

CRITICAL HABITATS & RESTORATION

*Addressed by 9 management objectives, 16 action plans*

“THE GOAL OF ESTUARINE RESTORATION SHOULD THEREFORE BE TO ABATE THE THREATS THAT DEGRADE AND SIMPLIFY THE ESTUARINE ECOSYSTEM AND AT THE SAME TIME TAKE ACTIONS THAT HELP TO BUILD ECOLOGICAL RESILIENCE – THE ABILITY OF AN ECOSYSTEM TO REBOUND FROM DISTURBANCES INSTEAD OF SHIFTING INTO NEW, OVERSIMPLIFIED STATES.”

- GREAT BAY ESTUARY RESTORATION COMPENDIUM, 2006

Habitats that are particularly critical to the health of the Piscataqua Region estuaries include freshwater wetlands, streams, eelgrass beds, oyster reefs (see page 21) and saltmarsh. These habitats are threatened by rapid human population expansion, declining water quality, invasive species, encroachment by development and climate change. Efforts are underway to assess these impacts, restore habitats, and modify regulations to improve protection.

Freshwater wetlands store large quantities of water and provide habitat and food for a multitude of wildlife species. They provide a storage basin for precipitation and runoff and can be effective at removing pollutants and maintaining water quality. Water from wetlands is slowly released to streams and rivers and helps sustain these systems in periods of low flow. While land protection or local regulations protect some wetland systems from encroaching development, filling and associated degradation, most wetlands remain vulnerable. Polluted stormwater runoff from developed areas adjacent to wetlands can negatively impact the hydrology, plant community and habitat value of freshwater wetlands.

Salt marshes perform many of the same functions as freshwater marshes and are a fundamental part of the estuarine food web. Salt marshes have been shown to be critical carbon sinks and capable of adjusting to gradual changes in sea level. Although based on different data sets and interpreted by different methods, evaluations of saltmarsh area loss illustrate the degree of habitat degradation in salt marshes. Since the early 1900's, an estimated 431 acres of salt marsh area has been lost in Great Bay Estuary, and in the Hampton-Seabrook Estuary, 614 acres or 12% of the historic salt marsh has been lost. Some of this loss is due to direct development and is unlikely to be returned to salt marsh. In New Hampshire nearly 300 acres of salt marsh over the past 10 years has been restored or enhanced by re-establishing or improving tidal flows and removing invasive species.

Actions needed to protect and restore freshwater and tidal wetlands include:

- Evaluating flooding and inundation due to climate change and protecting lands for marsh migration with rising sea levels.
- Promoting municipally designated high value or prime wetland areas and increasing their protection

- Tracking wetland restoration and in-lieu fee programs to determine their success in sustaining ecosystem services
- Restoring additional saltmarsh and evaluate success of previous restoration efforts
- Conducting invasive species survey and implement species control projects
- Evaluating and protecting shorebird and salt marsh breeding bird populations

Eelgrass (*Zostera marina*) is a rooted vascular plant that can form dense sub-tidal meadows in estuarine waters. Eelgrass beds provide valuable habitat for estuarine species, are a critical component of the estuarine food web, and reflect the overall health of estuarine water quality. Eelgrass filters nutrients and suspended particles from water and stabilizes sediments.

Eelgrass wasting disease had a major impact throughout the Great Bay Estuary in the late 1980s. More recently, increased nutrient levels have decreased water clarity and sunlight penetration, which has impacted the growth and health of eelgrass. Eelgrass beds are in decline in Great Bay, Portsmouth Harbor and connective corridors and are no longer found in the tidal rivers or in Little Bay or in the Piscataqua River. Improved water quality and clarity will be necessary throughout the estuary to recover eelgrass since it has been lost or is in decline everywhere.

Actions needed to protect and restore eelgrass involve:

- Identifying and implementing eelgrass restoration projects
- Implementing best management practices through state and local land use regulations and reducing pollution sources to improve water clarity
- Promote improved practices and monitor impacts to eelgrass from moorings, docks, and other structures
- Promote partnerships and funding opportunities for eelgrass monitoring restoration projects

To site and coordinate estuarine restoration activities identified in the CCMP, restorationists and resource managers should compile spatial data on the current and potential locations for habitat restoration and other estuarine uses (i.e. mooring fields, marinas, port facilities, etc.) and actively participate in estuarine spatial planning efforts.