



## 2014 WEDA Environmental Excellence Award Application for Navigation/Environmental Dredging Projects Submitted by the Port of Stockton, California

**SUMMARY:** The Port of Stockton (Port) is located in the Sacramento – San Joaquin Delta in California’s Central Valley approximately 75 nautical miles from San Francisco. The Port’s facilities are located on 2,000 acres and are equipped to handle various types of cargo. Annual maintenance dredging of the Stockton Deep Water Ship Channel (SDWSC) is conducted by the United States Army Corps of Engineers (Corps) in partnership with the Port to allow safe travel of large cargo ships. The Port is responsible for securing the dredged material placement sites for the annual dredging effort. In carrying out all its activities, including dredging, the Port is committed to protecting the environment and maximizing environmental benefits. The Port identified a unique opportunity to reuse its maintenance dredging material to restore a sensitive dune ecosystem that has been destroyed and degraded from past development in the region.

After years of interagency collaboration and planning, the Port, in partnership with the Corps and the United States Fish and Wildlife Service (FWS), officially began site preparation in late 2013 for the Antioch Dunes Restoration Project to restore the dune habitat which provides sanctuary to numerous endangered species. This unique project combines the annual SDWSC maintenance dredging effort with a local habitat restoration project creating both environmental and economic benefits.

The Antioch Dunes National Wildlife Refuge (ADNWR) is part of the San Francisco National Wildlife Refuge Complex, and is the home to the last remaining populations of three endangered species: Antioch dunes evening primrose, Contra Costa wallflower, and Lange’s metalmark butterfly. The butterflies, require coastal dune habitat, and rely on the specific plant communities where the Antioch dunes evening primrose and the Contra Costa wallflower also thrive. This riverine or Aeolian dune habitat, originally formed during glaciation periods, was once widespread in this portion of the San Joaquin River delta. However, it is now a tiny fraction of its former size due to sand mining and development starting in the early 1900’s.

ADNWR was created by the FWS in 1980 to protect the habitat of these species and was the first National Wildlife Refuge created specifically for the preservation of plants and insects. The FWS is using dredged sand to restore the dune habitat at the refuge in the hopes that it will help increase the populations of the protected species. Another plant species, naked stemmed buckwheat, which is the primary food source for the butterflies, will also thrive from the renewed dunes. The refuge is already showing signs of success; the butterfly population was as low as 40 at one time and recently has grown to 78 butterflies.

Since last November, the restoration project has successfully placed 40,000 cubic yards of sandy dredged material at ADNWR. The current project anticipates requiring sand annually until 2022, although the dredged material could be available indefinitely as maintenance dredging occurs in several nearby channel locations each year. The creative project is a clear win for all agencies involved and allows each of them to meet their individual goals and objectives. The Port was



able to provide dredged material at no monetary cost while meeting their responsibility of providing a location for the dredged material. In addition to saving money by avoiding fees associated with placing materials at nearby Sherman Island, the Port has also met one of their primary environmental initiatives: finding environmentally beneficial re-uses for the dredged material and continuing to be faithful environmental stewards.

The project at ADNWR is the first significant beneficial re-use of SDWSC dredged material for ecosystem restoration that has occurred in this region. This is due to a lengthy and just completed process of characterizing the dredged material and evaluating potential impacts from its placement on surface and ground waters.

The Corps is responsible for ensuring that the SDWSC is maintained to its authorized depth of 35 feet. Their role in the project was to coordinate with the dredge contractor to prepare the site and supply the material by way of a pipeline.

The FWS was able to find a free, ongoing source of suitable local sand to start its long anticipated project of restoring dune habitat at ADNWR. Before this interagency partnership was implemented, the restoration project lead by FWS had stalled due to prohibitive material handling costs for the large volumes of sand required.

## **LIST OF PROJECT TEAM MEMBERS:**

United States Fish and Wildlife Service (owner of the project)

Louis Terrazas

Wildlife Refuge Specialist

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(707) 769-4200 ext. 105

Role: Mr. Terrazas manages the project for the FWS

WEDA membership status: non-member

United States Army Corps of Engineers

Gary Kamei

USACE Sacramento District Navigation Program Manager

Gary.Kamei@usace.army.mil

(916) 557-6845

Role: Mr. Kamei's role on the project was to ensure the site was properly constructed to receive the dredge slurry and to coordinate the USACE dredging contractor's placement to ADNWR.

WEDA membership status: member

Port of Stockton (nominating entity)

Jeffrey Wingfield

Manager of Environmental and Government Affairs

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(209) 946-0246



Role: Mr. Wingfield coordinated all of the government agencies involved and acquired all permits from the Corps, Regional Water Quality Control Board (RWQCB), NMFS, and California department of fish and Wildlife (CDFW), allowing the dredged material to be placed at ADNWR. WEDA membership status: member

## **ENVIRONMENTAL BENEFITS:**

1. Restoration of extremely rare dune habitat, home to three endangered species and the resources they rely on.
2. Reduced air and noise pollution by pumping sand to the restoration site directly rather than delivering it by truck as originally anticipated.
3. Increased public awareness of the environmental stewardship projects undertaken by governmental agencies. The public's understanding and relationship with the planet's ecosystems is constantly evolving. Government projects that have positive environmental outcomes directly enable future public and private actions likely to produce similar environmental benefits. ADNWR holds a significant place in the public eye, and is quite unique within its heavily commercialized surroundings. Success for this project should help pave the way for future projects that beneficially re-use material dredged from the SDWSC.

## **UNIQUE ENVIRONMENTAL CHALLENGES THAT WERE ADDRESSED:**

1. Re-use of dredged material could not readily occur until very recently due to environmental restrictions based on ongoing questions about the quality of the dredged material. Due to research conducted by the Port at a variety of dredged material placement sites (DMP), resolution has been obtained and questions addressed related to the impacts to surface waters and underlying groundwater resulting from placement of dredged material. The studies revealed no adverse impacts. In fact, water quality was improved in the groundwater surrounding the DMP compared to surrounding areas.<sup>1</sup>
2. Working in a National Wildlife Refuge also presented unique environmental challenges not typically faced when establishing a new DMP. The site is very sensitive and required significant coordination with all agencies involved to ensure there were no adverse environmental impacts. For example, once the project was permitted, FWS crews carefully removed the plants that are host to the butterfly from the material placement site and safely replanted them elsewhere on the refuge.
3. The project focused on bringing all agencies together to develop a working plan for the beneficial reuse of dredged material to reestablish the dune habitat. This ongoing project represents the first significant re-use of material dredged from the SDWSC specifically for a project designed to restore habitat for endangered species.

<sup>1</sup>Roberts No. 1 Ground Water Quality Investigation and Monitoring. Section 6, page 34.



## **INNOVATION:**

### **How does this project show leadership and take steps beyond “traditional” environmental protection efforts?**

Prior to initiation of this project during the late summer and fall of 2013, the Port used an existing DMP at a nearby location on Sherman Island to place material during local annual maintenance dredging of the SDWSC. When the Port learned of the need for sand to reestablish the dunes at ADNWR, it took the lead to coordinate the effort to change the placement site so that FWS could beneficially reuse the material. This was the first time that the Port has partnered with FWS to restore habitat for endangered species by providing dredged material.

### **Did the project break new ground in addressing environmental challenges?**

Up until very recently, dredged material had significant restrictions that prevented many types of beneficial re-use. Previous re-uses were: levee repair, construction, road construction, etc. This was the first opportunity to use the material in a National Wildlife Refuge created to protect endangered species. Based on recent research conducted at the Port’s DMPs, it was able to show the agencies that this material is clean and would be suitable for reestablishing the sensitive dune habitat at ADNWR.

### **What methods, technologies, or approaches (including partnerships) were used?**

The project required a strong partnership between the Port, Corps, FWS, National Marine Fisheries Service (NMFS), and the California Regional Water Quality Control Board (RWQCB). Based on previous experience having created trust and understanding among the partners and agencies, they all saw the benefits of the project and worked in a timely and efficient manner to achieve a common goal.

### **What sustainable approaches were applied?**

The Port can provide sand to ADNWR annually until the refuge’s needs are met. This is due to the annual Corps maintenance dredging of the SDWSC in locations nearby the refuge. Providing sand to the refuge will reduce costs for the Port and provide a beneficial re-use of the dredged material. FWS will be able to rebuild the dunes at ADNWR with free sand provided by the Port. This should enable completion of the project faster, cheaper, and with fewer unwanted or unavoidable environmental impacts. The project offers opportunity for extremely rare habitat to be restored and populations of three endangered species to increase. Additionally, success of this project will increase future opportunities for re-use of material dredged from the SDWSC for other environmental enhancement projects.



## **ECONOMIC BENEFITS:**

### **Implementation of cost effective methods, procedures or practices**

1. The Port was not charged a fee for placing the dredged material at ADNWR as it would have been had it been placed at the normally used DMP.
2. Dredging costs were reduced, as ADNWR is closer to the dredging reach than the DMP at Sherman Island.
3. FWS saved money, as the Port did not charge them for the material it provided. Dune restoration would have otherwise been accomplished by the costly option of trucking in sand.
4. Dredging the channel has significant economic benefits associated with efficient goods movement. Though the SDWSC would have been dredged and the material placed at another site if this project had not happened, the cost savings to the Port and FWS should result general economic benefit within the region affected by the Port, and possibly allow the FWS to spend the money it saved on another worthwhile aspect of the restoration effort.

### **How does the project contribute to the economy?**

1. The project benefits the economy by keeping the channel open for efficient movement of goods. Though this would have occurred without the project, the project decreased the overall costs of keeping the channel open, allowing the money saved to be spent elsewhere.
2. The project should result in increased local tourism at the Refuge due to its high regional profile and interest in the project. This should have a local economic benefit.
3. Local labor, materials and equipment suppliers, and equipment operators were utilized on the project.

## **TRANSFERABILITY:**

### **Are the project characteristics and lessons learned transferable and can they be used by others addressing similar environmental issues?**

1. This ambitious project to restore habitat for three endangered species is the largest dune habitat restoration project that has been conducted by the FWS. The lessons learned will provide guidance for further dune restoration projects at ADNWR, as well as other locations, and should help establish precedence for similar projects in the future.
2. Beneficial re-use of dredged material from the SDWSC at ADNWR should provide critical information on which to plan future beneficial re-use projects.
3. The key component of this project was the speed and cooperation among the agencies and parties involved that was required in order to meet the project milestones, and to allow the preparations, permits, finances and agreements to be in place at the critical times to allow this environmental restoration project to happen.





## OUTREACH AND EDUCATION

### What education and /or outreach activities were undertaken?

The Port donated a sign that was posted at ADNWR describing the project to the public. Press releases were provided by FWS, the Port, and the Corps. An article was published in Bay Nature magazine. Tours of ADNWR are provided by request to FWS.

### What mechanisms were used to involve the stakeholders?

The Port provided great leadership in bringing together the Corps, FWS, RWQCB, and NMFS to collaborate and work through issues to amend permits and obtain permit approvals allowing realization of the common goal of enhancing the dune habitat.





# ANTIOCH DUNES

RESTORATION PROJECT

## PROJECT PHOTOS

