

**Final  
Environmental Assessment  
for  
Test Area D-84  
Waterside Redevelopment**

**RCS: 07-163**

**Prepared for:  
The United States Air Force  
Eglin Air Force Base**



**Walton County, Florida**

**September 2012**

# Report Documentation Page

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**FINDING OF NO SIGNIFICANT IMPACT  
FINDING OF NO PRACTICABLE ALTERNATIVE  
TEST AREA D-84 (WATERSIDE REDEVELOPMENT)  
EGLIN AIR FORCE BASE**

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Pursuant to the Council on Environmental Quality regulation for implementing the procedural provisions of the National Environmental Policy Act (NEPA), Title 40 of the Code of Federal Regulations (CFR) §§ 1500 - 1508; Air Force Environmental Impact Analysis Process (EIAP) regulations 32 CFR § 989 and Department of Defense Directive 6050.1, the Air Force has prepared an environmental assessment (EA) to identify and assess the potential impacts on the natural and human environment associated with the waterside redevelopment of Test Area D-84 on the Eglin reservation, Florida. Landside redevelopment of Test Area D-84 was evaluated previously in an EA entitled *Training at the Former Ft. Rucker Recreation Area*.

**Background (EA § 1.1, page 1-1):** Test Area D-84 was formerly known as Fort Rucker Recreation Area, a 37-acre recreation site that dates back to the early 1940s and was used and maintained by the United States Army and Fort Rucker staff. In 2002 initial plans were made to rehabilitate and develop the landward portions of Test Area D-84 for purposes of conducting field training for a variety of military customers. An EA for the landward development was prepared and a Finding of No Significant Impact (FONSI) was signed on August 23, 2002. In 2003 Test Area D-84 was further evaluated as part of the *Amphibious Ready Group/Marine Expeditionary Unit Readiness Training* EA, for which a FONSI was signed May 1, 2003. In 2007, additional plans to refurbish the buildings at Test Area D-84 were made and waterside redevelopment, the subject of this EA, was identified.

**Purpose and Need for the Proposed Action (EA §§ 1.4 to 1.5, pages 1-6 to 1-7):** The purpose of Test Area D-84 waterside redevelopment is to provide water training capability as well as access to adjacent upland training facilities to meet the continuing and increasing requirements to conduct field test and training exercises and “just-in-time training.” The use of waterborne facilities would include a pier and terminal platform and stabilized shoreline for amphibious landing operations.

Test Area D-84 is the only local Air Force base of operations where there are reliably low-current conditions for long-distance swim/dive training and evaluations as well as the facilities needed to support these operations (EA Figure 1, page 1-3). In addition, it is located adjacent to Test Area D-54, which is one of only two inland water drop zones controlled by Eglin AFB and the only one with a low-current environment suitable for water training. Redeveloping Test Area D-84 will provide water-based training facilities with access to upland training facilities, which will meet the continuing and increasing requirement to conduct field test and training exercises. A factor in the congressional mandate 2005 Base Realignment and Closure (BRAC) to relocate the 7th Special Forces Group (Airborne) [7 SFG(A)] to Eglin AFB was the land/water contrast provided by Test Area D-84 and adjoining areas. Furthermore, redevelopment of the waterside portions of Test Area D-84 would potentially support a number of military programs, including, but not limited to, the following:

- Air Force 728th Air Control Squadron mission-essential task listing training to meet long-term requirements
- Air Force Special Operations Command for testing and training with surveillance and coastal security systems
- Air Force 720th Operations Support Squadron combined land, sea, and air combat control training

- Joint service training for the Navy's Sea, Air, and Land Teams, Marines, and Army Special Forces, to include the 7 SFG(A)
- Joint service training of airborne and waterborne communications, intelligence, surveillance, and reconnaissance, to include United States Special Operation Command and the Army Communications Command

**Alternatives Eliminated from Further Analysis (EA § 2.2, page 2-1):** The range of alternatives considered included the No Action alternative, a rehabilitation alternative and a redevelopment alternative. As required by NEPA and the Air Force EIAP regulation 32 CFR § 989.8, the No Action Alternative established the environmental baseline, which allowed for a comparison of the Proposed Action against baseline conditions. The rehabilitation alternative was considered but was eliminated from further analysis based on the structural degradation of the existing timber piers, the unsafe conditions of the existing boat ramp layout and the environmentally detrimental creosote treated timbers. The redevelopment alternative was determined to meet the purpose and need and carried forward for further analysis.

**Redevelopment Alternative (EA § 2.3.2, page 2-2):** Redevelopment of the waterside facilities at Test Area D-84 will include: 1) demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier; 2) constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on a similar alignment as the existing pier; 3) contouring a portion of the shoreline to re-orient the existing boat ramp; 4) dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site; 5) installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress; and 6) extending the existing bluff stabilization upland of the mean high water line (EA Figure 4, page 2-3). Construction activities could occur over a 6-month period or more.

#### **Summary of Environmental Consequences**

Environmental analyses focused on the following areas: air quality, geological resources, water resources, biological resources, wetlands, noise, cultural resources, solid/hazardous materials/waste, health/safety, land/water use, and socioeconomics. Because the Proposed Action would have no involvement with a designated unit of the coastal barrier resources system, this resource was eliminated from further analysis. Environmental justice and protection of children were also eliminated since the site is located away from these population areas (EA § 1.7, page 1-8). All other findings are summarized below.

**Air Quality (EA § 3.1.4, pages 3-3 to 3-4 and Appendix E):** Construction and demolition (C&D) activities as well as operations of the Proposed Action will result in temporary, localized emissions associated with equipment and tactical military vessel exhaust as well as dust and debris from ground-disturbing activities. All applicable best management practices (BMPs), such as employing watering trucks to control fugitive dust emissions, will be used to minimize air quality impacts during C&D activities. Because the Proposed Action is located in an attainment area for all National Ambient Air Quality Standards under the Clean Air Act, conformity analysis is not required. Overall, there are no long-term impacts to air quality from operations and mitigations are not required.

**Geological Resources (EA § 3.2.4, pages 3-5 to 3-7):** Redevelopment of the waterside facilities, stabilization of the bank area and dredging of the new access channel will require re-grading and re-contouring of the shoreline. While these impacts to soil would be negative, overall the Proposed Action will have a beneficial impact to geological resources by removing the existing creosote piles associated with the breakwater/wave attenuators, headwall/upland retaining wall as well as preventing future erosion

along the shorelines. Initial channel dredging will require a Section 404 Individual Permit from U.S. Army Corp of Engineers (USACE) as well as an environmental resources permit (ERP) for dredge and fill under Chapter 62-346, Florida Administrative Code (FAC) from the Florida Department of Environment Protection (FDEP). Any future maintenance will be exempt from ERP permitting and will qualify for a Nationwide Permit 35 under Section 404. Based on a hydrographic assessment conducted in 2011, Eglin AFB anticipates the channel will need maintenance approximately every 8 years depending on use and frequency of storm events.

All dredge material removed from the submerged land will be placed into a 5-acre disposal site located north of the project area, which is Air Force property (EA Figure 4, page 2-3). A one-time dredge material severance fee of ~\$1.25 per cubic yard will be required by FAC Chapter 18-21.011(3). Final cost will be determined by FDEP during the permitting phase. In addition, Eglin AFB will develop an erosion control plan incorporating BMPs such as use of hay bales, silt traps/diversion structures, installation of floating turbidity barriers and establishment of ground cover on disturbed areas. By following the permitting requirements and developing an erosion control plan, there will be no significant impacts to geological resources.

**Water Resources (EA § 3.3.5, pages 3-9 to 3-11):** No significant, long-term impacts to water resources were identified. While C&D activities surrounding the dock replacement, re-contouring the shoreline and dredging the channel will result in increased water turbidity, these impacts would be minimized by Eglin AFB working through the various permitting processes required by USACE and FDEP. These permits include a National Pollutant Discharge Elimination System (NPDES) storm water construction permit issued by FDEP for ground disturbing activities of an acre or more, a Section 404 Individual Permit issued by USACE due to the action impacting jurisdictional waters of the United States and an ERP along with a variance for dredge/fill activities issued by FDEP. This variance is required because the project falls within Class II shellfish harvesting approved waters along Choctawhatchee Bay. Eglin AFB received the variance from FDEP on May 4, 2012 (EA, Appendix H). Conditions identified within the variance will be included as part of the ERP application process and all dredging activities shall only be conducted the months of July, August and September when shellfish harvesting in this area is closed.

There will be overall beneficial impacts to surface waters once the action is completed and the bluff stabilized. Besides reduction in turbidity levels from bank erosion, other benefits to surface water include the removal of the existing creosote piles associated with the breakwater/wave attenuators, headwall/upland retaining wall and pier. Because the work along the shoreline falls within the 100-year floodplain and there are no other practical alternatives to avoid, every effort will be made to re-contour the shoreline to the existing grade, which would insure backwater elevations are not decreased. An erosion control plan following USACE and FDEP permitting requirements will be developed for construction activities and could include the use of hay bales, silt fences, and staked and/or floating turbidity barriers to minimize the potential, adverse impacts on surface waters from erosion runoff. Exposed soils will be replaced with ground cover and/or riprap as soon as possible. No long-term, significant impacts will occur from either construction activities or operations associated with the Proposed Action.

**Biological Resources (EA § 3.4.6, pages 3-17 to 3-18 and Appendix B):** The greatest impacts to biological resources are from channel dredging, pier construction and military water training exercises. Because these impacts affect the aquatic habitat, analysis focused on potential impacts to marine wildlife, which included the federally listed Gulf sturgeon, Florida manatee, bottlenose dolphin, five species of sea turtles, and smalltooth sawfish. The Eglin Natural Resources Section, in consultation with U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), determined the Proposed Action may affect, but is not likely to adversely affect, the Gulf sturgeon or Florida manatee. In addition, the critical habitat of the Gulf sturgeon as well as other essential fish habitats is not likely to be adversely affected by the Proposed Action. The Eglin Natural Resources Section determined there would be no

taking (deaths) of marine mammals protected under the Marine Mammal Protection Act as a result of the construction activities associated with the Proposed Action and marine mammals will not be adversely affected during military training activities. The USFWS and the NMFS concurred with these determinations on June 30, 2011 and issued a Biological Opinion (BO). Mitigations required under the BO are identified in Section 4.3.4 of the EA and within Appendix B. These mitigations are incorporated by reference and will be outlined within a Mitigation and Monitoring Plan (MMP).

**Wetlands (EA § 3.5.5, page 3-21):** There are several wetland areas located along the western boundary of Test Area D-84. Because silt fencing would be installed 25 feet from the wetland area establishing a boundary, there would be no significant impacts from C&D activities and no further mitigations are required. The previous environmental analysis found in the 2002 EA/FONSI determined training operations associated with the Proposed Action will not impact the wetland areas.

**Noise (EA § 3.6.4, pages 3-26 to 3-29 and Appendix F):** Noise analysis determined the highest level generated from C&D activities is 45 decibels (dB). Because levels are below 65 dB, the point at which noise becomes a public annoyance, impacts were determined insignificant from C&D activities. The 2002 EA/FONSI determined there were minimal noise impacts to the public from military training exercises.

An underwater acoustical analysis was conducted to determine potential noise impacts on bottlenose dolphins from C&D activities. Vibratory pile driving from pier installation will produce high noise levels averaging 185 dB at the pier, spreading outward in a radii pattern, with average continuous vibratory noise levels at 120 dB. Marine mammals found within this zone of influence would potentially be harassed behaviorally; however, this level is within the NMFS noise exposure criteria limit of 160 dB for marine animals. To avoid harassment of bottlenose dolphins from pile driving activities, the NMFS identified several mitigations listed within Section 4.3.4 of the EA and within Appendix B. These mitigations are incorporated by reference and will be outlined within the MMP. It is assumed during the waterborne training activities, tactical military vessels would produce noise levels similar to or slightly less than recreational vessels and the public. Marine mammals would consider the noise from these vessels as they would any other vessel encountered on Choctawhatchee Bay and the impacts would be insignificant.

**Cultural Resources (EA § 3.7.3, pages 3-30 to 3-31 and Appendix G):** In the spring of 2010, archaeological data recovery was conducted in the upland portion of Test Area D-84. Because the project is taking place in a portion of the site that was previously excavated and where no significant prehistoric and/or historic deposits remain, there will be no impacts to cultural resources. The Florida State Historic Preservation Officer (SHPO) concurred with this finding in their February 13, 2012 letter as well as determined there were no concerns with potential submerged cultural resources in the access channel to be dredged. In past consultations with federally recognized tribes, they have indicated they prefer to not be consulted if prehistoric resources will not be impacted. Because these resources are not found at the site, tribal consultation was not conducted for this project. Overall, there are no significant impacts to cultural resources as a result of C&D/water training activities. The bluff stabilization will serve as a layer of protection by providing a buffer to cultural resources not recovered during previous investigations.

**Solid/Hazardous Materials/Wastes (EA § 3.8.3, pages 3-32 to 3-33):** Construction of the Proposed Action will involve the use of hazardous materials such as wood preservatives (creosote), fuels, lubricants and solvents and generate hazardous/solid wastes. The contractor would be responsible for properly storing, transporting and using the materials according to applicable regulations. Potential contact with creosote from the removal of the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier is likely. Creosote has been identified by USEPA as a probable human carcinogen; however, there are no definitive or adequately peer-reviewed studies (to date) of short- or long-term effects on

workers exposed to creosote wood preservatives. All handling, storing, transporting, and disposing of hazardous materials will be in accordance with applicable federal and state regulations. Adequate landfill space is available in the area for C&D debris. Overall, there are no significant impacts to solid/hazardous materials/wastes and no mitigations are required.

**Health/Safety (EA § 3.9.3, page 3-33):** Test Area D-84 is located in an area that has potential for unexploded ordnance (UXO). Prior to C&D activities, UXO support personnel will conduct surveys of the area, remove any UXO and develop an explosive safety contingency plan. If UXO is encountered during C&D activities, procedures contained in the plan will be followed. There are no significant impacts to health/safety from the Proposed Action.

**Land/Water Use and Aesthetics (EA § 3.10.3 and 3.11.3, pages 3-34 to 3-36):** Operation of the Proposed Action is compatible with the adjacent land/water use of the area. Because the adjoining property to Test Area D-84 is under local government jurisdiction, any future changes to land use should be coordinated with the affected agencies. During C&D and training activities, traffic along State Route (SR) 20 may be temporarily delayed to allow equipment and/or personnel movement; however, these delays will be short-term and insignificant. Overall there will be no significant impacts to land/water use and aesthetics from the Proposed Action and no mitigation are required.

**Socioeconomics (EA § 3.12.3, page 3-36 to 3-37):** Channel dredging could potentially impact the shellfish harvesting waters of Choctawhatchee Bay. To avoid this impact, dredging will only occur during the closed shellfish harvesting months (July through September). Any impacts to the shellfish industry will remain unaffected and no closures to approved shellfish harvesting waters will occur.

**Cumulative Impacts (EA §§ 3.14 to 3.17, pages 3-37 to 3-40):** No significant cumulative impacts are projected to occur from C&D and operation activities. Reasonably foreseeable future actions within the project area include training by the 7 SFG(A) waterborne operations with transition to their small arms ranges at Test Area C-52, training by the Naval School, training by the Explosive Ordnance Disposal with transition to C-52 and D-51, and training by various other military units. During these exercises, the units would use SR 20 to access Eglin AFB test areas, which may delay traffic. These delays are expected to be short-term. Another reasonably foreseeable future action would be to perform the remaining cultural resource data recovery on the western portion of Test Area D-84. Several remaining intact deposits west of the fence in the area that are adjacent to the stream, may over time, be exposed from erosion. Section 106 investigations would be required to be conducted.

### **Mitigations**

As the proponent for maintaining the Test Area D-84, 96 RANSS/RNRS is responsible to ensure the mitigations identified above and in the EA are in place prior to taking any specific action. The 96 CEG/CEV will oversee and verify mitigations are fully funded by the proponent, in place and being carried out as identified in this FONSI and the MMP. The MMP will be developed subsequent to this FONSI and will include points of contact for oversight and completion of the mitigation as well as the anticipated timing for mitigation completion. It is expected the mitigation monitoring will generally consist of on-the-ground inspections and any subsequent actions necessary to address deficiencies discovered during the inspections. The EA refers to the use of BMPs. For this FONSI and in compliance with Air Force regulation, BMPs will be carried forward and monitored in the MMP.

### **Public Review**

A public notice was placed in the *Northwest Florida Daily News* on July 5, 2012 announcing the availability of the Draft EA and Draft FONSI/FONPA for public review and comment. A copy of the

publication as it ran in the newspaper is provided in Appendix D. The documents were made available for review on the internet at [www.eglin.af.mil/environmentalassessments.asp](http://www.eglin.af.mil/environmentalassessments.asp) from July 5 through August 19, 2012. No public comments were received over the 45-day comment period.

### **Finding of No Practicable Alternative**

Taking the above information into consideration, pursuant to Executive Order 11988 (*Floodplain Management*) and the authority delegated by Secretary of the Air Force Order 791.1, I find there is no practicable alternative to conducting the Proposed Action within the floodplain and the Proposed Action includes all practicable measures to minimize harm to the environment. This finding fulfills both the requirements of the referenced Executive Order and the Air Force EIAP regulation, 32 C.F.R. § 989.14, for a Finding of No Practicable Alternative.

### **Finding of No Significant Impact**

Based upon my review of the facts and analyses contained in the attached EA, I find the Proposed Action to redevelop the waterside training at Test Area D-84 on the Eglin reservation will not have a significant impact on the natural or human environment; therefore, an environmental impact statement is not required. This analysis fulfills the requirements of NEPA, the President's Council on Environmental Quality 40 C.F.R. §§ 1500-1508 and the Air Force EIAP regulations 32 C.F.R. § 989.

A MMP will be developed and implemented prior to the start of C&D activities, but no later than 90 days from the date of this FONSI.



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JEFFREY M. TODD, Colonel, USAF, P.E.  
Command Civil Engineer  
Communications, Installations  
and Mission Support

25 Oct 2012  
Date



## ACRONYMS AND ABBREVIATIONS

1 SOSS	1st Special Operations Support Squadron
7 SFG(A)	7th Special Forces Group (Airborne)
23 STS	23rd Special Tactics Squadron
96 CEG	96th Civil Engineer Group
96 CEG/CEV	96th Civil Engineer Group Environmental Management Division
96 CEG/CEVH	96th Civil Engineer Group Cultural Resources Section
96 CEG/CEVR	96th Civil Engineer Group Environmental Restoration Section
720 OSS/AST	720th Operations Support Squadron/Advanced Skills Training
720 STG	720th Special Tactics Group
728 ACS	728th Air Control Squadron
AAC	Air Armament Center
ACC	Air Combat Command
ACHP	Advisory Council on Historic Preservation
AFB	Air Force Base
AFI	Air Force Instruction
AFSOC	Air Force Special Operations Command
APE	Area of Potential Effect
BA	Biological Assessment
BMP	Best Management Practice
BO	Biological Opinion
BRAC	Base Realignment and Closure
C&D	Construction/Demolition
CAA	Clean Air Act
CATEX	Categorical Exclusion
CEQ	Council on Environmental Quality
CFCs	chlorofluorocarbons
C.F.R.	Code of Federal Regulations
CH <sub>4</sub>	Methane
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> -e	Carbon Dioxide Equivalent
CO	Carbon Monoxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	Decibels
DNL	Day-Night Average Sound Level
DOD	Department of Defense
DSL	Division of State Lands (Florida)
DZ	Drop Zone
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
ERP	Environmental Resource Permit
ESA	Endangered Species Act
ETTC	Eglin Test and Training Complex
F.A.C.	Florida Administrative Code
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection

**ACRONYMS AND ABBREVIATIONS**  
**(CONTINUED)**

FEMA	Federal Emergency Management Agency
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FNAI	Florida Natural Areas Inventory
F.S.	Florida Statute
FWC	Florida Fish and Wildlife Conservation Commission
GHG	Greenhouse Gas
GIS	Geographic Information System
GWP	Global Warming Potential
HAP	Hazardous Air Pollutant
HCs	Hydrocarbons
LOC	Letter of Concurrence
MHWL	Mean High Water Line
MOA	Memorandum of Agreement
MMPA	Marine Mammal Protection Act
NAGPRA	Native American Graves Protection and Repatriation Act
NAVSCOLEOD	Naval School, Explosive Ordnance Disposal
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
N <sub>2</sub> O	Nitrous Oxide
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSR	New Source Review
NWFWMD	Northwest Florida Water Management District
O <sub>3</sub>	Ozone
RCW	Red-cockaded Woodpecker
ROI	Region of Influence
SAV	Submerged Aquatic Vegetation
SCH	State Clearinghouse (Florida)
SEALs	Sea, Air, and Land Teams (Navy)
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
SOCOM	United States Special Operation Command
SOF	Special Operations Forces
SR	State Road
SRI	Santa Rosa Island
SSL	Sovereign Submerged Lands (Florida)
T&E	Threatened or Endangered
THPO	Tribal Historic Preservation Officer
UAS	Unmanned Aerial Systems
USACE	United States Army Corps of Engineers
USAF	United States Air Force
U.S.C.	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UXO	Unexploded Ordnance
ZOI	Zone(s) of Influence



**COVER SHEET**  
**FINAL ENVIRONMENTAL ASSESSMENT**  
**FOR**  
**TEST AREA D-84 WATERSIDE REDEVELOPMENT**  
**EGLIN AFB, FLORIDA**

**Responsible Agencies:** U.S. Air Force (USAF), Eglin Air Force Base (AFB), Florida.

**Affected Location:** Test Area D-84, Walton County.

**Proposed Action:** Redevelopment of the waterside facilities of Test Area D-84.

**Report Designation:** Final Environmental Assessment (EA).

**Abstract:** Redevelopment of the waterside facilities of Test Area D-84 would include: 1) demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier; 2) constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on a similar alignment as the existing pier; 3) contouring a portion of the shoreline to re-orient the existing boat ramp; 4) dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site; 5) installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress; and 6) extending the existing bluff stabilization upland of the MHWL. All of these activities are integral waterside actions necessary for use of the training facility for Eglin AFB and protection of cultural resources.

This EA has been prepared in accordance with the requirements of the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [U.S.C.] § 4321 et seq.), the Council on Environmental Quality (CEQ) regulations of 1978 implementing NEPA (40 Code of Federal Regulations [C.F.R.] §§1500–1508), Department of Defense (DOD) Directive 6050.1 Environmental Considerations in DOD Actions; and the USAF Environmental Impact Analysis Process (EIAP) (32 C.F.R. § 989, as amended). The environmental analysis conducted for the EA would determine whether there would be significant impacts requiring preparation of an Environmental Impact Statement (EIS) or if impacts would not be significant and would result in a Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA).

The range of alternatives considered in order to meet the purpose of and need for Test Area D-84 waterside redevelopment included a No Action alternative, a rehabilitation alternative, and a redevelopment alternative. The redevelopment alternative and the No Action alternative have been carried forward for further detailed analysis in the EA. The redevelopment alternative meet the purpose of and need for the Proposed Action and meet the criteria determined by Eglin AFB as necessary to provide water training facilities and access to adjacent upland training facilities to meet the continuing and increasing requirement to conduct field test and training exercises and “just-in-time training” that include the use of waterborne facilities, including a pier and terminal platform, and stabilized shoreline for amphibious landing operations.

Written comments and inquiries regarding this document should be directed to:

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**RCS: 07-163**

**Prepared for:  
The United States Air Force  
Eglin Air Force Base**



**Walton County, Florida**

**September 2012**



**FINAL  
ENVIRONMENTAL ASSESSMENT  
FOR  
TEST AREA D-84 WATERSIDE REDEVELOPMENT  
EGLIN AFB, FLORIDA**

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## 1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

This Environmental Assessment (EA) pertains to the proposed waterside redevelopment of Eglin Air Force Base (AFB) Test Area D-84. The Air Force analyzed the environmental impacts of the landside redevelopment of Test Area D-84 several years ago in the EA for Training at the Former Ft. Rucker Recreation Area. Specifically, the current EA defines the purpose of and need for the waterside redevelopment of Test Area D-84, describes the Proposed Action and alternatives, and evaluates the potential environmental impacts resulting from the Proposed Action and alternatives (to include the No Action alternative), as well as any applicable management actions, mitigation measures, and best management practices (BMPs) that would avoid or minimize environmental impacts. This EA contains the following chapters:

- Chapter 1.0 - Purpose of and Need for the Proposed Action
- Chapter 2.0 - Description of Proposed Action and Alternatives
- Chapter 3.0 - Affected Environment and Consequences
- Chapter 4.0 - Plans, Permits/Authorizations, and Management Actions
- Chapter 5.0 - Consultation and Coordination
- Chapter 6.0 - List of Preparers
- Chapter 7.0 - References

This EA was prepared in accordance with the requirements of the *National Environmental Policy Act* of 1969 (NEPA) (42 United States Code [U.S.C.] § 4321 et seq.), the Council on Environmental Quality (CEQ) regulations of 1978 (40 Code of Federal Regulations [C.F.R.] §§ 1500-1508), and the United States Air Force's (USAF's) Environmental Impact Analysis Process (EIAP) (32 C.F.R. § 989). The environmental analysis conducted for this EA would determine whether there are significant impacts, requiring preparation of an Environmental Impact Statement (EIS), or whether the impacts are not significant, resulting in a Finding of No Significant Impact (FONSI).

### 1.1 Background

Test Area D-84 was formerly known as Fort Rucker Recreation Area, a 37-acre recreation area that dates back to the early 1940s and was used and maintained by the United States Army and Fort Rucker staff. In addition, Test Area D-84 was also associated with a water range (Test Area D-54) (see **Figure 1**). Located on this range were silhouette targets, a railroad trestle built on piles from approximately 500 feet on Test Area D-84 extending approximately 1,000 feet into the Choctawhatchee Bay, and a freighter ship target that was aground approximately 4,200 feet off shore available for visual or radar bombing using both high-explosive and practice bombs.

In 2002, initial plans were made to rehabilitate and develop the landward portions of the Test Area D-84 site for purposes of conducting field training for a variety of military customers. An EA for the landward development was prepared, and a FONSI was signed on 23 August 2002 (incorporated by reference). In 2003, Test Area D-84 was evaluated further as part of the Amphibious Ready Group/Marine Expeditionary Unit Readiness Training EA, for which a FONSI was signed on 1 May 2003. In 2007, more plans to refurbish buildings on Test Area D-84 were made and waterside redevelopment (the subject of this current EA), was identified. Waterside redevelopment was not identified or assessed in the 2002 or 2003 EA/FONSI.

## 1.2 Proposed Action

The waterside redevelopment proposed in this EA is integral to facilitating necessary training for Eglin AFB and its tenants and would include the following:

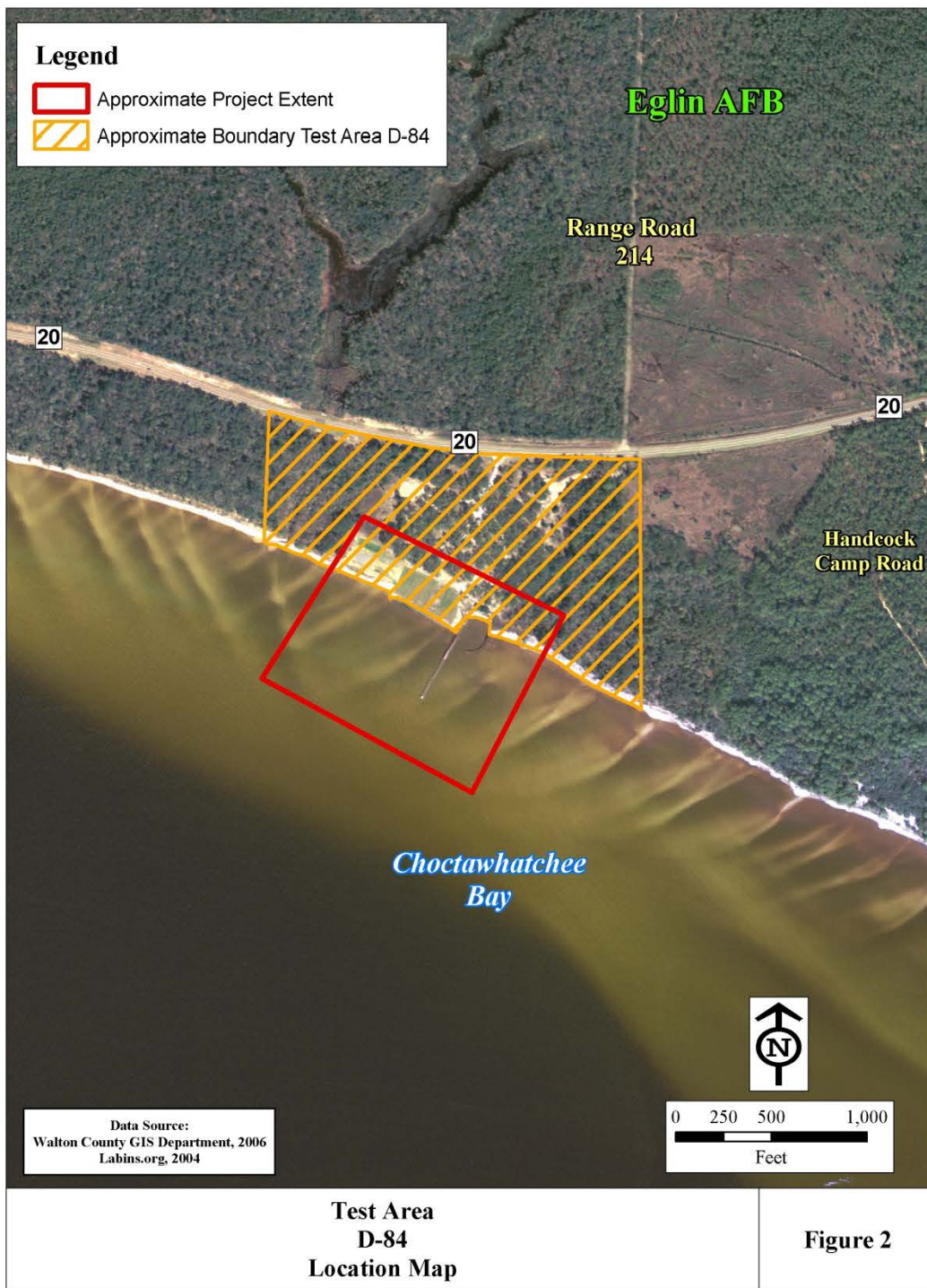
1. Demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier.
2. Constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on a similar alignment as the existing pier.
3. Contouring a portion of the shoreline to re-orient the existing boat ramp.
4. Dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site.
5. Installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress.
6. Extending the existing bluff stabilization upland of the mean high water line (MHWL).

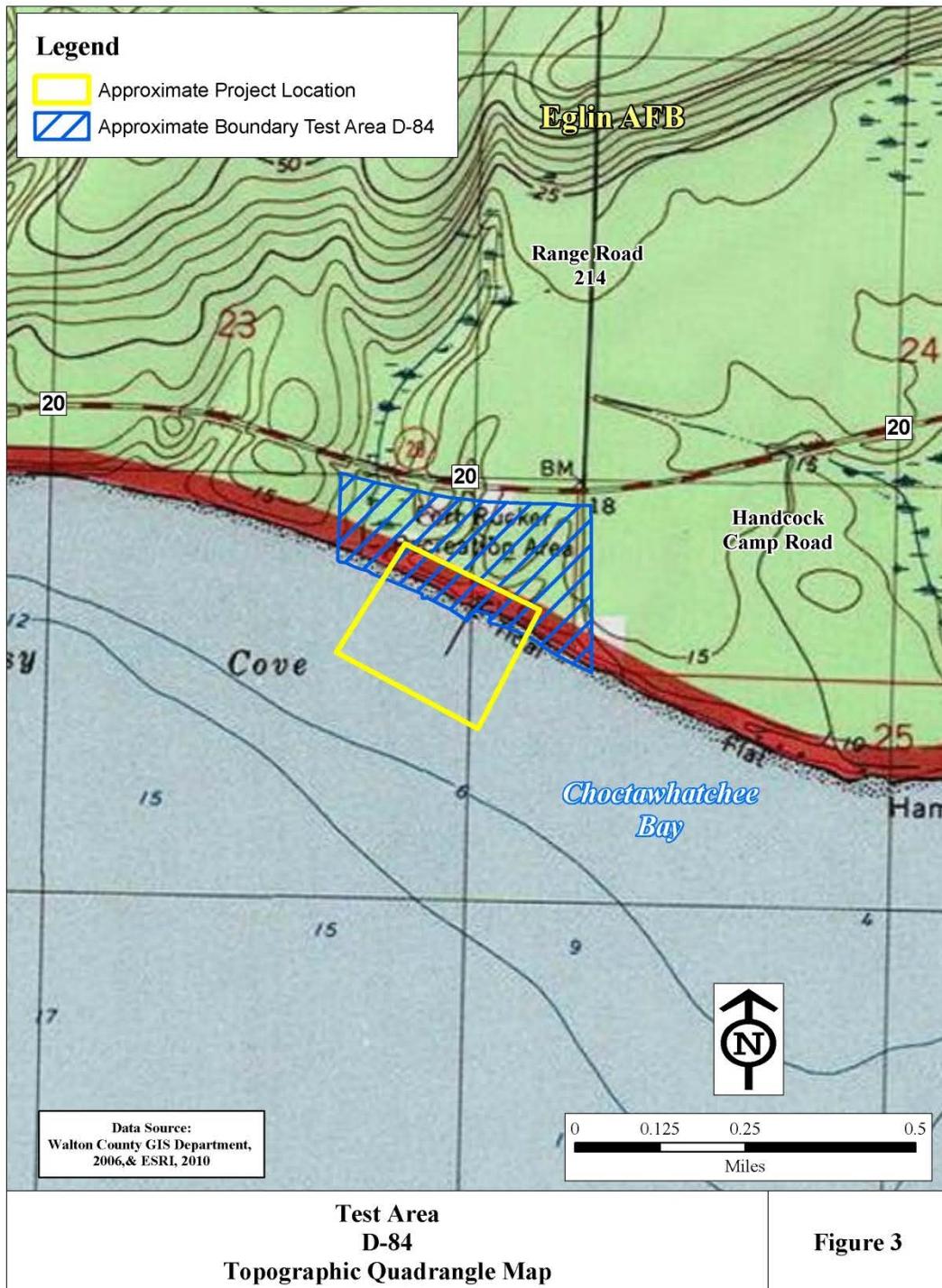
The improvement of Test Area D-84 is required to support adjoining land-based training and specific water-based training for Eglin AFB tenants and other military groups. These include the 1<sup>st</sup> Special Operations Support Squadron (1 SOSS), 720<sup>th</sup> Special Tactics Group (720 STG), and 720<sup>th</sup> Operations Support Squadron/Advanced Skills Training (720 OSS/AST). These groups propose to use Test Area D-84 in conjunction with the water test area (Test Area D-54) for water training operations. The 720 STG, 23<sup>rd</sup> Special Tactics Squadron (23 STS), and 720 OSS/AST currently use Test Area D-54 for training activities. Test Area D-54 (see **Figure 1**) is one of the few water drop zones approved to support paratrooper drops. The Special Tactics Forces parachute to Test Area D-54 and then boat, scuba, or swim to Test Area D-84. The Special Tactics Forces training is expected to occur approximately four times per quarter. The other groups would schedule training as well, but do not currently have a projected usage.

## 1.3 Location of Proposed Action

Eglin AFB is located in northwest Florida and comprises 724 square miles of land area and approximately 142,000 square miles of airspace overlying land and water ranges. Eglin's "Main Base" is located adjacent to Valparaiso, Florida, and about 10 miles northeast of Fort Walton Beach, Florida. Test Area D-84 is situated on the northern shoreline of Choctawhatchee Bay and east of the small community of Choctaw Beach (see **Figure 1**). State Road (SR) 20 crosses the northern portion of Test Area D-84 and is the northern boundary of the project location (see **Figures 2 and 3**).









## 1.4 Purpose of the Proposed Action

The purpose of Test Area D-84 waterside redevelopment is to provide water training facilities and access to adjacent upland training facilities to meet the continuing and increasing requirement to conduct field test and training exercises and “just-in-time training” that include the use of waterborne facilities, including a pier and terminal platform, and stabilized shoreline for amphibious landing operations.

## 1.5 Need for the Proposed Action

For the reasons listed below Test Area D-84 is uniquely capable, above all other Eglin Test and Training Complex (ETTC) Test and Training sites, to support the widest variety of combined land, sea, and air mission scenarios.

Long distance swim/dive training and evaluations are required for maintaining the combat readiness of Special Operations Forces (SOF), such as Air Force Combat Control and Pararescue, Navy Sea/Air/Land (SEAL), and Army Special Forces personnel. Test Area D-84, with its adjacent Choctawhatchee Bay waterway, has reliably low-current conditions, low density of near-shore boat traffic, and the onshore facilities needed to support long-distance swim/dive training and evaluations. D-84 is the only local USAF base of operations where all of these conditions exist at a single location. Other locations within the ETTC where long-distance swim/dive operations for SOF can be based are Test Site A-85 (Wynnehaven Beach) on the Santa Rosa Sound inland waterway and several Test Sites on Santa Rosa Island (SRI) in the Gulf of Mexico. However, these other locations have characteristics that greatly limit the effectiveness and reduce the safety component of this training. Site A-85 has no onshore support infrastructure and because Santa Rosa Sound is extremely narrow the near-shore current is very strong, particularly during tide changes, plus boat traffic is heavy. Because of these conditions in the Sound training effectiveness and swimmer safety are both compromised. Although some SRI sites do have onshore support infrastructure the Gulf of Mexico waterway shares the negative attributes of Santa Rosa Sound plus, because of it being an ocean water body, it has the added disadvantage of breaking waves near the shoreline. For these reasons the Sound and the Gulf are not suitable for near-shore long-distance swim/dive training and evaluations.

Test Area D-84 is ideal for supporting training scenarios involving parachute infiltration into a water Drop Zone (DZ) followed by a distance swim to shore. Test Area D-54 (see Figure 1), just offshore of Test Area D-84, is one of only two inland water DZs controlled by Eglin AFB and the only one with a low-current environment and appropriate distance from shore suitable for water DZ-to-shore infiltration training. Parachuting into the D-54 DZ allows for a 3 to 4 km swim to land at D-84. Also, safety boats needed to support these water DZ operations can be launched and recovered at D-84 and return injured personnel to ambulances waiting onshore at D-84. The other inland water DZ controlled by Eglin is the Sound Water Drop Zone near Wynnehaven Beach, but this drop zone does not have a low-current environment, as the Santa Rosa Sound has a significant cross-current, and its location allows for only a 1 to 1.5 km swim to land at A-85.

Waterborne training operations to, from, or through D-84 support complex training scenarios conducted on nearby training areas. The proximity of D-84 to the shoreline tactical training site at Alaqua Point and the inland live-fire training ranges at C-52C and C-52N is essential to certain training scenarios (e.g., parachute infiltration into D-54 water DZ, swim to shore at D-84, conduct land navigation through several forested Tactical Training Areas to a target objective, and engagement of targets at one of the C-52C firing ranges). No other ETTC site is situated to provide the shoreline component for training scenarios incorporating these particular diverse training elements.

D-84 is also ideally suited for supporting launch and recovery of small Unmanned Aerial Systems (UAS) during SOF tactical overwater UAS training in the AF-controlled Restricted Airspace above Choctawhatchee Bay. This location provides an inland waterway air maneuver area 6 km wide. In addition to D-84 having an area for small UAS launch and recovery, an operator can maintain visual contact with the UAS throughout its entire overwater flight plus a boat can be launched from D-84 to recover any malfunctioning UAS that might have to ditch in the Bay. SOF operational units as well as instructors and students in the USAF SOF UAS training course require this specific training environment. The only other ETTC onshore location with an adjacent inland waterway is A-85/Santa Rosa Sound, but it provides an air maneuver area just 1.5 km wide. That is too restrictive for effective UAS operator training, plus the heavy boat traffic in the Sound complicates ditching and waterborne recovery of a malfunctioning UAS.

Although there are specific training missions that A-85 and SRI are well-suited for, the training requirements listed above are not among them. These tactical training missions can and should only be conducted at D-84/D-54.

In recent years, hurricanes have significantly degraded waterside facilities at Test Area D-84, making them unusable. The annual joint and coalition service Special Operations exercise Emerald Warrior utilized the littoral capabilities at Test Area D-84 during the first two renditions several years ago. Due to the dilapidated conditions at Test Area D-84, subsequent Emerald Warrior exercise participants, as well as other SOF units conducting training year-round, have moved littoral phases to other ranges off site. Therefore, redeveloping the waterside facilities at Test Area D-84 would provide water-based training facilities with access to upland training facilities, which would meet the continuing and increasing requirement to conduct field test and training exercises. A factor in the congressional mandate 2005 Base Realignment and Closure (BRAC) to move the 7<sup>th</sup> Special Forces Group (Airborne) (7 SFG(A)) to Eglin AFB was the land/water contrast. D-84, with its adjoining specialized water and land training areas, epitomizes that distinctive training environment.

In summary, redevelopment of the waterside portions of Test Area D-84 would restore unique capabilities to support an extensive number of military programs, including, but not limited to, the following:

- Air Force 728<sup>th</sup> Air Control Squadron (728 ACS) mission-essential task listing training to meet its long-term requirements
- Air Force Special Operations Command (AFSOC) for testing and training with surveillance and coastal security systems
- Air Force 720 OSS/AST combined land, sea, and air combat control training
- Joint service training for the United States Navy's Sea, Air, and Land Teams (SEALs), Marines, and Army Special Forces, to include the 7 SFG(A)
- Joint service training of airborne and waterborne communications, intelligence, surveillance, and reconnaissance, to include United States Special Operation Command (SOCOM) and the Air Combat Command (ACC)

## 1.6 Scoping and Consultation

The *Coastal Zone Management Act* (CZMA) determination and Florida State Clearinghouse (SCH) coordination (SAI# FL201207036289C) are provided in Appendix A. Documents related to Section 7 of the *Endangered Species Act* (ESA), the *Magnuson-Stevens Fisheries Conservation and Management Act* (MSA), and the *Marine Mammal Protection Act* (MMPA) are found in Appendices B and C. Public involvement documentation is located in Section 5.2 and Appendix D. Agency coordination/meetings are documented in Section 5.3.

## 1.7 Resource Areas Identified for Further Analysis

Relevant environmental issues for the proposed Test Area D-84 waterside redevelopment are addressed in Chapter 3.0, Affected Environment and Consequences, of this EA. Landside redevelopment was addressed in a previous EA. Potential environmental effects assessed for the waterside redevelopment include the natural environment (air, geology, surface water/floodplains, biological resources, wetlands, noise, and cultural resources), hazardous materials and wastes, health and safety, and the local community (land/water use, aesthetics, and socioeconomics, as it relates to the shellfish industry).

In addition, this EA examines the cumulative effects of Test Area D-84 waterside redevelopment when considered with other projects. A sliding-scale approach is the basis for the analysis of potential environmental effects in this EA. That is, certain aspects of the Proposed Action have a greater potential for creating environmental effects than others. They are discussed in greater detail in this EA than those aspects of the action that have little potential for effect. For example, implementation of the Proposed Action would likely affect water resources and biological resources to a greater degree than other environmental considerations. This EA presents in-depth descriptive information on these resources (water and biological) to the fullest extent necessary for effects analysis. Conversely, implementation of the Proposed Action would cause only a minor effect on the surrounding landward environment including the local community. Thus, a minimal description of these aspects is presented.

## 1.8 Resource Areas Eliminated from Further Analysis

The Proposed Action would have no involvement with a designated unit of the Coastal Barrier Resources System protected under the Coastal Barrier Resource Act of 1982. Therefore, coastal barrier resources were eliminated from further analysis. In addition, the Proposed Action would not involve disproportionate impacts to any nearby low-income or minority populations nor would the Proposed Action sever, fragment, or otherwise negatively impact the cohesion of any low-income or minority community. Therefore, environmental justice has been eliminated from further analysis.

## 1.9 Permitting Requirements

Permits are required prior to dredging or filling federal or state jurisdictional wetlands or surface waters: a Section 404 Permit under the *Clean Water Act* (CWA) from the United States Army Corps of Engineers (USACE) and an Environmental Resource Permit (ERP) from the Florida Department of Environmental Protection (FDEP) under Chapter 62-346, Florida Administrative Code (F.A.C.). The Division of State Lands (DSL) administers the sovereign submerged lands (SSL), pursuant to 18-21, F.A.C., that would support the pier, terminal platform, articulating block mattress, and adjacent channel dredging. Coordination with DSL is required as part of the ERP application review and approval process mentioned above. In addition, a variance required prior to dredging in Class II shellfish harvesting approved waters pursuant to Florida Statute (F.S.) 403.201 from FDEP in consultation with the Florida Department of Agriculture and Consumer Services (FDACS), Aquaculture Division, was received on May 4, 2012 (Appendix H). A De Minimis Exemption from FDEP and Nationwide 6 from USACE have been issued for soil sampling within Choctawhatchee Bay (See Section 4.2). Activities would disturb 1 acre or more of ground surface; therefore, a National Pollutant Discharge Elimination System (NPDES) stormwater construction permit is required and would be obtained by the contractor prior to construction activities according to Chapter 62-621, F.A.C. Regarding federal and state protected species, coordination has been conducted with the United States Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and Florida Fish and Wildlife Conservation Commission (FWC) to identify any required permits or approvals. All consultation documents related to the ESA, MSA, and MMPA are included in Appendices B and C.

## 1.10 Laws and Regulations

A brief summary of federal and state laws and regulations that may be applicable to the Proposed Action is provided in the following paragraphs and in **Table 1**.

### 1.10.1 Environmental Policy

NEPA establishes a national environmental policy with goals for the protection, maintenance, and enhancement of the environment, and provides a process for implementing these goals under the jurisdiction of federal agencies. This policy recognizes humankind's impact on the environment and the importance of restoring and maintaining the overall quality of our environment. NEPA essentially encompasses sound planning practices designed to minimize damage to the environment. It provides federal agencies with a systematic, interdisciplinary approach to planning, thereby ensuring the "widest range of beneficial uses of the environment without degradation, risk to health and safety, or other undesirable and unintended consequences" (42 U.S.C. § 4331).

NEPA requires federal agencies to consider, as part of planning and decision-making processes, the impact(s) of their actions on the environment. NEPA's purpose is not to generate paperwork, but to foster agency action through informed decision making. NEPA established the CEQ, which is charged with the development of implementing regulations and ensuring federal agency compliance with NEPA. In 1978, CEQ promulgated guidelines to implement NEPA, and in November 1979, these guidelines became regulations (40 C.F.R. §§ 1500-1508), referred to in this document as the "CEQ regulations," which are applicable to all federal agencies.

The CEQ regulations mandate that all federal agencies use a systematic interdisciplinary approach to environmental planning and the evaluation of actions that may affect the environment. The CEQ regulations are intended to assist federal agency officials in decision making based on an understanding of the potential environmental consequences, and to take actions that protect, restore, and enhance the environment. The level of analysis required to meet NEPA requirements depends on the scope and severity of the environmental impacts by the proposed action.

Air Force Policy Directive 32-70, *Environmental Quality*, dated 20 July 1994, states that "the Air Force will conduct its activities according to national environmental policy," and all personnel are accountable for the environmental consequences of their actions. The USAF, in its mission to achieve and maintain environmental quality, is committed to conserving natural and cultural resources through effective planning and integrating into all levels of decision making the environmental consequences of proposed actions and alternatives.

The USAF developed its own rules implementing the CEQ regulations. The USAF's EIAP (32 C.F.R. § 989), also incorporated by reference in Air Force Instruction (AFI) 32-7061, outlines the steps for the analysis of environmental impacts on installations in the United States and abroad. The policies and procedures set forth in the instruction and regulation are designed to ensure USAF compliance with NEPA and the CEQ regulations.

Executive Order (EO) 11514, *Protection and Enhancement of Environmental Quality*, as amended by EO 11991, sets the policy for directing the federal government in providing leadership in protecting and enhancing the quality of the nation's environment.

EO 12372, *Intergovernmental Review of Federal Programs*, provides for opportunities for consultation by state and local governments on proposed federal developments. AFI 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning*, provides an outline of interagency cooperation as well as the legal requirements under the *Intergovernmental Coordination Act* of 1968.

### 1.10.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decision-making process for actions proposed by federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA, EIS, or Categorical Exclusion (CATEX), which enables the decision maker to have a comprehensive view of major environmental issues and requirements associated with the proposed action. According to CEQ regulations, the requirements of NEPA must be integrated “with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively” (40 C.F.R. § 1500.2). **Table 1** summarizes other applicable statutes and regulations.

**Table 1. NEPA-Integrated Regulations**

Regulation	Part Number
<b>Air Quality</b>	
Clean Air Act	42 U.S.C. § 7401 et seq., as amended
Florida Air and Pollution Control Act	F.S. 403.011 et seq.
Federal Compliance with Pollution Control Standards	EO 12088
Environmental Quality	AFI 32-70
Air Quality Compliance	AFI 32-7040
National Security Exemption	40 C.F.R. § 1042.635
<b>Noise</b>	
Noise Control Act of 1972	Public Law 92-574 and 42 U.S.C. § 4901 et. seq.
Air Installation Compatible Use Zone Program	AFI 32-7063
<b>Water Quality, Wetlands, Floodplains, and Coastal Areas</b>	
Submerged Land Act	43 U.S.C. § 1314
Clean Water Act	33 U.S.C. § 1251 et seq., as amended
Coastal Zone Management Act	42 U.S.C. § 1451 et seq. and F.S. 380.20 et. seq.
Florida Environmental Land and Water Management Act	F.S. 380.012 et. seq.
Protection of Wetlands	EO 11990
Floodplain Management	EO 11988
Water Quality Compliance	AFI 32-7041
Florida Air and Water Pollution Control Act	F.S. 403.011 et. seq.
State Surface Water Regulations	Chapter 62-346, F.A.C.
<b>Biological Resources</b>	
Endangered Species Act of 1973	16 U.S.C. §§ 1531-1543
Migratory Bird Treaty Act of 1918	16 U.S.C. § 703-712
Integrated Natural Resource Management	AFI 32-7064
Marine Mammal Protection Act	50 C.F.R. § 216
Magnuson-Stevens Fisheries Conservation and Management Act	16 U.S.C. §§ 1801-1884
<b>Land Use and Aesthetic Resources</b>	
NEPA	42 U.S.C. § 4321 et seq.
<b>Cultural Resources</b>	
National Historic Preservation Act of 1966	16 U.S.C. § 470 et seq., as amended
Archaeological Resources Protection Act	16 U.S.C. § 470a-11, as amended
American Indian Religious Freedom Act of 1978	Public Law 95-341 and 42 U.S.C. § 1996, as amended
The Native American Graves Protection and Repatriation Act of 1990	Public Law 101-601 and 25 U.S.C. §§ 3001-3013
Cultural Resource Management	AFI 32-7605

<b>Hazardous Materials and Waste Management</b>	
Resource Conservation and Recovery Act of 1976	42 U.S.C. § 6901, as amended
Florida Solid and Hazardous Waste Management Act	F.S. 403.702 et seq.
Solid and Hazardous Waste Compliance	AFI 32-7042
Environmental Restoration Program	AFI 32-7020
Defense Environmental Restoration Program	10 U.S.C. § 2701 et seq.
<b>Environmental Justice</b>	
Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations	EO 12989
<b>Transportation</b>	
Hazardous Material Transportation Act of 1975	49 U.S.C. § 1761

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## **2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

### **2.1 Selection Criteria for Alternatives**

As detailed in section 1.5 of this document, criteria considered in the advancement of alternatives were analyzed on the site's ability to support adjoining land-based training and specific water-based training for Eglin AFB tenants and other military groups, such as long-distance swim/dive training and evaluations, training scenarios involving parachute infiltration into a water DZ followed by a distance swim to shore, land navigation to a target objective and engagement of targets, and launch and recovery of small UASs. Test Area D-84 was the only site capable of meeting all the criteria which included sufficient upland area and existing facilities/structures, easily accessible land to water-based test ranges (including proximity of a water DZ), low current conditions and low density of near-shore boat traffic to allow for swimming between land and water ranges, a 3 to 4 km distance from the DZ to shore, proximity to a shoreline tactical training site and inland live-fire training ranges, and a launch and recovery area for UAS with a 6 km-wide air maneuver area.

### **2.2 Alternatives Eliminated from Further Analysis**

Rehabilitation of the existing pier, breakwater, and upland retaining wall was considered and eliminated from further consideration for the following reasons. The existing piers were tested for structural integrity by the Navy and were deemed to be structurally unsound due to "hourglassing." Hourglassing is a term used to describe the physical condition or shape of the pier that has been degraded over time by waves and, in this case, the saltwater environment in which they are located. In addition, the boat ramp is currently configured such that a hard turn is required to gain access to the ramp. Consequently, a hard turn is not supportive of the mission because of unsafe conditions it poses during ingress/egress of waterborne training missions. The existing breakwater and upland retaining walls are constructed of creosote- and arsenic-treated timbers, which are environmentally and ecologically detrimental; therefore, rehabilitation using these materials would not be permitted by USACE and FDEP. Finally, because of negative long-term weather and storm (hurricane) effects, demolition and replacement of these existing structures is recommended.

### **2.3 Alternatives Carried Forward for Further Analysis**

The No Action alternative and the redevelopment alternative were advanced for further evaluation.

#### **2.3.1 No Action Alternative**

The existing conditions under the No Action alternative would remain unchanged. No demolition, construction, or enhancement of existing facilities (e.g., piers, boat ramp, and channel) would occur. Adverse effects from the creosote- and arsenic-treated existing pier, breakwater, and upland retaining walls would continue occurring at Test Area D-84 because of the dilapidated condition of the area, not because there is not a need by the war fighter. Currently, there are only minor training exercises occurring at Test Area D-84. The No Action alternative would not meet the purpose and need as discussed in Sections 1.4 and 1.5. However, as required by NEPA and USAF's EIAP (32 C.F.R. § 989.8), it was carried forward for analysis in the EA to allow a detailed comparison of baseline conditions and the Proposed Action.

The No Action alternative would result in no changes to the existing condition with regard to waterside activities at Test Area D-84. No demolition, construction, or enhancement of existing facilities (e.g., piers, boat ramp, and channel) would occur. Adverse effects from the creosote- and arsenic-treated existing pier, breakwater, and upland retaining walls would continue. Currently, there are only minor training exercises occurring at Test Area D-84, and improvements to the facilities (structures and



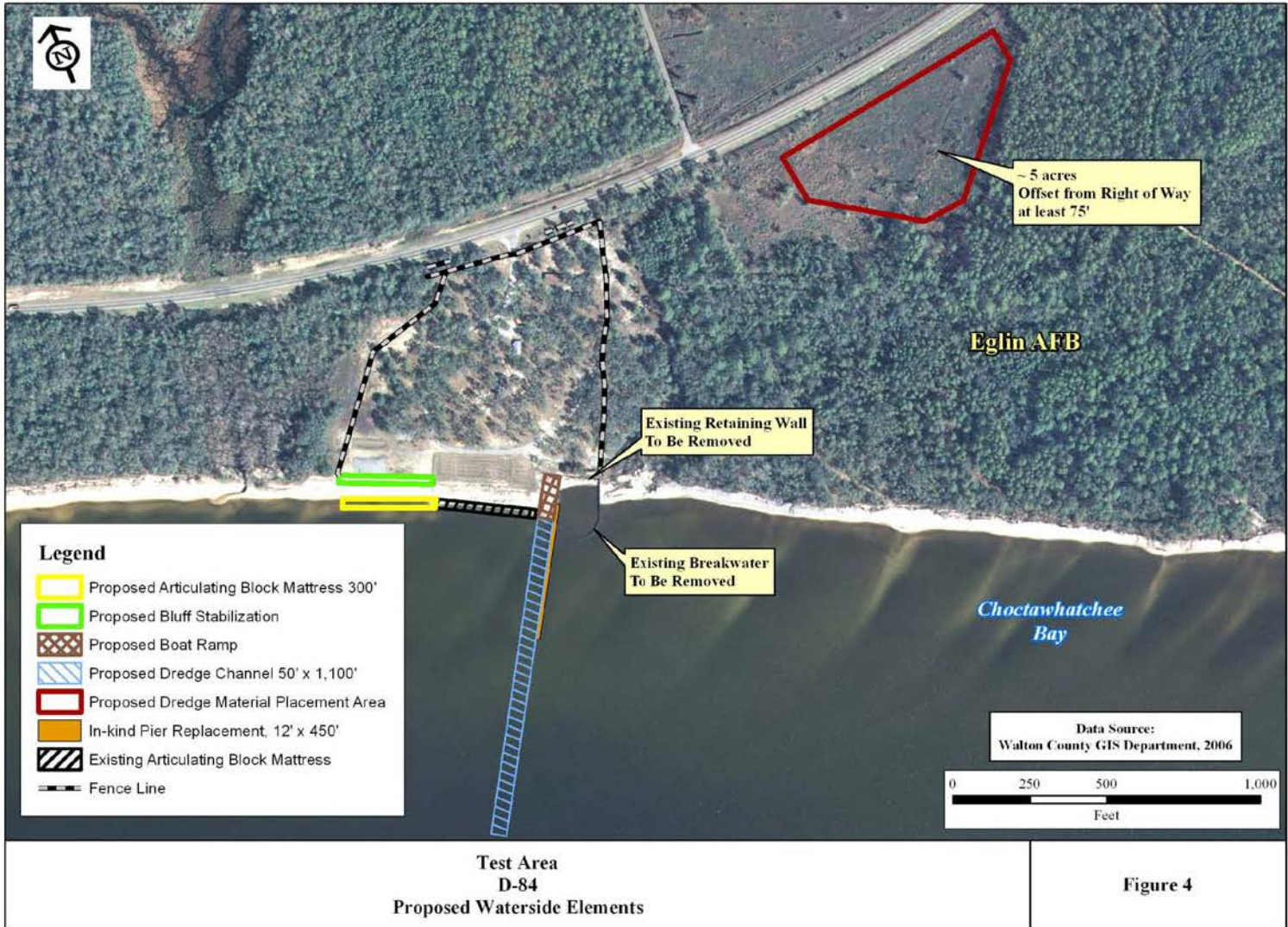
electrical) were started in the spring (FY11) and are anticipated for completion in October 2011. Users of the proposed Test Area D-84 waterside project (including the Air Force, Navy SEALs, Marines, and Army) would not be afforded a similar site or facility needed for waterside training as described in Chapter 1.0, above.

The currently used site is A-85. It has a strong current at tide, is totally exposed to the public, and requires the use of site A-13 potentially impacting cultural resources and threatened and endangered species. Heavy equipment, landing craft and other essential components cannot be used at this site. In addition, benefits of the landward improvements proposed in the 2002 EA/FONSI would be greatly reduced. Costs associated with the design and construction of Test Area D-84 waterside redevelopment would not be incurred. Additional costs to identify and develop an alternative site to meet the project purpose and need, including development of other necessary land-based support projects, may be required.

### **2.3.2 Redevelopment Alternative (Preferred Alternative)**

Redevelopment of the waterside facilities of Test Area D-84 would include: 1) demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier; 2) constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on a similar alignment as the existing pier; 3) contouring a portion of the shoreline to re-orient the existing boat ramp; 4) dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site; 5) installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress; and 6) extending the existing bluff stabilization upland of the MHWL (see **Figure 4**). All of these activities are integral waterside actions necessary for use of the training facility for Eglin AFB and protection of cultural resources.

The redevelopment alternative is the only alternative that fully meets the Test Area D-84 waterside project purpose and need and has therefore been selected as the Proposed Action.



## 2.4 Comparison of Alternatives

**Table 2** summarizes the impacts for each resource area under the Proposed Action and the No Action alternative.

**Table 2. Summary of Alternatives and Potential Environmental Effects**

	<b>Proposed Action</b>	<b>No Action Alternative</b>
<b>Air Resources</b>		
Air Quality	Minor, temporary increases in air emissions from heavy equipment during construction and from tactical military vessels during intermittent training exercises	No impacts anticipated
<b>Geological Resources</b>		
Geology/Soils	Short-term insignificant disturbance of soils to the bay bottom during demolition and construction activities associated with the pier, boat ramp, channel dredging, installation of the articulating block mattress, and stabilization of the upland bluff; dredge materials would be placed in a self-contained upland spoil site; impacts would be minimized through the use of best management practices (BMPs); permits from Florida Department of Environmental Protection (FDEP) and United States Army Corps of Engineers (USACE) would be obtained prior to construction activities	No impacts anticipated; however, upland bluff soil erosion would continue and potentially jeopardize the upland training facilities and equipment; adverse impacts associated with creosote leaching from existing breakwater and pier timbers
<b>Water Resources</b>		
Surface Water	BMPs would be implemented during construction for protection of water quality; permits from FDEP and USACE would be obtained prior to construction activities	Adverse impacts associated with creosote leaching from existing breakwater and pier timbers
Floodplains	No significant impacts on 100-year floodplains associated with Choctawhatchee Bay; no rise in backwater elevations as a result of this project; no Federal Emergency Management Agency (FEMA) designated regulatory floodways within the project area	No impacts anticipated
<b>Biological Resources</b>		
Ecological Associations	Essential fish habitat (EFH) coordination with National Marine Fisheries Service (NMFS) has occurred as a result of this project; submerged aquatic vegetation (SAV) surveys were conducted in 2009 and 2010 for this project; although small patches of sea grasses were found within the survey boundary, none were located near the pier or dredge channel locations; therefore, no impacts on sea grasses are expected from dredging operations or pier demolition/construction activities; the EFH coordination and SAV surveys are found in Appendices B and C, respectively	Adverse impacts associated with creosote leaching from existing breakwater and pier timbers

	<b>Proposed Action</b>	<b>No Action Alternative</b>
Wildlife	Temporary, short-term impacts during construction of the pier and dredge channel; however, adverse effects not anticipated	Adverse impacts associated with creosote leaching from existing breakwater and pier timbers
T&E Species	Consultation with NMFS and U.S Fish and Wildlife Service (USFWS) is required under Section 7 of the <i>Endangered Species Act</i> (ESA), the <i>Magnuson-Stevens Fisheries Conservation and Management Act</i> (MSA), and the <i>Marine Mammal Protection Act</i> (MMPA); the biological assessment (BA), biological opinion (BO), and letters of concurrence (LOC) are located in Appendix B	Adverse impacts associated with creosote leaching from existing breakwater and pier timbers
<b>Wetlands</b>		
Wetlands	No impacts anticipated	No impacts anticipated
<b>Noise</b>		
Noise	Minor, temporary increases in noise and vibration from heavy equipment during construction; minor, temporary noise increases during training activities from boat engines; minor, temporary noise and vibration increases to marine mammals are possible from pile installation during pier construction. BMPs and mitigations would be implemented in accordance with the BO and LOC from NMFS and USFWS; there are no residences or other public noise-sensitive receptors within a 0.75-mile radius of the project; therefore, noise impacts to the public are not expected from implementation of the Proposed Action	No impacts anticipated
<b>Cultural Resources</b>		
Cultural Resources	No impacts on cultural resources as a result of the Proposed Action; data recovery was completed in the uplands in accordance with a memorandum of agreement (MOA) between Eglin Air Force Base (AFB), the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (AHP) (Appendix G)	No impacts anticipated
<b>Solid and Hazardous Materials/Waste</b>		
Solid Waste	Short-term increase in solid waste from demolition activities; no long-term impact	No impacts anticipated
Hazardous Materials/Waste	Hazardous materials and other potentially harmful materials, such as creosote found in derelict timbers associated with the existing breakwater and pier, and dredge material and wastes generated during construction, would be properly handled, stored, and disposed of in accordance with federal/state laws and regulations	Adverse impacts associated with creosote leaching from existing breakwater and pier timbers

	<b>Proposed Action</b>	<b>No Action Alternative</b>
Health & Safety	Human contact with creosote in derelict timbers is expected during demolition activities; contractors would properly handle, store, and dispose of harmful materials in accordance with federal/state laws and regulations; benefit to training personnel by removing creosote timbers and providing safe access to training facilities	Would continue to be a highly unsafe area for its proposed use
<b>Health &amp; Safety</b>		
Unexploded Ordnance (UXO)	UXO would be surveyed and cleared prior to ground-disturbing activities; UXO contingency plan would be developed, and compliance by contractor is required to ensure no impacts on health and safety would occur	UXO would not be surveyed or cleared; possible risk to public
<b>Land Use and Aesthetics</b>		
Land Use	No significant, adverse impacts anticipated on land use; redevelopment of the waterside portions of Test Area D-84 would provide access to upland training facilities to support military training	No impacts anticipated
Aesthetics	Beneficial impact on aesthetics; waterside structures would be redeveloped to include functional use of the pier, boat ramp, and shoreline necessary for accessing upland training facilities	No impacts anticipated
<b>Socioeconomic</b>		
Socioeconomic	No permanent or temporary closure of conditionally approved shellfish harvesting waters would occur. Channel dredging would occur during "closed" months (July-September). Therefore, no significant impacts on the shellfish industry.	No impacts anticipated

### 3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

#### 3.1 Air Quality

##### 3.1.1 Definitions

###### *Criteria Pollutants*

Air quality is generally determined by the type and concentration of various measurable substances in the atmosphere known as “criteria pollutants.” The type and amount of pollutants in the atmosphere, the size and topography of the air basin, and the local and regional meteorological influences determine air quality. The severity or nonseverity of a pollutant’s concentration in a region or geographical area is determined by comparing it to federal and/or state ambient air quality standards. Under the authority of the *Clean Air Act* (CAA), the United States Environmental Protection Agency (USEPA) has established nationwide air quality standards to protect public health and welfare, with an adequate margin of safety (USAF, 2010a). **Table 3** shows the federal and state ambient air quality standards with respect to the criteria pollutants.

**Table 3. Ambient Air Quality Standards**

Air Pollutant	Averaging Time	Federal National Ambient Air Quality Standards		Florida Ambient Air Quality Standards
		Primary (>)	Secondary (>)	
Carbon Monoxide (CO)	8-hour	9 ppm	9 ppm	9 ppm
	1-hour	35 ppm	35 ppm	35 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	Annual	0.053 ppm	0.053 ppm	0.053 ppm
Sulfur Dioxide (SO <sub>2</sub> )	Annual	0.03 ppm	No Standard	0.02 ppm
	24-hour	0.14 ppm	No Standard	0.10 ppm
	3-hour	No Standard	0.50 ppm	0.50 ppm
Particulate Matter (PM <sub>2.5</sub> )	Annual	15 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>
Particulate Matter (PM <sub>10</sub> )	Annual Arithmetic Mean	Revoked <sup>(2)</sup>	Revoked <sup>(2)</sup>	50 µg/m <sup>3</sup>
	24-hour	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
Ozone (O <sub>3</sub> )	8-hour	0.075ppm	0.075ppm	--
	1-hour <sup>(1)</sup>	0.12 ppm	0.12 ppm	0.12 ppm
Lead (Pb)	Quarterly	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>

Notes: ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter  
 (1) Only applies to non-attainment areas  
 (2) Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM10 standard in 2006 (effective December 17, 2006).  
 Sources: USEPA, 2010; FDEP, 2010a.

###### *Greenhouse Gases*

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions are generated by both natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the earth’s temperature. GHGs include water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), ozone (O<sub>3</sub>), and several hydrocarbons (HCs) and chlorofluorocarbons (CFCs). Each GHG has an estimated global warming potential (GWP), which is a function of its atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from the Earth’s surface. The GWP of a particular gas provides a relative basis for calculating its carbon dioxide equivalent (CO<sub>2</sub>-e) or the amount of CO<sub>2</sub> that

emissions of that gas would be equal to. CO<sub>2</sub> has a GWP of 1, and is, therefore, the standard by which all other GHGs are measured (USAF, 2010a).

The potential effects of GHG emissions from the Proposed Action are, by nature, global. Given the global nature of climate change and the current state of the science, it is highly speculative at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, a detailed air quality analysis was performed on GHG emissions during construction activities, and a more conservative approach was used regarding emissions from the operations of tactical military vessels. Conservative assumptions were made because many tactical military vessels used for training exercises and national defense qualify for the National Security Exemption, pursuant to 40 C.F.R. § 1042.635, as discussed in Appendix E. Therefore, not all tactical military vessel emissions can be analyzed in this EA.

### 3.1.2 Area of Potential Affect

For this analysis, Walton County is the chosen Area of Potential Affect (APE) in which air emissions from Test Area D-84 construction activities and tactical military vessel operations would occur. Air emissions from training operations were assessed in the 2002 EA/FONSI (as referenced in Section 1.1) with the exception of the potential tactical military vessels. Therefore, this EA analyzes both potential air emissions from construction activities and provides a reasonable estimate of emissions from tactical military vessel operations (see Appendix E). **Table 4** illustrates the existing conditions for the APE (USAF, 2010a). A General Conformity Determination is not required because the areas covered by the Proposed Action are attainment areas for all criteria pollutants (CAA Section 9 176(c); 42 U.S.C. § 7506(c)).

**Table 4. Emissions Inventory for Walton County**

Source Type	Emissions (tons per year)				
	CO	NO <sub>x</sub>	PM	SO <sub>x</sub>	VOCs
<b>Walton County (Area of Potential Affect)</b>					
Non-Point and Mobile Sources	52,111	5,390	4,208	543	9,706
Point Sources	28	14	2	4	28
<b>Total</b>	<b>52,139</b>	<b>5,404</b>	<b>4,210</b>	<b>547</b>	<b>9,734</b>
Notes: CO = carbon monoxide; NO <sub>x</sub> = nitrogen oxides; PM = particulate matter; SO <sub>x</sub> = sulfur oxides; VOCs = volatile organic compounds					
Sources: USEPA, 2003; USAF, 2010a.					

### 3.1.3 Laws and Regulations

In accordance with EO 12088, *Federal Compliance with Pollution Control Standards*, United States Department of Defense facilities must ensure that all necessary actions are taken for the prevention, control, and abatement of environmental pollution with respect to the CAA and other environmental laws. In support of EO 12088, Air Force Policy Directive 32-70, *Environmental Quality*, requires Air Force facilities to comply with applicable federal, state, and local environmental laws and standards. Furthermore, AFI 32-7040, *Air Quality Compliance*, establishes a framework for Air Force facilities to follow in order to comply with applicable CAA requirements. Within this framework are the requirements to obtain and maintain operating permits as required and to prepare and periodically update a comprehensive base emissions inventory (USAF, 2010a).

In 1996, Eglin AFB determined that emission thresholds needed to qualify as a “major” source under the federal Title V Operating Program promulgated in 40 C.F.R. § 70 were exceeded for various criteria pollutants and hazardous air pollutants (HAPs). In general, a major source is defined as any stationary

facility or source of air pollutants that directly emits, or has the potential to emit, 100 tons per year (tpy) or more of any criteria air pollutant (with the exception of HAPs) or has the potential to emit (considering emission controls) 10 tpy or more of any USEPA-listed HAP, or 25 tpy or more of any combination of HAPs. Eglin AFB was classified as a major source for the pollutants based on its potential to emit (USAF, 2010a).

As a result of this determination, Eglin AFB submitted a Title V permit application to FDEP during June 1996. FDEP issued a final Title V permit dated July 2, 1999. Eglin AFB has continued to operate under a Title V permit, including several revisions and renewals since that initial permit was issued. The current permit, 0910031-013 AV, was issued in May 2009. The majority of emissions associated with the Proposed Action are related to construction and mobile sources, such as heavy equipment/vehicles, and is not covered under the Title V Operating Program (USAF, 2010a).

Sources with Title V permits must address GHG requirements when they apply for, renew, or revise their permits. Step 2 begins on July 1, 2011, and covers new large sources of GHG emissions that have the potential to emit 100,000 tpy CO<sub>2</sub>-e or more (provided that they also emit GHGs or some other regulated New Source Review (NSR) pollutant above the 100/250 tpy (mass based) statutory thresholds), and modifications at existing sources that increase net GHG emissions by 75,000 tpy CO<sub>2</sub>-e or more, (provided that it also results in an increase of GHG emissions on a mass basis). GHG emission sources that equal or exceed the 100,000 tpy CO<sub>2</sub>-e threshold will be required to obtain a Title V permit if they do not already have one (USAF, 2010a).

Under the mandatory reporting rule, fossil fuel and industrial GHG suppliers, motor vehicle and engine manufacturers, as well as facilities that emit 25,000 metric tons or more of CO<sub>2</sub>-e per year, will be required to report GHG emissions data to USEPA annually. Eglin AFB has prepared a *Greenhouse Gas Monitoring Plan*, which was published April 1, 2010 (USAF, 2010b), and a *Greenhouse Gas Baseline Inventory Report*, which was finalized in May 2010 (USAF, 2010c). On February 18, 2010, CEQ released its *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, which suggests that proposed actions that would be reasonably anticipated to emit 25,000 metric tons or more of CO<sub>2</sub>-e GHG emissions should be evaluated by quantitative and qualitative assessments. This is not a threshold of significance but a minimum level that would require consideration in NEPA documentation. The purpose of quantitative analysis of CO<sub>2</sub>-e GHG emissions in this EA is for its potential usefulness in making reasoned choices among alternatives (USAF, 2010a).

### 3.1.4 Environmental Consequences

Significant impacts would be a violation of the National Ambient Air Quality Standards or Florida Ambient Air Quality Standards, excessive or frequent exposure of sensitive receptors to increased pollutant concentrations (due to high emission rates or proximity to a source), or worker or public exposure to a hazardous air pollutant in excess of standard. Insignificant impacts would be those that are adverse but do not meet the criteria for significant. No impact would occur if no measurable change in emissions resulted. A reduction in baseline emissions would have a beneficial impact on air quality.

#### 3.1.4.1 Proposed Action

The construction and operations of the Proposed Action would result in temporary, localized emissions associated with equipment and tactical military vessel exhaust as well as dust and debris from ground-disturbing activities. As shown in **Table 5**, effects associated with the Proposed Action on air quality would be minimal. Impacts from construction would be minimized by adherence to all state and local regulations. All applicable BMPs, including but not limited to watering trucks to control fugitive dust emissions, would be used to minimize air quality impacts from the Proposed Action.



The Proposed Action is located in an area which is designated attainment for all of the National Ambient Air Quality Standards under the criteria provided in the CAA. Therefore, the CAA conformity requirements do not apply to the project. No significant impacts would occur from the construction activities or operations associated with the Proposed Action.

**Table 5. Air Emissions from Construction Activities**

Construction Activities	Emissions (tons/year)					
	CO <sub>2</sub> -e	CO	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>2</sub>	VOCs
Construction Equipment Exhaust	1,528	8.88	41.20	2.96	2.72	3.34
Ground Disturbing Operations (including construction travel)	0	0	0	36.46	0	0
Tactical Military Vessels	359	2.08	9.67	0.69	0.64	0.78
<b>Total</b>	<b>1,887</b>	<b>10.96</b>	<b>50.87</b>	<b>40.11</b>	<b>3.36</b>	<b>4.12</b>
<b>Walton County Emissions</b>	231,708	52,139	5,404	4,210	547	9,734
<b>Percentage of Emissions</b>	0.81%	0.021%	0.94%	0.95%	0.61%	0.04%
Notes: CO <sub>2</sub> -e = carbon dioxide equivalent; CO = carbon monoxide; NO <sub>x</sub> = nitrogen oxides; PM = particulate matter; SO <sub>x</sub> = sulfur oxides; VOCs = volatile organic compounds						
Sources: USEPA, 2003; USAF, 2010a.						

Several assumptions and methodologies were used to create the data represented in **Table 5**. Appendix E contains information related to the air quality analysis. As a comparison factor, USEPA estimates that in the United States, approximately 4 tons of CO<sub>2</sub>-e are produced per person per year in the home (USAF, 2010a). Based on a population of 57,927 people living in Walton County in 2010 (Florida Demographic Estimating Conference, January 2010; Florida Demographic Database, August 2010) and 4 tons of CO<sub>2</sub>-e, it is reasonable to assume approximately 231,708 tons per year of CO<sub>2</sub>-e are emitted in Walton County.

### 3.1.4.2 No Action Alternative

No significant, adverse short-term or long-term impacts on air quality would result from the No Action alternative. There would be no additional sources of air emissions associated with construction activities or tactical military vessels as no renovations or waterborne training activities would occur.

### 3.1.5 Mitigations

Mitigation would not be required from the construction activities or operations associated with the Proposed Action.

## 3.2 Geological Resources

### 3.2.1 Definition

Geological resources include the physical surface and subsurface features of the earth, such as physiography, geology, geologic hazards, and soils. Based on the relatively shallow, surface dredge excavations and pile installations anticipated from the Proposed Action, no adverse impacts on physiography or geologic hazards are expected. Therefore, impacts on only geology and soils were evaluated in this EA.

### 3.2.2 Geology/Soils

Based on the *Walton County Soil Survey*, the types of soils identified within Test Area D-84 are presented in **Table 6** and illustrated in **Figure 5** (United States Department of Agriculture [USDA], 1984).

**Table 6. Soil Descriptions**

Soil Number	Soil Name	Hydric Soil	Location on Test Area D-84
4	Chipleys sand, 0 to 5% slopes	No	Eastern boundary of property
8	Dorovan-Pamlico Association, frequently flooded	Yes	Western boundary of property
12	Foxworth sand, 0 to 5% slopes	No	Southeastern and northwestern boundaries of property
17	Lakeland sand, 0 to 5% slopes	No	Center and shoreline (majority) of property
50	Mandarin sand	No	Far southeastern corner of property
100	Water (sandy bottom)	Yes	Choctawhatchee Bay
Source: USDA, 1984.			

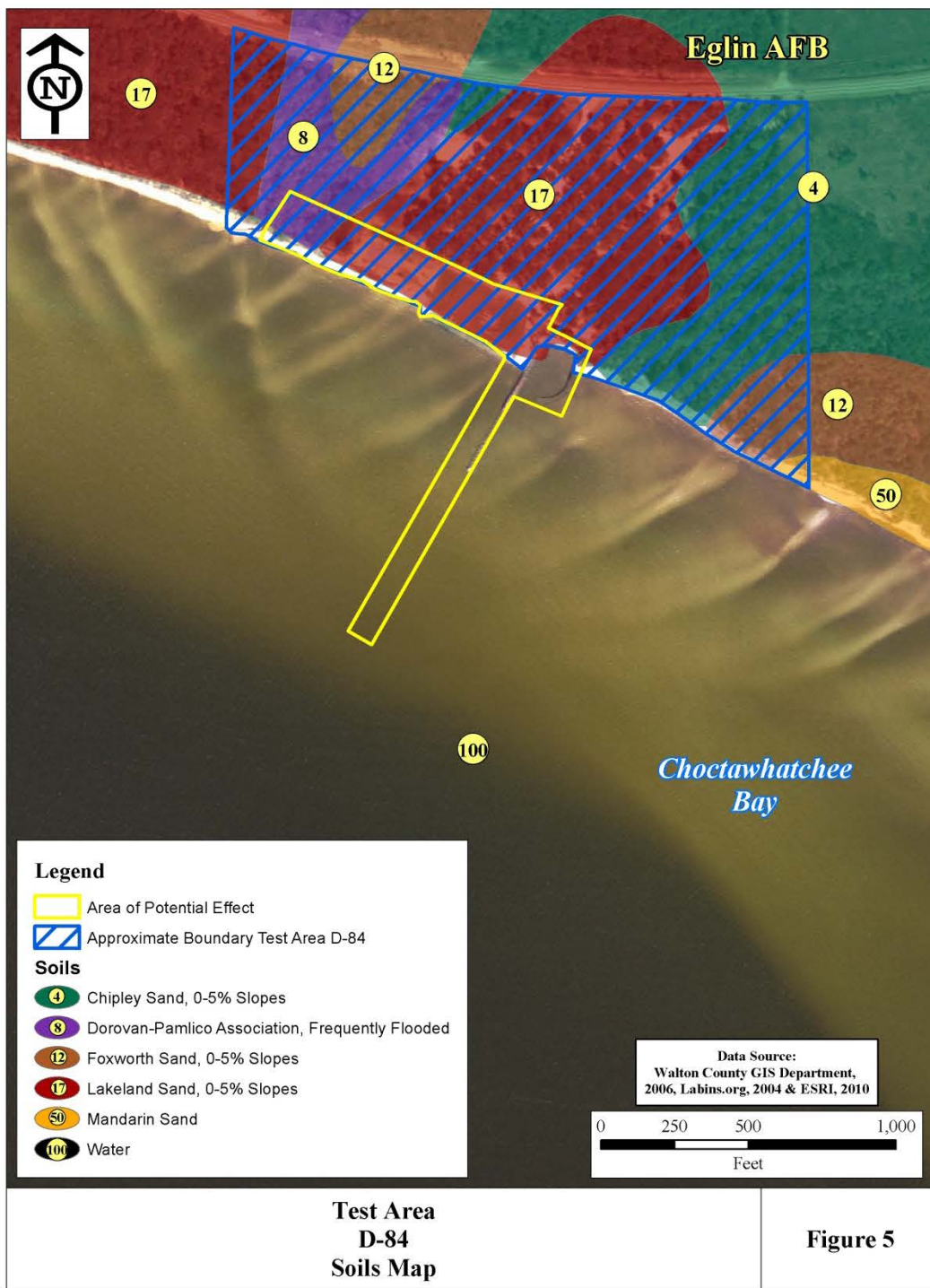
The majority of Test Area D-84, including the shoreline bluff, is situated on Lakeland sand. This soil type is consistent with the greater part of Eglin AFB (about 78 percent) and consists of fine sands that have formed on broad ridge tops on the highest elevations. It is a nearly level or gently sloping, excessively drained soil found on broad ridge tops in the uplands. Most of the soils in the project area have high rates of permeability and are classified as non-hydric, meaning they are generally not associated with wetlands or their drainages. The exception is that of the Dorovan-Pamlico association located along the western boundary; this soil complex is considered hydric and is associated with a wetland system. The soils associated with the waterside redevelopment of Test Area D-84 are sandy, submerged soils associated with Choctawhatchee Bay. Some examples of the natural vegetation found in Lakeland sand include long-leaf pine and turkey oak as well as sand pine, saw palmetto, wiregrass, and reindeer moss.

### 3.2.3 Area of Potential Effect

For this analysis, the upland bluff portion of Test Area D-84, located immediately along the shoreline, and the proposed dredge channel and pier location, shown in **Figure 5**, have been identified as the APE in which the greatest potential for geology/soil impacts would occur. Therefore, this analysis focused on the soil stabilization of the upland bluff needed to prevent further erosion during construction activities as well as submerged soil disturbance from the construction of the proposed dredge channel and the demolition and construction of the pier. Military training exercises including potential foot traffic and defensive fighting positions along the bluff were analyzed in the 2002 EA/FONSI and, therefore, were not analyzed in this EA.

### 3.2.4 Environmental Consequences

Significant impacts on geological resources could occur if the resources are depleted at a local or regional level, or if any mass movements or slumping (down-slope movement of sediment and rock) events triggered by project activities cause irreversible damage or injuries. Significant adverse impacts on geology/soils would result from an accelerated erosion rate (above existing erosion rates) or degradation of soil properties. An insignificant impact would occur if a resource is only slightly impacted or is not important to a region. A beneficial impact could occur if potential hazards were reduced or if soil stability is enhanced.



#### 3.2.4.1 Proposed Action

The construction and operations of the Proposed Action during waterside redevelopment would have no long-term, adverse impact on geological resources. Construction of the bluff stabilization area and shoreline protection (articulating block mattress) would require the re-grading and re-contouring of the shoreline. The bluff would be temporarily and insignificantly affected during construction and stabilized after construction. Beneficial impacts on geology/soils would result from the stabilized bluff and would prevent further erosion along the shoreline. Other benefits to soils would occur from the removal of the existing creosote piles associated with the breakwater/wave attenuators, headwall/upland retaining wall, and pier. Geology/soils would be temporarily impacted during the demolition and construction of the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier and during the re-contouring of the shoreline to re-orient the existing boat ramp as well as the installing of shoreline protection (articulating block mattress). There would also be short-term impacts on soils during the dredging of the access channel and during maintenance of the channel. Initial channel dredging would require an individual permit from USACE and an ERP permit under Chapter 62-346, F.A.C. from the FDEP. Future channel maintenance would be exempt from permitting by FDEP pursuant to F.S. 403.813(1)(f) and qualify for a Nationwide 35 by the USACE under Section 404. Based on a hydrographic assessment conducted in 2011, it is anticipated that the channel would need maintenance approximately every 8 years depending on use and frequency of storm events (HDR, 2011). Therefore, impacts are considered temporary and short-term in nature. Soils would be permanently removed from the submerged lands and placed in a self-contained upland disposal site pursuant to FDEP and USACE permit requirements. The dredge materials could potentially be reused on site. In addition, the use of sovereign submerged lands (SSL) would not require an easement from the Division of State Lands pursuant to 43 U.S.C. 1314. However, a dredge material severance fee of \$1.25 per cubic yard may be required pursuant to Chapter 18-21.011(3), F.A.C. This one-time fee would be determined by FDEP during the permitting phase.

To minimize temporary impacts, construction activities would be staged to limit the amount of soil exposed or dredged at any one time. An erosion control plan would be followed. BMPs (such as watering, reestablishing ground cover for disturbed areas, using silt traps or diversion structures during construction, and using floating turbidity barriers) would be implemented to reduce the potential for soil erosion, sedimentation, and/or turbid discharges into surface waters. No significant impacts would occur from the construction activities or operations associated with the Proposed Action.

#### 3.2.4.2 No Action Alternative

There would be significant impacts on geology/soils as a result of the No Action alternative. The existing upland bluff along the shoreline would continue to actively erode and potentially jeopardize the upland training activities/missions of Test Area D-84, including potential radar pads, an existing road, and other existing facilities and structures. In addition, the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier would not be removed. The existing timbers would continue to leach creosote into the soils in and around Choctawhatchee Bay. No beneficial impacts on geology/soils would occur with the No Action alternative as no renovations or waterborne training activities would occur.

#### 3.2.5 Mitigations

Mitigation would not be required from the construction activities or operations associated with the Proposed Action.

## 3.3 Water Resources

### 3.3.1 Definitions

The water resources section contains information relevant to surface waters (streams, creeks, bays, and bayous) and floodplains as well as their relationship to water quality. It also discusses the water quality programs that are enforced as part of these regulations.

### 3.3.2 Surface Water

The portion of Choctawhatchee Bay in the vicinity of Test Area D-84 is classified as Class II shellfish propagation or harvesting approved water by FDEP. Consequently, dredging in this area would require not only a permit for the USACE and FDEP, but also a variance under F.S. 403.201. The variance, received May 4, 2012 (Appendix H), is required due to the requirement of Chapter 62-346.302(1)(c), F.A.C., which specifically restricts dredge and fill activities in waters classified by FDACS as approved, restricted, conditionally approved, or conditionally restricted for shellfish harvesting. In addition, Choctawhatchee Bay has been designated as critical habitat for the Gulf sturgeon. Therefore, coordination with NMFS was initiated to address avoidance, minimization, and conservation measures to ensure that the least amount of (if any) impacts on critical habitat would occur. Additional information on Gulf sturgeon critical habitat can be found in the discussion of biological resources in Section 3.4.1.1.

Test Area D-84 also has a small unnamed tributary to Choctawhatchee Bay located along the western portion of the property. The stream is designated as Class III water. The system is bordered by associated wetlands and drains directly to Choctawhatchee Bay.

### 3.3.3 Floodplains

Under EO 11988, *Floodplain Management* (42 *Federal Register* 26951), federal agencies are prohibited from the occupancy and modification of floodplains and floodplain development unless there is no practicable alternative. The EO stipulates that agencies proposing actions in floodplains consider alternative actions to avoid adverse effects, avoid incompatible development in the floodplains, and provide opportunity for early public review of any plans or proposals. If adverse effects are unavoidable, the action agency must include mitigation measures in the action to minimize impacts.

Floodplains are lowland areas adjacent to surface water bodies (i.e., lakes, wetlands, and rivers) that are periodically covered by water during flooding events. Floodplains and riparian habitat are biologically unique and highly diverse ecosystems providing a rich diversity of aquatic and terrestrial species, acting as a functional part of natural systems. Floodplain vegetation and soils act as water filters, intercepting surface water runoff before it reaches lakes, streams, or rivers, and serve to store floodwaters during flood events. This process aids in the removal of excess nutrients, pollutants, and sediments from the water and helps reduce the need for costly cleanups and sediment removal. Floodplains also reduce downstream flooding by increasing upstream storage in wetlands, sloughs, back channels, side channels, and former channels.

**Figure 6** shows the location of 100-year floodplain areas associated with Test Area D-84. The 100-year floodplains were identified using flood hazard mapping data developed through the National Flood Insurance Program and are located along the western boundary and along the immediate coast. Areas identified as located within Special Flood Hazard Areas (SFHAs), as determined by the Federal Emergency Management Agency (FEMA), are areas that would be inundated by a flood having a 1-percent chance of occurring in any given year. This occurrence was previously referred to as the 100-year floodplain (FEMA, 2004). Development may take place within the SFHA as long as the development is compliant with local floodplain management ordinances (which must meet minimum federal

requirements). Within the SFHA, several flood hazard zones correspond to different levels of detailed determination methods and flood insurance requirements.

As defined by EO 11988, *Floodplain Management*, prior to any action in a floodplain area and prior to signature on a FONSI or Record of Decision document, proponents must first prepare a Finding of No Practicable Alternative (FONPA), which documents that there are no practicable alternatives to such action and that the proposed action is designed to minimize harm to floodplains. In preparing the FONPA, USAF must consider the full range of practicable alternatives that will meet the proposed mission requirements.

### **3.3.4 Area of Potential Effect**

For this analysis, the waterside portion of Test Area D-84 (see **Figure 6**) has been identified as the APE in which the greatest potential for surface water and floodplain impacts would occur. In addition, this analysis focused on water quality associated with the construction activities located over and along the shoreline of Choctawhatchee Bay resulting from the Proposed Action and the No Action alternative. Impacts on water resources from military training exercises were analyzed in the 2002 EA/FONSI and, therefore, were not analyzed in this EA.

### **3.3.5 Environmental Consequences**

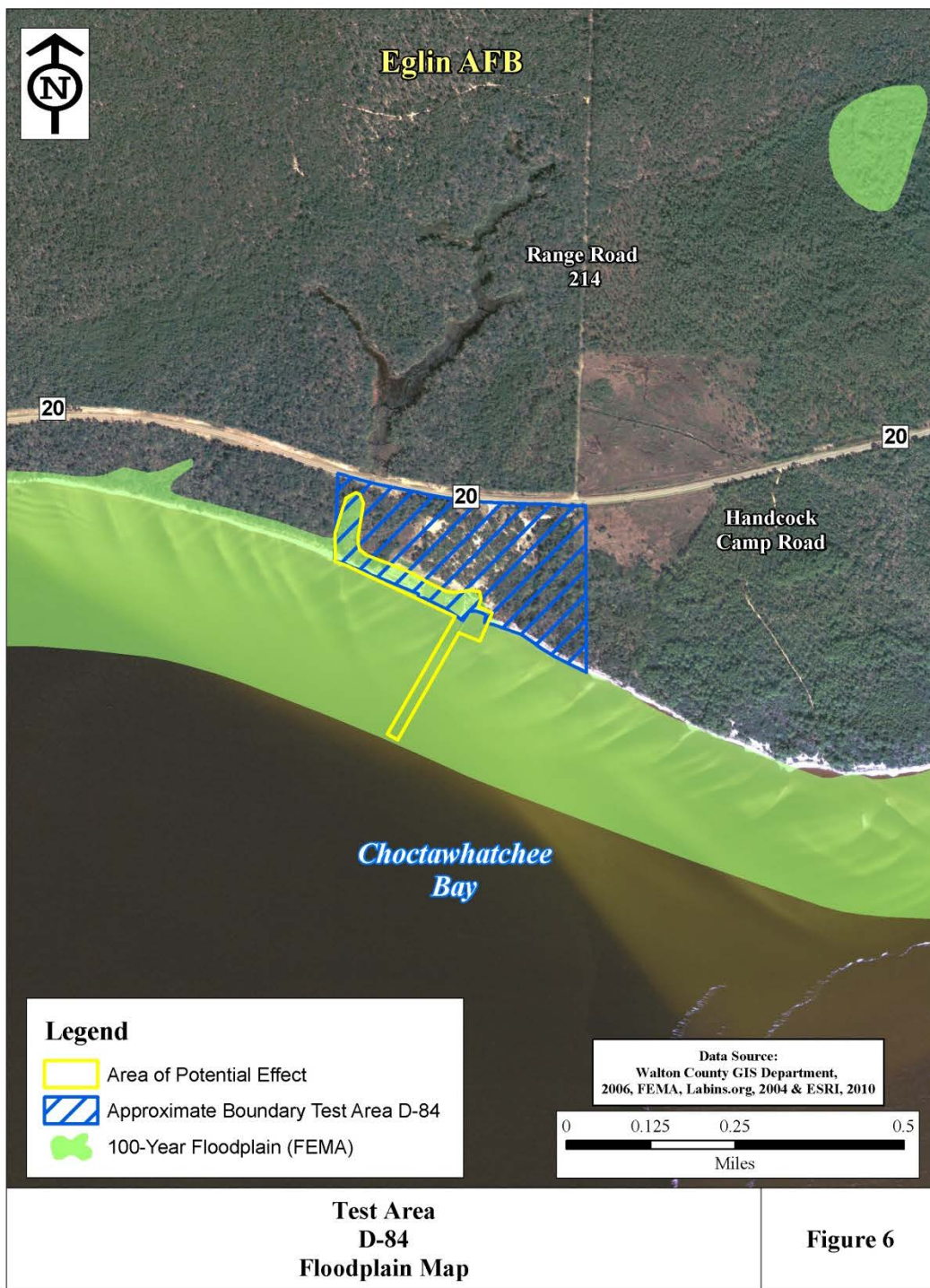
An impact on water resources would be considered potentially significant if a surface water body or floodplain is adversely affected, resulting in a measurable change in water quality criteria, such as if maximum contaminant levels are exceeded or if a floodplain's hydraulic characteristics are altered or impeded. A beneficial impact would result from an improvement to water quality or quantity by decreasing contaminant levels, decreasing the potential for future contamination, and maintaining the hydraulic integrity of the floodplain.

#### **3.3.5.1 Proposed Action**

The construction of the Proposed Action and operations would have no significant long-term, adverse impacts on water resources. Surface waters would be temporarily impacted during the demolition and construction of the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier (if jetting is used) and during the re-contouring of the shoreline to re-orient the existing boat ramp as well as the installing of shoreline protection (articulating block mattress). There would also be short-term surface water impacts associated with turbidity during dredging of the access channel and during subsequent maintenance of the channel. Initial channel dredging would require an individual permit from USACE and an ERP permit under Chapter 62-346 and 18-21, F.A.C. from the FDEP. Future channel maintenance would be exempt from permitting by FDEP pursuant to F.S. 403.813(1)(f) and qualify for a Nationwide 35 by the USACE under Section 404. Based on a hydrographic assessment conducted in 2011, it is anticipated that the channel would need maintenance approximately every 8 years depending on use and frequency of storm events (HDR, 2011). Therefore, impacts would be considered temporary and short-term in nature. Beneficial impacts on surface waters would result from the stabilized bluff and would prevent further erosion and turbidity along the shoreline. Other benefits to surface waters would occur from the removal of the existing creosote piles associated with the breakwater/wave attenuators, headwall/upland retaining wall, and pier.

It is anticipated that the following permits would be required for impacts on surface waters from construction of the Proposed Action:

- USACE: Individual Permit (Section 404)
- FDEP: Environmental Resource Permit (Dredge and Fill)
- USEPA: NPDES/MS4 (administered by FDEP)



Only those floodplains associated with the shoreline bluff stabilization and installation of shoreline protection (articulating block mattress) will be temporarily impacted by construction of the Proposed Action. In accordance with EO 11988, *Floodplain Management*, the Proposed Action will make every attempt to minimize impacts on floodplains by re-contouring the shoreline to existing grade. The floodplains associated with the wetland area to the west will not be impacted. As required by EO 11988, a FONPA has been prepared and submitted for review and approval to Air Force Materiel Command in accordance with 32 C.F.R. § 989.15 and AFI 32-7064. The 100-year floodplains associated with the Proposed Action are not designated as regulatory floodways by FEMA. Floodplain impacts would not increase backwater elevations and would not increase the risk from flooding. Floodplain encroachment is considered temporary, short-term, and insignificant. No significant impacts on surface waters or floodplains will occur from the construction activities or operations associated with the Proposed Action.

An erosion control plan following USACE/FDEP requirements would be developed for the construction of the Proposed Action. Proper construction techniques using BMPs such as the use of hay bales, silt fences, and staked and/or floating turbidity barriers would minimize the potential for adverse impacts on surface waters from runoff or turbidity. Ground cover and riprap would be replaced as soon as possible to reduce potential erosion. Therefore, siltation in the Choctawhatchee Bay would be minimal. Spill prevention plans and cleanup plans would be followed to prevent spills or leaks of hazardous materials or wastes from impacting Choctawhatchee Bay.

#### 3.3.5.2 No Action Alternative

Under the No Action alternative, the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier would not be removed. The existing timbers would continue to leach creosote into Choctawhatchee Bay. Water quality would continue to be adversely affected. No beneficial impacts on surface waters would occur with the No Action alternative as no renovations or waterborne training activities would occur.

#### 3.3.6 Mitigations

Mitigation would not be required because no long-term significant impacts on water resources would occur.

### 3.4 Biological Resources

#### 3.4.1 Definition

Biological resources include the plants and animals that make up natural communities. These natural communities are dependent upon the climate and landscape position (topography) of the area. The discussion of biological resources is divided into three main components: ecological associations, wildlife, and rare, threatened, or endangered species.

#### 3.4.2 Ecological Associations

Eglin AFB applies a classification system of ecological associations to all its lands based on floral, faunal, and geophysical characteristics. These ecological associations are described in Eglin AFB's *Integrated Natural Resources Management Plan, 2010* (USAF, 2010d) and the *Environmental Baseline Study Resource Appendices* (USAF, 2003). Seven ecological associations occur throughout the Eglin Land and Test and Training Range:

1. Sandhills ecological association
2. Flatwoods ecological association
3. Barrier Island ecological association



4. Wetlands/Riparian ecological association
5. Open Grassland/Shrubland ecological association
6. Landscaped and Urban Areas ecological association
7. Invasive Exotics/Non-native Plants ecological association

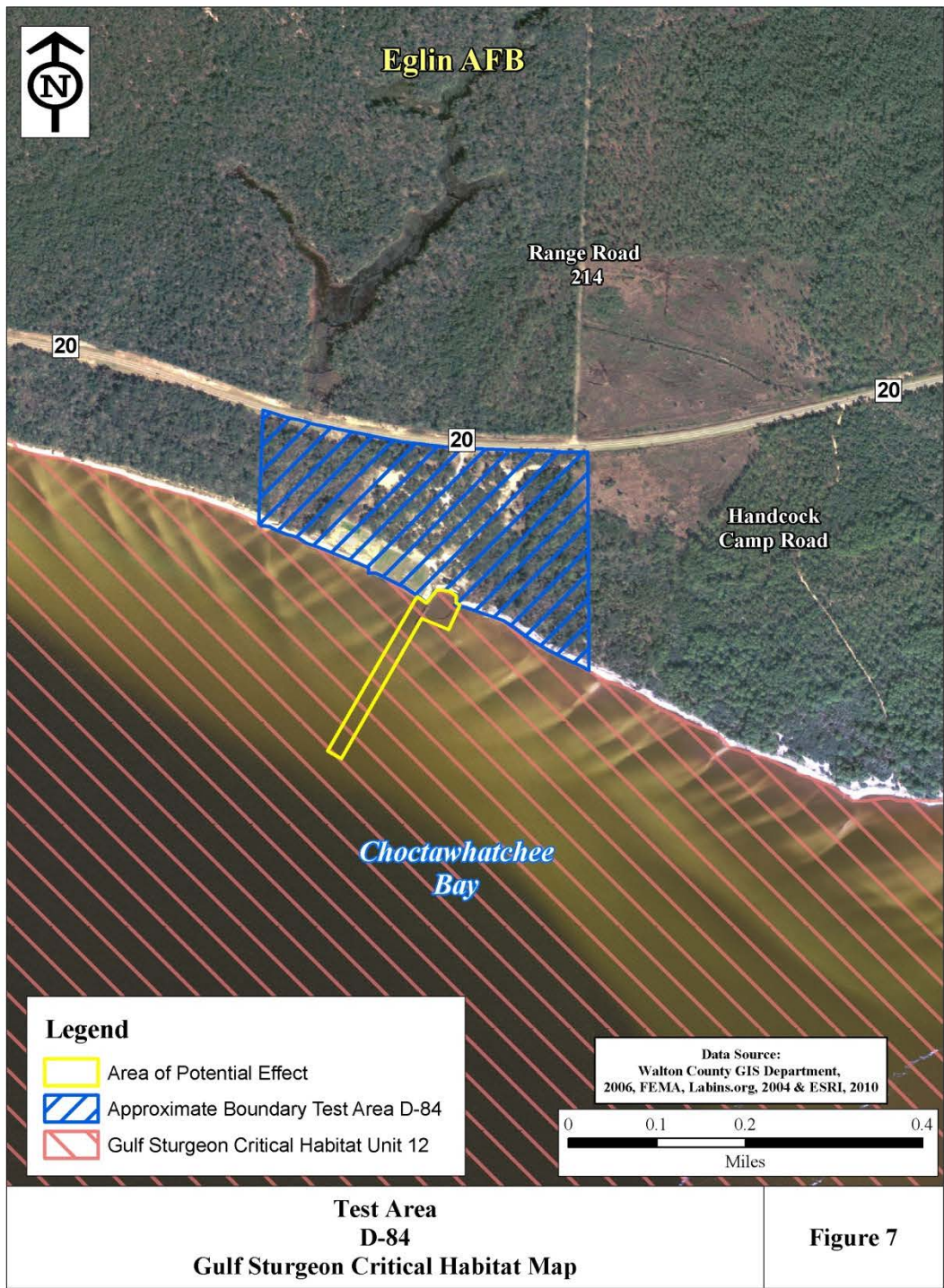
Test Area D-84 is located within three of the seven ecological associations described above: the Sandhills ecological association, the Wetlands/Riparian ecological association, and the Landscaped and Urban Areas ecological association.

#### 3.4.2.1 Critical Habitat

Choctawhatchee Bay has been designated as critical habitat for the Gulf sturgeon (see **Figure 7**). Critical habitat is defined by the ESA of 1973, as amended, as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Therefore, essential fish habitat (EFH) coordination with NMFS was initiated pursuant to the *Magnuson-Stevens Fisheries Conservation and Management Act* (MSA). As a result of early coordination, submerged aquatic vegetation (SAV) surveys were conducted in 2009 and 2010 to identify the presence of sea grasses. The SAV survey reports are located in Appendix C.

#### 3.4.3 Wildlife

Eglin AFB harbors a remarkable assemblage of biodiversity. This is due primarily to the large size of the installation, its habitat quality and diversity including 35 distinct natural community types ranging from barrier islands to old growth longleaf pine forests, and the enormous investment and management efforts of the USAF in conjunction with Eglin's Natural Resources Section, USFWS, FWC, FDEP, and USACE via intense and constant coordination with the military mission. Eglin AFB's contribution to southeastern conservation is evident in its extraordinary biodiversity and the exemplary quality of many remnant natural communities (Mid-Bay Bridge Authority, 2008). **Table 7** summarizes the fish and wildlife species found on Eglin AFB. Many of the species are likely to occur in Test Area D-84.



**Table 7. Summary List of Fish and Wildlife Species Found on Eglin AFB**

Common Name	Scientific Name	Common Name	Scientific Name	Common Name	Scientific Name
Red-cockaded Woodpecker	<i>Picoides borealis</i>	Wood Duck	<i>Aix sponsa</i>	Pine Barrens Tree Frog	<i>Hyla andersonii</i>
Northern Bobwhite	<i>Colinus virginianus</i>	Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Five-lined Skink	<i>Eumeces fasciatus</i>
Great Horned Owl	<i>Bubo virginianus</i>	Cottonmouth	<i>Agkistridon piscivorus</i>	Green Anole	<i>Anolis carolinensis</i>
Gopher Tortoise	<i>Gopherus polyphemus</i>	Flatwoods Salamander	<i>Ambystoma bishopi</i>	Garter Snake	<i>Thamnophis sirtalis</i>
Indigo Snake	<i>Drymarchon corais</i>	River Otter	<i>Lutra canadensis</i>	American Beaver	<i>Castor canadensis</i>
Diamondback Rattlesnake	<i>Crotalus adamanteus</i>	Gray Fox	<i>Urocyon cinereoargenteus</i>	Northern Parula	<i>Parula Americana</i>
Six-lined Racerunner	<i>Cnemidophorus sexlineatus</i>	Ghost Crab	<i>Ocypode quadratus</i>	Periwinkles	<i>Littorina Irrorata</i>
Florida Black Bear	<i>Ursus americanus floridanus</i>	Least Tern	<i>Sterna albifrons</i>	Oyster	<i>Crassostrea virginica</i>
Fox Squirrel	<i>Sciurus niger</i>	Loggerhead Sea Turtle	<i>Caretta caretta</i>	Gulf Crab	<i>Calinectes smilis</i>
Least Shrew	<i>Cryptodus parva</i>	Shorebirds	<i>Several genera &amp; species</i>	Long-nosed Killifish	<i>Fundulus similis</i>
Cottontail Rabbit	<i>Sylvilagus floridanus</i>	Fox	<i>Vulpes vulpes</i>	Sheepshead Minnow	<i>Cyprinodon variegatus</i>
Pocket Gopher	<i>Geomys pinetus</i>	Cotton Rat	<i>Sigmodon hispidus</i>	Great Blue Heron	<i>Ardea herodias</i>
White-tailed Deer	<i>Odocoileus virginianus</i>	Opossum	<i>Didelphis virginiana</i>	Belted Kingfisher	<i>Megaceryle alcyon</i>
Feral Pig	<i>Sus scrofa</i>	Eastern Mole	<i>Scalopus aquaticus</i>	Red shouldered Hawk	<i>Buteo lineatus</i>
Salt Marsh Rabbit	<i>Sylvilagus aquaticus</i>	Florida Burrowing Owl	<i>Athene cunicularia</i>	Southeastern American Kestrel	<i>Falco sparverius paulus</i>
Slender Glass Lizard	<i>Ophisaurus attenuatus</i>	Flycatchers	<i>Tyrannidae spp.</i>	American Alligator	<i>Alligator mississippiensis</i>
Raccoon	<i>Procyon lotor</i>	Cotton Mouse	<i>Peromyscus gossypinus</i>	Pygmy Rattlesnake	<i>Sistrurus miliarius</i>
Beach Mouse	<i>Peromyscus polionotus sb spp.</i>	Black Racer	<i>Coluber constrictor</i>	Okaloosa Darter	<i>Etheostoma okaloosae</i>
Largemouth Bass	<i>Micropterus salmoides</i>	Sailfin Shiner	<i>Pteronotropis hypselopterus</i>	Bottlenose Dolphin	<i>Tursiops truncatus</i>
Source: USAF, 2010d					

### 3.4.4 Rare, Threatened, or Endangered Species

There are several federally listed threatened or endangered (T&E) species that are being managed on Eglin AFB because they occur on Eglin AFB either year-round or seasonally. The federally listed species include: the Red-cockaded Woodpecker (RCW), piping plover, Okaloosa darter, Gulf sturgeon, flatwoods salamander, Eastern indigo snake, loggerhead sea turtle, green sea turtle, leatherback sea turtle, and Florida perforate lichen. Other federally listed species such as the Florida manatee and wood stork have been documented on Eglin AFB during seasonal migrations. The American alligator, which is common on Eglin AFB, is also federally listed due to its similarity in appearance with the endangered American crocodile. Many federally listed species have Recovery Plans currently in place (RCW, Okaloosa darter, Gulf sturgeon, Eastern indigo snake, loggerhead sea turtle, green sea turtle, leatherback sea turtle, and Florida perforate lichen). A flatwoods salamander Recovery Plan is currently in draft stage. There are 67 state-listed T&E species found on Eglin AFB. Most (55) of the 67 state-listed T&E species are plants. Of the 12 state-listed T&E animal species, only 4 (snowy plover, least tern, southeastern American kestrel, and Florida black bear) are not also federally listed as a T&E species. An additional 17 animal species are not listed by FWC or USFWS, but are tracked by Florida Natural Areas Inventory (FNAI) due to their rarity and/or declining population trends (USAF, 2010d). Furthermore, it should be noted that FWC has adopted final rule changes that affect the imperiled species rules for protected species under state of Florida regulations in accordance with Chapter 68A-27, F.A.C., titled “*Rules Related to Endangered and Threatened Species.*” Therefore, coordination with FWC will continue throughout project development and construction to ensure compliance.

The federally and state-listed species presented in **Table 8** have the potential to occur within a 1-mile radius of Test Area D-84. Therefore, a biological assessment (BA) and an EFH assessment including sea grass surveys were conducted to initiate the consultation process with NMFS and USFWS pursuant to Section 7 of the ESA and the MSA to determine if adverse impacts on any listed species or critical habitat, including EFH are likely to occur as a result of the Proposed Action. In addition, a formal request by Eglin AFB for a letter of concurrence (LOC) was submitted to NMFS to make certain the Air Force is covered under the *Marine Mammal Protection Act* (MMPA). Consultation between Eglin Natural Resources Section, NMFS, and USFWS revealed several species listed under the ESA known to occur, at least occasionally, in the vicinity of Test Area D-84 are the Gulf sturgeon (and its habitat), Florida manatee, five species of sea turtles, and the smalltooth sawfish. Results of the BA are summarized in Section 3.4.5; the BA, biological opinion (BO), and LOC are included in Appendix B, and the SAV surveys are included in Appendix C.

In addition, potential impacts on the bottlenose dolphin were considered and coordinated with NMFS pursuant to the MMPA (Appendix B). As a result, an underwater acoustical analysis was conducted as part of this EA to determine what impacts, if any, would occur to bottlenose dolphins from construction activities, specifically the pile driving during pier installation. A summary of the results from the underwater acoustical analysis are presented in Section 3.6 (Noise) and a more detailed explanation is found in Appendix F.

**Table 8. Federal and State Listed Species Recorded in Test Area D-84**

Species	Listing Status	Habitat	Potential	
<b>Fish</b>				
Gulf sturgeon	<i>Acipenser oxyrinchus desotoi</i>	FT, SSC	Coastal and major waterways	High
<b>Amphibian and Reptiles</b>				
Eastern indigo snake	<i>Drymarchon corais couperi</i>	FT, ST	Most habitat types; xeric uplands; (including gopher tortoise burrows)	Low
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	SSC	Open canopied sandhills, sand pine scrub, scrubby flatwoods, coexists with pocket gophers and gopher tortoises	Low
Gopher frog	<i>Rana capito</i>	SSC	Wetlands and waterbodies	Low
Gopher tortoise	<i>Gopherus polyphemus</i>	ST	Xeric upland communities	Low
<b>Birds</b>				
Red-cockaded woodpecker	<i>Picoides borealis</i>	FE, SSC	Old growth pine forests	Low
<b>Mammals</b>				
Florida manatee	<i>Trichechus manatus latirostris</i>	FE, SE	Coastal and major inland waterways	Medium
Florida black bear	<i>Ursus americanus floridanus</i>	ST	Most habitat types including riparian areas	Low
<b>Plants</b>				
Curtis' sandgrass	<i>Calamovilfa curtissii</i>	ST	Wet prairies and savannas	Low
Chapman's crownbeard	<i>Verbesina chapmanii</i>	ST	Wet flatwoods and prairies	Low
Incised groove-bur	<i>Agrimonia incisa</i>	SE		Low
Southern milkweed	<i>Asclepias viridula</i>	ST	Wet flatwoods and prairies, seepage slopes, pitcherplant bogs	Low
Hairy wild indigo	<i>Baptisa calycosa var. villosa</i>	ST	Sandhills, pineland	Low
Toothed savory	<i>Calamintha dentata</i>	ST	Sandhills, pineland	Low
Baltzell's sedge	<i>Carex baltzelli</i>	ST	Moist hardwood forest in ravines	Low
Large-leafed jointweed	<i>Polygonella macrophylla</i>	ST	Upland communities	Low
White-top pitcher plant	<i>Sarracenia leucophylla</i>	SE	Wet prairies and savannas	Low
Arkansas oak	<i>Quercus arkansana</i>	ST	Scrub and sand pine flatwoods	Low
Ashe's magnolia	<i>Magnolia ashei</i>	SE	Upland hardwoods	Low
Florida flame azalea	<i>Rhododendron austrinum</i>	SE	Slope forests	Low
Panhandle meadow-beauty	<i>Rhexia salicifolia</i>	ST	Wet Prairies and savannas	Low
Panhandle spiderlily	<i>Hymenocallis henryae</i>	SE	Wet flatwoods	Low
Panhandle lily	<i>Lilium iridollae</i>	SE	Floodplain forest baygalls, swamps, bogs, seepage slopes	Low
Pineland hoary-pea	<i>Tephrosia mohrii</i>	ST	Sandhills and scrub	Low
Pondspice	<i>Litsea aestivalis</i>	SE	Edges of baygalls, flatwoods ponds,	Low

Species		Listing Status	Habitat	Potential
			and cypress domes	
Bog button	<i>Lachnocaulon digynum</i>	ST	Seepage slopes, wet flatwoods, bogs	Low
Gulf Coast lupine	<i>Lupinus westianus</i>	ST	Dunes, scrub, sandhills	Low
Hummingbird flower	<i>Macranthera flammea</i>	SE	Seepage slopes, dome swamp edges, floodplain swamp edges, seepage stream banks	Low
Naked-stemmed panicgrass	<i>Panicum nudicaule</i>	ST	Freshwater habitats, pinelands, riparian habitats, sandhills, and scrub	Low
Primrose-flowered butterwort	<i>Pinguicula primuliflora</i>	SE	Seepage slopes, wet flatwoods, bogs	Low
Small-flowered meadowbeauty	<i>Rhexia parviflora</i>	SE	Seepage slopes, edges of dome swamps, depression marshes	Low
Yellow fringeless orchid	<i>Platanthera integra</i>	SE	Bogs, prairies, wet flatwoods	Low
Harper's yellow-eyed grass	<i>Xyris scabrifolia</i>	ST	Seepage slopes, bogs	Low
Note: FE = federally endangered; FT = federally threatened; SE = state endangered; ST = state threatened; SSC = state species of special concern Source: FNAI, 2010.				

### 3.4.5 Area of Potential Effect

For this analysis, the waterside portion of Test Area D-84 in the vicinity of the dredge channel and pier construction has been identified as the APE in which the greatest potential for impacts on rare, threatened, or endangered species would occur (see **Figure 7**). As a result, this analysis focused on potential impacts on marine wildlife (including Gulf sturgeon and its habitat, Florida manatee, bottlenose dolphin, five species of sea turtles, and the smalltooth sawfish) during both construction activities and tactical military vessel use resulting from the Proposed Action and the No Action alternative. Impacts on biological resources from military training exercises in the upland portion of Test Area D-84 were analyzed in the 2002 EA/FONSI and, therefore, were not analyzed in this EA. According to Eglin AFB, geographic information system (GIS) data sources, and the FNAI Element Occurrence Record Search conducted in September 2010, the species presented in **Table 8**, above, are likely to occur within a 1-mile radius of Test Area D-84. The table shows these species, their federal and state status in Walton County, their habitat description, and their potential for occurrence within Test Area D-84.

### 3.4.6 Environmental Consequences

Impacts on biological resources would be significant if the viability of any T&E plant or animal species were jeopardized. Impacts on biological resources would also be significant if the viability of a protected plant or animal species were jeopardized, with little likelihood of re-establishment after the action is complete. An adverse but insignificant impact could result if a disturbed population could be re-established to its original state and condition, or if the population is sufficiently large or resilient to respond to the action without a measurable change. The significance of the impact depends on the importance of the resource and the proportion of the resource that would be affected relative to its occurrence in the vicinity. An increase in population numbers in response to an enhanced habitat, or the increased viability of a species, would be a beneficial impact.

### 3.4.6.1 Proposed Action

The construction and operations of the Proposed Action would have no significant long-term, adverse impacts on any of the above-mentioned ecological associations: the Sandhills ecological association, the Wetlands/Riparian ecological association, or the Landscaped and Urban Areas ecological association. However, construction and operations of the Proposed Action would impact an area within Choctawhatchee Bay designated as critical habitat for the Gulf sturgeon and an upland area immediately adjacent to the shoreline (see **Figure 7**). Because there are listed species, critical habitat, and EFH likely to be affected by the Proposed Action, Egin Natural Resources Section, in consultation with NMFS and USFWS, prepared a BA and EFH assessment under Section 7 of the ESA and the MSA. As a result, Egin Natural Resources Section has made the determination that the Proposed Action may affect, but is not likely to adversely affect, the Gulf sturgeon; is not likely to adversely modify Gulf sturgeon critical habitat; may affect, but is not likely to adversely affect, the Florida manatee, and would not adversely affect EFH. In addition, Egin Natural Resources Section has made the determination that no take of marine mammals protected under the MMPA would occur as a result of the construction activities associated with the Proposed Action and marine mammals would not be adversely affected during such activities. USFWS concurred on June 30, 2011 (Appendix B). NMFS concluded in their BO that green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles; smalltooth sawfish; and Gulf sturgeon are not likely to be adversely affected by the Proposed Action, and the action, as proposed, is not likely to destroy or adversely modify designated Gulf sturgeon critical habitat.

All NMFS and USFWS consultation documents are included in Appendix B for reference, and the management actions are listed in Chapter 4. Consultations were finalized as summarized below:

- NMFS
  - MSA - EFH LOC received 5/19/2011
  - MMPA - LOC received 8/10/2011
  - ESA - BO received 9/01/11
- USFWS
  - ESA - LOC received 6/30/11

### 3.4.6.2 No Action Alternative

Under the No Action alternative, no construction or waterborne training operations would occur. The existing breakwater/wave attenuators, headwall/upland retaining wall, and pier would not be removed, and the existing timbers would continue to leach creosote into Choctawhatchee Bay; therefore, biological resources, including benthic invertebrates as well as rare, threatened, and endangered species would continue to be adversely affected. No beneficial impacts on biological resources would occur with the No Action alternative as no renovations would occur.

## 3.4.7 Mitigations

Mitigations associated with the NMFS and USFWS are contained in the consultation documents located in Appendix B. In addition, Chapter 4 contains the plans, permits/authorizations, and management actions resulting from these consultations. Additional mitigation would not be required because no long-term significant impacts on biological resources would occur.

## 3.5 Wetlands

### 3.5.1 Definition

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (U.S. Army, 1987). Wetlands are the most productive ecosystems in the world (Mitsch and Gosselink, 1993). Values associated with biological productivity of wetlands include water quality, flood control, erosion control, community structure and wildlife support, recreation, aesthetics, and commercial benefits as well as serving to control the local climate. Many wetlands return over two-thirds of their annual water inputs to the atmosphere through evapotranspiration (Richardson and McCarthy, 1994).

### 3.5.2 Wetland Regulations

Wetlands are regulated pursuant to Section 404 of the CWA; EO 11990, *Protection of Wetlands*; and F.S. Chapter 373. The USACE, Northwest Florida Water Management District (NFWFMD), and FDEP have jurisdiction over wetlands in Northwest Florida. However, for the waterside redevelopment of Test Area D-84, FDEP will be the lead state agency. For projects on federally owned property at a USAF installation where avoidance of wetlands impacts is not feasible, a FONPA is required in accordance with EO 11990.

### 3.5.3 Wetland Description

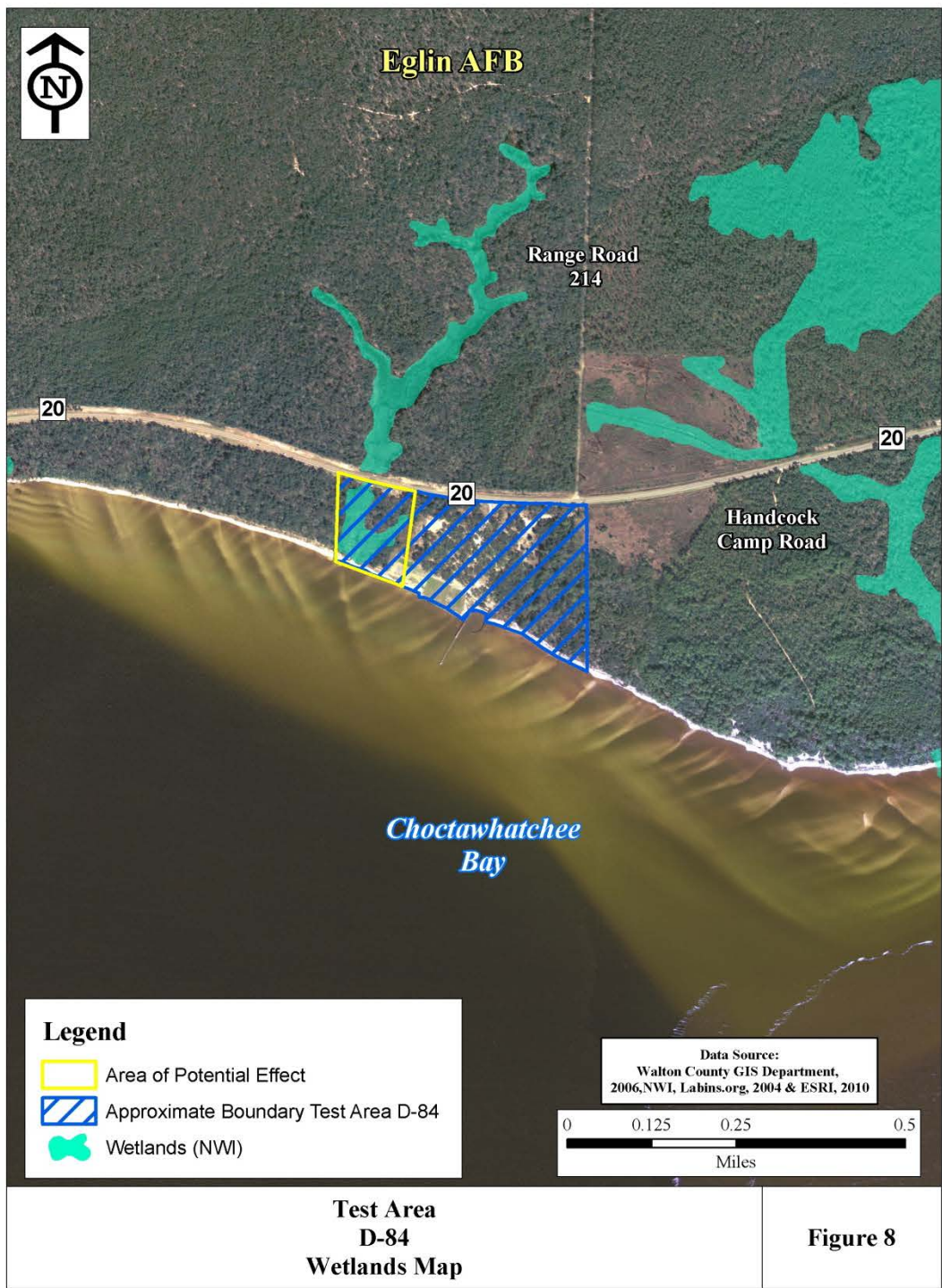
Wetland identification along Test Area D-84 was accomplished through the use of 2007 aerial photography, GIS interpretation, United States Geological Survey topography maps, National Wetlands Inventory maps, the *Walton County Soil Survey* (USDA, 1984), and on-site ground investigation. As illustrated in **Figure 8**, the largest wetland system near Test Area D-84 is the system along the immediate western boundary associated with an unnamed tributary to Choctawhatchee Bay. This wetland is permanently flooded within its banks and seasonally flooded throughout its floodplain during periods of heavy rainfall and major storm events. It contains submerged and emergent vegetation throughout its reach, is contiguous with fresh water marshes, and has a hydrological connection to Choctawhatchee Bay and ultimately the Gulf of Mexico. Wetland canopy vegetation within Test Area D-84 consists of slash pine (*Pinus elliotii*), willows (*Salix spp.*), sweetbay (*Magnolia virginiana*), red maple (*Acer rubrum*), and cypress (*Taxodium spp.*). The understory and groundcover consist of species such as black titi (*Cliftonia monophylla*), red titi (*Cyrilla racemiflora*), wax myrtle (*Myrica cerifera*), dahoon holly (*Ilex cassine*), myrtle-leaved holly (*Ilex myrtifolia*), gallberry (*Ilex glabra* and *coriacea*), fetterbush (*Lyonia lucida*), ferns (*Osmunda spp.* and *Woodwardia spp.*), yellow-eyed grass (*Xyris spp.*), sawgrass (*Cladium jamaicense*), and meadow beauty (*Rhexia spp.*).

The delineation of this wetland within and along Test Area D-84 was accomplished during field investigations conducted in the summer of 2010. The wetlands were characterized by soil type, dominant vegetation, and hydrology; they were classified according to the USFWS manual, "*Classification of Wetlands and Deepwater Habitats of the United States*" (Cowardin et al., 1979).

### 3.5.4 Area of Potential Effect

For this analysis, the westernmost boundary of Test Area D-84 has been identified as the APE in which the greatest potential for impacts on wetlands would occur (see **Figure 8**). As a result, this analysis focused on potential wetland impacts during construction activities of the Proposed Action and the No Action alternative. Impacts on wetlands from military training exercises were analyzed in the 2002 EA/FONSI and, therefore, were not analyzed in this EA.





### 3.5.5 Environmental Consequences

In accordance with EO 11990, wetlands within Test Area D-84 were evaluated relative to potential impacts and options for avoiding and minimizing such impacts. Significant impacts on wetlands would occur if construction were to result in altered hydrologic flow, drainage of sediment or contaminants into wetland areas, or actual filling or destruction of a wetland area.

#### 3.5.5.1 Proposed Action

As shown in **Figure 8**, there are wetlands located along the western boundary of Test Area D-84. This wetland would be buffered by silt fence to prevent construction activities from occurring within 25 feet of the wetland boundary. Therefore, no significant impacts on wetlands would occur as a result of the construction of the Proposed Action or the training operations (as determined in the 2002 EA/FONSI). All applicable BMPs would be implemented along the upland limits to avoid impacts from construction activities from encroaching into wetlands.

#### 3.5.5.2 No Action Alternative

Wetlands would remain in their current condition. There would be no impacts on wetlands as a result of the No Action alternative.

### 3.5.6 Mitigations

No impacts to wetlands would occur as the result of the Proposed Action. Therefore, mitigation would not be required.

## 3.6 Noise

This section provides a description of noise with respect to the public, bottlenose dolphins (including underwater acoustics), noise-sensitive receptors, and the APE.

### 3.6.1 Definition

Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Responses to noise vary according to the type and characteristics of the noise sources, distance between source and receiver, receiver sensitivity, and time of day. Sound is measured with instruments that measure variations in pressure, which are used to calculate instantaneous sound levels in decibels (dB). A-weighted sound level measurements (often denoted dBA) are used to characterize sound levels that the human ear responds to especially well by emphasizing mid-frequencies and de-emphasizing the low and high frequencies. The C-weighted sound level, denoted dBC, is used less frequently but is practical when measuring impulsive sounds such as blasts. Unlike A-weighting, the C-weighting does not de-emphasize the low frequencies within the audible spectrum.

Noise can be presented as day-night average sound level (DNL), a cumulative metric that accounts for the total sound energy occurring over a 24-hour period with a 10 dB penalty added to those operations between 10:00 pm and 7:00 am. The DNL is the preferred metric of the United States Department of Housing and Urban Development, the Federal Aviation Administration, and USEPA. Most studies have demonstrated that people are exposed to DNL of 50 to 55 dBA or higher on a daily basis. Research has indicated that approximately 87 percent of the population is not highly annoyed by outdoor sound levels below 65 dBA DNL (Federal Interagency Committee on Noise, 1992). In addition, the NMFS noise criteria for bottlenose dolphins are 160 dB for impact sounds and 120 dB for continuous noise, such as vibratory pile driving.

### 3.6.2 Noise-Sensitive Receptors

Noise-sensitive receptors are defined as any property (owner occupied, rented, or leased) where frequent exterior human use occurs and where a lowered noise level would be of benefit. In those situations where there are no exterior activities to be affected by noise, the interior of the building shall be used to identify a noise-sensitive receptor.

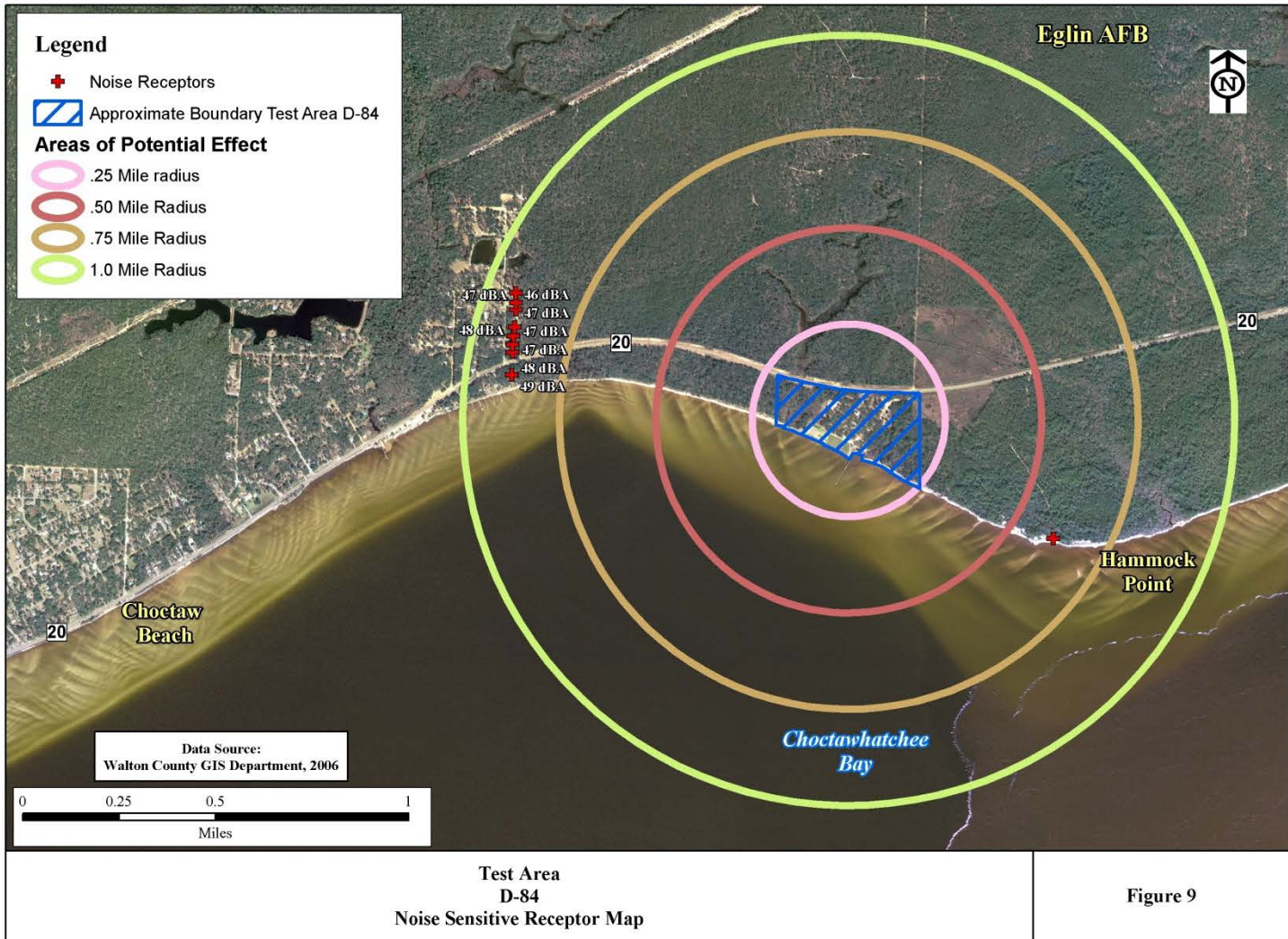
The majority of noise impacts associated with the waterside actions at Test Area D-84 are anticipated to occur during construction activities associated with heavy equipment. Cadna-A was used to model noise emissions expected from construction equipment used for the demolition/shore protection and boat ramp/pier construction activities. Cadna-A is a three-dimensional acoustical analysis software tool that is based on international acoustical standards. Cadna-A's ability to model noise sources, to identify obstacles in the propagation path (such as buildings, walls, barriers, berms, terrain, and foliage), and to predict noise levels at locations throughout a user-defined grid as well as at user-defined receptors makes it an ideal tool for this analysis.

In the case of mobile noise-sensitive receptors such as the bottlenose dolphin, certain assumptions were made in order to establish a buffer or protection zone during pile driving activities. This zone is known as the zone(s) of influence (ZOI). In order to conduct a conservative analysis, the terminus of the pier was chosen to be the center of the ZOI.

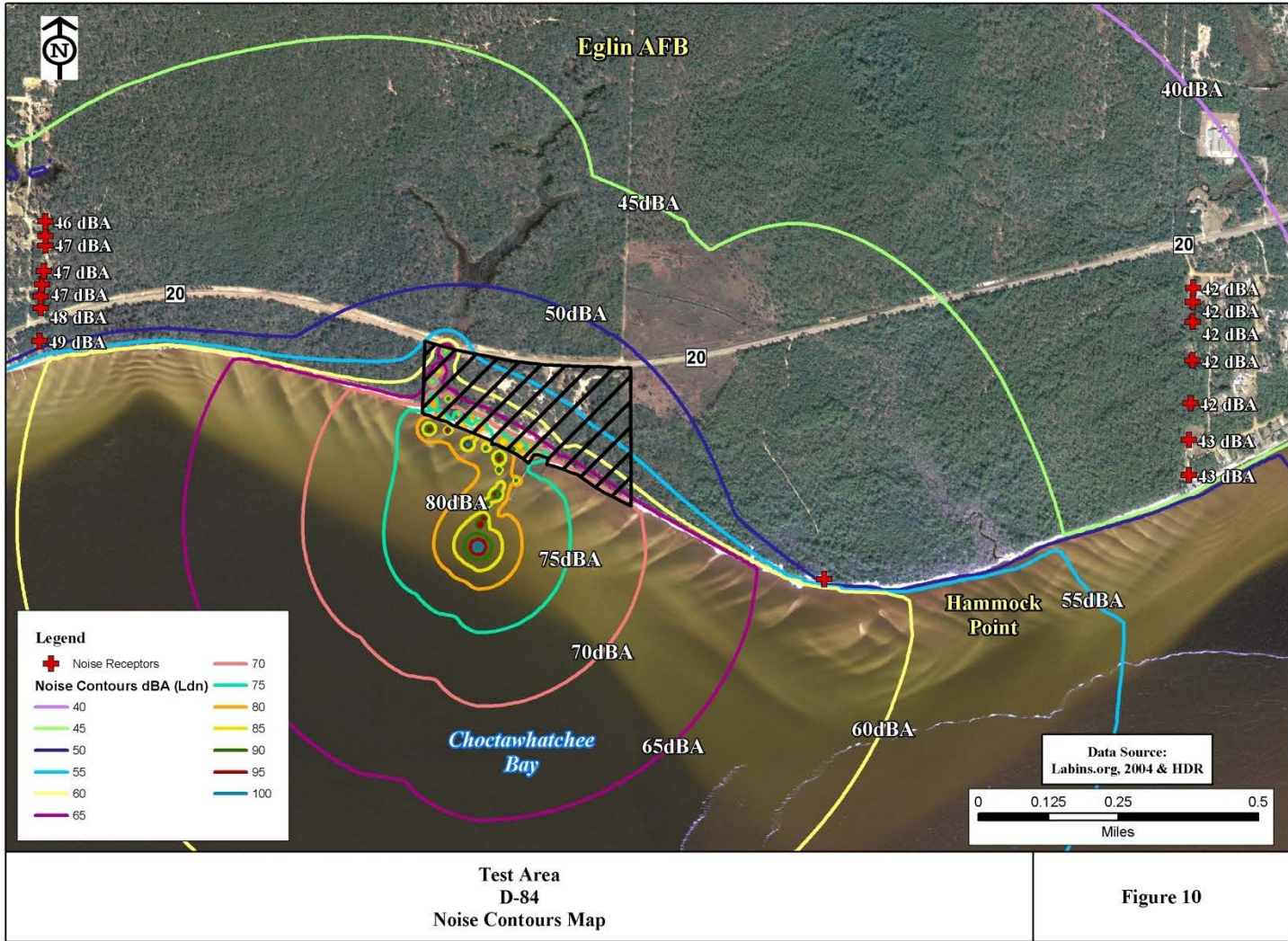
### 3.6.3 Area of Potential Effect

The public noise-sensitive receptors for Test Area D-84, as shown in **Figure 9**, are located over 0.75 mile to the west and approximately 0.5 mile to the east (Hammock Point). No public noise-sensitive receptors are located to the north or south. Therefore, the APE for public noise concerns for this project is the area immediately east and west of Test Area D-84. In addition, an underwater acoustical analysis was conducted to determine potential impacts on bottlenose dolphins. The goal of the analysis was to document and illustrate the ZOI for concrete piles 12 and 16 inches in diameter using both impact and vibratory pile driving techniques. The APE for bottlenose dolphins is the entire waterside redevelopment area, and the ZOI is within this APE.

The analysis focused on construction activities from heavy equipment and construction methods such as pile installation techniques resulting from the waterside redevelopment of the Proposed Action. Noise impacts from military training exercises were analyzed in the 2002 EA/FONSI and, therefore, were not analyzed in this EA. Results from the noise analysis with respect to the public are illustrated in **Figure 10**. The underwater acoustics results for bottlenose dolphins are illustrated in **Figures 11 and 12**, and summarized in **Table 3b** contained in Appendix F.



Test Area D-84 Noise Sensitive Receptor Map



Test Area D-84 Noise Contours Map

Figure 10

**Table 9** shows the equipment anticipated to be used during construction activities. Equipment was modeled in a conservative, worst-case scenario, all operating at the same time for 8 hours a day. Equipment was spread throughout the project area.

**Table 9. Anticipated Construction Equipment List**

Demolition and Shore Protection	Number	Max Sound Level @ 50'	Sound Level	Source Height (meters)	Notes
		dBa	dBa		
Excavator	2	81	115.6	2	1
Dozer	1	82	116.6	2	1
Dump Truck	1	76	110.6	2	1
Loader	1	79	113.6	2	1
Barge (Shallow Draft River Tug)	3	--	122.0	2	2
Tender Boat	2	82	116.6	2	3
Crane	1	81	115.6	3	1
Haul Truck (Dump Truck)	3	76	110.6	2	1
Miscellaneous Trucks	3	75	109.6	2	1
Jet Pump	1	81	115.6	1	1
Boat Ramp and Pier	Number	Max Sound Level @ 50'	Sound Level	Source Height (meters)	Notes
		dBa	dBa		
Haul Truck (Dump Truck)	3	76	110.6	2	1
Dredge w/ Tender Boat	1	--	87.1	2	4
Dredge Backacter	1	--	114.1	2	4
Barge (Shallow Draft River Tug)	2	--	122.0	2	2
Tender Boat	1	82	116.6	2	3
Crane	2	81	115.6	3	1
Excavator	1	81	115.6	2	1
Loader	1	79	113.6	2	1
Dozer	1	82	116.6	2	1
Miscellaneous Trucks	3	75	109.6	2	1
Air Compressor	1	78	112.6	1	1
Pile Drop Hammer	1	101	135.6	3	1
<p>Notes:</p> <p>Sound level is a measure of the acoustic power radiated by a source.</p> <p>Maximum sound level is the greatest sound level measured on a sound level meter during a designated time interval or event.</p> <p>1 FHWA Roadway Construction Noise Model User's Guide, FHWA-HEP-05-054, DOT-VNTSC-FHWA-05-01, January 2006</p> <p>2 <a href="http://www.maritimesales.com/Tugs%20for%20Sale.htm">http://www.maritimesales.com/Tugs%20for%20Sale.htm</a></p> <p>3 78 dBA @ 82' (<a href="http://www.mercuryracing.com/accessories/exhaustnoisereducer.php">http://www.mercuryracing.com/accessories/exhaustnoisereducer.php</a>)</p> <p>4 da Vinci Cutter Suction Dredge, Port Hedland RGP6 Dredging and Spoil Management Noise Assessment Report, Rpt07-075063-Rev5, April 20, 2009</p> <p>5 Port Hedland RGP6 Dredging and Spoil Management Noise Assessment Report, Rpt07-075063-Rev5, April 20, 2009</p>					

### 3.6.4 Environmental Consequences

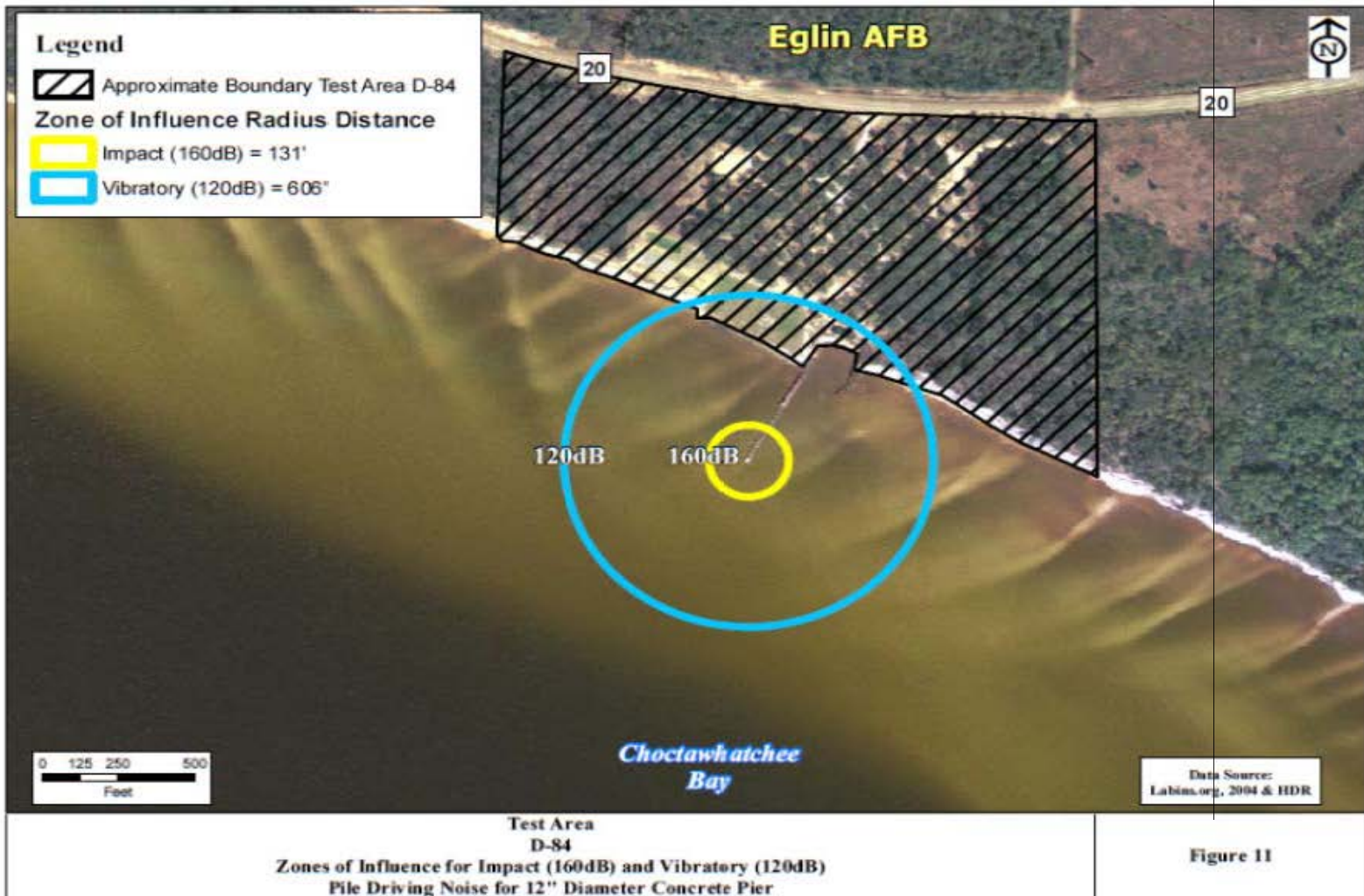
For humans, increasing noise levels to 65 dBA or higher at noise-sensitive receptor locations could be considered a significant impact. If noise levels are below 65 dBA at noise-sensitive receptor locations, an insignificant impact would occur. For bottlenose dolphins, a significant impact would occur if an animal is located within the ZOI during pile driving activities and noise approaches or exceeds the 120 dB (vibratory) to 160 dB (impact) thresholds. An insignificant impact would occur if an animal is outside the ZOI.

#### 3.6.4.1 Proposed Action

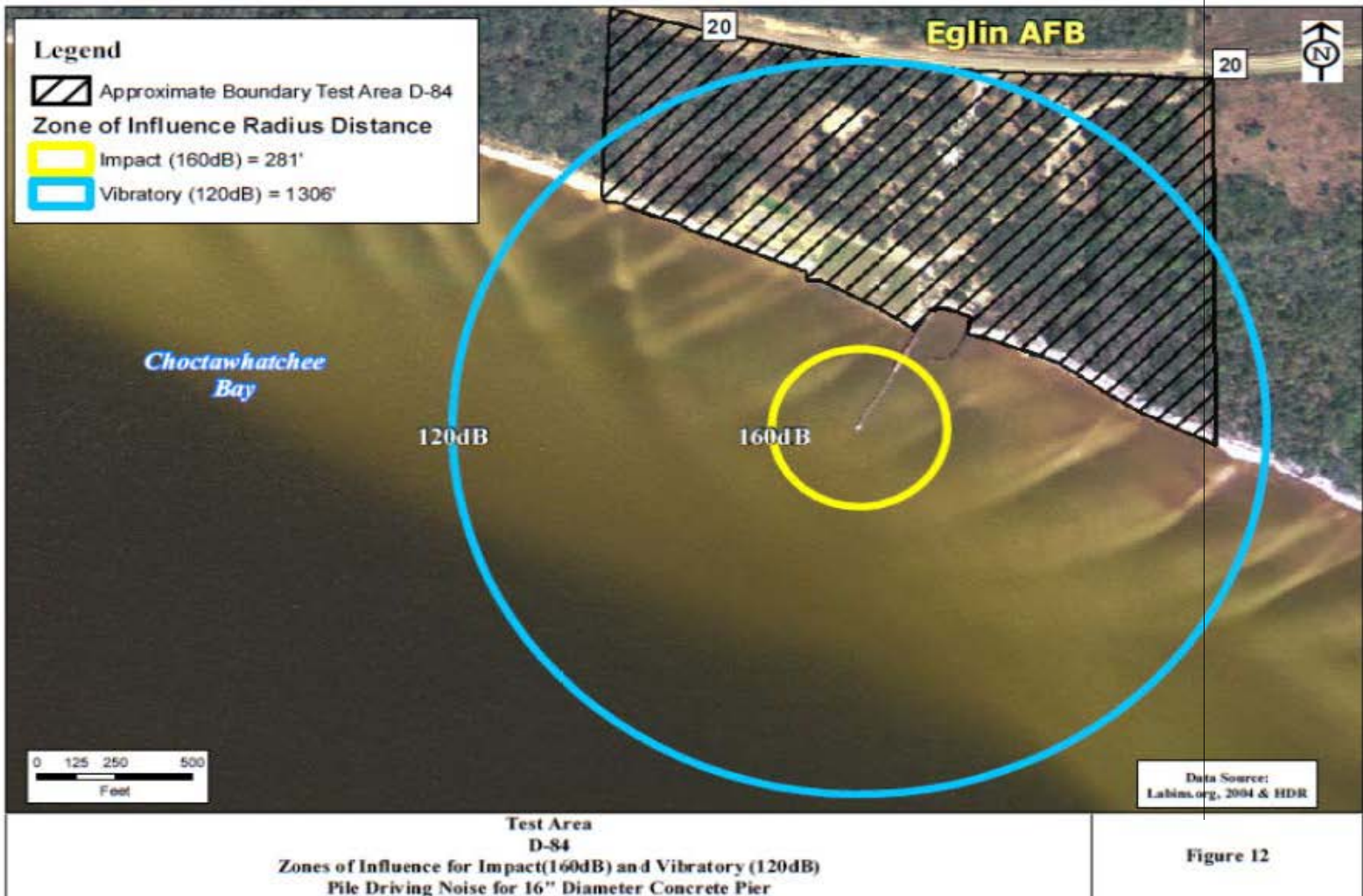
The majority of noise impacts associated with the waterside redevelopment of Test Area D-84 are anticipated to occur during construction activities. **Figure 10** shows construction noise contours calculated for the project area, along with the nearest noise-sensitive receptors. A worst-case noise level (DNL) of 49 dBA is predicted at the nearest residential receptor located approximately 0.75 mile west of the proposed project area. Because this level is less than 65 dBA, an insignificant impact would occur. This is a worst-case noise level with all of the construction equipment operating at the same time.

The analysis shows insignificant noise impacts on the public during construction activities. The construction of the Proposed Action would result in temporary noise and vibration increases within Test Area D-84. The noise and vibration would be generated primarily from heavy equipment used during construction. Sensitive areas located close to the construction area may temporarily experience increased noise and vibration levels. Based on the short-term construction schedule, noise impacts on the public would be temporary and short-term in nature.

Using the transmission loss data assuming a practical spreading model ( $15\log R$ ) suggested and confirmed by NMFS, **Figures 11 and 12** show the radii of the ZOI for 12- and 16-inch diameter concrete piles for both impact and vibratory pile driving as measured at the terminus of the pier. A summary of the findings, as provided in Appendix F (page F-8), **Table 3b**, shows that the ZOI for 12-inch concrete piles is 131 feet using the impact pile driving method and 606 feet using the vibratory method. The ZOI for 16-inch concrete piles is 281 feet using the impact pile driving method and 1,306 feet using the vibratory method. Although the impact pile driving method produces higher noise at the source level by 30 dB, the NMFS noise exposure criteria for continuous signals (vibratory) is 120 dB, which is 40 dB lower than the NMFS criteria for exposure to impact noise (160 dB). This 40 dB difference in noise exposure results in a larger ZOI for continuous noise exposure. A detailed report of the underwater acoustic analysis is provided in Appendix F. The data from this analysis would ensure that proper safety buffers and BMPs (including qualified marine mammal observers) are followed to protect bottlenose dolphins. All ESA, MSA, and MMPA consultation documents are found in Appendices B and C.







As previously mentioned, noise impacts from training operations were assessed in the 2002 EA/FONSI. Therefore, it is assumed that during the intermittent, waterborne training activities, tactical military vessels would produce noise levels similar to or slightly less than recreational vessels and the public. Marine mammals would consider the noise from these vessels as they would any other vessels encountered on Choctawhatchee Bay. Overall noise impacts from tactical marine vessels would be temporary, short-term, and insignificant.

#### 3.6.4.2 No Action Alternative

No construction activities would be conducted under the No Action alternative. Therefore, no impacts from noise would occur.

### 3.6.5 Mitigations

No noise abatement measures/mitigations to the public would occur from construction activities associated with the Proposed Action. Mitigations associated with the NMFS and USFWS are contained in the consultation documents located in Appendix B. In addition, Chapter 4 contains the plans, permits/authorizations, and management actions resulting from these consultations. Additional mitigation would not be required from the construction activities or operations associated with the Proposed Action.

## 3.7 Cultural Resources

### 3.7.1 Definition

USAF has identified more than 2,200 archaeological sites on Eglin AFB. Of those, approximately 400 sites are eligible or potentially eligible for listing on the *National Register of Historic Places* (NRHP). The NRHP is a list of historic properties regarded as significant on local, state, and/or national levels. The NRHP sets forth criteria for evaluating the significance of cultural resources and determining their eligibility for nomination for listing on the NRHP. Section 106 of the *National Historic Preservation Act* (NHPA) requires federal agencies to consider the effects of their undertakings on properties listed on or eligible for listing on the NRHP. The Section 106 review process involves consultation with an independent federal reviewing agency, the Advisory Council on Historic Preservation (ACHP). At the outset of the Section 106 review process, the agency must plan for consultation with SHPO, the Tribal Historic Preservation Officer (THPO), and other interested public parties. Federal agencies must consider these historic properties during the planning and execution of any federal undertaking that has the potential to affect them. Under the NHPA, Eglin AFB is required to consider the effects of its undertakings on historic properties listed on or eligible for listing on the NRHP. NHPA obligations for a federal agency are independent from NEPA and must be complied with even when an environmental document is not required. When both are required, Eglin AFB coordinates NEPA compliance with its NHPA responsibilities to ensure that historic properties are given adequate consideration in the preparation of environmental documents such as EAs and EISs per AFI 32-7065 Sections 3.3.1 and 3.3.2, and 36 C.F.R. § 800.8.

Eglin AFB is mandated by Section 110 of the NHPA to maintain an active historic reservation program and to provide stewardship of cultural resources “consistent with the reservation of such properties and the mission of the agency” (16 U.S.C. § 470 h-2(a)). 16 U.S.C. § 470 h-2(b) also mandates that “such properties under the jurisdiction or control of the agency as are listed in or may be eligible for the NRHP are managed and maintained in a way that considers the preservation of their historic, archaeological, architectural, and cultural values in compliance with Section 106 of this [NHPA] Act.” If a determination is made that the effects of the undertaking will be adverse, Section 106 is designed to result in a MOA, which outlines measures agreed upon that the agency will take to reduce, avoid, or mitigate the adverse effect. Consultation with SHPO, THPO, and other interested public parties continues as part of the

process. Others who are consulted under various circumstances may include local governments, Indian tribes, property owners, other members of the public, and the ACHP.

In support of both the 2002 and 2003 EA/FONSIs mentioned in Section 1.1 of this EA, a MOA among Eglin AFB, SHPO, and the ACHP was developed and approved in 2003. This MOA had limited data recovery associated with it. A second MOA in support of the 2007 plans to refurbish buildings on Test Area D-84 was developed in 2008 and approved in 2009, which led to archaeological data recovery in the uplands within Test Area D-84 (Appendix G). As a result, in the spring of 2010, data recovery of site 8WL68 was completed in the APE and has met the requirements of 36 C.F.R. § 800, as required by the MOA. This project is taking place in the portion of the site where no significant deposits remain. The tribes have indicated that they prefer not to be consulted if prehistoric resources will not be impacted. Therefore, tribal consultation was not conducted for this project; however, the Miccosukee Tribe of Indians of Florida, the Seminole Tribe of Florida, the Poarch Band of Creek Indians of Alabama, and the Muskogee (Creek) Nation of Oklahoma were consulted for the 2009 MOA. Human remains were discovered subsequent to the completion of the data recovery of site 8WL68, during the analysis phase in a laboratory setting. CEVSH has developed a Native American Graves Protection and Repatriation Act (NAGPRA) plan for discovery of human remains in coordination with the tribes.

However, eligible deposits remain to the west of the fence along the bluff line. This portion of site 8WL68 was not subjected to data recovery because it fell outside the boundary of the APE and was not expected to be impacted by the project.

To clarify, the Proposed Action covered in this document is not part of the 2002 or 2003 EA undertakings, or the 2007 plans to refurbish buildings on Test Area D-84. The 2002 EA primarily focused on landside redevelopment. The 2003 EA included site grading to the shoreline to allow for amphibious craft landings and offloading, and the 2007 plans to refurbish buildings were also focused on the landside. The Proposed Action covered in this document focuses on waterside redevelopment. Geographically, however, two parts of the current Proposed Action, the proposed boat ramp and the proposed bluff stabilization, overlay site 8WL68, so the 2009 MOA is included in Appendix G for reference.

### **3.7.2 Area of Potential Effect**

The upland bluff of Test Area D-84 has been identified as the APE in which the greatest potential for beneficial impacts from the long-term bluff stabilization would occur. Impacts on cultural resources from military training exercises were analyzed in the 2002 EA/FONSI and, therefore, were not analyzed in this EA.

### **3.7.3 Environmental Consequences**

The criteria used to determine the significance of impacts on cultural resources include the effects on NRHP eligibility, future research potential, or suitability for religious or traditional uses. An impact could be significant if it resulted in the physical alteration, destruction, or loss of a resource listed on or eligible for listing on the NRHP.

#### **3.7.3.1 Proposed Action**

Mitigative data recovery excavation at a significant archeological site, site 8WL68, within the upland portion of Test Area D-84 has been completed in accordance with a MOA approved in 2009 among Eglin AFB, SHPO, and the ACHP. As mentioned in section 3.7.1 above, this MOA was originally developed in support of the 2007 plans to refurbish buildings on the landside of Test Area D-84. Portions of the Proposed Action that overlay site 8WL68 include the bluff stabilization and the boat ramp. The remaining portions of the proposed action lay outside of site 8WL68. A map delineating the site boundary, area of data recovery and location of each of the project activities was provided to the SHPO as

an attachment to the Air Force's 13 March 2012 correspondence. **Figure 4** shows the location of each of the project activities, including the proposed dredge material placement area, which has been moved to an area free of cultural resources concerns. As indicated in their February 13, 2012 letter, the SHPO is not concerned about potential submerged cultural resources in the access channel to be dredged. No significant impacts on cultural resources would occur as a result of the construction or operations of the Proposed Action. The proposed bluff stabilization of the Proposed Action would serve as a layer of protection by providing a buffer to cultural resources not recovered during previous investigations.

### 3.7.3.2 No Action Alternative

For the No Action alternative, baseline conditions would not change, and the proposed bluff stabilization would not be constructed. As a result, potential adverse impacts on cultural resources could occur as the shoreline bluff continues to erode. This erosion could expose eligible resources not recovered during previous investigations. Additionally, no beneficial impacts on cultural resources would result from the No Action alternative.

### 3.7.4 Mitigations

Mitigation would not be required as a direct result of the Proposed Action. As stated above, mitigative data recovery in accordance with the 2009 MOA supporting the 2007 plans to refurbish buildings on the landside of Test Area D-84 has already been completed. As a future foreseeable action, it is reasonable to assume data recovery will be necessary on the western portion of site 8WL68 with remaining intact deposits west of the fence in the area that is adjacent to the stream where soil deposition changes are expected to over time cause erosion. This data recovery would occur under Section 110 of the NHPA and a separate MOA. It is not part of this undertaking, although the Air Force did inform the SHPO of the plan to conduct this data recovery in the March 13, 2012 letter (Appendix G). The SHPO provided a response to this letter on May 9, 2012, and had no comment regarding the future plan to conduct data recovery. The Tribes will be notified of our plans for data recovery and invited to participate in the MOA prior to the initiation of the data recovery.

## 3.8 Solid and Hazardous Materials/Waste Management

### 3.8.1 Definition

Solid waste is defined in the Florida Solid Waste Disposal Facility regulations as any sludge (unregulated by the federal CWA or CAA), garbage, rubbish, refuse, special waste, or other discarded material resulting from domestic, industrial, commercial, mining, agricultural, or government activities.

Solid waste includes wastes commonly referred to as municipal solid wastes (such as garbage and refuse) and construction/demolition (C&D) debris, which consists of discarded materials generally not soluble in water (such as steel, glass, brick, concrete, and asphalt) (USAF, 2010a). Walton County operates and maintains a Class I and III landfill for county residents. The landfill accepts any household or construction materials except hazardous materials. Four privately owned C&D debris landfills are located within Walton County: Coyote East, Coyote West, J&K, and Waste Recyclers (USAF, 2010a).

### 3.8.2 Area of Potential Effect

The area located near the existing timber structures (i.e., breakwater/wave attenuators, headwall/upland retaining wall, and pier) has been identified as the APE in which the greatest potential for impacts during construction and demolition activities would occur. Impacts from military training exercises were analyzed in the 2002 EA/FONSI and, therefore, were not analyzed in this EA. The solid and hazardous materials/waste management analyses are focused on the proper handling, storage, transportation, and disposal of the existing creosote timbers.

### **3.8.3 Environmental Consequences**

Construction and demolition associated with Test Area D-84 would involve the use of and encounter with hazardous materials (e.g., wood preservatives (creosote), fuels, lubricants, and solvents) and generation of solid wastes. In order to determine significance, the following were considered: the type and overall quantity of material or waste being generated; the duration of a particular activity using hazardous materials or generating solid and hazardous waste; the potential for releases during handling, transport, storage, treatment, and disposal activities; and the reduction, minimization, or cleanup of hazardous materials or wastes. An impact would be significant if the quantities of any solid or hazardous waste generated by the Proposed Action exceeded regulatory limits or existing transport or disposal capabilities, or if the use of additional hazardous materials or generation of hazardous wastes would have a detrimental impact on worker health and safety. Small increases would result in an insignificant impact. A beneficial impact would occur if the types or quantities of hazardous materials or wastes would be reduced or eliminated, or if the potential for leaks, spills, or exposure to hazardous substances would be reduced as a result of the action.

#### **3.8.3.1 Proposed Action**

Hazardous materials would be used by the contractor during the construction and demolition associated with the Proposed Action. Typical hazardous materials used would be fuels and lubricants for equipment and cleaning compounds for equipment. Standard materials would be used for construction and would not pose any unusual or substantial threat to human health or the environment. The contractor would be responsible for properly storing, transporting, and using the materials according to applicable regulations. Potential contact with creosote from the removal of the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier is likely. Creosote has been identified by USEPA as a probable human carcinogen; however, there are no definitive or adequately peer-reviewed studies (to date) of short- or long-term effects on workers exposed to creosote wood preservatives. Creosote wood preservatives contain many of the compounds present in other polycyclic aromatic hydrocarbon mixtures (roofing tar pitch, and coke oven emissions) that have been found to be human carcinogens (USEPA, 1986a).

Therefore, any involvement with creosote timbers could likely adversely affect the health and safety of workers and would be handled by the contractor in accordance with applicable federal and state laws and regulations. Proper handling and disposal of hazardous wastes in accordance with applicable requirements would neither significantly impact the environment nor affect the health and safety of workers or the public.

The construction of the Proposed Action would temporarily increase the amount of solid waste during demolition of the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier, as well as any concrete associated with demolition of the existing boat ramp. The solid waste generated by the Proposed Action would be handled by the contractor and would not affect the Eglin AFB solid waste management programs. The contractor would be required to take the C&D debris to a landfill that would accept the debris. Adequate landfill space is available in the area for C&D debris. No significant long-term impact involving solid waste would occur under the Proposed Action.

#### **3.8.3.2 No Action Alternative**

For the No Action alternative, baseline conditions would not change. Additional solid and hazardous materials/wastes would not be generated. The removal of the creosote timbers associated with the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier would not occur and would continue to leach into the water and surrounding soil. There would be no direct contact with creosote by workers or the public except for the potential contact indirectly through the water.

### **3.8.4 Mitigations**

Mitigation would not be required from the construction activities or operations associated with the Proposed Action.

## **3.9 Health and Safety**

### **3.9.1 Definition**

Based on historic uses of Eglin AFB, it has been determined by Eglin AFB's safety office that Test Area D-84 is located in an area that has potential for unexploded ordnance (UXO). UXO can be set off, or detonated, by a variety of construction equipment or by personnel using digging tools. Therefore, as a safety precaution measure, coordination with Eglin AFB-UXO professionals was initiated, and a determination was made that an explosives safety contingency plan be developed. The plan will ensure that all applicable United States Department of Defense and Department of Air Force explosives safety standards are applied and compliance by the contractor is maintained during construction activities. The plan also ensures that procedures are in place to "clear" the work area prior to construction activities and stipulates procedures on what to do in the event that UXO are encountered during construction.

### **3.9.2 Area of Potential Effect**

The entire shoreline and especially all waterside redevelopment activities have been identified as the APE in which the greatest potential for encounters with UXO during construction and demolition activities would occur.

### **3.9.3 Environmental Consequences**

Significant impacts would occur if the procedures in the explosives safety contingency plan were not followed. Compliance with the explosives safety contingency plan would reduce or eliminate these impacts to insignificant. No impacts would occur if no UXO were encountered during construction activities.

#### **3.9.3.1 Proposed Action**

Construction and demolition associated with the Proposed Action could involve encounters with UXO. Therefore, UXO support personnel would conduct surveys prior to construction activities. In the event that UXO are found during construction, procedures contained in the explosives safety contingency plan would be followed. In the event that UXO are encountered, the contractor would be responsible for compliance with the safety procedures contained in the plan to ensure no significant impacts on safety, health, or welfare from UXO would occur as a result of the Proposed Action.

#### **3.9.3.2 No Action Alternative**

For the No Action alternative, UXO potential would remain the baseline condition, and no survey or clean-up would occur. In addition, there would be no waterside redevelopment, and any risk to construction personnel from UXO encounters would not occur.

### **3.9.4 Mitigations**

Mitigation would not be required from the construction activities or operations associated with the Proposed Action.

## **3.10 Land / Water use**

### **3.10.1 Definition**

Communities categorize land according to its management and use. Thus, the value of land is dependent on its land use classification, including, but not limited to, residential, commercial, industrial, recreational, military, or agricultural. Land value can also be dependent on its proximity or access potential to a water body. Test Area D-84 (formerly Fort Rucker Recreation Area) was previously permitted through Eglin AFB as a 37-acre recreational camping area with access to Choctawhatchee Bay. It was constructed and operated by the Fort Rucker Army Installation from 1962 to 1996; remnant facilities are still on site. Since that time, the land has been transferred back to Eglin AFB (USAF, 2002b).

Adjacent land/water use surrounding Test Area D-84 consists of SR 20 as the northern boundary, Hammock Point camping area approximately 0.5 mile to the east, the community of Choctaw Beach approximately 0.75 mile to the west, and Choctawhatchee Bay to the south.

Test Area D-84's land/water use is consistent with the land/water use currently supporting the mission of Eglin AFB in the testing and evaluation of non-nuclear munitions, electronic combat systems, navigation/guidance systems, and training. The military land/water uses necessary to conduct and support the objectives of Eglin AFB are listed below (USAF, 2010d):

- Test and Evaluation
- Space Operations Support
- Training
- Eglin Gulf Test and Training Ranges
- Administrative Area Land Use

### **3.10.2 Area of Potential Effect**

The area within and the private property immediately adjacent to Test Area D-84 have been identified as the APE in which the greatest potential for impacts during construction activities would occur. Land use impacts associated with military training exercises from both land and water were analyzed in the 2002 EA/FONSI. As a result, the analysis in this EA focused on impacts on land/water use of Test Area D-84 and the adjacent private property during construction activities as well as the long-term compatibility of the Proposed Action and the No Action alternative.

### **3.10.3 Environmental Consequences**

Land/water use impacts would be significant if there were a long-term adverse effect on the adjacent private property and Test Area D-84's ability to facilitate and maintain necessary training for Eglin AFB and its tenants. Insignificant impacts would occur if some noticeable degradation occurred or if there were minor, short-term prohibitions on the use of nearby lands and bay. No impact would result if no noticeable change in land/water use occurred.

#### **3.10.3.1 Proposed Action**

During construction activities associated with the Proposed Action, specific portions of Test Area D-84 would be temporarily impacted by construction activities. However, these impacts would be considered minor and short-term in nature and would not significantly impact Test Area D-84's intended land/water use or the adjacent private property. The long-term compatibility of the Proposed Action on Test Area D-84 would produce beneficial impacts by providing necessary in-water infrastructure to support and maintain necessary training for Eglin AFB and its tenants. Choctawhatchee Bay and its submerged lands are considered state owned; however, all necessary permits/authorizations including the CZMA

determination would be obtained prior to any construction activities. Consequently, land use changes associated with the adjacent private property that could affect Test Area D-84's ability to meet its objectives are under local government jurisdiction. Therefore, coordination with the local government regarding future development is recommended.

As a result of the Proposed Action, traffic along SR 20 may be temporarily delayed to allow equipment and/or personnel movement during construction and training exercises. However, these delays would be short-term and insignificant. Therefore, there would be no significant impacts to adjacent land/water use under the Proposed Action.

#### **3.10.3.2 No Action Alternative**

Under the No Action alternative, land/water use would remain in its existing condition. The current land/water use is unsuitable for the purpose and need identified in Sections 1.4 and 1.5 of this EA. Therefore, no beneficial impacts would occur from the No Action alternative.

### **3.10.4 Mitigations**

Land/water use mitigation would not be required as a result of the Proposed Action.

## **3.11 Aesthetics**

### **3.11.1 Definition**

The aesthetic nature of an area is dependent on land use and the presence or absence of man-made structures. Visual resources consistent with the natural and man-made landscape features that appear indigenous to the area give a particular environment its aesthetic qualities. Impacts on visual sensitivity are assessed in terms of whether the visual resource is of high, medium, or low sensitivity. High-sensitivity resources include designated areas of aesthetic, recreational, cultural, or scientific significance that meet certain criteria; examples include wilderness areas, state and national parks, wildlife refuges, wild and scenic rivers, and historic areas. Medium-sensitivity areas are more heavily developed, and contemporary human influences are more apparent and are generally designated for recreational, scenic, and historical use by local authorities, such as community parks, highway scenic overlooks, and hiking trails. All other areas are considered to be of low sensitivity (USAF, 1998).

### **3.11.2 Area of Potential Effect**

The area associated with the waterside redevelopment (the Proposed Action) has been identified as the APE in which the greatest potential for aesthetic impacts would occur. As a result, this analysis focused on potential aesthetic impacts not only during construction activities but also during long-term compatibility resulting from the Proposed Action and the No Action alternative.

### **3.11.3 Environmental Consequences**

The significance criteria for aesthetic impacts were based on the perception of the degree of acceptability of changes to the physical characteristics of the landscape. A significant impact would involve strong disapproval by many individuals, whereas an insignificant impact would involve minimal disapproval, or strong disapproval by some individuals. No impact would occur if there was negligible disapproval, or moderate disapproval by some individuals.

#### **3.11.3.1 Proposed Action**

The Proposed Action would provide an overall aesthetic benefit to Eglin AFB and the community by creating functional, maintained waterside facilities and shoreline landscape. Construction activities could



occur over a 6-month period or more. The amount of dust generated by the construction activities would be short-term and would not be expected to degrade visibility in or around Test Area D-84. Applicable BMPs would be used to maintain slightly moist soil conditions during construction; this would lessen the potential for any generation and transport of fugitive dust emissions and would reduce adverse aesthetic impacts. The Proposed Action would be consistent with the long-term compatibility of the adjacent landward facilities. No significant impacts would occur from the construction activities or operations associated with the Proposed Action.

#### **3.11.3.2 No Action Alternative**

Under the No Action alternative, aesthetics use would remain in its existing condition. The existing derelict breakwater/wave attenuators, headwall/upland retaining wall, pier, and eroded shoreline bluff would remain the status quo. These structures would not be redeveloped. Therefore, no beneficial impacts would occur from the No Action alternative.

#### **3.11.4 Mitigations**

Mitigation would not be required as a result of the Proposed Action.

### **3.12 Socioeconomics**

#### **3.12.1 Definition**

As of October 2, 2007, the Florida Department of Agriculture and Consumer Services (FDACS) has classified the Choctawhatchee Bay, within the vicinity of the Proposed Action, as conditionally approved for shellfish harvesting. This 35,609 acre area, also known as the central section, is closed when the Choctawhatchee River stage measured at Caryville, Florida exceeds 12.34 feet or cumulative rainfall measured at Argyle Forestry Tower exceeds 4.66 inches during any seven day period (FDACS, 2012). It is reasonable to assume that closures from natural occurrences would have a negative economic impact to the shellfish industry. Consequently, any additional man-induced closures to this area could have the potential to further negatively impact shellfish harvesting, processing, and distribution. Therefore, because closures due to natural weather events are inevitable and highly unpredictable, only the socioeconomic impacts to the shellfish industry as a result of permanent or temporary closures associated with the channel dredging were analyzed in this EA.

#### **3.12.2 Area of Potential Effect**

The area associated with the dredge channel has been identified as the APE in which the greatest potential for socioeconomic impacts would occur. This analysis focused on potential impacts in approved shellfish harvesting waters, not only during construction activities, but also during long-term maintenance resulting from the Proposed Action and the No Action alternative.

#### **3.12.3 Environmental Consequences**

The significance criteria for socioeconomic resources (shellfish, i.e. oysters) were determined based on the potential for permanent or temporary closures as a result of the channel dredging. A significant adverse impact would be based on a decline in economic productivity in shellfish harvesting, processing, and distribution. Insignificant impacts would occur if the industry was unaffected or closures were avoided. Increases in the local economy would be considered a beneficial impact.

##### **3.12.3.1 Proposed Action**

During channel dredging activities associated with the Proposed Action, approved shellfish harvesting waters associated with the Choctawhatchee Bay would be impacted. However, based on the results of

SAV surveys conducted in June 2009 and again in July 2010 (Appendix C), no shellfish beds would be adversely impacted by the channel dredging. In addition, in accordance with a variance received May 4, 2012 from FDEP in consultation with FDACS, no permanent or temporary closures would be required if channel dredging occurred during the closed shellfish harvesting months (July through September) (See Appendix H). Commitments were made by Eglin AFB to avoid potential adverse impacts to the Gulf sturgeon and remain in compliance with the BO (see Appendix B and Section 4.3.4, *Mitigation Measures for the Gulf sturgeon*). Therefore, the channel dredging activities would occur during the closed months from July to September. The socioeconomic impacts to the shellfish industry would remain unaffected because no closures to approved shellfish harvesting waters would occur. Therefore, no significant impacts would occur from the construction activities or operations associated with the Proposed Action.

#### 3.12.3.2 No Action Alternative

Under the No Action alternative, Choctawhatchee Bay's approved shellfish harvesting waters would remain open and in their existing condition. No dredging would occur.

#### 3.12.4 Mitigations

Compliance with FDACS requirements to conduct dredging during the months of July through September is required. No additional mitigation would be required.

### 3.13 Relationships Between Short-Term Uses of the Environment and Long-Term Productivity

The Proposed Action would involve use along the shoreline and an area of submerged lands waterside of Test Area D-84. The use of this habitat by wildlife would be temporarily impacted during construction activities but not completely lost as a result of training. Dredging and the periodic maintenance dredging of the channel would temporarily affect the benthic community within that channel but would not adversely affect the long-term productivity of Choctawhatchee Bay. The bluff stabilization portion of the Proposed Action would prevent long-term degradation and erosion associated with the existing bluff. The Proposed Action would not interfere with the objectives of Eglin AFB's *Integrated Natural Resource Management Plan* and has been developed and designed to be consistent with Eglin AFB and its missions.

Construction-, demolition-, and redevelopment-related activities would result in a short-term use of resources. However, implementing the Proposed Action would not degrade the long-term productivity of the area. Implementing the Proposed Action would provide beneficial impacts on land use required to support adjoining land-based training and specific water-based training for Eglin AFB tenants and other military groups. In addition, long-term productivity of the bay would benefit from removal of old derelict timbers that are actively leaching potentially harmful substances associated with creosote into a Class II shellfish harvesting approved water body as well as designated critical habitat for the federally threatened Gulf sturgeon.

### 3.14 Cumulative Impacts

According to the CEQ regulations, cumulative impact analysis in an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 C.F.R. § 1508.7). Cumulative effects may occur when there is a relationship between a Proposed Action and other actions expected to occur in a similar location or during a similar time period. This relationship may or may not be obvious. Actions overlapping with, or in close proximity to, the Proposed Action can reasonably be expected to have more potential for cumulative effects on "shared resources" than actions that may be geographically separated. Similarly, actions that coincide temporally

would tend to offer a higher potential for cumulative effects. For this project, potential cumulative impacts are addressed for the Proposed Action, No Action alternative, and the foreseeable future actions in Section 3.16.

### **3.15 Past and Present Actions Relevant to the Proposed Action and No Action Alternative**

Past actions relevant to the Proposed Action include the location and construction of the facilities associated with the Fort Rucker Recreational Area. The location and previous use of the facilities, including the upland structures as well as the pier, boat ramp, articulating block mattresses, and the bluff stabilization, dictate the placement and layout of the waterside redevelopment alternative (Proposed Action).

### **3.16 Reasonably Foreseeable Future Actions**

The scoping process used to identify and address key issues for Test Area D-84 resulted in a list of other reasonably foreseeable projects by government agencies that could occur in or near Test Area D-84. For a project to be reasonably foreseeable, it must have advanced far enough in the planning process that its implementation is likely. The following major reasonably foreseeable federal actions in and around Test Area D-84 have been identified as additional actions to be considered: 7 SFG(A) waterborne operations with transition to their small arms ranges at Test Area C-52, the Naval School, Explosive Ordnance Disposal (NAVSCOLEOD) with transition to C-52 and D-51, and as mentioned in Section 1.5 of this EA, units of AFSOC, SOCOM, and ACC. During these exercises, the units would use SR 20 to access other Eglin AFB test areas. At that time, traffic along SR 20 may be delayed to allow for equipment and troop movement onto the Eglin AFB reservation. These delays are expected to be temporary, short-term, and insignificant. The beddown of 7 SFG(A), and other current and planned projects with federal funding or requiring federal approval (such as a Section 404 permit) in the area, will be addressed under separate NEPA documents. Another reasonably foreseeable future action would be to perform cultural resource data recovery on the western portion of Test Area D-84 with remaining intact deposits west of the fence in the area that is adjacent to the stream where soil deposition changes are expected to over time cause erosion. This type of erosion was seen to the east at a nearby resource within 2 years after a bluff stabilization project was completed.

### **3.17 Analysis of Cumulative Impacts**

#### **3.17.1 Air Quality**

Because the Proposed Action and the foreseeable future actions are located in attainment areas and emissions from activities associated with construction or training are considered temporary and short-term, no significant cumulative impacts on air quality from mobile or stationary sources will occur.

#### **3.17.2 Geological Resources**

No significant cumulative impacts on geological resources, including soils/erosion, will occur as a result of the Proposed Action. Dredge materials could potentially be reused on site. BMPs would be implemented and permits obtained for each foreseeable future action as required by federal and state regulations.

#### **3.17.3 Water Resources**

No significant cumulative effects on surface water and floodplains will occur for the Proposed Action. Although the Proposed Action will impact 100-year floodplains along the shoreline, it will not cause backwater elevations to rise and increase the risk of flooding to residences or businesses. BMPs would be

implemented and permits obtained for each foreseeable future action as required by federal and state regulations.

#### **3.17.4 Biological Resources**

Cumulative impacts on biological resources include impacts in the dredge channel. Benthic organisms such as polychaete worms, bivalves, and the larger benthic animals like crabs, flounder, and rays and their habitats will be temporarily impacted during, and for a period of time after, construction. However, it is expected that the more mobile species will leave the area during construction activities and quickly recolonize the area after construction activities are complete. Species such as polychaete worms and bivalves may not be as able to leave the disturbed area; therefore, cumulative impacts may occur. However, the overall cumulative impact on the benthic community within the dredge channel will be considered temporary, short-term, and insignificant. Cumulative impacts on the Gulf sturgeon or its habitat are will not be significant or long-term, and will result in only minor, temporary impacts to EFH or federally managed species. Consultation has been completed with NMFS under the ESA and the MSA as well as the MMPA. BMPs would be implemented, permits obtained, and consultations would occur for each foreseeable future action as required by federal and state regulations.

#### **3.17.5 Wetlands**

No significant cumulative effects on wetlands will occur for the Proposed Action. BMPs would be implemented and permits obtained for each foreseeable future action as required by federal and state regulations.

#### **3.17.6 Noise**

No significant cumulative effects to the public or marine animals from noise will occur for the Proposed Action. The Proposed Action will have short-term noise increases during construction and training but will have no perceptible long-term noise impacts. BMPs and noise abatement measures, if required, would be implemented for each foreseeable future action as required by federal and state regulations.

#### **3.17.7 Cultural Resources**

No significant cumulative effects on cultural resources will occur for the Proposed Action. It is possible that a storm surge event could produce scouring and erosion around the west end of the bank stabilization and impact archeological deposits in that area. This type of erosion is likely to occur based on site conditions and similar experience in this area. Section 106 investigations have been conducted to identify any resources that may be impacted by project activities. The bluff stabilization portion of the Proposed Action will be designed to contain a wing wall to ensure no significant cumulative impacts will occur in the event of storm surge. BMPs would be implemented and permits obtained for each foreseeable future action as required by federal and state regulations.

#### **3.17.8 Hazardous Materials and Waste Management**

The cumulative impact of the Proposed Action will produce an increase in solid waste generation; however, the increase will be small and limited to the timeframe of each construction phase. No significant cumulative effects from hazardous materials, including creosote, and waste management will occur as a result of the Proposed Action. BMPs would be implemented and permits obtained for each foreseeable future action as required by federal and state regulations.

#### **3.17.9 Health and Safety**

All areas where ground disturbance will occur will be surveyed and cleared for UXO prior to construction activities. There will be no significant cumulative impacts on health and safety from UXO resulting from

the implementation of the Proposed Action and the foreseeable future actions. BMPs would be implemented and UXO surveys conducted for each foreseeable future action as required by federal and state regulations.

### **3.17.10 Land / Water Use**

The Proposed Action is the waterside redevelopment of an existing military facility formerly used for the recreation of military personnel and their families. Therefore, land use will remain consistent with military operations. Because land use remains under federal government jurisdiction, no significant cumulative effects on land/water use will occur from the Proposed Action and the foreseeable future actions.

### **3.17.11 Aesthetics**

The Proposed Action is the waterside redevelopment of an existing military facility formerly used for the recreation of military personnel and their families. Since its recreational use ceased around 1996, many of the original structures, including a derelict pier, breakwater, and boat ramp, remain on site (USAF, 2002b). The Proposed Action includes plans to demolish and construct new waterside structures, thus making Test Area D-84 more aesthetically pleasing by eliminating the old, derelict structures. Therefore, the aesthetic value will be increased and will remain consistent with current military facilities. Because of these benefits, no significant cumulative effects will occur from the Proposed Action and the foreseeable future actions.

### **3.17.12 Socioeconomics**

Cumulative effects to shellfish harvesting, processing, and distribution could occur if permanent or temporary closures were implemented as a result of the Proposed Action and the foreseeable future actions. Because the Proposed Action is within Choctawhatchee Bay, which is conditionally approved for shellfish harvesting, as defined by FDACS, authorization to conduct dredging operations in these waters is required. Based on commitments to dredge during the “closed” months of July through September to protect listed species such as Gulf sturgeon, no permanent or temporary closures to conditionally approved shellfish harvesting waters will occur as a result of the Proposed Action and the foreseeable future actions. No significant cumulative effects on the shellfish industry will occur as a result of the Proposed Action and the foreseeable future actions.

## **3.18 Irreversible and Irrecoverable Commitments of Resources**

NEPA requires that environmental analysis include identification of any irreversible and irretrievable commitments of resources that would be involved in the implementation of the Proposed Action or alternatives. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irrecoverable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a T&E species or the disturbance of a cultural site) (Mid-Bay Bridge Authority, 2008).

### **3.18.1 Proposed Action**

The Proposed Action would require permanent use of ordinary construction materials, such as concrete, steel, and wood. The materials would, except for recyclable items, be irretrievably committed. The Proposed Action would irretrievably consume various types of fuels and water during the construction period. A long-term commitment of resources would occur for maintenance of the dredge channel and submerged lands under the pier. These structures and their location would need to be maintained by

USAF to adequately provide waterside access for military training. The amounts of resource consumption for maintenance are not expected to increase significantly from current amounts used in the area.

Although the loss of soils and sandy-bottom habitat from the dredge channel (and continued maintenance) would be a long-term commitment of resources, the submerged land within the channel and pier ultimately could be restored if the channel and pier were removed in the future. Therefore, the commitment of submerged lands, marine animals, or their habitat is not necessarily irreversible or irretrievable. In addition, dredge materials could potentially be reused on site.

The extinction of a T&E species would be considered an irretrievable commitment of resources; however, the Proposed Action would not irretrievably commit biological resources.

Although data recovery, a form of mitigation related to cultural resources, would provide knowledge pertinent to the archaeological record, impacts on cultural resources would also be considered an irretrievable commitment of resources. The Proposed Action would not irretrievably commit cultural resources.

### **3.18.2 No Action Alternative**

No irretrievable or irreversible commitment of resources would occur under the No Action Alternative.

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## 4.0 PLANS, PERMITS / AUTHORIZATIONS, AND MANAGEMENT ACTIONS

This section discusses the plans, permits/authorizations, and management actions associated with the Proposed Action. The environmental impact analysis process for this EA identified the need for these requirements, which were developed through cooperation between the proponent and interested parties involved in the Proposed Action. These requirements are, therefore, to be considered as part of the Proposed Action, and implementation would be through the Proposed Action's initiation. The proponent is responsible for adherence to and coordination with the listed entities to complete the plans, permits/authorizations, and management actions.

### 4.1 Plans

The following plans are associated with the Proposed Action:

- Site Design, Construction, and Utility Plans
- Stormwater Pollution Prevention Plan and Stormwater, Erosion, and Sedimentation Control Plan

### 4.2 Permits / Authorizations

The following permits/authorizations are associated with the Proposed Action:

- FDEP:
  - Generic Permit for Storm Water Discharge from Construction Activities that Disturb One or More Acres of Land (NPDES permit under Chapter 62-621, F.A.C.)
  - ERP permit under Chapter 62-346, F.A.C. (includes dredge & fill and stormwater)
  - Sovereign Submerged Lands (SSL) Authorization
  - Coastal zone consistency determination in accordance with Florida's CZMA
  - Shellfish Harvesting Variance (in consultation with FDACS, Aquaculture Division) (Received May 4, 2012 - See Appendix H)
  - De Minimus Exemption 62-4.040(1)(b), F.A.C. for soil sampling within Choctawhatchee Bay received 14 Apr 2008. (File No. 66-286590-001-DE).
- USACE:
  - Section 404
  - Nationwide 6 for soil sampling within Choctawhatchee Bay received 8 Apr 2008. (File No. SAJ-2008-00780(NW-MMW)).

### 4.3 Management Actions

The proponent is responsible for the implementation of the management actions discussed below.

#### 4.3.1 Air Quality

Impacts will be minimized by adherence to all state and local regulations. Reasonable precautions would be taken to minimize fugitive particulate emissions during ground-disturbing/construction activities in accordance with Chapter 62-296, F.A.C.



#### 4.3.2 Soils and Erosion

- Where applicable, BMPs, including riprap or other approved slope stabilization methods and materials, will be used to reduce erosion.
- USAF requires inspection and maintenance of BMPs under the stormwater construction general permit.

#### 4.3.3 Water Resources

- The proponent will secure all environmental permits involving impacts on surface waters prior to commencement of construction activities.
- Permits and site plan designs would include site-specific management requirements for erosion and sediment control.
- Staging and storage areas would be designated for use of construction equipment.
- Entrenched silt fencing and staked hay bales would be installed and maintained along the perimeter during construction and staging and storage areas.
- Silt fencing would be inspected on a weekly basis and after rain events. Fencing would be replaced as needed.
- Stockpiles would be removed in a timely manner.
- Waste receptacles, including dumpsters, would be covered to prevent rainwater and wildlife from entering.
- Stormwater features designed to control runoff associated with the additional grading and excavating would be included.
- For water quality protection, erosion control blankets/fabric and other applicable BMPs would be incorporated to reduce soil erosion and prevent sedimentation from entering surface waters, floodplains, and wetlands.
- Chemicals, cements, solvents, paints, or other potential water pollutants would be stored in locations where they cannot cause runoff pollution into surface waters, floodplains, and wetlands.

#### 4.3.4 Biological Resources

The proponent will comply with the terms and conditions as set forth by NMFS, in accordance with Section 7 of the ESA, the MSA, and the MMPA.

##### ***Best Management Practices to Minimize Siltation and Turbidity***

- A series of turbidity curtains will be put in place for all in-water activities.
- Turbidity curtains will be anchored with tangle-resistant rope or surface anchors.
- Type IV (wire backed) silt fencing will be used for all on-shore activities.
- An erosion control plan will be implemented.
- All dredge spoil material will be de-watered on a self-contained upland area located a sufficient distance from MHW to prevent turbid return water.

***NMFS - Biological Opinion Conservation Recommendations***

- Data describing recovery rates of Gulf sturgeon prey species impacted by the cyclical removal of sandy substrates via dredging will be gathered to assist in future assessments of impacts on Gulf sturgeon prey items.
- Data describing movement of Gulf sturgeon within the East Pass during downstream and upstream migration, specifically the utilization of the maintained channel relative to undisturbed areas, will be gathered.

***Mitigation Measures for Gulf Sturgeon during Dredging and Pile Driving Operations***

- The intake portion of the dredge will remain within the substrate when the dredge is in operation.
- Sediment curtains will be used during dredging operations.
- Dredging and pile-driving operations will be conducted during daylight hours only.
- Dredging and pile-driving operations will be conducted between May and September, if possible.
- If dredging or pile-driving operations occur between October and April and a Gulf sturgeon is observed, activities will temporarily stop.

***Standard Manatee Conditions for In-Water Work***

- All project personnel will be instructed about the potential presence of manatees and the need to avoid collisions with and injury to manatees. All construction personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the *Marine Mammal Protection Act*, the *Endangered Species Act*, and the *Florida Manatee Sanctuary Act*.
- During warm months (May to November), all vessels associated with the project shall operate at “Idle Speed/No Wake” at all times while in the immediate area and while in water where the draft of the vessel provides less than a 4-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- All on-site project personnel are responsible for observing water-related activities for the presence of manatees. All in-water operations must be shut down if a manatee comes within 50 feet of the operation. Activities will not resume until the manatee has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.
- Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission Hotline at 1-888-404-FWCC. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville at 1-904-731-3336.

***Seagrass Management Measures***

- A seagrass exclusion zone will be established in areas of known seagrass occurrence.

***Bottlenose Dolphin Mitigation and Monitoring Measures***

- An educational package will be prepared that includes photos of the species and appropriate information about its habitat, life cycle, etc., and this package will be presented to the contractor at the Pre-Construction meeting. The Contractor will be required to provide this instruction/educational materials to all work crews. Notes concerning the species and monitoring needs will be provided for inclusion in the plans.
- *Restriction of Operating Hours:* Pile-driving activities will be limited to daylight hours in order to maximize visibility for protected species observers.

- *Monitoring by Protected Species Observers:* Eglin AFB will provide trained, NMFS-qualified protected species observers at the project site to monitor for marine mammals. Monitoring will occur for 30 minutes prior to pile driving, during pile driving, and for 30 minutes after pile driving ends. During this time, the Level B harassment zone (131 feet for 12-inch piles and 281 feet for 16-inch piles) may not be obscured by fog or poor lighting conditions.
- *Implementation of Ramp-up:* At the start of each survey day, pile-driving hammers would initially be operated at low levels, then gradually increase to the minimum necessary power required for pile removal or installation. During this ramp-up procedure, any marine mammals in the area would have the opportunity to detect the presence of increased sound and leave the area before full power pile driving commences.
- *Implementation of Shutdown:* If a detected marine mammal enters or nears the Level B harassment zone, the protected species observer will call for shutdown of all pile-driving activities. Pile driving will not resume until the marine mammal is confirmed to be outside of the Level B harassment zone (131 feet for 12-inch piles and 281 feet for 16-inch piles) or 15 minutes have passed since the last sighting.
- In the event that harassment of a marine mammal occurs despite implementation of mitigation and monitoring measures, activities should be suspended and the Chief, NMFS Permits, Conservation, and Education Division must be contacted at (301) 713-2289 within two business days. In addition, a written report describing the incident will be submitted.

#### 4.3.5 Wetlands

To the maximum extent possible, the proponent will avoid and minimize direct and indirect disturbance of wetlands through proper use and maintenance of BMPs.

#### 4.3.6 Cultural Resources

- The proponent will coordinate with the Cultural Resource Section (96 CEG/CEVH) at (850) 883-5201 on any change in plans.
- If unexpected discoveries, such as Native American graves or lost historic cemeteries, are encountered during construction, all construction activity will cease immediately and Eglin AFB's Cultural Resource Section will be contacted at (850) 883-5201. They will notify the Florida SHPO within 24 hours at (850) 245-6333 to begin procedures outlined in F.S. Chapter 872 (Florida's Unmarked Burial Law).

#### 4.3.7 Hazardous Materials

- Eglin AFB's Environmental Restoration Section (96 CEG/CEVR) will be contacted if unusual soil coloration and/or odors are detected.
- Any hazardous wastes (e.g., creosote, waste adhesives, and/or paint wastes) generated during construction would be handled by the contractor in accordance with applicable federal and state laws and regulations.

#### 4.3.8 Health & Safety

- The proponent will conduct range clearance to remove any possible unexploded ordnance/munitions and explosives of concern or discarded military munitions from the surface. In addition, conduct a subsurface investigation of the construction footprint prior to conducting any ground intrusive activities.

- A safety and education briefing on UXO safety will be provided to all workers; to include the operators during dredging operations. EOD personnel will be contacted and made aware of the possibility of emergency munitions response.
- In the event that UXO are found during construction, all construction activity will cease immediately, and Eglin AFB's safety office will be contacted at (850) 882-8234.
- The contractor will be responsible for compliance with the safety procedures contained in the explosives safety contingency plan.

#### **4.3.9 Socioeconomic**

- In order to avoid impacts to the shellfish industry, the proponent will avoid the permanent or temporary closure of Class II conditionally approved shellfish harvesting waters by dredging during the closed months of July through September (Appendix H).

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## 5.0 CONSULTATION AND COORDINATION

This section lists agencies and individuals contacted during development and preparation of this EA.

### 5.1 Federal and State Agencies

Federal Agencies:

Mr. Clif Payne Pensacola Regulatory Office USACE 41 N. Jefferson Street, Ste 111 Pensacola, Florida 32502-5794	Mr. Randall Rowland Eglin AFB 96 CEG/CEV 501 DeLeon Street, Ste 101 Eglin AFB, Florida 32542	Dr. Don Imm, Project Leader USFWS 1601 Balboa Avenue Panama City, Florida 32405-3721
Mr. Mark Thompson NMFS, Habitat Conservation 3500 Delwood Beach Road Panama City, FL 32408	Roy Crabtree, Regional Administrator NMFS, Southeast Regional Office St. Petersburg, FL 33701	James H. Lecky, Director NMFS, Office of Protected Resources Silver Springs, MD 20910

State Agencies:

Ms. Lindy McDowell Florida State Clearinghouse 3900 Commonwealth Blvd. Mail Station 47 Tallahassee, Florida 32399	Mr. Ted Hoehn FWC 620 South Meridian Street, Mail Station 2A Tallahassee, Florida 32399	Mr. Andrew Joslyn FDEP Northwest District 160 Governmental Center Pensacola, Florida 32505
Mr. Lee Marchman NFWFMD 81 Water Management Drive Havana, Florida 32333	Mr. Chris Stahl FDEP 3900 Commonwealth Blvd. Mail Station 49 Tallahassee, Florida 32399	Mr. Scott M. Stroh III, Director SHPO/FDHR 500 S. Bronough Street Tallahassee, Florida 32399-0250

## 5.2 Public Involvement

The public review process provides an opportunity for the public to comment on federal actions addressed in NEPA documents. A public notice was placed in the *Northwest Florida Daily News* on July 5, 2012 announcing the availability of the Draft EA and Draft FONSI/FONPA for public review and comment. A copy of the publication as it ran in the newspaper is shown in Appendix D. The Draft EA and Draft FONSI/FONPA were made available for review on the internet at [www.eglin.af.mil/environmentalassessments.asp](http://www.eglin.af.mil/environmentalassessments.asp) from July 5 until August 19, 2012.

No public comments on the Draft EA and Draft FONSI/FONPA were received over the 45-day comment period.

Each of the libraries in Walton County, Florida (listed below), had computers available to the general public and librarians to provide assistance linking to the documents.

### Walton County Library Directory

#### Walton-DeFuniak Library

3 Circle Drive  
Defuniak Springs, FL 32435-2542  
Phone: 850-892-3624  
Fax: 850-892-4438  
Hours:  
Monday 9:00 to 5:00  
Tuesday 9:00 to 8:00  
Wednesday - Friday 9:00 to 5:00  
Saturday - Sunday Closed

#### Freeport Public Library

76 State Hwy 20 W.  
Freeport, FL 32439  
Phone: 850-835-2040  
Fax: 850-835-2154  
Hours:  
Tuesday -Saturday 9:00 to 5:00  
Sunday Closed

#### Coastal Branch Library

437 Greenway Trail  
Santa Rosa Beach, FL 32459  
Phone: 850-267-2809  
Fax: 850-267-9452  
Hours:  
Monday 9:00 to 8:00  
Tuesday - Friday 9:00 to 5:00  
Saturday - Sunday Closed

#### Gladys N. Milton Memorial Library

261 Flowersview Rd.  
Flowersview, FL 32567  
Phone: 850-834-5383  
Fax: 850-834-5487  
Hours:  
Monday - Tuesday 9:00-12:00/12:30-5:00  
Wednesday Closed  
Thurs - Saturday 9:00-12:00/12:30-5:00  
Sunday Closed

## 5.3 Agency Coordination / Meetings

The following meetings were conducted in order to promote continued coordination with both regulatory agencies responsible for environmental permitting specific to the Proposed Action.

- FDEP - 30 May 2008 (Field)
- FDEP - 10 June 2008 (Office)
- FDEP/USACE - 16 Apr 2009 (Office)
- FDEP - 6 Dec 2010 (Office)
- USACE - 8 Dec 2010 (Field)

## 6.0 LIST OF PREPARERS

HDR Engineering, Inc.  
25 West Cedar Street, Suite 200  
Pensacola, Florida 32502

Name/Qualifications	Contribution	Experience
Michelle Dusseau Diller Professional Engineer, FL #61663 B.S.E., Materials Science and Engineering M.S., Environmental Science (Water Resources) M.P.A., Public Affairs	Water Resources	11 years environmental engineering, including 10 years regulatory review
Terry Ellis GIS Manager/CADD A.S., Civil Engineering, Drafting, and Design	GIS/CADD	4 Years GIS; 8 years CADD/Design
Mick Garrett Project Manager/Senior Environmental Scientist B.S., Marine Biology	Technical Lead	13 years environmental science; 5 years NEPA
Brian Goss Project Manager/Senior Environmental Scientist B.A., Geology M.S., Geochemistry	Technical Review	22 years environmental science
Kim Gust Technical Editor B.S.E., English M.A., English Composition and Rhetoric	Editor	13 years technical editing and copy editing
Cliff Koenig Environmental Engineer B.S., Environmental Engineering M.S., Environmental Engineering	Air Pollution Permitting/Modeling	9 years engineering
Geoffrey Norris, PhD. Project Manager	Underwater Acoustics	34 years acoustics
Michael Parsons Professional Engineer B.S., Civil and Environmental Engineering	Noise	10 years environmental science; 8 years noise
Josey Walker Environmental Scientist B.S., Environmental Biology M.S., Environmental Science	Wetlands, Biological Resources, Geology	9 years environmental science/permitting
Todd Wilson Project Manager B.S., Chemistry M.S., Pharmaceutical Science	Project Manager/Technical Review	19 years environmental chemistry



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**APPENDIX A.**  
**CZMA DETERMINATION AND STATE CLEARINGHOUSE COORDINATION**

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FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT (CZMA)  
CONSISTENCY DETERMINATION



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 96TH AIR BASE WING (AFMC)  
EGLIN AIR FORCE BASE FLORIDA

July 2, 2012

Mrs. Melinda A. Rogers  
Department of the Air Force  
96 CEG/CEVSP  
501 DeLeon Street, Suite 101  
Eglin AFB, FL 32542-5133

Lauren P. Milligan, Environmental Manager  
Florida State Clearinghouse  
Florida Department of Environmental Protection  
3900 Commonwealth Blvd, M.S. 47  
Tallahassee, FL 32399-3000

Dear Ms. Milligan:

We request a Florida State Clearinghouse coordinated review of the attached Draft Environmental Assessment (EA), Appendices, and Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) for the proposed Test Area D-84 Waterside Redevelopment.

The Proposed Action addressed in this EA includes all waterside redevelopment actions taking place at Test Area D-84, south of State Road 20, approximately 6.5 miles west of Freeport on the north shore of Choctawhatchee Bay. The Proposed Action includes demolishing the existing breakwater/wave attenuators, upland retaining wall, and pier. Also included is the construction of a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on a similar alignment as the existing pier, contouring a portion of the shoreline to re-orient the existing boat ramp, dredging an access channel approximately 50 feet wide by 1,100 feet long to a depth of 5 feet, and placing the excavated material in a self-contained, upland spoil site. The Proposed Action also includes installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress, extending the existing bluff stabilization upland of the mean high water line.

I appreciate you taking the time to conduct a coordinated review of the proposed project. Should you have any questions regarding this letter, please contact me at (850) 882-4435.

*Melinda A. Rogers*  
MELINDA A. ROGERS, GS-12  
Acting Chief, Environmental Analysis Section

Attachment:  
10 CDs

## **Introduction**

This document provides the State of Florida with the U.S. Air Force's Consistency Determination under CZMA Section 307 and 15 C.F.R. § 930 sub-part C. The information in this Consistency Determination is provided pursuant to 15 C.F.R. § 930.39 and § 307 of the Coastal Zone Management Act, 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. § 930.

This federal consistency determination addresses the Proposed Action associated with Test Area D-84 Waterside Redevelopment, Eglin Air Force Base (AFB), Florida (Figure 1).

### **Proposed Federal agency action:**

The purpose of Test Area D-84 waterside redevelopment is to provide water training facilities and access to adjacent upland training facilities to meet the continuing and increasing requirement to conduct field test and training exercises and “just-in-time training” that include the use of waterborne facilities, including a pier and terminal platform, and stabilized shoreline for amphibious landing operations.

The waterside redevelopment (Figure 2) proposed is integral to facilitating necessary training for Eglin AFB and its tenants and would include the following:

1. Demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier.
2. Constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on a similar alignment as the existing pier.
3. Contouring a portion of the shoreline to re-orient the existing boat ramp.
4. Dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site.
5. Installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress.
6. Extending the existing bluff stabilization upland of the mean high water line (MHWL).

The improvement of Test Area D-84 is required to support adjoining land-based training and specific water-based training for Eglin AFB tenants and other military groups. These include the 1<sup>st</sup> Special Operations Support Squadron (1 OSS), 720<sup>th</sup> Special Tactics Group (720 STG), and the 720<sup>th</sup> Operations Support Squadron/Advanced Skills Training (720 OSS/AST). These groups propose to use Test Area D-84 in conjunction with the water test area (Test Area D-54) for water training operations. The 720<sup>th</sup> STG, 23<sup>rd</sup> Special Tactics Squadron (23 STS), and 720 OSS/AST currently use Test Area D-54 (see Figure 1) for training activities. Test Area D-54 is one of the few water drop zones approved to support paratrooper drops. The Special Tactics Forces parachute to Test Area D-54 and then boat, scuba, or swim to Test Area D-84. The Special Tactics Forces training is expected to occur approximately four times per quarter. The other groups would schedule training as well, but do not currently have a projected usage.

### **Federal Review**

Statutes addressed as part of the Florida Coastal Zone Management Program consistency review and considered in the analysis of the Proposed Action are discussed in the following table.

Pursuant to 15 C.F.R. § 930.41, the Florida State Clearinghouse has 60 days from receipt of this document in which to concur with, or object to, this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b). Florida’s concurrence will be presumed if Eglin AFB does not receive its response on the 60th day from receipt of this determination.

**Florida Coastal Management Program Consistency Review**

<b>Statute</b>	<b>Consistency</b>	<b>Scope</b>
Chapter 161 <i>Beach and Shore Preservation</i>	<p>The Proposed Action would not affect beach and shore management, specifically as it pertains to:</p> <ul style="list-style-type: none"> <li>• The Coastal Construction Permit Program.</li> <li>• The Coastal Construction Control Line (CCCL) Permit Program.</li> <li>• The Coastal Zone Protection Program.</li> </ul>	Authorizes the Bureau of Beaches and Coastal Systems within DEP to regulate construction on or seaward of the states’ beaches.
Chapter 163, Part II <i>Growth Policy; County and Municipal Planning; Land Development Regulation</i>	<p>The Proposed Action, which occurs primarily on federal property, conforms to local government comprehensive development plans. Transitions from federal property into state waters primarily occur within restricted and prohibited areas controlled by the U.S. Air Force and would not interfere with development. Therefore, the Proposed Action would be consistent with local government comprehensive plans.</p>	Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.
Chapter 186 <i>State and Regional Planning</i>	<p>The Proposed Action would not affect state plans for water use, land development, or transportation.</p>	Details state-level planning requirements. Requires the development of special statewide plans governing water use, land development, and transportation.
Chapter 252 <i>Emergency Management</i>	<p>The Proposed Action would not affect the state’s vulnerability to natural disasters.</p> <p>The Proposed Action would not affect emergency response and evacuation procedures.</p>	Provides for planning and implementation of the state’s response to, efforts to recover from, and the mitigation of natural and manmade disasters.
Chapter 253 <i>State Lands</i>	<p>The Proposed Action would occur on federal property as well as sovereign submerged lands.</p> <p>Sovereign Submerged Lands Authorization from FDEP would be obtained prior to any potential impact to state submerged land. Eglin Water Resources (96 CEG/CEVCE) would coordinate all applicable permits in accordance with the Florida Administrative Code (FAC).</p> <p>Therefore, the Proposed Action would be</p>	Addresses the state’s administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands.



Statute	Consistency	Scope
	consistent with Florida's statutes and regulations regarding state land.	
Chapter 258 <i>State Parks and Preserves</i>	The Proposed Action would not affect state parks, recreational areas and aquatic preserves.	Addresses administration and management of state parks and preserves.
Chapter 259 <i>Land Acquisition for Conservation or Recreation</i>	The Proposed Action would not affect tourism and/or outdoor recreation.	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands.
Chapter 260 <i>Recreational Trails System</i>	The Proposed Action would not include the acquisition of land and would not affect the Greenways and Trails Program.	Authorizes acquisition of land to create a recreational trails system and to facilitate management of the system.
Chapter 375 <i>Multipurpose Outdoor Recreation; Land Acquisition, Management, and Conservation</i>	The Proposed Action would not affect opportunities for recreation on state lands.	Develops comprehensive multipurpose outdoor recreation plan to document recreational supply and demand, describe current recreational opportunities, estimate need for additional recreational opportunities, and propose means to meet the identified needs.
Chapter 267 <i>Historical Resources</i>	<p>Archaeological data recovery in the uplands was completed in the spring of 2010 in accordance with a Memorandum of Agreement (MOA) between Eglin AFB, Florida State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation (ACHP). Eglin Cultural Resources (96 CEG/CEVH) has determined that no adverse impacts to cultural resources are expected from the construction or operational activities of the proposed project.</p> <p>Therefore, the Test Area D-84 waterside redevelopment action would not impact cultural resources and would be consistent with the State's policies concerning historical resource management.</p>	Addresses management and preservation of the state's archaeological and historical resources.
Chapter 288 <i>Commercial Development and Capital Improvements</i>	The Proposed Action would not affect future business opportunities on state lands, or the promotion of tourism in the region.	Provides the framework for promoting and developing the general business, trade, and tourism components of the state economy.
Chapter 334 <i>Transportation Administration</i>	The Proposed Action would not affect transportation.	Addresses the state's policy concerning transportation administration.
Chapter 339 <i>Transportation Finance and</i>	The Proposed Action would not affect the finance and planning needs of the state's	Addresses the finance and planning needs of the state's transportation

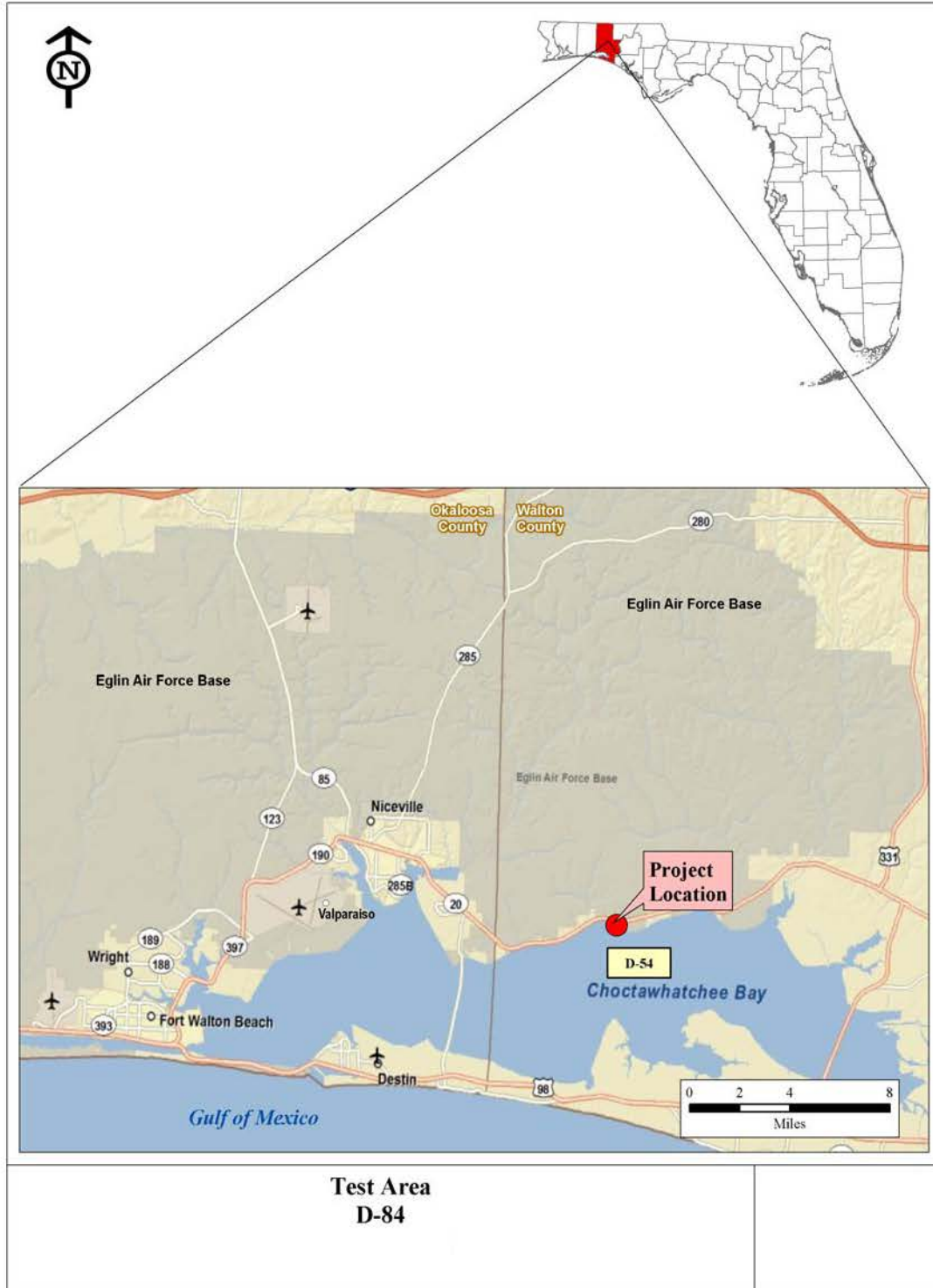
Statute	Consistency	Scope
<i>Planning</i>	transportation system.	system.
Chapter 370 <i>Saltwater Fisheries</i>	<p>The portion of Choctawhatchee Bay in the vicinity of Test Area D-84 is classified as Class II shellfish propagation or harvesting site approved water by Florida Department of Environmental Protection (FDEP). Dredging in this area would require a permit from the US Army Corp of Engineers (USACE) and FDEP and a variance under F.S. 403.201. The variance is required due to the requirement of Chapter 62-346.302(1)(c) F.A.C., which specifically restricts dredge and fill activities in waters classified by the Florida Department of Agriculture and Consumer Services as approved, restricted, conditionally approved, or conditionally restricted for shellfish harvesting.</p> <p>Consultation with the National Marine Fisheries Service (NMFS) has been completed in accordance with the Magnuson-Stevens Fisheries Conservation and Management Act on Essential Fish Habitat.</p> <p>Therefore, the Proposed Action would be consistent with the State's policies concerning the management and protection of saltwater fisheries.</p>	Addresses management and protection of the state's saltwater fisheries.
Chapter 372 <i>Wildlife</i>	<p>In accordance with Section 7 of the Endangered Species Act (ESA), consultation with the NMFS would be completed prior to project initiation. Eglin Natural Resources (96 CEG/CEVSN) would ensure that all activities proposed in and around threatened and endangered species would be performed in accordance with applicable NMFS guidelines. All mitigation measures resulting from the Section 7 consultation would be followed.</p> <p>Therefore, the Proposed Action would be consistent with the State's policies concerning the protection of wildlife and other natural resources.</p>	Addresses the management of the wildlife resources of the state.
Chapter 373 <i>Water Resources</i>	Surface waters would be temporarily impacted during the demolition and construction of the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier (if jetting is utilized) and during the re-contouring of the shoreline to re-orient the	Addresses the state's policy concerning water resources.

Statute	Consistency	Scope
	<p>existing boat ramp as well as the installing of shoreline protection (articulating block mattress). There would also be short-term surface water impacts associated with turbidity during dredging of the access channel and during subsequent maintenance of the channel. Based on a hydrographic assessment conducted in 2011, it is anticipated that the channel would need maintenance approximately every 8 years depending on use and frequency of storm events and would be classified as a maintenance dredge exemption by FDEP pursuant to F.S. 403.813(1)(f).</p> <p>Therefore, impacts are considered temporary and short-term in nature.</p> <p>Eglin Water Resources (96 CEG/CEVCE) would coordinate all applicable permits in accordance with the F.A.C. It is anticipated that the following permits would be required for impacts on surface waters from construction of the Proposed Action:</p> <ul style="list-style-type: none"> <li>• USACE: Individual Permit (Section 404)</li> <li>• FDEP: Environmental Resource Permit (Dredge and Fill)</li> <li>• USEPA: NPDES/MS4 (FDEP)</li> </ul> <p>In accordance with EO 11988, <i>Floodplain Management</i>, the Proposed Action would make every attempt to minimize impacts on floodplains. Floodplain encroachment is considered temporary, short-term, and insignificant for this proposed project.</p> <p>Best Management Practices (BMPs) would be implemented during construction for protection of water quality; permits from FDEP and USACE would be obtained prior to construction activities. Eglin Water Resources (96 CEG/CEVCE) would ensure that any applicable permitting requirements would be satisfied in accordance with FAC.</p> <p>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding the water resources of the state.</p>	
<p>Chapter 376 <i>Pollutant Discharge Prevention and Removal</i></p>	<p>Hazardous materials and other potentially harmful materials, such as creosote found in derelict timbers associated with the piers, breakwater structure, and dredge material and wastes generated during construction,</p>	<p>Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.</p>

Statute	Consistency	Scope
	<p>would be properly handled, stored, and disposed of in accordance with federal/state laws and regulations.</p> <p>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding the transfer, storage, or transportation of pollutants.</p>	
<p>Chapter 377 <i>Energy Resources</i></p>	<p>The Proposed Action would not affect energy resource production, including oil and gas, and/or the transportation of oil and gas.</p>	<p>Addresses regulation, planning, and development of oil and gas resources of the state.</p>
<p>Chapter 380 <i>Land and Water Management</i></p>	<p>The Proposed Action would not affect development of state lands with regional (i.e. more than one county) impacts. The Proposed Action would not include changes to coastal infrastructure such as capacity increases of existing coastal infrastructure, or use of state funds for infrastructure planning, designing or construction.</p>	<p>Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.</p>
<p>Chapter 381 <i>Public Health, General Provisions</i></p>	<p>The Proposed Action would not affect the state's policy concerning the public health system.</p>	<p>Establishes public policy concerning the state's public health system.</p>
<p>Chapter 388 <i>Mosquito Control</i></p>	<p>The Proposed Action would not affect mosquito control efforts.</p>	<p>Addresses mosquito control effort in the state.</p>
<p>Chapter 403 <i>Environmental Control</i></p>	<p>BMPs would be implemented during construction for protection of water quality; permits from FDEP and USACE would be obtained prior to construction activities. Eglin Water Resources (96 CEG/CEVCE) would ensure that any applicable permitting requirements would be satisfied in accordance with F.A.C.</p> <p>No significant impacts on 100-year floodplains associated with Choctawhatchee Bay; no rise in backwater elevations as a result of this project; no Federal Emergency Management Agency (FEMA) designated regulatory floodways within the project area.</p> <p>Minor, temporary increases in air emissions from heavy equipment during construction and from marine vessels during certain training exercises. Impacts from construction would be minimized by adherence to all state and local regulations. All applicable BMPs would be used to minimize air quality impacts from the</p>	<p>Establishes public policy concerning environmental control in the state.</p>

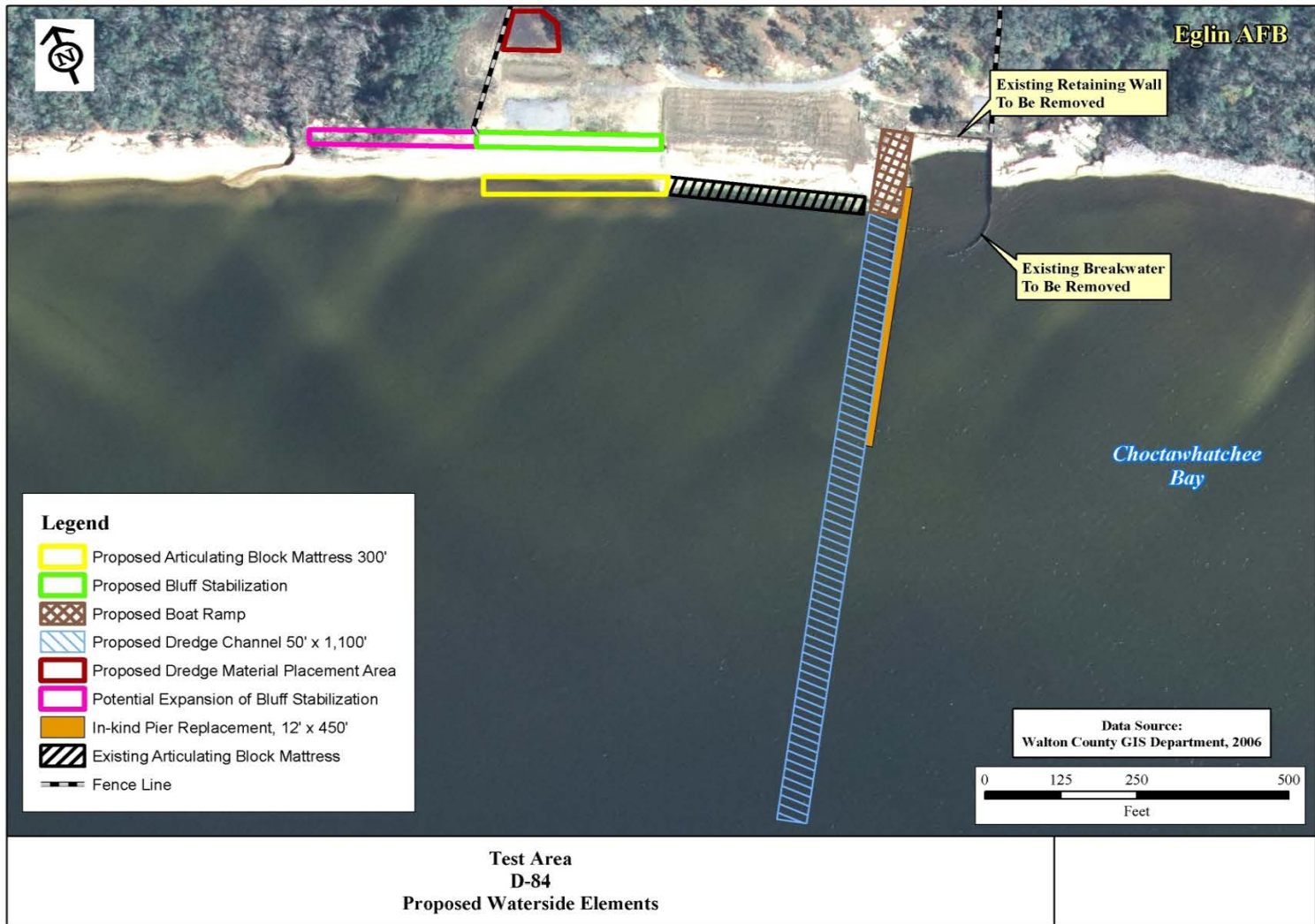
Statute	Consistency	Scope
	<p>Proposed Action.</p> <p>Short-term increase in solid waste from demolition activities; no long-term impact.</p> <p>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding water quality, air quality, pollution control, solid waste management, or other environmental control efforts.</p>	
<p>Chapter 582 <i>Soil and Water Conservation</i></p>	<p>Waterside redevelopment at Test Area D-84 would create short-term insignificant disturbance of soils to the bay bottom during demolition and construction activities associated with the pier, boat ramp, channel dredging, installation of the articulating block mattress, and upland bluff stabilization.</p> <p>Construction of the bluff stabilization area and shoreline protection (articulating block mattress) would require the re-grading and re-contouring of the shoreline. The bluff would be temporarily and insignificantly affected during construction and stabilized after construction. Beneficial impacts on soils would result from the stabilized bluff and would prevent further erosion along the shoreline.</p> <p>Other benefits to soils would occur from the removal of the existing creosote piles associated with the breakwater/wave attenuators, headwall/upland retaining wall, and pier. Soils would be temporarily impacted during the demolition and construction of the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier and during the re-contouring of the shoreline to re-orient the existing boat ramp as well as the installing of shoreline protection (articulating block mattress).</p> <p>There would also be short-term impacts on soils during the dredging of the access channel and during maintenance of the channel.</p> <p>Impacts would be minimized through the use of BMPs. Permits from FDEP and USACE would be obtained prior to construction activities. Based on a hydrographic assessment conducted in 2011, it is anticipated that the channel</p>	<p>Provides for the control and prevention of soil erosion.</p>

Statute	Consistency	Scope
	<p>would need maintenance approximately every 8 years depending on use and frequency of storm events and would be classified as a maintenance dredge exemption by FDEP pursuant to F.S. 403.813(1)(f).</p> <p>Therefore, the Proposed Action would be consistent with the Florida's statutes and regulations regarding soil and water conservation efforts.</p>	



**Figure 1. Project Location on Eglin AFB**

Figure 2. Proposed Waterside Elements







## Florida Department of Environmental Protection

Marjory Stoneman Douglas Building  
3900 Commonwealth Boulevard  
Tallahassee, Florida 32399-3000

Rick Scott  
Governor

Jennifer Carroll  
Lt. Governor

Herschel T. Vinyard Jr.  
Secretary

August 16, 2012

Mrs. Melinda A. Rogers  
Department of the Air Force  
96 CEG/CEVSP  
501 DeLeon Street, Suite 101  
Eglin AFB, FL 32542-5133

RE: Department of the Air Force - Final Draft Environmental Assessment  
for Test Area D-84 Waterside Redevelopment, Eglin Air Force Base -  
Walton County, Florida.  
SAI # FL201207036289C

Dear Mrs. Rogers:

The Florida State Clearinghouse has coordinated a review of the referenced Final Draft Environmental Assessment (EA) under the following authorities: Presidential Executive Order 12372; § 403.061(42), *Florida Statutes (F.S.)*; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

The Florida Fish and Wildlife Conservation Commission (FWC) notes that the draft EA describes the potentially affected threatened and endangered biological resources and designated critical habitat, including, the Gulf sturgeon, Florida manatee and seagrass habitat. Because consultation has already occurred between the U.S. Fish and Wildlife Service and the National Marine Fisheries Service under federal law and the draft EA identifies measures to protect fish and wildlife resources, the FWC finds the proposal consistent with its authorities under Chapter 379, *F.S.* Please see the enclosed FWC letter for additional details, or contact Mr. Theodore Hoehn at (850) 488-8792 or [Ted.Hoehn@myfwc.com](mailto:Ted.Hoehn@myfwc.com).

The Florida Department of Environmental Protection's (DEP) Northwest District Office in Pensacola notes that the review of the proposed project describes permanent impacts to Choctawhatchee Bay. In accordance with the variance issued on May 4, 2012, the applicant will be required to apply for and obtain an Environmental Resource Permit under Chapters 62-346 and 18-21, *Florida Administrative Code*, for the proposed wetland impacts, stormwater management and use of sovereignty submerged lands. According to the Operating Agreement between the DEP and the Northwest Florida Water Manage-

[www.dep.state.fl.us](http://www.dep.state.fl.us)

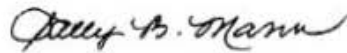
Mrs. Melinda A. Rogers  
August 16, 2012  
Page 2 of 2

ment District, the applicant would apply for authorization through the DEP's Northwest District Office, Submerged Lands and Environmental Resources Program in Pensacola. The applicant is advised to contact the DEP prior to submitting an application to discuss the specific scope of the project. For further information and assistance, please contact Mr. Scott M. Casey, Environmental Specialist, at (850) 595-0574 or [Scott.Casey@dep.state.fl.us](mailto:Scott.Casey@dep.state.fl.us).

Based on the information contained in the draft EA and enclosed agency comments, the state has determined that, at this stage, the proposed federal activity is consistent with the Florida Coastal Management Program (FCMP). To ensure the project's continued consistency with the FCMP, the concerns identified by our reviewing agencies must be addressed prior to project implementation. The state's continued concurrence will be based on the activity's compliance with FCMP authorities, including federal and state monitoring of the activity to ensure its continued conformance, and the adequate resolution of issues identified during this and subsequent regulatory reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting process in accordance with Section 373.428, F.S.

Thank you for the opportunity to review the proposed project. Should you have any questions regarding this letter, please contact Ms. Lauren P. Milligan at (850) 245-2170.

Yours sincerely,



Sally B. Mann, Director  
Office of Intergovernmental Programs

SBM/jo  
Enclosures

cc: Scott Sanders, FWC  
Darryl Boudreau, DEP, Northwest District



Project Information	
<b>Project:</b>	FL201207036289C
<b>Comments Due:</b>	08/12/2012
<b>Letter Due:</b>	08/24/2012
<b>Description:</b>	DEPARTMENT OF THE AIR FORCE - FINAL DRAFT ENVIRONMENTAL ASSESSMENT FOR TEST AREA D-84 WATERSIDE REDEVELOPMENT, EGLIN AIR FORCE BASE - WALTON COUNTY, FLORIDA.
<b>Keywords:</b>	USAF - DEA, TEST AREA D-84 WATERSIDE REDEVELOPMENT, EGLIN AFB - WALTON CO.
<b>CFDA #:</b>	12.200
Agency Comments:	
<b>FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION</b>	
The FWC notes that the draft EA describes the potentially affected threatened and endangered biological resources and designated critical habitat, including the Gulf sturgeon, Florida manatee and seagrass habitat. Because consultation has already occurred between the U.S. Fish and Wildlife Service and the National Marine Fisheries Service under federal law and the draft EA identifies measures to protect fish and wildlife resources, the FWC finds the proposal consistent with its authorities under Chapter 379, F.S.	
<b>WEST FLORIDA RPC - WEST FLORIDA REGIONAL PLANNING COUNCIL</b>	
No Comments - Generally consistent with the West Florida Strategic Regional Policy Plan.	
<b>WALTON -</b>	
No Comments	
<b>ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION</b>	
The DEP's Northwest District Office in Pensacola notes that the review of the proposed project describes permanent impacts to Choctawhatchee Bay. In accordance with the variance issued on May 4, 2012, the applicant will be required to apply for and obtain an Environmental Resource Permit under Chapters 62-346 and 18-21, Florida Administrative Code, for the proposed wetlands impacts, stormwater management and use of sovereignty submerged lands. According to the Operating Agreement between the DEP and the Northwest Florida Water Management District, the applicant would apply for authorization through the DEP's Northwest District Office, Submerged Lands and Environmental Resources Program in Pensacola. The applicant is advised to contact the DEP prior to submitting an application to discuss the specific scope of the project. For further information and assistance, please contact Mr. Scott M. Casey, Environmental Specialist, at (850) 595-0574 or <a href="mailto:Scott.Casey@dep.state.fl.us">Scott.Casey@dep.state.fl.us</a> .	
<b>STATE - FLORIDA DEPARTMENT OF STATE</b>	
No Comment/Consistent	
<b>NORTHWEST FLORIDA WMD - NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT</b>	
No Comment/Consistent	

For more information or to submit comments, please contact the Clearinghouse Office at:

3900 COMMONWEALTH BOULEVARD, M.S. 47  
 TALLAHASSEE, FLORIDA 32399-3000  
 TELEPHONE: (850) 245-2161  
 FAX: (850) 245-2190

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Voice: (850) 488-4676

Hearing/speech-impaired:  
(800) 955-8771 (T)  
(800) 955-8770 (V)

MyFWC.com

July 23, 2012

Ms. Lauren P. Milligan  
Environmental Manager  
Florida State Clearinghouse  
Florida Department of Environmental Protection  
3900 Commonwealth Boulevard, MS 47  
Tallahassee, FL 32399-3000  
[Lauren.Milligan@dep.state.fl.us](mailto:Lauren.Milligan@dep.state.fl.us)

Re: SAI #FL201207036289C, Department of the Air Force, Draft Environmental Assessment for Test Area D-84 Waterside Redevelopment, Eglin Air Force Base, Walton County, Florida

Dear Ms. Milligan:

Florida Fish and Wildlife Conservation Commission (FWC) staff has reviewed the draft Environmental Assessment (DEA) and provides the following comments and recommendations for your consideration, in accordance with the Coastal Zone Management Act, Florida's Coastal Management Program.

The proposed action of Test Area D-84 waterside facilities redevelopment includes: 1) demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier; 2) constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on a similar alignment as the existing pier; 3) contouring a portion of the shoreline to re-orient the existing boat ramp; 4) dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site; 5) installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress; and 6) extending the existing bluff stabilization upland of the Mean High Water Line.

The DEA, Section 3.4, describes the potentially affected threatened and endangered biological resources and designated critical habitat. These include the Gulf sturgeon (*Acipenser oxyrinchus desotoi* - Federally Threatened), Florida manatee (*Trichechus manatus latirostris* - Federally Endangered) and seagrass habitat. Consultation has already occurred between the U.S. Fish and Wildlife Service and the National Marine Fisheries Service in accordance with Section 7 of the Endangered Species Act, Marine Mammal Protection Act, and the Magnuson-Stevens Fisheries Conservation and Management Act. Additionally, Section 4.3.4 of the DEA identifies measures to protect fish and wildlife resources.

We believe that the commitments identified in Section 4.3.4 of the DEA will serve to minimize or avoid impacts to fish and wildlife resources. We concur that the proposed project is consistent with our authorities under Chapter 379 Florida Statutes. If you need any further assistance, please do not hesitate to contact Jane Chabre either by phone at (850) 410-5367 or at [FWCCConservationPlanningServices@MyFWC.com](mailto:FWCCConservationPlanningServices@MyFWC.com). If you have

Ms. Lauren P. Milligan  
Page 2  
July 23, 2012

specific technical questions regarding the content of this letter, please contact Theodore Hoehn at 850-488-8792 or by email at [ted.hoehn@myfwc.com](mailto:ted.hoehn@myfwc.com).

Sincerely,



Bonita Gorham  
Land Use Planning Program Administrator  
Office of Conservation Planning Services

bg/th

Test Area D-84 Waterside Development\_16492\_072312  
ENV 1

cc: Melinda Rogers, Eglin AFB  
Department of the Air Force  
96 CEG/CEVSP  
501 DeLeon Street, Suite 101  
Eglin AFB, FL 32542-5133

COUNTY: WALTON  
~~100~~-SCH-USAf-EG  
2012-3211

DATE: 7/3/2012  
COMMENTS DUE DATE: 8/12/2012  
CLEARANCE DUE DATE: 8/24/2012  
SAI#: FL201207036289C

MESSAGE:

<b>STATE AGENCIES</b> ENVIRONMENTAL PROTECTION FISH and WILDLIFE COMMISSION X STATE	<b>WATER MNGMNT. DISTRICTS</b> NORTHWEST FLORIDA WMD	<b>OPB POLICY UNIT</b>	<b>RPCS &amp; LOC GOVS</b>
--	---	------------------------	----------------------------

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- X Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

DEPARTMENT OF THE AIR FORCE - FINAL DRAFT ENVIRONMENTAL ASSESSMENT FOR TEST AREA D-84 WATERSIDE REDEVELOPMENT, EGLIN AIR FORCE BASE - WALTON COUNTY, FLORIDA.

To: Florida State Clearinghouse

AGENCY CONTACT AND COORDINATOR (SCH)  
3900 COMMONWEALTH BOULEVARD MS-47  
TALLAHASSEE, FLORIDA 32399-3000  
TELEPHONE: (850) 245-2161  
FAX: (850) 245-2190

EO. 12372/NEPA Federal Consistency

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> No Comment | <input checked="" type="checkbox"/> No Comment/Consistent |
| <input type="checkbox"/> Comment Attached      | <input type="checkbox"/> Consistent/Comments Attached     |
| <input type="checkbox"/> Not Applicable        | <input type="checkbox"/> Inconsistent/Comments Attached   |
|  | <input type="checkbox"/> Not Applicable                   |

From: Division of Historical Resources  
Division/Bureau: Bureau of Historic Preservation

Reviewer: Edwards, S. Laura A. Kammur  
Date: July 20, 2012 7-23-2012  
*Deputy SHPO*

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DEP Office of Intergov'l Programs

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HISTORIC PRESERVATION  
2012 JUL -9 A 9:21

APPENDIX B.  
NATIONAL MARINE FISHERIES SERVICE  
AND  
U.S. FISH AND WILDLIFE SERVICE  
CONSULTATIONS

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NMFS - Biological Opinion (Received 09/01/2011)



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, FL 33701-5505  
727.824.5312, FAX 824.5309  
<http://sero.nmfs.noaa.gov>

SEP - 1 2011

F/SER31:NB

Amanda Robydek, SAIC  
Eglin Air Force Base  
Natural Resources Section  
107 Highway 85 North  
Niceville, FL 32578

Mr. Andy Kizlauskas  
US Army Corps of Engineers  
Panama City Regulatory Office  
1002 West 23rd Street, Suite 350  
Panama City, Florida 32405

Re: Eglin Air Force Base Test Area D-84 Redevelopment


Dear Ms. Robydek and Mr. Kizlauskas:

This is the National Marine Fisheries Service's (NMFS) biological opinion issued in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, on the Department of the Air Force's proposed action to issue a permit to redevelop Test Area D-84 at Eglin Air Force Base (AFB). The proposed project is located within Gulf sturgeon critical habitat, east of Choctaw, Florida. The Department of the Air Force and Army Corps of Engineers (COE) are consulting jointly on the issuance of this construction permit.

The biological opinion analyzes the project's effects on five species of sea turtles, smalltooth sawfish, Gulf sturgeon, and Gulf sturgeon critical habitat and is based on project-specific information provided by the AFB and the AFB's consultants, as well as NMFS' review of published literature. It is our opinion that the action, as proposed, may affect, but is not likely to adversely affect sea turtles and smalltooth sawfish, and is likely to adversely affect Gulf sturgeon critical habitat, but is not likely to destroy or adversely modify said critical habitat.

We look forward to further cooperation with you on other COE projects to ensure the conservation and recovery of our threatened and endangered marine species. If you have any questions regarding this consultation, please contact Nicole Bailey at (727) 824-5336, or by e-mail at [Nicole.Bailey@noaa.gov](mailto:Nicole.Bailey@noaa.gov).

Sincerely,

  
for Roy E. Crabtree, Ph.D.  
Regional Administrator

Enclosure

File: 1514-22.F.4  
Ref: F/SER/2011/01079





**Endangered Species Act - Section 7 Consultation  
Biological Opinion**

**Action Agency:** Department of the Air Force, Eglin Air Force Base (AFB)

**Activity:** Redevelopment of Waterside Facilities at Test Area D-84, Eglin AFB, Florida (Consultation Number F/SER/2011/01079)

**Consulting Agency:** National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS), Southeast Regional Office, Protected Resources Division, St. Petersburg, Florida

**Approved by:** Miles M. Crown  
for Roy E. Crabtree, Ph.D., Regional Administrator  
NMFS, Southeast Regional Office  
St. Petersburg, Florida  
SEP -1 2011

**Date Issued:** \_\_\_\_\_

---

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## **Background**

Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*), requires that each federal agency shall ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species; section 7(a)(2) requires federal agencies to consult with the appropriate Secretary on any such action. NMFS and the U.S. Fish and Wildlife Service (USFWS) share responsibilities for administering the ESA: if the subject species is cited in 50 CFR 222.23(a) or 227.4 the federal agency shall contact NMFS, otherwise the federal agency shall contact USFWS (50 CFR 402.01).

Formal consultation is required when a federal action agency determines that a proposed action "may affect" listed species or designated critical habitat. Consultation is concluded after NMFS issues a biological opinion (opinion) that identifies whether a proposed action is likely to jeopardize the continued existence of a listed species, or destroy or adversely modify critical habitat. The opinion states the amount or extent of incidental take of the listed species that may occur, develops measures (i.e., reasonable and prudent measures) to reduce the effect of take, and recommends conservation measures to further conserve the species. Notably, no incidental destruction or adverse modification of critical habitat can be authorized, and thus there are no reasonable and prudent measures, only reasonable and prudent alternatives that must avoid destruction and adverse modification.

This document represents NMFS' opinion based on our review of impacts associated with redevelopment of the waterside facilities of Test Area D-84 on Eglin Air Force Base (AFB) east of Choctaw, Florida. The Department of the Air Force and Army Corps of Engineers (COE) are consulting jointly on the issuance of this construction permit. The Department of the Air Force is implementing the action and the COE is the permitting authority. This opinion analyzes project effects on Gulf sturgeon and Gulf sturgeon critical habitat in accordance with Section 7 of the ESA.

This opinion is based on project information provided by the Eglin Natural Resources Section (NRS) and other sources of information including published literature and summary reports provided by the Eglin NRS.

## **BIOLOGICAL OPINION**

### **1 CONSULTATION HISTORY**

NMFS received a request from the AFB on March 16, 2011, for ESA Section 7 consultation on the project. Additional information was requested on March 31, 2011, and responses were provided April 11 and 20, 2011 via e-mail. AFB determined that the proposed actions constitute a "not likely to adversely affect" on protected species and are "not likely to result in the destruction or adverse modification" of Gulf sturgeon critical habitat, and requested concurrence.

Upon review of the formal report for Test Area D-84 Waterside Redevelopment provided by Eglin NRS, NMFS determined that the proposed project is likely to adversely affect Gulf Sturgeon critical habitat and that formal consultation would be required.

## **2 DESCRIPTION OF THE PROPOSED ACTION AND ACTION AREA**

### **2.1 Proposed Action**

The project proposes to: (1) remove existing breakwater and retaining walls; (2) replace the remnants of an existing pier with a new pier that will be approximately 12 feet wide by 450 feet long with a 12 foot square turnout off the east end of the pier; (3) dredge an access channel along the west side of the pier to the boat ramp, approximately 50 feet wide by 1,100 feet long to a depth of -5 feet; (4) re-establish a boat ramp in the same location; (5) install approximately 300 feet of articulating block mattress on-shore, west of the existing articulating block mattress; and (6) extend the existing bluff stabilization upland of the mean high water line. Removal of the existing breakwater and retaining walls will be done by vibratory hammer and excavation from a barge. Replacing the deteriorated pier will involve removing the remaining creosote-treated piles and installing a new pier with the same orientation as the existing one. Piles will be set with a barge-mounted pile driver. The boat ramp will be re-established in the same area as the remnants of the previous boat ramp, but will be shortened and re-shaped so that it is parallel to the pier and to minimize impacts to wetlands. An access channel to the boat ramp will be dredged using a shallow-draft, barge-mounted, hydraulic dredge. An estimated 255,630 cubic feet of spoil sediments will be transported by pipe to a self-contained upland location. The COE is proposing to issue a 5-year permit for the proposed action. Future maintenance dredging is expected to be required approximately every 8 years, depending on channel use and storm events. Thus, future maintenance dredging will require a Nationwide Permit #35 and additional Section 7 consultation. If additional maintenance dredging is required within the 5 year timeframe of the proposed permit, reinitiation of consultation on this opinion will be required. In areas where retaining walls are removed and the boat ramp is re-shaped, the shoreline will be re-graded above the mean high water line with appropriate fill, if necessary, to return the shoreline to its natural shape. These areas will then be stabilized by plating emergent wetland vegetation. The applicant will be required to use turbidity control devices and comply with NMFS' *Sea Turtle and Smalltooth Sawfish Construction Conditions* dated March 23, 2006 (enclosed). Because Gulf sturgeon typically use rivers for spawning from May through September and return to the estuaries and bays in cooler months, dredging activities will be limited to May through September to minimize potential impacts to sturgeon. Dredging will temporarily cease if sturgeon are observed within the project area, allowing them enough time to leave on their own. Disposal of dredged material will occur in the southwest corner of Eglin AFB Test Area D-84. The project is expected to take 10 months to complete.

### **2.2 Action Area**

The project area is located at latitude 30.4754°N and longitude 86.3125°W (NAD83), along the northern shore of Choctawhatchee Bay in Grassy Cove, on Eglin AFB in Test Area D-84, Walton County, Florida.



Figure 1. Redevelopment of the waterside facilities of Test Area D-84 on Eglin AFB.

### 3 STATUS OF LISTED SPECIES AND CRITICAL HABITAT

#### 3.1 Listed Species that May Occur in the Action Area

The following endangered (E) and threatened (T) sea turtle and fish species, and designated critical habitat under the jurisdiction of NMFS, may occur in or near the action area:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
<b>Sea Turtles</b>		
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	E
Green sea turtle	<i>Chelonia mydas</i> <sup>1</sup>	E/T
Loggerhead sea turtle	<i>Caretta caretta</i>	T
<b>Fishes</b>		
Gulf sturgeon	<i>Acipenser oxyrinchus desotoi</i>	T
Smalltooth sawfish	<i>Pristis pectinata</i>	E <sup>2</sup>

<sup>1</sup> Green turtles are listed as threatened except for the Florida and Pacific coast of Mexico breeding populations which are listed as endangered.

<sup>2</sup> U.S. Distinct Population Segment (DPS)

### 3.1.1 Sea Turtles

There are five species of sea turtles (green, hawksbill, Kemp's ridley, leatherback, and loggerhead) which may be found in or near the action area. According to the NOAA Sea Turtle Stranding and Salvage Network (<http://www.sefsc.noaa.gov/species/turtles/strandings.htm>), at least four of these species (green, leatherback, Kemp's ridley, and loggerhead) have been identified in the vicinity of the action area through recorded strandings occurring from 2008 to 2011. Although there are no reports of hawksbill sea turtle strandings in the area during this time period, strandings data indicated they are present in adjacent areas during this time, hence their presence in the action area is possible.

Hydraulic dredging takes of sea turtles occur very rarely. Previously, takes by such dredges have only been documented for previously-injured or cold-stunned turtles; normal, healthy sea turtles are highly mobile and will likely avoid the area due to project activity and noise. Because interactions between sea turtles and hydraulic dredges are so unlikely to occur, NMFS considers the effects of these dredges on sea turtles to be discountable. Normal behavior patterns of sea turtles are not likely to be disrupted by project activities because of the short-term, localized nature of the activities and the ability of sea turtles to avoid the immediate area. NMFS believes that any effects to sea turtles stemming from behavioral modifications due to the dredging are insignificant. Therefore, NMFS concludes that the chance of sea turtles being affected by the proposed action is discountable.

The project is not expected to negatively affect sea turtle foraging habitat. Leatherbacks are pelagic feeders and the modification of the benthos through dredging and disposal activities will not affect pelagic resources. Hawksbill and green turtles are specialist feeders that target sponges and seagrass or macroalgae. Because the existing sandy benthos at the project site does not support those food resources, they will not be affected. Kemp's ridley and loggerhead sea turtles are the most likely species to occur in the project area and are generalist carnivores, typically preying on benthic mollusks and crustaceans in the nearshore environment. Both species of sea turtles can be found foraging in shallow sand (similar to the existing conditions) and mud habitats and at high-relief rock or reef habitats (which do not occur in the project area). NMFS believes any habitat and food availability effects of the project on turtles will be insignificant since the area impacted is relatively small in comparison to available foraging habitat. Thus, sea turtles will not be discussed further in this opinion.

### 3.1.2 Fishes

The U.S. Distinct Population Segment of smalltooth sawfish was listed as endangered under the ESA on April 1, 2003 (68 FR 15674). The smalltooth sawfish is the first elasmobranch to be listed in the United States. Critical habitat for the species was designated on September 2, 2009 (74 FR 45353). The two units are located along the southwestern coast of Florida between Charlotte Harbor and Florida Bay. Historically, smalltooth sawfish occurred commonly in the inshore waters of the Gulf of Mexico and the U.S. Eastern Seaboard up to North Carolina, and more rarely as far north as New York. Today, smalltooth sawfish remain in the United States typically in protected or sparsely populated areas off the southern and southwestern coasts of Florida; the only known exception is the nursery area in the Caloosahatchee River in an area of waterfront residences and

seawalls (NMFS 2010). Therefore, NMFS believes smalltooth sawfish are rare in the action area and the chances of the proposed action affecting them are discountable. Furthermore, there have been no observed incidental takes of smalltooth sawfish by hydraulic dredge, and NMFS believes this species can easily avoid the slow-moving dredge. This species will not be discussed further in this opinion.

NMFS and the USFWS jointly listed the Gulf sturgeon as a threatened species on September 30, 1991 (56 CFR 49653). The present range of the Gulf sturgeon extends from Lake Pontchartrain and the Pearl River system in Louisiana and Mississippi east to the Suwannee River in Florida. The Gulf sturgeon is an anadromous fish; adults spawn in freshwater then migrate to feed and grow in estuarine/marine habitats. Generally, fall downstream migration from the river into the estuary/Gulf of Mexico begins in September (at water temperatures around 23°C) and continues through November (Huff 1975, Wooley and Crateau 1985, Foster and Clugston 1997). Both adult and subadult Gulf sturgeon migrate from the estuaries, bays, and the Gulf of Mexico back to the coastal rivers in early spring (i.e., March through May) when river water temperatures range from 16°C to 23°C (Fox et al. 2000, Huff 1975, Carr 1983, Wooley and Crateau 1985, Odenkirk 1989, Clugston et al. 1995, Foster and Clugston, 1997, Fox and Hightower 1998, Sulak and Clugston 1999). Recent population estimates show 2,000-3,000 Gulf sturgeon in the Choctawhatchee River (USFWS 2002).

The project area includes winter migration and feeding habitats for adult and subadult Gulf sturgeon in Choctawhatchee Bay, which includes individuals from the Apalachicola River. Dredging will occur during May through September, which is when Gulf sturgeon migrate up river for spawning. It is also likely that the highly mobile Gulf sturgeon will avoid the area due to project activities (noise, turbidity curtains, and the physical presence of machinery). All dredging will occur during daylight hours and canal dredging should be completed in less than a week via hydraulic cutterhead dredge (a type of dredge not known to take Gulf sturgeon). NMFS believes there should be sufficient opportunity for Gulf sturgeon to move through the area during or after completion of the project. Therefore, NMFS believes the chance of a Gulf sturgeon being affected by the proposed action is discountable. Gulf sturgeon will not be considered further in this opinion.

In summary, NMFS concludes green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles; smalltooth sawfish; and Gulf sturgeon are not likely to be adversely affected by the proposed action covered in this opinion and will not be discussed further.

### 3.2 Critical Habitat Likely to be Affected

Gulf sturgeon critical habitat was jointly designated by NMFS and USFWS on April 18, 2003 (50 CFR 226.214). Critical habitat is defined in Section 3(5)(A) of the ESA as (1) the specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (a) essential to the conservation of the species and (b) that may require special management considerations or protection; and (2) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. The term "conservation" is defined in Section 3(3) of the ESA as the use of all methods and procedures that are necessary to bring any endangered or threatened species to the point at which listing under the ESA is no longer necessary.

Gulf sturgeon critical habitat includes areas within the major river systems, which support the seven currently reproducing subpopulations (USFWS et al. 1995), and associated estuarine and marine habitats. Gulf sturgeon use the rivers for spawning, larval and juvenile feeding, adult resting and staging, and to move between the areas that support these components. Gulf sturgeon use the lower riverine, estuarine, and marine environment during winter months primarily for feeding and, more rarely, for inter-river migrations. Estuaries and bays adjacent to the riverine units provide unobstructed passage of sturgeon from feeding areas to spawning grounds.

Fourteen areas (units) are designated as Gulf sturgeon critical habitat. The project is located in Unit 12, Choctawhatchee Bay system in Florida. Critical habitat units encompass a total of 2,783 river kilometers (km) and 6,042 km<sup>2</sup> of estuarine and marine habitats, and include portions of the following Gulf of Mexico rivers, tributaries, and estuarine, and marine areas:

- Unit 1 Pearl and Bogue Chitto Rivers in Louisiana and Mississippi;
- Unit 2 Pascagoula, Leaf, Bowie, Big Black Creek, and Chickasawhay Rivers in Mississippi;
- Unit 3 Escambia, Conecuh, and Sepulga Rivers in Alabama and Florida;
- Unit 4 Yellow, Blackwater, and Shoal Rivers in Alabama and Florida;
- Unit 5 Choctawhatchee and Pea Rivers in Florida and Alabama;
- Unit 6 Apalachicola and Brothers Rivers in Florida;
- Unit 7 Suwannee and Withlacoochee River in Florida;
- Unit 8 Lake Pontchartrain (east of causeway), Lake Catherine, Little Lake, the Rigolets, Lake Borgne, Pascagoula Bay, and Mississippi Sound systems in Louisiana and Mississippi, and sections of the state waters within the Gulf of Mexico;
- Unit 9 Pensacola Bay system in Florida;
- Unit 10 Santa Rosa Sound in Florida;
- Unit 11 Nearshore Gulf of Mexico in Florida;
- Unit 12 Choctawhatchee Bay system in Florida;
- Unit 13 Apalachicola Bay system in Gulf and Franklin Counties, Florida, and
- Unit 14 Suwannee Sound in Florida.

Critical habitat determinations focus on those physical and biological features that are essential to the conservation of the species (50 CFR 424.12). Federal agencies must ensure that their activities are not likely to result in the destruction or adverse modification of the essential features within

defined critical habitats. Therefore, proposed actions that may impact designated critical habitat require an analysis of potential impacts to each essential feature.

Features identified as essential for the conservation of the Gulf sturgeon consist of:

- (1) Abundant food items, such as detritus, aquatic insects, worms, and/or molluscs, within riverine habitats for larval and juvenile life stages; and abundant prey items, such as amphipods, lancelets, polychaetes, gastropods, ghost shrimp, isopods, molluscs and/or crustaceans, within estuarine and marine habitats and substrates for subadult and adult life stages;
- (2) Riverine spawning sites with substrates suitable for egg deposition and development, such as limestone outcrops and cut limestone banks, bedrock, large gravel or cobble beds, marl, soapstone, or hard clay;
- (3) Riverine aggregation areas, also referred to as resting, holding, and staging areas, used by adult, subadult, and/or juveniles, generally, but not always, located in holes below normal riverbed depths, believed necessary for minimizing energy expenditures during fresh water residency and possibly for osmoregulatory functions;
- (4) A flow regime (i.e., the magnitude, frequency, duration, seasonality, and rate-of-change of fresh water discharge over time) necessary for normal behavior, growth, and survival of all life stages in the riverine environment, including migration, breeding site selection, courtship, egg fertilization, resting, and staging, and for maintaining spawning sites in suitable condition for egg attachment, egg sheltering, resting, and larval staging;
- (5) Water quality, including temperature, salinity, pH, hardness, turbidity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages;
- (6) Sediment quality, including texture and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages; and
- (7) Safe and unobstructed migratory pathways necessary for passage within and between riverine, estuarine, and marine habitats (e.g., an unobstructed river or a dammed river that still allows for passage).

As stated in the final rule designating Gulf sturgeon critical habitat, the following activities, among others, when authorized, funded, or carried out by a federal agency, may destroy or adversely modify critical habitat:

- (1) Actions that would appreciably reduce the abundance of riverine prey for larval and juvenile sturgeon, or of estuarine and marine prey for juvenile and adult Gulf sturgeon, within a designated critical habitat unit, such as dredging, dredged material disposal, channelization, in-stream mining; and land uses that cause excessive turbidity or sedimentation;



(2) Actions that would appreciably reduce the suitability of Gulf sturgeon spawning sites for egg deposition and development within a designated critical habitat unit, such as impoundment, hard-bottom removal for navigation channel deepening, dredged material disposal, in-stream mining, and land uses that cause excessive sedimentation;

(3) Actions that would appreciably reduce the suitability of Gulf sturgeon riverine aggregation areas, also referred to as resting, holding, and staging areas, used by adult, subadult, and/or juveniles, believed necessary for minimizing energy expenditures and possibly for osmoregulatory functions, such as dredged material disposal upstream or directly within such areas; and other land uses that cause excessive sedimentation;

(4) Actions that would alter the flow regime (the magnitude, frequency, duration, seasonality, and rate-of-change of fresh water discharge over time) of a riverine critical habitat unit such that it is appreciably impaired for the purposes of Gulf sturgeon migration, resting, staging, breeding site selection, courtship, egg fertilization, egg deposition, and egg development, such as impoundment; water diversion; and dam operations;

(5) Actions that would alter water quality within a designated critical habitat unit, including temperature, salinity, pH, hardness, turbidity, oxygen content, and other chemical characteristics, such that it is appreciably impaired for normal Gulf sturgeon behavior, reproduction, growth, or viability, such as dredging, dredged material disposal, channelization, impoundment, in-stream mining, water diversion, dam operations, land uses that cause excessive turbidity, and release of chemicals, biological pollutants, or heated effluents into surface water or connected groundwater via point sources or dispersed non-point sources;

(6) Actions that would alter sediment quality within a designated critical habitat unit such that it is appreciably impaired for normal Gulf sturgeon behavior, reproduction, growth, or viability, such as dredged material disposal, channelization, impoundment, in-stream mining, land uses that cause excessive sedimentation, and release of chemical or biological pollutants that accumulate in sediments; and

(7) Actions that would obstruct migratory pathways within and between adjacent riverine, estuarine, and marine critical habitat units, such as dams, dredging, point-source-pollutant discharges, and other physical or chemical alterations of channels and passes that restrict Gulf sturgeon movement (68 FR 13399).

Within Unit 12, essential features potentially affected by the dredging include water quality, migratory pathways, sediment quality, and prey abundance. NMFS expects the effects of the proposed action will have only insignificant effects on water quality, sediment quality, and migratory pathway essential features. Water quality impacts from sediment disturbance as a result of dredging are expected to be temporary and minimal, with suspended particles settling out within a short time frame without measurable effects on water quality. No changes in temperature, salinity, pH, hardness, oxygen content, and other chemical characteristics are expected. Therefore, NMFS only expects insignificant effects to Gulf sturgeon critical habitat as a result of water quality impacts related to this project.

The composition of the dredged materials removed from the channel is expected to be the same as that remaining; with the upper 10 to 15 feet consisting on primarily sand and silty sand (Jacobs and Associates Inc. 2008). NMFS also considered the potential of contamination in the project area; a contaminant sink would impact Gulf sturgeon health. Per Eglin NRS, the only known contaminate in the channel is the creosote-treated pilings in the existing pier. If any unusual soil coloration and/or odors are detected, they will be analyzed and handled as hazardous waste. Therefore, by removing the existing creosote pilings, water and soil quality will likely be improved. NMFS concludes the proposed action will have only insignificant effects on sediment quality of critical habitat Unit 12.

In Unit 12, Gulf sturgeon appear in greater concentrations in the middle and eastern portions of the bay where salinity levels are lower. Migration within the Choctawhatchee Bay is typically parallel to the shoreline in shallower waters. However, Gulf sturgeon have also been observed crossing the bay through deeper waters. Replacement of the existing pier will not change the migratory pathways within the bay. Dredging the canal will be temporary (lasting approximately 1 week) and will occur during summer months when Gulf sturgeon will likely be occupying the rivers for breeding well up-stream of the project area. The presence of a dredged canal will create minor topographical variation in this area of the bay, but should not create an obstruction to migratory pathways within the shallow shoreline waters. Dredging to a depth of minus 5 feet will not alter the existing sandy substrate or subadult sturgeon's preferred depth of less than 3.5 meters (68 FR 13373). Therefore, NMFS believes there should be sufficient opportunity for Gulf sturgeon to move through the area during or after completion of the project. NMFS concludes that the proposed project will have only insignificant effects on migratory pathways within Choctawhatchee Bay.

The proposed action will directly impact the benthos by removal of sandy substrate; substrate modification can impact prey availability and abundance. The presence of a dredge may impact Gulf sturgeon movement as they migrate within Choctawhatchee Bay. Therefore, the potential project impacts relative to Gulf sturgeon prey availability/abundance are presented in the Effects of the Action section (Section 5).

#### **4 ENVIRONMENTAL BASELINE**

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the Gulf sturgeon and its designated critical habitat within the action area. The environmental baseline is a "snapshot" of the action area at a specified point in time and includes state, tribal, local, and private actions already affecting the critical habitat that will occur contemporaneously with the consultation in progress. Unrelated federal actions affecting the species and its critical habitat that have completed formal or informal consultation are also part of the environmental baseline, as are federal and other actions within the action area that may benefit the species and its critical habitat.

#### **4.1 Status of Critical Habitat Within the Action Area**

Of the fourteen units designated as Gulf sturgeon critical habitat, Unit 12 will be affected by the proposed project. Unit 12 includes Choctawhatchee Bay in Okaloosa and Walton Counties, Florida, and is defined by the following boundaries:

Unit 12 includes the main body of Choctawhatchee Bay, Hogtown Bayou, Jolly Bay, Bunker Cove, and Grassy Cove. All other bayous, creeks, and rivers are excluded at their mouths/entrances. The western unit boundary is the U.S. Highway 98 bridge at Fort Walton Beach, Florida; the southern boundary is the 72 COLREGS line across East (Destin) Pass as defined at 33 CFR 80.810 (f). The lateral extent of Unit 12 is the mean high water line on each shoreline of the included water bodies.

Choctawhatchee Bay (Unit 12) provides important habitat for maintaining the health of subadult and adult Gulf sturgeon as evidenced by a large number of Gulf sturgeon overwintering in the system (USFWS 1997, USFWS 1998, Parauka et al. in press). Choctawhatchee Bay offers a feeding area for both subadults and adults (USFWS 1998, Fox et al. 2002). Tagged subadults showed a preference for shoreline habitats which are predominated by sandy substrates, low salinity and water depths less than 3 m (10 ft) (USFWS 1997, USFWS 1998, Parauka et al. 2001). Most adult Gulf sturgeon were located in shallow water (2 to 4 m [6.6 to 13.1 ft]) with predominantly (greater than 80 percent) sandy sediment (Fox et al. 2002). Ghost shrimp, a component of the sturgeon diet, are typically found in substrates ranging from sandy mud to organic silty sand (Felder and Lovett 1989), and their densities were greatest nearshore along the middle and eastern portions of the Choctawhatchee Bay (Heard et al. 2000), the area frequented by the Gulf sturgeon (Fox et al. 2002). Unit 12 encompasses a total of 321 km<sup>2</sup> (79,360 acres) of critical habitat.

#### **4.2 Factors Affecting Critical Habitat Within the Action Area**

The April 2003 joint designation of Gulf sturgeon critical habitat by NMFS and USFWS will benefit the species, primarily through the ESA Section 7 consultation process. When critical habitat is designated, other federal agencies are required to consult with NMFS on actions they carry out, fund, or authorize, to ensure that their actions will not destroy or adversely modify critical habitat. In this way, a critical habitat designation will protect physical and biological features that are necessary for the conservation of the species. Designation of critical habitat may also enhance awareness within federal agencies and the general public of the importance of Gulf sturgeon habitat and the need for special management considerations. Numerous nationwide COE permits exist for wetland mitigation throughout Mississippi Sound. Furthermore, federal Essential Fish Habitat (EFH) consultation requirements pursuant to the Magnuson-Stevens Fishery Conservation and Management Act of 2006 minimize and mitigate for losses of wetlands and preserve valuable Gulf sturgeon habitat.

##### **4.2.1 Federal Actions**

Federal agencies that consult on potential impacts to Gulf sturgeon critical habitat include the COE, the Department of Defense (DOD), the Environmental Protection Agency (EPA), the Federal Energy Regulatory Commission (FERC), and the Nuclear Regulatory Commission (NRC).

Dredging and dredged material disposal and military activities, including training exercises and ordnance detonation, have the potential to impact designated critical habitat. In 2003, NMFS completed a regional biological opinion on hopper dredging in the Gulf of Mexico that includes maintenance dredging in Gulf sturgeon critical habitat Units 8-14 and concluded that when existing navigation channels within designated critical habitat are dredged to only their current depth (i.e., maintenance-dredged), without improvements (e.g., deepening or widening), the project will not destroy or adversely modify Gulf sturgeon critical habitat. While numerous formal consultations have been conducted on potential impacts to the species, NMFS has conducted about forty formal consultations on potential impacts to Gulf sturgeon critical habitat since the April 18, 2003, final rule designating Gulf sturgeon critical habitat.

This is only the second formal consultation completed within Choctawhatchee Bay. NMFS issued the other biological opinion to the COE on May 5, 2009, for a 10-year authorization of the COE's routine maintenance dredging of the federally-authorized East Pass Navigation Channel. The project also includes disposal of dredged material into previously utilized upland, nearshore, and beachfront disposal sites and the rehabilitation and maintenance of jetties adjacent to the channel. Our opinion concluded that the proposed action is not likely to destroy or adversely modify designated Gulf sturgeon critical habitat. Dredging and disposal activities to maintain the authorized channel dimensions could occur every 12 to 18 months due to shoaling and storm events. Each dredging cycle is likely to last less than 2 months. Dredging will be allowed for no more than 18 hours out of each 24-hour period. The main East Pass Channel is authorized at 180 feet wide and a 2-foot overdepth is allowed during dredging events. The authorized width of the segment of the channel between East Pass and Old Pass Lagoon varies between 100 and 175 feet and a 2-foot overdepth is also allowed during dredging. A hydraulic cutterhead dredge will be used to remove up to a total of 400,000 cubic yards (cy) of material during each dredging cycle from three segments of the navigation channel to maintain sufficient depths. Portions of East Pass had been authorized to be dredged multiple times prior to this authorization.

The rest of the previous formal consultations conducted by NMFS, mostly with the COE but including FERC and DOD, concluded that proposed actions would not result in the destruction or adverse modification of critical habitat. Numerous informal consultations with the DOD, COE, EPA, FERC, and NRC also analyzed potential impacts to designated critical habitat. In recent years, the majority of formal consultations in Gulf sturgeon critical habitat have been in the Mississippi Sound. These include the replacement of at least 6 fishing piers destroyed during Hurricane Katrina that made landfall in 2005. Additionally, formal consultations have been completed for maintenance dredging of navigational canals, restoration projects (many to restore areas destroyed by hurricanes), artificial reef developments, off-shore breakwaters and shore stabilization. Federally-regulated stormwater and industrial discharges and chemically-treated discharges from sewage treatment systems may impact Gulf sturgeon critical habitat. NMFS continues to consult with EPA to minimize the effects of these activities on both listed species and designated critical habitat. In addition, other federally-permitted construction activities, such as beach restoration, have the potential to impact Gulf sturgeon critical habitat.

Actions impacting wetlands abutting Gulf sturgeon critical habitat throughout Mississippi Sound are regulated, managed, and mitigated via numerous COE nationwide permits. Furthermore, federal EFH consultation requirements pursuant to Magnuson-Stevens Fishery Conservation and

Management Act minimize and mitigate for losses of wetlands and preserve valuable Gulf sturgeon habitat.

#### **4.2.2 State or Private Actions**

A number of activities that may indirectly affect Gulf sturgeon critical habitat include discharges from wastewater systems, dredging, ocean pumping and disposal, and aquaculture facilities. The impacts from these activities are difficult to measure. However, where possible, conservation actions through the ESA Section 7 process, ESA Section 10 permitting, and state permitting programs are being implemented to monitor or study impacts from these sources.

Increasing coastal development and ongoing beach erosion will result in increased demands by coastal communities, especially beach resort towns, for periodic privately-funded or federally-sponsored beach renourishment projects. These activities may affect Gulf sturgeon critical habitat by burying nearshore habitats that serve as foraging areas.

#### **4.2.3 Conservation and Recovery Actions Shaping the Environmental Baseline**

Federal EFH consultation requirements pursuant to the Magnuson-Stevens Fishery Conservation and Management Act minimize and mitigate for losses of wetlands, and preserve valuable foraging and developmental habitat for Gulf sturgeon.

The State of Florida recently required the COE to conduct pre-and post-construction prey surveys as part of a permit to remove sand for a beach renourishment project. NMFS is working with Florida to ensure that data and results will be useful in determining project impacts.

### **5 EFFECTS OF THE ACTION ON GULF STURGEON CRITICAL HABITAT**

As discussed in Section 3, the abundant prey item essential feature within critical habitat Unit 12 may be adversely affected by the proposed project. Project impacts will result in the temporary modification of 1.41 acres during canal dredging, and the permanent modification of 0.03 acre during boat ramp installation, 0.12 acre during the pier replacement, and 0.01 acre during the breakwater removal for a total of 1.57 acres of impacts to Gulf sturgeon critical habitat. Potential impacts to the prey abundance essential features are analyzed below. This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02, which has been invalidated by several federal District and Circuit courts. Instead, we have relied upon the statutory provisions of the ESA to complete the following analysis with respect to critical habitat.

## 5.1 Prey Abundance

The final rule designating Gulf sturgeon critical habitat states that the abundance of prey items, such as amphipods, lancelets, polychaetes, gastropods, ghost shrimp, isopods, mollusks, and/or crustaceans within estuarine and marine habitats and substrates for subadult and adult life stages, are essential for the conservation of the species. In other opinions, NMFS has considered and analyzed the following seven factors to determine direct and indirect effects of projects impacting Gulf sturgeon prey abundance essential to the conservation of the Gulf sturgeon:

- 1) Gulf sturgeon subpopulations using the affected critical habitat;
- 2) Mean generation time;
- 3) Foraging behavior;
- 4) Prey items;
- 5) Benthic community structure;
- 6) Potential Gulf sturgeon prey in the action area; and
- 7) Recovery of benthic biota.

Whether individual factors are relevant to a particular action and analyzed within an opinion is highly site and project-specific. NMFS determines and assesses relevant factors in order to predict the persistence and resilience of the prey resource with regard to density of current and recovering Gulf sturgeon populations. That is, numerous variables depicting Gulf sturgeon prey are utilized to determine the likelihood of appropriate and abundant prey in the unit following the project to ensure that the action is not likely to result in the destruction or adverse modification of the essential features.

### 5.1.1 Gulf Sturgeon Subpopulations Using Affected Critical Habitat

Overall, Gulf sturgeon critical habitat Unit 12 provides important habitat for subadult and adult Gulf sturgeon for feeding and resting. The actual number of Gulf sturgeon utilizing the project area for foraging and movement is, at this time, likely in the hundreds (Table 1), but is likely to increase as species recovery occurs. Based on an on-going study by Delaware State University, the area around the project site is one of the “most heavily utilized areas within Coctawhatchee Bay during the over winter period” (Fleming et al, 2010).

Table 1. Estimated size of known reproducing Gulf sturgeon populations by river. All estimates listed apply to a portion of the population exceeding a minimum size that varies by sampling method utilized. N/A indicates data are not available.

Reproducing riverine population	Estimated population size	Source
Pearl River	292 430	Morrow et al. 1998 Rogillio et al. 2002
Pascagoula River	193-206 234	Heise et al. 2002 Heise et al. 2002
Escambia/Conecuh Rivers	N/A	
Yellow River	500-911	Berg 2004

Choctawhatchee River	2000-3000	USFWS 2001
Apalachicola River	88-218 270-321	Zehfuss et al. 1999 USFWS 1999
Suwannee River	7650 5500	Sulak and Clugston 1999 Pine et al. 2001

### 5.1.2 Mean Generation Time

Mean generation time (mean period elapsing between the birth of the parents and the birth of the offspring) is a useful tool to estimate the period of time for a population to increase in size. While mean generation time is unknown for the Gulf sturgeon, it has been calculated for the shortnose sturgeon (*A. brevirostrum*), a congener, to be between 10 and 30 years (NMFS 1998). A self-sustaining Gulf sturgeon population has been defined as one where the average rate of natural recruitment is at least equal to the average mortality rate in a 12-year period; 12 years is the approximate age at maturity for a female Gulf sturgeon (USFWS et al. 1995). Mean generation time is evaluated relative to the proposed action as it provides an estimated time frame to expect an increase in population size. Given current measures to protect individuals, subpopulations, and habitat, NMFS is hopeful that the number of Gulf sturgeon will increase as many threats have been reduced with the protection afforded via Section 7 of the ESA.

### 5.1.3 Foraging Method

Gulf sturgeon possess a highly protrusible mouth that extends downward to vacuum up sediments containing their prey (i.e., infaunal macroinvertebrates). This suction feeding requires an expandable mouth cavity and a relatively narrow mouth through which to funnel water and food items (Westneat 2001). Success of suction feeding relies on the ability of the predator's mouth to protrude into the proximity of prey (Westneat 2001); the suction tube of the sturgeon's mouth must be able to maintain contact with the benthos their prey inhabit. Findeis (1997) described sturgeon as exhibiting evolutionary traits adapted for cruising the benthos in search of prey. Notably, their caudal fin morphology has presumably been adapted for benthic cruising; the hypochordal lobe is often reduced to allow sweeping of the tail while close to the substrate (Findeis 1997).

Research supports that Gulf sturgeon are typically found foraging in depths greater than 1 meter. Lower energy areas, where water depth is greater than 1 to 2 meters, would likely assist foraging success given their feeding biology and the dissipation of wave energy. The protrusible mouth of these suction feeders must make contact with the benthos in order to vacuum prey out of the sediments while benthic cruising. The slightly deeper depths (2 to 4 meters) the sturgeon seem to prefer, would have less wave energy at the substrate compared to the shallower swash zone. Downward cycloidal movement of waves dissipates energy through the water column (i.e., wave energy is exponentially dissipated with depth). A sturgeon attempting to forage in a high-energy, shallow-water environment (i.e., the swash zone) would likely be challenged to retain position and maintain contact with the benthos. Therefore, Gulf sturgeon foraging success would likely be greater in the slightly deeper, lower energy areas compared to the high-energy swash zone.

As benthic cruisers, sturgeon forage extensively in an area, presumably until preferred prey is depleted/reduced, then relocate, and resume foraging. Tracking observations by Sulak and Clugston

(1999), Fox et al. (2002), and Edwards et al. (2003) support that individual Gulf sturgeon move over an area until they encounter suitable prey type and density, at which time they forage for extended periods of time. Individual Gulf sturgeon often remain in localized areas (less than 1 square kilometer) for extended periods of time (greater than two weeks) and then move rapidly to another area where localized movements occurred again (Fox et al. 2002). While the exact amount of benthic area required to sustain Gulf sturgeon health and growth is unknown (and likely dependent on fish size and reproductive status), Gulf sturgeon have been known to travel long distances (greater than 161 kilometers) during their winter feeding period. This supports the likelihood that any Gulf sturgeon in the project area will find appropriate and abundant prey in the areas adjacent to the project location as many other nearby sandy areas exist.

#### **5.1.4 Prey Items**

Ontogenetic changes in Gulf sturgeon diet and foraging area have been documented. Young-of-the-year forage in freshwater on aquatic invertebrates and detritus (Mason and Clugston 1993, Sulak and Clugston 1999); juveniles forage throughout the river on aquatic insects (e.g., mayflies and caddis flies), worms (oligochaete), and bivalves (Huff 1975; Mason and Clugston 1993); adults forage sparingly in freshwater and depend almost entirely on estuarine and marine prey for their growth (Gu et al. 2001). Both adult and subadult Gulf sturgeon are known to lose up to 30 percent of their total body weight while in freshwater, and subsequently compensate the loss during winter feeding in marine areas (Carr 1983, Wooley and Crateau 1985, Clugston et al. 1995, Morrow et al. 1998, Heise et al. 1999, Sulak and Clugston 1999, Ross et al. 2000). Therefore, once Gulf sturgeon leave the river after having spent at least six months in the river fasting, it is presumed that they immediately begin feeding. Upon exiting the rivers, Gulf sturgeon concentrate around the mouths of their natal rivers in lakes and bays. These areas are very important for the Gulf sturgeon as they offer the first foraging opportunity for the Gulf sturgeon exiting the rivers.

Few data have been collected on the food habits of Gulf sturgeon; their threatened status limits sampling efforts and gastric lavaging has only recently become successful. Gulf sturgeon have been described as opportunistic and indiscriminate benthivores; their guts generally contain benthic marine invertebrates including amphipods, lancelets, polychaetes, gastropods, shrimp, isopods, mollusks, and crustaceans (Huff 1975, Mason and Clugston 1993, Carr et al. 1996, Fox et al. 2000, Fox et al. 2002). During the early fall and winter, immediately following downstream migration, Gulf sturgeon are most often located in depths less than 20 feet in sandy areas that support burrowing macroinvertebrates, where the fish are presumably foraging (Craft et al. 2001, Ross et al. 2001a, Fox et al. 2002, Parauka et al. 2001). Generally, Gulf sturgeon prey are burrowing species (e.g., annelids: polychaetes and oligochaetes, amphipods, isopods, and lancelets) that feed on detritus and/or suspended particles, and inhabit sandy substrate.

#### **5.1.5 Benthic Community Structure**

NMFS is not aware of any research or surveys to fully describe benthic composition in or nearby the proposed project area. Data collected nearby within Choctawhatchee Bay (Fox and Hightower 1998, Fox et al. 2002, Parauka et al. 2001) indicate that Gulf sturgeon show a preference for sandy shoreline habitats, with the majority of fish being located in areas lacking seagrass. Craft et al. (2001) found that Gulf sturgeon in Pensacola Bay prefer shallow shoals with unvegetated, fine- to



medium-grain sand habitats such as sandbars and subtidal energy zones resulting in sediment sorting and a preponderance of sand supporting a variety of prey items. Habitats used nearby the Mississippi Sound barrier islands tend to have a clean sand substrate and all benthic samples from the area contained lancelets (Ross et al. 2001a). Other nearshore Gulf of Mexico locations where Gulf sturgeon are often located (determined via telemetry and tag returns) consist of unconsolidated, fine-medium grain sand habitats, including natural inlets and passes that are known to support Gulf sturgeon prey items (Menzel 1971, Abele and Kim 1986, AFS 1989). It has been concluded that Gulf sturgeon are foraging in these sandy areas where they are repeatedly located, as this habitat supports their prey (see preceding Section 5.1.4 "Prey items" for specifics).

#### **5.1.6 Recovery of Benthic Biota**

Rate and success of benthic recovery resulting from removal of materials during dredging is a function of sediment texture, depth, time of year, and habitat type. The materials that will be removed (dredged) from the project area are homogenous with those that will remain in the channel and, therefore, no alteration of habitat composition is occurring. The area will remain a shallow-water (defined as depths shallower than 46 feet) neritic zone that can support sublittoral benthic biota. Therefore, because similar habitat, in terms of both sediment composition and depth, will be present pre- and post-dredging, NMFS concludes that the benthic biota in the dredging areas will have the ability to recover and recolonize.

### **6 CUMULATIVE EFFECTS**

ESA Section 7 regulations require NMFS to consider cumulative effects in formulating their biological opinions (50 CFR 402.14). Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this opinion.

Within the action area, major future changes are not anticipated in the ongoing human activities described in the environmental baseline. The present, major human uses of the action area are expected to continue at the present levels of intensity in the near future.

Throughout the coastal Gulf of Mexico, the loss of numerous acres of wetlands is occurring due to natural subsidence and erosion, as well as reduced sediment input from the Mississippi River. Impacts caused by residential, commercial, and agricultural developments appear to be the primary causes of wetland loss.

Oil spills from tankers transporting foreign oil, as well as the illegal discharge of oil and tar from vessels discharging bilge water, will continue to affect water quality in the Gulf of Mexico. Cumulatively, these sources and natural oil seepage contribute most of the oil discharged into the Gulf of Mexico. Floating tar sampled during the 1970s, when bilge discharge was still legal, concluded that up to 60 percent of the pelagic tars sampled did not originate from the northern Gulf of Mexico coast. In 2010, there was a massive oil well release in the Gulf of Mexico at British Petroleum's Deepwater Horizon well. Official estimates are that 4.9 million barrels of oil were released into the Gulf, with some experts estimating much higher volumes. At this time the assessment of total direct impact to Gulf sturgeon has not been determined. Additionally, the long-

term impacts as a result of habitat impacts, prey loss, and subsurface oil particles and oil components broken down through physical, chemical, and biological processes are not known.

Coastal runoff and river discharges carry large volumes of petrochemical and other contaminants from agricultural activities, cities, and industries into the Gulf of Mexico. The coastal waters of the Gulf of Mexico have more sites with high contaminant concentrations than other areas of the coastal United States due to the large number of waste discharge point sources. A limited number of Gulf sturgeon (n=12) have been analyzed for pesticides and heavy metals (Bateman and Brim 1994). Results demonstrated that each individual fish had concentrations of arsenic, mercury, DDT metabolites, toxaphene, polycyclic aromatic hydrocarbons, and aliphatic hydrocarbons high enough to warrant concern (USFWS et al. 1995). Specific sources were not identified.

The actions causing the effects mentioned above have been ongoing for many years. Despite this, both NMFS and the USFWS determined that the areas affected by these actions contained the physical and biological characteristics essential for the conservation of Gulf sturgeon. Based on this determination the action area as well as other areas in the northeastern Gulf of Mexico were designated critical habitat for Gulf sturgeon on April 18, 2003 (68 FR 13370, March 19, 2003). Many of the future actions affecting the critical habitat involve some degree of federal authorization (e.g., through BOEMRE or COE) and will require consultation under Section 7 of the ESA. Therefore, NMFS will monitor and consult on actions that may cause future degradation of Gulf sturgeon critical habitat.

## **7 DESTRUCTION OR ADVERSE MODIFICATION ANALYSIS**

This section analyzes the effects of this action relative to the ecological function of designated critical habitat; that is, within Unit 12, the essential features continuing to provide subadult and adult feeding, and resting habitat for Gulf sturgeon as is evident by the large number of Gulf sturgeon that overwinter in Choctawhatchee Bay, (68 FR 13397). In the following analysis we demonstrate that while prey habitat will be temporarily modified, Unit 12 will continue to serve its intended conservation role for Gulf sturgeon.

Project impacts will result in the temporary modification of 1.41 acres during canal dredging and the permanent modification of 0.03 acre during boat ramp installation, 0.12 acre during the pier replacement, and 0.01 acre during the breakwater removal for a total of 1.57 acres of impacts to Gulf sturgeon critical habitat. This represents a temporary reduction of less than 0.002 percent of the total designated habitat in Unit 12. As discussed above, Gulf sturgeon are opportunistic feeders that forage over large distances, and thus will be able to locate prey throughout portions of Unit 12 unaffected by this action. Given that sturgeon forage opportunistically while benthic cruising, they can easily locate prey and fulfill nutritional requirements in available sandy areas adjacent to those impacted. Thus, the temporary reduction of benthic prey availability in Choctawhatchee Bay as a result of the proposed dredging is not expected to reduce Unit 12's ability to support the Gulf sturgeon's conservation in the short or long term. NMFS bases this determination upon consideration of the current population estimates, the ability of the benthic community to recover given the similarity of materials pre- and post-dredging, foraging method, and the time period between the action and the 10- to 30-year period needed for an increase in population size.

In addition, the proposed action will not interfere with actions or tasks identified in the Gulf sturgeon recovery plan (USFWS et al. 1995). NMFS concludes that the direct and indirect effects of the proposed project will not impact the ecological function of Unit 12, and that it will continue to serve its intended conservation role for Gulf sturgeon.

## **8 CONCLUSION**

After reviewing the current status of the Gulf sturgeon's critical habitat in Unit 12, the environmental baseline, the effects of the proposed action, and the cumulative effects, it is NMFS' biological opinion that the dredging of an access channel, breakwater removal, and reconstruction of a pier and boat ramp will not reduce the critical habitat's ability to support the Gulf sturgeon's conservation. Following project completion, the benthic community structure will return to, or return nearly to, pre-construction conditions in terms of species diversity, species richness, and species abundance within some inherent natural variability range. NMFS expects only temporary exclusion of Gulf sturgeon from the project site during construction. NMFS does not expect measurable impacts to Gulf sturgeon critical habitat as a result of adverse effects to abundance of prey items resulting from this project. Therefore, NMFS concludes the action, as proposed, is not likely to destroy or adversely modify designated Gulf sturgeon critical habitat.

## **9 INCIDENTAL TAKE STATEMENT**

NMFS does not anticipate that the proposed action will incidentally take any species and no take is being authorized. However, if such a take occurs, the Department of the Air Force shall immediately notify NMFS by e-mail ([takeport.nmfs@noaa.gov](mailto:takeport.nmfs@noaa.gov)) and by phone (727) 824-5312 or fax (727) 824-5309, and reference this biological opinion by its identifier number F/SER/2011/01079.

## **10 CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the ESA directs federal agencies to utilize their authority to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species to help implement recovery plans or to develop information. NMFS believes Department of the Air Force should implement the following conservation recommendations.

- (1) Gather data describing recovery rates of Gulf sturgeon prey species impacted by the cyclical removal of sandy substrates via dredging to assist in future assessments of impacts to Gulf sturgeon prey items.
- (2) Gather data describing movement of Gulf sturgeon within the East Pass during down-stream and up-stream migration; specifically the utilization of the maintained channel relative to undisturbed areas.

NMFS requests to be notified if the conservation measures are implemented. This will assist NMFS in evaluating future project effects on the Gulf sturgeon or designated Gulf sturgeon habitat.

## 11 REINITIATION OF CONSULTATION

This concludes the formal consultation on the waterside redevelopment for the Eglin AFB Test Area D-84 in Choctawhatchee Bay, Florida; including replacement of the remaining pier, dredging of the boat ramp access channel, restoring and re-orienting the boat ramp, removing the breakwater, and re-stabilizing the shore as described earlier. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if (1) the amount or extent of taking specified in the incidental take statement is exceeded, (2) new information reveals effects of the action may affect listed species or critical habitat in a manner or to an extent not previously considered, (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the biological opinion, or (4) a new species is listed or critical habitat designated that may be affected by the identified action.

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NMFS - Marine Mammal Protection Act Letter of Concurrence (Received 08/10/2011)



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Silver Spring, MD 20910

Mr. Stephen M. Seiber  
Chief, Natural Resources Section  
96<sup>th</sup> CEG/CEVSN  
501 DeLeon Street, Suite 101  
Eglin AFB, FL 32542-5133

AUG 10 2011

Dear Mr. Seiber,

On April 12, 2011, the National Marine Fisheries Service (NMFS), Office of Protected Resources, received your request for a Letter of Concurrence (LOC) documenting that the taking of marine mammals incidental to Eglin Air Force Base's (AFB) waterside redevelopment activities at Test Area D-84 in Choctawhatchee Bay, Florida is not likely to occur. Based on our review, we concur with your determination that an incidental take authorization, pursuant to the Marine Mammal Protection Act (MMPA), is not necessary to carry out waterside redevelopment activities provided that all planned monitoring and mitigation measures as described in the LOC request and this letter are implemented.

*Description of the Action*

The purpose of the waterside redevelopment activities at Test Area D-84, as described in the LOC request, is to provide water-based training facilities and access to adjacent upland training facilities. Redevelopment would potentially support a number of military groups and programs. Eglin AFB has proposed the following activities in order to facilitate necessary training:

- Demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier
- Constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on a similar alignment as the existing pier
- Contouring a portion of the shoreline to reorient the existing boat ramp
- Dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland soil site
- Installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress
- Extending the existing bluff stabilization upland of the mean high water line

Sound generated from impact pile driving during demolition and construction activities has the potential to behaviorally harass marine mammals in the area. Pile driving would be required for removal of the existing pile structures and reconstruction of the pier.





Although the complete waterside redevelopment activities could occur for a period of four to six months, pile driving is expected to occur for approximately 20 days. For bottlenose dolphins (*Tursiops truncatus*) – the only marine mammal expected to occur in the project area – a Level B harassment take would occur if an animal is exposed to sound levels at or exceeding 160 dB. The Level B harassment zones are summarized below.

Pile Driving Method and Level B Harassment Criteria	Pile Diameter (inches)	Source Level (dB)	Radii of Level B Harassment Zone (ft)
Impact (160 dB)	12	184	131
	16	189	281

Level B harassment zones for pile driving, based on calculations by Eglin AFB.

These Level B harassment zones were calculated by Eglin AFB based on data from previous pile driving projects, as well as input from NMFS, and are considered preliminary estimates. Should Eglin AFB obtain empirical data that confirms a different distance for a Level B harassment zone, that information should be applied to the mitigation and monitoring measures.

#### *Mitigation and Monitoring*

The impact zones for the impact hammer are small enough that visual detection of marine mammals within the proposed project area is likely. To avoid take of marine mammals during the proposed project, the following mitigation and monitoring measures were proposed by Eglin AFB or proposed by NMFS and accepted by Eglin AFB:

- *Restriction of Operating Hours:* Pile driving activities will be limited to day-light hours in order to maximize visibility for protected species observers.
- *Monitoring by Protected Species Observers:* Eglin AFB will provide trained, NMFS-qualified protected species observers at the project site to monitor for marine mammals. Monitoring will occur for 30 minutes prior to pile driving, during pile driving, and for 30 minutes after pile driving ends. During this time, the Level B harassment zone may not be obscured by fog or poor lighting conditions.
- *Implementation of Ramp-up:* At the start of each survey day, pile driving hammers would initially be operated at low levels, then gradually increase to minimum necessary power required for pile removal or installation. During this ramp-up procedure, any marine mammals in the area would have the opportunity to detect the presence of increased sound and leave the area before full power pile driving commences.
- *Implementation of Shutdown:* If a detected marine mammal enters or nears the Level B harassment zone, the protected species observer will call for shutdown of

all pile driving activities. Pile driving will not resume until the marine mammal is confirmed to be outside of the Level B harassment zone or 15 minutes have passed since the last sighting.

*Determination*

In summary, based on the description of the activity and implementation of the proposed mitigation and monitoring measures, NMFS concurs with Eglin AFB's determination that marine mammal take, including Level B harassment, is not likely to occur; thus, incidental take authorization is not necessary pursuant to the MMPA. If for any reason Eglin AFB does not implement the aforementioned mitigation and monitoring measures, the NMFS' concurrence with Eglin AFB's determination does not apply, and NMFS would recommend that Eglin AFB apply for an incidental take authorization under section 101(a)(5) of the MMPA. The same recommendation would apply if Eglin AFB subsequently obtains information during the activities that indicates that marine mammals have been disturbed by the proposed activities. Although NMFS has concurred that take is not likely to occur, Eglin AFB remains liable for any unauthorized takes of marine mammals resulting from the activity. Furthermore, Eglin AFB is responsible for complying with any restrictions or measures provided by other federal agencies or other offices of NMFS.

In the event that harassment to a marine mammal occurs despite implementation of mitigation and monitoring measures, activities should be suspended and you must contact the Chief, NMFS Permits, Conservation, and Education Division at (301) 713-2289 within two business days and submit a written report describing the incident. The Permits Division may determine that the LOC remains applicable based on review of the incident report and in consideration of modifications, if applicable, made to the Test Area D-84 waterside redevelopment activities protocol or may advise that an incidental take authorization is necessary. For additional information on this determination, please contact Michelle Magliocca at (301) 427-8401.

Sincerely,



James H. Lecky  
Director  
Office of Protected Resources  
National Marine Fisheries Service

USFWS - Endangered Species Act  
Letter of Concurrence (Received 06/30/2011)



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 96TH AIR BASE WING (AFMC)  
EGLIN AIR FORCE BASE FLORIDA

RECEIVED

MAY 05 2011

Mr. Stephen M. Seiber  
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FWS Log No. 41410 - 2011 - 0390

Mr. Donald W. Imm, Ph. D  
U.S. Fish and Wildlife Service  
1601 Balboa Avenue  
Panama City, FL 32405

The proposed action is not likely to adversely affect resources protected by the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). This finding fulfills the requirements of the Act.  
*Donald W. Imm*  
Dr. Don Immending, Deputy Project Leader Date 6/30/11

Dear Mr. Imm:

The attached biological assessment and essential fish habitat (EFH) assessment is being submitted to fulfill requirements under Section 7 of the Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA). This Biological Assessment assesses potential impacts to Gulf sturgeon, Gulf sturgeon critical habitat, Florida manatee, and EFH associated with waterside redevelopment activities at Test Area D-84 on Eglin Air Force Base (AFB), Florida

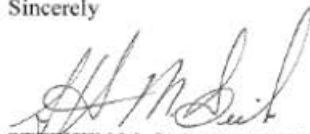
Redevelopment of the waterside facilities of Test Area D-84 would include 1) demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier, 2) constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on an alignment that is similar to the existing pier, 3) contouring a portion of the shoreline to re-orient the existing boat ramp, 4) dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site, 5) installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress, and 6) extending the existing bluff stabilization upland of the mean high water line.

Eglin Natural Resources Section has determined that the Proposed Action may affect but is not likely to adversely affect the Gulf sturgeon, is not likely to adversely modify Gulf sturgeon critical habitat, may affect but is not likely to adversely affect the Florida manatee, and will not adversely affect EFH. Adherence to proper mitigation measures and best management practices is expected to reduce the potential for adverse impacts to the Gulf sturgeon, Florida manatee, and EFH.

The Natural Resources Section believes this fulfills all requirements for the permitting process to proceed. If you have any questions regarding this letter or any of

the proposed activities, please do not hesitate to contact either Mr. Bob Miller (850-883-1153) or myself at (850) 882-8391.

Sincerely

A handwritten signature in black ink, appearing to read 'S. M. Seiber', written in a cursive style.

STEPHEN M. SEIBER, GS-13  
Chief, Natural Resources Section

cc:

Mr. David Bernhart, National Marine Fisheries Service  
Mr. Mark Thompson, National Marine Fisheries Service

Attachment:

Endangered Species Act Section Seven Consultation and Magnuson-Stevens Fishery  
Conservation and Management Act Essential Fish Habitat Assessment for Test Area D-  
84 Waterside Redevelopment

NMFS - Essential Fish Habitat Concurrence (Received 05/19/2011)

**Garrett, Michael**

---

**From:** Robydek, Amanda Ms CTR USAF AFMC 96 CEG/CEVSN  
[Amanda.Robydek.ctr@eglin.af.mil]  
**Sent:** Thursday, May 19, 2011 2:36 PM  
**To:** Garrett, Michael  
**Cc:** Miller, Bob CIV USAF AFMC 96 CEG/CEVSNW; Rogers, Melinda A Civ USAF AFMC 96 CEG/CEVSP  
**Subject:** FW: Test Area D-84 EFH Assessment Eglin Air Force Base, Walton County, Florida.

Our EFH Concurrence...

-----Original Message-----

**From:** Mark Thompson [<mailto:Mark.Thompson@noaa.gov>]  
**Sent:** Thursday, May 19, 2011 2:24 PM  
**To:** Robydek, Amanda Ms CTR USAF AFMC 96 CEG/CEVSN  
**Cc:** Veronica Beech; Eric Hawk; Hartshorn, Mary B SAJ  
**Subject:** Test Area D-84 EFH Assessment Eglin Air Force Base, Walton County, Florida.

NOAA's National Marine Fisheries Service, Habitat Conservation Division (NMFS-HCD), has received your letter dated March 11, 2011, and additional information addressing seagrass impacts by email on May 17, 2011, initiating essential fish habitat (EFH) consultation and providing an EFH Assessment for the impacts associated with the redevelopment of waterside facilities at Test Area D-84 on Eglin Air Force Base, Walton County, Florida. This request was initiated pursuant to the consultation provisions of the Magnuson-Stevens Conservation and Management Act (Magnuson-Stevens Act).

The assessment states that your office believes that the project is not likely to adversely affect EFH. Based on the information provided in the EFH Assessment and additional information provided by the follow-up email, the NMFS-HCD does not have any EFH conservation recommendations to offer or objections to the project.

Thank you for your effort to comply with the EFH provisions of the Magnuson-Stevens Act.

Sincerely,

Mark Thompson

On 5/17/2011 2:33 PM, Robydek, Amanda Ms CTR USAF AFMC 96 CEG/CEVSN wrote:

Request for Letter of Concurrence under the Marine Mammal Protection Act



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 96TH AIR BASE WING (AFMC)  
EGLIN AIR FORCE BASE FLORIDA

Mr. Stephen M. Seiber  
Chief, Natural Resources Section  
96<sup>th</sup> CEG/CEVSN  
501 De Leon Street, Suite 101  
Eglin AFB FL 32542-5133

APR 12 2011

Mr. Michael Payne  
Office of Protected Resources  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, MD 20910-3226

Dear Mr. Payne:

This submittal is a formal request from Eglin Air Force Base (AFB) for a Letter of Concurrence (LOC). Eglin Natural Resources Section believes there would be no take of marine mammals from waterside redevelopment activities at Test Area D-84. The Proposed Action would involve 1) demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier, 2) constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on an alignment that is similar to the existing pier, 3) contouring a portion of the shoreline to re-orient the existing boat ramp, 4) dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site, 5) installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress, and 6) extending the existing bluff stabilization upland of the mean high water line.

Eglin Natural Resources Section has initiated formal consultation with the NMFS Southeast Regional Office (SERO) to fulfill the requirements under Section 7 of the Endangered Species Act and the Magnuson-Stevens Fishery Conservation and Management Act. A copy of the Biological Assessment and Essential Fish Habitat Assessment for waterside redevelopment activities at Test Area D-84 has also been included as an attachment for your review. With this submittal, Eglin AFB requests a LOC to make certain the Air Force is covered under the Marine Mammal Protection Act. Because in-place mitigations would clear the area of any marine mammals prior to demolition and construction activities and the area is not good habitat for marine mammals, it is anticipated that no federally protected marine mammal takes would result. The National Marine Fisheries Service will be notified immediately if any of the considered actions are further modified or if any additional information on marine mammal species becomes available.

## References

### 16. REFERENCES

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- Caldwell, D. K. and M. C. Caldwell, 1983. Mammals. In: *The Audubon Society Field Guide to North American Fishes, Whales, and Dolphins* (A. A. Knopf, ed.). Alfred A. Knopf, Inc., New York, NY. pp. 767-812.
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- U.S. Air Force, 2005. *Santa Rosa Island Mission Utilization Plan Programmatic Environmental Assessment*, Eglin Air Force Base, Florida, 32542.

**APPENDIX A**  
**UNDERWATER ACOUSTICAL ANALYSIS RESULTS**



## ESTIMATING ZONES OF INFLUENCE FOR PILE DRIVING 12 AND 16” DIAMETER CONCRETE PILES

### INTRODUCTION

NMFS restricts the taking of marine mammals, including their exposure to sounds that may either injure them or cause changes in behavior. Carrying out these restrictions requires calculating zones of influence (ZOI) for these noise exposures. These have in practice been interpreted as exposure to pulsed or impact sounds at or above 160 dB re 1  $\mu$ Pa, and for continuous signals, such as may be produced by vibratory impact pile driving, of 120 dB re 1  $\mu$ Pa. A separate 180 ZOI protects cetaceans against injurious noise exposures. The following is a description of how these ZOI calculations are made, including data sources, the equation used to calculate, first the source levels of the signals and second, the isopleths defining the ZOI radii, the meaning of variables, determination of the values for those variables, the assumptions, and finally results and their appropriate interpretation. One goal of this document is permit another person, at some later time, to understand where and how the acoustic values used in this report were obtained.

The goal of this report is to document and illustrate the zones of influence for concrete piles of 12 and 16” diameter for both impact (160 dB) and vibratory (120 dB) pile driving.

### PILE DRIVING DATA

In 2008, staff at HDR EOC put together a pile driving dataset made up from information taken from two sources, Caltrans (2007) and MacGillivray, A., E. Ziegler, and J. Laughlin. 2007. In general much of this data was taken from shallow water locales and situations similar to those envisioned for this project. The table includes the pile driver (impact or vibratory); size, shape and type of pile; depth and distance from source for the hydrophone; a series of amplitude measures in varying forms of SPL, including peak-to-peak and rms; details of the pile driving context; and the original data source.

This dataset contained data on concrete piles of 16, 24, and 36” diameter piles. There was no data on 12” piles. Additionally, the data for 16” piles included only two replications of measurements made at 10 m using two types of hammers. There was also no data on vibratory pile driving of any concrete piles, though there was data for both impact and vibratory for steel piles of three configurations, H piles, sheet pile, and steel pipe.

From this database, it will be necessary to:

- 1 Source Levels: Determine source levels for 16, 24 and 36” pile, and
- 2 Regression of pile diameter and source levels: Establish a relationship between pile diameter and source level, using the 16, 24, and 36” data.

- 3 Source level of 12" pile: Based on the pile diameter to source level relationship, estimate the source level for a 12" pile.
- 4 Relationship between vibratory and impact pile driving noise levels: Determine the relationship between vibratory and impact pile driving noise levels. This will provide a measure of the difference between impact and vibratory pile driving sound levels, from which the SL for 12 and 16" piles will be estimated.
- 5 Zones of Influence: Determine the zones of influence for 12 and 16" piles for vibratory (120 dB) and impact (160 dB).

## 1. CALCULATING SOURCE LEVEL

The first issue is to determine the source level. The equation used to make these calculations is often referred to as the sonar equation, and for our purposes can be stated:

$$RL = SL - B * \log(r) \quad \text{Equation 1}$$

where RL= the received level in dB re 1  $\mu$ Pa at range (r), SL= the source level (dB re 1  $\mu$ Pa) of the signal at 1 m from the source, B= a coefficient summarizing the transmission loss rate for the acoustic energy as it moves through the medium (dB for each ten-fold change in distance from the source). Note also that equation 1 has the form of a point slope line equation, where B is the slope and SL will be the y-intercept.

The source level, which is defined as in dB re 1  $\mu$ Pa at 1m, is the basic parameter describing the amplitude of a signal as if it was measured at a standard distance of 1m. In practical terms, the SL is calculated using data where the received level of the signal is measured at several measured distances away from the source, and using a regression equation, the level at 1m is calculated. (See Blackwell (2005) for an example of calculating SL for pile driving signals using regression methods).

Transmission loss is a summary term, represented in equation 1 as B, involved in the sum of all of the factors reducing the acoustic energy as it is transmitted through the water. The primary component to transmission loss the spreading loss as an acoustic wave's energy is propagated away from the source. Spherical and cylindrical spreading are the two most common models. In an unbounded space, sound waves move away from their source as spherically waves, with the energy dissipating as the inverse square law. Spherical spreading results in a 20 dB loss for each ten-fold increase in distance. In a bounded space, cylindrical spreading may be a better model, and in this case energy is lost at 10 dB for each ten-fold increase in distance. For a number of technical reasons, as a first approximation of overall transmission loss spherical spreading is the most applicable model. In a summary of attenuation processes, Urick (1983) concluded that for propagation measurements at sea, spherical spreading plus absorption provides a reasonable fit to the measured data under a wide variety of conditions. For the relatively low frequencies and short distances considered here, absorption has little impact on acoustic transmission.

Determining the SL requires data from multiple measurements of the received sound level (RL) at various distances (r) from the sound source. Under the best circumstances, the initial recording is at a relatively close distance to the sound source, for example, 10m. Subsequent

recordings are then made at measured distances from the source. Ideally, there are more than two measurements such that a measure of the relationship, typically the correlation coefficient, can be provided. If there are only two measurements, this will define a line, but there is no measure of goodness of fit to a regression model.

Equation 1 is solved for SL

$$SL = RL + B * \log(r) \quad \text{Equation 2}$$

## 2 SOURCE LEVEL REGRESSION

In practice, in order to calculate the source level, it is necessary to establish the relationship between how a signal of a particular amplitude travels through water, where the received levels are measured at specified distances. By graphing this relationship, in the form of a linear regression of the log of the range ( $r$ ) and the measured SPL, we can estimate the amplitude at other distances, for example, at 1 m (figure 1). In this case, the received level was measured at four distances from an impact pile driver placing a 24" diameter concrete pile. In this linear regression, the slope represents the transmission loss of the signal over distance and the intercept is the amplitude at 1 m, (since  $10^0 = 1$ ), which is defined as the source level. Important to this analysis is how well the regression fits the data as indicated by the correlation coefficient, which indicates how much of the variability in one variable, the sound pressure level, is explained by variability in the other variable, in this case, distance from the source. In the case illustrated in figure 1 there is an excellent fit between the SPL at varying distances, where the correlation coefficient=0.9883. Interpreting this graph results in the determination that the SL= 203.4 dB re 1  $\mu$ Pa at 1m, and the transmission loss is 21.6 dB/ ten-fold increase of range. That is to say, the SPL decreases by almost 22 dB at 1m from the source where it was 203 dB, to 181 dB (203-22) at 10m, and then another 22 dB from 10m to 100m where the SPL is now 159 dB. At 1000m it would therefore be 137 dB, and then at 10km it would be 115 dB, very close to the ambient noise and therefore difficult to perceive.

There was additional data available for 24 and 36" diameter piles, but unfortunately in each case there were only two distances. Table 1 provides estimated source levels for concrete piles of 16, 24, and 36" driven using impact pile driving.

## 3. REGRESSION OF PILE DIAMETER AND SOURCE LEVEL

Next we need to determine the relationship between pile diameter and the associated noise level. The results of this analysis will be used to estimate the source level of the 12" pile. Figure 2 is a regression of the estimated source levels of the 16, 24, and 36" concrete piles. The equation results in a prediction of the 12" pile source level as 184 dB re 1  $\mu$ Pa at 1 m. The correlation coefficient is high, indicating that 79% of the variability in the source levels is explained by pile diameter. Likewise, the regression equation predicts the 16" pile source level as 189 dB re 1  $\mu$ Pa at 1 m (Table 1).

#### 4. RELATIONSHIP BETWEEN VIBRATORY AND IMPACT PILE DRIVING NOISE LEVELS

As stated above, there was no available data on vibratory pile driving of concrete piles. However, data for both impact and vibratory pile driving of three different steel piles was used to establish a pattern for the difference in noise levels produced by these two pile driving methods. Comparisons were made between 10 steel H piles, 24" sheet piles, and 36" diameter steel pipes. In each case the objective was to compare noise levels for both methods. There was only data for the peak-to-peak amplitudes for each pile type, but since the goal was to establish the relative differences between noise levels from the two pile driving techniques, the assumption is made that this difference would be equal regardless of whether the amplitude was measured peak-to-peak or rms. These terms deal with how energy is measured within a short duration pulse. Comparisons were made between noise level measurements made at both the minimum and maximum distances from the source (Table 2). It was concluded that impact pile driving was approximately 30 dB louder than vibratory pile driving. Based on a 30 dB difference between impact and vibratory pile driving, table 3 contains the final estimated source levels for 12 and 16" concrete piles, placed using vibratory and impact pile drivers

#### 5. ISOPLETH CALCULATION

The calculation of the ZOI radii uses a re-solving of equation 1 for range (r):

$$\text{Log}(r) = ((\text{SL}-\text{RL})/B) \quad \text{Equation 3}$$

This equation will permit calculation of the distance (r) from a sound source at a particular source level (SL) to a received level (RL) as specified by the zone of influence, for example, 160 dB. That is to say, equation 3 will estimate how far it will take for the sound to decrease from the initial source level to a specified received level. In these calculations, the received levels are the NMFS noise criteria for impact zones of influence, 160 dB, and for continuous noise, 120 dB. As discussed above, the standard 20 dB transmission loss value for spherical spreading will be used.

**16" Concrete Piles** Using equation 3, where the **impact pile driver** SL =189 dB, the 160 dB ZOI radius is  $\log(r) = (189-160)/20=1.45$ , and therefore the radius of the 160 dB ZOI = 92 feet. For **vibratory pile driving**,  $\log(r) = (159-120)/20=1.95$ , therefore the radius of the 120 dB ZOI for the 16" diameter pile = 292 feet (Figure 5).

**12" Concrete Piles** For the **impact pile driver** where the SL=184 dB, the 160 dB ZOI radius is 53 ft, while for **vibratory pile driving** the 120 dB ZOI radius is 164 feet (Figure 6). Note that the reason for the larger ZOI for the vibratory pile driving, even though the noise level is lower, is because the NMFS noise exposure criteria for continuous signals, 120 dB, which is 40 dB lower than the 160 dB criteria for exposure to impact noise, while the relative SL difference is greater between vibratory and impact noise levels (30 dB), resulting in a larger ZOI for continuous noise exposure.

**CONCLUSION**

The ZOI for 12 and 16" concrete piles for both vibratory and impact pile driving was estimated. This was done in the absence of data on 12" pile source levels or any data on concrete pile driving done using vibratory pile driving techniques. These estimates were obtained by means of regression techniques using associated data from 16, 24, and 36" concrete piles. The resulting ZOI estimates indicate that exposure to pile driving noise will be limited to areas inside of the following radii based on size of the piles as listed below:

- 12" piles: 53 feet for impact pile driving and 164 feet for vibratory pile driving
- 16" piles: 92 feet for impact pile driving and 292 feet for vibratory pile driving.

In the event that more precision is required for these ZOI radii, actual measurements of the source levels and transmission properties of the area should be made for both impact and vibratory pile driving of whatever pile size that is finally used in the construction project.

## REFERENCES

- Blackwell, S. B. 2005. Underwater measurements of pile-driving sounds during the Port MacKenzie dock modifications, August 13–16, 2004. Prepared for Knik Arm Bridge and Toll Authority, Anchorage; Alaska Department of Transportation and Public Facilities, Anchorage, Alaska; and Federal Highway Administration, Juneau, Alaska. Prepared by Greeneridge Sciences, Inc., Goleta, Calif.; and LGL Alaska Research Associates, Inc., Anchorage; in association with HDR Alaska, Inc., Anchorage.
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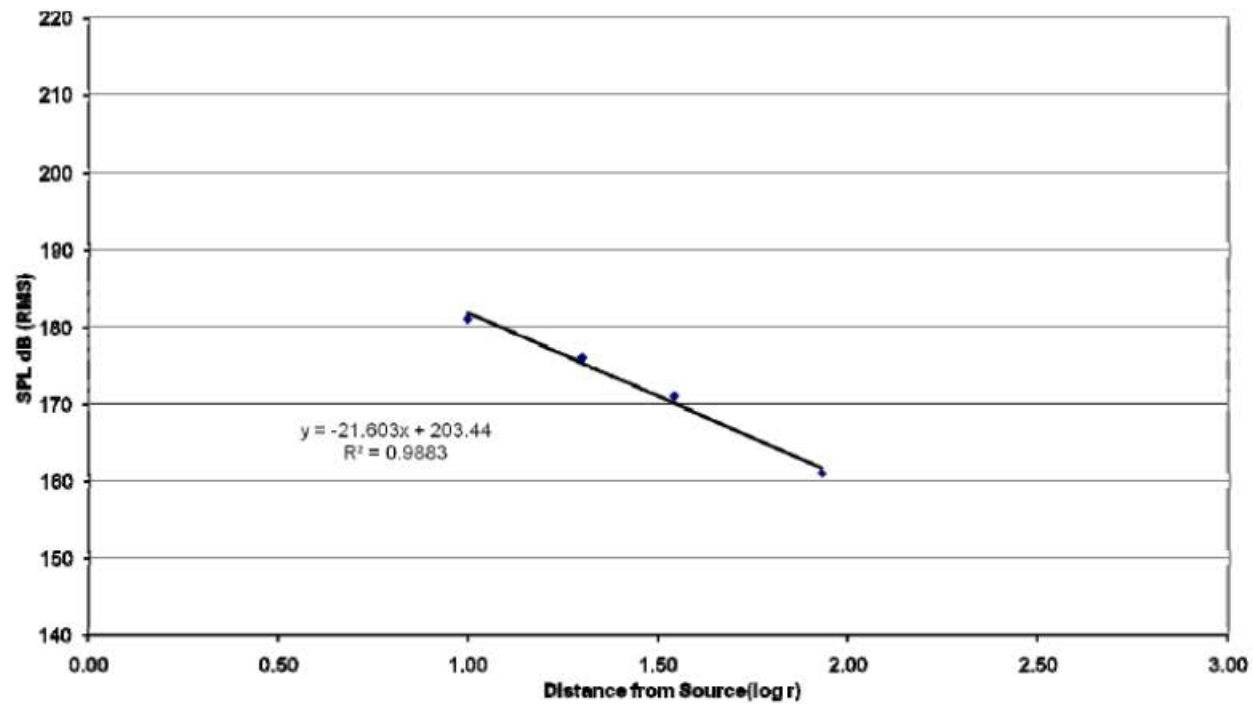


Figure 1. Regression of received noise levels from impact pile driving of a 24" diameter concrete pile at measured distances from the sound source, (log r) in m. The linear regression equation and correlation coefficient are provided.

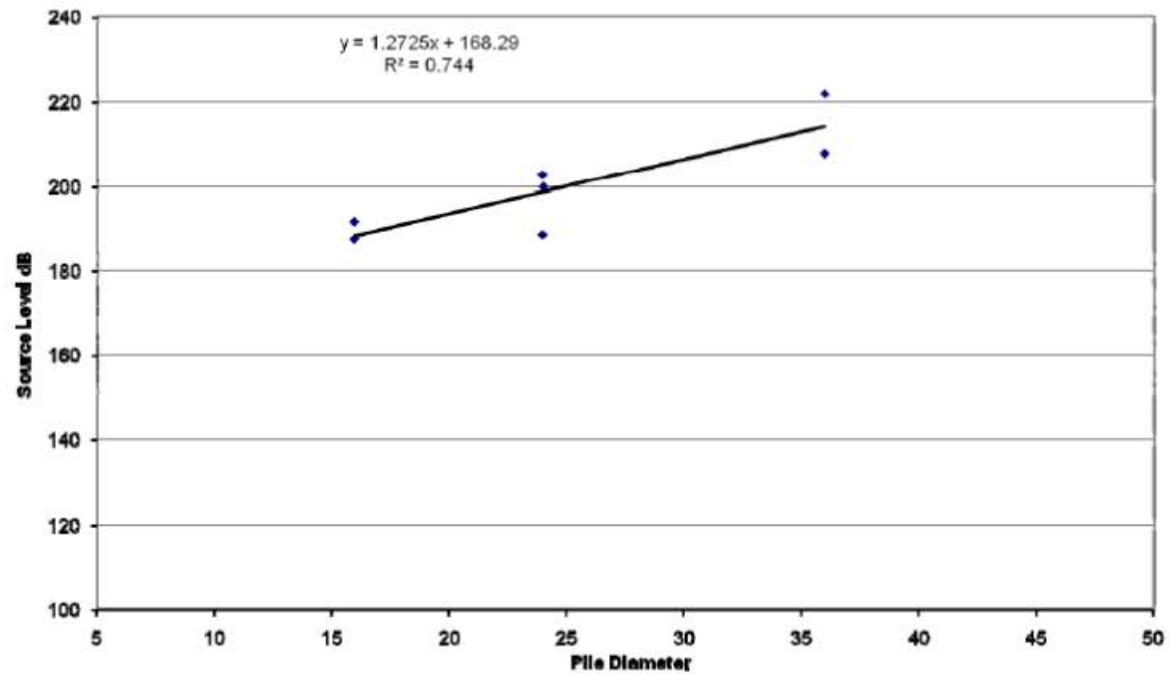


Figure 2. Linear regression of piles of various diameters (inches) relative to their source levels (dB re 1  $\mu$ Pa). The linear regression equation and correlation coefficient are also provided.





Figure 3. Diagram illustrating the 160 and 120 dB ZOI for 12" piles placed with impact and vibratory pile drivers.

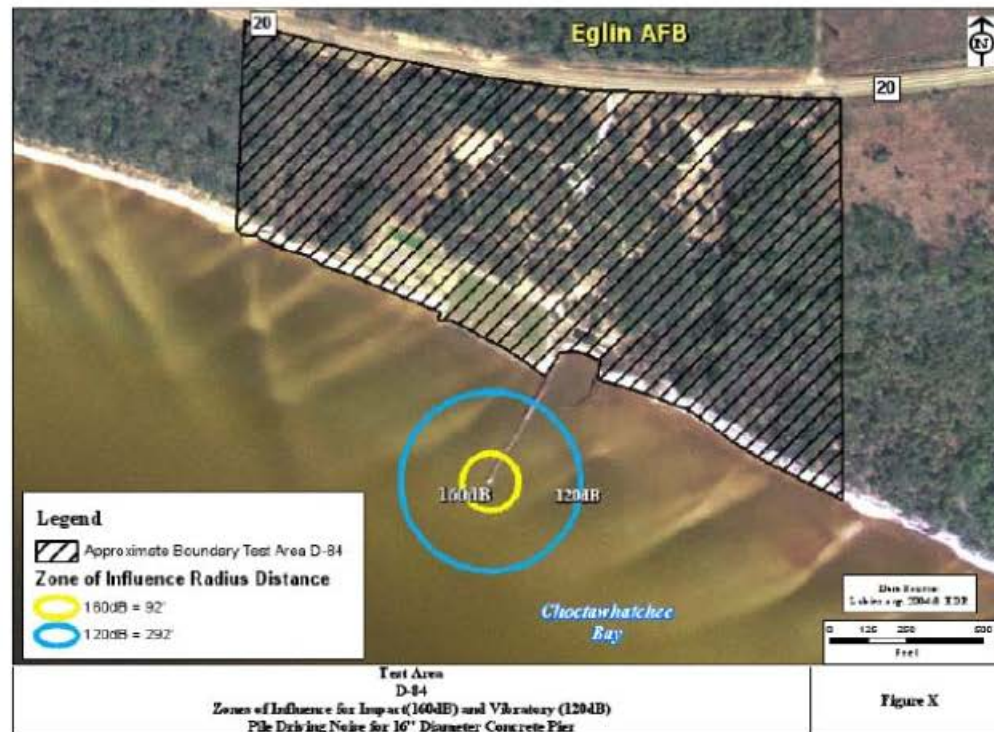


Figure 4. Diagram illustrating the 160 and 120 dB ZOI for 16" piles placed with impact and vibratory pile drivers.

Table 1. Estimated Concrete Pile Source Levels for 12 and 16" piles placed using Impact and Vibratory Pile Drivers.

Pile Diameter (inches)	Impact	Vibratory
12	184*	154**
16	189*	159**
16	188	
16	192	
24	203	
24	200	
24	189	
36	222	
36	208	

\*Based on regressions of 16, 24, and 36" piles.

\*\* Based on estimated differences between impact and vibratory pile driving noise levels.

Table 2. Difference between Vibratory and Impact Pile driving for Equal Sized Steel Piles as measured at the minimum and maximum distances between source and receiver.

Pile Configuration	Pile Diameter (inches)	dB re 1 $\mu$ Pa at same min. hydrophone dist.	dB re 1 $\mu$ Pa at same max hydrophone dist.
H	10	29	18
Sheet	24	28	39
Pipe	36	37	4

Table 3. Source Levels and the radii of the ZOI for both impact and vibratory pile driving of 12 and 16" piles.

Pile driving Method	Pipe Diameter (inches)	Source Level, dB re 1 $\mu$ Pa at 1 m	Radii of the Zone of Influence (ft)
Impact	12	184	53
	16	189	92
Vibratory	12	154	164
	16	159	292

**Formal**  
**Section 7 Endangered Species Act Consultation**  
**Biological Assessment**  
**and**  
**Magnuson-Stevens Fisheries Conservation and Management Act**  
**Essential Fish Habitat Assessment**



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 96TH AIR BASE WING (AFMC)  
EGLIN AIR FORCE BASE FLORIDA

Mr. Stephen M. Seiber  
Chief, Natural Resources Section  
96<sup>th</sup> CEG/CEVSN  
501 De Leon Street, Suite 101  
Eglin AFB FL 32542-5133

MAR 11 2011

Mr. David Bernhart  
Protected Resources Division  
National Marine Fisheries Service  
Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, FL 33701

Dear Mr. Bernhart:

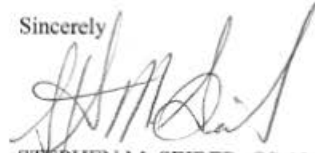
The attached biological assessment and essential fish habitat (EFH) assessment is being submitted to fulfill requirements under Section 7 of the Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA). This Biological Assessment assesses potential impacts to Gulf sturgeon, Gulf sturgeon critical habitat, Florida manatee, and Essential Fish Habitat associated with waterside redevelopment activities at Test Area D-84 on Eglin Air Force Base (AFB), Florida

Redevelopment of the waterside facilities of Test Area D-84 would include 1) demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier, 2) constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on an alignment that is similar to the existing pier, 3) contouring a portion of the shoreline to re-orient the existing boat ramp, 4) dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site, 5) installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress, and 6) extending the existing bluff stabilization upland of the mean high water line.

Eglin Natural Resources Section has determined that the Proposed Action may affect but is not likely to adversely affect the Gulf sturgeon, is not likely to adversely modify Gulf sturgeon critical habitat, will have no effect on the Florida manatee, and will not adversely affect EFH. Adherence to proper mitigation measures and best management practices is expected to reduce the potential for adverse impacts to Gulf sturgeon and EFH.

The Natural Resources Section believes this fulfills all requirements for the permitting process to proceed. If you have any questions regarding this letter or any of the proposed activities, please do not hesitate to contact either Mr. Bob Miller (850-883-1153) or myself at (850) 882-8391.

Sincerely



STEPHEN M. SEIBER, GS-13  
Chief, Natural Resources Section

cc:

Mr. Mark Thompson, National Marine Fisheries Service

Attachment:

Endangered Species Act Section Seven Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Assessment for Test Area D-84 Waterside Redevelopment

**FORMAL**  
**Endangered Species Act**  
**Section Seven Consultation**  
**&**  
**Magnuson-Stevens Fishery Conservation and Management Act**  
**Essential Fish Habitat Assessment**  
  
**For**  
  
**TEST AREA D-84**  
**WATERSIDE REDEVELOPMENT**



**March 2011**



## EXECUTIVE SUMMARY

The purpose of this document is to support the consultation process for the Endangered Species Act of 1973 (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) related to redevelopment of the waterfront and in-water portions of Eglin Air Force Base's (AFB) Test Area D-84. The purpose of the D-84 redevelopment project is to provide water-based training facilities and access to adjacent upland training facilities to meet the continuing and increasing requirement for field test and training exercises, including "just-in-time-training." Such training includes the use of waterborne facilities, including a pier and terminal platform, and stabilized shoreline for amphibious landing operations. Redevelopment of the waterside facilities of Test Area D-84 would include:

1. Demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier.
2. Constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on an alignment that is similar to the existing pier.
3. Contouring a portion of the shoreline to re-orient the existing boat ramp.
4. Dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site.
5. Installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress.
6. Extending the existing bluff stabilization upland of the mean high water line.

Two species listed under the ESA, the Gulf sturgeon (*Acipenser oxyrinchus desotoi*) and Florida manatee (*Trichechus manatus latirostris*), are known to occur at least occasionally within the project zone of influence (ZOI). In addition, Choctawhatchee Bay is designated as Gulf sturgeon critical habitat. Essential Fish Habitat (EFH) for some managed fish species occurs in the area as well.

Based on analysis in Chapter 4, Gulf sturgeon may be affected by noise disturbance and direct physical impacts. Noise may cause individual sturgeon to temporarily avoid the area near project activities. However, avoidance would be temporary, and large areas of similar habitat are available in Choctawhatchee Bay. There is a slight possibility that sturgeon could be entrained during dredging, if conducted during cold months, and physically struck during pile placement. The likelihood of entrainment would be decreased by mitigation measures. Physical strikes are considered unlikely, as sturgeon would probably leave the area near pier construction due to noise and other disturbance.

## Executive Summary

Potential impacts to Gulf sturgeon critical habitat were also analyzed. The proposed action would not appreciably affect the availability of prey items. Dredging and other activities would cause turbidity in the water column, but the turbidity would be local and temporary, and suspended sediment would be controlled through BMPs such as sediment curtains (see Chapter 5 for a full description). Sediment quality would not be impacted. The area of sturgeon habitat affected is small relative to the area of presumably similar habitat available in Choctawhatchee Bay. Placement of a new pier would not impede the migration of this species, and demolition of existing in-water structures would actually decrease the number of objects potentially encountered by migrating individuals.

The Florida manatee could possibly be affected by noise disturbance and direct physical impacts (if project activities occur during warm months), and loss of seagrass. Given the low incidence of documented manatee occurrence and the temporary and localized nature of noise associated with the project, the probability of noise-related impact is considered low. Manatees could be struck by vessels or other equipment during demolition and construction activities. However, implementation of standard construction conditions will substantially reduce the possibility of physical strikes. Seagrass occurrence in the area is small and patchy, and the area offshore of D-84 is not likely an important manatee feeding area. Seagrass exclusion zones will be established to ensure physical disturbance does not occur. In addition, BMPs will be in place to minimize siltation and turbidity.

Known EFH that occurs in the D-84 redevelopment ZOI consists of the estuarine water column, seagrass, and non-vegetated substrate (primarily sand). These components of EFH could be affected by demolition and construction activities through turbidity and siltation, physical disturbance to seagrass, and sediment removal resulting from dredging. Turbidity and physical disturbance of seagrass will be minimized through BMPs. Dredging will remove sediment and the associated benthic species that could function as prey for managed fish species. However, the amount of sediment removed is a small fraction of the total amount of similar habitat available in northern Choctawhatchee Bay. In addition, benthic species are expected to recolonize the channel floor.

The NOAA Fisheries will be notified if any of the actions described in this document are modified, or if additional information on listed species becomes available. If impacts to listed species or habitats occur beyond what has been considered in this assessment, operations will cease and the agencies will be notified. Any modifications or conditions resulting from consultation will be implemented prior to commencement of activities. Eglin Natural Resources believes this fulfills all requirements of the ESA and MSA, and that no further action is necessary.

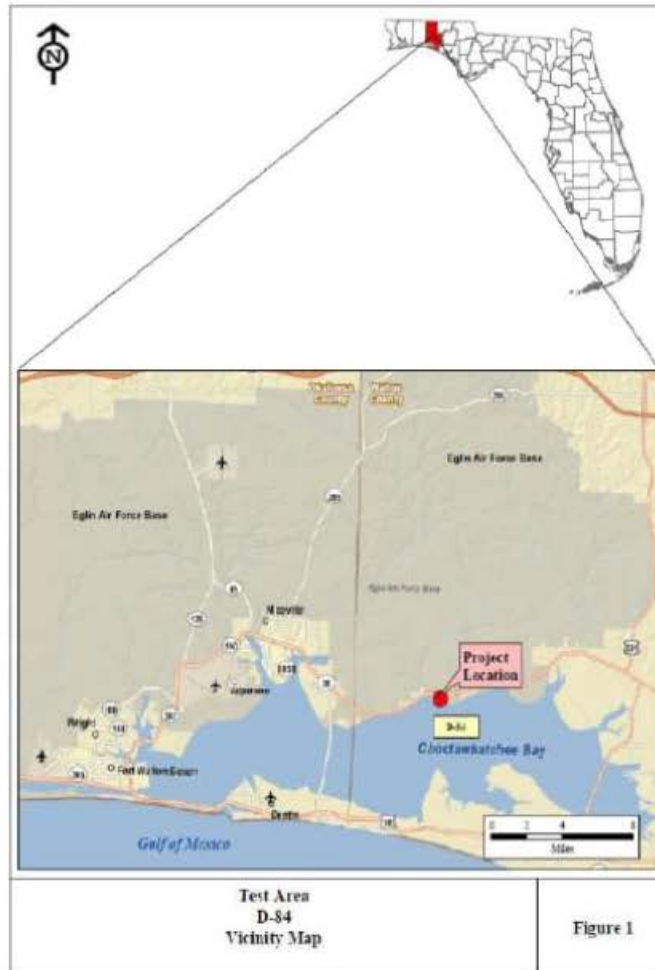
## 1.0 INTRODUCTION

### 1.1 PURPOSE

Eglin Air Force Base (AFB) intends to conduct waterside redevelopment activities at Test Area D-84, which is located along the northern portion of Choctawhatchee Bay. This Biological Assessment (BA) is being submitted to fulfill requirements under Section 7 of the Endangered Species Act of 1973 (ESA), and the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The objectives of this BA are to:

- Document all federally listed threatened and endangered (T&E) species and associated critical habitat, as well as essential fish habitat (EFH), that occur within the Zone of Influence (ZOI). The ZOI is defined as the total area and/or volume of water and substrate affected by redevelopment activities.
- Identify the actions that have the potential to impact, either beneficially or adversely, those documented species and habitats.
- Determine and quantify, as feasible, the effects these actions would likely have on federally listed species, critical habitat, and EFH.

Eglin AFB is located in northwest Florida and occupies 724 square miles of land area and approximately 142,000 square miles of airspace overlying land and water ranges. Eglin's Main Base is located adjacent to Valparaiso, Florida, about 10 miles northeast of Fort Walton Beach, Florida. Test Area D-84, which is part of Eglin AFB, is located at the northern shoreline of Choctawhatchee Bay (Figure 1). Test Area D-84 consists of a 37-acre upland land tract, along with waterfront property that adjoins water Test Area D-54 (located on Choctawhatchee Bay).



**Figure 1. Test Area D-84 Project Location**

An Environmental Assessment (EA) for development of the upland portion of the site was completed in 2002. A more recent EA pertaining to redevelopment actions along the waterfront portion of the site was completed in 2011 (U.S. Air Force, 2011). This BA was prepared to analyze the potential effects to federally listed species and EFH associated with the waterside redevelopment EA.

The purpose of Test Area D-84 waterside redevelopment is to provide water-based training facilities and access to adjacent upland training facilities to meet the continuing and increasing requirement for field test and training exercises, and “just-in-time-training.” Such training includes the use of waterborne facilities, including a pier and terminal platform, and stabilized shoreline for amphibious landing operations. Test Area D-84 is the only local Air Force base of operations where low current conditions conducive to long-distance swim/dive training and evaluation occur regularly, and where facilities needed to support these operations exist. Redevelopment of Test Area D-84 would result in a site combining water-based training facilities with access to upland facilities. Redevelopment of the waterside portions of the test area would potentially support a number of military groups and programs, including the following:

- 1<sup>st</sup> Special Operations Support Squadron (1 OSS)
- 720<sup>th</sup> Special Tactics Group (720 STG)
- 23<sup>rd</sup> Special Tactics Squadron (23 STS)
- Air Force 728<sup>th</sup> Air Control Squadron (728 ACS) - mission essential task listing training to meet long-term requirements.
- Air Force Special Operations Command (AFSOC) - testing and training with surveillance and coastal security systems.
- 720<sup>th</sup> Operations Support Squadron/Advanced Skills Training (OSS/AST) - combined land, sea, and air combat control training.
- Joint service training for the United States Navy’s Sea, Air, and Land Teams (SEALs), Marines, and Army Special Forces, to include the 7<sup>th</sup> Special Forces Group (Airborne) [SFG (A)].
- Joint service training of airborne and waterborne communications, intelligence, surveillance, and reconnaissance.

In addition, Test Area D-54 is one of the few water drop zones approved to support paratrooper drops. Special Tactics Forces personnel parachute into the waters of Test Area D-54 and then boat, scuba, or swim to Test Area D-84. Such training is expected to occur approximately four times per quarter. Other groups would schedule training as well, but do not currently have a specific projected usage.

## 1.2 FEDERAL SPECIES AND HABITATS CONSIDERED

One ESA-listed fish, the Gulf sturgeon (*Acipenser oxyrinchus desotoi*), occurs in Choctawhatchee Bay, at least seasonally. In addition, Choctawhatchee Bay is designated as Gulf sturgeon critical habitat. Gulf sturgeon and critical habitat are therefore included in this BA.

The ESA-listed smalltooth sawfish (*Pristis pectinata*), although once common in the northern Gulf of Mexico, is currently restricted to peninsular Florida and is not expected to occur in the study area. Due to the limited geographic range of the species, the probability of a sawfish occurring in the D-84 redevelopment ZOI is so low that impact analysis is not considered necessary. One ESA-listed marine mammal, the Florida manatee (*Trichechus manatus latirostris*), also occurs in Choctawhatchee Bay.

In addition to ESA-listed species and designated critical habitat, potential impacts to EFH are evaluated pursuant to the MSA. Descriptions of species, critical habitat, and EFH are provided in Chapter 3.

### 1.3 APPLICABLE REGULATORY REQUIREMENTS AND COORDINATION

#### Endangered Species Act

The purpose of the ESA, as amended, is to protect fish, wildlife, and plant species currently in danger of extinction, as well as those species that may become so in the foreseeable future. The ESA states that it is unlawful to take any such species within the United States or the territorial sea of the United States, or to take any such species upon the high seas. The term *take* is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct” (16 USC 1531-1544). Each federal agency is required to review its actions at the earliest possible time to determine whether any action it authorizes, funds, or carries out may affect listed species or such species’ designated critical habitat. If such a determination is made, consultation with the appropriate agency (U.S. Fish and Wildlife Service [USFWS] or NOAA Fisheries) is required.

The USFWS and NOAA Fisheries share responsibilities for administering the ESA, with NOAA Fisheries generally coordinating activities for marine and anadromous species and the USFWS coordinating ESA activities for terrestrial and freshwater species. NOAA Fisheries is responsible for conservation and permitting activities pertaining to the Gulf sturgeon. Activities affecting the Florida manatee, which occurs in freshwater, estuarine, and (typically) nearshore marine environments, are regulated by the USFWS.

#### Magnuson-Stevens Fishery Conservation and Management Act

The 1996 amendments to the MSA require, among other things, that NOAA Fisheries and the regional Fishery Management Councils designate EFH for species included in a fishery management plan. EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Federal agencies that fund, permit, or carry out

activities that may adversely affect EFH are required to consult with NOAA Fisheries regarding potential impacts and to respond in writing to NOAA Fisheries and Fishery Management Council recommendations. Adverse impacts are defined as impacts that reduce the quality and/or quantity of EFH and may include contamination, physical disruption, loss of prey, and reduction in species' fecundity.

#### **1.4 POTENTIAL ISSUES WITH SENSITIVE SPECIES AND HABITAT**

Demolition, construction, and dredging activities could impact listed and managed species and habitats. The primary potential impacts include siltation and turbidity, noise disturbance, direct physical impacts, and sediment removal. Gulf sturgeon could be affected by noise disturbance, physical strikes during construction, and entrainment during dredging operations. Gulf sturgeon critical habitat could be affected by increased turbidity. The Florida manatee could possibly be affected by noise disturbance, physical strikes, and loss of seagrass. Seagrass is also considered EFH. Additional potential impacts to EFH include increased water column turbidity and removal of substrate during dredging. These potential impacts are analyzed in Chapter 4.

## 2.0 DESCRIPTION OF THE PROPOSED ACTION

Redevelopment of the waterside facilities of Test Area D-84 would include:

- Demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier.
- Constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on an alignment that is similar to the existing pier.
- Contouring a portion of the shoreline to re-orient the existing boat ramp.
- Dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site.
- Installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress.
- Extending the existing bluff stabilization upland of the mean high water line.

All of these activities are considered necessary to use the training facility and to protect cultural resources that have been documented at the upland portion of the site. An expanded description of proposed activities is provided below. The locations of activities within the site are shown on Figure 2.





Figure 2. D-84 Redevelopment Elements

Eglin has submitted a joint permit application to the Florida Department of Environmental Protection/U.S. Army Corps of Engineers for dredging and filling of wetlands and submerged lands to remove the existing structures (remnant breakwaters, dock, and retaining walls), re-orient the existing boat ramp, re-build a pier along the same alignment of the existing dock, attenuate wave energy with a sheet piled structure mounted to the east side of the new dock, dredge a channel to minus 5 feet along the west side of the new dock (spoiling on site with no

discharge and possible re-use of spoils), re-grade (fill) the existing basin, and restore the shoreline where the retaining walls will be removed. The area where this work will occur has a gently sloping shoreline and coarse sandy soils.

#### *Removal of Existing Structures*

The remnant breakwaters, dock, and retaining walls will be removed before new construction begins. Removal of the existing pile structures will be accomplished using a vibratory hammer, and excavation will occur on the near-shore structures. All remnant piles and structures will be removed in their entirety and best management practices (BMPs) will be incorporated into the demolition plan. The BMPs may include a series of turbidity curtains for all in-water activities and silt fencing for all on-shore activities in order to minimize turbidity. The turbidity curtains will be anchored with tangle-resistant rope or surface anchors. The silt fencing will be Type IV (wire backed). Approved drawings and an erosion control plan are required as part of the permitting process.

#### *Re-orient Existing Boat Ramp*

The boat ramp will be re-established in the same area as the current remnant boat ramp. However, it will be shortened and re-oriented to minimize wetland impacts and maintenance needs. The material to be used for the ramp has not yet been determined, and will depend primarily on what can be funded as "in kind." It is likely that the material will be either concrete or an interlocking brick system. All work will be conducted with the appropriate BMPs in place, as described above.

#### *Reconstruct Pier*

A new pier, with a marginal terminal platform five feet above the current mean high water (MHW) and along the same alignment as the existing dock, will facilitate offloading of training supplies and provide temporary mooring. Reconstruction of the pier will involve placement of either 12-inch or 16-inch piles using a pile driving hammer. The materials to be used for the reconstructed pier will be determined by regulatory agencies. Use of CCA-treated materials is prohibited. All work will be conducted with the appropriate BMPs in place, as described above.

#### *Sheet Pile Structure*

A sheet pile structure designed to act as a wave attenuator will be mounted on the east side of the new pier. This structure will not extend to the existing soil surface.

### *Dredge Channel*

A channel of approximately 1,100 feet by 50 feet will be dredged to a depth of minus 5 feet below mean low water line using hydraulic dredging methods. All spoil material will be dewatered on a self-contained upland area located a sufficient distance from MHW to prevent turbid return water. All work will be conducted with the appropriate BMPs in place, including turbidity curtains and silt fencing as described previously. The channel will be cut with between a 3:1 slope and a 6:1 slope, depending on sediment type and transport over time. The channel will have a 50-foot channel bottom at 2.5-foot average dredge depth. This will produce a width at the top of the channel to be between 65 to 85 feet. For a 1,100-foot channel cut along a substrate slope of 0.3 to 0.45 percent and factoring in an over dredge amount as part of the engineering plans, the resulting area affected would be between 71,500 square feet (ft<sup>2</sup>) (6,643 square meters [m<sup>2</sup>]) and 93,500 ft<sup>2</sup> (8,686 m<sup>2</sup>) and the resulting volume of dredged material would be approximately 255,630 cubic feet (7,239 cubic meters [m<sup>3</sup>]). It is assumed that the basin floor slopes uniformly and that the required dredging depth would range from 5 feet to 0 feet over the course of the channel, for an average dredge depth of 2.5 feet. To date, the project has not been final designed, bid or awarded to a specific contractor. The time required to complete dredging operating is a function of method used, discharge rate, and geometry of the disposal area. In general, the majority of dredge operations will consist of mobilizing and building the dredge disposal area. Once that is complete, it is estimated that actual dredging of the channel will take approximately one week. Future maintenance dredging of the access channel is expected to occur every 20 years.

### *Fill/Re-grade Existing Basin, and Restore Shoreline*

A portion of the remnant boat basin (furthest area landward) will be filled with suitable fill material to properly shape the shoreline after the remnant sheet pile and retaining wall structures are removed. These areas will be re-graded using excavators. All work will be conducted with the appropriate BMPs in place, as described previously. The shoreline where retaining walls are to be removed will be restored and stabilized after re-grading. This may be accomplished by planting emergent wetland vegetation.

### 3.0 SPECIES AND HABITAT DESCRIPTIONS

#### 3.1 GULF STURGEON

The Gulf sturgeon is an anadromous fish, occurring in coastal rivers from Louisiana to the Suwanee River in Florida during the warmer months (when spawning takes place), and the Gulf of Mexico and its estuaries and bays in cooler months. Migration into rivers typically takes place in the spring, between February and April; migration back into the Gulf of Mexico occurs roughly between September and November (FWRI, 2010). Gulf sturgeon are bottom feeders, consuming primarily macroinvertebrates such as brachiopods, mollusks, worms, and crustaceans (NOAA Fisheries, 2010). Adult Gulf sturgeon feed primarily in brackish and marine waters during the cooler months, and forage very little during the warm months spent in riverine habitat. The Gulf sturgeon is federally listed under the ESA as threatened.

Choctawhatchee Bay provides important habitat for subadult and adult Gulf sturgeon, as evidenced by a large number of Gulf sturgeon that overwinter in the system. Tagged sturgeon have been primarily detected from 100 to 1,000 meters from shore, in water depths of 2 to 3 meters (Parauka et al., 2001). Such shoreline habitats in Choctawhatchee Bay are generally characterized by sandy substrates and relatively low salinity.

Sturgeon occurrence appears to be greater in the middle and eastern portions of the bay, and lesser in the western region. This distribution pattern may be correlated to prey availability and salinity. Ghost shrimp and the amphipod *Lepidactylus triarticulatus* are probably important food items for adult and subadult Gulf sturgeon overwintering in Choctawhatchee Bay (see discussion in Parauka et al., 2001). Ghost shrimp are typically found in substrates ranging from sandy mud to organic silty sand, and their densities were found to be greatest nearshore along the middle and eastern portions of the bay (Federal Register, 2003). Salinity is generally highest in the western portion of the bay and decreases in an eastward direction. The majority of tagged fish have been located in areas lacking seagrass (Fox et al., 2000); seagrass occurrence is also greatest in the western portion of the bay.

An on-going study conducted by Delaware State University to determine impacts from over-winter habitat degradation on Gulf sturgeon habitat use in Choctawhatchee Bay suggests that the area near D-84 is one of the most heavily utilized areas within Choctawhatchee Bay during the over-winter period (Fleming, 2010; Fleming et al., 2010). One receiver for this study was placed approximately 600 meters south from the end of the existing pier. Detections and number of sturgeon detected per month during the winter of 2009 – 2010 are shown below.

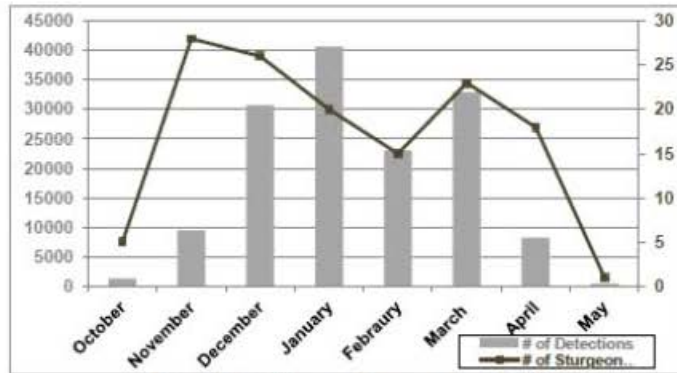


Figure 3. Gulf Sturgeon Occurrence near D-84 (Fleming, 2010)

During this time period (October 2009 – May 2010), 56 Gulf sturgeon were tagged and monitored, which included adult, subadult, and juvenile individuals. Currently Delaware State University has tagged 111 individuals. Between October 11, 2010 and November 23, 2010, the receiver at this location has received nearly 15,000 detections from 35 sturgeon (Fleming, 2010). While the increase in detections and sturgeon detected are likely a result from a higher number of tagged individuals from the previous year, this data still indicates that sturgeon activity in the area near D-84 begins in October, peaks in January and lasts until May.

### 3.2 GULF STURGEON CRITICAL HABITAT

Critical habitat for the Gulf sturgeon was designated in March 2003. Critical habitat is a term that refers to specific geographic areas that contain the essential habitat features necessary for the conservation of threatened and/or endangered species. Critical habitat areas may require special protection or management considerations for current populations as well as potential population increases necessary to achieve species recovery. Features include food, water, shelter, breeding areas, and space for growth, among other requirements. Seven primary constituent elements are identified in the Final Rule for the designation of Gulf sturgeon critical habitat, as follows:

1. Abundant food items, such as detritus, aquatic insects, worms, and/or molluscs, within riverine habitats for larval and juvenile life stages; and abundant prey items, such as amphipods, lancelets, polychaetes, gastropods, ghost shrimp, isopods, molluscs and/or crustaceans, within estuarine and marine habitats and substrates for subadult and adult life stages.

2. Riverine spawning sites with substrates that are suitable for egg deposition and development, such as limestone outcrops and cut limestone banks, bedrock, large gravel or cobble beds, marl, soapstone, or hard clay.
3. Riverine aggregation areas, also referred to as resting, holding, and staging areas, used by adult, subadult, and/or juveniles, and generally, but not always, located in holes below normal riverbed depths, that are believed necessary for minimizing energy expenditures during fresh water residency and possibly for osmoregulatory functions.
4. A flow regime (i.e., the magnitude, frequency, duration, seasonality, and rate-of-change of fresh water discharge over time) necessary for normal behavior, growth, and survival of all life stages in the riverine environment, including migration, breeding site selection, courtship, egg fertilization, resting, and staging, and for maintaining spawning sites in suitable condition for egg attachment, egg sheltering, resting, and larval staging.
5. Water quality, including temperature, salinity, pH, hardness, turbidity, oxygen content, and other chemical characteristics that are necessary for normal behavior, growth, and viability of all life stages.
6. Sediment quality, including texture and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages.
7. Safe and unobstructed migratory pathways are necessary for passage within and between riverine, estuarine, and marine habitats (e.g., an unobstructed river or a dammed river that still allows for passage).

Critical habitat for the Gulf sturgeon is composed of 14 geographic areas, or units. The units collectively encompass nearly 2,800 river kilometers and over 6,000 square kilometers of estuarine and marine habitat (Figure 3). Of significance to this BA is Unit 12, Choctawhatchee Bay in Okaloosa and Walton Counties, Florida (Figure 4). Unit 12 includes the main body of Choctawhatchee Bay, Hogtown Bayou, Jolly Bay, Bunker Cove, and Grassy Cove; all other bayous, creeks, and rivers are excluded at their mouth/entrances (Federal Register, 2003).



Figure 4. Gulf Sturgeon Critical Habitat  
(Source: NOAA Fisheries, 2010a)

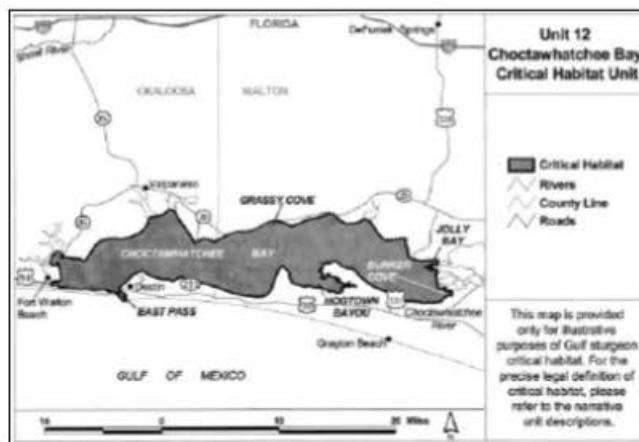


Figure 5. Gulf Sturgeon Critical Habitat, Unit 12  
(Source: Federal Register, 2003)

### 3.3 FLORIDA MANATEE

The Florida manatee, a subspecies of the West Indian manatee, occurs primarily in the southeastern United States. The manatee is a warm-water species, seeking shelter when water temperatures drop below approximately 20° Celsius (68° Fahrenheit), and is considered intolerant of prolonged exposure to water temperatures below 16° Celsius (61° Fahrenheit) (Haubold et al., 2006). Therefore, the species is generally restricted to inland and coastal waters of peninsular Florida and southeastern Georgia during the winter, where they occur in or near warm-water springs, industrial effluents, and other warm water sources (USFWS, 2009). In warm months, manatee distribution may expand considerably, and individuals have been sighted from Massachusetts to Texas (USFWS, 2009). Manatees may be found in a wide variety of freshwater, estuarine, and marine habitats. They feed primarily on seagrass and other marine and freshwater vegetation. Manatees may feed on benthic, floating, emergent, or bank vegetation (Haubold et al., 2006).

Florida manatees are listed as threatened under the ESA. The entire population is considered to be a single stock, although the USFWS has identified four regional management units (USFWS, 2009). Critical habitat has been designated in various areas of southern and eastern peninsular Florida, but does not occur in the Florida Panhandle. In January 2010, the USFWS announced a 12-month finding on a petition to revise critical habitat designation. The Service found that revisions to critical habitat are warranted, but that funding to do so is currently unavailable.

Manatee occurrence in Choctawhatchee Bay is not well documented. Occasional sightings are reported in the spring and summer. Manatees are not expected to occur during cold months due to low water temperature. It is assumed that some portion of the migrating manatee population moves through Choctawhatchee Bay, as the bay is part of the Gulf Intracoastal Waterway (GIWW) and functions as a travel corridor between the high-use areas of Apalachicola Bay and Mobile Bay (USGS, 2010). Two tagged manatees were recently reported to have moved from Alabama to Florida through the GIWW (DISL, 2010). The presence of seagrass, freshwater sources, and river access likely contribute to manatee occurrence in Choctawhatchee Bay (USGS, 2010). Seagrass (consisting of shoal grass [*Halodule wrightii*] and wigeon grass [*Ruppia maritima*]) is most prevalent in the western portion of the bay (USGS, 2004), several miles from the project site. Seagrass also occurs in the middle portion of the bay, including small areas near D-84. Seagrass occurrence in the middle segment of the bay is characterized as patchy (Ruth and Handley, 2007).

### 3.4 ESSENTIAL FISH HABITAT

The MSA (16 U.S.C. 1801 *et seq.*) established jurisdiction over marine fishery resources within the U.S. Exclusive Economic Zone. The Act mandated the formation of eight fishery management councils (FMC), which function to conserve and manage certain fisheries within their geographic jurisdiction. The Councils are required to prepare and maintain a Fishery Management Plan (FMP) for each fishery that requires management. Amendments contained in the Sustainable Fisheries Act of 1996 (Public Law 104-267) require the councils to identify EFH for each fishery covered under a FMP. EFH is defined as the waters and substrate necessary for spawning, breeding, or growth to maturity. The term “fish” is defined as “finfish, mollusks, crustaceans, and all other forms of marine animals and plant life other than marine mammals and birds.” NOAA Fisheries further clarified EFH (50 CFR 600.05 through 600.930) by the following definitions:

- **Waters:** Aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate.
- **Substrate:** Sediments, hard bottoms, structures underlying the waters, and associated biological communities.
- **Necessary:** The habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem.
- **Spawning, breeding, feeding, or growth to maturity:** Stages representing a species’ full life cycle.



The Gulf of Mexico Fishery Management Council (GMFMC) manages seven fishery resources in federal waters off the coasts of Texas, Louisiana, Mississippi, Alabama, and the Gulf coast of Florida to Key West (Table 1). The coral and coral reef FMP includes over 300 coral species and coral reef communities. The reef fish FMP includes 43 species of snappers, groupers, sea bass, triggerfish, jacks, wrasses, sand perch, and tilefish. Fish in this FMP are generally demersal, subtropical species that utilize similar habitats and are harvested by similar methods, both recreationally and commercially. Shrimp species include brown, white, pink, and royal red. The spiny lobster fishery is managed jointly by the GMFMC and the South Atlantic Fishery Management Council (SAFMC), with the GMFMC acting as the lead council. The Coastal Migratory Pelagics Management Unit consists of king mackerel, Spanish mackerel, cobia, dolphin, little tunny, cero mackerel, and bluefish.

In addition to the regional FMCs, the Gulf States Marine Fisheries Commission (GSMFC) and NOAA Fisheries also have management responsibilities for certain fisheries. The GSMFC is an organization of five states from the Gulf coast of Florida to Texas that manages fishery resources in state waters of the Gulf of Mexico. The GSMFC provides coordination and administration for a number of cooperative state/federal marine fishery resources. NOAA Fisheries has jurisdiction over highly migratory species, which include several species of tunas, sharks, swordfish, and billfish, in federal waters of the Gulf. Typically, the GSMFC and NOAA Fisheries work closely with regional Councils in preparing and implementing fishery management strategies.

**Table 1. Fish Species and Management Units for which Essential Fish Habitat has been Identified in the Gulf of Mexico**

Coastal Migratory Pelagics (7 species) <sup>1</sup>
Coral and Coral Reefs (over 300 species) <sup>2</sup>
Red Drum
Reef Fish (43 species)
Shrimp (4 species)
Spiny Lobster <sup>2</sup>
Stone Crab

<sup>1</sup> Jointly managed by the GMFMC (lead) and the SAFMC; Spanish mackerel are managed separately in state waters by the GSMFC

<sup>2</sup> Jointly managed by the GMFMC (lead) and the SAFMC

EFH that occurs in Choctawhatchee Bay, and that therefore potentially occurs near the D-84 redevelopment ZOI, is listed in Table 2. The listed habitat designated as EFH for a given species or species group may also provide indirect benefits to other managed species by supporting prey availability. For example, some managed shrimp species are prey items for some reef fish and coastal migratory pelagics.

**Table 2. Managed Species and Essential Fish Habitat (all life stages) in Choctawhatchee Bay**

Species or Species Group	Essential Fish Habitat
Coastal Migratory Pelagics	Estuarine waters
Red Drum	Estuarine habitat including sand, mud, oyster reefs, submerged aquatic vegetation, and/or emergent vegetation
Reef Fish	Estuarine waters, grass beds, emergent vegetation, and/or oyster reefs
Shrimp	Estuarine habitat including submerged aquatic vegetation, emergent vegetation, silty or muddy sand, non-vegetated mud, oyster reefs, and/or sand/shell/mud mixtures
Stone Crab	Estuarine habitat including submerged aquatic vegetation, oyster beds, and/or rock substrate

Source: GMFMC 2005; GMFMC 1998

In addition to establishing EFH, the MSA also directs NOAA Fisheries and the FMCs to characterize Habitat Areas of Particular Concern (HAPCs). HAPCs are subsets of EFH that are rare, especially ecologically important, particularly susceptible to human-induced degradation, or located in environmentally stressed areas. HAPCs typically include high-value intertidal and estuarine habitats, offshore areas of high habitat value or vertical relief, and habitats used for migration, spawning, and rearing of fish and shellfish. There are no HAPCs within the D-84 redevelopment ZOI.

## 4.0 DETERMINATION OF EFFECTS

### 4.1 GULF STURGEON

Potential impacts to the Gulf sturgeon include noise disturbance, direct physical impacts, and adverse modification of critical habitat. Critical habitat is discussed in Section 4.2. Potential noise disturbance and direct physical impacts, which includes injury or mortality during dredging operations, and physical strikes while placing dock piles, are discussed in this section.

#### *Noise Disturbance*

Demolition of existing structures, new pier construction, and dredging operations will produce underwater noise, some of which will be in low frequencies detectable by sturgeon. Noise disturbance will likely cause some sturgeon to avoid the D-84 redevelopment ZOI. However, avoidance will be localized and probably temporary, only occurring during and immediately after periods of construction activity. Sturgeon are expected to resume foraging and other behaviors within the ZOI during cessation of construction activities, and after the project is complete. A large area of presumably similar habitat is available within Choctawhatchee Bay. Therefore, the effects of noise disturbance to Gulf sturgeon are considered minor. Eglin Natural Resources believes noise disturbance **May Affect** but is **Not Likely to Adversely Affect** the Gulf sturgeon.

#### *Direct Physical Impacts*

Data regarding sturgeon entrainment during dredging operations is limited. However, sturgeon are susceptible to entrainment to some degree, with younger age classes presumably most at risk. Sturgeon larvae are the most vulnerable age class (USACE, 2010), but will not be affected because D-84 redevelopment activities will not occur in riverine areas where larvae could be present. Entrainment of adults and subadults has been documented; juvenile entrainment has not been documented, but this could be due to difficulty in identifying young sturgeon in dredge spoil material (USACE, 2010). Most documented impacts have been associated with hydraulic dredges (e.g., hopper dredges) entraining sturgeon in drag arms and impeller pumps, but mechanical dredges (e.g., clam shell) have also been documented to kill sturgeon (USFWS, 2009a).

Migrating and/or overwintering Gulf sturgeon are expected to occur in the D-84 redevelopment ZOI during cool months (approximately October to April). While not considered likely, it is possible that sturgeon could be entrained by the dredge/struck by the dredge bucket. The likelihood of entrainment is affected by sturgeon physiology and behavior, including swimming

ability (burst speed and endurance), station-holding behavior, and orientation in strong water flow (USACE, 2010; USACE, 2005). These metrics have not been measured specifically in Gulf sturgeon, but other sturgeon species have been investigated. Results of a limited amount of research suggest variability among species and within individuals of the same species. In general, juveniles are more likely than adults and subadults to be entrained due to lower burst speed. Juvenile Gulf sturgeon have been documented in areas of Choctawhatchee Bay near the D-84 location (Fleming et al., 2010). The likelihood of entrainment would be reduced by mitigation measures, including 1) keeping the intake portion of the dredge within the substrate, 2) temporarily stopping dredging operations if a Gulf sturgeon is observed (see USACE, 2008), and 3) conducting dredging activities between May and September (Fleming, 2010).

The insertion of dock piles into the substrate could result in physical contact with Gulf sturgeon. However, the probability that a sturgeon would be present at the time and location of any given pile placement is considered low. In addition, the disturbance and noise associated with vessels and equipment staging would likely cause any sturgeon to leave the area before commencement of construction activities.

Mitigation measures will be put into place to decrease the likelihood of impacts to sturgeon resulting from dredging and other operations. These measures may include:

1. Keeping the intake portion of the dredge within the substrate.
2. Installing dredging sediment curtains
3. Conducting dredging activities and other in-water operations during times when sturgeon are not likely to occur in the Choctawhatchee Bay (i.e., May through September), when possible

With implementation of these mitigation measures, Eglin Natural Resources believes direct physical impacts **May Affect** but are **Not Likely to Adversely Affect** the Gulf sturgeon.

#### 4.2 GULF STURGEON CRITICAL HABITAT

All of Choctawhatchee Bay is designated as Gulf sturgeon critical habitat. Among the seven identified primary constituent elements, three refer to riverine areas and are therefore not applicable to this BA. The remaining applicable primary constituent elements are discussed below.

*Abundant Food Items (Primary Constituent Element 1)*

The substrate in the vicinity of the proposed action, which consists primarily of sand and silty sand in the upper 10 to 15 ft (Jacobs and Associates, Inc., 2008), probably supports prey items preferred by adult and subadult Gulf sturgeon (i.e., amphipods, polychaetes, molluscs, crustaceans). Ghost shrimp and *Lepidactylus sp.* may be particularly important food sources in Choctawhatchee Bay, with densities estimated at 100 per m<sup>2</sup> and 15,000 per m<sup>2</sup>, respectively, in areas utilized by sturgeon (see discussion in Parauka et al., 2001). Dredging of the access channel would remove approximately between 6,643 and 8,686 m<sup>2</sup> of substrate surface, along with the associated prey species. However, this area represents only a small portion of such habitat found in the middle and eastern portions of Choctawhatchee Bay. As a comparison, there is approximately 24 miles (38,624 m) of northern coastline along the middle and eastern segments of the Bay (as defined in Ruth and Handley, 2007). Multiplying this number by 1,100 feet (335 m), the length of the proposed channel, results in total area of nearly 13 million m<sup>2</sup> (38,624 m x 335 m = 12,939,040 m<sup>2</sup>) of potentially similar substrate in the Choctawhatchee Bay. Therefore, channel dredging would only remove approximately between 0.05 percent  $[(6,643/12,939,040) \times 100]$  and 0.07 percent  $[(8,686/12,939,040) \times 100]$  of the total area of potentially similar habitat and associated prey items. In addition, benthic invertebrate species would be expected to recolonize the channel floor within a short time (maintenance dredging would periodically cause the process to repeat). Piling placement would result in no net loss of substrate surface area, as new piles would be sited at the same location as the old piles.

*Water Quality (Primary Constituent Element 5)*

Turbidity of the water column would result from several components of the proposed action, including demolition of existing breakwater/wave attenuators, headwall/upland retaining wall, and pier, construction of a new pier (including new pile placement), and channel dredging. However, relative to all sturgeon habitat available in Choctawhatchee Bay, turbidity would be localized. Turbidity would also be temporary. Some sediment would re-settle onto the bay substrate near the construction zone, while some would be dispersed by tidal movement and other water currents. In addition, BMPs would restrict the volume of water affected by turbidity and are described further in Chapter 5. Due to the localized and temporary nature of turbidity-producing activities, and the implementation of management practices, effects to the water column are not expected to be significant or long-term. No effects are expected to other water quality parameters such as temperature, salinity, pH, or oxygen content.

*Sediment Quality (Primary Constituent Element 6)*

As discussed under water quality (primary constituent element 5), a small amount of sediment would be displaced by pile insertions. However, the displacement would be local and temporary. In addition, the amount of sediment impacted would be small compared to the amount of comparable habitat available in Choctawhatchee Bay. Over time, the proposed action would improve the overall quality of sediments in the area as the existing creosote-treated piles would be removed.

*Migratory Pathways (Primary Constituent Element 7)*

Test Area D-84 redevelopment activities will not substantially affect migratory behavior of Gulf sturgeon, compared to existing conditions. Piles for the new pier will be placed in the same location as those of the old pier, resulting in no net increase in pier-related underwater obstructions. A small increase in either the number or size of piles utilized will not affect the ability of Gulf sturgeon to migrate between riverine, estuarine and marine habitats. In fact, the overall number of structures potentially in the pathway of migrating sturgeon will decrease because the existing breakwater/wave attenuators will be removed.

*Summary of Effects to Gulf Sturgeon Critical Habitat*

The proposed action would not appreciably affect the availability of prey items taken by Gulf sturgeon. Dredging and other activities would cause turbidity in the water column. However, the turbidity would be local and temporary, and suspended sediment would be controlled through BMPs such as sediment curtains (see Chapter 5 for a full description). Sediment quality would not be impacted. The area of sturgeon habitat affected is small (0.05 to 0.07 percent) relative to the area of presumably similar habitat available in Choctawhatchee Bay and benthic invertebrate species would be expected to re-colonize the channel floor within a short time. Placement of a new pier would not impede the migration of this species, and demolition of existing in-water structures would decrease the number of objects potentially encountered by migrating individuals. Therefore, Eglin Natural Resources believes the proposed action is **Not Likely to Adversely Modify** Gulf sturgeon critical habitat.

**4.3 FLORIDA MANATEE**

Potential impacts to the Florida manatee considered in this section include noise disturbance, direct physical impacts, and loss of food resources (seagrass). Noise and direct physical impacts would be possible only during warm months (approximately May to November), when manatees

occur along the coastline of northwest Florida. Impacts to seagrass could occur outside of this timeframe.

#### *Noise Disturbance*

Manatees in the vicinity of demolition, construction (including pile driving, and dredging activities) will perceive the associated noise and may avoid the area. Manatees vocalize in the range of 2.5 to 5 kilohertz (kHz) and can hear over a range of 400 Hertz to 46 kHz, with sensitivity sharply decreasing below 2 kHz (Miksis-Olds, 2006). Although noise frequencies and intensities associated with most of the general demolition and construction activities described in Chapter 2 are unknown, numerous studies suggest that noise produced during pile driving is generally below 2 kHz, with most of the acoustic energy between 100 Hz and 1 kHz (e.g., CALTRANS, 2010, Matuschek and Betke, 2009; Illinworth and Rodkin, 2007). Therefore, although manatees would perceive pile driving noise, most noise energy would be in frequencies below the range of their best hearing sensitivity. Avoidance of the area due to noise is expected to be localized and temporary, only occurring during and immediately after periods of construction activity. Avoidance of the area is not expected during pauses in construction activities and after the project is complete. Given the low incidence of documented manatee occurrence, and the temporary and localized nature of noise associated with the project, Eglin Natural Resources believes noise disturbance will have **No Affect** on the Florida manatee.

#### *Direct Physical Impacts*

Although manatee use of Choctawhatchee Bay is not considered high, manatees could occur in the D-84 redevelopment ZOI and potentially encounter vessels or equipment involved with dredging and pile driving operations. Manatees may be impacted by being struck by a vessel or propeller, or being crushed between a vessel and the bottom or pier (FWC, 2010). Manatees may also be impacted by being struck by other objects such as dredging equipment. Direct impacts from vessels and other equipment would be avoided through implementation of standard manatee conditions for in-water work, which are provided by the USACE and USFWS (USACE, 2009). The specific measures applicable to Okaloosa and Walton counties are listed below, and are also provided in Chapter 5. The measures would only be applicable during warm months (approximately May to November), when manatee distribution extends to northwest Florida.

1. All personnel associated with the project shall be instructed about the potential presence of manatees and the need to avoid collisions with and injury to manatees. All construction personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

2. During warm months (May to November), all vessels associated with the project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
3. All on-site project personnel are responsible for observing water-related activities for the presence of manatees. All in-water operations must be shutdown if a manatee comes within 50 feet of the operation. Activities will not resume until the manatee has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.
4. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission Hotline at 1-888-404-FWCC. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville at 1-904-731-3336.

With implementation of the standard manatee conditions, Eglin Natural Resources believes direct physical impacts will have **No Affect** on the Florida manatee.

#### *Seagrass Impacts*

Seagrass, one of the principal components of the manatee diet, occurs in four small patches within the project area in water depths of approximately two feet (HDR, 2010). The patches all consist of shoal grass, and are located within approximately 250 to 400 feet of the existing pier and 200 to 300 feet of the shoreline (Figure 5). Substrate coverage within the patches ranges from 30 to 50 percent, and the area between plants is bare sand. Based on survey results, seagrass occurrence appears to have expanded somewhat between the summers of 2009 and 2010 (Figure 6).





Figure 5. Seagrass Occurrence near the Test Area D-84 Redevelopment Project Site in 2009  
Source: HDR, 2010



Figure 6. Change in Seagrass Occurrence near Test Area D-84 from 2009 to 2010  
 Source: HDR, 2010

Potential impacts to seagrass include physical disturbance and siltation. Physical disturbance could result from contact with vessels and other equipment associated with demolition, construction, and dredging activities that move through the project area. Physical contact could result in plants being uprooted or crushed. Siltation due to increased turbidity could result in seagrasses being partially or completely covered by sediment, thereby decreasing photosynthetic ability and health of the plants. To prevent impacts due to physical contact, construction personnel will be instructed to avoid the areas containing seagrass patches. This requirement will apply to vessels and equipment conducting operations, and also during transit to and from the work site. Siltation will be avoided by implementation of BMPs, which will be outlined in Chapter 5.

Requirements to avoid areas of known seagrass occurrence and implementation of BMPs are expected to substantially reduce the risk of impacts to seagrass. In addition, the seagrass patches are small and likely do not constitute important feeding areas for manatees. More extensive, continuous seagrass beds occur in the western portion of Choctawhatchee Bay. Therefore, Eglin Natural Resources believes potential seagrass-related impacts will have **No Affect** on the Florida manatee.

#### 4.4 ESSENTIAL FISH HABITAT

EFH identified within Choctawhatchee Bay, and therefore potentially occurring near the D-84 redevelopment project ZOI, is listed in Table 2. However, three of the identified habitat types do not occur near the project site. Emergent vegetation does not occur at shoreline areas that could be affected by redevelopment activities. Sporadic occurrences of relic individual oyster shells and clusters were found near the former boat basin and dock structures during seagrass surveys (HDR, 2010). However, this limited incidence of oyster shell presence is not considered to constitute oyster reef EFH. Finally, rock substrate has not been identified in the area. EFH present within the ZOI consists of the estuarine water column, seagrass, and non-vegetated substrate. Non-vegetated substrate consists primarily of sand and silty sand. Muddy sand and mud substrate could possibly occur in the area but was not identified during field investigations. Demolition and construction activities may potentially impact these EFH components; however, implementation of management actions, described below, is expected to substantially reduce potential impacts. Therefore, Eglin Natural Resources believes waterside redevelopment activities will **not adversely affect** EFH.

##### *Water Column*

Potential impacts to the water column will be limited to increased turbidity resulting from project activities. Sediment will be re-suspended during removal of the existing breakwater, wave attenuators, and pier, and during new pier construction, shoreline contouring, and dredging operations. The potential effects of increased turbidity on federally managed species include avoidance of the impacted area, minor physiological effects such as interference with respiratory functions, and indirect effects related to light reduction. Reduced light penetration could affect the photosynthetic ability of phytoplankton (thereby reducing its availability as a food source) and seagrass. Reduced photosynthesis could decrease the amount of dissolved oxygen released into the water column during the day. However, turbidity would be temporary and localized to a small area relative to the amount of similar habitat available in the bay. Sediment will re-settle onto the substrate near the construction zone or be dispersed by tidal movement and water currents. In addition, BMPs will restrict the volume of water affected by turbidity. These practices are described further in Chapter 5. Due to the localized and temporary nature of

turbidity-producing activities, and the implementation of management practices, effects to the water column are not expected to be significant or long-term, and may result in only minor, temporary impacts to EFH or federally managed species. No effects are expected to other water quality parameters such as temperature, salinity, pH, or oxygen content.

#### *Seagrass*

As described in Section 4.3 and shown in Figures 5 and 6, four patches of seagrass (shoal grass) were identified during recent field investigations (HDR, 2010). The patches occur in water depths of approximately two feet, and are located within approximately 250 to 400 feet of the existing pier and 200 to 300 feet of the shoreline. Substrate coverage within the patches ranges from 30 to 50 percent, and the area between individual plants is bare sand. Shoot heights ranged from two to four inches. Based on the results of successive surveys, seagrass occurrence appears to have expanded somewhat between the summers of 2009 and 2010. The patchy occurrence is consistent with characterizations provided by other researchers (Ruth and Handley, 2007; USGS, 2004). Seagrass is more prevalent in the western portion of Choctawhatchee Bay, where it also occurs in more continuous distribution. In the middle portion of the bay, including the area adjacent to D-84, distribution is considered patchy.

Potential impacts to seagrass include physical disturbance and siltation. Physical disturbance could result from contact with vessels and other equipment associated with demolition, construction, and dredging activities in the project area. Physical contact could result in uprooting or crushing of individual plants. Siltation due to increased turbidity could result in seagrass being partially or completely covered by sediment, thereby decreasing photosynthetic ability and health of the plants. To prevent impacts due to physical contact, construction personnel will be instructed to avoid the areas containing seagrass patches. This requirement will apply to vessels and equipment conducting operations, and also during transit to and from the work site. Seagrass exclusion zones will be identified, avoided, and protected with floating turbidity barriers. Siltation will be avoided by implementation of BMPs. A full list of management practices is provided in Chapter 5. Requirements to avoid areas of known seagrass occurrence and implementation of BMPs are expected to substantially reduce the risk of impacts to seagrass.

#### *Non-Vegetated Substrate*

Non-vegetated substrate in the D-84 redevelopment ZOI consists primarily of sand and silty sand. Muddy sand and mud substrate could possibly occur in the area but has not been identified during field investigations (HDR, 2010; Jacobs and Associates, Inc., 2008). Demolition and construction activities, including pile placement, would temporarily affect non-vegetated bottom

habitat. The amount of sediment affected during such activities, however, will be small relative to the total area of such habitat available along the northern Choctawhatchee Bay shoreline. Dredging operations are considered to have greater potential to affect the substrate.

Dredging of the access channel would remove approximately between 6,643 and 8,686 m<sup>2</sup> of substrate surface and 7,239 m<sup>3</sup> (255,630 ft<sup>3</sup>) of sediment volume, along with associated benthic species that may be considered prey for managed fish species. However, the project area represents only a small portion of such habitat found in the middle and eastern portions of Choctawhatchee Bay. As a comparison, there is approximately 38,624 m (24 miles) of northern coastline along the middle and eastern segments of the bay (as defined in Ruth and Handley, 2007). Multiplying this number by 335 m (1,100 feet) (the length of the channel) results in nearly 13 million m<sup>2</sup> (38,624 m x 335 m = 12,939,040 m<sup>2</sup>) of similar substrate area. Multiplying the available substrate area by 0.76 meters (2.5 feet) (the average depth of the channel) results in nearly 10 million m<sup>3</sup> (12,939,040 m<sup>2</sup> x 0.76 m = 9,833,670 m<sup>3</sup>) of sediment volume available. Therefore, channel dredging would remove only about 0.07 percent [(7,239/9,833,670) x 100] of the total volume of potentially similar habitat and associated prey items available in the middle and eastern segments of Choctawhatchee Bay. In addition, benthic invertebrate species would be expected to re-colonize the channel floor within a short time (maintenance dredging would periodically cause the process to repeat). The proposed action would improve the quality of the sediment by removing the existing creosote-treated piles from the old pier. If unusual soil coloration and/or odors are detected, the 96 CEG/CEVR will be contacted and any hazardous wastes would be handled by the contractor in accordance with applicable federal and state laws and regulations. – see Section 4.3.7 in Preliminary Draft EA.

#### 4.5 SUMMARY OF CONCLUSIONS

Based on analysis in Chapter 4, Gulf sturgeon may be affected by noise disturbance and direct physical impacts. Noise may cause individual sturgeon to temporarily avoid the area near project activities. However, avoidance would be temporary, and large areas of similar habitat are available in Choctawhatchee Bay. There is a slight possibility that sturgeon could be entrained during dredging, if conducted during cold months, and physically struck during pile placement. The likelihood of entrainment would be decreased by mitigation measures. Physical strikes are considered unlikely, as sturgeon would probably leave the area near pier construction due to noise and other disturbance.

Potential impacts to Gulf sturgeon critical habitat were also analyzed. The proposed action would not appreciably affect the availability of prey items. Dredging and other activities would cause turbidity in the water column, but the turbidity would be local and temporary, and suspended sediment would be controlled through BMPs such as sediment curtains (see Chapter 5

for a full description). Sediment quality would not be impacted. The area of sturgeon habitat affected is small relative to the area of presumably similar habitat available in Choctawhatchee Bay. Placement of a new pier would not impede the migration of this species, and demolition of existing in-water structures would actually decrease the number of objects potentially encountered by migrating individuals.

The Florida manatee could possibly be affected by noise disturbance and direct physical impacts (if project activities occur during warm months), and loss of seagrass. Given the low incidence of documented manatee occurrence and the temporary and localized nature of noise associated with the project, the probability of noise-related impact is considered low. Manatees could be struck by vessels or other equipment during demolition and construction activities. However, implementation of standard construction conditions will substantially reduce the possibility of physical strikes. Seagrass occurrence in the area is small and patchy, and the area offshore of D-84 is not likely an important manatee feeding area. Seagrass exclusion zones will be established to ensure physical disturbance does not occur. In addition, BMPs will be in place to minimize siltation and turbidity.

Known EFH that occurs in the D-84 redevelopment ZOI consists of the estuarine water column, seagrass, and non-vegetated substrate (primarily sand). These components of EFH could be affected by demolition and construction activities through turbidity and siltation, physical disturbance to seagrass, and sediment removal resulting from dredging. Turbidity and physical disturbance of seagrass will be minimized through BMPs. Dredging will remove sediment and the associated benthic species that could function as prey for managed fish species. However, the amount of sediment removed is a small fraction of the total amount of similar habitat available in northern Choctawhatchee Bay. In addition, benthic species are expected to recolonize the channel floor.

NOAA Fisheries will be notified if any of the actions described in this proposed action are modified, or if additional information on listed species becomes available. If impacts to listed species or habitats occur beyond what has been considered in this assessment, operations will cease and the agencies will be notified. Any modifications or conditions resulting from consultation will be implemented prior to commencement of activities. Eglin Natural Resources believes this fulfills all requirements of the ESA and MSA, and that no further action is necessary.

## 5.0 MITIGATIONS AND BEST MANAGEMENT PRACTICES

Potential impacts to the Gulf sturgeon, Gulf sturgeon critical habitat, Florida manatee, and EFH are described in Chapter 4. Throughout the analyses, mitigation and management actions designed to avoid or substantially minimize potential impacts are described or referenced. All management actions associated with the proposed action are provided below.

### *Best Management Practices to Minimize Siltation and Turbidity*

- A series of turbidity curtains will be put in place for all in-water activities.
- Turbidity curtains will be anchored with tangle-resistant rope or surface anchors.
- Type IV (wire backed) silt fencing will be used for all on-shore activities.
- An erosion control plan will be implemented.
- All dredge spoil material will be de-watered on a self-contained upland area located a sufficient distance from MHW to prevent turbid return water.

### *Mitigation Measures for Gulf Sturgeon during Dredging and Pile Driving Operations*

- Intake portion of the dredge will remain within the substrate when dredge is in operation.
- Sediment curtains will be used during dredging operations.
- Avoid dredging and pile driving operations between May and September, if possible.
- If dredging or pile driving operations occur between October and April and a Gulf sturgeon is observed, activities will temporarily stop.

### *Standard Manatee Conditions for In-Water Work*

- All project personnel will be instructed about the potential presence of manatees and the need to avoid collisions with and injury to manatees. All construction personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.
- During warm months (May to November), all vessels associated with the project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- All on-site project personnel are responsible for observing water-related activities for the presence of manatees. All in-water operations must be shutdown if a manatee comes within 50 feet of the operation. Activities will not resume until the manatee has moved

beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

- Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission Hotline at 1-888-404-FWCC. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville at 1-904-731-3336.

*Seagrass Management Measures*

- Establish a seagrass exclusion zone in areas of known seagrass occurrence.



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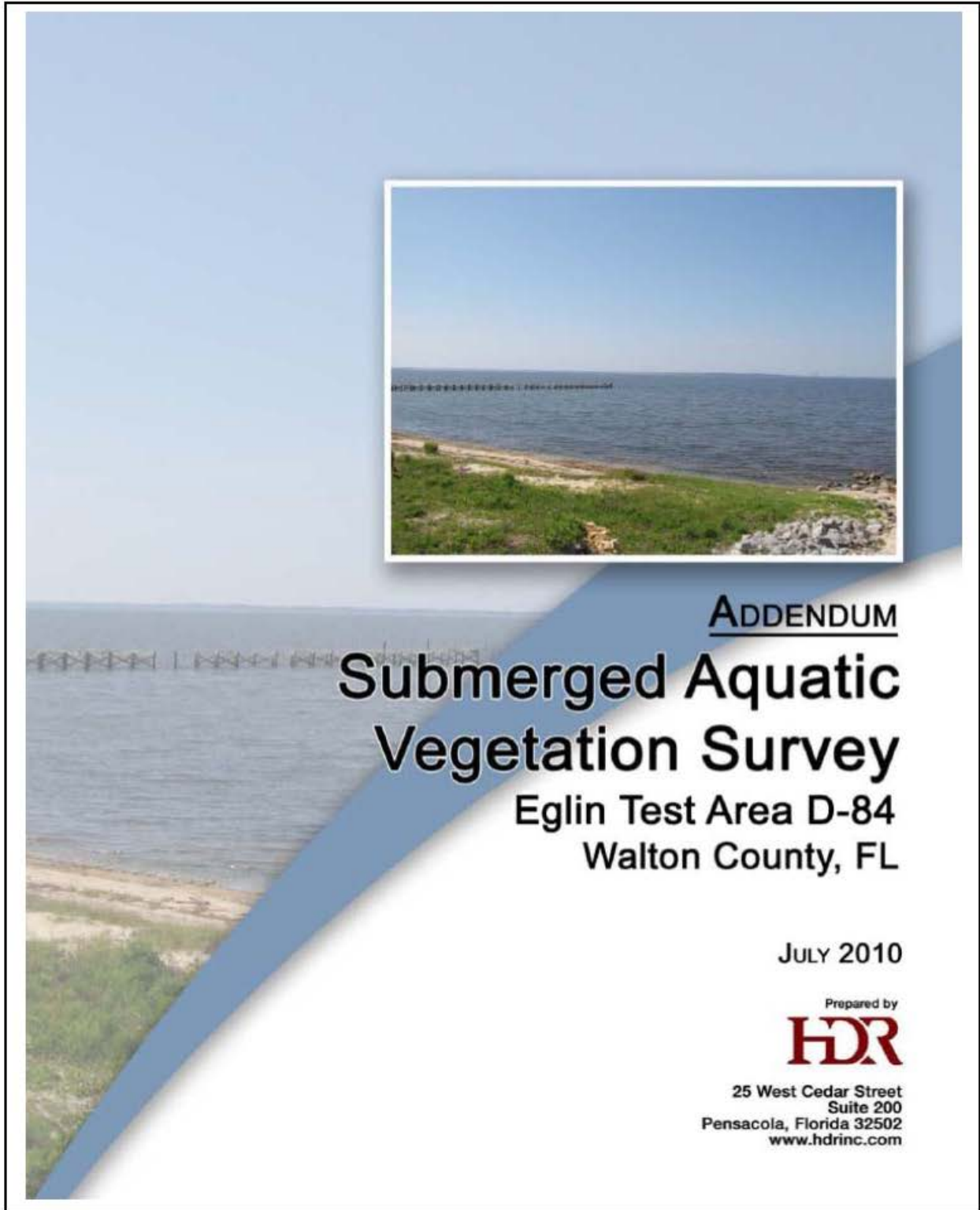
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APPENDIX C.  
SUBMERGED AQUATIC VEGETATION SURVEYS

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**Addendum to Submerged Aquatic Vegetation Survey**  
Eglin Test Area D-84  
July 2010

**Submerged Aquatic Vegetation Survey  
Addendum July 2010**

HDR Engineering, Inc. (HDR) was tasked with conducting a Submerged Aquatic Vegetation (SAV) survey for the proposed dredging of a channel aligned with the existing relic pier structure at Eglin Test Area D-84. The task was to supplement the SAV survey conducted in June 2009. The project did not have significant advancement in the last year. The information collected from this survey will be used to assist with the regulatory permitting and biological resource coordination that will be required to properly authorize the proposed dredging.

On July 14, 2010, environmental scientists with HDR conducted a SAV survey on an approximately 26-acre portion of the Choctawhatchee Bay adjacent to the existing shoreline at Eglin Test Area D-84. The SAV survey boundary and SAV locations are depicted on the attached 2010 Aerial Map. In addition, attached is a 2010 Aerial Map Close Up that represents the changes to SAV areas from 2009 to 2010.

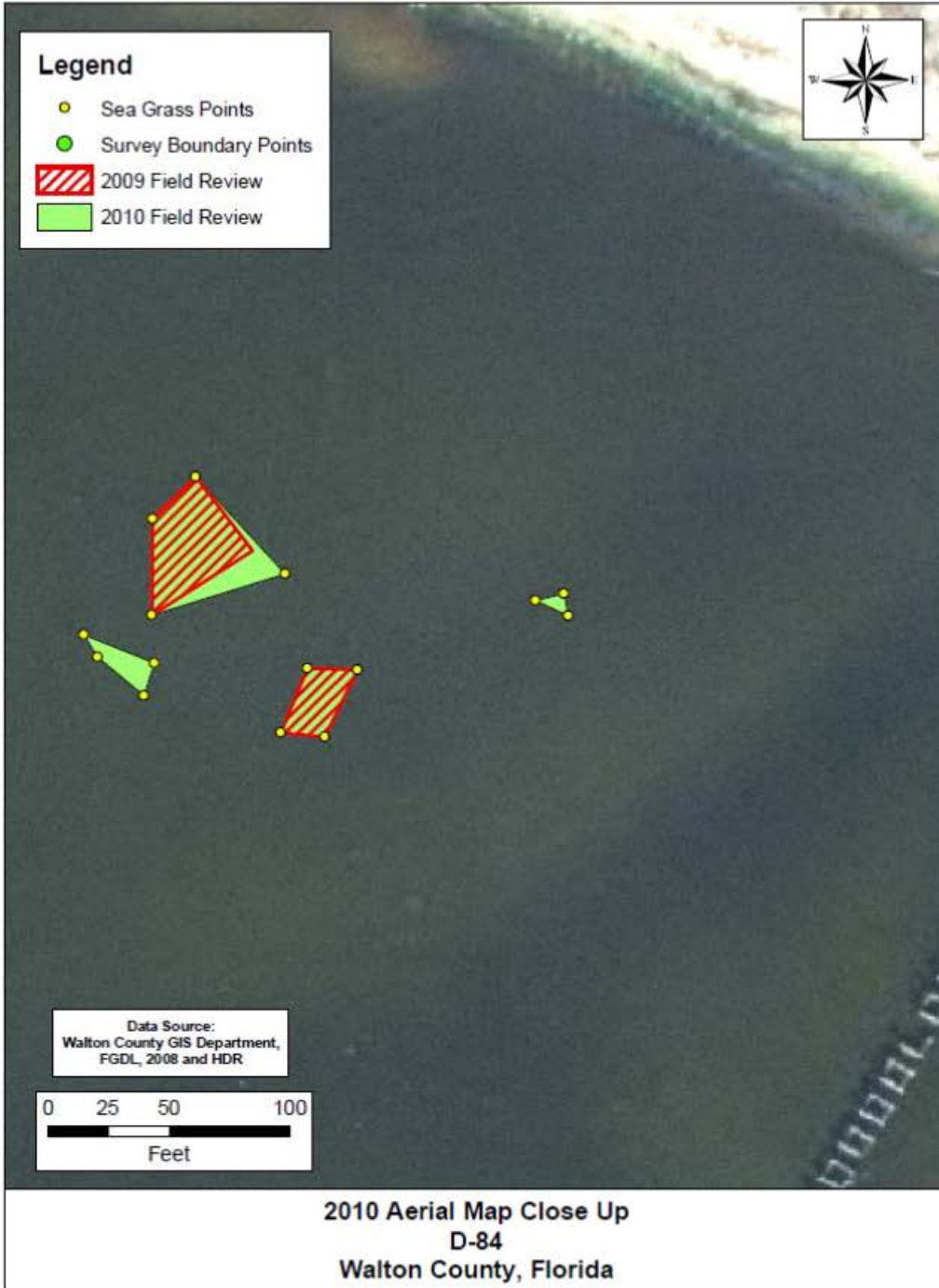
Site conditions during the survey were favorable with good visibility, minimal diurnal winds, and limited cloud cover.

The purpose of this survey was to identify the presence of any SAV or other benthic resources that could be impacted by the proposed dredging of an access channel. There was one species of SAV present within the survey area. Four small patches of *Halodule wrightii* were located in a depth of approximately -2 ft. In the areas of SAV, the coverage of vegetation is between 30% and 50%. This means that the vegetation itself covers approximately one-third to one half of the SAV patch area as viewed from above. The area in between the individual plants was bare sand. The shoot heights were measured to be between 2 and 4 inches in height and there was minimal variation in coverage and height between the four areas identified.

No impacts to the existing SAV areas are expected to result from the proposed dredging, however the SAV locations will be utilized during design as a noted resource and best management practices should be utilized during construction to avoid sedimentation of these areas.







Eglin Test Area D-84 SAV Survey  
July 2010



Picture 1. View of SAV survey area looking east.



Picture 2. View of SAV survey area looking east.



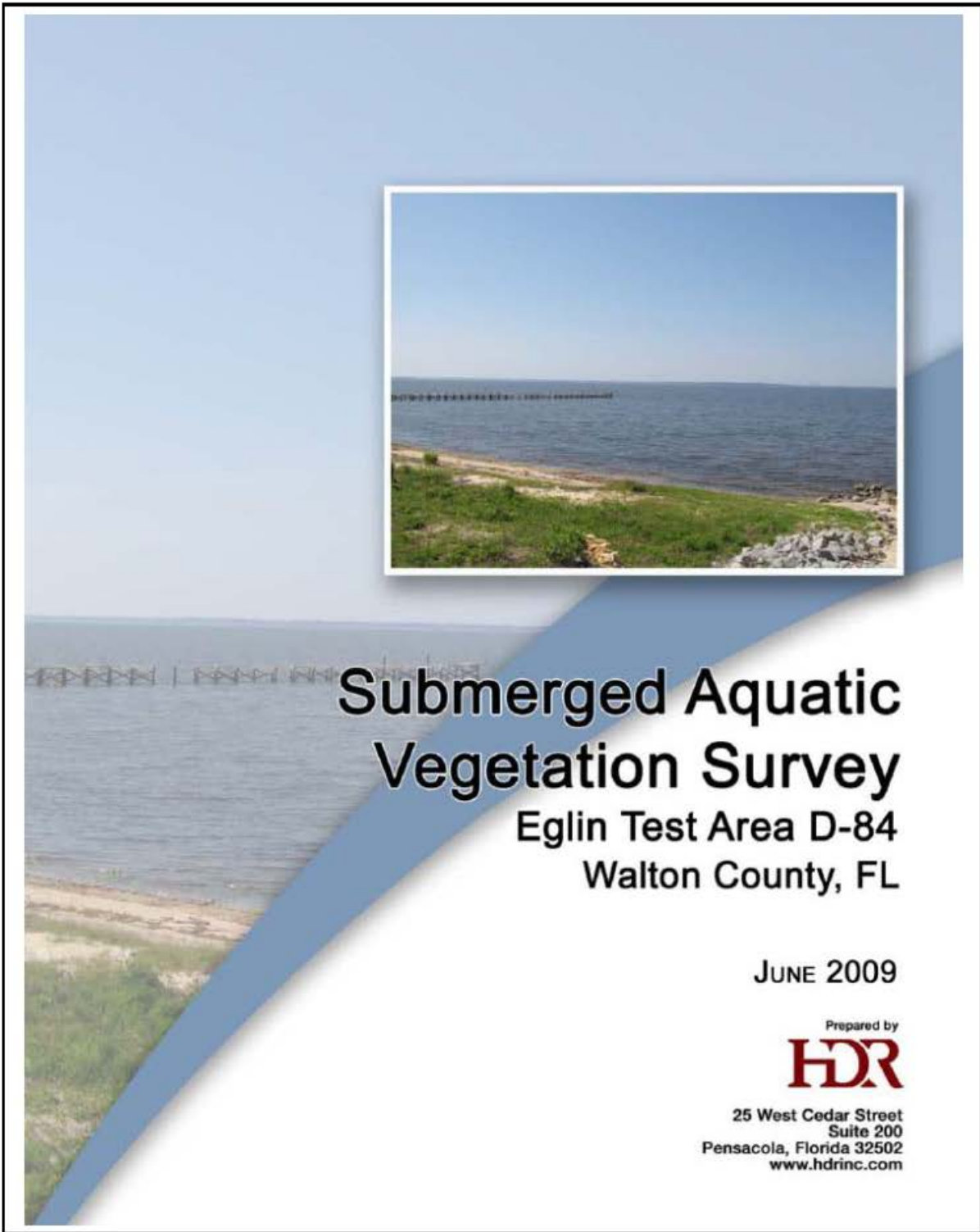
Eglin Test Area D-84 SAV Survey  
July 2010



Picture 3. View of SAV survey area looking south.



Picture 4. Snorkeling along marked transects.



# Submerged Aquatic Vegetation Survey

Eglin Test Area D-84  
Walton County, FL

JUNE 2009

Prepared by



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**Submerged Aquatic Vegetation Survey**  
Eglin Test Area D-84

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**Submerged Aquatic Vegetation Survey**  
Eglin Test Area D-84

**Survey Report**

**Executive Summary**

HDR Engineering, Inc. (HDR) was tasked with conducting a Submerged Aquatic Vegetation Survey for the proposed dredging of a 900' X 50' channel aligned with the existing relic pier structure at Eglin Test Area D-84. A field reconnaissance/snorkeling survey of the property was conducted to identify the presence of any submerged aquatic vegetation (SAV) on site and to assess the site for coverage, species, and height of vegetation. The survey did yield one species of SAV that is present within the survey area but not within the proposed project limits.

**1.0 Introduction and Site Conditions**

On June 1-3, 2009, environmental scientists with HDR conducted a SAV Survey on an approximately 26-acre portion of the Choctawhatchee Bay adjacent to the existing shoreline at Eglin Test Area D-84. The SAV survey area is depicted on an aerial map in the appendix of this report. The eastern boundary of the SAV survey area extended beyond the location of the former boat basin and dock structures. A pile of rubble rock extending perpendicular from the shoreline to approximately 25 ft. below the assumed mean high water line defined the western boundary of the SAV survey area. The southern boundary of the survey area was located parallel to the shoreline to a point where a -5 ft. depth could be measured with existing equipment. The supratidal zone within the survey area is hardened with an interlocking system of blocks used to stabilize the shoreline and to provide a surface for amphibious vehicle landings. The subtidal zone within the surveyed area is comprised of unconsolidated quartz sand with sporadic occurrences of relic oyster shells and translocated, imported rubble rock. Areas nearest to the dock structures had the greatest occurrence of relic oyster shells and woody construction debris. This area of Choctawhatchee Bay is not historically known to have a presence of SAV.

Site conditions during the survey were favorable with good visibility, minimal diurnal winds, and limited cloud cover.

**2.0 Purpose of Survey**

The purpose of this survey was to identify the presence of any SAV or other benthic resources that could be impacted by the proposed dredging of an access channel. The information collected from this survey will be used to assist with the regulatory permitting and biological resource coordination that will be required to properly authorize the proposed dredging.



## Submerged Aquatic Vegetation Survey

Eglin Test Area D-84

### 3.0 Study Methodology and Materials

During field visits on June 1-3, 2009, HDR environmental scientist mobilized to the site and conducted snorkeling surveys on an approximately 26-acre portion of the Choctawhatchee Bay adjacent to the existing shoreline at Eglin Test Area D-84. The survey area is depicted on an aerial map in the appendix of this report. This survey area encompassed areas beyond the proposed dredge limits of the channel at Eglin Test Area D-84 and extended into water depths greater than -5 ft. – the proposed depth of the dredged channel. The site was snorkeled and surveyed with the use of a sub-meter accurate GPS unit, a tape measure, a kayak, a measuring pole (for depth), marking poles, and a 1 meter square PVC transect. Survey boundaries were established by collecting GPS points on the perimeter of the area and transects were marked every 20-feet perpendicular to the shoreline. Environmental scientists snorkeled transects using the GPS unit, marking poles, and tape measures to identify and quantify any SAV or other benthic resources that were present.

### 3.1 Occurrence of Submerged Aquatic Vegetation

There was one species of SAV present within the survey area approximately 250 ft. from the western edge of the proposed limits of dredging. Two small patches of *Halodule wrightii* measuring approximately 18'X10' and 12'X8' respectively were located in a depth of -2 ft. These patches were relatively sparse in coverage (<50% coverage) and the only SAV noted in the survey area.

### 3.2 Density and Height of Submerged Aquatic Vegetation

In the areas where the SAV was identified, the coverage of vegetation is between 30% and 50%. This means that the vegetation itself covers approximately one-third to one half of the area as viewed from above. The area in between the individual plants was bare sand. The shoot heights were measured to be between 2.4 and 3.5 inches in height and there was minimal variation in coverage and height between the two areas identified.

### 3.3 Additional Benthic Resources

The snorkeling survey was also done to identify any additional benthic resources within the SAV survey area. Sporadic occurrences of relic individual oyster shells and clusters were noted near the former boat basin and dock structures. Some of the relic oyster clusters had a species of macroalgae (*Hypnea spp.*) attached. No additional resources were identified within the survey area.

## Submerged Aquatic Vegetation Survey

Eglin Test Area D-84

### 4.0 Conclusions

There are occurrences of *Halodule wrightii* within the survey area but not within the proposed limits of dredging. This grass is relatively hardy, and is known as a pioneer species in bare sediment habitats. No impacts to the existing SAV areas are expected to result from the proposed dredging however best management practices should be utilized during construction to avoid sedimentation of these areas.

## Submerged Aquatic Vegetation Survey

Eglin Test Area D-84

### Appendix

The following information can be found in the Appendix.

- Location Map
- Vicinity Map
- Submerged Aquatic Vegetation Survey Aerial Map
- Site Photographs







Eglin Test Area D-84 SAV Survey  
June 2009



Picture 1. View of SAV survey area looking east.



Picture 2. View of existing shoreline within the SAV survey.

Eglin Test Area D-84 SAV Survey  
June 2009



Picture 3. Locating survey transects with a GPS.



Picture 4. Snorkeling along marked transects.

Eglin Test Area D-84 SAV Survey  
June 2009



Picture 5. Surveying from kayak in the shallows within the basin.



Picture 6. *Halodule wrightii* and macroalgae found in survey area.

**APPENDIX D.**  
**PUBLIC REVIEW PROCESS**

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The public review process provides an opportunity for the public to comment on federal actions addressed in NEPA documents. A public notice was placed in the *Northwest Florida Daily News* announcing the availability of the Draft EA and FONSI/FONPA for public review and comment. A copy of the publication as it ran in the newspaper on July 5, 2012 is shown below.

**Public Notification**

In compliance with the National Environmental Policy Act, Eglin Air Force Base announces the availability of a Draft Environmental Assessment (EA) and Finding of No Significant Impact/Finding of No Practicable Alternative for the proposed Test Area D-84 Waterside Redevelopment at Eglin Air Force Base, Florida, for public review and comment.

The Proposed Action addressed in this EA includes demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall, and pier, constructing a new pier (approximately 12 feet wide by 450 feet long) and terminal platform on a similar alignment as the existing pier, contouring a portion of the shoreline to re-orient the existing boat ramp, dredging an access channel (approximately 50 feet wide by 1,100 feet long) to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site, installing approximately 300 feet of shoreline protection (articulating block mattress) extending west from the preexisting articulating block mattress, extending the existing bluff stabilization upland of the mean high water line.

Your comments on this Draft EA are requested. Letters and other written or oral comments provided will be addressed and may be published in the Final EA. Any personal information provided, including private addresses, will be used only to identify your desire to make a statement during the public comment period or to compile a mailing list to fulfill requests for copies of the Final EA or associated documents. However, only the names and respective comments of respondent individuals will be disclosed: personal home addresses and phone numbers will not be published in the Final EA.

The Draft Environmental Assessment and Finding of No Significant Impact/Finding of No Practicable Alternative are available on the web at [www.eglin.af.mil/environmentalassessments.asp](http://www.eglin.af.mil/environmentalassessments.asp) from Jul. 5 until Aug. 19, 2012. For more information, contact Mike Spaits, 96th Air Base Wing Environmental Public Affairs, 101 W. D Ave., Ste. 110, Eglin AFB, Florida 32542 or email: [mike.spaits@eglin.af.mil](mailto:mike.spaits@eglin.af.mil). Tel: (850) 882-2836; Fax: (850) 882-3761.

Comments must be received by Aug. 24, 2012.

No public comments on the Draft EA and Draft FONSI/FONPA were received over the 45-day comment period.

## APPENDIX E. AIR QUALITY

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Mobile Sources = Any kind of vehicle or equipment with a gasoline or diesel engine (roadway vehicles, construction equipment, trains, airplanes, ships).

Non-Point Sources = Small businesses, offices and residences, wildfires, dirt roads.

Point Sources = Stationary sources of emissions, such as factories, power plants, refineries, and other large facilities.

### *Demolition and Shore Protection*

#### Possible construction equipment

- Excavators (2 min)
- Dozer
- Dump Trucks (to haul debris)
- Loader
- Barges (3 min)
- Tender Boats (2 min)
- Crane (for pile removal)
- Haul Trucks (to deliver equipment and shore protection materials)
- Misc Trucks – Foreman/Superintendent pick up, Crew truck, Service truck
- Jet pump

### *Boat Ramp and Pier*

#### Possible construction equipment

- Haul trucks (to deliver equipment and materials)
- Dredge w/tender boat
- Barges (2 min)
- Tender boat
- Crane (2)
- Excavator
- Loader
- Dozer
- Misc Trucks – Foreman/Superintendent pick up, Crew truck, Service truck
- Air compressor
- Pile Drop hammer

Piles will likely be removed by attaching a cable and being pulled out by a crane while the soil is loosened by a jet pump. Depending on the condition of the pile, all or part will be removed. Generally specifications will require a minimum removal (i.e., 2 to 3 feet below mud line).

The geotechnical report recommends that the pile be driven to grade using a drop hammer.

#### Construction schedule

- Demolition and Shore Protection - 4 months
- Dredging, Boat Ramp and Pier - 6 months

The tactical military vessels used for training exercises/national defense qualify for the National Security Exemption pursuant to 40 C.F.R. § 1042.635. However, for this analysis, several assumptions were made in order to provide the reader with a general understanding of the potential effects that may occur from marine-grade diesel engines.

40 C.F.R. § 1042.635(a) says, “*An engine is exempt without a request if it will be used or owned by an agency of the Federal government responsible for national defense, where the vessel in which it is installed has armor, permanently attached weaponry, specialized electronic warfare systems, unique stealth performance requirements, and/or unique combat maneuverability requirements. This applies to both remanufactured and freshly manufactured marine engines. Gas turbine engines are also exempt without a request if they will be owned by an agency of the Federal government responsible for national defense*”.

# HDR Computation

Project: Eglin AFB Test Area D-84

Computed CGK

Subject: Potential Emissions Calculations

Task: Construction Travel Emissions

Sheet 1 of 1

Estimation of emissions from unpaved roads (Fifth Edition AP-42, Section 13.2.2, 12/03)

$$E_{\text{ext}} = k * (s/12)^{0.7} * (W/3)^{0.45} * (365-p)/365$$

$E_{\text{ext}}$  = annual average particulate emission factor (lb/VMT) extrapolated for natural mitigation

k = particle size multiplier, lb/VMT (4.9 for TSP)

s = silt content of gravel road, percent (average from AP-42 used)

W = mean vehicle weight, tons (see assumptions)

P = number of days in a year with at least 0.254 mm (0.01 in) of precipitation (see assumptions)

## Estimation of emissions from unpaved roads (Fifth Edition AP-42, Section 13.2.2, 12/03)

Vehicle	Silt Content (percent)	Vehicle Weight (tons)	Emission Factor (lb/VMT)	Distance Traveled (VMT/yr)	Emission Rate (ton/yr)
Supervisors, Service Trucks	6	20.4	4.7971	12,000	36.46
Road Graders, Water Trucks	6		4.7971	1200	
Haul Trucks	6		4.7971	1200	
Excavators, Loaders, Dozers	6		4.7971	800	

**Construction Travel PM-10 Emissions: 36.5 Tons**

### Notes

#### Distance traveled

- Supervisor service trucks assumed 20 miles per day, 3 trucks, 5 days per week and 40 weeks
- Road graders and water trucks assumed 2 miles per day, 2 trucks, 5 days per week and 40 weeks
- Haul trucks assumed 60 miles per trip, 1 truck, 20 trips
- Dump trucks assumed 20 miles per day, 3 trucks, 5 days per week and 40 weeks
- Excavators, loaders, dozers assumed 1 mile per day, 4 pieces of equipment, 5 days per week and 40 weeks



# HDR Computation

Project: Eglin AFB Test Area D-84  
 Subject: Potential Emissions Calculations  
 Task: General Construction Equipment

Computed CGK  
 Sheet 1 of 1

**Construction Summary:**

**Demolition and Shore Protection**

Equipment Operation: 600 hrs = 10 hour day, 5 days per week and 16 week construction period and 25% idle/non-use time

**Boat Ramp and Pier Construction**

Equipment Operation: 900 hrs = 10 hour day, 5 days per week and 24 week construction period and 25% idle/non-use time

**Diesel Engine Emissions**

Pollutant	Process Rate HP-hrs/yr	Operating Hours		Emission Factor (lb/HP-hr)	Emission Factor Reference	Uncontrolled Emissions		Type of Control	
		hr/day	hr/yr			lb/hr	tpy		
PM-10	2,658,000	8	1500	2.20E-03	A	3.90	2.92	none	
NO <sub>x</sub>	2,658,000	8	1500	0.031	A	54.93	41.20	none	
CO	2,658,000	8	1500	6.68E-03	A	11.84	8.88	none	
SO <sub>2</sub>	2,658,000	8	1500	2.05E-03	A	3.63	2.72	none	
CO <sub>2e</sub>	2,658,000	8	1500	1.15E+00	A	2,038	1,528	none	
VOCs	2,658,000	8	1500	2.51E-03	A	4.45	3.34	none	
PM-10	Emission Unit Soil Excavation & Loading	Process Rate ton/hr 45	Operating Hours		Emission Factor (lb/ton) 0.0011	Emission Factor Reference C	Uncontrolled Emissions		Type of Control None
			hr/day 8	hr/yr 1500			lb/hr 0.05	tpy 0.04	
						Total	0.05	0.04	

A - Fifth Edition AP-42, Table 3.3-1 (10/96).

B - Fifth Edition AP-42, Table 3.3-2 (10/96).

No specific data is available for transfer or material loading of soil located near marine surfaces.

C - Fifth Edition AP-42, Table 11.19.2-2 (8/04) for conveyor transfer points at rock crushing operations.

Notes

Assumed 10 hour work days, 5 days per week and 16 week construction timeframe for Demolition and Shore Protection and 24 weeks for Boat Ramp and Pier Construction.

An idling/non-use reduction ratio of 25% was applied to construction equipment operating hours (hrs/yr).

Process Rate for PM-10 Soil Excavation and Loading is the average ton/hr of 4 pieces of equipment (2 excavators, 1 dozer, 1 loader).

**Demolition and Shore Protection**

<b>Equipment</b>	<b>HP Rating</b>	<b>Units</b>	<b>Hours/Week</b>	<b>HP-Hours/week</b>
Excavator	250	2	30	15000
Dozer	175	1	30	5250
Loader	325	1	30	9750
Dump Trucks	325	2	15	9750
Crane	300	1	30	9000
Delivery Haul Trucks	350	2	5	3500
Barges	350	3	5	5250
Tender Boats	350	2	15	10500
Service Trucks	300	3	5	4500
Jet Pump	20	1	20	400
<b>TOTAL</b>				<b>72,900</b>
<b>Demolition and Shore Protection Duration=16 weeks</b>				<b>1,166,400</b>

**Boat Ramp and Pier Construction**

<b>Equipment</b>	<b>HP Rating</b>	<b>Units</b>	<b>Hours/Week</b>	<b>HP-Hours/week</b>
Excavator	250	1	30	7500
Dozer	175	1	30	5250
Loader	325	1	30	9750
Pile Drop Hammer	300	1	15	4500
Crane	300	2	30	18000
Delivery Haul Trucks	350	2	5	3500
Barges	350	2	5	3500
Tender Boats	350	1	15	5250
Service Trucks	300	3	5	4500
Air Compressor	20	1	20	400
<b>TOTAL</b>				<b>62,150</b>
<b>Boat Ramp and Pier Construction Duration=24 weeks</b>				<b>1,491,600</b>

# HDR Computation

Project: Eglin AFB Test Area D-84

Computed CGK

Subject: Potential Emissions Calculations

Task: Marine Training Operations

Sheet 1 of 1

## **Marine Training Operations**

Equipment Operation: 320 hrs = 4 hour event, 2 days per week and 40 weeks per year.

Tactical Military Vessel - Diesel Engine: 1950 HP = 3 vessels, 650 HP per vessel per training event.

## **Diesel Engine Emissions**

Pollutant	Process Rate HP-hrs	Operating Hours		Emission Factor (lb/HP-hr)	Emission Factor Reference	Uncontrolled Emissions		Type of Control
		hr/day	hr/yr			lb/hr	tpy	
PM-10	1,950	4	320	2.20E-03	A	4.29	0.69	none
NO <sub>x</sub>	1,950	4	320	0.031	A	60.45	9.67	none
CO	1,950	4	320	6.68E-03	A	13.03	2.08	none
SO <sub>2</sub>	1,950	4	320	2.05E-03	A	4.00	0.64	none
CO <sub>2</sub> e	1,950	4	320	1.15E+00	A	2,243	359	none
VOCs	1,950	4	320	2.51E-03	A	4.90	0.78	none

A - Fifth Edition AP-42, Table 3.3-1 (10/96).

B - Fifth Edition AP-42, Table 3.3-2 (10/96).

## APPENDIX F. UNDERWATER ACOUSTICAL ANALYSIS RESULTS

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### Estimating Zones of Influence for Pile Driving 12 and 16" Diameter Concrete Piles

#### Introduction

NMFS restricts the taking of marine mammals, including their exposure to sounds that may either injure them or cause changes in behavior. Carrying out these restrictions requires calculating zones of influence (ZOI) for these noise exposures. These have in practice been interpreted as exposure to pulsed or impact sounds at or above 160 dB re 1  $\mu$ Pa, and for continuous signals, such as may be produced by vibratory impact pile driving, of 120 dB re 1  $\mu$ Pa. A separate 180 ZOI protects cetaceans against injurious noise exposures. The following is a description of how these ZOI calculations are made, including data sources, the equation used to calculate, first the source levels of the signals and second, the isopleths defining the ZOI radii, the meaning of variables, determination of the values for those variables, the assumptions, and finally results and their appropriate interpretation. One goal of this document is permit another person, at some later time, to understand where and how the acoustic values used in this report were obtained.

The goal of this report is to document and illustrate the zones of influence for concrete piles of 12 and 16" diameter for both impact (160 dB) and vibratory (120 dB) pile driving.

#### Pile Driving Data

In 2008, staff at HDR EOC put together a pile driving dataset made up from information taken from two sources, Caltrans (2007) and MacGillivray, A., E. Ziegler, and J. Laughlin. 2007. In general much of this data was taken from shallow water locales and situations similar to those envisioned for this project. The table includes the pile driver (impact or vibratory); size, shape and type of pile; depth and distance from source for the hydrophone; a series of amplitude measures in varying forms of SPL, including peak-to-peak and rms; details of the pile driving context; and the original data source.

This dataset contained data on concrete piles of 16, 24, and 36" diameter piles. There was no data on 12" piles. Additionally, the data for 16" piles included only two replications of measurements made at 10 m using two types of hammers. There was also no data on vibratory pile driving of any concrete piles, though there was data for both impact and vibratory for steel piles of three configurations, H piles, sheet pile, and steel pipe.

From this database, it will be necessary to:

- 1 Source Levels: Determine source levels for 16, 24 and 36" pile, and
- 2 Regression of pile diameter and source levels: Establish a relationship between pile diameter and source level, using the 16, 24, and 36" data.
- 3 Source level of 12" pile: Based on the pile diameter to source level relationship, estimate the source level for a 12" pile.
- 4 Relationship between vibratory and impact pile driving noise levels: Determine the relationship between vibratory and impact pile driving noise levels. This will provide a measure of the difference between impact and vibratory pile driving sound levels, from which the SL for 12 and 16" piles will be estimated.
- 5 Zones of Influence: Determine the zones of influence for 12 and 16" piles for vibratory (120 dB) and impact (160 dB).

## 1 Calculating Source Level

The first issue is to determine the source level. The equation used to make these calculations is often referred to as the sonar equation, and for our purposes can be stated:

$$RL = SL - B \log(r) \quad \text{Equation 1}$$

where  $RL$  = the received level in dB re 1  $\mu$ Pa at range ( $r$ ),  $SL$  = the source level (dB re 1  $\mu$ Pa) of the signal at 1 m from the source,  $B$  = a coefficient summarizing the transmission loss rate for the acoustic energy as it moves through the medium (dB for each ten-fold change in distance from the source). Note also that equation 1 has the form of a point slope line equation, where  $B$  is the slope and  $SL$  will be the y-intercept.

The source level, which is defined as in dB re 1  $\mu$ Pa at 1m, is the basic parameter describing the amplitude of a signal as if it was measured at a standard distance of 1m. In practical terms, the  $SL$  is calculated using data where the received level of the signal is measured at several measured distances away from the source, and using a regression equation, the level at 1m is calculated. (See Blackwell (2005) for an example of calculating  $SL$  for pile driving signals using regression methods).

Transmission loss is a summary term, represented in equation 1 as  $B$ , involved in the sum of all of the factors reducing the acoustic energy as it is transmitted through the water. The primary component to transmission loss the spreading loss as an acoustic wave's energy is propagated away from the source. Spherical and cylindrical spreading are the two most common models. In an unbounded space, sound waves move away from their source as spherically waves, with the energy dissipating as the inverse square law. Spherical spreading results in a 20 dB loss for each ten-fold increase in distance. In a bounded space, cylindrical spreading may be a better model, and in this case energy is lost at 10 dB for each ten-fold increase in distance. For a number of technical reasons, as a first approximation of overall transmission loss spherical spreading is the most applicable model. In a summary of attenuation processes, Urlick (1983) concluded that for propagation measurements at sea, spherical spreading plus absorption provides a reasonable fit to the measured data under a wide variety of conditions. For the relatively low frequencies and short distances considered here, absorption has little impact on acoustic transmission.

Determining the  $SL$  requires data from multiple measurements of the received sound level ( $RL$ ) at various distances ( $r$ ) from the sound source. Under the best circumstances, the initial recording is at a relatively close distance to the sound source, for example, 10m. Subsequent recordings are then made at measured distances from the source. Ideally, there are more than two measurements such that a measure of the relationship, typically the correlation coefficient, can be provided. If there are only two measurements, this will define a line, but there is no measure of goodness of fit to a regression model.

Equation 1 is solved for  $SL$ .

$$SL = RL + B \log(r) \quad \text{Equation 2}$$

## 2 Source Level Regression

In practice, in order to calculate the source level, it is necessary to establish the relationship between how a signal of a particular amplitude travels through water, where the received levels are measured at specified distances. By graphing this relationship, in the form of a linear regression of the log of the range ( $r$ ) and the measured SPL, we can estimate the amplitude at other distances, for example, at 1 m

(figure 1). In this case, the received level was measured at four distances from an impact pile driver placing a 24" diameter concrete pile. In this linear regression, the slope represents the transmission loss of the signal over distance and the intercept is the amplitude at 1 m, (since  $10^0=1$ ), which is defined as the source level. Important to this analysis is how well the regression fits the data as indicated by the correlation coefficient, which indicates how much of the variability in one variable, the sound pressure level, is explained by variability in the other variable, in this case, distance from the source. In the case illustrated in figure 1 there is an excellent fit between the SPL at varying distances, where the correlation coefficient=0.9883. Interpreting this graph results in the determination that the SL= 203.4 dB re 1  $\mu$ Pa at 1m , and the transmission loss is 21.6 dB/ ten-fold increase of range. That is to say, the SPL decreases by almost 22 dB at 1m from the source where it was 203 dB, to 181 dB (203-22) at 10m, and then another 22 dB from 10m to 100m where the SPL is now 159 dB. At 1000m it would therefore be 137 dB, and then at 10km it would be 115 dB, very close to the ambient noise and therefore difficult to perceive.

There was additional data available for 24 and 36" diameter piles, but unfortunately in each case there were only two distances. Table 1 provides estimated source levels for concrete piles of 16, 24, and 36" driven using impact pile driving.

### 3 Regression of Pile Diameter and Source Level

Next we need to determine the relationship between pile diameter and the associated noise level. The results of this analysis will be used to estimate the source level of the 12" pile. Figure 2 is a regression of the estimated source levels of the 16, 24, and 36" concrete piles. The equation results in a prediction of the 12" pile source level as 184 dB re 1  $\mu$ Pa at 1 m. The correlation coefficient is high, indicating that 79% of the variability in the source levels is explained by pile diameter. Likewise, the regression equation predicts the 16" pile source level as 189 dB re 1  $\mu$ Pa at 1 m (Table 1).

### 4 Relationship between vibratory and impact pile driving noise levels

As stated above, there was no available data on vibratory pile driving of concrete piles. However, data for both impact and vibratory pile driving of three different steel piles was used to establish a pattern for the difference in noise levels produced by these two pile driving methods. Comparisons were made between 10 steel H piles, 24" sheet piles, and 36" diameter steel pipes. In each case the objective was to compare noise levels for both methods. There was only data for the peak-to-peak amplitudes for each pile type, but since the goal was to establish the relative differences between noise levels from the two pile driving techniques, the assumption is made that this difference would be equal regardless of whether the amplitude was measured peak-to-peak or rms. These terms deal with how energy is measured within a short duration pulse. Comparisons were made between noise level measurements made at both the minimum and maximum distances from the source (Table 2). It was concluded that impact pile driving was approximately 30 dB louder than vibratory pile driving. Based on a 30 dB difference between impact and vibratory pile driving, table 3 contains the final estimated source levels for 12 and 16" concrete piles, placed using vibratory and impact pile drivers

### 5 Isoleth Calculation

The calculation of the ZOI radii uses a re-solving of equation 1 for range (r):

$$\text{Log}(r) = ((\text{SL}-\text{RL})/B) \quad \text{Equation 3}$$

This equation will permit calculation of the distance (r) from a sound source at a particular source level (SL) to a received level (RL) as specified by the zone of influence, for example, 160 dB. That is to say, equation 3 will estimate how far it will take for the sound to decrease from the initial source level to a specified received level. In these calculations, the received levels are the NMFS noise criteria for impact zones of influence, 160 dB, and for continuous noise, 120 dB. As discussed above, the standard 20 dB transmission loss value for spherical spreading will be used.

**16" Concrete Piles** Using equation 3, where the impact pile driver SL = 189 dB, the 160 dB ZOI radius is  $\log(r) = (189-160)/20=1.45$ , and therefore the radius of the 160 dB ZOI = 92 feet. For vibratory pile driving,  $\log(r) = (159-120)/20=1.95$ , therefore the radius of the 120 dB ZOI for the 16" diameter pile = 292 feet (Figure 5).

**12" Concrete Piles** For the impact pile driver where the SL=184 dB, the 160 dB ZOI radius is 53 ft, while for vibratory pile driving the 120 dB ZOI radius is 164 feet (Figure 6). Note that the reason for the larger ZOI for the vibratory pile driving, even though the noise level is lower, is because the NMFS noise exposure criteria for continuous signals, 120 dB, which is 40 dB lower than the 160 dB criteria for exposure to impact noise, while the relative SL difference is greater between vibratory and impact noise levels (30 dB), resulting in a larger ZOI for continuous noise exposure.

## Conclusion

The ZOI for 12 and 16" concrete piles for both vibratory and impact pile driving was estimated. This was done in the absence of data on 12" pile source levels or any data on concrete pile driving done using vibratory pile driving techniques. These estimates were obtained by means of regression techniques using associated data from 16, 24, and 36" concrete piles. The resulting ZOI estimates indicate that exposure to pile driving noise will be limited to areas outside of

12" piles: 53 feet for impact pile driving and 164 feet for vibratory pile driving.

16" piles: 92 feet for impact pile driving and 292 feet for vibratory pile driving.

In the event that more precision is required for these ZOI radii, actual measurements of the source levels and transmission properties of the area should be made for both impact and vibratory pile driving of whatever pile size that is finally used in the construction project.

#### References

- Blackwell, S. B. 2005. Underwater measurements of pile-driving sounds during the Port MacKenzie dock modifications, August 13–16, 2004. Prepared for Knik Arm Bridge and Toll Authority, Anchorage; Alaska Department of Transportation and Public Facilities, Anchorage, Alaska; and Federal Highway Administration, Juneau, Alaska. Prepared by Greeneridge Sciences, Inc., Goleta, Calif.; and LGL Alaska Research Associates, Inc., Anchorage; in association with HDR Alaska, Inc., Anchorage.
- California Department of Transportation (Caltrans). 2007. *Compendium of pile driving sound data*. Prepared by Illinworth & Rodkin, Inc., Petaluma, Calif.
- MacGillivray, A., E. Ziegler, and J. Laughlin. 2007. *Underwater acoustic measurements from Washington State ferries 2006 Mukilteo Ferry Terminal Test Pile Project*. Technical report prepared by JASCO Research, Ltd for Washington State Ferries and Washington State Department of Transportation, 27 pp.
- Urick, R.J. 1983. *Principals of Underwater Sound*. New York, NY: McGraw-Hill Book Company.



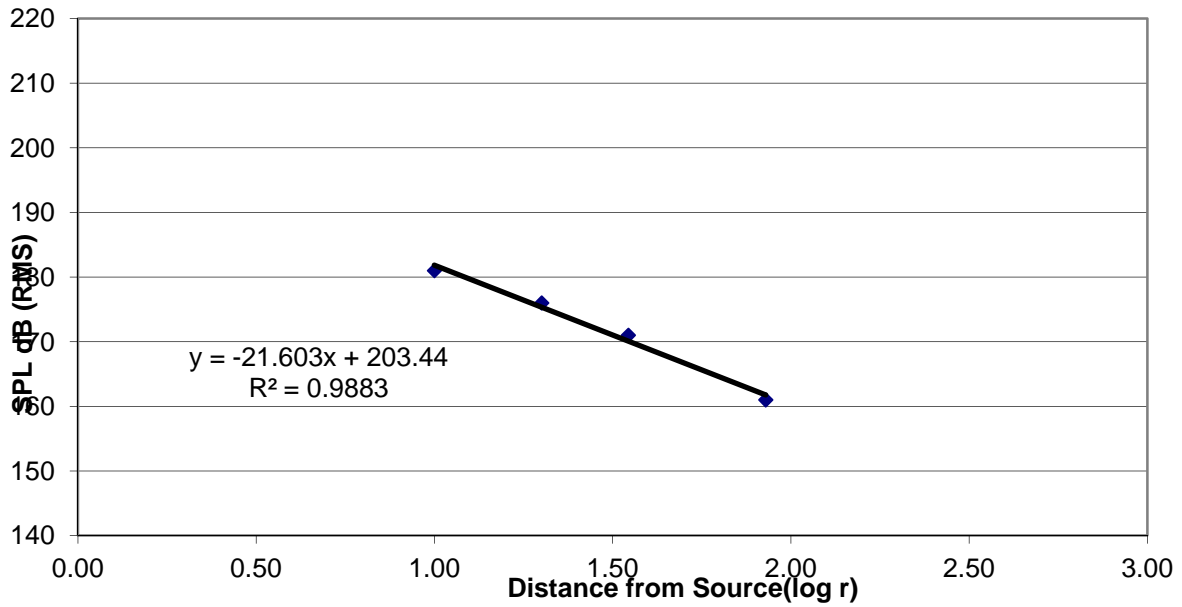


Figure 1. Regression of received noise levels from impact pile driving of a 24" diameter concrete pile at measured distances from the sound source, (log r) in m. The linear regression equation and correlation coefficient are provided.

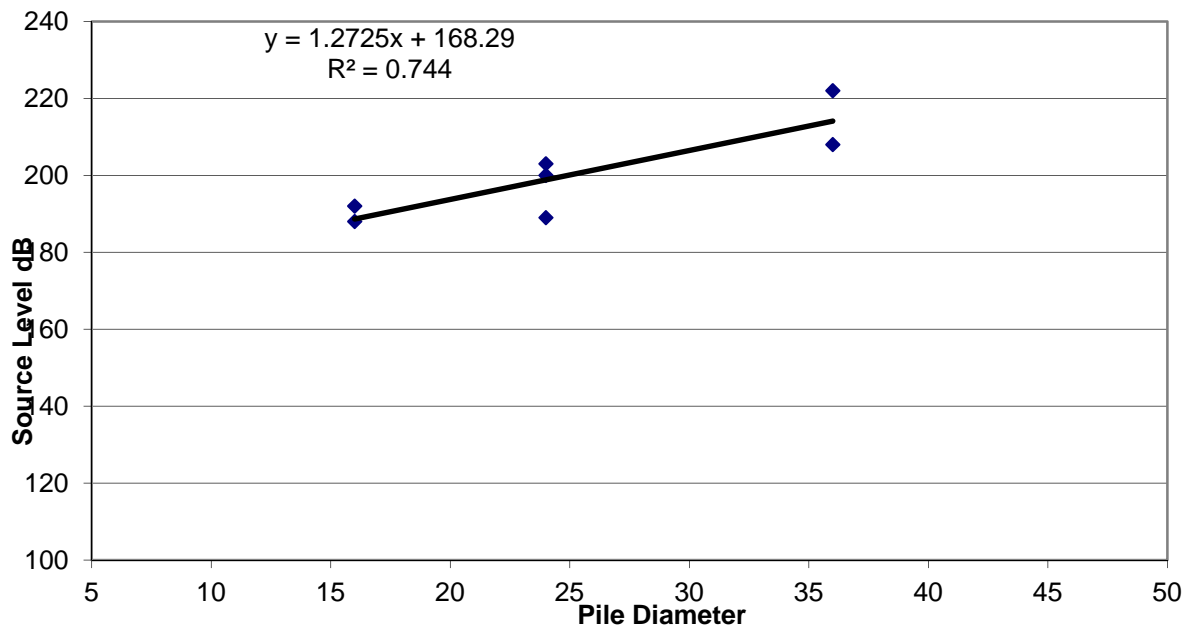


Figure 2. Linear regression of piles of various diameters (inches) relative to their source levels (dB re 1 μPa). The linear regression equation and correlation coefficient are also provided.

Table 1. Estimated Concrete Pile Source Levels for 12 and 16” piles placed using Impact and Vibratory Pile Drivers.

Pile Diameter (inches)	Impact	Vibratory
12	184*	154**
16	189*	159**
16	188	
16	192	
24	203	
24	200	
24	189	
36	222	
36	208	

Table 2. Difference between Vibratory and Impact Pile driving for Equal Sized Steel Piles as measured at the minimum and maximum distances between source and receiver.

Pile Configuration	Pile Diameter (inches)	dB re 1 $\mu$ Pa at same min. hydrophone dist.	dB re 1 $\mu$ Pa at same max hydrophone dist
H	10	29	18
Sheet	24	□8	39
Pipe	36	37	40

Table 3a. Source Levels and the radii of the ZOI for both impact and vibratory pile driving of 12 and 16” piles using a Transmission Loss value of 20 dB/decade.

Pile - driving Method	Pipe Diameter (inches)	Source Level, dB re 1 $\mu$ Pa at 1 m	Transmission Loss (dB/decade)	Isopleth	Radii of the Zone of Influence (ft)
Impact	12	184	20	160	53
	16	189	20	160	92
Vibratory	□2	154	20	120	164
	16	159	20	120	292

Table 3b. Source Levels and the radii of the ZOI for both impact and vibratory pile driving of 12 and 16” piles using a Transmission Loss value of 15 dB/decade as recommended by NMFS.

Pile - driving Method	Pipe Diameter (inches)	Source Level, dB re 1 $\mu$ Pa at 1 m	Transmission Loss (dB/decade)	Isopleth	Radii of the Zone of Influence (ft)
Impact	12	184	15	160	131
	16	189	15	160	281
Vibratory	12	154	15	120	606
	16	159	15	120	1,306

*Pursuant to the NMFS recommendations during MMPA consultation, the data in Table 3b above has been used to establish the ZOI for bottlenose dolphins.*

**APPENDIX G.  
CULTURAL RESOURCES**

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**MEMORANDUM OF AGREEMENT  
BETWEEN  
EGLIN AIR FORCE BASE  
AND  
THE FLORIDA STATE HISTORIC PRESERVATION OFFICER  
REGARDING  
DEVELOPMENT OF TEST AREA D-84, EGLIN AIR FORCE BASE, FLORIDA**

**WHEREAS**, Egin Air Force Base (Egin AFB) proposes to develop Test Area D-84, formerly the U.S. Army's Fort Rucker Recreation Area, a 37 acre parcel located on Choctawhatchee Bay, Egin AFB, Florida (Appendix A); and

**WHEREAS**, Test Area D-84 contains portions of 8WL68, a previously recorded prehistoric archaeological site that Egin AFB has determined, in consultation with the Florida State Historic Preservation Officer (SHPO), to be eligible for listing to the National Register of Historic Places (NRHP) under 36 CFR Part 60.4(d) (Appendix B); and

**WHEREAS**, Egin AFB has consulted with SHPO and the Advisory Council on Historic Preservation (ACHP) pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (NHPA), and has determined that the proposed undertaking at Test Area D-84 will have an adverse effect on site 8WL68; and

**WHEREAS**, Egin AFB has determined, in consultation with SHPO and the ACHP, that the best means to resolve the adverse effects of future development within Test Area D-84 to site 8WL68 is to conduct a comprehensive program of archaeological data recovery (Appendix C); and

**WHEREAS**, Egin AFB has consulted with the Miccosukee Tribe of Indians of Florida, the Seminole Tribe of Florida, the Poarch Band of Creek Indians of Alabama, and the Muskogee (Creek) Nation of Oklahoma (the tribes) concerning adverse effects to site 8WL68 and has invited the tribes to concur in this agreement;

**NOW THEREFORE**, the signatories agree that development of Test Area D-84 will be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on site 8WL68.

Stipulations

**I. The Undertaking**

Egin Air Force Base (Egin AFB) will construct multiple facilities needed to serve the Global War on Terrorism and to enhance the overall mission capability/readiness of the Department of Defense at Test Area D-84. Development of Test Area D-84 is the "undertaking" as defined in 36 CFR 800.16 (y). Construction-related ground

disturbance within Test Area D-84 is anticipated to be both intensive and extensive. In order to provide maximum planning flexibility, Eglin AFB will meet the requirements of 36 CFR Part 800 comprehensively through this agreement in anticipation of future ground-disturbing activities at Test Area D-84.

## II. Property Description and Area of Potential Effects

Test Area D-84 is the Area of Potential Effects (APE) for the purposes of this agreement. The former U.S. Army Fort Rucker recreation area, consisting of buildings and structures, a pier/dock, a boat launch, underground infrastructure (gas lines, plumbing, septic lines, and electrical wiring/transformers), overhead power lines, concrete parking pads, and camping facilities, was constructed in 1979. The former recreational area is on top of, and extends over, the eastern portion of site 8WL68.

## III. Identification of Historic Properties

Site 8WL68 is a large, multi-component coastal site that has been found eligible to the NRHP under criterion D of 36 CFR 60.4 because of its potential to contribute important information on the Mississippian occupation in the region. It has integrity of location, setting and materials. The site is situated just west of Hammock Point on the northern shoreline of Choctawhatchee Bay and lies partially within the project's APE.

None of the existing structures related to the recreational use of Test Area D-84 meet the criteria for listing on the NRHP.

## IV. Determination of Effects

The preparation of, and subsequent construction within, Test Area D-84 will have direct, indirect and cumulative effects to portions of site 8WL68. The characteristics that make site 8WL68 eligible for listing on the NRHP will be altered in ways that diminish the site's integrity of location, setting and materials. Eglin AFB has determined, pursuant to 36 CFR Part 800.5, that the undertaking will have an adverse effect on the site.

## V. Resolution of Adverse Effects

- A. Eglin AFB will resolve the anticipated adverse effects of site preparation and construction related ground disturbance to those portions of site 8WL68 that are within Test Area D-84 through a comprehensive program of archaeological data recovery to be conducted in accordance with the attached data recovery plan (Appendix C).
- B. Prior to data recovery, Eglin will carry out three tasks involving ground disturbance that are needed to ensure security of Test Area D-84 and to recover data needed for subsequent planning and development. The tasks are listed below.

1. Construct a chain link fence along three sides of Test Area D-84, excluding the shoreline, to enhance site security.
2. Conduct a percolation test of the existing septic system to assess the viability of the system.
3. Conduct geophysical boring along the shoreline bluff to aid in planning for the construction of shoreline erosion control structures.

Each of these tasks will involve limited ground disturbance that may cause adverse effects to portions of site 8WL68. Eglin will ensure that a qualified archaeologist, as required in Stipulation VI, will monitor all associated ground disturbance and record, as needed, any archaeological artifacts or features that may be encountered. A monitoring report of these activities will be prepared. Analysis of any artifacts or features will be incorporated into the full data recovery program conducted after these tasks have been completed.

- C. Once all field work is finished, including but not limited to, testing and excavation required by the data recovery plan, Eglin AFB may proceed with the development of Test Area D-84, as needed, provided that all subsequent analysis, report preparation and curation is completed within 18 months after the end of field work.
- D. All data recovery will be carried out by a qualified archaeologist as required in Stipulation VI.

#### VI. Qualifications

Eglin AFB shall ensure that all archaeological investigations performed in compliance with Stipulation V, including plan and report preparation, field work, research and analysis, and curation, shall be conducted by a person or persons who meet the Secretary of the Interior's Standards and Guidelines for professional qualifications in archaeology as described in Appendix A of 36 CFR Part 61.

#### VII. Curation

All artifacts recovered and records produced during archaeological data recovery conducted pursuant to this agreement will be housed in the Eglin AFB on-base curation facility, which meets all the criteria for permanent storage of federal collections listed in 36 CFR 79.

#### VIII. Human Remains

If human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during the pre-data recovery tasks listed in Stipulation V.B., archaeological data recovery conducted in accordance with Stipulation V.A., or during project construction activities after data recovery is completed, all ground disturbing activities in the vicinity shall cease, the discovery shall be secured from further disturbance and Eglin AFB will consult with the tribes in accordance with 43 CFR Part 10, the regulations implementing the Native American Graves Protection

and Repatriation Act (25 U.S.C. 3001 et seq.), and Section 872.05 of the Florida Statutes, which governs the discovery of unmarked graves.

IX. Dispute Resolution

Should the SHPO or the ACHP object within thirty (30) days to any action implementing this agreement, Eglin AFB will consult with the objecting party to resolve the objection. If Eglin AFB determines that the disagreement cannot be resolved, Eglin AFB will request further comment from the ACHP in accordance with the applicable provisions of 36 CFR Part 800.7. Eglin AFB will, in accordance with 36 CFR Part 800.7 (c) (4), take any ACHP comment into account with reference only to the subject of the dispute. Eglin AFB's responsibility to carry out all actions under this agreement that are not the subjects of the dispute will remain unchanged.

X. Amendments

Any signatory to this agreement may request that the agreement be amended, whereupon the other parties will consult to consider such amendment. Where there is no consensus among the signatories, the agreement will remain unchanged. Additional signatories or concurring parties to this agreement, including tribal governments, may be added with the consent of prior signatories.

XI. Termination

Any signatory to this agreement may revoke it upon written notification to the other parties by providing thirty (30) days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, Eglin AFB will comply with 36 CFR Parts 800.3 through 800.6 with regard to individual aspects of the undertaking covered by this agreement.

XII. Execution

The undersigned concur that with the implementation of this agreement Eglin AFB has satisfied its Section 106 NHPA responsibilities for the Test Area D-84 undertaking at Eglin AFB.

Signatories

EGLIN AIR FORCE BASE

By:   
BRUCE H. MCCLINTOCK, Colonel, USAF  
Commander, 96th Air Base Wing

Date: 10 Dec 08

FLORIDA STATE HISTORIC PRESERVATION OFFICER

By: Frederick P. Gaske Date: 1/27/09  
FREDERICK P. GASKE  
Florida State Historic Preservation Officer

Concurring parties

MICCOSUKEE TRIBE OF INDIANS OF FLORIDA

By: \_\_\_\_\_ Date: \_\_\_\_\_

THE SEMINOLE TRIBE OF FLORIDA

By: \_\_\_\_\_ Date: \_\_\_\_\_

POARCH BAND OF CREEK INDIANS OF ALABAMA

By: \_\_\_\_\_ Date: \_\_\_\_\_

MUSKOGEE (CREEK) NATION OF OKLAHOMA

By: \_\_\_\_\_ Date: \_\_\_\_\_

APPENDIX A – Vicinity Map

APPENDIX B – Map of Test Area D-84 showing location of site 8WL68

APPENDIX C – Archaeological Data Recovery Plan is filed in Task Order CR-08-0018. It is not duplicated in this document.

Appendices A, B, and C of this MOA have been removed under authority of AFI 32-7065 Section 4.4 and 32 C.F.R. § 229.18(a).





**DEPARTMENT OF THE AIR FORCE**  
**HEADQUARTERS 96TH AIR BASE WING (AFMC)**  
**EGLIN AIR FORCE BASE, FLORIDA**

Maria D. Rodriguez  
Chief, Environmental Stewardship Branch  
96 CEG/CEVS  
501 Deleon Street, Suite 101  
Eglin AFB FL 32542-5105

1 2 DEC: 2011

Robert F. Bendus, Director  
Division of Historical Resources  
R.A. Gray Building  
500 South Bronough Street  
Tallahassee FL 32399-0250

RE: DHR Project File Number 2011-3371  
Eglin AFB Test Area D-84  
Eglin Air Force Base, Walton County

Dear Mr. Bendus

Eglin AFB proposes to redevelop the waterside facilities of Test Area D-84 that would include:

1. Demolishing the existing breakwater/wave attenuators, headwall/upland retaining wall and pier;
2. Constructing a new pier and terminal platform on a similar alignment as the existing pier;
3. Contouring a portion of the shoreline to re-orient the existing boat ramp;
4. Dredging an access channel to a depth of minus 5 feet and placing the excavated material in a self-contained, upland spoil site;
5. Installing approximately 300 feet of shoreline protection extending west from the preexisting articulating block mats;
6. Extending the existing bluff stabilization upland of the mean high water line.

All of these activities are integral waterside actions necessary for the use the training facility for Eglin AFB and protection of cultural resources.

The proposed project is located in close proximity to an archeological site (8WL68), from which human remains were recovered. An MOA was initiated between Eglin, SHPO and parties for data recovery to resolve the adverse effects of future activities within Test Area D-84 (DHR 2009-113). Data recovery has been completed and the results will be presented in a forthcoming report of investigations. Eglin will forward the final report to your office.

Redevelopment activities will not affect the remaining intact deposits in the western portion of the site or the location from which human remains were retrieved (attachment). Therefore it is the opinion of this office that the planned redevelopment will cause no adverse effect to the site.

---

Eglin is again pleased to work with you in protecting the cultural resources of the Base and the state of Florida. Should you have any questions regarding the report, please contact my representative Ms. Lynn Shreve at 850-883-5201.

Sincerely



MARIA D. RODRIGUEZ, GS-14  
Chief, Environmental Stewardship Branch

Attachment:

1. Site location and project map



FLORIDA DEPARTMENT OF STATE  
**Kurt S. Browning**  
Secretary of State  
DIVISION OF HISTORICAL RESOURCES

February 13, 2012

Ms. Maria D. Rodriguez  
Chief, Environmental Stewardship Branch  
96 CEG/CEVS  
501 De Leon Street, Suite 101  
Eglin AFB, FL 32542-5105

Re: SHPO/DHR Project File No.: 2011-5932 (2011-3371) / Received: December 19, 2011  
Eglin AFB Test Area D-84 – Redevelopment of waterside facilities  
Eglin Air Force Base  
Walton County

Dear Ms. Rodriguez:

Our office reviewed the referenced project for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places. The review was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 as amended, and 36 CFR Part 800: Protection of Historic Properties; and the National Environmental Policy Act of 1969, as amended and the implementing state regulations.

Until the resultant report from the data recovery activities carried out pursuant to the 2009 Memorandum of Agreement for unavoidable impacts to Site 8WL68, this office cannot comment on all of the activities proposed in your letter of December 12, 2011. This office is not certain of the basis for the concurring that these activities will have no adverse effect on the intact portion of Site 8WL68 that extends quite a distance to the west of D-84. This portion of the site has not been investigated. We do not know the extent of shoreline site components, the nature of those components; and whether the proposed shoreline hardening in D-84 will exacerbate erosion to the west – scouring of the unprotected shoreline. We have observed this phenomenon occurring to other shoreline archaeological sites. Has coordination with the Tribes occurred regarding this proposal?

It is unlikely that removal and replacement of the pier and constructing replacement with terminal platform (No. 2) will have impacts below the MHW line. Dredging the access channel (No. 4) should no effect on Site 8WL68 within D-84.

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

Director's Office  
850.245.6300 • FAX: 245.6436

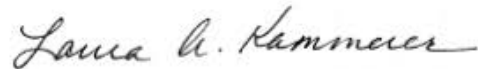
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Ms. Maria D. Rodriguez  
SHPO/DHR Project No. 2011-5932  
February 13, 2012  
Page 2

Please see our August 2011 letter to Mr. Russell Brown enclosed with this response. If you have any questions concerning our comments, please contact me at 850-245-6333 or [lkammerer@dos.state.fl.us](mailto:lkammerer@dos.state.fl.us). Thank you for your interest in protecting Florida's historic properties.

Sincerely,



Laura A. Kammerer  
Deputy State Historic Preservation Officer  
For Review and Compliance

Pc: Ms. Lynn Shreve, Eglin AFB  
Mr. Mark Stanley, Eglin AFB

Enclosure



FLORIDA DEPARTMENT OF STATE  
**Kurt S. Browning**  
Secretary of State  
DIVISION OF HISTORICAL RESOURCES

Mr. Russell Brown  
Acting Chief, Environmental Engineering Section  
700 Range Road, Building 592  
Eglin AFB, Florida 32542-5133

August 31, 2011

RE: DHR Project File Number: 2011-3371  
*Eglin AFB Test Area D-84*  
Eglin Air Force Base, Walton County

Dear Mr. Brown:

This office reviewed the referenced project for possible impact to historic properties listed, or eligible for listing, in the *National Register of Historic Places*. The review was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966*, as amended and *36 CFR Part 800: Protection of Historic Properties*.

We note that the portions area for redevelopment may fall within the boundaries of an archaeological site (8WL68), which contain human remains. This office is aware that a cultural resources survey has been conducted. Once we receive and review the results of the analysis from the survey report we will determine if significant cultural resources would be disturbed by this undertaking. In addition, if significant remains are located, the data described in the report and the consultant's conclusions will assist this office in determining measures that must be taken to avoid, minimize, or mitigate adverse impacts to archaeological sites and historical properties listed, or eligible for listing in the NRHP, or otherwise significant.

If you have any questions concerning our comments, please contact Scott Edwards, Historic Preservationist, by electronic mail [sedwards@doh.state.fl.us](mailto:sedwards@doh.state.fl.us), or at 850.245.6333 or 800. 847.7278.

Sincerely,

Laura A. Kammerer  
Deputy State Historic Preservation Officer  
For Review and Compliance

PC: Elizabeth Orr, FDEP  
Josey Walker, HDR Engineering

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**DEPARTMENT OF THE AIR FORCE**  
**HEADQUARTERS 96TH AIR BASE WING (AFMC)**  
**EGLIN AIR FORCE BASE, FLORIDA**

13 MAR 2012

Thomas L. Chavers  
Acting Chief, Environmental Management Division  
96 CEG/CEV  
501 Deleon Street, Suite 101  
Eglin AFB FL 32542-5105

Robert F. Bendus, Director  
Division of Historical Resources  
R.A. Gray Building  
500 South Bronough Street  
Tallahassee FL 32399-0250

RE: DHR Project File Number 2011-3371, 2011-5932  
Eglin AFB Test Area D-84  
Eglin Air Force Base, Walton County

Dear Mr. Bendus

Our office received the DHR response letter for the above project dated 13 February 2012. In answer to your concerns pertaining to the proposed activities and to facilitate your review, we have attached a map depicting site boundary, area of data recovery and location of project activities in addition to the Data Recovery at 8WL68 Fieldwork Synopsis report.

Project engineers were contacted by this office and asked directly if the shoreline hardening would increase the potential for erosion to the portion of the site that has not been investigated (Attachment 1). Their response is that it is highly unlikely, but could occur during an unusually strong storm event.

Tribes were not contacted regarding this project because the portion of the site that falls within the APE was covered in the Memorandum of Agreement (MOA) for unavoidable impacts to Site 8WL68 reviewed by the Tribes.

The report of findings is not yet complete therefore we have provided the attached fieldwork synopsis for background information and your review and concurrence that the data recovery activities were carried out pursuant to the 2009 MOA (attachment 2).

As a proactive measure and pursuant to Section 110(a)(1) of the *National Historic Preservation Act (NHPA)* Eglin AFB proposes to conduct archaeological excavation to recover and interpret the information from a portion of the remaining intact deposits that otherwise will be lost to erosion in the future. Your office and the Tribes will receive our notification letter of intent in the near future.

---

If your office does not respond within 30 days, it is assumed you concur with the determinations and recommendations in the report and data recovery was carried out according to the MOA.

Eglin is again pleased to work with you in protecting the cultural resources of the Base and the state of Florida. Should you have any questions regarding the report, please contact Lynn Shreve, Cultural Resource Manager at 850-883-5201

Sincerely



THOMAS L. CHAVERS, GS-13  
Acting Chief, Environmental Management Division

2 Attachments:

1. Map depicting site boundary, area of data recovery and location of project activities
2. Data Recovery at 8WL68 Fieldwork Synopsis report

Attachments have been removed under authority of AFI 32-7065  
Section 4.4 and 32 C.F.R. § 229.18(a).



**FLORIDA DEPARTMENT of STATE**

**RICK SCOTT**  
Governor

**KEN DETZNER**  
Secretary of State

Mr. Mark Stanley  
Department of the Air Force  
Cultural Resources Branch  
96 CEG/CEVH  
501 De Leon Street, Suite 101  
Eglin AFB, Florida 32542-5105

May 9, 2012

Re: DHR Project File No.: 2012-01129 / Received by DHR: March 19, 2012  
*Data Recovery at 8WL68 (Task Orders CR-09-0032 & CR-09-0058), Contract #FA4890-04-D-0009-DK01/W9128F-06-P-0126 & W9128F-07-02-0001, Cultural Resources Management Support, Eglin Air Force Base, Walton County, Florida*

Dear Mr. Stanley:

Our office received and reviewed the above referenced fieldwork synopsis in accordance with Sections 106 and 110 of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended in 1992, and *36 C.F.R., Part 800: Protection of Historic Properties*, and Chapter 267, *Florida Statutes*, for assessment of possible adverse impact to cultural resources (any prehistoric or historic district, site, building, structure, or object) listed, or eligible for listing, in the National Register of Historic Places (NRHP).

In 2009, Prentice Thomas and Associates, Inc. (PTA) conducted archaeological data recovery excavations within areas of the NRHP-eligible archaeological site 8WL68 that may be adversely impacted by the proposed Test Area D-84 undertaking. Based on the information provided in the fieldwork synopsis, we concur with the determinations of the US Air Force that the data recovery activities were completed in compliance with the Memorandum of Agreement. Our office looks forward to the receipt and review of the final technical report of the findings and any further consultation regarding preservation or mitigation of Site 8WL68.

For any questions concerning our comments, please contact Rudy Westerman, Historic Preservationist, by electronic mail at [Rudy.Westerman@DOS.MyFlorida.com](mailto:Rudy.Westerman@DOS.MyFlorida.com), or by phone at 850.245.6333. We appreciate your continued interest in protecting Florida's historic properties.

Sincerely,

Laura A. Kammerer  
Deputy State Historic Preservation Officer  
For Review and Compliance

Pc: Prentice Thomas and Associates, Inc.



**DIVISION OF HISTORICAL RESOURCES**  
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