



REPI

UNITED STATES DEPARTMENT OF DEFENSE
READINESS AND ENVIRONMENTAL
PROTECTION INTEGRATION PROGRAM

2024 NATIONAL COASTAL RESILIENCE FUND DEPARTMENT OF DEFENSE RECIPIENTS



DOD REPI Program Contributions to the National Coastal Resilience Fund

The Department of Defense's (DOD) Readiness and Environmental Protection Integration (REPI) Program is a key tool for safeguarding DOD testing and training missions by conserving natural landscapes that provide realistic training conditions, protecting species to alleviate endangered species restrictions, and increasing military installation resilience through nature-based solutions. To accelerate coastal resilience projects outside installations and ranges, the REPI Program established a partnership with the National Fish and Wildlife Foundation (NFWF) in 2020. This partnership expands opportunities for DOD to conserve wildlife habitats, protect at-risk species, and reduce risks from extreme weather events across coastal installations.

Through the REPI-NFWF partnership, the REPI Program contributes funding annually to NFWF's National Coastal Resilience Fund (NCRF) to enable projects that preserve natural environments in support of military mission capabilities. NCRF projects that receive REPI funding restore, increase, and strengthen coastal habitats to benefit communities, species, and the military alike.

2024 National Coastal Resilience Fund Projects Benefit Missions for Every Military Service

This year, NFWF will award \$139 million to 94 projects across 31 coastal states and territories. Of this \$139 million, the REPI Program is contributing nearly \$9 million in REPI funding to 13 NCRF projects that use nature-based solutions to protect key coastal installations. The 13 projects neighboring DOD installations received an additional \$2 million in matching funds from the National Oceanic and Atmospheric Administration (NOAA). By leveraging funding from multiple Federal agencies, DOD installations and their partners are advancing project planning, development, and implementation at a rate that would be unachievable without shared support.



Marines with Alpha Company, 1st Battalion, 3rd Marine Regiment, prepare to board MV-22 Ospreys during a simulation of Operation Gotchic Serpent at landing zone Westfield, aboard MCB Hawai'i. (U.S. Marine Corps photo by Cpl. Aaron S. Patterson)

2024 National Coastal Resilience Fund Project Locations

1. MacDill Air Force Base (Florida) | REPI Funds: \$1.2M
2. Keesler Air Force Base (Mississippi) | REPI Funds: \$215K
3. Joint Base Langley-Eustis (Virginia) | REPI Funds: \$845K
4. Naval Station Newport (Rhode Island) | REPI Funds: \$681K
5. Marine Corps Base Hawai'i (Hawai'i) | REPI Funds: \$705K
6. Seymour Johnson Air Force Base (North Carolina) | REPI Funds: \$734K
7. Naval Submarine Base Kings Bay (Georgia) | REPI Funds: \$439K
8. Marine Corps Base Camp Pendleton and Naval Base Coronado (California) | REPI Funds: \$572K
9. Vandenberg Space Force Base (California) | REPI Funds: \$600K
10. Eglin Air Force Base (Florida) | REPI Funds: \$450K
11. Dover Air Force Base (Delaware) | REPI Funds: \$1M
12. Naval Air Station Whidbey Island, Naval Station Everett, Naval Base Kitsap, and Naval Magazine Indian Island (Washington) | REPI Funds: \$570K
13. Naval Weapons Station Seal Beach (California) | REPI Funds: \$712K





Project Summaries

1. MacDill Air Force Base, Florida

Creating Preliminary Design to Mitigate Coastal Erosion near MacDill Air Force Base

- MacDill Air Force Base (AFB) is located eight miles south of Tampa, Florida, on the Southwestern tip of the Interbay Peninsula and is often referred to as “Tampa Bay.” Home to the Air Mobility Command, United States Central Command, and United States Special Operations Command, the installation is capable of rapidly projecting air-refueling power anywhere in the world.
- More than 75% of the Interbay Peninsula is located in a 100-year floodplain, threatening the City of Tampa’s infrastructure and MacDill AFB’s ability to deploy the 6th Air Refueling Wing. In June 2024, the installation and Tampa Bay Regional Planning Council completed an Office of Local Defense Community Cooperation Installation Resilience Review that determined by 2070, 76% of the installation’s buildings, 88% of the roads, and 81% of the airfield will be exposed to extreme flooding risks.
- This project will enhance community resilience and create quality estuarine habitat through the planning and preliminary design of three nature-based solutions within the Coastal Restricted Area offshore of MacDill AFB. Dredge material from the Tampa Bay Federal Navigation Project will be used to construct a longshore bar system, create a series of low-lying barrier islands, and extend the shallow shelf habitat between 750 to 1,500 feet offshore to encourage seagrass colonization and reduce flooding risk.



An AC-130J Ghost Rider assigned to the 73rd Special Operations Squadron, Hurlburt Field, Florida, lands at MacDill Air Force Base, Florida. (U.S. Air Force photo by Senior Airman Zachary Foster)



REPI Funds: \$1.2M

Partner Contributions: \$898K

Total: \$2.1M

PARTNER ORGANIZATION

The Water Institute of the Gulf



2. Keesler Air Force Base, Mississippi

Utilizing Nature-based Solutions to Design a Resilient Keegan Bayou Near Keesler Air Force Base

- Keesler Air Force Base (AFB) is home to the Air Education and Training Command whose primary mission is to train, develop, and inspire warfighters. The 81st training group stationed at Keesler AFB is responsible for nearly 500 training courses both locally and at detachments and satellite locations.
- The installation’s main security gate, which over 7,000 vehicles pass through daily, has recently been relocated to Division Street. Portions of the Keegan Bayou run in a ditch directly under Division Street, creating significant flooding risk at the main gate during large rain events; particularly when accompanied by a high tide.
- This project will create initial designs to replace the existing concrete channel in the ditch under Division Street with a naturalized waterway designed with a tidal flood management cross-section. By restoring the area’s natural tidal waterway to increase the bayou’s capacity, these changes are estimated to alleviate flooding on 6.6 acres of Keesler AFB and prevent closures to the installation’s main gate.



Air Force Reserve hurricane hunters fly a weather reconnaissance mission into Hurricane Helene at Keesler Air Force Base, Mississippi. (U.S. Air Force photo by Lt. Col. Mark Withee)



REPI Funds: \$215K

NOAA Funds: \$215K

Partner Contributions: \$1.2K

Total: \$432K

PARTNER ORGANIZATION

Mississippi State University





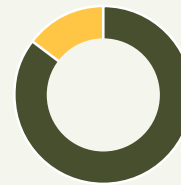
3. Joint Base Langley-Eustis, Virginia

Developing Nature-based Solutions to Build Resilience in the Back River Estuary

- Located in Virginia's Hampton Roads region, Joint Base Langley-Eustis (JBLE) provides support to more than 9,000 military and civilian personnel, including Headquarters Air Combat Command and three operational wings. The Wing provides mission-ready expeditionary Airmen to combatant commanders in support of joint and combined operations worldwide.
- More than 75% of JBLE is below the 100-year floodplain, making the installation highly vulnerable to flooding. At least three times annually, typical short-recurrence interval rainstorms and high tides cause flooding that impacts roads and critical infrastructure near the installation shoreline, threatening military readiness and \$7 billion of equipment located at JBLE.
- This project will advance preliminary designs for four nature-based solutions, including thin-layer placement, living oyster reef breakwater structures, submerged aquatic vegetation beds, and sand motors or ephemeral islands along the Back River neighboring the installation. These solutions support JBLE and the community by mitigating community storm impacts and improving biodiversity along the Back River, a critical stopover for migratory birds and home to the threatened Beach Tiger Beetle.



R.C. Williams, Hampton police marine patrol, reads a lifebuoy for a man overboard drill in the Black River near Joint Base Langley-Eustis, Virginia. Hampton police patrol the Black River to ensure there is no unauthorized entry to the installation and that people on the water remain safe. (U.S. Air Force photo by SrA Ian Sullens)



REPI Funds: \$845K

Partner Contributions: \$143K

Total: \$988K

PARTNER ORGANIZATION

City of Hampton



4. Naval Station Newport, Rhode Island

Designing Habitat Improvements to Support Newport's Underserved Community

- Naval Station Newport is the Navy's premier training site for military personnel. The installation hosts more than 50 tenants, including the Surface Warfare Officers School, Naval War College, Officers Training Command Newport, and the Naval Undersea Warfare Center.
- Key access points to the installation, including the primary 24/7 Gate 1 and the alternate 24/7 Gate 2, are frequently inundated during severe weather events and compromise access to Naval Station Newport. In the installation's 2022 Military Installation Resilience Review funded by the Office of Local Defense Community Cooperation, Gate 2 was identified as a vulnerable interdependent infrastructure with the potential to impact the neighboring Rhode Island Energy substation, which provides electricity to the island.
- This project aims to mitigate flooding impacts by completing a site assessment and drafting regulatory permit application materials to restore the neighboring Elizabeth Brook watershed. By removing hardened structures along 1,200 linear feet of Elizabeth Brook, these efforts will help mitigate flooding around Naval Station Newport's Gates 1 and 2, residential neighborhoods, and public access routes.



Rear Adm. Jeffrey "Caesar" Czerewko addresses students, faculty, and staff at the Senior Enlisted Academy (SEA) at Naval Station Newport, Rhode Island. The SEA is the Navy's only professional military education institution dedicated to senior enlisted personnel, focusing on management, leadership, national security and physical fitness. (U.S. Navy photo by Brett Dodge)



REPI Funds: \$681K

Partner Contributions: \$600K

Total: \$1.3M

PARTNER ORGANIZATION

Eastern Rhode Island
Conservation District





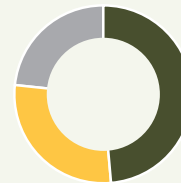
5. Marine Corps Base Hawai'i, Hawai'i

Community Assisted Native Forest and Marsh Restoration in the Pu'u o Ehu Watershed

- Marine Corps Base Hawai'i, located at Kāne'ohe Bay, provides a broad range of support functions and hosts over 20,000 personnel including Marines, Sailors, family members, civilian employees, and veterans. Kāne'ohe Bay is a vital training area and home to 11 threatened or endangered marine and terrestrial species and the highest concentration of natural resources under the base's jurisdiction.
- Extreme weather events, such as heavy precipitation, drought, and wildfire, threatened the livelihood of the native and migratory birds and endangered species that seek shelter on and around the installation. Invasive plants, such as the guinea grass, also contribute to increases in wildfire risk due to the faster burn rates during the dry season.
- To increase coastal resilience surrounding the base, this project will remove five acres of invasive shrubs and outplant 2,000 native trees and additional native plants to protect against rain-induced flooding, reduced viable habitat for endangered waterbirds, and wildfire risk. The project area is also located within a State Wildlife Sanctuary, which will help ensure the long-term protection of the restored land.



U.S. Marine Corps Lance Cpl. Justin Rodriguez, combat engineer with Combat Assault Company, 3^d Marine Regiment, removes invasive plants during the Hamakua Marsh community service project, Kailua, Hawai'i. The Marines worked to restore a native forest by removing invasive plants. (U.S. Marine Corps photo by Sgt. Zachary Orr)



■ REPI Funds: \$705K
■ NOAA Funds: \$337K
■ Partner Contributions: \$408K

Total: \$1.5M

PARTNER ORGANIZATION

Healthy Climate Communities



6. Seymour Johnson Air Force Base, North Carolina

Conducting a Feasibility Study for Shoreline Stabilization along the Neuse River

- Seymour Johnson Air Force Base (AFB) is located in the southeast section of Goldsboro, North Carolina, and is home to the Air Force's 4th Fighter Wing. The Fighter Wing is responsible for training and flying F-15Es, deploying Airmen worldwide to support combat missions, and providing weapons loading training.
- The Neuse River, which runs along the west side of the installation's boundary, has been rapidly eroding and threatens the installation's fence line security and key service roads needed to access the airfield. From 2007 to 2017, roughly seven feet of bank erosion occurred, with the erosion rate increasing to 12 feet between 2017 and 2021. This erosion has resulted in unprecedented river levels and faster flow rates that threaten existing infrastructure along the riverbanks.
- This project will conduct a feasibility study and develop engineering designs for a riverine shoreline stabilization project along 3,000 feet of eroding Neuse River shoreline bordering Seymour Johnson AFB. The feasibility and design work will prioritize nature-based solutions delivering installation, community, and ecological resilience co-benefits both at the site and downstream in the watershed.



A KC-46 Pegasus assigned to the 916th Air Refueling Wing performs a mid-flight refueling over Virginia. U.S. Air Force ROTC Academy Cadets were part of the incentive flight and had the opportunity to witness the refuelings to enhance the cadets' knowledge of Air Force career fields and get a closer look at the base's mission. (U.S. Air Force photo by Airman 1st Class Leighton Lucero)



■ REPI Funds: \$734K
■ Partner Contributions: \$22K

Total: \$756K

PARTNER ORGANIZATION

University of Georgia





7. Naval Submarine Base Kings Bay, Georgia

Building a Watershed Resilience Plan for the St. Marys River and its Community

- Naval Submarine Base (NSB) Kings Bay borders the historic town of St. Marys and is the east coast homeport for the Ohio-class fleet ballistic-missile and guided-missile submarines. It is the only naval base in the Atlantic fleet capable of supporting the Trident II (D-5) missile and is integral to the nation's strategic deterrence program.
- The St. Marys region is particularly vulnerable to climate-related hazards, including heatwaves, sea level rise, coastal flooding and erosion, hurricanes, extreme rainfall events, and long-term droughts. As a result of these impacts, NSB Kings Bay employees are directly affected by the closed roads and schools, which occur on a near-annual basis due to flooding from hurricanes and tropical storms.
- This project will develop a comprehensive, watershed-wide resilience plan for the communities residing within and around the installation in the St. Marys River Basin. The plan will focus on developing up to ten nature-based solutions to move forward for project design to combat erosion and flood risks.



Capt. John Roussakies, commanding officer, Ohio-class guided-missile submarine USS Florida (SSGN 728) (Gold) make preparations to moor after returning to homeport at Naval Submarine Base Kings Bay, Georgia, following a deployment to 5th, 6th, and 7th fleet areas of operations. (U.S. Navy photo by Mass Communication Specialist 1st Class Travis S. Alston/Released)



REPI Funds: \$439K
NOAA Funds: \$277K
Partner Contributions: \$66K

Total: \$782K

PARTNER ORGANIZATION

St. Marys Riverkeeper



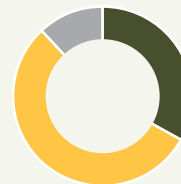
8. Marine Corps Base Camp Pendleton and Naval Base Coronado, California

Growing Scientific and Planning Capacity for Dune and Canyon Resilience in San Diego County

- Marine Corps Base (MCB) Camp Pendleton is the Marine Corps' largest West Coast expeditionary training facility, encompassing more than 125,000 acres and employing about 49,000 military members. Just south of MCB Camp Pendleton, Naval Base Coronado serves as a hub for U.S. naval activity and provides a shore-based platform for helicopters, aircraft carriers, Sea, Air, and Land Teams, and other ashore and afloat commands.
- Coastal hazards, primarily coastal erosion, threaten several transportation networks that are critical to MCB Camp Pendleton and Naval Base Coronado's operations, including State Route 75, State Route 282, and the Pacific Coast Highway. The San Diego region is also experiencing unprecedented heavy rainfall events, such as the January 2024 event, with three inches of rain recorded per hour, the fifth highest on record.
- This project will build on several existing regional plans, including the Office of Local Defense Community Cooperation's Shoreline Atlas plan around San Diego Bay, to create a comprehensive plan to restore 50 miles of canyons and 15 miles of coastal dunes in San Diego County. These restoration efforts will help reduce severe flooding risk to the transportation routes, such as State Route 75, which is essential to supplying munitions to Naval Base Coronado.



A Marine Corps light armored vehicle shoots an M242 25 mm main gun during a low-light live-fire training at Marine Corps Base Camp Pendleton, California (U.S. Marine Corps photo by Sgt. Patrick Katz).



REPI Funds: \$572K
NOAA Funds: \$205K
Partner Contributions: \$945K

Total: \$1.7M

PARTNER ORGANIZATION

San Diego Natural History Museum





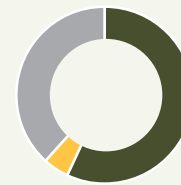
9. Vandenberg Space Force Base, California

Developing Plans for Living Shorelines along the Santa Ynez River Estuary

- Vandenberg Space Force Base (SFB) is located on the central coast of California and is the only military base in the United States that launches unmanned government and commercial satellites into polar orbit. The base encompasses over 98,000 acres, with 35 miles of pristine coastline stretching along the Pacific Ocean.
- The Santa Ynez River Estuary, which neighbors Vandenberg SFB, contains a railroad bridge that serves as a key corridor for military personnel and freight transportation. However, the transportation bridge above the river confines shoreline processes, alters habitats, restricts access to cultural areas, and restricts water flow, leading to flooding and infrastructure damage during storms and high sea levels.
- This project will include a site assessment and preliminary design to install living shorelines under and around the transportation bridge to allow greater flood flow capacity, thereby reducing the risk of flood damage to the rail, communications, community infrastructure, and South Base entrance and properties.



Two 30th Security Forces Airmen search for litter during a beach clean-up day along the shoreline of Minuteman Beach at Vandenberg Space Force Base, California. (Photo by Joseph Avenida)



REPI Funds: \$600K
NOAA Funds: \$400K
Partner Contributions: \$50K

Total: \$1M

PARTNER ORGANIZATION
Althouse and Meade, Inc.



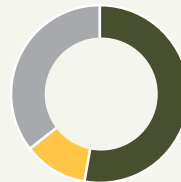
10. Eglin Air Force Base, Florida

Creating Preliminary Design for a Living Shoreline along Choctawhatchee Bay

- Eglin Air Force Base (AFB) is the nation's largest Air Force installation, and is at the forefront of research and testing activities and is the headquarters of the 96th Test Wing, the 33rd Fighter Wing, and Air Force Special Operations Command. In addition to their critical role in the nation's security, Eglin AFB and associated services account for over 63% (\$9.2 billion) of the local economy.
- Severe coastal erosion along the north side of Okaloosa Island directly threatens the stability of the roadways surrounding Eglin AFB. These roadways, including Highway 98, serve as critical hurricane evacuation routes for the installation and surrounding community, with an average of 43,000 vehicles using the roadway daily. Since 2010, an estimated 4.48 acres of shoreline have eroded in the proposed project area alone, with severe acceleration of erosion occurring in only the past couple of years.
- The multi-phase project includes design, permitting, and construction of a 4,500 linear-foot living shoreline alongside a highly vulnerable section of U.S. Highway 98. By establishing breakwaters and planting native vegetation, the enhanced shoreline will support military readiness by reducing risks to the installation's hurricane evacuation route and improving habitat for several ecologically, commercially, and recreationally important estuarine organisms, including the Eastern oyster, Gulf sturgeon, and Red and Black drum.



Airmen conduct military free-fall operations during Emerald Warrior 23 at Eglin Range, Florida. The exercise is designed to train forces to respond to various threats across the spectrum of conflict. (U.S. Air Force photo by Staff Sgt. Joshua De Guzman)



REPI Funds: \$450K
NOAA Funds: \$300K
Partner Contributions: \$100K

Total: \$850K

PARTNER ORGANIZATION
Okaloosa County





11. Dover Air Force Base, Delaware

Designing a Living Shoreline and Oyster Reef Habitat in Port Mahon

- Dover Air Force Base (AFB) is home to the 436th Airlift Wing, commonly known as the “Eagle Wing” and the 512th Airlift Wing, the Reserve associate, known as the “Liberty Wing.” Dover’s mission is to safely fix and fly aircraft, prepare and deploy Airmen, move cargo, and return America’s fallen heroes with dignity, honor, and respect.
- Port Mahon Road is the sole access point to the Dover AFB fuel supply, Delaware Department of Natural Resources and Environmental Control fishing pier, and a community boat launch. Without protection and natural resource enhancements, areas surrounding Port Mahon Road will continue to erode at a rate of about 29 feet per year, which directly threatens the installation’s access to the Jet A fuel supplies.
- This project will replace existing riprap structure with a 1,500-foot hybrid living shoreline, including subtidal oyster reefs and offshore wave-dampening structures, to protect the critical access route and safeguard Dover AFB’s mission capabilities, including providing nearly 25% of the nation’s airlift capabilities.



Maintainers from Dover Air Force Base, Delaware, walk across the flightline while working on aircraft in preparation of de-icing procedures. The base recorded an inch of snow overnight. (U.S. Air Force photo by Master Sgt. Joshua Williams)



REPI Funds: \$1M

Total: \$1M

PARTNER ORGANIZATION

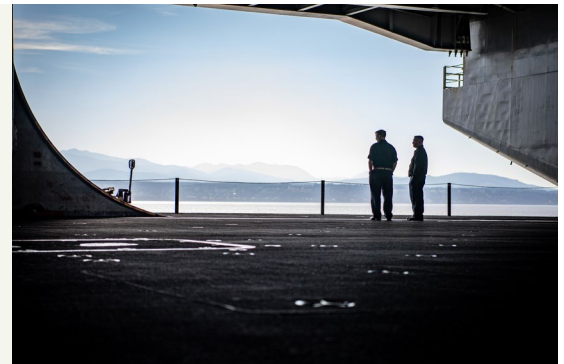
University of Delaware



12. Naval Air Station Whidbey Island, Naval Station Everett, Naval Base Kitsap, and Naval Magazine Indian Island, Washington

Developing Planning Resources for Armored Shoreline Conversion in Puget Sound

- Puget Sound is the U. S. Navy’s third-largest fleet concentration area, with four major installations, including Naval Air Station Whidbey Island, Naval Station Everett, Naval Base Kitsap, and Naval Magazine Indian Island. The Navy infuses more than \$13.5 billion annually into the local Northwest economy, and the region is home to approximately 25,041 active-duty service members, 3,600 reservists, and 20,974 civilian employees.
- Over 400 miles of the Puget Sound is armored with hard structures that amplify erosion and reduce natural habitat for threatened and endangered species, which could lead to added regulatory requirements for the installation to protect the species.
- The project will enable expansion, reinforcement, and adaptation of “Shore Friendly” programming that deploys hard armor alternatives to restore habitats for marine nearshore-dependent species. This outreach effort will target restoration activities along shores adjacent to Navy bases, which could help reduce future regulatory requirements to protect the local Endangered Species Act-listed Chinook Salmon, sand lance, and surf smelt.



Sailors look out at the Olympic Mountains from the hangar bay of the aircraft carrier USS Nimitz (CVN 68) in the Puget Sound. Nimitz is underway conducting routine operations. (U.S. Navy photo by Mass Communication Specialist 2nd Class Hannah Kantner)



REPI Funds: \$570K

NOAA Funds: \$429K

Partner Contributions: \$154K

Total: \$1.2M

PARTNER ORGANIZATION

Washington Department of Fish and Wildlife





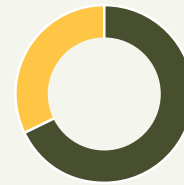
13. Naval Weapons Station Seal Beach, California

Planning for Living Shoreline Implementation in Seal Beach National Wildlife Refuge

- Naval Weapons Station Seal Beach is the Navy's primary West Coast ordnance storage, loading, and maintenance installation. One-fifth of the facility's coastal area has been designated as a National Wildlife Refuge and includes 750 acres of tidal marsh.
- Erosion along coastal California creates significant threats to Naval Weapons Station Seal Beach, including the Naval Weapons Command Station located adjacent to the Forrestal Pond and Inlet Peninsula. The erosion in southern California is being amplified due to the current rate of sea level rise, 2.1mm per year.
- To promote shoreline resilience and reduce erosion rates, this project will include a site assessment and preliminary design of a living shoreline along the Forrestal Pond, Inlet Peninsula, and Bolsa Chica Channel. The design will include multiple native oyster beds, native salt marsh plants, and native eelgrass beds to restore foundational species and improve overall ecosystem function.



The guided-missile destroyer USS Paul Hamilton (DDG 60) enters Anaheim Bay and prepares to moor alongside a new ammunition pier at Naval Weapons Station Seal Beach, becoming the first ship to use the facility for munitions transfer operations. (U.S. Navy photo by Samantha Lymburn)



■ REPI Funds: \$712K
■ Partner Contributions: \$297K

Total: \$1M

PARTNER ORGANIZATION

Orange County Coastkeeper/
Inland Empire Waterkeeper

