

OYSTER AQUACULTURE/EUTROPHICATION MITIGATION IN MASHPEE

Richard York, Mashpee Shellfish Constable

An oyster aquaculture project was initiated in the Mashpee River in 2004 for the purposes of restoration of the lost oyster fishery and mitigation of eutrophication. Algae blooms fueled by anthropogenic nitrogen loading intensified to the point of creating temporary anoxic conditions causing mass mortality fish and crabs. Oysters can control blooms by filtering algae from the water for food. Plastic mesh bags containing very small oyster seed set on pieces of shell in the hatchery were transported to the river. After the seed grew larger, the bags were opened and the seed spread out in mesh trays for grow out. More seed was stocked annually. Since harvests started in 2006 and a large biomass of oysters has been growing in the river, no mass mortalities have occurred. The 2008 harvest of 520,000 oysters removed about 260 kilograms of nitrogen from the estuary based on analysis of oysters sampled from the river (0.5 g N/oyster). This was about 5% of the 5000 kg of nitrogen reduction needed yearly to meet the Total Maximum Daily Load (TMDL) for nitrogen in the river required by the Massachusetts Department of Environmental Protection (MA DEP 2006, Report #96-TMDL-4). New oyster seed is purchased every year with the goal of harvesting a million oysters a year removing 500 kg of nitrogen. This would be about 10% of the reduction needed to meet the TMDL for nitrogen.



Oyster spat bags for pick-up at hatchery.



Oysters in trays after removal from spat bags.



AmeriCorps members spreading out oysters in trays.



Oysters ready for harvest