

Popponesset Bay Restoration Project improves water via oyster propagation



Mashpee Wampanoag Tribe

Mashpee, Massachusetts

Project Time Period
(FY2008– FY2017)

- **Tribal Contact:** George “Chuckie” Green, Director, Natural Resources
- **GAP Project Officer:** Kwabena Kyei-Aboagye, EPA Region 1
- **Media:** Water Resources/ Nutrient Pollution
- **GAP Funded Results:**
ETEP Development/Implementation
Outreach & Education
Program Development (Core Competencies)

Project Description

Since recognition in 2007, the Mashpee Wampanoag Tribe utilized GAP funding to develop its Natural Resources Department (NRD). The tribe identified water quality as its most pressing environmental problem of nearby waterways after experiencing a major fish kill in Popponesset Bay, which impacted tribal members’ traditional sustenance fishing practices. In response, the tribe built water quality monitoring capacity through GAP funding and developed a robust monitoring program in the bay and surrounding waters. The tribe built strong partnerships through its monitoring program with local government, academic institutions, and other federal agencies.

Project Details

In 2008, the NRD developed a plan to address the problem of nitrogen loading and fish kills in the Mashpee River and Popponesset Bay system. The NRD purchased and planted 200,000 oyster seed in the bay in 2009 as a pilot project with a grant from the Bureau of Indian Affairs Water Resources Program and in partnership with the Town of Mashpee. Additionally, the NRD developed the Popponesset Bay Restoration Project (funded by U.S. Fish and Wildlife Service) to increase its efforts to reduce nitrogen through oyster propagation. The NRD purchased and planted an additional 750,000 oyster seeds.

In the fall of 2009, an assessment determined the crop had been infected with Juvenile

Oyster Disease, which resulted in a 70% loss of the crop by the end of the following winter season. The NRD remained committed to the project, purchasing an additional 750,000 seed in April 2010. The department also planted an additional 750,000 seeds in April 2011 and successfully reduced the mortality rates to 20-30%. The NRD’s successes with this project received an EPA Environmental Merit Award in 2012, and serve as a model for other tribes in New England.

Community Response

The project has halted decline in water quality, fish kills, habitat degradation, and anthropogenic sources of nitrogen and oyster disease. As a result of NRD’s commitment and persistence, this project has improved water quality and inspired surrounding communities to develop large aquaculture projects in similar estuarine systems.

Innovation

The environmental health and quality of the bay waters has stopped declining, and there is now evidence of a wild oyster population in the bay, which was absent for the past decade. These environmental improvements are indicators of the success of an aquaculture project researched and initiated by the tribe utilizing oyster propagation to reduce nitrogen levels in the water.

Next Steps

GAP funding is vital to the tribe’s ongoing success, which includes establishment of a biomass environment in the bay and demonstration of effective methods for restoring waters using innovative and sustainable environmental projects.



Map of Tribal Shellfish Grants

The Mashpee have a long history of growing shellfish and being stewards of their lands. The tribe holds 172 acres within a 60-square mile area. GAP has allowed the tribe to work with the surrounding community to improve water quality in its tribal use area, providing clean water for future generations and the community.

