# 120

## Tools and Strategies to Address Coastal Wetland Loss

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### Background

Wetlands in coastal areas are under pressure from numerous sources, both human (e.g., development, shoreline hardening) and natural (e.g., storms, sea-level rise). A 2008 report on wetlands in the coastal watersheds of the eastern United States concluded that between 1998 and 2004 more than 360,000 acres of wetlands in those watersheds were lost. To develop a better understanding of the underlying causes of this loss, the Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) co-led a series of workshops in specific watersheds around the country, focusing on those where the largest amount of coastal wetland loss was occurring. EPA, NOAA, and Eastern Research Group (ERG) compiled current, readily available information about each watershed to set the stage for review participants. Participants at the workshops included federal, state, and local wetlands professionals, university scientists and local non-profits.

At each of the seven workshops, participants were asked the following questions during the discussion:

- What are the root causes of coastal wetland loss in your area? Are there differences between fresh and saltwater stressors? Which are the top three stressors?
- What are the successful strategies being employed to protect and restore coastal wetlands in your area?
- What are the successful strategies being employed to protect and restore coastal wetlands in your area?
- What are the stressors mentioned most often were: • Sea level rise and climate change • Development associated with population growth in coastal areas • Limitations of regulations (activities in non-jurisdictional wetlands, exempt activities, non-authorized and non-jurisdictional wetland loss, which was identified as a universal problem, successful approaches to address it, such as landowner outreach and education, comprehensive enforcement, or state and local regulation, are currently not being implemented widely. Future work through the National Ocean Policy and the Interagency Coastal Wetlands Working Group will strive to fill some of the gaps and needs identified in the coastal wetland workshops.

### Workshop Locations

![Map of Wetland Workshop Regions](image)

#### Results and Conclusions

Although the watersheds analyzed were diverse, a number of common wetland stressors emerged: The stressors mentioned most often were:

- Sea level rise and climate change
- Development associated with population growth in coastal areas
- Limitations of regulations (activities in non-jurisdictional wetlands, exempt activities, non-authorized and non-jurisdictional wetland loss, which was identified as a universal problem, successful approaches to address it, such as landowner outreach and education, comprehensive enforcement, or state and local regulation, are currently not being implemented widely. Future work through the National Ocean Policy and the Interagency Coastal Wetlands Working Group will strive to fill some of the gaps and needs identified in the coastal wetland workshops.

### Tools to address coastal wetlands loss - Highlights

#### Living Shorelines:
A newly planted marsh with fiber logs allowing plants to establish root system and stabilize shoreline. This “living shorelines” technique is used in place of shoreline armoring to reduce the impact of coastal erosion.

#### Best Management Practices:
Vegetated filter strips in the Neuse River Basin help trap sediments and decrease nitrogen loads from agriculture or other non-point sources.

#### Coordination and watershed planning with local entities:
Engaging local governments and NGOs in dialog and watershed planning is an extremely effective way to reduce coastal wetland loss. In Pass Christian, Mississippi, local officials coordinate with the Mississippi Department of Natural Resources to ensure that all applicants for building permits also sought wetland permits, if needed. The Land Trust for Mississippi Coastal Plain is working with communities in six local watersheds to build local partnerships and develop watershed plans.

#### Beneficial Use of Dredged Material:
Dredged material is used to restore islands along the Gulf coast, such as Deer Island in Mississippi pictured here.

#### Wetland Loss Mapping and Enforcement:
Land cover changes detected by comparing aerial maps from 1993 and 2000 led MassDEP to pursue criminal investigation into cases where large wetland areas had been filled or altered without a permit. For example, in this image (right) in Westport, MA, you can see the deep marsh circled in green in the left photograph were filled in for homes and lawns (see red circle on right photo).

#### Sea level rise modeling:
The Sea Level Affecting Marshes Model 6 is used to predict the effects of specified sea level rise projections on wetlands and other coastal habitats. In Galveston Bay, the 1 meter sea level rise model predicts a 67% loss of brackish (irregularly flooded) marsh and an 84% loss of tidal swamps by 2100. This predicted change is illustrated to the right with initial wetland conditions in 2004 in the left image and predicted wetland conditions for 2100 in the right image.