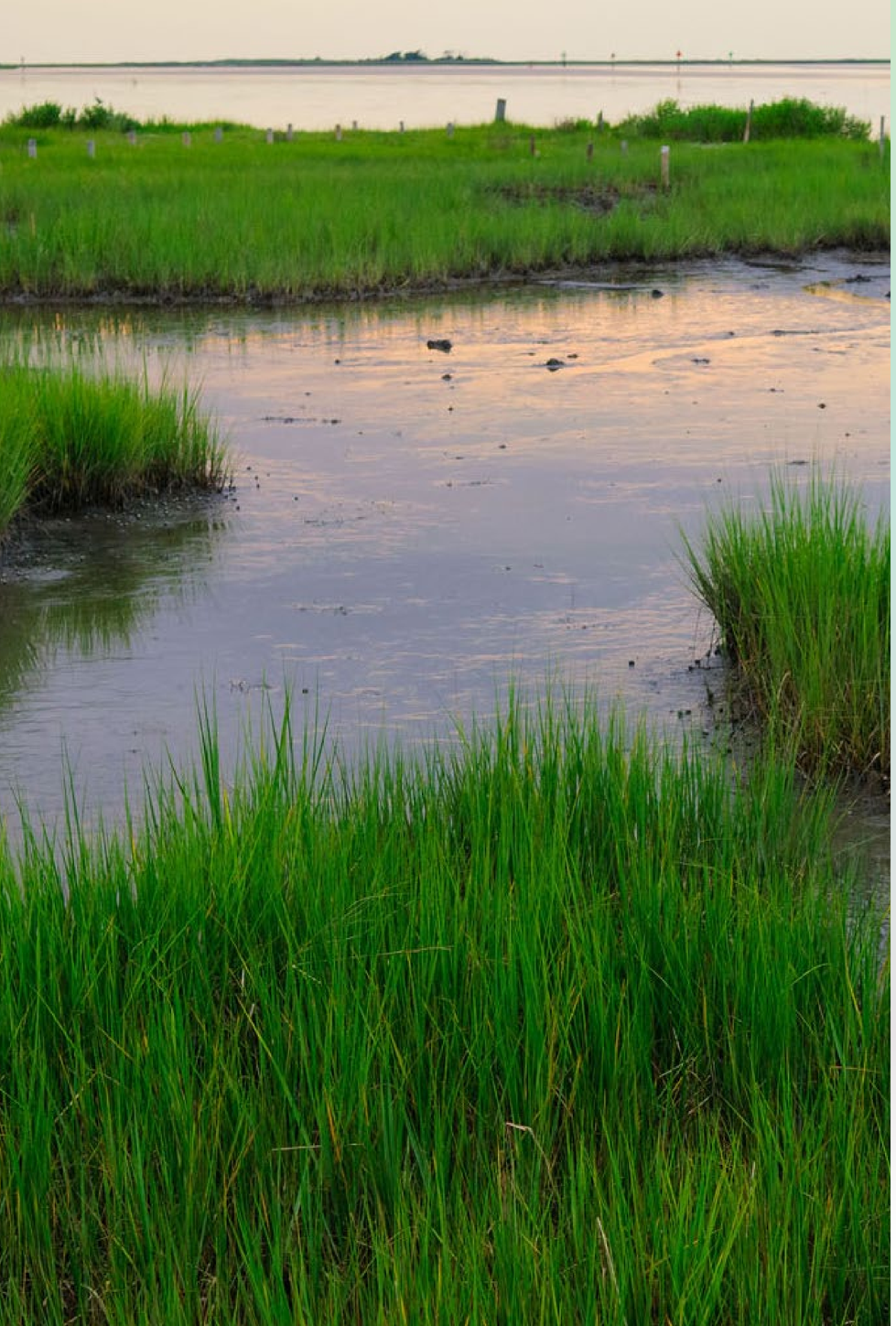
Wetlands

Information from cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=262

GROW
NEXT GEN



What is a wetland?

- Wetlands are among the most productive ecosystems in the world.
- They also are a source of substantial biodiversity in supporting numerous species from all of the major groups of organisms — from microbes to mammals.
- Physical and chemical features such as climate, topography (landscape shape), geology, nutrients, and hydrology (the quantity and movement of water) help to determine the plants and animals that inhabit various wetlands.

As of 2016, nearly half of the nation’s wetlands are in good health, while 20 percent are in fair health and the remaining 32 percent in poor health.

Types of wetlands

Marshes

- Wetlands frequently or continually inundated with water
- Characterized by emergent soft-stemmed vegetation adapted to saturated soil conditions
- Many different kinds of marshes, ranging from the prairie potholes to the Everglades, coastal to inland, freshwater to saltwater

Types of wetlands

Swamps

- Wetland dominated by woody plants
- Many different kinds of swamps, ranging from the forested Red Maple swamps of the Northeast to the extensive bottomland hardwood forests found along the sluggish rivers of the Southeast
- Characterized by saturated soils during the growing season and standing water during certain times of the year

Types of wetlands

Bogs

- Characterized by spongy peat deposits, acidic waters and a floor covered by a thick carpet of sphagnum moss
- Receive all or most of their water from precipitation rather than from runoff, groundwater or streams
- As a result, low in nutrients needed for plant growth, a condition that is enhanced by acid-forming peat mosses

Types of wetlands

Fens

- Peat-forming wetlands that receive nutrients from sources other than precipitation
- Differ from bogs because they are less acidic and have higher nutrient levels
- Able to support a much more diverse plant and animal community

Benefits of wetlands

Fish, wildlife and plant habitats

- Source of substantial biodiversity
- Produce great quantities of food
- Development of organisms that form the base of the food web
- Birds and mammals rely on wetlands for food, water, and shelter, especially while migrating and breeding

Benefits of wetlands

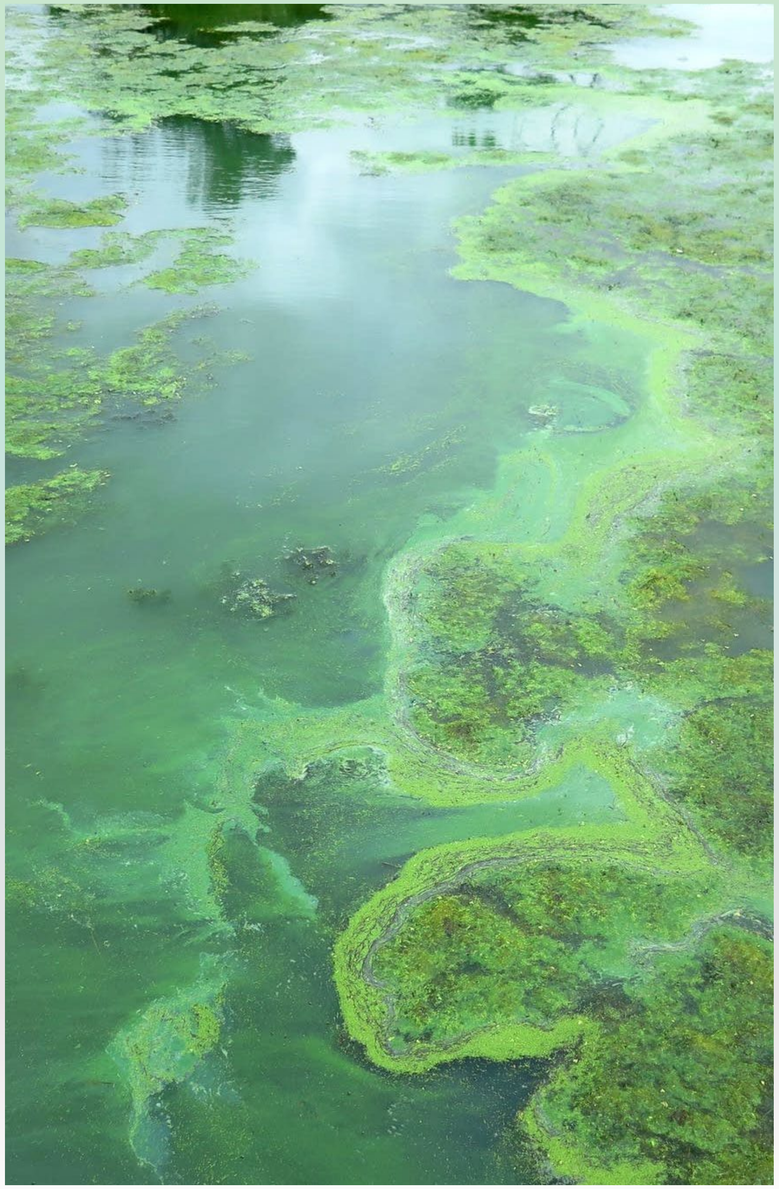
Fish, wildlife and plant habitats

- Breeding and egg deposition areas (fish, amphibians and reptiles)
- Estuaries and their coastal marshes serve as important fish nursery areas
- Some wetlands release cooler water to salmon-bearing streams and rivers
- 43% of the federally threatened and endangered species rely directly or indirectly on wetlands for their survival

Benefits of wetlands

Natural water quality improvement and biogeochemical cycling

- Wetlands provide the conditions needed for the removal of both nitrogen and phosphorus from surface water
- Improve water/drinking water quality by
  - intercepting surface runoff
  - improving or retaining inorganic nutrients
  - processing organic wastes
  - reducing suspended sediments
- Wetlands also reduce environmental problems such as algal blooms, dead zones, and fish kills, that are generally associated with excess nutrients.



Benefits of wetlands

Atmospheric maintenance

- Wetlands world-wide help moderate global climatic conditions
- Store carbon within their live and preserved (peat) plant biomass instead of releasing it to the atmosphere as a greenhouse gas

Hydrologic cycle roles

- Receive, store, and release water in numerous ways
- Some wetlands maintain stream flow during dry periods
- Some wetlands replenish groundwater

Benefits of wetlands

Flood storage

- Store and slowly release surface water, rain, snowmelt, groundwater, and flood waters
- Wetland vegetation also impedes the movement of flood waters and distributes them more slowly over floodplains
- Counteract the greatly increased rate and volume of surface-water runoff from pavement and buildings

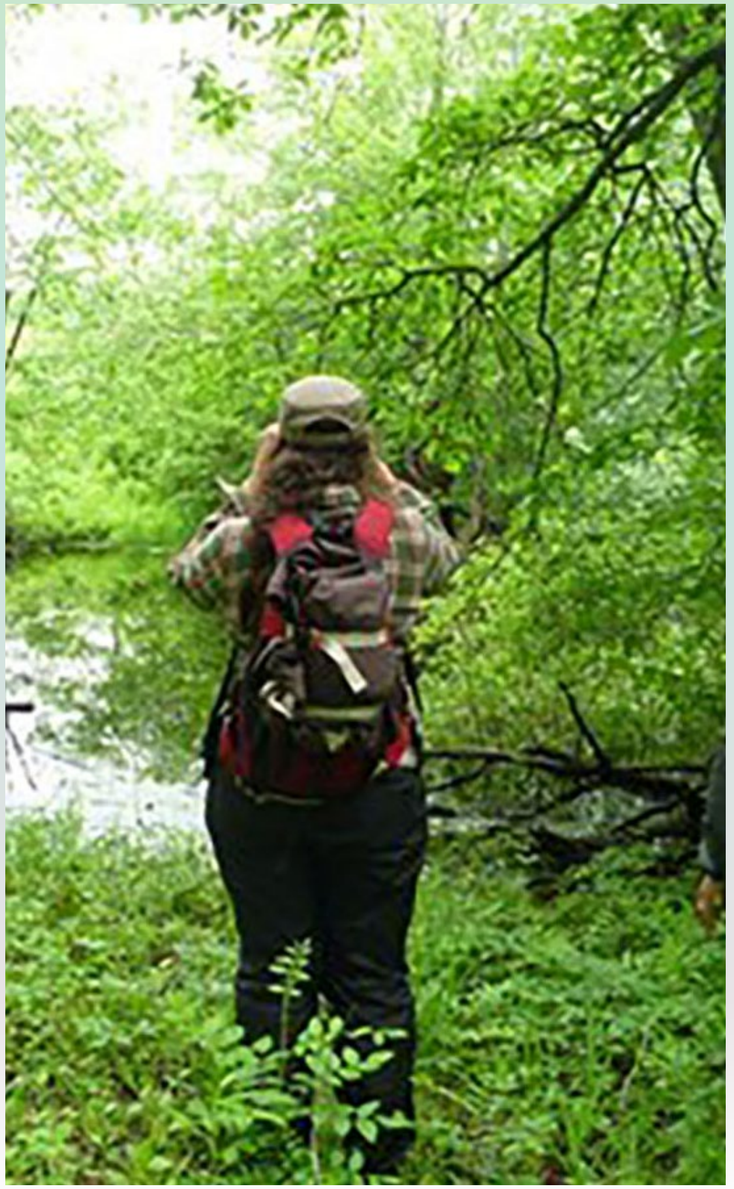
Shoreline erosion protection

- Protect shorelines and stream banks against erosion
- Hold the soil in place with their roots
- Absorb the energy of waves
- Break up the flow of stream or river currents

Benefits of wetlands

Opportunities for recreation, education, research and aesthetic appreciation

- Used for hunting, fishing, birdwatching, or wildlife photography
- Nature-based tourism involves birds, many of which are wetland-dependent
- Used for hiking, boating, and other recreational activities
- Studied in conjunction with environmental programs
- Excellent research and teaching sites to learn about vegetation, ecological functions and processes, biodiversity, and plant–animal interactions
- Artists and writers capture the beauty of wetlands on canvas and paper, or through still cameras or video and sound recorders.



Economic benefits of natural services and products at little or no cost

- Wetlands filtering function saves us a great deal of money
- Wetlands supporting timber totals about 55 million acres
- Blueberries, cranberries, mints, and wild rice produced in wetlands
- Medicines from wetland soils and plants
- Fishing and shellfishing industries harvest wetland-dependent species
- Habitats for commercial fur-bearers like muskrat, beaver, otter, and mink, as well as reptiles such as alligators
- 3 million migratory bird hunters generated $1.3 billion in retail sales

Reduce flood damage and protect our health and safety

- Reduce the likelihood of flood damage to homes, businesses, and crops in agricultural areas
- Lower flood heights and reduce erosion downstream and on adjacent lands
- Reduce or prevent waterlogging of agricultural lands
- Less monetary flood damage (and related insurance costs) as well as greater protection of human health, safety, and welfare