Integrated Natural Resources Management Plan

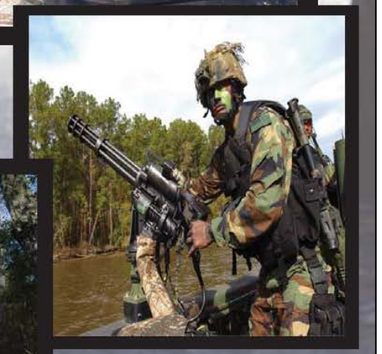
Naval Construction Battalion Center Gulfport

Stennis Western Maneuver Area

2022
Update

FINAL

# Naval Construction Battalion Center (NCBC) Gulfport
# Stennis Western Maneuver Area
# Stennis Space Center, Mississippi
# Integrated Natural Resources Management Plan



FEBRUARY 2011
Updated 2022

**Final**

# NAVAL CONSTRUCTION BATTALION CENTER (NCBC) GULFPORT
# STENNIS WESTERN MANEUVER AREA
# STENNIS SPACE CENTER, MISSISSIPPI
# INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

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**Prepared For:**
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**UPDATED 2022**

# NAVAL CONSTRUCTION BATTALION CENTER GULPORT
# STENNIS WESTERN MANEUVER AREA
# STENNIS SPACE CENTER, MISSISSIPPI

## INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
## 2022 OPERATIONS AND EFFECT CONCURRENCE

**This Integrated Natural Resource Management Plan (INRMP) provides for natural resources management at the Naval Construction Battalion Center (NCBC) Gulfport Stennis Western Maneuver Area (WMA) at the Stennis Space Center, Mississippi. The Sikes Act and Department of Defense instruction require that annual and 5-year operation and effect reviews of INRMPs occur with the U.S. Fish and Wildlife Service (USFWS) and the state fish and wildlife agencies. Representatives of the Navy, USFWS, Mississippi Department of Marine Resources (DMR), and Department of Wildlife, Fisheries, and Parks (MDWFP) participate annually in the NCBC Gulfport Stennis WMA INRMP and Natural Resources Metric review. By signing below, the USFWS, DMR, and MDWFP concur that the management actions prescribed in the INRMP will contribute to the conservation and rehabilitation of installations natural resources.**

| | |
|---|---|
| **Commanding Officer**<br>**Naval Construction Battalion Center Gulfport** | 8/3/22<br>**Date** |
| Tony Crowe<br>**Natural Resources Manager**<br>**Naval Construction Battalion Center Gulfport** | 7/26/2022<br>**Date** |
| Mary B Ann<br>**Environmental Program Manager**<br>**Commander Navy Region Southeast** | 5/24/22<br>**Date** |
| George Kenny<br>**Natural Resources Manager**<br>**Commander Navy Region Southeast** | 5/23/22<br>**Date** |
| James Austin<br>**U.S. Fish and Wildlife Service** | 7/18/22<br>**Date** |
| Jennifer Williamson<br>**Mississippi Department of Marine Resources** | 5.25.2022<br>**Date** |
| [signature]<br>**Mississippi Department of Wildlife, Fisheries, and Parks** | 7/5/22<br>**Date** 8:20 AM |

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# EXECUTIVE SUMMARY

## ES.1 Type of Document

This is an Integrated Natural Resources Management Plan (INRMP).

## ES.2 Purpose of Document

The purpose of this document is to meet statutory requirements under the Sikes Act Improvement Act (SAIA), Public Law 105-85, Div. B. Title XXIX, Nov. 18, 1997, 111 Stat 2017-2019, 2020-2022. In November 1997, the Sikes Act, 16 United States Code (U.S.C.) § 670a *et seq*., was amended to require the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations. To facilitate this program, the amendments require the Secretaries of the military departments to prepare and implement INRMPs for each military installation in the United States (U.S.) unless the absence of significant natural resources on a particular installation makes preparation of a plan for the installation inappropriate. The U.S. Department of the Navy (Navy) has prepared this INRMP for Naval Construction Battalion Center (NCBC) Gulfport for the management of Naval Special Operations Forces Training Range (Stennis Western Maneuver Area [WMA]), Hancock County, Mississippi. The property at NCBC Gulfport proper does not have sufficient natural resources to warrant an INRMP, so this INRMP applies only to the Stennis WMA property.

The INRMP is a long-term planning document to guide the installation commander in the management of natural resources to support the installation mission, while protecting and enhancing installation resources for multiple use, sustainable yield, and biological integrity. The primary purpose of the INRMP is to ensure that natural resources conservation measures and military operations on the installation are integrated and consistent with stewardship and legal requirements. This INRMP covers a 10-year period, but is reviewed annually, and has the flexibility to accommodate changes in natural resources/ecosystem management and military mission.

## ES.3 Goals and Objectives of the INRMP

The development and implementation of the INRMP is a dynamic, multidisciplinary planning process that incorporates as its primary goal the support and maintenance of

the military mission while managing, protecting, and enhancing the biological integrity of military lands and water. Furthermore, the INRMP creates an ecosystem-based conservation program that provides for conservation and rehabilitation of natural resources in a manner that is consistent with the military mission; integrates and coordinates all natural resources management activities; provides for sustainable multipurpose uses of natural resources; and provides military personnel access to natural resources subject to safety and military security considerations. The management objectives are to integrate land management, forest management, fish and wildlife management, and management for outdoor recreational opportunities, as practicable and consistent with the military mission and established land uses.

## ES.4 Projects of the INRMP

Projects are discrete actions for fulfilling a particular goal or objective. Projects may be required in order for Stennis WMA to fulfill regulatory requirements regarding natural resources management, enhance existing measures for ensuring compliance, or support or sustain military training. Projects currently planned are shown in Table ES-1.

Funding for implementation of the INRMP will come from the Commander, Naval Installations Command or Naval Facilities Engineering Command natural resources fund sources. The natural resources programs and projects described in this INRMP are divided into mandatory and stewardship categories to reflect implementation priorities. Funding will be acquired to implement Department of Defense mandatory projects in the most timely manner possible. Stewardship projects will be funded through the Installation operations and management budget and other fund sources identified in partnerships with Federal and state resources agencies.

## ES.5 Physical Environment and Ecosystems

The Stennis WMA is located in western Hancock County, with the majority of the installation within the floodplain of the East Pearl River. Habitat adjacent to the East Pearl River consists of wetlands with a mixture of bottomland hardwoods, pine hardwoods and emergent wetlands. The topography is relatively flat over most of the Stennis WMA, with higher land adjacent to the east side of the area along a state highway. There has been extensive mining for sand and fill dirt in the past, and several active surface mines are present. Due to the location within the National Aeronautical

**Table ES-1. Projects to be Implemented During Fiscal Years 2023 through 2032 in Support of the INRMP**

| Fiscal Year(s) | Project (EPR #) | Project Title | Project Description | Program Element Support |
|---|---|---|---|---|
| 2023-2032 | Project 1 (62604WBMON) | Biological Monitoring | RTE species and other species surveys | ESA compliance |
| 2023-2032 | Project 2 (62604WFIRE) | Land and Fire Management | Conduct prescribed burning and wildland fire control management | RDP |
| 2023-2032 | Project 3 (62604WINV1) | Invasive Plant Control | Inventory and conduct eradication/control plan for invasive plant species | RDP |
| 2023-2032 | Project 4 62604WSPHD) | Species Protection and Habitat Development | Fund species-specific habitat maintenance for RTE species | ESA compliance |
| 2023-2032 | Project 5 (62604WTSIF) | Timber Stand Improvement | Herbicide, fertilizer, fire and mechanical improvements for timber management | RDP |
| 2023-2032 | Project 6 (62604WWILD) | Nuisance Wildlife Management | Control/eradicate exotic animal species | ESA and RDP |
| 2023-2032 | Project 7 (62604WBSUR) | Neotropical Migratory Bird Surveys* | Inventory neotropical migratory birds | ESA and MBTA compliance |
| 2023-2032 | Project 8 (62604NRCR2) | INRMP Update and Review | Perform INRMP updates and annual reviews with partners | Sikes Act compliance |
| 2023-2032 | Project 9 (62604CN001) | Facility Space Rental for Natural Resources Management | Rent office space for the Natural Resources Management program | Sikes Act compliance |

Range Development Plan (RDP)
Endangered Species Act (ESA)
Migratory Bird Treaty Act (MBTA)

*Non-recurring; all others are recurring funds

and Space Administration (NASA) Stennis Space Center (SSC) noise buffer zone, there is no development or habitation within the Stennis WMA, and none is allowed. The Stennis WMA encompasses approximately 5,068 acres following the acquisition of 1,572 acres in 2018. With future acquisitions, the Stennis WMA will potentially attain a size of 5,220 acres.

The biotic environment is typical of a marginal floodplain, with areas of hardwood forest, extensive invasive species infestation (primarily Chinese tallow tree [*Triadica schifera*]), open water in the form of streams and rivers, as well as ponds left over from abandoned surface mines, and some open agricultural fields. A goal of the INRMP is to restore the habitat to near natural conditions.

The Gulf sturgeon (*Acipenser oxyrhinchus desotoi*) and ringed map turtle (*Graptemys oculifera*) are known to occur in the East Pearl River and Mike's River within the Stennis WMA; the measures proposed in this INRMP are expected to protect these species' habitat by improvements to quantify and qualify of stormwater runoff.

Although it is unlikely, there is the potential that activities within the Stennis WMA could generate ground disturbance (dredging and/or filling) that could impact jurisdictional wetlands or waters of the U.S. regulated by the U.S. Army Corps of Engineers under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. In the event that physical and/or natural resources are impacted, the Navy would coordinate with the applicable regulatory agency to fulfill regulatory requirements.

### ES.6 Mission Sustainability

The goal at Stennis WMA is to maintain and enhance the capability of military lands to support the training mission, while conserving the area's natural resources. Implementation of the INRMP by NCBC Gulfport will primarily focus on enhancing and sustaining the military mission, but at the same time NCBC Gulfport will implement projects designed to enhance and protect the natural resources within the Stennis WMA, since the natural habitat is necessary for success of the military mission. Issues such as uncontrolled erosion and downstream public sedimentation, inappropriate use of herbicides, and unplanned public use of Mike's River must be addressed to ensure that enforcement actions by regulatory agencies do not affect the military training mission.

Soil and sand resources present in the active surface mines in the Stennis WMA will be utilized as needed to maintain and improve the training range for the military mission. Some old abandoned surface mine areas may be evaluated for rehabilitation. Other environmental concerns, such as wetlands and non-point source pollution, are being addressed to ensure that the Stennis WMA is in compliance with Federal and State mandates and requirements.

Table ES-3, on the following page, provides a cross reference of the discussions presented in this INRMP and the April 2006 Navy Guidance for INRMPs. Sections that are not applicable for the Stennis WMA are also identified.

**Table ES-2. Cross Reference of OSD Format to Format Used in this INRMP**

| OSD recommended INRMP format | Cross reference to required information in this document |
|---|---|
| Cover Page | Cover Page |
| Signature Page | Signature Page |
| Executive Summary | Executive Summary |
| Table of Contents | Table of Contents |
| Chapter 1 - Overview | Chapter 1.0 – Overview |
| 1.a – Purpose | 1.1 – Purpose of Plan |
| 1.b – Scope | 1.2 – Scope |
| 1.c – Goals and Objectives Summary | 1.3 – Goals and Objectives |
| 1.d – Responsibilities of Stakeholders | 1.4 – Responsibilities |
| 1.e – Commitment of Regulatory Agencies | 1.8 – Commitment of Regulatory Agencies |
| 1.f – Authority | 1.5 – Authority |
| 1.g – Stewardship of Compliance Statement | 1.6 – Sustainability and Compliance |
| 1.h – Review and Revision Process | 1.7 – Review and Revision Process |
| 1.i – Management Strategies | 1.9 – Management Strategy |
| 1.j – Integration with other Plans | Not applicable |
| Chapter 2 – Current Conditions and Use | Chapter 2.0 – Current Conditions and Use |
| 2.0 – Installation Information | 2.1 – Installation Information |
| 2.a.1 – Location Statement (concise) | |
| 2.a.2 – Regional Land Use | 2.1.7 – Regional Land Uses |
| 2.a.3 – History and Pre-Military Land Use (abbreviated) | 2.1.6 – Abbreviated History and Pre-Military Land Use |
| 2.a.4 – Military Mission (concise) | 2.1.2 – Military Mission |
| 2.a.5 – Operations and Activities | 2.1.5 – Operations and Activities |
| 2.a.6 – Constraints Map | 2.1.3 – Constraints Map |
| 2.a.7 – Opportunities Map | 2.1.4 – Opportunities Map |
| 2.b – General Physical Environment and Ecosystems | 2.2 – General Physical Environment and Ecosystems |
| 2.c – General Biotic Environment | 2.3 – Biotic Environment |
| 2.c.1 – Threatened and Endangered Species and Species of Concern | 2.3.3 – Rare, Threatened and Endangered Species |
| 2.c.2 – Wetlands and Deep Water Habitats | 2.3.1 – Aquatic Habitats / 2.3.4 – Waters of the U.S. and Wetlands |
| 2.c.3 – Fauna | 2.3.5 – Fauna |
| 2.c.4 - Flora | 2.3.2 – Terrestrial Habitat |
| Chapter 3 – Environmental Management Strategy and Mission Sustainability | Chapter 3.0 – Environmental Management Strategy and Mission Sustainability |
| 3.a – Supporting Sustainability of the Military Mission and the Natural Environment | 3.1 – Supporting Sustainability of the Military Mission and the Natural Environment |
| 3.a.1 – Integrate Military Mission and Sustainability Land Use | 3.1.1 – Military and Mission and Sustainable Land Use |
| 3.a.2 – Define Impact to the Military Mission | 3.1.2 – Defining Impact on the Military Mission |
| 3.a.3 – Describe Relationship to Range Complex Management Plan or other Operational Area Plans | 3.1.3 – Relationship to Range Complex Management Plan |
| 3.b – Natural Resources Consultation Requirements (Section 7, EFH) | 3.2 – Natural Resource Consultation Requirements |
| 3.c – NEPA Compliance | 3.3 – Planning for National Environmental Policy Act Compliance |
| 3.d – Opportunities for Beneficial Partnerships and Collaborative Resource Planning | 3.4 – Beneficial Partnerships and Collaborative Resource Planning |

**Table ES-2, continued**

| OSD recommended INRMP format | Cross reference to required information in this document |
|---|---|
| 3.e – Public Access and Outreach | 3.5 – Public Access and Outreach |
| 3.e.1 – Public Access and Outdoor Recreation | 3.5.1 – Public Access and Outreach |
| 3.e.2 – Public Outreach | 3.5.2 – Public Outreach |
| 3.e.3 – Encroachment Partnering | 3.6 – Encroachment Partnering |
| 3.e.4 – State Comprehensive Wildlife Plans (SCWP) Integration | 3.7 – State Comprehensive Wildlife Plans (SCWP) |
| Chapter 4 – Program Elements | Chapter 4.0 – Program Elements |
| 4.a – Threatened and Endangered Species and Species Benefit, Critical Habitat, Species of Concern Management | 4.3.2 – Rare, Threatened and Endangered (RTE) Species |
| 4.b – Wetlands and Deep Water Habitats | 4.1.1 – Wetland Management |
| 4.c – Law Enforcement | Not Applicable |
| 4.d – Fish and Wildlife | 4.3 – Fish and Wildlife Management |
| 4.e – Forestry | 4.2 – Forest Management |
| 4.f – Vegetation | 4.1.4 – Vegetative Management |
| 4.g – Migratory Birds | 4.3.3 – Migratory Birds |
| 4.h – Invasive Species | 4.1.5 – Invasive Species Management |
| 4.i – Pest Management | Not Applicable |
| 4.j – Land Management | 4.1 – Land Management |
| 4.k – Agricultural Outleasing | Not Applicable |
| 4.l – GIS Management, Data Integration, Access, and Reporting | 4.5.2 – Geographical Information Systems, Data Integration, Access, and Reporting |
| 4.m – Outdoor Recreation | 4.4 – Outdoor Recreation |
| 4.n – Bird Aircraft Strike Hazard | 4.3.4 – Bird Aircraft Strike Hazard |
| 4.o – Wildland Fire | 4.2.2 – Wildland Fire Management |
| 4.p – Training of Natural Resource Personnel | 4.5 – Training |
| 4.q – Coastal/Marine | Not Applicable |
| 4.r – Floodplains | 4.1.3 – Floodplain Management |
| 4.s – Other Leases | Not Applicable |
| Chapter 5 - Implementation | Chapter 5.0 – Implementation |
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| 5.b – Achieving No Net Loss | 5.2 – Planning and Mission Sustainability |
| 5.c – Use of Cooperative Agreements | 5.3 – Partnerships |
| 5.d – Funding Process | 5.4 - Funding |
| Appendix 1. Acronyms | Appendix A. Abbreviations and Acronyms |
| Appendix 2. Detailed Natural Resources Prescriptions | Not Applicable |
| Appendix 3. List of Projects | Table 5-1 |
| Appendix 4. Surveys: Results of Planning Level Surveys | Not Applicable |
| Appendix 5. Research Requirements | Not Applicable |
| Appendix 6. Migratory Bird Management | Appendix D. Migratory Bird Observed at Stennis Space Center (from SSC INRMP) |
| Appendix 7. Benefits for Endangered Species | Not Applicable |
| Appendix 8. Critical Habitat | Not Applicable |

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# 1.0 OVERVIEW

## 1.1 PURPOSE OF PLAN

The purpose of this plan is to meet statutory requirements under the Sikes Act Improvement Act (SAIA), Public Law 105-85, Div. B. Title XXIX, Nov. 18, 1997. The Sikes Act, 16 United States code (U.S.C.) § 670a *et seq.*, was amended in November 1997 to require the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources on military installations. To facilitate this program, the amendments require the preparation and implementation of Integrated Natural Resources Management Plans (INRMP) for each military installation in the United States (U.S.) unless the absence of significant natural resources on a particular installation makes preparation of a plan for the installation inappropriate. While the property at NCBC Gulfport proper lacks sufficient natural resources to warrant an INRMP, there are many natural resources at the Stennis WMA property. These plans are reviewed every year by the military installations in cooperation with the state wildlife agency and U.S. Fish and Wildlife Service (USFWS) and modified as necessary. The INRMP is a long-term planning document to guide the installation commander in the management of natural resources to support the installation mission, while protecting and enhancing installation resources for multiple use, sustainable yield, and biological integrity. The primary purpose of the INRMP is to ensure that natural resources conservation measures and military operations on the installation are integrated and consistent with stewardship and legal requirements.

INRMPs are developed to balance the use of installation resources utilizing an ecosystem management approach, taking into account mission requirements and other land use activities affecting the installation. INRMPs must also be presented to the local community for public comment and prepared in cooperation with the USFWS and state fish and game agency to reflect mutual agreement on the fish and wildlife management aspects of the plan.

The U.S. Department of the Navy (Navy) is preparing this INRMP for the Naval Construction Battalion Center (NCBC) Gulfport, Stennis Western Maneuver Area (WMA)

(hereafter called the Stennis WMA) to comply with the SAIA and with Department of Defense (DoD) Instruction (DoDINST) 4715.3. This INRMP also complies with the Office of the Chief of Naval Operations Instruction (OPNAV) M-5090.1, Chapter 12, Assistant Secretary of the Navy (Installations and Environment) Memorandum of 12 August 1998, Office of the Under Secretary of Defense (OUSD) Memorandum of 21 September 1998, Chief of Naval Research letter Ser N45D/8U589016 of 25 September 1998, Chief of Naval Operations (CNO) letter Ser N456F/8U589129 of 30 November 1998, and OUSD Memorandum of 14 August 2006.

Section 1 provides a general overview of the purpose and intent of the INRMP, the processes for review, implementation of environmental management strategy, and revisions to the plan. Section 2 describes the current conditions and uses, including the general physical and biotic environment. Section 3 discusses the military mission, mission sustainability, environmental compliance, and partnerships. Section 4 outlines the ecosystem management elements and relates them to the goals, objectives, strategies, initiatives, and projects. Section 5 describes the INRMP implementation including projects, cooperative agreements and funding. A list of acronyms and abbreviations used in the INRMP is provided as Appendix A. Appendix B provides a list of references used in the preparation of this INRMP.

## 1.2 SCOPE

The Stennis WMA is located within the noise buffer zone of the Stennis Space Center (SSC) in southwest Mississippi (Figure 1-1). The scope of the INRMP includes all lands currently managed by NCBC Gulfport at the Stennis WMA (Figure 1-2), creating the framework for the implementation of a natural resources management program to provide for the conservation and rehabilitation of natural resources. Appropriate and effective management of natural resources on Navy lands will be achieved in accordance with the principles and practices of ecosystem management. It is not a pest management plan, hazardous waste plan, or stormwater retention plan. This INRMP has a dual purpose of complying with environmental laws and regulations while supporting the military mission of NCBC Gulfport, Naval Special Operations Forces (SOF), and the Navy.

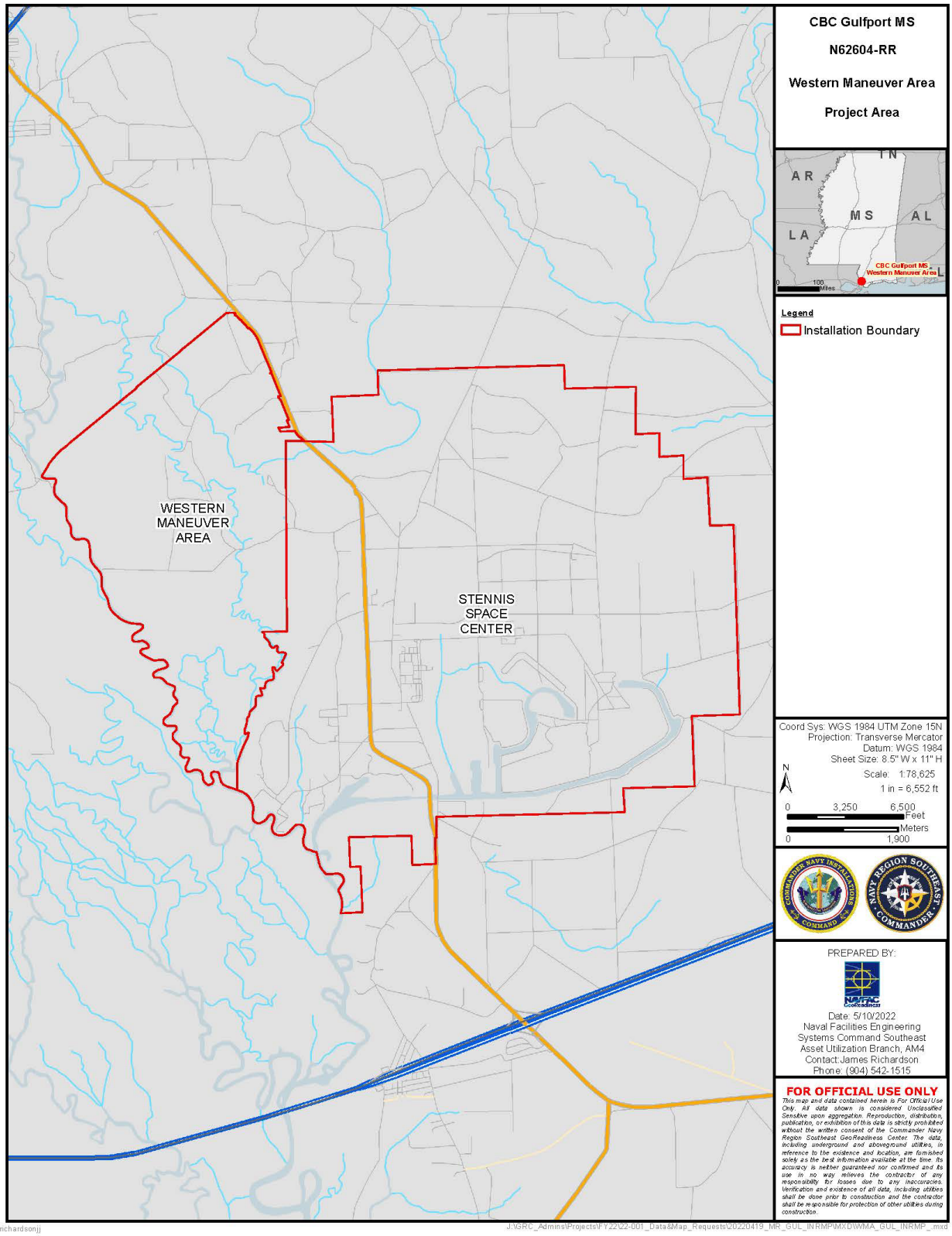


Figure 1-1. Vicinity Map of the Stennis Western Maneuver Area

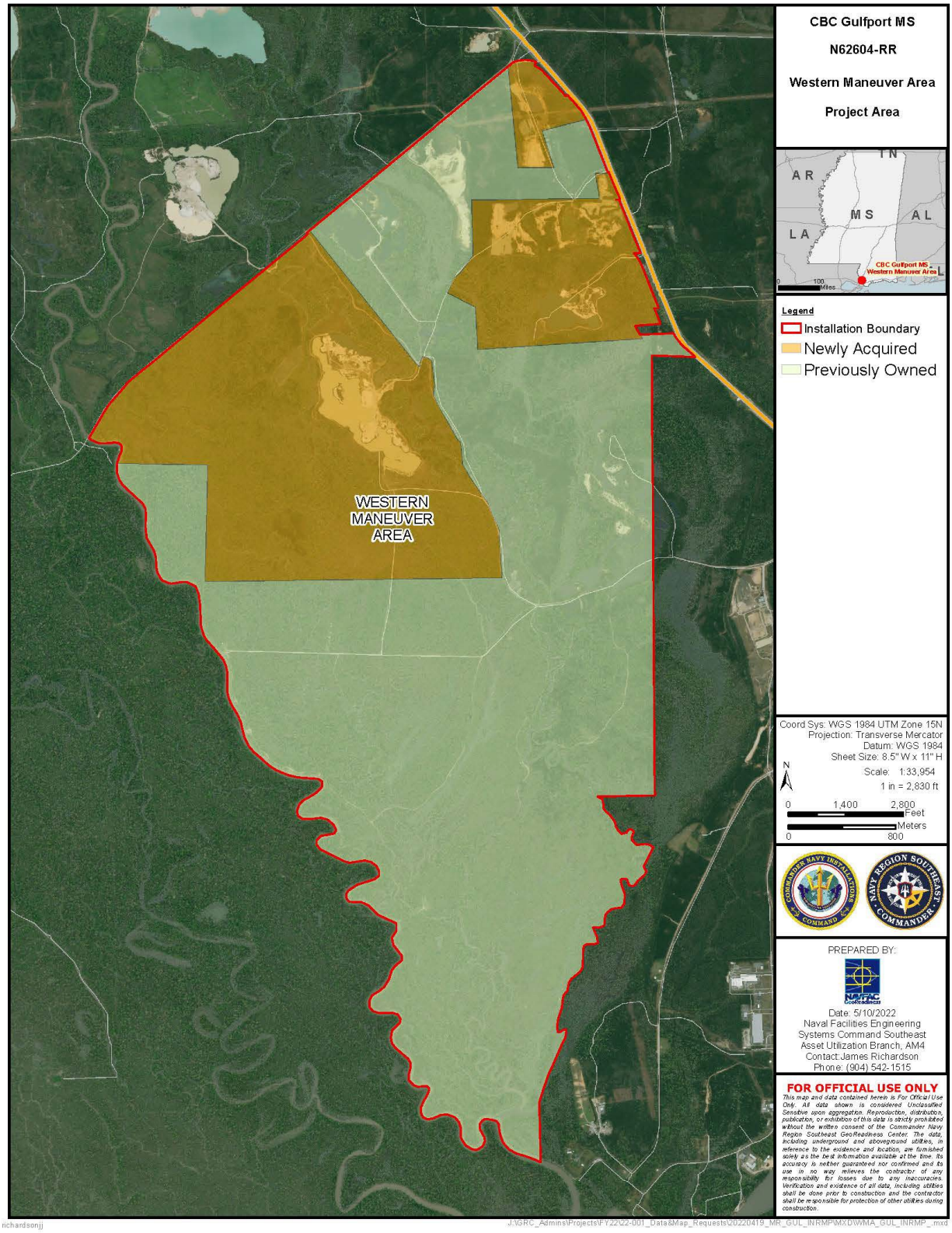


**Figure 1-2. Project Area Map**

## 1.3 GOALS AND OBJECTIVES

The development and implementation of the INRMP is a dynamic, multidisciplinary planning process that incorporates as its primary goal the support and maintenance of the military mission while managing, protecting, and enhancing the biological integrity of military lands and water. Furthermore, the INRMP creates an ecosystem-based conservation program that provides for conservation and rehabilitation of natural resources in a manner that is consistent with the military mission; integrates and coordinates all natural resources management activities; provides for sustainable multipurpose uses of natural resources; and provides military personnel access to natural resources subject to safety and military security considerations. The management objectives are to integrate land management, forest management, fish and wildlife management, and management for outdoor recreational opportunities, as practicable and consistent with the military mission and established land uses.

## 1.4 RESPONSIBILITIES

The Commander, Navy Region Southeast (CNRSE) is responsible for ensuring that the Stennis WMA INRMP complies with DoD, Navy, and CNO policy and associated National Environmental Policy Act (NEPA) document preparation, revision, and implementation, and for ensuring that the Stennis WMA INRMP undergoes annual reviews and updates projects, goals, and objectives as needed to provide integrated adaptive conservation management. CNRSE is also responsible for programming of resources to maintain, implement, and periodically revise the Stennis WMA INRMP.

The NCBC Gulfport Commanding Officer (CO) is responsible for the preparation, completion, and implementation of this INRMP and associated NEPA documents for Stennis WMA and systematically applying the conservation practices set forth in this INRMP. The CO's role is to act as the steward of natural resources under his jurisdiction and integrate natural resources management requirements into the daily decision-making process; designate a Stennis WMA Natural Resources Manager (NRM) that is responsible for the management efforts related to the preparation, revision, implementation and funding for INRMPs, as well as coordination with installation trainers, subordinate commands and installations; ensure that natural resources

management and this INRMP comply with all natural resource-related legislation, Executive Orders (EO) and Executive Memorandums, and DoD, Secretary of the Navy (SECNAV), Navy, and CNO directives, instructions and policies; involve appropriate tenant, operational, training, or research and development (R&D) commands in the INRMP review process to ensure no net loss of military mission; involve appropriate Navy Judge Advocate General (JAG) or Office of the General Counsel (OGC) Legal Counsel to provide advice and counsel with respect to legal matters related to natural resources management and this INRMP; and, endorse this INRMP via CO signature.

## 1.5 AUTHORITY

The INRMP is written to meet the requirements of the SAIA of 1997 (16 U.S.C. Sec. 670a *et seq.*) and the requirements of the DoD Environmental Conservation Program (DoDINST 4715.3). It also incorporates guidance given in OPNAV M-5090.1, the Navy Environmental Protection and Natural Resources Manual and the Naval Facilities Engineering Command (NAVFAC) Real Estate Procedural Manual (NAVFAC P-73).

## 1.6 SUSTAINABILITY AND COMPLIANCE

The natural resources management program at Stennis WMA is responsible for meeting sustainability needs or compliance requirements. Sustainability projects are based upon the land management responsibility of the Navy and are not required to be implemented to meet regulatory needs. Compliance projects are mandatory, and implementation is required to comply with laws and regulations that apply to lands and operations at NCBC Gulfport Stennis WMA.

Natural resources management NCBC Gulfport considers its sustainability responsibilities during the planning and analyses of natural resources and training projects at Stennis WMA. For example, potential erosion and mitigation measures to eliminate or reduce erosion would be considered when planning for the construction of a new range or facility. By considering its sustainability responsibilities during the planning and analysis phase, NCBC Gulfport would eliminate or minimize potential soil erosion and sedimentation in the East Pearl River and other waterbodies on the Installation.

## 1.7 REVIEW AND REVISION PROCESS

NCBC Gulfport must complete an annual evaluation of the effectiveness of this INRMP. The evaluation can be readily completed using the web-based Metrics Builder tool on the U.S. Navy Environmental Portal website. The Metrics Builder provides the means to evaluate performance in seven areas:

- INRMP Implementation
- Partnership/Cooperation and Effectiveness
- Team Adequacy
- INRMP Impact on the Installation Mission
- Status of Federally Listed Species and Critical Habitat
- Ecosystem Integrity
- Fish and Wildlife Management and Public Use

Annual reviews of the Stennis WMA INRMP will include revisions as appropriate.

## 1.8 COMMITMENT OF REGULATORY AGENCIES

The USFWS, Mississippi Department of Marine Resources (DMR), and Mississippi Department of Wildlife, Fisheries and Parks (MDWFP) are integral partners in the INRMP development, review, and revision process for NCBC Gulfport Stennis WMA. The USFWS, DMR, and MDWFP cooperate in the development of the INRMP and participate in the annual reviews and revisions. NCBC Gulfport will coordinate with the USFWS, DMR, and MDWFP as partners with the Navy by implementing their recommendations in future reviews and revisions of the Stennis WMA INRMP.

In the future, coordination with Louisiana Department of Wildlife and Fisheries (LDWF) may be sought since the LDWF manages the Pearl River Wildlife Management Area along the East Pearl River adjacent to the Stennis WMA.

## 1.9 MANAGEMENT STRATEGY

In the 1990s, the DoD reviewed its natural resources management philosophy in an attempt to improve performance through new management techniques. On 8 August 1994, the OUSD issued a policy directive for the *Implementation of Ecosystem*

*Management in the DoD*. This policy directive provides an important change in the philosophy of how DoD will manage its lands/resources. The policy directive states:

> *"….ecosystem management will include: a shift in focus from the protection of individual species to management of ecosystems (ecological approach); formation of partnerships to achieve shared goals (partnerships); public participation in decision making (participation); use of the best available science in decision making (information); implementation of adaptive management techniques (adaptive management)"* (DoD 1994).

An ecosystem is a dynamic and natural complex of living organisms interacting with each other and with their associated nonliving environment. Ecosystem management is a goal-driven approach to managing natural resources that support present and future mission requirements; preserves ecosystem integrity; is at a scale compatible with natural processes; is cognizant of nature's time frames; recognizes social and economic viability within functioning ecosystems; is adaptable to complex and changing requirements; and is realized through effective partnerships among private, local, state, tribal, and Federal interests. Ecosystem management is a process that considers the environment as a complex system functioning as a whole, not as a collection of parts, and recognizes that people and their social and economic needs are a part of the whole. The INMRP and the implementation of its management plans and projects provides for ecosystem management at Stennis WMA. The INRMP takes into account specific projects and management techniques that serve to manage the ecosystem and maintain biological diversity at a landscape scale. The development and implementation of the INRMP is a dynamic, multidisciplinary planning process that incorporates as its primary goal the support and maintenance of the military mission while managing, protecting, and enhancing the biological integrity of military lands and waters.

Natural resource management on Stennis WMA is achieved through adaptive and cooperative management strategies. Adaptive management is a systematic approach for continually improving management practices by learning from the outcome of projects, programs and other experiences. Adaptive management involves testing, monitoring, and evaluating applied strategies, and incorporating new knowledge into

management approaches that are based on scientific findings and the needs of society. Results are used to modify management policy, strategies, and practices. The Metrics Builder provides the means to evaluate performance in INRMP reviews and updates for Stennis WMA. The Metrics Builder can be applied to completed and ongoing projects, natural resource practices, and new proposals.

Cooperative management refers to management strategies between government agencies for responsible resource stewardship. In cooperative management, representatives of government agencies share information, resources, and responsibility. The USFWS, DMR, MDWFP, and the Navy will cooperatively manage the natural resources at NCBC Gulfport Stennis WMA and strive to meet the military mission, while conserving and enhancing the natural resources of the base.

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# 2.0 CURRENT CONDITIONS AND USE

## 2.1 INSTALLATION INFORMATION

### 2.1.1 General Description

The NCBC Gulfport Stennis WMA is located in the western quadrant of the area previously occupied/identified as the Stennis Space Center (SSC) noise buffer in western Hancock County, Mississippi (see Figure 1-1). The Stennis WMA is approximately 40 miles northeast of New Orleans, Louisiana, and 30 miles west of Gulfport, Mississippi. This INRMP currently covers 5,058 acres of land for the Stennis WMA (see Figure 1-2). Approximately 5,220 acres are ultimately proposed to comprise the Stennis WMA; however, due to real estate administrative requirements and project funding, the Navy currently owns approximately 5,058 acres. As additional real estate is acquired, the INRMP will be updated to include the new property and its unique natural resources and management needs.

### 2.1.2 Military Mission

The Stennis WMA was acquired to provide additional training capabilities for the Naval SOF as part of the Naval Special Warfare (NSW) Command. The NSW is a component of the Special Operations Command (SOCOM) and its primary mission areas include unconventional warfare, direct action, special reconnaissance, and foreign internal defense. The NSW Command also conducts security assistance, counterdrug operations, personnel recovery, and hydrographic reconnaissance (NSW 2004). NSW Command has four groups: Group 4 is headquartered in Naval Amphibious Base, Little Creek, Virginia and has command over all Special Boat Teams (SBT-12, San Diego; SBT-20, Little Creek; and SBT-22, Stennis). Naval Small Craft and Training School (NAVSCIATTS) is under Group 4 as well; however, NAVSCIATTS provides training only, while SBT-22 trains and deploys mission-ready teams. NCBC Gulfport is the land manager for the Stennis WMA; however, SBT-22/Group 4 is responsible for conducting and supporting worldwide operations and taskings in a riverine environment. SOF train on the East Pearl River, Mike's River, and their tributaries, which provide dense vegetation, water and land maneuver areas, and near "jungle" climatic conditions.

SBT training includes Special Warfare Combatant Crews (SWCC), which are primarily boat operators. SBT-22 mission objectives include (NSW 2004):

- Prepare units to conduct special maritime operations in riverine environments anywhere in the world.
- Support SOF employment in operational plans and contingencies.
- Develop operational employment concepts for riverine special operations and train SOF how to employ those concepts.

The Stennis WMA is located within the SSC's noise buffer zone, and is therefore protected from encroachment and noise issues. Although SBT-22 uses other military installations for specific training, the vast majority of its training is conducted at the Stennis WMA. The Stennis WMA is used for Unit Level Training (ULT) and Squadron Integration Training (SIT), as well as for other Sea, Air, and Land (SEAL) special training, Federal Bureau of Investigation (FBI) and foreign national troop training. The ULT includes professional development (e.g., language skills) and integrated development and intelligence. The SIT sessions are commanded by a Navy Captain and the training units are comprised of commander, communications, medical, logistics, and other units that would typically make up an entire unit that is to be deployed.

**Photograph 2-1. SBT-22**

SBT-22's training and deployment capabilities are provided to all theaters using the latest watercraft in the Navy's inventory, the Special Operations Craft Riverine (SOC-R). The SOC-R is a specially designed 33-foot-long craft powered by two 1000-horsepower diesel engines. SOC-Rs are equipped with .50 cal guns to protect troops during patrol, insertions and extractions activities. SBT-22 currently has 20 SOC-Rs, which are capable of supporting four active riverine units. Typical SBT-22 training operations include riverine patrol and interdiction, insertion and extraction of SEALs in riverine environments, surveillance of enemy rivers and waterways, and training of foreign military units in riverine patrol tactics. Training scenarios for riverine patrol and interdiction are designed to develop skills in boat handling during high-speed operation and during boarding, search, and seizure of suspect vehicles. Surveillance training is for skills in concealing

watercraft and monitoring traffic in enemy rivers and waterways. Personnel learn tactics to escape detection as well as defense maneuvers to use if detected or ambushed.

NAVSCIATTS' mission is to promote increased levels of operational capabilities and readiness in allied naval and coast guard units through formal courses of instruction and mobile training teams in the operation of small craft including employment, maintenance and logistic support. Course offerings may vary on an annual basis based upon the needs of the participating nations.

NAVSCIATTS typically provides four Patrol Officer (Littoral/Riverine) courses annually. Each course accommodates 24 students and runs 9 weeks. Waterborne evolutions are conducted cold or with blank fire. The waterborne evolutions take place on the Waste House and East Pearl Rivers, Shell Beach, and Mississippi Sound. Other frequent training sites include the NSW Group-4 Finger Piers, Cypress House and Rouchon House which are south of the Stennis WMA. The Patrol Boat Light (PBL) is the training craft used for all course offerings in the riverine environment.

### 2.1.3 Constraints Map

The future expansion of the Stennis WMA beyond the proposed full build-out to 5,220 acres is somewhat limited. The current area of 5,058 acres is bound by the East Pearl River to the west; Old Highway 11, a county road, to the north; State Highway 607, and SSC to the east; and Mike's River to the south (see Figure 1-2). Any expansion would span county highways, state highways, or rivers. Expansion into the SSC is not an option. Due to the mission requirements discussed below in Section 2.1.5, training areas must be buffered for public safety, especially during the use of short-range ammunition. Expansion along the East Pearl River south of the SSC East Pearl River frontage is limited due to the proximity to Interstate 10. While the Stennis WMA could be expanded to the north, as no residential or commercial displacements would be required. Expansion to the east would encroach into the Pearl River Wildlife Management Area.

### 2.1.4 Opportunities Map

NCBC Gulfport is currently focused on finalizing the acquisition of land parcels within the proposed boundary of the Stennis WMA. Of the approximately 5,220 acres proposed for the Stennis WMA, 5,058 acres have been acquired (Figure 2-1).

### 2.1.5 Operations and Activities

The Navy utilizes the Stennis WMA for SOF training associated with two of the three stages of live fire ammunition training (i.e., crawl-walk-run). The crawl and walk stages occur on the Stennis WMA. Training at the crawl level does not include the use of live projectiles or ammunition; however, walk level training can include blank ammunition or plastic bullets (short-range training ammunition [SRTA]).

Typical training operations conducted by Naval SOF at Stennis WMA include riverine patrol and interdiction, insertion and extraction of SOF in jungle and riverine environments, craft concealment and evasion tactics, surveillance of enemy-held rivers and waterways, and training of foreign military units in riverine patrol tactics (NSW 2004). Operational scenarios are practiced during the day and at night once detachments have reached a required level of proficiency (Navy 2000a).

### 2.1.6 Abbreviated History and Pre-Military Land Use

Historically, the areas where National Aeronautics and Space Administration (NASA) SSC, including the Stennis WMA, are located were very active lumber mill towns surrounded by rich timber stands typical of the coastal plain. In 1832, the East Pearl River Lumber Company began operation in Gainesville, Mississippi, becoming one of the largest lumber suppliers in the antebellum south (Navy 2000a). Logtown was also a significant timber mill town along the East Pearl River.

By 1961, when NASA established SSC in Hancock County, many small towns were relocated beyond the boundary of the SSC. The towns of Gainesville (the county seat of Hancock County), Napoleon, Santa Rosa, Logtown, and Westonia were all relocated to allow for the establishment of what was then known as the Mississippi Test Operations (Navy 2000a).

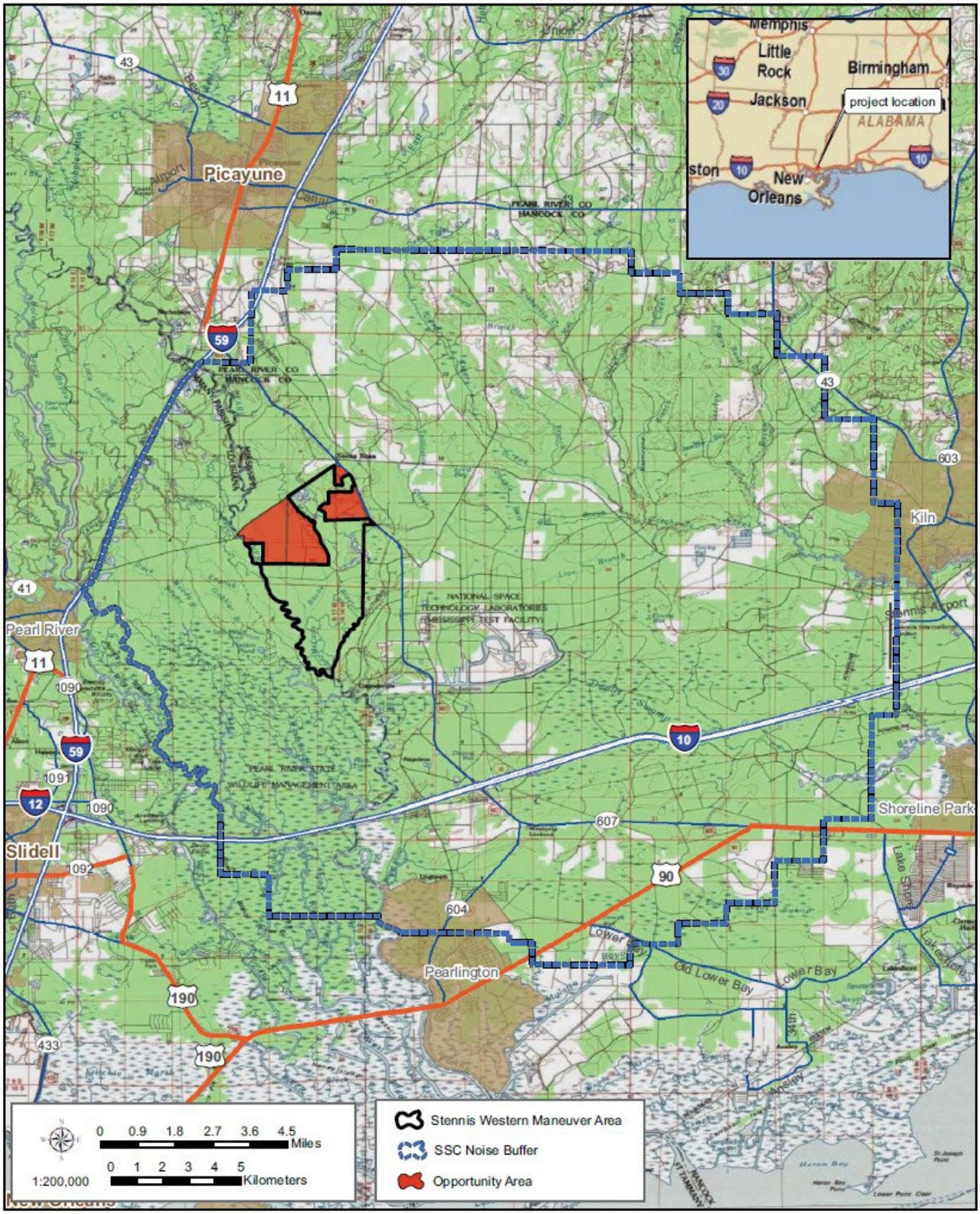



Figure 2-1: Stennis Western Maneuver Area Opportunities Map

GSRC

July 2010

### 2.1.7 Regional Land Uses

Regional land uses in the vicinity of the Stennis WMA are restricted by the SSC buffer zone, which was established to protect civilians and civilian structures from the effects of high-intensity, low-frequency noise generated by the testing of rocket motors at the NASA test facility. The buffer zone consists of easements and government land purchases with restrictions that exclude the construction of habitable structures or any habitation of the SSC buffer zone properties. Because of these restrictions, all land within the SSC buffer zone is solely used for agricultural and forestry activity, wildlife management, including hunting leases, surface mining for soil and aggregate, or as undeveloped forested acreage.

The main SSC campus is developed for industrial and commercial use to support the NASA test facility and other Federal agencies that do not require habitable structures.

Regional land uses beyond the SSC buffer zone include state and Federal wildlife management areas and refuges, commercial timber and gravel mining operations, other commercial development and private residences.

Large portions of the SSC noise buffer zone on the east side of SSC, including the Stennis WMA, are subjected to frequent flooding. The water levels are largely controlled by discharges from the Ross Barnett Reservoir in Jackson, Mississippi. However, other uncontrolled discharges from major tributaries including the Bogue Chitto River, Upper Little Creek and Pushepatapa Creek, also contribute to flooding conditions in the Pearl River basin.

## 2.2 GENERAL PHYSICAL ENVIRONMENT AND ECOSYSTEMS

### 2.2.1 Climate

The Stennis WMA is located in a region of moderate climate near coastal Mississippi. Normal mean annual temperatures range from 62°F in the north to 68°F along the coast. Temperatures routinely exceed 100°F at many places in the state each year. Freezing temperatures reach the Gulf coast almost every winter. Normal precipitation ranges from about 50 to 65 inches across the state from north to south. In short, Mississippi has a climate characterized by absence of severe cold in winter but by the presence of

extreme heat in summer. Cold spells are usually of short duration and the growing season is long. Rainfall is plentiful, but so are dry spells and sunshine (https://www.geosciences.msstate.edu/state-climatologist/climate/).

According to the Environmental Protection Agency (EPA), Mississippi will become warmer in the coming decades, and both floods and droughts may be more severe. Unlike most of the nation, Mississippi did not become warmer during the last 50 to 100 years. But soils have become drier, annual rainfall has increased, more rain arrives in heavy downpours, and sea level is rising about one inch every seven years. The changing climate is likely to increase damages from tropical storms, reduce crop yields, harm livestock, increase the number of unpleasantly hot days, and increase the risk of heat stroke and other heat-related illnesses.

### 2.2.2 Geology

The geology of Stennis WMA is dominated by a thick sequence of Recent and Quaternary sediments consisting of unconsolidated alluvium deposited by floodwaters of the Pearl River basin. The Pearl River floodplain is carved into a gently sloping terrace of Pleistocene to Pliocene alluvial and near coastal deposits that are dominated by the Citronelle Formation, an alluvial deposit of sands and gravels of late Pliocene to early Pleistocene age. The Citronelle Formation and the resulting soils formed from it are heavily mined in the area for sand and gravel, as well as construction fill dirt. The whole sequence of subsurface strata dips gently toward the south, and the Mississippi Sound. The thickness of the Citronelle Formation is thought to be around 150 feet thick in lower Hancock County, while the Pliocene to Miocene strata as a whole may be as thick as 2,000 feet (Otvos 1973).

#### *2.2.2.1 Physiographic Setting*

The Stennis WMA is located within the Gulf Coastal Plain of Mississippi. Physiography is dominated by tidally influenced marshes and river floodplains adjacent to higher elevation areas supported by older eroded sedimentary deposits. The river valleys in the coastal plain were cut into the older strata during prior periods of extensive North American glaciation, when sea level was much lower. The incised river valleys were later filled when the glaciers retreated and sea level rose to its current level. Within the Stennis WMA, the vast majority of the land is located within the East Pearl River

floodplain, and the higher elevations along Highway 607 and in the northeast corner of the Stennis WMA represent the original older, eroded landforms.

#### *2.2.2.2 Mineral Resources*

The dominant economic mineral resources present within the Stennis WMA are construction fill dirt and sand and gravel deposits. Eight active surface mines are currently developed within the Stennis WMA property to exploit these resources. Numerous older abandoned surface mines are also present and contribute to the rugged topography along Highway 607. Several of the active mines have wash operations to recover clean sand and aggregate for use as construction fill and for masonry components. All of the active mines are regulated by the Surface Mining Division of the Mississippi Department of Environmental Quality (MDEQ). The Mississippi mining regulations require restoration of surface mines by smoothing the post-mine topography and planting of vegetation to prevent erosion of the mined surfaces and pollution of nearby water bodies. Mine operators are also required to post a bond with the state to ensure that restoration after mining is completed.

Several oil and gas fields are located to the east and south of the Stennis WMA, with production of oil and natural gas from Cretaceous strata. It is unlikely that recoverable oil and gas resources are located under the Stennis WMA, based on current knowledge of the subsurface structures and formations, but that slight possibility exists.

### 2.2.3 Soil Series and Associations

The Stennis WMA consists predominantly of floodplain associated with the current course of the East Pearl River. Soils present in the Stennis WMA were determined from the Natural Resources Conservation Service (NRCS) soil survey of Hancock County, which was obtained from the Web Soil Survey on the NRCS website (NRCS 2009). The distribution of soil types can be found in Figure 2-2, and the total acreage of each soil type is presented in Table 2-1. All of the soil series listed are located in the northeast corner of the Stennis WMA and along Highway 607, with the exception of the Arkabutla-Rosebloom association, which comprises the majority of the area in the East Pearl River floodplain.

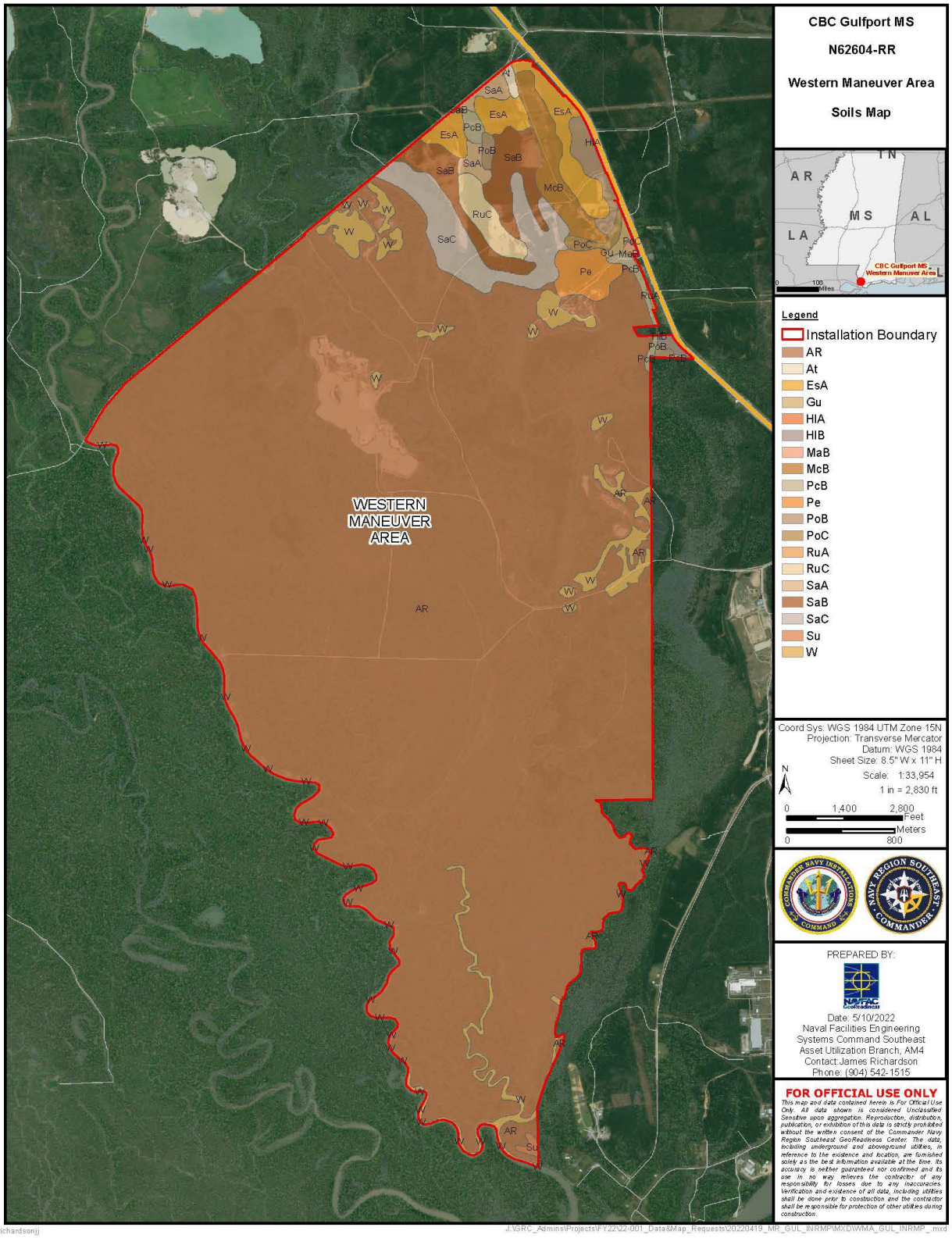



**Figure 2-2. Soil Types on Stennis Western Maneuver Area**

**Table 2-1. Soil Types and Acreages Present at Stennis WMA**

| Soil Type | Total Acreage |
|---|---|
| AR - Arkabutla-Rosebloom association, frequently flooded | 4,293 |
| At - Atmore silt loam | 4 |
| EsA - Escambia loam, 0 to 2 percent slopes | 84 |
| Gu - Guyton silt loam | 5 |
| HIA - Harleston fine sandy loam, 0 to 2 percent slopes | < 1 |
| HIB - Harleston fine sandy loam, 2 to 5 percent slopes | 5 |
| MaB - Malbis fine sandy loam, 0 to 2 percent slopes | 2 |
| McB - McLaurin fine sandy loam, 2 to 5 percent slopes | 58 |
| Pe - Plummer loamy sand | 37 |
| PoA - Poarch fine sandy loam, 0 to 2 percent slopes | 19 |
| PoB - Poarch fine sandy loam, 2 to 5 percent slopes | 35 |
| PoC – Poarch fine sandy loam, 5 to 8 percent slopes | 10 |
| RuA – Ruston | 2 |
| RuC - Ruston fine sandy loam, 5 to 8 percent slopes | 32 |
| SaA - Saucier fine sandy loam, 0 to 2 percent slopes | 21 |
| SaB - Saucier fine sandy loam, 2 to 5 percent slopes | 99 |
| SaC - Saucier fine sandy loam, 5 to 8 percent slopes | 119 |
| Su - Smithton fine sandy loam, frequently flooded | 4 |
| W - Water | 142 |
| **Total** | 4,972 |

**AR-Arkabutla-Rosebloom association, frequently flooded**

The predominant soil type present in the Stennis WMA (4,293 acres) is the Arkabutla-Rosebloom association, which is a frequently flooded, poorly drained, silty soil that was produced by sedimentation from flood waters of the East Pearl River. This soil is very strongly acidic, with moderate permeability and very high water capacity. Both the Arkabutla and Rosebloom soils are classified as hydric soils and support vegetation types that are normally associated with wetlands, such as Nuttall oak (*Quercus nuttallii*), cottonwood (*Populus deltoides*), water oak (*Q. nigra*), willow oak (*Q. phellos*), willows (*Salix* spp.), and sweetgum (*Liquidambar styraciflua*).

**At-Atmore silt loam**

This soil type is found on wet, upland flats with 0 to 2 percent slopes, and only 4 acres of this soil type are present in the Stennis WMA. It is strongly acidic with moderate permeability near the surface and moderately slow permeability with depth and high

water capacity. It is classified as a hydric soil, and supports vegetation types normally associated with wetlands.

**EsA-Escambia loam, 0 to 2 percent slopes**

Escambia soil comprises approximately 84 acres within the Stennis WMA, situated along the roads at the northeast corner of the area. This soil is a fine-grain loam that is strongly acidic with moderate permeability near the surface and low permeability with depth. Water capacity is high, but the soil is not classified as a hydric soil. Common vegetation for this soil type is slash pine (*Pinus elliottii*), loblolly pine (*P. taeda*) and longleaf pine (*P. palustris*).

**HlA-Harleston fine sandy loam, 0 to 2 percent slopes**

Harleston sandy loam is a deep, moderately well-drained, moderately permeable soil, which was formed in marine or stream deposits consisting of thick beds of sandy loam. They are typically found on terraces and uplands of the Southern Coastal Plain. This soil type only accounts for less than 1 acre on Stennis WMA in the northeastern portion of the installation, along old Highway 44. Common vegetation consists of loblolly, shortleaf (*P. echinata*), and slash pines.

**HlB-Harleston fine sandy loam, 2 to 5 percent slopes**

Harleston sandy loam comprised approximately 5 acres of the Stennis WMA adjacent to Highway 607 in the northeast portion of the area. Due to its high sand content, it is commonly mined for construction fill dirt. It is a strongly acidic soil with moderate permeability and moderate water capacity. Common vegetation consists of loblolly pine, slash pine and longleaf pine, with scattered sweetgum.

**McB-McLaurin fine sandy loam, 2 to 5 percent slopes**

This soil is found on approximately 58 acres of the Stennis WMA in a band along the northeast area down-slope from Highway 607. It is commonly mined for construction fill dirt in the area due to its high sand content. It is a strongly acidic soil with moderate permeability and medium water capacity. Common vegetation includes pines and white oak (*Quercus alba*).

**PoB-Poarch fine sandy loam, 2 to 5 percent slopes**

This is a well-drained soil found on approximately 19 acres on ridges and along Highway 607 in the northeast portion of the Stennis WMA. It is a very acidic soil with moderate permeability at the surface, decreasing with depth. Water capacity is medium. Common vegetation includes pines and white oak.

**RuC- Ruston fine sandy loam, 5-8 percent slopes**

This Ruston soil is found lower along the terrace slopes in the northeast portion of the Stennis WMA. It comprises approximately 32 acres, and is heavily mined for construction fill dirt. Soil properties are identical to those described above for the Poarch fine sandy loam.

**SaA-Saucier fine sandy loam, 0 to 2 percent slopes**

This is a moderately well-drained soil found on upland ridges. It comprises approximately 21 acres along Old Highway 11 in the northeast portion of the Stennis WMA. It is strongly acidic, with moderate permeability near the surface, decreasing with depth. Water capacity is high. Common vegetation includes pines and sweetgum.

**SaB-Saucier fine sandy loam, 2 to 5 percent slopes**

This Saucier soil has the same properties as the soil above, but is found lower on the terrace slopes on approximately 99 acres in the northeast portion of the Stennis WMA. It is heavily mined for construction fill dirt.

**SaC-Saucier fine sandy loam, 5 to 8 percent slopes**

This soil is found on approximately 119 acres at the bottom of the terrace slopes in the northeast portion of Stennis WMA; this soil is also mined for construction fill dirt.

**Su-Smithton fine sandy loam, frequently flooded**

This soil is poorly drained, and is found on approximately 4 acres in drainage ways covered by standing water for long periods of time. It is strongly acidic with moderately low permeability and high water capacity. Vegetation includes pines, gum (*Nyssa* spp.) trees and water oak.

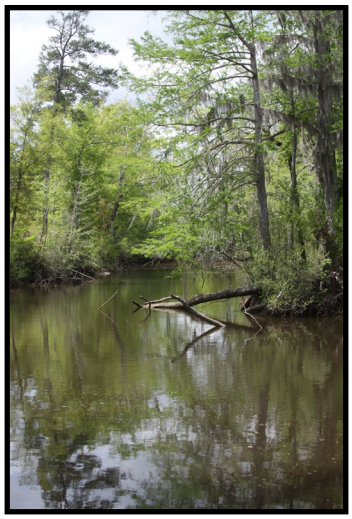
**Water bottoms**, in the form of ponds, streams, and emergent wetlands comprise approximately 142 acres of Stennis WMA throughout the Arkabutla-Rosebloom soil areas. Most of the ponds are the result of previous sand and fill dirt mining.

### 2.2.4 Topography

The Stennis WMA area is located within the floodplain of the East Pearl River in the Gulf Coastal Plain physiographic province. The flat floodplain topography ranges from swamps and meandering streams to areas of relatively steeper slopes adjacent to Highway 607 and in the northeast corner of the property. The streams within the property are small and bordered by hardwood swamp areas and wetlands. The elevation of the Stennis WMA ranges between 5 feet and 35 feet above mean sea level (msl), and the majority of the land area is between 5 feet and 10 feet above msl. Much of the more rugged topography in the northeast corner of the property is the result of extensive surface mining for fill dirt and sand.

**Hydrology**

The Stennis WMA area is within the lower East Pearl River watershed (hydrologic unit code [HUC] 03180004) in the Pearl River Basin. The landscape has little topological relief, as is typical of a large river alluvial delta area. Many small rivers and streams (i.e., Mike's River, Turtleskin Creek) transect the training area before joining the Pearl River system. Mike's River flows southward into the East Pearl River which eventually flows into Mississippi Sound.



**Photograph 2-2. Mike's River**

### 2.2.5 Land Use

#### *2.2.5.1 Land Use and Grounds Maintenance*

Land use within the Stennis WMA consists of undeveloped woodlands, existing and former surface mine pits, and streams and ponds used for navigation and for recreational fishing. Within the property there are numerous unimproved roads and several bridges. The acreage by land use classification for the Stennis WMA is provided in Table 2-2 and illustrated in Figure 2-3.

**Table 2-2. Inventory of Stennis WMA Land Use**

| Land Use | Area (acres) |
|---|---|
| Surface mine pits (abandoned) | 331 |
| Waterways, ponds, and emergent wetlands | 161 |
| Unimproved grounds | 4,565 |
| Cemetery | < 1 |
| **Total** | **5,058** |

#### *2.2.5.2 Unimproved Grounds*

Stennis WMA has an estimated 4,565 acres of unimproved grounds that are comprised of wetlands and general forestland. General unimproved grounds at the Stennis WMA are all used for the training mission, including the short-range training ammunition zones and buffer areas. The classification and management of the Stennis WMA's forestlands are described in detail in Section 4.4 (Forestry Management) of this document.

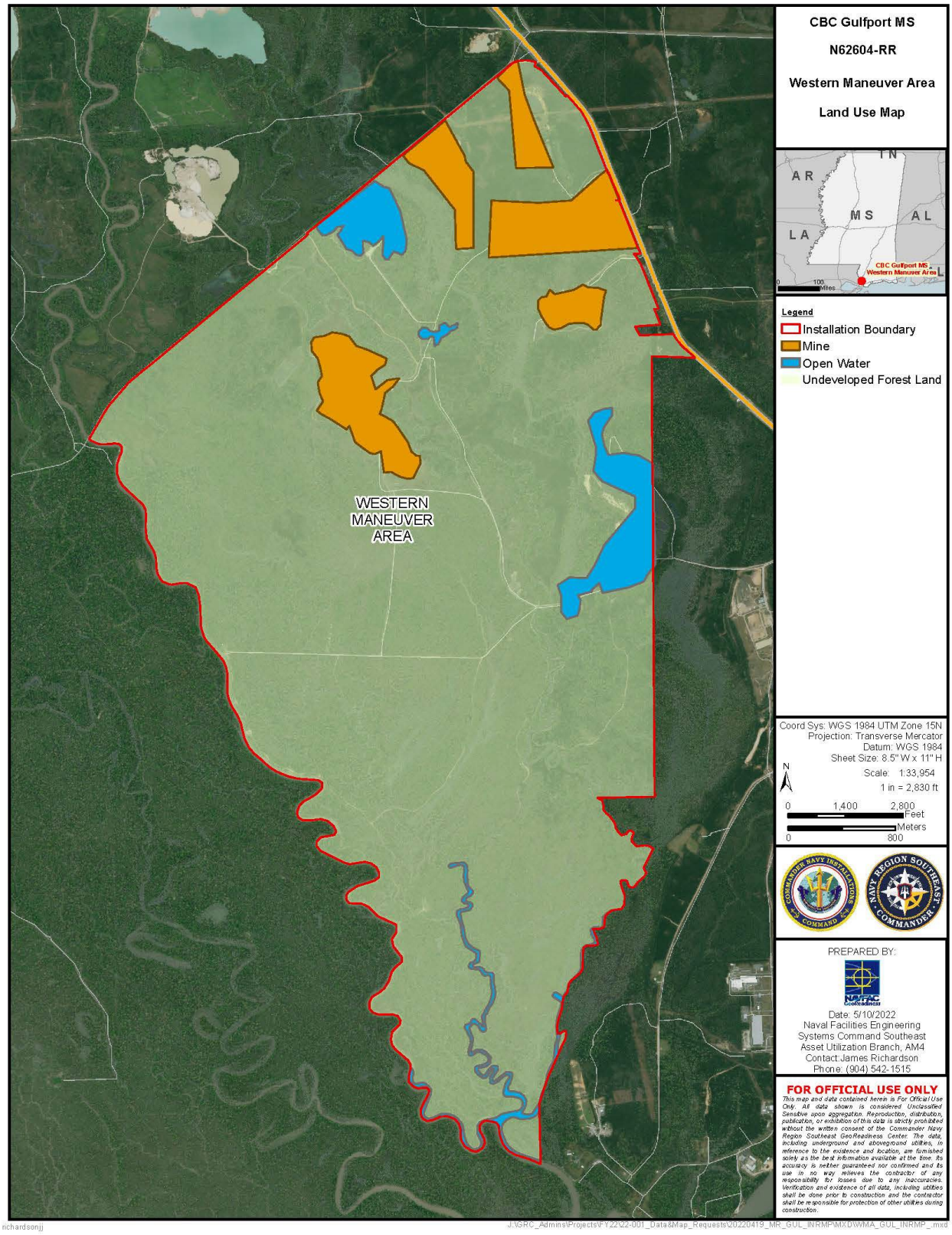



**Figure 2-3. Land Use**

### *2.2.5.3 Existing Land and Grounds Maintenance*

Land use at the Stennis WMA is based on the operational needs and mission requirements. Land use in the Stennis WMA ranges from "high intensity", well-developed areas used for operational functions to "low intensity" areas that serve as buffers or undeveloped lands/areas. Helispots, High Mobility Multipurpose Wheeled Vehicle (HMMWV) and Military Operations on Urban Terrain (MOUT) training are the high intensity operations that occur on the Stennis WMA. Administrative and training facilities, public works, housing, medical facilities, and other mission support operations occur on SSC, outside the Stennis WMA. Low intensity land use areas include natural resources such as forests, ponds, wetlands, and other unique habitat. Grounds maintenance is currently comprised of road maintenance, control of native and non-native vegetation to support the training mission, and development and maintenance of strategic training areas. The entity responsible for grounds maintenance on the Stennis WMA is NCBC Gulfport.

### *2.2.5.4 Surface Mine Pits*

Stennis WMA has numerous abandoned surface mine pits on the property (Photograph 2-3). These pits contain large areas of open or bare soil consisting of sand, gravel, and clay. Natural re-vegetation of these areas is in various stages. Approximately 338 acres of bare or nearly bare soils are found at these pit locations. Some of the mine pits are retaining stormwater in the form of shallow ponds within the mine pits. Currently there is no maintenance of the mine pits or ponds. All of the existing mine pits on the Stennis WMA will be maintained in their current condition for training activities per agreement with MDEQ or incorporated to wetland restoration sites, as discussed later.

**Photograph 2-3. Abandoned surface mine**

## 2.3 BIOTIC ENVIRONMENT

Stennis WMA is included in the East Gulf Coastal Plain ecoregion. Based upon aerial photo interpretation and site reconnaissance surveys, three aquatic and seven terrestrial habitat types exist within the Stennis WMA, as listed in Table 2-3 and described in Section 2.3 (also, see Figure 2-4). Table 2-3 also correlates these habitat types to the habitat descriptions used by Mississippi's State Wildlife Action Plan (SWAP; MDWFP 2015).

**Table 2-3. Habitat Types Described in This INRMP and the Mississippi SWAP**

| INRMP Nomenclature | MSWAP Habitat Type | MSWAP Subtype |
|---|---|---|
| ***Aquatic Habitats*** | | |
| Riverfront Palustrine Floodplain Forests (Section 2.3.1.1) | Riverfront Forests | Bald Cypress/Gum Swamp Forests |
| Streams (Section 2.3.1.2) | Streams | Pearl River Drainage |
| Lacustrine Communities (Section 2.3.1.3) | Artificial Habitats (Aquatic) | Artificial Ponds |
| | Lacustrine Communities | Beaver Ponds |
| | | Ephemeral (Temporary) Ponds |
| ***Terrestrial Habitats*** | | |
| Mixed Pine Hardwood Uplands (Section 2.3.2.1) | Xeric-Mesic Upland Forests/Woodlands | Mixed Pine Hardwood Forest |
| Mixed Hardwood Pine Uplands (Section 2.3.2.2) | Mesic Upland Forests | Lower Slope/High Terrace Hardwood Forests |
| Cypress-Tupelo Gum Swamps (Section 2.3.2.3) | Swamp Forests | Bald Cypress/Gum Forests |
| | | Small Stream Swamp Forests |
| Hay and Pasture Lands/Old Fields (Section 2.3.2.4) | Artificial Habitats | Hay and Pasture Lands |
| Cutover/Shrublands (Section 2.3.2.5) | | Shrublands |
| Bottomland Hardwood Forests (Section 2.3.2.6) | Bottomland Hardwood Forest | Bottomland Hardwood Forest |
| Abandoned Mines (Section 2.3.2.7) | None | None |

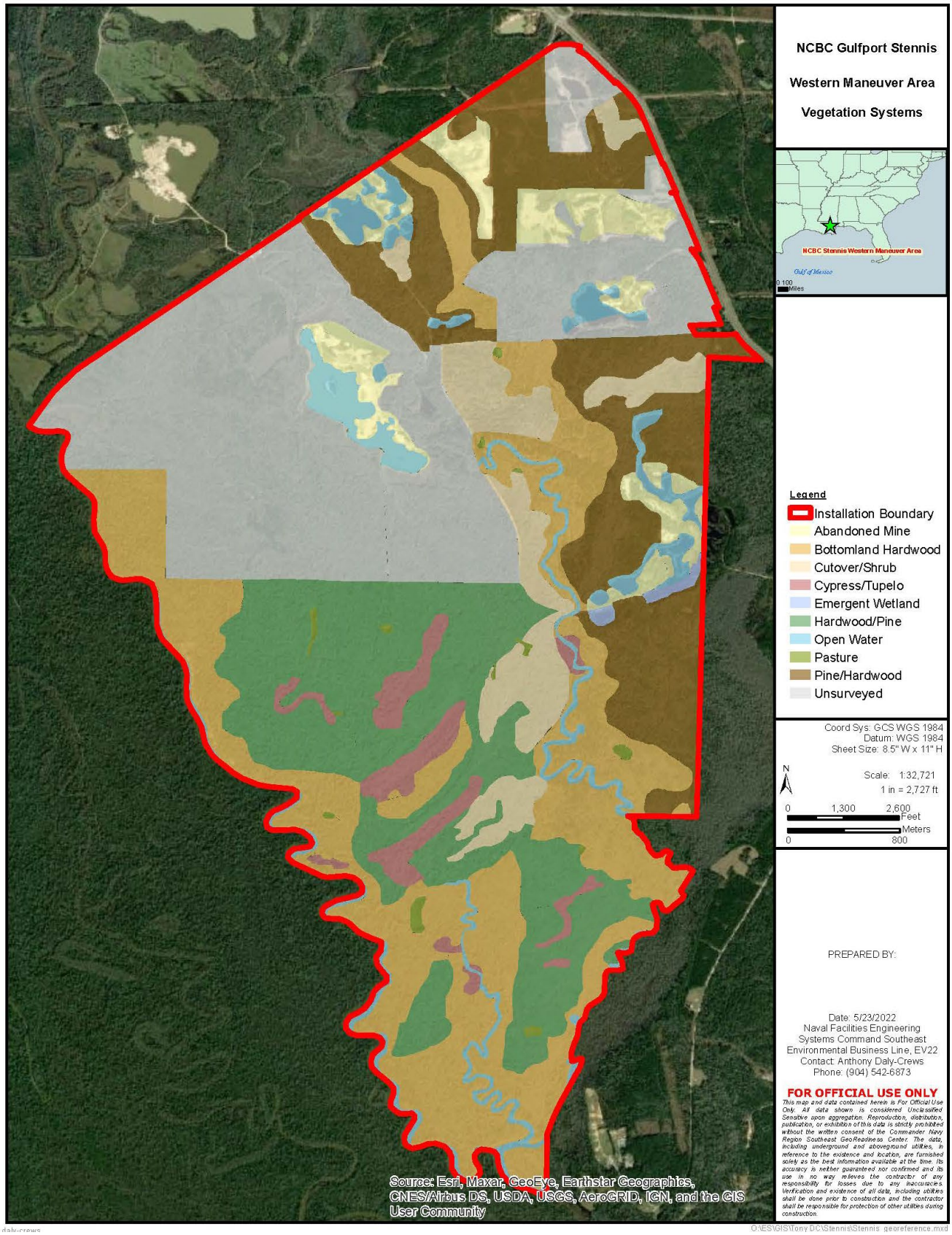



**Figure 2-4. Habitats at Stennis Western Maneuver Area**

### 2.3.1 Aquatic Habitats

Three different types of aquatic or semi-aquatic habitat types occur on Stennis WMA: riverfront forests, streams, and lacustrine communities.

#### *2.3.1.1 Riverfront Palustrine Floodplain Forests*

Riverfront forests occur on soils that have been deposited more recently than most other bottomland hardwood habitats. Sediments deposited from natural water level fluctuations rework riverbanks, sandbars, and point bars to form new channels, submerging some areas while building new lands elsewhere. Riverfront palustrine floodplain forests are most commonly characterized by early successional species such as cottonwood, black willow (*Salix nigra*), American sycamore (*Platanus occidentalis*), boxelder (*Acer negundo*), sugarberry (*Celtis laevigata*), and silver maple (*Acer saccharinum*). On Stennis WMA, this ecosystem is generally limited to very narrow corridors adjacent to the East Pearl River and the lower reaches of Mike's Rivers. Consequently, they are not mapped on Figure 2-4.

#### *2.3.1.2 Streams*

The streams and alluvial floodplains of Stennis WMA are part of the lower East Pearl River system. Vegetation typically associated with this habitat type is described below in the Bottomland Hardwood section. The East Pearl River, Mike's River and McCarty Bayou provide important habitat for a variety of aquatic and semi-aquatic species, potentially including some Federally threatened and endangered species, and will be discussed later. The lower reaches of the East Pearl River, south of the Stennis WMA, are also designated as Essential Fish Habitat (EFH) for numerous marine and estuarine species.

Mike's River, a tributary of the East Pearl River, originates on private property north of the WMA and flows through the WMA to the East Pearl River. Mike's River is generally restricted to public access; however, the East Pearl River is frequently used for recreational fishing. Target species include largemouth and smallmouth bass (*Micropterus salmoides* and *M. dolomieu*, respectively), sunfish (*Lepomis* spp.), channel catfish (*Ictalurus punctatus*), bluecatfish (*Ictalurus furcatus*), flathead catfish (*Pylodictis olivaris*), and white and black crappie (*Pomoxis annularis* and *P. nigromaculatus*, respectively).

#### *2.3.1.3 Lacustrine Communities*

Lacustrine communities, as used in this INRMP, include artificial lakes and beaver ponds. The artificial lakes are associated with the abandoned mines, which were pits that were left open and subsequently filled by rain and groundwater. These areas vary greatly in size and depth; some presumably support stable populations of game fish. Most of the abandoned pits contain open water, as mentioned previously. Some of the more shallow open water areas tend to attract wading and shorebirds, as well as numerous species of waterfowl during the winter migration. However, some are partially to completely vegetated and provide an emergent wetland habitat. Beaver ponds occur sporadically throughout the Stennis WMA and provide valuable and diverse habitat that supports many species of reptiles, amphibians, waterfowl, and mammals. Depending on the age and size of the beaver pond, fishes can establish sustainable populations within the ponds as well.

**Photograph 2-4. Surface mine pond**

### 2.3.2 Terrestrial Habitat

Based upon interpretation of aerial photographs and site reconnaissance, seven terrestrial habitat communities occur at Stennis WMA. Those areas were illustrated previously in Figure 2-4 and each community type is discussed in the following paragraphs. As more detailed surveys are conducted, these delineations and descriptions will be revised and refined in conjunction with future INRMP updates.

#### *2.3.2.1 Mixed Pine Hardwood Uplands*

The mixed pine hardwood forests on the Stennis WMA would typically be categorized as a “Xeric-Mesic Upland Forests/Woodlands” in the Mississippi SWAP (MDWFP 2015). Upland forests have limited nutrient and moisture availability due to the characteristics of their soils. Fire maintenance is an important component of maintaining the health of this habitat type, especially the pine associations. Frequent fires reduce the density of understory shrubs and improve the quality and quantity of herbaceous ground cover (MDWFP 2015). Characteristic species of the mixed pine hardwood community are loblolly, longleaf pine, shortleaf pine, southern red oak (*Quercus falcata*), turkey oak (*Q.*

*laevis*), blackjack oak (*Q. marilandica*), and mockernut hickory (*Carya tomentosa*). Shrubs or subcanopy trees associated with mixed pine hardwood uplands are bluebeech (*Carpinus caroliniana*), hophornbeam (*Ostrya caroliniana*), flowering dogwood (*Cornus florida*), and sourwood (*Oxydendrum arboreum*). Species that commonly occur in the shrub and ground cover layers include yaupon (*Ilex* vomitoria), farkleberry (*Vaccinium* arboretum), arrow-wood viburnum, devil's walking stick (*Aralia spinosa),* muscadine grape (*V. rotundifolia*), greenbriars (*Smilax* spp.), blackberry (*Rubus* spp.), and witchgrass (*Dichanthelium* sp.). This community type comprises about 15 percent (744 acres) of the Stennis WMA.

#### *2.3.2.2 Mixed Hardwood Pine Uplands*

This habitat type includes upland forests that are not limited by nutrient or moisture availability and is generally described in the Mississippi SWAP as "Mesic Upland Forests" (MDWFP 2015). These forests are usually found on middle to lower slopes, low flats, or protected draws with deeper, more fertile loam or clay soils. Species composition is similar to the mixed pine hardwood community; however, this community contains abundantly more hardwood specimens and several other characteristic species that are not typically found in the mixed pine hardwood forests. These include American beech (*Fagus grandifolia*), southern magnolia (*Magnolia grandiflora*), white oak, cherrybark oak (*Quercus pagoda*), and spruce pine (*Pinus glabra*). Subcanopy trees associated with this habitat type are sweetbay, bigleaf magnolia (*Magnolia macrophylla*), sourwood, American holly (*Ilex opaca*), flowering dogwood, yaupon, common sweetleaf (*Symplocos tinctoria*), red maple (*Acer rubrum*), sugarberry and pawpaw (*Asimina triloba*). Shrubs and ground cover within this community are similar to that described for the Mixed Pine Hardwood Uplands. Other species that are common to this community, however, include American beautyberry (*Callicarpa americana*), Louisiana blackberry (*Rubus louisianus*), poison ivy (*Toxicodendron radicans*), and winged sumac (*Rhus copallinum*). The mixed hardwood pine community comprises approximately 827 acres or 16 percent of the Stennis WMA.

#### *2.3.2.3 Cypress-Tupelo Gum Swamps*

Swamp forests occur in two subtypes throughout the Stennis WMA, cypress-tupelo gum swamps and small stream swamp forests. Meander scars, low floodplain terraces, bottomland flats, backwater areas, or springheads are common areas to find swamp

forests. These communities encompass approximately 129 acres, or 3 percent, of the Stennis WMA. The soils are seasonally to semi-permanently flooded and remain saturated for long periods throughout the year. Common plants associated with cypress/gum swamps are baldcypress (*Taxodium distichum*), blackgum (*Nyssa sylvatica*), water tupelo (*Nyssa aquatica*), silver maple, red maple, green ash (*Fraxinus pennsylvanica*), water oak, persimmon (*Diospyrous virginiana*), buttonbush (*Cephalanthus occidentalis*), swamp privet (*Foresteria* sp.), and planertree (*Planera aquatica*). Small stream swamp forests are typically composed of sweetbay, blackgum, pond cypress (*Taxodium ascendens*), red maple, slash pine, sweetgum, tulip poplar (*Liriodendron tulipifera*), water oak, swamp titi *(Cyrilla racemiflora),* gallberry (*Ilex glabra)*, bayberry (*Morella* sp.), American holly, azalea (*Rhododendron* sp.), Florida anise (*Illicium floridanum*), giant cane (*Arundinaria gigantea*), panic grass (*Panicum virgatum*), cinnamon fern (*Osmunda cinnamonea*), and netted chainfern (*Woodwardia areolata*). Plants such as lizard's tail (*Saururus cernuus)* and smartweeds *(Polygonum* spp.) are also common in the moist soils that are exposed to sunlight. *As* noted above, the habitat ranking score for cypress-tupelo swamp forests is 67, while the ranking for small stream swamp forests is considerably higher at 91.

#### *2.3.2.4 Hay and Pasture Lands/Old Fields*

This habitat category includes relatively small sites throughout the Stennis WMA that were historically established as food plots by hunting clubs. These sites are placed sporadically and range in size from 0.5 acre to 4 acres (total of 16 acres). These sites are now used by SBT-22 as landing zones (LZ) or drop zones (DZ). These areas are maintained as such to support the military mission. Maintenance includes mowing and plowing to retain the herbaceous cover. Vegetation includes native and non-native grasses, clover (*Trifolium* spp.), sunflower (*Helianthus* spp.), aster (*Aster* spp.), and numerous other forbs and herbs.

**Photograph 2-5. Landing zone**

#### *2.3.2.5 Cutover/Shrublands*

Prior to the acquisition of the Stennis WMA, previous owners harvested much of the pine and hardwood timber in large blocks and conducted little or no replanting. In addition, large areas of natural forests were damaged by Hurricane Katrina in 2005, causing high levels of tree mortality. Expanses of hardwood shrublands are regenerating in the areas impacted by the hurricane as well as the recently harvested areas. Approximately 305 acres (6 percent) of the Stennis WMA are comprised of these regeneration areas. The regeneration on the installation contains a variety of opportunistic invasive species, primarily Chinese tallow tree (*Triadica sebifera*). The dominant woody vegetation in these areas includes poison ivy, Japanese honeysuckle (*Lonicera japonica*), blackberry (*Rubus* spp.), eastern baccharis (*Baccharis halimifolia*), gallberry, Chinese privet (*Ligustrum sinense*), greenbriars (*Smilax* spp.), grape vines (*Vitus* sp.), red maple saplings, black willow, Saint John's-wort (*Hypericum spp*.), dogwoods (*Cornus* spp.), winged sumac, sweetgum saplings, water oak saplings, and peppervine (*Ampleopsis arborea*). Herbaceous vegetation identified within the logged areas consists of rushes (*Juncus* spp.), sedges (*Carex* spp.), smartweeds, flatsedges (*Cyperus* spp.), and little bluestem (*Schizachyrium scoparium*). These areas are very dense and nearly impenetrable due to the abundance of young saplings and vines; however, SBT-22 currently uses these sites as jungle training areas.

#### *2.3.2.6 Bottomland Hardwood Forests*

Bottomland hardwood forest is the most prevalent community on the Stennis WMA, comprising approximately 1,233 acres or 24 percent of the land area. Bottomland hardwood forests are typically species-rich on moist or occasionally wet sites on lower slopes and terraces of streams and rivers. Their position on the landscape provides that the habitat remains moist during the growing season, and the water table may be elevated during late winter and early spring. This habitat type is dominated by hardwood species, as the name implies. Common tree species in bottomland hardwood forests include: sweetgum, water oak, cherrybark oak, white oak, swamp chestnut oak (*Quercus michauxii*), willow oak, American elm (*Ulmus americana*), green ash sugarberry and various pecans (*Carya* spp.) and hickories. Winged elm (*Ulmus alata*), red maple, possumhaw (*Viburnum nudum*), parsely hawthorn (*Crateagus marshallii*), mayhaw (*Crateagus opaca*), arrowwood viburnum and witch-hazel (*Hamamelis virginiana*) are common shrubs and small tree associates. Woody vines that occur

within the bottomland hardwood forests include grapes, greenbriars, peppervine, trumpet-creeper (*Campsis radicans*), and poison ivy.

#### *2.3.2.7 Abandoned Mines*

Of the 5,068 acres on Stennis WMA, approximately 248 acres (5 percent) consist of abandoned aggregate mines that contain bare soils of clay, gravel and sand. These mines were presumably closed or abandoned prior to MDEQ permitting requirements, since they have not been restored. Isolated pockets of vegetation occur within the abandoned mine areas, consisting of pine, wax myrtle (*Morella cerifera*), Japanese honeysuckle, red maple, blackberry, and various grasses and forbs. Many of these areas are used by SBT-22 for HMMWV and terrestrial navigation training courses.

### 2.3.3 Rare, Threatened and Endangered Species

#### *2.3.3.1 Federal*

The Endangered Species Act (ESA) was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. All Federal agencies are required to implement management programs for species listed under the ESA and to use their authorities to further the purposes of the ESA. Responsibility for the identification of a threatened or endangered species and development of any potential recovery plan lies with the Secretary of the Interior and the Secretary of Commerce.

The USFWS is the primary agency responsible for implementing the ESA, and is responsible primarily for birds and other terrestrial and freshwater species. The USFWS's responsibilities under the ESA include: (1) identification of threatened and endangered species; (2) identification of critical habitats for listed species; (3) implementation of research on, and recovery efforts for these species; and (4) consultation with other Federal agencies concerning measures to avoid harm to listed species.

An endangered species is a species in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Proposed species are those that have been formally submitted to Congress for official

listing as threatened or endangered. In addition, the USFWS has identified species that are candidates for listing as a result of identified threats to their continued existence. The candidate designation includes those species for which the USFWS has sufficient information to support proposals to list as endangered or threatened under the ESA; however, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.

The USFWS lists seven threatened species, six endangered species, and one candidate species in Hancock County, Mississippi (USFWS 2008), and five threatened species, four endangered species, and two candidate species in St. Tammany Parish, Louisiana (LDWF 2008). These species are listed in Table 2-4. Critical habitat has been designated (described in Section 2.3.4.2 below) for the piping plover (*Charadrius melodus*) in Hancock County and for the Gulf sturgeon in St. Tammany Parish and Hancock County. The following Rare, Threatened, and Endangered (RTE) species have the potential to occur within the vicinity of Stennis WMA: Louisiana black bear (*Ursus americanus luteolus*), Gulf sturgeon, gopher tortoise (*Gopherus polyphemus*), bald eagle (*Haliaeetus leucocephalus*), eastern indigo snake (*Drymarchon corais* couperi), ringed map turtle (*Graptemys oculifera*), and Pearl River map turtle (*Graptemys pearlensis*). Suitable habitat for each of these species is discussed later in Section 4.3.2.4. Marginal quality habitat is present for Louisiana quillwort (*Isoetes louisianaensis*), red-cockaded woodpecker (*Picoides borealis*), dusky gopher frog (*Rana sevosa*), inflated heelsplitter (*Potamilus inflatus*), and the West Indian manatee (*Trichechus manatus*) near the Stennis WMA; however, the presence of these species has not been documented.

**Table 2-4. Federally Threatened and Endangered Species Known to Occur in the Vicinity of the Stennis WMA**

| Species | Federal Listing Status | County/ Parish Listed | Potential to Occur in the Stennis WMA |
|---|---|---|---|
| **Mammals** | | | |
| Louisiana black bear<br>*Ursus americanus luteolus* | Delisted | Hancock and St. Tammany | Yes – inhabits tracts of heavily wooded bottomland hardwoods and swamps |
| West Indian manatee<br>*Trichechus manatus* | Threatened | Hancock and St. Tammany | Yes – known to inhabit the Pearl River basin, but unlikely |
| **Reptiles** | | | |
| Alligator Snapping Turtle<br>*Macrochelys temminckii* | Proposed Threatened | Hancock and St. Tammany | Yes – inhabits slow moving, deep water of rivers, sloughs, oxbows, and canals or lakes associated with rivers; also swamps, bayous, and ponds near rivers, and shallow creeks that are tributary to occupied rivers |
| Eastern diamondback rattlesnake<br>*Crotalus adamanteus* | Petitioned | Hancock and St. Tammany | Yes – inhabits uplands, especially in low growing vegetation areas of pine forests; known to occupy gopher tortoise burrows |
| Eastern indigo snake<br>(*Drymarchon corais couperi*) | Threatened | Hancock | Yes – varied habitats near freshwater streams and marshes; known to occupy gopher tortoise burrows |
| Gopher tortoise<br>*Gopherus polyphemus* | Threatened | Hancock and St. Tammany | Yes – inhabits well-drained sandy soils, especially in low growing vegetation areas of longleaf pine |
| Green sea turtle<br>*Chelonia mydas* | Threatened | Hancock | No – generally prefer warmer, southern waters of the Gulf of Mexico. |
| Kemp's Ridley sea turtle<br>*Lepidochelys kempii* | Endangered | Hancock | No – found primarily in the vicinity of Rancho Nuevo beach in Mexico and along the Texas Gulf of Mexico coast |

| Species | Federal Listing Status | County/ Parish Listed | Potential to Occur in the Stennis WMA |
|---|---|---|---|
| Leatherback turtle<br>*Dermochelys comacea* | Endangered | Hancock | No – Primarily utilizes open ocean and deeper waters of the Gulf of Mexico and coastal bays |
| Loggerhead sea turtle<br>*Caretta caretta* | Threatened | Hancock | No –commonly found marine open deep water and marine open shallow water |
| Pearl River map turtle<br>*Graptemys pearlensis* | Proposed Threatened | St. Tammany | Yes – prefers river stretches with moderate currents, a lot of basking sites, and nests on sand bars |
| Ringed map turtle<br>*Graptemys oculifera* | Threatened | St. Tammany | Yes – prefers river stretches with moderate currents, a lot of basking sites, and nests on sand bars |
| Southern hog-nosed snake<br>*Heterodon simus* | Petitioned | Hancock and St. Tammany | Yes – varied habitats near freshwater streams and marshes; known to occupy gopher tortoise burrows |
| **Amphibians** | | | |
| Dusky gopher frog<br>*Rana sevosa* | Endangered | St. Tammany | Yes – inhabits upland sandy habitats historically forested with longleaf pine and isolated, ephemeral wetland breeding sites |
| **Birds** | | | |
| Bald eagle<br>*Haliaeetus leucocephalus* | Delisted* | Hancock and St. Tammany | Yes – nests in transitional area between forest and water |
| Brown pelican<br>*Pelecanus occidentalis* | Delisted* | Hancock | No – inhabits tidal estuaries or along the coast , commonly nests in shrub thickets within dunes of barrier islands, and feeds in deep and shallow coastal waters |
| Eastern Black Rail<br>*Laterallus jamaicensis* | Threatened | Hancock and St. Tammany | Yes – away from tidal habitats, black rails nest in a variety of wet meadows and marsh edges, including along creeks and rivers |

| Species | Federal Listing Status | County/ Parish Listed | Potential to Occur in the Stennis WMA |
|---|---|---|---|
| Piping plover<br>*Charadrius melodus* | Threatened | Hancock | No – inhabits wash zones, intertidal ocean beach, wrack lines, washover passes, mud-, sand-, and algal flats, and shorelines of streams, ephemeral ponds, lagoons, and salt marshes |
| Red-cockaded woodpecker<br>*Picoides borealis* | Endangered | Hancock and St. Tammany | Yes – marginal habitat exists, nests in cavities of mature longleaf pine forests and mixed pine-upland hardwood forests (60+ years old) and foraging habitats consist of 30+ old pine stands, |
| Rufa Red Knot<br>*Calidris canutus rufa* | Threatened | Hancock and St. Tammany | No – transits beaches and tidal estuaries along the coast and feeds in shallow intertidal coastal waters |
| **Fishes** | | | |
| Gulf sturgeon<br>*Acipenser oxyrhynchus desotoi* | Threatened | Hancock and St. Tammany | Yes – in LA, most commonly inhabits the Pearl, Bogue Chitto and Tchefuncte Rivers in St. Tammany and Washington Parishes |
| Pearl darter<br>*Percina aurora* | Candidate | Hancock and St. Tammany | Yes – prefers firm gravel substrate and sandstone exposures |
| **Mussels** | | | |
| Inflated heelsplitter<br>*Potamilus inflatus* | Threatened | Hancock and St. Tammany | Yes – inhabits riffle and shoal areas with stable bottoms within the Pearl River basin, although a 2016 survey did not detect any |
| **Insects** | | | |
| American bumble bee<br>*Bombus pensylvanicus* | Peitioned | Hancock and St. Tammany | Yes – a historically ubiquitous species found foraging on nectar in a variety of open fields and wildflowers |
| Monarch butterfly<br>*Danaus plexippus* | Candidate | Hancock and St. Tammany | Yes – migratory species occurring in southern Mississippi during warm months |
| **Plants** | | | |

| Species | Federal Listing Status | County/ Parish Listed | Potential to Occur in the Stennis WMA |
|---|---|---|---|
| Louisiana quillwort<br>*Isoetes louisianensis* | Endangered | Hancock and St. Tammany | Yes – inhabits small shallow streams with scour channels or in very wet habitats |

Source: USFWS 2008, LDWF 2008

* Removed from the list of threatened or endangered species, but are still monitored by USFWS and may be protected under one or more other Federal laws

#### *2.3.3.2 Critical Habitat*

The ESA requires the conservation of critical habitat, which is defined as the areas of land, water, and air space that an endangered species needs for survival. Critical habitat also includes such things as food and water, breeding sites, cover or shelter, and sufficient habitat area to provide for normal population growth and behavior. Section 7 of the ESA restricts destruction or adverse modification of critical habitat by any activity funded, authorized, or carried out by any Federal agency. One of the primary threats to many species is the destruction or modification of essential habitat by uncontrolled land and water development. Currently, the piping plover and the Gulf sturgeon have critical habitat designated in Hancock County and St. Tammany Parish.

Critical habitat for the Gulf sturgeon was designated on March 19, 2003 (68 *Federal Register* 13370). Unit 1 of this critical habitat is described as part of the Pearl River System in several parishes/counties in Louisiana and Mississippi, including St. Tammany and Hancock (Figure 2-5). The lateral extent of Unit 1 is the ordinary high water line on each bank of the associated rivers and shorelines.

Critical habitat for the piping plover was designated on July 10, 2001 (66 *Federal Register* 36038 – 36143). Unit MS-1 is located in Hancock County from Lakeshore through Bay St. Louis. There are no designated critical habitat units for the piping plover in the Stennis WMA.

#### *2.3.3.3 State*

The Mississippi Museum of Natural Science's Mississippi Natural Heritage Program (MNHP) maintains lists of species of special concern for each county in the state; animal species on the list are protected by the Mississippi Nongame and Endangered Species Conservation Act (Mississippi Code Annotated §§ 49-5-103-119(1999)). The species of special concern are not necessarily the same as those protected by the Federal government under the ESA; however, some of the same species are also Federally listed. Rare species of Louisiana are tracked by the Louisiana Natural Heritage Program.

State-listed species were reviewed to determine their potential occurrence in vicinity of the Stennis WMA, and those that could potentially occur at or near the property are listed in Table 2-5.

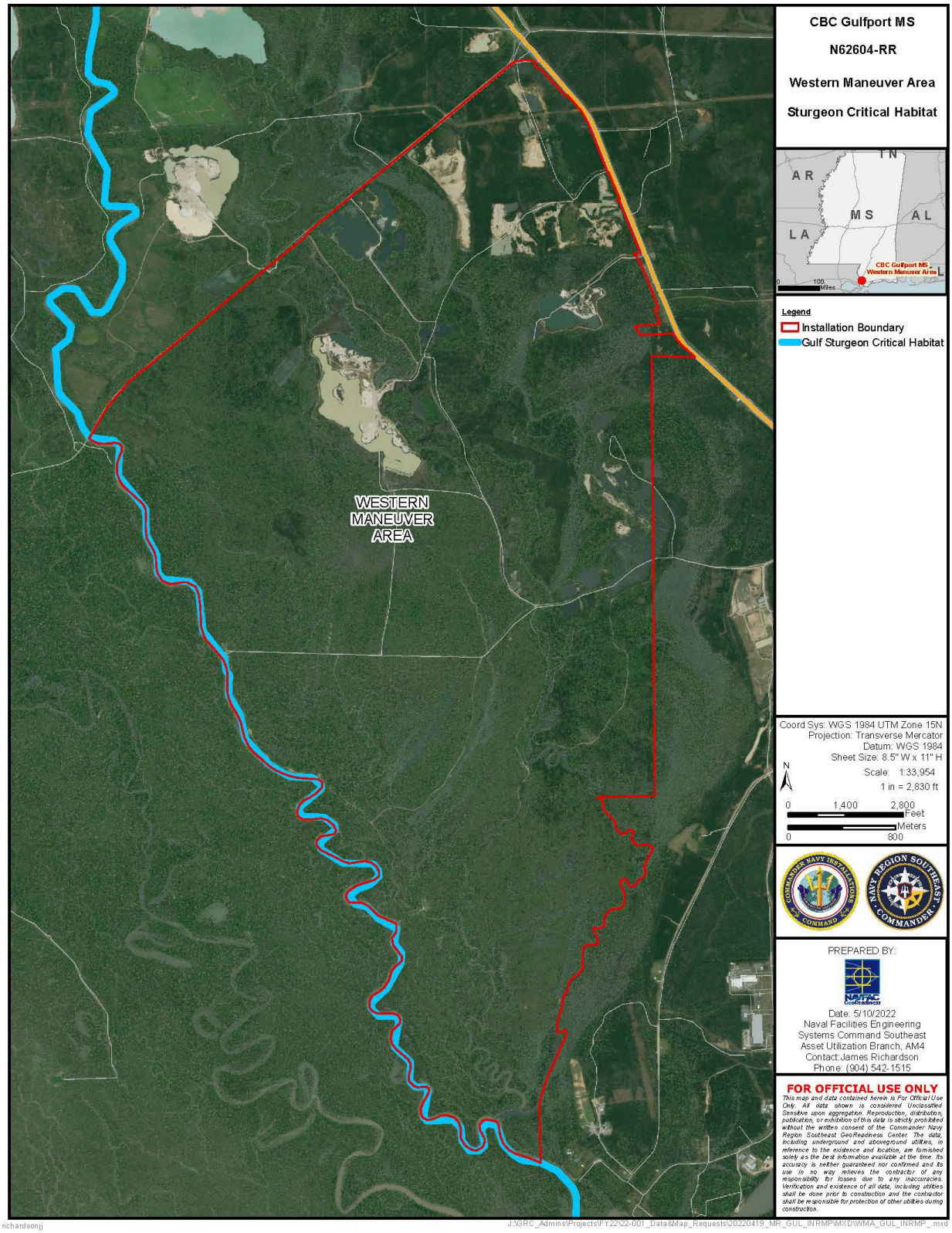



**Figure 2-5. Critical Habitat on Stennis Western Maneuver Area**

**Table 2-5. State-Listed Species Potentially Occurring within the Vicinity of the Stennis WMA**

| Common/Scientific Name | Habitat | County/Parish Listed |
|---|---|---|
| **MAMMALS** | | |
| Long-tailed weasel (*Mustela frenata*) | Usually found near water, though live in a wide variety of habitats including brushland, and open areas such as woodlands, marshes, swamps, field edges and riparian grasslands | St. Tammany |
| **BIRDS** | | |
| Bachman's sparrow (*Aimophila aestivalis*) | Found in areas with scattered, scrubby vegetation and a dense herbaceous understory, dry open pine or oak woods with an undercover of grasses and shrubs, brushy or overgrown hillsides, or overgrown fields with thickets and brambles | Hancock and St. Tammany |
| Merlin (*Falco columbarius*) | Inhabits a variety of habitats, most commonly nests in open woods or wooded prairies | Hancock |
| Black-crowned night heron (*Nycticorax nycticorax*) | Various wetland habitats, including salt, brackish, and freshwater marshes, swamps, streams, lakes, and agricultural fields | Hancock |
| White-faced ibis (*Plegadis chihi*) | Breeding habitat is shallow freshwater marshland, especially where islands of vegetation are available; also uses agricultural lands, flooded pastures, fields, irrigated areas, and damp meadows | Hancock |
| American swallow-tailed kite (*Elanoides forficatus*) | Utilizes lowland areas particularly in the coastal plain along river systems and pines adjacent to swampland | St. Tammany |
| **AMPHIBIANS AND REPTILES** | | |
| Gulf coast toad (*Bufo nebulifer*) | Prefers areas that are cool and moist, with an abundance of insects and other invertebrate prey, shrubbery and drainage ditches are common habitats | Hancock |
| River frog (*Rana heckscheri*) | Inhabits river swamps and swampy shores of ponds and bayous | Hancock |
| Ornate chorus frog (*Pseudacris ornata*) | Inhabits longleaf pine forests, pine flatwoods, and cypress ponds | St. Tammany |
| Four-toed salamander (*Hemidactylium scutatum*) | Inhabits areas under logs, moss, and rocks in mature hardwood and pine forests, larvae use flowing water or temporary pools with moss or sedges and without fish | St. Tammany |
| Alligator snapping turtle (*Macroclenys temminckii*) | Found in slow moving, deep water of rivers, sloughs, oxbows, and canals or lakes associated with rivers (e.g., impoundments), also swamps, bayous, and ponds near rivers, and shallow creeks that are tributary to occupied rivers | St. Tammany |
| Mole kingsnake (*Lampropelis calligaster rhombomaculata*) | In Louisiana, generally found in upland longleaf pine woods and pine flatwoods | St. Tammany |
| Eastern indigo snake (*Drymarchon corais couperi*) | Found in the lower coastal plain, requires deep sand ridges and is often associated with the gopher tortoise | Hancock |
| Rainbow snake (*Farancia erytrogramma*) | Found in a variety of aquatic habitats but are most common in cypress swamps and flowing-water habitats such as blackwater creeks, streams, and rivers | Hancock and St. Tammany |

**Table 2-5, continued.**

| Common/Scientific Name | Habitat | County/Parish Listed |
|---|---|---|
| Gulf coast ribbon snake (*Thamnophis proximus orarius*) | Common along the edges of permanent and semi-permanent aquatic areas such as ponds, marshes, swamps, streams, and rivers | Hancock |
| Gulf crayfish snake (*Regina regida sinicola*) | Habitat include slow waters of lowland areas, swamps, nontidal and tidal freshwater marshes, sphagnum bogs, pocosins, seepage wetlands, ponds, lakes, flatwoods ponds, cypress ponds, bayous, rice fields, canals, drainage ditches, mucky areas along streams, floodplains, and also sometimes grassy or wooded upland habitats adjacent to wetlands | Hancock |
| Eastern coral snake (*Micrurus fulvius*) | Pine and scrub oak sandhill habitats, hardwood areas, and pine flatwoods that undergo seasonal flooding | Hancock |
| **FISHES** | | |
| Crystal darter (*Crystallaria asprella*) | Occurs in clean sand and gravel runs of small to medium rivers; historically inhabited the Pearl River | Hancock |
| Black buffalo (*Ictiobus niger*) | Pools and backwaters of sloughs and small to large rivers, reservoirs, river-margin lakes, often in strong currents of large rivers; currently inhabits lower Pearl River | Hancock |
| Ironcolor Shiner (*Notropis chalybaeus*) | Common through parts of the Mississippi River to the Gulf of Mexico and along lower Gulf Coast; inhabits small to moderate-sized streams that drain pine woodlands | Hancock |
| Paddlefish (*Polyodon spathula*) | Generally inhabits slow-flowing water of large rivers; access to areas with sand or gravel bars is required during migratory breeding events | Hancock and St. Tammany |
| Least killifish (*Heterandria Formosa*) | Fresh and brackish swamps, bayous, and roadside ditches with abundant vegetation | Hancock |
| **PLANTS** | | |
| Large beakrush (*Rhynchospora macra*) | Inhabits longleaf pine flatwoods savannahs | Hancock |
| Chapman beakrush (*Rhynchospora stenophylla*) | Inhabits longleaf pine flatwoods savannahs | Hancock |
| Ciliate beakrush (*Rhynchospora ciliaris*) | Found in longleaf pine flatwoods savannahs; can occur in roadside ditches and along utility corridors | St. Tammany |
| Flat-fruit beakrush (*Rhynchospora compressa*) | Inhabits longleaf pine flatwoods savannahs | St. Tammany |
| Clain false-foxglove (*Agalinis aphylla*) | Found in wet pine savannas and flatwoods, depressions in pinelands and bogs, edges of cypress-gum ponds and depressions | St. Tammany |
| Purple false-foxglove (*Agalinis filicaulis*) | Found in wet longleaf pine flatwoods savannahs and hillside seepage bogs | St. Tammany |
| Flax-leaf false-foxglove (*Agalinis linifolia*) | Found in longleaf pine flatwoods savannahs | St. Tammany |
| Cypress knee sedge (*Carex decomposita*) | Inhabits cypress-tupelo swamps, cypress-studded lakes, isolated natural ponds, beaver ponds, and wet swales in bottomland hardwoods; almost always grows on woody substrate such as living trees, stumps and logs | St. Tammany |
| Lecont's thistle (*Cirsium lecontei*) | Longleaf pine flatwoods savannahs | St. Tammany |
| Slim spikerush (*Eleocharis elongate*) | Intermittent ponds, creeks, canals, and ditches | Hancock |

**Table 2-5, continued.**

| Common/Scientific Name | Habitat | County/Parish Listed |
|---|---|---|
| Southern umbrella sedge (*Fuirena seirpodea*) | Louisiana's only known extant site is in sandy soil at the edge of a fresh to intermediate marsh near the Pearl River | St. Tammany |
| Shortleaf sneezeweed (*Helenium brevifolium*) | Inhabits bogs, boggy clearings, boggy stream banks, and seepage slopes, generally where the soil is saturated | St. Tammany |
| Sarvis holly (*Ilex ameranchier*) | Inhabits bayhead swamps, pondcypress-swamp black gum swamps, flatwoods ponds | St. Tammany |
| Myrtle holly (*Ilex myrtifolia*) | Inhabits bayhead swamps imbedded in the longleaf pine flatwoods | St. Tammany |
| Common water willow (*Justicia americana*) | Freshwater marshes and open swamps, floatant marshes, and river banks; in Louisiana, one of main footholds is Pearl River basin | St. Tammany |
| Carolina glasswort (*Lilaeopsis carolinensis*) | Open mud flats of freshwater marshes | Hancock |
| Golden crest (*Lophiola aurea*) | Longleaf pine flatwoods savannahs | St. Tammany |
| Flame flower (*Macranthera flammea*) | Bogs and wet boggy thickets, edges of shrub-tree bogs or bays, occasionally in shallow water of cypress-gum ponds or depressions | St. Tammany |
| Paronychia corymbosa (*Paronychia erects var. corymbosa*) | One record from Louisiana in sandy soil along US 190 near the Pearl River | St. Tammany |
| Correll's false dragon head (*Physostegia correllii*) | All Louisiana occurrences are in roadside ditches. Elsewhere it occurs along river banks, often growing in flowing water and in disturbed areas. Non-natural habitats such as drainage and irrigation ditches and wet utility ROWs represent potential habitat. | St. Tammany |
| Scalloped milkwort (*Polygala crenata*) | Inhabits longleaf pine flatwoods savannahs | St. Tammany |
| Hooker milkwort (*Polygala hookeri*) | Inhabits pine savannahs and flatwoods | St. Tammany |
| Parrot pitcherplant (*Sarracenia psittacina*) | Found in wet longleaf pine savannahs and hillside seepage bogs | St. Tammany |
| Pineland scalypink (*Stipulicidia setacea*) | One extant occurrence on the sandy roadside of US 90 near Pearl River | St. Tammany |
| Hoary pea (*Tephrosia hispidula*) | Inhabits longleaf pine flatwoods savannahs | St. Tammany |
| Purple bladderwort (*Utricularia purpurea*) | Inhabits bayhead swamps, pondcypress-swamp black gum swamps, flatwoods ponds | Hancock |
| **INVERTEBRATES** | | |
| Flatwoods Digger (*Fallicambarus oryktes*) | Generally chooses wet places such as meadows where the surface remains dry for extended periods of time | St. Tammany |
| Mississippi pigtoe (*Pleurobema beadleianum*) | Interior rivers and streams | Hancock |
| Purple pimpleback (*Quadrula refulgens*) | Interior streams and rivers with mud, sand, or gravel bottoms | Hancock |

Source: MNHP 2006, LDWF 2008

### 2.3.4 Waters of the U.S. and Wetlands

Waters of the U.S. and wetlands occur throughout the Stennis WMA as streams, swamps, depressions, and potentially as abandoned mine pits. Large tracts of forested wetlands are found throughout the proposed Stennis WMA except for the northeastern corner of the area. These wetland communities are regularly saturated to inundated. These areas are hydrologically influenced by East Pearl River, Mike's River, other small creeks, groundwater, and rainwater. The dominant trees in the inundated areas are water tupelo, baldcypress, and swamp red maple (i.e., swamps). Herbaceous vegetation, such as smartweed and lizard's tail, are often found in areas where sufficient sunlight to support these plants reaches the forest floor. In areas that are saturated (i.e., bottomland hardwoods), green ash, overcup oak (*Quercus lyrata*), and swamp chestnut oak are the dominant overstory species.

Smaller wetlands are found in the northeast corner of the Stennis WMA and within the cutover-scrub areas. These wetlands are typically emergent wetlands that occur in swales and depressions, which are poorly drained. The majority of these depressions are caused by logging operations or small swales in the landscape. Within the inundated portion of the wetlands, the dominant plants include rushes, sedges, flatsedges, sundew (*Drosera* spp.), pitcher plants (*Sarracenia* spp.), smartweeds, seedboxes (*Ludwigia* spp.), and spikerushes (*Eleocharis* spp.).

The abandoned mines have filled with water and currently function as deepwater ponds or freshwater marshes. Several of these ponds may be hydrologically influenced by other waters of the U.S. (NSW 2004), and, if so, these mines would be considered regulated waters by the USACE. Abandoned mines that are not associated with a waters of the U.S. would likely be determined as non-jurisdictional by the USACE. Within the edges of many of the abandoned mines, dominant plants include rushes, sedges, flatsedges, smartweeds, seedboxes, and spikerushes. Red maples and occasionally buttonbush are also found growing throughout these wetland areas.

Other open water areas that can be classified as waters of the U.S. are scattered across the Stennis WMA. In particular, the East Pearl River and Mike's River are both considered navigable streams and, thus, activities along either are subject to regulations of Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water

Act. Projects that impact jurisdictional wetlands/U.S. Waters require permit review with the local U.S. Army Corps of Engineers (USACE) district.

### 2.3.5 Fauna

The outer coastal plain provides habitat for a wide variety of animals. Currently at Stennis WMA, there is no habitat management strategy or faunal surveys to determine the presence or relative abundance of wildlife species. Consequently, the following discussions are derived from NSW (2004), general knowledge of the area and associated habitats, and observations made during site reconnaissance trips.

Fish

The portion of the East Pearl River that flows through Stennis WMA is too far inland to be considered essential fish habitat (EFH), so EFH assessments are not warranted on the property. The federally-threatened Gulf sturgeon (*Acipenser oxyrinchus desotoi*) and federally-proposed pearl darter (*Percina aurora*) potentially occur in waterways on the property. Twenty-four other fish species were confirmed at WMA Stennis during surveys in 2010-11 and 2019-20 (GSRC 2012; GSRC 2021). These species are presented in Table 2-6.

**Table 2-6. Fishes Observed During Surveys at WMA Stennis**

| Common Name | *Scientific Name* | Common Name | *Scientific Name* |
|---|---|---|---|
| Banded pygmy sunfish | *Elassoma zonatum* | Least killifish | *Heterandria formosa* |
| Black crappie | *Pomoxis nigromaculatus* | Long-eared sunfish | *Lepomis megalotis* |
| Bluegill | *Lepomis macrochirus* | Mosquitofish | *Gambusia affinis* |
| Bullhead catfish | *Ameiurus spp.* | Pirate perch | *Aphredoderus sayanus* |
| Channel catfish | *Ictalurus punctatus* | Redear sunfish | *Lepomis microlophus* |
| Cherryfin shiner | *Lythrurus roseipinnis* | Redfin shiner | *Lythrurus umbratilis* |
| Darter | *Anhingidae family* | Redhorse | *Moxostoma carinatum* |
| Golden topminnow | *Fundulus chrysotus* | Shad | *Alosa sapidissima* |
| Grass pickerel | *Esox americanus vermiculatus* | Smallmouth bass | *Micropterus dolomieu* |
| Green sunfish | *Lepomis cyanellus* | Tadpole madtom | *Noturus gyrinus* |
| Gulf silverside | *Menidia peninsulae* | Warmouth | *Lepomis gulosus* |
| Largemouth bass | *Micropterus salmoides* | Western mosquitofish | *Gambusia affinis* |

Sources: GSRC 2012; GSRC 2021

Reptiles and Amphibians

Reptiles and amphibians (herpetofauna) are common throughout the area due to the abundance of moist habitats available for nesting and breeding. Herpetofauna surveys were conducted at WMA Stennis in 2010-11 and 2019-20 (GSRC 2012; GSRC 2021). Additionally, a survey targeted at rare turtles, particularly map turtles (*Graptemys* spp.), was completed in 2012-13 (Buhlmann 2014). These surveys have confirmed the presence of 50 species of amphibians and reptiles, including 15 species of frog, 14 snakes, six toads, four skinks, three lizards, four salamanders, three turtles, and the American alligator (*Alligator mississippiensis*; Table 2-7).

**Table 2-7. Reptiles and Amphibians Observed During Surveys at WMA Stennis**

| Common Name | *Scientific Name* | Type | 2010-11 | 2019-20 |
|---|---|---|---|---|
| American alligator | *Alligator mississippiensis* | alligator | X | X |
| American bullfrog | *Lithobates catesbeianus* | frog | X | X |
| American toad | *Anaxyrus americanus* | toad | X | |
| Bird-voiced treefrog | *Hyla avivoca* | frog | X | X |
| Broad-banded water snake | *Nerodia fasciata* | snake | | X |
| Broad-headed skink | *Eumeces laticeps* | skink | X | |
| Bronze frog | *Lithobates clamitans* | frog | X | X |
| Cajun chorus frog | *Pseudacris fouquettei* | frog | X | |
| Coal skink | *Eumeces anthracinus* | skink | X | |
| Cope's gray treefrog | *Hyla chrysoscelis* | frog | X | X |
| Copperhead | *Agkistrodon contortrix* | snake | | X |
| Cottonmouth | *Agkistrodon piscivorus* | snake | X | X |
| Diamondback watersnake | *Nerodia rhombifer* | snake | X | X |
| Eastern fence lizard | *Sceloporus undulatus* | lizard | X | X |
| Eastern narrow mouthed toad | *Gastrophryne carolinensis* | toad | X | X |
| Eastern newt | *Notophthalmus viridescens* | salamander | X | X |
| Five-lined skink | *Eumeces fasciatus* | skink | X | X |
| Fowler's toad | *Anaxyrus fowleri* | toad | X | X |
| Gray rat snake | *Elaphe spiloides* | snake | X | X |
| Gray treefrog | *Hyla versicolor* | frog | X | |
| Green anole | *Anolis carolinensis* | lizard | X | X |
| Green treefrog | *Hyla cinerea* | frog | X | |
| Greenhouse frog | *Eleutherodactylus planirostris* | frog | | X |
| Ground skink | *Scincella lateralis* | skink | X | X |
| Gulf coast toad | *Anaxyrus valliceps* | toad | X | |
| Midland brownsnake | *Storeria dekayi wrightorum* | snake | X | |
| Midland watersnake | *Nerodia sipedon pleuralis* | snake | X | |
| Mississippi slimy salamander | *Plethodon mississippi* | salamander | | X |

**Table 2-7, continued**

| Common Name | *Scientific Name* | Type | 2010-11 | 2019-20 |
|---|---|---|---|---|
| Northern cricket frog | *Acris crepitans crepitans* | frog | X | X |
| Pig frog | *Lithobates grylio* | frog | X | |
| Plain-bellied watersnake | *Nerodia eryhtrogaster* | snake | | X |
| Red-eared slider | *Trachemys scripta* | turtle | | X |
| Ringed map turtle | *Graptemys oculifera* | turtle | X | X |
| River cooter | *Pseudemys concinna* | turtle | X | X |
| Rough green snake | *Ophiodrys aestivus* | snake | X | |
| Six-lined racerunner | *Aspidoscelis sexlineatus* | lizard | X | X |
| Slimy salamander | *Plethodon glutinosus* | salamander | X | |
| Southern black racer | *Coluber constrictor priapus* | snake | X | X |
| Southern chorus frog | *Pseudacris nigrita* | frog | X | |
| Southern cricket frog | *Acris gryllus* | frog | X | X |
| Southern leopard frog | *Lithobates sphenocephalus* | frog | X | X |
| Southern toad | *Anaxyrus terrestris* | toad | X | |
| Speckled kingsnake | *Lampropeltis getula holbrooki* | snake | X | |
| Spring peeper | *Pseudacris crucifer* | frog | | X |
| Two-toed amphiuma | *Amphiuma means* | salamander | | X |
| Upland chorus frog | *Pseudacris triseriata feriarum* | frog | X | |
| Western mud snake | *Farancia abacura* | snake | | X |
| Western ribbon snake | *Thamnophis proximus* | snake | | X |
| Woodhouse's toad | *Anaxyrus woodhousii* | toad | X | |
| Yellowbelly watersnake | *Nerodia erythrogaster flavigaster* | snake | X | |

Sources: GSRC 2012; GSRC 2021

X = The species was observed during the season designated by this symbol

## Mammals

The Stennis WMA installation potentially supports many mammals, including white-tailed deer (*Odocoileus virginianus*), feral pigs (*Sus scrofa*), eastern cottontail rabbits (*Sylvilagus floridanus*), squirrels (*Sciurus niger* and *S. carolinensis*), raccoons (*Procyon lotor*), opossums (*Didelphis virginiana*), woodrats (*Neotoma floridana*), field mice (*Peromyscus* spp. and *Reithrodontomys* spp.), and bats. Mammal species observed during surveys in 2010-11 and 2019-20 are presented in Table 2-8. Potential Louisiana black bear (*Ursus americanus luteolus*) scat was identified in 2010-11, but the species itself was not seen (GSRC 2012). Tomahawk live traps were used in 2019-20 in a directed effort to determine if the long-tailed weasel (*Mustela frenata*), a state-imperiled species, was present, but none were observed (GSRC 2021).

**Table 2-8. Mammals Observed During Surveys at WMA Stennis**

| Common Name | *Scientific Name* | Common Name | *Scientific Name* |
|---|---|---|---|
| Bobcat | *Lynx rufus* | Northern raccoon | *Procyon lotor* |
| Coyote | *Canis latrans* | Nine-banded armadillo | *Dasypus novemcinctus* |
| Domestic dog | *Canis lupus familiaris* | Nutria | *Myocaster coypu* |
| Feral hog | *Sus scrofa* | Opossum | *Didelphis virginiana* |
| Fox squirrel | *Sciurus niger* | Rafinesque's big-eared bat | *Corynorhinus rafinesquii* |
| Gray squirrel | *Sciurus carolinensis* | Striped skunk | *Mephitis mephitis* |
| Louisiana black bear | *Ursus americanus luteolus* | Swamp rabbit | *Syvilagus aquaticus* |
| North American beaver | *Castor canadensis* | White-tailed deer | *Odocoileus viriginianus* |
| North American river otter | *Lontra canadensis* | | |

Sources: GSRC 2012; GSRC 2021

Birds

Stennis WMA provides habitat for many resident and migratory bird species. Bird surveys are conducted approximately every five years at Stennis WMA, having been completed in 2010-11, 2014-15, and 2019-20. Cumulatively, these surveys have identified 150 bird species on the property (GSRC 2012; GSRC 2015; GSRC 2021). Twenty-six of those species were observed only during the most recent surveys, and 20 of those species were not observed during the most recent surveys (Table 2-9). The 2019-20 surveys included efforts devoted to locating secretive marsh birds, such as the eastern black rail (*Laterallus jamaicensis*), but none were observed. The greatest number of species observed in 2019-20 were detected in the spring (86 species), followed by winter (51 species), fall (49 species), and summer (48 species; GSRC 2021).

**Table 2-9. Birds Observed at WMA Stennis in Surveys Since 2010**

| Common Name | *Scientific Name* | Winter | Spring | Summer | Fall |
|---|---|---|---|---|---|
| Acadian flycatcher | *Empidonax virescens* | | X | X | X |
| American bittern [0] | *Botaurus lentiginosus* | | | X | |
| American coot [0] | *Fulica americana* | | X | | X |
| American crow | *Corvus brachyrhynchos* | X | X | X | X |

**Table 2-9, continued**

| Common Name | *Scientific Name* | Winter | Spring | Summer | Fall |
|---|---|---|---|---|---|
| American goldfinch | *Carduelis tristis* | X | | X | |
| American kestrel [0] | *Falco sparverius* | | X | | X |
| American redstart | *Setophaga ruticilla* | | X | | X |
| American robin | *Turdus migratorius* | X | X | | X |
| Anhinga | *Anhinga anhinga* | X | X | X | X |
| Bank swallow ** | *Riparia riparia* | | | | X |
| Barn swallow | *Hirundo rustica* | | X | X | X |
| Barred owl | *Strix varia* | X | X | X | X |
| Bay-breasted warbler ** | *Setophaga castanea* | | X | | |
| Belted kingfisher | *Megaceryle alcyon* | X | X | X | X |
| Black vulture | *Coragyps atratus* | X | X | | |
| Black-and-white warbler ** | *Mniotilta varia* | | X | | X |
| Black-bellied whistling duck ** | *Dendrocygna autumnalis* | | X | X | X |
| Black-crowned night-heron | *Nycticorax nycticorax* | | X | X | |
| Black-throated green warbler | *Dendroica virens* | | X | | X |
| Blue grosbeak | *Passerina caerulea* | | X | X | |
| Blue jay | *Cyanocitta cristata* | X | X | X | X |
| Blue-gray gnatcatcher | *Polioptila caerulea* | X | X | X | X |
| Blue-headed vireo | *Vireo solitaries* | X | X | | X |
| Blue-winged teal [0] | *Anas discors* | | | | X |
| Brewer's blackbird [0] | *Euphagus cyanocephalus* | | | X | |
| Broad-winged hawk | *Buteo platypterus* | | X | X | |
| Brown thrasher | *Toxostoma rufum* | X | X | X | X |
| Brown-headed cowbird | *Molothrus ater* | | X | X | X |
| Brown-headed nuthatch | *Sitta pusilla* | X | X | X | X |
| Canada goose | *Branta canadensis* | X | X | | X |
| Canada warbler [0] | *Wilsonia canadensis* | | X | | X |
| Carolina chickadee | *Paecile carolinensis* | X | X | X | X |
| Carolina wren | *Thryothorus ludovicianus* | X | X | X | X |
| Cattle egret | *Bubulcus ibis* | | X | | X |
| Cedar waxwing | *Bombycilla cedrorum* | X | X | | |
| Cerulean warbler [0] | *Dendroica cerulean* | | | X | |
| Chimney swift | *Chaetura pelagica* | | X | X | X |
| Chipping sparrow | *Spizella passerine* | X | | X | |
| Chuck-will's-widow | *Caprimulgus carolinensis* | | X | | X |
| Cliff swallow [0] | *Petrochelidon pyrrhonota* | | | X | |
| Common grackle | *Quiscalus quiscula* | X | X | X | X |
| Common nighthawk | *Chordeiles minor* | | X | X | X |
| Common yellowthroat | *Geothlypis trichas* | X | X | X | X |

**Table 2-9, continued**

| Common Name | *Scientific Name* | Winter | Spring | Summer | Fall |
|---|---|---|---|---|---|
| Cooper's hawk | *Accipiter cooperii* | X | X | | X |
| Dark-eyed junco ** | *Junco hyemalis* | X | | | |
| Double-crested cormorant | *Palacrocorax auritus* | X | X | | |
| Downy woodpecker | *Picoides pubescens* | X | X | X | X |
| Eastern bluebird | *Sialia sialis* | X | X | X | X |
| Eastern kingbird | *Tyrannus tyrannus* | | X | X | |
| Eastern meadowlark [0] | *Sturnella magna* | | | X | |
| Eastern phoebe | *Sayornis phoebe* | X | | | X |
| Eastern screech-owl ** | *Megascops asio* | | | X | X |
| Eastern towhee | *Pipilo erythrophthalmus* | X | X | X | X |
| Eastern wood-pewee | *Contopus virens* | | | | X |
| European starling | *Sturnus vulgaris* | | X | | X |
| Field sparrow [0] | *Spizella pusilla* | | | X | |
| Fish crow | *Corvus ossifragus* | X | X | X | X |
| Forster's tern ** | *Sterna forsteri* | X | | | |
| Golden-crowned kinglet | *Regulus satrapa* | X | | | |
| Gray catbird | *Dumetella carolinensis* | X | X | X | X |
| Great blue heron | *Ardea herodias* | X | X | | X |
| Great crested flycatcher ** | *Myiarchus crinitus* | | X | X | |
| Great egret | *Ardea alba* | X | X | X | X |
| Great horned owl ** | *Bubo virginianus* | | | | X |
| Great-crested flycatcher | *Myiachus crinitus* | | X | X | X |
| Great-horned owl | *Bubo virginianus* | | X | | X |
| Green heron | *Butorides virescens* | | X | X | X |
| Hairy woodpecker | *Picoides villosus* | X | X | | X |
| Hermit thrush | *Catharus guttatus* | X | | | |
| Hooded merganser [0] | *Lophodytes cucullatus* | X | | | |
| Hooded warbler | *Setophaga citrina* | | X | X | |
| House finch ** | *Haemorhous mexicanus* | X | | | |
| House sparrow [0] | *Passer domesticus* | | | X | |
| House wren | *Troglodytes aedon* | | X | | X |
| Indigo bunting | *Passerina cyanea* | | X | X | X |
| Kentucky warbler ** | *Geothlypis formosa* | | X | X | |
| Killdeer | *Charadrius vociferus* | | X | X | X |
| Least tern | *Sternula antillarum* | | X | | X |
| Little blue heron | *Egretta caerulea* | X | X | X | X |
| Louisiana waterthrush [0] | *Parkesia motacilla* | | | | X |
| Magnolia warbler ** | *Setophaga magnolia* | | | | X |
| Mallard [0] | *Anas platyrhynchos* | | | X | |

**Table 2-9, continued**

| Common Name | *Scientific Name* | Winter | Spring | Summer | Fall |
|---|---|---|---|---|---|
| Marsh wren ** | *Cistothorus palustris* | | | | X |
| Merlin | *Falco columbarius* | | | | X |
| Mississippi kite | *Ictinia mississippiensis* | | X | X | |
| Mourning dove | *Zenaida macroura* | X | X | X | X |
| Nashville warbler [0] | *Vermivora ruficapilla* | | X | | X |
| Northern bobwhite | *Linus virginianus* | | X | X | |
| Northern cardinal | *Cardinalis cardinalis* | X | X | X | X |
| Northern flicker | *Colaptes auratus* | X | X | X | X |
| Northern harrier ** | *Circus hudsonius* | X | X | | |
| Northern mockingbird | *Mimus polyglottos* | X | X | X | X |
| Northern parula | *Setophaga americana* | | X | X | |
| Northern rough-winged swallow | *Stelgidopteryx serripennis* | | X | X | X |
| Northern waterthrush | *Parkesia noveboracensis* | | X | | X |
| Orange-crowned warbler | *Leiothlypis celata* | X | | | X |
| Orchard oriole | *Icterus spurious* | | X | X | X |
| Osprey | *Pandion haliaetus* | X | X | X | X |
| Ovenbird ** | *Seiurus aurocapilla* | | X | | X |
| Painted bunting ** | *Passerina ciris* | | X | X | |
| Palm warbler ** | *Setophaga palmarum* | | | | X |
| Philadelphia vireo ** | *Vireo philadelphicus* | | | | X |
| Pied-billed grebe [0] | *Podilymbus podiceps* | X | X | | |
| Pileated woodpecker | *Dryocopus pileatus* | X | X | X | X |
| Pine warbler | *Setophaga pinus* | X | X | X | X |
| Prairie warbler ** | *Setophaga discolor* | X | X | X | X |
| Prothonotary warbler | *Protonotaria citrea* | | X | X | X |
| Purple martin | *Progne subis* | | X | X | |
| Red-bellied woodpecker | *Melanerpes carolinus* | X | X | X | X |
| Red-eyed vireo | *Vireo olivaceus* | | X | X | |
| Red-headed woodpecker | *Melanerpes erythrocephalus* | | X | X | X |
| Red-shouldered hawk | *Buteo lineatus* | X | X | X | X |
| Red-tailed hawk | *Buteo jamaicensis* | X | X | | X |
| Red-winged blackbird | *Agelaius phoeniceus* | X | X | X | |
| Rose-breasted grosbeak | *Pheucticus ludovicianus* | | X | | X |
| Ruby-crowned kinglet | *Regulus calendula* | X | X | | |
| Ruby-throated hummingbird | *Archilochus colubris* | | X | X | X |
| Savannah sparrow [0] | *Passerculus sandwichensis* | | | X | |
| Scarlet tanager | *Piranga olivacea* | | X | | X |
| Sedge wren ** | *Cistothorus stellaris* | X | | | |
| Sharp-shinned hawk ** | *Accipiter striatus* | | | | X |

**Table 2-9, continued**

| Common Name | *Scientific Name* | Winter | Spring | Summer | Fall |
|---|---|---|---|---|---|
| Snowy egret | *Egretta thula* | | X | X | X |
| Solitary sandpiper | *Tringa solitaria* | | X | | |
| Song sparrow | *Melospiza melodia* | X | | | |
| Summer tanager | *Piranga rubra* | | X | X | X |
| Swainson's thrush ** | *Catharus ustulatus* | | X | | |
| Swainson's warbler ** | *Limnothlypis swainsonii* | | X | X | |
| Swallow-tailed kite | *Elanoides forficatus* | | X | X | |
| Swamp sparrow | *Melospiza georgiana* | X | | | |
| Tree swallow | *Tachycineta bicolor* | X | X | X | |
| Tricolored heron ** | *Egretta tricolor* | X | | X | X |
| Tufted titmouse | *Baeolophus biolor* | X | X | X | X |
| Turkey vulture | *Cathartes aura* | X | X | X | X |
| Vesper sparrow ** | *Pooecetes gramineus* | X | | | |
| White ibis | *Eudocimus albus* | | X | X | X |
| White-breasted nuthatch | *Sitta carolinensis* | | | X | X |
| White-eyed vireo | *Vireo griseus* | X | X | X | X |
| White-tailed kite [0] | *Elanus leucurus* | | | X | |
| White-throated sparrow | *Zonotrichia albicollis* | X | X | | |
| Wild turkey | *Meleagris gallopavo* | X | X | X | X |
| Wood duck | *Aix sponsa* | X | X | X | |
| Wood thrush | *Hylocichla mustelina* | | X | X | X |
| Yellow warbler [0] | *Setophaga petechia* | | | | X |
| Yellow-bellied sapsucker | *Sphyrapicus varius* | X | | | |
| Yellow-billed cuckoo | *Coccyzus americanus* | | X | X | X |
| Yellow-breasted chat | *Icteria virens* | | X | X | |
| Yellow-crowned night-heron | *Nyctanassa violacea* | | X | X | |
| Yellow-rumped warbler | *Setophaga coronata* | X | X | | |
| Yellow-throated vireo | *Vireo flavifrons* | | X | X | X |
| Yellow-throated warbler | *Setophaga dominica* | | X | X | X |

Sources: GSRC 2012; GSRC 2015; GSRC 2021

[0] = The species was not observed during the most recent surveys (2019-20)
** = The species was only observed during the most recent surveys (2019-20)
X = The species was observed during the season designated by this symbol

Non-native or Invasive species

Several non-native or invasive faunal species are present at Stennis WMA. Nutria (*Myocastor coypus*) are known to occur in numerous streams, freshwater marshes, and rivers. Pigeons (*Columba livia*) are relatively common in mowed areas, developed areas and in hangars on the Installation and SSC, and house sparrows (*Passer domesticus*),

like pigeons, are found in all developed and improved areas. Fire ants (*Solenopsis invicta*), as is the case for most of the southeastern U.S., are common throughout Stennis WMA. Armadillos (*Dasypus novemcinctus*) are also common.

# 3.0 ENVIRONMENTAL MANAGEMENT STRATEGY AND MISSION SUSTAINABILITY

## 3.1 SUPPORTING SUSTAINABILITY OF THE MILITARY MISSION AND THE NATURAL ENVIRONMENT

Sustainability is the ability to provide for the needs of the current mission without damaging the ability of future missions to maintain their needs in coordination with natural resources adaptive management. A sustainable process can be carried out over and over without substantial negative environmental impacts, increased operational costs or a decrease in mission readiness/training.

Installation and management activities that are detrimental to the functional values of the bottomland hardwood forest on the Stennis WMA, East Pearl River or Mike's River can potentially affect the military mission of the Navy SOF. For example, if timber management is not conducted properly, prescribed burns and selective harvesting could result in even larger stands of invasive tree and shrub species, ultimately reducing the amount of forest that can be used for riverine insertion and jungle warfare training. Similarly, uncontrolled soil erosion has the potential to increase sediment loading in stormwater runoff, which may increase turbidity and reduce water quality in East Pearl and Mike's Rivers, jeopardizing vital aquatic habitat downstream of the Stennis WMA, including critical habitat for the Gulf sturgeon. Without reforestation, sites that were clear-cut immediately prior to the acquisition of the Stennis WMA or used by gravel mining operations may experience excessive erosion problems that could potentially increase levels of turbidity. Conditions detrimental to the water quality of the downstream areas would likely result in an enforcement action and may be ordered discontinued by USFWS or state agencies.

Inappropriate herbicide applications (e.g., excessive use or application of inappropriate pesticides) may potentially affect Federally and state-designated endangered or threatened species and/or water quality, and consequent regulatory actions by agencies such as the USFWS, DMR, MDWFP, or MDEQ could threaten the SOF military mission. Significant pest or disease outbreaks within the Stennis WMA forest stands may require restricting access to these areas to limit spreading which may pose a threat to the

continuance of the military mission on the installation. Nuisance wildlife and/or outbreak of disease on the installation could pose a threat to implementation of the military mission through the infection of military personnel and/or the consequent limitation of access to areas of the installation to control a problem.

Outdoor recreational use by the public can affect the security and safety of the military mission. Outdoor recreational opportunities must be planned, developed, and used consistently with the constraints of the military mission. Unplanned and uncontrollable use of the East Pearl River by the general public may also affect the military mission. Consequently, the management activities must be continually coordinated with MDFWP, LDWF, USFWS, and SSC to reduce the risks associated with the public use of these streams.

Monitoring and measurement is fundamental to adaptive natural resources management and mission sustainability. The Stennis WMA will follow legal mandates and requirements to ensure that the effectiveness of the management, plans, controls, and training is monitored. Furthermore, the use of Best Management Practices (BMPs) and established monitoring protocols will enable Stennis WMA managers to identify their progress toward achieving goals and objectives. Without effective monitoring and measurement it would be difficult for Stennis WMA to continually improve, which is the basis of sustainability.

### 3.1.1 Military Mission and Sustainable Land Use

The primary military mission on the Stennis WMA is to support the training requirements of SBT-22/Group 4. Merging the military mission with sustainable land use can be achieved by simulating forest and jungle environments in order to train students for military operations that may be encountered during mission assignments. This INRMP will create a framework for sustainable land use that is compatible with the military training requirements while encouraging native and natural species abundance. The mission requires limited maintenance of access routes, most of which already exist on the Stennis WMA, maintenance of existing LZ/DZs, improvements to abandoned mine areas to develop navigation courses, removal of snags and logs downed by Hurricane Katrina within Mike's River to ensure navigation, and the possible future construction of a moveable MOUT village. In an effort to simulate a natural riverine forest/jungle

environment, a variety of natural resources management tools could be used to enhance native flora and fauna (e.g., exotic/invasive species management/removal, prescribed burning, etc.) while improving mission training objectives and sustainability. Improvements in the existing natural environment will serve to enhance the military mission and, thus, will further the goals of this INRMP. The goals of NCBC Gulfport include the following:

- Achieve optimal sustained use of lands for the execution of realistic training by providing a sustainable core capability, which balances usage, condition, and level of maintenance.
- Implement a management and decision-making process which integrates U.S. Navy training and other mission requirements for land use with sound natural and cultural resources management.
- Advocate proactive conservation and land management.
- Align U.S. Navy training land management priorities with U.S. Navy training, testing, and readiness priorities.

Through the CNRSE and its constituent elements, NCBC Gulfport integrates the use of its lands for meeting the current and future military mission and ensuring the conservation of the natural resources on which effective training rely.

### 3.1.2 Defining Impact on the Military Mission

The military mission at the Stennis WMA requires safe, natural-state, and undeveloped land and riverine environments for the training of Navy SEALs and SWCC Crewmen. NCBC Gulfport will comply with environmental regulations and strive to conserve the natural resources while also conducting effective training. Through the coordination of the various environmental programs (e.g., Forest Management, Fish and Wildlife Management), NCBC Gulfport ensures the availability of quality training opportunities and the protection of the natural resources on the Stennis WMA. During the planning phase of natural resources projects and training missions, the Stennis WMA Natural Resources Manager and the Range Manager closely coordinate with each other to ensure compatibility between the military mission and natural resources management. During this planning process, resolutions are established to ensure that environmental regulations (e.g., ESA, Clean Water Act [CWA], etc.) are being satisfied while improving land/water resources and meeting the military mission.

### 3.1.3 Relationship to Range Complex Management Plan

Planning for training activities and natural resources activities are coordinated between the Stennis WMA Natural Resources Manager and Range Control. This ensures that the military mission is not compromised and that NCBC Gulfport is meeting the mandated environmental regulatory requirements. Environmental resources must be considered during the planning and development of future training ranges and facilities identified in the Range Development Plan (NSW 2009). This plan incorporates the existing proposals to acquire the Phase II and III lands, clear and de-snag Mike's River, and deploy one or more MOUTs to enhance training opportunities, as described in this INRMP. Other major developments proposed in the Range Development Plan include boat ramp improvements, construction of Range Control Tower and other facilities, upgrade of the small arms range, and expansion of the Stennis WMA to the south.

## 3.2 NATURAL RESOURCE CONSULTATION REQUIREMENTS

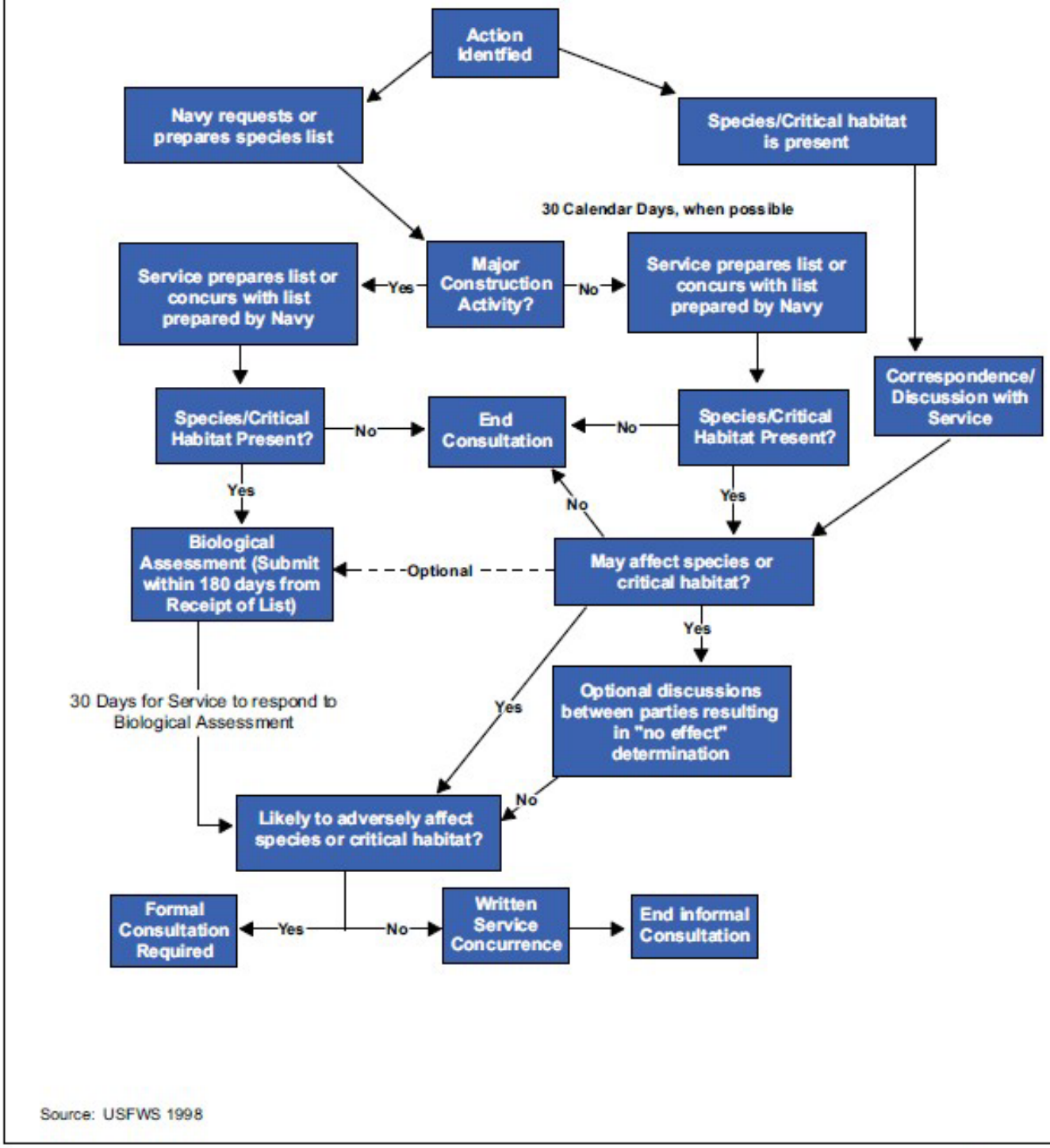
All Federal agencies are required to implement protection programs for designated species and to use their authorities to further the purposes of the ESA. Furthermore, if a Federal action of any kind is found to potentially impact any species protected by the ESA, the responsible Federal agency must enter into Section 7 consultation with the USFWS or National Marine Fisheries Service (NMFS). The USFWS is the primary agency responsible for implementing the ESA, except for actions involving marine animals or anadromous fish, such as the Gulf sturgeon, for which the NMFS is the acting agency. Several Federally listed species have the potential to occur on Stennis WMA and portions of the East Pearl River are designated critical habitat for the Gulf sturgeon, a Federally threatened species. Section 7 consultation could be required for future military projects that have a potential to impact Federally listed species and/or designated critical habitat, such as removing tree snags from Mike's River to permit safe training operations on/in a riverine environment.

The CO of NCBC Gulfport or his agent coordinates with the appropriate regulatory agency on any actions that have the potential to impact RTE species. Early informal consultation with the acting ESA agency is the key to resolving potential problems and addresses issues in a proactive and positive manner and is the preferred method of consultation. Informal consultation includes all discussions and correspondence, and

occurs prior to formal consultation to determine whether a proposed Federal action may affect listed species or critical habitat. A flow chart of the informal consultation process is provided in Figure 3-1.

NCBC Gulfport may determine, through the informal consultation process or simply by the nature of the proposed action, that formal consultation is required for an action. If NCBC Gulfport determines that an activity may have an adverse effect upon a Federally listed species and/or critical habitat, NCBC Gulfport will enter into formal consultation with USFWS or NMFS to determine whether a proposed action is likely to jeopardize the continued existence of listed species, destroy or adversely modify designated critical habitats, or potentially result in the incidental take of a species. The formal consultation process begins with a NCBC Gulfport written request and submittal of a complete initiation package and concludes with USFWS's or NMFS's issuance of a biological opinion and "incidental take" statement, if applicable. A flow chart detailing the steps of the formal consultation process is presented as Figure 3-2.

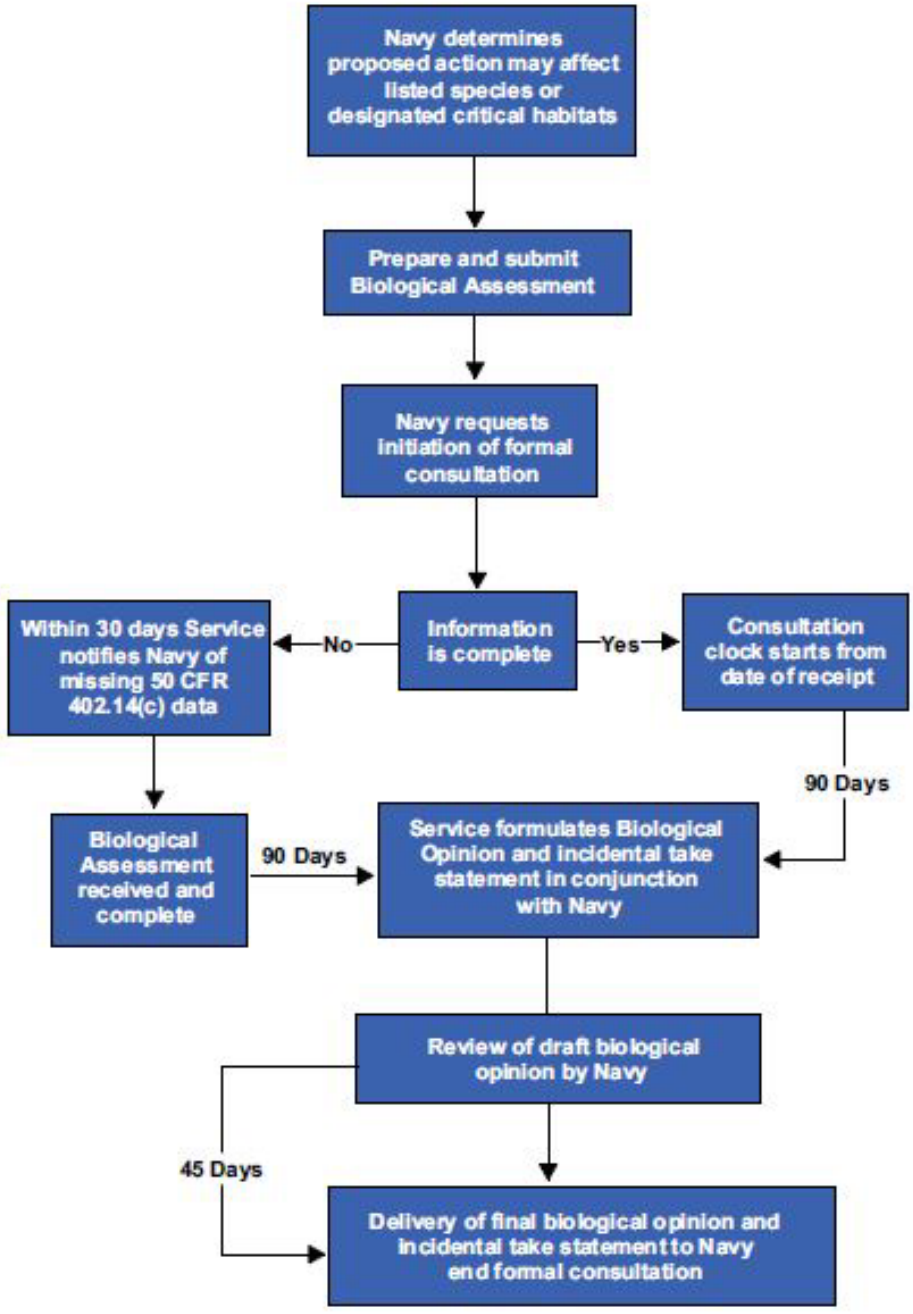
Migratory birds are specifically protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended, and EO 13186 of January 10, 2001, Responsibilities of Federal Agencies to Protect Migratory Birds. The MBTA makes it illegal to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products, except as allowed by the implementing regulations. EO 13186 requires that Federal agencies avoid or minimize the impacts of their activities on migratory birds and make efforts to protect birds and their habitat. Military preparedness and readiness activities such as small craft operations training are exempt from the MBTA. Although exempt per 50 Code of Federal Regulations (CFR) 21, the Navy is responsible for monitoring the potential impacts on migratory birds from military readiness activities. This monitoring will be carried out in conjunction with monitoring and management conducted under EO 13186 as specified in the Memorandum of Understanding (MOU) between DoD and USFWS to Promote the Conservation of Migratory Birds dated 31 July 2006, and in DoD Guidance to Implement said memorandum dated 3 April 2007. Game birds are not protected by the MBTA, but their takes are governed by State hunting regulations.




Source: USFWS 1998

Figure 3-1: Flow Chart for Informal Consultation Process

July 2010




Source: USFWS 1998

Figure 3-2: Flow Chart for Formal Consultation Process

July 2010

## 3.3 PLANNING FOR NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE

NEPA requires an environmental analysis of major Federal actions, including actions that occur with Federal funding or on Federal lands. NEPA requires the evaluation of the environmental effects of proposed land use, development, and military training activities. Some Navy actions fall under existing categorical exclusion and require no further analysis. For those actions not covered by an existing categorical exclusion, the initial environmental document, the Environmental Assessment (EA) determines the potential for significant project impacts and the feasibility of proposed actions. The NEPA process requires coordination with appropriate Federal and state agencies and the general public. The public review process scopes or identifies significant issues to develop/evaluate alternatives. The preparation of an Environmental Impact Statement (EIS) occurs only if significant impacts are identified. If the EA finds "no significant impacts", the Navy would complete the preparation of a formal Finding of No Significant Impact and make it available for public review.

An EIS and Record of Decision were prepared for the acquisition of lands that comprise the Stennis WMA (NSW 2004). An EA has been prepared to address the implementation of this INRMP. The EA will be provided to the public for a 30-day review and comment period. A copy of the Final EA will be included as an appendix to this INRMP once it is completed.

## 3.4 BENEFICIAL PARTNERSHIPS AND COLLABORATIVE RESOURCE PLANNING

The current staffing level of natural resource personnel at Stennis WMA and the need for outside expertise increases the importance of developing cooperative projects with other agencies, universities, contractors, other installations, local residents, conservation organizations, and the Navy command. Cooperating Federal and state agencies, universities, and non-governmental organizations (NGO) can provide a beneficial exchange of technical information, natural resources services, and field assistance.

Examples of such agencies include DMR, MDWFP, MDEQ, local Soil and Water Conservation Districts, and the Mississippi Forestry Commission, which can address

environmental quality, soil conservation issues, and control and suppression of wildfire. Federal agencies that can provide future technical assistance include NASA, NRCS, U.S. Forest Service, the National Park Service, U.S. Geological Survey, National Interagency Prescribed Fire Training Center, and USFWS. Cooperation with LDWF is also encouraged since LDWF's Pearl River Wildlife Management Area borders the Stennis WMA. In the future, there may be potential to work with NGOs like The Nature Conservancy, other non-profit entities, and/or Universities in a partnership effort to protect and conserve natural resources, maintain environmental compliance, and enhance the Navy's ability to meet its mission critical objectives.

## 3.5 PUBLIC ACCESS AND OUTREACH

### 3.5.1 Public Access and Outreach

Recreational opportunities on Stennis WMA have not yet been developed. However, potential recreational opportunities exist on Stennis WMA and include bird-watching, camping, hiking, fishing, hunting, and picnicking. Several gravel mines could be developed into fishing lakes with associated picnicking and camping areas. Camp Tawiki was a developed campground open to the general public prior to land acquisition and provides potential opportunities for fishing, camping and picnicking. Fishing within the Stennis WMA or within the East Pearl River requires a current Louisiana or Mississippi fishing license. Fishing will be in accordance with Mississippi fishing regulations and daily limits.

Hunting opportunities for white-tailed deer and feral hogs are abundant in the Stennis WMA, and development of a hunting program is being proposed to allow the harvest of these two species. It is envisioned that only active duty, reserve, and retired military personnel, their dependents and accompanied guests would be able to participate in all available recreational activities at Stennis WMA, with the exception of feral hog hunting. These restrictions are required due to the relatively small area, safety issues due to the size of the area, the lack of enforcement personnel available and the sensitivity of training requirements.

In order to control feral hog population on the Stennis WMA, NCBC Gulfport may sponsor permitted hunts open to government employees. Participants would be

required to have a hunting permit issued by NCBC Gulfport for Stennis WMA in order to hunt during a permitted hunt. All hunting would be regulated and administered through the WMA Natural Resources Manager.

Hunting and fishing regulations for the Stennis WMA will be developed in the future and, at a minimum, will mirror Federal and MDWFP regulations and requirements. These regulations will be updated to reflect changes in the management and use of the Stennis WMA as more military operations are scheduled on the range and the additional land acquisition comes to fruition.

NCBC Gulfport allows local law enforcement agencies access to train at the shooting range on SSC property. The law enforcement agency must schedule with and obtain approval from the range manager.

### 3.5.2 Public Outreach

NCBC Gulfport currently does not participate in public outreach programs related to natural resources due to staff limitations and the nature of the military mission at the Stennis WMA. NCBC Gulfport maintains and operates an information system, Stennis WMA Safety Line, which the general public can access via telephone (800-327-7135 or 228-813-4007) to obtain the status of training missions.

## 3.6 ENCROACHMENT PARTNERING

All of the land in the Stennis WMA is located within the SSC noise buffer zone, where construction of habitable structures is prohibited. Encroachment of civilian structures is, therefore, not a concern for interference with the military mission or natural resources management at this time. The boundaries of the Stennis WMA were established to provide sufficient live fire safety zones and buffer areas in order to prevent any encroachment into the military mission areas of concern. NCBC Gulfport will continue coordination with SSC and the tenant commands stationed there in order to avoid any conflicting encroachment activity that would jeopardize the military mission, natural resource conditions or values, or the safety of personnel in the area.

## 3.7 STATE WILDLIFE ACTION PLAN (SWAP)

The U.S. Congress created the State Wildlife Grants program in 2001. To make the best use of federal funds, each state was tasked to develop what has become known as a State Wildlife Action Plan (SWAP). The SWAPs identify species of greatest conservation need (SGCN), describe their habitats and key threats, and recommend conservation actions necessary to prevent more species from becoming listed, to spur recovery, and to keep common species common. The Mississippi SWAP was used in Section 2.5 of this INRMP to identify and discuss the habitat types present on Stennis WMA and the conservation species associated with each habitat type. The SWAP is also used during cooperative management planning with DMR, MDWFP, and USFWS.

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# 4.0 PROGRAM ELEMENTS

This section presents the framework of goals, objectives, management strategies, and projects for natural resources at the Stennis WMA. Goals are general expressions that are compatible with the military mission of the Stennis WMA and provide conservation and ecosystem management targets and direction. Objectives can be defined as defensible targets or specific components of a goal, the achievement of which represents measurable progress toward that goal. Objectives help to focus management activities and provide a yardstick against which to evaluate and communicate results. Management strategies establish the approach and expected end result for actions that are necessary to accomplish stated objectives. Projects are discrete actions for fulfilling a particular management strategy. Projects may be required to fulfill obligations by SUBASE in meeting regulatory requirements regarding natural resources management, may enhance existing measures to ensure compliance, or may simply provide for sound natural resources stewardship. Projects require labor resources and funding, in addition to the day-to-day requirements of the installation.

The natural resources actions described in this INRMP are for the benefit of the plants, animals, and ecosystems occurring on the Stennis WMA. Special attention is given to rare, threatened, and endangered (RTE) species and their habitats, through management actions referenced in Table 4-1. These actions are long-term conservation measures that provide benefits for terrestrial and aquatic habitats on the Installation. Management actions such as soil conservation and storm water management, for example, control sediment and pollutant runoff to protect nearshore water quality for species such as manatees, shorebirds, and fish. Forestry actions such as prescribed burning, thinning, and reforestation help to establish longleaf pine stands and herbaceous low-lying vegetation that provide habitat and resources for gopher tortoises, as another example.

**Table 4-1. Habitat Management Actions at the Stennis WMA**

| Habitat Management Actions | Section |
|---|---|
| Wetland Management | 4.1.1 |
| Erosion Control and Stormwater Control | 4.1.2 |
| Floodplain Management | 4.1.3 |
| Vegetative Management | 4.1.4 |
| Invasive Species Management | 4.1.5 |
| Land Leases | 4.1.6 |
| Forestry Management | 4.2.1 |
| Wildland Fire Management | 4.2.2 |
| Agricultural Outleasing | 4.2.3 |
| Fish and Wildlife Management | 4.3.1 |
| Rare, Threatened and Endangered Species | 4.3.2 |
| Migratory Birds | 4.3.3 |
| Bird Aircraft Strike Hazard | 4.3.4 |
| Aquatic Species Management | 4.3.5 |

The Fish and Wildlife Management section of this INRMP (see Section 4.3.2) includes additional goals, objectives, strategies, and projects for the benefit and long-term conservation of RTE species found, or potentially found, on the installation. Animal and plant species explicitly accounted for in this INRMP are:

- Alligator Snapping Turtle
- American Alligator
- American Bumble Bee
- Bald Eagle
- Dusky Gopher Frog
- Eastern Black Rail (bird)
- Gopher Tortoise
- Gulf Sturgeon (fish)
- Inflated Heelsplitter (mussel)
- Louisiana Black Bear
- Louisiana Quillwort (plant)
- Monarch Butterfly
- Pearl River Map Turtle
- Red-cockaded Woodpecker (bird)
- Ringed Map Turtle
- Southern Hog-nosed Snake
- West Indian Manatee

## 4.1 LAND MANAGEMENT

This section addresses the development and implementation of programs and techniques for managing lands. The land management issues of this INRMP are wetlands, erosion and stormwater control, floodplains protection, vegetative management, invasive species management, and land leases.

### 4.1.1 Wetland Management

The loss of wetlands in the contiguous U.S. has caused increases in flooding, property damage, and land erosion. Destruction and degradation of wetlands has, in turn, caused declines in aquatic productivity and native biodiversity, loss of fish and wildlife habitat, loss of income from timber production and commercial fisheries. Other values of wetlands include filtration of pollutants, replenishment of ground water supplies, and outdoor recreational uses.

Aquatic habitat types at Stennis WMA include swamps, streams and alluvial floodplains, lakes, ponds, sand and gravel mines and ephemeral pools. Management may differ for various wetland and aquatic habitat types based on mission requirements and legislative mandates. In addition to jurisdictional wetlands, selected wetland types are considered in this plan to address fish and wildlife management and biological diversity goals.

Numerous waters of the U.S. are present across the Stennis WMA (NSWC 2004), in particular the East Pearl River and Mike's River. As mentioned previously, preliminary jurisdictional determinations by USACE revealed that approximately 4,637 acres of potentially jurisdictional wetlands and other waters of the U.S. could occur on the Stennis WMA, after acquisition of all property proposed for purchase.

Hurricane Katrina caused extensive damage to bottomland hardwoods and riparian communities throughout the region, including Stennis WMA. Many of the downed or damaged trees fell into Mike's River, creating extreme hazards to the Special Operations Craft-Riverine (SOC-Rs) and the training units. This is especially true during nighttime training when the SOC-R operators navigate the rivers using only night-vision goggles (NVG). To sustain training opportunities within Mike's River (which is the only navigable stream that is fully restricted from the public), snags, logs, and downed trees need to be

removed from Mike's River following appropriate and necessary coordination, consultation, and permitting with required regulatory agencies.

Several abandoned mines occur throughout the Stennis WMA, some of which are used by SBT-22 for HMMWV and navigation course training. For the remaining abandoned mines, wetland restoration could be implemented to enhance functional values, and wildlife habitat. These efforts would also be intended to provide wetland impact credits and additional cover for concealment training.

Ponds at the former Camp Tawiki will be managed primarily for recreational purposes and will be open seasonally for fishing and other recreation activities. Fish removal and stocking plans would be developed and implemented to enhance populations of desired species and the recreational experience.

#### *4.1.1.1 Goals and Objectives*

- Identify and map all wetlands, streams, and aquatic habitats and build and maintain a geographic information system (GIS) database of these features to obtain a programmatic jurisdictional determination from USACE Mobile.
- Achieve a no net loss of wetlands and floodplains and maintain wetland habitat quality while supporting the training mission.
- Ensure compliance of installation actions with Federal, state, and local laws, and DoD policy and instruction.
- Identify mitigation opportunities that could be implemented to offset future impacts, thereby reducing compensatory mitigation ratios.
- Maintain, or re-establish where practicable, native ecosystems.
- Maintain a navigable channel within Mike's River and major tributaries required to access interior ranges.

#### *4.1.1.2 Projects*

No projects are currently identified to specifically address wetland management in the Stennis WMA. Goals and objectives relate to operations and maintenance.

#### *4.1.1.3 Climate Change*

According to the EPA, ocean levels in coastal Mississippi are expected to rise twenty-inches-to-four-feet in the next century. Sea level is rising more rapidly in Mississippi than most coastal areas because the land is sinking. This would create a state of chronic saltwater intrusion into coastal wetlands, triggering a cascade of ecological

change, most easily identified by the browning and death of surrounding trees. Wetlands naturally increase their elevation by converting sediment and decomposing marsh plants into soil, but this adaptation may be outpaced by the current rate of sea level rise, especially if exacerbated by tropical storm flood events. Management actions that may buffer wetlands against saltwater intrusion include the enhancement of oyster reefs in adjacent salt marsh to mitigate the impact of tropical storm wave action, the removal of aggressive salt-tolerant invasive plants and the maintenance of natural conservation corridors to allow salt-intolerant animals, such as amphibians, to access wetlands at higher elevations.

#### *4.1.1.4 Management Strategies*

Management strategies to protect the Stennis WMA's wetlands, streams, and floodplains include the following:

1. Minimize direct and indirect impacts on wetlands, streams and aquatic habitats while supporting the training mission to the extent practicable.
2. Coordinate with USACE Mobile District regarding potential to develop a wetland "bank" on the Stennis WMA.
3. Monitor wetlands, streams, and floodplains using ground surveys and aerial photography.
4. Review wetland, stream and floodplain protection during implementation of other natural resource management initiatives.
5. Protect water quality of wetlands and streams from non-point source and point source pollution, including erosion, bank destabilization, chemical and fuel spills, and sewage disposal.
6. Maintain protective buffer strips or corridors around wetlands and along streams.

#### *4.1.1.5 Additional Sources of Information*

USACE – Mobile District
Wetlands and Waters of the U.S., Regulatory Division
https://www.sam.usace.army.mil/

Environmental Protection Agency (EPA)
Wetlands, Oceans and Watersheds
https://www.epa.gov/aboutepa/about-office-water

USFWS – National Wetlands Inventory
http://www.fws.gov/wetlands/

MDEQ
Water Quality Certification Branch Wetlands Protection
https://www.mdeq.ms.gov/permits/environmental-permits-division/about-epd/401-water-quality-certification/

### 4.1.2 Erosion Control and Stormwater Control

Excessive soil erosion and soil sedimentation reduces the capacity of land to sustain current and future mission uses. Failure to identify and prevent excessive soil erosion and soil sedimentation can jeopardize the long-term, usable life of an installation.

Navy policy is that management of soils for sustainment on U.S. Navy installations is accomplished by developing and implementing soil erosion and sediment control as a component of the INRMP. NASA SSC currently operates under a number of plans, permits and programs in compliance with Federal and state regulations. The plans are the Phase II Municipal Stormwater Management Plan (MS4) and Industrial Stormwater Pollution Prevention Plan (SWPPP). The State of Mississippi also regulates the numerous active surface mines and a Class II Rubbish Site located within the current and proposed boundaries of the Stennis WMA to prevent soil erosion during mining activities and to require restoration following completion of mining activities to prevent future soil erosion.

The Navy, as part of the Operations and Maintenance plans, will develop a SWPPP specific to the management of the Stennis WMA that will address road maintenance, ground disturbance for training activities, such as clearing and grading landing areas and maneuver areas, maintenance of existing erosion control practices at existing surface mines, maintenance of ground cover and trees in high erosion potential areas, and repair of ruts and other ground disturbances caused by vehicle maneuvers to prevent excessive erosion and runoff into nearby streams.

The SWPPP will be developed to ensure implementation of Best Management Practices (BMPs). A Stormwater Pollution Prevention Team should be formed to determine the adequacy of the SWPPP, perform inspections, perform required record keeping, and carry out the annual update and certification of the SWPPP. The three major components of the SWPPP are stormwater monitoring, BMP implementation, and site compliance evaluations.

#### *4.1.2.1 Goal and Objectives*

The goal of the land and grounds management is to maintain soil productivity as a prerequisite for ecological sustainment and mission accomplishment in perpetuity. Objectives for achieving the goal are as follows:

- Keep soil erosion within limits defined in the SWPPP, and restore and stabilize degraded soils.
- Keep soil from developing gullies, and stabilize and repair existing active gullies.
- Keep soil sediment in the Stennis WMA's waterways within SWPPP limits.
- Provide for road maintenance as necessary.
- Minimize use of pesticide.

#### *4.1.2.2 Projects*

Erosion control and grounds maintenance are the responsibility of the operations and maintenance program for Stennis WMA, and no INRMP projects are designated for this program.

#### *4.1.2.3 Climate Change*

The rate and severity of soil erosion is affected by precipitation, temperature, runoff, and vegetative cover, all of which are susceptible to climate change. Increased and prolonged drought can result in the loss of vegetation that would otherwise stabilize embankments. Increased precipitation may exacerbate these conditions by removing topsoil through runoff and thereby inhibiting vegetative re-establishment. In addition, tropical storm events can bring coastal flooding that dramatically erode dune systems and landscapes. Often, small-scale instances of soil erosion due to even minor changes in vegetation cover or surface runoff can persist and grow, so awareness combined with rapid recognition and response are important to mitigate the impacts of soil degradation.

#### *4.1.2.4 Management Strategies*

Monitoring of soil loss is required to correlate impacts with land-use practices. The Navy will protect water quality of wetlands and other bodies of water from non-point source and point source pollution including erosion. Estimating soil loss is critical to defending land-use practices or finding where actual problems exist. The Navy will utilize Range

and Training Land Assessment (RTLA) procedures to monitor and estimate the following:

- Acres exceeding soil loss tolerances from sheet and rill erosion.
- Length of active gullies.

RTLA monitoring of installation-wide soil erosion conditions is done every 5 years, and each major plan revision quantifies observed trends in soil erosion. The results from monitoring serve as the basis for developing measurable objectives describing the effectiveness of the previous plan and changes in management necessary to ensure that the revised plan is effective.

Woody debris and trash generated from regular maintenance of navigable streams, roads and general forest maintenance will be disposed of at an existing Class II Rubbish Site located in the northeast corner of the proposed Stennis WMA property. The permit for this site will be transferred to the Navy, and the rubbish site will be used and maintained according to MDEQ regulations for Navy use only.

#### *4.1.2.5 Additional Sources of Information*

International Erosion Control Association
https://www.ieca.org/IECA

Mississippi Forestry Commission
https://www.mfc.ms.gov/

### 4.1.3 Floodplain Management

The majority of land within the Stennis WMA is located in the floodplain of the East Pearl River (Figure 4-1). As such, management of land use and development is regulated by EO 11988, Floodplain Management, which directs Federal agencies to avoid construction in the floodplain and prescribes management of land use in floodplains to

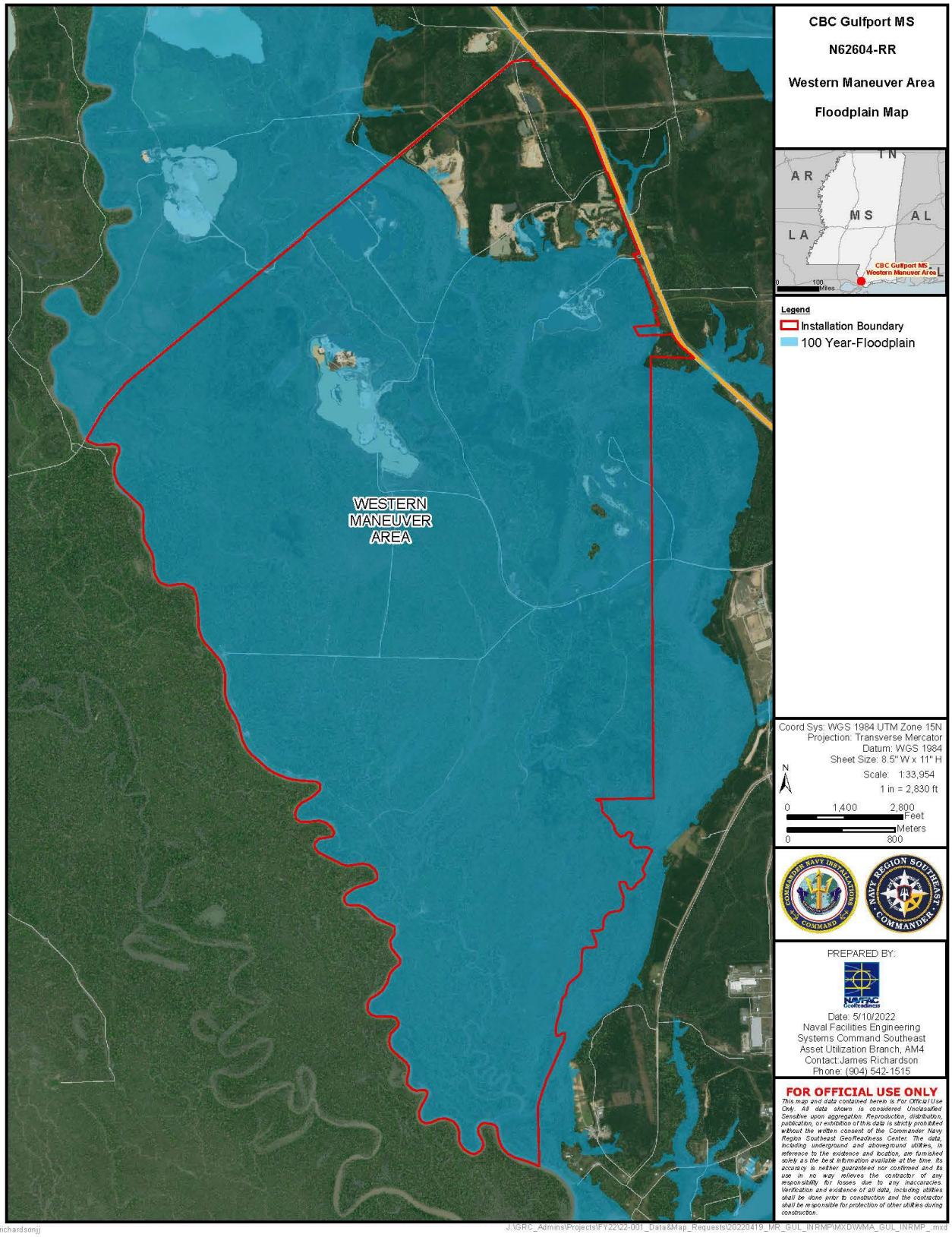



**Figure 4-1. 100-Year Floodplain**

avoid uses that would increase the amount and rate at which flooding occurs or decrease the flood attenuation capacity of the floodplain.

#### *4.1.3.1 Goals and Objectives*

Manage land resources to avoid activities that would reduce floodplain capacity or increase flooding rates.

#### *4.1.3.2 Projects*

There are no projects directly related to floodplain management, as this is a function of the Stennis WMA operations and maintenance program.

#### *4.1.3.3 Climate Change*

Several recent rainfall events in southeastern states have been classified as having a 1-in-500 and even 1-in 1,000 chance of occurring in a given year. Such events may be expected to become even more frequent as global temperatures continue trending up since warmer air increases the evaporation rate of water. For every degree Celsius increase in temperature, a parcel of air can hold 7 percent more water. Average annual rainfall across the United States has gone up by 5 percent since 1990, with regional variation, according to the National Climate Assessment.

The position of the Stennis WMA near the mouth of the Pearl River should help to mitigate flooding due to rainfall, as excess rain water has only a short distance to flow into the Gulf. Utilizing permeable surfaces whenever possible would also help in this regard. However, Stennis WMA's position near the coast also subjects the installation to storm surge from tropical weather systems. The online NOAA Sea Level Rise Viewer indicates that a surge of two feet would inundate more than half of the area. Maintaining the natural wetlands function of the Pearl and Mike's Rivers would help ensure that storm surge is dissipated as efficiently as possible.

#### *4.1.3.4 Management Strategies*

1. Avoid activities, particularly vegetation clearing and ground-disturbing activities that would adversely affect flood attenuation.
2. Clear stream or drainage blockages such as beaver dams, obstructed culverts, etc. that would increase flood levels or prevent flood waters from subsiding. This effort is the responsibility of operational and maintenance programs, but should be accomplished in concert with the Natural Resources Manager.

#### *4.1.3.5 Additional Sources of Information*

MDEQ Flood Insurance Rate Maps
https://geology.deq.ms.gov/floodmaps/

### 4.1.4 Vegetative Management

Vegetative management on Stennis WMA is accomplished through Land Management (Section 4.1) and Forest Management (Section 4.2).

### 4.1.5 Invasive Species Management

#### *4.1.5.1 Goals and Objectives*

- Control invasive species such as Chinese tallow, Japanese climbing fern, privet, kudzu, cogon grass, and feral hogs.
- Survey for invasive plant and animal species as needed to ensure control and eradication.
- Restore altered or degraded communities.
- Maintain, or re-establish where practicable, native ecosystems and viable populations of endemic species.

#### *4.1.5.2 Projects*

Participation in the following project will occur in support of the goals and objectives for invasive species management.

Project No. 3: Conduct surveys on the Stennis WMA to identify and map occurrences of invasive plant species, and establish and implement an invasive plant species eradication and control program.

#### *4.1.5.3 Climate Change*

Climate change will likely bring about more rapid introduction and proliferation of exotics species. Effective tools, such as prescribed fire, are difficult to implement at Stennis WMA, but would help give native plant species a competitive advantage over exotic species. Coordinated regional fire management efforts emphasizing frequent, low intensity fire regimes in wetland systems would maximize habitat quality and resilience to change while preventing fuel load build up that could lead to unplanned fires.

Regional cooperation among land management entities will become more essential since invasive seeds can be easily broadcast across installation boundaries. Coordinated regional invasive exotic species prevention and control efforts also facilitate early detection and rapid response to nascent invasions.

Take precautions to ensure prescribed burns do not benefit invasive plant species. Cogon grass seeds spread easily via wind and rain, so eradicate cogon grass in immediate and surrounding areas before burning to prevent increased seed broadcasting afterwards. Fire in areas containing Chinese tallow have been shown to allow tallow seeds to regenerate in pine savanna areas that do not get sufficiently hot to kill the seedlings.

#### *4.1.5.4 Management Strategies*

1. Select herbicides with low toxicities to fauna.
2. Apply herbicides at times with highest effectiveness rates.
3. Pre-treatment and post-treatment monitoring is essential to ensure elimination of invasive plant species.
4. Invasive plant species should be detected and controlled before seed production to avoid spreading by seed dissemination. This is especially important in the control of cogon grass, mimosa, or other species with wind-disseminated seeds. Seeds of other species, such as kudzu, privet, and Chinese tallow, are spread by seed-eating rodents and birds. Cogon grass sprouts readily from stolons and is spread easily by tractor mowing and disking equipment. For that reason, no disking will occur within or around any cogon grass-infested areas. All mowers and tractor equipment will be inspected for cogon grass stems, stolons, and rhizomes, following work on infested sites, and any grass contamination found will be removed prior to the next use of the equipment.
5. Where possible, establish and maintain wildflowers beneficial to the successful recovery and well-being of pollinator species in the region, such as American bumble bees and monarch butterflies. In accordance with the 2014 *Presidential Memorandum on Pollinators*, as possible, adhere to the Federal Strategy to Protect the Health of Honey Bees and other Pollinators.

#### *4.1.5.5 Additional Sources of Information*

The Nature Conservancy
https://www.nature.org/en-us/what-we-do/our-priorities/protect-water-and-land/land-and-water-stories/invasive-plant-species-invasive-species-education-1/

Pollinator-Friendly Best Management Practicesfor Federal Lands

https://safe.menlosecurity.com/doc/docview/viewer/docN9FD6A3EB5B8253a7bf4ccadac94faa403c274d22e0eff631a5b2cd5817b5c8940eefd5871e09

Southeast Exotic Pest Plant Council, Mississippi Chapter
https://www.se-eppc.org/mississippi/

Mississippi Forestry Commission
https://www.mfc.ms.gov/forest-health/invasive-plants/cogongrass/

EPA Office of Pesticide Programs
https://www.epa.gov/pesticides

### 4.1.6 Land Leases

#### *4.1.6.1 Goals and Objectives*

- Identify sand and gravel pits to be retained for training courses.
- Identify abandoned sand and gravel pits that offer potential wetland mitigation, or that can be developed into fishing and outdoor recreational areas.
- Develop operation and maintenance plan to use existing sand and gravel pits for future road aggregate needs.

#### *4.1.6.2 Projects*

No projects are designated, since this is a function of the Stennis WMA operations and maintenance program.

#### *4.1.6.3 Climate Change*

The potential for severe flooding at the Stennis WMA is expected to increase. Managers should anticipate these scenarios and develop approaches to mitigate the loss of useable land.

#### *4.1.6.4 Management Strategies*

1. Maintain existing erosion controls at mine pits to prevent off-site migration of sediment.
2. Continue to use sand, gravel and dirt resources, as necessary, to maintain roads and other facilities on the Installation.

#### *4.1.6.5 Additional Sources of Information*

MDEQ Mining and Reclamation Division
https://geology.deq.ms.gov/mining/

## 4.2 FOREST MANAGEMENT

This section addresses the development and implementation of programs and techniques for managing forests. The forest management issues of this INRMP are forestry, wildland fires, and agricultural outleasing.

### 4.2.1 Forestry Management

Forest management applies scientific principles to accomplish the objectives described below (in Section 4.4.1) which have been chosen to support the training mission while conserving native biological diversity and ecosystem integrity as outlined in DoDINST 4715.3. Forest management practices complement the goals and objectives of threatened and endangered species preservation (Section 4.1), wetland management (Section 4.2), fish and wildlife management (Section 4.3), vegetative management (Section 4.5), migratory birds (Section 4.6), invasive species control (Section 4.7), land management (4.8), outdoor recreation (Section 4.11), and wildland fire management (Section 4.12). A healthy, well-managed, sustainable forest is the basis for the achievement of the goals for the Stennis WMA's natural resources. Healthy forests provide better wildlife habitat, improve water quality, limit invasive species establishment and growth, improve recreational experiences, reduce chance of stand-replacing fire, enhance aesthetics, and provide the simulated jungle-type environs desired for training.

#### *4.2.1.1 Goals and Objectives*

- Integrate ecosystem management with traditional timber management to develop multiple use (including jungle warfare opportunities), sustained yield, and biological diversity.
- Update the forest inventory and GIS database to establish, implement, and monitor the Forest Management Plan on a 10-year basis or more frequently as dictated by catastrophic events such as hurricanes.

#### *4.2.1.2 Projects*

Participation in the following projects will occur in support of the goals and objectives for forest management.

Project No. 2: A land management and fire management plan will be completed and implemented for the Stennis WMA.

Project No. 5: Timber stand improvement activities, such as herbicide application, mechanical treatment, fertilization and timber harvesting, will be implemented.

#### *4.2.1.3 Climate Change*

Managed forests require decades to reach maturity, so preparing for climate change now will save time and money in the long term, improve forest health, and reduce the risk of future losses. Forest management actions that can help mitigate the impacts of climate change include:

- Manage for a healthy density. Keep trees vigorous to better resist pests and survive in the face of disturbances. Thinning for timber stand improvement reduces stress and keeps forests at reasonable densities, species composition, and age class structure.
- Diversify species. When planting, consider species likely to be successful even if the range of species is expected to change over time with climate change.
- Design for wind. Reduce risk of wind-thrown trees by having gradual transitions from short to tall vegetation at the edges of woodland stands.
- Consider storm surges and sea level rise. Plan for species with higher flooding and salt tolerances in flood-prone coastal areas.
- Choose drought-resistant species if it becomes clear that southern Mississippi will be more prone to drought. Techniques such as using root gels or watering newly-planted seedlings during a dry summer can help improve survival.
- Diversify stand ages and structure. Stands of different ages and species will not all be susceptible to the same damage. Thinning, harvesting, and planting all provide opportunities to create diversity.
- Build connectivity. Connected woodland parcels allow tree species and wildlife to migrate more easily, which encourages greater diversity.
- Learn how to control invasive species. The species, season, and desired control method can all help to avoid wasting time and money.
- Monitor for disease and insects. A small problem is easier and less expensive to control.
- Control invasive vines. Vines can completely overgrow trees, shading out their canopy and increasing risk of damage from wind.
- Manage deer. Too many deer usually results in too few young trees and the loss of the understory in the woods.
- Plan fuel breaks. Fuel breaks such as well-maintained roads or a thinned area can make it more difficult for wildland fires to spread.

#### *4.2.1.4 Management Strategies*

Once the resource assessment is completed and an environmental baseline is established, the following five forest management principles will be used on the Stennis WMA to integrate mission-specific objectives and conserve biological diversity and promote ecosystem integrity. Specific management tasks would involve the delineation of management units which would be further broken down into forest stands. Forest management activities would be conducted at the forest stand level. Specific silvicultural objectives would be determined after the baseline forest conditions are assessed.

The following five forest management strategies have been established.

1. Determine the desired forest condition.
2. Trees will be removed where needed for the training mission, particularly for helicopter safety, such as clear zones and radar, radio, and navigation signal interference areas. As previously discussed, the Stennis WMA exists to support the military mission. Trees will also be removed to eliminate or restrict movement of pests and diseases. Forest and other natural resources management is subordinate to and supports the military mission. Monitoring will be done by comparing mission requirements to the latest aerial photos and GIS coverages, and by meeting the standards of periodic safety and compliance inspections.
3. Insure the conservation, restoration, and/or maintenance of native ecosystem integrity and native biological diversity which involves several emphases:
    a. Restore native biological diversity in forests.
    b. Establish and maintain a prescribed burning regime, where practicable, to mimic pre-settlement regimes.
    c. Inventory forest stands for species composition and volume every 10 years or more frequently as needed.
4. Forest management provides for multiple uses of forest resources on a sustained-yield basis, including generation of timber products, outdoor recreation and education, aesthetic quality, and habitat for native flora and fauna.
5. Erosion would be minimized by exceeding the minimum standards contained in the Mississippi Best Management Practices (BMP) for forestry. BMPs (i.e., waterbars, revegetation, low water crossings) were developed in order to reduce soil erosion and nonpoint source pollution during forest management activities. Mississippi BMP guidelines are minimum standards set for voluntary compliance. Exceeding the minimum specifications for the distance between water bars, for example, will minimize soil movement on sloping forest roads in the northeast portion of the Stennis WMA. The WMA Natural Resources Manager will apply upgraded BMPs during timber sale inspections, forest road layout and repairs, trail inspections, silviculture management, and other management activities. Forest management includes the protection of cultural resources from damage

by forest operations in compliance with the forthcoming Integrated Cultural Resource Management Plan.

Additional discussions and more detailed descriptions of specific forest management techniques, such as silviculture practices, prescribed fire, managing natural disturbances, erosion and sedimentation control, and aesthetic and scenic preservation, will be developed within the next 5 to 10 years.

#### *4.2.1.5 Additional Sources of Information*

USDA Forest Service Southern Research Station
https://www.srs.fs.usda.gov/

Mississippi Forestry Commission
https://www.mfc.ms.gov/

Mississippi State University, College of Forest Resources
https://www.cfr.msstate.edu/

### 4.2.2 Wildland Fire Management

Prescribed fires are a management tool used to reduce forest fuels that could generate a high intensity fire and destroy natural resources. Frequent prescribed fires are required by the INRMP to protect forest resources within forest stands identified as pine or pine-hardwood dominated forests. Growing season (summer) fires are used to reduce midstory hardwood trees and encourage the reproduction and growth of herbaceous vegetation. Fuel reduction fires are generally conducted during the dormant season (winter) when temperatures are low and the weather is more predictable. Dormant season burns also minimize damage to desirable vegetation. However, such burns are likely to be successful only within the northeastern portions of the Stennis WMA. Mixed hardwood pine and bottomland hardwood forests would be more difficult to burn due to the moist soil and fuel conditions associated with these communities. Management of any wildfire and/or human-caused ignition will be evaluated on a case-by-case basis to determine if the fire will need to be controlled or will be allowed to burn out.

Stennis WMA will establish a prescribed burn plan within the forest management plan to meet forest management and vegetation management goals while meeting the needs of the military mission and providing the appropriate habitat for wildlife. The burn plan will include a wildland fire management plan as well.

#### *4.2.2.1 Goals and Objectives*

Goals and objectives to achieve land management and fire control and management on the Stennis WMA are as follows:

- Support the mission by maintaining a healthy forest habitat.
- Improve and maintain pine forests to control invasive hardwoods.
- Maintain habitat to support protection and development of protected species.

#### *4.2.2.2 Projects*

Participation in the following projects will occur in support of the goals and objectives for wildland fire management.

Project No. 2: A land management and fire management plan will be completed and implemented for the Stennis WMA.

Project No. 5: Timber stand improvement activities, such as herbicide application, mechanical treatment, fertilization and timber harvesting, will be implemented to reduce excessive understory vegetation.

#### *4.2.2.3 Climate Change*

Wildfire risk depends on a number of factors, including temperature, soil moisture, and the presence of trees, shrubs, and other potential fuel. All these factors have strong direct or indirect ties to climate variability and climate change. Foresters and natural resources managers can reduce the likelihood and impacts of wildfires by:

- Increasing landscape diversity to increase large-scale resilience, size of management units, and connectivity.
- Maintaining biological diversity by experimenting with species and genotype mixes. Identify species, populations, and communities that are sensitive to increased fire and develop conservation plans for them.
- Increasing the space between structures and nearby trees and brush, and clearing space between neighboring buildings and structures.
- Increasing resources allocated to firefighting and fire prevention.
- Removing fuels, such as dead trees, from forests that are at risk.
- Developing recovery plans before a fire hits, and implementing plans quickly after a fire to reduce erosion, limit flooding, and minimize habitat damage.

#### *4.2.2.4 Management Strategies*

1. Implement prescribed burns where consistent with the mission and sound ecological practices.
2. Control wildland fires with fire breaks understory vegetation management.

#### *4.2.2.5 Additional Sources of Information*

Southern Regional Fire Training Center
https://www.mfc.ms.gov/contact/southern-regional-fire-training-center/

U.S. Forest Service
https://www.fs.usda.gov/managing-land/fire

### 4.2.3 Agricultural Out-Leasing

Stennis WMA does not maintain an agricultural out-leasing program, and the existing agricultural operations (turf farm) will be phased out when the Stennis WMA is established.

## 4.3 FISH AND WILDLIFE MANAGEMENT

This section addresses the development and implementation of programs and techniques for managing fish and wildlife resources. The fish and wildlife management issues of this INRMP are threatened and endangered species, migratory birds, bird aircraft strike hazard, and aquatic species management.

### 4.3.1 Fish and Wildlife Management

Fish and wildlife conservation and sensitive habitat protection is conducted through ecosystem management approaches. Ecosystem management encompasses four important initiatives: (1) shift toward managing resources on an ecological basis, (2) formation of public agency partnerships, (3) public involvement; and (4) adaptive management. Interagency and multiple landowner cooperation is important because ecosystem processes do not conform to property boundaries. Additionally, natural characteristics of the land base and habitat use by organisms may extend across landscapes and regions. Examples of landscape concerns would be management of watersheds and migratory animals, such as bats and neo-tropical migratory birds. The

Stennis WMA INRMP seeks to implement forest, fish, and wildlife management and wetland conservation that will support conservation on a landscape level.

Managers must identify and analyze geographic and cumulative impacts of land management to minimize undesired disruption of ecosystem processes. Planned biological surveying and forest, wetland, and habitat mapping through the use of GIS databases are anticipated to indicate trends in ecosystem integrity and diversity of indicator species.

Ecosystem management is closely linked to modern theories of conservation biology; therefore, it involves protection of biological diversity (Cubbage *et al.* 1993). Biological diversity protection at Stennis WMA includes conservation of native organisms and their habitats at three major levels: genetic diversity, species diversity, and ecosystem diversity. The Stennis WMA will sustain and enhance wildlife habitats of flora and fauna consistent with the military mission.

#### *4.3.1.1 Goals and Objectives*

- Maintain or enhance biological diversity.
- Manage fish and wildlife using an ecosystem management approach.
- Build interagency relationships with DMR, MDWFP, LDWF, and USFWS to cooperatively manage fish and wildlife resources and their habitats.
- Develop natural resource-based recreation programs including hunting and fishing programs and potential wildlife viewing opportunities where appropriate throughout the installation.
- Develop tools to educate users of fish and wildlife resources on promoting healthy and robust ecosystems and in the principles of sound natural resources management.
- Develop, implement, and manage fishing and hunting regulations.
- Maintain, or re-establish where practicable, native ecosystems.
- Develop, implement, and manage compliance of depredation program (i.e., feral hogs).

#### *4.3.1.2 Projects*

Participation in the following project will occur in support of the goals and objectives for fish and wildlife management.

Project No. 1: Survey Stennis WMA for all identified habitat types and indicator species as identified by the Mississippi Comprehensive Wildlife Conservation Strategy and listed in Section 2.5.1 of this INRMP.

#### *4.3.1.3 Climate Change*

Changing climatic conditions, such as long periods of excess precipitation or drought, may make habitats unsuitable for some species of fish and wildlife and may also allow for the arrival of new species to a property, both native and non-native. The appearance of new - and increase in existing - wildlife diseases and parasites is an issue of concern as well. Adaptation will require active management of species populations and their priority habitats. The Stennis WMA's emphasis on ecosystem-based management should help in this endeavor through its focus on restoration and enhancement of ecosystem functions and services. Adaptation may require changes in the management and conservation strategies that are currently used to sustain populations of desirable species and control populations of invasive species, and facility managers should be prepared to work with conservation partners to identify when and how to initiate such changes.

#### *4.3.1.4 Management Strategies*

As habitat types are identified and ground-truthed on the Stennis WMA through the completion of Project Number 1 (identified above), the management of the habitats for indicator species and overall habitat health will include the implementation of a fish and wildlife management plan through use of the strategies enumerated below.

1. Conduct presence/absence and available habitat surveys for all identified habitat types on the Stennis WMA.
2. Where possible, NCBC Gulfport will enter into conservation partnerships with Federal, state and local agencies and non-governmental organizations to improve habitat and allow for species-specific research on the installation.
3. Where possible, site military readiness activities will be planned in ways to avoid or minimize impacts on protected species or vulnerable habitat areas.
4. Control invasive and non-native floral and faunal species that compete with native species and their habitats.
5. Enhance abandoned mine sites, where feasible, to improve wildlife habitat and species diversity.
6. Conduct long-term planning to reestablish old growth bottomland hardwoods and pine forests.

#### *4.3.1.5 Additional Sources of Information*

Mississippi Natural Heritage Program
https://www.mdwfp.com/museum/seek-study/natural-heritage-program/

Mississippi Department of Marine Resources
https://dmr.ms.gov/

Mississippi Department of Wildlife, Fisheries, and Parks
https://www.mdwfp.com/

U.S. Fish and Wildlife Service Ecological Services
Jackson Field Office
6578 Dogwood View Parkway, Ste A
Jackson, MS 39213
https://www.fws.gov/mississippies/

U.S. Fish and Wildlife Service
Southeast Louisiana Refuges Complex
61389 Hwy 434
Lacombe, Louisiana
https://www.fws.gov/southeastlouisiana/

### 4.3.2 Rare, Threatened and Endangered (RTE) Species

#### *4.3.2.1 Goals and Objectives*

- Protect and manage for the recovery of RTE species.
- Conduct a survey for rare, threatened, or endangered flora and fauna. Depending upon results of the initial survey, schedule appropriate surveys at regularly scheduled intervals.
- Identify any designated Critical Habitat.
- Develop tools to educate installation personnel regarding sensitive species.
- Build interagency relationships with DMR, MDWFP, USFWS, and other entities, as appropriate, to cooperatively manage for rare, threatened and endangered species and their habitats.

#### *4.3.2.2 Projects*

Participation in the following project will occur in support of the goals and objectives for threatened and endangered species.

Project No. 1: Survey Stennis WMA for all potential RTE species and identify areas that support suitable habitat for these species.

#### *4.3.2.3 Climate Change*

Climate change places many species of wildlife at ever increasing risk. It affects migrants, such as birds and large mammals, as well as species that cannot migrate due

to highly localized habitat requirements, such as residing in a particular wetland or river basin. Many migratory species time their arrival in a particular area to coincide with prey availability or vegetative production. Mild winters and warm spring times, for example, can cause plants to fruit and seed earlier than normal, providing less forage for migratory birds that, for generations, arrived later in the season to take advantage of peak food source.

There are three primary ways in which climate change can affect wildlife:

- Direct weather impacts include events such as rising temperature, drought, flooding, excessive rainfall, and tropical storm events.
- Collateral habitat damage can result from the above-mentioned weather events and can result in long-term changes, and even complete destruction, of a habitat. Storm surge from a tropical storm can alter the salinity regime of a vulnerable wetland. Drought can increase the chance of a destructive wildfire or alter plant species composition.
- Indirect threats may include the above-mentioned asynchrony of a bird migration with available food sources, as well as food chain effects related to impacts of aquatic prey on fisheries.

Under a normal, gradual rate of climate change, most species have time to adapt, are able to compensate for differences in temperature and weather patterns, and rebound from an infrequent weather events. The recent increase in the rate of climate change, and the increasing frequency of droughts, floods, and storm surge, however, may outpace the adaptive abilities of many species. Some species are more vulnerable to these threats than others. This would include those with specialized habitat requirements and those with relatively slow reproductive cycles. A climate change vulnerability assessment would help managers at the Stennis WMA to prioritize species and habitats for which urgent adaptive management options should be implemented.

#### *4.3.2.4 Management Strategies*

As no presence/absence surveys have been conducted on the Stennis WMA, Project Number 1 (identified above) is extremely important for RTE species management on the installation. Protected species that could occur are bald eagle, Louisiana quillwort, gopher tortoise, and Gulf sturgeon. If occurrences of other protected species are found during the survey, management strategies specific to the species found will be added.

1. Conduct presence/absence and available habitat surveys for all potential state and Federally listed RTE species on the Stennis WMA.
2. Where possible, site military readiness activities will be planned in ways to avoid or minimize impacts on protected species. If NCBC Gulfport or SBT-22 notes clear evidence of a "take" as a result of military readiness activities, NCBC Gulfport will document the take, evaluate these activities and, where practicable, reduce or eliminate the potential for take in the future. If the take cannot be avoided, the amount of take will be documented and, where practicable, mitigated for by other management.
3. Control invasive species that compete with native species and their habitats.

#### *4.3.2.5 Federally Threatened and Endangered Species*

Natural resources management activities and projects at WMA Stennis benefit a wide variety of federally-listed species and their habitats. Table 4-2 depicts how this is accomplished for species that are either listed or petitioned for listing under the Endangered Species Act (ESA).

## Table 4-2. Management Activities and Projects Described in this INRMP that Benefit Listed Species and Their Habitats

| Species (in alphabetical order by common name) | Status | Category | Cross-reference to text | Management Activities that Benefit the Species and its Habitat | | | | | | | | | | | | | INRMP Projects that Benefit the Species and Its Habitat | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Wetland Management | Erosion Control and Stormwater Control | Floodplain Management | Vegetative Management | Invasive Species Management | Forestry Management | Wildland Fire Management | Fish and Wildlife Management | Rare, Threatened, and Endangered Species | Migratory Birds | Aquatic Species Management | Outdoor Recreation | Training of Natural Resources Personnel | Biological Monitoring | Land and Fire Management | Invasive Plant Control | Species Protection and Habitat Development | Timber Stand Improvement | Nuisance Wildlife Management | Neotropical Migratory Bird Surveys | INRMP Update and Review |
| Alligator Snapping Turtle (*Macrochelys temminckii*) | PT | Wetlands and river reptile | Tables 2-4, 2-5 p. 4-27 | M | M | M | M | M | | | M | M | | M | M | M | P | P | P | P | | P | | P |
| American Alligator (*Alligator mississippiensis*) | FT | Wetlands and river reptile | Table 2-7 pp. 2-36, 4-27 | M | M | M | M | M | | | M | M | | M | M | M | P | P | P | P | | P | | P |
| American Bumble Bee (*Bombus pensylvanicus*) | PT | Pollinating insect | Table 2-4 pp. 4-12, 4-27 | M | M | M | M | M | M | M | M | M | | | M | M | P | P | P | P | | P | | P |
| Bald Eagle (*Haliaeetus leucocephalus)* | BGE | Wetland and Forest Bird | Table 2-4 pp. 2-25, 4-24, 4-28 | M | M | M | M | M | M | M | M | M | M | M | M | M | P | P | P | P | P | P | P | P |
| Dusky Gopher Frog (*Rana sevosa*) | FE/SE | Uplands frog | Table 2-4 pp. 2-25, 4-29 | M | M | M | M | M | M | M | M | M | | | M | M | P | P | P | P | P | P | | P |
| Eastern Black Rail (*Laterallus jamaicensis*) | FT | Marsh bird | Table 2-4 pp. 2-38, 4-29 | M | M | M | M | M | | M | M | M | M | | M | M | P | P | P | P | | P | P | P |
| Eastern Diamondback (*Crotalus adamanteus*) | FP | Uplands Snake | Tables 2-4, 2-7 p. 4-30 | M | M | M | M | M | M | M | M | M | | | M | M | P | P | P | P | P | P | | P |
| Eastern Indigo Snake (*Drymarchon couperi*) | FT/SE | Uplands Snake | Tables 2-4, 2-5 pp. 2-24, 4-30 | M | M | M | M | M | M | M | M | M | | | M | M | P | P | P | P | P | P | | P |
| Gopher Tortoise (*Gopherus polyphemus*) | FT/SE | Uplands tortoise | Table 2-4 pp. 2-25, 4-24, 4-31 | M | M | M | M | M | M | M | M | M | | | M | M | P | P | P | P | P | P | | P |
| Gulf Sturgeon (*Acipenser oxyrinchus desotoi*) | FT/SE | Anadromous river fish | Table 2-4 pp. 2-24, 2-29, 2-35, 3-4, 4-32 | M | M | M | M | M | | | M | M | | M | M | M | P | | P | P | | | | P |
| Inflated Heelsplitter (*Potamilus inflatus*) | FT/SE | Freshwater mussel | Table 2-4 pp. 4-33 | M | M | M | M | M | | | M | M | | M | M | M | P | | P | P | | P | | P |
| Louisiana Black Bear (*Ursus americanus lutelous*) | SE | Uplands and wetlands bear | Tables 2-4, 2-8 pp. 2-24, 2-37, 4-34 | M | M | M | M | M | M | M | M | M | | | M | M | P | P | P | P | P | P | | P |
| Louisiana Quillwort (*Isoetes louisianensis*) | FE | Small plant in or near wetlands | Table 2-4 pp. 2-25, 4-24, 4-35 | M | M | M | M | M | M | M | M | M | | | M | M | P | P | P | P | P | P | | P |
| Monarch Butterfly (*Danaus plexippus*) | FC | Migratory butterfly | Table 2-4 pp. 4-12, 4-35 | M | M | M | M | M | M | M | M | M | | | M | M | P | P | P | P | | P | | P |
| Pearl Darter (*Percina aurora*) | PT/SE | Fish in rivers and streams | Table 2-4 pp. 2-35, 4-36 | M | M | M | M | M | | | M | M | | M | M | M | P | | P | P | | | | P |
| Pearl River Map Turtle (*Graptemys pearlensis*) | PT | Wetlands and river turtle | Table 2-4 pp. 2-24, 4-36 | M | M | M | M | M | M | M | M | M | | M | M | M | P | P | P | P | | P | | P |

**Table 4-2, continued**

| Species (in alphabetical order by common name) | Status | Category | Cross-reference to text | Management Activities that Benefit the Species and its Habitat | | | | | | | | | | | | | INRMP Projects that Benefit the Species and Its Habitat | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Wetland Management | Erosion Control and Stormwater Control | Floodplain Management | Vegetative Management | Invasive Species Management | Forestry Management | Wildland Fire Management | Fish and Wildlife Management | Rare, Threatened, and Endangered Species | Migratory Birds | Aquatic Species Management | Outdoor Recreation | Training of Natural Resources Personnel | Biological Monitoring | Land and Fire Management | Invasive Plant Control | Species Protection and Habitat Development | Timber Stand Improvement | Nuisance Wildlife Management | Neotropical Migratory Bird Surveys | INRMP Update and Review |
| Red-cockaded Woodpecker (*Picoides borealis)* | FE/SE | Pinelands woodpecker | Table 2-4 pp. 2-24, 4-37 | M | M | M | M | M | M | M | M | M | M | | M | M | P | P | P | P | P | P | P | P |
| Ringed Map Turtle (*Graptemys oculifera*) | FT | Wetlands and river turtle | Tables 2-4, 2-7 pp. 2-24, 4-37, 5-4 | M | M | M | M | M | M | M | M | M | | M | M | M | P | P | P | P | | P | | P |
| Southern Hog-nosed Snake (*Heterodon simus*) | FP/SE | Uplands Snake | Table 2-4 p. 4-39 | M | M | M | M | M | M | M | M | M | | | M | M | P | P | P | P | P | P | | P |
| West Indian Manatee (*Trichechus manatus*) | FT/SE | Uplands tortoise | Table 2-4 pp. 2-24, 4-39 | M | M | M | M | M | | | M | M | | M | M | M | P | | P | P | | | | P |

BGE = protected under the Bald and Golden Eagle Protection Act;

FC = candidate for federal listing; FE = federally-endangered; FP = petitioned for federal listing; FT = federally-threatened; PT = proposed threatened

SE = state-endangered

**Alligator Snapping Turtle**
*Federal Status: Proposed Threatened*
*State Status: Not Listed*

Alligator snapping turtles are highly aquatic. They rarely bask and will usually only emerge from the water to lay eggs, which occurs during spring. The species generally prefers shallow freshwater areas with mud substrate, aquatic vegetation, and natural debris. Nests are usually dug within 50 feet of a river or lake bank. This INRMP protects habitat for alligator snapping turtles through active management of factors such as wetlands (Section 4.1.1), erosion and stormwater control (Section 4.1.2), floodplains (Section 4.1.3), and aquatic species management (4.3.5). INRMP Projects that benefit alligator snapping turtles and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Nuisance Wildlife Management, and INRMP Update and Review.

**American Alligator**
*Federal Status: Threatened, Species of Similar Appearance*
*State Status: Game Species with Limited Season and Take*

The American alligator inhabits low-lying areas near water, preferring freshwater but also venturing into brackish or saltwater. Females build nests near water and lay clutches of 20-60 eggs between May and July. They are protective of their nesting areas during this season and such areas should be avoided. Alligators should not be fed, as this causes them to associate humans with food, thereby increasing the likelihood of dangerous encounters. Staff and visitors will be educated about the dangers of interacting with alligators. This INRMP protects habitat and water quality for alligators through active management of factors such as wetlands (Section 4.1.1), erosion and stormwater control (Section 4.1.2), floodplains (Section 4.1.3), and aquatic species management (4.3.5). INRMP Projects that benefit American alligators and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Nuisance Wildlife Management, and INRMP Update and Review.

**American Bumble Bee**
*Federal Status: Petitioned for Listing*
*State Status: Not Listed*

The American bumble bee (Bombus pensylvanicus) was petitioned for listing under the ESA in 2021 and its status is currently under review by the USFWS (86 FR 53937). It requires nectar, pollen resources, and suitable nesting sites during spring, summer, and

autumn, as well as overwintering nest sites in undisturbed sites an inch or two under loose soil, leaf litter, and other debris. Threats include habitat loss, overuse of pesticides and herbicides, disease, climate change, competition with honey bees, and loss of genetic diversity. This INRMP protects habitat for American bumble bees through active management of factors such as wetlands (Section 4.1.1), vegetative management (4.1.4), invasive species management (Section 4.1.5), and wildland fire management (Section 4.2.2). INRMP Projects that benefit bumble bees and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Nuisance Wildlife Management, and INRMP Update and Review.

**Bald Eagle**

*Federal Status: Bald and Golden Eagle Protection Act*
*State Status: Recovered / Delisted*

**Photograph 4-1. Bald Eagle**

Bald eagles (Photograph 4-1) have been sighted at SSC in proximity of the Pearl River. This species likely nests along the Pearl River in cypress snags near open water. No bald eagles, or eagle nests, were observed within the Stennis WMA during either an April 2003 or April 2004 field reconnaissance (NSW 2004). Bald eagles prefer fish, but will eat a variety of mammals, amphibians, crustaceans, and birds, including many species of waterfowl. The breeding range of the bald eagle is associated with aquatic habitats and forested shorelines. They select large, super-canopy roost trees that are open and accessible. The decline of bald eagle populations coincided with the introduction of the pesticide DDT in 1947. Eagles contaminated with DDT failed to lay eggs or produced thin eggshells that broke during incubation. Other causes of decline include habitat loss, shooting, trapping, and poisoning. However, the bald eagle has since recovered to population levels that allowed this species to be delisted. This INRMP protects habitat for bald eagles by managing factors such as wetlands (Section 4.1.1), floodplains (Section 4.1.3), forestry (Section 4.2.1), and Bird/Animal Aircraft Strike Hazard (BASH) (Section 4.3.4). INRMP Projects that benefit bald eagles and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species

Protection and Habitat Development, Timber Stand Improvement, Nuisance Wildlife Management, Neotropical Migratory Bird Surveys, and INRMP Update and Review.

**Dusky Gopher Frog**
*Federal Status: Endangered*
*State Status: Endangered*

The dusky gopher frog (Photograph 4-2) occurs in breeding ponds in southeastern Mississippi. The north-eastern portion of the Stennis WMA provides marginally suitable habitat for this species. The dusky gopher frog requires open, grassy seasonal wetlands that do not contain fish populations for successful reproduction. Adults move to breeding sites in association with heavy rains, usually in February and March. Metamorphs typically exit the ponds in May. Adults utilize upland sandy habitats and isolated temporary wetland breeding sites. Dusky gopher frogs spend the majority of their lives in or near underground refugia such as abandoned mammal or gopher tortoise burrows and holes in or under old stumps. Loss of suitable habitat caused by modern silviculture practices and fire suppression, as well as the degradation of breeding ponds by ditching, off-road vehicle use, and fish stocking, genetic isolation, inbreeding, and drought have all contributed to a decline in this species. This INRMP protects habitat for dusky gopher frogs by managing factors such as wetlands (Section 4.1.1), floodplains (Section 4.1.3), forestry (Section 4.2.1), and wildland fires (Section 4.2.2). INRMP Projects that benefit dusky gopher frogs and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Timber Stand Improvement, Nuisance Wildlife Management, and INRMP Update and Review.

**Photograph 4-2.**
**Dusky gopher frog**

**Eastern Black Rail**
*Federal Status: Threatened*
*State Status: None*

The eastern black rail eastern is found in both coastal and interior areas, but the majority of detections are from coastal sites. It occupies relatively high elevations along heavily vegetated wetland gradients, with soils moist or flooded to a shallow depth. The vegetation must be dense but also allow bird movement underneath the canopy.

Historically, the primary stressors to eastern black rails included habitat degradation and fragmentation due to conversion of marshes and wetlands to agricultural lands and urban areas. This INRMP protects habitat for eastern black rails by managing factors such as wetlands (Section 4.1.1), floodplains (Section 4.1.3), invasive species (Section 4.1.5), and migratory birds (Section 4.3.3). INRMP Projects that benefit eastern black rails and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Timber Stand Improvement, Nuisance Wildlife Management, Neotropical Migratory Bird Surveys, and INRMP Update and Review.

**Eastern Diamondback Rattlesnake**
*Federal Status: Petitioned for Listing*
*State Status: Not Listed*

Southern Mississippi is at the western end of the range of eastern diamondback rattlesnakes. They are likely present on the Stennis WMA and generally inhabit dry pine flatwoods, sandy woodlands, and coastal scrub habitats, and often utilize gopher tortoise burrows. Therefore, management actions that conserve gopher tortoise habitat also benefit eastern diamondbacks. Although the eastern diamondback is not endangered, indiscriminate killing and widespread loss of habitat have decreased its numbers throughout its range, which stretches from North Carolina to eastern Louisiana. This INRMP protects habitat for the eastern diamondback rattlesnake through active management of factors such as invasive species management (Section 4.1.5), forestry (Section 4.2.1) and wildland fire management (Section 4.2.2). INRMP Projects that benefit eastern diamondback rattlesnakes and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Timber Stand Improvement, Nuisance Wildlife Management, and INRMP Update and Review.

**Eastern Indigo Snake**
*Federal Status: Threatened*
*State Status: Endangered*

The eastern indigo snake (Photograph 4-3) is the longest snake in North America, reaching a maximum size of 8.5 feet. Historically, the eastern indigo snake occurred throughout Florida and in the coastal plain of Georgia, Alabama, and Mississippi. However it primarily occurs in peninsular Florida and southeast Georgia, persists in the

Florida panhandle, and has been extirpated from Alabama and Mississippi. The eastern indigo snake frequents several habitat types, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammock, edges of freshwater marshes, and agricultural fields. Eastern indigo snakes are also known to inhabit gopher tortoise burrows. The eastern indigo snake was listed as a threatened species as a result of dramatic population declines caused by over-collecting for domestic and international pet trade as well as mortalities caused by rattlesnake collectors who gassed gopher tortoise burrows to collect snakes. This INRMP protects habitat for eastern indigo snakes by managing factors such as wetlands (Section 4.1.1), floodplains (Section 4.1.3), forestry (Section 4.2.1), and wildland fires (Section 4.3.2). INRMP Projects that benefit eastern indigo snakes and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Timber Stand Improvement, Nuisance Wildlife Management, and INRMP Update and Review.

**Photograph 4-3. Eastern Indigo Snake**

**Gopher Tortoise**

*Federal Status: Threatened*
*State Status: Endangered*

**Photograph 4-4. Gopher tortoise**

Gopher tortoises (Photograph 4-4) have been found in the buffer zone at the north edge of the SSC Fee Area, just outside the north gate (NASA 2001; Esher and Bradshaw 1988; Keiser 1994). This population was restricted to the sandy ridge along Old Highway 43 (Highway 607), northwest of the north gate. Keiser (1994) observed a single adult gopher tortoise and single burrow in the SSC Fee Area just north of the south Hazardous Waste Dump entrance road. No other specific location references were found during the literature search for this species; therefore, no specific evidence was found of gopher tortoise occupation within the Stennis WMA. The SSC Environmental Resources Document (NASA 2001) indicated that gopher tortoises are either absent as site residents or present in very small numbers where habitats may be suitable. No gopher tortoises, or gopher tortoise burrows, were observed during either the April 2003 or April 2004 field

reconnaissance (Turner Collie & Braden Inc. [TC&B] 2003 and 2004). However, suitable habitat does occur in the northeastern portion of the Stennis WMA.

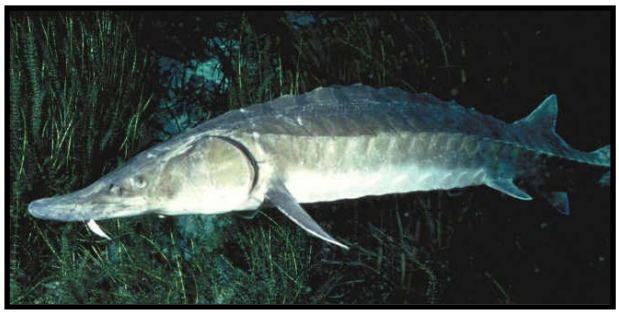
Grass and small herbaceous plants make up most of the gopher tortoise diet, although carrion, berries, and fungi are also eaten. Gopher tortoise habitats generally consist of upland longleaf pine forests and mixed pine-hardwood forests with soils that are very sandy and well-drained. The primary reason for declines in this species' populations include conversion of natural forests of longleaf pine to loblolly plantations, agriculture, and urban areas, absence of fire, which creates a thick understory and midstory, thereby blocking the sunlight from reaching the ground layer and preventing the growth of grasses for gopher tortoises to eat, illegal take of the tortoises for food or pets, harassment by dogs, and mortality of eggs and hatchlings from fire ants.

This INRMP protects habitat for gopher tortoises through proper management of factors such as invasive species management (Section 4.1.5), forestry (Section 4.2.1) and wildland fire management (Section 4.2.2). INRMP Projects that benefit gopher tortoises and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Timber Stand Improvement, Nuisance Wildlife Management, and INRMP Update and Review. Primary management practices for the gopher tortoise include regular prescribed burns within pine stands. Pine stands can be thinned every 7 to 10 years once trees have attained a merchantable size to enhance gopher tortoise habitat. In the future there may be the potential for habitat rehabilitation via reforestation. Reforestation using longleaf pines creates an ideal ecological community for the gopher tortoise. Furthermore, invasive and nuisance predators such as fire ants, foxes, and feral cats, which cause gopher tortoise mortality, may be controlled and exterminated in the Stennis WMA to enhance gopher tortoise habitat. Gopher tortoise surveys are presently being conducted and will continue to be conducted to assess the species' usage of the installation and provide information to further enhance management.

**Gulf Sturgeon**
*Federal Status: Threatened*
*State Status: Endangered*

The Gulf sturgeon (Photograph 4-5) has been collected in the Pearl River upstream to Madison County (more than 175 miles upstream from the mouth), in Mike's River

(USFWS and Gulf States Marine Fisheries Commission [GSMFC] 1995), and in the Bogue Chitto River upstream to Pike County (MDWFP no date). Its range extends along the Gulf Coast from the Suwannee River in Florida west to the Mississippi River. The Gulf sturgeon is anadromous, meaning the adults spawn in freshwater and migrate into marine waters in the fall to forage and overwinter. Subadults and adults typically spend 8 to 9 months in freshwater river systems, spending the coolest 3 to 4 months of the year in estuaries and Gulf waters. Individuals less than 2 years of age remain in riverine and estuarine systems year-round. Adults begin migrating up rivers when river temperatures increase to 55°F to 75°F and continue to migrate through early May. They remain over summer and return to the Gulf by mid-November to early December (USFWS and GSMFC 1995). While in freshwater environments, the sturgeon's diet consists of aquatic insects and other aquatic invertebrates. The decline of this species is due to incidental take and the loss or alteration of spawning habitat. River modification through dam construction, dredging, and channelization may prevent sturgeon from gaining access to spawning grounds and destroy substrates on which eggs are deposited. Additionally, widespread pollution from industrial and domestic sources has reduced feeding and spawning habitat. This INRMP protects habitat for Gulf sturgeon by managing water quality through factors such as wetlands (Section 4.1.1), erosion and stormwater control (Section 4.1.2), and floodplains (Section 4.1.3). INRMP Projects that benefit Gulf sturgeon and their habitat include Biological Monitoring, Invasive Plant Control, Species Protection and Habitat Development, and INRMP Update and Review.



**Photograph 4-5. Gulf sturgeon**

**Inflated Heelsplitter**

*Federal Status: Threatened*
*State Status: Endangered*

The inflated heelsplitter (Photograph 4-6) is currently limited to the Amite River in Louisiana and the Tombigbee and Black Warrior rivers in Alabama and the West Pearl in Louisiana (Miller and Payne 1996, George and Reine 1995). The only known collection of this species from the Pearl River was reported in 1911 (*Federal Register* 55:39868). Suitable habitat likely exists within the East Pearl River near the Stennis WMA, but a

survey conducted in 2016 did not detect any (Miller et al. 2016). This species prefers soft, stable sediments in slow to moderate currents (Stern 1976). Threats to the species include channel alterations and impoundments for navigation and flood control, and sand and gravel mining. This INRMP protects habitat for inflated heelsplitters by managing water quality through factors such as wetlands (Section 4.1.1), erosion and stormwater control (Section 4.1. 2), and floodplains (Section 4.1.3). INRMP Projects that inflated heelsplitters and their habitat include Biological Monitoring, Invasive Plant Control, Species Protection and Habitat Development, Nuisance Wildlife Management, and INRMP Update and Review.

**Photograph 4-6. Inflated heelsplitter**

**Louisiana Black Bear**

*Federal Status: Recovered / Delisted*
*State Status: Endangered*

**Photograph 4-7. Louisiana Black Bear**

The Louisiana black bear (Photograph 4-7) has not been confirmed at the Stennis WMA, although it has been reported in the vicinity. Its key habitat requirements are food, water, cover, and denning sites which are spatially arranged across sufficiently large, relatively remote blocks of land. Historical habitat of the Louisiana black bear has suffered from fragmentation and conversion to agriculture. Habitat reduction and human-induced mortality are primary factors limiting recovery of the species. This INRMP protects habitat for Louisiana black bears by managing factors such as wetlands (Section 4.1.1), floodplains (Section 4.1.3), forestry (Section 4.2.1), and wildland fires (Section 4.3.2). INRMP Projects that benefit Louisiana black bears and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Timber Stand Improvement, Nuisance Wildlife Management, and INRMP Update and Review.

**Louisiana Quillwort**
*Federal Status: Endangered*
*State Status: Not Listed*


**Photograph 4-8. Louisiana quillwort**

The Louisiana quillwort (Photograph 4-8) is a small, grass-like, aquatic plant. They are known to grow in five locations in Washington and St. Tammany parishes in Louisiana (LDWF 2008) and Jackson and Perry counties in Mississippi (Center for Plant Conservation 2008). Potential habitat for Louisiana quillwort occurs within the smaller streams that are tributaries to Mike's River and East Pearl River. Louisiana quillwort inhabits sand and gravel bars in small blackwater streams. The Louisiana quillwort is extremely vulnerable due to its small range. This species is also threatened by any activities that would affect the hydrology or stability of the streams in which the plant occurs, including dredging and channelizing streams, damming of streams to create ponds or reservoirs, siltation of streams from upslope activities, and habitat destruction from off-road vehicles and logging equipment. This INRMP protects habitat for Louisiana quillwort by managing water quality through factors such as wetlands (Section 4.1.1), erosion and stormwater control (Section 4.1.2), and floodplains (Section 4.1.3). INRMP Projects that benefit Louisiana quillwort and its habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Timber Stand Improvement, Nuisance Wildlife Management, and INRMP Update and Review.

**Monarch Butterfly**
*Federal Status: Candidate*
*State Status: Not Listed*

The monarch butterfly is found throughout the United States during warm months, but migrates to Mexico during winter. Monarch caterpillars exclusively eat milkweed leaves, so the presence of milkweed (*Asclepias* spp.) is a crucial habitat requirement. Milkweed protection is therefore a key component of monarch butterfly conservation. This INRMP protects habitat for monarch butterflies through active management of factors such as wetlands (Section 4.1.1), vegetative management (4.1.4), invasive species management (Section 4.1.5), and wildland fire management (Section 4.2.2). INRMP Projects that

benefit monarch butterflies and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Nuisance Wildlife Management, and INRMP Update and Review.

**Pearl Darter**
*Federal Status: Proposed Threatened*
*State Status: Endangered*

Pearl darters prefer portions of rivers and streams with gravel bottom substrate. It is historically known only from localized sites within the Pascagoula and Pearl River drainages in Mississippi and Louisiana. Currently, the Pearl darter is considered extirpated from the Pearl River drainage and rare in the Pascagoula River drainage. The Pearl darter is vulnerable to non-point source pollution caused by urbanization and other land use activities. Additional threats are the continued degradation of water quality within the species' habitat. This INRMP protects habitat for Pearl darters through active management of factors such as wetlands (Section 4.1.1), erosion and stormwater control (Section 4.1.2), floodplains (Section 4.1.3), and aquatic species management (Section 4.3.5). INRMP Projects that benefit Pearl darters and their habitat include Biological Monitoring, Invasive Plant Control, Species Protection and Habitat Development, and INRMP Update and Review.

**Pearl River Map Turtle**
*Federal Status: Proposed Threatened*
*State Status: None*

The Pearl River map turtle inhabits rivers and large creeks with sand and gravel bottoms in the Pearl River drainage in Mississippi and Louisiana. The successful survival and reproduction of the species are dependent upon the presence of sandbars within the Pearl River system, adequate flow, adequate supply of invertebrate prey items (including insects and mollusks), and an abundance of emergent and floating structures on which to bask. Threats to the species include construction of reservoirs and dams, sand mining, excessive levels of development and agriculture, collection for the pet trade, invasive species, and long-term climate impacts such as prolonged flooding, drought, and sea level rise. This INRMP protects habitat for Pearl River map turtles through active management of factors such as wetlands (Section 4.1.1), erosion and stormwater control (Section 4.1.2), floodplains (Section 4.1.3), and aquatic species management (Section 4.3.5). INRMP Projects that benefit Pearl River map turtles and their habitat

include Biological Monitoring, Invasive Plant Control, Species Protection and Habitat Development, and INRMP Update and Review.

**Red-cockaded Woodpecker**
*Federal Status: Endangered*
*State Status: Endangered*

**Photograph 4-9.**
**Red-cockaded Woodpecker**

The red-cockaded woodpecker (RCW) (Photograph 4-9) is found in the pine forests of the southeastern U.S. Although marginally suitable habitat exists within the vicinity of the Stennis WMA, there have been no confirmed reports of the RCW, according to MDWFP. The RCW historically ranged from New Jersey to Texas, and inland to Oklahoma, Missouri, Kentucky, and Tennessee. However, the species currently ranges from Virginia to Oklahoma and eastern Texas. The RCW makes its home in mature pine forests with longleaf pines averaging 80 to 120 years old and loblolly pines averaging 70 to 100 years old. The older pines favored by the RCW often suffer from a fungus called red heart disease which attacks the center of the trunk, causing the inner wood to become soft. Cavities generally take 1 to 3 years to excavate. Loss of mature pine forest habitat is the primary cause of RCW population declines. This INRMP protects habitat for RCW's by managing factors such as invasive species (Section 4.1.5), forestry (Section 4.2.1), wildland fires (Section 4.2.2), and migratory birds (Section 4.3.3). INRMP Projects that benefit red-cockaded woodpeckers and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Timber Stand Improvement, Nuisance Wildlife Management, Neotropical Migratory Bird Surveys, and INRMP Update and Review.

**Ringed Map Turtle**
*Federal Status: Threatened*
*State Status: Not Listed*

The relatively small ringed map turtle (Photograph 4-10) inhabits rivers with open canopies, basking logs, and open nesting beaches. The ringed map turtle is associated with trees that have died and fallen into the river. It spends much of the day basking on these fallen trees and quickly jumps into the water when approached. These turtles seek refuge on the soft bottom of the river and in between the branches of the falling trees.

**Photograph 4-10. Ringed map turtle**

Males generally reach a length of 4 inches, and females reach 7 inches. A yellow ring, bordered inside and outside with dark olive-brown, appears on each shield of the carapace (upper shell). A large yellow spot appears behind the eye, two yellow stripes extend back from the orbit, and a characteristic yellow stripe covers the whole lower jaw (Cagle 1953). Jones and Hartfield (1995) determined that males matured at 3.5 years, females at 10 to 16 years. The ringed map turtle occurs in the main channel of the Pearl River from Neshoba County, Mississippi, downstream to its mouth, and in the Bogue Chitto River from its confluence with the Pearl River upstream to near Franklinton, Louisiana (USFWS 1992). Keiser (1994) observed ringed map turtles from multiple locations on the Pearl and Mike's Rivers, as well as possible nesting sites near Building 2423 at SSC in 1994. He also found ringed map turtles in several gravel pit ponds and in the access canal between the locks and the Pearl River. Several map turtles were observed along the Pearl River during the April 2003 field reconnaissance; however, none were confirmed to be the ringed map turtle (TC&B 2003). No map turtles were observed in the area of the proposed additional acreage during the April 2004 field reconnaissance (TC&B 2004). Subsequent observations have confirmed that there is a breeding population of ringed map turtles on the East Pearl River adjacent to the Stennis WMA (Buhlmann 2014). They are also commonly seen on Mike's River and occasionally observed in abandoned gravel mine pits within the WMA. Preferred nesting sites consist of islands of clean, fine-grain sand with minimal vegetative cover, and are at least 3.3 to 9.8 feet above river level (McCoy and Vogt 1980, Dickerson and Reine 1996).

Ringed map turtle population numbers are declining primarily due to the loss or alteration of habitat for flood control and navigation, water quality degradation from such things as siltation and pollution, and shooting and collection by humans. This INRMP protects habitat for ringed map turtles by managing factors such as wetlands (Section 4.1.1), erosion and stormwater control (Section 4.1.2), and floodplains (Section 4.1.3). INRMP Projects that benefit ringed map turtles and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Nuisance Wildlife Management, and INRMP Update and Review.

**Southern Hog-nosed Snake**
*Federal Status: Petitioned for Listing*
*State Status: Endangered*

Southern hog-nosed snakes are most often associated with well drained, xeric, sandy soils where longleaf pine and/or scrub oaks (especially turkey oak) are the characteristic woody vegetation. Wiregrass is often a significant component of the groundcover. Such habitats are necessarily fire-maintained. Ruderal habitats, including fallow fields, may also be used. This INRMP protects habitat for southern hog-nosed snakes through active management of factors such as invasive species management (Section 4.1.5), forestry (Section 4.2.1), wildland fire management (Section 4.2.2), and fish and wildlife management (Section 4.3.1). INRMP Projects that benefit southern hog-nosed nakes and their habitat include Biological Monitoring, Land and Fire Management, Invasive Plant Control, Species Protection and Habitat Development, Timber Stand Improvement, Nuisance Wildlife Management, and INRMP Update and Review.

**West Indian Manatee**
*Federal Status: Threatened*
*State Status: Endangered*

West Indian manatees (Photograph 4-11) are known to inhabit the Pearl River basin in Louisiana; however, there have been no confirmed reports of the West Indian manatee in the vicinity of the Stennis WMA. They are found along the coasts and tidal portions of rivers from North Carolina to Louisiana, as well as in the Caribbean. Manatees utilize marine open water, bay, and riverine habitats. They move between saltwater, brackish, and freshwater slow-moving rivers, river mouths, and shallow coastal areas such as coves and bays. They may travel great distances as they migrate between winter and summer grounds. West Indian manatees often prefer waters with submerged aquatic beds or floating vegetation.


**Photograph 4-11. West Indian manatee**

Manatees face many threats to their survival. The greatest threats to manatee survival are collisions with boats and loss of warm water habitat. Natural factors, such as unusually cold weather and outbreaks of red tide, may also influence population levels.

Standard protection and avoidance procedures have been developed by the Navy for use where manatees are present, and these procedures will be used at Stennis WMA if manatees are observed in the area. This INRMP protects habitat for manatees by managing water quality through factors such as wetlands (Section 4.1.1), erosion and stormwater control (Section 4.1.2), and floodplains (Section 4.1.3). INRMP Projects that benefit West Indian manatees and their habitat include Biological Monitoring, Invasive Plant Control, Species Protection and Habitat Development, and INRMP Update and Review.

#### *4.3.2.6 Additional Sources of Information*

Mississippi Natural Heritage Program
https://www.mdwfp.com/museum/seek-study/natural-heritage-program/

Mississippi Department of Marine Resources
https://dmr.ms.gov/

Mississippi Department of Wildlife, Fisheries, and Parks
https://www.mdwfp.com/

U.S. Fish and Wildlife Service Ecological Services
Jackson Field Office
6578 Dogwood View Parkway, Ste A
Jackson, MS 39213
https://www.fws.gov/mississippies/

### 4.3.3 Migratory Birds

The MBTA of 1918, as amended, and EO 13186 of January 10, 2001, Responsibilities of Federal Agencies to Protect Migratory Birds specifically protects migratory birds. The MBTA makes it illegal to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products, except as allowed by the implementing regulations. EO 13186 requires that Federal agencies avoid or minimize the impacts of their activities on migratory birds and make efforts to protect birds and their habitat. Migratory birds face serious challenges, including reductions in habitat quality and quantity, direct bird mortality attributable to human activities, invasive species, collisions with artificial structures, and environmental contaminants, resulting in species decline. Because migratory birds cross the boundaries of nations, watersheds, and ecosystems, protecting them requires a coordinated effort involving multiple jurisdictions and interests. The 2003 National Defense Authorization Act exempts the Armed Forces from the incidental taking of

migratory birds during military readiness activities. Military readiness activities include all training and operations of the Armed Forces that relate to combat and the adequate testing of military equipment, vehicles, weapons and sensors for proper operation and suitability for combat use. The MBTA requires that the Secretaries of Defense and Interior identify ways to minimize, mitigate and monitor the take of migratory birds during military readiness activities. Table 2-9 provides a list of birds observed during systematic seasonal point-count surveys in 2010-11, 2014-15, and 2019-20. Cumulatively, these surveys have identified 150 bird species on the property (GSRC 2012; GSRC 2015; GSRC 2021).

Implementation of the INRMP is expected to benefit migratory birds on the Stennis WMA through the implementation of projects, including preservation of wetlands and migratory bird surveys.

#### *4.3.3.1 Goals and Objectives*

- Conduct a bird survey and, depending upon results of the initial survey, schedule appropriate surveys at regularly scheduled intervals.
- Prevent loss of wetland acreage and maintain wetland habitat quality, especially in habitats of particular importance to birds while supporting the training mission.
- Maintain, or re-establish where practicable, native ecosystems.

#### *4.3.3.2 Projects*

Participation in the following project will occur in support of the goals and objectives for migratory birds.

Project No. 7: Conduct neotropical migratory bird surveys on the Stennis WMA to develop a baseline of migratory and resident bird populations.

#### *4.3.3.3 Climate Change*

Migratory bird community composition is annually dependent upon seasonal migrations driven by seasonal shifts in climate. Individual species occurrences and overall community composition could change if certain species prolong their seasonal residency due to extended periods of mild winter temperatures or even forego seasonal migrations all together in favor of year-round residency. The spatial ranges of some bird species may also expand or contract based upon climate-related impacts on essential foliage.

Depending on the observed impacts to a given species' population numbers and geographic distribution, future petitions for federal listing under the ESA are possible.

#### *4.3.3.4 Management Strategies*

Avoiding and minimizing impacts to migratory birds begins with an up-to-date working knowledge of species presence, seasonality, nesting habits, and habitat condition on the Stennis WMA. The NRM will therefore ensure that migratory bird surveys are regularly completed on the property. These surveys shall follow the guidance and recommendations in the DOD Coordinated Bird Monitoring Plan for survey design and data management. Additional guidance and information is available on the DOD Partners in Flight Monitoring Working Group website (https://partnersinflight.org/). The NRM and Regional Natural Resources support staff will use collected data to avoid, minimize, and mitigate impacts to migratory birds resulting from activities on the Stennis WMA. Because most migratory birds cross installation and state boundaries, data sharing is a vital component to their management. Data collected at the Stennis WMA will be shared with federal and state agencies through participation in programs such as the Breeding Bird Research and Monitoring Database (BBIRD), eBird, and Monitoring Avian Productivity and Survivorship (MAPS).

No known baseline inventories or breeding surveys have been conducted on the Stennis WMA. However, a breeding survey conducted at the adjacent SSC Fee Area in 1991 and 1994 documented 138 species of migratory birds, including several species of waterfowl, woodpeckers, wading birds, raptors, and songbirds (Lago 1994 as cited in NSW 2004). The Stennis WMA is located in the Mississippi Flyway and provides excellent habitats for neotropical migrants. Implementation of the following management measures will minimize, mitigate and monitor the take of migratory birds from military readiness activities at the Stennis WMA.

1. Conduct bird surveys to monitor the bird populations at the Stennis WMA by using the recommendations provided in the DOD Coordinated Bird Monitoring Plan to guide survey design and data management (see Appendix E for characteristics and life histories of common migratory bird species at SSC and, thus, likely present).
2. Where possible, NCBC Gulfport will enter into conservation partnerships with Federal, state and local agencies and non-governmental organizations to improve habitat.

3. Where possible, site military readiness activities in ways to avoid or minimize impacts on migratory birds. If NCBC Gulfport notes clear evidence of a take as a result of military readiness activities, the WMA Natural Resources Manager will document the take, evaluate these activities and, where practicable, reduce or eliminate the take of migratory birds.
4. Implement habitat enhancement for migratory bird species.
5. Control invasive bird species that compete with native migratory bird species and their habitats.
6. For non-military readiness activities, compliance with the MBTA is mandatory.

#### *4.3.3.5 Additional Sources of Information*

Partners in Flight
https://partnersinflight.org/

Bird Conservation Plan for East Gulf Coastal Plain
https://egcpjv.org/bird-conservation-plans/

Smithsonian National Zoological Park
Migratory Bird Center
Washington, DC 20008
https://nationalzoo.si.edu/migratory-birds

USFWS Division of Migratory Bird Management
https://www.fws.gov/birds/index.php

Migratory Bird Treaty Act (MBTA)
https://www.fws.gov/laws/lawsdigest/migtrea.html

### 4.3.4 Bird/Animal Aircraft Strike Hazard

Bird and other wildlife strikes to aircraft annually cause over $600 million in damage to U.S. civil and military aviation. Furthermore, these strikes put the lives of aircraft crew members and their passengers at risk. A Wildlife Hazard Assessment is an important safety measure to protect pilots and crew from bird and other wildlife strikes by evaluating wildlife presence and activity. Bird and wildlife strikes are possible, but rarely occur. Daily and seasonal bird movements create hazardous conditions. The air traffic at Stennis WMA is limited to helicopter landings and takeoffs. The areas of potential hazardous encounters with birds are limited to these helicopter landing and training areas. Most of the strikes occur during fall and spring, and involve birds migrating through the airspace. Bird strikes can also include local species such as waterfowl and

song birds which live at the installation. The goals and objectives of the BASH program are to reduce the potential for collisions between aircraft and birds or other animals.

#### *4.3.4.1 Goals and Objectives*

The natural resources goals and objectives relevant to the Bird Strike Management are presented below.

The operations and maintenance program will develop a Migratory Bird Management Plan to implement a BASH program and conduct bird surveys to reduce aircraft collisions with wildlife. The BASH plan should include the following:

- Establish a Bird Hazard Working Group (BHWG) and designate responsibilities to its members.
- Establish training for all base members concerning responsibilities and actions.
- Establish procedures to identify high hazard situations and to aid supervisors and aircrews in alerting/discontinuing flying operations when required.
- Establish aircraft and helispot operating procedures to avoid high hazard situations.
- Provide a method for disseminating information to all tenant and transient aircrews on bird hazards and procedures for bird avoidance.
- Establish passive techniques to decrease helispot attractiveness to birds and wildlife.
- Establish active/static techniques to disperse birds from the helispots.
- Establish local procedures for reporting of damaging/non-damaging bird strikes.
- Establish procedures for collecting bird strike remains.
- Monitor for the presence of threatened and endangered species, and neo-tropical migratory birds.
- Manage fish and wildlife and their habitats in order to reduce BASH occurrences.

#### *4.3.4.2 Projects*

No projects are proposed to specifically address BASH.

#### *4.3.4.3 Climate Change*

As climate change causes shifts in the distribution and abundance of bird species, together with changes in habitats, there may be instances where bird hazards can pose increased risks to runways and military flight operations. For example, migratory bird

community composition could shift if certain species prolong their seasonal residency due to extended periods of mild winter temperatures or even forego seasonal migrations in favor of year-round residency. The spatial ranges of some bird species may also expand or contract based upon climate-related impacts on essential foliage. The BASH program should anticipate and account for these potential changes.

#### *4.3.4.4 Management Strategies*

- Establishment of a BHWG.
- Develop procedures for reporting hazardous bird activity and altering or discontinuing flying operations.
- Develop provisions to disseminate information to all assigned and transient aircrews for specific bird hazards and procedures for avoidance.
- Develop procedures to eliminate or reduce environmental conditions that attract birds and other wildlife to the helispots.
- Develop procedures to disperse birds and other wildlife from the helispots.

#### *4.3.4.5 Additional Sources of Information*

Smithsonian National Zoological Park
Migratory Bird Center
Washington, DC 20008
https://nationalzoo.si.edu/migratory-birds

USFWS Division of Migratory Bird Management
https://www.fws.gov/birds/index.php

Birds of Conservation Concern
https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php

### 4.3.5 Aquatic Species Management

The southern end of Stennis WMA is located about 13 miles from the coast and positioned in Mississippi's Coastal Zone Management Area, where fresh surface water mixes with sea water from the Gulf of Mexico. The distribution of marine and fresh water species is associated with water salinity.

Freshwater species are found in the aquatic habitats within the installation grounds. Primary aquatic habitats within installation grounds include old gravel pits, canals, forested wetlands and swamps, rivers and streams, wet pine savannahs, and temporary

pools (vernal and ephemeral pools in forests and savannahs). Surface mining has created a number of small man-made lakes located in the northeast corner of the Stennis WMA.

These freshwater habitats are highly valued by sport fishermen who pursue freshwater species, such as largemouth bass, alligator gar (*Atractooteus spatula*), channel catfish, white crappie, black crappie, various species of sunfish, crawfish *(Procambarus clarkii*), channel catfish, blue catfish, flathead catfish, and spotted gar (*Lepisosteus oculatus*).

Immediately south of the installation grounds are coastal estuarine habitats with brackish water, where shallow estuaries receive fresh water from various lakes, rivers, bayous, and canals, while receiving salt water from the Gulf of Mexico.

Aquatic habitats south of the installation vary in salinity, but generally, the water gets saltier towards the coast. The brackish waters are home to a wide variety of economically important invertebrates, such as brown shrimp (*Penaeus aztecus)*, pink shrimp (*Penaeus duorarum)*, white shrimp (*Penaeus setiferus*), blue crabs (*Callinectes sapidus)*, oysters (*Crassostrea virginica*), and estuarine fish, such as red drum (*Sciaenops ocellatus*), speckled trout (*Cynoscion nebulosus),* and Atlantic croaker (*Micropogonias undulates*). The estuarine habitats produce many species of fish that are not harvested for recreation or seafood; however, the fish serve as prey species for large predators along the coast and offshore. These prey species include rainwater killifish (*Lucania parva)*, naked goby (*Gobiosoma bosc*), Gulf pipefish (*Syngnathus scovell*i), clown goby (*Microgobius* sp.), pinfish (*Lagodon rhomboids*), bay anchovy (*Anchoa mithcilli*), and speckled worm eel (*Myrophis punctatus*).

The Magnuson-Stevens Fishery Conservation and Management Act of 1996 (MSFCMA) requires that the NMFS, the regional fishery management councils, and the Secretary of Commerce describe and identify EFH for important marine and anadromous fish species under Federal Fishery Management Plans. EFH includes all waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity, and extends from offshore habitats to inland areas, where the salt-water influence subsides.

The MSFCMA requires Federal agencies to consult with NMFS when any activity proposed to be permitted, funded, or undertaken by a Federal agency may have adverse impacts on designated EFH. Impacts on EFH were considered when preparing this document, and would not be expected to adversely affect EFH. However, implementation of the INRMP would be expected to improve water quality and estuarine and marine habitats. More information on EFH (e.g., location and types of EFH and the species managed), is presented in Appendix G.

In accordance with EO 13089, Coral Reef Protection of 11 June 1998, which requires Federal agencies to protect and enhance coral reefs and coral reef systems, the Navy recognizes that coral reefs and related endemic mangrove and sea grass ecosystems are biologically rich and diverse habitats. There are no coral reef systems within the area of influence of this INRMP.

#### *4.3.5.1 Goals and Objectives*

- Maintain or enhance biological diversity.
- Conserve wetlands, floodplains, stream and lake riparian areas, soils, and habitat diversity.
- Develop, implement, and manage fishing and hunting regulations.
- Develop, implement, manage and ensure compliance of depredation program.

#### *4.3.5.2 Projects*

No projects are designated in support of the goals and objectives for coastal/marine management, as this is a function of the Stennis WMA operations and maintenance program.

#### *4.3.5.3 Climate Change*

Continued increases in air temperatures and changing precipitation regimes associated with climate change can have profound impacts on freshwater biota and water quality. Terrestrial regions have warmed faster than the oceans thus far, with associated temperature increases in upland waterways. Freshwater systems are also subject to a series of non-climate stressors such as eutrophication, habitat degradation, and invasive species, which can be exacerbated by extreme weather events. As air temperatures increase, so do evaporation rates, which lowers water levels. Maintaining and restoring

shoreline plant communities, both in the water and on the banks, encourages natural processes to mitigate some impacts of climate change. Vegetation emerging from the substrate stabilizes shorelines against erosion and protects water quality by intercepting human-derived nutrients and pollutants. When shoreline vegetation is degraded, embankments are more vulnerable to erosion and water quality degradation.

#### *4.3.5.4 Management Strategies*

1. Assist in the management and recovery of RTE species.
2. Integrate outdoor recreation and ecosystem management with military mission.
3. Manage fish and wildlife using an ecosystem management approach.
4. Build interagency relationships with DMR, MDWFP, NMFS, GMFMC and USFWS to cooperatively manage fish and wildlife resources and their habitats.
5. Develop natural resource-based recreation programs, including hunting and fishing programs, as well as wildlife viewing opportunities consistent with the desires of users.
6. Develop tools to educate users of fish and wildlife resources on promoting healthy and robust ecosystems and in the principles of sound natural resources management.

#### *4.3.5.5 Additional Sources of Information*

Mississippi Coastal Program, MDMR
https://dmr.ms.gov/coastal-resources-management-2/

Ocean and Coastal Resource Management Program, NOAA/NMFS
https://coast.noaa.gov/

Grand Bay National Estuarine Research Reserve, National Estuarine Research Reserve System
https://grandbaynerr.org/

## 4.4 OUTDOOR RECREATION

This section addresses the development and implementation of programs and techniques for managing outdoor recreation. The outdoor recreation issues of this INRMP include conservation law enforcement.

### 4.4.1 Outdoor Recreation

The Navy supports outdoor recreation as outlined in OPNAV M-5090.1 and the Sikes Act. NCBC Gulfport will develop an outdoor recreation program coordinated with

appropriate government agencies. Responsibility for outdoor recreation is shared by Morale, Welfare, and Recreation (MWR) and the Natural Resource Program. The CNRSE MWR/NR agreement will be used to define responsibilities between MWR and the Natural Resources Program. The program is compatible with national defense and security requirements and is part of multiple use management. Natural resources personnel will make on-site management decisions concerning site rehabilitation, maintenance, and monitoring of use. Additional assistance is available from CNRSE, USFWS, DMR, and the MDWFP.

#### *4.4.1.1 Goals and Objectives*

- Conserve wetlands, floodplains, stream networks, soils, and habitat diversity.
- Maintain and enhance biological diversity.
- Integrate outdoor recreation and ecosystem management with military mission.
- Enforce fishing and hunting regulations.
- Take advantage of opportunities to develop programs for non-consumptive uses of natural resources (e.g., watchable wildlife areas).
- Coordinate natural resource activities with local community and conservation organizations.
- Manage fisheries consistent with accepted fishery management practices.

#### *4.4.1.2 Projects*

No projects are currently proposed to address outdoor recreation in the Stennis WMA.

#### *4.4.1.3 Climate Change*

Outdoor recreational activities can be highly sensitive to weather, and accordingly, changing climatic conditions can affect the type, extent, and seasonality of recreation usage. For example, with increasing temperatures, certain recreational activities may decline during the hottest months but increase in the cooler months. However, hotter temperatures may also eliminate some recreational opportunities. Climate-related increases in insect-borne diseases can also affect the extent of outdoor recreational usage. Increasingly severe storms and downpours can pose safety risks to hikers, anglers, and others.

#### *4.4.1.4 Management Strategies*

NCBC Gulfport will strive to provide recreational opportunities for employees and troops during training sessions. These opportunities will also be in concert with the goals and objectives of the Fish and Wildlife wetlands management plans. Potential hunting opportunities would likely be focused on feral hogs, white-tailed deer, and waterfowl. Hunting and fishing activities could be limited due to security concerns, training/mission requirements, and activity demands on the Stennis WMA. Fishing, swimming, picnicking, and wildlife observation opportunities are more probable, and areas/facilities at or near the former Lake Tawiki provide the most suitable area. The strategy of the recreation plan would be to provide the greatest amount of opportunities without adversely impacting training missions.

#### *4.4.1.5 Additional Sources of Information*

Mississippi Department of Wildlife, Fisheries and Parks
https://www.mdwfp.com/

Mississippi Department of Marine Resources
https://dmr.ms.gov/

Bureau of Land Management
Jackson Field Office
411 Briarwood Drive Suite 404
Jackson, MS 39206
(601) 977-5400
https://www.blm.gov/blog/2019-09-25/jackson-mississippi

### 4.4.2 Conservation Law Enforcement

Section 107 of the Sikes Act (16 U.S.C. 670e-2) requires sufficient numbers of professionally trained natural resources management personnel and natural resources law enforcement personnel to be available and assigned responsibility to perform tasks necessary to carry out Title I of the Sikes Act, including the preparation and implementation of INRMPs.

#### *4.4.2.1 Goals and Objectives*

- Develop a wildlife law enforcement program and ensure that personnel are qualified and trained to carry out all assigned duties and responsibilities.
- Enforce Federal, state, and installation laws and regulations pertaining to fish and wildlife.

- Build interagency relationships with DMR, MDWFP, and USFWS to support the Wildlife and Fisheries law enforcement program.
- Identify staffing needs to manage hunting, fishing, GIS and natural resource management programs

#### *4.4.2.2 Projects*

No projects are designated to address conservation and law enforcement, as this is a function of the Stennis WMA operations and maintenance program.

#### *4.4.2.3 Climate Change*

Enforcement of natural resources policy at the Stennis WMA is increasingly important as climate-related stressors to habitats and species become more evident.

#### *4.4.2.4 Management Strategies*

A number of laws and regulations apply to the natural resources management at Stennis WMA and military bases around the country. Table 4-4 lists the Federal laws and regulations applicable to Stennis WMA.

**Table 4-3. Laws, Regulations, Executive Orders, and Instructions Applying to Natural Resources Management at Navy Installations**

| NUMBER | TITLE | DESCRIPTION (where necessary) |
|---|---|---|
| Public Law (PL) 65-186 (16 USC 703) | MBTA, as amended | Prohibits taking or harming a migratory bird, its eggs, nest, or young without the appropriate permit. |
| PL 85-337 (10 USC 2671) | Military Reservation and Facilities - Hunting, Fishing, and Trapping | Provides that hunting, fishing, and trapping on military lands will be in accordance with state laws. |
| PL 86-624 & 96-366 (16 USC 661 *et. seq*.) | Fish and Wildlife Coordination Act, as amended | Provides for effective integration of the fish and wildlife conservation programs with Federal water resource development and construction projects having impact on water resources. |
| PL 86-797 (16 USC670a – 670f) | Sikes Act as amended by Public Law 99-561 | Requires that each military department manage natural resources, including all fish and wildlife species, in accordance with a tripartite cooperative plan agreed to by USFWS and state wildlife agency; to train personnel in fish and wildlife management, and prioritize contracting work with Federal/state agencies. |
| PL 88-29 16 USC2901 *et. seq*. | Outdoor Recreation Program/ Organic Act | Requires consultations with the National Park Service regarding management for outdoor recreation. |

**Table 4-3, continued**

| NUMBER | TITLE | DESCRIPTION (where necessary) |
|---|---|---|
| PL 89-669<br>(16 USC 2901 *et seq*.) | Fish and Wildlife Conservation Act | Provides for conservation, protection, restoration, and propagation of native species of fish and wildlife, including migratory birds threatened with extinction. |
| PL 90-542 | Wild and Scenic Rivers Act | Requires identification and protection of any river or stream that qualifies under the Act. |
| PL 90-543 | National Trails Systems Act of 1986 | Promotes development of recreational, scenic, historic trails for persons for diverse interest and abilities. |
| PL 91-190<br>42 USC 4321 *et seq*. | National Environmental Policy Act, as amended | Preserves important natural aspects of national heritage & enhances quality of renewable resources. |
| PL 92-500 | Federal Water Pollution Control Act (Clean Water Act) | Regulates dredging/filling of wetlands and regulates nonpoint sources into waterways |
| PL 92-205 | Endangered Species Act (ESA) | Provides for the identification and protection of threatened and endangered species and critical habitats |
| PL 93-639 | Non-game Species Act | Encourages management for non-game species |
| PL 93-639 | Federal Noxious Weed Act | Establishes control and eradication of noxious weeds and regulates them in interstate and foreign commerce |
| 10 USC 2665 | Military Construction Authorization Act - Sale of Certain Interest in Lands; Logs. | The sale of forest products is authorized to finance the cost of managing forest resources for commercial production. |
| 10 USC 2667 | Leases; Non-Excess Property | Provides for outleasing public lands for agricultural purposes and retention of cash receipts for administration of the program; improvement of existing leased areas; preparing new areas for outleasing. |
| 16 USC 590a | Soil Conservation Act | Provides for application of soil conservation practices on federal lands. |
| 16 USC 668 et seq. | Bald and Golden Eagle Protection Act | Prohibits the taking (harassment, sale, or transportation) of bald or golden eagles, alive or dead, whole or parts, nest and/or eggs. |
| 42 USC 1962d | Water Resources Planning Act of 1965, as amended | Provides for the optimum development of the Nation's natural resources through water resources planning. |
| PL 1972 | Federal Insecticide, Fungicide, & Rodenticide Act | Governs the use and application of pesticides in natural resource management programs |
| PL 56-510<br>42 USC 9601 | Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) | As amended by Superfund Amendments and Reauthorization Act (SARA) of 1986, CERCLA establishes programs for the cleanup of hazardous waste disposal and spill sites nationwide. Requires protection of human health and the environment. Work under this legislation is conducted under the Navy Installation Restoration Program |
| PL 101-380<br>33 USC 2701 | Oil Pollution Act of 1990 (OPA 90) | Redefines requirements of the National Contingency Plan (NCP) to include planning for rescue of, minimization of injury to, and assessment of damages/injury to fish and wildlife resources |

**Table 4-3, continued**

| NUMBER | TITLE | DESCRIPTION (where necessary) |
|---|---|---|
| PL 94-265<br>16 USC 1801 | Magnuson-Stevens Fishery Conservation and Management 31 Act of 1996 (MSFCMA) | Provides for the conservation and management of marine and anadromous fish species. |
| PL 94-580<br>42 USC 6901 | Resource Conservation and Recovery Act | Limits landfills, stimulus for recycling, regulates handling and disposal of solid wastes, regulates underground storage tanks. |
| PL 91-604<br>42 USC 7401 | Clean Air Act | Regulates emissions, delegates authority to regulate prescribed burning to the states |
| 5 USC 551 | Administrative Procedures Act | Allows public to sue to enforce other laws or for not following established procedures or other abuse of discretion. |
| 5 USC 552 | Freedom of Information Act | Must provide access to the public for most federal documents. |
| PL 101-<br>511 section 8120 | Defense Appropriations Act of 1991 Legacy Program | Establishes program for stewardship of biological, geophysical, cultural and historic resources on DoD lands. |
| 40 CFR 300.600<br>40 CFR 300.615 | Natural Oil and Hazardous Substances Pollution Contingency Plan, Designation of Federal Trustees, Responsibilities of Trustees | Requirements of the National Contingency Plan (NCP) to include planning for rescue of, minimization of injury to, and assessment of damages/injury to fish and wildlife resources. |
| 50 CFR 1-end | Wildlife and Fisheries | 50 CFR 402 Inter-agency Cooperation – ESA of 1973, 50 CFR 10.13, List of Migratory Birds |
| EOs 11514 and 11991 | Protection and Enhancement of Environmental Quality | Directs issuance of instructions and guidelines relative to preparation of EIS. |
| EO 11990 | Protection of Wetlands | Requires agencies to take action to minimize destruction, loss, or degradation of wetlands. |
| EO 11988 | Floodplain Management, as amended by EO 12608 | Directs Federal agencies to avoid developments within floodplains. |
| EOs 11989 and 12608 | Off-Road Vehicles on Public Lands | Provides for closing areas to off-road vehicle use where natural resources are adversely affected. |
| EO 13089 | Coral Reef Protection | Directs Federal agencies to identify effects of their actions on coral reefs, protects and enhances such ecosystems, and ensures their actions will not degrade existing conditions. |
| DODDIR 6050.2 | Use of Off-Road Vehicles on DOD Lands | Off-road vehicles prohibited without environmental assessment. |
| MOU – 7 April, 1978 | MOU - Outdoor Recreation on Military Installations | Memorandum of Understanding between DoI and DoD for the development of public outdoor recreation resources on military Installations. |
| OPNAV M-5090.1 | Environmental and Natural Resources Program Manual | Navy instruction governing land, forest, fish and wildlife, outdoor recreation, NEPA, and all other environmental concerns. |
| NAVFACINST 6250.3F | Performance and Reporting of Pest Control Operations in the Naval Shore Establishment | Navy instructions and regulations regarding pest control and pesticide use. |

**Table 4-3, continued**

| NUMBER | TITLE | DESCRIPTION (where necessary) |
|---|---|---|
| NAVFACINST 7110 | Fish and Wildlife and Game Conservation and Rehabilitation; Funds Management | Fish and Wildlife conservation funds management. |
| NAVFACINST 11010.70 | Facility Planning and the Protection of Cultural Resources | Part of a comprehensive planning approach for land use and the utilization of existing facilities to support mission needs, while protecting cultural resources on the installation. |
| NAVFACINST MO-110.1 | Natural Resources Land Management | All installations and facilities with appropriate land and water areas are to have active, progressive programs for the management and conservation of natural resources. |
| NAVFACINST MO-110.2 | Forest Management | A technical management plan must be established and maintained for all installations that have land areas suitable for forest resources management programs. Such plans should be developed by professional foresters within the Department of the Navy, or with the aid of Federal or State Forestry agencies or consulting foresters where additional assistance is needed. |
| NAVFACINST MO-110.3 | Fish and Wildlife Management | A management plan should provide for a continuing program of fish and wildlife habitat management, and the integration of the aspects of natural beauty and conservation of other natural resources. |
| NAVFACINST MO-100.4 | Guidance on Special Interest Areas | Provides guidance for outdoor recreation management and planning and Cultural Resources protection. |
| SECNAVINST 6240.6E | Environmental Protection and Natural Resources Management Program | Implementation of DOD directives under DOD Instruction 4700.4 |
| DODINST 4700.2 | The Secretary of Defense Natural Resources Conservation Award | The Navy annually recognizes those installations which have maintained and improved the natural beauty of the installation using progressive conservation programs. |
| DODINST 4715.3 | Environmental Conservation Program | Implements policy, assigns responsibilities, prescribes procedures for integrated management of natural and cultural resources. |
| DODINST 7310.5 | Accounting for Production and Sale of Forest Products | Prescribes policies and procedures for an integrated program for multiple-use management of natural resources on a DOD-controlled property. |
| DODDIR 4700.4 (also 32 CFR 190) | Natural Resources Management Program | Provides DoD policy on natural resources management. |
| NAVCOMPT Manual Volume 3 | Navy Comptroller Manual Volume 3 | Provides Navy guidance on tracking of timber sale receipts. |
| NAVFAC P-73 | Real estate operations and Natural Resources Procedural Manual | Provides comprehensive guide on all CNO natural resources program requirements and standards. |

#### *4.4.2.5 Additional Sources of Information*

The Federal Register is the official daily publication for rules, proposed rules, and notices of Federal agencies and organizations as well as EOs and other presidential documents:

Federal Register
https://www.federalregister.gov/

MBTA
https://www.fws.gov/laws/lawsdigest/migtrea.html

## 4.5 TRAINING

This section addresses the development and implementation of programs and techniques for training natural resources personnel. The training issues of this INRMP include training of GIS data integration, access, and reporting.

### 4.5.1 Training of Natural Resource Personnel

#### *4.5.1.1 Wildland Fire Personnel Training*

DoD has recently adopted the National Wildfire Coordination Group's (NWCG) Federal Wildland Fire Policy to govern all wildland fire activities carried out by DoD personnel. DoD is presently exploring the possibility of seeking membership in the NWCG. The NWCG is made up of all Federal agencies (except DoD) with wildland fire responsibilities and the National Association of State Foresters. The Federal Wildland Fire Policy requires that all personnel involved in prescribed fire and/or wildfire activities meet certain training and physical qualifications. DoD is presently reviewing how it will implement this requirement. Some military installations have already implemented this requirement with most of them making it mandatory for new hires and positions and voluntary for current employees. Stennis WMA's requirements for personnel qualifications will be reviewed and the Prescribed Fire Plan within the Forest Management Plan will contain complete information on personnel qualifications.

#### *4.5.1.2 Timber Marking*

All personnel engaged in timber marking at Stennis WMA, at a minimum, must meet the qualifications established by the Office of Personnel Management for Forestry

Technician GS 462-05. Additional training will be given as to local requirements and procedures. This training will be under actual field conditions in a productive capacity.

#### *4.5.1.3 Pesticide Applicator Training*

Pest Management is provided through implementation of the Integrated Pest Management Plan (IPMP). The IPMP provides a comprehensive, long-range document that captures all the pest management operations and pesticide-related activities conducted at NCBC Gulfport and the Stennis WMA. All Stennis WMA personnel who apply pesticides shall have received and maintained DoD (government staff) or Mississippi (contractors) certification as pesticide applicators for the categories of pest control engaged.

4.5.1.3.1 Federal Personnel

Federal personnel applying any pesticide on Federal land need DoD certification in accordance with OPNAVINST 6250.4B. Only Federal employees under hiring programs with duties as pesticide applicators can participate in the on-the-job (OTJ) training program. During this time, the new employee works under the direct supervision (see paragraph 2 below) of a certified pesticide applicator until they are qualified (1 year OTJ experience) and satisfactorily complete the DoD Pest Management Certification Course and can work independently.

4.5.1.3.2 Civilian Contractors

Civilian contractors applying any pesticide on Stennis WMA require a Mississippi certification in the category or applicable sub-categories of work performed. All of the contractor's pest management staff who apply pesticides must be certified as pesticide applicators. Non-certified contractor employees are prohibited from applying pesticides.

4.5.1.3.3 Inspectors

Individuals who evaluate the quality of work of pest control contracts (QAEs) should also be trained in the pest management category or categories of work being performed.

4.5.1.3.4 Supervisor

Direct supervision is defined in DoD Instruction 4150.7 as supervision that includes being at the specific location where pest management work is conducted, providing

instruction and control, and maintaining a line-of-sight view of the work performed. Certain circumstances may temporarily remove the line-of-sight view of the application of pesticide from the supervisor such as topographic, vegetation, or structural constraints. Under these temporary circumstances, the supervisor shall be responsible for the actions of the pesticide applicators.

4.5.1.3.5 Training and Certification

Training and certification will be conducted at government expense for DoD personnel. Certified pest control personnel shall be re-certified in accordance with Mississippi or DoD requirements as specified above. Employed pesticide applicators must be certified and the quality assurance evaluator must be trained in the following categories when appropriate. Certification and training is required when performing pest control operations that involve restricted-use or state-limited-use pesticides, to supervise other employees conducting pest control involving restricted-use or state-limited-use pesticides, or to evaluate contractor performance relating to pest control within these categories:

a. Forest pest control (DoD & EPA category 2; MS C).
b. Ornamental and turf pest control (DoD & EPA category 3; MS D).
c. Aquatic pest control (DoD & EPA category 5; MS B).
d. Right-of-way pest control (DoD & EPA category 6; MS C).
e. Industrial, Institutional, Structural, and Health-related pest control (DoD & EPA category 7; MS E).
f. Public health (DoD & EPA category 8; MS VIII).
g. Aerial Application (DoD & EPA category 11; MS IB) if planned to be used.

#### *4.5.1.4 Continuing Education and Training*

Personnel, who are involved in pesticide applications on a regular or seasonal basis, especially when mixing formulations is required, are encouraged to attend local pest management classes, workshops and seminars. This is important in order to keep abreast of pest problems and pest management techniques, which are unique to the area surrounding the installation. This is particularly true when dealing with vegetation control since many of the herbicide labels indicate that choices in strength and application technique should be based on local conditions. The time and labor expended in this type of training is easily recouped through improved efficiency in pest

management. Local pest management training may include on-site training in addition to any off-site re-certification training, such as the DoD course or state re-certification requirements. Other personnel who deal directly with pest control operations, but who may not need to be certified, are also encouraged to attend local seminars to better understand pest management needs.

### 4.5.2 Geographical Information Systems, Data Integration, Access, and Reporting

Mapping and spatial analysis are integral components of natural resources management that are fulfilled through the use of GIS data and software. Data provide documentation for the location and attributes of resources while software contains the tools necessary for the management, display, and analysis of these data. A major goal of any GIS is the development of rigorous organization and accuracy standards. These standards provide for a sound base dataset needed for rigorous analysis used in managing natural resources.

#### *4.5.2.1 Goals and Objectives*

- Develop a GIS database, which can be used to interactively and proactively manage the natural resources on the Stennis WMA.
- Prevent conflicts with long-term management goals and training missions.

#### *4.5.2.2 Projects*

No projects are developed to address GIS development since this is a function of the Stennis WMA Operations and Maintenance program.

#### *4.5.2.3 Climate Change*

Whether routinely performing work-related tasks or scientifically exploring the complexities of a property, GIS gives managers the geographic advantage to become more aware of, and responsive to, climate change. It can be used to merge many different pieces of past and future data from a variety of sources to create complex data sets that can be analyzed to better understand how climate has affected different aspects of the natural world and project changes in the coming decades and centuries.

#### *4.5.2.4 Management Strategies*

GIS databases and mapping capabilities will be used for daily decisions as well as long-term planning of natural resources management and its integration with the Navy Mission. This work is driven by laws such as the NEPA, ESA, and Clean Water Act. For NEPA compliance, all impacts on Federal land from a proposed project must be considered before the project can be implemented. These impacts may affect natural resources such as endangered species, water, and timber, so detailed maps are required to assess the impacts potential on resources. A list of data layers that the WMA Natural Resources Manager and CNRSE plans to develop and maintain is provided below.

- Rare, threatened and endangered species occurrences
- Streams and wetlands
- Archaeological sites
- Hunting and fishing areas
- Food plots
- Forest stand inventory data
- Fire breaks and prescribed burning areas
- Cemeteries
- Solid waste management areas
- Hazardous waste management
- Groundwater and soil remediation areas
- Stormwater pollution prevention
- Air pollution emission sources

Along with these data layers, the WMA Natural Resources Manager will also have access to ancillary data via NAVFACSE Georeadiness Center that can affect a project, such as infrastructure, installation boundaries, and geodetic reference points. Data for the Navy's training mission, such as training area boundaries, short range fire ranges, and training impact areas, are maintained by NCBC Gulfport.

All of the aforementioned types of GIS analysis require accurate, updated datasets and the ability to share current data and communicate data updates with users. The NAVFACSE Georeadiness Center will maintain a server where finalized data, intermediate working data, and all supporting files are stored.

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# 5.0 IMPLEMENTATION

Over the course of its implementation, the INRMP will:

- enable Stennis WMA to make progress towards achieving a sustainable natural resources base and a realistic training environment which is embodied in the diversity of the wetlands ecosystem;
- establish appropriate stewardship policies that serve to protect both natural and cultural resources;
- ensure compliance with environmental laws;
- provide a continuity of direction and effort that can accommodate changes in personnel and leadership;
- promote cost-effectiveness through better planning and coordination;
- promote good public relations by demonstrating the Installation's commitment to stewardship, as well as a multiple-use concept for the general public; and
- make use of innovative strategies to accomplish specific management objectives.

## 5.1 PLAN IMPLEMENTATION AND REVIEW

The annual INRMP reviews and metrics located at the U.S. Navy Environmental Portal website (https://eprweb.cnic.navy.mil/eprwebnet/logon.aspx) will be used to assess implementation. A general summary of major actions/projects during the next 5 years and programs they support are provided in Section 5.4. Projects will be developed during the budgetary process and coordinated with CNRSE natural resources personnel.

## 5.2 PLANNING AND MISSION SUSTAINABILITY

The goal at Stennis WMA is to maintain or enhance the capability of military lands to support the training mission while conserving natural resources. NCBC Gulfport has the primary role and responsibility for the implementation of the INRMP.

The implementation of projects, future revisions and updates of this INRMP will assist NCBC Gulfport in maintaining natural habitats, assessing the impacts of military training activities on flora and fauna populations, controlling erosion and sedimentation in stream channels, roads and unvegetated areas, implementing ecosystem management, managing the Installation’s forest areas and providing for recreational opportunities.

Frequent and close coordination between the WMA Natural Resources Manager and the Range Control office will be necessary. To implement this plan and ensure minimal impacts or conflicts with military training. The Range Control office will schedule and manage training land use and must be aware of proposed management actions within the training areas. All actions that involve contractors or workers must coordinate with Stennis WMA natural resources staff. These actions will include, but are not limited to, timber harvest, invasive species control, and plant or animal surveys. In addition, the natural resources staff must know when and where military training is occurring so work can be coordinated with those activities. Range Control provides a list of the range and training areas scheduled for use on a regular basis to assist with work planning.

## 5.3 PARTNERSHIPS

The magnitude and complexity of the management requirements necessitate outside assistance. This assistance can vary, but usually takes the form of a partnership, which may include funding, technical and logistical support, GIS or use of LDWF biologists, or an agreement between agencies to achieve common goals. Agencies with shared goals include:

- NRCS to provide expertise on soil erosion control and aggregate mine reclamation
- USACE to develop wetland restoration and mitigation credit banks
- USFWS to assist in identifying conservation measures for enhancement of threatened and endangered species and their habitat
- MDWFP to assist in developing and implementing hunting and fishing regulations, feral hog depredation, and fish pond stocking
- LDWF to assist in informing their visitors of the training missions that occur on the East Pearl River and the need to avoid those reaches of the river during training exercises.

## 5.4 FUNDING

Funding for implementation of the INRMP will come from the CNRSE or NAVFAC SE natural resources fund. The natural resources programs and projects described in this INRMP are divided into mandatory and stewardship categories to reflect implementation priorities. Every effort will be made to acquire O & M(N) Environmental or other funding to implement DoD mandatory projects, in the timeliest manner possible. Stewardship projects will be funded

through fish and wildlife licenses or other fund sources as funds and personnel become available.

Forestry funding is provided through NAVFAC SE from the sale of timber products. Funding for special projects in natural resources may be available from NAVFAC SE through surplus funding sources or forestry reserve accounts. Non-compliance funding may come from Legacy Act. Funding for compliance with environmental legislation and regulations is requested through the Navy Environmental Program Requirements Web (EPRWeb). Compliance projects falling under the EPRWeb include species surveys, assessments, management, protection, INRMPs, wetlands delineation and protection, conservation mapping, nonpoint source pollution, watershed management, cultural resource surveys, protection and plans, archaeological curation, conservation of soil and water or fish and wildlife, forest management and outdoor recreation (wildlife). All projects must be conducted in strict compliance with the Anti-Deficiency Act (13 USC 1341), which requires that all obligations or commitments made by the Federal government be funded at levels that do not exceed the Congressional appropriations.

Table 5-1 summarizes the projects and provides the estimated costs for project implementation by Fiscal Year (FY) for Stennis WMA. One of the objectives of the INRMP is to plan for no net loss of military mission. Partnerships, proper funding, and compliance with NEPA requirements will ensure that the Navy will achieve its military mission.

## 5.5 PROJECT DESCRIPTIONS

**Project No. 1:** **Biological Monitoring**
EPRWeb No. 62604WBMON

**Purpose:** Ensure that appropriate land management practices are established for species determined to be present on the property, especially rare and listed species including the ringed mapped turtle, Louisiana black bear, and gulf sturgeon.

**Location:** Stennis WMA.

**Description:** Surveys will assess the status, numbers, and distribution of species throughout the Stennis WMA. Most years, limited funding will be provided to fund surveys for one or two species of interest. Every three-to-five years, more-costly comprehensive surveys will be carried out. Stennis WMA supports training for SEALS and has substantial riparian areas. Aquatic surveys will be included and are anticipated to be more costly than terrestrial work.

**Baseline:** Baseline will be established during initial project surveys.

**Monitoring:** Annual monitoring with varying levels of effort.

**Legal Drivers:** Endangered Species Act (ESA) 16 U.S.C. 1531 et seq – The ESA directs federal agencies to identify, protect, manage, and promote the recovery of threatened & endangered species and their habitats.

**Related Legal:** Sikes Act Improvement Act (SAIA) 16 U.S.C. 670- Sikes Act 670a(a)(2) requires military installation management plans to conserve, protect and manage fish and wildlife resources. Fish and Wildlife Conservation Act (FWCA), 16 U.S.C. 2901 requires management for the conservation of protected species. 32 CFR 190, Appendix B, Section 3, b,c,m: requires threatened and endangered and other special species management to comply with ESA and Sikes Act.

**Accomplishments:** An inventory of rare, threatened, and endangered species was completed at Stennis WMA in 2010-11. Surveys included efforts to target rare birds, fish, and herpetofauna, and special effort was devoted to recording ringed map turtles[1].

A survey of ringed map turtles on the Pearl River and Mike's River was performed in 2012-13. A population demography was found

[1] Gulf South Research Corporation (GSRC). 2012. Inventory of rare, threatened, endangered, and invasive species, Naval Construction Battalion Center (NCBC) Gulfport, Stennis Western Maneuver Area, Stennis Space Center, Mississippi. Prepared for Department of the Navy. Prepared by GSRC, Baton Rouge, Louisiana.

that includes male, females, and juvenile, and ample evidence of nesting[2].

A survey for mussels and mussel habitat was performed in the Pearl River and Mike's River in 2016. The federally-listed inflated heelsplitter was not observed, but seventeen (17) species of mussels were recorded, including the state-listed round pearlshell (*Glebula rotundata*)[3].

A survey for rare, threatened, and endangered species was conducted in 2019-2021, including avian surveys, cover board arrays, visual encounter surveys, aquatic sampling, camera stations, and small mammal traps. The federally-threatened ringed map turtle and state-endangered swallow-tailed kite were observed[4].

[2] Buhlmann, K.A. 2014. Assessment of ringed map turtle (*Graptemys oculifera*) and Pearl map turtle (*Graptemys pearlensis*) abundance and habitat on the U.S. Navy's Stennis Western Maneuver Area (WMA) East Pearl and Mike's Rivers, Mississippi, with recommendations for habitat enhancement. Prepared for NAVFAC SE. Prepared by University of Georgia, Savannah River Ecology Laboratory, Aiken, South Carolina.

[3] Miller, J.M., D.N. Shelton, C.B. Ford, X. Niu, and P.M. Stewart. 2016. Survey and riparian habitat suitability assessment at the NCBC Gulfport's Stennis Western Maneuver Area (WMA) property for the inflated heelsplitter mussel. Prepared for Department of the Navy. Prepared by Troy University, Troy, Alabama.

[4] GSRC. 2021. Migratory bird species survey and rare, threatened, and endangered species inventory at Naval Construction Battalion Center Western Maneuver Area, Hancock County, Mississippi. Prepared for NAVFAC Southeast. Prepared by GSRC, Baton Rouge, Louisiana. 25 pp.

**Project No. 2:** **Land and Fire Management**
EPRWeb No. 62604WFIRE

**Purpose:** Prescribe burn to accomplish a healthy ecology on the property and to help reduce the severity of wildland fires.

**Location:** Stennis WMA.

**Description:** Prescribed burns shall be completed consistent with the mission and with sound ecological practices. Fire Management includes prescribed burning, wildland fire control, and the establishment of required fire breaks. The Stennis WMA shall prescribe-burn forest stands on a rotation or at the discretion of the Natural Resources Manager. On pine sites, burns shall be hot enough to kill invasive hardwoods.

**Baseline:** Baseline will be established as initial burns occur.

**Monitoring:** Annual monitoring with varying levels of effort.

**Legal Drivers:** The Sikes Act, 16 U.S.C. 670a-o, authorizes conservation programs on military reservations.

**Related Legal:** The Resources Planning Act (RPA) of 1974 requires a complete national assessment or inventory of all forest, rangeland resources, and public needs every ten years, along with a plan to meet those needs.

**Accomplishments:** A system of firelines has been established to prevent wildland fires. Prescribed burning to date has been minimal due to the young age of the managed timber stands and the mix of tree species. In 2022, a dormant season burn of 237 acres was accomplished, and the prescribed fire program will expand in the immediate future.

**Project No. 3:** **Invasive Plant Control**
EPRWeb No. 62604WINV1

**Purpose:** Control the extensive invasive and exotic plant species at the Stennis WMA to acceptable levels to promote native ecosystems.

**Location:** Stennis WMA.

**Description:** Invasive and exotic plant species identified at the Stennis WMA include Chinese tallow tree, cogon grass, Japanese climbing fern, mimosa, Chinese privet, and camphor tree. The Stennis WMA is a recently acquired property and has an abundance of invasive plant species. A combination of chemical and mechanical methods will be used to control and eradicate the invasive species. The project will also benefit wildlife. For example, the gopher tortoise is a federally-threatened species. Gopher tortoise habitat is threatened by invasive plant species due to increased canopy cover and the elimination of herbaceous forage.

**Baseline:** Present extent of invasive plant at Stennis WMA.

**Monitoring:** Monitoring will be incorporated into project tasks to ensure that control and eradication efforts are effective.

**Legal Drivers:** Executive Order 13112, Invasive Species, requires federal agencies to prevent the introduction of invasive species, detect and respond rapidly to and control populations of such species...; to monitor invasive species populations accurately and reliably; provide for restoration of native species...; conduct research on invasive species...; and promote public education on invasive species.

**Related Legal:** Plant Protection Act/Federal Noxious Weed Act; Soil Water Conservation Act; Endangered Species Act, Clean Water Act, Executive Order 11990; Sikes Act (Conservation Programs on Military Installations), DoD Inst 4715, and OPNAV Inst 5090.

**Accomplishments:** Since 2012, more than 5,600 acres have been treated for the control of Chinese tallow and Japanese climbing fern, among other species. Efforts are ongoing annually, most recently treating 120 acres in 2019[5], 150 acres in 2020[6], and 941 acres in 2021.

[5] LG2ES. 2020. Invasive Plant Treatment, Naval Construction Battalion Center Gulfport Stennis Western Maneuver Area (WMA). Prepared for NAVFAC Southeast. Prepared by LG2ES, Jacksonville, Florida. 11 pp.

[6] GSRC. 2021. Invasive Plant Control, Naval Construction Battalion Center Gulfport Stennis Western Maneuver Area, Hancock County, Mississippi. Prepared for NAVFAC Southeast. Prepared by GSRC, Baton Rouge, Louisiana. 9 pp.

**Project No. 4:** **Species Protection and Habitat Development**
EPRWeb No. 62604WSPHD

**Purpose:** Rehabilitate and maintain habitat that has been damaged by Hurricane Katrina and logging/mining operations prior to acquisition.

**Location:** Stennis WMA.

**Description:** There are several pre-existing habitat issues at Stennis WMA, including substantial hurricane damage, impacts from extensive logging and mining, widespread invasive plant cover. This project compliments the invasive plant control project by providing funds to plant and manage for native vegetation once the invasive plants have been removed. Removal of invasive species will be futile if native vegetation is not re-established. A list of species potentially occurring on the property is attached. This is a newly acquired property and we are only beginning to discover species that are present. Federally listed endangered species that have been identified to date include the ringed map turtle and gulf sturgeon. Gopher tortoises are also likely present on the property based on examination of recently discovered burrows.

**Baseline:** Present condition of habitats at Stennis WMA.

**Monitoring:** Monitoring will be incorporated into project tasks to ensure that improvements are effective.

**Legal Drivers:** Migratory Bird Treaty Act (MBTA) and other legislative mandates require conservation and protection of fish and wildlife resources and habitats including game and non-game species.

**Related Legal:** EO 13186 integrates bird conservation principles, measures, and practices into agency activities by avoiding or minimizing adverse impacts on migratory bird resources, restoring and enhancing the habitat of migratory birds, designing migratory bird habitat and population conservation principles, and promoting research and information exchange related to the conservation of migratory bird resources, including coordinated inventorying and monitoring. The Sikes Act requires protection, enhancement, restoration of wetlands and fish and wildlife habitat. OPNAV M-5090.1, Chapter 12, states that the Navy is to act responsibly in the public interest to restore, improve, conserve, and properly use natural resources on Navy-administered lands.

**Accomplishments:** Ongoing.

**Project No. 5:** **Timber Stand Improvement**
EPRWeb No. 62604WTSIF

**Purpose:** Use herbicides and mechanical treatment to control understory vegetation to improve site quality of timber stands on the Stennis WMA.

**Location:** Stennis WMA timber stands.

**Description:** This project will use herbicides, mechanical methods, and occasional burns to improve timber stands on the Stennis WMA. Herbicide applications are scheduled to release young pine stands from competing vegetation and to reduce fuel loads in stands where burning cannot be accomplished. The use of herbicides on forest stands is an infrequent activity and does not contribute significantly to pesticide use on the Stennis WMA. Forest fertilization is also used to improve timber production rates on average to poor quality sites. Combined with herbicide applications, prescribed burning, and thinning, fertilization will promote the more rapid development of the forest stand so that other ecosystem values can be realized.

**Baseline:** Present conditions of timber stands on Stennis WMA.

**Monitoring:** Monitoring will be incorporated into project tasks to ensure that control and eradication efforts are effective.

**Legal Drivers:** The Resources Planning Act (RPA) of 1974 requires a complete national assessment or inventory of all forest, rangeland resources, and public needs every ten years, along with a plan to meet those needs.

**Related Legal:** The Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. 136, requires that all pesticides, whether for commercial or private use, be applied in accordance with product labeling and that containers are properly disposed of. EPA is responsible under FIFRA for the registration of all pesticide active ingredients used in the United States.

**Accomplishments:** The timber stands at Stennis WMA are young, so efforts to this point have focused on the control of invasive plant species to foster healthy stands.

**Project No. 6:** **Nuisance Wildlife Management**
EPRWeb No. 62604WWILD

**Purpose:** Control and eliminate exotic animal species that can destroy habitat for indigenous plants and animals.

**Location:** Stennis WMA.

**Description:** Uncontrolled invasive animal species decrease ecosystem health and displace native plant and animal populations. Damage by feral hogs exacerbates existing invasive plant issues that are already affecting operations on the property. Additionally, erosion along river banks hampers SEAL boat landing training. The primary focus of this project is feral hog control to reduce habitat degradation and erosion.

**Baseline:** Present population sizes of nuisance wildlife and condition of habitats at Stennis WMA.

**Monitoring:** This project will entail estimates of feral hog populations, records of culls, and regular assessments of associated habitat damage.

**Legal Drivers:** EO 13112, Invasive Species, requires federal agencies to prevent the introduction of invasive species, detect and respond rapidly to and control populations of such species, to monitor invasive species populations accurately and reliably, provide for restoration of native species, conduct research on invasive species, and promote public education on invasive species.

**Related Legal:** The Sikes Act Improvement Act (SAIA) requires protection, enhancement, restoration of wetlands and fish and wildlife habitat. OPNAV M-5090.1, Chapter 12, state that the Navy is to act responsibly in the public interest to restore, improve, conserve, and properly use natural resources on Navy-administered lands.

**Accomplishments:** Ongoing.

**Project No. 7:** **Neotropical Migratory Bird Surveys**
EPRWeb No. 62604WBSUR

**Purpose:** Complete seasonal neotropical migratory bird surveys in three-year cycles.

**Location:** Stennis WMA.

**Description:** Upon acquisition of the Stennis WMA property, only anecdotal information was available regarding bird use. The Stennis WMA property has substantial water and it is expected that, due to its proximity to the Mississippi Flyway, waterfowl use is high. In order to asses mission impacts on migratory birds and waterfowl, continued information will need to be gathered during the peak migration seasons to census neotropical migratory birds. This project will include making results of the inventory into a GIS data layer, so it can be incorporated into the installation INRMP.

**Baseline:** Existing anecdotal information.

**Monitoring:** Monitoring is scheduled to occur on a seasonal basis every three years.

**Legal Drivers:** Migratory Bird Treaty Act (MBTA) mandates require conservation and protection of birds and nests. EO 13186 integrates bird conservation principles, measures, and practices into agency activities by avoiding or minimizing adverse impacts on migratory bird resources, restoring and enhancing the habitat of migratory birds, designing migratory bird habitat and population conservation principles, and promoting research and information exchange related to the conservation of migratory bird resources, including coordinated inventorying and monitoring. Sikes Act Improvement Act (SAIA), 16 USC 670 (a)-(o) states that the Navy shall carry out a program to provide for the conservation and rehabilitation of natural resources shall provide for fish & wildlife habitat enhancement or modifications.

**Accomplishments:** Seasonal neotropical migratory bird surveys were completed at Stennis WMA in 2014-15. A total of 88 species were observed across all seasons. Of these, eight species were new additions to the list of species for Stennis WMA[7].

[7] Gulf South Research Corporation (GSRC). 2015. Final report for neotropical migratory bird surveys, Stennis Western Maneuver Area, Hancock County, Mississippi. Prepared for NAVFAC SE. Prepared by GSRC, Baton Rouge, Louisiana.

**Project No. 8:** **INRMP Update and Review**
EPRWeb No. 62604NRCR2

**Purpose:** Update the INRMP annually and review it annually with regulatory partners.

**Location:** Stennis WMA.

**Description:** Ensure the INRMP is updated annually to reflect Installation and Region management direction, new petitions to list species under the ESA, new ESA rulings, current projects, new natural resources information, current regulatory concerns and policies, and mission requirements. INRMPs need regular revision to address species management to prevent impacts to the mission or delays to construction projects. Regular reviews and updates have become even more important due to the acceleration of petitions received by USFWS. The INRMP was last reviewed for operation and effect in 2012.

**Baseline:** Existing INRMP.

**Monitoring:** None.

**Legal Drivers:** The Sikes Act Improvement Act (SAIA) requires the DoD to develop INRMPs for installations with significant natural resources. Section 670a(a)(1)(B) of the SAIA states, "…the Secretary of each military department shall prepare and implement an integrated natural resources management plan for each military installation in the United States under the jurisdiction of the Secretary, unless the Secretary determines that the absence of significant natural resources on a particular installation makes preparation of such a plan inappropriate." The Navy considers annual coordination with the regulatory partners to be a component of INRMP implementation. Section 101(b)(2) of the SAIA states that each INRMP "must be reviewed as to operation and effect by the parties thereto on a regular basis, but not less often than every 5 years." Section 4(a)(3) of the ESA states that, "The Secretary (of the Interior) shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation." Chapter 12 of the OPNAV M-5090.1 instructs that, "Installation commanders will continuously monitor INRMPs, review

them annually, and revise them as necessary. They will renew INRMPs at least every 5 years."

**Accomplishments:** Annual reviews are performed every fall with partners from the USFWS, DMR, and MDWFP to ensure the INRMP remains a relevant and useful tool for species and habitat conservation, and maintaining military readiness, at Stennis WMA. It is updated regularly and as needed due to new species listings and project completion. The most recent 5-year update and review for operation and effect was accomplished in 2022.

**Project No. 9:** **Facility Space Rental at Stennis Space Center (NASA) for Natural Resources Management**

EPRWeb No. 62604CN001

**Purpose:** Annually house a full-time Natural Resources manager and their associated equipment.

**Location:** Stennis WMA.

**Description:** The Navy annually rents space from NASA for management activities and equipment at the Stennis WMA. The WMA is where all of NCBC Gulfport's natural resources are located, but is 40 miles west of NCBC Gulfport This project includes office space for the NRM and storage space for natural resources management supplies. It ensures the Navy's responsibilities under the Sikes Act to conserve and manage listed species that occur on the property.

**Baseline:** Prior precedent.

**Monitoring:** None.

**Legal Drivers:** The Sikes Act 16 U.S.C. 670- Sikes Act 670a(a)(2) requires military installation management plans to conserve, protect and manage fish and wildlife resources thorough the implementation of actions and projects prescribed in an INRMP.

The Endangered Species Act (ESA) 16 U.S.C. 1531 et seq directs federal agencies to identify, protect, manage, and promote the recovery of threatened and endangered species and their habitats.

DoD Inst 4715 states that DoD Components shall establish policy and procedures for the management of species at risk (SAR). Protecting these species is critical; therefore, funding for their protection should be considered a high priority in the installation Integrated Natural Resources Management Plan (INRMP).

**Accomplishments:** Office space is successfully rented annually.

**Table 5-1. Summary of Recommended Projects**

| Stennis WMA Projects | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project No.** | **Project Description** | **INRMP Goal** | **EPR Number** | **Prime Legal Driver** | **Navy Assessment Level [a]** | **Funding Priority [b]** | **FY 23** | **FY 24** | **FY 25** | **FY 26** | **FY 27** | **FY 28** | **FY 29** | **FY 30** | **FY 31** | **FY 32** |
| 1 | Biological Monitoring | Fish and Wildlife Management (Section 4.3) | 62604WBMON | ESA | 1 | M | X | | X | | X | | X | | X | |
| 2 | Land/Fire Management | Land and Forest Management (Sections 4.1 and 4.2) | 62604WFIRE | Management of Undesirable Plants on Federal Lands, Sikes Act Improvement Amendment, and EO 13112 | 1 | S | | | X | | | X | | | X | |
| 3 | Invasive Plant Control | Invasive Species Management (Section 4.1.5) | 62604WINV1 | Management of Undesirable Plants on Federal Lands and EO 13112 | 1 | S | X | X | X | X | X | X | X | X | X | X |
| 4 | Species Protection and Habitat Development | RTE Species (Section 4.3.2) | 62604WSPHD | ESA | 1 | M | X | X | X | X | X | X | X | X | X | X |
| 5 | Timber Stand Improvement | Forestry Management (Section 4.2.1) | 62604WTSIF | Management of Undesirable Plants on Federal Lands, Sikes Act Improvement Amendment, and EO 13112 | 1 | S | X | X | X | X | X | X | X | X | X | X |
| 6 | Nuisance Wildlife Management | Invasive Species Management (Section 4.1.5) and Fish and Wildlife Management (Section 4.3.1) | 62604WWILD | ESA and DOD INST 4715.3 Environmental Conservation Program | 1 | S | | | X | | | X | | | X | |
| 7 | Neotropical Migratory Bird Surveys[e] | Migratory Birds (Section 4.3.3) | 62604WBSUR | MBTA and EO 13186 Responsibilities of Federal Agencies to Protect Migratory Birds | 1 | M | | | | | X | | | | | |
| 8 | INRMP Update and Review | All | 62604NRCR2 | Sikes Act | 1 | M | | | | X | | | | | X | |
| 9 | Facility Space Rental for Natural Resources Management | All | 62604CN001 | Sikes Act | 1 | M | X | X | X | X | X | X | X | X | X | X |

**Notes:**
a From EPR "Guidebook" (Cookbook)
b From DOD Instruction 4715.3, Enclosure (4) M= Mandatory S= Stewardship
c Contract underway that includes surveys for protected terrestrial species, invasive plants, and general wildlife species
d Recommended Projects are dependent on natural resources management priorities and amounts are subject to available funding allocations
e Non-recurring project; Projects 1 through 6 are recurring projects

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# *APPENDIX A*
# *ABBREVIATIONS AND ACRONYMS*

| | |
|---|---|
| BASH | Bird/Animal Aircraft Strike Hazard |
| BHWG | Bird Hazard Working Group |
| BMP | Best Management Practice |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CNO | Chief of Naval Operations |
| CNRSE | Commander, Navy Region Southeast |
| CO | Commanding Officer |
| CWA | Clean Water Act |
| DDE | dichlorodiphenyldichloroethylene |
| DMR | Mississippi Department of Marine Resources |
| DoD | Department of Defense |
| DoDINST | Department of Defense Instruction |
| DZ | drop zone |
| EA | Environmental Assessment |
| EFH | Essential Fish Habitat |
| EIS | Environmental Impact Statement |
| EO | Executive Order |
| EOD | explosive ordnance specialist |
| ESA | Endangered Species Act |
| ESRI | Environmental Systems Research Institute |
| °F | Degrees Fahrenheit |
| FBI | Federal Bureau of Investigation |
| FY | Fiscal Year |
| GIS | Geographic Information System |
| GSMFC | Gulf States Marine Fisheries Commission |
| HMMWV | High Mobility Multipurpose Wheeled Vehicle |
| HUC | hydrologic unit code |
| INRMP | Integrated Natural Resource Management Plan |
| IR | Installation Restoration |
| JAG | Judge Advocate General |
| LDWF | Louisiana Department of Wildlife and Fisheries |
| LNHP | Louisiana Natural Heritage Program |
| LZ | landing zone |
| MATC | Mini Armor Troop Carriers |
| MBTA | Migratory Bird Treaty Act |
| MDEQ | Mississippi Department of Environmental Quality |
| MDWFP | Mississippi Department of Wildlife, Fisheries, and Parks |
| MILCON | Military Construction |
| MNHP | Mississippi Natural Heritage Program |
| MOU | Memorandum of Understanding |
| MOUT | Military Operations on Urban Terrain |
| MS4 | Municipal Stormwater Management Plan |
| MSAAP | Mississippi Army Ammunition Plant |
| MSFCMA | Magnuson-Stevens Fishery Conservation and Management Act |
| msl | mean sea level |
| MWR | Morale, Welfare and Recreation |
| NASA | National Aeronautics and Space Administration |
| Navy | U.S. Department of the Navy |
| NAVFAC | Naval Facilities Engineering Command |
| NAVSCIATTS | Naval Small Craft Instruction and Technical Training School |
| NCBC | Naval Construction Battalion Center |
| NCP | National Contingency Plan |

| | |
|---|---|
| NEPA | National Environmental Policy Act |
| NGO | non-governmental organizations |
| NMFS | National Marine Fisheries Service |
| NPDES | National Pollutant Discharge Elimination System |
| NPS | National Park Service |
| NRCS | Natural Resources Conservation Service |
| NRM | Natural Resources Manager |
| NSW | Naval Special Warfare |
| NVG | night-vision goggles |
| NWCG | National Wildfire Coordination Group |
| OGC | Office of General Counsel |
| OPA | Oil Pollution Act of 1990 |
| OPNAVINST | Chief of Naval Operations Instruction |
| OTJ | on-the-job |
| OUSD | Office of Under Secretary of Defense |
| PBL | Patrol Boats Light |
| PBR | Patrol Boats Riverine |
| PL | Public Law |
| PRWMA | Pearl River Wildlife Management Area |
| QAE | quality of work of pest control contract |
| R & D | Research and Development |
| RCW | red-cockaded woodpecker |
| RDP | Range Development Plan |
| RTE | rare, threatened, and endangered |
| RTLA | Range and Training Land Assessment |
| SAIA | Sikes Act Improvement Amendment |
| SARA | Superfund Amendments and Reauthorization Act |
| SBT-22 | Special Boat Team 22 |
| SDSFIE | Spatial Data Standards for Facilities, Infrastructure and Environment |
| SECNAV | Secretary of the Navy |
| SIT | Squadron Integration Training |
| SOCOM | Special Operations Command |
| SOC-R | Special Operations Craft Riverine |
| SOF | Naval Special Operations Forces |
| SRTA | Short Range Training Ammunition |
| SSC | John C. Stennis Space Center |
| SWCC | Special Warfare Combatant Crewmembers |
| SWPPP | Stormwater Pollution Prevention Plan |
| TC&B | Turner Collie & Braden Inc. |
| ULT | Unit Level Training |
| U.S. | United States |
| USACE | U.S. Army Corps of Engineers |
| U.S.C. | U.S. Code |
| USDA | U.S. Department of Agriculture |
| USFWS | U.S. Fish and Wildlife Service |
| USN | U.S. Navy |
| WMA | Western Maneuver Area |

*APPENDIX B*
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*APPENDIX C*
*DoD MIGRATORY BIRD MANAGEMENT GUIDELINES*
*(from: Department of Defense and Partners in Flight*
*http://www.dodpif.org/plans/stratplan.php)*

# DoD Management Strategy

## The DoD Partners in Flight Policy

**Promote and support our partnership role in the protection and conservation of birds and their habitats by protecting vital DoD lands and ecosystems, enhancing biodiversity, and maintaining healthy and productive natural systems consistent with the military mission.**

The strategy described in this document will enable DoD to better integrate programs for migratory and resident birds into existing natural resources and land management programs. New and innovative management techniques aimed at protecting priority bird species will be an integral part of the planning and decision-making processes. Implementation of this strategy will allow DoD natural resources managers to determine best management practices based on regional or physiographic delineations rather than on a species basis. This ecosystem management approach provides a framework to consider the biological diversity on military lands in the context of the surrounding landscape. This approach will improve long-term planning and efficiency and promote better integration of mission and resource requirements.

### Program-wide Goals and Objectives

The primary goals and objectives of the DoD Partners in Flight program are to:

- Apply information collected from this partnership program to support DoD mission requirements
- Take proactive management actions to prevent bird species from reaching threatened or endangered status
- Facilitate cooperative partnership efforts consistent with the military mission
- Determine the status of migratory and resident bird populations on DoD lands and the causes of population fluctuations
- Reduce bird aircraft strike hazard risks through implementation of mobile radar
- Maintain and restore priority habitats on DoD lands for migratory and resident bird populations
- Reduce or eliminate pesticide use in sensitive habitats, especially in and around wetlands and riparian areas
- Reduce the spread and impact to birds and their habitats of invasive and nuisance species on military lands, including feral and free-roaming cats

Black-bellied Whistling Duck
Photo by: Michael Stubblefield

# Technical Working Groups

## Monitoring

### Issues and Challenges

Avian monitoring projects on DoD lands typically occur on an as-needed basis. To facilitate sharing of data among our partners, we use existing protocols appropriate for the intended objective of the monitoring project. The Integrated Training Area Management program includes a protocol, Land Condition Trend Analysis (LCTA), which currently provides non-standardized avian monitoring data. DoD PIF will work with the Army to incorporate standard monitoring protocols into LCTA, making Army data compatible with the National Point Count Database and other sources. DoD PIF also supports the process of developing standardized regional and national monitoring strategies for various bird taxa and contributes DoD survey data to existing databases.

Photo by Chris Eberly

Proper management of natural resources cannot be accomplished without baseline knowledge of the habitats managed by DoD. We help identify DoD lands that lack baseline surveys of bird populations and document sites that satisfy criteria for identification as Important Bird Areas or potential core bird conservation areas. A key monitoring program used on DoD lands is Monitoring Avian Productivity and Survivorship (MAPS; see page 31), which provides specific habitat based management recommendations.

### DoD Priorities

- Identify installations lacking baseline avian surveys, and other monitoring needs
- Review and revise LCTA to include use of standard avian survey protocols
- Support MAPS program on DoD lands
- Contribute data to and utilize resources in the National Point Count Database
- Communicate and coordinate with adjoining landowner partners to coordinate monitoring efforts, where appropriate

Yellow-headed Blackbird
Photo by Mike Blair

# Technical Working Groups

## Research

### Issues and Challenges

Avian researchers frequently use military lands as research study sites because these lands provide high-quality habitats not found in otherwise fragmented and developed landscapes. DoD lands can provide needed study sites for several areas of research underway, including the study of the spread of diseases (such as West Nile Virus) by birds, determination of bird conservation area requirements, assessment of grassland bird breeding and wintering habitats, determination of optimal placement of MAPS stations and research to fill gaps in avian life history knowledge. This research will also benefit the military by helping us determine when and where species are at risk before they require state or federal protection.

The PIF Research and Monitoring Needs Database maximizes resource effectiveness and efficiency by linking research needs between partners. We contribute to the database, and access its data elements to assist in our own research needs and future projects. The DoD PIF Bird Conservation Database consolidates information on bird related projects and management on all DoD lands into a searchable web-based database.

### DoD Priorities

- Provide access, where conditions permit, to DoD lands to support PIF research priorities
- Update and maintain the DoD PIF Bird Conservation Database
- Contribute to the PIF Research and Monitoring Needs Database
- Identify DoD-wide research needs and issues and encourage research partnerships
- Identify DoD lands that can contribute to national PIF goals
- Maintain effective MAPS network

MAPS Station, Camp Pendleton, Deluz Creek, CA
Photo by Tim Burr

Researcher with Parabolic Dish
Photo by Norman Famous



MAPS worker with bird in hand
Photo courtesy FL Riley, KS

# Technical Working Groups

## Communications

### Issues and Challenges

PIF has made significant progress in communicating advances in bird conservation to its traditional partners. However, since bird conservation is ultimately habitat-based, there is an increasing need to reach out to non-traditional partners. Non-traditional partners include non-bird focused groups as well as federal-state, state-non-governmental organization (NGO), and private-public partnerships.

With the planning phase of PIF completed, the need to disseminate information about PIF bird conservation plans (BCPs), Important Bird Areas (IBAs) and Bird Conservation Areas (BCAs) to land managers is essential. Reaching the target audience may also involve publishing in agricultural, commodities, or other non-bird related media. Outreach efforts are underway to accomplish this objective.

### DoD Priorities

- Support International Migratory Bird Day and other PIF outreach efforts
- Ensure appropriate PIF BCP information is incorporated into installation INRMPs
- Provide support and assistance for PIF web site and outreach information for DENIX web site (http://www.denix.osd.mil)
- Contribute articles regarding DoD PIF activities to DoD publications, birding magazines, and PIF publications
- Enhance conservation objectives through partnerships that facilitate information exchange and coordinated management activities
- Continue to participate in state, regional and national PIF conferences

## Educational

### Issues and Challenges

Public and private land managers require technical information and educational tools to successfully incorporate bird habitat management into their management plans. These materials also serve to fill gaps in general bird conservation knowledge. By providing educational materials and hosting workshops in both the US and Latin America, we can improve bird habitat management, increase bird conservation knowledge and facilitate communication among educators.

### DoD Priorities

- Work with national PIF and other groups to develop materials for landownersand managers regarding grassland bird habitat and other management priorities
- Promote DoD accomplishments to the public and other agencies.
- Update DoD display and brochure as needed
- Give talks to bird clubs and school groups
- Identify and create needed educational materials


Interpretive Sign, Vandenberg AFB, CA
Photo by Chris Eberly

# Technical Working Groups

## Bird Aircraft Strike Hazard

### Issues and Challenges

A successful Bird Aircraft Strike Hazard (BASH) prevention program reduces loss of human life and damage to aircraft. Historical reporting of bird strikes and near strikes has rarely exceeded 20% of actual strikes. Increasing this response rate is key to maintaining a successful BASH program. To accomplish this objective, we must enhance communications between Air Operations and Natural Resources personnel. Recent research also indicates that maintaining grasses at a height for certain grassland obligate bird species reduces the attractiveness of the habitat for traditional "problem" species like hawks, gulls and geese. By working together, we can achieve mutually beneficial results that will aid priority bird species while reducing the BASH risk for flight crews. Improving communication and education among all stakeholders is a top priority of this working group.

### DoD Priorities

- Implement use of radar, particularly mobile units, as a BASH tool
- Improve communication with Air Operations personnel
- Integrate BASH plans into INRMPs
- Publicize the importance of reporting all bird strike and near strike data
- Help provide all available current and future hazard detection technology for pre-flight planning
- Work with the Air Force BASH Team to update BASH guidelines to reflect advances in knowledge of grasslands, seasonal bird movements, and "problem" species

## International

### Issues and Challenges

The reversion of lands to the Panamanian government in 1999, under terms of the Panama Canal Treaty, greatly reduced the amount of land under DoD management in Latin America. Most DoD lands are now located on the islands of Cuba and Puerto Rico. Ongoing studies on both islands seek to gain better knowledge of wintering habitat requirements of neotropical migrants.

Winter habitat associations of many neotropical migrants still are poorly understood. Following the example of Fort Hood (TX), DoD installations need to create partnerships with Latin American biologists and conservation organizations to work cooperatively on life history requirements of migrant species breeding on military lands. A biologist exchange program at Fort Hood has helped biologists studying the Golden-cheeked Warbler on its wintering grounds gain more complete knowledge of management issues on the breeding grounds. These biologists, in turn, are teaching US biologists about wintering ground issues.

### DoD Priorities

- Measure density and winter survival rates of migrants on the wintering grounds at DoD installations in Puerto Rico and Cuba
- Document wintering locations of priority neotropical migrants breeding on DoD lands, and establish partnerships with local groups in wintering areas
- Promote shade grown coffee use on military installations

*APPENDIX D*
*COPIES OF PERTINENT MEMOS AND GUIDELINES*

## *D.1 MBTA Exemption for DoD*

§ 21.12 General exceptions to permit requirements.

The following persons or entities under the following conditions are exempt from the permit requirements:

(a) Employees of the Department of the Interior (DOI): DOI employees authorized to enforce the provisions of the Migratory Bird Treaty Act of July 3, 1918, as amended (40 Stat. 755; 16 U.S.C. 703–(711), may, without a permit, take or otherwise acquire, hold in custody, transport, and dispose of migratory birds or their parts, nests, or eggs as necessary in performing their official duties.

(b) Employees of certain public and private institutions:

(b)(1) State game departments, municipal game farms or parks, and public museums, public zoological parks, accredited institutional members of the American Association of Zoological Parks and Aquariums (AAZPA) and public scientific or educational institutions may acquire by gift or purchase, possess, transport, and by gift or sale dispose of lawfully acquired migratory birds or their progeny, parts, nests, or eggs without a permit: Provided, That such birds may be acquired only from persons authorized by this paragraph or by a permit issued pursuant to this part to possess and dispose of such birds, or from Federal or State game authorities by the gift of seized, condemned, r sick or injured birds. Any such birds, acquired without a permit, and any progeny therefrom may be disposed of only to persons authorized by this paragraph to acquire such birds without a permit. Any person exercising a privilege granted by this paragraph must keep accurate records of such operations showing the species and number of birds acquired, possessed, and disposed of; the names and addresses of the persons from whom such birds were acquired or to whom such birds were donated or sold; and the dates of such transactions. Records shall be maintained or reproducible in English on a calendar year basis and shall be retained for a period of five (5) years following the end of the calendar year covered by the records.

(b)(2) Employees of Federal, State, and local wildlife and land management agencies; employees of Federal, State, and local public health agencies; and laboratories under contract to such agencies may in the course of official business collect, possess, transport, and dispose of sick or dead migratory birds or their parts for analysis to confirm the presence of infectious disease. Nothing in this paragraph authorizes the take of uninjured or healthy birds without prior authorization from the Service. Additionally, nothing in this paragraph authorizes the taking, collection, or possession of migratory birds when circumstances indicate reasonable probability that death, injury, or disability was caused by factors other than infectious disease and/or natural toxins. These factors may include, but are not limited to, oil or chemical contamination, electrocution, shooting, or pesticides. If the cause of death of a bird is determined to be other than natural causes or disease, Service law enforcement officials must be contacted without delay.

(c) Licensed veterinarians: Licensed veterinarians are not required to obtain a Federal migratory bird permit to temporarily possess, stabilize, or euthanize sick and injured migratory birds. However, a

veterinarian without a migratory bird rehabilitation permit must transfer any such bird to a federally permitted migratory bird rehabilitator within 24 hours after the bird's condition is stabilized, unless the bird is euthanized. If a veterinarian is unable to locate a permitted rehabilitator within that time, the veterinarian must contact his or her Regional Migratory Bird Permit Office for assistance in locating a permitted migratory bird rehabilitator and/or to obtain authorization to continue to hold the bird. In addition, veterinarians must:

(1) Notify the local U.S. Fish and Wildlife Service Ecological Services Office immediately upon receiving a threatened or endangered migratory bird species. Contact information for Ecological Services offices can be located on the Internet at http://offices.fws.gov ;

(2) Euthanize migratory birds as required by §21.31(e)(4)(iii) and §21.31(e)(4)(iv), and dispose of dead migratory birds in accordance with §21.31(e)(4)(vi); and

(3) Keep records for 5 years of all migratory birds that die while in their care, including those they euthanize. The records must include: the species of bird, the type of injury, the date of acquisition, the date of death, and whether the bird was euthanized.

(d) General public: Any person may remove a migratory bird from the interior of a building or structure under certain conditions.

(1) You may humanely remove a trapped migratory bird from the interior of a residence or a commercial or government building without a Federal permit if the migratory bird:

(i) Poses a health threat (for example, through damage to foodstuffs);

(ii) Is attacking humans, or poses a threat to human safety because of its activities (such as opening and closing automatic doors);

(iii) Poses a threat to commercial interests, such as through damage to products for sale; or

(iv) May injure itself because it is trapped.

(2) You must use a humane method to capture the bird or birds. You may not use adhesive traps to which birds may adhere (such as glue traps) or any other method of capture likely to harm the bird.

(3) Unless you have a permit that allows you to conduct abatement activities with a raptor, you may not release a raptor into a building to either frighten or capture another bird.

(4) You must immediately release a captured bird to the wild in habitat suitable for the species, unless it is exhausted, ill, injured, or orphaned.

(5) If a bird is exhausted or ill, or is injured or orphaned during the removal, the property owner is responsible for immediately transferring it to a federally permitted migratory bird rehabilitator.

(6) You may not lethally take a migratory bird for these purposes. If your actions to remove the trapped migratory bird are likely to result in its lethal take, you must possess a Federal Migratory Bird Permit. However, if a bird you are trying to remove dies, you must dispose of the carcass immediately unless you have reason to believe that a museum or scientific institution might be able to use it. In that case, you should contact your nearest Fish and Wildlife Service office or your State wildlife agency about donating the carcass.

(7) For birds of species on the Federal List of Threatened or Endangered Wildlife, provided at 50 CFR 17.11(h), you may need a Federal threatened or endangered species permit before removing the birds (see 50 CFR 17.21 and 50 CFR 17.31).

(8) You must have a permit from your Regional migratory bird permits office to remove a bald eagle or a golden eagle from a building (see 50 CFR Part 22).

(9) Your action must comply with State and local regulations and ordinances. You may need a State, Tribal, or Territorial permit before you can legally remove the bird or birds.

(10) If an active nest with eggs or nestlings is present, you must seek the assistance of a federally permitted migratory bird rehabilitator in removing the eggs or nestlings. The rehabilitator is then responsible for handling them properly.

(11) If you need advice on dealing with a trapped bird, you should contact your closest Fish and Wildlife Service office or your State wildlife agency.

[39 FR 1178, Jan. 4, 1974, as amended at 50 FR 8638, Mar. 4, 1985; 54 FR 38151, Sept. 14, 1989; 68 FR 61137, Oct. 27, 2003; 72 FR 56928, Oct. 5, 2007]

§ 21.13 Permit exceptions for captive-reared mallard ducks.

Captive-reared and properly marked mallard ducks, alive or dead, or their eggs may be acquired, possessed, sold, traded, donated, transported, and disposed of by any person without a permit, subject to the following conditions, restrictions, and requirements:

(a) Nothing in this section shall be construed to permit the taking of live mallard ducks or their eggs from the wild.

(b) All mallard ducks possessed in captivity, without a permit, shall have been physically marked by at least one of the following methods prior to 6 weeks of age and all such ducks hatched, reared, and retained in captivity thereafter shall be so marked prior to reaching 6 weeks of age.

(1) Removal of the hind toe from the right foot.

(2) Pinioning of a wing: Provided, That this method shall be the removal of the metacarpal bones of one wing or a portion of the metacarpal bones which renders the bird permanently incapable of flight.

(3) Banding of one metatarsus with a seamless metal band.

(4) Tattooing of a readily discernible number or letter or combination thereof on the web of one foot.

(c) When so marked, such live birds may be disposed of to, or acquired from, any person and possessed and transferred in any number at any time or place: Provided, That all such birds shall be physically marked prior to sale or disposal regardless of whether or not they have attained 6 weeks of age.

(d) When so marked, such live birds may be killed, in any number, at any time or place, by any means except shooting. Such birds may be killed by shooting only in accordance with all applicable hunting regulations governing the taking of mallard ducks from the wild: Provided, That such birds may be killed by shooting, in any number, at any time, within the confines of any premises operated as a shooting preserve under State license, permit, or authorization; or they may be shot, in any number, at any time or place, by any person for bona fide dog training or field trial purposes: Provided further, That the provisions:

(1) The hunting regulations (part 20 of this subchapter), with the exception of §20.108 (Nontoxic shot zones), and

(2) The Migratory Bird Hunting Stamp Act (duck stamp requirement) shall not apply to shooting preserve operations as provided for in this paragraph, or to bona fide dog training or field trial operations.

(e) At all times during possession, transportation, and storage until the raw carcasses of such birds are finally processed immediately prior to cooking, smoking, or canning, the marked foot or wing must remain attached to each carcass: Provided, That persons, who operate game farms or shooting

preserves under a State license, permit, or authorization for such activities, may remove the marked foot or wing when either the number of his State license, permit, or authorization has first been legibly stamped in ink on the back of each carcass and on the container in which each carcass is maintained, or each carcass is identified by a State band on leg or wing pursuant to requirements of his State license, permit, or authorization. When properly marked, such carcasses may be disposed of to, or acquired from, any person and possessed and transported in any number at any time or place.

[40 FR 28459, July 7, 1975, as amended at 46 FR 42680, Aug. 24, 1981; 54 FR 36798, Sept. 5, 1989]

§ 21.14 Permit exceptions for captive-bred migratory waterfowl other than mallard ducks.

You may acquire captive-bred and properly marked migratory waterfowl of all species other than mallard ducks ( Anas platyrhynchos ), alive or dead, or their eggs, and possess and transport such birds or eggs and any progeny or eggs for your use without a permit, subject to the following conditions and restrictions. Additional restrictions on the acquisition and transfer of muscovy ducks ( Cairina moschata ) are in paragraph (g) of this section.

(a) You may acquire live waterfowl or their eggs only from a holder of a valid waterfowl sale and disposal permit in the United States. You also may lawfully acquire them outside of the United States with appropriate permits ( see §21.21 of subpart C of this part).

(b) All progeny of captive-bred birds or eggs from captive-bred birds must be physically marked as set forth in §21.13(b).

(c) You may not transfer or dispose of captive-bred birds or their eggs, whether alive or dead, to any other person unless you have a waterfowl sale and disposal permit ( see §21.25 of subpart C of this part).

(d) Lawfully possessed and properly marked birds may be killed, in any number, at any time or place, by any means except shooting. Such birds may be killed by shooting only in accordance with all applicable hunting regulations governing the taking of like species from the wild ( see part 20 of this subchapter).

(e) At all times during possession, transportation, and storage until the raw carcasses of such birds are finally processed immediately prior to cooking, smoking, or canning, you must leave the marked foot or wing attached to each carcass, unless the carcass was marked as provided in §21.25(b)(6) and the foot or wing was removed prior to your acquisition of the carcass.

(f) If you acquire captive-bred waterfowl or their eggs from a waterfowl sale and disposal permittee, you must retain the FWS Form 3–186, Notice of Waterfowl Sale or Transfer, from the permittee for as long as you have the birds, eggs, or progeny of them.

(g) You may not acquire or possess live muscovy ducks, their carcasses or parts, or their eggs, except to raise them to be sold as food, and except that you may possess any live muscovy duck that you lawfully acquired prior to March 31, 2010. If you possess muscovy ducks on that date, you may not propagate them or sell or transfer them to anyone for any purpose, except to be used as food. You may not release them to the wild, sell them to be hunted or released to the wild, or transfer them to anyone to be hunted or released to the wild.

(h) Dealers in meat and game, hotels, restaurants, and boarding houses may serve or sell to their customers the carcass of any bird acquired from a holder of a valid waterfowl sale and disposal permit.

[75 FR 9320, Mar. 1, 2010]

§ 21.15 Authorization of take incidental to military readiness

activities. top

(a) Take authorization and monitoring. (1) Except to the extent authorization is withdrawn or suspended pursuant to paragraph (b) of this section, the Armed Forces may take migratory birds incidental to military readiness activities provided that, for those ongoing or proposed activities that the Armed Forces determine may result in a significant adverse effect on a population of a migratory bird species, the Armed Forces must confer and cooperate with the Service to develop and implement appropriate conservation measures to minimize or mitigate such significant adverse effects.

(2) When conservation measures implemented under paragraph (a)(1) of this section require monitoring, the Armed Forces must retain records of any monitoring data for five years from the date the Armed Forces commence their action. During Integrated Natural Resource Management Plan reviews, the Armed Forces will also report to the Service migratory bird conservation measures implemented and the effectiveness of the conservation measures in avoiding, minimizing, or mitigating take of migratory birds.

(b) Suspension or Withdrawal of take authorization. (1) If the Secretary determines, after seeking the views of the Secretary of Defense and consulting with the Secretary of State, that incidental take of migratory birds during a specific military readiness activity likely would not be compatible

with one or more of the migratory bird treaties, the Secretary will suspend authorization of the take associated with that activity.

(2) The Secretary may propose to withdraw, and may withdraw in accordance with the procedures provided in paragraph (b)(4) of this section the authorization for any take incidental to a specific military readiness activity if the Secretary determines that a proposed military readiness activity is likely to result in a significant adverse effect on the population of a migratory bird species and one or more of the following circumstances exists:

(i) The Armed Forces have not implemented conservation measures that:

(A) Are directly related to protecting the migratory bird species affected by the proposed military readiness activity;

(B) Would significantly reduce take of the migratory bird species affected by the military readiness activity;

(C) Are economically feasible; and

(D) Do not limit the effectiveness of the military readiness activity;

(ii) The Armed Forces fail to conduct mutually agreed upon monitoring to determine the effects of a military readiness activity on migratory bird species and/or the efficacy of the conservation measures implemented by the Armed Forces; or

(iii) The Armed Forces have not provided reasonably available information that the Secretary has determined is necessary to evaluate whether withdrawal of take authorization for the specific military readiness activity is appropriate.

(3) When the Secretary proposes to withdraw authorization with respect to a specific military readiness activity, the Secretary will first provide written notice to the Secretary of Defense. Any such notice will include the basis for the Secretary's determination that withdrawal is warranted in accordance with the criteria contained in paragraph (b)(2) of this section, and will identify any conservation measures or other measures that would, if implemented by the Armed Forces, permit the Secretary to cancel the proposed withdrawal of authorization.

(4) Within 15 days of receipt of the notice specified in paragraph (b)(3) of this section, the Secretary of Defense may notify the Secretary in writing of the Armed Forces' objections, if any, to the

proposed withdrawal, specifying the reasons therefore. The Secretary will give due consideration to any objections raised by the Armed Forces. If the Secretary continues to believe that withdrawal is appropriate, he or she will provide written notice to the Secretary of Defense of the rationale for withdrawal and response to any objections to the withdrawal. If objections to the withdrawal remain, the withdrawal will not become effective until the Secretary of Defense has had the opportunity to meet with the Secretary within 30 days of the original notice from the Secretary proposing withdrawal. A final determination regarding whether authorization will be withdrawn will occur within 45 days of the original notice.

(5) Any authorized take incidental to a military readiness activity subject to a proposed withdrawal of authorization will continue to be authorized by this regulation until the Secretary makes a final determination on the withdrawal.

(6) The Secretary may, at his or her discretion, cancel a suspension or withdrawal of authorization at any time. A suspension may be cancelled in the event new information is provided that the proposed activity would be compatible with the migratory bird treaties. A proposed withdrawal may be cancelled if the Armed Forces modify the proposed activity to alleviate significant adverse effects on the population of a migratory bird species or the circumstances in paragraphs (b)(2)(i) through (iii) of this section no longer exist. Cancellation of suspension or withdrawal of authorization becomes effective upon delivery of written notice from the Secretary to the Department of Defense.

(7) The responsibilities of the Secretary under paragraph (b) of this section may be fulfilled by his/her delegatee who must be an official nominated by the President and confirmed by the Senate.

[72 FR 8949, Feb. 28, 2007]

## *D.2 Federal Register Notice of MOU between DoD and USFWS*

received without change, including any personal identifiers or contact information.

*DOD Clearance Officer:* Ms. Patricia Toppings.

Written requests for copies of the information collection proposal should be sent to Ms. Toppings at WHS/ESD/Information Management Division, 1777 North Kent Street, RPN, Suite 11000, Arlington, VA 22209–2133.

Dated: August 24, 2006.

**Patricia L. Toppings,**

*Alternate OSD Federal Register Liaison Officer, Department of Defense.*

[FR Doc. 06–7241 Filed 8–29–06; 8:45 am]

BILLING CODE 5001–06–M

## DEPARTMENT OF DEFENSE

### Office of the Secretary

**[No. DOD–2006–OS–0080]**

### Submission for OMB Review; Comment Request

**ACTION:** Notice. The Department of Defense has submitted to OMB for clearance, the following proposal for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

**DATES:** Consideration will be given to all comments received by September 29, 2006.

*Title, Associated Form and OMB Number:* Application for Department of Defense Impact Aid for Children with Severe Disabilities; SD Form 816 and SD Form 816C, OMB Control Number 0704–0425.

*Type of Request:* Extension.

*Number of Respondents:* 50.

*Responses per Respondent:* 1.

*Annual Responses:* 50.

*Average Burden per Response:* 8 hours.

*Annual Burden Hours:* 400.

*Needs and Uses:* Department of Defense funds are authorized for local educational agencies (LEA)s that educate military dependent students with severe disabilities and meet certain criteria. Eligible LEAs are determined by their responses to the U.S. Department of Education (ED) from information they submitted on children with disabilities, when they completed the Impact Program form for the Department of Education. This application will be requested of LEAs who educate military dependent students with disabilities, who have been deemed eligible for the U.S. Department of Education Impact Aid program, to determine if they meet the criteria to receive additional funds from the Department of Defense due to high special education costs of the military dependents with severe disabilities that they serve.

*Affected Public:* State, local or tribal government.

*Frequency:* On occasion.

*Respondent's Obligation:* Required to obtain or retain benefits.

*OMB Desk Officer:* Ms. Hillary Jaffe.

Written comments and recommendations on the proposed information collection should be sent to Ms. Jaffe at the Office of Management and Budget, Desk Officer for DoD, Room 10236, New Executive Office Building, Washington, DC 20503.

You may also submit comments, identified by docket number and title, by the following method:

- Federal eRulemaking Portal: *http://www.regulations.gov.* Follow the instructions for submitting comments.

*Instructions:* All submissions received must include the agency name, docket number and title for this **Federal Register** document. The general policy for comments and other submissions from members of the public is to make these submissions available for public viewing on the Internet at *http://www.regulations.gov* as they are received without change, including any personal identifers or contact information.

*DOD Clearance Officer:* Ms. Patricia Toppings. Written requests for copies of the information collection proposal should be sent to Ms. Toppings at WHS/ESD/Information Management Division, 1777 North Kent Street, RPN, Suite 11000, Arlington, VA 22209–2133.

Dated: August 24, 2006.

**Patricia L. Toppings,**

*Alternate OSD Federal Register Liaison Officer, Department of Defense.*

[FR Doc. 06–7242 Filed 8–29–06; 8:45 am]

BILLING CODE 5001–06–M

## DEPARTMENT OF DEFENSE

### Office of the Secretary

### Memorandum of Understanding Between the U.S. Department of Defense and the U.S. Fish and Wildlife Service To Promote the Conservation of Migratory Birds

**AGENCY:** Department of Defense.

**ACTION:** Notice.

**SUMMARY:** This notice announces a public notice of the signing of a Memorandum of Understanding (MOU) between the U.S. Department of Defense and the U.S. Fish and Wildlife Service to Promote the Conservation of Migratory Birds. Pursuant to Executive Order 13186 (January 17, 2001), ''Responsibilities of Federal Agencies to Protect Migratory Birds,'' this MOU outlines a collaborative approach to promote the conservation of migratory bird populations. This MOU identifies specific activities where cooperation between the Parties will contribute substantially to the conservation of migratory birds and their habitats. It does not authorize the ''take'' of migratory birds. Take, as defined in 50 CFR 10.12, includes the pursuit, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to pursue, hunt, shoot, wound, kill, trap, capture, or collect.

The complete text of the MOU is attached.

**EFFECTIVE DATES:** This notice is effective August 30, 2006. The MOU is effective July 31, 2006 and shall remain effective for a period of five years.

**FOR FURTHER INFORMATION CONTACT:** Peter Boice, 703–704–0524.

**SUPPLEMENTARY INFORMATION:** The notice is required by Section 3(g) of Executive Order 13186 which states ''Each agency shall advise the public of the availability of its MOU through a notice published in the **Federal Register**.''

Dated: August 24, 2006.

**L.M. Bynum,**

*OSD Federal Register Liaison Officer, DoD.*

### Memorandum of Understanding Between the U.S. Department of Defense and the U.S. Fish and Wildlife Service To Promote the Conservation of Migratory Birds

This Memorandum of Understanding (MOU) is entered into between the U.S. Department of Defense (DoD) and the U.S. Fish and Wildlife Service (FWS) (hereinafter ''the Parties'').

*A. Purpose and Scope*

Pursuant to Executive Order 13186 (January 17, 2001), Responsibilities of Federal Agencies to Protect Migratory Birds, this MOU outlines a collaborative approach to promote the conservation of migratory bird populations.

This MOU does not address incidental take during military readiness activities, which is being addressed in a rulemaking in accordance with section 315 of the National Defense Authorization Act for Fiscal Year 2003 (Pub. L. 107–314, 116 Stat. 2458).

This MOU specifically pertains to the following categories of DoD activities:

(1) Natural resource management activities, including, but not limited to, habitat management, erosion control, forestry activities, agricultural

outleasing, conservation law enforcement, invasive weed management, and prescribed burning;

(2) Installation support functions, including but not limited to, the maintenance, construction or operation of administrative offices, military exchanges, road construction, commissaries, water treatment facilities, storage facilities, schools, housing, motor pools, non-tactical equipment, laundries, morale, welfare, and recreation activities, shops, landscaping, and mess halls;

(3) Operation of industrial activities;

(4) Construction or demolition of facilities relating to these routine operations; and

(5) Hazardous waste cleanup.

This MOU identifies specific activities where cooperation between the Parties will contribute substantially to the conservation of migratory birds and their habitats. This MOU does not authorize the take of migratory birds.

*B. Authorities*

The Parties' responsibilities under the MOU are authorized by provisions of the following laws:

Alaska National Interest Lands Conservation Act of 1980 (16 U.S.C. 410hh–3233).

Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668–668d).

Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*).

Fish and Wildlife Act of 1956 (16 U.S.C. 742 *et seq.*).

Fish and Wildlife Conservation Act of 1980 (16 U.S.C. 2901–2911).

Fish and Wildlife Coordination Act (16 U.S.C. 661–667).

Migratory Bird Conservation Act (16 U.S.C. 715–715d, 715e, 715f–715r).

Migratory Bird Treaty Act (16 U.S.C. 703–711).

National Environmental Policy Act of 1969 (42 U.S.C. 4321–4347).

Sikes Act Improvement Act of 1997 (16 U.S.C. 670a–670o).

Agreements to limit encroachments and other constraints on military training, testing, and operations (10 U.S.C. 2684a)

*C. Background*

The Parties have a common interest in the conservation and management of America's natural resources. The Parties agree that migratory birds are important components of biological diversity and that the conservation of migratory birds will both help sustain ecological systems and help meet the public demand for conservation education and outdoor recreation, such as wildlife viewing and hunting opportunities. The Parties also agree that it is important to: (1) Focus on bird populations; (2) focus on habitat restoration and enhancement where actions can benefit specific ecosystems and migratory birds dependent upon them; and (3) recognize that actions taken to benefit some migratory bird populations may adversely affect other migratory bird populations.

The DoD mission is to provide for the Nation's defense. DoD's conservation program works to ensure continued access to land, air, and water resources for realistic military training and testing while ensuring that the natural and cultural resources entrusted to DoD's care are sustained in a healthy condition.

The DoD is an active participant in international bird conservation partnerships including Partners in Flight (PIF) and the North American Bird Conservation Initiative (NABCI). Military lands frequently provide some of the best remaining habitat for migratory bird species of concern, and DoD plans to continue its leadership role in bird conservation partnerships.

Through the PIF initiative, DoD works in partnership with numerous Federal and State agencies and nongovernmental organizations for the conservation of migratory and resident birds and to enhance migratory bird survival. Through DoD PIF, a list of species of concern (see Definitions) has been developed for each Bird Conservation Region where DoD facilities occur, thus improving DoD's ability to evaluate any migratory bird conservation concerns on respective DoD lands.

Integrated Natural Resources Management Plans (INRMPs) offer a coordinated approach for incorporating habitat conservation efforts into installation management. INRMPs are a significant source of baseline conservation information and conservation initiatives used when preparing National Environmental Policy Act (NEPA) documents for all DoD management activities. This linkage helps to ensure that appropriate conservation and mitigation measures are identified in NEPA documents and committed to, when appropriate, in final decision documents.

The DoD PIF program provides a framework for incorporating landbird, shorebird and waterbird habitat management efforts into INRMPs. DoD's strategy focuses on inventorying and long-term monitoring to determine changes in migratory bird populations on DoD installations. Effective on-the-ground management may then be applied to those areas identified as having the highest conservation value. DoD's PIF goal is to support the military's training and testing mission while being a vital and supportive partner in regional, national, and international bird conservation initiatives. DoD strives to implement cooperative projects and programs on military lands to benefit the health and well-being of birds and their habitats, whenever possible.

The Department of Defense implements bird inventories and monitoring programs in numerous ways including Monitoring Avian Productivity and Survivorship (MAPS) and Next Generation Radar (NEXRAD) for studying bird movements in the atmosphere. DoD also maintains an integrated pest management (IPM) program designed to reduce the use of pesticides to the minimum necessary.

The mission of the FWS is to work with others to conserve, protect, manage, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. The FWS is legally mandated to implement the provisions of the Migratory Bird Treaty Act (MBTA), which include responsibilities for population management (e.g., monitoring), habitat protection (e.g., acquisition, enhancement, and modification), international coordination, and regulation development and enforcement. The FWS also promotes migratory bird conservation through its coordination and consultation efforts with other entities.

Many FWS programs are involved in bird conservation activities, including:

1. The Division of Migratory Bird Management and Regional Migratory Birds and Habitat Programs serve as focal points in the United States for policy development and strategic planning, developing and implementing monitoring and management initiatives that help maintain healthy populations of migratory birds and their habitat, and providing continued opportunities for citizens to enjoy bird-related recreation.

2. The Division of Bird Habitat Conservation is instrumental in supporting habitat conservation partnerships through the administration of bird conservation grant programs and development of Joint Ventures that serve as major vehicles for implementing the various bird conservation plans across the country.

3. Ecological Services Field Offices across the country serve as the primary contacts for environmental reviews that include, when requested, projects developed by local military installations and DoD regional offices involving

migratory bird issues. The Field Offices coordinate with the Regional Migratory Bird Offices, as necessary, during these reviews regarding permits and overall migratory bird conservation coordination for DoD activities.

4. The Office of Law Enforcement is the principal FWS program that enforces the legal provisions of the MBTA.

The Parties agree this MOU shall be implemented to the extent permitted by law and in harmony with agency missions, subject to the availability of appropriations and budgetary limits.

*D. Responsibilities*

1. Each Party shall:

a. Emphasize an interdisciplinary, collaborative approach to migratory bird conservation in cooperation with other governments, State and Federal agencies, and non-Federal partners within the geographic framework of the NABCI Bird Conservation Regions

b. Strive to protect, restore, enhance, and manage habitat of migratory birds, and prevent or minimize the loss or degradation of habitats on DoD-managed lands, by:

(1) Identifying and avoiding management actions that have the potential to adversely affect migratory bird populations, including breeding, migration, or wintering habitats; and by developing and implementing, as appropriate, conservation measures that would avoid or minimize the take of migratory birds or enhance the quality of the habitat used by migratory birds.;

(2) Working with partners to identify, conserve, and manage Important Bird Areas, Western Hemisphere Shorebird Reserve Network sites, and other significant bird conservation sites that occur on DoD-managed lands;

(3) Preventing or abating the pollution or detrimental alteration of the habitats used by migratory birds;

(4) Developing and integrating information on migratory birds and their habitats into outreach and education materials and activities; and

(5) Controlling the introduction, establishment, and spread of non-native plants or animals that may be harmful to migratory bird populations, as required by Executive Order 13112 on Invasive Species.

c. Work with willing landowners to prevent or minimize the loss or degradation of migratory bird habitats on lands adjacent or near military installation boundaries. This cooperative conservation may include:

(1) Participating in efforts to identify, protect, and conserve important migratory bird habitats or other significant bird conservation sites and ecological conditions that occur in landscapes or watersheds that may be affected by activities on DoD lands;

(2) Developing and integrating information on migratory bird resources found on DoD lands into other partners' outreach and education materials and activities; and

(3) Using available authorities to enter into agreements with other Federal agencies, States, other governmental entities, and private conservation organizations to conserve and enhance habitat in a compatible manner so military operations are not restricted.

d. Promote collaborative projects such as:

(1) Developing or using existing inventory and monitoring programs, at appropriate scales, with national or regional standardized protocols, to assess the status and trends of bird populations and habitats, including migrating, breeding, and wintering birds;

(2) Designing management studies and research projects using national or regional standardized protocols and programs, such as MAPS to identify the habitat conditions needed by applicable species of concern, to understand interrelationships of co-existing species, and to evaluate the effects of management activities on habitats and populations of migratory birds;

(3) Sharing inventory, monitoring, research, and study data for breeding, migrating, and wintering bird populations and habitats in a timely fashion with national data repositories such as Breeding Bird Research and Monitoring Database (BBIRD), National Point Count Database, National Biological Information Infrastructure, and MAPS;

(4) Working in conjunction with each other and other Federal and State agencies to develop reasonable and effective conservation measures for actions that affect migratory birds and their natural habitats;

(5) Participating in or promoting the implementation of existing regional or national inventory and monitoring programs such as Breeding Bird Survey (BBS), BBIRD, Christmas Bird Counts, bird atlas projects, or game bird surveys (e.g., mid-winter waterfowl surveys) on DoD lands where practicable and feasible.

(6) Using existing partnerships and exploring opportunities for expanding and creating new partnerships to facilitate combined funding for inventory, monitoring, management studies, and research.

e. Provide training opportunities to DoD natural resources personnel on migratory bird issues, to include bird population and habitat inventorying, monitoring methods, and management practices that avert detrimental effects and promote beneficial approaches to migratory bird conservation.

f. Participate in the Interagency Council for the Conservation of Migratory Birds to evaluate implementation of this MOU.

g. Promote migratory bird conservation internationally, as it relates to wintering, breeding and migration habitats of birds that breed on DoD lands.

h. Promote and undertake ecologically sound actions to curb the introduction in the wild of exotic or invasive species harmful to migratory birds.

2. The Department of Defense shall:

a. Follow all migratory bird permitting requirements for non-military readiness activities that are subject to 50 CFR Parts 21.22 (banding or marking), 21.23 (scientific collecting), 21.26 (special Canada goose permit), 21.27 (special purposes), or 21.41 (depredation). No permit is required to take birds in accordance with Parts 21.43–21.47 (depredation orders).

b. Encourage incorporation of comprehensive migratory bird management objectives in the preparation of DoD planning documents, including Integrated Natural Resource Management Plans, Pest Management Plans, Installation Master Plans, NEPA analyses, and non-military readiness elements of Bird Aircraft Strike Hazard documents. Comprehensive planning efforts for migratory birds include PIF Bird Conservation Plans, the North American Waterfowl Management Plan, U.S. Shorebird Conservation Plan, and North American Waterbird Conservation Plan and associated regional plans where available.

c. Incorporate conservation measures addressed in Regional or State Bird Conservation Plans in INRMPs.

d. Consistent with imperatives of safety and security, allow the FWS and other partners reasonable access to military lands for conducting sampling or survey programs such as MAPS, BBS, BBIRD, International Shorebird Survey, and breeding bird atlases.

e. Prior to starting any activity that is likely to affect populations of migratory birds:

(1) Identify the migratory bird species likely to occur in the area of the proposed action and determine if any species of concern could be affected by the activity;

(2) Assess and document, through the project planning process, using NEPA when applicable, the effect of the proposed action on species of concern.

Use best available demographic, population, or habitat association data in the assessment of effects upon species of concern;

(3) Engage in early planning and scoping with the FWS relative to potential impacts of a proposed action, to proactively address migratory bird conservation, and to initiate appropriate actions to avoid or minimize the take of migratory birds.

f. Manage military lands and non-military readiness activities in a manner that supports migratory bird conservation, giving consideration to the following factors:

(1) Habitat protection, restoration, and enhancement. Military lands contain many important habitats for migratory birds. Some unique, sensitive, endangered and/or declining habitat types that may require special management attention include:

(a) Grasslands. Many native grassland communities require intensive management to maintain and restore vigor and species diversity and to provide habitat for migratory birds and other wildlife dependent on native grasslands. Grassland management and restoration tools include controlled burning, mowing, grazing, native species planting, and exotic plant removal. Many grasslands have evolved with a natural fire regime, and the management activities often emulate this fire regime.

(b) Riparian and wetland habitats. Military lands contain riparian and wetland habitats that may be critical for migratory birds. DoD will strive to prevent the destruction or degradation of wetlands and riparian vegetation, and also restore those habitats, when feasible, where they have been degraded.

(c) Coastal beach, salt marsh, and dune habitats. Military lands support some of the best remaining undisturbed coastal habitats. DoD will strive to protect, restore and prevent the destruction of coastal and island habitats that are important to breeding, migrating and wintering shorebirds, salt marsh land birds and colonial water birds.

(d) Longleaf pine ecosystem. Some of the best remaining examples of the longleaf pine ecosystem occur on military lands. Such habitats benefit from prescribed fire and other management measures which DoD regularly implements on thousands of acres in the Southeast. The DoD manages and will continue to manage this ecosystem to benefit and promote migratory bird conservation.

(2) Fire and fuels management practices. Fire plays an important role in shaping plant and animal communities and is a valuable tool in restoring habitats altered by decades of fire suppression. Fire management may include fire suppression, but also involves fire prevention and fuels treatment, including prescribed burning and monitoring, to protect communities and provide for healthy ecosystems. Fire management planning efforts will consider the effects of fire management strategies on the conservation of migratory bird populations.

(3) Invasive Species and Aquatic Nuisance Species management practices. Invasive Species and Aquatic Nuisance Species are a threat to native habitats and wildlife species throughout the United States, including military lands. Efforts to control/contain these species must take into account both the impacts from invasive species and the effects of the control efforts on migratory bird populations. Invasive Species and Aquatic Nuisance Species that can threaten migratory birds and their habitats include, but are not limited to, exotic grasses, trees and weeds, terrestrial and aquatic insects and organisms, non-native birds, and stray and feral cats.

(4) Communications towers, utilities and energy development. Increased communications demands, changes in technology and the development of alternative energy sources result in impacts on migratory birds. DoD will review wind turbine and powerline guidelines published by FWS and the Avian Power Line Interaction Committee, respectively, and consult with FWS as needed, in considering potential effects on migratory birds of proposals for locating communications towers, powerlines or wind turbines on military lands. Construction of new utility and energy systems and associated infrastructure should be designed to avoid and minimize impacts on migratory bird populations. Existing utilities may also be considered for retrofitting to reduce impacts.

(5) Recreation and public use. The demand for outdoor recreational opportunities on public lands is increasing. Impacts on migratory birds may occur both through direct and indirect disturbances by visitors and through agency activities associated with providing recreational opportunities to visitors and installation personnel and morale facilities (e.g., facilities construction). DoD provides access to military lands for recreation and other public use, such as Watchable Wildlife and bird watching, where such access does not compromise security and safety concerns or impact migratory birds, other species, or their habitats.

Many conservation measures have been developed to benefit a variety of migratory bird species and their associated habitats. Some of these conservation measures may be directly applicable to DoD non-military readiness related activities; however, the appropriateness and practicality of implementing any specific conservation measure may have to be determined on a case-by-case basis. The FWS will work cooperatively with DoD in providing existing conservation measures and developing new ones as needed. Examples of some conservation measures may be found at *http://www.partnersinflight.org/pubs/BMPs.htm* for landbird species.

g. Develop and implement new and/or existing inventory and monitoring programs, at appropriate scales, using national standardized protocols, to evaluate the effectiveness of conservation measures to minimize or mitigate take of migratory birds, with emphasis on those actions that have the potential to significantly impact species of concern.

h. Advise the public of the availability of this MOU through a notice published in the **Federal Register**.

i. In accordance with DoD INRMP guidance, promote timely and effective review of INRMPs with respect to migratory bird issues with the FWS and respective state agencies. During the INRMP review process, evaluate and coordinate with FWS on any potential revisions to migratory bird conservation measures taken to avoid or minimize take of migratory birds.

3. The Fish and Wildlife Service shall:

a. Work with DoD by providing recommendations to minimize adverse effects upon migratory birds from DoD actions.

b. Through the Division of Migratory Bird Management, maintain a Web page on permits that provides links to all offices responsible for issuing permits and permit application forms for take of migratory birds.

c. Provide essential background information to the DoD when requested to ensure sound management decisions. This may include migratory bird distributions, status, key habitats, conservation guidelines, and risk factors within each BCR. This includes updating the FWS publication of *Birds of Conservation Concern* at regular intervals so it can be reliably referenced.

d. Work to identify special migratory bird habitats (i.e., migration corridors, stop-over habitats, ecological conditions important in nesting habitats) to aid in collaborative planning.

e. Through the Ecological Service Field Office, provide to DoD, upon

request, technical assistance on migratory bird species and their habitats.

f. In accordance with FWS Guidelines for Coordination with DoD and Implementation of the 1997 Sikes Act (2005), work cooperatively with DoD in the development, review and revision of INRMPs.

g. Review and comment on NEPA documents and other planning documents forwarded by military installations.

*E. It Is Mutually Agreed and Understood That*

1. This MOU will not change or alter requirements associated with the MBTA, Endangered Species Act, NEPA, Sikes Act or other statutes or legal authority.

2. The responsibilities established by this MOU may be incorporated into existing DoD actions; however, DoD may not be able to implement some responsibilities identified in the MOU until DoD has successfully included them in formal planning processes. This MOU is intended to be implemented when new actions are initiated as well as during the initiation of new, or revisions to, INRMPs, Pest Management Plans, and non-military readiness elements of Bird Aircraft Strike Hazard plans. It does not apply to ongoing DoD actions for which a NEPA decision document was finalized prior to, or within 180 days of the date this MOU is signed.

3. This MOU in no way restricts either Party from participating in similar activities with other public or private agencies, governments, organizations, or individuals.

4. An elevation process to resolve any dispute between the Parties regarding a particular practice or activity is in place and consists of first attempting to resolve the dispute with the DoD military installation and the responsible Ecological Services Field Office. If there is no resolution at this level, either Party may elevate the issue to the appropriate officials at the applicable Military Service's Chain of Command and FWS Regional Offices. In the event that there is no resolution by these offices, the dispute may be elevated by either Party to the headquarters office of each agency.

5. This MOU is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement, contribution of funds, or transfer of anything of value between the Parties will be handled in accordance with applicable laws, regulations, and procedures, including those for government procurement and printing. Such endeavors will be outlined in separate agreements that shall be made in writing by representatives of the Parties and shall be independently authorized by appropriate statutory authority.

6. The Parties shall schedule periodic meetings to review progress and identify opportunities for advancing the principles of this MOU.

7. This MOU is intended to improve the internal management of the executive branch and does not create any right or benefit, substantive or procedural, separately enforceable at law or equity by a party against the United States, its agencies or instrumentalities, its officers or employees, or any other person.

8. Modifications to the scope of this MOU shall be made by mutual consent of the Parties, through issuance of a written modification, signed and dated by both Parties, prior to any changes.

9. Either Party may terminate this instrument, in whole or in part, at any time before the date of expiration by providing the other Party with a written statement to that effect.

The principal contacts for this instrument are as follows:

Brian Millsap, Chief, Division of Migratory Bird Management, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, MS4107, Arlington, VA 22203.

L. Peter Boice, Conservation Team, Leader, Office of the Secretary of Defense, 1225 S. Clark St., Suite 1500, Arlington, VA 22202–4336.

This MOU is executed as of the last date signed below and expires no later than five (5) years thereafter, at which time it is subject to review and renewal, or expiration.

*F. Definitions*

*Action*—a program, activity, project, official policy, rule, regulation or formal plan directly carried out by DoD, but not a military readiness activity.

*Breeding Biology Research and Monitoring Database (BBIRD)*—national, cooperative program that uses standardized field methodologies for studies of nesting success and habitat requirements of breeding birds (*http://pica.wru.umt.edu/BBIRD/*).

*Breeding Bird Survey (BBS)*—a standardized international survey that provides information on population trends of breeding birds, through volunteer observations located along randomly selected roadside routes in the United States, Canada and Mexico (*http://www.mbr-pwrc.usgs.gov/bbs/bbs.html*).

*Bird Conservation Region*—a geographic unit used to facilitate bird conservation actions under the North American Bird Conservation Initiative (*http://www.manomet.org/USSCP/bcrmaps.html*).

*Birds of Conservation Concern*—published by the FWS Division of Migratory Bird Management, refers to the list of migratory and non-migratory birds of the United States and its territories that are of conservation concern. The current version of the list Birds of Conservation Concern 2002 is available at (*http://migratorybirds.fws.gov/reports/bcc2002.pdf*).

*Comprehensive Planning Efforts for Migratory Birds*—includes Partners in Flight, North American Waterfowl Management Plan, U.S. Shorebird Conservation Plan, Western Hemisphere Shorebird Reserve Network, North American Waterbird Conservation Plan, and other planning efforts integrated through the North American Bird Conservation Initiative.

*Conservation Measure*—an action undertaken to improve the conservation status of one or more species of migratory birds. Examples include surveys and inventories, monitoring, status assessments, land acquisition or protection, habitat restoration, population manipulation, research, and outreach.

*Conservation Planning*—strategic and tactical planning of agency activities for the long-term conservation of migratory birds and their habitats.

*Council for the Conservation of Migratory Birds*—an interagency council established by the Secretary of the Interior to oversee the implementation of Executive Order 13186.

*Ecological Condition*—the composition, structure, and processes of ecosystems over time and space. This includes the diversity of plant and animal communities, the productive capacity of ecological systems and species diversity, ecosystem diversity, disturbance processes, soil productivity, water quality and quantity, and air quality. Often referred to in terms of ecosystem health, which is the degree to which ecological factors and their interactions are reasonably complete and functioning for continued resilience, productivity, and renewal of the ecosystem.

*Effect (adverse or beneficial)*—"effects" and "impacts," as used in this MOU are synonymous. Effects may be direct, indirect, or cumulative, and refer to effects from management actions or categories of management actions on migratory bird populations, habitats, ecological conditions and/or significant bird conservation sites.

*Important Bird Areas (IBAs)*—a network of sites that provide essential habitat for the long-term conservation of birds. In the United States, the IBA network is administered by the American Bird Conservancy and the National Audubon Society. (*http://www.audubon.org/nird/iba/*)

*Integrated Natural Resources Management Plan (INRMP)*—an integrated plan based, to the maximum extent practicable, on ecosystem management that shows the interrelationships of individual components of natural resources management (*e.g.*, fish and wildlife, forestry, land management, outdoor recreation) to military mission requirements and other land use activities affecting an installation's natural resources. INRMPs are required for all DoD installations with significant natural resources, pursuant to the Sikes Act Improvement Act.

*International Shorebird Survey*—a monitoring program started in 1974 to survey shorebirds (sandpipers, plovers, etc.) across the Western Hemisphere. (*http://www.manomet.org/programs/shorebirds*).

*Management Action*—an activity by a government agency that could cause a positive or negative impact on migratory bird populations or habitats. Conservation measures to mitigate potential negative effects of actions may be required.

*Migratory Bird*—any bird listed in 50 CFR 10.13, Code of Federal Regulations.

*Military Readiness Activity*—all training and operations of the Armed Forces that relate to combat, including but not limited to the adequate and realistic testing of military equipment, vehicles, weapons and sensors for proper operation and suitability for combat use.

*Monitoring Avian Productivity and Survivorship (MAPS)*—a program that uses the banding of birds during the breeding season to track the changes and patterns in the number of young produced and the survivorship of adults and young (*http://www.birdpop.org/maps.htm*).

*National Environmental Policy Act (NEPA)*—a Federal statute that requires Federal agencies to prepare a detailed analysis of the environmental impacts of a proposed action and alternatives, and to include public involvement in the decision making process for major Federal actions significantly affecting the quality of the human environment 42 U.S.C. 4321, *et seq.*

*North American Bird Conservation Initiative (NABCI)*—an initiative to align the avian conservation community to implement bird conservation through regionally-based, biologically driven, landscape-oriented partnerships across the North American continent. NABCI includes Federal agencies of Canada, Mexico and the United States, as well as most landbird, shorebird, waterbird, and waterfowl conservation initiatives (*http://www.nabci-us.org*).

*North American Waterbird Conservation Plan*—a partnership of Federal and State government agencies, non-governmental organizations, and private interests focusing on the conservation of waterbirds, primarily including marshbirds and inland, coastal, and pelagic colonial waterbirds (*www.nacwcp.org/pubs/*). The vision of the partnership is that the distribution, diversity and abundance of populations and breeding, migratory, and nonbreeding waterbirds are sustained throughout the lands and waters of North America, Central America, and the Caribbean.

*North American Waterfowl Management Plan*—a partnership of Federal and State agencies, non-governmental organizations, and private interests focusing on the restoration of waterfowl populations through habitat restoration, protection, and enhancement (*http://birdhabitat.fws.gov/NAWMP/nawmphp.htm*).

*Partners in Flight (PIF)*—a cooperative partnership program of more than 300 partners including Federal and State government agencies, non-governmental organizations, conservation groups, foundations, universities and industry focusing on the conservation of landbirds. DoD was an original signatory to the PIF Federal Agencies' MOA. (*http://www.partnersinflight.org* and *http://www.dodpif.org*).

*Species of Concern*—refers to those species listed in the periodic report *Birds of Conservation Concern*; priority migratory bird species documented in the comprehensive bird conservation plans (North American Waterbird Conservation Plan, U.S. Shorebird Conservation Plan, Partners in Flight Bird Conservation Plans); species or populations of waterfowl identified as high, or moderately high, continental priority in the North American Waterfowl Management Plan; listed threatened and endangered bird species in 50 CFR 17.11; and MBTA listed game birds below desired population sizes.

*Take*—as defined in 50 CFR 10.12, to include pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.

*U.S. Shorebird Conservation Plan*—an effort undertaken by a partnership of Federal and State government agencies, as well as non-governmental and private organizations to ensure that stable and self-sustaining populations of all shorebird species are restored and protected (*http://www.fws.gov/shorebird*).

The Parties hereto have executed this agreement as of the date shown below.

Signed: July 7, 2006.

H. Dale Hall,

*Director, U.S. Fish and Wildlife Service.*

Signed: July 31, 2006.

Alex Albert Beehler,

*Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), U.S. Department of Defense.*

[FR Doc. E6–14352 Filed 8–29–06; 8:45 am]

BILLING CODE 5001–06–P

## DEPARTMENT OF DEFENSE

### Department of the Army

**[No. USA–2006–0016]**

### Submission for OMB Review; Comment Request

**ACTION:** Notice.

The Department of Defense has submitted to OMB for clearance, the following proposal for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

**DATES:** Consideration will be given to all comments received by September 29, 2006.

*Title, Associated Form and OMB Number:* Disposition of Remains—Reimbursable Basis and Request for Payment of Funeral and/or Internet Expense; DD Forms 2065 and 1375; OMB Number 0704–0030.

*Type of Request:* Extension.

*Number of Respondents:* 3200.

*Response per Respondent:* 1.

*Annual Responses:* 3200.

*Average Burden per Response:* 20 minutes (DD 2065) and 10 minutes (DD 1375).

*Annual Burden Hours:* 550.

*Needs and Uses:* DD Form 2065 records disposition instructions and costs for preparation and final disposition of remains. DD Form 1375 provides next-of-kin an instrument to apply for reimbursement of funeral/interment expenses. This information is used to adjudicate claims for reimbursement of these expenses.

*Affected Public:* Individuals and households.

*Frequency:* On occasion.

*Respondent's Obligation:* Required to obtain or retain benefits.

*OMB Desk Officer:* Ms. Hillary Jaffe.

## *D.3 DoD Guidance to Implement MOW between DoD and USFWS*

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

ACQUISITION,
TECHNOLOGY
AND LOGISTICS

APR 03 2007

MEMORANDUM FOR DEPUTY ASSISTANT SECRETARY OF THE ARMY
(ENVIRONMENT, SAFETY AND OCCUPATIONAL HEALTH)
DEPUTY ASSISTANT SECRETARY OF THE NAVY
(ENVIRONMENT)
DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE
(ENVIRONMENT, SAFETY AND OCCUPATIONAL HEALTH)
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Guidance to Implement the Memorandum of Understanding to Promote the Conservation of Migratory Birds

On July 31, 2006, the Department of Defense (DoD) and the U.S. Fish and Wildlife Service (FWS) entered into a Memorandum of Understanding (MOU) to Promote the Conservation of Migratory Birds, in accordance with Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds." This MOU describes specific actions that should be taken by DoD to advance migratory bird conservation; avoid or minimize the take of migratory birds; and ensure DoD operations-other than military readiness activities-are consistent with the Migratory Bird Treaty Act. The MOU also describes how the FWS and DoD will work. together cooperatively to achieve these ends. The MOU does not authorize the take *of* migratory birds; the FWS, however, may develop incidental take authorization for federal agencies that complete an Executive Order MOU.

I strongly encourage all DoD personnel to work cooperatively with the FWS to implement the actions described in the 'MOU and to take steps to further migratory bird conservation. This MOU specifically pertains to the following categories of DoD activities:

(1) Natural resource management activities, including, but not limited to, habitat management, erosion control, forestry activities, agricultural outleasing, conservation law enforcement, invasive weed management, and prescribed burning;

(2) Installation support functions, including but not limited to, the maintenance, construction or operation of administrative offices, military exchanges, road

construction, commissaries, water treatment facilities, storage facilities, schools, housing, motor pools, non-tactical equipment, laundries, morale, welfare, and recreation activities, shops, landscaping, and mess halls;

(3) Operation of industrial activities;

(4) Construction or demolition of facilities relating to these routine operations; and

(5) Hazardous waste cleanup.

This MOU does not address incidental take during military readiness activities, which was addressed in a rulemaking in accordance with section 315 of the National Defense Authorization Act for Fiscal Year 2003. The final rule, Migratory Bird Permits: Take of Migratory Birds by the Armed Force, was published as 50 CFR Part 21 in the February 28, 2007 Federal Register, pages 8931-8950.

Successful implementation of the MOU will require early planning and coordination between individual military bases and local FWS offices for particular projects that may affect migratory birds. A variety of useful tools are available to assist DoD natural resource managers in integrating bird conservation measures with DoD activities, as described in the attachment. If you have any questions, please contact Mr. Peter Boice at (703) 604-0524.

Alex A. Beehler
Assistant Deputy Under Secretary of Defense
(Environment, Safety and Occupational Health)

Attachments:
As stated

## *D.4 Resources for Migratory Bird Conservation*

## USEFUL TOOLS IN IMPLEMENTING MIGRATORY BIRD CONSERVATION BY THE DOD

The following is not an exhaustive list of tools available to help address migratory bird conservation but are excellent sources to start.

**Partners in Flight** (http://www.partnersinflight.org)
Partners in Flight is an umbrella network of which the DoD bird conservation program is a vital part. Partners in Flight was launched in 1990 in response to growing concerns about declines in the populations of many landbirds, and to address the conservation of birds not covered by existing conservation initiatives.

The PIF web site provides helpful information including links to regional plans that discuss bird conservation goals and objectives for individual species in a specific physiographic region.

**DoD Partners in Flight** (http://www.dodpif.org/)
The Management Strategy for DoD PIF is to promote and support a partnership role in the protection and conservation of birds and their habitats by protecting vital DoD lands and ecosystems, enhancing biodiversity, and maintaining healthy and productive natural systems consistent with the military mission. The DoD PIF web site provides a number of useful resources for addressing or learning more about migratory bird conservation, including fact sheets and a database of installation-specific information.

**Installation Bird Checklist** (http://www.dodpif.org/)
This is an ongoing effort to providing a list of birds known to occur on or in the vicinity of individual military bases in addition to seasonal occurrence records.

**Species of Concern** (http://www.dodpif.org/)
Although migratory bird conservation should address all migratory birds, the MOU places a priority on addressing the conservation of species of concern as resources are limited to effectively address all birds. Species of concern refers to those species listed in the periodic report FWS *Birds of Conservation Concern;* priority migratory bird species documented in the comprehensive bird conservation plans (North American Waterbird Conservation Plan, U.S. Shorebird Conservation Plan, Partners in Flight Bird Conservation Plans); species or populations of waterfowl identified as high, or moderately high, continental priority in the North American Waterfowl Management Plan; listed threatened and endangered bird species in 50 CFR. 17.11; and Migratory Bird Treat Act listed game birds below desired population sizes. To assist DoD staff in determining what species may be impacted by activities on military bases, DoD PIF is in the process of developing a list of species of concern for each military base in the continental U.S. Until these individual base lists are finalized, list of species of concern are available at the larger Bird Conservation Region (BCR) scale. BCRs are ecologically distinct regions in North America with similar bird communities, habitats, and resource management issues.

The **DoD Bird Conservation Database** (Database) (http://www.dodpif.org/projects/)
This database was created to document, consolidate, and disseminate bird conservation efforts on or involving military lands and civil works projects and make that information available as a resource for planners, land managers and other professionals involved in bird conservation.

This database can provide a valuable resource for biologists to share natural resource management information on their base including species accounts, research and monitoring, bird surveys, etc. Base biologists are encouraged to insert abstracts on their natural resource projects into the database.

**Conservation Measures** (http://www.partnersinflight.org/pubs/BMPs.htm)
There is currently a lack of a single resource database that provides easy reference to migratory bird conservation measures that may be implemented for a diversity of species or habitat types. However, several efforts are underway and will be available in the future. One resource that is currently underdevelopment but readily available are Best Management Practices on the Partners in Flight web site.

**DoD PIF-L List Serve** (http://www.dodpif.org/).
This Listserve supports the natural resource managers at DoD sites to more effectively address migratory and resident bird issues, and incorporate bird habitat conservation plans into the INRMP process. The list should be used for items that will benefit natural resource managers with bird conservation issues, including as requests for information or assistance. See the web site for how to subscribe to the list.

**US Shorebird Conservation Plan** (http://www.fws.gov/shorebirdplan/ ) is an effort undertaken by a partnership of Federal and State government agencies, as well as non-governmental and private organizations to ensure that stable and self-sustaining populations of all shorebird species are restored and protected. Both the U.S. Plan and regional step down plans provide useful information regarding population goals and objectives for individual priority shorebird species.

**North American Waterbird Conservation Plan**
(http://www.waterbirdconservation.org/)
This partnership of Federal and State government agencies, non-governmental organizations, and private interests focuses on the conservation of waterbirds, primarily including marshbirds and inland, coastal, and pelagic colonial waterbirds). As with the Partners in Flight and Shorebird initiatives, waterbird conservation plans are available at both the continental and regional scale. These include population and habitat objectives for individual waterbird species and management recommendations.

**FWS Course for DoD Natural Resource Managers: Migratory Bird Conservation – A Trust Responsibility**
The FWS periodically offers a MBTA course specifically modified for DoD participants. FWS hopes to offer the course approximately once a year.

**DoD Conservation Page** (http://www.denix.osd.mil/Conservation/)
The Conservation Web page on DENIX offers a wide variety of bird conservation reports and other products. Of particular note are the sections on "Wildlife" and "Endangered Species."

**DoD Legacy Resource Management Program** (http://www.dodlegacy.org)
The Legacy program funds efforts that preserve our nation's natural and cultural heritage on DoD lands. Three principles guide the Legacy Program: *stewardship*, *leadership*, and *partnership*. Stewardship initiatives assist DoD in safeguarding its irreplaceable resources for future generations. By embracing a leadership role as part of the program, DoD serves as a model for respectful use of natural and cultural resources. Through partnerships, Legacy strives to access the knowledge and talents of individuals outside of DoD. The Legacy Web site describes proposal submittal guidelines, lists previously funded projects, and provides links to many products. Bird conservation is one of Legacy's eleven areas of interest.

**Strategic Environmental Research and Development Program** (http://www.serdp.org)
SERDP is DoD's environmental science and technology program, planned and executed in full partnership with the Department of Energy and the Environmental Protection Agency, with participation by numerous other federal and non-federal organizations. To address the highest priority issues confronting the Army, Navy, Air Force, and Marines, SERDP focuses on cross-service requirements and pursues high-risk/high-payoff solutions to the Department's most intractable environmental problems. The development and application of innovative environmental technologies support the long-term sustainability of DoD's training and testing ranges as well as significantly reduce current and future environmental liabilities. SERDP offers funding in the following four focus areas: Environmental Restoration, Munitions Management, Sustainable Infrastructure, and Weapons Systems and Platforms. Sustainable Infrastructure (SI) encompasses the technologies required to sustain training and testing ranges, as well as the installation infrastructure that supports those ranges and the deployed forces. SI is subdivided into natural resources, facilities, and cultural resources.

**Environmental Security Technology Certification Program** (http://www.estcp.org)
ESTCP is DoD's environmental technology demonstration and validation program. The goal of ESTCP is to identify, demonstrate, and transfer technologies that address DoD's highest priority environmental requirements. The Program promotes innovative, cost-effective environmental technologies through demonstrations at DoD facilities and sites. These technologies provide a return on investment through improved efficiency, reduced liability, and direct cost savings. ESTCP's strategy is to select lab-proven technologies with broad DoD application and aggressively move them to the field for rigorous trials documenting their cost, performance, and market potential. ESTCP offers funding in the following four focus areas: Environmental Restoration, Munitions Management, Sustainable Infrastructure, and Weapons Systems and Platforms. Sustainable Infrastructure (SI) encompasses the technologies required to sustain training and testing

ranges, as well as the installation infrastructure that supports those ranges and the deployed forces. SI is subdivided into natural resources, facilities, and cultural resources.

**North American Bird Conservation Initiative (NABCI)**
The U.S. NABCI Committee is a forum of government agencies, non-profit organizations, and initiatives dedicated to advancing integrated bird conservation in North America. Its strategy is to foster coordination and collaboration among the bird conservation community on key issues of concern. Through annual work plans, NABCI focuses its efforts on advancing bird monitoring, conservation design, international conservation, and institutional support in state and federal agencies for bird habitat conservation.

**DoD Coordinated Bird Monitoring Plan**
A Coordinated Bird Monitoring (CBM) approach now is being followed in the United State and Canada by many public and private agencies. The CBM approach stresses clear specification of management issues that bird monitoring can help address, careful attention to quantitative issues, and coordination among the different bird initiatives and between these groups and managers who will use the information. DoD is undertaking a three-year project that will develop four products to help improve bird monitoring programs on DoD land -- a review of existing monitoring programs, guidelines for selected surveys, a plan for monitoring species of special concern on DoD land, and recommendations for DoD's role in continental bird monitoring programs.

## *D.5 EO 13186*

Executive Order 13186

Presidential Documents

Executive Order 13186 -- Responsibilities of Federal Agencies To Protect Migratory Birds

January 10, 2001

By the authority vested in me as President by the Constitution and the laws of the United States of America, and in furtherance of the purposes of the migratory bird conventions, the Migratory Bird Treaty Act (16 U.S.C. 703-711), the Bald and Golden Eagle Protection Acts (16 U.S.C. 668-668d), the Fish and Wildlife Coordination Act (16 U.S.C. 661-666c), the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347), and other pertinent statutes, it is hereby ordered as follows:

Section 1. Policy. Migratory birds are of great ecological and economic value to this country and to other countries. They contribute to biological diversity and bring tremendous enjoyment to millions of Americans who study, watch, feed, or hunt these birds throughout the United States and other countries. The United States has recognized the critical importance of this shared resource by ratifying international, bilateral conventions for the conservation of migratory birds. Such conventions include the Convention for the Protection of Migratory Birds with Great Britain on behalf of Canada 1916, the Convention for the Protection of Migratory Birds and Game Mammals-Mexico 1936, the Convention for the Protection of Birds and Their Environment-Japan 1972, and the Convention for the Conservation of Migratory Birds and Their Environment-Union of Soviet Socialist Republics 1978.

These migratory bird conventions impose substantive obligations on the United States for the conservation of migratory birds and their habitats, and through the Migratory Bird Treaty Act (Act), the United States has implemented these migratory bird conventions with respect to the United States. This Executive Order directs Executive departments and agencies to take certain actions to further implement the Act. Sec. 2. Definitions. For purposes of this Order:

(a) "Take" means take as defined in 50 C.F.R. 10.12, and includes both "intentional" and "unintentional" take.

(b) "Intentional take" means take that is the purpose of the activity in question.

(c) "Unintentional take" means take that results from, but is not the purpose of, the activity in question.

(d) "Migratory bird" means any bird listed in 50 C.F.R. 10.13.

(e) "Migratory bird resources" means migratory birds and the habitats upon which they depend.

(f) "Migratory bird convention" means, collectively, the bilateral conventions (with Great Britain/Canada, Mexico, Japan, and Russia) for the conservation of migratory bird resources.

(g) "Federal agency" means an Executive department or agency, but does not include independent establishments as defined by 5 U.S.C. 104.

(h) "Action" means a program, activity, project, official policy (such as a rule or regulation), or formal plan directly carried out by a Federal agency. Each Federal agency will further define what the term "action" means with respect to its own authorities and what programs should be included in the agency-specific Memoranda of Understanding required by this Order. Actions delegated to or assumed by nonfederal entities, or carried out by nonfederal entities with Federal assistance, are not subject to this Order. Such actions, however, continue to be subject to the Migratory Bird Treaty Act.

(i) "Species of concern" refers to those species listed in the periodic report "Migratory Nongame Birds of Management Concern in the United States," priority migratory bird species as documented by established plans (such as Bird Conservation Regions in the North American Bird Conservation Initiative or Partners in Flight physiographic areas), and those species listed in 50 C.F.R. 17.11.

Sec. 3. Federal Agency Responsibilities. (a) Each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations is directed to develop and implement, within 2 years, a Memorandum of Understanding (MOU) with the Fish and Wildlife Service (Service) that shall promote the conservation of migratory bird populations.

(b) In coordination with affected Federal agencies, the Service shall develop a schedule for completion of the MOUs within 180 days of the date of this Order. The schedule shall give priority to completing the MOUs with agencies having the most substantive impacts on migratory birds.

(c) Each MOU shall establish protocols for implementation of the MOU and for reporting accomplishments. These protocols may be incorporated into existing actions; however, the MOU shall recognize that the agency may not be able to implement some elements of the MOU until such time as the agency has successfully included them in each agency's formal planning processes (such as revision of agency land management plans, land use compatibility guidelines, integrated resource management plans, and fishery management plans), including public participation and NEPA analysis, as appropriate. This Order and the MOUs to be developed by the agencies are intended to be implemented when new actions or renewal of contracts, permits, delegations, or other third party agreements are initiated as well as during the initiation of new, or revisions to, land management plans.

(d) Each MOU shall include an elevation process to resolve any dispute between the signatory agencies regarding a particular practice or activity.

(e) Pursuant to its MOU, each agency shall, to the extent permitted by law and subject to the availability of appropriations and within Administration budgetary limits, and in harmony with agency missions:

(1) support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;

(2) restore and enhance the habitat of migratory birds, as practicable;

(3) prevent or abate the pollution or detrimental alteration of the Environment for the benefit of migratory birds, as practicable;

(4) design migratory bird habitat and population conservation principles, measures, and practices, into agency plans and planning processes (natural resource, land management, and environmental quality planning, including, but not limited to, forest and rangeland planning, coastal management planning, watershed planning, etc.) as practicable, and coordinate with other agencies and nonfederal partners in planning efforts;

(5) within established authorities and in conjunction with the adoption, amendment, or revision of agency management plans and guidance, ensure that agency plans and actions promote programs and recommendations of comprehensive migratory bird planning efforts such as Partners-in-Flight, U.S. National Shorebird Plan, North American Waterfowl Management Plan, North American Colonial Waterbird Plan, and other planning efforts, as well as guidance from other sources, including the Food and Agricultural Organization's International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries;

(6) ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern;

(7) provide notice to the Service in advance of conducting an action that is intended to take migratory birds, or annually report to the Service on the number of individuals of each species of migratory birds intentionally taken during the conduct of any agency action, including but not limited to banding or marking, scientific collecting, taxidermy, and depredation control;

(8) minimize the intentional take of species of concern by: (i) delineating standards and procedures for such take; and (ii) developing procedures for the review and evaluation of take actions. With respect to intentional take, the MOU shall be consistent with the appropriate sections of 50 C.F.R. parts 10, 21, and 22;

(9) identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations, focusing first on species of concern, priority habitats, and key risk factors. With respect to those actions so identified, the agency shall develop and use principles, standards, and practices that will lessen the amount of unintentional take, developing any such conservation efforts in cooperation with the Service. These principles, standards, and practices shall be regularly evaluated and revised to ensure that they are effective in lessening the detrimental effect of agency actions on migratory bird populations. The agency also shall inventory and monitor bird habitat and populations within the agency's capabilities and authorities to the extent feasible to facilitate decisions about the need for, and effectiveness of, conservation efforts;

(10) within the scope of its statutorily-designated authorities, control the import, export, and establishment in the wild of live exotic animals and plants that may be harmful to migratory bird resources;

(11) promote research and information exchange related to the conservation of migratory bird resources, including coordinated inventorying and monitoring and the collection and assessment of information on environmental contaminants and other physical or biological stressors having potential

relevance to migratory bird conservation. Where such information is collected in the course of agency actions or supported through Federal financial assistance, reasonable efforts shall be made to share such information with the Service, the Biological Resources Division of the U.S. Geological Survey, and other appropriate repositories of such data (e.g, the Cornell Laboratory of Ornithology);

(12) provide training and information to appropriate employees on methods and means of avoiding or minimizing the take of migratory birds and conserving and restoring migratory bird habitat;

(13) promote migratory bird conservation in international activities and with other countries and international partners, in consultation with the Department of State, as appropriate or relevant to the agency's authorities;

(14) recognize and promote economic and recreational values of birds, as appropriate; and

(15) develop partnerships with non-Federal entities to further bird conservation.

(f) Notwithstanding the requirement to finalize an MOU within 2 years, each agency is encouraged to immediately begin implementing the conservation measures set forth above in subparagraphs (1) through (15) of this section, as appropriate and practicable.

(g) Each agency shall advise the public of the availability of its MOU through a notice published in the Federal Register.

Sec. 4. Council for the Conservation of Migratory Birds. (a) The Secretary of Interior shall establish an interagency Council for the Conservation of Migratory Birds (Council) to oversee the implementation of this Order. The Council's duties shall include the following: (1) sharing the latest resource information to assist in the conservation and management of migratory birds; (2) developing an annual report of accomplishments and recommendations related to this Order; (3) fostering partnerships to further the goals of this Order; and (4) selecting an annual recipient of a Presidential Migratory Bird Federal Stewardship Award for contributions to the protection of migratory birds.

(b) The Council shall include representation, at the bureau director/administrator level, from the Departments of the Interior, State, Commerce, Agriculture, Transportation, Energy, Defense, and the Environmental Protection Agency and from such other agencies as appropriate.

Sec. 5. Application and Judicial Review. (a) This Order and the MOU to be developed by the agencies do not require changes to current contracts, permits, or other third party agreements.

(b) This Order is intended only to improve the internal management of the Executive branch and does not create any right or benefit, substantive or procedural, separately enforceable at law or equity by a party against the United States, its agencies or instrumentalities, its officers or employees, or any other person.

William J. Clinton
The White House,
January 10, 2001.