

# The Hidden Value of Wetland\$

*How much will Climate Change Cost You without Them?*

Provides Wildlife Habitat & Biodiversity

Mitigates Sea Level Rise

Flood Protection

Captures Carbon

Buffers from Extreme Weather

Provides Fish & Shellfish Nursery & Habitat

Prevents Pollution

Storm Surge Protection

Protects Drinking Water

***For many of us, water simply flows from a faucet, and we think little about it beyond this point of contact. We must maintain a sense of respect for the wild river, for the complex workings of a wetland, for the intricate web of life that water supports.”***  
– Sandra Postel, National Geographic and Global Water Policy Project



*Photo by James Mahala, MassDEP*



*Townsend State Forest Photo by Michael McHugh, MassDEP*



*The Great Marsh in Essex Photo by Michael Stroman, MassDEP*

Every May on the heels of Earth Day we celebrate **wetlands** and their enormous value in protecting our health, quality of life and property. This brochure explores the importance of wetlands and what MassDEP is doing on many fronts to study, understand and protect them.

Massachusetts is fortunate to have a diversity of wetland resources from our red maple forests, vibrant marshes, and white cedar swamps to our coastal salt marshes, dunes and beaches. Wetlands serve as natural filters that protect our drinking water, streams, rivers, lakes and ponds, buffer our homes and properties against storms and flooding and provide critical nurseries and habitat for wildlife, fish and shellfish that is essential to our economy and our enjoyment of the natural world. What is compelling in the current wetland science that will affect our future policy is what we now know about wetlands and their extraordinary role in mitigating climate change. Carbon dioxide is the major cause of global warming. Carbon, when it occurs naturally, is stored in wetland plants and particularly their soils. Wetlands occupy only 7% of the global land surface yet store over 30% of the world's carbon, and are responsible for 25% of the methane emissions each year. Wetlands store between 300 to 700 billion tons of carbon. In addition, a recent study from the U.S. Forest Service (USFC) determined that salamanders (some breed in vernal pools), serve as nature's climate protecting "vacuum cleaners". That is because leaf litter from deciduous trees is on average 47.5 percent carbon, which tends to be released into the atmosphere, along with methane, when shredding invertebrates eat them. Salamanders do us a big favor by eating those invertebrates thereby keeping the carbon in the leaf litter.

In addition, the urgency of protecting coastal wetlands was emphasized in a 2011 World Bank report that found the drainage and degradation of coastal wetlands released centuries of accumulated carbon that the wetlands such as tidal marshes, sea-grass, wet meadows and mangrove swamps held in their plants and soils. Of the 15 coastal deltas studied in this report, seven were found to have released more than 500 million tons of carbon dioxide each since the wetlands were drained, mostly in the past 100 years. Coastal wetlands destruction also disturbs the wetlands ability to protect against storm surges and other extreme weather events as we saw in Hurricane Katrina and Sandy. MassDEP is working to gain a better understanding of climate change and how the protection of wetland resource areas may reduce the impacts.

To learn more about how wetlands do their job, go to our website and the sites of other cooperative agencies and organizations:

MassDEP: [www.mass.gov/eea/agencies/massdep/water/watersheds/wetlands-our-common-wealth.html](http://www.mass.gov/eea/agencies/massdep/water/watersheds/wetlands-our-common-wealth.html)

MassDER : <http://www.mass.gov/eea/agencies/dfg/der/publications/ebbflow-sept2015.html#news>

MassCZM: [www.mass.gov/eea/agencies/czm/program-areas/coastal-habitat/coastal-wetlands/massachusetts-wetlands.html#EcologyandFunctions](http://www.mass.gov/eea/agencies/czm/program-areas/coastal-habitat/coastal-wetlands/massachusetts-wetlands.html#EcologyandFunctions)

MA Association of Conservation Commissions (MACC): <http://maccweb.org/>

**"A Healthy Ecology is the Basis for a Healthy Economy"** - Claudine Schneider, U.S. Representative in *The Green Lifestyle*