

## FACTS & INFORMATION



Photo Courtesy of Andrew Garland

**AUGUST 2023**

**Project Overview:** The Braddock Bay Coastal Ecosystem Restoration project was implemented to address coastal wetland erosion and degradation while also improving the resiliency of the Braddock Bay and Lake Ontario ecosystems. Construction of this project was completed in 2018 by the U.S. Army Corps of Engineers (USACE) Buffalo District and its partners with USEPA, NYSDEC, the Town of Greece, and Monroe County. This project was funded entirely by the EPA Great Lake National Program Office through the Great Lakes Restoration Initiative and was a critical component to the delisting of the Rochester Embayment Area of Concern.

### Ecosystem Restoration

**Components:** The existing 180-acre emergent wetland habitat complex within Braddock Bay was restored using methods intended to provide spawning habitat for northern pike and nesting habitat for marsh birds, increase wetland habitat diversity, and improve habitat quality for a variety of other aquatic organisms. These activities include channel excavation (11,400 feet), pothole excavation (6.7 acres), native species planting, and invasive species management (9 acres). Additionally, approximately two acres of emergent marsh were created within Braddock Bay through the placement of dredged sediment excavated from the bay mouth. A nature-based shoreline structure consisting of stone, sand, and native vegetation materials was constructed in the mouth of the bay to reduce erosion of existing coastal wetlands and provide shoreline habitat. This structure itself provides 3.8 acres of beach as well as shrub and emergent wetland habitat that support shorebirds and other aquatic organisms.

**Engineering With Nature:** The aforementioned nature-based feature was engineered in the mouth of Braddock Bay to function as a barrier beach, reducing erosion while also maintaining habitat benefits and ecosystem functions. The barrier beach consists of a stone breakwater augmented with groins, headland breakwaters, and sand fill. The stone features provide containment for the sand fill that forms the basis for the beach and associated habitats. These components work together to mimic the form and function of a natural barrier beach like those historically present in the mouth of the bay. In addition to reducing wave energy in the bay and providing shoreline habitat, this barrier supports the natural littoral drift processes in the vicinity of the project by increasing the volume of littoral sediments that move past Braddock Bay and nourish down drift areas.

**Response of Organisms:** The actions taken to restore Braddock Bay have benefited a wide variety of organisms as indicated by yearly monitoring data. The floristic quality within restored areas of the wetland have increased compared to control areas. The species richness of birds and amphibians within the wetland have increased above pre-restoration levels. This includes observation of several marsh obligate species such as the least bittern, pied-billed grebe, American bittern, common gallinule, Virginia rail, and sora. The abundance of young-of-the-year northern pike has also increased in restored areas. The barrier beach has become a shorebird hotspot with over fifty species of shorebirds observed since its construction, including the federally-listed threatened piping plover as well as four other state-listed endangered/threatened species.



# Braddock Bay | Coastal Wetland Restoration

**Coastal Resiliency:** The barrier beach improves the coastal resiliency of the Braddock Bay Ecosystem as well as the marinas that function there. It reduces wave driven erosion that was scouring emergent wetlands within the bay. Furthermore, it reduces the accumulation of littoral sediments within the bay and creates a nearby location that sand dredged from the channel can be placed. Despite two record high water levels (2017 and 2019) the beach at Braddock Bay persists and continues to provide important coastal habitat.

**Adaptive Management:** Monitoring and adaptive management spanned from 2015 to 2023, and was completed by USACE, NYSDEC, and its partner State University of New York (SUNY) Brockport. This monitoring was used to identify important actions necessary to support the desired restoration trajectory such as channel blockage removals and emergent wetland establishment. Furthermore, this monitoring provided data used to determine if project measures were successful at achieving their goals.



## PROJECT PARTNERS



**U.S. ARMY CORPS OF ENGINEERS**

