The USFWS recommends that NBPL avoid impacting birds protected under the MBTA by surveying for nesting birds in areas proposed for disturbance and if necessary, waiting until the nesting and fledging process is complete. Alternatively, the USFWS recommends conducting activities outside of nesting areas or outside of the general migratory bird-nesting season that extends from mid-February through the end of August, to help avoid direct impacts.

Specific Concerns

- Development/anthropogenic disturbances.
- Invasive species (flora and fauna).
- Habitat loss and/or changes.
- Erosion and sedimentation.
- Climate change.
- Fire.
- Predation.

Current Management

Management of migratory birds is based on results of natural resources inventories conducted by natural resources managers. Installation biologists will determine if site-specific bird and/or nest surveys should be conducted.

Management Objective and Strategy

Objective: Maintain and enhance populations, and nesting and foraging habitats of migratory birds on NBPL.

Strategies:

1. Develop effective management for minimizing the unintentional take of migratory birds.
2. Conduct regular (approximately every 2 years) surveys to determine what species of migratory birds may have potential to be on housing areas with open space (Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa).

3. Once finalized, implement monitoring protocols contained within the DoD Coordinated Bird Monitoring Plan. Contribute to date to the Coordinated Bird Monitoring Database.
4. Develop and distribute outreach and education materials on migratory birds to housing residents and PPV staff.
5. Revegetate with native species contained on the recommended plant list.
6. Control the spread of invasive species.

5.2.5.4 Bird/Wildlife Aircraft Strike Hazard

Not applicable to NBPL.

5.2.6 Special Status Species (Federally Listed and Other Special Status Species)

Special status species include federally listed endangered, threatened, or candidate species; state listed endangered, threatened, and candidate species and species of special concern; migratory birds protected by the MBTA and birds listed on the Birds of Conservation Concern list; and CNPS California Rare Plant Rank 1 or 2 species. These species could be subject to harassment, harm, or take as a result of activities on NBPL, and habitat could be affected by installation activities as well as by natural environmental factors.

An installation's overall ecosystem management strategy must provide for protection and recovery of federally listed species. Under the ESA, an "endangered species" is defined as any species that is in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The USFWS has also presented an updated list of species that are regarded as candidates for possible listing under the ESA. Although candidate species receive no statutory protection under the ESA, the USFWS believes it is important to advise government agencies, industry, and the public that these species are at risk and could warrant protection under the ESA.

The intent of this section is to identify objectives and strategies to manage NBPL using a regional ecosystem-based approach that manages special status species while protecting the operational functionality of the mission. While single-species management is not promoted as a general philosophical management approach on the installation, specific controls are used to protect special status species beyond management of the ecosystem. Other procedures in place for management of special status species are modifying the ecosystem and human interactions within this environment.

Specific Concerns

- Habitat loss resulting from urban development and habitat fragmentation.
- Invasive species encroaching on native species habitats.
- Habitat loss due to either anthropogenic or natural causes.
- Erosion and sedimentation from either anthropogenic or natural causes.
- Altered fire regime.
- Climate change (e.g., changes in temperature or sea level rise).
- Predation by native and nonnative species.

Current Management

Management needs of special status species and their habitats are based on results contained within surveys performed in 2009 for NBPL housing areas. Current management for each individual special status species is discussed further in the Special Status Species sections for each housing area in **Section 5.1.6**, and **Table 5-2** lists the species status species observed during the 2009 survey.

Table 5-2: Special Status Species Observed on the Navy Base Point Loma Housing Areas

Common Name	Scientific Name	Federal Status	State Status	NBPL Housing Area Observed
Plants				
California adolphia	<i>Adolphia californica</i>		Rank 2	Beech Street Knolls
San Diego sagewort	<i>Artemisia palmeri</i>		Rank 4	Admiral Hartman
San Diego barrel cactus	<i>Ferocactus viridescens</i>		Rank 2	Chesterton
Nuttall's scrub oak	<i>Quercus dumosa</i> Nutt.		Rank 1B	Chesterton
Estuary seablite	<i>Suaeda esteroa</i>		Rank 1B	Admiral Hartman, Village at Serra Mesa
Birds				
Southern California Rufous-crowned Sparrow	<i>Aimophila ruficeps canescens</i>		WL	Naval Submarine Base
California Brown Pelican*	<i>Pelecanus occidentalis californicus</i>			Admiral Hartman
Coastal California Gnatcatcher	<i>Polioptila californica californica</i>	FT	SSC	Chesterton, Village at Serra Mesa
Amphibians and Reptiles				
Orange-throated whiptail	<i>Aspidoscelis hyperythra</i>		SSC	Chesterton

Source: U.S. Navy 2011b

Note: * Species that are actively managed for compliance with other requirements, such as Migratory Bird Treaty Act (MBTA).

Key: Federal Status: FE = Federal Endangered, FT = Federal Threatened; State Status: SE = State Endangered, ST = State Threatened, SSC = Species of Special Concern, WL = Watch List

The only federally listed species that was observed during on NBPL housing areas is the Coastal California Gnatcatcher. NBPL will continue to conduct species surveys and monitor as deemed necessary and subject to available funding.

Project proposals are catalogued by the tenant liaison and go through the Site Approval Process (see **Section 6.7**). Any project may have potential impacts will be reviewed by the installation biologist. Management strategies will be developed or revised based on the recommendations of those surveys.

Management Objectives and Strategy

5.2.6.1 General Management for Special Status Species

Objective: Minimize the potential for adverse effects on special status species and their associated ecosystems while protecting the operational functionality of the installation mission by using an ecosystem-based management approach.

Strategies:

1. Investigate the need for implementing research projects to understand ecological requirements of special status species.
2. Continue use of the established Environmental Review process to identify actions that result in adverse effects on special status species or their habitats.
3. Coordinate with the proponent to ensure NEPA and other regulatory requirements are met to reduce adverse effects.
4. Review and update species lists to reflect presence of threatened, endangered, and other special status species.
5. Conduct regular (approximately every 2 years) surveys for special status species that may be present on off peninsula facilities, including Mount Soledad Signal Station (for rare plants), Miramar Pipeline, Admiral Hartman, Beech Street Knolls, Chesterton, and the Village at Serra Mesa housing areas. Once surveys are completed, incorporate survey data into this INRMP.
6. Continue monitoring special status species as described in this INRMP and adapt monitoring and management actions as needed. Use monitoring information and other information to guide adaptive management.
7. Work with stakeholders to develop appropriate habitat goals and management actions to achieve those goals and establish success criteria and reporting requirements.
8. Augment education program currently conducted at NBPL for military personnel who might have contact with sensitive species or their habitats.
9. Initiate habitat improvement projects to conserve biodiversity and protect plant and animal habitats, as funding is available and when such projects will not adversely affect the military mission (e.g., noxious weeds, or invasive species removal; habitat disturbance where such disturbance will promote native plant growth; preventing habitat disturbance when this will promote nonnative plant growth; and revegetation with native plants).
10. Implement erosion control BMPs to ensure adverse environmental impacts to special status species habitat do not occur.
11. Revegetate with native species included on the NAVFAC SW recommended plant list. Include sensitive plant species in the NAVFAC SW recommended plant list.
12. Review the status of strategies prescribed within this INRMP during the annual INRMP metrics review meeting. Revise strategies based on the review to ensure that goals and objectives for management of special status species are still adequate.
13. Maintain accurate, usable, and informative GIS data for ease in management planning and documentation.

5.2.6.2 ESA Consultation and Mission Requirements

Objective: Maximize effectiveness and efficiency of the NBPL Endangered Species Program to achieve the best conservation possible while sustaining the installation mission.

Strategies:

1. Prioritize management issues within and between species, and within the overall natural resources program to guide management actions and funding expenditures.

2. Coordinate with USFWS and NMFS to identify actions that adversely impact training capabilities, and identify activities that could adversely affect listed species. Adapt measures as warranted and consult with USFWS to receive incidental take coverage where appropriate.
3. Ensure that NBPL remains in compliance with the ESA. Ensure PPV personnel at the housing areas implement management strategies from this INRMP at the NBPL housing areas.
4. Promote species recovery and ensure essential habitat is conserved by providing proper funding, providing a benefit to the species, and ensuring effectiveness of management strategies employed.
5. Conduct focused USFWS protocol breeding season surveys for Coastal California Gnatcatchers every three years.
6. Maintain accurate, usable, and informative GIS data for ease in management planning and documentation.

5.2.7 Exotic and Invasive Species Management for Off Peninsula Facilities

Invasive species management is a large part of pest management activities. The Federal Noxious Weed Act and EO 13112 require federal agencies to control noxious and invasive species on federal lands. The federal Noxious Weed Act, enacted January 3, 1975, established a federal program to control the introduction and spread of foreign noxious weeds into the United States. Amendments in 1990 established management programs for undesirable plants (including noxious weeds) on federal lands. There are several plant species that are considered noxious and control is mandatory for those found on the federal list. EO 13112 requires that federal agencies prevent the introduction of invasive species, detect and control populations of invasive species, and restore native species and habitat conditions in ecosystems that have been invaded. Invasive species are alien species (not native to the ecosystem) whose introduction does, or is likely to, cause economic or environmental harm, or harm to human health. All of the invasive weeds listed are not necessarily found at NBPL.

The California Wildlife Action Plan has identified the growth and spread of floral and faunal invasive species in the state as a major concern to maintaining biodiversity in the state (CDFG 2007). As a result, natural resources personnel on NBPL and NAVFAC SW ensure that invasive species are not introduced on the installation, and have developed a program to control the spread of, and the eradication of existing infestations of invasive species.

Problems associated with invasive nonnative plants and animals are currently being addressed at many different levels in California, within the constraints of budgets and staffing resources. Examples include the California Native Plant Society which serves as the state's noxious weed coordination center for activities addressing noxious weeds within the state. The NRCS also has a lead role in coordinating an aggressive state/federal/private effort to eradicate, or at least stop, the spread of invasive species.

Specific Concerns

- Anthropogenic disturbances (e.g. foot traffic).
- Landscaping on and off base.
- Rapid spread of invasive non-native plants that displace the degrade habitat for native floral and faunal species.
- Climate change (e.g., sea level rise and temperature changes).

Current Management

NBPL has developed a program to monitor and control the spread of existing infestations of invasive species, and to determine if new species populations have become established. Assessments of invasive species populations are conducted annually during the rainy season to determine extent of invasive species populations on NBPL. Once assessed, species are prioritized for treatment based on the extent of the infestation, and where the populations are located (e.g., next to listed species habitat).

Specific species targeted for treatment include the following: acacia, giant reed, black mustard, Sahara mustard, iceplant, sandspur, chrysanthemum, veldt grass, eucalyptus, fennel, Canary Island St. John's wort, myoporum, tree tobacco, fountain grass, smilo grass, castor bean, natal grass, and tamarisk. Invasive species are treated on NBPL using herbicide applications (NAVFAC SW 2009). Project proposals are catalogued by the tenant liaison and go through the Site Approval Process (see **Section 6.7**).

Management Objective and Strategy

Reduce Spread and Introduction of Invasive and Exotic Species

Objective: Minimize nonnative species encroachment in areas where severe to moderate encroachment occurs, and in new areas of encroachment where infestation might be spreading but is not yet severe.

Strategies:

1. Conduct surveys annually to determine whether controls on existing infestations of species has been effective, and whether new populations have become established.
2. Ensure PPV personnel at the housing areas implement management strategies from this INRMP.
3. Develop and implement a review process for all projects that include a landscaping component to ensure nonnative species are not introduced.
4. Coordinate with the Natural History Museum to identify unknown species that may be invasive.
5. Develop outreach and education materials for distribution within the Navy housing areas.

Early Detection and Rapid Response

Objective: Enhance current early detection and rapid response management capabilities.

Strategies:

1. Prepare educational materials for housing residents, and PPV staff as a tool in early detection of non-native terrestrial species.

Project Planning

Objective: Ensure control and management of invasive species is included in project planning and maintenance projects.

Strategies:

1. Manage roads, access routes, and new construction sites to minimize the spread of invasive non-native species and insure that road or access routes are not created without authorization and project review approval.
 - a. Require that maintenance or repair of existing roads stay within established footprints.
 - b. Clean roadside mowing equipment of adhering dirt and vegetation between mowing cycles.
 - c. Schedule roadside mowing to minimize weedy species seed distribution.
2. Require project proponents to pay for restoration projects that are used to compensate for development of habitat.
3. Ensure projects are compliant with approved guidelines.

5.2.8 Grounds and Landscape Maintenance for Off Peninsula Facilities

Environmentally and economically beneficial landscaping practices can reduce maintenance costs while also providing wildlife habitat. Planting windbreaks around buildings and parking areas, establishing wildflower areas, and reducing mowing are all ways to spend dollars more wisely, educate the public about the benefits of reduced maintenance, and become better stewards of the environment. In managing natural resources in the off peninsula areas, NBPL acknowledges its responsibilities as listed in the White House Memorandum, *Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds* (Office of the President 1994). The memorandum's requirements include the following:

- Using regionally native plants for landscaping
- Using construction practices that minimize adverse effects on the natural habitat
- Reduce pollution by reducing the use of fertilizer and pesticides, using integrated pest management, recycling green waste, and minimizing runoff
- Implementing water-efficient practices
- Creating demonstrations of these practices to promote their use elsewhere.

Specific Concerns

- Water use conservation requirements.
- Coordination with grounds and landscape personnel.

Current Management

The installation's representative biologist monitor landscaping and grounds projects to ensure that all projects follow the guidance in the recommended plant list. Housing area tenant liaisons must comply with the NBPL Installation Appearance Plan and Landscaping Approved Plant List (see **Appendix J**). This guidance includes:

1. Ensuring that landscape designs and plant lists are reviewed and approved by the installation biologist during the planning phase of the project.
2. Ensuring that projects near native habitat, sensitive species, or other special circumstances may require a greater percentage of California native plants, or have other stipulations that require a

minimum of 80 percent of the species planned within each stratum (herbaceous, shrubs, trees, etc.) constitute California native species from the recommended plant list. In addition, the other 20 percent of species within each stratum shall constitute drought tolerant plants on the recommended plant list.

3. Ensure PPV personnel at the housing areas implement management strategies from this INRMP.
4. Allowing for use of additional native species in landscaping designs contingent upon approval by the installation biologist or NAVFAC landscape architect.
5. Ensuring that project designers verify whether approved plants are available in desired quantity and size for each project prior to specifying on plans or scopes of work.

Management Objective and Strategy

Objectives: Maintain an aesthetically pleasing landscape on NBPL that preserves natural ecosystem functions, conserves water in landscaped areas, and promotes pollinator species.

Strategies:

1. Provide professional advice to assist the grounds landscaping and maintenance program toward the use of native species as identified in the recommended plant list.
2. Maintain and annually update the list of recommended plants that can be used in landscaping.
3. Develop and implement BMPs for grounds maintenance at NBPL (e.g., water conservation), and ensure that these BMPs are given to PPV for grounds maintenance at the housing area.

5.2.9 Pest Management for Off Peninsula Facilities

Authority for pest management activities on NBPL is directed under the Federal Insecticide, Fungicide and Rodenticide Act as amended (7 U.S.C. 136r-1), DoD Instruction 4150.07, San Diego Metro Area Navy Installations Integrated Pest Management Plan, December 2009, and OPNAVINST 6250.4B, Pest Management Programs. IPM is a sustainable approach that incorporates the use of multiple techniques to prevent or suppress pests in a given situation. Although IPM emphasizes the use of nonchemical strategies, chemical control might be an option used in conjunction with other methods. IPM strategies depend on surveillance to establish the need for control and to monitor the effectiveness of management efforts. DoD Instruction 4150.07 establishes annual goals, or measures of merit, for IPM that include the following:

- *Goal 1.* 100 percent of DoD installations will have current pest management plans.
- *Goal 2.* Maintain the 55 percent pesticide use reduction achieved from 1993-2003 (in pounds of active ingredient).
- *Goal 3.* 100 percent of all installation DoD and contract pesticide applicators will be appropriately certified or licensed.

In addition, OPNAVINST 6250.4B directs the Navy and Marine Corps to (DoN 1998):

- a. Prevent pests from adversely affecting military operations and missions;
- b. Safeguard human health and morale by controlling pests that transmit diseases, annoy personnel, or represent a hazard to public health or safety;

- c. Maintain and extend the service life of facilities, structures, and materiel by preventing economic pest damage;
- d. Enhance the natural environment through the careful protection and management of ecosystems, endangered and threatened species, wildlife, watersheds and water quality in order to maintain optimal biodiversity;
- e. Ensure pesticide use is safe and consistent with label directions;
- f. Use the principles of IPM to avoid and minimize the use of pesticides when nonchemical alternatives are available and cost effective;
- g. Comply with quarantine laws and regulations as related to protecting plants, animals and human health; and
- h. Comply with laws and regulations concerning pesticide storage, application, disposal of hazardous wastes, and transport of hazardous materials and substances.

Specific Concerns

- Impacts to birds from feral cat populations.
- Overuse of pesticides and herbicides.

Current Management

The IPMP for SDMAI, which includes a site-specific plan for NBPL, describes pest management requirements, identifies pests for SDMAI, outlines roles and responsibility for IPM at each SDMAI, outlines procedures for pest control at each facility, and describes the administrative, safety, and environmental requirements of the program. Specific aspects of the program include pest identification, pesticide management (includes storage, transportation, and use and disposal), environmental health and safety, emergency pest management, and available program resources (U.S. Navy 2009g). Authority for all installation pest management activity is coordinated by the installation IPM Coordinator and is in accordance with OPNAVINST 5090.1C CH-1, Chapter 17, *and Pesticide Compliance Ashore*. Pesticides to be applied on the installation must be approved by the regional NAVFAC pest management consultant and included in the installation pesticide authorized use list. All pesticides that are to be applied to natural areas should also be reviewed and approved by the natural resources manager.

Threatened, endangered, or candidate species can be directly or indirectly affected by pest control activities. The following pest management operations require natural resource manager review:

- Weed and outdoor pest control in endangered/threatened species habitats and natural areas
- Outdoor large area insecticide fogging
- Pesticide applications to, over or adjacent to water bodies, waterways, or wetlands
- Installation of bird barriers, exclusion devices, or repelling devices
- Wildlife and feral animal control
- Invasive species control.

Natural resources managers will obtain any necessary approvals, consultations, or permits. No pest management activities will violate the practices described for threatened, endangered, or candidate species by the California Department of Pesticide Regulation. NBPL will use the California Department of Pesticide Regulation Endangered Species Project web site (<http://www.cdpr.ca.gov/docs/es/index.htm>) to determine the best chemicals to control pest species and their use limitation.

In addition, management of feral animals is a component of pest management at NBPL. Feral animals, especially feral cats and dogs, pose a potential threat to public health and safety. They also pose a threat to wildlife, especially federally listed species and migratory birds. Existing Navy policy included in Secretary of Navy Instruction (SECNAVINST) 6401.1A of 16 August 1994 regarding veterinary health services prohibits dogs, cats, and other privately owned or stray animals from running free on military installations. The CNO issued a policy letter on 10 January 2002 that clarifies the application of SECNAVINST 6401-1A. An objective of the existing policy is to control feral animals in a humane manner to prevent injury or disease to Navy personnel and eliminate adverse impacts on native wildlife. The instruction requires Navy commands to institute proactive pet management procedures in order to prevent establishment of free-roaming cat and dog populations.

Responsible pet ownership is the key to eliminating feral animal populations. Installations shall implement appropriate pet management measures to preclude establishment of feral cat and dog populations. The Handbook for Residents of Navy Region Southwest Military Family Housing (CNRSW P11101.43E) outlines the following measures for each installation:

- Installation residents should keep and feed pet animals indoors and under close supervision
- Support programs to neuter or spay animals before they reach reproductive age
- Require routine vaccinations for rabies and other diseases
- Require microchipping registration of all pets brought onto installations
- Prohibit the feeding of feral animals on the installation
- Provide educational materials to pet owners regarding installation regulations and general pet management
- Never abandon animals
- Comply with all humane and animal control regulations at the Federal, state, and local level.

Management Objective and Strategy

Implementation of the Pest Management Plan

Objective: Ensure compliance with environmental legislation, regulations, and guidelines.

Strategies:

1. Update the SDMAI as necessary to ensure that the plan reflects changes in pest populations and current management issues. Incremental updates to the plan will be conducted annually.
2. Implement pest management controls from the SDMAI and other pest-related guidance and plans.
3. Conduct surveys of pests that pose a potential health risk to humans or natural resources.
4. Implement the control of wildlife and the effective elimination of concentrated and diseased populations.
5. Monitor pest and invasive species populations. Track usage of active ingredients and man-hours spent controlling pest and invasive species during implementation to ensure that the management strategies are sufficient.

Management of Feral Animals

Objective: Reduce populations of feral animals on NBPL as required by SECNAVINST 6401.1A.

Strategies:

1. Develop and implement a program to control feral animals on NBPL. Control populations of feral animals on NBPL.
2. Conduct surveys to determine impact of feral animals on native species on NBPL.

5.2.10 Outdoor Recreation and Public Access for Off Peninsula Facilities

NBPL provides some outdoor recreation opportunities for military personnel and their families, and DoD civilian employees. Recreational use of natural resources is an integral part of ecosystem management. The outdoor recreation program is based on providing quality experiences while sustaining ecosystem integrity. Among the outdoor recreation activities provided are a few recreational fields, tennis courts, picnic areas, swimming pools, hiking, jogging, cycling, wildlife viewing, and recreational fishing.

Specific Concerns

- Erosion and sedimentation.
- Spread of invasive or exotic species.
- Soil compaction.

Current Management

Natural resources managers identify and evaluate suitable outdoor recreation opportunities for housing residents and Navy personnel who live and work at NBPL off peninsula facilities. In addition, natural resources managers partner with the local community, and improve knowledge of the natural world and the Navy's stewardship of natural resources.

In addition, recreational access should be compliant with the requirements associated with the provisions of the American with Disabilities Act of 1990 as amended and the Disabled Sportsman Access Act as amended.

Management Objective and Strategy

Objective: Provide quality outdoor recreation experiences while sustaining ecosystem integrity, and not conflicting with mission priorities.

Strategies:

1. Develop and distribute outreach and education materials for recreational users of off peninsula NBPL facilities.

5.2.11 Law Enforcement of Natural Resources Laws and Regulations for Off Peninsula Facilities

Specific Concerns

- Unauthorized access or activities in natural areas, or areas used by nesting birds or marine mammals, may disrupt and limit the viability of native populations or habitats.
- Gaps in communication between NBPL Environmental Division, NBPL Force Protection, and the private security staff related to enforcement of closure areas or other areas requiring special protection, could result in mismanagement of natural resources, or non-compliance with federal environmental regulations.

Current Management

NBPL has established the following objectives for enforcement: (1) Enforce laws and regulations pertaining to the implementation of the natural resources program; (2) Integrate natural resources enforcement into the overall natural resources program; and (3) Use enforcement personnel to enhance the natural resources program at NBPL.

There are no game wardens stationed at NBPL. The DoD police have the authority of the Commander (exclusive jurisdiction) and of the Sikes Act to enforce all federal laws relating to the management of natural resources at NBPL, including the ESA and MBTA. Generally off-base housing is supported by the City Fire and Police but Lincoln Property Company also hires security patrol.

Management Objective and Strategy

Objective: Ensure compliance with state and federal natural resources laws and regulations.

Strategies:

1. Provide training to personnel responsible for enforcement of applicable laws and regulations.
2. Continue to protect rare, threatened, endangered, and special status species and the natural communities.
3. Cooperate with other agencies, particularly the USFWS and CDFG, to ensure that natural resources laws are adequately enforced.
4. Periodically review Federal and state laws and regulations to ensure natural resources laws and regulations are adequately enforced.

5.2.12 Environmental Awareness and Outreach for Off Peninsula Facilities

Conservation awareness is instrumental in creating conditions needed to manage natural resources. The NBPL approach to awareness stresses education. It provides military personnel and the public with insights into installation natural environments and conservation challenges. The more people know about the unique and valuable natural resources on the installation, the more responsibly they will act toward using them.

Education also promotes awareness of critical environmental projects and the rationale behind them. Activities such as fish stocking, land rehabilitation, and wildfire suppression can be accomplished with little conservation awareness effort since installation personnel, recreationists, and the general public

support these easily understood efforts. However, such issues as protection of sensitive areas for little known plant and wildlife species, prescribed burning, and permit fees and their uses require effective conservation communication to get positive support and, perhaps more importantly, to avoid adverse reactions from various users. A conservation awareness program must be directed to both installation and external interests if it is to be effective.

Natural resources personnel work with volunteers, whenever feasible, to use their skills and build their interest in the installation natural resources program.

Specific Concerns

- Communication about the natural resources of NBPL, environmental regulations, and protocols for situations where wildlife is trapped or injured, or birds are nesting or roosting in unwanted areas, may not be effectively conveyed due to staff turnover.

Current Management

There is no environmental awareness and outreach program off peninsula. Additional interpretive signs and educational brochures are being planned.

Management Objective and Strategy

Objective: Provide people on the installation and in the surrounding community with an understanding of the NBPL natural resources program.

Strategies:

1. Periodically review outreach and education materials to ensure that each is still current and meeting goals of the outreach and education program.
2. Reach out to local community groups for volunteers.
3. Establish a watchable wildlife programs.
4. Educate the local community, as well as installation personnel and tenants about the installation natural resources program.

5.2.13 Geographic Information Systems Management, Database Management, Data Integration, Access and Reporting for Off Peninsula Facilities

GIS is a computer system for capturing, storing, checking, integrating, manipulating, analyzing, and displaying data related to positions on the Earth's surface. GIS is used to create information layers used to develop and manipulate maps. GIS data are represented as different layers each containing data on a particular kind of feature (e.g., soils, wetlands, roads) from surveys, inventories, and other projects with spatial information. Each feature is linked to a position on the graphical image of a map. The data layers are organized to create maps and to perform statistical analysis.

GIS will also provide support for the entire environmental program and the training community. NBPL will use GIS for complex analyses such as project siting, data interpolations, and risk assessments.

GIS software enables installation staff to capture, store, update, manipulate, analyze, and display all forms of geographically referenced data and tabular information about NBPL. The management of reports in

one central database enables users to quickly respond to data calls and identify gaps in natural resources management. The training of the NBPL Environmental, Facilities Management, and Training staff and the allocation of their time to data entry, mapmaking, analysis of data, and interpretation of the results will determine the success of the installation GIS.

Once fully developed, the installation GIS databases can be used for projects such as the following:

- Providing maps
- Selecting suitable areas for construction activities
- Planning land rehabilitation projects
- Providing special maps for Environmental Awareness materials
- Ensuring avoidance of cultural resources during ground-disturbing projects
- Ensuring avoidance of rare species habitats and other areas of special concern during construction projects
- Identifying site options for use during NEPA evaluation of alternative sites
- Calculating drainages and water flows
- Determining Neotropical bird habitat preferences.

Specific Concerns

- GIS maps and shapefiles may not have appropriate metadata that identifies who, when, and for what purposes the data were collected.
- Natural resource management decisions could be misguided if there are information gaps in the natural resources database, or if the database is not kept current.

Current Management

Currently, there is no central repository for GIS data and reports, research, and other documentation. GIS data is submitted to Navy Assessment Management or the GIS IDIQ contractor. CNO guidance on metadata is being developed, but has not yet been finalized.

Management Objective and Strategy

Objective: Collect, store, develop, and maintain data about historical conditions, trends, and current status for critical indicators of ecological integrity and sustainability.

Strategies:

1. Use central database information as benchmarks for developing future natural resources management goals and objectives.
2. Ensure that GIS and other natural resources data are available to biologists, planners, contractors, and others in a quick and timely manner.
3. Annually review GIS data to advise resource managers of needs to update data sets during budget planning and programming.

4. Develop specific language that will be included in all contracts to ensure all spatial data produced are fully compatible with the installation GIS database.
5. Develop a standardized system for recording and mapping significant resource observations (e.g., plants, wildlife, erosion, damage) when incidentally encountered.
6. Provide annual funding for one person to be responsible for updating and maintaining the central database. This should include the necessary hardware, software, and training for the use of GIS.

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6. Sustainability and Compatible Use

This section summarizes management strategies for the sustained use of natural resources. Landscape-level views of compatibility and sustainability are covered, to establish a tangible link between managing the natural environment and sustaining the military mission.

6.1 Sustainability of the Military Mission in the Natural Environment

Broadly speaking, sustainability takes a long-term view of natural resources stewardship, Navy mission accomplishment, social responsibility, and economic prosperity into the future. For this INRMP, the topic of sustainability encompasses:

- Sustainability of the Navy mission at NBPL with respect to how natural resources support this mission
- Resource-specific best practices, consistent with the NBPL plans
- Preparations for climate change and regional growth
- Resource use in the built environment
- Implementation of NBPL's Environmental Management System program for sustainability
- Indicators that help monitor progress toward sustainability objectives.

Specific objectives and strategies were developed to meet the goal of ensuring NBPL sustains the mission while protecting natural resources at NBPL. In addition, a series of strategies for implementation are presented following the objective for each item. A summary of the management strategies as well as the estimated time frame for completion is presented in **Appendix D, Tables D-3**.

Some of the actions described in this section will be accomplished through interactive partnerships with other federal, state, and local organizations. Natural resources staff at NBPL will initiate partnerships based on the benefits to the regional ecosystem and the local environment.

6.1.1 Integrating Military Mission and Sustainable Land Use Decisions

The mission of NBPL is to provide direct day-to-day operation of base support functions and to ensure that the base serves the fleet and tenant commands by providing the highest level of base operating support and quality of life services for all operating forces and shore activities on NBPL.

NBPL does not anticipate changes in land use and development; however, NBPL is well positioned to implement and demonstrate environmentally sound land use planning and development through its land planning and NEPA processes, inter-departmental coordination, adherence to DoN guidance and regulations, and timely review and revision of base site development plans. Development that does occur will be generic and flexible to preserve the campus like natural environment of NBPL. In addition, DoN policy requires that all military construction projects meet a silver rating under the U.S. Green Building Council LEED 2.0 (Leadership in Energy and Environmental Design) Green Building Rating System (U.S. Navy 2006a).

Management Strategy

Objective: Sustain natural resources and the Navy institutional mission by enabling innovation in planning, design, project management, and implementation for development projects affecting the built environment.

Strategies:

1. Ensure Navy leadership has visibility with respect to the total cost of mission sustainment, day-to-day operations, infrastructure and building development, and redevelopment. This should incorporate climate change scenarios and the projected value of the loss of habitat associated with the decision for No Action. Natural resources asset valuation is needed to properly implement business decisions that affect resource capability (e.g., value of permitted air emissions, water quality permits, water resources availability). Identify those that natural resources assets sustain the mission. Assess their condition, quality, capacity, and value.
2. Use a NEPA and site approval processes early in the project-planning phase that includes water, air quality, engineering, and natural resources professionals.
 - a. Improve the integration of Navy natural resources professionals into the sustainability planning through NEPA and site approval processes. Facilitate early, advance project review for stormwater management, landscaping, shoreline and in-water structures.
 - b. Improve the integration of Navy natural resources professionals into sustainability planning.
3. Apply sustainability principles to the management of habitats, species, and ecological functions on NBPL by identifying resource-specific best practices similar to what has been done for energy and water in the built environment using LEED and Low Impact Development (LID) approaches.
 - a. Continue to comply with EO 13123 which tasks federal agencies with defining principles for implementing sustainable development in construction. Promote sustainable land use through avoiding the use of undeveloped land, open space, water and soil conservation areas, existing natural ecosystems, endangered species habitats, and floodplains (NAVFACINST 11010.45).
 - b. Implement LID practices for protecting water quality.
 - c. Use construction siting, materials, and methods that promote biotic communities to the fullest extent possible.
4. Use metrics (indicators) of sustainability that integrate environmental stewardship, mission accomplishment, social responsibility, and economic prosperity.
 - a. Define and adopt standards, rating systems, and metrics.
 - b. Collaborate with tenants to develop an integrated, measurable, installation wide sustainability effort.
 - c. Incorporate metrics and standards of success meaningful to NBPL.
5. Develop sustainability indicators and BMPs, to be incorporated into NBPL planning process. Monitor effectiveness of BMPs and revise as necessary
6. Conduct training in sustainable design criteria in the Navy for engineers, construction and design specialists, water quality specialists, and biologists. This could be web-based training.

7. Foster socially and environmentally responsible behavior through communication. Establish and promote submission for exiting sustainability leadership awards for excellence in environmental, transportation, and energy management.

6.1.2 Natural Resources Military Mission Constraints

Proper management of natural resources on NBPL, including maintaining or improving ecological conditions and capability of natural landscapes has numerous effects, including: an increased ability to support military training and readiness; an improvement in the quality of life of military personnel and their families; a streamlining of the compliance process and a reduction in conflicts; and a reduction in littering, pollution, and poaching of wildlife and vegetation by limiting access (Keystone Center 1996).

Maintaining compliance with the numerous laws, policies, and regulations that provide protection of environmental elements and guidance for management of natural and cultural resources may affect the military mission. Some of these laws include the ESA, CWA, Rivers and Harbors Act, MSFCMA, CZMA, and the National Historic Preservation Act (NHPA). Effects may include limitation of access or certain activities to areas. Natural resources management may temporarily preclude use of areas to prevent damage to soils and wildlife during periods required for vegetation recovery or during breeding seasons. Military training and non-military use is prohibited in restricted areas to preclude damage to important cultural and natural resources. Without management of natural resources, military use could degrade the land and decrease the ability of the land to support the training mission of the installation. See **Figure 6-1** for potential constraints to the NBPL mission for on peninsula activities, and **Figures 6-2** through **6-5** for off peninsula activities. Constraints included on figures consist of Heron and Egret nesting trees, jurisdictional waters of the U.S., locations of threatened and endangered species (e.g., Orcutt's spineflower on NBPL, Mainbase), and the location of the 100-year floodplain.

6.1.3 Encroachment

A Draft Encroachment Action Plan (EAP) was developed for Point Loma in April 2012 consistent with OPNAVINST 11010.40 (*Encroachment Management Program*), and CNIC Instruction 11010.1 (*Encroachment Management Program*) guidance. OPNAVINST 11010.40 defines encroachment as “any non-Navy action planned or executed which inhibits, curtails or possesses the potential to impede the performance of Navy activities” (DoN 2007). The instruction also defines the goal of the encroachment management program is to ensure operational sustainment for all Navy installations, test and training ranges, air and water operating areas, special use airspace, and military training routes (U.S. Navy 2012a).

The EAP was developed by an Encroachment Management Team (EMT) charged with monitoring, identifying, quantifying, and recommending mitigations to either divert or overcome encroachment challenges to NBPL. The resulting EAP includes a description of encroachment challenges and associated impacts for NBPL Mainbase, and NBPL off peninsula facilities, excluding the housing areas. Encroachment challenges and associated impacts to the NBPL housing areas will be identified by EMT and included in the next revision to the EAP. To address the challenges and associated impacts identified within the EAP, the plan describes the underlying issues for each challenge, analyzes the impact and severity of the issue, lists any existing mitigation, and recommends strategies and action items for minimizing or eliminating the encroachment challenge.

Encroachment challenges identified for NBPL Mainbase and NBPL off peninsula facilities, excluding the housing areas, within the EAP are as follows (all encroachment challenges use nomenclature from OPNAVINST 11010.40) (U.S. Navy 2012a):

- Urban development and urbanization

- Competition for sea and land space
- Competition for scarce resources
- Threatened and endangered species
- Maritime issue, including protecting marine resources
- Safety arcs and footprints
- Frequency spectrum
- Water quality
- Interpretation of historical and environmental regulations
- Interagency coordination
- Legislative initiatives that restrict training or testing

The associated impacts to the challenges as described in the EAP are as follows (U.S. Navy 2012a):

- New avoidance areas
- Reduced usage days
- Prohibited training and testing events
- Segmented testing/training and reduced realism
- Limited use of new technologies
- Inhibited new tactics development
- Increased costs or risks

Management Objective and Strategy

Objective: Achieve no net loss of military value by aligning current and future land and water use (location, extent, timing, and intensity) with environmental value protection into the future, while minimizing the cost of environmental conflict resolution and mitigation.

Strategies:

1. Maintain and enhance existing land uses to support the mission through coordination with all NBPL Navy stakeholders.
2. Locate new facilities within existing facility footprints or other previously disturbed areas to the extent practicable.
3. Review proposed new uses or alterations to existing buildings or structures, in consultation with a Navy Archaeologist, to determine the eligibility of affected structures for the National Register of Historic Places (NRHP) contributing elements. As needed, analyze for potential impacts in accordance with guidelines established for NRHP-eligible buildings.
4. Conduct appropriate environmental surveys on any proposed new land use within an undeveloped area to identify sensitive natural and cultural resources, environmental resources, and IRP (hazardous waste cleanups).
5. Ensure compliance with statutes and regulations to protect sensitive natural and cultural resources, to maintain environmental quality and to exercise responsible stewardship of public lands.
6. Ensure the public health and safety of NBPL personnel and authorized visitors by maintaining a secure military operating environment on NBPL administered lands.
7. Maintain and enhance coordination and cooperation with neighboring communities, agencies, and organizations to ensure compatibility of natural resource uses with the Navy's mission.

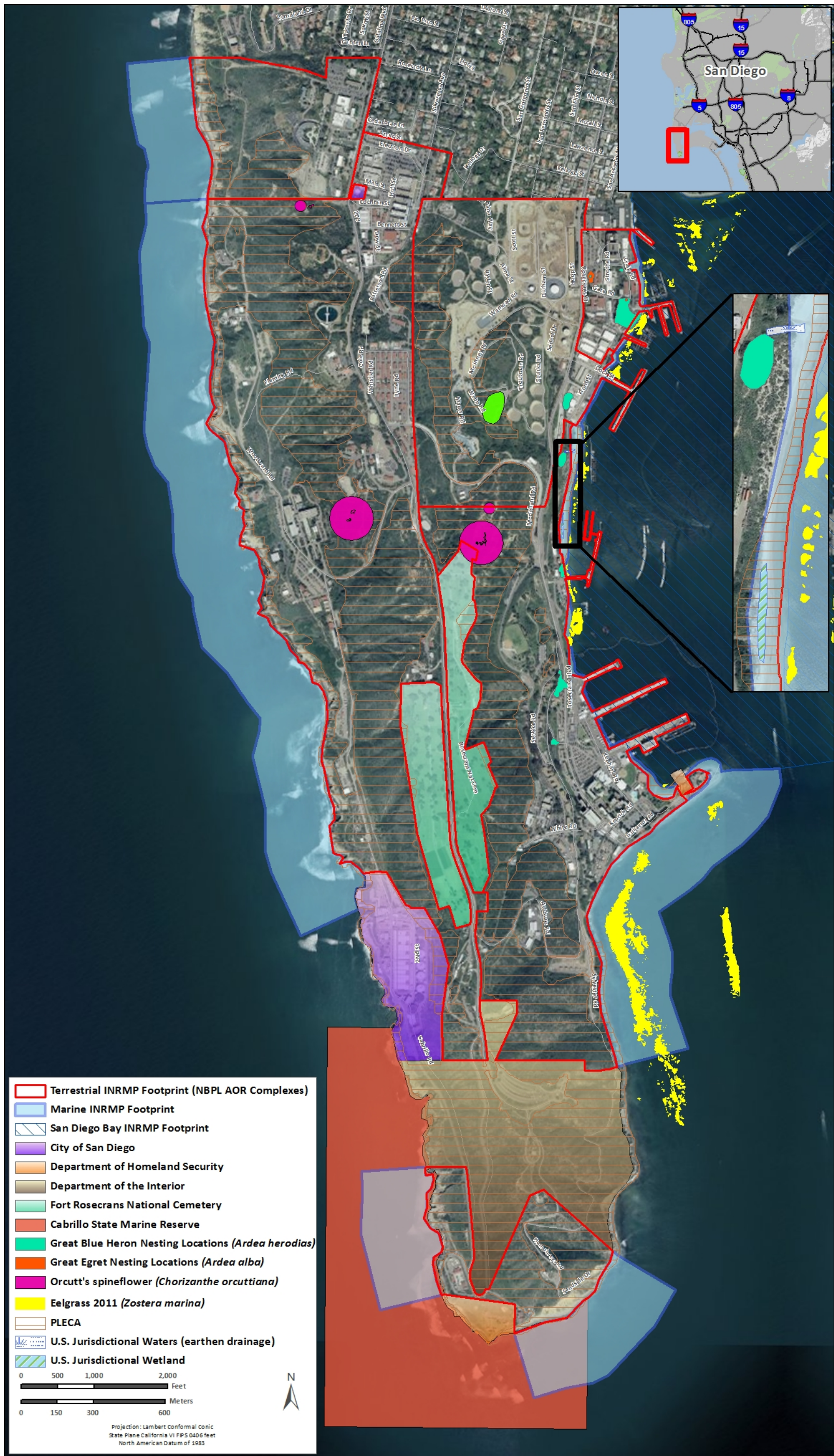
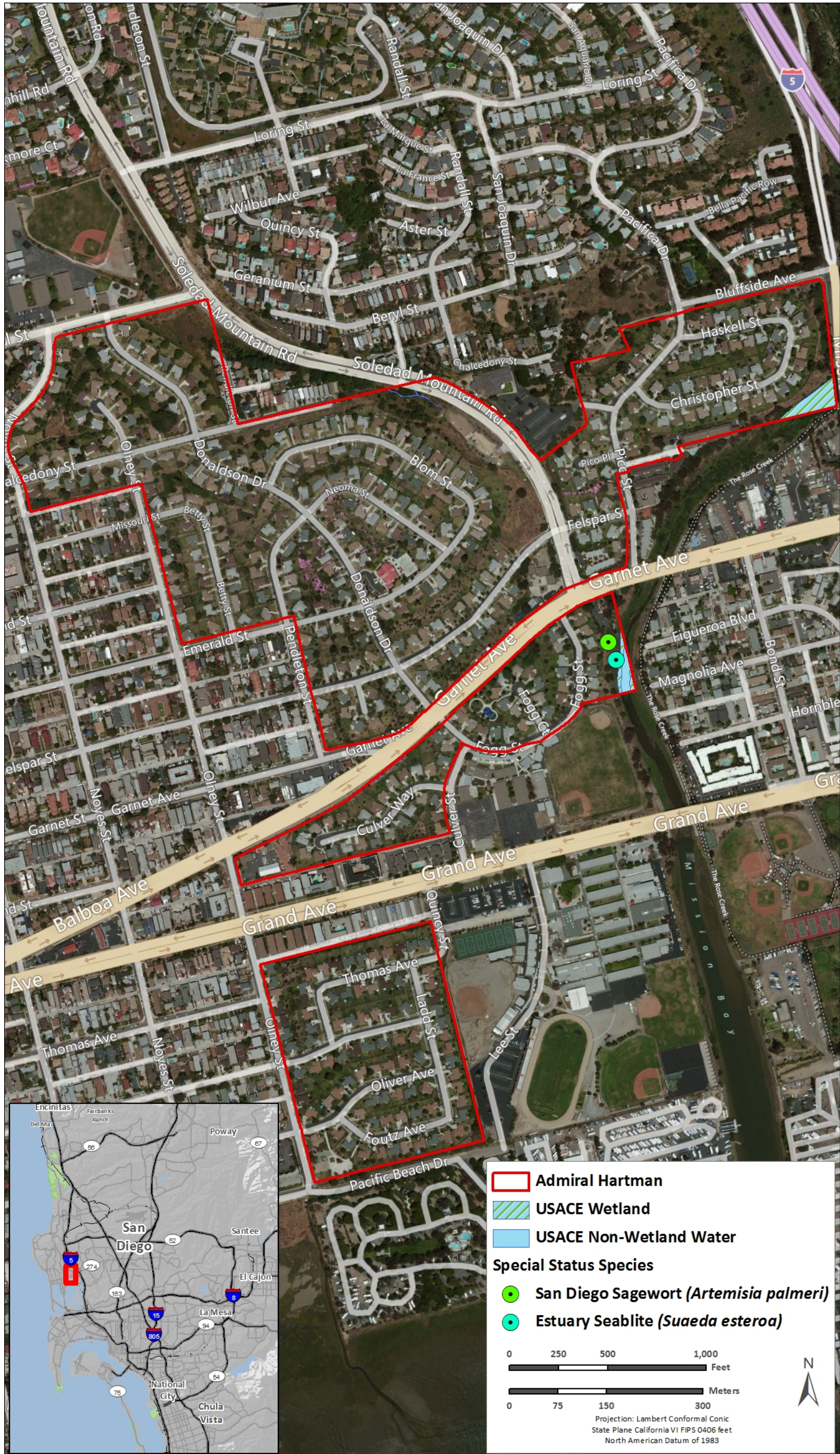
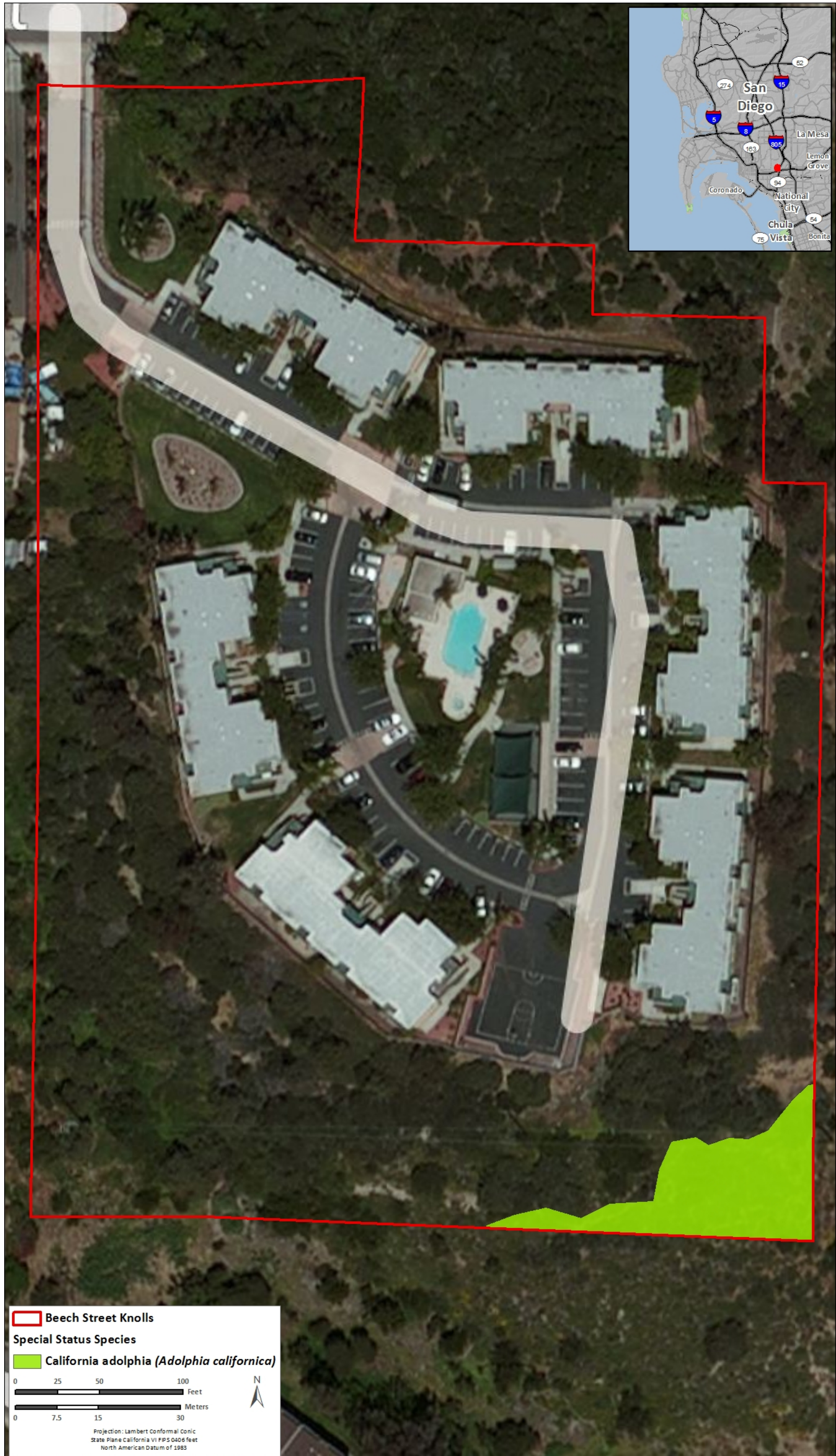


Figure 6-1: Natural Resources Constraints on NBPL on Peninsula



Source: ESRI StreetMap USA 2007; Imagery (i-cubed), Copyright: © 2010 i-cubed; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 6-2: Natural Resources Constraints on Admiral Hartman Housing Area



Source: ESRI StreetMap USA 2007; Imagery (i-cubed), Copyright: © 2010 i-cubed; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 6-3: Natural Resources Constraints on Beech Street Knolls Housing Area

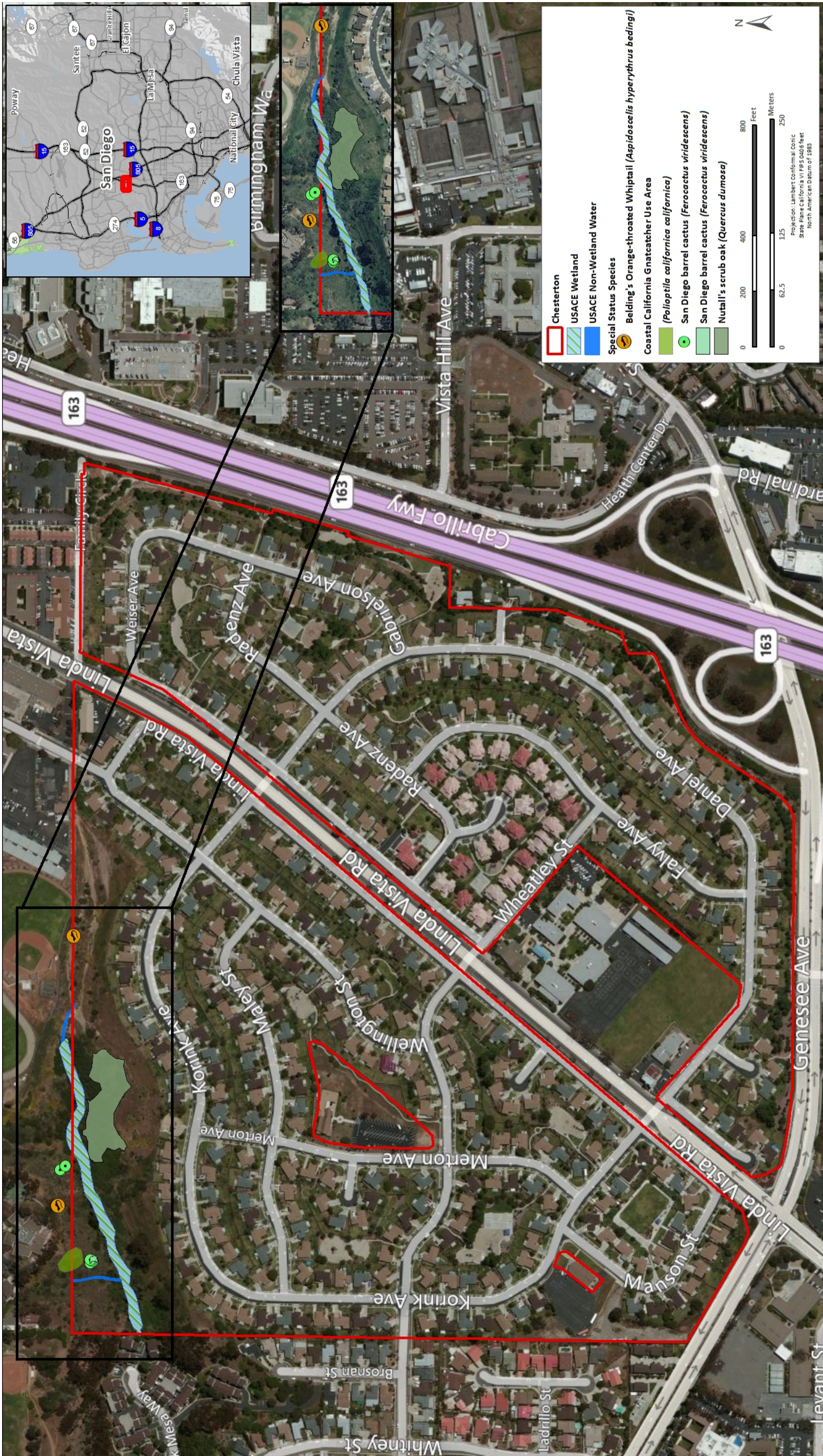
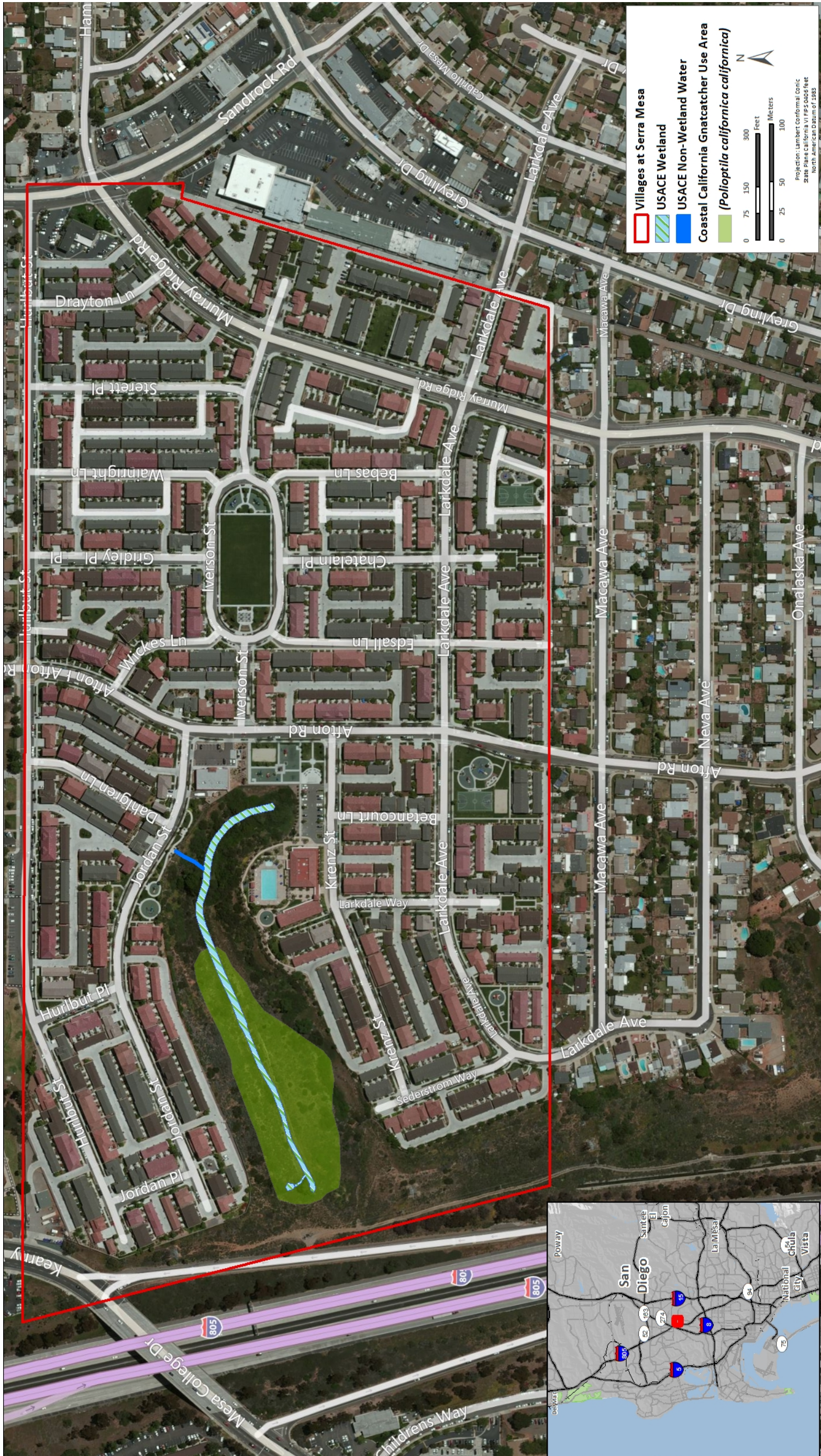


Figure 6-4: Natural Resources Constraints on Chesterton Housing Area



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8. Provide reasonable accommodation of compatible nonmilitary land use to the extent practicable.
9. Maintain healthy and intact habitats that self-recover from disturbance, using principles of ecosystem management and sustainability to balance short-term projects with long-term goals.
10. Address long-term threats to the stability of the natural environment including but not limited to soil erosion, invasive exotic species, climate change, sea level rise, and habitat fragmentation.
 - a. Use ecosite planning (based on soils and vegetation classified by NRCS for soil surveys), where available, to assess the condition of habitats.
 - b. Avoid the proliferation of roads.
 - c. Avoid and minimize road or traffic characteristics that promote plant invasions, or result in significant habitat fragmentation for animals.
11. Continue to use NEPA documentation, including cumulative effects analysis, to guide specific projects and document choices.
12. Ensure the CO's preparedness to answer as part of the INRMP metrics review the following questions:
 - a. Does the natural resources team consult with operators when making changes to the INRMP in order to keep it current? Coordination examples include: maps, signage, pamphlets, other communications, orientations, meetings, training, etc.
 - b. To what level do natural resources compliance requirements support the installation's ability to sustain the operational mission?
 - c. Has there been a net loss of training lands?

6.1.4 Adapting to Effects of Climate Change

The 1994 DoD policy memorandum *Implementation of Ecosystem Management in the DoD* was developed to ensure that resources on DoD installation were managed in a manner to conserve and protect biological diversity through adopting an ecosystem management approach to natural resources management (Benton et al. 2008). The policy states that "military installations will use ecosystem management to: (1) restore and maintain ecological associations that are of local and regional importance and compatible with existing geophysical components (e.g., soil, water); (2) restore and maintain biological diversity; (3) restore and maintain ecological processes, structures, and functions; (4) adapt to changing conditions, including changes resulting from a changing climate; (5) manage for viable populations, and (6) maintain ecologically appropriate perspectives of time and space" (Benton et al. 2008).

The DoD leadership further strengthened the need to manage resources using an ecosystem management approach in DoD Instruction 4715.03 (DoD 2011), that stressed the importance of recognizing the relationship between ecosystem management and biodiversity conservation (Benton et al. 2008). The instruction outlined five goals for installations to preserve and enhance biodiversity including: "(1) maintain or restore remaining native ecosystem types across their natural range of variation; (2) maintain or reestablish viable populations of all native species in an installation's areas of natural habitat, when practical; (3) maintain evolutionary and ecological processes, such as disturbance regimes, hydrological processes, and nutrient cycles; (4) manage over sufficiently long time periods for changing system dynamics, including climate change; and (5) accommodate human use in those guidelines" (Benton et al. 2008).

With the passage of the Sikes Act, Improvement Act in 1997, DoD ensured that all INRMPs were developed with an ecosystem management approach to overall natural resources management. One of the primary facets of ecosystem management is to maintain the ecological integrity of the area managed. Ecological integrity is defined as “the ability to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region” (Benton et al. 2008). The INRMP is developed to conserve and protect ecological integrity by promoting a proactive, as opposed to a reactive, strategy for managing resources. The Sikes Act also requires that INRMPs are reviewed annually and updated every five years to ensure that these documents remain as living documents that can be revised based on changes to current conditions (including changes as a result of climate). The goals and objectives developed for this INRMP were developed using an ecosystem management approach that is flexible and takes into account ecosystem changes resulting from various factors including climate change.

The DoN has also developed *Cooperative Strategy for 21st Century Sea Power* that addresses a need for adaptive management in the face of a changing climate (U.S. Navy, U.S. Marine Corps and U.S. Coast Guard 2007). In addition, the 2008 DoN Environmental Strategy, *Sustaining our Environment, Protecting our Freedom* states the importance of all Naval bases to evaluate activities and ensure that best management practices have been put into place to reduce the overall environmental footprint of the Navy and enhance sustainability (U.S. Navy 2008e). Finally, in May 2009, the DoN created a task force to explore and develop policies, and strategies that address climate change. The Task Force Climate Change is made up of senior DoN staff and other stakeholders and findings will be based on many factors, including the most current scientific research.

The guidance for Navy INRMPs (OPNAVINST 5090.1C CH-1) includes a requirement to address climate change in INRMPs. It states that “the evidence for climate change is extensive and has generated consensus in the scientific community. Addressing climate change poses a new challenge for natural resources managers who will need to understand changes in ecosystem structure and function anticipated from climate change, in addition to understanding ecosystems as they function now and as they have in the past.” The guidance continues with a framework for addressing climate change issues.

Management Objective and Strategy

Objective: Adapt and mitigate the adverse impacts of climate change through collaboration with other agencies and working groups and set annual goals based on science-based scenarios, targets, collaborative planning, and adaptive management

Strategies:

1. Address the anticipated shifts in species ranges and population abundances through environmental monitoring.
 - a. Ensure plant community composition and productivity are within the normal range expected for plant communities/ecological sites.
 - b. Ensure sufficient soil health to prevent accelerated erosion.
 - c. Ensure the health of intertidal and nearshore environments through monitoring.
2. Identify data and research needs for ensuring an effective response to the consequences of climate change.
 - a. Identify species and communities resilient/vulnerable to climate change impacts by conducting climate change vulnerability assessments.

- b. Improve the application of models through data collection and validation (as feasible and needed) and for using such science based models in environmental and natural resource management planning.
 - c. Improve the graphical depiction of the potential impacts of climate change scenarios for NBPL to address anticipated shifts in species ranges and population abundances in climate change vulnerability assessments.
3. Adapt and mitigate the adverse consequences of climate change, including stresses on infrastructure, aquatic vegetation, erosion, and shifts in distributions of terrestrial endemic species and plant communities.
 - a. Ensure that species/community conservation priorities and expenditures reflect climate change risks, such as those on the margins of their distribution patterns.
 - b. Identify restoration projects to provide habitat elements for specific species which may be altered by climate change.
 - c. Provide for the management of threatened, endangered, and other rare species such that changes in distribution and abundance may be understood in the context of climate change.
4. Address the anticipated increase in extreme events by emphasizing preventative technologies.
 - a. Comply with project siting guidelines.
 - b. Improve water conservation.
 - c. Improve stormwater management through use of LID technologies.
 - d. Improve coordination between natural resources and staff and development project proponents to ensure more energy efficient design features.
5. Improve and strengthen governance with respect to climate change.
 - a. Establish partnerships for collaboratively addressing climate change issues.
 - b. Analyze project impacts and cumulative effects through NEPA in a consistent way.
 - c. Incorporate climate change in Navy Encroachment Action planning.
 - d. Develop science-based agency coordination to protect, maintain, and restore at-risk habitats.
6. Ensure that NBPL personnel have access to climate change education and outreach in order to help minimize forecasts for global warming through modification of individual behavior and lifestyle consumption patterns that contribute to global warming.

6.2 Beneficial Partnerships and Collaborative Resources Planning

Effective communication among personnel from different offices is vital for ensuring that site activities are implemented as planned under the INRMP. An ecosystem approach to natural resources management also requires managers to look beyond site boundaries to non-DoD partners. There are many agencies, organizations, and other institutions that can assist in implementing an INRMP. It is Navy policy to encourage local and regional partnerships to implement an INRMP. The following sections discuss other potential organizations that could provide support with INRMP implementation.

6.2.1 Other DoD Organizations and Programs

6.2.1.1 Partners in Flight

It is DoD policy to promote and support the Partners in Flight (PIF) initiative that protects and conserves Neotropical migratory birds and their habitats. The DoD and its components support PIF by protecting vital habitat, enhancing biodiversity, and maintaining healthy and productive natural systems on their lands, consistent with military missions. PIF includes national working groups to deal with local and regional problems. NBPL can coordinate with and seek assistance from the PIF West Region Working Group to manage for particular migratory birds species.



6.2.1.2 DoD Legacy Resource Management Program

Congress instituted the DoD Legacy Resources Management Program in 1991 to promote stewardship of natural and cultural resources on DoD lands. The intent of the Program is to fund natural and cultural resources management projects that may go unfunded through normal funding procedures. Legacy projects typically demonstrate innovative techniques for management, conservation, and preservation of natural and cultural resources. Legacy funds may be requested annually in accordance with instructions provided by the Office of the Deputy Under Secretary of Defense for Installations and Environment (DUSD[I&E]) and CNO.



6.2.1.3 U.S. Army Corps of Engineers

The USACE provides contract management, construction management, and technical support. NBPL has the option to use USACE contracts as vehicles for natural resource management and to access USACE organizations, such as the U.S. Army Engineer Research and Development Center for technical assistance and support for natural resources projects.



In addition, the USACE has regulatory authority over waters of the United States, which include activities within perennial and intermittent streams, and wetlands. Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill materials into the waters of the United States, including wetlands. Therefore, even an inadvertent encroachment into wetlands or other waters of the United States resulting in displacement or movement of soil or fill materials has the potential to be viewed as a violation of the CWA if an appropriate permit has not been issued by the USACE. Additionally, under the Rivers and Harbors Act Section 10, a permit is required for work or structures in, over or under navigable waters of the United States.

6.2.1.4 Armed Forces Pest Management Board

The Armed Forces Pest Management Board (AFPMB) recommends policy, provides guidance, and coordinates the exchange of information on all matters related to pest management throughout the DoD. The AFPMB's mission is to ensure that environmentally sound and effective programs are present to prevent pests and disease vectors from adversely affecting DoD operations. The AFPMB Natural Resources Committee provides guidance on integrating pest management and natural resource management programs including:

1. Addressing wildlife damage management and pest management requirements in aquatic, riparian, and wetland environments;
2. Identifying conflicts between threatened and endangered species and pest management actions;
3. Integrating pest management considerations with natural resources program responsibilities regarding vegetation management, forest insect and disease damage, and pest damage to ornamentals;
4. Coordinating approval and use of pesticides for vegetation management and other natural resources programs; and
5. Initiating and/or reviewing research regarding natural resource pest management requirements/considerations.

6.2.2 Other Federal Agencies and Programs

6.2.2.1 U.S. Environmental Protection Agency

The EPA leads the nation's environmental science, research, education and assessment efforts. Its activities include developing and enforcing environmental regulations, providing financial assistance to state environmental programs, non-profits and educational institutions, performing environmental research at laboratories located nationwide, sponsoring voluntary partnerships and programs, and providing environmental education (EPA 2009). EPA also provides oversight of the CWA and guidance for managing IRP sites.



6.2.2.2 Natural Resources Conservation Service

The NRCS has several natural resources conservation programs that could assist NBPL in managing resources including conserving soils, improving water quality, increasing wildlife habitat, and reducing damage resulting from floods, or other natural disasters (NRCS 2010).



6.2.2.3 U.S. Department of Agriculture – Wildlife Services

The mission of USDA-Wildlife Services (USDA-WS) is “to provide Federal leadership in managing problems caused by wildlife... [by] helping to solve problems that occur when human activity and wildlife are in conflict with one another” (USDA-WS 2009). The USDA-WS can be contracted by the Navy to monitor nuisance wildlife, and provide nuisance and non-native fauna control.

6.2.2.4 U.S. Geological Survey

The USGS is a multi-disciplinary organization that provides scientific information on biology, geography, geology, geospatial information, and water, to minimize damage from natural disasters; and manage the nation's water, biological, energy, and mineral resources. The USGS could assist NBPL by helping design biological, water quality, and hydrologic surveys, and facilitating the integration of NBPL data into national or regional databases.



6.2.3 State Agencies

6.2.3.1 California Department of Water Resources

The California Department of Water Resources (CDWR) is responsible for managing the water resources within California to “benefit the State's people, and to protect, restore, and enhance the natural and human environments” (CDWR 2009). Strategic planning goals for the agency include (CDWR 2009):



1. Develop and assess strategies for managing the State’s water resources, including development of the California Water Plan Update.
2. Plan, design, construct, operate, and maintain the State Water Project to achieve maximum flexibility, safety, and reliability.
3. Protect and improve the water resources and dependent ecosystems of statewide significance, including the Sacramento-San Joaquin Bay-Delta Estuary.
4. Protect lives and infrastructure as they relate to dams, floods, droughts, and watersheds impacted by fire and disasters, and assist in other emergencies.
5. Provide policy direction and legislative guidance on water and energy issues and educate the public on the importance, hazards, and efficient use of water.
6. Support local planning and integrated regional water management through technical and financial assistance.
7. Perform efficiently all statutory, legal, and fiduciary responsibilities regarding management of State long-term power contracts and servicing of power revenue bonds.
8. Provide professional, cost-effective, and timely services in support of DWR’s programs, consistent with governmental regulatory and policy requirements.

6.2.3.2 California Environmental Protection Agency

San Diego County is included in California Environmental Protection Agency (Cal/EPA) Region 7 (Cal/EPA 2009). Stormwater is managed and permits are issued under the California NPDES by the Colorado River Basin Regional Water Quality Control Board (Cal/EPA 2009). Through issuance of permits, Cal/EPA can assist NBPL in maintaining healthy waters and streams, and ensure a no net loss of wetland acreage on base.



6.2.3.3 California Biodiversity Council

The California Biodiversity Council (CBC) was established in 1991 to “improve coordination and cooperation between the various resource management and environmental protection organizations at Federal, state, and local levels” (CBC 2009). The CBC is comprised of 42 members that represent Federal, state and local government agencies within California, and is co-chaired by the California Secretary for Natural Resources and the Bureau of Land Management (CBC 2009). The goal of the CBC is to strengthen “ties between local communities and governments...by way of promoting strong local leadership and encouraging comprehensive solutions to regional issues” (CBC 2009).



6.2.4 Regional and Local Agencies

Local governments and agencies can also assist in INRMP implementation, particularly with respect to helping NBPL accomplish ecosystem and watershed management objectives. A couple of these local entities include the San Diego County Department of Planning and Land Use, and the cities of San Diego, Bonita, Chula Vista, Poway, and Ramona.

6.2.5 Colleges and Universities

Universities may be contracted to provide technical support in natural resources management and technical expertise on specific resource issues. Seventeen universities and research institutions, along with nine federal agencies (including DoD) comprise the Californian Cooperative Ecosystems Studies Unit (CA-CESU). The host institution for the CA-CESU is the University of California at Berkeley. The mission of the CA-CESU is “to provide research, technical assistance and education across the biological, physical, social, and cultural sciences to address natural and cultural resource management issues at multiple scales and in an ecosystem context in California and nationally as appropriate” (CA-CESU 2004). The CA-CESU was established in July 2003 through a cooperative agreement. Therefore, NBPL has access to any of the partners in the CESU and can acquire their technical assistance through a task agreement. Other colleges and universities near NBPL include:

- San Diego State University
- University of California, San Diego
- California State University San Marcos
- San Diego Community College District (includes San Diego City College, San Diego Mesa College, and San Diego Miramar College)
- Alliant International University
- Coleman University
- John Paul the Great Catholic University
- National University
- New School of Architecture and Design
- Pacific Oaks College
- The Art Institute of California, San Diego
- Point Loma Nazarene University
- San Diego Christian College
- Southern States University
- Woodbury University School of Architecture's satellite campus
- University of San Diego
- California Western School of Law
- Thomas Jefferson School of Law
- University of San Diego School of Law

6.2.6 Contractors

Contractors may be hired to perform specialized management projects or provide technical knowledge about natural resources management. Contractors must adhere to the requirements and management actions detailed in the INRMP. Examples of contractor support in the assistance of NBPL natural resource goals implementation include:

- Endangered species surveys
- Invasive species surveys
- Soil surveys
- Wetland delineations.

6.2.7 Nonprofit Organizations

6.2.7.1 The Nature Conservancy

The Nature Conservancy (TNC) and DoD signed a CA in 1988. This agreement allows installation commanders to obtain technical assistance from TNC and to participate in programs and projects of mutual interest. It also permits TNC to study significant ecosystems under the Navy's control. Natural Resources staff at NBPL can benefit from this agreement thru use of TNC resources and staff to manage natural resources on the installation.



6.2.7.2 NatureServe and State Heritage Programs

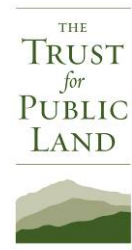
NatureServe is a non-profit conservation organization whose mission is to provide the scientific basis for effective conservation action. NatureServe and its network of natural heritage programs are the leading source for information about rare and endangered species and threatened ecosystems.



NatureServe represents an international network of biological inventories-known as natural heritage programs or conservation data centers operating in all 50 U.S. states, Canada, Latin America and the Caribbean. Together they not only collect and manage detailed local information on plants, animals, and ecosystems, but develop information products, data management tools, and conservation services to help meet local, national, and global conservation needs. The objective scientific information about species and ecosystems developed by NatureServe is used by conservation groups, government agencies, corporations, academia, and the public-to make informed decisions about managing our natural resources. NatureServe has a long history of working with DoD to accomplish mutual conservation goals, and natural resources managers can use the NatureServe resources to manage resources on NBPL.

6.2.7.3 Trust for Public Land

The Trust for Public Land is a nonprofit agency whose mission is to “conserve land for people to enjoy as parks, community gardens, historic sites, rural lands, and other natural places, ensuring livable communities for generations to come (Trust for Public Land 2009). The agency has partnered with DoD to battle encroachment around military bases. The Navy and NBPL can partner with the Trust for Public Land and acquire lands for conservation around NBPL under the Encroachment Partnering Program.



6.2.8 Interagency Programs

6.2.8.1 Multi-Agency Rocky Intertidal Network

MARINe is “a partnership of agencies, universities and private groups committed to determining the health of the rocky intertidal habitat and providing this information to the public” (MARINe 2009). MARINe is a nonprofit organization that monitors biodiversity and habitats along the California coastline (MARINe 2009). The organizations key goals include (MARINe 2009):

1. Develop a long-term monitoring program with standardized protocols so data are comparable temporally and spatially.
2. Develop a shared database for the users to analyze data across sites.

3. Promote research projects at MARINE monitoring sites and jointly publish data in peer-reviewed journals, technical conferences and through workshops.
4. Develop biological indices of measurement to determine health. Indices will provide a scientifically based, repeatable approach for determining health.
5. Make MARINE findings available to the public.

6.2.8.2 San Diego River Conservancy

In September 2002 the California Legislature passed the San Diego River Conservancy Act (Public Resources Code Division 22.9, Sections 32630 – 32661) “to preserve, restore and enhance the San Diego River Area.” Through the Act, the San Diego River Conservancy was established as a non-regulatory agency within the State of California administered by a nine-member governing board consisting of state and local representatives (San Diego River Conservancy 2009). The mission of the Conservancy is to “further the goals of its enabling legislation (i.e., land conservation, recreation and education, natural and cultural resources preservation and restoration, water quality and natural flood conveyance), by conserving and restoring its land and water for the enjoyment of present and future generations” (San Diego River Conservancy 2006).

6.3 Infrastructure and Facilities Management

6.3.1 Shoreline Construction

Shoreline construction or maintenance activity in waters of the U.S. is permitted under the CWA and the Rivers and Harbors Act which are administered by the USACE. In addition, material that is transported for ocean disposal is regulated by Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972. CWA jurisdiction starts at the Ordinary High Water Mark, or any adjacent wetlands, or the High Tide Line; and Rivers and Harbors Act jurisdiction starts at the Mean High Water Mark.

In cases where federally listed species may be taken (under the ESA taken is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect), the USFWS shall be consulted. Above the mean high water line, construction activities must comply with provisions of the CZMA. The Navy has a General Consistency Determination for periodic replacement of piers and shorelines structures dated 1998 (CD-070-98).

Fender systems act as bumpers to protect the berthing facility and vessels. Over the past years, installations in San Diego have been replacing creosote-treated timber fender piling with more environmentally friendly and better functioning fender systems. Between 1997 and 1999, 1,061 timber pilings were replaced at NBPL, Mainbase and SSC Pacific.

Timber fender systems have been removed and replaced with various systems, depending on the type of vessels intended to use the system. At NBPL, the primary fender systems used are either foam-filled or hydropneumatic (air-filled) fenders with concrete backing piles. At the floating dry-dock pier, the timber fender system was replaced with rubber buckling fenders. Plastic pilings have been used at SSC Pacific between foam and air-filled fender units. Plastic piles are also used for corner protection in a system that includes a steel wale and rubber buckling fenders.

6.3.2 Dredge and Fill Projects

Dredging in San Diego Bay is conducted by the Navy, U.S. Army Corps of Engineers, the Port of San Diego, and some commercial marina operators and requires permitting. At NBPL, dredge and fill projects, relating to pier and boat ramp maintenance, are conducted at SSC Pacific, DFSP, NMAWC, and NBPL, Mainbase, as well as at the U.S. Coast Guard station on NBPL. The water depth at Point Loma Fuel Pier must be maintained at approximately 45 feet (15 meters) for ship refueling.

EFH, designated by NOAA Fisheries, includes the San Diego Bay and Pacific Ocean surrounding NBPL. NOAA Fisheries will provide consultation on proposed projects with the potential to affect EFH through NEPA, ESA CWA, and Sikes Act established procedures.

To offset these adverse effects, project proponents have become innovative in their approach. Dredge material has been successfully used in habitat enhancement projects in the bay to build up medium-depth habitat to shallower depths to allow for eelgrass planting and fish enhancement structures. Fill material has also been used to create habitat for the California Least Tern and Western Snowy Plover, as well as subtidal eelgrass.

6.3.3 Ship Maintenance and Operations

Limited ship maintenance occurs at NBPL. Ship berthing and refueling operations occur at DFSP. Hull inspection and maintenance occurs at NBPL. Copper unfortunately leaches into the marine environment at a rate of 10 micrograms/cm²/day. Besides water quality issues, there is a potential for introduction of exotic species when ship ballast tanks are emptied at NBPL (U.S. Navy 1995).

The Marine Environmental Protection Committee of the International Maritime Organization has developed guidelines for the control of ship ballast water to prevent the introduction of unwanted aquatic organisms and pathogens. The U.S. Coast Guard published these guidelines for adoption as voluntary standards to decrease the possibility of further introduction of cholera and other pathogens into U.S. waters. Since Navy ships operate worldwide, the Navy has chosen to adopt the intent of the Coast Guard standards (OPNAVINST 5090-1B CH-2, Section 19-10 [9 September 1999]).

Pollution potentially infects water in harbors, rivers, inlets, bays, landlocked waters, and the open sea within 12 nautical miles (nm) of the entrance to these waterways. Some species, if taken up with ballast water and transferred to a different location or ecosystem, could cause damage or be harmful to the ecosystem. These species are more prevalent within 3 nm from the shore or within the polluted areas.

Current Management

By EO, the President has directed that federal agencies shall design, use, or promote construction practices that minimize adverse effects on the natural habitat where cost-effective and to the extent practicable (EO 13112). Additionally, CWA section 404(b)(1) analysis states that the USACE can only authorize the Least Environmentally Damaging Practicable Alternative. Several other laws are pertinent: CWA, CAA, ESA, NEPA, and Soil Conservation Act. Routine maintenance activities that may affect drainages fall under the USACE authority from Section 404 of the CWA and activities that may affect all navigable waters including all structures fall under USACE authority from the Rivers and Harbors Act. Locations where roads cross drainages are most likely to require coverage by a permit.

Navy follows NAVSEA procedures for hull cleaning to minimize the release of copper ablative hull paint during hull cleaning operations. In addition, NBPL follows requirements in NPDES Permit CA 0109363,

and NBPL INST 11000.7A to minimize the potential release of contaminants during industrial, maintenance and preservation related activities.

To reduce introduction of exotic species, Navy ships follow an at sea open ocean ballast water exchange program to minimize the potential for introducing invasive species.

Management Objective and Strategy

6.3.3.1 Facilities Management

Objective: Conduct construction and facility maintenance to allow for protection of sensitive resources, while not impacting the military mission.

Strategies:

1. Ensure that the Recommended Plant List is consulted when designing and installing vegetated landscapes.
2. Ensure incorporation of erosion control BMPs in the preliminary engineering, design, and construction of facilities involving ground disturbance.
3. Vehicular traffic associated with the construction activities and operational support activities will remain on established roads to the maximum extent practicable. Areas with highly erodible soils will be given special consideration when designing the proposed project to ensure incorporation of various erosion control techniques, such as, straw bales, silt fencing, aggregate materials, wetting compounds, and rehabilitation, where possible, to decrease erosion. Rehabilitation may include revegetating or the distribution of organic and geological materials (i.e., rocks) over the disturbed area to reduce erosion while allowing the area to naturally vegetate. Additionally, erosion control measures and appropriate BMPs, engineering designs will be implemented before, during, and after construction activities.
4. Construction equipment will be cleaned at the temporary staging areas, in accordance with BMPs, prior to entering and departing the project corridor to minimize the spread and establishment of non-native invasive plant species.

6.3.3.2 Road Maintenance

Objective: Improve the soundness of road maintenance practices to avoid and minimize environmental impacts, to control non-native species, enhance biodiversity, and protect sensitive species, soil productivity, watershed functioning, and water quality.

Strategies:

1. Comply with CWA Section 404 Permit, Section 401 State Water Quality Certification, and Rivers and Harbors Act if a project may affect a floodplain, wetlands or watercourses, or navigable waters. Ensure project proponents understand their responsibilities for obtaining and complying with CWA permits
2. Develop and implement protocols for conducting maintenance activities on roads. Provide training on protocols to applicable personnel. For example, reducing mowing frequency and intensity based on ecological considerations (e.g., annual nesting season).

6.4 Stormwater Management

Stormwater discharge to navigable waters is prohibited unless a NPDES permit is obtained. The EPA has delegated responsibility for the NPDES program to the State Water Board.

Current Management

The U.S. Navy policy related to stormwater management is: “Develop, implement, and maintain current stormwater management plans, and comply with federal, state, and local regulations and permit conditions, as applicable.” The Navy has coverage under two general stormwater permits: the statewide General Industrial NPDES Stormwater Permit and the statewide General Construction NPDES Stormwater Permit.

NBPL follows stormwater requirements within NPDES Permit CA 0109363.

Management Objective and Strategy

Objective: Reduce and minimize stormwater pollutants harmful to the ocean ecosystem from entering NBPL waters.

Strategies:

1. Implement ECP BMPs.
2. Implement recommendations for stormwater management contained within any NPDES permits maintained by NBPL.
3. Investigate the use of LID for future development projects to minimize adverse impacts of surface runoff from impervious areas.
4. Develop an improved training program for appropriate government employees.
 - a. Support regular workshops on the need, design, and implementation of BMPs.
 - b. Provide training on LID to maintain pre-development hydrologic conditions.

6.5 Communications Towers, Wind Farms and Power Lines

Specific Concerns

- Growing impacts from communications towers, power lines, and wind farms to migratory birds protected under the MBTA. Communication towers may kill from 4-5 million birds per year. Collisions with power lines may kill anywhere from hundreds of thousands to 175 million birds annually, and power lines electrocute tens to hundreds of thousands more birds annually.

Management Objective and Strategy

Objective: Safeguard military readiness by maintaining communications towers and overhead power lines while avoiding and minimizing impacts to native wildlife and plants.

Strategies:

1. Comply when feasible with USFWS guidelines for reducing fatal bird strikes on communication towers, such as the Service guidance on the siting, construction, operation and decommissioning of communications towers, to the greatest extent practicable.
2. Develop an avian protection plan using information from the DoD PIF, and USFWS.

6.6 Consistency with Cultural Resources Management

NBPL has developed an ICRMP (U.S. Navy 2011d), and objectives and strategies for management of cultural resources are outlined in that document.

Management Objective and Strategy

Objective: Coordinate management activities between the cultural and natural resource management program when a natural resource impacts, or has the potential to impact, a cultural resource.

Strategies:

1. Coordinate with the Cultural Resource program when natural resource projects that have the potential to impact sensitive cultural resources are not able to provide site-specific information.
2. Review and ensure that natural resources activities do not conflict with the NBPL ICRMP.

6.7 NEPA Compliance

NEPA requires review of federally supported activities, actions, and alternatives to assess their potential impacts on the environment. The NEPA process is designed to identify potential environmental problems early in the planning process so the proponent of the action can resolve problems in the early stages of project development. OPNAVINST 5090.1C CH-1, Chapter 5: *Environmental Planning Under the National Environmental Policy Act (NEPA) and Executive Order (E.O.) 12114*, sets forth policy, responsibilities, and procedures for integrating environmental considerations into Navy planning and decision making.

An Environmental Assessment (EA) and finding of no significant impact (FONSI) have been prepared to document the implementation of the revised INRMP at NBPL. The EA and associated FONSI can be found in **Appendix M** of this plan.

Current Management

The NEPA program at NBPL is conducted according to NBPLINST 5090.2, Policy and Procedures for Conducting Environmental Review Process at Naval Base Point Loma, San Diego (NBPL 2010). The instruction provides guidance for conducting the NBPL Environmental Review Process to ensure compliance with federal, state and DoN guidance and regulations pertaining to NEPA. The instruction also identifies key participants and procedures for performing initial environmental reviews. The Site Approval Process for NBPL is illustrated in **Figure 6-6**.

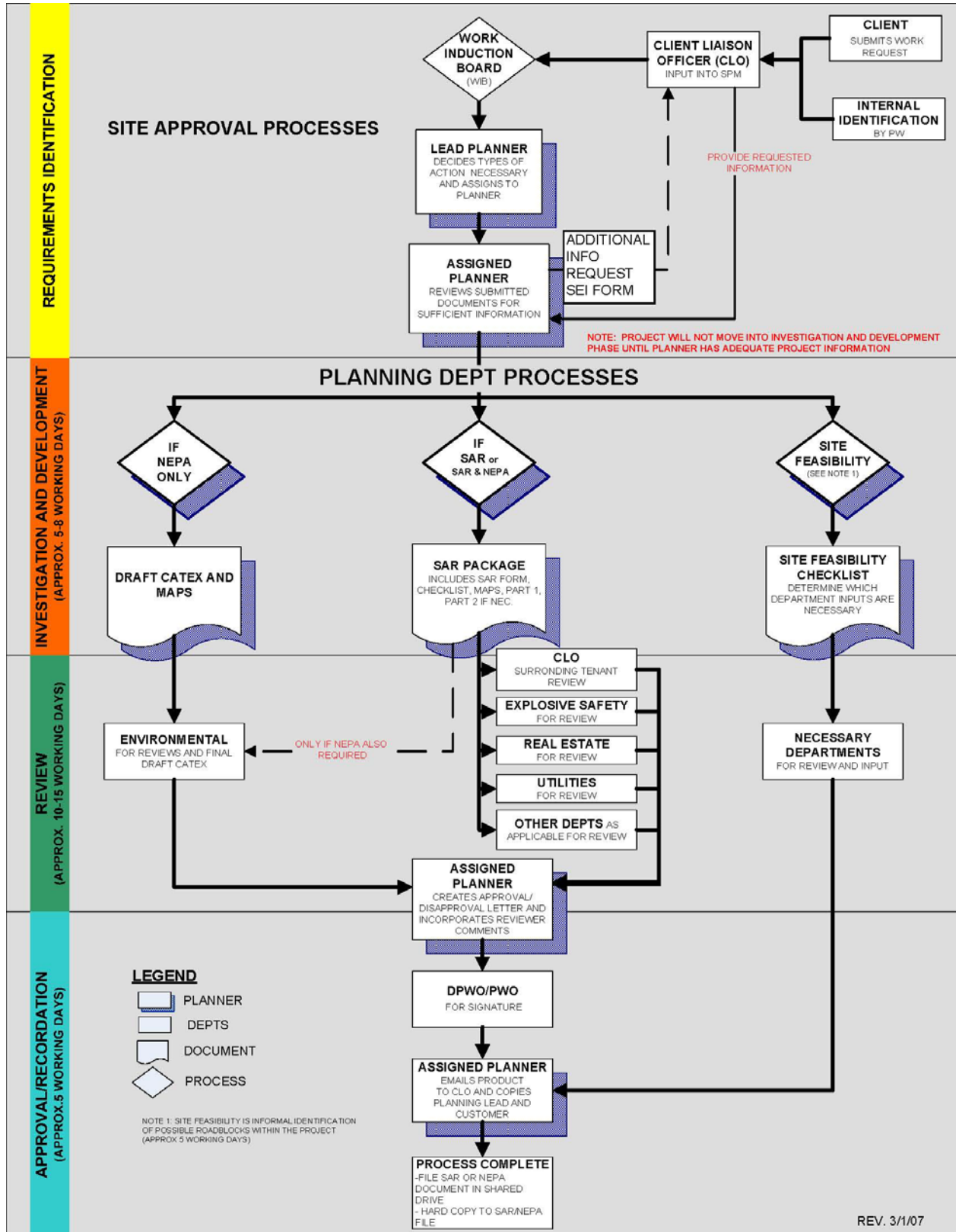


Figure 6-6: Site Approval Process for NBPL

The policy identified in the instruction for conducting NEPA on NBPL is as follows (NBPL 2010):

1. The action proponent should initiate environmental planning/analysis at the earliest time possible in order to add environmental considerations and associated costs into the decision making process. This is an opportunity to present less restrictive and/or costly alternatives.
2. All actions conducted at NBPL are required to undergo an environmental review to ensure these undertakings fully comply with applicable laws, regulations, and directives.
3. It is the responsibility of the host (i.e., installation) and various tenant commands, visiting personnel, and support contractors conducting actions within the NBPL area of responsibility to fully comply with all applicable environmental compliance requirements, including the implementation of the installation's policies and procedures.
4. The Host and tenant activities shall coordinate, fully participate, appropriately staff, and adequately resource all efforts required to implement these policies and procedures. Inability to provide all required resources or late initiation of NEPA may negatively impact desired operational or facilities project timing and costs. The action proponent should consider that NEPA document preparation times vary, depending on the level of NEPA analysis required. The first level (Categorical Exclusion), may take a couple of hours to a couple of months. The second level (Environmental Assessment) may take up to 18 months. The third level (Environmental Impact Statement) may take an average of 3 to 5 years. All projects/action are different, so times may vary significantly depending on the complexity and environmental resources impacted.

Management Objective and Strategy

Objective: Conduct planning of mission activities having potential environmental effects by applying NEPA's requirements and policies to enhance the mission-related use and the protection of natural resources. Seek opportunities for streamlining environmental assessment procedures.

Strategies:

1. Continue to comply with NBPLINST 5090.2.
2. Continue to assess the environmental consequences of each proposed action that could affect the natural environment, and address the significant impact of each action through analysis, planning and avoidance.
3. Implement established protocols to ensure that NEPA is integrated early in the planning process for project development.

6.8 Oil Spill and Hazardous Substance Prevention and Cleanup

The federal Water Pollution Control Act of 1972 (33 USC 1251, *et seq.*), as amended by the CWA of 1977, authorizes the President, in the case of an oil or hazardous substance release, to take any action necessary to mitigate damage to the public health and welfare; including, but not limited to fish, shellfish, wildlife, public and private property, shorelines and beaches. Natural Resource Trustees are authorized to recover damages for injury to, destruction of or loss of natural resources resulting from a discharge or the substantial threat of discharge, of oil into navigable waters.

The CWA prohibits spills, leaks or other discharges of pollutants into waters of the U.S. in quantities that may be harmful, which includes discharges of pollutants that: (1) violate applicable water quality standards; (2) cause a film or sheen upon or discoloration of the surface of the water or adjoining

shorelines; or (3) cause sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

The Oil Pollution Prevention Act of 1990 amended the CWA to expand oil spill prevention activities, improve preparedness and response capabilities, and ensure that companies are responsible for damages from spills. The USCG is the lead agency for oil spill prevention and response, and is authorized to direct state and local agencies in controlling pollution in bays and coastal waters.

Hazardous substances other than oil are addressed by CERCLA (42 USC 9601, *et seq.*), which authorizes Natural Resource Trustees to recover damages for injury to, destruction of or loss of natural resources resulting from the release of a hazardous substance.

OPNAVINST 5090.1C CH-1, Chapter 26 (Natural Resources Damage), describes policies, requirements and all pertinent legislation, references, and information related to the release of oil or hazardous substances that injure or threaten to injure natural resources within Navy control or management (DoN 2011).

NOAA is assigned responsibility for performing a Natural Resources Damage Assessment (NRDA) from spills, and the Navy has adopted NOAA procedures for damage assessment (15 CFR 990). Similarly, the United States Department of Interior is in charge of damage assessment for hazardous substance spills under EO 12580. The baseline condition of the natural resources and services that would have existed had the oil or hazardous substance release not occurred is estimated using historical data, reference data, control data or data on incremental changes, alone or in combination, as appropriate. Navy guidance (OPNAVINST 5090.1C CH-1) suggests that this information may be obtained from INRMPs, NEPA documents, or special studies.

In California, the CDFG Office of Spill Prevention & Response (OSPR) is responsible for protecting California's natural resources by preventing, preparing for, and responding to spills of oil and other deleterious materials, and through restoring and enhancing affected resources. The USCG and CDFG-OSPR agreed to joint preparation of contingency plans through co-chairing the three Port Area Committees for Contingency Planning: USCG Port Areas for San Francisco, Los Angeles/Long Beach, and San Diego.

The OSPR's Resource Assessment Program conducts NRDA of pollution events that result in significant injuries to wildlife and/or habitat. The goal of OSPR's NRDA program is to quantify the damages, to seek compensation from the responsible parties, and to both restore the injured resources and compensate the public for the lost interim ecological benefits and uses of these resources. CDFG normally leads wildlife response during a spill in California through the California Wildlife Operations Branch.

The Emergency Management Program at NBPL provides the necessary policy guidance, organizational structure, mitigation strategies, and responsibilities to establish an all-hazards approach to Emergency Management. Emergency Management at NBPL provides the framework for Navy interaction with Federal, state, local, and other service organizations. The NBPL Emergency Management Officer can be contacted at: 619-553-0090 (CNIC 2009b).

Specific Concerns

- Cumulative effects of small, medium, and large oil spills from boats, personal watercraft, and ships can contaminate NBPL waters and affect natural resources.

- Coordinated planning for oil spill cleanup activities should be integrated with conservation priorities of this INRMP.
- The collection and maintenance of ecological information required by OPNAVINST 5090.1C CH-1 (Chapter 26) are essential to pre-incident planning on behalf of the Navy's Regional Environmental Coordinator.
- There is a need to incorporate planning for NRDA under both federal and state oil spill prevention regulation, as well as to establish a quantitative baseline to support natural resources management decisions, habitat mitigation and enhancement planning, and sustainability planning.

Current Management

NBPL has an Integrated Contingency Plan that contains a Facility Response Plan and Spill Containment Control and Countermeasures Plan. This combined document and the Area Contingency Plan addresses these concerns including pre-identified natural resources areas of concern and booming / response strategies to protect them. Assessment of Current Management

As long as NBPL follows procedures within OPNAVINST 5090.1C CH-1, and the Integrated Contingency Plan, the potential for oil and hazardous substance spills will be negligible.

Management Strategy

Objective: Prevent spills of oil and other hazardous substances, and ensure the effectiveness of prevention and response planning.

Strategies:

1. Continue to comply with NBPL established procedures for managing petroleum, oil, lubricants, and hazardous wastes.
2. Integrate the protection priorities of this INRMP into contingency spill planning.
 - a. Update GIS layers of natural resources to support preparedness planning.
 - b. Integrate baseline ecological surveys into preparedness planning.
 - c. Integrate invasive exotic species response planning with oil spill contingency plans.
3. NBPL natural resources personnel should work closely with NMFS and USFWS to ensure that the Integrated Contingency Plan is consistent with any existing federal agency emergency response plans for marine mammals.
4. Coordinate with NMFS in developing emergency response protocols.

6.9 Real Estate Outgrants and Leases

OPNAVINST 5090.1C CH-1 requires the Navy to identify areas that may be suitable and available for agricultural/grazing outleasing or commercial forestry. More specifically, the Military Construction Authorization Act and 10 USC 2665 and 2667 provide for the use of DoD lands under a lease to an agency, organization, or person for the purpose of agricultural/grazing outleasing or the production of and sale of forest products that have commercial value.

At NBPL there are no forestlands suitable for timber production, or lands suitable for agricultural and grazing outleasing. The Navy has no plans to initiate commercial use, such as grazing, agriculture, or oil exploration, on NBPL.

All real estate transactions go through the Site Approval Process for review by an interdisciplinary team including the installation biologist. As of May 2012, there are 13 agreements, 3 permits, 18 licenses, 7 leases, and 21 easements under NBPL's area of responsibility.

6.10 Staffing

6.10.1 Natural Resources Program Staffing

The Sikes Act, DoD Instruction 4715.03, and OPNAVINST 5090.1C CH-1 specifically requires that there be "sufficient numbers of professionally trained natural resources management and natural resources enforcement personnel to be available and assigned responsibility" to implement an INRMP. The NBPL ED is responsible for identifying personnel requirements to accomplish INRMP goals and objectives. The NBNBPL ED is also responsible for providing input into this process by allocating existing budgetary and personnel resources and then identifying staffing needs based on any additional current and future projects. Personnel assigned to natural resources management are the core staff responsible for implementing the INRMP. These personnel ensure that a consistent conservation program is carried out by using strategies outlined in this plan to support the Navy mission and achieve INRMP goals and objectives. Staff coordination includes both planning teams for initiating projects and staffing teams to manage and run projects. Some of the projects described in this plan will depend on coordination with the Public Works Department and other installation personnel. The following staff positions are required to implement this INRMP at NBPL:

- Biologist
- Biological Science Technician

6.10.2 Professional Education and Training

Continuing education, training courses, and workshops allow managers to stay up to date with the latest research findings and application techniques. Membership in professional societies is encouraged, including The Wildlife Society, Society of Range Management, National Military Fish and Wildlife Association (NMFWA), Society for Ecological Restoration, the California Native Plant Society, and the Society for Conservation Biology. These societies produce some of the best scientific publications in natural resources. Meetings of these societies also provide excellent ways to communicate with fellow professionals, and to maintain professional standards.

Environmental personnel are encouraged to join professional societies and become active members. Personnel are sent to as many meetings as feasible to meet with other professionals to exchange ideas and attend technical meetings. Maintenance and enhancement of professional skills are emphasized.

At least one environmental staff person from NBPL should attend annual workshops or professional conferences as funding permits. For example, (this is not an inclusive list and other relevant workshops or conferences may be attended):

- National Military Fish and Wildlife Association annual workshop
- North American Natural Resources Conference
- Western Association of Fish and Wildlife Agencies
- The Wildlife Society Conference (national, section, and chapter levels)

- Society for Range Management annual meeting
- International Erosion Control Association Conference
- Environmental Systems Research Institute (ESRI) Users GIS Conference.

Other conferences/workshops will be evaluated for their usefulness. Decisions will be made based on the appropriateness to ongoing projects and funding availability. Training that is especially useful includes endangered species workshops, GIS basic and advanced training, watchable wildlife workshops, wetlands training, and Partners in Flight workshops. It is especially useful to have as many people as possible attend NMFWA workshops, and efforts will be made to have more than minimal attendance at that meeting. Personnel will be trained in related environmental fields. NEPA training is required of all personnel who review or prepare NEPA documents.

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7. Implementation

7.1 Project Prescription Development

Policy on INRMP implementation is contained in DoD Memorandum *Implementation of the Sikes Act Improvement Act: Updated Guidance*. According to the memorandum, an INRMP is considered implemented if an installation (DUSD (I&E) 2002):

- Actively requests, receives, and uses funds for “must fund” projects and activities;
- Ensures that sufficient numbers of professionally trained natural resources management personnel are available to perform the tasks required by the INRMP;
- Coordinates annually with all cooperating offices; and
- Documents specific INRMP action accomplishments undertaken each year.

Key elements of INRMP implementation (e.g. projects) are addressed in **Appendix D, Tables D-1 through D-3**.

7.2 Priority Setting and Funding Classification

Project priority within this INRMP is initially determined by funding classification, as defined in Department of Defense Instruction 4715.03, *Natural Resources Conservation Program* (DoD 2011). **Table 7-1** summarizes Class 0, 1, 2 and 3 funding classes for the recurring and non-recurring conservation requirements in Department of Defense Instruction 4715.03

Table 7-1: Funding Classes for Recurring and Non-Recurring Conservation Requirements and Navy Environmental Readiness Levels

Recurring and Non-Recurring Conservation Requirements (<i>DoD 4715.03, 2011</i>)	Navy Environmental Readiness Levels (<i>OPNAVINST 5090.1C CH-1</i>)
<p>Class 0: Recurring Natural Resources Conservation Management Requirements:</p> <ul style="list-style-type: none"> a. Administrative, personnel, and other costs associated with managing the DoD Natural Resources Conservation Program that are necessary to meet applicable compliance requirements in federal and state laws, regulations, EOs, and DoD policies, or in direct support of the military mission. b. DoD components shall give priority to recurring natural resources conservation management requirements associated with the operation of facilities, installations, and deployed weapons systems. These activities include day-to-day costs of sustaining an effective natural resources management program, as well as annual requirements, including manpower, training, supplies, permits, fees, testing and monitoring, sampling and analysis, reporting and recordkeeping, maintenance of natural resources conservation equipment, and compliance self-assessments. 	<p>Environmental Readiness Level 4 (absolute minimum level of environmental readiness capability required to maintain compliance with applicable legal requirements):</p> <ul style="list-style-type: none"> a. Supports all actions specifically required by law, regulation or Executive Order (DoD Class I and II requirements) just in time. b. Supports all DoD Class 0 requirements as they relate to a specific statute such as hazardous waste disposal, permits, fees, monitoring, sampling and analysis, reporting and record keeping. c. Supports recurring administrative, personnel and other costs associated with managing environmental programs that are necessary to meet applicable compliance requirements (DoD Class 0). d. Supports minimum feasible Navy executive agent responsibilities, participation in Office of the Secretary of Defense (OSD) sponsored inter-department and inter-agency efforts, and OSD mandated regional coordination efforts.

Recurring and Non-Recurring Conservation Requirements (<i>DoD 4715.03, 2011</i>)	Navy Environmental Readiness Levels (<i>OPNAVINST 5090.1C CH-1</i>)
<p>Class I: Non-Recurring Natural Resources Management Requirements. Current Compliance. Includes installation projects and activities to support:</p> <ul style="list-style-type: none"> a. Installations currently out of compliance (e.g., received an enforcement action from an authorized federal or state agency or local authority). b. Signed compliance agreement or consent order. c. Meeting requirements with applicable federal or state laws, regulations, standards, EOs, or DoD policies. d. Immediate and essential maintenance of operational integrity or military mission sustainment. e. Projects or activities that will be out of compliance if not implemented in the current program year. Those activities include: <ul style="list-style-type: none"> i. Environmental analyses for natural resources conservation projects, and monitoring and studies required to assess and mitigate potential impacts of the military mission on conservation resources. ii. Planning documentation, master plans, compatible development planning, and INRMPs. iii. Natural resources planning-level surveys. iv. Reasonable and prudent measures included in incidental take statements of biological opinions, biological assessments, surveys, monitoring, reporting of assessment results, or habitat protection for listed, at-risk, and candidate species so that proposed or continuing actions can be modified in consultation with the USFWS or National Oceanic and Atmospheric Administration (NOAA) Fisheries Service. v. Mitigation to meet existing regulatory permit conditions or written agreements. vi. Nonpoint source pollution or watershed management studies or actions needed to meet compliance dates cited in approved state coastal nonpoint source pollution control plans, as required to meet consistency determinations consistent with Coastal Zone Management. vii. Wetlands delineation critical for the prevention of adverse impacts to wetlands, so that continuing actions can be modified to ensure mission continuity. viii. Compliance with missed deadlines established in DoD executed agreements. 	<p>Environmental Readiness Level 3:</p> <ul style="list-style-type: none"> a. Supports all capabilities provided by ERL4. b. Supports existing level of Navy executive agent responsibilities, participation in OSD sponsored inter-department and inter-agency efforts, and OSD mandated regional coordination efforts. c. Supports proactive involvement in the legislative and regulatory process to identify and mitigate requirements that will impose excessive costs or restrictions on operations and training. d. Supports proactive initiatives critical to the protection of Navy operational readiness.

Recurring and Non-Recurring Conservation Requirements (<i>DoD 4715.03, 2011</i>)	Navy Environmental Readiness Levels (<i>OPNAVINST 5090.1C CH-1</i>)
<p>Class II: Non-Recurring Natural Resources Management Requirements. Maintenance Requirements. Includes those projects and activities needed to meet an established deadline beyond the current program year and maintain compliance. Examples include:</p> <ul style="list-style-type: none"> a. Compliance with future deadlines. b. Conservation, GIS mapping, and data management to comply with federal, state, and local regulations, EOs, and DoD policy. c. Efforts undertaken in accordance with non-deadline specific compliance requirements of leadership initiatives. d. Wetlands enhancement to minimize wetlands loss and enhance existing degraded wetlands. e. Conservation recommendations in biological opinions issued pursuant to the ESA. 	<p>Environmental Readiness Level 2:</p> <ul style="list-style-type: none"> a. Supports all capabilities provided under ERL3. b. Supports enhanced proactive initiatives critical to the protection of Navy operational readiness. c. Supports all Navy and DoD policy requirements. d. Supports investments in pollution reduction, compliance enhancement, energy conservation and cost reduction.
<p>Class III: Non-Recurring Natural Resources Management Requirements. Enhancement Actions Beyond Compliance. Includes those projects and activities that enhance conservation resources or the integrity of the installation mission, or are needed to address overall environmental goals and objectives, but are not specifically required by law, regulation, or EO, and are not of an immediate nature. Examples include:</p> <ul style="list-style-type: none"> a. Community outreach activities, such as International Migratory Bird Day, Earth Day, National Public Lands Day, Pollinator Week, and Arbor Day activities. b. Educational and public awareness projects, such as interpretive displays, oral histories, Watchable Wildlife areas, nature trails, wildlife checklists, and conservation teaching materials. c. Restoration or enhancement of natural resources when no specific compliance requirement dictates a course or timing of action. d. Management and execution of volunteer and partnership programs. 	<p>Environmental Readiness Level 1:</p> <ul style="list-style-type: none"> a. Supports all capabilities provided under ERL2. b. Supports proactive actions required to ensure compliance with pending/strong anticipated laws and regulations in a timely manner and/or to prevent adverse impact to Navy mission. c. Supports investments that demonstrate Navy environmental leadership and proactive environmental stewardship.

To further facilitate project funding, the Navy has developed four Environmental Readiness Levels (ERLs) that also used to determine project priority (DoN 2011). The projects tables in **Appendix D** include the appropriate ERL level for each project prescribed within this INRMP. Descriptions of each of the four Navy ERLs are also described above in **Table 7-1** (DoN 2011).

7.3 Project Development and Tracking

Natural resources projects are tracked and allocated funding via the Navy Environmental Program Requirements Web (EPR-web) (U.S. Navy 2006a). The EPR-web is used by the Navy to determine programming and budgeting requirements for projects under the Planning, Programming, Budget, and Execution System (PPBES) process (DoN 2011). The information in the database is also used by the Navy to develop their annual Environmental Quality Report (EQR) for Congress (DoN 2011).

Projects identified in **Appendix D** will need to be entered into the EPR-web to ensure that natural resources management prescriptions identified in this revised INRMP are reviewed by the chain of command, and are documented for inclusion in the annual EQR report to Congress (U.S. Navy 2006a). Once funding is allocated, natural resources personnel at NBPL are responsible for ensuring that EPR-web is updated with the date project funding was received, and progress made towards project completion (U.S. Navy 2006a).

The Navy Natural Resources Metrics (**Appendix K**) were developed to assist installations evaluate INRMP implementation. Annually, each installation receives a report card informing them on where they stand in regards to INRMP implementation. The program also requires each installation to address specific questions related to implementation to ensure that the implemented INRMP meets all regulatory requirements. Navy guidance suggests that projects progress be updated at least twice per year in EPR-web, and the information will be used to answer questions in the annual Natural Resources Data Call Station, which will be used to evaluate INRMP implementation (U.S. Navy 2006a).

7.4 Funding Sources and Mechanisms

The PPBES budget process employed by the DoD is an ongoing, continuously reviewed process that can be summarized as follows (DoD 2005):

- The PPBES process consists of long-range planning to anticipate and secure requirements to meet security threats and accomplish program goals.
- Resources to meet these requirements are estimated and programmed by program managers in the Future Year Defense Plan (FYDP). The FYDP is a list of resource requirements for the next 6 years. Specifically, the FYDP comprises the subsequent fiscal year budget and funding requirements projected out 5 years.
- The FYDP resources are then analyzed via the Programming Process. In the Programming Process, program managers reassess their requirements, reprioritize planned activity, reevaluate existing funding guidance, and estimate their funding needs for the next budget year, plus the subsequent 5 fiscal years (referred to as Program Objectives Memoranda (POMs) 1–5).
- The POM process takes place within Defense Components beginning in the fall of each year. Then each DoD component submits the POM in the spring to the OSD. The OSD reviews the budget submissions and develops the President's budget that will be submitted to Congress. At the installation level, data submissions to support this are made to the Major Commands twice annually, in fall and spring.
- Based on POM decisions of each component, budget controls are issued to the field commands for budget preparation.

The time scale of an INRMP fits well into the DoD PPBES forecasting process. One full cycle of the DoD budget process includes the next budgeted fiscal year and projections for the following 5 fiscal years. One full cycle of the INRMP, with upper command reapproval, covers a 5-year period. This means that by relying on an INRMP that is updated regularly, natural resource managers should be able to project relatively accurate funding requirements for 5-year periods, at a minimum (DoD 2005).

The Regional Commander or Commanding Officer is responsible for ensuring that NBPL has sufficient staff to implement the INRMP. Each NBPL facility environmental office and NAVFAC SW is responsible for annual coordination with USFWS and CDFG, requesting funds for INRMP implementation, and documenting implementation actions. Consequently, the projects and schedules

proposed in this revised INRMP are targets to facilitate natural resources program planning. When requested funds are not received, natural resource management prescriptions and the programming schedule may be reexamined. In addition, plans may be adapted to account for the revised project schedule and the proposed budget may be adjusted to account for available funding.

7.4.1 Funding Sources

Once a project has been placed into the EPR-web a funding source needs to be determined. In general, ERL level 3 and 4 projects will be funded first per the federal anti-deficiency act, but it is up to natural resource managers to find funds for ERL level 1 and 2 projects (U.S. Navy 2006a). The following are the primary funding sources for Navy natural resources programs (U.S. Navy 2006a):

1. **O&MN Environmental Funds.** The majority of natural resource projects are funded with Operations and Maintenance, Navy (O&MN) environmental funds. These appropriated funds are the primary source of resources to support must-fund, just-in-time environmental compliance (i.e., Navy ERL 4 projects). O&MN funds are generally not available for Navy Environmental Readiness Level 3 - 1 projects. In addition to the restriction to Environmental Readiness Level 4 requirements, there are other limitations placed on the use of O&MN funds:
 - a. Only the initial procurement, construction, and modification of a facility or project are considered valid environmental funding requirements. The subsequent operation, modification due to mission requirements, maintenance, repair, and eventual replacement is considered a Real Property Maintenance (RPM) funding requirement. For example, the cost of initially installing a BMP can be funded through O&MN, but future maintenance or repair of that BMP must be paid by RPM funds.
 - b. When natural resource requirements are tied to a specific construction project or other action, funds for the natural resource requirements should be included in the overall project costs. For example, if a permit for filling wetlands is required as part of a military construction (MILCON) project, the costs of obtaining the permit and implementing required mitigation should be paid by MILCON funds as part of the overall construction project costs.
2. **Legacy Funds.** The Legacy Resource Management Program (Legacy Program) is a special Congressionally mandated initiative to fund military conservation projects. The Legacy Program can provide funding for a variety of conservation projects, such as regional ecosystem management initiatives, habitat preservation efforts, archaeological investigations, invasive species control, monitoring and predicting migratory patterns of birds and animals, and national partnerships and initiatives, such as National Public Lands Day.
3. **Fish and Wildlife Fees.** User fees collected for the privilege of hunting, fishing, or trapping will be collected, deposited and used in accordance with the Military Construction Authorization Act—Military Reservation and Facilities-Hunting, Fishing and Trapping (10 U.S.C. 2671) and the DoD financial management regulations. This specifies that user fees collected for hunting, fishing or trapping shall be used only on the installation where collected. Further, collections will be used exclusively for fish and wildlife conservation and management on the installation where collected. Currently, no hunting or trapping is conducted on NBPL. No fishing fees are collected but California Sport Fishing licenses are required.
 - a. The same fee schedule will be used for all participants with the exception of senior citizens, children and the handicapped. Membership in an installation conservation organization will not give members priority in participating in hunting, fishing and trapping programs. Efforts should be made to utilize the services of the installations

MWR function to collect and administer these funds locally in accordance with Sikes Act authorization.

4. **Recycling Funds.** An installation with a Qualified Recycling Program (QRP) may use proceeds for some types of natural resource projects. Proceeds must first be used to cover QRP costs. Up to 50 percent of net proceeds may then be used for pollution abatement, pollution prevention, composting, alternative fueled vehicle infrastructure support, vehicle conversion, energy conversion, or occupational safety and health projects, with first consideration given to projects included in the installation's pollution-prevention plans. Remaining funds may be transferred to the non-appropriated MWR account for approved programs, or retained to cover anticipated future program costs. Natural resource projects can be funded as pollution prevention/abatement (e.g., wetlands or riparian forest restoration) or MWR projects (e.g., trail construction and maintenance).
5. **Strategic Environmental Research and Development Program (SERDP) Funds:** SERDP is DoD's corporate environmental R&D program, planned and executing in full partnership with the Department of Energy (DOE) and EPA, with participation by numerous other Federal and non-federal organizations. SERDP funds for environmental and conservation are allocated through a competitive process. Within its broad areas of interest the SERDP focuses on Cleanup, Compliance, Conservation, and Pollution Preventions technologies. The purpose of the conservation technology program is to use research and development to provide improved inventory and monitoring capabilities; develop more effective impact and risk assessment techniques; and provide improved mitigation and rehabilitation capabilities. The program solicits Statements of Need for conservation technology proposals to research indicators of stress on threatened and endangered species and to develop techniques to inventory and monitor threatened and endangered species in accessible areas.
6. **Non-DoD Funds.** Many grant programs are available for natural resources management projects, such as watershed management and restoration, habitat restoration, and wetland and riparian area restoration. When federally funded, these programs typically require non-federal matching funds. However, installations may partner with other groups to propose eligible projects. Below is one example of a grant program:
 - a. The Five-Star Restoration Challenge Grants Program, sponsored by both federal and nonprofit organizations, provides modest financial assistance in support of community-based wetland and riparian restoration projects. One of the goals of the program is to build partnerships between federal, state, local and nonprofit organizations, and to foster local natural resource stewardship.
 - b. National Public Lands Day Grants. Installations are eligible to receive DoD Legacy funds in support of National Public Lands Day. Project eligible for funds include habitat restoration, wetland restoration, and stream cleanup.

Nontraditional sources of funding for natural resources programs include non-appropriated reimbursable funds (i.e., agricultural or grazing outleasing, forestry, hunting and fishing fees), and appropriated reimbursable funds (e.g., DoD Legacy Program, U.S. Department of Agriculture Pest Management Program). These accounts are sources of funds for Class 3 projects. Installations, however, should not depend on these programs to fully fund their natural resources management programs.

7.5 Effectiveness of INRMP Providing No-Net-Loss to Military Mission

Implementation of this INRMP by NBPL will ensure that the natural resources on NBPL will continue to support the NBPL mission. This INRMP revision strives to integrate natural resources management with

other base plans and activities. It also establishes goals that represent a long-term vision for the health and quality of NBPL's natural resources. Effectiveness of INRMP implementation is measured through the annual natural resources data call for Navy Natural Resources Metrics (**Appendix K**). The information generated from the program is used by NBPL to track implementation and adjust goals and objectives as needed.

The INRMP goal and objectives may be revised over time to reflect changing missions and environmental conditions. Any future changes in mission, training activity, or technology should be analyzed to assess its impact on natural resources. As new plans and DoN guidance and regulations are developed, they will be integrated with the goals and management actions of this INRMP. The INRMP will be reviewed, assessed, and modified as needed on a regular basis to ensure continued integration with other management plans or changes in military mission. For additional information, refer to **Section 1.5**.

7.6 Formal Adoption of INRMP by Regional Commander

Through signing this revised INRMP, the Regional Commander or Commanding Officer is committing to "seek funding and execute, subject to the availability of funding, all ERL Level 4 projects and activities in accordance with specific timeframes identified in the INRMP" (U.S. Navy 2006a).

7.7 Federal Anti-Deficiency Act

"All actions contemplated in this INRMP are subject to the availability of funds properly authorized and appropriated under federal law. Nothing in this INRMP is intended to be nor must be construed to be a violation of the Anti-Deficiency Act (31 U.S.C. 1341 et seq.)" (U.S. Navy 2006a).

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9. References

9.1 INRMP Text References

- Allen 1998 Allen, E. B. 1998. Fisheries Inventory and Utilization of San Diego Bay, San Diego, California. Fourth Annual Report, FY 1997-98. Nearshore Marine Fish Research Program, Department of Biology, California State University, Northridge. September.
- American Ornithologists' Union 1998 American Ornithologists' Union. 1998. Checklist of North American Birds: The Species of Birds of North America from the Arctic through Panama, Including the West Indies and Hawaiian Islands. 7th ed. Committee on Classification and Nomenclature.
- Atkinson et al. 2003 Atkinson, A. J., R. N. Fisher, C. J. Rochester, and C. W. Brown. 2003. Sampling design optimization and establishment of baselines for herpetofauna arrays at the Point Loma Ecological Reserve. U.S. Geological Survey, Western Ecological Research Center, San Diego, CA. 2003.
- Bailey 1995 Bailey, R.G. 1995. Descriptions of the Ecoregions of the United States, Second Edition. Pub. No. 1391 (rev.), Washington, D.C.: USDA Forest Service. 1995.
- Bailey and Mock 1998 Bailey, E.A. and P. Mock. 1998. Dispersal Capability of the California Gnatcatcher: A Landscape Analysis of Distribution Data. Ogden Environmental and Energy Service Company. Sand Diego, CA. 1998.
- Bauder 1998 Bauder, E. T. 1998. Chorizanthe orcuttiana (Orcutt's spineflower) Season 1 Summary. Presented to PLER Working Group. September 22.
- Bauder and Sakrison 2010 Bauder, E. T., and J. Sakrison. 2010. Chorizanthe Orduttians (Orcutt's spineflower) Final Report. 2010
- Benton et al. 2008 Benton, N. J.D. Ripley, and F. Powledge, eds. 2008. Conserving Biodiversity on Military Lands: A Guide for Natural Resources Managers. 2008 edition. Available online <<http://www.dodbiodiversity.org>>. Arlington, Virginia: NatureServe. 2008.
- Brown and Berry 1997 Brown, P. and R. Berry. 1997. Bat Survey of Department of Navy Facilities on Point Loma Peninsula, California. June. Unpublished report prepared for the Natural Resources Management Branch, Southwest Division, Naval Facilities Engineering Command, San Diego, California.
- CA-CESU 2004 Californian Cooperative Ecosystem Studies Unit (CA-CESU). 2004. Californian Cooperative Ecosystem Studies Unit Strategic Plan. November 2004.
- Cal/EPA 2009 California Environmental Protection Agency (Cal/EPA). 2009. Colorado River Basin Regional Water Quality Control Board: Fact Sheet. Available online <http://www.waterboards.ca.gov/coloradoriver/water_issues/available_documents/docs/r7_facts.pdf>. Accessed 01 July 2009.

- Cal-IPC 2006 California Invasive Plant Council (Cal-IPC). 2006. California Invasive Plant Inventory. February 2006.
- CA-NRCS 2007 California Natural Resources Conservation Service (CA-NRCS). 2007 Drought Help – California. Available online <<http://www.ca.nrcs.usda.gov/features/cadrought.html>>. Accessed 27 March 2009.
- CBC 2009 California Biodiversity Council (CBC). 2009. Home Page. Available online <<http://biodiversity.ca.gov/>>. Accessed 01 July 2009.
- CCCC 2006 California Climate Change Center (CCCC). Our Changing Climate: Assessing the Risks to California. July 2006.
- CDFG 2000 California Department of Fish and Game (CDFG). 2000. Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities. Available online <<http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/guideplt.pdf>>. Revised 08 May 2000.
- CDFG 2005 California Department of Fish and Game (CDFG). 2005. Abalone Recovery and Management Plan. 9 December 2005.
- CDFG 2007 CDFG. 2007. California Wildlife Conservation Challenges: California’s Wildlife Action Plan. Available online <<http://www.dfg.ca.gov/habitats/wdp/>>. 2007.
- CDFG 2009a CDFG. 2009b. Resource Management: Wildlife Action Plan. Available online <<http://www.dfg.ca.gov/wildlife/WAP/>>. Accessed 23 June 2009.
- CDFG 2009b CDFG. 2009a. Invasive Species in California. Available online <<http://www.dfg.ca.gov/invasives/>>. Accessed 27 March 2009.
- CDFG 2010 CDFG. 2010. About the California Department of Fish and Game. <<http://www.dfg.ca.gov/about/>>. Accessed January 2011.
- CDWR 2009 California Department of Water Resources (CDWR). 2009. Mission and Goals. <<http://www.dwr.water.ca.gov/about/mission.cfm>>. Accessed 01 July 2009.
- City of San Diego 1997 City of San Diego. 1997. Multiple Species Conservation Program: City of San Diego MSCP Subarea Plan. March 1997.
- City of San Diego 1998 City of San Diego. 1998. Final Multiple Species Conservation Program: MSCP Plan. August 1998.
- City of San Diego 2002 City of San Diego. 2002. Mission Bay Park Master Plan Update. Mission Bay Park Master Plan Update. Adopted August 2, 1994 (Amended July 9, 2002.)
- City of San Diego 2009 City of San Diego. 2009. Grant of Conservation Easement by the San Dieguito River Valley Regional Open Space Park Joint Powers Authority to the Commanding Officer Naval Facilities Engineering Command Southwest. November 2009.

- City of San Diego 2011 City of San Diego 2011. Multiple Species Conservation Program (MSCP). <<http://www.sandiego.gov/planning/mscp/faq/index.shtml>>. Accessed: 21 March 2011.
- CNIC 2009a Commander Navy Installations Command (CNIC). 2009. CNIC Naval Base Point Loma. Available online: <<http://www.cnic.navy.mil/PointLoma/Programs/PortOperations/index.htm>>. Accessed on July 20, 2009.
- CNIC 2009b Commander Navy Installations Command (CNIC). 2009. CNIC Naval Base Point Loma. Available: <<http://www.cnic.navy.mil/PointLoma/Programs/EmergencyManagement/index>>. Accessed on July 20, 2009.
- CNM 2011 Cabrillo National Monument (CMN). 2011. Environmental Factors. Available online <<http://www.nps.gov/cabr/naturescience/environmentalfactors.htm>>. Accessed June 2011.
- CNPS 2000 California Native Plant Society (CNPS). 2000. CNPS Electronic Inventory. Copyright 1994-2000. Programmed by David C. Hudson and Associates.
- CNPS 2012 California Native Plant Society (CNPS). 2012. Inventory of Rare and Endangered Plants (online edition, v8-01a). California Native Plant Society. Sacramento, CA. Accessed on Tuesday, February 07, 2012.
- Costanza *et al.* 1997 Costanza, R., R. d'Arge, R. de Groot, S. Farber, M. Grasso, B. Hannon, K. Linburg, S. Naeem, R.V. O'Neill, J. Paruelo, R.G. Raskin, P. Sutton, and M. van den Belt. 1997. "The value of the world's ecosystem services and natural capital." *Nature* 387: 253–260.
- County of San Diego 2009 County of San Diego. 2009. San Diego County Zoning Ordinance. Available: <<http://www.co.san-diego.ca.us/dplu/zoning/index.html>>. Accessed on July 22, 2009.
- CSMD 2008 California State Military Department (CSMD). 2008. Historic California Posts: Space and Naval Warfare System Command, San Diego – Old Town Campus (Air Force Plant 19). California State Military Department. California State Military Museum. Available: <<http://www.militarymuseum.org/AFPlant19.html>>. Accessed on July 14, 2009.
- DESC 2007 Defense Energy Support Center (DESC). 2007. Final Environmental Assessment – MILCON P-401 – Replace Fuel Storage Tanks and Facilities - Naval Base Point Loma, San Diego, California. Prepared for: U.S. Department of the Navy. November 2007.
- DoD 2002 Department of Defense (DoD). 2002. Implementation of the Sikes Act Improvement Act: Updated Guidance. October 2002.
- DoD 2005 DoD. 2005. Implementation of Sikes Act Improvement Amendments: Supplemental Guidance Concerning Leased Lands. May 2005.
- DoD 2007 DoD. 2007. Guidance to Implement the Memorandum of Understanding to Promote the Conservation of Migratory Birds. 03 April 2007.

- DoD 2010 DoD. 2010. DoD Partners in Amphibian and Reptile Conservation (PARC) Strategic Plan. 12 February 2010.
- DoD 2011 DoD. 2011. Department of Defense Instruction 4715.03, Natural Resources Conservation Program. 16 March 2011.
- DoD et al. 2006 Department of Defense (DoD), U.S. Fish and Wildlife Service, and the International Association of Fish and Wildlife Agencies. 2006. Cooperative Integrated Natural Resource Management Program on Military Installations. January 2006.
- DoD Legacy 2010a DoD Legacy Resource Management Program. 2010a. Natural Resource Conservation Program: The Facts About Pollinators. Available online <[https://www.denix.osd.mil/portal/page/portal/NaturalResources/OtherConservationTools/EcosystemServices/Pollinator - General Factsheet 8-7-09\(4\).pdf](https://www.denix.osd.mil/portal/page/portal/NaturalResources/OtherConservationTools/EcosystemServices/Pollinator%20-%20General%20Factsheet%208-7-09(4).pdf)> Accessed 05 August 2010.
- DoD Legacy 2010b DoD Legacy Resource Management Program. 2010b. Pollinator Habitat Restoration for DoD Land Managers. Available online <<http://www.dodpollinatorworkshop.com/Legacy.html>> Accessed 02 February 2010.
- Dodd et al. 2001 Dodd, S. C., and S. J. Montgomery. 2001. Phase 1: Pacific pocket mouse translocation receiver site coarse-filter study. S. C. Dodd Biological Consulting and SJM Biological Consultants, San Diego, CA.
- DoN 1994 Department of the Navy (DoN). 1994. Secretary of the Navy Instruction (SECNAVINST) 6401.1A. August 1994.
- DoN 1998 DoN. 1998. Chief of Naval Operational Instructions (OPNAVINST) 6250.4B Pest Management Programs. 27 August 1998.
- DoN 2007 DoN. 2007. OPNAVINST 11010.40 Encroachment Management Program. 27 March 2007.
- DoN 2011 DoN. 2011. OPNAVINST 5090.1C CH-1. Environmental Readiness Program Manual. Chapter 24: Natural Resources Management. 18 July 2011.
- DUSD (I&E) 2002 Deputy Under Secretary of Defense (Installations and Environment) Memo, Implementation of the Sikes Act Improvement Act: Updated Guidance, 10 October 2002.
- Engle and Davis 2000a Engle J. M., and G. E. Davis. 2000a. Ecological Condition and Public Use of the Cabrillo National Monument Intertidal Zone 1990 –1995. USGS Open-file Report 00-98. Prepared for Cabrillo Historical Association.
- Engle and Davis 2000b Engle J. M., and G. E. Davis. 2000b. Baseline Surveys of Rocky Intertidal Ecological Resources at Point Loma, San Diego. USGS Open-file Report 00-61.
- EPA 2009 U.S. Environmental Protection Agency (EPA). 2006. About EPA. Available online <<http://www.epa.gov/epahome/aboutepa.htm>>. Accessed 29 June 2009.

- FGC 2009 California Fish and Game Commission. 2009. CDFG News Archive: Fish and Game Commission votes to remove American Peregrine Falcon from state Endangered Species List. Available online <<http://www.dfg.ca.gov/news/news09/2009081301.asp>> Accessed 20 August 2010.
- Global 2011 Global Security Website (Global). 2011. Space and Naval Warfare Systems Center. Available online <<http://www.globalsecurity.org/military/facility/point-loma.htm>>. Accessed 04 March 2011.
- Haas 2006 Haas, W. E., Unitt, P., and K. Fischer. 2006. Results of coastal California gnatcatcher surveys and a review of recent sightings at Naval Base Point Loma. Report prepared for Naval Base Point Loma, Commander Navy Region Southwest, Environmental Department and Southwest Division, Naval Facilities Engineering Command, under contract number N68711-04-LT-A0062. 22 pp.
- Hardlines Design and Delineation 1995 Hardlines Design and Delineation. 1995. Cultural Resource Inventory Survey, Naval Submarine Base San Diego, California.
- Hickman 1993 Hickman, J. C. 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley. 1400 pp.
- Hoffman 1986 Hoffman, R. 1986. Fishery Utilization of Eelgrass (*Zostera marina*) Beds and Non-Vegetated Shallow Water Areas in San Diego Bay. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Region Administrative Report SWR – 86-4.
- Holland 1986 Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, State of California, Department of Fish and Game, Sacramento, CA.
- Jones et al. 1982 Jones, J. K., D. C. Carter, H. H. Genoways, R. S. Hoffman, and D. W. Rice. 1982. Revised Checklist of North American Mammals North of Mexico. Occasional Papers of the Museum, Texas Tech University 80:1-22.
- Keeley 1990 Keeley, J.E. 1990. The California valley grassland pp.I-23 in A.A. Schoenherr, ed. Endangered plant communities of southern California. Special Publication No.3, Southern California Botanists, Claremont, CA. 1990.
- Keppel 2003 Keppel, W. 2003. Basic ecosystem processes: a short introduction. Available online <<http://www.managingwholes.com/ecoblocks.htm>>. Accessed 02 April 2009.
- Keystone Center 1996 Keystone Center 1996. Keystone Center Policy Dialogue on a Department of Defense Biodiversity Management Strategy, Final Report. Keystone, Colorado. January.
- Kilgore 1973 Kilgore, B.M. 1973. The Ecological Role of Fire in Sierran Conifer Forests Its Application to National Park Management in Journal Quaternary Research, Volume 3, Number 3. October 1973.

- Kroeber, A. L. 1976. Kroeber, A. L. 1976. Report on the Aboriginal Territory and Occupancy of the Mohave Tribe. In *American Indian Ethnohistory: Indians of the Southwest*. Garland, New York.
- Lapota et al. 2000. Lapota, D., G. Rosen, J. Chock, and C. H. Liu. 2000. Red and Green Abalone Seed Growout for Reseeding Activities off Point Loma, California. *Journal of Shellfish Research*, Volume 19, Number 1. 2000.
- MARINe 2009. Multi-Agency Rocky Intertidal Network (MARINe). 2009. What is MARINe. Available online <<http://www.marine.gov/About.html>>. Accessed 24 June 2009.
- MCAS Miramar 2006. Marine Corps Air Station (MCAS) Miramar. 2006. Integrated Natural Resources Management Plan for Marine Corps Air Station Miramar, California, 2006 - 2010. October 2010.
- MCAS Miramar 2010. MCAS Miramar. 2010. Draft Integrated Natural Resources Management Plan for Marine Corps Air Station Miramar, California, 2011 – 2015. July 2010.
- McNab and Karl 1991. McNab, A.L., and T.R. Karl. 1991. Climate and Droughts. Reproduced from Hanson, R.L., 1991, Evapotranspiration and Droughts, in Paulson, R.W., Chase, E.B., Roberts, R.S., and Moody, D.W., Compilers, National Water Summary 1988-89--Hydrologic Events and Floods and Droughts: U.S. Geological Survey Water-Supply Paper 2375, p. 99-104. Available online <<http://geochange.er.usgs.gov/sw/changes/natural/drought/>>. Accessed 01 April 2009.
- Millington 2003. J.D.A. Millington. 2003. Wildfire Frequency-Area Statistics and Their Ecological and Anthropogenic Drivers. 2003.
- Munson 2010. Munson, B. 2010. Excel file of Vegetative Community Acreage along the Miramar Pipeline. May 2010.
- NAVFAC SW 2006. NAVFAC SW. 2006. Environmental Assessment for Redevelopment of Navy Broadway Complex. May 2006.
- NAVFAC SW 2009. NAVFAC SW. 2009. 2008 Noxious Weed Control, Naval Base Point Loma. Draft, May 2009.
- NBII 2009. National Biological Information Infrastructure (NBII). 2009. Wildlife Disease: Hot Topics. Available online <<http://wildlifedisease.nbii.gov/hottopics.jsp>>. Accessed 15 April 2009.
- NBPL 2007. Naval Base Point Loma (NBPL). 2007. NBPLINST 5090.1: Base Fishing Regulations. August 2007.
- NBPL 2009. NBPL. 2009. Cooperative Research Agreement between Naval Base Point Loma and the National Park Service Concerning Tide Pool Surveys and Monitoring at Naval Base Point Loma. NBPL-08-01. 2009.

- NBPL 2010 NBPL. 2010. Naval Base Point Loma Instruction 5090.2: Policy and Procedures for Conducting Environmental Review Process at Naval Base Point Loma, San Diego. 05 January 2010.
- NOAA 2009 National Oceanic and Atmospheric Administration (NOAA). 2009. The Weather of Southwest California: A Climate Overview. Available online <http://www.wrh.noaa.gov/sgx/research/Guide/The_Weather_of_Southwest_California.pdf>. Accessed 02 April 2009.
- NPS 2006a National Park Service (NPS). 2006. Status and Trends of Ecological Health and Human Use of the Cabrillo National Monument Rocky Intertidal Zone (1990-2005). June 2006.
- NPS 2006b National Park Service (NPS). 2006. Cabrillo National Monument General Management Plan (GMP). 2006.
- NPS 2010 National Park Service (NPS). 2010. Vegetation Classification of the Cabrillo National Monument and Point Loma Navy Base San Diego County, California. September 2010.
- NPS 2012 National Park Service (NPS). 2012. DRAFT State of the Park Report for Cabrillo National Monument. State of the Park Series No. 2. National Park Service, Washington, D.C. Draft working version of report as of March 13, 2012.
- NRCS 2010 Natural Resources Conservation Service (NRCS). 2010. About NRCS. Available online <<http://www.nrcs.usda.gov/about/>> Accessed June 2009.
- NRCS 2011 NRCS. 2011. National Soil Characterization Data, Database Descriptions. Available online <<http://soils.usda.gov/survey/nscd/>>. Accessed January 2011.
- Pers. Com. Benjamin Pister 2012 Personal Communication Benajmin Pister. 2012. Cabrillo National Monument Species List, Benjamin Pister, Chief of Natural & Cultural Resources Management and Science Cabrillo National Monument National Park Service. 2012.
- Pers. Com. Cheryl Brehme 2011 Personal Communication Cheryl Brehme. 2011. Pacific Pocket Mouse Surveys, Cheryl S. Brehme, Western Ecological Research Center, U. S. Geological Survey. 2011.
- Pers. Com. Jessica Bredvick 2012 Personal Communication Jessica Bredvick. 2012. Rocky Intertidal Invertebrate Surveys for Point Loma. U.S Navy. 2012.
- Pers. Com. Sandy Vissman 2011 Personal Communication Sandy Vissman. 2011. Comments on Draft Naval Base Point Loma INRMP. US Fish and Wildlife Service. 2011.
- PFMC 1998a Pacific Fishery Management Council (PFMC). 1998a. Essential Fish Habitat: New Marine Fish Habitat Conservation Mandate for Federal Agencies. National Marine Fisheries Service. 1998.

- PFMC 1998b PFMC. 1998b. Essential Fish Habitat Designations and Description for Pacific Coast Groundfish Fishery. 1998.
- Platter-Rieger et al. 1996 Platter-Rieger, M. F., P. J. Earley, K. A. Gauden and T. Snipes. 1996. Natural Resources Management Plan for Naval Submarine Base, San Diego. Technical Document 2897. February.
- Reisen et al. 2004 Reisen, W., H. Lothrop, R. Chiles, M. Madon, C. Cossen, L. Woods, S. Husted, V. Karmer, and J. Edman. 2004. West Nile Virus in California. From Emerging Infectious Diseases. Vol. 10. No. 8. Pgs. 1369-1378. August 2004.
- Rogers 1929 Rogers, M. J. 1929. The Stone Art of the San Dieguito Plateau. American Anthropologist 31:454-467.
- Rogers 1939 Rogers, M. J. 1939. Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas. San Diego Museum of Man Papers 3.
- Rogers 1945 Rogers, M. J. 1945. An Outline of Yuman Prehistory. Southwestern Journal of Anthropology 1(2):167-198. Albuquerque.
- Rogers et al. 1966 Rogers, M. J., H. M. Worthington, E. L. Davis, and Clark W. Brott. 1966. Ancient Hunters of the Far West, edited by Richard F. Pourade. Union-Tribune. San Diego.
- RWMG 2007 San Diego Regional Water Management Group (RWMG). 2007. 2007 San Diego Regional Water Management Plan. October 2007.
- San Diego River Conservancy 2006 San Diego River Conservancy. 2006. San Diego River Conservancy Five Year Strategic and Infrastructure Plan 2006-2011. March 2006.
- San Diego River Conservancy 2009 San Diego River Conservancy. 2009. Who Are We? Available online <http://sdrc.ca.gov/who_are_we.html>. Accessed 18 June 2009.
- San Diego Unified Port District 1990 San Diego Unified Port District. 1990. Resources Atlas: Marine Ecological Characterization, Bay History and Physical Environment. South San Diego Bay Enhancement Plan, Vol 1. Prepared by Michael Brandman Associates, San Diego.
- SDF 2008 San Diego Foundation. 2008. The San Diego Foundation Regional Focus 2050 Study: Climate Change Related Impacts in the San Diego Region by 2050. 2008.
- SDNHM 2010 San Diego Natural History Museum (SDNHM) Entomology Department. 2010. Terrestrial Arthropod Biodiversity Survey, Naval Base Point Loma, San Diego, California. 2010.
- SERG 2011 Soils and Ecology Research Group (SERG). 2011. Final Report - Endangered plant species management, protection, and habitat enhancement at the Third Fleet Complex and Space and Naval Warfare Systems Center, Naval Base Point Loma. 2011.

- SSC Pacific 1990 Space and Naval Warfare Systems Center Pacific (SSC Pacific). 1990. Fifty Years of Research and Development on Point Loma, 1940 – 1990. 1990.
- The Pollinator Partnership/NAP PC 2010 The Pollinator Partnership™/North American Pollinator Protection Campaign (NAPPC). 2010. Selecting Plants for Pollinators. A Regional Guide for Farmers, Land Managers, and Gardeners in the California Coastal Chaparral Forest and Shrub Province Along the Southern California Coast. Available online <<http://www.pollinator.org/PDFs/Calif.Coastal.Chaparral.rx2.pdf>>. Accessed 05 August 2010.
- Thompson 1991 Thompson, E. 1991. The Guns of San Diego. National Park Service, San Diego.
- Tierra Data Inc. 2007 Tierra Data, Inc. 2007. Biological Resource Surveys, Naval Base Point Loma, Fleet and Industrial Supply Center Fuel Farm, San Diego, California. Final Report for U.S. Navy, Naval Facilities Southwest. Tierra Data, Inc., Escondido, CA. 2007.
- Unitt 2004 Unitt, P.A. 2004. San Diego County Breeding Bird Atlas. Proceedings of the San Diego of Natural History, No. 39. San Diego Natural History Museum. 2004.
- U.S. Census Bureau 2009 U.S. Census Bureau. 2009. San Diego County, California. Available online <<http://quickfacts.census.gov/qfd/states/06/06073.html>>. Accessed 15 June 2009.
- U.S. Navy 1993 U.S. Navy. 1993. Terrestrial Biological Survey and Inventory of Navy Property on Point Loma, San Diego, California. Prepared for Officer in Charge of Construction, Naval Command, Control, and Ocean Surveillance Center, Research, Development, Test, and Evaluation Division, San Diego, California. April 1993.
- U.S. Navy 1994 U.S. Navy. 1994. Point Loma Natural Resources Management Plan. Prepared for Point Loma Naval Complex, Cabrillo National Monument, Fort Rosecrans National Cemetery, U.S. Coast Guard, Point Loma. July.
- U.S. Navy 1995 U.S. Navy. 1995. Final environmental impact statement for the development of facilities in San Diego/Coronado to support the homeporting of one NIMITZ class aircraft carrier. 1995.
- U.S. Navy 1996 U.S. Navy. 1996. Fleet Anti-Submarine Warfare Training Center, San Diego Integrated Natural Resources Management Plan. October 1996.
- U.S. Navy 2002 U.S. Navy. 2002. Naval Base Point Loma Integrated Natural Resources Management Plan. August 2002.
- U.S. Navy 2006a U.S. Navy. 2006. Integrated Natural Resources Management Plan Guidance for Navy Installations: How to Prepare, Implement, and Revise INRMPs. April 2006.
- U.S. Navy 2006b U.S. Navy. 2006. Naval Base Point Loma and Cabrillo National Monument Joint Wildland Fire Management Plan. June 2006.

- U.S. Navy 2007a U.S. Navy. 2007. April 2007 Community Environmental Newsletter, Available online
<http://www.cnrc.navy.mil/navycni/groups/public/@cnrsw/@pl/@env/documents/document/cnicd_a078253.pdf>. Accessed July 2011.
- U.S. Navy 2007b U.S. Navy. 2007. Biological Resources Surveys Naval Base Point Loma, Fleet & Industrial Supply Center Fuel Farm, San Diego, California. November 2007.
- U.S. Navy 2008a U.S. Navy. 2008. Preliminary Final Vegetation Management Plan for Naval Base Point Loma. May 2008.
- U.S. Navy 2008b U.S. Navy. 2008. Mitigation Banking Instrument Between Commander, Navy Region Southwest and United States Army Corps of Engineers, Los Angeles District and National Atmospheric Administration National Marine Fisheries Service Concerning the San Diego Bay Eelgrass Mitigation Bank. NAVFAC SW. 2 July 2008.
- U.S. Navy 2008c U.S. Navy. 2008. 2008 San Diego Bay Eelgrass Inventory and Bathymetry Update. January 2009.
- U.S. Navy 2008d U.S. Navy. 2008. Naval Base Point Loma Erosion Control Plan, Final Report. October 2008.
- U.S. Navy 2008e U.S. Navy. 2008. Sustaining our Environment, Protecting our Freedom. April 2008.
- U.S. Navy 2009a U.S. Navy. 2009. Activity Overview Plan. May 2009.
- U.S. Navy 2009b U.S. Navy. 2009. Record of Categorical Exclusion for La Playa FISC Fuel Pipeline Urgent Temporary Cover Repair Naval Base Point Loma Easement, San Diego California. 25 June 2009.
- U.S. Navy 2009c U.S. Navy. 2009. Record of Categorical Exclusion – Amended for Miramar Fuel Pipeline Repair, Naval Base Point Loma, California. 21 October 2009.
- U.S. Navy 2009d U.S. Navy. 2009. Draft Natural Resources Inventory for Naval Base Point Loma, San Diego, California. June 2009.
- U.S. Navy 2009e U.S. Navy. 2009. Draft Wetland Study Report for Naval Base Point Loma, San Diego, California. July 2009.
- U.S. Navy 2009f U.S. Navy. 2009. Fisheries Inventory and Utilization of San Diego Bay, San Diego, California for Surveys Conducted in April and July 2008. February 2009.
- U.S. Navy 2009g U.S. Navy. 2009. Integrated Pest Management Plan for the San Diego Metro Area, San Diego, California. September 2009.
- U.S. Navy 2010 U.S. Navy. 2010c. Silver Strand Training Complex Draft Environmental Impact Statement. September 2010.

- U.S. Navy 2011a U.S. Navy. 2011. Preliminary Draft 2011 Site Management Plan Naval Base Point Loma, San Diego, California. October 2011.
- U.S. Navy 2011b U.S. Navy. 2011. Final Report for the Natural Resources Baseline Inventory for Navy San Diego Metro Housing Areas at Naval Base San Diego, Naval Base Coronado, and Naval Base Point Loma, San Diego County, California. January 2011.
- U.S. Navy 2011c U.S. Navy. 2011. Draft Biological and Cultural Resources Surveys for the DFSP Point Loma – MCAS Miramar Pipeline, San Diego, California. September 2011.
- U.S. Navy 2011d U.S. Navy. 2011. Final Integrated Cultural Resources Management Plan for Naval Base Point Loma. May 2011.
- U.S. Navy 2011e U.S. Navy. 2011. Preliminary Draft Site Management Plan. October 2011.
- U.S. Navy 2012a U.S. Navy. 2012. Draft Encroachment Action Plan. April 2012.
- U.S. Navy 2012b U.S. Navy. 2012. Heron and Egret Management Plan for Installations of the Navy Metro Area on the San Diego Bay, San Diego, CA. June 2012.
- U.S. Navy et al. 2011 Department of Navy (DoN), Southwest Division (SWDIV), and San Diego Unified Port District (SDUPD). 2011. San Diego Bay Integrated Natural Resources Management Plan, November 2011.
- USACE 1987 U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1.
- USACE 2008 U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manuals: Arid West Region (Version 2.0) ERDC/EL TR-08-28.
- USDA 1973 USDA. 1973. Soil Conservation Service: *Soil Survey, San Diego Area, California*. Edited by Roy H. Bowman. Soil Conservation Service and Forest Service.
- USDA-WS 2009 U.S. Department of Agriculture – Wildlife Services (USDA-WS). 2009. About APHIS. Available online <http://www-mirror.aphis.usda.gov/about_aphis/programs_offices/wildlife_services/>. Accessed 22 July 2009.
- USFWS 1994 U.S. Fish and Wildlife Service (USFWS). 1994. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Pacific Pocket Mouse; Final Rule. Federal Register, September 29. 50 CFR 17.
- USFWS 2009 USFWS. 2009. Biological Opinion for Construction of the Joint Regional Confinement Facility Southwest by Expansion and Alteration of the Naval Consolidated Brig, Marine Corps Air Station Miramar, San Diego County, California. Biological Opinion FWS-SDG-08B0468-09F0477. April 2009.

- USGS 2009a U.S. Geological Survey (USGS). 2009. National Wildlife Health Center: West Nile Virus (WNV). Available online <http://www.nwhc.usgs.gov/disease_information/west_nile_virus/index.jsp>. Accessed on 02 April 2009.
- USGS 2009b USGS. 2009b. Not Just for Kissing: Mistletoe and Birds, Bees, and Other Beasts. Available online <<http://www.usgs.gov/newsroom/special/mistletoe/>>. Accessed 15 April 2009.
- USGS and USDA NRCS 2009 USGS and U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2009. Federal guidelines, requirements, and procedures for the national Watershed Boundary Dataset: U.S. Geological Survey Techniques and Methods 11–A3, 55 p. 2009.
- Vista 2010 Vista Irrigation District (Vista). 2009. Newsletter: Reflections of the Vista Irrigation District. 2010 Summer Edition.
- Warren, C. N. 1966 Warren, C. N. 1966. The San Dieguito Type Site: M. J. Rogers 1938 Excavation on the San Dieguito River. San Diego Museum of Man Papers 5.
- Warren, C. N., and D. L. True 1961 Warren, C. N., and D. L. True. 1961. The San Dieguito Complex and Its Place in California Prehistory. Archaeological Survey Annual Report (1960-1961), pp. 246-338. Department of Anthropology, University of California, Los Angeles.
- WESTDIV 1987 Western Division, Naval Facilities Engineering Command (WestDiv) (now referred to as SWDIV). 1987. Master Plan Point Loma Naval Complex. Prepared by RNP Architecture and Planning. September.
- Winters, D.S. et al. 2004 Winters, D.S. et al. 2004. Aquatic, Riparian and Wetland Ecosystem Assessment for the Bighorn National Forest. Report 1 of 3. Introduction and Ecological Driver Analysis. Denver: U.S. Department of Agriculture, Forest Service, Rocky Mountain Region. November 2004.
- Zelder 1976 Zedler, J. B. 1976. Ecological Resource Inventory of the Cabrillo National Monument Intertidal Zone Project. Prepared by San Diego State University, Biology Department for the U.S. Department of Interior National Park Service.
- Zelder 1978 Zedler, J. B. 1978. Public Use Effects in the Cabrillo National Monument Intertidal Zone. Prepared for the U.S. Department of Interior, National Park Service.

9.2 GIS References for Constraints Maps

All figures in this INRMP were compiled by HDR, except if noted, using data believed to be accurate at the time of publication. However, a degree of error is inherent in all figures. The figures are distributed “AS-IS,” without warranties of any kind, expressed, or implied, including, but not limited to, warranties of suitability to a particular purpose or use. No attempt has been made in either the design or production of the figures to define the limits or jurisdiction of any Federal, territorial, commonwealth, or local government. The figures are intended for use only at the published scale. Detailed on-the-ground surveys and historical analyses of sites might differ from the figures.

GIS data sources for constraints maps are as follows:

Figure ES-3 and 6-1: Natural Resources Constraints on NBPL on Peninsula

Legend Item	Report Reference
Terrestrial INRMP Footprint (NBPL AOR Complexes)	2009 Activity Overview Plan (U.S. Navy 2009a)
Marine INRMP Footprint	HDR created based on footprint dimensions
San Diego Bay INRMP Footprint	HDR created based on San Diego Bay INRMP (U.S. Navy et al. 2011)
Other Point Loma Tenants	2009 Activity Overview Plan (U.S. Navy 2009a)
Great Blue Heron Nesting Locations (<i>Ardea herodias</i>)	2008 Heron and Egret Surveys and 2012 Management Plan (U.S. Navy 2012b)
Great Egret Nesting Locations (<i>Ardea alba</i>)	2008 Heron and Egret Surveys and 2012 Management Plan (U.S. Navy 2012b)
Orcutt’s spineflower (<i>Chorizanthe orcuttiana</i>)	2006 Natural Resource Inventory (U.S. Navy 2009d)
PLECA	2002 INRMP (U.S. Navy 2002), metadata cites Ogden 1993 with additional areas added (dated 1995)
Eelgrass 2011	2011 Eelgrass Report and GIS Data provided by NAVFAC SW in 03/2012
U.S. Jurisdictional Waters (earthen drainage)	2006 Natural Resource Inventory (U.S. Navy 2009d)
U.S. Jurisdictional Wetland	2006 Natural Resource Inventory (U.S. Navy 2009d)
Cabrillo State Marine Reserve	State Marine Reserve Layer provided by NAVFAC SW in 02/2012

Figure ES-4 and 6-2: Natural Resources Constraints on NBPL off Peninsula Facilities - Admiral Hartman Housing Area

Legend Item	Report Reference
Admiral Hartman	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
USACE Wetland	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
USACE Non-wetland Water	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
San Diego sagewort (<i>Artemisia palmeri</i>)	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)

Estuary seablite (<i>Suaeda esteroa</i>)	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
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Figure ES-5 and 6-3: Natural Resources Constraints on NBPL off Peninsula Facilities - Beech Street Knolls Housing Area

Legend Item	Report Reference
Beech Street Knolls	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
California adolphia (<i>Adolphia californica</i>)	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)

Figure ES-6 and 6-4: Natural Resources Constraints on NBPL off Peninsula Facilities – Chesterton Housing Area

Legend Item	Report Reference
Chesterton	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
USACE Wetland	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
USACE Non-wetland Water	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
Belding's Orange-throated whiptail (<i>Aspidoscelis hyperythrus beldingi</i>)	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
Coastal California Gnatcatcher (<i>Poliophtila californica californica</i>) Use Area	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
San Diego barrel cactus (<i>Ferocactus viridescens</i>) Locations and Distribution	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
Nuttall's scrub oak (<i>Quercus dumosa</i>)	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)

Figure ES-7 and 6-5: Natural Resources Constraints on NBPL off Peninsula Facilities – Villages at Serra Mesa Housing Area

Legend Item	Report Reference
Villages at Serra Mesa	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
USACE Wetland	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
USACE Non-wetland Water	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)
Coastal California Gnatcatcher (<i>Poliophtila californica californica</i>) Use Area	2009 San Diego Metro Housing Areas Natural Resources Baseline Inventory (U.S. Navy 2011b)

APPENDIX A

ACRONYMS AND ABBREVIATIONS

Appendix A

Acronyms and Abbreviations

°F	Fahrenheit
ACDS	Advanced Combat Direction System
AFP 19	Air Force Plant 19
AFPMB	Armed Forces Pest Management Board
amsl	above mean sea level
AOP	Activity Overview Plan
APZ	Accident Potential Zone
ATFP	Anti-Terrorism/Force Protection
BFR	Basic Facility Requirement
BMP	Best Management Practice
BRAC	Base Realignment and Closure
C3I	command, control, communications and intelligence
C4ISR	command, control, communications, computer, intelligence, surveillance, and reconnaissance
CA	Cooperative Agreement
CA-CESU	Californian Cooperative Ecosystem Studies Unit
Cal/EPA	California Environmental Protection Agency
Cal-IPC	California Invasive Plan Council
CA-NRCS	California Natural Resource Conservation Service
CBC	California Biodiversity Council
CCC	California Coastal Commission
CCCC	California Climate Change Center
CCCFSP	California Coastal Chaparral Forest Shrub Province
CDC	Center for Disease Control and Prevention
CDFG	California Department of Fish and Game
CDWR	California Department of Water Resources
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH	Critical Habitat
CHIS	Channel Islands National Park
CMP	California's Coastal Zone Management Program

CNDDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNIC	Commander, Naval Installation Command
CNM	Cabrillo National Monument
CNO	Chief Naval Operations
CNPS	California Native Plant Society
CNRSW	Commander, Navy Region Southwest
CO	Commanding Officer
Convair	Consolidated Vultee Aircraft Corporation
CRIMP	Cabrillo Rocky Intertidal Monitoring Program
CSS-11	Commander, Submarine Squadron 11
CWA	Clean Water Act
DFM	Diesel Fuel Marine
DFSP	Defense Fuel Supply Point, Point Loma
DoD	Department of Defense
DOE	Department of Energy
DoN	Department of Navy
DUSD(I&E)	Deputy Under Secretary of Defense (Installations and Environment)
DVA	Department of Veterans Affairs
EA	Environmental Assessment
EAP	Encroachment Action Plan
ECP	Erosion Control Plan
EEZ	Exclusive economic zone
EFH	Essential Fish Habitat
EMI	electromagnetic interference
EMT	Encroachment Management Team
EO	Executive Order
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
EPR-web	Environmental Program Requirements Web Database
EQR	Environmental Quality Report
ERL	Environmental Readiness Level
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute

EU	Ecological Unit
FACSFAC	Fleet Area Control and Surveillance Facility
FASW	Fleet Anti-submarine Warfare Training Center Pacific
FB	Feet of Berthing
FCTCPAC	Fleet Combat Training Center Pacific
FEMA	Federal Emergency Management Agency
FFD	Federal Fire Department
FGC	Fish and Game Commission
FIRM	National Flood Insurance Rate Map
FISC	Navy Fleet Industrial Supply Center
FITCPAC	Fleet Intelligence Training Center, Pacific
FONSI	Finding of No Significant Impact
FR	Federal Register
FRT	Facility Response Team
FY	Fiscal Year
FYDP	Future Year Defense Plan
GIS	Geographic Information System
GMP	General Management Plan
GPS	global positioning system
HCP	Habitat Conservation Plan
HEM	Habitat Evaluation Model
HQ	Headquarters
IAP	Installation Appearance Plan
ICRMP	Integrated Cultural Resources Management Plan
IIUSS	Integrated Undersea Surveillance System
INRMP	Integrated Natural Resources Management Plan
IP	Individual Permit
IPM	Integrated Pest Management
IPMP	Integrated Pest Management Plan
IRP	Installation Restoration Program
IRWMP	Integrated Regional Water Management Plan
JAG	Judge Advocate General
JP-5	Jet Propellant 5
JWFMP	Joint Wildland Fire Management Plan

LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
MAPS	Monitoring Avian Productivity and Survivorship Program
MARINe	Multi-Agency Rocky Intertidal Network
MBTA	Migratory Bird Treaty Act
MCAS	Marine Corps Air Station
MHPA	Multiple Habitat Planning Area
MILCON	Military Construction
MLLW	Mean Lower Low Water
MOU	Memorandum of Understanding
MSCP	Multiple Species Conservation Program
MSF	Magnetic Silencing Facility
MSFCMA	Magnuson-Stevens Fishery Conservation Act
MSL	Mean Sea Level
MU	Mapping Unit
MWR	Morale, Welfare and Recreation
MWWD	San Diego Metropolitan Wastewater Department
NAPPC	North American Pollinator Protection Campaign
NAVFAC SW	Naval Facilities Engineering Command, Southwest
NBPL	Naval Base Point Loma
NCCOSC	Naval Command, Control and Ocean Surveillance Center
NCCP	Natural Communities Conservation Program
NCTSSD	Naval Computer and Telecommunications Station, San Diego
NEL	Navy Electronics Laboratory
NELC	Naval Electronics Laboratory Center
NEMS	Navy Eelgrass Mitigation Site
NEPA	National Environmental Policy Act
NISE	NCCOSC In-Service Engineering West Coast Division
nm	Nautical miles
NMAWC	Naval Mine and Antisubmarine Warfare Complex
NMB	Neotropical Migratory Bird
NMCCWD	Navy Munitions Command CONUS West Division
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	NOAA National Marine Fisheries Service

NOSC	Naval Ocean Systems Center
NOTS	Naval Ordnance Test Station
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRaD	Research, Development, Test and Evaluation Division
NRCS	Natural Resources Conservation Service
NRDA	Natural Resources Damage Assessment
NRSL	Navy Radio and Sound Laboratory
NSCT-1	Naval Special Clearance Team One
NWP	Nationwide Permit Program
NUC	Naval Undersea Center
NWSSB	Naval Weapons Station Seal Beach
O&MN	Operations and Maintenance, Navy
OPNAVINST	Chief of Naval Operational Instructions
OSD	Office of the Secretary of Defense
OSPR	Office of Spill Prevention & Response
PAO	Public Affairs Office
PARC	Partners in Amphibian and Reptile Conservation
PFMC	Pacific Fishery Management Council
PIF	Partners in Flight
PLC	Point Loma Complex
PLECA	Point Loma Ecological Conservation Area
PLER	Point Loma Ecological Reserve
PLNRMP	Point Loma Natural Resources Management Plan
POM	Program Objectives Memoranda
PPBES	Planning, Programming, Budget and Execution System
PPV	Public, Private Venture
PSD	Personnel Support Detachment
PWC	Navy Public Works Center
PWD	Public Works Department
QCB	Quino Checkerspot Butterfly
QRP	Qualified Recycling Program
R&D	research and development
RPM	Remedial Program Manager

RPM	Real Property Maintenance
SARA	Superfund Amendments and Reauthorization Act
SCB	Southern California Bight
SDCWA	San Diego County Water Authority
SDG&E	San Diego Gas & Electric Company
SDMAI	San Diego Metro Area Installations
SDNHM	San Diego Natural History Museum
SDUPD	San Diego Unified Port District
SEALOGPAC	Sealift Logistics Command Pacific
SECNAVINST	Secretary of Navy Instruction
SERDP	Strategic Environmental Research and Development Program
SF	square feet
SPAWAR	Space & Naval Warfare Systems Command
SSC	Space and Naval Warfare Systems Center
SUBLEARNCEN	Submarine Learning Center
SWRMC	Southwest Regional Maintenance Center
TEL	Transporter Erector Launcher
TNC	The Nature Conservancy
TPERP	Tidepool Protection, Education, and Restoration Program
TRANSDEC	Transducer Evaluation Center
U.S.C.	United States Code
UCSB	University of California at Santa Barbara
USACE	U.S. Army Corps of Engineers
USDA NRCS	U.S. Department of Agriculture Natural Resources Conservation Service
USDA-WS	U.S. Department of Agriculture – Wildlife Services
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMP	Vegetation Management Plan
WBD	Watershed Boundary Dataset
WNV	West Nile virus

APPENDIX B

**RELEVANT ENVIRONMENTAL LAWS, REGULATIONS, POLICIES, GUIDANCE,
INSTRUCTIONS AND ORDERS**

Appendix B

List of Relevant Environmental Laws, Regulations, Policies, and Guidance

FEDERAL LAWS, REGULATIONS, AND EXECUTIVE ORDERS

American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996)	Conservation and Rehabilitation Programs on Military and Public Lands (Public Law 93-452)
Anadromous Fish Conservation Act (16 U.S.C. 757)	Cooperative Conservation (Executive Order 13352)
Animal Damage Control Act (7 U.S.C. 426 et seq.)	Council on Environmental Quality Regulations on Implementing NEPA Procedures (40 CFR 1500-1508)
Anti-Deficiency Act (31 U.S.C. 1341 et seq.)	Curation of Federally Owned and Administered Archaeological Collections (36 CFR 79)
Antiquities Act of 1906 (16 U.S.C. 431 et seq.)	Defense Environmental Restoration Program (10 U.S.C. 2701)
Archaeological Resource Protection Act Regulations (18 CFR 1312)	Department of Defense Appropriation Act of 1991 (PL 102-393)
Archeological and Historical Preservation Act of 1974 (16 U.S.C. 469 et seq.)	Determination of Eligibility for Inclusion in the National Register of Historic Places (36 CFR 63)
Archeological Resources Protection Act of 1979 (16 U.S.C. 470 et seq.)	Dredge and Fill Nationwide Permit Program (33 CFR 330)
Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.)	Endangered and Threatened Wildlife and Plants (50 CFR 17)
Base Closure and Realignment Act (Part A of title XXIX of Public Law 101-510; 10 U.S.C. 2687)	Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)
Clean Air Act, as amended (42 U.S.C. 7401 et seq.)	Entering Military, Naval, or Coast Guard Property (18 U.S.C. 1382)
Clean Water Act (33 U.S.C. 1251 et seq.)	Environmental Effects in the United States of Department of Defense Strategies (32 CFR 188)
Coastal Barrier Resources (16 CFR 3501)	EPA National Drinking Water Regulations (40 CFR 141-143)
Coastal Zone Act Reauthorization Amendments (16 U.S.C. 1451 et seq.)	EPA National Pollutant Discharge Elimination System Permit Regulations (40 CFR 122)
Coastal Zone Management Act of 1972 (16 U.S.C. 1451-1456)	EPA Regulations Designating Areas for Air Quality Planning (40 CFR 81)
Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. 9601 et seq.)	
Conservation and Rehabilitation Program on Military and Public Lands (16 U.S.C. 670 et seq.)	

EPA Regulations for Ambient Air Monitoring Reference and Equivalent Methods (40 CFR 53)	Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 136 et seq.)
EPA Regulations for Pesticide Programs (40 CFR 150-186)	Federal Land Policy and Management Act (43 U.S.C. 1701)
EPA Regulations Implementing the Resource Conservation and Recovery Act (40 CFR 260-270)	Federal Noxious Weed Act (7 U.S.C. 2801 et seq.)
EPA Regulations on Criteria and Standards for the National Pollutant Discharge Elimination System (40 CFR 125)	Federal Plant Pest Act (7 U.S.C. 150aa et seq.)
EPA Regulations on Discharge of Oil (40 CFR 110)	Federal Water Pollution Control Act (Clean Water Act) (33 U.S.C. 1251 et seq.)
EPA Regulations on Disposal Site Determination under the CWA (40 CFR 231)	Fish and Wildlife Conservation Act (16 U.S.C. 2901 et seq.)
EPA Regulations on Implementation of NEPA Procedures (40 CFR 6)	Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.)
EPA Regulations on Insecticide, Fungicide, and Rodenticide Use (40 CFR 162)	Fish and Wildlife Service List of Endangered and Threatened Wildlife (50 CFR 17)
EPA Regulations on Land Disposal Restrictions (40 CFR 268)	Fishery Conservation and Management Act of 1976 (16 U.S.C. 1801 et seq.)
EPA Regulations on National Primary and Secondary Ambient Air Quality Standards (40 CFR 50)	Floodplain Management (Executive Order 11988, as amended by Executive Order 12148 and 13286)
EPA Regulations on Regional Consistency under the Clean Air Act (40 CFR 56)	Forest Resources Conservation and Shortage Relief Act (16 U.S.C. 620 et seq.)
EPA Requirements for Preparation, Adoption, Submittal, Approval, and Promulgation of Implementation Plans (40 CFR 51-52)	Historic Sites Act of 1935 (16 U.S.C. 461 et seq.)
EPA Requirements for Water Quality Planning and Management (40 CFR 130)	Hunting and Fishing on Federal Lands (10 U.S.C. 2671 et seq.)
EPA Special Exemptions from Requirements of the Clean Air Act (40 CFR 69)	Implementation of Section 311 of the Federal Water Pollution Control Act of October 18, 1972, as amended, and the Oil Pollution Act of 1990 (Executive Order 12777, as amended by Executive Order 13286)
Estuary Protection Act (16 U.S.C. 1221)	Interagency Cooperation Endangered Species Act of 1973 (50 CFR 402)
Farmland Protection Act (7 U.S.C. 4201 et seq.)	Invasive Species (Executive Order 13112)
Federal Compliance with Pollution Control Standards (42 U.S.C. 4321)	Lacey Act (16 U.S.C. 701) and Lacey Act Amendments of 1981 (16 U.S.C. 3371–3378)
Federal Consistency with Approved Coastal Management Programs (15 CFR 930)	Land and Water Conservation Act of 1965 (16 U.S.C. 4601 et seq.)
Federal Facilities Compliance Act of 1992 (42 U.S.C. 6961)	Legacy Resource Protection Program Act (PL 101–511)

Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801)	National Historic Preservation Act Regulations for the Protection of Historic Properties (36 CFR 800)
Marine Mammal Protection Act of 1972 (16 U.S.C. 1361 et seq.)	National Oceanic and Atmospheric Administration Coastal Zone Management Program Development and Approval Regulation (15 CFR 923)
Marine Protected Areas (Executive Order 13158)	National Register of Historic Places (36 CFR 60)
Marine Protection, Research, and Sanctuaries Act of 1972 (33 U.S.C. 1401 et seq.)	National Register of Historic Places, current edition (36 CFR 60 78, 79, 800, and 1228)
Migratory Bird Conservation Act (16 U.S.C. 715 et seq.)	National Trails System Act of 1968 (16 U.S.C. 1271)
Migratory Bird Treaty Act (16 U.S.C. 703–711)	Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001-3013)
Migratory Birds List (50 CFR 10.13)	Neotropical Migratory Bird Conservation Act (16 U.S.C. 6101 et seq.)
Military Construction Authorization Act of 1956 - Leases; non-excess property (10 U.S.C. 2667)	Nonindigenous Aquatic Nuisance Prevention and Control Act as amended (16 U.S.C. 4701 et seq.)
Military Construction Authorization Act of 1956 - Sale of Certain Interests in Lands; Logs (10 U.S.C. 2665)	North American Wetlands Conservation Act (16 U.S.C. 4401 et seq.)
Military Construction Authorization Act of 1956- Military Reservations and Facilities: Hunting, Fishing, and Trapping (10 U.S.C. 2671)	Noxious Plant Control Act (43 U.S.C. 1241).
Military Construction Authorization Act of 1975 (10 U.S.C. 2665)	Ocean Dumping Regulations and Criteria (40 CFR 220, 227)
Military Reservation and Facilities: Hunting, Fishing and Trapping (10 U.S.C. 2671)	Off-Road Vehicles Use on Public Lands (Executive Order 11989)
Multiple-Use Sustained Yield Act (16 U.S.C. 528)	Oil Pollution Control Act of 1990 (33 U.S.C. 2701 et seq.)
National Defense Authorization Act for Fiscal Year 1999 (PL 105-261)	Outdoor Recreation - Federal/State Program Act (16 U.S.C. 4601 et seq.)
National Defense Authorization Act for Fiscal Year 2003 (PL 107-314)	Outer Continental Shelf Air Regulations (40 CFR 55)
National Defense Authorization Act for Fiscal Year 2004 (PL 108-136)	Partners for Fish and Wildlife Act (16 U.S.C. 3771 et seq.)
National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.)	Plant Quarantine Act (7 U.S.C. 151-167)
National Heritage Policy Act of 1979 (16 U.S.C. 470)	Pollution Prevention Act (42 U.S.C. 13101 et seq.)
National Historic Landmarks Program (36 CFR 65)	Protection and Enhancement of Environmental Quality (Executive Order 11514, as
National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.)	

amended by Executive Order 11541 and 11991)

Protection and Enhancement of the Cultural Environment (Executive Order 11593)

Protection of Wetlands (Executive Order 11990, amended by Executive Order 12608)

Recreational Fisheries (Executive Order 12962, as amended by Executive Order 13474)

Regulations Concerning Marine Mammals (50 CFR 10)

Regulations Concerning Marine Mammals (50 CFR 18, 216, 228)

Resource Conservation and Recovery Act (42 U.S.C. 6901 et seq.)

Responsibilities of Federal Agencies to Protect Migratory Birds (Executive Order 13186)

Rivers and Harbors Act of 1889 (33 U.S.C. 403 et seq.)

Safe Drinking Water Act (42 U.S.C. 300(f) et seq.)

Sales of Forest Products on Federal Lands (10 U.S.C. 2665 et seq.)

Sikes Act Improvement Act of 1997 (16 U.S.C. 670a et seq.)

Soil and Water Conservation Act (16 U.S.C. 2001 et seq.)

Strengthening Federal Environmental, Energy, and Transportation Management (Executive Order 13423)

Water Pollution Prevention and Control (33 U.S.C. 1251 et seq.)

Wild and Scenic River Act (16 U.S.C. 1274)

Youth Conservation Corps Act of 1972 (16 U.S.C. 1701)

FEDERAL GUIDELINES

Cooperative Agreement between the Department of Defense and The Nature Conservancy for Assistance in Natural Resources Inventory

Memorandum of Agreement for Federal Neotropical Migratory Bird Conservation Program and Addendum (Partners in Flight-Aves De Las Americas) among the Department of Defense, through Each of the Military Services, and Over 110 Other Federal and State Agencies and Nongovernmental Organizations

Memorandum of Agreement for Professional and Technical Assistance Conducting Biological Surveys, Research and Related Activities between the Department Of Defense and the National Biological Service of the Department of the Interior

Memorandum of Understanding between Department of Defense, U.S. Fish and Wildlife Service, and the International Association of Fish and Wildlife Agencies for a Cooperative Integrated Natural Resources Management Program on Military Installations

Memorandum of Understanding between the Environmental Protection Agency and the Department of Defense with Respect to Integrated Pest Management

Memorandum of Understanding for Watchable Wildlife Programs

USACE 1987 Wetland Delineation Manual.

Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)

DEPARTMENT OF DEFENSE POLICY, REGULATIONS AND GUIDANCE

Department of Navy Procedures for
Implementing NEPA (32 CFR 775)

Deputy Under Secretary of Defense
Memorandum, *Integrated Natural Resource
Management Plan Template*

DoD Directive 3200.15, *Sustainment of Ranges
and Operating Areas*

DoD Instruction 4001.01, *Installation Support*

DoD Directive 4140.1, *Material Management
Policy*

DoD Instruction 4150.07, *DoD Pest
Management Program*

DoD Instruction 4165.57, *Air Installations
Compatible Use Zones*

DoD Instruction 4165.59, *DoD Implementation
of the Coastal Zone Management Act*

DoD Instruction 4700.2, *Secretary of Defense
Award for Natural Resources and
Environmental Management*

DoD Directive 4700.4, *Natural Resources
Management Program*

DoD Directive 4705.1, *Management of Land-
Based Water Resources in Support of Joint
Contingency Operations*

DoD Directive 4710.1, *Archaeological and
Historic Resources Management*

DoD Directive 4715.01, *Environmental Security*

DoD Instruction 4715.03, *Natural Resources
Conservation Program*

DoD Instruction 4715.4, *Pollution Prevention*

DoD Instruction 4715.6, *Environmental
Compliance*

DoD Instruction 4715.7, *Environmental
Restoration Program*

DoD Instruction 4715.9, *Environmental
Planning and Analysis*

DoD Directive 5030.41, *Oil and Hazardous
Substance Pollution Prevention and
Contingency Program*

DoD Directive 6050.1, *Environmental Effects in
the U.S. of DoD Strategies*

DoD Directive 6050.15, *Prevention of Oil
Pollution from Ships Owned or Operated by
the Department of Defense*

DoD Directive 6050.2 (as amended), *Use of Off-
Road Vehicles on DoD Lands*

DoD Directive 6050.4, *Marine Sanitation
Devices for Vessels Owned or Operated by
DoD*

DoD Instruction 6050.05, *DoD Hazard
Communication Program*

DoD INRMP Handbook, *Resources for INRMP
Implementation*

DoD Instruction 5000.13, *Natural Resources -
The Secretary of Defense Natural Resource
Conservation Award*

DoD Instruction 6055.6, *DoD Fire and
Emergency Services Program*

DoD Memorandum on Implementation of
Ecosystem Management in DoD

DoD Urban Forestry Manual

NAVFAC P-73, *Real Estate Manual P-73*

NAVFACINST 11010.45, *Regional Shore
Infrastructure Planning*

NAVFACINST 11012.111A, *Land Use
Conservation Planning*

NAVFACINST 6250.3H, *Applied Biology
Program Services and Training*

NBPLINST 5090.1, *Base Fishing Regulations*

NBPLINST 5090.2, *Policy and Procedures for
Conducting Environmental Review Process
at Naval Base Point Loma, San Diego*

OPNAVINST 11000.17, *National Preservation
Act Consultations Related to Base
Realignment and Closure Strategies*

OPNAVINST 11010.20F, *Facilities Projects
Manual*

OPNAVINST 5090.1C CH-1, *Environmental Readiness Program Manual*
OPNAVINST 5750.13, *Historical Properties of the Navy*
OPNAVINST 6250.4B, *Pest Management Program*
OPNAVINST 8000.16, *Environmental Security Management*
OPNAVINST 8026.2A, *Navy Munitions Disposition Policy*

SECNAVINST 4000.35, *Department of the Navy Cultural Resources Program*
SECNAVINST 5090.8, *Policy for Environmental Protection, Natural Resources, Cultural Resources Program*
SECNAVINST 5100.13E, *Navy and Marine Corps Tobacco Policy*
SECNAVINST 6240.6E, *Implementation of DoD Directives under DoD Instruction 4700.4*

APPLICABLE STATE AND LOCAL REGULATION

Aquatic Invasive Species (Fish & Game Code 2300-2302)
Ballast Management for Control of Nonindigenous Species Act of 1999 (California Public Resources Code 71200-71271)
Birds (Fish & Game Code 3500-3864)
California Coastal Act (Public Resources Code 30000-30900)
California Endangered Species Act (Fish & Game Code 2050 et seq.)
California Environmental Quality Act (Public Resources Code 21000-21177)
California Harbors and Navigation Code (Division 1.5 Sections 90-153, Division 2 Sections 240-308, Division 3 Sections 650-685, and Division 6 Sections 1690-3980)
California Ocean Protection Act (Public Resources Code 35500-35650)
California Riparian Habitat Conservation Program (Fish & Game Code 1385-1391)
California Waterfowl Habitat Program (Fish & Game Code 3460-3467)
California Watershed Protection and Restoration Act (Public Resources Code 5808-5808.2)
California Wildlife Protection Act (Fish & Game Code 2780-2799.6)
California Wildlife, Coastal, and Park Land Conservation Act (Public Resources Code 5900 et seq.)

Coastal Ecosystems Protection Act of 2006 (California Public Resources Code 71205.3)
Cobey-Alquist Flood Management Act (Water Code 8400-8415)
Conservation and Management of Marine Living Resources (Fish & Game Code 7050-7090)
Conservation of Aquatic Resources (Fish & Game Code 1700)
Conservation of Wildlife Resources (Fish & Game Code 1801-1802)
Conservation, Development, and Utilization of State Water Resources (Water Code 10004-10013)
Fish (Fish & Game Code 6400-6930)
Fish and Wildlife Habitat Enhancement Act of 1984 (Fish & Game Code 2600-2651)
Fish and Wildlife Protection and Conservation (Fish & Game Code 1600-1616)
Inland Wetlands Conservation Program (Fish & Game Code 1400-1431)
Mammals (Fish & Game Code 4150-4904)
Management of Fish and Wildlife on Military Lands (Fish & Game Code 3450-3453)
Marine Invasive Species Act of 2003 (California Public Resources Code 71200)
Marine Life Protection Act (Fish & Game Code 2850-2863)
Native Plant Protection (Fish & Game Code 1900-1913)

Native Species Conservation and Enhancement
(Fish & Game Code 1750-1772)

Natural Community Conservation Planning Act
(Fish & Game Code 2800-2835)

Ocean Use Planning (Public Resources Code
30960)

Pesticides and Pest Control Operations (Food
and Agriculture Code 6000 et seq.)

Porter-Cologne Water Quality Control Act
(Water Code 13000 et seq.)

Refuges (Fish & Game Code 10500-10932)

Reptiles and Amphibians (Fish & Game Code
5000-5050)

San Diego County Zoning Ordinance (Section
4000 – 4920)

Stream Alteration Controls (Water Code 5653,
1601 et seq.)

The Safe Drinking Water, Water Quality and
Supply, Flood Control, River and Coastal
Protection Bond Act of 2006 (Public
Resources Code 75001-75130)

Urban Forestry (Public Resources Code
4799.06-4799.12)

Watershed, Clean Beaches, and Water Quality
Act (Public Resources Code 30901-30960)

Wetlands Mitigation Banking (Fish & Game
Code 1850-1852)

Wetlands Preservation (Public Resources Code
5810-5818.2)

Wildlife and Natural Areas Conservation
Program (Fish & Game Code 2700-2729)

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APPENDIX C

COMPLETED PROJECTS AND SURVEYS

A list of completed projects and surveys will be added during the 2013 Annual Update.

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APPENDIX D

INRMP PROJECTS, SCHEDULES, AND IMPLEMENTATION TABLE

Appendix D

NBPL INRMP Projects, Schedules, and Implementation Table

Tables D-1, D-2 and D-3 contain natural resources projects proposed for NBPL on peninsula and off peninsula facilities, and projects to meet sustainability objectives. The projects contained within **Tables D-1, D-2 and D-3** may be revised over time and new projects may be added as new natural resources management priorities or needs arise. The tables include the INRMP subject area, the funding source, EPR project number, a project description, the ERL priority number, the corresponding law or regulation, proposed frequency and fiscal years for implementing each recommendation, and associated Navy Natural Resources Metrics based on Chief of Naval Operations guidance for preparing, implementing, and revising INRMPs in April 2006.

The projects presented in **Tables D-1, D-2 and D-3** strive to enhance natural resources on NBPL, without impacting other installation plans and activities. Achieving these recommendations will require development to be conducted in an environmentally sensitive way (i.e., smart growth) and requires cooperation between the installation garrison, environmental offices, facilities and maintenance, and operations. Any future changes in mission, training activity, or technology should be analyzed to assess their impact on natural resources. As new installation plans and DoN guidance and regulations are developed, they should be integrated with the goals and management actions resulting from this INRMP.

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Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
Watershed Management								
4.2.2.2	O&MN Env.	63406NR034	Conduct surveys of all drainages within the installation to identify erosion, sediment accumulations, or other threats to stream stability.	4	Sikes Act, CWA, CA Wetlands Preservation, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 5 and 7
4.2.2.2	O&MN Env.	63406NR034	Develop actions specific to each unstable drainage that can be undertaken to assist with recovery.	4	Sikes Act, CWA, CA Wetlands Preservation, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
4.2.2.2	O&MN Env.	63406NR034	Monitor and rehabilitate degraded soil resources. Conduct surveys to determine whether activities on NBPL, Main Base are adversely impacting soil and water resources on NBPL, Main Base through erosion and sedimentation. Surveys will be conducted once every 5 years, and survey results will be analyzed to assist with identification of degraded soil or eroded areas.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
4.2.2.2	O&MN Env.	63406NR034	Periodically review erosion control BMPs to ensure that they are still adequate to control adverse erosion and sedimentation on NBPL. Conduct surveys to determine whether activities on NBPL are adversely impacting soil and water resources on NBPL through erosion and sedimentation.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
Habitat Management								
Terrestrial Habitats and Vegetation Communities								
4.2.3.1	O&MN Env.	63406NR004	Conduct long-term resource monitoring to detect changes caused by military activities.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5, 6 and 7
4.2.3.1	O&MN Env.	63406EPRHAB	Develop specifications and standards for reseeded/revegetation of disturbed sites for use in contracts, maintenance, and other projects.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7
4.2.3.1	O&MN Env.	63406NRC16	Develop and implement a revised Vegetation Management Plan and review current management to ensure it still meets ecosystem management goals.	4	Sikes Act, ESA, Federal Noxious Weed Act, Soil Conservation Act, Executive Order 13112 (Invasive Species)	Annually	All	1, 5, 6 and 7
4.2.3.1	O&MN Env.	63406NR208	Survey areas where soil erosion and compaction might occur to ensure that BMPs within the Erosion Control Plan are implemented and effective.	4	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5, 6 and 7

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.3.1	O&MN Env.	63406PLECA	PLECA boundaries will be surveyed, mapped, and inappropriate (exotic, paved areas) acreages will be removed from the PLECA. Project will rely heavily on using aerial photography, GIS, and ground truthing to make sure that PLECA boundaries are accurately reflected. This project is essential in managing NBPL and updating the INRMP.	4	SAIA, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C	Every 5 years	2012	1, 2, 4 and 5
Wetlands and Waters of the United States								
4.2.3.2	O&MN Env.	63406NRC26	Maintain and update wetland inventory data, including wetland distribution and categories.	4	Sikes Act, CWA, CA Wetlands Preservation, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
Rocky Intertidal Zone								
4.2.3.4	O&MN Env.	63406NR029	Inventory and monitor populations of rocky intertidal floral and faunal species (including avian, terrestrial, and marine species). Document all changes to species populations in the installation GIS database.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
4.2.3.4	O&MN Env.	63406NR029	Develop and maintain GIS database, and share information collected on species within the rocky intertidal zone with the MARINE, and other regional partners.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5 and 6

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.3.4	O&MN Env.	63406NR029	Develop strategies to control nonnative species in the event they become invasive or adversely impact native species in the rocky intertidal zone, such as brown algae, owl limpets, mussels, and ochre sea stars.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5 and 6
Wildland Fire								
4.2.3.5	O&MN Env.	63406NR013	Review NBPL FMP at least annually and update plan according to DoD Instruction 6055.06.	4	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to determine gap abundance and distribution within the shrub canopy as a first step to understanding the dynamics and needs of species that require habitats that are rich in resources (such as light and nutrients), but without strong interspecific competition.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 5, 6 and 7
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to investigate invertebrate dependencies on post-fire herbs and short-lived shrubs. This type of research is especially relevant for management considering the potential presence of species such as the endemic Jerusalem cricket (<i>Stenopelmatus fuscus</i>) on the Point Loma Peninsula.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 5, 6 and 7

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to identify invertebrate and lichens bioindicator species to measure ecosystem health and fire history.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 5, 6 and 7
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to determine whether cliff spurge (<i>Euphorbia misera</i>) is reproducing on NBPL and, if the species is reproducing, how fire would affect the demography and population structure of this species. The abundance of cliff spurge on Point Loma is significant in that these individuals represent the northerly mainland distribution edge of this species and one of the few populations in the United States.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2014	1, 5, 6 and 7
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to determine the effect of the long fire-free period on community structure and demography of fire-dependent species such as wart-stem lilac and Ramona lilac. Determine whether obligate seeders have sufficient presence in the seedbank to regenerate the stand after a fire.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2014	1, 5, 6 and 7
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to use ecological modeling and decision theory to evaluate the risks and benefits from alternative management options.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2015	1, 5, 6 and 7

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to develop the concept of resilience monitoring of species and communities into a more focused research program through the use of management focus species and other means.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2015	1, 5, 6 and 7
Fish and Wildlife Management								
4.2.4.2	O&MN Env.	63406NR018	Conduct surveys to determine what insects occur on NBPL. Ensure inventory data is included in Geodatabase.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2011	1, 5 and 6
4.2.4.2	O&MN Env.	63406NR108	Conduct surveys to determine what pollinators are on NBPL. Ensure inventory data is included in Geodatabase.	3	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
4.2.4.2	O&MN Env.	63406NR103	Develop BMPs to ensure that pollinator species are not adversely impacted by NBPL activities, and implement a pollinator monitoring program.	2	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 6
4.2.4.5	O&MN Env.	63406NR025	Conduct regular (approximately every 2 years) surveys to determine what species of migratory birds may have potential to be on NBPL.	4	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Biennial	2012, 2014, 2016	1, 5 and 6

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.4.5	O&MN Env.	63406NR107	Develop migratory bird specific BMPs and ensure these BMPs are included in project plans.	4	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Once	2013	1, 5 and 6
4.2.4.5	O&MN Env.	63406EPRMBTA	Once finalized, implement monitoring protocols contained within the DoD Coordinated Bird Monitoring Plan. Contribute to date to the Coordinated Bird Monitoring Database.	3	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Annually	All	1, 5 and 6
4.2.4.5	O&MN Env.	63406NR107	Revise and implement Heron and Egret Management Plan. Include management provisions for Herons and Egrets within plan into INRMP.	3	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Once	2012	1, 5 and 6
4.2.4.5	O&MN Env.	63406NR106	Review and implement terms of USFWS MOU for Heron tree mitigation. NBPL has been identified as the heron roosting mitigation area for San Diego Metro Naval installations.		Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Every 3 Years	2012, 2015, 2018	1, 5 and 6
4.2.4.5	O&MN Env.	63406EPRMBTA	Determine if actions require an MBTA permit, and develop effective management for minimizing the unintentional take of migratory birds.	4	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Annually	All	1, 5 and 6

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.4.8	O&MN Env.	63406NR019	Conduct regular (approximately every 2 years) surveys for marine mammals that may be present within NBPL boundaries.	4	Sikes Act, MMPA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
4.2.4.8	O&MN Env.	63406NR029	Continue monitoring listed species as described in this INRMP and adapt monitoring and management actions as needed. Use monitoring information and other information gleaned to guide adaptive management.	3	Sikes Act, MMPA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
4.2.4.8	O&MN Env.	00242MR116	Develop and distribute outreach and education materials on marine mammals.	3	Sikes Act, MMPA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 5 and 6
4.2.4.9	O&MN Env.	63406NR003	Survey for and monitor herpetofauna populations using guidelines recommended by PARC. Once finalized, implement DoD PARC Strategic Plan.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
4.2.4.9	O&MN Env.	00242MR117	Monitor the federally threatened population of green sea turtles (<i>Chelonia mydas</i>) in the San Diego Bay. Current resident population of green sea turtles is estimated to be approximately 40-60 individuals. Recent research seems to indicate turtles may spend a majority of their time in the South Bay.	4	Sikes Act, MMPA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.4.9	O&MN Env.	63406NR105	Install bird and bat boxes on NBPL.	1	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 2, 4, 5 and 6
4.2.4.9	O&MN Env.	63406NR027	Conduct surveys for bat species that have the potential to occur on NBPL, including Western mastiff bat, Mexican free-tailed bat, several myotis spp., and Western red bat.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	2012, 2014, 2016	1, 5 and 6
Special Status Species (Federally Listed and Other Special Status Species)								
4.2.5.3	O&MN Env.	63406NR021	Develop and distribute education materials on special status species to installation personnel and tenants. Information should include species descriptions and habitats, and special concerns.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4 and 5
4.2.5.3	O&MN Env.	63406NR003	Conduct regular (approximately every 2 years) surveys for special status species that may be present on NBPL. Species surveyed should include Orcutt's spineflower, the Western Snowy Plover, the Coastal California Gnatcatcher, the California Least Tern, the Least Bell's Vireo, the Pacific pocket mouse, and MBTA-protected avian species (Great Blue Heron and Great Egret).	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4 and 5

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.5.3	O&MN Env.	63406NR017	Conduct regular surveys and develop management recommendations for Coastal California Gnatcatcher to ensure essential and potential habitat is identified and promote species recovery.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Biennial	2012, 2015, 2017	1, 4 and 5
4.2.5.3	O&MN Env	63406NRC27	Implement actions to achieve conservation of sensitive plant species to preclude listing and protect military readiness, with specific focus on <i>Piperia cooperi</i> .	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	2014-2018	1, 4, and 5
4.2.5.3	O&MN Env.	63406NR024	Review and update species lists to reflect presence of threatened, endangered, and candidate species.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, and 5
4.2.5.3	O&MN Env.	63406NR003	Monitor listed species and their habitats, and develop and revise management actions based on monitoring.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4 and 5

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.5.3	O&MN Env.	63406NR004	Initiate habitat improvement projects to conserve biodiversity and protect plant and animal habitats, as funding is available and when such projects will not adversely affect the military mission (e.g., noxious weeds, or invasive species removal; habitat disturbance where such disturbance will promote native plant growth; preventing habitat disturbance when this will promote nonnative plant growth; and revegetation with native plants).	4	Sikes Act, ESA, CESA, Ca MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5 and 6
4.2.5.3	O&MN Env.	63406NR036	Develop a demonstration garden on NBPL to educate NBPL personnel on special status species and their habitats.	2	Sikes Act, ESA, CESA, Ca MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 2 and 5
4.2.5.5	O&MN Env.	63406NR029	Conduct surveys of abalone habitat to assess population changes. Based on surveys, develop and implement abalone management measures contained within the Abalone Recovery and Management Plan (e.g., seasonal closures for fishing).	4	Sikes Act, CWA, CA Aquatic Resources, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
4.2.5.5	O&MN Env.	63406EPRFISH	Develop and implement a strategy to reduce population impacts from oil spills and other hazardous waste in San Diego Bay.	4	Sikes Act, CWA, CA Aquatic Resources, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 5 and 6
Exotic and Invasive Species Management								

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.6	O&MN Env.	63406NR015	Develop and implement an Invasive Species Management Plan (or Biosecurity Plan) to control the spread of invasive species on NBPL. The plan should include specific prescriptions to evaluate individual invasive species, to identify targeted species, to control further spread of targeted species, and to develop and implement a program to monitor species abundance.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5, 6 and 7
4.2.6	O&MN Env.	63406NR005	Conduct surveys annually to determine whether controls on existing infestations of species have been effective, and whether new populations have become established.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
4.2.6	O&MN Env.	63406NR033	Develop and implement a review process for all projects that include a landscaping component to ensure nonnative species are not introduced.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5, 6 and 7
4.2.6	O&MN Env.	63406NR033	Develop outreach and education materials for distribution within the NBPL community.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.6	O&MN Env.	63406NR033	Coordinate with the Natural History Museum to identify unknown species that may be invasive.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	2012	1 and 2
4.2.6	O&MN Env.	63406NR033	Annually review and update recommended plant list.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 5, 6 and 7
Grounds and Landscape Maintenance								
4.2.7	O&MN Env.	63406NRC10	Develop and implement BMPs for grounds maintenance at NBPL (e.g., water conservation). Periodically review the Landscape Management Plan to ensure plan BMPs still meet installation needs.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
Pest Management								
4.2.8	O&MN Env.	63406NR011	Implement pest management controls from the SDMAI and other pest-related guidance and plans.	4	Sikes Act, EO 13112, CA MIL, CA Native, CA Pest Management, DoD Inst. 4715.03, DoD Inst. 4150.7, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5 and 6

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.8	O&MN Env.	63406NR011	Monitor pest and invasive species populations. Track usage of active ingredients and man-hours spent controlling pest and invasive species during implementation to ensure that the management strategies are sufficient.	4	Sikes Act, EO 13112, CA MIL, CA Native, CA Pest Management, DoD Inst. 4715.03, DoD Inst. 4150.7, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5 and 6
4.2.8	O&MN Env.	63406NR011	Develop and implement a program to control feral animals on NBPL. Control populations of feral animals on NBPL.	4	Sikes Act, EO 13112, CA MIL, CA Native, CA Pest Management, DoD Inst. 4715.03, DoD Inst. 4150.7, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5 and 6
4.2.8	O&MN Env.	63406NR011	Conduct surveys to determine impact of feral animals on native species on NBPL.	4	Sikes Act, EO 13112, CA MIL, CA Native, CA Pest Management, DoD Inst. 4715.03, DoD Inst. 4150.7, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
Outdoor Recreation and Public Access								

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.9	O&MN Env.	63406NR016	Develop an outdoor recreation plan for NBPL. Seek opportunities for natural resources-based outdoor recreation to improve quality of life for Navy personnel, allow close partnership with the local community, and improve knowledge of the natural world and the Navy's stewardship of natural resources.	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 2, 3 and 6
4.2.9	O&MN Env.	63406NR016	Identify and evaluate suitable outdoor recreation opportunities for installation personnel in undeveloped areas that do not contain or have the potential to impact sensitive species.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3 and 6
4.2.9	O&MN Env.	00242MR116	Develop San Diego Bay sensitive marine resources kiosk and brochure for outreach and education. The NBPL marine areas are under consideration for designation as a state marine protected area. Improved public outreach is needed for ESA compliance, emerging public awareness of marine protected areas, and other marine resource related issues.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 3 and 6
Law Enforcement and Natural Resources Laws and Regulations								
4.2.10	O&MN Env.	63406EPRLAW	Provide training to personnel responsible for enforcement of applicable laws and regulations.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 6 and 7
4.2.10	O&MN Env.	63406EPRLAW	Cooperate with other agencies, particularly the USFWS and CDFG, to ensure that natural resources laws are adequately enforced.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
Environmental Awareness and Outreach								

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.11	O&MN Env.	36406NR016	Establish a watchable wildlife program at NBPL, Main Base.	2	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 5 and 6
4.2.11	O&MN Env.	63406NR021	Educate installation personnel and tenants about the installation natural resources program.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
4.2.11	O&MN Env.	63406NR021	Periodically review and update outreach and education materials to ensure that each is still current.	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 2, 3, 4, 5, 6 and 7
4.2.11	O&MN Env.	63406NR021	Develop and distribute educational materials about the NBPL Main Base natural resources program to stakeholders near NBPL, Main Base (e.g. neighborhoods, county, etc.).	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
Geographic Information Systems Management, Database Management, Data Integration, Access and Reporting								
4.2.12	O&MN Env.	63406NR024	Annually review GIS data to advise resource managers of needs to update data sets during budget planning and programming.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 5, 6 and 7
4.2.12	O&MN Env.	63406NR024	Develop specific language that will be included in all contracts to ensure all spatial data produced are fully compatible with the installation GIS database.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 3, 4, 5, 6 and 7
4.2.12	O&MN Env.	63406NR024	Develop a standardized system for recording and mapping significant resource observations (e.g., plants, wildlife, erosion, damage) when incidentally encountered.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 3, 4, 5, 6 and 7

Table D-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.12	O&MN Env.	63406NR024	Provide annual funding for one person to be responsible for updating and maintaining the GIS database. This should include the necessary hardware, software, and training for the use of GIS.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 5, 6 and 7

Note:

¹ Projects listed with the following description are placeholder projects to be entered into the EPR system in the future: 63406EPRXX.

² This is not a comprehensive list of applicable regulations, other regulations, policy, or guidance may apply. Please review **Appendix B** for a comprehensive list of laws, policies or guidance for management of natural resources.

³ Cost estimates are on the Navy Conservation Website and are available during annual reviews with USFWS and CDFG.

Key Legal Driver:

CA MIL = CA Mgmt of Fish and Wildlife on Military Lands (CA MIL)

CESA = California Endangered Species Act

ESA = Federal Endangered Species Act

CA Native = CA Native Spp. Conservation and Enhancement

CWA = Federal Clean Water Act

MBTA = Federal Migratory Bird Treat Act

OPNAVINST = Chief of Naval Operational Instruction 5090.1C CH-1

2010 Metrics Focus Areas:

1. INRMP Implementation
2. Partnerships/Cooperation and Effectiveness
3. Team Adequacy
4. Status of Federally Listed Species and Critical Habitat (CH)
5. Ecosystem Integrity
6. Fish and Wildlife Management and Public Use
7. INRMP Impact on the Installation Mission.

Table D-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
Watershed Management								
5.2.3	O&MN Env.	63406NR034	Ensure that personnel at off peninsula facilities (e.g., Miramar Pipeline and Mount Soledad Signal Station, and PPV landscaping personnel) are aware of the Erosion Control Plan and provided the resources to implement the BMPs within the plan.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
5.2.3	O&MN Env.	63406NR034	Periodically review erosion control BMPs to ensure that they are still adequate to control adverse erosion and sedimentation on NBPL. Conduct surveys to determine whether activities on NBPL are adversely impacting soil and water resources on NBPL through erosion and sedimentation.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
Habitat Management								
Terrestrial Habitats and Vegetation Communities								
5.2.4.1	O&MN Env.	63406NR208	Periodically survey habitats to ensure no adverse impacts from activities are occurring, and develop management actions based on survey.	4	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
5.2.4.1	O&MN Env.	63406EPRHAB	Develop specifications and standards for reseeding/revegetation of disturbed sites for use in contracts, maintenance, and other projects.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7

Table D-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.4.1	O&MN Env.	63406NRC15	Ensure PPV personnel at the housing areas, and personnel at Mount Soledad Signal Station implement management strategies from this INRMP at their facilities.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7
5.2.4.1	O&MN Env.	63406NR104	Once vegetation surveys are completed at Miramar Pipeline, incorporate survey data into this INRMP and implement management strategies. Ensure that inventory data is digitized and incorporated into the Geodatabase for NBPL.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
5.2.4.1	O&MN Env.	63406NR101	Once vegetation surveys are completed at Mount Soledad Signal Station, incorporate survey data into this INRMP and implement management strategies. Ensure that inventory data is digitized and incorporated into the Geodatabase for NBPL.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
5.2.4.1	O&MN Env.	63406NRC16	Develop and implement a revised Vegetation Management Plan and review current management to ensure it still meets ecosystem management goals.	4	Sikes Act, ESA, Federal Noxious Weed Act, Soil Conservation Act, Executive Order 13112 (Invasive Species)	Annually	All	1, 5, 6 and 7
Wetlands and Waters of the United States								
5.2.4.2	O&MN Env.	63406NRC26	Update the wetland inventory data, including wetland distribution and categories, for the Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa housing areas.	4	Sikes Act, CWA, CA Wetlands Preservation, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7

Table D-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.4.2	O&MN Env.	63406NR104	Once completed, include wetland inventory data for Miramar Pipeline in the INRMP. Ensure that wetland inventory data is digitized and incorporated into the Geodatabase for NBPL.	4	Sikes Act, CWA, CA Wetlands Preservation, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 5 and 7
Wildland Fire Management								
5.2.4.3	O&MN Env.	63406NR013	Review NBPL FMP at least annually and update plan according to DoD Instruction 6055.06.	4	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7
5.2.4.3	O&MN Env.	63406NR021	Educate the NBPL community and PPV staff about wildland fire. This can be accomplished through posting fire prevention signs, and developing fire prevention messages and handouts for housing residents, Navy staff, and PPV staff.	4	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7
Fish and Wildlife Management								
5.2.5.1	O&MN Env.	63406NR003	Survey for and monitor herpetofauna populations using guidelines recommended by PARC. Once finalized, implement DoD PARC Strategic Plan.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
5.2.5.1	O&MN Env.	63406NR105	Install bird and bat boxes where feasible around housing communities and off peninsula facilities.	1	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 2, 4, 5 and 6
4.2.4.9	O&MN Env.	63406NR027	Conduct surveys for bat species that have the potential to occur on NBPL, including Western mastiff bat, Mexican free-tailed bat, several myotis spp., and Western red bat.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	2012, 2014, 2016	1, 5 and 6

Table D-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.5.1	O&MN Env.	63406NR104	Once surveys are completed at Miramar Pipeline, incorporate survey data into this INRMP and implement management strategies.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5 and 6
5.2.5.1	O&MN Env.	63406NR101	Once surveys are completed at Mount Soledad Signal Station, incorporate survey data into this INRMP and implement management strategies	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5 and 6
5.2.5.2	O&MN Env.	63406NR103	Develop BMPs to ensure that pollinator species are not adversely impacted by NBPL activities, and implement a pollinator monitoring program.	2	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 6
5.2.5.3	O&MN Env.	63406NR021	Develop and distribute outreach and education materials on migratory birds to housing residents and PPV staff.	4	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Once	2013	1, 5 and 6
5.2.5.3	O&MN Env.	63406EPRMBTA	Once finalized, implement monitoring protocols contained within the DoD Coordinated Bird Monitoring Plan. Contribute to date to the Coordinated Bird Monitoring Database.	3	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Annually	All	1, 5 and 6
5.2.5.3	O&MN Env.	63406NR025	Conduct regular (approximately every 2 years) surveys to determine what species of migratory birds may have potential to be on housing areas with open space (Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa).	4	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Biennial	2012, 2014, 2016	1, 5 and 6
Special Status Species (Federally Listed and Other Special Status Species)								

Table D-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.6.1	O&MN Env.	63406EPRTES	Establish an education program for housing residents and PPV personnel who might have contact with special status species or their habitats.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4 and 5
5.2.6.1	O&MN Env.	63406NR101 63406NR104 63406NR003	Conduct regular (approximately every 2 years) surveys for special status species that may be present on off peninsula facilities, including Mount Soledad Signal Station (for rare plants), Miramar Pipeline, Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa housing areas. Once surveys are completed, incorporated survey data into this INRMP.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4 and 5
5.2.6.1	O&MN Env.	63406NR020	Review and update species lists to reflect presence of threatened, endangered, and candidate species.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, and 5
Exotic and Invasive Species Management								
5.2.7	O&MN Env.	63406NR005	Conduct surveys annually to determine whether controls on existing infestations of species has been effective, and whether new populations have become established.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
5.2.7	O&MN Env.	63406NR033	Develop and implement a review process for all projects that includes a landscaping component to ensure nonnative species are not introduced.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5, 6 and 7

Table D-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.7	O&MN Env.	63406NR033	Develop outreach and education materials for distribution within the NBPL community.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
Grounds and Landscape Maintenance								
5.2.8	O&MN Env.	63406NRC10	Develop and implement BMPs for grounds maintenance at NBPL (e.g., water conservation). Periodically review the Landscape Management Plan to ensure plan BMPs still meet installation needs.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
5.2.8	O&MN Env.	63406EPRGM	Provide professional advice to assist the grounds landscaping and maintenance program toward the use of native species as identified in the recommended plant list.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
Pest Management								
5.2.9	O&MN Env.	63406NR011	Ensure that PPV personnel have a copy and understand the content of the SDMAI, and their implementation responsibilities. Implement pest management controls from the SDMAI and other pest-related guidance and plans.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
5.2.9	O&MN Env.	63406NR011	Monitor pest and invasive species populations. Track usage of active ingredients and man-hours spent controlling pest and invasive species during implementation to ensure that the management strategies are sufficient.	4	Sikes Act, EO 13112, CA MIL, CA Native, CA Pest Management, DoD Inst. 4715.03, DoD Inst. 4150.7, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5 and 6

Table D-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
Outdoor Recreation and Public Access								
5.2.10	O&MN Env.	63406NR016	Identify and evaluate suitable outdoor recreation opportunities for installation personnel in undeveloped areas that do not contain or have the potential to impact sensitive species.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3 and 6
Law Enforcement and Natural Resources Laws and Regulations								
5.2.11	O&MN Env.	63406EPRLAW	Provide training to personnel responsible for enforcement of applicable laws and regulations.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 6 and 7
5.2.11	O&MN Env.	63406EPRLAW	Cooperate with other agencies, particularly the USFWS and CDFG, to ensure that natural resources laws are adequately enforced.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
Environmental Awareness and Outreach								
5.2.12	O&MN Env.	63406EPRED	Establish a watchable wildlife program where appropriate.	1	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 5 and 6
5.2.12	O&MN Env.	63406EPRED	Educate the local community, as well as installation personnel and tenants about the installation natural resources program.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
5.2.12	O&MN Env.	63406EPRED	Periodically review and update outreach and education materials to ensure that each is still current.	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 2, 3, 4, 5, 6 and 7

Table D-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
Geographic Information Systems Management, Database Management, Data Integration, Access and Reporting								
5.2.13	O&MN Env.	63406NR024	Annually review GIS data to advise resource managers of needs to update data sets during budget planning and programming.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 5, 6 and 7
5.2.13	O&MN Env.	63406NR024	Develop specific language that will be included in all contracts to ensure all spatial data produced are fully compatible with the installation GIS database.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 3, 4, 5, 6 and 7
5.2.13	O&MN Env.	63406NR024	Develop a standardized system for recording and mapping significant resource observations (e.g., plants, wildlife, erosion, damage) when incidentally encountered.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 3, 4, 5, 6 and 7
5.2.13	O&MN Env.	63406NR024	Provide annual funding for one person to be responsible for updating and maintaining the GIS database. This should include the necessary hardware, software, and training for the use of GIS.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 5, 6 and 7

Note:

¹ Projects listed with the following description are placeholder projects to be entered into the EPR system in the future: 63406EPRXX.

² This is not a comprehensive list of applicable regulations, other regulations, policy, or guidance may apply. Please review **Appendix B** for a comprehensive list of laws, policies or guidance for management of natural resources.

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Key Legal Driver:

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ESA = Federal Endangered Species Act

CA Native = CA Native Spp. Conservation and Enhancement

CWA = Federal Clean Water Act

MBTA = Federal Migratory Bird Treat Act

OPNAVINST = Chief of Naval Operational Instruction 5090.1C CH-1

2010 Metrics Focus Areas:

1. INRMP Implementation
2. Partnerships/Cooperation and Effectiveness
3. Team Adequacy
4. Status of Federally Listed Species and Critical Habitat (CH)
5. Ecosystem Integrity
6. Fish and Wildlife Management and Public Use
7. INRMP Impact on the Installation Mission.

Table D-3. Naval Base Point Loma, Sustainability Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas ⁺
						Frequency	Fiscal Year ³	
Ecosystem Management								
3.3	In-house	63406EPRECO	Develop a process and schedule for coordinating with agencies to allow for agency comment on management plans.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
3.3	O&MN Env.	63406EPRECO	Develop new, and enhance existing, databases, and acquire applicable databases from outside sources for application in GIS.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
3.3	O&MN Env.	63406NR006	Implement management objectives and strategies in the NBPL INRMP and complete associated environmental planning to ensure compliance with the National Environmental Policy Act.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	2014-2018	1, 2, 3, 4, 5, 6 and 7
3.3	O&MN Env.	63406NRC28	Complete annual updates and coordinate annual reviews for INRMP.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	2014-2018	1, 2, 3, 4, 5, 6 and 7
Sustainability in the Built Environment								
6.1.1	Other Activity	63406EPRBE	Implement LID practices for protecting water quality.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.1.1	Other Activity	63406EPRBE	Develop sustainability indicators and BMPs, to be incorporated into the NBPL planning process. Monitor effectiveness of BMPs and revise as necessary.	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7

Table D-3. Naval Base Point Loma, Sustainability Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas ⁺
						Frequency	Fiscal Year ³	
6.1.1	Other Activity	63406EPRBE	Conduct training in sustainable design criteria in the Navy for engineers, construction and design specialists, water quality specialists, and biologists. This could be web-based training.	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
Encroachment								
6.1.3		63406EPRMM	Review proposed new uses or alterations to existing buildings or structures, in consultation with a Navy archaeologist, to determine the eligibility of affected structures for the National Register of Historic Places contributing elements. As needed, analyze for potential impacts in accordance with guidelines established for NRHP-eligible buildings.		Sikes Act, NHPA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.1.3	Appropriate Activity	63406EPRMM	Conduct appropriate environmental surveys on any proposed new land use within an undeveloped area to identify sensitive natural and cultural resources, environmental resources, and IRPs (hazardous waste cleanups).		Sikes Act, NHPA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
Adapting to Effects of Climate Change								
6.1.4	In-house and Research	63406EPRCC	Adapt and mitigate the adverse consequences of climate change, including stresses on infrastructure, aquatic vegetation, erosion, and shifts in distributions of terrestrial endemic species and plant communities.		Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7

Table D-3. Naval Base Point Loma, Sustainability Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas ⁺
						Frequency	Fiscal Year ³	
6.1.4	In-house	63406EPRCC	Address the anticipated increase in extreme events by emphasizing preventative technologies including complying with guidelines on project siting, improving water conservation, improving stormwater management through use of LID technologies, and improving coordination between natural resources and staff and development project proponents to ensure more energy efficient design features.		Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.1.4	Not Designated	63406EPRCC	Control/reduce greenhouse gasses by developing and implementing the NBPL Renewable Energy Plan.		Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
Infrastructure and Facilities Management								
6.3.3.1	In-house	63406EPRCM	Incorporate erosion control BMPs in the preliminary engineering, design, and construction of facilities involving ground disturbance.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.3.3.2	In-house	63406EPRCM	Develop and implement protocols for conducting maintenance activities on roads. Provide training on protocols to applicable personnel. Reduce mowing frequency and intensity where possible based on ecological considerations (e.g., annual nesting season).	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
Stormwater Management								
6.4		63406EPRCM	Implement Erosion Control Plan BMPs.		Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7

Table D-3. Naval Base Point Loma, Sustainability Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas ⁺
						Frequency	Fiscal Year ³	
6.4		63406EPRCM	Investigate the use of LID for future development projects to minimize adverse impacts of surface runoff from impervious areas.		Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.4		63406EPRCM	Develop an improved training program for appropriate government employees. These workshops should provide training on the need, design, and implementation of BMPs, and on LID.		Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
Communications Towers, Wind Farms and Power Lines								
6.5		63406EPRPL	Develop and implement an avian protection plan to reduce impacts to avian species from management of towers and power lines. Plan should be developed using information from DoD PIF and USFWS.		Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually Implement	All	1, 4, 5, 6 and 7
Oil Spill and Hazardous Substance Prevention and Cleanup								
6.8		63406EPROH	Update GIS layers of natural resources to support preparedness planning, integrate baseline ecological surveys into preparedness planning, and integrate invasive exotic species response planning with oil spill contingency plans.		Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7

Note:

¹ Projects listed with the following description are placeholder projects to be entered into the EPR system in the future: 63406EPRXX.

² This is not a comprehensive list of applicable regulations, other regulations, policy, or guidance may apply. Please review **Appendix B** for a comprehensive list of laws, policies or guidance for management of natural resources.

³ Cost estimates are on the Navy Conservation Website and are available during annual reviews with USFWS and CDFG.

Key Legal Driver:

CWA = Federal Clean Water Act

NHPA = National Historic Preservation Act

OPNAVINST = Chief of Naval Operational Instruction 5090.1C CH-1

2010 Metrics Focus Areas:

1. INRMP Implementation
2. Partnerships/Cooperation and Effectiveness
3. Team Adequacy
4. Status of Federally Listed Species and Critical Habitat (CH)
5. Ecosystem Integrity
6. Fish and Wildlife Management and Public Use
7. INRMP Impact on the Installation Mission.

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APPENDIX E

BENEFITS FOR ENDANGERED SPECIES

Appendix E

Benefits for Endangered Species

The objective of this appendix is to identify within the INRMP all management and conservation efforts for a federally listed species that the USFWS and NOAA Fisheries would use to consider when making a determination not to designate critical habitat on an installation. This will speed the review process by identifying upfront potential projects / actions to the installation, USFWS or NOAA Fisheries to obviate the need to designate critical habitat on military installations.

The Endangered Species Act was revised (ESA Section 4(a)(3)(b)(i)) via the National Defense Authorization Act of 2004, which states that, —*The Secretary [of the Interior] shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.* The USFWS has determined that, where applicable, federal critical habitat designation is not warranted if the INRMP includes the following three criteria (DoD 2002):

1. **The plan provides a benefit to the species.** Cumulative benefits of the management activities identified in a management plan, for the length of the plan, must maintain or provide for an increase in a species' population or the enhancement or restoration of its habitat within the area covered by the plan (e.g., those areas deemed essential to the protection of the species). A benefit may result from reducing fragmentation of habitat, maintaining or increasing populations, ensuring against catastrophic events, enhancing and restoring habitats, buffering protected areas, or testing and implementing new strategies.
2. **The plan provides certainty that the management plan will be implemented.** Persons charged with plan implementation are capable of accomplishing objectives of the management plan and have adequate funding for the management plan. They have the authority to implement the plan and have obtained all necessary authorizations or approvals. An implementation schedule (including completion dates) for the management effort is provided in the plan.
3. **The plan provides certainty that the management effort will be effective.** The following criteria will be considered when determining the effectiveness of the management effort. The plan includes: (1) biological goals (broad guiding principles for the program) and objectives (measurable targets for achieving the goals); (2) quantifiable, scientifically valid parameters that will demonstrate achievement of objectives and standards for these parameters by which progress will be measured are identified; (3) provisions for monitoring and, where appropriate, adaptive management; (4) provisions for reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the management effort are provided; and (5) a duration sufficient to implement the plan and achieve benefits of its goals and objectives.

The NBPL Commanding Officer has the authority to implement the plan, which will be accomplished by the Environmental Chief and environmental staff at NBPL, as scheduled and budgeted. Formal adoption of an INRMP by the commander constitutes a commitment to seek funding and execute, subject to the availability of funding, all Must Fund Projects and activities in accordance with specific timeframes identified in the INRMP. Under the Sikes Act, any natural resources management activity that is specifically addressed in the plan must be implemented (subject to availability of funds). Failure to implement the INRMP is a violation of the Sikes Act. Annual reporting on implementation of the current

INRMP to both the USFWS and CDFG has documented the commitment of NBPL to acquire funding and implement the INRMP.

Management objectives and strategies for management of listed species have been developed for management of special status species and specific projects are outlined in **Appendix D, Tables D-1 and D-2.**

The USFWS Region 8 Navy INRMP Coordinator provided the following template for reporting of Benefits to Endangered Species. Of the federally listed species known or with the potential to occur on NBPL, the Coastal California Gnatcatcher and Orcutt's spineflower are discussed in detail below.

Coastal California Gnatcatcher (*Polioptila californica californica*)

Related INRMP Sections

4.2.5	Special Status Species (Federally Listed and Other Special Status Species)
4.2.5.1	Federally Listed Species
4.2.5.3	General Management for Special Status Species
4.2.5.4	ESA Consultation and Mission Requirements
5.1.6.4	Beech Street Knolls Housing Area
5.1.6.5	Chesterton Housing Area
5.1.6.11	Village at Serra Mesa Housing Area
5.2.6	Special Status Species (Federally Listed and Other Special Status Species) [Off Peninsula]
5.2.6.1	General Management for Special Status Species [Off Peninsula]
5.2.6.2	ESA Consultation and Mission Requirements [Off Peninsula]

Projects Applicable to Coastal California Gnatcatcher

Project	Description	ERP Number	Section in INRMP
Coastal California Gnatcatcher Surveys	Focused USFWS protocol breeding season surveys for Coastal California gnatcatchers conducted every three years (on and off peninsula). Survey data will be used to analyze changes in distribution and species status. In addition, this project includes habitat Mapping and Assessment: habitat assessment includes mapping of California gnatcatcher habitat, identification of potential restoration opportunities, invasive species mapping, and subsequent management recommendations.	63406NR017	4.2.5.3 5.2.6.1
Neotropical Migratory Bird Monitoring (MAPS)	Annual bird surveys are conducted via MAPS stations on Naval Base Point Loma and Cabrillo National Monument. This data will be used to analyze population trends for Coastal California gnatcatcher and other migratory bird species on Point Loma.	63406NR025	4.2.4.5
General Species Surveys and INRMP Implementation	Conduct regular (approximately every 2 years) surveys for special status species that may be present on NBPL. Species surveyed should include Orcutt’s spineflower, the Western Snowy Plover, the Coastal California Gnatcatcher, the California Least Tern, the Least Bell’s Vireo, the Pacific pocket mouse, and MBTA-protected avian species.	63406NR003	4.2.5.3 4.2.5.4 5.2.6.1 5.2.6.2

Project	Description	ERP Number	Section in INRMP
Exotic Plant Control	Conduct surveys annually to determine whether controls on existing infestations of species have been effective, and whether new populations have become established.	63406NR005	4.2.6 5.2.7
Vegetation Management Plan and Implementation	Implement the VMP recommendations for habitat enhancement.	63406NRC16	4.2.3.1

Current Distribution and Status

The Coastal California Gnatcatcher has not been confirmed as a breeding resident on Naval Base Point Loma since 1915 (Haas et al. 2006), and more recent surveys have failed to find any breeding pairs on the base (Unitt 2004, Tierra Data Inc. 2007, Tierra Data Inc. 2012). Several historical observations of the Coastal California Gnatcatcher on Naval Base Point Loma have been recorded, but are rare and largely opportunistic (Haas and Quon 1999).

The area of available habitat at NBPL is isolated from other populations of the species, thus making colonization unlikely, but possible given that there is adequate habitat for colonization by dispersing Coastal California Gnatcatchers.

The first Natural Resources Baseline Inventory Surveys of NBPL housing areas were conducted in 2009. Of the surveyed housing areas, Coastal California Gnatcatchers were observed on Chesterton and Village at Serra Mesa (U.S. Navy 2011b).

Coastal California Gnatcatchers were observed at three locations within the open space at Chesterton (see **Figure E-1**). Focused surveys were conducted within the northwest corner of the site in an area that supported a more typical vegetation composition for this species. Two non-male birds were observed foraging on the slopes above the canyon bottom during several surveys and were likely two juveniles or a female with one young. Individual Gnatcatchers were detected at two different locations on two different dates further up the canyon.

Three Coastal California Gnatcatchers were observed using the open space at Village at Serra Mesa (see **Figure E-2**). This group consisted of an adult pair and at least one juvenile.

Beech Street Knolls supports a small portion of potentially suitable habitat for the Coastal California Gnatcatcher. This open space area is contiguous with an undeveloped urban canyon, and this species has been detected north of the site (State of California 2009a). There is potential for this species to occur on-site, though it has been evaluated as low given the small amount of habitat and the fact that the site is located at the end of the urban canyon and is surrounded on several sides by development.

Change in Distribution and Status

Naval Base Point Loma on peninsula facilities have not supported breeding/resident Coastal California Gnatcatchers since 1915. More data is needed to analyze changes in distribution and status.

The first focused Coastal California Gnatcatcher surveys on NBPL housing areas were conducted in 2009. More data is needed to analyze changes in distribution and status.

Relevant Biological Opinions

Not applicable.

Effectiveness of Projects on Species and Habitat

Because NBPL focuses on an ecosystem based approach to natural resources management, many projects have the potential to provide both direct and indirect benefits to Coastal California Gnatcatchers and their habitat. See **Table D-1** and **Appendix D** for a list of all INRMP projects, schedules, and implementation table.

Table E-1. Results of Past Surveys During the Breeding and Non-breeding Season for Coastal California Gnatcatcher on Naval Base Point Loma

Year	Number Observed		Source	Comments
	Breeding Season	Non-breeding Season		
1990	2		Bailey and Mock 1998, Haas et al. 2006	Did not remain onsite
1992	unk		Bailey and Mock 1998	Observation noted, no details given
1993	1		Bailey and Mock 1998, Haas et al. 2006	Dispersing juvenile
1995		2	Bailey and Mock 1998, Haas et al. 2006	At CNM
1998		2	Haas et al. 2006	Battery Humphrey
2004	2		Haas et al. 2006	North of sewage-treatment plant
2005	1		Haas et al. 2006, TDI 2007	At CNM, dispersing juvenile
2011	0		U.S. Navy 2011b	



Figure E-1. Coastal California Gnatcatcher Observations at Chesterton

(Note: Coastal California Gnatcatcher sightings likely represent same individual/pair observed on different days.)



Figure E-2. Coastal California Gnatcatcher Observations at Village at Serra Mesa

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Orcutt's spineflower (*Chorizanthe orcuttiana*)

Related Sections

4.2.5	Special Status Species (Federally Listed and Other Special Status Species)
4.2.5.1	Federally Listed Species
4.2.5.3	General Management for Special Status Species
4.2.5.4	ESA Consultation and Mission Requirements

Projects Applicable to Orcutt's spineflower

Project	Description	ERP Number	Section in INRMP
Conduct Regular Surveys/Monitor Listed Species and their Habitat	Conduct regular (approximately every 2 years) surveys for special status species that may be present on NBPL. Species surveyed should include Orcutt's spineflower, the Western Snowy Plover, the Coastal California Gnatcatcher, the California Least Tern, the Least Bell's Vireo, the Pacific pocket mouse, and MBTA-protected avian species.	63406NR003	4.2.5.3
Restore Orcutt's Spineflower Habitat	Initiate habitat improvement projects to conserve biodiversity and protect plant and animal habitats, as funding is available and when such projects will not adversely affect the military mission (e.g., noxious weeds, or invasive species removal; habitat disturbance where such disturbance will promote native plant growth; preventing habitat disturbance when this will promote nonnative plant growth; and revegetation with native plants).	63406NR004	4.2.5.3
Invasive Species Monitoring	Conduct surveys annually to determine whether controls on existing infestations of species have been effective, and whether new populations have become established.	63406NR005	4.2.6
Invasive Species Management Plan Implementation	Develop and implement an Invasive Species Management Plan (or Biosecurity Plan) to control the spread of invasive species on NBPL. The plan should include specific prescriptions to evaluate individual invasive species, to identify targeted species, to control further spread of targeted species, and to develop and implement a program to monitor species abundance.	63406NR015	4.2.6
Vegetation Management Plan Implementation	Implement the VMP recommendations for habitat enhancement.	63406NRC16	4.2.3.1
Develop Educational Material on Special Status Species	Develop and distribute education materials on special status species to installation personnel and tenants. Information should include species descriptions and habitats, and special concerns.	63406NR021	4.2.9

Current Distribution and Status

Orcutt's spineflower is currently listed as endangered by both USFWS (November 6, 1996) and CDFG. CNPS also considers it to be rare and endangered (CNPS 2000). Orcutt's spineflower is a diminutive, herbaceous annual in the Polygonaceae family found on sandy soils developed from eroded coastal bluffs, within openings in chaparral and coastal sage scrub communities (CNPS 2000). Orcutt's spineflower tends to occur in loose, sandy soil in openings within maritime chaparral and coastal sage scrub below 150 meters (U.S. Navy 2009d). It is frequently found on gentle slopes, growing on the drip line of shrubs. This species has been mapped on Corralitos loamy sand and loamy alluvial sand in the Huerhuero complex in Encinitas by Craig Reiser and Kyle Ince. Several species of *Chorizanthe* are known to occur on Point Loma including fringed spineflower (*C. fimbriata*), prostrate spineflower (*C. procumbens*), and Turkish rugging (*C. staticoides*). All of these species have involucre cups with awns, while Orcutt's spineflower has an inflorescence with a three-angled involucre tube and hooked awns. It is easily distinguished from California spineflower (*Mucronea californica*) by these hooked awns; its yellow flower is very difficult to see (Hickman 1993).

Only eight extant occurrences in (one in Encinitas, CA, two in Del Mar, CA and five on NBPL) are known. Major threats to Orcutt's spineflower are coastal urbanization (resulting in loss of habitat), exotic plant species, and trampling due to local foot traffic (CNPS 2012). At one time, Orcutt's spineflower was thought to be extinct. A survey conducted by Bauder in 2010 confirmed three populations of Orcutt's spineflower on NBPL, and one at Torrey Pines State Reserve (Bauder and Sakrison 2010). The populations on NBPL include one on Mainbase, which has been detected from 1997 to the present, and two on SSC Pacific-managed land (Bauder and Sakrison 2010).

Change in Distribution and Status

The distribution and population size is dependent on annual precipitation; however, the distribution is expanding as restoration projects remove exotic species and litter in potential Orcutt's spineflower habitat. The current intensive mapping and monitoring project will provide distribution and status trend information.

Relevant Biological Opinions

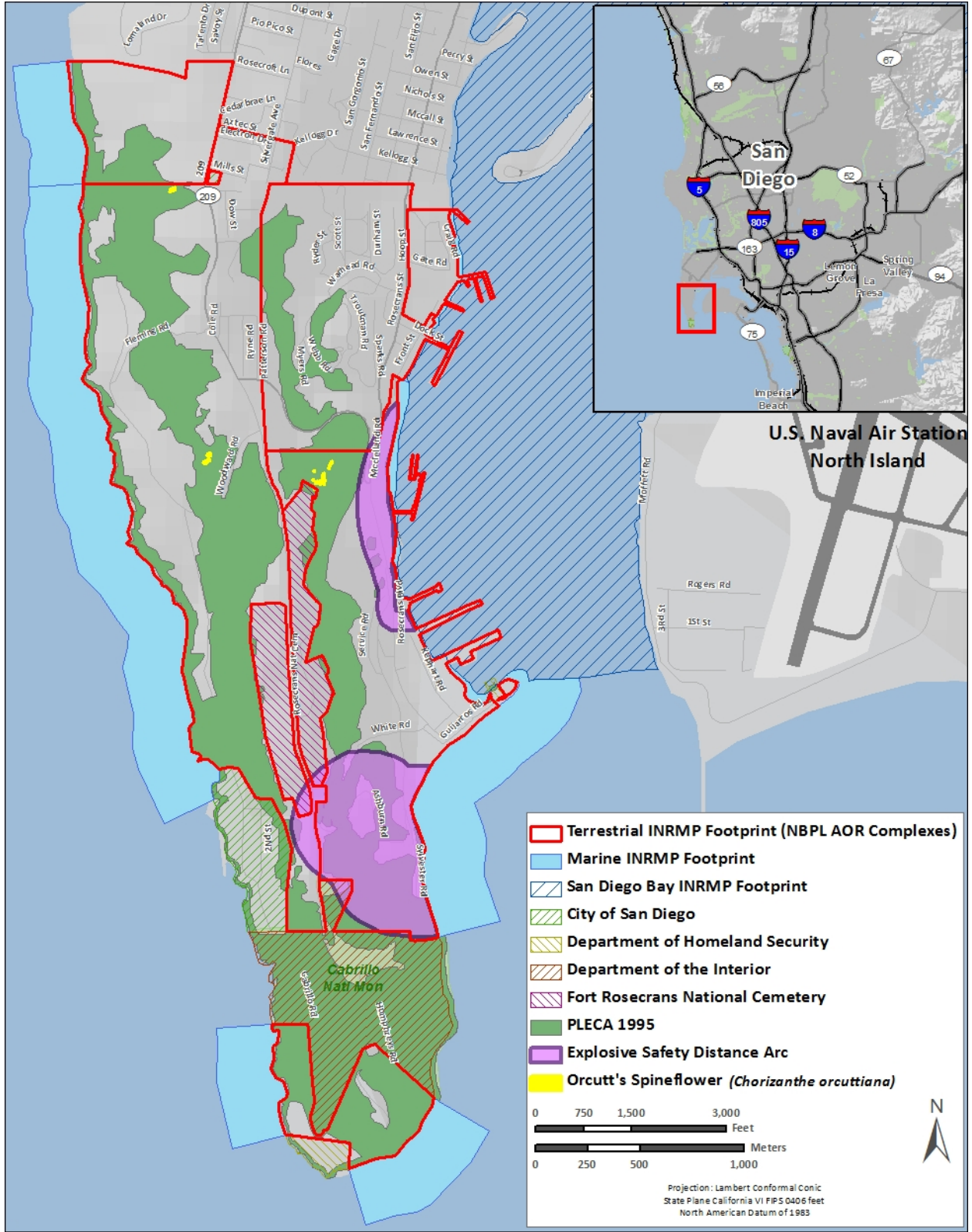
Not applicable.

Effectiveness of Projects on Species and Habitat

Because NBPL focuses on an ecosystem based approach to natural resources management, many projects have the potential to provide both direct and indirect benefits to Orcutt's spineflower. See **Appendix D** for a list of all INRMP projects, schedules, and implementation table.

Orcutt's spineflower management is guided by the recommendations in the Naval Base Point Loma Vegetation Management Plan (U.S. Navy 2008a). The Point Loma populations have been monitored since 1998 in accordance with a USFWS permit (Bauder 1998). NBPL currently supports nearly all known extant populations of this species. Annual monitoring and habitat enhancement (invasive species removal) is a priority. Monitoring plots have been installed at several Orcutt's spineflower populations to track annual and long-term fluctuations in population numbers and distribution. Enhancement projects will continue to record site characteristics to determine habitat requirements. Preliminary monitoring has shown the removal of invasive species, particularly acacia and iceplant, in open, sandy sites with a Orcutt's spineflower seed bank, promotes seed germination (SERG 2011). A 2011 Cooperative Agreement with Soils and Ecology Research Group (SERG), San Diego State University Foundation will

use available data on soil, plant, and topography associations in areas with the species to identify and map potential expansion areas on Point Loma. SERG will also research overlaps between known NBPL arthropods/pollinators and known pollinators of Orcutt's spineflower species to reveal pollinator habitat/resource requirements and potential restrictions to pollinator availability.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references [See GIS Reference List].

Figure E-3: Orcutt's Spineflower on Naval Base Point Loma

APPENDIX F

MIGRATORY BIRD MANAGEMENT

Appendix F

Migratory Bird Management

The Migratory Bird Treaty Act of 1918 (MBTA, 16 USC 703-712) protects all migratory birds and prohibits the taking of migratory birds, their young, nests, and eggs, except as permitted by the USFWS. The USFWS recommends that NBPL survey for nesting birds in proposed disturbance areas and, if necessary, waiting until the nesting and fledging process is complete to avoid impacting birds protected under the MBTA. Alternatively, the USFWS recommends conducting activities outside of nesting areas or outside of the general migratory bird nesting season, which extends from March through August, to help avoid direct impacts.

In addition, Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) directs all federal agencies taking actions that have a potential to negatively affect migratory bird populations to develop and implement an MOU with USFWS by January 2003 that shall promote the conservation of migratory bird populations.

Management objectives and strategies for migratory bird management have been developed and include the following (specific projects are outlined in **Appendix D, Tables D-1 and D-2**):

Objective: Maintain and enhance populations, and nesting and foraging habitats of migratory birds at on and off peninsula NBPL facilities.

Strategies:

1. Identify any actions that require an MBTA permit and, if necessary, obtain appropriate permit for intentional take of migratory birds.
2. Develop effective management for minimizing the unintentional take of migratory birds.
3. Conduct regular (approximately every 1-2 years) surveys to determine what species of migratory birds may have potential to be on NBPL.
4. Once finalized, implement monitoring protocols contained within the DoD Coordinated Bird Monitoring Plan. Contribute to date to the Coordinated Bird Monitoring Database.
5. Coordinate with the USGS to conduct one breeding season (March – November) following a standard MAPS survey at Naval Base Point Loma/Cabrillo National Monument. The survey should follow the procedures developed by the Institute for Bird Populations protocol as described in the MAPS Manual or the most current version at the time of the surveys). This project supports the MOU between the DoD and USFWS to promote the conservation of migratory birds by implementing an existing, nationwide bird monitoring program.
6. Continue monitoring listed species as described in this INRMP and adapt monitoring and management actions as needed.
7. Develop migratory bird specific BMPs and ensure these BMPs are included in project plans.
8. Revise and implement Heron and Egret Management Plan. Incorporate management provisions for Herons and Egrets within plan into INRMP.
9. Develop and enhance partnerships.
10. Develop and distribute outreach and education materials on migratory birds.
11. Revegetate with native species contained on the recommended plant list.

12. Control the spread of invasive species.
13. Comply with USFWS guidelines for reducing fatal bird strikes on communication towers, such as the Service guidance on the siting, construction, operation and decommissioning of communications towers, to the greatest extent practicable.
14. Develop an avian protection plan using information from the DoD PIF, and USFWS.

APPENDIX G

SPECIES LISTS

Appendix G

Species Lists

The following list of species was generated from information contained in the 2002 NBPL INRMP, 2009 terrestrial arthropod biodiversity survey, and the 2009 Point Loma Natural Resources Inventory. Species with the potential to occur have either suitable habitat found on NBPL or are known to occur adjacent to NBPL lands.

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Amphibians and Reptiles			
California legless lizard	<i>Anniella pulchra</i>	1	
Silvery legless lizard	<i>Anniella pulchra pulchra</i>	3	
Garden slender salamander	<i>Batrachoseps major</i>	1	
California toad	<i>Bufo boreas halophilus</i>	3	
Orange-throated whiptail	<i>Aspidoscelis hyperythrus</i>	1	SSC
Belding's orange-throated whiptail	<i>Aspidoscelis hyperythrus beldingi</i>	1	
Coastal whiptail	<i>Aspidoscelis tigris stejnegeri</i>	3	
Green sea turtle	<i>Chelonia mydas</i>	4	FT
Red diamond rattlesnake	<i>Crotalus exsul</i> (= <i>C. ruber ruber</i>)	3	
Southern pacific rattlesnake	<i>Crotalus viridis helleri</i>	1	
Western ringneck snake	<i>Diadophis punctatus</i>	1	
San Diego ringneck snake	<i>Diadophis punctatus similis</i>	3	
San Diego alligator lizard	<i>Elgaria multicarinata webbi</i>	1	
Coronado skink	<i>Eumeces skiltonianus interparietalis</i>	3	
Pacific treefrog	<i>Hyla regilla</i>	3	
Night snake	<i>Hypsiglena torquata</i>	1	
California kingsnake	<i>Lampropeltis getulus</i> (= <i>getula californiae</i>)	1	
Western blind snake	<i>Leptotyphlops humilis</i>	3	
Coastal rosy boa	<i>Lichanura trivirgata roseofusca</i>	3	CITES
Red coachwhip	<i>Masticophis flagellum piceus</i>	3	
California striped racer	<i>Masticophis lateralis</i>	1	
Chaparral whipsnake	<i>Masticophis lateralis lateralis</i>	3	
San Diego horned lizard	<i>Phrynosoma coronatum blainvillii</i>	3	
San Diego gopher snake	<i>Pituophis catenifer annectens</i>	1	
Western long-nosed snake	<i>Rhinocheilus lecontei lecontei</i>	3	
Coast patch-nosed snake	<i>Salvadora hexalepis virgultea</i>	3	
Western fence lizard	<i>Sceloporus occidentalis</i>	1	
Western spadefoot toad	<i>Spea hammondi</i>	3	
California black-headed snake	<i>Tantilla planiceps</i>	3	
Side-blotched lizard	<i>Uta stansburiana</i>	1	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Birds			
Cooper's Hawk	<i>Accipiter cooperii</i>	1	CITES
Sharp-shinned Hawk	<i>Accipiter striatus velox</i>	1	CITES
Spotted Sandpiper	<i>Actitis macularia</i>	1	
Clark's Grebe	<i>Aechmophorus clarkii</i>	1	
Western Grebe	<i>Aechmophorus occidentalis</i>	1	
White-throated Swift	<i>Aeronautes saxatalis</i>	1	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	1	
Tricolored Blackbird	<i>Agelaius tricolor</i>	1	BCC
Southern California Rufous-crowned Sparrow	<i>Aimophila ruficeps canescens</i>	1	
Parrot	<i>Amazona</i> sp.	1	
Baird's Sparrow	<i>Ammodramus bairdii</i>	1	
Grasshopper Sparrow	<i>Ammodramus savannarum perpallidus</i>	1	
Bell's Sage Sparrow	<i>Amphispiza belli belli</i>	1	
Black-throated Sparrow	<i>Amphispiza bilineata deserticola</i>	1	
Northern Pintail	<i>Anas acuta acuta</i>	1	
Northern Shoveler	<i>Anas clypeata</i>	1	
Green-winged Teal	<i>Anas crecca</i>	1	
Cinnamon Teal	<i>Anas cyanoptera septentrionalium</i>	1	
Blue-winged Teal	<i>Anas discors</i>	1	
Mallard	<i>Anas platyrhynchos platyrhynchos</i>	1	
White-fronted Goose	<i>Anser albifrons frontalis</i>	1	
Red-throated Pipit	<i>Anthus cervinus</i>	1	
American Pipit	<i>Anthus rubescens</i>	1	
Western Scrub-jay	<i>Aphelocoma californica</i>	1	
Surfbird	<i>Aphiriza virgata</i>	1	
Golden Eagle	<i>Aquila chrysaetos canadensis</i>	1	CITES
Macaw	<i>Ara</i> sp.	1	
Blue-crowned Parakeet	<i>Aratinga acuticaudata</i>	1	CITES
Green Parakeet	<i>Aratinga holochlora</i>	1	
Mitred Parakeet	<i>Aratinga mitrata</i>	1	
Black-chinned Hummingbird	<i>Archilochus alexandri</i>	1	CITES
Great Egret	<i>Ardea alba</i>	1	
Great Blue Heron	<i>Ardea herodias</i>	1	
Ruddy Turnstone	<i>Arenaria interpres</i>	1	
Black Turnstone	<i>Arenaria melanocephala</i>	1	BCC
Short-eared Owl	<i>Asio flammeus</i>	1	CITES
Long-eared Owl	<i>Asio otus</i>	1	CITES
Western Burrowing Owl	<i>Athene cunicularia hypugaea</i>	1	CITES, BCC
Lesser Scaup	<i>Aythya affinis</i>	1	
Plain (Oak) Titmouse	<i>Baeolophus inornatus</i>	1	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Birds (continued)			
Cedar Waxwing	<i>Bombycilla cedrorum</i>	1	
Black Brant	<i>Branta bernicla nigricans</i>	1	
Canada Goose	<i>Branta canadensis</i>	1	
Great Horned Owl	<i>Bubo virginianus</i>	1	CITES
Cattle Egret	<i>Bubulcus ibis</i>	1	
Bufflehead	<i>Bucephala albeola</i>	1	
Common Goldeneye	<i>Bucephala clangula americana</i>	1	
Zone-tailed Hawk	<i>Buteo albonotatus</i>	1	CITES
Red-tailed Hawk	<i>Buteo jamaicensis</i>	1	CITES
Red-shouldered Hawk	<i>Buteo lineatus elegans</i>	1	CITES
Broad-winged Hawk	<i>Buteo platypterus platypterus</i>	1	CITES
Ferruginous Hawk	<i>Buteo regalis</i>	1	CITES
Swainson's Hawk	<i>Buteo swainsoni</i>	1	ST, CITES, BCC
Green Heron	<i>Butorides virescens</i>	1	
Lark Bunting	<i>Calamospiza melanocorys</i>	1	
Lapland Longspur	<i>Calcarius lapponicus alascensis</i>	1	
Chestnut-collared Longspur	<i>Calcarius ornatus</i>	1	
Sanderling	<i>Calidris alba</i>	1	
Dunlin	<i>Calidris alpina pacifica</i>	1	
Red Knot	<i>Calidris canutus</i>	1	BCC
Western Sandpiper	<i>Calidris mauri</i>	1	
Least Sandpiper	<i>Calidris minutilla</i>	1	
California Quail	<i>Callipepla californica</i>	1	
Black-throated Magpie Jay	<i>Calocitta colliei</i>	1	
Anna's Hummingbird	<i>Calypte anna</i>	1	CITES
Costa's Hummingbird	<i>Calyptes costae</i>	1	CITES
Coastal Cactus Wren	<i>Campylorhynchus brunneicapillus couesi</i>	1	BCC
Whip-poor-will	<i>Caprimulgus vociferus</i>	1	
Red-faced Warbler	<i>Cardellina rubrifrons</i>	1	
Northern Cardinal	<i>Cardinalis cardinalis</i>	1	
Lawrence's Goldfinch	<i>Carduelis lawrencei</i>	1	BCC
Pine Siskin	<i>Carduelis pinus pinus</i>	1	
Lesser Goldfinch	<i>Carduelis psaltria</i>	1	
American Goldfinch	<i>Carduelis tristis salicamans</i>	1	
Cassin's Finch	<i>Carpodacus cassinii</i>	1	
House Finch	<i>Carpodacus mexicanus frontalis</i>	1	
Purple Finch	<i>Carpodacus purpureus californicus</i>	1	
Great Egret	<i>Casmerodius albus</i>	1	
Turkey Vulture	<i>Cathartes aura</i>	1	
Hermit Thrush	<i>Catharus guttatus</i>	1	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Birds (continued)			
Gray-cheeked Thrush	<i>Catharus minimus</i>	1	
Swainson's Thrush	<i>Catharus ustulata</i>	1	
Willet	<i>Catoptrophorus semipalmatus inornatus</i>	1	
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>	1	
Brown Creeper	<i>Certhia americana</i>	1	
Belted Kingfisher	<i>Ceryle alcyon</i>	1	
Chimney Swift	<i>Chaetura pelagica</i>	1	
Vaux's Swift	<i>Chaetura vauxi</i>	1	
Wrentit	<i>Chamaea fasciata henshawi</i>	1	
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	1	FT, SSC
Semi-palmated Plover	<i>Charadrius semipalmatus</i>	1	
Killdeer	<i>Charadrius vociferus vociferus</i>	1	
Snow Goose	<i>Chen caerulescens</i>	1	
Ross' Goose	<i>Chen rossii</i>	1	
Black Tern	<i>Chlidonias niger surinamensis</i>	1	
Lark Sparrow	<i>Chondestes grammacus strigatus</i>	1	
Lesser Nighthawk	<i>Chordeiles acutipennis texensis</i>	1	
Northern Harrier	<i>Circus cyaneus hudsonius</i>	1	CITES
Marsh Wren	<i>Cistothorus palustris</i>	1	
Oldsquaw	<i>Clangula hyemalis</i>	1	
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	1	
Northern Flicker	<i>Colaptes auratus</i>	1	
Band-tailed Pigeon	<i>Columba fasciata monilis</i>	1	
Rock Dove	<i>Columbina livia</i>	1	
Common Ground Dove	<i>Columbina passerina pallescens</i>	1	
Olive-sided Flycatcher	<i>Contopus cooperi</i>	1	
Greater Pewee	<i>Contopus pertinax</i>	1	
Western Wood Pewee	<i>Contopus sordidulus</i>	1	
American Crow	<i>Corvus brachyrhynchos hesperis</i>	1	
Common Raven	<i>Corvus corax</i>	1	
Steller's Jay	<i>Cyanocitta stelleri frontalis</i>	1	
Black Swift	<i>Cypseloides niger</i>	1	BCC
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	1	
Bay-breasted Warbler	<i>Dendroica castanea</i>	1	
Cerulean Warbler	<i>Dendroica cerulea</i>	1	
Yellow-rumped Warbler	<i>Dendroica coronata</i>	1	
Prairie Warbler	<i>Dendroica discolor discolor</i>	1	
Yellow-throated Warbler	<i>Dendroica dominica</i>	1	
Blackburnian Warbler	<i>Dendroica fusca</i>	1	
Grace's Warbler	<i>Dendroica graciae graciae</i>	1	
Magnolia Warbler	<i>Dendroica magnolia</i>	1	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Birds (continued)			
Black-throated Gray Warbler	<i>Dendroica nigrescens</i>	1	
Hermit Warbler	<i>Dendroica occidentalis</i>	1	
Palm Warbler	<i>Dendroica palmarum</i>	1	
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	1	
Yellow Warbler	<i>Dendroica petechia</i>	1	
Pine Warbler	<i>Dendroica pinus pinus</i>	1	
Blackpoll Warbler	<i>Dendroica striata</i>	1	
Cape May Warbler	<i>Dendroica tigrina</i>	1	
Townsend's Warbler	<i>Dendroica townsendi</i>	1	
Black-throated Green Warbler	<i>Dendroica virens virens</i>	1	
Bobolink	<i>Dolichonyx oryzivorus</i>	1	
Gray Catbird	<i>Dumetella carolinensis</i>	1	
Snowy Egret	<i>Egretta thula thula</i>	1	
Acorn Woodpecker	<i>Melanerpes formicivorus bairdi</i>	1	
Whitetailed Kite	<i>Elanus leucurus</i>	1	CITES
Pacific Slope Flycatcher	<i>Empidonax difficilis</i>	1	
Hammond's Flycatcher	<i>Empidonax hammondii</i>	1	
Least Flycatcher	<i>Empidonax minimus</i>	1	
Dusky Flycatcher	<i>Empidonax oberholseri</i>	1	
Willow Flycatcher	<i>Empidonax traillii</i>	1	SE
Gray Flycatcher	<i>Empidonax wrightii</i>	1	
California Horned Lark	<i>Eremophila alpestris actia</i>	1	
White Ibis	<i>Eudocimus albus</i>	1	
Rusty Blackbird	<i>Euphagus carolinus carolinus</i>	1	
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	1	
Merlin	<i>Falco columbarius</i>	1	CITES
Prairie Falcon	<i>Falco mexicanus</i>	1	CITES, BCC
Peregrine Falcon	<i>Falco peregrinus anatum</i>	1	CITES, BCC
American Kestrel	<i>Falco sparverius</i>	1	
Magnificent Frigatebird	<i>Fregata magnificens</i>	1	
American Coot	<i>Fulica americana americana</i>	1	
Northern Fulmar	<i>Fulmarus glacialis</i>	1	
Common Loon	<i>Gavia immer</i>	1	
Pacific Loon	<i>Gavia pacifica</i>	1	
Red-throated Loon	<i>Gavia stellata</i>	1	
Common Yellowthroat	<i>Geothlypis trichas</i>	1	BCC
Blue Grosbeak	<i>Guiraca caerulea salicaria</i>	1	
Black Oystercatcher	<i>Haematopus bachmani</i>	1	BCC
American Oystercatcher	<i>Haematopus palliatus frazari</i>	1	
Bald Eagle	<i>Haliaeetus leucocephalus</i>	1	CITES
Worm-eating Warbler	<i>Helmitheros vermivorus</i>	1	
Wandering Tattler	<i>Heteroscelus incanus</i>	1	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Birds (continued)			
Black-necked Stilt	<i>Himantopus mexicanus</i>	1	
Barn Swallow	<i>Hirundo rustica erythrogaster</i>	1	
Wood Thrush	<i>Hylocichla mustelina</i>	1	
Yellow-breasted Chat	<i>Icteria virens auricollis</i>	1	
Hooded Oriole	<i>Icterus cucullatus</i>	1	
Northern Oriole	<i>Icterus galbula</i>	1	
Scott's Oriole	<i>Icterus parisorum</i>	1	
Orchard Oriole	<i>Icterus spurius</i>	1	
Mississippi Kite	<i>Ictinia mississippiensis</i>	1	
Varied Thrush	<i>Ixoreus naevius</i>	1	
Darkeyed Junco	<i>Junco hyemalis</i>	1	
Loggerhead Shrike	<i>Lanius ludovicianus</i>	1	BCC
Herring Gull	<i>Larus argentatus smithsonianus</i>	1	
Laughing Gull	<i>Larus atricilla</i>	1	
California Gull	<i>Larus californicus</i>	1	
Mew Gull	<i>Larus canus brachyrhynchus</i>	1	
Ringbilled Gull	<i>Larus delawarensis</i>	1	
Glaucous-winged Gull	<i>Larus glaucescens</i>	1	
Heermann's Gull	<i>Larus heermanni</i>	1	
Glaucous Gull	<i>Larus hyperboreus barrovianus</i>	1	
Western Gull	<i>Larus occidentalis</i>	1	
Bonaparte's Gull	<i>Larus philadelphia</i>	1	
Sabine's Gull	<i>Larus sabini</i>	1	
Thayer's Gull	<i>Larus thayeri</i>	1	
California Black Rail	<i>Laterallus jamaicensis</i>	1	ST, BCC
Short-billed Dowitcher	<i>Limnodromus griseus</i>	1	BCC
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>	1	
Marbled Godwit	<i>Limosa fedoa</i>	1	BCC
Red Crossbill	<i>Loxia curvirostra</i>	1	
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1	BCC
White-winged Scoter	<i>Melanitta fusca</i>	1	
Black Scoter	<i>Melanitta nigra</i>	1	
Surf Scoter	<i>Melanitta perspicillata</i>	1	
Swamp Sparrow	<i>Melospiza georgiana</i>	1	
Lincoln's Sparrow	<i>Melospiza lincolni</i>	1	
Song Sparrow	<i>Melospiza melodia</i>	1	BCC
Red-breasted Merganser	<i>Mergus serrator</i>	1	
Northern Mockingbird	<i>Mimus polyglottos</i>	1	
Black-and-white Warbler	<i>Mniotilta varia</i>	1	
Brown-headed Cowbird	<i>Molothrus ater</i>	1	
Townsend's Solitaire	<i>Myadestes townsendi townsendi</i>	1	
Ash-throated Flycatcher	<i>Myiarchus cinerascens cinerascens</i>	1	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Birds (continued)			
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	1	
Brown-crested Flycatcher	<i>Myiarchus tyrannulus</i>	1	
Painted Redstart	<i>Myioborus pictus pictus</i>	1	
Sulphur-bellied Flycatcher	<i>Myiodynastes luteiventris</i>	1	
Clark's Nutcracker	<i>Nucifraga columbiana</i>	1	
Longbilled Curlew	<i>Numenius americanus</i>	1	BCC
Whimbrel	<i>Numenius phaeopus hudsonicus</i>	1	BCC
Yellow-crowned Night Heron	<i>Nyctanassa violacea</i>	1	
Black-crowned Night Heron	<i>Nycticorax nycticorax hoactli</i>	1	
Ashy Stormpetrel	<i>Oceanodroma homochroa</i>	1	BCC
Black Stormpetrel	<i>Oceanodroma melania</i>	1	
Least Stormpetrel	<i>Oceanodroma microsoma</i>	1	
Connecticut Warbler	<i>Oporornis agilis</i>	1	
Kentucky Warbler	<i>Oporornis formosa</i>	1	
Mourning Warbler	<i>Oporornis philadelphia</i>	1	
Macgillivray's Warbler	<i>Oporornis tolmiei</i>	1	
Sage Thrasher	<i>Oreoscoptes montanus</i>	1	
Western Screech Owl	<i>Otus kennicottii</i>	1	CITES
Ruddy Duck	<i>Oxyura jamaicensis rubida</i>	1	
Osprey	<i>Pandion haliaetus carolinensis</i>	1	CITES
Parula Warbler	<i>Parula americana</i>	1	
House Sparrow	<i>Passer domesticus</i>	1	
Savannah Sparrow	<i>Passerculus sandwichensis</i>	1	
Fox Sparrow	<i>Passerella iliaca</i>	1	
Lazuli Bunting	<i>Passerina amoena</i>	1	
Painted Bunting	<i>Passerina ciris</i>	1	
Indigo Bunting	<i>Passerina cyanea</i>	1	
American White Pelican	<i>Pelecanus erythrorhynchos</i>	1	
California Brown Pelican	<i>Pelecanus occidentalis californicus</i>	1	
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	1	
Phainopepla	<i>Phainopepla nitens lepida</i>	1	
Double-crested Cormorant	<i>Phalacrocorax auritus albociliatus</i>	1	
Pelagic Cormorant	<i>Phalacrocorax pelagicus resplendens</i>	1	
Brandt's Cormorant	<i>Phalacrocorax penicillatus</i>	1	
Poor-Will	<i>Phalaenoptilus nuttallii</i>	1	
Red Phalarope	<i>Phalaropus fulicaria</i>	1	
Red-necked Phalarope	<i>Phalaropus lobatus</i>	1	
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	1	
Blackheaded Grosbeak	<i>Pheucticus melanocephalus maculatus</i>	1	
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	1	
Downy Woodpecker	<i>Picoides pubescens turati</i>	1	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Birds (continued)			
Hairy Woodpecker	<i>Picoides villosus hyloscopus</i>	1	
Green-tailed Towhee	<i>Pipilo chlorurus</i>	1	
California Towhee	<i>Pipilo crissalis</i>	1	
Spotted Towhee	<i>Pipilo erythrophthalmus</i>	1	BCC
Hepatic Tanager	<i>Piranga flava hepatica</i>	1	
Western Tanager	<i>Piranga ludoviciana</i>	1	
Scarlet Tanager	<i>Piranga olivacea</i>	1	
Summer Tanager	<i>Piranga rubra rubra</i>	1	
Lesser Golden Plover	<i>Pluvialis dominica</i>	1	
Black-bellied Plover	<i>Pluvialis squatarola</i>	1	
Horned Grebe	<i>Podiceps auritus</i>	1	
Eared Grebe	<i>Podiceps nigricollis californicus</i>	1	
Piedbilled Grebe	<i>Podilymbus podiceps podiceps</i>	1	
Mountain Chickadee	<i>Poecile gambeli</i>	1	
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	1	
Coastal California Gnatcatcher	<i>Polioptila californica californica</i>	1	FT, SSC
Vesper Sparrow	<i>Pooecetes gramineus</i>	1	
Sora	<i>Porzana carolina</i>	1	
Purple Martin	<i>Progne subis</i>	1	
Prothonotary Warbler	<i>Protonotaria citrea</i>	1	
Bushtit	<i>Psaltriparus minimus minimus</i>	1	
Pink-footed Shearwater	<i>Puffinus creatopus</i>	1	
Sooty Shearwater	<i>Puffinus griseus</i>	1	
Black-vented Shearwater	<i>Puffinus opisthomelas</i>	1	
Short-tailed Shearwater	<i>Puffinus tenuirostris</i>	1	
Vermilion Flycatcher	<i>Pyrocephalus rubinus flammeus</i>	1	
American Avocet	<i>Recurvirostra americana</i>	1	
Ruby-crowned Kinglet	<i>Regulus calendula</i>	1	
Golden-crowned Kinglet	<i>Regulus satrapa</i>	1	
Bank Swallow	<i>Riparia riparia</i>	1	ST
Black-legged Kittiwake	<i>Rissa tridactyla pollicaris</i>	1	
Black Skimmer	<i>Rynchops niger niger</i>	1	BCC
Rock Wren	<i>Salpinctes obsoletus obsoletus</i>	1	
Black Phoebe	<i>Sayornis nigricans semiatra</i>	1	
Eastern Phoebe	<i>Sayornis phoebe</i>	1	
Say's Phoebe	<i>Sayornis saya</i>	1	
Ovenbird	<i>Seiurus aurocapillus</i>	1	
Northern Waterthrush	<i>Seiurus noveboracensis</i>	1	
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>	1	CITES
Rufous Hummingbird	<i>Selasphorus rufus</i>	1	CITES
Allen's Hummingbird	<i>Selasphorus sasin</i>	1	CITES
American Redstart	<i>Setophaga ruticilla</i>	1	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Birds (continued)			
Mountain Bluebird	<i>Sialia currucoides</i>	1	
Western Bluebird	<i>Sialia mexicana occidentalis</i>	1	
Red-breasted Nuthatch	<i>Sitta canadensis</i>	1	
White-breasted Nuthatch	<i>Sitta carolinensis aculeata</i>	1	
Pygmy Nuthatch	<i>Sitta pygmaea</i>	1	
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>	1	
Red-breasted Sapsucker	<i>Sphyrapicus ruber</i>	1	
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	1	
Dickcissel	<i>Spiza americana</i>	1	
Tree Sparrow	<i>Spizella arborea</i>	1	
Black-chinned Sparrow	<i>Spizella atrogularis cana</i>	1	BCC
Brewer's Sparrow	<i>Spizella breweri</i>	1	
Clay-colored Sparrow	<i>Spizella pallida</i>	1	
Chipping Sparrow	<i>Spizella passerina</i>	1	
Northern Roughwinged Swallow	<i>Stelgidopteryx serripennis</i>	1	
Calliope Hummingbird	<i>Stellula calliope</i>	1	CITES
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	1	
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	1	
California Least Tern	<i>Sterna antillarum browni</i>	1	FE, SE
Caspian Tern	<i>Sterna caspia</i>	1	
Elegant Tern	<i>Sterna elegans</i>	1	BCC
Forster's Tern	<i>Sterna forsteri</i>	1	
Common Tern	<i>Sterna hirundo hirundo</i>	1	
Royal Tern	<i>Sterna maxima maxima</i>	1	
Spotted Dove	<i>Streptopelia chinensis</i>	1	
Western Meadowlark	<i>Sturnella neglecta</i>	1	
European Starling	<i>Sturnus vulgaris</i>	1	
Brown Booby	<i>Sula leucogaster</i>	1	
Northern Xantus's Murrelet	<i>Synthliboramphushypoleuca scrippsi</i>	1	BCC
Tree Swallow	<i>Tachycineta bicolor</i>	1	
Violet-green Swallow	<i>Tachycineta thalassina lepida</i>	1	
Bewick's Wren	<i>Thyomanes bewickii</i>	1	
Bendire's Thrasher	<i>Toxostoma bendirei</i>	1	
California Thrasher	<i>Toxostoma redivivum redivivum</i>	1	
Brown Thrasher	<i>Toxostoma rufum</i>	1	
Greater Yellowlegs	<i>Tringa melanoleuca</i>	1	
Solitary Sandpiper	<i>Tringa solitaria cinnamomea</i>	1	
House Wren	<i>Troglodytes aedon parkmanii</i>	1	
Winter Wren	<i>Troglodytes troglodytes</i>	1	
American Robin	<i>Turdus migratorius propinquus</i>	1	
Thick-billed Kingbird	<i>Tyrannus crassirostris</i>	1	
Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>	1	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Birds (continued)			
Tropical Kingbird	<i>Tyrannus melancholicus satrapa</i>	1	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	1	
Western Kingbird	<i>Tyrannus verticalis</i>	1	
Cassin's Kingbird	<i>Tyrannus vociferans vociferans</i>	1	
Common Barn Owl	<i>Tyto alba pratincola</i>	1	CITES
Common Murre	<i>Uria aalge californica</i>	1	
Orange-crowned Warbler	<i>Vermivora celata</i>	1	
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	1	
Lucy's Warbler	<i>Vermivora luciae</i>	1	
Tennessee Warbler	<i>Vermivora peregrina</i>	1	
Blue-winged Warbler	<i>Vermivora pinus</i>	1	
Nashville Warbler	<i>Vermivora ruficapilla</i>	1	
Virginia's Warbler	<i>Vermivora virginiae</i>	1	
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	1	FE, SE
Cassin's Vireo	<i>Vireo cassinii</i>	1	
Yellow-green Vireo	<i>Vireo flavoviridis</i>	1	
Warbling Vireo	<i>Vireo gilvus swainsonii</i>	1	
White-eyed Vireo	<i>Vireo griseus</i>	1	
Hutton's Vireo	<i>Vireo huttoni huttoni</i>	1	
Red-eyed Vireo	<i>Vireo olivaceus</i>	1	
Philadelphia Vireo	<i>Vireo philadelphicus</i>	1	
Plumbeous Vireo	<i>Vireo plumbeus</i>	1	
Blue-headed Vireo	<i>Vireo solitarius</i>	1	
Canada Warbler	<i>Wilsonia canadensis</i>	1	
Hooded Warbler	<i>Wilsonia citrina</i>	1	
Wilson's Warbler	<i>Wilsonia pusilla</i>	1	
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	1	
White-winged Dove	<i>Zenaida asiatica mearnsi</i>	1	
Mourning Dove	<i>Zenaida macroura marginella</i>	1	
White-throated Sparrow	<i>Zonotrichia albicollis</i>	1	
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	1	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	1	
Harris' Sparrow	<i>Zonotrichia querula</i>	1	
Invertebrates			
Seed beetle	<i>Acanthoscelides</i> sp.	2	
European house cricket	<i>Acheta domesticus</i>	2	
Common green darner	<i>Aeshna multicolor</i>	2	
Metallic sweat bee	<i>Agapostemon</i> sp.	2	
Gulf fritillary butterfly	<i>Agraulis vanillae</i>	2	
Leaf-miner fly	Agromyzidae	2	
Black cutworm moth	<i>Agrotis iosilon</i>	2	
Granualte cutworm moth	<i>Agrotis subterranea</i>	2	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Invertebrates (continued)			
Whitefly	Aleyrodidae	2	
Leaf beetle	<i>Altica foliacea</i>	2	
Termites	<i>Amitermes wheeleri</i>	2	
Thread-waisted wasp	<i>Ammophila</i> sp.	2	
Tortricid moth	<i>Amorbia cuneana</i>	2	
Navel orange worm	<i>Amyelois transitella</i>	2	
Squash bug	<i>Anasa tristis</i>	2	
Multicolored darner	<i>Anax junius</i>	2	
Paper wasp	<i>Ancistrocerus</i> sp.	2	
Andrenid bee	<i>Andrena</i> sp.	2	
Spider wasp	<i>Anoplius</i> sp.	2	
Leafcutting bee	<i>Anthidium</i> sp.	2	
Digger bee	<i>Anthophora</i> sp.	2	
Carpet beetle	<i>Anthrenus</i> sp.	2	
California red scale	<i>Aonidiella aurantii</i>	2	
Owlet moth	<i>Apamea cinefacta</i>	2	
Mexican tiger moth	<i>Apantesis proxima</i>	2	
Field skipper butterfly	<i>Apatelodes campestris</i>	2	
Aphid wasp	<i>Aphidius</i> sp.	2	
Spittlebugs	<i>Aphrophora</i> sp.	2	
Bee assassin	<i>Apiomerus crassipes</i>	2	
Honey bee	<i>Apis mellifera</i>	2	
Mormon metalmark	<i>Apodemia mormo</i>	2	
Spider wasp	<i>Aporinellus</i> sp.	2	
Spider wasp	<i>Aporus</i> sp.	2	
Painted tiger moth	<i>Arachinis picta</i>	2	
Tachinid fly	<i>Archytas apicifer</i>	2	
Dancer	<i>Argia</i> sp.	2	
Scentless plant bug	<i>Arhyssus</i> sp.	2	
Fuller's rose weevil	<i>Asynonychus godmani</i>	2	
Chocolate looper moth	<i>Autographa biloba</i>	2	
Alfalfa looper moth	<i>Autographa californica</i>	2	
American sand wasp	<i>Bembix americana</i>	2	
Sand wasp	<i>Bembix comata</i>	2	
March fly	Bibionidae	2	
Oriental cockroach	<i>Blatta orientalis</i>	2	
German cockroach	<i>Blattella germanica</i>	2	
Field roach	<i>Blattella vaga</i>	2	
California bumble bee	<i>Bombus californicus</i>	2	
Electra buckmouth	<i>Bombus edwardsii</i>	2	
Sonoran bumble bee	<i>Bombus sonorus</i>	2	
Vosnesenski's bumble bee	<i>Bombus vosnesenskii</i>	2	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Invertebrates (continued)			
Bee fly	<i>Bombylius</i> sp.	2	
Twig borer	Bostrichidae	2	
Tiphiid wasp	<i>Brachycistis</i> sp.	2	
Ant lions	<i>Brachynemurus</i> sp.	2	
Braconid wasp	Braconidae	2	
Pygmy blue butterfly	<i>Brephidium exilis</i>	2	
Stink bug	<i>Brochymena</i> sp.	2	
Rove beetle	<i>Cafius</i> sp.	2	
Ground beetle	<i>Calathus ruficollis</i>	2	
Blue bottle fly	<i>Calliphora</i> sp.	2	
Bramble hairstreak	<i>Callophrys dumetorum</i>	2	
Ground beetle	<i>Calosoma semilaeve</i>	2	
Carpenter ant	<i>Camponotus festinatus</i>	2	
Measuring worm moth	<i>Camptogramma</i> sp.	2	
Soldier beetle	Cantharidae	2	
Froghopper	Cercopidae	2	
Leafcutting bee	<i>Chalicodoma</i> sp.	2	
Blue mud wasp	<i>Chalybion</i> sp.	2	
Two-stabbed ladybird	<i>Chilocorus orbus</i>	2	
Water midge	Chironomidae	2	
Large blue mud dauber	<i>Chlorion aerarium</i>	2	
Say's stink bug	<i>Chlorochroa sayi</i>	2	
Chloropid fly	Chloropidae	2	
Cuckoo wasp	Chrysididae	2	
Green lacewing	<i>Chrysoperla</i> sp.	2	
Velvet ant	<i>Chyphotes</i> sp.	2	
Bathroom fly	<i>Clogmia albipunctata</i>	2	
Soft scales	Coccidae	2	
California ladybird	<i>Coccinella californica</i>	2	
Blow fly	<i>Cochliomyia</i> sp.	2	
Seaweed fly	<i>Coelopa</i> sp.	2	
Alfalfa sulfur butterfly	<i>Colias eurytheme</i>	2	
Plasterer bee	<i>Colletes</i> sp.	2	
Click beetle	<i>Conoderus exsul</i>	2	
Bee fly	<i>Conophorus</i> sp.	2	
Green june beetle	<i>Continus mutibilis</i>	2	
Cactus fly	<i>Copestylum mexicana</i>	2	
Robber fly	<i>Cophura vanduzeei</i>	2	
Negro bug	<i>Corimelaena</i> sp.	2	
Leaf beetle	<i>Coscinoptera</i> sp.	2	
Darkling beetle	<i>Cratidus osculans</i>	2	
Mosquito	Culicidae	2	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Invertebrates (continued)			
May beetle	<i>Cyclocephala</i> sp.	2	
Ladybird beetle	<i>Cycloneda munda</i>	2	
Gall wasp	Cynipidae	2	
Monarch butterfly	<i>Danaus plexippus</i>	2	
California velvet ant	<i>Dasymutilla</i> sp.	2	
Spotted cucumber beetle	<i>Diabrotica</i> sp.	2	
Leaf beetle	<i>Diabrotica balteata</i>	2	
Leaf beetle	<i>Diachus auratus</i>	2	
Digger bee	<i>Diadasi</i> sp.	2	
Halictid bee	<i>Dialictus</i> sp.	2	
Scarab beetle	<i>Diplotaxis</i> sp.	2	
Long-legged fly	Dolichopodidae	2	
Measuring worm moth	<i>Drepanulatrix</i> sp.	2	
Vinegar fly	<i>Drosophila</i> sp.	2	
Pomace fly	<i>Drosophila</i> sp.	2	
Halictid bee	<i>Duforea</i> sp.	2	
Darkling beetle	<i>Eleodes nigropilosis</i>	2	
Darkling beetle	<i>Eleodes omissus</i>	2	
Darkling beetle	<i>Eleodes</i> sp.	2	
Dancer	<i>Enallagma</i> sp.	2	
Encyrtid wasp	Encyrtidae	2	
Shore fly	Ephydriidae	2	
Earwig	<i>Eristalis tenax</i>	2	
Funeral duskywing	<i>Erynnis funeralis</i>	2	
Owlet moth	<i>Euacontia semirufa</i>	2	
Ring-legged earwig	<i>Euborellia annulipes</i>	2	
Eulophid wasp	Eulophidae	2	
Bernardino blue butterfly	<i>Euphilotes battoides bernardino</i>	2	
Measuring worm moth	<i>Euphyia implicata</i>	2	
Measuring worm moth	<i>Eupithecia</i> sp.	2	
Nicippe yellow butterfly	<i>Eurema nicippe</i>	2	
Western tailed blue	<i>Everes amyntula</i>	2	
Minute pirate bug	Anthocoridae	2	
Mayflies	Baetidae	2	
Psocids	Liposcelidae	2	
Flat planthopper	Flatidae	2	
European earwig	<i>Forficula auricularia</i>	2	
Ant	<i>Formica</i> sp.	2	
Western flower thrip	<i>Frankliniella</i> sp.	2	
Beach fly	<i>Fucellia</i> sp.	2	
Gelechiid moth	Gelechiidae	2	
Big-headed bug	<i>Geocoris</i> sp.	2	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Invertebrates (continued)			
Southern blue butterfly	<i>Glaucopsyche lygdamus australis</i>	2	
Medusa moth	<i>Gloveria medusa</i>	2	
Field cricket	<i>Gryllus</i> sp.	2	
Halictid bee	<i>Halictus</i> sp.	2	
Corn earworm moth	<i>Helicoverpa zea</i>	2	
Northern white skipper	<i>Heliopetes ericetorum</i>	2	
Owlet moth	<i>Heliothis virescens</i>	2	
Darkling beetle	<i>Helops confluens</i>	2	
Brown lacewing	<i>Hemerobius</i> sp.	2	
Owlet moth	<i>Hemeroplanis finitima</i>	2	
Window fly	<i>Hermetia illucens</i>	2	
Bee fly	<i>Heterostylum</i> sp.	2	
Convergent ladybird	<i>Hippodamia convergens</i>	2	
Smoke tree leafhopper	<i>Homalodisca lacerta</i>	2	
Yellow-faced bee	<i>Hylaeus</i> sp.	2	
Eufala skipper butterfly	<i>Hylephila phyleus</i>	2	
White-lined sphinx	<i>Hyles lineatas</i>	2	
Cottony-cushion scale	<i>Icerya purchasi</i>	2	
Western elfin butterfly	<i>Incisalia augustinus</i>	2	
Western drywood termite	<i>Incisermes minor</i>	2	
Longhorn beetle	<i>Ipochus fasciculatus</i>	2	
Argentine ant	<i>Irdomyrmex humilis</i>	2	
European mantis	<i>Iris oratoria</i>	2	
Dancer	<i>Ischnura</i> sp.	2	
Springtail	<i>Isotoma</i> sp.	2	
Measuring worm moth	<i>Itame</i> sp.	2	
Pyralid moth	<i>Jocara trabalis</i>	2	
Edward's bumble bee	<i>Labiduridae riparia</i>	2	
Bordered plant bug	<i>Largus cinctus</i>	2	
Halictid bee	<i>Lasioglossum</i> sp.	2	
Leaf beetle	<i>Lema trilineata</i>	2	
Silverfish	<i>Lepisma saccharia</i>	2	
Leaf-legged bug	<i>Leptoglossus</i> sp.	2	
Marine blue butterfly	<i>Leptotes marina</i>	2	
Longhorn beetle	<i>Lepturinae</i> sp.	2	
Skimmer	<i>Libellula croceipennis</i>	2	
Big red skimmer	<i>Libellula saturata</i>	2	
Ant	<i>Liometopum</i> sp.	2	
Vegetable weevil	<i>Listroderes</i> sp.	2	
Powder-post beetle	Lyctidae	2	
Milkweed bug	<i>Lygaeus kalmii</i>	2	
Plant bug	<i>Lygus</i> sp.	2	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Invertebrates (continued)			
Bristletails	<i>Machilinus</i> sp.	2	
Bumblebee robber fly	<i>Mallophora faultrix</i>	2	
Tobacco hornworm	<i>Manduca sexta</i>	2	
Leafcutting bee	<i>Megachile</i> sp.	2	
Grasshopper	<i>Melaoplus</i> sp.	2	
Digger bee	<i>Melissodes</i> sp.	2	
Soft-winged flower beetle	Melyridae	2	
Treehoppers	Membracidae	2	
Brown lacewing	<i>Micromus</i> sp.	2	
Leaf beetle	<i>Microrhopala</i> sp.	2	
Rose aphid	<i>Microsiphum rosae</i>	2	
Tumbling flower beetle	<i>Mordella</i> sp.	2	
Harlequin bug	<i>Murgantia histrionica</i>	2	
House fly	<i>Musca domestica</i>	2	
Dainty sulphur	<i>Nathalis iole</i>	2	
Mourning cloak	<i>Nymphalis antiopa</i>	2	
False chinch bug	<i>Nyssius raphanus</i>	2	
Woodland skipper	<i>Ochlodes sylvanoides</i>	2	
Tree cricket	<i>Oecanthus</i> sp.	2	
Van Duzee's cicada	<i>Okanogana vanduzeei</i>	2	
Webspinners	<i>Oligotomidae</i> sp.	2	
Ashy gray ladybird	<i>Olla v-nigrum</i>	2	
Western Tussock moth	<i>Orgyia cana</i>	2	
Owlet moth	<i>Orthodes</i> sp.	2	
Leafcutting bee	<i>Osmia</i> sp.	2	
Skimmer	<i>Pachydiplax</i> sp.	2	
Burrower bug	<i>Pangaeus</i> sp.	2	
Wandering skipper	<i>Panoquina errans</i>	2	
Giant swallowtail	<i>Papilio cresphontes</i>	2	
Tiger swallowtail	<i>Papilio rutulus</i>	2	
Anise swallowtail	<i>Papilio zelicaon</i>	2	
Ichneumonid wasp	<i>Paracentrobia</i> sp.	2	
Umber skipper butterfly	<i>Paratrytone melane</i>	2	
Spider wasp	<i>Pepsis</i> sp.	2	
Variiegated cutworm	<i>Peridroma saucia</i>	2	
American cockroach	<i>Periplaneta americana</i>	2	
MacDunnough's pero	<i>Pero macdunnoughi</i>	2	
Green bottle fly	<i>Phaenicia sericata</i>	2	
Ironclad beetle	<i>Phloeodes pustulosus</i>	2	
Senna sulfur butterfly	<i>Phoebis sennae</i>	2	
Eucalyptus longhorn	<i>Phoracantha</i> sp.	2	
Humpbacked fly	Phoridae	2	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Invertebrates (continued)			
Bumble bee conopid	<i>Physocephala texana</i>	2	
Checkered white	<i>Pieris protodice</i>	2	
European cabbage white	<i>Pieris rapae</i>	2	
Measuring worm moth	<i>Platea californica</i>	2	
Platygasterid wasp	Platygasteridae	2	
Acmon blue butterfly	<i>Plebejus acmon</i>	2	
Indian meal moth	<i>Plodia interpunctella</i>	2	
Sphecid wasp	<i>Podalonia argentifrons</i>	2	
Sphecid wasp	<i>Podalonia</i> sp.	2	
Picture-winged fly	<i>Pogonartalis doclea</i>	2	
Harvester ant	<i>Pogonomyrmex</i> sp.	2	
Western paper wasp	<i>Polistes dorsalis</i>	2	
Golden paper wasp	<i>Polistes fuscatus</i>	2	
Sandhill skipper	<i>Polites sabuleti</i>	2	
Buckeye butterfly	<i>Precis coenia</i>	2	
Sphecid wasp	<i>Prionyx</i> sp.	2	
Robber fly	<i>Procantacanthus</i> sp.	2	
Sphecid wasp	<i>Psammaecius</i> sp.	2	
Armyworm moth	<i>Pseudaletia unipuncta</i>	2	
Mealybug	<i>Pseudococcus</i> sp.	2	
Ant	<i>Pseudomyrmex apache</i>	2	
Mydas fly	<i>Pseudonomoneura</i> sp.	2	
Jumping plant lice	Psyllidae	2	
Pteromalid wasp	Pteromalidae	2	
Plume moth	Pterophoridae	2	
Meal moth	<i>Pyrausta depalis</i>	2	
Pyralid moth	<i>Pyrausta depalis</i>	2	
Western checkered skipper	<i>Pyrgus albescens</i>	2	
Western subterranean termite	<i>Reticulitermes</i> sp.	2	
Plant bug	<i>Rhinacloa</i> sp.	2	
Omnivorous looper moth	<i>Sabulodes aegrotata</i>	2	
Flesh fly	Sarcophagidae	2	
Leaf beetle	<i>Saxinus saucia</i>	2	
Scelionid wasp	Scelionidae	2	
Mud dauber wasp	<i>Sceliphron</i> sp.	2	
Gray bird grasshopper	<i>Schistocerca nitens</i>	2	
Fork-tailed bush katydid	<i>Scudderia mexicana</i>	2	
Measuring worm moth	<i>Semiothias</i> sp.	2	
Scarab beetle	<i>Serica</i> sp.	2	
Fleas	<i>Siphonaptera</i> sp.	2	
Thief ant	<i>Solenopsis molesta</i>	2	
Southern fire ant	<i>Solenopsis xyloni</i>	2	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Invertebrates (continued)			
Velvet ant	<i>Sphaerophthalma</i> sp.	2	
Sphecid wasp	<i>Sphex ichneumoneus</i>	2	
Yellow-striped armyworm	<i>Spodoptera</i> sp.	2	
Beet armyworm moth	<i>Spodoptera exigua</i>	2	
California mantis	<i>Stagmomantis</i> sp.	2	
Measuring worm moth	<i>Stamnodes</i> sp.	2	
Stable fly	<i>Stomoxys calcitrans</i>	2	
Common hairstreak	<i>Strymon melinus</i>	2	
Pastel skimmer	<i>Sympetrum corruptum</i>	2	
Big black horse fly	<i>Tabanus punctifer</i>	2	
Sphecid wasp	<i>Tachysphex</i> sp.	2	
Ground beetle	<i>Tanystoma maculicolle</i>	2	
Sawfly	Tenthredinidae	2	
Harlequin bug	<i>Thyanta</i> sp.	2	
Lace bug	Tingidae	2	
Skimmer	<i>Tramea lascerata</i>	2	
Ichneumonid wasp	<i>Trichogramma</i> sp.	2	
Cabbage looper moth	<i>Trichoplusia ni</i>	2	
Leaf beetle	<i>Trihabda</i> sp.	2	
Grasshopper	<i>Trimarotropis</i> sp.	2	
Fruit fly	<i>Trupanea</i> sp.	2	
Genista moth	<i>Uresiphita reversalis</i>	2	
West coast lady	<i>Vanessa annabella</i>	2	
Red admiral butterfly	<i>Vanessa atalanta</i>	2	
Painted lady butterfly	<i>Vanessa cardui</i>	2	
Virginia lady butterfly	<i>Vanessa virginiensis</i>	2	
Yellowjacket	<i>Vespula pennsylvanica</i>	2	
Bee fly	<i>Villa</i> sp.	2	
Valley carpenter bee	<i>Xylocopa varipuncta</i>	2	
Moon umber moth	<i>Zale lunata</i>	2	
Assassin bug	<i>Zelus</i> sp.	2	
Marine Invertebrates			
	<i>Aglaophenia</i> sp	5	
	<i>Ampelisca cristata microdentata</i>	5	
	<i>Amphideutopus oculatus</i>	5	
	<i>Amphiporus</i> sp	5	
	<i>Apolochus picadurus</i>	5	
	<i>Arcularia tiarula</i>	5	
	<i>Ascidia ceratodes</i>	5	
	<i>Balanus trigonus</i>	5	
	<i>Bemlos concavus</i>	5	
	<i>Brania complex</i>	5	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Marine Invertebrates (continued)			
	<i>Bugula neretina</i>	5	
	<i>Cancer branneri</i>	5	
	<i>Caprella californica</i>	5	
	<i>Caprella mendax</i>	5	
	<i>Caprella mutica</i>	5	
	<i>Celleporaria brunnea</i>	5	
	<i>Chione undatella</i>	5	
	<i>Cirolana harfordi</i>	5	
	<i>Cirratulidae juveniles</i>	5	
	<i>Cirratulus cf cingulatus</i>	5	
	<i>Crepidula spp</i>	5	
	<i>Demonax ?pallidus</i>	5	
	<i>Diaulula sandiegensis</i>	5	
	<i>Dissimnassa dissimilis</i>	5	
	<i>Erichthonius brasiliensis</i>	5	
	<i>Eurylepta aurantiaca</i>	5	
	<i>Foxiphalus golfensis</i>	5	
	<i>Halosydna johnsoni</i>	5	
	<i>Harmothoe cf. hirsuta</i>	5	
	<i>Harmothoe imbricata complex</i>	5	
	<i>Hermisenda crassicornis</i>	5	
	<i>Heterophoxus ellisi</i>	5	
	<i>Hiatella arctica</i>	5	
	<i>Idotea fewkesi</i>	5	
	<i>Jassa slatteryi</i>	5	
	<i>Lamellaria diegoensis</i>	5	
	<i>Leptochelia dubia</i>	5	
	<i>Leptopecten latiauratus</i>	5	
	<i>Leucothoe "alata"</i>	5	
	<i>Lophopanopeus bellus</i>	5	
	<i>Monocorophium acherusicum</i>	5	
	<i>Musculista senhousia</i>	5	
	<i>Mytilus galloprovincialis</i>	5	
	<i>Myxicola sp B Harris</i>	5	
	<i>Navanax inermis</i>	5	
	<i>Neotrypaea californiensis</i>	5	
	<i>Nereis sp.</i>	5	
	<i>Nicolea sp A Harris</i>	5	
	<i>Nymphon heterodenticulatum</i>	5	
	<i>Octopus bimaculatus/bimaculoides</i>	5	
	<i>Olivella biplicata</i>	5	
	<i>Pagurus sp.</i>	5	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Marine Invertebrates (continued)			
	<i>Paracerceis sculpta</i>	5	
	<i>Paranthura elegans</i>	5	
	<i>Photis parvidons</i>	5	
	<i>Pileolaria marginata</i>	5	
	<i>Platynereis bicanaliculata</i>	5	
	<i>Plumularia sp</i>	5	
	<i>Polyandrocarpa zorritensis*</i>	5	
	<i>Protohyale frequens</i>	5	
	<i>Protomedeia articulata cmplx</i>	5	
	<i>Pseudoceros ?canadensis</i>	5	
	<i>Pugettia producta</i>	5	
	<i>Rocinela angustata</i>	5	
	<i>Salmacina tribranchiata</i>	5	
	<i>Scrupocellaria sp</i>	5	
	<i>Stenothoe estacola</i>	5	
	<i>Styela clava*</i>	5	
	<i>Styela plicata*</i>	5	
	<i>Syllis nipponica</i>	5	
	<i>Symplegma reptans*</i>	5	
	<i>Tanystylum intermedium</i>	5	
	<i>Teredo navalis</i>	5	
	<i>Thalamoporella sp</i>	5	
	<i>Watersipora arcuata</i>	5	
	<i>Zeuxo sp</i>	5	
	<i>Zoobotryon verticillatum</i>	5	
Mammals			
Coyote	<i>Canis latrans</i>	1	
San Diego pocket mouse	<i>Chaetodipus fallax</i>	1	
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>	1	
Common dolphin	<i>Delphinus sp.</i>	4	
Opossum	<i>Didelphis virginiana</i>	1	
Pacific kangaroo rat	<i>Dipodomys agilis</i>	1	
Gray whale	<i>Eschrichtius robustus</i>	4	FE
Western mastiff bat	<i>Eumops perotis californicus</i>	1	
Domestic cat	<i>Felis catus</i>	1	
Bobcat	<i>Felis rufus</i>	3	
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	4	
Red bat	<i>Lasiurus borealis teliotus</i>	1	
Striped skunk	<i>Mephitis mephitis</i>	3	
California vole	<i>Microtus californicus</i>	1	
House mouse	<i>Mus musculus</i>	1	
Myotis	<i>Myotis spp.</i>	1	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Mammals (continued)			
Dusky-footed woodrat	<i>Neotoma fuscipes</i>	1	
Desert woodrat	<i>Neotoma lepida</i>	1	
Desert gray shrew	<i>Notisorex crawfordi crawfordi</i>	1	
Little pocket mouse	<i>Perognathus longimembris</i>	1	
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	1	FE, SSC
Brush mouse	<i>Peromyscus boylii</i>	1	
California mouse	<i>Peromyscus californicus</i>	1	
Cactus mouse	<i>Peromyscus eremicus</i>	1	
Deer mouse	<i>Peromyscus maniculatus</i>	1	
Harbor seal	<i>Phoca vitulina</i>	1	
Raccoon	<i>Procyon lotor</i>	1	
Black rat	<i>Rattus rattus</i>	3	
Western harvest mouse	<i>Reithrodontomys megalotis</i>	1	
Ornate shrew	<i>Sorex ornatus</i>	1	
California ground squirrel	<i>Spermophilus beecheyi</i>	1	
Western spotted skunk	<i>Spilogale gracilis</i>	3	
Desert cottontail rabbit	<i>Sylvilagus audubonii</i>	1	
Mexican free-tailed bat	<i>Tadarida brasiliensis</i>	1	
Southwestern pocket gopher	<i>Thomomys bottae</i>	1	
bottlenose dolphin	<i>Tursiops truncatus</i>	4	
Gray fox	<i>Urocyon cinereoargenteus</i>	3	
California sea lion	<i>Zalophus californianus</i>	1	
Plants			
Red sand-verbena	<i>Abronia maritima</i>	1	
Cootamundra wattle	<i>Acacia baileyana</i>	3	
Golden wattle	<i>Acacia longifolia</i>	3	
Blackwood acacia	<i>Acacia melanoxydon</i>	3	
Acacia*	<i>Acacia</i> sp.	3	
Willd. Star acacia	<i>Acacia verticillata</i>	3	
Giant needlegrass	<i>Achnatherum coronatum</i>	3	
San Diego County needlegrass	<i>Achnatherum diegoensis</i>	3	
Parish's needlegrass	<i>Achnatherum parishii</i>	3	
Chamise	<i>Adenostoma fasciculatum</i>	3	
California maiden-hair fern	<i>Adiantum jordani</i>	3	
California adolphia, spineshrub	<i>Adolphia californica</i>	1	
Lily-of-the-Nile	<i>Agapanthus africanus</i>	3	
Century plant	<i>Agave americana</i>	3	
Shaw's agave	<i>Agave shawii</i>	1	
Bent grass	<i>Agrostis pallens</i>	3	
Creeping bent	<i>Agrostis stolonifera</i>	3	
Tree of heaven*	<i>Ailanthus altissima</i>	3	
Wild onion	<i>Allium haematochiton</i>	3	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Wild onion	<i>Allium praecox</i>	3	
Pineapple weed	<i>Amblyopappus pusillus</i>	3	
Beach-bur	<i>Ambrosia chamissonis</i>	3	
Western ragweed	<i>Ambrosia psilostachya</i>	3	
European beach grass*	<i>Ammophila arenaria</i>	3	
Rancher's fireweed	<i>Amsinckia menziesii</i> var. <i>intermedia</i>	3	
Scarlet pimpernel, poor-man's weatherglass	<i>Anagallis arvensis</i>	3	
Snapdragon	<i>Antirrhinum nuttallianum</i> ssp. <i>nuttallianum</i>	3	
Wild-celery	<i>Apiastrum angustifolium</i>	3	
Aphanisma	<i>Aphanisma blitoides</i>	1	
Bunya-bunya	<i>Araucaria bidwillii</i>	3	
Norfolk Island pine	<i>Araucaria excelsa</i>	3	
African daisy	<i>Arctotis stoechadifolia</i>	3	
Queen palm	<i>Arecastrum romanzoffianum</i>	3	
Six-weeks three-awn	<i>Aristida adscensionis</i>	3	
California sagebrush	<i>Artemisia californica</i>	3	
Big sagebrush	<i>Artemisia tridentata</i> ssp. <i>tridentata</i>	3	
Giant reed*	<i>Arundo donax</i>	3	
Barneby Coast locoweed	<i>Astragalus trichopodus</i> var. <i>lonchus</i>	3	
Saltbush	<i>Atriplex californica</i>	3	
Fourwing saltbush	<i>Atriplex canescens</i> ssp. <i>canescens</i>	3	
Coulter's saltbush	<i>Atriplex coulteri</i>	3	
Big saltbush	<i>Atriplex lentiformis</i> ssp. <i>lentiformis</i>	3	
Beach saltbush	<i>Atriplex leucophylla</i>	3	
Australian saltbush*	<i>Atriplex semibaccata</i>	3	
Australian saltbush	<i>Atriplex semibaccata</i>	3	
Watson's saltbush	<i>Atriplex watsonii</i>	3	
Slender wild oat	<i>Avena barbata</i>	3	
Wild oat	<i>Avena fatua</i>	3	
Coyote bush	<i>Baccharis pilularis</i>	3	
Broom baccharis	<i>Baccharis sarothroides</i>	3	
San Diego County viguiera	<i>Bahiopsis laciniata</i>	3	
Fivehook bassia*	<i>Bassia hyssopifolia</i>	3	
Golden-spined cereus	<i>Bergocactus emoryi</i>	1	
Common beggar-ticks	<i>Bidens pilosa</i> var. <i>pilosa</i>	3	
Cane bluestem	<i>Bothriochloa barbinodis</i>	3	
Black mustard*	<i>Brassica nigra</i>	3	
Asian mustard*	<i>Brassica tournefortii</i>	3	
California brome	<i>Bromus carinatus</i>	3	
Ripgut grass*	<i>Bromus diandrus</i>	3	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Smooth brome*	<i>Bromus hordaceus</i>	3	
Foxtail chess, Red brome*	<i>Bromus madritensis</i> ssp. <i>rubens</i>	3	
American searocket	<i>Cakile edentula</i>	3	
Brewer's calandrinia	<i>Calandrinia breweri</i>	1	
Red maids	<i>Calandrinia ciliata</i>	3	
Seaside calandrinia	<i>Calandrinia maritima</i>	1	
Bottlebrush	<i>Callistemon citrinus</i>	3	
Lilac mariposa	<i>Calochortus splendens</i>	3	
Weed mariposa	<i>Calochortus weedii</i> var. <i>weedii</i>	3	
Chaparral morning-glory	<i>Calystegia macrostegia</i> ssp. <i>tenuifolia</i>	3	
Camellia	<i>Camellia</i> sp.	3	
California sun cup	<i>Camissonia bistorta</i>	3	
Beach evening primrose	<i>Camissonia cheiranthifolia</i> ssp. <i>suffruticosa</i>	3	
Lewis' evening primrose	<i>Camissonia lewisii</i>	1	
Sun cups	<i>Camissonia robusta</i>	3	
False mustard; sun cup	<i>Camissonia californica</i>	3	
Milk maids, tooth wort	<i>Cardamine californica</i>	3	
Tread lightly	<i>Cardionema ramosissimum</i>	3	
Sedge	<i>Carex</i> sp.	3	
Natal-plum	<i>Carissa grandiflora</i>	3	
Sea fig	<i>Carpobrotus chilensis</i>	3	
Hottentot fig*	<i>Carpobrotus edulis</i>	3	
Indian paintbrush	<i>Castilleja foliolosa</i>	3	
Caulerpa	<i>Caulerpa taxifolia</i> *	3	
Santa Barbara ceanothus	<i>Ceanothus impressus</i>	3	
Ramona lilac	<i>Ceanothus tomentosus</i>	3	
Wart-stemmed ceanothus	<i>Ceanothus verrucosus</i>	1	
Southern sandbur	<i>Cenchrus echinatus</i>	3	
Tocolote*	<i>Centaurea melitensis</i>	3	
Yellow star-thistle*	<i>Centaurea solstitialis</i>	3	
Canchalagua	<i>Centaurium venustum</i>	3	
Carob	<i>Ceratonia siliqua</i>	3	
Birch-leaf mountain-mahogany	<i>Cercocarpus betuloides</i> var. <i>betuloides</i>	3	
Yellow pincushion	<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i>	3	
Small rattlesnake weed	<i>Chamaesyce albomarginata</i>	3	
Small spotted spurge	<i>Chamaesyce maculata</i>	3	
Spurge	<i>Chamaesyce polycarpa</i>	3	
Lamb's quarters, pigweed	<i>Chenopodium album</i>	3	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Mexican tea	<i>Chenopodium ambrosioides</i>	3	
Nettle-leaved goosefoot	<i>Chenopodium murale</i>	3	
Soap plant, Amole	<i>Chlorogalum parviflorum</i>	3	
Soap plant	<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	3	
Floss silk tree	<i>Chorisia speciosa</i>	3	
Fringed spineflower	<i>Chorizanthe fimbriata</i>	3	
Orcutt's spineflower	<i>Chorizanthe orcuttiana</i>	1	FE, SE
Prostrate spineflower	<i>Chorizanthe procumbens</i>	1	
Turkish rugging	<i>Chorizanthe staticoides</i>	3	
Crown daisy*	<i>Chrysanthemum coronarium</i>	3	
Ciclospermum	<i>Ciclospermum leptophyllum</i>	3	
Thistle	<i>Cirsium</i> sp.	3	
Bull thistle*	<i>Cirsium vulgare</i>	3	
Grape ivy	<i>Cissus rhombifolia</i>	3	
Rock-rose	<i>Cistus incanus</i>	3	
Miner's lettuce	<i>Claytonia perfoliata</i> ssp. <i>perfoliata</i>	3	
Ropevine	<i>Clematis pauciflora</i>	3	
Virgin's bower	<i>Clematis</i> sp.	3	
Bushrue	<i>Cneoridium dumosum</i>	3	
Poison hemlock*	<i>Conium maculatum</i>	3	
Bindweed	<i>Convolvulus arvensis</i>	3	
Flax-leaf fleabane	<i>Conyza bonariensis</i>	3	
Horseweed	<i>Conyza canadensis</i>	3	
Fleabane	<i>Conyza coulteri</i>	3	
Thread-leaved bird's-beak	<i>Cordylanthus rigidus</i> ssp. <i>setigerus</i>	3	
Sea-dahlia	<i>Coreopsis maritima</i>	1	
San Diego sand aster	<i>Corethrogyne filaginifolia</i>	1	
Pampas grass*	<i>Cortaderia jubata</i>	3	
Selloa pampas grass*	<i>Cortaderia selloana</i>	3	
Cotoneaster*	<i>Cotoneaster</i> sp.	3	
Brass-buttons	<i>Cotula coronopifolia</i>	3	
Jade plant	<i>Crassula argentea</i>	3	
Pygmy-weed	<i>Crassula connata</i>	3	
Alkali weed	<i>Cressa truxillensis</i>	3	
California croton	<i>Croton californicus</i>	3	
Common cryptantha	<i>Cryptantha intermedia</i>	3	
Cryptantha	<i>Cryptantha</i> sp.	3	
Carrot wood	<i>Cupaniopsis anacardioides</i>	3	
Tecate cypress	<i>Cupressus forbesii</i>	3	
Monterey cypress	<i>Cupressus macrocarpa</i>	3	
Italian cypress	<i>Cupressus sempervirens</i>	3	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
California dodder	<i>Cuscuta californica</i>	3	
Sago palm	<i>Cycas revoluta</i>	3	
Snake cholla	<i>Cylindropuntia californica</i>	1	
Cardoon, Artichoke thistle*	<i>Cynara cardunculus</i>	3	
Artichoke	<i>Cynara scolymus</i>	3	
Bermuda grass*	<i>Cynodon dactylon</i>	3	
Umbrella-palm	<i>Cyperus alternifolius</i>	3	
Nut-grass	<i>Cyperus esculentus</i>	3	
Scotch broom*	<i>Cytisus scoparius</i>	3	
Portuguese broom*	<i>Cytisus striatus</i>	3	
Rattlesnake weed	<i>Daucus pusillus</i>	3	
German ivy*	<i>Delairea odorata</i>	3	
Tansy mustard	<i>Descurainia pinnata</i>	3	
Fine-leaf tansy mustard	<i>Descurainia sophia</i>	3	
Blue dicks	<i>Dichelostemma capitatum</i> ssp. <i>capitatum</i>	3	
Ookow	<i>Dichelostemma congestum</i>	3	
Western dichondra	<i>Dichondra occidentalis</i>	1	
Crabgrass	<i>Digitaria sanguinalis</i>	3	
Blue-eye cape-marigold	<i>Dimorphotheca sinuata</i>	3	
Saltgrass	<i>Distichlis spicata</i>	3	
Shooting star	<i>Dodecatheon clevelandii</i> ssp. <i>clevelandii</i>	3	
Hop bush	<i>Dodonaea viscosa</i>	3	
Coast dudleya	<i>Dudleya caespitosa</i>	3	
Ladies' fingers	<i>Dudleya edulis</i>	3	
Lanceleaf liveforever	<i>Dudleya lanceolata</i>	3	
Chalk dudleya	<i>Dudleya pulverulenta</i> ssp. <i>pulverulenta</i>	3	
Veldt grass*	<i>Ehrharta</i> spp.	3	
Russian olive*	<i>Elaeagnus angustifolius</i>	3	
Blue wildrye	<i>Elymus glaucus</i>	3	
Common encelia	<i>Encelia californica</i>	3	
Brittlebush, incienso	<i>Encelia farinosa</i>	3	
Dove weed	<i>Eremocarpus setigerus</i>	3	
Pine-bush	<i>Ericameria pinifolia</i>	3	
Felt-leaved yerba santa	<i>Eriodictyon crassifolium</i>	3	
California buckwheat	<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	3	
Santa Catalina Island buckwheat	<i>Eriogonum giganteum</i> var. <i>giganteum</i>	3	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Golden-yarrow	<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	3	
Storksbill, Filaree	<i>Erodium botrys</i>	3	
White-stemmed filaree	<i>Erodium cicutarium</i>	3	
Green-stemmed filaree	<i>Erodium moschatum</i>	3	
Coast wallflower	<i>Erysimum ammophilum</i>	3	
Coral-tree	<i>Erythrina caffra</i>	3	
California poppy	<i>Eschscholzia californica</i>	3	
Red gum*	<i>Eucalyptus camaldulensis</i>	3	
Scarlet-flowering gum *	<i>Eucalyptus ficifolia</i>	3	
Red-box *	<i>Eucalyptus polyanthemis</i>	3	
Eucalyptus*	<i>Eucalyptus</i> sp.	3	
Eucrypta	<i>Eucrypta chrysanthemifolia</i>	3	
Spotted spurge	<i>Euphorbia maculata</i>	3	
Cliff spurge	<i>Euphorbia misera</i>	1	
Petty spurge	<i>Euphorbia peplus</i>	3	
Spurge	<i>Euphorbia</i> sp.	3	
Pineapple guava	<i>Feijoa sellowiana</i>	3	
Coast barrel cactus	<i>Ferocactus viridescens</i>	1	CITES
Fescue	<i>Festuca</i> sp.	3	
Benjamin fig	<i>Ficus benjamina</i>	3	
Rusty fig	<i>Ficus rubiginosa</i>	3	
California herba impia, fluffweed	<i>Filago californica</i>	3	
Fennel*	<i>Foeniculum vulgare</i>	3	
Palmer's frankenia	<i>Frankenia palmeri</i>	3	
Alkali heath	<i>Frankenia salina</i>	3	
Chocolate lily, mission bells	<i>Fritillaria biflora</i>	3	
Narrow-leaf bedstraw	<i>Galium angustifolium</i> ssp. <i>angustifolium</i>	3	
Goose grass	<i>Galium aparine</i>	3	
San Diego bedstraw	<i>Galium nuttallii</i>	3	
Nit grass	<i>Gastroidium ventricosum</i>	3	
Treasure flower	<i>Gazania linearis</i>	3	
Treasure flower	<i>Gazania longiscapa</i>	3	
Treasure flower	<i>Gazania pavonia</i>	3	
French broom*	<i>Genista monspessulana</i>	3	
Cranesbill	<i>Geranium</i> sp.	3	
Bicolored cudweed	<i>Gnaphalium bicolor</i>	3	
Green everlasting	<i>Gnaphalium californicum</i>	3	
White everlasting	<i>Gnaphalium canescens</i> ssp. <i>microcephalum</i>	3	
Everlasting	<i>Gnaphalium luteo-album</i>	3	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Lowland cudweed	<i>Gnaphalium palustre</i>	3	
Cudweed	<i>Gnaphalium ramosissimum</i>	3	
Cudweed	<i>Gnaphalium stramineum</i>	3	
Pincushion tree	<i>Hakea suaveolens</i>	3	
Sawtoothed goldenbush	<i>Hazardia squarrosa</i>	3	
Pennell Hebe	<i>Hebe elliptica</i>	3	
English ivy*	<i>Hedera helix</i>	3	
Hedypnois	<i>Hedypnois cretica</i>	3	
Peak rush-rose	<i>Helianthemum scoparium</i>	3	
Chinese pusley	<i>Heliotropium curassavicum.</i>	3	
Golden tarplant	<i>Hemizonia fasciculata</i>	3	
Western nettle	<i>Hesperocnide tenella</i>	3	
Toyon, Christmas berry	<i>Heteromeles arbutifolia</i>	3	
Telegraph weed	<i>Heterotheca grandiflora</i>	3	
Pale face	<i>Hibiscus denudatus</i>	3	
Short-pod mustard	<i>Hirschfeldia incana</i>	3	
Wild barley	<i>Hordeum murinum</i> ssp. <i>leporinum</i>	3	
Wild barley	<i>Hordeum</i> sp.	3	
Canary Island hypericum	<i>Hypericum canariense</i>	3	
St. John's-wort*	<i>Hypericum perforatum</i>	3	
Smooth cat's-ear	<i>Hypochaeris glabra</i>	3	
Iris	<i>Iris</i> sp.	3	
Coast goldenbush	<i>Isocoma menziesii</i> var. <i>menziesii</i>	3	
Coast goldenbush	<i>Isocoma menziesii</i> var. <i>sedoides</i>	3	
Bladderpod	<i>Isomeris arborea</i>	3	
Small Mesa saxifrage	<i>Jepsonia parryi</i>	3	
Toad rush	<i>Juncus bufonius</i> var. <i>bufonius</i>	3	
Juniper	<i>Juniperus conferta</i>	3	
Prickly lettuce*	<i>Lactuca serriola</i>	3	
Goldentop	<i>Lamarckia aurea</i>	3	
Hoover Lastarriaea	<i>Lastarriaea coriacea</i>	3	
Goldfields	<i>Lasthenia californica</i>	3	
Goldfields	<i>Lasthenia coronaria</i>	3	
Sand peppergrass	<i>Lepidium lasiocarpum</i> var. <i>lasiocarpum</i>	3	
Robinson's peppergrass	<i>Lepidium virginicum</i>	1	
Australian tea tree	<i>Leptospermum laevigatum</i>	3	
California-aster	<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	3	
Giant ryegrass	<i>Leymus condensatus</i>	3	
Notchleaf marsh-rosemary	<i>Limonium sinuatum</i>	3	
Ground-pink	<i>Linanthus dianthiflorus</i>	3	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Blue toadflax	<i>Linaria canadensis</i>	3	
Sweet-gum	<i>Liquidamber styraciflua</i>	3	
Italian ryegrass	<i>Lolium multiflorum</i>	3	
Hog fennel	<i>Lomatium lucidum</i>	3	
Nuttall's lotus	<i>Lotus nuttallianus</i>	1	
Alkali lotus	<i>Lotus salsuginosus</i> var. <i>salsuginosus</i>	3	
California broom	<i>Lotus scoparius</i> var. <i>scoparius</i>	3	
Bishop's lotus	<i>Lotus strigosus</i>	3	
Miniature lupine	<i>Lupinus bicolor</i>	3	
Arroyo lupine	<i>Lupinus succulentus</i>	3	
Chaparral lupine	<i>Lupinus truncatus</i>	3	
California box thorn	<i>Lycium californicum</i>	3	
Grass poly	<i>Lythrum hyssopifolium</i>	3	
Chaparral mallow	<i>Malacothamnus fasciculatus</i>	3	
Iceplant	<i>Malephora crocea</i>	3	
Laurel sumac	<i>Malosma laurina</i>	3	
Common mallow	<i>Malva neglecta</i>	3	
Cheeseweed, little mallow	<i>Malva parviflora</i>	3	
Fish-hook cactus	<i>Mammillaria dioica</i>	3	
Wild cucumber	<i>Marah macrocarpus</i>	3	
Horehound	<i>Marrubium vulgare</i>	3	
California bur clover	<i>Medicago polymorpha</i>	3	
Cajeput tree	<i>Melaleuca leucandendra</i>	3	
Oniongrass	<i>Melica imperfecta</i>	3	
White sweet clover	<i>Melilotus alba</i>	3	
Sourclover	<i>Melilotus indica</i>	3	
Crystalline ice plant*	<i>Mesembryanthemum crystallinum</i>	3	
Slender-leaved ice plant*	<i>Mesembryanthemum nodiflorum</i>	3	
Small-flowered microseris	<i>Microseris douglassii</i> ssp. <i>platycarpa</i>	1	
Bush monkeyflower	<i>Mimulus aurantiacus</i>	3	
Wishbone bush	<i>Mirabilis californica</i>	3	
California spineflower	<i>Mucronea californica</i>	3	
Small-seeded grass	<i>Muhlenbergia microsperma</i>	3	
Myoporum*	<i>Myoporum laetum</i>	3	
Paper-white	<i>Narcissus tazetta</i>	3	
Foothill needlegrass	<i>Nassella lepida</i>	3	
Hooked navarretia	<i>Navarretia hamata</i>	3	
Coast woolly-heads	<i>Nemacaulis denudata</i> var. <i>denudate</i>	1	
Oleander	<i>Nerium oleander</i>	3	
Cleveland tobacco	<i>Nicotiana clevelandii</i>	3	
Tree tobacco*	<i>Nicotiana glauca</i>	3	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Narrowleaf oligomeris	<i>Oligomeris linifolia</i>	3	
Cane cholla, snake cholla	<i>Opuntia californica</i> var. <i>californica</i>	3	CITES
Shore cactus	<i>Opuntia littoralis</i>	3	CITES
Cholla	<i>Opuntia prolifera</i>	3	CITES
Short lobed broomrape	<i>Orobanche parishii</i> ssp. <i>brachyloba</i>	1	
Osmorhiza	<i>Osmorhiza</i> sp.	3	
African daisy	<i>Osteospermum ecklonis</i>	3	
Yellow sorrel	<i>Oxalis corniculata</i>	3	
Bermuda buttercup	<i>Oxalis pes-caprae</i>	3	
Fire poppy	<i>Papaver californicum</i>	3	
Sickle grass	<i>Parapholis incurva</i>	3	
Pellitory	<i>Parietaria hespera</i> var. <i>californica</i>	3	
Geranium	<i>Pelargonium</i> sp.	3	
Coffee fern	<i>Pellaea andromedifolia</i>	3	
Bird's-foot fern	<i>Pellaea mucronata</i>	3	
Kikuyugrass*	<i>Pennisetum clandestinum</i>	3	
Crimson fountain grass*	<i>Pennisetum setaceum</i>	3	
Beardtongue	<i>Penstemon spectabilis</i>	3	
Goldenback fern	<i>Pentagramma triangularis</i> ssp. <i>triangularis</i>	3	
Silverback fern	<i>Pentagramma triangularis</i> ssp. <i>viscosa</i>	3	
Emory rock-daisy	<i>Perityle emoryi</i>	3	
Common phacelia	<i>Phacelia distans</i>	3	
Brand's phacelia	<i>Phacelia stellaris</i>	1	
Hardinggrass*	<i>Phalaris aquatica</i>	3	
Canary grass	<i>Phalaris</i> sp.	3	
Canary Island date palm	<i>Phoenix canariensis</i>	3	
Sand plant	<i>Pholisma arenarium</i>	3	
Pholistoma	<i>Pholistoma racemosum</i>	3	
Canary Island pine	<i>Pinus pinea</i>	3	
Torrey pine	<i>Pinus torreyana</i>	1	
Cooper's rein orchid	<i>Piperia cooperii</i>	1	
Piperia	<i>Piperia elegans</i>	3	
Piperia	<i>Piperia unalascensis</i>	3	
Smilograss*	<i>Piptatherum miliaceum</i>	3	
Karo	<i>Pittosporum crassifolium</i>	3	
Japanese pittosporum	<i>Pittosporum tobira</i>	3	
Victorian-box	<i>Pittosporum undulatum</i>	3	
Dot-seed plantain	<i>Plantago erecta</i>	3	
Western sycamore	<i>Platanus racemosa</i>	3	
Annual bluegrass	<i>Poa annua</i>	3	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Pilger	<i>Podocarpus gracilior</i>	3	
Common knotweed	<i>Polygonum arenastrum</i>	3	
California polypody	<i>Polypodium californicum</i>	3	
Annual beard grass	<i>Polypogon monspeliensis</i>	3	
Holly-leaved cherry	<i>Prunus illicifolia</i> ssp. <i>ilicifolia</i>	3	
Catalina cherry	<i>Prunus illicifolia</i> ssp. <i>lyonii</i>	3	
California thread-stem	<i>Pterostegia drymarioides</i>	3	
Firethorn*	<i>Pyracantha</i> sp.	3	
Nuttall's scrub oak	<i>Quercus dumosa</i>	1	
Radish	<i>Raphanus sativus</i>	3	
Spiny redberry	<i>Rhamnus crocea</i>	3	
India-hawthorn	<i>Rhaphiolepis indica</i>	3	
Lemonadeberry	<i>Rhus integrifolia</i>	3	
Castor bean*	<i>Ricinus communis</i>	3	
Black locust*	<i>Robinia pseudoacacia</i>	3	
Rose	<i>Rosa</i> sp.	3	
Curly dock	<i>Rumex crispus</i>	3	
Glasswort	<i>Salicornia subterminalis</i>	3	
Pickleweed	<i>Salicornia virginica</i>	3	
Salpichroa	<i>Salpichroa organifolia</i>	3	
Russian thistle*	<i>Salsola tragus</i>	3	
Chia	<i>Salvia columbariae</i>	3	
Black sage	<i>Salvia mellifera</i>	3	
Sanicle	<i>Sanicula</i> sp.	3	
Peruvian pepper tree*	<i>Schinus molle</i>	3	
Brazilian pepper tree*	<i>Schinus terebinthifolius</i>	3	
Mediterranean grass	<i>Schismus barbatus</i>	3	
Ashy spike-moss	<i>Selaginella cinerascens</i>	3	
California groundsel	<i>Senecio californicus</i>	3	
Common groundsel	<i>Senecio vulgaris</i>	3	
Windmill pink	<i>Silene gallica</i>	3	
Indian pink	<i>Silene lacinata</i> ssp. <i>major</i>	3	
Milk thistle*	<i>Silybum marianum</i>	3	
Jojoba	<i>Simmondsia chinensis</i>	3	
Blue-eyed-grass	<i>Sisyrinchium bellum</i>	3	
Smilax	<i>Smilax</i> sp.	3	
White nightshade	<i>Solanum douglasii</i>	3	
Black nightshade	<i>Solanum nigrum</i>	3	
Parish's nightshade	<i>Solanum parishii</i>	3	
Purple nightshade	<i>Solanum xanti</i>	3	
Prickly sow thistle	<i>Sonchus asper</i> ssp. <i>asper</i>	3	
Common sow thistle	<i>Sonchus oleraceus</i>	3	

Table G-1: Species Known to Occur or with the Potential to Occur on the NBPL Peninsula

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Spanish broom*	<i>Spartium junceum</i>	3	
Cleveland sand spurrey	<i>Spergularia villosa</i>	3	
Smutgrass	<i>Sporobolus indicus</i>	3	
Chickweed	<i>Stellaria</i> sp.	3	
Stephanomeria	<i>Stephanomeria diegensis</i>	3	
Slender stephanomeria	<i>Stephanomeria virgata</i> ssp. <i>virgata</i>	3	
Everlasting nest straw	<i>Stylocline gnaphaloides</i>	3	
Estuary sea-blite	<i>Suaeda esteroa</i>	3	
Woolly sea-blite	<i>Suaeda taxifolia</i>	3	
Salt cedar*	<i>Tamarix ramosissima</i>	3	
Common dandelion	<i>Taraxacum officinale</i>	3	
Wandering jew	<i>Tradescantia fluminensis</i>	3	
Salsify, Oyster plant	<i>Tragopogon porrifolius</i>	3	
Puncture vine	<i>Tribulus terrestris</i>	3	
Chinese elm	<i>Ulmus parvifolia</i>	3	
Woolly mullein*	<i>Verbascum thapsus</i>	3	
Deerpea vetch	<i>Vicia ludoviciana</i> var. <i>ludoviciana</i>	3	
San Diego county viguiera	<i>Viguiera laciniata</i>	1	
Greater periwinkle*	<i>Vinca major</i>	3	
Johnny-jump-up	<i>Viola pedunculata</i>	3	
Rat-tail fescue	<i>Vulpia myuros</i> var. <i>myuros</i>	3	
Six weeks fescue	<i>Vulpia octoflora</i> var. <i>hirtella</i>	3	
Washington palm	<i>Washingtonia robusta</i>	3	
Spiny cocklebur	<i>Xanthium spinosum</i>	3	
Mission manzanita	<i>Xylococcus bicolor</i>	3	
Xylosma	<i>Xylosma congestum</i>	3	
Mohave yucca	<i>Yucca schidigera</i>	3	
Star-lily	<i>Zigadenus fremontii</i>	3	
Eelgrass	<i>Zostera marina</i>	3	

Notes:

* Indicates an invasive species observed on NBPL

¹ Indicates most recent sighting of species on the NBPL Peninsula from the following sources:

(1) U.S. Navy 2009d, (2) SDNHM 2010, (3) U.S. Navy 2002, (4) U.S. Navy et al. 2011, and (5) Pers. Com. Jessica Bredvick 2012.

Federal Status: FE = Federal Endangered, FT = Federal Threatened

State Status: SE = State Endangered, ST = State Threatened, SSC = Species of Special Concern,

Other Status: BCC = Birds of Conservation Concern, CITES = Convention on International Trade in Endangered Species of Wild Fauna and Flora

The following list of species was generated from information contained in the Natural Resources Baseline Inventory for Navy San Diego Metro Housing Areas Inventory (2011b).

Table G-2: Species Known to Occur or with the Potential to Occur off NBPL Peninsula (Housing Areas)

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Amphibians and Reptiles			
Belding's orange-throated whiptail	<i>Aspidoscelis hyperythrus beldingi</i>	2011b	
Red diamond rattlesnake	<i>Crotalus ruber</i>	2011b	
Coronado skink	<i>Plestiodon skiltonianus interparietalis</i>	2011b	
Coast patch nosed snake	<i>Salvadora hexalepis virgultea</i>	2011b	
Western fence lizard	<i>Sceloporus occidentalis</i>	2011b	
Birds			
Cooper's Hawk	<i>Accipiter cooperii</i>	2011b	
White-throated Swift	<i>Aeronautes saxatalis</i>	2011b	
Southern California Rufous-crowned Sparrow	<i>Aimophila ruficeps canescens</i>	2011b	
American Wigeon	<i>Anas americana</i>	2011b	
Mallard	<i>Anas platyrhynchos platyrhynchos</i>	2011b	
Western Scrub-jay	<i>Aphelocoma californica</i>	2011b	
Great Blue Heron	<i>Ardea Herodias</i>	2011b	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	2011b	
Red-shouldered Hawk	<i>Buteo lineatus elegans</i>	2011b	
Green Heron	<i>Butorides virescens</i>	2011b	
California Quail	<i>Callipepla californica californica</i>	2011b	
Anna's Hummingbird	<i>Calypte anna</i>	2011b	
Lesser Goldfinch	<i>Carduelis psaltria hesperophilus</i>	2011b	
House Finch	<i>Carpodacus mexicanus frontalis</i>	2011b	
Turkey Vulture	<i>Cathartes aura</i>	2011b	
Wrentit	<i>Chamaea fasciata henshawi</i>	2011b	
Killdeer	<i>Charadrius vociferus vociferus</i>	2011b	
Northern Harrier	<i>Circus cyaneus hudsonius</i>	2011b	
Rock Dove	<i>Columba livia</i>	2011b	
American Crow	<i>Corvus brachyrhynchos hesperis</i>	2011b	
Common Raven	<i>Corvus corax clarionensis</i>	2011b	
Yellow-rumped Warbler	<i>Dendroica coronata</i>	2011b	
Snowy Egret	<i>Egretta thula thula</i>	2011b	
Pacific Slope Flycatcher	<i>Empidonax difficilis</i>	2011b	
American Coot	<i>Fulica americana</i>	2011b	
Common Yellowthroat	<i>Geothlypis trichas</i>	2011b	
Hooded Oriole	<i>Icterus cucullatus nelson</i>	2011b	
California Gull	<i>Larus californicus</i>	2011b	
Western Gull	<i>Larus occidentalis wymani</i>	2011b	
Belted Kingfisher	<i>Megaceryle alcyon</i>	2011b	

Table G-2: Species Known to Occur or with the Potential to Occur off NBPL Peninsula (Housing Areas)

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Birds (continued)			
Song Sparrow	<i>Melospiza melodia</i>	2011b	
Northern Mockingbird	<i>Mimus polyglottos polyglottos</i>	2011b	
Brown-headed Cowbird	<i>Molothrus ater</i>	2011b	
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	2011b	
Osprey	<i>Pandion haliaetus</i>	2011b	
House Sparrow	<i>Passer domesticus</i>	2011b	
California Brown Pelican	<i>Pelecanus occidentalis californicus</i>	2011b	
Cliff Swallow	<i>Petrochelidon pyrrhonota tachina</i>	2011b	
Black-headed Grosbeak	<i>Pheucticus melanocephalus maculatus</i>	2011b	
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	2011b	
California Towhee	<i>Pipilo crissalis</i>	2011b	
Spotted Towhee	<i>Pipilo maculatus</i>	2011b	
Coastal California Gnatcatcher	<i>Polioptila californica californica</i>	2011b	FT, SSC
Bushtit	<i>Psaltirparus minimus minimus</i>	2011b	
Black Phoebe	<i>Sayornis nigricans semiatra</i>	2011b	
Say's Phoebe	<i>Sayornis saya</i>	2011b	
Western Bluebird	<i>Sialia mexicana occidentalis</i>	2011b	
Forster's Tern	<i>Sterna forsteri</i>	2011b	
European Starling	<i>Sturnus vulgaris</i>	2011b	
Bewick's Wren	<i>Thryomanes bewickii</i>	2011b	
California Thrasher	<i>Toxostoma redivivum redivivum</i>	2011b	
House Wren	<i>Troglodytes aedon parkmanii</i>	2011b	
Western Kingbird	<i>Tyrannus verticalis</i>	2011b	
Cassin's Kingbird	<i>Tyrannus vociferans vociferans</i>	2011b	
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	2011b	FE, SE
Mourning Dove	<i>Zenaida macroura marginella</i>	2011b	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	2011b	
Invertebrates			
Sara orangetip	<i>Anthocharis sara</i>	2011b	
Honey bee	<i>Apis mellifera</i>	2011b	
Behr's metalmark	<i>Apodemia virgulti</i>	2011b	
California trap door spider	<i>Bothriocyrtum californicum</i>	2011b	
San Diego fairy shrimp	<i>Branchinecta sandiegonensis</i>	2011b	FE
Alfalfa or orange sulphur	<i>Colias eurytheme</i>	2011b	
Funereal duskywing	<i>Erynnis funeralis</i>	2011b	
Shorthorn grasshopper	Acrididae	2011b	
Aphid	Aphididae	2011b	
Bee	Apidae	2011b	
Orbweaver	Araneidae	2011b	

Table G-2: Species Known to Occur or with the Potential to Occur off NBPL Peninsula (Housing Areas)

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Invertebrates (continued)			
Robber fly	Asilidae	2011b	
Bee fly	Bombyliidae	2011b	
Jewel beetle	Buprestidae	2011b	
Ground beetle	Carabidae	2011b	
Spittlebug	Cercopidae	2011b	
Cerith	Cerithiidae	2011b	
Leaf beetle	Chrysomelidae	2011b	
Leafhopper	Cicadellidae	2011b	
Ladybird beetle	Coccinellidae	2011b	
Narrow-winged damselfly	Coenagrionidae	2011b	
Yellow-faced bee	Colletidae	2011b	
Weevil	Curculionidae	2011b	
Dermeid beetle	Dermeididae	2011b	
Long-legged fly	Dolichopodidae	2011b	
Water strider	Gerridae	2011b	
Cricket	Gryllidae	2011b	
Sweat bee	Halictidae	2011b	
Skipper	Hesperiidae	2011b	
Ichneumonid wasp	Ichneumonidae	2011b	
Hardbacked tick	Ixdidae	2011b	
Skimmer	Libellulidae	2011b	
Wolf spider	Lycosidae	2011b	
Seed bug	Lygaeidae	2011b	
Leafcutting bee	Megachilidae	2011b	
Soft-winged flower beetle	Melyridae	2011b	
House fly	Muscidae	2011b	
Spider wasp	Pompilidae	2011b	
Pyralid moth	Pyralidae	2011b	
Jumping spider	Salticidae	2011b	
Flesh fly	Sarcophagidae	2011b	
Sphecid wasp	Sphecidea	2011b	
Crab spider	Thomisidae	2011b	
True wasp	Vespidae	2011b	
Acmon blue	<i>Icaricia acmon acmon</i>	2011b	
Argentine ant	<i>Linepithema humile</i>	2011b	
Mourning cloak	<i>Nymphalis antiopa antiopa</i>	2011b	
Anise swallowtail	<i>Papilio zelicaon</i>	2011b	
Cabbage white	<i>Pieris rapae</i>	2011b	
Checkered white	<i>Pontia protodice</i>	2011b	

Table G-2: Species Known to Occur or with the Potential to Occur off NBPL Peninsula (Housing Areas)

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Mammals			
Domestic dog	<i>Canis lupus familiaris</i>	2011b	
Opossum	<i>Didelphis virginiana</i>	2011b	
Domestic cat	<i>Felis catus</i>	2011b	
Woodrat	<i>Neotoma</i> sp.	2011b	
California ground squirrel	<i>Spermophilus beecheyi</i>	2011b	
Desert cottontail	<i>Sylvilagus audubonii</i>	2011b	
Plants			
Red-eye acacia*	<i>Acacia cyclops</i>	2011b	
Acacia*	<i>Acacia</i> sp.	2011b	
Chamise	<i>Adenostoma fasciculatum</i>	2011b	
California adolphia	<i>Adolphia californica</i>	2011b	
Century plant	<i>Agave americana</i> L.	2011b	
Western ragweed	<i>Ambrosia psilostachya</i>	2011b	
Scarlet pimpernel	<i>Anagallis arvensis</i>	2011b	
California sagebrush	<i>Artemisia californica</i>	2011b	
San Diego sagewort	<i>Artemisia palmeri</i>	2011b	
Giant reed*	<i>Arundo donax</i>	2011b	
Fourwing saltbush	<i>Atriplex canescens</i>	2011b	
Slender wild oat	<i>Avena barbata</i>	2011b	
Wild oat	<i>Avena fatua</i>	2011b	
Wild oat	<i>Avena</i> sp.	2011b	
Coyote bush	<i>Baccharis pilularis</i>	2011b	
Mule fat	<i>Baccharis salicifolia</i>	2011b	
Broom baccharis	<i>Baccharis sarothroides</i>	2011b	
Beachwort	<i>Batis maritime</i>	2011b	
Crown daisy garland	<i>Blebionis coronaria</i>	2011b	
Black mustard*	<i>Brassica nigra</i>	2011b	
Ripgut grass*	<i>Bromus diandrus</i>	2011b	
Smooth brome*	<i>Bromus hordeaceus</i>	2011b	
Foxtail chess*	<i>Bromus madritensis</i>	2011b	
Weed mariposa	<i>Calochortus weedii weedii</i>	2011b	
Finger-leaf morning glory	<i>Calystegia macrostegia</i>	2011b	
Italian thistle	<i>Carduus pycnophalus</i>	2011b	
Hottentot fig*	<i>Carpobrotus edulis</i>	2011b	
Tocolote*	<i>Centaurea melitensis</i>	2011b	
Spotted spurge	<i>Chamaesyce maculate</i>	2011b	
Lamb's quarters	<i>Chenopodium album</i>	2011b	
Fringed spineflower	<i>Chorizanthe fimbriata</i>	2011b	
Thistle	<i>Cirsium</i> spp.	2011b	
Pipestem clematis	<i>Clematis lasiantha</i>	2011b	

Table G-2: Species Known to Occur or with the Potential to Occur off NBPL Peninsula (Housing Areas)

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Flax-leaf fleabane	<i>Conyza bonariensis</i>	2011b	
Horseweed	<i>Conyza canadensis</i>	2011b	
California aster	<i>Corethrogyne filaginifolia</i>	2011b	
Jubata grass	<i>Cortaderia jubata</i>	2011b	
Selloa pampas grass*	<i>Cortaderia selloana</i>	2011b	
Jade plant	<i>Crassula argentea</i>	2011b	
Dove weed	<i>Croton setigerus</i>	2011b	
California dodder	<i>Cuscuta californica</i>	2011b	
Bermuda grass*	<i>Cynodon dactylon</i>	2011b	
Golden tarplant	<i>Deinandra fasciculata</i>	2011b	
Greene saltgrass	<i>Distichlis spicata</i>	2011b	
Common encelia	<i>Encelia californica</i>	2011b	
Felt-leaved yerba santa	<i>Eriodictyon crassifolium</i>	2011b	
California buckwheat	<i>Eriogonum fasciculatum</i>	2011b	
Golden yarrow	<i>Eriophyllum confertiflorum</i>	2011b	
Pin-clover	<i>Erodium botrys</i>	2011b	
Storksbill	<i>Erodium sp.</i>	2011b	
Eucalyptus*	<i>Eucalyptus spp.</i>	2011b	
Coast barrel cactus	<i>Ferocactus viridescens</i>	2011b	
Fescue	<i>Festuca sp.</i>	2011b	
Fennel*	<i>Foeniculum vulgare</i>	2011b	
Alkali heath	<i>Frankenia salina</i>	2011b	
White everlasting	<i>Gnaphalium canescens spp. microcephalum</i>	2011b	
Everlasting cudweed	<i>Gnaphalium sp.</i>	2011b	
Toyon, Christmas berry	<i>Heteromeles arbutifolia</i>	2011b	
Short-pod mustard	<i>Hirschfeldia incana</i>	2011b	
Wild barley	<i>Hordeum murinum</i>	2011b	
Coast goldenbush	<i>Isocoma menziesii</i>	2011b	
Bladderpod	<i>Isomeris arborea</i>	2011b	
Jaumea	<i>Jaumea carnosa</i>	2011b	
Prickly lettuce*	<i>Lactuca serriola</i>	2011b	
Common pepperweed	<i>Lepidium densiflorum</i>	2011b	
Italian ryegrass	<i>Lolium multiflorum</i>	2011b	
Ryegrass	<i>Lolium sp.</i>	2011b	
Chaparral honeysuckle	<i>Lonicera subspicata</i>	2011b	
Wild honeysuckle	<i>Lonicera subspicata</i>	2011b	
California broom	<i>Lotus scoparius</i>	2011b	
Chaparral mallow	<i>Malacothamnus fasciculatus</i>	2011b	
Laurel sumac	<i>Malosma laurina</i>	2011b	

Table G-2: Species Known to Occur or with the Potential to Occur off NBPL Peninsula (Housing Areas)

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Wild cucumber	<i>Marah macrocarpus</i>	2011b	
Horehound	<i>Marrubium vulgare</i>	2011b	
Melic grass	<i>Melica frutescens</i>	2011b	
White sweet clover	<i>Melilotus albus</i>	2011b	
Sourclover	<i>Melilotus indicus</i>	2011b	
Slender-leaved ice plant*	<i>Mesembryanthemum nodiflorum</i>	2011b	
Low bush monkey-flower	<i>Mimulus aurantiacus</i>	2011b	
Wishbone bush	<i>Mirabilis crassifolia</i>	2011b	
Myoporum*	<i>Myoporum laetum</i>	2011b	
Oleander	<i>Nerium oleander</i>	2011b	
Telegraph weed	<i>Neterotheca grandiflora</i>	2011b	
Common olive	<i>Olea europaea</i>	2011b	
Indian fig	<i>Opuntia ficus-indica</i>	2011b	
Big coast prickly-pear	<i>Opuntia oricola</i>	2011b	
Knotgrass	<i>Paspalum distichum</i>	2011b	
Fountain grass	<i>Pennisetum setaceum</i>	2011b	
Canary Island date palm	<i>Phoenix canariensis</i>	2011b	
Lemonadeberry	<i>Phus integrifolia</i>	2011b	
Bristly ox-tongue	<i>Picris echioides</i>	2011b	
Pine	<i>Pinus</i> spp.	2011b	
Smilo grass	<i>Piptatherum miliaceum</i>	2011b	
Cheesewood	<i>Pittosporum</i> sp.	2011b	
Dot-seed plantain	<i>Plantago erecta</i>	2011b	
Western sycamore	<i>Platanus racemosa</i>	2011b	
Annual beard grass	<i>Polypogon monspeliensis</i>	2011b	
Odora	<i>Porophyllum gracile</i>	2011b	
Scrub oak	<i>Quercus berberidifolia</i>	2011b	
Nuttall's scrub oak	<i>Quercus dumosa</i>	2011b	
Radish	<i>Raphanus sativus</i>	2011b	
Natal grass	<i>Rhynchelytrum repens</i>	2011b	
Castor bean*	<i>Ricinus communis</i>	2011b	
Willow dock	<i>Rumex salicifolius</i>	2011b	
Pickleweed	<i>Salicomia virginica</i>	2011b	
Narrow-leaved willow	<i>Salix exigua</i>	2011b	
Red willow	<i>Salix laevigata</i>	2011b	
Arroyo willow	<i>Salix lasiolepis</i>	2011b	
Russian thistle*	<i>Salsola tragus</i>	2011b	
Black sage	<i>Salvia mellifera</i>	2011b	
Peruvian pepper tree*	<i>Schinus molle</i> L.	2011b	
Brazilian pepper tree*	<i>Schinus terebinthifolius</i>	2011b	

Table G-2: Species Known to Occur or with the Potential to Occur off NBPL Peninsula (Housing Areas)

Common Name	Scientific Name	Data Source ¹	Special Status Species Designation
Plants (continued)			
Three-square	<i>Schoenoplectus americanus</i>	2011b	
Bulrush	<i>Scirpus</i> sp.	2011b	
Bigelow spike-moss	<i>Selaginella bigelovii</i>	2011b	
Nightshade	<i>Solanum americanum</i>	2011b	
Prickly sow thistle	<i>Sonchus oleraceus</i>	2011b	
St. Augustine grass	<i>Stenotaphrum secundatum</i>	2011b	
San Diego wirelettuce	<i>Stephanomeria diegensis</i>	2011b	
Estuary seablite	<i>Suaeda esteroa</i>	2011b	
Tamarisk	<i>Tamarix</i> sp.	2011b	
Western poison oak	<i>Toxicodendron diversilobum</i>	2011b	
Woolly bluecurls	<i>Trichostema lanatum</i>	2011b	
Cattail	<i>Typha</i> sp.	2011b	
Chinese elm	<i>Ulmus parvifolia</i>	2011b	
Rattail fescue	<i>Vulpia myuros</i>	2011b	
Washington palm	<i>Washingtonia robusta</i>	2011b	
Cocklebur	<i>Xanthium strumarium</i>	2011b	
Mohave yucca	<i>Yucca schidigera</i>	2011b	

Notes:

* Indicates an invasive species observed on an off peninsula NBPL facility

¹ Indicates most recent sighting of species on an off peninsula NBPL facility

Source: U.S. Navy 2011b

Federal Status: FE = Federal Endangered, FT = Federal Threatened

State Status: SE = State Endangered, ST = State Threatened, SSC = Species of Special Concern,

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APPENDIX H

PESTICIDES APPROVED FOR USE

Appendix H

Pesticides Approved for Use (March 2011)

Favorite	Pesticide Type	Formulation	Pesticide Name	Active Ingredient	EPA Number
No	Herbicide	Emulsion	Fusilade Ii	Fluazifop-P-Butyl	10182-393
No	Herbicide	Solution	Garlon 3a	Triclopyr	62719-37
No	Herbicide	Solution	Glyphosate 4	Glyphosate	73220-6-74477
No	Herbicide	Dust/Granule	Krovar I Df Herbicide	Bromacil/Diuron	352-505
No	Herbicide	Liquid	Milestone	Aminopyralid	62719-537
No	Herbicide	Dispersible Granules	Oust XP	Sulfometuron Methyl	352-601
No	Herbicide	Emulsion	Roundup Pro	Glyphosate	524-475
No	Herbicide	Solution	Roundup Pro Concentrate	Glyphosate	524-529
No	Herbicide	Liquid	Roundup Promax	Glyphosate	524-579
No	Insecticide	Bait	Baygon 2% Bait	Propoxur	3125-121
No	Insecticide	Aerosol	Borid Turbo	Boric Acid	9444-150
No	Insecticide	Aerosol	Cb-80 Extra	Pyrethrin/ Piperonyl Butoxide	9444-175
No	Insecticide	Aerosol	Cy-Kick	Cyfluthrin	499-470
No	Insecticide	Aerosol	Cy-Kick Cs Prescription Treatment	Cyfluthrin	499-304
No	Insecticide	Emulsion	Demize Ec	Linalool/Piperonyl Butoxide	4758-161
No	Insecticide	Dust/Granule	Drione Insecticide	Silica Gel/Pyrethrum/Piperonyl Butoxide	4816-353
No	Insecticide	Bait	Fluor Gard	N-Ethyl Perfluorooctanesulfonamide	1812 348279
No	Insecticide	Solution	M-Pede	Potash Soap	53219-6
No	Insecticide	Bait	Maxforce Ant Killer Gel	Fipronil	432-1264
No	Insecticide	Bait	Maxforce Ant Trap	Fipronil	432-1256
No	Insecticide	Bait	Maxforce Ec Bait Gel	Fipronil	64248-21
No	Insecticide	Bait	Maxforce Fc	Fipronil	64248-14

Favorite	Pesticide Type	Formulation	Pesticide Name	Active Ingredient	EPA Number
No	Insecticide	Bait	Maxforce FC (Sml Roach)	Fipronil	432-1257
No	Insecticide	Bait	Maxforce Fc Roach Bait Gel	Fipronil 0.01%	432-1259
No	Insecticide	Bait	Maxforce Large Roach Bait F.03	Fipronil	64248-12
No	Insecticide	Bait	Maxforce Roach Killer Bait Gel	Hydramethylnon	64248-5
No	Insecticide	Suspension	Suspend Sc	Deltamethrin	432-763
No	Insecticide	Solution	Termidor	Fiprinol	7969-210
No	Insecticide	Solution	Termidor Sc	Fipronil	432-901
No	Insecticide	Solution	Transport	Acetamiprid, Bifenthrin	8033-96-279
No	Insecticide	Aerosol	Wasp Freeze	D-Trans Allethrin/Phenothrin	499-362
No	Rodenticide	Bait	A C 90 Formula	Chlorophacinone	56-58
No	Rodenticide	Bait	Contrac Supersize Blox	Bromodialone 0.005%	12455-82

APPENDIX I

PROFILES OF FOCUS MANAGEMENT SPECIES

Focus management species will be identified and inserted in this appendix during the next INRMP update.

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APPENDIX J
LANDSCAPING APPROVED PLANT LISTS

Appendix J

Landscaping Approved Plant Lists (November 2007)

1. Landscape designs and plant lists shall be reviewed and approved by the installation biologist, and NAVFAC Landscape Architect in the planning stages of project design.
2. For each project, California native species from the approved plant list shall constitute a minimum of 80% of the plant material within each stratum (herb, shrub, and tree). Other drought tolerant species from this list shall constitute the remainder of the plant material (a maximum of 20% in each stratum) for each project. A higher proportion of natives may be required for projects within or adjacent to natural areas. The determination of whether cultivars are considered native or exotic will be made on a project-by-project basis by the Navy points of contact listed above
3. It is vital that coordination with the Navy points of contact listed above occur early in the planning process to determine site-specific needs and constraints. Please note that not all species on this list are appropriate for all settings. For example, in some areas certain cultivars may not be approved due to their potential to hybridize with nearby native species.
4. Additional native species may be included in the landscape design contingent upon the approval of the Navy points of contact listed above.
5. All plants shall be verified for availability in size and quantities needed for each project prior to specifying on plans or scopes of work.

Table J-1: Plants Unacceptable for Landscaping Under Any Circumstances

Common Name	Scientific name
(Red Apple) Ice Plant	<i>Aptenia</i> spp.
Onionweed	<i>Asphodelus fistulosus</i>
Hottentot fig, Ice Plant	<i>Carpobrotus</i> spp.
(Red Spike) Ice Plant	<i>Cephallophyllum</i> spp.
Daisy	<i>Chrysanthemum</i> spp.
Pampas Grass	<i>Cortaderia</i> spp.
(Disneyland) Ice Plant	<i>Delosperma</i> spp.
(Livingstone Daisy) Ice Plant	<i>Dorotheanthus</i> spp.
Gazania, Treasure Flower	<i>Gazania</i> spp.
St. Johnswort	<i>Hypericum canariense</i>
(Redflush) Ice Plant	<i>Lampranthus (Oscularia)</i> spp.
Ice Plant	<i>Malephora</i> spp.
(Common) Ice Plant	<i>Mesembryanthemum</i> spp.
Myoporum, Ngaio	<i>Myoporum</i> spp.
Fountain Grass	<i>Pennisetum</i> spp.
Goat's Beard	<i>Tragopogon</i> spp.

All plants on the California Invasive Plant Council (Cal-IPC) Invasive Plant Inventory (see <http://www.cal-ipc.org>), the San Diego County Ornamental Invasives Plant Guide (see <http://www.asla-sandiego.org/content/plantguide.html>) and all non-native grasses (except those used for turf/lawns) are unacceptable.

Table J-2: Plants Acceptable for Landscaping

Common Name	Native Status	Height	Spread	Irrigation Needs
Annuals/Bulbs/Perennials/Succulents				
<i>Achillea millefolium</i> Yarrow	N	1'	2'	L-M
<i>Agave shawii</i> Shaw's Agave	N	3'	4'	L
<i>Aloe spp.</i> Aloe	E	Varies	Varies	L-M
<i>Armeria maritima</i> Sea Pink Thrift	CA	1'	1'	L-M
<i>Astragalus didymocarpus</i> Dwarf White Milk-vetch	N	Varies	Varies	L
<i>Astragalus sp.</i> (native to site only) Milk-vetch	N	Varies	Varies	L
<i>Coreopsis maritima</i> Sea Dahlia	N	2'	3'	L-M
<i>Delphinium cardinale</i> Scarlet Larkspur	CA	6'	2'	M
<i>Delphinium parryi</i> San Bernadino Larkspur	N	6'	2'	M
<i>Dichelostemma capitatum</i> Blue Dicks	N	Varies	Varies	L
<i>Dietes bicolor</i> Fortnight Lily	E	2'	3'	L-M
<i>Dietes sp.</i> Yellow Fortnight Lily ('Lemon Drops')	E	2'	3'	L-M
<i>Dietes vejeta</i> Fortnight Lily	E	4'	4'	L-M
<i>Dudleya edulis</i> Ladies' Fingers	N	1'	Varies	L
<i>Dudleya lanceolata</i> Lanceleaf Liveforever	N	1'	1'	M
<i>Dudleya pulverulenta</i> Chalk Dudleya	N	2'	2'	M
<i>Echeveria spp. & cultivars</i> Hens & Chicks	E	Varies	Varies	L
<i>Epilobium canum</i> California Fuchsia	N	2'	4'	L-M
<i>Erigeron glaucus</i> Seaside Daisy	CA	1'	2'	L-M
<i>Eriophyllum confertiflorum</i> Golden Yarrow	N	2'	2'	L-M

Common Name	Native Status	Height	Spread	Irrigation Needs
Annuals/Bulbs/Perennials/Succulents (continued)				
<i>Eschscholzia californica</i> California Poppy	N	1'	1'	L-M
<i>Heuchera maxima</i> Island Alumroot	CA	1'	1'	L-M
<i>Iris douglasiana</i> Douglas Iris	CA	2'	1'	L-M
<i>Iris missouriensis</i> Western Blue Flag	CA	2'	1'	L-M
<i>Lotus hamatus</i> San Diego Bird's-foot Trefoil	N	1'	1'	M
<i>Lotus nuttallianus</i> Nuttal's Lotus	N	1'	1'	L-M
<i>Lupinus bicolor</i> Miniature Lupine	N	1'	1'	L-M
<i>Lupinus chamissonis</i> Dune Lupine	CA	2'	2'	L-M
<i>Lupinus truncatus</i> Blunt-leaf Lupine	N	2'	2'	L-M
<i>Mammillaria dioica</i> Fish-hook Cactus	N	1'	1'	L-M
<i>Mimulus aurantiacus</i> Bush Monkeyflower	N	4'	4'	L-M
<i>Mimulus cardinalis</i> Scarlet Monkeyflower	CA	2'	2'	L-M
<i>Mimulus guttatus</i> Golden Monkeyflower	CA	2'	2'	L-M
<i>Mirabilis californica</i> Wishbone Bush	N	1'	2'	L
<i>Opuntia californica</i> Snake Cholla	N	2'	3'	L
<i>Opuntia littoralis</i> Prickly Pear	N	2'	3'	L
<i>Opuntia prolifera</i> Coast Cholla	N	2'	3'	L
<i>Pellaea andromedifolia</i> Coffee Fern	N	1'	1'	
<i>Pellaea mucronata</i> Bird's Foot Fern	CA	1'	1'	
<i>Polystichum minutum</i> Western Sword Fern	CA	3'	3'	L-M
<i>Satureja chandleri</i> San Miguel Savory	CA			
<i>Satureja douglasii</i> Yerba Buena	CA	1'	3'	L-M
<i>Sedum spp.</i> Stonecrop	E	Varies	Varies	L

Common Name	Native Status	Height	Spread	Irrigation Needs
Annuals/Bulbs/Perennials/Succulents (continued)				
<i>Sisyrinchium bellum</i> Blue-eyed Grass	N	1'	1'	L
<i>Sphaeralcea ambigua</i> Apricot Mallow	CA	4'	4'	L
<i>Thymus serpyllum</i> Creeping Thyme	E	1'	3'	M
<i>Woodwardia fimbriata</i> Giant Chain Fern	CA	4'	3'	M
<i>Yucca schidigera</i> Mojave Yucca	N	8'	2'	L-M
<i>Yucca whipplei</i> Our Lord's Candle	N	3'	6'	L-M
Grasses/Rushes				
<i>Elymus glaucus</i> Blue Wildrye	CA	3'	-	L-M
<i>Festuca ovina glauca</i> Blue Fescue	E	1'	10"	L-M
<i>Juncus acutus</i> Spiny Rush	CA	5'	-	M
<i>Juncus mexicanus</i> Mexican Rush	CA	5'	-	L-M
<i>Leymus condensatus</i> Giant Wild Rye	N	6'	-	M
<i>Leymus condensatus</i> Giant Wild Rye ('Canyon Prince')	CA or E	6'	-	M
<i>Muhlenbergia species (CA natives only)</i> Deer Grass	CA	Varies	Varies	L-M
<i>Muhlenbergia rigens</i> Deer Grass	CA	4'	4'	L-M
<i>Nassella cernua</i> Nodding Needlegrass	CA	3'	2'	L
<i>Nassella lepida</i> Foothill Needlegrass	CA	3'	2'	L
<i>Nassella pulchra</i> Purple Needlegrass	N	3'	2'	L
Ground Covers				
<i>Abronia maritima</i> Red Sand Verbena	N	1'	3'	L
<i>Abronia umbellata</i> Beach Sand Verbena	N	1'	3'	L
<i>Arctostaphylos cultivars</i> Manzanita	CA or E	Varies	Varies	L
<i>Arctostaphylos species (CA natives only)</i> Manzanita	CA	Varies	Varies	L

Common Name	Native Status	Height	Spread	Irrigation Needs
Ground Covers (continued)				
<i>Carissa macrocarpa</i> Prostrate Natal Plum ('Green Carpet')	E	1'	4'	L-M
<i>Ceanothus cultivars</i> California Lilac	E	8"	12"	L
<i>Fragaria chiloensis</i> Sand Strawberry	CA	Varies	Varies	L
<i>Fragaria vesca</i> Wood Strawberry	CA	6"	3'	L
<i>Juniperus horizontallis</i> Blue Carpet Juniper ('Wiltonii')	E	6"	8'	L-M
<i>Pelargonium peltatum</i> Ivy Geranium	E	2'	3'	L-M
<i>Rosmarinus officinalis</i> Rosemary	E	Varies	Varies	L-M
<i>Senecio mandraliscae</i> Groundsel	E	1'	2'	L-M
Shrubs				
<i>Abutilon palmeri</i> Indian Mallow	CA	5'	5'	L-M
<i>Adenostoma fasciculatum</i> Chamise	N	8'	8'	L
<i>Adolphia californica</i> Spineshrub	N	Varies	Varies	L
<i>Arctostaphylos cultivars</i> Manzanita	CA or E	Varies	Varies	L-M
<i>Arctostaphylos glandulosa (var. ssp.)</i> Manzanita	CA	3'	3'	L-M
<i>Arctostaphylos glauca</i> Bigberry Manzanita	CA	15'	15'	L-M
<i>Artemisia californica</i> Coastal Sage	N	5'	5'	L-M
<i>Artemisia palmeri</i> San Diego Sagewort	N	1'	1'	L-M
<i>Baccharis pilularis</i> Coyote Brush	N	3'	6'	L-M
<i>Baccharis salicifolia</i> Mulefat	N	8'	8'	L-M
<i>Baccharis sarothroides</i> Broom Baccharis	N	8'	8'	L-M
<i>Bougainvillea species</i> Bougainvillea	E	Varies	Varies	L-M
<i>Brickellia californica</i> California Brickellbush	N	4'	4'	L-M
<i>Camissonia cheiranthifolia</i> Beach Evening Primrose	N	Varies	Varies	L

Common Name	Native Status	Height	Spread	Irrigation Needs
Shrubs (continued)				
<i>Ceanothus cultivars</i> Wild Lilac	CA or E	Varies	Varies	L
<i>Ceanothus species (CA natives only)</i> Wild Lilac	CA	Varies	Varies	L
<i>Ceanothus tomentosus</i> Blue Lilac	N	9'	6'	L
<i>Ceanothus verrucosus</i> Wart-Stemmed Ceanothus	N	8'	8'	L
<i>Cercocarpus betuloides</i> Western Mountain Mahogany	CA	10'	10'	L
<i>Cercocarpus minutiflorus</i> San Diego Mountain Mahogany	N	10'	10'	L
<i>Cneoridium dumosum</i> Bushrue	N	2'	3'	L
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i> Summer Holly	N	8'	8'	M
<i>Croton californicus</i> California Croton	N	6'	6'	M
<i>Dendromecon rigida</i> Bush Poppy	N	8'	8'	L
<i>Encelia californica</i> Bush Sunflower	N	5'	5'	L
<i>Eriodictyon crassifolium</i> var. <i>crassifolium</i> Yerba Santa	N	5'	5'	L-M
<i>Eriogonum fasciculatum</i> Flat-topped Buckwheat	N	3'	4'	L-M
<i>Euphorbia misera</i> Cliff Spurge	N	2'	2'	L-M
<i>Fremontodendron californicum</i> California Flannelbush	CA	15'	15'	L
<i>Fremontodendron mexicanum</i> Mexican Flannelbush	CA	15'	15'	L
<i>Helianthemum scoparium</i> Peak Rush Rose	N	1'	3'	M
<i>Heteromeles arbutifolia</i> Toyon	N	8'	15'	L-M
<i>Isocoma menziesii</i> Menzie's Goldenbush	N	4'	4'	L
<i>Isomeris arborea</i> Coastal Bladderpod	N	5'	5'	L
<i>Iva hayesiana</i> Poverty Weed	N	3'	5'	L
<i>Juniperus</i> spp. Juniper	E	Varies	Varies	L-M
<i>Justicia californica</i> Chuparosa	CA	5'	8'	L-M

Common Name	Native Status	Height	Spread	Irrigation Needs
Shrubs (continued)				
<i>Keckiella antirrhinoides</i> Yellow Bush Penstemon	CA	8'	10'	L-M
<i>Keckiella cordifolia</i> Heart-leaf Penstemon	N	6'	8'	L-M
<i>Lavendula dentata</i> Lavender	E	4'	5'	M
<i>Lonicera subspicata</i> Chaparral Honeysuckle	N	5'	5'	M
<i>Lotus scoparius</i> Deerweed	N	3'	4'	M
<i>Lupinus albifrons</i> Bush Lupine	CA	5'	5'	L-M
<i>Lycium californicum</i> Box Thorn	N	3'	6'	L-M
<i>Malosma laurina</i> Laurel Sumac	N	15'	15'	L-M
<i>Phormium tenax</i> New Zealand Flax	E	Varies	Varies	L-M
<i>Prunus ilicifolia</i> Hollyleaf Cherry	N	15'	15'	L-M
<i>Quercus dumosa</i> Scrub Oak	N	10'	10'	L-M
<i>Rhamnus californica</i> Coffeeberry	N	3'-6'	6'	L-M
<i>Rhamnus crocea</i> Spiny Redberry	N	8'	8'	L
<i>Rhus integrifolia</i> Lemonadeberry	N	15'	15'	L
<i>Ribes indecorum</i> White Flowering Currant	CA	6'	6'	L
<i>Ribes speciosum</i> Fuchsia-Flowered Gooseberry	N	6'	8'	L
<i>Romneya coulteri</i> Matilija Poppy	CA	6'	6'	L
<i>Rosa californica</i> California Wild Rose	CA	Varies	Varies	M
<i>Rosa minutifolia</i> Small-leaved Rose	N	Varies	Varies	L-M
<i>Rosmarinus officinalis</i> Rosemary	E	Varies	Varies	L-M
<i>Salvia apiana</i> White Sage	N	5'	5'	M
<i>Salvia clevelandii</i> Cleveland Sage	N	4'	5'	M
<i>Salvia columbariae</i> Chia	N	4'	5'	M

Common Name	Native Status	Height	Spread	Irrigation Needs
Shrubs (continued)				
<i>Salvia mellifera</i> Black Sage	N	5'	5'	M
<i>Santolina chamaecyparissus</i> Lavender Cotton	E	2'	3'	L-M
<i>Simmondsia chinensis</i> Jojoba	N	8'	12'	L-M
<i>Solanum parishii</i> Parish's Nightshade	N	Varies	Varies	L-M
<i>Solanum xanti</i> Purple Nightshade	CA	3'	3'	L-M
<i>Trichostema lanatum</i> Woolly Blue Curls	N	3'	4'	L
<i>Viguiera laciniata</i> San Diego County Viguiera	N	2'	6'	L
<i>Xylococcus bicolor</i> Mission Manzanita	N	8'	8'	L
Trees				
<i>Agonis flexuosa</i> Peppermint Tree	E	30'	30'	L-M
<i>Archontophoenix cunninghamiana</i> King Palm	E	50'	15'	M
<i>Brahea armata</i> Blue Hesper Palm	E	45'	10'	L-M
<i>Brahea edulis</i> Rock Palm	E	30'	10'	L-M
<i>Butia capitata</i> Pindo Palm	E	20'	15'	M
<i>Calocedrus decurrens</i> Incense Cedar	CA	80'	20'	L-M
<i>Cercis occidentalis</i> Western Redbud	CA	20'	20'	L-M
<i>Chamaerops humilis</i> Mediterranean Fan Palm	E	20'	8'	L-M
<i>Chilopsis linearis</i> Desert Willow	CA	30'	20'	L
<i>Jacaranda mimosifolia</i> Jacaranda	E	30'	25'	L-M
<i>Lyonothamnus floribundus</i> Catalina Ironwood	CA	50'	30'	M
<i>Metrosideros exelsa</i> New Zealand Christmas Tree	E	30'	30'	M
<i>Pinus canariensis</i> Canary Island Pine	E	60'	20'	L
<i>Pinus eldarica</i> Afghan Pine	E	50'	30'	L

Common Name	Native Status	Height	Spread	Irrigation Needs
Trees (continued)				
<i>Pinus torreyana</i> Torrey Pine	N	50'	30'	L
<i>Platanus racemosa</i> Western Sycamore	N	80'	40'	L-M
<i>Podocarpus gracilior</i> Fern Pine	E	60'	30'	M
<i>Populus fremontii</i> Western Cottonwood	N	50'	30'	M
<i>Quercus agrifolia</i> Coast Live Oak	N	50'	50'	L-M
<i>Quercus ilex</i> Holly Oak	E	40'	40'	L-M
<i>Salix lasiolepis</i> Arroyo Willow	N	15'	15'	M
<i>Sambucus mexicana</i> Blue Elderberry	N	20'	20'	L-M
<i>Syagrus romanzoffianum</i> Queen Palm	E	50'	15'	M
<i>Washingtonia filifera</i> California Fan Palm	CA	60'	15'	L-M
Vines				
<i>Bougainvillea</i> spp. Bougainvillea	E	-	-	L-M
<i>Calystegia macrostegia</i> Morning-Glory	N	-	-	M
<i>Clematis lasiantha</i> Pipestem Clematis	CA	-	-	M
<i>Clematis ligusticifolia</i> Virgin's Bower	CA	-	-	M
<i>Clematis pauciflora</i> Ropevine	N	-	-	M
<i>Clytostoma callistegioides</i> Violet Trumpet Vine	E	-	-	L-M
<i>Maurandya antirrhiniflora</i> Snapdragon Vine	N	10'	4'	L-M
<i>Phaedranthus buccinatorius</i> Blood-Red Trumpet Vine	E	-	-	M
<i>Vitis girdiana</i> Desert Wild Grape	N	-	-	L-M

Key:

N= Native to Coastal SD County

CA= California Native

E= Exotic

L= Low Water

M= Moderate Water

L-M= Low to Moderate Water

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APPENDIX K

NAVY NATURAL RESOURCES METRICS

Overview of the Navy Natural Resources Metrics by Focus Area

Introduction

The Navy Natural Resources (NR) Metrics were developed to support the annual Natural Resources Program reviews between the Navy and its Sikes Act partners, the U. S. Fish and Wildlife Service, state fish and wildlife agencies and when applicable National Oceanic and Atmospheric Administration Fisheries Service . There are seven (7) Focus Areas that comprise the NR Metrics to be evaluated during the annual review of the Natural Resources Program and associated Integrated Natural Resources Management Plan (INRMP).

1. Ecosystem Integrity
2. Listed Species and Critical Habitat
3. Fish and Wildlife Management for Public Use
4. Partnership Effectiveness
5. Team Adequacy
6. INRMP Project Implementation
7. INRMP Impact on the Installation Mission

Each of the seven Focus Areas contains a series of questions. The questions are slightly weighted, with responses to questions having different values, ranging from 0.0 to 1.0. Each Focus Area is scored, using a rating scheme of **Green (1.0-0.67)**, **Yellow (0.66-0.34)**, and **Red (0.33-0.0)**, the final report summarizes the scorecards for all focus areas evaluated for each Navy installation.

Focus Area 1: Ecosystem Integrity

Note: This Focus Area is intended to define the ecosystems that occur on the installation and assess the integrity of those ecosystems. Terrestrial ecosystems, as defined by Nature Serve’s [“Ecological Systems of the United States: A Working Classification of US Terrestrial Systems”](#) and marine ecosystems, as defined by [NOAA’s “Coastal and Marine Ecological Classification Standard”](#).

Question	Response 1	Response 2	Response 3	Response 4	Responses 5 & 6
Q1: To what extent is the ecological system on the installation fragmented due to land conversion? (0-5)	Ecosystem fragmentation is the result of five (5) of the phenomena (0)	Ecosystem fragmentation is the result of four (4) of the phenomena (0.20)	Ecosystem fragmentation is the result of three (3) of the phenomena (0.40)	Ecosystem fragmentation is the result of two (2) of the phenomena (0.60)	Ecosystem fragmentation is the result of one (1) of the phenomena (0.80)
					No fragmentation (1.00)
Q2: Is the ecosystem effectively managed to sustain viable populations of species? (0-3)	Not effectively managed (0)	Minimally effective management (0.33)	Moderately effective management (0.67)	Effectively managed (1.00)	
Q3: To what degree is the ecological system vulnerable to stressors? (0-5)	Completely Vulnerable (0)	Severely Vulnerable to Stress (0.20)	Highly Vulnerable to Stress (0.40)	Moderately Vulnerable to Stress (0.60)	Slightly Vulnerable to Stress (0.80)
					Not Vulnerable to Stress (1.00)
Q4: To what degree has the installation’s INRMP/NR Program provided an overall benefit to ecological integrity? (0-3)	0 = No Benefit (0)	Minor Benefit (0.33)	Moderate Benefit (0.67)	Significant Benefit (1.00)	

Focus Area 2: Listed Species & Critical Habitat

Question	Response 1	Response 2	Response 3	Response 4	Response 5
Q1: To what extent do INRMP projects & programs provide a benefit to this species? (0-4, NA)	No benefit (0.0)	Minor benefits (0.25)	Moderate benefit (0.50)	Major benefit (0.75)	Significant benefit (1.00)
Q2: To what degree have projects been funded in support of this species? (0-4, NA)	No funding (0.0)	1% to 25% funded (0.25)	26% to 50% funded (0.50)	51% to 75% funded (0.75)	76% to 100% funded (1.00)
Q3: To what extent are quantifiable goals, parameters, and monitoring requirements in place to assess conservation effectiveness? (0-4, NA)	None (0.0)	Minimal (0.25)	Moderate (0.50)	Good (0.75)	Excellent (1.00)
Q4: Do existing surveys provide adequate data on habitat conditions? (Y/N)	Yes (1.0)	No (0.0)			
Q5: Do existing surveys provide adequate data on population presence and numbers? (Y/N)	Yes (1.0)	No (0.0)			

Focus Area 3: Fish and Wildlife Management for Public Use

Question	Response 1	Response 2	Response 3	Response 4	Response 5
Q1: Are recreational opportunities available on the installation? (Y/N)	Yes (1.0)	No (0.0)	Not Applicable (landscape doesn't support recreational opportunities)		
Q2: If recreational opportunities are available, are they limited and/or restricted for security reasons? (Y/N/NA)	Yes (1.0)	No (0.0)	Not Applicable (recreational opportunities are not available)		
Q3: If recreational opportunities are available, are they offered to the public? (Y/N/NA)	Yes (1.0)	No (0.0)	Not Applicable (recreational opportunities are not available)		
Q4: If recreational opportunities are available, are they offered to DoD personnel?	Yes (1.0)	No (0.0)	Not Applicable (recreational opportunities are not available)		
Q5: If recreational opportunities are available, are they accessible by disabled veterans/Americans?	Yes (1.0)	No (0.0)	Not Applicable (recreational opportunities are not available)		

Focus Area 3: Fish and Wildlife Management for Public Use

Question	Response 1	Response 2	Response 3	Response 4	Response 5/6
Q6: Are Sikes Act fees collected for outdoor recreational opportunities? (Y/N/NA)	Yes (1.0)	No (0.0)	Not Applicable - (recreational opportunities do not include hunting or fishing)		
Q7: Is there an active natural resources law enforcement program on the installation? (Y/N/NA)	Yes (1.0)	No (0.0)	Not Applicable - (recreational opportunities do not include hunting or fishing)		
Q8: Are sustainable harvest goals addressed in the INRMP and effective for the management of the species' population? (0-4, NA)	Not effective (0)	Minimal effectiveness (0.25)	Moderate effectiveness (0.50)	Effective (0.75)	Highly effective (1.00)
					NA (recreational opportunities do not include hunting and fishing)
Q9: Is public outreach/educational awareness provided? (0-4, NA)	No public outreach provided (0)	Low outreach (0.25)	Moderate outreach (0.50)	Good outreach (0.75)	Excellent outreach (1.00)
					Not Applicable

Focus Area 4: Partnership Effectiveness

Purpose: The purpose of this Focus Area is to determine to what degree partnerships are cooperative and result in effective implementation of the INRMP.

Question	Response 1	Response 2	Response 3	Response 4	Response 5
Q1: Does your Natural Resources program support the regional conservation efforts of the USFWS?	Yes (1.0)	No (0.0)			
Q2: Does your Natural Resources program support State conservation goals identified in State Wildlife Action Plans (SWAPs)? (Y/N)	Yes (1.0)	No (0.0)			
Q3: Does your Natural Resources program support regional NOAA/NMFS conservation objectives/efforts? (Y/N/NA)	Yes (1.0)	No (0.0)	Not Applicable		
Q4: Does your Natural Resources program support other Conservation Initiatives? (Y/N)					

Focus Area 5: Team Adequacy

Purpose: The purpose of this Focus Area is to assess the effectiveness and adequacy of the Navy natural resources team in accomplishing the goals and objectives of the INRMP and Natural Resources Program at each installation. “Team” in this section refers to the Navy staff only

Question	Response 1	Response 2	Response 3	Response 4	Response 5
Q1: Is there a Navy professional Natural Resources Manager assigned by the Installation Commanding Officer? (Y/N)	Yes (1.0)	No (0.0)			
Q2: Is there an on-site Navy professional Natural Resources Manager? (Y/N)	Yes (1.0)	No (0.0)			
Q3: Is HQ and Regional support adequate, e.g. reach back support for execution, policy support, etc.)? (0-4)	No support (0)	Minimal support (0.25)	Satisfactory support (0.50)	Well supported (0.75)	Very well supported (1.00)
Q4: Is there adequate Natural Resources staff to properly implement the INRMP goals and objectives? (Y/N)	Yes (1.0)	No (0.0)			

Focus Area 5: Team Adequacy (Continued)

Question	Response 1	Response 2	Response 3	Response 4	Responses 5/6
Q5: The team is enhanced by the use of contractors. (0-4)	Disagree (0)	Somewhat agree (0.25)	Neutral (0.50)	Agree (0.75)	Strongly Agree (1.00)
Q6: The team is enhanced by the use of volunteers. (0-4, NA)	Disagree (0)	Somewhat agree (0.25)	Neutral (0.50)	Agree (0.75)	Strongly Agree (1.00)
					Not Applicable
Q7: The Natural Resources team is adequately trained to accomplish its duties to ensure compliance. (0-4)	Disagree (0)	Somewhat agree (0.25)	Neutral (0.50)	Agree (0.75)	Strongly Agree (1.00)

Focus Area 6: INRMP Project Implementation

Note: The purpose of this Focus Area is to assess how the goals and objectives of the INRMP have been met through the projects implemented during the previous fiscal year.

Question	Response 1	Response 2	Response 3	Response 4	Responses 5
Q1: Is project accomplishment on schedule? (Y/N)	Yes (1.0)	No (0.0)			
Q2: What is the Project Status? (0,1)	On-Hold (0.0)	Funds Not Yet Received (0.0)	In EPRWeb; In POM; or Emergent Project (1.0)	Funding Received; SOW Prepared, Awarded/Executed (1.0)	Now In-Progress; Project Completed (1.0)
Q3: Which Natural Resources Program Area was most benefitted from the project? (0,1)	0 = None (0)	1 = Flora; Fauna; At Sea; INRMP; Wetlands; Listed Species; Forestry; Invasive Mgmt; Soils; Erosion Control; Outdoor Recreation; Training; Other (1.0)			
Q4: The project design met the goals and objectives of the INRMP. (0-4)	Disagree (0)	Neither agree nor disagree (0.25)	Somewhat Agree (0.50)	Fully Agree (0.75)	Strongly Agree (1.00)

Focus Area 7: INRMP Impact on Installation Mission

Question	Response 1	Response 2	Response 3	Response 4	Responses 5
Q1: Has Coordination between natural resources staff and other installation departments and military staff been successful/effective?(0-4)	No coordination (0)	Minimal coordination (0.25)	Satisfactory coordination (0.50)	Effective coordination (0.75)	Highly effective coordination (1.0)
Q2: To what extent has the INRMP successfully supported other mission areas? (e.g. encroachment, BASH, range support, port operations, air operations, facilities management, etc.) (0-4)	Not supported (0)	Minimally supported (0.25)	Satisfactorily supported (0.50)	Well supported (0.75)	Very well supported (1.0)
Q3: To what extent has there been a net loss of training lands or mission-related operational/training activities? (0-4)	Mission activities are fully impeded; training activities cannot be conducted (0)	Mission/Training activities are somewhat impeded with workarounds (0.25)	Neutral (0.50)	No loss occurred (0.75)	Mission has seen benefits (1.0)
Q4: Does the Natural Resource program effectively consider current mission requirements? (0-4)	Strongly disagree (0)	Disagree (0.25)	Neutral (0.50)	Agree (0.75)	Strongly Agree (1.0)

Terms and Definitions:

Compliant INRMP - A compliant INRMP is defined as “a complete plan that meets the purposes of the Sikes Act (§101(a)(3)(A-C)), contains the required plan elements (§101(b)(1)(A-J)), and has been reviewed for operation and effect within the past 5 years (§101(2)(b)(2)).” Therefore, a compliant INRMP must be Sikes Act compliant and less than 5 years old. If the INRMP is greater than 5 years old, then it must have undergone a review for operation and effect within the past 5 years.

Review for Operation and Effect - A review for operation and effect is defined as “a comprehensive review by the Parties, at least once every 5 years, to evaluate the extent to which the goals and objectives of the INRMP continue to meet the purpose of the Sikes Act, which is to carry out a program that provides for the conservation and rehabilitation of natural resources on military installations.

Ecosystem Integrity - The term Ecosystem Integrity refers to the quality of state of being complete, unbroken condition, wholeness, entirety, unimpaired, without significant damage, good condition, or general soundness.

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APPENDIX L

MEMORANDA OF UNDERSTANDING

**MEMORANDUM OF UNDERSTANDING
AMONG
THE U.S. DEPARTMENT OF DEFENSE
AND
THE U.S. FISH AND WILDLIFE SERVICE
AND
THE INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES
FOR A
COOPERATIVE INTEGRATED NATURAL RESOURCE MANAGEMENT PROGRAM
ON MILITARY INSTALLATIONS**

A. PURPOSE

The purpose of this Memorandum of Understanding (MOU) is to establish a cooperative relationship between the U.S. Department of Defense (DoD), the U.S. Department of the Interior, Fish and Wildlife Service (FWS), and the State fish and wildlife agencies as represented by the International Association of Fish and Wildlife Agencies (IAFWA) in preparing, reviewing, and implementing integrated natural resource management plans (INRMPs) on military installations.

B. BACKGROUND

In recognition that military lands have significant natural resources, Congress enacted the Sikes Act in 1960 to address wildlife conservation and public access on military installations. The 1997 amendments to the Sikes Act require the DoD to develop and implement an INRMP for each military installation with significant natural resources. The INRMP must be prepared in cooperation with the FWS and the State fish and wildlife agency (States) and reflect the mutual agreement of the parties concerning conservation, protection, and management of fish and wildlife resources on military lands.

INRMPs provide for the management of natural resources, including fish, wildlife, and plants. They incorporate, to the maximum extent practicable, ecosystem management principles and provide the landscape necessary for the sustainment of military land uses. INRMPs allow for multipurpose uses of resources, including public access necessary and appropriate for those uses, provided such access does not conflict with military land use requirements. Effective partnering among the DoD, the FWS, and the States, initiated early in the planning process at national, regional, and the military installation levels, is essential to the development and implementation of comprehensive INRMPs. When such partnering involves the participation of all parties and synchronization of INRMPs with existing FWS and State natural resource management plans, the mutual agreement of all parties is achieved more easily. Consistent with the use of military installations to ensure the readiness of the Armed Forces, the purpose of INRMPs is to provide for the conservation and rehabilitation of natural resources on military lands. Thus, a clear understanding of land use objectives for military lands should enable DoD, the FWS, and the States to share a common understanding of land management requirements while preparing and reviewing INRMPs.

This MOU addresses the responsibilities of the Parties to facilitate optimum management of natural resources on military installations. It replaces a DoD-FWS MOU on "Ecosystem-based Management of Fish, Wildlife and Plant Resources on Military Lands" which expired May 17, 2004.

C. AUTHORITIES

This MOU is established under the authority of the Sikes Act, as amended, 16 U.S.C. 670a-670f, which requires the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations in cooperation with the FWS and the State fish and wildlife agencies. The DoD's primary mission is national defense. DoD manages approximately 30 million acres of land and waters under the Sikes Act to conserve and protect biological resources while supporting sustained military land use.

The FWS manages approximately 96 million acres of the National Wildlife Refuge System, and administers numerous fish and wildlife conservation and management statutes and authorities, including: the Fish and Wildlife Coordination Act, the Migratory Bird Treaty Act of 1918, the Endangered Species Act, the Marine Mammal Protection Act, the Bald and Golden Eagle Protection Act, the Anadromous Fish Conservation Act, the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, the Federal Noxious Weed Act, the Alien Species Prevention Enforcement Act of 1992, the North American Wetland Conservation Act, and the Coastal Barrier Resources Act.

The States in general possess broad trustee and police powers over fish and wildlife within their borders, including – absent a clear expression of Congress' intent to the contrary – fish and wildlife on Federal lands within their borders. Where Congress has given Federal agencies certain conservation responsibilities, such as for migratory birds or species listed as threatened or endangered under the Endangered Species Act, the States, in most cases, have cooperative management jurisdiction.

The Sikes Act (16 U.S.C. 670c-1) allows the Secretary of a military department to enter into cooperative agreements with States, local governments, nongovernmental organizations, and individuals to provide for the maintenance and improvement of natural resources, or to benefit natural and cultural resources research, on DoD installations.

The Sikes Act (16 U.S.C. 670f(b)) also encourages the Secretary of Defense, to the greatest extent practicable, to enter into agreements to use the services, personnel, equipment, and facilities, with or without reimbursement, of the Secretary of the Interior in carrying out the provisions of this section.

The Economy Act (31 U.S.C. 1535 and 1536) allows a Federal agency to enter into an agreement with another Federal agency for services, when those services can be rendered in a more convenient and cost effective manner by another Federal agency.

The Intergovernmental Cooperation Act of 1968 (P.L. 90-577 (82 Stat. 1098)) allows the "improvement of the administration of grants-in-aid to the States, to permit provision of reimbursable technical services to State and local government.

D. RESPONSIBILITIES

The Parties to this agreement hereby enter into a cooperative program of INRMP development and implementation with mutually agreed-upon fish and wildlife conservation objectives to satisfy the goals of the Sikes Act.

- 1. The DoD, the FWS and IAFWA (the Parties) mutually agree, in accordance with all applicable Federal, State and local laws and regulations:**
 - a. To meet at least annually to discuss implementation of this MOU. The DoD will coordinate the annual meeting and any other meetings related to this MOU. Proposed amendments to the MOU should be presented in writing to the parties at least 15 days prior to the annual meeting. The terms of this MOU and any proposed amendments may be reviewed at the annual meeting. The meeting may also review mutual Sikes Act accomplishments, research and technology needs, and other emerging issues.
 - b. To establish a Sikes Act Tripartite Working Group consisting of representatives from the Parties. This Working Group will meet at least quarterly to discuss and develop projects and documents to assist in the preparation and implementation of INRMPs and to discuss Sikes Act issues of national importance.
 - c. The Sikes Act Tripartite Working Group will encourage the establishment of INRMP Development and Implementation Teams to facilitate early communication during preparation, review, revision or implementation of an INRMP and to ensure that such INRMPs are comprehensive and implemented as mutually agreed.
 - d. Supplemental Sikes Act MOUs or other agreements may be developed at the regional and/or State level.
 - e. To recognize the current DoD and FWS Sikes Act Guidelines on <http://www.fws.gov> and <http://www.denix.osd.mil> as the guidance for communication and cooperation of the Parties represented by this MOU.
 - f. That none of the Parties to the MOU is relinquishing any authority, responsibility, or duty as required by law, regulation, policy, or directive.

- g. To engage in sound management practices for natural resource protection and management pursuant to this MOU with due regard for military readiness, the welfare of the public, native fish and wildlife, threatened and endangered species, and the environment.
- h. Consistent with DoD's primary military mission and to the extent reasonably practicable, to promote the sustainable multipurpose use of natural resources on military installations, to include hunting, fishing, trapping, and nonconsumptive uses such as wildlife viewing, boating, and camping.
- i. To designate the individuals listed below as the national representative from each signatory to participate in the activities pursuant to this MOU. Representatives may also be designated at the regional and local levels to participate in similar Sikes Act planning or coordination activities.
 - i. DoD: Conservation Team Leader, ODUSD (I&E) EM, 1225 Clark Street Suite 1500, Arlington, VA 22202-4336
 - ii. FWS: National Sikes Act Coordinator, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Room 400, Arlington, VA 22203.
 - iii. IAFWA: Executive Vice-President, IAFWA, 444 North Capitol Street, NW, Suite 544, Washington, DC 20001.

2. DoD agrees to:

- a. Communicate the establishment of this MOU to all DoD Components.
- b. Take the lead in the development of policies related to INRMP development and implementation and seek the cooperation of the FWS and the State fish and wildlife agencies during development, review, and implementation.
- c. Ensure distribution of the DoD and revised FWS Sikes Act Guidelines to all appropriate DoD offices at every level of command.
- d. Encourage military installations to invite appropriate FWS and State fish and wildlife agency offices to participate in developing and updating the INRMPs. All such invitations should be extended well in advance of the needed date for the product or work in order to facilitate meaningful participation by all three Parties.
- e. Encourage military installations to take advantage of FWS and State fish and wildlife agency natural resources expertise through the use of Economy Act transfers and cooperative agreements. Priority should be given to projects that:

- i. Sustain the military mission;
 - ii. Consider the strategic planning priorities of the FWS and the State fish and wildlife agency; and
 - iii. Effectively apply the principles of ecosystem management.
- f. Encourage military installation to identify INRMP project requirements and give priority to those that:
 - i. Ensure conservation of natural resources while sustaining military mission activities;
 - ii. Achieve compliance with Federal, State, and local laws; and
 - iii. Provide adequate staffing for the development and implementation of the INRMP.
- g. Discuss with the FWS and the State fish and wildlife agencies all issues of mutual interest related to the protection, conservation, and management of fish and wildlife resources on DoD installations, and obtain the mutual agreement of the FWS and the States regarding all INRMP provisions related to activities within their legal jurisdiction.
- h. Subject to mission, safety and security requirements, provide public access to military installations to facilitate the sustainable multipurpose use of its natural resources.
- i. Identify DoD natural resource research needs, and develop research proposals with input from FWS and/or the IAFWA.
- j. Encourage the Military Services to establish natural resources management liaisons to facilitate:
 - i. Coordination and mutual agreement of INRMPs;
 - ii. Development and implementation of cooperative regional and local natural resource conservation partnerships and conservation initiatives with FWS and State fish and wildlife agency offices; and
 - iii. Natural resources conservation technology transfer and training initiatives between the Military Services, Federal land management agencies, and State fish and wildlife agencies.

3. FWS agrees to:

- a. Communicate the establishment of this MOU to each FWS Regional Office and appropriate field stations in close proximity to military installations.
- b. Distribute the DoD and revised FWS Sikes Act Guidelines to each FWS Regional Office and appropriate field station in close proximity to military installations.
- c. Designate regional and field station FWS liaisons to develop partnerships and assist the DoD in implementing joint management of ecosystem-based natural resource management programs.
- d. Identify FWS personnel needs for the development, review, updating, and implementation of INRMPs and expedite the fulfillment of those needs, as appropriate, based on funding and FWS priorities.
- e. Provide technical assistance to the DoD in managing Federal trust resources such as endangered species, migratory birds, interjurisdictional fisheries, invasive species, contaminants, wetlands, coastal resources, law enforcement, or other natural resource issues within the scope of FWS responsibilities, funding constraints and expertise.
- f. Work with the DoD to coordinate military natural resource research efforts and the creation of a consolidated source of information, with a particular emphasis on research on listed species and species at-risk.
- g. Disseminate upcoming proposed listing and critical habitat designations to DoD Headquarters offices and potentially affected installations as part of outreach efforts before the Federal Register publication of such proposed designations.
- h. Provide law enforcement support to protect fish, wildlife and plant resources on military installations within the jurisdiction of the FWS.

4. IAFWA agrees to:

- a. Communicate the establishment of this MOU to each State fish and wildlife agency director and appropriate field offices.
- b. Distribute the DoD and revised FWS Sikes Act Guidelines to each State fish and wildlife agency director and appropriate field offices.
- c. Facilitate and coordinate with the States to encourage them to:

- i. Participate in the development, review, updating and implementation of INRMPs upon request of military installations.
- ii. Designate State liaisons to assist in developing partnerships and to assist the DoD in implementing natural resource conservation and management programs.
- iii. Identify State wildlife management areas in close proximity to military installations and, where appropriate, participate in the joint management of ecosystem-based natural resource management projects.
- iv. Provide technical assistance to the DoD in managing natural resource issues such as endangered species, migratory birds, interjurisdictional fisheries, invasive species, contaminants, wetlands, coastal resources, law enforcement, outdoor recreation, or other natural resource issues within the scope of State responsibility and expertise.
- v. Identify State personnel needs for the development, review and implementation of INRMPs and expedite the fulfillment of these needs as appropriate based on available funding and State priorities.
- vi. Coordinate current and proposed State natural resource research efforts with those that may relate to DoD installations.
- vii. Coordinate with DoD installations in development of comprehensive state wildlife conservation plans.

E. STATEMENT OF NO FINANCIAL OBLIGATION

This MOU does not impose any financial obligation on the part of any signatory.

F. ESTABLISHMENT OF COOPERATIVE AGREEMENTS

The Parties are encouraged to enter into cooperative agreements to coordinate and implement natural resource management on military installations. If fiscal resources are to be transferred in support of this MOU, the Parties must develop a separately funded cooperative agreement. Such cooperative agreements may be entered into under the authorities of the Sikes Act (16 U.S.C. 670a-670f, as amended) and the Economy Act (31 U.S.C. 1535 and 1536). Each funded cooperative agreement shall include a work plan and a financial plan that identify goals, objectives, and a budget and payment schedule. A cooperative agreement to accomplish a study or research also will include a study design and methodology in the work plan. It is understood and agreed that any monies allocated via these cooperative agreements shall be expended in accordance with its terms and in the manner prescribed by the fiscal regulations and/or administrative policies of the party making the funds available.

G. AMENDMENTS

This MOU may be amended at any time by mutual agreement of the parties in writing.

H. TERMINATION

Any party to this agreement may remove itself from this MOU upon sixty (60) days written notice to the other parties.

I. EFFECTIVE DATE AND DURATION

This MOU will be in effect upon date of final signature and will continue for five years from date of final signature. The parties will meet 6 months prior to the expiration of this MOU to discuss potential modifications and renewal terms.

1/31/06

Date

Alex A. Buchler

Assistant Deputy Under Secretary of Defense
(Environment, Safety and Occupational Health)
U.S. Department of Defense

1/31/06

Date

A Dale Hall

Director
Fish and Wildlife Service
U.S. Department of Interior

1/31/06

Date

John Brough

Executive Vice-President
International Association of Fish and Wildlife Agencies



DEPARTMENT OF THE NAVY
NAVAL BASE POINT LOMA
140 SYLVESTER ROAD
SAN DIEGO, CALIFORNIA 92106-3521

IN REPLY REFER TO:
5090
Ser 00/590
5 Dec 11

From: Commanding Officer, Naval Base Point Loma
To: Commander, Navy Region Southwest (N40)

Subj: CALIFORNIA COASTAL NATIONAL MONUMENT ANNUAL
ASSESSMENT


Ref: (a) MOU Between U.S. Navy and BLM Regarding the CCNM
of 5 Nov 07

1. In compliance with paragraph IV.A.7 of reference (a), this memo satisfies the annual reporting requirement for Naval Base Point Loma. The following information describes any known impacts to the portions of the California Coastal National Monument (CCNM) off the western side of Naval Base Point Loma and any U.S. Navy actions or activities related to this portion of the CCNM.

2. Naval Base Point Loma (NBPL) maintains an Integrated Natural Resources Management Plan (INRMP). The NBPL INRMP is in the process of being updated and will cover the coastline adjacent to the CCNM rocks which are the subject of reference (a).

3. There have been no known impacts, actions, or activities that have impacted the CCNM site nor have there been any changes of use to the adjacent coastline.

4. For further information, please contact the Command Judge Advocate General, LT Jasmine Scott at (619) 553-7190.


S. F. ADAMS

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APPENDIX M

ENVIRONMENTAL ASSESSMENT FOR NBPL INRMP

DEPARTMENT OF DEFENSE
DEPARTMENT OF THE NAVY

**FINDING OF NO SIGNIFICANT IMPACT FOR THE ENVIRONMENTAL ASSESSMENT ON
THE INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FOR NAVAL BASE POINT
LOMA, SAN DIEGO, CALIFORNIA**

Pursuant to the Council on Environmental Quality Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) implementing the National Environmental Policy Act and Navy regulations (32 CFR Part 775) and Chief of Naval Operations Instruction 5090.1C, CH-1, the Department of the Navy (Navy) gives notice through this Finding of No Significant Impact (FONSI) that an Environmental Assessment (EA) has been finalized and an Environmental Impact Statement (EIS) is not required for the proposal to implement the 2012 Integrated Natural Resources Management Plan (INRMP) prepared for Naval Base Point Loma (NBPL), San Diego, California.

A Notice of Availability of the Draft EA was published on July 28, 2012 in the San Diego Union Tribune Newspaper. The Draft EA was available for public review at the Point Loma Public Library, the Ocean Beach Public Library, and on the Navy Region Southwest public website. The public comment period on the Draft EA was from July 28 to August 11, 2012 and no public comments were received.

Proposed Action: The Proposed Action is to implement the NBPL 2012 INRMP consistent with the Sikes Act Improvement Act. The Proposed Action includes continuing NBPL's existing natural resource management practices and the addition of new management actions, particularly for the properties that have become a part of NBPL since the development and implementation of the prior 2002 INRMP. These properties include NBPL Old Town Center, Miramar Fuel Pipeline, Mount Soledad Signal Station, Joint Regional Correctional Facility Southwest, La Jolla Nautical Mile and eleven NBPL housing areas. All natural resource management measures in the 2012 INRMP would be implemented in the context of the Installation's mission support needs and regional conservation management setting.

The Proposed Action would provide the following benefits to the management of natural resources on NBPL: use of the 2012 INRMP in combination with other NBPL planning documents; integration of the natural resources program with other NBPL military activities; and, provision of explicit goals and objectives under which natural resource projects would be evaluated and conducted.

Existing Conditions: The 2012 INRMP addresses natural resources management on NBPL on peninsula facilities and off peninsula facilities, including NBPL Old Town Center, Miramar Fuel Pipeline, Mount Soledad Signal Station, Joint Regional Correctional Facility, La

FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FOR NAVAL BASE POINT LOMA, SAN DIEGO, CALIFORNIA

Jolla Nautical Mile, and eleven Naval housing areas. Within the NBPL 2012 INRMP, in addition to terrestrial resources, marine resources are also analyzed up to 300 yards (274 meters) seaward.

On peninsula natural resources include terrestrial and aquatic vegetation and wildlife. Special Status Species observed on NBPL include: Orcutt's spineflower (Federal and State Endangered); Black abalone (Federal Endangered); White abalone (Federal Endangered); Western Snowy Plover (Federal Threatened and Species of Special Concern); Coastal California Gnatcatcher; (Federal Threatened and Species of Special Concern); California Least Tern (Federal and State Endangered); Least Bell's Vireo (Federal and State Endangered); Swainson's Hawk (Birds of Conservation Concern State Status and State Threatened); California Black Rail (Birds of Conservation Concern State Status and State Threatened); Bank Swallow (State Threatened); Bald Eagle (State Threatened); American Peregrine (Birds of Conservation Concern State Status); and Pacific Pocket Mouse (Federal Endangered and Species of Special Concern). In addition to the Federal and State special status species above, the Great Egret, Osprey and California Brown Pelican are birds that have been observed on NBPL that are protected by the Migratory Bird Treaty Act.

Five marine mammal species protected under the Marine Mammal Protection Act have been sighted and/or documented within the vicinity of NBPL. These include the harbor seal, California sea lion, bottlenose dolphin, Pacific white-sided dolphin, and common dolphin.

Special status species that have been sighted in the off peninsula NBPL properties include Coastal California Gnatcatcher (Federal Threatened and State Species of Special Concern) at the NBPL Serra Mesa Housing Area and the Belding's orange-throated whiptail (State Species of Special Concern) at the NBPL Chesterton Housing Area.

Alternatives Analyzed: The following Alternatives were analyzed in the EA.

Alternative 1: Proposed Action (as described above).

Alternative 2: No Action Alternative. Natural resources would continue to be managed in accordance with the 2002 INRMP for NBPL.

The Proposed Action is selected for implementation because it meets the purpose and need of the project and optimizes current and future natural resources management on NBPL.

Environmental Effects:

FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FOR NAVAL BASE POINT LOMA, SAN DIEGO, CALIFORNIA

Environmental Effects:

Land Use: The Proposed Action would develop an outdoor recreation plan and create natural resources-based outdoor recreation opportunities. This would result in positive impacts from the improvement of the quality of life and morale for Navy personnel and their families through the provision of outdoor activities and recreational experiences. No significant impacts on land use would occur from implementation of the Proposed Action while beneficial impacts may result to recreational uses.

Air Quality: Mechanized activities associated with the Proposed Action could potentially create dust and gaseous emissions. These emissions are expected to be minor, temporary, and local to the project area. Any air permits necessary for specific projects within the 2012 INRMP would be obtained prior to implementation of the project. Therefore, implementation of the Proposed Action would not result in significant impacts on air quality.

Topography, Geology, and Soils: Beneficial impacts to geological resources at NBPL would occur from implementation of the 2012 INRMP. Protection of NBPL's soil and geological resources would occur through erosion prevention and soil rehabilitation practices. Therefore, implementation of the Proposed Action would not have a significant impact on topography, geology, and soils and may result in beneficial impacts to these resources.

Water Resources: Beneficial effects would occur to water resources from the erosion control measures contained in the 2012 INRMP. The reduction of sediment within the effluent in the storm water drainages that cross NBPL on peninsula facilities would result in improved water quality in San Diego Bay. The recovery of unstable drainages would reduce soil erosion and sedimentation within area streams on all NBPL properties. The minimization of fertilizer and pesticide use would improve surface water quality by reducing nutrients and pollutants entering waterways and streams. Therefore, no significant impacts on water resources would occur from implementation of the Proposed Action and beneficial impacts may result for water resources.

Biological Resources: The Proposed Action would result in multiple long-term beneficial effects on biological resources. Native vegetation would benefit from habitat improvement measures such as noxious weed and invasive plant removal and revegetation with native plant species. Beneficial effects to wildlife species, particularly songbirds and small mammals, would occur from the control of feral animal populations on NBPL. Beneficial effects to herons and egrets would result from the implementation of management provisions per a Revised Heron and Egret Management Plan. Long-term beneficial effects

FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FOR NAVAL BASE POINT LOMA, SAN DIEGO, CALIFORNIA

on certain bird and bat species would result from the installation of bird and bat boxes.

Under the Proposed Action, there would also be long-term beneficial effects to Federal and State listed threatened and endangered species (and other protected and sensitive species) from the regularly planned surveys for these species on NBPL facilities. Long-term beneficial effects on abalone within the San Diego Bay would occur from the conduct of abalone management measures contained within the Abalone Recovery and Management Plan. Therefore, the Proposed Action would not result in significant impacts to biological resources and beneficial impacts would be realized.

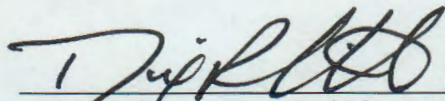
Hazardous Materials and Wastes: The Proposed Action would result in long-term beneficial effects on hazardous materials and waste management because of the reduction in the use of pesticides, rodenticides, and herbicides on NBPL property. Therefore, there would be no significant impact to hazardous materials and waste management with implementation of the Proposed Action with achievement of beneficial impacts.

Cumulative Impacts: Potential cumulative impacts of the proposed action, occurring by implementation of the NBPL INRMP are beneficial and no foreseeable adverse impacts are found.

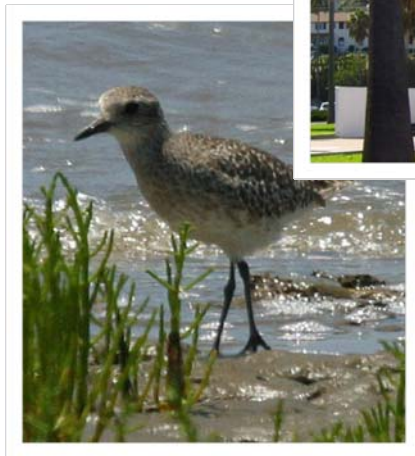
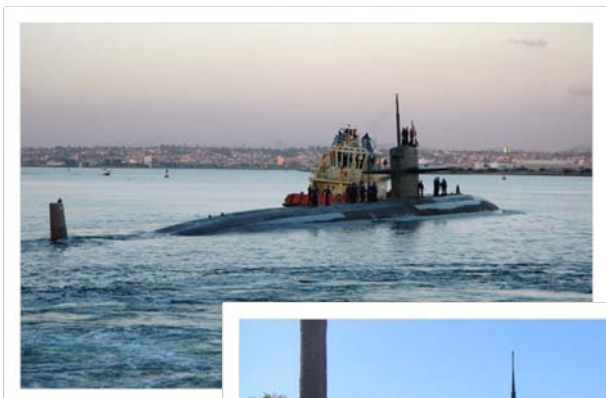
Finding: Based on the information and science analyzed during preparation of the Final EA, and in coordination with these Agencies during the development of the NBPL 2012 INRMP: (1) United States Fish and Wildlife Service, Carlsbad Field Office; (2) California Department of Fish and Game, South Coast Region Office; (3) National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Region Office, the Navy finds that implementation of the Proposed Action will not significantly affect the quality of the human or natural environment or generate significant controversy.

The Final EA prepared by the Navy on this action is on file, and interested parties may obtain a copy by contacting NAVFAC SW, Coastal IPT, GRUE00.RL, 1220 Pacific Hwy, San Diego, CA 92132.

10/26/12
Date


RADM Dixon R. Smith, USN
Commander, Navy Region Southwest

FINAL
ENVIRONMENTAL ASSESSMENT
ADDRESSING THE
INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
FOR NAVAL BASE POINT LOMA, SAN DIEGO, CALIFORNIA



OCTOBER 2012

Prepared by the U.S. Department of the Navy

In accordance with Chief of Naval Operations Instruction 5090.1C CH-1
Pursuant to National Environmental Policy Act Section 102(2)(C)

TITLE PAGE

**FINAL ENVIRONMENTAL ASSESSMENT ADDRESSING THE
INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FOR NAVAL BASE POINT LOMA,
SAN DIEGO, CALIFORNIA
OCTOBER 2012**

Lead Agency: U.S. Department of the Navy.

Title of Proposed Action: Implementation of an Integrated Natural Resources Management Plan (INRMP) at Naval Base Point Loma (NBPL), California.

Designation: Final Environmental Assessment (EA).

Prepared by: U.S. Department of the Navy

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LIST OF ACRONYMS AND ABBREVIATIONS

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter	DoD	Department of Defense
MSL	mean sea level	DoDI	Department of Defense Instruction
APE	Area of Potential Effect	Navy	Department of the Navy
AQCR	Air Quality Control Region	EA	Environmental Assessment
BCDC	San Francisco Bay Conservation and Development Commission	EFH	Essential Fish Habitat
BMP	best management practice	EIS	Environmental Impact Statement
CAA	Clean Air Act	EO	Executive Order
CAAQS	California Ambient Air Quality Standards	ESA	Endangered Species Act
CARB	California Air Resources Board	FCTCPAC	Fleet Combat Training Center Pacific
CCC	California Coastal Commission	FITCPAC	Fleet Intelligence Training Center Pacific
CDFG	California Department of Fish and Wildlife	FONSI	Finding of No Significant Impact
CEQ	Council on Environmental Quality	FY	Fiscal Year
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	GIS	geographical information system
CESA	California Endangered Species Act	GHG	greenhouse gas
CFR	Code of Federal Regulations	HCP	Habitat Conservation Plan
CMP	Coastal Management Program	HQ	Headquarters
CNO	Chief of Naval Operations	INRMP	Integrated Natural Resources Management Plan
CNPS	California Native Plant Society	IPM	integrated pest management
CO	carbon monoxide	IPMP	Integrated Pest Management Plan
CO ₂	carbon dioxide	ERP	Environmental Restoration Program
CWA	Clean Water Act	LID	Low Impact Development
CZMA	Coastal Zone Management Act	MBTA	Migratory Bird Treaty Act
DFSP	Defense Fuel Supply Point	MCAS	Marine Corps Air Station
		mg/m^3	milligrams per cubic meter
		MSCP	Multiple Species Conservation Program

MSF	Magnetic Silencing Facility	RONA	Record of Non-Applicability
NAAQS	National Ambient Air Quality Standards	SDAB	San Diego Air Basin
NAVFAC SW	Naval Facilities Engineering Command Southwest	SDCAPCD	San Diego County Air Pollution Control District
NBPL	Naval Base Point Loma	SDMAI	San Diego Metro Area Installations
NEPA	National Environmental Policy Act	SIP	State Implementation Plan
NMAWC	Naval Mine and Anti-submarine Warfare Complex	SO _x	sulfur oxide
NMFS	National Marine Fisheries Service	SPAWAR	Space and Naval Warfare Systems Command
NO ₂	nitrogen dioxide	SSC Pacific	Space and Naval Warfare Systems Center Pacific
NOA	Notice of Availability	SSPP	Strategic Sustainability Performance Plan
NOAA	National Oceanic and Atmospheric Administration	U.S.C.	United States Code
NO _x	nitrogen oxide	USACE	U.S. Army Corps of Engineers
NPDES	National Pollutant Discharge Elimination System	USEPA	U.S. Environmental Protection Agency
NPS	National Park Service	USFWS	U.S. Fish and Wildlife Service
NTC	Naval Training Center	UST	underground storage tank
O ₃	ozone	VOC	volatile organic compound
OPNAVINST	Chief of Naval Operations Instruction		
Pb	lead		
PM	particulate matter		
PM _{2.5}	particulate matter equal to or less than 2.5 microns in diameter		
PM ₁₀	particulate matter equal to or less than 10 microns in diameter		
ppb	parts per billion		
ppm	parts per million		
PPV	Public-Private Venture		
RCRA	Resource Conservation and Recovery Act		

EXECUTIVE SUMMARY

Proposed Action

The U.S. Department of the Navy (Navy) is proposing to implement a revised Integrated Natural Resources Management Plan (INRMP) for Naval Base Point Loma (NBPL), consistent with the goals and objectives established in the Sikes Act, as amended (16 United States Code [U.S.C.] 670a et seq.), and with guidance and regulations specified in Department of Defense Instruction (DoDI) 4715.03 (*Natural Resources Conservation Program*, 2011), Chief of Naval Operations Instruction (OPNAVINST) 5090.1C CH-1 (*Environmental Readiness Program Manual* (18 July 2011), and Chief of Naval Operations (CNO) *Integrated Natural Resources Management Program Guidance* (2006). The previous INRMP was prepared in July 2002, and the revised 2012 INRMP provides natural resources management strategies for NBPL which include all properties addressed in the 2002 INRMP and several additional off peninsula sites (properties not on the Point Loma peninsula) that have since been assigned to NBPL.

The Proposed Action includes continuing NBPL's existing natural resources management prescriptions along with the prescription of several new management actions, particularly for sites that have become a part of NBPL since the 2002 INRMP. These sites include: NBPL Old Town Center; Miramar Pipeline; Mount Soledad Signal Station; Joint Regional Correctional Facility Southwest; La Jolla Nautical Mile; and, 11 NBPL housing areas. All management prescriptions would be integrated and implemented in the context of the installation's mission support needs and regional setting. As a result of the growth in the San Diego region, the impacts of planning and future development in San Diego County and NBPL necessitate coordinated planning for land and resource management. Natural resources management on NBPL must be integrated with other disciplines, programs, and planning beyond the scope of traditional fish and wildlife management on U.S. Navy installations.

Under the Proposed Action, the INRMP would be reviewed and updated annually as needed. Additionally, INRMPs must be reviewed for operation and effect no less than once every 5 years by the installation, the US Fish and Wildlife Service (USFWS), and the California Department of Fish and Game (CDFG). The Proposed Action would have additional benefits that include: (1) better integration of the INRMP with other installation planning documents, (2) improved integration of the natural resources program with other NBPL activities, (3) explicit goals and objectives under which ongoing and future natural resources projects would be implemented, and (4) a systematic approach to integrated natural resources management by documenting present and future program implementation.

Purpose of and Need for the Project

The purpose of implementing the INRMP is to chart a course for natural resources management on NBPL, consistent with the Sikes Act as amended and Department of Defense (DoD) and Navy policy and guidance regarding INRMPs. The purpose of the INRMP is to: initiate an ecosystem-based conservation program that provides for conservation and rehabilitation of natural resources in a manner that is consistent with the military mission; integrate and coordinate all natural resources management activities; provide for sustainable multipurpose uses of natural resources; and, provide for public access for use of natural resources subject to safety

and military security considerations. A majority of the facilities associated with NBPL are on restricted military lands and would remain restricted. However, for the off-installation lands now addressed in the INRMP, controlled public access would be allowed.

The need for implementing an INRMP revision is to address changes to NBPL facilities, natural resources, desired natural resources projects and initiatives, and land use patterns in the area that have occurred since 2002. NBPL is required to update the 2002 INRMP and initiate management actions for the off peninsula sites including NBPL Old Town Center, the Miramar Pipeline, Mount Soledad Signal Station, Joint Regional Correctional Facility Southwest, La Jolla Nautical Mile, and 11 NBPL housing areas now under the jurisdiction of the Navy Region Southwest. Both the INRMP and the natural resources program that it supports must meet the guidance and regulations provided in DoDI 4715.03, OPNAVINST 5090.1C CH-1, and the CNO *Integrated Natural Resources Management Program Guidance*. These guidance documents and policies collectively require a plan and management approach consistent with mission support, multipurpose use, integration, ecosystem- or landscape-level management, and environmental compliance and stewardship.

Alternatives Analysis

Reasonable Alternative Screening Factors. Under NEPA, reasonable alternatives to implement a proposed action must be considered in an EA. A range of reasonable alternatives was developed. To be considered reasonable, an alternative must be consistent with the criteria listed below:

- 1) Be based on the principles of ecosystem management;
- 2) Provide for sustainable multipurpose use of natural resources;
- 3) Maintain compliance with relevant environmental regulations;
- 4) Provide for public access for use of natural resources subject to safety and military security considerations;
- 5) Establish specific natural resources management objectives and timeframes for the Proposed Action and;
- 6) Prevent loss in the capability of military lands to support the military mission of the installation.

The Navy's policy is to analyze at least one action alternative in an EA, other than the Proposed Action, unless it would not be practical to do so (OPNAVINST 5090.1C CH-1, Appendix N, Navy Supplemental Environmental Planning Policy, para. 3.3b[4][a]). For this EA, only the Proposed Action and No Action Alternative were deemed to be reasonable alternatives and were carried forward for detailed analysis.

The Proposed Action would encompass the consideration of a wide variety of resource management practices and projects, depending on current environmental conditions and ecological considerations. Therefore, within the INRMP, there are many possible alternatives for the management of natural resources on the military installation. All resource management objectives in the INRMP would result in beneficial impacts on resources.

Alternative Considered but Eliminated from further Detailed Analysis. A compliance-driven management alternative to the Proposed Action was initially considered, which would take a minimal approach to management and only manage natural resources components that are required by laws or regulations. Under this alternative, an ecosystem-based approach would not be implemented; rather, management actions would only be implemented if there was a possibility of violating a law, such as the Clean Water Act (CWA) or the Endangered Species Act (ESA). While it would ensure that NBPL would be less likely to receive a notice of violation for noncompliance with natural resource regulations, this alternative would not comply with the intent of the Sikes Act for natural resources management.

The Sikes Act requires that the INRMP be developed to ensure that the management approach for resources is ecosystem-based, and thus goes beyond simple compliance. According to the Sikes Act, the vision of an installation INRMP is to ensure the sustainability of all ecosystems within and near the installation, and to ensure no net loss of the installation's capability to support the military mission. To meet the intent of the Sikes Act, the DoD adopted an ecosystem-based management approach as the basis for future management of DoD lands and waters through applying the principles of adaptive management and through collaborating with internal and external parties (DoDI 4715.03). Therefore, the compliance-driven management alternative would not meet the intent of the Sikes Act and was eliminated from further detailed analysis in this EA.

No Action Alternative

The No Action Alternative to the Proposed Action would result in continued management as characterized in the 2002 INRMP for NBPL. This alternative represents the status quo. Under the No Action Alternative, natural resources management would continue as it has since the 2002 INRMP was implemented and would not include management prescriptions for off peninsula sites that have since become part of NBPL. The off peninsula sites include: NBPL Old Town Center; Miramar Pipeline; Mount Soledad Signal Station; Joint Regional Correctional Facility Southwest; La Jolla Nautical Mile; and, 11 NBPL housing areas. However, the installation has established measures and programs for the management of water resources to ensure they are managed in compliance with Federal, state and local environmental laws and regulations.

Summary of Environmental Effects from the Proposed Action and No Action Alternative

Table E-1 presents a summary of the potential environmental impacts that would occur from implementation of the Proposed Action and the No Action Alternative. A more detailed analysis table is shown in **Section 3.2**.

Table E-1. Summary of Environmental Impacts

Environmental Resource	Proposed Action	No Action Alternative
Land Use	Long-term, minor, beneficial impacts.	Beneficial impacts.
Air Quality	Short-term, minor impacts on air quality.	No significant impacts or incremental beneficial impacts.
Topography, Geology, and Soils	No impacts on topography or geology. Long-term, minor, beneficial effects and short-term, negligible effects on soils.	Beneficial impacts.
Water Resources	Long-term, minor, beneficial effects on water supply and surface water quality.	Beneficial impacts.
Biological Resources	Long-term, minor to moderate, beneficial effects on vegetation. Long-term, minor, beneficial effects on wildlife and protected and sensitive species.	Beneficial impacts.
Hazardous Materials and Wastes	Long-term, minor, beneficial effects.	No significant impacts.

Cumulative and Other Impacts

Natural resource management objectives for NBPL under the Proposed Action would be consistent with and benefit other existing, approved, and proposed plans in the region as discussed in detail in Section 1.7 of the INRMP. The primary goal of the INRMP is to implement an ecosystem-based conservation program that provides for conservation and rehabilitation of natural resources in a manner that is consistent with the military mission and environmental laws and regulations; integrates and coordinates all natural resources management activities and provides for sustainable multipurpose uses of natural resources. Thus, by design, the Proposed Action would be consistent with the military mission on NBPL, including on- and off-installation land uses; on- and off-installation topography, geology, and soils; on- and off-installation water resources management; on- and off-installation biological resources management; and in compliance with environmental laws and regulations.

Implementation of the Proposed Action, when considered with other ecosystem-based management planning programs being implemented in the San Diego region, would provide beneficial, cumulative effects on the region's land use; topography, geology, and soils; water resources; biological resources; and hazardous materials and waste management.

The potential greenhouse gas (GHG) emissions resulting from implementation of the Proposed Action would primarily be from motorized vehicles transporting personnel and materials to and from worksites. The potential effects of GHG emissions are by nature global and cumulative, as most individual sources of GHG emissions are not large enough to have an appreciable effect on global climate change. Therefore, an appreciable impact on global climate change would only occur when GHG emissions associated with the alternatives are combined with GHG emissions from other man-made activities on a global scale.

The effects of the Proposed Action, when added to the effects from the cumulative projects, are minor and not large enough to have an appreciable effect on GHGs and climate change. Therefore, no significant cumulative impacts on GHG and global climate change would occur from implementation of the Proposed Action.

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**FINAL
ENVIRONMENTAL ASSESSMENT ADDRESSING THE
INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN FOR NAVAL BASE POINT LOMA
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1. Purpose of and Need for the Project

This Environmental Assessment (EA) describes and analyzes the U.S. Department of the Navy's (Navy) proposal to implement the 2012 Integrated Natural Resources Management Plan (INRMP) for Naval Base Point Loma (NBPL). This section presents background information, a description of the location and facilities of NBPL, the purpose of and need for implementing the Proposed Action, a statement of the decision to be made, an overview of potential environmental issues, a summary of key environmental compliance requirements, and an introduction to the organization of this document.

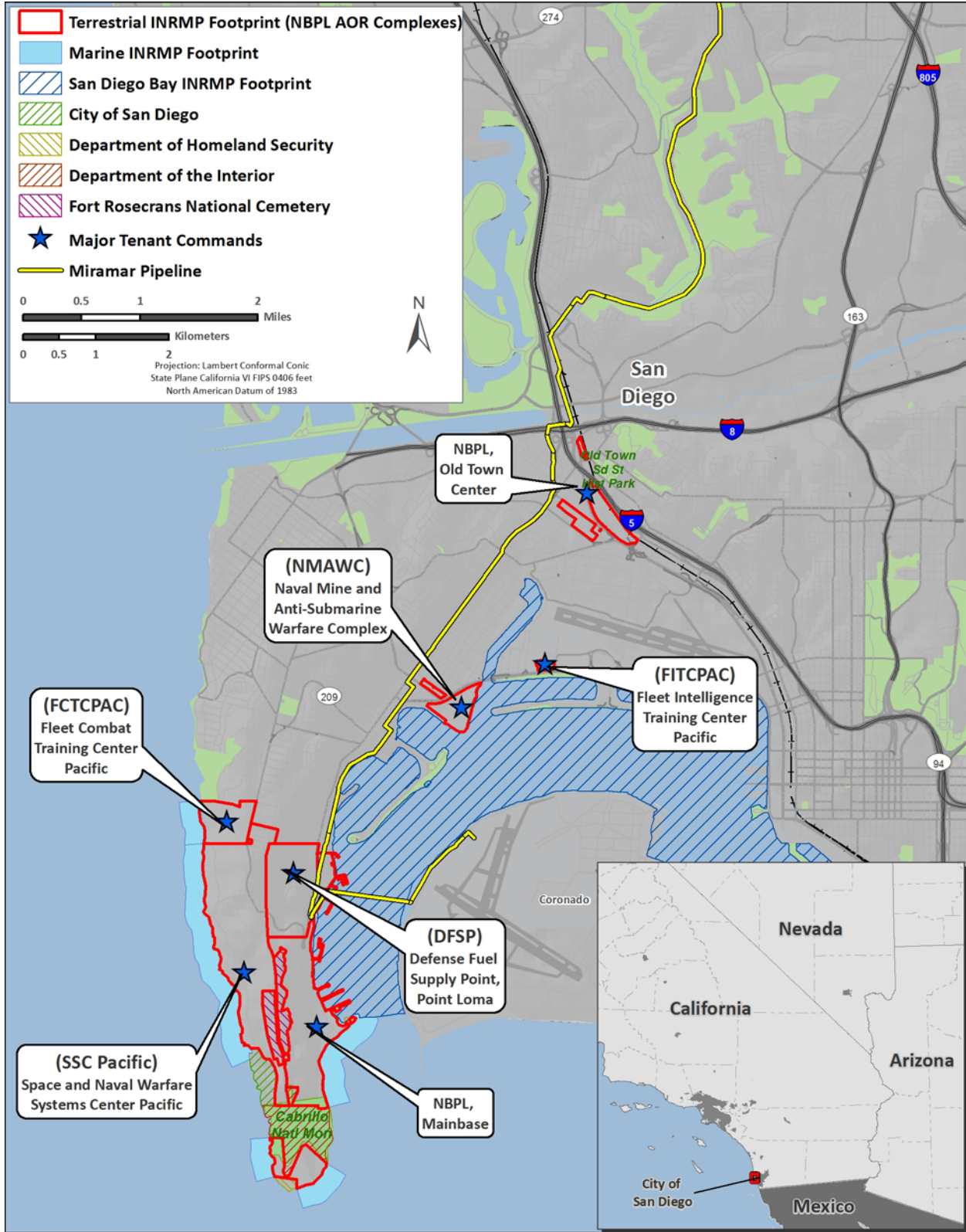
1.1 Introduction

The Navy is proposing to implement the 2012 INRMP for NBPL, to be consistent with the goals and objectives established in the Sikes Act, as amended (16 United States Code [U.S.C.] 670a et seq.), and with guidance and regulations specified in Department of Defense Instruction (DoDI) 4715.03 (*Natural Resources Conservation Program*, 2011), Chief of Naval Operations Instruction (OPNAVINST) 5090.1C CH-1 (*Environmental Readiness Program Manual*, 18 July 2011), and the Chief of Naval Operations (CNO) *Integrated Natural Resources Management Program Guidance* (U.S. Navy 2006a). The INRMP would provide natural resources management strategies for NBPL, which includes all properties addressed in the 2002 INRMP, as well as off peninsula sites (properties not on the Point Loma peninsula). These sites include: NBPL Old Town Center; Miramar Pipeline; Mount Soledad Signal Station; Joint Regional Correctional Facility Southwest; La Jolla Nautical Mile; and, 11 housing areas associated with NBPL. The 11 housing areas are Silvergate, Naval Submarine Base, Admiral Hartman, Beech Street Knolls, Chesterton, Gateway Village, Mira Mesa Ridge, Park Summit, Village at Naval Training Center (NTC), Village at Serra Mesa, and Vista Ridge. None of these sites were previously addressed in the 2002 INRMP.

1.2 Project Location Description, Regional Map, and Project Site Map

NBPL is in San Diego County, California (see **Figure 1-1**), and is composed of several facilities that total approximately 1,918.43 acres (see **Table 1-1**). These sites include: NBPL Old Town Center; Miramar Pipeline; Mount Soledad Signal Station; Joint Regional Correctional Facility Southwest; La Jolla Nautical Mile; and, 11 NBPL housing areas (see **Figures 1-1** and **1-2**). All NBPL facilities occur within San Diego County, California (U.S. Navy 2012).

In addition to terrestrial resources, the INRMP footprint addresses aquatic and marine resources up to 300 yards (274 meters) seaward (beyond the mean lower low water line) of the NBPL peninsula. An additional 687 acres of in-water resources are within the NBPL boundary, as shown in the Marine INRMP footprint in **Figure 1-1**. Other in-water areas adjacent to NBPL properties north of Ballast Point are addressed in the San Diego Bay INRMP (U.S. Navy et al. 2011).



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 1-1. Major Complexes and Agencies on NBPL

Table 1-1. NBPL Facilities

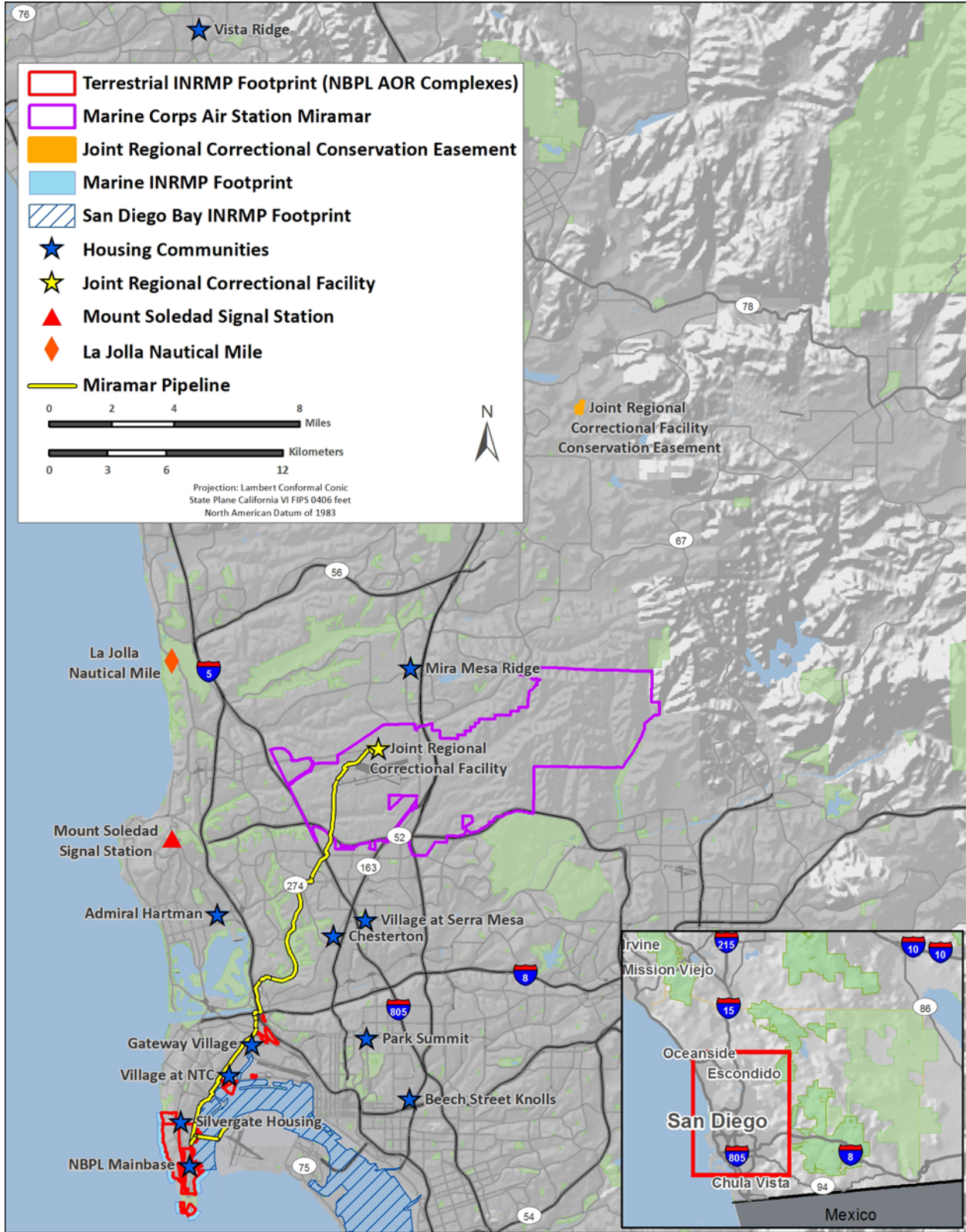
NBPL Facility	NBPL Facility Sizes (acres)
NBPL Mainbase	301
Space and Naval Warfare Systems Center Pacific (SSC Pacific)	615
Fleet Combat Training Center Pacific (FCTCPAC)	94
Naval Mine and Anti-submarine Warfare Complex (NMAWC)	63
Fleet Intelligence Training Center Pacific (FITCPAC)	7
Defense Fuel Supply Point (DFSP) Point Loma	217
NBPL Old Town Center	59
Miramar Pipeline	19.39
Mount Soledad Signal Station	6
Joint Regional Correctional Facility Southwest	16
La Jolla Nautical Mile	0.04
Eleven Navy Housing Communities	521
Total	1,918.43

Source: U.S. Navy 2012, U.S. Navy 2011, U.S. Navy 2009a

1.2.1 NBPL on Peninsula Facilities

1.2.1.1 Mainbase

NBPL Mainbase occupies approximately 301 acres of land on the southern half of the Point Loma Peninsula from the Point Loma ridge to San Diego Bay (**Figure 1-3**). Much of the land composing Mainbase is on unstable hillsides with more than 25 percent slopes. Of the existing land area, approximately 114 acres are currently being used to support the mission of Mainbase, while the remaining undeveloped land is not suitable for development, primarily because the terrain is too steep. Large areas of vacant land must be maintained as buffers between ordnance storage and handling points on Mainbase and all public access routes and facilities. These zones, known as Explosive Safety Quantity Distance arcs, minimize the risk to the public in the event of an explosive accident at Mainbase. Another constraint to development on Mainbase is the electromagnetic interference-free zone surrounding the deperming facility at the Magnetic Silencing Facility (MSF). Deperming is a procedure that removes a vessel’s latent magnetic signature to reduce the probability of detection by other vessels. Mainbase land uses include operations, training, administration, housing, storage, and shops.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 1-2. Navy Housing Communities, Miramar Pipeline, Mount Soledad Signal Station, and La Jolla Nautical Mile

1.2.1.2 Space and Naval Warfare Systems Center Pacific (SSC Pacific)

SSC Pacific, one of the U.S. Navy's principal research, development, test, and evaluation centers, occupies the largest portion of land of the eight major areas of NBPL, with 615 acres in four main locations: Topside, Bayside, Seaside, and South Tip (**Figure 1-3**). SSC Pacific facilities include storage areas, research laboratories, and public works shops. SSC Pacific Bayside provides waterfront access and berthing capabilities for SSC Pacific's research activities, such as the marine mammal program.

1.2.1.3 Naval Mine and Anti-submarine Warfare Command, Pacific (NMAWC)

NMAWC is west of Harbor Island and northeast of Shelter Island on San Diego Bay (**Figure 1-3**). It is bordered on the north by Harbor Drive, a major thoroughfare. Nimitz Boulevard intersects Harbor Drive at the main entrance to NMAWC. The southern, eastern, and western sides of the NMAWC are bordered by tidelands administered by the San Diego Unified Port District. These tidelands are used as a commercial fishing basin with related shoreside support facilities.

NMAWC covers approximately 63 acres of land and includes 1,750 feet of frontage property on San Diego Bay. A portion of land now occupied by NMAWC was transferred from the Naval Training Center during the regionalization process in 1998. Current land use includes buildings and facilities associated with the training operations, bachelor quarters, administration and recreation facilities, a marina, and picnic areas.

1.2.1.4 Fleet Combat Training Center Pacific (FCTCPAC)

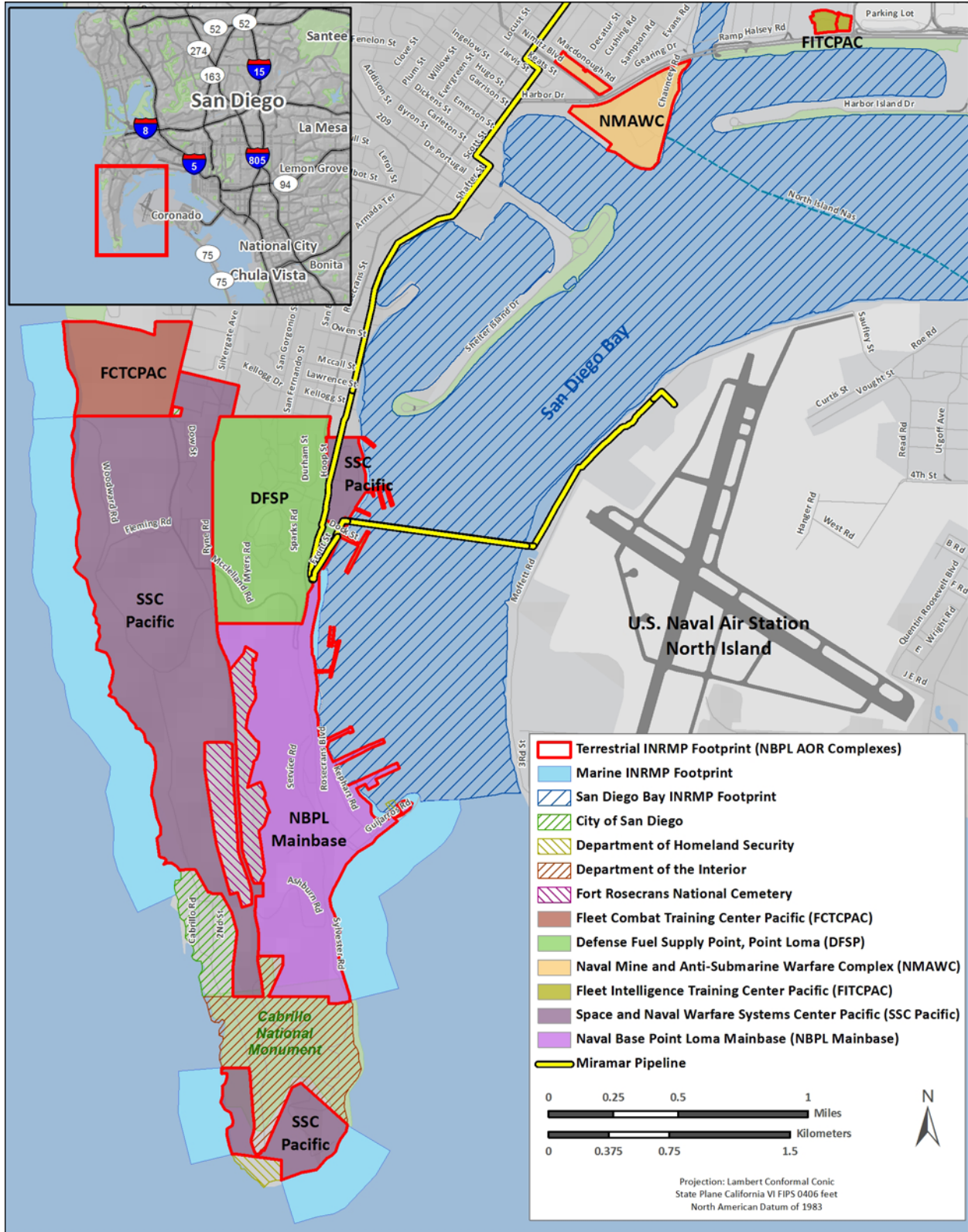
FCTCPAC occupies 94 acres of land in the northwestern corner of the NBPL on peninsula facilities, contiguous with Point Loma Nazarene University and the residential community of Point Loma (**Figure 1-3**). The FCTCPAC supports operational commanders in electronic warfare doctrine and tactics. FCTCPAC facilities support training, operations, administration, supply and storage, and the community. Development on land is limited to approximately 35 percent of the 94 acres because slopes exceed 20 percent on the remainder of the area. The steep slopes serve a valuable function as an electronic warfare signal test range.

1.2.1.5 Fleet Intelligence Training Center Pacific (FITCPAC)

FITCPAC occupies approximately 7 acres of developed land directly north of Harbor Island and west of San Diego International Airport (Lindbergh Field). This command is north of Harbor Drive and south of Barnett Avenue (**Figure 1-3**). Current land use includes training facilities and administrative buildings.

1.2.1.6 Defense Fuel Supply Point (DFSP) Point Loma

DFSP Point Loma occupies approximately 217 acres of land in the northwestern portion of the NBPL on peninsula facilities (**Figure 1-3**). DFSP Point Loma is the U.S. Navy's primary fuel storage and dispensing facility for the southwestern United States and the eastern Pacific. The facility has operated continuously since the early 1900s.



Source: ESRI StreetMap USA 2007; Map contains the most current data to date which may change, and is compiled from a variety of references (See GIS Reference List).

Figure 1-3. NBPL Major Areas

1.2.2 NBPL Off Peninsula Facilities and Housing Areas

1.2.2.1 NBPL Old Town Center

NBPL Old Town Center (SPAWAR Headquarters), located on Route 5 (Pacific Highway), covers approximately 59 acres of land in the Old Town section of San Diego (see **Figure 1-1**). Extensive in-service engineering facilities provide a full range of systems engineering, management, logistics, and installation and technical support (CSMD 2008).

1.2.2.2 Miramar Pipeline

The Miramar Pipeline, which impacts 19.39 acres of land, is 16.5 miles and has a 5- to 10- foot easement along the entire length of its route. The pipeline extends from DFSP on NBPL to the north, adjacent to the western shore of the San Diego Bay. The pipeline then extends across San Diego County through La Playa, into Tecolote Canyon, crosses the San Diego River, crosses under Interstate 805 and State Route 52 to Miramar Station, and terminates at Marine Corps Air Station (MCAS) Miramar. Once the fuel reaches MCAS Miramar, it is transferred into storage tanks for use during operations and support. Another segment of the pipeline extends from DFSP to the east across the San Diego Bay onto Naval Base Coronado. The pipeline then follows the western shore of the Naval Air Station North Island to the northeast (see **Figure 1-1**).

1.2.2.3 Mount Soledad Signal Station

The Mount Soledad Signal Station occupies approximately 6 acres on Mount Soledad to the east of La Jolla and west of Interstate 5 (see **Figure 1-2**). The station is an unmanned facility with two buildings on unfenced and primarily undeveloped land.

1.2.2.4 Joint Regional Correctional Facility Southwest (on MCAS Miramar)

Joint Regional Correctional Facility Southwest occupies 16 acres on MCAS Miramar, approximately 18 miles northeast of the Point Loma peninsula (see **Figure 1-1**). MCAS Miramar is east of Interstate 805, west of Interstate 15, and north of State Route 52.

As a tenant command on MCAS Miramar, activities conducted at or around the Joint Regional Correctional Facility comply with the MCAS Miramar INRMP. The MCAS Miramar INRMP is in the process of being revised, and a complete discussion of natural resources surrounding the facility is addressed in the INRMP revision. The revision provides the basis and criteria for protecting and managing natural resources using landscape and ecosystem perspectives, consistent with the military mission on MCAS Miramar. However, since Joint Regional Correctional Facility is managed through NBPL, any long-term habitat restoration, maintenance, and monitoring of this easement will be conducted by either NBPL or Naval Facilities Engineering Command Southwest (NAVFAC SW) personnel.

1.2.2.5 La Jolla Nautical Mile

La Jolla Nautical Mile consists of three unmanned towers occupying 0.04 acres of land in and adjacent to the Torrey Pines State Reserve (see **Figure 1-2**). One tower is near the southern

boundary of the State Reserve on the Pacific Coast. A second tower is near the southern boundary of the Torrey Pines Golf Course adjacent to the Pacific Coast. The third tower is to the east, adjacent to north Torrey Pines Road.

Since modern radars and global positioning system technologies have replaced older range technologies, the La Jolla Nautical Mile is no longer required to support the military mission and the facility is non-functional. There were originally four towers, but one of the eastern towers was removed (U.S. Navy 2009a).

1.2.2.6 NBPL Housing Areas

Eleven NBPL housing areas, consisting of 2,954 individual units, are situated throughout the San Diego metropolitan area (see **Figure 1-2** and **Table 1-2**). The housing areas did not come under NBPL jurisdiction until 2006 when the Navy decided to manage housing areas under a Public-Private Venture (PPV). A real estate summary was developed for each housing area between the late 1980s and mid-1990s (U.S. Navy 2011). The NBPL housing areas occupy approximately 521 acres throughout metro San Diego.

Table 1-2. Housing Areas Under NBPL Jurisdiction

Housing Area	Acreage	Number of Units	Year Built
Silvergate	4.2	4	1916/2009
Naval Submarine Base	3.0	8	1904
Admiral Hartman	143.7	434	1960
Beech Street Knolls	6.5	72	1991
Chesterton	137.5	457	1960/1996
Gateway Village	43.9	460	2005/2006
Mira Mesa Ridge	6.6	65	1995
Park Summit	0.5	30	1992
Village at NTC	74.5	500	2002/2003
Village at Serra Mesa	98.0	900	2003/2006
Vista Ridge	2.6	24	1992
Total	521	2,954	–

Source: U.S. Navy 2011

1.3 Purpose and Need for the Project

A revised INRMP is needed to meet statutory requirements imposed by the Sikes Act, as amended, as well as the requirements of various DoD and Department of the Navy Instructions. NBPL must also initiate new management prescriptions for the NBPL Old Town Center, Miramar Pipeline, Mount Soledad Signal Station, Joint Regional Correction Facility Southwest, La Jolla Nautical Mile, and 11 NBPL housing areas now under the jurisdiction of NAVFAC SW.

Both the INRMP and the natural resources program that it supports must meet the guidance and regulations provided in DoDI 4715.03, OPNAVINST 5090.1C CH-1, and the CNO *Integrated Natural Resources Management Program Guidance* (U.S. Navy 2006a). These guidance documents and policies collectively require a plan and management approach consistent with mission support, multipurpose use, integration, ecosystem or landscape-level management, and environmental compliance and stewardship.

The purpose of implementing the INRMP is to chart a course for natural resources management on NBPL, consistent with the Sikes Act as amended and DoD and Navy policy and guidance regarding INRMPs. The purpose of the INRMP is to implement an ecosystem-based conservation program that provides for conservation and rehabilitation of natural resources in a manner consistent with the military mission, integrate and coordinate all natural resources management activities, provide for sustainable multipurpose uses of natural resources, and provide for public access for use of natural resources subject to safety and military security considerations.

1.4 Decision to be Made

The decision to be made as a result of the analysis in this EA is to whether or not an Environmental Impact Statement (EIS) needs to be prepared. An EIS would need to be prepared if it is determined that the Proposed Action would have significant impacts on the human or natural environment. Should an EIS be deemed unnecessary, an alternative from this EA would be selected for implementation. The alternative selected will be documented in a Finding of No Significant Impact (FONSI).

1.5 Scope of Analysis

1.5.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) (42 U.S.C. Section 4321–4347) is a Federal statute requiring the identification and analysis of potential environmental impacts associated with proposed major Federal actions before those actions are taken. NEPA established the Council on Environmental Quality (CEQ), which was charged with the development of implementing regulations and ensuring Federal agency compliance with NEPA. The process for implementing NEPA is codified in Title 40 of the CFR, Parts 1500–1508, Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (CEQ Regulations). Various types of environmental analysis documents can be used to meet NEPA requirements, including Environmental Impact Statements (EISs) and EAs (40 CFR 1506.6(b)). If it is unclear whether an action would result in potential impacts, an EA would be prepared (40 CFR 1508.9(a)). If the analysis in the EA determines a proposed action would not result in any significant impacts, a FONSI would be prepared. If potentially significant impacts are identified that cannot be minimized to insignificant levels, an EIS would be prepared or a proposed action would be abandoned and no action would be taken.

The Navy implements NEPA through *Procedures for Implementing the National Environmental Policy Act* (32 CFR Part 775). Additional guidance is found in Secretary of the Navy Instruction

5090.6A, *Environmental Planning for Department of the Navy Actions*, and the OPNAVINST 5090.1C CH-1, *Environmental Readiness Program Manual* (18 July 2011).

1.5.2 Environmental Compliance Requirements

The EA will be prepared in accordance with NEPA, CEQ Regulations for Implementing the Procedural Provisions of NEPA, and Navy Regulations for Implementing NEPA. To comply with NEPA, the planning and decisionmaking process for Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with a Proposed Action. According to the CEQ regulations, the requirements of NEPA must be integrated “with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively” (40 CFR 1500.2[c]).

This EA examines the potential effects of the Proposed Action and No Action Alternative on six resource areas: land use; air quality; topography, geology, and soils; water resources; biological resources; and hazardous materials and wastes. These were identified as being potentially affected by the Proposed Action and include applicable critical elements of the human environment that are mandated for review by Executive Order (EO), regulation, or policy.

1.5.3 Resource Areas Minimally or Not Impacted

In compliance with NEPA and CEQ regulations for implementing NEPA (40 CFR Parts 1501–1508), the evaluation of environmental impacts should focus on significant environmental issues. Impacts should be discussed in proportion to their significance, with only a brief discussion of issues that are other than significant. Some environmental resources and conditions that are often analyzed in an EA have been omitted from detailed analysis in this EA. **Table 1-3** provides the basis for such exclusions.

1.5.4 Intergovernmental Coordination, Public and Agency Participation

The Navy will coordinate with the U.S. Fish and Wildlife Service (USFWS); California Department of Fish and Game (CDFG); the National Oceanic and Atmospheric Administration (NOAA); and other Federal, state, and local agencies, as required. Materials relating to interagency coordination and public involvement will be included in **Appendix N** of the INRMP document.

NEPA requirements also help ensure that environmental information is made available to the public during the decisionmaking process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if Federal proponents of an action provide information to state and local governments and the public and involve them in the planning process. The public involvement process augments the Navy opportunity to cooperate with and consider state and local views in implementing a Federal proposal.

A Notice of Availability (NOA) announcing the availability of the Draft INRMP and Draft EA was published in a local newspaper to initiate a 15-day public review period. The NOA solicited comments on the Draft EA and involved the public in the decisionmaking process. The Draft INRMP and Draft EA were made available at the following Navy Region Southwest website: <http://www.navyregionsouthwest.com/> and at local libraries during the public review period.

Table 1-3. Resource Areas that Would be Minimally or Not Impacted

Resource Area Eliminated	Reason for Dismissal
Noise	Noise from Proposed Action activities would primarily be generated from the equipment and vehicles temporarily used in the resource conservation work. Noise would be minimal and short-term and would not result in a significant impact to near-by sensitive receptors (such as housing on the installation).
Airspace Management	The Proposed Action and No Action Alternative are land-based. The use or modification of airspace would not occur and no hazards to air navigation, or obstructions, would be introduced.
Coastal Zone Management	<p>The Coastal Zone Management Act (CZMA) of 1972 (16 USC Section 1451) encourages coastal states to be proactive in managing coastal zone uses and resources. CZMA established a voluntary coastal planning program and participating states submit a Coastal Management Plan to the National Oceanic and Atmospheric Administration for approval. Under the CZMA, federal agency actions within or outside the coastal zone that affect any land or water use or natural resource of the coastal zone shall be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved state management programs. Each state defines its coastal zone in accordance with the CZMA. Excluded from any coastal zone are lands the use of which by law is subject solely to the discretion of the federal government or which is held in trust by the Federal government (16 USC 1453). Additionally, this project is located in a designated security zone which is under the exclusive jurisdiction of the Navy and is not open to the public.</p> <p>Due to the programmatic nature of this INRMP, no consultation with the California Coastal Commission is required at this time. There are, however, specific actions/projects discussed within the INRMP that may require additional environmental analysis, per NEPA, prior to being implemented. If and when such projects are to be carried forward, the Navy would, as necessary, engage in consultation with the California Coastal Commission should the project have potential to affect any coastal use or resource (even if conducted entirely within a federal enclave).</p>
Cultural Resources	Compliance with Section 106 of the National Historic Preservation Act for the NBPL INRMP is accomplished through conformance with the 36 CFR 800 process, and is the responsibility of NBPL. The potential for effects on historic properties for the NBPL INRMP and any future and emergent implementation projects, as

	outlined in Chapter 7 of the NBPL INRMP, are to be considered on an individual basis as separate undertakings and require review by authorized NBPL CR personnel. Pursuant to 36 CFR 800, such efforts include determining: 1) the area of potential effect (APE), 2) the identification of historic properties within the APE and 3) the effect on historic properties within the APE. Determinations also require consultation with the California State Historic Preservation Officer and any relevant Federally recognized Native American tribes if any.
Socioeconomic Resources and Environmental Justice	The Proposed Action and No Action Alternative would not contain projects that result in changes to socioeconomic conditions or disproportionately affect off-installation minority or low-income populations. Therefore, there would be no impact to socioeconomic resources or environmental justice issues.
Traffic and Transportation Systems	The Proposed Action and No Action Alternative do not contain traffic or transportation system projects; therefore, there would be no impact on either traffic or transportation systems.
Infrastructure and Utilities	No modification of or impacts on infrastructure or utilities would occur as a result of the implementation of the Proposed Action or No Action Alternative on NBPL. Therefore, there would be no impact on infrastructure or utilities.
Safety	Safety concerns that arise as a result of the Proposed Action and No Action Alternative may include the safety of field crews during various hazardous weather or wildlife interactions or the spraying of herbicides and pesticides. Staff would hold a safety briefing prior to each field day to avoid injury in the field. Herbicides and pesticides are handled and applied in accordance with Federal and state laws. Therefore, there would be no impact on worker or public safety.
Visual Resources	NBPL is situated in an area with ample visual resources including sight lines to San Diego harbor, downtown, and Cabrillo National Monument. The INRMP does not contain projects that would disrupt these visual resources. No adverse effects on visual resources will result from the implementation of the Proposed Action or No Action Alternative on NBPL.
Public Services	There are no schools within the proposed INRMP project footprints. The Proposed Action and No Action Alternative would not impact public services. While other services (e.g., police, fire, emergency medical services) are associated with the project footprint, they would not be managed any differently and would not be impacted as a result of the Proposed Action or No Action Alternative on NBPL.

2. Description of the Proposed Action and Alternatives

This section describes the Proposed Action and alternatives, including the No Action Alternative. The NEPA process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. In addition, CEQ regulations specify the inclusion of a No Action Alternative against which potential impacts can be compared.

2.1 Proposed Action

Under the Proposed Action, the Navy proposes to implement the revised 2012 INRMP for NBPL, which would integrate ecosystem management of NBPL's natural resources under a single INRMP. The Proposed Action would: (1) implement an ecosystem-based conservation program; (2) integrate and coordinate all natural resource management activities, including specific projects and routine program operations; (3) provide a provision for the sustainable multi-purpose use of natural resources; and (4) provide a provision for public access to non-restricted military lands. As part of this action, there was a review and update of the existing July 2002 INRMP and natural resources management practices at NBPL. The 2012 INRMP was developed and would be implemented to be consistent with the military use of the properties and the goals and objectives established in the Sikes Act Improvement Act.

The INRMP would be implemented in 2012, reviewed annually for operation and effect, and updated as needed. The Proposed Action includes continuing some of NBPL's existing natural resources management prescriptions along with the prescription of several new management actions for on peninsula and off peninsula sites that have become a part of NBPL since the 2002 INRMP (i.e., NBPL Old Town Center, the Miramar Pipeline, Mount Soledad Signal Station, Joint Regional Correction Facility Southwest, La Jolla Nautical Mile, and 11 NBPL housing areas). A list of proposed INRMP projects to be implemented at NBPL is included as **Appendix A**. All management prescriptions would be integrated and implemented in the context of the installation's mission support needs and regional setting. As a result of the growth in the San Diego region, the impacts of planning and future development in San Diego County and NBPL necessitate coordinated planning for land and resource management. Natural resources management on NBPL must be integrated with other disciplines, programs, and planning beyond the scope of traditional fish and wildlife management on Navy installations. The INRMP includes projects that would benefit the following:

- Watershed Management
- Habitat Management
- Fish and Wildlife Management
- Special Status Species Management
- Exotic and Invasive Species Management
- Grounds and Landscape Maintenance
- Pest Management
- Outdoor Recreation and Public Access

- Law Enforcement of Natural Resources Laws and Regulations
- Environmental Awareness and Outreach
- GIS Management, Database Management, Data Integration, Access and Reporting.

Besides meeting the project's purpose and need, the Proposed Action would have additional benefits that include: (1) better integration of the INRMP with other installation planning documents, (2) improved integration of the natural resources program with other NBPL activities, (3) an explicit goal and objectives under which ongoing and future natural resources projects would be implemented, and (4) a systematic approach to integrated natural resources management by documenting present and future program implementation. NBPL has developed a management goal that is consistent with DoD, Navy, and installation-specific policies and guidance on how natural resources should be managed, sustained, and rehabilitated, where applicable. The goal is as follows:

The NBPL INRMP goal is to provide for no net loss to the military mission by managing natural resources in an adaptive ecosystem-based approach, to support multiple use and biological integrity.

NBPL has developed a set of objectives that support this goal, and is proposing an array of projects and management actions to support each objective (see **Appendix A**). The proposed projects and management actions include both newly proposed initiatives and ongoing initiatives carried over from the 2002 INRMP. This array of projects contributes to the objectives and goal for management of NBPL's natural resources, consistent with DoD and Navy guidance concerning the Sikes Act, multipurpose use, ecosystem- and landscape-level management, and support of the military mission.

2.2 Alternatives Analysis

2.2.1 Reasonable Alternative Screening Factors

Under NEPA, reasonable alternatives to implement a proposed action must be considered in an EA, as defined in **Section 1.3**. Considering alternatives helps to avoid unnecessary impacts and allows an analysis of reasonable ways to achieve the stated purpose. During planning and programming, alternatives are considered and evaluated. A range of reasonable alternatives was developed. To be considered reasonable, an alternative must be consistent with the criteria listed below:

- 1) Be based on the principles of ecosystem management;
- 2) Provide for sustainable multipurpose use of natural resources;
- 3) Maintain compliance with relevant environmental regulations;
- 4) Provide for public access for use of natural resources subject to safety and military security considerations;

- 5) Establish specific natural resources management objectives and timeframes for the Proposed Action and;
- 6) Prevent loss in the capability of military lands to support the military mission of the installation.

Only the Proposed Action Alternatives and No Action Alternatives were deemed ‘reasonable alternatives’ and therefore carried forward for detailed analysis in this EA. This is because the Proposed Action in itself encompasses consideration of a wide-variety of resource management practices and projects (i.e. alternate actions) that can be implemented in the future, depending on environmental conditions and ecological considerations at the time. Also, as all of the resource management projects in the INRMP would result in benefits to area resources, no alternatives to these actions needed to be developed to reduce the environmental impacts of the actions.

Another reason why the EA just analyzes these two alternatives is that early participation in the development of the Proposed Action by the U.S. Fish and Wildlife Services (USFWS) and the California Department of Fish and Game (CDFG), ensures the mutual agreement among these parties on the natural resource management goals/objectives and projects that are stated in the INRMP.

2.2.2 Alternative Considered but Eliminated from Further Detailed Analysis

A compliance-driven management alternative to the Proposed Action was initially considered, which would take a minimal approach to management and only manage natural resources components that are required by laws or regulations. Under this alternative, an ecosystem-based approach would not be implemented; rather, management actions would only be implemented if there was a possibility of violating a law, such as the Clean Water Act (CWA) or the Endangered Species Act (ESA). While it would ensure that NBPL would be less likely to receive a notice of violation for noncompliance with natural resource regulations, this alternative would not comply with the intent of the Sikes Act for natural resources management.

The Sikes Act requires that the INRMP be developed to ensure that the management approach for resources is ecosystem-based, and thus goes beyond simple compliance. According to the Sikes Act, the vision of an installation INRMP is to ensure the sustainability of all ecosystems within and near the installation, and to ensure no net loss of the installation’s capability to support the military mission. To meet the intent of the Sikes Act, the DoD adopted an ecosystem-based management approach as the basis for future management of DoD lands and waters through applying the principles of adaptive management and through collaborating with internal and external parties (DoDI 4715.03). Therefore, the compliance-driven management alternative would not meet the intent of the Sikes Act and was eliminated from further detailed analysis in this EA.

2.3 No Action Alternative

The No Action Alternative to the Proposed Action would result in continued management as characterized in the previous July 2002 INRMP for NBPL. This alternative represents the status quo. Under the No Action Alternative, natural resources management would continue as it has since 2002 and would not include management prescriptions for off peninsula sites including the

NBPL Old Town Center, Miramar Pipeline, Mount Soledad Signal Station, Joint Regional Correction Facility Southwest, La Jolla Nautical Mile, and the 11 NBPL housing areas that have since become part of NBPL.

3. Affected Environment and Environmental Consequences

3.1 Introduction

This section describes the environmental resources and conditions most likely to be affected by the Proposed Action and Alternatives and provides information to serve as a baseline from which to identify and evaluate environmental and socioeconomic consequences likely to result from implementation of the Proposed Action and Alternatives. Baseline conditions represent current conditions. In compliance with NEPA, CEQ guidelines, and 32 CFR Part 775, the description of the affected environment focuses on those resources and conditions potentially subject to impacts.

This section also presents an analysis of the potential direct and indirect impacts that each alternative would have on the affected environment.

3.2 Summary of Environmental Consequences

Table 3-1 below provides an overview of potential impacts under the Proposed Action and No Action Alternative, separated by resource area.

Table 3-1. Summary of Environmental Consequences from the Proposed Action and No Action Alternative

Resource Area	Proposed Action	No Action Alternative
Land Use	The Proposed Action would develop an outdoor recreation plan and create natural resources-based outdoor recreation opportunities resulting in the improvement of the quality of life and morale for Navy personnel and their families through provision of quality recreational experiences while sustaining ecosystem integrity. Therefore, no significant impacts on land use would occur.	The No Action Alternative would result in a continuation of impacts from the 2002 INRMP and would result in a beneficial impact on land use patterns at NBPL by ensuring the compatibility of environmental management efforts with future land use planning actions that may be necessary to meet the military mission for NBPL. Therefore, no significant impacts on land use would occur.

Resource Area	Proposed Action	No Action Alternative
Air Quality	<p>Mechanized activities associated with the Proposed Action would potentially create dust and gaseous emissions from use of equipment. These emissions would be temporary and local to the project area. There would be no major source of air pollution under the 2012 INRMP. Any air permits necessary for specific projects in the INRMP would be obtained prior to implementation of the project. Therefore, implementation of the Proposed Action would not result in significant impacts on air quality.</p>	<p>The No Action Alternative would result in a continuation of the 2002 INRMP and would result in no impacts or beneficial impacts on local or regional air quality would occur since the NBPL activities that currently generate air emissions would not change. Therefore, no significant impacts would occur on air quality.</p>
Topography, Geology, and Soils	<p>No impacts on topography or geology at NBPL would occur from the implementation of the INRMP.</p> <p>The protection of soil resources from erosion through prevention and control practices, and from rehabilitation of degraded soil resources would occur under the Proposed Action. Therefore, implementation of the Proposed Action would not have a significant impact on topography, geology, or soils.</p>	<p>The No Action Alternative would result in a continuation of the 2002 INRMP and would result in beneficial impacts on topography, geology, or soils on the NBPL facilities occurring on the Point Loma Peninsula. The 2002 INRMP provides specific recommendations for mapping eroded areas and implementing a soil erosion control program to conserve existing natural areas from disturbance that could degrade soils.</p> <p>Off peninsula management efforts to stabilize soils and decrease erosion on steep slopes and along streams and drainage ways would not be implemented as described in the 2012 INRMP; however, the installation has established measures and programs for the management of topography, geology, and soils to ensure they are in compliance with Federal, state and local environmental laws and regulations. Therefore, beneficial impacts would occur; however no significant impacts to topography, geology and soils would occur.</p>

Resource Area	Proposed Action	No Action Alternative
Water Resources	<p>No significant effects on water supply would occur under the Proposed Action.</p> <p>Under the Proposed Action, the prevention and control of soil erosion on NBPL on peninsula and off peninsula facilities would occur. The reduction of sediment within the effluent from urban storm water drainages that cross NBPL facilities would result in improved water quality in San Diego Bay. The assistance in recovery of unstable drainages, where necessary, on NBPL on peninsula facilities and off peninsula facilities would reduce soil erosion and sedimentation within the streams.</p> <p>The reduction in storm water entering streams would reduce impacts on surrounding floodplains. The minimization of fertilizers and pesticides applied on NBPL would improve surface water quality by reducing nutrients and pollutants entering waterways in streams. Therefore, no significant impacts on water resources would occur.</p>	<p>The No Action Alternative would result in a continuation of the 2002 INRMP and would result in beneficial impacts on water resources on the NBPL facilities occurring on the Point Loma Peninsula. The implementation of sediment- and erosion-control best management practices (BMPs) was a management strategy within the 2002 INRMP; therefore, NBPL would continue to implement these projects as necessary under the No Action Alternative.</p> <p>Management efforts to implement sediment- and erosion-control BMPs on off peninsula facilities would follow established measures and programs for the management of water resources to ensure they are in compliance with Federal, state and local environmental laws and regulations, as defined in the 2002 INRMP. Therefore, beneficial impacts would occur; however no significant impacts to water resources would occur.</p>
Biological Resources (Vegetation)	<p>Long-term, beneficial effects on native vegetation would result from the Proposed Action due to the implementation of habitat improvement projects such as noxious weed/invasive plant removal and revegetation with native plant species.</p>	<p>The No Action Alternative would result in a continuation of the 2002 INRMP and would result in beneficial impacts on biological resources on the NBPL facilities occurring on the Point Loma Peninsula. Management strategies, such as invasive vegetation removal and revegetation with native species, are prescribed in the 2002 INRMP.</p> <p>These vegetation management strategies would not be implemented on the off peninsula NBPL facilities; however, the installation has established programs for the management of vegetation to ensure they are in compliance with federal, state and local environmental laws and regulations. Therefore, beneficial impacts would occur; however no significant impacts to vegetation would occur.</p>

Resource Area	Proposed Action	No Action Alternative
<p>Biological Resources (Wildlife)</p>	<p>Long-term, beneficial effects on wildlife would result from the implementation of habitat improvement projects to protect habitats, removal of invasive vegetation, and revegetation with native plants. Long-term, minor, beneficial effects on wildlife species, particularly songbirds and small mammals, would occur from the control of feral animal populations on NBPL.</p> <p>Long-term, beneficial effects on herons and egrets would result from the implementation of management provisions for herons and egrets per a revised Heron and Egret Management Plan. Long-term, beneficial effects on certain bird and bat species would result from the installation of bird and bat boxes.</p> <p>Long-term, beneficial impacts on targeted habitats and populations would result from habitat and wildlife population surveys.</p>	<p>The No Action Alternative would result in a continuation of the 2002 INRMP and would result in beneficial impacts on biological resources on the NBPL facilities occurring on the Point Loma Peninsula. Management strategies, such as feral animal control are prescribed in the 2002 INRMP.</p> <p>These wildlife management strategies would not be implemented on the off peninsula NBPL facilities; however, the installation has established measures and programs for the management of wildlife to ensure they are in compliance with Federal, state and local environmental laws and regulations. Therefore, beneficial impacts would occur; however no significant impacts to wildlife would occur.</p>
<p>Biological Resources (Protected Species)</p>	<p>Long-term, beneficial effects on potential Federal- and state-listed threatened and endangered species and other protected and sensitive species would occur from regular (approximately every 2 years) surveys for these species on NBPL facilities.</p> <p>Long-term, beneficial effects on abalone within the San Diego Bay would occur from the implementation of abalone management measures contained within the Abalone Recovery and Management Plan.</p>	<p>The No Action Alternative would result in a continuation of the 2002 INRMP and would result in beneficial impacts on biological resources on the NBPL facilities occurring on the Point Loma Peninsula. Management strategies, such as surveys for protected and sensitive species, are prescribed in the 2002 INRMP.</p> <p>These protected species management strategies would not be implemented on the off peninsula NBPL facilities; however, the installation has established measures and programs for the management of protected species to ensure they are in compliance with Federal, state and local environmental laws and regulations. Therefore, beneficial impacts would occur; however no significant impacts to protected species would occur.</p>

Resource Area	Proposed Action	No Action Alternative
Hazardous Materials and Wastes	Long-term, minor, beneficial effects on hazardous materials and waste management would occur from the reduction in use of pesticides, rodenticides, and herbicides on NBPL facilities.	<p>The No Action Alternative would result in a continuation of the 2002 INRMP and would result in no impacts on hazardous materials and waste management on the NBPL facilities occurring on the Point Loma Peninsula. No significant impacts on hazardous materials and wastes would occur from off peninsula facilities.</p> <p>Existing natural resources management activities and associated use of hazardous materials occurring on NBPL on peninsula facilities would remain unchanged from the 2002 INRMP. Therefore, no significant impacts from hazardous materials and waste would occur.</p>

3.3 Land Use

3.3.1 Definition of the Resource

The term “land use” refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, “labels,” and definitions vary among jurisdictions.

The two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. Tools supporting land use planning include written master plans, management plans, policies, and zoning regulations. In appropriate cases, the location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site and the types of land uses on adjacent properties.

3.3.2 Existing Conditions

3.3.2.1 On Peninsula Facilities

NBPL Mainbase. The mission of Mainbase is to provide support to the U.S. Pacific Fleet Submarine Force and other sea-going and shore-based tenant commands. Mainbase provides shore facilities; three deep-draft piers; industrial maintenance support buildings; the Arco dry dock, bachelor quarters and dining facilities; submarine training facilities; torpedo retrievers and

support craft; a torpedo/missile magazine complex; and the attendant support infrastructure of utilities, roads, and grounds. Mainbase is home to Commander, Third Fleet; Commander, Submarine Squadron Eleven; Commander, Submarine Development Squadron Five; Commander, Military Sealift Command Pacific; six attack submarines; and the Submarine Training Center Detachment. Mainbase land uses include: operations, training, administration, housing, storage, and shops.

SSC Pacific. The mission of SSC Pacific is to provide the warfighter with knowledge and superiority by developing, delivering, and maintaining effective, capable, and integrated command, control, communications, computer, intelligence, surveillance, and reconnaissance systems (U.S. Navy 2009a). SSC Pacific occupies the largest portion of land of the eight major areas, with almost 600 acres in four main locations: Topside, Bayside, Seaside, and South Tip. Most of SSC's facilities are laboratories and administration.

NMAWC. NMAWC's mission is to provide tactical, technical, and military training in a safe and stimulating environment to forge skilled antisubmarine warfare professionals capable of supporting fleet requirements. Current land use includes buildings and facilities associated with the training operations, bachelor quarters, administration and recreation facilities, a marina, and picnic areas.

FCTCPAC. FCTCPAC's mission is to provide training in the operation and employment of specified tactical combat direction and control systems in naval warfare and to support operational commanders in the evaluation, development, and analysis of naval warfare doctrines and tactics. Development is limited to approximately 35 percent of the area covered by the facilities with slopes exceeding 20 percent over the remainder of the area.

FITCPAC. FITCPAC's trained active and reserve professionals provide intelligence training, guidance, and support to Pacific Fleet operating forces using innovative training and delivery methodologies. FITCPAC occupies approximately 7 acres of developed land near Lindbergh Field. Current land use includes training facilities and administrative buildings.

DFSP Point Loma. DFSP Point Loma is the primary fuel storage and dispensing facility for the southwestern United States and the eastern Pacific.

Surrounding Land Use

The Point Loma peninsula is surrounded by the Pacific Ocean to the west and the San Diego Bay to the east. The northern half of Point Loma peninsula is occupied by the residential neighborhoods of Point Loma, Loma Portal, and Ocean Beach; Point Loma Nazarene University; a support facility for the University of California, Scripps Institution of Oceanography; Sunset Cliffs Park; and Shelter Island. Other major occupants on the Point Loma peninsula are the Ballast Point Coast Guard Station, Cabrillo National Monument, Fort Rosecrans National Cemetery, and the Point Loma Wastewater Treatment Plant, which is on land managed by the City of San Diego.

The major tenant command, NMAWC, is west of Harbor Island and northeast of Shelter Island on San Diego Bay. It is bordered on the north by Harbor Drive, a major thoroughfare. Nimitz Boulevard intersects Harbor Drive at the main entrance to NMAWC. The southern, eastern, and

western sides of the NMAWC are bordered by tidelands administered by the San Diego Unified Port District. These tidelands are used as a commercial fishing basin with related shoreside support facilities.

FITCPAC is directly north of Harbor Island and west of San Diego International Airport (Lindbergh Field).

3.3.2.2 Off Peninsula Facilities and Housing Areas

NBPL Old Town Center. The mission of NBPL Old Town Center is to provide the warfighter with knowledge and superiority by developing, delivering, and maintaining effective, capable, and integrated command, control, communications, computer, intelligence, and surveillance systems. SPAWAR provides information technology and space systems for today's Navy and DoD activities while planning and designing for the future. Because SPAWAR Headquarters (HQ) is primarily developed and does not support any natural or cultural resources, it is not included on most maps in this plan. However, SPAWAR Command HQ occupies approximately 300,000 square feet of Administration in several buildings. SSC Pacific occupies a small administrative footprint in two buildings (U.S. Navy 2009a).

Miramar Pipeline. The Miramar Pipeline moves more than 100 million gallons of fuel per year, supporting the fueling operations for the U.S. Navy Third Fleet ships and Naval Air Station North Island aircraft. The pipeline is operated 7 days per week primarily by the DFSP with Kinder-Morgan Energy Partners and MCAS Miramar having control and shared operational responsibility.

Mount Soledad Signal Station. The primary mission of the Mount Soledad Signal Station is to support emergency service organizations with reliable communications. The Mount Soledad Signal Station is an unmanned facility and consists of two buildings on primarily undeveloped land. Mount Soledad tenants include the Naval Computer and Telecommunications Station, San Diego; Fleet Area Control and Surveillance Facility, SPAWAR Systems Center, San Diego; and NAVFAC SW. Other non-DoD tenants include the U.S. Secret Service, the State of California, the San Diego Association of Governments, the County of San Diego, Cook Pagin, Omnipoint Communication/T-Mobile, the Federal Aviation Administration, the City of San Diego, and NOAA.

Joint Regional Correction Facility Southwest (on MCAS Miramar). The mission of Joint Regional Correction Facility Southwest is to ensure the safety, security, good order, and discipline of male and female prisoners and detained personnel from all military services; to retrain and restore the maximum number of personnel to honorable service; and to prepare discharged prisoners for return to civilian life as productive citizens. The correction facility encompasses 25 acres in the northwestern corner of MCAS Miramar with facilities occupying 208,000 square feet. On-site personnel include 31 civilian and 173 military personnel, with a capacity to house 400 male and female prisoners.

La Jolla Nautical Mile. The La Jolla Nautical Mile consisted of two sets of two towers separated by exactly 1 mile that were historically used to determine the speed and position of ships offshore. One of the towers has been removed and the facility is now non-functional (U.S.

Navy 2009a). Modern radars and global positioning system technologies have replaced older range technologies, so the Nautical Mile is no longer required to support DoD military missions (U.S. Navy 2009a).

NBPL Housing Areas. The mission of the Navy housing areas is to provide safe and secure housing for Navy personnel and their families. Land use includes developed areas, open space, and some undeveloped areas. There are from 4 to 900 housing units in each area, with acreages ranging from approximately 0.5 to 143.7 acres per housing area (see **Table 1-2** for a summary of the housing areas).

Surrounding Land Use

NBPL Old Town Center is adjacent to Route 5 and the Old Town section of San Diego. Surrounding lands are zoned for commercial and industrial use (City of San Diego 2010).

The Miramar Pipeline, which impacts 19 acres of land, is 16.5 miles and has a 5- to 10- foot easement along the entire length of its route. The pipeline extends from DFSP on NBPL to the north, adjacent to the western shore of the San Diego Bay. The pipeline then extends across San Diego County from La Playa, across the San Diego River and into Tecolote Canyon, through Clairemont, then under Interstate 805 and State Route 52 to Miramar Station, and terminates at MCAS Miramar. Once the fuel reaches MCAS Miramar, it is transferred into storage tanks for use during operations and support. Another segment of the pipeline extends from DFSP to the east across the San Diego Bay onto Naval Base Coronado. The pipeline then follows the western shore of Naval Air Station North Island to the northeast (see **Figure 1-2**).

Land uses surrounding the Mount Soledad Signal Station include residential and open space. The Joint Regional Correctional Facility Southwest is on MCAS Miramar; therefore, surrounding land uses are military-based. La Jolla Nautical Mile is surrounded by open space (i.e., Torrey Pines State Reserve). The NBPL housing areas are generally surrounded by residential, commercial, and military land uses.

3.3.3 Environmental Consequences

3.3.3.1 Proposed Action

The Proposed Action is compatible with existing NBPL land uses and adjacent uses. Proposed natural resources management actions would not introduce any new land uses that would be incompatible with existing land uses, either on- or off-site. The implementation of the INRMP would ensure that natural resources continue to support the NBPL mission and future growth, development, and redevelopment activities planned for the installation. The INRMP integrates natural resources management with other installation plans and activities. It also establishes goals that represent a long-term vision for the health and quality of NBPL's natural resources. Any future changes in mission, training activity, or technology should be analyzed to assess its impact on natural resources. As new installation plans and Navy guidance and regulations are developed, they will be integrated with the goals and management actions of the INRMP. The INRMP will be reviewed, assessed, and modified as needed on an annual basis to ensure

continued integration with other management plans or changes in military mission or environmental conditions.

The Proposed Action would develop an outdoor recreation plan and create natural resources-based outdoor recreation opportunities resulting in the improvement of the quality of life and morale for Navy personnel and their families through provision of quality recreational experiences while sustaining ecosystem integrity. Therefore, no significant impacts on land use would occur.

3.3.3.2 No Action Alternative

Under the No Action Alternative, the military mission, on-installation land use, and land use on adjacent properties occurring on NBPL on peninsula facilities would remain unchanged from the 2002 INRMP. There would be no net loss of available land and operational carrying capacity. New landscaping practices, such as removal of exotics or invasive weeds and restoration of degraded areas, enhance the appearance of the affected area but would not result in an adverse impact to the current land use. The 2002 INRMP accommodates existing uses, including compatible uses such as dredge and fill operations, ship maintenance and operations, and shoreline construction (U.S. Navy 2002). No change in current management of off peninsula facilities would occur. Therefore, beneficial impacts on land use would occur; however no significant impacts to land use would occur by implementing the No Action Alternative.

3.4 Air Quality/Climate Change

3.4.1 Definition of the Resource

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of criteria pollutants in the atmosphere. The air quality in a region is a result of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological “air basin,” and the prevailing meteorological conditions.

Ambient Air Quality Standards. Under the CAA, the U.S. Environmental Protection Agency (USEPA) developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to affect human health and the environment. The NAAQS represent the maximum allowable concentrations for ozone (O₃), measured as either volatile organic compounds (VOCs) or total nitrogen oxides (NO_x), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur oxides (SO_x), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM₁₀] and particulate matter equal to or less than 2.5 microns in diameter [PM_{2.5}]), and lead (Pb) (40 CFR Part 50). The CAA also gives the authority to states to establish air quality rules and regulations. The State of California has adopted the NAAQS and promulgated additional California Ambient Air Quality Standards (CAAQS) for criteria pollutants. The CAAQS are more stringent than the Federal primary standards.

Attainment versus Nonattainment and General Conformity. The USEPA classifies the air quality in an air quality control region (AQCR), or in subareas of an AQCR, according to

whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas within each AQCR are, therefore, designated as either “attainment,” “nonattainment,” “maintenance,” or “unclassified” for each of the criteria pollutants (i.e., O₃, PM₁₀ and PM_{2.5}, CO, NO_x, SO_x, and Pb). Attainment means that the air quality within an AQCR is lower than the NAAQS; nonattainment indicates that criteria pollutant levels exceed NAAQS; maintenance indicates that an area was previously designated nonattainment but is now in attainment due to the implementation of a state-approved management plan; and an unclassified air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered as in attainment. The USEPA has delegated the authority for ensuring compliance with the NAAQS in California to the California Air Resources Board (CARB). CARB has delegated responsibility for implementation of the Federal CAA and California CAA to local air pollution control agencies. In accordance with the Federal CAA, each state must develop a State Implementation Plan (SIP), which is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS.

The General Conformity Rule requires that any Federal action meet the requirements of a SIP or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS. The General Conformity Rule applies only to significant actions in nonattainment or maintenance areas.

Greenhouse Gas Emissions. Greenhouse gases (GHGs) are gaseous emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the earth’s temperature. Scientific evidence indicates a trend of increasing global temperature over the past century correlating with an increase in GHG emissions from human activities. The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO₂), methane, and nitrous oxide, of which CO₂ is the most prevalent. GHGs are mainly produced by the burning of fossil fuels and through industrial and biological processes.

Federal agencies are, on a national scale, addressing emissions of GHGs by reductions mandated in Federal laws and EOs, most recently, EO13423 (*Strengthening Federal Environment, Energy, and Transportation Management*) and EO 13514 (*Federal Leadership in Environmental, Energy, and Economic Performance*). Several states have passed GHG-related laws as a means to reduce statewide levels of GHG emissions. In particular, the California Global Warming Solutions Act of 2006 (Assembly Bill 32) directs the State of California to reduce statewide GHG emissions to 1990 levels by the year 2020.

In an effort to reduce energy consumption, reduce dependence on petroleum, and increase the use of renewable energy resources in accordance with goals set by EO 13423 and the Energy Policy Act of 2005, the “*Navy or Marine Corps*” has implemented a number of renewable energy projects. The types of projects currently in operation within military installations include thermal and photovoltaic solar energy systems, geothermal power plants, and wind energy generators.

EO 13514 was signed in October 2009 and requires agencies to set goals for reducing GHG emissions. One requirement within EO 13514 is the development and implementation of an agency Strategic Sustainability Performance Plan (SSPP) that prioritizes agency actions based on lifecycle return on investment. Each SSPP is required to identify, among other things, “agency activities, policies, plans, procedures, and practices” and “specific agency goals, a schedule, milestones, and approaches for achieving results, and quantifiable metrics” relevant to the implementation of EO 13514.

On August 26, 2010, the DoD released its SSPP to the public. This implementation plan describes specific actions the DoD will take to achieve its individual GHG reduction targets, reduce long-term costs, and meet the full range of goals of the EO. All SSPPs segregate GHG emissions into three categories: Scope 1, Scope 2, and Scope 3 emissions. Scope 1 GHG emissions are those directly occurring from sources that are owned or controlled by the agency. Scope 2 emissions are indirect emissions generated in the production of electricity, heat, or steam purchased by the agency. Scope 3 emissions are other indirect GHG emissions that result from agency activities but from sources that are not owned or directly controlled by the agency. The GHG goals in the DoD SSPP include reducing Scope 1 and Scope 2 GHG emissions by 34 percent by 2020, relative to Fiscal Year (FY) 2008 emissions, and reducing Scope 3 GHGs by 13.5 percent by 2020, relative to FY 2008 emissions (DoD 2010). The first GHG air quality emissions report was due in 2011 for 2010 emissions. It should be noted that EO 13514 exempts emissions from vehicles, vessels, aircraft, and nonroad equipment used in combat or combat service support, tactical operations, or training for such operations, from DoD GHG reduction targets.

The USEPA requires facilities emitting significant quantities of GHG emissions per year to report those emissions. In addition, facilities with a significant level of new GHG emissions from construction activities could also be subject to Prevention of Significant Deterioration and Title V permitting requirements. These GHG reporting and permitting requirements only apply to stationary source GHG emissions. The Proposed Action would not result in increases in stationary source potential emissions; therefore, these GHG requirements would not apply to the Proposed Action.

The potential effects of GHG emissions are by nature global and cumulative, and it is impractical to attribute climate change to individual projects. Therefore, the impact of GHG emissions associated with this project is discussed in the context of cumulative impacts in **Section 4.2.1** of this EA.

3.4.2 Existing Conditions

NBPL is in San Diego County, which is within the San Diego Intrastate AQCR. The San Diego area is in the San Diego County Air Pollution Control District (SDCAPCD) and is subject to its rules and regulations. The SDCAPCD is responsible for implementing and enforcing local, state, and Federal air quality regulations in the 4,200-square-mile San Diego Air Basin (SDAB), which encompasses all of San Diego County. Automobiles and other on-road (mobile) sources represent the greatest source of emissions in the SDAB. Major topographical features (e.g., mountains to the east) in the SDAB impact the transport and diffusion of pollutants in the air basin by hindering their eastward movement. This, in conjunction with the shallow inversion

layer and high pollution emissions, results in generally poor air quality in the SDAB, which is similar to the air quality of most of coastal southern California.

The air quality in San Diego County has been characterized by USEPA as a nonattainment area for O₃ (NO_x and VOCs) and a maintenance area for CO. San Diego County is classified by the USEPA as unclassified/attainment for all other criteria pollutants (USEPA 2010). CARB has designated the SDAB as a nonattainment area for 8-hour O₃, PM₁₀, and PM_{2.5} and as unclassified/attainment for all other criteria pollutants (CARB 2009a).

The SDAB is currently designated as nonattainment for both the 24-hour and the annual State PM₁₀ standards. The air basin is also designated as nonattainment for the state annual PM_{2.5} standard (CARB 2009b). Direct emissions of PM₁₀ are projected to almost double in the SDAB between 1975 and 2020. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, dust from construction and demolition operations, and particulates from residential fuel combustion (including wood). The growth in these area-wide sources is primarily due to population growth and increases in vehicle miles traveled. Particulate matter (PM) can be directly emitted into the air (i.e., primary PM) or, similar to O₃, it can be formed in the atmosphere (i.e., secondary PM) from the reaction of gaseous precursors such as NO_x and SO_x. The PM₁₀ emission inventory includes only primary PM. On an annual average basis, directly emitted PM₁₀ emissions contribute approximately 70 percent of the ambient PM₁₀ in the SDAB (CARB 2009c).

Direct emissions of PM_{2.5} increased steadily in the SDAB between 1975 and 2005 and are projected to continue increasing through 2020. This increase is due to growth in emissions from area-wide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, dust from construction and demolition operations, and particulates from residential fuel combustion (including wood). The growth in these area-wide sources is primarily due to population growth and increases in vehicle miles traveled. The PM_{2.5} emission inventory includes only primary PM. On an annual average basis, directly emitted PM_{2.5} emissions contribute approximately 50 percent of the ambient PM_{2.5} in the SDAB (CARB 2009c).

3.4.3 Evaluation Standards

The environmental consequences on local and regional air quality conditions near a proposed Federal action are determined based upon the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. Specifically, the impact in NAAQS “attainment” and “non-attainment” areas would be considered significant if the net increases in pollutant emissions from the Federal action would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Represent an increase of 10 percent or more in an affected AQCR emissions inventory
- Exceed any Evaluation Criteria established by a SIP or permit limitations.

3.4.4 Environmental Consequences

3.4.4.1 Proposed Action

Mechanized activities associated with the Proposed Action would potentially create dust and gaseous emissions from use of equipment. These emissions would be temporary and local to the project area. Project staff driving to and from the project site would create emissions; however, this would also be temporary and localized. There would be no major source of air pollution under the 2012 INRMP. Any air permits necessary for specific projects in the INRMP would be obtained prior to implementation of the project. A Record of Non-Applicability has been completed for this project (**Appendix B**).

Therefore, implementation of the Proposed Action would not result in significant impacts on air quality.

3.4.4.2 No Action Alternative

Under the No Action Alternative, the activities that currently generate air emissions would remain unchanged from the 2002 INRMP.

The 2002 INRMP would not result in a substantial change in the emissions-generating equipment used for a range of activities. Ongoing activities, including landscape trimming, mowing or pruning, habitat restoration, soil erosion control efforts, or stream channel maintenance projects would either be enhanced to incrementally reduce emissions or would remain the same. No new land uses are proposed that would expose people to localized air pollutant concentrations. An incremental reduction in emissions could result from proposed installation of shade trees near buildings or erosion prevention efforts (U.S. Navy 2002).

Proposed habitat restoration measures provide for manual removal of invasive and exotic plants where feasible and use of chemical or mechanical applications only when necessary. The No Action Alternative is considered to be consistent with the State Implementation Plan and would be consistent with the air quality management planning efforts of the Air Pollution Control District (U.S. Navy 2002).

Therefore, no impacts or beneficial impacts on local or regional air quality would occur from the No Action Alternative.

3.5 Topography, Geology, and Soils

3.5.1 Definition of the Resource

Geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of topography and physiography, geology, soils, and geologic hazards.

Topography and physiography pertain to the general shape and arrangement of a land surface, including its height and the position of its natural and human-made features. Geology is the study of the Earth's composition and provides information on the structure and configuration of

surface and subsurface features. Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

3.5.2 Existing Conditions

3.5.2.1 On Peninsula Facilities

Topography. The Point Loma peninsula extends 4 miles into the Pacific Ocean, providing shelter to the San Diego Bay. The rugged peninsula is divided by several natural drainages and canyons. Slopes ranging from 40 to 75 percent are common, and few areas on the peninsula are considered buildable (i.e., those areas with less than a 20 percent slope). The west side of the peninsula slopes up from the Pacific Ocean, exposing a rugged coastline with eroded sandstone cliffs above vast rocky benches, boulder fields, and small sandy beaches. Slopes gradually increase for a short distance from the ocean, then increase rapidly to the ridge in the center of the peninsula. Slopes on the east side of the peninsula also increase rapidly from the San Diego Bay to the central ridge. Elevations along the top of the ridge average approximately 350 to 375 feet above mean sea level (MSL) and, in a few locations, rise to over 420 feet above MSL.

Geology. The Point Loma peninsula lies within the Peninsular Ranges Geomorphic Province, which consists of north/south-trending mountain ranges and associated valleys with a belt of marine terraces along the coast. Overall, the geology of the peninsula is made up of marine sandstone and siltstone (U.S. Navy 2012). Artificial fill occurs beneath the Fort Rosecrans National Cemetery and along the bayside from Fort Rosecrans to La Playa. Small inclusions of beach sand are found along La Playa/SSC Pacific Bayside to the MSF deperming facility (U.S. Navy 2012).

Several seismic faults emerging from three main fault zones (i.e., Rose Canyon, La Nacion, and Point Loma) are beneath San Diego County (U.S. Navy 2012). These fault zones are considered potentially active, and the potential for severe earthquakes exists; however, no historic ground surface ruptures have been recorded in these fault zones (U.S. Navy 2012). Point Loma fault crosses northern Point Loma along the route of Nimitz Boulevard, and the Fort Rosecrans fault, which consists of a series of step-faults running along the Point Loma ridge extends from north of the installation boundary southward to the hillside above Ballast Point (U.S. Navy 2012). Combined, these faults make up the Point Loma Fault Zone (U.S. Navy 2012).

Geologic hazards associated with fault activity include surface fault rupture, strong ground motion or shaking, and liquefaction (i.e., where the soil shakes until it is unstable). Artificial fill, Holocene (recent) fluvial or water-transported deposits, and Holocene estuarine deposits are three types of deposits found locally that are most susceptible to the hazards of liquefaction. Other results of fault activity can include tsunamis, which are powerful, high-velocity waves that can surge through low-lying coastal areas, and seiches, which are earthquake-induced waves occurring in a confined or embayed body of water.

Soils. There are four main soil series on the Point Loma peninsula: the Carlsbad, Gaviota, Hambright, and Reiff series (U.S. Navy 2012). The peninsula also has small areas of coastal beaches, marina loamy coarse sand, rough broken land, steep gullied land, and terrace escarpments (U.S. Navy 2012). The following text provides general descriptions of the primary soils mapped on Point Loma and NBPL:

- **Carlsbad series, 2 to 30 percent slopes:** moderately well-drained to well-drained, moderately deep, gravelly loamy sands occurring over a hardpan. These soils formed in material weathered in place from soft ferruginous sandstone. On Point Loma, this soil type lies beneath the Fort Rosecrans National Cemetery, developed lands, and a small amount of coastal sage scrub.
- **Gaviota series, 15 to 30 percent slopes:** well-drained, shallow, fine sandy loams that formed in material weathered from marine sandstone. This soil type is mapped over a large area on Point Loma.
- **Hambright series, 30 to 75 percent slopes:** well-drained, shallow, gravelly clay loams that formed in material derived from shaly breccia. These soils are in mountainous areas.
- **Reiff series, 0 to 9 percent slopes:** well-drained, very deep (as thick as 90 inches on shoreline cliffs), fine sandy loams formed in alluvium derived from granitic rock soils. These soils occur on alluvial fans and ocean terraces (NRCS 2011).

3.5.2.2 Off Peninsula Facilities and Housing Areas

Topography. The NBPL Old Town Center consists of approximately 59 acres of highly developed land within Old Town San Diego. The facility is completely developed.

The topography on and in the vicinity of the Joint Regional Correctional Facility Southwest, on MCAS Miramar, consists of gently sloping, eroded plateaus or mesas cut by the southwesterly draining Rose Canyon.

The Silvergate and Naval Submarine Base housing areas are on the Point Loma Peninsula with the Pacific Ocean to the west and San Diego Bay to the east.

The Admiral Hartman housing area is in the City of San Diego community of Pacific Beach, and is approximately 2 miles inland from the Pacific Ocean. The housing area is relatively flat and completely developed with single family homes.

Beech Street Knolls is within the City of San Diego, in the community of South Park, where Beech Street ends to the east.

The Chesterton housing area is within the City of San Diego in the community of Serra Mesa, just west of Interstate 805. This housing area is relatively flat and developed with single family homes. The northwestern corner of the Chesterton housing area is in open space and has steeper slopes towards the tributary that crosses the site.

The Gateway Village housing area is within the City of San Diego in the community of Point Loma, adjacent to Rosecrans Street and Barnett Avenue. The Gateway Village housing area is completely developed on urban land.

The Mira Mesa Ridge housing area is within the City of San Diego in the community of Mira Mesa, west of Interstate 15. The Mira Mesa Ridge housing area is completely developed.

The Park Summit housing area is within the City of San Diego, in the community of Hillcrest at the corner of University Avenue and Florida Street. This housing area is completely developed.

The Village at NTC housing area consists of three separate housing areas that are within the City of San Diego in the community of Point Loma. The largest of the three housing areas is between Rosecrans Street to the west and the San Diego Bay to the east. There are two smaller housing areas across a channel in the San Diego Bay, north of Harbor Drive. These housing areas are completely developed on urban land.

Vista Ridge is within the City of Vista, north of State Route 78 and east of Melrose Avenue. This housing area is completely developed with single family homes.

The Village at Serra Mesa housing area is within the City of San Diego limits, in the community of Serra Mesa, with Interstate 805 just to the west. Open space exists on 13 acres of the Village at Serra Mesa site along a north-south running canyon between 150 feet (46 meters) to 450 feet (137 meters) wide.

Geology. San Diego County lies almost entirely within the Peninsular Ranges geomorphic province and is on the Pacific Plate, which follows a northwesterly path while grinding against the North American Plate. Grinding of the plates, earthquakes, past volcanic activity, and weathering processes, have largely shaped San Diego County into a geologically diverse area (U.S. Navy 2012). Nearby seismic structures include the Rose Canyon Fault Branch, which runs north-south to the west of the MCAS Miramar housing area. The Rose Canyon Fault is considered the most potentially damaging fault in the area, believed to have the potential to produce a 7.5-magnitude quake. Another major fault in the county, the Elsinore Fault, runs diagonally from the northwest to southeast across the county through Lake Henshaw. The San Jacinto Fault, further to the east and more or less paralleling the Elsinore Fault, has been the most active of San Diego County's fault zones in recent times (U.S. Navy 2012).

Soils. Example soils types within the NBPL housing areas include several types of loam, and escarpments with soil depths and drainage types ranging from deep, well-drained soils to very shallow or shallow well-drained soils.

3.5.3 Environmental Consequences

3.5.3.1 Proposed Action

No impacts on topography or geology at NBPL would occur from the implementation of the Proposed Action. No new structures are proposed that would increase the exposure of people or structures to significant seismic risk. Management actions would not substantially alter unique geologic or topographic features at any of the NBPL complexes, nor would resource

management actions disturb subsurface formations where unique paleontological resources could be located. The protection of soil resources from erosion through prevention and control practices, and from rehabilitation of degraded soil resources would occur under the Proposed Action. Therefore, implementation of the Proposed Action would not result in significant impacts on topography, geology, or soils. There would be some beneficial impacts from rehabilitation of areas with degraded soils.

3.5.3.2 No Action Alternative

Under the No Action Alternative, NBPL would continue to implement specific strategies in accordance with the 2002 INRMP for mapping existing eroded areas and implementing a soil erosion control program to conserve existing natural areas from disturbance that could degrade soils. Additionally, management policies include measures to revegetate existing denuded or eroded soils. None of the 2002 INRMP activities would result in the destruction of subsurface formations affecting paleontological resources. The No Action Alternative would therefore not increase the seismic risk to humans, nor would implementation be expected to adversely affect on-site soils or paleontological resources.

The NBPL Old Town Center, Miramar Pipeline, Mount Soledad Signal Station, Joint Regional Correctional Facility Southwest, La Jolla Nautical Mile, and the 11 housing areas are not included in the 2002 INRMP. However, the installation has established measures and programs for the management of topography, geology, and soils to ensure they are managed in compliance with Federal, state and local environmental laws and regulations. Therefore, beneficial impacts to topography or geology would occur; however no significant impacts to topography, geology, or soils would occur by implementing the No Action Alternative.

3.6 Water Resources

3.6.1 Definition of the Resource

Water resources include groundwater, surface water, floodplains, and wetlands. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes. Groundwater consists of subsurface hydrologic resources. It is an essential resource that functions to recharge surface water and is often used for potable water consumption, agricultural irrigation, and industrial applications. Surface water resources generally consist of oceans and bays, lakes, rivers, streams, and wetlands. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. The CWA (33 U.S.C. 1251 et seq., as amended) establishes Federal limits, through the National Pollutant Discharge Elimination System (NPDES), on the amounts of specific pollutants that are discharged to surface waters in order to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and nonpoint (i.e., storm water) sources of water pollution. Section 404 of the CWA regulates the discharge of dredge or fill material into waters of the United States, which includes wetlands. Waters of the United States are defined within the CWA, as amended, and jurisdiction is addressed by the USEPA and the U.S. Army Corps of Engineers (USACE).

Floodplains are areas of low-level ground present along rivers, stream channels, or coastal waters that are subject to periodic or infrequent inundation due to rain or melting snow. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, nutrient cycling, water quality maintenance, and habitat for a diversity of plants and animals. Flood potential is evaluated by the Federal Emergency Management Agency, which defines the 100-year floodplain as an area within which there is a 1 percent chance of inundation by a flood event in a given year. EO 11988, *Floodplain Management*, requires all Federal agencies to take action in reducing the risk of flood loss; minimizing the impacts of floods on human safety, health, and welfare; and restoring and preserving the natural and beneficial values of floodplains when acquiring, managing, or disposing of Federal lands. EO 11988 directs Federal agencies to avoid siting within floodplains unless the agency determines that there is no practicable alternative.

Wetlands are important natural systems and habitats because of the diverse biological and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, unique plant and wildlife habitat provision, storm water attenuation and storage, sediment detention, and erosion protection. Wetlands are protected as a subset of the waters of the United States under Section 404 of the CWA. The term “waters of the United States” has broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats (including wetlands). The USACE defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated conditions” (33 CFR Part 329) (USACE 1987). Technical guidance for identifying and delineating wetlands that may be subject to regulatory jurisdiction is also provided by USACE’s Regional Supplement for the Arid West Region (USACE 2008). Wetlands are also protected under EO 11990, *Protection of Wetlands*, the purpose of which is to reduce adverse impacts associated with the destruction or modification of wetlands.

3.6.2 Existing Conditions

3.6.2.1 On Peninsula

The Point Loma peninsula has distinct watersheds on both the San Diego Bay and ocean sides due to its unique topography (U.S. Navy 2012). The east side of the peninsula is in the San Diego Bay Watershed and the western side is in the Mission Beach-Frontal Pacific Ocean Watershed. The rugged terrain on the peninsula is enhanced by numerous natural drainages that channel runoff to sea level. The City of San Diego maintains a reservoir on Catalina Boulevard east of Fleet Combat Training Center, Pacific. In addition, two large potable water reservoirs are on the east side of Cabrillo Memorial Drive on Point Loma. One is north of Fort Rosecrans National Cemetery, and the other is south of Ashburn Road where it joins Cabrillo Memorial Drive (U.S. Navy 2012).

A comprehensive wetland delineation for NBPL has not been conducted. Jurisdictional waters of the United States can be broadly characterized on NBPL as the open water areas. The USACE exerts jurisdiction over waters of the United States that are subject to tidal influence under Section 404 of the CWA (U.S. Navy 2012). The limits of the USACE CWA Section 404

jurisdiction over Point Loma include shoreward and seaward waters of the United States. Shoreward/intertidal limits of jurisdictional waters on Point Loma comprise coastal areas between the mean low and mean high tide lines. Seaward limits of jurisdiction extend up to 3 nautical miles from the point of land contact with the sea, including bays and harbors (U.S. Navy 2012).

The 100-year floodplain has not been mapped on NBPL.

3.6.2.2 Off Peninsula Facilities and Housing Areas

NBPL Old Town Center

No surface water, floodplains, or wetlands occur on the NBPL Old Town Center.

Miramar Pipeline

The Miramar Pipeline crosses Tecolote Creek (in the Tecolote Canyon), the San Diego River, and the northern portion of the San Diego Bay. Habitats associated with surface waters, wetlands, and floodplains occurring along the Miramar Pipeline include the following: disturbed wetland, subtidal, deep bay, intermediate bay, shallow bay, estuarine, freshwater, channel, coastal salt marsh, freshwater marsh, riparian forests, and riparian scrub.

The lower San Diego River is on the 2010 California 303(d) List of Water Quality Limited Segments for several pollutants, including low dissolved oxygen, nitrogen and phosphorus, and total dissolved solids.

Mount Soledad Signal Station

No apparent surface water bodies, floodplains, or wetlands occur within the Mount Soledad Signal Station site.

Joint Regional Correctional Facility Southwest

Rose Canyon crosses Joint Regional Correctional Facility Southwest from the east-northeast to the west-southwest.

La Jolla Nautical Mile

No apparent surface water bodies, floodplains, or wetlands occur within the La Jolla Nautical Mile site.

NBPL Housing Areas

Surface Water. No surface water bodies occur within the Silvergate, Naval Submarine Base, Beech Street Knolls, Gateway Village, Park Summit, Vista Ridge, or Mira Mesa Ridge housing areas (MCAS Miramar 2006, U.S. Navy 2011).

Rose Canyon Creek crosses the open space area in the southeastern corner of the Admiral Hartman housing area and drains into Mission Bay (U.S. Navy 2011). There is also a drainage that occurs to the west side of Soledad Mountain Road, which has several culvert outfalls. A total of 0.20 acres of nonwetland jurisdictional waters of the United States occur within this creek (U.S. Navy 2011). Jurisdictional wetlands were also delineated along the creek, which are discussed in the following *Wetlands and Floodplains* section.

The Chesterton housing area contains an unnamed tributary creek of the Tecolote Creek. Within the boundaries of this housing area, the tributary flows at the bottom of a relatively steep canyon, with a culvert outfall situated at the western end of the site. Water enters the creek from precipitation and as runoff from the surrounding developed areas (U.S. Navy 2011). A total of 0.02 acres of nonwetland jurisdictional waters of the United States occur within this tributary. Jurisdictional wetlands were also delineated along the tributary, which are discussed in the following *Wetlands and Floodplains* section.

An east-west drainage occurs within the open space area in the western portion of the Village at Serra Mesa housing area. This drainage occurs within a side canyon of Murray Canyon to the west of the Serra Mesa housing area. The drainage is surrounded by Navy housing on all sides. Culverts are present at the easternmost and westernmost portions of the drainage, and a concrete-lined outfall is also present and connects with the primary drainage. A total of 0.01 acres of nonwetland jurisdictional waters of the United States were delineated within this drainage (U.S. Navy 2011). Jurisdictional wetlands were also delineated within this drainage, which are discussed in the following *Wetlands and Floodplains* section (U.S. Navy 2011).

Site drainage on the Mira Mesa Ridge, Gateway Village, Park Summit, Village at NTC, and Vista Ridge housing areas is controlled by a series of collection basins and storm water drainages that discharge into San Diego Bay or the Pacific Ocean. Silvergate and Naval Submarine Base housing areas discharge into the Pacific Ocean.

All U.S. Navy installations are subject to the statewide General Industrial Stormwater Permit. The U.S. Navy's General State Water Quality Certification was approved on November 2, 1998 (98C-127), and the U.S. Navy manages water quality on its installations by complying with such permits. Portions of San Diego Bay are on the CWA 303(d) list for impaired water bodies. In accordance with CWA Section 303, total maximum daily loads of effluents will be established for water bodies that are listed as impaired. These are the maximum levels of pollutants that a water body can receive while continuing to maintain specific water quality criteria targets. Some portions of NBPL are covered by a site specific Industrial Storm Water and Point Source permit. All other areas not covered by the installation NPDES Permit would be covered by a pending California Municipal Separate Storm Sewer System permit.

All water used by the NBPL housing areas, except the Vista Ridge housing area, is supplied by contract with the City of San Diego. The City gets its water from the Colorado River, the State Water Projects California Aqueduct, and other distant sources (MCAS Miramar 2006). All water used by Vista Ridge housing area is supplied by the Vista Irrigation District. Approximately 30 percent of this water comes from Lake Henshaw in San Diego County, and the remaining 70 percent is imported from the Colorado River (Vista 2010).

Wetlands and Floodplains. No wetlands occur within the Silvergate, Naval Submarine Base, Beech Street Knolls, Gateway Village, Mira Mesa Ridge, Park Summit, Village at NTC, or Vista Ridge housing areas (MCAS Miramar 2006, U.S. Navy 2011).

The Admiral Hartman housing area has a total of 0.74 acres of wetland jurisdictional waters of the United States (U.S. Navy 2011). The Chesterton housing area has a total of 0.78 acres of wetland jurisdictional waters of the United States.

The Village at Serra Mesa housing area has a total of 0.74 acres of wetland jurisdictional waters of the United States (U.S. Navy 2011). There is a drainage that is fed from precipitation and residential area runoff. The drainage runs generally east to west and connects to a primary drainage through a concrete-lined outfall and culvert at the western end of the drainage. Wetlands are present along the bottom of the drainage.

No floodplains occur within the NBPL housing areas, except for the Admiral Hartman housing area (MCAS Miramar 2006, U.S. Navy 2011). The 100-year and 500-year floodplains of the Rose Canyon Creek occur within the Admiral Hartman housing area.

3.6.3 Environmental Consequences

3.6.3.1 Proposed Action

No significant, adverse impacts on water supply would occur from water conservation actions associated with the Proposed Action.

Under the Proposed Action, sedimentation in surface waters downstream of NBPL facilities would be prevented or controlled due to a reduction in soil erosion. Therefore, long-term, beneficial impacts on water resources would result. The reduction of sediment within the effluent from urban storm water drainages that cross NBPL facilities would improve water quality in San Diego Bay. The improvement of unstable drainages, where necessary, on the NBPL peninsula facilities and off peninsula facilities including Joint Regional Correctional Facility Southwest and the Admiral Hartman, Chesterton, and Village at Serra Mesa housing areas would improve water quality due to a reduction in soil erosion and sedimentation within the streams.

The implementation of Low Impact Development (LID) practices and technologies in future improvements on NBPL would minimize the amount of storm water runoff from impervious surfaces and associated pollutants (e.g., petroleum products) that reaches waterways on and downstream of NBPL. The reduction in storm water entering streams would reduce impacts on surrounding floodplains. The minimization of fertilizers and pesticides applied on NBPL using Integrated Pest Management (IPM) would improve surface water quality by reducing nutrients and pollutants entering waterways in streams and the potential for future eutrophication in waterways. Herbicide and pesticide use would be closely controlled and applied in a manner consistent with Federal and state laws. To ensure effective use of herbicides and pesticides and reduce the likelihood of runoff, they would be applied days before a known rain event.

Therefore, implementation of the Proposed Action would not result in significant impacts on water resources, but rather, beneficial impacts to water quality as improvement projects are implemented.

3.6.3.2 No Action Alternative

Beneficial impacts on water resources would occur from the implementation of the No Action Alternative. The implementation of sediment- and erosion-control best management practices (BMPs) is a management strategy identified in the 2002 INRMP. Under the No Action Alternative, NBPL would continue to implement sediment- and erosion-control BMPs in accordance with the 2002 INRMP. The NBPL Old Town Center, Miramar Pipeline, Mount Soledad Signal Station, Joint Regional Correctional Facility Southwest, La Jolla Nautical Mile, and 11 housing areas were not included in the 2002 INRMP. However, the installation has established measures and programs for the management of water resources in these areas to ensure they are managed in compliance with Federal, state and local environmental laws and regulations. Therefore, beneficial impacts to water resources would occur; however no significant impacts to water resources would occur by implementing the No Action Alternative.

3.7 Biological Resources

3.7.1 Definition of the Resource

Biological resources include native or naturalized plants and animals and the habitats (e.g., grasslands, forests, and wetlands) in which they exist. Protected and sensitive biological resources include the following:

- ESA-listed species (threatened or endangered) and those candidate species proposed for ESA-listing as designated by the USFWS (terrestrial and freshwater organisms) or NMFS (marine organisms).
- Species that are state-listed by the CDFG as endangered, threatened, or candidates under the California Endangered Species Act (CESA).
- Other special status species (not state-listed under CESA), including CDFG species of special concern, California Native Plant Society (CNPS) rare plants, CDFG fully protected species, and birds of conservation concern (as identified by the American Bird Conservancy or National Audubon Society).
- Migratory birds, protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended, and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*.
- Marine mammals, protected under the Marine Mammal Protection Act of 1972, as amended.
- Bald and Golden Eagles protected under the Bald and Golden Eagle Protection Act.
- Critical habitats (designated by USFWS and NMFS), essential fish habitat (EFH) (designated by regional fishery management councils with NMFS assistance), and other sensitive habitats.

3.7.2 Existing Conditions

3.7.2.1 On Peninsula

Terrestrial Vegetation. A total of 375 terrestrial plant species have been identified in the undeveloped areas of Point Loma, excluding the intertidal areas. Of these, 60 percent (224 species) are native to Southern California (U.S. Navy 2012). Ten terrestrial vegetation community types were mapped in 2009 on the peninsula section of NBPL (U.S. Navy 2009b): (1) Southern coastal bluff scrub (36.1 acres), (2) maritime succulent scrub (275.6 acres), (3) Diegan coastal sage scrub (118.3 acres), (4) Diegan coastal sage scrub/southern maritime chaparral (55.3 acres), (5) southern maritime chaparral (116.2 acres), (6) maritime succulent scrub/southern maritime chaparral (1.0 acres), (7) Torrey pine forest (1.2 acres), (8) eucalyptus woodland (17.1 acres), (9) southern foredunes (1.6 acre), and (10) ruderal (91 acres). Approximately 121 acres of NBPL have been cultivated or landscaped. These areas are typically associated with developed sites and occur throughout NBPL. In some areas, cultivated species are invading open space areas and degrading the quality of the native vegetation communities (U.S. Navy 2012).

Aquatic Vegetation. Most of the undeveloped coastline of Point Loma consists of rocky intertidal habitat, with isolated sandy and cobble beaches. The term intertidal refers to the part of the shoreline that is under water during high tides and exposed to air during low tides. Rocky intertidal tide pools are formed when water gets trapped in small depressions in the rock when the tide recedes. These pools, along with the rocky benches, scattered boulders and isolated sandy beaches found on Point Loma are habitat for a diverse assemblage of marine plants, algae, and animals that are specially adapted to tolerate exposure to air and large wave forces. Over 300 species of algae and invertebrates have been documented in Cabrillo National Monument (U.S. Navy 2012).

A large kelp forest extending for approximately 5 miles with a width of approximately 0.62 miles occurs off the western shore of Point Loma. The kelp forest provides habitat for numerous fish species, many of which are commercially important. A number of species associated with the kelp forest use the tide pools at NBPL as a nursery ground, and juveniles of these fish can be found in the intertidal area at low tide. Some species spend their entire lives in the tide pools at NBPL.

Eelgrass is a perennial flowering aquatic plant submerged in bays and shallow coastal zones. Although eelgrass is not an endangered or threatened species, its presence in the waters adjacent to NBPL initiates management concerns regarding offshore activities because it is important to many species. Eelgrass beds found extensively throughout the bay appear to be very important in supporting juvenile and adult fish populations. Bird species, such as Black Brant (*Branta bernicla*) and the Federal- and state-listed California Least Tern (*Sterna antillarum browni*), forage over eelgrass beds. Eelgrass beds were mapped south of the MSF degaussing facility and adjacent to the MSF deperming facility, SSC Pacific, and FITCPAC, and around the perimeter of NMAWC.

Wildlife. Appendix G of the NBPL INRMP (U.S. Navy 2012) contains a comprehensive list of fauna species observed on NBPL during the 2009 natural resources inventory (U.S. Navy 2009b).

Approximately 300 terrestrial invertebrate species were identified on NBPL during the 1993–1994 and 2009 surveys.

The San Diego Bay provides a unique habitat to support diverse assemblages of coastal marine fish and supports fish nurseries and large numbers of juvenile fish. The most abundant species detected during the 1994–1998 study included northern anchovy (*Engraulis mordax*), topsmelt (*Atherinops affinis*), slough anchovy (*Anchoa delicatissima*), Pacific sardine (*Sardinops sagax*), and shiner surfperch (*Cymatogaster aggregata*). Species that dominated the biomass during the survey included California grunion (*Leuresthes tenuis*), round stingrays (*Urolophus halleri*), and spotted sand bass (*Paralabrax maculatofasciatus*) (Allen 1998).

Common reptilian species documented during a 1995–2001 herpetofauna inventory on NBPL include southern alligator lizard (*Elgaria multicarinatus*), orange-throated whiptail (*Cnemidophorus hyperythrus*), western fence lizard (*Sceloporus occidentalis*), and side-blotched lizard (*Uta stansburiana*) (Atkinson et. al. 2003, U.S. Navy 2012).

NBPL provides foraging and nesting habitat for several resident and seasonal birds (U.S. Navy 2012). A total of 358 bird species, including sensitive species, have been documented on Point Loma. See the *Protected and Sensitive Species* section for information regarding Federal- and state-protected and sensitive bird species. Avian species that use the available habitat on Point Loma during the breeding season include the Great Horned Owl (*Bubo virginianus*), Barn Owl (*Tyto alba*), Peregrine Falcon (*Falco peregrinus*), American Kestrel (*F. sparverius*), Red-tailed Hawk (*Buteo jamaicensis*), Red-shouldered Hawk (*B. lineatus*), Ferruginous Hawk (*B. regalis*), Northern Harrier (*Circus cyaneus*), Cooper’s Hawk (*Accipiter cooperii*), Sharp-shinned Hawk (*A. striatus*), Osprey (*Pandion haliaetus*), White-tailed Kite (*Elanus leucurus*), Great Egret (*Ardea alba*), Northern Flicker (*Colaptes auratus*), Northern Rough-winged Swallow (*Stelgidopteryx serripennis*), Say’s Phoebe (*Sayornis saya*), American Robin (*Turdus migratorius*), and Red-breasted Nuthatch (*Sitta canadensis*) (U.S. Navy 2012, U.S. Navy 2009b).

Point Loma is an important resource along the Pacific Flyway for migratory birds. Over 40 species of Wood Warblers (family Parulidae) have been recorded on Point Loma during spring and fall migrations. Orange-crowned Warblers (*Vermivora celata*), Lucy’s Warblers (*Vermivora luciae*), Black-throated Gray Warblers (*Dendroica nigrescens*), Pine Warblers (*Dendroica pinus pinus*), and Painted Redstarts (*Myioborus pictus pictus*) are common visitors to the area. Hepatic Tanagers (*Piranga flava*), Summer Tanagers (*P. rubra*), Scarlet Tanagers (*P. olivacea*), and Western Tanagers (*P. ludoviciana*) are summer residents on the peninsula and have been observed in several habitats on NBPL.

Thirty mammalian species have been recorded on Point Loma. Commonly observed terrestrial species include northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), deer mouse (*Peromyscus eremicus*), California vole (*Microtus californicus*), and western harvest mouse (*Reithrodontomys megalotis*). Bobcat (*Felis rufus*) and coyote (*Canis latrans*) historically

occurred on the peninsula (U.S. Navy 2012). The gray fox (*Urocyon cinereoargenteus*) was observed during studies on Point Loma conducted in 2001 (U.S. Navy 2012).

Bat species documented on NBPL include the western mastiff bat (*Eumops perotis californicus*), Mexican free-tailed bat (*Tadarida brasiliensis*), several myotis species (*Myotis* spp.), western red bat (*Lasiurus blossevillii*), big brown bat (*Eptesicus fuscus*), and big free-tailed bat (*Nyctinomops macrotis*) (Brown and Berry 1997, U.S. Navy 2012). Most bats in southern California, including the western mastiff bat and some myotis species, are considered CDFG species of special concern (see **Table 3-3**) (U.S. Navy 2012).

Protected and Sensitive Species. Six federally listed threatened and endangered species are known or have the potential occur on NBPL including the Orcutt’s spineflower (*Chorizanthe orcuttiana*), Western Snowy Plover (*Charadrius alexandrinus nivosus*), Coastal California Gnatcatcher (*Polioptila californica californica*), California Least Tern (*Sterna antillarum browni*), Least Bell’s Vireo (*Vireo bellii pusillus*), and Pacific pocket mouse (*Perognathus longimembris pacificus*) (U.S. Navy 2009b). Additionally, six state-listed threatened and endangered species (i.e., protected under the CESA) have been documented on NBPL, including the Orcutt’s spineflower, Swainson’s Hawk (*Buteo swainsoni*), California Black Rail (*Laterallis jamaicensis coturniculus*), Bank Swallow (*Riparia riparia*), California Least Tern, and Least Bell’s Vireo (U.S. Navy 2009b). The Federal and state status and known presence on NBPL of each of these species are provided in **Table 3-3**.

Table 3-3. Special Status Species Observed on NBPL

Common Name	Scientific Name	Federal Status	State Status	NBPL Presence
Plants				
Orcutt’s spineflower	<i>Chorizanthe orcuttiana</i>	FE	SE	Documented Occurrences
Invertebrates				
Black abalone	<i>Haliotis cracherodii</i>	FE		Unknown
White abalone	<i>Haliotis sorenseni</i>	FE		Unknown
Birds				
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	FT	SSC	Occasional (non-breeder)
Coastal California Gnatcatcher	<i>Polioptila californica californica</i>	FT	SSC	Occasional migrant
California Least Tern	<i>Sterna antillarum browni</i>	FE	SE	Forages in Bay
Least Bell’s Vireo	<i>Vireo bellii pusillus</i>	FE	SE	Occasional migrant
Swainson’s Hawk	<i>Buteo swainsonii</i>	BCC	ST	Migrant
California Black Rail	<i>Laterallis jamaicensis coturniculus</i>	BCC	ST	Occasional migrant
Bank Swallow	<i>Riparia riparia</i>		ST	Rare migrant
Bald Eagle	<i>Haliaeetus leucocephalus</i>		SE	Low potential to occur

Common Name	Scientific Name	Federal Status	State Status	NBPL Presence
Great Egret*	<i>Ardea alba</i>			Breeding
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	BCC		Breeding
Osprey*	<i>Pandion haliaetus</i>			Breeding
California Brown Pelican*	<i>Pelicanus occidentalis californicus</i>			Year-round foraging
Amphibians and Reptiles				
Orange-throated whiptail	<i>Aspidoscelis hyperythra</i>		SSC	Stable population
Mammals				
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	FE	SSC	Low potential to occur

Source: U.S. Navy 2009d

Note: * Species actively managed for compliance with requirements such as Migratory Bird Treaty Act (MBTA)

Key: Federal Status: FE = Federal Endangered, FT = Federal Threatened, BCC = Birds of Conservation Concern State Status: SE = State Endangered, ST = State Threatened, SSC = Species of Special Concern

In addition to Federal- and state-threatened and endangered species, several other protected and sensitive species, including California species of special concern, and birds protected by the MBTA have been documented on NBPL (**Table 3-3**).

Twenty-four CNPS sensitive species have been documented on NBPL. CNPS Rare Plant Rank 1B includes plants that are rare throughout their range and meet the requirements for state listing. Examples of plant species observed on NBPL that are CNPS Rare Plant Rank 1B species include aphanisma (*Aphanisma blitoides*), Nuttall’s lotus (*Lotus nuttallianus*), and snake cholla (*Opuntia californica* var. *californica*). The cliff spurge (*Euphorbia misera*) is a CNPS Rare Plant Rank 2 plant species (i.e., rare in California but common elsewhere) occurring on NBPL. Lewis’s evening primrose (*Camissonia lewisii*) is a CNPS Rare Plant Rank 3 species (i.e., plants for which insufficient information exists to assign them to another list or they are taxonomically problematic) occurring on NBPL. Seaside calandrinia (*Calandrinia maritima*), ashy spike-moss (*Selaginella cinerascens*), and San Diego County viguiera (*Viguiera laciniata*) are CNPS Rare Plant Rank 4 species (i.e., plants of limited distribution). Rank 4 is a watch list; these species are not rare from a statewide perspective, but their status should be regularly monitored to determine if changes are taking place.

Five marine mammal species, protected under the Marine Mammal Protection Act, were documented within the vicinity of NBPL (within San Diego Bay and near the Pacific coastline) during a 2007–2008 survey, including the harbor seal (*Phoca vitulina*), California sea lion (*Zalophus californianus*), bottlenose dolphin (*Tursiops truncatus*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), and common dolphin (*Delphinus* sp.) (U.S. Navy 2009b). Harbor seals and sea lions will occasionally haul out in the intertidal areas of Point Loma (U.S. Navy 2012).

NBPL supports efforts to recover abalone species in southern California. CDFG developed a recovery and management plan for abalone species in 2005 (CDFG 2005). Abalone species identified within the plan include red abalone (*Haliotis rufescens*), green abalone (*H. fulgens*), pink abalone (*H. corrugata*), white abalone (*H. sorenseni*), pinto abalone (*H. kamtschatkana*), black abalone (*H. cracherodii*), and flat abalone (*H. walallensis*) (CDFG 2005). Key locations identified in the 2005 plan for recovery of red, green, pink, black, pinto, and flat abalone species at NBPL include La Jolla (Point La Jolla to Bird Rock), Point Loma from Mission Bay to Rathay Point, and Point Loma from Rathay Point to Ballast Point.

3.7.2.2 Off Peninsula Facilities and Housing Areas

Miramar Pipeline

Several vegetative communities have been identified along the Miramar Pipeline (see **Table 3-4**).

Table 3-4. Vegetative Communities Along Miramar Pipeline

Vegetative Community	Acreage Along Pipeline
Eucalyptus	1.7
Disturbed wetland	1.6
Disturbed habitat	178.9
Urban/Developed	1,467.7
Subtidal	0.4
Deep bay	14.9
Intermediate bay	70.9
Shallow bay	62.8
Estuarine	2.5
Freshwater	0.6
Channel	0.3
Maritime succulent scrub	2.5
Diegan coastal sage scrub	191.3
Chaparral	51.4
Southern mixed chaparral	41.0
Southern maritime chaparral	4.5
Coastal sage-chaparral scrub	23.6
Valley and foothill grassland	21.2
Valley needlegrass grassland	4.0
Nonnative grassland	54.5

Vegetative Community	Acreage Along Pipeline
Coastal salt marsh	2.4
Freshwater marsh	2.3
Coast live oak riparian forest	10.0
Arroyo willow riparian forest	3.0
Cottonwood-willow riparian forest	5.0
Sycamore-alder riparian woodland	11.4
Southern riparian scrub	18.6
Southern willow scrub	0.1

Sources: Munson 2010, Holland 1986

NBPL Old Town Center

NBPL Old Town Center consists of approximately 59 acres of highly developed land within Old Town San Diego. The facility is completely developed and has only sparse ornamental vegetation that might support casual migratory species (e.g., Short-eared Owl [*Asio flammeus*]), and urbanized mammals including feral cats (*Felis catus*), black rat (*Rattus rattus*), and the house mouse (*Mus musculus*).

Joint Regional Correctional Facility Southwest

Mitigation commitments for the Joint Regional Correctional Facility Southwest include the purchase of a permanent conservation easement for 8.9 acres of coastal sage scrub habitat on the Sycamore Westridge Parcel of the San Dieguito River Park (MCAS Miramar 2010). Completed in late 2009, the easement between NAVFAC SW and by the San Dieguito River Valley Regional Open Space Park Joint Powers Authority conserves 8.9 acres of habitat to mitigate for impacts on Coastal California Gnatcatchers and their habitat from expansion and alteration of the Joint Regional Correctional Facility Southwest on MCAS Miramar (see **Figure 1-2**). Since Joint Regional Correctional Facility Southwest is managed through NBPL, any long-term habitat restoration, maintenance, and monitoring of this easement will be conducted by either NBPL or NAVFAC SW personnel (MCAS Miramar 2010).

NBPL Housing Areas

Vegetation. Nine of the NBPL housing areas are characterized by ornamental vegetation typical of residential landscaping and are mapped as Developed/Ornamental. These include the Silvergate, Naval Submarine Base, Gateway Village, Mira Mesa Ridge, Park Summit, Village at NTC, and Vista Ridge housing areas (U.S. Navy 2011, MCAS Miramar 2006). These housing areas are characterized by turf grass lawns and landscaping with several planted ornamental trees.

Four of the NBPL housing areas contain open space with native vegetation: Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa. Open space occurs on 9 acres of the

Admiral Hartman housing area along the northern and eastern boundaries of the site. Sixty plant species were found within the Admiral Hartman open space during the 2009 natural resources inventory, 30 species of which are native (U.S. Navy 2011). The open space along the eastern boundary of the site contains a marsh vegetation habitat dominated by alkalai heath (*Frankenia salina*), jaumea (*Jaumea carnosa*) and saltgrass (*Distichlis* spp.). The vegetation cover in the drainage area to the west of Rose Canyon Creek includes patches of riparian trees and shrubs such as mule fat, willow, and acacia (*Acacia* spp.); however, these areas are too small to support stable habitat communities (U.S. Navy 2011).

Open space occurs on 3 acres of the Beech Street Knolls site around the perimeter of the housing area. Forty-three plant species were found within Beech Street Knolls open space during the 2009 natural resources inventory, 20 species of which are native (U.S. Navy 2011). The open space area along the northern portion has a high presence of acacia and eucalyptus, with brome, wild oat, and mustard. There are two small patches of coastal sage scrub found in the open space: one near the northern edge dominated by lemonadeberry and scrub oak (*Quercus berberidifolia*), and the other in the southeastern corner where California adolphia (*Adolphia californica*) and California sagebrush are dominates (U.S. Navy 2011).

Open space occurs on 11 acres of the Chesterton housing area in a sloped canyon along the northern boundary of the site. Seventy-two plant species were found within the Chesterton open space during the 2009 natural resources inventory, 39 species of which are native (U.S. Navy 2011). The open space in the housing area contains several vegetation communities including patches of coastal sage scrub, nonnative vegetation and nonnative grassland along the slopes, and riparian/wetland and nonnative vegetation at the bottom of the canyon. The northeastern slopes consist of patches of native vegetation including laurel sumac, buckwheat (*Eriogonum fasciculatum*), and a large number of weedy species. The north-facing slopes range from herbaceous weedy vegetation on shallow slopes to scrub oak, lemonadeberry, laurel sumac and eucalyptus on steep slopes. South-facing slopes in the western end contain coastal sage scrub dominated by buckwheat, California sagebrush, and a patch of cane bluestem (*Bothriochloa barbinodis*). The area adjacent to the housing area boundary walls in the south are dominated by nonnative species such as hottentot-fig, bromes, wild oats, rat-tail fescue (*Vulpia myuros* var. *hirsuta*), tocolote, and shortpod mustard. The vegetation cover in the drainage area at the bottom of the canyon includes patches of riparian trees and shrubs such as mule fat, willow, Mexican fan palm, Brazilian pepper tree, eucalyptus, and pampas grass (U.S. Navy 2011).

Open space occurs on 13 acres of the Village at Serra Mesa site along a north-south running canyon between 150 to 450 feet wide. Twenty-nine plant species were found within the Village at Serra Mesa open space during the 2009 natural resources inventory, 18 species of which are native (U.S. Navy 2011). The slopes of the open space in the housing area consist of coastal sage scrub, the bottom drainage consists of riparian vegetation, and the boundary with the residential community has patches of nonnative vegetation. The coastal sage scrub near the boundary fence is dominated by lemonadeberry, with California sagebrush, California buckwheat, felt-leaved yerba santa, and broom baccharis. Riparian species in the canyon bottom consists of cattail, three-square, willows, Brazilian pepper tree, and pampas grass. Nonnative areas occur immediately adjacent to the fence and consist of disturbed habitat that is 0 to 25 feet in width, and includes hottentot-fig, Brazilian pepper tree, bromes, wild oat, shortpod mustard, and fountain grass (U.S. Navy 2011).

Wildlife. Appendix G of the NBPL INRMP (U.S. Navy 2012) contains a comprehensive list of fauna species observed at the NBPL housing areas during the 2009 natural resources inventory. No mammals were documented within the 11 NBPL housing areas during the 2009 natural resources inventory (U.S. Navy 2011). The desert cottontail (*Sylvilagus audubonii*) and California ground squirrel may use portions of the open space areas of the Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa housing areas (U.S. Navy 2006b).

The Naval Submarine Base, Chesterton, and Village at Serra Mesa housing areas have the highest diversity of bird species. The most common bird species include the Common Raven, Mourning Dove, Anna's Hummingbird, House Finch, House Sparrow (nonnative), Lesser Goldfinch, and Northern Mockingbird. Two Black-crowned Night Heron rookeries occur in the stand of eucalyptus to the east of and adjacent to the Naval Submarine Base housing area that contain a minimum of 10 nests (U.S. Navy 2011).

Three housing areas have documented reptile species: Admiral Hartman (western fence lizard), Beech Street Knolls (western fence lizard), and Chesterton (Belding's orange-throated whiptail) (U.S. Navy 2011).

Protected and Sensitive Species. No protected or sensitive mammal species were observed within the NBPL housing areas during the 2009 natural resources inventory (U.S. Navy 2011). The northwestern San Diego pocket mouse was described as having low to moderate potential to occur in the open space area of the Beech Street Knolls and Chesterton housing areas. The San Diego woodrat was described as having a low potential to occur at Beech Street Knolls and a high potential to occur at the Chesterton housing area due to the presence of woodrat nests (species unknown) (U.S. Navy 2006b).

The Coastal California Gnatcatcher, which is federally threatened and listed as a California Species of Special Concern, was observed within the open space areas on canyon slopes of the Chesterton and Village at Serra Mesa housing areas during the 2009 surveys (U.S. Navy 2011). There is a low potential for the Coastal California Gnatcatcher to occur in the open space surrounding Beech Street Knolls due to a small area of potentially suitable habitat. This species has been documented north of the housing area but was not detected during the 2009 natural resources inventory (U.S. Navy 2011). There is a low potential for the following avian protected or sensitive species to occur at the Village at Serra Mesa and Beech Street Knolls housing areas: Least Bell's Vireo, Peregrine Falcon, Loggerhead Shrike, and Bell's Sage Sparrow (U.S. Navy 2011).

The Belding's orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), a California Species of Special Concern, was observed at the Chesterton housing area. There is a low potential for the following sensitive reptile species to occur at the Village at Serra Mesa and Beech Street Knolls housing areas based on marginally suitable habitat: Belding's orange-throated whiptail, coast horned lizard, Coronado skink, coast patch nosed snake, and red diamond rattlesnake (U.S. Navy 2011).

No sensitive invertebrate species were observed within the NBPL housing area during the 2009 natural resources inventory (U.S. Navy 2011).

Six CNPS-listed plant species have been observed within the NBPL housing areas. The estuary seablite (CNPS Rare Plant Rank 1B) and San Diego sagewort (CNPS Rare Plant Rank 4) occur in the Admiral Hartman housing area; the California adolphia (CNPS Rare Plant Rank 2) was observed in the Beech Street Knolls open space area; Orcutt's spineflower (CNPS Rare Plant Rank 1B) was identified on NBPL Mainbase, and the San Diego barrel cactus (CNPS Rare Plant Rank 2) and Nuttall's scrub oak (CNPS Rare Plant Rank 1B) were documented at the Chesterton housing area (U.S. Navy 2011).

3.7.3 Evaluation Standards

Under the ESA Section 7(a)(2), each Federal agency is required to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species, or adversely modify or destroy designated Critical Habitat. Under the ESA, "jeopardy" occurs when an action is reasonably expected, directly or indirectly, to diminish a species' numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced. Federal agency action proponents are responsible for making one of the following effects determinations (16 U.S.C. § 1531–1543):

- "No Effect" is the appropriate determination when a proposed action would have no effect on listed species or designated Critical Habitat. For this determination, the effects of a proposed action should be temporally or spatially separated from the listed species. This determination is made by the action agency and does not require further consultation.
- "May Affect, but Not Likely to Adversely Affect" is the appropriate determination when the effects of the action on listed species or designated Critical Habitat would be discountable, insignificant, or wholly beneficial. In order to receive concurrence with this determination, the action agency must initiate informal Section 7 consultation.
- "Likely to Adversely Affect" is the appropriate determination if any adverse effects on listed species or designated Critical Habitat could occur as a direct or indirect result of a proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. Initiation of formal Section 7 consultation would be required and the USFWS or NMFS would be responsible for completing a biological opinion on the action (and could issue an incidental take statement).

3.7.4 Environmental Consequences

3.7.4.1 Proposed Action

Beneficial impacts on vegetation, wildlife, or protected and sensitive species would occur from implementation of the Proposed Action

Vegetation. Long-term, beneficial effects on native vegetation would occur from the implementation of habitat improvement projects such as noxious weed/invasive plant removal

and revegetation with native plant species. The removal and control of invasive plants would increase native plant species cover and diversity within the open space areas on NBPL.

Wildlife. Long-term, beneficial effects on wildlife would occur from the implementation of habitat improvement projects to protect habitats, removal of invasive vegetation, and revegetation with native plants. These habitat improvement projects would increase the amount and quality of habitat available for native wildlife species. Long-term, beneficial effects on wildlife species, particularly songbirds and small mammals, would result from the control of feral animal populations on NBPL.

Long-term, beneficial effects on herons and egrets would occur from the implementation of management provisions for herons and egrets per a revised Heron and Egret Management Plan. Long-term, beneficial effects on certain bird and bat species would result from the installation of bird and bat boxes on NBPL.

Under the INRMP, several habitat and wildlife population surveys would be conducted and management measures would be developed based on their results. These include habitat surveys, pollinator species surveys, and herpetofauna population surveys. Short-term, adverse effects could occur as a direct result of conducting surveys, however ultimately long-term, beneficial impacts on targeted habitats and populations would occur from these proposed projects.

Protected and Sensitive Species. Long-term, beneficial effects on protected and sensitive species would occur from the implementation of habitat improvement projects to protect habitats, removal of invasive vegetation, and revegetation with native plants. These habitat improvement projects would increase the amount and quality of habitat available for protected and sensitive species.

Long-term, beneficial effects on potential Federal- and state-listed threatened and endangered species and other protected and sensitive species would result from regular (approximately every 2 years) surveys for these species on NBPL facilities. By continuously updating known and potential protected and sensitive species habitats, NBPL would be able to effectively avoid adverse impacts on these species and provide for their protection from installation activities in the future. Long-term, beneficial effects on abalone within San Diego Bay would occur from the implementation of abalone management measures contained within the Abalone Recovery and Management Plan, such as seasonal closures for fishing.

As stated above, implementation of the Proposed Action would result in long-term beneficial impacts to NBPL vegetation, wildlife and protected and sensitive species. Therefore, there would be no significant impact to biological resources from implementation of the Proposed Action.

3.7.4.2 No Action Alternative

Beneficial impacts on biological resources would result from the implementation of the No Action Alternative. Management strategies which benefit biological resources (i.e., invasive vegetation removal, revegetation with native species, feral animal control, and surveys for protected and sensitive species) are identified in the 2002 INRMP. Under the No Action Alternative, NBPL would continue to implement these strategies in accordance with the 2002

INRMP. The NBPL Old Town Center, Miramar Pipeline, Mount Soledad Signal Station, Joint Regional Correctional Facility Southwest, La Jolla Nautical Mile, and the 11 housing areas were not included in the 2002 INRMP. However, the installation has established measures and programs for the management of biological resources in these areas to ensure they are managed in compliance with Federal, state and local environmental laws and regulations. Therefore, beneficial impacts to biological resources would occur; however no significant impacts to biological resources would occur by implementing the No Action Alternative.

3.8 Hazardous Materials and Wastes

3.8.1 Definition of the Resource

Hazardous Materials and Hazardous Wastes. A hazardous substance, pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601(14)), is defined as “(A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33; (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title; (C) any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, (42 U.S.C. §6921); (D) any toxic pollutant listed under section 1317(a) of Title 33; (E) any hazardous air pollutants listed under section 112 of the CAA (42 U.S.C. §7412); and (F) any imminently hazardous chemical substance or mixture with respect to which the Administrator of USEPA has taken action pursuant to section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).”

Hazardous materials are defined by 49 CFR 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions” in 49 CFR Part 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR Parts 105–180.

RCRA defines a hazardous waste in 42 U.S.C. §6903, as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.”

Title 22 §66261.3 of the California Code of Regulations defines waste as hazardous if it exhibits ignitability, corrosivity, reactivity or toxicity, with exceptions detailed under §66261.4 or Health and Safety Code §25143.2(b). Title 22, Chapter 11, Appendix X lists hazardous wastes and constituents which contain RCRA and non-RCRA wastes.

EO 12088, *Federal Compliance with Pollution Control Standards*, as amended, directs Federal agencies to (1) comply with “applicable pollution control standards,” in the prevention, control,

and abatement of environmental pollution, and (2) consult with the USEPA, state, interstate, and local agencies concerning the best techniques and methods available for the prevention, control, and abatement of environmental pollution from hazardous materials or hazardous waste due to Federal facility activities. The management of hazardous waste is governed by RCRA Subtitle C regulations (40 CFR Parts 260–270), which are administered by the USEPA. The regulations require hazardous waste to be handled, stored, transported, disposed of, or recycled in compliance with applicable regulations. OPNAVINST 5090.1C CH-1 identifies requirements and responsibilities for the management of hazardous materials and wastes at Navy facilities.

Pesticides are regulated under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 136 et seq.), the USEPA Regulations for Pesticide Programs (40 CFR Parts 150–186), and the USEPA Regulations on Insecticide, Fungicide, and Rodenticide Use (40 CFR Part 162). The regulations require these chemicals to be handled, stored, transported, disposed of, or recycled in compliance with applicable regulations.

The DoD established the Defense Environmental Restoration Program (ERP) in 1986 to address hazardous waste sites on military property. The Navy's ERP was established to characterize, clean up, and control releases from past hazardous waste disposal operations. The ERP is carefully coordinated with Federal, state, and local environmental agencies during each step of the process. Depending upon the circumstances, ERP Sites are identified, investigated, and cleaned up in accordance with RCRA or CERCLA, or with an integrated approach based on both laws (NAVFAC 2005).

3.8.2 Existing Conditions

Hazardous Materials and Wastes. The Navy has implemented a Hazardous Material Control and Management Program and a Hazardous Waste Minimization Program for all of its facilities, including NBPL. These programs are governed by OPNAVINST 4110.2, *Hazardous Material Control and Management*, and OPNAVINST 5090.1C CH-1, respectively. The Navy continuously monitors its operations to find ways to minimize the use of hazardous materials and to reduce the generation of hazardous wastes. Nonhazardous materials are substituted for hazardous materials whenever practicable, processes are changed to ones that do not employ hazardous materials, and care is taken to avoid contaminating nonhazardous materials with hazardous materials.

Grounds maintenance at NBPL facilities requires a variety of chemicals including pesticides, herbicides, fungicides, cleaning agents, oils, fuels, solvents, and paints. During nonnative plant control efforts in 2007, chrysanthemum (*Chrysanthemum coronarium*), Russian thistle (*Salsola kali*), castor bean (*Ricinus communis*), fountain grass (*Pennisetum* spp.), smilo grass (*Piptatherum miliaceum*), artichoke thistle (*Cynara cardunculus*), and mixed invasives were foliar sprayed with a 2 percent Roundup® solution. Fennel (*Foeniculum vulgare*) was foliar sprayed with a mixture composed of 2 percent Garlon™ and 1 percent Roundup®. Canary Island St. John's wort (*Hypericum canariensis*) and tree tobacco (*Nicotiana glauca*) were first cut and then sprayed an equal concentration of Garlon™ herbicide and crop oil surfactant (NAVFAC SW 2008).

The Integrated Pest Management Plan (IPMP) for the San Diego Metro Area Installations (SDMAI), which includes NBPL, was completed in September 2009. The IPMP provides guidance for implementing a pest management program at SDMAI, promotes nonchemical controls for managing pests on NBPL, and includes management recommendations for a wide variety of pests found in an urban system.

DoDI 4150.7 states that it is DoD policy to establish and maintain safe, effective, and environmentally sound integrated pest management (IPM) programs to prevent or control pests and disease vectors that could adversely impact readiness or military operations by affecting the health of personnel or damaging structures, material, or property. DoDI 4150.7 sets the Measures of Merit for IPM, which includes the following:

- **Measure of Merit 1: IPM Planning.** Through the end of FY 2010, 100 percent of DoD installations will maintain IPM plans that are reviewed and approved by a DoD-certified pest management consultant, and annually updated by the installation pest management coordinator.
- **Measure of Merit 2: Pesticide Use Reduction.** Through the end of FY 2010, the DoD will maintain the reduction goal in annual pesticide use by both government and contractor pesticide applicators on DoD installations. This reduction goal is set at an average of the FY 2002 and 2003 usage, which is 389,000 pounds of active ingredient (45 percent of the original 1993 baseline—a 55 percent reduction).
- **Measure of Merit 3: Pesticide Applicator Certification.** Through the end of FY 2010, 100 percent of DoD pesticide applicators will be certified. Direct-hire employees, certified in accordance with Reference (h), have a maximum of 2 years to become certified after initial employment. Contracted employees shall have appropriate state, territorial, or host-nation certification in the appropriate categories at the time the contract is let.

NBPL currently implements an IPM Program to maintain consistency with DoDI 4150.7. This method of pest management involves four primary control strategies: (1) mechanical and physical control (physical removal or exclusion of pests), (2) cultural control (altering the environment to make it less suitable or attractive to the pest), (3) biological control (use of other organisms that control the pest), and (4) chemical control (use of pesticides and herbicides). Application of the least toxic chemical should be used as a last resort. All pest management activity at NBPL is coordinated by the installation IPM Coordinator. Pesticides to be applied on the installation must be approved by the regional NAVFAC pest management consultant and included in the installation pesticide authorized use list. All pesticides that are to be applied to natural areas should also be reviewed and approved by the natural resources manager. The Lincoln Property Company is responsible for landscaping and grounds maintenance on the off-station Navy housing areas.

Installation Restoration Program. There are currently 37 identified ERP sites and 1 munitions response site on NBPL. Of these sites, 17 have received regulatory closure and require no further action. Sites that have received regulatory closure have minimal or no effect on future development potential. Nineteen sites are active, and one site is being managed under the USEPA's Brownfields program. Active sites might require investigation, removal, or remedial action. Future use of an active site could require Navy Remedial Program Manager concurrence

and could require further site characterization or removal/remedial action, but additional evaluation and Remedial Program Manager concurrence is required (U.S. Navy 2009a). Open ERP sites on NBPL include the following:

- SUBASE Site 14: Ball Field (Old Refuse Disposal Area)
- SUBASE Site 15: Building 527 Weapons Storage (Submarine Base Rubble Disposal Area)
- SUBASE Site 18: Torpedo Shop
- SUBASE UST 105: Deperming Bldg 2 UST
- SPAWAR Site 5: North Coast Rubble Disposal Area
- SPAWAR Site 6: Bldg A-86 Rubble Disposal Area
- SPAWAR Site 7: Bldg A-44 Rubble Disposal Area
- SPAWAR Site 8: Bldg A-34 Rubble Disposal Area
- SPAWAR Site 9: Bldg A-34 Plating Waste Disposal Area (PWC B-34 Plating)
- SPAWAR Site 10: Sewage Sludge Spreading Area
- SPAWAR Site 11: South Coast Rubble Disposal Area
- SPAWAR Site 20: Old ICSTF Radar Complex Station (Central Coast Rubble Disposal Area). Collocated with Munitions Response Site 1.
- SPAWAR Site 23: Abrasive Blast Grit Disposal Area
- NTC UST 3: Navy Exchange Gas Station
- OTC Site 1: Railroad Spur
- OTC Site 10: Bldg 33 Liquid/Sludge
- OTC Site 11: Bldg 3 Sewer Line Break
- OTC Site 100: Taylor Street Complex
- FCTC Site 1: Rubble Disposal Area.

3.8.3 Environmental Consequences

3.8.3.1 Proposed Action

Long-term, beneficial impacts would occur from implementation of the Proposed Action. The IPM program for NBPL requires physical and cultural controls for the removal and prevention of invasive and exotic plants and pests, where feasible, and the use of chemical applications as a last resort. Under the Proposed Action, the reduction in the use of pesticides, rodenticides, and herbicides on NBPL facilities would result in an overall decrease in the use of hazardous materials and a decrease in the generation of hazardous wastes. Besides pesticides, rodenticides, and herbicides, no other hazardous substances would be intentionally applied at NBPL under the 2012 INRMP. Any unintentional spills, such as oil leaks from vehicles, would be reported and

cleaned up according to Navy policy. Projects in the INRMP that generate hazardous wastes, such as used fertilizer buckets or treated wood stakes, would have the proper plan to dispose of the waste in a permitted landfill. Therefore, the Proposed Action would have no significant impact on the environment from hazardous materials or wastes. The long-term reduction of pesticides, herbicides, and rodenticides would be a beneficial impact.

3.8.3.2 No Action Alternative

Under the No Action Alternative, existing natural resources management activities and associated use of hazardous materials occurring on NBPL on peninsula facilities would remain unchanged from the 2002 INRMP. No change in current management of off peninsula facilities would occur. Therefore, no significant impacts on hazardous materials and wastes would occur by implementing the No Action Alternative.

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4. Cumulative and Other Impacts

4.1 Introduction

CEQ regulations stipulate that the cumulative effects analysis in an EA should consider the potential environmental effects resulting from “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR Part 1508.7). CEQ guidance in considering cumulative effects affirms this requirement, stating that the first steps in assessing cumulative effects involves defining the scope of the other actions and their interrelationship with a proposed action. The scope must consider other projects that coincide with the location and timetable of a proposed action and other actions. Cumulative effects analyses must also evaluate the nature of interactions among these actions.

To identify cumulative effects, the analysis needs to address two fundamental questions:

1. Does a relationship exist such that affected resource areas of the Proposed Action or alternatives might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
2. If such a relationship exists, then does an EA reveal any potentially significant impacts not identified when the Proposed Action is considered alone?

The scope of the cumulative effects analysis involves both timeframe and geographic extent in which effects could occur, as well as a description of what resources could potentially be cumulatively affected.

4.2 Projects Identified for Cumulative Impacts Analysis

The following regional plans and initiatives represent the reasonably foreseeable future actions occurring within the NBPL vicinity that could contribute to cumulative effects.

California Wildlife Action Plan. The California Wildlife Action Plan was completed in 2007 and identified statewide and regional conservation issues based on regional landscape types, regional habitats, and ecosystem-level species needs and requirements, rather than prescribing management actions using a species-by-species approach (CDFG 2007). NBPL falls within the south coast region, and the plan identified five key stressors affecting wildlife and their habitats in this region, including (CDFG 2007):

- Growth and development
- Water management conflicts and degradation of aquatic ecosystems
- Invasive species
- Altered fire regimes
- Recreational pressures.

San Diego Bay INRMP. In September 2000, the Navy partnered with the San Diego Unified Port District to develop an INRMP for the San Diego Bay. The purpose of the plan was to

develop an ecosystem-based plan for the San Diego Bay that incorporates natural resources, natural and human uses of the San Diego Bay, and the missions of each stakeholder who manages, or operates, within the San Diego Bay (Navy et al. 2000). The overall goal of the plan is to “flesh out a progression towards...a San Diego Bay that is wilder, with softer shorelines, richer and more abundant in native life...that, while used for thriving urban, commercial, and military needs, has an increasing proportion of use...[that include] public access, recreation, education and enjoyment of the myriad benefits of a healthy, dynamic ecosystem” (Navy et al. 2000). Five core strategies for management of San Diego Bay resources were developed, as follows:

- Managing and restoring habitats, populations, and ecosystem processes
- Planning and coordinating projects and activities compatible with natural resources
- Improving information sharing, coordination, and dissemination
- Conducting research and long-term monitoring that supports decisionmaking
- Putting in place a Stakeholders’ Committee and Focus Subcommittees for collaborative, ecosystem-based problem solving in pursuit of the goal and objectives.

The San Diego Bay INRMP is being revised, and a finalized version of the revised document is expected to be published in 2012.

Multiple Species Conservation Program. Section 10(a)(1)(B) of the ESA and the California Natural Community Conservation Plan Act of 1991 (California Fish and Game Code 2800–2835) require the development of Habitat Conservation Plans (HCPs) under California law, to manage multiple species and their habitats in a given geographical area. Section 10(a)(1)(B) of the ESA defines HCPs as “planning documents required as part of an application for an incidental take permit...[that] describe the anticipated effects of the proposed taking; how those impacts will be minimized, or mitigated; and how the HCP is to be funded.” In addition, HCPs provide management recommendations for listed and nonlisted species and their habitats.

The Multiple Species Conservation Program (MSCP) plan for a 900-square-mile area in southwestern San Diego County was completed in August 1998. The goal of the 1998 plan was to contribute “to [the] preservation of regional biodiversity through coordination with other habitat conservation planning efforts throughout southern California” and to manage projects using an ecosystem-based approach as opposed to the traditional project-by-project approach (City of San Diego 1998). The MSCP for southwestern San Diego County, which includes NBPL, recommends developing conservation reserves throughout the county that connect various regions of species habitat to encourage protection of regional biodiversity (City of San Diego 1998). In addition, the plan states that Federal and state governments will “contribute 36,510 acres of existing Federal and state lands, excluding military lands, to permanent habitat conservation and management; acquire 13,500 acres of privately owned habitat lands in the MSCP preserve from willing sellers; and manage and monitor the Federal and state share of the MSCP preserve” (City of San Diego 1998). At this time, NBPL is not required to contribute, or acquire lands, to meet MSCP goals.

Naval Base San Diego and Naval Base Coronado INRMP Revisions. NAVFAC SW is currently revising the 2002 INRMPs for Naval Base San Diego and Naval Base Coronado. Both

revised INRMPs include revisions to facilities covered under the previous 2002 INRMPs and management prescriptions for facilities that have since come under jurisdiction of NAVFAC SW. The INRMPs will provide for management and stewardship of all natural resources present on the installations. In order to fulfill the regulatory requirements, separate EAs are being prepared for these INRMPs.

4.3 Cumulative Effects

Cumulative impacts on environmental resources result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts could result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, and local) or individuals. Informed decisionmaking is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future. The six resource areas examined for cumulative effects are: land use; air quality; topography, geology, and soils; water resources; biological resources; and hazardous materials and wastes.

The goal of the INRMP is to implement an ecosystem-based conservation program that provides for conservation and rehabilitation of natural resources in a manner that is consistent with the military mission and environmental laws and regulations; integrates and coordinates all natural resources management activities and provides for sustainable multipurpose uses of natural resources. Thus, by design, the Proposed Action would be consistent with the military mission on NBPL, including on- and off-installation land uses; on- and off-installation topography, geology, and soils; on- and off-installation water resources management; on- and off-installation biological resources management; and in compliance with environmental laws and regulations.

4.3.1 Land Use

Land use management objectives for NBPL under the Proposed Action would be consistent with and benefit other existing approved and proposed plans in the region, including the California Wildlife Action Plan, the San Diego Bay INRMP, and the revisions of the Naval Base San Diego and Naval Base Coronado INRMPs.

Therefore, implementation of the Proposed Action, when considered with other ecosystem-based management planning programs being implemented in the San Diego region, would provide a beneficial, cumulative effect on the region's land use.

4.3.2 Air Quality/Climate Change

The Navy recognizes that there are opportunities for GHG reductions through their energy conservation programs and their use of alternative fuels and other renewable energy sources. The Navy has established goals for reducing GHG emissions, including the following:

- Mandate that energy use, efficiency, life-cycle costs, and other such factors be part of the Navy's decision when acquiring new equipment systems, and a part of vendor's efficiency or energy policies.

- By 2015, cut petroleum use by half in the Navy's fleet of commercial vehicles by phasing in new hybrid vehicles to replace older ones.
- By 2020, procure half the power at Navy shore installations from alternative energy sources, and where possible, supply power back to the grid.
- By 2020, reach the goal that half of the Navy's total energy consumption for ships, aircraft, tanks, vehicles, and shore installations comes from alternative energy sources.

The potential GHG emissions resulting from implementation of the Proposed Action would primarily be from motorized vehicles transporting personnel and materials to and from worksites. The potential effects of GHG emissions are by nature global and cumulative, as most individual sources of GHG emissions are not large enough to have an appreciable effect on global climate change. Therefore, an appreciable impact on global climate change would only occur when GHG emissions associated with the alternatives are combined with GHG emissions from other man-made activities on a global scale.

The effects of the Proposed Action, when added to the effects from the cumulative projects, are minor and not large enough to have an appreciable effect on GHGs and climate change. Therefore, no significant, cumulative impacts on GHGs or global climate change would occur.

4.3.3 Topography, Geology, and Soils

Topography, geology, and soils management objectives for NBPL under the Proposed Action would be consistent with and benefit other existing approved and proposed plans in the region, including the California Wildlife Action Plan, the San Diego Bay INRMP, and the revisions of the Naval Base San Diego and Naval Base Coronado INRMPs.

Therefore, implementation of the Proposed Action, when considered with other ecosystem-based management planning programs being implemented in the San Diego region, would provide a beneficial, cumulative effect on the region's topography, geology, and soils.

4.3.4 Water Resources

Water resource management objectives for NBPL under the Proposed Action would be consistent with and benefit other existing approved and proposed plans in the region, including the California Wildlife Action Plan, the San Diego Bay INRMP, and the revisions of the Naval Base San Diego and Naval Base Coronado INRMPs.

Therefore, implementation of the Proposed Action, when considered with other ecosystem-based management planning programs being implemented in the San Diego region, would provide a beneficial, cumulative effect on the region's water resources.

4.3.5 Biological Resources

Biological resource management objectives for NBPL under the Proposed Action would be consistent with and benefit other existing approved and proposed plans in the region, including the California Wildlife Action Plan, the San Diego Bay INRMP, the MSCP, and the revisions of the Naval Base San Diego and Naval Base Coronado INRMPs.

Therefore, implementation of the Proposed Action, when considered with other ecosystem-based management planning programs being implemented in the San Diego region, would provide a beneficial, cumulative effect on the region's biological resources.

4.3.6 Hazardous Materials and Waste

Hazardous materials and waste management objectives for NBPL under the Proposed Action would be consistent with and benefit other existing approved and proposed plans in the region, including the San Diego Bay INRMP, and the revisions of the Naval Base San Diego and Naval Base Coronado INRMPs.

Therefore, implementation of the Proposed Action, when considered with other ecosystem-based management planning programs being implemented in the San Diego region, would provide a beneficial, cumulative effect on the region's hazardous materials and waste management.

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5. Other NEPA Considerations

5.1 Compatibility of the Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

Impacts as a result of the Proposed Action would occur within the boundaries of NBPL. Beneficial effects on adjoining lands and water resources would occur from removal of invasive vegetation, habitat improvement projects, and implementation of management practices that would improve surface water quality. The implementation of a revised INRMP would not result in any significant or incompatible land use changes on or off the installation. The Proposed Action would not conflict with any applicable off-installation land use ordinances.

5.2 Energy Requirements and Conservation Potential of Various Alternatives and Mitigation Measures Being Considered

Natural resources management activities on off-peninsula facilities would occur as a result of the Proposed Action. Natural resources management activities within on peninsula facilities would remain unchanged. None of these impacts would be significant. Any project specific energy requirements and mitigation measures would be addressed in subsequent NEPA documents.

5.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources will have on future generations. Irreversible effects primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable time frame (e.g., energy and minerals). The irreversible and irretrievable commitments of resources that would result from implementation of the Proposed Action involve the consumption of material resources used for construction, energy resources, land, and human labor resources. The use of these resources is considered to be permanent.

No significant irreversible and irretrievable commitments of nonrenewable resources would result from the Proposed Action. Negligible amounts of energy resources (e.g., petroleum) would be required for vegetation management efforts (e.g., invasive species removal).

5.4 Relationship Between Short-term Use and Long-term Productivity

Short-term uses of the biophysical components of the human environment include direct impacts, usually related to construction activities that occur over a period of less than 5 years. Long-term uses of the human environment include those impacts that occur over a period of more than 5 years, including permanent resource loss. The Proposed Action would not result in significant short-term resource uses that would compromise long-term productivity. Several management objectives made in the short-term under the Proposed Action would increase long-term productivity of natural resources at NBPL, such as healthy habitats and wildlife populations, and higher quality surface and drinking water.

5.5 Unavoidable Adverse Impacts

Negligible unavoidable adverse impacts would result from implementation of the Proposed Action; however, none of these impacts would be significant. Although the amount of pesticides used at NBPL would be decreased under the Proposed Action, invasive vegetation removal efforts would still likely require the use of these hazardous materials. The quantity of products containing hazardous materials used during invasive species removal would be minimal, and their use would be localized and of short duration.

6. List of Agencies and Persons Contacted

The individuals and agencies contacted during the INRMP revision process as part of the preparation of that document are listed as follows.

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8. References

- Allen 1998 Allen, E. B. 1998. *Fisheries Inventory and Utilization of San Diego Bay, San Diego, California. Fourth Annual Report, FY 1997-98.* Nearshore Marine Fish Research Program, Department of Biology, California State University, Northridge. September 1998.
- Atkinson et al. 2003 Atkinson, A. J., R. N. Fisher, C. J. Rochester, and C. W. Brown. 2003. *Sampling design optimization and establishment of baselines for herpetofauna arrays at the Point Loma Ecological Reserve.* U.S. Geological Survey, Western Ecological Research Center, San Diego, CA. 2003.
- Brown and Berry 1997 Brown, P. and R. Berry. 1997. *Bat Survey of Department of Navy Facilities on Point Loma Peninsula, California.* June 1997. Unpublished report prepared for the Natural Resources Management Branch, Southwest Division, Naval Facilities Engineering Command, San Diego, California.
- CARB 2009a California Air Resources Board (CARB). 2009. *2010 Area Designations for California Ambient Air Quality Standards.* Last updated on December 2009. Available online: <<http://www.arb.ca.gov/desig/adm/adm.htm>>. Accessed 26 May 2010.
- CARB 2009b CARB. 2009. 2008 Estimated Annual Average Emissions, San Diego Air Basin. Almanac Emission Projection Data. Available online: <http://www.arb.ca.gov/app/emsmv/emssumcat_query.php?F_YR=2008&F_DIV=-4&F_SEASON=A&SP=2009&F_AREA=AB&F_AB=SD>. Accessed 21 July 2011.
- CARB 2009c CARB. 2009. The California Almanac of Emissions and Air Quality – 2009 Edition. Available online: <<http://www.arb.ca.gov/aqd/almanac/almanac09/toc09.htm>>. Accessed 21 July 2011.
- CARB 2010 CARB. 2010. California Ambient Air Quality Standards. 8 September 2010. Available online: <<http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>>. Accessed 2 September 2011.
- CDFG 2005 California Department of Fish and Game (CDFG). 2005. Abalone Recovery and Management Plan. 9 December 2005.
- CDFG 2007 CDFG. 2007. *California Wildlife Conservation Challenges: California's Wildlife Action Plan.* Available online: <<http://www.dfg.ca.gov/wildlife/WAP/docs/report/full-report.pdf>>. Accessed 2 September 2011.
- CDFG 2009 CDFG. 2009. Natural Diversity Database Special Animals. Available online <<http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf>>. Accessed 6 January 2011.
- CDFG 2010 CDFG. 2010. State & Federally Listed Endangered & Threatened Animals of California. California Natural Diversity Database. January 2010.

- CDFG 2011 CDFG. 2011. State and Federally Listed Endangered, Threatened, and Rare Plants of California. July 2011.
- City of San Diego 1998 City of San Diego. 1998. *Final Multiple Species Conservation Program: MSCP Plan*. August 1998.
- City of San Diego 2010 City of San Diego. 2010. City of San Diego Official Zoning Maps. Development Services Department. March 2010.
- CNPS 2010 California Native Plant Society (CNPS). 2010. Online CNPS Inventory of Rare and Endangered Plants (8th Edition). December 2010. Available online: <<http://www.cnps.org/cnps/rareplants/inventory/>>. Accessed 2 September 2011.
- CSMD 2008 California State Military Department (CSMD). 2008. Historic California Posts: Space and Naval Warfare System Command, San Diego – Old Town Campus (Air Force Plant 19). California State Military Department. California State Military Museum. Available online: <<http://www.militarymuseum.org/AFPlant19.html>>. Accessed 1 September 2011.
- DoD 2010 ext revised per comment.. 2010. *Department of Defense Strategic Sustainability Performance Plan, FY2010, Public Release Version*. Released date: 26 August 26 2010. Available online: <<http://www.acq.osd.mil/ie/index.shtml>>. Accessed 20 September 2010.
- Navy et al. 2000 Department of Navy (Navy), Southwest Division (SWDIV), and San Diego Unified Port District (SDUPD). 2000. *San Diego Bay Integrated Natural Resources Management Plan*. September 2000. San Diego, CA. Prepared by Tierra Data Systems, Escondido, CA.
- Holland 1986 Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Nongame-Heritage Program, State of California, Department of Fish and Game, Sacramento, CA.
- MCAS Miramar 2006 Marine Corps Air Station (MCAS) Miramar. 2006. *Integrated Natural Resources Management Plan for Marine Corps Air Station Miramar, California, 2006–2010*. October 2010.
- MCAS Miramar 2010 MCAS Miramar. 2010. *Integrated Natural Resources Management Plan (2011–2015) for Marine Corps Air Station Miramar, California*.
- Munson 2010 Munson, B. 2010. Excel file of Vegetative Community Acreage along the Miramar Pipeline. May 2010.
- NAVFAC 2005 Naval Facilities Engineering Command (NAVFAC). 2005. “Installation Restoration Program Helps Drive the Cleanup Activity at Naval Base Point Loma.” Spring 2005.
- NAVFAC SW 2008 Naval Facilities Engineering Command Southwest (NAVFAC SW). 2008. *2007 Report, Non-Native Plant Control on Naval Base Point Loma, San Diego, CA*. March 2008. Prepared for Natural Resources Office, Commander Navy Region Southwest by Agri Chemical & Supply, Inc.

- NRCS 2011 Natural Resources Conservation Service (NRCS). 2011. Web Soil Survey. U.S. Department of Agriculture, NRCS. Available online: <<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>>. Accessed August 2011.
- U.S. Navy 2002 U.S. Navy. 2002. *Naval Base Point Loma Integrated Natural Resources Management Plan*. August 2002.
- U.S. Navy 2006a U.S. Navy. 2006. *Integrated Natural Resources Management Program Guidance, and Integrated Natural Resources Management Plan Guidance*. April 10, 2006.
- U.S. Navy 2006b U.S. Navy. 2006. *Naval Base Point Loma and Cabrillo National Monument Joint Wildland Fire Management Plan*. June 2006.
- U.S. Navy 2008 U.S. Navy. 2008. *Preliminary Final Vegetation Management Plan for Naval Base Point Loma*. May 2008.
- U.S. Navy 2009a U.S. Navy. 2009. *Activity Overview Plan*. May 2009.
- U.S. Navy 2009b U.S. Navy. 2009. *Draft Natural Resources Inventory for Naval Base Point Loma, San Diego, California*. June 2009.
- U.S. Navy 2011 U.S. Navy. 2011. *Final Report for the Natural Resources Baseline Inventory for Navy San Diego Metro Housing Areas at Naval Base San Diego, Naval Base Coronado, and Naval Base Point Loma, San Diego County, California*. January 2011.
- U.S. Navy 2012 U.S. Navy. 2012. *Final Draft Naval Base Point Loma Integrated Natural Resources Management Plan*. 2012.
- U.S. Navy et al. 2011 Department of Navy (DoN), Southwest Division (SWDIV), and San Diego Unified Port District (SDUPD). 2011. *San Diego Bay Integrated Natural Resources Management Plan*. November 2011.
- USACE 1987 U.S. Army Corps of Engineers (USACE). 1987. *Wetland Delineation Manual*. Wetlands Research Program Technical Report Y-87-1.
- USACE 2008 U.S. Army Corps of Engineers (USACE). 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manuals: Arid West Region (Version 2.0)* ERDC/EL TR-08-28.
- USEPA 2010 USEPA. 2010. *Part 81 – Designation of Areas for Air Quality Planning Purposes – Table of Contents, Subpart C – Section 107 Attainment Status Designations, Section 81.305, California*. Last updated 25 January 2010. Available online: <http://edocket.access.gpo.gov/cfr_2002/julqtr/pdf/40cfr81.305.pdf>. Accessed 2 September 2011.
- USEPA 2011 USEPA. 2011. National Ambient Air Quality Standards (NAAQS). Available online: <<http://www.epa.gov/air/criteria.html>>. Accessed 2 September 2011.

- USFWS 2011 U.S. Fish and Wildlife Service (USFWS). 2011. Listings and occurrences for California. Species Reports, Environmental Conservation Online System. Available online: <http://ecos.fws.gov/tess_public/pub/stateListingAndOccurrenceIndividual.jsp?state=CA&s8fid=112761032792&s8fid=112762573902>. Accessed 2 September 2011.
- Vista 2010 Vista Irrigation District (Vista). 2009. Newsletter: Reflections of the Vista Irrigation District. 2010 Summer Edition.

APPENDIX A

LIST OF PROPOSED INRMP PROJECTS FOR NBPL

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Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
Watershed Management								
4.2.2.2	O&MN Env.	63406NR034	Conduct surveys of all drainages within the installation to identify erosion, sediment accumulations, or other threats to stream stability.	4	Sikes Act, CWA, CA Wetlands Preservation, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 5 and 7
4.2.2.2	O&MN Env.	63406NR034	Develop actions specific to each unstable drainage that can be undertaken to assist with recovery.	4	Sikes Act, CWA, CA Wetlands Preservation, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
4.2.2.2	O&MN Env.	63406NR034	Monitor and rehabilitate degraded soil resources. Conduct surveys to determine whether activities on NBPL, Main Base are adversely impacting soil and water resources on NBPL, Main Base through erosion and sedimentation. Surveys will be conducted once every 5 years, and survey results will be analyzed to assist with identification of degraded soil or eroded areas.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
4.2.2.2	O&MN Env.	63406NR034	Periodically review erosion control BMPs to ensure that they are still adequate to control adverse erosion and sedimentation on NBPL. Conduct surveys to determine whether activities on NBPL are adversely impacting soil and water resources on NBPL through erosion and sedimentation.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
Habitat Management								

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
Terrestrial Habitats and Vegetation Communities								
4.2.3.1	O&MN Env.	63406NR004	Conduct long-term resource monitoring to detect changes caused by military activities.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5, 6 and 7
4.2.3.1	O&MN Env.	63406EPRHAB	Develop specifications and standards for reseeded/revegetation of disturbed sites for use in contracts, maintenance, and other projects.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7
4.2.3.1	O&MN Env.	63406NR208	Survey areas where soil erosion and compaction might occur to ensure that BMPs within the Erosion Control Plan are implemented and effective.	4	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5, 6 and 7
4.2.3.1	O&MN Env.	63406PLECA	PLECA boundaries will be surveyed, mapped, and inappropriate (exotic, paved areas) acreages will be removed from the PLECA. Project will rely heavily on using aerial photography, GIS, and ground truthing to make sure that PLECA boundaries are accurately reflected. This project is essential in managing NBPL and updating the INRMP.	4	SAIA, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C	Every 5 years	2012	1, 2, 4 and 5
Wetlands and Waters of the United States								

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.3.2	O&MN Env.	63406NRC26	Maintain and update wetland inventory data, including wetland distribution and categories.	4	Sikes Act, CWA, CA Wetlands Preservation, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
Rocky Intertidal Zone								
4.2.3.4	O&MN Env.	63406NR029	Inventory and monitor populations of rocky intertidal floral and faunal species (including avian, terrestrial, and marine species). Document all changes to species populations in the installation GIS database.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
4.2.3.4	O&MN Env.	63406NR029	Develop and maintain GIS database, and share information collected on species within the rocky intertidal zone with the MARINE, and other regional partners.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5 and 6
4.2.3.4	O&MN Env.	63406NR029	Develop strategies to control nonnative species in the event they become invasive or adversely impact native species in the rocky intertidal zone, such as brown algae, owl limpets, mussels, and ochre sea stars.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5 and 6
Wildland Fire								
4.2.3.5	O&MN Env.	63406NR013	Review NBPL FMP at least annually and update plan according to DoD Instruction 6055.06.	4	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to determine gap abundance and distribution within the shrub canopy as a first step to understanding the dynamics and needs of species that require habitats that are rich in resources (such as light and nutrients), but without strong interspecific competition.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 5, 6 and 7
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to investigate invertebrate dependencies on post-fire herbs and short-lived shrubs. This type of research is especially relevant for management considering the potential presence of species such as the endemic Jerusalem cricket (<i>Stenopelmatus fuscus</i>) on the Point Loma Peninsula.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 5, 6 and 7
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to identify invertebrate and lichens bioindicator species to measure ecosystem health and fire history.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 5, 6 and 7

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to determine whether cliff spurge (<i>Euphorbia misera</i>) is reproducing on NBPL and, if the species is reproducing, how fire would affect the demography and population structure of this species. The abundance of cliff spurge on Point Loma is significant in that these individuals represent the northerly mainland distribution edge of this species and one of the few populations in the United States.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2014	1, 5, 6 and 7
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to determine the effect of the long fire-free period on community structure and demography of fire-dependent species such as wart-stem lilac and Ramona lilac. Determine whether obligate seeders have sufficient presence in the seedbank to regenerate the stand after a fire.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2014	1, 5, 6 and 7
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to use ecological modeling and decision theory to evaluate the risks and benefits from alternative management options.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2015	1, 5, 6 and 7
4.2.3.5	O&MN Env.	63406NR035	Develop and conduct a study to develop the concept of resilience monitoring of species and communities into a more focused research program through the use of management focus species and other means.	3	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2015	1, 5, 6 and 7

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
Fish and Wildlife Management								
4.2.4.2	O&MN Env.	63406NR108	Conduct surveys to determine what pollinators are on NBPL. Ensure inventory data is included in Geodatabase.	3	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
4.2.4.2	O&MN Env.	63406NR103	Develop BMPs to ensure that pollinator species are not adversely impacted by NBPL activities, and implement a pollinator monitoring program.	2	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 6
4.2.4.5	O&MN Env.	63406NR025	Conduct regular (approximately every 2 years) surveys to determine what species of migratory birds may have potential to be on NBPL.	4	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Biennial	2012, 2014, 2016	1, 5 and 6
4.2.4.5	O&MN Env.	63406NR107	Develop migratory bird specific BMPs and ensure these BMPs are included in project plans.	4	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Once	2013	1, 5 and 6
4.2.4.5	O&MN Env.	63406EPRMBTA	Once finalized, implement monitoring protocols contained within the DoD Coordinated Bird Monitoring Plan. Contribute to date to the Coordinated Bird Monitoring Database.	3	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Annually	All	1, 5 and 6

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.4.5	O&MN Env.	63406NR107	Revise and implement Heron and Egret Management Plan. Include management provisions for herons and egrets within plan into INRMP.	3	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Once	2012	1, 5 and 6
4.2.4.5	O&MN Env.	63406EPRMBTA	Determine if actions require an MBTA permit, and develop effective management for minimizing the unintentional take of migratory birds.	4	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Annually	All	1, 5 and 6
4.2.4.8	O&MN Env.	63406NR019	Conduct regular (approximately every 2 years) surveys for marine mammals that may be present within NBPL boundaries.	4	Sikes Act, MMPA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
4.2.4.8	O&MN Env.	63406NR029	Continue monitoring listed species as described in this INRMP and adapt monitoring and management actions as needed. Use monitoring information and other information gleaned to guide adaptive management.	3	Sikes Act, MMPA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
4.2.4.8	O&MN Env.	00242MR116	Develop and distribute outreach and education materials on marine mammals.	3	Sikes Act, MMPA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 5 and 6

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.4.9	O&MN Env.	63406NR003	Survey for and monitor herpetofauna populations using guidelines recommended by PARC. Once finalized, implement DoD PARC Strategic Plan.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
4.2.4.9	O&MN Env.	00242MR117	Monitor the federally threatened population of green sea turtles (<i>Chelonia mydas</i>) in the San Diego Bay. Current resident population of green sea turtles is estimated to be approximately 40-60 individuals. Recent research seems to indicate turtles may spend a majority of their time in the South Bay.	4	Sikes Act, MMPA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
4.2.4.9	O&MN Env.	63406NR105	Install bird and bat boxes on NBPL.	1	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 2, 4, 5 and 6
Special Status Species (Federally Listed and Other Special Status Species)								
4.2.5.3	O&MN Env.	63406NR021	Develop and distribute education materials on special status species to installation personnel and tenants. Information should include species descriptions and habitats, and special concerns.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4 and 5

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.5.3	O&MN Env.	63406NR003	Conduct regular (approximately every 2 years) surveys for TES species that may be present on NBPL. Species surveyed should include Orcutt’s spineflower, the Western Snowy Plover, the Coastal California Gnatcatcher, the California Least Tern, the Least Bell’s Vireo, the Pacific pocket mouse, and MBTA-protected avian species (Great Blue Heron and Great Egret).	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4 and 5
4.2.5.3	O&MN Env.	63406NR024	Review and update species lists to reflect presence of threatened, endangered, and candidate species.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, and 5
4.2.5.3	O&MN Env.	63406NR003	Monitor listed species and their habitats, and develop and revise management actions based on monitoring.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4 and 5
4.2.5.3	O&MN Env.	63406NR004	Initiate habitat improvement projects to conserve biodiversity and protect plant and animal habitats, as funding is available and when such projects will not adversely affect the military mission (e.g., noxious weeds, or invasive species removal; habitat disturbance where such disturbance will promote native plant growth; preventing habitat disturbance when this will promote nonnative plant growth; and revegetation with native plants).	4	Sikes Act, ESA, CESA, Ca MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5 and 6

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.5.3	O&MN Env.	63406NR036	Develop a demonstration garden on NBPL to educate NBPL personnel on TES species and their habitats.	2	Sikes Act, ESA, CESA, Ca MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 2 and 5
4.2.5.5	O&MN Env.	63406NR029	Conduct surveys of abalone habitat to assess population changes. Based on surveys, develop and implement abalone management measures contained within the Abalone Recovery and Management Plan (e.g., seasonal closures for fishing).	4	Sikes Act, CWA, CA Aquatic Resources, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
4.2.5.5	O&MN Env.	63406EPRFISH	Develop and implement a strategy to reduce population impacts from oil spills and other hazardous waste in San Diego Bay.	4	Sikes Act, CWA, CA Aquatic Resources, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 5 and 6
Exotic and Invasive Species Management								
4.2.6	O&MN Env.	63406NR015	Develop and implement an Invasive Species Management Plan (or Biosecurity Plan) to control the spread of invasive species on NBPL. The plan should include specific prescriptions to evaluate individual invasive species, to identify targeted species, to control further spread of targeted species, and to develop and implement a program to monitor species abundance.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5, 6 and 7

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.6	O&MN Env.	63406NR005	Conduct surveys annually to determine whether controls on existing infestations of species have been effective, and whether new populations have become established.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
4.2.6	O&MN Env.	63406NR033	Develop and implement a review process for all projects that include a landscaping component to ensure nonnative species are not introduced.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5, 6 and 7
4.2.6	O&MN Env.	63406NR033	Develop outreach and education materials for distribution within the NBPL community.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
4.2.6	O&MN Env.	63406NR033	Coordinate with the Natural History Museum to identify unknown species that may be invasive.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	2012	1 and 2
4.2.6	O&MN Env.	63406NR033	Annually review and update recommended plant list.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 5, 6 and 7
Grounds and Landscape Maintenance								

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.7	O&MN Env.	63406NRC10	Develop and implement BMPs for grounds maintenance at NBPL (e.g., water conservation). Periodically review the Landscape Management Plan to ensure plan BMPs still meet installation needs.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
Pest Management								
4.2.8	O&MN Env.	63406NR011	Implement pest management controls from the SDMAI and other pest-related guidance and plans.	4	Sikes Act, EO 13112, CA MIL, CA Native, CA Pest Management, DoD Inst. 4715.03, DoD Inst. 4150.7, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5 and 6
4.2.8	O&MN Env.	63406NR011	Monitor pest and invasive species populations. Track usage of active ingredients and man-hours spent controlling pest and invasive species during implementation to ensure that the management strategies are sufficient.	4	Sikes Act, EO 13112, CA MIL, CA Native, CA Pest Management, DoD Inst. 4715.03, DoD Inst. 4150.7, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5 and 6
4.2.8	O&MN Env.	63406NR011	Develop and implement a program to control feral animals on NBPL. Control populations of feral animals on NBPL.	4	Sikes Act, EO 13112, CA MIL, CA Native, CA Pest Management, DoD Inst. 4715.03, DoD Inst. 4150.7, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5 and 6

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.8	O&MN Env.	63406NR011	Conduct surveys to determine impact of feral animals on native species on NBPL.	4	Sikes Act, EO 13112, CA MIL, CA Native, CA Pest Management, DoD Inst. 4715.03, DoD Inst. 4150.7, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
Outdoor Recreation and Public Access								
4.2.9	O&MN Env.	63406NR016	Develop an outdoor recreation plan for NBPL. Seek opportunities for natural resources-based outdoor recreation to improve quality of life for Navy personnel, allow close partnership with the local community, and improve knowledge of the natural world and the Navy's stewardship of natural resources.	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 2, 3 and 6
4.2.9	O&MN Env.	63406NR016	Identify and evaluate suitable outdoor recreation opportunities for installation personnel in undeveloped areas that do not contain or have the potential to impact sensitive species.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3 and 6
4.2.9	O&MN Env.	00242MR116	Develop San Diego Bay sensitive marine resources kiosk and brochure for outreach and education. The NBPL marine areas are under consideration for designation as a state marine protected area. Improved public outreach is needed for ESA compliance, emerging public awareness of marine protected areas, and other marine resource related issues.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 3 and 6
Law Enforcement and Natural Resources Laws and Regulations								

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.10	O&MN Env.	63406EPRLAW	Provide training to personnel responsible for enforcement of applicable laws and regulations.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 6 and 7
4.2.10	O&MN Env.	63406EPRLAW	Cooperate with other agencies, particularly the USFWS and CDFG, to ensure that natural resources laws are adequately enforced.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
Environmental Awareness and Outreach								
4.2.11	O&MN Env.	36406NR016	Establish a watchable wildlife program at NBPL, Main Base.	2	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 5 and 6
4.2.11	O&MN Env.	63406NR021	Educate installation personnel and tenants about the installation natural resources program.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
4.2.11	O&MN Env.	63406NR021	Periodically review and update outreach and education materials to ensure that each is still current.	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 2, 3, 4, 5, 6 and 7
4.2.11	O&MN Env.	63406NR021	Develop and distribute educational materials about the NBPL Main Base natural resources program to stakeholders near NBPL, Main Base (e.g. neighborhoods, county, etc.).	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
Geographic Information Systems Management, Database Management, Data Integration, Access and Reporting								
4.2.12	O&MN Env.	63406NR024	Annually review GIS data to advise resource managers of needs to update data sets during budget planning and programming.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 5, 6 and 7

Table A-1. Naval Base Point Loma, On Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
4.2.12	O&MN Env.	63406NR024	Develop specific language that will be included in all contracts to ensure all spatial data produced are fully compatible with the installation GIS database.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 3, 4, 5, 6 and 7
4.2.12	O&MN Env.	63406NR024	Develop a standardized system for recording and mapping significant resource observations (e.g., plants, wildlife, erosion, damage) when incidentally encountered.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 3, 4, 5, 6 and 7
4.2.12	O&MN Env.	63406NR024	Provide annual funding for one person to be responsible for updating and maintaining the GIS database. This should include the necessary hardware, software, and training for the use of GIS.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 5, 6 and 7

Note:

¹ Projects listed with the following description are placeholder projects to be entered into the EPR system in the future: 63406EPRXX.

² This is not a comprehensive list of applicable regulations, other regulations, policy, or guidance may apply. Please review INRMP **Appendix B** for a comprehensive list of laws, policies or guidance for management of natural resources.

³ Cost estimates are on the Navy Conservation Website and are available during annual reviews with USFWS and CDFG.

Key Legal Driver:

CA MIL = CA Mgmt of Fish and Wildlife on Military Lands (CA MIL)

CEA = California Endangered Species Act

ESA = Federal Endangered Species Act

CA Native = CA Native Spp. Conservation and Enhancement

CWA = Federal Clean Water Act

MBTA = Federal Migratory Bird Treat Act

OPNAVINST = Chief of Naval Operational Instruction 5090.1C CH-1

2010 Metrics Focus Areas:

1. INRMP Implementation
2. Partnerships/Cooperation and Effectiveness

3. Team Adequacy
4. Status of Federally Listed Species and Critical Habitat (CH)
5. Ecosystem Integrity
6. Fish and Wildlife Management and Public Use
7. INRMP Impact on the Installation Mission.

Table A-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
Watershed Management								
5.2.3	O&MN Env.	63406NR034	Ensure that personnel at off peninsula facilities (e.g., Miramar Pipeline and Mount Soledad Signal Station, and PPV landscaping personnel) are aware of the Erosion Control Plan and provided the resources to implement the BMPs within the plan.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
5.2.3	O&MN Env.	63406NR034	Periodically review erosion control BMPs to ensure that they are still adequate to control adverse erosion and sedimentation on NBPL. Conduct surveys to determine whether activities on NBPL are adversely impacting soil and water resources on NBPL through erosion and sedimentation.	4	Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
Habitat Management								
Terrestrial Habitats and Vegetation Communities								
5.2.4.1	O&MN Env.	63406NR208	Periodically survey habitats to ensure no adverse impacts from activities are occurring, and develop management actions based on survey.	4	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 5 and 6
5.2.4.1	O&MN Env.	63406EPRHAB	Develop specifications and standards for reseeded/revegetation of disturbed sites for use in contracts, maintenance, and other projects.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7

Table A-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.4.1	O&MN Env.	63406NRC15	Ensure PPV personnel at the housing areas, and personnel at Mount Soledad Signal Station implement management strategies from this INRMP at their facilities.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7
5.2.4.1	O&MN Env.	63406NR104	Once vegetation surveys are completed at Miramar Pipeline, incorporate survey data into this INRMP and implement management strategies. Ensure that inventory data is digitized and incorporated into the Geodatabase for NBPL.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
5.2.4.1	O&MN Env.	63406NR101	Once vegetation surveys are completed at Mount Soledad Signal Station, incorporate survey data into this INRMP and implement management strategies. Ensure that inventory data is digitized and incorporated into the Geodatabase for NBPL.	4	Sikes Act, CA MIL, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
Wetlands and Waters of the United States								
5.2.4.2	O&MN Env.	63406NRC26	Update the wetland inventory data, including wetland distribution and categories, for the Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa housing areas.	4	Sikes Act, CWA, CA Wetlands Preservation, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 7
5.2.4.2	O&MN Env.	63406NR104	Once completed, include wetland inventory data for Miramar Pipeline in the INRMP. Ensure that wetland inventory data is digitized and incorporated into the Geodatabase for NBPL.	4	Sikes Act, CWA, CA Wetlands Preservation, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 5 and 7
Wildland Fire Management								

Table A-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.4.3	O&MN Env.	63406NR013	Review NBPL FMP at least annually and update plan according to DoD Instruction 6055.06.	4	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7
5.2.4.3	O&MN Env.	63406NR021	Educate the NBPL community and PPV staff about wildland fire. This can be accomplished through posting fire prevention signs, and developing fire prevention messages and handouts for housing residents, Navy staff, and PPV staff.	4	Sikes Act, CA Habitat Enhancement Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5, 6 and 7
Fish and Wildlife Management								
5.2.5.1	O&MN Env.	63406NR003	Survey for and monitor herpetofauna populations using guidelines recommended by PARC. Once finalized, implement DoD PARC Strategic Plan.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
5.2.5.1	O&MN Env.	63406NR105	Install bird and bat boxes where feasible around housing communities and off peninsula facilities.	1	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2013	1, 2, 4, 5 and 6
5.2.5.1	O&MN Env.	63406NR104	Once surveys are completed at Miramar Pipeline, incorporate survey data into this INRMP and implement management strategies.	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5 and 6
5.2.5.1	O&MN Env.	63406NR101	Once surveys are completed at Mount Soledad Signal Station, incorporate survey data into this INRMP and implement management strategies	4	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5 and 6

Table A-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.5.2	O&MN Env.	63406NR103	Develop BMPs to ensure that pollinator species are not adversely impacted by NBPL activities, and implement a pollinator monitoring program.	2	Sikes Act, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 5 and 6
5.2.5.3	O&MN Env.	63406NR021	Develop and distribute outreach and education materials on migratory birds to housing residents and PPV staff.	4	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Once	2013	1, 5 and 6
5.2.5.3	O&MN Env.	63406EPRMBTA	Once finalized, implement monitoring protocols contained within the DoD Coordinated Bird Monitoring Plan. Contribute to date to the Coordinated Bird Monitoring Database.	3	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Annually	All	1, 5 and 6
5.2.5.3	O&MN Env.	63406NR025	Conduct regular (approximately every 2 years) surveys to determine what species of migratory birds may have potential to be on housing areas with open space (Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa).	4	Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1, Navy MBTA Guidance	Biennial	2012, 2014, 2016	1, 5 and 6
Special Status Species (Federally Listed and Other Special Status Species)								
5.2.6.1	O&MN Env.	63406EPRTES	Establish an education program for housing residents and PPV personnel who might have contact with special status species or their habitats.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4 and 5

Table A-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.6.1	O&MN Env.	63406NR101 63406NR104 63406NR003	Conduct regular (approximately every 2 years) surveys for TES species that may be present on off peninsula facilities, including Mount Soledad Signal Station (for rare plants), Miramar Pipeline, Admiral Hartman, Beech Street Knolls, Chesterton, and Village at Serra Mesa housing areas. Once surveys are completed, incorporated survey data into this INRMP.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4 and 5
5.2.6.1	O&MN Env.	63406NR020	Review and update species lists to reflect presence of threatened, endangered, and candidate species.	4	Sikes Act, ESA, CESA, CA MIL, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, and 5
Exotic and Invasive Species Management								
5.2.7	O&MN Env.	63406NR005	Conduct surveys annually to determine whether controls on existing infestations of species has been effective, and whether new populations have become established.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
5.2.7	O&MN Env.	63406NR033	Develop and implement a review process for all projects that includes a landscaping component to ensure nonnative species are not introduced.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 4, 5, 6 and 7
5.2.7	O&MN Env.	63406NR033	Develop outreach and education materials for distribution within the NBPL community.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
Grounds and Landscape Maintenance								

Table A-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.8	O&MN Env.	63406NRC10	Develop and implement BMPs for grounds maintenance at NBPL (e.g., water conservation). Periodically review the Landscape Management Plan to ensure plan BMPs still meet installation needs.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 4, 5 and 6
5.2.8	O&MN Env.	63406EPRGM	Provide professional advice to assist the grounds landscaping and maintenance program toward the use of native species as identified in the recommended plant list.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
Pest Management								
5.2.9	O&MN Env.	63406NR011	Ensure that PPV personnel have a copy and understand the content of the SDMAI, and their implementation responsibilities. Implement pest management controls from the SDMAI and other pest-related guidance and plans.	4	Sikes Act, EO 13112, CA MIL, CA Native, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 2, 4, 5, 6 and 7
5.2.9	O&MN Env.	63406NR011	Monitor pest and invasive species populations. Track usage of active ingredients and man-hours spent controlling pest and invasive species during implementation to ensure that the management strategies are sufficient.	4	Sikes Act, EO 13112, CA MIL, CA Native, CA Pest Management, DoD Inst. 4715.03, DoD Inst. 4150.7, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5 and 6
Outdoor Recreation and Public Access								
5.2.10	O&MN Env.	63406NR016	Identify and evaluate suitable outdoor recreation opportunities for installation personnel in undeveloped areas that do not contain or have the potential to impact sensitive species.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3 and 6
Law Enforcement and Natural Resources Laws and Regulations								

Table A-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.11	O&MN Env.	63406EPRLAW	Provide training to personnel responsible for enforcement of applicable laws and regulations.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 6 and 7
5.2.11	O&MN Env.	63406EPRLAW	Cooperate with other agencies, particularly the USFWS and CDFG, to ensure that natural resources laws are adequately enforced.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
Environmental Awareness and Outreach								
5.2.12	O&MN Env.	63406EPRED	Establish a watchable wildlife program where appropriate.	1	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 5 and 6
5.2.12	O&MN Env.	63406EPRED	Educate the local community, as well as installation personnel and tenants about the installation natural resources program.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
5.2.12	O&MN Env.	63406EPRED	Periodically review and update outreach and education materials to ensure that each is still current.	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Biennial	2012, 2014, 2016	1, 2, 3, 4, 5, 6 and 7
Geographic Information Systems Management, Database Management, Data Integration, Access and Reporting								
5.2.13	O&MN Env.	63406NR024	Annually review GIS data to advise resource managers of needs to update data sets during budget planning and programming.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 5, 6 and 7
5.2.13	O&MN Env.	63406NR024	Develop specific language that will be included in all contracts to ensure all spatial data produced are fully compatible with the installation GIS database.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 3, 4, 5, 6 and 7

Table A-2. Naval Base Point Loma, Off Peninsula INRMP Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas
						Frequency	Fiscal Year ³	
5.2.13	O&MN Env.	63406NR024	Develop a standardized system for recording and mapping significant resource observations (e.g., plants, wildlife, erosion, damage) when incidentally encountered.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Once	2012	1, 3, 4, 5, 6 and 7
5.2.13	O&MN Env.	63406NR024	Provide annual funding for one person to be responsible for updating and maintaining the GIS database. This should include the necessary hardware, software, and training for the use of GIS.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 3, 4, 5, 6 and 7

Note:

¹ Projects listed with the following description are placeholder projects to be entered into the EPR system in the future: 63406EPRXX.

² This is not a comprehensive list of applicable regulations, other regulations, policy, or guidance may apply. Please review INRMP **Appendix B** for a comprehensive list of laws, policies or guidance for management of natural resources.

³ Cost estimates are on the Navy Conservation Website and are available during annual reviews with USFWS and CDFG.

Key Legal Driver:

CA MIL = CA Mgmt of Fish and Wildlife on Military Lands (CA MIL)

CESA = California Endangered Species Act

ESA = Federal Endangered Species Act

CA Native = CA Native Spp. Conservation and Enhancement

CWA = Federal Clean Water Act

MBTA = Federal Migratory Bird Treat Act

OPNAVINST = Chief of Naval Operational Instruction 5090.1C CH-1

2010 Metrics Focus Areas:

1. INRMP Implementation
2. Partnerships/Cooperation and Effectiveness
3. Team Adequacy
4. Status of Federally Listed Species and Critical Habitat (CH)
5. Ecosystem Integrity
6. Fish and Wildlife Management and Public Use
7. INRMP Impact on the Installation Mission.

Table A-3. Naval Base Point Loma, Sustainability Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas ⁺
						Frequency	Fiscal Year ³	
Ecosystem Management								
3.3	In-house	63406EPRECO	Develop a process and schedule for coordinating with agencies to allow for agency comment on management plans.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
3.3	O&MN Env.	63406EPRECO	Develop new, and enhance existing, databases, and acquire applicable databases from outside sources for application in GIS.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7
Sustainability in the Built Environment								
6.1.1	Other Activity	63406EPRBE	Implement LID practices for protecting water quality.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.1.1	Other Activity	63406EPRBE	Develop sustainability indicators and BMPs, to be incorporated into the NBPL planning process. Monitor effectiveness of BMPs and revise as necessary.	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.1.1	Other Activity	63406EPRBE	Conduct training in sustainable design criteria in the Navy for engineers, construction and design specialists, water quality specialists, and biologists. This could be web-based training.	3	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
Encroachment								

Table A-3. Naval Base Point Loma, Sustainability Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas ⁺
						Frequency	Fiscal Year ³	
6.1.3		63406EPRMM	Review proposed new uses or alterations to existing buildings or structures, in consultation with a Navy archaeologist, to determine the eligibility of affected structures for the National Register of Historic Places contributing elements. As needed, analyze for potential impacts in accordance with guidelines established for NRHP-eligible buildings.		Sikes Act, NHPA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.1.3	Appropriate Activity	63406EPRMM	Conduct appropriate environmental surveys on any proposed new land use within an undeveloped area to identify sensitive natural and cultural resources, environmental resources, and IRPs (hazardous waste cleanups).		Sikes Act, NHPA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
Adapting to Effects of Climate Change								
6.1.4	In-house and Research	63406EPRCC	Adapt and mitigate the adverse consequences of climate change, including stresses on infrastructure, aquatic vegetation, erosion, and shifts in distributions of terrestrial endemic species and plant communities.		Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.1.4	In-house	63406EPRCC	Address the anticipated increase in extreme events by emphasizing preventative technologies including complying with guidelines on project siting, improving water conservation, improving stormwater management through use of LID technologies, and improving coordination between natural resources and staff and development project proponents to ensure more energy efficient design features.		Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7

Table A-3. Naval Base Point Loma, Sustainability Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas ⁺
						Frequency	Fiscal Year ³	
6.1.4	Not Designated	63406EPRCC	Control/reduce greenhouse gasses by developing and implementing the NBPL Renewable Energy Plan.		Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
Infrastructure and Facilities Management								
6.3.3.1	In-house	63406EPRCM	Incorporate erosion control BMPs in the preliminary engineering, design, and construction of facilities involving ground disturbance.	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.3.3.2	In-house	63406EPRCM	Develop and implement protocols for conducting maintenance activities on roads. Provide training on protocols to applicable personnel. Reduce mowing frequency and intensity where possible based on ecological considerations (e.g., annual nesting season).	4	Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
Stormwater Management								
6.4		63406EPRCM	Implement Erosion Control Plan BMPs.		Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
6.4		63406EPRCM	Investigate the use of LID for future development projects to minimize adverse impacts of surface runoff from impervious areas.		Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7

Table A-3. Naval Base Point Loma, Sustainability Projects and Implementation Table (July 2012)

INRMP Section	Funding Source	EPR Project Number ¹	Project Description	ERL Priority	Legal Driver ²	Implementation		2010 Natural Resources Metrics Focus Areas ⁺
						Frequency	Fiscal Year ³	
6.4		63406EPRCM	Develop an improved training program for appropriate government employees. These workshops should provide training on the need, design, and implementation of BMPs, and on LID.		Sikes Act, CWA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 4, 5, 6 and 7
Communications Towers, Wind Farms and Power Lines								
6.5		63406EPRPL	Develop and implement an avian protection plan to reduce impacts to avian species from management of towers and power lines. Plan should be developed using information from DoD PIF and USFWS.		Sikes Act, MBTA, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually Implement	All	1, 4, 5, 6 and 7
Oil Spill and Hazardous Substance Prevention and Cleanup								
6.8		63406EPROH	Update GIS layers of natural resources to support preparedness planning, integrate baseline ecological surveys into preparedness planning, and integrate invasive exotic species response planning with oil spill contingency plans.		Sikes Act, DoD Inst. 4715.03, OPNAVINST 5090.1C CH-1	Annually	All	1, 2, 3, 4, 5, 6 and 7

Note:

¹ Projects listed with the following description are placeholder projects to be entered into the EPR system in the future: 63406EPRXX.

² This is not a comprehensive list of applicable regulations, other regulations, policy, or guidance may apply. Please review INRMP **Appendix B** for a comprehensive list of laws, policies or guidance for management of natural resources.

³ Cost estimates are on the Navy Conservation Website and are available during annual reviews with USFWS and CDFG.

Key Legal Driver:

CWA = Federal Clean Water Act

NHPA = National Historic Preservation Act

OPNAVINST = Chief of Naval Operational Instruction 5090.1C CH-1

2010 Metrics Focus Areas:

1. INRMP Implementation
2. Partnerships/Cooperation and Effectiveness
3. Team Adequacy
4. Status of Federally Listed Species and Critical Habitat (CH)
5. Ecosystem Integrity
6. Fish and Wildlife Management and Public Use
7. INRMP Impact on the Installation Mission.

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APPENDIX B

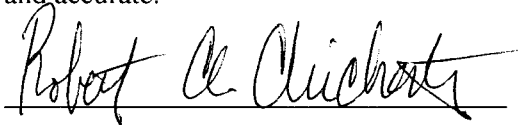
RECORD OF NON-APPLICABILITY

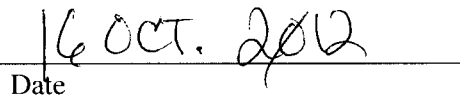
Appendix B: Record of Non-Applicability

Department of Defense
U.S. Navy
Record of Non-Applicability (RONA)
Naval Base Point Loma, San Diego, California
Integrated Natural Resources Management Plan

Pursuant to Section 176(c) of the Clean Air Act (CAA), as amended by the 1990 amendments; the general Conformity Rule at 40 CFR Parts 51 and 93; and the Chief of Naval Operation Interim Guidance on Compliance with the CAA Conformity Rule (CNO Guidance), the Department of Navy (DoN) determined that the potential actions and management practices outlined in the NBPL Revised 2012 Integrated Natural Resources Management Plan (INRMP) are exempt from conformity requirements in accordance with sections 40 CFR 93.153 (c)(2)(ii), (iv), (vi), (vii), (viii), (ix), (x), and (xiii). The INRMP outlines many routine and continuing activities for the NBPL, located in the San Diego Intrastate AQCR and the San Diego County Air Pollution Control District, which would result in no emission increase or an increase that is clearly *de minimis*. Development of projects and future implementation of planning guidelines for a range of activities, including habitat restoration and landscape maintenance projects, are also expected to result in emissions increases that would be *de minimis*; however, specific analyses would be performed to verify that emissions do not exceed *de minimis* levels when specific actions are proposed. Consequently, the proposed action is exempt from the conformity determination requirements of the Environmental Protection Agency's conformity rule.

To the best of my knowledge, the information contained in this Record of Non-Applicability is correct and accurate.




Date

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APPENDIX N

PUBLIC COMMENTS AND AGENCY CORRESPONDENCE

(AGENCY SIGNATURE PAGES ARE LOCATED AT FRONT OF INRMP)

NOTICES

Events

FRIDAY SEE
RPM SECTION
FOR ALL AUTO ADS

SATURDAY SEE
WHEELS SECTION
FOR ALL AUTO ADS

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IHSS. CNA experience
req'd. Must have a car and
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NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL ASSESSMENT FOR THE INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN NAVAL BASE POINT LOMA, CALIFORNIA

The Department of the Navy (Navy) announces the availability of, and invites public comments on, a Draft Integrated Natural Resources Management Plan (INRMP) and the associated Draft Environmental Assessment (EA) (found in Appendix M) at Naval Base Point Loma, California.

The public review period will be from July 28 - August 11, 2012.

The Navy will consider all comments submitted during the public comment period in the development of a Final INRMP and Final EA. Comments on the Draft documents should be submitted to NAVFAC SW, Coastal IPT, GRUE00.RL, 1220 Pacific Hwy, San Diego CA 92132, on or before August 11, 2012. Both the Draft INRMP and Draft EA are available on-line at <http://www.piersystem.com/go/doc/4275/1485051/>, at the Point Loma Public Library, and the Ocean Beach Public Library.

great Garage sale

FIND THE BEST DEALS



ALPINE All must go! Lots of paintings, area rugs, quality furn, lots of chinese & Asian items, stoves, designer lighting. Sat & Sun, 9am-5pm, 1759 Arnold Way #43

ALPINE July 28 & 29 Selling most everything in the house 2698 Camino Arletica No sale before 9:00am

ALPINE - Ramsey Road (top of cul de sac) July 28 Multi family Garage Sale Saturday 7:00 a.m.

ALPINE Sun Only 7am-12pm. Western Home Decor, tools, lots of name brand clothes, housewares & more! 693 Old Stonecoach Run

ALTA VISTA 92114, BIG Vintage (& More) Horder Sale. 3708 Alta Vista Ave. Fri & Sat 8-2 (off Division)

BONITA 7/28 @ 7am Multi Family. Piano, Leather couch, Toys Aquarium, Sale. Clothes, Uniforms, Bed Furn, Wheelchair, Luggage 3002-3018-3019 Winnetka Dr

BONITA Sat/ Sun July 28-29 9 AM - 3 PM Clothing; Fabric; table/chairs; Years of stuff. 3646 Bonita Verde Dr.

CARMEL Min Rh Huge moving sale. Too many items to list. Lots of art things Sat 7/28 7am-1pm 14893 Summerbreeze Wy Cast off your yacht. Sell it in the Classifieds. Call us. 866-411-4140

CARMEL VALLEY/Dei Mar Multi family sale Sat. 7/28, 7-11am. Kids toys - furn. 12214 Caminito Del Mar Sands

CHULA VISTA Fri & Sat 8am-4pm, Moving Sale! Electronics, Hsehold Items, automotive, hard-ware, tools, DVDs, clothes & much much more! * 978 Paseo La Cresta *

CHULA VISTA Sat 7-12. Moving Sale! All must go!! 1623 Copper Penny Drive, 91915

We can make a sofa take off from your den. U-T San Diego Classifieds Call Us. 866-411-4140

CLAIREMONT 5249 Gaylord Place Saturday/Sunday July 28 & 29 Furniture (kitchen table, couch, beds) small appliances, electronics, books, video games, houseware, more! 7 am - 1 pm

CLAIREMONT Sat. 7/28. 7-noon. Clothes, Household Items and Lots More! 4083 Marlesta Dr.

COLLEGE AREA 5111 Leo Street Sat/7-28-12 Collectibles/ antiques, teacher supplies, games, furniture, kitchen items and much more! 7 am-1pm

COLLEGE AREA Furniture (some barely used- doesn't fit in new home), home accessories, clothing - all quality stuff! Sat. only 7:30-12. 5805 Estelle St.

COLLEGE AREA Sat 8am garage/estate - golf, anti-ques, collectibles, hshold, tickets, more 5054 55th Pl

EL CAJON Moving Sale! Sat, July 28, 7am-12pm Furn, home decor, rugs, etc. 1438 Pillsbury Lane

EL CAJON Sat 8am no early birds, antiques, tools, furniture, bikes, xmas, glassware, books/records, clothes 1825 Garrison Wy

EL CAJON Sat. 7am-? Multi Family. Furn, items, baby, kids & adult clothing, tools, toys, books. 1768 Eldon Ct.

LA MESA Sat. 7/28. 7am-1pm. Huge Rummage Sale, Benefit T.A.C.O. Furn, electronics, housewares, toys, plants, kitchenware, craft/sew supplies, clothes, books, records, linens, antiques, collectibles, much more! St. Andrew's Lutheran Church, 8350 Lake Murray Blvd.

NORTH PARK Sat-Sun 11-3 Moving Sale. 2511 Mantclair. Washer/dryer, near new fridge, lawn mower, South-western furn, many misc. items. 619-871-2181

OCEAN BCH Sat 8-2 Multi-fam, furn, clothes, shelves, frig, kitchen, tools, electronics, linens, 2311 Ellwanda St

OCEAN BEACH 7/28/12 8-2 Large family yard sale, household, sports, clothing 4711 Bermuda Avenue

OCEANSIDE 7/28/2012 7-10 a.m. GIANT Garage Sale- Fundraiser for Oceanside Outrigger Club: furniture, electronics, household, skis the limit! Be there! 601 Tanaijer Court, Oceanside

PACIFIC BEACH Sat 7/28 8-11 Hshld items, jewelry, shoes, books, tools, furn, clothes 2375 Geranium St

PACIFIC BEACH Sat 8-1. Refrig, computers, house-hold items, clothes, books, & more. 4215 Dawes (alley) No Early Birds.

PENASQUITOS Sat July 28th 7:30-11. Computer desk w/ hutch & other Quality Goods. 12662 Salmon River

POINT LOMA, Sat-Sun, 7am recording equip, household items, tools, clothes, misc, quality stuff! 3412 Poe St.

POWAY 13242 Pomerado Rd. Sat, 7/28 HUGE MULTI-FAMILY RUMMAGE SALE at The Growing Place School! Furniture; Clothing; Tools; Household & Kids' Items. & More! 7-11a

POWAY Bass tackle, spa, soft & hard bait, rods, reels, outdoor motor, misc house-hold Sat. 8-3. 14154 Halper Rd Cast off your fishing gear U-T San Diego Classifieds 866-411-4140

POWAY Sat. 7am, Mov-ing Sale! Furn, Clothes, Collectibles, more. 13400 Mountinside Dr., 92064

RANCHO BERNARDO July 28 & 29 from 10-2, * Moving Sale! * Hsehold Goods- 16498 Roca Dr., 92128

RANCHO SAN DIEGO 12182 Via Serrano 92019 7/28/2012 MOVING Big House Furni-ture Appliances Movies Electronics More 0700

SAN CARLOS Sat, 7am Furniture, tools, toys, clothing, and lots more! 7794 Blue Lake Dr

SAN ELIJO HILLS 1719 Blue Water Lane San Marcos Sat July 28 Moving sale! Furni-ture, dishes, and household goods! 7am

SOLANA BEACH vintage fixture sale at Mabel's, furn, odds & ends, Sat 7/28, 9-2pm, 136 S. Cedros, 92075

UNIVERSITY CITY 2945 Curie Street San Diego CA 92122 Sunday July 29th Garage Sale! 7AM-12PM

UNIVERSITY CITY Used & antique tools, Feather-weight, coins, hsehd goods. 6363 Lakewood St. 8-4. We can make anything fly. U-T San Diego Classifieds Call Us. 866-411-4140

Place your 2 day Garage Sale Advertisement in print and online for only \$30 To place an ad (866) 411-4140 or utclassifieds.com

U-T





**NAVAL BASE POINT LOMA
INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN REVISION**

Contract #N62473-07-D-3204, Task Order # 0004

DRAFT DOCUMENT REVIEW MEETING MINUTES

04 OCTOBER 2011

A document review meeting was conducted at the Naval Base Point Loma (NBPL), Taylor Street Complex, Building 1 on 04 October 2011 from 0915 to 1245 hours to discuss the Naval Base Point Loma Integrated Natural Resources Management Plan (INRMP) revision. Meeting participants included:

Attendees

Name	Organization	Title and E-mail	Phone Number
Michelle Cox	NAVFAC SW	Natural Resources Specialist Michelle.c.cox@navy.mil	619-556-9759
Andrew Wastell	NAVFAC SW	Natural Resources Specialist Andrew.wastell@navy.mil	619-532-2686
Shannon Shea	NAVFAC SW	Senior Natural Resources Specialist Shannon.shea1@navy.mil	619-532-4265
Jessica Bredvick	NAVFAC SW	Jessica.bredvick@navy.mil	
Rob Chichester	NBPL	Environmental Chief Rob.chichester@navy.mil	619-553-0526
Jim Dohna	NBPL	Facility Planner	
Deb McKay (attended via phone)	FSC Pacific	Community Planner Deborah.mckay@navy.mil	619-553-8741
Nancy Ferguson	USFWS		
Sandy Vissman	USFWS	Agency Coordinator for INRMP Sandy.vissman@fws.gov	760-431-9440 ext. 274
Rebecca Ralston (attended via phone)	HDR	Rebecca.ralston@hdrinc.com	303-754-4265
Todd McConchie	HDR	Todd.mcconchie.hdrinc.com	858-467-4900, ext. 4108
Amanda Peyton (attended via phone)	HDR	Amanda.peyton@hdrinc.com	303-643-6716

Discussion Points

Naval Base Point Loma (NBPL) stakeholders met to review the Draft NBPL INRMP for content and readability, discuss the overall document layout, and to review the project table (Appendix C in the Draft INRMP). Comments on the Draft INRMP are due to M. Cox and HDR by 17 October 2011. A transcript of the meeting included the following discussion points. Note: these items were discussed the meeting; however, a final determination on each item will be included in the comment response matrix (CRM) if changes to the INRMP are to be made:

1) Review of Draft INRMP and document layout

- a) Chapter 1: Summary of goals and objectives
 - i) Need to update references for DoDI 4715.03 and OPNAVINST 5090.1C throughout the document
 - ii) Page 1-6: Objectives in 4 and 5 under management strategies
 - iii) Discussion of the difference between overarching goals and overriding goals.
Overarching goals were discussed during the June 2010 meeting and included in the INRMP. NBPL personnel noted that intent of having overriding goals in Chapter 1 of the document was to introduce goals up front that could be used to tie the other chapters together. Stakeholders suggested that the objectives from the subsequent chapters be placed in this section as well. HDR noted that there is not a legal difference between the terms “overarching” and “overriding.” Stakeholders also suggested that the overarching goal statement should be changed to “The vision of the revised NBPL INRMP...” and the overriding goals provide the specifics on how this vision will be met. At the conclusion of the discussion stakeholders agreed that that the goals would be removed from chapter 1 to remove redundancy from the document. NAVFAC SW will provide guidance on how section should be revised in the CRM.
- b) Chapter 2:
 - i) Stakeholders noted that the prehistoric section from Pre-military Land Use section was missing from the draft INRMP; however, this section was included in the preliminary draft INRMP. A section will be provided to HDR from the Cultural Resources group and a note concerning this section will be added to the CRM.
 - ii) The title for Section 2.3 will be changed to “Infrastructure”
 - iii) Section 2.5 (TE Species Consultation) will be moved to Chapter 6 (Sustainability)
 - iv) Section 2.6 (Emergency Response) will be moved to Section 1.7
 - v) Page 2-12: Stakeholder inquired whether all tidepools owned by Navy? Navy response: Some are owned by Navy, some are owned by Cabrillo National Monument. However, Navy will confirm where exactly the boundaries are from a real-estate perspective, and provide guidance to HDR.
- c) Chapter 3: No comments.
- d) Chapter 4:
 - i) Figure 4-8: Missing *Chorizanth*e population. Navy will include a comment in the CRM reflecting missing population, and provide GIS data to a HDR so that the figure can be revised.
 - ii) The document is currently missing MMPA information, but information on the MMPA will be added to the document. CRM will include a comment reflecting requested change.
 - iii) Table 4-4 needs to include the black abalone.
 - iv) Figure 4-8 is not clear. In particular, where are the restricted areas? This is not a constraints map. Suggestions discussed included changing the word “restricted,” changing the figure title to “Restricted federally listed...” The decision reached after the discussion was to revise figure to show only the species of concern/natural resources (similar to constraints maps in Chapter 6). NAVFAC SW will provide specific layers and clarify what revisions need to be made in comment matrix.

- v) California Gnatcatcher: No breeding populations recorded in surveys, but species is present in area. Possibly need to revise the likelihood of presence in Table 4-4 in the area. Permit person needs to identify presence. NAVFAC SW came up with categories for presence.
 - vi) Add columns to Table 4-4. Navy will provide information for Table 4-4 including 1) acreage of habitat, 2) if recorded and how many, and 3) the survey used. Table 4-4 is based on information within the 2009 draft inventory. This needs to be stated in the text, or the survey needs to be cited under the table so that it isn't perceived as the Navy's stance. In addition, this section will revise text in table to read "occasional non-breeders" for likelihood of presence, and a reference to the survey will be added.
 - vii) Stakeholder inquired about whether the California Brown Pelican is being treated properly?
 - viii) Section 4.2.2: Will be expanded. Special status species, Specific concerns: Will bullet not number the list.
 - ix) Section 4.2.3.2 : Changing title
 - x) Moving rocky intertidal management to marine section
 - xi) Pollinator Management will be a new section per DoDI 4715.03.
 - xii) Need to have a separate Feral Animal Management section.
 - xiii) GIS section: Instead of going through in detail, lump management into management sections.
 - xiv) Stakeholder inquired about where the PLECA was discussed in Chapter 4. PLECA is discussed on page 4-15.
 - xv) CRM will include a comment stating that a GIS layer is needed for marine species habitat. GIS information will be provided to HDR by NAVFAC SW.
- e) Chapter 5:
- i) Miramar Pipeline: Stakeholder inquired about the extent of the right-of-way for the Miramar Pipeline and which portion is Point Loma responsible for maintaining?
 Answer: Depends...While easement may only be 5-10 feet, the impact may be larger. May need to modify language to say that pipeline is so many kilometers long, but that easement is so many meters wide. Stakeholders decided that a footnote should be added to Table 5-1 explaining that acreage in the table represents area surveyed, not easement. In addition, new natural resources survey data has been received by NAVFAC SW; however, the data has not been reviewed.
 - ii) La Jolla Nautical Mile: Survey of natural resources is not "in progress", but has been programmed for FY 12. Facilities are explained in Chapter 2 and the plan is to remove the towers at some point.
 - iii) Housing: Stakeholder inquired about whether the housing information within the INRMP was sent to PPV for review. Navy stated that some housing facility names may change. In addition, the INRMP indicated that the Fire Management Plan covers off-base housing. However, the plan does not and the text will have to be revised.
 - iv) USFWS would be interested in seeing the past survey data for off peninsula facilities, and suggests that either text from the survey summarizing change in use by individual species be added to the INRMP if available, or that a study be conducted to determine this. Navy responded that this type of study has been conducted for *Chorizanthe* and the Navy is interested in conducting these types of studies for other species in the

- future. However, there are currently no funds for conducting studies to determine change in habitat use by species. However, an objective or strategy may be added in the INRMP for conducting this type of study on other species.
- v) Navy will provide a summary paragraph to include in Chapter 5 that discusses management for other species.
 - vi) Navy will provide a list of projects that have been previously conducted for inclusion in the text, as well as current, or planned projects for individual species. For example, Figure 5-29 illustrates several layers for California Gnatcatcher presence at the Village at Serra Mesa housing area; however, it is unclear if the figure is illustrating species pairs observed in one or multiple years. It was noted, that all information pertaining to species observations was obtained from the 2009 housing inventory.
 - vii) The CRM will include a comment to add a summary for each housing area saying that this is the first time that concerted surveys have been performed for flora, fauna, and special status species.
- f) Chapter 6:
- i) The title for Section 6.4 may change.
 - ii) Section 6.5.1: Navy inquired about whether the new USFWS guidance had been finalized and is available. USFWS: No, but guidance will be provided to Navy for INRMP.
 - iii) Section 6.7: Final ICRMP may be available by end of year.
 - iv) Section 6.8: Navy will include a comment in the CRM and provide concise discussion of regulatory framework for each individual regulation (i.e. MMPA, MLPA, EFH, etc.) to HDR.
 - v) Section 6.9: Stakeholder inquired on whether 303d listed area (impaired waters) at NBPL, would it fall under this definition? Navy responded that NBPL does have a 303d listed area that has been dredged 3X/4X times since site was listed (also see p. 2-17). The Navy will provide a comment in the CRM to clarify 303d text in section.
 - vi) Section 6.10: Navy will review and provide guidance on how oil spills should be addressed in INRMP.
 - vii) Stakeholder inquired about whether the bait barge is within NBPL boundaries, and if so should the Navy be collecting a fee for use. Navy personnel will discuss the bait barge with the Navy real-estate office.
 - viii) A new section will be added to Chapter 6 that addresses encroachment. Text for this section will be provided to HDR from the Navy.
- g) Chapter 7: No comments.
- h) Chapter 8: No comments.
- i) Chapter 9: CRM will include a comment for HDR to include the name of the document (if metadata is available) used to create a figure in the GIS reference section.
- j) INRMP Appendices:
- i) Appendix C will be modified for next draft to make more sense. The CRM will include a comment for HDR to cite Figure C-2 as coming from USACE.
 - ii) Appendix E: USFWS comment concerning where the text for benefits to federally listed species is located? In addition, USFWS inquired about how the INRMP and the management processes within the document are going to benefit listed species. "This

plan can further the species because...” In response, Navy personnel requested that USFWS provide guidance on how appendix should address this concern. There is currently no Navy or DoD guidance that outlines how INRMPs should present this information. A Navy stakeholder suggested that adding bullets to this appendix specifying how the INRMP benefits listed species, and these bullets can be placed in the document body as well. In addition, Navy personnel inquired about the criteria for benefiting the species. Navy references as “Miramar Criteria” but USFWS does not necessarily call them anything in particular. Navy will check DoD guidance. USFWS will provide some guidance to the Navy. Stakeholders decided that at a minimum the INRMP will address these three criteria in the document appendix. The CRM will include a comment addressing this and provide guidance to HDR.

- iii) Appendix H: The CRM will include a comment to add a date/cite reference.
- iv) Appendix I: The CRM will include comments to include a description of where the species may be observed on NBPL, and include guidance for evaluating Focus Management Species metrics. USFWS inquired about whether the Navy is monitoring for Quail. In addition, USFWS suggests that the Navy monitor heron and spineflower populations at NBPL, Main Base as focus management species, and the Quail and San Diego Fairy Shrimp for off peninsula facilities. HDR provided documentation to Navy for how focus management species were selected. Navy will review this documentation and provide guidance in the CRM for how this appendix should be structured.
- v) Appendix J: CRM will include comment to add a date/cite reference.
- vi) Appendix K: NAVFAC SW informed HDR that the next metric evaluation website due out in November
- vii) Appendix O: List of active projects/updates will go here. Relevant for EA.

2) Review of Appendix C – Project Tables

- a) A new list of EPR project descriptions from 2012-2018 was distributed to meeting attendees for review. It was noted, that not all of the projects on the list have been approved. Many of these projects reference educational materials or programs. Navy is going to review project tables and provide guidance in CRM to HDR, including an example of table format revisions.
- b) Two new projects (63406NRC27 and 63406PLECA) need to be added to the table. Also need to add NR006 (INRMP implementation) to table.
- c) Navy personnel noted that some projects within Appendix C will have multiple EPR numbers associated with them.
- d) Page D-4: “...TES species...” should be either “TES” or “TE species” check for consistency in doc
- e) Navy will include a comment in the CRM instructing HDR to list the EPRs and the official title at the beginning of the Table. In addition, the Navy will supply official titles.
- f) Wetland inventories: A focused wetland inventory was conducted by the Navy, and the final report should be available in the next few weeks.
- g) Navy: Some EPRs will be changed to “In-house” and will be revised to show as much via a footnote. Navy will provide revisions in a CRM.
- h) Page D-6: First two should be “NR029.” #4: Not approved at this time, but is in the system. Navy needs to check on frequency for this action. Guidance is to try to put descriptions of the natural resources issue in the EPR system to ensure that when money is available it is

applied to the most sensitive issues.

- i) Page D-7: #2, should be “NR107”
- j) Page D-8: #3, should be “NR029.” #5: Navy will contact Karen Martin (Pepperdine) re: potential for grunion’s on base.
- k) Page D-9: #4, have had this for years as a reseeding project. Submit seeds to San Diego Natural History Museum.
- l) Page D-10: #3 and #4, both in-house and EPR
- m) Page D-16: #3, delete
- n) Page D-17: #1, should be “63406NR016.” #2 to #4, combine

3) Additional Items and Schedule for Public Review Draft INRMP

- a) Stakeholder comments on the Draft NBPL INRMP are due to M. Cox and HDR by 17 October 2011. All comments are to be placed within the CRM provided with the draft document. Only those comments provided in the CRM will be addressed by HDR.
- b) The comment period for the Public Review Draft INRMP is currently scheduled for mid-November; however, this date will most likely be pushed back by two to four weeks. The Finding of No Significant Impact will therefore be completed by March 2012.
- c) NAVFAC SW personnel will ensure that R. Chichester receives a copy of the INRMP Environmental Assessment for review and comment.

Action Items

- **Navy:**
 - NAVFAC SW personnel will ensure that all requested revisions to the draft INRMP noted above are included in the CRM.
 - NAVFAC SW will coordinate with the Navy real-estate office to determine those tidepools that are the Navy responsibility versus the National Park Service.
 - NAVFAC SW and NBPL will review oil spills section in Chapter 6 and provide guidance on revisions to be made.
 - Navy personnel will coordinate with Navy real-estate office to determine Navy responsibility for managing the bait barge.
 - NAVFAC SW will review project tables provided in Appendix D and provide an example of formatted revisions to HDR.
 - NAVFAC SW will ensure that R. Chichester receives a copy of the INRMP Environmental Assessment.
- **USFWS:**
 - Will provide new agency wind farm and communication lines guidance to Navy when available.
 - Will provide guidance to Navy on how to adequately address benefits to Migratory Birds within the INRMP.



**NAVAL BASE POINT LOMA
INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN REVISION**

Contract #N62473-07-D-3204, Task Order # 0004

**DOCUMENT REVIEW MEETING MINUTES
24 JUNE 2010**

A document review meeting was conducted at the Blue Room, Building 127 on 24 June 2010 from 1300 to 1630 hours to discuss the Naval Base Point Loma Integrated Natural Resources Management Plan (INRMP) revisions. Meeting participants included:

Attendees

Name	Organization	Title and E-mail	Phone Number
Rob Chichester	NBPL	Environmental Manager Rob.chichester@navy.mil	619-553-0526
Deb McKay	SSC Pacific	Deborah.mckay@navy.mil	619-553-8741
Bryan Munson	NAVFAC SW	Natural Resources Specialist Bryan.munson@navy.mil	619-532-2786
Bill Hoyes	NAVFAC SW	William.hoyes@navy.mil	
Dennis Credico	Lincoln Property Co.	dcredico@lpsi.com	858-292-6626
Keli Balo	City of San Diego	kbalo@sandiego.gov	858-292-6423
Dawn Lawson	NAVFAC SW	Senior Natural Resources Specialist Dawn.lawson@navy.mil	619-726-5684
Suzanne Graham	NAVFAC SW	NRSW Suzanne.graham@navy.mil	619-532-2747
Meredith Osborne	CDFG	Agency Coordinator for INRP mosborne@dfg.ca.gov	858-636-3163
Sandy Vissman	USFWS (FWS)	Agency Coordinator for INRMP Sandy.vissman@fws.gov	760-431-9440 ext. 274
Shannon Cauley	HDR e ² M	Project Manager for Naval Base Point Loma INRMP Shannon.cauley@hdrinc.com	703-752-7755 ext. 102
J. Douglas Ripley	HDR e ² M	Project Manager for Naval Base San Diego INRMP James.ripley@hdrinc.com	520-212-6077
Dan Savercool	HDR e ² M	Project Manager for Naval Base Coronado Daniel.savercool@hdrinc.com	610-397-1744 ext. 104
Amanda Peyton	HDR e ² M	Technical Staff Amanda.peyton@hdrinc.com	303-643-6716

Discussion Points

HDR|e²M met with Naval Base Point Loma (NBPL) stakeholders to discuss the status of the 2010 NBPL INRMP revision, discuss the revision schedule and path forward, review chapters 1 and 2 of the INRMP revision, and proposed goals, objectives and potential projects to be included in the revision. The objective for the meeting was to obtain stakeholder input for proposed goals, objectives and projects to be included within the INRMP revision (see **Attachment A** for meeting agenda). A transcript of the meeting included the following discussion points:

1) Status of the 2010 NBPL INRMP Revision and Path Forward

- a) HDR|e²M briefly outlined the progress made thus far on the INRMP revision. Items discussed during the briefing included an overview of the 2002 INRMP and the proposed table of contents for the revision, a summary of the meetings conducted to date, and a brief review of the revision schedule.
- b) After review of the project schedule (see **Attachment B**), meeting attendees decided to review of chapter 3 (NBPL, on peninsula) from 8:00 AM PDT to 12:00 PM PST on Wednesday, September 8, 2010.
- c) The INRMP revision will be sure to include a discussion on the SDG&E easement and how the easement may or may not affect natural resources management at NBPL.
- d) The INRMP revision will also include a discussion of plans developed within the region.
- e) The Navy decided that the discussion within the INRMP revision pertaining to the Miramar pipeline will include information on consultation in the event of an emergency, but will not include specific management actions for the pipeline.

2) Review of NBPL INRMP Chapters 1 and 2

- a) A large portion of the meeting was devoted to review of chapters 1 and 2 of the INRMP revision. Comments obtained from meeting attendees will be incorporated into chapters 1 and 2. Additional comments on chapters 1 and 2 are due to HDR|e²M by Friday, July 30, 2010.
- b) HDR|e²M will conduct short interviews with folks on specific topics to ensure that HDR|e²M is capturing current information within the INRMP. These meetings may or may not be conducted depending on information obtained from stakeholders during the July webinar and upon review of materials received to date. Suggested topics and experts to be interviewed include:
 - i) Ecosystem approach: all natural resources folks
 - ii) Water resources and wetlands: James Cronin, Suzanne Graham, Kim O'Connor, Bryan Munson, and Sandy Vissman
 - iii) Soil resources: Kim O'Connor, Bryan Munson, and Dawn Lawson
 - iv) Wildland fire: Kim O'Connor, Bryan Munson, Dawn Lawson, USFS, and BLM
 - v) Terrestrial habitats: All natural resources, except Suzanne Graham
 - vi) Marine habitats and species: Suzanne Graham and NMFS.
 - vii) Protected habitats/special status species: All natural resources
 - viii) Terrestrial flora: Meredith Osborne, Kim O'Connor, Bryan Munson, and Sandy Vissman

- ix) Terrestrial fauna and birds: Sandy Vissman, and Bryan Munson
- x) Invasive species: Kim O'Connor, Bryan Munson, Meredith Osborne, Nicole Olmsted, and Mike Medina
- xi) Climate change: Dawn Lawson and all natural resources
- xii) Pest management and animal damage control: Kim O'Connor, Bryan Munson, Regina Clifford, Meredith Osborne, Nicole Olmsted, and Mike Medina
- xiii) Restoration : Kim O'Connor, Bryan Munson, Meredith Osborne, and Sandy Vissman
- xiv) Inventory, monitoring and research to support management decision: All natural resources
- xv) GIS: Nicole Olmsted, Bryan Munson, Joni Mitchell, USFWS (Tony McKenny), Kim O'Connor

3) Review Proposed Goals, Objectives and Projects

- a) Identify specific objectives and projects for listed species to ensure that NBPL demonstrates a benefit for each listed species and satisfies USFWS.
- b) The final meeting topic consisted of discussing proposed goals for the INRMP revision. The goals agreed upon by meeting attendees included the following:
 - i) Goal 1: Provide for sustainability of natural resources while meeting mission objectives through adaptive resources management
 - ii) Goal 2: Integrate training and nr management to mutual benefit.
 - iii) Goal 3: Sustain and enhance terrestrial, marine, and aquatic (fresh water) habitats on NBPL that provide functions and values in an ecosystem.
 - iv) Goal 4: Assess, sustain, and enhance native fish, wildlife, and plant populations in a manner consistent with the military mission.
 - v) Goal 5: Minimize habitat damage and human health and safety risks caused by pests.
 - vi) Goal 6: Provide sustainable natural resources-related outdoor recreation opportunities given security constraints.
 - vii) Goal 7: Increase awareness and education of natural resources issues, programs, and responsibilities for sustaining natural resources among NBPL leadership, employees, residents, tenants, land owners, and the public.
 - viii) Goal 8: Integrate the NBPL natural resources program with local, state, and regional environmental programs and initiatives.
 - ix) Goal 9: Use geographic information system (GIS) database to facilitate natural resources management at NBPL.
 - x) Goal 10: Ensure adequate natural resources staffing and funding to meet the requirements of the Sikes Act.
- b) In an effort to facilitate review of proposed objectives and projects for the INRMP revision, HDR|e²M prepared and distributed a white paper that listed goals, objectives and projects from the 2002 INRMP. Based on the revised goals above, HDR|e²M has asked each stakeholder to review the 2002 table and identify those projects that meet one of the following properties 1) have been completed and thus can be removed from the list, 2) have

not been completed and need to be carried forward to the revision, or 3) a new project that was not identified in the 2002 INRMP that needs to be included in the revision. It should be noted that the goals listed in the 2002 whitepaper will more than likely become objectives if those projects are carried forward in the revision. HDR|e²M has requested that stakeholders send their comments on the objectives and projects by Friday, July 9, 2010 to Amanda Peyton (Amanda.peyton@hdrinc.com).

- c) A webinar to discuss the 2002 whitepaper and objectives and projects that should be included in the revised NBPL INRMP will be conducted on Wednesday, July 14, 2010 from 9:30 AM PDT to 11:30 AM PDT. Information concerning webinar logistics will be sent to stakeholders by Friday, July 9, 2010.

Action Items

- **HDR|e²M:**
 - Send out notice to stakeholders with information on webinar.
- **Stakeholders:**
 - Stakeholders will provide HDR|e²M comments on the 2002 goals, objectives and projects whitepaper by Friday, July 9, 2010
 - Stakeholder will provide HDR|e²M comments on chapters 1 and 2 of the NBPL INRMP revision by Friday, July 30, 2010.



ATTACHMENT A

Naval Base Point Loma INRMP Update and EA

Stakeholder Meeting

24 June 2010

Blue Room, Building 127, 1220 Pacific Highway, San Diego 92132

Agenda

1300 – 1315: Introductions

Dawn Lawson, *Naval Facilities Engineering Command, Southwest (NAVFAC SW)*

Bryan Munson, *NAVFAC SW*

1315 – 1345: 2002 INRMP Overview

Shannon Cauley and Amanda Peyton, HDR/e²M

- 2002 Naval Base Point Loma INRMP brief overview and review of table of contents (TOC)
- U.S. Navy Natural Resources Management Instruction updates **OPNAVINST 5090.1C**

1345 – 1415: Status of 2010 Naval Base Point Loma INRMP Update

Shannon Cauley, HDR/e²M

- Summary of progress to date
- Review of draft chapters 1 and 2

1415 – 1430: INRMP Update Schedule

Dawn Lawson, *NAVFAC SW*

Bryan Munson, *NAVFAC SW*

Shannon Cauley and Amanda Peyton, HDR/e²M

- Review update schedule
- Discuss stakeholder responsibility and steps needed to complete INRMP

1430 – 1445: Break

1445 – 1645: 2010 Naval Base Point Loma INRMP Update Specifics

Dawn Lawson, *NAVFAC SW*

Bryan Munson, *NAVFAC SW*

Shannon Cauley and Amanda Peyton, HDR/e²M

- Discussion of specific comments on draft Chapters 1 and 2
- Discussion of Navy's key issues

- Discussion of key issues for Stakeholders
- Review and discussion of proposed goals, objectives, and specific projects
- Mechanics of remaining review process. Who will be involved and when? In what format should review documents be prepared?

1645 – 1700: Summary and Conclusions

Dawn Lawson, *NAVFAC SW*

Bryan Munson, *NAVFAC SW*

Shannon Cauley and Amanda Peyton, *HDR/e²M*



**NAVAL BASE POINT LOMA
INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN REVISION**

Contract #N62473-07-D-3204, Task Order #0004

**STAKEHOLDER MEETING MINUTES
19 MAY 2009**

A stakeholder meeting was conducted at the Naval Facilities Engineering Command – Southwest (NAVFAC SW) offices on 19 May 2009, 1300 to 1700 hours, for the Naval Base Point Loma Integrated Natural Resources Management Plan (INRMP) revision. Meeting participants follow.

Attendees

Name	Organization	Title and E-mail (email addresses are hyperlinked to underlined text in the table)	Phone Number
Meredith Osborne	California Department of Fish and Game (CDFG)	<u>Agency</u> Coordinator for INRMP	858-636-3163
Regina Clifford	Lincoln Military Housing	<u>Housing</u> Manager	760-400-8192
Dennis Credico	Lincoln Property Company	<u>Housing</u> Manager	858-292-6626
Tamara Conkle	NAVFAC SW	<u>Natural</u> and Cultural Resources	619-532-2968
Coralie Cobb	NAVFAC SW	<u>Senior</u> Natural Resources Specialist	303-953-0519
Bryan Munson	NAVFAC SW	<u>Natural</u> Resources Specialist	619-532-2786
Kimberly O'Connor	NAVFAC SW	<u>Botanist</u>	619-532-2786
Suzanne Graham	NAVFAC SW	<u>Navy</u> Stakeholder	619-532-2747
Juan J. Sandoual	NAVFAC SW	<u>Environmental</u> Department	619-221-5459
Rob Chichester	NAVFAC SW	<u>Environmental</u> Program Manager	619-553-0526
Laura Ball	City of San Diego	<u>City</u> of San Diego	858-292-6417
Andy Yatsko	NAVFAC SW	<u>CNRSW</u>	619-532-2800
J. Douglas Ripley	e ² M	<u>Project</u> Manager for Naval Base San Diego INRMP	520-212-6077
Shannon Cauley	e ² M	<u>Project</u> Manager for Naval Base Point Loma INRMP	703-752-7755 ext. 102
Summer Bennett	e ² M	<u>Technical</u> Staff	858-467-4900 ext. 109
Amanda Peyton	e ² M	<u>Technical</u> Staff	303-643-6716

Discussion Points

engineering-environmental Management, Inc. (e²M) met with stakeholders for the revision of the Naval Base Point Loma INRMP on 19 May 2009, between 1300 and 1700 hours, to discuss changes in management structure and Department of Defense (DoD) and Department of Navy (DoN) guidance since the 2002 INRMP, the proposed table of contents for the revision, the proposed project completion schedule, and revision goals and key issues that should be addressed in the INRMP revision (see **Attachment A** for meeting agenda). A transcript of the meeting included the following discussion points:

After welcoming meeting attendees, Shannon Cauley of e²M opened the meeting by introducing the meeting agenda, discussing the purpose of the stakeholder meeting, and how input obtained from stakeholders will be used in the INRMP revision process (see **Attachment B** for meeting presentation).

1) Changes in Management Structure and Updated DoD and DoN Guidance

- a) The 2002 INRMP for Naval Base Point Loma (NBPL) was developed following the 1997 Sikes Act Improvement Act (SAIA) amendments requiring DoD installations to develop and implement INRMPs. The plan was developed in coordination with the U.S. Fish and Wildlife Service (FWS), the California Department of Fish and Game (CDFG), and the public.
- b) Since the 2002 NBPL INRMP was finalized, DoD and DoN have developed guidance to assist installation managers with developing and implementing INRMPs including, but not limited to:
 - i) DoD memo on INRMP coordination, reporting and implementation – 10 Oct 02
 - ii) DoD memo on scope of INRMP review, public comment and Endangered Species Act consultation on INRMPs – 1 Nov 04
 - iii) DoD memo on applicability the Sikes Act INRMP requirement for lands leased to a non-DoD party – 17 May 05 (**not applicable to NBPL**)
 - iv) DoD memo on best practices for INRMP implementation – Aug 05
 - v) DoD memo outlining INRMP template for new and revised INRMP – 14 Aug 06
 - vi) Exemption of military lands from Endangered Species Act Critical Habitat designation provided the INRMP addresses listed species -- 2004 Defense Authorization Act.
 - vii) Revised Navy Natural Resources Management Instruction (OPNAVINST 5090.1C) 30 Oct 2007
 - (1) A revision and update to Chapter 24 (Natural Resources) is in draft form
 - (2) The goal of the revision is to encourage proactive vs. reactive management for natural resources management.
 - (3) .
- c) In addition, the DoN has developed two programs to assist installation personnel in developing their INRMPs and tracking progress on INRMP implementation.
 - i) The Navy INRMP Builder Program was designed to assist installation personnel with developing, or revising, their installation INRMP.
 - ii) The Navy Metrics Builder Program was developed to assist installations evaluate INRMP implementation. Annually, each installation receives a report card informing them on “where they stand in regards to INRMP implementation.” The program also requires each installation to address specific questions related to implementation to ensure that the

implemented INRMP meets all regulatory requirements.

- d) Management changes from the 2002 INRMP and the revision includes the incorporation of Mount Soledad Signal Station, the Miramar pipeline, four on-station housing sites and nine off-station housing sites. The INRMP revision will include specific management goals and objectives for each of these areas in the hope of providing clear management.

2) Proposed Table of Contents for the INRMP Revision and Comparison with 2002 INRMP

- a) Differences between the revised INRMP and the 2002 INRMP include the following:
 - i) Chapters 1 and 2 of the 2009 INRMP (see **Attachment C** for revised INRMP table of contents) provides more detail than the 2002 INRMP and sets the stage for natural resources management at NBPL.
 - ii) Prior to 2002, cultural resources were addressed in the INRMP, now cultural resources are addressed in the Integrated Cultural Resources Management Plan, and the revised NBPL INRMP will refer to this document for all cultural resources issues.
 - iii) Chapters 3 – 6 of the 2009 INRMP provide specific detail on each of the facilities managed under NBPL including the Naval Base Point Loma, which includes properties addressed in the current, INRMP as well as Mount Soledad Signal Station, Miramar Pipeline, four on-station housing sites and nine off-station housing sites.
 - (1) Breaking out natural resources management for on-peninsula and off-peninsula by chapter, as opposed to subchapter, will ensure INRMP review is more efficient for stakeholders, and will help to clearly identify management goals and objectives for each facility. Reviewers and managers will not have to wade through the entire document to find the information they need to manage a particular facility on NBPL.
 - (2) Breaking out natural resources management by on-peninsula and off-peninsula will also ensure that during budgeting, installation managers are better able to request and allocate funds for INRMP implementation.
- b) The 2009 INRMP will also provides a discussion of the Point Loma regional ecological setting and potential impacts of climate change to natural resources in the region.

3) INRMP Project Completion Schedule

- a) Attendees agreed that the project completion schedule needed to be modified to reflect the changes in the Table of Contents. See **Attachment D** for the revised chapter by chapter review schedule by the stakeholders.
- b) Each chapter of the INRMP will be sent to stakeholders electronically. To reduce file size, a PDF version of the chapter, including all graphics and maps (file will be no larger than 1 megabyte) will be sent along with a Microsoft Word version of the chapter with all the graphics and maps removed from the document. Removing the graphics and maps from the Word version will allow stakeholders to use track changes to comment on chapter content and will ensure that file size remains manageable.
- c) A comment response matrix (CRM) will be sent with each chapter; however, it is up each stakeholder to decide the best format for submitting comments (e.g. track changes in Word, via email, via CRM, or in person at monthly chapter review meetings). **Attachment E** contains a table indicating how stakeholders wish to receive draft INRMP documents and how they will submit their comments for each chapter to e²M.
- d) A meeting request with meeting details will be sent out with each chapter and CRM notifying

stakeholders of when the next review meeting will occur.

- e) It is assumed that each chapter review meeting will be held in person, but e²M will provide a call-in number for those attendees who are unable to attend the meeting in person.
- f) Doug Ripley will be the primary e²M point of contact for the NBSD INRMP revision, Shannon Cauley will be the primary e²M point of contact for the NBPL INRMP revision, and Dan Savercool will be the primary e²M point of contact for the Naval Base Coronado INRMP revision.

4) 2009 INRMP Revision Goals, Key Issues and Other Considerations

- a) **NAVFAC SW Comment:** 2009 INRMP table of contents needs to be revised so that chapter 3 will discuss on peninsula facility management (NBPL and four housing units), and chapter 4 will discuss off peninsula facility management (Mount Soledad Signal Station, Miramar Pipeline and nine housing areas). See **Attachment F** for revised TOC.
- b) **NAVFAC SW Comment:** allow Public-Private Venture (PPV) partners to develop projects that benefit housing areas that support INRMP goals and objectives for management in housing areas.
- c) **NAVFAC SW Comment:** invasive species management should be a focus for the housing areas. This can be accomplished through developing a landscaping manual for the housing areas and distributing the manual and educational materials to PPV partners.
- d) **NAVFAC SW Comment:** Navy wants to ensure that the revision addresses questions on INRMP implementation contained within the Navy Metrics Builder Program.
- e) **NAVFAC SW Comment:** from the California Wildlife Action Plan determine management priorities for the state, along with regional management priorities (e.g. marine resources, migratory birds, etc.). The wildlife action plan will also ensure that the INRMP revision includes management objectives for defining and monitoring indicator species, and their habitats.
- f) **Comment:** revision should address the planting of non native plant species on and surrounding the base.
- g) **Comment:** revision should include an in-depth discussion on watershed and management of water resources using a watershed approach.
- h) **NAVFAC SW Comment:** revision should include discussion of Natural Community Conservation Planning (NCCP) identified indicator species, and whether these are the appropriate indicator species to guide management on NBPL.
- i) **NAVFAC SW Comment:** The INRMP revision should be used to reactivate implementation of the PLECA process.
- j) **NAVFAC SW Comment:** The vegetation maps that were included in the 2002 INRMP are not accurate. They are currently being revised. The new maps should be included in the INRMP revision when they become available.

Action Items

- e²M will provide:
 - Create a table of all stakeholders that will be involved in the NBPL INRMP revision.

- Revise and submit the Table of Contents to reflect the changes discussed in reference to Chapters 3 & 4.
- Create a crosswalk table for off peninsula facility management, including each of the 9 housing areas.
- Revise and submit the project completion schedule.

- Other stakeholders:
 - All: provide comments to meeting minute content.
 - All: provide preference for receiving chapters and submitting comments.
 - NAVFAC SW: determine other stakeholders for the INRMP revision.
 - NAVFAC SW: in addition to the reports, studies and new information listed in the Scope of Work; NAVFAC SW will provide, electronically, a map depicting the boundary of the Point Loma Ecological Conservation Area (PLECA).



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ATTACHMENT A

STAKEHOLDER MEETING AGENDA

NAVAL BASE POINT LOMA INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN REVISION CONTRACT #N62473-07-D-3204, TASK ORDER #0004

Tuesday, 19 May

1330 – 1340: Introductions

Tamara Conkle, *Naval Facilities Engineering Command, Southwest (NAVFAC SW)*

Coralie Cobb, *NAVFAC SW*

1340 – 1400: 2002 INRMP Overview

Shannon Cauley, *engineering-environmental Management, Inc. (e²M)*

- 2001 Naval Base Point Loma INRMP brief overview and review of table of contents (TOC)
- Sikes Act Improvement Act Revisions after 2001
- U.S. Navy Natural Resources Management Instruction Revisions **OPNAVINST 5090.1C**

1400 – 1430: 2009 Naval Base Point Loma INRMP Revision

Shannon Cauley, *(e²M)*

- Proposed TOC for Revised INRMP
- Comparison between previous INRMP TOC and Revised TOC
 - Management of Navy housing not included in previous INRMP

1430 -- 1445: Break

1445 – 1530: INRMP Revision Schedule

Tamara Conkle, *NAVFAC SW*

Coralie Cobb, *NAVFAC SW*

Shannon Cauley, *(e²M)*

- Review Revision schedule
- Discuss stakeholder responsibility and proposed meeting dates
- Discuss benefits of chapter by chapter review

1530 -- 1645: 2009 Naval Base Point Loma INRMP Revision Specifics

Tamara Conkle, *NAVFAC SW*

Coralie Cobb, *NAVFAC SW*

Shannon Cauley, *(e²M)*

- Goals and objectives for INRMP

- Discussion of Navy's key issues
- Discussion of key issues for Stakeholders
- INRMP Metrics Meeting
- Mechanics of review process. Who will be involved and when? In what format should review documents be prepared? How will review documents be submitted?

1645 -- 1700: Summary and Conclusions
Tamara Conkle, *NAVFAC SW*
Coralie Cobb, *NAVFAC SW*

APPENDIX O
ANNUAL INRMP UPDATE

APPENDIX P
INRMP CROSSWALK TABLE

NB Point Loma INRMP Table of Contents	DoD Template (2006)
ANNUAL REVIEW AND COORDINATION PAGE	Signature Page
INRMP APPROVING OFFICIAL SIGNATURE PAGES	Signature Page
EXECUTIVE SUMMARY	Executive Summary
1. OVERVIEW	
1.1 PURPOSE AND SCOPE OF PLAN	1.a. Purpose 1.b. Scope
1.2 AUTHORITY	1.e. Authority
1.3 INRMP VISION, GOAL, AND OBJECTIVES	1.c. Goals and Objectives 1.h. Management Strategy
1.4 STEWARDSHIP AND COMPLIANCE	1.f. Stewardship and Compliance Discussion
1.5 REVISIONS AND ANNUAL REVIEWS	1.g. Review and Revision Process
1.6 INRMP IMPLEMENTATION AND RESPONSIBILITIES	1.d. Responsibilities
1.6.1 Internal Navy Stakeholders	1.d. Responsibilities
1.6.1.1 Chief of Naval Operations (CNO)	1.d. Responsibilities
1.6.1.2 Commander of Navy Installations Command (CNIC)	1.d. Responsibilities
1.6.1.3 Navy Region Southwest	1.d. Responsibilities
1.6.1.4 Installation Commanding Officers	1.d. Responsibilities
1.6.1.5 Public Affairs Office	1.d. Responsibilities
1.6.1.6 Office of Counsel	1.d. Responsibilities
1.6.1.7 Naval Facilities Engineering Command Southwest (NAVFAC SW)	1.d. Responsibilities
1.6.1.8 Other Installation and Tenant Organizations, and Partners	1.d. Responsibilities
1.6.2 External Stakeholders	1.d. Responsibilities
1.6.2.1 U.S. Fish and Wildlife Service	1.d. Responsibilities
1.6.2.2 California Department of Fish and Game	1.d. Responsibilities
1.6.2.3 National Oceanic and Atmospheric Administration	1.d. Responsibilities
1.6.2.4 Other External Organizations and Partners	1.d. Responsibilities
1.7 INTEGRATION OF OTHER INSTALLATION PLANS AND PROGRAMS WITH INRMP	1.i. Other Plan Integration
1.7.1 Navy Plans and Programs	3.a.(3) Relationship to Operational Plans
1.7.2 Regional Plans and Initiatives	3.a.(3) Relationship to Operational Plans
1.7.2.1 California Wildlife Action Plan	3.g. State Comprehensive Wildlife Plan
1.7.2.2 Multiple Species Conservation Program	1.i. Other Plan Integration
1.7.2.3 San Diego Bay INRMP	1.i. Other Plan Integration
1.7.2.4 San Diego River Conservancy	1.i. Other Plan Integration
1.7.2.5 Cabrillo National Monument General Management Plan	1.i. Other Plan Integration
2. LOCATION, MILITARY USE, AND NATURAL RESOURCES MANAGEMENT	
2.1 NAVAL BASE POINT LOMA ON PENINSULA FACILITIES	2.a.(1) General Description
2.1.1 Naval Base Point Loma, Mainbase	2.a.(1) General Description
2.1.1.1 Location	2.a.(1) General Description
2.1.1.2 History	2.a.(3) Abbreviated History and Pre-Military Land Use
2.1.1.3 Mission	2.a.(4) Military Mission
2.1.1.4 Administrative Facilities	2.a.(5) Operations and Activities
2.1.1.5 Recreation	3.e.(1) Public Access and Outdoor Recreation

NB Point Loma INRMP Table of Contents	DoD Template (2006)
2.1.2 Space and Naval Warfare Systems Center Pacific (SSC Pacific)	2.a.(1) General Description
2.1.2.1 Location	2.a.(1) General Description
2.1.2.2 History	2.a.(3) Abbreviated History and Pre-Military Land Use
2.1.2.3 Mission	2.a.(4) Military Mission
2.1.2.4 Administrative Facilities	2.a.(5) Operations and Activities
2.1.2.5 Recreation	3.e.(1) Public Access and Outdoor Recreation
2.1.3 Naval Mine and Anti-submarine Warfare Complex (NMAWC)	2.a.(1) General Description
2.1.3.1 Location	2.a.(1) General Description
2.1.3.2 Mission	2.a.(4) Military Mission
2.1.3.3 Administrative Facilities	2.a.(5) Operations and Activities
2.1.4 Fleet Combat Training Center, Pacific (FCTCPAC)	2.a.(1) General Description
2.1.4.1 Location	2.a.(1) General Description
2.1.4.2 Mission	2.a.(4) Military Mission
2.1.4.3 Administrative Facilities	2.a.(5) Operations and Activities
2.1.4.4 Recreation	3.e.(1) Public Access and Outdoor Recreation
2.1.5 Fleet Intelligence Training Center, Pacific (FITCPAC)	2.a.(1) General Description
2.1.5.1 Location	2.a.(1) General Description
2.1.5.2 History	2.a.(3) Abbreviated History and Pre-Military Land Use
2.1.5.3 Mission	2.a.(4) Military Mission
2.1.5.4 Administrative Facilities	2.a.(5) Operations and Activities
2.1.6 Fleet Industrial Supply Center Defense Fuel Support Point (DFSP Point Loma)	2.a.(1) General Description
2.1.6.1 Location	2.a.(1) General Description
2.1.6.2 History	2.a.(3) Abbreviated History and Pre-Military Land Use
2.2 NAVAL BASE POINT LOMA OFF PENINSULA FACILITIES LOCATIONS	2.a.(1) General Description
2.2.1 Naval Base Point Loma Old Town Center	2.a.(1) General Description
2.2.1.1 Location	2.a.(1) General Description
2.2.1.2 History	2.a.(3) Abbreviated History and Pre-Military Land Use
2.2.1.3 Mission	2.a.(4) Military Mission
2.2.1.4 Administrative Facilities	2.a.(5) Operations and Activities
2.2.2 Miramar Pipeline	2.a.(1) General Description
2.2.2.1 Location	2.a.(1) General Description
2.2.2.2 History	2.a.(3) Abbreviated History and Pre-Military Land Use
2.2.3 Mount Soledad Signal Station	2.a.(1) General Description
2.2.3.1 Location	2.a.(1) General Description
2.2.3.2 Mission	2.a.(4) Military Mission
2.2.3.3 Administrative Facilities	2.a.(5) Operations and Activities
2.2.4 Joint Regional Correctional Facility (on MCAS Miramar)	2.a.(1) General Description
2.2.4.1 Location	2.a.(1) General Description
2.2.4.2 History	2.a.(3) Abbreviated History and Pre-Military Land Use
2.2.4.3 Mission	2.a.(4) Military Mission

NB Point Loma INRMP Table of Contents	DoD Template (2006)
2.2.4.4 Administrative Facilities	2.a.(5) Operations and Activities
2.2.5 La Jolla Nautical Mile	2.a.(1) General Description
2.2.5.1 Location	2.a.(1) General Description
2.2.5.2 History	2.a.(3) Abbreviated History and Pre-Military Land Use
2.2.5.3 Administrative Facilities	2.a.(5) Operations and Activities
2.2.6 Navy Housing Areas	2.a.(1) General Description
2.2.7 Other Entities on Point Loma Not Included As Part of Naval Base Point Loma	2.a.(1) General Description
2.2.7.1 Ballast Point Coast Guard Station	2.a.(2) Regional Land Uses
2.2.7.2 Cabrillo National Monument	2.a.(2) Regional Land Uses
2.2.7.3 City of San Diego Wastewater Treatment Facility	2.a.(2) Regional Land Uses
2.2.7.4 Fort Rosecrans National Cemetery	2.a.(2) Regional Land Uses
2.2.7.5 University of California Research Vessel Support Facility	2.a.(2) Regional Land Uses
2.2.7.6 Point Loma Ecological Conservation Area	2.a.(2) Regional Land Uses
2.3 OTHER OPERATIONS AND ACTIVITIES	2.a.(5) Operations and Activities
2.3.1 Transportation and Utilities	2.a.(5) Operations and Activities
2.3.2 Waterfront Operations	2.a.(5) Operations and Activities
2.3.3 Security and Perimeter Buffer Requirements	2.a.(5) Operations and Activities
2.3.4 Installation Restoration Sites	2.a.(5) Operations and Activities
2.3.5 Public Access	3.e.(1) Public Access and Outdoor Recreation
2.3.6 Agricultural Outleasing	4.k. Agricultural Outleasing
2.4 ACHIEVING SUCCESS AND NO NET LOSS OF MILITARY MISSION	5.b. Achieving No Net Loss
2.5 MILITARY LAND USE	2.a.(5) Operations and Activities
2.6 FUTURE LAND USE	2.a.(5) Operations and Activities
2.7 GOVERNMENT REGULATORY REQUIREMENTS FOR NATURAL RESOURCES MANAGEMENT	3.b. Natural Resources Consultation Requirements
2.7.1 Planning Jurisdictions	3.b. Natural Resources Consultation Requirements
2.7.2 Federal, State and Local Laws and Regulations	3.b. Natural Resources Consultation Requirements
3. REGIONAL ECOLOGICAL SETTING	
3.1 ECOLOGICAL DRIVERS	2.b. General Physical Environment
3.1.1 Water Resources	2.b. General Physical Environment
3.1.2 Fire	2.b. General Physical Environment
3.1.3 Drought	2.b. General Physical Environment
3.1.4 Invasive Flora and Fauna	2.b. General Physical Environment
3.1.5 Ecological and Natural Resources Disease	2.b. General Physical Environment
3.1.6 Climate and Climate Change	2.b. General Physical Environment
3.2 ECOSYSTEM FUNCTION	2.b. General Physical Environment
3.3 ECOSYSTEM MANAGEMENT	2.b. General Physical Environment
4. NAVAL BASE POINT LOMA ON PENINSULA	
4.1 PURPOSE, APPROACH AND RATIONALE	1.a. Purpose 1.b. Scope
4.2 NATURAL RESOURCES CURRENT CONDITIONS AND MANAGEMENT	1.c. Goals and Objectives 1.h. Management Strategy
4.2.1 Topography, Geology and Seismicity	2.b. General Physical Environment

NB Point Loma INRMP Table of Contents	DoD Template (2006)
4.2.2 Watershed Management	2.b. General Physical Environment
4.2.2.1 Soils	4.j. Land Management (e.g., Soil Erosion)
4.2.2.2 Water and Sediment Quality	2.b. General Physical Environment
4.2.3 Habitat Management	2.b. General Physical Environment
4.2.3.1 Terrestrial Habitats and Vegetation Communities	2.c.(4) Flora 4.e. Forestry 4.f. Vegetative Management
4.2.3.2 Wetlands and Floodplains	2.c.(2) Wetlands and Deep Water Habitats 4.b. Wetlands and Deep Water Habitats Management 4.r. Floodplains Management
4.2.3.3 Marine Habitats	4.q. Coastal/Marine Management
4.2.3.4 Rocky Intertidal Zone	4.q. Coastal/Marine Management
4.2.3.5 Wildland Fire	4.o. Wildland Fire Management
4.2.3.6 Critical Habitat	4.a. Threatened and Endangered Species management and species benefit, Critical Habitat, and Species of Concern Management
4.2.3.7 Other Regulatory or Habitat Planning Designation	4.a. Threatened and Endangered Species management and species benefit, Critical Habitat, and Species of Concern Management
4.2.4 Fish and Wildlife Management	2.c.(3) Fauna
4.2.4.1 Invertebrates	4.d. Fish and Wildlife Management
4.2.4.2 Pollinators	4.d. Fish and Wildlife Management
4.2.4.3 Fish	4.d. Fish and Wildlife Management
4.2.4.4 Reptiles and Amphibians	4.d. Fish and Wildlife Management
4.2.4.5 Birds	4.g. Migratory Bird Management
4.2.4.6 Bird/Wildlife Aircraft Strike Hazard	4.n. Bird/Wildlife Strike Hazard
4.2.4.7 Mammals	4.d. Fish and Wildlife Management
4.2.4.8 Marine Mammals	4.d. Fish and Wildlife Management
4.2.4.9 General Fish and Wildlife Management	4.d. Fish and Wildlife Management
4.2.5 Special Status Species (Federally Listed and Other Special Status Species)	2.c.(1) Threatened and Endangered (T&E) Species and Species of Concern
4.2.5.1 Federally Listed Species	4.a. Threatened and Endangered Species management and species benefit, Critical Habitat, and Species of Concern Management
4.2.5.2 Other Special Status Species	4.a. Threatened and Endangered Species management and species benefit, Critical Habitat, and Species of Concern Management
4.2.5.3 General Management for Special Status Species	4.a. Threatened and Endangered Species management and species benefit, Critical Habitat, and Species of Concern Management
4.2.5.4 ESA Consultation and Mission Requirements	3.b. Natural Resources Consultation Requirements
4.2.5.5 Abalone Management	4.a. Threatened and Endangered Species management and species benefit, Critical Habitat, and Species of Concern Management
4.2.6 Exotic and Invasive Species Management	4.h. Invasive Species Management
4.2.7 Grounds and Landscape Maintenance	4.j. Land Management
4.2.8 Pest Management	4.i. Pest Management
4.2.9 Outdoor Recreation and Public Access	3.e.(2) Public Outreach, 4.m. Outdoor Recreation
4.2.10 Law Enforcement of Natural Resources Laws and Regulations	4.c. Law Enforcement of Natural Resources Laws and Regulations
4.2.11 Environmental Awareness and Outreach	3.e.(2) Public Outreach
4.2.12 Geographic Information Systems Management, Data Integration, Access and Reporting	4.l. GIS Management, Data Integratio, Access and Reporting
5. NAVAL BASE POINT LOMA OFF PENINSULA	
5.1 CURRENT CONDITION OF NATURAL RESOURCES	
5.1.1 NBPL Old Town Center	
5.1.2 Miramar Pipeline	
5.1.3 Mount Soledad Signal Station	

NB Point Loma INRMP Table of Contents	DoD Template (2006)
5.1.4 Joint Regional Correctional Facility	2.b. General Physical Environment (NOTE: Each subsection contains all of the elements as outlined in section 4.2)
5.1.5 La Jolla Nautical Mile	
5.1.6 NBPL Housing Areas	
5.1.6.1 Silvergate Housing Area	
5.1.6.2 Naval Submarine Base Housing Area	
5.1.6.3 Admiral Hartman Housing Area	
5.1.6.4 Beech Street Knolls Housing Area	
5.1.6.5 Chesterton Housing Area	
5.1.6.6 Gateway Village Housing Area	
5.1.6.7 Mira Mesa Ridge Housing Area	
5.1.6.8 Park Summit Housing Area	
5.1.6.9 Villages at Naval Training Center Housing Area	
5.1.6.10 Vista Ridge Housing Area	
5.1.6.11 Village at Serra Mesa Housing Area	
5.2 NATURAL RESOURCES MANAGEMENT STRATEGY	
5.2.1 Purpose, Approach and Rationale	1.a. Purpose 1.b. Scope
5.2.2 Natural Resources Management Goals and Objectives for Off Peninsula Facilities	1.c. Goals and Objectives 1.h. Management Strategy
5.2.3 Watershed Management for Off Peninsula Facilities	4.j. Land Management (e.g., Soil Erosion)
5.2.4 Habitat Management for Off Peninsula Facilities	2.c.(4) Flora 4.e. Forestry 4.f. Vegetative Management
5.2.4.1 Terrestrial Habitats and Vegetation Communities	2.c.(4) Flora 4.e. Forestry 4.f. Vegetative Management
5.2.4.2 Wetlands and Floodplains	2.c.(2) Wetlands and Deep Water Habitats 4.b. Wetlands and Deep Water Habitats Management
5.2.4.3 Wildland Fire	4.o. Wildland Fire Management
5.2.4.4 Critical Habitat	4.a. Threatened and Endangered Species management and species benefit, Critical Habitat, and Species of Concern Management
5.2.5 Fish and Wildlife Management for Off Peninsula Facilities	2.c.(3) Fauna
5.2.5.1 General Fish and Wildlife Management	4.d. Fish and Wildlife Management
5.2.5.2 Pollinators	4.d. Fish and Wildlife Management
5.2.5.3 Migratory Birds	4.g. Migratory Bird Management
5.2.5.4 Bird/Wildlife Aircraft Strike Hazard	4.n. Bird/Wildlife Strike Hazard
5.2.6 Special Status Species (Federally Listed and Other Special Status Species)	2.c.(1) Threatened and Endangered (T&E) Species and Species of Concern
5.2.6.1 General Management for Special Status Species	4.a. Threatened and Endangered Species management and species benefit, Critical Habitat, and Species of Concern Management
5.2.6.2 ESA Consultation and Mission Requirements	3.b. Natural Resources Consultation Requirements
5.2.7 Exotic and Invasive Species Management for Off Peninsula Facilities	4.h. Invasive Species Management
5.2.8 Grounds and Landscape Maintenance for Off Peninsula Facilities	4.j Land Management
5.2.9 Pest Management for Off Peninsula Facilities	4.i. Pest Management
5.2.10 Outdoor Recreation and Public Access for Off Peninsula Facilities	3.e.(2) Public Outreach, 4.m. Outdoor Recreation
5.2.11 Law Enforcement of Natural Resources Laws and Regulations for Off Peninsula Facilities	4.c. Law Enforcement of Natural Resources Laws and Regulations
5.2.12 Environmental Awareness and Outreach for Off Peninsula Facilities	3.e.(2) Public Outreach
5.2.13 Geographic Information Systems Management, Database Management, Data Integration, Access and Reporting for Off Peninsula Facilities	4.l. GIS Management, Data Integration, Access and Reporting
6. SUSTAINABILITY AND COMPATIBLE USE	

NB Point Loma INRMP Table of Contents	DoD Template (2006)
6.1 SUSTAINABILITY OF THE MILITARY MISSION IN THE NATURAL ENVIRONMENT	
6.1.1 Integrating Military Mission and Sustainable Land Use Decisions	3.a.(1) Integrate Military Mission and Sustainable Land Use
6.1.2 Natural Resources Military Mission Constraints	2.a.(6) Constraints Map 2.b.(7) Opportunities Map 3.a.(2) Impact to the Military Mission
6.1.3 Encroachment	3.f. Encroachment Partnering
6.1.4 Adapting to Effects of Climate Change	3.a.(1) Integrate Military Mission and Sustainable Land Use
6.2 BENEFICIAL PARTNERSHIPS AND COLLABORATIVE RESOURCES PLANNING	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.1 Other DoD Organizations and Programs	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.1.1 Partners in Flight	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.1.2 DoD Legacy Resource Management Program	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.1.3 U.S. Army Corps of Engineers	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.1.4 Armed Forces Pest Management Board	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.2 Other Federal Agencies and Programs	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.2.1 U.S. Environmental Protection Agency	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.2.2 Natural Resources Conservation Service	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.2.3 U.S. Department of Agriculture - Wildlife Services	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.2.4 U.S. Geological Survey	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.3 State Agencies	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.3.1 California Department of Water Resources	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.3.2 California Environmental Protection Agency	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.3.3 California Biodiversity Council	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.4 Regional and Local Agencies	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.5 Colleges and Universities	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.6 Contractors	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.7 Nonprofit Organizations	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.7.1 The Nature Conservancy	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.7.2 NatureServe and State Heritage Programs	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.7.3 Trust for Public Land	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.8 Interagency Programs	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.8.1 Multi-Agency Rocky Intertidal Network	3.d. Beneficial Partnerships and Collaborative Resource Planning
6.2.8.2 San Diego River Conservancy	3.d. Beneficial Partnerships and Collaborative Resource Planning
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6.3.1 Shoreline Construction	2.a.(5) Operations and Activities
6.3.2 Dredge and Fill Projects	2.a.(5) Operations and Activities
6.3.3 Ship Maintenance and Operations	2.a.(5) Operations and Activities
6.3.3.1 Facilities Management	2.a.(5) Operations and Activities
6.3.3.2 Road Maintenance	2.a.(5) Operations and Activities
6.4 STORMWATER MANAGEMENT	2.a.(5) Operations and Activities
6.5 COMMUNICATIONS TOWERS, WIND FARMS AND POWER LINES	2.a.(5) Operations and Activities
6.6 CONSISTENCY WITH CULTURAL RESOURCES MANAGEMENT	2.a.(5) Operations and Activities
6.7 NEPA COMPLIANCE	3.c. NEPA Compliance

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6.9 REAL ESTATE OUTGRANTS AND LEASES	4.k. Agricultural Outleasing 4.s. Other Leases
6.10 STAFFING	4.p. Training of Natural Resource Personnel
6.10.1 Natural Resources Program Staffing	4.p. Training of Natural Resource Personnel
6.10.2 Professional Education and Training	4.p. Training of Natural Resource Personnel
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7.1 PROJECT PRESCRIPTION DEVELOPMENT	5.a. Process for Preparing Project Prescriptions
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7.4 FUNDING SOURCES AND MECHANISMS	5.d. Funding
7.4.1 Funding Sources	5.c. Use of Cooperative Agreements
7.5 EFFECTIVENESS OF INRMP PROVIDING NO-NET-LOSS TO MILITARY MISSION	3.a.(2) Impact to the Military Mission
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NATURAL RESOURCES MANAGER LETTER OF DESIGNATION



DEPARTMENT OF THE NAVY
COMMANDING OFFICER
NAVAL BASE POINT LOMA
140 SYLVESTER ROAD
SAN DIEGO, CALIFORNIA 92106-3521

5090
Ser 00/536
27 Aug 12

From: Commanding Officer, Naval Base Point Loma
To: Mr. Andrew Wastell

Subj: DESIGNATION AS NAVAL BASE POINT LOMA NATURAL RESOURCES
COORDINATOR

Ref: (a) OPNAVINST 5090.1C

1. Per reference (a), you are hereby designated as Natural Resources Coordinator for Naval Base Point Loma. You will perform the duties outlined in reference (a) as applicable to this command. You will report directly to the Commanding Officer regarding all natural resources program.

2. This designation remains in effect until relieved or upon detachment from this command.

A handwritten signature in black ink, appearing to read "S. F. Adams", is positioned above the typed name.

S. F. ADAMS

Copy to:
File

