

Planner's Guide to Wetland Buffers for Local Governments



Planner's Guide to Wetland Buffers for Local Governments

America's local governments know their lands and are familiar with their critical role as the primary regulators of land use and development activities. Many local governments also know their waters and wetlands, and most have authority to regulate land uses in order to conserve and protect these important community assets. While many publications assist local governing boards with land use planning and zoning, this publication compiles the scientific literature on wetland buffers (the lands adjacent to wetland areas) and identifies the techniques used and legislative choices made by local governments across the United States to protect these lands.

This guide for planners is based on detailed examination of approximately 50 enacted wetland buffer ordinances and nine model ordinances, and upon several hundred scientific studies and analyses of buffer performance. This guide identifies both the state-of-the-art and the range of current practice in the protection of wetland buffers by local governments. Local governments considering enacting or amending a wetland buffer ordinance will find here what they need to know to manage land use and development in these important areas.

Why Should Local Governments Adopt Wetland Buffer Controls?

The term "wetlands" encompasses a variety of landscape features that contain or convey water and support unique plants and wildlife. Wetlands often serve as a transitional zone between dry lands and areas dominated by water, including ponds and rivers, oceans and estuaries, and their floodplains and tributaries. Federal regulations define wetlands as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." (40 C.F.R. §230.3(t)) An extensive body of scientific literature,

classification systems (Cowardin et. al. 1979) and legal opinions make important distinctions in wetland types and delineation methods.

Wetlands form part of the natural system of land and water that helps to make human communities livable. Many wetlands help control flooding and reduce damage from storm surges. They trap sediments and pollutants that otherwise might enter waterways. They help to recharge groundwater in some areas, and in tidal zones they provide nurseries for shellfish and fish. They also serve as habitat for birds, amphibians, and other wildlife and provide scarce natural areas in urban and suburban environments.

Attention to these functions is essential to governance of the community's land uses, public health, safety, and welfare. But these functions cannot be sustained without care for the uplands adjacent to wetlands—wetland buffers.

Well-designed buffers protect and maintain wetland functions by removing sediments and associated pollutants from surface water runoff, removing, detaining, or detoxifying nutrients and contaminants from upland sources, influencing the temperature and microclimate of a water body, and providing organic matter to the wetland. Buffers also maintain habitat for aquatic, semi-aquatic, and terrestrial wildlife, and can serve as corridors among local habitat patches, facilitating movement of wildlife through the landscape.

Wetland buffers in urban areas are particularly important in helping to moderate the impacts of altered hydrologic regimes and flooding.

—City of Boulder, 2007

Local government interests in wetland buffer lands often include concern for management of stormwater, avoidance of hazards from flooding, protection of water supplies, and protection of property from future hazards that may be associated with global climate change. Protection of vegetated buffers may reduce the severity of water fluctuations and flooding due to storms (FIFMTF 1996) as buffers may increase

the flood storage capacity of wetlands by better attenuating storm runoff before it reaches the wetland (Wenger 1999).

As many as 5,000 local governments have taken some actions to protect at least some wetlands within their borders (Kusler 2003). Some local governments regulate activities in wetlands, and all local governments have clear jurisdiction over actions on the buffer lands that surround wetlands. In many important ways, local governments are better situated than state and federal environmental authorities to control activities on the lands that surround wetland resource areas, because they are not just concerned with wetland functions, but also with surrounding land uses and the benefits wetlands provide for their communities.

Federal regulations require developers and others to obtain permits from the U.S. Army Corps of Engineers to dredge or fill many wetlands. But many activities that affect small acreages, or that involve particular kinds of construction or development activities, are authorized under generic “general permits” or “nationwide permits” with minimal scrutiny and standard conditions. Further, some wetlands that are isolated or that lack sufficient connection to navigable waters and tributaries may be totally unregulated federally under recent Supreme Court decisions (*SWANCC v. U.S. Army Corps of Engineers* (2001) and *Rapanos v. United States* (2006)). And while about a third of the states have regulatory programs affecting one or more types of wetland, coverage varies substantially by wetland type, acreage, activity, and potential impact.

Where federal and state regulatory programs do not apply, local governments remain the sole source of protective authority. And even where federal or state programs provide for review and permitting of activities in wetlands, local governments still have an interest in ensuring the compatibility of the land use that occurs on and around these lands in order to maintain control of their patterns of development, community character, tax base, demand for services, and response to hazards (McElfish 2004).

The functions and services that wetlands provide may diminish if wetlands are surrounded by parking lots, buildings, and pollution-generating or other incompatible land uses that reduce their hydrologic functions, alter vegetation, and degrade habitat values. Relying on regulations and conservation mea-

asures that deal only with the wetland is like trying to operate a municipal swimming pool without any attention to the pipes, the deck, the lifeguard stations, and the condition of areas draining into the water. Such an approach is like operating a roadway with no shoulders, no sidewalks, no signals, no management of the right-of-way, and no provision for the water sheeting onto the road surface.

Wetland Buffers and Climate Change

Wetland buffers will enable local communities to protect themselves from known hazards associated with global climate change. In some regions, climate change will produce more extreme storm events, increase the number and intensity of floods, and alter the infiltration and conveyance capacity of stormwater and natural wetland systems. Sea level rise will threaten coastal communities, which depend upon the storm-buffering effects of coastal wetlands. Climate change will also change the volume and timing of snowmelt, alter groundwater supplies, and produce drought effects, making healthy wetland function even more critical for water supply and watershed resilience. An ordinance that protects wetland buffers will moderate the effects of drought and protect private and public property.

The upland area surrounding the wetland is essential to its survival and functionality. If a wetland area cannot absorb the stormwater it normally absorbs, the chances of flooding will increase further downstream; if the wetland cannot serve as home for wetland species and vegetation, community values and quality of life will be impaired. Local governments that have wetlands within their boundaries have the opportunity to conserve these resource lands and to control or compensate for activities and development that might impair their benefits to the community and the environment.

Elements of Wetland Buffer Ordinances

Local governments should address the following elements when drafting a wetland buffer ordinance or bylaw:

- Purpose of the Ordinance
- Wetlands Covered
- Definition of Buffer
- Activities Prohibited/Permitted
- Procedures for Review