

Casco Bay is one of 28 “estuaries of national significance” designated by the U.S. Environmental Protection Agency. To protect the ecological integrity of the Bay and its watershed, the Casco Bay Estuary Partnership works with its partners to ensure effective management and wise stewardship of the Bay’s resources.

Minimizing stormwater pollution

Developing an Innovative Plan to Clean Up Long Creek

Home to the Maine Mall and its associated commercial development, the Long Creek watershed is 28 percent covered by impervious surfaces. Long Creek has consistently failed to meet state water quality standards and is designated an “urban impaired stream.” A diverse group of stakeholders – including CBEP, commercial property owners, and four local town governments – came together to develop a watershed management plan aimed at cleaning up the creek. The innovative plan takes a proactive, collaborative approach to restoring water quality and habitat, and is being funded by a unique public-private partnership.

Protecting shellfish beds

Gathering and Analyzing Red Tide Data

Red tides are algae blooms that can be toxic to shellfish and humans, and have damaging effects on marine life, the shellfishing industry, and the coastal economy. To better understand the causes and effects of red tides in Casco Bay, CBEP funded collection of water quality data in 2006 at more than 40 locations around Casco Bay on a weekly basis during the spring and summer months. Partner organizations have continued the study since. The data includes information on nutrients, toxicity, and the makeup of phytoplankton communities. Analysis of the results commissioned by CBEP in 2009 suggests that Casco Bay’s red tides are triggered more by regional water circulation patterns than by local nutrient sources.

Protecting and restoring habitat

Mapping Fringing Marshes along the Casco Bay Coastline

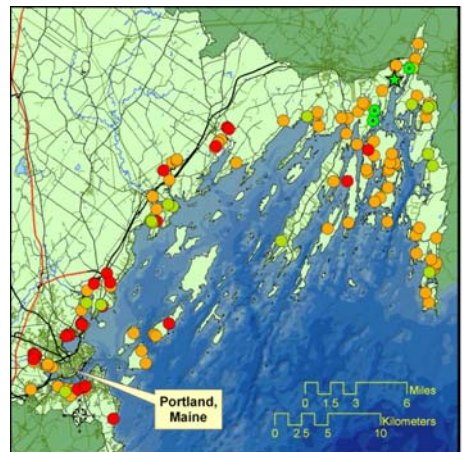
Small wetlands make up a significant portion of Casco Bay’s wetland resource, and they constitute critical links between larger wetlands, reducing isolation of wetland habitat. But, many “fringing” marshes are too small to be included in national wetlands inventories. To better understand wetland distribution in Casco Bay, CBEP funded the first comprehensive effort to identify and map fringing marshes along the Bay’s shoreline. The project increased the total area of wetlands mapped along the Casco Bay coast by approximately ten percent.

Identifying Salt Marsh Tidal Restrictions

CBEP developed a database of sites around Casco Bay where restricted tidal flow threatens salt marsh habitat, with the goal of prioritizing sites for restoration. After examining surveys and aerial photographs, CBEP conducted field evaluations with the help of Maine Dept. of Transportation, the Maine Geological Survey, and the GIS lab at the University of Southern Maine. So far, the study has identified 133 known or suspected tidal restrictions throughout the watershed (see map, right).

The work of the Casco Bay Estuary Partnership is guided by the *Casco Bay Plan*, which identifies five key goals for watershed protection:

1. *Minimize pollution loading from stormwater and combined sewer overflows*
2. *Open and protect shellfish beds and swimming beaches*
3. *Protect and restore habitat*
4. *Reduce toxic pollution*
5. *Promote responsible stewardship*



(top) Twenty eight percent of the the Long Creek watershed is covered by impervious surfaces like roofs and parking lots. To combat stormwater pollution, CBEP helped develop a watershed management plan.

(middle) A fringing marsh study identified nearly 400 acres of previously unmapped wetlands along the shoreline of Casco Bay.

(bottom) CBEP coordinated a project to map tidal restriction in the watershed.

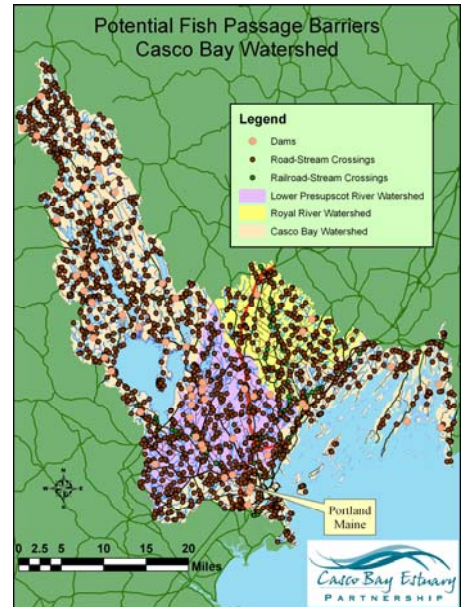
Restoring Fish Passage with a New Culvert Design

Culverts are structures that allow streams to pass below road crossings. Outdated and poorly designed culverts can limit fish passage, cause up-stream sedimentation, and exacerbate flooding. To demonstrate a new, open-bottom culvert design, CBEP funded a culvert replacement project in a tributary to the Pleasant River in Gray, Maine. The 14-foot bottomless structure – one of the first installed in the region – spanned a six-foot wide stream and was designed to restore fish passage.



Identifying Barriers to Fish Passage

CBEP initiated a survey to identify barriers for migration of fish throughout the watershed. Working in collaboration with the U.S. Fish & Wildlife Service Gulf of Maine Coastal Program, Portland Water District and the Sebago Chapter of Trout Unlimited, CBEP staff recruited and trained interns and volunteers, who collected data at more than 1,000 road-stream crossings. The data are being analyzed to identify priority restoration projects within each sub-watershed.



Reducing toxic pollution

Detecting Toxic Residues in Osprey Eggs

CBEP funded a study to measure levels of toxic compounds in the eggs of ospreys, a bird of prey that nests and feeds throughout the watershed. The study, conducted by the Biodiversity Research Institute, analyzed osprey eggs for the presence of toxic compounds, including those found in substances like organochloride pesticides, stain repellants, and flame retardants.

Promoting responsible stewardship

Educating Stewards of Tomorrow

CBEP supports environmental education events for primary and secondary school children in the Casco Bay watershed. In addition to successful events like the Southern Maine Children's Water Festival, and the national Envirothon competition, CBEP supports outreach by the Cumberland County Soil and Water Conservation District, which develops water-related curriculum materials, works with local teachers to adapt materials to their needs, and helps deliver those materials to students in the classroom. Together, such environmental education efforts reach more than 1,000 students a year, and help train future stewards of the Bay. They also indirectly reach thousands of families in the watershed, and help encourage a community-wide sense of stewardship for the Bay.

School Year	Towns	Schools	Students Taught
2004-2005	8	11	617
2005-2006	8	11	551
2006-2007	8	17*	747
2007-2008	10	14	776
2008-2009	11	18	1,159
Total			3,850

(top) An open-bottom culvert is designed to restore water flow and fish passage.

(middle) CBEP helped map potential barriers to fish passage in the watershed.

(bottom) CBEP partners educated nearly 4,000 students over five school years.

Protecting and restoring the ecological integrity of the Casco Bay watershed



The Casco Bay Estuary Partnership works to preserve the ecological integrity of Casco Bay and to ensure compatible human uses of the Bay's resources, through public stewardship and effective management.