



DEPARTMENT OF THE ARMY  
OFFICE OF THE ASSISTANT SECRETARY  
CIVIL WORKS  
108 ARMY PENTAGON  
WASHINGTON DC 20310-0108

JUL 14 2010

MEMORANDUM FOR THE DIRECTOR OF CIVIL WORKS

Subject: Approval to Implement New Projects in the Estuary Habitat Restoration Program

At its meeting on May 26, 2010, the Estuary Habitat Restoration Council approved a prioritized list of ten projects for Army's consideration. In accordance with the Estuary Restoration Act of 2000, as amended, I have reviewed the projects recommended by the Council and approve two for implementation by U.S. Army Corps of Engineers. Four projects will be delegated to NOAA for implementation with NOAA funds as the Council recommended. These projects are listed in priority order in enclosure 1. Summaries for the projects approved for funding are provided in enclosure 2. Consideration should be given to using a Cooperative Agreement for implementation of the two projects approved for funding by the U.S. Army Corps of Engineers.

In the event funds become available prior to issuance of a new solicitation by the Council, consideration will be given to approving funding of one or more of the other four projects recommended by the Council

If there are any questions, your staff may contact Mr. Arnab Raychaudhuri at (703) 695-6791

Enclosure

  
Jo-Ellen Darcy  
Assistant Secretary of the Army  
(Civil Works)

Estuary Habitat Restoration Program  
Projects Approved for Implementation  
November 2009

1. Port Susan Bay Estuary Restoration, WA - NOAA funded
2. Damde Meadows Tidal Restoration – Phase II, MA – NOAA funded
3. McDaniel Slough Tidal Restoration, CA – NOAA funded
4. Resorting Coastal Estuarine Habitat in Three North Carolina Estuaries, NC – USACE funded
5. Jupiter Ridge Shoreline Restoration Project, FL – USACE funded
6. Molokai Fish Pond and Fringing Reef Restoration, HI

## Summaries of the Six Projects Approved for Implementation

### ESTUARY RESTORATION ACT OF 2000 PROJECT SUMMARIES

**RANK:** 1 **Funding Agency Recommendation:** NOAA

**NAME:** Port Susan Bay Estuary Restoration

**LOCATION:** Snohomish County, Washington

**ACRES:** 150 acres

**NON-FEDERAL SPONSOR:** The Nature Conservancy (TNC)

**PROJECT COST:**

Total Project Cost \$2,325,000

Total Federal Share of Project Cost \$1,000,000 (43.0%)

ERA amount \$1,000,000 (43.0%)

Other Federal funds \$0

**PROJECT DESCRIPTION:**

The Port Susan Bay Estuary Restoration Project proposes to reintroduce the full tidal prism and inundation regime to 150 acres of diked farmland in the Stillaguamish River estuary in Puget Sound. In doing this, self sustaining native tidal wetlands that support estuarine-dependent animals will be restored, juvenile salmon access to restored rearing habitats will be improved, and the connectivity between the river and tidal habitats in the northeastern portion of Port Susan Bay will be increased. This project will restore estuary-scale sediment and freshwater distribution, and is therefore critical to improving the resilience of the broader ecosystem to sea level rise. Further, the project will address a major community flood challenge, improve the ability of fish in flood waters to return to the natural system, and allow for greater public access to the site.

**EXPECTED BENEFITS:**

The project will promote tidal channel and wetland development and ultimately provide habitat benefits for estuarine-dependent species at both the project and system scales. Increased habitat access and complexity are expected to lead to increased utilization by both fish and waterbirds. Abundant prey resources will support this increased utilization. The project will benefit locally occurring at risk salmon species including the following: Chinook salmon and bull trout (ESA Threatened); coho salmon (ESA Species of Concern); and steelhead trout (ESA Threatened Species). This project will also provide flood attenuation to the community in the lower river valley. Finally, restoration success will require an understanding of site and ecosystem scale vulnerabilities, and the ability to project future delta habitat structure and function in the face of climate change. Without restoration, the acreage of low marsh in the estuary is projected to decrease due to sea level rise; however, with the project, the area of low marsh will be maintained.

**PROJECT PARTNERS AND THEIR CONTRIBUTION VALUES:**

Washington State Salmon Recovery Funding Board – \$750,000

Private funding through TNC – \$575,000

**RANK: 2 Funding Agency Recommendation: NOAA**

**NAME:** Damde Meadows Tidal Restoration – Phase II

**LOCATION:** World's End Reservation, Hingham, Plymouth County, Massachusetts

**ACRES:** 15 acres

**NON-FEDERAL SPONSOR:** The Trustees of Reservations (The Trustees)

**PROJECT COST:**

Total Project Cost \$396,975

Total Federal Share of Project Cost \$254,000 (64.0%)

ERA amount \$190,000 (47.9%)

Other Federal funds \$64,000

**PROJECT DESCRIPTION:**

The Damde Meadows Tidal Restoration Project is in the final phase (Phase II) of an ambitious project that will restore full tidal hydrology to Damde Meadows, a 15-acre salt marsh located in the heart of the Boston Harbor Islands National Recreation Area.

The overall project involves complete replacement of two undersized concrete box culverts between Hingham Harbor and Damde Meadows with 20-foot wide open channels. The primary goals are: 1) improvement of the tidal connection between Damde Meadows and Martin's Cove, thereby restoring a 15-acre coastal wetland system to a natural tidal range salt marsh that supports wildlife habitat, fisheries, shellfish, nutrient production and export, and biodiversity; and 2) reduction of erosive and dangerous water velocities by replacing enclosed, submerged culverts with day-lighted channels.

**EXPECTED BENEFITS:**

- Restore full tidal range and flushing to the Damde Meadows coastal wetland system
- Address safety concerns with current culverts
- Restore a functioning salt marsh community dominated by halophytes including *Spartina alterniflora* and *Spartina patens*
- Provide coastal resiliency by creating additional storm water buffering capability, and sediment, nutrient, and contaminant retention capacity
- Enhance adjacent shellfish populations through removal of pollutants from surrounding waters, and increased production and export of organic detritus that forms the basis of the marine food web
- Protect and restore coastal wetland habitat with the ability for inland habitat migration in response to rising sea levels
- Maintain public access to Worlds End for visiting public

**PROJECT PARTNERS AND THEIR CONTRIBUTION VALUES:**

The Trustees of the Reservation – \$133,612.00

MA Division of Ecological Restoration – \$9,363.00

**RANK: 3 Funding Agency Recommendation: NOAA**

**NAME:** McDaniel Slough Tidal Restoration

**LOCATION:** Arcata, California in Humboldt County

**ACRES:** 45.5 acres

**NON-FEDERAL SPONSOR:** City of Arcata

**PROJECT COST:**

Total Project Cost \$1,278,680

Total Federal Share of Project Cost \$794,680 (62.1%)

ERA amount \$275,000 (21.5%)

Other Federal funds \$519,680

**PROJECT DESCRIPTION:**

The McDaniel Slough Marsh Enhancement Project will restore and enhance coastal and riparian wetland habitats on the northern portion of Humboldt Bay by integrating city and state held lands. The proposed project will restore historic natural geomorphic and biologic processes to create a self-sustaining restored tidal estuary, and enhance freshwater wetlands on the site. Phase III of the proposed project expands the original project area by 45.5 acres, restoring/enhancing an additional 22 acres of tidal and 23.5 acres of freshwater wetlands. The project will remove barriers to fish access, deepen historic slough channels, and remove failing or obsolete levees to restore anadromous fish to McDaniel Slough/Janes Creek. Upon project completion 222 acres of former tidelands will be restored and 69 acres of brackish and freshwater wetlands will be created or enhanced.

**EXPECTED BENEFITS:**

Ecosystem benefits include restoration of lost hydrologic function and estuarine habitat associated with former tidelands, restored fish passage to an historic coho stream, improved instream habitat, improved water quality, and habitat restoration/enhancement for a variety of endangered/threatened species and migratory birds. The project will help to establish a connectivity of habitat encompassing over 1,300 acres of local, state and federal protected lands adjacent to the northern edge of Humboldt Bay. Restoration will also improve flood capacity and sediment routing.

**PROJECT PARTNERS AND THEIR CONTRIBUTION VALUES:**

Californian Department of Fish and game – \$360,000

City of Arcata – \$124,000



**RANK: 4 Funding Agency Recommendation: Corps**

**NAME:** Restoring Coastal Estuarine Habitat in Three North Carolina Estuaries

**LOCATION:** Brunswick, Carteret, Onslow and New Hanover Counties, North Carolina

**ACRES:** 9.3 acres of oyster habitat and 1.24 acres of saltmarsh habitat

**NON-FEDERAL SPONSOR:** North Carolina Coastal Federation

**PROJECT COST:**

Total Project Cost \$ 740,367

Total Federal Share of Project Cost \$ 479,887 (64.8%)

ERA amount \$ 479,887 (64.8%)

Other Federal funds \$0

**PROJECT DESCRIPTION:**

The proposed project would occur on three different sites along North Carolina's coastline: Lower Lockwood Folly River; Stump Sound; and Jones Island. The project will include the restoration of coastal saltmarsh habitat and the creation of oyster reefs comprised of oyster shellbags. The oyster reefs will be designed and constructed using a variety of reef heights, shell layer thickness, and edge complexity, providing substrate for oyster larvae and serving as wave dampening mechanisms to control erosion along the shorelines. Once the oyster reefs have been constructed, the saltmarsh restoration will take place between the oyster reefs and eroding shoreline. Smooth cordgrass (*Spartina alterniflora*) and saltmeadow hay (*Spartina patens*) seedlings will be planted along the intertidal zone, landward of the restored oyster reef area in each project area.

**EXPECTED BENEFITS:**

This project will benefit the eastern oyster (*Crassostrea virginica*) by providing substrate for larvae to attach to, helping to increase species numbers and improve water quality in the project area. These reefs will also provide habitat for a variety of marine fish and invertebrate species. In addition, this approach also allows for adaptation to rising sea levels, as the living shoreline allows the project components to adapt and migrate to changing levels of water.

**PROJECT PARTNERS AND THEIR CONTRIBUTION VALUES:**

University of North Carolina, Wilmington—\$12,000

North Carolina Coastal Federation— \$160,000

**RANK: 5 Funding Agency Recommendation: Corps**

**NAME:** Jupiter Ridge Shoreline Restoration Project

**LOCATION:** Town of Jupiter, Palm Beach County, Florida

**ACRES:** 5.73 acres

**NON-FEDERAL SPONSOR:** Palm Beach County Department of Environmental Resources Management

**PROJECT COST:**

Total Project Cost \$1,969,648

Total Federal Share of Project Cost \$ 500,000 (25.4%)

ERA amount \$ 500,000 (25.4%)

Other Federal funds \$0

**PROJECT DESCRIPTION:**

The Jupiter Ridge Natural Area contains some of the southernmost barrier island scrub, depression marsh, and tidal swamp vegetative communities remaining on the eastern coast of Florida. The western portion of the site includes 7,600 feet of frontage along the Atlantic Intracoastal Waterway (ICW). Wave energy caused by boat wakes from the ICW has significantly eroded the shoreline of the Jupiter Ridge Natural Area and continues to impact the health of existing seagrass, mangrove, and scrub habitats. This project will protect shoreline vegetation and seagrass from erosive wave activity through the construction of 23 limestone oyster reef/breakwaters. In several locations along the project shoreline, the oyster reef/breakwaters will be positioned to create roughly 3.5 acres of seagrass enhancement areas. In addition, approximately 1.21 acres of native estuarine vegetation will be planted to restore areas of eroded shoreline and to provide additional habitat for native species.

**EXPECTED BENEFITS:**

The oyster reef/breakwaters will reduce the amount of wave energy impacting the shoreline, stabilize sediment, and protect seagrass and mangrove habitat. Additionally, the submerged portions of the oyster reef/breakwaters will provide essential habitat for fish and invertebrates and serve as substrate for eastern oysters (*Crassostrea virginica*), which provide the additional long-term benefit of improving water quality. The project will also provide ecological benefits to the Loxahatchee River/Lake Worth Creek Aquatic Preserve because of its location and hydrologic connectivity.

**PROJECT PARTNERS AND THEIR CONTRIBUTION VALUES:**

Palm Beach County Department of Environmental Resources Management, via the Palm Beach County Manatee Protection Fund – \$1,469,648

**RANK: 6 Funding Agency Recommendation: NOAA**

**NAME:** Molokai Fish Pond & Fringing Reef Restoration

**LOCATION:** Kaunakakai, Island of Molokai (Maui County), Hawai'i

**ACRES:** 60 acres

**NON-FEDERAL SPONSOR:** Ka Honua Momona Int'l

**PROJECT COST:**

Total Project Cost \$635,215

Total Federal Share of Project Cost \$100,000 (15.7%)

ERA amount \$100,000 (15.7%)

Other Federal funds \$0

**PROJECT DESCRIPTION:**

Ka Honua Momona (KHM) proposes to remove invasive mangroves and invasive marine algae from inside two 15th century fish ponds on the fringing reef of the Hawaiian island of Molokai. Mangroves were planted in 1902 to control upland soil erosion from reaching Molokai's fringing coral reef. Unfortunately, they have spread along the shoreline and are drastically changing shoreline habitat by providing habitat for invasive predatory species like Samoan crab (*Scylla serrata*); exacerbating retention of fine sediments on the reef flats; and destroying aquaculture ponds. Recently, invasive algae have taken advantage of the changed conditions and threaten to take over the reef flats and fish ponds.

**EXPECTED BENEFITS:**

- Fine sediment flushed out of the pond and away from the shoreline/inner reef area
- Improved habitat for estuarine species that prefer a more concentrated freshwater environment
- Improved tidal exchange between the ponds and the nearshore reef
- Increased food resources for migratory shore birds
- Improved habitat for visually-dependant waterbirds (e.g. black-crowned night herons)
- Decreased mangrove habitat preferred by invasive species (e.g. Samoan crab)
- Protected populations of native algae (limu)
- Improved ocean access
- Improved food security for the island residents
- Improved knowledge, understanding, and appreciation of pre-contact Hawaiian culture
- Improved cross-generation contact and transfer of fishing and food production skills.
- Protection of culturally significant archeological site that can also still function as modern-day aquaculture facility

**PROJECT PARTNERS AND THEIR CONTRIBUTION VALUES:**

Ka Honua Momona Int'l – \$70,000