



Wetlands on Golf Courses



Managing wetlands can present numerous challenges to the golf course superintendent.

As a game played in a natural setting, golf presents far more than a recreational outlet for golfers. Golf courses are diverse landscapes that can be managed to showcase regional plant communities and wildlife habitats, including some of our most valuable—*wetlands*.

Yet many superintendents consider wetland management a challenge, in no small part because of regulatory concerns and requirements. Questions abound: Is the wetland on my course a regulated wetland? What regulations apply? When is it best to just leave a wetland alone and when is it best to actively manage it? The following information addresses these basic questions.

How are wetlands delineated?

When a golf course construction or renovation project may impact a wetland, wetland consultants are generally called in to define the wetland's boundaries. Wetland delineation is complicated by the fact that wetland boundaries are often highly variable, since water levels fluctuate from year to year. Rather than having a distinct beginning and ending point, wetlands often transition gradually into uplands as water levels, soil saturation, drainage, and topography change. Experts use a variety of methods to identify and mark a wetland boundary, including site surveys, aerial photography, GIS maps, soil surveys, and national wetland inventory maps.

On-site observation includes primarily a survey of three things: vegetation, soils, and hydrology.

Vegetation- Wetland consultants look at the types of plants growing on site to delineate the wetland boundary. Plants that are highly adapted to saturated soils and wet conditions are called *hydrophytic*. Consultants identify plants that are almost always found in wetlands (*obligate wetland plants*), as well as those that occur in wetlands most of the time (*facultative wetland plants*). Wetlands generally have some combination of obligate and facultative plant species depending on the site's hydrology, soils, and topography.

Soils- Consultants use a soil probe to take soil samples in various locations in and around the wetland. They look for hydric soils that developed in conditions where soil oxygen is or was limited by the presence of water for long periods of the growing season. For instance, hydric soils may be gray or black in color indicating that the iron content has been leached out. Hydric soils usually contain predominantly decomposed plant material (peat or muck) and may have a sulfidic odor.



Contact local authorities when golf course improvement, renovation, or construction projects may impact water bodies. Remember, your property may be governed by site or state wetland regulations.

Hydrology- Field observations include the depth of surface water, depth to saturated soils, drainage patterns, water marks on vegetation, drift lines, and sediment deposits. These wetland indicators help wetland experts determine high and low water flows.

How do wetland regulations apply to golf courses?

According to the United States Army Corps of Engineers, the primary governmental agency charged with regulating activities in the Nation's waters, **Section 404 of the Clean Water Act (33 U.S.C. 1344)** prohibits the discharge of dredged or fill material into waters of the United States without a permit from the Corps of Engineers. The phrase "waters of the United States" includes navigable waters, **but also includes** non-navigable waterbodies, perennial and intermittent streams, wetlands, mudflats, and ponds.

Although not entirely inclusive, typical activities that would require Section 404 permits are depositing fill or dredged material in waters of the U.S. for such things as:

- Utility installations, stream relocations, or culverting;
- Site development fills for residential, commercial, or recreational developments;
- Construction of revetments, groins, breakwaters, levees, dams, dikes, and weirs;
- Placement of riprap and road fills.

Because wetland regulations are site and state specific, golf course personnel should contact local authorities when golf course improvement, renovation, or construction projects may impact water bodies.

When should my golf course apply for a Corps permit?

According to the U.S. Army Corps of Engineers:

Permits are required by Federal law for almost all projects that involve work in a water of the United States.

You should apply for a Corps permit as early as possible during the conceptual stage of a project, while there is still some flexibility in the project design. Since it may take a number of months to process a routine application involving public notice, it is prudent not to wait until permits are obtained from all local and state agencies before going to the Corps.

If you are unsure whether your project requires a permit, contact your nearest Corps office. Performing unauthorized work in waters of the United States, or failure to comply with the terms of a valid permit can have serious consequences. Golf courses may face stiff penalties, including fines and requirements to restore the area.

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