4 MINUTE READ

Piping Plover Habitat

from **Engineering With Nature: An Atlas, Volume 2.**

by **US Army Engineer Research and Development Center**

Superior, Wisconsin, United States

Providing new nesting and foraging sites for an endangered species. Historically, the St. Louis River Estuary—the largest freshwater estuary in North America and the headwater of the Great Lakes—supported breeding populations of piping plover (*Charadrius melodus*). While these tiny shorebirds are occasionally still spotted during their spring migration, they have not nested in the estuary since 1985. Piping plover, federally listed as an endangered species in 1986, prefer large isolated beach and dune habitats for nesting, and loss of habitat leaves only a few critical locations across the Great Lakes. The complex issues at the project site have resulted from historical waste disposal and land use practices, such as those from logging and paper mills and from dredging and filling aquatic habitat. With funding from the Environmental Protection Agency's Great Lakes Restoration Initiative, the state of Wisconsin led the effort for the beneficial use of dredged sediment in a region that has an international legacy of sediment contamination. The robust application of science, engineering, and collaborative discussion resulted in piping plover nesting

and foraging habitat while reducing maintenance dredging requirements in the estuary.

Article Cover: Less than one year after construction, a piping plover was spotted on site. (Photo by Sam Hansen, St. Louis River Alliance)

Producing Efficiencies

Piping plovers prefer nesting on coarse-grained sand beaches rather than the fine grains common in dredged sediment. So, the team built up the habitat by burying the fine dredged sediment beneath sandier dredged sediments. This allowed the team to leverage existing resources while providing the necessary habitat and preventing costly double handling of the dredged sediment. Further, the U.S. Army Corps of Engineers (USACE)–Detroit District and the Engineer and Research Development Center created and applied a model to ensure that the beach would provide the correct habitat even during high water levels.

Piping plovers prefer coarse sand with cobble and gravel for their nests.
(Photo by Sam Hansen, St. Louis River Alliance)

Using Natural Processes

As piping plover like to nest in cobble and gravel areas, so the team constructed three cobble pans on the beach to make the site more desirable for nesting. They worked with species experts to determine the best stone characteristics to use to imitate nature. Additionally, to prevent vegetation from growing at the site, the team buried the existing seed bed under at least 15 centimeters of dredged sediment, naturally suppressing vegetative growth. Keeping the locally available dredged sediment in the same littoral system affected by severe erosion also mimics the Great Lakes system's native processes.

A chain-link fence helps deter predators, protecting the plovers' nesting area. (Photo by USACE Detroit District)

Broadening Benefits

In addition to the nesting and foraging habitat created by the placement of the dredged sediment, this project increased habitat for the state-

endangered hairynecked tiger beetle (*Cicindela hirticollis*), increased fish-spawning habitat, and created new bird-watching opportunities. The project also removed the shoaling areas near the site, preventing future obstacles to navigation and commerce in the area, and kept available capacity in the harbor's confined disposal facility. Duluth-Superior Harbor is in the top 50 U.S. Water Ports in the nation when ranked by tonnage. Benefits to this system have a far-reaching cumulative effects across the region, the nation, and overseas.

Dredged sediment was hydraulically placed to create piping plover habitat. (Photo by USACE Detroit District)

Promoting Collaboration

The Wisconsin Department of Natural Resources partnered with the Environmental Protection Agency, the Fond du Lac Band of Lake Superior Chippewa, the Lac du Flambeau Tribe, and many other state and federal agencies to meet the overarching goal of increasing stopover and nesting habitat for the piping plover. The project team also sought feedback from local landowners and other stakeholders to gain support and show the beneficial impact to the region, and the two tribes contributed cultural experts to monitor ground disturbance. The importance of the piping plover helped to organize and focus stakeholders, leading to an effective collaboration and a successful project.

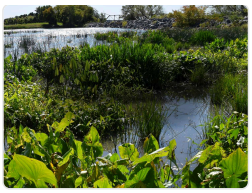
Contractors mobilized to the site to continue placement of dredged sediment.

(Photo by Duluth Area Office, USACE Detroit District)

Completion of 5.7 hectares of beneficially placed dredged sediment and cobblestone nesting pans.

(Photo by Duluth Area Office, USACE Detroit District)

More articles from this publication:

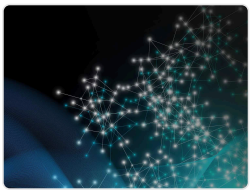


Introduction

13min pages 19-29

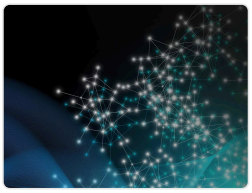
Conclusion

5min pages 320-325



Coastal Resilience and Natural Solutions Toolkits

2min pages 310, 318-319



Coastal Storm Modeling System

2min pages 310, 316-317

Natural Infrastructure Opportunities Tool

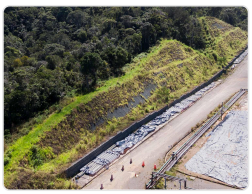
2min pages 310, 314-315

Ecosystem Services Identification and Inventory

2min pages 310, 312-313

Cypress Reforestation

4min pages 306-309



Matarandiba Island

3min pages 302-305

Lower Yellowstone River Fish Passage

4min pages 298-301

Show more

This article is from:

Engineering With Nature: An Atlas, Volume 2.

by US Army Engineer Research and Develop...

Redeem Code