

BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

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Better Understanding Of Wetland Benefits Will Help Water Bank And Other Federal Programs Achieve Wetland Preservation Objectives

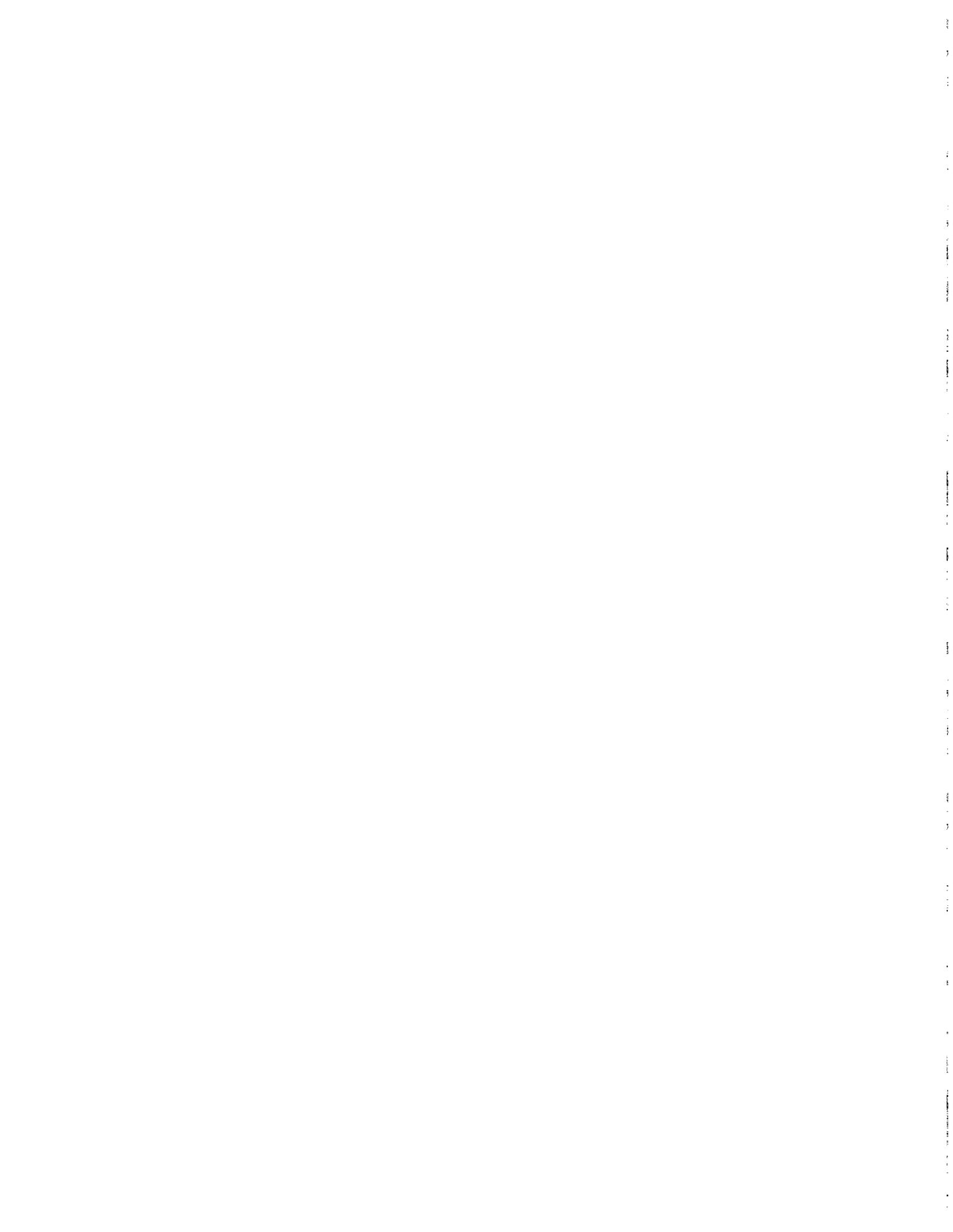
The Department of Agriculture's Water Bank Program can be made more effective by changing the Water Bank Act to increase the Secretary of Agriculture's flexibility in administering the program. This should help preserve some wetlands and enhance their value. Further improvement should result from better information about the program's operation. Also, information is lacking on many wetland values; emphasis has been on the value of wetlands to waterfowl or other wildlife, while other wetland values, such as flood control, pollution and sediment control, and groundwater supply, have been neglected.

Other Federal wetland protection programs also suffer from a lack of information. This hampers congressional decisionmaking on funding priorities among the programs. A coordinated data collection and research effort between the several responsible Federal agencies is required.



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COMPTROLLER GENERAL OF THE UNITED STATES

WASHINGTON, D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This report discusses opportunities for agencies having management responsibilities related to wetland preservation. We have focused our efforts on the Department of Agriculture's Water Bank Program, in particular, and U.S. wetlands policy, in general, to provide for a more complete evaluation of the benefits of wetlands.

This report was prepared as part of our oversight assistance in response to a request from Senator Herman Talmadge, Chairman, and Senator Bob Dole, Ranking Minority Member, of the Committee on Agriculture, Nutrition, and Forestry.

Officials of the Departments of Agriculture, the Interior, and Defense (particularly the Army Corps of Engineers), the Environmental Protection Agency, the Water Resources Council, and the Office of Management and Budget have reviewed our draft report. Their comments are included in this report.

Copies of this report are being sent to the Secretary of Agriculture, the Secretary of the Interior, the Administrator of the Environmental Protection Agency, the Chief of the Corps of Engineers, the Director of the Water Resources Council, and the Director of the Office of Management and Budget.

A handwritten signature in black ink, appearing to read "James B. Atchafalua".

Comptroller General
of the United States

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ABBREVIATIONS

ACP Agricultural Conservation Program
ASCS ✓ Agricultural Stabilization and Conservation Service
COE ✓ Corps of Engineers
COP Conservation Operations Program
EPA ✓ Environmental Protection Agency
FWS ✓ Fish and Wildlife Service
GAO General Accounting Office
OMB ✓ Office of Management and Budget
SCS ✓ Soil Conservation Service
USDA Department of Agriculture X
USDI ✓ Department of the Interior
WBP Water Bank Program — 862
WRC ✓ Water Resources Council

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

BETTER UNDERSTANDING OF WETLAND
BENEFITS WILL HELP WATER BANK
AND OTHER FEDERAL PROGRAMS
ACHIEVE WETLAND PRESERVATION
OBJECTIVES

D I G E S T

With the increasing awareness of the fragile balance in nature, it has become necessary to understand how many Federal programs work together, rather than considering them separately. This need is illustrated in the case of Agriculture's Water Bank Program.

This program will be the subject of proposed legislation from the administration and the Congress in the 96th Congress. GAO found it necessary to consider this program within the larger framework of wetland preservation, an objective the Water Bank Program has in common with other programs administered by agencies outside the Department of Agriculture. (Wetlands generally include swamps, marshes, bogs, and similar areas.)

The greatest destroyer of wetland has been agricultural drainage and flood control activity. Many benefits of wetlands are public, and an owner's decision to drain will be based largely on benefits from economic development and costs of drainage. To a farmer, benefits constitute the net value of agricultural production and do not include the value of wetland benefits to the public.

Competition between developmental interests and wetland preservation is likely to persist, and drainage and other destruction of wetlands are expected to continue. Wetland policy depends on a clear understanding of this conflict.

The primary objective of the Water Bank Program is waterfowl habitat preservation. Other objectives include flood control, groundwater recharge, pollution and sediment control, and other fish and wildlife concerns. In determining the benefit-cost ratio of the program, Agriculture did not include these other benefits. Since these nonwaterfowl benefits are significant

in some cases, there is a question of whether the Nation may be paying more to provide flood control, groundwater recharge, and control of pollution and sediment in Federal public works projects than would have been paid to obtain these same benefits by protecting wetland from drainage.

In this sense, preservation of wetlands is an alternative method for achieving flood control, pollution control, and water supply objectives. Since knowledge of the extent to which wetlands provide such benefits is limited, the question follows as to how much wetland values have been overlooked in the past. (See ch. 3.)

GAO, along with the Department of Agriculture and the Senate Committee on Agriculture, Nutrition, and Forestry, developed questions pertaining to the Water Bank Program and issues of wetland preservation. The Committee sent these to experts in Government and outside to obtain their views. Based largely on its assessment of the experts' answers, GAO recommends some changes to the Water Bank Program and the development of an improved information base for valuing the wetland preservation activities of several responsible Federal agencies. (See ch. 1.)

OBSERVATIONS ON THE WATER BANK PROGRAM

Agriculture administers the Water Bank Program, designed primarily to forestall the conversion of "important migratory waterfowl nesting and breeding areas" to farming within certain regions of Minnesota, North Dakota, and South Dakota. This purpose is similar to programs in the Fish and Wildlife Service of the Department of the Interior.

The Water Bank Program offers landowners an alternative to the permanent conveyance of their land. Through a 10-year agreement, the owner or operator receives an annual payment for preserving and protecting wetlands and adjacent lands with high value for waterfowl nesting and breeding. This emphasis on waterfowl nesting and breeding areas excludes important wintering habitats and wetlands with high additional benefits. Also,

the long term of an agreement, with a constant annual payment rate, contributes to the high rate of agreement terminations. (See ch. 2.)

The Water Bank Act will also soon be outdated, since it uses a wetland classification system which is now being changed. There is also a lack of information necessary for efficient and effective operation of the program, particularly as to procedures for setting priorities for wetlands to be protected, costs and benefits of participation incentives, and the necessity of waiting for wetland owners to file for an agreement, rather than actively seeking their participation. (See ch. 2.)

OBSERVATIONS ON WETLANDS POLICY

The principal types of Federal policies and programs affecting wetlands are:

- Direct and indirect drainage programs designed to convert wetlands to croplands have caused a significant loss of wetlands. To some extent, not precisely known, these adverse pressures have lessened.
- Federal public works projects also have had some detrimental impacts on wetlands; under a recent Executive order, any wetland losses arising from Federal projects are to be mitigated, but the order's impact may not be felt for several years.
- Two regulatory programs (one administered by the Corps of Engineers and the other by the Environmental Protection Agency) have the authority to conduct public interest reviews for activities affecting the waters of the United States and their adjacent wetlands. These programs cannot guarantee wetland preservation.
- The Water Bank Program and the Department of the Interior's wetlands acquisition programs also are a part of wetland policy.

The interrelationships between these several components of wetlands policy and the extent to which

each should contribute to wetland preservation are not known. The importance of understanding these interrelationships ultimately is based on the value of wetland preservation.

In the past, the value of wetlands has relied principally on the benefits of preserving fish and wildlife habitats. Other values generally were overlooked. Only recently have studies examined the benefits of flood control, groundwater recharge, and pollution and sediment control. These have shown that in some cases benefits from these wetland values have dwarfed those from fish and wildlife values. These findings raise the question: How much past wetland drainage has contributed to present problems of flooding, groundwater depletion, and pollution and sedimentation? These studies suggest that the relation is significant and that greater support of wetland preservation (and perhaps re-creation) may be warranted. Current data and theoretical understanding do not permit a quantification of wetland values.

RECOMMENDATIONS TO THE CONGRESS

The Congress should change the Water Bank Act

- to permit the Secretary of Agriculture greater discretion in assessing the suitability of preserving particular wetlands,
- to permit the Secretary of Agriculture to adjust payment rates (within available appropriations) during the course of a 10-year agreement to counter the high rate of terminations that seem to be caused by inflationary pressures, and
- to reflect the impending change in the Department of the Interior's wetland classification system.

The Congress should consider whether these changes require additional funding, since current appropriations are not being fully obligated. (See ch. 2.)

The Congress may also wish to consider the necessity of protecting wetlands with high values for

other types of benefits. Some alternatives which might be considered are

- modeling, on the Water Bank Program, a distinct and separate program;
- broadening the Water Bank Program, with funds earmarked for the nesting and breeding region; or
- broadening the Water Bank Program, by permitting the Secretary of Agriculture to allocate funds between wetlands having primarily waterfowl value and those having nonwaterfowl value.

Before deciding on the course of action, the Congress should await the results of a study on the relative effectiveness of different mechanisms for preserving wetlands and a study on the impact of existing Federal programs. (See ch. 3.)

RECOMMENDATIONS TO THE DEPARTMENT OF AGRICULTURE

The Secretary of Agriculture should resolve some of the issues regarding the Water Bank Program's operations by

- developing and formulating firm criteria for setting priorities for wetlands to be protected,
- determining benefits and costs of participation incentives, and
- developing procedures for actively seeking participation rather than waiting for a request to be filed.

RECOMMENDATIONS TO AGENCIES

Under the leadership of the Water Resources Council, an interagency task force including the Departments of Agriculture and the Interior, the Environmental Protection Agency, and the Army Corps of Engineers should be formed to

- develop an improved capability for estimating the value of individual wetlands, based on their characteristics, by increased research and data coordination;

--evaluate the relative effectiveness of the several methods which are used for protecting wetlands; and

--assess the impact of Federal public works projects and cost-sharing programs on wetland benefits.

AGENCY COMMENTS

Agriculture, the Interior, and the Corps concurred with these recommendations for strengthening and upgrading the Water Bank Program. In informal discussion, the Office of Management and Budget staff indicated that the more basic issue of whether the Water Bank Program should be transferred to the Interior still needs resolution.

Generally, these agencies, along with the Environmental Protection Agency and the Water Resources Council, agreed with GAO's recommendation that an interagency task force be established. There was some disagreement as to which one should lead such an effort.

CHAPTER 1

INTRODUCTION

This report discusses some issues which may have an impact on the effectiveness of the Water Bank Program (WBP) (established by the Water Bank Act, Public Law 91-559) administered by the Agricultural Stabilization and Conservation Service (ASCS) of the Department of Agriculture (USDA). The primary purpose of this program is to preserve, restore, and improve the Nation's wetlands 1/ by means of 10-year agreements with landowners and operators to prevent the loss of certain wetlands and to enhance their value. This program has been primarily designed to prevent the conversion of "important migratory waterfowl nesting and breeding areas" to farm operations within the "prairie pothole" region of Minnesota, North Dakota, and South Dakota.

Since the program's inception in fiscal year 1972 (except for a rescission in fiscal year 1975), the annual appropriation has been \$10 million. These appropriations have no fiscal year limitation, so that whatever is not obligated by agreements in force remains available, except that the Secretary of Agriculture cannot enter into agreements which would require payments in excess of \$10 million in any calendar year. Thus far the program has expanded at a rate slower than this spending authority. In fiscal year 1976, actual payments were slightly less than \$2 million; if payments had kept pace with appropriations, they would have been about \$3.7 million. As of October 25, 1976, there were 3,288 agreements in force, covering almost 300,000 acres.

ISSUES PERTAINING TO WBP

The principal issues which we believe affect the efficiency and effectiveness of WBP include

--the potential significance of nonwaterfowl benefits in evaluating the worth of WBP,

1/As used in this report, the term "wetlands" generally refers to lowlands covered with shallow and sometimes temporary intermittent water, sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

- WBP's emphasis on waterfowl nesting and breeding areas in the prairie pothole region, which excludes consideration of wintering habitats or of wetlands with high nonwaterfowl benefits,
- the effect on the WBP objectives of agreement terminations and temporary releases of upland for haying and grazing,
- the advisability of transferring the legislative authority of the program from USDA to the Department of the Interior (USDI),
- the merit of using hunter revenues from duck stamps for support of WBP, and
- whether the WBP agreements "piggybacked" onto existing drainage easements for the same wetland are duplicative.

In examining these issues, we found that in some cases there was insufficient information to enable their resolution at this time. (See ch. 2)

ISSUES PERTAINING TO WETLAND PRESERVATION

During our review, we found that WBP is part of a broad fabric of wetland protection programs and policies. This fabric includes wetland acquisition programs, agricultural land and water conservation programs and policies, public works programs and policies, and regulatory programs and policies which may affect wetlands. Discussion of WBP must, therefore, consider the program both by itself and within the larger framework of wetland preservation.

Although we were not able to conduct a detailed examination of these other programs and policies, several issues pertaining to this broader fabric emerged during our review of WBP.

In chapter 3, we present some observations which will be relevant to ultimate resolution of these issues. In particular, we discuss

- the significance of some nonwaterfowl benefits of wetlands (flood control, groundwater recharge, pollution control, and other fish and wildlife

benefits), raising the issue of whether we may now be paying more to provide these benefits of wetlands through public works projects and environmental programs than we would have paid to preserve the wetlands which have been drained;

--the competition between agriculture and wetland preservation with respect to our Nation's food and fiber needs;

--the relation between policy and an individual owner's decision to drain; and

--the lack of information available to assess the relative effectiveness of several mechanisms for preserving wetlands.

SCOPE OF REVIEW

This study began with a review of the USDA evaluation of WBP, "A Review and Analysis of the USDA Water Bank Program" (December 1976), performed by ASCS. Review of the evaluation indicated the presence of several issues surrounding the program and needing resolution, with the possible need for changes in legislation. Questions pertaining to these issues (developed in concert with the author of the evaluation) were submitted to the Senate Committee on Agriculture, Nutrition, and Forestry with our suggestion that USDA's evaluation be sent along with the questions to 6 Federal agencies and 19 nongovernmental organizations involved in wetland preservation. The questions are reproduced as appendix I, and the 12 respondents are listed in appendix II. The responses are not reproduced because of their volume, but are available upon request through our Program Analysis Division.

The responses were then analyzed upon request of the Committee. Additional discussions were held with several officials from the Office of Management and Budget (OMB), USDA, USDI, Environmental Protection Agency (EPA), and Army Corps of Engineers (COE). Program handbooks, regulations, and other materials were also reviewed.

CHAPTER 2

GENERAL APPRAISAL OF THE WATER BANK PROGRAM

In December 1976, ASCS completed an evaluation of WBP in response to direction contained in the Senate Report on the Agriculture and Related Agencies Appropriation Bill, 1976. Using this evaluation as a starting point, we undertook to determine what congressional or USDA actions might be warranted with respect to this program. This chapter details the findings, conclusions, and recommendations that have emerged from this undertaking.

DESCRIPTION OF WBP

The Water Bank Act authorizes the Secretary of Agriculture to enter into 10-year agreements (with provision for renewal) with landowners and farm operators to prevent the loss of certain wetlands and to enhance their value. Each agreement specifically identifies designated areas to be maintained as wetlands and the manner in which this conservation use is to be accomplished. Adjacent lands determined to be essential for the nesting and breeding of migratory waterfowl may also be included in the agreement. In return, the owner or operator will receive an annual payment at a rate determined by the Secretary, considering the obligations placed on the owner or operator to establish and maintain conservation and development practices.

Agreements can be made for only certain wetland types

In the administration of the program, the Secretary can enter into agreements only for wetlands described as types 1 through 5 by Circular 39, "Wetlands of the United States," ¹/ published by USDI (see table below). Type 1 wetlands are seasonally flooded basins or flats, usually well-drained during much of the growing season, and type 2 wetlands are usually without standing water during most of the growing season, but are usually waterlogged. USDA has specified that privately owned land eligible for

¹/USDI plans to convert from the Circular 39 system to the Cowardin et al. system ("Classification of Wetlands and Deep Water Habitats of the United States") over the next few years.

WBP must be inland fresh wetland of types 3, 4, and 5 or other land, including types 1 and 2, if it is adjacent to types 3, 4, and 5 and is determined essential for nesting and breeding. Most nesting and breeding wetlands of types 3, 4, and 5 occur in Minnesota, North Dakota, and South Dakota; and as a result, 75 percent of WBP agreements as of October 1976 were for wetlands in these three States. Eligible States and counties are designated by the deputy administrator of ASCS; in 1976, 113 counties in 15 States had been approved.

Description and acreage of wetland types in the United States

Wetland category and type	Water depth (note a)	Total acres
Inland fresh areas:		
1. Seasonally flooded basins or flats....	Few inches in upland; few feet along rivers...	23,092,000
2. Inland fresh meadows.....	Few inches after heavy rains.....	7,518,000
3. Inland shallow fresh marshes.....	Up to 6 inches.....	3,969,000
4. Inland deep fresh marshes.....	Up to 3 feet.....	2,346,000
5. Inland open fresh water.....	Up to 10 feet; marshy border may be present...	2,596,000
6. Shrub swamps.....	Up to 6 inches.....	3,813,000
7. Wooded swamps.....	Up to 1 foot.....	16,809,000
8. Bogs.....	Shallow ponds may be present.....	3,347,000
Inland saline areas:		
9. Inland saline flats.....	Few inches after heavy rain.....	1,064,000
10. Inland saline marshes.....	Up to 2 feet.....	272,000
11. Inland open saline water.....	Up to 10 feet; marshy border.....	282,000
Coastal fresh areas:		
12. Coastal shallow fresh marshes.....	Up to 6 inches at high tide.....	2,213,000
13. Coastal deep fresh marshes.....	Up to 3 feet at high tide.....	1,631,000
14. Coastal open fresh water.....	Up to 10 feet; marshy border often present....	197,000
Coastal saline areas:		
15. Coastal salt flats.....	May have few inches at high tide.....	423,000
16. Coastal salt meadows.....	May have few inches at high tide.....	956,000
17. Irregularly flooded salt marshes.....	Few inches at wind tide.....	698,000
18. Regularly flooded salt marshes.....	Up to 1 foot at high tide.....	1,576,000
19. Sounds and bays.....	Up to 10 feet at high tide.....	1,114,000
20. Mangrove swamps.....	Up to 2 feet.....	523,000

a/Refers to average conditions during growing season except for type 1. In type 1 bottomlands, flooding ordinarily occurs in late fall, winter, or spring. In type 1 upland, depressions may be filled with water during heavy rain or melting snow, predominantly in early spring.

Source: Circular 39, "Wetlands of the United States." USDI, Fish and Wildlife Service, Washington, D.C., 1971.

Agreements are made at the initiative of the wetland owner

A person wishing to enter an agreement must file a request with the local ASCS county committee and must agree to designate a specified minimum acreage (identified in a conservation plan developed in cooperation with the local Soil and Water Conservation District). If funds

allocated to the county are sufficient, the request is accepted; if not, the county committee decides which requests shall be filled in accordance with instructions from ASCS. The annual payment rate is set at \$5 per acre for types 3, 4, and 5 wetlands, or \$4 per acre if the owner or operator has a drainage easement (permitting agricultural use) with USDI or a State government. The payment rate for essential adjacent land is established for each county on the basis of productivity for the land and ranged between \$5 and \$40 per acre in 1976.

As of October 25, 1976, there were 3,288 agreements in force, covering almost 300,000 acres, of which approximately one-third was wetland and two-thirds was adjacent upland. The average annual payment for these agreements is slightly over \$10 per acre, and the average acreage per agreement was slightly less than 100 acres. Average payment for new agreements in 1977 was \$13.28 per acre.

In administering the program, the Secretary is required to consult with the Secretary of the Interior in order to harmonize WBP with USDI's wetlands programs and with local, State, Federal, and private conservation agencies in order to assure coordination and a proper technical base for the program. The Fish and Wildlife Service (FWS) of USDI accordingly recommends priority locations based on its assessment of biological importance of the habitat and the threat of its loss. Although FWS recommendations are not followed implicitly, there is a tendency in the program to respect its suggestions. Further, since the threat of loss is strongly related to the potential viability of wetlands to farming operations, ASCS obtains an independent assessment of vulnerability to drainage from the Soil Conservation Service (SCS). This assessment is largely qualitative, based on the SCS technician's insights, not only for understanding the technological requirements for drainage, but also for being able to evaluate the economic forces which might lead to drainage.

The Secretary is permitted to terminate or modify an agreement with the mutual consent of the owner or operator if this is deemed to be in the public interest. Thus, ASCS permitted haying and grazing on uplands during 1976 because of extremely dry weather conditions; normally such an action would be cause for termination of an agreement. In these cases, the owner or operator merely forfeited the 1976 payment, although there is a possibility that the upland may not recover for several years. Termination of an agreement may arise from (1) either noncompliance with its terms (in which case all future payments

are forfeited and all past payments must be refunded) or (2) the consent of the deputy administrator of ASCS for cause, particularly if continuance would work a hardship on the owner or operator or if termination is deemed to be in the public interest (in which cases only future payments are forfeited). Although there is little history for predicting the number of terminations over the full 10 years, the USDA evaluation estimated that 38 percent of the agreements made in a given year would be terminated before the end of the 10-year agreement. Although the accuracy of this estimate has been questioned, there remain several uncertainties which require resolution before the effect of terminations can be properly treated.

PROGRAM BENEFITS

The USDA evaluation contained an estimate, based on a review of the literature, that when only the benefits to duck hunters were considered, WBP had a benefit-to-cost ratio of 0.85 (hunter benefit to taxpayer cost). However, USDA noted that the estimate of waterfowl production upon which the benefit-to-cost ratio was based has a wide variance and hence was "somewhat arbitrary." The report states that some intangibles were not incorporated in the measurement of benefits and costs and that wetland benefits, such as flood control, erosion control, pollution control, and groundwater recharge, were not included in the benefits. However, the impression was conveyed that all the cost of the program was in support of putting a duck into the hunter's bag and therefore, there was a "high cost to taxpayers of providing surplus waterfowl for hunters." This apparent emphasis on waterfowl production, whether for hunters or for aesthetic values, may mask the potential significance of this program.

In its response to the question, "Should the primary measure of effectiveness for the Water Bank Program be the number of waterfowl produced for hunting?" USDA said no current measures exist for calculating total effectiveness of the program and that "it seems logical to use waterfowl production as an indicator of general program success." Although USDA mentioned other values of wetland preservation as possibly having "more long-term benefits to society," USDA has not attempted to quantify any of these other values.

Many benefits are claimed, but few have been quantified

The Water Bank Act identifies several other objectives, besides preserving and improving waterfowl habitat. It

indicates that these purposes are (1) to conserve surface waters, (2) to reduce run-off, soil, and wind erosion, (3) to contribute to flood control, (4) to contribute to improved water quality, (5) to reduce stream sedimentation, (6) to contribute to improved subsurface moisture, (7) to reduce acres of new land coming into production, (8) to retire lands now in agricultural production, (9) to enhance the natural beauty of the landscape, and (10) to promote comprehensive and total water management planning. Without some attempt to quantify these other benefits, the true worth of WBP and individual wetlands is undervalued, although to an unknown extent.

Although the benefits of achieving certain of the above objectives, particularly 8, 9, and 10, would be quite difficult to quantify, the remaining objectives have received attention in other contexts where methodology which could be used in assessing wetland benefits has been developed. (Some of these benefits are discussed more fully in the next chapter where the broader issue of wetland preservation is considered.)

Generally, the difficulty in estimating the value of a particular wetland is that these benefits are dependent on site-specific conditions. Therefore, to estimate these benefits, a complete assessment of the local conditions would be necessary for each site. It may be better to estimate these values using generalized models based on wetland characteristics. The development of models to estimate benefits of wetland preservation would be a significant undertaking which would extend to programs other than WBP. (This subject is considered in further detail in the next chapter.)

The extent to which these other wetland values would add to WBP benefits is not known with any precision. The following examples may give some insight as to their potential value. In the Charles River watershed in Massachusetts, COE computed a benefit-cost ratio of 1.76 for the flood control benefits of wetlands and 2.0 when fish and wildlife benefits were included. In this case, relatively few benefits were attributed to waterfowl hunting, but the value of wetland preservation was still quite high. In a study of the Flint River in Georgia, it was estimated that the 6 miles of river and 620 acres of adjacent bottomland hardwood swamp are equivalent to sewage treatment for a city of 50,000 people, with a value of \$532 per acre at 1971 prices (as compared to the \$9.03 per acre payment rate in 1975 in WBP). These examples show that in some cases the other benefits are considerable and should not

be viewed as merely incidental for wetland preservation programs.

The effectiveness of WBP could be increased

Another component which needs to be considered in estimating benefits is the effectiveness of WBP in making agreements for wetlands with the greatest potential benefits per acre and with the greatest chance of being drained in the absence of an agreement. As stated in the evaluation, USDA's Office of Audit found that, with respect to individual agreements, 42 percent of the parcels had little chance of being drained even in the absence of an agreement and that the upland on 25 percent of the farms was of minimal value for waterfowl. In addition to suggesting a need to tighten and formalize SCS procedures for assessment of drainage vulnerability and habitat quality, it is necessary to determine the extent to which such agreements may affect WBP effectiveness.

WBP MAY NOW OVEREMPHASIZE CERTAIN WETLAND TYPES

With the WBP emphasis on waterfowl nesting and breeding areas, the available funds appear to be directed to those States where there is the greatest threat to loss of the corresponding wetlands (i.e., types 1 to 5 in the prairie pothole region). Even if the program were broadened to other wetland types and to migratory and wintering habitat, the emphasis would still be in the prairie pothole region, since breeding habitat is a primary factor limiting the levels of waterfowl.

In USDI's response to question 1 (whether migratory and wintering habitat should be included), it was stated that FWS is now expanding its acquisition program to include wintering areas (wetland types 6 and 7) in the lower Mississippi River Delta and California's Central Valley because of significant habitat losses in those regions and because these losses are judged to be a limiting factor for some waterfowl populations. This suggests that, in the near future, it might be desirable for WBP to be able to make agreements in the same areas; i.e., not be limited to breeding and nesting areas. This would necessitate the inclusion of wetland types 6 and 7. Inclusion of these other habitats may provide a more effective program for preserving waterfowl habitat.

Other wetland benefits, such as flood control and pollution control, are not now included in WBP's assessment of the vulnerability of a wetland. As a result, WBP agreements cannot be made for those wetlands with low waterfowl benefits but with high benefits for other purposes, such as in the case of the Charles River Basin cited above. If agreements were made to protect wetlands for these other values, with existing funding levels, a decrease in the protection of prime waterfowl habitat might ensue. Such a decrease might be viewed as undesirable, since waterfowl population levels are already smaller than desirable, as evidenced by continuing declines in hunter season lengths and bag limits.

WBP'S OWNER PARTICIPATION INCENTIVES MAY NOT BE NECESSARY

One of the distinguishing components of WBP is the fact that ownership of the land does not change, thus permitting the owner to retain ultimate control of the land. In addition, the agreement may be temporarily suspended, with forfeiture of payment only for the current year, when emergency conditions are judged to warrant haying and/or grazing of the upland habitat. Thus, in 1976, under dry weather conditions and a shortage of hay and pasture for livestock, 258 agreements covering 17,211 acres were released in Minnesota, North Dakota, South Dakota, and Wisconsin. These aspects of WBP agreements are considered to be inducements for owners and operators to participate in the program. On the other hand, participation may be reduced by the requirement that the annual payment under an agreement remain constant throughout the 10 years. Opinions differ as to whether these attributes of WBP agreements are liabilities or necessary components for the effectiveness of the program. The necessary studies have not yet been performed.

The temporary nature of a WBP agreement may be offset by its lower cost

The protective value resulting from WBP agreements is, by the very design of the program, temporary. The value of this temporary protection is less than what would accrue from permanent protection, but the USDA evaluation suggests that the cost of the WBP is less than the cost of the FWS acquisition programs, so that, if the benefits for the protected wetlands are equal, WBP is actually more cost-effective. However, no assessment has yet been made to compare the characteristics of the wetlands under the two programs.

The effect of agreement terminations
has not been included in estimation
of the benefit-cost ratio

A factor that must be included in valuing WBP benefits is the probability that the agreement will be terminated and the wetland drained, or that the agreement will be temporarily suspended with a consequent loss of benefits. This probability must be multiplied by the benefits, to determine the foregone benefits which must be subtracted from total benefits to arrive at an adjusted benefit estimate, which may be slightly or significantly less than the unadjusted benefit estimate. The cost effectiveness of the program may turn on this probability. USDA's response to question 1 (whether termination is a liability) asserted that, in 1976, 93 percent of all agreements were still in force. However, this is an estimate which does not reflect the fact that some agreements have only recently come into effect and thus are unlikely to have been terminated. In the original evaluation, the termination rate was weighted by the length of time which an agreement had been in force, and it was estimated that 38 percent of the agreements made in a given year will have been terminated before the end of the 10-year agreement period. As mentioned previously, the accuracy of this estimate has been questioned, but, in any event, the overall estimate of benefits would be reduced if the termination rate were incorporated.

Many respondents to question 11 felt that terminations constitute a liability to the program and that, therefore, either penalties should be imposed for termination or the payment rate should be increased to encourage continued participation. Some respondents felt that low payment rates are the primary cause of terminations and that the Secretary of Agriculture should be given the authority to adjust payment rates during the period of an agreement. The Secretary now changes the rates which are permitted for new agreements, but, once an agreement is made, the annual payment is constant. In a period of rapid inflation, the land value will quickly increase beyond the payment rate, so that an owner might find it more effective to seek higher returns for his land than what he is receiving from a WBP agreement. Periodic adjustments in the payment rate during the course of an agreement may more accurately reflect current land values. On the other hand, based on the findings of USDA's Office of Audit that agreements were being made where there is no threat of drainage, there is no evidence that payment rates are set at levels which are too low. A benefit-cost study may be desirable to determine the effects of payment adjustments and penalties on terminations.

The benefits and costs of temporary releases have not been determined

The benefits and costs for the temporary release of upland cover for haying and grazing should also be determined. Temporary release permits the owner flexibility to use his land in times of an agricultural emergency. However, at present, there are no criteria used to determine when there is an emergency. In addition, differing opinions have been advanced as to the effect of temporary release on the quality of the upland cover. Some respondents felt that temporary releases were undesirable, asserting that several years may be required for the cover to regain its proper utility. Others said that releases might be permitted under certain conditions, suggesting that haying and grazing after hatching in the spring would provide sufficient time for the vegetation to mature in the fall with only a limited reduction in the cover for subsequent years. SCS is now making a detailed study to determine the effect of the releases made in 1976. This study should provide a more accurate estimate of the loss in protective value that results from temporary releases. At present, temporary release results in the forfeiture of the payment only in that year. If several years are required for the upland to recover, then 1 year's forfeiture may not be appropriate. In addition, if the loss arising from the emergency is less than the loss in wetland protection, then haying and grazing the upland would be a more costly way of dealing with the emergency. It may be desirable to meet the emergency through other means. These factors should be considered in formulating a more definitive policy for the use of temporary releases.

MANY AGENCIES FELT THAT WBP SHOULD REMAIN IN USDA

The USDA evaluation raised the question of whether the decisionmaking for all waterfowl habitat preservation programs should be unified under FWS by shifting the WBP's legislative authority. The USDA evaluation indicated that placement of WBP in USDA may have an impact upon administrative performance, because production of ducks is not always consistent with production of food, particularly when USDA is promoting all-out production. When this is added to efforts to hold down Government spending, the result is that WBP was accorded a low budget priority, as evidenced by the fact that the Nixon-Ford administrations took steps to reduce or eliminate the program in 3 of its 5 years of existence.

In response to question 19, USDA differed with the low priority given to the program by previous administrations. Apparently signaling a change in policy under the Carter administration, USDA asserted that "the most important factor in administering a waterbank type program is the ability to communicate with landowners at the local level." It added that USDA fulfills this requirement with its decentralized organization, which relies heavily on local participation.

Other respondents to question 19 echoed USDA's viewpoint in support of the present organization and made some additional comments. They said that, although there might be some improvement in decisionmaking for waterfowl habitat preservation programs (i.e., improving criteria used for selection of lands and techniques for preservation), the general feeling was that USDA has more influence among and a better opportunity to promote and explain the program to rural landowners than USDI and that this outweighs the benefits of transferring WBP to FWS. Additionally, it was noted that having the WBP in USDA should provide for balance in the future for maintaining long-term agricultural productivity and conserving natural resources. Finally, the purposes of WBP go beyond those of FWS and are a part of USDA's farm planning assistance and agricultural conservation activities. OMB staff indicated that a final decision on WBP placement is still under discussion.

RESPONDENTS FELT THAT WBP SHOULD BE FUNDED BY
GENERAL REVENUES AND NOT DUCK STAMP REVENUES

The USDA evaluation pointed out that, although WBP directly benefits duck production, the hunter is not required to make any user contribution, as compared to the FWS acquisition programs, which are supported by revenues from duck stamps. Although no recommendation is made, the implication is that part of those revenues--rather than general revenues--should support WBP.

Several respondents on this issue argued against this suggestion. Although duck stamp revenues (about \$12 million in 1975) provide about 75 percent of the funds for wetland acquisition in FWS programs, only 5.3 percent of their use was for hunting, with 39.2 percent for fishing and 55.5 percent for other public recreational uses, so that the general public has received the major benefits. WBP serves a variety of functions beyond waterfowl production, making it equitable to assess the general public for the

cost of this program. It would seem that the same argument could be made for changing the funding sources for the FWS programs.

THE VALUE OF PIGGYBACK AGREEMENTS
NEEDS TO BE BETTER DETERMINED

The Water Bank Act does not prevent "an owner or operator who is participating in the program under this Act from participating in other Federal or State programs designed to conserve or protect wetlands." In effect, this provision applies in the case where a USDI or State drainage easement (i.e., an easement preventing drainage) exists for a particular wetland.

The USDA evaluation raises the possibility that such coverage may appear duplicative and be an "ineffective use of funds," but notes that a WBP agreement provides more protection by improving the adjacent upland habitat. The USDI response to question 14 (whether this practice should be continued) amplifies this discussion by noting that the upland habitat is important cover for nesting and is often absent from FWS easements. In addition, under FWS easements, the owner may graze, hay, or crop the wetland basin when it is naturally dry enough. These practices, which are not permitted under WBP agreements, make it clear that this piggyback arrangement is not duplicative. If an owner of a wetland with an FWS drainage easement were prohibited from participating in WBP there would be no incentive for him to protect the adjacent upland nesting cover.

The payment rate under WBP for a wetland with a drainage easement is 80 percent of that for a wetland without such an easement. The protection added with a WBP agreement is only a prohibition against haying, grazing, or cropping when the wetland is dry enough. There is no evidence that this added protection requires a payment of 80 percent to piggyback an FWS easement.

RECOMMENDATIONS TO THE CONGRESS

Based on these observations, we recommend that the Congress change the Water Bank Act by

1. including at least wetland types 6 and 7 so that the Secretary of Agriculture may protect any wetland, not just nesting and breeding areas, which may limit waterfowl population levels,

2. making provision for the impending change by USDI of its wetland classification system, and
3. permitting the Secretary to take actions to reduce the termination rate by adjusting the payment rate (within available appropriations) during the period of an agreement in order that the payment might keep pace with changes in land values and rental rates resulting from inflation.

We will provide suggested language for these recommended changes upon request. The Congress may wish to consider what funding levels should be established for WBP as a result of any changes in costs incurred if any of these recommendations is adopted and as a result of the fact that current appropriations are not being fully obligated.

The Congress may also wish to consider the necessity of protecting wetlands with high values for nonwaterfowl benefits. If such protection is deemed necessary, the Congress should determine whether this could best be accomplished by

1. modeling--on WBP--a distinct and separate program,
2. broadening WBP, with funds earmarked for the nesting and breeding region, or
3. broadening WBP, by permitting the Secretary of Agriculture to allocate funds between wetlands having primarily waterfowl value and those having nonwaterfowl value.

Before deciding how best to preserve such wetlands, the Congress should await the outcome of two studies recommended in the next chapter, one to improve the characterization of wetlands and their values and the other to assess the relative effectiveness of different mechanisms to preserve wetlands.

RECOMMENDATIONS TO USDA

We also recommend that, to improve the efficiency and effectiveness with which the program is administered, USDA resolve some of the outstanding issues regarding its operation by:

- (1) developing and formulating criteria for assessing the likelihood of drainage or other actions which may destroy or degrade wetlands

and in determining the value of adjacent upland cover for the purpose of setting priorities;

- (2) determining the penalties and payment rate changes that will minimize terminations, consistent with a favorable benefit-cost ratio;
- (3) incorporating the effect of terminations in assessing the program's benefit-cost ratio;
- (4) determining the conditions under which temporary releases for haying and grazing are justified, and basing payment forfeitures on the length of time which is required for recovery of the cover;
- (5) determining the payment rate differential to be applied in the case of wetlands already protected by drainage easements; based on (a) the actual increase in protective value afforded by WBP agreements and (b) the amount needed to induce owner participation; and
- (6) identifying the most beneficial wetlands needing protection and actively seeking farmer participation, instead of waiting for a request to be filed.

At the completion of these studies, the results should be presented to the Congress for review, and USDA should indicate what changes in program administration were made or are recommended.

AGENCY COMMENTS AND OUR EVALUATION

USDA agreed with our recommendations concerning WBP, saying that it supports changes in the program previously identified by ASCS and SCS as being desirable to solve two existing problems. USDI said that the report recognized its concerns and interests in WBP. The Department of the Army concurred with the various recommendations to strengthen and upgrade WBP. (See appendices III to VII.)

No comments were made about the specific items that were recommended for further study. USDI suggested that USDA utilize the National Wetland Inventory for planning purposes, but we believe that this should be at USDA's discretion.

OMB did not provide us with written comments. In informal discussions, OMB staff stated that they did not have any specific comments on the operation of WBP, because of a more basic concern about the organizational placement of the program. They said that a final decision about whether the program would be placed in USDI had not yet been made and that it was unlikely to be made during the time for advance review of the draft of this report. We think that any final resolution of this point should involve a discussion of this issue before the Congress, and we note that, in its comments on the draft of this report, USDI reiterated its earlier position that WBP should remain in USDA.

CHAPTER 3

GENERAL APPRAISAL OF WETLAND PRESERVATION

In appraising whether it would be possible for USDA to set priorities and focus its funds on the most valuable wetlands needing protection, we had to go beyond the confines of WBP into the broader subject of wetland preservation. We found that WBP is part of a broad fabric of wetland protection programs and policies involving several departments and agencies which have not yet been fully drawn together. Although we were not able to conduct a detailed examination of these other programs and policies, several issues pertaining to this broader fabric emerged during our review of WBP.

Our review examined the significance of some non-waterfowl production benefits of wetlands (particularly flood control, groundwater recharge, pollution control, and other fish and wildlife benefits). Although the information on these other benefits is limited, their significance in some cases is sufficient to raise the issue of whether we may now be paying more to provide these benefits of wetlands through public works projects and environmental programs than we would have paid to preserve the wetlands which have been drained. In our review, we examined the possibilities for obtaining improved information about these other benefits of wetlands and for centralizing wetland data gathered by several agencies.

We also examined the competition between agriculture and wetland preservation. We found that wetland preservation is unlikely to conflict with our Nation's food and fiber needs, but that an owner might pay a disproportionate share of the costs of preserving wetlands. Present wetland policy does not completely address the individual owner's decision to drain. We examined several mechanisms that are now being or could be used to preserve wetlands. We found that there is insufficient information to determine the relative effectiveness of these mechanisms at the present time.

OTHER WETLAND PROGRAMS AND POLICIES

WBP is part of a much broader fabric of programs and policies which may affect, both positively and negatively, the status of wetlands. These include

--acquisition programs,

- agricultural land and water conservation programs and policies,
- public works programs and policies, and
- regulatory programs and policies.

Many Federal programs lead to some form of wetland acquisition

WBP shares the common objective of wetland habitat preservation with several acquisition programs. (See table below.)

<u>Program</u>	<u>Responsible Federal agency</u>	<u>Interests in land acquired</u>		
		<u>Fee</u>	<u>Easement</u>	<u>Lease</u>
Direct Federal acquisition:				
1. Waterbank	ASCS			X
2. Migratory Bird Conservation Account (MBCA)	FWS			
a. Refuges		X	X	X
b. Waterfowl Production Areas (WPA)		X	X	X
3. Land and Water Conservation Fund (Federal portion)	<u>1</u> /NPS FWS	X X	X X	 X
4. Mitigation/enhancement activities in conjunction with Federal water development projects	COE <u>2</u> /BuRec	X X	X	
State acquisition with Federal cost sharing:				
5. Marine Sanctuaries	<u>3</u> /NOAA	X		
6. Estuarine Sanctuaries	NOAA	X		
7. Federal Aid in Wildlife and Fish Restoration	FWS	X	<u>5</u> /X	<u>5</u> /X
8. Land and Water Conservation Fund (State grants)	<u>4</u> /BOR	X	<u>5</u> /X	<u>5</u> /X

1/National Park Service, USDI

2/Bureau of Reclamation, USDI

3/National Oceanic and Atmospheric Administration

4/Bureau of Outdoor Recreation, USDI

5/Depending on State enabling legislation

The precise amount of wetlands under these programs (as distinguished from surrounding habitat) is not known; WBP is estimated to provide protection to 9 percent of the wetlands in the prairie pothole region. USDI estimated that, when the program expands fully to reach its ultimate scope, WBP could be protecting as much as 700,000 acres, or 28 percent of the wetlands currently protected by Federal and State programs.

WBP does nothing to the ownership of the land in its agreements, whereas other Federal and State programs may also provide for the purchase of land in fee or the acquisition of an easement. A fee purchase provides total ownership and gives to the Federal and State governments the opportunity to manage the habitat to achieve a high level of wildlife production and protection. According to agency statements, an FWS easement in perpetuity is a similarly permanent acquisition, but it only prevents filling, draining, and burning an area; it prohibits farming through a wetland when it is wet, and does not offer the opportunity to manage the habitat to optimize its quality. WBP differs from a fee or an FWS easement purchase in that it has no permanence, because its agreements are for 10 years. Since a landowner may be reluctant to part with an area in perpetuity, but might be amenable to a 10-year agreement, this difference enables WBP to protect wetlands that otherwise might not be protected.

Some agricultural land and water conservation programs and policies may affect the goal of wetland preservation

The status of wetlands may also be affected in several indirect ways by other programs and policies. In this country, wetlands have traditionally been viewed as one of the major impediments to the expansion of agriculture and other forms of economic development. As early as 1849, there was a Federal policy designed to "reclaim" these lands (which were unfit for cultivation) by installing drainage systems. Of an estimated original 127 million acres of wetlands in the United States, it is thought that over 35 percent have been drained or otherwise lost, much of it with Federal subsidies. Drainage and other forms of wetland loss continue today, perhaps abated somewhat, but nevertheless still constituting a conflicting use of wetlands.

When wetlands and other lands with problems of excess water are drained, they may become highly productive farmland. USDA has several programs which promote drainage on

lands with problems of excess water (but not wetland types 3 to 20) by individuals for the expansion of agriculture. These have been of three principal types: (1) direct loans made by the Farmers Home Administration, (2) cost-sharing financial assistance in the Agricultural Conservation Program (ACP) of ASCS, and (3) technical assistance in the Conservation Operations Program of SCS. In addition to what these programs have accomplished, private owners have frequently found it economically beneficial to drain their wetlands in the absence of any Federal assistance. Even these decisions to drain are facilitated by Federal policies. There may be favorable income tax treatment of construction costs. Indirectly, crop loan and price supports may constitute guaranteed income from drained wetlands.

In recent years, these direct and indirect programs and policies have been altered somewhat in support of wetlands. In 1962, the Congress placed a limitation on wetland drainage assistance in North Dakota, South Dakota, and Minnesota (Public Law 87-732). Financial and technical assistance was prohibited ^{1/} if USDI determined that wetland preservation would materially contribute to wildlife preservation. Although financial assistance through ACP for drainage on types 3, 4, and 5 has been stopped by this law, the amount of unassisted drainage is still significant; from 1962 to 1974, over 200,000 acres (about 8 percent) of types 3, 4, and 5 wetlands in the three States were drained.

Most Federal public works programs
and policies protect wetlands, but
some may be destructive

The Federal Government has supported or facilitated drainage of wetlands through its many public works projects carried out by the U.S. Army Corps of Engineers, USDA's Soil Conservation Service, and USDI's Bureau of Reclamation. The full impact that these programs have had on wetland loss in the past is not now known. The impact has become clearer, particularly since the enactment of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.), which requires more detailed assessments of the environmental impact of projects.

^{1/}This prohibition would persist only if an offer to lease or purchase by USDI or a State agency were made within a year, and then only for 5 years if the owner did not accept the offer. Successful protection of the wetland would, in this case, be contingent on the availability of acquisition funds.

Recently, the President found it necessary to heighten the importance of wetland protection on public works projects by Executive Order No. 11990 (May 24, 1977). This order requires that wetland destruction, loss and degradation be minimized and that wetland values be preserved and enhanced in Federal projects. This Executive order was implemented on October 1, 1977, and will apply only to new construction (excluding projects presently under construction), projects for which all funds have been appropriated, and projects for which draft or final environmental impact statements will have been filed prior to October 1, 1977. Therefore, some public works projects may still result in the loss of wetlands and their benefits.

Another Executive order (No. 11988, May 24, 1977), dealing with flood plain management, may also provide some protection for wetlands. This order requires that the natural and beneficial values served by flood plains be restored and preserved in carrying out Federal projects. As pointed out by the Water Resources Council (WRC) in its comments on a draft of this report, since much land classified as wetlands is also flood plain land, this Executive order may affect Federal, State, and local actions in these wetlands.

Generally, the loss of wetlands in these projects was viewed in terms of habitat values, as distinguished from any of the other benefits that wetlands are deemed to provide. (See below.) As a result, wetlands would be given a lower value than they really possessed. This would have the effect of making a project appear more beneficial than it really was and making it easier to justify the destruction of wetlands.

Regulatory programs and policies may provide the greatest protection, but they are viewed by owners as undesirable and depend upon vigorous surveillance and enforcement

Regulation is another method by which the Federal Government may influence the status of wetlands, although it is not yet clear to what extent this authority can, will, or should be used to protect wetlands. The authority derives primarily from sections 208 and 404 of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) and section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. 403).

Section 10 requires a permit from COE for building or placing structures in navigable waters, such as piers, breakwaters, bulkheads, revetments, power transmission lines, and aids to navigation. Permits are also required for various types of work performed in navigable waters, including dredging and stream channelization, excavation, and filling.

Section 404 establishes a permit program to be administered by COE with the assistance of EPA. FWS of USDI provides advice and comments on these permits under the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). This program is intended to regulate the discharge of dredge and fill materials into waters of the United States, construed to include most, if not all, wetlands. However, this does not preclude drainage which is accomplished without the discharge of dredge or fill into water, nor plowing, cultivating, seeding, and harvesting for food, fiber and forest production as part of normal farming, silviculture, and ranching activities. The regulations issued by COE on July 19, 1977 (42 F.R. 37144, 33 CFR 323) grant a nationwide permit (i.e., individual permits are not required) for the discharge of dredged and fill materials into certain types of waters and their adjacent wetlands, including nontidal rivers, natural lakes less than 10 acres, and nontidal waters not part of a surface tributary to navigable waters and having an average annual flow of less than 5 cubic feet per second. The regulations specify that certain management practices should be followed to minimize adverse effects. Section 404 was amended by section 67 of the Clean Water Act of 1977 (Public Law 95-217). The primary change is to allow each State to administer its own permit program after approval by the Administrator of EPA.

Section 208 provides a mechanism for planning, coordinating, and implementing pollution controls in order to "restore and maintain the chemical, physical, and biological integrity of the Nation's water." Section 208 requires that States and designated areawide planning agencies develop water quality management plans which must, among other things, identify land use patterns, assess nonpoint pollution sources and control needs, identify storm water runoff problems, and set out abatement programs. In the Clean Water Act of 1977 (section 34), section 208 was amended to take cognizance of any section 404 State permit program that might be developed in accord with section 67 of the Clean Water Act. Section 34 identified the elements of the permit program which are to be described in a section 208 plan.

This section further takes notice of the importance of USDI's National Wetland Inventory in the development of the section 208 plan.

The effect of the amendments in the Clean Water Act and the regulations issued by the COE is to consolidate the establishment of the permit program as the primary Federal mechanism for protecting wetlands. The success of efforts under the permit program will depend on the ultimate form of any regulations and the extent of surveillance and enforcement. For example, the nationwide permit mentioned above is vulnerable to abuse and loss of control. (See our report, "Improvements Needed in the Corps of Engineers' Regulatory Program for Protecting the Nation's Waters," CED-78-17, Dec. 23, 1977.)

As EPA stated in its comments on a draft of this report, the regulations and guidelines being issued "contain strong presumptive requirements to protect wetlands and to prevent the discharge of dredged or fill material into them wherever practicable." However, as pointed out by the Department of the Army in its comments, "While these programs provide a means to curtail unwise destruction of wetlands, they cannot guarantee wetland preservation." The exclusion of normal farming, silviculture, and ranching activities specified in the Clean Water Act is one example where wetlands might not be adequately protected by the permit programs.

One difficulty under a permit system might arise in the valuation of a wetland. If the criteria used in deciding whether to grant a permit do not consider the full value of a wetland, the decision might tip in favor of other economic benefits to be gained by draining the wetland. As will be shown later in this chapter, information about the values of wetlands is still fragmentary. Another difficulty with a permit program is that it provides no mechanism for enhancing the wetland values through management, as occurs under the FWS fee acquisition program and USDA's WBP.

The extent to which wetland values will be preserved by the permit programs needs to be delineated as precisely as possible so as to determine the role which these regulatory programs should serve in a comprehensive wetlands policy.

SIGNIFICANCE OF OTHER BENEFITS

As indicated in chapter 2, there are other benefits in addition to waterfowl production which need to be

considered in evaluating wetland preservation programs. The significance of other fish and wildlife benefits, flood control, groundwater recharge, and pollution and sediment control are discussed below. Other benefits of wetland preservation are also briefly described.

Waterfowl benefits are not the only type of fish and wildlife benefits of wetlands

Most wetlands produce more fish and wildlife benefits than merely waterfowl production. (The significance of these benefits depends on wetland type and site-specific conditions.) Approximately 160 species of bird--only 45 of which are waterfowl--are dependent on wetlands. Wetland basins and adjacent uplands provide winter cover for resident wildlife and escape cover for prey species. At least 50 fur or game species, such as grouse, quail, rabbit, deer, beaver, mink, muskrat, and raccoon, inhabit wetlands. This wildlife may give rise to small-game hunting benefits larger than those for waterfowl production. It is conceivable that an owner could stock some of these species and earn income from small-game hunting, thereby directly increasing the wetland value. Protection and/or management of wetlands could also preserve or enhance fishery resources and other recreational aspects, such as nature trails and canoeing. Finally, there is the aesthetic value of wetlands.

Wetlands provide a natural means of flood control

The contribution to flood control provided by wetland preservation may constitute a significant benefit, but to date this value has not been fully determined. In some instances, this benefit may have been overlooked so that wetland drainage in Federal projects may have contributed to increased flooding with the resultant requirement for additional protective works. Although it would be difficult to determine how much flood control has been necessitated by drainage, the evidence cited below suggests that the Nation may now be paying to correct mistakes of not preserving wetlands in the past.

Wetland basins and lands with problems of excess water are natural catchments which provide significant water storage capacity; when they are drained, this storage is lost with a resultant faster and greater runoff of roadside ditches, tributaries, and water bodies. During periods of high rainfall intensity, the runoff that would have been stored is added to what would have been the natural levels,

so that the flood crests will be higher. It has been estimated that over 50 million acres of wetlands (in addition to lands not considered to be wetlands) have been drained; if it is assumed that each acre could have stored water to a depth of two feet, 100 million acre-feet of water could have been stored and thus not contributed to flood flows. A more specific example was cited by USDI in its response to question 8 (about the significance of other benefits). In North Dakota's Devils Lake Basin, there were originally 111,000 acres of wetlands in three major watersheds. By 1975, over half of these wetlands had been drained and severe flooding problems now exist in the lower basin with crop losses and other damage in years of above average runoff. Costly structural measures are being considered to relieve this problem; one alternative to such measures that has been recommended in one study is to restore drained wetlands in the upper portion of the watershed to reduce downstream flooding.

In the Charles River Basin in Massachusetts, COE has recommended the acquisition of about 8,500 acres of wetlands with nearly 36,000 acre-feet of storage. The justification for this proposal was that increases in annual flood damage caused by loss of this storage would thereby be minimized. The estimated benefit cost ratio of 2.0 was based on the loss of 30 percent of this storage capacity in 1990. (The loss of these wetlands was estimated on the basis of urbanizing pressures.) In estimating the damages which would result from given amounts of wetlands loss, each additional 10 percent reduction in wetland acreage caused an increasing amount of damages. In other words, the flooding problem increases at a rate faster than the wetland loss.

Although COE did not do so in the analysis of the Charles River Basin, another way of determining the flood protection of wetlands would be by comparison with the cost of flood protection structures and/or disaster relief payments. The Federal Government has spent over 25 billion dollars for flood control structures and over one billion dollars per year for disaster payments. Since the COE alone had provided drainage for 30 million acres in projects completed or under construction as of 1971, it seems important to understand how much of the capacity in these flood control projects was necessitated by the storage capacity lost from this drainage. One study cited in one of the responses to question 8 states, "This plan provides for floodwater storage capacity sufficient to compensate for the increased outflows from channel improvement." These comments do not imply that flood control projects have been unneeded

or poorly designed, but rather that the contribution of wetlands to flood control may have been underrated.

In commenting on a draft of this report, WRC noted that drainage might also provide flood control benefits, particularly in small drainage areas, by reducing flood peaks.

Wetlands could be used to
recharge groundwater supplies

The amount a particular wetland contributes to groundwater recharge is difficult to estimate. Originally, it had been thought that wetlands existed because of an underlying impervious "hardpan" which stopped seepage. This is no longer tenable, as several studies have shown seepage losses of 1 foot per year in certain wetlands. Although this rate is certainly not the same for all wetlands because of varying geological and hydrological conditions, it is not unreasonable to use it as a rough estimate for computing the loss in recharge to the groundwater supply that has resulted from draining 50 million acres. This loss can then be estimated as at least 50 million acre-feet per year, a modest but yet substantial amount, since it is estimated that total recharge is 1.0 billion acre-feet per year.

The contribution of a wetland to groundwater supply is probably more significant than its contribution to the annual recharge since water in groundwater reservoirs is generally considered to have a long residence time, in some cases reaching decades or centuries. If it is assumed that the water in these reservoirs has a residence time of 10 years, the contribution of the drained wetlands would have been 500 million acre-feet for the water table (equal to 70 percent of the total storage capacity of all reservoirs in the United States). The relation between wetlands and water table is not as yet well-defined, but some studies suggest a close tie. In the Arkansas Delta region, the U.S. Geological Survey has been recording water table declines of 1 foot per year, at the same time that bottomland hardwood swamps are being drained at the rate of 100,000 acres per year. Similarly, our recent report, "Ground Water: An Overview" (CED-77-69, June 21, 1977), stated that declines in the water table may be expected in the High Plains region (extending into Texas, New Mexico, Colorado, Oklahoma, Kansas, and Nebraska), except for the Sand Hills of Nebraska. It seems significant that a recent inventory of the Sand Hills region showed 155,000 acres of

wetlands. (There are relatively few wetlands in the remainder of the High Plains region.)

Questions about groundwater policy are beyond the scope of this report. However, it should be noted that a recent article in Scientific American ^{1/} recommended large-scale and long-term control of the water cycle through less conservative management (based on an understanding of the long-term cycle) using natural and artificial recharge of groundwater supplies. Use of the natural seepage from wetlands could be part of such a policy. It is perhaps significant that, in two of the three areas where wetland preservation is deemed to be important, the prairie pothole region and California's Central Valley, serious drought conditions have prevailed recently. Whether the amount of seepage from wetlands that have been drained in those areas would have tempered the effect of the drought is, of course, speculative, but it is a question which should be answered, in part so that the effect of drainage on the water table (and ultimately crop production) can be ascertained.

Wetlands may provide natural pollution and sediment control benefits

Another function of wetlands is that of a filter which traps pollutants and sediment. With respect to pollutants and sediments, a wetland can be viewed and valued as a secondary or tertiary treatment plant. The results that have been obtained thus far refer mostly to coastal marshes, estuaries, and bottomland hardwood swamps, so they cannot be extrapolated to the water quality role of prairie potholes. Nonetheless, the potential value of these benefits is significant enough to warrant further research.

Wetlands often help control pollution. Where they do, and if they are drained, they would have to be replaced by the construction of facilities (if the same level of pollution abatement is to be attained). The costs for these facilities can be considered as representative of the pollution control value of certain wetlands.

In a study of five mid-Atlantic estuaries, waste assimilation of 19.4 pounds of Biological Oxygen Demand per acre per day had an estimated value of \$283 per acre per year for

^{1/}"Underground Reservoirs To Control the Water Cycle," Robert P. Ambroggi, vol. 236, no. 5, pp. 21 to 27, May 1977.

secondary treatment and \$14,000 per acre per year for tertiary treatment. The cleansing action of a 6-mile reach of the Flint River in the Georgia Piedmont and 620 acres of adjacent bottomland hardwood swamp was considered equivalent to sewage treatment for a city of 50,000 people with a value of \$532 per acre per year at 1971 prices. Tinicum Marsh in Pennsylvania was estimated to remove 6.4 pounds of phosphorous per acre per day with a value of \$480 to \$1,420 per acre. The estimated cost of sediment control to capture particles formerly deposited in the Alcovy Swamp in Georgia before channelization was \$3,200 per year (1970 prices). (In comparison, the flood control benefits in the Charles River Basin were \$142 per acre per year, and the fish and wildlife benefits were \$24 per acre per year. Hunter benefits under WBP were estimated to be less than \$10 per agreement acre in 1975.)

Although wetland preservation is not the only way to improve water quality, it would at least carry part of the load. At present, State and areawide water quality management plans are being developed pursuant to section 208 of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500). These plans must, among other things, determine effluent limitations necessary to meet water quality standards and present programs to implement abatement measures for all pollutant sources. It is very likely that the value of wetlands for pollution control will not be fully appreciated in the preparation of these plans, primarily because of the limited amount of knowledge about its value. This may affect the quality of these plans in two ways: (1) the extent to which preservation might abate pollution may not be recognized and (2) if the control capacity is lost by draining the wetlands, the increase in pollution that may arise may not be countered by any abatement program.

In our recent report, "National Water Quality Goals Cannot Be Attained Without More Attention to Pollution From Diffused Or 'Non-point' Sources" (CED-78-6, Dec. 20, 1977), we observed that nonpoint sources of water pollutants (i.e., sediment, acid mine drainage, pesticides, and other pollutants carried into streams by runoff from rainstorms) currently produce more than half of the pollutants entering the Nation's waterways. We concluded that the best way to control this pollution is by preventing as much of it as possible from reaching the streams through proper land management. Since wetlands retard runoff and trap pollutants, their preservation can help control nonpoint source pollution. As pointed out by WRC in its comments on a draft

of this report, wetland preservation is consistent with the emphasis of the administration on reduced capital expenditures and nonstructural solutions to water resource problems. However, the extent to which wetland preservation can make a contribution is not now precisely known.

Wetlands provide other benefits
whose values are less well-defined

Other benefits ascribed to wetlands are: (1) conservation of surface waters, (2) reduction of water erosion, (3) reduction of wind erosion, (4) reduction of new land coming into production and retirement of lands now in agricultural production, (5) soil improvement resulting from establishment of perennial soil building cover crops on the upland portion of Water Bank lands, (6) the cycling of nutrients, (7) the maintenance of a balance of gases in the air (sulfate reduction, carbon dioxide fixation, oxygen release), (8) the regulation of radiation balance and climate, (9) the fixation of solar energy, (10) as nursery areas for fish and aquatic life, (11) as areas of aesthetic beauty, and (12) as scientific study areas. The extent to which wetland preservation helps achieve these objectives is not known.

SEVERAL EFFORTS ARE UNDERWAY TO ADD
TO OUR KNOWLEDGE OF WETLAND BENEFITS

Since it is difficult to estimate all the benefits of each wetland, it appears that their value has been underestimated by emphasizing their contribution to waterfowl production. Estimation of these benefits must now be determined almost on a case-by-case basis, since relationships between wetland characteristics and benefits have not yet been generalized.

It is worthwhile to determine the relative levels of significance that should be attached to the several values of wetlands. This can be accomplished in part by a more complete synthesis of the existing literature; this would go beyond the review that has been presented here and in USDA's evaluation. Such a synthesis is important also as a basis for detailing the course of further research, which will be necessary for an understanding of the importance of wetland preservation. It has been suggested that a productivity factor for wetlands be developed. This factor would relate the pertinent characteristics of a wetland to the benefits which might accrue from its preservation. This research would probably require several years

of effort, involving research design, development and validation of models, and development of the necessary data base.

Priorities are now established
with too little information

It is equally important to have a measure of the likelihood or probability that a particular wetland will be lost. In the operation of WBP, SCS is requested to assess the drainage vulnerability for each wetland. The determination involves consideration of (1) the likely impact of the land use change on the operating unit, (2) any benefits to the farm operator's convenience, (3) proposed economic benefits versus estimated costs of drainage, and (4) impact of drainage on wildlife and on other environmental values. If SCS finds that the wetland needs protection, the request is placed into one of two priority categories. A high priority is assigned on the basis of the habitat excellence and proximity to other habitats, the vulnerability of the wetland to drainage, the contribution which the wetland will make to other wildlife, and the prospects for meeting program objectives.

As presently conducted, this assessment and the resultant prioritization are performed in a qualitative manner considering many factors, some of which are intangible. (The findings of USDA's Office of Audit indicate that these procedures have resulted in high priorities being given to wetlands that had little vulnerability and low quality uplands.) We believe that these qualitative judgments are inadequate for decisionmaking, in part because of the absence of better defined and more uniform criteria, and in part because of the lack of consideration of the other benefits of wetlands. Since information on these other benefits and procedures for using such information are not presently available, the individual SCS technician cannot assess all factors that might bear on the vulnerability and productivity of a wetland.

In making a vulnerability assessment, one should consider such factors as the degree of protection afforded by COE's section 404 program and by EPA's section 208 program, the protection which may be provided by State zoning laws, and the significance of economic conditions, in addition to the factors now considered by the SCS technician.

USDI's National Wetland Inventory is the best nucleus for a wetland data base

Developing more definitive measures of productivity and vulnerability would provide an information base for planning and establishing priorities in wetland preservation programs. The National Wetland Inventory, presently being developed by FWS, can form a nucleus for a data base to which productivity and vulnerability information can be added. The inventory will consist primarily of a data base in both map and computer form, in which each wetland will be located by geographic coordinates and ecoregion, State, watershed, and county. In addition to locational information, the nature of each wetland will be described through a series of characteristics, such as ecosystem type, bottom class, and life form. This hierarchical structure will provide greater detail for each wetland than by classifying it into one of 20 types as in the original inventory of 1954. If the information contained in this new inventory does not suffice for all purposes, additional characteristic information could be added. Under authorizations of the Clean Water Act of 1977, some additional wetland value studies may be conducted.

Wetlands research is now being coordinated

Several other efforts have been and are being pursued in an attempt to bring wetland information and research together. In February 1978, a Wetlands Research Coordinating Committee was initiated jointly by EPA and COE to assemble research information into a format to distribute among participating agencies for the purpose of coordinating future research. Other agencies serving in an advisory capacity to this Committee are the National Science Foundation, USDI, the Department of Commerce, and the Council on Environmental Quality. In addition, COE is currently preparing a manual to be used with its regulatory program to provide concepts and methods of wetland evaluation.

Management of all Federal wetlands efforts must cut across many agency boundaries

WRC, along with eight of its constituent agencies, sponsored a national symposium on wetland values in November 1978. WRC is now considering an investigation of the need

for and possible opportunities in integrating wetland management and flood plain management into a unified national program, particularly since, as noted earlier, many wetlands are located in flood plains.

To the extent that these efforts can develop procedures for estimating wetland values from their characteristics and can append such information to the National Wetland Inventory, use of the inventory could be enhanced for other action agencies such as COE, SCS, the Bureau of Reclamation, and EPA. These agencies not only could make use of a broadened system, but also could contribute to its contents with data gathered in their planning and environmental impact studies.

A NATIONAL WETLAND POLICY MUST BALANCE COMPETING INTERESTS

Historically, the greatest destroyers of wetlands have been agricultural drainage and flood control activity. Since many of the benefits of wetlands do not accrue to the owner, the decision to drain will be based principally on the benefits and costs of drainage. For the farmer, the benefits constitute the net value of agricultural production, whereas his costs do not include the wetland benefits foregone. Since the drainage of wet soils is expected to continue, the competition between agriculture and wetland preservation is likely to persist. Wetland policy depends on a clear understanding of the nature of this competition.

Basic food and fiber needs can be met without draining wetlands

An issue to be resolved with respect to this competition is whether there is a need to drain wetlands to satisfy basic food and fiber needs. USDA cited a recent survey which indicated that there is presently enough land in production to satisfy domestic needs both now and in the future. There is concern that continuing pressures from urbanization and transportation needs are having the greatest impact on prime agricultural lands, with the result that poorer lands replace the lost prime lands. Even with these pressures, it is unlikely that wetland drainage will be needed to satisfy domestic needs for food and fiber. Wetland drainage would probably not be necessary even despite the increased pressures for land. (This does not mean that new drainage systems will stop being built.)

Additionally, it may be that wetland drainage reduces the long-term capacity for food and fiber production. The nutrient recycling value of the wetlands, as well as their role in total water management planning, in sedimentation and erosion control, in flood control, and in other ways which contribute to agricultural productivity, provides some indication that wetland drainage may have a negative impact on agriculture. Therefore, we conclude that wetland drainage is not necessary to meet the Nation's food and fiber needs.

All wetland preservation programs
and policies eventually affect
the owner's decision to drain wetlands

The need for food and fiber does not seem to be a driving force behind wetland drainage. The decision to drain appears to lie in the economies of drainage and the agricultural value of drained lands for the owner or operator; that is, the decision seems to be based on the conditions pertaining to the individual farm without any significant consideration of the benefits and costs for society as a whole. Based on the previous discussion about the other benefits of wetland preservation, it appears that the owner is forced to pay a disproportionate share of the cost of preserving wetland (from direct taxes and from indirect loss of potential income from alternative uses) compared to the benefits to the owner and those to society. These tradeoffs may lead to a decision to drain on the part of the owner.

It should be pointed out that USDA provides assistance that may lead to a decision to drain on land with problems of excess water (but not wetland types 3 to 20). One program in this respect is the Agricultural Conservation Program (ACP) of ASCS which provides cost sharing. In 1975, ACP supported drainage affecting more than 64,000 acres in the three States of Minnesota, South Dakota, and North Dakota alone. The Conservation Operations Program provides, among other things, technical assistance for drainage, and, in 1975, assisted in the installation of over 7,200 miles of drainage ditches, over 22,000 acres of drainage land grading, and over 26,000 miles of subsurface drains. The Farmers Home Administration provides loans, some of which are for drainage. Although these programs are designed to assist the individual farmer, their impact on wetlands has not been adequately addressed with respect to flood control, groundwater recharge, and pollution control.

Other Federal policies may also affect the owner's decision to drain. Income tax treatment of drainage construction costs, crop loans, and price supports may act as indirect stimuli of drainage. However, the extent to which they affect the decision to drain has not yet been examined.

A national wetland policy should focus on methods to affect an individual owner's decision to drain

Since drainage of a wetland usually depends on the individual owner's decision to drain, a policy of wetland preservation must deal directly with this decision. One purpose of Executive Order 11990, Protection of Wetlands, is to "avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands," and thus represents a step toward a national policy of preserving wetlands. However, it does not address the individual owner's economic decision to drain. This decision can be affected by removing incentives to drain, providing additional incentives to preserve, or by imposing regulations to preclude drainage. Mechanisms for protecting wetlands are discussed further in the next section. Any existing incentives to drain wetlands might conflict with a national policy to protect wetlands. However, we believe that these forms of assistance should not be eliminated outright, but rather that sufficient economic inducements for the owner to make a decision not to drain should be provided.

THE RELATIVE EFFECTIVENESS OF DIFFERENT MECHANISMS FOR WETLAND PRESERVATION NEEDS TO BE DETERMINED

FWS's acquisition programs and USDA's WBP are mechanisms for wetland preservation. However, it is not known how these programs would affect the individual owner's decision to drain. In some cases, the probability of immediate drainage may be so low that "no action" may suffice for a time. For example, food surpluses may lead to lesser pressures to bring new land into production, thus decreasing the threat to wetlands, at least temporarily. There may be other ways that help to preserve wetlands.

The USDA programs mentioned above as contributing to drainage also can contribute to wetland preservation. ACP and COP support practices with the purposes of establishing vegetative cover beneficial to wildlife, developing or restoring shallow water areas for wildlife, impounding

water for wildlife, and creating or managing wetland and other wildlife habitat. Other practices may have coincidental benefits for wetland habitats. Some of the Farmers Home Administration conservation loan programs could conceivably be used to support wetland preservation. The extent to which these programs could be used for wetland protection is not known at this time.

A disincentive which might deter the conversion of wetlands to farmlands is to make landholders ineligible for crop loan and price support programs. USDI said that such a disincentive "could be highly effective and have much broader impact than current regulatory and acquisition preservation efforts with lower monetary and social conflict costs." USDA, on the other hand, felt that this would not be a practical or feasible technique, in part because of the noncorrespondence between wetlands and farms eligible for loans or support. However, neither statement was supported by any data so that it is not possible to state at the present time the extent to which this disincentive or any other will affect wetland drainage.

COE's section 404 permit program and EPA's section 208 program may confer some protection for wetlands but, as mentioned before, these are not preservation programs. Strict zoning laws have also been used effectively in some States. This is not to suggest that regulatory approaches should be used more extensively, since such methods might possibly lead to local opposition. We believe that, to the extent possible, wetland preservation should be based on positive incentives such as income tax relief or expansion of WBP, thus letting landowner choice be the controlling factor.

From the foregoing, it appears that there are several mechanisms which would affect the amount of wetland that is drained and the amount that is preserved. However, the effectiveness of these mechanisms, individually and in relation to one another, has not been adequately studied. USDI suggested that criteria for selection among alternative mechanisms could include (1) minimization of Federal participation or responsibility for acquisition of wetlands, (2) acquisition of the minimum interest in the land necessary to achieve programs goals, and (3) preference for protection in perpetuity rather than for a finite period. The relative importance of these criteria is not known; however, they should be considered in comparing the programs. For example, in reconciling FWS acquisition programs and WBP, it is necessary to consider the duration of control over the wetland (short versus long), the degree of management possible

(Federal responsibility for fee purchases, owner responsibility for Water Bank agreements, and no management for easement purchases), and the importance of upland cover (none in the acquisition programs versus that in Water Bank agreements). Another criterion is whether a particular mechanism applies to a particular wetland. An owner's reluctance to permit a fee or easement purchase may render the FWS acquisition programs inapplicable in a particular case. It is desirable to have such information in determining the total funding level for wetland preservation programs and the allocation to each program.

RECOMMENDATIONS

We recommend that, to develop a coordinated approach to wetland preservation, an interagency task force including USDA, USDI, EPA, and the Army COE be formed under the leadership of WRC. We recommend that the task force focus on the following principal objectives:

(1) An improved characterization of wetlands

We recommend that the task force investigate the possibility of developing productivity and vulnerability indices to assess individual wetlands. To the extent possible, this effort should make use of existing literature (for example, the papers generated in the November 1978 symposium on wetland values, sponsored by WRC) and, where necessary, should initiate an integrated research program that takes advantage of the research capabilities of each agency. The Wetlands Research Coordinating Committee, formed by EPA and COE, could form the nucleus for such a research program. The task force should also consider the possibility of expanding the National Wetland Inventory to include measures of productivity and vulnerability so that the needs of the several agencies can best be met by one data system. (FWS should remain the focal point for this system.) The task force should also consider the possibility of adding to the system wetland data developed by the several agencies in their project plans, development plans, environmental impact studies, water quality management plans, and other similar studies.

(2) An assessment of different mechanisms

We recommend that the task force undertake a coordinated evaluation of mechanisms for wetland preservation. In making

such an evaluation, an attempt should be made to consider (a) the effect on benefits of type of ownership, length of protection, degree of protection or management, and applicability of a mechanism, and (b) the tradeoffs between agricultural and environmental considerations and between regulatory and incentive approaches.

(3) An assessment of the impact of
Federal public works projects
and cost-sharing programs

We recommend that the task force ascertain the amount of wetlands that will be destroyed on Federal projects in effect before October 1, 1977 (the cutoff date provided in Executive Order 11990), and the impact of such wetland loss. We also recommend that the task force determine the impact of drainage on flooding, pollution, and groundwater supply for lands associated with public works, cost-sharing, technical assistance, and loan programs.

During the course of these efforts, the task force should report its findings to the Congress, with (a) an indication of administrative changes in the several programs, (b) any recommended legislative changes to meet the appropriate goals, and (c) identification of issues that require further study or congressional resolution. In chapter 2, we recommended that the Congress consider the desirability of a program modeled on WBP for protecting wetlands with high nonwaterfowl benefits. We believe that the Congress should await the results of the latter two studies (nos. 2 and 3 above) before considering what program mechanisms should be used in wetland preservation.

AGENCY COMMENTS AND OUR EVALUATION

USDA and USDI agreed with our recommendation for the formation of an interagency task force. EPA and WRC agreed that a coordinated research effort is desirable. COE did not direct itself to this recommendation, although its current efforts on the Wetlands Research Coordinating Committee seem to constitute support for the type of coordination which is recommended. (See appendices III to VII.)

There was considerable discussion about who should lead such a task force. In a draft of this report, we suggested that USDA take the lead. COE suggested that leadership should remain with itself and EPA as an expansion of their Wetlands Research Coordinating Committee. EPA suggested that USDI should take the lead. USDI

suggested the Wetlands Research Coordinating Committee, the Council on Environmental Quality, or itself. USDA and WRC recommended that WRC provide the leadership. We recommended WRC because the President has made WRC the focal point for water policy because it might have a broader view of the economic and social effects of wetland preservation (not just the hydrologic and environmental effects) and because WRC is charged with the responsibility of developing a unified national program for flood plain and wetland management. We believe that a balanced assessment of both environmental and developmental concerns is necessary.

USDI said it does not want to see the improved characterization of wetlands become the basis for allowing destruction of those below a certain productivity level. We agree, and feel that an improved characterization is needed primarily for the purpose of setting priorities with better information than is now available.

With respect to the recommendation for assessing the impact of public works projects and cost-sharing programs, COE suggested that such projects may create wetlands and that the proposed analysis should look at both possibilities. We would generally agree with this suggestion, but note that considerable care needs to be exercised in placing a value on created wetlands, since there appears to be considerable uncertainty among the scientific community as to the level of benefits that can be achieved when wetlands are created.

QUESTIONS SENT BY THE SENATE COMMITTEE
ON AGRICULTURE, NUTRITION, AND FORESTRY

NEED FOR WETLAND PRESERVATION

1. WBP is presently limited to breeding and nesting areas. Is such habitat the limiting factor to the population level of migratory waterfowl? Should the program be expanded to include migration and wintering grounds?
2. Is the relationship between wetland breeding habitat and waterfowl population sufficiently well-defined to specify an amount and location of habitat that should be preserved in order to provide a huntable supply?
3. In the absence of sport hunting for waterfowl, would it still be desirable to maintain the current waterfowl population?
4. To what extent does wetland drainage that has already taken place constitute an irreversible loss?
5. Most breeding and nesting grounds for migratory waterfowl are in Canada. What should be the relationship between the United States and Canada with respect to wetland preservation in Canada?
6. In achieving a given level of duck production, is it appropriate to optimize the amount of wetland habitat preservation with a mix of both U.S. and Canadian wetlands?

MEASUREMENT OF PROGRAM IMPACT

7. Should the primary measure of effectiveness for WBP be the number of waterfowl produced for hunting?
8. In addition to waterfowl production, some possible benefits from wetland preservation include: (1) conservation of surface waters, (2) reduction of runoff, (3) reduction of water erosion, (4) reduction of wind erosion, (5) improvement of water quality, (6) reduction of stream sedimentation, (7) improvement of subsurface moisture, (8) reduction of new land coming into production and retirement of lands now in agricultural production, and (9) enhancement of the natural beauty of the landscape. Which of these benefits are most significant in the case of wetland protected by WBP?

9. Is it likely that forestalling the drainage of wetlands will ever significantly impair the Nation's ability to satisfy its needs for food and fiber? In other words, is there sufficient agricultural land available to meet food and fiber needs without conversion of wetlands to cropland?

10. Is it proper to use current values and prices to estimate benefits (i.e., the value of a duck in the hunter's bag) for the long run given the likelihood that demand functions will shift upward in the future?

PROGRAM MANAGEMENT

11. Does the possibility for termination of a Water Bank agreement constitute a liability for the program, or should it be considered as a flexibility valuable in times of agricultural emergencies?

12. Should further restrictions be added to Water Bank agreements to reduce the number of terminations? If so, what restrictions do you suggest? To what extent would such restrictions reduce participation?

13. Are temporary releases of uplands for haying, grazing, or cropping so inconsistent with waterfowl production that they should not be permitted?

14. Is it necessary to continue the provision in the Water Bank Act which permits an owner or operator to participate in this program at the same time he participates in other Federal or State programs designed to conserve or protect wetlands?

ALTERNATIVE WETLAND PRESERVATION MECHANISMS

15. Other Federal programs enable wetland habitat acquisition through fee purchases or easements. What considerations should be made in selecting among leaseholds, purchases, and easements?

16. How should the benefits and costs of the 10-year lease agreements of WBP be compared to fee purchases or easement acquisitions made by FWS?

17. What criteria would be suitable for making budget allocations among the various forms of acquisition?

18. Should the Congress appropriate a single sum of money for use in making all types of wetland acquisitions, or should each form of acquisition be separately funded?

19. The attached report suggests that placing WBP in FWS would unify the decisionmaking for all Federal waterfowl habitat acquisition programs. What are the advantages and disadvantages of such a change?

20. WBP provides an incentive for wetland preservation. Is it feasible to achieve the same objective through the use of disincentives for drainage, such as making landholders ineligible for crop loan and price support programs if wetlands are drained?

21. Section 404 of the Federal Water Pollution Control Act Amendments of 1972 has been interpreted as giving the U.S. Army COE permit authority over the draining of wetlands. Can this authority be used to accomplish all or part of the objectives of wetland preservation that are now achieved through acquisition programs? What are the advantages and disadvantages of this approach?

22. FWS acquisition programs are supported in part by hunters, whereas WBP is supported by general tax revenues. To what extent should general taxes be used to produce a huntable supply of waterfowl, and to what extent should hunters themselves pay for Federal habitat acquisition programs?

RESPONDENTS TO THE QUESTIONS

GOVERNMENT AGENCIES:

Army COE
EPA
Council on Environmental Quality
USDA
USDI

NON-GOVERNMENT ORGANIZATIONS:

Ducks Unlimited
International Association of Fish and Wildlife Agencies
National Rifle Association
National Waterfowl Council
National Grange
Wildlife Management Institute
National Association of Conservation Districts

NONRESPONDENTS

GOVERNMENT AGENCIES:

OMB

NON-GOVERNMENT ORGANIZATIONS:

Environmental Defense Fund
Environmental Policy Center
Friends of the Earth
National Farmers Union
Natural Resources Defense Council, Inc.
American Farm Bureau Federation
National Wildlife Federation
Sierra Club
Wetlands for Wildlife, Inc.
The Wildlife Society
National Audubon Society
Resources for the Future, Inc.



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

SEP 22 1978

Mr. Henry Eschwege
Director, Community and Economic
Development Divisions
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

This letter constitutes the Department of Interior's comments on your draft report "Wetlands May Be Undervalued As Alternatives For Flood Control, Pollution Control, and Water Supply." Overall we found the report to be well written, and to recognize this Department's concerns and interests in the Water Bank Program. Our comments are referenced by page number for your convenience in review.

Page 1: The definition of wetlands, as used in the footnote (and hence in the report) is too narrow. For instance, this definition would rule out all of the wetlands created as a result of agricultural reclamation projects such as the Columbia Basin Irrigation Project (WA). Here literally thousands of acres of high value wetlands have been created as a result of sub-surface drainage from irrigated fields and distribution canals. This could certainly be considered excess agricultural water. In addition, this definition could be construed to rule out consideration of the prairie pothole wetlands. These wetlands are farmed when dry, and so would be considered "agricultural lands with excess water" during wet years. We believe your definition of wetlands will be satisfactory if the phrase "...but not (agricultural) lands with excess water from poor internal drainage, wetness, high water table and overflow" is deleted.

Page 2: The first paragraph under Description of the Water Bank Program explains the inclusion of wetlands in the Water Bank agreements. The paragraph should also mention that uplands are included in the agreements in a ratio of 2 acres of upland to 1 acre of types 3, 4 or 5 wetland. This point is alluded to later in the report, but should be made clear here. As mentioned later in the report, this is a significant difference between the FWS easement acquisition program and the WBP.

GAO NOTE: Page numbers, when mentioned in this appendix and following appendixes, refer to the draft report and not necessarily to this final report.

This would also help avoid possible confusion over the term "adjacent areas" at the end of that paragraph. These uplands do not necessarily have to be adjacent to the wetlands, but must be an integral part of the habitat in and around the wetlands included in the WBP agreement.

Page 8: The third sentence in the first paragraph should also mention that an easement also prohibits farming through a wetland (e.g. prairie pothole) when it is wet.

Page 11: We believe the regulatory programs which protect wetlands should also include Section 10 of the Rivers and Harbors Act of 1899. It protects all waters of the United States including navigable waters and tributaries thereto. Certainly some protection is afforded wetlands under this legislation.

Also in the first paragraph, at the end of line 7, we suggest you add a new sentence: "Through the Fish and Wildlife Coordination Act the Fish and Wildlife Service provides advice and comments on these permits."

Page 17: Last paragraph under Program Scope. Under the Fish and Wildlife Service's acquisition policies migration habitat is of lower priority. However, we should point out the fact that in some areas, e.g. the California Central Valley, wintering habitat and not breeding habitat is the critical concern. Breeding habitat in the Pacific Flyway is more abundant and more secure than wintering habitat. Therefore, broadening the WBP to include wintering habitat would help to alleviate a critical problem. The same would be true in the lower Mississippi River area, although breeding habitat in the Mississippi Flyway is not as secure or abundant.

Page 25: Recommendations to Congress. We suggest that when/if the Water Bank Act is amended, consideration be given to changing the classification system used in the Act from Circular 39 to the Cowardin, et al. system (Classification of Wetlands and Deep-Water Habitats of the United States) to coincide with the Service's plans to convert to that system over the next few years.

We would suggest that you include a recommendation that Congress increase Water Bank Program funding commensurate with the costs incurred by whatever recommendations (changes) are adopted. Including wetland types 6 and 7 could increase the annual expenditure markedly if enrollment is pursued in the manner necessary to preserve these wetlands.

At the end of the page we suggest adding: "(7) utilizing the National Wetland Inventory for planning purposes."

Page 38: First line, strike "dominant vegetation" and insert "life form." Line 5, add "Under the Clean Water Act of 1977 funding, some additional wetland value studies may be conducted." Line 7, strike "broadened to include" and replace with "enhanced for." Inventory products are already in use by the Corps of Engineers, and other agencies have indicated plans to use them even without the broadened scope.

Page 41: Sentence beginning line 9. This recommendation should be further clarified. We believe the Federal Government should reduce incentives to drain and increase incentives to preserve wetlands.

Page 42: Line 8. Change "conservation" to "conversion."

Page 43: Recommendations section. We endorse the GAO's assessment of the need for an interagency task force on wetland activities and the expansion of the National Wetland Inventory to meet various agency needs. The task force could perhaps build on the activities of the ad hoc task force on wetlands inventory and research which was formed this year by EPA and the Corps of Engineers, in conjunction with other agencies, including Interior. A second possibility would be to place the task force under the leadership of the Council on Environmental Quality. A third suggestion to take the lead agency role is the Department of the Interior. Interior agencies have broad experience in hydrologic studies (U.S. Geological Survey), ecological studies and preservation programs (Fish and Wildlife Service), management programs (Fish and Wildlife Service, National Park Service, Bureau of Land Management), and public works projects (Bureau of Reclamation).

As a specific comment on Recommendation 1, concerning an improved characterization of wetlands, we will make one point. The productivity and other biological values of wetlands have been documented in several studies. Admittedly many of these were oriented toward waterfowl benefits, one notable exception being Odum's paper on The Value of the Tidal Marsh. What we do not want to see this turn into is another research exercise which ranks wetland types by productivity and results in a rationale to allow destruction of those below a certain value level.

We agree with the basic premise of the report, that wetlands are undervalued for other-than-waterfowl benefits, and that further technical studies are needed. However, we also agree with the recommendation that a program based on, but separate from, Water Bank should be considered for protecting wetlands with high non-waterfowl values, unless additional funds are appropriated to the WBP.

We also strongly agree with the report's contention that the WBP should remain in the Department of Agriculture. USDA's support of this idea is also appreciated.

Thank you for the opportunity to review your draft. We hope our comments will be useful in putting the report into final form.

Sincerely yours,



Assistant Secretary for Fish
and Wildlife and Parks



UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE
P. O. BOX 2415 . . . WASHINGTON, D. C. 20013

Mr. Henry Eschwege
Director
Community and Economic Development
Division
United States General Accounting
Office
Washington, D. C. 20548

Dear Mr. Eschwege:

This is in response to your request for our comments on a draft report to the Congress entitled "Wetlands May Be Undervalued as Alternatives for Flood Control, Pollution Control, and Water Supply."

We are in general agreement with the report. As stated on page 27, "An owner might pay a disproportional share of the costs of preserving wetlands." The Water Bank Program (WBP) or an expanded one presents a viable alternative to the owner to the destruction of the wetland.

Overall, we find the draft to be positive in nature and supports changes in the program previously identified by the Agricultural Conservation and Stabilization Service (ASCS) and the Soil Conservation Service (SCS) as being desirable.

The recommendations to the Congress would solve two existing problems in the WBP. If both were enacted, important winter habitat or other valuable wetlands could be preserved and present rates of termination could be reduced. Enclosed is a current list of existing contracts and terminations since the inception of the program. While the average percentage of termination is low, it is significant in two States, Minnesota and North Dakota. A review of these terminations shows the major cause as increased land values and rental rates. The ability of the Secretary to increase rates (within available appropriations) would be a positive force in wetlands retention.

The current WBP has broad objectives. We believe that if the Secretary had authority to add additional wetland types to the present WBP authority no new program would be needed. ASCS and SCS currently have personnel covering all agricultural counties

in the country who could effectively administer the expanded program. If the Congress has concern over reduction in emphasis in the prairie pothole region, funds could be earmarked for that purpose only.

Under your recommendations to the Department on page iv, the first one causes concern. The emphasis on drainage only in the rules and regulations has caused the lack of full recognition of all causes of wetland loss. Other activities that destroy a viable wetland have not been adequately considered in the report. After several interagency meetings last winter, action has been taken by ASCS to give equal emphasis to burning, filling, grazing, and other factors that may destroy or degrade wetlands. Also, action is in process to eliminate vulnerability to drainage as a criteria for eligibility. The law states that the type of wetland determines eligibility. The recommendation will intensify the existing problem. We encourage that the report broaden the recommendations to encourage recognition of all destructive forces.

We concur that an interagency task force to study and research the whole question of wetland policy could in the long run be most beneficial to the country. We agree that USDA has the experience with both agricultural and environmental considerations to assume leadership of such a task force. However, because of the diversity of the various Government departments and agencies involved, we recommend that the leadership be vested with the Water Resources Council. The President has made it clear that they should be the focal point for water policy.

Thank you for the opportunity to comment on the draft report.

Sincerely,



Administrator

Enclosure

WATER BANK AGREEMENT TERMINATION

Since 1972

<u>States</u>	<u>No. of Agreements</u>	<u>No. Terminated</u>
Arkansas	71	3
Louisiana	46	3
Maine	93	4
Michigan	77	0
Minnesota	1175	89
Mississippi	84	2
Montana	96	0
Nebraska	48	2
North Dakota	1458	73
South Dakota	808	4
Wisconsin	367	6



DEPARTMENT OF THE ARMY
OFFICE OF THE UNDER SECRETARY
WASHINGTON, D.C. 20310

Mr. Henry Eschwege
Director, Community and Economic
Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

This is in reply to your letter to the Secretary of Defense regarding your draft report of 18 August 1978, on "Wetlands May be Undervalued as Alternatives for Flood Control, Pollution Control, and Water Supply" OSD Case #4987, GAO Code 92047.

We have reviewed the draft report and concur with various recommendations to strengthen and upgrade the Water Bank Program but do not agree that the leadership role of the recommended interagency task force be assumed by the Department of Agriculture.

We believe that the draft report does not fully reflect the extent and importance of the U.S. Army Corps of Engineers Section 404 program to wetland protection. This program is the primary federal mechanism established for protecting wetlands and should be used as a base for future programs, rather than building upon the Water Bank Program which is narrow in scope.

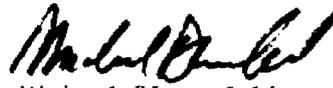
The Corps, through the Institute for Water Resources and the Waterways Experiment Station, has currently underway in-depth research into certain of the physical functions and values of wetlands. In addition, a wetlands manual containing concepts and methods for wetlands evaluation has been under preparation for about two years and is now nearing completion. Although the manual is primarily oriented to the Corps' regulatory program, its basic concepts should have utility in evaluating wetlands on biological grounds and also encompass all of the physical values and functions described in the draft report.

A Wetlands Research Coordinating Committee (WRCC) was established under the joint leadership of the Corps of Engineers and the Environmental Protection Agency (EPA) in 1977. Other members include the National Science Foundation, the Departments of Interior and Commerce and the Council on Environmental Quality (CEQ) in an advisory capacity.

This formal structured committee functions as a clearing house which identifies wetland information needs critical to agency missions, maintains an overview of on-going wetlands research and recommends critical research needs based on the analysis of national resources objectives. Since this interagency task force has already been established, held meetings, and is currently working toward its objectives, we believe it would be logical to expand its functions to encompass those recommended in the draft report. Because of the Corps role and the fact that Congress has recognized its wetlands leadership in the Clean Water Act of 1977, we believe that the leadership of this committee should remain with the Corps of Engineers and the Environmental Protection Agency, and that the U.S. Department of Agriculture be included as a member. Additional review comments on the draft report are inclosed.

We appreciate the opportunity to review and comment on the draft report.

Sincerely,



Michael Blumenfeld
Deputy Under Secretary

Inclosure
Additional
comments

COMMENTS

GAO DRAFT REPORT, "WETLANDS MAY BE UNDERVALUED AS ALTERNATIVES FOR FLOOD CONTROL, POLLUTION CONTROL AND WATER SUPPLY."

Page v. The Corps of Engineers and EPA regulatory programs and responsibilities are not designed "to prevent the future loss of wetlands." Therefore, the third sentence should be changed to read "Two regulatory programs (...) have the authority to conduct public interest reviews for certain activities affecting the waters of the United States, and their adjacent wetlands. While these programs provide a means to curtail unwise destruction of wetlands, they cannot guarantee wetland preservation."

Page vii(3): Water resources development projects often create "wetlands". Therefore, the proposed analysis should look at both wetlands created as well as wetlands lost.

Page 11: a. Change the sixth sentence to read: "The regulations issued...to navigable waters having an average annual flow of less than 5 cfs."

Page 17: There are differing opinions concerning the primary factors affecting waterfowl numbers. Therefore, it would be more accurate if the last line was changed from "the primary factor...." to "a primary factor."

Page 33, second paragraph: It is incorrect to state that pollution control service of wetlands would have to be replaced by constructed facilities if wetlands are drained. This important factor is only of value when a wetland functions in this capacity, i.e., where pollution does or would otherwise exist. Therefore, the first sentence should be changed to read "Wetlands often provide pollution control services. Where they do, and if they are drained, these natural services would have to be replaced by the construction of facilities, if the same level of pollution abatement is to be attained."

**UNITED STATES WATER RESOURCES COUNCIL**

SUITE 800 • 2120 L STREET, NW WASHINGTON, DC 20037

Mr. Henry Eschwege
Director
Community and Economic Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

This will comment on the proposed report to the Congress on the USDA's Water Bank Program that Mr. Birkle enclosed with his letter of August 18, 1978.

The Council fully concurs with the report's finding and recommendations regarding the desirability of evaluating all benefits associated with wetland preservation rather than evaluating the benefits for protection of waterfowl habitat alone. The Council also recognizes the limited amount of knowledge that exists on the effects of wetland drainage and the need for additional research and studies to provide answers.

The Council and eight of its constituent agencies -- Corps of Engineers, Environmental Protection Agency, Fish and Wildlife Service, Flood Insurance Administration, Geological Survey, National Marine Fisheries Service, Office of Coastal Zone Management and Soil Conservation Service -- is sponsoring a national symposium on wetland values this November. The purpose is to achieve a national consensus among scientists on the research needs and values of inland and coastal wetlands in the United States. We feel the resulting state-of-the-art assessment will address many of the wetland valuation questions posed in your study.

A noticeable omission in the report is the failure to relate the Coastal Zone Management Act of 1972 (P.L. 52-583) and E.O. 11988-Floodplain Management to wetland programs. Most of the land classified as wetlands in the United States is also floodplain land and many of the wetlands are in the coastal zone regions. In addition to E.O. 11990-Protection of Wetlands, the Coastal Zone Management Act and E.O. 11988 will appreciably affect Federal, State and local actions in the wetlands. The Council is now considering an investigation of the need for and possible opportunities in integrating wetland management and floodplain management into a unified national program.

MEMBERS: SECRETARIES OF AGRICULTURE, ARMY, COMMERCE, ENERGY, HOUSING AND URBAN DEVELOPMENT, INTERIOR, TRANSPORTATION; ADMINISTRATOR, ENVIRONMENTAL PROTECTION AGENCY - OBSERVERS: ATTORNEY GENERAL; DIRECTOR, OFFICE OF MANAGEMENT AND BUDGET; CHAIRMEN, COUNCIL ON ENVIRONMENTAL QUALITY, TENNESSEE VALLEY AUTHORITY BASIN INTERAGENCY COMMITTEES; CHAIRMEN AND VICE CHAIRMEN, RIVER BASIN COMMISSIONS

To elaborate further on the lack of knowledge on the effects of wetland drainage, more must be learned on seasonal variations and timing or phrasing of water flows among other factors. In this regard, the discussion on Flood Control starting on page 29 should also note that drainage might provide flood control benefits, particularly in small drainage areas. Phasing and timing of releases from segments of a stream network is important; drainage can reduce flood peaks because runoff is accelerated and the contribution from an area may pass through prior to inflows from other areas.

In the section on Groundwater Recharge (p. 31) the relationship of surface and groundwater needs to be expressed. Efforts to increase ground water recharge should consider instream flow requirements downstream as part of a surface/groundwater management strategy.

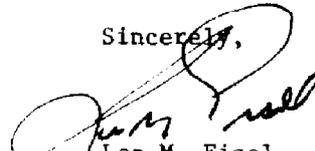
Regarding the section on Pollution and Sediment Control (p. 32), the role of wetlands as a cleanser of water is compatible with the emphasis of the Administration on reduced capital expenditures and nonstructural solutions to water resource problems.

Also, I would like to further emphasize the need for research, studies and demonstrations which the proposed report stresses. The hydrologic, economic, social and environmental effects of wetland preservation or drainage needs additional documentation so that decision makers have a sound basis for courses of action.

Since a large majority of the Nation's wetlands are located on riverine and coastal floodplains, the Council has a major commitment to effective and integrated wetland/floodplain management. The Council utilizes interagency task forces to carry out two major responsibilities in the area of floodplain management: (1) to provide consultation services to agencies preparing regulations for implementing E.O. 11988, Floodplain Management and to evaluate an report on implementation of the Order; and (2) to develop and implement a Unified National Program for Floodplain Management. A central concern to this management effort is appraisal of natural floodplain and wetland values. Thus, GAO's recommendation to establish an interagency task force (page vi) on Wetland Management might be directed to the WRC whose membership includes all of the agencies with a major wetland responsibility and is currently addressing the integrated management of floodplains and wetlands.

Thank you for the opportunity to review and comment.

Sincerely,



Leo M. Eisel
Director



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PLANNING AND MANAGEMENT

Honorable Henry Eschwege
Director
Community Development and
Economic Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

Thank you for providing this Agency the opportunity to review a draft report entitled, "Wetlands May Be Undervalued As Alternatives For Flood Control, Pollution Control, And Water Supply," prepared by the staff of the U.S. General Accounting Office (GAO). We have a number of comments that are itemized as follows:

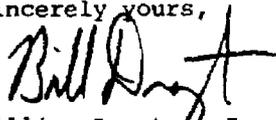
1. Footnote 1 (page 1) should define "wetlands" in a manner consistent with Executive Order 11990 and with Corps of Engineers (COE) and Environmental Protection Agency (EPA) regulations.
2. The report's discussion of the section 208 and 404 programs, of the Clean Water Act of 1977, indicates that the value of these programs to protect wetlands is "unclear" and "uncertain" when compared to the acquisition programs of the United States Department of Agriculture (USDA) and the Department of Interior (DOI). The report virtually ignores the control of wetlands activities that is provided in the Clean Water Act. The section 404 program is a powerful wetlands protection program. Under it, the COE or the States issues permits for the discharge of dredged or fill material, following a consideration of EPA environmental guidelines and under the the potential condition of an EPA prohibition of a disposal site. Wetlands protection under this program is a historical fact. It is not an "uncertain" program as stated on page V and page 12 of the GAO draft report. The discharge of dredged or fill material program makes use of section 208 best management practices for the discharge of dredged or fill material.

EPA published environmental guidelines for wetlands in interim final form in 1975 and is currently revising them for proposal in concert with the 1977 Clean Water Act Amendments. The guidelines contain strong presumptive requirements to protect wetlands and to prevent the discharge of dredged or fill material into them wherever practicable.

3. On page 35, the report should include some discussion of the value of wetlands as nursery areas for fish and aquatic life, as breeding areas, as areas of natural beauty and as scientific study areas.
4. Generally, the report analyzes a fairly narrow program, the Water Bank Program. The scope of the review does not justify, however, the general recommendations in the report. The report does not address adequately the significant roles of EPA and the Fish and Wildlife Service (FWS) in the protection of wetlands, through implementation of their respective policy statements, through critical review of permit proposals to discharge dredged or fill material, through water quality standards and through the section 208 program.
5. Although the recommendation for an interagency task force to develop a coordinated approach to wetlands protection and to initiate an integrated research program has merit, there may be duplication with COE and EPA research efforts now underway. EPA and the COE jointly instituted a Wetlands Research Coordination Committee, February 8, 1978, to assemble and coordinate research material among the respective agencies. The Committee composed of all involved Federal agencies agreed to assemble the individual agencies' research summaries into a comprehensive document. This has now been accomplished and is being assembled for distribution to all participating agencies.
6. If the final report recommends an interagency task force to develop a coordinated approach to wetlands protection, the Department of Interior should chair the group because of its expertise in this area and the experience it has gained in conducting the National Wetlands Inventory. In terms of improved characterization of wetlands, the Department of Agriculture could make a substantial contribution in helping to assess the probability of wetlands drainage.

I appreciate this opportunity to offer comments on the GAO draft report.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Bill Drayton". The signature is written in a cursive, somewhat stylized font.

William Drayton, Jr.
Assistant Administrator for
Planning and Management

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