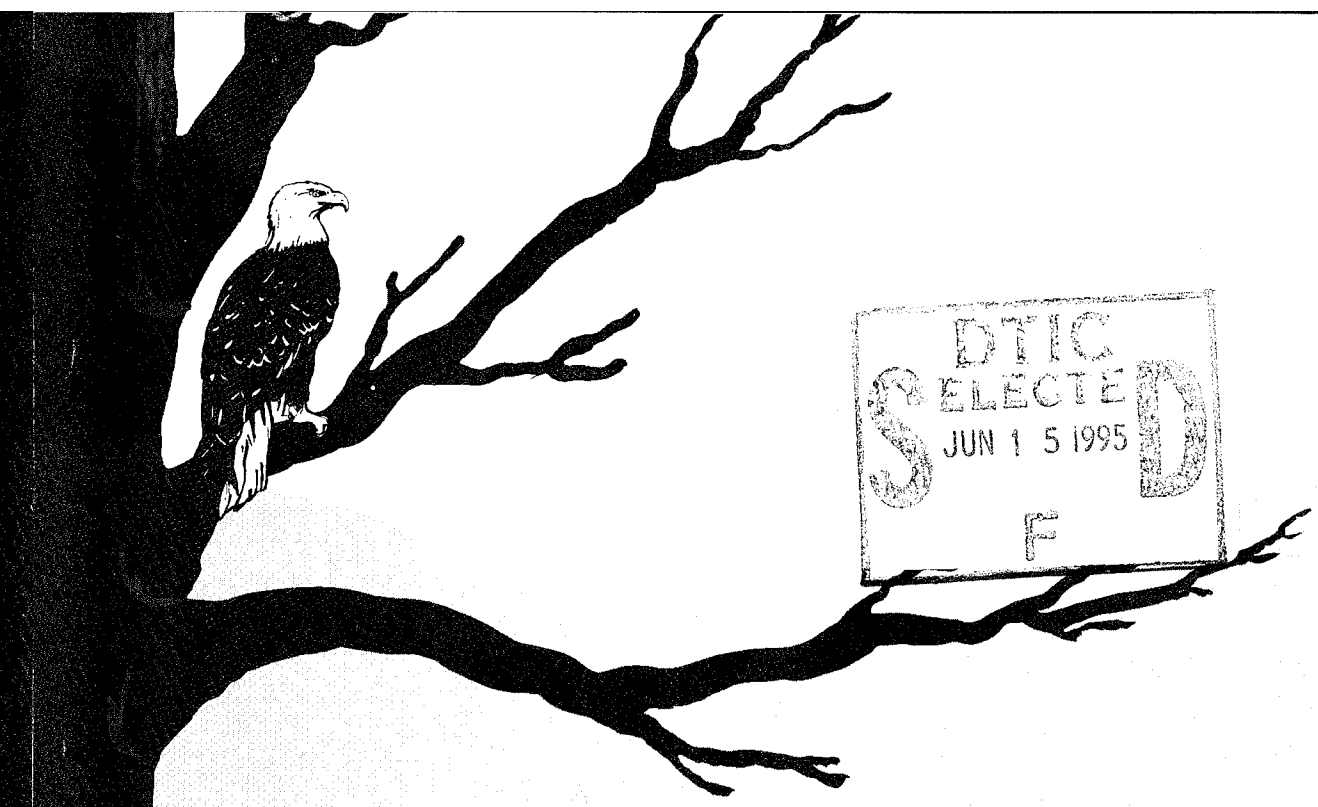


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Review and Evaluation of Programs for Determining Significance and Prioritization of Environmental Resources

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US Army Corps
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REVIEW AND EVALUATION OF PROGRAMS FOR DETERMINING SIGNIFICANCE AND PRIORITIZATION OF ENVIRONMENTAL RESOURCES

by

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With the collaboration of

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PREFACE

This report was prepared as part of the U. S. Army Corps of Engineers (COE) Planning Methodologies Research Program, Evaluation and Formulation of Environmental Projects Work Unit. Mr. William Hansen and Mr. Darrell Nolton of the COE Water Resources Support Center (WRSC), Institute for Water Resources (IWR), managed this Work Unit under the general supervision of Mr. Michael R. Krouse, Chief, Technical Analysis and Research Division; Mr. Kyle Schilling, Director, IWR; and Mr. Kenneth Murdock, Director, WRSC. Mr. Robert Daniel, Chief of the Economic and Social Analysis Branch (CECW-PD) and Mr. Brad Fowler, Economist (CECW-PD) served as Technical Monitors for Headquarters, COE.

The work was performed by Apogee Research, Inc., under Task Order 0022, Contract No. DACW72-90-D-0001. Ms. Amy Doll was the principal investigator under the general direction of Kenneth I. Rubin, Ph.D. Ms. Jennifer Bing and Ms. Nancy Horton contributed to the research and analysis for this report.

Much of the information contained in this report was gathered from telephone conversations and written materials provided by program officials across the country. Apogee Research gratefully acknowledges the contributions of those program officials who provided information on individual programs.

Environmental Resource Significance is an important concept in the future mission of the Corps of Engineers. "The Environment" is now a budget priority within the COE's water resources development program. Consequently, the importance that we attribute to environmental resources must have some basis for evaluation. Planners and decision makers alike must be able to place in context, the significance of a resource, as they begin the planning process and consider the distribution of funding resources to address deficiencies. Within the Federal sector and particularly within the COE, determining relative significance is elevated to a higher order. This is acknowledged within the COE's new "Evaluation of Environmental Investments Research Program," (EEIRP) which includes a Work Unit titled "Determining and Describing Environmental Significance."

This report, essentially is an annotated bibliography of some of the more recognized programs which attempt to establish resource priorities and allocate resources based on those priorities. It summarizes 95 programs, which include 42 Federal, 2 regional, 42 state, and 6 nonprofit organization programs as well as three examples of historical programs.

The "Significance" work unit within EEIRP will ultimately develop more specific guidance for field planners and decision makers. However, since definitive guidance is lacking, the following pages will provide planners and decision makers with useful information for addressing environmental resource priorities now.

EXECUTIVE SUMMARY

In 1983, the U.S. Water Resources Council published the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*. The methodology in *Principles and Guidelines* is the analytical procedure currently used by the Corps of Engineers in evaluating alternative water resources projects. *Principles and Guidelines* calls for various alternative plans to be formulated in a systematic manner to ensure that all reasonable alternatives are evaluated. Four accounts are established to facilitate evaluation and to display the effects of alternative plans: the National Economic Development (NED) account, the Environmental Quality (EQ) account, the Regional Economic Development (RED) account, and the Other Social Effects (OSE) account.

In order for effects on ecological, cultural, and aesthetic attributes of environmental and social resources to be included in plan formulation and evaluation, *Principles and Guidelines* requires that those resources be "significant." Significant EQ resources and attributes are identified based on institutional, public, or technical sources of recognition. The three bases for determining significance under *Principles and Guidelines* are summarized below.

1) **Institutional.** Significance based on institutional recognition means that the importance of an EQ resource or attribute is acknowledged in the laws, adopted plans, and other policy statements of public agencies or private groups. Institutional recognition is the most straightforward and easily defensible criteria for significance. Sources of institutional recognition include public laws, executive orders, rules and regulations, treaties, and other policy statements of the federal government.

2) **Public.** Significance based on public recognition means that some segment of the general public recognizes the importance of an EQ resource or attribute. Public recognition may take the form of controversy, support, conflict, or opposition and may be expressed formally (as in official letters) or informally.

3) **Technical.** Significance based on technical recognition means that the importance of an EQ resource or attribute is based on scientific or technical knowledge or judgement of critical resource characteristics.

The objective of this study was to review and evaluate programs that are currently establishing environmental resource priorities and the methods by which these priorities are being derived. This study was undertaken to begin examining ways to determine the significance of environmental resources or to establish resource priorities as federal agencies, including the Corps of Engineers, pursue increased numbers of programs and projects with objectives of environmental mitigation, protection, and restoration. Recently, within the water resources activities of the Corps of Engineers, environmental outputs have been afforded equal budget priority with the more traditional economic outputs of navigation and flood control. This new emphasis on environmental outputs is evidence of a "new" philosophy of sustainable development that suggests an increased balance between economic development and environmental protection and restoration. Achieving this balance with today's budget constraints suggests a need to make allocation decisions regarding which environmental resources deserve a level of priority in efforts of mitigation, protection, or restoration.

The purpose of this report is to review existing federal, regional, state, and nonprofit organization programs that are used to evaluate environmental projects and/or to determine the significance of, or prioritize, environmental resource areas or activities. The 95 programs that are reviewed represent selected examples, not an all inclusive listing, of such programs. These 95 programs include 42 federal, 2 regional, 42 state, and 6 nonprofit organization programs as well as three examples of historical programs.

Summary abstracts were prepared for each of the 95 programs. The summary abstracts present information on the program's goals and objectives; the types of activities associated with the program; the sources of priority recognition; and the process of determining the "significance" of environmental resources, or which environmental resources deserve a level of priority for mitigation, protection, or restoration efforts.

A comparative analysis of these programs was conducted to facilitate some generalizations about the determination of national and regional resource priorities, the bases for determination of significance, and the potential applicability of the process or products to the U.S. Army Corps of Engineers' environmental program. A series of seven exhibits provide summary information on selected characteristics of the 95 programs reviewed. The final exhibit was designed as a tool to indicate the potential applicability to the Corps of the process or product for each program. Each of the 95 programs were classified by six general categories of potential applicability. The six general categories of potential applicability are listed below along with the total number of programs in each category:

- Provides a model of a prioritization process to derive national resource priorities (17 programs),
- Provides a model of a prioritization process to derive regional resource priorities (69 programs),
- Identifies significant environmental resources and provides that information in a manner useful to water resource planners (63 programs),
- Uses an established set of scientific or technical criteria as a source of priority recognition (86 programs),
- Provides a model for incorporating public opinion/preference as a source of priority recognition (50 programs), and
- Provides a model of interagency cooperation to establish environmental resource priorities (27 programs).

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1. INTRODUCTION

The purpose of this report is to review existing federal, regional, state, and nonprofit organization programs that are used to evaluate environmental projects and/or to determine the significance of, or prioritize, environmental resource areas or activities. A comparative analysis of these programs was also conducted to facilitate some generalizations about the determination of national and regional resource priorities, the bases for determination of significance, and the potential applicability of the process or products to the U.S. Army Corps of Engineers' environmental program. It should be noted that this report presents selected examples, not an all inclusive listing, of programs that determine the significance of, or prioritize, environmental resource areas or activities.

Objective of the Study

The objective of this study was to review and evaluate programs that are currently establishing environmental resource priorities and the methods by which these priorities are being derived. Many federal agencies have developed and are continuing to develop programs to facilitate decisions about environmental resource priorities. The states as well as various regional and nonprofit organizations have also developed or are developing programs to determine environmental resource priorities.

This study was undertaken to begin examining ways to determine the significance of environmental resources or to establish resource priorities as federal agencies, including the Corps of Engineers, pursue increased numbers of programs and projects with objectives of environmental mitigation, protection, and restoration. Recently, within the water resources activities of the Corps of Engineers, environmental outputs have been afforded equal budget priority with the more traditional economic outputs of navigation and flood control. This new emphasis on environmental outputs is evidence of a "new" philosophy, that of sustainable development.

Sustainable development suggests an increased balance between economic development and environmental protection and restoration. Achieving this balance with today's budget constraints suggests a need to make allocation decisions regarding which environmental resources deserve a level of priority in efforts of mitigation, protection, or restoration. If water resource planning is to encompass policies of sustainable development, it will become increasingly important to be able to establish priorities among various environmental resources.

Overview of *Principles and Guidelines*

In 1983, the U.S. Water Resources Council (WRC) published the *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*, superseding the former *Principles and Standards*. The methodology in *Principles and Guidelines* is the analytical procedure currently used by the Corps of Engineers in evaluating alternative water resources projects. *Principles and Guidelines* has been perceived by many in the field of water resources to place disproportionate emphasis on national economic development relative to the protection or development of environmental and cultural resources. This argument stems from the *Principles and Guidelines*' stated federal objective of water and related land resources project planning "to contribute to national economic development consistent with protecting the

Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements." *Principles and Guidelines* calls for various alternative plans to be formulated in a systematic manner to ensure that all reasonable alternatives are evaluated. Four accounts are established to facilitate evaluation and to display the effects of alternative plans: the National Economic Development (NED) account, the Environmental Quality (EQ) account, the Regional Economic Development (RED) account, and the Other Social Effects (OSE) account. In *Principles and Guidelines*, the trade-off between NED and EQ under its predecessor, *Principles and Standards*, was replaced by maximization of net NED benefits "consistent with protecting the Nation's environment."

In order for effects on ecological, cultural, and aesthetic attributes of environmental and cultural resources to be included in plan formulation and evaluation, *Principles and Guidelines* requires that those resources be "significant." Significant EQ resources and attributes are defined as those that are institutionally, publicly, or technically recognized as important. Institutional recognition is the most straightforward and easily defensible criteria for significance. Sources of institutional significance include public laws, executive orders, rules and regulations, treaties, and other policy statements of the federal government. When *Principles and Guidelines* was published in 1983, there were 29 public laws to be considered as a basis for determining institutionally significant environmental and cultural resources; that number has more than doubled over the last decade reflecting increased awareness of and desire for the protection, mitigation, and restoration of the nation's environmental and cultural resources.

History of *Principles and Standards*

In 1968, under Section 103 of the Water Resources Planning Act, the WRC began to develop *Principles and Standards for Planning Water and Related Land Resources*, which became effective in October 1973. Known as *Principles and Standards*, the principles were intended to provide a broad policy framework for water resources planning activities and the standards to provide for uniformity and consistency in formulating alternative plans and in evaluating the beneficial and adverse effects of alternative plans. Initially, each of the federal departments and agencies (e.g., the Corps of Engineers, Bureau of Reclamation, and Soil Conservation Service) and federally assisted programs were given the responsibility to develop procedures within the framework of *Principles and Standards*.

President Carter's water policy initiatives of 1978 called for reforms in agency planning because of growing concern about inconsistent use of economic analyses among federal water resources agencies and a lack of attention to environmental values in the planning and evaluation of federal water resources programs and projects. A July 12, 1978 Presidential Memorandum directed the WRC to conduct a thorough evaluation of agency practices for preparing benefit-cost analyses and publish a planning manual that would ensure accurate and consistent analyses among federal agencies as well as compliance with *Principles and Standards*. The memorandum also required emphasis on water conservation and consideration of nonstructural alternatives, which reflected a general shift in accepted flood control practices from construction of water resources development projects to nonstructural management. Other changes in policy direction occurred with the Water Resources Development Act of 1974, which directed all federal agencies to consider nonstructural alternatives when considering any project involving flood protection, and President Carter's Executive Order 11988 issued in 1977, which provided for federal agency leadership in floodplain management.

In 1979, *Principles and Standards* was revised to integrate water conservation into project and program planning, to require preparation of at least one primarily nonstructural plan whenever structural project or program alternatives were considered, to revise the major decision criteria to place national economic development and environmental quality objectives on a comparable basis, and to incorporate revisions to ensure that benefits and costs were estimated with the best current techniques. In 1980, the WRC made additional revisions to *Principles and Standards* to define environmental quality objectives more specifically. The WRC's environmental quality evaluation procedures for water resources planning integrated into *Principles and Standards* the requirements of Section 102(2)(b) of the National Environmental Policy Act of 1969 (NEPA), which required that previously unquantified environmental amenities and values be given appropriate consideration in decisionmaking by federal agencies, as well as the Council of Environmental Quality NEPA regulations.

Principles and Standards was based on multiple-objective planning techniques developed by agency and academic water professionals during the 1960s-1970s. Multiple-objective analysis allowed for evaluation of trade-offs among four accounts: National Economic Development (NED), Environmental Quality (EQ), Regional Economic Development (RED), and Other Social Effects (OSE). These accounts would show the estimated beneficial and adverse effects on each objective of each project alternative and the "without project" alternative using monetary measures wherever possible. The decision criteria in *Principles and Standards* proposed an explicit trade-off between the NED and EQ accounts. In practice, trade-offs within the scope of economic objectives could be defined by monetary values through benefit-cost analysis, which was similar to the traditional analytical procedures used for economic justification of projects beginning with the 1936 Flood Control Act. However, it was difficult to evaluate trade-offs for environmental and social objectives in a manner similar to economic objectives because of inherent analytical problems in assigning accurate monetary values to environmental and cultural resources with no market value upon which to base decisions on benefits and costs.

As noted above, *Principles and Standards* was replaced by *Principles and Guidelines* in 1983. Although *Principles and Guidelines* restated the federal objective "to contribute to national economic development consistent with protecting the Nation's environment," it still requires trade-offs between economic, environmental, and social effects.

Organization of Report

The remainder of this report presents the results of a review of 95 programs that are used to evaluate environmental projects and/or to determine the significance of, or prioritize, environmental resource areas or activities. The review consists of 42 federal, 2 regional, 42 state, and 6 nonprofit organization programs. Three examples of historical programs were also included.

Chapter 2 defines the sources of priority recognition used in *Principles and Guidelines*, summarizes the overall approach for the study, and describes the organization of the summary abstract format. Chapter 2 also includes a comparative analysis of selected program characteristics, which presents some generalizations about the determination of national and regional resource priorities, the bases for determination of significance, and the potential applicability of the process or products to the U.S. Army Corps of Engineers' environmental program. The five remaining

chapters present the summary abstracts for federal, regional, state, nonprofit organization, and historical programs. These chapters are listed below:

- Chapter 3. Summary Abstracts for Federal Programs,
- Chapter 4. Summary Abstracts for Regional Programs,
- Chapter 5. Summary Abstracts for State Programs,
- Chapter 6. Summary Abstracts for Nonprofit Organization Programs, and
- Chapter 7. Summary Abstracts for Historical Programs.

2. DEFINITIONS, APPROACH, AND COMPARATIVE ANALYSIS

This chapter defines the sources of priority recognition used in *Principles and Guidelines*, summarizes the overall approach for the study, and describes the organization of the summary abstract format. The final section of this chapter presents a comparative analysis of selected program characteristics, which includes seven exhibits to provide summary information on the selected program characteristics and to allow comparisons to be made among the 95 programs reviewed in this report.

Definition of Sources of Priority Recognition

Under *Principles and Guidelines*, the Environmental Quality (EQ) Procedures establish a process for identification and description of the beneficial and adverse effects of alternative plans on significant natural and cultural resources. Because these procedures are the evaluation requirements for the EQ account, they are limited to evaluation of effects on the ecological, cultural, and aesthetic attributes of significant natural and cultural resources. In the EQ procedures, "EQ attributes" are defined as "the ecological, cultural, and aesthetic properties of natural and cultural resources that sustain and enrich human life." An "EQ resource" is "a natural or cultural form, process, system, or other phenomenon that: (1) is related to land, water, atmosphere, plants, animals, or historic or cultural objects, sites, buildings, structures, or districts; and (2) has one or more EQ attributes (ecological, cultural, aesthetic)." The term "significant" means "likely to have a material bearing on the decisionmaking process." In EQ evaluation, significant EQ resources and attributes are identified based on institutional, public, and technical recognition.

Identification of significant EQ resources and attributes is an important step in the EQ evaluation process. Once identified, significant EQ resources and attributes that are institutionally, publicly, or technically recognized as important, are analyzed in subsequent EQ evaluation phases and activities. Focusing on significant issues in the decisionmaking process is required by the Council of Environmental Quality NEPA regulations (40 CFR 1500.1(b), 1501.7(a) (2) and (3), and 1502.2(b)). Definitions of the three bases for determining significance under the EQ Procedures in *Principles and Guidelines* are summarized below.

1) **Institutional.** Significance based on institutional recognition means that the importance of an EQ resource or attribute is acknowledged in the laws, adopted plans, and other policy statements of public agencies or private groups. Sources of institutional recognition include:

   - Public laws, executive orders, rules and regulations, treaties, and other policy statements of the federal government;
   - Plans and constitutions, laws, directives, resolutions, gubernatorial directives, and other policy statements of states with jurisdiction in the planning area;
   - Laws, plans, codes, ordinances, and other policy statements of regional and local public entities with jurisdiction in the planning area; and
   - Charters, bylaws, and formal policy statements of private groups.

2) **Public.** Significance based on public recognition means that some segment of the general public recognizes the importance of an EQ resource or attribute. Public recognition may take the form of controversy, support, conflict, or opposition and may be expressed formally (as in official letters) or informally. EQ resources or attributes recognized by the public will often change over time as public awareness and perceptions change.

3) **Technical.** Significance based on technical recognition means that the importance of an EQ resource or attribute is based on scientific or technical knowledge or judgement of critical resource characteristics.

In practice, the significance of many EQ resources and attributes may be recognized on more than one basis. Many EQ resources will have more than one EQ attribute and these EQ attributes may be interrelated. A wetland, for example, may have both ecological and aesthetic attributes, and the ecological attribute may complement the aesthetic attribute. As another example, a specific bird species may be institutionally recognized (protected by federal and state law), publicly recognized (of interest to the community), and technically recognized (based on its uniqueness in the environment). The EQ Procedures emphasize that the planning process should identify and evaluate the full range of a given resource's significant attributes.

The most straightforward and easily defensible bases for determining significance are those public laws and other sources considered under institutional recognition. Examples of the 29 federal laws cited in the 1983 *Principles and Guidelines* that should be considered in all project planning studies as a basis to identify institutionally recognized EQ resources or attributes are:

- The Clean Water Act;
- The Endangered Species Act of 1973;
- The Fish and Wildlife Coordination Act of 1958, as amended;
- The Land and Water Conservation Fund Act;
- The Wild and Scenic Rivers Act of 1968, as amended; and
- The National Historic Preservation Act of 1966, as amended.

Summary of Overall Approach

A variety of sources were used to identify existing programs that conduct activities related to environmental mitigation, protection, or restoration. These sources included written materials, such as directories published by federal agencies and nonprofit organizations, and preliminary phone contact with some programs. For example, the National Wildlife Federation's *1993 Conservation Directory* was a useful source to identify existing federal, regional, state, and nonprofit organization programs. General source documents and contacts with water resource professionals were also useful for identifying programs.

A set of general guidelines were developed to identify and select existing programs that: 1) conduct activities related to planning or management for environmental mitigation, protection, or restoration; and 2) are used to determine the significance of, or prioritize, environmental resource areas or activities. Two different levels of prioritization -- national and regional -- were considered in identifying and selecting programs for the study. The general guidelines are outlined below.

- Focus on programs that conduct planning or management for restoration or protection of aquatic habitat, such as lakes, wetlands, rivers, or riparian areas, or of aquatic environmental resources, such as fish and wildlife.

- Identify, where possible, whether the program has a prioritization process of determining "significance," or deriving national or regional priorities for protection or restoration efforts. Also identify, where possible, whether the process resulted in specific products that could be used by the Corps.

- Provide more emphasis to planning processes than regulatory programs, programs that focus primarily on research or education, or programs that exist primarily for fundraising.

Programs selected using the guidelines above were contacted to determine whether they were appropriate for more detailed review and preparation of a summary abstract. In most cases, programs were selected for the summary abstracts if they actually implement a prioritization process (i.e., conduct a systematic evaluation and use the results of determining "significance" to set priorities for planning, management, or allocating funds). In other cases, the prioritization process was more informal, but considered effective in meeting a program's goals. A set of criteria were developed to determine whether a program was appropriate for more detailed review. The criteria used to select programs for the summary abstracts, in order of importance, are outlined below.

- The program has an established process (or uses established criteria) for determining the "significance" of environmental resource areas or activities. Further, the basis for determining "significance" is within the realm of *Principles and Guidelines* (e.g., law, scientific findings, or public opinion/preference).

- The program has an established process (or uses established criteria) for deriving national or regional priorities for environmental mitigation, protection, or restoration efforts.

- The program evaluates and selects among alternative environmental resource areas, projects, or activities on the basis of their potential benefit or consistency with a clearly defined program mission.

Summary abstracts were prepared for 95 programs that met the above criteria. The 95 programs selected represent examples, not an all inclusive listing, of programs that determine the significance of, or prioritize, environmental resource areas or activities. For the state programs, in particular, an effort was made to select good examples of programs that actually implement a prioritization process for different types of environmental resources (e.g., wetlands, rivers, lakes, estuaries or marine areas). Because it was not possible to identify every potential program

throughout the United States, it is likely that other programs exist that are not included among the summary abstracts.

When a relevant program was identified, information was collected on the program's goals and objectives; the types of activities associated with the program; the sources of priority recognition; and the process of determining the "significance" of environmental resources, or which environmental resources deserve a level of priority for mitigation, protection, or restoration efforts. This information was collected through telephone contacts as well as background materials provided by relevant programs. The summary abstracts are presented in Chapters 3-7.

Organization of Summary Abstract Format

This section describes the organization of the abstract format used for the federal, regional, state, nonprofit organization, and historical programs reviewed in Chapters 3-7, and outlines the type of information included in each section of the abstract format. The ten sections of the summary abstract format are described below.

- **Name of Program/Study.** Identifies a program by name or a study by its title.

- **Goals and Objectives.** Summarizes the stated goals and objectives of a program or study.

- **Geographic Scope.** Identifies the geographic areas covered by a program or study, or where a program is currently authorized to conduct activities that relate to environmental mitigation, protection, or restoration.

- **Overview of Program/Study.** Provides a narrative summary of program activities or the major themes of a study, focusing on how those activities or themes relate to environmental mitigation, protection, or restoration efforts.

- **Source of Priority Recognition.** Identifies the specific criteria used by a program or study for determining the "significance" of environmental resources, or which environmental resources deserve a level of priority for mitigation, protection, or restoration efforts, using categories within *Principles and Guidelines*' realm of "significance." Under *Principles and Guidelines*, the three sources of priority recognition are:

  -- **Institutional**: Resource attributes presently recognized in public laws, executive orders, rules and regulations, treaties and other policy statements of public agencies or private groups.

  -- **Public**: Resource attributes that the public has shown, by controversy or support, that it considers important.

  -- **Technical**: Scientific or technical knowledge or judgement of critical resource characteristics.

- **Prioritization or Project Selection Process.** Summarizes and explains the process of determining the significance of environmental resources and/or deriving regional or national resource priorities for environmental mitigation, protection, or restoration efforts. Where applicable, illustrates how an established set of criteria are utilized in the prioritization process to select among alternative environmental resource areas, projects, or activities. In other cases, illustrates how a program evaluates and selects among alternative environmental resource areas, projects, or activities on the basis of their potential benefit or consistency with a clearly defined program mission.

- **Findings/Conclusions of Program/Study.** Summarizes briefly the major findings or conclusions concerning significant environmental resources and/or regional or national resource priorities for environmental mitigation, protection, or restoration.

- **Lessons Learned and Potential Applications.** Summarizes briefly the potential applicability of the process or product to the Corps environmental program.

- **Bibliographic Information.** Provides a bibliographic citation for relevant products or a study.

- **Point of Contact.** Lists the name of the lead agency/organization, its address, and phone number.

Comparative Analysis of Selected Program Characteristics

A series of seven exhibits were developed to provide summary information on selected characteristics of the programs reviewed in this report and to allow comparisons to be made among the programs. The comparative analysis presented in this section consists of two types of exhibits:

- Six summary tables for all programs (Exhibits 1-6), and

- A summary table of the potential applicability to the Corps of the process or product for each program (Exhibit 7).

The seven exhibits developed for the comparative analysis are:

- Exhibit 1. Number of Programs Reviewed under the Five Types of Programs,

- Exhibit 2. Summary of the Geographic Scope Covered by a Program or Product/Study,

- Exhibit 3. Summary of the Sources of Priority Recognition used by a Program or Product/Study,

- Exhibit 4. Summary of the Types of Environmental Resources Covered by a Program or Product/Study,

- Exhibit 5. Number of Programs Reviewed by the Three General Categories of Programs,

- Exhibit 6. Number of Programs Reviewed by the Three General Categories of Prioritization Processes, and

- Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program.

Exhibit 5 is based on three general categories of programs and Exhibit 6 on three general categories of prioritization processes. It should be noted that, in each case, the categories are not mutually exclusive. These two sets of general categories are described below.

The three general categories of programs used in Exhibit 5 are:

1) Programs that implement a systematic process to establish environmental resource priorities (i.e., programs that conduct a systematic review to identify areas or problems, determine significance, and actually use the results to set priorities),

2) Planning studies or conceptual strategies, and

3) Programs that use the prioritization process to allocate funds.

The three general categories of prioritization processes used in Exhibit 6 are:

1) The program has an established process (or uses established criteria) for determining the "significance" of environmental resource areas or activities, and the basis for determining "significance" is within the realm of *Principles and Guidelines* (e.g., law, scientific findings, or public opinion/preference);

2) The program has an established process (or uses established criteria) for deriving national or regional priorities for environmental mitigation, protection, or restoration efforts; and

3) The program evaluates and selects among alternative environmental resource areas, projects, or activities on the basis of their potential benefit or consistency with a clearly defined program mission.

Exhibit 1: Types of Programs

Exhibit 1 presents the number of programs reviewed by the five types of programs considered in the study. A total of 95 programs were reviewed, which includes 42 federal, 2 regional, 42 state, 6 nonprofit organization, and 3 historical programs. These programs were selected because they 1) conduct activities related to planning or management for environmental mitigation, protection, or restoration, and 2) are used to evaluate environmental projects and/or to determine the significance of, or prioritize, environmental resource areas or activities.

Fewer regional and nonprofit organization programs were selected for the study than expected because many regional and nonprofit organization programs function primarily in an advisory or advocacy role. As such, they do not implement their own prioritization processes, but target their

efforts associated with prioritization to influencing the determination of significance or decisions about national or regional resource priorities made by other agencies or organizations. The three historical programs were selected for the study to provide examples of methods to determine the significance of cultural resources.

Exhibit 1. Number of Programs Reviewed under the Five Types of Programs

Type of Program	Number of Programs
Federal	42
Regional	2
State	42
Nonprofit	6
Historical	3
TOTAL	95

The 42 federal programs represent four departments of the federal government -- the Departments of Agriculture, Commerce, Defense, and Interior -- and one independent federal agency, the U.S. Environmental Protection Agency (EPA), as well as other special federal initiatives or plans. The federal programs are listed below by department or agency.

Department of Agriculture

- Agricultural Conservation Program
- Rural Clean Water Program
- Water Bank Program
- Wetlands Reserve Program
- Every Species Counts Program for Threatened, Endangered, and Sensitive (TES) Species Conservation and Recovery
- Rise to the Future
- Resource Conservation and Development Program
- Watershed Protection and Flood Prevention Program (Small Watershed P.L. 566 Program)

Department of Commerce

- Coastal Zone Management Program: Special Area Management Plans
- Coastal Nonpoint Pollution Control Program (jointly with EPA)
- National Marine Sanctuary Program
- National Estuarine Research Reserve System

Department of Defense

- Section 1135 Program
- Upper Mississippi River System Environmental Management Program (jointly with the Department of Interior)
- Marine Fish Habitat Restoration and Creation Program (jointly with the Department of Commerce)

Department of Interior

- Areas of Critical Environmental Concern
- Riparian-Wetlands Initiative
- Waterfowl Habitat Management on Public Lands Strategic Plan
- Challenge Cost-Share Program
- Bay/Estuary Program
- National Coastal Wetlands Conservation Grant Program
- Private Lands Habitat Assistance and Restoration Program
- National Natural Landmarks Program
- Nationwide Rivers Inventory
- National Wild and Scenic Rivers System

Environmental Protection Agency

- Chesapeake Bay Program
- Clean Lakes Program
- Great Lakes Program
- Gulf of Mexico Program
- National Estuary Program
- Near Coastal Waters Program
- Wetlands Protection Program -- Advanced Identification
- Section 319 Nonpoint Source Program
- Watershed Protection Approach
- EPA Region IV Watershed Initiative
- EPA Science Advisory Board: *Reducing Risk: Setting Priorities and Strategies for Environmental Protection*

Other (includes special initiatives or plans)

- Coastal America: A Partnership For Action
- Land and Water Conservation Fund
- National Wetlands Priority Conservation Plan
- North American Waterfowl Management Plan
- North American Wetlands Conservation Act Grant Program
- Coastal Wetlands Planning, Protection, and Restoration Act, "Priority Project List Report"

Exhibit 2: Geographic Scope

The geographic scope covered by a program or product is summarized in Exhibit 2. For purposes of this study, the geographic scope is defined as the geographic area where a program is currently authorized to conduct activities that relate to environmental mitigation, protection, or restoration. Two of the federal programs (North American Waterfowl Management Plan and North American Wetlands Conservation Act Grant Program) involve international cooperation among the United States, Canada, and Mexico, to protect, restore, and enhance wetland habitat for migratory waterfowl. Another federal program (Great Lakes Program) conducts restoration and protection activities under an international agreement between the United States and Canada. One of the nonprofit organization programs (The Nature Conservancy) works globally to identify significant species and natural areas and set priorities for their protection.

Exhibit 2. Summary of the Geographic Scope Covered by a Program or Product/Study

Type of Program	Geographic Scope of Program				
	International	Nationwide	Regional/ Multi-state	Statewide	Regional/ within one state
Federal	3	22	16	0	1
Regional	0	0	2	0	0
State	0	0	0	34	8
Nonprofit	1	4	0	0	1
Historical	0	2	0	1	0
TOTAL	4	28	18	35	10

Twenty-two programs (52 percent) of the 42 federal programs are authorized nationwide, while another 16 programs (38 percent) are authorized over a regional area that includes more than one state. Most of the federal programs in the regional/multi-state category are authorized in the western states or in coastal areas. One federal program (the Coastal Wetlands Planning, Protection, and Restoration Act, "Priority Project List Report") addresses the significant loss of coastal wetlands in the state of Louisiana.

Of the 42 state programs, 34 programs (81 percent) are authorized statewide. Of the eight state programs selected for the study that cover a regional area within a state, five are authorized for coastal areas and three are authorized in Joint Venture areas under the North American Waterfowl Management Plan.

The two regional programs address regionally significant fish and wildlife issues in the Pacific Northwest, which includes the states of Idaho, Montana, Oregon, and Washington. The three historical programs include examples of two national programs and one state program.

Exhibit 3: Sources of Priority Recognition

Exhibit 3 presents a summary of the number of programs or products that use each of the three sources of priority recognition -- institutional, public, and technical -- in *Principles and Guidelines*. The sources of priority recognition for each program were identified by examining the criteria used by a program or product for determining the "significance" of environmental resources, or the process of determining which environmental resources deserve a level of priority for mitigation, protection, or restoration efforts.

Exhibit 3. Summary of the Sources of Priority Recognition used by a Program or Product/Study

Type of Program	Sources of Priority Recognition		
	Institutional	Public	Technical
Federal	42	22	36
Regional	2	2	2
State	41	23	42
Nonprofit	2	4	5
Historical	3	0	3
TOTAL	90	51	88

Ninety of the programs reviewed in the study (95 percent), have institutional sources of priority recognition. These institutional sources of recognition exist primarily in the form of federal or state public laws, or rules and regulations. All of the federal, regional, and historical programs, and all but one of the state programs, have institutional sources of recognition. The one exception among the state programs (the North Carolina Wetland Rating System) was developed as a technical tool to improve the consistency of wetland evaluations in the state. Based on available information, two of the nonprofit organization programs (the American Rivers Outstanding Rivers List and Waterfowl U.S.A. Projects) were considered to have institutional sources of priority recognition. The American Rivers Outstanding Rivers List incorporates lists of significant rivers developed pursuant to federal and state laws or plans. Waterfowl U.S.A. conducts wetland restoration and protection projects under cooperative agreements with U.S. Fish and Wildlife Service Regions that are premised on various authorities provided by federal laws.

Examples of federal laws that acknowledge the significance of specific resources or establish specific environmental resource priorities are:

- The Coastal Wetlands Planning, Protection, and Restoration Act of 1990, which authorized a federal-state task force to develop annual coastal wetland restoration plans for Louisiana and a "Priority Project List" to be submitted to Congress annually;

- The Water Quality Act of 1987, which authorized the National Estuary Program by adding Section 320 to the Clean Water Act;

- The Emergency Wetlands Resources Act of 1986, which authorized the National Wetlands Priority Conservation Plan;

- The North American Wetlands Conservation Act of 1989, which provided Congressional recognition of the North American Waterfowl Management Plan;

- The Water Resources Development Act of 1986, which authorized the Upper Mississippi River System Environmental Management Program; and

- The Great Lakes Critical Programs Act of 1990, which incorporated into federal law the commitments made by the United States in the Great Lakes Water Quality Agreement between the United States and Canada.

Of the programs reviewed in the study, 51 programs (54 percent) use public sources of priority recognition. In some cases, evidence of local public support is considered an essential factor in setting priorities that are used to allocate funds to specific environmental resource areas, projects, or activities. EPA's Clean Lakes Program, for example, considers local public support a key factor in selecting lakes for restoration and protection efforts. An organized, three-tier process of incorporating public opinion or preference is an integral component of setting priorities under the Iowa Resource Enhancement and Protection Program. Some programs include a measure of local public support as one of the criteria in point ranking systems used to determine significance or establish environmental resource priorities. Examples of such programs are the California State Coastal Conservancy Resource Enhancement Program and the Michigan Natural Rivers Program. Other programs incorporate a process whereby the public can nominate areas for consideration in the prioritization process, such as the Massachusetts Scenic and Recreational Rivers Program and the Puget Sound Wetlands Preservation Program in the State of Washington.

Eighty-eight of the programs (93 percent) use technical sources of priority recognition. Some of these programs use scientific or technical criteria in a quantitative rating system. Others rely solely, or in part, on best professional judgement of critical resource characteristics.

Exhibit 4: Types of Environmental Resources

Exhibit 4 presents a summary of the types of environmental resources covered by a program or product. Overall, the programs selected for the study cover a wide range of ecological resources, including wetlands (50 percent), rivers (39 percent), riparian areas (32 percent), lakes (26 percent), estuaries or marine areas (32 percent), watersheds (32 percent), fish and wildlife habitat (70 percent), and threatened or endangered species (41 percent). Among the types of programs, only the regional programs selected for the study are targeted to certain types of ecological resources, specifically, fish and wildlife habitat issues and the rivers of the Pacific Northwest. In addition, 22 programs (23 percent) also cover cultural resources, including historical and archeological resources. A variety of other resource values such as aesthetics or scenic values and recreation, are covered by 47 programs (49 percent).

Exhibit 4. Summary of the Types of Environmental Resources Covered by a Program or Product/Study

Type of Program	Types of Ecological Resources								Additional Resources	
	Wetlands	Rivers	Riparian areas	Lakes	Estuaries or marine areas	Watersheds	Fish and wildlife habitat	Threatened or endangered species	Cultural Resources*	Other**
Federal	21	12	12	7	18	13	26	12	8	18
Regional	0	2	0	0	0	0	2	0	1	1
State	24	20	17	17	11	17	34	24	9	27
Nonprofit	3	3	1	1	1	0	5	3	1	1
Historical	0	0	0	0	0	0	0	0	3	0
TOTAL NUMBER:	48	37	30	25	30	30	67	39	22	47
PERCENT:	50%	39%	32%	26%	32%	32%	70%	41%	23%	49%

* Includes historical, archeological, and cultural resources.

** Other includes aesthetics or scenic values, open space, recreation, geological features, and land resources.

Exhibit 5: General Categories of Programs

Exhibit 5 presents a summary of the number of programs reviewed by the three general categories of programs. The three general categories of programs used in Exhibit 5 are not mutually exclusive. These three general categories of programs are:

1) Programs that implement a systematic process to establish environmental resource priorities (i.e., programs that conduct a systematic review to identify areas or problems, determine significance, and actually use the results to set priorities),

2) Planning studies or conceptual strategies, and

3) Programs that use the prioritization process to allocate funds.

Exhibit 5. Number of Programs Reviewed by the Three General Categories of Programs

Type of Program	Three General Categories of Programs		
	Category 1: Implements a Systematic Process to Establish Environmental Resource Priorities	Category 2: Planning Study or Conceptual Strategy	Category 3: Uses the Prioritization Process to Allocate Funds
Federal	32	4	25
Regional	2	1	0
State	42	5	21
Nonprofit	4	1	3
Historical	3	0	0
TOTAL*	83	11	49

* Because the three general categories are not mutually exclusive, the sum of this row may be higher than the total number of programs.

Eighty-three of the programs (87 percent) were considered to implement a systematic process to establish environmental resource priorities, which includes all of the regional, state, and historical programs. Good examples of programs that use a systematic process are listed below by type of program.

- **Federal programs** -- Upper Mississippi River System Environmental Management Program, National Coastal Wetlands Conservation Grant Program, Nationwide Rivers Inventory, and Land and Water Conservation Fund.

- **Regional programs** -- Protected Areas Program (Pacific Northwest Rivers Study/Hydropower Assessment Study).

- **State programs** -- Illinois Natural Areas Acquisition Program, Maine Wildlands Lake Assessment, Michigan Natural Rivers Program, Montana River Restoration Program, and Nebraska Wetlands Priority Plan.

- **Nonprofit organization programs** -- The Nature Conservancy.

Eleven programs provide examples of planning studies or conceptual strategies. These programs are listed below by type of program.

- **Federal programs** -- North American Waterfowl Management Plan, National Wetlands Priority Conservation Plan, EPA's Watershed Protection Approach, and the EPA Science Advisory Board's report, *Reducing Risk: Setting Priorities and Strategies for Environmental Protection.*

- **Regional programs** -- Pacific Northwest Rivers Study/Hydropower Assessment Study, conducted under the Protected Areas Program.

- **State programs** -- Idaho Wetlands Priority Plan, Louisiana Coastal-Wetlands Conservation and Restoration Plan, Nebraska Wetlands Priority Plan, Rhode Island State Clean Water Strategy, and Wisconsin Water Quality Management Plans.

- **Nonprofit organization programs** -- American Rivers Outstanding Rivers List.

Over half of the programs use their prioritization process to allocate funds. Those 49 programs are conducted by federal and state agencies and nonprofit organizations. Many of the programs that use their prioritization process to allocate funds include a cost-share component whereby a local sponsor (e.g., government entity or nonprofit organization) or the landowner contributes funds or in-kind services to implement approved projects or activities.

Exhibit 6: General Categories of Prioritization Processes

Exhibit 6 presents a summary of the number of programs reviewed by the three general categories of prioritization processes. The three general categories of prioritization processes used in Exhibit 6 are not mutually exclusive. These three general categories of prioritization processes are:

1) The program has an established process (or uses established criteria) for determining the "significance" of environmental resource areas or activities, and the basis for determining "significance" is within the realm of *Principles and Guidelines* (e.g., law, scientific findings, or public opinion/preference);

2) The program has an established process (or uses established criteria) for deriving national or regional priorities for environmental mitigation, protection, or restoration efforts; and

3) The program evaluates and selects among alternative environmental resource areas, projects, or activities on the basis of their potential benefit or consistency with a clearly defined program mission.

Exhibit 6. Number of Programs Reviewed by the Three General Categories of Prioritization Processes

Type of Program	Three General Categories of Prioritization Processes		
	Category 1: Has an established process for determining the "significance" of environmental resources	Category 2: Has an established process for deriving national or regional resource priorities	Category 3: Selects among alternative environmental resource areas based on their potential benefit or consistency with program mission
Federal	27	25	37
Regional	2	2	2
State	42	42	42
Nonprofit	4	4	5
Historical	3	3	3
TOTAL*	78	76	89

* Because the three general categories are not mutually exclusive, the sum of this row may be higher than the total number of programs.

The first category of prioritization process, which encompasses those programs that use an established process or established criteria to determine the "significance" of environmental resources, includes 78 programs (82 percent). These 78 programs include all of the regional, state, and historical programs, and around two-thirds of the federal and nonprofit organization programs. Examples of federal programs in this category are the National Marine Sanctuaries Program, the Land and Water Conservation Fund, and the "Priority Project List" of coastal wetland restoration projects in Louisiana prepared under the Coastal Wetlands Planning, Protection, and Restoration Act.

At least 76 programs (80 percent) were considered to have an established process or use established criteria for deriving national or regional resource priorities for environmental mitigation, protection, or restoration efforts. All of the regional, state, and historical programs and over half of the federal programs have an established process for deriving national or regional resource priorities. Exemplary federal programs under this second category are the North American Waterfowl Management Plan, the National Wetlands Priority Conservation Plan, the Chesapeake Bay Program, and the Great Lakes Program. The four nonprofit organization programs within this category that have a process to derive national resource priorities are the American Rivers

Outstanding Rivers List and The Nature Conservancy, while the nonprofit organization programs deriving regional resource priorities are Long Live the Kings, Waterfowl U.S.A. Projects, and again, The Nature Conservancy.

For 89 programs (94 percent), the prioritization process could be considered to evaluate and select among alternative environmental resource areas, projects, or activities on the basis of their potential benefit or consistency with a clearly defined program mission. The federal programs in this third category of prioritization processes include some of the federal programs with a cost-share component that were not included in the first category of prioritization processes.

Exhibit 7: General Categories of Potential Applicability to the Corps Environmental Program

Exhibit 7 was designed as a tool to indicate the potential applicability to the Corps of the process or product for each program. Six general categories of potential applicability were developed for Exhibit 7. Each of the 95 programs were classified by the six categories. Exhibit 7 presents the categories applicable to individual programs and subtotals by category for each of the five types of programs (i.e., federal, regional, state, nonprofit organization, and historical). The six general categories of potential applicability used in Exhibit 7 are listed below along with the total number of programs in each category:

- Provides a model of a prioritization process to derive national resource priorities (17 programs),
- Provides a model of a prioritization process to derive regional resource priorities (69 programs),
- Identifies significant environmental resources and provides that information in a manner useful to water resource planners (63 programs),
- Uses an established set of scientific or technical criteria as a source of priority recognition (86 programs),
- Provides a model for incorporating public opinion/preference as a source of priority recognition (50 programs), and
- Provides a model of interagency cooperation to establish environmental resource priorities (27 programs).

Exhibit 7 also indicates whether a program conducts, or is authorized to conduct, environmental restoration or management activities. Based on available information about program activities, or a program's goals and objectives, each program was classified under one or both of the following categories of environmental activities:

- Restoration (70 programs), and
- Management (87 programs).

Some programs were included in the study as examples of programs that evaluate environmental restoration projects. Examples of these programs are listed below by type of program.

- **Federal programs** -- Section 1135 Program and Private Lands Habitat Assistance and Restoration Program.

- **State programs** -- California State Coastal Conservancy Resource Enhancement Program and Montana River Restoration Program.

- **Nonprofit organization programs** -- Ducks Unlimited Matching Aid to Restore States Habitat and Trout Unlimited Embrace-A-Stream Program.

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restora-tion	Manage-ment
FEDERAL PROGRAMS								
Agricultural Conservation Program					✓		✓	✓
Rural Clean Water Program				✓			✓	✓
Water Bank Program				✓			✓	✓
Wetlands Reserve Program				✓			✓	✓
Every Species Counts Program		✓	✓	✓			✓	✓
Rise to Future				✓	✓		✓	✓
Resource Conservation & Development Program					✓		✓	✓
Watershed Protection and Flood Prevention Program		✓			✓	✓	✓	✓

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
Coastal Zone Management Program: Special Area Management Plans		✓	✓	✓		✓		✓
Coastal Nonpoint Pollution Control Program		✓	✓	✓	✓	✓	✓	✓
National Marine Sanctuary Program			✓	✓	✓		✓	✓
National Estuarine Research Reserve System			✓	✓	✓			✓
Section 1135 Program				✓			✓	
Upper Mississippi River System Environmental Management Program		✓		✓		✓	✓	✓
Marine Fish Habitat Restoration and Creation Program				✓			✓	✓

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
Areas of Critical Environmental Concern			✓	✓	✓			✓
Riparian-Wetlands Initiative	✓	✓	✓				✓	✓
Waterfowl Habitat Management on Public Lands Strategic Plan	✓	✓	✓	✓	✓		✓	✓
Challenge Cost-Share Program	✓					✓	✓	✓
Bay/Estuary Program			✓	✓			✓	✓
National Coastal Wetlands Conservation Grant Program				✓			✓	✓
Private Lands Habitat Assistance and Restoration Program		✓		✓			✓	
National Natural Landmarks Program	✓		✓				✓	✓

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
Nationwide Rivers Inventory	✓		✓	✓				✓
National Wild and Scenic Rivers System	✓		✓	✓	✓			✓
Chesapeake Bay Program		✓	✓	✓	✓	✓	✓	✓
Clean Lakes Program				✓	✓		✓	✓
Great Lakes Program		✓	✓	✓	✓	✓	✓	✓
Gulf of Mexico Program		✓		✓	✓		✓	✓
National Estuary Program	✓	✓	✓	✓	✓		✓	✓
Near Coastal Waters Program	✓	✓	✓	✓			✓	✓
Wetlands Protection Program -- Advanced Identification		✓	✓	✓	✓			✓

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restora-tion	Manage-ment
Section 319 Nonpoint Source Program	✓	✓	✓	✓		✓	✓	✓
Watershed Protection Approach		✓		✓	✓	✓	✓	✓
EPA Region IV Watershed Initiative		✓	✓	✓	✓	✓	✓	✓
EPA Science Advisory Board: *Reducing Risk*	✓			✓				
Coastal America		✓			✓	✓	✓	✓
Land and Water Conservation Fund				✓	✓	✓	✓	✓
National Wetlands Priority Conservation Plan	✓		✓	✓			✓	✓
North American Waterfowl Management Plan	✓	✓	✓	✓			✓	✓

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
North American Wetlands Conservation Act Grant Program	✓	✓		✓			✓	✓
Coastal Wetlands Planning, Protection, and Restoration Act, "Priority Project List Report"		✓	✓	✓	✓	✓	✓	✓
Federal Subtotal	13	21	22	35	21	13	35	39

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
REGIONAL PROGRAMS								
Integrated System Plan, Columbia Basin Fish and Wildlife Authority		✓	✓	✓	✓	✓	✓	✓
Protected Areas Program (Pacific Northwest Rivers Study/Hydropower Assessment Study)		✓	✓	✓	✓	✓	✓	✓
Regional Subtotal	0	2	2	2	2	2	2	2

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
STATE PROGRAMS								
Arizona Identification, Inventory, Acquisition, Protection and Management of Sensitive Habitat Program		✓	✓	✓	✓			✓
Arizona Land and Water Conservation Fund		✓		✓	✓			✓
Arkansas Natural Areas Inventory, Acquisition and Stewardship Program		✓	✓	✓			✓	✓
California Inland Wetlands Conservation Program		✓	✓	✓		✓	✓	✓
California Riparian Habitat Conservation Program		✓	✓	✓		✓	✓	✓

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restora-tion	Manage-ment
California State Coastal Conservancy Resource Enhancement Program		✓		✓	✓		✓	✓
Colorado Lake Water Quality Assessment Program		✓	✓	✓			✓	✓
Florida Save Our Rivers Program		✓	✓	✓			✓	✓
Florida Surface Water Improvement and Management Program		✓	✓	✓			✓	✓
Idaho Wetlands Priority Plan		✓	✓	✓		✓		✓
Illinois Clean Lakes Program		✓	✓	✓	✓		✓	✓
Illinois Natural Areas Acquisition Program		✓	✓	✓			✓	✓
Indiana T-by-2000 Lake Enhancement Program		✓		✓	✓	✓	✓	✓

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
Iowa Prairie Pothole Joint Venture		✓	✓	✓		✓	✓	✓
Iowa Resource Enhancement and Protection Program		✓		✓	✓		✓	✓
Kansas Wetland and Riparian Areas Project		✓	✓	✓		✓	✓	✓
Louisiana Coastal-Wetlands Conservation and Restoration Plan		✓	✓	✓	✓		✓	✓
Maine Atlantic Salmon Restoration and Management Program		✓	✓	✓	✓		✓	✓
Maine Wildlands Lake Assessment		✓	✓	✓				✓
Massachusetts Scenic and Recreational Rivers Program		✓	✓	✓	✓			✓

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
Michigan Natural Rivers Program		✓	✓	✓	✓		✓	✓
Minnesota Lake Assessment Program		✓	✓	✓	✓		✓	✓
Minnesota Protected Waters and Wetlands Inventory Program		✓	✓	✓				✓
Mississippi Coastal Program		✓	✓	✓	✓	✓		✓
Missouri Nonpoint Source Watershed Program		✓	✓	✓	✓		✓	✓
Montana River Restoration Program		✓		✓	✓		✓	✓
Nebraska Rainwater Basin Joint Venture		✓	✓	✓			✓	✓
Nebraska Wetlands Priority Plan		✓	✓	✓			✓	✓

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restora-tion	Manage-ment
New York State Coastal Management Program		✓	✓	✓	✓			✓
North Carolina Basinwide Water Quality Management Program		✓	✓	✓	✓		✓	✓
North Carolina Wetland Rating System		✓	✓	✓			✓	✓
North Dakota Natural Heritage Program		✓	✓	✓		✓		✓
North Dakota Waterbank Program		✓		✓		✓	✓	✓
Rhode Island State Clean Water Strategy		✓	✓	✓	✓		✓	✓
South Carolina Scenic Rivers Program		✓	✓	✓				✓
South Dakota Lake Protection Program		✓	✓	✓	✓		✓	✓

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
Tennessee Natural Areas Program		✓	✓	✓	✓			✓
Washington State, Puget Sound Wetlands Preservation Program		✓	✓	✓	✓	✓	✓	✓
Washington State Scenic Rivers Program		✓	✓	✓	✓			✓
Wisconsin Lake Protection Grant Program		✓		✓	✓		✓	✓
Wisconsin Stewardship Program		✓		✓	✓	✓	✓	✓
Wisconsin Water Quality Management Plans		✓	✓	✓		✓		✓
State Subtotal	0	42	34	42	23	12	29	42

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
NONPROFIT ORGANIZATION PROGRAMS								
American Rivers Outstanding Rivers List	✓		✓					
Ducks Unlimited Matching Aid to Restore States Habitat				✓	✓		✓	✓
Long Live the Kings		✓		✓	✓		✓	
The Nature Conservancy	✓	✓	✓	✓				✓
Trout Unlimited Embrace-A-Stream Program				✓	✓		✓	✓
Waterfowl U.S.A. Projects		✓			✓		✓	✓
Nonprofit Subtotal	2	3	2	4	4	0	4	4

Exhibit 7. Distribution of Programs or Products/Studies by General Categories of Potential Applicability to the Corps Environmental Program (continued)

Name of Program	General Categories of Potential Applicability to the Corps Environmental Program						Activities	
	Provides a model of a prioritization process to derive national resource priorities	Provides a model of a prioritization process to derive regional resource priorities	Identifies significant environmental resources and provides that information in a manner useful to water resource planners	Uses an established set of scientific or technical criteria as a source of priority recognition	Provides a model for incorporating public opinion/ preference as a source of priority recognition	Provides a model of interagency cooperation to establish environmental resource priorities	Restoration	Management
HISTORICAL PROGRAMS								
National Historic Landmarks Program	✓		✓	✓				
National Register of Historic Places	✓		✓	✓				
California Registered Historical Landmark Program		✓	✓	✓				
Historical Subtotal	2	1	3	3	0	0	0	0
TOTAL FOR ALL PROGRAMS	17	69	63	86	50	27	70	87

3. SUMMARY ABSTRACTS FOR FEDERAL PROGRAMS

ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Agricultural Conservation Program

GOALS AND OBJECTIVES

The goal of the Agricultural Conservation Program (ACP) is to provide cost-share funds and technical assistance for a variety of conservation practices on private agricultural lands to restore and protect the nation's land and water resources and preserve the environment.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The ACP was established in 1936 to help prevent soil erosion and water pollution, protect and improve productive farm and ranch land, conserve water used in agriculture, preserve and develop wildlife habitat, and encourage energy conservation measures. Through cost-share assistance, the ACP provides funds for the following soil-saving practices:

- Establishing terraces on land with steep slopes,
- Planting grasses and legumes to anchor the soil,
- Installing sod waterways and structures to divert runoff water,
- Practicing minimum tillage and no-till farming,
- Other measures intended to control erosion, and
- Protect water quality.

SOURCE OF PRIORITY RECOGNITION

Institutional: Authorization for ACP came from the Soil Conservation and Domestic Allotment Act of 1936 as amended. Congress authorizes funds annually and monies are allocated based on a state's specific needs.

Public: Public support and input into the prioritization process occurs at annual local conservation meetings.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Initial prioritization occurs at the state level and is determined at the State Conservation Groups's annual meeting. This meeting is attended by individuals from various governmental agencies who deal with conservation-related issues. A ranking of high, medium, and low is given to projects or activities based on:

- Technical agency advice,
- What the farmer's needs are, and
- Public policy.

Recommendations are sent to the local level where further prioritizing occurs at the locality's annual conservation meeting. The locality uses the state's recommendations with respect to its own areas of concern to establish a priority process that meets its goals and objectives.

For example, the State of Maryland specifies in its handbook regulations that the following considerations be made when choosing state practices:

- The higher priority conservation or environmental problems identified by the State Conservation Group, and
- The most needed conservation measures to obtain the desired results.

The higher priority conservation and environmental problems identified in Maryland's 1993 ACP Plan are:

1) Control of soil erosion from farmland sedimentation entering into streams, rivers, and lakes,
2) Improve water quality of the Chesapeake Bay through reduction of agricultural nonpoint source pollution,
3) Reduction of delivery of agricultural nutrients to water systems experiencing high nutrient load,
4) Conservation of water for agriculture and wildlife, and
5) Establishment and improvement of forest stands.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The prioritization process used by the ACP has been very successful for keeping state and local agencies up to date with current issues as well as areas of concern. The process has also enabled the program to achieve a desired focus since information is systematically passed down from the state to the local level. An alternative method of determining cost-share

financing has also proven beneficial. Variable cost-share assistance for individual projects, based on the severity of erosion as well as the percent reduction in soil loss, is now applied in some counties. By focusing on the most serious soil erosion problems, the ACP is able to target money where it is most needed -- meaning more soil is saved per dollar spent.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The ACP has been able to meet its goals and objectives by establishing priorities at the local level which allows region-specific as well as site-specific issues to be considered. By focusing on a smaller geographic area, the Corps could more thoroughly evaluate the needs of a local area and establish priorities accordingly.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Rural Clean Water Program

GOALS AND OBJECTIVES

The objectives of the Rural Clean Water Program (RCWP) are to:

- Achieve improved water quality in the approved project area in the most cost-effective manner possible in keeping with the provision of adequate supplies of food, fiber, and a quality environment;
- Assist agricultural landowners and operators to reduce agricultural nonpoint source water pollutants and to improve water quality in rural areas to meet water quality standards or water quality goals; and
- Develop and test programs, policies, and procedures for the control of agricultural nonpoint source pollution.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The RCWP was initiated in 1980 as an experimental program to address agricultural nonpoint source pollution problems in the nation's watersheds. RCWP is a federally-sponsored program administered by the Agricultural Stabilization and Conservation Service of the Department of Agriculture with consultation from the Environmental Protection Agency. Many state and local agencies are involved in the program as well as the following federal agencies: the Soil Conservation Service, Extension Service, Economic Research Service, Agricultural Research Service, U.S. Geological Survey, and limited participation by the Forest Service and the Farmers Home Administration.

One of the strengths of the RCWP is the documentation of the effectiveness of its nonpoint source controls. This is achieved by employing a continuous feedback loop that combines the monitoring of land treatment and water quality management practices. Water quality monitoring outcomes have also been utilized by the RCWP to refine land treatment practices that were designed to control agricultural nonpoint source pollution.

Participation in RCWP was voluntary. Incentives such as cost sharing and technical assistance were used to encourage landowners to implement best management practices (BMPs).

SOURCE OF PRIORITY RECOGNITION

Institutional: The RCWP was authorized by the Agricultural, Rural Development, and Related Agencies Appropriations Act (P.L. 96-108).

Technical: Scientific and technical information is used in the prioritization process to identify and define critical areas and major pollutant sources. Technical information is also used to establish objectives for land treatment and water quality monitoring for specific environmental projects.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Prioritization for the RCWP occurs during the project selection stage of the program. All projects selected should have a high probability that water quality goals will be achieved. In order to address the nonpoint source pollution effectively, projects should be selected based on the criteria listed below:

- *The water quality problem must be well defined and documented.* A water quality problem statement that includes the pollutant constituents and the impact of designated uses should be written.

- *The critical area must be well defined and must encompass the major pollutant sources.* Planned BMP implementation should be targeted to the critical area and to primary pollutants of concern.

- *First priority should be given to projects where there is a high probability for reversing the water use impairment.* This requires a clearly documented use impairment, substantial local support for a project, adequate staff and expertise for technical assistance, and information and education support. Proposed projects containing highly valued water resources threatened by nonpoint source pollution should also receive serious consideration in the project selection process. Projects addressing water resources with high public value, many users, high visibility, and clearly documented impairment of beneficial use generally have the highest probability of producing economic benefits.

- *Interagency cooperation and institutional coordination are important in successful project initiation and implementation.* Only projects that have a high probability of establishing and maintaining strong interagency and institutional relationships should be selected.

- *Nonpoint source pollution problems restricted to addressing agricultural sources of pollution should avoid watersheds that contain significant point sources of pollution.* Pollutant loadings from point sources often mask water quality changes associated with nonpoint source controls.

- *Small watersheds are easier to treat and monitor and should be given special consideration in the selection process.* However, some very successful RCWP projects were conducted in large watersheds; thus, size should not be the most important, nor the only, selection criteria.

- *Projects with clearly defined and realistic water quality objectives and goals have a much higher probability of success.* The objectives and goals for water quality and land treatment should be directly related to the water quality impairment or conditions threatening designated uses.

- *Projects that can be clearly shown to have a high potential for achieving and documenting significant pollution reduction as a result of BMP implementation should be selected for inclusion in experimental nonpoint source programs.* The hydrology of the project area and pollutant transport system should be characterized such that appropriate water quality and land treatment goals can be formulated and effective land treatment and water quality monitoring strategies developed. Useful tools include water quality models and water and nutrient budgets that have the capability to predict whether significant water quality improvements are likely.

- *There should be a potential for high level of landowner participation in the critical area.* Landowners should be willing to accept and implement the necessary BMPs and adopt alternative agricultural systems which are integrally tied to water quality improvements and project goals.

- *Selected projects should have the ability to conduct an effective information and education (I&E) program in advance of BMP implementation.* This should include the ability to determine that the key BMPs will be acceptable to farm operators and to ensure a high level of landowner participation.

- *Experimental projects should have developed a plan for water quality and land treatment monitoring that can adequately document changes in land treatment/land use and water quality.*

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

By having clearly defined objectives, the RCWP was able to make significant contributions to the overall knowledge of nonpoint source control technology, the effectiveness of voluntary cost-share programs, nonpoint source pollution, and BMP technology. A budget of $64 million allowed the RCWP to fund 21 experimental watershed projects across the nation. These projects were extremely beneficial in providing information to be utilized in planning and administering current or future nonpoint source control projects.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The RCWP was effective in addressing agricultural nonpoint source pollution in its experimental stage due to solid organization. Consistent and clear goals coupled with established criteria, made project selection and administration successful.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Water Bank Program

GOALS AND OBJECTIVES

The overall objective of the Water Bank Program (WBP) is to preserve, restore, and improve the wetlands of the nation, and thereby:

- Conserve surface waters,
- Preserve and improve habitat for migratory waterfowl and other wildlife resources,
- Reduce runoff and soil and wind erosion,
- Contribute to flood control,
- Contribute to improved subsurface quality and reduce stream sedimentation,
- Contribute to improved subsurface moisture,
- Reduce acres of new land coming into production and to retire lands now in agriculture production,
- Enhance the natural beauty of the landscape, and
- Promote comprehensive and total water management planning.

GEOGRAPHIC SCOPE

The WBP operates primarily in the northern part of the Central flyway and the northern and southern part of the Mississippi River flyway, which are the major migratory routes used by waterfowl. The WBP also operates along other flyways in states where the program is authorized.

OVERVIEW OF PROGRAM/STUDY

The WBP is administered by the Agricultural Stabilization and Conservation Service (ASCS) of the U.S. Department of Agriculture (USDA), with technical and planning assistance provided by the Soil Conservation Service (SCS). Under this program, individuals with eligible land have the opportunity to receive annual payments for wetland preservation and/or

cost-share assistance in return for entering into 10-year agreements with the USDA to install wetland conservation practices on their property. Wetlands eligible to participate in the WBP are those that are located on designated farmland and are identified in a conservation plan developed for that area, in conjunction with the Soil and Water Conservation District, under the specific guidelines of the Secretary of Agriculture.

Wetlands are defined in the Water Bank Act as inland fresh areas. This definition came from the U.S. Department of Interior's Circular 39, "Wetlands of the United States," and includes both natural and artificially developed inland fresh areas. Wetlands that are eligible meet one of the following specific description types: (1) seasonally flooded basins or flats; (2) fresh meadows; (3) shallow fresh marshes; (4) deep fresh marshes; (5) open fresh water; (6) shrub swamps; and (7) wooded swamps.

SOURCE OF PRIORITY RECOGNITION

Institutional: The WBP is authorized by the Water Bank Act of 1970 (P.L. 91-559) and was amended in 1980 by P.L. 96-182.

Technical: Technical assistance is provided by the SCS in project selection at the local level.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Because the ASCS is currently updating its handbook for the WBP, the following summary of their prioritization process represents the most current information available. Prioritization for the WBP occurs at all levels of government. General priority guidelines, used specifically at national and state levels, provide basic criteria to be employed when funds do not permit approving all requests for project selection. Proposed projects are placed in one of the following categories:

Category A (first priority) requests are those that best meet the following criteria:

- Acreage offered that provides an excellent habitat for migratory waterfowl because of its size (large blocks) and its location (near other farms likely to be approved for agreement) in the county.
- Wetlands that are vulnerable to destruction. For this purpose, special consideration is given to:
    - Type 3 wetlands over type 4 through type 7,
    - Wetlands located in fields of cropland rather than non-cropland,
- Designated acreage should contribute to other wildlife values, and

- Prospective acreage should meet WBP objectives, and the cooperation of operators and owners, etc., should be good.

Category B (second priority) includes all requests not included in category A. Requests maybe assigned to Category B if it is necessary to waive minimum acreage requirements.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Although there is no limit to the amount of funding a participant may receive, the program has a national expenditure cap of $30 million per fiscal year. While funding has been declining since 1980, the WBP entered into 5,515 agreements between 1982 and 1991, which represents over 607,000 areas of land.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The WBP has been successful in preserving and improving wetlands by employing both a national and local prioritization process. By combining prioritization efforts on different geographic levels, the program is able to take into account both national and site-specific concerns.

BIBLIOGRAPHIC INFORMATION

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Wetlands Reserve Program

GOALS AND OBJECTIVES

The overall goal of the Wetlands Reserve Program (WRP) is to restore wetlands primarily on converted cropland in order to protect and preserve the values of wetlands for migratory birds and other wildlife, water quality improvement, flood water retention, ground water recharge, open space, aesthetic values, and environmental education.

GEOGRAPHIC SCOPE

The WRP is currently authorized in only nine states: California, Iowa, Louisiana, Minnesota, Mississippi, Missouri, New York, North Carolina and Wisconsin. These nine states were chosen as pilot states for the WRP due to their geographic diversity and potential to benefit from the program.

OVERVIEW OF PROGRAM/STUDY

The WRP is a voluntary program that provides owners of eligible land the opportunity to offer an easement for purchase by the U.S. Department of Agriculture (USDA) and to receive cost-share assistance for the restoration and protection of wetlands on their property. By offering these services, the USDA allows farmers to turn marginal cropland into valuable wetlands that can be preserved for future generations.

The lead administrating agency of the WRP is the Agricultural Stabilization and Conservation Service (ASCS) of the U.S. Department of Agriculture, with technical support provided by the both the Soil Conservation Service (SCS) and the Fish and Wildlife Service (FWS). Landowners declare their intent to participate in the program by applying for enrollment. Once intent is declared, a Wetland Reserve Plan of Operation (WRPO) is developed with assistance from the SCS and the FWS to establish guidelines for restoring and maintaining the wetland. The WRPO includes required practices, cost estimates of required practices, a schedule of implementation, and compatible land uses. Eligibility and acceptance into the WRP is finally determined by a Bid Evaluation Process.

SOURCE OF PRIORITY RECOGNITION

Institutional: The WRP is authorized by Title XII of the 1985 Food Securities Act as amended by the Food, Agriculture, Conservation, and Trade Act of 1990. The 1990 Act established an enrollment goal for WRP of 1,000,000 acres by the end of FY 1995.

Technical: Analyzing the potential to restore wetland hydrology and vegetation includes consideration of complex interrelated environmental functions and values.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Prioritization for this program is determined by a confidential "Black Box Formula" that was developed by the ASCS to meet its goals and objectives. The "Black Box Formula" provides the framework for the Bid Evaluation Process. This process is composed of three steps: (1) basic eligibility, (2) bid cap evaluation and (3) environmental benefits per dollar evaluation. Completion of these three steps determines eligibility and ultimately allows lands to be enrolled in the program.

Basic Eligibility

Lands eligible for the WRP include wetlands farmed under natural conditions, farmed wetlands and wetlands converted to cropland prior to December 23, 1985. These lands must have been cropped in at least one of the five crop years between 1986 and 1990. Land that does not require a cropping history to be eligible includes: riparian areas along a waterway that link wetlands protected by an easement/agreement, wetlands that do not meet eligibility requirements but inclusion will significantly add to the value or functions of restored wetlands, and lands protected under the Conservation Reserve Program (CRP). In order for the landowner to be eligible, he/she must have owned the property for at least twelve months, unless land was acquired through will or inheritance or ownership was not dependent on WRP participation as determined by the ASCS.

Bid Cap Evaluation

Once basic eligibility is determined, bids undergo a comparison with a bid cap that is set by the ASCS. Bids that are eligible and have a rate less than or equal to the bid cap are subject to an environmental benefits analysis. The bid cap is specifically calculated for each bid based on a general combination of:

- Relative productivity of the predominant soil, as determined by the SCS,
- Average per acre market value of the easement area as determined by the local county ASC Committee,
- Cost of restoration for the landowner,
- Long-term costs of easement operation and maintenance, and
- Other factors determined by the Secretary of Agriculture.

Environmental Benefits Per Dollar Evaluation

The environmental benefits analysis originated to ensure that the greatest environmental benefits are obtained for taxpayer funds expended. Bids subject to this evaluation are ranked

by the ASCS based on the calculation of the Environmental Benefits per Federal Dollar Expended Index (EB/$). Bids having the highest EB/$ will be accepted. Calculations are based on the following environmental and economic factors:

- Wetland hydrology restoration potential,
- Systems location significance,
- Environmental importance,
- Management risks,
- Duration of easement,
- Bid amount,
- Cost-share amount, and
- Any other factors determined by ASCS.

Specific WRP definitions of these environmental and economic factors are not available to the public.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

During FY 1992, three times more land was offered for bidding than could be accepted into the program. By using the Bid Evaluation Process, the WRP was able to select and enroll acreage that was both environmentally and economically the most likely to result in successful and beneficial restoration.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Bid Evaluation Process allows wetland resources to be restored and preserved by establishing certain criteria for evaluation. The Bid Cap Evaluation and Environmental Benefits Analysis provide a framework for "scoring" the potential effectiveness of wetland restoration as well as the environmental resource issues associated with a specific area. These processes provide a systematic way to analyze wetland restoration potential and to determine a plan of action for specific wetland restoration projects.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Every Species Counts Program for Threatened, Endangered, and Sensitive (TES) Species Conservation and Recovery

GOALS AND OBJECTIVES

The overall goal of the program is the recovery and conservation of threatened, endangered, and sensitive species. This goal is central to the U. S. Forest Service mission of "Caring for the Land and Serving People."

GEOGRAPHIC SCOPE

156 National Forests and 20 National Grasslands across the country

OVERVIEW OF PROGRAM/STUDY

The Every Species Counts Program, administered by the U.S. Department of Agriculture (USDA) Forest Service (FS), is dedicated to conserving threatened, endangered, and sensitive species on the 156 national forests and 20 national grasslands managed by the FS. Through this program, expertise, resources, and commitments of the FS, other federal and state agencies, and private organizations and individuals are brought together to work collectively on species recovery and conservation. Partnerships with such conservation groups as The Nature Conservancy, State Natural Heritage Inventory Programs, the Garden Clubs of America, and the World Wildlife Fund are making it possible to inventory, monitor, and restore rare species' habitats and populations.

Under program guidance, FS resource managers are encouraged to develop and implement conservation programs and protective measures for all listed and sensitive species. The primary focus of program efforts is on maintaining biodiversity in national forests and grasslands. At one time, TES management practices focused on individual species and their habitats. Today, the focus is shifting more to developing and implementing conservation biology practices in an ecological approach to management. Efforts are geared towards protection of ecosystems and groups of species where possible, due to the increasing numbers of imperiled species.

SOURCE OF PRIORITY RECOGNITION

Institutional: The following major acts provide authorization for TES species management:

- Forest Reserve Act of 1891,

- Multiple Use Act of 1960,
- National Environmental Protection Act of 1970,
- Endangered Species Act of 1973,
- Forest and Range Land Renewable Resources Planning Act of 1974,
- National Forest Management Act of 1976, and
- Federal Land Policy and Management Act of 1978.

Public: The support of private nonprofit conservation organizations and individuals is necessary for forming partnerships for recovery and conservation of threatened, endangered, and sensitive species.

Technical: Biological evaluations and site-specific coordination by qualified scientists are required for almost all proposed projects.

PRIORITIZATION OR PROJECT SELECTION PROCESS

On April 16, 1990, F. Dale Robertson, Chief of the Forest Service, directed all regions to develop action plans to accelerate national forest recovery programs for threatened, endangered, and sensitive species. A TES Task Force was created to review the national TES program and make recommendations for improvements. In FY 1994, the Every Species Counts Program was developed around 13 major ecological areas that represent the wide diversity of species and habitats for which the FS has stewardship responsibilities.

Each region has developed or is currently developing an action plan. Funding for action plans and TES program implementation is allocated from the FS's national office based on regional recommendations and FS criteria.

The Southwestern Region's Action Plan is divided into three sections, each of which focuses on a single area of the TES program with goals and objectives and the actions required to meet them. The three sections of the action plan are: Conservation and Recovery, Program Development, and Administration and Human Resources. The Conservation and Recovery Section set a goal to acquire needed information and manage lands to accelerate conservation and recovery of all TES species. One of the objectives under this goal is to inventory 20 percent of regional TES species by 1997. In order to inventory regional TES species to the level required to complete conservation and recovery strategies, priorities are established for TES species that require additional inventory to complete conservation strategies. Priorities may be set during annual coordination meetings with other agencies and partners, or as information affecting TES management becomes available.

Inventory processes are used in other regions as well to keep up-to-date information on the current status of threatened and endangered species. This allows the FS to set priorities and

develop a multiple-species approach, which ultimately can be combined with the current single-species management technique.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Currently, the emphasis of the program is on managing species proactively rather than avoiding and mitigating negative effects of proposed management of other resources. The success of the program is evidenced by improved habitat conditions and population status of many threatened, endangered, and sensitive species. Numerous other accomplishments have been made by this relatively new program and its growing number of partners. They include the following:

1) Improvement of 5,661 acres, completion of 528 structures, and several recovery plans through partnerships with the U.S. Fish and Wildlife Service (an additional 71,332 acres were improved and 2,318 structures were built with appropriated funds, K-V funds, and timber recipient funds);

2) Implementation of a $1.6 million long-range management program for grizzly bear conservation, which includes mapping 7.6 million acres of bear habitat, reducing human-grizzly conflicts, improving habitat, and educating the public; and

3) Completion of dozens of projects, in cooperation with State Natural Heritage Inventory programs, to inventory, monitor, and restore rare plants on national forests and grasslands.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The success of the Every Species Counts Program depends upon collaboration with federal and state agencies, private organizations and individuals. This partnership approach could prove valuable to the Corps because it considers the opinions and values of the actual stakeholders in the recovery and conservation of threatened, endangered, and sensitive species, which increases their willingness to support such programs. The 13 major ecological areas around which the program was developed for FY 1994 may provide a useful framework for guiding regional priorities.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Rise to the Future

GOALS AND OBJECTIVES

The Rise to the Future (RTTF) program was originally designed to increase emphasis of fisheries management with the U.S. Forest Service (FS) by improving the quality of aquatic habitats and increasing fishing opportunities through the use of partnerships. The fishing goals stemming from this ideology are as follows:

1) Provide opportunities for the public to use and enjoy the fisheries resources on the National Forests,

2) Maintain and enhance the fish-producing capabilities of the aquatic habitats in the forests,

3) Improve communication, coordination, planning, and involvement of all those who have an interest in management of National Forest fishery resources, and

4) Improve program effectiveness in meeting FS responsibilities for fish habitat management.

GEOGRAPHIC SCOPE

National Forests across the United States

OVERVIEW OF PROGRAM/STUDY

The RTTF was developed and implemented in 1987 to encourage partnerships to improve the quality of existing aquatic habitats, improve the quality of fisheries habitats on National Forests and Grasslands, and recover threatened and endangered aquatic species. The program was also initiated to provide increased fishing opportunities for all anglers on National Forests and Grasslands. The program is an avenue through which the FS provides funding to National Forest districts to implement fish habitat management, which may include riparian and wetland restoration projects. The purpose of the program is as follows:

1) Enhance fisheries program identification by increasing the awareness of fish habitat management,

2) Use the best management technologies for increasing habitat management efficiency,

3) Increase public participation and awareness in fisheries management within the FS,

4) Incorporate valid economic techniques in the decisionmaking process, and

5) Maintain a highly skilled workforce of fisheries biologists with a broad understanding of aquatic ecosystems.

The program is administered through the FS's Division of Wildlife and Fisheries. Funding is distributed from the Division at the national level to the regional level, then from the regional level to the forest level, and finally from the forest level to the forest district level, which ultimately initiates projects. Funds are used to pay for projects outright or supplement challenge cost-share contributions.

SOURCE OF PRIORITY RECOGNITION

Institutional: Authorization for this program is provided in the 1989 Recreational Fisheries Policy developed by the FS and Bureau of Land Management (BLM). This policy initiative was developed to heighten awareness of recreational fishing potential on national forests and grasslands.

Public: Fishing and conservation groups have actively worked to enhance and encourage public cooperation to support the program. Such groups as Trout Unlimited, the Sport Fishing Institute, and the Fish America Foundation facilitate cooperative efforts that ensure the benefits of unspoiled National Forest resources for future generations.

Technical: Biological research is used to ensure a resource base for maintaining and expanding fishing opportunities.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Prioritization and project selection are done at the forest level with public participation playing an important role. Participation is done through constituency groups, local fishing interests and special interest groups such as the American Fisheries Society, Sport Fishing Institute, Federation of Fly Fishers, Trout Unlimited, Bass Anglers Sportsmanship Society, and Amerifish Corporation. Public input has played a major role in initiating projects. Allocation for funding is based largely on data reported annually through the Wildlife, Fish, and Rare Plant Reporting System. This system indicates annual activities and future needs of the program, which are greatly impacted by public opinion and participation.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Since it began in 1987, the RTTF Program has made major strides in strengthening its role in fisheries habitat management within National Forests. Fish habitats are being restored to protect and promote larger and healthier fish populations. Efforts are also being made to

increase fishing access for the large number of anglers who are continuously looking for new and diverse fishing opportunities.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

By encouraging and valuing public participation, the RTTF Program has experienced a high level of success in the management of fisheries. Much of this success can be attributed to the many internal and external partnerships that were developed. The use of partnerships, combined with talents and visions of dedicated individuals, is a resource that could prove valuable to the Corps.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Resource Conservation and Development Program

GOALS AND OBJECTIVES

The overall objective of the Resource Conservation and Development (RC&D) Program is to encourage and improve the capability of state and local units of government and local nonprofit organizations in rural areas to plan, develop, and carry out programs.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The RC&D Program is administered for the U.S. Department of Agriculture (USDA) by the Soil Conservation Service (SCS). The purpose of the program as stated in Public Law 97-98 (Section 1528) is "to encourage and improve the capability of state and local nonprofit organizations in rural areas to plan, develop, and carry out programs for resource conservation and development."

RC&D actively involves people to identify, and solve human, economic, and environmental problems. RC&D councils are formed at the local level to determine problems in specific areas, identify priorities and set goals to achieve them. Members of an RC&D council represent sponsoring organizations such as soil and water conservation districts, towns, water districts, and other nonprofit groups.

RC&D is involved in various activities such as:

- **Land Conservation:** Protects the resource base and finds the best ways to use it. Includes projects such as mine reclamation and controlling soil erosion and weeds.

- **Water Management**: Protects and enhances groundwater supplies, improves water quality, agricultural water management, and flood control.

- **Community Development:** Establishes and improves community services, facilities, and infrastructure. Prepares feasibility studies; creates or improves recreational areas; and develops, improves, and promotes historic sites and tourist attractions. Encourages the best use of forest lands and resources; and

creates and expands forest-related industries. Focuses on expanding markets, and creating jobs.

- **Environmental Enhancement:** Conserving energy; creating and improving fish and wildlife habitat; developing and improving wetland habitat; and safely utilizing waste.

Most RC&D councils are nonprofit corporations that have the authority to seek help from sources that are qualified to provide assistance. This help may be technical assistance from USDA agencies, state or local governments, local conservation districts, or private industry. Financial assistance may be in the form of loans, grants, or cost-sharing arrangements for projects. The federal government provides a federal employee called a coordinator, and in many cases, office space, transportation, telephone, and supervision for that employee. SCS may also provide financial support, usually small amounts of money known as "seed money" to attract other grants.

SOURCE OF PRIORITY RECOGNITION

Institutional: Authorization for the program is provided by Public Law 97-98, 95 Stat. 1213, the Food and Agriculture Act of 1981. The program was initially established in 1962 with the authorization of 10 areas.

Public: Public participation and support, through the RC&D councils, is important for determining the priorities of RC&D areas.

Technical: Scientific and technical data supplied by the SCS and other agencies is used to determine implementation measures.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Priorities for the RC&D areas are determined by the RC&D council members at the local level. Council members are volunteer local citizens such as farmers, ranchers, homemakers, bankers, local officials, environmentalists and various other concerned individuals. Priorities are based on the concerns and needs of these local citizens.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Since the RC&D program began 30 years ago, RC&D councils have raised $6.1 billion in federal and nonfederal money to support nearly 26,000 projects. Volunteer contributions in time, cash, materials, and grants are estimated at more than $30 million annually. In July 1993, 55 percent of the nation's counties were being served by 246 RC&D areas.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

RC&D is able to make things happen by obtaining assistance from foundations, corporations, the private sector, and all levels of government through area-specific RC&D councils. By soliciting the efforts and expertise of citizens at the local level, the Corps could most effectively and efficiently determine problems in those areas, identify local priorities, and set goals to achieve them.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Watershed Protection and Flood Prevention Program (Small Watershed P.L. 566 Program)

GOALS AND OBJECTIVES

The goals of small watershed projects are as follows:

- Erosion control,
- Flood protection,
- Agricultural water management,
- Public fish and wildlife development,
- Municipal or industrial water supply, and public recreation development.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The Watershed Protection and Flood Prevention Program, administered by the U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS), oversees activities to develop and implement small watershed projects. Such projects can be undertaken for the following authorized purposes:

- Flood prevention,
- Water quality improvement,
- Agricultural water management,
- Water-based recreation,
- Municipal and industrial water supplies, and
- Fish and wildlife development.

The program provides assistance to units of local government in defining and solving natural resource problems in upstream watersheds under 250,000 acres in size. Projects under this program are carried out and planned jointly by local, state, and federal agencies, with the full understanding and support of citizens in the community and a majority of the community's landowners. Examples of reasons that local citizens and landowners support small watershed projects are to:

- Protect the soil resource base,
- Conserve water,
- Protect water quality,
- Reduce sediment damage,
- Prevent floods,
- Manage water used in agriculture,
- Check ground water recharge,
- Control agricultural-related pollution,
- Attract new industries,
- Protect municipal and industrial water supplies,
- Serve as recreational areas, and
- Provide fish and wildlife habitat.

Funding for the implementation of proposed projects is initially appropriated by Congress. Priority for allocating this funding is given for technical assistance and engineering services. Funds for construction are allocated based on the readiness of local organizations to install, operate, and maintain planned measures.

Funding for the implementation of proposed projects is done through cost-sharing. For flood prevention, the federal government pays all engineering and construction costs. Needed land treatment can be cost-shared up to 50 percent for water quality purposes and up to 65 percent for erosion control. The federal government provides all engineering services and up to 50 percent of the construction costs for irrigation drainage, public recreation, and fish and wildlife development.

In certain circumstances, the federal government pays up to 50 percent for acquiring the land rights and for minimum basic facilities for public recreation or for public fish and wildlife development. All other costs, including all costs for municipal and industrial water supply and energy, must be paid by the sponsoring local organization.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Watershed Protection and Flood Prevention Program is authorized by the 1954 Watershed Protection and Flood Prevention Act (P.L. 566) as amended.

Public: Public meetings are used in the watershed selection process to determine both sponsorship and public interest in the project.

Technical: Technical adequacy for all proposed watershed projects is determined by completing a watershed plan-environmental impact statement.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Any organization that has the authority to develop and carry out small watershed project activities under state law can submit an application. These organizations include:

- Soil and water conservation districts;
- Municipalities;
- Counties;
- Watershed, flood control, conservancy, drainage, irrigation, or other special purpose districts;
- Irrigation and reservoir companies, water users' associations, or similar nonprofit organizations; and
- Indian tribes or tribal organizations, state agencies, and qualified local organizations may sponsor or co-sponsor an application. Other organizations may endorse a project application.

If an application that was filled out by one of the above organizations is approved by the State Conservation Agency, it is forwarded to the SCS state conservationist. Further action on proposed projects depends on the availability of planning help from the SCS and the priority recommendations of the state agency. If the SCS can provide planning assistance, the SCS asks the state agency to provide recommendations for prioritization.

Each state agency has its own criteria for prioritization and states typically have special criteria to meet specific needs. If an application meets the following criteria, it will most likely satisfy the criteria used in most states:

- Sponsoring local organizations have and will use the power of eminent domain or taxation to meet their commitment to carry out and maintain the project.

- Help is desired to achieve multiple-purpose development of the water and related land resources of the watershed.

- Substantial progress has been or is being made in applying soil and water conservation measures on individual farms and ranches.

- The proposed project will, through improved use of resources, permit higher standards of living and a greater sharing of resources for a substantial number of people.

- Interest in, understanding of, and support for the project are prevalent throughout the watershed community

Watershed projects that are given a high priority ranking by the state agency, are given a field examination by the SCS to determine the potential for an acceptable watershed plan as well as alternative plans and their probable effects.

After a public meeting is held to acquire public opinions on the proposed watershed project, the SCS state conservationist prepares a plan to study the watershed in more detail. If planning assistance is available, the state conservationist requests help from the SCS Chief. Once planning is authorized, personnel are made available to start preparing the watershed plan.

A staff of SCS engineers, hydrologists, geologists, economists, and other specialists work with the local SCS representative to determine environmental impacts of the project and help sponsors develop a watershed plan. USDA's Forest Service also assists in this process. USDA's Farmers Home Administration (FmHA) works with the local organization when it wants to obtain a watershed loan. The U.S. Department of the Interior's (USDI) Fish and Wildlife Service and the state fish and game agency study possible effects of the proposed project on fish and wildlife resources. The USDI's National Park Service may help with recreation development. SCS notifies other federal and state agencies about the studies and invites them to participate.

The findings of the SCS staff are reviewed with the local organization, and a draft plan is formulated that includes such information as a cost-sharing arrangement, cost of proposed measures, methods and measures for installing and maintaining the measures, project alternatives, environmental impact statement (plan-EIS), provisions for land acquisition, project benefits, and remarks from the state agency that coordinates federal assistance. The FmHA may make loans to sponsoring local organizations to help defray project costs. A maximum loan of $10 million may be made to one project for a period of up to 50 years at the federal long-term borrowing rate.

Authorization for operations to begin is provided by the SCS Chief. The federal contribution to project construction costs cannot exceed $5 million, and the plan may not include any single structure that exceeds 2,500 acre-feet. If federal contributions and total capacity exceed these limits, the USDA sends the plan to the Office of Management and Budget (OMB) for review and transmittal to Congress. Assistance depends on approval from committees in the U.S. Senate and the U.S. House of Representatives.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The Small Watershed Program currently has 1,134 projects under construction in 49 states (excluding Rhode Island) and approved applications for projects covering 25,874, 281 acres in 40 states. A report, "The Status of Watershed Projects (P.L. 566)" is published at the beginning of each fiscal year and lists all small watershed projects approved for operations.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Much of the success of the program can be attributed to the multi-agency assistance and support of involved citizens. The Corps could employ a multi-agency approach in its water resources planning activities to help provide both technical and financial assistance. Methods for increased citizen participation could also be of interest to the Corps. Local participation is vital to the success of any project in a community, because it facilitates project approval, completion, and long-term maintenance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Coastal Zone Management Program: Special Area Management Plans

GOALS AND OBJECTIVES

The overall goal of the Coastal Zone Management (CZM) Program is to guide and support participating states in developing and implementing comprehensive coastal zone management regulatory programs through cooperative agreements. The goal of a Special Area Management Plan (SAMP) is to identify areas that are under stress due to development, and recommend management practices appropriate for local conditions.

GEOGRAPHIC SCOPE

The CZM Program is authorized in 36 coastal states and territories and Great Lakes states. Of the 36 states and territories that are eligible for participation in the CZM Program, 29 have an approved CZM Programs that qualify them for implementation grants. Most of these states have received enhancement grants. Of the seven states and territories that do not have an approved CZM Program, five have received CZM program development grants in anticipation of submitting a program for approval.

OVERVIEW OF PROGRAM/STUDY

The CZM Program is administered by the National Oceanic and Atmospheric Administration (NOAA), under the U.S. Department of Commerce. Participating states and territories are charged with taking the lead under the federal-state partnership strategy. The federal government facilitates state action through technical assistance, financial assistance, and program overview.

States and territories with approved CZM Programs submit applications to NOAA to receive grant funding to implement their programs. All implementation grant funds received from NOAA must be matched on at least a dollar-for-dollar basis with nonfederal funds. States may use grant funding for different projects depending on their state's resource management needs and approved CZM Program emphasis.

Grant funding can be passed on to local governments or nonprofit organizations involved with coastal management activities if the state's CZM Program provides for this arrangement. Michigan, for example, provides some grant funds at the state level and some at the local level. This type of arrangement allows states to draw upon other sources to both implement resource activities and assist in matching federal grant funds.

The 1990 Coastal Zone Management Act (CZMA) amendments specify that states receiving CZM implementation grants may qualify for an enhancement grant to develop a multi-area strategy to improve their program in eight enhancement areas:

- Wetlands,
- Special Area Management Plans,
- Public access areas,
- Cumulative and secondary impacts,
- Coastal hazards,
- Marine debris,
- Energy facility sitings, and
- Ocean resources.

SOURCE OF PRIORITY RECOGNITION

Institutional: The CZM Program is authorized by the Coastal Zone Management Act of 1972 as amended. SAMPs are authorized by Section 309 of the 1990 Coastal Zone Management Act amendments.

Technical: Scientific and technical information is used to assess local conditions in developing SAMPs.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Initial prioritization of the issues addressed under Section 309 of the 1990 amendments is done at the state level. However, final review is done by the public and NOAA's Office of Coastal Resource Management (OCRM). States applying for an enhancement grant to develop a multi-area strategy must first undertake a critical evaluation of their CZM Program to determine its effectiveness in each of the eight enhancement areas listed above. The multi-area strategy will prioritize CZM Program activities based on the critical evaluation. Activities will be prioritized within each area that warrants attention and states will have the option to reformulate priorities every four years. For example, if an evaluation reveals that a state's CZM program has not been effective in addressing wetland issues, the multi-area strategy may identify wetland restoration as a priority or, more specifically, identify actual locations as priority areas for wetland restoration.

SAMPs provide for a multi-year strategy that guides the management of discrete areas (e.g., estuaries) that are under stress due to development. These areas are subject to multi-jurisdictional regulation. The planning process for SAMPs typically involves assessing

the conditions of the area and recommending management practices. Actual management practices in SAMPs vary widely with local conditions, but can include wetlands restoration.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

At least three states have developed SAMPs. Examples include:

- Washington: Greys Harbor Estuary,
- Rhode Island: Salt Pond, and
- Mississippi: Port of Pascagoula.

The CZM Program is currently considering expanding its efforts in wetland conservation to include mitigation, restoration and protection.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Each state that has an approved CZM Program negotiates funding with OCRM. The scope of program activities varies greatly from state to state. This state management approach allows states to focus efforts on specific state-related problems. This type of strategy could be beneficial to the Corps because it provides a framework that could be used for project selection and management according to state or regional priorities. For example, if a state's multi-area strategy identified actual locations as priority areas for wetland restoration, such information could serve as a readily usable prioritization listing in the Corps environmental evaluation process. SAMPs could also be employed by the Corps to aid in the identification of locations for wetlands restoration within smaller areas under stress due to development and subject to multi-jurisdictional conflicts.

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N/A

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Coastal Nonpoint Pollution Control Program

GOALS AND OBJECTIVES

The overall goal of the Coastal Nonpoint Pollution Control Program (CNPCP) is to control nonpoint sources of pollution that impact coastal water quality.

GEOGRAPHIC SCOPE

National -- each state with a federally approved coastal zone management program.

OVERVIEW OF PROGRAM/STUDY

Section 6217 of the Coastal Zone Act Reauthorization Amendments provides that each state with an approved coastal zone management program develop a CNPCP. The CNPCP is administered through a cooperative effort between the National Oceanic and Atmospheric Administration (NOAA) and U.S. Environmental Protection Agency (EPA). The purpose of these state programs is to develop and implement management measures for nonpoint source pollution to restore and protect coastal waters, working in close conjunction with other state and local authorities.

CNPCPs were not meant to replace existing coastal zone and nonpoint source management programs. Instead, they are to function as an update to existing programs and are to be coordinated with existing coastal zone management efforts. In order to successfully administer a CNPCP, all states must implement:

1) Generally applicable management measures to protect coastal waters from nonpoint source pollution, and

2) Additional, more stringent management measures developed by each state as necessary to attain and maintain applicable state water quality standards.

In order for states to implement coastal nonpoint programs effectively, NOAA and EPA developed a guidance document. The document contains requirements that must be met by a CNPCP, including: the geographic scope of the program; the pollutant sources to be addressed; types of management measures used; the establishment of critical areas; technical assistance, public participation, and administrative coordination; and the process for program submission and federal approval.

SOURCE OF PRIORITY RECOGNITION

Institutional: CNPCP is authorized by the 1990 Reauthorization Amendments of the Coastal Zone Management Act. Section 6217 entitled, "Protecting Coastal Waters," specifically called for the development and implementation of a CNPCP for all states with federally approved coastal zone management programs in order to "restore and protect coastal waters." The purpose of Section 6217 is to enhance state and local efforts to manage land use activities which degrade coastal ecosystems by strengthening the links between federal and state coastal zone management and water quality programs. Guidance documents for the CNPCP process were published at 58FR 5182 (January 19, 1993).

Public: Public participation and support is important in establishing priorities for the program.

Technical: Scientific and technical information is used in numerous ways, such as assessing water quality and determining the effects of coastal land use management measures on coastal water quality and designated uses.

PRIORITIZATION OR PROJECT SELECTION PROCESS

For program approval, a state must identify and map critical coastal areas that need additional measures to protect against current and anticipated nonpoint pollution problems (as contrasted to individual uses identified under paragraph (1) of Section 6217(b)). The establishment of critical coastal areas should focus on those areas in which new or substantially expanding land uses may cause or contribute to the impairment of coastal water quality.

States have flexibility in delineating critical coastal areas. There are two basic approaches for the establishment of critical coastal areas.

Under the first approach, a state could establish the critical coastal area as a strip of land along portion(s) of the shoreline adjacent to threatened or impaired coastal waters. Some states have programs that specify a land area along the shoreline of a waterbody that extends inland a uniform distance from the shoreline or from landward boundaries of wetlands or heads of tides. Within this area, special controls such as setbacks and low density zoning can be employed to protect coastal waters.

Under the second approach, a state could rely on site-specific evaluations to determine the extent of a critical coastal area. The critical coastal area could be established on an ecosystem basis for the impaired or threatened coastal waters. Under this approach, states may include broader geographic areas in the critical area designation, starting with shoreline segments adjacent to threatened or impaired coastal waters, and extending inland to encompass significant coastal features or resources further inland. These broader areas may include entire watersheds or portions of watersheds adjacent to coastal waters, and may encompass significant biological features such as wetlands.

In selecting an approach, states should consider the following factors:

- The nature of the coastal water quality problem(s) caused by nonpoint sources;
- The extent to which the nonpoint sources are located adjacent to the waterbodies as opposed to further inland;
- The physical and biological characteristics of the adjacent lands that will affect the extent to which uses of these lands will cause nonpoint source pollution problems;
- Important biological features that should be included as a whole in critical coastal areas (e.g., wetlands);
- The type(s), density and characteristics of the new or expanding land uses that are anticipated and their expected effect(s) on water quality; and
- The extent to which the above effects can be prevented or reduced by implementation of management measures and/or the additional management measure for land uses.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The statutes and legislative history of the CNPCP indicate that the central purpose of Section 6217 is to strengthen the links between federal and state coastal zone management and water quality programs in order to enhance state and local efforts to manage land use activities that degrade coastal waters and coastal habitats. This is to be accomplished through specific state and federal management measures. Because this program is relatively new and the majority of states are in the process of establishing coastal nonpoint programs, specific state priorities have not yet been designated.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

States must identify and map critical coastal areas prior to receiving program approval under the CNPCP. This information on critical coastal areas will allow states to address water quality and coastal habitat issues through management efforts designed particularly for a state or regions within a state. Information on critical coastal areas could also be used by the Corps to identify coastal resources of state significance and establish state or regional priorities for the Corps' environmental mitigation or restoration efforts associated with water resources civil works projects.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

National Marine Sanctuary Program

GOALS AND OBJECTIVES

The overall objectives of National Marine Sanctuary Program (NMSP) are to:

1) Identify areas of the marine environment of special national significance due to their resource or human use values;

2) Provide authority for comprehensive and coordinated conservation and management of these marine areas that will complement existing regulatory authorities;

3) Support, promote, and coordinate scientific research on and monitoring of, the resources of these marine areas;

4) Enhance public awareness, understanding, appreciation, and wise use of the marine environment; and

5) Facilitate all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

NMSP is administered by the Sanctuaries and Reserves Division, National Oceanic and Atmospheric Administration (NOAA), Department of Commerce. The program was established to respond to the growing awareness of the intrinsic environmental and cultural value of coastal waters. To date, the program is the only federal program designed to comprehensively protect our marine areas through identification, designation, and management of significant marine and Great Lakes waters. Designation of marine sanctuaries is based on the need to preserve, and where necessary, restore their historical, recreational, conservation, ecological, cultural, and/or aesthetic values.

The highest priority for all designated sanctuaries is long-term protection. Protection for designated sanctuaries is obtained through management programs tailored to meet the needs of individual sites. Sanctuary status facilitates proper management by managing selected

areas as complete ecosystems instead of regulating just specific activities or protecting only certain resources.

SOURCE OF PRIORITY RECOGNITION

Institutional: Authorization for the program is provided by the Marine Protection, Research, and Sanctuaries Act of 1972, Title 3, Public Law 92-532, 16 U.S.C. 1431 et seq. and subsequent amendments. Regulations for the national marine sanctuary designation process are published at 15 CFR Part 922.

Public: Public opinion and values play a role in the selection of sites for sanctuary designation.

Technical: Data from scientific research collected on topics such as biological productivity, ecosystem structure, and biotic character are important in determining whether a selected area meets natural resource values criteria for designation.

PRIORITIZATION OR PROJECT SELECTION PROCESS

In order for a site to be designated a National Marine Sanctuary under the administrative process, it must first be placed on the Site Evaluation List (SEL). Established in 1983, the SEL is a comprehensive list of marine and Great Lakes sites with high natural and/or cultural resource values that have qualifications for further evaluation as a National Marine Sanctuary. There are currently 24 sites on the SEL. Although placement on the SEL does not guarantee the site will be designated as a National Marine Sanctuary, it is a mandatory first step.

In selecting a site to be placed on the SEL, NOAA considers the extent of information on a specific site and the following criteria:

- **Natural Resource Values**: sub-regional representation, community representation, biological productivity, biotic character/species representation, species maintenance, and ecosystem structure/habitat features.

- **Human Use/Historical Resource Values**: commercial and recreational importance of fishery resources, ecological/aesthetic resources of importance for recreational activities other than fishing, interpretive opportunity, and historical, cultural, archeological or paleontological significance.

- **Potential Activity Impacts**: impacts of human use activities on the area's natural resource and human use values, as well as impacts of site selection on human activities already existing on site.

- **Management Concerns**: relationship to other programs, management of a conservation unit, accessibility, surveillance and enforcement, and economic considerations.

Unless new sites are being considered and the SEL is being reevaluated, new sites can only be added to the present SEL in two ways:

- By presenting substantial new information, previously unavailable, that establishes the national significance of the known site; or
- By the discovery of an important new site.

Once a site has been placed on the SEL, it may then be selected to become an Active Candidate for designation. Active Candidates are selected based on many factors including:

- Available staff and resources,
- Biogeographic and resource representation, and
- Relative costs/benefits of designation.

Once named an Active Candidate, an environmental impact statement and management plan for the area is prepared. Public meetings and consultation with other government agencies are also initiated. In addressing the SEL criteria listed above, the Secretary of Commerce must consult with the House Committee on Merchant Marine and Fisheries; the Senate Committee on Commerce, Science and Transportation; the Secretaries of State, Defense, Transportation, and the Interior; the Administrator of the Environmental Protection Agency, and heads of other interested federal agencies; the responsible officials or relevant agency heads of the appropriate state or local government entities, including coastal zone management agencies that could possibly be affected by sanctuary designation; the appropriate officials of any Regional Fishery Management Council established by Section 302 of the Magnuson Act (16 U.S.C. 1852) that may be affected by proposed designation; and all other interested persons.

A National Marine Sanctuary also may be designated by Congress. Following Congressional designation, an EIS and management plan must be prepared as in the steps described above.

Upon completion of these steps, and with the approval of Congress and the governor of the given state (for sites which include state waters), the site is designated a National Marine Sanctuary by the Secretary of the Commerce.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Currently, thirteen sites have been designated as National Marine Sanctuaries. The locations of these thirteen sanctuaries represent a number of marine environments, from nearshore coral reefs, to open ocean, to benthic ecosystems. NSMP has begun to re-evaluate the SEL and new sites will be considered for evaluation.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Much of the success of the NMSP can be attributed to its consultation with other federal and state agencies that are also charged with managing marine environments. By consulting with other federal, state, as well as local agencies, the Corps could better focus its water resources planning efforts in particular geographic areas.

The use of the existing SEL, which currently has 24 sites, could prove beneficial to the Corps by providing a means of tracking and targeting specific natural resources deemed significant. The 13 sites already designated as National Marine Sanctuaries are examples of specific resources with high natural and/or cultural resource values.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

National Estuarine Research Reserve System

GOALS AND OBJECTIVES

The goals of the National Estuarine Research Reserve System (NERRS) are to:

- Ensure a stable environment for research through long-term protection of NERRS resources,
- Address coastal management issues identified as significant through coordinated estuaries research within NERRS,
- Enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation,
- Promote federal, state, public and private use of one or more reserves within NERRS when such entities conduct estuarine research, and
- Conduct and coordinate estuarine research within NERRS, gathering and making available information necessary for improved understanding and management of estuarine areas.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

NERRS is administered by the National Oceanic and Atmospheric Administration (NOAA) in close coordination with the National Marine Sanctuary Program. NERRS efforts recognize the need to protect coastal resources from pollution and the pressure of development. Currently, more than 430,000 acres of estuarine waters, marshes, shorelines and adjacent uplands have been protected for research and education. This figure represents the designation of 22 reserves in 18 states and Puerto Rico.

As the program expands new sites are being considered. Each reserve that is designated adds to the network of diverse environments represented by NERRS. This network provides a profile of the nation's estuaries -- an invaluable tool for coastal zone decisionmakers.

SOURCE OF PRIORITY RECOGNITION

Institutional: NERRS was authorized in 1972 by Section 315 of the Coastal Zone Management Act as amended. The program operates under final regulations published on July 15, 1993 (58 FR 38215).

Public: Public input pertaining to site selection is sought through public meetings. The program's goal to improve public knowledge and awareness of estuaries and estuarine management issues acknowledges the value of public opinion.

Technical: Specific scientific knowledge is utilized to determine which land and water areas are "key" to a particular reserve.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Reserves are chosen to reflect regional differences and a variety of ecosystem types. Specific site selection for reserves is done by state representatives and NOAA officials. Formal submission of a proposed site for designation as a research reserve must be made by the governor of the state in which the site is located. Final approval for sites is done by NOAA and is based on the following principles:

- The site's contribution to the biogeographical and topological balance of the NERRS. NOAA will give priority consideration to proposals to establish reserves in biogeographic regions or subregions or incorporating types that are not represented in the system.

- The site's ecological characteristics, including its biological productivity, diversity of flora and fauna, and capacity to attract a broad range of research and educational interests. The proposed site must be a representative estuarine ecosystem that is suitable for long-term research.

- Assurance that the site's boundaries encompass an adequate portion of the key land and water areas of the natural system to approximate an ecological unit and to ensure effective conservation. Boundary size will vary greatly depending on the nature of the ecosystem. Reserve boundaries must encompass the area within which adequate control has or will be established by the managing entity over human activities occurring within the reserve. Generally, reserve boundaries will encompass two areas: key land and water areas (or "core area") and a buffer zone. Key land and water areas and a buffer zone will likely require significantly different levels of control. The term "key land and water areas" refers to the area within the reserve that is so vital to the functioning of the estuarine ecosystem that it must be under a level of control sufficient to ensure the long-term viability of the reserve for research on natural processes. Key land and water areas, which comprise the core area, are those ecological units of a natural estuarine system which preserve, for research purposes, a full range of significant physical, chemical, and biological factors contributing to the diversity of the fauna, flora, and

natural processes occurring within the estuary. The determination of which land and water areas are "key" to a particular reserve must be based on specific scientific knowledge of the area. A basic principle to follow when deciding upon key land and water areas is that they should encompass resources representative of the total ecosystem, which if compromised could endanger the research objectives of the reserve. The term "buffer zone" refers to an area adjacent to or surrounding key land and water areas and essential to their integrity. Buffer zones protect the core area and provide additional protection for estuarine dependent species, including those that are rare or endangered. When determined appropriate by the state and approved by NOAA, the buffer zone may also include an area necessary for the facilities required for research and interpretation. Additionally, buffer zones should be established sufficient to accommodate a shift of the core area as a result of biological, ecological or geomorphological change which reasonably could be expected to occur. A reserve may include existing federal and state lands already in a protected status where mutual benefit can be enhanced. However, NOAA will not approve a site for potential NERRS status that is dependent primarily upon the inclusion of currently protected federal lands to meet the requirements for reserve status (such as key land and water areas). Such lands generally will be included within a reserve to serve as a buffer or for other ancillary purposes and may be included, subject to NOAA approval, as a limited portion of the core area.

- The site's suitability for long-term estuarine research, including ecological factors and proximity to existing research facilities and educational institutions.

- The site's compatibility with existing and potential land and water uses in contiguous areas as well as any approved coastal and estuarine management plan.

- The site's importance to education and interpretive efforts, consistent with the need for continued protection of the natural system.

The state solicits the opinions and concerns of affected landowners, local governments, other state and federal agencies and all other interested parties pertaining to the project, early in the site selection process. At least one public meeting is held for further input.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Currently, 22 reserves have been designated under NERRS. NERRS was established to preserve for research purposes, examples of the diversity of the nation's estuaries. By establishing principles for site selection, NERRS is able to foster a system of estuarine reserves that represents a wide range of coastal and estuarine habitats. The program's dedication to research and education provides the opportunity for increased project support and private contributions.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Obtaining input from the affected parties and the general public is an important part of reserve site selection. By incorporating public opinion into their prioritization process, the Corps could better ensure the acceptability and overall success of their environmental restoration and protection projects.

The 22 reserves designated under NERRS are examples of specific resources with high ecological values that represent a variety of ecosystem types in different biogeographic regions or subregions. The 22 designated reserves could prove beneficial to the Corps by providing a means of tracking and targeting specific natural resources of national and regional significance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Section 1135 Program

GOALS AND OBJECTIVES

The objective of the Section 1135 Program is to improve the quality of the environment through modification of the structures and operations of water resource projects constructed by the Corps of Engineers.

GEOGRAPHIC SCOPE

National -- on land associated with existing Corps projects

OVERVIEW OF PROGRAM/STUDY

The 1135 Program aims to restore fish and wildlife habitat that has been negatively impacted by Corps civil works projects. Restoration practices are implemented through cost-share assistance between federal and nonfederal sponsors. Typical sponsorship consists of 75 percent federal funding and 25 percent nonfederal funding. Total costs for any project under the Section 1135 Program cannot exceed $5 million.

The Policy and Planning Division of the U.S. Army Corps of Engineers, in cooperation with Operations, Construction, and Readiness Division and any other concerned elements, are responsible for managing the program. Actual project management is done through the division and district offices of the Chief of Planning, U.S. Army Corps of Engineers.

SOURCE OF PRIORITY RECOGNITION

Institutional: This program is authorized under Section 1135 of the Water Resources Development Act of 1986 as amended. An amendment in the 1988 legislation changed the status of the program from temporary to permanent. Draft legislation for implementation of Section 1135(b) of P.L. 99-662 is currently waiting approval.

Technical: In order to complete a required feasibility study, technical information is needed to show that the project complies with all applicable environmental statutes and regulations. In addition to NEPA regulations, statutory compliance requirements pertaining to other environmental laws such as the National Historic Preservation Act, Clean Water Act, and Endangered Species Act, will be incorporated into the overall environmental assessment.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Under the 1135 Program, initial priority is given to proposed projects that emphasize active engineering measures to restore water resources. All projects proposed to the Corps of Engineers for modification go through several phases before actual implementation occurs. First, an Initial Appraisal Report must be completed that contains a project description, an explanation of why modification is needed, a map of the project, and a letter of intent from the participating nonfederal sponsor. Submitted Initial Appraisal Reports also confirm that projects meet the following eligibility requirements:

- **Existing Project.** As required by law, the proposal must be for modifications to the structure or operation of a permanent project constructed by the Secretary of the Army in response to a Corps construction authority. This requirement must be met prior to the application of the remaining eligibility criteria. The scale of proposed project modifications should be reasonable with respect to the projects being modified. Section 1135 may not be used to modify projects where the Corps involvement consists of works constructed under the generic Disaster Relief Acts and P.L. 84-99. When a feasibility study is ongoing, consideration should be given to the integration of environmental features in the study rather than proposing separate modifications using Section 1135.

- **Consistency.** The proposed modification must be consistent with the authorized project purposes.

- **Objectives and Constraints.** The objective of the program is to improve the quality of the environment. The objective of the project modification should be the restoration of habitat to a level that could be expected to sustain natural, optimal, carrying capacities of fish and wildlife resources.

    1) The modification should be clearly described, the expected results quantified, and importance discussed. There should be a brief explanation of the degradation in the modern historic condition that makes the proposed modification desirable. If the plan relates to regional or national plans such as the North American Waterfowl Management Plan, this should be mentioned as an indication of the institutional recognition of the output of significance.

    2) The emphasis of the proposed modification should be to restore or otherwise improve degraded habitats to their natural integrity, productivity, stability, and biological diversity. Proposals that would change the existing natural productivity of habitats in an area to benefit one or more species not normally found in those habitats will not be approved.

    3) There must be a clear connection between the location of the proposed modification and the original project. If work is

proposed on lands that are neither project lands, nor contiguous to project lands, then the project modification location must be clearly within the area impacted by the original project.

4) Modifications designed primarily to halt erosion, to control sedimentation, for the addition of a new project purpose (such as water supply), or the addition of waterborne recreation at an existing dry reservoir should not be pursued using Section 1135 authority.

5) Since the purpose of the modification is to restore fish and wildlife habitat, it should be designed to avoid any requirement for fish and wildlife mitigation.

- **Benefits and Costs.** The modification must have tangible and intangible benefits (monetary or non-monetary) judged to exceed the tangible and intangible costs and this must be discussed in the fact sheet and the project modification report. This will not include a traditional benefit to cost ratio, since the benefits associated with the primary output, habitat restoration, can rarely be quantified in dollars. Instead, benefits should be quantified in appropriate units such as increased number of nests, habitat units, quantity and quality of acres modified. With and without conditions should be briefly described and each additional increment of modification should have associated quantifiable benefits.

  1) Any economic benefits from the modifications must be associated primarily with improvements to fish and wildlife resources.

  2) Recreation cannot be the primary output of the proposed modification although increased recreation may be incidental to, and one measure of, the value of the improvement in the fish and wildlife resources.

- **Results.** It must be clear that the structural and/or operational modification will result from implementation of the proposal. Consideration should be given to using an authority other than Section 1135, if the proposed project includes only operational changes that can be accomplished without additional cost. A report or study, in and of itself, is not a modification for purposes of Section 1135, therefore, such proposals will not be funded.

- **Studies Specifically Authorized by Congress.** The division commander may find during the course of a study specifically authorized by the Congress that further study, or project implementation, should proceed under Section 1135. The division commander shall seek, in writing, Headquarters approval to proceed under Section 1135 prior to submission of any report. The division request for this approval shall include a statement of the rationale for

proceeding under Section 1135, a statement documenting both the sponsor's understanding of the cost-sharing requirements and program limits, and a Section 1135 fact sheet.

Once proposed projects have received approval of their Initial Appraisal Report, a feasibility phase begins. During this phase, planning is done within the principles and economic and environmental parameters outlined in Corps draft regulations. The result of the feasibility studies done during this phase is a Project Modification Report. Once the Project Modification Report is completed, project implementation can begin.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The 1135 Program is a fish and wildlife restoration initiative aimed at improving the quality of the environment. Through cost-share assistance, the program has been able to undertake studies pertaining to the modification of the structures and operations of Corps civil works projects. Currently, the program has 44 project modifications studies taking place and one completed project.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

This program is interesting because the project selection criteria consider regional and national initiatives as an indication of the institutional recognition of significance. By considering the plans and resource priorities of other agencies, the Corps would be able to take advantage of this information in their program planning, as well as contribute to an already focused effort associated with a given regional or national initiative.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Upper Mississippi River System Environmental Management Program

GOALS AND OBJECTIVES

The purpose of the Upper Mississippi River System Environmental Management Program (UMRS-EMP) is to ensure the coordinated development and enhancement of the Upper Mississippi River System. The objective of the habitat rehabilitation and enhancement element of the program is to preserve and protect the wide array of diverse biological resources associated with the river system's backwaters by constructing habitat measures that reduce sediment and the negative effects of sedimentation. The objective of the Long-term Resource Monitoring element of the program is to monitor and evaluate river trends to assist in providing decisionmakers with information needed to maintain the Upper Mississippi River System as a viable large river ecosystem.

GEOGRAPHIC SCOPE

Land areas directly related to the Upper Mississippi River System -- the states of Minnesota, Wisconsin, Iowa, Illinois, and Missouri

OVERVIEW OF PROGRAM/STUDY

The Upper Mississippi River System is unique due to its multiple resource functions -- a wildlife refuge, a commercial navigation system, and a significant recreational resource. In 1978, Congress passed P.L. 95-502 which directed the Upper Mississippi River Basin Committee to draft a Comprehensive Master Plan for the Upper Mississippi River System. The plan provided guidance that would later be employed in authorizing the UMRS-EMP in 1986 via P.L. 99-662. The UMRS-EMP is designed to protect and balance these resource functions, as well as guide the future management of the 1,300 mile river system. The program consists of five authorized elements:

- Habitat rehabilitation and enhancement projects,
- Long-term resource monitoring,
- Recreation projects,
- Economic impacts of recreation study, and
- Navigation traffic monitoring.

Total funding authorized to implement these five elements through the year 2002 is $288,690,000. Over 65 percent of authorized funds are allocated to the habitat project element and approximately 30 percent to the Long-term Resource Monitoring element. The Economic Impacts of Recreation Study was completed in 1992 at a cost of $750,000. Recreation projects are not being funded because they are currently a low priority of the federal government.

UMRS-EMP is administered by the U.S. Army Corps of Engineers, as authorized by Congress. In implementing the UMRS-EMP, the Corps actively coordinates with the U.S. Department of Interior and the five states of the Upper Mississippi River Basin Association (i.e., Illinois, Iowa, Minnesota, Missouri, and Wisconsin). The North Central Division of the Corps provides overall program management and is guided in its policies by the Office of the Chief of Engineers. Habitat projects are designed and constructed by the Corps of Engineers District Offices in the region. The Long-term Resource Monitoring element is implemented under the administration of the U.S. Fish and Wildlife Service (FWS), with oversight by the Corps.

The FWS along with representatives from the five states actively develop habitat programs and screen and recommend proposed projects for participation. There are over 50 habitat projects that are actively being designed and evaluated, and over 30 additional project opportunities have been identified. The primary criteria for project eligibility is that a direct relationship exist between the project and the central problem of sedimentation and its negative impacts. All selected projects are subject to pre-project monitoring as well as post-construction monitoring. Monitoring is executed by state biologists who staff the Long-term Resource Monitoring field stations.

SOURCE OF PRIORITY RECOGNITION

Institutional: This program was originally authorized by Section 1103, known as the Upper Mississippi River Management Plan, of the Water Resources Development Act of 1986 (P.L. 99-662). The Water Resources Development Act of 1990 was signed into law (P.L. 101-640) with Section 405 of the new law modifying Section 1103 of the original act. The new modification extended the authorization period an additional five years through 2002.

Technical: Technical reports prepared during the late-1970s, in support of the Comprehensive Master Plan for the Upper Mississippi River System Study, provided a framework for the UMRS-EMP.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Habitat projects are screened, rated, and ranked by panels of knowledgeable biologists from the state and federal agencies. The rankings are submitted by the panels to the respective Corps district offices, which first screen the projects for overall program eligibility. Eligibility criteria include:

- District relationship of the project to sedimentation problems,

- Geographic proximity to river,
- Compatibility to agency (Corps) missions, and
- Not resultant of deferred maintenance actions.

The Corps offices then perform a further prioritization process to include consideration of engineering feasibility, scheduling, and workload factors. During the screening and prioritization process, the projects are either numerically rated or ranked into groups of high, medium, or low priority, with consideration of regional habitat needs of fish, waterfowl, and other wildlife. With few exceptions, based on the need for geographic distribution and a balanced mix of waterfowl and fisheries projects, only the highest priority projects have been pursued.

Prior to a habitat project being approved for construction, the following criteria must be met:

- Readiness, which includes:
  - Cost-sharing issues agreed upon,
  - Detailed engineering and design completed,
  - Permit/NEPA requirements satisfied, and
  - Coordination effected with other agencies.
- Compatibility with FWS master plans for refuge lands and Corp's Land Use Allocation plans,
- Public and agency support,
- Evaluation of habitat outputs to be gained in relation to project construction costs.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

UMRS-EMP has been successful due to its foundation in a master plan established specifically for Upper Mississippi River System. The program's reliance on pre-project monitoring and post-construction evaluation and monitoring, helps ensure that projects will meet site-specific goals and objectives. Currently, there are over 50 active habitat projects and over 30 additional project opportunities have been identified.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

By placing a high value on the "readiness" of proposed projects, UMRS-EMP is able to incorporate projects into the program that are easily implemented. This could be useful in

other Corp's initiatives because it facilitates higher project success rates by focusing on projects that have low numbers of institutional obstacles. Employing a monitoring system in other Corp's programs could also aid in project success.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Marine Fish Habitat Restoration and Creation Program

GOALS AND OBJECTIVES

The program goal is to increase marine fish and shellfish productivity and advance habitat restoration technology in conjunction with the Corps' Civil Works Program.

GEOGRAPHIC SCOPE

The program is applicable in five National Marine Fisheries Service (NMFS) Regions and participating Corps Divisions and Districts cooperating with other participating agencies.

OVERVIEW OF PROGRAM/STUDY

The Marine Fish Habitat Restoration and Creation Program is administered by the U.S. Army Corps of Engineers and the National Oceanic & Atmospheric Administration (NOAA). The program originated from a 1986-88 NMFS-Corps pilot study that was conducted on projects within the Corps' Civil Works Program.

Habitat restoration and creation opportunities are identified from within the overall Corps' Civil Works Program and may include anadromous, estuarine, and marine fish habitats. Planning, construction, and operation and maintenance activities of all participating Corps Divisions are reviewed to identify potential features. Two general types of restoration features offered are as follows:

- **Readily-implementable features** are constructed with the objective(s) of increasing fish productivity and/or engineering efficiencies and do not involve extensive monitoring requirements, and

- **Experimental features** expand the understanding of the effectiveness of existing techniques and have the added objective of improving the technologies of fish habitat restoration and creation and/or environmental engineering.

Third-party cooperation and support is an important part of implementing the program. Each participating federal, state, and non-governmental agency brings legislative authorities, expertise, and resources to the program. Funding for all activities is provided by participating agencies.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Marine Fish Habitat Restoration and Creation Program was established by an Army-NOAA agreement signed on January 31, 1991. The agreement authorized the Corps and NOAA to undertake an initiative of fish and shellfish habitat restoration and creation. The Program is consistent with the following statutes:

- Comprehensive Environmental Response, Compensation, and Liability Act (Superfund);
- Clean Water Act;
- Marine Protection, Research, and Sanctuaries Act; and
- Oil Pollution Act.

Technical: Technical data is used to guide and analyze project planning and monitoring activities.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Under the Marine Fish Habitat Restoration and Creation Program, participating federal and state agencies complete the following activities:

- Systematically identify and select fish and shellfish habitat restoration and creation opportunities within the Corps Civil Works Program;
- Plan, construct, and otherwise implement selected restoration features; and
- Conduct needed monitoring activities.

Three major factors are considered in the screening and selection of restoration features: habitat and technique diversity, cost, and increasing fish productivity versus mitigation. Each factor is described in more detail below.

Habitat and Technique Diversity

When identifying candidate restoration features, a broad range of restoration techniques and habitats are examined. Program features are not limited to wetland construction using dredged material and should include marine, estuarine, and anadromous fish and shellfish species and their habitats. Examples of projects are:

- Removing stream obstructions and/or establishing riparian vegetation to restore anadromous fish runs,
- Placing excavated rock and concrete to create reef habitat,

- Breaching dikes to restore tidal wetland areas,
- Regulating water structures to increase shrimp production, and
- Placing seeded, shell-capped clean sediments to create or restore oyster beds.

Increasing Fish Productivity Versus Mitigation

Work done under the guidance of this program is not used to mitigate anticipated damages from Corps projects. Instead, all work is consistent with the program's goal to increase marine fish and shellfish habitat productivity. Restoration features are designed to produce a net increase when compared with current existing conditions.

Cost

Cost plays an important role in the restoration feature selection process. In order for a feature to be selected, implementation must be feasible using existing resources and funding. The Corps is authorized to pursue only features that do not have added costs. Features involving added project costs require approval of the Assistant Secretary of the Army (Civil Works) before they can be implemented. If costs exceed existing resources and funding, cost-sharing by nonfederal interests may be possible.

Four factors are considered before final restoration feature selection:

- Readily-implementable features have a reasonable chance of increasing fish and/or shellfish productivity,
- Experimental features have a high probability of enhancing the understanding and technology of habitat restoration,
- The proposed feature may provide more productivity or increased technology benefits than those of the existing habitats, and
- Every feature is accompanied by a baseline and post-construction monitoring program adequate to assess the degree of success.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

From 69 possible sites, the following six habitat restoration and creation features were approved and implemented:

1) Atlantic Intracoastal Waterway Wetlands Creation, North Carolina — Grading and revegetating three disposal areas to stabilize sediments and create nursery habitat,

2) Gulf Intracoastal Waterway Wetlands Creation, Texas — Creating marsh and water circulation on two dredged material sites for aquatic organism access,

3) Mission Bay Jetty Reef Construction, California — Constructing an artificial reef for fish habitat,

4) Proposed Prospect Island Wetland Reclamation, California — Planning for restoration of low elevation farmland to wetlands fish nursery habitat,

5) Slaughter Creek Oyster Reef Creation, Maryland — Expanding a Chesapeake Bay oyster reef to supplement production, and

6) Twitch Cove Habitat Vegetation, Maryland — Elevating and vegetating Chesapeake Bay bottom to provide a fish and blue crab nursery area.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The success of the Marine Fish Habitat Restoration and Creation Program is dependent upon the support and cooperation of federal and state agencies. By combining efforts at both the state and federal level, the Corps increases its pool of resources, project expertise, and legislative authority.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Areas of Critical Environmental Concern

GOALS AND OBJECTIVES

Areas of Critical Environmental Concern (ACEC) designations highlight areas where special management attention is needed to protect and prevent irreparable damage to important historic, cultural, and scenic values, fish, or wildlife resources or other natural systems or processes; or protect human life and safety from natural systems or processes; or to protect human health and safety from natural hazards. The ACEC designation indicates to the public that the BLM recognizes that an area has significant values and has established special management measures to protect those values. In addition, designation also serves as a reminder that significant values or resources exist that must be accommodated when future management actions and land use proposals are considered near or within an ACEC. Designation may also support a funding priority.

GEOGRAPHIC SCOPE

ACECs are authorized on all U.S. Department of the Interior, Bureau of Land Management (BLM) lands. These lands consist of about 272 million acres of publicly-owned land occupying twelve western states and Alaska.

OVERVIEW OF PROGRAM/STUDY

The ACEC program is administered by the BLM. ACECs are areas of particular importance because they contain a large variety of resources, including irreplaceable archeological and cultural resources, outstanding recreation opportunities and values, and rare wildlife and plant species.

Congress directed the BLM, in 1976, to give "priority to" areas of critical environmental concern, which it defined in the Federal Land Policy and Management Act as "areas . . . where special management attention is required . . . to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes."

SOURCE OF PRIORITY RECOGNITION

Institutional: The Federal Land Policy and Management Act (FLPMA) of 1976 provides for ACEC designation and establishes a national policy for the protection of public land areas of critical environmental concern. Section 202(c)(3) of the FLPMA mandates that BLM give

priority to the designation and protection of ACECs in the development and revision of land use plans. The BLM's planning regulations (43 CFR 1610.7-2) establish the process and procedural requirements for the designation of ACECs in resource management plans and in plan amendments.

Public: Public opinion and participation is important in analyzing project alternatives and evaluating program efforts. These activities aid in project selection.

Technical: Scientific and technical information are used to identify significant resource values, fish and wildlife resources, and other natural systems and processes, which are considered in the criteria for ACEC designation.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Designation of an ACEC is done at the local level through the land use planning process, with ultimate approval coming from the district manager of the BLM. Priorities are based on broad criteria outlined by the national BLM Office and site-specific criteria presented at the local level. Decisions on designations take into account public comments, the advice of resource specialists, and the relationship of the project to the broader public land management goals.

To be considered as a potential ACEC and analyzed in resource management plan alternatives, an area must meet the criteria of relevance and importance, as established in 43 CFR 1610.7-2. The criteria are as follows:

1) **Relevance.** An area meets the "relevance" criterion if it contains one or more of the following:

- A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to Native Americans).

- A fish or wildlife resource (including but not limited to habitat for endangered, sensitive or threatened species, or habitat essential for maintaining species diversity).

- A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).

- Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined through the resource management planning process that it has become part of a natural process.

2) **Importance.** The value, resource, system, process, or hazard described above must have substantial significance and values in order to satisfy the "importance" criteria. This generally means that the value, resource, system, process, or hazard is characterized by one or more of the following:

- Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
- Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
- Has been recognized as warranting protection in order to satisfy national priority concerns or carry out the mandates of FLPMA.
- Has qualities that warrant highlighting in order to satisfy public or management concerns about safety and public welfare.
- Posses a significant threat to human life and safety or to property.

Districts are divided into planning units (from one to two million acres) based on topography and the natural resources present. In order for an ACEC to be designated from the planning unit, a resource management plan must be developed and an environmental impact statement performed. As stated in FR 1601.0-5, the resource management plan generally establishes in a written document:

1) Land areas for limited, restricted, or exclusive use; designation, including ACEC designation; and transfer from BLM administration;

2) Allowable resource uses (either singly or in combination) and related levels of production or use to be maintained;

3) Resource condition goals and objectives to be attained;

4) Program constraints and general management practices needed to achieve the above items;

5) Need for an area to be covered by more detailed and specific plans;

6) Support action, including such measures as resource protection, access development, realty action, cadastral survey, etc., as necessary to achieve the above;

7) General implementation sequences, where carrying out a planned action is dependent upon prior accomplishment of another planned action; and

8) Intervals and standards for monitoring and evaluating the plan to determine the effectiveness of the plan and the need for amendment or revision.

Resource management plans further define priority areas by developing site-specific land use plans. Environmental assessment reports are developed in conjunction with site-specific designation.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The ACEC program is unique in its approach to preserving natural resources and the amenities associated with them. By requiring resource specialists, program administrators, and the general public to follow various land use management steps, the BLM is assured that designated areas will be protected. The multi-step prioritization process, which uses broad criteria outlined by the national BLM office and site-specific criteria at the local level, injects a certain amount of objectivity and provides some assurance that certain environmental factors will not be overlooked.

Currently, 525 ACECs have been designated, which represent 8,703,701 acres.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The ACEC program has benefitted from the use of resource management plans. These plans not only provide for program focus, but also facilitate ACEC designation of qualified sites.

The 525 ACECs that are currently designated could prove beneficial to the Corps by identifying areas deemed significant because of important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Riparian-Wetlands Initiative

GOALS AND OBJECTIVES

The Riparian-Wetlands Initiative is based on four nationwide wetland goals:

- Restore and maintain riparian-wetland areas so that 75 percent or more are in proper functioning condition by 1997. The overall objective is to achieve an advanced ecological status, except where resource management objectives, including proper functioning condition, would require an earlier successional stage.

- Protect riparian-wetland areas and associated uplands through proper land management and avoid or mitigate negative impacts. The objective is to protect, acquire, and expand key areas to provide for their maximum public benefit, enhancement and efficient management.

- Conduct an aggressive riparian-wetland information and outreach program, including providing training and research. The objective is to promote value and importance of healthy riparian-wetland areas.

- Improve partnerships and cooperative restoration and management processes in implementing the Riparian-Wetlands Initiative. The objective is to accomplish funding alternatives for high-priority projects.

GEOGRAPHIC SCOPE

The program includes riparian-wetland areas on Bureau of Land Management (BLM) administered public land, as well as other public lands and private land to the extent that projects contribute to the success of initiatives on BLM land. Riparian-wetland areas encompass 23.7 million acres of BLM lands, which represents 8.8 percent of the total land managed by BLM.

OVERVIEW OF PROGRAM/STUDY

The Riparian-Wetlands Initiative was developed by the BLM in an effort to facilitate restoration of riparian-wetland areas. The program is part of a nationwide planning effort that involves other BLM programs including: Range of Our Vision, Recreation 2000, and Fish and Wildlife 2000.

SOURCE OF PRIORITY RECOGNITION

Institutional: The program gets its authorization from numerous laws, executive orders, and policies. The following relate most closely to riparian-wetland issues:

- Taylor Grazing Act of 1934. Directs the Secretary of the Interior to stop injury to the public lands including riparian-wetland areas by preventing overgrazing and soil deterioration, and to provide for their orderly use, improvement, and development.

- Federal Land Policy and Management Act of 1976. Requires that the public lands be managed in a manner that will protect the quality of ecological, environmental, and water resources values, among others, including riparian-wetland areas.

- Interior Department Manual 520. Provides for preservation, protection, and acquisition of riparian-wetland areas, as necessary.

- BLM Manual 1737. Provides guidelines for protecting and acquiring riparian-wetland areas as needed to preserve this habitat type.

Technical: The prioritization process, which is discussed in the section below, is based primarily on the use of scientific and technical knowledge to assess "degree of threat."

PRIORITIZATION OR PROJECT SELECTION PROCESS

Prioritization for the Riparian-Wetlands Initiative originates at the national level, where riparian-wetland areas are viewed as either:

- Top Priority: Riparian-wetland areas that may suffer further degradation and have potential for improvement are given top priority, or

- Lower Priority: Those that have been degraded but appear stable are given lower priority for restoration and improvement.

This information is passed down to state and district agencies through program guidance. States establish their priorities by analyzing riparian-wetland areas based on "degree of threat." The BLM defines "degree of threat" as "the extent to which the riparian-wetland areas may deteriorate if restoration or improvement action is not immediately implemented." Other factors that are also considered in the process include:

- Special status species,

- Water quality,

- Competing water uses,

- Fisheries,
- Recreation values,
- Potential for improvement, and
- Risk of further degradation.

State agencies present their specific priorities to the BLM's national office during the Preliminary Annual Workshop Process, where allocation of funding is decided based on prioritization results. Priorities are ultimately accomplished when states and BLM districts implement strategic plans.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

By establishing priorities at both the national and state level, the BLM has continued to make progress toward meeting its goals. For example, in FY 1988-1989, the BLM inventoried 770,000 riparian and wetland acres, prepared activity plans on 138 areas with riparian-wetland objectives, completed 1,250 riparian improvement projects, maintained 1,060 riparian projects to continue their beneficial use, and monitored 1,600 sites or plans to determine if management objectives were being met.

The BLM is actively acquiring riparian-wetland areas through exchange, donation, or purchase, especially in areas adjacent to Waterfowl Habitat Management Areas or in areas that are critical for threatened or endangered species. Examples of recently acquired key riparian-wetland areas are 100 miles of streamside riparian-wetland areas in Arizona that have been brought into public ownership through exchange, including the San Pedro River which was designated as the nation's first Riparian National Conservation Area.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Riparian-Wetlands Initiative was established to serve as a blueprint to restore and manage riparian-wetland areas. By developing a prioritization framework that incorporates national and state goals, the BLM has been able to focus its program to suit the needs of regional areas. In addition, by basing prioritization on "degree of threat," the BLM is able to focus resources on the riparian-wetland areas that have the greatest risk of deterioration.

The BLM's inventory of riparian and wetland areas or similar inventories developed by state agencies during the prioritization process could be used by the Corps to identify specific riparian-wetland priority areas.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Waterfowl Habitat Management on Public Lands Strategic Plan

GOALS AND OBJECTIVES

The objectives of the Waterfowl Habitat Management on Public Lands Strategic Plan are:

1) Habitat inventory and evaluation/classification,

2) Habitat improvements,

3) Habitat acquisition,

4) Habitat expansion,

5) Habitat maintenance,

6) Cooperative management agreement/plans,

7) Coordination/partnership, and

8) Management actions/practices.

GEOGRAPHIC SCOPE

Nationwide on Bureau of Land Management (BLM) public lands and other public and private lands to the extent that projects contribute to the success of initiatives on BLM lands. BLM lands are almost totally restricted to the 17 western states.

OVERVIEW OF PROGRAM/STUDY

The Waterfowl Habitat Management on Public Lands Strategic Plan is administered by the U.S. Department of Interior's BLM. The plan was developed in response to the goals and objectives relating to waterfowl outlined in *Fish and Wildlife 2000: A Plan for the Future.* The purpose of the plan is to identify resource opportunities and actions required to accomplish national waterfowl goals and objectives outlined in *Fish and Wildlife 2000* and to provide the framework for wetland habitat management Bureau-wide with special emphasis on waterfowl habitat management.

This strategic plan serves as a roadmap for the future direction of wetlands management on the BLM's national public lands system. The specific management opportunities outlined by

the plan provide insight on how to manage wetlands effectively to preserve waterfowl, including BLM's participation in implementing the North American Waterfowl Management Plan (NAWMP).

The Waterfowl Habitat Management on Public Lands Strategic Plan divides wetland habitats into two areas:

1) Waterfowl habitat management areas (WHMAs) within major areas of concern addressed in the NAWMP, and

2) WHMAs outside areas of major concern.

These wetland habitats are grouped into basic three categories:

1) Production Habitat: habitat used during nesting season,

2) Migration Habitat: habitat used during the migration seasons, which may consist of resting and staging areas, and

3) Wintering Habitat: habitat used during the winter season, which may vary in importance and location according to the severity of the winter.

SOURCE OF PRIORITY RECOGNITION

Institutional: The program is authorized by the Federal Land Policy and Management Act of 1976. This Act provided the BLM with a multiple-use mandate and the responsibility to increase stewardship of natural resources, including waterfowl habitats.

Further impetus was given to the BLM's mandates by the following executive orders, regulations and laws:

- Emergency Wetlands Reserve Act of 1986. Promotes the conservation of wetlands by identifying cooperative efforts among state, private and federal interests.

- Food Security Act of 1985 (Farm Bill). Provides incentives for wetland protection and restoration on farmlands.

- Clean Water Act of 1977 (Amendment to Clean Water Act). Provides for protection, restoration or improvement of water quality, including wetlands.

- Water Quality Act of 1987 (Amendment to Clean Water Act). Established to manage nonpoint source pollution.

- Land and Water Conservation Fund Act of 1964. Established a fund to preserve, develop and assure access to outdoor recreation sources.

- Executive Order 11988 (Floodplain Management). Mandates a reduction in hazards to human safety, preserves values served by floodplains.

- Executive Order 11990 (Protection of Wetlands). Establishes a policy to minimize destruction, loss or degradation of wetlands.

- Interior Department Policy (BLM Manual 1731). Implemented to preserve, protect and acquire wetlands, riparian areas as necessary.

- BLM Manual 1737. Provides guidelines for protecting and acquiring wetland or riparian areas as needed to preserve this habitat type.

Public: The public's interest in perpetuating waterfowl resources is present both nationally and internationally. This support is important in identifying, restoring, managing and funding restoration and preservation efforts.

Technical: Technical and scientific information is used to inventory and monitor resources, identify WHMAs, prepare site-specific management plans, and prioritize on-the-ground management.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Within the 20.6 million acres of waterfowl habitat on the BLM lands, field offices identified a total of 229 WHMAs during an analysis associated with developing the strategic plan. Of the 229 WHMAs, 44 areas occur in major waterfowl habitat management areas of concern listed in the NAWMP.

Activity plans allow the BLM's waterfowl habitat management program to focus on specific areas and respond to targeted issues and concerns. They also provide a means of establishing site-specific waterfowl objectives as well as monitoring the implementation of these objectives. Activity plans have facilitated a variety of wetland improvement projects, including planting waterfowl food, dike construction, and fencing to establish and protect nesting cover.

Recent BLM management has focused on the following five areas:

1) Natural wetland management and enhancement,

2) Man-made wetlands habitat development,

3) Stock pond and reservoir enhancement,

4) Mitigation of wetland habitat values, and

5) Wetlands acquisition.

Ranking of projects will be done by each individual state BLM office in future planning efforts with the *Fish and Wildlife 2000* effort.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Currently the BLM administers some 20 million acres of wetlands that are biologically essential to waterfowl species. As mentioned above, 229 WHMAs have been identified on BLM lands. Sixty-five of the WHMAs have habitat management plans developed for improvement of waterfowl habitat. On-the-ground management has been initiated on 82 of these areas. Intensive wetlands management is occurring on 270,000 acres or 1.4 percent of the total wetlands resource administered by the BLM.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

By setting priorities at the state level, the Waterfowl Habitat Management on Public Lands Strategic Plan is able to take site-specific concerns into consideration when implementing waterfowl/wetland management. State or regional level prioritization could be used by the Corps in determining the significance of areas that could be impacted by proposed water resources development projects. The 229 WHMAs identified under this program could prove beneficial to the Corps by identifying specific resources deemed significant for their wetland habitat values.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Challenge Cost-Share Program

GOALS AND OBJECTIVES

The overall goal of the Challenge Cost-Share Program is to manage, restore, and enhance natural and cultural resources on Fish and Wildlife Service (FWS) and private lands in partnership with nonfederal, public and private institutions, organizations and individuals. The program was also developed to encourage the mutual shared interest and participation of the ultimate beneficiaries of all FWS programs -- people.

GEOGRAPHIC SCOPE

The program is employed nationally on FWS land or private land.

OVERVIEW OF PROGRAM/STUDY

The Challenge Cost-Share Program is administered by the Department of the Interior's FWS. The program was established to encourage partnerships and cooperation between the FWS and private organizations and nonfederal governments. Examples of Challenge Cost-Share Program projects include: wetlands restoration, fish barrier and water control structure installation, development of fish and wildlife habitat, research on FWS lands, repair and maintenance of equipment, peregrine falcon hacking projects, exotic plant control, and heron colony studies. The program uses federal and nonfederal funds, with at least 50 percent of the cost of each project being provided by nonfederal cooperators.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Challenge Cost-Share Program was originally authorized for the U.S. Forest Service in 1986. In 1988, Congress directed the FWS, through language in its appropriations bill, to conduct a Challenge Cost-Share Program. As such, there is no authorizing legislation specifically for the program, apart from the annual FWS appropriations.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Priorities for Challenge Cost-Share's activities are set on a national level by the FWS Director. In establishing these priorities, special consideration is given to FWS programs, current FWS issues, and policies and issues of concern to the present administration.

Funding for the program is divided between the Directors Award (25 percent) and the FWS regional offices (75 percent). Selection for the Directors Award occurs during a multi-agency panel meeting to decide FWS priorities for the coming fiscal year. This panel is comprised of individuals from the FWS, National Park Service, U.S. Forest Service, Bureau of Land Management, and Environmental Protection Agency. FWS national priorities are used by the panel to determine which regional projects, of those nominated, will receive funding from the Directors Award.

Regional offices, upon allocation of funding, employ their own ranking processes. The selection of projects for funding is done by combining national priorities with regional needs.

Ranking of national priorities varies from year to year and is heavily based on agency policy. Information on national priorities is used by the FWS at the regional level to further establish priorities by region. For FY 1993, FWS priorities for the Challenge Cost-Share Program ranked in the following order from most to least important:

- Endangered species,
- Wetlands,
- Watchable wildlife,
- Biodiversity,
- Refuge/hatchery operations, and
- Law Enforcement.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

By using a multi-agency panel in its selection of Directors Award recipients, the FWS is able to incorporate some of the policies and priorities of other governmental agencies and further strengthen the potential for effective management, restoration or enhancement of environmental resources. Although establishing overall national and regional priorities assists the FWS in allocating funds for Challenge Cost-Share projects, there are no formal criteria to set priorities for individual projects.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Because the FWS uses a multi-agency panel to set FWS national priorities for each fiscal year, it can consider specific issues and concerns of other federal agencies within and outside of the Department of Interior that are involved with aquatic resources. This multi-agency approach could be beneficial to the Corps in getting national priorities for environmental mitigation, restoration, or protection efforts.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Bay/Estuary Program

GOALS AND OBJECTIVES

The overall goal of the Bay/Estuary Program is to provide leadership to achieve a net gain of coastal fish and wildlife and the natural ecosystems that support them. This goal is based on three ecologically-based planning principles:

- Maintain natural ecosystem diversity, functions, and productivity (the basic web of life),
- Promote free-ranging and self-sustaining populations of native species within their historic ranges, and
- Provide for ecologically sound levels of public use, economic benefits, and the enjoyment of natural values.

GEOGRAPHIC SCOPE

The Bay/Estuary Program is a national coastal watershed-based effort that currently involves 9 funded and 15 proposed bay and estuary areas along the coastline of the United States.

OVERVIEW OF PROGRAM/STUDY

The Bay/Estuary Program began in 1985 when the Chesapeake Bay Program was established. Administered by the U.S. Fish and Wildlife Service (FWS), the program focuses on living resources in an effort to provide a more holistic approach to management and restoration of coastal ecosystems. The four major activities of the Bay/Estuary Program are as follows:

1) Integrating all FWS programs in the watershed to identify the priority natural resource problems and potential solutions;

2) Carrying these problems/solutions to the planning, management, and decision-making processes of other agencies (EPA's National Estuary Program, NOAA's Coastal Zone Management and Protected Areas Programs, and programs of the Corps of Engineers);

3) Establishing partnerships to implement on-the-ground actions and solutions; and

4) Conducting outreach to inform the public and private sector about the ecological importance of coastal watersheds, and help catalyze them to change behaviors and become involved in solving problems and promoting ecologically sound decisions.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Bay/Estuary Program derives authority from a broad array of legislation that includes, but is not limited to:

- Fish and Wildlife Act of 1956,
- Fish and Wildlife Coordination Act,
- Endangered Species Act of 1973, as amended,
- Marine Mammal Protection Act,
- Clean Water Act,
- Migratory Bird Conservation Act,
- Coastal Barrier Resources Act as amended by the Coastal Barrier Improvement Act of 1990,
- Emergency Wetlands Resources Act,
- Great Lakes Restoration Act,
- Federal Power Act,
- Food Security Act of 1985 as amended by the Food Agriculture, Conservation, and Trade Act of 1990, and
- Natural Environmental Policy Act.

Technical: In identifying threats that affect coastal living resources, individual Bay/Estuary Program offices often conduct or compile information about, one or more of the following: evaluations of the effects of toxic chemicals and pollution, comparisons of historical versus present day conditions and resources using various data management systems, environmental assessments and studies that focus on cumulative impacts and watershed-wide conditions, hydrological and nutrient budget studies and modelling, and other long-term research that provides technical information on habitat requirements and restoration techniques. The various programs of the FWS often contribute to this process, thus providing a truly integrated FWS perspective approach.

PRIORITIZATION OR PROJECT SELECTION PROCESS

To guide and determine continuing and future efforts within the Bay/Estuary Program, the following general criteria are used to prioritize programs:

- Areas with a high resource value and/or significant geographic extent;
- Areas with a high biological diversity;
- Areas which are highly threatened with significant resource loss or deterioration/degradation, or where substantial losses or degradation have already occurred;
- Areas with high potential for problem prevention, restoration or remediation; and
- Areas that are already part of a national or state conservation program.

Each proposal is assigned a quantitative score based on detailed scientific and technical criteria in the Bay/Estuary Ranking Evaluation Form. New proposals are considered and ranked based on the above criteria during meetings of the National Coastal Advisory Group. These meetings are attended by senior representatives from the different FWS programs, from different FWS regions, as well as the Assistant Director of Ecological Services. Estuary areas nationwide are ranked based on the above criteria and a schedule for funding in selected priority areas is established. As necessary, re-ranking of the programs may occur at the recommendation of Advisory Group members.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Thus far, program site selection has proven to be a useful guide internally. However, politics have played a large overriding role in which programs are selected for funding. This is particularly evident when a low priority program with strong political support is selected over other high priority programs.

The Bay/Estuary Program has identified 24 bay and estuary areas (9 funded and 15 proposed). The sites are selected based on resource significance, threats and vulnerability, and opportunities to improve conditions.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

By combining intra-FWS and external partnerships and cooperation, the Bay/Estuary Program is able to integrate FWS's traditional as well as new coastal legislative authorities and programs to achieve comprehensive and cost-effective solutions to identified coastal living resource problems. The 24 bay and estuary areas identified under this program could prove beneficial to the Corps by identifying specific areas deemed significant because of high resource values.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

National Coastal Wetlands Conservation Grant Program

GOALS AND OBJECTIVES

The primary goal of the National Coastal Wetlands Conservation Grant Program is to acquire, restore, enhance, or manage coastal wetlands with quantifiable results or benefits for the long-term conservation of coastal wetlands and the hydrology, water quality, and fish and wildlife dependent upon them.

GEOGRAPHIC SCOPE

Coastal areas in the following states and territories are eligible for program funds:

- States bordering the Great Lakes -- Michigan, Indiana, Illinois, Minnesota, Ohio, Pennsylvania, and Wisconsin;
- States bordering the Atlantic Coast, Gulf of Mexico, and Pacific Coast -- California, Alaska, Alabama, Florida, Delaware, Connecticut, Georgia, Hawaii, Maine, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Oregon, Rhode Island, South Carolina, Texas, Virginia, and Washington; and
- U.S. territories -- Guam, Commonwealth of Northern Marina Islands, American Samoa, Puerto Rico, Trust Territories of the Pacific Islands, and the Virgin Islands.

OVERVIEW OF PROGRAM/STUDY

The National Coastal Wetlands Conservation Grant Program focuses its efforts on the acquisition and restoration of coastal wetlands. The program is administered by the U.S. Department of Interior's Fish and Wildlife Service (FWS). Purposes eligible for funding under this program are as follows:

1) Obtaining a real property interest in coastal lands and/or waters, if the acquisition of such interests is subject to terms and conditions that will ensure the real property will be administered for the long-term conservation of such lands and waters and the hydrology, water quality and the fish and wildlife dependent thereon.

2) Restoration, enhancement, or management of coastal wetlands ecosystems, if such activities are conducted on coastal lands and waters that are administered pursuant to terms and conditions providing for the long-term conservation of such lands and waters and the hydrology, water quality and fish and wildlife dependent thereon.

All projects must be oriented towards long-term conservation. Funding of proposed projects is done through a cost-share agreement between state and federal governments. State projects that are consistent with the eligibility requirements and the purpose and provision of the legislative authority, are submitted to the FWS. Funding allocated to the states by the federal government cannot exceed 50 percent of the total project cost. The federal share may be increased to 75 percent if the coastal state has established a trust fund or fund derived from a dedicated recurring source of monies (including but not limited to real estate transfer fees or taxes, cigarette taxes, income tax check-offs, or motor vehicle license plate fees) for the purpose of acquiring coastal wetlands, other natural areas or open space. Any state that is the recipient of a grant, must provide for long-term conservation of such coastal lands or waters and their hydrology, water quality, and fish and wildlife.

Federal funding for the program is derived from a portion of the revenues deposited in the Sport Fish Restoration Account of the Aquatic Resources Trust Fund. Monies deposited in this account come from a ten percent excise tax on trolling motors and sonar fish finders, as well as taxes on gasoline attributed to use in small engines and a portion of the taxes on gasoline used in motorboats.

SOURCE OF PRIORITY RECOGNITION

Institutional: This program is authorized by Section 305 of the Coastal Wetlands Planning, Protection and Restoration Act (the Act) of 1991 (16 U.S.C. 3954).

Technical: Scientific and technical information is used in the point-system ranking applied to proposed projects when funding requests exceed the funds available. The point-system ranking is discussed in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Initial priority is given to projects that can be completed within the first year of funding. Projects selected for funding must be substantial in character and design. A substantial project is one that:

- Identifies and describes a need within the purposes of the Act;
- Identifies the objective to be accomplished based on the state's need;
- Utilizes accepted principles, sound design and appropriate procedures; and

- Will yield benefits that are pertinent to the identified need at a level commensurate with the costs.

The Director of the FWS also gives priority to projects that pertain to criteria stated in the Act. These criteria are:

- Consistency with the criteria and considerations outlined in the National Wetlands Priority Conservation Plan;
- Location in maritime forests on coastal barrier islands; and
- Location in states that have established dedicated funding for programs to acquire coastal wetlands, natural areas, and open spaces.

When funding requests exceed the funds available, the point-system ranking outlined below is used to rank qualified proposals.

1) Proposal is for acquisition of maritime forest on a coastal barrier, as defined in the Act. -- **20 points**

2) The proposal addresses the no-net-loss concept by reversing wetland loss or habitat degradation.

   a) Project will benefit decreasing wetlands types (estuarine intertidal emergent, estuarine intertidal forested, estuarine scrub-shrub maine intertidal). -- **10 points**

   b) Project will benefit stable wetlands types (estuarine intertidal non-vegetated, estuarine subtidal). -- **5 points**

   c) Project will benefit increasing wetlands types. -- **3 points**

3) Will any federally listed endangered or threatened species be affected by the project?

   a) Proposal will provide or enhance essential habitat for two or more species. -- **10 points**

   b) Proposal will provide or enhance essential habitat for one species. -- **5 points**

   c) Proposal will not provide essential habitat to any species. -- **0 points**

4) Will the proposal provide benefits to a diversity of fish and wildlife?

   a) Proposed project has been documented to exhibit high biological diversity for individual native species compared to similar wetlands types in the region. -- **7 points**

b) Proposed project has been documented to exhibit low to moderate biological diversity compared to similar wetlands types in the region. -- **3 points**

c) Biological diversity of the site has not been determined. -- **0 point**

5) Will the project provide spawning and nursery benefits to anadromous and other coastal interjurisdictional fish species and the habitats?

a) Project will provide significant benefits. -- **7 points**
b) Project will provide minor benefits. -- **3 points**
c) Project will not provide any documented benefits. -- **0 points**

6) Will the proposal provide protection from contaminant input or restore wetlands already contaminated?

a) Project will provide significant values in contaminant protection, including nutrients assimilation, sediment trapping and toxic substance uptake, or project is designed to restore contaminated wetlands. -- **5 points**

b) Project will provide limited contaminant protection or restoration will be of minor value to contaminant reduction. -- **2 points**

c) Project will not provide any documented benefits. -- **0 points**

7) Will the proposal receive financial support from partnerships with private, local or federal interests?

a) Proposal includes the state plus 2 or more partners. -- **10 points**

b) Proposal includes the state plus 1 other partner. -- **5 points**

c) Proposal includes only the state. -- **0 points**

8) Is the combination of protection strategy and project design sufficient to ensure long-term conservation of wetlands?

a) Strategy and design will provide wetlands benefits for 25 or more years. -- **5 points**

b) Strategy and design will provide wetlands benefits for 10 to 25 years. -- **2 points**

c) Strategy and design will provide wetlands benefits for less than 10 years. -- **0 points**

9) Is the proposal designed to increase environmental awareness and develop an outreach program to foster, promote and develop a more informed and involved citizenry to support coastal wetlands conservation?

   a) Proposal includes an innovative outreach designed to reach a significant and varied segment of the population. -- **5 points**

   b) Proposal designed for a limited outreach program. -- **2 points**

   c) Proposal does not include a meaningful outreach program. -- **0 points**

10) Is the proposal designed to leverage other ongoing wetlands protection projects in the area, such as acquisition of areas to add to already acquired lands, or provide impetus for additional restoration?

   a) Project will be essential to further enhance other projects underway. -- **5 points**

   b) Project will have limited impact on other projects. -- **2 points**

   c) Projects will have no discernable impact on other projects. -- **0 points**

11) Does the state have financial support or assistance from outside private or business sources in excess of the 50 percent requirement?

   a) Yes. -- **5 points**

   b) No. -- **0 points**

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

During its first two years of authorization, the National Coastal Wetlands Conservation Grant Program contributed towards the acquisition and restoration of over 63,000 acres of valuable coastal land.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The prioritization process used by the National Coastal Wetlands Conservation Grant Program takes into account many criteria. The multi-faceted approach taken by this program could prove beneficial to the Corps. By basing project selection decisions on such factors as the no-net-loss concept, diversity of wildlife, effects on endangered and threatened species, increasing environmental awareness, protection from contaminant input, financial support from partners, and long-term conservation of wetlands values, the program is able to base decisions on the "big picture" analysis instead of very specific and exclusive factors.

BIBLIOGRAPHIC INFORMATION

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Private Lands Habitat Assistance and Restoration Program

GOALS AND OBJECTIVES

The goals of the program are as follows:

- To implement habitat restoration projects in partnership with state fish and wildlife agencies,
- To restore biological diversity on private lands and on Farmers Home Administration (FmHA) easement and fee title transfers with an emphasis on wetlands,
- To assist in the conservation and restoration of biological diversity on National Wildlife Refuges by conserving and restoring the ecosystems in which they are located, and
- To restore habitats through voluntary partnerships with private landowners.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The Private Lands Habitat Assistance and Restoration Program is a component of a larger umbrella initiative of the U.S. Fish and Wildlife Service (FWS) -- Partners for Wildlife. The Private Lands Habitat Assistance and Restoration Program, which is administered by the FWS, supports three major efforts:

- To fund habitat restoration on the easements and fee-title lands of the FmHA,
- To provide technical and financial assistance for the restoration of private lands that are home to wetlands and other declining habitats that have been drained or otherwise destroyed, and
- To support the 1990 Food, Agriculture, Conservation, and Trade Act (Farm Bill) by providing technical assistance.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Private Lands Habitat Assistance and Restoration Program was established under the 1956 Fish and Wildlife Act. The Annual Appropriations Act authorizes the funding for the program, which the FWS then allocates to each of its regional offices (excluding Alaska).

Technical: Scientific and technical information is considered in the prioritization process, which is discussed in the section below. This information is also used when analyzing the feasibility of the restoration project.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Prioritization of proposed projects occurs at the regional level where specific priority factors are used to focus the solicitation of voluntary cooperative agreements, select sites for restoration and protection, and design actual restoration plans. In addition to the private landowners, the FWS works with other interested parties, such as environmental groups, in implementing the priority process. The following priority factors are employed in the various stages of the program:

- Assign the highest priority to those projects that would (1) restore habitats that would collectively satisfy the needs of wildlife populations on National Wildlife Refuges or contribute to the resolution of problems on refuges (e.g. water quality, or a lack of wildlife dispersal corridors between refuges and other protected habitats); or (2) occur on FmHA easement and fee-title transfers administered by the FWS or state fish and wildlife agencies.

- Give special consideration to projects that would contribute to the survival of endangered, threatened, or candidate species, or migratory bird species of management concern.

- Give special consideration to projects that would contribute to the habitat restoration and protection objectives of the North American Waterfowl Management Plan.

- Give special consideration to projects that would be adjacent or very close to existing habitat so that fragmentation of habitats would be reduced and recolonization by a full component of native plants and animals could easily occur. This priority factor should not diminish the importance of replanting heavy-seeded, site-adapted, and native species (such as oaks) to accelerate establishment of the natural community or prevent the dominance of the site for an indefinite period of time by species adapted to disturbed conditions.

- Give special consideration to those projects that would conserve or restore a natural community that State Natural Heritage Programs or Heritage Data Base have designated imperiled globally or nationally (in priority order).

- Give special considerations to those projects that (1) would result in a self-sustaining system that is not dependent on artificial structures; or (2) would install structures, where necessary, that are designed to blend into the natural landscape, and would minimize future operation and maintenance costs.

- Give special consideration to those projects that benefit important spawning grounds of anadromous fish.

- If other considerations are roughly equal, then (1) cooperative agreements that are longer in duration are preferable to those of shorter duration, and (2) cooperative agreements that involve more non-FWS cost sharing are preferable to those that involve less non-FWS cost sharing.

The priority factors above are not listed in order of importance, with the exception of the first bullet point. These factors have been employed by the FWS since the beginning of FY 1993.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

There is a great deal of interest in restoring and protecting habitat on private lands. Willingness to participate in this program by private land owners has grown significantly. This growing interest can be partially attributed to the program's voluntary nature. The program has become increasingly interactive with more government agencies participating in the project implementation process as well as a greater breadth of nongovernmental organizations and individuals ranging from agricultural groups to environmental specialists.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

This program has an established process to determine the significance of environmental resources in the funding, selection, and design of habitat restoration projects. The priority factors applied by the FWS could be utilized by the Corps to establish a framework for determining the significance of areas associated with restoration projects planned by the Corps. Specific FWS priority considerations that could be applied to Corps's restoration projects are as follows:

- Long-term vs. short-term benefits;

- Cost-share potential and length of cooperative agreement;

- Cost-efficiency (e.g., technical feasibility of restoration);

- Contribution to the survival of endangered, threatened, or candidate species; and

- Probability of success (e.g., ability of a system to be self sustaining without dependence on artificial structures).

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"Private Lands Habitat Assistance and Restoration" (information sheet prepared by the U.S. Fish and Wildlife Service, United States Department of the Interior, 1992).

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

National Natural Landmarks Program

GOALS AND OBJECTIVES

The overall goal of the National Natural Landmarks (NNL) Program is to provide a means of conserving the nation's natural history through preservation of major biotic communities and geologic features.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The NNL program, established in 1962, is administered by the U.S. Department of the Interior's, National Park Service (NPS). The program was designed to encourage preservation of the best remaining examples of geological features and biotic communities. These examples are deemed to be of national significance because they represent important aspects of the nation's natural history.

All NNLs are published in the Federal Register as well as listed in the National Registry of Natural Landmarks. Information on all sites designated as NNLs is kept by the NPS. The NPS gathers and compiles this information through manual and automated systems that are used to report, track, and conduct analysis on the status of natural landmarks. By monitoring and taking inventory of NNLs (through regional NPS Offices), the NPS can provide information to Congress, federal agencies, state and local governments, conservation organizations and the general public. An annual report is prepared for Congress by the Secretary of the Interior through the NPS. This report provides information on all landmarks that exhibit known or anticipated damage or threats to the integrity of their resources.

NNLs are located both within and outside the National Park System and complement it in two ways:

- NNLs are a means for recognizing and preserving nationally significant areas that can not be managed by the NPS, and
- NNLs are a form of special recognition for areas within the National Park System that deserve special attention and management.

SOURCE OF PRIORITY RECOGNITION

Institutional: The NNL program is authorized by the Historic Sites Act of 1935 (16 U.S.C. 461-467). Program regulations were established in 1980 and are located at CFR Title 36, Chapter 1, Part 62.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Potential sites for listing as NNLs are identified primarily by inventory studies executed by the NPS. Recommendations are also made by federal agencies, State Natural Area Programs, and other sources. Sites that qualify, may then be designated by the Secretary of the Interior as NNLs.

"National Significance," as defined by the NPS, is an area that meets the pre-determined NPS criteria. These criteria are used to determine the areas that best represent the characteristic biological and geological features of a particular region. Features can include geologic structures, aquatic and terrestrial ecosystems, fossil evidence of a biological evolution, exposures, and landforms that record active geologic processes or portions of earth history.

Before a site can be considered for NNL designation, it must meet primary criteria relating to a specific type of natural feature form. Once primary criteria are met, secondary criteria relating to other significant features or qualities are applied to sites when two or more sites are found to meet the primary criteria. The NPS primary and secondary criteria are listed below.

Primary criteria:

- Illustrative character. The site exhibits a combination of well-developed component features that are recognized in the appropriate scientific literature as characteristic of a particular type of natural feature.

- Present condition. The site has received less human disturbance than other examples.

Secondary criteria:

- Diversity. In addition to its primary natural feature, the site contains high quality examples of other biological and/or geological features.

- Rarity. In addition to its primary natural feature, the site contains a rare geological or paleontological feature or biotic community, or provides high quality habitat for one or more rare, threatened, or endangered species.

- Value for science and education. The site contains known or potential information as a result of its association with significant scientific discovery, concept, or exceptionally extensive and long-term record of on-site research,

and as such offers unusual opportunities for public interpretation of the natural history of the United States.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Currently, 587 sites have been designated as NNLs. Examples of NNLs are Lost World Caverns, WV; Cedarburg Bog, WI; Fisher-Scott Memorial Pines, VT; Fossil Coral Reef, NY; Hells Half Acre Lava Field, ID; Diamond Head, HI; and Malaspina Glacier, AK. The size of these designations ranges from large areas that contain multiple interests, such as a national park, to smaller sites that have a specific feature of interest. Most sites are relatively small in size.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The NPS uses both primary and secondary criteria to designate NNLs. Primary criteria relate to the specific type of natural feature and are the principal basis for site selection. Secondary criteria are used to analyze the qualities of proposed sites. Secondary criteria are used only when one or more sites meet the primary criteria. This two-stage process allows the NPS to focus selection on the best quality sites that meet specific criteria. By employing a two-stage prioritization process to evaluate environmental resources in water resources planning, the Corps could select projects that best meet chosen goals and objectives.

The 587 sites designated as NNLs and listed in the National Registry of Natural Landmarks could be used by the Corps as a listing of natural areas of national significance.

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"National Registry of Natural Landmarks" (registry compiled by the Wildlife and Vegetation Division, National Park Service, U.S. Department of Interior).

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Nationwide Rivers Inventory

GOALS AND OBJECTIVES

With the passage of the Wild and Scenic Rivers Act, Congress called for preparation and maintenance of a continuing inventory and evaluation of the outdoor recreation needs and resources of the United States and the identification of potential wild, scenic, and recreational river areas within the nation. In partial fulfillment of these mandates, the National Park Service completed the first nationwide inventory of significant free flowing rivers. The Nationwide Rivers Inventory (NRI) is a compilation of comprehensive, consistent data on the nation's significant free flowing streams for use by Congress, government agencies at all levels, and the private sector.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

Potential uses of the NRI include the following:

1) To provide baseline data on the condition and extent of significant free flowing river resources so these can be monitored over time.

2) To provide input for informed decisions on utilization of the nation's river resources for purposes of recreation, water supply, irrigation, hydroelectric power, flood control and wild and scenic river conservation; and to identify potential water use conflicts prior to a sizeable commitment of private or public funds.

3) To assist and encourage state, local, and private efforts to conserve rivers.

4) To determine the extent to which the rivers in the National Wild and Scenic Rivers System are representative of the diversity of rivers of the nation and to permit identification of additional rivers which would round out the system.

The rivers inventory was conducted by the Department of the Interior with the cooperation of state and local agencies. However, listing of these rivers is not an endorsement by the

participating agencies that the rivers and river segments are the best within their jurisdiction, nor that they feel any specific action should be taken to protect these rivers.

SOURCE OF PRIORITY RECOGNITION

Institutional: The NRI was established in partial fulfillment of mandates from P.L. 88-29 and P.L. 90-542 (the Wild and Scenic Rivers Act).

Technical: The prioritization process, as discussed in the section below, is based primarily on scientific or technical knowledge or judgement of critical resource characteristics of rivers and river segments.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Selection

All rivers and river segments 25 miles or longer within the coterminous United States were inventoried and evaluated. Certain rivers and segments less than 25 miles in length known to have exceptional potential for recreation were also included.

Three general criteria were used in the inventory process:

- The degree to which the river is free-flowing,
- The degree to which the river and corridor are undeveloped, and
- The outstanding natural and cultural characteristics of the river and its immediate environment.

Methodology

The inventory grouped rivers by physiographic divisions and subdivisions based on "Physical Divisions of the United States" prepared by Nevin M. Fenneman in cooperation with the Physiographic Committee of the U.S. Geological Survey. This approach allows comparison and selection of the most significant and representative rivers in each physiographic division. From this grouping a balanced selection of the outstanding rivers of the nation can be derived. The following is a general description of the steps in the selection process:

1) Length. Rivers 25 miles or longer were delineated on 1:500,000 scale maps.

2) Water Resource Development. Segments of rivers impounded by dams or channelized were identified and deleted from the inventory. Minor water resource development, such as check dams, dikes, and levees were assigned point values for each kind of development based upon the degree of interruption of the free-flowing characteristics of the river and intrusion on the natural qualities of the river banks.

3) Cultural Development. Developments within one-quarter mile of the banks of the rivers were identified on maps (usually U.S.Geological Survey topographic sheets) and aerial photos. Cities over 10,000 population, power plants and active strip mines disqualified a river segment from further consideration. Other developments such as bridges, residences and roads were assigned points as described above in step #2. River segments having a cumulative point-per-mile total of 100 or more were disqualified. Remaining segments were retained for further evaluation.

4) Sustained Flow. Intermittent streams were disqualified from further evaluation except in arid regions where many streams are characteristically intermittent.

5) Consultation I. The preliminary list of selected rivers resulting from the first 4 steps was circulated for review to federal and state resource agencies, citizen groups and individuals. Meetings were held in each of the regions to revise the preliminary list. Additional nominations and deletions were considered at this time.

6) Field and Video Evaluation. The consultation resulted in a revised list of river segments. These segments were flown by helicopter and recorded on videotape. Videotapes permitted an up-to-date evaluation of cultural and water resource development, and other factors such as scenic quality and flow. Video analysis resulted in deletion of river segments and portions of segments. These tapes are available for viewing or copying from the Regional Offices of the National Park Service.

7) Consultation II. Following field and video evaluation, the revised list of stream segments was circulated for review as in the first consultation stage. Comments from this review were used to prepare the final list of significant free-flowing rivers of the nation.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

There are an estimated 3,250,000 river miles in the United States, exclusive of Alaska and Hawaii. Through the inventory process, approximately 61,700 river miles involving 1,524 river segments were identified in the 1982 NRI as probably possessing sufficient natural or cultural attributes to qualify for the National Wild and Scenic Rivers System. This is just under 2 percent of the total river miles in the United States.

The National Park Service anticipates adding nearly 1,000 additional river segments to the NRI before the end of 1993.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The list of significant free-flowing rivers resulting from the inventory process can be used as one guide for decisions leading to balanced use of the nation's river resources. The 1982 NRI will be updated periodically as conditions change on specific rivers, either eliminating them as developments occur or, hopefully, adding others as the natural resource base is improved through environmentally protective measures.

The NRI could serve as a model for evaluation of the outdoor recreation needs and resources of the United States and the identification of potential wild, scenic, and recreational river areas within the nation. It could be used by the Corps in the water resource planning process to identify significant rivers or river segments.

BIBLIOGRAPHIC INFORMATION

Introduction material from the 1982 Nationwide Rivers Inventory

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

National Wild and Scenic Rivers System

GOALS AND OBJECTIVES

The National Wild and Scenic Rivers System established a method for providing federal protection for certain of our country's remaining free-flowing rivers to preserve them and their immediate environments for the use and enjoyment of present and future generations. Rivers are included in the system so that they may benefit from the protective management and control of development provided by the Wild and Scenic Rivers Act.

There are three general reasons for including rivers in the Wild and Scenic Rivers System:

1) Some of the more prominent rivers can be included as a way of providing national recognition -- "the hall of fame" for great rivers that are a part of our nation's history and a legacy to future generations.

2) Other rivers may be included because their values are seriously threatened by water developments, mining, residential developments, etc. The Wild and Scenic Rivers Act then becomes the legal mechanism for protective action.

3) The third category of rivers is becoming the biggest list -- those with unique values, which require special management protection so they can be preserved for the future. These requirements are documented in a management plan for each river, as required by the Wild and Scenic Rivers Act.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The National Wild and Scenic Rivers System represents some of the best examples of the nation's free-flowing rivers. The 119 river segments within the system receive protection under federal law and are managed by one of the following agencies: Bureau of Land Management, Fish and Wildlife Service, Forest Service, and National Park Service. This list is included in both the Nationwide Rivers Inventory (prepared by the U.S. Department of Interior) and the Outstanding Rivers List (prepared by American Rivers, a nonprofit organization). The Wild and Scenic Rivers System can be used to indicate the highest priorities for protection strategies dealing with riverine ecosystems.

Designation of a river under the Wild and Scenic Rivers Act affords the river certain legal protection from adverse development and provides a mechanism for management of river resources. The principal effect of the Act is to preclude or severely limit the construction of dams and other water resources projects that may affect the free-flowing nature of the river and its other resources. Designation also affects the management of federal lands in the river corridor. Rights to future development of private lands can be purchased under land acquisition authorities.

Management standards or requirements have been developed for each of the three classifications of Wild and Scenic Rivers -- wild, scenic, and recreational. The appropriate classification depends on the level of use in the river corridor at the time of designation. A river may be classified entirely under one category or separate segments of the river may be classified under different categories. The three classifications are briefly described below.

- Wild. Rivers that are free of impoundments and generally inaccessible except by trail, with watershed or shorelines essentially primitive and waters unpolluted. These rivers represent vestiges of primitive America. Most of these wild river segments are located on public lands.

- Scenic. Rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

- Recreational. Rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Because Wild and Scenic Rivers do not follow ownership or administrative boundaries, they must be managed as a cooperative partnership. Landowners, citizens, and local governments are encouraged to get involved by contacting the local Forest Service, Park Service, or Bureau of Land Management offices, reviewing study reports and management plans, voicing opinions and suggestions, and participating in local interest group activities. Landowners can take the initiative to protect the river values on their lands and volunteer to help with protection programs on public lands. Local government officials can take the responsibility to assure that development and use of the river corridor within their jurisdiction is managed and controlled to minimize the impact on resource values. These are a just a few of the many opportunities that exist for participating in the Wild and Scenic Rivers program.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Wild and Scenic Rivers Act (P.L. 90-542 as amended; 16 U.S.C. 1271-1287) enacted by Congress on October 2, 1968, states in the preamble: "It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the

established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes."

Public: Public interest and support is an important component in the political process that leads to designation of a Wild and Scenic River. The most effective efforts are those that start with and are firmly based at the "grass roots" level so that the public becomes the source of information, the problem solvers, and the link with Congressional delegations.

Technical: The prioritization process, as discussed in the section below, is based on scientific or technical knowledge or professional judgement of the values of specific rivers or river segments.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The Wild and Scenic Rivers Act provides two methods for adding a river to the National Wild and Scenic Rivers System. The first method is by an act of Congress. Congress can designate a river directly or it can authorize a river for study as a potential wild, scenic, or recreational river. Upon completion of a study conducted by the Department of the Interior or the Department of Agriculture, a study report is prepared and transmitted to the President, who, in turn, forwards it with his recommendations to Congress for action.

The second method for inclusion of a river in the national system is through the authority granted to the Secretary of the Interior in Section 2(a)(ii) of the Act. Upon application by the Governor (or Governors) of the state (or states) involved, the Secretary of the Interior can designate a river as a component of the national system provided that the river has been designated as a wild, scenic, or recreational river by or pursuant to an act of the legislature of the state or states through which it flows, to be permanently administered as a wild, scenic, or recreational river by an agency or political subdivision of the state or states concerned.

To be eligible for inclusion in the system through either method, rivers must meet certain criteria set forth in Section 2(b) of the Act. Procedures for proposing state-administered rivers for designation have been issued by the Department of the Interior.

Each study report on a proposed river or river segment will contain a determination as to the eligibility of all portions of the authorized study area. Section 2(b) of the Act states that a "river area eligible to be included in the system is a free-flowing stream and the related adjacent land area that possesses one or more of the values referred to in section 1, subsection (b) of this Act." In reading and applying the eligibility criteria in Section 1(b) of the Act, the following points are relevant:

- A river segment that flows between large impoundments will not necessarily be precluded from designation. Such segments may qualify if conditions within the segment meet the criteria.

- Rivers or river segments in or near urban areas that possess outstandingly remarkable values may qualify. Only one outstandingly remarkable value can justify inclusion of a river in the national system.

- In addition to the specific values listed in Section 1(b) of the Act, other similar values, such as ecological, if outstandingly remarkable, can justify inclusion of a river in the national system.

- The determination of whether a river area contains "outstandingly remarkable" values is a professional judgement on the part of the study team. The basis for judgement will be documented in the study report.
- There are no specific requirements concerning the length or the flow of an eligible river segment. A river segment is of sufficient length if, when managed as a wild, scenic, or recreational river area, the outstandingly remarkable values are protected. Flows are sufficient if they sustain or complement the outstandingly remarkable values for which the river would be designated.

There are several points that all participants and observers of the study process should bear in mind when reading and applying the classification criteria:

- It is important to understand each criterion, but it is more important to understand their collective intent. Each river segment and its immediate environment should be considered as a unit. The basis for classification is the degree of naturalness, or stated negatively, the degree of evidence of man's activity in the river area. The most natural rivers will be classified wild; those somewhat less natural, classified as scenic; and those least natural, as recreational.

- Generally, only conditions within the river area determine classification, however, occasionally conditions outside the river area, such as developments that could impact air and water quality, noise levels or scenic views within the river area, may influence classification.

- For the purpose of classification, a river area may be divided into segments. Each segment, considered as a whole, will conform to one of the classifications. In segmenting the river, the study team should take into account the management strategies necessary to administer the entire river area and should avoid excessive segmentation.

- The Wild and Scenic Rivers Act provides no specific guidance on water quality for scenic and recreational rivers. However, the Clean Water Act has made it a national goal that all waters of the United States be made fishable and swimmable, and provides the legal means for upgrading water quality in any river which would otherwise by suitable for inclusion in the system. Therefore, rivers will not necessarily be excluded from the system because of poor water quality at the time of the study, provided that a water quality

improvement plan exists or is being developed in compliance with applicable state and federal laws.

- Although each classification permits certain existing development, the criteria do not imply that additional inconsistent development is permitted in the future.

- The classification criteria provide uniform guidance for professional judgement, but they are not absolutes. It is not possible to formulate criteria so as to mechanically or automatically classify river areas. Therefore, there may occasionally be exceptions to some of the criteria. For example, if the study team finds that strict application of the statutory classification criteria would not provide the most appropriate classification for a specific river segment, the study report may recommend for congressional consideration an exception to the classification criteria.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

With the enactment of P.L. 90-542, the Wild and Scenic Rivers Act, eight rivers or river segments were included as initial components in the National Wild and Scenic Rivers System. As of December 1992, 132 rivers or river segments have been designated by Congress and twelve have been designated by the Secretary of the Interior pursuant to Section 2(a)(ii) of the Wild and Scenic Rivers Act.

P.L. 90-542 also authorized 27 rivers for study as potential units of the Wild and Scenic Rivers System. Amendments have brought the total number of authorized studies to 128, of which, 80 have been completed. The 80 completed studies have led to 27 designations, either by Congress or the Secretary of the Interior. Seven rivers were designated prior to authorized studies being completed. One study led to the establishment of a National Recreation Area. Eight rivers were found ineligible.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The National Wild and Scenic Rivers System could serve as a means of setting national priorities for providing federal protection and preservation of free-flowing rivers. It could also be used by the Corps for identifying significant river systems. The Wild and Scenic Rivers System identifies and classifies significant river resources within the nation.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Chesapeake Bay Program

GOALS AND OBJECTIVES

The overall goal of the second Chesapeake Bay Agreement, signed in 1987, was to reaffirm commitment to restore and protect the ecological integrity, productivity, and beneficial uses of the Chesapeake Bay. The Agreement contains goals and objectives in six categories: living resources; water quality; population growth and development; public information, education and participation; public access; and governance. The goals under these six categories are summarized below.

- Living Resources. The goal of the living resources category is to provide for the restoration and protection of living resources, their habitats, and ecological relationships. The productivity, diversity and abundance of living resources are the best ultimate measures of the Chesapeake Bay's condition. The Chesapeake Executive Council will determine the essential elements of habitat and environmental quality necessary to support living resources and will see that these conditions are attained and maintained.

- Water Quality. The goal of the water quality category is to reduce and control point and nonpoint sources of pollution to attain the water quality necessary to support the living resources of the Bay. The improvement and maintenance of water quality are the single most critical elements in the overall restoration and protection of the Chesapeake Bay. To ensure productivity of the living resources of the Bay, the Chesapeake Executive Council must clearly establish the water quality conditions they require and must then attain and maintain these conditions.

- Population Growth and Development. The goal for the population growth and development category is to plan for and manage the adverse environmental effects of human population growth and land development in the Chesapeake Bay watershed. Enhancing, or even maintaining the quality of the Bay while accommodating growth will frequently require continued and enhanced commitment to proper development standards.

- Public Information, Education, and Participation. The first goal of the public information, education, and participation category is to promote greater understanding among citizens about the Chesapeake Bay system, the problems facing it, the policies and programs designed to help it, and to foster individual responsibility and stewardship of the Bay's resources. The second goal of this category is to provide increased opportunities for citizens to participate in decisions and programs affecting the Bay.

- Public Access. The goal of the public access category is to promote increased opportunities for public appreciation and enjoyment of the Bay and its tributaries. Interest in and commitment to the Chesapeake Bay and its tributaries are greatly affected by personal contact with that natural system. Consequently, improved opportunities for access to the shores and waters of the system are essential if public awareness and support are to be maintained and increased.

- Governance. The first goal of the governance category is to support and enhance the present comprehensive, cooperative, and coordinated approach toward management of the Chesapeake Bay. The second goal of this category is to provide for continuity of management efforts and perpetuation of commitments necessary to ensure long-term results.

GEOGRAPHIC SCOPE

The Chesapeake Bay area, which includes Maryland, Pennsylvania, Virginia, and the District of Columbia

OVERVIEW OF PROGRAM/STUDY

The Chesapeake Bay Program began as a federal research study and was mandated by Congress as a federal-state partnership in 1977. In 1980, the legislatures of Virginia and Maryland established the Chesapeake Bay Commission to coordinate interstate planning and programs to protect and restore the Bay. The first Chesapeake Bay Agreement, which was signed in 1983 by Virginia, Maryland, Pennsylvania, the District of Columbia, the U.S. Environmental Protection Agency (EPA), and the Chesapeake Bay Commission, was a formal commitment to a basin-wide approach to restoring the Bay. The 1983 Agreement established a three-part organizational structure, including (1) the Chesapeake Executive Council to assess and oversee the implementation of coordinated plans to improve and protect the water quality and living resources of the Bay; (2) an Implementation Committee, appointed by the Executive Council, to coordinate technical matters and the development and evaluation of management plans; and (3) an EPA Liaison Office to support the restoration program. Under the 1983 Agreement, the members of the Executive Council were state and federal agency department heads.

The second Chesapeake Bay Agreement, signed in December 1987 by Virginia, Maryland, Pennsylvania, the District of Columbia, EPA, and the Chesapeake Bay Commission, went well beyond the 1983 agreement. The 1987 Agreement lists specific goals, objectives, and 29 priority commitments in six categories: living resources; water quality; population growth and development; public information, education and participation; public access; and governance. Under the 1987 Agreement, the signatories themselves (the three governors, the Mayor of the District of Columbia, the EPA Administrator representing the federal government, and the Chairperson of Chesapeake Bay Commission) make up the Executive Council. EPA's participation became a statutory responsibility under the Water Quality Act of 1987, which also provided for continuation of federal grants to the states for Chesapeake Bay Program activities. Seven other federal agencies with facilities near the Bay (i.e., the

Department of Defense, Corps of Engineers, Soil Conservation Service, U.S. Geological Survey, Fish and Wildlife Service, National Oceanic and Atmospheric Administration, and the Federal Highway Administration) are cooperating in forming strategies that will control and reduce pollution from federal facilities.

SOURCE OF PRIORITY RECOGNITION

Institutional: The 1987 Chesapeake Bay Agreement extended and expanded upon the 1983 Agreement that launched this cooperative regional restoration effort. The Water Quality Act of 1987 made EPA's participation in the Chesapeake Bay Program a statutory responsibility and provided for continuation of federal grants to the states for program activities.

Several laws have been enacted to meet priority commitments in the 1987 Agreement. The District of Columbia, Maryland and Virginia have passed legislation to protect striped bass. Virginia enacted the Chesapeake Bay Preservation Act to help promote land use practices intended to protect Bay water quality. This law calls for development of criteria for use by local governments in designating preservation areas, such as wetlands and sensitive shorelines, that merit special protection. Maryland continued implementation of its Critical Areas Act to control shoreline development.

Public: A Citizens Advisory Committee was created to elicit public views on the draft agreement. As discussed further in the section below, this committee played an important role in setting regional priorities to be addressed under the 1987 Chesapeake Bay Agreement.

Technical: Water quality and habitat data collected by the Implementation Committee is used to set priorities relating to water quality and habitat protection and restoration activities conducted under the Chesapeake Bay Program.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Formal approval of the 1987 Chesapeake Bay Agreement was the culmination of a year-long process that began in January 1987 when the Chairman of the Executive Council proposed a review to evaluate the adequacy of the 1983 Agreement. In May, a committee of Council members was formed to develop a broader pact addressing key issues and defining specific goals and milestones that would facilitate public accountability and further public participation in the Chesapeake Bay Program. Draft language was approved for public review at a meeting of the Executive Council in August 1987. The Council's Citizens Advisory Committee sponsored a series of nine roundtable meetings to elicit public views on the draft, and subsequently proposed a number of changes to strengthen the Agreement. The Agreement, signed in December 1987, included many modifications as a result of the review process.

The 1987 Agreement contains 29 priority commitments in six categories: living resources; water quality; population growth and development; public information, education and participation; public access; and governance. Examples of these priority commitments are described in further detail below.

- The first priority commitment of the living resources category was to develop and adopt guidelines for the protection of water quality and habitat conditions necessary to support the living resources found in the Chesapeake Bay system, and to use these guidelines in the implementation of water quality and habitat protection programs.

- The first priority commitment of the water quality category was to develop, adopt, and begin implementation of a basinwide strategy to equitably achieve by the year 2000 at least a 40 percent reduction of nitrogen and phosphorus entering the main stem of the Chesapeake Bay.

- The first priority commitment of the population growth and development category was to commission a panel of experts to report on anticipated population growth and land development patterns in the Bay region through the year 2020, the infrastructure requirements necessary to serve growth and development, environmental programs needed to improve Bay resources while accommodating growth, alternative means of managing and directing growth, and alternative mechanisms for financing governmental services and environmental controls.

- The first priority commitment of the public information, education and participation category was to conduct coordinated education and information programs to inform the general public, local governments, business, students, community associations, and others of their roles, responsibilities, and opportunities in the restoration and protection effort, and to promote public involvement in the management and decision-making process.

- The first priority commitment of the public access category was to intensify efforts to improve and expand public access opportunities being made available by the federal government, the states, and local governments, by developing a strategy that targets state and federal actions to secure additional tidal shorefront acres along the Bay and its tributaries.

- The first priority commitment of the governance category is to develop an annual Chesapeake Bay work plan endorsed by the Chesapeake Executive Council.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

There has been continued progress in the implementation of restoration activities throughout the Chesapeake Bay watershed under the 1987 Agreement. Examples of program activities conducted under the living resources category are summarized below.

- Fisheries Restoration. Virginia and Maryland are working with the U.S. Fish and Wildlife Service on a striped bass restoration program that involves catching brood fish and raising fingerlings for later release. Specially tagged for later identification, the hatchery-raised fingerlings are expected to help improve wild breeding stocks.

Pennsylvania expanded efforts to promote the restoration of shad in the Susquehanna River, which was once a prime spawning ground for the species.

- Shellfish Restoration. Both Maryland and Virginia continued programs to improve oyster habitat and transplant seed oysters.

- Shoreline Systems. The protection, enhancement, and restoration of wetlands, coastal sand dunes, forest buffers and other shoreline and riverine systems is a specific objective of the 1987 Chesapeake Bay Agreement and has been an integral part of ongoing efforts to sustain the living resources of the Bay.

The most specific and one of the most challenging priority commitments in the 1987 Agreement is achieving a 40 percent reduction by the year 2000 in the amounts of nitrogen and phosphorus reaching the Bay. In July 1988, the Council adopted a basinwide strategy to reach that target, which describes reduction programs for the four jurisdictions. Other approved strategies address control or reduction of toxic and conventional pollutants, and development policies and guidelines.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Chesapeake Bay Program could serve as a model of intergovernmental, interagency cooperation to establish priorities for a regional restoration effort. It could also be examined by the Corps as a model for using a citizens advisory committee to help set regional priorities for environmental restoration and protection efforts.

Several laws enacted in Maryland and Virginia to meet priority commitments in the 1987 Chesapeake Bay Agreement have resulted in the identification of significant resource areas. Local governments in Virginia are designating preservation areas that merit special protection, such as wetlands and sensitive shorelines, to implement the Chesapeake Bay Preservation Act. Maryland has designated critical areas along the Chesapeake Bay shoreline to implement its Critical Areas Act. The Corps could use information on these areas to identify resources of regional, state, or local significance.

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NAME OF PROGRAM/STUDY

Clean Lakes Program

GOALS AND OBJECTIVES

The overall goal of the Clean Lakes Program, administered by the U.S. Environmental Protection Agency, is to protect at least one lake with water quality suitable for recreational purposes, within 25 miles of every U.S. population center (usually a SMSA -- Standard Metropolitan Statistical Area). Obtaining this goal includes restoring a degraded lake to recreational use, if necessary. The EPA established five program objectives, which are listed below:

1) Select projects to maximize public benefits,

2) Follow an integrated program approach,

3) Emphasize watershed management,

4) Develop active state involvement and maintain a federal-state partnership, and

5) Conduct continuous program and project evaluation.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

Section 314 of the Clean Water Act authorizes the Clean Lakes Program, which first received funding in FY 1975. To ensure that projects are successful under the Clean Lakes Program, the EPA provides financial and technical assistance to regions, states, and local communities.

The Clean Lakes Program offers financial assistance to states through four funding mechanisms called cooperative agreements. Local communities can request financial assistance from their states for lake restoration or management projects. The four types of cooperative agreements are:

- **State/Tribal Lake Water Quality Assessments (LWQA)** are used to support citizen volunteer monitoring programs to assess the water quality of lakes across a state or on a reservation. Assessments strengthen state and tribal lake management programs and improve water quality information required

by the Clean Water Act. LWQA grants -- the only grants under the program that are not lake-specific -- can be used to fund in-lake water quality sampling and analysis, volunteer citizens monitoring programs, regional lake water quality assessments, development of data management systems, and other activities that help support a state lake program. LWQA grants reach a maximum of $50,000 annually and require a state and/or local match of at least 50 percent.

- **Diagnostic/Feasibility Studies (Phase I)** are designed to determine the causes and extent of pollution in a specific lake, evaluate potential pollution controls, and recommend the most feasible and cost-effective methods for restoring and maintaining the lake's water quality. This two-part study analyzes a lake's condition and determines the causes of that condition, then recommends measures necessary to restore and protect lake quality. Phase I funds can be awarded for a lake study after a state's assessment process determines the lake to be a top priority within the state. Phase I awards reach a maximum of $100,000 and require a state and/or local match of at least 30 percent.

- **Restoration/Implementation Projects (Phase II)** are designed to translate Phase I recommendations into action. Phase II cooperative agreements support lake restoration and protection measures, as identified during Phase I or through a similar study. Restoration/protection measures may include control and reduction of nonpoint source pollutants from the watershed, in-lake techniques to restore water quality, or a combination of the two. There is no maximum dollar amount for Phase II awards, but they require a state and/or local matching share of at least 50 percent of the cost of restoration.

- **Post-restoration Monitoring Studies (Phase III)** are designed to advance the science of lake restoration through post-restoration monitoring and evaluation of completed Phase II projects. Through post-restoration assessment and monitoring, Phase III cooperative agreements are intended to increase the scientific base of knowledge on longevity and effectiveness of restoration and protection methods conducted under Phase II projects. A maximum of $125,000 is available, with a state and/or local matching share of at least 30 percent.

SOURCE OF PRIORITY RECOGNITION

Institutional: Authorization for the Clean Lakes program is provided under Section 314 of the federal Water Pollution Control Act of 1972, known as the Clean Water Act. Under sections 314(a)(1) and 305(b) of the Clean Water Act, states must assess the conditions of their publicly owned lakes and submit their findings to EPA every two years.

Public: Public support has been the driving force behind the Clean Lakes Program over the last twenty years, as discussed in the section below.

Technical: EPA developed a lake restoration and guidance manual that provides technical information to help assess, restore and maintain a lake's water quality.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The Clean Lakes Program has utilized public outreach to involve citizens in all components of the program through the use of posters, exhibit models, video and slide shows, field days and tours, and citizen advisory groups. Because the Clean Lakes Program funds local lake projects as part of state lake management activities, prioritization depends largely on public support through local initiative.

The basic premise of the Clean Lakes Program is that people who live closest to the lakes are best positioned to resolve lake water quality problems. The program never intended to clean up all lakes that have problems, but rather to help states and local communities learn how to manage their own lake problems. This premise is well-founded; state and local officials agree that local support is a prerequisite to success, because many solutions to lake water quality problems depend upon individual voluntary actions. A lake restoration projects's success depends largely on the local agencies and organizations that focus and maintain public attention on the project. Technical assistance is provided to states and local communities through EPA sponsored workshops, conferences, and literature.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Since the 1970s, the Clean Lakes Program has funded more than 400 projects, making an impact on some 500 lakes in 49 states and one territory. The program also provides support to Indian tribes needing assistance with lake restoration and protection -- 19 tribal lands have been assisted thus far. Four principles form the basis of the program's success over the years. These principles are as follows:

- Local involvement and commitment,
- State management,
- Matching funds, and
- Good science.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Clean Lakes Program has received high marks for its clarity, specificity, and relative simplicity. Participation in this program has been facilitated by the easily understood program requirements and the fact that guidance and funding criteria have changed very little since the program began. This program could serve as a model for the Corps based on its reputation for clear organization and consistent administration.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Great Lakes Program

GOALS AND OBJECTIVES

The overall goal of the Great Lakes Program, as administered by the U.S. Environmental Protection Agency (EPA), is to preserve and protect the resources of the Great Lakes by adopting measures to control point and nonpoint sources of pollution as well as nonpoint sources of toxics.

GEOGRAPHIC SCOPE

The Great Lakes states -- Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin

OVERVIEW OF PROGRAM/STUDY

The Great Lakes Program, the oldest estuary-like program in this country, began in 1970 as a cooperative effort between the United States and Canada to reduce eutrophication problems resulting from excessive phosphorous discharges into the Great Lakes. Since 1972, activities conducted under the program have fulfilled the Great Lakes Water Quality Agreement (GLWQA) between the United States and Canada. The Great Lakes Program has developed over the last 20 years into a model for solving environmental problems that emphasizes an ecosystem approach and involves the public in identifying key actions needed to obtain environmental results.

Initially, the Great Lakes Program focused its efforts on the problems associated with pollution from individual, identifiable sources such as major municipal treatment plants. Later, the focus switched to nonpoint sources of pollution and funding projects with individual farmers. After adopting measures to control both point and nonpoint sources of nutrients, the Great Lakes Program began to focus on abating pollution caused by nonpoint sources of toxics.

Remedial Action Plans

In the Great Lakes Basin, U.S. and Canadian governments, user groups and organizations are using a cooperative management approach to address the area's environmental problems. This approach includes shared decision-making and mutual accountability. In each of the basin's 43 Areas of Concern (AOCs), representatives from federal, state, and provincial governments and citizens interested in restoring the local environment are forming partnerships to develop remedial action plans (RAPs). The RAP process was created by a

1985 recommendation of the Water Quality Board of the International Joint Commission (IJC), and codified in the 1987 amendments to the GLWQA.

A RAP is being developed for each of the 43 AOCs in the Great Lakes basin using a locally designed ecosystem approach with a public partnership process. State, provincial, and federal governments provide leadership and resources to facilitate the process. RAPs are being prepared and implemented in three stages:

1) Stage I is to define the problem(s), identify contaminants found in the AOC, the sources of pollution, and the water uses impaired by pollution.

2) Stage II focuses on selecting remedial and regulatory measures. This includes setting goals for the restoration effort and identifying the pollution prevention and cleanup techniques to be used, as well as describing how the plan will be carried out, the responsibilities of the various implementing agencies and organizations, the action schedule, and how the cleanup will be financed. Stage II of the RAP also describes a monitoring program to assess progress in restoring the AOC, and the indicators to signal whether the RAP has succeeded.

3) Stage III of the RAP is to determine whether the beneficial uses of the area have been restored and when it can be removed from the list of AOCs.

The RAPs use an "ecosystem approach," which emphasizes the interrelationships between the living organisms of the AOC, including people, and all the interacting elements of the water, air and land in the drainage basins that surround the AOC. The ecosystem approach applied in the RAPs works to evaluate the multi-media effects within each AOC, and to generate permanent and complete solutions to the area's environmental problems, rather than merely transferring contaminants from one site or environmental medium (e.g., water, air and land) to another. The RAPs are the first opportunity on a broad and practical scale to implement the ecosystem approach to environmental restoration in the Great Lakes basin.

The Great Lakes states are responsible for writing and implementing RAPs for the AOCs within their boundaries. The states have federally-delegated authority to conduct programs and receive federal grant money to assist in many phases of RAP implementation. Each state has its own legislative authorities and funds to finance its pollution control efforts.

Lakewide Management Plans

Lakewide Management Plans (LaMPs) are also required by the GLWQA. These LaMPs are intended to provide a process for coordinating and prioritizing activities designed to reduce loadings of "critical pollutants," which are to be defined for each lake. The emphasis is on identifying the major sources of these pollutants and concentrating regulatory efforts where they will have the most impact.

Great Lakes Initiative

The Great Lakes Initiative (GLI) represents a landmark effort to control toxic substances in the Great Lakes Basin. The Great Lakes National Program Office (GLNPO) established three committees to develop the GLI: 1) a steering committee, which is composed of the water program directors of the eight Great Lakes states as well as representatives from EPA Regions II, III and V; 2) a technical workgroup, which is made up of scientific and technical staff from the Great Lakes states, EPA, and the U.S. Fish and Wildlife Service; and 3) a public participation group, which includes representatives of the regulated community and environmental groups.

Great Lakes Water Quality Guidance

In 1989, the steering committee began to develop joint water quality regulations for the Great Lakes. The Great Lakes Critical Programs Act of 1990 directed EPA to publish the ongoing work by June 30, 1991, and made compliance by the states mandatory. The steering committee submitted the Great Lakes Water Quality Guidance (GLWQG) to EPA in December 1991, and EPA released the draft to the Office of Management and Budget (OMB) in September 1992. EPA published the GLWQG in the *Federal Register* on April 16, 1993.

As most recently proposed, the GLWQG includes the following major innovations:

- Procedures for Tier 2 (as defined in the guidance) water quality criteria,
- Introduction of food chain multipliers for substances that bioaccumulate in fish,
- New aquatic criteria to protect wildlife,
- Elimination of mixing zones for some compounds, and
- Specific antidegradation guidelines.

Each of the Great Lakes states must amend its water quality standards to be consistent with this "mandatory guidance" within two years following final publication, or EPA will promulgate the rule itself. In order to be consistent, each state's plan must be at least as stringent as the GLWQG for every part of the guidance. Each state must also decide whether to adopt the guidance for waters in the Great Lakes Basin as required, or apply it statewide.

SOURCE OF PRIORITY RECOGNITION

Institutional: The eight Great Lakes states and the province of Ontario committed themselves in 1985 to developing and implementing RAPs for each AOC. Two years later, their commitment was embodied in the amendments to the GLWQA. The U.S. has only gradually established laws and programs to back the nation's pledge to carry out the GLWQA. The U.S. EPA established the GLNPO in 1978 to oversee and coordinate the U.S. programs and obligations under the GLWQA.

The GLWQA is a binational protocol developed by the United States and Canada to restore the integrity of the Great Lakes. The 1972 version of the Agreement focused on conventional pollutants, such as nutrient loading and sedimentation. The 1978 amendments shifted emphasis to the control of toxic contaminants. The most recent 1987 amendments broadened the scope of the Agreement to address nonpoint source pollution, contaminated sediment, airborne toxic substances, and pollution from contaminated groundwater. This version also committed Great Lakes states and provinces to developing and implementing a RAP for each AOC within their political boundaries.

The federal promise to carry out the Agreement has only recently (and never completely) been incorporated into U.S. law. Congress in 1987 established a statutory mandate for the GLNPO, giving the office responsibility for overseeing and coordinating the U.S.'s efforts to carry out the GLWQA.

The Clean Water Act of 1987 provided the primary statutory and regulatory authority supporting the RAPs. It established the National Pollution Discharge Elimination System (NPDES). Congress also passed the Great Lakes Critical Programs Act of 1990 to incorporate into domestic law the commitments made by the U.S. in the GLWQA, and to establish deadlines for critical Great Lakes programs, including RAPs, LaMPs, and the GLI.

Public: Public input is important in determining priorities for action. Local and interagency participation has been an essential component in building the consensus and sense of local ownership needed to implement RAPs.

In drafting the GLWQG, the public participation group attended technical workgroup meetings and was free to make comments and join in the discussion. As the technical workgroup completed portions of the guidance, they passed along their recommendations to the steering committee for approval.

Technical: The prioritization process, which is discussed in the section below, is based primarily on scientific and technical knowledge and professional judgements of critical resource characteristics using water quality criteria.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The GLWQG outlines procedures for calculating water quality criteria that should be employed in order to protect three target populations -- aquatic life, human health, and wildlife. One of the key concepts is the establishment of Tier 1 and Tier 2 criteria for all three of these target populations.

The procedures for calculating Tier 1 aquatic life criteria are based on EPA's 1985 *Guidelines for Deriving Numerical Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*. These guidelines were used to calculate the criteria contained in the 1986 *Quality Criteria for Water* and the 1992 National Toxics Rule. These well-established procedures require toxicity data from at least eight families of aquatic life for criteria evaluation.

The procedures for calculating Tier 2 aquatic life criteria are based on a draft EPA procedure for calculating "advisory levels." This draft was never finalized, and, according to one of the authors of the procedure, these levels were never intended to be used for establishing NPDES permit limits. These Tier 2 procedures require toxicity data from as few as one species of aquatic life, with safety factors employed to ensure that Tier 2 criteria are more conservative than the more reliable Tier 1 criteria 80 percent of the time.

The procedures for calculating criteria for the protection of wildlife are another distinctive feature of the GLI. Although several states have procedures in their rules, only a handful have actually promulgated numerical criteria. Because of a number of conservative assumptions and safety factors, the values derived from these procedures are extremely low. For example, the wildlife criterion for mercury is 180 parts per quadrillion -- more than 1000 times lower than the method detection limit.

The guidance contains Tier 1 chronic aquatic life criteria for 15 chemicals, human health criteria for 20 chemicals, and wildlife criteria for 4 chemicals. The guidance also contains Tier 1 acute aquatic life criteria for 16 chemicals. In the technical supporting documents, there are Tier 2 aquatic life values for 7 chemicals. The procedures for calculating the Tier 2 values must be adopted by the states, however, the values themselves need not be. A total of 34 chemicals have at least one type of criterion, out of the 138 chemicals in the GLI "universe of pollutants."

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

A recent study by The Center for the Great Lakes concluded that some of the principal strengths of the RAP process are:

Ecosystem approach. The ecosystem approach used in the RAPs is proving effective in dealing with the relationships between the health of the AOC and the water and land uses in its watershed. Instead of treating contamination problems in isolation from the surrounding watershed, successful RAPs are integrating water and land use planning.

Local involvement. When citizen groups and local governments have played a strong role in a RAP's development, the RAPs have succeeded in galvanizing considerable support for AOC cleanup. Local communities play the key role in developing a common vision for the degraded area and setting cleanup goals.

Industry Involvement. RAP committees often include industry representatives, and in several AOCs, local industries have taken the lead in analyzing contamination problems and suggesting cleanup programs. Getting industries involved up front broadens their understanding of the cleanup plans and builds their support for them.

Accountability. Accountability is crucial for maintaining long-term support from the various community groups involved in supporting the RAPs. The effectiveness of remedial programs needs to be demonstrated so the public can see the benefits they are paying for. Many of the RAP teams have developed mechanisms, such as newsletters, annual reports, and community events, to keep the surrounding communities informed on progress made on RAP programs.

The IJC. The IJC's unique role as an independent and objective reviewer of the RAPs has also been important to the AOC program. The IJC's reviews have created regional standards against which each RAP can be evaluated. The reviews have prodded states who have been slow to prepare RAPs, pointed out weaknesses in the cleanup plans, and prevented politically sensitive pollution problems from being overlooked.

A recent study by The Center for the Great Lakes concluded that the weaknesses of the RAP process are:

Reaching consensus. Many RAP communities are experiencing difficulty in reaching consensus on the environmental problems and impaired uses in the AOCs. Much of the disagreement is due to the complexity of the environmental problems in those AOCs. The high level of public involvement by competing interests and uses, although greatly valued, carries its own cost of making consensus more difficult to achieve. As a result, it is taking longer than expected to develop RAPs.

Nonpoint source pollution. One key hurdle for RAP-writing teams has been focusing cleanup plans on nonpoint source pollution. Discharges from industries' and cities' wastewater treatment plants have been the primary targets of efforts to address water quality problems. Nonpoint sources, however, are now the primary water quality problem in the Great Lakes basin, and the primary source of persistent toxic substances.

Obtaining funding. Of all the challenges, funding RAP development and AOC cleanup is causing the most concern in RAP communities. The costs of remediation are soaring, with the cleanup bill for some AOCs, such as Green Bay and Rouge River, projected in the hundreds of millions of dollars. The cleanup funds available from all levels of Great Lakes government are extremely limited. Many RAP recommendations will require new or significantly increased appropriations. Political support will be required to secure the necessary resources.

An array of demands. The complexity of institutional and political demands in the RAP process also impedes progress. The laws, regulations, and cleanup actions used to implement the RAPs must be pieced together from a variety of federal, state, and local agencies and programs. Because of this fragmented legislative and administrative base, a high level of coordination between multiple institutions will be needed to successfully implement RAPs.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Based on its activities thus far, the Great Lakes Program provides two lessons:

1) Pollution controls evolve from a phased process. After nearly two decades, the Great Lakes Program now focuses on toxics control. Its management process consists of identifying pollution problems based on "impaired uses;" linking critical pollutants to use impairments; identifying sources, primarily chemicals; developing remedial actions; and implementing remedial actions.

2) Recognition of the need for continuous monitoring of water quality and living resources. Without monitoring, there is no way to know whether the actions taken have worked. The Great Lakes Program is carrying out a monitoring plan that surveys the lakes to determine the levels of and trends in concentrations of nutrients, metals and toxics. The results will enable the United States and Canada to assess compliance with the objectives of the GLWQA, evaluate the effects of the control program, and identify emerging problems.

The Great Lakes Program could serve as a model of a regional effort to set priorities for environmental restoration and protection that emphasizes an ecosystem approach and involves the public in identifying key actions needed to obtain environmental results.

The Corps could also examine the Great Lakes Program as a model for international, intergovernmental, and interagency cooperation to identify and establish priorities to cleanup and restore a significant environmental resource -- the five Great Lakes. The GLWQA recognizes the national and international significance of the Great Lakes.

The Corps could use the 43 Areas of Concern designated under the GLWQA to identify waterbodies in the basin that need restoration efforts to address problems with toxics.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Gulf of Mexico Program

GOALS AND OBJECTIVES

The overall goal of the Gulf of Mexico Program is to establish a "framework for action" in the Gulf as soon as possible and practicable. Specific program goals are as follows:

- Provide a mechanism for addressing complex problems in the Gulf of Mexico that cross state, federal, and international jurisdictional lines;
- Provide better coordination among federal, state, and local programs affecting the Gulf, thus increasing the effectiveness and efficiency of the long-term effort to manage and protect the resources of the Gulf;
- Provide a regional perspective to address research needs for the Gulf, which will result in improved information and methods for supporting effective management decisions; and
- Provide a forum for affected user groups, public and private educational institutions, and the general public to participate in the "solution" process.

GEOGRAPHIC SCOPE

The five states bordering the Gulf of Mexico actively participate in the program -- Alabama, Florida, Louisiana, Mississippi, and Texas.

OVERVIEW OF PROGRAM/STUDY

The Gulf of Mexico Program was established under the leadership of the U.S. Environmental Protection Agency (EPA) in August of 1988. The intergovernmental program was developed in response to signs of serious long-term environmental damage throughout the Gulf of Mexico coastal and marine ecosystem.

The program was created to address the goals listed above as well as to:

- Establish inter-agency protocols, standards and/or memoranda of understanding that will improve cooperation and minimize duplication among various levels of government;

- Ensure that uses and economic growth of the Gulf are managed in an environmentally sound manner;

- Identify and address environmental issues before irreversible damage or high cost prevents their repair;

- Improve communication and cooperation through participation decision-making, and working toward consensus on technical solutions; and

- Utilize and evaluate data and information on the Gulf of Mexico more effectively to improve the decision-making process. This enhanced characterization effort should bring together the scientific community, public, industry, legislators and other policy-makers regarding issues affecting the management and protection of the Gulf of Mexico.

"A Partnership for Action" is a high-level agreement among federal and state partners and Citizens Advisory Committee members that was signed into action in 1992. The agreement includes nine environmental challenges as well as goals and a vision statement for the Gulf of Mexico. Endorsers of "A Partnership for Action" pledge their best to accomplish the nine challenges over the next five years (1993-1997). Strategies and actions outlined by the agreement serve to facilitate and guide the actions of the Gulf of Mexico Program.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Gulf of Mexico Program is authorized by Section 104(b)(3) of the Clean Water Act. Currently, four bills have been introduced in Congress that would increase authorization for the program. Also, Public Law 102-178 signed by President George Bush designated 1992 as the "Year of the Gulf of Mexico." The Citizens Advisory Committee is chartered under the Federal Advisory Committee Act.

Public: Citizen participation and public support is exercised through the Citizens Advisory Committee. This committee is composed of citizens representing business, agricultural, environmental, industrial, fisheries, and development/tourism concerns. Five representatives are chosen from each of the Gulf Coast states by the governor of that particular state.

Technical: Expert scientific and technical information is provided by state and federal agencies, academia, and public and private sector entities.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The Gulf of Mexico Program targets its efforts based on a consensus of regional priorities. Projects are selected for funding based on the likelihood of short-term results, the level of state financial support, and on eight issue area concerns. Broad-based committees have been established for the eight pervasive issue areas of the Gulf. These committees are developing action plans that address each issue. Support functions for each of the issue areas is provided

through data and information transfer, and public information and outreach. The eight issue areas are as follows:

- Habitat degradation,
- Marine debris,
- Freshwater inflow,
- Nutrient enrichment,
- Toxic substances and pesticides,
- Living aquatic resources,
- Public health, and
- Coastal erosion.

Guidance for implementing issue area concerns is provided by the nine challenges created under the Partnership for Action agreement. These challenges were developed by the Gulf of Mexico Program's Management Committee and endorsed by the Policy Review Board (determines program policy as well as guides and reviews the activities of the program) and Governors representing each of the five Gulf Coast States. The nine challenges are:

1) Significantly reduce the rate of loss of coastal wetlands;

2) Achieve an increase in Gulf Coast seagrass beds;

3) Enhance the suitability of Gulf commercial and recreational fisheries;

4) Protect human health and food supply by reducing input of nutrients, toxic substances, and pathogens to the Gulf;

5) Increase Gulf shellfish beds available for safe harvesting by 10 percent;

6) Ensure that all Gulf beaches are safe for swimming and recreational uses;

7) Reduce by at least 10 percent the amount of trash on beaches;

8) Improve and expand coastal habitats that support migratory birds, fish, and other living resources; and

9) Expand public education/outreach tailored for each Gulf Coast county or parish.

The nine challenges listed above serve as both a challenge for action and a measure of the program's success.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

This past year over 300 projects were proposed for funding. Since the program began in 1988, it has seen much success and has initiated a number activities to help maintain the environmental quality of the Gulf. Some of the program's activities and accomplishments to date are summarized below:

- **Action Planning Process**. Initiated a process for developing action plans on Gulf of Mexico pollution issues such as marine debris, habitat loss, freshwater inflow, nutrient enrichment, toxics and pesticides contamination, public health and coastal and shoreline erosion.

- **Environmental Characterizations.** Initiated a public review and comment on draft characterization reports for habitat loss, freshwater inflow and nutrient enrichment.

- **Gulf Symposia**. Convened symposium in New Orleans, Louisiana, in 1990 (Environmental and Economic Status of the Gulf) and in Tampa, Florida, in 1992 (America's Sea -- Keep It Clean).

- **Demonstration Projects**. Developed demonstration projects to control nutrients and address the loss of Gulf habitats.

- **Estuary Management Areas.** Developed methods and tools for establishing increased numbers of special estuarine management areas along the Gulf Coast.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The success of the Gulf of Mexico Program is largely due to the diversity of participation. Individuals from government agencies, members of the private industry, citizens, elected officials, and academicians are all facilitating the effort to protect, restore, and maintain the health and productivity of the Gulf. By encouraging participation from a large range of individuals and interests, the Corps could increase the effectiveness of water resources planning efforts targeted for specific geographic areas.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

National Estuary Program

GOALS AND OBJECTIVES

The overall goals of the National Estuary Program are protection and improvement of water quality and enhancement of living resources.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The National Estuary Program is administered by the U.S. Environmental Protection Agency (EPA). The program was established to identify nationally significant estuaries threatened by pollution, development, or overuse, and to promote the preparation of comprehensive management plans to ensure their ecological integrity. In order to achieve desired goals, the program employs collaborative problem solving approaches to balance conflicting uses while restoring or maintaining the estuary's environmental quality. Examples of program activities are as follows:

- Increase public awareness of pollution problems and ensure public participation in consensus building;
- Transfer scientific and management information, experience, and expertise to program participants;
- Establish working partnerships among federal, state, and local governments;
- Promote basinwide planning to control pollution and manage living resources; and
- Oversee development and implementation of pollution abatement and control programs.

In order for an estuary to become part of the National Estuary Program, it must first be nominated by a state governor. The governor must show that the proposed body of water is nationally significant and meets given EPA criteria requirements. After the EPA Administrator reviews the nomination and selects the estuary for the National Estuary Program, the Administrator convenes a Management Conference to oversee estuary activities.

The Management Conference is attended by the EPA Administrator (or designee); representatives of state, local, and foreign governments; and other appropriate interstate or regional agencies and entities. Affected industries, public and private educational institutions, and the general public are also represented.

EPA may act as the lead agency or serve as a cooperating or sponsoring agency for each program. EPA's role is primarily to facilitate and provide scientific and management expertise. The Conference may involve other federal agencies, such as the National Oceanic and Atmospheric Administration (NOAA), the Corps of Engineers, the Soil Conservation Service (SCS), and the Fish and Wildlife Service (FWS).

The Conference lists the problems of the estuary and, from a broad array of concerns, selects specific areas to investigate. Narrowing the field, establishing priorities, and selecting which problems to tackle are all issues addressed by the Conference. A Comprehensive Conservation Management Plan (CCMP) is developed to summarize the estuary's problems and indicate those to be addressed.

SOURCE OF PRIORITY RECOGNITION

Institutional: The National Estuary Program is authorized by Section 320 of the Clean Water Act of 1987. Section 317 of this Act declares that the increase in coastal population, demands for development, and other direct and indirect uses of the estuary threaten these unique bodies of water. The law further states that it is in the national interest to maintain the ecological integrity of the nation's estuaries through long-term planning and management. Section 320 of the Act authorizes the EPA Administrator to convene Management Conferences to develop CCMPs for estuaries of national significance.

Public: The needs and values of the local public are important driving forces that create the specific management goals of estuaries in the program. A Citizens Advisory Committee (CAC) helps ensure that the public is included in the decision-making process. The Citizen Advisory Committee engages in the following activities to fulfill its role under the National Estuary Program:

- Helps to establish program goals and objectives,
- Participates in determining funding levels for program activities,
- Comments on research priorities,
- Reviews technical findings and analyses,
- Helps develop implementation plans,
- Assists with public participation activities, and
- Educates user groups concerning the purpose and benefit of proposed programs.

Technical: Scientific and technical information provided by a Science and Technical Advisory Committee is used to determine estuary conditions and establish priorities to be addressed. Members of this committee typically have expertise in the following areas:

- Sources of nutrients/toxics;
- Transport and fate, including modeling;
- Ecological and human health effects; and
- Living resources.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The Management Conference, authorized by Section 320 of the Clean Water Act, is the organizational umbrella under which the National Estuary Program is conducted. Initially convened for up to five years, the Conference may be extended or reconvened to oversee implementation and to direct or adopt new strategies.

The structure of each program is designed by the Conference based on the particular needs of the estuary. Generally, the structure consists of a policy committee, a management committee, work groups or subcommittees, and other standing committees including a scientific and technical advisory committee, a citizens advisory committee and often a local government committee and a financial planning committee.

Once the management committee has built a framework for identifying, negotiating, and solving problems, it is ready to embark on other tasks. Existing scientific information, particularly historical data, is used to characterize the estuary. The first step in the characterization process is identifying the most important environmental problems in the estuary. Because all of the problems cannot be addressed, it is critical to rank them so that effort and funding levels can be allocated effectively. The Management Conference establishes criteria by which it will define and rank environmental problems for characterization. After the specific criteria for the known environmental problems in an estuary have been developed, the problems are ranked to identify which warrant highest priority. These are considered in the remaining characterization steps.

The second step in the characterization process is the collection of "priority data sets" that are:

- Relevant to defining the nature and extent of a priority problem;
- Pertinent to specific parameters needed to define the problem;
- Broad in temporal and spatial coverage;

- Good quality, as indicated by a preliminary assessment; and
- In a useable format.

Rarely will any single data set rank highly with respect to all of the criteria listed above. The goal of the data collection and selection process is to identify the combination of data sets that best provides the information needed for estuary characterization.

After data analyses are completed for each estuary problem, results are synthesized into scientific reports. These reports may be a series of findings on several identified problem areas and may be issued separately as they become available. The characterization report, or series of problem-specific characterization reports, is a public education tool that sets the stage for the formulation of the CCMP and its action plans.

The reports provide evidence useful for:

- Summarizing major environmental problems within each estuary,
- Identifying suspected causes of as many of the problems as possible,
- Recommending early actions and future remedial and managerial strategies to correct the problems, and
- Developing a long-term monitoring program to evaluate the effectiveness of these strategies and to identify emerging environmental problems at an early stage.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Currently, there are 21 estuaries of national significance in the National Estuary Program.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Public support is vital to the successful implementation of priorities identified by the National Estuary Program. The Citizens Advisory Committee ensures representation of public concerns while options are fluid, rather than after data collection and analyses have been completed and final decisions made. Public support for implementation procedures is more likely if the public has been involved during all program phases. By actively involving the public in the planning and management of environmental resource restoration or protection projects, the Corps could increase support for its activities.

The 21 estuaries under the National Estuary Program could be used by the Corps to identify specific coastal areas designated as of national significance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Near Coastal Waters Program

GOALS AND OBJECTIVES

The Near Coastal Waters (NCW) Program was established by the U.S. Environmental Protection Agency (EPA) in 1986 as a long-range initiative to maintain, and where possible, enhance the quality of near coastal waters through geographic targeting and management initiatives. The NCW Program targets coastal waters that require focused management attention, encourages managers to use their existing regulatory authority and resources to solve problems in coastal areas more efficiently, and assists federal, state, and local officials in implementing new management techniques that will achieve measurable environmental improvement in near coastal waters.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

Near coastal waters are defined as inland waters to the head of tide, territorial seas, and contiguous zone (12 miles of shore), and include related wetlands and the Great Lakes. The NCW Program recognizes that management of near coastal waters needs to address the multiple threats from varied sources that influence natural aquatic systems from a water body management perspective. The water body approach of the NCW Program parallels that of the National Estuary Program (NEP), but expands beyond the selected few estuaries to provide protection to all threatened near coastal waters. The program provides for the implementation of pilot projects and the development of Regional NCW Strategies to protect near coastal waters. The NCW Program builds upon knowledge gained in the NEP, Chesapeake Bay, Great Lakes, and other programs to develop new techniques and apply them as needed along the nation's coastline.

Coastal EPA Regions prepared reports that focused on problems in specific coastal areas. These reports provided a foundation for future regulatory activities by highlighting data, management, and planning requirements for the NCW Program, and raised public awareness of the various environmental problems facing near coastal waters. The NCW Program has also conducted an inventory of federal databases to identify sources of data on the five major coastal environmental problems (i.e., eutrophication, toxic contamination, pathogens, changes in living resources, and habitat loss/alterations). The inventory, including its data and contacts, is available to coastal resource managers.

To identify threatened areas in need of additional management attention, it was recognized that the available data was not comprehensive and a national assessment of the environmental status and trends of all near coastal waters was needed. EPA has been working with other federal and state agencies to gather and compile all available information on near coastal waters. Several assessment projects have been undertaken as a means of eliminating gaps in the information on coastal waters, to create a permanent interest within the states for the management of coastal water systems, and to establish a baseline against which progress in the NCW Program can be measured.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Water Quality Act of 1987 requires states to conduct an assessment of the effects of pollutants and contaminants on their water resources, and to identify waters impaired or threatened by nonpoint source and toxic pollutants. Historically, states have focused on fresh inland waters. Through the NCW Program, EPA has provided technological assistance and guidance to states in an effort to change this focus and ensure that near coastal waters are included in future state assessments.

Actions outlined in Regional NCW Strategies support the goals and objectives of the EPA's National Coastal and Marine Policy focusing on environmental problems that threaten public health, the health and survival of living resources, the coastal economy, and the enjoyment of coastal areas and resources.

Technical: The Regional Strategies discussed in the section below are based on the use of scientific data to assess the five major coastal problems (i.e., eutrophication, toxic contamination, pathogens, changes in living resources, and habitat loss/alterations).

PRIORITIZATION OR PROJECT SELECTION PROCESS

Regional NCW Strategies are a critical aspect of the NCW Program. The Regional Strategies articulate approaches for assessing the five major coastal environmental problems (i.e., eutrophication, toxic contamination, pathogens, changes in living resources, and habitat loss/alterations) and identifying geographic areas that will be targeted, as well as priority actions that will be taken in these areas by EPA in coordination with federal, state, and local agencies. Each coastal EPA Region developed a NCW Strategy to address those coastal environmental problems that were considered regional priorities or regionally significant coastal resources. The NCW Strategies of the eight coastal EPA Regions are summarized below.

- EPA Region I. The NCW Strategy in Region I is designed to address all five of the major coastal environmental problems. Region I has NCW projects that encompass all five areas of concern, however, most of the projects are targeted at water quality, specifically nutrient enrichment. The Region has also developed projects that take a geographic perspective and attempt to integrate various initiatives to tackle coastal environmental problems on a broader scale.

- EPA Region II. Region II's focus for the NCW Strategy is the development and implementation of comprehensive management plans for the major international and interstate coastal water bodies in the Region.

- EPA Region III. The two NCW projects in Region III collectively address four of the five major coastal environmental problems (excluding habitat loss/alterations). The four problem areas appear to receive even coverage, with the exception of pathogen contamination, which is addressed by both projects.

- EPA Region IV. Region IV contains 40 percent (2,000 miles) of the coastline of the contiguous United States and also contains some of the fastest growing areas in the country, most of which are located in the coastal zone. The NCW program for Region IV, therefore, has three major goals: to scientifically assess the status and trends of the Region's near coastal waters and set priorities based on the results of the assessment; enhance the implementation of existing EPA and state programs; and develop coordinated management approaches for priority near coastal water bodies or special problem areas.

- EPA Region V. Region V has four NCW projects that evenly address all five of the problem areas, although eutrophication is only included in one project while the other projects cover at least two areas. Region V has developed and implemented its NCW Strategy within the context of the Great Lakes Initiative.

- EPA Region VI. Region VI is focusing its efforts on the protection of the Gulf of Mexico coastal water quality in Texas and Louisiana. The major issues identified in preparing the Regional NCW strategy were living resource decline, human health threats, and loss of the aesthetic value of the coast.

- EPA Region IX. The main focus of Region IX's NCW Strategy is wetlands conservation and restoration. With increased regulation and protection, the Region hopes to prevent further wetland loss and to restore previously destroyed wetlands.

- EPA Region X. Region X developed its NCW projects with an emphasis on geographic-based problem solving. This involved evaluating and resolving environmental problems in the context of whole ecosystems or watersheds. The Region's NCW Strategy includes the development and initiation of source control, remediation, and restoration actions along with the integration of state, local and federal base programs.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

A review of all eight EPA Regions with NCW Strategies indicates that the five major coastal environmental problem areas identified in the NCW Program are receiving attention in the following descending order: toxic contamination, habitat loss/alterations, changes in living resources, pathogens, and eutrophication. This ranking is based on the number of projects addressing each of the environmental problem areas out of a total of 61 projects. The upper

budget range for projects is between $100,000 to $200,000 and the lower range is between $10,000 to $50,000.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The NCW Program could serve as a model for setting resource priorities through regional strategies for the maintenance and enhancement of the quality of coastal waters and habitat. It could also be used by the Corps as a model for coordinating and assisting federal, state, and local officials in implementing new management initiatives through geographic targeting.

The NCW Strategies of some of the coastal EPA Regions identify coastal resources of regional significance that will be targeted under the NCW Program. EPA Region IV, for example, conducted a scientific assessment that was used to identify priority near coastal water bodies. Where such information is available, it could be used by the Corps to identify coastal resources of regional significance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Wetlands Protection Program -- Advanced Identification

GOALS AND OBJECTIVES

The overall goal of the Advanced Identification (ADID) process is to identify wetlands and other waters that are either generally suitable or unsuitable for the discharge of dredged or fill material prior to the initiation of a Section 404 permit application.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

Advanced Identification of disposal areas is an advance planning process that allows the U.S. Environmental Protection Agency (EPA), in cooperation with the Corps of Engineers, and after consultation with the state, to distinguish the values of wetland areas in advance of Section 404 permit applications. Advanced Identification of wetland areas as either suitable or unsuitable for discharge of dredged and fill material is intended to add predictability to the wetlands permitting process as well as better account for the impacts of losses from multiple projects within a geographic area. The ADID process also serves to inform the local population of the values and functions of wetlands in their area, and it generates environmental information valuable for other purposes.

SOURCE OF PRIORITY RECOGNITION

Institutional: The ADID process is conducted in accordance with Section 230.80 of the 404(b)(1) Guidelines promulgated by EPA (40 CFR Part 230) to implement Section 404(b)(1) of the Clean Water Act.

Public: Local public cooperation and support play a large role in the success of the ADID process. Recently, ADID projects have been initiated by local entities to facilitate local planning efforts. Public support for ADID has aided in achieving the overall goal of wetlands protection.

Technical: Technical information on the functions and values of wetlands is used to determine the classification of proposed sites.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The ADID process is administered by the EPA with support from the Corps of Engineers. Prioritization occurs in the ADID process through the collection and dissemination of information on the values of wetland areas. Wetlands in a given region are inventoried and then classified as areas either generally suitable or unsuitable for the discharge of dredged or fill material. The classification provides the local community with information on the values of wetland areas that may be affected by their activities as well as a preliminary indication of factors that are likely to be considered during review of a Section 404 permit application.

The Rainwater Basin ADID study, for example, included the following activities:

- National Wetlands Inventory mapping,
- Adamus functional assessment,
- Waterfowl time-budget assessment,
- Vegetation and remote sensing studies,
- Water quality studies,
- An economic study, and
- Public awareness workshops.

The classification of wetlands through ADID projects does not constitute either a permit approval or denial, and is used only as a guide by landowners and the regulated community in the planning of future activities. Classification under the ADID process is strictly for advisory purposes.

Although ADID projects can be resource intensive activities, some projects have been completed in as little as 6 months. Regional experience seems to indicate that smaller or more local ADID project boundaries lead to more complete and effective ADID analysis and results.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The ADID process has reduced problems with planned activities in wetlands by increasing public and landowner awareness of wetland values and the requirements for Section 404 permits. As of June 1993, 71 projects have been initiated nationwide, with 36 projects completed and 35 currently ongoing. ADID projects have ranged in size from less than 100 acres to greater than 4,000 square miles. In general, ADID projects have proven to be a very beneficial tool in EPA's overall effort to protect valuable wetland resources.

Interest in ADID has continued to increase. The EPA expects more states, localities, and private organizations to contribute funding and support for ADID projects or other comprehensive planning efforts.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The ADID process involves the collection of information on the values and functions of wetland areas and serves as a means of distributing such information to the public. Because ADID projects are usually associated with watershed planning, they are extremely compatible with geographic or ecosystem initiatives for water resources planning and could serve as mechanism for identifying regional wetland priorities and significant wetland areas.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Section 319 Nonpoint Source Program

GOALS AND OBJECTIVES

The U.S. Environmental Protection Agency (EPA) has four broad objectives in awarding grants to the states under Section 319 of the Clean Water Act. These are to:

1) Support state activities for abating or preventing nonpoint source pollution that have the greatest likelihood of producing early, demonstrable water quality results, and reducing ecological and health risks in areas of greatest concern.

2) Award and manage nonpoint source grants in a manner that encourages and rewards effective performance by the states.

3) Institutionalize state and local nonpoint source programs.

4) Encourage strong relationships among federal, state and local nonpoint source and nonpoint source-related programs and activities to create long-term program effectiveness.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

Congress added Section 319 to the Clean Water Act in 1987. Section 319 established a national program to control nonpoint sources of water pollution. Under Section 319, states address nonpoint source pollution by developing nonpoint source assessment reports, adopting management programs to control nonpoint source pollution, and implementing the management programs. Section 319(h) authorizes EPA to award grants to states to assist them in implementing those management programs or portions of management programs that have been approved by EPA.

EPA issued guidance in December 1987 entitled *Nonpoint Source Guidance*, which established the process for state submissions and EPA approval of state nonpoint source assessment reports and management programs. All states now have EPA-approved assessment reports. In addition, as of April 1993, EPA has fully approved 51 state (including territories) management programs and has approved portions of six state

management programs. Two Indian tribes have approved assessment reports and management programs.

Congress appropriated the first Section 319 grant funds in FY 1990. On December 1 and 15, 1989, EPA issued interim guidance for awarding FY 1990 grant funds to the states, including an interim planning target formula based on nonpoint source needs. This guidance supplemented the December 1987 *Nonpoint Source Guidance*.

Section 319(h)(1) authorizes grants only for the purpose of assisting states in implementing approved nonpoint source management programs. Eligible types of program implementation activities listed in Section 319(b)(2)(B) include: nonregulatory or regulatory programs for enforcement, technical assistance, financial assistance, education, training, technology transfer, and demonstration projects.

SOURCE OF PRIORITY RECOGNITION

Institutional: Section 319 of the Clean Water Act authorized the entire nonpoint source program, including nonpoint source grants to assist states in implementing nonpoint source management programs approved by EPA.

Public: Local public interest and support is considered to be an important factor by the EPA in the prioritization process.

Technical: The prioritization process discussed in the section below is based on scientific or technical knowledge and judgement of impairments or threats to surface and ground waters caused by nonpoint source pollution, and the values of specific watersheds or ground-water areas.

PRIORITIZATION OR PROJECT SELECTION PROCESS

In accordance with the *Nonpoint Source Guidance*, states should establish priorities for surface and ground waters impaired or threatened by nonpoint source pollution. These priorities may be established through a revision of the approved nonpoint source assessment or management programs, using a process that provides for both interagency coordination and public participation, and such revisions would be subject to approval by EPA Regions. Regardless of what process the state uses to establish priorities, it is critical that the process allows for interagency coordination and public participation. EPA Regions should give funding priority to watershed projects that are identified through state priority ranking systems.

EPA recognizes that state processes to identify priority water resources need to be dynamic and flexible to account for such factors as new information, changing levels of interest and support in a given area of the state, and new federal/state/local program initiatives. EPA also recognizes that it may not always be reasonable to rank all waters identified in nonpoint source assessments in numerical order. Therefore, as an alternative to numerical rankings, states may chose to group waterbodies in categories (e.g., high, medium, low).

EPA has not prescribed a ranking or targeting procedure that states must follow. Instead, the guiding principle recommended by EPA is to maximize environmental benefits by devoting resources and efforts to water resources in a priority order that recognizes the values of the waterbody or aquifer in question, the benefits to be realized from various control actions, and the controllability of the problem (including evidence of local public interest and support). EPA recommends that states consider following criteria in evaluating watersheds:

- Human health and ecological risk,
- Vulnerability of ground water or surface water to additional environmental degradation,
- Likelihood of achieving demonstrable environmental results,
- Implementability,
- Extent of alliances with other federal agencies and states to coordinate resources and actions,
- Value of the watershed or ground-water area to the public,
- Resource needs, and
- Use of existing and/or development of new assessment information.

Rankings for surface water should be as consistent as possible with other priority rankings established by the states under the Clean Water Act such as those under Section 303(d), which requires priority rankings for waters identified as being unable to achieve water quality standards. In addition, priority rankings should be as consistent as possible with those prepared for other programs such as the Clean Lakes Program (Section 314), the National Estuary Program (Section 320), the Near Coastal Waters Program, and Section 304(1), and should be consistent with information in states' Section 305(b) reports.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

In FY 1990 and 1991, 52 wetlands and riparian projects funded through Section 319 grants were in progress nationwide. For FY 1994, EPA expects an appropriation by Congress between $50-$80 million for Section 319.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Clean Water Act Section 319 grant program could serve as a model for implementing wetlands and riparian projects through existing state programs to identify priority water resources for managing nonpoint sources of water pollution. It could also be used by the Corps as a model for encouraging strong relationships among federal, state and local

nonpoint source and nonpoint source-related programs and activities to create long-term program effectiveness.

The rankings of priority water resources developed by the states under the Section 319 program could prove beneficial to the Corps by identifying resources of state significance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Watershed Protection Approach

GOALS AND OBJECTIVES

The overall goal of the Watershed Protection Approach, an initiative developed by the U.S. Environmental Protection Agency (EPA), is to maintain and improve the health and integrity of aquatic ecosystems using comprehensive approaches that focus resources on the major problems facing these systems within the watershed context. To meet this goal, the EPA has identified the following objectives:

- Align EPA programs to support risk-based watershed planning and management;
- Promote the use of the approach by its partners in other federal, state, and local agencies;
- Address the primary threats to ground and surface waters;
- Promote stewardship and a broad understanding of and participation in the approach by the public; and
- Effectively measure progress toward restoring, maintaining, and protecting our nation's waterbodies and aquatic habitats.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The Watershed Protection Approach is an integrated, holistic strategy for more effectively restoring and protecting human health (e.g., drinking water supplies and fish consumption). This approach is a renewed effort by EPA to focus on hydrologically defined drainage basins -- watersheds -- rather than on areas arbitrarily defined by political boundaries.

For any given watershed, the approach encompasses not only the water resource, such as a stream, river, lake, estuary, or aquifer, but all the land from which water drains to that resource. To protect water resources, it is increasingly important to address the condition of land areas within the watershed because as water drains off the land it carries with it the effects of human activities throughout the watershed. By concentrating on natural resources

and systems, it is possible to detect and take remedial action for problems such as declines in living resources and habitat loss.

The Watershed Protection Approach has three major cornerstones:

1) Problem Identification. Identify the primary threats to human and ecosystem health within the watershed.

2) Stakeholder Involvement. Involve the people most likely to be concerned or most able to take action.

3) Integrated Aspects. Take corrective actions in a comprehensive, integrated manner once solutions are determined. Evaluate success and refine actions, as necessary.

This approach places greater emphasis on all aspects of water quality, including chemical water quality (e.g., toxics and conventional pollutants), physical water quality (e.g., temperature, flow, and circulation), habitat quality (e.g., channel morphology, composition, and health of biotic communities), and biodiversity (e.g., species number and range). This approach encompasses all waters -- surface and ground, inland and coastal. The Watershed Protection Approach is not a new centralized program that competes with or replaces existing programs; rather it provides a framework and new focus for effective integration of ongoing programs. In taking this expanded approach, EPA must work closely with other stakeholders who have responsibilities in this area.

In October 1991, the Directors of all four offices in EPA's Office of Water (i.e., Office of Ground Water and Drinking Water; Office of Science and Technology; Office of Wastewater Enforcement and Compliance; and Office of Wetlands, Oceans and Watersheds) signed a watershed protection framework document. This document lays the groundwork to implement regional watershed projects and institutional changes within EPA. The purpose of the regional watershed projects is to devise methods and tools, develop credible case studies, and lead by example.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Watershed Protection Approach is a policy initiative developed by EPA's Office of Water.

Public: Public support and participation through the involvement of stakeholders in regional watershed projects is important in determining priorities for restoring and protecting aquatic resources. Various outreach activities encourage this involvement.

Technical: Technical tools, developed by EPA's Office of Water, provide technical information to EPA Regions, states, communities, and other interested organizations to assist in selecting and adopting watershed projects.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Often, as a first step in organizing a watershed project, some type of mechanism, such as a committee or task force, helps to bring stakeholders together who live, work, plan for, and effect changes within the same watershed. These committees serve as a mechanism for gaining technical and public input and sustaining political and public support for the project. Involving stakeholders in the planning and management of watershed activities ensures that greater consideration will be given to protecting and restoring significant aquatic resources within a watershed.

The Watershed Protection Approach is intended to provide a framework for resolving today's water quality challenges, which include resolving significant pollution problems that come from literally millions of diffuse or nonpoint sources, maintaining safe drinking water supplies, and restoring and protecting aquatic habitats. The approach emphasizes the involvement of all affected stakeholders and stresses the need for teamwork at the federal, state, and local level to achieve the greatest improvements with the resources available. Stakeholders include federal, state, and local government agencies, businesses, environmental organizations, educational institutions, civic groups, elected officials, and individual citizens.

The EPA's role in watershed activities ranges from modest support to very active, primary leadership. The role varies among watersheds and often among different segments of a watershed. Regional watershed projects are based on a wide range of organizational arrangements, from formal to informal, large to small, depending the political and physical nature of the watershed.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

EPA is currently involved in 34 individual watershed projects in all 10 EPA Regions. As the Watershed Protection Approach becomes an integral part of the water program, both programmatic and environmental successes will be measured. Obtaining accurate measures of environmental results (e.g., acres of wetlands protected/restored, increases in fish populations) will be aided by an Interagency Task Force on Monitoring, which was established in 1992 to develop an institutional framework for nationwide integrated monitoring.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Regional watershed projects vary in terms of when they seek input from all stakeholders. Some projects have encountered problems in gaining consensus among stakeholders regarding a lead organizing entity or project phasing. In another case, the lead organizing entities learned that seeking the input of all stakeholders without having a defined project scope or plan of action was counterproductive. These entities decided to delay involving many other stakeholders until they had completed initial water quality assessments and had drafted preliminary goals, objectives, and operational plans to focus their own activities. Finally, watershed projects that gain political support are more likely to succeed in attracting funding and turning plans into actions.

Because the Watershed Protection Approach brings together all stakeholders involved, the potential exists for greater consideration to be given to protecting and restoring significant natural resources that have broad public support. The Corps could examine this approach of working closely with other stakeholders for deriving regional environmental resource priorities on a watershed basis.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

EPA Region IV Watershed Initiative

GOALS AND OBJECTIVES

The goal of the U.S. Environmental Protection Agency (EPA) Region IV Watershed Initiative is to reduce ecological and human health risks in critical watersheds. The objective of this initiative is to outline the Region's approach for adopting watershed protection and define a process and criteria through which priority watersheds are identified and targeted for special attention.

The overall goal of EPA's Watershed Protection Approach, which was developed at EPA Headquarters, is to maintain and improve the health and integrity of aquatic ecosystems using comprehensive approaches that focus resources on the major problems facing these systems within the watershed context. Headquarters has given the ten EPA Regions a great deal of flexibility in developing regional approaches for the Watershed Protection Approach.

GEOGRAPHIC SCOPE

EPA Region IV, which includes the states of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

OVERVIEW OF PROGRAM/STUDY

Under the Watershed Initiative, EPA Region IV's goal of reducing ecological and human health risks in critical watersheds will be accomplished by:

1) Identification of watersheds by Region IV and states based on known problems and use impairments;

2) Clear definition of the problems, causes, and sources in the watershed;

3) Development of potential control strategies for pollutant loads and sources including determination of total maximum daily loads (TMDLs), as appropriate;

4) Aggressive implementation of point and nonpoint source controls;

5) Development of scientifically valid, practical indicators to identify and assess improvements made or ecological risks that threaten the waters; and

6) Development of ecological criteria that states can use in adopting standards for ecology-based pollution prevention and control.

The Watershed Initiative will draw from a menu of activities to support Region IV, state, and local environmental protection and restoration efforts. The selection of activities will vary among watershed projects and may cross programs offices within EPA. Each watershed project will be structured for the particular water quality and aquatic habitat problems deemed to be of highest priority in a specific watershed.

EPA will appoint a watershed coordinator for each watershed project. Each project will also have an EPA watershed team, which will consist of staff representatives of each EPA Region IV program with an active role in environmental issues in the watershed, to coordinate EPA base programs relevant to the project. An external watershed coordinating committee will be formed to facilitate communication among agencies and groups operating in the watershed and participate in implementation of basin environmental protection actions. The coordinating committee members could consist of technical and management representatives of key state, regional and local agencies, industries, and citizens group representatives.

SOURCE OF PRIORITY RECOGNITION

Institutional: The EPA Region IV Watershed Protection Initiative was developed as regional approach under EPA's Watershed Protection Approach. The Watershed Protection Approach is a policy initiative developed in 1991 by the Office of Water at EPA Headquarters.

Public: One of the criteria for designating priority watersheds, which are listed in the section below, is the value of the watershed to the public. Public support and participation through the involvement of stakeholders in watershed teams and coordinating committees is important in determining priorities for restoring and protecting aquatic resources under specific watershed projects.

Technical: The designation of priority watersheds and the prioritization process for specific watershed projects is based on scientific and technical information about the environmental problems in a watershed. In particular, EPA Region IV watershed projects will assemble and evaluate available information on the sources, causes and extent of waterbody use impairment and the ecological and/or human health risks.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The EPA Regional Administrator (or designee) will consider the following criteria in designating priority watersheds:

- The magnitude of risks to human and ecological health,
- The possibility of additional environmental degradation if no action is taken,
- The likelihood of achieving demonstrable results,

- Implementability,
- The extent of alliances with other federal agencies and states to coordinate resources and actions,
- The value of the watershed to the public,
- Resource needs (e.g., funding and availability of personnel to participate on watershed teams and coordinating committees), and
- The use of existing and/or development of new assessment information.

For each watershed project, regular meetings of the watershed team and coordinating committee will be conducted to maintain communication among all stakeholders and to build consensus on issues and obtain commitments for solutions. Scientific and technical information characterizing the environmental problems in the watershed will be used to develop a watershed management strategy, which will consist of both a long-range plan and yearly work plans. The purpose of a watershed management strategy is to:

- Form consensus on which environmental issues are the highest priorities,
- Develop TMDLs and water-based control strategies,
- Describe specific plans of action to address problems,
- Identify those problems that need additional data,
- Identify opportunities for cooperative efforts,
- Leverage resources, and
- Set EPA base program priorities.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

To date, EPA Region IV has designated two priority watersheds under its Watershed Protection Initiative. These watershed projects are:

- The Flint Creek Project, which covers 465 square miles in north central Alabama, and
- The Savannah River Project, which covers slightly over 10,000 square miles of one of the major river systems in the southeastern United States and includes portions of North Carolina, South Carolina, and Georgia. The Savannah River Project includes both river and estuarine areas.

The Savannah River Project was designated as a priority watershed because of the importance of the watershed as a natural resource, the many known environmental impacts on the watershed, the susceptibility of the watershed to additional degradation, the opportunity for a high degree of involvement and coordination with many federal, state, and local agencies, and the likelihood of success because of a high level of public interest in protecting this river system. Other factors included the economic importance of the resource to the southeastern United States and high visibility issues associated with endangered species, coastal water quality standards, and interstate water allocations.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Two watersheds have been identified as priority watersheds and more may be identified in the future. The priority watersheds could be used by the Corps to identify resources of regional significance.

Because the two watershed projects began in 1992, they are still in the planning stage and have not yet implemented environmental protection or restoration actions. However, each project has been successful in gaining a significant level of interagency cooperation for data collection and other activities to identify and assess environmental problems in the watersheds. The Corps could examine the EPA Region IV Watershed Initiative, which was developed to implement EPA's Watershed Protection Approach, as a mechanism of working effectively with a large number of stakeholders to derive regional environmental resource priorities for specific watersheds.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

EPA Science Advisory Board: *Reducing Risk: Setting Priorities and Strategies for Environmental Protection*

GOALS AND OBJECTIVES

In 1989 after taking office as Environmental Protection Agency (EPA) Administrator, William K. Reilly asked the Science Advisory Board (SAB) to review the EPA's 1987 report, *Unfinished Business: A Comparative Assessment of Environmental Problems*. The SAB was to assess and compare different risks to human health and the environment based on the most recent scientific data and to develop strategic options for reducing this risk. The SAB formed the Relative Risk Reduction Strategies Committee (RRRSC), a special subcommittee to address the specific concerns of the EPA request. The objectives of this committee were:

- To critically review *Unfinished Business*, reflecting any significant new information that bears on the evaluation of risks associated with specific environmental problems;
- To the extent possible, merge the evaluations of 1) cancer and non-cancer risks, and 2) ecological and welfare risks;
- To provide optional strategies for reducing the major environmental risks; and
- To develop a long-term strategy for improving the methodology for assessing and ranking environmental risks and for assessing the alternative strategies that reduce risk.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The EPA's 1987 report and the SAB's 1990 report, *Reducing Risk: Setting Priorities and Strategies for Environmental Protection*, focus on the concept of environmental risk. This concept specifically relates to the idea that each environmental problem poses some possibility of harm to human health and the quality of human life. Each of these problems is an environmental risk. Assessment of risk is the process by which the form, dimension, and characteristics of that risk are estimated. By defining environmental risks and establishing priorities, risks posing the greatest threat to the environment and therefore, human health, can be reduced in the most efficient way.

SOURCE OF PRIORITY RECOGNITION

Institutional: The EPA's efforts to understand relative risk reduction strategies are part of a policy initiative by William K. Reilly, former EPA Administrator, to refocus current EPA practices.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The following ten recommendations were made to EPA by the RRRSC and published in the 1990 SAB report, *Reducing Risk*:

- **The EPA should target its environmental protection efforts on the basis of opportunities for the greatest risk reduction.** Since this country already has taken the most obvious actions to address the most obvious environmental problems, EPA needs to set priorities for future actions so the agency takes advantage of the best opportunities for reducing the most serious remaining risks.

- **The EPA should attach as much importance to reducing ecological risk as it does to reducing human health risk.** Because productive natural ecosystems are essential to human health and to sustainable, long-term economic growth, and because they are intrinsically valuable in their own right, EPA should be as concerned about protecting ecosystems as it is about protecting human health.

- **EPA should improve the data and analytical methodologies that support the assessment, comparison, and reduction of different environmental risks.** Although setting priorities for national environmental protection efforts will always involve subjective judgements and uncertainty, EPA should work continually to improve the scientific data and analytical methodologies that underpin those judgements and help reduce their uncertainty.

- **EPA should reflect risk-based priorities in its strategic planning process.** The Agency's long-range plans should be driven not so much by past risk reduction efforts or by existing programmatic structures, but by ongoing assessments of remaining environmental risks, the explicit comparison of those risks, and the analysis of the opportunities available for reducing risks.

- **EPA should reflect risk-based priorities in its budget process.** Although EPA's budget priorities are determined to a large extent by the different environmental laws that the Agency implements, it should use whatever discretion it has to focus budget resources at those environmental problems that pose the most serious risks.

- **EPA -- and the nation as a whole -- should make greater use of all the tools available to reduce risk.** Although the nation has had substantial success in reducing environmental risks through the use of

government-mandated end-of-pipe controls, the extent and complexity of future risks will necessitate the use of a much broader array of tools, including market incentives and information.

- **EPA should emphasize pollution prevention as the preferred option for reducing risk.** By encouraging actions that prevent pollution from being generated in the first place, EPA will help reduce the costs, intermedia transfers of pollution, and residual risks so often associated with end-of-pipe controls.

- **EPA should increase its efforts to integrate environmental considerations into broader aspects of public policy in as fundamental a manner as are economic concerns.** Other federal agencies often affect the quality of the environment, for example through the implementation of tax, energy, agriculture, and international policy, and EPA should work to ensure environmental considerations are integrated where appropriate, into the policy deliberations of such agencies.

- **EPA should work to improve public understanding of environmental risks and train a professional workforce to help reduce them.** The improved environmental literacy of the general public, together with an expanded and better-trained technical workforce, will be essential to the nation's success at reducing environmental risk in the future.

- **EPA should develop improved analytical methods to value natural resources and to account for long-term environmental effects in economic analysis.** Because traditional methods of economic analysis tend to undervalue ecological resources and fail to treat adequately questions of intergenerational equity, EPA should develop and implement innovative approaches to economic analysis that will address these shortcomings.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

By publishing *Unfinished Business* in 1987, the EPA took a bold initiative in environmental policy. From their review of *Unfinished Business*, the RRRSC concluded that:

- The document itself was significant because it was the first step in addressing relative risk reduction;

- There are problems ranking risks due to gaps in data;

- Natural ecosystems are extraordinarily valuable not just for their immediate utility to humans, but because they have an intrinsic moral value that can only be measured in its own terms;

- Temporal and spatial dimensions are important factors to include when assessing the risks associated with given environmental problems;

- Risk is associated with the day-to-day choices made by individuals, communities and businesses;
- Risks considered to be the most threatening by the general public today are different from those considered most serious by technical professionals;
- There currently are some relatively high-risk environmental problems based on current technical understanding and scientific data; and
- There are risk reduction tools that can be implemented to deal with environmental problems.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

This study is of value to the Corps because it provides an alternative way to view natural ecosystems. This study emphasizes that productive natural ecosystems are significant to protection of human health and as such, the study focuses on how degradation of a given area could result in increased risk to human health. Natural ecosystems should be viewed as providing support systems and environmental resources essential for human health and welfare.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Coastal America: A Partnership For Action

GOALS AND OBJECTIVES

The goals of Coastal America are:

- To protect, preserve, and restore the nation's coastal ecosystems through existing federal capabilities and authorities;
- To facilitate collaboration and cooperation in the stewardship of coastal living resources by working in partnership with other federal programs and integrating federal actions with state, local, and nongovernmental efforts; and
- To provide a framework for action that effectively focuses agency expertise and resources on jointly identified problems to produce demonstrable environmental and programmatic results that may serve as models for effective management of coastal living resources.

GEOGRAPHIC SCOPE

Coastal areas throughout the United States

OVERVIEW OF PROGRAM/STUDY

Coastal America is a relatively new initiative that sets forth an innovative holistic approach to addressing the needs of the nation's coastal resources. The program provides a forum for interagency consultation and cooperation. The principal issues of concern are loss and degradation of habitat, pollution from nonpoint sources, and contaminated sediments.

The Department of the Army, Department of the Navy, Department of the Air Force, Department of Transportation, Department of Housing and Urban Development, Department of Agriculture, Department of the Interior, Environmental Protection Agency, and the National Oceanic and Atmospheric Administration are actively involved with Coastal America. With agency coordination provided by the President's Council on Environmental Quality, Coastal America is able to join the forces of federal agencies with state, local, and private alliances.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Coastal America Partnership is a process that was initiated in 1991. Authorization for the initiative is linked, but not limited, to the following federal statutes that affect coastal resources:

- Water Resources Development Act of 1986,
- National Environmental Policy Act,
- Clean Water Act,
- Fish and Wildlife Coordination Act, and
- Coastal Zone Management Act.

Public: The participation of nonfederal partners is an important factor in establishing regional priorities that consider and receive the support of state and local interests.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Prioritization for this initiative occurs at the regional level where interagency Regional Implementation Teams (RITs) representing Great Lakes areas, Alaska, Northwest, Southwest, Gulf of Mexico, Southeast, and Northeast come together. These regions develop a working list of priority projects, for which they will establish interagency partnerships.

In order to establish Coastal America priorities for each region, RITs meet on a regular basis to develop an overall strategy that considers both state and local goals. By sharing project information, project plans, and program changes, RITs can learn of potential projects and identify opportunities for collaborative action.

Proposed projects are given initial priority if they:

- Are action oriented, with a focus on habitat, nonpoint source pollution, or contaminated sediments;
- Are multi-agency, including at least three federal partners and one nonfederal participant; and
- Include education/outreach and monitoring components.

Further prioritization occurs based on the goals and objectives of a specific region.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Although Coastal America is a relatively new initiative, it has already proven to be an action-oriented and innovative interagency approach dedicated to protecting, preserving, and restoring the nation's coastal ecosystems. By encouraging collaboration and cooperation, rather than confrontation, Coastal America has facilitated positive working relationships between the "development," "stewardship," and "infrastructure" agencies. Coastal America is also moving policy efforts to a more holistic approach in dealing with coastal ecosystems.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The interagency approach of Coastal America fosters creative and proactive solutions to environmental restoration and protection problems. This approach could benefit the Corps by providing a larger pool of resources, funding, and authority that could be used for restoration and protection of environmental resources. The interagency approach is founded on the belief that environmental problems are not necessarily caused by any single source, but rather by multiple sources, and therefore, their solutions should address multiple issues using the resources of many agencies.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Land and Water Conservation Fund

GOALS AND OBJECTIVES

The overall goal of the Land and Water Conservation Fund (L&WCF) is to acquire natural resource lands in order to protect scenic wonders and archeological sites, wildlife habitats, sensitive ecosystems, wetlands and watersheds, migration corridors, plant and animal reintroduction efforts, and land valued for recreation and historical preservation.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The L&WCF is administered by the Secretary of the Interior to protect natural resources and to preserve, develop, and assure accessibility to quality outdoor recreation areas.

The L&WCF is the primary source of funding for land acquisitions programs of four federal agencies: the Forest Service under the U.S. Department of Agriculture; and the Fish and Wildlife Service; National Park Service; and the Bureau of Land Management under the U.S. Department of the Interior. In addition to funding land acquisition by federal agencies, L&WCF provides funding for the State Assistance Program, which is administered by the National Park Service and provides grants to state agencies for acquisition of recreational and other open space.

The initial focus of the L&WCF was to acquire lands for outdoor recreation. More recently, this focus has also included the protection of natural resources. This acquired land is very important due to the wide diversity of landscape and scenic experiences it represents. Properties that are eligible for acquisition are those that meet the following minimum criteria:

- The acquisition is not opposed by the owner;
- The property does not pose any known health, safety, or liability problems;
- The property lies within the boundaries of, or is adjacent to an existing federal conservation or recreation unit, or could be the initial building block of one; and

- The cost of making the purchase accessible, safe, and usable by the public does not exceed 10 percent of the purchase price.

Partnerships with nonprofit organizations have played a vital role in the success of the program. Nonprofit organizations such as the Rocky Mountain Elk Foundation, the Appalachian Trail Conference, The Nature Conservancy and the Trust for Public Land have all worked with the Forest Service to acquire land. These partners have contributed time and energy in the following ways:

- Facilitating complicated negotiations,
- Buying and making available key tracts of land that otherwise would have been sold before public funds were available,
- Making bargain sales or donations of lands needed for public recreation, and
- Raising public support for the preservation of tracts needed to protect threatened and endangered species or provide special recreation opportunities.

SOURCE OF PRIORITY RECOGNITION

Institutional: This program was authorized when President Lyndon B. Johnson signed the Land and Water Conservation Fund Act on September 3, 1964 (P.L. 88-578). This law provides funding for the acquisition and protection of lands by local, state, and federal governments. The Budget and Reconciliation Act of 1988 (P.L. 100-203) extended the L&WCF through the year 2015.

Public: The public participates in the prioritization process through conservation groups, which testify at budget hearings about the value and interest of proposed land acquisitions, and individual contacts with Congressional delegations.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Projects are submitted for program approval if they meet the minimum criteria for acquisition. Prioritization of potential land purchases is initially done by the four federal agencies. Although prioritization is done separately by the Department of Interior and Department of Agriculture, the agencies within each department score projects based on their ability to meet the same minimum criteria. These criteria are listed below.

1)a. Prevents imminent (within 2-3 years) property development that is determined by the regional or state director to be incompatible with the affected unit's authorized purpose(s). -- **50 points**

b. Prevents short-to-medium term (within 4-8 years) property development that is determined by the Secretary to be incompatible with the affected unit's authorized purpose(s). -- **25 points**

2)a. Provides multiple recreation opportunities (seven or more of the following activities: hiking, camping, picnicking, fishing, hunting, swimming, boating/canoeing/rafting, auto touring, off-road vehicle use, skiing/ice skating, snowmobiling, bicycling, horseback riding, and observing wildlife) and is within a county with a population of one million or more. -- **80 points**

b. Provides multiple recreation opportunities (seven or more of the activities listed in 2a) within 100 miles of a Standard Metropolitan Statistical Area (SMSA). -- **50 points**

c. Provides multiple recreation opportunities (seven or more of the activities listed in 2a) between 100 and 250 miles from a SMSA. -- **35 points**

d. Provides limited recreation opportunities (one to six of the activities listed in 2a) within 100 miles from a SMSA. -- **35 points**

e. Provides limited recreation opportunities (one to six of the activities listed in 2a) between 100 and 250 miles from a SMSA. -- **20 points**

3)a. Preserves habitat of endangered species. -- **40 points**

b. Preserves habitat of threatened species. -- **30 points**

c. Preserves a recognized type of ecological community, for the purpose of promoting natural diversity. -- **20 points**

4) Preserves a nationally-significant natural or cultural feature of a type not now represented in any federal conservation/recreation unit. -- **40 points**

5)a. The principal benefit to be derived from the acquisition is its wetlands characteristics as defined in the Emergency Wetlands Act of 1986. -- **80 points**

b. The property contains a wetland or riparian area that is relatively scarce or unique. -- **60 points**

c. The property contains a wetland or riparian area that while not scarce or unique, nevertheless provides substantial public benefits. -- **40 points**

6)a. Includes existing infrastructure required to make property accessible to and usable by the general public and by handicapped and elderly citizens. -- **40 points**

b. Includes existing infrastructure required to make property accessible to and usable by the general public but not by handicapped and elderly citizens. -- **20 points**

7) Expands a unit with a record of visitor-day growth exceeding five percent per year in at least three of the five prior years. -- **20 points**

8) Improves manageability and efficiency of a unit. -- **20 points**

9) Results in federal savings in acquisition costs through the use of land exchanges, donations, and other alternatives to the direct purchase of a property at full value. Add 5 points for each estimated 20 percent savings in federal acquisition costs up to a maximum of 25 points. -- **5-25 points**

10) Involves federal acquisition of less than full fee title to the property (e.g., purchases of scenic or conservation easements). -- **10 points**

11) Involves significant nonfederal partnership. For each nonfederal partner (state, local, or private) contributing significant resources (i.e., at least 25 percent of acquisition, development, or management dollars), add 5 points, up to a maximum of 15 points. -- **5-15 points**

12) Provides a federal land management agency with an opportunity judged by the appropriate Assistant Secretary to be necessary to substantially further the goals of a Presidential Department, or Bureau MBO and to be essential to the fulfillment of the agency's mission. (Each agency will rank their 20 highest priority projects which implement their MBO's and mission in descending order. The first priority projects will be awarded 150 points, the second 142.5, the third 135 and so on). -- **7.5-150 points**

Ranking criteria listed under a single number (e.g., "1a," "1b") are mutually exclusive; points may not be awarded for more than one. For example, a proposed acquisition may score 40 points for meeting criteria 3a but cannot score 70 points for meeting both criteria 3a and 3b. Properties are scored separately, unless several related properties are proposed for purchase as a group to optimize use of funds. In this case, the group may be given a composite score. The property with the highest score, receives the highest ranking.

After Departments prepare a list of proposals ranked in descending order, a list is forwarded to the Office of Management and Budget (OMB). At the OMB, acquisition proposals are reviewed by the Land Acquisition Working Group. The Land Acquisition Working Group (which includes representatives of the Assistant Secretary of the Interior for Fish, Wildlife, and Parks, the Assistant Secretary of the Interior for Land Minerals Management, and the Assistant to the Secretary of Agriculture for Natural Resources and Environment) reviews and modifies the tentative ranking of land acquisition proposals by the Departments to reflect: (1) corrections of identified scoring errors, (2) proposed exceptions to the minimum criteria, and (3) subjective factors not taken into account in the scoring process.

Once acquisition proposals are reviewed and modified they are forwarded to Congress as part of the President's Budget, which makes the final selections on land purchases. Congress then holds budget hearings, where conservation groups and others are invited to voice their opinions about the desirability and value of given land. Acquisition proposals are then

funded by Congress based on the President's Budget and suggestions made by conservation groups and others with interest in the program.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The L&WCF is a very successful program with broad public support. Its success is due to the efforts of its partnerships. Through partnership initiatives, the L&WCF has purchased more than 5.5 million acres of land for outdoor recreation as well as natural resource protection.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Partnerships have been integral to the success of the L&WCF. By entering into partnerships with nonprofit organizations in its water resources planning process, the Corps could strengthen its efforts and commitment to environmental restoration or protection.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

National Wetlands Priority Conservation Plan

GOALS AND OBJECTIVES

The National Wetlands Priority Conservation Plan (NWPCP) was prepared by the Fish and Wildlife Service (FWS) on behalf of the U.S. Department of the Interior (USDI) in response to Section 301 of the Emergency Wetlands Resources Act of 1986 (the Act).

The NWPCP provides a process to identify wetlands that should receive priority attention for federal and state acquisition. The new authority significantly broadens the USDI's wetlands acquisition mandate to include consideration of all values of wetlands in making acquisition decisions.

The NWPCP is intended to assist federal, state, and local agencies in making wetland acquisition decisions when Land and Water Conservation Fund (LWCF) appropriations are used. The NWPCP can also assist other users, including governmental agencies, conservation groups or private individuals, in acquisition planning that complements federal and state efforts to set priorities for wetlands protection through acquisition.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The NWPCP provides a planning framework, criteria and guidance to determine the locations and types of wetlands, and interests in wetlands, that should receive priority consideration for federal and state acquisition. Implementation of the NWPCP will result in development of plans or modifications to existing plans that list wetland sites warranting priority consideration for federal and state acquisition. The NWPCP will also assist the states in complying with Section 303 of the Act, which requires that each Statewide Comprehensive Outdoor Recreation Plan (SCORP) address wetlands within that state as an important outdoor recreation resource.

As a planning document, the NWPCP:

1) Establishes assessment criteria concerning wetland functions and values, historic wetland losses, and threat of future wetland losses;

2) Addresses other important wetland acquisition considerations;

3) Assists states in complying with Section 303 of the Act;

4) Assists in identifying (listing) wetland sites warranting consideration for federal and state acquisition; and

5) Does not reduce or replace the implementation of other wetland protection or regulatory programs as established by federal, state or local laws.

SOURCE OF PRIORITY RECOGNITION

Institutional: As a means to further promote the conservation of our nation's wetlands, Congress enacted the Emergency Wetlands Resources Act of 1986 (P.L. 99-645). Under the provisions of the Act, Congress found that wetlands are nationally significant resources that contribute to our economy, food supply, water supply and quality, flood control, and fish, wildlife, and plant resources. However, these resources have been significantly affected by human land and water use activities, and recognition of the value of wetlands has developed slowly. The FWS prepared the NWPCP for the USDI to meet the requirements of Section 301 of the Emergency Wetlands Resources Act.

Technical: The wetlands assessment criteria, discussed in the section below, are based on the use of scientific or technical knowledge to evaluate three factors specified in Section 301(c) of the Act: historic wetland losses, threat of future wetland losses, and wetland functions and values.

PRIORITIZATION OR PROJECT SELECTION PROCESS

This section discusses the minimal wetlands assessment criteria that must be considered in evaluating wetlands for acquisition potential and background information supporting the selection of these criteria.

Section 301(c) of the Act directs the USDI in establishing the NWPCP to consider specific factors. These factors may be summarized as: (1) historic wetland losses, (2) threat of future wetland losses, and (3) wetland functions and values. Wetlands assessment criteria have been established for each of these major categories to assist federal and state decisionmakers in determining which types and locations of wetlands warrant priority attention for acquisition. In summary, priority consideration for acquisition will be given to:

1) Wetland types that are rare or have declined within an ecoregion (one half or more of the wetland site consists of rare or declining wetland types);

2) Wetland sites subject to identifiable threat of loss or degradation; and

3) Wetland sites with diverse and important functions and values and/or especially high or special value for specific wetland functions.

At a minimum, proposed wetland acquisition projects should be selected based on evaluation according to all three of the criteria. The threshold criteria are used in determining which wetland sites qualify for federal and state consideration for acquisition. This systematic evaluation of wetland sites will help achieve national consistency and comparability between wetlands identified for acquisition consideration.

States developing wetlands components to SCORPs, including State Wetlands Priority Plans and their own or modified wetlands assessment threshold criteria or methodologies, should ensure that all three of the criteria mentioned above are addressed in their acquisition planning process and documents. States also should ensure that sufficient information will be available to allow a federal or state decision maker to determine that proposed wetland acquisitions meet each criterion mentioned above.

The NWPCP contains only the threshold standards for each criterion. The threshold criteria address wetland losses, wetland threats, and wetland functions and values, which are discussed in more detail below. Users who need to rank various wetlands should develop a weighted scoring system taking into account the priorities and needs of the agency considering acquisition. The NWPCP has intentionally avoided development of a weighted scoring system for all criteria. This is because a single system will not serve all the differing applications of the NWPCP by various users.

Wetland Losses

Wetland types to be given priority consideration for acquisition are those that are rare or have declined within an ecoregion. The following guidance assists in applying this criterion:

- In general, palustrine emergent, forested and scrub-shrub wetland types and coastal vegetated wetlands (estuarine intertidal, emergent, forested and scrub-shrub and marine intertidal) usually warrant priority consideration for federal and state acquisition. Documentable information may be used to support given priority to other wetland types.

- All wetland types that are rare or have declined within an ecoregion may be considered.

- An ecoregion sustaining a high or moderate Index of Loss could warrant priority consideration over an ecoregion having a low Index of Loss of wetlands present in 1954, which was the start of the wetland trends study.

- Statistically valid data or documentable information may be used to support priority for a specified wetland type(s) within an ecoregion, a state or portion of a state due to rarity or wetland losses prior to, during or after the wetlands trend study, or if National Wetlands Inventory trends study data do not accurately portray the wetlands trends or Index of Loss within a state, a portion of an ecoregion or other priority planning area.

Threat of Future Wetland Loss

Wetlands to be given priority consideration for acquisition should be subject to identifiable threat of loss or degradation. A number of factors influence the type, degree and imminence of threat. Imminence of threat measures the time period within which the wetlands are likely to be destroyed or altered. These factors include changes in population growth and movements; food and energy policies and supplies; local, state and federal laws and ordinances; and land or resource use controls.

Wetland Functions

Wetlands to be given priority consideration for acquisition are those with important and diverse functions and values and/or especially high or special value for specific wetland functions. All wetland functions and the broadest range of wetland values should be considered in establishing priorities without greater priority consideration given to one public value over another.

Wetlands provide important public values, including fish and wildlife habitat (e.g., support endangered and threatened species, migratory birds and resident species); surface and groundwater supply; water quality improvement; flood, erosion and storm damage reduction; outdoor recreation; and research and education. Wetland functions and values vary according to wetland type, location and human modification. Wetlands do not necessarily perform all functions with associated public service values and/or perform them equally well. A summary discussion of the functions and values of wetlands is provided below to assist in understanding the importance of wetlands from the standpoint of public values that should be protected.

Wildlife and Fisheries

High fish and wildlife resource values (biological or socioeconomic) for wetlands are often associated with such factors as diverse species composition; abundant wildlife numbers or populations; presence of species, populations or habitats of special importance or concern; and/or satisfaction of habitat requirements for those species with specialized habitat requirements or occupying outer extensions of their range. Large, diverse wetlands, which are hydrologically connected to other wetlands, are likely to have high wildlife resource values since they meet the living requirements of more species. Wetlands with an irregular wetlands-open water edge and intermixture of open water and wetland vegetation are more likely to provide diverse food and cover conditions supporting more wildlife.

Hydrologic

- Surface and Groundwater Supply

  The groundwater discharge function of wetlands (i.e., movement of groundwater into surface water) is recognized as being more important than the groundwater recharge function (i.e., movement of

surface water into groundwater aquifers). Most wetlands are areas of groundwater discharge with some providing water for public uses.

- Water Quality

  Wetlands can help maintain water quality or improve degraded water by removing, transforming, and retaining nutrients; processing chemical and organic wastes and pollutants (including heavy metals); and reducing sediment loads. Wetlands intercept runoff from uplands before it reaches the water and help filter sediments, nutrients, and wastes from flood water. It is important, however, to recognize that wetlands have a finite capacity to perform this function.

- Flood, Erosion, and Shoreline Damage Reduction

  Important factors influencing the flood reduction role of wetlands include: size (larger wetlands provide more flood storage and flow reduction); location within the basin (wetlands in the upper watershed often are more effective for flood retention); texture of substrate; structure of the vegetation; and connection with other wetlands (isolated wetlands are generally less effective for flood control).

  Wetland vegetation plays an important role in reducing damages from shoreline erosion by binding (i.e., plant roots hold soil) and stabilizing substrate, trapping sediments and reducing wave or current energy. The effectiveness of shoreline vegetation in reducing erosion depends on the particular species, width of shoreline vegetation (e.g., the wider the wetland area, the higher the value), substrate (e.g., sandy substrate is less stable than clay soils) and height and slope of the bank.

Outdoor Recreation

Wetlands support boating, swimming, sport fishing, hunting, birdwatching, nature observation and study, and other wetland related recreational activities that generate billions of dollars of expenditures annually. Recreation in wetlands is generally not evaluated in economic terms. Many people simply enjoy the beauty and sounds of nature and spend their leisure time walking or boating in or near wetlands observing plant and animal life. The aesthetic value of wetlands is extremely difficult to evaluate or quantify monetarily, yet many people take special trips simply to observe or photograph wildlife.

Other Areas or Concerns

Other important wetland values that were not specifically mentioned in Section 301(c) of the Act, include natural areas, education, research, scenic, archaeological, historical, and open space. Also, with proper management,

consumptive uses of wetlands, such as agriculture, commercial fishing and timber harvest, may be compatible with wetland protection.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The NWPCP is an ongoing program and continues to provide guidance for making decisions regarding wetland acquisition. The NWPCP applies only to wetlands that would be acquired by federal agencies and states using LWCF appropriations.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The NWPCP could serve as a model for identification of wetlands that should receive priority attention for federal and state acquisition. Identification of priority wetlands under the NWPCP could be used in determining the national, regional, or state significance of wetland areas that may be impacted by future Corps water resource development projects. The NWPCP could also be used by the Corps to assist other users, including governmental agencies, conservation groups or private individuals, in acquisition planning that complements federal and state efforts to set priorities for wetlands protection through acquisition.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

North American Waterfowl Management Plan

GOALS AND OBJECTIVES

The overall goal of the North American Waterfowl Management Plan is to protect, restore, and enhance wetland habitat and return waterfowl populations to levels observed in the 1970s. The more specific goals set forth in the Plan for the 15-year period from 1986-2000 are:

Waterfowl Population Goals

- To achieve a continental breeding duck population of 62 million birds resulting in a fall flight of 100 million ducks,
- To maintain a continental wintering goose population of 6 million birds, and
- To maintain a continental wintering swan population of 152,000 birds.

Habitat Conservation Strategy Goals

- To protect a minimum of six million acres of quality waterfowl habitat with about 3.7 million acres in Canada and 2.2 million in the United States, and
- To improve over four million acres of waterfowl habitat (assumed to be a subset of the six million protected acres).

GEOGRAPHIC SCOPE

United States, Canada and Mexico (agreement with Mexico currently being negotiated)

OVERVIEW OF PROGRAM/STUDY

Established in 1986, the North American Waterfowl Management Plan focuses on creating and restoring wetlands in order to preserve migratory waterfowl. The Plan identifies regions across the North American continent that provide priority habitats for waterfowl. The continental approach of the Plan facilitated the development of a 15-year framework for international cooperation between the countries of Mexico, Canada, and the United States.

The Plan uses wetland restoration and management practices, pioneered by Ducks Unlimited, and international funding techniques, to join together conservation efforts from both the

public and private sector. Implementation of the Plan is done by the North American Waterfowl Management Committee, a twelve-member committee appointed by the Director of the Canadian Wildlife Service and Director of the U.S. Fish and Wildlife Service (each appoint six members). Private foundations and conservation groups form the nineteen-member Implementation Board, which contributes to the Plan through fund raising, communications support, and lobbying.

Within the important waterfowl habitat regions, partnerships are formed called "joint ventures." A joint venture is a partnership between public/private entities that is established because of common conservation objectives pertaining to a particular physiographic region. The joint ventures are usually composed of state, local, provincial, and federal agencies, corporations, conservation groups, and individuals. These ventures serve as the principal vehicle to implement conservation goals and objectives on a regional basis. Each joint venture's activities are administered by a management board comprised of representatives of partners in the joint venture. These partners can combine resources, funding, and influence, to accomplish collectively what could not be done separately. As a result, Plan activities have aided in developing 250 projects affecting 1.3 million acres of habitat.

In the past, the Plan has generated combined government and private spending of $240 million on wetland and waterfowl projects. The Plan will have to raise more than $120 million a year for the next seven years in order to meet proposed habitat protection objectives.

The following principles were endorsed by Mexico, Canada, and the United States to guide their waterfowl management and habitat conservation joint venture efforts:

- Wetlands and waterfowl constitute one of North America's highly valued natural heritages.

- Conservation takes precedence over any other use of the waterfowl resource.

- The maintenance of abundant waterfowl populations is dependent on the long-term protection, restoration and management of habitat at a landscape level. The persistent loss of important wetlands and associated uplands throughout North America must be reversed.

- Protection of waterfowl and their habitats in North America requires long-term programs and the close cooperation and coordination of management activities by Canada, the United States and Mexico.

- Population and habitat objectives for waterfowl will be met through long-term actions that maintain or enhance other ecological values and promote biological diversity on a landscape basis.

- Joint ventures of private and governmental organizations are the primary vehicle for implementing high-priority projects of international concern.

- Contemporary habitat conservation actions that counter 200 years of habitat degradation on a landscape scale, will take time to result in significant waterfowl population responses.

- The managed subsistence and recreational harvest of the renewable waterfowl resource are consistent with its conservation, and will continue to be managed under existing regulatory processes in Canada, the United States and Mexico, to ensure they are compatible with waterfowl population needs and with attaining goals under the Plan.

SOURCE OF PRIORITY RECOGNITION

Institutional: Authorization for the Plan came in 1986 when the U.S. Secretary of the Interior and the Minister of the Environment for Canada signed the North American Waterfowl Management Plan. Congressional recognition of the Plan comes from the North American Wetlands Conservation Act of 1989. This Act is significant because it broadens the geographic and biological scope of the Plan by authorizing a means of transferring U.S. funds to Canada and Mexico. The Act also authorizes annual appropriations of up to $15 million, with an additional $10-$12 million annually generated from federal excise taxes collected on hunting equipment sales.

Technical: The Plan uses technical information to determine the significance of each wetland site. The section below summarizes the process of identifying priority waterfowl habitat areas.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The determination of priorities occurs through the guidance of the 12-member committee appointed by the Directors of the Canadian Wildlife Service and the U. S. Fish and Wildlife Service. The committee is composed of two representatives from the Canadian Wildlife Service, two representatives from the U.S. Fish and Wildlife Service, four representatives from Canadian provinces, and four state representatives from the United States. Based on the importance to waterfowl breeding and wintering habitats, 34 priority waterfowl habitats of major concern in the United States and Canada were identified by the committee. Five of the areas identified are key priority habitat ranges.

Priorities determined by the committee are implemented through Joint Venture Management Boards. Each Board selects projects and activities to be targeted by joint venture partners based on the goals of the North American Waterfowl Management Plan. Joint venture projects combine individuals from federal, provincial, state and private organizations.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The Plan identifies 34 waterfowl habitat areas of major concern in the United States and Canada. Five of the 34 areas are key priority habitat ranges. These areas are the Lower

Mississippi River Delta and Gulf Coast, Prairie Potholes and Parklands, Middle-upper Atlantic Coast, the Central Valley, and the Lower Great Lakes-St. Lawrence Basin.

The "North American Waterfowl Management Plan: A Review of The First Five Years" cites the following findings:

- Five hundred million dollars have been spent in five years to protect and improve habitat for waterfowl and other wetland dependent wildlife under the banner of the North American Waterfowl Management Plan.

- In total, over two million areas of wetlands and associated habitats have been protected, restored, or enhanced in the joint ventures in Canada and the United States.

- Of the habitat acreage objectives identified in the 1986 Plan, three joint venture areas have essentially achieved those objectives and three joint ventures are at least one-third complete.

- As continental habitat objectives contained in the 1986 Plan have been refined at joint venture levels, the habitat objectives and projected costs of the Plan have grown. The 1986 Plan envisioned habitat actions on six million priority acres (protection and improvement) at a cost of $1.5 billion. Current habitat objectives encompass 28 million acres (protection and improvement) at an estimated total cost of about $6 billion.

- The 1986 Plan envisioned that the majority of funding would be devoted to breeding habitat and would be spent in Canada. To date, however, the majority of funding has gone to migratory and wintering habitat and has been spent in the United States.

- The Plan has served as a forceful magnet, attracting broader partnerships than originally foreseen, creating unexpected alliances among diverse interest groups with a common vision, and expanding joint venture operation beyond the original objective.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Prior identification and inventory of critical habitat areas under the Plan and the joint venture partnerships could be used in determining the national or regional significance of areas that may be impacted by future Corps water resource development projects.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

North American Wetlands Conservation Act Grant Program

GOALS AND OBJECTIVES

The North American Wetlands Conservation Act Grant Program was established to encourage partnerships among public agencies and other interests to:

- Protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and other habitats of migratory birds, fish and other wildlife in North America;
- Maintain current or improved distribution of migratory bird populations; and
- Sustain an abundance of waterfowl and other migratory birds consistent with the goals of the North American Waterfowl Management Plan (NAWMP) and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries.

GEOGRAPHIC SCOPE

North American Continent

OVERVIEW OF PROGRAM/STUDY

The North American Wetlands Conservation Act authorized significant federal funding to encourage partnership efforts among government agencies and other interested parties. The Act established a nine-member federal council, known as the North American Wetlands Conservation Council (the Council). The Council's main responsibility is to recommend wetland conservation projects to the Migratory Bird Conservation Commission (the Commission), which awards matching grants to other agencies, groups or individuals to undertake a variety of wetland conservation projects. At least 50 percent and not more 70 percent of project funding is to be spent in Canada and Mexico.

All projects that are recommended by the Council to the Commission have to meet specific criteria. Project applications from the United States that meet the criteria standards stated in the Act are scored by the Council's technical staff from 1 to 100 based on biological and other technical information. Prioritization for Mexico and Canada is done separately.

Approved projects are administered as federal grants by the North American Waterfowl and Wetlands Office, which was established by the U.S. Fish and Wildlife Service (FWS). The

Act authorizes an annual appropriation of up to $15 million to the FWS for the grant program. In addition, the Act authorizes additional annual funding accrued from interest on the Federal Aid in Wildlife Restoration account, which receives revenues collected under the Pittman-Robertson Federal Aid in Wildlife Restoration Act. The FWS has received other funds for the program through fines, penalties, and forfeitures from violations of the Migratory Bird Treaty Act, and funds authorized by the Coastal Wetlands Act of 1992.

All requests for federal funding through the grant program must be matched at least 1:1 by U.S. nonfederal funds, such as funds from private, state, and local sources, unless the project is on federal property. Qualified in-kind services may be used as a part of the nonfederal match.

SOURCE OF PRIORITY RECOGNITION

Institutional: The North American Wetlands Conservation Act (P.L. 101-233) was signed by President Bush on December 13, 1989. The Act stipulates that projects funded under the grant program must be consistent with the National Wetlands Priority Conservation Plan and aid in the implementation of the Endangered Species Act. Projects must also fulfill the purposes of the North American Waterfowl Management Plan.

Technical: Technical Assessment Questions are used in the prioritization process for U.S. proposals and evaluated based on a point system. Technical information is also used to ensure project proposals meet the standards established by the National Environmental Policy Act of 1969.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Project selection and prioritization is done in a systematic manner. The application review and selection process facilitates the development of quality project plans and long-term management commitments from participants.

Proposed projects are evaluated using criteria outlined in Section 5 of the Act. These criteria are as follows:

1) The extent to which the wetlands conservation project proposal fulfills the purposes of the Act and the NAWMP;

2) The availability of sufficient nonfederal monies to carry out any wetlands conservation project proposal and to match federal contributions in accordance with the requirements of Section 8(b) of the Act;

3) The extent to which any wetlands conservation project proposal represents a partnership among public agencies and private entities;

4) The consistency of any wetlands conservation project proposal with the National Wetlands Priority Conservation Plan developed under section 301 of the Emergency Wetlands Resources Act (16 U.S.C. 3921);

5) The extent to which any wetlands conservation project proposal would aid the conservation of migratory nongame birds, fish, and other wildlife, and species that are listed, or are candidates to be listed, as threatened and endangered under the Endangered Species Act (16 U.S.C. 1531 et seq.);

6) The substantiality of the character and design of the wetlands conservation proposal; and

7) The recommendations of any partnerships among public agencies and private entities in Canada, Mexico, or the United States that are participating actively in carrying out one or more wetlands conservation projects under this Act, the Plan, or the 1988 Tripartite Agreement among Mexico, Canada, and the U.S.

The seven criteria above are translated into eight groups of questions. These questions form the framework for the Technical Assessment Questions. Each question has an associated point value. The maximum number of points per proposal is 100. The technical questions target such areas as:

- Priority waterfowl species,
- NAWMP joint ventures,
- Nongame migratory bird species,
- Long-term wetlands conservation,
- Endangered species,
- Biological diversity, and
- Partnerships.

NAWMP Joint Venture Management Boards are requested to rank proposals. All recommendations for funding are sent to the Migratory Bird Conservation Commission, which is chaired by the Secretary of the Interior. The Commission makes the final determination to award grants for wetland conservation projects.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

As of September 1991, 147 wetland conservation projects, encompassing more than 600,000 wetland habitat acres throughout the United States, Canada and Mexico, were funded through the Act. Quality project plans and long-term management commitment are achieved due to

a well organized application review and selection process. Project design, construction, and operation and maintenance are the responsibility of the grantees. Projects that are funded under the Act require audits and reports so they can be tracked using an international tracking system developed under the NAWMP.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

This Act is important because it fosters a partnership effort to achieve wetlands conservation, including goals of the NAWMP. Encouraging partnership efforts strengthens the commitment of the public agencies and private entities involved in implementing wetlands conservation projects with grant funding under the Act. The Corps could examine the use of partnerships to strengthen its efforts in environmental restoration or protection.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Coastal Wetlands Planning, Protection, and Restoration Act, "Priority Project List Report"

GOALS AND OBJECTIVES

The goal of the "Priority Project List Report" is to develop a list of coastal wetland restoration projects in Louisiana to provide for long-term conservation of wetlands, in order of priority, based on cost effectiveness and wetland quality.

GEOGRAPHIC SCOPE

Louisiana

OVERVIEW OF PROGRAM/STUDY

The Coastal Wetlands Planning, Protection and Restoration Act of 1990 established a federal-state task force that consists of the following members: the Secretary of the Army (chairman), the Administrator of the U.S. Environmental Protection Agency, the Governor of the State of Louisiana, and the secretaries of the Department of Interior, Agriculture, and Commerce. The federal-state task force established a Technical Committee and Planning and Evaluation Subcommittee. Each committee contains the same representation as the federal-state task force. The Planning and Evaluation Subcommittee is responsible for accomplishing the actual planning of projects, schedules and budgets. It makes recommendations to the Technical Committee, which reviews and revises these recommendations as it deems appropriate. The Technical Committee then makes recommendations to the federal-state task force. The Technical Committee is comprised of Louisiana's Executive Assistant of Coastal Activities and representatives of the following five federal agencies:

- National Marine Fisheries Service,
- Environmental Protection Agency,
- Fish and Wildlife Service,
- Soil Conservation Service, and
- Corps of Engineers.

Around $30 million in federal funds is authorized annually for coastal wetlands restoration projects on the Priority Project List. The State of Louisiana Department of Natural

Resources contributes at least 25 percent to the total cost of a project, with the federal government paying at most 75 percent.

The State of Louisiana is a full voting member of the federal-state task force except for selection of the Priority Project List. In addition, the state may not serve as a "lead" task force member for implementing wetland projects on this list. But, the state is a cosponsor for all projects because of its 25 percent cost-share.

Coastal wetland restoration initiatives in the State of Louisiana originated in 1981 with the passage of Act 41 to restore, preserve, and enhance the state's coastal wetlands. This independent state effort formed a state task force to submit annual plans to the state legislature for approval and implementation of coastal wetland restoration projects using state resources and funding. Projects from the annual State Coastal Wetlands Conservation and Restoration Plan are reviewed by the federal-state task force to develop the Priority Project List. Approximately one-third of the Coastal Wetlands Planning, Protection, and Restoration Act federal projects approved each year are state restoration projects.

SOURCE OF PRIORITY RECOGNITION

Institutional: This federal initiative is authorized by Section 3 of the Coastal Wetlands Planning, Protection, and Restoration Act of 1990. The Act authorized two primary initiatives: a federal-state task force to develop annual coastal wetland restoration plans for Louisiana similar to those developed at the state level, and ten years of federal funding for long-term conservation of wetlands.

Section 303(a) of the Act directs the Secretary of the Army to convene a task force to prepare a list of projects to provide for long-term conservation of wetlands, in order of priority, based on cost effectiveness and taking into account the quality of those wetlands. Such a list is to be prepared each year for ten years and transmitted to Congress.

Public: Citizen input is channeled through a Citizen Participation Group established by the federal-state task force as well as basin planning and scoping meetings to promote citizen participation and involvement in formulating Priority Project Lists required under Section 303(a) and the Restoration Plan required under Section 303(b) of the Act.

Technical: Technical and scientific information used in the prioritization process and the development of the restoration plan is provided by the government agencies comprising the federal-state task force and an Academic Review Committee.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Proposed projects are ultimately selected by unanimous vote of the federal representatives of the federal-state task force. Prioritization of these proposed projects is based on cost-effectiveness and wetland quality. Costs are analyzed through a traditional time-value analysis. The Wetland Value Assessment (WVA), a community-based analysis developed by the Fish and Wildlife Service, is used to determine wetland quality. These two

parameters are used to determine a cost per Average Annual Habitat Unit, which is used as the primary ranking criterion for projects.

Cost Analysis

Cost information, expressed as first cost, fully funded cost, present worth cost, and average annual cost, is received from each lead agency and reviewed and approved by the Engineering Work Group. The average annual cost estimates are based on 1992 price levels, a discount rate of 8 1/2 percent, and a project life of twenty years. The fully funded cost estimates include operation, maintenance, monitoring, and various other costs.

Wetland Benefit Analysis

The WVA is a methodology developed specifically for this initiative by biologists from the Fish and Wildlife Service in coordination with biologists from other task force agencies. It evaluates percent marsh, percent submerged aquatic vegetation, amount of marsh/water interface, flooding regime, water depth, salinity, and access for estuarine aquatic organisms. The WVA team (biologists from the task force agencies) estimate and reach a consensus on these parameters for with- and without-project conditions for various target years. The output is a series of Habitat Unit values, which are annualized to indicate the Average Annual Habitat Units (AAHUs) produced by each project. An AAHU combines both quality and quantity of habitat.

Economic Analysis

The cost-effectiveness criterion is derived by dividing the average annual cost for each project by the AAHUs produced by that project. Average annual costs per average annual acre are also calculated.

The final Priority Project List selected by the task force is not a simple compendium of the most cost-effective coastal wetland restoration projects. The WVA cannot by its nature take into account all possible selection criteria. The WVA takes into account most of these criteria, with the exception of "secondary criteria," which are important in the project selection process. These secondary criteria include such items as the following:

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

During 1992, $40 million was made available for the Priority Project List formulated by the federal-state task force. A total of 15 projects were placed on the Second Priority Project List, published in 1992, of which four were deferred because the other areas are in more critical need of immediate attention. These four projects will be constructed in the event that one of the other projects is found not implementable.

Much of the project's success can be attributed to the multi-agency task force, of which member agencies act as sponsors for a given project. Projects are mostly proposed and implemented on private land (85 percent of Louisiana's coastal wetlands are on privately

owned land). Technical support for all projects is provided by the Louisiana DNR and local representatives of federal agencies.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The use of multi-agency task forces to select projects is an environmental resource planning process that could be employed by the Corps. This process of prioritizing projects would most likely increase success rates by allowing the Corps to coordinate environmental resource planning efforts with those of other agencies, allowing for more resources, support, and funding.

The coastal wetland restoration projects listed by the federal-state task force on the annual Priority Project List could be used by the Corps to identify coastal wetland areas in Louisiana that are of state significance. Because those projects and wetland areas are identified under an initiative authorized by federal law, they could also be recognized as having national significance.

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4. SUMMARY ABSTRACTS FOR REGIONAL PROGRAMS

ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Integrated System Plan, Columbia Basin Fish and Wildlife Authority

GOALS AND OBJECTIVES

In 1987, in an effort to guide mitigation for anadromous fish losses, the Northwest Power Planning Council established an interim goal for the Columbia Basin Fish and Wildlife Program. That goal is to double current annual salmon and steelhead runs from 2.5 million to 5 million adult fish (measured in returns to the mouth of the Columbia River plus ocean harvest). The plan's main goal is to identify strategies for doubling the Columbia Basin's salmon and steelhead runs in a biologically sound and sustainable manner.

GEOGRAPHIC SCOPE

The Columbia River Basin, which includes Idaho, Montana, Oregon, and Washington.

OVERVIEW OF PROGRAM/STUDY

The region's fish and wildlife agencies, Indian tribes, electric utilities, and Northwest Power Planning Council agreed that mitigation efforts should initially strive for doubling the yearly salmon and steelhead runs to 5 million returning adults. Because of the uncertainties and the question of whether this interim goal is attainable in today's Columbia Basin, decision-makers did not set a time schedule for reaching this goal. They did, however, turn to the basin's fish and wildlife agencies and Indian tribes to develop a basinwide plan for doubling the runs. Trying to determine the best way to produce the additional 2.5 million salmon and steelhead has been the driving factor behind the three-year "system planning" process.

While developing the Integrated System Plan and the 31 subbasin plans, which form the basis for the System Plan, the agencies and tribes were to follow seven policies listed in the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program. The council's policies are intended to ensure that increases in the Columbia Basin's salmon and steelhead runs are not driven by numbers to the exclusion of biological considerations, such as genetics. Rebuilding efforts are to lead to long-term, permanent increases and sustainable fish populations. The council's seven policies are paraphrased below.

1) The area above Bonneville Dam is accorded priority.

   Efforts to increase salmon and steelhead runs above Bonneville Dam will take precedence over those in subbasins below Bonneville Dam. In the past, most of the mitigation for fish losses has taken the form of hatcheries in the lower Columbia Basin. According to the council's fish and wildlife program,

however, the vast majority of salmon and steelhead losses occurred in the upper Columbia and Snake river areas. System planners turned their attention first to the 22 major subbasins above Bonneville Dam, and then to the nine below.

2) Genetic risks must be assessed.

Because of the importance of maintaining genetic diversity among the various salmon and steelhead populations in the Columbia River Basin, each project or strategy designed to increase fish numbers must be evaluated for its risks to genetic diversity. Over thousands of years, each fish run has evolved a set of characteristics that makes it the best suited run for that particular stream, the key to surviving and reproducing year after year. System planners were to exercise caution in their selection of production strategies so that the genetic integrity of existing fish populations is not jeopardized.

3) Mainstem survival must be improved expeditiously.

Ensuring safe passage through the reservoirs and past the dams on the Columbia and Snake river mainstems is crucial to the success of many efforts that will increase fish numbers, particularly the upriver runs. Juvenile fish mortality in the reservoirs and at the dams is a major cause of salmon and steelhead losses. According to the estimates, an average of 15 to 30 percent of downstream migrants perish at each dam, while 5 to 10 percent of the adult fish traveling upstream perish. Projects to rebuild runs in the tributaries have and will represent major expenditures by the region's ratepayers -- expenditures and long-term projects that should be protected in the mainstem.

4) Increased production will result from a mix of methods.

To rebuild the basin's salmon and steelhead runs, fisheries managers are to use a mixture of wild, natural and hatchery production. Because many questions still exist as to whether wild and natural stocks can coexist with significant numbers of hatchery fish, no one method of production will be solely responsible for increasing fish numbers. System planners were to take extra precaution when considering outplanting hatchery fish into natural areas that still produce wild fish.

5) Harvest management must support rebuilding.

Like improved mainstem passage, effective harvest management is critical to the success of rebuilding efforts. A variety of fisheries management entities from Alaska to California manage the harvest of the Columbia Basin's salmon and steelhead runs. The council is calling on those entities to regulate harvest, especially in mixed-stock fisheries, in ways that support the basin's efforts to double its runs.

6) System integration will be necessary to assure consistency.

The Northwest Power Planning Council is evaluating efforts to protect and rebuild Columbia River Basin salmon and steelhead from a systemwide perspective. Doubling the runs will require improvements in mainstem passage, fish production and harvest management -- three extremely interdependent components. System planners from all parts of the basin are to coordinate their efforts so, for example, activities in the lower Columbia are consistent with and complement the activities 800 miles upstream in Idaho's Snake River. The fisheries management organizations and their plans vary from subbasin to subbasin, but the council is calling upon the agencies and tribes to help resolve conflicts that arise.

7) Adaptive management should guide action and improve knowledge.

System planners were to design projects so that information can be collected to improve future management decisions. By designing projects that test quantitative hypotheses and lend themselves to monitoring and evaluation, managers can learn from their efforts. This learning by doing is called "adaptive management." Using such an approach, managers can move ahead with plans to rebuild the Columbia Basin's salmon and steelhead runs, despite many unanswered questions about how best to accomplish their goal. With time, the useful information revealed by these "experiments" can guide future projects.

Subbasin and system planners not only followed the policies above, but took into consideration the various management programs under way in the Columbia Basin. The list below represents the major, systemwide production, mitigation and harvest programs that have shaped the numerous strategies proposed in the plans. In addition to the list below, the system and subbasin plans have made an effort to comply with various state and federal laws, Indian treaties, and management plans of individual state fish and wildlife agencies, the U.S. Forest Service, Bureau of Land Management, and others. The major management programs are:

Columbia River Fish Management Plan *(United States vs. Oregon)*
United States-Canada Pacific Salmon Treaty
Columbia River Fisheries Development Program (Mitchell Act hatcheries)
Lower Snake River Compensation Plan
Columbia River Basin Fish and Wildlife Program

SOURCE OF PRIORITY RECOGNITION

Institutional: In 1980, Congress passed the Northwest Power Act. Among other things, the Act created the Northwest Power Planning Council and directed it to develop the Columbia River Basin Fish and Wildlife Program. The program addresses the impacts of hydroelectric development on the fish and wildlife resources of the Columbia Basin. In 1987, to guide mitigation for anadromous fish losses, the council established an interim goal of doubling

current salmon and steelhead runs to 5 million adult fish. To determine how best to double the runs, the Power Planning Council initiated the "system planning" effort, calling upon the basin's fish and wildlife agencies and Indian tribes to develop a systemwide plan.

Under the auspices of the Columbia Basin Fish and Wildlife Authority (a consortium of state and federal fish and wildlife agencies and 13 Indian tribes in the Columbia Basin), the agencies and Indian tribes have produced the Integrated System Plan. The plan is the ninth and final product of a three-year planning process that began in September 1987. Fundamental to this Integrated System Plan was the development of 31 salmon and steelhead production plans for increasing anadromous fish production in the respective drainages.

Public: As discussed in the section below, public support is one criteria that is used to prioritize projects.

Technical: As discussed further in the section below, the prioritization process is based primarily on scientific and technical knowledge or judgements of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

When addressing strategies for meeting the goal of doubling annual runs from 2.5 million to 5 million adult fish, two points need emphasis. First, based on the present modeling estimate, if all recommended strategies are implemented, an increase of 1.8 million fish is projected. Though the model does not estimate production for chum, sockeye and some strategies for fall chinook, the expected contributions will still fall short of the 2.5 million goal. As a result of these projections, it is expected that all recommended projects identified within the subbasin plans as well as additional actions identified in the Integrated System Plan be considered for implementation.

Second, it should be noted that there is not a single strategy type (natural versus wild, supplementation versus passage) that can be implemented independently that will provide the needed increases in production and survival rates for a particular stock. Only through the implementation of complementary groups of strategies can planners hope to achieve long-lasting increases.

Nevertheless, planners have applied the following criteria in prioritizing specific projects for implementation and their potential for success:

1) Projects related to improvements in passage survival;

2) Projects that benefit multiple species, stocks or runs;

3) Projects related to enhancement and production of natural stocks;

4) Projects that are biologically and technically feasible in terms of our ability to implement them;

5) Projects that support production objectives in *United States vs. Oregon* and the Pacific Salmon Treaty;

6) Projects that minimize production and harvest conflicts;

7) Projects that have public support; and

8) Projects that currently do not have a funding source.

The following levels of activities are grouped according to desired priorities, with Level 1 activities taking the forefront of implementation. To assign the level of priority to the following activities, system planners took into consideration:

1) The eight criteria above,

2) The seven Northwest Power Planning Council policies,

3) The priorities of individual subbasin plans, and

4) Priorities of individual fisheries agencies and Indian tribes.

Level 1: Early Implementation Activities

Level 1 projects are identified as the high priority activities that need to be implemented as soon as possible. Strategies identified in this category pertain to stocks of "highest concern," which may risk genetic disintegration, and stocks of "high concern," which are crucial to long-term diversity and stability and may constrain fisheries.

Level 2: Near-Term Activities

Activities in Level 2 are ongoing projects or new starts to be implemented prior to 1988. They should further enhance the stocks of "high concern" and implement strategies where significant production opportunities exist.

Level 3: Additional Activities

Activities in Level 3 are ongoing projects or new starts to be implemented after 1988. They pertain to further enhancement of stocks beyond the two categories identified above. They also include other actions as addressed in the subbasin plans as well as the mainstem production strategies.

The activities expressed in each of these levels should be considered as an implementation package, with an attempt to initiate all activities within a given time frame. Furthermore, planners recommend that the success or failure of Level 1 or 2 activities be evaluated before implementing Level 3 activities to determine if the lower priority Level 3 actions are still viable.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The major goal of the planning process was to identify priorities for production and enhancement. Of the 52 stock groupings, planners characterized eight (15 percent) as stocks of "highest concern" -- those representing important genetic resources and in jeopardy as a result of low run size. Thirteen (25 percent) were identified as stocks of "high concern" -- those not necessarily currently in jeopardy, but possessing characteristics crucial to long-term diversity and stability. Planners listed 19 (37 percent) as "major production opportunities," seven (13 percent) as "minor production opportunities" and five (10 percent) as "non-program stocks" or those stocks that will not be enhanced under the Columbia River Basin Fish and Wildlife Program. The majority of the high priority stocks are located in subbasins above Bonneville Dam.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Integrated System Plan could serve as a model for mitigation and restoration of aquatic habitat. It could also be used by the Corps as a model for regional cooperation among fish and wildlife agencies, Indian tribes, electric utilities, and regional planning councils.

The Plan identifies high priority stock groupings -- those identified as "highest concern" or "high concern" -- and the subbasins in which these high priority stocks are located. This information could be used by the Corps to identify resources of regional significance in the Columbia River Basin.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Protected Areas Program (Pacific Northwest Rivers Study/Hydropower Assessment Study)

GOALS AND OBJECTIVES

In 1983, the Northwest Power Planning Council (Council) and the Bonneville Power Administration began extensive cooperative studies of existing fish and wildlife habitat in the Columbia River Basin and analyzed alternative means of protection. In 1988, the Council concluded that: 1) the studies had identified fish and wildlife resources of critical importance to the region; 2) mitigation techniques cannot assure that all adverse impacts of hydroelectric development on these fish and wildlife populations will be mitigated; 3) even small hydroelectric projects may have unacceptable individual and cumulative impacts on these resources; 4) protecting these resources and habitats from hydroelectric development is consistent with an adequate, efficient, economical and reliable power supply. The Council, relying on these studies, designated certain river reaches in the region as "protected areas," where the Council believes hydroelectric development would have unacceptable risk of loss to fish and wildlife species of concern, their productive capacity, or their habitat.

The Protected Areas Program is a major regional policy initiative that prohibits new hydroelectric power development in critical fish and wildlife habitat. Protected Area designations are updated on a regular basis as new information becomes available. Protected Area designation is based on data collected during the Pacific Northwest Rivers Study/Hydropower Assessment Study (PNWRS/HAS), now maintained as the Northwest Environmental Data Base.

GEOGRAPHIC SCOPE

The Northwest Region, which includes the entire states of Idaho, Montana, Oregon, and Washington.

OVERVIEW OF PROGRAM/STUDY

River reaches to be protected are those reaches or portions of reaches listed on the "Protected Areas List" adopted by the Council on August 10, 1988, or as later amended by the Council. For each river reach listed on the Protected Areas List, the fish and wildlife to be protected are those identified on the List.

According to the Amendments of the Protected Areas Program, the Bonneville Power Administration (BPA) should not acquire power from hydroelectric projects located in protected areas. The Council believes that the Long-Term Intertie Access Policy's reliance on protected areas is consistent with the Council's power plan and fish and wildlife program

as they apply to fish and wildlife in the Columbia River Basin. The Council continues to recommend that BPA adopt a similar policy with respect to protected areas outside the Columbia River Basin. BPA is now in the process of drafting an agency-wide, region-wide Protected Areas Policy.

Under the Northwest Power Act, the Federal Energy Regulatory Commission (FERC), and all other federal agencies responsible for managing, operating, or regulating federal or nonfederal hydroelectric facilities located on the Columbia River or its tributaries are required to take protected area designations into account to the fullest extent practicable at all relevant stages of decision-making processes.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Council derives its authority from the Northwest Power Act of 1980 (PL 96-501), which required the Council to develop a program to "protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat" that had been affected by hydroelectric development in the Columbia River Basin.

Public: The prioritization process, as described below, incorporates public opinion by achieving consensus in participant groups within the planning process. Each participant group is composed of state and federal agencies, tribes, and interest groups.

Technical: The prioritization process, as described below, is based primarily on scientific and technical knowledge and judgements.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The Northwest Environmental Data Base (NED) is the repository for regional rivers data. Development of NED began in 1984 as the Council's Hydro Assessment Study (HAS). HAS includes four distinct components: the development of a hydropower site data base; an assessment of anadromous fish; an assessment of Indian cultural sites; and an assessment of other river-related environmental values. As the study component with the broadest range of resource and geographic coverage, the environmental-values assessment was organized into a distinct study called the Pacific Northwest Rivers Study. BPA coordinated and funded the Rivers Study. The Council coordinated other aspects of the Hydro Assessment Study.

Northwest Environmental Data Base

The NED is recognized as the nation's premier river resource information system. The NED's computer and information technology enables participants to coordinate cooperative data collection efforts, encouraging consistency in the management of the Pacific Northwest's natural and energy resources. HAS was a cooperative regional effort by the Bonneville Power Administration (BPA), the Northwest Power Planning Council, the four Pacific Northwest states, Native American tribes, and federal land management agencies.

The NED contains assessments of the significance of the region's rivers for use in the Council's Protected Areas Program, system planning for anadromous fish, and BPA's regional hydropower supply estimates. The data collected during the HAS were structured from an assessment process that incorporated the art of professional judgement into the objective data collection process. The result is a determination by resource experts of the relative significance of each river segment for each resource category, based upon the best available scientific information. The "final value" can be viewed as the tip of a data pyramid, with successive layers of more detailed supporting data underneath.

Since completion of the HAS in 1986, data have been structured into regional and state-specific computerized information systems. Each state has prepared and now maintains a Rivers Information System accessible to the public. These systems are compiled into personal computer (PC), menu-driven user access systems. The software that comes with the data enables users to locate easily any river in the region, traverse up or down stream or up a tributary, and view summary data describing that river reach. Information updates are transmitted from the states to the regional system biannually. Source data are maintained at the state level to assure accuracy and ties to other state data collection efforts. Data are currently available for over 34,000 distinct river reaches, covering some 135,000 miles of streams throughout the region. Available data categories include the following:

- **Anadromous Fish** includes data on the presence/absence of eight anadromous species by river reach. Also includes data collected during System/Subbasin Planning, including habitat value and use type.

- **Resident Fish** includes game and nongame species. Data were collected on habitat, species, and public use.

- **Wildlife** refers to game and nongame birds and animals that inhabit river and stream corridors. Habitat types, species composition, and public use data are available.

- **Natural Features** refers to river-related endangered or threatened plants, unique plant communities, and geologic and hydrologic features. Data include scarcity, scientific value, recreational use, and vulnerability.

- **Cultural Resources** includes historic and prehistoric archeological and architectural resources located within river corridors. Criteria are those used for the National Register of Historic Places.

- **Recreation** emphasizes boating and other active water activities. Data were collected primarily by direct input and review from user groups and land managers.

- **Institutional Constraints** are those laws and policies that prohibit, limit, or otherwise impose conditions on river-related development.

- **The Pacific Northwest Hydropower Data Base and Analysis System (NWHS)** contains detailed physical, hydrologic, institutional status, and cost

information on over 4,000 identified regional hydro sites. The system also includes hydrology and cost estimating algorithms.

- **The River Reach File** is the "filing drawers" into which regional rivers data are put. Originally developed by the EPA to track non-point source pollution in the 1970's, the Reach File contains both graphic and tabular data, making it useful in both PC data systems and Geographic Information Systems (GISs). The scale was originally 1:250,000. BPA has coordinated completion of a major enhancement of the region's portion of the Reach File to 1:100,000 scale. The Reach File provides direct access to water quality (EPA STORET) and water quantity (USGS WATSTORE) information maintained by others.

Hydropower Assessment Study

In August 1984, the Council began a regional Hydropower Assessment Study with assistance from the BPA. The purpose was to fulfill the Council's and BPA's obligations to balance the need for electricity with protection for the environment. The study was aimed at determining the feasibility of hydropower sites for development when environmental values are taken into account. The Hydropower Assessment Study has three parts: 1) a Council-directed effort to assess anadromous fish; 2) a BPA-coordinated project to evaluate other environmental factors related to rivers; and 3) a regional hydropower site data base, which was cooperatively compiled by BPA and the U.S. Army Corps of Engineers.

The Pacific Northwest Rivers Study

The task of assessing the environmental significance of the rivers for values other than anadromous fish and hydropower potential was completed in a separate project known as the Pacific Northwest Rivers Study. The Rivers Study assessed natural, recreational, and cultural values associated with the 350,000 miles of rivers that flow through Washington, Montana, Idaho, and Oregon. The resource assessment indicates when use conflicts and adverse impacts are likely to occur. The ability to predict potential conflicts creates the opportunity to prevent or manage controversies. The Rivers Study was developed based on similar efforts completed in the State of Maine with assistance from the National Park Service.

Participants included hundreds of resource managers from federal and state agencies and Indian tribes, river users, representatives of conservation interests, and citizens. The participants chose six resource categories as indicators of the environmental significance of rivers: 1) resident fish, 2) wildlife, 3) natural features, 4) cultural features, 5) recreation opportunities, and 6) institutional constraints.

Organizationally, the Rivers Study was structured within each state by resource category and geographic region. Within each area of the state, a group of resource experts focused on a single resource category. In Oregon, for example, more than 80 federal, state, and tribal fishery biologists judged the rivers' values for fish. Similarly, archaeologists and cultural historians judged the value of cultural features.

Because the states followed parallel assessment procedures, the resulting data bases were similar. Selected information for the entire region was compiled from the states into a regional data base. The data base structure permits accommodation of new information as knowledge increases.

The Pacific Northwest Rivers Study compiled existing information, and structured evaluation by experts and comments from users and the public into an assessment of significant river resources. The design of the assessment incorporated the following basic concepts:

- **Comparative Evaluation.** The study not only presents information but measures the relative significance of individual river resources.

- **Comprehensive Scope.** The six resource categories encompassed a broad range of information. Organized at the state level, the assessment covers a four-state region. The collection of data for smaller river reaches has made it possible to examine information about each resource type at different scales (site, basin, state or region). By maintaining separate data bases and assessments for each resource category, the information can be used for many different purposes.

- **Objectivity.** The criteria used to judge resource significance were deliberately disengaged from information about the potential impacts of development. Thus, the criteria are issue-independent, weighing only the quality of the resource itself.

- **Interactive, Inclusive, and Flexible Planning Process.** Not only did the study incorporate participation by state and federal agencies, tribes, and interest groups, but study participants made decisions about what resource categories should be considered, what criteria should be used to assess resource significance, and the importance of the data. Emphasis was placed on achieving consensus within each participant group, and the resulting decisions were reviewed and corroborated by other users and experts. The original conception of the assessment process was refined as incremental adjustments were made to respond to needs as they arose.

- **Efficient and Uncomplicated Analysis Techniques.** Analysis methods could be easily understood by non-professionals and could be accomplished without sophisticated technological equipment. The study relied extensively on existing information and user and expert opinion.

- **"Approachable" Products.** Many of the products from the Pacific Northwest Rivers Study, such as maps and summaries, are appropriate for non-technical uses. Each state also maintains a computerized data management system for technical applications.

At the regional level, the Council's Hydropower Assessment Steering Committee made many of the important decisions about how the Rivers Study would be organized. For instance, the committee negotiated what resource categories would be used in the assessment. It

established the project schedule and funding, provided a communication channel for study participants, and resolved disputes over the project scope and participant roles. This group was made up of individuals from federal and state agencies, Indian tribes, and environmental groups.

In each state, the following steps constituted the general process of assessment:

Step 1. Identification of Resource Categories. In selecting the six resource categories (resident fish, wildlife, natural features, cultural features, recreation opportunities, and institutional constraints), the Hydropower Assessment Steering Committee sought to:

- Reflect the overall value of rivers and streams as natural resources;
- Reflect the interests of public agencies and private interest groups;
- Acknowledge the resource responsibilities of the tribes, states and federal agencies; and
- Reflect the priorities of the Pacific Northwest Electric Power Planning and Conservation Act.

Step 2. Inventory of Information and Identification of Experts. A study team for each state, consisting of the regional coordinator, state coordinator and resource experts, identified data requirements and information sources for each resource category. Agencies, groups, or individuals that could provide useful data were identified. State and regional coordinators met to assure regional consistency and uniform data structure.

Step 3. Criteria and Standards Development. Next, the study team developed criteria and standards for evaluating each resource. Federal agencies, Indian tribes, professionals, users and interested members of the public reviewed those measures. To assure uniform assessment among resource categories, a list of all stream segments was developed at the regional level.

Criteria divided each resource type into appropriate classifications to be considered in the assessment. For example, the criteria used for resident fish were: 1) habitat and species value, and 2) sport fishery value. Within each criterion, standards were set to measure resource significance. For example, in assessing resident fish habitats, a river segment would be judged on such criteria as habitat characteristics and presence of important fish species. According to the established standards for the species criterion, a river stretch that had one or more fish species of high concern would receive a higher rating than a segment that did not.

Standards appropriate to the conditions in each state were selected. For example, the presence of grizzly bears along the rivers in Washington and Montana were evaluated using different standards due to varying levels of abundance. An effort was made to standardize criteria for all state-level studies to ensure regional consistency. The cooperative development of a broader study process, including concepts and methodologies, also increased consistency.

Step 4. Evaluation of each Resource Category. The fourth step consisted of assigning a value class to each river segment for every resource category. One of five value classes could be assigned to a river segment to denote its relative significance: 1) outstanding, 2) substantial, 3) moderate, 4) limited, or 5) unclassified or unknown. The criteria and standards set in Step 3 were used to determine the appropriate value class.

Within each resource category, criteria ratings were combined into a single score for each river stretch. Resource experts, assisted by project staff, conducted the assessment with concurrent or follow-up assessment by outside experts and interest groups. Findings were tabulated on data forms and recorded on maps, and sent for review to participating agencies, tribes, scientists, interest groups, and citizens. State-level project staff determined the stream segments to be assessed, compared findings for consistency, and grouped stream segments into clusters according to overall significance. The result of their first phase resource assessment was identification of natural, cultural or recreational value, and the relative significance of the resource in each area.

Assessment of institutional constraints identified Wilderness Areas, Wild and Scenic Rivers, and other federal constraints to hydropower development. This component of the project also recorded existing state and local designations or administrative programs that might constrain the development of new facilities.

Step 5. Review of Resource Category Findings. A set of data forms displayed the significance ratings assigned to each stream segment. Resource experts, agency and tribal participants, private groups and citizens reviewed the findings, and public meetings were held throughout the four states. Based on these meetings, the resource experts revised the results in consultation with regional project managers. A special effort was made to document the significance of reaches and streams found to have high or unique resource values as well as reaches that reflected the priorities of the Northwest Power Act of 1980.

Step 6. Information Synthesis. The assessment proceeded along strict resource category lines; no attempt was made to combine the value classes of more than one resource into a composite rating for a given river segment. Ratings achieved by small reaches within a specific resource category were, however, compiled into a single score for the larger stream segment. A matrix displays the results. Arrayed along one axis is a list of stream segments in a given river basin, and listed along the other axis are the resource categories. Each cell shows the rating for a resource category in a particular stream segment within the basin.

Step 7. Presentation and Documentation. Information packets were prepared that summarized the findings for all resource categories. Graphic representations of data were produced using computer mapping techniques provided by BPA. Public meeting and agency briefings were conducted to inform people of the study findings. The information packets, computer printouts, and maps were widely distributed, and continue to be requested on a regular basis.

A series of four reports document the study process in each state. The "Assessment Guidelines" describes the process used to conduct the study. This blueprint of the process was changed to respond to needs as they arose, and the "Revised Guidelines" record the final sequence of events. The "Final Report" presents the computerized data management system.

A User's Guide has been developed to accompany each computerized Rivers Information System, which is distributed on request.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The Pacific Northwest Rivers Study inventoried and evaluated a wide variety of environmental factors associated with the 350,000 miles of rivers that flow through Washington, Montana, Idaho, and Oregon. Based on NED data, the Council listed 44,000 miles of protected streams regionwide in 1988, which is about 12 percent of the region's total stream miles. These reaches are now protected from new hydroelectric power development based on critical fish and wildlife habitat.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Pacific Northwest Rivers Study could serve as a model for ranking significant environmental resources. It could also serve as a model for statewide regional rivers assessment.

The inventory and evaluation of a wide variety of environmental factors for the 350,000 miles of rivers in the four states of the Pacific Northwest could prove beneficial to the Corps by identifying resources of regional significance. More specifically, the 44,000 miles of protected streams listed by the Council could be used to identify river reaches designated as of regional significance.

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5. SUMMARY ABSTRACTS FOR STATE PROGRAMS

ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Arizona Identification, Inventory, Acquisition, Protection, and Management of Sensitive Habitat Program

GOALS AND OBJECTIVES

The goal of the Identification, Inventory, Acquisition, Protection, and Management of Sensitive Habitat Program, which is administered by the Heritage Grant Program under the Arizona Game and Fish Department, is to enhance the Department's ability to properly fulfill the requirements of the state's Heritage Fund law, by soliciting and funding programs and projects from a full spectrum of interested partners.

GEOGRAPHIC SCOPE

Arizona

OVERVIEW OF PROGRAM/STUDY

Funds are available under the Identification, Inventory, Acquisition, Protection, and Management of Sensitive Habitat Program for projects that will preserve and enhance Arizona's natural biological diversity. Since there are many ongoing projects at Arizona Game and Fish Department, applicants are strongly encouraged to contact the Project Leader for this funding source to avoid duplication, and to identify other potential sources of funding.

Proposals must incorporate at least one of the following sensitive elements to be considered eligible for funding under the program:

1) Identification, inventory, protection and/or management of sensitive habitat.

2) Inventory, identification or management of sensitive species.

SOURCE OF PRIORITY RECOGNITION

Institutional: On November 6, 1990, the Arizona Game and Fish Commission Heritage Fund (Title 17, Chapter 2, Article 6) was voted into law and became effective November 26, 1990. The fund established that a portion of the monies received shall be spend on the identification, inventory, acquisition, protection, and management of sensitive habitat and that at least 40 percent of this amount be spent on the acquisition of sensitive habitat utilized by endangered, threatened, and candidate species. This threatened and endangered habitat

acquisition component (40 percent of the overall dollars available for the program) is not administered through this grant process.

Public: Public support and opinion are significant components of "Resource Issue," the first category described in the section below.

Technical: Technical issues are paramount in "Department Activities," the second category described in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The basic foundation of the prioritization process includes the Department's goals, objectives, and strategic plans; they provide the guiding statements that define the Department's priorities.

The prioritization process for evaluating proposals is divided into the following categories:

1) Resource issue, which represents a list of issues that are established by the Commission. The directors vote on the issues and assign points, which takes into account factors like public support and opinions. Maximum 25 points.

2) Department activities, which are a list of activities that encompass strategic plans over a period of five years. The Commission places values on issues, for example, recreation or wildlife. Each issue is assigned a point value with a maximum of 10 points. These votes are compiled and averaged for a maximum point value not to exceed 20 points.

3) Strategic plans for species, which is calculated not to exceed a maximum of 20 points.

4) Feasibility, which is subjective in determination and not to exceed a maximum of 15 points.

5) Merit, which is subjective in determination and not to exceed a maximum of 10 points.

6) Cost, which is calculated as a ratio of the amount of funds asked for divided by the amount of funds available in the Fund. Maximum 10 points.

Steps 1-3 are completed annually before proposals are submitted. Steps 1 and 2 involve the rating of resources and the rating of Department activities. The resources and activities were generated from Department strategic planning documents. These are rated by the five Commissioners, the Director, the Deputy Director, and the four Assistant Directors. The rater is asked to assign a value from zero (not at all important) to ten (extremely important). The ratings should be based on a public, political, economic, and biological perspective. The Department Planners average the scores to determine the final rating of each resource and

activity. The resource issue score is worth 25 percent, and the activity score is worth 20 percent of the final prioritization score.

Step 3 is an evaluation of the resource in comparison to Strategic Planning Document Objectives. Six questions are asked of each resource with consumptive use, and three questions will be asked of resources with no consumptive use. The questions are answered either yes or no. This test will be done by the Branches with the primary management responsibility for each resource. The resulting scores range from a low of zero to a high of ten points.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Sensitive species and sensitive habitat lists were prepared by the Arizona Game and Fish Department to rate resources in the prioritization process for evaluating proposals under the Identification, Inventory, Acquisition, Protection, and Management of Sensitive Habitat Program. The program received $397,195 for 1992-93 grant awards.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Identification, Inventory, Acquisition, Protection, and Management of Sensitive Habitat Program could serve as a model for ranking and distributing funds for projects that will preserve and enhance natural biodiversity. It could also serve as a model for identification, inventory, acquisition, protection and/or management of sensitive habitat or species. The sensitive species and sensitive habitat lists could be used by the Corps to identify resources of state significance.

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Arizona Game and Fish Department, "Grant Application Manual," prepared for Arizona Game and Fish Department (December 1992).

"The Prioritization Process" (fact sheet prepared by the Arizona Game and Fish Department).

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Arizona Land and Water Conservation Fund

GOALS AND OBJECTIVES

The goals and objectives of the Land and Water Conservation Fund identified as issues and strategies in the Statewide Comprehensive Outdoor Recreation Plan (SCORP) are the following:

1) Coordination of effort and increased public involvement,

2) Forming political strength,

3) Overcoming inadequate public funding and other resources, and

4) Protecting Endangered Resources.

GEOGRAPHIC SCOPE

The Arizona State Parks Board owns 250,000 acres of land, of which 3,500 acres are surface acres of water that they own and manage.

OVERVIEW OF PROGRAM/STUDY

Eligible activities include, but are not limited to: *park development* (e.g., playground equipment, lighting, picnic facilities, ballfields, ramadas, sports facilities, restrooms and other facilities deemed appropriate or eligible by federal guidelines) and *land acquisition* to serve future outdoor recreation purposes.

Land and Water Conservation Fund grants are awarded on a 50/50 matching basis where the participant provides 50 percent of the project cost and the grant provides the other 50 percent.

Each successful grant recipient is required to pay a "non-project surcharge" to the State Parks Board. Revenue from surcharge payments is used to administer awarded grants and to assist in the development of the SCORP. The surcharge is currently set at 10 percent of the grant award and is non-reimbursable.

Completed applications are evaluated by State Parks staff and subsequently approved or rejected by the Arizona Outdoor Recreation Coordinating Commission (AORCC) and the National Park Service.

AORCC approves project funding and the State Parks Board distributes the funding through participant agreements. All project applications compete equally for a portion of the state's annual apportionment of funds.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Land and Water Conservation Fund Act of 1965 (Public Law 88-578) became effective January 1, 1965 and has since been authorized to continue through 2015. The Act provides financial assistance to states, their political subdivisions, and Indian Tribal governments for the acquisition and development of public outdoor recreation areas and facilities.

Under provisions of ARS §41-511.26, state agencies, counties, and incorporated municipalities are granted authority to participate in the program. The State Parks Board is responsible for administering the program in Arizona and preparing and maintaining the required outdoor recreation plan.

Public: Public considerations are a significant factor in the prioritization process, as evidenced through local needs, and outside donations/partnership funding, and volunteerism, as described in the section below.

Technical: Technical considerations are also a significant factor in the prioritization process as evidenced through conservation of natural resources, site suitability, and resource preservation.

PRIORITIZATION OR PROJECT SELECTION PROCESS

AORCC has established guidelines and rating evaluation criteria to assist applicants in the preparation of applications that meet high priority needs of the state and the applicants.

General Project Considerations

- Statewide needs. Projects satisfying recreational needs and/or projects that provide solutions to statewide recreation-related problems will, in general, receive high priority funding consideration. Points will be awarded on a scale of 0 to 4 based on the results of the 1992 SCORP Needs Assessment. All primary project components will be awarded points according to their proportional value to the total project as weighed against the statewide needs list.

- Local needs. Participants are strongly encouraged to develop project applications that meet high priority needs of the intended clientele. The assessment of these needs should be based upon coordinated, long-range planning efforts. Points will be awarded on a scale of 0 to 4 based on the applicant's ability to identify, in a comprehensive manner, local recreation needs.

- New park acquisition. Applications to acquire new recreation resources in areas where limited or no public outdoor recreation opportunities now exist are encouraged. Evaluation of acquisition projects will be based upon the planned use of the land. Park acquisition elements of a project will be awarded points based on a scale of 0 to 3 according to the proportional value of the acquisition costs to the total project costs.

- Initial Development. Applications to develop new recreation resources in areas where limited or no public outdoor recreation opportunities now exist are encouraged. Initial development portions of a project will be awarded points based on a scale of 0 to 3 according to the proportional value of these development costs to the total project costs.

- Innovation. Projects involving non-traditional methods and innovative design techniques and approaches are encouraged and will receive careful review and consideration. Points will be awarded on a scale of 0 to 3 based upon review of the project.

- Linear park development. Applications that propose the development or enhancement of trail linkages, greenways, or open space corridors will be given priority consideration on a scale of 0 to 2.

- Serving economically disadvantaged populations. Projects intended to provide recreation opportunities for economically disadvantaged populations are encouraged. Points will be awarded on a sliding scale based on economic factors of the intended service clientele.

- Proximity to user. Funded projects should be located within a reasonable distance to the user population. Projects will be evaluated according to the appropriate service area category and time interval chart in which the majority of users are located on a scale of 0 to 2 points.

- Relationship to existing facilities. Proposed projects should be located so as not to duplicate similar facilities within the same service area. Projects will be awarded points according to the relationship of the proposed facilities to existing facilities on a scale of 0 to 2.

Financial Considerations

- Outside donations/Partnership funding. Projects supported locally through written commitments of funds, materials, or services from private sources as a portion or all of the Participants's local match will be given special consideration. Also, cooperative efforts involving two or more public entities to fund a project will be given special consideration. The dollar amount donated by the private sector or provided by a public entity other than the sponsor will be divided by the total amount of local match and then multiplied by 3 points.

Design Considerations

- Conservation of natural resources. Facility and resource designs should incorporate features that will conserve water and non-renewable resources. Solar energy applications, desert landscaping, waterless restrooms, gray-water and effluent recycling, drip irrigation and similar approaches should be incorporated into the project's design. Other conservation practices such as erosion control, revegetation, flood protection, and soil stabilization are also encouraged as part of the design of proposed projects. Points are awarded on a scale of 0 to 2, based upon the extent of conservation features incorporated in the design of the project.

- Low-maintenance features. Participants are encouraged to develop facilities that are low maintenance by design. Points are awarded on a scale of 0 to 2, based upon the extent that low-maintenance features are incorporated into the design of the project.

- Site suitability. Projects well suited to a site and requiring minimal alteration will receive priority consideration. Points will be awarded on a scale of 0 to 2 according to the impact the project will have on the site.

- Site accessibility. Projects designed with minimal barriers to the project site are encouraged. Points will be awarded on a scale of 0 to 3 based upon the degree of unobstructed public access. Barriers to public access would range from severe barriers to no barriers.

- Safety. Projects incorporating safety features or providing safe environments will receive priority consideration. Points will be awarded on a scale of 0 to 2 according to the degree the project addresses safety considerations.

Environmental Considerations

- Environmental quality. Participants must carefully assess the impact of a project on wildlife habitat, riparian areas, wetlands, water and air quality and other environmental values. Mitigation measures and/or solutions should be recommended where development is likely to cause or contribute to the degradation of the environment. Points will be awarded on a scale of 0 to 3 according to the degree of overall impact the project will have on the environmental quality of the area, including wildlife habitat, riparian areas, and water and air quality.

- Environmental and/or leisure education. Projects that incorporate into the design or project scope environmental and/or leisure education elements will receive special consideration. (Some examples are: interpretive signing for a trail, an exercise course designed to interpret health fitness.) Points will be awarded to the degree the project addresses environmental and/or leisure education on a scale of 0 to 2.

- Resource preservation. Projects that propose to acquire wetlands, open space, natural areas, or cultural resource areas for their protection and/or re-establishment, and where public access is permitted and deemed appropriate will be given priority consideration. Points will be awarded on a scale of 0 to 2, based upon the extent a project includes resource preservation.

Management Considerations

- Security and law enforcement. The Commission is very interested in providing opportunities for the safe enjoyment of outdoor recreation resources and facilities. Project applications should clearly demonstrate that appropriate consideration has been given to the impacts of proposed developments on local safety and law enforcement capabilities; that adequate coordination with local law enforcement agencies has been undertaken; and, that planning for future safety and law enforcement needs has been initiated. Points will be awarded on a scale of 0 to 3 according to the degree the project demonstrates appropriate considerations for safety and law enforcement.

- Long-term operation and maintenance. The Commission is concerned about the participant's ability to commit adequate resources for continuing project operation and maintenance needs. Points will be awarded on a scale of 0 to 4 according to the commitment to long-term operation and maintenance that the participant has demonstrated at existing park resources.

- Volunteerism. Projects submitted by entities which are able to document public volunteer programs in their recreation system will receive special consideration. Points will be awarded on a scale of 0 to 2 to the extent where volunteerism directly benefits the project site.

Administrative Considerations

- Compliance and administrative performance. The successful completion of projects in a timely and efficient manner is an important goal of AORCC. Points will be awarded on a scale of 0 to 4 according to a participant's past performance in effectively meeting the fiscal and administrative guidelines of the program.

- Expenditure rate. It is very important to AORCC that participants expend awarded funds in an expeditious manner. Participants with high expenditure rates will be given special consideration. A participant's expenditure rate is calculated by dividing the total expended funds in active projects by the total approved funds in these projects and then multiplying by an index of 1 (1 year), .66 (two years), or .33 (3 years) times 3 points on a scale of 0 to 3 points. Zero points will be awarded if the expenditure of funds goes into the fourth year.

- Opportunity. New applicants to the grant program or grantees not having participated in the past 5 years will be given special consideration. Points will be awarded according to the number of active projects being administered by the applicant. Zero points will be given if the applicant has one or more active projects; two points will be given if the applicant has received assistance within the last five years and all projects are complete; and, four points will be given to the applicant who has never received grant assistance, or has not received funding within the last 5 years.

- Workshop Attendance. The Commission encourages all participants to attend the annual grants-in-aid workshop. Applicants represented at the workshop will receive a bonus point. Staff will record attendance and award a point accordingly, up to a maximum of two points.

- Marketing the Heritage Fund. Promotion of projects funded by the Heritage Fund to the public is vital to the continuing success of the program. Participants demonstrating utilization of marketing strategies will receive special consideration. Points will be awarded on a scale of 0 to 2 according to the level of marketing used by the applicant.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The prioritization process established guidelines and enables top priority projects to receive funding.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Land and Water Conservation Fund could serve as model for ranking land acquisition and outdoor recreation programs. It could also be used by the Corps to identify the significance of protecting fish and wildlife habitat through acquisition of land.

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Arizona State Parks Board, "Application Manual for Local, Regional, and State Parks Heritage Fund Grants and Land & Water Conservation Fund Grants," prepared for Arizona State Parks, Heritage Fund, and Land & Water Conservation Fund, (April 1993).

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Arkansas Natural Areas Inventory, Acquisition and Stewardship Program

GOALS AND OBJECTIVES

The goal of the program, which is administered by the Arkansas Natural Heritage Commission, is to identify and protect rare species and exemplary natural communities.

GEOGRAPHIC SCOPE

Arkansas

OVERVIEW OF PROGRAM/STUDY

The program's activities focus on identification of rare species habitat and exemplary natural communities and to provide protection, management, and if necessary, restoration of the lands which contain those features.

SOURCE OF PRIORITY RECOGNITION

Institutional: The program was established by the state statute, Arkansas Act 112 of 1973.

Technical: The program implements a prioritization process based on technical or scientific judgement, as described in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Technical information used in the prioritization process for protection or restoration efforts is developed through the Natural Areas Inventory. The Natural Areas Inventory has been in use for over twenty years in Arkansas. It operates primarily through county- by-county systematic inventories to identify features of special concern. The results are subsequently evaluated in comparison with other similar areas and decisions are made as to which areas receive the highest priority for protection.

The Inventory is based on whether the area:

- Provides habitat for rare species or is exceptionally undisturbed by people;
- Is representative of the natural landscape;

- Is endangered and can benefit from protection; and
- Is a viable occurrence of the feature, that is, the feature can be protected with a reasonable expenditure of resources.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Some 5,000 occurrences of natural features of special interest have been identified, mapped, and are being protected through environmental review and other mechanisms.

Approximately 50 areas totalling 20,000 acres have been acquired for protection of significant natural features.

The streams with exceptional natural significance in all physiographic regions of the state have been identified and portions of the streams are being restored and managed.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Arkansas Natural Areas Acquisition and Stewardship program could serve as a model for prioritizing areas that are exceptionally undisturbed by people and provide habitat for rare species. It could also be used by the Corps to prioritize areas representative of the natural landscape. The streams with exceptional natural significance and other inventoried natural features of special interest are examples of regional priorities within the state.

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Arkansas Natural Heritage, August House (1982).

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

California Inland Wetlands Conservation Program

GOALS AND OBJECTIVES

Under the Inland Wetlands Conservation Program, the California Wildlife Conservation Board (the Board) has the authority to purchase, sell, and exchange any rights in land, and the authority to award grants and loans for land acquisition and management activities. The Inland Wetlands Conservation Program may award grants and loans only to nonfederal entities.

GEOGRAPHIC SCOPE

The Central Valley region, which extends from Red Bluff to Bakersfield, California.

OVERVIEW OF PROGRAM/STUDY

The scope of activities performed by various entities involved in the program is broad, but the Board itself primarily acts as a coordinator. Prioritization of inland wetland conservation projects is dictated by the Central Valley Habitat Joint Venture Plan (CVHJV), which sets objectives and priorities for siting wetland acquisition and restoration activities. Funding for the program comes from the sale of state bonds, environmental license plate funds, a portion of state cigarette tax revenues, and profits on the Board's property transactions.

Project selection is ultimately the Board's responsibility, although the Board typically solicits endorsements from the California Department of Fish and Game (CDFG). Responsibilities for project plan development, design, construction, and operation and maintenance vary depending upon the nature of the project. Where the Board purchases property for restoration, they may call on the CDFG or contract out for restoration work. Where the Board awards grants and loans to independent entities, the recipient performs the restoration activities. Long-term management of land restored with grant funds is also provided for, albeit indirectly, through the Board's purchase of conservation easements.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Inland Wetlands Conservation Program was established pursuant to Chapter 1645, Statutes 1990. The North American Waterfowl Management Plan (NAWMP) was signed in 1986 by the U.S. Secretary of the Interior and the Minister of Environment for Canada.

Technical: The prioritization process, as described in the section below, is based primarily on scientific or technical knowledge and judgement of critical resource characteristics and measurement standards.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The CVHJV, which sets priorities for the Inlands Wetlands Conservation Program, was formally established by a working agreement signed in July 1988. The CVHJV is guided by an Implementation Board comprised of representatives from the California Waterfowl Association, Defenders of Wildlife, Ducks Unlimited, National Audubon Society, Waterfowl Habitat Owners Alliance, and The Nature Conservancy. Technical assistance and advice is provided to the Board by the U.S. Fish and Wildlife Service (FWS), CDFG, California Department of Food and Agriculture, and other organizations and agencies.

The goal of the CVHJV is to protect, maintain, and restore habitat to increase waterfowl populations to desired levels in the Central Valley of California consistent with other objectives of the North American Waterfowl Management Plan (NAWMP). Six objectives were developed by the Implementation Board to achieve this goal:

1) Protect 80,000 additional acres of existing wetlands through acquisition of fee-title or perpetual conservation easements.

2) Secure an incremental, firm 402,450 acre-foot water supply that is of suitable quality and is delivered in a timely manner for use by National Wildlife Refuges (NWRs), State Wildlife Areas (WAs) and the Grasslands Resource Conservation District (GRCD).

3) Secure Central Valley Project (CVP) power for NWRs, WAs, GRCD, and other public and private lands dedicated to wetland management.

4) Increase wetland areas by 120,000 acres and protect these wetlands in perpetuity by acquisition of fee-title or conservation easements.

5) Enhance wetland habitat on 291,555 acres of public and private lands.

6) Enhance waterfowl habitat on 443,000 acres of agricultural lands.

After the goal and objectives were agreed upon, specific Working Committees for each objective were formally established in a working agreement signed in July 1988. The Waterfowl Habitat Technical Committee and the Working Committees provided the main technical support for the development of the CVHJV Implementation Plan. This action plan presents background, implementation strategies, and administrative and coordination recommendations for the six objectives relative to nine drainage basins of the Central Valley.

This implementation plan was developed by stepping down the six specific objectives into detailed chapters, which are summarized below.

Habitat Acquisition Objective

In 1985, only 291,555 acres of wetlands important to waterfowl remained in the Central Valley. Of these, 118,900 acres were unprotected. To accomplish this objective, the CVHJV proposes to protect 62,060 acres through conservation easements at an estimated capital cost of $38.3 million and 17,940 acres by fee acquisition for an estimated $45.0 million. Annual operation and maintenance costs are estimated to be $1.55 million for easement lands and $1.79 million for fee acquisition lands. Priorities in the order of importance, will be:

1) Habitat with high waterfowl value based on historical waterfowl use patterns,

2) Wetlands with lower waterfowl use but adjacent to restorable wetlands, and

3) Wetlands with lower waterfowl use but not adjacent to restorable wetlands.

Any acquisition, either fee or easement, must have a firm water supply.

Water and Power Objectives

Because the objectives for water and electrical power for wetland management are closely related, they are treated collectively in determining strategies and implementing actions. Water and power objectives are limited to State WAs, NWRs, and the GRCD where a total deficit of 402,450 acre feet of firm water supply presently exists. Severe water shortages also exist on many privately owned lands besides those in the GRCD. These needs are included in actions for the acquisition, restoration, and enhancement objectives.

Eleven strategies have been identified for accomplishing these objectives. The preferred solution is to initiate legislation to reauthorize CVP to include wildlife as a project purpose. This legislation would also authorize and direct U.S. Bureau of Reclamation and the Western Area Power Administration to provide needed water and power, including any needed development costs under contract with CDFG, FWS, and GRCD. Efforts have already begun to initiate this legislation. Total capital costs for this objective are estimated at $35.4 million based on a full ground water alternative. Annual operation and maintenance costs plus the cost of delivered surface water are estimated to be $6.9 million.

Wetland Restoration Objective

Since 1986, when the NAWMP was initiated, about 10,000 acres of wetlands have been restored in the Central Valley, 7,300 of which are protected by easements or fee-title purchase. Thus, to meet this CVHJV objective, an additional 112,700 acres of wetlands need to be restored and protected. About 75 percent (84,525 acres) of the proposed acreage is targeted for private ownership using perpetual conservation easements as incentives. The remaining 25 percent (28,175 acres) will be acquired in fee title by FWS and CDFG. Firm water supplies must be available before any restoration, either fee or easement, will be considered. The total estimated capital cost for restoration is $315 million and the annual operation and maintenance cost is estimated to be $6.9 million.

Wetland Enhancement Objective

Of the 291,555 wetland acres remaining in the Central Valley, 204,790 are in private ownership, 43,745 in state ownership, and 43,020 in federal ownership. To achieve this objective, 291,555 acres are targeted for enhancement using a variety of strategies including:

1) Supplementing existing operation and maintenance programs,

2) Supplemental incentive payments to private landowners,

3) Disease control,

4) Technical assistance, and

5) Coordination with other agencies and organizations such as county agricultural departments and irrigation districts.

Total estimated annual cost for this objective is $18.9 million ($65/acre).

Agricultural Lands Enhancement Objective

Wetlands in the Central Valley including those proposed in the Wetland Enhancement Objective will not supply adequate food and cover for the desired populations of wintering waterfowl as set forth in the NAWMP. If the desired numbers of waterfowl are to winter and breed in California, 332,300 acres of privately owned grain fields and 110,800 acres of upland nesting habitat must be enhanced to meet resource needs.

This objective will be met using a variety of strategies including:

1) Existing programs under the 1985 Food Security Act,

2) Incentive payments to cooperating landowners who conduct various land use practices favorable to waterfowl, and

3) Outreach extension and education programs to the agricultural community conducted by various agencies and organizations.

The total estimated annual cost for this objective is $7.2 million to be paid by the federal, state, and private sectors.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Overall, the CVHJV is targeted for completion by the year 2000. When completed, 80,000 acres of existing wetlands will be protected through perpetual easements or fee-title purchases; 120,000 acres of historic wetlands will be restored and protected; 291,555 acres of existing wetlands will be enhanced; 402,450 acre feet of water will be secured for existing Central Valley NWRs and WAs; and 443,000 acres of private agricultural land will be

enhanced annually for feeding and nesting waterfowl. The estimated capital investment for attaining all objectives is $528.7 million. Annual operation and maintenance costs are estimated to be $29 million. In addition, meeting the water and power objectives will require new federal legislation.

The CVHJV Implementation Plan will be updated with scheduled NAWMP revisions or as otherwise appropriate. Such updates will occur at least every five years.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Inland Wetlands Conservation Program could serve as a model for land acquisition. It could also be used by the Corps as a model for the protection and restoration of waterfowl habitat according to regional priorities established under the NAWMP. The CVHJV sets objectives and priorities for siting wetland acquisition and restoration activities. This information could prove beneficial to the Corps by identifying wetland resources of regional significance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

California Riparian Habitat Conservation Program

GOALS AND OBJECTIVES

The goal of the California Riparian Habitat Conservation Program (CRHCP) is to protect, preserve, restore, and enhance riparian habitat throughout California. The CRHCP was begun with a mission to coordinate and track riparian habitat protection on a statewide basis. The multitude of constituent groups involved in this process offers the potential for CRHCP to develop a powerful and effective partnership, through a cooperative process with shared responsibility.

GEOGRAPHIC SCOPE

California

OVERVIEW OF PROGRAM/STUDY

CRCHP activities include the following:

1) Assess the current amount and status of riparian habitat throughout the state;

2) Identify those areas which are critical to the maintenance of California's riparian ecosystem;

3) Identify those areas which are in imminent danger of destruction or significant degradation;

4) Prioritize protection needs based on the significance of the site and potential loss or degradation of habitat;

5) Develop and fund project-specific strategies to protect, enhance, or restore significant riparian habitat;

6) Develop, administer, and fund a grants program for riparian habitat conservation; and

7) Provide a focal point for the coordination of riparian habitat conservation efforts statewide.

The enabling legislation, which is described in further detail in the section below, authorized a variety of approaches for the protection, restoration, and enhancement of riparian habitat. This was necessary because of the diverse nature, location, and ownership of riparian resources in California. In short, the program can use fee acquisition, easements, management agreements, exchanges, gifts, and grants as tools to meet the program goal. These tools can be applied to land and/or water interests. This "menu" of conservation, restoration, and enhancement tools ensures the flexibility needed for the program to be effective.

A secondary focus of the program will be to secure, or generate funds to support the implementation of these tools for the protection, restoration, and enhancement of riparian habitat.

SOURCE OF PRIORITY RECOGNITION

Institutional: To address the need to coordinate all approaches to riparian habitat protection, the state enacted the California Riparian Habitat Conservation Act (SB 906, Hill; Chapter 726, Statutes of 1991). This act established the CRHCP within the State Wildlife Conservation Board (WCB) and allowed WCB to authorize the Department of Fish and Game (DFG) to undertake certain activities for protection and restoration of riparian habitat.

Technical: The prioritization process, as discussed in the section below, is based primarily on scientific or technical knowledge or professional judgement by the DFG of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Riparian habitat project proposals (acquisition and/or restoration) are evaluated based on specific criteria. The criteria include consideration of each proposal's ecological values and feasibility for implementation. It must be noted that project evaluation is not a rigid and specific process. The criteria developed for project evaluation are factors to be considered when deciding to fund a project as well as in the formulation of a project. Because all of the projects approved for funding by the WCB are with cooperative landowners, agencies, or organizations, there may be ecologically significant projects, which due to legal or political reasons, are not accessible to the program. In these cases, work will have to be done to develop a mutually beneficial project, or wait until circumstances change and move forward at that time.

Eight criteria have been identified for consideration in project evaluation, and are listed below. In general, protection of riparian habitat that is threatened with destruction will receive the highest priority. The remaining criteria will be considered as equal in importance, or weight, for project evaluation. While the completion of the statewide riparian habitat inventory and assessment will greatly assist in this effort, existing data and knowledge allow for immediate implementation.

Project Evaluation Criteria

Threat to Natural Community and Related Species

This should be the highest priority for consideration. It asks the question: Is this riparian community in danger of being destroyed or significantly degraded?

Demonstrable Product/Outcome

This criterion should apply to all conservation options, including acquisition proposals. It evaluates whether the project will result in a product that preserves, restores, or enhances riparian habitat. Proposals should be able to demonstrate the long-term ecological viability of the habitat to be protected, restored, or enhanced.

Natural Community Based Evaluation

The reality of the program is that there is limited funding, and as such, program resources must go to "significant" natural communities in need of protection. Priority should be given to the most "significant/threatened" riparian communities.

Management Options

The long-term management interests in property, or the restoration and enhancement of property, must be taken into consideration. Management may be in the form of long-term agreements, land use zoning that protects the property, or under a nonprofit or governmental organization (including DFG) that has demonstrated long-term management capabilities.

Watershed-Based Scope

Increasing recognition is being given to watershed-based conservation strategies as the most effective means of long-term conservation and protection of significant natural resources. This watershed approach factors in the "external" influences affecting the resources that area-specific projects are designed to protect. By using a watershed-based protection and conservation strategy, there is a higher potential for maintaining the long-term ecological viability of area-specific projects. Under this approach, no single agency or organization will have sole responsibility for conservation and protection of significant natural resources.

Joint-Venture

A key to successful and affordable conservation projects is a shared responsibility for the project. By combining funding, staff resources, and expertise, a "synergistic" approach can be initiated which will provide for the realization of projects that would otherwise be beyond the scope of a single organization.

Innovative Techniques/Approach

While the DFG and other conservation entities have been engaged in the protection and restoration of riparian habitat for many years, potential restoration projects often present

difficult challenges due to physical constraints that are often the result of many years of abuse. These types of circumstances may require the development and testing of new techniques or strategies for riparian restoration. Support should be given to those projects which seek to refine existing restoration techniques or develop new techniques in the restoration or enhancement of riparian resources.

Project Selection

As stated previously, some of the information needed for project evaluation may not be available at the onset of the program. In this case, the expertise within the DFG will fill that gap until the inventory and assessment process is complete. Even after completion of the inventory and assessment process, the DFG will continue to provide evaluations and recommendations on CRHCP project proposals.

Project proposals that are designated for DFG management and/or ownership will be evaluated and prioritized by DFG. The DFG Lands Committee will have continuing responsibility in this area. Other proposals (i.e., those projects proposed for development, ownership, and/or management by another agency/organization where DFG is not directly involved in the project planning process), will be routed to the director of the DFG for evaluation and recommendation. This is the same process that is used for WCB's ongoing public access program.

Specific projects will be submitted to the WCB for funding approval after DFG has provided a project resource evaluation and recommendation, and WCB staff has reviewed and ranked the project with respect to the criteria and the goals and objectives of the CRHCP. The CRHCP manager will be available to meet with the DFG Lands Committee, regional biologists, and other appropriate staff regarding project proposals.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

There are no quantitative findings as yet since CRHCP has only been in place for one year. CRHCP's focus is on major rivers, or to respond to associated significant areas where a threat exists. CRCHP also relies on recommendations by the DFG.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The CRCHP could serve as a model for protection and restoration of riparian habitat that incorporates a watershed-based approach and supports the development of new or innovative riparian restoration techniques. After several years of implementing projects, it could also be examined by the Corps as a potential model for developing partnerships among landowners, agencies, and organizations with shared responsibility for riparian habitat protection. Information on critical riparian habitat in the state and priorities developed under CRHCP for protection of significant sites could be used by the Corps to identify riparian areas of state significance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

California State Coastal Conservancy Resource Enhancement Program

GOALS AND OBJECTIVES

The Resource Enhancement Program, as administered by the California State Coastal Conservancy, seeks to achieve a broad range of objectives through the use of Conservancy funds, staff resources and expertise, and the cooperation of public agencies and nonprofit organizations. These objectives include the correction of impacts to or the loss of scenic or natural values through sound resource management, resolution of environmental impacts and issues caused by adjacent land use activities, the relocation or redesign of improper or inefficient improvements, the preservation of threatened habitat or unique coastal resources, the restoration of altered or degraded coastal resources and the creation of new coastal wetlands and habitat areas.

GEOGRAPHIC SCOPE

The Conservancy is authorized to act within the coastal zone of the State of California as defined in Section 30103 of the Public Resources Code.

The Conservancy is authorized to award grants or initiate projects within the permit jurisdiction of the San Francisco Bay Conservation and Development Commission as described in Section 66610 of the Government Code and in adjacent lands that significantly affect the environmental quality or are directly related to the public's use and enjoyment of the Bay.

OVERVIEW OF PROGRAM/STUDY

Specific methods that the Conservancy may use to achieve the objectives mentioned above include: acquisition of interests in land including fee and less-than-fee interests, provision of technical assistance for plans, construction of site improvements and assistance with the resolution of land use conflicts.

The Conservancy is able to provide grants to state and local public agencies and certain nonprofit organizations to facilitate the development and implementation of enhancement projects. Grant funds may only be used for planning activities directly associated with the development of the approved project.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Coastal Conservancy's Resource Enhancement Program was created to implement the Conservancy's mandate (Public Resources Code Sections 31000 et seq.) to enhance the natural and scenic values of threatened or damaged coastal and related resources.

Public: Local cooperation and support is a component of the selection criteria, which are described in the section below.

Technical: Importance of ecological significance and the urgency to preserve or restore threatened or damaged coastal resources are two selection criteria described in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The Conservancy employs the following competitive criteria in reviewing Resource Enhancement Program grant applications. The criteria are intended to permit measurement of each project's strengths in comparison with other proposals, to ensure that the projects funded will meet the goals of the Coastal Act and Conservancy Act, and to allocate grant funds to applicants in an equitable and efficient manner. The criteria are summarized below.

1) Design Excellence. Excellence and innovation in all aspects of project design.

2) Cost Effectiveness. Achievement of project objectives in the most cost-effective manner.

3) Significance. Importance of the ecological, aesthetic and/or recreational value of the project, which identifies baseline conditions, sensitive habitat, and endangered species.

4) Scope. Resolution of a broad range of issues which address greater than local concern.

5) Model. Usefulness of the project as a model for future enhancement projects.

6) Cooperation and Support. Support and cooperation from concerned parties, including landowners, nonprofit organizations, government entities and interested citizens that will contribute to successful project implementation and long-term viability.

7) Management. The ability and commitment of the grant applicant to exercise sound fiscal and project management, including ongoing project maintenance and monitoring.

8) Urgency. Pressure from development or other natural or economic conditions necessitating immediate Conservancy support to preserve or restore threatened or damaged coastal resources.

9) Readiness to Act. Ability of the applicant and other project participants to proceed with timely project implementation.

10) Comprehensiveness. Consideration and resolution of issues that have or could have adverse impacts upon a project site.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Twenty-two completed restoration/enhancement projects were evaluated by an independent source. They concluded that 70 percent of the projects were successful based on two sets of criteria:

1) National Research Council (NRC) -- Project site reviews and interviews with the project managers were used to reach conclusions as to effectiveness of the project in meeting various questions raised by NRC's evaluation criteria.

2) Baseline Ecological Criteria -- This set of criteria examines existing conditions, develops restoration options or alternatives, and uses cost estimates in its examination.

Both sets of evaluation criteria indicated that the majority of restoration projects achieved a significant degree of success in meeting project objectives. Approximately one-third of the projects had some problem or issue that had not been resolved by the time of the evaluation. Only a small percentage of projects were viewed by either criteria as non-effective with respect to project objectives.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Resource Enhancement Program could serve as a model for the restoration and enhancement of coastal resources. It could also serve as a model for the development and implementation of enhancement projects.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Colorado Lake Water Quality Assessment Program

GOALS AND OBJECTIVES

The goal of the Lake Water Quality Assessment Program is to assess water quality conditions for selected lakes to classify those lakes for restoration or protection efforts.

GEOGRAPHIC SCOPE

Colorado

OVERVIEW OF PROGRAM/STUDY

Section 314(a)(2) of the Clean Water Act requires the states to report on the status of lake water quality as part of the Section 305(b) report. Colorado has conducted lakes assessment using Lake Water Quality Assessment grant assistance from the U.S. Environmental Protection Agency (EPA) since 1989. This has included the monitoring of 19 lakes by the Water Quality Control Division (WQCD) from 1989 through 1991 and the monitoring of eight lakes in 1992.

As part of the Lake Water Quality Assessment program, the WQCD performs a trophic assessment based on data collected by agencies other than the WQCD. Routine monitoring is being or has been performed on at least 13 of the publicly owned reservoirs by the U.S. Geological Survey, U.S. Army Corps of Engineers, Denver Water Board and various other entities including cities, regional councils of government and basin associations.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Colorado Department of Health is the agency charged with protecting water quality and implementing federal and state regulatory control programs in Colorado. The WQCD reports water quality conditions, the status of water quality management programs and benefits associated with achieving the objectives of Section 305(b) of the Clean Water Act to both EPA and the Congress.

Technical: The prioritization process discussed in the section below is based primarily on scientific information collected through trophic state assessment.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Trophic state is a classification of lakes based on the nutrient status and level of biological productivity (especially algae). Those lakes with few available nutrients and a low level of biological productivity are termed oligotrophic; those with high nutrient levels and a high level of productivity are termed eutrophic. Those lakes between oligotrophic and eutrophic are termed mesotrophic. Lakes in an advanced eutrophic state are termed hypertrophic. These terms are descriptive and are not exact. Commonly used indicators of nutrient status and productivity include water transparency as measured by Secchi disc, the amount of algae as measured by chlorophyll and in-lake phosphorous concentration.

Trophic status, per se, is not an indicator of water quality problems. Trophic status is an index of water quality only to the extent that trophic condition limits the desired use of a lake, such as for water supply or recreation. Generally, as a lake becomes eutrophic, effects are considered to be negative especially if the eutrophication is accelerated by human activities. Negative effects include taste and odor problems for water supplies, reduction in water clarity which is important for many recreational uses, and a reduction in dissolved oxygen in bottom waters to concentrations that are lethal to fish. Eutrophication often leads to increased fish production, but often with a loss of species, such as trout, that inhabit cold deep areas.

The WQCD used the Trophic State Index (TSI) to estimate trophic state. Data for the epilminion, collected during the summer/fall growing season (June through October) was used for calculating the mean total phosphorus, mean chlorophyll, and mean Secchi disc transparency for each lake. These three values were used to calculate the TSIs for each lake. These individual TSIs for each lake were compared to the categories presented below to determine an overall trophic status. These categories of TSI are slightly different than those used in the 1990 305(b) report.

TSI	TROPHIC STATE
0-40	Oligotrophic
40-50	Mesotrophic
50-65	Eutrophic
65-80	Hypertrophic

When there were differences among individual TSIs (> 5 units) for a lake, they were averaged to obtain an overall TSI. Where differences among the TSIs were substantial or where TSIs were on a boundary between two trophic categories, the overall trophic category was selected by weighting in favor of the chlorophyll TSI.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Over half of the 87 assessed lakes were classified eutrophic. Since most of the lakes which were not assessed are at high elevations and in relatively unimpacted watersheds, it is anticipated that the percentage of lakes within the oligotrophic and mesotrophic categories should increase as more data are collected.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Colorado Lake Quality Assessment Program could serve as a model for prioritization of lakes for restoration or protection based on trophic state assessment. The 87 lakes that were assessed and classified under this program could be used by the Corps for identifying lakes deemed significant because of their water quality status.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Florida Save Our Rivers Program

GOALS AND OBJECTIVES

Florida's five regional Water Management Districts are responsible for acquiring critical water resource lands under the state's Save Our Rivers (SOR) Program. The major purposes of the SOR program are water management, water supply, and the conservation and protection of water resources. As stewards of Florida's vital resources, it is the responsibility of the Districts to provide for their protection, enhancement, restoration, and preservation for the beneficial use and enjoyment of existing and future generations.

Manageability, surface and ground water systems, and the formation of corridors for the critical interaction of wildlife populations are major considerations in the SOR program's land acquisition process. Prime requisites in managing these public lands are to ensure that the water resources, fish and wildlife populations, and native plant communities are maintained in an environmentally acceptable manner, and made available for appropriate outdoor recreational activities consistent with their environmental sensitivity. The stewardship of these resources may be accomplished in cooperation with other government agencies and the private sector through the design and implementation of appropriate management programs.

GEOGRAPHIC SCOPE

Florida

OVERVIEW OF PROGRAM/STUDY

The Districts are regional agencies working to protect and manage the wetlands, lakes, bays, and rivers of Florida. Five districts have been established across the state to act as guardians of the quality and supply of each region's present and future water resources. The mission of the Districts is to manage water and related resources for the benefit of the public and in keeping with the needs of the region. The key elements of this mission are:

- Environmental protection and enhancement,
- Water supply,
- Flood protection, and
- Water quality protection.

Monies from the State's Water Management Lands Trust Fund can be used for acquiring fee title or other interest in lands necessary for water management, water supply and the conservation and protection of water resources. In addition, lands that include other features may also be eligible. These features include, but are not limited to:

- River and stream floodplains and flow ways,
- River and stream flood hazard areas,
- Littoral zones,
- Springs and lakes,
- Aquifer recharge areas,
- Wetlands,
- Wellfields, and
- Unique water features.

Each January, the Districts must submit to the state legislature and the Florida Department of Environmental Protection (DEP), pursuant to statute, an updated Five-Year Acquisition and Management Plan.

Each District has a proactive program of identifying lands within the District that might be suitable as candidates for acquisition. SOR applications from private and public groups are reviewed, and District staff select other sites for consideration from small-scale aerial photography. All lands considered under the SOR Program are reviewed for conformance with the District's basin management plans.

SOURCE OF PRIORITY RECOGNITION

Institutional: In 1981, the Florida Legislature enacted the legislation that created Section 373.59 Florida Statutes, which authorized the Water Management Lands Trust Fund. The trust fund receives revenues from the documentary stamp tax and is administered by the DEP. Section 373.59 enables the Water Management Districts to use monies from the trust fund for the acquisition of fee title or other interest in lands necessary for water management, water supply, and the conservation and protection of water resources. The Act specifies the allocation formula to each District and the process for administering the funds.

Funds are also added from the Florida Preservation 2000 Act, which was enacted by the Legislature in 1990. The Act created the Preservation 2000 Trust Fund, which is administered by the DEP. Projects must meet criteria from both the Preservation 2000 Act and SOR Program.

Technical: The prioritization process described in the section below is based primarily on scientific or technical knowledge and judgement of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The South Florida Water Management District developed a prioritization process for the SOR Program. A similar process is used by the other Districts. The District's SOR staff

developed a matrix that addresses the water and natural resource values of each parcel. The Land Evaluation Matrix is set up to review parcels for the water resource related issues (Water Management, Water Supply, and Conservation and Protection of Water Resources) before consideration is given to environmental values. If proposed projects do not have appropriate water resource values, they are not evaluated for the remaining seven parameters that deal with environmental values. Following on-site and aerial inspections of each tract, the value of each project with regard to the matrix parameters, is determined by a team of senior technical staff.

The SOR Division has developed a two-part Evaluation Matrix for the purpose of screening and prioritizing prospective additions to the Five-Year Plan. Based on the Project Ranking Criteria and Guidelines for Site Priority Ranking, each project will be scored on a 1-5 scale for each parameter. In addition, weighting factors, or multipliers (shown in parenthesis below), have been added to certain high priority parameters. The first phase, or Category I parameters, deal strictly with water resource related issues.

Category I

1) WATER MANAGEMENT (5)

- A) Floodplains
- B) Flow ways
- C) Peak discharge attenuation
- D) Water quality improvement
- E) Aquifer recharge

2) WATER SUPPLY (5)

- A) Existing wellfield
- B) Proposed wellfield on local comprehensive plan
- C) Reduced threshold area
- D) Aquifer source--is it hydraulically connected to water table
- E) Class I surface water

3) CONSERVATION AND PROTECTION OF WATER RESOURCES (5)

- A) Area of critical state concern
- B) Aquatic Preserve/Outstanding Florida Water
- C) Quantity and quality of major wetland systems

Category II

4) MANAGEABILITY (2)

- A) Restoration ability/cost

This parameter is an assessment of long-term viability.

5) HABITAT DIVERSITY (2)

A) Variety of viable natural habitat
B) All factors present for perpetuation of the population (food/foraging, cover/nesting, water)
C) Degree of exotic plant infestation or disturbance from introduced animals
D) Degree of human disturbance
E) Could rare species of plants or animals be relocated to this site
F) Size

6) SPECIES DIVERSITY (1)

A) Can the area support and maintain stable wildlife populations
B) Bird rookery present
C) Suitable habitat for migratory or transient wildlife species

7) CONNECTEDNESS (2)

A) Proximity to protected lands
B) Wildlife corridor

This parameter concerns how the site links with other protected lands or large parcels of undisturbed lands.

8) RARITY (2)

A) Endangered-threatened-rare-species of special concern present
B) Endangered-threatened-rare-species of special concern habitat
C) Unique ecological habitat
D) Free flowing river or stream

9) VULNERABILITY (1)

A) Urban development pressure
B) Agricultural development pressure
C) Is the site large enough to shield itself from adjacent development

This parameter addresses the likelihood of events which might degrade or destroy the site through urban or agricultural development.

10) NATURE ORIENTED HUMAN USE (1)

A) Recreation potential
B) Proximity of site to recreational users
C) Game species present (harvestable resource)

D) Suitability for scientific research
E) Educational/Interpretive value

This parameter concerns the site's suitability for human activities when consistent with the environmental sensitivity of those lands, and when such activities are compatible with the purposes for which the lands were acquired.

Following the matrix scoring, projects are recommended by SOR staff for inclusion in the Five-Year Plan. Those not receiving adequate scores are dropped from the list. Staff recommendations are presented to the Land Selection Committee, which consists of senior managers representing all of the District's departments. The endorsements or changes from the Land Selection Committee are presented to the Governing Board for final approval as the annual Five-Year Plan.

A project benefits criteria system is also utilized to address projects which protect the integrity of ecological systems and provide multiple off-site as well as on-site benefits. These benefits include the preservation of fish and wildlife habitat, recreation space, and water recharge areas. Such projects are included in the Five-Year Plan to reverse the decline in the ecological, aesthetic, recreational and economic value of the State's water resources.

The project benefits criteria system applies to projects designed primarily to supply off-site water resource benefits. Thus, evaluation is performed not on the lands themselves, as with the resource-based matrix, but on the way these lands will be utilized in the proposed project. All proposed projects must meet the following criteria:

1) Proposed project lands are identified in a District Plan such as a Water Use Management Plan (WUMP) or Surface Water Improvement and Management Plan (SWIM);

2) Lands would be utilized to provide simulated or naturally functioning water resource quality/quantity benefits;

3) Lands would be part of the project resulting in net increase of natural resource values when considering both any on-site losses and off-site gains;

4) Capital improvements, such as canals, levees, weirs, and pumps shall be limited to achieve the proposed water resource benefits; and

5) All appropriate funding sources for acquisition have been identified.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Since the inception of the SOR program in 1981, Florida's Water Management Districts have acquired nearly 500,000 acres of land for about $400 million to protect environmentally sensitive land and vital aquifer recharge areas. These lands are managed to provide recreational opportunities for millions of Florida residents and visitors. Examples of recent District accomplishments are described below.

- The Northwest Florida Water Management District has bought floodplains along the Apalachicola, Choctawhatchee and Escambia Rivers.

- Suwannee River Water Management District, in a partnership with industry and conservation groups, is acquiring Suwannee River floodplain.

- The St. Johns River Water Management District is buying floodplain along the upper river as part of its Upper Basin restoration program and has bought the eastern shore of Lake George, helping to protect its second largest lake.

- The South Florida Water Management District is using SOR money to buy lands in the Kissimmee River floodplain as part of the restoration program for the Kissimmee River and Lake Okeechobee.

- The Southwest Florida Water Management District is buying lands in the Green Swamp to protect the recharge area for urbanized Tampa Bay's water supply.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Florida's Save Our Rivers Program could serve as a model for prioritizing water-related issues. Land acquisition priority lists developed for the Five-Year Acquisition and Management Plans by the five Water Management Districts could be used by the Corps to identify resources of regional and state significance. In addition, the Corps could examine the Save Our Rivers Program as a model for managing public lands to ensure that environmental resources are maintained in an acceptable manner, and are made available for appropriate outdoor recreational activities consistent with their environmental sensitivity.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Florida Surface Water Improvement and Management Program

GOALS AND OBJECTIVES

The Surface Water Improvement and Management (SWIM) Program provides a framework for the state's Water Management Districts to develop plans for improvement of water habitat and quality, and provides cost-share funds for the implementation of such plans. Florida's five Water Management Districts, which conform to state water resources regions, are autonomous units of local government that play a significant role in implementing the state's water programs.

GEOGRAPHIC SCOPE

Florida

OVERVIEW OF PROGRAM/STUDY

The SWIM program is administered by the Florida Department of Environmental Protection (DEP). The DER is responsible for review of Water Management Districts' SWIM plans for consistency with state water policy and administration of the SWIM Trust Fund. The five Water Management Districts submit SWIM plans to the DER's Office of Intergovernmental Programs for approval, proposing strategies for improvement of water habitat and quality. Wetlands restoration and creation, and stormwater management projects are among a diversity of activities that may be proposed under the program. The DEP distributes funds from the SWIM Trust Fund for approved projects.

Water Management Districts are required to cost-share in the implementation of their SWIM plans, providing at least 40 percent of the total cost. The Districts have authority to levy ad valorem taxes to finance local water projects. Districts are encouraged to enter into intergovernmental agreements with other units of local government or to solicit nonprofit organizations for assistance in supporting the District's share of the cost. In-kind services or land contributions are not acceptable to fulfill the matching requirement.

SWIM plans and the scope of activities carried out in their implementation vary among the five Water Management Districts. Depending on local priorities and conditions, activities associated with program implementation range from diagnostic studies to long-term management. However, the SWIM program prohibits the use of SWIM funds for land acquisition. The state is currently working to integrate its land acquisition programs, such as Save Our Rivers, with the SWIM program, to increase the benefits derived from water habitat and quality improvement efforts.

SOURCE OF PRIORITY RECOGNITION

Institutional: In Section 373.451, Florida Statutes, the Surface Water Improvement and Management Act, the Legislature finds and declares that the water quality of many of the surface waters has been degraded or is in danger of being degraded, and that it is the duty of the state through the state's agencies and subdivisions to enhance the environmental and scenic value of surface waters.

Pursuant to Section 373.026(7), Florida Statutes, the DER is responsible for the exercise of general supervisory authority over all Water Management Districts. The DER also has the responsibility, under the Surface Water Improvement and Management Act, to establish the criteria for the Water Management Districts' development of their priority surface water lists; to approve the priority lists and management plan schedules; to review and recommend modifications or additions to the plans as needed to ensure consistency with the state water policy and the State Comprehensive Plan; to establish the uniform format for management plans; and to administer the Surface Water Improvement and Management Trust Fund.

Technical: The prioritization process, as discussed in the section below, is based on the use of scientific or technical knowledge or judgement of critical resource characteristics related to water quality.

PRIORITIZATION OR PROJECT SELECTION PROCESS

In Part II of the Act, guidance is provided to Water Management Districts on preparation, submittal, and review of priority surface water lists. Each District, in cooperation with the Department of Agriculture and Consumer Services, the Department of Community Affairs, the Game and Fresh Water Fish Commission, the Department of Natural Resources, and local governments, will develop and maintain a list, in priority order, of surface waters of regional or statewide significance that require restoration or protection. Priority lists are submitted to DEP for approval. Each District will consider the following criteria in preparing the list and priority ranking:

(a) The degree to which state water quality standards are violated. In reviewing this criterion, each District shall consider the following factors:

1) The status and trends of water quality in the water body, including the nature and extent of pollutant loading from point and nonpoint sources and the extent to which uses are impaired.

2) Whether the waterbody can reasonably be expected to meet or maintain water quality standards without action to control point or nonpoint sources, and

3) The nature and extent of sources of point and nonpoint pollution that contribute to the waters not meeting standards.

(b) An evaluation of the nature and extent of conditions that adversely affect the water body, including but not limited to:

1) Nutrient balance of the water body,

2) Trophic state of the water body,

3) Existence or need for continuous aquatic weed control,

4) Biological condition of the water body,

5) Physical conditions, and

6) Reduced fish and wildlife values.

(c) Threats to water supplies, especially agricultural and urban supplies, and public recreational opportunities. In reviewing this criterion, each District shall consider the following factors:

1) Whether uses of the water body are impaired, including whether the water body does not meet state water quality standards or requires control programs to maintain compliance with standards, and

2) Whether conditions intermittently or frequently prevent a beneficial use.

(d) Threats to or need for long-term protection of those exceptional or outstanding water bodies that are currently in good condition.

(e) The extent to which the plans, ordinances, and policies of local governmental units with jurisdiction over the water body are consistent with a District's efforts to restore or protect the water body.

(f) The feasibility of monitoring the success of restoration or protection efforts in the water body.

(g) The economic and environmental feasibility of accomplishing the restoration or protection goals.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Each Water Management District has developed a ranked priority list. The Southwest Florida Water Management District identified eight priority water bodies, the Suwannee River Management District identified six priority water bodies, the South Florida Water Management District identified a ranked list of 36 water bodies, the St. Johns River Water Management District identified 16 management units, and the Northwest Florida Management District identified 15 waterbodies for restoration, conservation, or preservation.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The SWIM program could serve as a model for developing plans for improvement of water habitat and quality by surface water regions within a state. SWIM could also be used by the Corps as a model for setting regional priorities for restoration or protection of surface waters. The Corps could examine SWIM as a model for implementation of priority projects by autonomous units of local government, which are coordinated by a single state agency.

The ranked priority lists developed by each of the five Water Management Districts could be used by the Corps to identify resources of state or regional significance in Florida.

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POINT OF CONTACT

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Idaho Wetlands Priority Plan

GOALS AND OBJECTIVES

During the spring of 1992, the Idaho Department of Parks and Recreation (IDPR) contracted with the Idaho Department of Fish and Game (IDFG) to develop a prioritized list of wetland areas in the state. This list is included as part of the State Comprehensive Outdoor Recreation and Tourism Plan as required by the federal Land & Water Conservation Fund Act of 1965. More specifically, IDFG was directed to develop a prioritized list of wetland areas in the state that are high in recreation value and that could provide candidate areas for Land and Water Conservation Fund grant projects.

GEOGRAPHIC SCOPE

State of Idaho

OVERVIEW OF PROGRAM/STUDY

IDFG developed a data base to identify all wetland areas in Idaho believed to be significant from a statewide perspective. This data base served as a basis from which specific areas could be identified to meet the needs of the 1993 Statewide Comprehensive Outdoor Recreation Plan (SCORP) for the IDPR.

IDFG also established a prioritized list of wetland areas that are high in recreation value and have the potential for receiving Land and Water Conservation Fund grant assistance. Before any application for funding for an actual acquisition were to occur, a significantly higher level of detail would be required for the specific site, as defined by the Open Project Selection Process.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Idaho Wetland Priority Plan was designed to be consistent with the National Wetlands Priority Conservation Plan, which provided the planning framework, criteria, and guidance necessary to comply with the requirements of Section 301 of the Emergency Wetland Resources Act of 1986 (P.L. 99-465).

Technical: The prioritization process, as discussed below, is based primarily on technical and scientific knowledge or judgements.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Criteria considered in determining purchase or other potential protection priorities included functions and values of wetlands and other factors that included, but were not limited to, recreation values, historic wetland losses, and the threat of future wetland losses. In general, wetlands given priority consideration for acquisition were those that provided a high degree of public benefits, were representative of rare or declining wetland types within an ecoregion, and were subject to identifiable threats of loss or degradation.

To qualify for acquisition consideration under provisions of the National Wetlands Priority Conservation Plan, a wetland must:

1) Include predominantly (50 percent or greater) wetland types that are rare or declining in the ecoregion. Relevant types in this category, which are found in Idaho, are palustrine emergent, palustrine forested, and palustrine scrub-shrub.

2) Be threatened with loss and/or degradation.

3) Offer important values to society in two functional areas, such as recognized recreation values; proximity (within 50 miles) of a major urban area or tourist destination; rare plants, animals or fish; flood protection; or unique wetland type in the state.

Only acquisition of private property qualifies for matching funds or points in Idaho's SCORP criteria.

If a wetland area meets the above criteria, it can qualify for up to 40 points under the category of "Implementation of Wetlands Conservation Priorities." The method shown below was used to rank the qualifying areas. Again, this priority ranking is intended only for purposes of the 1993 Idaho SCORP.

	Potential Points
Assessment of Recreation Values	
• High	5
• Medium	3
Access Status	
• Access currently closed or difficult/impossible	5
Assessment of Unique Features	
• Water Supply/Quality Significance	5
• Flood/Erosion Protection	5

•	Rare Plants	5
•	Rare Animals	5
•	Rare Fish	5
•	Unique Wetland Type in Idaho	5
•	Archaeological/Historical Site	5
•	Within 50 miles of major urban area/ tourist destination	5
•	Other	5

Status

•	High degree of threats	5
•	Medium degree of threats	3

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

A priority list of wetlands to guide for acquisition of wetland areas that need to be protected in the state was established for the first time. The prioritized wetlands list is intended to identify candidate areas for potential acquisition or protection using Idaho's grant assistance from the Land and Water Conservation Fund. In total, 115 wetland areas were ranked.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Idaho Wetlands Priority Plan could serve as a model for ranking state wetlands conservation priorities, with an emphasis on unique features. It could also be used by the Corps to identify wetlands in Idaho with significant ecological and recreational value.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Illinois Clean Lakes Program

GOALS AND OBJECTIVES

The goals and objectives of the Illinois Clean Lakes Program (CLP) are to control sources of pollution that affect the quality of publicly owned lakes and to protect and restore lakes that have deteriorated in quality.

GEOGRAPHIC SCOPE

Illinois

OVERVIEW OF PROGRAM/STUDY

The CLP in Illinois is a federal, state, and local partnership program involving: the U.S. Environmental Protection Agency (USEPA); Illinois Environmental Protection Agency (IEPA); and local units of government. Each level of government has its own set of responsibilities in overseeing the protection/restoration of lakes chosen for assistance.

The USEPA has responsibility for federal funding and administration, final project selection, product integrity and the reporting of results to Congress. The IEPA has responsibility for state administration of federal funds, contracts with local units of government, voucher payments, some lake monitoring, some lab analyses and product integrity. Local units of government are responsible for local funding and contract administration, lake monitoring, historical information and data gathering, report development and integrity, practice implementation, and subcontractual agreement management.

The CLP establishes a two-phase program of cooperative agreements for the restoration of public lakes:

1) In Phase I, funds are used to identify causes and sources of pollution, and to develop and recommend "feasible" courses of action to correct problems. Activities typically associated with sample collection, sample analyses, purchase of needed equipment, information gathering, and report development are eligible for reimbursement. Total project costs during Phase I cannot exceed $100,000. Fifty percent of this money will come from the federal CLP, the other half must come from local or nonfederal sources.

2) In Phase II, funds are used to implement the courses of action as recommended in the Phase I study. Shoreline stabilization, aquatic plant management, certain forms

of algae control, fisheries rehabilitation, aeration/destratification, nutrient inactivation or bottom sealing, sedimentation basins, watershed best management practices, and others, are typical reimbursable lake/watershed implementation activities. Costs associated with dredging, copper sulfate applications, and installations of pump stations, sewers, and treatment works to replace failing septic systems, are typically not reimbursable.

Phase III post-restoration monitoring assistance is also available through the CLP. These projects typically begin three years after Phase II implementation has been completed. Monitoring for three years is conducted to determine the long-term water quality and recreational use benefits derived from conducting Phase I and II projects.

SOURCE OF PRIORITY RECOGNITION

Institutional: The U.S. Environmental Protection Agency (USEPA), through Section 314(b) of the Clean Water Act of 1977 (P.L. 95-217) is authorized to provide financial assistance to states for restoration of publicly owned freshwater lakes. Regulations for the CLP were published in the Federal Register on February 5, 1980.

Public: The public benefits category of the classification system alone accounts for a potential maximum of 180 points out of 575 points. Public benefits are described in further detail in the section below.

Technical: The current water quality and potential water quality categories of the classification system are based primarily on technical factors. Together, they account for a potential maximum of 225 points out of a possible 575 points. Current water and potential water quality are described in further detail in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

A Lake Classification Ranking is used and updated in IEPA's biennial Illinois Water Quality Reports. This classification ranking was developed to initially screen and evaluate Illinois lakes for possible CLP funding and for development and implementation of lake/watershed protection/management plans. Lakes were evaluated in three major categories: (1) current water quality; (2) potential water quality or improvement/maintenance potential; and (3) public benefits. All lakes were assigned a point value for each category; the larger the number of points received, the higher the rating. The lake classification rating was obtained by summing points received in the three categories. This rating, together with several other factors described below, provides total ratings on a scale ranging from 40-575 points. Higher ratings indicate better candidates for CLP funding or implementation of protection, restoration, or management measures. The remainder of this section lists the 8 factors used in the rating system, with additional detail provided for the first factor, the lake classification ranking.

1) **Lake Classification Ranking** represents the criteria used to determine points assigned under the three major evaluation categories described below. (40-405 possible points)

Current Water Quality Evaluation (40-125 possible points)

- Four factors were utilized to rate the lakes according to current water quality:

  1) Trophic State Index (TSI) of Carlson (40-70 possible points)

  TSI is commonly used for classifying lakes by eutrophic condition. The higher the TSI value, the more eutrophic the lake. The TSI has been widely used in state lake classifications to assess water quality and thus provides USEPA with a uniform basis of comparison when evaluating projects from different parts of the country.

  2) Severity of Use Impairment from Sediment (0-15 possible points)

  Suspended and/or deposited sediment impairs the usability of over one-half of the number and three-fourths of the surface area of the Illinois lakes included in this survey. Thus, sediment is an important use impairment problem for Illinois lakes that the Trophic State Index does not directly measure.

  3) Retention Time (0-30 possible points)

  Illinois lakes with water retention times of one year or more were considered to have the greatest potential for exhibiting good water quality (greatest improvement/maintenance potential) and were assigned 30 points, while those with retention times of less than 0.25 years were assigned 0 points.

  4) Lake Size (0-10 possible points)

  Lakes with surface areas between 100 and 500 acres are the best candidates for sport fisheries management and thus were assigned 10 points. Lakes between 40-100 acres and 500-1000 acres are the next best candidates for management and were assigned 5 points. Lakes less than 40 acres cannot support as varied a sport fishery and thus were assigned 0 points.

- Because two major factors evaluated by USEPA in establishing Clean Lakes funding priorities are the severity of water quality problems and the degree of water quality improvement the project will provide, lakes with documented water quality and use impairment problems are rated higher when screening potential lake restoration projects.

- In addition, eutrophic lakes with more impaired uses received higher ratings.

- The current water quality category was not weighted as heavily in the classification as the potential water quality and public benefits categories, so as not to eliminate "good" quality Illinois lakes from funding consideration, nor to bias the screening toward hypereutrophic lakes.

Potential Quality (Improvement/Maintenance Potential) Evaluation (0-100 possible points)

- Four factors were utilized to rate the lakes according to their potential for improving or maintaining water quality:

1) Watershed Area to Lake Surface Area Ratio (0-30 possible points)

The lake watershed area to lake surface area ratio may define the relative importance of nonpoint source pollutant contributions. If a watershed to surface area ratio is greater than 100:1, nonpoint source pollution can be a very significant portion of the nutrient and sediment loading to a lake. Experience has shown that lakes with large watershed/lake surface area ratios are less likely to respond to lake restoration measures. These lakes are the most difficult to improve because their large watersheds magnify even low rates of nonpoint pollution and they have short detention periods for incoming watershed runoff containing high levels of eroded soil and associated nutrients.

In rating lakes for improvement potential, those with watershed/surface area ratios exceeding 100:1 were assigned 0 points, while those with ratios less than 20:1 were assigned 30 points.

2) Mean Depth (0-30 possible points)

The mean depth of Illinois lakes exhibiting best quality exceeds 13 to 19 feet, while the mean depth of those with poorest quality is 6 feet or less. Deeper lakes are generally better quality because greater depth means a greater volume of water for dilution of pollutants. Deeper lakes also generally have a greater retention capacity, which allows suspended sediment to settle and the lake to clear. Deeper lakes are less subject to winterkill of fish because of a greater depth of water to maintain oxygen levels in the winter.

Lakes with mean depths greater than 15 feet are most likely to exhibit good water quality and be more feasibly and economically rehabilitated without extensive structural measures (such as dredging) and thus were given the maximum number of points (30). Shallow lakes with average depths less than 5 feet exhibit the least improvement/maintenance potential without the implementation of costly structural measures and were given 0 points.

3) Retention Time (0-30 possible points)

The better quality lakes in Illinois generally are those with longer water retention times (one year or more). Therefore, such lakes were considered to have the greatest potential for exhibiting good water quality (greatest improvement/maintenance potential) and were assigned 30 points. Lakes with retention times of less than 0.25 years were assigned 0 points.

4) Lake Size (0-10 possible points)

The larger a lake and its watershed, the more resource intensive it is to develop and implement management strategies for control of nutrients and sediments and in-lake management. Consequently, the lowest rating (0 points) was given to lakes with surface areas exceeding 1000 acres.

Lakes with surface areas between 100 and 500 acres are the best candidates for sport fisheries management and thus were assigned 10 points. Lakes between 40-100 acres and 500-1000 acres are the next best candidates for management and were assigned 5 points. Lakes less than 40 acres cannot support as varied a sport fishery and thus were assigned 0 points.

Public Benefits Evaluation (0-180 possible points)

1) Public Ownership/Access (0-30 possible points)

To be eligible for CLP funding, a lake must have recreational value and offer public access through publicly owned contiguous land so that any person has the same opportunity to enjoy non-consumptive privileges and benefits of the lake as any other person. If user fees are charged for public use and access through state or substate operated facilities, the fees must be used for maintaining the public access and recreational facilities of this lake or other publicly owned freshwater lakes in the state, or for improving the quality of these lakes.

The four types of ownership/access considered are listed in order of decreasing assigned value: 1) entire lake bottom publicly owned and entire shoreline public access, or dedicated to public use and entire shoreline public access (30 points); 2) entire lake bottom publicly owned, but entire shoreline not public access, or dedicated to public use and most of shoreline public access (20 points); 3) partially publicly owned and partial public access or a limited portion dedicated to public use and access (10 points); and 4) either not publicly owned and not dedicated to public use or no public access (0 points).

2) Amount of Recreational Use Associated with Lake (0-15 possible points)

The greater the number of users of a lake and associated areas, the greater the magnitude of public benefits (USEPA, 1980b). Benefit/cost analysis formula such as the Unit Day Value methodology for recreational benefit assessment recommended by the U.S. Water Resources Council (Code of Federal Regulations, 1982) clearly show this relationship.

Points were assigned for amount of usage, with those most heavily used (with over 200,000 visitors per year to the lake and surrounding parkland) receiving the largest number of points (15).

3) Proximity to Standard Metropolitan Statistical Area (0-15 possible points)

The Standard Metropolitan Statistical Area (SMSA) classification is a statistical standard, developed for use by federal agencies in the production, analysis, and publication of data on metropolitan areas. The general concept of a metropolitan area is one of a large population nucleus (50,000) that interacts with adjacent communities in economic activities.

Between 0 and 15 points were assigned for proximity to a SMSA. Those lakes within a SMSA received the highest number of points for their greater public benefit and probability of receiving CLP funding.

4) Availability of Other Publicly Owned Lakes (0-10 possible points)

One of the factors evaluated by USEPA in establishing CLP funding priorities is the supply of lakes in the area versus the existing or potential demand (see USEPA, 1980d). This is also an important consideration in the fisheries management and recreational development programs of the Illinois Department of Conservation. Lakes in areas where there is already an abundant supply of public lakes in relation to the user population would receive lower priority than those in areas that are deficient in public lakes and where a high demand exists.

5) Public Water Supply Usage (0-50 possible points)

Multipurpose lakes used for public water supply as well as recreation have greater public benefit, and thus were assigned additional points. Primary public water supply lakes were assigned 50 points.

6) Recreational Facilities (0-10 possible points)

Recreational facilities associated with a lake help determine the types and amount of public use the area can support, and thus, its public benefits. The types of recreational facilities included in this evaluation were: beach, boat ramp, picnic area, camping area, park, boat, rental, concession, marina, and bicycle trail. Those lakes with beaches were assigned the highest possible number of points (10), since the goal of the CLP centers on protecting or restoring lakes for contact recreation. Lakes that had four or more of the above facilities in addition to a beach were also assigned a value of 10 points, while those with two or three facilities received 5 points.

7) Environmental Uniqueness (0-50 possible points)

Lakes that are unique, or represent uncommon natural or aquatic resources for Illinois and have unique or uncommon natural environmental settings, have immeasurable public benefit.

Unique (unmatched) resources are those which: 1) have oligotrophic water quality; 2) are capable of supporting year-round cold water fisheries; 3) support rare or endangered species highly valued by Illinois residents; or 4) provide a unique one-of-a-kind environmental setting for Illinois. Lakes classified as unique receive 50 additional public benefits points.

Lakes with uncommon natural or aquatic resources and environmental settings for Illinois receive 25 additional points. Examples of uncommon lake resources for Illinois are those which: 1) have mesotrophic water quality; 2) are capable of supporting a put-and-take trout fishery; 3) are natural glacial lakes with undeveloped shorelines and natural surroundings or which have unusual, natural, undeveloped surroundings; or 5) are artificial lakes in rural areas which are deep, with steep watershed terrains and rock outcroppings in addition to natural, undeveloped surroundings.

2) **Feasibility and Comprehensiveness of the Project** (Integrated Approach) (0-30 possible points)

3) **History of Interest and Previous Efforts of Lake Owner to Solve Problems** (0-30 possible points)

4) **Quality and Completeness of the Application** (0-20 possible points)

5) **Expected Follow-through by the Lake Owner to Complete/Maintain the Project** (0-10 possible points)

6) **Expected Administrative Ease of the Project** (0-10 possible points)

7) **Reasonableness of Project Cost vs. Available Funding** (0-10 possible points)

8) **Special Considerations** (e.g., watershed previously protected, coordination of activities with other agencies/organizations, commitment by lake owner to cost-share more than the minimum required, type of grant applied for) (0-60 possible points)

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The systematic prioritization process results in an objective evaluation of lakes and awards funds for protection or restoration accordingly. Therefore, the program is not politicized. The 26 CLP projects in the state are evenly distributed geographically. There are 7 ongoing Phase I projects, 9 completed Phase I projects, 5 ongoing Phase II projects, 3 completed Phase II projects, and 2 ongoing Phase III projects.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Illinois Clean Lakes Program could serve as a model for ranking significant aquatic environmental resources. It could also be examined by the Corps as a model for protection, restoration, and management of lakes. The assessment and classification of lakes within the state developed under this program could be used by the Corps to identify lakes deemed significant because of their water quality status, recreational value, and environmental uniqueness.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Illinois Natural Areas Acquisition Program

GOALS AND OBJECTIVES

The goals and objectives of the Illinois Natural Areas Acquisition Program, as administered by the Illinois Department of Conservation (DOC), are to protect, manage, and restore wetlands and other natural areas.

GEOGRAPHIC SCOPE

Illinois

OVERVIEW OF PROGRAM/STUDY

An important part of the Illinois DOC land acquisition program is the acquisition of natural areas -- areas of land and water that closely reflect presettlement conditions. These natural areas include virgin forests, tallgrass prairies, canyons, caves, wetlands, endangered species, habitats, and other areas with unique natural qualities. In 1989, the Natural Areas Acquisition Fund (NAAF) was established as a funding source for the Natural Areas Acquisition Program.

The three key operative words which outline the purposes of the NAAF and are necessary to define it are: "acquisition, preservation, and stewardship." Acquisition is, of course, purchase of land but it can also include acquisition of conservation easements and other less-than-fee agreements. Preservation is dedication of suitable portions of the newly acquired lands as Nature Preserves. Stewardship is the long-term land management that is needed for all newly acquired lands.

The NAAF is being phased in over the first five years of the Natural Areas Acquisition Program. In FY 1995, the NAAF will consist of $4 million per year. In FY 1991, the first year of the program, the NAAF consists of $840,000. Tracts at Redwing Slough in Lake County, the Lower Cache River in Johnson County, and the Oak Valley Eagle Refuge in Rock Island County are being acquired with the FY 1991 funds.

To address the stewardship or management aspect of the Natural Areas Acquisition Program, 10 percent of the FY 1991 funds were set aside to establish a statewide training program to produce skilled technicians to assist with the management of natural areas at the local and state level.

When the legislation creating the Real Estate Transfer Tax to fund protection of natural areas was signed into law in 1989, it specifically included provisions for stewardship as well as acquisition of natural areas. The legislation recognized that there is little sense in acquiring natural areas if there is no way to provide these areas with the care and management they require. Each year, 10 percent of the total amount of Real Estate Transfer Tax allocated for protection of natural areas is set aside for stewardship of these areas. The DOC uses these funds to restore wetlands, reforest cleared areas, remove exotic weeds, clear brush from prairies and purchase native grass seed. In FY 1994, $320 million is budgeted for stewardship of the prairies, forests, and wetlands being acquired through the DOC's natural areas initiative.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Illinois Natural Areas Preservation Act, P.A. 82-445, § 1, effective September 15, 1981, establishes a system of nature preserves, and provides for the protection of nature preserves and the collection and dissemination of information regarding them. The Act also provides for appropriate use of nature preserves, establishes and maintains a register of natural areas and buffer areas, provides certain forms of protection and control of registered natural areas and registered buffer areas, and otherwise encourages and assists in the preservation of natural areas and features.

In 1989, the 86th General Assembly passed the Open Space Lands Acquisition and Development Act. This Act created the Natural Areas Acquisition Fund (NAAF) which shall be used by the DOC for ". . . the acquisition, preservation and stewardship of natural areas, including habitats for endangered and threatened species, high quality natural communities, wetlands and other areas with unique or unusual natural heritage qualities."

The Real Estate Transfer Tax Act of 1989, Act 305 of the State of Illinois, states that monies deposited into the NAAF shall be used by the DOC for the acquisition, preservation, and stewardship of natural areas, including habitats for endangered and threatened species, high quality natural communities, wetlands, and other areas with unique or unusual natural heritage qualities.

Technical: The Illinois DOC uses the Illinois Natural Areas Inventory to evaluate natural areas suitable for acquisition. The Illinois Natural Areas Inventory, discussed in further detail in the section below, is based entirely on scientific or technical knowledge and on professional judgements of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The Illinois Natural Areas Inventory was a systematic effort to find, evaluate, describe, and classify natural areas for the Illinois DOC.

Natural Area Categories

A natural area was defined as a tract of land or water that 1) has a natural configuration or sufficient buffer land to insure its potential for protection and proper management, and 2) meets one or more of the criteria in the following seven categories:

- Category I: Ecological Areas. These areas have terrestrial or wetland natural communities that are relatively undisturbed, so that they reflect as nearly as possible the natural condition at the time of settlement in the early 1800s.

- Category II: Endangered Species Habitats. These sites have animals or plants that are in danger of extirpation from Illinois.

- Category III: Relict Species Habitats. Sites with outstanding assemblages of plants that have persisted from a past climatic period were listed as relict species habitats.

- Category IV: Geologic Areas. Localities that are outstanding representatives of the state's geologic diversity were listed in this category.

- Category V: Natural Study Areas. Lands that are managed and used as natural areas for teaching and research or as nature preserves were included as natural study areas.

- Category VI: Unique Natural Areas. A few significant natural areas did not fit into any of the above categories. These are sites of unique natural features, which are often small areas with unusual biological features, such as a cave with an unusual assemblage of invertebrate animals.

- Category VII: Aquatic Areas. Some streams and lakes were listed as natural areas because they are relatively natural habitats for native aquatic life.

Acreage

Areas with high quality natural communities were usually required to be 20 acres or larger. This standard did not apply to natural communities that are not normally as large as 20 acres, and it did not apply if all the high quality remnants of a certain type were smaller than 20 acres. Prairie remnants as small as one-quarter acre were inventoried. Geologic areas, habitats with endangered or relict species, and natural study areas could be any size that was adequate to represent the significant feature and provide potential for protection of the area.

Degree of Disturbance

Outstanding representatives of natural communities were selected on the basis of relative lack of disturbance, but disturbed areas qualified in the other natural area categories. Although the term "natural area" was applied to any site listed in the Illinois Natural Areas Inventory, many of those sites are not undisturbed areas.

Ownership and Preservation Status

All of Illinois was surveyed, and areas were inventoried without regard to the kind of ownership or whether an area was preserved. Information was collected about all natural areas to provide a complete base of information.

Natural Area Boundaries and Features

The four guidelines for determining boundaries of natural areas are: 1) boundaries should be conservative, but adequate to include the significant features and to provide potential for protection of the area; 2) natural area boundaries should follow the boundaries of natural features if possible; 3) acquisition factors such as access and monetary value of the land should not be considered; and 4) boundaries should not be drawn arbitrarily.

A classification system for land condition and features was developed to ensure uniform procedures for mapping and describing areas. This classification system is summarized below.

Land Condition Classes

The part of a natural area that is relatively undisturbed is termed *natural land.* Disturbed land included in a natural area to insure protection of the significant features is termed *buffer land.*

Features

A *significant feature* is a feature that allows a site to qualify as a natural area of statewide significance. A natural area must have at least one significant feature. The significant features are classified according to the following seven natural area categories:

1. High quality terrestrial or wetland natural communities,
2. Habitats with endangered species,
3. Habitats with relict species,
4. Outstanding geologic features,
5. Land that are managed and used for natural science studies,
6. Unique natural features, and
7. Outstanding aquatic features.

An *exceptional feature* is a feature that increases the preservation value of a natural area but is not important enough to be the reason for identifying a natural area. Examples of exceptional features include archeological sites, habitats with species that are rare but not endangered, and most bedrock outcrops.

A *notable feature* is any feature in a natural area that is less important than an exceptional feature or a significant feature. Notable features were recorded at the option of the fieldworker.

Artificial disturbance features are cultural features such as roads and buildings. *Natural disturbance features* are the result of processes such as windstorms and fires.

Natural Community Classification

The communities of plants and animals in Illinois were classified into 93 types of natural communities. These were distinguished on the basis of important natural features such as soil moisture, topographic position, and vegetation. The following are examples of natural communities: wet floodplain forest, limestone glade, and calcareous seep. The communities were grouped into nine classes: forest, prairie, savanna, wetland, lake and pond, stream, primary, cave, and cultural.

The natural community classification was used in conjunction with the *Natural Divisions of Illinois*, which recognizes different regions of the state on the basis of differences in the topography, bedrock, soil, glacial history, and distribution of native plants and animals. One of the goals of the Inventory was to identify the least disturbed examples of every natural community in each of the 34 Natural Divisions and Sections of Illinois. The natural community classifications were applied to every natural area, regardless of whether or not the area had been disturbed.

Natural Quality Classification

The Inventory developed a classification of natural quality, which is defined as a measure of evidence of disturbance to a natural community. Letter grades were used to describe the amount of successional instability or change in a community's natural diversity, species composition, and structure due to disturbance. These grades are summarized below:

Grade A: Relatively stable or undisturbed communities. Example: Old growth, ungrazed forest.

Grade B: Late successional or lightly disturbed communities. Example: Old growth forest that was selectively logged 5 years ago.

Grade C: Mid-successional or moderately to heavily disturbed communities. Example: Young to mature second growth forest.

Grade D: Early successional or severely disturbed communities. Example: Severely grazed, old growth forest.

Grade E: Very early successional or very severely disturbed communities. Example: Cropland.

The grading system was applied to all natural areas to describe the degree of disturbance. Factors such as acreage and the presence of endangered species were not considered when determining natural quality, but were treated as separate factors when determining the overall preservation value of a natural area.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Over 99 percent of wetlands in Illinois have been damaged or destroyed. The Illinois Natural Areas Acquisition Program is making a concerted effort to protect the remaining one percent.

As of March 1993, ten natural areas totalling over 1,796 acres had been acquired by the Illinois DOC with monies from the Real Estate Transfer Tax deposited in the NAAF.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Illinois Natural Areas Acquisition Program could serve as a model of a systematic effort to develop a natural areas inventory. It could also serve as a model for classification of sites with significant natural features. The Illinois Natural Areas Inventory, which identifies and classifies natural areas throughout the state, could be used by the Corps to identify resources of state significance based on natural quality.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Indiana T-by-2000 Lake Enhancement Program

GOALS AND OBJECTIVES

T-by-2000 is a comprehensive, state-funded program aimed at significantly reducing soil erosion and resulting sedimentation throughout Indiana within a definite time period. The name is derived from the program's two goals, which are:

- by the Year 2000, reduce erosion on each acre of land to its tolerable limit, or T (the maximum level at which soil loss can occur without impairing crop productivity); and

- by the Year 2000, control all off-site sedimentation using the best practical technology.

GEOGRAPHIC SCOPE

Indiana

OVERVIEW OF PROGRAM/STUDY

T-by-2000 is administered at the state level by the Division of Soil Conservation, Indiana Department of Natural Resources (IDNR), under guidelines set by the State Soil Conservation Board. It is carried out at the local level through the 92 county Soil and Water Conservation Districts (SWCDs).

SWCDs are locally organized and operated divisions of state government that promote the protection, maintenance, improvement, and wise use of soil and water resources within each county. They work with local groups, county government, and county-based federal and state agencies, such as the USDA Soil Conservation Service (SCS), Purdue Cooperative Extension Service, and IDNR, to assist landusers in soil and water conservation efforts.

The program presently provides educational, technical, and financial assistance to deal with erosion/sedimentation problems occurring on the land and in public waters.

There are currently five components of Indiana's T-by-2000 program:

1) Soil conservation and education assistance. Increasing public awareness and understanding of erosion/sedimentation problems and how they can be controlled.

2) Agricultural erosion control technical assistance. Helping agricultural land users to assess their specific problems and develop and apply appropriate solutions.

3) Cropland erosion control cost-sharing. Making cost-share funding available to landusers with cropland erosion problems requiring the installation of expensive corrective measures.

4) Urban erosion control technical assistance. Working with urban landusers to assess soil suitability at development sites and to minimize erosion problems before, during, and after development.

5) Lake enhancement. Providing technical and financial help to control sediment and associated nutrient problems in public-access lakes and their watersheds.

SOURCE OF PRIORITY RECOGNITION

Institutional: Growing out of recommendations by the State Soil Resources Study Commission in 1985, T-by-2000 was authorized by the Indiana General Assembly in 1986 and given start-up funding in 1987.

Public: The prioritization process discussed in the section below requires local entity support as a source of financial commitment and to perform necessary maintenance. As mentioned above, there is coordination by the SWCDs with local groups, county government, and state and federal agencies.

Technical: The prioritization process discussed in the section below is based in part on scientific or technical knowledge and on judgement of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

T-by-2000 Lake Enhancement's Preapplication Priority Ranking System is divided into two components.

1. CRITERIA FOR ELIGIBILITY

In order for a project to be considered for funding, the requesting group *must* be able to demonstrate the following:

A) Does a local entity exist to support the project?

B) Is there a source of financial commitment at the local level?

C) Is public access available?

D) Is one-third of the watershed in agricultural land use?

E) Is there a local entity willing to perform necessary maintenance?

F) Is there a valid need for the project?

The answers to the above questions must be in the affirmative for a project to be eligible to receive funding under the T-by-2000 Lake Enhancement Program.

2. PRIORITY RANKING CONSIDERATIONS

A) What type of project is being considered?

Land Treatment	(10 pts)
Construction	(10 pts)
Design	(5 pts)
Feasibility	(2 pts)

B) What pollution sources will the proposed project address? (Choose as many as apply)

Agricultural Soil Erosion	(5 pts)
Urban Soil Erosion	(5 pts)
Agricultural Nutrients	(5 pts)
Shoreline Erosion	(3 pts)
Streambank Erosion	(3 pts)
Internal Nutrients	(3 pts)
Other Source(s)	(0 pts)
Pollution Source(s) Not Addressed	(0 pts)

C) What is the estimated amount of local cost-share?

50% and greater	(12 pts)
40% to 49%	(8 pts)
30% to 39%	(4 pts)
20% to 29%	(2 pts)
10% to 19%	(1 pt)

D) What is the anticipated level of local involvement in the project?

High	(4 pts)
Medium	(2 pts)
Low	(1 pt)

E) By whom is the public access controlled?

Government	(10 pts)
Private-low cost	(5 pts)
Other	(0 pts)

F) What is the potential for increased public use of the lake (including recreation, water supply, etc.) as a result of the proposed project?

High	(4 pts)
Medium	(2 pts)
Low	(1 pt)

G) What is the capability of the SWCD to participate in the project?

High	(4 pts)
Medium	(2 pts)
Low	(1 pt)

H) What is the IDEM Trophic Classification for the lake?

Class I	(10 pts)
Class III	(10 pts)
Class II	(5 pts)
Class IV	(0 pts)

I) Is there technical information from other federal or state studies indicating a need for the proposed actions?

Yes	(5 pts)
No	(0 pts)

J) What is the probability that acquisition of permits, land easements, and right-of-ways will be problematic?

Low	(4 pts)
Medium	(2 pts)
High	(1 pt)

K) What is the potential for fish and wildlife, aesthetics, and overall environmental enhancement and protection?

High	(4 pts)
Medium	(2 pts)
Low	(1 pt)

L) What is the potential for multi-agency funding, technical assistance, educational activities, and overall support of the project?

High	(4 pts)
Medium	(2 pts)
Low	(1 pt)

M) Choose from two options:

Option 1. If the project is either a design plan, construction action, or land treatment plan:

What is the probability that the proposed actions will be effective in solving water quality problems at the project lake?

High	(4 pts)
Medium	(2 pts)
Low	(1 pt)

OR

Option 2. If the project is a feasibility study:

What is the potential for solving the lake's water quality problems with feasible, effective actions?

High	(4 pts)
Medium	(2 pts)
Low	(1 pt)

N) Other (5 pts)

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

By using this prioritization process, the program's focus has shifted toward watershed land treatment instead of inlake treatment, or prevention of sediments from entering waterbodies instead of remedying existing problems, which reflects the nationwide shift to watershed versus inlake treatment.

The implementation and use of the T-by-2000 Lake Enhancement Preapplication Priority Ranking System has established a more efficient use of funds by granting funds to applicants that are committed to lake and river enhancement by providing maintenance functions and financial support. Previously, applicants received funds on a first-come, first-serve basis.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Indiana T-by-2000 Lake Enhancement Program could be used by the Corps as a model for a priority ranking system for lake enhancement. In addition, the Corps could examine this program as a model for soil and water conservation efforts among local groups, county government, and county-based offices of federal and state agencies.

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"T-By-2000 Lake Enhancement" Preapplication Priority Ranking System.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Iowa Prairie Pothole Joint Venture

GOALS AND OBJECTIVES

The goal of the Iowa Prairie Pothole Joint Venture (PPJV), as administered by the Iowa Department of Natural Resources (DNR) in partnership with the U.S. Fish and Wildlife Service (FWS) is to purchase 30,000 acres of land at a rate of 2,000 acres per year for 15 years. Existing and restorable wetland areas should be purchased along with associated uplands at a ratio of 1 wetland acre to 3 upland acres. This ensures that necessary habitat is available to dramatically increase waterfowl production on these areas. Wetlands are an important part of Iowa's natural heritage and many outdoor recreational activities will be lost if this valuable resource continues to decline.

GEOGRAPHIC SCOPE

Iowa

OVERVIEW OF PROGRAM/STUDY

To achieve the objective of the PPJV, the FWS "Concept Plan for Waterfowl Habitat Protection-Prairie Potholes and Parklands" calls for the permanent protection and improvement of 1.1 million acres in the U.S. Prairie Pothole Region over the next 15 years. These acres are in addition to those protected prior to 1985. In addition to this long-term habitat protection effort, 5.0 million acres of habitat on private land will be sustained using consecutive short-term agreements with landowners.

Priority actions and emphasis of the PPJV will include strategies to protect, enhance, restore, create, and manage habitats for multiple wildlife and human benefits. The PPJV will seek to build a strong constituency among landowners, citizens, and nontraditional partners in wildlife conservation efforts. Programs that combine profitable agriculture with wetland values and abundant wildlife will be given major emphasis and support. Strategies will consist of the following:

1) Manage existing and newly acquired public land to increase waterfowl production and other wildlife and wetland values;

2) Develop and sustain habitat on private land to increase waterfowl production and other wildlife and wetland values;

3) Develop a communication/education program that will inform and educate private landowners and targeted audiences regarding the multiple values of wetlands;

4) Protect additional habitat using fee title acquisition and perpetual easements;

5) Strengthen and enforce federal and state laws and regulations concerning wetlands; and

6) Minimize loss of adult ducks and broods by reducing physical and environmental hazards.

SOURCE OF PRIORITY RECOGNITION

Institutional: The North American Waterfowl Management Plan (NAWMP) was signed on May 14, 1986, by the United States and Canada. Recognizing that waterfowl populations are an indicator of environmental health, the Plan provides a framework for recovery of declining waterfowl populations, and reversing overall wetland destruction. The Prairie Pothole Region was identified in the NAWMP as a priority waterfowl breeding area. The U.S. portion of this region has been identified as one of the six initial joint ventures.

In late 1987, the PPJV Steering Committee was organized to refine waterfowl population objectives and habitat protection and enhancement needs. Prior to the establishment of the PPJV, the FWS had directed the Region 6 Regional Office to prepare a "Concept Plan for Waterfowl Habitat Protection for the U.S. Portion of Prairie Potholes and Parklands." This plan was finalized and distributed to all PPJV members in June 1988, and has served as a basic document for framing the overall design of the PPJV.

Public: Landowner participation is an important component to the PPJV. People must be willing to support the PPJV by selling their land for the acquisition of designated priority wetlands.

Technical: Scientific and technical knowledge is a major component of the prioritization process, which is described in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

More than 98 percent of Iowa's original 2-3 million acres of wetlands have been lost. Because few natural wetlands exist today, wetland restoration on new acquisition properties will be the major thrust of the PPJV in Iowa. Many drained wetland basins are available for public acquisition and a seed bank of native wetland plants is still present in the soil. By reflooding these areas, natural wetlands can again become part of the landscape.

Three major wetland classification types are currently managed for waterfowl and other wetland species and wetlands in these three classification types will receive acquisition priority when they become available. The three major classifications are:

- Type 3 wetlands are characterized by waterlogged soils that maintain 6 inches or more of water during wet cycles, but are commonly dry during summer months. Vegetation in Type 3 wetlands include: grasses, bulrushes, spikerushes, cattails, arrowhead, giant burreed, smartweed and sedges. Waterfowl use is limited to early spring nesting and brood- rearing activities.

- Type 4 wetlands are covered with 6 to 36 inches of water during the growing season. Vegetation in Type 4 wetlands include: cattails, bulrushes, reeds, spikerushes, burreed, pondweed, watermilfoil, coontails, waterlilies and duckweed. Type 4 wetlands provide waterfowl with good nesting and brood rearing habitat as well as excellent escape cover.

- Type 5 wetlands include shallow lakes and ponds with less than 10 feet of water. These wetlands are fringed with emergent vegetation such as: bulrushes, cattails, reeds, pondweed, naiads, coontail, watermilfoil and waterlilies. Waterfowl utilize these wetlands extensively for brood rearing when other wetland types are dry and as resting sites during migration.

Thirteen major wetland complexes have been identified for priority acquisition in a 4-county project plan and 65 complexes in a 31-county plan. These 78 complexes were designated as priority areas because they contained concentrated wetland resources that are located near existing waterfowl production areas, or are in regions that will not present problems for local drainage districts. Designated wetland complexes range in size from 2 to 30 square miles. Acquisition from willing sellers will be initiated on a priority basis from areas outlined as major wetland complexes in project plans. However, other suitable wetland projects within the 35 counties will be also considered for acquisition even though they are outside the designated wetland complexes.

Increased waterfowl production in Iowa will be accomplished primarily by purchasing wetland basins that are currently in agricultural production and restoring them to productive waterfowl habitat. Former wetland basins can be identified by locating wet soil types on U.S. Department of Agriculture soil maps. This would provide about 300,000 acres of potential wetland habitat for waterfowl and other wildlife.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Iowa's PPJV program accomplished many objectives during 1992. A total of 2,874 acres of habitat was placed in public ownership at a cost of $3.2 million. Included in these acquisitions were 190 acres of existing wetlands, 560 acres of restorable wetlands and 2,124 acres of upland nesting cover.

Wetland restoration efforts on private land have provided for an additional 109 acres of wetlands. About 400 acres of wetlands were also restored on existing or recently acquired public land. These accomplishments will provide for many recreational and educational opportunities for the citizens of Iowa. Wetland restoration and development is also critical to the environment because wetlands improve water quality, reduce soil erosion, reduce flooding and recharge groundwater supplies.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Iowa PPJV could serve as a model for classifying wetlands with significant environmental resources, such as waterfowl and other wetland species. The thirteen major wetland complexes identified for priority acquisition in the 4-county plan and the 65 complexes identified in the 31-county plan represent 78 designated wetland complexes that could be used by the Corps to identify wetland areas of state and regional significance. In addition, the Corps could examine the Iowa PPJV as a model for land acquisition from private landowners who are willing to sell.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Iowa Resource Enhancement and Protection Program

GOALS AND OBJECTIVES

The goals and objectives of the Resource Enhancement and Protection (REAP) Program, which is administered by the Iowa Department of Natural Resources (DNR), are to implement a long-term integrated effort to use wisely and protect Iowa's natural resources through the acquisition and management of public lands; the upgrading of public parks and preserve facilities; environmental education, monitoring, and research; and other environmentally sound means. Expenditures of funds from the county conservation account, the city park and open spaces account and the private cost-sharing portion of the open spaces account shall be in accord with this policy. The state legislature included in its directive an overall goal of having 10 percent of all land in the state under some form of public protection by the year 2000.

GEOGRAPHIC SCOPE

Iowa

OVERVIEW OF PROGRAM/STUDY

The Iowa Open Spaces Plan calls for doubling protected open space by the year 2000 and a commitment to an active, ongoing protection program in the years beyond 2000 aimed at achieving the 10 percent goal, which was set by the state legislature. REAP is working to help achieve this goal. Soil conservation elements would need to be incorporated since soil is Iowa's most precious resource. Introduction and management of native prairie grasses and wildflowers along streets, roads and highways could reduce maintenance costs while providing wildlife habitat and scenic areas. Preservation of the state's historical resources and conservation education elements were also incorporated into REAP. Since 1990, REAP has received $55 million in appropriations from a combination of lottery and state tax receipts.

The first $350,000 of revenues in the resource enhancement and protection fund are allocated annually to the conservation education board and one percent of the revenues are allocated to the administration fund. Twenty percent of funds remaining after that allocation are allocated to the county conservation account and distributed to counties as follows:

1) Thirty percent equally to each county,
2) Thirty percent based on county population, and
3) Forty percent on a competitive grant basis.

Those funds allocated on the basis of county population and those awarded in the competitive grant program shall be allocated only to counties dedicating property tax revenue at least equal to $.22 per $1000 of the assessed value of the county's taxable property to conservation purposes.

SOURCE OF PRIORITY RECOGNITION

Institutional: The REAP Program was authorized by the Resource Enhancement and Protection Act of 1989. Section 455A.16 of the Act declares the State Resource Enhancement Policy: it is the policy of the state of Iowa to protect its natural resource heritage of air, soils, waters, and wildlife for the benefit of present and future citizens. This policy is implemented through the REAP Program, which represents a long-term integrated effort to wisely use and protect Iowa's natural resources through the acquisition and management of public lands; the upgrading of public park and preserve facilities; environmental education, monitoring, and research; and other environmentally sound means. The resource enhancement program shall strongly encourage Iowans to develop a conservation ethic, and to make necessary changes in their activities to develop and preserve a rich and diverse natural environment. REAP County, City, and Private Open Spaces Grant Programs are administered in accordance with Chapter 33, Iowa Administrative Code, Resource Enhancement and Protection Program: County, City, and Private Open Spaces Grant Programs.

The state legislature directed the DNR to prepare an Iowa Open Space Protection Plan by July 1, 1988. The legislature included in its directive an overall goal of having 10 percent of all land in the state under some form of public protection by the year 2000. The Iowa Open Spaces Plan serves as a foundation for REAP.

Public: The prioritization process, as described below, incorporates public demand or need into the criteria for evaluating proposed projects. Public participation is an integral component of setting overall priorities for REAP and is organized into three tiers. First, all 99 counties are required to create a Resource Enhancement Committee. Representation on the county committees include the county board of supervisors, the county conservation board, mayors of cities in the county, soil conservation districts, school district boards, farm organizations and conservation organizations. Second, multi-county meetings called regional assemblies are periodically held in 17 locations throughout the state. These are open public meetings where all REAP programs and associated projects are presented. Third, five delegates are elected at each of the 17 assemblies to serve on the statewide REAP Congress. The responsibility of the REAP Congress is to organize, discuss, and make recommendations for approval by the Governor, the General Assembly and the Natural Resource Commission regarding issues concerning REAP.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Under the competitive grants programs, a project review planning and review committee shall establish criteria and scoring systems to be utilized in project evaluation. Criteria and scoring systems must be distributed to all counties at least 90 days prior to the project

application deadline. Example criteria will be reviewed at least annually to determine if amendments are needed. The current criteria and weight factors (shown in parenthesis) for County Conservation Grants include, but are not limited to, the following:

- Public demand or need (2)
- Project uniqueness (2)
- Quality of site or project, or both (3)
- Urgency of proposed action (2)
- Multiple benefits to be provided (2) (includes multiple recreational benefits, and other similar benefits)
- Relationship to Iowa open spaces plan and Iowa SCORP (3)
- Conformance with local, regional, and state plans (1)
- Economic benefits to local, regional, or state area (1)
- Geographic distribution (1)

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Through REAP, many acres of land have been purchased for enhancement and protection purposes. REAP has accomplished much within five years and was one of twenty programs that received The Renew America Award in 1992 for its work in the "Public Land and Open Space Protection" category.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Iowa Resource Enhancement and Protection Program could serve as a model for incorporating a systematic process of public participation in resource enhancement and protection efforts. It could also serve as a model for using the public participation process to determine and recommend state-wide priorities to decisionmakers.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Kansas Wetland and Riparian Areas Project

GOALS AND OBJECTIVES

The goal of the Wetland and Riparian Areas Project (WRAP), as administered by the Kansas Water Office, is to provide a foundation for interagency implementation and coordination of wetland and riparian conservation strategies in Kansas.

The following agencies were represented on the WRAP Technical Committee:

Kansas State University, Dept. of Landscape Architecture
Kansas Department of Health and Environment
U.S. Army Corps of Engineers
Kansas State University, Dept. of Regional Community Planning
Kansas Biological Survey
U.S. Fish and Wildlife Service
State Conservation Commission
U.S. Geological Service
Kansas Department of Wildlife and Parks
U.S. Soil Conservation Service
State Board of Agriculture, Division of Water Resources
U.S. Environmental Protection Agency
Kansas State University, State and Extension Forestry
Kansas Water Office

GEOGRAPHIC SCOPE

Kansas

OVERVIEW OF PROGRAM/STUDY

WRAP strategies for conservation of wetland and riparian areas are categorized below:

A) INFORMATION/EDUCATION

1) Develop a statewide information network to disseminate information through a variety of media about wetland and riparian resources.

2) Plan and implement demonstration projects for management practices on wetland and riparian areas.

3) Develop a program that targets specific groups and provides educational opportunities on wetland and riparian values and functions.

4) Compile wetland and riparian resource information to facilitate management and conservation decision-making.

B) TECHNICAL ASSISTANCE -- Provide coordinated technical assistance to private landowners.

C) FINANCIAL ASSISTANCE/INCENTIVES

1) Provide financial assistance (cost-share) to private and public landowners for protecting, restoring, or enhancing wetlands or riparian areas.

2) Explore the whole range of incentives for wetland and riparian protection and management beyond direct financial assistance to landowners.

D) PLANNING AND CONSERVATION

1) Work cooperatively with federal agencies to improve effectiveness of federal wetland regulatory programs.

2) Enhance interagency policy dialogue on wetland and riparian issues and statewide coordination.

3) Support and encourage local planning efforts affecting wetland and riparian areas.

E) INVENTORY/MONITORING

1) Complete a statewide wetland and riparian areas inventory.

2) Develop criteria to identify high priority wetlands and riparian areas.

3) Establish a periodic reporting system to determine status and trends of wetland and riparian resources and to evaluate program effectiveness.

F) ACQUISITION/MANAGEMENT

1) Acquire high-priority wetland and riparian areas in fee-title or easement from willing sellers.

2) Establish water rights necessary to maintain high quality wetland and riparian areas.

3) Enhance and restore wetland and riparian areas on public lands and manage them to their fullest function and value.

G) REGULATION

1) Emphasize protection of natural wetland and riparian resources by water development projects through the Water Projects Environmental Coordination Act.

2) Consider impacts to wetland and riparian resources in the administration and enforcement of the Water Appropriation Act.

3) Incorporate wetland and riparian concerns into state water quality standards.

4) Incorporate the conservation of valuable wetland and riparian areas into local comprehensive land use plans and utilize existing planning and zoning regulatory measures, as appropriate, to implement the plan.

H) RESEARCH

1) Promote the funding of research projects that address wetland and riparian issues specific to Kansas and evaluate the design and effectiveness of best management practices.

2) Assess current attitudes and public demand for wetland and riparian conservation.

SOURCE OF PRIORITY RECOGNITION

Institutional: In June 1991, nine state and four federal agencies formed a WRAP work group, funded by a grant from the Environmental Protection Agency, to develop publications and workshops to assist local units of government in addressing wetland and riparian area conservation in the state. WRAP was established by informal agreement between the cooperating agencies and not by state law. The Kansas Water Office, Wildlife and Parks, and the State Conservation Commission were identified in the grant application to carry out implementation of the grant. Participation has been voluntary by all agencies.

Technical: The best management practices (BMPs) for wetland and riparian areas in Kansas are listed under the Soil Conservation Service Field Office Technical Guide for Kansas, which utilizes technical and scientific knowledge or judgement to list specific applications for each BMP.

PRIORITIZATION OR PROJECT SELECTION PROCESS

WRAP uses BMPs that can be applied to restore or enhance wetland and riparian areas. Only practices that are found in selected technical guides and publications applicable to Kansas have been listed for use under WRAP.

The first step in selecting the right BMP or BMPs is to have firmly established management objectives for the site that are compatible with the broader goals of wetland and riparian protection. One such goal identified in "Kansas Wetland and Riparian Resources: Conservation Goals and Strategies," is no-net-loss of remaining wetland and riparian resources, considering acreage, function and values. Priority should be given first to BMPs to protect existing wetland and riparian resources followed by BMPs to restore or enhance altered wetland or riparian sites. BMPs associated with the creation of new wetland or riparian areas generally are not as high of a priority, except when they are used to create wetland and riparian types with unique values or particularly important functions. Wetland creation is still a new and evolving science and, as such, newly created wetlands seldom exhibit the biological diversity or high quality of natural and restored wetlands.

Another wetland and riparian resource goal is to maintain the diversity of wetland and riparian ecotypes and size classes across the state. Some BMPs, such as those used for restoration of deep water marshes or ponds, may be favored by landowners and frequently used. Other BMPs, used for restoration of forested wetlands or wet meadows, may be considered less frequently. Maintaining a diversity of wetland and riparian ecotypes and size classes across the state should be encouraged to avoid losses of essential values and functions.

In all cases, BMPs must be selected that meet individual landowner goals and objectives. In some cases, this may mean that "ideal" BMPs from a particular technical viewpoint may not be selected. Instead, BMPs that are compatible with other land use objectives of the project sponsor and provide some wetland and riparian benefits may have to be applied. Landowner support of a BMP is essential for its long-term maintenance and that of the wetland or riparian resources it sustains.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Based on current U.S. Fish and Wildlife Service estimates, Kansas lost 405,000 acres or 48 percent of its wetlands between the 1780s and 1980s. The vast majority of these areas were shallow and often ephemeral wetlands, which were drained between the mid-1950s and mid-1970s. Most wetland losses in Kansas have resulted from draining and conversion associated with agriculture. Because Kansas has a small proportion of public land, most wetland and riparian areas occur on private lands. Riparian areas have not been inventoried to the same extent as wetlands and, therefore, trends are difficult to establish. Riparian areas are identified on the National Wetlands Inventory maps being prepared by the U.S. Fish and Wildlife Service and the Soil Conservation Service inventory of wetlands on cropland in the state, however, information on riparian areas is generally less available than for wetlands. Losses of riparian areas have been extensive and have occurred due to conversion to farmland, urban developments, channelization, and dewatering. Interagency commitment,

coordination, and cooperation were key to the success of WRAP in restoring and protecting wetland and riparian areas in the state.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Wetland and Riparian Area Project could serve as a model for wetland and riparian conservation based on interagency and intergovernmental coordination to set priorities and establish technical standards. It could also serve as a model for prioritization of resources on a technical basis where the selection of projects involves selection of management practices that have been approved for application to specific wetland and riparian ecotypes to assure sustainable restoration and protection.

The statewide wetland and riparian areas inventory, which is currently underway through the efforts of several federal agencies, will identify high priority wetlands and riparian areas in Kansas. When complete, this inventory could be used by the Corps to identify wetland and riparian resources of state significance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Louisiana Coastal-Wetlands Conservation and Restoration Plan

GOALS AND OBJECTIVES

The objectives of the Louisiana Coastal-Wetlands Conservation and Restoration Plan, as administered by the Louisiana Department of Natural Resources (DNR), Coastal Restoration Division, are listed below.

1) To plan, design, and complete in the near-term, projects and programs designed to conserve, enhance, restore, and create vegetated wetlands.

2) To plan, evaluate, implement, or cost-share in implementation of long-range projects (with complex socioeconomic interaction) designed to provide widespread and continuing long-term benefits to vegetated wetlands (e.g., large-scale freshwater and sediment diversions).

3) To make projects and programs within hydrologic basins mutually compatible and to make them collectively serve the coastal wetland resource base.

4) Through appropriate rule-making processes, develop policies and procedures that would provide, at a minimum, for replacement of functional coastal wetland values lost due to future activities for which a coastal use permit is issued.

5) Take steps necessary to:

   a) Improve predictability and efficiency of the Coastal Use Permitting process; and

   b) Make operation and implementation of Federal water resources projects consistent with the policy of the state to elevate coastal vegetated wetland conservation, enhancement, restoration, and creation to a level of importance equal to flood control, navigation, or other development activities.

GEOGRAPHIC SCOPE

Louisiana coastal areas

OVERVIEW OF PROGRAM/STUDY

Four types of projects were recommended for funding from the state's Wetland Fund during FY 1993-94:

- Introduction of freshwater, mineral sediments, and nutrients to conserve, enhance, restore, and create vegetated wetlands;
- Management of surface water to protect vegetated wetlands from saltwater intrusion and erosion by tidal currents;
- Marsh restoration, sedimentation, and low-cost shore protection to maintain and enhance physical integrity of vegetated wetlands; and
- Gulf shore protection along critical areas.

SOURCE OF PRIORITY RECOGNITION

Institutional: Act 6 of the Second Extraordinary Session of the 1989 Louisiana Legislature created the Wetlands Conservation and Restoration Authority within the Office of the Governor, and the Office of Coastal Restoration and Management within the DNR. In addition, it created the statutorily dedicated Wetlands Conservation and Restoration Fund. Federal participation came through implementation of the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA), P.L. 101-646.

The state's coastal wetlands conservation and restoration policy, which was developed by Wetlands Conservation and Restoration Authority, is outlined in the Coastal Wetlands Conservation and Restoration Plan. This policy states that coastal vegetated wetlands are deemed uniquely important to the state and deserve special safequards and efforts related to their conservation, enhancement, restoration, and creation.

Public: Meetings were held with representatives from each of the coastal parishes to determine whether support existed for projects recommended by the state and to solicit input concerning possible additional projects resulting from local recommendations.

Technical: Recommendations were subsequently built upon and evaluated through coordination between the Governor's Office of Coastal Activities and a technical committee consisting of the members of the Governor's Task Force or their representatives.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The number of proposed projects and available funding make it necessary to prioritize proposed projects to guide project-related activities and expenditures. The prioritization process is provided for by LAC 43:1.805, which calls for the coastal restoration projects that are not cost-shared by the federal and state government to be constructed in accordance with their cost-effectiveness ranking. The cost-effectiveness ranking of each project is determined

by the anticipated habitat benefits per Wetland Fund dollar expended over the project life. Costs are annualized to provide funds (fully funded) for operations, maintenance and monitoring for the 20-year project life. This is the same criterion used for project evaluation and implementation under PL 101-646. For the federal/state cost-shared projects, it is proposed that expenditures be made in accordance with the need to expedite project implementation while federal funding is available. Highest priority is placed on completion of projects that are currently in the permitting, engineering, design, or construction phase, and on advancing projects to these phases where analysis has shown a project to be feasible and beneficial.

Determination of Cost-Effectiveness

Habitat benefits for each project are determined through the Wetland Value Assessment (WVA), a standardized procedure that was developed jointly by the federal and state agency representatives involved in the evaluation of PL 101-646 projects. The WVA quantifies changes in the quality and areal extent of fish and wildlife habitat that are projected to result from a proposed wetland restoration, protection, or enhancement project. The same is done for changes that are expected to occur in the absence of the proposed project. Conditions with and without the project, respectively, are then compared to determine the average annual benefit that is attributable to the proposed project over the project life. Habitat quality is generally measured in terms of suitability for various fish and wildlife species that are characteristic for a particular wetland type. Wetland characteristics that are taken into consideration may also vary according to wetland type, and include such variables as the areas of emergent and aquatic vegetation, extent and depth of associated water bodies, water salinity, and aquatic organism access.

The WVA is a modification of the Habitat Evaluation Procedures (HEP) developed by the U.S. Fish and Wildlife Service. HEP is widely used by the Fish and Wildlife Service and other federal and state agencies in evaluating the impacts of development projects on fish and wildlife resources. A notable difference exists between the two methodologies, however, in that HEP uses a species-oriented approach, whereas the WVA utilizes a community approach. The WVA was developed for application to the following coastal Louisiana wetland types: fresh marsh (including intermediate marsh), brackish marsh, saline marsh, and cypress-tupelo swamp. The WVA models were designed to represent each coastal wetland type as an ecological system. As such, the models attempt to estimate wetland quality considering all functions and values provided or performed by those systems, including fish and wildlife habitat, floodwater storage, nutrient import and export, storm surge protection, and water quality improvement.

The WVA operates under the assumption that optimal conditions for a coastal wetland type can be characterized, and that any existing or predicated wetland condition can be compared to those optimum conditions to provide an index of wetland quality. The quality component of a wetland is estimated or expressed through the use of a mathematical model developed specifically for each wetland type. Each model consists of: 1) a list of variables that are considered important in characterizing the particular wetland type, 2) a Suitability Index graph for each variable, which defines the assumed relationship between wetland quality and the variable, and 3) a mathematical formula that combines the quality value (Suitability

Index) for each variable into a single, overall value for wetland quality; this single value is referred to as the Habitat Suitability Index, or HSI.

Cost effectiveness of a proposed project is expressed by the ratio of average annual benefits, as determined by WVA, and average annual costs. Categories of costs include planning and permitting, engineering and design, construction, operation and maintenance, and monitoring. Because cost pertains to dollars to be expended from the Wetland Fund, cost is decreased and cost effectiveness increased if costs are shared by the local sponsor.

Coordination and Cost-Sharing

Coordination with various entities will be a significant aspect of all phases of project development, implementation, and operation. This coordination is a requirement partly because of mandates for state and federal agencies and because a number of projects were identified for which costs are to be shared by the state, local, or federal government. Some parishes have indicated a willingness to share in the cost of design and construction of several projects. Cost sharing and its effect on project ranking is governed by LAC 43:1.807. Currently, rules dealing with cost-sharing are being developed by DNR. Equally important, however, public hearings and associated comments by private citizens and elected officials have pointed out three major issues of concern in the efforts of wetland conservation and restoration. These three issues are the rights of the landowner and the associated need for early coordination of project features; the need to assure that conservation-management programs serve both the fisheries and the wetland restoration and conservation needs; and the assurance that long-term operation and management of projects is provided for. It is the intention of the state to deal fully with these concerns during the analysis phase that is required prior to implementation of each project. Landowners will be contacted at the earliest possible time and meetings will be scheduled with elected officials as representatives of the public interest to discuss both public and private resource uses.

Project Feasibility Analyses

The priority according to which project feasibility analyses will continue to be undertaken is based on general estimation of a number of project parameters. They are:

- Area of anticipated benefit to conservation, restoration, enhancement, and creation of vegetated wetlands;
- Cost;
- Social, geographic, biological, and economic significance, and apparent need;
- Introduction or utilization of freshwater; and
- Introduction of sediments.

Using these five factors, each project was assigned a value. Secondary criteria can be used to further evaluate project merit in the event that funds within a given category are insufficient to implement all projects. These secondary criteria include:

- Local support/cost sharing, and
- Time required for implementation.

Project Monitoring

Monitoring of projects implemented from the Louisiana Coastal Wetlands Conservation and Restoration Plan must provide an evaluation of the effectiveness of each coastal wetlands restoration project in achieving long-term solutions to arresting coastal wetlands loss in Louisiana.

In order for this mandate to be achieved, the monitoring efforts must generate results that can aid in determining the success or failure of existing projects, in the beneficial modification of existing projects, in the design of future projects, and most importantly, support future decisions on selection of projects proposed for creating, restoring, protecting and enhancing Louisiana's coastal wetlands. Comparison of monitoring results among similar projects is the only way to determine which projects are most effective in achieving long-term solutions to arresting coastal wetlands loss in Louisiana.

The Biological Analysis Section of the Coastal Restoration Division is responsible for all monitoring activities of the program including monitoring plan development, data collection and storage, statistical analysis, quality control, data interpretation and report generation.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

To date, the restoration technique used in this program has yielded positive results in the restoration of wetlands and the prevention of degradation that can be captured through project monitoring. However, the projects generally have a 20-year life span and as such, conclusive results are not yet available.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Louisiana Coastal-Wetlands Conservation and Restoration Plan could serve as a model for restoring coastal vegetated wetlands. It could also be used by the Corps for ranking coastal wetland restoration projects.

The Coastal Wetlands Conservation and Restoration Plan outlines the state's coastal wetlands conservation and restoration policy, which states that coastal vegetated wetlands are deemed uniquely important to the state and deserve special safequards and efforts related to their conservation, enhancement, restoration, and creation. This policy could be used by the Corps to identify coastal wetland areas designated as of state significance.

BIBLIOGRAPHIC INFORMATION

Louisiana Department of Natural Resources, Coastal Restoration Division, "Coastal-Wetlands Conservation and Restoration Plan (Fiscal Year 1992-93)," submitted to the House and Senate Committees on Natural Resources (March 1992).

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POINT OF CONTACT

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Maine Atlantic Salmon Restoration and Management Program

GOALS AND OBJECTIVES

The Maine Atlantic Sea Run Salmon Commission was established for the purpose of undertaking research, management, restoration, and propagation of the Atlantic Sea Run Salmon in the state. The Commission has authority to adopt and amend regulations to promote the conservation and propagation of Atlantic Salmon in Maine waters.

GEOGRAPHIC SCOPE

Fresh and saltwater areas in the state of Maine

OVERVIEW OF PROGRAM/STUDY

The Commission conducts activities related to:

- Restoration management, applied research, and management of fish populations and human activities;
- Upstream and downstream fish passage; and
- Promulgation of rules and regulations.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Atlantic Sea Run Salmon Commission was created by an act of the state legislature in 1947.

Public: Public participation is an important aspect of project implementation through the public hearing process, because a small, but extremely vocal group is actively involved in providing public support for the program.

Technical: Scientific and technical knowledge or judgement is used in the prioritization process, which is described below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The prioritization process is based on a statewide management plan that prioritizes and lists rivers into three different levels based on scientific findings. The plan then goes before a public hearing process.

The three levels of river classifications are as follows:

1) The river must have existing wild Atlantic Salmon runs, which are listed as category 2 under the endangered species list. These rivers are the only remaining wild salmon runs in the country.

2) The river must have historically had wild salmon runs and attempts are now being made to restore them, or the river must have the potential for large salmon runs.

3) The river must have potential for large salmon runs but the habitat may not be accessible, which in turn requires a large amount of funding.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Although a process of classifying rivers based on scientific findings is in place, the public hearing process assumes greatest importance in setting priorities for Atlantic Salmon restoration and management activities. A small but extremely vocal group is interested in this program and participates actively in the public hearings.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Atlantic Salmon Restoration and Management Program could serve as a model for prioritizing environmental restoration or management on the basis of habitat for specific endangered species. The Corps could use the three levels of river classifications in the statewide management plan to identify rivers in the state of Maine that are significant based on existing or historic wild Atlantic Salmon runs.

BIBLIOGRAPHIC INFORMATION

"The Maine Atlantic Sea Run Salmon Commission" (Information & General Regulations prepared by the Maine Atlantic Sea Run Salmon Commission, 1993 Edition).

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Maine Wildlands Lake Assessment

GOALS AND OBJECTIVES

The project objectives of the Maine Wildlands Lake Assessment program, as administered by the Maine Department of Conservation, Land Use Regulation Commission (LURC) are, in general, to develop a systematic base of natural resource and land/water use information for lakes within LURC jurisdiction, including the identification of all lakes that have exceptional natural values. Specifically, the Assessment was designed to identify lakes that are priorities for protection, (i.e., relatively inaccessible and undeveloped lakes with high natural resource values) and to identify lakes most suitable for development.

GEOGRAPHIC SCOPE

Maine

OVERVIEW OF PROGRAM/STUDY

Program activities and products include:

1) A computerized lake information system, to include the following information on each lake:

   a) Lake name and location identifiers.
   b) Baseline physical and limnological information.
   c) Existing management designations.
   d) Natural value assessment findings.
   e) Development suitability analysis findings.

2) Draft and final lists of relatively inaccessible and undeveloped lakes with exceptional natural values including support documentation.

3) Draft and final lists of lakes most suitable for development, including support documentation.

4) A final report describing methods, summarizing findings, and identifying management alternatives.

SOURCE OF PRIORITY RECOGNITION

Institutional: In an effort to assure that orderly development and land use be allowed to take place while maintaining the natural character of the jurisdiction, the people of Maine, acting through the Legislature, created the Land Use Regulation Commission. On October 1, 1969 the first Land Use Regulation Law became effective. In 1971, the 105th Legislature expanded the Commission's jurisdiction to its current boundaries. The 1971 statute, although amended over the years, forms the basis for the Commission's responsibility for applying the principles of sound planning and zoning in the unorganized areas; protecting public health, safety, and welfare; insuring an ecological balance; and encouraging well planned, multiple use of the natural resources so important to this region and to the state as a whole.

Technical: The prioritization process is based primarily on the use of scientific and technical information to determine "significant" environmental resources values, as discussed below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Based on methods presented in the Maine Wildland Lakes Assessment Work Plan, information was collected on the following natural resources:

- Fisheries,
- Scenic quality,
- Botanic features,
- Physical resources,
- Wildlife,
- Shoreline character, and
- Cultural resources

Assessment Methodology for Fisheries

To be included in the fisheries assessment, a lake must meet prescribed minimum standards. The first, common to all resource categories, is that a lake must be at least 10 acres in size and be at least partially within Land Use Regulation Commission boundaries. Beyond this general standard, specific standards for fish resources have been identified. In combination, these standards identify lakes which are deemed to be the most important to the Department of Inland Fisheries & Wildlife's (DIF&W) overall fishery management program. To meet the study's minimum significance level (and be eligible for more detailed assessment), a lake should meet the following minimum standards:

1) The lake must have a fishery or the potential for a fishery as defined above.

2) All natural lakes in excess of 10 acres or man-made lakes in excess of 30 acres (Great Ponds) that meet the definition of a fishery are to be included.

3) Any lake of a size less than a Great Pond that is judged to be an exceptionally high quality fishery is to be included. These waters should be chosen judiciously and would rate high among the criteria given below under "Evaluation Criteria."

4) All lakes currently zoned as "remote ponds" under the P-RR designation by LURC are to be automatically included.

5) All lakes in LURC jurisdiction that contain the rare blueback or sunapee trout are to be automatically included.

Lakes meeting the minimum standards detailed above will be evaluated using three major criteria: species value, habitat value, and public use. A combination of species and habitat values will be the determinants of a given lake's overall fishery significance rating. Public use is considered an ancillary factor. Public information will be incorporated into the LURC data base but will not necessarily influence overall ratings.

Each criterion has been subdivided into a number of specific factors. These factors and the measures by which lakes will be rated for each are listed below.

1) Species

a) Abundance
b) Diversity
c) Rarity
d) Reproduction

2) Habitat

Note: Habitat quality factors will be evaluated from the perspective of all important species in the fishery rather than any one particular species.

a) Water Quality
b) Physical Factors

3) Public Use

a) Fishing Quality
b) Aesthetic Experience
c) Fishing Pressure
d) Economic Importance

A response form consisting of the master list of lakes and a series of data entry columns will be supplied to State fisheries managers in each DIF&W region. Regional biologists will be asked to: 1) identify lakes which meet the study's minimum standards, and 2) rate the habitat and species value of each lake meeting minimum standards.

For those lakes meeting minimum standards, the species, habitat, and public use factors listed above will be rated using the high (H), medium (M), or low (L) designation. A medium rating will signify a typical, good quality fishery such as associated with many of the state's lakes. A high rating will be reserved for especially noteworthy occurrences. Biologists may use unknown (U) or not present (N) as needed.

The response form will include space for comments. This may be used to highlight noteworthy characteristics (names of critical species, unique habitats, etc.) or to provide other necessary information. While ratings are to be made from the perspective of existing conditions, potential for improvement can be noted in the comment column. Biologists are not expected to provide comments on every lake.

Assessment Methodology for Wildlife

A lake should meet one or more of the following minimum standards:

1) The lake possesses significant wetland habitat (identified in the Maine Wetland Inventory as having large or otherwise highly valued shallow or deep fresh marsh);

2) The lake provides habitat for colonial nesting species;

3) The lake provides significant habitat for critical species (recognized as rare, threatened, or endangered on federal or state lists); and

4) The lake is closely associated with big game species (e.g., deer wintering areas) or supports unusually high concentrations of other wildlife species.

Note: Lakes of a size less than a Great Pond that are judged to provide "unique" or "critical" habitat may be added to the master list of lakes. These should be chosen judiciously.

Two primary criteria will be used to assess wildlife significance. "Special Value" and "Habitat Value." Each criterion has been further subdivided into a series of specific factors. These factors and the measures by which they will be assessed are listed below.

1) Species

a) Abundance
b) Diversity
c) Rarity

2) Habitat

a) Wetlands
b) Riparian Areas
c) Uplands

Information regarding the public's use of lake-related wildlife will also be requested. This information will add to the LURC data base but will not be a factor in the assessment process.

Public Use

a) Hunting

b) Trapping
c) Wildlife Viewing

A response form consisting of the master list of lakes and a series of data entry columns will be supplied to the state wildlife managers in each DIF&W region. Regional biologists will be asked to: 1) identify lakes which meet the study's minimum standards, and 2) rate the habitat, species, and public use value of each lake meeting minimum standards.

Lakes meeting minimum standards will be rated for the species, habitat, and public use factors listed above using the high (H), medium (M), or low (L) designations. In all cases, a medium rating will signify a typical, good quality wildlife habitat such as associated with many of the state's lakes. A high rating will be reserved for especially noteworthy occurrences. Biologists may use unknown (U) or not present (N) as needed.

Assessment Methodology for Physical Features

The lake-related physical features to be included in this category are as follows:

1) significant fossil localities,
2) relic shorelines,
3) significant bedrock outcrops,
4) sand beaches,
5) cliffs,
6) caves,
7) waterfalls,
8) reverse deltas,
9) significant glacial features (e.g., moraines, kettleholes, boulder trains), and
10) unusual hydrogeologic features (e.g., exceptional lake depth or springs).

To be included in the assessment for this category, a lake will be required to be on the master list of lakes and to have at least one of the identified physical features that is found to be scientifically significant according to the evaluation criteria.

Lakes which will be assessed for depth will be those lakes in LURC jurisdiction included in the Maine Department of Environmental Protection survey of bathymetric features. Lake depth will be assessed by 1) sorting lakes which have been surveyed according to surface area and grouping them into several size classes, and 2) performing separate evaluations for each of these size classes, identifying those which are the deepest as most significant, or if necessary, an equation could be developed which mathematically relates surface area to depth. In this case all lakes would be assessed by applying the equation.

Physical features of outstanding or significant value will be identified for their scientific significance by virtue of being: 1) a type locality or rare occurrence, or 2) critical to the interpretation and understanding of the geology of a region, or 3) an outstanding example of a particular feature. Each of these criteria is of equal value and the significance of any particular feature will be determined by resource expert opinion.

Assessment Methodology for Botanical Features

The lake-related botanical features to be included in this category are:

1) Unusual or unique vascular plants;

2) Rare, threatened or endangered vascular plants;

3) Unusual, unique, endangered, or rare declining plant communities such as natural old growth forest stands, peatlands, freshwater wetlands, and jack pine stands.

For a lake to be included in the assessment for this category, it must be on the master list of lakes and have at least one of the identified botanic features that is found to be significant according to the evaluation criteria. Lakes will be included in this assessment if the botanic features are within 250 feet of a lake shore, associated with a lascustrine environment or if their inclusion is appropriate according to a resource expert. Significant wetlands associated with lakes will be determined by wetland experts from the U.S. Fish and Wildlife Service, and other resource experts as appropriate.

Botanic features that have been identified in the information sources as rare, threatened, unusual, or declining will be considered significant. A botanic feature will be considered according to the criteria developed by the Maine Critical Areas Program and the Nature Conservancy's Heritage Rating. Any botanic feature identified by the following criteria will be of equal value.

The Maine Critical Areas Program defines rare species as those: 1) with herbarium specimens from 10 or fewer Maine towns, 2) which are endemic (have a very small natural range) to Maine or to New England, 3) which have a restricted range and are infrequent, vulnerable or declining within that range, 4) which are at the northern, southern or eastern limit of their range in Maine and are infrequent in Maine, 5) which are listed, proposed or under review for federal threatened or endangered status, and 6) which have been seriously declining and/or are vulnerable to depletion. The program includes only features that have been identified by historical records or documented by a field survey within the past ten years. The Nature Conservancy's Heritage Rating also considers whether a species is of statewide or global significance.

The criteria for inclusion of a natural old growth forest stand are: 1) the stand must contain a significant number of trees that are 100 years or older, 2) the stand must contain long-lived species characteristic of a sub-climax or climax forest, 3) the old-growth component must be a stand, a group of stands or be growing in association with a stand, and 4) the stand must appear to be undisturbed by man.

Assessment Methodology for Cultural Features

For the purposes of this study, cultural resources include lake-related prehistoric archeological sites, historic archeological sites and historic structures, districts and landmarks which may be evaluated in terms of the criteria from the National Register of Historic Places. Other lake-related cultural features of significance such as Indian canoe routes will also be

included in this category. Assessments will be based on the existing archeological survey and inventory, and National and State Register of Historic Places data bases.

Lake-related prehistoric archeological sites will be identified through the Maine Historic Preservation Commission's Archeological Survey by using the mapped information on file at the Commission to locate sites within the area of concern for lakes under consideration. Lake-related historic archeological sites will be identified through the Statewide Historic Archeological Sites Inventory using mapped and written information to locate sites within the area of concern for lakes under consideration. Lake-related historic structures will be identified through the Maine Historic Preservation Commission by using the information in the Commission's files of National Register materials. The quality of significance is present by virtue of being entered on the Register. An assessment of the overall cultural significance of any given lake will include consideration of each of these features as well as the presence of an Indian Canoe Route.

Method for Determining Exceptionally Scenic Lakes

Evaluating the scenery of lakes may be approached in one of the following ways: 1) as the place where adjacent landscapes are viewed, or 2) the focal point of a view as seen from a distance and evaluated as part of the larger landscape. While both of these perspectives are important, this study addresses only the former objective by evaluating scenery as seen from the edge or surface of a lake.

Another aspect of evaluating scenery around lakes is the lake's size. Large lakes (e.g., 1000+ acres) offer very different experiences and opportunities than small lakes (e.g., 100 acres). Such differences in lake character need to be taken into account during the evaluation process. The following three size classes were defined:

Lake size class	Total number in LURC
1) 1000 acres or more	118
2) 500 - 999 acres	74
3) 10 - 499 acres	1325

The first task was to define a category or subset of the 1,527 lakes that were potentially scenic, based on existing data. Although many attributes add to the scenery of a lake, relief was identified as the single most important and readily measurable quality for discerning the scenic value of a lake.

An initial list of potentially scenic lakes was developed by visually inspecting topographical maps for areas of high relief. Any peaks in the foreground (within 0.5 mile from water edge) or background (0.5 - 7.0 miles from water edge) were measured. Distance from the waters edge, and height above the lake were recorded for each peak. Minimum standards for including a lake of any size were: 1) a 300 foot change in relief in the foreground, or 2) a 700 foot change in relief in the background. This process generated a list of 641 potentially scenic lakes.

The budget allowed for visiting only between 250 and 300 lakes by float plane. Therefore, the 641 lakes were separated into three size classes with each size class having slightly different standards applied, as indicated below:

1) Large lakes (> 1000 acres) must have at least 4 areas of significant relief and an edge index of 1.5 or more (53 lakes identified).

2) Medium lakes (500 to 999 acres) must have at least 3 areas of significant relief and an edge index of 1.5 or more (34 lakes identified).

3) Small lakes (10 to 499 acres) must have at least 2 areas of significant relief and an edge index of 1.5 or more (181 lakes identified).

4) Any lake (> 10 acres) could still be added to the field list even if it did not meet the above criteria, if it had significant relief that was exceptionally close (1 mile or less) or high (1000+ feet) it was included (7 lakes identified).

Based on the above criteria, 275 potentially scenic lakes were identified.

Once a preliminary list of scenic lakes were generated, the following six criteria were used to further evaluate each lake:

1) Exceptional relief (30 points) -- Complexity of relief is a measure of the layering of relief within a view. Complexity will be evaluated as high, medium, or low during site visits, and the percent coverage that each category covers will be estimated. Presence of dramatic relief will also be recorded. Dramatic relief is defined as steep slopes within a close range (e.g., 1 mile) of a lake. A lake's rating for relief will be based on the distribution and complexity of the relief feature, and whether or not there is dramatic relief.

2) Physical Features (25 points) -- The number and distribution of islands will be determined from visual inspection of topographic maps. Other special features such as cliffs, beaches, rockslides, dams and bouldered shores will be determined from aerial flight visits. A large number, or a few dominant physical features will result in a higher rating.

3) Shoreline Configuration (20 points) -- The minimum possible shoreline for any lake is a circle. Therefore, any deviation from the minimum can be mathematically compared with the formula for a circle to develop an index of configuration. For example, a relatively circular lake would have an index value close to 1, whereas a lake with twice the amount of shoreline of a similarly sized circular lake would have an index value of 2. Higher ratings will be given to lakes with greater shoreline configuration based on this index.

4) Vegetation Diversity (15 points) -- A diversity of vegetation gives the view a sense of variety. The following vegetation communities will be identified from aerial site visits: hardwood, softwood, mixed forest of hardwood/softwood, pine, wetland, and field. The presence of unusual growth forms (i.e., windswept trees) or superstory

trees will also be recorded. The presence of diversity of vegetation communities or unusual forms of vegetation will result in a higher rating.

5) Special Features (10 points) -- Aerial flight visits will confirm the presence of extreme water clarity or hardwoods that are visible during the fall foliage season. The presence of observable wildlife species will be identified by questionnaires given to regional wildlife biologists from DIF&W. Higher ratings will be given to lakes that have these features.

6) Inharmonious Development (-10 points) -- Development does not necessarily detract from a lake's scenic character, however certain land uses or their placement on a lake can be inharmonious. For example, rows of camps lining the edge of a lake detracts from the scenic character because there is nothing to screen the camps from view. The same landscape may have camps positioned so they fit well within their surroundings by having a natural buffer of trees acting as a screen. The camps with screening have little affect on the scenic character. Other examples of inharmonious development include powerlines or roads that are sited straight up over a hillside, shorelines that are heavily eroded, or dams that are intrusive. These features will be documented during the field visits and negative points assigned based on their detractiveness and dominance.

Assessment Methodology For Shoreline Character

Shoreline character refers to those factors which make the shore area of a lake suitable for recreation pursuits such as swimming, diving, wading, camping, picnicking, fishing, and boating. Shoreline character is a combination of the physical characteristics of the lake itself and of the adjacent land area. Desirable lake characteristics include hard substrate, open water, and adequate depth. Shore characteristics include beaches, bedrock ledges, and open shorelines. While somewhat analogous to the project's "physical features" category, "shoreline character" has a markedly different emphasis. The physical features category places emphasis on scientific and natural significance of lake-related geologic and hydrologic phenomena. By contrast, the shoreline character category focuses on the public use potential of the lake shoreline.

To meet the study's minimum significance standards, a lake must be recognized as possessing noteworthy shoreline characteristics by means of: 1) inspection of aerial photographs, 2) field reconnaissance, or 3) input from knowledgeable resource specialists. In setting minimum standards, it is understood that the resulting list of lakes may not be all inclusive. Three major factors will determine the significance of lakes for shoreline character: beaches, bedrock ledges, and open shorelines. Due to the current lack of available information, quantitative evaluation criteria have not been developed.

Aerial photograph inspection and field reconnaissance will be conducted as an adjunct to the study's scenic qualities assessment. Aerial photograph inspection will be limited to identifying major beach complexes. Field reconnaissance will be accomplished using a float plane which will fly over and land on lakes being evaluated for scenic quality. A shoreline character evaluation form will be completed for each of these lakes. The form will characterize the shoreline, note the presence of beaches, ledges, open shorelands, and other

shore features, and determine whether these features are "few or small," large or dominant," or "extensive." A preliminary judgement regarding overall significance will also be made.

Information from the field reconnaissance and expert evaluation session will be combined. It is recognized that collected information will be qualitative. No attempt, therefore, will be made to tabulate results in any quantitative manner. Rather, information will be arrayed for each lake and an effort made to identify significant concentrations of features, unique occurrences, etc. Lakes will be given ratings of "significant" or "outstanding". Any lake with an identified beach will at a minimum be given a rating of significant. Lakes with dispersed or predominant ledges or open shorelines will receive a similar rating. An outstanding rating will be reserved for lakes with a high diversity of shore features or a unique shore feature (e.g., large slab or protruding ledge, extensive beach).

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Lakes that possessed "significant" or "outstanding" resource values in any of the assessment areas were identified, and each lake was placed into one of the following four resource classifications based on its cumulative resource significance:

- Lakes of statewide significance, with multiple outstanding natural values, categorized as Resource Class 1A (110 lakes);
- Lakes of statewide significance with a single outstanding natural value, categorized as Resource Class 1B (211 lakes);
- Lakes of regional significance with one or more significant ratings, categorized as Resource Class 2 (577 lakes);
- Lakes of local or unknown significance, categorized as Resource Class 3 (62 lakes).

Less than 100 lakes were identified as having multiple outstanding values that are inaccessible and undeveloped, which is a small subset out of approximately 1,000 lakes.

Although the Assessment was designed to identify two classes of lakes, relatively inaccessible and undeveloped lakes with high natural resource values that are priorities for protection and lakes most suitable for development, application of the Assessment resulted in additional management classes of lakes beyond the two originally anticipated.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Maine Wildlands Lake Assessment could serve as a model for ranking significant environmental resources. The Corps could use the four resource classifications to identify lakes that are designated as of state, regional, or local significance. In addition, the Corps could examine the Maine Wildlands Lake Assessment as a model for the assessment of lakes.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Massachusetts Scenic and Recreational Rivers Program

GOALS AND OBJECTIVES

The primary goal of the Massachusetts Scenic and Recreational Rivers Program is to protect the rich diversity of rivers and streams of the natural system and the unique environment that makes the river or stream an outstanding resource of the Commonwealth. The secondary goal is to provide a means for Massachusetts residents to experience and enjoy these exceptional rivers and streams.

GEOGRAPHIC SCOPE

Commonwealth of Massachusetts

OVERVIEW OF PROGRAM/STUDY

The Scenic and Recreational Rivers Act, which is described further in the section below, grants the Commissioner of the Department of Environmental Management (DEM) the authority to issue orders protecting the scenic and recreational rivers and streams of the Commonwealth. These orders are to regulate dredging, filling, polluting, and removing or otherwise altering the river or stream and adjacent land up to 100 yards from its natural bank. After a public hearing, the protective orders, accompanying plans, and a list of the owners affected are recorded as deed restrictions in the registry of deeds for the county in which the river or stream is located. Copies of the orders are then mailed to each landowner as well as local and state officials.

DEM has developed procedures for administering the Act through its demonstration project on the North River in Plymouth County. After selecting a candidate river for designation, DEM forms a river advisory committee that is composed of representative local and regional interests. With the assistance of the advisory committee, DEM develops a management plan and protective order for the river. The plan addresses the river as a regional resource and includes recommendations for land use regulation and selected acquisition sites for conservation, recreation or access. The process of creating the plan brings together river abuttors, recreationists, local officials and state agencies. It encourages localities to coordinate their plans for the river and gives them an opportunity to influence state actions on the river.

The protective orders are seen as one means of implementing the management recommendations. They regulate the types and intensity of development and activities within the stream and along its banks as well as placing conditions upon construction and

management practices that contribute pollutants to the stream. These orders are reviewed by local officials and commented on by landowners at public meetings and a public hearing before they are recorded with the abuttor's deeds at the registry of deeds. When the protective orders are recorded, the river is formally designated as a scenic and recreational river or stream.

The management planning process is expected to result in improvements in local zoning, where necessary, and acquisition of selected parcels for conservation, recreation or access. Recommendations for enforcement of the orders and continuing management of the river or stream are developed in the plan. As much as possible, within the purposes of the legislation, river selection is initiated locally, management decisions are made locally and enforcement is carried out locally.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Scenic and Recreational Rivers Act, Mass. G.L. C.21, s.17B lists several purposes:

> "promoting the public safety, health and welfare, and protecting public and private property ..." (which includes the prevention of flooding, pollution of both the ground water and the stream itself from septic tank leakage, discharge of effluents, erosion, runoff, etc.); "protection of wildlife and freshwater fisheries" (which includes the protection of existing commercial and sport fishing areas, wildlife refuges, hunting and recreational lands); and the "protection of irreplaceable wild, scenic and recreational river resources" (which implies the protection of the ecological balance which has given the river or stream corridor its outstanding natural, scenic and recreational qualities).

Public: As discussed in the section below, the public is actively involved in the prioritization process whereby they give preference to scenic rivers through the initial nomination process and surveys.

Technical: As discussed in the section below, the prioritization process is based substantially on assessment of scenic quality, but also incorporates information related to scientific and technical criteria such as water quality, vegetation, and fish and wildlife resources.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Study Process

In November 1976, the DEM decided to undertake a study of rivers and streams in the Commonwealth in order to develop a statewide system of scenic and recreational rivers and streams. Such a system would need to have regional diversity and contain the range of river ecosystems found in the Commonwealth. A method needed to be developed for selecting rivers to be protected as scenic and recreational rivers and assigning priorities to their designation.

A study was designed that intertwined objective valuations of rivers and streams with public preference indicators. This study required that the DEM develop criteria to rank the rivers and streams, collect the types of information required by the criteria on a large number of potential rivers, assign the rivers to different classes and develop regulatory orders that would effectively protect and manage each class of river. Weaving in public involvement in both the selection process and the development of criteria, the study relied heavily upon an initial nomination process, a photographic preference survey of scenic qualities, and public assistance in the data collection phase. The objective criteria developed for the different classifications incorporated the results of the photographic scenic preference study and evolved out of the particular rivers and streams nominated for the study.

Study Assumptions

1) Federal or other states' selection and management criteria for wild, scenic and recreational rivers are inappropriate for Massachusetts conditions and thus Massachusetts must develop its own criteria.

   Federal criteria and the criteria of other states, which are based upon the federal criteria, are suited to large-scale western wilderness conditions rather than eastern natural areas, which rarely have no trace of human alteration. Federal criteria are based upon no impoundments, remoteness and the absence of development. A 1976-77 federal study of Massachusetts' rivers found that all of the Commonwealth's rivers failed the first screening test. Massachusetts has few major rivers that are not impounded and no long (20-25 mile) stretches that are undeveloped. Furthermore, most federal management techniques presume public ownership, in fee or lesser interest, of the river and its adjoining banks. Massachusetts deed restrictions, in contrast, do not allow public access and can deny all practical uses of the property. Thus, the management objectives must incorporate the rights of the private property owner as well as protecting public property.

2) The Statewide System of Scenic and Recreational Rivers should be composed of those rivers and streams within each region that are the least man-influenced.

   Because the protective mechanism (deed restrictions) chosen by the legislature cannot require the removal of existing development, but can only influence the form and amount of future development, the program should select those rivers and streams which are, at present, the least man-influenced and focus its efforts on the protection of these rivers and streams. This assumption was supported by the photographic scenic preference study and is conditioned only by the desire to ensure regional and ecological diversity in the system.

   Because the vast majority of Massachusetts' undeveloped rivers and streams are found west of the Connecticut Valley, the absence of a regional weighting would result in a system of relatively similar rivers clustered in one part of the Commonwealth. A statewide scenic rivers system must protect a diversity of rivers and streams, representing the full range of natural river ecosystems found within the Commonwealth. Thus, the least man-influenced rivers and streams in each of the major physiographic regions should be protected.

3) Massachusetts criteria should include cultural features typifying the New England heritage as well as natural features.

Although the major thrust of the Scenic and Recreational Rivers Program is to protect natural river and stream areas, the presence of some forms of development (e.g., colonial homes, covered bridges, historic buildings), should be considered as contributors to overall scenic quality rather than detractors. Rivers and streams that have a number of these features with a minimum of other conflicting or distracting forms of development should be protected as scenic rivers along with those that contain outstanding natural scenic resources.

4) The rivers nominated to the DEM represent the most outstanding scenic and recreational rivers and streams in the Commonwealth.

The 1,700 nominated miles of rivers and streams, which represent approximately one-third of the Commonwealth's river mileage, may be missing several outstanding rivers and streams or may include a few mediocre ones. However, DEM's nomination process (see below) is a more accurate method of ascertaining a group of scenic rivers than the professional judgement of an individual or panel of experts because preference can bias the definition of what is "scenic."

Literature Review

A review of other states and the federal wild, scenic and recreational rivers programs was performed prior to the design of this study. Each methodology reviewed at that time evaluated, with varying degrees of complexity, both the types of natural resources and the amount of human modification present on rivers and streams. Values were given for such features as fish and wildlife habitat quality, remoteness, unusual or unique natural features, recreation potential, lack of development or human modification, etc., but no attempts were made to quantify or value the "scenic quality" of the river. As a result, it was decided that the first step of the Massachusetts statewide study of potential scenic rivers should be to review different methods of assessing scenic qualities.

Two basic approaches to scenic quality assessment emerged: professional evaluation and perception surveys. The professional evaluations rely on trained personnel using aerial photographs or field work to identify and map landforms and features present on a site. Different value scales are developed for each feature and/or landform. The professional assigns the appropriate values to each feature and total scores are developed that indicate which sites are the most scenic. Perception surveys, on the other hand, develop questionnaires or photographic studies that are shown to be a representative sample of the affected group. An average score is taken to determine what it is about a site that makes it more scenic than another. These studies rely on an average of the population's perceptions in their definition of scenic quality.

The advantages of the professional evaluation methodologies are that they are easier, one can use aerial photographs and, if the area is large or homogenous, it works fairly well. These methods are also more "objective" and easily replicable. The disadvantages are that it relies

upon an individual's ability, albeit a trained individual, to make value judgements about variety, distinctiveness, and uniqueness.

The perception surveys, on the other hand, rely upon personal preference rather than measures of physical features to determine scenic quality. In these studies, people are either transported to the sites to be compared or shown photographs of them. The persons making the decisions can either be a random sample of a geographic population or a trained group. After observing all of the sites, the individuals either rank them in order of preference, or sort them into groups indicating different degrees of preference. An average score is then assigned to each photograph, patterns are observed and the sites are ranked accordingly. Often each person participating in the study is also interviewed and asked to describe what makes certain sites more preferable, or scenic, than others. They may be asked to identify physical features, compositional features or certain moods that the site evokes.

The result of the literature review was the decision that the statewide study of potential rivers and streams should use portions of both methodologies. Massachusetts residents should indicate, by public preference, which rivers and steams were the most scenic. More objective criteria should then be developed to make comparisons within that preferred group. The objective criteria should measure water quality, fisheries and wildlife habitat quality, the degree of human alteration or development, outstanding cultural features, recreational potential, and scenic quality. Weights and values would be assigned to the presence of certain physical characteristics to determine criteria for all of the above features except scenic quality. Scenic quality would be determined by a preference study, using photographs of river and stream segments shown to a large sample of Massachusetts residents.

Nominations

Given that the Commonwealth of Massachusetts contains 5,400 miles of rivers and streams, some method was needed for narrowing the study to those rivers or streams that had the most potential for designation as scenic rivers. Because the DEM had decided not to make any assumptions at that point in the study about what made a river or stream "scenic," it was determined that a nomination process (i.e., a public preference indicator) was the best method of identifying which rivers and streams should be included in the study.

A letter requesting nominations was sent from the Commissioner to those groups or organizations which it was deemed would be both most interested in the protection of scenic rivers and most aware of the existing quality of rivers and streams in Massachusetts. Over 800 letters were sent to each city or town's Conservation Commission and Park and Recreation Commission, all County Extension Services, Regional Planning Agencies, the Divisions and Regional Offices of all state agencies dealing with natural resource protection or management, and all of the Massachusetts environmental organizations.

The letter requested the nominator to send three pieces of information about each scenic river or stream:

1) a precise description of the starting and ending point of the nominated river or stream or segment of a river or stream,

2) a brief description of any outstanding features of the segment nominated, and

3) an organization or individual to contact (including address and daytime telephone number) when inventory of that stream began.

The only limitation placed on the nominator was that the river, stream or segment nominated be a minimum of 3 miles long.

Preliminary Development of Criteria

Certain preliminary decisions about criteria needed to be made before the inventory form was developed so that both types of information collected and the way information was classified would be useable. It was decided that the criteria must reflect the purposes spelled out in the legislation -- protection of public health, safety and welfare, which includes concerns with flooding, erosion, and water pollution; protection of public and private property, which requires both land use and general ownership identification; freshwater fisheries and wildlife, which includes both habitat quality and identification of rare species; outstanding wild, scenic and recreational river resources, which encompasses such features as geologic formations, vegetation, remoteness, recreation potential, and scenic qualities.

Furthermore, it was decided that it would be more profitable to judge the way a feature was perceived from the river or its banks rather than calculating what percentage of the land area it occupied or how often it occurred. For example, some relatively small industrial buildings or discharges might dominate a river segment in such a way that the river's natural features pass unnoticed whereas another industrial use may be set back and screened from the river and discharging in such a way that it is only noticed from a position directly opposite the site, if at all. Consequently, for most features, the inventory form records whether a feature is absent (A), present (P), or dominant (D) as perceived from the river and/or its immediate banks. Stronger weights are given to a dominant rating than to a present one. Thus, rather than ranking a river or stream according to the total area devoted to a certain land use, regardless of whether or not it can be perceived, the Massachusetts criteria deal with how much that land use determines one's experience of the river or river segment.

Finally, in order to assure both ecological and regional diversity within the Scenic and Recreational Rivers System, it was decided that the data collected would need to be analyzed on a regional basis. The highest rated rivers within each region would be recommended for the system despite the fact that many rivers and streams west of the Connecticut Valley that would not be recommended for the system would be indubitably less polluted and less developed than many rivers recommended for the system in the eastern part of Massachusetts. However, it was anticipated that the western rivers would dominate the natural classification, resulting in the attainment of the dual goals of strong protection of the natural qualities of the western rivers and increased river recreation opportunities in the eastern part of the state.

The Inventory Form

An inventory form needed to be designed that would permit judgements to be made while hiking, canoeing or occasionally driving slowly along a river or stream. The large number

of nominations reduced the time available for completing the inventory to 1 day per 8-10 miles of river or stream. Thus, the majority of questions had to be answered on a one day visit to the site and from easily obtainable documents.

The form collects information on water quality, topography, vegetation, land uses, public ownership, road and utility crossings, recreational facilities and fish and wildlife resources. A number of structural questions were designed to aid in the identification of scenic quality.

The intent of the inventory form was to collect data that could be objectively assessed in the determination of natural, scenic and recreational qualities. Objectivity in field data collection has always been difficult. Two individuals observing the same river segment rarely come up with exactly the same answers. Even the same individual's answers may vary with the season, weather and time of day. Thus, it was necessary to develop an inventory form that minimized qualitative distinctions. Rather than asking a few questions requiring a wide range of subjective discrimination, the form asks a large number of simple, well-defined questions with limited answers. For most of the questions, the answer required is little more than no-yes-definitely yes! (i.e., absent, present, dominant). The field personnel worked in teams of two to minimize individual differences. The data collection took place from mid-June to mid-September and varying weather conditions were noted on the forms.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The nomination of almost 180 rivers and streams to the DEM for possible protection under this program reveals a widespread concern for the protection of Massachusetts river and stream resources. The total mileage nominated was nearly 1,700 miles and the nominated rivers were fairly well distributed around the Commonwealth. The DEM added 5 rivers in two watersheds that seemed comparatively unrepresented due to lack of nominations from those areas.

Scenic and recreational river designation, accompanied by protective orders, cannot alone guarantee the protection of a river or stream. However, designation can provide some protection for the 100-yard strip along the stream and the designation process can pull together local and state agencies to improve zoning, enforce existing regulations, and provide for selective acquisition of sites for conservation or recreation purposes. Thus, scenic and recreational river designation can focus attention on the stream's value, provide protection for its immediate banks and draw together resources from many government levels to protect the watershed area.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Massachusetts Scenic and Recreational Rivers Program could be used as a model for combining objective valuations of rivers and streams with public preference indicators. It could also be used by the Corps as a model for using professional evaluation and perception surveys as approaches to scenic quality assessment.

The Corps could use the nomination and inventory of almost 180 rivers and streams under the Massachusetts Scenic and Recreational Rivers Program to identify rivers and streams of state significance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Michigan Natural Rivers Program

GOALS AND OBJECTIVES

The goal of the Natural Rivers Program, as administered by the Michigan Department of Natural Resources (DNR), Land and Water Management Division, is to establish a system of designated natural rivers for the purpose of preserving, protecting, and enhancing these river environments in a natural state for the continued use and enjoyment of present and future generations. To achieve this goal, it will be necessary to carefully select and manage the remaining portions of Michigan's diminishing resource of free-flowing and scenically beautiful rivers and their feeder streams and even reclaim sections of them.

The values to be preserved and consequent objectives of the Natural Rivers Program in Michigan are listed below.

1) General. To preserve and protect the ecologic, aesthetic and historic values and enhance the many recreation values of the river and adjacent lands.

2) Water Quality. To maintain or improve water quality consistent with the designated classification of the river and adhere to the concept of non-degradation of water quality.

3) Free-Flowing Condition. To maintain existing free-flowing conditions where they presently exist for the purpose of preserving this part of the natural environment of the river.

4) Fish and Wildlife Resources. To maintain, protect, and enhance desirable fish and wildlife populations and plant communities.

5) River Enhancement. To protect riverbanks, the floodplain, and other adjacent river areas essential to the perpetuation of the total environment of the river system.

GEOGRAPHIC SCOPE

Michigan

OVERVIEW OF PROGRAM/STUDY

The program is conducted primarily by the Land and Water Management Division in conjunction with the Natural Rivers Task Force. The following activities will be utilized to accomplish program objectives:

A) Involve Citizens. Consult with citizens, local units of government and conservation organizations concerning the need for, objectives of, and expected benefits of the Natural Rivers Program, and actively involve these parties in evaluating natural river areas. Before designating a natural river, conduct public hearing(s) in the county or counties through which the river flows.

B) Establish Priorities. Establish statewide priorities of rivers for study and possible designation: ultimately review and consider all rivers in the state for their potentials as part of the system.

C) Survey Rivers. Assemble available information and conduct physical surveys for the purpose of evaluating rivers for possible classification.

D) Study Related Programs. Identify and evaluate objectives and purposes of related federal, state, local and private plans and programs which directly affect the Natural Rivers Program and individual rivers under consideration.

E) Prepare Plans & Action Programs. Develop plans that contain recommendations to meet the objectives and provide an action program for implementation as follows:

1) Prepare Long-Range Plans. In consultation with local units of government, adjacent landowners and other interested parties for each designated river, develop long-range management plans to assure protection, rehabilitation, and management of the area consistent with the established classification.

2) Develop Action Program for Implementation.

A) Encourage Local Zoning. Encourage local zoning or other management controls to obtain the degree of protection needed according to the river's designation. This device will be the primary means of protecting "Wild Scenic Rivers" and "Country Scenic Rivers."

B) State Zoning Where No Local Zoning. When local action is not taken within one year, or the action is unsatisfactory, promulgate a state zoning rule to obtain, consonant with constitutional principles, the degree of protection needed to preserve the environment of the river system.

C) Obtain Cooperative Agreements. Seek cooperative agreements for the protection and management of designated rivers from federal and state agencies, local units of government and private interests.

D) Acquire Property Interests. Acquire, by state or other units of government, lands or interests in lands within designated natural river areas where desirable and feasible to meet the management objectives. Condemnation of lands for natural river purposes is prohibited under Natural Rivers Act.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Natural River Act (Act No. 231 of the Public Acts of 1970) charges the Natural Resources Commission with the responsibility for developing a system of wild, scenic and recreational rivers in Michigan. The Act does not clearly define the extent or nature of such a system, but does provide for the designation of rivers that will preserve and enhance their values for "water conservation, maintain the free flowing conditions, and the fish, wildlife, boating, scenic, aesthetics, flood plain, ecologic, historic and recreational values and uses."

Public: Public involvement and support account for 20 points in the priority ranking system discussed below (i.e., the criteria concerning planning, zoning, and the organizational framework). In addition, there are bonus points (up to a maximum of 50) based on documentation of local support.

Technical: In the prioritization process described below, 120 points out of a total of 200 may be attributed to the values of the resource alone, with overlapping into the "threats" category, which represents another possible 60 points.

PRIORITIZATION OR PROJECT SELECTION PROCESS

To reach the final determination of which rivers in Michigan meet the guidelines of the Act and are in need of protection, it is important that those decisions be based upon logical, objective reasoning. With limited staff and resources, priorities must be set forth to pinpoint the rivers most in need of immediate attention.

In establishing priorities for action under the Natural Rivers Program, there are four basic concerns to evaluate:

1) The values of the resource in light of the objectives and purposes of the Natural Rivers Act and the quality of the river user's experience,

2) The threats to the resource which might destroy or alter those values,

3) The anticipated workability of natural rivers protection, including local attitudes and institutions which could serve to further or detract from the purposes of the Natural Rivers Act, and

4) The consideration of geographic distribution of the rivers to be included within the system.

Although the Act does not require that designated rivers be located in any particular area, or in relation to population centers, it does stipulate that designations are to be done "in the interest of the people of the state and future generations." From this, it can be ascertained that the river system is for people and implies a certain level of varied opportunity for the enjoyment of the resource. Therefore, a meaningful river system in Michigan should provide a fairly balanced geographical distribution to meet this demand, while meeting the objectives of the Act by protecting the outstanding rivers for present and future generations to enjoy.

A criteria point system has been devised to assist in evaluating individual rivers and river segments. The criteria described below are designed to reflect the river's natural beauty and environmental values, and the threats to those qualities. The results of examining a river utilizing the criteria will indicate those rivers that possess outstanding values and are in greatest need of protection.

The system is based on the evaluation of three basic concerns:

1) The values of the resource in light of the objectives and purposes of the Natural Rivers Act, and the quality of the river user's experience;

2) The threats to the resource that might destroy or alter those values; and

3) The anticipated workability of natural rivers protection including local attitudes and institutions, which could serve to further or detract from the purposes of the Natural Rivers Act.

Values of the Resource -- (120 possible points)

In examining the values of the resource, the greatest attention is directed toward evaluation of the specific physical characteristics outlined in Section 3 of the Natural Rivers Act -- "its values for water conservation, aesthetic, floodplain, ecologic, historic and recreational values and uses." Other factors are concerned with an analysis of the stream environment as it affects the quality of the experience for the river user, and an inventory of the outstanding natural features that might identify a particular river as an outstanding natural resource in the state.

Threats to the Resource -- (60 possible points)

The section on threats examines the pressures of public use and development on a stream that have occurred in the past or are presently occurring, and the probability of those pressures continuing or increasing in the future. The individual factors in this section reflect the knowledge that rivers within easy driving distance of major population centers are subject to

greater pressures, and that private ownership and existing facilities and development encourage additional use and development in the future. This section also evaluates the fragility of the resource and the level of protection presently applied to an individual stream through local ordinances or laws.

Administrative Workability -- (20 possible points)

The section on administrative workability is designed to evaluate the level of acceptance that the Natural Rivers Program might receive in a local community. This will give the DNR an indication of the extent of effort that will be required to designate a stream, and whether the necessary zoning protection will be applied by local units of government or whether the DNR will need to adopt and enforce administrative rules.

Rating of System

Of the possible total of 200 points in the system, 120 points or 60 percent, are based on the qualities of the resource. Another 60 points or 30 percent, are concerned with the threats to those qualities. The final 10 percent evaluates the probability that Natural Rivers Program will protect the stream environment. The stream with the highest point total may not necessarily be the first stream actively studied. Rivers will be placed in one of the three priority groupings:

Priority A -- Rivers with high values and which are highly threatened,

Priority B -- Rivers with high values but not significantly threatened at this time, and

Priority C -- Rivers which are highly threatened but which do not possess as high a value as other proposed rivers.

However, specific priorities will also be affected by geographical distribution and documented local support. The system recognizes the importance and need for local initiative and support, and provides that bonus points, up to 25 percent of the possible total, may be awarded for a stream when documented local support is received.

The list below summarizes the criteria point system, and includes the specific factors of analysis, and the relative importance of each factor:

Values of the Resource	Possible Points
Specific River Values, Related to Act 231, Section 3	32
Length of Mainstream Segment	4
Length of Significant Tributaries	2
Noise	4
Odors	3
Development Intrusions	6
Diversity of Natural Features	16
Channelization and Impoundments	16
Water Quality	13

Naturalness of Bank Vegetation	12
Special Features -- Waterfalls, Rapids	12
Threats	
Population Served Within a 50-Mile Radius	15
Riverfront Ownership -- Public vs. Private	12
Existing Developments	6
River Crossings or Road Endings	3
Areas of Particular Concern	3
Paralleling Roads	3
Evidence of Overuse or Conflicts	6
Recent Development Within Past 5 Years	3
Known Projects Proposed -- Public and Private	3
Existing Protection -- Zoning and Health Regulations	6
Administrative Workability	
Local Attitudes Towards Planning and Zoning	10
Existing Organizational Framework	10
Total possible points	200

Up to 50 possible bonus points are also available upon formal documentation of local support.

A separate score sheet provides the detailed factors and instructions to be used by the rater in evaluating an individual stream or stream segment.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

As of March 1993, there were 14 Designated State Natural Rivers, 25 Proposed State Natural Rivers, 14 Designated Federal Wild and Scenic Rivers, and 11 Federal Wild and Scenic Rivers under study. The 14 Designated State Natural Rivers account for almost 1,700 miles of rivers protected.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

Michigan's Natural Rivers Program could serve as a model for evaluating and balancing all three measures of significance: institutional, public and technical. It could also be used by the Corps as a model for prioritizing rivers based on significant environmental resources.

The 14 Designated State Natural Rivers could be used by the Corps to identify rivers of state significance in Michigan. In addition, the 14 Designated Federal Wild and Scenic Rivers could be used by the Corps to identify rivers in Michigan deemed of national significance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Minnesota Lake Assessment Program

GOALS AND OBJECTIVES

The Minnesota Lake Assessment Program (LAP) is a cooperative lake study program involving Minnesota Pollution Control Agency (MPCA) staff and local citizens. It was initiated in 1985 as a pilot program to fill the gap between the Citizen Lake Monitoring Program (Secchi disk monitoring) and intensive studies by MPCA and the Clean Lakes Program. LAP provides valuable information for the local citizens, MPCA, and others interested in protecting or improving the quality of the lake.

GEOGRAPHIC SCOPE

Minnesota

OVERVIEW OF PROGRAM/STUDY

LAP represents the second phase of a three-phase program to provide lake water quality information and technical assistance to Minnesota citizens. The first phase, the Citizen Lake Monitoring Program, began in 1973 with the Limnological Research Center of the University of Minnesota. At that time, 74 lakes were monitored. The program was transferred to the MPCA in 1978. As of 1987, 305 lakes have been monitored under the Citizen Lake Monitoring Program, which was designed to help individual lakeshore owners obtain basic water quality information on their lake using a Secchi disk. Readings are taken each week during the summer months and the information is submitted to the MPCA for evaluation. In addition, citizen volunteers make subjective judgements on the physical appearance and recreational suitability of the lake on each sample date.

The second phase -- LAP, began in 1985. In the first year, three Lake Assessment Program studies were conducted, of which two were with lake associations and one with a municipality as the local cooperator. The program has allowed the MPCA to deal with a wide range of issues. The LAP studies will be an integral part of Minnesota's nonpoint source program, known as the Clean Water Partnership Program (Minn. Stat. 1987), and the U.S. Environmental Protection Agency's Clean Lakes Program in Minnesota by providing information necessary for selecting projects and communicating ideas about lake protection and restoration.

In the future, a third phase of this program -- the County Lake Assessment Program -- will provide assistance by using the county as the local cooperator. This program will further expand the work of the Citizen Lake Monitoring Program and LAP. It will increase the

number of lakes investigated and provide evaluations that will assist local water planning efforts.

SOURCE OF PRIORITY RECOGNITION

Institutional: Sections 103F.701 to 103F.761 may be cited as the "Minnesota Clean Water Partnership Act." The Act states:

(a) It is the purpose of this legislature in enacting the Minnesota Clean Water Partnership Act to protect and improve surface and ground water in Minnesota, through financial and technical assistance to local units of government to control water pollution associated with land use and land management activities.

(b) It is also the purpose of the legislature to:

(1) identify water quality problems and their causes;

(2) direct technical and financial resources to resolve water quality problems and to abate their causes;

(3) provide technical and financial resources to local units of government for implementation of water quality protection and improvement projects;

(4) coordinate a nonpoint source pollution control program with elements of the existing state water quality program and other existing resource management programs; and

(5) provide a legal basis for state implementation of federal laws controlling nonpoint source water pollution.

Public: Public support and involvement is a principal focus of LAP. Citizens participate in sampling, watershed and lake review, defining the lake's history, and defining lake water quality goals.

Technical: The prioritization process, which is discussed in the section below, is based primarily on scientific and technical knowledge or judgement of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The ecoregion framework plays a very important role in the data analysis of Lake Assessment Program projects. Ecoregion maps as developed by the U.S. Environmental Protection Agency's Environmental Research Laboratory in Corvallis, Oregon, are based on land use, soils, land form, and potential natural vegetation.

MPCA uses data from a set of "representative minimally impacted" lakes in each ecoregion as a basis for evaluating Lake Assessment Program data. This data base is comprised of approximately 90 lakes distributed among the four ecoregions, which contain 98 percent of Minnesota's lakes by number. Representative minimally impacted lakes serve as reference sites for their respective ecoregions. Factors such as maximum depth, surface area, and fishery classification were considered in selecting the reference lakes. Lakes with known point sources, major urban areas, and/or major feedlots in their watersheds were excluded. Recommendations and opinions from Minnesota Department of Natural Resources area fishery managers were also considered heavily in selecting these minimally impacted lakes. Data from the reference lakes are used for developing regional goals.

Each lake's trophic status and chemistry are compared both with the reference lakes and the data base used for the statewide assessment for that ecoregion. For example, in the Northern Lakes and Forests ecoregion there is a region-wide data base with trophic status measurements for approximately 800 lakes as a basis for comparison in addition to the 30 reference lakes for that ecoregion. These comparisons help to put the quality of each lake in the Lake Assessment Program in perspective for the local cooperator and begins to set the stage for goal setting and further data evaluation. The regional perspective has been very effective for citizens to use to evaluate what water quality is reasonable for their lake based on similar lakes in the region.

State-of-the-art lake water quality models are used to estimate current trophic status based on lake morphometry, watershed size, and land use. Future conditions are predicted where major land use changes may occur in the lake's watershed or when point source discharges are involved. A recently developed model, "Minnesota Lake Eutrophication Analysis Procedure (MINLEAP) is intended for use as a screening tool for estimating lake trophic status with minimal input data and for identifying problem lakes that are more eutrophic than expected based on their morphometry, watershed size, and ecoregion location.

All information is used in the goal setting portion of the LAP report. The procedure for setting criteria for water quality protection or setting goals for restoration includes consideration of phosphorous impacts on lake condition (i.e., transparency and chlorophyll a), impacts on lake user perceptions, and attainability relative to the ecoregion. The perceptions of the lake users may be determined from actual observations made in conjunction with the Citizen Lake Monitoring Program measurements or based upon regional user perception summaries.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

LAP was initiated in 1985 as a pilot program. During that summer, three lakes were included in the program. As of 1990, 44 lakes have been included in the program. The current work effort is about eight to ten lakes per year. Application to this program is rather informal, with interested groups submitting a completed application that briefly describes their organization and perceived water quality problems in the lake.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Lake Assessment Program could serve as a model for setting regional priorities by ecoregion and providing lake water quality information and technical assistance to lakeshore owners. In addition, the Corps could examine this program as a model for citizens to participate in various aspects of defining lake water quality goals.

The data base of approximately 90 lakes, which are distributed among the four ecoregions in Minnesota, identifies representative minimally impacted lakes for each ecoregion. These reference lakes could be used by the Corps to identify lakes of state or regional significance based on water quality status.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Minnesota Protected Waters and Wetlands Inventory Program

GOALS AND OBJECTIVES

The Division of Waters of the Minnesota Department of Natural Resources (DNR) has grouped Minnesota's waters into two categories -- "protected waters" and "wetlands" -- for purposes of state regulations that encourage the wise use of many types of water basins and watercourses. The underlying philosophy is that the state not only has an interest in protecting the amount of water contained in these lakes, marshes, and streams, but also has an interest in protecting the container (e.g., lake, marsh, or stream) which confines these waters.

GEOGRAPHIC SCOPE

Minnesota

OVERVIEW OF PROGRAM/STUDY

In Minnesota, the identification and inventory of protected waters and wetlands was adopted to make it easier to determine all waters where a DNR permit is required for any change in the course, current, or cross-section of those waters. The DNR identified waters as "protected waters" or "wetlands" depending on their size, physical characteristics, and the ownership of surrounding lands. Any person, agency or organization proposing to change the course, current, or cross-section of Minnesota's protected waters or wetlands must obtain a protected waters permit from the DNR. Typical examples of projects requiring a permit include draining, filling, dredging, channelizing, construction of dams, harbors or permanent offshore structures, placement of bridges and culverts, and marinas.

SOURCE OF PRIORITY RECOGNITION

Institutional: The initial protected waters inventory legislation was passed by the state legislature in 1976 and amended in 1979. The DNR's authority to require a protected waters permit is established in Minnesota Statutes Chapter 103G. For many years, the law was referred to as Minnesota Statutes Chapter 105. However, during the 1990 legislative session, the statute number was recodified as Chapter 103G.

Technical: The identification of protected waters, as described in the section below, is based primarily on their natural values or public ownership. Wetlands are identified based on scientific and technical knowledge, or professional judgement of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The DNR classified Minnesota's waters where a permit is required under state regulations as protected waters and wetlands. "Protected Waters" include all of the following:

1) All water basins assigned a shoreland management classification, except wetlands less than 80 acres classified as natural environment lakes;

2) All waters that have been determined to be public waters or navigable waters by a court of law;

3) All meandered lakes, except those that have been legally drained (meandered lakes were identified by the General Land Office Surveys in the late 1800s);

4) All water basins previously designated by the Commissioner of Natural Resources for specific management purposes such as trout lakes or game lakes;

5) All water basins previously designated as scientific and natural areas;

6) All water basins located within and totally surrounded by publicly owned lands;

7) All water basins where the State of Minnesota or the federal government holds title to any of the beds or shores, unless the owner declares that the water is not necessary for the purposes of public ownership;

8) All water basins where there is a publicly owned and controlled access, which is intended to provide for public access to the water basin; and

9) All natural and altered natural watercourses with a total drainage area greater than two square miles and all designated trout streams (by the Commissioner of Natural Resources) regardless of the size of their drainage area.

"Wetlands" that are regulated and protected under Minnesota law include and are limited to all type 3, 4 and 5 wetlands that have not been designated as "protected waters," which are 10 or more acres in size in unincorporated areas, or 2½ or more acres in size in incorporated areas. The state of Minnesota has based its program of wetland protection on the wetlands classification system presented in U.S. Fish and Wildlife Circular 39, "Wetlands of the United States," 1971 edition, U.S. Department of Interior. Wetlands types 3, 4 and 5 are defined in Circular 39, "Wetlands of the United States."

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Currently, the Minnesota Protected Waters and Wetlands Inventory includes the acreages and numbers of waters and wetlands listed below.

- 4,967,510 acres of protected water basins and wetlands, which includes:
  - -- 4,705,801 acres of protected water basins (3,290,101 acres minus Lake Superior), and
  - -- 261,709 acres of protected wetlands.
- 28,435 waters inventoried, which includes:
  - -- 11,842 protected water basins inventoried,
  - -- 10,029 protected wetlands inventoried, and
  - -- 6,564 protected watercourses inventoried.

Maps identifying protected waters and wetlands are available for inspection at DNR Regional and Central Offices, County Soil and Water Conservation District Offices, County Auditor Offices, and County Zoning Offices.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Minnesota Protected Waters and Wetlands Inventory Program could serve as a model for encouraging the preservation of a state's highest quality waters and wetlands. The Corps could use maps and other information on the 261,709 acres of protected wetlands and 10,029 protected wetlands inventoried under the program to identify wetlands of state significance in Minnesota.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Mississippi Coastal Program

GOALS AND OBJECTIVES

The Mississippi Coastal Program, as administered by the Mississippi Department of Wildlife, Fisheries and Parks (MDWFP), Bureau of Marine Resources (BMR) in cooperation with the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), Office of Ocean and Coastal Resource Management, is built around 10 goals:

1) To provide for reasonable industrial expansion in the coastal area and to ensure the efficient utilization of waterfront industrial sites so that suitable sites are conserved for water dependent industry.

2) To favor the preservation of the coastal wetlands and ecosystems, except where a specific alteration of a specific coastal wetlands would serve a higher public interest in compliance with the public purposes of the public trust in which the coastal wetlands are built.

3) To protect, propagate, and conserve the state's seafood and aquatic life in connection with the revitalization of the seafood industry of the State of Mississippi.

4) To conserve the air and waters of the state, and to protect, maintain, and improve the quality thereof for public use, for the propagation of wildlife, fish, and aquatic life, and for domestic, agricultural, industrial, recreational, and other legitimate beneficial uses.

5) To put to beneficial use, to the fullest extent of which they are capable, the water resources of the state, and to prevent the waste, unreasonable use, or unreasonable method of use of water.

6) To preserve the state's historical and archeological resources, to prevent their destruction, and to enhance these resources wherever possible.

7) To encourage the preservation of natural scenic qualities in the coastal area.

8) To consider the national interest involved in planning for and in the siting of facilities in the coastal area.

9) To assist local governments in the provision of public facilities services in a manner consistent with the coastal program.

10) To ensure the effective, coordinated implementation of public policy in the coastal area of Mississippi comprised of Hancock, Harrison and Jackson Counties.

GEOGRAPHIC SCOPE

The Mississippi coastal zone is located in Hancock, Harrison, and Jackson Counties.

OVERVIEW OF PROGRAM/STUDY

In order to accomplish the stated goals listed above, Mississippi Coastal Program activities include, but are not limited to, the following:

1) To plan for industrial development activities in areas designated for such use, and to regulate the effects of such development to insure that the impacts on marine resources are minimized.

2) The wetlands use plan and guidelines serve as the basis for permit decisions, and they are designed to be the application of public policy in coastal wetlands.

3) The state's fisheries will be managed by BMR and the wetlands, the resource base of the state's fisheries, will be protected through wetlands management efforts.

4) The management program responds to this goal by incorporating the air and water quality criteria and permitting systems of the Office of Pollution Control.

5) The coastal program will assist local level governments in addressing water supply problems in an environmentally sound way by providing financial assistance for planning and design work. As water demands continue to grow, the program will assist in meeting those demands with particular emphasis being placed on water reuse alternatives.

6) Improved protection of these sites will be achieved through the policy coordination procedure, which requires agencies operating in the coastal area to comply with the coastal program goal of historical and archeological preservation.

7) Scenic preservation guidelines will help preserve the remaining scenic vistas of the coast. The designation of special management areas will assist local governments and state agencies in developing and implementing projects for scenic improvement as part of the overall development of special management areas. In addition, BMR will provide general technical scenic qualities.

8) Resource management policies incorporated into the program parallel national interest considerations, such as air and water quality, living marine resources, wetlands, and historic and cultural resources. Other national interest considerations enter the coastal program decision-making process through policy coordination procedures.

Through these procedures, BMR will review the actions of state agencies in the coastal area for the consideration of the national interest.

9) The coastal program will provide technical and financial assistance to local governments to supplement their traditional role in providing facilities and services.

10) Mississippi Code Section 57-15-6 establishing this goal requires all state agencies to conduct their activities in the coastal area in compliance with this coastal program. This mandate for coordinated public policy will be implemented through the policy coordination procedures.

SOURCE OF PRIORITY RECOGNITION

Institutional: The MDWFP is responsible under state law for implementing the Mississippi Coastal Program. MDWFP was created in 1978 by legislation that consolidated the functions of 16 state agencies into two new departments, the Department of Wildlife Conservation (DWC) and the Department of Natural Resources (DNR). Each of the two departments is governed by a statewide commission appointed to staggered terms by the Governor.

Public: A public opinion survey was administered along the coastal areas to identify user problems that would be incorporated into a prioritization process, as identified in the section below.

Technical: The prioritization process described in the section below incorporates NOAA guidelines that are based primarily on scientific or technical knowledge or judgements of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Process For Selecting Special Areas

Two methods were used to make an initial identification of areas of particular concern (APCs) and ultimately special management areas (SMAs). First, guidelines established by NOAA were used to delineate and categorize APCs. These criteria are listed below:

1) Areas of unique, scarce, fragile or vulnerable natural habitat, physical feature, historical significance, cultural value and scenic importance;

2) Areas of high natural productivity or essential habitat for living resources, including fish, wildlife, and the various trophic levels in the food web critical to their well being;

3) Areas of substantial recreational value and/or opportunity;

4) Areas where development and facilities are dependent upon the utilization of or access to coastal waters;

5) Areas of unique geologic or topographic significance to industrial or commercial development;

6) Areas of urban concentration where shoreline utilization and water uses are highly commercial;

7) Areas of significant hazard if developed, due to storms, slides, floods, erosion, settlement, etc.; and

8) Areas needed to protect, maintain, or replenish coastal lands or resources, such areas including coastal floodplains, aquifer recharge areas, sand dunes, coral and other reefs, beaches, offshore sand deposits, and mangrove stands.

Site Section Procedure For Minor Access Sites

In order to improve public access to the beaches and coastal waters, BMR has designated and prioritized a number of specific sites along the coastline for improvements, based on a study completed during program development by the Gulf Regional Planning Commission. A public opinion survey was distributed throughout the coastal area. While not a technically rigorous effort, the survey provided valuable information on user perceptions of access problems.

The public opinion survey established a clear public expression of the need for upgraded shorefront access. As the next step, site designation and priorities were established. The criteria for selecting candidate sites requiring upgraded physical access are shown below. All five requirements must be met.

1) The site is not a designated sanctuary.

2) The area is public, or can be acquired fee simple or otherwise for public use.

3) Current access is not adequate or appropriate as evidenced by either a survey or similar instrument or by the use of a standard formula relating population to usage.

4) The provision of new or improved access is consistent with federal, state and local plans.

5) Controls can be established to prevent increased usage from damaging the area.

Once a site was designated as a candidate for access improvements, it was rated on a ten point scale for each of the following seven criteria:

1) Extent of non-local use,

2) Intensity of use by local citizens,

3) Ecological/environmental value,

4) Value for recreation,

5) Aesthetic value,

6) Cultural value, and

7) Proximity to population centers.

The values of these seven criteria were summed up to determine the site's priority rating.

Coastal Zone Management Act (CZMA)

The CZMA requires each coastal program to show that it provides for adequate consideration of the national interest in the planning for, and in the siting of, facilities necessary to meet requirements that are more than local in nature. Early in the development of Mississippi's Coastal Program efforts were made to identify uses and national resources for which there is a prevalent national interest. These were:

1) National defense and aerospace;

2) Energy production and transmission;

3) Recreation (e.g., national seashores, parks, forests, outstanding beaches and recreational waterfront);

4) Transportation, ports and navigation;

5) Air and water quality;

6) Endangered flora and fauna;

7) Living marine resources;

8) Wetlands;

9) Floodplains and barrier islands;

10) Historic and cultural value; and

11) Wild and scenic rivers.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Nineteen coastal estuarine areas, which represent a total of 35,413 acres, were identified in January 1993 as being the most significant remaining estuarine areas along the coast of the Gulf of Mexico in the state of Mississippi.

Residents of the coastal areas are conscious of coastal wetland protection and provide a lot of support, but that support may erode if it involves land in non-title areas over which the MDWFP may not have direct regulatory jurisdiction.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Mississippi Coastal Program could serve as a model for protection of coastal wetland areas and habitat. It could also serve as a model for public involvement and consideration of different interests in planning for public services and facilities together with preservation of coastal wetlands and ecosystems.

The 19 coastal estuarine areas identified under the Mississippi Coastal Program as the most significant remaining estuarine areas in Mississippi could be used by the Corps to identify coastal resources of state significance.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Missouri Nonpoint Source Watershed Program

GOALS AND OBJECTIVES

The goals and objectives of the Nonpoint Source Watershed Program as administered by the Missouri Department of Natural Resources (DNR), following U.S. Environmental Protection Agency (EPA) guidance, are to treat nonpoint source (NPS) pollution and to improve water quality.

GEOGRAPHIC SCOPE

Missouri

OVERVIEW OF PROGRAM/STUDY

Missouri recognizes three types of NPS problems. In order of descending importance they are: 1) human health, 2) human use (non-health related), such as drinking water supply and recreation, and 3) protection of aquatic life. Human health issues of concern include nitrates, pesticides, or commercial and industrial chemicals in drinking water reservoirs and streams, or nonpoint source runoff of toxic chemicals. Non-health related threats to drinking water supply and/or recreational uses would include loss of reservoir storage capacity or taste and odor problems due to eutrophication in reservoirs. Aquatic life and other use concerns include habitat degradation due to agricultural erosion, and water quality and sedimentation problems from coal and heavy metal mining areas.

SOURCE OF PRIORITY RECOGNITION

Institutional: The EPA guidance used in this program was prepared under Section 319 of the federal Clean Water Act.

Public: Public support and participation is paramount to the program. Without local public support, a project to restore and protect a watershed will not be implemented even if it has a high ranking or degree of nonpoint source problem.

Technical: The process of ranking watersheds by degree of nonpoint source problem is based on scientific and technical knowledge or judgment, as described in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

In its publication "Setting Priorities: The Key to NPS Control," EPA distinguishes between ranking watersheds as to degree of problem and prioritizing them for treatment. The ranking process is strictly a judgement as to the relative nonpoint source problem in the watershed, while prioritizing watersheds for treatment takes into account not only the degree of nonpoint source problem but also economic, political, institutional and public participation constraints.

Ranking Watersheds by Degree of Nonpoint Source Problem

For the purpose of this prioritization process, the Missouri DNR recognizes three types of nonpoint source problems. In order of descending importance they are:

1) Human health issues of concern which includes nitrates, pesticides, or commercial and industrial chemicals in drinking water reservoirs, streams or potable aquifers, and contamination of fish tissue by rural or urban nonpoint source runoff of toxic chemicals.

2) Drinking water supply and recreational uses that relate to non-health related threats such as loss of reservoir storage capacity, or taste or odor problems due to eutrophication in reservoirs and aesthetic problems.

3) Protection of aquatic life and other use concerns, which include habitat degradation due to agricultural erosion, water quality and sedimentation problems from coal and heavy metal mining areas.

The state was divided into 206 watersheds, 141 larger basins and 65 small watersheds above small public drinking water reservoirs. For each of the 206 watersheds, the following variables were determined:

1) PUPE: The number of people served by a municipal or county public water supply using a reservoir or groundwater from a shallow, unconsolidated aquifer.

2) PVPE: The number of people served by private water supplies.

3) R: Present degree of risk to human health.

4) TONS: Cropland erosion in tons/acre/year.

5) CROP: Percent cropland in basin.

6) F: Present degree of risk to non-health related drinking water uses.

7) HHMI: Number of stream miles (or lake acres/100) of partial or non-attainment of beneficial use which relates to human health.

8) ANMI: Number of stream miles (or lake acres/100) of non-attainment for uses other than drinking water supply.

9) APMI: Number of stream miles (or lake acres/100) of partial attainment for uses other than drinking water supply.

10) C: Cool or cold water fisheries streams are present in this basin.

The overall ranking of the severity of the nonpoint source problem in the basin is calculated by summing the total points for each of the three general types of problems: human health, non-health related drinking water supply, and aquatic life protection.

In basins where important wetlands have been identified, the value for aquatic life protection is increased by 10-20 percent.

Prioritizing Watersheds for Treatment

Prioritizing watersheds for treatment in nonpoint source control projects is done by best management practice (BMP), by using a compilation of the following four factors:

1) The relative severity within each watershed of the nonpoint source problem that the BMP addresses.

2) The overall effectiveness of the BMP within a particular basin.

3) An adjustment for how the effectiveness of the BMP will be influenced by basin or other site-specific factors.

4) The extent to which the chosen BMP matches the important nonpoint source problems in the basin.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Public support is a vital aspect of this prioritization process. Even if a watershed ranks high on a list to be treated, without local support, the project cannot be implemented. However, public support alone will not enable a watershed to receive treatment if the ranking process shows that it is not a high priority based on the severity of the nonpoint source problem.

Aquatic habitat values were increased by 10 percent in 16 basins and by 20 percent in 3 basins based on the identification of important wetlands in those basins.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Missouri Nonpoint Source Watershed Program could serve as a model for prioritizing watersheds for treatment of nonpoint source problems for restoration and protection of watersheds. The DNR recently revised the prioritization process to reflect the recent

identification of watersheds with the most important wetland resources and the DNR's desire to elevate them in priority for nonpoint source control projects.

The process of ranking watersheds by degree of nonpoint source pollution problem included identification of cool or cold water fisheries streams and important wetlands in each basin. The Missouri Nonpoint Source Watershed Program determined this aquatic resource information for each of the 206 watersheds in Missouri. The Corps could use information on important wetlands in each basin to identify wetland areas of state or regional significance in Missouri.

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Betty Keehart, John Ford, and Jane Epperson, "Ranking Nonpoint Source Watersheds," prepared for the Missouri Department of Natural Resources.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Montana River Restoration Program

GOALS AND OBJECTIVES

The goal of the River Restoration Program, as administered by the Montana Department of Fish, Wildlife, and Parks, is to improve rivers and their associated lands in order to conserve and enhance fish and wildlife habitat.

GEOGRAPHIC SCOPE

Montana

OVERVIEW OF PROGRAM/STUDY

Funding for the River Restoration Program is derived from $.50 of each resident fishing license, $1.00 from each non-resident fishing license, and $.50 from each sportsman's license. To date, about $306,500 has been raised to fund program activities. The types of river restoration projects funded by the River Restoration Program are summarized below.

- Projects funded include 19 from private landowners, 5 from conservation districts, 10 from public organizations, and 3 from state or local government.
- Types of projects authorized for funding are:

Riparian Enhancement	19
Channel & Bank Restoration or Stabilization	8
Fish Passage	3
Irrigation Diversions	4
Watershed Rehabilitation	2
Fish Spawning Channel	1

- 35 projects funded to date on private land, 1 on state land, and 1 on university land.

SOURCE OF PRIORITY RECOGNITION

Institutional: The River Restoration Act, statutes 87-1-255 through 87-1-259, passed by the 1989 Montana Legislature, states that the legislature finds that the conservation of rivers and their fisheries is of vital social and economic importance to Montana. The legislature further found that some of the state's rivers and fisheries are diminished in value by water pollution, water shortages, and riparian erosion and that there is a need for a program to promote the beneficial use and productivity of the state's river systems. The legislature further finds that establishment of a river restoration program, funded by anglers from across the state and nation, is a sound and proper method to help ensure that the rivers and fisheries that anglers and others have treasured during Montana's first 100 years will continue to serve that state and its people.

Section 12.7.1101 of the River Restoration Act rules states the program's purpose is: (1) to preserve rivers and streams of recreational and economic importance to Montana by providing financial assistance for design, planning, and construction of projects to restore streambeds, banks and associated adjacent lands to conserve and enhance fish and wildlife habitat.

Public: One of the criterion used for evaluating restoration projects is the level of local support for a project, which accounts for up to 10 percent of the total evaluation points.

Technical: A program committee reviews, evaluates, and approves projects for funding. The criteria used for evaluating restoration projects is based largely on scientific and technical knowledge, which is described in further detail in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The prioritization process is based on a scoring system with eight separate criteria and point values. This scoring system is summarized below.

1) Optimizes benefits to public fisheries (maximum 25 points). Projects are evaluated in this section according to the following:

   - Benefit to a game or sport fish species
   - Benefit to a rare, endangered, or threatened fish species
   - Improvement of fish habitat
   - Increase of fish populations
   - Increase of fishing opportunity

2) Potential benefit to other river resources (maximum 20 points). Projects are evaluated in this section according to the following:

   - Improvement in water quality
   - Improvement in water quantity
   - Improvement of wildlife habitat
   - Maintaining or improving recreational opportunities

- Prevention of property damage
- Improvement of river aesthetics

3) Severity of the problem and need (maximum 20 points). Projects are evaluated in this section according to the following:

- Immediate action needed to prevent further loss of natural resources associated with the river environment
- Imminent action needed to prevent further loss of natural resources associated with the river environment
- Action needed but no urgent problem

4) Importance of river or stream (maximum 5 points). Projects are evaluated in this section according to the following:

- Highest value fishery resource
- High priority fishery resource
- Substantial fishery resource
- Moderate fishery resource
- Limited fishery resource
- Not listed, but has limited fishery resource

5) Level of local support (maximum 10 points). Projects are evaluated in this section according to the following:

- Project is supported by a local organization, a landowner and a public agency
- Project is supported by the applicant and a public agency
- Project is supported by the applicant

6) Potential for statewide application (maximum 5 points). Projects are evaluated in this section according to the following:

- Final project results could be applicable throughout Montana
- Final project results could be applicable to a general geographical area of Montana
- Final project results are limited in application in Montana
- Final project results have no other application in Montana

7) Cost sharing or in-kind services (maximum 20 points). Percent of the project that will be funded from other revenue sources and/or in-kind services:

- Over 75%
- 50% to 75%
- 25% to 49%
- Up to 24%
- Project funding will rely entirely on River Restoration Program revenues

8) Public fishing (maximum 5 points). Public fishing is evaluated in this section according to the following:

- Allowed adjacent to the project area
- Not allowed but project will benefit public fishing in the river system
- Not allowed and will not benefit from the project

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The public has shown a significant willingness to cost-share river restoration projects. The current ratio of cost-share funds to program funds is 2:1. Approximately $500,000 in cost-share funds have been contributed to date. Some of the larger projects have greater cost-share contributions. Riparian enhancement projects have a cost-share of approximately 1:1.

To date, 16 projects have been completed at a cost of $95,055. Another 21 projects are in various stages of completion, representing $148,267 in authorized funds. Overall, the program has received 45 applications and approved 37.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Montana River Restoration Program could serve as a model for ranking river restoration projects. It could be used by the Corps in determining the significance of riparian areas impacted by Corps water resources development projects.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Nebraska Rainwater Basin Joint Venture

GOALS AND OBJECTIVES

The goal of the Rainwater Basin Joint Venture (RWB-JV) is to restore and maintain sufficient wetland habitat in the Rainwater Basin area of Nebraska to assist in meeting population objectives identified in the North American Waterfowl Management Plan (NAWMP).

The three primary objectives of the Rainwater Basin Joint Venture are to:

- Protect, restore, and create an additional 25,000 wetland acres, not including necessary upland habitat;
- Provide reliable water sources for a minimum of 1/3 of all protected wetland acres to provide sufficient water quantity, quality, and distribution to meet migratory waterfowl and water bird needs; and
- Develop and implement wetland enhancement strategies to optimize those values wetlands provide for waterfowl, endangered species, and other water birds.

GEOGRAPHIC SCOPE

The Rainwater Basin area encompasses 4,200 square miles within 17 counties of south-central Nebraska.

OVERVIEW OF PROGRAM/STUDY

In 1989, the Nebraska Game and Parks Commission, the U.S. Fish and Wildlife Service, and Ducks Unlimited, Inc., began work on a justification document for Joint Venture status under the NAWMP. This document, entitled "Concept Plan For Waterfowl Habitat Protection, Rainwater Basin Area of Nebraska," documented the international values of this wetland complex and established a goal and three primary objectives for the proposed Joint Venture. This concept plan was submitted to the NAWMP Committee in January of 1990 and the Rainwater Basin received official Joint Venture status in 1991. The goal and three main objectives identified in the concept plan have been expanded in the implementation plan to include specific strategies and tasks.

The RWB-JV Implementation Plan is intended to guide and direct non-regulatory wetland protection activities in south-central Nebraska. To be successful, the plan must reflect

overall public sentiment, identify ways to develop a broad base of public support, and help develop programs that work cooperatively with landowners to maintain and enhance wetlands.

After receiving official Joint Venture status from the NAWMP Committee in January 1991, the RWB-JV Management Board was formed to guide and facilitate all planning and implementation activities. The Management Board consists of public, private and corporate leaders that represent a diversity of viewpoints, but have one unified goal of waterfowl habitat maintenance, enhancement and restoration in the Rainwater Basin area.

Along with the Management Board, a Technical Work Team was formed to provide direct technical support to the Management Board. This work team consists of professionals with diverse expertise in wetlands, waterfowl and resource management and is responsible for developing effective plans and programs to meet the RWB-JV goal. Like the Management Board, the Technical Work Team is a permanent component of the organizational framework.

To facilitate continued public input into the planning and implementation process, small work groups are planned to address specific technical needs. Work groups will be chaired by a Technical Work Team member and consist of interested individuals, organizations and agencies that have a specific interest or expertise in the topic to be addressed. These work groups are divided into five categories: 1) Private Lands, 2) Public Lands, 3) Water Management, 4) Communications, and 5) Other. Work groups will facilitate direct public input and participation in program development. Initial work groups will develop recommendations for private lands programs, public lands management, water management and communications.

SOURCE OF PRIORITY RECOGNITION

Institutional: The RWB-JV was approved as part of the North American Waterfowl Management Plan and received official Joint Venture status in 1991.

Technical: Nebraska's Rainwater Basin wetland area is identified by the North American Waterfowl Management Plan as a waterfowl habitat area of major concern in North America. To accomplish the first of the three objectives of the RWB-JV, the Management Board is implementing a cooperative Public Lands Program to acquire wetland acres from willing sellers by fee title or perpetual easement. The prioritization process for identification of potential wetland restoration sites under the Public Lands Program is based primarily on scientific or technical knowledge, as described further in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Determining the significance of potential wetland restoration sites under the RWB-JV Public Lands Program is based the tasks outlined below.

- Identify existing wetlands on both private and public lands from FWS National Wetland Inventory maps, Soil Conservation Service wetland inventories, county soil surveys and other information sources.

- Establish evaluation criteria and prioritize acquisition sites. At a minimum, consider:

    1) The proportion of protected wetlands to unprotected wetlands in each county,

    2) A site's ability to assist in distributing waterfowl evenly throughout the RWB area,

    3) The ability to acquire a wetland's entire hydric soil area,

    4) The need to acquire the privately owned portions of wetlands that are otherwise in public ownership,

    5) The diversity of wetland types provided by nearby wetlands,

    6) Alterations to the historic watershed,

    7) Disease history, and

    8) Prior use (i.e. animal, agricultural, and chemical use).

- Identify potential wetland restoration sites by overlaying soil survey maps with National Wetland Inventory maps.

- Apply the U.S. Army Corps of Engineers Wetland Restoration Predictive Hydrology Model to assess restoration feasibility for sites larger than 10 acres.

- Use available technology and professional expertise to assess restoration feasibility of sites less than 10 acres.

- Use the Public Lands Work Group to identify publicly acceptable, cost effective techniques that restore wetland hydrology while allowing landowners to continue farming the wetland.

- Use the Public Lands Work Group to identify publicly acceptable, cost effective techniques that restore wetlands and natural wetland vegetation on private land.

- Determine target acreages by county for the restoration of wetlands on private land based, in part, on the proportion of existing wetlands to historic wetlands.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The prioritization process is useful in directing the efforts of the RWB-JV, although measurable results will not be known for several years. However, an assessment of Rainwater Basin wetland habitat indicates that: 1) values to waterfowl, endangered species, and other water birds are of international importance; 2) water quality, flood control, recreation and economic benefits of these wetlands provide important values to the people of Nebraska; 3) wetland loss or degradation is extensive; and 4) lacking new and innovative initiatives, the probability of future wetland loss is certain.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

A concept plan that presents findings about critical wetland habitat areas in the Rainwater Basin was prepared as part of receiving official Joint Venture Status. The implementation plan for the RWB-JV provides a model to identify and determine the significance of potential wetland restoration sites. This information could be used by the Corps to derive regional resource priorities in the Rainwater Basin.

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Richard A. Gersib, et. al., "Looking To The Future: An Implementation Plan for the Rainwater Basin Joint Venture," prepared for the Rainwater Basin Joint Venture and the North American Waterfowl Management Plan (July 1992).

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Nebraska Wetlands Priority Plan

GOALS AND OBJECTIVES

The Nebraska Wetlands Priority Plan was developed by the Nebraska Game and Parks Commission as a wetlands component to be included in Nebraska's 1991-1995 State Comprehensive Outdoor Recreation Plan (SCORP) consistent with the *National Wetlands Priority Conservation Plan* (NWPCP).

GEOGRAPHIC SCOPE

Nebraska

OVERVIEW OF PROGRAM/STUDY

The Nebraska Wetlands Priority Plan identifies wetland sites that meet threshold criteria and qualify for acquisition consideration under provisions of the NWPCP. It recognizes the important outdoor recreation resource that Nebraska wetlands provide, addresses wetland protection strategies and provides wetland acquisition goals, objectives, and strategies. The plan also considers which specific actions can be taken to protect, enhance, or restore Nebraska wetlands.

SOURCE OF PRIORITY RECOGNITION

Institutional: In 1986, the Emergency Wetlands Resources Act (P.L. 99-645) was enacted to promote the conservation of our nation's wetlands by intensifying cooperative efforts among private interests and local, state, and federal governments for the conservation, management, and acquisition of wetlands. Section 303 of this Act requires that a wetlands component be included in SCORP documents beginning in 1988. This wetlands component must be consistent with the NWPCP developed by the U.S. Department of Interior.

Technical: The prioritization process, as discussed in the section below, is based on the scientific or technical knowledge or judgement of critical resource characteristics found in other organization's individual lists.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Wetlands Assessment Criteria

The NWPCP was used to provide a planning framework, criteria and guidance to determine the locations and types of wetlands that should receive priority consideration for acquisition when Land and Water Conservation fund (LWCF) appropriations are used. NWPCP wetland assessment criteria were modified and added to, where deemed appropriate, to better meet Nebraska wetland assessment needs. The three threshold criteria used to determine which wetland sites are suitable for acquisition are wetland loss, wetland threats, and wetland functions and values.

Wetland Loss

Wetland loss is the first of the three threshold criteria listed in the NWPCP for use in evaluating the acquisition potential of wetlands when LWCF monies are used. The criterion stated in the NWPCP requires that wetland types be given priority consideration for acquisition if they are rare or have declined within an ecoregion. Additional guidance includes the following:

- In general, palustrine emergent, forested, and scrub-shrub wetland types usually will warrant priority;
- An ecoregion sustaining a high or moderate "Index of Loss" could warrant priority consideration; and
- Statistically valid data or documentable information may be used to support priority status for a specified wetland type within an ecoregion, a state, or portion of a state, due to rarity or wetland losses prior to, during, or after the wetland trend studies. This latter factor is applicable if the National Wetland Inventory (NWI) data does not accurately reflect the losses due to insufficient sample size at the state level.

Wetland Threats

Wetland threat is the second of the three threshold criteria listed in the NWPCP for use in evaluating the acquisition potential of wetlands when monies from the LWCF are used. For wetlands to be given priority consideration for acquisition under criteria in the NWPCP, wetlands must be subject to identifiable threat of loss or degradation.

For the purpose of the NWPCP, "threat" is defined as the likelihood that a wetland site, or portion thereof, will be further destroyed or degraded, directly or indirectly, through human actions. A wetland site that has lost less than 50 percent of its historic functions and values is considered to be threatened if greater than 10 percent of the site's wetland values are likely to be destroyed or adversely affected through direct, indirect, or cumulative impacts over the next ten years. At wetland sites that have lost greater than 50 percent of their historic functions and values, "threat" is considered to exist when greater than 5 percent of the site's

values are likely to be destroyed or degraded over the next ten years. This differentiation is warranted to account for the cumulative impacts of past wetland losses.

In Nebraska, wetland threat was assessed by first considering a site's potential for wetland loss or degradation from an array of threats and secondly by assessing the probable degree of protection provided by various ordinances, laws and regulations.

At a minimum, the following items were considered when evaluating the potential for future wetland destruction or degradation at each site:

- Drainage and/or filling;
- Agricultural conversion or use;
- Livestock grazing;
- Groundwater withdrawal/depletion;
- Loss of instream flows;
- Residential or commercial development;
- Oil, gas, mineral development;
- Power plants;
- Transportation (roads and bridges);
- Navigation project, marina or pier;
- Water development projects;
- Water pollution; and
- Other factors specific to the site.

Laws, ordinances or programs that are perceived to offer some degree of wetland protection potential also were identified for each wetland site.

Wetland Functions and Values

Wetland functions and values are the third set of threshold criteria listed in the NWPCP for use in evaluating the acquisition potential of wetlands using monies from the LWCF. The NWPCP states two main criteria:

1) Wetlands to be given priority consideration for acquisition are those with important and diverse functions and values and/or especially high or special value for specific wetland functions, and

2) All wetland functions and the broadest range of wetland values should be considered in establishing priorities without greater priority consideration given to one public value over another.

In Nebraska, NWPCP assessment criteria were used to assess overall wetland functions and values. These criteria assessed wetland site values to:

a) Wildlife and plants,

b) Commercial and sport fisheries,

c) Water supply/quality and flood erosion protection, and

d) Outdoor recreation, and

e) Education and research.

Wetland values assessment relied on documented data or information to support value determinations.

Assessments of Priority Wetland Sites

A simplified priority ranking system was developed to rank wetland sites in Nebraska that meet all criteria necessary to qualify for acquisition consideration under provisions of the NWPCP. The ranking system is based on a series of weighted questions designed to allow comparison of each wetland site's known overall values to that of the other wetland sites. The ranking system is based on a possible seventy point score, with the wetland site having the highest score considered to have the highest priority for acquisition initiatives when LWCF funding is used.

Nebraska's priority assessment ranking system consists of nine sections with four general assessment categories. Each section contains a question with a multiple choice answer requiring the selection of the most appropriate answer. Point values assigned to each appropriate answer are totalled to produce the overall score. The priority assessment ranking system is outlined below.

Impact Assessment System

SECTION 1. Based on NWPCP assessment criteria, has the wetland site experienced significant wetland loss in the past?

a) If the wetland site has lost less than 25 percent of historic wetlands (Score 0 points).

b) If the wetland site has lost 25 percent to 50 percent of historic wetlands (Score 5 points).

c) If the wetland site has lost greater than 50 percent of historic wetlands (Score 10 points).

SECTION 2. Based on NWPCP assessment criteria, is there evidence of significant future threats to this wetland site?

a) If the wetland site has a low potential for future loss or degradation (Score 0 points).

b) If the wetland site has a moderate potential for future loss or degradation (Score 5 points).

c) If the wetland site has a high potential for future loss or degradation (Score 10 points).

Biological Assessment System

SECTION 3. Does the wetland site provide substantial benefits to waterfowl?

a) If the wetland site provides little or no values to waterfowl (Score 0 points).

b) If the wetland site is recognized to have local/regional importance to waterfowl (Score 3 points).

c) If the wetland site is recognized to have national or international importance to waterfowl (Score 5 points).

SECTION 4. Does the wetland site provide substantial benefits to threatened or endangered species?

a) If the wetland site provides little or no values to threatened or endangered species (Score 0 points).

b) If the wetland site is recognized as providing some values to threatened or endangered species (Score 3 points).

c) If the wetland site is recognized as providing critical or essential habitat for threatened or endangered species (Score 5 points).

SECTION 5. Does the wetland site provide substantial benefits to nongame migratory birds?

a) If the wetland site provides little or no values to nongame migratory birds (Score 0 points).

b) If the wetland site is recognized to have local/regional importance to nongame birds (Score 3 points).

c) If the wetland site is recognized to have national or international values to nongame birds (Score 5 points).

SECTION 6. Is the wetland site recognized to have regionally rare or unique plants/community types?

a) If the wetland site is not recognized as having regionally rare or unique plants/community types (Score 0 points).

b) If the wetland is recognized as having regionally rare or unique plants/community types (Score 5 points).

General Assessment

SECTION 7. Does the wetland site meet individual threshold criteria for general wetland functions and values as identified in NWPCP?

a) Wildlife -- NO (Score 0 points); YES (Score 3 points).

b) Fisheries -- NO (Score 0 points); YES (Score 3 points).

c) Water Supply/Quality, Flood and Erosion Protection -- NO (Score 0 points); YES (Score 3 points).

d) Outdoor Recreation -- NO (Score 0 points); YES (Score 3 points).

e) Special Values -- NO (Score 0 points); YES (Score 3 points).

Administrating Assessment

SECTION 8. Is the wetland site within a Joint Venture area approved by the North American Waterfowl Management Plan (NAWMP) Committee or one of the 34 Waterfowl Habitat Areas of Major Concern in the United States and Canada as specified in the NAWMP?

a) If wetland site is located outside the 34 Waterfowl Habitat Areas of Major Concern in the U.S. (Score 0 points).

b) If wetland site is located outside an approved Joint Venture but within one of the 34 Waterfowl Habitat Areas of Major Concern in the U.S. (Score 5 points).

c) If wetland site is located within an approved Joint Venture by the NAWMP Committee (Score 10 points).

SECTION 9. Is the wetland site listed in the U.S. Fish and Wildlife Service Regional Concept Plan or does the site meet the threshold criteria required by the NWPCP?

a) If the wetland site is listed in the Regional Concept Plan or does not meet the threshold criteria required by the NWPCP (Score 0 points).

b) If wetland site is listed in the Regional Concept Plan or will meet the threshold criteria required by the NWPCP (Score 5 points).

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Six wetland complexes in Nebraska have adequate documentation to meet requirements for acquisition consideration under the provisions of the NWPCP. All wetland sites that meet NWPCP acquisition criteria are considered to have a high priority for acquisition under the

Nebraska Wetlands Priority Plan. The general priority assessment criteria were used to rank the six wetland complexes in order of their relative importance. As additional wetland complexes qualify for acquisition consideration under the NWPCP, these sites will be elevated to the high priority acquisition status and assigned a relative importance ranking.

Within a given wetland complex there may be hundreds or even thousands of individual wetlands that meet the criteria for acquisition. Appendices in the Nebraska Wetlands Priority Plan identify wetland sites that are known to meet the criteria required by the NWPCP. These individual wetlands are intended to be used as examples of suitable wetlands occurring within the wetland complex rather than the definitive list of sites qualifying for acquisition. Individual wetland sites will be more thoroughly identified during acquisition planning.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Nebraska Wetlands Priority Plan could be used by the Corps as a model for wetlands assessment criteria and the use of a relative importance ranking for priority wetland complexes.

Appendices in the Nebraska Wetlands Priority Plan identify wetland sites that are known to meet the criteria required by the NWPCP. These lists of examples of priority wetland sites could be used by the Corps to identify wetland areas of state significance. The Nebraska Wetlands Priority Plan could also be used to identify those wetland sites in Nebraska that are within a Joint Venture area under the NAWMP or one of the 34 Waterfowl Habitat Areas of Major Concern in the United States and Canada as specified in the NAWMP.

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Richard A. Gersib, "Nebraska Wetlands Priority Plan," prepared for the Nebraska Games and Parks Commission (July 1991).

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

New York State Coastal Management Program

GOALS AND OBJECTIVES

The New York State Coastal Management Program (CMP), administered by the Department of State, Division of Coastal Resources and Waterfront Revitalization, is established pursuant to the federal Coastal Zone Management Act of 1972 and the State Waterfront Revitalization and Coastal Resources Act of 1981 (WRCRA). These acts call for the coordinated, comprehensive, and full exercise of governmental authority over land and water uses in the coastal zone for the purpose of preserving and using coastal resources in a manner that balances natural resource protection and the need to accommodate economic development. To accomplish this goal, the acts provide, in part, that all state and federal actions in the coastal zone shall comply with a single set of decision-making criteria, or policies. These policies, 44 in number, are set forth in the *State of New York Coastal Management Program and Final Environmental Impact Statement*. In general, they either:

- Promote the beneficial use of coastal resources, by encouraging water dependent uses, expansion of ports and small harbors, revitalization of waterfronts, and expansion of access and recreation opportunities;

- Prevent the impairment of certain coastal resources, including fish and wildlife habitats, dunes, beaches, islands and other natural protective features, wetlands, scenic areas, historic resources, and agricultural lands; or

- Provide for the management of activities which may impact coastal resources, including dredging, ice management, energy facility development, waste disposal, construction of erosion structures, and mineral resource exploration.

The coastal policy statements, their attendant guidelines and existing federal and state environmental and resource management laws provide the objectives and standards for the program.

GEOGRAPHIC SCOPE

New York

OVERVIEW OF PROGRAM/STUDY

Implementation of the CMP by the New York Department of State is effectuated through three program components -- Local Waterfront Revitalization Programs, review of federal

and state government actions for consistency with the policies, and the advocacy of projects and activities that implement specific coastal policies.

Local Waterfront Revitalization Programs (LWRP)

The LWRP was established to enable the state's CMP to address the problems of coastal development in full partnership with local government. Management of coastal development, whether the concern is protecting critical resources or revitalizing deteriorated waterfronts, must, of necessity, include regulation of land use decisions. While the state, through its various permits programs and capital projects, has a major impact on development patterns, New York's municipalities have the primary authority for directly regulating land use.

The LWRP refines and supplements the state CMP by incorporating local needs and objectives. As authorized by Section 915 of the WRCRA, a LWRP is a locally prepared, detailed land use plan that sets forth design, locational and environmental standards for all development along the municipality's waterfront. It also describes capital projects and other actions necessary to further state and municipal policies for the waterfront. Federal and state law provide that all government agencies -- in their direct, funding, and permit actions -- adhere to any LWRP approved by the Secretary of State.

Consistency

The federal Coastal Zone Management Act stipulates that federal agency activities affecting land and water uses within the coastal zone must be consistent with approved state coastal management programs. This requirement means that no federal direct action can take place, no license or permit can be issued, and no federal assistance to state or local governments can be provided, unless the direct action, permit or grant is in accord with the state's coastal program. New York State thus has control over the actions of federal agencies that affect its coastal area.

Like their federal counterparts, state agencies operate a number of programs that affect the use and protection of coastal resources. In recognition of both the beneficial and potentially adverse effects that state agency activities may have upon waterfront areas, the WRCRA requires that "actions directly undertaken by state agencies within the coastal area . . . shall be consistent with the coastal area policies of this Article." This provision of law ties together the programs of state agencies by binding their decision-making actions to coastal policies. Actions which are not consistent with applicable policies cannot be undertaken or, where appropriate, are to be modified to an extent that they will be consistent.

Advocacy

The consistency provision of the CMP and the existence of LWRPs assure that many coastal policies are implemented. However, policies must also be advanced by the direct involvement in a variety of coastal programs, projects, and activities. Hence, advocacy of policies is a third major focus of the program.

Included within this focus are efforts to promote the state's commercial fishing industry; provide suitable space for traditional maritime activities; preserve coastal historic, scenic and

cultural resources; promote public access to coastal lands and waters; minimize development in coastal flooding and erosion hazard areas; protect significant coastal fish and wildlife habitats; and seek solutions to the problems that constrain port and harbor dredging.

SOURCE OF PRIORITY RECOGNITION

Institutional: In 1981, the Waterfront Revitalization and Coastal Resources Act (Article 42 of the NYS Executive Law) was enacted. This state law enabled New York to manage its coastal resources pursuant to the provisions of the federal Coastal Zone Management Act of 1972 (P.L. 92-583). The state legislation, in concert with existing federal and state environmental and resource management laws, provided a framework for New York's CMP. Approved by the U.S. Department of Commerce in September 1982, and administered by the New York Department of State, the state's CMP was the first concerted waterfront revitalization effort of the 3,200 miles of New York's recognized coastal area along the shores of New York City, Long Island, the Hudson River Valley (south of the federal dam in Troy), the St. Lawrence and Niagara Rivers, and Lakes Erie and Ontario.

Public: Under the Waterfront Revitalization and Coastal Resources Act, each of the 250 municipalities in the coastal area are encouraged -- but not mandated -- to prepare their own LWRP. The LWRP refines and supplements the state CMP and its policies by incorporating local needs and objectives. The process brings together local, state, and federal agencies, commerce and industry, environmental interests, private organizations, and citizens to assess current problems and opportunities and to build a consensus on the desired future of the community's waterfront.

Technical: The prioritization process, as discussed in the section below, is based on scientific or technical knowledge and judgement of critical resource characteristics to identify significant coastal fish and wildlife habitat.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Purpose of the Significant Coastal Fish and Wildlife Habitats Program

Many habitats that are vital to the survival of New York's coastal fish and wildlife resources exist along the state's 3,200 miles of shore. However, as development pressures mount, these habitats are being degraded or lost. In response to public concern about accelerating habitat destruction, a policy aimed at protecting the most important coastal habitats was established in WRCRA. The New York Department of State, which administers WRCRA is committed to habitat protection to preserve the recreational, commercial and ecological benefits derived from coastal fish and wildlife resources.

Criteria Used to Screen and Identify The Most Significant Coastal Habitats

A habitat is significant if it serves one or more of the following functions:

1) Is essential to the survival of a large portion of a particular fish or wildlife population;

2) Supports populations of species which are endangered, threatened, or of special concern;

3) Supports populations having significant commercial, recreational, or educational value; and

4) Exemplifies a habitat type which is not commonly found in the state or in a coastal region.

Also, the significance of certain habitats increases to the extent that they could not be replaced if destroyed.

Identification of Significant Habitats

Using the criteria listed above, biologists in the Department of Environmental Conservation developed a quantitative system for evaluating each candidate habitat. This tool lessens subjectivity in the evaluation process. Habitats that receive a score above a specific threshold value are recommended by the Department of Environmental Conservation for designation by the Secretary of State as significant coastal fish and wildlife habitats. Each habitat designated as significant is then mapped and described in a habitat narrative.

Rating System Numeric Values Used in Habitat Evaluations

Rating Criterion	Level of Significance	Score
Population Level (PL)	Concentration of species is unusual in the:	
	World	49
	United States	36
	Major ecological region of the U.S.	25
	State of New York	16
	Major ecological region of NY	9
	County	4
	No unusual concentration	0
Species Vulnerability (SV)	Species listing status:	
	Endangered	36
	Threatened	25
	Special Concern	16
	Not listed	0

Ecosystem Rarity (ER)	Frequency of occurrence in the coastal area is:	
	Unique (one of a kind)	100
	Rare in the United States	81
	Rare in New York	64
	Rare in a major ecological region of NY state	25
Human Use (HU)	Significant commercial or recreational uses are important to residents of the:	
	World	49
	United States	36
	Major ecological region of the US	25
	State of New York	16
	Major ecological region of NY	9
	County	4
	No unusual concentration	0
Replaceability (R)	Irreplaceable	1.2
	Difficult to replace	1.0
	Possible to replace	0.8
	Easily replaced	0.6
	Will be replaced	0.4

The minimum score for designation as significant coastal habitat is 16 points.

Local Participation

Public review of recommended sites begins when the Department of State distributes information packets for each habitat to local officials and concerned citizens at regional information meetings. This packet includes information showing the proposed habitat boundary and a habitat narrative describing the habitat, the community of fish and wildlife that use the habitat, and the kinds of activities that could destroy the habitat. Valuable local information is expected during the public review process; this information will be used to verify and add specificity to the information that had been compiled for each habitat.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The Results of the LWRP Partnership

The design of the partnership between local and state government is unique. In brief, it results in local government revising its development regulations to further state coastal policies and in state agencies complying with, and enforcing, local development standards. As provided by WRCRA, the LWRP is legally binding on state and local governments. It

is also binding on federal agencies because LWRPs, when approved by the Secretary of State, are incorporated into the state CMP with which federal agencies must adhere. Having local, state, and federal development decisions occur in concert not only adds to the ability of the three levels of government to achieve their policy objectives, but also enhances sound development opportunities by significantly increasing the predictability of government decisions that affect private development.

Benefits of the Significant Coastal Fish and Wildlife Habitats Program

One of the principal benefits of the Significant Coastal Fish and Wildlife Habitats Program is knowing the location of these habitats. Applicants can simply refer to the Coastal Area Map to determine whether their proposed action is located in or near a significant habitat. Costly delays created when habitats are discovered later in the project development process can be avoided. The habitat map and narrative for each significant coastal habitat will serve regulators by providing site-specific information useful for impact assessment. Each narrative lists knowledgeable contacts who can assist in identifying mitigative techniques that when used, may allow the project to go forth without sacrificing the habitat.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The New York State Coastal Management Program could serve as a model for addressing problems of coastal development in full partnership with local government. It could also be used by the Corps as a model for identification of significant coastal habitats.

The significant habitats identified and mapped under the Significant Coastal Fish and Wildlife Habitats Program could be used by the Corps to identify coastal resources of state significance. A habitat map and narrative provide site-specific information on each significant coastal habitat designated under the Significant Coastal Fish and Wildlife Habitats Program as part of the New York State Coastal Management Program.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

North Carolina Basinwide Water Quality Management Program

GOALS AND OBJECTIVES

The goals and objectives of the Basinwide Water Quality Management Program, as administered by the North Carolina Division of Environmental Management (DEM), Water Quality Section, are: 1) to restore full use to impaired waters, 2) to identify and protect highly valued resource waters, and 3) to manage long-range water quality management strategies that both protect the quality and intended uses of North Carolina's surface waters and allow for reasonable economic planning and growth.

GEOGRAPHIC SCOPE

North Carolina

OVERVIEW OF PROGRAM/STUDY

Basinwide management is a watershed-based management approach that features basinwide permitting, integrating existing point and nonpoint source control programs, and preparing basinwide management plan reports.

DEM is applying this approach to each of the seventeen major river basins in the state as a means of better identifying water quality problems, developing appropriate management strategies, maintaining and protecting water quality and aquatic habitat, and assuring equitable distribution of waste assimilative capacity for dischargers. Other important benefits of the basinwide approach include improved efficiency, increased cost-effectiveness, better consistency and equitability, and improved public awareness and involvement in management of the state's surface waters.

A basinwide management plan document is prepared for each basin in order to communicate to policy makers, the regulated community and the general public the state's rationale, approaches, and long-term strategies for each basin. The plans are circulated for public review and are presented at public meetings in each river basin. The management plan for a given basin is completed and approved preceding the scheduled date for basinwide permit renewals in that basin. The plans will be evaluated using follow-up water quality monitoring data and updated at five-year intervals.

SOURCE OF PRIORITY RECOGNITION

Institutional: The North Carolina basinwide program evolved from the desire of DEM staff to improve the efficiency, effectiveness, and consistency of the state's Water Quality Program as well as to address the need to meet Clean Water Act reporting requirements under Section 305(b) and to develop Total Maximum Daily Loads (TMDLs) under Section 303(d). The program stemmed from a series of staff meetings and facilitated workshops in 1987 through 1989. Ideas generated by these meetings were summarized in a draft program plan that was taken to public hearing and reviewed by the EPA. A basinwide permitting schedule was implemented in 1990, and a final detailed basinwide program document entitled *North Carolina's Basinwide Approach to Water Quality Management: Program Description* was published in 1991. This document presents the objectives and rationale for basinwide management and outlines the procedures, time schedule and format for basinwide management. A basinwide program coordinator position was established in 1992. The first basinwide plan (Neuse River) was completed in February 1993 and issuance of NPDES permits began in April 1993. Development of the basinwide management program was conceived and carried out in-house as a policy initiative by the Water Quality Section of the Division of Environmental Management. It was not the result of, nor has it required, any legislative action.

Public: There is significant public involvement throughout the prioritization process through meetings and public review and approval of the plan, as described in the section below.

Technical: Technical and scientific knowledge or judgement is evidenced through assessment of water quality and biological communities, as described in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The prioritization process is based on development of individual basinwide management plans, which is a five-year process as described below.

Years 1 to 3 - Water Quality Data Collection/Identification of Goals and Issues (Steps 1 through 7). Year 1 entails identifying sampling needs and canvassing for information. It also entails coordinating with other agencies, the academic community and local interest groups to begin establishing goals and objectives and identifying and prioritizing problems and issues. Biomonitoring, fish community and tissue analyses, special studies and other water quality sampling activities are conducted in Years 2 and 3 by DEM's Environmental Sciences Branch (ESB) to provide information for assessing water quality status and trends throughout the basin and to provide data for computer modeling.

Years 3 to 4 - Data Assessment and Model Preparation (Steps 7 to 9). Modeling priorities are identified early in this phase and are refined through assessment of water quality data from ESB. Data from special studies are then used by DEM's Technical Support Branch (TSB) to prepare models for estimating potential impacts of waste loading from point and nonpoint sources using the TDML approach. Preliminary water quality control strategies are developed as the modeling results are assessed. Further coordination occurs with local governments, the regulated community and citizens groups during this period.

Year 4 - Preparation of Draft Basinwide Plan (Steps 9, 10 and 11). The draft plan, which is prepared by DEM's Planning Branch, is due for completion by the end of year 4. It is based on support documents prepared by ESB (water quality data) and TSB (modeling data and recommended pollution control strategies). Preliminary findings are presented at informal meetings through the year with local governments and other interested groups, and comments are incorporated into the draft.

Year 5 - Public Review and Approval of Plan (Steps 12, 13 and 14). During the beginning of year 5, after approval by the Environmental Management Commission (EMC), the draft plan is circulated for review, and public meetings are held. Revisions are made to the plan, based on public comments, and the final plan is submitted to the EMC for approval midway through year 5. Basinwide permitting begins at the end of year 5.

Each basinwide management plan includes seven chapters:

1) An introduction describing the purpose and format of the plan, DEM's Water Quality Section responsibilities and enabling legislation;

2) A general basin description and standards;

3) An overview of existing pollutant sources and loads within a basin and a more generic description of cases and sources of point and nonpoint source pollution for the lay person;

4) An assessment of the status of water quality and biological communities in the basin including use-support rating and 305(b) information;

5) A description of the TMDL approach and the state's National Pollutant Discharge Elimination System (NPDES) and nonpoint source control programs;

6) Priority water quality issues and recommended control strategies, including TMDLs; and

7) Implementation, enforcement, and monitoring plans.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

North Carolina is still faced with basically the same water quality challenges that were identified when the program began. The major difference, however, is that the state, through implementation of basinwide management, now has an established program and the tools for taking significant steps toward addressing these issues. The basinwide approach reduces the seemingly endless set of water quality issues into more manageable units defined both geographically (by river basin) and temporally (by five-year permit review/renewal and basin plan update intervals). The NPDES permit rescheduling provides structure to the state's water quality program, which enables program activities to be conducted in a more effective, efficient and consistent manner. The geographic breakdown allows for closer evaluation of

water quality status, identification of impaired waters, and development of appropriate management strategies within each basin. The five-year update intervals offer a convenient and realistic time frame for measuring the progress of pollution reduction strategies. In addition, a mechanism has been developed to encourage broader public understanding and participation in water quality protection and the development of long-term management strategies.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The North Carolina Basinwide Water Quality Management Program could serve as a model for basinwide management that incorporates an assessment of water quality and biological communities to identify priority water quality issues and recommend control strategies. It could also be used by the Corps to identify highly valued resource waters in North Carolina.

BIBLIOGRAPHIC INFORMATION

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

North Carolina Wetland Rating System

GOALS AND OBJECTIVES

The Wetland Rating System, as administered by the North Carolina Department of Environment, Health and Natural Resources, Division of Environmental Management (DEM), Water Quality Section, incorporates the results of a Wetland Program Development Grant received from the Environmental Protection Agency (EPA) to develop biological criteria for wetlands. The Wetland Rating System will assist the Division in regulating activities which impact wetlands through the Section 404/401 regulatory process and will be revised annually to incorporate any new scientific literature that is applicable.

GEOGRAPHIC SCOPE

Freshwater wetlands in North Carolina

OVERVIEW OF PROGRAM/STUDY

The North Carolina Wetland Rating System will be primarily used by the DEM as a tool for making decisions regarding Section 401 Water Quality Certifications in freshwater wetlands. It may also be used for evaluating wetlands for acquisition and restoration as well as mitigation banks. This new system should result in more consistent evaluations of wetlands among the DEM's field staff, consultants, and the general public, in comparison to earlier evaluations that relied on best professional judgement about wetland values.

SOURCE OF PRIORITY RECOGNITION

Technical: The North Carolina Wetlands Rating System uses scientific and technical evidence to rate wetlands according to 10 wetland values and functions.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The North Carolina Wetlands Rating System rates wetlands according to 10 values and functions, which are summarized below:

1) Water Storage. Water storage is a physical process that occurs in the depression containing the wetland. It refers to the storage or conveyance of flood waters and the storage or retardation of runoff. Wetlands adjacent to surface waters have more

opportunity to receive flood waters and surface waters, and therefore, are the only wetlands that can be given the highest score for this function. The highest value wetlands will be those of sufficient size (greater than or equal to 5 acres) to store large amounts of water.

2) Bank/Shoreline Stabilization. Bank/shoreline stabilization refers to the role of wetlands in protecting the shorelines of intermittent and permanent streams, rivers, lakes, ponds, and estuaries from erosive forces. This value must be rated on the ability of a wetland to anchor a shoreline as well as the opportunity for highly erosive forces to affect the shoreline. Wetlands that will be most valuable for pollutant retention are those adjacent to surface waters within 100 feet of surface channels with both the opportunity and the ability to stabilize shorelines should receive the highest scores.

3) Pollutant Removal. Pollutant removal refers to the ability of a wetland to retain or remove sediment, nutrients, and toxicants (such as heavy metals, PCBs, pesticides) as well as its opportunity to receive these pollutants. Opportunity is primarily affected by land use in the watershed and position in the landscape. Ability relates to the density, type, and extent of vegetation; ratio of wetland width to stream width; and gradient of the watershed. Wetlands that will be most valuable for pollution retention are those adjacent to surface waters (1) with some development; (2) within headwaters (first order streams) or areas that flood regularly; (3) with adequate vegetative cover by trees, shrubs, or persistent emergents; and (4) in areas of gradual topography or at least three times wider than the adjacent stream. These wetlands should receive a high score.

4) Sensitive Watershed. Sensitive watersheds are formally classified or recognized watersheds that include: Nutrient Sensitive Waters, Outstanding Resource Waters, High Quality Waters, Shellfishing Waters, DEM and Wildlife Resources Commission trout waters, Primary Nursery Areas, Secondary Nursery Areas, and water supply watersheds. The protection that a wetland provides these waters is primarily related to its ability to retain or remove sediments and nutrients. For the purpose of this wetland rating system, the score a wetland receives for being located in a sensitive watershed should be the same as the highest score it receives for any of the three water quality values. These values include water storage, bank/shoreline stabilization, and pollutant removal.

5) Travel Corridor. Travel corridor refers to whether a wetland serves as part of a system enabling wildlife to move from one area of suitable habitat to another. This function is distinct from "Wildlife Habitat" because it concerns travel rather than habitat evaluated at a landscape scale.

6) Special Ecological Attributes. Special ecological attributes refers to the uniqueness or special attributes of a wetland. If the wetland (1) is an unusual type (i.e., undisturbed bottomland hardwood forest), (2) supports federal or state-listed threatened or endangered species, (3) is disjunct (e.g., a mountain bog in the piedmont), or (4) is part of an unusually large, undisturbed wetland, then it receives a high score (on a scale of 0-5).

7) Wildlife Habitat. Assessing the wildlife value of a wetland is particularly difficult because of the diversity of wildlife species and the varied food and habitat needs of the species which may use wetlands. For the purposes of this rating system, wildlife includes those species of birds and mammals which may normally use wetlands but are not necessarily restricted to these habitats. The highest value wetlands in terms of wildlife habitat will have vegetation important for wildlife cover and food. Those wetlands (1) with vegetation that is important for wildlife food and cover, (2) that are connected to permanent water or other wetlands or form a complex, (3) meet the minimum size requirements, and (4) are undisturbed should receive the highest score.

8) Aquatic Life Value. Aquatic life value refers to the ability of a wetland to support fish, amphibians, reptiles, and invertebrates. For the purposes of this rating system, aquatic life is dependent on or spends some phase of its life in the water. The aquatic life value of a wetland is determined primarily by the presence of water, vegetation, and surrounding land use. The highest value wetlands are (1) bottomland hardwood systems that flood areas during the spring, (2) wetlands with standing water present in some areas (at least 10 percent of surface area) all year, and (3) Carolina Bays with at least 1 foot of surface water during the winter and spring.

9) Recreation/Education. Recreation/education refers to the use of a wetland for both consumptive (hunting, fishing) and nonconsumptive (birding, botanizing, canoeing, aesthetics) forms of recreation and education that occur in either an incidental or obligatory manner in wetlands. The value is based on the quality of the wetland as well as public access to the wetland. Those publicly accessible wetlands with diverse plant communities and areas of open water (greater than or equal to 15 feet) should be given a high score for this value depending on the level of disturbance in the area.

10) Economic Value. Economic value primarily concerns timber, hunting leases, and in rare cases, commercial fish. This value refers to the existing long-term economic value of a wetland without permanent impact on other wetland uses. Timber value is based on the actual value of the trees at the site and the potential for that site to produce marketable trees. An area can receive a high score for timber value if it either has potential timber value through natural regeneration or artificial regeneration (with appropriate best management practices) or actual timber value based on the numbers and sizes of trees.

The individual wetland values are grouped into water quality (1-3), landscape (4-5), habitat (7-8), and human values (9-10). Each value is still given an individual score from 0-5 points, but the group is given an overall weighting. These weightings reflect the DEM's regulatory emphasis on protecting water quality.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

It is difficult to draw conclusions because the system is ongoing, but there is a need to address cumulative impacts, or to evaluate wetlands within a watershed, as opposed to evaluating them on a project-by-project basis.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The North Carolina Wetlands Ranking System could serve as a model for ranking wetlands in other geographic areas. It could also be used by the Corps to identify the regional significance of wetlands in North Carolina.

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POINT OF CONTACT

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

North Dakota Natural Heritage Program

GOALS AND OBJECTIVES

The state's 1975 Nature Preserves Act mandates that the North Dakota Parks and Recreation Department acquire and/or protect nature preserves and cooperate and contract with other organizations to do so. For this purpose, the North Dakota Natural Heritage Program was launched by the state in cooperation with The Nature Conservancy.

GEOGRAPHIC SCOPE

North Dakota

OVERVIEW OF PROGRAM/STUDY

The North Dakota Natural Heritage Program's comprehensive inventory of the state's ecological resources provides a continuous process for identifying valuable natural areas and setting land protection priorities. Information on the status and distribution of exemplary natural communities, rare and endangered plant and animal species, and unique geological features -- the "elements" of natural diversity -- is collected and stored in an integrated data management system. Map (U.S.G.S. topographic) files, manual files, and computer files keep the data organized and accessible. Information is indexed by several criteria, including location, plant community type, species name, endangerment status, and land ownership. The natural heritage inventory is a flexible system that can produce a variety of reports in response to user needs.

This state "clearinghouse" for ecological information is especially effective because:

- *It is ongoing*. Unlike previous natural-area inventories conducted over a set time period and quickly outdated, the North Dakota Natural Heritage Program continually refines its inventory data, keeping the information base current and increasingly accurate.

- *It is a centralized repository*. The North Dakota Natural Heritage Program gathers information from published and unpublished sources, government agencies, the academic community, private conservation groups, and individual citizens to draw the most complete picture available of the state's natural diversity. Consolidation of existing data reveals information gaps, guiding future research.

- *It is element oriented.* Other inventories have focused on specific sites. In contrast, the North Dakota Natural Heritage Program inventory looks directly at the individual components or "elements" -- natural communities, species, and so on -- that determine site significance. This helps to ensure that little-known areas with high natural values will receive attention.

SOURCE OF PRIORITY RECOGNITION

Institutional: The North Dakota Nature Preserves (NDCC 55-11) Act mandates the responsibility of establishing a nature preserves program to the North Dakota Parks and Recreation Department. A nature preserves plan has been prepared to implement this responsibility effectively. The nature preserves plan is a course of action to protect the significant features of North Dakota's natural heritage.

Technical: The North Dakota Natural Heritage Inventory is based entirely on technical and scientific knowledge, as described in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The North Dakota Natural Heritage Inventory provides a comprehensive system (the Heritage System) for identifying and prioritizing ecologically significant natural features in the state. Based on methodology developed by The Nature Conservancy, the Heritage System emphasizes features that are exemplary, unique, or endangered on a statewide or national level. In North Dakota, this includes natural communities such as tall grass prairie and species such as the least tern and prairie fringed orchid.

The Heritage System approach marks an advance in the effort to ensure an objective, thorough assessment of a state's ecological diversity. Unlike previous inventories, which focused on sites rather than individual elements, the Heritage System identifies important but little known areas and clarifies the significance of better known sites. Whereas site-by-site inventories are conducted over a set time period and are quickly outdated, the Heritage System is ongoing with an information base that can be readily updated.

The Heritage System has three main components for identifying the portions of the landscape that best represents the full range of North Dakota's natural diversity: classification, inventory, and data analysis.

Classification

The first step in an inventory of North Dakota's natural diversity is a classification of its flora and fauna. The program must know the native plants and animals, the terrestrial and aquatic communities and the other unique natural features found within the state -- the "elements" of natural diversity. It would be impartial, however, to gather information on each element individually. Furthermore, some elements are clearly more vulnerable to extirpation than others and must be afforded special attention. For these reasons, two

approaches to the classification of natural diversity have been employed: a "coarse filter" and a "fine filter."

Coarse Filter (Natural Communities)

The coarse filter approach is based on the fact that many plants and animals are either closely associated with particular community types or are common enough that they can be protected simply by maintaining the full range of community types in the state. It is assumed that by preserving viable examples of these community types, those species associated with them will also be preserved. Their protection is intended not only to preserve the diversity of individual species but to protect the full range of plant communities as well.

The North Dakota Natural Heritage Inventory community classification represents a comprehensive treatment of the native community types in the state, and a coarse filter for capturing biological diversity. Emphasis is placed on the best occurrences of those types that are persistent or rare.

Fine Filter (Rare Plants and Animals)

Some of the state's flora and fauna pass through the coarse filter. They are species not regularly associated with a particular community type that can be adequately protected by preserving just any example of that community type. The species that pass through the fine filter, which are endangered, threatened, rare, peripheral, endemic, or otherwise of special concern, belong to that fraction of biological diversity that must still be dealt with on a species-by-species, or fine filter basis.

Within the Heritage classification system the elements of natural diversity are grouped into three separate classes. Natural communities make up one class in which individual community types are the elements. The other classes in North Dakota are rare plants and rare animals.

North Dakota has no official list of state threatened and endangered species. The most recent list of threatened and endangered biota of North Dakota was compiled by the Endangered Species Committee of the North Dakota Chapter of The Wildlife Society. Previous to the list of The Wildlife Society, the state often used the publication "Endangered, Threatened, and Peripheral, Wildlife Dakota" (McKenna, M.G. and R.W. Seabloom, eds. 1979). The first draft of the Natural Heritage Inventory rare animals list was developed after the McKenna and Seabloom publication and was updated in conjunction with the work of the Endangered Species Committee. The Natural Heritage Inventory list is in constant refinement as more information becomes available, similar to the work of the Endangered Species Committee.

The Natural Heritage Inventory list of rare plants was adopted largely after two major efforts of state botanists. The first effort was a list compiled by Dr. William Barker and Gary Larson for the Public Service Commission's exclusion and avoidance criteria. This list was then updated and adopted into The Wildlife Society's list. As with animals, there is no official state list of threatened and endangered plant species. Unlike animals, however, there is no legal means for designating plant species as threatened or endangered; the Game and

Fish Director's authority extends only to animal species. Nevertheless, the Endangered Species Committee's list does include plants.

Inventory and Data Analysis

The inventory and data analysis phase of the Heritage System are cyclical and therefore, integral. For this reason, both will be explained in the same section.

The inventory phase of the Heritage System is a continuing process in which data is collected and compiled into a usable form. The basic unit of collection is the occurrence of a natural community of rare species; that is, a natural feature. The Heritage System collects information on a site where a natural feature has been observed, collected, and/or reported.

The first priority in data acquisition was to assemble existing information from secondary sources. Early in data collection, those sources expected to provide the greatest amount of reliable element occurrence data were identified and sought. The information collected on particular occurrence is placed into Element Occurrence Records. The Element Occurrence Record is the principal format for inventory data storage and retrieval. Data gathering and analysis are the principal functions of the Natural Heritage Inventory. As data is compiled, their analysis continually identifies new sources of information and, equally important, reveals gaps in information.

Ranking

Natural communities and rare species are given ranks in the Heritage System according to their relative rarity and endangerment throughout their range. This means that a species or community found only in North Dakota and known from only one or two places would receive a very high rank. A species or community that may be rare in North Dakota but is common elsewhere, on the other hand, would receive a lower rank.

These ranks are necessary to set priorities for both inventory and protection efforts. High ranking elements receive attention before low ranking elements. To rank elements in the relative order of importance, The Nature Conservancy developed a ranking system which assigns each community or species a statewide and a global rank, which is applied in the ranking process in North Dakota. Ranking is a cyclical process. All communities and species are initially given a rank, but ranks are revised as new information is gathered and our knowledge of North Dakota's natural diversity is improved.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

In cooperation with state experts, the North Dakota Natural Heritage Program has identified 152 plant species and 102 animal species that are endangered, threatened, rare, or declining in North Dakota. In addition, a classification of 34 aquatic and terrestrial natural communities has been made.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The North Dakota Natural Heritage Program could serve as a model for setting priorities for protection efforts for rare and endangered natural communities and species. It could also be used by the Corps as an inventory of ecological diversity to identify and prioritize ecologically significant natural resources in North Dakota.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

North Dakota Waterbank Program

GOALS AND OBJECTIVES

North Dakota's Waterbank Program (North Dakota WBP) gives landowners a financial incentive to set aside cropland, while at the same time encouraging preservation of wetlands. The program can accept any size wetland, but it is designed to protect small potholes and marshes most vulnerable to destruction. The federal Water Bank Program (WBP), administered by the U.S. Department of Agriculture (USDA), also operates in North Dakota and has an overall objective to preserve, restore, and improve the nation's wetlands.

GEOGRAPHIC SCOPE

North Dakota

OVERVIEW OF PROGRAM/STUDY

The following sections provide an overview of the State Waterbank Program and the federal Water Bank Program in North Dakota.

State Waterbank Program

The North Dakota WBP is administered by the State Department of Agriculture, with assistance from the State Game and Fish Department, the North Dakota State Engineer's staff, the USDA's Soil Conservation Service (SCS), and the U.S. Fish and Wildlife Service. It is supported by numerous farm and wildlife organizations. Private landowners participating in the North Dakota WBP agree to preserve wetlands and adjacent lands for wildlife habitat.

Wetlands and surrounding grasslands are leased from private landowners for five to ten years. Participants agree not to drain, burn, fill, or otherwise destroy the wetland character of such areas and not to use such areas for agricultural purposes. Haying or grazing of the grass cover on leased land may be allowed during a drought emergency or as part of a prescribed management plan. Further incentives are given to landowners who restore wetlands or allow public access to leased lands.

Specific North Dakota WBP guidelines are outlined below:

- Drained wetlands can be restored as part of a Waterbank agreement. Wetland restoration is conducted by the U.S. Fish and Wildlife Service or its designee.

- Adjacent lands to be seeded with a grass/legume mixture are seeded in accordance with Waterbank mix specifications. Reinforcement seedings or other improvement measures shall be in accordance with the SCS Technician's recommendations.

- The participant must provide adequate measures to control noxious weeds.

- The participant agrees to manage adjacent land to maintain good quality cover for wildlife habitat.

Federal Water Bank Program

The WBP is administered by the USDA's Agricultural Stabilization and Conservation Service (ASCS), with technical and planning assistance provided by the SCS. Under the guidance of the WBP, the USDA is authorized to enter into 10-year agreements with landowners in eligible counties to protect wetlands. Landowners receive annual payments for wetland preservation and/or cost-share assistance to install wetland conservation practices. Agreements require landowners not to drain, burn, fill, or otherwise destroy the wetland.

SOURCE OF PRIORITY RECOGNITION

Institutional: The North Dakota WBP was enacted in 1981 and codified in the North Dakota Century Code, Chapter 61-31. Additional rules provide the terms, conditions, and procedures for the administration of the North Dakota WBP by the Commissioner of Agriculture. These rules are codified in Article 7-08, Chapter 7-08-01.

Technical: The prioritization process described in the section below is based primarily on scientific knowledge or judgements of the critical resource characteristics of wetlands.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The following sections summarize the prioritization process used by the State Waterbank Program and the federal Water Bank Program in North Dakota.

State Waterbank Program

The North Dakota Department of Agriculture developed the North Dakota WBP Priority Setting System to rank applications received under the program. The criteria used and attached weights are as follows:

Criteria	Weight
1. Restorable Wetlands	20
2. Wetland Diversity	15

3. Average Size Wetland	15
4. Percent Wetland	15
5. Program Upland to be Seeded	15
6. Walking Access Allowed	10
7. Length of Agreement	10
Total Possible	100

Federal Water Bank Program

The project selection process is initiated by a sign-up period administered by the state ASCS office in counties participating in WBP. All WBP county project requests are collected, reviewed and initially prioritized based on state priority guidelines and a technical analysis by the state SCS office. Equal consideration is given to all new requests, pending requests, and expired agreement requests according to national ASCS handbook procedures.

The state SCS office uses a worksheet for ranking proposed projects. The worksheet collects information on selected criteria that have been given a pre-determined weight. The criteria used and attached weights are as follows:

Criteria	Weight
1. Wetland Type Richness	5
2. Size Category of Dominant Wetland Type	4
3. Dominant Wetland Types	3
4. Surrounding Habitat Types	2
5. Wetland Juxtaposition	2
6. Cropland that has been Seeded	10
7. Ratio of Dryland to Wetland	10

Each of the listed criteria are given a quality rating (from 1-5, with 5 being the highest) based on how they match given specifications. An overall total value is then calculated for each proposed wetland based on the following formula:

Total Value = (Criteria 1 weight * Quality rating) + (Criteria 2 weight * Quality rating) + (Criteria 3 weight * Quality rating) + (Criteria 4 weight * Quality rating) + (Criteria 5 weight * Quality rating) + (Criteria 6 weight * Quality rating) + (Criteria 7 weight * Quality rating).

The higher the total value calculated, the higher the ranking the wetland receives from the state SCS. The highest possible total value is 180; 40 is the lowest possible ranking.

The SCS ranking is then combined with the following priority guidelines outlined by the state ASCS at a county committee meeting:

Category A - First Priority. Place into this category farms that have offered two acres or more of wetlands Types 3, 4, or 5 plus a sufficient amount of adjacent acreage that will make a good valuable wildlife unit. Give careful consideration to the following:

- The ratio of adjacent acreage to wetlands acreage should be greater when smaller areas of wetland are involved. (A ratio of 1:1 or more is desirable in most instances.) A less than 1:1 ratio of acreage adjacent to each acre of wetland will be considered a good viable unit when a larger acreage of wetland is involved. These are usually 40 acres or more in size.

- The adjacent acreage in a good viable unit should be capable of supporting a dense and rank vegetative cover.

- The adjacent acreage shall average 500 feet or more in width.

Category B - Second Priority. Consider placing the farms that offer the following in Category B:

- Wetlands only,

- Wetlands with very little adjacent acreage or acreage that is unproductive, or

- Less than the minimum requirement of ten acres.

Each county's final ranking, which combines ASCS priority guidelines and SCS criteria, is finally sent to the state ASCS level where allocation of funds is administered.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The North Dakota WBP currently has 32 contracts totalling 3,110 acres.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The North Dakota WBP could serve as a model for the restoration and preservation of privately-owned wetlands by giving landowners a financial incentive to set aside cropland.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Rhode Island State Clean Water Strategy

GOALS AND OBJECTIVES

The State Clean Water Strategy (SCWS), as administered by the Rhode Island Department of Environmental Management (RIDEM), Division of Water Resources, is an open and integrated three-stage process of waterbody/resource assessment, water resource targeting, and strategic management planning undertaken within the framework of the climate of rapid land development and tight fiscal budgets occurring at the present time in the state.

GEOGRAPHIC SCOPE

Rhode Island

OVERVIEW OF PROGRAM/STUDY

The SCWS has proceeded through three stages over the last five years: Water Quality Assessments, Water Resource Targeting, and State Management Plans.

In January 1987, a Water Quality (WQ) Advisory Committee consisting of federal, state, and local agency representatives, researchers, environmental advocacy groups, and industrial representatives was created by RIDEM. This Committee has provided an opportunity for interagency coordination and public participation in preparation of the SCWS. The Committee members represent a wide range of agency and organizational affiliations and have provided their individual expertise on water quality management issues.

The various interests of the WQ Advisory Committee mirror the across-program perspective of the plan. Public and expert participation is comprehensive and broad. Representatives of the major environmental groups, as well as public officials and representatives from industry, were active participants on an approximately monthly basis during the development of SCWS. Further public comment will be received and responded to through this process of holding regular public meetings.

The WQ Advisory Committee was broken up into three subcommittees: one considering nonpoint sources of pollution; another considering groundwater issues; and the last assessing toxics, mainly from point sources. The SCWS document has been broken into these three categories. The SCWS has had input from each of these subcommittees throughout the three-stage process of preparing the waterbody/resource assessment, water resource targeting, and strategic management planning.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Water Quality Act of 1987 (WQA) offers a special opportunity for regulatory agencies, the regulated community, and the public to implement the ambitious new initiatives in concert with ongoing core Clean Water Act (CWA) programs. In Rhode Island, the RIDEM developed a policy to focus its efforts on meeting the goals and requirements of the WQA to the fullest extent possible, and to do so in an open, consultative framework using the latest techniques of problem assessment and management.

Public: Public participation is comprehensive, broad, and active through the Water Quality Advisory Committee and public meetings.

Technical: Scientific or technical knowledge is the foundation for developing a list of waterbodies for reclamation through toxic controls, as described in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The point source subcommittee developed the criteria determining impaired use to be applied to priority targeting of waterbodies for evaluating toxics and conventional pollutants. In defining and ranking problems, the subcommittee worked on prioritizing in terms of two lists of waterbodies as they impact on recreational use and natural resources/ecological value. One list involved waters not severely impacted and which would be expected to improve rapidly in water quality if additional toxics controls were in place. The other list, which is described in further detail below, was developed for reclamation needs for severely impacted waters where toxic controls would reasonably be expected to significantly decrease loading and provide some improvement of water quality to the waterbody as well as any downstream receiving waters that are being impacted.

Objective criteria were used to place a relative priority value on surface waterbodies of the state in terms of their importance for public recreation and wildlife habitat, and to categorize the level of pollution impact presently existing in the waterbody. A list was developed for reclamation needs for severely impacted waters where toxic controls would be reasonably expected to significantly decrease loading and provide some improvement of water quality to the waterbody as well as any downstream receiving waters that are being impacted. This list includes waterbodies with high recreational/habitat value that are impacted by or exceeding criteria for toxics (such as heavy metals). It is expected that waterbodies receiving high priority on toxic control lists will receive the greatest emphasis in developing controls that are technically and economically feasible.

The criteria for Prioritization of Rhode Island Waterbodies for Toxic Threat/Impacts (total possible points = 1030) are presented below.

A) WQ/SEVERITY OF IMPACT (maximum points = 500)

1) In-stream concentrations exceed WQ criteria by:

> 50 percent of chronic criteria for 3 or more priority pollutants OR > acute criteria for 2 or more priority pollutants OR > 50 percent above bacterial criteria OR D.O. (dissolved oxygen) is below criteria (0-3 ppm). (100 points)

25-50 percent of chronic criteria for 3 or more priority pollutants OR > acute criteria for at least one priority pollutant (toxic) OR 25-50 percent above bacterial criteria OR D.O. is below criteria. (80 points)

> 50 percent of chronic criteria for 1 toxic OR 10 - < 25 percent above bacterial criteria. (60 points)

25-50 percent of chronic criteria for 1 toxic OR 1 to 10 percent above bacterial criteria OR no data but significant point sources exist. (40 points)

< 25 percent of chronic criteria for 1 or more toxics. (20 points)

2) Frequency of Criteria Exceedance (dependent on monitoring level of effort)

> 66 percent (> 2/3 of samples) exceed acute criteria for 2 or more toxics OR bacterial criteria OR D.O. is significantly below criteria at any time. (100 points)

Between 66 percent and 33 percent (> 1/3) exceed acute criteria for 2 or more toxics OR bacterial criteria OR > 66 percent exceed chronic criteria for 2 or more toxics OR D.O. is below criteria at any time. (80 points)

> 33 percent (> 1/3) exceed acute criteria for 1 toxic OR exceed bacterial criteria by 10 to < 33 percent OR all exceed chronic criteria for at least 1 toxic. (60 points)

> 33 percent (> 1/3) exceed chronic criteria for 1 toxic OR exceed bacterial criteria by 1 to < 10 percent OR any exceed acute criteria for toxics OR no data but significant point sources exist. (40 points)

< or equal to 33 percent exceed chronic criteria for 1 or more toxics. (20 points)

3) Waterbody Flow during low flow periods (7Q10) Ratio is:

> 50 MGD (Million Gallons/Day) (100 points)

25-50 MGD (80 points)

< 25 MGD (40 points)

4) Point Source Flow: River Flow (7Q10) Ratio is:

> 50 percent (100 points)

26-50 percent (80 points)

10-25 percent (60 points)

< 10 percent of no data but reasonably < 10 percent (20 points)

5) Biological Indicator Organisms (artificial substrate macroinvertebrate community or other biological assessment data) indicate:

Species Diversity is low and/or pollutant-tolerant species are a significant component (100 points)

Average diversity occurs and/or mostly intermediate species dominate (80 points)

No data available (50 points)

Species diversity is high and/or sensitive species are a significant component, and an insignificant number of tolerant individuals occur (20 points)

Loading Sources (no points - letter designation only)

6) Major loading of that pollutant is thought due to controllable point source(s) which are exceeding criteria (PT + # Sig.Pt. Sources)

CSOs (CSO + number of CSOs, if available)

Major Storm Drain (STRM + number of drains, if available)

7) NPS loadings from below sources thought to be significant component of total loadings

Surface Runoff (RNF)

Leachate (septic (S) or landfill (L)), (to be indicated as S or L) (LCH(S/L))

In-Place Sediments (SED)

B) RECREATIONAL USE (maximum points = 270)

1) Beach Facilities:

State (80 points)

Town (60 points)

Private (20 points)

No Beach Facilities (0 points)

2) Boat Ramps/Marinas/Piers:

State or Town with/parking for:

> 20 cars (80 points)

5-20 cars (60 points)

< 5 cars (40 points)

Private Ramp/Marina/Boat Livery (20 points)

No Boat Ramp/Marina/Pier (0 points)

3) Shore Access/Parks or Picnic Areas/Campgrounds/Management Areas

Open Space:

State or Town with Parking for:

> 20 cars (60 points)

5-20 cars (50 points)

< 5 cars (40 points)

Private (30 points)

Non-designated public area (e.g., roadside access) (20 points)

No Access (0 points)

4) Size of population immediately adjacent to waterbody expected to benefit from WQ improvements:

> 50,000 (25 points)

10,000-50,000 (10 points)

1-9,999 (5 points)

5) Size of population expected to benefit over long-term from improvement of WQ downstream receiving waters:

> 500,000 (25 points)

100,000-500,000 (10 points)

< 100,000 (5 points)

C) NATURAL RESOURCES/ECOLOGICAL VALUE (maximum points = 260)

1) Excellent habitat potential for one of the categories below is probable after toxics and/or conventional pollutants are controlled (highest point category only).

Stocked Freshwater Fishery for:

Put and Grow Water Fishery (80 points)

Put and Take Water Fishery (70 points)

Put and Take Warm Water Fishery (60 points)

No Stocking Potential (0 points)

Natural Freshwater Fishery for:

Cold Water Fishery (80 points)

Warm Water Fishery (60 points)

Unique Habitat (oligotrophic waters; endangered species; anadromous fish or migratory waterfowl; etc.) (100 points)

Marine Finfish Resources

Commercial (80 points)

Breeding Ground (70 points)

Non-commercial (60 points)

Shellfish/Crustacean Resources

Shellfish Management Area Designation

Commercially Valuable Resource (80 points)

Unique Shellfish Resource (70 points)

Shellfish Breeding Ground (70 points)

Other Shellfish Harvesting Areas (60 points)

Crustacean Harvesting/Habitat (80 points)

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

From the prioritization of Rhode Island rivers and marine waters, 25 waterbodies were ranked. Six of the 25 waterbodies were placed in the high priority category and eight were placed in the medium priority category for reclamation through toxic controls. This prioritization process established objective criteria for a ranking system.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Rhode Island SCWS could serve as a model for ranking toxic threat or impacts based on significant values such as impairment, recreation, and ecological values. It could be examined by the Corps as a model of integrating active, broad-based interagency and public participation and cooperation into a planning process, particularly when toxic threats are a concern.

The prioritization and ranking of 25 Rhode Island waterbodies could be used by the Corps to identify waterbodies in the state with recreation and ecological values that need reclamation through toxic controls.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

South Carolina Scenic Rivers Program

GOALS AND OBJECTIVES

In South Carolina, the Scenic Rivers Act requires that the Water Resources Commission shall "formulate comprehensive water and related land use plans for the three classes of scenic rivers." Therefore, based on the different physical attributes of river corridors, three sets of management guidelines follow, which describe the management frameworks for the three classes of scenic rivers (i.e., natural, scenic, and recreational). Each set of guidelines prescribes unique restrictions of river use and development corresponding to each class of scenic river. The purposes of these management guidelines are:

1) To protect the scenic, aesthetic, historic, and ecological values of a designated scenic river corridor;

2) To provide for consistent management practices within each class of river in conformance with the purposes of the Scenic Rivers Act; and

3) To assure that the management of each river or river segment would not result in that area falling into a less restrictive river class.

GEOGRAPHIC SCOPE

South Carolina

OVERVIEW OF PROGRAM/STUDY

As defined, "natural" rivers are essentially wilderness-type areas and, as such, contain the least evidence of human influence. Thus, the management guidelines specified for this type of river are the most restrictive in terms of water and land management. The management guidelines for natural rivers apply to all lands in the corridor that are purchased by the state, donated in fee or restricted by an easement under the Scenic Rivers Program.

According to the Act, "natural" rivers must be managed in a manner that: 1) would best maintain and enhance those conditions which are attributed to wilderness-type areas, 2) would allow public camping and river access only at designated public access areas, and 3) would allow certain public uses only within prescribed public access areas. The Act also prohibits the construction of new roads or buildings, mining and commercial timber harvesting in this class.

The Act specifically states that "scenic" and "recreational" rivers must be managed in a manner which best maintains and enhances the scenic values of the river and the adjacent land, while at the same time preserving the right of riparian landowners to use the river for customary agricultural, silvicultural, or other similar purposes.

In order to provide for a consistent management framework, the Commission will attempt to establish a uniform corridor width through either purchase of riparian lands or through the negotiation of easement agreements. The corridor should be no less than 300, 200, or 100 feet nor greater than 500 feet from the ordinary high water mark or mean high water line on both sides of the river for natural, scenic, and recreational rivers, respectively.

SOURCE OF PRIORITY RECOGNITION

Institutional: In July 1974, Governor John West signed the original South Carolina Scenic Rivers Act into law. The Act authorized the establishment of a State Scenic Rivers Program and specified procedures for the designation, acquisition, and use of river segments worthy of protection.

On June 1, 1989, Governor Carroll A. Campbell, Jr., signed into law the Scenic Rivers Act of 1989 (Section 49-29-10 *et seq., 1976 South Carolina Code of Laws*). The new law maintains the voluntary aspects of the previous law, relying primarily on voluntary donations of land or conservation easements from riparian landowners. However, the 1989 Act created the Scenic Rivers Trust Fund, which is a funding mechanism that may accept funds from a variety of sources for the purpose of purchasing riparian lands from willing sellers.

Technical: The prioritization process, as described below, is based primarily on technical and scientific factors.

PRIORITIZATION OR PROJECT SELECTION PROCESS

This section first presents a description of general criteria used by the Commission for evaluating the eligibility of a proposed river for the Scenic Rivers Program. "River" as defined in the Scenic Rivers Act, is "a flowing body of water or a section, portion, or tributary of it including rivers, streams, creeks, branches or small natural lakes." The evaluation criteria are listed below.

1) Scenic -- The scenic character should provide an impression of unique or outstanding natural, pastoral, or aesthetic qualities.

2) Recreational -- Recreational values will be determined based on characteristics of the river and adjacent lands. The river corridor should provide recreational opportunities including boating, fishing, swimming, or other appropriate activities.

3) Geologic -- Unique or outstanding geologic values should include features of rare or unusual geologic composition or appearance, such as waterfalls, bluffs, or unusual rock formations.

4) Botanical -- Botanical values should include habitat of special or critical significance, such as unusual or diverse plant communities, or rare of endangered species habitat.

5) Fish/Wildlife -- Fish and wildlife values should include natural fish and wildlife habitat of special significance (both game and nongame species) and rare or endangered species habitat.

6) Historic/Cultural -- Historic and cultural values would apply to those sites of historic events or structures, archaeological importance, or sites especially illustrative of South Carolina or regional cultural heritage.

7) Water Quality -- Water quality in all rivers under consideration for scenic rivers eligibility must meet or exceed the most current published state water quality classifications for that proposed river or river segment, or the water quality must be capable of being upgraded to meet state standards.

8) Stream Flow -- There should be a sufficient volume of water during normal years to permit full utilization of the riverine area. Where navigational use is important, the width, depth, and volume of water should be sufficient for safe navigation.

9) Length -- The minimum lengths generally necessary to qualify a river as eligible are one mile in the upper Piedmont and mountain provinces or three miles in the remainder of the state.

The remainder of this section presents the criteria that distinguish the three classes of scenic rivers provided for by the Scenic Rivers Act. These criteria are applicable for assessing a river's potential inclusion in the program and for determining its appropriate classification.

Natural River Areas

Natural rivers are "those free-flowing river or river segments generally inaccessible except by trail or river, with adjacent lands and shorelines essentially undeveloped and its water essentially unpolluted." Free-flowing is defined as "existing or flowing in natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway." These definitions, along with the general criteria, form the basis for the specific criteria for this river type. The criteria for natural rivers are summarized below.

1) Development -- Evidence of human activity in the river corridor should be limited or nonexistent. Crossings of roads, railways, or utilities must be limited to one such crossing in a ten-mile river segment. The existence of residential or commercial development in the river corridor may disqualify the segment as a natural river. Structures, if unobtrusive or possessing historical or aesthetic values, may be acceptable.

2) Scenic Character -- Natural rivers are essentially wilderness corridors. Shorelines and scenic vistas should be essentially natural in character with little or no evidence

of human activity. A limited amount of agricultural or silvicultural activities may be acceptable.

3) Impoundments -- The river or river segment should be free-flowing as defined in the Act. Upstream impoundments, flow regulation, and/or water use must be considered in relation to impacts on the natural character of the corridor.

4) Water Quality -- At the time of the eligibility study or prior to ratification by the General Assembly, water quality must meet minimum criteria for desired types of recreational use, especially body-contact recreation, except where such criteria are not naturally met. In addition, the water presently must be capable of supporting the propagation of aquatic life, including fish which normally are adaptable to the habitat of the stream. Preference is given to streams of A, SA, Trout, or ORW (Outstanding Resource Waters) water quality classifications, or those that can be upgraded to these standards.

5) Accessibility (River Corridor Access) -- Within the natural river area there can be no visible paralleling paved or unpaved roads. The presence of access facilities may be acceptable if visual impacts on the scenic and natural character of the river corridor are minimal.

Scenic River Areas

The Act defines "scenic rivers" as "those rivers or river segments which are essentially free-flowing and possess shorelines largely undeveloped and with limited road access. Adjacent lands are partially or predominantly used for agriculture, silviculture, or other dispersed human activity which does not disturb substantially the natural character of the river corridor." The criteria for scenic rivers are summarized below.

1) Development -- The river corridor should be largely undeveloped. Crossings of roads, railways, or utilities are limited to one crossing per five miles of river. Crossings grouped closely together may qualify as a single crossing. Certain types of structures are acceptable in a scenic river corridor. Agricultural, residential, or recreational structures are acceptable if limited in number, dispersed throughout the corridor, and without substantial disturbance to the river's natural character. The presence of historic structures is acceptable.

2) Scenic Character -- Scenic rivers should provide a landscape with an overall natural or pastoral character. Normal agricultural and silvicultural activities are acceptable if accomplished without a substantial adverse impact on the scenic vista.

3) Impoundments -- Small impoundments or diversions, if compatible with scenic values, may be acceptable on scenic rivers.

4) Water Quality -- Water quality must meet, or have the potential to meet, minimum criteria for desired types of recreational use, especially body-contact recreation, except where such criteria would be exceeded by natural background conditions. In addition, the water should be capable of supporting propagation of aquatic life,

including fish which normally are adaptable to the habitat of the stream. Preference is given to streams of A or SA or higher water quality classifications, or those that can be upgraded to those standards.

5) Accessibility (River Corridor Access) -- Within the scenic river area there can be short stretches of visible paralleling paved or unpaved roads. The presence of river access facilities is acceptable. Such structures should produce a minimal impact on the scenic character of the river.

Recreational River Areas

The Act defines "recreational rivers" as "those river or river segments accessible by road and that possess development along shorelines and adjacent lands. Included are rivers with developed or partially developed shorelines and adjacent lands for residential, commercial, or industrial purposes, rivers with parallel roads or railroads, and rivers with some impoundments. These rivers or river segments provide outstanding river-related recreational opportunities." The criteria for recreational rivers are summarized below.

1) Development -- The river corridor may be developed with residential, commercial, agricultural, limited industrial or other facilities. Crossings of roads, railways, or utilities should not exceed one crossing per river mile. Crossings grouped closely together may qualify as a single crossing.

2) Scenic Character -- Recreational rivers may possess landscapes of urban or suburban character. Although the shoreline is developed, the river corridor should possess significant scenic recreational, or historic values.

3) Impoundments -- Although the presence of impoundments or diversions alone does not disqualify a river from this class, the river should possess scenic, recreational, or historic values if an impoundment is present. Flows may be regulated by upstream control devices.

4) Water Quality -- Water quality should meet, or have the potential to meet, minimum criteria for desired types of recreational use, especially body-contact recreation, except where such criteria would not be met by natural background conditions. In addition, the water should be capable of supporting propagation of aquatic life, including fish which normally are adaptable to the habitat of the stream.

5) Accessibility (River Corridor Access) -- The river corridor may be readily accessible with paralleling roads or railroads along river banks, bridge crossings, and several river access points.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Three classes of rivers were established by the South Carolina Scenic Rivers Act, with each class having its own criteria. Participation of landowners is vital to protection efforts under the South Carolina Scenic Rivers Program and at least 50 percent of landowner interest is necessary.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The South Carolina Scenic Rivers Program could serve as a model for evaluating the eligibility of a river for inclusion in a state scenic rivers program. It could also be used by the Corps as a model for rivers assessment. The inventory developed for the rivers assessment and the three classes of rivers established by the South Carolina Scenic Rivers Act could be used by the Corps to identify resources of state significance in South Carolina.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

South Dakota Lake Protection Program

GOALS AND OBJECTIVES

The major goals and objectives of the South Dakota Lake Protection Program, as administered by the South Dakota Department of Environment and Natural Resources (DENR), Division of Water Resources Management, are outlined below.

Goal:

1) Provide a mechanism for maintaining lakes that have not been severely impacted by nutrient and/or sediment pollution.

Objectives:

a) Develop and implement a plan for collection of water quality and land use data for trend analyses.
b) Develop a technical task force composed of local, state, and federal agencies to gather historical land use and watershed data.
c) Assist citizens in the formation of sanitary and water project districts.
d) Conduct study and implementation projects to rectify developing problems in the watershed.

Goal:

2) Develop an information and education program for creating and maintaining interest in lakes.

Objectives:

a) Educate citizens on the need for and benefits of lake protection.
b) Develop a citizen monitoring program.
c) Promote self-help activities for lake and watershed protection.
d) Promote pollution prevention.

GEOGRAPHIC SCOPE

South Dakota

OVERVIEW OF PROGRAM/STUDY

The main difference between lake protection and restoration is that protection activities will be done on a smaller scale with less funding and with more emphasis on detection and avoidance of potential problems. A lake protection project, as defined by the DENR, may involve many of the same remedial activities as a lake restoration project, but on a reduced scale. For the purpose of clarification, some of the differences between the two approaches are outlined below.

A lake restoration project is undertaken on a lake that is significantly impaired and in need of a large-scale effort to restore the lake, as much as possible, to its former condition. A lake protection project involves a smaller scale project to maintain a lake that has not yet been seriously impaired by human activities. Many of the same techniques will be used, however, for lake restoration and protection.

Lake restoration activities include, but are not limited to the activities listed below.

1) Hydraulic dredging of in-lake sediments.

2) In-lake chemical treatment such as alum or aquatic herbicide.

3) Aeration of lake water.

4) Hypolimnetic withdrawal in-lake.

5) Lake water level drawdown.

6) Land-based sediment removal.

7) Large-scale implementation of best management practices in the watersheds.

8) Construction of sediment control structures in the watershed.

9) Individual sewage system renovation or replacement.

10) Diagnostic/feasibility studies.

Lake protection activities include, but are not limited to the activities listed below.

1) Information and education activities to enhance citizen involvement and interest, such as those listed below.

   a) citizens monitoring program.
   b) annual citizens monitoring report.
   c) local newsletters.
   d) annual meetings with local associations.
   e) pamphlets, brochures, and handouts.
   f) local media news releases and features.

2) Long-term data collection, establishment of baseline conditions and continuing analysis of trends.

3) Implementation of best management practices in watersheds, if needed.

4) Assistance to local citizens for formation of sanitary or water project districts.

5) Diagnostic/feasibility studies in the event of noticeable degradation.

6) Technical and planning assistance to potential polluters to avoid potential impacts.

SOURCE OF PRIORITY RECOGNITION

Institutional: In 1990, the South Dakota Nonpoint Source Task Force appointed a committee to develop a workable Lake Protection Strategy as a pilot program for the lakes in the state. The committee is composed of representatives from the South Dakota DENR, U.S. Soil Conservation Service, East Dakota Water Development District, Water Resources Institute, South Dakota Department of Game Fish and Parks, and the U.S. Forest Service.

Public: If the information gathered by a Local Task Force indicates there are potential sources of sediments and nutrients that may be causing an adverse impact on lake water quality and lake uses, lakeshore landowners can organize to implement protective measures. The following local entities can be formed: Lake Improvement Association, Water Project District, or Lake Sanitary District. A Lake Association is the first logical step and can be a focal point for advocating protection measures and keeping residents informed and involved. A Water Project District should be formed if a stable source of local cost-sharing funds is desirable. These districts can levy up to 1 mil of property tax annually. If a wastewater collection and treatment system, garbage removal, or strong local ordinances are desired, a Sanitary District is desirable. If the major portion of the lake and its watershed are owned and managed by a state or federal entity, they would likely serve as the local sponsor.

Technical: The ranking systems for the 1980 and 1989 South Dakota Lake Surveys are based primarily on scientific and technical knowledge or judgement of critical resource characteristics, as described in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Data used to select and rank the lakes for the Lake Protection Program came from the 1980 and 1989 South Dakota Lake Surveys. It is the consensus of the Task Force committee that sufficient data does not exist to determine whether individual lakes are maintaining stable water quality or showing signs of decline. If long-term monitoring data had been available to assess water quality trends for lakes, it would have been used to recommend a list of lakes for lake protection activities. At the present time, the list is based on the limited existing data.

Selection of Lakes for Assessment

The lakes included in this assessment were chosen primarily by applying three criteria. A lake was required to fit all of the criteria to be included on the assessment list. The three criteria are:

1. The lake should be over one hundred acres in surface area,

2. The lake must have significant public access, and

3. The lake must be publicly owned.

In some instances, exceptions were made for high use lakes that did not fit the size criteria or in areas with very few lakes such as the West River Prairie region of the state.

Ranking of Lakes

Two separate rankings were conducted on lakes included in the assessment. Lakes were ranked based upon trophic state in an attempt to compare quality between lakes. An additional ranking was based upon population figures from the most recent census data. The second ranking was an attempt to compare potential uses of a lake.

The first ranking was completed using Carlson's trophic state index. This was done in an attempt to rank the lakes based on water quality. The ranking starts with the poorest water quality and ends with the highest based on water quality samples collected during the summer of 1989.

The second ranking was based on potential user population within a 65 mile radius of the lake. The population figures were determined from 1990 census data. Lakes with the highest population density were at the start of the list and lakes with the lowest population density are at the end of the list.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

A total of 106 lakes were included in this assessment. The lakes of the state were regionally divided between teams, with each team sampling an approximately equal number of lakes.

Findings of the program show that nearly 100 percent of the lakes assessed are threatened, of which 98 percent are threatened by agricultural nonpoint sources.

There is a need in the state of South Dakota for a Lake Protection Program to safeguard the deeper and cleaner lakes in the state. This strategy focuses on the concept of citizen involvement as a means of gathering information and detecting developing problems in a lake or watershed. Long-term baseline data is needed to gain an understanding of trends in water quality for these lakes. Some study or implementation of best management practices may be needed for lake protection. A self-help approach will be an important component of the program.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The South Dakota Lake Protection Program could serve as a model for the protection of lakes with a focus on public participation through the formation of local entities such as lake associations or special districts. It could also serve as an example of citizen involvement to conduct monitoring and implement lake restoration or protection activities on a watershed basis.

The results of the assessment of 106 lakes in South Dakota could be used by the Corps to determine the significance of lakes within the state based on recreational value and water quality status.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Tennessee Natural Areas Program

GOALS AND OBJECTIVES

The Natural Areas Program was established to provide protection for areas possessing scenic, scientific, including biological, geological and/or recreational values, and which are in prospect and peril of being destroyed or substantially diminished by actions such as dumping of refuse, commercialization, construction, changing of population densities or similar actions, where there are no state or local regulations or they are so poorly enforced as not to yield adequate protection to such areas.

GEOGRAPHIC SCOPE

Tennessee

OVERVIEW OF PROGRAM/STUDY

The Natural Areas Program is administered by the Tennessee Department of Environment and Conservation (DEC), in cooperation with the Tennessee Wildlife Resources Agency (WRA) and the Conservation Commission, acting as an advisory body. The Commissioner of Environment and Conservation is authorized to create and enforce certain regulations necessary for the preservation and enhancement of the values protected, and for control of recreational, educational, scientific and other uses of these areas in a manner that will not impair them.

The Commissioner adopts rules and regulations for each natural area, specifying the activity or activities permitted. Such permissible activities shall not be inconsistent with the purpose of perpetual preservation. If, in the discretion of the Commissioner, any portion of an area is deemed to be of so fragile a nature that overuse may damage it, limitations may be placed on activities with those portions. Removal of plants, animals, or geological specimens shall not be permitted except by permit issued by the Commissioner. If hunting or fishing are among the activities permitted by the Commissioner, the Commissioner shall adopt, with the advice of the WRA, rules and regulations to regulate such activity on the natural area in question. Such rules and regulations may be more restrictive than the rules and regulations adopted for statewide hunting and fishing by the WRA.

The DEC, with the cooperation of the WRA, annually submits to the general assembly a proposal list of scenic-recreational and natural-scientific areas, together with maps showing their boundaries, to be placed in a system for preservation and protection. Each proposal shall specify the category of the proposed addition and shall be accompanied by a report on

the factors which, in the judgement of the DEC, make the area a worthy addition to the system. The DEC consults with citizen's organizations in the preparation of this proposed list as much as possible.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Natural Areas Program is authorized by the Natural Areas Preservation Act of 1971 (Acts 1971, ch. 116, Section 1; T.C.A., Section 11-1701).

Public: As mentioned above, the DEC consults with citizen's organizations for their input to the proposal list.

Technical: The prioritization process, as discussed in the section below, is based on the consideration of biological, geological, and/or recreational values associated with specific areas.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The prioritization of areas within the state for inclusion on the annual proposal list is based on the descriptive criteria of scenic-recreational and natural-scientific areas that are stated in the enabling legislation. These descriptive criteria are:

1) Scenic-recreational, or Class I areas, are associated with and contain waterfalls, natural bridges, natural lakes, small but scenic brooks or streams, gorges, coves, woodlands, caverns or other similar features or phenomena, which are unique in scenic and recreational value and not extensive enough for a state park but worthy of perpetual preservation; and

2) Natural-scientific, or Class II areas, are associated with and contain floral assemblages, forest types, fossil assemblages, geological phenomena, hydrological phenomena, swamplands and other similar features or phenomena which are unique in natural or scientific value and are worthy of perpetual preservation.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

To date, 13 scenic-recreational areas have been identified, along with 23 natural-scientific areas. The Commissioner, within 2 years after an area has been identified, completes a comprehensive plan of development and protection, and starts the process of acquisition.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Natural Areas Program could serve as a model for protection of areas possessing scenic-recreational or natural-scientific values, which includes biological, geological and/or recreational values.

The 13 scenic-recreational areas and 23 natural-scientific areas identified under the Natural Areas Program could be used by the Corps to identify resources of state significance in Tennessee.

BIBLIOGRAPHIC INFORMATION

Natural Areas and Recreation, Chapter 14 "Natural Areas Preservation."

POINT OF CONTACT

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Washington State, Puget Sound Wetlands Preservation Program

GOALS AND OBJECTIVES

The goals of the Puget Sound Wetlands Preservation Program (PSWPP) are the following:

1) The most important wetlands of the Puget Sound Basin shall be preserved in perpetuity.

2) Those wetlands selected shall be preserved by the most effective means possible.

3) Those wetlands selected shall be managed so that there is no loss in the wetlands functions and values.

GEOGRAPHIC SCOPE

The planning area defined by the legislature in the Puget Sound Water Quality Act includes Puget Sound south of Admiralty Inlet (including Hood Canal and Saratoga Passage); the waters north to the Canadian border, including portions of the Strait of Georgia; the Strait of Juan de Fuca south of the Canadian border; and all the land draining into these waters. There are 12 counties in the planning area.

OVERVIEW OF PROGRAM/STUDY

The PSWPP is one component of the "Wetlands Protection" element of the Puget Sound Water Quality Management Plan. Under the PSWPP, a state sponsored wetlands protection program is set up as a collaborative effort between agencies. Lead responsibility for identifying highest quality wetlands within the Puget Sound for preservation is delegated to the Department of Ecology (Ecology), while the Department of Natural Resources (DNR) has the lead responsibility for "securing" these listed sites using acquisition, conservation easements, or donations.

The PSWPP began in late 1987 with the establishment of an interagency Technical Advisory Team (TAT) consisting of representatives from several state agencies. Their task has been to assist in the design and implementation of this program by advising on approach and providing technical assistance. Early on, having identified the limitations associated with creating a list of highest quality wetlands sites, the TAT decided to conduct a wetlands nomination process. Field inventory of the entire Sound would take several years, therefore a quicker initial approach was necessary.

Communities in the Puget Sound area were asked to participate in a wetlands nomination process. Eleven functions and values of interest for the site selection process were identified. An assessment methodology and information gathering questionnaire were developed to evaluate wetlands for the presence of these functions/values. Selection criteria were established and the nomination process began.

Facilitated by a broad-based advertisement, approximately 600 questionnaires were mailed out in October 1988. By February 1989, 94 completed questionnaires were received. Because of limited field time to assess the wetland sites, a pre-field screening was conducted to eliminate incomplete applications or problem sites. The first task of the field team, on site, was to identify management problems that precluded the long-term viability or manageability of the wetland. At this stage, additional sites were eliminated. Once past this screening, the site was assessed by a field team and data collected for entry into a computerized data management system. A statistical analysis system applied the assessment methodology, which scored the sites for final screening and selection.

A manageability rating was assigned to each site by DNR, which indicated the DNR's ability to manage the site. In addition to the "nomination" wetlands, quality freshwater native plant community sites identified by the Natural Heritage Program are listed as well.

SOURCE OF PRIORITY RECOGNITION

Institutional: The principal responsibility of the Puget Sound Water Quality Authority is to develop, adopt, and oversee the implementation of the Puget Sound Water Quality Management Plan. The legislature originally charged the Authority to engage in a continuing planning process through 1991 (RCW 90-70), at which time the agency was to terminate. The Authority was directed to revise the plan every two years, evaluating progress toward previous goals and addressing additional concerns. The Authority is currently authorized into 1995.

Public: Public involvement and support was critical to the decision to develop a prioritization process to nominate wetlands for the program. The public was also asked to provide input on wetlands functions and values for site selection.

Technical: As discussed further in the section below, the prioritization process is based on scientific or technical knowledge or judgement of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

In March-April 1988, Ecology held several community open houses around the Sound. Wetlands displays, videos, and information tables were made available to the public in these informal evening programs. These gatherings provided an opportunity to discuss implementation of the Puget Sound Wetlands Protection element of the Authority's Plan with the public and obtain their input on what should be done. The concept of conducting a nomination effort under the PSWPP was presented. Citizens were asked about their interest

in participating. Their opinions were also solicited on what wetlands functions and values should be examined for making the site selections.

A summary of public comments were presented to the TAT. Given the public's support, TAT decided the nomination process should be conducted. Also, public advice on functions and values of importance resulted in the TAT's development of the eleven elements for assessment, which is discussed later in this section.

The TAT felt that, to the best extent possible, a quantitative assessment of the wetlands functions and values was appropriate. Having identified eleven different functions and values of interest in the selection process, a methodology was needed to assess them.

Several constraints influenced what would be the most practical alternative for the program. First, the methodology needed to be relatively simple. The information that could be gathered to assess any particular function or value had to be obtainable from the lay public. At best, Ecology could expect to verify data with only a brief visit to the site by a small technical field team. Second, existing methodologies were too complex and difficult to apply and/or did not cover the full range of functions and values of interest for this program. Most existing methodologies are single function approaches applying complex techniques.

The model that came closest to meeting program needs in all areas was the *Methodology for the Inventory and Evaluation of Wetlands Habitat in King County* developed and used by the King County Planning Division in January 1986. It covered many functions and values and the data were quickly obtainable. It also presented a more localized application than other methodologies examined.

During the summer of 1988, Ecology staff, relying heavily upon the King County approach, worked with TAT members and other experts to design a methodology tailored to the specific needs of the Puget Sound Wetlands Preservation Program.

Each of the eleven functions and values to be identified received an evaluation and scoring approach. Measurable elements such as distance from schools, number of educational or recreational users, or size of the drainage basin, were used to create a composite of items deemed important for assessing the presence of each function. Scores were assigned to each element in relative proportion to the significance of that element in contributing to the function. The respective function elements were tallied to provide the final function score. These scores would be used to compare the nominated wetlands against each other and identify the highest functioning sites.

The selection of highest quality wetlands included two steps. The first was the assessment of functions and values. The second step was an assessment of the site's "viability" or ability to persist on the landscape. The selection criteria on functions and values considered:

1) The presence of special features,

2) Sites with high scores for a range of functions and values,

3) Sites with highest (top) scores for any particular function or value, and

4) Highest scoring sites representative of different wetland types.

The selection was based on a comparison between nominated wetlands only, rather than all wetlands in the Puget Sound. Under the viability criterion, if a selected site did not appear sustainable, it would not be listed.

Functions/Values & Viability Definitions

The definition of "indicators" for function/value measures and assessment of site viability are outlined below.

Functions/Values

I. Resident and Migratory Species Support

A. The site supports important fish and wildlife use such as nesting rookeries, nursery sites, migratory feeding routes, feeding areas and spawning areas for resident and/or migratory animal and fish species.

B. The site contains a significant number of habitat features important for fish and/or wildlife support.

II. Species of Special Concern

A. The site is feeding, breeding, or wintering habitat for animal species on Washington Department of Wildlife adopted or proposed lists of endangered, threatened, sensitive, or monitor species.

B. The site is spawning or feeding habitat receiving special mention under the Washington Department of Fisheries Hydraulic Project Approval, WAC Chapter 220-110 7-20-87 (salmon, herring, and surf smelt).

C. The site is habitat for plant species that are listed in the Department of Natural Resources' Natural Heritage Program list of Endangered, Threatened, and Sensitive Vascular Plants of Washington.

D. The site is habitat for "uncommon" plant species utilized by local Native American tribes or listed by academic ethnobotanists as important to native people for food, medicinal, or spiritual purposes.

III. Native Plant Communities

A. The site contains a high quality example of a native wetland element listed in the current Washington Natural Heritage Plan and that is recorded in the Natural Heritage Information System or is determined to be of Heritage Quality by the Department of Natural Resources.

IV. Diversity

A. The site supports a high diversity of native plant and animal species.

B. The site contains high habitat and structural diversity.

V. Floodwater Detention

A. The site moderates high flows experienced downstream by intercepting, slowing, and storing stormwater runoff.

VI. Sedimentation and Erosion Control

A. The site intercepts sediment-laden runoff and provides for settling of sediments, thereby reducing sediment deposition in downstream areas.

VII. Nutrient/Pollutant Entrapment and Assimilation

A. The site intercepts, stores, assimilates, or provides for the biological conversion of nutrients or other pollutants (such as coliform bacteria, oil and grease) in a highly efficient manner.

VIII. Support of Base Flow for Sensitive Habitat

A. The site provides or contributes to base flow in streams that support sensitive downstream habitat areas (sensitive downstream areas such as connecting waters for fish habitat, estuarine wetlands, or other habitat areas dependent upon base flow).

IX. Recreation

A. The site is important for recreational opportunities that are appropriate in wetland settings and are consistent with the needs identified in the *Washington Wetlands Priority Plan* and *Washington Outdoors: Assessment & Policy Plan* (elements of the Statewide Comprehensive Outdoor Recreation Plan or in local open space and/or park and recreation plans). An appropriate opportunity is defined as that which is dependent on the setting, doesn't harm the wetlands, or whose impacts, if any, can be mitigated through temporal or spatial distribution of the activity.

X. Open Space and Aesthetics

A. The site contributes significantly visual natural landscape characteristics or linkages as an open space in a surrounding urban area. ["Natural" means non-human made or built, "landscape visual characteristics" are patterns (groups) of natural vegetation, water, or landforms, and "linkages" are physical or visual connections of these vegetative, water, of landform attributes.]

B. The site provides aesthetic amenity values and contributes aesthetic functions to the adjacent landscape.

XI. Education and Research

A. The wetland offers a diverse environment and is readily accessible for instructional use by educational facilities and the general public.

B. The site has significant archaeological or historic cultural value as identified per listing on the National Register of Historic Places.

C. The site provides an important wetland research opportunity.

Viability

I. Defensibility

A. The site is or can be adequately buffered from adjacent land uses.

B. Any planning and/or management activities at the private, local, state, or federal level are compatible with maintaining the integrity of the wetland.

C. It is believed the wetland's functions and values can be maintained given the current condition of the site and the anticipated impacts to the surrounding land area.

II. Management

A. Where desirable, a site that has been altered or impacted can be reasonably restored.

B. Where desirable, nuisance plant or animal species can be contained or eradicated.

C. The functions/values provided can be managed compatibly with each other.

Criteria for Selection of Sites

Attribute Identification

I. Special Features

Wetlands displaying the presence of a special feature were automatically selected.

A. Endangered or threatened species of plants and/or animals designated on state lists and site occurrence confirmed on Washington Department of Wildlife or Washington Natural Heritage Program record.

B. Outstanding/uncommon geomorphological or hydrologic feature:

- Peat deposits of 14 feet or greater depth
- Large spring fed basins
- Hydro-biologic complex (wetlands exhibiting hydrologic and ecological complexity due to topographic position, water level fluctuation, and complexity and character of vegetation)

II. Sites having the highest scores (top 10 percent) within each function/value category.

III. Sites having high scores for a wide range of functions/values -- "clustering."

- 3 to 4 functions appearing in top 20 percent of scores
- 4 to 5 functions appearing in top 30 percent of scores

IV. Sites that are high scoring representative examples of each wetland type:

Freshwater Wetlands:
sphagnum peat
non-sphagnum peat
mineral soil (non-peat)
beaver
surge plain
riparian
backwater areas
mature coniferous, deciduous, & mixed forested

Estuarine Wetlands:
salt marsh
brackish marsh
salt lagoon
brackish lagoon
rocky intertidal
mixed course intertidal
mixed fine intertidal
sandy intertidal
silt/mud intertidal
eelgrass bed
kelp bed

DNR's Manageability Rating Criteria

The DNR manageability rating for each site is based on the criteria listed below.

Rating	Criteria
1	The site is not buffered from adjacent land use (site has little or no buffer and the site is not protected from surrounding adverse land use). Adjacent land

use poses an immediate threat to the wetland. The site has been disturbed in the past or present, and it seems unlikely that wetland functions and values can be reasonably maintained in the future.

2 The site is not adequately buffered from adjacent land use (the site has some buffer but the buffer is not sufficient to protect the wetland from potential threats from surrounding land use). Adjacent land use threatens the functions and values of the site. There are past or present disturbances to the site that pose threats to reasonable management of the site in the future.

3 The majority of the site is adequately buffered from adjacent land use. Portions of the buffer and wetland are threatened by encroachment from development or forest land management. The site has some localized disturbances which may be reasonably managed.

4 The site is well buffered from adjacent land use. Adjacent land use does not pose an immediate threat to the wetland. Disturbances to the site are minimal and can be reasonably managed.

5 The site is very well buffered from adjacent land use. Adjacent land use poses little threat to the wetland. Disturbances to the site are minimal and pose no threat to future management of the site.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Data for 39 wetlands were entered into the database. These represented sites remaining after elimination of inappropriate and/or low viability wetlands and following the combination of duplicate nominations or multiple nominations for portions of a single site. For example, one of the wetlands combined 10 nominations into what was a single headwater wetland.

Of the 39 sites in the database, 27 were selected. Selection of sites was more generous than sparing. If a site had a function scoring "very close" (say within a point) to the selected top scores for the function, the site was credited with the attribute, rather than dismissed. The overall quality of most listed sites was reinforced by the selection of the particular wetland under more than one of the three selection criteria approaches.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The PSWPP could serve as a model of a collaborative effort between agencies to identify high quality wetlands for protection. It could also be used by the Corps to identify the regional significance of wetlands in the Puget Sound area.

PSWPP staff found that involving the public had a variety of effects on the success of the program, which are summarized below:

- The public had a misconception of the characteristics of a "high quality" wetland. The nomination sites generally were a lower quality of wetland than expected.
- The nomination process was quite labor intensive to get sites checked by a field team and apply the methodology for selection.
- The process definitely missed *many* more suitable sites for listing simply because they were not nominated.
- The public education benefits of community involvement to nominate sites (e.g., filling out attribute forms) was one of the greatest benefits of this process. Involving the public has led to greater public commitment to seeing these sites protected.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Washington State Scenic Rivers Program

GOALS AND OBJECTIVES

The Committee of Participating Agencies, at the direction of the Washington Parks and Recreation Commission, established the following goals for Scenic River management:

- To protect the free-flowing character of Scenic Rivers by restricting dams and inappropriate impoundments;
- To protect corridor scenic values, wildlife habitat, unique ecological areas, and historic and archaeologic sites on Scenic Rivers;
- To provide for public access to and enjoyment of recreation on Scenic Rivers where it does not detract from protection of natural values; and
- To encourage actions by riverfront landowners and other private citizens that would further protect the values of the Scenic River.

GEOGRAPHIC SCOPE

State of Washington

OVERVIEW OF PROGRAM/STUDY

The Washington State Scenic Rivers Program addresses these goals through two distinct programs. The first is the coordination of state and local government management activities on publicly owned lands along designated rivers. The second is the encouragement of voluntary efforts by private citizens to protect Scenic Rivers.

Direct state management of activities along designated Washington State Scenic Rivers is limited to publicly owned lands; private lands are specifically excluded from additional regulations under the Scenic Rivers Program. The focus of state involvement in public land management on designated rivers is to coordinate the actions of the many state and local agencies with jurisdiction over the river and the corridor, and encourage them to take actions that enhance the exceptional characteristics of the Scenic River. While federally owned lands are exempt from state management, Scenic River designation may influence federal agencies to manage their lands along designated rivers in a manner consistent with Scenic River goals.

There are two public responsibilities that begin as soon as a river is designated into the State Scenic Rivers System. The first is increased scrutiny of development projects proposed along the river. Under state and federal law, the state agencies involved in the Scenic River Program have the responsibility to review and comment on public and private proposals to harvest timber, construct dams and diversion structures, and conduct many other activities. By giving increased attention to proposals on designated rivers, program managers and reviewers from participating agencies can ensure that these activities are consistent with the management goals for State Scenic Rivers.

The second public responsibility on designated rivers is the development of a management strategy for public land along the designated river segment. Under the Scenic Rivers Act, the Washington State Parks and Recreation Commission and the Committee of Participating Agencies are directed to develop management policies for publicly owned land along designated Scenic Rivers. The process for developing these policies has been designed to encourage the involvement of private citizens and local and state agencies. The process begins with the establishment of a river management committee composed of representatives from these public and private interests. The committee defines the issues and concerns, establishes common management goals, develops and reviews alternatives, and defines a common strategy for future public land management along the designated Scenic River. The committee meetings are open to the public, and local citizens are encouraged to participate in the planning process through their representatives on the committee. The role of the State and Parks and Recreation Commission is to form the committee, provide participants with information and assistance in the planning process, ensure that alternatives and strategies developed are consistent with the broader goals of the Scenic Rivers Program, and publish and distribute the strategic plan. Ultimately, the Commission may also adopt policies for public management in compliance with the plan.

The result of this management planning process is a strategy for public land management along the Scenic River that is uniquely suited to the demands of the local community.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Washington State Scenic Rivers Program was created by the state legislature in 1977 for the purpose of balancing the use and development of rivers with a concerted effort to protect a few of Washington's great rivers. The Scenic Rivers Act (Chapter 79.72 RCW) seeks to establish a balance between those rivers that will be harnessed for our needs today and those we shall pass, unfettered and intact, to the next generation.

Public: Although this evaluation was conducted under the auspices of the Washington State Scenic Rivers Program, much of the power to protect the outstanding rivers of Washington will rest in local hands; no public action can replace the importance of wise use by the people who live along the state's great rivers. Where there is local public support, the state stands ready to assist communities to protect rivers through the State Scenic Rivers Program.

Technical: The prioritization process as discussed in the section below, is based primarily on scientific or technical knowledge or judgement of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The process of selecting 18 rivers from the hundreds in Washington State was complex, requiring both an objective analysis of previously collected river information and a more subjective evaluation of scenic, natural, and recreational values. The following discussion examines this selection process in more detail.

The first obstacle in selecting candidate rivers was conceptual, not analytical. The Washington State Scenic Rivers Act establishes certain criteria for Scenic Rivers, stating that ideally, a Scenic River:

1) Is free-flowing without diversions that hinder recreational use;

2) Has a streamway that is relatively unmodified by riprapping and other streambank protection;

3) Has water of sufficient quality and quantity to be deemed worthy of protection;

4) Has a relatively natural setting and adequate open space;

5) Requires some coordinated plan of management to enhance and preserve the river area; and

6) Has some lands along its length already in public ownership, or the possibility for purchase or dedication of public access and/or scenic easements. (RCW 79.72.060)

These criteria serve as good indications of the combination of natural, recreational, and social values that the legislature considered in drafting the Scenic Rivers Act, and serve well to determine whether specific candidates for designation meet Scenic River standards. However, there were two challenges in applying these criteria to a statewide study of potential candidates. First, the ambiguity of some standards (i.e., "relatively" unmodified, "relatively" natural) made it difficult to use these factors to either select rivers for, or discard them from, consideration. Second, the criteria seem to discount the inherent quality of natural, cultural, recreational, and scenic values along potential candidates. The Act elsewhere indicates that these resource values are of fundamental importance in Scenic River designation and management.

As a result, the Committee of Participating Agencies supplemented the criteria in the Act with additional factors they felt were important to consider in defining candidates for State Scenic River status. They felt that scenic rivers should also:

1) Have a variety of exceptional natural, cultural, or recreational resources on and along them;

2) Have exceptional scenic quality; and

3) Have long, continuous segments with exceptional values.

In addition, the Committee decided that the Scenic River System as a whole should have certain characteristics, stating that it should:

4) Represent all of the geographic regions of Washington State; and

5) Represent the range of development in landscapes along rivers, from the most primitive to rural to urban/suburban.

The criteria, in sum, represent standards for an "outstanding" river and an ideal image of what a Scenic River ought to be. These criteria were applied to the hundreds of rivers in Washington State to determine those rivers that deserve further consideration for the Washington State Scenic Rivers System.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Eighteen rivers were identified as having the potential, by virtue of their outstanding characteristics based on natural, cultural, and recreational resource value, continuous length, geographical distribution, and scenic value, for designation in the Washington State Scenic Rivers System.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Washington State Scenic Rivers Program could be used as a model for determining the significance of rivers based on exceptional natural, recreational and social values. In addition, the Corps could examine this program as a model for the coordination of local public support with state efforts to protect significant rivers.

The 18 rivers designated under the Washington State Scenic Rivers System could be used by the Corps to identify resources of state significance based on their outstanding natural, cultural, and recreational resource values.

BIBLIOGRAPHIC INFORMATION

Washington State Scenic Rivers Program Committee of Participating Agencies, "Washington State Scenic River Assessment," prepared for the Washington State Parks and Recreation Commission (September 1988).

POINT OF CONTACT

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Wisconsin Lake Protection Grant program

GOALS AND OBJECTIVES

The Lake Protection Grant program is a cost-share program within the Wisconsin Lake Management Program. The Department of Natural Resources (DNR) is providing funding to local governments and lake management organizations for the collection and analysis of information needed to protect and restore lakes. A major goal of the program is to develop strong state/local partnerships, which can lead to more effective watershed protection and lake management.

GEOGRAPHIC SCOPE

Wisconsin

OVERVIEW OF PROGRAM/STUDY

Lake management organizations can obtain up to $100,000 in matching funds to purchase wetlands and other lands critical to lake ecosystems. They will also be able to develop local regulations or restore wetlands. All counties, cities, towns, villages, tribes, sanitary districts, public inland lake protection and rehabilitation districts and qualified lake associations are eligible to apply.

Activities eligible for funding include:

- The purchase of property or easements that will significantly contribute to the protection or improvement of the natural ecosystem and water quality of a lake,
- The restoration of wetlands or the lands draining to wetlands, and
- The development of regulations and ordinances to protect lakes and the educational activities necessary for them to begin to be implemented. Water safety patrols are not eligible.

The state will provide 50 percent of the cost of property up to $100,000. All state grant programs that entail the purchase of property are subject to numerous legal requirements related to purchase procedures. These must be used to ensure fair treatment of the landowner from whom the property is being purchased. The following are some of the principal conditions of this grant program:

- DNR approved appraisals of property are required.
- To ensure long-term protection and maintenance, any property purchased with the use of state funds will be subject to the execution of a grant contract. This contract will remain with the property as a deed restriction.
- The local share must be a cash match of 50 percent of the eligible project cost.
- Property purchased any time after August 15, 1991 may be eligible for a retroactive grant if proper acquisition and appraisal procedures were used to purchase the property and if funds are available.
- Dam repair, operation, removal or the purchase of property on which a dam is located are not eligible costs for grant funding.

The state will provide 50 percent of the cost of a project, up to a maximum of $100,000. These funds can be used for:

- Restoration of wetlands or lands draining to wetlands. Eligible costs for wetland restoration include design, surveying, engineering, and actual construction.
- Development of local protection regulations. Ordinance development and educational activity costs that are eligible include legal costs, surveys, and newsletters.

Certain local, in-kind contributions, within cost guidelines, will also be eligible as part of the project cost and local match for these activities.

The DNR will provide applications and technical guidance for the Lake Protection Grants program. Grants will be awarded annually.

There are two parts to the application. Part I is required only for qualified lake associations or management units. The application may be submitted at any time to obtain prior approval and demonstrate the organization's eligibility to obtain a grant. The organization must provide evidence of its qualifications and its ability to carry out the purposes of the project. Part II of the application concerns the project itself. This part of the application must describe the project in detail and include project cost, how the project will protect the lake, who will sponsor the project, and how it will be paid for.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Lake Protection Grant program is authorized by s. 144.254, Stats. and administered under NR 191, Wisconsin DNR Administrative Code.

Public: The prioritization process, which is discussed in the section below, considers the level of local public support.

Technical: In the prioritization process discussed in the section below, protection or improvement of lake water quality and its natural ecosystem is the first criteria. Decisions about significant resource characteristics under the program based on the professional judgement of DNR lake coordinators.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The DNR will prepare a priority project list each year on a statewide basis. Priorities will be based on the criteria listed below:

- The degree to which the project provides for protection or improvement of lake water quality and other aspects of its natural ecosystem.
- The amount and type of public access.
- The degree to which the project compliments other lake and watershed protection efforts.
- The level of financial support provided by the sponsor.
- The level of support for the project from other affected local units of government or lake organizations.
- Lakes which have not previously received a lake protection grant will receive a higher priority.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

No grants have been awarded yet, since the first project application deadline is November 1, 1993. Projects will be evaluated based on the priorities described in the section above and decisions will be based on the professional judgement of the DNR's lake coordinators, who provide up-front technical assistance to the applicants.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Lake Protection Grant program could serve as a model for protection or restoration of lakes or wetlands through a cost-share grant component of a broader state lake management

program. In addition, the Corps could examine this program as a model of mechanisms to support development of local regulations or ordinances to protect lakes or other significant environmental resources.

BIBLIOGRAPHIC INFORMATION

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Wisconsin Stewardship Program

GOALS AND OBJECTIVES

The Stewardship Program was created in 1989 to fund Wisconsin's need to acquire and protect environmentally sensitive lands and to provide recreational opportunities for the 1990s and beyond. The Stewardship Program funded for the first time a number of legislatively mandated innovative programs and is the primary source of funds for Department of Natural Resources (DNR) land acquisitions and recreational development. The program also provides grants to local governments and nonprofit conservation groups for recreational and conservation projects.

GEOGRAPHIC SCOPE

Wisconsin

OVERVIEW OF PROGRAM/STUDY

To assure that the variety of conservation and recreation goals included in the Stewardship Program are achieved, the program is subdivided into 12 categories. Some of the program elements are continuations of ongoing programs while several others are new initiatives. The following summarizes the purpose(s) of each Stewardship category with an annual allotment limit:

General Land Acquisition ($6.7 million). This largest element of the Stewardship Program is aimed at achieving the continuing conservation and recreational land acquisition activities of the DNR. For example, acquisition of wildlife, fishery areas and state parks are funded through this category.

Recreational Development ($3.5 million). The DNR provides these funds to maintain safe parks and construct public use recreation facilities projects.

Local Park Aids ($2.25 million). This element provides matching grants to local units of government to acquire and develop local parks.

Lower Wisconsin Riverway ($2 million). The DNR uses these funds to acquire land along the Lower Wisconsin River for scenic preservation, recreation and natural resource management.

Natural Areas ($1.5 million). The DNR protects rare and endangered habitats and species. Emphasis is on lands with special scientific or ecological value.

Habitat Restoration Area ($1.5 million). The DNR or Nonprofit Conservation Organizations (NCOs) purchase easements and cost-share land management practices to restore wildlife habitats previously lost to agriculture or development. The $1.5 million will also be used to restore wetlands and grasslands throughout the state.

Trails ($1 million). These funds are used for expansion and development of the state trail system including the Ice Age Trail.

Stream Bank Protection ($1 million). The DNR or NCOs protects water quality and fisheries through purchase of land and easements along streams.

Urban Greenspace ($.75 million). This element provides grants to local governments and nonprofit conservation groups to purchase lands in urban areas to provide open spaces and to protect scenic or ecologically valuable sites.

Ice Age Trail ($.5 million). The DNR issues grants to nonprofit organizations for acquisition of land for the Ice Age Trail.

Natural Areas Heritage ($.5 million). These funds are used to match donations of land and money for natural areas.

Urban Rivers ($1.9 million). This element will provide matching grants to local governments to acquire land in urban river corridors for natural resource enhancements.

The Stewardship Program is funded through general obligation borrowing. The state of Wisconsin sells bonds to investors now to raise money, then pays back the debt with taxes collected over the next 20 years. That way, the cost is spread out over time and can be shared with future users of public lands and outdoor facilities. The Stewardship Program is authorized $23.1 million per year in bonding authority for the years 1990-2000.

Predicated on the idea that preservation of the state's special places is too big a job for the DNR to handle alone, the NCO portion of the Stewardship Program was established to bring the people of the state into the process. By encouraging citizen participation via partnerships with nonprofit groups, the DNR is able to leverage its resources and stretch limited state dollars. By awarding match grants to NCOs, the DNR has been instrumental in enabling groups to protect important natural areas. Nonprofit organizations bring to the partnership private funding sources plus the energy, enthusiasm, and talent of their Boards of Directors, staffs and volunteers.

SOURCE OF PRIORITY RECOGNITION

Institutional: The 1989 Wisconsin Legislature created the Stewardship Program, a 10-year, $250 million fund to involve local governments, conservation groups, and rural landowners

in the management of Wisconsin's land resources. It also expanded the Outdoor Recreation Action Program (ORAP), which first started in 1961 to provide funding for much of the state's parks and recreation areas and facilities.

Public: The prioritization process, which is discussed in the section below, considers the level of public support as evidenced by the level of interest of nonprofit conservation organizations.

Technical: The process of selecting habitat restoration areas described in the section below, incorporates technical and scientific knowledge and judgements about certain types of species in selected areas of the state.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The DNR and the agencies which preceded it have been purchasing lands for conservation purposes for more than a century. Land purchases have been funded through a variety of state and federal sources, most recently through Outdoor Recreation Act Program (ORAP) funds. The Stewardship Program is the latest in a series of programs to support land acquisition for conservation and recreational purposes in Wisconsin. The Department purchases lands almost exclusively on a "willing seller" basis.

Under the Stewardship Program, the goal of the Habitat Restoration Area (HRA) Program is to increase the populations of specified wildlife and fish populations primarily through landscape-scale habitat management. The goal will be achieved through use of easements and cost-share arrangements with the emphasis on entering into easements. HRAs are selected by the DNR using the following criteria:

a) The practicability of achieving significant improvements in the quality and quantity of wildlife or fish habitat in the HRA.

b) Likelihood of owners of critical habitat management sites to participate in the project.

c) The probability of wildlife or fish populations for which habitat has been severely degraded to increase in abundance and establish a self-sustaining wild population.

d) The level of public ownership of critical habitat types in the HRA.

e) The level of interest on the behalf to nonprofit conservation organizations to assist in implementation.

f) The level of opportunities to cooperate with existing federal, state and county administered land management practices.

g) The presence of unique or endangered environmental resources.

h) The usefulness of the area as an education demonstration area.

The DNR must give priority in selecting HRAs to the following sites and species in the following order:

a) Southern, eastern and western Wisconsin sites suitable for restoring grasslands and wetlands to benefit gamebirds such as pheasants and dabbling ducks, and grassland songbirds in the following counties: Baron, Columbia, Dane, Dodge, Dunn, Fond du Lac, Green, Green Lake, Jefferson, Polk, Rock, St. Croix, Walworth and Winnebago.

b) Central Wisconsin sites suitable for restoring grasslands for rare species such as prairie chickens in the following counties: Adams, Clark, Juneau, Marathon, Portage, Taylor and Wood.

c) Southwestern Wisconsin sites suitable for restoring smallmouth bass fisheries in the following counties: Grant, Iowa, and Lafayette.

d) Other sites where the habitat restoration projects will significantly benefit grassland, wetland and rare wildlife species.

The DNR compiled a proposed project list of all high priority projects, which may be revised periodically. HRAs are selected from the list based on the availability of funding and the availability of DNR staff to accept new workloads associated with the project.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The Stewardship Program has been successful in accomplishing expansion of public lands for conservation and recreation, in the development and maintenance of facilities on these lands, and in the enlistment of support from nonprofit conservation groups in land acquisition efforts. Several unique acquisitions, such as the Chippewa and Turtle-Flambeau Flowages, the Wolf River Bottoms Wildlife Area and Blackhawk Ridge property in the Lower Wisconsin Riverway, have greatly enhanced the preservation of Wisconsin's natural heritage. Partnership efforts with NCOs have led to acquisition of regionally significant natural areas as exemplified by the Quincy Bluff Natural Area. Significant facilities and state trails development projects have been accomplished throughout Wisconsin and will serve to support growing recreational needs.

Increased flexibility is needed to accommodate landowners who, while interested in participating in the HRA Program, are not willing to sell an easement on their entire ownership. Purchases of large tracts of 200 acres or more are needed to accomplish the program goal of restoring habitat for nongame grassland birds. Such tracts are typically whole farms, which landowners are more likely to sell in fee than to grant an easement for the whole property. In addition, fee acquisition appears to be the best methods to provide public access to HRA lands. To date, landowners have been reluctant to grant easements with public access.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Wisconsin Stewardship Program could serve as a model for land acquisition and management for conservation purposes, such as improvement of fish and wildlife habitat. It could also be used by the Corps as a model for public participation in partnership with nonprofit organizations.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Wisconsin Water Quality Management Plans

GOALS AND OBJECTIVES

The Water Quality Management (WQM) Plans, updated every five years, address the water quality issues and problems in a given river basin and the Wisconsin Department of Natural Resources (WDNR) work planning needs to deal with those problems. WDNR uses information in the Plans for:

- Driving the selection of priority watersheds and lakes for the Wisconsin Nonpoint Source Water Pollution Abatement Program,
- Identifying the monitoring needs in a basin,
- Noting streams that need to be classified, and
- Identifying lake monitoring needs.

GEOGRAPHIC SCOPE

Wisconsin

OVERVIEW OF PROGRAM/STUDY

The state's 32 river drainage basins are assembled into 23 planning units including the management unit divisions, with some exceptions. WDNR is responsible for water quality management planning in 20 of the 23 planning units. The state code provide for three "designated planning agencies" to perform planning functions for the other three units. The Dane County Regional Planning Commission provides plans for Dane County, which overlaps four basins covered by the WDNR. The Southeast Wisconsin Regional Planning Commission writes management plans for seven southeastern counties, including the Milwaukee River Basin, Southeast (Root River) Basin and Fox River (Illinois) Basin, and overlaps into three basins covered by WDNR. The third designated planning agency, the Fox Valley Water Quality Planning Agency, is currently defunct and WDNR took responsibility for updating their plan.

Wisconsin WQM planning efforts highlighting a "basin approach" have been acknowledged by U.S. Environmental Protection Agency (EPA) as unmatched among the EPA Region V states. Over the past two years, Wisconsin has produced a new guidance package for planners updating the river basin plans, created a new, more user-friendly plan format, and

now produces the plans in binders to ease the production of updates and additions of amendments. These changes and the increased number of programs now driven by the recommendations in the plans have led to an overwhelming number of requests for WQM plans.

Scoping meetings to develop WQM Plans are held in the initial phase of planning for each basin. The scoping meeting provides the planner additional insights from staff of various disciplines, including the bureaus of Fisheries Management, Wastewater Management, Wildlife and Zoning. The conclusions drawn at the scoping meeting determine the content of the plan, such as whether groundwater or wetlands reports are necessary. The planner then refers to the WDNR's Planners Guidance to write the plan.

All plans contain a Recommendations Report and a Surface Water Quality Report with tables for streams and lakes, nonpoint source watershed rankings, and discussions of lakes. The point source, groundwater and wetlands reports are included if problems are identified and specific recommendations made.

SOURCE OF PRIORITY RECOGNITION

Institutional: Section 208 of the federal Clean Water Act directed the states to do areawide water quality planning.

Technical: The prioritization process, as discussed in the section below, is based primarily on scientific and technical knowledge or judgement of critical resource characteristics on a watershed basis.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Areawide Water Quality Plans

The priority watershed selection process makes use of the areawide water quality plans or "basin plans" originally developed under the requirements of the federal Clean Water Act. The basin plan assesses surfacewater and groundwater quality problems in that particular drainage basin, including point sources and nonpoint sources of pollution. The plan prioritizes areas needing surface water monitoring, other technical assistance and corrective action. WDNR is responsible for 21 of the management units, and the other two units are managed by regional planning agencies.

Basin plans must be updated every five years. Watersheds within each basin are prioritized based on water quality criteria and are designed as high, medium, or low priority, or as unmonitored. WDNR has determined that data must exist for at least 50 percent of the water bodies in a watershed for it to be assigned a monitored status and a high, medium, or low priority.

If a watershed is designated as high priority under the areawide water quality plan, it is eligible to be selected as a large-scale priority watershed project by the Nonpoint Source

Water Pollution Abatement Grant Program. However, actual selection is dependent upon several factors and only a small number of eligible watersheds are chosen as projects each year. Generally, medium- and low-priority watersheds and unmonitored watersheds are not considered for selection as a large-scale project.

The Department of Agriculture, Trade and Consumer Protection (DATCP) and county land conservation departments are involved in the watershed selection process, in part, by having a role in the development of the basin plans. As the plans are updated, DATCP participates by providing information in its areas of agency expertise. For example, DATCP provides information on soil erosion and pesticide contamination, which will become part of the basin plans.

Selection Process

WDNR divides the state into six districts, each of which has a district office. The offices are located in Eau Claire, Green Bay, Madison, Milwaukee, Rhinelander and Spooner. Under the watershed selection process, each district office develops a list of priority nonpoint source projects as a part of the basin plan update. When a district is chosen to receive one of the next watershed projects, WDNR district staff use lists formulated from the basin plans to identify the highest priority projects.

DATCP and the local governments participate with WDNR on a committee that makes selection decisions. Public meetings provide an opportunity for community input. DATCP must approve the list of projects selected to receive grants and the plans detailing how those grants would be utilized in each watershed. When a specific project is chosen, DATCP contributes its expertise to the development of the pollution reduction plan, often through the county personnel who work with DATCP on agricultural and conservation issues.

Act 309 directed WDNR to appoint a local committee for each priority watershed and priority lake project to provide advice on all aspects of the project. The committee consists of: (1) at least two farmers, if the watershed includes agricultural land; and (2) at least two representatives of a public inland lake protection district, or if one does not exist, of riparian property owners (persons owing property abutting a lake, river, or other natural body of water).

One of the primary objectives of this process is to provide a decentralized decisionmaking and planning effort and include participation by DATCP and local governments. The WDNR conducts this review and selection process annually, beginning approximately two years prior to the actual award of grant funding to allow time for district selections, public input, and county staffing plans.

The following criteria are used to select priority watershed projects:

1) the severity of water quality impairment,

2) the practicability of achieving a significant amount of pollution reduction,

3) the willingness and capability of local agencies to initiate and complete the project within a specified time,

(4) landowner willingness to participate in a cost-share program,

(5) the cost effectiveness of the proposed best management practices, and

(6) potential public use and benefit resulting from the project and the degree of public support.

The nonpoint source grant program is implemented through a priority watershed strategy. A watershed is defined, for the purposes of this program, as all land that contributes to runoff water to a stream or lake. The WDNR identifies high priority watersheds that require comprehensive management to control nonpoint source pollution. Nonpoint source control projects are grouped into the following three categories:

Statutorily Designated Large-Scale Priority Watersheds. As part of 1983 Act 416, the WDNR was required to identify watershed projects in the Milwaukee River Basin, which includes portions of Milwaukee, Waukesha, Washington, Ozaukee, Fond du Lac and Sheboygan Counties. In 1989 Act 366, the Kinnickinnic River was designated part of the Milwaukee River Basin, and was, therefore, included as a part of the nonpoint project area. As a result, six of the large-scale priority watershed projects are located in the Milwaukee River Basin.

Small-Scale Priority Watersheds. Small-scale priority watershed projects are selected to achieve local water quality objectives. These projects implement the same best management practices as the large-scale projects, but generally involve no more than five to ten landowners. An example might be a project to reduce sedimentation of a small stream. Because of the desire to treat high-priority, large scale watersheds as an environmental unit, WDNR has decided it generally will not select small-scale projects in these areas. Small-scale projects instead are selected in medium- or low-priority watershed areas where it can be demonstrated that significant local benefits can be derived. The basic selection process for small-scale projects is the same as that for large-scale projects.

Priority Lakes Projects. WDNR is directed to allocate at least $300,000 of nonpoint source grant funds each year to priority lakes projects. Priority lakes are defined as those where the need for nonpoint source water pollution abatement is most critical, as determined by the planning process described above. WDNR has determined that priority lakes projects will not be awarded within a high-priority large-scale watershed unless that whole watershed is being addressed by a nonpoint source project. Lakes in middle- and low-priority watersheds are generally eligible, subject to funding availability.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Of the 56 Priority Watershed Projects in Wisconsin in 1992, there are 47 designated watershed projects, 6 designated small-scale priority watershed projects, and 3 priority lakes projects. These projects were identified, ranked, and selected through the WQM planning process.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Water Quality Management Plans could serve as a model for addressing water quality problems of streams, wetlands, and lakes, using a basin approach. The plans could also be used by the Corps to identify the regional significance of streams, wetlands, and lakes within designated priority watersheds. The priority watershed selection process could be examined by the Corps as a model for water quality management planning to support identification of priority watershed projects.

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6. SUMMARY ABSTRACTS FOR NONPROFIT ORGANIZATION PROGRAMS

ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

American Rivers Outstanding Rivers List

GOALS AND OBJECTIVES

The Outstanding Rivers List (ORL) is a comprehensive list of rivers in the United States that possess outstanding ecological, recreational, cultural or scenic attributes. The ORL is, in essence, a compilation of the rivers across the country that have some outstanding public value worthy of protection. Some of the rivers listed in the ORL already enjoy some type of legal protection, but most do not. The ORL is used to assign priorities to conservation efforts in order to protect rivers and their adjoining landscapes.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

American Rivers created the ORL for several reasons. First, it is a tool to aid river conservationists in identifying rivers that should be conservation priorities. Even as public appreciation of the value of rivers is growing, rivers continue to be dammed, diverted, channelized, and developed for a variety of public and private purposes. To preserve even a modest portion of the nation's remaining natural rivers, river conservationists must choose which battles to fight. The ORL is intended to focus public and private efforts on the best of the nation's remaining endowment of natural rivers.

Second, the ORL helps government decision-makers identify important ecological, recreational, cultural, or scenic attributes of rivers that may be adversely affected by development activities. The Federal Energy Regulatory Commission and the U.S. Army Corps of Engineers, for example, should use the ORL to identify rivers that would be adversely affected by dam building or dredging and filling. Land management agencies, such as the Forest Service and the Bureau of Land Management, should use the ORL to identify significant rivers on their lands and to guide management decisions affecting those rivers.

Finally, the ORL is an educational tool to help document the challenge that lies ahead for river conservation. Today, more than 20 years after the founding of the National Wild and Scenic Rivers System, it is difficult to recall the era in which there were no organized federal or state efforts to protect rivers. Since that time, the numbers of boaters, anglers, and other people who use and enjoy rivers have increased dramatically. The ORL helps to define the number and types of outstanding rivers that need protection to meet these public river uses.

SOURCE OF PRIORITY RECOGNITION

Institutional: The ORL combines many individual lists of important river segments compiled by federal, state, and local organizations. The 1990 list is the only comprehensive list that goes beyond federal site designations and includes the much greater number of priority sites that have been identified by state and local agencies.

Technical: The prioritization process, as discussed in the section below, is based on scientific and technical knowledge or judgement of critical resource characteristics from other organization's individual lists.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The ORL is a list of lists. American Rivers collected every available, authoritative list that identifies rivers within the United States that have some outstanding ecological, recreational, cultural, or scenic attribute. The ORL contains some 15,000 river segments totaling approximately 300,000 river miles.

The ORL incorporates the Nationwide Rivers Inventory (NRI), published by the National Park Service in 1982. The NRI is an extensive list of some of the rivers across the country that deserve consideration for inclusion in the National Wild and Scenic Rivers System. The ORL also includes many state-level lists, such as lists of state scenic rivers, state canoe trails, and outstanding state fishing waters. The rivers included in the Protected Areas Program of the Northwest Power Planning Council represent the single most extensive list included in the ORL. The ORL also includes two lists prepared by nonprofit organizations: Priority Aquatic Sites identified by The Nature Conservancy, and Outstanding Whitewater Boating Rivers identified by the American Whitewater Affiliation.

The ORL also includes rivers that deserve consideration for addition to the National Park Service's Nationwide Rivers Inventory and then ultimately designation as Wild and Scenic Rivers. The ORL is also made available to encourage some states to initiate or significantly expand assessments of their river resources.

The ORL is no more definitive or complete than the lists from which it is derived. Certain states, such as Pennsylvania, have prepared detailed assessments of their river resources. Other states have never investigated their river resources or have not attempted to identify the particular rivers within the state that possess outstanding values. Thus, outstanding rivers that clearly deserve to be included in the ORL have undoubtedly been omitted in some states. On the other hand, the ORL undoubtedly includes some rivers that do not belong on the ORL. In short, the quality of data in the ORL is uneven.

American Rivers periodically revises the ORL as more and better data are generated by federal, state, and local agencies and by nonprofit organizations. American Rivers welcomes comments, including suggested additions to or deletions from the ORL.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

Rivers represent important ecological units that need to be protected and managed on a comprehensive basis. The flow of water within a river basin is the unifying element of a river ecosystem as the quality and quantity of water flowing through a river basin is the primary determinant of ecosystem health. Rivers provide habitat for an enormous diversity of animal and plant species, many of which are endangered or threatened as a result of river development. Salmon and other anadromous fish, for example, require unimpeded passage from the river's mouth to headwater spawning grounds.

The ORL contains approximately 15,000 river segments, including the 1,524 segments of the National Park Service's Nationwide Rivers Inventory. These 15,000 river segments represent approximately 300,000 river miles, which amounts to less than 10 percent of the 3,500,000 river miles in the United States. The list includes all 50 states and is updated periodically. The first edition of ORL was published in November 1988. The second edition is based on new and corrected information available through October 1990. The list is available on a state-by-state basis.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The American Rivers Outstanding Rivers List could serve as a model for combining the results of prioritization processes across federal, state and local agencies and nonprofit organizations. It could also be used by the Corps to identify rivers with outstanding ecological, recreational, cultural or scenic attributes.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Ducks Unlimited Matching Aid to Restore States Habitat

GOALS AND OBJECTIVES

The objective of the Matching Aid to Restore States Habitat (MARSH) program, administered by Ducks Unlimited (DU), is to compliment the on-going habitat programs in Canada and Mexico through the development, restoration, maintenance, and preservation of waterfowl/wetland habitat in the United States, and to create a positive fund-raising atmosphere through the acquisition and enhancement of waterfowl/wetland habitat within each state. This reimbursement program provides matching funds and grants to public and private agencies and organizations within each state.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The amount of funding available for MARSH projects in each state is currently based on 7.5 percent of the sum of DU's income within that state, plus any unused rebate money from the previous year. The MARSH allocation will, therefore, fluctuate as DU's income fluctuates in each state. MARSH funds are placed in an escrow account dedicated to funding MARSH projects. MARSH funds are not available to pay salaries or benefits of the cooperators or their employees.

The MARSH program often supports state agency initiatives, and therefore, program activities vary substantially. Generally, the following activities are elements of state MARSH programs:

- Project prioritization and site selection (contributor and MARSH coordinator);
- Project plan development, design, and construction (contributor or DU engineers); and
- Operation and maintenance, long-term management and monitoring (contributor).

SOURCE OF PRIORITY RECOGNITION

Public: Because project proposals must receive the endorsement of DU state volunteers, public support is an important component of the prioritization process.

Technical: The prioritization process discussed in the section below, is based primarily on scientific and technical knowledge or judgement of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Projects submitted for MARSH funding must significantly benefit waterfowl. Normally, all projects must be on lands under the control of a public agency, or private cooperators which have been approved by DU's Conservation Programs Committee. Control must be through ownership, lease, easement, or management agreement, and be adequate for protection, maintenance, and use of the project throughout its projected life. Normally, projects must meet minimum cost-efficiency standards. Projects or cooperators not meeting these criteria, requiring special exemption, or exceeding $200,000 in cost, require special approval by the Conservation Programs Committee and the President.

Projects that lead to permanent protection and/or restoration of North American Waterfowl Management Plan (NAWMP) sites and those that protect and enhance other important waterfowl habitat, will receive first consideration. Protection includes fee-title acquisition or the acquisition of permanent easements.

Projects that provide benefits beyond waterfowl habitat protection and enhancement may have a greater chance of approval. Projects that clearly benefit non-game, threatened or endangered species, unique habitats or ecosystems, or have high public visibility or interpretive values, in addition to providing substantial waterfowl values, will receive priority for MARSH funding. DU believes that demonstrating how projects help to achieve multiple conservation goals is critical to the success of the program and that of the NAWMP.

MARSH project proposals are accepted by program coordinators in three DU regional offices (Bismarck, ND; Sacramento, CA; and Jackson, MI) and two program offices (Bedford, NH and Eagan, MN). Project proposals are evaluated based on the following criteria:

- Biological soundness,
- Support of the North American Waterfowl Management Plan,
- Benefits beyond waterfowl habitat protection and enhancement (i.e., public visibility),
- Ratio of cost to benefit,
- Endorsement of DU state volunteers, and
- Amount of funds in the respective state MARSH account.

Project proposals ranking highest are submitted to National Headquarters for approval by the Director of Habitat Development. Site-specific agreements are developed and signed by all parties, stipulating fiscal obligations of cooperators and DU. DU typically funds up to 50 percent of project costs (excluding salaries or benefits of cooperators and their employees). Projects requiring more than 50 percent of funding from DU require approval by the Conservation Programs Committee.

Upon completion of a MARSH project, the cooperator is reimbursed in accordance with the terms of the site-specific agreement. Under certain circumstances, DU may make direct payments to contractors hired by the cooperator. DU also offers its in-house engineering and biology staff to design and develop projects. In some cases, associated costs are charged to the respective state's general MARSH account.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

MARSH conducts programs in all 50 states. For FY 1993, 123 projects were completed. Approximately 100 projects are completed annually, depending upon the amount of funding available in each state.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The MARSH program could serve as a model for cooperative efforts to support waterfowl habitat protection. It could also be used by the Corps as a model for restoration and protection of areas identified in the NAWMP or other sites that are identified as significant waterfowl habitat.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Long Live The Kings

GOALS AND OBJECTIVES

The goal of Long Live The Kings (LLTK) is to restore salmon fisheries to the point where they support a viable sport and commercial industry that can bring in hundreds of millions of dollars to the state of Washington -- and hundreds of thousands of people to the state to catch fish. One of LLTK's major purposes is to develop an alliance between private groups, business, government agencies and tribes to restore the state's fisheries.

GEOGRAPHIC SCOPE

State of Washington

OVERVIEW OF PROGRAM/STUDY

LLTK was initiated in 1985 as a project of the Northwest Renewable Resource Center. LLTK is a nonprofit organization dedicated to developing grass roots, privately funded solutions to wild salmon problems in the state of Washington.

LLTK has been protecting and rebuilding wild salmon runs since 1985. LLTK operates three problem-specific restoration projects, all in cooperation with Native American tribes and state and federal fish agencies. The three restoration projects are summarized below.

- At Lilliwaup, on the Hood Canal, LLTK is experimenting with captive broodstocking, which involves rearing depleted wild stocks to sexual maturity in captivity. This technique holds on to threatened gene pools until factors limiting their survival are addressed.

- The Wishkah/Wynoochee River project, near Grays Harbor, focuses on how to supplement wild fish populations in logged areas until they can re-establish themselves through natural spawning, and on creating new spawning and rearing habitat.

- A project on Orcas Island, in the San Juan Islands, demonstrates how hatchery salmon stocks can be totally separated from wild stocks, thus allowing fisheries that don't conflict with wild fish.

While these projects demonstrate specific salmon restoration techniques, their real purpose is to develop grass roots community programs to restore fisheries in complete river basins, not simply in specific rivers.

LLTK gets 75 percent of its budget from private tax deductible donations, with 25 percent coming from state and tribal agencies that subcontract work to the organization.

SOURCE OF PRIORITY RECOGNITION

Public: LLTK believes that local community involvement and support is essential to the success of restoration projects to solve to salmon problems.

Technical: The prioritization process, as described in the section below, is based entirely on scientific and technical knowledge.

PRIORITIZATION OR PROJECT SELECTION PROCESS

LLTK uses the annual Washington State Salmon and Steelhead Stock Inventory (SASSI) to identify areas of wild fish resources and associated habitats in need of protection and restoration efforts.

The SASSI stock list is an effort to identify all existing salmon and steelhead that naturally reproduce in Washington waters, regardless of origin, including native, non-native, and mixed (or presumed hybrid) stocks. To arrive at a preliminary list of stocks, stock assessment biologists identified individual stocks based on known differences in spatial or temporal distribution. This preliminary list of salmon and steelhead was then examined using available information on unique biological characteristics -- primarily genetic stock identification data. This review resulted in a number of changes in the list, where additional groups of fish were identified based on observed genetic differences or other biological characteristics.

Once the stock units were identified, the current status of each stock was assessed based primarily on trends in fish population abundance, spawning escapement, or survival. First, five separate criteria were developed to describe changes in stock status and fitness, and each stock was screened to identify any negative trends in escapement, production, or survival. Stocks that met none of the criteria and were judged to be experiencing production levels within natural variations in survival and consistent with their available habitat were rated as "healthy." Second, stocks meeting one or more of the criteria were examined further and placed into categories that rated each stock based on current stock condition.

The five stock screening criteria are:

1) Long-Term Negative Trend -- Most Washington salmon and steelhead escapement and production databases span periods of 10 to 25 years. In that context, a long-term negative trend would be 10 years of data showing a consistent drop in a survival or production parameter. The negative trend is

the important factor and several high values do not eliminate a stock from being categorized under this criterion.

2) Short-Term Severe Decline -- A short-term drop in escapement or production is often difficult to distinguish from the amount of natural variation displayed by all naturally produced stocks of fish. It is important, however, to attempt to identify declining stocks as early as possible, so that limiting factors can be recognized and, if possible, corrected before serious damage occurs. The most recent five years of production data were examined for evidence of any significant drop in escapement, run-size, or survival. If two of the five years display production levels that are at or below the historically low values, the stock is included in this category.

3) Chronically Low -- Stocks in this category are sustaining themselves at levels significantly below their potential. The determination that a stock is chronically low may be based on observed past production levels, or on an assessment that stock performance does not meet expected levels based on available habitat. Chronically low stocks may display declining, stable, or even increasing trends. For stocks that have displayed chronically low production for an extended period, it may be necessary to examine available data for the years before current stock assessment databases were developed.

4) Decreases in Fitness -- The ability of a salmon or steelhead stock to sustain itself can be significantly affected by changes in the fitness of the individuals that make up the stock. These changes can be subtle and include factors like changes in adult size or age structure, changes in run-timing, or reduction in genetic variability. Any significant changes in fitness may justify the inclusion of a stock in this category.

5) Unknown -- There are some stocks of salmon and steelhead that have not been adequately monitored or enumerated. Stocks in this category will have an "Unknown" status rating. Determination of their status for future inventories will require more extensive stock assessment work.

The stock screening process was used to rate stocks into five status categories. Stocks with escapement, run-size, and survival levels within normal ranges were rated as "Healthy" stocks. Those stocks that currently display low production or survival values were assigned to one of two separate rating categories: "Depressed" stocks or "Critical" stocks, depending on the current condition of the stock. Stocks were rated as "Unknown" stocks when data limitations did not allow assessment of current status. A rating category for "Extinct" stocks was also included.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The successful combination of using private funds and involving local participation inspired the state of Washington to set up 12 Regional Enhancement Groups based on the LLTK

model. LLTK has three ongoing restoration projects per year in addition to various smaller projects.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

LLTK could serve as a model for restoring salmon fisheries, which also results in supporting a viable sport and commercial industry. It could also be used by the Corps as a model for cooperation between private groups, business, government agencies and tribes to restore a state's fisheries.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

The Nature Conservancy

GOALS AND OBJECTIVES

The Nature Conservancy's (TNC) Natural Heritage Programs (NHPs) and Conservation Data Centers (CDCs) are continually updated, computer assisted inventories of the biological and ecological features and biodiversity preservation of the county or region in which they are located. They are designed to assist in conservation planning, natural resource management, environmental impact assessment and planning for sustainable development.

GEOGRAPHIC SCOPE

International

OVERVIEW OF PROGRAM/STUDY

Each CDC uses the Biological and Conservation Data System as the basis for its operation. This system was developed and has been refined by TNC since 1974. The information is managed in more than 30 interrelated computer files, supported by extensive map and manual files, and a library. A trained staff of biologists, natural resource specialists and data managers interprets the data for use in local conservation and development planning, natural resource management and environmental impact assessment.

Information assembled and managed by CDCs focuses on ecosystems and species, and their biology, habitats, locations, conservation status and management needs; managed areas such as National Parks, Forest Reserves, and watersheds; and on data sources.

Each CDC compiles information from existing sources such as scientific literature, knowledgeable people, and museum collections. The local staff also direct and conduct field inventories of species and natural communities of special concern, or may be contacted for biological assessments of specific sites. Each study and report benefits from earlier work in the same area and, through the network, related information gathered at other times and places supplements the local effort. Central network databases are supported through cooperative agreements with academic and scientific institutions.

<u>TNC's Role</u>

TNC is involved in the establishment and operation of the CDCs by providing technical, scientific and administrative support and training. TNC also makes available the computer technology, data inventory and management methodology, and procedure manuals used by

CDCs and NHPs. The methodology constantly undergoes improvements as part of the partnership between the CDCs and TNC. These continual advancements ensure that the entire network remains responsive to the needs of the conservation and development communities.

There are over 400 biologists and computer technicians dedicated to the combined effort, with several hundred more working part-time on biological inventories and research. TNC is the administrative center of this network, promoting communications and the exchange of data, solutions and expertise throughout the network.

How NHPs and CDCs are used

Conservation Planning: The CDCs integrated biological and land use information is used to identify critical areas in need of protection, and to establish conservation priorities on a regional, national and global basis.

Development Planning: To help facilitate design and implementation of ecologically sound development projects, CDCs provide biological and ecological information to multilateral development banks, bilateral development agencies, corporations both multinational and local, as well as governmental agencies within the United States.

Park and Protected Area Management: Wise stewardship of natural areas requires detailed knowledge of sensitive and endangered biological features. Information maintained by NHPs and CDCs on parks, forest reserves, and wild areas, and the management requirements of their biological elements, is used to improve management practices.

Research and Education: Results from the CDC inventory guides new basic and applied scientific research. The biological databases represent an important resource for long-term environmental monitoring.

SOURCE OF PRIORITY RECOGNITION

Technical: The process of establishing conservation priorities, as discussed in the section below, is based on the use of scientific or technical knowledge or judgement to evaluate sensitive and endangered species and ecosystems.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The global and state ranking system for species and plant communities was developed by TNC for use by NHPs to rank the elements of natural diversity. Taxa are ranked in relative order of their wide-range or global importance, and on their relative importance within a specific state.

Global Element Ranks

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor of its biology making it especially vulnerable to extinction. [Critically imperiled throughout its range.]

G2 = Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of other factors demonstrably making it very vulnerable to extinction throughout its range. [Imperiled throughout its range.]

G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state, a physiographic region in the east) or because of other factors making it vulnerable to extinction throughout its range (20 to 100 occurrences). [Rare or uncommon.]

G4 = Widespread, abundant, and apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery (usually more than 100 occurrences). May be of long-term concern.

G5 = Demonstrably widespread, abundant, and secure globally, though it may be quite rare in parts of its range, especially at the periphery.

GA = Accidental in North America, that is, not part of the established biota (e.g., European cuckoo, Yellow-nosed albatross).

GE = An exotic species established in North America (e.g., Starling).

GH = Of historical occurrence throughout its range, that is, formerly part of the established biota, with the expectation that it may be rediscovered (e.g., Bachman's warbler).

GU = Possibly in peril range-wide but status uncertain; need more information.

GX = Believed to be extinct throughout its range (e.g., Passenger pigeon) with virtually no likelihood that it will be rediscovered.

State Element Ranks

S1 = Critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor of its biology making it especially vulnerable to extirpation from the state. [Critically imperiled in the state.]

S2 = Imperiled in the state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of other factors demonstrably making it very vulnerable to extirpation from the state. [Imperiled in the state.]

S3 = Rare in the state (on the order of 20+ occurrences). [Rare or uncommon in state.]

S4 = Apparently secure in the state.

S5 = Demonstrably secure in the state.

SE = An exotic species established in the state; may be native elsewhere in North America (e.g., House Finch or Catalpa in eastern states).

SH = Of historical occurrence in the state with the expectation that it may be rediscovered.

SU = Possibly in peril in the state, but status is uncertain; need more information.

Provided below is a list of selected site field explanations:

Biodiversity Significance Rating

B1 = Outstanding significance, generally of a "last of the least" type, such as the only known occurrence of any element, best of A-ranked occurrences of G1 elements, or outstanding concentration of high-ranked occurrences of G1 or G2 elements. Site should be viable and defensible for elements and ecological processes contained.

B2 = High significance, often of "best of the rest" type, such as other than the best occurrences of G1 elements, the most outstanding occurrences of any G2 or G3 community elements, or concentrations of better occurrences of (G4 or G5) S1 elements.

B3 = Moderate significance, such as at least C-ranked occurrences of G2 or G3 elements, A-ranked occurrences of (G4 or G5) S1 elements, B-ranked occurrences of any community element, or concentrations of better occurrences of (G4 or G5) S2 elements.

B4 = Modest significance, such as at least C-ranked occurrences of (G4 or G5) S1 or S2 elements, or best occurrences or concentrations of (G4 or G5) S3 elements.

B5 = No known significant biodiversity interest.

Protection Urgency Rating

P1 = Immediately threatened by severely destructive forces (within 1 year of rank date); protect now or never!

P2 = Threat expected within 5 years.

P3 = Definable threat, but not in next 5 years.

P4 = No threat known for foreseeable future.

P5 = Land protection complete or adequate reasons exist not to protect the site; do not act on this site!

A protection action typically involves raising the current status of one or more tracts at a site. It may also include activities such as educational or public relations campaigns or collaborative planning efforts with public or private entities to minimize adverse impacts to element occurrences at a site. A protection action does not include management actions (i.e., any action requiring stewardship intervention). Urgency for management action should be rated separately under Management Urgency, which is described below.

Threats that may require a protection action include:

(1) Anthropogenic forces that threaten the existence of one or more element occurrences at the site (e.g., (a) development that would destroy, degrade, or seriously compromise the long-term viability of an element occurrence; and (b) timber, range, recreational, or hydrologic management that is incompatible with an element occurrence's existence);

(2) The inability to undertake a management action in the absence of a protection action (e.g., obtaining a management agreement);

(3) In extraordinary circumstances, a prospective change in ownership or management that will make future protection actions much more difficult.

Management Urgency

M1 = (a) New management action required immediately or element occurrences could be lost or irretrievably degraded within 1 year.

(b) Ongoing annual management action must continue or element occurrences could be lost or irretrievably degraded within 1 year.

M2 = (a) New management action will be needed within 5 years to prevent loss of element occurrences.

(b) Ongoing, recurring management action must continue within 5 years to prevent loss of element occurrences.

M3 = (a) New management action will be needed within 5 years to maintain current quality of element occurrences.

(b) Ongoing, recurrent management action must continue within 5 years to maintain current quality of element occurrences.

M4 = Although not currently threatened, management may be needed in the future to maintain current quality of element occurrences.

M5 = No serious management needs known or anticipated at the site.

A management action should not be confused with a legal protection action. A management action may include biological management (e.g., prescribed burning, removal of exotics, mowing) or people and site management (e.g., building barriers to prevent ORV use, rerouting trails, patrolling for collectors, hunters or trespassers). Management action does not include legal, political, or administrative measures taken to protect a site. Urgency for protection action should be rated separately under Protection Urgency, which is described above.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

To date, TNC and its members have been responsible for the protection of more than 5.5 million acres in all 50 states and in Canada. While some Conservancy-acquired areas are transferred for management to other conservation groups, both public and private, TNC owns more than 1,300 preserves -- the largest private system of nature sanctuaries in the world. Information collected and maintained by CDCs and NHPs plays an important role in the efforts of TNC and other agencies and organizations to identify significant natural areas and set priorities for their protection.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

TNC identifies environmental resources and maintains an information network that would be useful to water resource planners. The information could be used to identify critical areas in need of protection or to establish regional or national priorities for environmental protection and restoration.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Trout Unlimited Embrace-A-Stream Program

GOALS AND OBJECTIVES

The goal of the Embrace-A-Stream (EAS) Program is to provide an opportunity for Trout Unlimited (TU) members and their partners to conduct salmonid fisheries conservation projects.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

EAS is a national program that provides funding to TU grassroots projects that are able to match the national EAS grant with local funding, in-kind contributions of materials, or volunteer labor. EAS consists of three types of activities: 1) Resource, 2) Research, and 3) Education. While each of the three project types has a different focus, they all involve funding, planning, and technical support for grassroots volunteers working on coldwater fisheries conservation.

SOURCE OF PRIORITY RECOGNITION

Public: Projects are initiated by grassroots support and must have public participation in one or all phases of the project.

Technical: The prioritization process is based primarily on scientific and technical knowledge or judgement in relation to salmonid fisheries conservation, as described in the section below.

PRIORITIZATION OR PROJECT SELECTION PROCESS

All EAS proposals will be evaluated according to the clarity of the project description and the thoroughness of the application and financial statement. In addition to the overall quality of the proposal, all proposals will be reviewed according to the following guidelines. Although these guidelines are not essential, projects meeting the guidelines will be preferred.

1) Scope -- Project scope should be of national or regional importance, as measured by the nature of the resource, type of project or problem, or in terms of cooperative arrangements. Proposed work should represent a new effort in salmonid fisheries conservation. Innovative and unique approaches to addressing coldwater fisheries issues are encouraged, especially those that could be transferred and applied to a variety of fishery situations.

2) Significance -- Project significance will be weighed in terms of: 1) benefits for coldwater fisheries conservation, 2) importance and degree of TU participation, and 3) potential for public recognition of the TU conservation project. A successful proposal should incorporate an explanation of project benefits, documentation of TU involvement in one or all phases of the project, and potential for recognition of TU as a primary sponsor of the project.

3) Feasibility -- It is expected that project objectives can be attained with the resources outlined in the proposal. Details of project goals and objectives, a strategy for project completion and evaluation, and a list of specific tasks and responsibilities for participants are important elements of determining feasibility. Capabilities of the project participants also need to be considered in terms of the nature of project tasks.

4) Cost -- Funds, personnel, and materials will be considered as part of overall project costs. EAS investments are often used as "seed" capital for a particular fisheries conservation effort to grow as a result of the original EAS initiative.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

EAS maintains a database that monitors the success of the program. This database is an attempt to quantify the evaluation of projects and it is a process that has evolved over time.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Embrace-A-Stream Program could serve as a model for conservation of aquatic habitat, specifically for salmonid fisheries. It could also be examined by the Corps as a model for determining significance in the evaluation of salmonid fisheries projects.

BIBLIOGRAPHIC INFORMATION

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

Waterfowl U.S.A. Projects

GOALS AND OBJECTIVES

Waterfowl U.S.A. (WUSA) is a national, nonprofit, waterfowl conservation organization dedicated to using funds in the areas in which they are raised for local and state waterfowl habitat projects. WUSA's objectives are:

1) To create interest and organize local groups of concerned biologists, sportsmen and bird enthusiasts dedicated to preserving and improving the remaining wetland waterfowl habitat within the United States.

2) To educate the public to the necessity of the conservation of waterfowl and the preservation of waterfowl habitat in the United States.

3) To train our youth in good conservation practices.

WUSA's primary focus is to raise funds for the direct benefit of waterfowl and waterfowl habitat. Examples of approved projects include waterfowl management research, habitat acquisitions, conservation education, development of refuges, planting food sources for waterfowl, the establishment of resident fish, populations of ducks and geese, and building, erecting, and maintaining nesting structures.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

Activities that local WUSA chapters have engaged in include:

- Purchase and preservation of existing pristine wetlands,
- Purchase and enhancement of degraded wetlands,
- Purchase of equipment to supply state agencies in support of wetland restoration or enhancement programs,
- Technical assistance to natural resource and fish and game agencies, and

- Purchase wetlands and convey to public entities for management.

SOURCE OF PRIORITY RECOGNITION

Institutional: WUSA has signed cooperative agreements with Regions 3 and 5 of the U.S. Fish and Wildlife Service (FWS), and anticipates signing a similar agreement with Region 4 in the near future. These agreements are premised on the Fish and Wildlife Coordination Act, 16 U.S.C. 66; the Fish and Wildlife Act of 1956, 16 U.S.C. 742f(a)(4); and the Migratory Bird Conservation Act, 16 U.S.C. 715, et. seq., section 751i.

The purpose of these cooperative agreements between WUSA and FWS is to develop an avenue of cooperation between the respective organizations that will enable WUSA chapters within a FWS region to work cooperatively with FWS and private landowners on wetland habitat projects. These agreements will maintain, preserve, and increase wetland habitats and waterfowl populations for the wise use of the people of North America by emphasizing projects and education through WUSA's and FWS's involvement and support of private landowners.

Public: Local chapters and state committees determine the most worthwhile projects for which net proceeds will be spent.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The national WUSA office provides general guidelines regarding the operation and use of funds by local chapters. Projects or programs that funds are used for must directly benefit wetlands and/or waterfowl, such that the general public benefits rather than private entities. Beyond adherence to this general principle, each chapter varies in how its funds are spent.

Each local WUSA chapter votes on projects to be undertaken, which incorporates the views of the community regarding what is most needed to benefit waterfowl and wildlife interests. State natural resources agencies and the FWS provide overall guidance as to what projects are needed, and WUSA complements these efforts by funding projects without prior funding commitments.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

WUSA has 122 local chapters located in 38 states primarily in the Midwest and on the East Coast. Approximately 300 projects are completed annually with WUSA funds.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

WUSA projects could serve as a model for eliciting public support for preserving and improving the remaining wetland habitat within the United States for the direct benefit of

waterfowl. The cooperative agreements could be used by the Corps as a model for coordination between a nonprofit organization and a federal agency.

BIBLIOGRAPHIC INFORMATION

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7. SUMMARY ABSTRACTS FOR HISTORICAL PROGRAMS

ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

National Historic Landmarks Program

GOALS AND OBJECTIVES

The objective of the National Historic Landmarks Program is to recognize, identify, designate, and protect buildings, structures, sites, and objects of national significance.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The National Historic Landmarks Program is administered by the National Park Service for the Secretary of the Interior. The program aids in the preservation of historic properties that are not currently in the National Park System. These properties possess exceptional value and illustrate the history and culture of the United States.

Historic landmark designation facilitates the preservation of properties by identifying their significance to aid the planning efforts of public and private officials. Advice and assistance is also provided by the National Park Service to those who own landmarks.

SOURCE OF PRIORITY RECOGNITION

Institutional: The Code of Federal Regulations (36 CFR Part 65) and the Historic Sites Act of 1935 (45 Stat. 666, 16 U.S.C. 461 *et seq*) provide authorization for the National Historic Landmarks Program. In the Act, Congress declared the following:

- It is a national policy to preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States;
- The Secretary of the Interior should: make a survey of historical and archeological sites for determining which possess a level of historic significance worthy of preservation, make investigations and research certain properties to obtain true accurate historic information, and erect and maintain tablets to mark or acknowledge historic and prehistoric places and events; and

- The National Park Service shall administer the program on behalf of the Secretary of the Interior.

Technical: The process of determining significance is based on the use of technical criteria and judgement of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

The National Park Service developed the "Criteria of National Significance," which are used to establish priorities. The criteria are applied to all properties nominated for National Historic Landmark designation. These criteria are not meant to define significance or to establish strict guidelines for determining quality. Instead, the criteria are meant to serve as a qualitative framework in which a comparative analysis of historic properties can take place. National significance is represented by properties that possess exceptional value or quality in illustrating or interpreting the heritage of the United States in history, architecture, archeology, engineering and culture and that possess a high degree of integrity of location, design, setting, materials, workmanship feeling, and association, as well as those that:

- Are associated with events that have made a significant contribution to, and are identified with, or that outstandingly represent, the broad national patterns of United States history and from which an understanding and appreciation of those patterns may be gained;

- Are associated importantly with the lives of persons nationally significant in the history of the United States;

- Represent some great idea or ideal of the American people;

- Embody the distinguishing characteristics of an architectural type specimen exceptionally valuable for the study of a period, style or method of construction, or that represent a significant, distinctive and exceptional entity whose components may lack individual distinction;

- Are composed of integral parts of the environment not sufficiently significant by reason of historical association or artistic merit to warrant individual recognition but collectively compose an entity of exceptional historical or artistic significance, or outstandingly commemorate or illustrate a way of life or culture; or

- Have yielded or may be likely to yield information of major scientific importance by revealing new cultures, or by shedding light upon periods of occupation over large areas of the United States. Such sites are those which have yielded, or which may reasonably be expected to yield, data affecting theories, concepts and ideas to a major degree.

Other criteria considerations are given for properties that do not meet the above criteria but fall into specific categories such as graves of historical figures and properties owned by

religious institutions that have been moved from their original location and properties that achieved significance within the last fifty years.

The National Park System Advisory Board reviews and evaluates all nominations to the National Historic Landmark Program. Before the actual review process takes place, owners of the property, specified government officials, and the public are invited to comment and attend any board meeting. The National Park System Advisory Board then makes recommendations to the Secretary of the Interior, who ultimately decides the designation of National Historic Landmarks.

Prioritization also occurs during the annual monitoring process. The Secretary of the Interior has been responsible for administering this process since 1976. This process involves not only monitoring the status of National Historic Landmarks, but also includes reporting to Congress annually in the "Section 8 Report to Congress on Threatened and Damaged National Historic Landmarks." The Section 8 Report includes a listing of all seriously damaged or imminently threatened landmarks ("priority 1" landmarks). Landmarks are given different priority rankings based on their current status, such as the following:

- "Priority 1" -- Landmarks that are seriously damaged or imminently threatened with such damage,
- "Priority 2" -- Landmarks that are particularly susceptible to serious damage or threat, but whose condition at the current time does not warrant listing in the Section 8 Report, and
- "Priority 3" -- Landmarks that exhibit little or no known damage threat and seem to be receiving proper maintenance and care.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The National Historic Landmarks Program has been successful in focusing attention on properties of exceptional value to the nation and its people as a whole. By recognizing and preserving properties of historic value, the program has been able to save properties that might have been destroyed as well as increase public awareness and interest in historic landmarks.

Besides specific legal ramifications, such as Section 8 reporting of damaged landmarks and approval of any federal project that might adversely reflect a landmark, the following beneficial effects may be observed by property owners once listing of their property has occurred:

- Special Federal Income Tax incentives for rehabilitation of privately owned structures,
- Federal Income Tax incentives for donations that result in preservation of the property,

- Federal grants (to the extent available) for preservation, and
- Consideration of historic values in issuing surface coal mining permits.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The "Criteria of National Significance" provide a framework for comparing properties and analyzing their historical significance. This process could be examined by the Corps as an analytical method that compares properties to each other instead of using a rigid set of standards. The list of designated National Historic Landmarks could be used by the Corps to identify significant cultural resources that possess exceptional historical and cultural values.

The monitoring process also seems to be valuable in preserving resources. By having annual monitoring responsibilities, the Secretary of the Interior is able to keep up with the current status of the nation's landmarks, and those that are damaged can be addressed before irreversible damage has occurred.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

National Register of Historic Places

GOALS AND OBJECTIVES

The goal of the National Register of Historic Places is to identify properties that are historic and to assist federal, state, local and private organizations in the preservation of these properties.

GEOGRAPHIC SCOPE

National

OVERVIEW OF PROGRAM/STUDY

The National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect those historic and archeological resources worthy of preservation. Administered by the National Park Service under the Secretary of the Interior, the National Register is the United State's official list of districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The resources contained on the list contribute to the acknowledgement and understanding of the historical and cultural foundations of the nation.

The National Register provides the following services to federal agencies, state and local governments and the general public:

- National recognition of the value of historic properties individually and collectively to the nation,
- Eligibility for Federal tax incentives and other preservation assistance, and
- Assistance in cultural resources planning.

SOURCE OF PRIORITY RECOGNITION

Institutional: The National Register of Historic Places was authorized under the National Historic Preservation Act of 1966 as amended. This Act allowed the Secretary of the Interior to expand recognition of historic places to properties of state and local significance.

Technical: The process of determining significance is based on the use of technical criteria and judgement of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Selection of property for listing on the National Register of Historic Places is guided by the National Register Criteria for Evaluation developed by the National Park Service. These criteria provide a framework for defining the range of resources and type of significance that will qualify properties for listing. Criteria are applied to all properties nominated to the National Register. Qualification for listing in the National Register occurs after identifying the historic context of a property and by meeting at least one of the criteria requirements by:

- Being associated with an important historic context, and
- Retaining historic integrity of those features necessary to convey its significance.

Identifying Significance

Qualification for the National Register is dependent upon a property's significance. A property is considered significant if it represents a significant part of the history, architecture, archeology, engineering or culture of an area. A property must also exhibit the characteristics that make it a good representative of properties associated with that given period of time. Historic context is used as the basis for determining a property's significance and its eligibility under the Criteria for Evaluation. Historic context specifically relates to the information about historic trends and properties grouped by an important theme in the prehistory or history of a community, state or nation during a particular period of time. By using historic context as an indicator of significance, properties can be evaluated in many different capacities and by focusing on different criteria such as events, people, and design and construction.

Criteria for Evaluation

Found in the Code of Federal Regulations, Title 36, Part 60, the Criteria for Evaluation serve as standards for evaluating the significance of properties as well as guidelines for state and local governments, federal agencies, and others evaluating potential entries in the National Register. Properties that define the scope of the National Register of Historic Places are those that possess integrity of location, design, setting, materials, workmanship, feeling and association as well as properties that:

- Are associated with events that have made a significant contribution to the broad patterns of our history;
- Are associated with the lives of persons significant in our past;
- Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or that possess high artistic

values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- Have yielded, or may be likely to yield, information important in prehistory or history.

Other criteria considerations are given for properties that do not meet the above criteria but fall into specific categories such as graves of historical figures and properties owned by religious institutions that have been moved from their original location and properties that achieved significance within the last fifty years.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The use of criteria for evaluating and documenting standards and the identification of significance within a property's historic context has provided the guidance for listing properties on the National Register. This guidance has had the following results that assist in preserving historic properties:

- Recognition that a property is of significance to the nation, the state or the community;
- Consideration in planning for federal or federally assisted projects;
- Eligibility for federal tax benefits;
- Consideration in the decision to issue a surface coal mining permit; and
- Qualification for federal assistance for historic preservation, when funds are available.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The National Register of Historic Places is the United State's official list of districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The Corps could use the list of properties on the National Register of Historic Places to identify resources deemed of national significance for their historic and archeological values.

By evaluating a property within its historic context, the National Register of Historic Places is able to weigh the historic significance and integrity of a property. The concept of historic context functions on the premise that resources, properties or happenings in history do not occur in a vacuum but rather are part of larger trends or patterns.

A process of this type -- identifying historic context and then applying the Criteria for Evaluation -- could be employed in the Corps's water resources planning process. Resources or attributes could be identified within a regional context or on the basis of specific

ecosystem/watershed characteristics. Criteria could then be applied under this context or setting. This two-step process may allow regional and site-specific factors to be included in the evaluation process more effectively and systematically. This process also provides the flexibility to evaluate resources on a regional as well as national level.

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ENVIRONMENTAL RESOURCE PRIORITIZATION PROGRAMS REVIEW

NAME OF PROGRAM/STUDY

California Registered Historical Landmark Program

GOALS AND OBJECTIVES

The main goal of this program is to recognize and preserve historical resources of state and regional significance.

GEOGRAPHIC SCOPE

California

OVERVIEW OF PROGRAM/STUDY

The California Registered Historical Landmark Program recognizes only those properties of statewide and regional significance. A nine member commission, the State Historical Resources Commission, is appointed by the Governor to oversee the program. The Public Resources Code authorizes the State Historical Resources Commission to:

- Receive and consider applications from any governmental agency, historical association, or private individual for the designation and registration of any historical building or landmark;
- Recommend to the Department of Parks and Recreation (DPR) the qualifications for acceptance of registered historical buildings and landmarks, which shall include but are not limited to military, political, agricultural, educational, economic, and cultural events and sites within the state;
- Recommend to the DPR the type of plaque and the descriptive material to be included thereon to be required before marking an historical landmark or building;
- Census all existing historical buildings or landmarks heretofore registered by the DPR or marked by any other private or public agency or historical society;
- Conduct a continuing survey of all important historical sites in the state, whether previously registered or not, and recommend to the DPR those which, in its opinion, should be officially registered as California Registered Historical Landmarks; and

- Recommend to the DPR those historical buildings and landmarks which it deems are qualified for marking.

SOURCE OF PRIORITY RECOGNITION

Institutional: Authorization for this program came from the Public Resources Code, Section 5020-5031.

Technical: The process of determining significance is based on the use of technical criteria and judgement of critical resource characteristics.

PRIORITIZATION OR PROJECT SELECTION PROCESS

Review and evaluation of nominated historic landmarks occurs during the regular meeting of the State Historical Resources Commission. Landmarks are selected by the Commission based on the following criteria:

1) Statewide significance

- The site must be of statewide or regional historical significance to California. For the purpose of these criteria "historical" is generally considered to be beyond recall of living man.

- Applications for historical landmark registration will be considered from but not limited to the following historical influences: Anthropological (archeology and ethnic history), Cultural (including social, education, and arts), Military (significant military actions and activities of primary importance to California), Political, Architectural, Economic, Scientific and Technical, Religious, and Experimental.

- The application must be accompanied by sufficient research and substantiated by historical proof and bibliographical evidence. The function of the staff is to verify the historical evidence submitted by the applicant.

2) Emphasis on individuals

- An individual must have had a profound influence on the history of California.

- The primary emphasis shall be the site of the achievement of an individual or personality. Birthplace, death place, or site of internment shall not be a consideration unless something of historical importance is connected with the person's birth or death.

3) Structures (Architectural landmarks of significance)

- For the purpose of these criteria, architectural landmarks may be considered significant if they are prototypes of, or if they are outstanding examples of, a period, style, architectural movement or method of construction, or if they are the most notable works or the best surviving work in a given region of a pioneer architect, designer or a master builder.

- An architectural landmark generally will be considered on its original site, particularly if its significance is basically derived from its design relationship to its site.

- A reconstructed or extensively rehabilitated building generally will not be considered unless no other authentic structure of this type survives in the given region and only then if the structure is reconstructed near its original site and is authentically executed in an environment approximating the original setting.

- Architectural landmarks achieving recognition within the last 50 years will be considered only if they possess exceptional design merit of transcendent significance.

- Applications may be submitted for individual buildings, groupings of related structures or for well-preserved and defined "historical districts" composed of landmarks from the same era or period. The style, period or type of architecture shall be clearly stated on the submitted application.

- The applicant and property owner are hereby advised that continuing integrity of the registered architectural landmark's significance must be maintained by observing generally accepted preservation standards. Should an action by the owner or should other circumstances beyond their control cause an adverse effect on the integrity of the landmark, the registration and official plaque or certificate previously authorized may be withdrawn.

- Applicants are encouraged to seek advice and council from members of the A.I.A. concerning applications for registration of architectural examples as historic landmarks. The A.I.A. offers consulting services through its membership. The State Historical Resources Commission considers the A.I.A. as the leading authority considering background and technical information pertinent to historical architecture and requires all applicants for architectural landmarks to seek their certification prior to submission. A special supplement for historical landmark applications for architectural examples must accompany the regular application form; the President or Preservation Officer of the local A.I.A. chapter must complete the last page of the

architectural supplement certifying that the structure does meet the criteria for landmark registration.

- The following adverse effects are among those that may be considered as a basis for landmark registration status:

    1. Destruction or alteration of all or any significant part of the architectural landmark or its site;

    2. Isolation from, or alteration of its surrounding environment, particularly in the case of an architectural landmark whose basic significance derives from its relationship to its site;

    3. Introduction of visual, audible, or atmospheric elements that are out of character with the property and its setting; and

    4. In general, any action that destroys or erodes the integrity or the significance that was the basis for the architectural landmark's designation may be grounds for withdrawal of the official registration.

4) Access

- The site must be visibly accessible to the public from a public thoroughfare.

5) Maintenance

- The applicant for an historical landmark registration must give assurance to the best of their ability that the site will be perpetuated as an historical landmark.

- Sites will be maintained as prescribed in Section 5023 of the Public Resources Code.

- The DPR reserves the right to withdraw or retire landmark registration for cause.

- Commercial operation in itself does not necessarily disqualify a landmark's registration. However, should a commercial enterprise by its physical development plans, or its proximity, impact, excessive use, or management philosophy so dilute or erode the significance of or quality of the landmark's integrity, then adverse effect shall have occurred and its registration may be withdrawn. The following general points shall be considered for commercial operation of landmarks:

1. The development, tone, and atmosphere of the commercial activity shall be in good taste and compatible with the integrity of the landmark;

2. Advertising and promotional activities shall be factually correct, in good taste, and accurately reflect that it was the submitted reasons for its registration, not the commercial activity, that achieved the landmarks's status; and

3. Interpretation of the landmark shall be accurate.

- Architectural landmarks should not be altered in such a manner as to seriously modify their historic style or erode their original character or destroy their authentically restored elements. However, if the interiors, for example did not significantly contribute to the basis for a landmark's designation, such as in a historic district, then those portions may be modified as necessary to accommodate approved uses or changes.

Landmarks selected by the Commission are recommended to the Director of the DPR who makes final designation of properties.

FINDINGS/CONCLUSIONS OF PROGRAM/STUDY

The criteria for guidance of the State Historical Resources Commission in evaluating landmark registration applications outlines specific characteristics that are to be considered in landmark designation. These characteristics facilitate the process of landmark registration by providing a framework for determining historical significance.

LESSONS LEARNED AND POTENTIAL APPLICATIONS

The Corps could use the list of properties designated as California Registered Historical Landmarks to identify resources of state and regional significance in California.

By applying criteria and standards strictly and consistently, the State Historical Resources Commission has been able to ensure that registration of historical landmarks does not become meaningless. This program's emphasis on the continuing integrity of a landmark is also helpful in ensuring the preservation of significant resources.

BIBLIOGRAPHIC INFORMATION

"Statement of Policy for State Historical Landmark Registration and Point of Historical Interest Registration" (statement of policy prepared by the Office of Historic Preservation, Department of Parks and Recreation).

"Registration Programs" (information sheet prepared by the Office of Historic Preservation, Department of Parks and Recreation).

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13. ABSTRACT *(Maximum 200 words)*

This report presents summary abstracts of ninety-five Federal, regional, state and nonprofit organization programs that evaluate environmental projects and/or determine the significance of, or prioritize environmental resource areas or activities. The abstracts present information on the programs's goals and objectives; the types of activities associated with the program; the sources of priority recognition; and the process of determining the "significance" of environmental resources, or which environmental resources deserve a level of priority for mitigation protection, or restoration efforts. A comparative analysis of these programs was conducted to facilitate some generalizations about the determination of national and regional resource priorities, the bases for determination of significance, and the potential applicability of the process or products to the U.S. Army Corps of Engineers' environmental program.

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