



## **Recognizing Wetlands**

## What is a wetland?

The [US Army Corps of Engineers](#) (Corps) and the [US Environmental Protection Agency](#) define wetlands as follows:

*Those 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.*

Wetlands are areas that are covered by water or have waterlogged soils for long periods during the growing season. Plants growing in wetlands are capable of living in saturated soil conditions for at least part of the growing season. Wetlands such as swamps and marshes are often obvious, but some wetlands are not easily recognized, often because they are dry during part of the year or "they just don't look very wet" from the roadside.



*Wetland complex*

Some of these wetland types include, but are not limited to, many bottomland forests, pocosins, pine savannahs, bogs, wet meadows, potholes, and wet tundra. The information presented here usually will enable you to determine whether you might have a wetland. If you intend to place dredged or fill material in a wetland or in an area that might be a wetland, contact the local Corps District Office for assistance in determining if a permit is required.

## Why is it necessary to consider whether an area is a wetland?

[Section 404 of the Clean Water Act](#) requires that anyone interested in depositing dredged or fill material into "waters of the United States, *including wetlands*," must receive authorization for such activities. The Corps has been assigned responsibility for administering the Section 404 permitting process. Activities in wetlands for which permits may be required include, but are not limited to:

- Placement of fill material.
- Ditching activities when the excavated material is sidecast.
- Levee and dike construction.
- Mechanized land clearing.
- Land leveling.
- Most road construction.
- Dam construction.



*Wetlands fill activities*

The final determination of whether an area is a wetland and whether the activity requires a permit must be made by the appropriate Corps District Office.

## How can wetlands be recognized?

The Corps uses three characteristics of wetlands when making wetland determinations: **vegetation, soil, and hydrology**. Unless an area has been altered or is a rare natural situation, wetland indicators of all three characteristics must be present during some portion of the growing season for an area to be a wetland. Each characteristic is discussed below.

However, there are some general situations in which an area has a strong probability of being a wetland. If any of the following situations occur, you should ask the local Corps office to determine whether the area is a wetland:

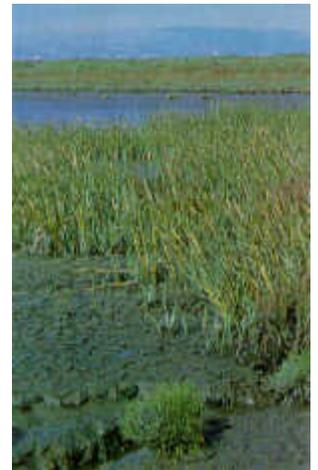
- Area occurs in a floodplain or otherwise has low spots in which water stands at or above the soil surface during the growing season. **Caution: Most wetlands lack both standing water and waterlogged soils during at least part of the growing season.**
- Area has plant communities that commonly occur in areas having standing water for part of the growing season (e.g., cypress-gum swamps, cordgrass marshes, cattail marshes, bulrush and tule marshes, and sphagnum bogs).
- Area has soils that are called peats or mucks.
- Area is periodically flooded by tides, even if only by strong, wind-driven, or spring tides.



*Seasonally flooded wetland forest*



*Mangrove Wetland*



*Salt Marsh*

Many wetlands can be readily identified by the general situation stated above. For the boundary of these areas and numerous other wetlands, however, it is unclear whether these situations occur.

In such cases, it is necessary to carefully examine the area for wetland indicators of the three major characteristics of wetlands: vegetation, soil, and hydrology. Wetland indicators of these characteristics, which may indicate that the area is a wetland, are described on the following pages.



*Freshwater wetland*

## Vegetation indicators

Nearly 5,000 plant types in the United States may occur in wetlands. These plants, known as *hydrophytic vegetation*, are listed in regional publications of the [US Fish and Wildlife Service](#).

However, you can usually determine if wetland vegetation is present by knowing a relatively few plant types that commonly occur in your area. For example, cattails, bulrushes, cordgrass, sphagnum moss, bald cypress, willows, mangroves, sedges, rushes, arrowheads, and water plantains usually occur in wetlands.



*Button Bush*

Other indicators of plants growing in wetlands include trees having shallow root systems, swollen trunks (e.g., bald cypress, tupelo gum), or roots found growing from the plant stem or trunk above the soil surface. Several Corps offices have published pictorial guides of representative wetland plant types.

If you cannot determine whether the plant types in your area are those that commonly occur in wetlands, ask the local Corps District Office or a local botanist for assistance.



*Vegetation sampling method*

## Soil Indicators

There are approximately 2,000 named soils in the United States that may occur in wetlands. Such soils, called *hydric soils*, have characteristics that indicate they were developed in conditions where soil oxygen is limited by the presence of saturated soil for long periods during the growing season. If the soil in your area is listed as hydric by the [Natural Resources Conservation Service \(NRCS\)](#), the area might be a wetland.



*Soil Sampling*

If the name of the soil in your area is not known, an examination of the soil can determine the presence of any hydric soil indicators, including:

- Soil consists predominantly of decomposed plant material (peats or mucks).
- Soil has a thick layer of decomposing plant material on the surface.
- Soil has a bluish gray or gray color below the surface, or the major color of the soil at this depth is dark (brownish black or black) and dull.
- Soil has the odor of rotten eggs.
- Soil is sandy and has a layer of decomposing plant material at the soil surface.
- Soil is sandy and has dark stains or dark streaks of organic material in the upper layer below the soil surface. These streaks are decomposed plant material attached to the soil particles. When soil from these streaks is rubbed between the fingers, a dark stain is left on the fingers.



*Gray mottles indicate hydric soil conditions in thick dark prairie soils (mollisols)*



*Sampling core*

## Hydrology indicators

Wetland hydrology refers to the presence of water at or above the soil surface for a sufficient period of the year to significantly influence the plant types and soils that occur in the area. Although the most reliable evidence of wetland hydrology may be provided by gaging station or groundwater well data, such information is limited for most areas and, when available, requires analysis by trained individuals. Thus, most hydrologic indicators are those that can be observed during field inspection. Most do not reveal either the frequency, timing, or duration of flooding or the soil saturation.



*Debris lodged against trees*

However, the following indicators provide some evidence of the periodic presence of flooding or soil saturation:

- Standing or flowing water is observed on the area during the growing season.
- Soil is waterlogged during the growing season.
- Water marks are present on trees or other erect object. Such marks indicate that water periodically covers the area to the depth shown on the objects.
- Drift lines, which are small piles of debris oriented in the direction of water movement through an area, are present. These often occur along contours and represent the approximate extent of flooding in an area.
- Debris is lodged in trees or piled against other object by water.
- Thin layers of sediments are deposited on leaves or other objects. Sometimes these become consolidated with small plant parts to form discernible crust on the soil surface.



*Fluctuating wetland hydrology*

One or more indicators of wetland vegetation, hydric soil, and wetland hydrology must be present for an area to be a wetland. If you observe definite indicators of any of the three characteristics, you should seek assistance from either the local Corps District Office or someone who is an expert at making wetland determinations.

This brochure is not intended to be used to make a final wetland determination or delineation; it is intend, however, to provide some general information concerning wetlands identification.

## What to do if your area has wetlands that you propose to alter?

Contact the Corps District Office that has responsibility for the Section 404 permitting process in your area. This office will assist you in defining the boundary of any wetlands on your property, and will provide instructions for applying for a Section 404 permit, if necessary.



*Section 404 permit needed*