

Chapter 5

ALTERNATIVES FOR PROTECTING COASTAL WETLANDS FROM THE RISING SEA

by

Office of Wetland Protection
U.S. Environmental Protection Agency

Editor's Note: After reviewing the preceding chapters, EPA's Office of Wetland Protection prepared this concluding chapter, which presents their recommendations for protecting coastal wetlands.

Recognizing the numerous benefits and values accrued to society from wetlands, there are several options available for minimizing potential future losses of wetlands from predicted sea level rise. These protection alternatives focus on methods available to local planners and decisionmakers who can influence regional efforts to ameliorate the impacts on coastal resources associated with sea level rise.

1. Increase wetlands' ability to keep pace with sea level rise.

The ability of wetlands to keep pace with the rising sea will depend in large part on the availability of a reliable sediment source. Both natural and artificial methods for ensuring adequate sedimentation rates would contribute to marsh accretion and development, thereby maintaining the marsh surface level above mean low water. Diversion projects, levee construction, and channelization efforts should each be evaluated in terms of their impacts on supplying necessary sediment. In instances where wetlands are currently subsiding, planners should consider means to increase sediment supply, including river redirection, levee lowering, jetty construction, or artificial sedimentation practices (e.g., spreading clean dredged material over a wetland; of course, this practice is not necessary for healthy wetlands, only for those in danger of converting to open water due to inadequate sediment nourishment).

2. Protect coastal barriers.

Coastal barrier islands play a critical role in ameliorating the destructive force of wave action on wetlands located landward of the island. The erosive force of the sea will increase as sea level rises and will subsequently play a greater role in destroying wetlands, particularly during storm events. Local efforts to ensure the protection of barrier islands will in turn have a positive impact on preserving the wetlands that lie behind them.

3. Create no-development buffers along the landward edge of wetlands.

As sea level rises, a natural adaptation would permit the existing wetlands to migrate landward to reestablish in inundated areas that currently are uplands. This migration is limited to upland areas that are not developed or bulkheaded. Preventing the development of upland areas adjacent to wetlands could be accomplished through acquisition or regulation (e.g., zoning restrictions). These buffers would also serve to reduce the impacts of nonpoint source pollution of the estuary, and the combination of these benefits should contribute to making this option cost-effective.

4. Construct tide protection systems.

Tide gates and physical barriers to the sea could be constructed to protect both wetlands and developed areas that are vulnerable to sea level rise. This type of protection would be very expensive, but in parts of Louisiana such methods are being actively considered to prevent the high rates of wetland loss currently occurring along the Gulf coast.

These and other alternatives are options now available for planners to consider as means to protect vulnerable coastal wetlands. Although, by themselves, these measures do not constitute the entire solution to the problem of sea level rise, they are an important part of integrated, geographic-scale plans for preparing for sea level rise—one that will ensure that the values and functions provided by coastal wetlands are preserved for society's benefit despite the rising sea.