

Defense Advanced Research Projects Agency

Finding of No Significant Impact (FONSI) for the Defense Advanced Research Projects Agency (DARPA) Reefense Program at Baker Point, Florida

Introduction

Pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321 et seq.), as implemented by the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] parts 1500–1508), the Defense Advanced Research Projects Agency (DARPA) gives notice that an Environmental Assessment (EA) was prepared for the Reefense program at Baker Point, Florida. This Finding of No Significant Impact (FONSI) summarizes the analysis within the EA, which determined that further documentation under NEPA is not required for the Proposed Action. This action will be implemented as set out in the Preferred Alternative in the EA.

Purpose and Need

The purpose of the Proposed Action is to develop and test reef-mimicking structures that can attenuate wave energy more effectively than traditional hardscape solutions to protect civilian and Department of Defense (DoD) infrastructure and personnel by mitigating damage related to coastal flooding, erosion, and storm surge. Wave-driven storm damage, flooding, and erosion impair the DoD's ability to maintain its infrastructure and adversely impact military readiness. The need for the Proposed Action is to find cost-effective and novel solutions for protecting shorelines as the impacts of storm surges and sea level rise increase due to climate change.

Description of the Proposed Action

The Proposed Action would involve the deployment of Reefense structures at Baker Point, Florida, located adjacent to Tyndall Air Force Base (Tyndall AFB) and within East Bay of the St. Andrew Bay estuary. The Reefense project at Baker Point would be deployed over two phases with multiple components being proposed for each deployment. Phase 1 is anticipated to occur as early as fall of 2024, and the Reefense structures would remain on the seafloor at Baker Point at least through May 2027, when DARPA's funding of the project is anticipated to end. At the end of DARPA funding, responsibility for maintenance of the structures may transfer to a third party, or if a new responsible party cannot be identified, the structures may be removed.

Components of the Reefense project would consist of reef module breakwaters, mosaic oyster habitat (MOH) structures (varying in height with low, medium, and high relief), and intertidal vegetation planting. The reef module breakwater would be deployed in water depths of 2 ft (0.6 m) or less. The concrete base structures would have a surface texture to facilitate oyster attachment and growth and be placed in a linear layout with some curvature to create irregularly shaped sections of a submerged patch reef. Inshore of the reef module breakwater, there would be MOH structures, made out of stacked non-plastic shell bags, half scale reef module breakwaters, oyster castles, oyster catcher materials, reef balls, and coir logs and mats to foster the integration of shoreline habitats. Intertidal vegetation planting would occur closest to shore (inshore of all deployed structures). Only local native species of oysters and intertidal vegetation would be deployed as a part of the Proposed Action.

These structures, or modules, created using cutting-edge scientific advances, are intended to create a self-sustaining oyster reef to attenuate wave energy and, thus, protect upland infrastructure by mitigating damage related to coastal flooding, erosion, and storm surge. However, the overall strategy

also employs additional mosaic habitat components in order to further develop beneficial ecosystem services and maximize options for adaptive flexibility as the environment changes.

Alternatives

Under the **No Action Alternative**, the Proposed Action would not occur. No deployment of Reefense structures would occur within the proposed action area, and the Baker Point area would be left undeveloped unless/until other in-water construction is proposed as part of a future project. The No Action Alternative would not meet the purpose of and need for the Proposed Action because there would be no furthering of research on climate change-related shoreline protection alternatives to hard armoring.

The **Preferred Alternative** would install reef module breakwaters, MOH structures, and intertidal vegetation at Baker Point, Florida.

Potential Environmental Impact from the Proposed Action

The EA evaluated the Proposed Action in terms of stressors and their potential impact to physical, biological, socioeconomic, and cultural resources. Stressors associated with the Proposed Action that were analyzed include vessel noise, vessel movement, Reefense deployment and installation, and potential Reefense removal. These stressors were analyzed for potential impacts to the following resources: benthic habitat, vegetation, invertebrates, birds, fish, essential fish habitat, reptiles, marine mammals, socioeconomic resources, and cultural resources.

As described in the EA, implementation of the Preferred Alternative will result in no significant impacts to the resources analyzed.

Standard Operating Procedures and Protective Measures

Both Standard Operating Procedures (SOPs) and protective measures would be implemented during the Proposed Action. Additionally, if the Reefense structures require removal, the additional protective measures outlined below would be employed. SOPs serve the primary purpose of providing for safety and mission success, and they are implemented regardless of their secondary benefits (e.g., to a resource). Protective measures are used specifically to avoid or reduce potential impacts to a resource. This section presents an overview of the SOPs and protective measures that are incorporated into the Proposed Action.

Standard Operating Procedures

- Personnel on lookout aboard the vessel would conduct visual monitoring for marine species during all operations.
- All lookouts aboard platforms involved in the Proposed Action would review the NMFS-approved Marine Species Awareness Training material prior to Reefense deployment.
- Lookouts shall be trained in the most effective means to ensure quick and effective communication to facilitate implementation of protective measures if marine species are spotted.
- Personnel on lookout on the deck of the vessel would have a set of binoculars available for each person to aid in the detection of large fish, marine mammals, and sea turtles.

- All vessels would use extreme caution and proceed at a “safe speed” so proper and effective action can be taken to avoid a collision with any sighted object or disturbance, and the vessel can be stopped within a distance appropriate to the prevailing circumstances and conditions.
- Movement of the vessel would be limited to a maximum speed of five knots within the proposed action area and 10 knots when approaching the proposed action area.

Protective Measures for Deployment and Monitoring Activities

- DARPA and any permittee shall ensure that all personnel associated with the Proposed Action are instructed about the potential presence of species protected under the ESA and the MMPA. All on-site project personnel are responsible for observing water-related activities for the presence of protected species. All personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing listed species and all marine mammals. To determine which protected species and critical habitat may be found in the transit area, please review the relevant marine mammal and ESA-listed species at Find A Species (<https://www.fisheries.noaa.gov/findspecies>) and the consultation documents that have been completed for the project.
- Vessels would avoid approaching large marine fish (visible at the surface), marine mammals, and sea turtles head on and would maneuver to maintain a mitigation zone of 200 yd (183 m) around manatees and sea turtles.
- The Reefense structures’ deployment would not occur within a 200 yd (183 m) radius around any observed marine mammal or sea turtle.
- Surveys would be conducted in the site prior to the deployment of Reefense structures.
- The proposed action area would be monitored quarterly to ensure the structures would not become hazards to navigation or marine life. Monitoring would include removal of fishing nets or any other hazards that have become entangled in the Reefense structures.
- Individual reef structures would be no longer than 75 ft (23 m) and would have minimum 5 ft (1.5 m) wide openings between reefs to eliminate the chance of entrapment of marine organisms.
- Reefense structures would not be placed within 15 ft (5 m) of any submerged aquatic vegetation.
- Newly created reefs would be marked with aids to navigation, as directed by the U.S. Coast Guard.
- Only native species of marsh grasses would be planted within the proposed action area.
- Only native oyster stocks would be used on the Reefense structures.
- Oyster reef materials shall be placed and constructed in a manner that ensures materials would remain stable and that prevents movement of materials to surrounding areas (e.g., oysters would be contained in bags or attached to mats and loose clutch must be surrounded by contained bagged oysters or another stabilizing feature).
- Oyster reef materials would be placed in designated locations only (i.e., the materials shall not be indiscriminately or randomly dumped or allowed to spread outside of the Reefense structures).

- All materials used for the Reefense structures shall be clean and free from asphalt, creosote, petroleum, other hydrocarbons and toxic residues, loose free-floating material, or other deleterious substances.
- All reef materials that have a significant potential for creating temporary turbidity problems during installation would be surrounded with floating turbidity curtains during placement, and the curtains would remain in place until turbidity levels return to acceptable levels.

Standard Manatee Conditions for In-Water Work

- All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel 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.
- All vessels associated with the construction 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-ft (1.2 m) clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.
- All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) 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 (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the USFWS in Jacksonville (1-904-731-3336) and emailed to FWC at ImperiledSpecies@myFWC.com.
- Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign that reads "Caution: Boaters" must be posted. A second sign measuring at least 8.5 by 11 inches explaining the requirements for "Idle Speed/No Wake" and the shutdown of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities.

Protective Measures for Removal

- If removal is required, portions of the reef that can be used to improve or enhance other local habitats will be transferred to those areas in collaboration with the Bay County and the State of Florida. Flora and fauna will be removed if appropriate for transplantation and structural

materials discarded on land. Motile organism will be allowed to disperse during removal or removed by washing with water pumped across the structure or by hand and released.

Agency Consultation and Coordination

Endangered Species Act: DARPA coordinated with U.S. Army Corps of Engineers (USACE) to determine whether the Proposed Action and its effects were substantially similar to those evaluated under the National Marine Fisheries Service (NMFS) Biological Opinion on 10 Categories of Minor In-Water Activities Occurring in Florida and the U.S. Caribbean for the Jacksonville District of the USACE, referred to as JAXBO. On December 11, 2023, USACE concurred with DARPA's determination of the Proposed Action's consistency with JAXBO's project design criteria. As such, on behalf of DARPA, the USACE requested that NMFS, Southeast Region evaluate species under their jurisdiction to determine if the effects of the Proposed Action are substantially similar to those evaluated under JAXBO. On June 24, 2024, NMFS concurred the effects are substantially similar to those evaluated in JAXBO and approved the supersede¹ request for the project, sufficing DARPA's requirements under the Endangered Species Act (ESA) for species under NMFS jurisdiction.

DARPA informally consulted with U.S. Fish and Wild Service (USFWS) on ESA-listed species under their jurisdiction that may overlap with the proposed action area. On July 10, 2024, USFWS concurred with DARPA's determination that the Proposed Action, as implemented by Preferred Alternative, may affect, but is not likely to adversely affect, ESA-listed species under their purview.

Magnuson-Stevens Fishery Conservation and Management Act: On February 29, 2024, NMFS Southeast Region, Habitat Conservation Division concurred with DARPA's analysis that any adverse effects that might occur on marine and anadromous fishery resources would be minimal. NMFS did not have any additional conservation recommendations to provide.

Section 404 of Clean Water Act and Section 10 of Rivers and Harbors Act: On September 30, 2024, USACE issued an individual permit for Section 404 of the Clean Water Act/Section 10 of the Rivers and Harbors Act. On May 28, 2024, USACE issued a Nationwide permit #5 for scientific measurement devices deployed within the proposed action area.

Section 106 of the National Historic Preservation Act: The Division of Historical Resources of the Florida Department of State was contacted to solicit comments regarding whether the Proposed Action may adversely affect significant historical and archaeological resources. The Division of Historical Resources provided data of known historical and archaeological resources near the project footprint, all which occur on land. Since no dredging is anticipated, the Proposed Action is not anticipated to unearth or impact any unknown historical or archaeological resources within the proposed action area. Therefore, no additional surveys were conducted. As a part of the individual and conceptual permit for living shorelines that was submitted to the Florida Department of Environmental Protection, Florida State Historic Preservation Office was notified that the Proposed Action would have no effect on historic or archeological resources.

Coastal Zone Management Act: Federal consistency reviews under the Coastal Zone Management Act are integrated into other review processes conducted by the State of Florida through the Department of Environmental Protection depending on the type of federal action being proposed. On July 23, 2024 Florida Department of Environmental Protection issued approval for the Environmental Resource Permit and Authorization to Use State Owned Submerged Lands within the proposed action area. This permit approval constitutes a finding of consistency with Florida's Coastal Zone Management Program, as required by Section 307 of the CZMA.

¹ If a project being evaluated by NMFS under JAXBO has elements within the project that deviate from the JAXBO Project Design Criteria in a minor fashion, a superseding request can be submitted to explain those variations.

Submerged Lands Act: On July 23, 2024 Florida Department of Environmental Protection issued approval for the Environmental Resource Permit and Authorization to Use State-Owned Submerged Lands within the proposed action area.

Outreach

The public was notified of the 30-day public comment period for the Draft EA through a Federal Register Notice, published on Monday, May 6, 2024, as well as two legal notices in the Panama City News Herald on May 9 and May 12, 2024. The public comment period began on May 6 and ended on June 5, 2024. DARPA received two comments: one from a private individual and one from the Environmental Protection Agency, Region 4. Additionally, DARPA and the Rutgers University-led team participate in the Tyndall Air Force Base, Coastal Resilience Stakeholder group. Responses to comments were included in the Final EA.

Finding

Based on the information gathered during the preparation of the EA, DARPA finds that the Proposed Action, as implemented by the Preferred Alternative, will not significantly impact the natural and physical environments. Therefore, an Environmental Impact Statement will not be prepared. Copies of the EA, including this FONSI, can be obtained from Dr. Catherine Campbell, ATTN: DARPA BTO, 675 N. Randolph St, Arlington, VA, 22203.

Date

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