

CRITICAL SPECIES

Addressed by 9 Management Objectives, 11 action plans

The critical species targeted in this CCMP include soft-shell clams, American oysters, Eastern brook trout, diadromous fish, shorebirds, salt marsh breeding birds, and eelgrass. Robust populations of these species are good indicators of estuarine, marsh, and watershed health.

Oysters are a keystone species in the Great Bay Estuary because they provide many benefits. As filter feeders, they play important roles in nutrient cycling, contaminant sequestration, and water clarity. Based on conservative estimates, past oyster populations in the Great Bay Estuary filtered 15 billion gallons of water each day or 27% of the typical mid-tide volume of the bay (Odel, 2006). Oysters reefs provide solid substrate and a micro-habitat for many estuarine organisms. Recent oyster numbers have relatively low relative compared to early 1990 populations. The pathogens MSX and Dermo, habitat destruction, harvest pressure on a diminished population, and water pollution contribute to varying degrees to a decline of oysters in Great Bay and other Mid-Atlantic states. In 1993, NHFGD started monitoring Great Bay Estuary oyster populations. The highest recorded total was in 1993. The population dropped sharply when monitored again in 1995. For the next decade oyster numbers were very low compared with the 1993 data. The 2008 levels are well below PREP's interim management goal of 10 million adult oysters, however strong spat sets in 2006 and 2007 have contributed to increasing numbers of juvenile and adult oysters in the estuary.

Reef restoration, strong spat sets, and maturing oysters suggest that conditions may be improving, but numbers are still far below 1993 levels. Activities that are important for oyster recovery are improving water clarity, decreasing sediment loads, increasing reef restoration, enhancing disease-resistant populations, understanding diseases cycles, and limiting harvest impacts.

Soft-shell clam beds are primarily found in the Hampton-Seabrook Harbor, although they exist in the Great Bay Estuary. Predators (primarily green crabs), diseases, and recreational harvest pressures have adversely impacted clam populations. Periodically, harvesting is limited by the presence of red tide toxins and high bacteria counts.

Many species of migratory fish are in decline due to a number of factors such as water quality and habitat degradation, barriers to aquatic connectivity caused by dams and road crossings, as well

as overharvest. The construction of dams and road-crossing culverts has fragmented and blocked the vast majority of the freshwater stream habitat historically used by diadromous fish. Removal of passage obstructions is essential to restore diadromous fish access to suitable habitat and revive sustainable populations. Common anadromous fish in the Region include blueback herring and alewives (collectively called "river herring"), rainbow smelt, American shad, striped bass and sea lamprey. Once abundant, populations of anadromous Atlantic salmon and Atlantic sturgeon are now virtually extirpated in the Region. American eel is a threatened catadromous species.

Eastern brook trout is the New Hampshire state fish and requires high quality, coldwater streams for spawning and juvenile growth. Development impacts in the headwater and first-order streams increase water temperatures and degrade water quality, resulting in conditions that do not support native Eastern brook trout. Through the efforts of MDIFW, NHFGD, Trout Unlimited and the Eastern Brook Trout Joint Venture, suitable stream reaches for brook trout are being mapped and restoration opportunities are being identified. Improving stream connectivity, protecting low-order streams and their buffers, limiting impervious surfaces and removing pollutants from stormwater runoff will improve the habitat and survivability of this critical species.

The Hampton-Seabrook Estuary - and to a lesser extent Great Bay and the smaller coastal marshes - are critical stopover sites for migratory shorebirds in spring and fall. During these periods, birds roost and feed on tidal flats and marshes, which are impacted by habitat loss and other human disturbances. As such, conservation actions in the region will need to consider the annual cycles of important species. The saltmarsh sparrow is a species of special concern in Maine and New Hampshire. Saltmarsh sparrows require tidal wetland habitat that is dominated by *Spartina patens* for nesting and foraging. Ninety percent of the bird's breeding range is in the Northeast. Preserving the existing habitat and restoring degraded saltmarsh will benefit the saltmarsh sparrow.

Decreased nutrient loading, buffer protection and restoration, minimizing impacts from impervious surfaces and improved stormwater treatment will support key species by improving habitat.

"THE PRIMARY CHALLENGES AFFECTING WILDLIFE DIVERSITY IN SOUTHERN AND COASTAL MAINE ARE CONVERSION AND FRAGMENTATION OF HABITATS. THIS AREA HAS THE HIGHEST LEVEL OF PLANT AND WILDLIFE DIVERSITY IN THE STATE, YET IS ALSO ONE OF THE MOST DESIRABLE AREAS FOR DEVELOPMENT."

- MAINE'S WILDLIFE ACTION PLAN, 2009