INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

GREAT POND OUTDOOR ADVENTURE CENTER
GREAT POND, MAINE

Prepared for:

Atlantic Division
Naval Facilities Engineering Command

Prepared by:

Tetra Tech, Inc.
~~March~~ June 2012

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Great Pond Outdoor Adventure Center, Great Pond, Maine

Plan Years 2012–2017

Approving Officials:

Facility Commanding Officer	Date
U.S. Fish and Wildlife Service Regional Director	Date
Maine Department of Inland Fisheries and Wildlife	Date
Facility Natural Resources Manager	Date
Commander, Navy Region Mid-Atlantic Natural Resources Program Manager	Date
Atlantic Division Naval Facilities Engineering Command Natural Resources Manager	Date

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

Site

Plan Years 2012–2017

Date of Annual Review/Update	**Name and Title of Reviewer(s)**
_____	_____
_____	_____
_____	_____
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5th Year Review

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PLAN UPDATES

This Integrated Natural Resources Management Plan (INRMP) covers a 5-year period from 2012 to 2017. INRMPs should contain the most up-to-date natural resources information, and updates and revisions will be necessary in order to maintain a proactive management plan. Natural resources managers are encouraged to use geographic information systems (GIS) to supplement information contained in their INRMP, and to incorporate the guidance and recommendations contained in "Conserving Biodiversity on Military Lands: A Guide for Natural Resources Managers" (Benton et al. 2008) and Chief of Naval Operations Instructions (OPNAVINST) 5090.1C-Change 1 (Ch.1).

In accordance with the Sikes Act Improvement Act (SAIA or Sikes Act) of 1997 (16 United States Code §670 et seq.), and the Navy Environmental Readiness Program Manual (OPNAVINST 5090.1C-Ch.1, Chapter 24), installations are required to perform an informal review of their INRMP annually to ensure INRMP information is current, and to evaluate the effectiveness of their INRMP. Installations are not required to revise their INRMP within a specified time interval; however, a formal review of the INRMP is required every 5 years in coordination with U.S. Fish and Wildlife Service (USFWS) and state partners (U.S. Department of Navy [Navy] 2006). If USFWS and state partners are in agreement, the completed annual review forms may be used in lieu of a formal review. Minor revisions to the INRMP should be completed annually to reduce the need for a more costly and time consuming revision following the formal 5-year review. Annual reviews should be fully documented each year to provide each installation the option to utilize the annual review documentation to fulfill the formal review requirement whenever possible. If results of the formal review determine that the existing INRMP is effective, the INRMP need not be revised. Any revisions to the authorities and guidance documents driving plan update requirements would be implemented as appropriate during the annual review or update periods.

The formal review satisfies a number of additional requirements. The formal review conducted in coordination with USFWS and state partners shall verify that all environmental compliance projects have been budgeted for and implemented on schedule; that all required natural resource positions are filled with trained staff, or are in the process of being filled; projects and activities identified for the coming year are included in the INRMP; all required coordination has been conducted; and that all significant changes to the installation's mission requirements or its natural resources have been identified. Significant changes to the installation's mission or natural resources should be reviewed to determine if an INRMP revision is needed.

Activities that may constitute an INRMP revision include, but are not limited to the following: a change in mission requirements, or intensity of land use; a significant change in natural resources baseline conditions; a determination that the current INRMP has proven to be inadequate, was not able to be implemented, or has shown that projects are ineffective in meeting natural resources management goals as evidenced from monitoring results; natural resources management goals have changed, or the planning horizon of the previous INRMP has expired; or

base realignment and closure actions have been put into effect. Any of these activities should be communicated to the USFWS and state partners during the review process.

The form included in this section will be used to document changes to the INRMP that will improve natural resources management. Annual updates will provide information that will be incorporated into the 5-year review, and revision, if required. Each entry in this section should reference the plan section and page number that is being updated to facilitate quick cross-referencing. INRMP modifications that are necessary are usually covered by the original Environmental Assessment (EA) prepared for the INRMP; however, INRMP modifications will be reviewed to compare the original action documented in the existing INRMP to the proposed modifications to determine if those modifications are significant. If INRMP modifications are not to be significant, updated actions will be covered by the original National Environmental Policy Act (NEPA) documentation. Proposed INRMP updates that are deemed to be significant will require additional NEPA documentation, usually at the EA level.

DATE	SECTION/PAGE	COMMENT	REVIEWER

EXECUTIVE SUMMARY

This Integrated Natural Resources Management Plan (INRMP) has been prepared and will be implemented in accordance with the Sikes Act Improvement Act (SAIA) of 1997 (16 United States Code [USC] §670 et seq.), and the Navy Environmental Readiness Program Manual (OPNAVINST 5090.1C-Change 1 [Ch.1], Chapter 24). Section 101(a)(1)(B) of the SAIA requires the secretary of all military departments to "prepare and implement an INRMP for each military installation in the United States" for those installations that contain habitat that is suitable for conservation and management of natural ecosystems. This INRMP has been prepared for Great Pond Outdoor Adventure Center (GPOAC), located in Hancock County, Maine, in accordance with the following authorities, which were current at the time the INRMP was prepared. Revisions to the following authorities and guidance documents would replace the older version, and any necessary changes to the INRMP would be documented during the annual review or incorporated into the INRMP at the time it is updated.

- Department of Defense Instruction (DoDI) 4715.3, Environmental Conservation Program (3 May 1996)
- U.S. Department of the Navy (Navy) OPNAVINST 5090.1C-Ch.1, Environmental Readiness Program Manual Chapter 24: Natural Resources Management (18 July 2011)
- 16 USC§670 et seq. (SAIA of 1997)
- Naval Facilities Engineering Command (NAVFAC) Natural Resources Management Procedural Manual (P-73, Chapter 2: Integrated Natural Resources Management Plans dated 7 December 2005)
- Navy INRMP Guidance dated 10 April 2006
- Endangered Species Act (ESA) (16 USC §1531 et seq.)

In addition to these authorities, natural resources managers are encouraged to use geographic information systems as the basis of their INRMP and to incorporate the guidance and recommendations provided in "Conserving Biodiversity on Military Lands: A Guide for Natural Resources Managers" (Benton et al. 2008 and OPNAVINST 5090.1C-Ch.1).

The INRMP addresses future requirements and identifies projects to be implemented over the 5-year duration of the plan (2012–2017). The INRMP will be reviewed annually in coordination with the U.S. Fish and Wildlife Service (USFWS) and the Maine Department of Inland Fisheries and Wildlife (MDIFW). The purpose of the annual reviews are to ensure information contained within the plan is current, to ensure implementation and maintenance of conservation measures are on schedule, and to ensure funding for conservation and maintenance activities are included in the annual budget. The review also serves the following purposes: to identify any natural resources positions that need to be, or are in the process of being filled; to ensure all necessary coordination has taken place; to ensure upcoming projects and activities for the coming year are

identified and included in the INRMP; and to confirm that the INRMP contains any significant changes to the installation's military mission requirements, or its' natural resources. The annual review provides an opportunity to incorporate changes in accepted environmental conservation practices, and scientific advances associated with evaluation and implementation of natural resources management. If necessary, the annual review will include an update to the INRMP to include an updated project list, documentation of significant changes to natural ecosystems, and updates to information contained in the INRMP appendices. However, the plan will be formally reviewed no less than every 5 years, per the requirements of Section 101(b)(2) of the Sikes Act. The form for documenting periodic reviews is included at the beginning of this document, immediately preceding this Executive Summary. Plan Update forms will be used to compile proposed updates throughout the course of each year, and will serve to provide an outline for revisions to be incorporated during the year 5 review. .

GPOAC is unique in that it lacks any distinct military training or operations, and exists instead for the sole purpose of providing morale, welfare, and recreation opportunities/facilities for U.S. Department of Defense (DoD) personnel. Nevertheless, it is a Navy-owned property, and as such, is subject to the same regulations as other installations. This plan documents the recreational mission of GPOAC, baseline conditions of existing natural resources, impacts to natural resources resulting from the facility's use, management approaches to conserve and enhance natural resources, and a list of specific projects to protect and enhance them.

The management actions and projects identified for the GPOAC natural resources program are intended to help installation commanders manage natural resources effectively to ensure Navy lands remain available and in appropriate condition to support the mission and to ensure compliance with relevant environmental regulations. These actions are based on DoD guidance for ecosystem management and are consistent with Navy policy on sustainable use of natural resources on Navy property.

The INRMP has been organized into the following sections:

- **Section 1 – Introduction**. This section includes a discussion of the INRMP purpose and authorities applicable to the plan; goals of the INRMP; a brief overview of the history and mission of GPOAC; and a general overview of natural resources management at GPOAC.
- **Section 2 – Existing Conditions**. This section describes the existing physical and natural conditions of GPOAC. A general site description is included in this section, along with information on, but not limited to, climate; geology, topography, and soils; water resources; natural communities and flora; fauna; rare, threatened, and endangered species; Significant Wildlife Habitat; land management; cultural resources; and conservation lands.
- **Section 3 – Natural Resources Management Programmatic Objectives and Recommendations**. Natural resources management at GPOAC has been divided into four programmatic objectives: land management, fish and wildlife management, forestry management, and outdoor recreation management. This section provides an overview of each of the programmatic objectives that have been established for GPOAC, discusses

relevant natural resources management issues, and provides specific recommendations and projects that address these issues and that will assist in meeting the established programmatic objectives.

- **Section 4 – GPOAC Natural Resources Management Programmatic Objective Management Areas**. Section 4 provides a description of each of the four programmatic objective management areas and how the programmatic objectives have been applied to INRMP projects proposed for the Facility.
- **Section 5 – INRMP Implementation**. This section outlines means for implementing this INRMP including guidelines on supporting the sustainability of the military mission and the natural environment, natural resources consultation requirements, achieving no net loss, National Environmental Protection Act (NEPA) compliance, project development and classification, funding sources, commitment, and use of cooperative agreements.
- **Section 6 – Management Recommendations Summary**. A summary of funding-dependent management recommendations for GPOAC are provided in this section. Recommendations have been grouped according to the Environmental Readiness Levels (ERLs) described in Section 5 as projects that are a compliance requirement, a Navy proactive involvement project, a Navy or DoD policy requirement project, or a Navy environmental stewardship project.
- **Section 7 – References**. This section includes a list of all references used in the development of the INRMP. A list of internet resources that can be accessed by the natural resources manager to obtain useful information is also provided in this section.
- **Section 8 – List of Acronyms and Abbreviations**. This section provides a reference for all acronyms and abbreviations used throughout the INRMP.
- **Appendix A – INRMP Cooperative Summary**. Appendix A includes copies of cooperative agreements between federal and state agencies and GPOAC, copies of comments received during the public comment process, and a copy of the EA prepared as part of the NEPA compliance process.
- **Appendix B – Species Lists**. Appendix B contains tables of all plant and animal species that have been confirmed to occur at GPOAC through interviews, focused field surveys, general observations, or through agency consultation.
- **Appendix C – Fact Sheets and Guidance Documents**. Appendix C includes: fact sheets for the special status species known to occur at GPOAC; information on Significant Wildlife Habitat, deer wintering areas, and Maine's bait fish laws; and a fact sheet on the invasive aquatic plant milfoil.
- **Appendix D – National Bald Eagle Management Guidelines and Draft GPOAC Bald Eagle Management Plan.** Appendix D contains a copy of the National Bald Eagle Management Guidelines (U.S. Fish and Wildlife Service 2007) and a copy of the Draft Bald Eagle Management Plan that has been prepared for GPOAC.
- **Appendix E – GPOAC Natural Resources Project Schedule, 2012–2017, Hancock County, Maine**. Appendix E contains the summary table for all funding-dependent natural resources projects recommended in the INRMP and includes the proposed

implementation schedule, prime legal driver/initiative, class, Navy ERLs, cost estimate and potential funding sources for each natural resource project. Natural resources projects are grouped and coded within the summary table according to the four programmatic objectives that have been established for the GPOAC INRMP.

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1.0 INTRODUCTION

Section 101(a)(1)(B) of the Sikes Act Improvement Act (SAIA or Sikes Act) (16 United States Code [USC] §670 et seq.) requires that each Military Department prepare and implement an Integrated Natural Resources Management Plan (INRMP), unless the Secretary of Defense determines that the absence of significant natural resources on a particular installation makes preparation of such a plan inappropriate. Accordingly, this INRMP addresses natural resources management on those lands and nearshore areas at Great Pond Outdoor Adventure Center (GPOAC or Facility) that are:

- owned by the United States (U.S.) and administered by the U.S. Department of the Navy (Navy);
- used by the Navy via license, permit, or lease for which the Navy has been assigned management responsibility;
- withdrawn from the public domain for use by the Navy for which the Navy has been assigned management responsibility; and
- leased on the installation and occupied by non-Department of Defense (DoD) entities.

The GPOAC, located in Hancock County, Maine (Figure 1.1), is a recreational facility with a role of providing Morale, Welfare, and Recreation (MWR) opportunities for DoD personnel and their families. These MWR opportunities are highly dependent upon the careful management of the natural resources at the site. The development of this INRMP was consistent with regulations such that the natural resources management of the site will enhance these MWR opportunities.

The mission of GPOAC is to provide a variety of outdoor recreation opportunities for DoD personnel while protecting and enhancing natural resources.

GPOAC family recreation activities.

The Navy INRMP Guidance Document (Navy 2006) provides the following requirements for management of outdoor recreation resources:

- document cooperative agreements and coordination with the National Park Service for outdoor recreation;
- include maps and detailed descriptions of current and potential outdoor recreation areas;
- address public accessibility for hunting, fishing, and trapping, as well as future demands for outdoor recreation, boating access, and off-road vehicles;

Figure 1.1 GPOAC Regional Location, Hancock County, Maine.

- include specifications and/or constraints about construction techniques, materials, or signage; and
- determine the appropriate interface with the installation's program for MWR.

The primary outdoor recreation management requirements that apply to GPOAC include development of cooperative agreements, development of maps and detailed descriptions of current and potential outdoor recreation areas, and including specifications and/or constraints about construction techniques, materials, or signage. Public access to GPOAC is restricted to the boat launch located near the Welcome Center and main entrance. The Facility does not provide military training or operations, but serves to provide MWR opportunities to DoD personnel and their guests.

1.1 PURPOSE AND AUTHORITY

This INRMP was prepared to ensure compliance with the Sikes Act (16 United States Code [USC] §670 et seq.), Department of Defense Instruction (DoDI) 4715.3: Environmental Conservation Program (1996), and Chief of Naval Operations Instructions (OPNAVINST) 5090.1C-Change 1 (Ch.1): Environmental Readiness Program Manual (2007). These regulations require that the Secretary of Defense implement a program to provide for the conservation and rehabilitation of natural resources on military installations. The secretaries of each military department are authorized to carry out the program, consistent with the use of military installations, to ensure the preparedness of the U.S. Armed Forces. The Secretary of the Navy implements and maintains a balanced and integrated natural resources management program for all Navy and U.S. Marine Corps installations.

To facilitate the Natural Resources Program (NRP), the secretary of each military department is directed to prepare and implement an INRMP for each military installation under the jurisdiction of the secretary. The INRMP must be prepared in cooperation with the Secretary of the Interior, acting through the Director of the U.S. Fish and Wildlife Service (USFWS) and the head of the appropriate fish and wildlife agencies of the state in which the military installation is located. The Sikes Act acknowledges that the principal use of military installations is to ensure the preparedness of the U.S. Armed Forces. In accordance with the Sikes Act, the INRMP shall, to the extent appropriate and applicable, provide for the following:

- implementation of an ecosystem-based program that provides for conservation and rehabilitation of natural resources consistent with the military mission;
- integration and coordination of all natural resources management activities;
- provision for sustainable multipurpose uses of natural resources;
- provision for public access for use of natural resources subject to safety and military security considerations; and
- enforcement of applicable natural resource laws (including regulations).

The Sikes Act also requires that the INRMP be submitted for public review and comment before being finalized. To fulfill this requirement, appropriate documentation—an Environmental Assessment (EA)—has been prepared to satisfy National Environmental Policy Act (NEPA) requirements, which is presented in Appendix A. Correspondence received from state and federal agencies as part of the INRMP review process is also provided in Appendix A. Comments on the Draft INRMP were received from National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), USFWS and Maine Department of Inland Fisheries and Wildlife (MDIFW). No public comments on the Draft INRMP were received during the required 30-day public comment period.

DoDI 4715.3 and OPNAVINST 5090.1C-Ch.1 state that the INRMP must incorporate the guidance for ecosystem management as the basis for natural resources management on Navy lands. In accordance with this policy, the Navy will strive to maintain healthy, contiguous ecosystems on its own lands; where ecosystem boundaries extend onto adjoining lands, the Navy will strive to work cooperatively with neighboring landowners to manage these ecosystems.

1.2 GOALS

This INRMP is a long-term planning document that guides implementation of the NRP at GPOAC to help ensure support for the Facility mission, which has the primary goal of providing a variety of outdoor recreational opportunities for DoD personnel while protecting and enhancing natural resources. In accordance with the Sikes Act, and the Navy Environmental Readiness Program Manual (OPNAVINST 5090.1C-Ch.1, Chapter 24), this plan must provide for the following, consistent with the military mission:

An INRMP **guides** implementation of the natural resources program to help ensure **consistency with the installation's military mission**, while protecting and **enhancing natural resources.**

- management of fish and wildlife, land, and forest resources;
- identification of fish- and wildlife-oriented recreational use activities and areas;
- enhancement or modification of fish and wildlife habitat;
- protection, enhancement, and restoration of wetlands, where necessary, for support of fish, wildlife, or plants;
- integration of, and consistency among, the various activities conducted under the INRMP;
- establishment of specific natural resources management goals and programmatic objectives, and timeframes for proposed actions;
- sustainable use by the public of natural resources to the extent that such use is consistent with the needs of fish and wildlife management and subject to installation safety and security requirements;
- enforcement of natural resources laws and regulations;

- no net loss in the capability of military lands to support the military mission of the installation or facility; and
- regular review and update of this INRMP and its effects annually, and formal review no less often than every 5 years.

1.3 RESPONSIBILITIES

The NRP at GPOAC is encompassed within a region-wide Navy NRP that is overseen by the Public Works Department Maine (PWD-ME) Natural Resources Manager (NRM) based at Portsmouth Naval Shipyard, Kittery, Maine, under the direction of the Portsmouth Naval Shipyard Commanding Officer. Onsite management is handled by the site manager based at GPOAC. The NRM ensures compliance with applicable local, state, and federal regulations regarding the management and protection of natural resources. The NRM and GPOAC site manager also promote environmental awareness to ~~personnel~~staff and recreational users of GPOAC. The GPOAC NRP is broadly responsible for wetlands protection and mitigation, water quality protection, grounds maintenance, forest management, fish and wildlife management, threatened and endangered species management, migratory bird management, outdoor recreation management, pest management, and cultural resources management. Each of these areas of responsibility must be managed to balance potential conflicts among different interests and the operational mission of GPOAC. The concept of integrated management of natural resources both justifies and requires that internal and external stakeholders contribute to the management of natural resources.

1.3.1 Facility Stakeholders

The PWD-ME NRM is directly involved in implementation of this INRMP while ensuring successful accomplishment of the Facility mission. He/She is responsible for ensuring that GPOAC ~~personnel~~staff comply with the laws and requirements associated with the management of natural resources, and that funding and staffing are sufficient to accomplish the projects and programmatic objectives outlined in this INRMP. Additional requirements of the GPOAC stakeholders include performing annual reviews and revisions of the INRMP. Day to day implementation of the INRMP is the responsibility of the site manager.

1.3.2 External Stakeholders

In accordance with Presidential Executive Order (EO) 13352 (26 August 2004), *Facilitation of Cooperative Conservation*, GPOAC natural resources ~~staff~~staff will promote cooperative conservation with an emphasis on collaborative activities among federal, state, local, and tribal governments, non-governmental entities, and private citizens. The SAIA requires that this INRMP be prepared in cooperation with, and reflect mutual agreement of, the ~~National Oceanic and Atmospheric Administration (~~NOAA~~) National Marine Fisheries Service (~~ NMFS~~)~~, USFWS, and ~~Maine Department of Inland Fisheries and Wildlife (~~MDIFW~~)~~ (Appendix A). This requirement affords them signatory authority as external stakeholders and approving officials of this INRMP. Cooperation and coordination with these agencies is an integral part of the Navy's NRP.

1.4 SITE HISTORY AND OPERATIONAL MISSION

GPOAC is categorized as an off-base MWR outdoor recreation area. The sole operational mission associated with the property is its role as a MWR facility. The purpose of GPOAC is to provide a pristine natural recreation area for use by active and retired service members; therefore, the NRP strives to preserve and maintain conditions that are compatible with its use. This is and shall continue to be achieved through protection and enhancement of all natural resources including, but not limited to, the following resources: wetlands; rare, threatened and endangered species; habitat for birds and at-risk species; land and watershed management; and invasive species control. Sustainable management of natural resources helps to ensure compliance with environmental laws and regulations and the continued availability of an unspoiled natural setting in which to recreate.

According to historical maps from the 1860s, the land comprising GPOAC was mature forestland (U.S. Air Force [USAF] 2000). During the 1930s the property was used for logging and contained a small sawmill located at the site of the existing Welcome Center. The site was acquired by the USAF in 1956 and was operated as Dow Pines Recreation Area, an MWR facility for military personnel stationed at Dow Air Force Base (AFB), Bangor, Maine. Dow AFB was closed in 1966, at which time the facility was transferred to Loring AFB, located in Washington County, Maine. Loring AFB and Dow Pines Recreation Area were both closed in 1992. In 2002 ownership of the Dow Pines Recreation Area was transferred from the USAF to the Navy, at which time it became GPOAC.

Any loss in GPOAC's ability to provide an unspoiled, natural setting and recreational opportunities for current and prior service members would represent an impact to the mission and purpose of the property. This would include excessive development of facilities to support an increased number of users. It is important to recognize that service members visit GPOAC because it offers an opportunity to experience a quiet natural setting in the Maine wilderness, and overburdening the facility with built campsites, cabins or other structures would diminish that experience.

1.5 OVERVIEW OF NATURAL RESOURCES MANAGEMENT

Navy policy on natural resources management, as summarized from OPNAVINST 5090.1C-Ch.1, is to manage natural resources to support and be consistent with the installation mission, while protecting and enhancing those resources for multiple use, sustainable yield, and biological integrity. Land use practices and decisions must be based on scientifically sound conservation procedures and techniques, and use scientific methods and an ecosystem management approach.

DoDI 4715.3 also requires that INRMPs incorporate the guidance for ecosystem management for natural resources under the stewardship and control of DoD. The goals of this strategy are to maintain and improve the sustainability and biological diversity of terrestrial and aquatic ecosystems while supporting sustainable economies, human use, and an environment that supports recreational use. The basic guidelines for ecosystem management are to:

- preserve the function and integrity of natural ecosystems;
- integrate human social and economic interests with environmental considerations;
- involve all interested parties (stakeholders) in identifying management goals; and
- adapt to changing conditions and requirements.

An ecosystem management approach encourages management decisions to be made on the community or ecosystem level rather than at a single species level. Maintaining or improving the quality, integrity, and connectivity of the ecosystem benefits both natural communities and individual species. In areas such as GPOAC, where much of the land has been retained in its natural condition, efforts to maintain, enhance, and restore natural ecosystems may be the most appropriate management strategy.

Management goals and objectives must be identified and assessed on a periodic basis to maintain the function and integrity of GPOAC's ecosystems. However, as unknown factors arise and change occurs, management goals and prescriptions must be adapted. Adaptive management is an iterative cycle of planning, monitoring, evaluating, and adjusting management. Periodic reviews of management goals and practices provide the opportunity to incorporate new science and information as well as assess the performance of management actions. Prescribed actions will be considered experimental and subject to change if the expected results are not achieved. For the purposes of natural resources management, four programmatic objectives have been identified for GPOAC: land management, fish and wildlife management, forestry management, and outdoor recreation management. The following natural resources management areas have been identified as potentially relevant to GPOAC under each of the programmatic objectives.

1. Land Management

- Water Resources Management
  - Watersheds and Floodplain Management
  - Surface Waters, Groundwater, Wetlands, and Riparian Areas Management
  - Water Quality Management
- Vegetation Management
  - Natural Communities
  - Maintained Land
  - Invasive Plant Species Management
  - Wildland Fire Management
- Rare Communities and Significant Wildlife Habitat
- Installation Restoration Program
- Hazardous Waste Management
- Regional Conservation Lands
- Leases
- Cultural Resources Management
- Training of Environmental Staff~~Natural Resources Personnel~~
- Geographic Information System (GIS) Management, Data Integration, Access, and Reporting

2. Fish and Wildlife Management

- General Fish and Wildlife Management
  - Aquatic Species
  - Terrestrial Species
- Threatened and Endangered Species and Special Concern Species Management
- Migratory Birds Management
- Critical Habitat Management for Protected Species
- Invasive Species and Nuisance Wildlife Management
- Partnerships and Outreach
- Conservation Law Enforcement
- Training of Environmental Staff~~Natural Resource Personnel~~
- GIS Management, Data Integration, Access, and Reporting

3. Forestry Management

- General Forestry Management
- Training of Environmental Staff~~Natural Resources Personnel~~
- GIS Management, Data Integration, Access, and Reporting

4. Outdoor Recreation Management

- Outdoor Recreation Opportunities
- Special Natural Areas Management, including Watchable Wildlife Areas (WWAs)
- Partnerships and Outreach
- Training of Environmental Staff~~Natural Resources Personnel~~
- GIS Management, Data Integration, Access, and Reporting

The INRMP also includes a review of potential projects to be implemented over the duration of the plan, and has been prepared in such a way to accommodate anticipated changes in land use and habitat management. Projects and actions to achieve INRMP goals, with measurable objectives, are described in Section 3.0 and Section 6.0, and Appendix E provides a summary table of projects and actions for quick reference. Annual reviews of the INRMP are required and will be used to assess and review updates that should be incorporated into the plan, including changes affected by environmental regulation and/or scientific advancement related to management of natural resources at the Facility. This INRMP is scheduled to be formally reviewed, revised as necessary, and reapproved 5 years after its initial approval, and will incorporate updates to natural resources projects and activities, and describe any changes to the operational mission.

2.0 EXISTING CONDITIONS

The GPOAC is located in Hancock County, in central Maine, approximately 35 miles northeast of Bangor and approximately 30 miles north of Ellsworth, Maine (Figure 1.1). GPOAC encompasses four parcels of land, totaling approximately 397 acres, and is located adjacent to three waterbodies (Great Pond, King Pond, and Alligator Lake) in Hancock County, Maine. Great Pond includes two parcels, which total approximately 332 acres, and are situated along the northern and southern shoreline of the 647-acre Great Pond. The third parcel is a narrow strip of land that encircles 147-acre King Pond, and is approximately 59 acres. The fourth parcel is rectangular in shape, covers approximately 6 acres, and is located adjacent to the northwestern shoreline of 1,067-acre Alligator Lake. This INRMP includes natural resources management of all GPOAC parcels.

Hancock County encompasses an area of 1,690 square miles and includes the City of Ellsworth, 36 towns, and 15 townships. The 2009 population estimate for the county is 53,477, which represents a 3.2 percent (%) increase in the population reported for the year 2000 (U.S. Census Bureau 2010).

Hancock County contains or borders 1,338 mapped ponds and lakes ranging in surface area from less than 0.1 acre to 9,380 acres (14.7 square miles) for a total surface area of 66,800 acres (104 square miles) (ESRI 2007). The mean pond size is 50 acres, and Graham Lake, in the communities of Mariaville, Waltham, Ellsworth, and Fletchers Landing, is the largest waterbody. Bar Harbor, Bucksport, Ellsworth, Mount Desert, Sorrento, Southwest Harbor, and Stonington use lakes or ponds as sources of public water (Maine Department of Health and Human Services, Drinking Water Program 2005). The Town of Castine, Maine withdraws groundwater for its supply, but may use ponds as aboveground reservoirs for periods of high demand.

Hancock County includes approximately 2,110 miles of rivers and streams and about 1,130 miles of coastline, including islands in the Atlantic Ocean (United States Geological Survey [USGS] 2007). The primary rivers in Hancock County include Penobscot River (which forms the western boundary of the county), Union River, and the upper reaches of the Narraguagus River and its West Branch. The Union River Watershed drains an area of about 570 square miles and empties into Union River Bay in the Atlantic Ocean (USGS 2007).

Site specific information included in the following sections were collected during multiple site visits conducted in support of this INRMP or during baseline surveys of the 14.5-acre site for the recently constructed cabins along the north shore of Great Pond. Baseline surveys conducted within this project area were completed in 2007 and 2008 and included wetland delineations; surveys for rare, threatened, and endangered species, and species of special concern; natural communities and significant habitat surveys; spring amphibian surveys; and large mammal winter track counts.

Additional surveys conducted in 2007 and 2008 that covered a broader area outside the cabin project footprint include plant surveys; surveys for rare, threatened and endangered species; and breeding season point count bird surveys. Areas most intensively surveyed during these efforts included the lake shoreline and wetland areas located along the shoreline of all three lakes at

GPOAC, roadside ditches along the main access road, and disturbed areas adjacent to existing structures and beaches (Famous 2008a).

General biological data were collected during a spring 2010 site visit in support of this INRMP. A walkover of all GPOAC parcels was conducted, and data recorded included point data showing the location of wetlands, vernal pools, natural communities, and streams or ephemeral drainages encountered. Other information collected during the site visit included specific site topography, erosion problem areas, cabin locations, and opportunities for potential projects. The 2010 survey was limited to a cursory assessment of the general abundance and types of resources present at GPOAC and was not intended to serve as a comprehensive or formal wetland delineation, vernal pool survey, or other resource surveys.

2.1 SITE DETAILS

The GPOAC property is located in a rural area of northern Hancock County, Maine (Figure 1.1). GPOAC is discussed in terms of the three parcels that comprise the Facility: Great Pond, which is comprised of two parcels described as the eastern and western parcels; King Pond; and Alligator Pond. The majority of the recreational facilities are located in the eastern Great Pond parcel, whereas only a few are situated at King Pond and Alligator Lake.

Great Pond

A total of 16 buildings currently exist at the GPOAC site, all of which are located on the eastern Great Pond parcel (Table 2.1 and Figure 2.1). The site contains a Welcome Center, boat dock, cabins, yurts, tenting and recreational vehicle (RV) area, and three historic cabins. Two of the historic cabins are available for rental. The third and largest of the cabins is currently being renovated and is not available for rental. Construction of seven new cabins was completed in 2011 within the mid-section of the eastern Great Pond parcel, northwest of the camping/cabin area (Figure 2.1). There are no recreational facilities located in the western Great Pond parcel.

Table 2.1 Existing Buildings at the GPOAC, Hancock County, Maine.

Building Number	Building Name/Description
4007	Bath house
4006	Pump house
4025	Welcome Center
4031	Guest lodge
4032	Main lodge
4033	Caretaker's lodge
4034	Generator shed
4040	Maintenance building
4041	Work shop
4042	Paint shed
4070	Pump house – between cabins 2 & 3
4071–4075	Cabins 1–5, each has a single wood shed

Figure 2.1 Site Details for Great Pond, GPOAC, Hancock County Maine.

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King Pond

No structures currently exist on the King Pond parcel. A footpath/off-road vehicle path leads to a boat launch area at the southern end of the pond (Figure 2.2).

Alligator Lake

There are no permanent structures located on the GPOAC parcel at Alligator Lake. A footpath/off-road vehicle trail leads to a boat launch area just north of the parcel. Construction of a tenting platform was recently completed and is located in the northeast area of the rectangular parcel (Figure 2.3).

2.2 CLIMATE

The three climatic regions of Maine include the northern interior zone, comprising roughly the northern half of the state between Quebec and New Brunswick; the southern interior zone (where GPOAC is located); and the coastal zone. The northern zone is both drier and cooler in all four seasons than either of the other zones, whereas the coastal zone is more moderate in temperature year-round than the other two. Typically, the northeastern United States does not experience a dry season, with precipitation distributed throughout the year.

Weather data for Bangor International Airport were reviewed, as this is the closest station to GPOAC (35 miles southwest of GPOAC) for which weather data were available (Table 2.2). The monthly average temperature near Bangor, Maine is 44.7 degrees Fahrenheit (°F) (NOAA, National Climatic Data Center 2002). The lowest temperatures are usually recorded during January when they average about 18.0°F. Highest temperatures are usually recorded in July, with a monthly average of 69.2°F. The annual precipitation normal for the Bangor International Airport area is approximately 39.6 inches. Precipitation totals include rain and the liquid equivalent of frozen and freezing precipitation (e.g., snow, sleet, freezing rain, hail) (NOAA National Climatic Data Center 2002).

Table 2.2 Monthly Climate Summary for Bangor International Airport.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Daily Max (ºF)	27.6	30.9	40.2	52.6	65.4	74.4	79.6	78.1	69.1	57.3	44.8	33.1	54.4
Daily Min (ºF)	8.3	11.4	22.1	33.2	43.6	53.3	58.7	57.2	48.5	38.2	29.3	15.8	35.0
Monthly Average (ºF)	18.0	21.2	31.2	42.9	54.5	63.9	69.2	67.7	58.8	47.8	37.1	24.5	44.7
Precip. normals (in.)	3.3	2.5	3.4	3.3	3.4	3.4	3.2	3.0	3.4	3.5	3.7	3.3	39.6

Source: NOAA, National Climatic Data Center 2002

Note: Data based on normals of Federal Aviation Administration observations made from 1971 to 2000. Climate normals are the arithmetic average of a meteorological element computed over three consecutive decades (30 years) (NOAA National Climate Data Center 2008).

Figure 2.2 Site Details for King Pond, GPOAC, Hancock County Maine.

Figure 2.3 Site Details for Alligator Lake, GPOAC, Hancock County Maine.

2.3 GEOLOGY, TOPOGRAPHY, AND SOILS

The following sections describe the geologic, topographic, and soil resources for GPOAC.

2.3.1 Geology

GPOAC is located within the hills of the Seaboard Lowland section of the New England physiographic province (USGS 1995b). The most common type of subsurface rock found throughout New England is consolidated igneous, metamorphic, and sedimentary rocks, ranging in age from Precambrian to the early Mesozoic, with the Cambrian through Devonian age being most prevalent (Table 2.3) (USGS 1995a). During the late Pleistocene time, most of the area was completely covered by continental glaciers that removed the topsoil and weathered bedrock materials, and redeposited these materials as a thin layer of glacial material on top of the bedrock surface. The hills of the GPOAC area consist primarily of volcanic and granitic deposits intruding into Silurian-aged metamorphosed sedimentary rocks (Geo-Marine 2001). Thus, the bedrock is volcanic in origin, and subsequently has been partially metamorphosed through the physical and chemical alteration caused by heat and pressure, usually by being buried and folded in mountain-building processes.

The geology at the GPOAC is dominated by surficial glaciomarine sediments (mostly clay) and thin, stony Pleistocene aged till overlying shallow bedrock. Bedrock in the area is complex but is mostly composed of alternating beds of metasedimentary and metavolcanic rocks that include quartzite, slate, schist, gneiss, marble, and green stone (Geo-Marine 2001).

The GPOAC parcels are located in the hills of the Seaboard Lowlands physiographic zone. The Appalachian Mountain highlands are located to the west. The glaciated hills are composed of granitic volcanic rocks of Devonian age intrusive into Silurian-aged metamorphosed sedimentary rocks of the Coastal Litho-tectonic Block (Geo-Marine 2001).

The region was glaciated most recently in the Late Pleistocene during the Wisconsinan episode (Geo-Marine 2001). Ice flow was generally from the northwest to southeast, and many features of the landscape are glacially streamlined. Deglaciation of the area occurred between 13,000 and 12,000 years ago. Ice retreated from the present coast in contact with the sea, but isostatic rebound of the earth's crust separated the ice and sea before the margin reached north into the area in which GPOAC is located. Glacial ice in Maine became isolated from the continental Laurentide ice sheet over Canada during deglaciation of the St. Lawrence River Valley. Remnant ice in Maine wasted away leaving a variety of meltwater features including eskers, kame terraces, meltwater channels and glacial stream deposits (Geo-Marine 2001).

Great Pond

The Norumbega Fault Zone crosses perpendicularly to the northwest end of Great Pond, and the shape of the lake is related, in part, to the fault. The eastern end of Great Pond is underlain by the Lucerne Granite, which is visible in prominent rocky outcrops along the shore. The surficial geology of the area around Great Pond is dominated by till.

Table 2.3 Geologic Time Scale.

Eon	Era	Period	MYA[1]
Phanerozoic	Cenozoic	Quaternary	1.6
		Tertiary	66
	Mesozoic	Cretaceous	138
		Jurassic	205
		Triassic	240
	Paleozoic	Permian	290
		Pennsylvanian	330
		Mississippian	360
		Devonian	410
		Silurian	435
		Ordovician	500
		Cambrian	570
Proterozoic	Late Proterozoic		2500
	Middle Proterozoic		
	Early Proterozoic		
Archean	Late Archean		3800?
	Middle Archean		
	Early Archean		
Pre-Archean			

Source: USGS 1995a

[1]MYA=million years ago (approximate)

King Pond

King Pond is underlain by metasedimentary rocks of the Bucksport Formation.

Alligator Pond

Alligator Pond is underlain by granite.

2.3.2 Topography

The topography of this area of Maine is largely the result of glacial processes, which created a landscape primarily of rolling to flat topography, punctuated by glacial debris. Hilly topography is typical of the GPOAC, with flat areas near waterbodies.

Great Pond

Elevations within the western Great Pond parcel range from 290 feet above sea level along the pond shore, to 370 feet above sea level moving away from Great Pond (Figure 2.4). Within the eastern Great Pond parcel, elevations range from 290 to 540 feet above sea level.

King Pond

The topography within the parcel that encircles King Pond is characterized by both gentle and abrupt rises moving away from the pond shoreline. Elevations at the site range from 370 to 410 feet above sea level (Figure 2.5).

Alligator Lake

The Alligator Lake parcel is relatively flat, with elevations that range from 470 to 490 feet above sea level (Figure 2.6).

2.3.3 Soils

The soil at the GPOAC is dominated by surficial glaciomarine sediments (mostly clay) and thin, stony Pleistocene-aged till overlying shallow bedrock. Consequently, the majority of the soils are characterized by a high content of stones or boulders and most of the soil types are somewhat poorly to poorly drained. GPOAC does not contain any Prime Farmland or Farmland of Statewide Importance (U.S. Department of Agriculture Natural Resources Conservation Service [USDA NRCS] 2010).

Great Pond

A total of 12 soil types or associations occur within the parcel boundaries at Great Pond (Table 2.4 and Figure 2.7). The most frequently occurring soil type at the Great Pond parcels are the Colonel–Dixfield–Brayton association, 1%–15% slopes, very stony; the Marlow–Tunbridge–Dixfield complex, 8–30% slopes, very stony; and the Hermon–Monadnock–Dixfield complex, 3–15% slopes, very bouldery. Collectively, these soils compose 56.2% of the GPOAC property at Great Pond.

Erosion is not a source of concern at GPOAC. However, a few problem areas do occur within the eastern Great Pond parcel, along the beach, and on some footpaths. Erosion on the exposed sand of the beach and erosion on the trails where vegetation has been removed due to heavy foot traffic occurs during heavy precipitation events. Isolated incidences of erosion also occur in areas where there is unusual overland flow of surface water (specifically over trails or roads) due to beaver damming activity.

Figure 2.4 Topography for Great Pond, GPOAC, Hancock County Maine.

Figure 2.5 Topography for King Pond, GPOAC, Hancock County, Maine.

Figure 2.6 Topography for Alligator Lake, GPOAC, Hancock County, Maine.

Table 2.4 USDA NRCS Soil Types for Great Pond, GPOAC, Hancock County, Maine.

Map Unit Symbol	Soil Series	Drainage Class	Area (Acres)	Percent (%) Total	Hydric Soils
BLB	Brayton–Colonel association, 0%–8% slopes, very stony	Somewhat poorly to poorly drained	6.8	2.0	Yes
BNB	Brayton–Colonel association, 0%–8% slopes, extremely stony	Somewhat poorly to poorly drained	1.9	0.6	Yes
BPA	Brayton–Peacham association, 0%–3% slopes, extremely stony	Poorly to very poorly drained	18.9	5.7	Yes
CLB	Colonel–Brayton–Dixfield association, 1%–8% slopes, very stony	Somewhat poorly to poorly drained	31.9	9.6	Yes
CNC	Colonel–Dixfield–Brayton association, 1%–15% slopes, very stony	Somewhat poorly to moderately well drained	73.0	22.0	Yes
DOC	Dixfield–Colonel–Marlow association, 3%–15% slopes, very stony	Somewhat poorly to moderately well drained	7.1	2.1	No
DXC	Dixfield–Tunbridge–Colonel complex, 3%–15% slopes, very stony	Moderately well to well drained	3.8	1.1	No
HMC	Hermon–Monadnock–Dixfield complex, 3%–15% slopes, very bouldery	Well drained to somewhat excessively drained	48.6	14 6	No
KOA	Kinsman–Wonsqueak association, 0%–3% slopes	Poorly to very poorly drained	16.1	4.8	Yes
LTC	Lyman–Tunbridge complex, 3%–25% slopes, very stony	Well drained to somewhat excessively well drained	47.7	14.4	No
MFD	Marlow–Tunbridge–Dixfield complex, 8%–30% slopes, very stony	Moderately well to well drained	65.2	19.6	No
WBA	Wonsqueak and Bucksport soils, frequently flooded	Very poorly drained	6.7	2.0	Yes
W	Open water	N/A	4.1	1.2	N/A
Total			**332**	**100**	

Source: USDA NRCS 2009.

Figure 2.7 USDA NRCS Soils for Great Pond, GPOAC, Hancock County, Maine.

Hydric soils are those soils that are sufficiently wet in the upper part to develop anaerobic conditions during the growing season (USDA NRCS 2010). Seven soil types within the Great Pond parcels are considered hydric (Table 2.4). Within these seven soil complexes, four common components are considered hydric components: Brayton, Pillsbury, Kinsman, and Wonsqueak. A total of 155.3 acres (46.7%) of the mapped soils at Great Pond are considered hydric (Table 2.4).

King Pond

A total of four soil types occur within the King Pond parcel (Table 2.5 and Figure 2.8). The most common soil type is the Marlow–Tunbridge–Dixfield complex, 8%–30% slopes, very stony. This well-drained soil composes 59.5% of the parcel area. Within the King Pond parcel, only the Brayton–Colonel association soil series is mapped as hydric, which encompasses approximately 7.5 acres (12.6%) of the parcel (Table 2.5).

Alligator Lake

The entire Alligator Lake parcel contains two soil types: the Brayton–Peacham association, 0%–3% slopes, extremely stony (62.7%); and the Hermon–Monadnock–Dixfield complex, 3%–15% slopes, very bouldery (37.3%) (Table 2.6 and Figure 2.9). Within the Alligator Lake parcel, only the Brayton–Peacham association soil series is mapped as hydric, and encompasses approximately 3.7 acres (62.7%) of the parcel.

2.4 WATER RESOURCES

Wetlands and waterbodies on the GPOAC property were classified using the National Wetlands Inventory (NWI) system for *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Maps showing the water resources community types for GPOAC are provided in Figure 2.10, Figure 2.11, and Figure 2.12. Wetland and surface water resource delineations were conducted for the project area of the recently constructed cabins. Additional wetlands were visually identified but not delineated during the May 2010 site visit. A jurisdictional determination for the wetland delineation was not received from the U.S. Army Corps of Engineers (USACE).

The following sections describe the surface water, wetland, groundwater and water quality, and watershed and floodplain resources for GPOAC.

2.4.1 Surface Waters

Great Pond

Great Pond has an area of 647 acres and overflows into the west branch of the Union River. The east and west branches flow to the north end of Graham Lake, north of Ellsworth. The mouth of the Union River is on Union River Bay, which is an arm of Blue Hill Bay situated west of Mount Desert Island.

Table 2.5 USDA NRCS Soil Types for King Pond, GPOAC, Hancock County, Maine.

Map Unit Symbol	Soil Series	Drainage Class	Area (Acres)	Percent (%) Total	Hydric Soils
BLB	Brayton–Colonel association, 0%–8% slopes, very stony	Somewhat poorly to poorly drained	7.5	12.6	Yes
DXC	Dixfield–Tunbridge–Colonel complex, 3%–15% slopes, very stony	Moderately well to well drained	6.0	10.1	No
HMC	Hermon–Monadnock–Dixfield complex, 3%–15% slopes, very bouldery	Well drained to somewhat excessively drained	8.8	14.8	No
MFD	Marlow–Tunbridge–Dixfield complex, 8%–30% slopes, very stony	Moderately well to well drained	35.3	59.5	No
W	Open water	N/A	1.7	2.9	N/A
Total			**59**	**100**	

Source: USDA NRCS 2009.

Table 2.6 USDA NRCS Soil Types for Alligator Lake, GPOAC, Hancock County, Maine.

Map Unit Symbol	Soil Series	Drainage Class	Area (Acres)	Percent (%) Total	Hydric Soils
BPA	Brayton–Peacham association, 0%–3% slopes, extremely stony	Poorly to very poorly drained	3.7	62.7	Yes
HMC	Hermon–Monadnock–Dixfield complex, 3%–15% slopes, very bouldery	Well drained to somewhat excessively drained	2.2	37.3	No
Total			**5.9**	**100**	

Source: USDA NRCS 2009.

Figure 2.8 USDA NRCS Soils for King Pond, GPOAC, Hancock County, Maine.

Figure 2.9 USDA NRCS Soils for Alligator Lake, GPOAC, Hancock County, Maine.

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Figure 2.10 Natural Resources for Great Pond, GPOAC, Hancock County, Maine.

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Figure 2.11 Natural Resources for King Pond, GPOAC, Hancock County, Maine.

Figure 2.12 Natural Resources for Alligator Lake, GPOAC, Hancock County, Maine.

Great Pond is characterized as the NWI community type L1UBH (i.e., lacustrine limnetic unconsolidated bottom, permanently flooded), which includes the deepwater habitats associated with the lakes and ponds. The remaining wetland communities (e.g., PFO4E, PSS1E) refer to the wetland communities described in Section 2.4.2.

Sunset over Great Pond.

In addition to the pond and wetlands, numerous small perennial and intermittent streams and ephemeral drainages traverse both of the Great Pond parcels (Figure 2.10). Many of the ephemeral drainages do not exhibit a defined bank and often become subterranean, where the only signs of their presence are the moist site plants species, sphagnum moss (*Sphagnum* spp.), standing water between roots or rocks, or the faint sound of flowing water just below the ground surface.

In the portion of the eastern Great Pond parcel located west of the camping and cabin area, five streams flow in a southerly direction to Great Pond. These streams have an intermittent or perennial flow regime originating outside the eastern Great Pond parcel boundary.

The western Great Pond parcel contains numerous intermittent and ephemeral drainages that traverse the parcel. These features flow in a north or northeasterly direction into Great Pond or into one of many wetlands that occur in the shallow bench plateaus that occurs at the toe of slope adjacent to the pond shoreline.

King Pond

King Pond is approximately 147 acres and is fed by Long Pond to the south via a perennial stream channel (Figure 2.11). Water drains from King Pond to the northeast into Rift Pond, which connects to Collar Brook and then Great Pond. A few ephemeral drainages feed into small, mostly shrub wetlands that occur along the edge of King Pond.

Alligator Lake

Alligator Lake, with an area of 1,067 acres, is located approximately 2.5 miles east of Great Pond (the waterbody), and is the largest of the three GPOAC waterbodies. This lake drains via Alligator Stream into Main Stream. No streams or ephemeral drainages flow through the Alligator Lake parcel (Figure 2.12).

2.4.2 Wetlands

According to the NWI Classification System (Cowardin et al. 1979) there are three palustrine wetland classes at Great Pond and Alligator Lake: palustrine forested (PFO) wetlands, palustrine scrub-shrub (PSS) wetlands, and palustrine unconsolidated bottom (PUB) wetlands (Figure 2.10 and Figure 2.11). No NWI wetlands were identified at the King Pond parcel (Figure 2.12). Table 2.7 describes each of the palustrine wetland community types that occur at GPOAC and the total area of each community type within each parcel. The NWI identifies lacustrine (i.e., L1UBH) wetland systems at all three parcels; these are the deepwater habitats associated with lakes and ponds, as discussed in Section 2.4.1.

Some of the wetlands at GPOAC, such as the PSS wetland at Alligator Lake, also function as vernal pool habitat for breeding amphibians. Vernal pools are naturally occurring, shallow pools that dry partially or completely each year and may provide the primary breeding habitat for wood frogs (*Rana sylvatica*), spotted salamanders (*Ambystoma maculatum*), blue-spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubranchipus* sp.), as well as important habitat for several rare, threatened, and endangered species. Although vernal pools can be associated with a larger wetland complex, many are isolated, ephemeral pools located within upland habitat. A detailed discussion of vernal pools, including significant vernal pools that occur at GPOAC, is provided in Section 2.8~~11~~.

Great Pond

The eastern Great Pond parcel contains two wetland areas identified by the NWI. One of these wetlands is 11.6 acres and is located between the Welcome Center and the camping area on the shore of Great Pond. The second wetland is 2.1 acres and is located adjacent to the GPOAC access road and just to the north of the camping/cabin area. Both of these wetlands are predominantly PSS/PUB wetland. The larger wetland also contains a PFO community at its east end. Common species that occur in these systems include sweetgale (*Myrica gale*), meadowsweet (*Spiraea alba*), leatherleaf (*Chamaedaphne calyculata*), speckled alder (*Alnus incana* ssp. *rugosa*), and black holly (*Nemopanthus mucronata*).

In addition to the NWI wetlands, many small unmapped wetlands are present throughout the parcel and are especially common along the plateau that occurs at the toe of slope adjacent to the pond shoreline. These wetlands are predominantly PFO wetlands containing species such as northern white cedar (*Thuja occidentalis*), yellow birch (*Betula alleghaniensis*), red maple (*Acer rubrum*), and balsam fir (*Abies balsamea*). Common understory and herbaceous species include speckled alder, black holly, wetland sedges and grasses (*Carex* sp., *Glyceria* sp., *Scirpus cyperinus*, and others), and ferns such as cinnamon fern (*Osmunda cinnamomea*) and sensitive fern (*Onoclea sensibilis*). At least one of these wetlands, an unmapped PSS wetland located at the west end of the eastern Great Pond parcel, provides habitat for breeding vernal pool amphibians (Figure 2.10).

Table 2.7 NWI Palustrine Wetlands at GPOAC, Hancock County, Maine.

Wetland Community	Wetland Community Description	Area (acres)
Great Pond Eastern Parcel		
PSS1E/PUBF/PFO1E	Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated/ Palustrine, unconsolidated bottom, (semipermanently flooded)/ Palustrine, forested, broad-leaved deciduous, seasonally flooded/saturated	11.6
PSS1E/PUBH	Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated/ Palustrine, unconsolidated bottom, (semipermanently flooded)	2.1
Total NWI Wetland Area (Great Pond Eastern Parcel)		***13.7***
Great Pond Western Parcel		
PSS1E	Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated	5.9
PFO4E	Palustrine, forested, needle-leaved evergreen, seasonally flooded/saturated	0.4
Total NWI Wetland Area (Great Pond Western Parcel)		***6.3***
King Pond Parcel		
N/A	–	–
Total NWI Wetland Area (King Pond)		**–**
Alligator Lake Parcel		
PFO1E	Palustrine, forested, broad-leaved deciduous, seasonally flooded/saturated	0.2
Total NWI Wetland Area (Alligator Lake)		***0.2***

The NWI identified two wetlands within the boundary of the western Great Pond parcel, one at the west end and the other towards the east end. Both of these wetlands extend off the GPOAC property boundary. The wetland at the west end of the parcel is part of an extensive PSS wetland that starts at the west end of Great Pond and extends approximately 1.3 miles to the west. The area of this wetland within the GPOAC property boundary is 5.9 acres. The wetland located at the east end of the western Great Pond parcel is a forested wetland 0.4 acre in size, with northern white cedar, red spruce (*Picea rubens*), eastern hemlock (*Tsuga canadensis*), red maple, and yellow birch in the canopy. The understory includes speckled alder, striped maple (*Acer pensylvanicum*), and saplings of the canopy species. The herbaceous layer is vegetated with ferns, hydrophytic graminoids, goldthread (*Coptis trifolia*), and bunchberry (*Cornus canadensis*).

Similar to the north parcel, the south parcel contains many small unmapped wetlands located along the plateau that occurs at the toe of slope adjacent to the pond shoreline. These wetlands are predominantly PFO/PSS or PSS wetlands and often contain small pools. At least one of these pools provides breeding habitat for vernal pool amphibians (Figure 2.10).

King Pond

Although the NWI did not identify any wetlands within the parcel surrounding King Pond, many small, predominantly PFO and PSS wetlands line the shore. Common species in these wetlands include speckled alder, balsam fir, cinnamon fern, sensitive fern, and jewelweed (*Impatiens capensis*).

Alligator Lake

NWI identified 0.2 acre of palustrine forested wetlands in the northeast corner of the Alligator Lake parcel (Figure 2.12). During the May 2010 site visit conducted in support of this INRMP, no wetlands were observed at this location. However, two additional wetlands, not identified by NWI data, were identified in the southern portion of the parcel. A forested (PFO) wetland was identified along the western boundary, and supplies water via an ephemeral drainage swale to an alder shrub (PSS) wetland located along the east side of the parcel, approximately midway along the north-south oriented boundary. Species in this PSS wetland included alder, red maple, interrupted fern (*Osmunda claytoniana*), sensitive fern, and abundant sphagnum. Species in the PFO wetland included balsam fir, red maple, and yellow birch. Both wetlands contained pools with evidence of vernal pool amphibian breeding activity (e.g., >55 individual spotted salamander egg masses).

2.4.3 Groundwater and Water Quality

The primary type of groundwater aquifers present within Hancock County are consolidated bedrock aquifers consisting of crystalline rocks (USGS 1995b). Although these types of aquifers are not considered major productive aquifers compared to the major aquifer systems located throughout New England and New York, they are important sources of domestic water supply, especially where other major groundwater aquifers or sources of surface water are not present. Well yields typical of crystalline rock aquifers range from 2 to 10 gallons per minute, which generally are only adequate for domestic and commercial, and small public water supplies; however, some wells have exceeded 500 gallons per minute (USGS 1995b).

Five wells that are monitored for the USGS Active Groundwater Level Network are maintained in Hancock County. Real time data are available online at http://groundwaterwatch.usgs.gov/StateMaps/ME.html and should be considered a useful tool for natural resources managers.

The water quality of an aquifer can be affected by the amount of surface area that is exposed to rock, the chemistry of the water moving into the aquifer from other aquifers, and the introduction or induced movement of contaminants. The concentration of dissolved solids in groundwater generally increases with depth, with some aquifers containing saltwater or brine within their deepest sections. Crystalline aquifers consist of almost insoluble igneous and metamorphic rock that is characterized by shallow fracture systems that store and transmit water. This shallow fracture system allows only minimal dissolution of rocks due to the rapid water movement along short flow paths.

The water distribution system at GPOAC consists of five drinking water wells within the Great Pond land parcel. The wells range in depth from 75 to 110 feet and each is connected to an individual water treatment unit. All drinking water wells are sampled once every 3 months or less as required for drinking water supplies that serve greater than 25 people (Manzo 2010).

Sewage that is generated at GPOAC is treated by three leach fields that are located in the vicinity of the cabin/camping area. In addition, each of the yurts is equipped with composting toilets.

2.4.4 Watersheds and Floodplains

GPOAC is located in Hydrologic Unit Code (HUC) Subregion 0105, Maine Coastal, which totals 7,130 square miles (Maine Department of Environmental Protection [MDEP] 2009). The Eastern Maine Coastal Basin is located with HUC Subregion 0105, and contains the drainage and associated waters extending from Maine's border with New Brunswick, Canada south to Cape Small, Maine, and the St. Croix River Basin within the United States. The Union River Watershed is located within the Eastern Maine Coastal Basin. GPOAC is located fully within the Union River Watershed, which drains into the Gulf of Maine.

The Federal Emergency Management Agency (FEMA) defines floodplains as any land area susceptible to being inundated by flood waters from any source (FEMA 2010a). A review of FEMA flood insurance rate maps (FIRM) determined that the Great Pond and King Pond parcels are located in flood zone X, which is defined as an "area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level." The flood zone X areas have been determined to be outside the 500-year flood zone and protected from 100-year floods (Figure 2.13) (FEMA 2010b). Alligator Lake is located in flood zone ANI, which is defined as those areas that are located within a community or county that is not mapped on any published FIRM.

2.4.5 Coastal and Marine

This site is not located within the Maine Coastal Zone, and therefore there are no coastal or marine resources present at GPOAC.

2.5 VEGETATION

Vegetation cover at the GPOAC is primarily forest with native grasses, shrubs, and some lawn areas maintained in the vicinity of the main buildings near the entrance to the Great Pond Welcome Center. The parcels at Great Pond, King Pond, and Alligator Lake all are located in the Laurentian Mixed Forest Province of the Warm Continental Division, within the Humid Temperate Domain Ecoregion of the United States (Bailey 1995). This transitional province grades between boreal forest and broadleaf deciduous forest, and is a mixture of deciduous and coniferous forest types.

Figure 2.13 FEMA Floodplain Data for GPOAC, Hancock County, Maine.

The vegetation communities were assessed using a combination of desktop research, site visits, and field surveys. Combined rare and invasive plant species surveys were conducted at GPOAC in 2007 and 2008 (Famous 2008a) and a site visit was conducted in May 2010.

Vegetation typical of the natural communities present at GPOAC is described in Section 2.5~~7~~, and invasive species are discussed in Section 2.5.2~~8~~. Rare plant species associated with the GPOAC are discussed in Section 2.7~~10~~.1. Over 500 plant species have been identified for GPOAC. This includes 70 plant families, 10 conifer species, 30 species of ferns and their allies, and 87 species of plants that are considered nonnative (Appendix B).

2.5.1 Natural Communities

The forests within this region of Maine can generally be characterized as mixed deciduous-coniferous forest with variable dominance by deciduous species across GPOAC. Substantial forestland exists at GPOAC, but a forest survey has not been conducted; as a result there is limited information regarding the boundary of each community type, forest age, or forest health.

Maine Natural Areas Program (MNAP) has developed a classification system for Maine's natural community types. This classification includes 98 distinct community types that are described in *Natural Landscapes of Maine* (Gawler and Cutko 2010). The descriptions of the predominant natural community types that occur on GPOAC are presented by parcel below, and generally follow the MNAP classification system. In addition, the Facility's rare natural community types, as defined by MNAP, are described in Section 2.8.

Great Pond

The eastern Great Pond parcel is predominantly Oak–Northern Hardwood with Hemlock Forest and Northern Hardwood Forest scattered throughout. Common tree species found in the Oak–Northern Hardwood communities are American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), red oak (*Quercus rubra*), eastern hemlock, white pine (*Pinus strobus*), yellow birch, and red spruce. Common shrub and herbaceous species include lowbush blueberry (*Vaccinium angustifolium*), starflower (*Trientalis borealis*), and wild sarsaparilla (*Aralia nudicaulis*).

Patches of forest with relatively nutrient rich soils are also present within the eastern Great Pond parcel and are most similar to the Enriched Northern Hardwoods Forest (Gawler and Cutko 2010). Common plant species in these relatively small communities include sugar maple, American beech, yellow birch, striped maple (*Acer pensylvanicum*), hobblebush (*Viburnum lantanoides*), Canada mayflower (*Maianthemum canadense*), Indian cucumber–root (*Medeola virginian*), doll's eyes (*Actaea pachypoda*), and occasionally white ash and basswood.

Mixed deciduous-coniferous communities grade into predominantly deciduous forest as elevation increases to the north side of the parcel, away from the pond shore. Mixed communities dominated by northern white cedar are especially common at the toe of the slope on the western side of the eastern Great Pond parcel, adjacent to the pond edge.

Wetland communities within the eastern Great Pond parcel include a few large Sweetgale Fen and Alder Shrub Thicket communities, and numerous small seepage wetlands along the toe of

the slopes and adjacent to the Great Pond shoreline. These small seepage wetlands frequently include species such as northern white cedar, yellow birch, and balsam fir in the overstory; and American beech, striped maple, cinnamon fern, sensitive fern, mosses, and various wet site graminoids in the understory. Further discussion of the wetlands that occur at GPOAC is provided in Section 2.4.2.

With the exception of the westernmost end of the parcel, the western Great Pond parcel is completely forested. The predominant community types are Hemlock Forest and Oak–Northern Hardwood forest. Similar to the eastern Great Pond parcel, conifer-dominated forest grades to deciduous-dominated communities on the higher elevations in the southern side of the western Great Pond parcel. The understory of the community at the eastern end of the parcel is extremely sparse, whereas much of the remaining parcel has a moderate amount of understory and abundant woody debris. Understory species include American beech and saplings of other canopy species, striped maple, spinulose wood fern (*Dryopteris carthusiana*), wild sarsaparilla, and oak ferns (*Gymnocarpium dryopteris*).

Hardwood Seepage Forest communities occur at the toe of slope bordering the pond shoreline. Dominant tree species typically found in this community include American beech, eastern hemlock, red spruce, red oak, sugar maple, and yellow birch. Understory species include cinnamon fern, goldthread, jack-in-the-pulpit (*Arisaema triphyllum*), New York fern (*Thelypteris noveboracensis*), sensitive fern, and sphagnum moss. The wetlands in this community also are fed by ephemeral drainages that cross the western Great Pond parcel. Further discussion of the surface waters that occur at GPOAC are provided in Section 2.4.1.

King Pond

The narrow parcel that borders King Pond is dominated by mixed deciduous and coniferous forest communities, such as Oak-Northern Hardwood and Hemlock Forest. The forested communities that occur at King Pond are similar to those that occur at Great Pond. Common tree species include American beech, eastern hemlock, white pine, yellow birch, and red maple.

Wetlands within the King Pond parcel are primarily Alder Thicket communities, and are scattered along the shoreline. Species observed within this alder-dominated shrub wetland community include grey birch (*Betula populifolia*), northern white cedar, rhodora (*Rhododendron canadense*), sweetgale, meadowsweet (*Spiraea* spp.), cinnamon fern, sensitive fern, wet site graminoids, jewelweed, and numerous rushes (*Juncus* spp.).

Alligator Lake

The small parcel at Alligator Lake is primarily upland forest with an ephemeral drainage swale that drains from a forested wetland along the western boundary into a shrub wetland on the east side of the parcel. The upland forest is primarily Hemlock Forest community with eastern hemlock, white birch, red spruce, white pine, and yellow birch in the overstory; and American beech, striped maple, and hobblebush in the understory. The herbaceous layer is sparse in some areas and moderately dense in others. Common species include painted trillium (*Trillium undulatum*), lowbush blueberry, wintergreen (*Gaultheria procumbens*), wild sarsaparilla, Canada mayflower, bluebead lily (*Clintonia borealis*), starflower, spinulose wood fern, Indian cucumber-root, and goldthread.

The Alder Shrub Thicket on the east side of the parcel contains a vernal pool with evidence of spotted salamander breeding activity, as noted in Section 2.4.2. Section 2.4.2 provides a description of vernal pools and ~~e~~Section 2.8~~11~~ describes significant vernal pool habitat associated~~for a detailed discussion of vernal pool resources at~~ with GPOAC. The wetland is dominated by speckled alder. Other species include red maple, white meadowsweet, and cinnamon fern.

2.5.2 Invasive Species

Eighty-seven (87) alien or nonnative species were found at GPOAC during field studies conducted in 2007 and 2008 (Appendix B and Famous 2008a). However, of these, only reed canary grass (*Phalaris arundinacea*) is considered a problem species for GPOAC. Reed canary grass has been identified in 10–15 small stands, in two GPOAC primary areas: the large wetland fed by Collar Brook behind the beach, and within the camping area (Famous 2008a). Reed canary grass has been identified as an invasive species that poses a threat to natural communities in the region of GPOAC, based on its inclusion on most comprehensive invasive species lists for the northeastern United States and adjacent regions of Canada, as well as the species behavior in this section of Maine.

The most widely distributed nonnative species at GPOAC was Canada bluegrass (*Poa compressa*), which can be very persistent but rarely is a community dominant (Famous 2008a). A small area of climbing nightshade (*Solanum dulcamara*) was also identified along the roadside adjacent to the large wetland that contains the old beaver lodge, where the road extends towards the recently constructed cabins.

2.6 FISH AND WILDLIFE

The fauna of GPOAC is typical of what is generally associated with the type of forested habitat that dominates this area of Maine. The fauna that are known to occur at GPOAC, as described in this section, were assessed through a combination of desktop research, interviews with local and regional experts, or were documented during field surveys. Field survey methods included winter track counts or visual surveys. Complete species lists including threatened, endangered, and special concern species, are provided in Appendix B.

2.6.1 Mammals

A variety of mammal species are known or expected to occur at GPOAC. Mammal species identified at GPOAC through visual observations, direct evidence (e.g., scat), and winter mammal track counts, are provided in Appendix B. Mammals observed include black bear (*Ursus americanus*), moose (*Alces alces*), white-tailed deer (*Odocoileus virginianus*), bobcat (*Lynx rufus*), red fox (*Vulpes vulpes*), eastern coyote (*Canis latrans*), common porcupine (*Erethizon dorsatum*), common woodchuck (*Marmota morax*), raccoon (*Procyon lotor*), skunks (*Mephitis* spp.), beaver (*Castor canadensis*), and muskrat (*Ondatra zibethicus*). A variety of rodents and other small mammals observed include little brown bat (*Myotis lucifugus*), snowshoe

hare (*Lepus americanus*), eastern gray squirrel (*Sciurus carolinensis*), northern flying squirrel (*Glaucomys sabrinus*), red squirrel (*Tamiasciurus hudsonicus*), shrews (family Soricidae), and weasels (*Mustela* spp.).

2.6.2 Amphibians and Reptiles

Several amphibians were documented within the ponds and streams located at GPOAC during the 2007 and 2008 vernal pool surveys conducted for the area where the new cabins were constructed. No vernal pools were identified within the project area for the new cabins. However, a vernal pool located outside (north) of the GPOAC property boundary was observed. Substantial numbers of egg masses of two vernal pool indicator species, wood frog and spotted salamander, were observed (i.e., from within the project boundary) within the pool. This pool is located further than the 250-foot minimum distance from the recently constructed cabins, and was therefore not affected by the project. A detailed discussion of Significant Wildlife Habitat (e.g., significant vernal pools) at GPOAC is provided in Section 2.8.

The frogs and toads encountered during vernal pool surveys included American toad (*Bufo americanus*), gray tree frog (*Hyla versicolor*), spring peeper (*Pseudacris crucifer*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans*), pickerel frog (*Rana palustris*), leopard frog (*Rana pipiens*), mink frog (*Rana septentrionalis*), and wood frog. Salamanders included: eastern newt (*Notophthalmus viridescens*), spotted salamander, and red-backed salamander (*Plethodon cinereus*). Snakes observed included northern red-bellied snake (*Storeria occipitomaculata*), eastern garter snake (*Thamnophis sirtalis sirtalis*), and smooth green snake (*Opheodrys vernalis*). Turtles observed included wood turtle (*Glyptemys insculpta*), eastern painted turtle (*Chrysemys picta picta*), and snapping turtle (*Chelydra serpentia*). Other amphibians and reptiles that are expected to utilize the GPOAC property include blue-spotted salamander (*Ambystoma laterale*), northern two-lined salamander (*Eurycea bislineata*), four-toed salamander (*Hemidactylium scutatum*), and northern water snake (*Natrix sipedon sipedon*).

A list of amphibian and reptiles recorded in Hancock County is available on the University of Maine PEARL website (http://pearl.maine.edu/windows/biodiversity/amphibians_checklist.htm) (University of Maine 2011).

2.6.3 Birds

A total of 172 birds species have been observed at GPOAC (Appendix B). The relatively undisturbed forested and open water habitat at GPOAC provides habitat for a variety of raptors, waterbirds, and songbirds typical of this part of Maine. Breeding bird point counts and nighttime owl and rail surveys were conducted in 2007 and 2008. Additional observations were documented during various field surveys conducted at GPOAC in all seasons.

As part of the 1988 amendment to the Fish and Wildlife Conservation Act (Public Law 100-653), the USFWS is required to identify species, subspecies, and populations of migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973 (16 USC §1531 et seq.) (USFWS 2008). The USFWS published the most recent list of birds of conservation concern (BCC) in 2008, which

identified specific species within 37 different ecoregions across North America. The goal envisioned by the USFWS in identifying these BCC species is to stimulate the implementation of coordinated, proactive management and conservation actions among federal, state, tribal, and private partners to prevent these species from being listed under the ESA. Additionally, the Bird Conservation Region (BCR) lists are intended to assist federal land-managing agencies and their partners in their efforts to abide by the bird conservation principles embodied in the Migratory Bird Treaty Act (MBTA) and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (USFWS 2008).

GPOAC is located within the U.S. portion of the Atlantic Northern Forests region, also known as BCR 14. Table 2.8 lists all of the BCC species identified for BCR 14, includes species information for breeding or non-breeding phases that are of concern, and identifies those species that are known or expected to occur at GPOAC. In addition to bird species that are state or federally listed as species of concern, bird species listed in Table 2.8 that are known or expected to occur at GPOAC have been given priority for conservation action in this INRMP.

Table 2.8 U.S. Fish and Wildlife Service Birds of Conservation Concern – Bird Conservation Region 14 (Atlantic Northern Forests, U.S. Portion Only).

Species	Population of Concern[1]	GPOAC Status[2]
American bittern (*Botaurus lentiginosus*)		U, B
Bald eagle (*Haliaeetus leucocephalus*)	b	C, P, V
Bay-breasted warbler (*Dendroica castenea*)		U, B
Canada warbler (*Wilsonia canadensis*)		U, B
Olive-sided flycatcher (*Contopus cooperi*)		U, B
Peregrine falcon (*Falco peregrinus*)	b	U, M
Pied-billed grebe *(Podilymbus podiceps)*		O, M
Rusty blackbird (*Euphagus carolinus*)		U, M
Semipalmated sandpiper (eastern) (*Calidris pusilla*)		U, M
Solitary sandpiper (*Tringa solitaria*)	nb	U, M
Wood thrush (*Hylocichla mustelina*)		U, S, V/M

[1]	[2]
b – breeding population nb – non-breeding population	B: Breeding M: Migrant S: Summer O: Occasional C: Common U: Uncommon V: Non-breeding Visitor P: Non-breeding Permanent Resident

Source for list of birds of conservation concern and population information: USFWS 2008

2.6.4 Invertebrates

An invertebrate survey has not yet been conducted at the GPOAC site; however, the relatively undisturbed habitat associated with its terrestrial and aquatic communities likely provides habitat for a variety of invertebrate species typical of this part of Maine. Common terrestrial forms expected to occur include spiders (Arachnida); grasshoppers, katydids, crickets, mantids, walkingsticks, and cockroaches (order Orthoptera); earwigs (order Dermaptera); stink bugs (order Hemiptera); cicadas and aphids (order Homoptera); terrestrial beetles (order Coleoptera); butterflies and moths (order Lepidoptera); flies (order Diptera); and ants, wasps, and bees (order Hymenoptera).

Common macroinvertebrate types that can be expected to occur within the wetlands and waterbodies include caddisfly larvae (order Trichoptera), adult and larval mayflies (order Ephemeroptera), whirligig beetle (family Gyrinidae), backswimmer beetles (*Notonecta* sp.), predacious diving beetle (family Dytiscidae), dragonfly larva (suborder Anisoptera), damselfly larva (suborder Zygoptera), mosquito larva (family Culicidae), black fly larva (family Simuliidae), amphipods (order Amphipoda), snails (order Gastropoda), leeches (class Hirudinea), and oligochaete worms (class Oligochaeta). Aquatic macroinvertebrates serve as important food sources to other wildlife such as fish and waterfowl.

2.6.5 Fish

A fish survey has not been conducted at the GPOAC; however, the relatively undisturbed habitat associated with its palustrine and lacustrine water bodies likely provides a home for a variety of freshwater species typical of this part of Maine. Fishing is a popular activity at GPOAC, and typical fish species that are caught include smallmouth bass (*Micropterus dolomieu*), pickerel (family Esocidae), sunfish (family Centrachidae), perch (family Percidae), and brown trout (*Salmo trutta*).

Great Pond and King Pond are both stocked with brown trout on an annual basis. From 2006 through 2009, Great Pond was stocked with 350–450, 10–12 inch brown trout each year, and King Pond was stocked with 100–300, 8–12 inch brown trout each year (MDIFW 2010a). Atlantic salmon (*Salmo salar*) are stocked at several points within the Union River, downstream of GPOAC; the closest location is approximately 5 miles south at Silsby Plain Road (Trial 2010).

2.7 THREATENED AND ENDANGERED SPECIES AND SPECIES OF SPECIAL CONCERN

Data and information on threatened and endangered, and special concern flora and fauna species that are known or expected to occur at GPOAC, were assembled from existing survey reports,

incidental observations, interviews, and online resources. Direct observations or historical reports of known or suspected occurrences of threatened and endangered or special concern species, are discussed below for flora and fauna including mammals and birds. No special status invertebrate, fish, amphibian, or reptile species were observed or are expected to occur at GPOAC. Section 2.7.1 describes the results of a rare plant survey; rare natural plant communities are described in Section 2.8. The federal and state threatened and endangered mammal and bird species that are known or have the potential to occur at GPOAC are described in Section 2.7.2.

A complete list of special status species associated with the GPOAC is included in the flora and fauna species lists provided in Appendix B. The bird species table provided in Appendix B includes Maine species of special concern, USFWS BCC species, and birds protected by an Important Bird Area (IBA), the National Shorebird Plan, or DoD Partners in Flight (PIF).

2.7.1 Vegetation

A rare plant survey was conducted during 2007 and 2008 at GPOAC by professional botanists (Famous 2009). Survey methodology included performing a desktop review of potential habitats that commonly support rare plants, and compiling a rare plant list to guide the survey. Prior to conducting the survey USFWS, MDIFW, MNAP, and other local experts were contacted to determine if any listed species were known to occur at GPOAC (Famous 2008b).

Field surveys involved searches for indicator species associated with the rare plant communities, and several surveys were conducted to coincide with the flowering period of the rare plants that were of interest. Significant natural communities, such as the Maple–Basswood–Ash Forest, located north of the recently constructed cabins, and other microhabitats were surveyed more intensely compared with other areas of GPOAC. The rare plant surveys did not identify any rare plants at GPOAC.

2.7.2 Fish and Wildlife

Federally and state protected wildlife species that are known or have the potential to occur at GPOAC include one mammal, the Canada lynx (*Lynx canadensis*), and four bird species (Table 2.9 and Appendix B). Although the entire Union River Watershed is mapped as Critical Habitat for Atlantic salmon, barriers to passage preclude the presence of this federally endangered species from occurring within the Union River and therefore within the boundaries of GPOAC (Trial 2010). Additionally, GPOAC was excluded from the final Ceritical Hhabitat Rule released by NOAA NMFS in 2009 for the Atlantic salmon GOM-DPS (NOAA NMFS, Northeast Region 2009 and Appendix A).

Eastern small-footed bat (*Myotis leibii*), and northern long-eared bat (*M. septentrionalis*), and little brown bat are also included in Table 2.9 as they have the potential to occur at the Facility. These two bat species are not currently federally or state listed. The ; however, the USFWS initiated a 90-day review on 29 July 2011 to determine if federal listing of eastern small-footed bat and northern long-eared batthese bat species is warranted. As of February June 2012, listing determination of these two species was still under review by USFWS. The USFWS has not

initiated a formal review for potential listing of little brown bat. These species are described in the following sections.

Atlantic salmon. Historically, the Downeast section of Maine and its associated coastal rivers were major migratory routes and spawning grounds for Atlantic salmon. Due to an increase in several biological, environmental, and anthropogenic impacts (such as pollution, habitat degradation, overfishing, and bycatch) over the past several decades, the population of Atlantic salmon documented to use this area of the Maine coastline, and area rivers for migration and spawning, has declined significantly. Another factor thought to contribute to the decline in Atlantic salmon populations in the area is salmon aquaculture, which can cause negative changes in the gene pool, contribute to the frequency of disease, and cause negative impacts from competition (Fay et al. 2006).

Table 2.9 Federal and State Threatened and Endangered Species Known or Having the Potential to Occur at GPOAC, Hancock County, Maine.

Common Name	Scientific Name	Status
Mammals		
Canada lynx	*Lynx canadensis*	FT
Eastern small-footed bat	*Myotis leibii*	UR
Northern long-eared bat	*Myotis septentrionalis*	UR
Little brown bat	*Myotis lucifugus*	-
Birds		
American pipit	*Anthus rubescens*	SE (breeding)
Bald eagle	*Haliaeetus leucocephalus*	Eagle Act, ST, BCC (breeding)
Common moorhen	*Gallinula chloropus*	SE
Peregrine falcon	*Falco peregrinus*	SE (breeding), BCC (breeding)

Source: MDIFW 2010b and Famous 2010.

Eagle Act	Bald and Golden Eagle Protection Act
FT	Federally Threatened
SE	Maine Endangered
ST	Maine Threatened
UR	Under 90-day USFWS Review for listing (USFWS 2011)

The Gulf of Maine distinct population segment (GOM-DPS) of Atlantic salmon was federally listed as endangered on 17 December 2000 (NMFS and USFWS 2005). The ~~listing of the~~ Atlantic salmon GOM-DPS listing includes both naturally reproducing wild populations and river-specific hatchery populations that have river-specific characteristics (Appendix A). The Union River Watershed is within the historical range of anadromous runs of the GOM-DPS of Atlantic salmon, possesses appropriate Atlantic salmon habitat, and is included in the Ce~~r~~itical H~~h~~abitat designation for this species (Figure 2.14). Although no wild populations of Atlantic salmon occur within the Union River, salmon raised at the Green Lake Hatchery located in Ellsworth, Maine, are stocked at several downstream locations of the Union River, including at Silsby Plain Road (approximately 5 miles south of GPOAC), Tannery Loop Road

(approximately 9 miles south-southwest of GPOAC), and Branch Lake Stream (approximately 29 miles south of GPOAC) (Trial 2010). Due to the presence of barriers to upstream migration, the Union River does not currently support a viable anadromous population of Atlantic salmon; however salmon that are captured at the fishway trapping facility located below the Ellsworth Dam are transported in tank trucks and released upstream (U.S. Atlantic Salmon Assessment Committee 1999). Fish captured at this facility are hatchery raised salmon that are released as part of Union River Watershed stocking programs, or escapees from aquaculture facilities. Due to the lack of wild salmon identified within the Union River Watershed since 1993 and the fish passage barriers located at Ellsworth Dam, which is located downstream from GPOAC, wild Atlantic salmon are not likely to be affected by any activity within the GPOAC site. However,

Figure 2.14 Critical Atlantic Salmon Habitat for GPOAC, Hancock County, Maine.

during periods of low flow, hatchery raised Atlantic salmon that are stocked near Silsby Plain Road and Tannery Loop Road may be able to seasonally access the GPOAC area via Hell's Gate Falls located on the West Branch of the Union River (Appendix A).

Canada lynx. The Canada lynx is a federally threatened mammal species that has the potential to occur at GPOAC. A possible sighting of a Canada lynx has been reported by ~~staff~~staff employed at GPOAC; however this sighting cannot be confirmed (Manzo 2010). No Canada lynx tracks were detected during 36 hours of winter track count surveys conducted during 2007–2008 at GPOAC (Famous 2008b).

In 2009, the USFWS issued revised C~~c~~ritical H~~h~~abitat for the Canada lynx. This designation included a section of northern Maine (Unit 1) and includes portions of Aroostook, Franklin, Penobscot, Piscataquis, and Somerset counties (USFWS 2009). GPOAC is not located within the federally-designated C~~c~~ritical H~~h~~abitat for this species; however, lynx habitat and its main food item, snowshoe hare, occur on the Facility. A fact sheet for this species is provided in Appendix C.

Eastern small-footed bat, ~~and~~ northern long-eared bat, and little brown bat. The forested and open water habitats of the Facility provide foraging habitat for the eastern small-footed bat, ~~and~~ northern long-eared bat, and little brown bat, and the Facility is within the documented range of all three of ~~both of~~ these bat species (USFWS 2011 and Kunz and Reichard 2011). Summer roosts of the eastern small-footed bat is typically within talus (a slope of accumulated rock debris) areas associated with rocky ridge-tops, but they are also known to roost on buildings and bridges, and behind loose bark on trees. Overwintering hibernacula of eastern small-footed bats includes caves and abandoned mines. Eastern small-footed bats are nocturnal foragers, foraging primarily over streams, ponds, or other waterbodies that have high concentrations of nocturnal insects. They are considered generalist feeders, feeding primarily on soft-bodied prey that they capture during flight or that they glean from surfaces.

Preferred summer roosts of the northern long-eared bat are generally associated with old-growth forests comprised of trees 100 years old or older, and this species is dependent on intact interior forest habitats that have a low edge-to-interior ratio (USFWS 2011). Relevant late-successional forest features include a high percentage of old trees, uneven forest structure, single and multiple tree-fall gaps, standing snags, and woody debris. This species appears to favor small cracks or crevices in cave ceilings for hibernation. Northern long-eared bats are opportunistic insectivores, obtaining prey both in flight and by gleaning from surfaces. Prey includes small insects, such as moths, flies, leafhoppers, and beetles. Forested hillsides and ridges are their preferred foraging habitat, with the presence of mature forest stands thought to play an important role in their foraging behavior. Foraging occurs at dusk over small ponds and forest clearings under the forest canopy, or along streams. No surveys have been conducted to date to determine the presence or absence of these bat species on the Facility.

Little brown bat reproductive females form maternity colonies in barns, attics, tree cavities, and other places that remain dark throughout the day (Kunz and Reichard 2011). Females tend to have high roost fidelity, returning to their natal roosts each year. Little brown bats are also opportunistic in their selection of roost sites, and are known to quickly exploit new roost sites

once identified. Winter hibernacula ~~is~~are typically within caves or mines located between 180–620 miles from summer roosts. Little brown bats forage in flight on insects, often feeding over open water or along the margin of waterbodies and forest habitat. Juveniles tend to forage in clearings or open areas, whereas adults are known to regularly forage in more cluttered environments, as well as open areas.

Recently white nose syndrome was identified in bat populations located at Acadia National Park, approximately 40 miles south of GPOAC. White nose syndrome is a white fungus that can infect bat populations, and may result in completely or significantly reducing bat populations residing in caves during their hibernation period. All three of these bat species have the potential to occur; however, no surveys have been conducted to date to determine the presence or absence of these bat species on the Facility.

American pipit. The breeding population of American pipit (*Anthus rubescens*) is endangered in Maine (MDIFW 2003a). American pipits are small birds (6–7 inches long), and are one of the few Arctic species that nest in Maine. This species is known to breed throughout northern Canada and most of Alaska, with isolated populations occurring in the northeast on exposed mountain tops located in Quebec, New Hampshire (Mt. Washington), and at Mt. Katahdin in Maine. For breeding, the American pipit prefers Arctic or alpine tundra habitat, as well as grassy tundra habitats in the north, that contain sedge meadows, dwarf willows, and lichens. Few mountains in the northeast contain their preferred breeding habitat, with the exception of Mt. Katahdin in Baxter State Park, Maine, and Mt. Washington in New Hampshire (MDIFW 2003a).

Maine's American pipit population is isolated to one population that breeds on the talus slopes and tablelands of Mt. Katahdin. The migration period for American pipit generally occurs during mid-September through late October, and this species is often observed foraging in grassy fields, meadows, coastal beaches, marshes, mudflats, and along rivers. Terrestrial and freshwater invertebrates make up their diet, with seeds supplementing their diet during the fall and winter months. No breeding populations of American pipit have been observed at GPOAC; however during spring and fall migration this species has been observed using GPOAC as a stopover point (Famous 2010). A fact sheet for this species is provided in Appendix C.

Bald eagle. The bald eagle (*Haliaeetus leucocephalus*) was removed from the federal list of threatened and endangered wildlife on 7 July 2007 (USFWS 2007). The USFWS established National Bald Eagle Management Guidelines (USFWS 2007) in 2007 that include protective measures outlined in the Bald and Golden Eagle Protection Act (16 USC §668–668c) (Eagle Act) and the MBTA (16 USC §703–712). Bald eagles are frequently observed soaring above the waterbodies of GPOAC foraging for food, and in the winter they will feed on dead fish that are left on the ice by ice-anglers. A bald eagle nest site has also been documented at Alligator Lake, approximately 0.25 miles from GPOAC (Appendix A). Due to their association with GPOAC, the National Bald Eagle Management Guidelines (USFWS 2007) have been included as a management measure in this INRMP for the protection of this species. A Draft Bald Eagle Management Plan has been prepared for GPOAC based on the National Bald Eagle Management Guidelines (USFWS 2007), Maine Bald Eagle and Golden Eagle Public Working Group Recommendations (2004), and Maine Bald Eagle Management Goals and Objectives for 2004–

2019 (MDIFW 2004, Navy 2008). A copy of the National Bald Eagle Management Guidelines and the Draft GPOAC Bald Eagle Management Plan are included in Appendix D.

Common moorhen. Common moorhen (*Gallinula chloropus*) is listed as threatened in Maine and is a secretive species that inhabits shallow, freshwater marshes (Environmental Protection Agency [EPA] Undated). Observations of common moorhen in Maine are uncommon or rare. Due to the low population numbers for common moorhen in Maine, MDIFW has closed the hunting season for this species (MDIFW 2010c).

The breeding range of common moorhen extends from the Great Lakes to New England, and south along the Atlantic coast and into the Gulf of Mexico. Preferred breeding habitats include shallow, fresh, and brackish marshes that contain dense emergent vegetation that is interspersed with areas of open water. New England represents the northern extent of their breeding range, with breeding in the area typically occurring during April and May (EPA Undated). This species was observed in the wetland habitat located between the camping area and the Welcome Center at GPOAC during the migration period (September and October), and they have not been observed breeding at the site (Famous 2010). A fact sheet for this species is provided in Appendix C.

Peregrine falcon. The breeding population of peregrine falcon (*Falco peregrinus*) in Maine is endangered due to the low population numbers that are present throughout the state (MDIFW 2003b). This species requires cliffs for nesting and perching, and requires an adequate prey base of small to medium sized birds. Open water that is located in close proximity to cliffs may enhance foraging opportunities. Breeding in Maine typically occurs during March or April upon returning from wintering areas, with eggs hatching in May or early June (MDIFW 2003b). Migration to coastal areas in the southeastern United States and Central or South America occurs in the fall; however some adults may remain in Maine year round. Although GPOAC is within the known range of the peregrine falcon, this species is not expected to breed at GPOAC as there are no suitable cliffs on the site available for nesting. A fact sheet for this species is provided in Appendix C.

2.8 RARE COMMUNITIES AND SIGNIFICANT WILDLIFE HABITAT

For this INRMP, special concern communities and habitat include rare community types identified by the MNAP and Significant Wildlife Habitat defined by MDIFW. Three MNAP state rarity ranks for Maine natural communities are included:

- S1 – Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State;
- S2 – Imperiled in Maine because of rarity (6–20 occurrences of few remaining acres) or because of other factors making it vulnerable to further decline; and,
- S3 – Rare in Maine (on the order of 20–100 occurrences), though not known to be imminently imperiled (Gawler and Cutko 2010).

MDIFW has defined and/or mapped the following types of Significant Wildlife Habitat, which are relevant to GPOAC:

- High and moderate value inland waterfowl and wading bird habitat – includes inland habitat areas, which are described as "inland wetland complex, and a 250-foot wide zone surrounding the wetland complex, that through a combination of dominant wetland type, wetland diversity, wetland size, wetland type interspersion, and % open water meets [MDIFW] guidelines or is an inland wetland complex that has documented outstanding use by waterfowl or wading birds," as described in Chapter 335 of the Natural Resources Protection Act (NRPA) (included in Appendix C).
- Significant vernal pools – are seasonal forest pools that are natural, temporary to semi-permanent bodies of water occurring in a shallow depression that typically fill during the spring or fall and may dry during the summer; have no permanent inlet or outlet and no viable populations of predatory fish; may provide the primary breeding habitat for wood frogs, spotted salamanders, blue-spotted salamanders, and fairy shrimp; and may provide habitat for other plants and wildlife, including several rare, threatened, and endangered species, as described in Chapter 335 of the NRPA (Appendix C).[1]
- Deer wintering areas (DWAs) – include a variety of habitat components that may change with forest condition and management strategy, and contribute to the long-term functioning of the area as a source of winter shelter and food for white-tail deer (*Odocoileus virginianus*) (MDIFW Undated and Appendix C).

Consultation with MDIFW, MNAP, and USFWS was conducted to determine if any records of rare natural communities or Significant Wildlife Habitat exist for GPOAC. This coordination yielded no records of known rare communities or Significant Wildlife Habitat on the Facility. However, a review of MDEP digital data on bird habitat (MDEP, Bureau of Land and Water Quality 2010) for GPOAC identifies Significant Wildlife Habitat within and adjacent to the Great Pond parcels, as described in the following sections.

Although a cursory survey of natural resources, including searches of potential vernal pools and observations of vegetation community types, has been completed, comprehensive assessments of the natural community types or Significant Wildlife Habitat present at GPOAC outside the 14.5 acre project area for the recently constructed cabins has not been conducted. The following accounts are a summary of observations that were made during the various biological field surveys and site visits that were conducted in 2007, 2008, and 2010.

[1] The spring 2010 site visit was conducted after the optimal period for assessing the significance of vernal pools. GPOAC is located within the Central Maine zone. As specified in Chapter 335 of the NRPA, the optimal vernal pool survey window for this zone is from 25 April to 5 May for wood frogs and from 5 May to 25 May for spotted salamanders. Although the site visit was conducted 19–21 May, unusually warm temperatures and dry conditions caused the optimal survey period to occur approximately 2 weeks earlier. Therefore, observers were able to conclude the significance of a vernal pool based on the abundance criteria if sufficient numbers of egg masses were present within the vernal pool. However, observers could not conclude non-significance based on the absence of sufficient numbers of egg masses.

Great Pond

Vegetation communities, referred to as Enriched Northern Hardwoods, occur within the eastern Great Pond parcel. This forested community is ranked S3 and typically occurs on sheltered hillsides or toe-slopes where nutrients accumulate (Gawler and Cutko 2010). Enriched Northern Hardwoods are identified by the presence, though not necessarily dominance, of American basswood. Other canopy species indicative of this community, which is also referred to as a Maple–Basswood–Ash Forest, include sugar maple, white ash, and American beech.

At GPOAC, these communities occur in at least two small patches on south facing slopes to the east and west of the recently constructed cabins in the upper section of the slope moving away from the pond edge. Both communities appeared to be associated with intermittent drainages (Figure 2.10). Herbaceous species that were observed within these communities include doll's eyes, wood anemone (*Anemone quinquefolia*), and wild sarsaparilla.

MDEP digital data on bird habitat identify significant inland waterfowl and wading bird habitat at the western end of Great Pond. Based on a visual assessment of these data, this Significant Wildlife Habitat intersects with the western Great Pond parcel at the western end where a large PSS wetland complex extends to the west (Figure 2.10).

Although no vernal pools were observed within the cabin project area, several vernal pools were observed within other areas of the eastern Great Pond parcel as well as in the western Great Pond parcel. A pool containing over 25 spotted salamander egg masses was observed at the west end of the eastern Great Pond parcel. This pool appeared to be drying up rapidly, and dozens of spotted salamander egg masses had become exposed and were desiccating up to 5 feet from the pool's edge. The spring of 2010 was particularly dry, and the pool should be revisited within the appropriate survey window to determine whether the pool meets the significance criteria.

At least one small vernal pool was located in one of the numerous wetlands located along the topographic plateau at the toe of slope adjacent to the pond shoreline within the western Great Pond parcel. This pool contained six spotted salamander egg masses. It is highly likely that additional, pond-side pools occur within these plateau, toe of slope wetlands within both Great Pond parcels.

In addition to these natural pools, two human-made pools are located on either side of the access road within the camping area. Both of these pools appear to be borrow pits that were created during construction of the dirt access road, and each contained spotted salamander egg masses (Figure 2.10). Although one of these two borrow pits did contain enough spotted salamander egg masses to meet the biological criteria described in Chapter 335 of NRPA (Appendix C), the pits do not meet the physical requirements of a vernal pool as a result of their anthropogenic origin. These human-made pools have been identified on Figure 2.10 as "Amphibian Breeding Areas".

Maine is located in the northern extent of the range of white-tail deer; as a result, severe winters can cause significant declines in population numbers (MDIFW Undated). Therefore, habitat that is critical for overwintering deer has been deemed Significant Wildlife Habitat. Correspondence received from MDIFW as part of their review of the Draft INRMP confirmed their interest in protecting and perpetuating winter cover for the Downeast Maine population of white-tailed

deer, so that it is available for future herd expansion (Appendix A). Generally, quality ~~deer wintering areas (~~DWAs~~)~~ are dominated by softwoods, specifically cedar, hemlock, spruce, and fir, and have a minimum canopy closure of 70% to provide cover. An interspersion of other forest types that provide forage and access to sunlight are also key characteristics of quality DWAs.

Both of the Great Pond parcels contain forest communities that exhibit these habitat characteristics. The hemlock stand at the site of the recently constructed cabins was assessed for use by deer during the winter and was determined not to provide such habitat (Famous 2008b). However, deer were observed in the surrounding area, and the potential exists for DWAs to occur elsewhere in the Great Pond parcels.

King Pond

No inland waterfowl or wading bird habitat was observed or mapped at King Pond.

No vernal pools were observed within the parcel at King Pond. However, multiple wetlands occur here, and it is likely that some of them provide habitat for breeding amphibians.

The parcel at King Pond is dominated by hardwood forest communities, and it is unlikely that these forests provide quality deer wintering habitat.

Alligator Lake

No inland waterfowl or wading bird habitat was observed or mapped at Alligator Lake.

The parcel at Alligator Lake contains two pools that meet the biological and physical criteria for a significant vernal pool (Figure 2.12). The first pool is located within the shrub and forested wetland located on the east side of the parcel. In the spring of 2010, approximately 60 spotted salamander egg masses were observed within this pool (Tetra Tech, Inc. 2010). It is likely that more egg masses were present but not counted due to visual constraints caused by heavy rain at the time of the survey. A second forested pool on the west side of the parcel also contained at least 20 spotted salamander egg masses. Based on the abundance criteria outlined in Chapter 335 of the NRPA (Appendix C), this pool meets the definition of a significant vernal pool.

The parcel at Alligator Lake was dominated by conifer species with high canopy closure. In addition, several gaps in the canopy caused by downed trees have created patches of dense understory. It is possible that the forests in and adjacent to this parcel provide quality deer wintering habitat.

2.9 LAND MANAGEMENT

2.9.1 Regional Conservation Lands

No conservation lands have been identified in close proximity to GPOAC. The closest regional conservation lands are located approximately 25 miles southeast of GPOAC. These include

Acadia National Park, Donnell Pond Ecological Reserve, and Spring River Lake Ecological Reserve (MNAP 2005).

2.9.2 Environmental Management

The Installation Restoration (IR) program is responsible for the restoration and maintenance of all sites where buildings or other facilities have been demolished, and for the long-term maintenance of any sites that have undergone, or are undergoing, remediation. The goals of the IR program include restoration of disturbed sites to a natural ecological community to prevent erosion, enhance wildlife habitat, and reduce maintenance costs.

GPOAC does not currently have an IR Program; however, prior to the transfer of GPOAC to the Navy from the USAF in 2002, environmental investigations were conducted to identify specific clean-up activities that would be required (USAF 2000). Field investigations were completed from 1994 to 1996, prior to the site being transferred to Navy, for the following environmental features (USAF 1996):

- underground storage tanks (USTs);
- aboveground storage tanks (ASTs) and associated soil contamination;
- contaminated soils associated with maintenance building, paint shed, and historic boat crib;
- asbestos-containing materials (ACMs);
- lead-based paints (LBPs);
- radon;
- miscellaneous stored items;
- drinking water wells;
- waste disposal areas;
- septic system leach fields; and
- polychlorinated biphenyls (PCBs) in light fixtures.

Areas that were identified to contain hazardous materials or waste included (USAF 2000):

- fuel oil used to heat the caretaker cabin;
- radon level of 5.4 picocuries per liter (pCi/L) in the basement of one of the historic cabins;
- LBP at Welcome Center and maintenance building;
- PCBs (presence suspected) in three light-pole fixture ballasts; and
- contaminated soil at the maintenance building, paint shed, and in association with most of the ASTs.

With the exception of the radon levels detected in the basement of one of the historic cabins, all of the hazardous materials and wastes identified in the environmental surveys were removed or remediated prior to the transfer of the site to Navy ownership. All ASTs, with the exception of the fuel tank used to heat the caretaker cabin and a diesel fuel tank used for emergency generator power, were removed from the site. All contaminated soil associated with ASTs and workshops were removed to the extent practical; however, some stained soil located adjacent to building foundations were not removed to protect the integrity of the building structure.

The radon investigation did not identify any livable areas where radon levels exceeded the U.S. EPA action level of 4.0 picocuries per liter (pCi/L); however, the basement of one of the historic cabins had a radon level of 5.4 pCi/L. Since the basement was not classified as livable space, no radon mitigation was recommended.

All remediation issues that were identified by the USAF have been completed, and GPOAC has not identified any remedial action projects for the future.

2.9.3 Hazardous Materials/Waste

GPOAC currently does not have a hazardous waste management plan, and none is expected to be needed due to the limited amounts of hazardous materials and waste that are stored at GPOAC. Common hazardous materials and wastes associated with GPOAC include fuel used to heat the buildings and power motorized vehicles and boats, and other maintenance shop liquids and materials needed to maintain the buildings and grounds maintenance equipment.

2.10 LEASES

GPOAC does not contain any parcels of land that are leased.

2.11 OUTDOOR RECREATION

The primary purpose of the GPOAC is to provide recreational opportunities for military personnel. The 397-acre facility is open year-round with numerous recreational opportunities available, depending on the season, including:

- camping,
- boating (canoe, kayak, sailboats, and motorboats),
- swimming,
- hiking,

Sunset paddle.

- fishing/ice fishing,
- snowshoeing,
- cross-country skiing, and
- mountain biking.

Guests are encouraged to explore the natural outdoor setting provided by GPOAC and nearby Acadia National Park. GPOAC provides rental equipment at the Welcome Center for guests to participate in most of the above activities. Canoes are stored at the access points for King Pond, Alligator Lake, and Rift Pond. A camping platform is located on top of a small hill in the Alligator Lake parcel, and although no formal camping areas are currently located within the King Pond Parcel, there are tentative plans to create two or three such areas (Manzo 2010).

Currently, the only hiking trail at GPOAC connects the access road to King Pond via Rift Pond. The trailhead for this hike is located where the access road crosses Collar Brook. The trail is not located on GPOAC property but permission was granted by the property owners (i.e., Sustainable Forest Technologies) to use the trail (Manzo 2010).

GPOAC ~~staff~~staff conduct activities such as sunset paddles; parades on the Fourth of July; treasure hunts for kids; movie nights; and trips to Acadia, the Bucksport Observatory at the Penobscot Narrows, and the Bangor Museum. Participation in activities is at the discretion of GPOAC guests.

Each year during May through August, the GPOAC supports up to two interns from nearby universities. Although there is no organized outdoor program, the seasonal interns are encouraged to develop a summer recreation program.

The lodging options available include 15 RV sites, 5 yurts, 5 year-round cabins, 7 seasonal cabins, and 2 historic cabins (guest lodge and main lodge) located in the John M. Norris Family Camp Historic District (Figure 2.1). The GPOAC John M. Norris Family Camp Historic District is described in Section 2.12.

2.12 CULTURAL RESOURCES

Under Section 110 of the National Historic Preservation Act (NHPA), federal agencies are required to identify all cultural resources within their landholdings that are eligible for inclusion in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to consider the effects of their actions on historic properties and allow the Advisory Council on Historic Preservation and the State Historic Preservation Officer (SHPO) an opportunity to comment on proposed actions. Implementing regulations for Section 106 of the NHPA are contained in 36 Code of Federal Regulations (CFR) Part 800.

Archeological surveys and architectural assessments completed at the Facility have identified four archaeological sites, and one Historic District (insert ICRMP reference). ~~A cultural resource survey of GPOAC was completed in 2001 (Geo-Marine 2001). Great Pond was impounded with a dam during the earlier part of the 1900s, and this dam was maintained (likely for sawmill~~

operations) for approximately 50 years, raising the water level approximately 10 feet above the current elevation. An archeological site, Site 75.5, was identified during the cultural survey and is located near a bedrock outcrop point on the northern shore of Great Pond. During the 50-year period in which the Great Pond dam was maintained, this archeological site was partially eroded. Once dam maintenance ceased, approximately 538 square feet of the archeological site was buried and preserved under beach deposits as the water level in the lake lowered. The 2001 Phase II prehistoric archeological survey was conducted at Site 75.5, which had been identified during a Phase I archeological survey. The Phase II survey included excavation of nine 1-meter square test pits across Site 75.5. Preserved archeological deposits identified in the test pits date between 1240–1650 Anno Domini (AD) or from the late Ceramic and early Contact periods (Geo-Marine 2001). No typologically diagnostic prehistoric artifacts were identified.

Artifacts recovered include the following:

debitage flakes;
unifacial tools or tool fragments fashioned from a variety of non-local materials;
a possible gunflint (chert);
fire-cracked rock (evidence of open fires); and
calcined (burnt) bone fragments of beaver and an unidentifiable mammal, possibly deer.

The site was probably occupied as a convenient stop for small groups traveling along the Union River Watershed for hunting, trapping, and other activities. Hides or furs may have been processed onsite (Geo-Marine 2001).

The 2001 Phase II survey indicated that Site 75.5 is considered eligible to the NRHP under Criterion D[2] (Geo-Marine 2001). Preservation *in situ* is preferred over data recovery of the archeological materials, and no further archeological research was recommended. The site may be protected from development, timber harvesting, and construction by Maine State law (27 (Maine Revised Statutes Annotated [MRSA] §509). If the site becomes threatened in the future, then steps should be taken to protect the site, or data recovery excavations should be conducted (Geo-Marine 2001).

Three of the buildings (guest lodge, caretaker lodge, main lodge) at GPOAC are of log construction and predate the DoD acquisition of the property in 1956. The Maine Historic Preservation Commission (MHPC) concurred that these buildings are likely the remains of a sporting camp constructed in the 1930s. The Maine SHPO identified these three log structures, other support structures (a well house/sewer lift, three stone retaining walls, and an outdoor stone hearth), and the surrounding landscape (Great Pond shoreline and woods immediately

[2] The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and: (Criterion D) that have yielded, or may be likely to yield, information important in prehistory or history.

~~surrounding the three historic cabins) as eligible for inclusion in the John M. Norris Family Camp Historic District (Southeastern Archaeological Research, Inc. 2011). The Historic District was named in honor of John M. Norris, the original owner of the property. The Historic District is also considered a locally significant example of a Maine sporting camp, which embodies the distinctive characteristics of a type of construction. The period of significance for the Historic District begins with its construction around 1933 and ends with John M. Norris's death in 1955.~~

An Integrated Cultural Resources Management Plan (ICRMP) is required for all DoD facilities per federal and DoD regulations. An ICRMP is a 5-year planning document, which serves to manage and protect cultural and historic resources under the control of a military installation so that such resources are properly considered and integrated into the facilities decision-making process. The purpose of an ICRMP is to integrate the entirety of the Facility's cultural resources program with the ongoing operational mission. As such, an ICRMP allows for identification of potential conflicts between the installation's mission and cultural resources, and identifies actions necessary to meet statutory and regulatory requirements. GPOAC is in the process of developing an ICRMP.

Great Pond

Historically, Great Pond was impounded with a dam during the earlier part of the 1900s, and this dam was maintained (likely for sawmill operations) for approximately 50 years, raising the water level approximately 10 ft (3 m) above the current elevation. Three archeological sites have been identified at Great Pond: Site 75.4, Site 75.5, and Site 75.6. Sites 75.4 and 75.5 are considered archaeological sites, while Site 75.6 is considered an isolated find (insert ICRMP reference). Consultation with Maine SHPO (2001) and the Maine Historic Preservation Commission (2010) has determined that these sites are not eligible for listing on the NRHP (Appendix A).

Three of the buildings (guest lodge, caretaker lodge, main lodge) at GPOAC are of log construction and pre-date the DoD acquisition of the property in 1956. The Maine Historic Preservation Commission suggested these buildings may be the remains of a sporting camp constructed in the 1930s, and recommended that the three log structures be evaluated for historical significance and NRHP eligibility (USAF 2000). Consultation with Maine SHPO have identified five historic structures and the surrounding landscape as contributing elements of the John M. Norris Family Camp Historic District, and are eligible for listing on the NRHP. The Historic District contains a group of three historic cabins, a well house/sewer lift, and stone hearth are located west of the Welcome Center/Recreation Center on the eastern Great Pond parcel, and collectively with the landscape are considered a locally significant example of a Maine sporting camp, which embodies the distinctive characteristics of a type of construction. One non-contributing element, the Sir Peter Grave Site, is also located within the Historic District.

King Pond

An archeological survey of King Pond identified one archeological site, Site 75.7. This site is considered an isolated find and is not considered eligible for inclusion on the NRHP (insert

ICRMP reference). No historic structures were identified at King Pond during the architectural survey.

Alligator Lake

An archeological survey and architectural assessment of Alligator Lake did not identify any archeological sites or historic structures (insert ICRMP reference).

2.13 PARTNERSHIPS AND OUTREACH

Currently, public access is limited to users of the public boat launch. Partnerships are limited to the Maine Association for Search and Rescue and the Maine State Police who use the Facility for training and annual functions.

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3.0 NATURAL RESOURCES MANAGEMENT PROGRAMMATIC OBJECTIVES AND RECOMMENDATIONS

This section provides detailed information on the primary natural resources management programmatic objectives identified for GPOAC. Specific projects and recommendations have been developed that will assist the Facility in meeting the established programmatic objectives. Recommendations are bulleted differently in the following sections depending on whether the project is dependent on funding, or if it is a recommendation that will not require a specific funding mechanism to complete. All projects requiring funding are summarized in Section 6.0 and Appendix E, and are coded according to the programmatic objectives with which they are associated, as follows:

- LA – land management
- FW – fish and wildlife management
- FO – forestry management
- OR – outdoor recreation management

☞ Specific project that requires a funding mechanism to complete. Funding dependent projects may be associated with more than one programmatic objective.

❖ Management recommendation that can be carried out passively, without the need to seek out specific funding to complete.

Implementation of this INRMP will provide benefit to the operational mission of GPOAC, whereas lack of active management of natural resources may result in a negative impact to the operational mission. No negative impacts to the mission are expected to occur from implementation of the programmatic objectives and recommendations described in this section.

3.1 LAND MANAGEMENT

OPNAVINST 5090.1C-Ch-1 (Navy 2011) defines land management as programs and techniques for the management of lands, wetlands, and water quality including soil conservation, erosion control, nonpoint source pollution management, surface and subsurface water management, habitat restoration, control of noxious weed and poisonous plants, agricultural outleasing, range management, identification and protection of wetlands, watershed management, floodplains management, landscaping, and grounds maintenance.

Land management at GPOAC includes:

- water resources management including watersheds, floodplains, wetlands, surface waters, groundwater, and riparian areas;
- water quality management (Clean Water Act [CWA] compliance, point and nonpoint source water pollution, sedimentation, and erosion control);

- vegetation management;
- invasive plant species management;
- wildland fire management;
- rare communities and Significant Wildlife Habitat;
- Installation Restoration Program;
- hazardous waste management;
- regional conservation lands;
- leases;
- cultural resources;
- environmental and natural resources training; and
- GIS management, data integration, access, and reporting.

Land Management Programmatic Objectives

The following programmatic objectives have been established for land management at GPOAC.

1. Manage, maintain, and enhance land areas with natural resource value, and maintain ecological functions.
2. Improve and enhance water quality by reducing nonpoint sources of pollution.
3. Preserve, protect, and enhance water resources (e.g., wetlands, vernal pools, surface water, groundwater).
4. Maintain and enhance native vegetation, and control and monitor invasive species.
5. Provide adequate special management or protection of threatened and endangered plant species, significant rare communities, and at risk plant species.

3.1.1 Water Resources Management

Water resources are an important part of natural ecosystems due to the diverse biological and ecological functions they support and hydrologic functions they perform, such as improving water quality, groundwater recharge, pollutions treatment, nutrient cycling, provision of wildlife habitat and niches for flora and fauna, stormwater storage, and erosion protection (Benton et al. 2008). To protect these important resources, many federal, state, and local laws have been enacted to regulate actions that may impact them including, but not limited to, the CWA; Maine's NRPA and Site Location of Development Law; EO 11988, *Floodplain Management*; Maine Mandatory Shoreland Zoning (MRSA Title 38, Chapter 3, Subchapter 1, Article 2-B); EO 12962, *Recreational Fisheries, Eagle Act, and Magnuson–Stevens Fisheries Conservation and Management Act*. The following sections describe these regulations and provide management

recommendations that address the specific set of water resources management issues that occur at GPOAC.

Nuisance wildlife are currently not a significant problem at GPOAC; however, the Facility does have an active beaver population. Beaver lodges have been constructed within drainage areas located near recreational facilities and roadways of the eastern parcel of Great Pond. Beaver lodges may affect water drainage, impede water flow, and affect water quality. Routine monitoring of nuisance wildlife identified at the Facility should be conducted to determine if nuisance wildlife removal or relocation actions are necessary to protect natural resources.

- ☞ LA01 and FW13: Conduct biannual ~~(twice per year)~~ monitoring, or more frequently as needed, of invasive and nuisance wildlife, including beavers and bats, to determine whether wildlife removal, relocation, or other remedial actions are necessary to protect natural resources and/or human health and safety.

The Navy recognizes the importance of the nation's bays and estuaries, and as such is committed to supporting the conservation of water resources. GPOAC is located entirely within the Union River Watershed, which eventually drains into the Gulf of Maine and Atlantic Ocean. The land area of GPOAC is characterized by several lakes and ponds, perennial and intermittent streams, freshwater wetlands, and vernal pools. In an effort to protect water quality at GPOAC and within surrounding areas, natural resources ~~staff~~staff must identify erosion sites, including shoreline stabilization projects, that might affect water quality within the watershed. The staff must also review erosion and sedimentation control plans (ESCPs) for construction sites and provide oversight to ensure all Best Management Practices (BMPs) are being enforced. The management of Union River Watershed areas at GPOAC is subject to federal and state regulations, as applicable, and discussed further below.

Wetlands identification and protection are an important part of natural resources management at GPOAC.

3.1.1.1 Watersheds and Floodplain Management

Floodplains receive additional protection through EO 11988, *Floodplain Management*, which directs federal agencies to reduce the risk of flood loss by not building in floodplains and to restore and preserve the natural and beneficial values served by floodplains.

At the state level, the Maine State Planning Office (MSPO), Floodplain Management Program, works with communities and construction professionals to reduce the risk of flooding. The program works with other state agencies, such as MDEP, Maine Department of Conservation, in reviewing development projects for consistency with Maine's NRPA and Site Location of Development Law to ensure that development that is subject to state review is designed and developed to reduce future flood damages (MSPO 2006). A review of FEMA FIRM floodplain mapping data determined that GPOAC is not located within a 100-year or 500-year floodplain. One potential exception is Alligator Lake, which is located in an area that has not been subject to FEMA FIRM floodplain mapping.

Maine also has Mandatory Shoreland Zoning requirements (MRSA Title 38, Chapter 3, Subchapter 1, Article 2-B) for any development activities proposed within the shoreland zone. The shoreland zone is defined as areas within 250 feet of the normal high-water line of any great pond, river, or saltwater body; within 250 feet of the upland edge of a coastal wetland; within 250-feet of the upland edge of a freshwater wetland (except as otherwise provided in Section 438-A, Subsection 2 of the regulation); or within 75 feet of the high-water line of a stream. The purpose of the Mandatory Shoreland Zoning requirements are to:

- maintain safe and healthful conditions;
- prevent and control water pollution;
- protect fish spawning grounds, aquatic life, bird and other wildlife habitat;
- protect buildings and lands from flooding and accelerated erosion;
- protect archaeological and historic resources;
- protect commercial fishing and maritime industries;
- protect freshwater and coastal wetlands;
- control building sites, placement of structures and land uses;
- conserve shore cover and visual, as well as actual, points of access to inland and coastal waters;
- conserve natural beauty and open space; and
- anticipate and respond to the impacts of development in shoreland areas (MRSA Title 38, Chapter 3, Subchapter 1, Article 2-B, Section 435).

The Navy is not required to comply with Maine's Mandatory Shoreland Zoning requirements, however, the Navy will evaluate relevant actions to remain consistent with the intent of the regulations to the maximum extent practicable.

☞ LA02 and FO01: Prepare a Shoreland Zone Management Plan for GPOAC, which provides recommendations for protecting the shoreline zone from negative impacts that may result from development, natural resources management, or maintenance activities. The document should include guidance and recommendations for activities associated with cutting trees within the shoreland zone that are consistent with the Maine Guidance for Shoreland Zoning.

❖ Any dredge or fill activities planned for areas subject to CWA requirements may require a USACE permit, and may also be subject to NEPA review and documentation before any ground-disturbing activities are undertaken within the shoreland zone.

3.1.1.2 Surface Waters, Groundwater, Wetlands, and Riparian Areas Management

As directed by the CWA, the DoD is responsible for identifying and locating jurisdictional waters of the United States, including wetlands that have the potential to be impacted by

activities associated with the military mission. Development of roads, installation of new culverts, and grading or fill activities are examples of impacts that have the potential to impact wetlands and waters of the United States, and a permit may be required before implementing these activities in accordance with Section 404 of the CWA. Certain actions that have minimal adverse impact on wetlands and other water resources may qualify for a Nationwide Permit (NWP). The NWP Program was designed to streamline the Section 404 permitting process and includes activities in Waters of the United States conducted as 'maintenance activities,' such as repairing, rehabilitating, or replacing existing structures, as well as removing accumulated fill or debris from within or around existing structures. Activities associated with aquatic habitat restoration, establishment, or enhancement may also qualify for streamlined authorization under a NWP.

Information on wetland regulations and permits is available at http://www.maine.gov/dep/blwq/docstand/nrpapage.htm

Wetlands are an important part of natural ecosystems due to the diverse biological and hydrologic functions they perform, such as improving water quality, groundwater recharge, pollution treatment, nutrient cycling, provision of wildlife habitat and niches for unique flora and fauna, stormwater storage, and erosion protection (Benton et al. 2008). The NWI wetlands that have been mapped for GPOAC and identified in this document are provided for planning purposes. Palustrine wetlands, including MDEP designated critical areas and areas protected by the NRPA, have been identified throughout the site and adjacent lands. Protection and management of these wetlands must be addressed according to state and federal regulations.

Impacts to wetlands and other surface waters by planned future projects at GPOAC are to be avoided to the extent practicable. A formal jurisdictional wetland and water resources delineation will be needed to verify resource boundaries before undertaking activities that disturb regulated wetlands or waterbodies, and a CWA Section 404 permit may be required. If wetland impacts are unavoidable and a permit is required to authorize the activity, appropriate impact minimization and mitigation will be required and will be determined through consultation with the appropriate federal and state agencies (USACE, USFWS, and MDEP). Additionally, Section 404 may require restoration of wetlands damaged by project activities, and although in-kind replacement of wetlands is the preferred mitigation strategy, other types of mitigation that may be applied include conservation easements, mitigation banking, and other mitigation as dictated by the federal and state agencies involved in the permitting and consultation process.

- Wetland and riparian areas will be avoided during future construction of structures and other facilities, including roads. New roads will be located outside riparian areas, whenever possible. Any stream crossings will be designed to minimize the area disturbed, and unimproved stream crossings are prohibited.

Maintaining well-vegetated riparian buffers are an important part of a healthy environment. These vegetated areas along streams and other waterbodies provide benefits to humans and wildlife. Riparian buffer functions include maintaining habitat for fish and wildlife, nutrient cycling, streambank stability, natural stream flow, and water quality (Muhlberg and Moore 1998). Conserving and restoring riparian buffers minimizes erosion and subsequent loss of streambank habitat.

- ❖ Avoid and minimize impacts to vegetated buffer areas along streams and other waterbodies during disturbance activities.

- ☞ LA03 and FW01: Conduct an assessment of potential locations for riparian buffer restoration or enhancement areas that currently exist at GPOAC. Where restoration or enhancement opportunities exist, use bioengineering techniques to stabilize compromised streambanks and plant using native species.

Although it is unlikely that Atlantic salmon will occur at GPOAC, operational activities have the potential to affect potential Atlantic salmon habitat located downstream. Management of GPOAC water resources should provide benefits to the Union River Watershed in which GPOAC is located. Protecting surface water quality and riparian areas, and preventing erosion and sedimentation from effecting water resources of the Facility, should provide an indirect benefit to Atlantic salmon. Currently no wild populations of Atlantic salmon occur in the Union River; however, hatchery stock occurs within the Union River system downstream from GPOAC, and there is potential for the hatchery stock to gain seasonal access to GPOAC during periods of low flow at Hell's Gate Falls located on the West Branch of the Union River (Appendix A). . Sedimentation into surface waters and wetlands is a concern at the Facility. Projects that address erosion and sedimentation into these water resources are provided in Section 3.1.1.3.

3.1.1.3 Water Quality Management

To protect water quality at GPOAC and within surrounding areas, existing and potential erosion problem areas must be identified so that appropriate measures, including sedimentation control and shoreline stabilization projects, can be implemented. GPOAC environmental staff must also review erosion and sedimentation control plans for construction sites and provide oversight to ensure BMPs are being applied properly and consistently for all ground-disturbing activities. Based on requirements for wells that provide a drinking water source for more than 25 people (40 CFR 141.2 and 22 MRSA. Chapter 601, Subchapter I, §2605 and Subchapter II, §2611–2613, 2615 and Subchapter III §2628), GPOAC conducts monitoring of the five wells located on the property at least once every three months.

Ground disturbing projects should be covered by a Stormwater Pollution Prevention Plan (SWPPP) or an ESCP that identifies measures to reduce pollution of receiving water from stormwater runoff from the project site. GPOAC will prepare project-specific SWPPPs and ESCPs on an as-needed, project-specific basis, in accordance with state regulations, which will identify potential sources of erosion and sedimentation prevention controls.

- ❖ All ground-disturbing activities conducted at GPOAC will incorporate appropriate stormwater and erosion and sediment controls to reduce nonpoint source pollution that could result from those activities. To ensure that such controls are applied consistently, an ESCP will be developed for all land-disturbing activities, as needed in accordance with state regulations. Guidance for developing project-specific ESCPs can be found in the *Maine Erosion and Sediment Control BMPs* manual (MDEP, Bureau of Land and

Water Quality 2003). The NRM will review all proposed plans to ensure they comply with Maine's Erosion and Sedimentation Law.

☞ LA04: Conduct annual erosion surveys to identify soil erosion problem areas. These surveys should focus on the identification of areas of erosion along roadways, trails and footpaths, and areas of ground disturbance adjacent to and along edges of wetlands, surface waters, and shoreline.

☞ LA05: Develop and implement erosion remedial and preventive measures to protect water quality and ensure shoreline stabilization, based on annual survey results.

3.1.2 Vegetation Management

Vegetation management is an important component of natural resources management at GPOAC. Oversight of the grounds maintenance program provides opportunities to enhance the visual appeal of the environment, implement beneficial landscaping concepts, improve wildlife habitat, and reduce the costs of grounds maintenance. This may include adopting an integrated vegetation management approach by encouraging establishment of certain vegetation communities. Beneficial landscape and turf management practices, such as planting native species to reduce water and nutrient demands, and increased use of shade trees and protective vegetation, are encouraged.

Guidance for grounds maintenance practices on Navy properties is provided in DoDI 4715.3 (Environmental Conservation Program), the 1994 President's Executive Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federal Landscaped Grounds (60 Federal Register 40837), and EO 13148, *Greening the Government through Leadership in Environmental Management* (21 April 2000). DoDI 4715.3 states that each installation shall, to the extent practicable, use regionally native plants for landscaping and other beneficial techniques. The concept of beneficial landscaping emphasizes:

- using regionally native plants;
- using construction practices that minimize adverse effects on the natural habitat;
- preventing pollution by reducing fertilizers and pesticides, using integrated pest management (IPM) techniques, recycling green waste, and minimizing runoff;
- using water-efficient practices; and
- creating outdoor demonstrations incorporating native plants, as well as pollution prevention and water conservation techniques, to promote awareness of the environmental and economic benefits of implementing this directive.

The term beneficial landscaping describes practices that integrate native vegetation and wildlife habitat into the landscape and minimize the adverse effects that landscaping has on the natural environment. The use of regionally native plant species, which are generally better suited for local site conditions than nonnative species, reduces the need for intensive maintenance and the

use of fertilizers and pesticides. Native plant species are also less likely than nonnative species to become invasive pests, and they serve as better sources of food and cover for native wildlife.

- ❖ Use regionally native plant species and beneficial landscaping practices. Supplemental plantings of native trees and shrubs in maintained open areas and around building and recreational areas should be conducted, where consistent with current and planned land uses, to help enhance habitat diversity and meet wildlife management objectives.
- ❖ Avoid application of fertilizers because increased nutrients may result in colonization by more aggressive, nutrient demanding species. When nutrients are added to the system either by exposing new soil or through fertilization, optimum growing conditions for the specialized target flora are seriously compromised. Non-target species, in turn, may displace less aggressive low nutrient tolerant species such as sedges and ericaceous shrubs.

The broad community type data that were collected as part of the development of this INRMP will provide a cursory level of baseline data that will aid in implementing responsible management practices; however, GIS data should be collected and ground-truthed to confirm the natural community types of GPOAC. Management priorities should be directed toward protecting the ecological communities that are largely unaffected by current activities necessary to support the operational mission. General habitat management includes avoiding negative impacts to and encouraging the proliferation of natural communities such as Oak–Northern Hardwood Forest, Hemlock Forest, Northern Hardwood Forest, and Enriched Northern Hardwood Forests (Maple–Basswood–Ash Forest). A detailed discussion of the role of GIS as a management tool is provided in Section 3.1.12.

- ☞ LA06: Conduct a natural community type survey of GPOAC to ground-truth GIS data of the vegetative community types present.
- ☞ LA07 and OR01: Develop a plant checklist that can be incorporated into a GPOAC Naturalist Guide (see Project OR03). This guide can be used by visitors on nature walks and hikes for identifying native plant species that are common to GPOAC and the local area.

3.1.3 Invasive Plant Species Management

Invasive species management encompasses the control of insect pests, invasive plant species, and noxious weeds through treatment and prevention measures. Invasive species management can be implemented first by adopting an IPM strategy that will aid in control by changing routine practices, or making habitat and structural alterations. The integration of IPM strategies should reduce the use and need for application of chemical controls; however, chemical controls may be required if problems persist despite the use of IPM methods. If chemical controls are necessary, they should be applied carefully to kill only targeted pests with minimum use of the least toxic product available. The application of herbicide to control invasive species must be done in accordance with state and federal regulations.

Plant surveys of GPOAC have detected several populations of invasive species (see Section 2.5.2~~8~~). The most serious invasive species detected was reed canary grass, while Canada bluegrass was identified as the most widely distributed invasive species at GPOAC. Although Canada bluegrass can be very persistent, it rarely dominates the natural community where it occurs, and removal of this species is not recommended. A small area of climbing nightshade has also become established along the roadside near the wetland that contains the old beaver lodge.

Removal of reed canary grass and climbing nightshade, and restoration of these areas, is recommended due to the potential for these species to spread and create dense monotypic stands. When possible, manual removal of small patches of reed canary grass is preferred. The area containing climbing nightshade is currently small enough to allow removal by hand.

None of the GPOAC waterbodies are currently known to contain invasive aquatic species such as milfoil (*Myriophyllum* spp.) and hydrilla (*Hydrilla verticillata*). MDEP has recognized the importance of removing all plant material from boats, motors, trailers, fishing gear, anchors, and so forth before leaving or entering waterbodies in Maine to prevent the spread of invasive aquatic species. Education materials should be developed and provided to anglers to make them aware of this threat and actions that can be taken to prevent the introduction and spread of invasive aquatic plants. This information should also be posted at all GPOAC boat launches and the Welcome Center. A fact sheet for milfoil is provided in Appendix C.

- ☞ LA08: Conduct removal and restoration of areas infested with invasive species. For small stands, manual removal of all aboveground biomass as well as the underground rhizome by which they spread is preferred. If manual removal is not feasible, stands should be treated with an approved herbicide, such as glyphosate.
- ☞ LA09: Conduct annual site surveys to proactively identify and treat new occurrences of invasive species and monitor restoration sites for regrowth. An annual survey of the waterbodies also should also be conducted to evaluate the presence of invasive aquatic species, such as milfoil and hydrilla. If these or other invasive aquatic species are identified, the NRM will coordinate with MDEP to determine if actions to remove these species are necessary.
- ☞ LA10: Prepare a handout that can be provided to anglers and posted at all GPOAC boat docks and the Welcome Center that describes safe boat practices when moving between waterbodies that will prevent introduction of invasive aquatic plant species.

3.1.4 Wildland Fire Management

GPOAC does not have a wildland fire management plan, as wildland fires have not been identified as an issue. The closest fire department is located in Aurora, Maine, approximately 10 miles from GPOAC. No special wildland fire management needs have been identified for GPOAC.

3.1.5 Rare Communities and Significant Wildlife Habitat

One rare community type (Enriched Northern Hardwoods) and several types of Significant Wildlife Habitat (i.e., Inland Waterfowl and Wading Bird Habitat, significant vernal pools, and DWAs) occur or have the potential to occur at GPOAC as described in Section 2.8~~11~~. Inland Waterfowl and Wading Bird Habitat has already been mapped for the Facility by MDIFW. Project recommendations for identification of DWAs at GPOAC are described in Section 3.2.1 (see Project FW04 and FO05).

Significant vernal pools are important habitat for several species of vernal-pool dependant, or 'obligate,' amphibians and reptiles. Although a formal vernal pool survey has not been conducted at GPOAC, significant vernal pools were identified during a site visit of GPOAC in May 2010 (see Section 2.8~~4.2~~).

The following recommendation is designed to address gaps in baseline information on Significant Wildlife Habitat present at GPOAC:

- ☞ LA11 and FW02: Conduct a comprehensive vernal pool survey of GPOAC using MDIFW protocols. This survey should include identification of all potential vernal pools using a combination of desktop review and site visits to ground-truth and survey each potential vernal pool. The survey should be conducted during the appropriate survey window as determined by MDIFW to record evidence of use by breeding, obligate vernal pool species. Unique features of the pools, photographic documentation, and mapping of the geographic position of each pool should also be conducted.

3.1.6 Installation Restoration Program

GPOAC does not contain any Installation Restoration sites.

3.1.7 Hazardous Waste Management

GPOAC does not currently have a hazardous waste management plan, and none is expected to be needed due to the limited amounts of hazardous materials and waste that are used, generated, or stored at GPOAC. Common hazardous materials and wastes associated with GPOAC include fuel used to heat the buildings and power motorized vehicles and boats, and other maintenance shop liquids and materials needed to maintain the buildings and grounds maintenance equipment.

3.1.8 Regional Conservation Lands

No conservation lands have been identified in proximity to GPOAC.

3.1.9 Leases

There are no leases currently in effect for GPOAC.

3.1.10 Cultural Resources Management

Cultural resources management at GPOAC is necessary to ensure that any cultural and historical resources are protected during implementation of Facility management activities. Cultural resources of the Facility are managed by the PWD-ME Environmental Cultural Resources Manager (CRM). The CRM is responsible for routine cultural resources compliance functions at the various installations in PWD-ME's area of responsibility, including GPOAC. The CRM inventories, evaluates, and protects historic buildings, structures, districts and other cultural resources in accordance with Section 110 of the NHPA and Navy policy. Coordination with the CRM is essential on natural resources projects to ensure timely interagency consultation and compliance with Section 106 of NHPA whenever a Navy-funded, licensed, permitted or assisted undertaking may affect historic properties. In accordance with 36 CFR 800 of the NHPA, the CRM will coordinate with the SHPO to ensure that all of the appropriate steps are taken to protect cultural and archaeological resources, ensure compliance with relevant federal and state regulations, and determine if additional archeological surveys are required.

The ~~three historical cabins and three other contributing resources located at GPOAC are included on the NRHP and define the~~ John M. Norris Family Camp ~~-~~Historic District is located at Great Pond and is eligible for inclusion on the NRHP. Proposed land disturbances may require modifications to the design plans to protect known cultural and archeological sites. If any major land disturbing activity is undertaken at GPOAC, the NRM and CRM will ensure that consideration is given to the protection of known cultural resources and the potential to uncover new cultural resources. In the event of an inadvertent archaeological discovery, all work would stop immediately until further direction by the CRM, and the Navy would follow the required procedures for inadvertent discoveries as outlined in 36 CFR 800. Specific standard operating procedures for management of cultural resources will be outlined in the ICRMP currently under preparation for GPOAC. The ICRMP ~~that is currently under preparation also~~ will contain specific standard operating procedures for management of the John M. Norris Family Camp Historict District, and for any activities that result in an inadvertant discovery of any archeological resources.

- For all ground-disturbing activities, including those related to natural resources management, cultural resource issues must be taken into consideration.

3.1.11 Environmental and Natural Resources Training

Environmental staff should participate in periodic training courses and workshops to remain current on issues and laws as they relate to natural resources management at military installations. Other environmental and natural resources training activities should be undertaken, as needed, to ensure that ~~natural resources personnel~~environmental staff are prepared to handle any land management issues that may occur.

- ☞ LA12: Provide periodic training for environmental staff regarding implementation of erosion and sediment control measures and use of effective BMPs. (MDEP provides annual erosion and sediment control courses.)

- ☞ LA13: Provide training for environmental ~~staff~~ and grounds maintenance ~~personnel~~staff for identification of wetlands, and to avoid impacts to key vegetation species and wetland habitats identified in this INRMP for conservation and protection.

- ☞ LA14 and FW17: Provide professional training for environmental staff ~~personnel~~ to include Field Techniques for Invasive Plant Management, Conservation Biology (both courses offered at the USFWS National Conservation Training Center [NCTC]), and Pest Applicator Certification Training (offered by the Armed Forces Pest Management Board). Table 3.1 provides the contact information for potential training opportunities.

Table 3.1 Natural Resources Training Opportunities.

U.S. Government, DoD
Defense Environmental Network & Information Exchange (DENIX) Training and Education Website: https://www.denix.osd. mil/portal/page/portal/denix/conferences
U.S. Navy Civil Engineer Corps Officers School (CECOS) Environmental Training Program 3502 Goodspeed Street, Suite 1 Port Hueneme, CA 93043-4336 Tel: 805-982-2895 DSN: 551-2895 Fax: 805-982-2918 Website: https://www.netc.navy.mil/centers/csfe/cecos/
Armed Forces Pest Management Board Training and Certification Website: http://www.afpmb.org/pubs/courses/courses.htm
U.S. Army Corps of Engineers (USACE) Professional Development Support Center 550 Sparkman Drive Huntsville, AL 35816 Tel: 256-895-7401 Fax: 256-895-7465 Website: http://pdsc.usace.army.mil/
U.S. Government, non-DoD
U.S. Fish and Wildlife Service National Conservation Training Center Route 1, Box 166 Shepherdstown, WV 25440 Division of Training Tel: 304-876-7472 Aquatic Resources Tel: 304-876-7445 Environmental Conservation Tel: 304-876-7475

Wildlife Tel: 304-876-7434 Technical (e.g., GIS) Tel: 304-876-7456 Website: http://training.fws.gov/
NGOs
Wetland Training Institute, Inc. P. O. Box 31 Glennwood, NM 88039 Tel and Fax: 877-792-6482 Website: http://www.wetlandtraining.com/
The Shipley Group P. O. Box 908 Farmington, UT 84025 Tel: 888-270-2157 Website: http://www/shipleygroup.com
Universities
Duke University Nicholas School of the Environment and Earth Sciences Continuing Education Program Box 90328 Durham, NC 27708-0328 Tel: 919-613-8082 Fax: 919-684-8741 Website: http://www.env.duke.edu/cee/execed.html
University of Wisconsin-Madison Gaylor Nelson Institute for Environmental Studies Science Hall, 550 North Park Street Madison, WI 53706-1491 Tel: 608-263-1796 Website: http://www.ies.wisc.edu/

3.1.12 GIS Management, Data Integration, Access, and Reporting

GIS is an integral part of natural resources and environmental protection and planning. This powerful management tool provides natural resources managers with a comprehensive database that includes a spatial component. Information such as aerial photographs, survey and monitoring data, and various other natural resource information are all tied to a geographical coordinate system. Availability of this information enhances the Facility's ability to effectively coordinate and ensure that current and planned mission activities do not adversely impact watersheds, wetlands, floodplains, natural landscapes, soils, forests, vegetation and wildlife, prime and unique farmland, and other natural resources that must be protected, conserved, and managed using an ecosystem approach. Additionally, efficient and effective land use planning supports readiness and sustainability, while protecting and enhancing the natural resources for multiple use, sustained yield, and biological integrity.

In accordance with the OPNAVINST 5090.1C-Ch.1 Chapter 24, natural resources managers are encouraged to use GIS as the basis of their INRMP, and thus all data layers with a spatial

component are provided in a GIS-compatible format. To make use of this real-time technology and the benefits it offers, natural resources managers must receive training on this integrated system to fully implement a proactive natural resources management program that supports the mission and ecosystem integrity. Adequate training in data collection using global positioning systems (GPS) technology is another essential aspect of building and maintaining an up-to-date GIS that meets natural resources planning needs.

The Commander, Navy Region Mid-Atlantic's (CNRMA) GeoReadiness Center (GRC) is the single, authoritative source and distribution point for all geospatial information within the area of responsibility of the Navy Mid-Atlantic Region and is managed by the Mid-Atlantic Facility Engineering Command GIS Division. The GRC houses the most current geospatial information (including aerial photography) for the entire Navy Mid-Atlantic Region and provides access to the comprehensive dataset and analysis tools to regional and DoD decision-makers/managers, sponsored contractors, and other sponsored individuals via a secure government Internet site.

Examples of baseline environmental data layers include:

- Soils
- Topography
- Vegetation cover
- Forest stands
- Biosolids application areas
- Hunting compartments
- Property boundaries
- Wetlands
- Storm water detention ponds
- Hiking trails

☞ LA15, FW18, FO06, and OR12: Work with the NAVFAC Mid-Atlantic GeoReadiness Center to develop a GIS system for storing GPOAC natural resources data.

☞ LA16, FW19, FO07, and OR13: Provide training to environmental staff to maintain the GIS database.

The map figures presented in this INRMP were developed using existing digital data files provided by the Navy, through photo interpretation and field reconnaissance of aerial photography, from data collected during field surveys, and from other GIS databases available to the public. An ESRI map service was used, which includes i-cubed Nationwide Prime high-resolution (approximately 3 feet or greater) imagery for the contiguous United States. The i-cubed Nationwide Prime service is a seamless, color mosaic of various commercial and government imagery sources, including Aerials Express 0.3–0.6 meter resolution imagery for metropolitan areas and the best available USDA National Agriculture Imagery Program imagery

and enhanced versions of USGS Digital Ortho Quarter Quad imagery for other areas. The imagery is projected to Universal Transverse Mercator, Zone 19 North, World Geodetic System of 1984. All GIS data created or modified for use in this INRMP will be submitted to NAVFAC Atlantic, PWD-ME, and the Facility upon completion of this project.

3.2 FISH AND WILDLIFE MANAGEMENT

OPNAVINST 5090.1C-Ch-1 (Navy 2011) defines fish and wildlife management as those actions designed to preserve, enhance, and regulate indigenous wildlife and its habitats, including conservation of protected species and non-game species, management and harvest of game species, bird/wildlife aircraft strike hazard reduction, and animal damage control.

Fish and wildlife management at GPOAC would include:

- aquatic species management (birds, herpetofauna, fish, and invertebrates) and habitats (surface waters, wetlands, and vernal pools);
- terrestrial species management (mammals, birds, herpetofauna, and invertebrates);
- threatened, and endangered species, and special concern species known to occur, including American pipit and common moorhen; other protected species or special concern species (i.e., birds protected by the Migratory Bird Treaty Act [MBTA] or the Bald and Golden Eagle Protection Act), and their habitat management;
- invasive and nuisance wildlife management;
- partnership development with federal, state and local agencies, and non-governmental organizations (NGOs) to establish Facility wildlife monitoring and protection programs;
- conservation law enforcement;
- environmental and natural resources training; and
- GIS management, data integration, access, and reporting.

Fish and Wildlife Programmatic Objectives

The following programmatic objectives have been established for fish and wildlife management at GPOAC.

1. Protect, conserve, and promote native terrestrial and aquatic fauna.
2. Provide adequate special management or protection of threatened, endangered, and rare wildlife species; wildlife species at risk; and their habitats.
3. Prevent and control invasive species and nuisance wildlife.
4. Develop partnerships with federal, state, and local agencies and NGOs to implement Facility wildlife monitoring and protection programs.

3.2.1 General Fish and Wildlife Management

The Sikes Act provides for cooperation by the DoD with the USFWS and state wildlife agencies in planning, development, and maintenance of fish and wildlife resources on military installations and requires the cooperative development and implementation of an INRMP on installations with sufficient resources. In addition, EO 12962, *Recreational Fisheries*, encourages the development and enhancement of recreational fisheries by federal agencies. The MBTA, Eagle Act, ESA, and Magnuson–Stevens Fisheries Conservation and Management Act are other statutes that relate to fish and wildlife management.

In 2001 and 2002, Congress established the Wildlife Conservation and Restoration Program and State Wildlife Grant Program. These programs were developed to provide financial assistance to state and tribal fish and wildlife entities for the conservation of a multitude of wildlife species, including threatened and endangered species. Prior to these programs, there was little financial assistance available to states for conservation efforts targeting non-game wildlife species. In order to be eligible for federal grants and to adhere to the requirements for participating in the State Wildlife Grant program, each state was required to develop and submit for approval a statewide wildlife action plan or similar plan by October of 2005. The purpose of these plans is to summarize the abundance and distribution of each state's wildlife resources, identify Species of Greatest Conservation Need (SGCN), threats to SGCN, and key habitats. In addition, the plans are to include conservation actions designed to address the threats to SGCN. To meet the statewide wildlife action plan requirement, Maine developed a Comprehensive Wildlife Conservation Strategy (CWCS) in 2005, which provides a broad strategy for coordinating conservation efforts for Maine wildlife. In addition, Maine's CWCS fosters coordination among conservation partners for prioritizing individual and collaborative conservation efforts.

Information on Maine's **Comprehensive Wildlife Conservation Strategy** can be found at:
http://www.maine.gov/ifw/wildlife/groups_programs/comprehensive_strategy

GPOAC is located in a rural, undeveloped area of Maine, and has a significant amount of undeveloped acreage and aquatic habitat. Therefore, GPOAC offers ample opportunities for fish and wildlife management. In addition to protection of terrestrial habitats, fish and wildlife habitat management measures at GPOAC must address the preservation of extensive areas of freshwater lacustrine environments located immediately adjacent to the GPOAC boundary, as these habitats support a large variety of fishes and macroinvertebrates. Special fish and wildlife management measures must also include protection for threatened, endangered, or special concern wildlife species.

Wetland habitats, including significant vernal pools, are considered Significant Wildlife Habitats by MDEP due to their importance as amphibian breeding habitats. The unconsolidated bottom wetlands of GPOAC are associated with lakes and ponds, as well as smaller areas embedded in scrub-shrub wetlands. These wetlands are considered ecologically important for birds, aquatic invertebrates, several mammals, amphibians and vascular plant species diversity. Riparian buffers also provide important habitat for fish and wildlife. The following recommendations are

designed to address gaps in baseline information on Significant Wildlife Habitat and other natural resources present at GPOAC:

- ☞ LA03 and FW01: Conduct an assessment of potential locations for riparian buffer restoration or enhancement areas that currently exist at GPOAC. Where restoration or enhancement opportunities exist, use bioengineering techniques to stabilize compromised streambanks and plant using native species.
- ☞ LA11 and FW02: Conduct a comprehensive vernal pool survey of GPOAC using MDIFW protocols. This survey should include identification of all potential vernal pools using a combination of desktop review and site visits to ground-truth and survey each potential vernal pool. The survey should be conducted during the appropriate survey window as determined by MDIFW to record evidence of use by breeding, obligate vernal pool species. Unique features of the pools, photographic documentation, and mapping of the geographic position of each pool should also be conducted.

During the winter months, Maine's deer herds rely on specific yet varied habitat to survive the harsh weather and dearth of forage. As weather becomes more severe and snow depths increase, deer seek older, conifer-dominated forest communities that are associated with rivers or streams and valleys (MDIFW Undated).

- ☞ FW03 and FO04: Develop a Forest Management Plan upon completion of the forest characterization assessment. The management plan should include a summary of field characterization data including the stand boundaries and a description of each forest type including, but not limited to, dominant and common tree species, sizes, age class, absolute density, soils, topography, key habitat features, and any other distinctive features. In addition, the plan should include a prescription for each forest type and a schedule for conducting forest health monitoring. The management plan should focus on opportunities for improving the forest for wildlife habitat, and should provide recommendations for selectively cutting trees for firewood and camp wood. Forest health monitoring should be conducted once every 5 years and the results incorporated into the Forest Management Plan as an update to reflect the findings of the monitoring and management recommendations, if appropriate.
- ☞ FW04 and FO05: Conduct a desktop review of conifer-dominated forest types to assess the forested communities at GPOAC for potential deer wintering habitat (i.e., DWA). This desktop review should be ground-truthed to verify winter use by deer. The findings of this assessment, as well as appropriate management recommendations, should be included in the Forest Management Plan (see Section 3.3.1).

Baseline data on the diversity of wildlife that occurs at GPOAC are insufficient. The following recommendations are designed to address gaps in GPOAC baseline wildlife information:

- ☞ FW05: Conduct baseline surveys to assess the presence of mammals, birds, amphibians, reptiles, fish, and invertebrates at GPOAC. Survey methods should yield a comprehensive species list and representative data for the diversity and relative

abundance of the fish and wildlife occurring at GPOAC. Results should be incorporated into the Naturalist Guide (see Project OR03).

Artificial nest boxes are useful for enhancing habitat conditions for a number of bird and wildlife species in areas where there are few natural cavity trees or where competition from aggressive nonnative species such as house sparrows (*Passer domesticus*) and European starlings (*Sturnus vulgaris*) is great. If they are not properly monitored and maintained; however, nest boxes can unintentionally increase populations of nonnative invasive species by providing additional nesting habitat. Placement of structures that benefit insectivorous birds in recreation areas also provides a benefit to people as these birds consume thousands of insects a day and provide enjoyment for human observers.

Eastern bluebirds (*Sialis sialis*), tree swallows (*Tachycineta bicolor*), house wrens (*Troglodytes aedon*), purple martins (*Progne subis*), various owls, wood ducks (*Aix sponsa*), mice, squirrels, and bats are species that commonly utilize artificial structures. Nest box construction and placement should consider the availability of appropriate habitat and structural requirements for the intended species. Other important considerations in nest box construction are competition from European starlings and house sparrows and predation by raccoons and cats. Closing nest boxes by plugging the entrance following the nesting season and reopening in mid-March, and evicting house sparrows or European starlings that are found to use the house are important measures that help ensure nesting success. Predator guards should be installed or repaired as necessary on all nest boxes.

Species that may benefit from installation of nest boxes include wood ducks, eastern bluebirds, wrens, swallows, purple martins, chickadees, nuthatches, great-crested flycatchers (*Myiarchus crinitus*), brown creepers (*Certhia Americana*), titmice, northern flicker (*Colaptes auratus*), woodpeckers, and barred owls (*Strix varia*) (USFWS NCTC 2010). The USFWS NCTC provides guidance in planning nest box programs, as proper placement and other consideration factors will help to ensure they are readily used.

☞ FW06: Install nest boxes to enhance existing bird habitat, taking into consideration nest box dimensions, size of entrance opening, and placement height and location for the species being targeted.

The Cornell Lab of Ornithology website hosts a number of articles on **maintaining bird nest boxes**: http://www.allaboutbirds.org/NetCommunity/Page.aspx?pid=1139

Bats play in important role in healthy ecosystems by foraging heavily on insect populations, helping to maintain a balanced ecosystem. However, in recent years many species of bats have been experiencing alarming declines across their ranges due to habitat destruction, human disturbance, and disease. Properly placed bat houses can provide important roosting habitat for many species of bats including big brown bat (*Eptesicus fuscus*), little brown myotis (*Myotis lucifugus*), northern myotis (*Myotis septentrionalis*), and eastern pipistrelle (*Pipistrellus subflavus*). Bat houses erected in rural areas are especially well used (Bat Conservation

International [BCI] 2010). Additionally, preparation of a Bat Management Plan will ensure that conservation measures to protect these important wildlife species are included in the GPOAC natural resources management program.

- ☞ FW07: Install bat houses where appropriate habitat exists at GPOAC. Bat house construction methods and placement should follow guidelines provided by BCI.
- ☞ FW08: Prepare a Bat Management Plan for GPOAC that includes periodic monitoring to assess bat populations and disease, habitat surveys, and guidance for control and removal of nuisance bats. If special status bat species are identified during monitoring, the plan should be updated to include specific management and conservation actions for protection of these species. The forestry management plan (FW03 and FO04) should include measures for protection of standing dead trees (i.e., snags) and trees with loose bark, which represent important roosting habitat for bats.

Nonnative, invasive aquatic species are becoming a major problem in America's lakes and their tributaries. The introduction of invasive aquatics is largely caused by the release or escape of bait fish and other organisms released by anglers. A fact sheet for laws that pertain to bait dealers and use of live bait fish is included in Appendix C. All unused bait should be returned to the vendor or put in a plastic bag or container and placed in the trash for proper disposal. Use of nonnative alternative live baits such as "nuclear worms" (*Namalycastis abiuma*) is strictly prohibited.

It is **illegal** to store or hold live bait at any time in **King Pond** (MDIFW 2006).

- ☞ FW09 and OR02: Prepare a handout that outlines the Maine laws pertaining to bait fish that can be provided to visitors who purchase fishing licenses or rent fishing equipment from the Welcome Center.

Areas on DoD installations with natural resources that warrant special conservation efforts may be designated as special natural areas, such as WWA~~atchable Wildlife Area~~s (DoD Instruction 1996). These areas are recognized for their unique or exceptional natural resources or cultural qualities and attributes.

- ☞ FW10 and OR09: Establish WWA~~atchable Wildlife Area~~s in areas where there is an abundance of wildlife activity.
- ☞ FW11 and OR10: Install benches and interpretive signage at each of the WWAs~~SWatchable Wildlife Areas~~ to enhance and promote the use of these areas, and to encourage viewers to remain in the viewing area to avoid disturbing the wildlife being observed.

If it is determined that any of the WWAs~~watchable wildlife viewing areas~~ have the potential to negatively disturb wildlife, or are having any other negative impacts to wildlife, they should be removed from consideration.

3.2.2 Threatened, Endangered, and Special Concern Species Management and Critical Habitat Management for Protected Species

3.2.2.1 Endangered Species Act of 1973

The primary regulatory protection for threatened and endangered species on federal lands is the ESA of 1973 (16 CFR §1531 et seq.). The federal ESA is intended to serve as a mechanism for conservation of ecosystems upon which threatened and endangered species depend, as well as provide programs for species conservation that reduces their potential for becoming extinct. ESA is administered by the USFWS (terrestrial and freshwater wildlife) and NMFS (marine species). Section 7 of the ESA requires all federal agencies, in consultation with USFWS or NMFS, to use their authority to further the purpose of the ESA and to ensure that their actions are not likely to jeopardize the continued existence of listed species as a result of destruction or adverse modification of critical habitat.

When the USFWS initiated a court-ordered effort to designate critical habitat for all federally listed species, the DoD became concerned that the designation of critical habitat on military lands would add an excessive amount of burden (through administrative compliance and consultation requirements) on military installations, with limited benefit afforded to listed species (Benton et al. 2008). In defense, the DoD argued that it was currently providing extensive protection to listed species through the formal consultation process with the USFWS and via conservation measures specified in installation INRMPs. To address this, the Defense Authorization Act for fiscal year 2004[3] (Public Law 108–136, 24 November 2003) granted the USFWS specific authority to exempt DoD lands from the designation of critical habitat, provided a comprehensive and approved INRMP was in effect, the INRMP specifically addressed the conservation of species under consideration, and the INRMP was implemented. Specifically, Section 4(a)(3)(B)(i) of the ESA (16 USC §1533(a)(B)(i)) states:

> "The Secretary 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 USC §670 et seq.), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation."

3.2.2.2 Maine Endangered Species Act

The Maine ESA was passed by the Maine Legislature in 1975, and the Commissioner of the MDIFW is designated with the authority to oversee implementation of the Maine ESA. Currently, 33 species of fish and wildlife are listed as endangered or threatened under the Maine ESA. Plants are not covered by Maine's ESA. Although the federal ESA considers species status as part of a national or range-wide perspective, Maine's ESA protects only those species that are vulnerable from disappearing within Maine to ensure that native species continue to survive in Maine. Progress of Maine's ESA Program is reported annually in the annual Wildlife Division

[3] National Defense Authorization Act (2004), Section 318, see http://www.dod.mil/dodgc/olc/docs/2004NDAA.pdf.

Research and Management Report prepared by MDIFW. This annual report will be referenced to obtain the most up-to-date information for species listed under Maine's ESA.

3.2.2.3 Species Protected by Federal and Maine Endangered Species Acts

Field surveys were conducted in 2007 and 2008 to document special status species, including those listed as threatened or endangered by the State of Maine or the USFWS. Available historical information was also reviewed. Special status wildlife species that are known or have the potential to occur at GPOAC are discussed in Section 2.7~~10~~.2.

The GOM-DPS for Atlantic salmon includes the Union River Watershed. Although GPOAC is entirely located within the specific areas identified as C~~c~~ritical H~~h~~abitat for the GOM-DPS, the final Critical Habitat Rule for the Atlantic salmon GOM-DPS excluded GPOAC (NOAA NMFS, Northeast Region 2009). Although there are historical accounts that the Union River has been used by Atlantic salmon, in recent years wild Atlantic salmon have not been identified as using the downstream sections of the Union River for spawning (Trial 2010). Critical H~~h~~abitat for Atlantic salmon includes riverine habitats that contain suitable spawning areas within the portions of the watersheds open to migration (with sufficient fish passage). No riverine habitat to support Atlantic salmon occurs at GPOAC; however, it is possible that salmon could utilize Great Pond for overwintering.

Should wild Atlantic salmon return to the Union River Watershed and overwinter in Great Pond, the water quality protection measures and BMPs (such as erosion and sediment control, wetland protection, monitoring of nonpoint source pollution, protection of watersheds from hazardous materials, use of environmentally beneficial landscaping, and monitoring for and management of forests as shoreline buffers; see also Section 3.1) included in this INRMP would benefit Atlantic salmon. No additional management recommendations are needed for Atlantic salmon. However, if they are documented to return to the Union River Watershed and Great Pond area, an Atlantic salmon management plan should be prepared for GPOAC. Measures provided in this INRMP that should provide an indirect benefit to Atlantic salmon are described in Section 4.2.2 and Section 5.2.

Canada lynx is expected to be an infrequent visitor to GPOAC. No specific management measures are recommended, with the exception of leaving the existing tracts of forest habitat intact. GPOAC is not located within the federally designated C~~c~~ritical H~~h~~abitat for this species; however, lynx habitat and its main food item, snowshoe hare, occur on the Facility.

The **National Bald Eagle Management Guidelines** can be found at:
http://www.fws.gov/pacific/eagle/NationalBaldEagleManagementGuidelines.pdf

Bald eagles occur at GPOAC and are protected by the Eagle Act and the MBTA. The Eagle Act is a federal law that protects the bald eagle, which was removed from the federal list of threatened and endangered species in 2007, and golden eagle (*Aquila chrysaetos*). The Eagle Act prohibits the taking, possession, and transportation of bald eagles and their parts, nests, and eggs for scientific, educational, and depredation control purposes. While the bald eagle was listed under the ESA, the USFWS authorized incidental take of bald eagles through take statements

under ESA Section 7 and through Section 10 incidental take permits. In May 2008, the Final Ra~~final r~~ule extended Eagle Act authorizations to holders of existing ESA authorizations only [73 Federal Register 29075]. A Bald Eagle Management Plan for GPOAC was drafted in 2008, and it is recommended that this plan be finalized during the plan period for this INRMP. The final version of the plan should include recommendations that are included in the National Bald Eagle Management Guidelines (USFWS 2007).

☞ FW12: Finalize the GPOAC Bald Eagle Management Plan.

Migratory birds are a large, diverse group of birds that utilize breeding grounds in the United States and Canada, and overwinter in southern North America, Central and South America, the West Indies, and the Caribbean. The MBTA (16 USC §703–711) is the primary legislation in the United States established to conserve migratory birds. The MBTA prohibits the taking, killing, or possessing of migratory birds, their eggs, parts, and nests unless permitted by regulation. Nonnative species such as house sparrow, European starling, rock pigeon (*Columba livia*), and mute swan (*Cygnus* olor) are not protected by the MBTA.

The Final Rule on Take of Migratory Birds by the Armed Forces (50 CFR Part 21) allows for the incidental take of migratory birds by DoD during military readiness activities, provided a permit authorizing such activities has been received. Military readiness activities include all training and operations of the Armed Forces that relate to combat, and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use. Military readiness does not include the routine operation of installation support functions, such as administrative offices, military exchanges, commissaries, water treatment facilities, storage facilities, schools, housing, motor pools, laundries, MWR activities, shops, mess halls; the operation of industrial activities; or the construction or demolition of facilities listed above (72 FR 8931). To address the unintentional take of migratory birds as a result of activities necessary to support the military mission a memorandum of understanding (MOU) was adopted between the DoD and the USFWS, as required by EO 13186, *Migratory Birds*, on 31 July 2006 (Benton et al. 2008). This MOU allows the military to obtain permits for the "unintentional take" of a migratory bird if it is in support of a military readiness operation (Benton et al. 2008). The procedures contain significant safeguards to ensure that the taking of birds is minimized when the new rule is used and that conservation measures are employed to compensate for the losses that may occur.

There are no activities at GPOAC that are considered to be supporting or involved with military readiness, and as such, no incidental take of migratory birds is authorized under MBTA. During annual INRMP reviews, the Navy must report any migratory bird conservation measures that have been implemented and the effectiveness of the conservation measures in avoiding, minimizing, or mitigating take of migratory birds.

The recommendation to install nest boxes as described in Section 3.2.1 should benefit migratory bird species that utilize GPOAC habitats. Establishing partnerships with organizations such as the Institute for Bird Populations (IBP) to create monitoring avian productivity and survivorship (MAPS) stations as described in Section 3.2.4 should provide valuable information on utilization

of forest habitats by neotropical migrants, which can be added to the long-term avian productivity and survivorship database maintained by the IBP.

3.2.3 Invasive and Nuisance Wildlife Management

The primary nuisance wildlife of concern at GPOAC are bats and beavers. Bats have been documented roosting in Facility buildings. Beavers have constructed lodges within marsh and stream habitats of GPOAC. The removal of these lodges is sometimes necessary to alleviate negative impacts resulting from water flooding roadways and causing erosion. Removed lodge and dam debris should not be placed within wetland or other waterbodies.

☞ LA01 and FW13: Conduct biannual monitoring, or more frequently as needed, of invasive and nuisance wildlife, including beavers and bats, to determine whether wildlife removal, relocation, or other remedial actions are necessary to protect natural resources and/or human health and safety.~~Conduct biannual monitoring of invasive and nuisance wildlife to determine whether wildlife removal or other remedial actions are necessary to protect natural resources and/or human health and safety.~~

The MDIFW Regional Fish and Wildlife Office should be contacted in the event that stray, injured, or disoriented fish or wildlife are observed on the Facility.

❖ If any injured or disoriented deer, moose, or other stray animal is observed at GPOAC, the MDIFW Regional Fish and Wildlife Office should immediately be contacted for assistance. The Regional Fish and Wildlife Office for the Great Pond region is located in Jonesboro, Maine (Region C). Fisheries issues should be directed to (207) 434-5925, and wildlife issues directed to (207) 434-5927.

3.2.4 Partnerships and Outreach

In additional to the collection of baseline data to identify the diversity of amphibians and reptiles that occur at GPOAC as described for Project FW05 (see Section 3.2.1), it is recommended that a partnership with Partners in Amphibian and Reptile Conservation (PARC) be established to create an amphibian and reptile monitoring program for GPOAC.

☞ FW14: Establish a partnership with PARC to create and implement an amphibian and reptile monitoring program at GPOAC.

Currently, public access is limited to users of the public boat launch. Partnerships are limited to Maine Association for Search and Rescue and the Maine State Police, who use the Facility for training and annual functions. Recommendations for establishing natural resources partnerships at GPOAC include the National Audubon Society and IBP. A partnership with the National Audubon Society would allow representatives and volunteers to access GPOAC during the month of December to conduct the annual Christmas Bird Count, providing visitors with an opportunity to become involved with birding. A partnership with IBP would contribute valuable

MAPS data to the program as described in Section 3.2.4. The NRM should contact the DoD PIF Program Manager for the northeast region for more information on partnering with IBP.

- ☞ FW15: Establish a partnership with IBP to create MAPS stations at GPOAC through coordination with the northeast region of DoD PIF.
- ☞ FW16 and OR11: Establish partnership with the National Audubon Society to conduct the annual Christmas Bird Count at GPOAC and allow visitors to participate in this birding activity.

3.2.5 Conservation Law Enforcement

The Sikes Act requires that natural resources law enforcement be provided on military lands (Benton et al. 2008). The DoD has developed a very general law enforcement policy in DoD Directive 4715.3; however, comprehensive DoD law enforcement policy is lacking and each branch of the military has historically addressed the subject individually on an installation-by-installation basis. This has included a variety of law enforcement options including employment of civilian game wardens, military police, or combinations of civilian game wardens and military police. Currently DoD does not have a standard for law enforcement training, firearms, or civilian job descriptions. Although the U.S. Marine Corps has developed a standard law enforcement policy, and the USAF is making strides to develop a similar program, a standard DoD policy on natural resources law enforcement has yet to be developed.

GPOAC does not employ or warrant employment of security or law enforcement staff. If law enforcement assistance is needed for domestic issues, the local police department located in Aurora, Maine will be contacted.

3.2.6 Environmental and Natural Resources Training

Training of ~~natural resources personnel~~environmental staff is also applicable to fish and wildlife management at GPOAC. Training of ~~natural resources personnel~~environmental staff is described under the land management programmatic objective in Section 3.1.11, and includes conservation biology training that is applicable to fish and wildlife management. Other environmental and natural resources training activities should be undertaken, as needed, to ensure that ~~natural resources personnel~~environmental staff are prepared to handle any fish and wildlife management issues that may occur.

- ☞ LA14 and FW17: Provide professional training for ~~personnel~~ environmental staff to include Field Techniques for Invasive Plant Management, Conservation Biology (both courses offered at the NCTC), and Pest Applicator Certification Training (offered by the Armed Forces Pest Management Board). Table 3.1 provides the contact information for potential training opportunities.

3.2.7 GIS Management, Data Integration, Access, and Reporting

GIS management and data integration, access, and reporting are also applicable to fish and wildlife management at GPOAC. GIS management is described under the land management programmatic objective in Section 3.1.12.

- ☞ LA15, FW18, FO06, and OR12: Work with the NAVFAC Mid-Atlantic GeoReadiness Center to develop a GIS system for storing GPOAC natural resources data.
- ☞ LA16, FW19, FO07, and OR13: Provide training to environmental staff to maintain the GIS database.

3.3 FORESTRY MANAGEMENT

OPNAVINST 5090.1C-Ch-1 (Navy 2011) defines forest management as those actions designed for the production and sale of forest products and for maintaining the health and vigor of forest ecosystems. Actions include timber management, forest administration, timber sales, reforestation, afforestation, timber stand improvement, timber access road construction and maintenance, forest protection, and other directly related functions; as well as actions that maintain the health and vigor of forest ecosystems.

Forestry management areas at GPOAC include:

- general forestry management including mature tree stands protection, impact avoidance for tree species that provide important forage for birds and other wildlife, and forest characterization and management;
- environmental and natural resources training; and
- GIS management, data integration, access, and reporting.

Forestry Programmatic Objectives

The following programmatic objectives have been established for forestry management at GPOAC.

1. Protect and promote sustainable management of forest resources.
2. Manage forest habitats to promote use by a diverse range of wildlife species, including protection of mature tree stands and snags and protection of tree species that provide suitable nesting and foraging habitat for wildlife.
3. Manage forest habitats to maintain wildlife travel corridors, streamside protection, and aesthetic buffer zones.
4. Maintain forest habitats to enhance plant community diversity.
5. Maintain forest habitats to ensure consistency with an ecosystem approach to forest management.

3.3.1 General Forestry Management

The **forested areas** of GPOAC provide **important wildlife habitat** to a variety of songbirds, amphibians, reptiles, and mammals.

Most of GPOAC is forested, and these areas provide important wildlife habitat to a variety of songbirds, amphibians, reptiles, and mammals. The conservation and enhancement of natural habitat is important for protection of wildlife resources because of the pristine environment and recreational purpose of GPOAC. Further efforts that focus on maintaining a diversity of habitat types that provide year-round food and cover (coniferous vegetation) as well as seasonal food and cover (mast producing deciduous vegetation) provide the greatest benefits for wildlife.

The programmatic objectives that have been established for forestry management would encourage use by a diverse range of wildlife species; maintain wildlife travel corridors, streamside, and aesthetic buffer zones; enhance diversity in plant communities; and ensure consistency with an ecosystem approach to forest management. Oak–Northern Hardwood Forests are the prominent forest type at GPOAC. The mature coniferous habitat provides shelter to wildlife during severe winter weather, and as mature trees die, snags will become available for wildlife as well as create small forest openings that promote regeneration. Conservation and enhancement of existing forest resources should support the continued enjoyment of social, environmental, recreational and economic benefits to GPOAC.

A limited amount of timber harvesting is proposed for GPOAC and would be limited to the cutting of 4–5 cords of wood per year for the purposes of heating the caretaker cabin during the winter months and providing camp wood for guests.

- ☞ LA02 and FO01: Prepare a Shoreland Zone Management Plan for GPOAC, which provides recommendations for protecting the shoreline zone from negative impacts that may result from development, natural resources management, or maintenance activities. The document should include guidance and recommendations for activities associated with cutting trees within the shoreland zone that are consistent with the Maine Guidance for Shoreland Zoning.
- ☞ FO02: Conduct selective cutting of 4–5 cords of wood each year from GPOAC forests, consistent with the requirements of the Maine Guidance for Shoreland Zoning for activities associated with cutting trees. These recommendations should be included in the Shoreland Zone Management Plan (LA02 and FO01).

With the exception of the selective cutting of trees for firewood, and the potential construction of a hiking trail south of the Welcome Center, the forest habitat is expected to remain intact. A full forest inventory has not been conducted, and a basic forest characterization and management plan, including semi-regular monitoring of forest health, are recommended.

- ☞ FO03: Conduct a basic characterization for each of the forest types that occur at GPOAC. The characterization should include delineation of each stand, which is an easily defined area of the forest containing the same species mixture with similar heights, ages, diameters, densities, soils, health, or other unifying characteristics (Maine Forest Service,

Department of Conservation 2006). Data collected during the field assessment should include dominant and common tree species, sizes, age class, absolute density, soils, topography, key habitat features, and any other distinctive features.

☞ FW03 and FO04: Develop a Forest Management Plan upon completion of the forest characterization assessment. The management plan should include a summary of field characterization data including the stand boundaries and a description of each forest type including, but not limited to, dominant and common tree species, sizes, age class, absolute density, soils, topography, key habitat features, and any other distinctive features. In addition, the plan should include a prescription for each forest type and a schedule for conducting forest health monitoring. The management plan should focus on opportunities for improving the forest for wildlife habitat, and should provide recommendations for selectively cutting trees for firewood and camp wood. Forest health monitoring should be conducted once every 5 years and the results incorporated into the Forest Management Plan as an update to reflect the findings of the monitoring and management recommendations, if appropriate.

The presence of DWAs at GPOAC has not been assessed, and a survey to identify DWAs is recommended and should be coordinated with MDIFW (Appendix A).

☞ FW04 and FO05: Conduct a desktop review of conifer-dominated forest types to assess the forested communities at GPOAC for potential deer wintering habitat (i.e., DWA). This desktop review should be ground-truthed to verify winter use by deer. The findings of this assessment, as well as appropriate management recommendations, should be included in the Forest Management Plan.

3.3.2 Environmental and Natural Resources Training

Training of ~~natural resources personnel~~environmental staff, described under the land management programmatic objective in Section 3.1.11, is also applicable to forestry management at GPOAC. Other environmental and natural resources training activities should be undertaken, as needed, to ensure that ~~natural resources personnel~~environmental staff are prepared to handle any fish and wildlife management issues that may occur.

3.3.3 GIS Management, Data Integration, Access, and Reporting

GIS management and data integration, access, and reporting are also applicable to forestry management at GPOAC. GIS management is described under the land management programmatic objective in Section 3.1.12.

☞ LA15, FW18, FO06, and OR12: Work with the NAVFAC Mid-Atlantic GeoReadiness Center to develop a GIS system for storing GPOAC natural resources data.

☞ LA16, FW19, FO07, and OR13: Provide training to environmental staff to maintain the GIS database.

3.4 OUTDOOR RECREATION MANAGEMENT

OPNAVINST 5090.1C-Ch-1 (Navy 2011) defines outdoor recreation management as those natural resources actions designed to provide recreation opportunities that are sustainable, within the military mission, within established carrying capacities and consistent with the natural resources upon which they are based.

Outdoor recreation management at GPOAC includes:

- providing and maintaining quality MWR opportunities for DoD personnel and their families, to include provision of camping and lodging facilities; provision of recreational equipment such as boats, fishing gear, and indoor games (pool table and board games); and promoting recreational activities including, but not limited to, hiking, biking, fishing, boating, sunset paddles, holiday parades, treasure hunts, movie nights, field trips to off-site museums and natural areas, and winter recreation activities (snowshoeing, cross-country skiing, and ice fishing);
- special natural areas management, including establishment of WWAs~~Watchable Wildlife Areas~~ that includes installation of benches and interpretive signage;
- partnerships and outreach;
- environmental and natural resources training; and
- GIS management, data integration, access, and reporting.

Outdoor Recreation Management Programmatic Objectives

The following programmatic objectives have been established for outdoor recreation management at GPOAC.

1. Evaluate additional opportunities for natural resources-related outdoor recreation.
2. Provide and promote passive outdoor recreation opportunities (e.g., wildlife observation, photography) to DoD personnel and their families.
3. Provide and promote passive outdoor recreation opportunities to the public, subject to safety and security considerations.
4. Promote education awareness of Facility natural resources and the importance of natural resources stewardship.

3.4.1 General Outdoor Recreation Management

Outdoor recreation is the primary focus of the GPOAC facility. It is Navy policy to provide outdoor educational and recreational opportunities appropriate to the mission and

Tents at GPOAC campground.

the resources of Navy installations. In addition, the Sikes Act requires that installations provide public access for natural resources uses to the extent it is appropriate and consistent with the installation mission. The development of recreational fisheries opportunities are further promoted by EO 12962, *Recreational Fisheries*, which requires federal agencies to improve the quantity, function, sustainable productivity, and distribution of aquatic resources for recreational fishing opportunities by restoring degraded habitat, fostering conservation, and providing access and awareness of opportunities for recreational fishing. A MOU between DoD and the Department of the Interior provides guidance on the management of natural resources for outdoor recreation. GPOAC currently offers a wide range of facilities and activities for recreational users of the site. Several fish and wildlife management recommendations described in Section 3.2.1 will improve the outdoor recreation experience, including installation of bird nest boxes and creation of a handout for participants in the recreational fishing program that identifies the Maine laws that pertain to bait fish. The following recommendations are intended to supplement and enhance the outdoor recreation opportunities currently offered at GPOAC.

- ☞ LA07 and OR01: Develop a plant checklist that can be incorporated into a GPOAC Naturalist Guide (see Project OR03). This guide can be used by visitors on nature walks and hikes for identifying native plant species that are common to GPOAC and the local area.
- ☞ FW09 and OR02: Prepare a handout that outlines the Maine laws pertaining to bait fish that can be provided to visitors who purchase fishing licenses or rent fishing equipment from the Welcome Center.
- ☞ OR03: Develop a Naturalist Guide for GPOAC that contains a plant and wildlife checklist. This guide can be provided to visitors for use on natural walks or hikes and for educational purposes.
- ☞ OR04: Install additional camping platforms.
- ☞ OR05: Create hiking trails.
- ☞ OR06: Create footpaths to connect camping areas.
- ☞ OR07: Install additional seasonal boat docks.

Proper management of natural resources at GPOAC will require establishment of carrying capacity limits for all recreational facilities. Resources are available to recreational resource managers that provide guidance on assessing the recreational carrying capacity of a given recreation site, as well as how to estimate the impact of a given action on the site (Shelby and Heberlein 1986).

GPOAC yurt.

- ☞ OR08: Conduct a carrying capacity assessment of all recreational facilities, including assessment of current and proposed facilities.

3.4.2 Special Natural Areas Management

Areas on DoD installations with natural resources that warrant special conservation efforts may be designated as special natural areas, such as WWAs~~Watchable Wildlife Areas~~ (DoD Instruction 1996). These areas are recognized for their unique or exceptional natural resources or cultural qualities and attributes.

- ☞ FW10 and OR09: Establish WWAs~~Watchable Wildlife Areas~~ in areas where there is an abundance of wildlife activity.
- ☞ FW11 and OR10: Install benches and interpretive signage at each of the WWAs~~Watchable Wildlife Areas~~ to enhance and promote the use of these areas, and to encourage viewers to remain in the viewing area to avoid disturbing the wildlife being observed.

If it is determined that any of the WWAs~~watchable wildlife viewing areas~~ have the potential to negatively disturb wildlife, or are having any other negative impacts on wildlife, they should be removed from consideration.

In 1988 Paralyzed Veterans of America was responsible for getting the Disabled Sportsmen's Access Act of 1998 enacted (Public Law 105-261). This law establishes a mechanism for natural resources managers to develop programs that facilitate access to outdoor recreation opportunities, such as fishing, hunting, trapping, wildlife viewing, boating, and camping on military installations for disabled veterans, dependents with disabilities, and all others with disabilities (Paralyzed Veterans of America 2009). W~~atchable Wildlife Areas~~WAs that are established at GPOAC should be developed in accordance with the Americans with Disabilities Act to provide disabled veterans access to these areas.

3.4.3 Partnerships and Outreach

A partnership with the National Audubon Society would allow their representatives and volunteers to access GPOAC during the month of December to conduct the annual Christmas Bird Count, and would provide visitors with the opportunity to become involved with birding.

- ☞ FW16 and OR11: Establish a partnership with the National Audubon Society to conduct the annual Christmas Bird Count at GPOAC and allow visitors to participate in this birding activity.

3.4.4 Environmental and Natural Resources Training

Training of ~~natural resources personnel~~environmental staff is also applicable to outdoor recreation management at GPOAC. Training of ~~natural resources personnel~~environmental staff is described under the land management programmatic objective in Section 3.1.11. Other

environmental and natural resources training activities should be undertaken, as needed, to ensure that ~~natural resources personnel~~environmental staff are prepared to handle any outdoor recreation management issues that may occur.

3.4.5 GIS Management, Data Integration, Access, and Reporting

GIS management and data integration, access, and reporting are also applicable to outdoor management at GPOAC. GIS management is described under the land management programmatic objective in Section 3.1.12.

- ☞ LA15, FW18, FO06, and OR12: Work with the NAVFAC Mid-Atlantic GeoReadiness Center to develop a GIS system for storing GPOAC natural resources data.
- ☞ LA16, FW19, FO07, and OR13: Provide training to environmental staff to maintain the GIS database.

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4.0 GREAT POND OUTDOOR ADVENTURE CENTER NATURAL RESOURCES PROGRAMMATIC OBJECTIVE MANAGEMENT AREAS

To better facilitate effective management of the natural resources of GPOAC, natural resources management has been divided into the four programmatic objective management areas described in Section 3.0. Figure 4.1, Figure 4.2, and Figure 4.3 identify areas of each GPOAC parcel where the programmatic objectives are focused. Primary management issues are identified and discussed for each programmatic objective, and general management recommendations are made to address each objective. Details of the project recommendations are provided in Section 3.0. A brief description of the extent of each programmatic objective management area of the Facility parcels is provided below.

- **Land Management Areas** encompass a large portion of GPOAC and are focused within the areas located within a 250-foot buffer of pond/lake shorelines and wetlands, and within developed areas (Figure 4.1, Figure 4.2, and Figure 4.3).
- **Fish and Wildlife Management Areas** are limited to the Great Pond and Alligator Lake parcels (Figure 4.1 and Figure 4.3) and include areas located within a 250-foot buffer of known vernal pool and amphibian breeding areas. Significant Wildlife Habitat designated by MDIFW as Inland Wading Waterfowl Habitat is also present within the fish and wildlife management area for Great Pond (Figure 2.10 and Figure 4.1).
- **Forestry Management Areas** are located outside of the land management areas at Great Pond (Figure 4.1) and generally overlap with the land management areas of King Pond and Alligator Lake (Figure 4.2 and Figure 4.3). At King Pond the forestry management area covers the forested area located outside of a 1,000-foot buffer on either side of the boat launch and access trail to minimize impacts (i.e., timber cutting noise) to recreational users. To minimize impacts on Significant Wildlife Habitat located at Alligator Lake, the Alligator Lake forestry management areas are located outside of the fish and wildlife management area (Figure 4.3).
- **Outdoor Recreation Management Areas** cover all of the GPOAC parcels (Figure 4.1, Figure 4.2, and Figure 4.3), with the exception of the southwestern parcel at Great Pond. The southwestern parcel at Great Pond was excluded from the outdoor recreation management area, as no active outdoor recreation activities are associated with that parcel.

Although not tied specifically to a particular management area of the Facility, training of ~~natural resources personnel~~environmental staff and GIS management, data integration, access, and reporting are included under each of the four programmatic objectives described in the ensuing sections.

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Figure 4.1 Great Pond Management Areas, GPOAC, Hancock County, Maine.

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Figure 4.2 Kind Pond Management Areas, GPOAC, Hancock County, Maine.

Figure 4.3 Alligator Lake Management Areas, GPOAC, Hancock County, Maine.

4.1 LAND MANAGEMENT AREAS

Land management includes protection of land and water resources, as described in Section 3.1. The Facility will continue to implement land management practices that have been occurring at GPOAC associated with meeting the operational mission and federal and state regulatory and permitting requirements, as well as those recommended by this INRMP, as funding allows. Land management actions include creating and implementing programs and plans that meet the Land Management Programmatic Objectives outlined in Section 3.1. This includes proactively managing land areas with natural resources to enhance or improve land, water quality, water resources, native vegetation (including control and monitoring of invasive species), and environmental conditions for the protection of threatened, endangered, and special status species or significant rare communities. Although specific land management areas have been identified for GPOAC, the following water resources management, vegetation management, invasive species plant management, and rare communities and Significant Wildlife Habitat recommendations are applicable to the entire Facility, unless noted otherwise. Detailed information on the land management recommendations for the Facility are provided below.

4.1.1 Water Resources Management

The numerous wetlands and surface water resources that are located throughout the Facility should be managed to protect the water quality and habitats they provide. Specific wetland and water quality management recommendations are provided in Section 3.1.1

Proactive management activities that will assist in protecting water quality include development of a Shoreland Zone Management Plan, protection of wetland and riparian areas from disturbance, identification of potential riparian buffer restoration projects, and the avoidance and minimization of impacts to vegetated buffers located along surface waters. Biannual monitoring of nuisance wildlife will also assist in protecting water quality and will primarily occur at the eastern Great Pond parcel. In addition to these recommendations, any proposed ground disturbing activities that may impact waters of the United States or wetlands will require a formal jurisdictional wetland determination to be conducted in the potential impact area. This wetland determination will be subject to verification and permit approval by USACE.

Annual erosion surveys should be conducted to identify and evaluate soil erosion problem areas. The results of the erosion surveys will be utilized to develop recommendations for preventive measures needed to protect water quality and ensure shoreline stabilization. All present and future ground-disturbing activities at the Facility will incorporate appropriate erosion and sediment controls to reduce nonpoint source pollution that could result from those activities. In addition, these activities will comply with Maine's Erosion and Sedimentation Law.

Floodplain management involves proper planning for development projects that are located within floodplains or the shoreland zone. Development plans should be submitted to the Maine Department of Conservation to ensure consistency with Maine's NRPA and Site Location of Development Law, and Maine's Mandatory Shoreland Zoning requirements.

4.1.2 Vegetation Management

The use of regionally native plant species and beneficial landscaping practices should assist in maintaining and improving the native plant species diversity at GPOAC. Supplemental plantings of native trees and shrubs in maintained open areas and around building and recreational areas should be conducted, where consistent with current and planned land uses, to help enhance habitat diversity.

Impacts to vegetated buffer areas, including riparian buffers along streams and other waterbodies, will be avoided or minimized to maintain habitat for fish and wildlife, to protect water quality, and to provide streambank stability. Restoration and enhancement opportunities for riparian buffer habitat should be identified, and bioengineering techniques and native plantings should be used to stabilize compromised streambanks. The application of fertilizers, herbicides, and pesticides should be avoided, to the extent practicable. These and other specific habitat and vegetation management recommendations are provided in Section 3.1.

To better understand the natural community types that are being managed, a survey of natural community types should be conducted for the Facility to ground-truth GIS data. Development of a plant list for GPOAC will also assist in determining the diversity of plant species that are present and will contribute to development of the Naturalist Guide (see Project OR03). Vegetation should be left intact and allowed to expand naturally to provide the most benefit to wildlife, including food and refuge.

4.1.3 Invasive Plant Species Management

Small stands of reed canary grass and climbing nightshade are present at GPOAC. The preferred treatment for stands of these species is manual removal, with the removal of all aboveground biomass as well as the underground rhizome by which they spread. This removal method is labor intensive and is feasible only if the stands are small; treatment of these areas should be performed before the stands are allowed to substantially spread. If manual removal is not feasible, stands should be treated with a glyphosate herbicide in accordance with all state and federal regulations.

Annual invasive species surveys, including surveys for invasive aquatic plants, should be conducted to proactively identify additional treatment/removal areas and to monitor treatment sites for regrowth. Educational materials that describe safe boat practices when moving between waterbodies to prevent the introduction and spread of invasive aquatic plants should be prepared and provided to anglers, and also posted at GPOAC boat launches and the Welcome Center.

4.1.4 Rare Communities and Significant Wildlife Habitat Management

A comprehensive vernal pool survey of GPOAC will assist in documentation of Significant Wildlife Habitat that is present, including significant vernal pools that provide important breeding habitat for obligate vernal pool species. The survey should include desktop review and site visits to ground-truth each potential vernal pool, and the survey should be conducted during the appropriate survey window for the region using MDIFW protocols. Information of evidence

of use by breeding, obligate vernal pool species; unique features of the pools; photographic documentation; and GIS mapping of each vernal pool should also be recorded.

4.1.5 Cultural Resources Management

The CRM is presently responsible for coordinating with the SHPO all development activities that may affect the historic and cultural resources of GPOAC, in accordance with 36 CFR 800 of the NHPA, to ensure that no significant cultural resources are affected. The John M. Norris Family Camp Historic District was designated in 2011, and contains 5 contributing structures and includes the surrounding landscape. Contributing elements of the Historic District include three historic cabins, a well house/sewer lift, and stone hearth that have been ~~and other supporting structures were~~ determined to be the remains of a historic sporting camp built in the early 1930s (Southeast Archaeological Research, Inc. 2011). ~~The three log structures, additional contributing resources, and surrounding landscape were designated as the John M. Norris Family Camp Historic District in 2011.~~ Four ~~An existing known~~ archaeological sites are known to occur at the Facility; however, none of these are eligible for inclusion on the NRHP. ~~(site 75.5) located near a bedrock outcrop point on the northern shore of Great Pond~~ The known archaeological sites should be left undisturbed.

If construction is proposed that may affect historic or cultural resources, the CRM will apply the cultural resources decision tree to the site to determine whether further cultural resource investigations are necessary prior to construction. Although this INRMP takes cultural resources into consideration for any INRMP action that may impact cultural resources, no specific cultural resources management actions are provided, as cultural resources will be managed by the CRM in accordance with the Facility ICRMP that is currently under preparation.

4.2 Fish and Wildlife Management Areas

The specific land management areas that are identified for GPOAC in the following sections are applicable to the entire Facility, unless noted otherwise.

4.2.1 General Fish and Wildlife Management

Several of the vegetation management recommendations described in Section 3.1.1, Section 3.1.2, and Section 4.1.2 will also provide benefit to fish and wildlife through protection, conservation, and restoration of wildlife habitat; and the protection of water resources. Forest and vegetated communities provide important habitat for many types of wildlife, and where feasible, these habitats should be allowed to expand along ditch edges, unmaintained roads, and paths to provide additional food sources and habitat for wildlife. Impacts to vegetated buffer areas, including riparian buffers along streams and other waterbodies, should be avoided and minimized to maintain habitat for fish and wildlife and protect water quality through streambank stability.

The placement of nest boxes and bat houses in protected areas to encourage use by native species will promote the diversity of bird and bat species at GPOAC, and may also encourage bats to

roost in areas away from Facility buildings. Installation of bat houses should be focused within the eastern Great Pond parcel where there is currently a problem with bats roosting in Facility structures. Bat species will also benefit from development of a Bat Management Plan. Conservation and restoration of vegetation may provide an indirect benefit to Canada lynx by attracting its prey to reside and forage in these habitats. Forest species, such as the peregrine falcon and deer, will benefit from development of the Forest Management Plan. Deer will also benefit from identification of DWAs at GPOAC so that winter cover for white-tailed deer can be protected and perpetuated (through well-planned timber management), for potential future expansions of the herd. Other surveys and recommendations that will benefit fish and wildlife include vernal pool surveys, baseline wildlife surveys, and dissemination of bait fish requirements to prevent the introduction of invasive fish species in Facility waterbodies. Information gathered as part of wildlife surveys can be used during development of the Naturalist Guide (Project OR03).

Signage should be installed at the WWAs~~Watchable Wildlife Areas~~ that encourage viewers to remain within the viewing area to reduce the potential for disturbing the wildlife being observed. If it is determined that any of these viewing areas will likely disturb wildlife, or have any other negative impacts to wildlife, these WWAs~~atchable Wildlife Areas~~ should be removed from consideration.

Additionally, establishment of partnerships with IBP (creation of MAPS stations), the National Audubon Society (participation in annual Christmas Bird Count surveys), and PARC (development of amphibian and reptile monitoring program) will assist in development of additional wildlife conservation measures that could be included in this INRMP during future updates.

4.2.2 Threatened, Endangered, and Special Concern Species Management and Critical Habitat Management for Protected Species

Most of the land management, general fish and wildlife management, and forestry management recommendations provided in this INRMP should indirectly benefit threatened, endangered, and species concern species that occur at GPOAC.

Specific management measures for protection of federal and state listed birds known, or with the potential, to occur at the Facility are limited to finalizing the GPOAC Bald Eagle Management Plan. Finalizing this plan will ensure management of this species is provided in accordance with the National Bald Eagle Management Guidelines (USFWS 2007 and Appendix D). Other measures outlined in this INRMP that will provide an indirect benefit to protected bird species include identification of potential locations for riparian buffer restoration or enhancement, development of a Forest Management Plan, installation of nest boxes, and protection of water resources including wetlands. Providing information to users of the Facility on the native flora and fauna of the Facility through the collection of baseline species lists and development of a Naturalist Guide (Project OR03) for GPOAC may also indirectly benefit listed species by fostering interest in species conservation at the public level.

The Facility was excluded from the final Critical Habitat Rule for the Atlantic salmon GOM-DPS;~~,~~ however,~~but~~ ~~B~~because the ~~entire~~ Facility is located in area that could potentially be accessed by hatchery reared Atlantic salmon~~within designated critical habitat for Atlantic salmon~~, INRMP activities that protect and improve water quality should contribute to protection of Atlantic salmon habitat within the watershed. Measures to prevent erosion and sedimentation into waterbodies, enhance and restore riparian buffers, and efforts to protect wetlands that included in this INRMP should provide an indirect benefit to Atlantic salmon and designated Ceritical H~~h~~abitat downstream from GPOAC. Riparian buffers provide benefit by maintaining habitat for fish and wildlife and providing nutrient cycling, streambank stability, natural stream flow, and protection of water quality (Muhlberg and Moore 1998). Conserving and restoring riparian buffers minimizes erosion and subsequent loss of streambank habitat.

4.2.3 Invasive and Nuisance Wildlife Management

Nuisance wildlife issues currently are limited to beaver lodge construction within wetlands and waterways of the eastern Great Pond parcel, which have the potential to cause erosion and flooding on roadways; as well as bats, which roost in Facility buildings. Biannual monitoring, or more frequently if necessary, of the constructed beaver lodges is recommended to determine if beaver lodge removal or beaver relocation actions are necessary to protect water quality and stormwater flow.

Biannual monitoring of buildings on the eastern Great Pond parcel for the presence of bats will help to protect human health and safety. Monitoring results should be used to determine if wildlife removal actions are necessary to protect natural resources or human health and safety. The Bat Management Plan (Project FW08) should include recommendations for retrofitting Facility buildings with physical barriers that prevent bats from roosting in these areas, as well as guidelines for removing nuisance bats from Facility buildings.

4.2.4 Partnerships and Outreach

Development of partnerships with IBP, PARC, and the National Audubon Society will promote conservation and monitoring of the birds, amphibians, and reptiles that occur at GPOAC. The forested habitat of GPOAC provides an excellent place to partner with the IBP to establish MAPS stations, as much of the forested habitat at GPOAC is undisturbed with little to no level of human activity. The establishment of one or more MAPS stations at the Facility should provide valuable information on utilization of these forests by neotropical migrants. Information obtained through monitoring efforts should be added to the long-term avian productivity and survivorship database maintained by the IBP, and can be used in developing and/or updating the bird species list that will be included in the Naturalist Guide (Project OR03).

4.3 FORESTRY MANAGEMENT AREAS

The forestry management recommendations provided in this section are applicable to the entire Facility. Forest habitat should be retained in its natural condition, to the extent practicable, to afford the greatest value to wildlife and to maintain the pristine natural environment and

aesthetic value that supports the MWR mission of GPOAC. The mature hardwood and coniferous habitat provides shelter to wildlife during severe winter weather, and as mature trees die, snags will become available for wildlife and will create small forest openings that promote regeneration and provide nesting habitat for bald eagle and other raptors. A basic forest characterization and Forest Management Plan should be prepared for GPOAC that includes a description and schedule for conducting regular forest health monitoring. Results of the DWAs assessment and appropriate deer habitat management recommendations should be incorporated into the Forest Management Plan.

Some selective tree cutting will occur for the purpose of providing 4–5 cords of firewood for heating the caretaker's cabin during the winter months and providing campfire wood for campers. To ensure these activities do not affect the shoreland zone, including activities associated with cutting trees within the shoreland zone, a Shoreland Zone Management Plan should be prepared and implemented that provides recommendations for Navy actions that are consistent with the Maine Guidance for Shoreland Zoning. Additionally, the Shoreland Zone Management Plan should provide recommendations for protecting the shoreline zone from negative impacts that may result from development, natural resources management, or maintenance activities.

4.4 OUTDOOR RECREATION MANAGEMENT AREAS

The primary mission of the Facility is to provide outdoor recreational opportunities to military personnel. It is therefore imperative that the natural resources management objectives provided in this INRMP are aligned with the operational mission. Unlike some military facilities that have a mission that conflicts with natural resources management, the natural resources management objectives for GPOAC should naturally supplement outdoor recreation opportunities, and vice versa. This balance will continue to allow for GPOAC users to experience the natural setting and isolated wilderness experience that the MWR facility is intended to provide. The outdoor recreation management recommendations for expanding and enhancing outdoor recreation opportunities at GPOAC are applicable to the entire Facility, unless otherwise indicated in the following sections.

4.4.1 General Outdoor Recreation Management

The general outdoor recreation management recommendations provided in this section are intended to enhance the experience for recreational users of GPOAC and provide an educational component to their experience. Development of a Naturalist Guide for use by guests will encourage identification of plants and wildlife native to the region, thereby promoting conservation of natural resources. Development and distribution of bait fish restrictions will assist in preventing the introduction of nonnative fish species into the waterbodies of the Facility, and will educate anglers on the importance of proper bait handling.

Currently recreational facilities located at King Pond are limited to a boat launch. Recommendations for expanding the recreational opportunities at King Pond include construction of two to three camping platforms and construction of a footpath that connects the camping platforms and extends around the waterbody.

Several cabins were recently constructed in the eastern Great Pond parcel. To enhance the experience for guests staying in these cabins, boat access to Great Pond should be provided through the installation of one to two seasonal boat docks. Additionally, a hiking trail is proposed for the southern area of the eastern Great Pond parcel, which will further enhance the recreational opportunities available at the Facility.

Finally, to ensure that growth and development of the Facility does not exceed the carrying capacity of the lands and facilities, a recreational carrying capacity assessment should be conducted.

4.4.2 Special Natural Areas Management

Areas on DoD installations with natural resources that warrant special conservation efforts may be designated as special natural areas, such as WWAs~~Watchable Wildlife Areas~~ (DoD Instruction 1996). These areas are recognized for their unique or exceptional natural resources or cultural qualities and attributes.

Establishment of several WWAs~~atchable Wildlife Areas~~ at GPOAC will enhance the outdoor experience for recreational users and promote wildlife conservation efforts. Development of a Naturalist Guide and installation of benches and interpretive signage at the WWAs~~Watchable Wildlife Areas~~ will also promote the use of these areas and enhance the wildlife viewing experience. Signage will encourage viewers to remain in the viewing area to avoid disturbing the wildlife being observed. To enable disabled persons to participate in wildlife viewing opportunities, the WWAs~~atchable Wildlife Areas~~ will be developed in accordance with the Americans with Disabilities Act to the extent practicable.

4.4.3 Partnerships and Outreach

Establishment of a partnership with the National Audubon Society for the purpose of coordinating an annual Christmas Bird Count will encourage recreational users to participate in birding and promote wildlife conservation.

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5.0 INRMP IMPLEMENTATION

Implementation of this INRMP will follow an annual strategy that addresses legal requirements, DoD and Navy directive or policy requirements, funding, implementation responsibilities, technical assistance, labor resources, and technological enhancements. In order for this INRMP to be considered implemented, the following actions will need to be completed:

1. Funding is secured for completion of all Environmental Readiness Level (ERL) 4 projects, as described in Section 5.5.
2. The Facility is staffed with a sufficient number of professionally trained environmental staff needed to perform the tasks required by the INRMP.
3. Annual coordination with all cooperating offices is performed.
4. Specific INRMP action accomplishments that are undertaken are documented each year.

The following sections provide an overview of the role that implementation of this INRMP would play in supporting sustainability of the military mission and the natural environment, meeting natural resources consultation requirements, achieving no net loss, attaining NEPA compliance, understanding project development and classification, identifying funding sources, establishing commitment, and endorsing use of cooperative agreements. The projects table provided in Appendix E provides information for the implementation schedule, prime legal driver and initiative, class, Navy assessment level, cost estimate, and funding source for each of the projects proposed in this INRMP. Section 6.0 summarizes the INRMP projects according to the ERLs described in Section 5.5.

5.1 SUPPORTING SUSTAINABILITY OF THE MILITARY MISSION AND THE NATURAL ENVIRONMENT

5.1.1 Integration of the Military Mission and Land Use

The Navy has taken a proactive approach towards integrating the military mission with concepts of sustainable land use by recognizing that efficient and effective land use planning supports military readiness and sustainability, while protecting and enhancing the natural resources for multiple use, sustained yield, and biological integrity. Development and human use are inherently limited on military lands that are kept in their natural condition to support the military mission, often resulting in lands that have extremely high ecological value. These areas may include large tracts of undisturbed habitats and diverse flora communities that are often used as retreat areas, migration stopover points, or foraging areas for threatened and endangered and special concern fauna species.

Recognizing that military mission requirements have the highest priority, Navy understands the role INRMPs play in identifying potential conflicts between a facility's mission and natural resources, and identifying actions necessary to maintain the availability of mission-essential properties and acreage. An INRMP balances the management of natural resources unique to the installation with mission requirements and other land use activities affecting an installation's

natural resources (DOD and USFWS 2002). GPOAC understands the importance of integrating the Facility mission and land use to meet the operational mission of providing recreational opportunities, while managing the valuable natural resources to ensure long-term environmental sustainability.

5.1.2 Impacts to the Installation Mission

The use and management of lands that support military training and readiness, and the decision-making associated with such land use, directly affect the sustainability of the ecosystem. Specific components of land management include forest management, wetlands management, threatened and endangered species programs, invasive and exotic species control, soil conservation and erosion control, water quality control, and floodplain management. To protect and maintain natural resources while ensuring the continuation of the operational mission, GPOAC has implemented an ecosystem management approach for environmental stewardship of the Facility natural resources. The management strategy maximizes land use that supports recreational facilities and opportunities, while minimizing impacts to natural resources.

The major environmental constraints on the Facility mission and development at GPOAC are the:

- limitation on development within floodplain areas;
- need for implementation of BMPs to protect surface water and groundwater quality resulting from potential erosion and pollutant discharge;
- selection of the appropriate location of functions using hazardous materials, and the collection and disposal of hazardous wastes; and
- limitation on development due to the presence of special concern species and natural communities.

Limitations on development within floodplains and protection of sensitive species and habitats represent the greatest limitations to expansion of the Facility's recreational facilities. Long-range planning through development of management plans for forest and water resources, and finalizing the GPOAC Bald Eagle Management Plan, will address floodplain, water quality, and sensitive habitat and species issues without requiring dramatic changes in natural resources management.

5.1.3 Relationship of Range Complex Management Plan or Other Operation Area Plan

GPOAC does not currently have any range management or other operational plans in place that would need to be coordinated with natural resources management of the Facility.

5.2 NATURAL RESOURCES CONSULTATION REQUIREMENTS

Section 7 of the ESA requires federal agencies to consult (formally or informally, depending on the level of effects to species from the proposed action) with USFWS (fish and wildlife) or NOAA NMFS (fish or fisheries) when any proposed activity authorized, carried out, or conducted by that agency may affect a listed species or designated critical habitat. If adverse effects to listed species are anticipated as the result of proposed actions, formal consultation would be required. As a result of formal consultation, USFWS or NOAA NMFS would issue a biological opinion, which would include actions that the federal agency must complete in order to conduct the proposed activity. If critical habitat is located on federal property and adequate protection and management of the critical habitat has been included in the installation INRMP, the ESA allows USFWS to preclude this habitat from the biological opinion. However, in order for the critical habitat to be excluded, the qualifying INRMP must address the maintenance and improvement of the primary constituent elements important to the species, and must manage for the long-term conservation of the species. If proposed actions may affect, but are not likely to adversely affect listed species, Section 7 consultation can be done informally, and without the need to conduct a comprehensive biological assessment. In this case a letter of concurrence would be provided by the interested agency.

Although GPOAC was excluded from the final Critical Habitat Rule for the Atlantic salmon GOM-DPS, Critical Hhabitat for Atlantic salmon has been designated for the ~~area in which~~ GPOAC regionis located. Critical Hhabitat for Atlantic salmon includes riverine habitats that contain suitable spawning areas within the portions of the watersheds open to migration (with sufficient fish passage). No riverine habitat to support Atlantic salmon occurs at GPOAC; however, it is possible that salmon could utilize Great Pond for overwintering (~~see Section 2.10.2 and~~ Section 3.2.2.3). Although ~~Additionally,~~ physical barriers are in place downstream that would prevent access by salmon to GPOAC throughout most of the year, periods of low flow could allow hatchery raised Atlantic salmon to access the GPOAC area via Hell's Gate Falls (Appendix A).

The USFWS or NOAA NMFS may decline to designate critical habitat where there exists a plan that provides for the adequate management or protection for listed species. The USFWS uses the following three-point criteria to determine if an INRMP provides adequate management or benefit to species. For each criterion, an explanation of how the INRMP addresses the requirement is provided.

> **1. The plan provides a conservation benefit to the species.** The cumulative benefits of 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 (i.e., those areas deemed essential for conservation of the species). A conservation benefit may result from reducing fragmentation of habitat, maintaining or increasing populations, insuring against catastrophic events, enhancing and restoring habitats, buffering protected areas, or testing and implementing new conservation strategies.

This INRMP provides many indirect benefits to listed species including protection of designated Atlantic salmon habitat located downstream from the Facility. Benefits include protection and improvement of water quality, such as preventing erosion and sedimentation into waterbodies, enhancing and restoring riparian buffers, and protection of wetlands.

> **2. The plan provides certainty that the management plan will be implemented.** Persons charged with plan implementation are capable of accomplishing the 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 the necessary authorizations or approvals. An implementation schedule (including completion dates) for conservation effort is provided in the plan.

GPOAC conservation program is adequately funded and a well-trained staff of biologists, foresters, enforcement personnel, technicians, and contractors area available within NAVFAC and PWD-ME to ensure plan implementation. Appendix E of this INRMP includes a detailed INRMP project schedule.

> **3. The plan provides certainty that the conservation effort will be effective.** The following criteria are considered when determining the effectiveness of the conservation 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; (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 conservation effort; and (5) a duration sufficient to implement the plan and achieve the benefits of its goals and objectives.

As described in Section 1.2, this INRMP is a long-term planning document that guides implementation of the NRP at GPOAC to help ensure support for the Facility mission, which has the primary goal of providing a variety of outdoor recreational opportunities for DoD personnel while protecting and enhancing natural resources. In accordance with Sikes Act requirements, this plan provides for:

- management of fish and wildlife, land, and forest resources;
- identification of fish- and wildlife-oriented recreational use activities and areas;
- enhancement or modification of fish and wildlife habitat;
- protection, enhancement, and restoration of wetlands where necessary for support of fish, wildlife, or plants;
- integration of, and consistency among, the various activities conducted under the INRMP;

- establishment of specific natural resources management goals and objectives, and timeframes for proposed actions;
- sustainable use by the public of natural resources to the extent that such use is consistent with the needs of fish and wildlife management and subject to installation safety and security requirements;
- enforcement of natural resources laws and regulations;
- no net loss in the capability of military lands to support the military mission of the installation; and
- regular review of this INRMP and its effects annually, with updates no less often than every 5 years.

Appendix E provides the schedule for all INRMP projects, and annual reviews of the NRP will provide documentation of progress in meeting these goals through implementation of the INRMP projects as required, or as the availability of funding allows.

An installation may have its INRMP obviate the need for critical habitat designation if the INRMP provides a benefit to listed species and manages for the long-term conservation of the species. This INRMP specifically addresses the benefits of management of these actions for protection of designated Ceritical Hhabitat for Atlantic salmon. Aside from Atlantic salmon, other federal and state listed species are known to occur at GPOAC; however, critical habitat has not been designated for these species, or critical habitat is not associated with the Facility. Section 7 consultation is not expected to be an issue for any of the natural resources management measures recommended in this document.

5.3 ACHIEVING NO NET LOSS

Section 101(b)(1)(I) of the Sikes Act states that each INRMP shall, to the extent appropriate and applicable and consistent with the use of the installation to ensure the preparedness of the Armed Forces, provide for "no net loss in the capability of military installation lands to support the military mission of the installation." It is DoD policy that appropriate management objectives to protect mission capabilities of installation lands (from which annual projects are developed) be clearly articulated and receive high priority in the INRMP planning process (Navy 2006).

The effectiveness of this INRMP in preventing "net loss" will be evaluated annually, and operational mission requirements and priorities identified in this INRMP will, where applicable, be integrated into other environmental programs and policies. It is not the intent that natural resources are to be consumed by mission requirements, but rather are to be sustained for the use of mission requirements. To achieve this, the goal of this INRMP is to conserve the environment for the purpose of the operational mission. There may be instances in which a "net loss" may be unavoidable in order to fulfill regulatory requirements other than the Sikes Act, such as complying with a biological opinion under the provisions of the ESA, or from the protection of wetlands under the provisions of the CWA. However, both the USFWS and USACE are required to adhere to the Sikes Act provision of no net loss. Loss of mission capability in these instances

will be identified in the annual update of the INRMP and will include a discussion of measures being undertaken to recapture any net loss in mission capability.

5.4 NEPA COMPLIANCE

Prior to the passage of Sikes Act legislation, the extent of natural resources management on military lands was largely discretionary. Although installations with applicable natural resources were required to prepare natural resources plans, it was not a legal requirement. The only legal natural resources requirements for installations were related to compliance with DoD directives, or ESA, CWA, and other statutory requirements. Passage of the SAIA brought into effect the requirement for "the Secretary of each military department to prepare and implement an integrated natural resources management plan for each military installation in the United States under the jurisdiction of the Secretary" (Navy 2006). The Council on Environmental Quality (CEQ) defines an INRMP as a major federal action requiring NEPA analysis, and as a result the Navy Office of General Counsel (Installations and Environment) has established that implementation of an INRMP per SAIA requirements necessitates the preparation of NEPA documentation prior to approval of the INRMP. The preparation of an EA is usually sufficient to satisfy the NEPA review requirement for most installation INRMPs; however, in cases where implementation of the INRMP will have significant impact on the environment, the preparation of an Environmental Impact Statement (EIS) is required. Annual updates and revisions are covered by the original NEPA documentation unless a major change in installation mission or programmatic objectives occurs.

Decisions that affect future land or resource use that are associated with an INRMP require NEPA analysis. The NRM will refer to Secretary of the Navy Instruction (SECNAVINST) 5090.6A and Chapter 5 of OPNAVINST 5090.1C-Ch.1 for basic guidance on the preparation of NEPA documents. CEQ's "Regulations for Implementing NEPA" (available at: http://ceq.hss.doe.gov/nepa/regs/ceq/toc_ceq.htm) and "NEPA's Forty Most Asked Questions" (available at: http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm) provide further information. The INRMP and associated NEPA documentation should be prepared as individual documents to ensure that the viability, integrity, and intent of each are maintained. The intent of the INRMP is to outline projects that would fulfill Navy compliance and stewardship obligations, while the intent of the NEPA documentation is to analyze the impacts of the programmatic objectives outlined within the INRMP. While each of these are prepared as separate documents, they should be prepared simultaneously, as it is important for installation NRMs to coordinate the two documents at the earliest possible stage to ensure that decisions reflect current environmental values, and to avoid potential conflicts.

Preparation of the NEPA documentation should be completed early to accommodate Navy decision-makers. If a comment period or public notice is required for the NEPA process, public notice and comment periods should be coordinated and integrated with the INRMP. A finding of no significant impact (FONSI) must be achieved before an INRMP can be approved. If a FONSI is not achievable, the NEPA process must proceed to an EIS. One of the first steps in the NEPA process is to define the proposed action and explain its purpose and need. The proposed action is to develop and implement an INRMP that integrates natural resources management with the installation's military use in a manner that ensures military readiness and provides for

sustainable multipurpose uses and conservation of natural resources (Navy 2006). The purpose of and need for the INRMP is to meet statutory requirements imposed by the SAIA as well as the requirements of various DoD, Navy, and Navy Instructions. The Purpose and Need section can be further clarified with a brief discussion of the required plan elements (as outlined in the SAIA) applicable to the installation.

The majority of the NEPA document should focus on the discussion of relevant environmental issues and reasonable alternatives. Alternatives that are not feasible because they are inconsistent with the installation mission, unreasonably expensive, or too technically or logistically complex should not be included in the analysis. Additionally, any alternative that is associated with significant environmental impacts cannot be analyzed in an EA and would require preparation of an EIS. The CEQ defines reasonable alternatives as those that are economically and technically feasible and utilize common sense. Feasibility is a measure of whether the alternative makes sense and is achievable. The analysis should focus on the alternatives and methodologies proposed for implementing the programmatic objectives that have been established for natural resources management. Appendix E of the 2006 Navy INRMP Guidance document recommends that the NEPA analysis for INRMP documents adopt a "programmatic" approach that provides opportunities for the installation to accommodate unforeseen projects that meet pre-established criteria for significance evaluation, as well as changes to the projects, as long as impacts are covered within the overall scope and analysis for the selected alternative (Navy 2006). Analysis in the NEPA document will focus on evaluation and comparison of alternative plans in association with the four programmatic objectives: land management, fish and wildlife management, forestry management, and outdoor recreation management. Analysis should not focus on the individual projects or practices except in the cases of controversial projects or projects considered outside the scope of, or a major deviation from, a previously existing INRMP (Navy 2006). The projects and recommendations outlined in an INRMP should provide a framework for reviewing ongoing activities, and will also assist in reviewing changes for unforeseen projects or modifications in the future. It is important to distinguish that the NEPA analysis for evaluating the programmatic objectives is different from the project level of analysis used for project specific actions.

The No Action/Status Quo alternative should always be included as an alternative to implementation of the INRMP. The No Action/Status Quo alternative describes impacts that would occur if the installation did not implement the INRMP and continued to operate without a plan, or used the existing plan if one is in place. The No Action/Status Quo alternative serves as a baseline with which all other alternatives are compared. Each alternative should describe the general geographical extent applicable to each of the programmatic objectives. Each of the reasonable alternatives may only represent variable intensities of one or more of the programmatic objectives; however, differences in funding levels for each alternative would not constitute a valid range of alternatives. For example, it is not acceptable for all required compliance projects to represent an alternative. A brief summary of all alternatives considered for the INRMP should be included to provide the review agencies and the local community with the range of management scenarios that were analyzed.

Although specific projects are not required to be analyzed in the NEPA document, a complete list of projects, including description, cost estimate, funding priority designations, and

implementation schedule, must be included to provide the basis of the Proposed Action. If agency stakeholders and the Navy determine that potential projects are controversial, sufficient project details must be provided in the INRMP so that a decision can be made regarding significance as part of the NEPA analysis. Additionally, controversial projects, or projects outside the scope or intent of the INRMP, may require a tiered or amended NEPA document for that specific project. All projects must be consistent with the methodologies analyzed in the NEPA document, and the installation should ensure that the NEPA documentation for the INRMP is prepared such that it will accommodate for unforeseen projects and changes to original projects. Reference Appendix F of the Navy INRMP Guidance document (Navy 2006) for more information on preparing NEPA documents for INRMPs.

The final EA prepared for this INRMP will be included in Appendix A of this INRMP after completion of the environmental review and public comment process.

5.5 PROJECT DEVELOPMENT AND CLASSIFICATION

This INRMP is a public document that requires the mutual agreement of the Facility, USFWS, and state fish and wildlife agencies. It is therefore crucial that these entities reach a common understanding as to which projects are most likely to be funded through the sources identified in Section 5.6. An annual strategy must be adopted for INRMP funding that addresses the GPOAC's legal requirements. The Navy programming hierarchy is described in Section 5.5.1 and Project Classification is described in Section 5.5.2.

5.5.1 Navy Programming Hierarchy

The Navy programming hierarchy is based on the following DoD funding level classifications.

- **Class 0: Recurring natural and cultural resources conservation management requirements.** Includes activities needed to cover the recurring administrative, personnel, and other costs associated with managing DoD's conservation program that are necessary to meet applicable compliance requirements (e.g., federal and state laws, regulations, EOs, DoD policies) or that are in direct support of the military mission.
- **Class I: Current compliance.** Includes projects and activities needed because an installation is currently out of compliance (has received an enforcement action from a duly authorized federal or state agency, or local authority); has a signed compliance agreement or has received a consent order, or has not met requirements based on applicable federal or state laws, regulations, standards, EOs, or DoD policies; and/or are immediate and essential to maintain operational integrity or sustain readiness of the military mission. "Class I" also includes projects and activities needed that are not currently out of compliance (i.e., deadlines or requirements have been established by applicable laws, regulations, standards, DoD policies, or EOs, but deadlines have not passed or requirements are not in force), but shall be if projects or activities are not implemented in the current program year.
- **Class II: Maintenance requirements.** Includes those projects and activities needed that are not currently out of compliance (deadlines or requirements have been established by

applicable laws, regulations, standards, EOs, or DoD policies, but deadlines have not passed or requirements are not in force), but shall be out of compliance if projects or activities are not implemented in time to meet an established deadline beyond the current program year.

- **Class III: Enhancement or 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 under regulation or EO and are not of an immediate nature.

The Navy funding classification of recurring and non-recurring projects consists of the following four ERLs. The descriptions of each ERL are presented in decreasing order of priority with ERL 4 having the highest priority as "must fund" compliance projects, and ERL 1 representing environmental stewardship projects.

Environmental Readiness Level 4 (ERL 4) – Environmental Compliance:

- supports all actions specifically required by law, regulation, or EO (DoD Class I and II requirements) just in time;
- supports all DoD Class 0 requirements as they relate to a specific statute such as hazardous waste disposal, permits, fees, monitoring, sampling and analysis, and reporting and record keeping;
- supports recurring administrative, personnel, and other costs associated with managing environmental programs that are necessary to meet applicable compliance requirements (DoD Class 0);
- supports DoD policy requirement to comply with overseas Final Governing Standards (FGS) and Overseas Environmental Baseline Guidance Document (OEBGD); and
- 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.

Environmental Readiness Level 3 (ERL 3) – Navy Proactive Involvement:

- supports all capabilities provided by ERL 4;
- supports existing level of Navy executive agent responsibilities, participation in OSD sponsored inter-department and inter-agency efforts, and OSD mandated regional coordination efforts;
- supports proactive involvement in the legislative and regulatory process to identity and mitigate requirements that will impose excessive costs or restrictions on operations and training; and
- supports proactive initiatives critical to the protection of Navy operational readiness.

Environmental Readiness Level 2 (ERL 2) – Navy or DoD Policy Requirement:

- supports all capabilities provided under ERL 3;
- supports enhanced proactive initiatives critical to the protection of Navy operational readiness;
- supports all Navy and DoD policy requirements; and
- supports investments in pollution reduction, compliance enhancement, energy conservation, and cost reduction.

Environmental Readiness Level 1 (ERL 1) – Navy Environmental Stewardship:

- supports all capabilities provided under ERL 2;
- supports proactive actions required to ensure compliance with pending/strongly anticipated laws and regulations in a timely manner and/or to prevent adverse impacts to the Navy mission; and
- supports investments that demonstrate Navy environmental leadership and proactive environmental stewardship.

5.5.2 Project Classification

The list of projects described in this INRMP consists of both "must fund" compliance-type projects and stewardship-type projects. "Must fund" compliance project requirements are for those projects and activities that are required to meet recurring natural and cultural resources conservation management requirements or current legal compliance needs, including EOs. These projects are designated ERL 4 or 3 in the Navy funding classification system, described in Section 5.5.1.

"Must fund" or ERL 4 or 3 projects could include:

- developing, updating, and revising INRMPs;
- salaries and annual training of professional personnel, in accordance with Individual Development Plans (IDP), involved in the development and implementation of INRMPs;
- terms and conditions of biological opinions issued by USFWS or NMFS;
- baseline surveys to keep INRMPs current;
- biological surveys to determine population status of endangered, threatened, and sensitive species;
- survey and monitoring programs to support the MBTA and related permits;
- wetland surveys for planning, monitoring, and/or permit applications;
- erosion control measures required to remain in compliance with natural resources protection regulations and to maintain land condition for realistic training operations;

- support of leadership roles or executive agent responsibilities for the Coastal America, Coral Reef Protection, Chesapeake Bay, and Mojave Desert Ecosystem Management Initiative; or
- Memorandum of Agreement (MOA) or MOU commitments.

This list is not meant to be all-inclusive, but is meant to provide an overview of the types of projects that could be classified as compliance or "must fund" projects.

INRMP projects are developed based on the unique circumstances facing an installation, and INRMPs also should include valid projects and programs that enhance an installation's natural resources, promote proactive conservation measures, and support investments that demonstrate Navy environmental leadership and proactive environmental stewardship. These projects are considered "stewardship" projects and fall under ERL 2 or 1 in the Navy classification system.

Examples of stewardship, or ERL 2 or 1 projects, include but are not limited to:

- community outreach activities such as Earth Day and Migratory Bird Day activities;
- education and public awareness projects such as interpretive displays, oral histories, WWAsatchable Wildlife Areas, nature trails, wildlife checklists, and conservation teaching materials;
- biological surveys or habitat protection for non-listed species;
- management and execution of volunteer and partnership programs;
- demonstration plantings of native plant materials;
- experimental conservation techniques;
- agriculture outlease improvements;
- forest stand improvements and other management efforts; or
- wildlife management efforts.

All INRMP Projects must be entered into the EPR-web system and receive approval up the chain of command prior to soliciting any signatures on the INRMP. Chief of Naval Operations N45 is the final authority for designating the appropriate ERL for a given INRMP Project.

5.6 FUNDING SOURCES

Once INRMP projects have been validated and entered into EPR-web, ERL Level 4 and 3 projects are typically programmed in for funding. ERL 2 and 1 projects are not usually funded through the EPR-web system, and alternate sources of funding should be sought for these projects. EPR-web project entries should include clear justification of funds being requested so that (1) natural resource funds are distributed wisely, and (2) funding levels are not threatened by the use of funds in ways that are inconsistent with funding program rules (Navy 2006). The primary sources for funding Navy NRPs are:

- Operations and Maintenance Funds (O&M), Navy Environmental Funds
- Legacy Resource Management Program (Legacy Program) Funds
- Forestry Revenues
- Agricultural Outleasing
- Fish and Wildlife Fees
- Recycling Funds
- Strategic Environmental Research and Development Program (SERDP) Funds
- Other Non-DoD Funds

5.6.1 Operational and Maintenance (O&M) Environmental Funds

A majority of natural resources projects are funded with O&M environmental funds and are primarily restricted to support must-fund environmental compliance projects (i.e., Navy ERL 4 projects). O&M funds are generally not allocated for ERL 1–3 projects. Other limitations for the use of O&M funds include the following.

- 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.
- When natural resources requirements are tied to a specific construction project or other action, funds for the natural resources requirements should be included in the overall project costs.

O&M Environmental Funds are expected to be the primary source of funding for GPOAC Environmental Compliance Projects.

5.6.2 The Legacy Resource Management Program

The Legacy Resource Management Program (Legacy Program) was part of a special Congressional mandated initiative for funding military conservation projects. Although the Legacy Program was originally funded for the period of 1991–1996, funds for new projects have continued to be available through this program (Navy 2006). Legacy Program funds can be used 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. Requests for Legacy funds should consider the following:

- The availability of Legacy funds is generally uncertain early in the year.
- Pre-proposals for Legacy projects are due in March and submitted using the Legacy Tracker Website: http://www.dodlegacy.org/

- Project proposals are reviewed by the Navy chain of command before being submitted to the DOD Legacy Resources Management Office for final project selection.
- The Legacy website provides further guidance on the proposal process and types of projects requested.

Legacy Program funds should be a potential funding source for GPOAC INRMP projects.

5.6.3 Forestry Revenues

Forestry Revenues originate from the sale of forest products on Navy lands and can be used to fund forestry and potentially other natural resources management programs. Forestry revenues are given preference for funding the Annual Navy Forestry Funds and the DoD Forestry Reserve Account. Annual Navy Forestry Funds are used to support commercial forestry operations at installations. Forestry revenues are first used to reimburse commercial forestry expenses; then, as directed by DoD Financial Management Regulation 7000.14-R Volume 11A, 40% of net proceeds for the installation's fiscal year are distributed to the state in which the installation resides. The state usually uses these funds to support road systems and schools. Once the commercial forestry expenses are reimbursed and proceeds are distributed among the state counties, any remaining amount is transferred to a holding account known as the DoD Forestry Reserve Account.

Forestry Revenues can also be used (1) to fund the improvement of forested lands; (2) to fund unanticipated contingencies associated with administration of forested lands and production of forest products, for which other sources of funds are not available; and (3) for natural resources management for implementation of approved plans and agreements. For a natural resources project to be eligible for funding from Forestry Revenues it must be specifically included in an approved management plan such as an INRMP. Additionally, the INRMP project must provide for:

- fish and wildlife habitat improvements or modifications;
- range rehabilitation where necessary for support of wildlife;
- control of off-road vehicle traffic;
- specific habitat improvement projects and related activities; and
- adequate protection for species of fish, wildlife, and plants considered threatened or endangered.

The amount of funds available through Forestry Revenues varies from year to year. It is important to note that the amount of funds remaining for natural resources management is relatively small, and although installations are not required to have a timber harvesting plan to be eligible for funds from the DoD Forestry Reserve Account, Reserve Account funds cannot be used for "must fund" environmental compliance projects. DoD Forestry Reserve Account funds are considered a potential source of funding for GPOAC INRMP projects that are not classified as environmental compliance projects.

5.6.4 Agricultural Outleasing

Agricultural Outleasing funds are collected through the leasing of Navy-owned property for agricultural use. This money is directed back into the NRP and reallocated throughout the Navy by NAVFAC Headquarters. Agricultural Outleasing funds are primarily allocated for agricultural outlease improvements, but may also potentially be used for natural resources management and stewardship projects once the primary objective is met. In addition to projects related to agricultural outleasing, these funds can be used for implementation of INRMP Stewardship Projects. Although funds available through Agricultural Outleasing vary from year to year, this funding is one of the more consistent sources for implementing INRMP projects that do not have Level 1 requirements. Agricultural Outleasing funds will be considered as a potential funding source for GPOAC INRMP projects that are not classified as environmental compliance projects.

5.6.5 Fish and Wildlife Fees

Fish and Wildlife Fees are primarily collected as part of installation hunting, fishing, or trapping programs. These fees are deposited and used in accordance with the Sikes Act and DoD financial management regulations. The Sikes Act specifies that user fees collected for hunting, fishing, or trapping shall be used only on the installation where they are collected, and be used exclusively for fish and wildlife conservation and management at the installation where collected. Although hunting and trapping are not currently allowed at GPOAC, fishing license fees collected as part of the GPOAC fishing program can be used to support INRMP natural resources management projects.

5.6.6 Recycling Funds

Installations that have a Qualified Recycling Program (QRP) may use their proceeds for some types of natural resources projects. Any proceeds collected as part of the installation QRP must first be used to cover QRP costs, and then up to 50% of the net proceeds can 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. GPOAC does not currently participate in a QRP, so Recycling Funds are not expected to be used to support any of the natural resources projects recommended in this INRMP.

5.6.7 Strategic Environmental Research and Development (SERDP) Funds

SERDP is DoD's corporate environmental research and development (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 (Navy 2006). SERDP funds are allocated for environmental and conservation projects through a competitive process. The focus of SERDP is on Cleanup, Compliance, Conservation, and Pollution Preventions

technologies. Due to the competitive process involved with allocation of SERDP Funds, GPOAC is not expected to receive funds through this source for implementation of INRMP projects.

5.6.8 Non-DoD Funds

Non-DoD Funds, such as those received from grant programs, are available to fund natural resources management projects, such as watershed management and restoration, habitat restoration, and wetland and riparian area restoration. Federally funded grant programs typically require non-federal matching funds; however, installations can partner with other groups for preparing proposals for eligible projects. GPOAC will consider grant funding and partnerships as a potential funding source for INRMP natural resources projects.

5.7 COMMITMENT

This INRMP will require formal adoption by the Portsmouth Naval Shipyard Commanding Officer to ensure commitment for pursuing funding and to execute all ERL Level 4 Projects, subject to the availability of funding. Funding of ERL Level 4 Projects will be pursued within the specific timeframes identified in Appendix E of this INRMP.

5.8 USE OF COOPERATIVE AGREEMENTS

A cooperative agreement is used to acquire goods or services, or stimulate an activity that will be implemented for the public good. Section 103a of the Sikes Act (16 USC §670c-1) provides the authority to enter into cooperative agreements with state and local governments, nongovernmental organizations, and individuals to provide for the maintenance and improvement of natural resources, or to benefit natural and historic research, on DoD installations. In addition to a standard cooperative agreement, examples of other agreements include MOU and Cooperative Assistance Agreements. Funds appropriated for multiyear agreements during a fiscal year may be obligated to cover the cost of goods and services provided under a cooperative agreement entered into or through an agency agreement under section 1535 of Title 31 during any 18-month period beginning in that fiscal year, without regard to whether the agreement crosses fiscal years. Cooperative agreements entered into are subject to the availability of funds.

EO 13352, *Facilitation of Cooperative Conservation* (26 August 2004), directs that the Secretaries of the Interior, Agriculture, Commerce, and Defense, and the Administrator of the EPA shall, to the extent permitted by law and subject to the availability of appropriations and in coordination with each other as appropriate:

- carry out the programs, projects, and activities of the agency that they respectively head that implement laws relating to the environment and natural resources in a manner that facilitates cooperative conservation;
- take appropriate account of and respect the interests of persons with ownership or other legally recognized interests in land and other natural resources;
- properly accommodate local participation in federal decision-making; and

- ensure that the programs, projects, and activities are consistent with protecting public health and safety.

The Navy is seeking cooperative agreements with USFWS and MDIFW as part of implementation of this INRMP, and copies of these agreements, if obtained, will be added to Appendix A of this document.

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6.0 MANAGEMENT RECOMMENDATIONS SUMMARY

This section presents a summary of the management recommendations that were described for each of the programmatic objective management areas established for GPOAC and discussed in Section 3.0 and Section 4.0. The recommendations have been organized by the programmatic objectives introduced in Section 1.5.2 and discussed in Section 3.0 and Section 4.0.

For prioritization and budgeting purposes, each action or project recommended in this INRMP is listed in the project table provided in Appendix E. The prime legal drivers, Navy assessment level (described in the Chief of Naval Operations Navy Environmental Requirements Guidebook), cost estimate, potential funding source, and schedule for each action or project, are identified in the Appendix E project table; NRP administration and day-to-day program activities are not included in the table. Policy guidance provided in DoDI 4715.3 states that each military service will be responsible for obtaining funding for natural resources projects. The prioritized natural resources projects summarized in this section and Appendix E utilizes the Navy program hierarchy described in Section 5.5.1 and the project classification system described in Section 5.5.2.

Conserving Biodiversity on Military Lands: A Guide for Natural Resources Managers (Benton et al. 2008) provides background information for natural resources managers, as well as examples and tools to aid in the development of ecosystem-based biodiversity conservation strategies in the context of the military mission and preparation of INRMPs. This guide is a useful source of assistance and guidance, and should be consulted for additional information when implementing any of the following management recommendations. Due to the inherent difficulties of improving conservation and management of natural resources while still meeting the military or operational mission, there will always be opportunities to improve management practices, promote stewardship, and contribute to the mission through biodiversity conservation.

6.1 GPOAC MANAGEMENT RECOMMENDATIONS

Each of the following recommendations or guidelines falls within one of four ERLs, as listed below in descending order of priority:

- ERL 4 – Environmental Compliance
- ERL 3 – Navy Proactive Involvement
- ERL 2 – Navy or DoD Policy Requirement
- ERL 1 – Navy Environmental Stewardship

Refer to Section 5.5 for the specific descriptions that are associated with each of the ERLs.

6.1.1 Environmental Readiness Level 4: Environmental Compliance

There are no ERL 4 INRMP projects proposed for the plan period of 2012–2017.

6.1.2 Environmental Readiness Level 3: Navy Proactive Involvement

Land Management

- ☞ LA04: Conduct annual erosion surveys to identify soil erosion problem areas. These surveys should focus on the identification of erosion along roadways, trails, and footpaths, and areas of ground disturbance adjacent to and along edges of wetlands, surface waters, and shoreline.
- ☞ LA05: Develop and implement erosion remedial and preventive measures to protect water quality and ensure shoreline stabilization, based on annual survey results.
- ☞ LA10: Prepare a handout that can be provided to anglers and posted at all GPOAC boat docks and the Welcome Center that describes safe boat practices when moving between waterbodies to prevent introduction and spread of invasive aquatic plant species.

Land Management and Fish and Wildlife Management

- ☞ LA03 and FW01: Conduct an assessment of potential locations for riparian buffer restoration or enhancement areas that currently exist at GPOAC. Where restoration or enhancement opportunities exist, use bioengineering techniques to stabilize compromised streambanks and use native plant species.
- ☞ LA11 and FW02: Conduct a comprehensive vernal pool survey of GPOAC using MDIFW protocols. This survey should include identification of all potential vernal pools using a combination of desktop review and site visits to ground-truth and survey each potential vernal pool. The survey should be conducted during the appropriate survey window as determined by MDIFW to record evidence of use by breeding, obligate vernal pool species. Unique features of the pools, photographic documentation, and mapping of the geographic position of each pool should also be conducted.

Land Management and Forestry Management

- ☞ LA02 and FO01: Prepare a Shoreland Zone Management Plan for GPOAC, which provides recommendations for protecting the shoreline zone from negative impacts that may result from development, natural resources management, or maintenance activities. The document should include guidance and recommendations for activities associated with cutting trees within the shoreland zone that are consistent with the Maine Guidance for Shoreland Zoning.

Fish and Wildlife Management

- ☞ FW08: Prepare a Bat Management Plan for GPOAC that includes periodic monitoring to assess bat populations and disease, habitat surveys, and guidance for control and removal of nuisance bats. If special status bat species are identified during monitoring, the plan

should be updated to include specific management and conservation actions for protection of these species. The forestry management plan (FW03 and FO04) should include measures for protection of standing dead trees (i.e., snags) and trees with loose bark, which represent important roosting habitat for bats.

☞ FW12: Finalize the GPOAC Bald Eagle Management Plan.

Fish and Wildlife Management and Outdoor Recreation Management

☞ FW09 and OR02: Prepare a handout that outlines the Maine laws pertaining to bait fish that can be provided to visitors who purchase fishing licenses or rent fishing equipment from the Welcome Center.

Forestry Management

☞ FO02: Conduct selective cutting of 4–5 cords of wood each year from GPOAC forests, consistent with the requirements of the Maine Guidance for Shoreland Zoning for activities associated with cutting trees. These recommendations should be included in the Shoreland Zone Management Plan (LA02 and FO01).

6.1.3 Environmental Readiness Level 2: Navy or DoD Policy Requirement

Land Management

☞ LA08: Conduct removal and restoration of areas infested with invasive species. For small stands, manual removal of all aboveground biomass as well as the underground rhizome by which they spread is preferred. If manual removal is not feasible, stands should be treated with an approved herbicide, such as glyphosate.

☞ LA12: Provide periodic training for environmental staff regarding implementation of erosion and sediment control measures and use of effective BMPs. MDEP provides annual erosion and sediment control courses.

☞ LA13: Provide training for environmental ~~staff~~ and grounds maintenance ~~personnel~~staff for identification of wetlands and to avoid impacts to key vegetation species and wetland habitats identified in this INRMP for conservation and protection.

Land Management and Fish and Wildlife Management

☞ LA14 and FW17: Provide professional training for environmental staff~~personnel~~ to include Field Techniques for Invasive Plant Management, Conservation Biology (both courses offered at the NCTC), and Pest Applicator Certification Training (offered by the Armed Forces Pest Management Board). Table 3.1 provides the contact information for potential training opportunities.

Land Management, Fish and Wildlife Management, Forestry Management, and Outdoor Recreation Management

- ☞ LA15, FW18, FO06, and OR12: Work with the NAVFAC Mid-Atlantic GeoReadiness Center to develop a GIS system for storing GPOAC natural resources data.
- ☞ LA16, FW19, FO07, and OR13: Provide GIS training to environmental staff to maintain the GIS database.

6.1.4 Environmental Readiness Level 1: Navy Environmental Stewardship

Land Management

- ☞ LA06: Conduct a natural community type survey of GPOAC to ground-truth GIS data of the vegetative community types present.
- ☞ LA09: Conduct annual site surveys to proactively identify and treat new occurrences of invasive species and monitor restoration sites for regrowth. An annual survey of the waterbodies also should be conducted to evaluate the presence of invasive aquatic species, such as milfoil and hydrilla. If these or other invasive aquatic species are identified, the NRM will coordinate with MDEP to determine if actions to remove these species are necessary.

Land Management and Fish and Wildlife Management

- ☞ LA01 and FW13: Conduct biannual monitoring, or more frequently as needed, of invasive and nuisance wildlife, including beavers and bats, to determine whether wildlife removal, relocation, or other remedial actions are necessary to protect natural resources and/or human health and safety.~~LA01 and FW13: Conduct biannual monitoring of invasive and nuisance wildlife to determine whether wildlife removal or other remedial actions are necessary to protect natural resources and/or human health and safety.~~

Land Management and Outdoor Recreation Management

- ☞ LA07 and OR01: Develop a plant checklist that can be incorporated into a GPOAC Naturalist Guide (see Project OR03) for use by visitors on nature walks and hikes for identifying native plant species that are common to GPOAC and the local area.

Fish and Wildlife Management

- ☞ FW05: Conduct baseline surveys to assess the presence of mammals, birds, amphibians, reptiles, fish, and invertebrates at GPOAC. Survey methods should yield a

comprehensive species list and representative data for the diversity and relative abundance of the fish and wildlife occurring at GPOAC.

- ☞ FW06: Install nest boxes to enhance existing bird habitat, taking into consideration nest box dimensions, size of entrance opening, and placement height and location for the species being targeted.
- ☞ FW07: Install bat houses where appropriate habitat exists at GPOAC. Bat house construction methods and placement should follow guidelines provided by BCI.
- ☞ FW14: Establish a partnership with PARC to create and implement an amphibian and reptile monitoring program at GPOAC.
- ☞ FW15: Establish a partnership with IBP to create MAPS stations at GPOAC through coordination with the northeast region of DoD PIF.

Fish and Wildlife Management and Forestry Management

- ☞ FW03 and FO04: Develop a Forest Management Plan upon completion of the forest characterization assessment. The management plan should include a summary of field characterization data including the stand boundaries and a description of each forest type including, but not limited to, dominant and common tree species, sizes, age class, absolute density, soils, topography, key habitat features, and any other distinctive features. In addition, the plan should include a prescription for each forest type and a schedule for conducting forest health monitoring. The management plan should focus on opportunities for improving the forest for wildlife habitat, and provide recommendations for selectively cutting trees for firewood and camp wood. Forest health monitoring should be conducted once every 5 years and the results incorporated into the Forest Management Plan as an update to reflect the findings of the monitoring and management recommendations, if appropriate.
- ☞ FW04 and FO05: Conduct a desktop review of conifer-dominated forest types to assess the forested communities at GPOAC for potential deer wintering habitat (i.e., DWA). This desktop review should be ground-truthed to verify winter use by deer. The findings of this assessment, as well as appropriate management recommendations, should be included in the Forest Management Plan.

Fish and Wildlife Management and Outdoor Recreation Management

- ☞ FW10 and OR09: Establish WWAs~~Watchable Wildlife Areas~~ in areas where there is an abundance of wildlife activity.
- ☞ FW11 and OR10: Install benches and interpretive signs at each of the WWAs~~atchable Wildlife Areas~~ to enhance and promote the use of these areas, and to encourage viewers to remain in the viewing area to avoid disturbing the wildlife being observed.

- ☞ FW16 and OR11: Establish partnership with the National Audubon Society to conduct the annual Christmas Bird Count at GPOAC and allow visitors to participate in this birding activity.

Forestry Management

- ☞ FO03: Conduct a basic characterization for each of the forest types that occur at GPOAC. The characterization should include delineation of each stand, which is an easily defined area of the forest containing the same species mixture with similar heights, ages, diameters, densities, soils, health, or other unifying characteristics (Maine Forest Service, Department of Conservation 2006). Data collected during the field assessment should include dominant and common tree species, sizes, age class, absolute density, soils, topography, key habitat features, and any other distinctive features.

Outdoor Recreation Management

- ☞ OR03: Develop a Naturalist Guide for GPOAC that contains a plant, bird, and wildlife checklist. This guide can be provided to visitors for use on natural walks or hikes and for educational purposes.
- ☞ OR04: Install additional camping platforms.
- ☞ OR05: Create hiking trails.
- ☞ OR06: Create footpaths to connect camping areas.
- ☞ OR07: Install additional seasonal boat docks.
- ☞ OR08: Conduct a carrying capacity assessment of all recreational facilities, including assessment of current and proposed facilities.~~Conduct a carrying capacity assessment of all existing and proposed recreational facilities.~~

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8.0 LIST OF ACRONYMS AND ABBREVIATIONS

ACM	Asbestos-Containing Material
AD	Anno Domini
AFB	Air Force Base
ASTs	above-ground storage tanks
BCI	Bat Conservation International
BCR	Bird Conservation Region
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
CNRMA	Commander Navy Region Mid-Atlantic
CWA	Clean Water Act
CWCS	Comprehensive Wildlife Conservation Strategy
DoD	Department of Defense
DoDI	Department of Defense Instruction
DoE	Department of Energy
DWA	Deer Wintering Area
EA	Environmental Assessment
Eagle Act	Bald and Golden Eagle Protection Act
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
EPR	Environmental Program Requirements
ERL	Environmental Readiness Level
ESA	Endangered Species Act
ESCPs	erosion and sedimentation control plans
ºF	Fahrenheit
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FGS	Final Governing Standards
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
GOM-DPS	Gulf of Maine–Distinct Population Segment
GPOAC	Great Pond Outdoor Adventure Center
GPS	Global Positioning System
GRC	GeoReadiness Center
HUC	Hydrologic Unit Code
IBA	Important Bird Area
IBP	Institute for Bird Populations
ICRMP	Integrated Cultural Resources Management Plan
IDP	Individual Development Plans
INRMP	Integrated Natural Resource Management Plan
IPM	Integrated Pest Management
IR	Installation Restoration

LBP	lead-based paint
Legacy Program	Legacy Resource Management Program
m	Meters
MAPS	Monitoring Avian Productivity and Survivorship
MBTA	Migratory Bird Treaty Act
MDEP	Maine Department of Environmental Protection
MDIFW	Maine Department of Inland Fisheries and Wildlife
MHPC	Maine Historic Preservation Commission
MNAP	Maine Natural Areas Program
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MRSA	Maine Revised Statute Annotated
MSPO	Maine State Planning Office
MWR	Morale, Welfare and Recreation
NAVFAC	Naval Facilities Engineering Command
NCTC	National Conservation Training Center
Navy	U.S. Department of the Navy
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
NRM	Natural Resources Manager
NRP	Natural Resources Program
NRPA	Natural Resources Protection Act
NWI	National Wetland Inventory
NWP	Nationwide Permit
O&M	Operation and Maintenance
OEBGD	Overseas Environmental Baseline Guidance Document
OPNAVINST	Chief of Naval Operations Instructions
OSD	Office of the Secretary of Defense
PARC	Partners in Amphibian and Reptile Conservation
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
PIF	Partners in Flight
PFO	palustrine forested
PSS	palustrine scrub-shrub
PUB	palustrine unconsolidated bottom
PWD-ME	Public Works Department Maine
QRP	Qualified Recycling Program
R&D	Research and Development
RPM	Real Property Maintenance
RV	recreational vehicle
SAIA	Sikes Act Improvement Act
SECNAVINST	Secretary of the Navy Instruction
SERDP	Strategic Environmental Research and Development Program

SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Officer
SWPPP	Stormwater Pollution Prevention Plan
U.S.	United States
USACE	United States Army Corps of Engineers
USAF	U.S. Department of the Air Force
USC	U.S. Code
USDA NRCS	U.S. Department of Agriculture, Natural Resources Conservation Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USTs	Underground Storage Tanks
WWAs	watchable wildlife areas
%	Percent

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APPENDIX A

INRMP Cooperative Summary

ENCLOSURES

- **Mutual Agreement – Federal**
- **Mutual Agreement – State**
- **Public Comment Process**
- **Environmental Assessment**

APPENDIX B

Species Lists

ENCLOSURES

- **Flora**
- **Fauna**
    - **Birds**
    - **Mammals**
    - **Amphibians and Reptiles**

APPENDIX C

Fact Sheets & Guidance Documents

ENCLOSURES

- **Species Fact Sheets**
  - **Canada Lynx Fact Sheet**
  - **American Pipit Fact Sheet**
  - **Common Moorhen Fact Sheet**
  - **Peregrine Falcon Fact Sheet**
  - **Milfoil Fact Sheet**
- **Guidance Documents**
  - **Chapter 335 of the Natural Resources Protection Act (NRPA): Significant Wildlife Habitat**
  - **Guidelines for Wildlife: Managing Deer Wintering Areas in Northern, Western and Eastern Maine**
  - **Maine Laws Pertaining to Bait Dealers and Use of Live Bait Fish**

APPENDIX D

National Bald Eagle Management Guidelines
and
Draft GPOAC Bald Eagle Management Plan

APPENDIX E

GPOAC Project Implementation Schedule

Appendix E. GPOAC Natural Resources Project Schedule, 2012–2017, Hancock County, Maine.

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
Land Management								
LA01 and FW13	Conduct biannual monitoring, or more frequently as needed, of invasive and nuisance wildlife, including beavers and bats, to determine whether wildlife removal, relocation, or other remedial actions are necessary to protect natural resources and/or human health and safety.~~Conduct biannual monitoring of invasive and nuisance wildlife to determine whether wildlife removal or other remedial actions are necessary to protect natural resources and/or human health and safety.~~	3.1.1 and 3.2.3	Biannually beginning in 2012	A, G, H	II	1	$1,500	OM&N, FR, AO
LA02 and FO01	Prepare a Shoreland Zone Management Plan, which provides recommendations for protecting the shoreline zone from negative impacts that may result from development, natural resources management, or maintenance activities. The document should include guidance and recommendations for activities associated with cutting trees within the shoreland zone that are consistent with the Maine Guidance for Shoreland Zoning.	3.1.1.1 and 3.3.1	2013	A, C, F	II	3	TBD	OM&N, FR, Non-DoD

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
LA03 and FW01	Conduct an assessment of potential locations for riparian buffer restoration or enhancement areas. Where restoration or enhancement opportunities exist, use bioengineering techniques to stabilize compromised streambanks and plant using native species.	3.1.1.2 and 3.2.1	2013 – 2015	E, F, G, H	III	3	$13,000	FR, AO, Non-DoD
LA04	Conduct annual erosion surveys to identify soil erosion problem areas. Surveys should focus on the identification of erosion areas located along roadways, trails, and footpaths, and areas of ground disturbance adjacent to, and along edges of wetlands, surface waters, and shoreline.	3.1.1.3	Annually beginning in 2012	E, F, G	0	3	$1,500	OM&N, FR
LA05	Develop and implement erosion remedial and preventive measures to protect water quality and ensure shoreline stabilization, based on annual survey results.	3.1.1.3	Annually beginning in 2012	E, F, G	0	3	$17,000	OM&N, FR
LA06	Conduct a natural community type survey of GPOAC to ground-truth GIS data of the vegetative community types present.	3.1.2	2013 – 2015	A	III	1	$22,500	FR, AO, Non-DoD

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
LA07 and OR01	Develop a plant checklist that can be incorporated into the Naturalist Guide (Project OR03) that can be used by visitors on nature walks and hikes for identifying native plant species common to GPOAC and the local area.	3.1.2 and 3.4.1	2013 – 2015	A	III	1	$16,000	FR, AO, Non-DoD
LA08	Conduct removal and restoration of areas infested with invasive species. For small stands, manual removal of all aboveground biomass, as well as the underground rhizome by which they spread is preferred. If manual removal is not feasible, stands should be treated with an approved herbicide, such as glyphosate.	3.1.3	2013, and conducted as needed	A, G	III	2	$31,250	FR, AO
LA09	Conduct annual site surveys to proactively identify and treat new occurrences of invasive species, and to monitor restoration sites for regrowth. An annual survey of GPOAC waterbodies should also be conducted to evaluate the presence of invasive aquatic species, such as milfoil and hydrilla. If these or other invasive aquatic species are identified, the NRM will coordinate with MEDEP to determine if actions to remove these species are necessary.	3.1.3	Annually	A, G	III	1	$1,500	FR, AO

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
LA10	Prepare a handout that can be provided to anglers and posted at all GPOAC boat docks and the Welcome Center that describes safe boat practices when moving between waterbodies for preventing the introduction of invasive aquatic plant species.	3.1.3	2013	A	III	3	$1,440	FR, AO
LA11 and FW02	Conduct a comprehensive vernal pool survey of GPOAC using MDIFW protocols. Survey should include identification of all potential vernal pools using a combination of desktop review and site visits to ground-truth and survey each potential vernal pool. Survey should be conducted during the appropriate survey window as determined by MDIFW to record evidence of use by breeding, obligate vernal pool species. Unique features of the pools, photographic documentation, and GIS mapping of each pool should also be conducted.	3.1.5 and 3.2.1	2013	A	III	3	$21,000	FR, AO
LA12	Provide periodic training for environmental staff ~~personnel~~ regarding implementation of erosion and sediment control measures and use of effective BMPs. MDEP provides annual erosion and sediment control courses.	3.1.11	2013	A, E, F, G, H	II	2	$3,000	FR,AO

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
LA13	Provide training for environmental ~~staff~~ and grounds maintenance ~~personnel~~staff for identification of wetlands, and for avoiding impacts to key vegetation species and wetland habitats identified in for conservation and protection.	3.1.11	2013	A, E, F, G, H	II	2	$3,000	FR,AO
LA14 and FW17	Provide professional training for environmental staff~~personnel~~ to include Field Techniques for Invasive Plant Management, Conservation Biology (both courses offered at the NCTC), and Pest Applicator Certification Training (offered by the Armed Forces Pest Management Board).	3.1.11 and 3.2.6	2013	A	II	2	$3,000	FR,AO
LA15, FW18, FO06, and OR12	Work with the NAVFAC Mid-Atlantic GeoReadiness Center to develop a GIS system for storing GPOAC natural resources data.	3.1.12	2013	A	II	2	$3,600	FR,AO
LA16, FW19, FO07, and OR13	Provide training to environmental staff to maintain the GPOAC GIS database.	3.1.12	2013	A	II	2	$3,600	FR,AO
Fish and Wildlife Management								

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
LA03 and FW01	Conduct an assessment of potential locations for riparian buffer restoration or enhancement areas. Where restoration or enhancement opportunities exist, use bioengineering techniques to stabilize compromised streambanks and plant using native species.	3.1.1.2 and 3.2.1	2013 – 2015	E, F, G, H	III	3	$13,000	FR, AO, Non-DoD
LA11 and FW02	Conduct a comprehensive vernal pool survey of GPOAC using MDIFW protocols. Survey should include identification of all potential vernal pools using a combination of desktop review and site visits to ground-truth and survey each potential vernal pool. Survey should be conducted during the appropriate survey window as determined by MDIFW to record evidence of use by breeding, obligate vernal pool species. Unique features of the pools, photographic documentation, and GIS mapping of each pool should also be conducted.	3.1.5 and 3.2.1	2013	A	III	3	$21,000	FR, AO

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
FW03 and FO04	Develop a Forest Management Plan upon completion of the forest characterization assessment. The management plan should include a summary of field characterization data including stand boundaries and description forest types including, but not limited to, dominant and common tree species, sizes, age class, absolute density, soils, topography, key habitat features, and any other distinctive features. Plan should also include a prescription for each forest type and a schedule for conducting forest health monitoring. The management plan should focus on opportunities for improving the forest for wildlife habitat, and should provide recommendations for selectively cutting trees for firewood and camp wood. Forest health monitoring should be conducted once every 5 years and the results incorporated into the management plan as an update to reflect the findings of the monitoring and management recommendations, if appropriate.	3.2.1 and 3.3.1	2013 – 2015	A	III	1	$37,000	FR, AO

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
FW04 and FO05	Conduct a desktop review of conifer-dominated forest types to assess forested communities for potential deer wintering habitat (i.e., DWA). The desktop review should be ground-truthed to verify winter use by deer. The findings of this assessment, as well as appropriate management recommendations, should be included in the Forest Management Plan (see Project FW03 and FO04).	3.2.1 and 3.3.1	2013	A	III	1	$15,000	FR, AO
FW05	Conduct baseline surveys to assess the presence of mammals, birds, amphibians, reptiles, fish, and invertebrates at GPOAC. Survey methods should yield a comprehensive species list and representative data for the diversity and relative abundance of the fish and wildlife occurring at GPOAC. Results should be incorporated into the Naturalist Guide (Project OR03).	3.2.1	2013	A	III	1	$49,000	FR, AO
FW06	Install nest boxes to enhance existing bird habitat, taking into consideration nest box dimensions, size of entrance opening, and placement height and location for the species being targeted.	3.2.1	2013	A	III	1	$3,920	FR, AO

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
FW07	Install bat houses in appropriate habitat. Bat house construction methods and placement should follow guidelines provided by BCI.	3.2.1	2013	A	III	1	$3,920	FR, AO, Non-DoD
FW08	Prepare a Bat Management Plan for GPOAC that includes periodic monitoring to assess bat populations and disease, habitat surveys, and guidance for control and removal of nuisance bats. If special status bat species are identified during monitoring, the plan should be updated to include specific management and conservation actions for protection of these species. The forestry management plan (FW03 and FO04) should include measures for protection of standing dead trees (i.e., snags) and trees with loose bark, which represent important roosting habitat for bats.	3.2.1	2013	A, C	II	3	TBD	OM&N, FR, Non-DoD
FW09 and OR02	Prepare a handout that outlines the Maine laws pertaining to bait fish that can be provided to visitors who purchase fishing licenses or rent fishing equipment from the Welcome Center.	3.2.1 and 3.4.1	2012	A	III	3	$1,640	FR, AO
FW10 and OR09	Establish WWAs~~atchable Wildlife Areas~~ in areas where there is an abundance of wildlife activity.	3.2.1 and	2013	A	III	1	$22,500	FR, AO, Non-DoD

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
FW11 and OR10	Install benches and interpretive signage at each of the WWAs~~Watchable Wildlife Areas~~ to enhance and promote the use of these areas, and to encourage viewers to remain in the viewing area to avoid disturbing the wildlife being observed.	3.2.1 and 3.4.2	2013	A	III	1	$7,800	FR, AO, Non-DoD
FW12	Finalize the GPOAC Bald Eagle Management Plan.	3.2.2	2013	A, B, D	III	3	$6,300	FR, AO, Non-DoD
LA01 and FW13	Conduct biannual monitoring, or more frequently as needed, of invasive and nuisance wildlife, including beavers and bats, to determine whether wildlife removal, relocation, or other remedial actions are necessary to protect natural resources and/or human health and safety.~~Conduct biannual monitoring of invasive and nuisance wildlife to determine whether wildlife removal or other remedial actions are necessary to protect natural resources and/or human health and safety.~~	3.1.1 and 3.2.3	Biannually beginning in 2012	A, G, H	II	1	$1,500	OM&N, FR, AO
FW14	Establish a partnership with PARC to create and implement an amphibian and reptile monitoring program at GPOAC.	3.2.4	2013	A, C	III	1	TBD	LP, FR, AO, Non-DoD
FW15	Establish a partnership with IBP to create MAPS stations at GPOAC through coordination with the northeast region of DoD PIF.	3.2.4	2013	A	III	1	$22,500	FR, AO, Non-DoD

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
FW16 and OR11	Establish partnership with the National Audubon Society to conduct the annual Christmas Bird Count at GPOAC and allow visitors to participate in this birding activity.	3.2.4 and 3.4.3	2013	A	III	1	No cost	FR, AO, Non-DoD
LA14 and FW17	Provide professional training for environmental staff~~personnel~~ to include Field Techniques for Invasive Plant Management, Conservation Biology (both courses offered at the NCTC), and Pest Applicator Certification Training (offered by the Armed Forces Pest Management Board).	3.1.11 and 3.2.6	2013	A	II	2	$3,000	FR,AO
LA15, FW18, FO06, and OR12	Work with the NAVFAC Mid-Atlantic GeoReadiness Center to develop a GIS system for storing GPOAC natural resources data.	3.1.12	2013	A	II	2	$3,600	FR,AO
LA16, FW19, FO07, and OR13	Provide training to environmental staff to maintain the GPOAC GIS database.	3.1.12	2013	A	II	2	$3,600	FR,AO
Forestry Management								

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
LA02 and FO01	Prepare a Shoreland Zone Management Plan, which provides recommendations for protecting the shoreline zone from negative impacts that may result from development, natural resources management, or maintenance activities. The document should include guidance and recommendations for activities associated with cutting trees within the shoreland zone that are consistent with the Maine Guidance for Shoreland Zoning.	3.1.1.1 and 3.3.1	2013	A, C, F	II	3	TBD	OM&N, FR, Non-DoD
FO02	Conduct selective cutting of 4–5 cords of wood each year from GPOAC forests, consistent with the requirements of the Maine Guidance for Shoreland Zoning for activities associated with cutting trees. These recommendations should be included in the Shoreland Zone Management Plan (LA02 and FO01).	3.3.1	Annually beginning in 2012	A, C, F	II	3	TBD	OM&N, FR, Non-DoD

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
FO03	Conduct a basic characterization for GPOAC forest types. The characterization should include delineation of each stand, which is an easily defined area of the forest containing the same species mixture with similar heights, ages, diameters, densities, soils, health, or other unifying characteristics (Maine Forest Service, Department of Conservation 2006). Data collected during the field assessment should include dominant and common tree species, sizes, age class, absolute density, soils, topography, key habitat features, and any other distinctive features.	3.3.1	2013 – 2015	A	III	1	$27,500	FR, AO

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
FW03 and FO04	Develop a Forest Management Plan upon completion of the forest characterization assessment. The management plan should include a summary of field characterization data including stand boundaries and description forest types including, but not limited to, dominant and common tree species, sizes, age class, absolute density, soils, topography, key habitat features, and any other distinctive features. Plan should also include a prescription for each forest type and a schedule for conducting forest health monitoring. The management plan should focus on opportunities for improving the forest for wildlife habitat, and should provide recommendations for selectively cutting trees for firewood and camp wood. Forest health monitoring should be conducted once every 5 years and the results incorporated into the management plan as an update to reflect the findings of the monitoring and management recommendations, if appropriate.	3.2.1 and 3.3.1	2013 – 2015	A	III	1	$37,000	FR, AO

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
FW04 and FO05	Conduct a desktop review of conifer-dominated forest types to assess the forested communities at GPOAC for potential deer wintering habitat (i.e., DWA). This desktop review should be ground-truthed to verify winter use by deer. The findings of this assessment, as well as appropriate management recommendations, should be included in the Forest Management Plan (Project FW03 and FO04).	3.2.1 and 3.3.1	2013	A	III	1	$15,000	FR, AO
LA15, FW18, FO06, and OR12	Work with the NAVFAC Mid-Atlantic GeoReadiness Center to develop a GIS system for storing GPOAC natural resources data.	3.1.12	2013	A	II	2	$3,600	FR,AO
LA16, FW19, FO07, and OR13	Provide training to environmental staff to maintain the GPOAC GIS database.	3.1.12	2013	A	II	2	$3,600	FR,AO
Outdoor Recreation Management								
LA07 and OR01	Develop a plant checklist that can be incorporated into the Naturalist Guide (Project OR03) that can be used by visitors on nature walks and hikes for identifying native plant species common to GPOAC and the local area.	3.1.2 and 3.4.1	2013 – 2015	A	III	1	$16,000	FR, AO, Non-DoD
FW09 and OR02	Prepare a handout that outlines the Maine laws pertaining to bait fish that can be provided to visitors who purchase fishing licenses or rent fishing equipment from the Welcome Center.	3.2.1 and 3.4.1	2012	A	III	3	$1,640	FR, AO

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
OR03	Develop a Naturalist Guide for GPOAC that contains a plant and wildlife checklist.	3.4.1	2013	A	III	1	$9,050	FR, AO, Non-DoD
OR04	Install additional camping platforms.	3.4.1	2013	A	III	1	$6,500	FR, AO
OR05	Create hiking trails.	3.4.1	2013	A	III	1	$4,750	FR, AO, Non-DoD
OR06	Create footpaths to connect camping areas.	3.4.1	2013	A	III	1	$8,050	FR, AO, Non-DoD
OR07	Install additional seasonal boat docks.	3.4.1	2013	A	III	1	TBD	FR, AO, Non-DoD
OR08	Conduct a carrying capacity assessment of all recreational facilities, including assessment of current and proposed facilities.	3.4.1	2013	A	III	1	$6,000	FR, AO
FW10 and OR09	Establish WWAs~~Watchable Wildlife Areas~~ in areas where there is an abundance of wildlife activity.	3.2.1 and 3.4.2	2013	A	III	1	$22,500	FR, AO, Non-DoD
FW11 and OR10	Install benches and interpretive signage at each of the WWAs~~Watchable Wildlife Areas~~ to enhance and promote the use of these areas, and to encourage viewers to remain in the viewing area to avoid disturbing the wildlife being observed.	3.2.1 and 3.4.2	2013	A	III	1	$7,800	FR, AO, Non-DoD
FW16 and OR11	Establish partnership with the National Audubon Society to conduct the annual Christmas Bird Count at GPOAC and allow visitors to participate in this birding activity.	3.2.4 and 3.4.3	2013	A	III	1	No cost	FR, AO, Non-DoD

Project No.	Project Description	INRMP Section Ref.	Implementation Schedule (FY)	Prime Legal Driver/ Initiative[1]	Class[2]	Navy Environmental Readiness Level[3]	Cost Estimate	Funding Sources[4]
LA15, FW18, FO06, and OR12	Work with the NAVFAC Mid-Atlantic GeoReadiness Center to develop a GIS system for storing GPOAC natural resources data.	3.1.12	2013	A	II	2	$3,600	FR,AO
LA16, FW19, FO07, and OR13	Provide training to environmental staff to maintain the GPOAC GIS database.	3.1.12	2013	A	II	2	$3,600	FR,AO

[1] Legal Drivers and Initiatives:
A OPNAVINST 5090.1C Ch. 24
B Migratory Bird Treaty Act of 1918
C Sikes Act of 1960, as amended
D Endangered Species Act of 1973, 16 USC §1531 et seq.
E Clean Water Act of 1972, as amended
F Soil and Water Conservation Act of 1977, as amended
G Executive Order 11990 (Protection of Wetlands)
H Executive Order 11988 (Floodplain Management)

[2] Class 0: recurring administrative and management; Class I: current compliance; Class II: maintenance requirements; Class III: enhancement or actions beyond compliance

[3] Navy Environmental Readiness Level: Level 4=compliance requirement, Level 3=Navy proactive involvement, Level 2=Navy or DoD policy requirement, and Level 1=Navy environmental stewardship

[4] Funding Sources: OM&N=Operations and Maintenance Environmental Fund; LP=Legacy Program; FR=Forestry Revenues; AO=Agricultural Outleasing Funds; and Non-DoD=Non-DoD Funds