



WETLANDS FUNCTIONS

Fish and Wildlife Habitat

Wetlands are critical to the survival of a wide variety of animals and plants. Most freshwater fish feed upon wetland-produced food and use wetlands as nursery grounds. Most of the recreational fish spawn in wetlands. A variety of bird life, ducks, geese, and a large number of songbirds feed, nest, and raise their young in wetlands. Moreover, a number of rare and endangered species depend on wetlands for survival.

Water Quality Improvement

One of the most important values of wetlands is their ability to help maintain and improve the water quality of our County's water bodies. Wetlands do this by removing and retaining nutrients; processing chemical and organic wastes; and reducing sediment loads to receiving water bodies.

Flood Control and Protection

Wetlands have often been referred to as natural sponges that absorb flood waters. Trees and other wetland vegetation help slow the speed of flood waters. This action, combined with water storage, can lower flood heights and reduce the water's erosive potential.

Shoreline Erosion Control

Wetland plants are important in protecting against erosion because they increase the durability of the sediment by binding soil with their roots, and they dampen wave action and reduce current velocity through friction.

Recreation and Aesthetics

Wetlands provide endless opportunities for popular recreational activities, such as hiking, boating, fishing, and swimming. The observance and photography of wetland-dependent birds, alone, entice an estimated 50 million people to spend nearly \$10 billion each year to come to Brevard County.



Definition

Wetlands are defined as semi-aquatic lands that are either inundated or saturated by fresh water for varying periods of time, having conditions that favor the growth of plants adapted to living in saturated soils or standing water (hydrophytes) and that have hydric soil properties. Wetlands include swamps, marshes, sloughs, cypress domes, wet prairies, and other similar habitats.

In the United States approximately one half (50%) of the original 221 million acres of wetlands in the lower 48 states have been destroyed. Of the remaining wetlands an additional 290,000 acres continue to be lost each year (Dahl and Johnson, 1991). In Florida, only 20% of the original wetlands that were present 200 years ago are left in their natural state. Wetlands are continuing to be destroyed at a rate of about 1% per year of the remaining acreage, even in the presence of federal, state and regional rules designed to curb wetland loss.

Historically, wetland drainage and destruction were accepted practices in the U.S. In Florida this policy was present until the mid-1970s. Marsh and swamp destruction were often encouraged by specific government policies that promoted drainage, development into agriculture areas, or residential and commercial developments by dredging and filling.

Even though earlier settlers considered wetlands to be worthless, Florida's swamps, marshes and wet prairies provide economic, physical and biological benefits. Recognition of these wetland values by the U.S. government began in 1934 with the sale of "Duck Stamps" to waterfowl hunters. During the period between 1934 and 1984, over 3.5 million acres of wetlands were preserved (Mitsch and Gosselink, 1993). Wetlands provide the principal habitat for virtually all waterfowl, of which 75% breed only in wetlands.

While the early focus on wet areas as valuable hunting areas was very important in helping to change citizen attitudes towards marshes and swamps, these areas have also recently been recognized as having even more important functions. Wetlands provide physical benefits through the storage and release of flood waters, and can minimize erosion and sedimentation by reducing the velocity of flood waters as it moves along the main stream. These functions of flood water storage and release over a lengthy period can prevent damage to man-made structures downstream; floods cause as much as \$4 billion worth of damage per year.

The recent catastrophic damage suffered by many communities along the Mississippi River is an example of the cause and effect resulting from the loss of wetland functions. Wetlands can also function as recharge areas for groundwater aquifers, and assimilate, filter, and help decompose organic sediments, nutrients, and other natural man-made pollutants that would otherwise degrade surface and ground waters.

Swamps and marshes surrounding surface waters also support economically important commercial and recreational fishing by providing spawning habitats, essential nutrients at critical points during certain aquatic animal life stages, and for nurseries. Nearly all the fish and shellfish harvested commercially and half of the recreational catch, depend on wetlands for food and habitat. In Brevard County, Indian River

Lagoon anglers spent more than \$346 million between 1991 and 1992, which was more than their counterparts anywhere else in the state. This region also had the second highest total expenditures for fishing equipment, (e.g. boats, trailers, rods and reels), which was estimated to be \$6.1 billion. The recreational fishing industry supported 6,924 jobs in 1992 (Univ. of FL, FL Sea Grant Program, May 1993). The east-central Florida estuarine wetlands were estimated to be worth \$9,811 /acre/year for commercial and recreational fishery production in 1989 (Bell, 1989).

Wetlands also play an important role in Florida's hunting industry. The average hunter contributes \$850 to the economy each year in the form of guns, ammunition, food and lodging, and leases. In addition, they spend \$520 million annually on permits, licenses, duck stamps, and other governmental fees. Wetlands also provide other natural products, such as timber, furs and hides (Fish and Game Finder, 1995).

Passive activities within wetlands are increasingly attracting large numbers of people that include naturalists, landscape painters, and photographers. Some 50 million people who observe and photograph birds in wetlands spend \$10 billion a year on their hobby (Terrene Institute, 1993). Wetlands are also some of the last remaining wilderness areas that attract canoeists and kayakers. Part of their attraction for passive activities is that wetlands provide habitat for rare and endangered species as well as essential breeding and protective habitats for waterfowl, other birds, mammals, reptiles, amphibians, fish, and shellfish. Many wetlands are critical habitats for 26% of the plants and 45% of the animals listed as threatened or endangered under the Endangered Species Act (Hammer, 1992).