



Photo: S. Garsh

Estuaries: Where Rivers Meet the Sea

A unique environment with many values, an estuary is a place where fresh water from rivers flows into the salt water of the sea. Estuaries offer protection from storm surge and flooding events, play a large role in improving water quality by removing pollutants and excess nutrients, and harbor countless species, many of which are commercially valuable. They also support a host of recreational uses such as boating, swimming, fishing, shellfishing, birding, and beach-going.

Despite these considerable values, estuaries are threatened in many ways, most of which are connected to human actions. Hundreds of years of expanding population and even more expansive development is taking a toll on the health of estuaries and their ecological integrity.



MassBays is leading an effort to locate and assess the impact of tide gates — like this one in Salisbury — on salt marshes.

The Massachusetts Bays National Estuary Program

In 1987, Congress established the National Estuary Program (NEP) under the Clean Water Act to address problems facing these valuable coastal resources. Designated an NEP in 1990, the Massachusetts Bays National Estuary Program (MassBays) is dedicated to protecting, restoring, and enhancing the estuarine resources of Massachusetts Bay and Cape Cod Bay. MassBays facilitates partnerships to prompt local, state, and federal action and stewardship, convening stakeholders on the local and regional level, providing scientific basis for management decisions, and working with decisionmakers to identify problems and potential solutions.

“We envision a network of healthy and resilient estuaries, sustainable ecosystems that support the life and communities dependent upon them.”



Photo: MarineFishes

A MassBays-funded study on the impacts of dock shading on salt marsh vegetation will inform future permit decisions.

MassBays’ planning area encompasses more than 1100 miles of shoreline from Salisbury to Provincetown along Ipswich Bay, Massachusetts Bay, and Cape Cod Bay. Because of its large size and geographic diversity, the area is divided into five sub-regions, each served by a regional coordinator who works closely with communities and regional organizations to respond to local needs and assist with coastal planning and project implementation. MassBays is hosted by the Massachusetts Office of Coastal Zone Management within the Executive Office of Energy and Environmental Affairs.



Photo: P. Colaninno

A researcher collects a core sample in Sandwich Harbor for carbon analysis.

Partnering for Coastal Habitats

Convening Stakeholders

MassBays plays a significant role in convening stakeholders to support *coastal natural resource restoration*. Alongside state and federal agencies who carry out the construction efforts, we facilitate the human side of planning and restoration efforts across town lines. Recent projects include beach management planning for Provincetown Harbor (Cape Cod), shellfish habitat restoration on the South Shore, documenting the occurrence and extent of habitat in Boston Harbor (Metro Boston), promoting “green” responses to sea level rise and flooding (Lower North Shore), and hydrologic modeling of the Great Marsh (Upper North Shore).

MassBays is also compiling a directory of monitoring efforts in the Bays, including citizen-based efforts. In 2016, we will convene citizen monitoring program coordinators to identify needs and provide resources to make historic and ongoing data collection useful not only for answering citizen-scientists’ own questions, but to prompt local action and support research.

Supporting Science-based Management

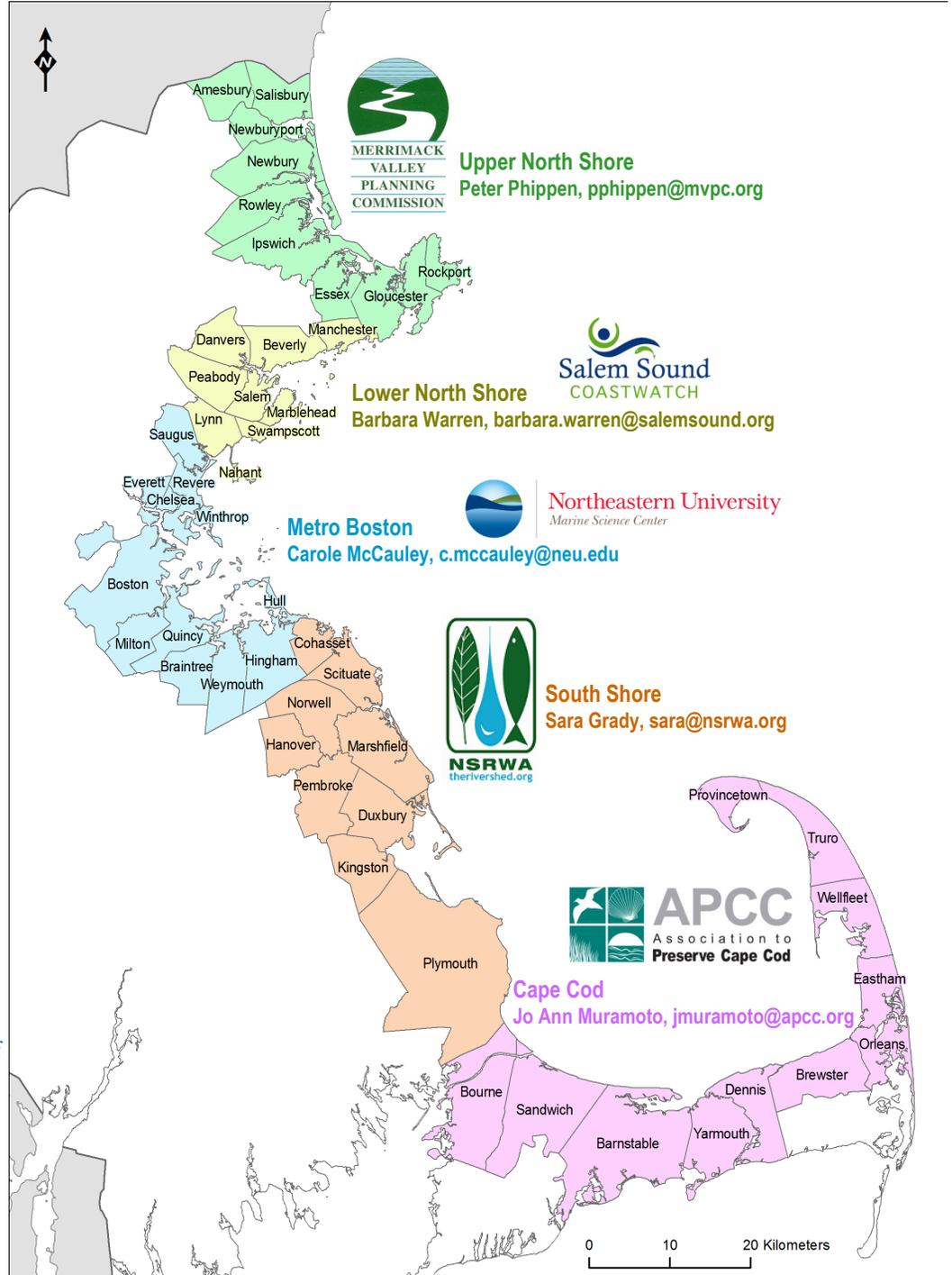
MassBays secured funds from EPA to partner with MIT Sea Grant, MA Division of Marine Fisheries, Boston University, and EPA Region 1 to investigate the extent of eelgrass (a native sea grass) in Duxbury Bay and Salem Sound, and to quantify carbon storage potential of this estuarine resource. Early results support protection and restoration of eelgrass as a significant part of a portfolio of *blue carbon* initiatives to mitigate climate change.

Our *Healthy Estuaries Grants* fund assessment and planning that have direct impact on pollutant removal and natural resource management.

Extensive *field monitoring* led by our Regional Coordinators — of water quality, invasive species, fish migration, horseshoe crab spawning, and salt marsh restoration and health — provides data to partners in state agencies and across the Eastern United States.

Working with Decisionmakers

Habitat restoration and protection depend on well-informed decisionmakers. Through outreach efforts like *training workshops* (e.g., on grantwriting and stormwater management), *lecture series* (about everything from the natural history of lobsters to climate change), and *one-on-one technical support*, MassBays provides timely information to multiple audiences.



For more information, visit www.massbays.org

MassBays Regional Coordinators carry out on-the-ground programming, supported by EPA funding provided via MassBays to partner organizations in each region.