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The Federal Wetlands Manual: Swamped by Controversy

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Changing Values and Attitudes

What is it about wetlands that raises such an uproar? Changing attitudes towards wetland values have brought into conflict those who see wetlands as an irreplaceable treasure to be preserved, and those who believe that wetlands have limited value and their preservation is a serious obstacle to expanded development or agricultural use.

> Financial benefits of wetlands development go to the individual; preservation benefits are public

"The fact that the protection of wetlands makes good economic as well as environmental sense for society, but not necessarily for the individual owning them, is central to much of the conflict over wetlands protection policies," according to the National Wetlands Policy Forum.[1] The short-term financial benefit of developing wetlands goes to individual landowners, who may not be aware of the ecological value of the land. On the other hand, the long-term benefits of preserving wetlands, as well as the environmental costs of their destruction, belong to the public.

> Wetlands are productive in ways we are only beginning to quantify

Recently, there is increasing recognition that wetlands are productive in ways we are only now beginning to quantify. Some types of wetlands are critical as spawning-grounds and nurseries for about 96 percent of the commercially important species of fish, which support a food industry valued at more than $10 billion! The fertility of some wetlands exceeds the productivity of the best agricultural land-they provide food and breeding-grounds for millions of birds and other animals, sustaining nearly one-third of the nation's endangered and threatened species.[3]

The Problem

Recent revisions to the federal manual that defines wetland types have stirred a furor. Government programs intended to balance wetland values against conflicting human activities have been under intense scrutiny, and the manual has been the subject of repeated proposals, counter proposals, and negotiations.

> Some wetlands aren't easy to define that is the crux of the problem

Wetlands vary widely, and some aren't easy to define precisely-that is the crux of the problem. For example, while some wetlands are flooded year-round, others are flooded only seasonally or may be saturated only to the soil surface. A wooded wetland may appear to be dry ground for much of the year, but it still can provide some of the ecological benefits for which wetlands are valued.

The wide range of wetlands types, and their often subtle gradations into dry land, result in greatly differing interpretations of what should be regulated as wetlands. The discrepancies can create confusion, delay, and frustration for landowners seeking to determine whether they own any wetlands subject to regulations.

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FEDERAL REGULATION OF WETLANDS	
1899	The Rivers and Harbors Act gave the Corps power to regulate construction activities in navigable waters by issuing permits for those activities. This act authorized the Corps as the agency with permitting authority over construction in water.
1972	The Federal Water Pollution Control Act included Section 404, which authorized the Corps to issue permits for the discharge of dredge and fill materials into the waters of the United States.
1975	The Corps' regulations were changed to definition of waters over which include a broader they had authority; wetlands were included.
1977	The Federal Water Pollution Control Act was amended and became known as the Clean Water Act. EPA and Corps regulations pursuant to that act included a regulatory definition for wet lands that continues to be used.
1979	The Fish and Wildlife Service (FWS) published a wetland definition and guidelines for identification used by some federal and state agencies (Classification *of* Wetlands *and* Deepwater *Habitats of* the United States).
1985	EPA and the Corps signed a memorandum of agreement spelling out the roles of the agencies and the procedures they would follow in issuing 404 permits.
	The Food Security Act (Farm Bill) of 1985 denied federal-assistance program participation to farmers who altered wetlands for agricultural purposes (swamp buster program). The Soil Conservation Service's (SCS) Food Security Act *Manual* included a wetland definition used for identifying wetlands on agricultural lands.
1987	The Corps *of Engineers Wetlands Delineation Manual* was published, giving optional technical guidelines for district engineers' use in identifying and delineating wetlands under Section 404.
1989	The Corps, EPA, FWS, and SCS formally adopted the *Federal Manual* for *Identifying and Delineating Jurisdictional Wetlands,* which provided mandatory technical criteria, field indicators, and determination methods for identifying wetlands under federal jurisdiction and tracing their upper boundaries.
	President Bush announced his administration's "no net loss" policy for wetlands.
1990	EPA and the Corps signed a memorandum of agreement clarifying environmental criteria to be used in evaluating compliance with Section 404 guidelines.
1991	July: EPA released revisions of the 1989 manual to Congress. Negotiations with the executive branch followed, resulting in further changes.
	August: Proposed changes to the 1989 manual were published in the Federal Register.
	August: Congress directed the Corps to resume using its 1987 manual to make permitting decisions in wetlands.

Wetlands: Invaluable, but Undervalued

Historically, wetlands have been seen, not as a natural resource, but as useless and unhealthy places. The Swamp Lands Act of 1850[4] offered marshy "wastelands" to the states if they would drain and develop them for "productive" uses. The destruction of wetlands occurred at such a rate that, by the mid-1970s, less than half the wetlands in the continental U.S. remained of those that existed before European settlers came to this continent.[5] These losses continue today; by one estimate, 275,000 acres of wetlands are destroyed every year, with higher losses in some regions.[6]

Virginia lost about 60,000 acres of wetlands between 9956 and 9977

In the past, most losses (87 percent) were from agriculture, with 8 percent from urban development and 5 percent from other development;[7] recent indications are that, in the 1970s and 1980s, the percentage of losses due to agriculture decreased to 54 percent.[8]

Estimates for Virginia suggest that more than 60,000 acres of the state's wetlands were lost between 1956 and 1977.[9]

Wetlands Roles: Sieves and Sponges

Along with their crucial support of wildlife and fisheries, wetlands play other important ecological roles as well. Because of their place in the landscape between dry land and flowing or open water, wetlands are a link between upstream and downstream ecosystems.[10] Their transitional role in the landscape makes wetlands particularly efficient as sieves or filters, because they can intercept surface runoff before it reaches open water.

The plants and microbes that live in vegetated wetlands take up excess nutrients and trap sediments or toxic wastes in runoff, including heavy metals, that would harm water bodies.[11] In fact, some kinds of wetlands do such a good job of cleaning up wastewater that constructed wetlands now are being used by some municipalities and industries to replace or enhance their wastewater treatment facilities.[12]

Constructed wetlands now are being used for wastewater treatment

Wetlands also can greatly reduce erosion by slowing the speed of flood waters and absorbing them, thus protecting nearby and downstream property or crops from flood damage. The absorptive capability of wetlands-their ability to act as sponges-also allows them to act as groundwater reservoirs, so that surrounding lands can draw on them during dry seasons." Studies of river basins in the Midwest show that basins with wetlands had their flood flows reduced by 80 percent, compared to basins with no wetlands.[14]

Flood flows were reduced 80 percent in river basins with wetlands

Humans, however, often have found wetlands valuable for what they can become, rather than what they are. When drained, some types of wetlands make excellent farmlands. In other areas, wetlands may provide the only undeveloped land left for new shopping malls, roads, or single-family homes.

Regulating Wetlands: Who is Responsible?

The increased awareness of a need for water quality protection in the 1960s led to the passage of the Federal Water Pollution Act of 1972,[5] later amended as the Clean Water Act." That act links the main goal of cleaning up the nation's waters with the goal of protecting wetlands, and Section 404 of that act states that any landowner must receive a permit (commonly called a 404 permit) before altering a wetland by dredging or adding fill material.

Only about 3 percent of wetlands permit applications are denied by the Corps

Authority to issue wetlands-alteration permits was given to the U.S. Army Corps of Engineers, since that agency has had permitting authority over the waters of the U.S. since the Rivers and Harbors Act of 1899. According to recent figures, the Corps receives about 15,000 permit applications from across the country each year; of these, only about 3 percent, or 500 applications, are denied.[17]

Although the Corps has final authority to issue permits for alterations, it shares responsibility for making wetlands determinations with EPA. The Corps also is required to solicit and consider recommendations from advisory agencies, which include the Fish and Wildlife Service (FWS) and the National Marine Fisheries Service as well as EPA.

Both the Corps of Engineers and EPA have enforcement authority

Of those agencies, EPA has the largest role, since it develops guidelines for the Corps to use in issuing permits and also has authority to veto permits. Both the Corps and EPA have authority to take enforcement action against violators of these permits, although other agencies may report suspected violations. Permit violations are subject to both criminal and civil penalties.[18]

Another federal agency involved with wetlands alterations is the Soil Conservation Service (SCS), which oversees the "swamp buster" and wetlands-preserve programs created by the 1987 and 1990 Farm Bills.

THE PLAYERS: AGENCIES WITH AUTHORITY OVER WETLANDS

Federal

Army Corps of Engineers: Principal responsibility for wetlands-alteration permits under Section 404 of the Clean Water Act.

Environmental Protection Agency: Also responsible for identifying and delineating wetlands; can take enforcement action against permit violators; has authority to veto permits issued by the Corps.

Fish and Wildlife Service: A "resource" agency; reviews applications for permits and provides comments to the Corps on environmental impacts of proposals. Also produces National Wetlands Inventory maps for each state.

National Marine Fisheries Service: Also a resource agency; reviews applications for permits and provides comments to the Corps on environmental impacts of proposals.

Soil Conservation Service: Responsible for wetlands determinations under the "swampbuster" program of the 1985 Farm Bill.

State

Virginia Water Control Board: Reviews applications and issues a water quality certificate (for nontidal wetlands only) prior to issuance of a Corps permit.

Virginia Marine Resources Commission: Regulates activities within tidal wetlands of the state; acts as a clearinghouse for joint permits in these wetlands, which require approval of both the Corps and VMRC, as well as the local wetlands board if there is one.

Other state agencies provide advisory comments on joint permits.

Council on the Environment: Reviews 404 permit proposals to determine consistency with the federal Coastal Resources Management Program.

Along with federal efforts, Section 401 of the Clean Water Act grants review authority to states to certify that 404 permits are in accordance with state water-quality standards and policies. For instance, Virginia's Water Control Board (VWCB) has a water quality certificate program under which it reviews 404-permit applications for nontidal wetlands. Virginia's Marine Resources Commission oversees activities within tidal wetlands in conjunction with local wetlands boards.

Politics, Players, and Proliferation

As Congress became more aware of the importance of wetlands and the need to manage this resource for the public good, it gave authority for wetlands regulation to a variety of federal agencies over time. These agencies developed various definitions of wetlands, which often overlapped.

Clarifying legislation, court cases, and various memoranda of understanding between federal agencies through the 1970s and 1980s resulted in the development of technical criteria, field indicators, and determination methods for wetlands identification.

Congress gave wetlands authority to a variety of federal agencies

In the latest phases of this evolutionary process, the executive branch of the federal government, although committed to a policy of "no net loss" of wetlands, came under public pressure to adopt a definition of wetlands that would remove large areas of land/water interface from the federal agencies' authority. This appears to provide an opportunity for the administration to make its no net loss policy a reality, and also to satisfy demands of various groups for relief from regulatory encumbrance.

The Federal Manual: Wetlands Guidelines

Before 1989, there were several wetlands identification manuals being used by the federal agencies with wetlands oversight, each manual with separate guidelines and procedures. The definition of wetlands established by the Corps and EPA in their 1977 regulations for the Clean Water Act has remained the standard, official definition: they are areas "that are inundated or saturated by surface or groundwater 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."[19]

In 1988, the Corps, EPA, FWS, and SCS met to develop unified guidelines to provide consistency for all four agencies in identifying wetlands. The result of these meetings was the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands,* published in 1989.

"There is a need to place a sharp, narrow line on the ground to delineate wetland areas, although nature follows less distinct changes"

The interagency manual attempted to address the need stated by William Reilly, administrator of the EPA: "For regulatory purposes, there is a need to place a sharp, narrow line on the ground to delineate wetland areas, although nature follows broader, less distinct changes between upland and wetland areas."[20] The manual emphasizes the difficult-to-delineate areas between open water and dry uplands.

What Makes Wetlands "Jurisdictional"?

Wetlands are *jurisdictional;* when they come under the authority of one of the federal agencies, and, in some cases, under the authority of state agencies that have assumed responsibility for reviewing permits.

It is sometimes impossible to identify wetlands by plant life alone

Since the ecological diversity of wetlands types meant that a simple list of specific characteristics would not provide a workable definition, a more flexible way of defining jurisdictional wetlands was needed. This flexibility was provided by using three essential criteria that apply to many different kinds of wetlands: ***hydrophytic vegetation, hydric soils,*** and ***wetland hydrology.*** These criteria for jurisdictional wetlands are used in the Corps' 1987 manual, the 1989 federal manual, and the revisions to the 1989 manual.

Vegetation: Hydrophytic plants are able to live in water, or in soil that is often saturated and lower in oxygen than most nonwetland plants could tolerate. Almost 7,000 species of plants have been identified in U.S. wetlands; only about 27 percent of these require wet soil. This means that most of the plants identified as hydrophytic vegetation also can be found in places other than wetlands, which sometimes makes it impossible to identify wetlands by plant life alone.

The *National List of Plant Species That Occur in Wetlands,* published by FWS in cooperation with the Corps, EPA, and SCS, assigns a "wetland indicator status" to the plants listed, according to the probability that a particular species will occur in wetlands. The terms for indicator status are *obligate,* which are plants that must live in a particular type of soil (such as wetlands), and *facultative,* which are able to live
under varying conditions.

VEGETATION TYPES

- ***Obligate wetland plants*** almost always occur in wetlands.
- ***Facultative wetland plants*** usually occur In wetlands, but occasionally may be found in nonwetlands.
- ***Facultative plants*** are equally likely to occur in wetlands and in nonwetlands.
- ***Facultative upland plants*** usually occur In nonwetlands, but occasionally may be found in wetlands.
- ***Obligate upland plants*** almost always occur in nonwetlands.

Soils: Hydric soils are formed when flooding or saturation occurs for long enough during the growing season to create anaerobic (no oxygen) conditions in the upper layers. Wet conditions create chemical changes in the soil that are recognizable from the soil's composition, color, texture, and sometimes smell.

Wet conditions in soils create recognizable chemical changes

Hydrology: The pattern of flooding or saturation that occurs in a region-its *hydrology-is* crucial, because it is the main determinant of wetland creation, though it has been called "the least exact of the parameters"[21] (that is, of vegetation, soils, and hydrology). This is because of the many factors that affect an area's characteristic hydrology, such as landform variations, plant cover, soil types, and regional weather patterns.

Hydrology-the main determinant of wetland creation-is the least exact

What is common to the hydrology of all wetlands is that water is available in abundance, whether it is from precipitation, tides, groundwater, or a combination of sources. This abundance of water may not be consistent, however; some ecologically important wetlands may be unrecognizable as wetlands during part of each year because of seasonal dry periods or droughts. [22]

Redefining What is Wet: Manual Revisions

When the federal manual was adopted in 1989, it became a focus of controversy almost immediately. Critics complained that the criteria prevented the development of areas that didn't look like wetlands or appear to be performing the functions of wetlands. Other critics went further, saying that the effect of the new manual was to define vast new tracts of jurisdictional wetlands where they had not existed before.

Some important wetlands may be unrecognizable as wetlands during seasonal dry periods

Efforts to eliminate confusion about wetlands over the next year included hearings held throughout the United States by the White House Domestic Policy Council, which gathered public comments on wetlands policy and regulations. The Corps also moved to define their policy through regulatory guidance stating that wetlands converted to agricultural crop use before 1985 did not require a permit for further alterations.

After two years of field-testing the new manual, the agencies involved decided that some revision and clarification were needed to reduce the possibility that wetlands could be misidentified by using the manual.

The agencies identified six major areas of concern in the 1989 manual:

- *wetlands determinations* were not always based on all three of the criteria (vegetation, soils, and hydrology);
- the manual used *seven days of saturation* as the criterion for hydrology, but that might not be long enough to create wetlands;
- *areas that are dry at the surface* were considered wetlands based on the presence of water as far below the surface as 18 inches;
- characteristic wetlands *hydrology could be assumed* in some cases without strong evidence of the presence of water;
- the method of determining *the growing season* did not accurately reflect conditions in the field; and
- the 1989 manual was developed without a *public comment period.*

In July, 1991, EPA released a draft proposal for the manual revisions. This draft was reviewed and further revised by the Office of Management and Budget and by the Vice-President's Competitiveness Council. In August, the proposed revisions were published in the *Federal Register,* with a 60-day public comment period. During the comment period, field testing was carried out by the agencies and an independent panel.

Issues Raised by the Manual Revisions

The proposed changes include a redefinition of each of the three basic criteria-vegetation, soils, and hydrology. Also modified are the definition of the growing season and the methods to be used in wetlands delineation. Comparisons between the 1989 manual and the proposed revisions are shown in the table on the next page.

Under the manual revisions, 59 percent fewer wetlands in Virginia would be required to have construction permits

If adopted as proposed, the general thrust of the proposed revisions would be to reduce the amount of wetlands that would come under the authority of the 404 permit program. In Virginia it is estimated that, of 750,000 acres of wetlands identified by the National Wetlands Inventory, 445,500 acres (59 percent) would not be required to have 404 permits for construction under the manual revisions. 23

Public Comment: An Important Part of the Regulatory Process

Since the 1989 manual was intended as a technical guidance document, it did not go through the administrative procedure and public comment period required for official regulations. At the time the manual revisions were printed in the Federal Register, the federal agencies announced their intention to include parts of the final manual in the Code of Federal Regulations. At that time, there will be another public comment period.

Meanwhile, there is a strong possibility that further manual revisions will be made, with another comment period. In addition, wetlands issues also are being addressed through bills in Congress. Comments and opinions on the changes to wetlands policy sent to Virginia's senators or your local congressperson can have a powerful impact on the direction these regulations and bills take.

COMPARISON OF CRITERIA FOR JURISDICTIONAL WETLANDS

	1989 Federal Manual	Proposed Revisions
Hydrology	Duration: Must have saturation or inundation for seven consecutive days during the growing season. Depth: Water table must be within 6 to 18 inches of the surface (assumes saturation to the surface). Indicators: Wetlands hydrology can be assumed from the presence of hydric soils.	Duration: Must have inundation for 15 consecutive days, or saturation for 21 consecutive days during the growing season. Depth: Must be saturated to the surface. Indicators: Wetlands hydrology cannot be assumed from the presence of hydric soils alone.
Vegetation	More than 50 percent of plants must be able to live in wetlands, or an analysis of plant type and frequency can be used.	Only the analysis of plant type and frequency can be used.
Soils	Hydric soils must be identified.	Existence of hydric soils must be verified by field inspection.
Growing Season	At 20 inches below the surface, soil temperature must be above 41° F (in Virginia, February to October).	Based on local weather data; three weeks before last killing frost of spring to three weeks after first killing frost of autumn.
Criteria	Evidence of all three criteria required, but one criterion can be assumed from the other two in certain cases.	All three criteria required, with exceptions only for some types of wetlands.

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