

GAO

Report to the Chairman, Subcommittee
on VA, HUD, and Independent Agencies,
Committee on Appropriations,
U.S. Senate

July 1998

WETLANDS OVERVIEW

Problems With Acreage Data Persist



**Resources, Community, and
Economic Development Division**

B-279687

July 1, 1998

The Honorable Christopher S. Bond
Chairman, Subcommittee on VA, HUD, and
Independent Agencies
Committee on Appropriations
United States Senate

Dear Mr. Chairman:

According to estimates by the Fish and Wildlife Service, more than half of the 221 million acres of wetlands that existed during Colonial times in what is now the contiguous United States have been lost. These areas, once considered worthless, are now recognized for the variety of important functions that they perform, such as providing wildlife habitat, maintaining water quality, and aiding in flood control. However, the issue of wetlands protection and the various federal programs that have evolved piecemeal over the years to protect and manage this resource have been subjects of continued debate. Concerned about the lack of consolidated information on the federal commitment to wetlands, you asked that we (1) develop an inventory of the federal agencies involved in wetlands-related activities and the funding and staffing associated with their activities during fiscal years 1990 through 1997 and (2) determine if the data on wetlands acreage reported by these agencies are consistent and reliable.

Results in Brief

At least 36 federal agencies, to varying degrees, conducted wetlands-related activities during fiscal years 1990 through 1997. These activities included acquiring, regulating, restoring, enhancing, mapping, inventorying, delineating, and conducting research relating to wetlands. The total funding associated each year with the agencies' efforts ranged from a low of about \$508 million in fiscal year 1990 to a high of about \$787 million in fiscal year 1997 (in constant 1997 dollars). Staffing associated with the agencies' activities during this period ranged from a low of about 3,271 full-time-equivalent staff-years in fiscal year 1993 to a high of about 4,308 full-time-equivalent staff-years in fiscal year 1997.

Six agencies—the Army Corps of Engineers, the Department of Agriculture's Farm Service Agency and the Natural Resources Conservation Service, the Department of the Interior's Fish and Wildlife Service, the Department of Commerce's National Oceanic and

Atmospheric Administration, and the Environmental Protection Agency—were the primary agencies involved in and responsible for implementing wetlands-related programs. These six agencies accounted for more than 70 percent of the funding and 65 percent of the staffing associated each year with such activities. The other 30 agencies' wetlands-related activities are generally limited to (1) general monitoring or stewardship activities or (2) avoiding and mitigating potential impacts to wetlands from their own projects and activities. (App. II contains a brief discussion of each agency's principal wetlands-related activities, and app. III contains detailed information on the funding and staffing associated with these activities during fiscal years 1990 through 1997.)

The consistency and reliability of wetlands acreage data reported by the federal agencies are questionable. The Department of Interior's Fish and Wildlife Service and the Department of Agriculture's Natural Resources Conservation Service maintain resource inventories that provide estimates of the nation's remaining wetlands acreage, annual rates of wetlands gains and losses, and the primary cause(s) for losses. However, although both inventories have reported that the rate of "wetlands loss" has declined, the inventories' estimates are not completely consistent. Consequently, a single set of wetlands acreage numbers that could be used to evaluate the progress made in achieving the goal of "no net loss" of the nation's remaining wetlands is not available. In addition, officials from each of the agencies have questioned the estimates made by the other, and officials from the Environmental Protection Agency have expressed concern about the estimates of both inventories.

Moreover, the agencies' current reporting practices do not permit the actual accomplishments of the agencies—that is, the number of acres restored, enhanced, or otherwise improved—to be determined. These reporting practices include inconsistencies in the use of terms to describe and report wetlands-related activities and the resulting accomplishments, the inclusion of nonwetlands acreage in wetlands project totals, and the double counting of accomplishments.

Since 1989, several interagency groups, established to better coordinate federal wetlands programs, have attempted to improve wetlands data. However, because their efforts have not resolved these problems, the administration recently announced new efforts to improve wetlands data. Among the actions planned by the administration are (1) supporting a single status and trends report by the year 2000, (2) developing a plan to track annual changes in the nation's wetlands of less than 100,000 acres,

and (3) establishing an interagency tracking system that will more accurately account for changes in wetlands. In May 1998, the administration issued a plan to accomplish a key action—the development of a single wetlands status and trends report. However, as of June 10, 1998, details have not yet been developed on how the other actions announced by the administration will be accomplished.

Background

“Wetland” is a generic term used to describe a variety of wet habitats. In general, wetlands are characterized by the frequent or prolonged presence of water at or near the soil surface, soils that form under flooded or saturated conditions (hydric soils), and plants that are adapted to life in these types of soils (hydrophytes).

The United States contains many different types of wetlands, from swamps in Florida to peatlands in northern Minnesota to tidal salt marshes in Louisiana. Figures 1 and 2, respectively, show two types of wetlands found in the United States—coastal salt marsh wetlands commonly found along the East and Gulf coasts and prairie pothole wetlands commonly found in the plains of the North Central United States.

Figure 1: Coastal Salt Marsh Wetlands



Source: National Wetlands Research Center, United States Geological Survey.

Figure 2: Prairie Pothole Wetlands



Source: National Wetlands Research Center, United States Geological Survey.

Wetlands were once regarded as unimportant areas to be filled or drained for agricultural or development activities. However, wetlands are now recognized for a variety of important functions that they perform, including

- providing vital habitat for wildlife and waterfowl, including about half of the threatened and endangered species;
- providing spawning grounds for commercially and recreationally valuable fish and shellfish;
- providing flood control by slowing down and absorbing excess water during storms;

- maintaining water quality by filtering out pollutants before they enter streams, lakes, and oceans; and
- protecting coastal and upland areas from erosion.

Over 25 federal statutes have been enacted relating to wetlands. These laws have resulted in the (1) regulation of activities undertaken in areas designated as wetlands; (2) acquisition of wetlands through purchase or protective easements that prevent certain activities, such as draining and filling; (3) restoration of damaged wetlands or the creation of new wetlands; and (4) disincentives to altering wetlands or incentives to protect them in their natural states. (App. I contains a brief discussion of the principal wetlands-related statutes.)

Despite the passage of numerous laws and the issuance of two presidential executive orders protecting wetlands, no specific or consistent goal for the nation's wetlands-related efforts existed until 1989. On February 9, 1989, President Bush, in response to recommendations made by the National Wetlands Policy Forum,¹ established the national goal of no net loss of wetlands. The current administration has also supported wetlands protection. In its wetlands plan, issued in August 1993, the administration included an interim goal of no overall net loss of the nation's remaining wetlands and a long-term goal of increasing the quality and quantity of the nation's wetlands. In its Clean Water Action Plan, issued on February 19, 1998, the administration included a strategy to achieve a net gain of up to 100,000 acres of wetlands each year, beginning in the year 2005.

Thirty-Six Federal Agencies, to Varying Degrees, Were Involved in Wetlands During Fiscal Years 1990 Through 1997

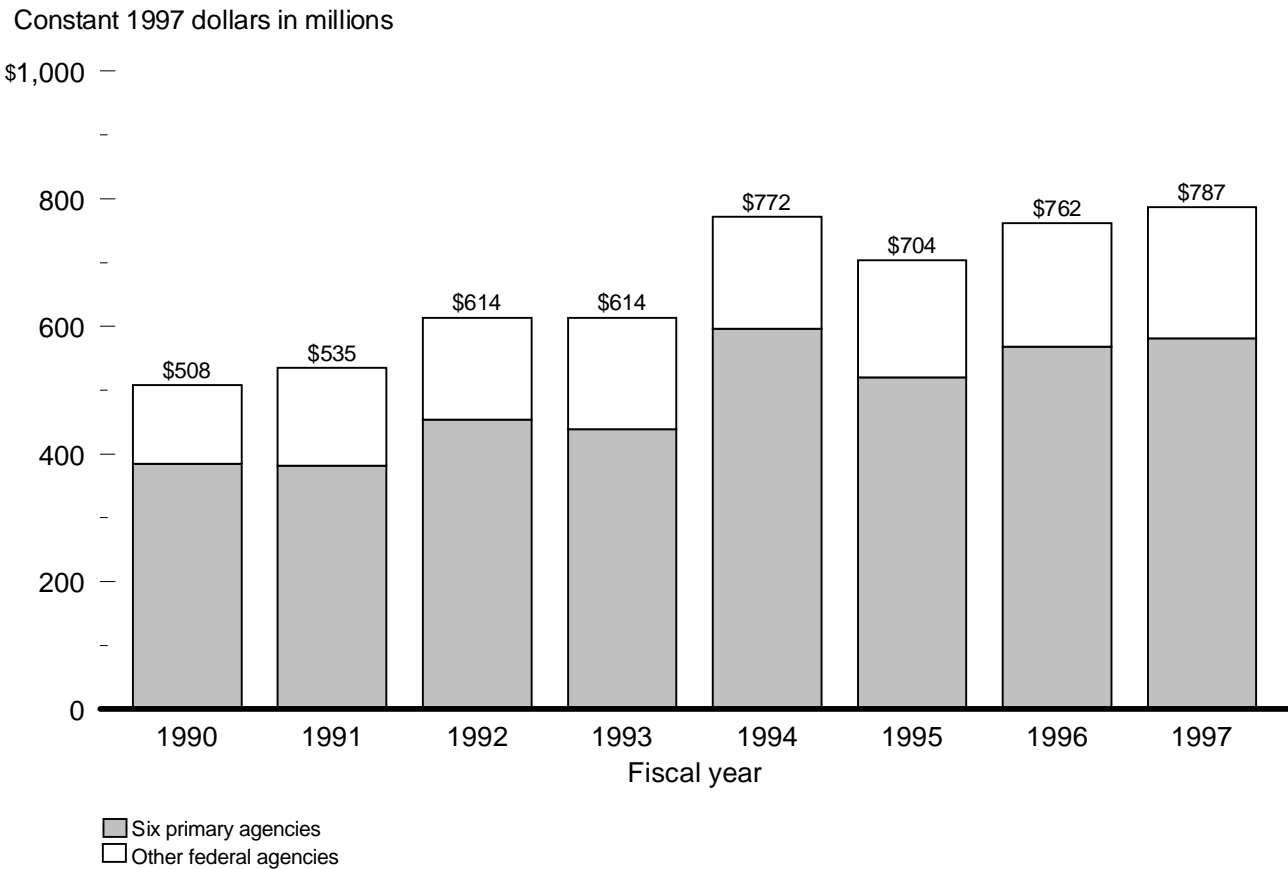
At least thirty-six federal agencies,² to varying degrees, conducted wetlands-related activities during fiscal years 1990 through 1997. The activities conducted by these agencies included acquiring, regulating, restoring, enhancing, mapping, inventorying, delineating, and conducting research relating to wetlands. Six agencies—the Army Corps of Engineers, the Department of Agriculture's Farm Service Agency and the Natural Resources Conservation Service (NRCS), the Department of Commerce's National Oceanic and Atmospheric Administration, the Department of the

¹In 1987, at the request of the Environmental Protection Agency, the Conservation Foundation convened the National Wetlands Policy Forum to address major policy concerns about how the nation should protect and manage its valuable wetlands resources. The 20 members of the Forum included three governors, a state legislator, heads of state agencies, a town supervisor, chief executive officers of environmental groups and businesses, farmers and ranchers, and academic experts. Senior officials from five principal agencies involved in wetlands protection and management participated as ex-officio members.

²For the purposes of this report, the term "agency" represents executive departments, subagencies of executive departments, and other federal organizations.

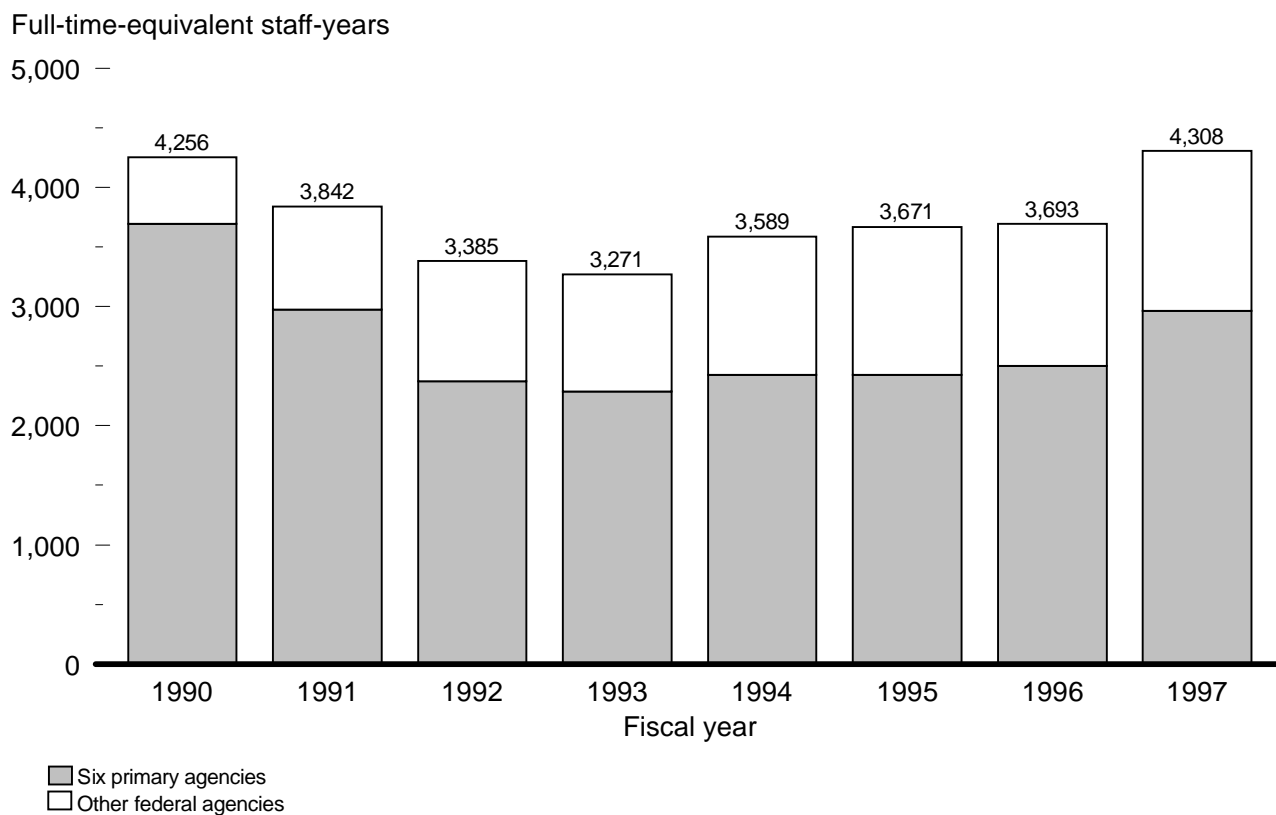
Interior’s Fish and Wildlife Service (FWS), and the Environmental Protection Agency—are the primary agencies involved in and responsible for implementing wetlands-related programs. The involvement of the 30 other agencies was generally limited to (1) general monitoring or stewardship roles or (2) the avoidance and mitigation of potential impacts to wetlands from their own projects and activities.³ As figures 3 and 4 show, the six primary agencies accounted for most of the funding and full-time-equivalent staff-years associated each year with the wetlands-related activities of federal agencies.

Figure 3: Funding Associated With Federal Agencies’ Wetlands-Related Activities, Fiscal Years 1990 Through 1997



³Although the Federal Highway Administration expended over \$50 million each year on wetlands-related activities during the 8-year period covered by our review, these funds were spent primarily for mitigation purposes. Therefore, we did not include it as an agency primarily involved in wetlands.

Figure 4: Staffing Associated With Federal Agencies' Wetlands-Related Activities, Fiscal Years 1990 Through 1997



Appendix II provides a brief description of some of the principal wetlands-related activities of each agency, and appendix III contains detailed information on the funding and full-time-equivalent staff-years associated with the agencies' activities during fiscal years 1990 through 1997.

Consistency and Reliability of Wetlands Acreage Data Reported by Federal Agencies Are Questionable

The consistency and reliability of wetlands acreage data reported by federal agencies are questionable. Although both the Department of the Interior's FWS and the Department of Agriculture's NRCS maintain inventories that produce estimates of the nation's remaining wetlands acreage and rates of wetlands gains and losses, the two inventories' estimates are not completely consistent. In addition, the current reporting practices of the agencies do not allow the wetlands-related accomplishments of the agencies to be determined. These reporting practices include a lack of consistency in the use of terms, the inclusion of nonwetlands acreage in wetlands project totals, and the double counting of accomplishments. Despite the efforts of several interagency groups to address problems with wetlands data, the problems persist. In its Clean Water Action Plan, the administration recently announced new plans to improve wetlands data. As called for by the administration, the Interagency Wetlands Working Group has developed an action plan to guide its efforts to produce a single wetlands status and trends report. However, as of June 10, 1998, strategies had not yet been developed to address the other actions planned by the administration to improve wetlands data.

Two Agencies' Estimates of the Nation's Remaining Wetlands Acreage and Annual Gains and Losses Vary

No single set of numbers representing the nation's remaining wetlands acreage and annual gains and losses is available. Estimates made by two federal resource inventories, the National Wetlands Inventory and the National Resources Inventory, maintained by the FWS and NRCS, respectively, are not completely consistent.

The National Wetlands Inventory, established to generate information on the characteristics, extent, and status of the nation's wetlands and deepwater habitat, is to provide an update of the status and trends of the nation's wetlands at 10-year intervals. The broader National Resources Inventory is an inventory of land cover and use, soil erosion, prime farmland, wetlands, and other natural resource characteristics on nonfederal lands in the United States. It provides a record of the nation's conservation accomplishments and future program needs. The National Resources Inventory has been conducted at 5-year intervals to determine the conditions and trends in the use of soil, water, and related resources nationwide and statewide. However, it is now making the transition to an annualized inventory process.

Each inventory uses the wetlands data it collects⁴ to produce estimates of the nation's remaining wetlands acreage and the rate of wetlands gains and losses. The estimates made by each inventory are based on sampling. However, the two inventories use different sampling techniques⁵ and their estimates cover different time periods. The inventories also have used different land-cover/land-use classifications categories for the causes of wetlands losses. Although both reported that the rate of wetlands loss has declined, as shown in table 1, the estimates produced by FWS' National Wetlands Inventory and NRCS' National Resources Inventory are not completely consistent.

Table 1: Estimates of the Nation's Wetlands Gains and Losses Produced by the National Wetlands Inventory and the National Resources Inventory

Category	Estimates of FWS' National Wetlands Inventory covering 1985 through 1995	Estimates of NRCS' National Resources Inventory covering 1982 through 1992	Difference
Total wetlands acreage	100,900,000	112,000,000	11,100,000
Gross gain in wetlands	2,146,364	768,700	1,377,664
Gross loss in wetlands	3,357,053	1,561,300	1,795,753
Net loss of wetlands	1,210,689	792,600	418,089
Gross loss of wetlands to agriculture	1,427,598	309,000	1,118,598
Gross loss of wetlands to development	84,006	886,000	801,994

Source: Fish and Wildlife Service and the Natural Resources Conservation Service.

As the table shows, the two inventories differ, sometimes substantially, in their estimates. Although the two inventories' estimates of the nation's total remaining wetlands acreage varied only about 10 percent, their estimates in other categories varied more significantly. For example, FWS reported that agricultural activities were responsible for the loss of over 1.4 million acres of wetlands—more than 4 times the loss attributed to agriculture by NRCS. NRCS, on the other hand, estimated that development

⁴The inventories collect wetlands data through a combination of aerial photography and on-site field verification.

⁵Although the use of statistical sampling techniques introduces uncertainty into the estimates, the use of sampling techniques is a cost-effective way of developing these estimates.

was responsible for the loss of 886,000 acres—about 11 times the number of acres that FWS reported.

Questions have been raised about the validity of the wetlands acreage estimates made by both inventories. Officials from each of the agencies responsible for the inventories have questioned the estimates made by the other, and officials from the Environmental Protection Agency (EPA) have expressed concern about the estimates of both inventories. The issues raised by officials of the two inventories and EPA include the adequacy of quality control of the data and of quality assurance procedures, the dates of the aerial photography used, and the methods used to develop the estimates.

Agencies' Accomplishments Cannot Be Determined

The agencies use such terms as protection, restoration, rehabilitation, improvement, enhancement, and creation in describing and reporting their wetlands-related activities and the resulting accomplishments. However, federal agencies are not consistent in the use of these terms. Even when the same terms are used, the agencies do not define them in the same way. For example, depending upon the agency, the term “restoration” has different meanings and different results. At Interior’s FWS, restoration is considered the reestablishment of a degraded wetland to its former state and therefore generally would not result in a net gain of wetlands acres. At Agriculture’s NRCS, restoration is considered to be the reestablishment of a wetland where it previously existed and would result in a gain of wetlands acres.

The agencies also often include nonwetlands acreage when reporting their accomplishments. Nonwetlands acreage, such as adjacent uplands, are often included in wetlands project totals but are not identified or listed separately. For example, the NRCS’ Wetlands Reserve Program, which acquires wetlands easements from landowners and shares in the cost of restoration, might report that a wetlands restoration project restored a total of 25 acres. However, the 25 acres reported might include not only 10 acres of former wetlands that were restored but also 10 acres of existing degraded wetlands whose functions were enhanced and 5 acres of adjacent uplands. The FWS’ North American Wetlands Conservation Program also includes nonwetlands acreage in its project totals. Program officials estimate that about 75 percent of the acreage reported by habitat restoration projects are uplands.

Adding to these reporting problems is the double counting of accomplishments. Federal and state agencies and private conservation organizations are often involved in joint projects. When each reports the accomplishments resulting from these joint projects, the actual accomplishment is overstated. For example, the total number of wetlands acres that FWS' North American Waterfowl Management Plan reports as restored includes the results of activities that involve FWS and other federal agencies, such as the Forest Service and the NRCS, and other state and private conservation organizations. These agencies would also report the acreage restored as the result of these joint projects.

Past Efforts Have Not Solved Wetlands Data Problems, but New Efforts Are Under Way

Since 1989, at least five interagency groups, established to better coordinate federal wetlands programs, have attempted to improve wetlands data. These task forces and the purposes for which they were established are described below.

Inter-Agency Task Force on Wetlands. On May 23, 1989, the White House established an Inter-Agency Task Force on Wetlands under the Domestic Policy Council's Working Group on Environment, Energy, and Natural Resources to examine ways to achieve no net loss of wetlands as a national goal. The task force's objectives included (1) providing clear direction to federal agencies for strengthening, implementing, and enforcing wetlands protection, maintenance, and restoration; (2) coordinating agencies' involvement in achieving the no net loss goal; and (3) assessing implementation of the no net loss goal by federal, state, and local governments to determine what further steps might be necessary.

Wetland Inventory Subgroup of the Domestic Policy Council's Interagency Wetlands Task Force. The Domestic Policy Council's Interagency Wetlands Task Force established a Wetland Inventory Subgroup in October 1990. Three agencies—Interior's FWS; Agriculture's then-Soil Conservation Service, and Commerce's National Oceanic and Atmospheric Administration—agreed to cochair the Wetland Inventory Subgroup. The subgroup was charged to evaluate existing inventory programs as well as propose potential improvements.

Interagency Federal Lands Wetlands Restoration and Creation Committee. As a result of President Bush's comprehensive plan for improving the protection of the nation's wetlands, in August 1991 the Interagency Federal Lands Wetlands Restoration and Creation Committee was

established. This committee was charged with coordinating federal restoration and creation projects and with establishing criteria and recommendations for redirecting agencies' future spending in restoring and creating wetlands.

Wetlands Ad Hoc Integration Working Group of the Federal Geographic Data Committee's Wetlands Subcommittee.⁶ The Wetlands Ad Hoc Integration Working Group was established in June 1992 at the request of the White House's Domestic Policy Council to attempt to integrate and reconcile the National Wetlands Inventory's Status and Trends and the National Resources Inventory's reports on the amount of wetlands lost and remaining.

Interagency Working Group on Federal Wetlands Policy (White House Wetlands Working Group). In June 1993, this working group was formed to address concerns about federal wetlands policy. The working group established five principles for federal wetlands policy that served as the framework for the development of the administration's package of wetlands reform initiatives. The principles included (1) support for the interim goal of no overall net loss of the nation's remaining wetlands and the long-term goal of increasing the quality and quantity of the nation's wetlands, (2) reduction of the federal government's reliance on the regulatory program as the primary means to protect wetlands resources and accomplish long-term wetlands gains by emphasizing nonregulatory programs, and (3) basing federal wetlands policy on the best scientific information available.

With the exception of the last one, these working groups have been disbanded. However, because either the members of these interagency groups could not agree on the actions needed or the adoption of their recommendations was left to the individual agencies, the problems with the consistency and reliability of wetlands acreage data persist.

Recognizing that these problems still exist, the administration recently announced new plans to improve wetlands data. In October 1997, the Wetlands Subcommittee of the Federal Geographic Data Committee decided to develop consistent definitions for wetlands gains, losses, and modifications for use by all federal agencies. In addition, the Wetlands Subcommittee proposed the development of a reporting system that would

⁶The Wetlands Subcommittee of the Federal Geographic Data Committee was established in January 1992 to ensure the consistency of wetlands data. Chaired by the Department of the Interior, the subcommittee is composed of representatives of all federal agencies involved in wetlands mapping.

standardize reporting procedures and provide for a mechanism to collect and compile data on the agencies' accomplishments. Additional efforts to improve wetlands data were included in the administration's Clean Water Action Plan, issued on February 19, 1998. These actions include the following:

- Complete a plan to use existing inventory and data collection systems to support a single status and trends report by the year 2000 and convene a peer review panel to evaluate, by June 1998, a plan to track annual changes in the nation's wetlands of less than 100,000 acres.
- Issue technical guidance, by October 1999, on the restoration, enhancement, and creation of wetlands functions.
- Establish an interagency tracking system, by October 1999, that will more accurately account for wetlands losses, restoration, creation, and enhancement. This system will also establish accurate baseline data for federal programs that contribute to net wetlands gains.

The administration's efforts to implement the actions contained in the Clean Water Action Plan are under way. In May 1998, the Interagency Wetlands Working Group issued an action plan developed to guide its efforts to produce a single wetlands status and trends report in the year 2000. However, much remains to be done before such a report can be produced. Many of these actions outlined in the plan will not occur for more than a year and are dependent upon the successful completion of other steps contained in the plan. For example, the plan calls for a three-stage quality assurance process to be developed to ensure that the National Resources Inventory's 1997 data meet FWS' standards and needs for the year-2000 status and trends report to the Congress. Stage 3, which involves the review and analysis of preliminary estimates, is not scheduled to be completed until April 1999 and is dependent upon the successful completion of stages 1 and 2. In addition, a long-term commitment and considerable time and effort from the agencies involved will be required to successfully implement the plan. (A copy of this plan can be found in app. VII.)

Details of the administration's plans to accomplish the other actions, such as establishing an interagency tracking system and issuing technical guidance on the restoration, enhancement, and creation of wetlands functions, have not yet been drafted. However, according to the Chairman of the Interagency Wetlands Working Group, the actions planned by the Wetlands Subcommittee to develop consistent definitions and reporting

standards for use in reporting the wetlands-related accomplishments of federal agencies will be folded into the administration's efforts.

Conclusions

Over \$500 million each year is associated with the efforts of federal agencies to protect and restore wetlands. However, the consistency and reliability of the estimates made of the nation's remaining wetlands acreage and the data reported by the agencies on their accomplishments are questionable. Despite the efforts of five interagency task forces established since 1989 to resolve them, these problems persist. As a result, the progress made toward achieving the goal of no net loss of the nation's remaining wetlands, the administration's new goal of gaining 100,000 acres of wetlands each year beginning in the year 2005, or the contributions made by the agencies in achieving these goals cannot be measured.

In its recently issued Clean Water Action Plan, the administration announced new efforts to improve the wetlands acreage data reported by federal agencies. Although a plan has been developed to accomplish one of the actions—producing a single wetlands status and trends report—much remains to be done before such a report can be issued. Many of the steps outlined in the plan are not scheduled to occur for more than a year and are dependent on the successful completion of other steps contained in the plan. Furthermore, a long-term commitment and considerable time and effort from the agencies are crucial to the successful implementation of this effort. In addition, details of how the other actions announced by the administration will be achieved have not been developed. Unless strategies are developed and implemented for all of the wetlands-related actions contained in the administration's Clean Water Action Plan, the latest attempts to improve wetlands data will likely be no more successful than previous ones. Without consistent and reliable wetlands acreage data, decisionmakers (the Congress and the administration) will be hampered in their ability to make sound decisions about necessary adjustments to federal wetlands policies and programs that would allow the nation's wetlands goals to be achieved.

Recommendation

To ensure that the consistency and reliability of wetlands acreage data are improved, we recommend that the Secretary of the Department of Agriculture and the Secretary of the Department of the Interior, in consultation with the Chairman of the White House's Interagency Wetlands Working Group, develop and implement a strategy for ensuring that all actions contained in the Clean Water Action Plan relating to

wetlands data are adopted governmentwide. Such actions should include, in addition to the ongoing effort to develop a single set of accurate, reliable figures on the status and trends of the nation's wetlands, the development of consistent, understandable definitions and reporting standards that are used by all federal agencies in reporting their wetlands-related activities and the changes to wetlands that result from such activities.

Agency Comments and Our Evaluation

We provided a draft of this report to the Army Corps of Engineers; the departments of Agriculture, Commerce, and the Interior; EPA; and the Chair of the Interagency Wetlands Working Group for review and comment. The Interagency Wetlands Working Group consolidated the comments of the principal agencies involved in wetlands, except for Commerce, and included the agencies' input to the working group in its response. The agencies commented on a variety of issues. For example, the Working Group and EPA expressed concern that our report did not adequately clarify the level and nature of the involvement of federal agencies in wetlands-related activities. In addition, the Working Group and EPA believe that we emphasized the differences in the wetlands acreage estimates produced by FWS and NRCS without adequately noting that both inventories generally agree that the rate of wetlands losses has declined and that efforts are under way to reconcile the differences.

We believe that our report accurately characterizes both the level and nature of the involvement of federal agencies in wetlands-related activities and the differences in the estimates produced by the two inventories. We point out in the report that while 36 federal agencies are involved in wetlands-related activities, 6 of these agencies account for the majority of funding and staffing associated with such activities. We have added a statement to the report to further clarify the roles of the various federal agencies in wetlands-related activities. In addition, while we report that the wetlands acreage estimates produced by FWS and NRCS are not completely consistent, we also acknowledge that both have reported that the rate of wetlands losses has declined. Furthermore, we have included a discussion of the efforts recently undertaken by the Interagency Wetlands Working Group to produce a single wetlands status and trends report.

With the exception of the Department of the Interior, which agreed with our recommendation, neither the Working Group nor the other principal agencies specifically commented on our recommendation.

The Chair of the Working Group enclosed a copy of the action plan recently developed by the group to guide its efforts to produce a single status and trends report. We revised our report to include a discussion of the Working Group's plan. This plan, which appears in appendix VII, was referred to by several agencies in their individual comments.

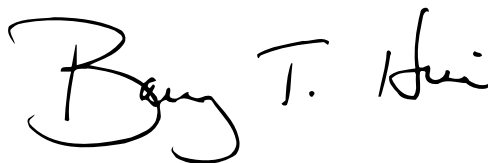
A more complete discussion of the comments provided by the Working Group and the agencies and our evaluation of their comments are contained in appendixes IV, V, and VI.

We performed our work from July 1997 through June 1998 in accordance with generally accepted government auditing standards. A complete discussion of our objectives, scope, and methodology appears in appendix VIII.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 15 days after the date of this letter. At that time, we will send copies to the Secretaries of Agriculture, Commerce, Defense, and the Interior; the Administrator of the Environmental Protection Agency; the Chair of the Interagency Wetlands Working Group; and other interested parties. We will also make copies available to others upon request.

Please call me at (202) 512-3841 if you or your staff have any questions about this report. Major contributors to this report are listed in appendix IX.

Sincerely yours,

A handwritten signature in black ink that reads "Barry T. Hill". The signature is written in a cursive style with a large, looped initial "B".

Barry T. Hill
Associate Director, Energy,
Resources, and Science Issues

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Abbreviations

ARS	Agricultural Research Service
BPA	Bonneville Power Administration
DOE	Department of Energy
EPA	Environmental Protection Agency
ERS	Economic Research Service
EQIP	Environmental Quality Incentives Program
FEMA	Federal Emergency Management Agency
FSA	Farm Service Agency
FWS	Fish and Wildlife Service
GAO	General Accounting Office
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NRI	National Resources Inventory
NWI	National Wetlands Inventory
USDA	U.S. Department of Agriculture
WRP	Wetlands Reserve Program

Wetlands-Related Presidential Executive Orders and Laws

Executive Orders

Executive Order 11990, Protection of Wetlands, May 24, 1977. Executive Order 11990, as amended, directs each federal agency to take action to minimize the destruction of wetlands and to preserve and enhance the benefits of wetlands in carrying out certain responsibilities. These responsibilities include (1) acquiring, managing, and disposing of federal lands and facilities; (2) providing federally financed or assisted construction; and (3) conducting federal activities and programs affecting land use, including water and related land resources planning, regulating, and licensing activities. Each agency shall also, to the extent permitted by law, avoid undertaking or providing assistance for new construction located in wetlands unless (1) there is no practical alternative and (2) all practical measures to minimize harm to wetlands are included.

Executive Order 11988, Floodplain Management, May 24, 1977. Executive Order 11988, as amended, directs each federal agency to take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out certain responsibilities. These responsibilities include (1) acquiring, managing, and disposing of federal lands and facilities; (2) providing federally financed or assisted construction; and (3) conducting federal activities and programs affecting land use including water and related land resources planning, regulating, and license activities. Each federal agency must evaluate the potential effects of any actions it may take in a floodplain. If an agency proposes to conduct, support, or allow an action in a floodplain, it shall consider alternatives to avoid adverse effects and incompatible development in the floodplains.

Laws

The Coastal Barriers Resources Act (16 U.S.C. 3501 et seq.). The Coastal Barriers Resources Act, as amended by the Coastal Barrier Improvement Act, prohibits most new federal expenditures and financial assistance for development of coastal barriers, included in the Coastal Barrier Resources System, a major portion of which is wetlands. The purpose of the act is to minimize the loss of human life, wasteful expenditure of federal revenues, and damage to fish, wildlife, and other natural resources associated with the development of coastal barriers.

The Coastal Wetlands Planning, Protection and Restoration Act (16 U.S.C. 3951 et seq.). This 1990 act authorizes spending for coastal wetlands conservation and restoration projects and designated 18 percent of the total amount in the Sport Fish Restoration Account for these projects. The

act created a task force, composed of the Secretary of the Army, the Administrator of the Environmental Protection Agency, the Governor of Louisiana, and the Secretaries of Agriculture, Commerce, and the Interior, to develop a comprehensive approach for protecting and restoring coastal wetlands in Louisiana. Seventy percent of the revenues go to restoring Louisiana's coastal wetlands.

The act also contains a provision for the remaining 30 percent of the revenues. The act created two coastal wetlands cost-sharing programs open to all states. Fifteen percent is for the National Coastal Wetlands Conservation Grant Program for coastal habitat projects in all coastal states, except Louisiana. The remaining 15 percent is for coastal-only North American Waterfowl Management Plan projects that are approved under the North American Wetlands Conservation Act Grant program. These two programs are administered by FWS.

The Coastal Zone Act Reauthorization Amendments of 1990 (16 U.S.C. 1451 et seq.). Under the Coastal Zone Act Reauthorization Amendments of 1990 (subtitle C of the Omnibus Budget Reconciliation Act of 1990), the Secretary of Commerce sets guidelines and provides funding for states to carry out coastal zone management programs. The term "coastal zone" includes wetlands. For states without a coastal zone management program, the act provides funding to develop such a program. It also provides coastal zone enhancement grants to coastal states to improve (1) coastal wetlands protection, (2) natural hazards management, (3) public beach access, (4) marine debris management, (5) assessments of coastal growth and development, and (6) environmentally sound siting of coastal energy facilities. The act amended the Coastal Zone Management Act of 1972.

The Emergency Wetlands Resources Act of 1986 (16 U.S.C. 3901 et seq.). This act promotes the conservation of wetlands in order to maintain the public benefits they provide. The purpose is to intensify cooperation and acquisition efforts among private interest and local, state, and federal governments for the protection, management, and conservation of wetlands. The act authorized the acquisition of wetlands consistent with a National Wetlands Priority Conservation Plan. It also (1) contains options for generating revenues to acquire and protect wetlands, (2) requires that statewide comprehensive outdoor recreation plans specifically address wetlands, (3) directs the completion of the map inventory of the nation's wetlands and the production, by September 30, 2004, of a digital wetlands database, and (4) requires a study of the impacts of federal programs on

wetlands. The act raised the price of duck stamps, required entrance fees at selected units of the national wildlife refuge system, and required that an amount equal to the annual duties on imported firearms and ammunition be paid into the Migratory Bird Conservation Fund. The act requires FWS to complete its wetlands inventory mapping of the contiguous United States by 1998.

The Endangered Species Act (16 U.S.C. 1531 et seq.). This act prohibits any federal agency from undertaking or funding a project that will threaten a rare or endangered species. Some wetlands development is restricted by this statute. The act can be used to prevent alterations of wetlands necessary to maintain a species' critical habitat— i.e., the geographical area that has the physical or biological features essential to conserve the species and that may require special management consideration or protection.

The Everglades National Park Protection and Expansion Act of 1989 (16 U.S.C. 410r-5 et seq.). This act provides for the acquisition of 107,600 acres to be added to Everglades National Park in southern Florida and provides for an increase in the water flow to the park to help restore and protect its water-dependent ecosystem. The additional acres would expand the size of the park to 1.5 million acres.

The Federal Agricultural Improvement and Reform Act of 1996 (1996 Farm Bill). Established by section 334 of the 1996 Farm Bill, the Environmental Quality Incentives Program (EQIP) (58 U.S.C. 3839aa et seq.) combines four Department of Agriculture conservation programs: the Agricultural Conservation Program, the Water Quality Incentives Program, the Great Plains Conservation Program, and the Colorado River Basin Salinity Program. EQIP offers farmers and ranchers 5-year to-10-year contracts that may make up to 100 percent incentive payments and provide up to 75 percent cost-sharing for conservation practices to combat serious threats to soil, water, and related natural resources, including wetlands. The Congress authorized \$200 million annually for EQIP through fiscal year 2002 to be paid by the Commodity Credit Corporation.

The Federal Aid to Wildlife Restoration Act of 1937 (16 U.S.C. 669 et seq.). The purpose of this act is to provide assistance to the states and territories in carrying out projects to restore, enhance, and manage wildlife resources and habitat.

The Federal Water Pollution Control Act (“Clean Water Act”). Section 404 of the Clean Water Act (33 U.S.C. 1344) provides the principal federal authority to regulate the discharge of dredged and fill material to waters of the United States, including wetlands. Under section 404, landowners and developers must obtain permits to carry out dredging and fill activities in navigable waters, which include wetlands. This act specifically exempts certain activities—normal agriculture, silviculture (forestry), and ranching—provided they do not convert areas of U.S. waters to uses to which they were not previously subject and do not impair the flow or circulation of such waters or reduce their reach.

Section 402 (33 U.S.C. 1342) authorizes a national system for regulating sources of water pollution, which can affect wetlands, either by the Environmental Protection Agency or through approved state programs. The Clean Water Act prohibits pollution discharges without a permit. Pollutant discharges are allowed subject to statutory restrictions under this section.

The Fish and Wildlife Act of 1956 (16 U.S.C. 742 et seq.). This act established the Fish and Wildlife Service and authorized the Secretary of the Interior to take such steps as required for the development, advancement, management, conservation, and protection of fish and wildlife resources. Such authority can be used to protect wetlands vital to many fish and wildlife species.

The Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). This act requires that wildlife conservation be given consideration equal to that given other purposes of water resources development projects constructed by federal agencies. This act empowers FWS and the Department of Commerce’s National Marine Fisheries Service to evaluate the impact on fish and wildlife of all new federal projects and federally permitted projects, including projects granted under section 404 of the Clean Water Act.

The Food, Agriculture, Conservation, and Trade Act of 1990 (1990 Farm Bill). Established by the 1990 Farm Bill, the Wetlands Reserve Program (WRP) (16 U.S.C. 3837 et seq.) is a voluntary program to restore and protect wetlands. Under WRP, farmers can apply to enroll prior converted wetlands, degraded wetlands, and buffer areas under permanent easement. Landowners are paid up to the agricultural value of the land for granting the government a permanent easement or 75 percent of this value for 30-year easements. They may also receive a large part of the costs to

carry out conservation measures and to protect wetlands functions on lands subject to an easement.

The 1990 Farm Bill established the Farmers Home Administration's Conservation Easement Program (7 U.S.C. 1985), under which lands that either have reverted or may revert to the Department of Agriculture's Farmers Home Administration can be preserved or restored, for example, wetlands. The Secretary of Agriculture may grant or transfer easements on land obtained from farm foreclosures or voluntary conveyance to federal or state agencies.

The Prohibition on Loans to Fill Wetlands (7 U.S.C. 2006(e)) provision of the 1990 Farm Bill prohibits the Secretary of Agriculture from approving any loan to drain, fill, level, or otherwise manipulate a wetland.

The Food Security Act of 1985 (1985 Farm Bill). Section 404 of the Clean Water Act does not regulate activities such as drainage, ditching, and channelization for agricultural production, which are major causes of past losses of wetlands. To fill this gap in coverage, the Food Security Act of 1985 was authorized to reduce the amount of wetland conversion directly related to agricultural production and included two major wetlands-related provisions, the Swampbuster and the Conservation Reserve Program.

The Swampbuster Provision (16 U.S.C. 3821 et seq.) denies federal farm program benefits to farmers who produce a commodity crop on a converted wetlands. Wetlands which were converted for agricultural purposes prior to the passage of this act are exempt from this provision. Landowners who want to convert wetlands may offset losses of wetlands through mitigation efforts, including enhancing, restoring or creating wetlands. Farmers can regain federal benefits if they restore converted wetlands. The Secretary of Agriculture has discretion to determine for which program benefits violators are ineligible and to provide good faith exemptions.

The Conservation Reserve Program (16 U.S.C. 3831 et seq.) is a voluntary program offering annual rental payments to farmers to protect highly erodible and environmentally sensitive lands, including wetlands, with grass, trees, and other long-term cover. The 1996 Farm Bill extended the program until fiscal year 2002, capped overall enrollment at 36.4 million acres, and provided funding through the Commodity Credit Corporation. Annual rental payments are based on the agricultural rental value of the

land and can cover up to 50 percent of a participant's costs. Participants may also receive an additional 25 percent of their costs for the restoration of wetlands.

The 1990 and 1996 Farm Bills modified these programs.

The Great Lakes Fish and Wildlife Restoration Act of 1990 (16 U.S.C. 941 et seq.). Concerned about the damage done to the Great Lakes Basin and its fish and wildlife resources, including the loss of 80 percent of the wetlands in the basin, the Congress passed legislation to address this problem. The Great Lakes Fish and Wildlife Restoration Act directs the Director of the Fish and Wildlife Service to seek to achieve several goals in administering the agency's programs. One of these goals is protecting, maintaining, and restoring fish and wildlife habitat, including the enhancement and creation of wetlands.

Sections 1006(d) and 1007(a) Intermodal Surface Transportation Efficiency Act of 1991 (33 U.S.C. 103 (i)(11) and 133 (b)(11)). The Intermodal Surface Transportation Efficiency Act of 1991 provides that federal funds apportioned to a state for the National Highway System and the surface transportation program may be used for wetlands mitigation efforts related to projects funded under these programs. These mitigation efforts may include participation in wetlands mitigation banks, contributions to statewide and regional efforts to restore, conserve, enhance and create wetlands, and the development of statewide and regional wetlands conservation and mitigation plans. Contributions toward these efforts, subject to certain conditions, may take place before a project is constructed.

The Land and Water Conservation Act of 1965 (16 U.S.C. 4601 et seq.). This act supports the purchase of natural areas, including wetlands, at federal and state levels. The Emergency Wetlands Resources Act of 1986 amended the Land and Water Conservation Act to (1) permit the funds to be used to acquire wetlands and (2) require the states to include the acquisition of wetlands as part of their comprehensive outdoor recreation plans.

The Magnuson-Stevens Act (16 U.S.C. 1801 et seq.). Amended on October 11, 1996 by the Sustainable Fisheries Act, the Magnuson-Stevens Act calls for direct action to stop or reverse the continued loss of fish habitat. The act requires cooperation among the National Marine Fisheries Service, eight Regional Fishery Management Councils, fishing participants,

federal and state agencies, and others in achieving the essential habitat goals of habitat protection, conservation and enhancement.

The Migratory Bird Conservation Act (16 U.S.C. 715 et seq.). This act established a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds. The Commission also approves wetlands conservation projects recommended by the North American Wetlands Conservation Council under the North American Wetlands Conservation Act.

The Migratory Bird Hunting and Conservation Stamp Act (16 U.S.C. 718 et seq.). Passed in 1934, this act requires waterfowl hunters aged 16 and older to purchase “duck stamps,” the proceeds of which are deposited into the Migratory Bird Conservation Fund to be used to acquire small wetland and pothole areas and rights-of-way providing access to such areas.

The National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.). This act provides that environmental impact statements be prepared for major federal actions. The statements must include assessments of the environmental impacts of proposed actions, any adverse environmental effects that cannot be avoided should the proposals be implemented, and alternatives to the proposed actions. Assessments under this act have been applied to major federal actions affecting wetlands.

The National Flood Insurance Act of 1968 (42 U.S.C. 4001 et seq.). This act requires communities to develop federally approved floodplain management programs. Administered by the Federal Emergency Management Agency, the act provides subsidized flood insurance to property owners in communities with approved programs. Communities that do not adopt an approved program to regulate future floodplain uses are ineligible for most federal financial assistance, including federal disaster assistance in case of flood. Property owners whose land is in a floodplain cannot get federally guaranteed mortgages, loans, or other forms of financial assistance unless the property is covered by flood insurance. In general, the programs apply to structures in floodplains. Although not the act’s primary focus, wetlands development is covered in the programs, since nearly all coastal and most inland wetlands occur in floodplains.

The National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd et seq.). This act established a National Wildlife Refuge System by

combining former “wildlife refuges, areas for the protection and conservation of fish and wildlife threatened with extinction, wildlife ranges, game ranges, wildlife management areas, and waterfowl production areas” into a single refuge system. The system currently includes 513 national wildlife refuges. FWS estimates that about 33 percent is wetlands.

The North American Wetlands Conservation Act of 1989 (16 U.S.C. 4401 et seq.). The act encourages voluntary public-private partnerships to conserve North American wetlands ecosystems and wetland-dependent migratory birds in support of the North American Waterfowl Management Plan in an effort to increase waterfowl populations. The act authorizes the Congress to appropriate up to \$30 million annually for its implementation. The act is financed, in part, by funds received from the investment of unobligated Federal Aid to Wildlife Restoration Act funds, which are derived from excise taxes on ammunition and sporting arms, handguns, and certain archery equipment, as well as fines, penalties, and forfeitures associated with Migratory Bird Treaty Act violations. Between 50 and 70 percent of the available funds are to be spent on wetlands conservation projects in Canada and Mexico; the remaining funds are to be spent on projects in the United States. Projects are recommended to the Migratory Bird Conservation Commission for funding, and costs are shared with state and private organizations working toward the goal of wetlands preservation.

The Resources Conservation and Recovery Act of 1976 (42 U.S.C. 1342 et seq.). This act, which is administered by the Environmental Protection Agency, controls the disposal of hazardous waste and could reduce the threat of chemical contamination of wetlands.

The Rivers and Harbors Act of 1899 (33 U.S.C. 403). Section 10 of this act requires that permits be obtained from the Army Corps of Engineers for dredge, fill, and other activities that could obstruct navigable waterways, which can include wetlands.

The Water Bank Act (16 U.S.C. 1301 et seq.). Passed in 1970, this act authorized the Water Bank Program to provide funds to purchase 10-year easements on wetlands and adjacent areas. The act’s objectives were to preserve, restore, and improve the wetlands of the nation and thereby (1) conserve surface waters, (2) preserve and improve migratory waterfowl and other wildlife resources, (3) reduce runoff and soil and wind erosion, (4) contribute to flood control, (5) contribute to improved

water quality and reduced stream sedimentation, (6) contribute to improved subsurface moisture, (7) reduce the number of new acres coming into production and retire lands now in production, (8) enhance the natural beauty of the landscape, and (9) promote comprehensive and total water management planning. Under the act, private landowners or operators enter into agreements with the federal government in which they promise not to drain, fill, level, burn, or otherwise destroy wetlands and to maintain ground cover essential for the resting, breeding, or feeding of migratory birds. In exchange, the landowners or operators receive annual payments.

The Watershed Protection and Flood Protection Act (16 U.S.C. 1003a). The Secretary of Agriculture may provide cost share assistance to enable project sponsors, often local flood control districts, to acquire perpetual wetland or floodplain conservation easements. The easements would perpetuate, restore, and enhance the natural capacity of wetlands and floodplains to retain excessive floodwater, improve water quality and quantity, and provide habitat for fish and wildlife. Project sponsors must provide up to 50 percent of the cost for acquiring such easements.

The Water Resources Development Act of 1986 (33 U.S.C. 2294). Section 1135 of this act authorized the Secretary of the Army to review water resources projects constructed by the Corps to determine the need for modifications that would improve the quality of the environment. Projects that address the degradation of the quality of the environment caused by the Corps may also be undertaken. Nonfederal parties must agree to provide 25 percent of a project's cost and usually 100 percent of the operation, maintenance, replacement, and rehabilitation costs. Up to 80 percent of the nonfederal share may be provided as work-in-kind.

The Water Resources Development Act of 1990 (33 U.S.C. 2317). Section 307 of this act includes, as part of the Army Corps of Engineers' water resources development program, (1) an interim goal of no overall net loss of the nation's remaining wetlands base and (2) a long-term goal to increase the quality and quantity of the nation's wetlands. The act also requires the Secretary of the Army to develop—in consultation with the Environmental Protection Agency, the Department of the Interior's Fish and Wildlife Service, and other appropriate agencies—a wetlands action plan to achieve the goal of no net loss of remaining wetlands. This action plan, to be completed by November 28, 1991, was never published. The act also authorized the Secretary of the Army to establish and implement a demonstration program for the purposes of determining and evaluating the

technical and scientific long-term feasibility of wetlands restoration, enhancement, and creation as a means of contributing to these goals.

The Water Resources Development Act of 1992 (33 U.S.C. 2326). Section 204 of the act authorized the Secretary of the Army to carry out projects for the protection, restoration, and creation of aquatic and ecologically related habitat, including wetlands, in connection with dredging for a navigation project. Nonfederal parties must agree to provide 25 percent of a project's construction cost and pay 100 percent of the operation, maintenance, replacement, and rehabilitation costs of the project.

The Water Resources Development Act of 1996 (33 U.S.C. 2330). Section 206 of this act authorized the Secretary of the Army to carry out aquatic ecosystem restoration projects that will improve the quality of the environment, are in the public interest, and are cost-effective. Individual projects are limited to \$5 million in federal cost. Nonfederal parties must contribute 35 percent of the cost of construction and 100 percent of the cost of operation, maintenance, replacement, and rehabilitation.

Principal Wetlands-Related Programs or Activities of Federal Agencies

At least 36 federal agencies are, to varying degrees, involved in wetlands-related activities. This appendix briefly describes some of the principal wetlands-related programs or activities of these agencies.

Department of Agriculture

The Department of Agriculture (USDA) has a number of programs designed to promote wetlands protection. Some of these, such as the “Swampbuster” provision and the Conservation Reserve Program were included in the 1985 Farm Bill and later modified in the 1990 and 1996 Farm Bills. The Wetlands Reserve Program, also included in the 1990 Farm Bill, represents one of Agriculture’s major programs to restore wetlands. These incentive-based conservation programs were established to restore and protect wetlands and to minimize the detrimental impacts to those wetlands already converted. Although other Agriculture agencies are also involved in wetlands-related activities, the Natural Resources Conservation Service and the Farm Service Agency are primarily responsible for administering the Department’s wetlands programs.

Natural Resources Conservation Service

The mission of the Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service, is to assist in the conservation, development, and productive use of the nation’s soil, water, and related resources. NRCS provides technical and financial assistance to landowners to achieve conservation objectives; this assistance includes the restoration and enhancement of wetlands. NRCS is responsible for delineating wetlands to implement the 1985 Farm Bill (Swampbuster); the 1990 Food, Agriculture, Conservation, and Trade Act; and the 1996 Farm Bill. In addition, it administers the Wetlands Reserve Program, the Water Bank Program, and the National Resources Inventory.

Wetlands Reserve Program

The Wetlands Reserve Program is a voluntary program to restore and protect wetlands on private property. Landowners have an opportunity to receive financial incentives to enhance wetlands in exchange for retiring marginal agricultural land. A landowner voluntarily limits future use of the land, yet retains private ownership. The landowner and NRCS develop a plan for the restoration and maintenance of the wetlands. According to agency officials, more than 600,000 acres had been enrolled in the program as of April 15, 1998, at a cost of about \$500 million. Although not more than 975,000 acres can be enrolled in the program by the year 2000, the administration included a proposal in its Clean Water Action Plan to expand the Wetlands Reserve Program to allow the enrollment of up to 250,000 acres of wetlands each year.

Water Bank Program

The Water Bank Program was established by the Water Bank Act in 1970. This program provides funds to purchase 10-year easements on wetlands and adjacent areas. It provides annual rental payments to landowners for preserving wetlands in important migratory waterfowl nesting, breeding, or feeding areas. The program focuses primarily on contracts with landowners in several central and western flyway states. Over \$80 million was spent on the program in fiscal years 1990 through 1997. Although the last contract was awarded in 1995 and no new funding has been put into the program since then, a small amount of funds becomes available each year because of landowners' withdrawals. These funds have been used to enroll a few new easements in North Dakota during fiscal years 1996 and 1997. Program funding will expire in fiscal year 2005.

National Resources Inventory

The National Resources Inventory (NRI) is an inventory that determines the conditions of land cover and use, soil erosion, prime farmland, wetlands, and other natural resource characteristics on nonfederal rural land in the United States. Inventories have been conducted at 5-year intervals by NRCS. The program is currently making the transition to an annualized inventory process. The 1992 inventory covered some 800,000 sample sites representing the nation's nonfederal land—some 75 percent of the nation's land area. The purpose of the NRI is to provide information that can be used for effectively formulating policy and developing natural resource conservation programs at the national and state levels.

Farm Service Agency

The Farm Service Agency (FSA) manages the Conservation Reserve Program. The Conservation Reserve Program is a voluntary program offering rental payments to farmers to protect highly erodible and environmentally sensitive cropland. Wetlands and land to be restored to wetlands are enrolled through a competitive bid process in which offers are evaluated on the basis of their relative environmental benefits. An estimated 692,000 acres of wetlands are currently protected or have been restored by the program. The Conservation Reserve Program also protects a significant amount of upland acres associated with wetlands. The program provides an estimated \$40 million each year for the protection of wetlands.

In addition, the Farm Service Agency administers the Conservation Reserve Enhancement Program under the Conservation Reserve Program. This program provides the opportunity to partner with state governments to target the most environmentally critical areas.

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FSA also administers and enforces the Swampbuster provision of the 1985 Farm Bill. FSA provides wetlands information to producers and third parties, monitors compliance with regulations, responds to public complaints and producers' appeals of FSA decisions, and deals with violations of the regulations. In each state, FSA's operations are carried out in conjunction with a state committee appointed by the Secretary of Agriculture. In each of over 3,000 agricultural counties throughout the United States, a county committee is responsible for the local administration of FSA's operations.

Forest Service

The Forest Service administers over 191 million acres of land containing an estimated 9.1 million acres of wetlands. The majority of these are in Alaska and in National Forests east of the Mississippi. The Forest Service is headed by a Chief who has six deputies reporting to him. Three of the six deputies have areas of responsibilities that include wetlands program elements.

The National Forest and Grasslands have an active wetlands restoration program in wetlands assessment, restoration, and compliance. Many staff share these responsibilities: Watershed and Air Management; Wildlife, Fish and Rare Plants; and Range Management are the most active in wetlands assessment and restoration. The Forest Service has recently joined in partnership with the Department of the Interior's Bureau of Land Management in instituting an assessment method called Proper Functioning Condition in the western states to assess the condition of riparian (stream-side) areas and wetlands.

The Forest Service also provides USDA leadership for forestry on nonfederal lands with an emphasis on management and protection of the estimated 52 million acres of nonindustrial private forest lands, including wetlands, in the contiguous United States. The Forest Service also works with other USDA agencies in implementing the Wetlands Reserve Program.

The Forest Service also has a program of research on forested wetlands that emphasizes developing and testing management that restores and maintains wetlands. Riparian ecosystems and their associated wetlands are studied in many parts of the country. Region-specific research focuses on southern coastal plain wetlands, south-central bottomland hardwood swamps, northern peatlands in the Great Lakes states, and wetlands in interior Alaska.

Overall, the Forest Service employed 93 full-time-equivalent staff for a total wetlands-related program cost of \$16.5 million in fiscal year 1997.

**Agricultural Research
Service**

The Agricultural Research Service (ARS) conducts research on the cost-effective practices and environmental benefits associated with maintaining and enhancing existing and constructed wetlands. ARS spent about \$8.8 million (in 1997 constant dollars) and 20 scientific years (similar to full-time-equivalent staff-years) from fiscal year 1990 through 1997 on wetlands-related research.

**Economic Research
Service**

The Economic Research Service (ERS) performs research and policy analysis at the national level and identifies long-term trend information. ERS has studied wetlands-related issues since the mid-1970s when a major conversion of wetlands to cropland occurred. Although ERS does not appropriate funds specifically for wetlands-related research, an ERS official estimated that about 1.25 full-time-equivalent staff-years (about \$120,000) are spent on wetlands-related research each year.

**Department of
Commerce**

**National Oceanic and
Atmospheric
Administration**

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service is responsible for protecting and conserving living marine, estuarine, and anadromous fish resources and habitats. In addition to performing administrative, management, and regulatory wetlands functions, the Service analyzes and comments on construction proposals and applications for dredge and fill permits issued by the Corps of Engineers. It is also an active member along with the Army Corps of Engineers, Department of Agriculture's Natural Resources Conservation Service, Department of the Interior's Fish and Wildlife Service, and the Environmental Protection Agency in projects funded under the Coastal Wetlands Planning, Protection and Restoration Act of 1990.

Through its Damage Assessment and Restoration Program, the National Oceanic and Atmospheric Administration uses monetary awards from polluters and other responsible parties to "restore, replace, or acquire the equivalent of" marine resources damaged by oil spills, hazardous releases,

or other human-induced environmental disturbances. To date, this program has initiated restoration activities at over 25 sites around the country.

The National Ocean Service, the Office of Oceanic and Atmospheric Research, and National Environmental Satellite, Data, and Information Service are also involved in wetlands-related activities. Wetlands-related responsibilities include implementing the Coastal Zone Management Program, improving the health of the nation's estuaries and coastal habitats, and performing coastal land and ocean sensing mapping and monitoring. For example, the National Ocean Service's National Estuarine Research Reserve Program has placed about 440,000 acres of estuarine waters, wetlands, and uplands into active management and stewardship. This is accomplished with the cooperation of the coastal states and territories and of constituent groups.

Department of Defense

Departments of the Air Force, Army, and Navy

All three military services were involved in a variety of wetlands-related activities in fiscal years 1990 through 1997. Although involved in restoration, creation/construction, research, and other wetlands-related activities, enhancement, mapping, inventorying, and delineation were the primary activities conducted during this period.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers is the primary federal agency responsible for regulating wetlands development under section 404 of the Clean Water Act. Section 404 authorizes the Corps to issue or deny permits for the discharge of dredged or fill materials into U.S. waters. Of the approximately 12,000 to 15,000 project-specific permit applications the Corps evaluates each year, about 8,000 are issued and 200 denied. The remaining applications either qualify for authorization under a general permit, are withdrawn by the applicant, or are canceled by the Corps when the applicant fails to provide the information required for a decision. The Corps also verifies authorization of approximately 75,000 minor activities each year under the terms and conditions of regional and nationwide general permits.

Under the President's Wetlands Plan, issued in August 1993, the Corps was to establish an administrative appeals program whereby the public could appeal decisions of permit denials and jurisdiction determinations. The adoption of this program has been held up because of funding limitations; however, a partial appeals program, for denials, is expected to be in place in fiscal year 1999. Without such an appeals system, the public must resort to litigation to challenge a regulatory decision by the Corps.

Both the Corps and EPA have enforcement responsibilities under section 404. EPA has statutory enforcement authority to deal with discharges of dredged or fill material where no permit has been obtained. The Corps has similar authority for dealing with violations of permit conditions. In January 1989, the Corps and EPA entered into a memorandum of agreement that established the Corps as the agency primarily responsible for initial investigations of reported violations. Both the Corps and EPA have authority to seek civil or administrative remedies for unauthorized discharges in wetlands. In addition, the agencies can, under appropriate circumstances, pursue criminal action in their enforcement cases. During fiscal year 1997, 6,300 unauthorized discharges were reported to the Corps. The Corps resolved 6,350 reported violations by requiring restoration of the damage to wetlands or other actions. (Some of those were reported in fiscal year 1996.) Some violations remained open at the end of fiscal year 1997. In addition to the unauthorized discharges, the Corps conducts compliance inspections of about 7,000 permitted activities per year. Almost 500 violations are noted as a result of these inspections.

The Corps is also involved in ecosystem restorations, many of which address wetlands, riparian, and aquatic ecosystems. The Corps' restoration projects may be linked with modifications to the operation or structure of existing projects. Dredged material can also be used to benefit aquatic ecosystems. The Kissimmee River project is one example of a major Corps effort to restore the environmental value of an area. The project will require over \$247 million in federal funds and will enhance wetlands by establishing a more natural timing and flow through the Kissimmee basin.

Coastal Wetlands Planning,
Protection and Restoration Act
Program

Public Law 101-646 stresses the nation's concern for conserving and restoring coastal wetlands. Because Louisiana faces the most alarming wetlands loss rates, the law's primary focus is on the restoration and protection of those wetlands. The law calls for a Louisiana Coastal Wetlands Conservation and Restoration Task Force made up of representatives from five federal agencies and the Governor of Louisiana to develop a comprehensive plan for addressing coastal Louisiana's severe

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wetlands loss problem. Every year, this task force approves and provides to the Congress priority lists of projects. Since 1991, this law has provided an average of over \$38 million annually in federal funding for Louisiana restoration projects.

**Office of the Secretary of
Defense**

In addition to the activities conducted by the military services, the Strategic Environmental Research and Development Program funded a study in 1993 to, among other things, identify installation requirements relating to wetlands protection and management.

Department of Energy

**Department of Energy
Program Offices and
Facilities**

A number of the Department of Energy's (DOE) programs were involved in wetlands-related activities through field and operations offices, national laboratories, and research facilities during fiscal years 1990 through 1997.¹ Although wetlands-related activities conducted by these program offices and facilities ranged from complying with regulations to education and public outreach, research and restoration were the primary wetlands-related activities conducted. Over half the estimated \$46 million (in 1997 constant dollars) spent in fiscal years 1990 through 1997 were associated with these two activities.

**Bonneville Power
Administration**

Bonneville Power Administration (BPA), one of the five federal power marketing agencies within DOE, supplies about half of the electricity used in the Pacific Northwest. Some of BPA's power projects affect wetlands, and it has developed wetlands programs to protect, mitigate, and enhance fish and wildlife. BPA has spent about \$10 million (in 1997 constant dollars) since 1990 on its wetlands-related activities, primarily to acquire land for mitigation purposes.

**Federal Energy Regulatory
Commission**

The Federal Energy Regulatory Commission is an independent regulatory agency within the DOE whose responsibilities include approving the construction of natural gas pipelines; the rates for oil pipelines; the

¹Some of the DOE programs, offices, and facilities involved in wetlands-related activities included the Environmental Restoration Office, Defense Programs, Office of Energy Research, the Savannah River Site, Rocky Flats Technology Center, Richland Operations Office, Los Alamos National Laboratory, Lawrence Berkeley National Laboratory, and Oak Ridge National Laboratory.

licensing and inspection of private, municipal, and state hydroelectric projects; and the overseeing of related environmental matters. The Commission's wetlands-related activities involved reviewing proposed projects for environmental impacts, including impacts to wetlands.

**Western Area Power
Administration**

Western Area Power Administration, a federal power marketing agency within DOE, supplies hydroelectric power to over 600 wholesale power customers. Western Area Power's wetlands-related activities consisted primarily of creating or constructing new wetlands as mitigation for expansion projects that affected existing wetlands.

**Department of
Housing and Urban
Development**

The Department of Housing and Urban Development has very little involvement in wetlands-related activities. However, in the few cases in which its programs are used to assist housing and community development for proposed projects that are located in wetlands, the Department requires compliance with the National Environmental Policy Act and Executive Order 11990. The Department could not provide information on the staffing and funding associated with these activities.

**Department of the
Interior**

The Department of the Interior has a number of programs addressing various aspects of wetlands ranging from the protection, restoration and enhancement efforts by the Fish and Wildlife Service to the research efforts of the U.S. Geological Survey.

**U.S. Fish and Wildlife
Service**

FWS is one of the primary agencies responsible for wetlands. In addition to reviewing section 404 permit applications and making recommendations to the Corps of Engineers on whether to approve a permit application and on any conditions that should be incorporated into it, FWS is active in programs that protect, restore, and enhance wetlands.

**Partners for Fish and Wildlife
Program**

The Partners for Fish and Wildlife Program began in 1987, restoring wetlands functions and values on private lands through voluntary cooperative agreements. Since then, the program has expanded to include habitat restoration of other important wildlife habitat, including native-grass prairie, riparian habitat, in-stream habitat, and declining-species habitats. The Partners for Fish and Wildlife Program has entered into over 17,000 voluntary cooperative agreements with private landowners for the purposes of restoring habitat. The program also

provides technical assistance to other federal agencies with conservation programs, primarily the Department of Agriculture. In fiscal years 1990 through 1997, the program received \$123.4 million in funds. To date, the Partners for Fish and Wildlife Program has restored over

- 360,000 acres of wetlands,
- 128,000 acres of prairie grassland,
- 930 miles of riparian habitat, and
- 90 miles of in-stream aquatic habitat.

North American Waterfowl Management Plan

The North American Waterfowl Management Plan has the goal of restoring continental waterfowl populations to numbers seen in the 1970s. To do this, it joins the efforts of public agencies and private conservation groups by applying the joint venture concept to develop partnerships and matching grant funding arrangements to carry out wetlands protection and restoration. The initial plan was created in 1986 involving Canada and the United States; it was updated and expanded to include Mexico in 1994. There are 11 habitat joint ventures in the United States and 3 in Canada. The plan calls for 11.1 million acres of wetlands and associated uplands to be protected and 14.7 million acres to be restored or enhanced. Habitat goals for each of the plan's joint ventures are identified in the plan update. Actual joint venture projects are funded individually by the joint venture partners involved. FWS receives some appropriations for associated administrative efforts.

North American Wetlands Conservation Act Grant Program

The North American Wetlands Conservation Act Grant Program was authorized by the North American Wetlands Conservation Act of 1989. The program encourages voluntary public-private partnerships to conserve North American wetlands ecosystems. Principal conservation actions include the acquisition, creation, enhancement, and restoration of wetlands and wetlands-associated habitat. From fiscal year 1991 through March 1998, 576 projects in the United States, Canada, and Mexico, involving over 900 partners, have been approved for funding. Approximately 3.7 million acres of wetlands and associated uplands have been acquired, restored, or enhanced in the United States and Canada, while nearly 20 million acres have been affected in large biosphere reserves through conservation education and management plan projects in Mexico.

National Coastal Wetlands Conservation Grant Program

National Coastal Wetlands Conservation Grants are authorized by the Coastal Wetlands Planning, Protection and Restoration Act of 1990. The source of funding for the grant program is a portion of the revenues

deposited in the Sport Fish Restoration Account of the Aquatic Resources Trust Fund. Program eligibility extends to all states bordering on the Atlantic, Gulf (except Louisiana), and Pacific coasts, as well as states bordering the Great Lakes and U.S. territories, trust areas, and Puerto Rico. The share of project costs funded by the federal grant cannot exceed 50 percent, unless the coastal state has established a trust fund or a fund derived from a dedicated recurring source of moneys for the purpose of acquiring coastal wetlands, other natural areas, or open spaces, in which case the federal share may be increased to 75 percent. Since 1992, the program has protected almost 64,000 acres of wetlands and associated uplands through acquisition and restoration.

National Wildlife Refuge System

FWS administers the 92 million-acre National Wildlife Refuge System for the benefit of fish, wildlife, and plants and their habitats. The Service estimates that about one-third of these acres are wetlands, excluding tundra in Alaska. The 513 national wildlife refuges and 37 wetlands management districts, located in all 50 states, encompass a tremendous variety of wetland types providing important habitat for migratory birds, anadromous fish, and species threatened with extinction. Refuge managers use water control structures, moist soil management, prescribed burning, and other techniques to restore, maintain, and enhance refuge wetland habitats.

National Wetlands Inventory

The National Wetlands Inventory (NWI) program began in 1978 and has had two goals since its inception: to produce (1) detailed maps for the country and (2) comprehensive, statistically valid acreage estimates of the nation's wetlands. The Emergency Wetlands Resources Act of 1986, as amended, required the Secretary of the Interior, acting through the Fish and Wildlife Service, to complete maps for the conterminous United States by September 30, 1998, and to update the report on wetlands status and trends on a 10-year cycle. To date, three congressional reports have been generated by the status and trends efforts.

National Park Service

As the manager of more than 16 million acres of wetlands, the National Park Service is a key participant in the preservation, restoration, and management of wetlands habitats across the United States. Although many wetlands in National Park System units are in essentially pristine condition, others have been damaged by drainage, pollution, diking, and filling. In 1991, the National Park Service initiated a Service-wide program designed to enhance its wetlands protection, restoration, inventory, applied research, and education efforts. This program is implemented

through project funding and technical assistance from the Service's Water Resources Division.

Bureau of Land Management

The mission of the Bureau of Land Management is to sustain the health, diversity, and productivity of the public land for the use and enjoyment of present and future generations. For riparian-wetlands areas, this involves inventory/classification, project development/maintenance, monitoring, protection/mitigation, and acquisition/expansion of riparian-wetlands areas through Land and Water Conservation Fund purchases and land exchanges. Bureau of Land Management field offices develop and carry out site-specific management needs, proposals, and work plans for a variety of wetlands projects, ranging from prescribed grazing management to protective enclosures around small springs, to larger wetlands development projects. The Bureau is also engaged in several joint venture partnerships that focus on regional wetlands protection and development relative to the North American Waterfowl Management Plan.

Bureau of Reclamation

The Bureau of Reclamation's mission has evolved over the past 10 years from one focusing on the development of water resources and civil works construction projects to one emphasizing water resources management, protection, and development and maintenance and enhancement of existing facilities. The Bureau's wetlands activities include compensatory mitigation required to address unavoidable impacts caused by the construction and operation of projects. Compensatory mitigation may entail wetlands restoration, enhancement, and/or development. The Bureau also voluntarily participates with cost-sharing partners in developing, restoring, and enhancing wetlands to establish and improve wetlands functions and values associated with its projects.

U.S. Geological Survey

The U.S. Geological Survey's wetlands-related activities are predominately research and mapping; the agency does not directly carry out restoration, protection or enhancement efforts. Its primary efforts are focused on obtaining an increased understanding of the structure and function of wetlands, both as individual units and components of large hydrologic systems. In many cases, the scientific information produced feeds directly into the wetlands restoration and management activities of other agencies.

Examples of research efforts include the following:

- Inventorying and monitoring Louisiana’s coastal wetlands. The Survey documented wetlands loss through a time series of habitat maps and reports and provides spatial databases for planning and monitoring large-scale wetlands restoration projects of the Coastal Wetlands Planning, Protection and Restoration Act.
- Science for the restoration of the south Florida, San Francisco Bay, and Chesapeake Bay ecosystems. Most of the wetlands work of the Integrated Natural Resources Science Program (formerly Ecosystem Program) was conducted in south Florida. The program’s costs were \$3.7 million, \$7.4 million, and \$7.3 million for fiscal years 1995, 1996, and 1997 respectively.

Bureau of Indian Affairs

The Bureau of Indian Affairs administers and manages approximately 52 million acres of land held in trust by the United States for Native Americans. Most Indian land is located in arid regions not known for their wetlands values; however, approximately one million acres of trust land contain wetlands that possess significant fish and wildlife resources. Approximately 400,000 acres of wetlands are located on 18 Indian reservations in Minnesota, Michigan, and Wisconsin. Tribes in these three states, in conjunction with the North American Waterfowl Management Plan, have developed a consolidated set of wetlands management and development project proposals for their reservations. According to a Bureau official, there is no other budget or program for addressing wetlands located on reservations in other states. Approximately 34,000 acres of wetlands were restored, enhanced, created or constructed through 1997. The Bureau has no staff funded for this work.

Office of Surface Mining

The Office of Surface Mining’s mission is to carry out the requirements of the Surface Mining Control and Reclamation Act of 1977, as amended, in cooperation with the states and tribes. The Office is responsible for ensuring that any wetlands that may be affected by mining are addressed in the permitting process, coordinated with the Corps of Engineers, and mitigated if necessary. Furthermore, the Corps’ nationwide permits require the Office of Surface Mining or the state regulatory authority to approve wetlands mitigation plans prior to submission. In addition, the abandoned mine land program has encouraged the construction and enhancement of wetlands as part of the Federal Reclamation Program and the abandoned mine land program’s state grant process. In fiscal years 1990 through 1997, the Office spent a little over \$1 million dollars on wetlands-related activities.

**Minerals Management
Service**

The Minerals Management Service manages the Outer Continental Shelf oil and gas program. The Service's responsibilities, as set forth in the Outer Continental Shelf Act, include assessing the potential impacts of oil and gas activities on the coastal environment, including wetlands, and managing oil and gas activities to minimize any impacts. Most of the major wetlands studies sponsored by the Service were funded prior to fiscal year 1990, although, in fiscal years 1990 through 1997, approximately \$507,000 was spent on wetlands research in the Gulf of Mexico. Furthermore, in fiscal year 1997, the Service initiated a cooperative study of coastal wetlands impacts related to pipeline canal widening rates with the Biological Resources Division of the U.S. Geological Survey. The Minerals Management Service funding of this 4-year study was \$106,000.

Department of Justice

Within the Department of Justice, lawyers in the Environment and Natural Resources Division and the 94 United States Attorney Offices handle all wetlands-related litigation, including affirmative and defensive civil cases and prosecution of criminal violations. This work includes litigation to enforce the law when individuals and/or companies fill wetlands without a permit, to defend legal challenges to section 404 permits that have been issued by the government, and to defend inverse condemnation cases filed against the government because of permit decisions. An Environment Division official estimated that in fiscal years 1990 through 1997, its attorneys addressed 1,010 cases at an expense of \$19 million (in 1997 constant dollars). In fiscal years 1992 through 1997, the U.S. Attorney Offices addressed 67 section 404 cases.

Department of State

The Department of State supports the Ramsar Wetlands Convention through voluntary contributions to (1) the Ramsar Bureau's core budget, (2) Conference of Parties meetings, and (3) wetlands projects. The Convention on Wetlands, adopted in Ramsar, Iran, in 1971, is the only international accord dedicated to the protection of wetlands. The 106 nations that are parties to the Ramsar Convention have designated over 900 wetlands sites of international importance to promote their sustainable use and management. The United States contributes about 25 percent of the total Ramsar Bureau's budget.

The Department of State also provides funding for the Wetlands for the Future project, whose goals are to train wetlands managers and improve their expertise in wetlands conservation in the Western Hemisphere. The

Department spent about \$4.3 million (in constant 1997 dollars) on its wetlands-related activities in fiscal years 1991 through 1997.

Department of Transportation

United States Coast Guard

The United States Coast Guard must comply with the provisions of sections 404 and 401 of the Clean Water Act and Executive Order 11990. According to the Coast Guard, consideration is given to the impacts on wetlands before any new real property acquisition, new construction projects, or maintenance projects for its shore facilities is undertaken. However, although the Coast Guard conducted a number of wetlands-related activities in fiscal years 1990 through 1997, including restoration, enhancement, and creation as mitigation, it does not keep records of such activities or track the funding or staffing associated with them.

Federal Highway Administration

The Federal Highway Administration administers the Federal Aid and Federal Lands Highway Program. As part of the highway development process, state departments of transportation carry out components of the wetlands management and compliance process, including identification, delineation, and mitigation of highways' impacts on wetlands. Neither the Federal Highway Administration nor the state departments of transportation regulate wetlands. However, time is spent in the regulatory compliance process performing tasks primarily for the section 404 process. Most of the over \$523 million (in constant 1997 dollars) spent by the Federal Highway Administration in fiscal years 1990 through 1997 was related to mitigation for highway construction.

Environmental Protection Agency

As one of the primary agencies responsible for wetlands, the Environmental Protection Agency has regulatory and enforcement responsibilities under section 404 of the Clean Water Act. EPA also has regulatory functions that include the control of discharges of pollutants in all waters of the United States, including wetlands. In addition, EPA performs wetlands-related research. EPA also has established programs that improve wetlands protection by increasing the emphasis on watershed or ecosystem management approaches; support and improve

capabilities of state, tribal, and local wetlands programs; provide technical assistance, including scientific information and tools; and support outreach and education to meet the needs of its partners. As part of these programs, EPA provides wetlands grants to assist state, tribal, and local government organizations in building their wetlands expertise, capabilities, and programs. EPA has spent \$241 million (in constant 1997 dollars) and over 1,450 full-time-equivalent staff-years on its wetlands-related activities in fiscal years 1990 through 1997.

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) has no specific wetlands programs, but it does operate programs that affect wetlands, such as the Hazard Mitigation Grant Program, the Public Assistance Program, and the National Flood Insurance Program.

FEMA's Public Assistance Program provides funding to state and local governments and nonprofit entities to repair damaged facilities and also funds other disaster response and recovery activities, such as debris removal and disposal. The Hazard Mitigation Grant Program assists states and local communities to implement long-term hazard mitigation measures that substantially reduce the risk of future damage. In addition, FEMA's National Flood Insurance Program maps flood hazard areas and makes flood insurance available only in those communities that adopt and enforce floodplain management ordinances that meet or exceed minimum standards. Many of these floodplains are also wetlands. The National Flood Insurance Program's Community Rating System provides discounts on flood insurance premiums that take actions beyond the program's minimum requirements.

Federal Emergency Management Agency staff also review some of the Corps' permitting decisions relative to section 404 of the Clean Water Act and other agencies' National Environmental Policy Act documents.

General Services Administration

The General Services Administration's wetlands-related activities are related to fulfilling the "only practical alternative" requirement of Presidential Executive Order 11988, Floodplain Management. Agency officials responsible for leasing actions or for site acquisitions must certify that the site selected is the only practical alternative despite the impacts on wetlands. In fiscal years 1990 through 1997, the administration spent about \$90,000 (in constant 1997 dollars) and no identified full-time-equivalent staff-years on wetlands-related activities.

**International
Boundary and Water
Commission (U.S.
Section)**

The International Boundary and Water Commission is a bi-national commission created by the governments of the United States and Mexico to apply the provisions of various boundary and water treaties and to settle differences arising from such applications. The U.S. Section's wetlands responsibilities include maintaining the Lower Rio Grande Flood Control Project by mowing and clearing brush growing within the river floodway, where needed. The Commission's U.S. Section is also creating a wildlife refuge primarily focused on waterfowl habitat in a moist soil managed wetlands in El Paso, Texas. About \$834,000 and six full-time-equivalent staff-years were associated with these wetlands-related activities in fiscal year 1997.

**National Aeronautics
and Space
Administration**

The National Aeronautics and Space Administration is involved in a number of wetlands-related activities. These activities include restoration, construction, research, mapping, delineation, and education. In fiscal years 1990 through 1997, the agency spent about \$1.6 million (in constant 1997 dollars) and six full-time-equivalent staff-years on these activities.

**National Science
Foundation**

The National Science Foundation was involved in a number of wetlands research and research-related activities. Although research accounts for a majority of its activities, the National Science Foundation was also involved in wetlands mapping, restoration, and education/public outreach activities. In fiscal years 1990 through 1997, the National Science Foundation spent almost \$47 million (in constant 1997 dollars) and 27 full-time-equivalent staff-years on its wetlands research and research-related activities.

**The Smithsonian
Institution**

The Smithsonian Institution's wetlands-related activities range from acquiring easements to education/public outreach efforts. The Smithsonian Environmental Research Center provides public education and professional training on the tidal and freshwater wetlands of the Chesapeake Bay region.

**Tennessee Valley
Authority**

The Tennessee Valley Authority has been involved primarily in wetlands research and, to a limited extent, other activities such as restoration, mapping, inventorying, and delineation. In fiscal years 1990 through 1997, the Tennessee Valley Authority spent about \$15 million (in constant 1997

**Appendix II
Principal Wetlands-Related Programs or
Activities of Federal Agencies**

dollars) and 115 full-time-equivalent staff-years on its wetlands-related activities.

Funding and Staffing Associated With Federal Agencies' Wetlands-Related Activities, Fiscal Years 1990 Through 1997

Constant 1997 dollars in millions

Agency	Fiscal Year							
	1990		1991		1992		1993	
	Funding	Full-time staff equivalents	Funding	Full-time staff equivalents	Funding	Full-time staff equivalents	Funding	Full-time staff equivalents
Department of Agriculture								
Agricultural Research Service	\$.84	1	\$.81	1	\$.90	1	\$.88	1
Economic Research Service	.14	1.2	.14	1.2	.13	1.2	.13	1.2
Farm Service Agency ^a	71.55	404	69.02	359	69.85	384	76.56	297
Forest Service	17.77	89	17.11	89	16.65	89	16.21	89
Natural Resources Conservation Service ^{a, b}	88.36	1,635	45.14	817	.84	16	.82	14.5
Department of Commerce								
National Oceanic and Atmospheric Administration	32.65	105	31.56	105	32.73	115	35.16	121
Department of Defense								
Department of the Air Force	N/A	28	.63	28	.65	28	7.50	29.01
Department of the Army (excluding the Corps of Engineers)	.02	.3	.30	3.8	.81	5.1	1.98	4.3
Department of the Navy	.39	6.98	.95	4.92	2.69	13.76	6.09	13.32
U.S. Army Corps of Engineers ^c	90.70	956.3	102.84	1,023.69	181.70	1,121.26	157.39	1,111.84
Other DOD components	0	0	0	0	0	0	.49	2.5
Department of Energy								
DOE components	3.45	4.36	4.26	4.66	5.94	8.56	6.14	6.39
Bonneville Power Administration	.09	0	.02	.5	.61	.5	1.35	.5
Federal Energy Regulatory Commission	.01	.2	.01	.2	.06	.87	.02	.3
Western Area Power Administration	.27	0	.03	.4	.03	.4	.03	.4
Department of Housing and Urban Development								
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Department of the Interior								
Bureau of Indian Affairs	0	0	.69	0	.34	0	.44	0
Bureau of Land Management	N/A	N/A	15.52	221	16.51	273	17.99	261

**Appendix III
Funding and Staffing Associated With
Federal Agencies' Wetlands-Related
Activities, Fiscal Years 1990 Through 1997**

Fiscal year									
1994		1995		1996		1997		Total	
Funding	Full-time staff equivalents	Funding	Full-time staff equivalents	Funding	Full-time staff equivalents	Funding	Full-time staff equivalents	Funding	Average annual full-time staff equivalents
\$ 1.39	4	\$ 1.36	4	\$ 1.33	4	\$ 1.30	4	\$ 8.80	2.50
.13	1.2	.13	1.2	.12	1.2	.12	1.2	1.05	1.20
97.00	313	50.42	213	49.18	209	46.20	166	529.78	293.13
16.60	89	16.18	89	15.82	89	16.50	93	132.83	89.50
104.07	36	28.97	117.5	118.83	219	125.80	782.7	512.83	454.71
41.11	122	50.73	127	35.00	128	36.00	127	294.95	118.75
1.45	29.51	1.91	30.73	1.69	28.99	1.03	28.47	14.87	28.84
1.08	9.1	2.11	12.7	3.03	14.2	2.44	16.2	11.76	8.21
2.32	23.62	3.43	24.18	3.46	38.38	4.47	26.15	23.80	18.91
186.31	1,176.44	196.76	1,198.71	205.90	1,154.87	172.04	1,094.91	1,293.64	1,104.75
0	0	0	0	0	0	0	0	.49	.31
5.58	6.72	12.03	6.94	5.55	7.75	3.46	5.08	46.39	6.31
1.62	.5	2.16	.5	3.40	.5	1.12	.5	10.37	.44
.11	1.42	.03	.37	.02	.32	.04	.55	.30	.53
.12	.4	.03	.55	^d	.5	.02	.2	.54	.36
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
.64	0	.63	0	.61	0	.60	0	3.95	0
27.77	402	29.86	438	27.04	354	39.65	509	174.34	307.25

(continued)

**Appendix III
Funding and Staffing Associated With
Federal Agencies' Wetlands-Related
Activities, Fiscal Years 1990 Through 1997**

Constant 1997 dollars in millions

Agency	Fiscal Year							
	1990		1991		1992		1993	
	Funding	Full-time staff equivalents	Funding	Full-time staff equivalents	Funding	Full-time staff equivalents	Funding	Full-time staff equivalents
Bureau of Reclamation	N/A	N/A	2.30	20	3.43	20	4.39	20
Fish and Wildlife Service	88.50	479	110.64	501	139.48	551	135.50	553
Minerals Management Service	.08	N/A	.07	N/A	.10	N/A	.48	N/A
National Park Service	11.38	199	13.97	201	17.55	246	17.36	222
Office of Surface Mining	.03	.3	.09	.3	1.01	.3	.02	.3
U.S. Geological Survey	10.64	119	15.86	166	16.31	198	16.90	201
Department of Justice ^f	1.58	12.7	1.99	15.1	2.22	16.3	2.52	17.2
Department of Transportation								
Coast Guard	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Federal Highway Administration	70.55	80.75	67.94	80.75	66.39	82.75	64.61	85.75
Department of State	0	0	.40	0	.28	0	.89	.03
Environmental Protection Agency	13.57	115.9	22.54	169.2	29.92	187.2	33.41	193.2
Federal Emergency Management Agency	.26	3.38	.25	3.38	.25	3.38	.24	3.39
General Services Administration	0	0	0	0	0	0	.09	0
International Boundary and Water Commission	0	0	0	0	0	0	0	0
National Aeronautics and Space Administration	.07	1.02	.14	1.26	.10	1.28	.33	1.15
National Science Foundation	4.41	3	4.17	3	5.63	3	7.01	3
Smithsonian Institution	.12	5	.12	5	.11	5	.16	5
Tennessee Valley Authority	.53	5.75	5.15	16.15	1.25	13.05	1.22	12.85
Total	\$507.95	4,256.14	\$534.69	3,841.51	\$614.47	3,384.91	\$614.29	3,271.13

**Appendix III
Funding and Staffing Associated With
Federal Agencies' Wetlands-Related
Activities, Fiscal Years 1990 Through 1997**

Fiscal year									
1994		1995		1996		1997		Total	
Funding	Full-time staff equivalents	Funding	Full-time staff equivalents	Funding	Full-time staff equivalents	Funding	Full-time staff equivalents	Funding	Average annual full-time staff equivalents
2.96	20	5.61	20	8.42	20	6.94	20	34.05	17.50
136.02	585	155.38	574	122.04	590	165.00 ^e	596.2 ^e	1,052.56	553.65
.07	N/A	.07	N/A	.07	N/A	.17	N/A	1.10	N/A
18.33	240	23.09	230	14.13	235	20.06	230	135.87	225.38
.02	.3	.02	.3	.02	.3	.02	.3	1.23	.30
18.91	205	22.23	253	26.42	254	25.67	255	152.93	206.38
2.72	18.3	3.20	20.4	2.68	16.4	2.44	14.3	19.35	16.34
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
63.21	86.25	51.19	86.25	70.00	93.75	70.05	98.75	523.95	86.88
.80	0	.81	0	.41	.1	.75	0	4.33	.02
32.23	193.8	37.37	195.3	36.43	199.3	35.60	199	241.06	181.61
.24	3.4	.23	3.4	.23	3.4	.23	3.5	1.92	3.40
0	0	0	0	0	0	0	0	.09	0
0	0	0	0	0	0	.83	6	.83	.75
.29	.27	.27	.38	.22	.12	.16	.32	1.59	.73
7.15	3	6.24	4	6.58	4	5.67	4	46.86	3.38
.16	5	.16	5	.84	8	.25	5	1.92	5.38
1.20	13.3	1.44	14.4	2.17	19.2	2.18	20.4	15.15	14.39
\$771.61	3,588.53	\$704.05	3,670.81	\$761.63	3,693.28	\$786.81	4,307.73	\$5,295.51	3,751.76

**Appendix III
Funding and Staffing Associated With
Federal Agencies' Wetlands-Related
Activities, Fiscal Years 1990 Through 1997**

Note: The information shown for the funding and staffing represents the expenditures and full-time-equivalent staff-years associated with the agencies' wetlands-related activities in a given fiscal year. However, because many of the wetlands-related activities of the agencies are integrated into other programs, the agencies could not always document their expenditures. In most of these instances, the agencies provided estimates of the expenditures and staffing associated with their efforts. In addition, because not all agencies provided information on their wetlands-related funding and staffing, the total funding and staffing may be understated.

Totals may not add because of rounding.

N/A indicates that the agencies did not provide the requested information.

^aWith the reorganization of the Department of Agriculture in 1994, the management of some programs, such as the Water Bank Program, were transferred from the Farm Service Agency (formerly the Agricultural Stabilization and Conservation Service) to the Natural Resources Conservation Service (formerly the Soil Conservation Service).

^bFunding associated with NRCS' wetlands-related activities do not include the cost of performing wetlands delineations under the Swampbuster provision from fiscal year 1992 through 1996. According to NRCS officials, the costs of performing wetlands delineations were not tracked during this period. The costs of wetlands delineations are reflected in the totals shown for the remaining years. Funding associated with these efforts in 1990, 1991, and 1997 was \$73.6, \$38.1, and \$33.8, respectively.

^cThe funding data shown includes the expenditures associated with the Corps' regulatory program. Although most of the Corps' regulatory funding is devoted to the section 404 program, the costs of regulating other activities are also included. However, the Corps does not separately track the costs of regulating wetlands. The staffing data shown for the Corps are primarily for the regulatory program and do not include staff involved in the Corps' other wetlands-related activities.

^dLess than \$.01 million

^eIncludes \$40 million in funding and 8.2 full-time-staff equivalents associated with Everglades ecosystem restoration activities in south Florida.

^fThese numbers represent the resources associated with the efforts of the Environment and Natural Resources Division's headquarters staff. Although United States Attorney Offices are also involved in prosecuting and defending section 404 cases, the Executive Office of United States Attorneys could not provide funding and staffing data.

Comments From the Clinton Administration Interagency Wetlands Working Group Including Input From Individual Agencies

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

*Clinton Administration
Interagency Wetlands Working Group*

May 15, 1998

Mr. Barry T. Hill
Associate Director, Energy,
Resources, and Science Issues
General Accounting Office
Washington, D.C. 20548

Dear Mr. Hill,

Thank you for the opportunity to review the draft General Accounting Office (GAO) report entitled *Wetlands Overview; Problem with Acreage Data Persist*. As chair of the Interagency Wetlands Working Group (IWWG), I appreciate the opportunity to provide comments on the draft report on behalf of the principal Federal agencies involved in wetlands programs. Senator Bond's charge to your office concerns the important issues of 1) the funding and staffing of Federal agencies involved with wetlands protection and management and 2) the consistency and reliability of Federal data on wetlands gains and losses. The original formation of the IWWG was based in large part on ensuring efficient coordination and conservation of agency resources by reducing duplication and overlap in administration of Federal wetlands programs. A critical objective of the IWWG has been to reconcile differences in the reporting of wetlands losses and gains to ensure a reliable and consistent measure of the status of the Nation's wetlands resources. Although considerable effort has been put forth by GAO to characterize these complex issues within the draft report, we have several basic concerns about the summary of Federal programs and the characterization of how wetland losses and gains are reported.

Summary and Federal Programs

We are concerned that the draft report highlights that 35 Federal agencies are involved in wetlands related activities without adequately clarifying the level and nature of their involvement. For many of these agencies (e.g., Department of Energy, Department of Housing and Urban Development, Department of State, Department of Transportation, National Aeronautics and Space Administration, General Services Administration, the Smithsonian Institute, many Department of Interior agencies, and others), their involvement is typically limited to general monitoring or stewardship roles or is focused on avoiding and mitigating potential wetland impacts associated with their own projects and activities. Only five agencies have significant roles in administering major Federal wetlands programs. These are the Army Corps of Engineers, Environmental Protection Agency, Natural Resource Conservation Agency, National Marine Fisheries Service and the Fish and Wildlife Service. We strongly recommend that the Report be modified to begin with a characterization of the direct roles and responsibilities of each of these major agencies. Information on the involvement of the other Federal agencies could be noted at the end of this section to more accurately reflect their more limited roles.

See comment 1.

**Appendix IV
Comments From the Clinton Administration
Interagency Wetlands Working Group
Including Input From Individual Agencies**

See comment 2.

In addition, any characterization of Federal wetlands programs should include a more effective discussion of the Administration's national wetlands plan, *Protecting America's Wetlands: A Fair, Flexible, and Effective Approach*, a comprehensive 40-point plan to enhance wetlands protection while making wetlands regulation more fair and flexible for farmers, small landowners and others. This plan and the actions it identifies have been very effective in addressing issues raised in the draft Report. The IWWG was responsible for preparing the plan and, since its release in 1993, has coordinated the implementation of numerous actions and policies to achieve the plan's objectives. I have enclosed a copy of the plan as well as a recent progress report to provide additional information on this important Federal effort.

Reporting Wetlands Losses and Gains

See comment 3.

While the report acknowledges the different mandates and methods used by the U.S. Fish and Wildlife Service's National Wetlands Inventory and the Natural Resources Conservation Service's National Resources Inventory to report wetlands losses and gains, it emphasizes the differences in the estimates produced by the two inventories without clearly noting that the overall trends reflected in the two estimates are remarkably consistent and not statistically different.

In addition, the Report should include a description of the agencies' progress and recent commitment toward producing a single Federal estimate on wetlands gains and losses. As called for in the Clinton Administration's February 19, 1998, Clean Water Action Plan, the agencies have developed a detailed plan for producing a single report that meets the needs of Congress, the Federal agencies, and the public. Specifically, the agencies will provide a single, unified Federal estimate for wetlands gains and losses by the year 2000. A copy of this plan is enclosed for your review and inclusion in the Report.

We believe that addressing the concerns noted above prior to issuing a final Report will provide a more accurate characterization of the status of wetland protection efforts and the role of Federal programs in achieving the Nation's goal for no net loss of wetlands in the short-term and a net gain by 2005 as outlined in the CWAP. To facilitate revisions, we have also enclosed specific edits to the draft report text. Thank you for the opportunity to provide comments on the draft report. If you have any questions or need additional information, please call me at (703) 695-1370.

Sincerely,



Michael L. Davis
Chair, Interagency Wetlands Work Group

Enclosures

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EPA Comments on GAO Report, "Wetlands Overview, Problems with Acreage Data Persist"

Now on p. 2.
See comment 4.

Pg. 2, Last paragraph, 2nd sentence

Replace "land" with "resource" specifically since wetlands are waters of the U.S., not lands. Sentence should read: *The Department of Interior's Fish and Wildlife Service and the Department of Agriculture's Natural Resources Conservation Service maintain resource inventories that provide estimates of the nation's remaining wetlands acreage, annual rates of wetlands gains and losses, and the primary causes for these losses.*

Now on p. 2.
See comment 3.

Pg. 2, Last paragraph, 3rd sentence

Delete sentence. The inventories do not have to be completely consistent to evaluate progress toward the goal of "no overall net loss." The overall trends are very consistent and demonstrate that we are in fact making steady progress toward the Administration goal of net annual increase of 100,000 acres of wetlands by 2005.

Replace with: *However, because the inventories provide estimates of different populations (e.g., all lands in the conterminous U.S. vs. non-Federal lands in the conterminous U.S. and Alaska) the numbers are not directly comparable.*

Now on p. 2.
See comment 4.

Pg. 3, 1st full paragraph, 3rd sentence

Delete sentence. The statement that several interagency groups have been established to address restoration reporting is incorrect, the groups were established to address inventory issues, not how each agency reported programmatic accomplishments such as number of acres restored or enhanced.

Now on p. 3.
See comment 5.

Pg. 3, 1st full paragraph, last sentence

Modify sentence to read, "Details on how these planned actions will be accomplished *have been developed.*" (See enclosed Action Plan).

Now on p. 6.
See comment 1.

Pg. 7, Section titled, "Thirty-five federal agencies..."

The draft report identifies that thirty-five federal agencies were involved in wetlands during fiscal years 1990 through 1997, implying that there is significant duplication of effort. Only five agencies have significant Federal wetlands program responsibilities (Agriculture-NRCS, Interior-USFWS, Defense-Corps of Engineers, Commerce-NOAA, and the EPA) and these efforts are coordinated through the Administration's Interagency White House Wetlands Workgroup.

The title "Thirty-five Federal Agencies were Involved in Wetlands During Fiscal Years 1990 Through 1997" is mis-leading. A title for this section that would better represent the situation concerning the wetlands program would be -- "Five Primary Agencies Were Involved in the Majority of the Wetlands Programs during Fiscal Years 1990 Through 1997." While it may be factual that thirty-five agencies had some effort.....the vast majority of effort is expended by the five federal agencies with specific policy mandates for wetlands. It may be valuable to further characterize what limited involvement the

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other agencies have with wetlands. Clearly their involvement is limited (e.g., wetlands mitigation proposals for highway development) as compared to the principle five.

The following are suggested edits:

Replace Paragraph 1 with: *The primary agencies involved in and responsible for implementing the wetlands-related programs during fiscal years 1990 through 1997 were Department of Agriculture (Natural Resources Conservation Service), Department of Interior (U.S. Fish and Wildlife Service), Department of Defense (U.S. Army Corps of Engineers), Department of Commerce (National Oceanic and Atmospheric Administration) and the U.S. Environmental Protection Agency. These agencies account for most of the funding and full-time-equivalent staff years associated each year with the wetlands-related activities of federal agencies (Figures 3 and 4). The activities conducted by these agencies include restoring, enhancing, regulating, mapping, and conducting research relating to wetlands. It should be noted that an additional thirty agencies conducted wetlands-related activities, although these were typically limited to general monitoring or stewardship roles or are focused on avoiding and mitigating potential wetland impacts as permit applicants associated with their own projects and activities. (Examples of activities/issues in which the other 30 agencies are involved should be included).*

Pg. 9, Section titled, "Consistency and reliability..."

The GAO report focuses on the annual wetland loss figures reported by the USFWS and the NRCS. However, the report does not explain the different Congressional mandates for the information, the broad general agreement of the trend (loss rates are declining to about 100,000 acres per year), or the existing action items designed to address the differences in the numbers.

The WHWWG does not disagree that a single wetland acreage number would be valuable, but we do disagree with the assertion that these wetlands acreages are not consistent or reliable and the implication that this information may be without value. The information reported has value in that it does indicate trends in wetland acreages. Each of the inventories has consistently reported a trend in wetland loss reduction. (It should be noted that although the numbers between the two agencies differ, over the ten-year reporting period, the average annual difference for net wetlands loss of is not statistically significant). While there are differences in the USFWS and NRCS methodologies and results, the Administration is already addressing the reconciliation of these differences under the Clean Water Action Plan, including:

- By May 1998, a plan will be finalized to support a single status and trends report by the year 2000.
- By October 1999, an interagency tracking system will be created that will measure wetland loss, restoration, creation, and enhancement more precisely.

Now on p. 9.
See comment 3.

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Now on p. 9.
See comment 6.

Pg. 9, Section titled, "Consistency and reliability...", Title and first sentence
Replace title with: *CONSISTENCY AND RELIABILITY OF WETLANDS ACREAGE DATA NEED IMPROVEMENT*

Replace first sentence with: *The consistency and reliability of wetlands acreage data reported by federal agencies need improvement.*

Now on p. 9.
See comment 5.

Pg. 9, Section titled, "Consistency and reliability...", last sentence
Modify sentence to read: *The Administration is addressing the reconciliation of these differences under the Clean Water Action Plan, including:*

- *By May 1998, a plan will be finalized to support a single status and trends report by the year 2000.*
- *By October 1999, an interagency tracking system will be created that will measure wetland loss, restoration, creation, and enhancement more precisely.*

Now on p. 9.
See comment 3.

Pg. 10, 1st paragraph
Replace with: *Although no single set of numbers representing the nation's remaining wetlands acreage and annual gains and losses is available, the estimates made by the two federal inventories, the National Wetland Inventory (FWS) and the National Resources Inventory (NRCIS) do indicate consistent trends in wetland losses. Each inventory was developed to address different legislative mandates, sample a different population base, and has different strengths and limitations. As such, neither inventory will produce estimates that are identical with the other. Improved data that support a single number for wetlands losses/gains is the agencies' immediate goal and the White House Wetlands Working Group is moving forward to address this problem.*

Now on p. 10.
See comment 7.

Pg. 11, Last sentence

As written, the sentence implies that one inventory is better than the other and should be the standard that the other is compared against.

Modify to read: *Because of these many differences, although both reported that the rate of wetlands loss has declined, as shown in table 1, the estimates made by the two agencies are not completely consistent. Despite the differences in categories of the two inventories, however, the net loss of wetlands figures are not statistically different.*

Now on p. 10.
See comment 8.

Pg. 11, Table 1

The last two rows, gross loss of wetlands to agriculture and to development, respectively, should be deleted from the table because these data were draft and did not represent the agencies final conclusions regarding sources of wetlands losses.

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Now on p. 12.
See comment 4.

Pg. 14, 1st sentence under section titled, "Past efforts"

This sentence is not correct as written.

Modify to read: *Since 1989, at least five interagency groups have been involved in attempts to better coordinate Federal wetland programs, including the improvement of wetlands data.*

Now on p. 13.
See comment 9.

Pg. 15, 1st sentence under section titled, "Interagency Working Group on Federal Wetlands Policy"

Replace with: *In June 1993, the Administration convened the Interagency White House Working Group to address legitimate concerns with the Federal wetlands policy. After hearing from States, developers, farmers, environmental interests, members of Congress, and scientists, the group issued a forty-point plan in August identifying actions to enhance wetlands protection while making wetlands regulation more fair and flexible. Attached is the Administration's Wetlands Plan.*

Now on p. 13.
See comment 9.

Pg. 16, after top partial paragraph

Add paragraph: *The Administrations Wetlands Plan was issued in August 1993. Since its inception, many proposals from the plan have been implemented -- streamlining the wetlands permitting program, responding to concerns of farmers and small landowners, improving cooperation with private landowners to protect and restore wetlands, and increasing the role of State, Tribal and local governments in wetlands protection. While the work of this interagency task force is not finished, their efforts to date demonstrate that the Administration is meeting its commitment for meaningful wetlands reform. Attached is the four-year update of the Plan's accomplishments.*

Now on p. 13.
See comment 4.

Pg. 16, 1st full paragraph, 2nd sentence

Modify to read: *Although improvements were made in producing more consistent estimates of wetland change as a result of these groups, other problems with the consistency and reliability of wetlands acreage data remain.*

Now on p. 13.
See comment 4.

Pg. 16, 2nd full paragraph, 2nd sentence

Modify to read: *In October 1997, the Federal Geographic Data Committee's Wetlands Subcommittee decided to develop consistent definitions for wetlands gains, losses, and modification that all federal agencies would agree to use in reporting their data.*

Now on p. 14.
See comment 5.

Pg. 17, 1st full paragraph, last sentence

Modify sentence to read: *Details on how the planned actions will be accomplished have been developed.*

Now on p. 25.
See comment 4.

Page 26, 1st paragraph (The Federal Water Pollution Control Act ("Clean Water Act")), 1st sentence

Replace with: *Section 404 of the Clean Water Act (33 U.S.C. 1344) provides the principal federal authority to regulate the discharge of dredged and fill material to waters of the United States, including wetlands.*

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Now on p. 41.
See comment 4.

Now on p. 45.
See comment 4.

Pg. 48, “National Wetlands Inventory” section, last sentence

Only two status and trends reports have been issued, not three. There is another report on historical loss but it isn’t technically status and trends.

Pg. 54, “Environmental Protection Agency,” 1st paragraph, 4th sentence

Replace with: *EPA also has established programs that: improve wetlands protection by increasing emphasis on watershed or ecosystem management approaches; support and improve capabilities of state; tribal and local wetland programs; provide technical assistance, including scientific information and tools; and support outreach and education to meet the needs of our partners. As part of these programs, EPA provides wetlands grants to assist state, tribal, and local government organizations in building their wetland expertise, capabilities, and programs.*

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USDA COMMENTS ON THE GAO DRAFT REPORT

May 15, 1998

SUBJECT: MGT - General Accounting Office Draft Report, Wetlands Overview, Audit #141088

TO: Craig Cox, Acting Deputy Undersecretary for Natural Resource and Environment, Washington, D.C.

The Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA) and Forest Service (FS) has the following comments on the GAO Draft Report, "Overview of Federal Wetlands Programs," Audit #141088.

The opportunity to respond to this report was provided through the GAO Exit Conference held on April 16, 1998. It is understood that the USDA responses will be submitted to Michael Davis, Chairman of the White House Wetlands Working Group (WHWWG) and consolidated with those of other Federal agencies and submitted into a single Administration response to GAO. It is also understood that the WHWWG's response will include the "Action Plan: Developing a Unified Wetlands Status and Trends Report," as called for by the February 1998 Clean Water Action Plan.

Please provide me with a courtesy copy of the response that will be sent to the WHWWG.

NRCS Comments -

Cover Page - Title

The subtitle "Problems With Acreage Data Persist" does not acknowledge the fact that very recent multiagency coordination and agreements have taken place, as witnessed by the "Action Plan: Developing a Unified Wetlands Status and Trends Report." The plan reflects the milestone decision that the 1997 Natural Resources Inventory (NRI) data used to develop wetlands status and trends statistics reported by Federal agencies by the year 2000. This plan includes vigorous application of the principles of GPRA to enhance and integrate multiagency efforts to evaluate and guide the impacts of government programs to meet our goals to increase wetlands, and improve water quality and the environment.

Page 3, Top

As far as we know, the Environmental Protection Agency (EPA) has not expressed any recent concern about the NRCS NRI estimates. The EPA did raise questions in 1994/1995 when 1992 NRI wetland estimates were examined by the WHWWG. These issues were addressed, and EPA joined the WHWWG in endorsing the use of the 1982-1992 estimates provided by the 1992 NRI.

The NRI was designed using statistical sampling methodologies and mathematical estimation methodologies. Data gatherers employ scientific data collection protocols and image analysis techniques. Quality control and assurance procedures are incorporated into the inventory to assure reliability and accuracy.

Page 9, CONSISTENCY AND RELIABILITY ...

The last sentence should be changed to:

See comment 10.

Now on p. 2.
See comment 11.

Now on p. 9.
See comment 5.

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Now on pp. 9,11, and 12.
See comment 12.

The administration has recently announced new plans to improve wetlands data; details of how these plans will be accomplished are included in Appendix ___, "Action Plan: Developing a Unified Wetlands Status and Trends Report."

Pages 9, 12, 13 - CONSISTENCY AND RELIABILITY (Inventory vs. Program Reports)

There seems to be some intermingling (and possibly some confusion) as regards to estimates derived from statistical-based inventories and acreage reported through agency "program reports." The inventories report on-the-ground changes relative to inventory standards and definitions of gains and losses. There have been situations where users of the inventory data incorrectly add "restoration" figures to the inventory estimates, thereby causing overstating of accomplishments and thus confusion.

Now on p. 10.
See comment 8.

Page 11, Table 1

This table should be deleted. The FWS did not officially release these numbers. At a minimum, the attribution of loss to agriculture and development estimates should be deleted; the FWS has withdrawn these numbers following deliberations by the WHWWG.

Through the WHWWG, the FWS and NRCS have agreed that the 1997 NRI data used to develop wetlands status and trends statistics reported by Federal agencies, including the FWS 2000 Wetlands Status and Trends Report to Congress. The 1997 NRI Quality Assurance procedures are being developed and implemented cooperatively by FWS and NRCS in consultation with the WHWWG and the Wetlands Subcommittee of the Federal Geographic Data Committee to ensure that inventory standards meet FWS needs for the wetlands status and trends report. This process is outlined in the "Action Plan: Developing a Unified Wetlands Status and Trends Report."

Now on p. 10.
See comment 8.

Page 12, 1st Paragraph

The last two sentences should be deleted since FWS has withdrawn these figures. -- "For example, FWS reportedagriculture by NRCS. NRCS, on the other hand,that FWS reported."

Now on p. 11.
See comment 11.

Page 12, 2nd Paragraph

Same comment as stated above for page 3, Results in Brief (regarding EPA) applies here.

Now on p. 12.
See comment 5.

Page 14, Past Efforts Have Not Solved Wetlands Data Problems, but New Efforts Are Planned
Change "Planned" in the heading to "Underway," based on the following comments for page 17.

Now on p. 14.
See comment 5.

Page 17, 1st full paragraph

The last sentence should read: Details on how the actions will be accomplished have been developed and several actions are currently underway, as described in the attached "Action Plan: Developing a Unified Wetlands Status and Trends Report," (Appendix __).

Now on p. 15.
See comment 13.

Page 17, CONCLUSIONS, last line

The sentence "However, details are not yet available of how the administration's plans will be achieved" is no longer true, as evidenced by the "Action Plan: Developing a Unified Wetlands Status and Trends Report."

The sentence "Unless the latest efforts include a strategy and a plan ... five previous task forces" is also no longer accurate.

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Now on p. 9.
See comment 4.

Page 10, 2nd Paragraph
Edit the last sentence to read:

The National Resources Inventory has been conducted at 5-year intervals to determine the conditions and trends in the use of soil, water, and related resources nationwide and statewide; the program is transitioning towards an annualized inventory process known as the continuous inventory.

Now on p. 33.
See comment 4.

Page 37, National Resources Inventory
Edit this paragraph to read:

"The National ResourcesUnited States." Inventories have been conducted at 5-year intervals by the Natural Resources Conservation Service; the program is transitioning towards an annualized inventory process known as the continuous inventory. The 1992 and the ongoing 1997 inventories cover some 800,000land area. Data collection for the 1997 NRI will be finished July 1998. "The purpose of the NRI state levels."

(The following recommendations are either italicized when adding information, or underlined/strikeout within existing paragraphs.)

Now on pp. 24-26.
See comment 4.

It is recommended that the "Farm Bill" discussions on pages 25, 27, and 28 should be put in chronological order--1985-1990-1996.

Now on p. 24.
See comment 4.

Page 25 - The Federal Agricultural Improvement and Reform Act of 1996 (1996 Farm Bill).
Add the following statement to the beginning of the 1996 Farm Bill discussion:

Amended the Food Security Act of 1985 as follows:

Incorporate the following sentences into the existing paragraph under the 1996 Farm Bill:

The Wetlands Reserve Program was modified, beginning October 1, 1996, providing that acreage enrolled shall be divided equally, to the extent practicable, between permanent easements, 30-year easements, and restoration cost share agreements.

The 1996 amendments also modified the 1985 and 1990 wetland conservation provisions by allowing landowners to provide wetland compensatory mitigation for certain wetland conversions in order to remain eligible for USDA program participation. The amendments also provided for certified wetland determinations to remain valid as long as the land was devoted to agricultural use and eliminated the abandonment provision of prior converted cropland. The Secretary of Agriculture has discretion to determine which program benefits violators are ineligible and to provide good faith exemptions.

Now on p. 25.
See comment 4.

Page 27
Reword as follows:

The Food, Agriculture, Conservation, and Trade Act of 1990 (1990 Farm Bill).
~~Amended the Food Security Act of 1985 and Established by the 1990 Farm Bill,~~ the Wetland Reserve Program (WRP) (16 U.S.C. 38737 et seq.) is a voluntary program to restore and protect wetlands. Under WRP, farmers can apply to enroll ~~prior converted wetlands,~~ degraded wetlands and buffer areas under a

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~~long term or permanent easement or a 10-year restoration cost share agreement.~~ Landowners are paid up to the agricultural value of the land for granting the government an ~~permanent easement or 75 percent of this value for 30-year easements.~~ They may also receive a large part of the costs to carry out conservation measures and to protect wetlands functions on lands subject to an easement. ~~The restoration cost share agreement component involves cost share assistance but not land payment or land interest.~~

Add the following sentences under the 1990 Farm Bill discussion:

The wetland conservation provisions were also modified to deny Federal farm program benefits to farmers who make production possible within wetlands. This was a modification from the 1985 Farm Bill which provided that a farmer had to actually produce a commodity crop on a converted wetland to become ineligible.

Reword as follows:

The Food Security Act of 1985 (1985 Farm Bill).

~~Section 404 of the Clean Water Act does not regulate activities such as drainage, ditching, and channelization for agricultural production, which are major causes of past losses of wetlands. To fill this gap in coverage~~ The Food Security Act of 1985 was authorized to reduce the amount of wetland conversion directly related to agricultural production and included two major wetland-related provisions, the Wetland Conservation Program "Swampbuster" and the Conservation Reserve Program. Further protection of wetlands within the agricultural setting was necessary since Section 404 of the Clean Water Act did not adequately protect these wetlands. The 1990 and 1996 Farm Bills modified these programs.

~~The Swampbuster Provision (16 U.S.C. 3821 et seq.) denies federal farm program benefits to farmers who produce a commodity crop on a convert wetlands so the agricultural production is possible.~~

Wetlands which ~~were~~ converted for agricultural purposes prior to the passage of this act are exempt from this provision. ~~Landowners who want to convert wetlands may offset losses of wetland through mitigation efforts, including enhancing, restoration or creating wetlands. Farmers can regain Federal benefits if they restore converted wetlands. The Secretary of Agriculture has discretion to determine which program benefits violators are ineligible and to provide good faith exemptions.~~

Move this sentence to the end of the 1985 Farm Bill discussion:

The 1990 and 1996 Farm Bills modified these programs.

Page 32

Reword as follows:

The Watershed Protection and Flood Protection Act (16 U.S.C. 1003a). The Secretary of Agriculture may provide ~~up to 50 percent of the cost share assistance~~ to enable project sponsors, often ~~conservation district or local flood control districts,~~ to acquire perpetual wetland or flood plain conservation easements ~~as part of an existing flood control project.~~ The easements would perpetuate, restore, and enhance the natural capacity of wetland and flood plain to retain excessive floodwater, improve water quality and quantity, and provide habitat for fish and wildlife. Project sponsors must provide up to 50 percent of the cost for acquiring such easements.

Now on p. 25.
See comment 4.

Now on p. 26.
See comment 4.

Now on p. 30.
See comment 4.

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Now on p. 32.
See comment 4.

Pages 35-36

Natural Resources Conservation Service

The mission of the Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service, is to assist in the conservation, development, and productive use of the nation's soil, water, and related resources. NRCS provides technical and financial assistance to landowners to achieve conservation objectives. Assistance includes the restoration and enhancement of wetlands. NRCS is responsible for delineating wetlands to implementing the wetland conservation provisions of the 1985 Farm Bill.

("Swampbuster"), as amended by the 1990 Food, Agriculture, Conservation, and Trade Act, and the 1996 Farm Bill. In addition, it administers the following programs relating to wetlands: the Wetlands Reserve Program, the Water Bank Program, the Small Watershed Program, the Emergency Watershed Program, and the National Resources Inventory.

FARM SERVICE AGENCY Comments

Page 37 of Appendix II

The following should be added after the introductory sentence:

"The CRP enrolls environmentally sensitive cropland into long-term resource conserving cover. An estimated 692,000 acres of wetlands are currently protected or have been restored by the program. Wetlands and land to be restored to wetlands are enrolled through a competitive bid process in which offers are evaluated based on their relative environmental benefits. CRP also protects a significant amount of upland acres associated with wetlands. In addition, the Agency administers the Conservation Reserve Enhancement Program (CREP) under the CRP. CREP provides the opportunity to partner with State Governments to target the most environmentally critical acres. CREP provides the opportunity to restore and enhance wetlands in a targeted manner in combination with State and private funds."

Further over 790,000 acres of wetland restoration (wetland and uplands) was enrolled during the CRP sign-up 15. This will significantly increase Farm Service Agency program expenditures in FY 1998 and beyond.

FOREST SERVICE - Comments

General Accounting Office Recommendation Number 1

To ensure that the consistency and reliability of wetlands acreage data are improved, we recommend that the Secretary of the Department of Agriculture and the Secretary of the Department of the Interior in consultation with the Chairman of the White House's Wetlands Working Group develop and implement a strategy for ensuring that actions contained in the Clean Water Action Plan relating to wetlands are adopted government-wide. Such actions should include the development of (1) a single set of accurate, reliable figures on the status and trends of the nation's wetlands and (2) consistent, understandable definitions and reporting standards that are used by all federal agencies in reporting their wetland-related activities and the changes to wetlands that result from such activities.

Response to Recommendation No. 1:

The Forest Service concurs with this recommendation. The Forest Service will work with other Federal agencies to implement this recommendation.

Now on p. 33.
See comment 4.

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Now on p. 3.
See comment 4.

Page 3, Background:

While the report presents a generic definition of wetlands, it should also include the specific definition of a jurisdictional wetland as commonly used by Federal regulating agencies.

Now on p. 3.
See comment 4.

Page 4, Paragraph 1:

Wetlands examples given are all from the East. Many significant wetlands exist in the West. We recommend including a western wetlands example to balance the presentation.

Now on p. 5.
See comment 4.

Page 5, First bullet:

Be more specific if this includes both plant and animal threatened and endangered species, or just plant or animal species.

Now on p. 6.
See comment 4.

Page 6, Paragraph 1:

Begin the sentence with, "Two Executive Orders and ..." This will recognize the importance of these Executive Orders.

Now on p. 11.
See comment 14.

Page 12, Paragraph 2, Sentence 2:

This sentence states the Environmental Protection Agency has concerns with the work of two other agencies but gives no substantive reason for this concern. Some explanation of these concerns is warranted in fairness to the agencies in question.

Now on p. 22.
See comment 4.

Page 22, Appendix I:

We recommend that all referenced Executive Orders and laws contain a date and they be listed in chronological order to display how wetlands programs have changed and grown over the decades.

Now on p. 23.
See comment 4.

Page 24, The Coastal Zone Act Reauthorization Amendments...:

A key provision of this act includes the extensive development of best management practices, called management measures, to prevent pollution of wetlands from numerous major sources. The EPA document, "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters" is a critical output of this act.

Now on p. 25.
See comment 4.

Page 26, Clean Water Act, Paragraph 1:

Section 404 does not specifically regulate dredging in wetlands, only the filling of wetlands through the "placement of dredged or fill materials". It is a subtle but important difference. We suggest replacement of this sentence with, "Under Section 404, project proponents proposing activities that result in filling of navigable waters, including wetlands, must comply with existing general permits or obtain specific individual permits for their work."

Now on p. 25.
See comment 4.

Page 26, Clean Water Act, Paragraph 2:

Many sections of the Clean Water Act have a direct or indirect effect on wetlands. It seems inappropriately to single out only Section 402, which deals with regulating point sources, when an equally important section, 319, which covers nonpoint sources, is left unmentioned. We recommend either deleting the paragraph on Section 402 or adding materials relevant to Section 319 and other key sections of the Act.

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Now on p. 34.
See comment 4.

Page 38:

We ask you to replace the existing paragraph on Forest Service programs with the following paragraph:

The Forest Service administers over 191 million acres of land containing an estimated 9.1 million acres of wetlands. The majority of these wetlands are found in Alaska and in national Forests east of the Mississippi. The Forest Service has wetlands program elements in three of six agency deputy areas.

The National Forest and Grasslands(NFS) have an active program in wetlands assessment, restoration, and compliance. Many staffs share these responsibilities: Watershed and Air Management; Wildlife, Fish and Rare Plants; and Range Management are most active in wetland assessment and restoration. Engineering has responsibilities in managing programs to clean up hazardous wastes and similar environmental and health problems. Lands has specific responsibility to assure compliance with laws and executive orders relating to special uses and land ownership adjustments such as land exchanges. The Forest Service has recently joined in partnership with the USDI Bureau of Land Management in instituting an assessment method called Proper Functioning Condition(PFC) in the western states to quickly assess the condition of riparian areas and wetlands.

States and Private Forestry(S&PF) provides USDA leadership for forestry activities on nonfederal lands with an emphasis on management and protection of the estimated 52 million acres of non-industrial private forest lands, including wetlands, in the contiguous United States. The Cooperative Forestry staff works with other USDA agencies to coordinate delivery of the wetlands reserve program.

Forest Service Research(RES) has a program of research on forested wetlands that emphasizes developing and testing management that restores and maintains wetlands. Riparian(stream-side) ecosystems and their associated wetlands are studied in many parts of the country. Region-specific research focuses on southern coastal plain wetlands, south-central bottomland hardwood swamps, northern peatland forests in the Great Lakes states, and wetlands in interior Alaska.

Overall, the Forest Service employed 93 full-time equivalent employees for a total program cost of \$16.5 million in fiscal year 1997.

If you have any questions, please call me on 720-1071.

signed

CARLOS F. HENNING
Acting Director
Operations Management and Oversight Division

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U.S. General Accounting Office Draft Report - Wetlands Overview (GAO/RCED-98-150)
Department of the Interior Comments

Now on p. 1.
See comment 4.

1. Page 1: The word "wildlife" should replace "waterfowl" here and elsewhere throughout the report. Wetlands provide habitat for a large number of plants, vertebrates, and invertebrates far in excess of the number of waterfowl species that use them. For instance, only 4 percent of North American avifauna can be considered "waterfowl."

2. Page 18: We concur with the GAO recommendation that a single, reliable, wetland status and trends report is needed to be able to accurately portray Federal interagency efforts at meeting the Administration's no net loss of wetlands goal, and to record future attempts to increase the wetland acreage by 100,000 acres annually by 2005. The Service's National Wetlands Inventory is working collaboratively with other Federal agencies to resolve definitional differences which will hopefully lead to unified Federal wetlands status and trends reporting standards.

Now on p. 22.
See comment 4.

3. Page 23: The first sentence of the Coastal Wetlands Planning, Protection, and Restoration Act should be revised by inserting "coastal" before "wetlands," inserting "conservation and" before "restoration," and striking, " particularly in Louisiana,".

Now on p. 29.
See comment 4.

4. Page 31: In Appendix I, Wetlands-related Presidential Executive Orders and Laws, The North American Wetlands Conservation Act of 1989 (16 USC 4401 et seq.), -- the first sentence would benefit from revision to more accurately read, "The act encourages voluntary public-private partnerships to conserve North American wetlands ecosystems and wetland-dependent migratory birds in support of the North American Waterfowl Management Plan and authorizes the Congress to appropriate annually up to \$30 million for its implementation." The increase from the originally legislated \$15 million to the \$30 million appropriation was made possible with the act's 1994 reauthorization.

The Service's North American Waterfowl and Wetlands Office is currently reviewing its database and determining the need and the means for modifying it to realize consistency with other Service wetlands conservation programs.

**Appendix IV
Comments From the Clinton Administration
Interagency Wetlands Working Group
Including Input From Individual Agencies**

COE EDITS TO GAO REPORT

a. On page 26, the Clean Water Act is discussed. The section includes paragraphs on Section 402 and Section 404 of the Act. Section 401 establishes a Water Quality Certification program in each state and provides the states a mechanism for "vetoing" Federal permit actions through the denial of a "required" water quality certification.

b. On page 41, last paragraph, line 8, the sentence, "In addition the EPA can pursue criminal action in its enforcement cases." could be misleading. Criminal enforcement is an option under the Clean Water Act when violation contains the appropriate circumstances. Cases discovered and pursued by either the Corps or EPA could eventually result in criminal action. That determination is usually made by the US Attorney or Department of Justice during the development of the legal case.

Now on p. 25.
See comment 4.

Now on p. 37.
See comment 4.

The following are GAO's comments on the Clinton Administration's Interagency Wetlands Working Group's letter dated May 15, 1998.

GAO's Comments

1. The report notes that the agencies are involved in wetlands-related activities to varying degrees. Not only do we point out that 6 of the 36 agencies¹ are the primary agencies involved in and responsible for implementing wetlands-related programs, but we state that these 6 agencies account for more than 70 percent of the funding and 65 percent of the staffing associated with such activities. In addition to the five agencies cited by the Interagency Wetlands Working Group as the primary wetlands agencies, we included the Department of Agriculture's Farm Service Agency. During the period covered by our review, the Farm Service Agency accounted for a significant amount of the funding and staffing associated with wetlands-related activities because of its involvement in such programs as the Conservation Reserve Program and Swampbuster.

In addition, appendix II of the report contains detailed information on the types of wetlands-related activities that each agency conducts. However, to further clarify the roles of the various federal agencies in wetlands-related activities, we revised the caption in the report to highlight that agencies are involved to varying degrees and included a statement in this section to indicate the nature of the wetlands-related activities of the other 30 agencies.

2. We reviewed the administration's national wetlands plan during the course of our work and made several references to it in our report. However, we did not include a more in-depth discussion of the plan because the administration's national wetlands plan dealt primarily with streamlining and improving the wetlands regulatory program, not improving wetlands data.

3. The report acknowledged not only the different mandates and methods used by the National Wetlands Inventory and the National Resources Inventory, but also recognized that both have reported a decline in the rate of wetlands loss. However, as we point out, the estimates of wetlands acreage made by the two inventories are not completely consistent—a fact also recognized in the administration's Clean Water Action Plan. Furthermore, the previous efforts of interagency task forces as well as the

¹The Department of State informed us that we should identify the International Boundary and Water Commission as a separate agency, thereby increasing the number of agencies from 35 to 36.

**Appendix IV
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Including Input From Individual Agencies**

current efforts by the Interagency Wetlands Working Group, taken in response to the Clean Water Action Plan, emphasize the need to reconcile the differences in the estimates of the two inventories.

We added information to the report recognizing the effort undertaken by the Interagency Wetlands Working Group to reconcile the two inventories and produce a single wetlands status and trends report. We also included a copy of the Interagency Wetlands Working Group's May 1998 action plan in appendix VII.

4. The agencies provided editorial changes, technical corrections, and clarifying information that have been incorporated in our final report where appropriate.

5. We revised the report to reflect the development of the Interagency Wetlands Working Group's May 1998 action plan. This plan addresses how one of the three actions intended to improve wetlands data contained in the administration's 1998 Clean Water Action Plan will be accomplished. Details of how the other actions will be accomplished have not been developed.

6. We did not revise the title or first sentence of this section as suggested by EPA. However, its comment indicates that EPA generally agrees that the consistency and reliability of wetlands acreage data reported by federal agencies are questionable.

7. We revised this sentence to clarify our point that the estimates produced by the two inventories are not completely consistent. As we previously noted, the report already acknowledges the different mandates and methods used by the National Wetlands Inventory and the National Resources Inventory as well as recognizing that both have reported a decline in the rate of wetlands loss.

8. The numbers shown in table 1 were provided by FWS and NRCS, respectively. The numbers shown in this table served as the basis for FWS' September 17, 1997, news/press release in which the Service reported that the annual rate of wetlands loss had declined to about 117,000 acres. Subsequent to receiving agency comments on our draft report, we contacted FWS and were told that the FWS numbers shown in the table were correct and had not been withdrawn. However, FWS noted that in its final report only one wetlands loss number will be shown. The losses attributed to the various causes, e.g., agriculture, development, etc., will not be

reported. In addition, as we have previously noted, we revised our report to reflect the recent efforts undertaken by the Interagency Wetlands Working Group to reconcile the differences in the two inventories' estimates and produce a single wetlands status and trends report.

9. The information presented in this section is merely to provide the purpose(s) for which the various task forces were established. Therefore, we did not add the additional material provided by EPA.

10. We did not revise the title of our report because we believe that it accurately reflects the current situation. Although we recognize that the administration has recently undertaken efforts to resolve the wetlands data problems identified in our report, these actions will not be completed for several years.

11. The estimates presented in our report for the NRI are the 1982-1992 NRI wetlands estimates. As noted in our report, questions and concerns about the NRI's 1992 estimates were raised by officials from both the National Wetlands Inventory and EPA.

12. The section in question provides supporting details for our finding that the consistency and reliability of the estimates made by the two federal resource inventories and the data reported by the agencies on their accomplishments are questionable. USDA may be correct in its assertion that users of inventory data incorrectly add figures to the inventory estimates and cause overstating of accomplishments. However, as this section points out, the current reporting practices of the agencies include the double counting of accomplishments as well as a lack of consistency in the use of terms and the inclusion of nonwetlands acreage.

13. We revised the report to reflect the development of an action plan by the Interagency Wetlands Working Group. However, although the action plan addresses one of the actions contained in the administration's Clean Water Action Plan—the development of a single wetlands status and trends report—it does not address how the administration plans to accomplish the other actions it announced. In addition, the success of the Working Group's efforts will require a long-term commitment as well as considerable time and effort by the agencies. We have therefore revised our conclusions to reflect that although the administration has undertaken efforts, much remains to be done before the administration has resolved the wetlands data problems identified in our report.

**Appendix IV
Comments From the Clinton Administration
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14. As we point out in our report, not only did EPA express concern about the estimates of both inventories, but officials from each of the agencies responsible for the inventories have questioned the estimates of the other.

Comments From the Department of the Interior



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

MAY 19 1998

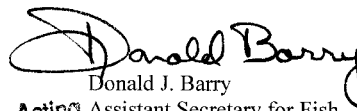
Mr. Barry T. Hill
Associate Director, Energy, Resources,
And Science Issues
U.S. General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Hill:

Thank you for providing the Department of the Interior the opportunity to review and comment on the General Accounting Office (GAO) draft report entitled, "WETLANDS OVERVIEW: Problems with Acreage Data Persist." The Department has reviewed the report and agrees with GAO's recommendation that a single, reliable wetlands status and trends report is needed. Our specific comments (enclosed) are being provided through the coordinated response of the White House Wetlands Working Group.

We hope that our comments will assist you in preparing the final report.

Sincerely,


Donald J. Barry
Acting Assistant Secretary for Fish
And Wildlife and Parks

Enclosure

Comments From the Department of Commerce

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



THE SECRETARY OF COMMERCE
Washington, D.C. 20230

MAY 15 1998

Mr. Barry T. Hill
Associate Director, Energy Resources,
and Science Issues
Resources, Community, and
Economic Development Division
General Accounting Office
Washington, D.C. 20548

Dear Mr. Hill:

Enclosed is the Department of Commerce's reply to the General Accounting Office draft report entitled "Wetlands Overview: Problems With Acreage Data Persist."

These comments are prepared in accordance with the Office of Management and Budget Circular A-50.

Sincerely,

A handwritten signature in black ink, appearing to read "William M. Daley", written over a horizontal line.

William M. Daley

Enclosure

Appendix VI
Comments From the Department of
Commerce

U. S. DEPARTMENT OF COMMERCE
COMMENTS ON FINAL GAO REPORT ENTITLED

WETLANDS OVERVIEW
Problems with Acreage Data Persist

GAO/RCED-98-150

July 1998

**Appendix VI
Comments From the Department of
Commerce**

COMMENTS: The National Oceanic and Atmospheric Administration (NOAA) believes the report accurately describes differences in the reporting of wetlands acreage between the Department of the Interior's Fish and Wildlife Service (FWS) in its National Wetlands Inventory and the Department of Agriculture's Natural Resources Conservation Service (NRCS) in its National Resources Inventory.

We believe the report would be improved by making the following changes.

Appendix I lists wetlands-related laws. On page 24, it refers to the Coastal Zone Act Reauthorization Amendments of 1990 (16 U.S.C. 1451 et seq.). The citation, 16 U.S.C. 1451 et seq., is the Coastal Zone Management Act of 1972 (CZMA). The CZMA was amended by the Coastal Zone Act Reauthorization Amendments of 1990. The citation would, therefore, seem only to refer to the provisions of the 1990 amendment. We believe the CZMA is the superior law and should be the law that is cited in this document.

In addition, the report should note that CZMA Section 307, Federal Consistency, requires that Federal Agencies and applicants for Federal approvals and financial assistance conduct their activities consistent with approved state coastal management programs. The Federal consistency provisions are triggered whenever a Federal action, regardless of location, affects any coastal use or resource. A Federal action triggering consistency could be a plan, a proposed rulemaking, a development project, a fishery closure, etc. The key is whether the Federal action may have reasonably foreseeable effects.

We also recommend the addition of the following laws to the Appendix I listing because of their relationship to NOAA's restoration activities.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund) (42 USC 6911a, 9601-9615, 9619-9620, 9631-9633, 9641, 9651, 9657) -- Under this Act, NOAA is a designated natural resource trustee, which allows the agencies to seek damages from responsible parties for the restoration of trust resources and services lost as a result of hazardous material releases into the marine environment. The National Marine Fisheries Service (NMFS), as a component of the NOAA Damage Assessment and Restoration Program, is responsible for supporting damage assessments and ensuring appropriate actions are taken to restore and/or compensate for these losses.

Now on p. 23.
See comment 1.

See comment 1.

**Appendix VI
Comments From the Department of
Commerce**

The following are GAO's comments on the Department of Commerce's letter dated May 15, 1998.

GAO's Comments

1. Appendix I is an update of the statutes presented in our previous report Wetlands Overview: Federal and State Policies, Legislation, and Programs (GAO/RCED-92-79FS, Nov. 22, 1991). Because the purpose of the appendix is to highlight major statutes dealing with wetlands issues, we did not revise our report.

Action Plan: Developing a Unified Wetlands Status and Trends Report

Action Plan: Developing a Unified Wetlands Status and Trends Report

*Clinton Administration
Interagency Wetlands Working Group*

May 1998

In the Year 2000 a single wetlands status and trends report will be published using a standard data collection protocol.

I. INTRODUCTION [Background/Issue]

The Clinton Administration Wetlands Working Group, also known as the White House Wetlands Working Group (WHWWG) is overseeing the development of a single wetlands status and trends report for the Nation. A single report is a Key Action item identified in the President's and Vice President's *Clean Water Action Plan: Restoring and Protecting America's Waters*; the WHWWG "will finalize a plan to use existing data collection systems to support a single status and trends report by the year 2000."

There are two primary federal data collection systems that yield information on wetland trends: 1) the FWS national wetlands status and trends (NST) study and 2) NRCS National Resource Inventory (NRI). Given that these two systems utilize different statistical sampling techniques and cover different geographic areas, the estimates they generate will not be exactly the same. However, by applying similar conventions for interpreting the presence of wetlands, what constitutes a wetland loss or gain, and the causes of change, appropriate statistical procedures can be used to develop a single set of statistics for wetlands. This plan addresses the steps needed to develop and implement common conventions, and conduct collaborative quality assurance, in order to achieve this goal to integrate FWS and NRI wetland status and trends data into a single set of wetland statistics.

FWS National Wetlands Status and Trends Study. The FWS is mandated to report to the Congress on the status and trends of the Nation's wetlands. The legislative mandate that directs the FWS to conduct wetlands status and trends studies is contained in the Emergency Wetland Resources Act of 1986 (EWRA) (16 USC 3931 (a)). The EWRA requires the U.S. Fish and Wildlife Service to "produce by September 30, 1990, and at ten-year intervals thereafter, reports to update and improve the information contained in the FWS first recent national status and trends report dated September 1982 and titled, Status and Trends of Wetlands and Deepwater Habitat in the Conterminous United States, 1950s to 1970s" published in 1983. To date, three Congressional reports have been generated by the FWS status and trends effort. The reports contain information on the extent, trends, and current status of different wetland types. The next report to Congress is due in December 2000 and will cover the period from the mid-1980s to the mid-1990s. The completion of this report will provide Congress and the American public with a continuous assessment of wetland trends since the 1950s.

The NST study generates national-level statistics on the status and trends of wetlands in the conterminous United States on a 10-year cycle. The study utilizes a statistical sampling design where

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four-square mile plots are randomly selected for evaluation. Aerial photos (representing leaf-off conditions) from two time periods are analyzed for each plot. Based on the changes and wetland status within all plots, estimates of total wetlands and wetland changes during the study interval are calculated for the conterminous United States. Since 1983, the FWS, through its NST studies, has provided vital wetland status and trends information to the Congress, the Federal government, state governments, and the American public. Currently, data on wetland acreage trends exist for the 1950s, the 1970s, and the 1980s, and are being developed for the 1990s.

In general, the FWS estimates of wetland are conservative since they usually require photo interpretable evidence of wetland conditions. These areas are likely to include most "regulated" wetland areas as well as some wetlands that do not meet current regulatory requirements. This procedure results in more incidence of omission (i.e., more missed wetlands) in an effort to insure that inventoried wetlands are actually wetlands and not mesic forests and fields. Some drier-end wetlands, especially in forested areas, lack visible signs of wetland hydrology (e.g., saturated soils) and are missed. In 1997, the FWS produced an interim national report including use of a new projection methodology to estimate wetland trends for 28% of the conterminous U.S. where recent aerial photos were lacking. During this process, about 1000 sample plots were updated with 1992-1994 photography. The FWS is now updating some of the remaining plots and has plans to complete analysis of all plots by the year 2000.

National Resources Inventory. The NRI is a probability-based multi-resource longitudinal survey of 800,000 points on non-Federal lands. It involves collecting point data, plot, and county level data on a variety of elements including soils, crops, land cover, habitat, and surface water data, for an assessment of changing land uses and land management with respect to natural resources. Wetlands are one of many components of this integrated data collection effort. Sampling is done on a 5-year cycle. A trending data base is available with specific data for 1982, 1987, and 1992. Data collection for 1997 is currently underway and will be linked to the historical database.

In general, the NRI determination of wetlands tends to be more liberal than that of the NST study. Soils information is used in conjunction with imagery in wetlands determinations. This protocol tends to lead to more incidents of commission (i.e., more areas classified as wetland than may meet the federal government's three-parameter test). The aerial photography used by NRI is generally leaf-on condition at the time of photo acquisition; this type of photography is needed to detect other nonwetland features vital to the broad goals of the NRI.

A SINGLE STATUS AND TRENDS REPORT IN 2000.

The goals of the Action Plan are the following:

- (1) Establish collaboration between FWS and NRCS regarding their respective wetland trends analysis programs.
- (2) Develop an understanding of the differences between the two programs (NST and NRI) and reach agreement on terminology, data elements, and wetland identification/wetland change attribution protocols necessary to achieve consistency and linkages in data sets.
- (3) Develop a unified wetlands analysis for the FWS's year-2000 report to Congress on the status and trends of wetlands in the conterminous United States.

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II. STATUS [Initial Work Phase]

Initial phases will identify steps to adapt existing Federal wetland data collection systems to establish consistent and comprehensive wetland status and trends data for the conterminous United States that will be compiled into a single report on wetland status and trends.

Joint field exercises were held March 30 - April 3, 1998, in North Carolina and Virginia to familiarize members of FWS and NRCS with potential Quality Assurance (QA) steps that may be implemented for the 1997 NRI; procedures and findings are recorded in a jointly written trip report. While some findings are considered preliminary, there was general agreement between agency representatives that a coordinated approach to collect wetlands status and trends data could be devised and implemented, using the wetlands portion of the NRI as the framework.

The initial steps have been taken by FWS and NRCS to review NRI and National Wetlands Inventory (NWI) map data sets, identify disagreements, and discuss an array of problematic issues relating to long term resource monitoring data capture and analysis. These issues and their resolution will be documented in a series of Issue Papers, as discussed in Section III. These efforts were undertaken not so much to reconcile past estimates, as to identify and analyze systemic differences and understand how those differences may impact wetland area estimates in the future. Both agencies agree that good progress is being made in this technically challenging area. Some possible reasons for the differences in the respective agency estimates were identified and discussed. While resolution to all differences may not be possible, FWS and NRCS feel there are reasonable approaches to identifying data collection issues and ultimately resolving these.

A three-stage QA process has been developed to support the initial phase of unified wetland reporting, in which the 1997 NRI is used as the framework for the year-2000 status and trends report to Congress.

Stage 1 involves joint FWS/NRCS investigative steps to be undertaken while NRCS completes data collection and input for the 1997 NRI.

Stage 2 will focus on investigative steps in which FWS will assist NRCS in editing of the data, after they have been received by the Statistical Laboratory (at Iowa State University).

Stage 3 will encompass a review and analysis of preliminary (pre-release) statistically-expanded and aggregated estimates.

Both FWS and NRCS are aware that this QA program will involve considerable time and effort and will require a long-term commitment to securing unified wetlands status and trends estimates for the Nation. Coordination within agencies and between Federal partners will also be required. Consultations using automated databases, maps, imagery, and possibly field inspections will be utilized depending upon the issues encountered and regional peculiarities. To this end, NRCS and FWS headquarters staff will disseminate information to their respective Regional and field people that will assist them in collaboration in the field.

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Specialized regional approaches are also an important facet of the QA process. This means that there will actually be an iterative or evolutionary approach. As discoveries are made, they will be shared with all regions and states.

Additional sources of geospatial wetland and land use data such as other Federal wetland databases (NOAA Coastal Drainage Area and Estuarine Drainage Area, and C-CAP, USGS NAWQA) will be evaluated to determine their utility in portraying regional and local wetland trends. Ancillary data from Regional wetland status and trends studies conducted by the FWS will also be considered for inclusion in the Year 2000 Report. Joint agency quality assurance and quality evaluation procedures will be implemented for all data to be included in the unified wetlands data set.

Draft Action items have been developed and respective staffs are now working to accomplish this initial phase of the coordination/integration effort. The involvement of other Federal agencies is desirable and being explored.

III. ACTION ITEMS

A Blue Ribbon Panel will be formed, under the auspices of the WHWWG, to review this plan and participate in other activities necessary to develop a unified approach to collecting and reporting wetlands status and trends data for the Nation. The Chair of the WHWWG and a representative from both the FWS and NRCS will solicit nominations for the Panel, determine its members, establish its objectives, and ensure that staff and materials are made available to support its timely deliberations. Member agencies of the WHWWG will also support Panel activities. The Panel will focus on review of plans for the development of the unified wetland status and trends data being developed for the year-2000 report to Congress; it will also recommend a review process for Long Term Activities.

The FWS and NRCS will carry out the following actions:

FWS and NRCS will develop an MOU for data sharing, implementation of QA procedures applicable to the 1997 NRI and any other data to be included in the unified statistics, development of wetlands data for Federal lands, and other implementation/coordination activities. This MOU will also cover the issue of confidentiality regarding NRI sample site locations -- NRCS will need to provide certain FWS Specialists with access to this confidential information, and these individuals will need to agree to NRCS's standard confidentiality procedure. Other Federal agencies will be invited to join in this agreement, as appropriate, in particular to address data collection on Federal lands.

Develop and implement three-stage NRI QA Process outlined in Section IV.

Develop and implement comparable QA process for NST data collection.

Develop a series of *Issue Papers* that discuss problematic technical or procedural issues that are discovered as a result of regional coordination efforts; these issue papers will outline the situation and document decisions that the agencies make in order to better inform and explain factors that have resulted in differences in past wetland estimates.

Modify/enhance NRI and NST data collection by collecting additional data for sites regarded as wetland gains or losses (and for other wetland sites that have changed relative to the Cowardin system and/or

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vegetation); this includes development of conventions that lead to a common understanding of cause of wetland loss.

FWS will cooperate with NRCS in development and implementation of the wetlands portion of the Quality Evaluation Study currently under development by NRCS for the 1997 NRI. This study will be conducted following data collection for the 1997 NRI, to provide data users with estimates of measurement error and repeatability statistics for the NRI. NRCS will similarly cooperate with FWS in a Quality Evaluation Study to be developed by FWS for the Status and Trends plot study.

Issue Papers -- These papers will be jointly written by NWI and NRI specialists. They will address technical and operational issues discovered during the collaborative QA process; they will serve as part of the documentation for the wetlands status and trends data being developed for the year-2000 report.

Listed below are some of the topics that will be covered in the issue papers:

- The adequacy of the NRI sampling scheme for coastal areas [examine the stratification and sampling intensities that were developed for the NWI Status and Trends program; look particularly at the ability to estimate changes in Estuarine wetlands and compare the NRI Estuarine categories with those used by NWI].
- Differences in inventory conventions used to classify open water ponds of less than 8 ha.
- A review of the NRCS NASIS database and county lists of hydric soils, to determine methods for identifying soils that are consistently hydric and those that exhibit variable hydric criteria -- to assist in determining questionable wetland designations.
- A paper summarizing the need to identify landscape position or conduct field verification of hydric criteria for soil map unit components that exhibit variable expression of these criteria.
- Specific differences between NWI and NRI in classification of PFO and PSS wetlands [to include variations resulting from different canopy cover estimates between the leaf-off versus leaf-on photography, stereoscopic vs. monoscopic imagery, and differences in the scale of the imagery; and the usefulness of the imagery to collect the non-wetland data elements in the NRI].
- Identification and proper classification of loblolly pine plantations on hydric soils.
- How differences in NWI's urban land use/cover and NRI's developed land cover/use classification impact the attribution of wetland losses [this would particularly include development occurring in "rural areas" and whether wetland losses there should be attributed to agriculture or to non-agricultural causes].
- National impacts in wetland gains and losses resulting from long-term fluctuations in the level of the Great Salt Lake [and whether there are similar phenomena elsewhere].
- Statistical methodologies applied to develop a single set of statistics for the status and trends report.

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Identification of Wetlands Status and Trends on Federal Lands

The NRCS does not collect resource data on Federal lands, because its legislative authority, mandate, and budget do not support this activity. Federal land makes up 21 % of the total acreage in the conterminous United States and will be a key component of tracking wetland gains over time. Wetlands status and trends data for Federal lands are needed for the year-2000 report to Congress. The FWS NST study includes Federal lands in its sampling scheme. As a separate action, and as a supplement to the Year 2000 wetland status and trends report, FWS will work closely with all Federal agencies to derive a valid estimate of the extent of wetlands on Federal lands in the conterminous United States. This will be the first time that this information will be available to decision-makers and resource managers.

IV. THREE-STAGE QA PROCESS FOR NRI WETLANDS DATA

This process has been developed to ensure that 1997 NRI wetlands data meet FWS standards and needs for its year-2000 status and trends report to Congress. As stated in Section III, a similar QA process is under development for NST data collection, to ensure the ability to statistically combine NST and NRI results. This process also serves as a means to enable FWS familiarization with the NRI process, data definitions, and data collection protocols, so FWS can make optimum use of the multiple resource feature of the NRI data in its status and trends report. Of particular interest in this familiarization process is both the NRI application of the Cowardin definition of aquatic systems, and the definition and application of land cover/use categories employed in the NRI, such as Urban and Built-up@ and various agricultural uses.

Stage 1 – Joint FWS/NRCS Investigative Steps Concurrent with NRCS Data Collection and Input of 1997 NRI PSU and Point Data [approximate time-frame: May 1 - July 15, 1998]

During this stage of the QA Process, field review meetings will be initiated. Each NWI Regional Coordinator will meet with those NRI ICCS Leaders who are responsible for portions of their region; an ICCS Leader may be responsible for one state, multiple states, or portions of several states. The ICCS Leader will familiarize the NWI Regional Coordinator with NRI data collection procedures and protocols. Attention will be given to NRI identification of wetlands, and changes in classification from 1982 to 1992 to 1997. Particular attention will be given to the NRI concept of Urban development, and how it is defined and identified for the NRI.

During this time period, a GIS overlay analysis will be performed by NRCS's National Cartography and GIS Center (NCGC); this analysis uses GIS to compare NRI wetland data with NWI digital maps, where they exist. The Cowardin aquatic codes for each NRI sample point are compared with the NWI map codes. Each point is classified according to apparent agreement or disagreement, as follows:

1. NRI & NWI are both Non-wetland.
2. NRI & NWI are both Deepwater Habitats.
3. NRI & NWI are both Wetland; and System and Vegetation agree.
4. NRI & NWI are both Wetland; System agrees; Vegetation does not agree.
5. NRI & NWI are both Wetland; System does not agree.
6. NRI is Deepwater Habitat; NWI is Wetland.
7. NRI is Wetland; NWI is Deep Water Habitat.

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Action Plan: Developing a Unified Wetlands
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8. NRI is Non-wetland, NWI is Deep Water Habitat.
9. NRI is Deep Water Habitat, NWI is Non-Wetland.
10. NRI is Wetland, NWI is Upland.
11. NRI is Upland NWI is Wetland.

Preliminary GIS analysis of NRI data with NWI wetland map data permits fairly rapid comparison of large amounts of data to identify specific geographical areas of apparent disagreement or specific wetland types that warrant further investigation. This automated comparison process increases the efficiency of the field reviews and helps focus attention on problematic issues that otherwise might go unnoticed. In parts of the country where the digital map data are not available, automated searches of the NRI database in combination with other review techniques will aid field investigations.

At initial field review meetings, NWI Regional Coordinators and NRI ICCS Leaders will become familiar with each others programs, examine available materials, determine what additional materials are needed for subsequent review meetings, and set up a schedule for conducting additional Stage 1 and Stage 2 meetings. These initial meetings will be held before complete results of the GIS overly analysis are available.

Materials needed for the field review meetings include:

Products from GIS overlay analysis (e.g., EXCEL spreadsheets; maps showing results)
USGS quad sheets
Quad sheet overlays showing locations of PSUs/points
Aerial photographs and maps showing locations of PSUs/points
Soil surveys
NWI maps
1992 slides/photographs
1997 slides/photographs
PSU file (includes earlier imagery, if available)
FSA Swampbuster maps
Projection equipment for 35 mm slides
Other maps and ancillary materials being used

***Stage 2 -- Further Investigative Steps following Completion of 1997 NRI Data Collection
[approximate time-frame: July 15 - Dec. 15, 1998]***

During this stage of the QA process, NWI Regional Coordinators and NRI ICCS Leaders will complete investigations and analyses initiated in Stage 1 and will review the results of automated logic checks.

As a result of the joint field exercise held March 30 - April 3, 1998, NWI and NRI are developing an extensive set of logic checks to supplement those already built into the NRI data recorders. The Statistical Laboratory will run these checks after they have received the 1997 NRI data from the NRI data gatherers; these logic checks will include 1982, 1992, and 1997 data elements. The detailed (point-by-point) results of these automated checks will be made available to the NRI and NWI specialists as part of the Stage 2 review.

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Examples of these automated checks would include identifying NRI data points which have been coded as:

- Going from non-vegetated wetland or cropland to forested wetland.
- Wetland occurring on Afacultative hydric@ soils.
- Loblolly pine plantations coded as Cowardin wetlands.
- Having a drainage practice, being a Cowardin wetland, and not subject to frequent flooding nor in rice production.
- Cowardin code changing between time periods.
- Both a Cowardin wetland and cropland.
- Cowardin wetland but not a wetland according to the FSA classification.
- Cowardin wetland in 1982, not Cowardin wetland in 1992, a non-developed land cover/use in 1982, and a developed land cover/use in 1992.
- Cowardin wetland and a 900-series water body.

Stage 3 – Review and Analysis of Preliminary Statistically Expanded and Aggregated Estimates [approximate time-frame: Jan. 1 - April 15, 1999]

The last aspect of NRI data editing prior to public release is to review and analyze the preliminary data. This is after statistical expansion factors (or weights) have been developed for each sample point, so that the data are in a form where estimates can be derived and tabular summaries can be compiled. This inter-agency review and analysis will be facilitated through the FGDC Wetlands Subcommittee, and will include NRCS, FWS, and other WHWVG agencies.

This includes making data runs (statistical summaries) to help refine the most noteworthy or meaningful statistics in preparation for reporting. These types of data runs help in making verification of data statistics as data elements are "mixed and matched" in various formats and combinations. Numerous statistical runs and geospatial analyses of data sets can be quickly reviewed; and some will be selected as the more important data runs to either combine into report tables or highlight as discussion topics within the report.

V. PREPARATION OF THE YEAR-2000 REPORT

In its year-2000 report to Congress, the FWS will present a single set of estimates regarding wetlands status and trends, based upon NST data collection, 1997 NRI data collection, and other sources, as appropriate. Prior to preparation of the Year 2000 report to Congress, technical experts from FWS, NRCS, and other involved agencies, will analyze all available data sets, and collaborate to resolve outstanding issues. These auxiliary sources may include NOAA's C-CAP data (for submerged aquatic vegetation status/distribution), FWS regional/local wetland trends studies, and state wetland trends studies.

Peer-reviewed statistical techniques will be used to develop the single set of estimates. The Issue Papers discussed in Section III will serve as the basis to document resolution of issues regarding definitions, conventions, and other protocol issues. Utilization of NRI and NST data will enable reporting of wetlands relative to land cover/use, ownership (Federal versus non-Federal), soils, and system classification. The document will clearly reflect what the Federal government, and possibly other agencies (e.g., states) have discovered about wetland trends in the last decade or so of the 20th Century.

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Time line

1997 NRI data collection	Continue through 1998
Field reconnaissance (photo and imagery acquisition) for NST	Continue through 1999
Interagency coordination between FWS and NRCS	Continue through 1999
Quality Assurance work on NST and NRI data collection	Continue through 1999
Aerial imagery analysis, drafting, and area measurement work for NST must be completed by	February 1, 2000
Data must pass quality control, logic checks, and complete statistical analysis by	May 1, 2000
Draft report for technical and interagency review must be completed by	September 1, 2000
Final report presented to Congress	December 1, 2000

VI. PREPARATION OF A PLAN TO MONITOR REDUCED WETLAND LOSSES

The *Clean Water Action Plan* stipulates that the WHWWG will establish an interagency tracking system (based on the wetlands layer of the National Spatial Data Infrastructure) that will more accurately account for wetland loss, restoration, creation, and enhancement. This tracking system is a necessary prerequisite if the Nation is to accurately track progress towards the goals of wetland restoration, and to track annual wetland losses of less than 100,000 acres. An Action Plan addressing this tracking system has not been drafted. The FWS and NRCS propose to work cooperatively to draft this plan by August 1998. Cooperation from other Federal agencies is encouraged. Some elements to consider in formulating such a plan follow.

Considerations for future reporting, beyond the year-2000:

The system should ideally increase the frequency of analysis, updating the wetland status and trends results on a five (5) year cycle.

Investigate alternative sources of imagery and techniques that may make updating sample plots for specific regions of the country possible on a more frequent basis.

Incorporate process where agencies geospatially record wetland restorations and other activities; this would include use of standards regarding meta data and other agreed-to concepts.

Explore the use of special area-based studies to evaluate the effects of new wetland policy changes in the future.

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Explore the use of satellite imagery (e.g., cross-correlation analysis) to target areas for more intensive investigations re: wetland trends.

Solicit nominations from Federal and state regulatory and natural resource agencies for geographic areas that may represent wetland change hotspots for initiating detailed wetland trends analysis studies.

Objectives, Scope, and Methodology

Concerned about the lack of consolidated information on the federal commitment to wetlands, you asked us to (1) develop an inventory of the federal agencies involved in wetlands-related activities and the funding and staffing associated with their activities during fiscal years 1990 through 1997 and (2) determine if the wetlands data reported by these agencies are consistent and reliable.

To develop an inventory of federal agencies involved in wetlands-related activities, we reviewed studies and reports on wetlands-related policies and programs. We also contacted officials from six agencies—the Army Corps of Engineers, the U.S. Department of Agriculture’s Farm Service Agency and the Natural Resources Conservation Service, the Department of Commerce’s National Oceanic and Atmospheric Administration, the Department of the Interior’s Fish and Wildlife Service, and the Environmental Protection Agency. These agencies were identified in a prior GAO report⁹ as the federal agencies primarily responsible for administering wetlands-related programs. We asked officials from these agencies to identify other federal agencies that had either requested technical assistance or had been involved in joint wetlands projects. Thirty additional federal agencies were identified through these efforts.

To identify the funding and staffing associated with federal agencies’ wetlands-related activities in fiscal years 1990 through 1997, we contacted officials from the Army Corps of Engineers, five U.S. Department of Agriculture agencies, eight Department of the Interior agencies, the Department of Justice, the Environmental Protection Agency, the Federal Emergency Management Agency, and the National Oceanic and Atmospheric Administration. We obtained and reviewed documentation on the wetlands-related activities conducted and the funding and staffing associated with these efforts. We also surveyed 18 other federal agencies identified as being involved in wetlands-related activities to determine the extent of their involvement and to obtain information on the funding and staffing associated with their efforts.

We attempted to obtain information on the actual expenditures and full-time-staff equivalents associated with the agencies’ wetlands-related activities. However, because some of the agencies do not track their wetlands activities separately or have integrated their wetlands-related activities into other program activities, the agencies were not always able to document the resources expended. In most of these instances, the

⁹Wetlands Overview: Federal and State Policies, Legislation, and Programs (GAO/RCED-92-79FS, Nov. 22, 1991).

agencies provided estimates of funding and staffing associated with their efforts. Because the volume of data collected would have required a significant investment of time and resources, we did not verify the completeness, accuracy, and reliability of the data provided. We attempted to reconcile inconsistencies in the data provided. However, reconciliation was not always possible because many of the agencies do not have a focal point for wetlands or, in some cases, a clear understanding of all wetlands-related activities occurring within the agency and the associated funding and staffing.

To determine the consistency and reliability of wetlands acreage data reported by the agencies, we interviewed officials and obtained and reviewed documentation on two federal resource inventories—the National Wetlands Inventory and the National Resources Inventory maintained by Interior’s Fish and Wildlife Service and Agriculture’s Natural Resources Conservation Service, respectively. In addition, we discussed and reviewed documentation on the practices used by the federal agencies to report their wetlands accomplishments. We also discussed recently announced initiatives to improve wetlands data with officials of the Federal Geographic Data Committee’s Wetlands Subcommittee and the Deputy Assistant Secretary of the Army (Civil Works) who chairs the White House’s Interagency Wetlands Working Group.

To obtain additional perspectives on the various wetlands-related activities, we visited Coastal Wetlands Planning, Protection and Restoration Act projects in Louisiana and met with responsible federal and state officials to discuss the program’s operations.

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