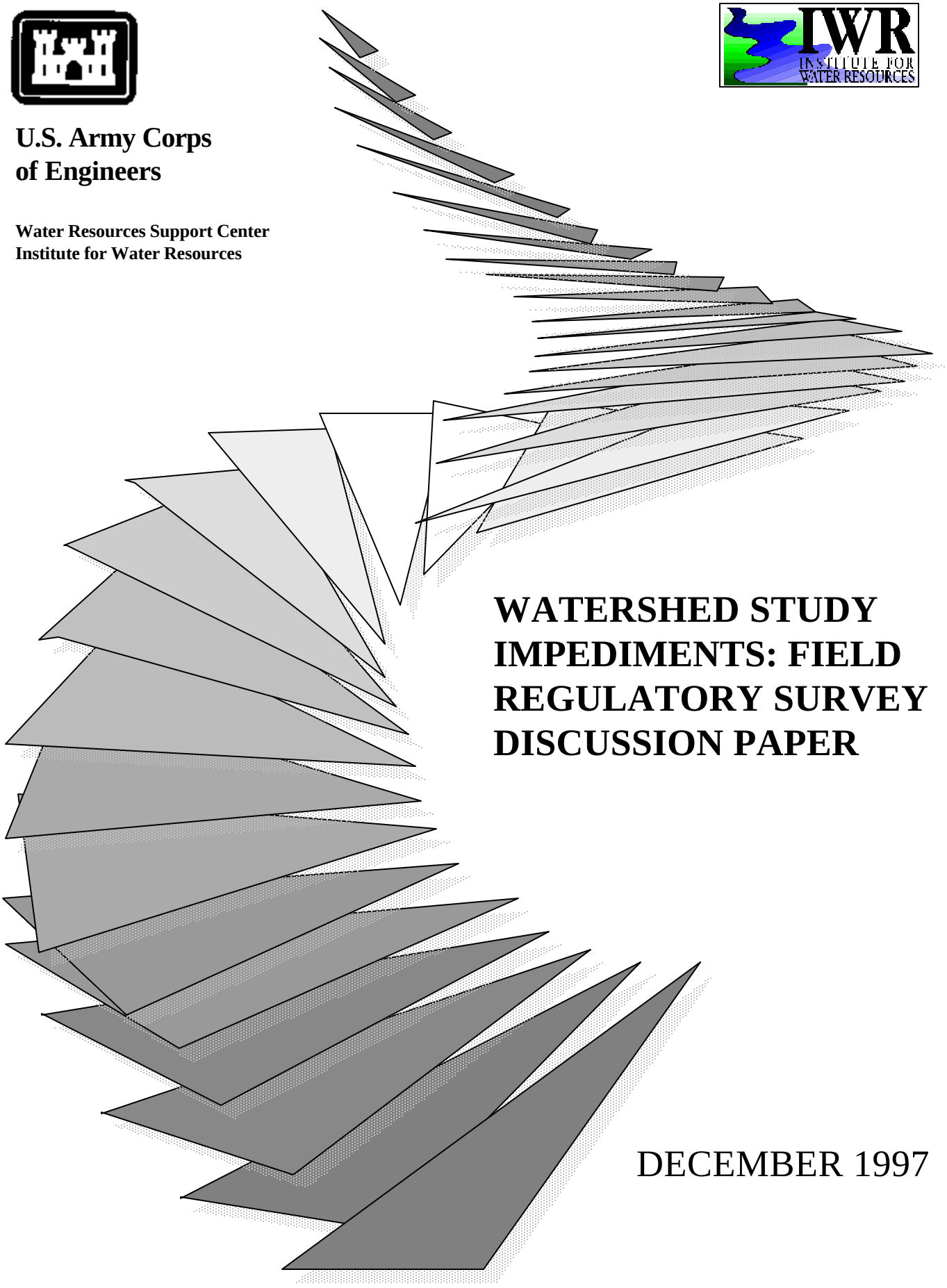

U.S. Army Corps of Engineers

Water Resources Support Center
Institute for Water Resources

WATERSHED STUDY IMPEDIMENTS: FIELD REGULATORY SURVEY DISCUSSION PAPER

DECEMBER 1997

U. S. Army Institute for Water Resources
Policy and Special Studies Programs

The Corps of Engineers Institute for Water Resources (CEWRC-IWR) is part of the Water Resources Support Center in Alexandria Virginia. It was created in 1969 to analyze and anticipate changing water resources management conditions, and to develop planning methods and analytical tools to address economic, social, institutional, and environmental needs in water resources planning and policy. Since its inception, IWR has been a leader in the development of tools and strategies to plan and execute Corps water resources planning.

IWR's program emphasizes planning concepts for use by Corps field offices. Initially, this work relied heavily on the experience of highly respected planners and theorists, gained in the many river basin and multiple purpose studies undertaken in the 1960s. As these concepts matured and became a routine part of Corps planning, the emphasis shifted to developing improved methods for conducing economic, social, environmental, and institutional analyses. These methods were essential to implementation of the Water Resources Council's (WRC) Principles and Standards (P&S) and later, Principles and Guidelines (P&G) for water resources planning, which required a multi-objective analysis to tradeoffs among national and regional economic development, environmental quality, and social effects.

Increasingly over the years, IWR has also responded to Corps program development needs by studying policy issues resulting from changes in national objectives and priorities. In addition to directly supporting Corps needs. IWR has established an analytic and strategic competence through the direction of such efforts as the National Drought Management Study, National Waterways Studies, the National Wetlands Mitigation Banking Study, the Federal Infrastructure Strategy, and as a lead participant in the development of policy and procedures for environmental planning and management.

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WATERSHED STUDY IMPEDIMENTS: FIELD REGULATORY SURVEY DISCUSSION PAPER

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EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (Corps) has multiple roles in watershed planning and management. This discussion paper focuses on the role of the Corps Regulatory Program, and characterizes how the it conducts and participates in watershed-based planning studies for aquatic resources protection, including wetlands. The paper identifies different types of watershed or regional studies conducted for regulatory purposes and examines attributes (purposes, planning process, Corps roles, and products) of those studies. This paper is based on review and evaluation of pertinent guidance, a literature review of watershed/regional planning approaches and studies; and interviews of field staff (mostly regulatory) in seven districts with substantial experience in watershed studies.

The Corps strongly supports the concept of watershed management and encourages the concept through its regulatory program. This paper was prepared for the purpose of initiating discussion on problems, opportunities, and potential improvements to the Corps regulatory program involvement of watershed-based planning studies. This paper was prepared for the Corps Institute for Water Resources (IWR) Policy and Special Studies Division for Headquarters (HQUSACE) Regulatory Branch as part of the IWR Policy Studies program for Fiscal Years 1996 and 1997 in support of the HQUSACE Policy Division.

Watershed-based solutions for aquatic resources protection and restoration now have many advocates. Beyond just consideration of wetland (and other aquatic resources) health and permitting within the context of watersheds, recent Congressional and Administration initiatives emphasize a watershed planning approach. The Clinton Administration Wetlands Plan, with advance planning as one of its principles, strongly supports incentives for States and localities to engage in watershed planning as a means to reduce conflict between wetlands protection and development when decisions are made on a piece-meal, permit-by-permit basis.

Two watershed (or regional) study approaches that can facilitate Corps regulation and permitting are the Advance Identification of Disposal (ADID) studies and Special Area Management Plans (SAMPs). ADIDs and SAMPs can focus on specific watersheds, although typically they involve portions of a watershed or extend over watershed boundaries in response to political situations. ADIDs are mainly information gathering and aquatic resources characterization, including mapping or identification of wetlands functions and wetland categorization. The Corps participates in SAMPs with the intent of producing a definitive regulatory product, i.e., designed for decisions about aquatic resources regulation. ADIDs are frequently officially conducted and included in SAMP studies, although some SAMPs have not included much more analysis than ADIDs employ. The SAMP process is supposed to result in a comprehensive plan providing for natural resource protection and reasonable economic growth that contains detailed and comprehensive statement of policies, standards, and criteria to guide public and private uses of lands and waters, and mechanisms for timely implementation. SAMP alternative plan comparison and analysis typically do not include explicit economic costs and benefits assessment and tradeoff analysis of economic and environmental objectives—characteristics of Corps water resources project planning.

Corps Regulatory Program Participation in Watershed and Regional Studies

This study identified 47 watershed or regional studies in which the Corps regulatory program is a participant. A principal source of information was a survey of field offices conducted by HQUSACE Regulatory Branch in March 1996. Most of the watershed studies identified are located in a relatively small number of districts. Regulators from eight field offices that appeared to have the most experience (based on the HQUSACE survey) were interviewed to gather their views regarding problems and improvements about watershed and regional studies. Although embracing aquatic resources, these studies are frequently referred to as wetland studies. As such, the use of the phrase "wetland study" (or "wetland plan") in this report generally should be interpreted as encompassing the larger spectrum of aquatic resources which the Corps regulates.

The manner in which Corps regulatory staff participates in planning studies varies—a lead or co-lead role (infrequent), an active participant, or oversight only. The typical Corps contribution, and also for other Federal agencies, is technical analysis, usually through participation in technical committees. Non-regulatory Corps staff have participated in a few wetland planning studies. There is no one format for funding of watershed studies or funding of Corps participation. Corps participation has not been specifically budgeted in most studies. In a few cases, Corps preparation of the related Environmental Impact Statement (EIS) has been specifically budgeted and funded—with funds from HQUSACE specifically earmarked for SAMPs and SAMP EISs.

Field Regulatory Views

- The problem most commonly identified by Corps regulatory field offices is length of time taken to conduct the wetland studies. Most SAMPs have greatly exceeded their schedules, as have ADIDs. Several SAMPs have not been successful despite the lengthy time and costs incurred

  Reasons for slow-downs vary. In some cases, legal challenges or the specter of legal challenge, have stymied completion of efforts. In other cases, wetland evaluation itself has taken longer than expected.

  This problem directly and indirectly causes other problems, such as those related to staffing, costs, and sustained local support.

  Regulatory-driven wetland planning efforts that have not performed rigid advance wetland categorization (i.e., did not delineate and categorize wetlands) appear to face less opposition and require less time to prepare and implement the plan than those that required rigid categorization.

- The rush by local entities to undertake a watershed planning approach in some areas may stretch district field staff beyond their limits.

  Corps districts appear to often contribute their service and time without use of definite or explicit budgets. In a few cases, such as for the preparation of an Environmental Impact Statement, the Corps has specifically budgeted funds. In those many cases where funds are not specifically budgeted, the field offices have willingly supported and advocated the efforts, owing to the potential to facilitate and streamline the regulatory process in the study area down the line and because of the ecological "sense" implicit in such an approach.

- Lack of local support for watershed/wetland planning, whether in the role of an official non-Federal sponsor or in the form of broad community acceptance, is a problem for the successful completion of studies.

- Disagreement over the level of detail in the wetland assessment is a major factor in wetlands planning breakdown. For example, for some studies other Federal agencies may want more detail than does the Corps in the wetland functional assessment.

- A big issue for the field is Section 404(b)(1) alternatives analysis. Some districts are concerned about its applicability, and the degree of rigor of its application, to watershed wetlands planning.

Conclusions

Corps Regulatory Program policy allows and encourages the districts to participate in watershed or regional approaches that support a comprehensive planning approach to protecting the aquatic resources environment, including wetlands. The support of a watershed (or regional) management approach is regarded as the best way to manage the aquatic resource from an ecological perspective. Towards that end, the Corps Headquarters Regulatory Branch encourages the field regulators to work with non-Federal interests to develop general permits and programmatic general permits and well-placed mitigation banks.

To improve the results of Corps regulatory field office participation in watershed studies, Corps staff cite the need to speed up the process to address many, if not most of the problems. They identified actions that could facilitate more successful wetlands planning including:

- Clearer Section 404 authority regarding preparation and approval of local wetland plans and clarification of guidance for regional general permit alternatives analysis;
- Greater HQUSACE support for staff participation in watershed planning;
- Watershed planning standards and tools;
- Greater planning and study management expertise on the part of regulators;
- Issue resolution procedures; and,
- A requirement for local agency involvement and commitment as requisite for Corps participation.

Conduct of watershed planning studies can benefit from application of planning principles and procedures. HQUSACE identification of those planning principles—standards for study conduct—would appear to be a necessary first step.

In addition, the following approaches and tools may contribute to more effective planning and development of good plans.:

- Protecting aquatic resources from a watershed perspective should utilize a tradeoff approach that considers: sequencing flexibility; the role of preservation of wetlands in time and space; opportunity costs (costs of foregone development opportunities for the permit applicant); and cost effectiveness of alternative levels of environmental output.

- Planning tools exist may provide assistance in wetland plan formulation and evaluation. These tools include cost effectiveness/incremental cost analysis, protocol for determining and documenting environmental resources significance, and multiple objective decision support models. These tools have developed or are under development at IWR.

- A plan evaluation procedure should be used that examines tradeoffs between alternative wetland plans that achieve varied objectives. An analytical approach can document the foregone level and distribution of current environmental and economic benefits resulting from a prospective wetland plan as well as the required financial outlays by various parties. The four Federal Principles and Guidelines accounts could provide a very useful basis by which to evaluate and compare alternatives for watershed-based planning, especially in light of President's Council on Sustainable Development recommendations.

- User-friendly shared vision models could be used by to integrate stakeholders into some model building activities.

- The EPA Watershed Academy may offer tools to assist in preparation of SAMPs and ADIDs.

Next Steps

- Develop planning principles: The HQUSACE Regluatory Branch and IWR intend to develop principles for Corps Regulatory Program participation in watershed-based planning. This effort is expected to complement a larger-scale effort at HQUSACE to embrace other Corps programs in a watershed approach.

- Information transfer: To assist information transfer, IWR will begin preparing a watershed library that consists of journal articles, successful SAMP study reports, and identifies relevant technical tools.

- Identify ways to better assist Corps regulatory field offices participate and promote a watershed approach: HQUSACE will review watershed study progress to date, identify where they can address broad-based policy issues, and issue relevant guidance to address these issues.

ACKNOWLEDGMENTS

This paper was prepared by the U.S. Army Corps of Engineers (Corps) Institute for Water Resources (IWR) Policy and Special Studies Division as part of its Policy Studies Program for the Corps Headquarters (HQUSACE) Policy Division. This paper was prepared for HQUSACE Regulatory Branch; Kirk Stark is the principal point of contact at the HQUSACE Regulatory Branch for this study.

Thanks are extended to Kirk Stark for conducting a survey of Regulatory staff in the Corps field offices to identify and collect basic information on regulatory participation in watershed studies. The survey database provided invaluable information for this study.

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INTRODUCTION

Watershed-based solutions for aquatic resources protection and restoration now have many advocates. Many environmental organizations may support watershed-based approaches, because they recognize that protection of the aquatic environment is contingent on the health of the large ecosystems and watersheds within which the wetlands and other aquatic resources are contained. Beyond consideration of wetland health and permitting within the context of the watershed, recent Congressional and Administration initiatives appear to emphasize a more comprehensive planning and watershed approach. The Clinton Administration's Wetlands Plan (White House 1993) has advance planning as one of its principles. The Plan strongly supports incentives for States and localities to engage in watershed planning as a means to reduce conflict between wetlands protection and development when decisions are made on a permit-by-permit basis. Other Wetlands Plan principles include: an effective, fair, flexible, and predictable regulatory program; partnerships with state, Tribal, and local governments; policy based on best scientific information possible; and an interim national goal of no overall net loss of the remaining wetlands and a long-term goal of increasing the quality and quantity of the Nation's wetlands resource base.

The President's Council on Sustainable Development (PCSD) implicitly supports a watershed approach to natural resources stewardship. At the heart of the PCSD Final Report (PCSD 1996) is the conviction that economic, environmental, and social equity issues are inextricably linked and must be considered together. A watershed would appear to be a logical base for consideration of such issues. The Council recommends, in the area of environmental management, a new regulatory system to require Federal, state, and local governments to work with business and citizen groups. Further, the Council suggests that increases in environmental protection or improvements in environmental health can be achieved, without great increases in cost, by creating a more flexible, performance-based regulatory framework. The Council calls for increased regulatory program cost-effectiveness and an alternative performance-based management system.

The U.S. Army Corps of Engineers (Corps) regulatory program traditionally has evaluated permits one at a time. However, the Corps can utilize a broad-based, e.g., watershed, approach through application of the Advance Identification of Disposal Sites (ADID) program and Special Area Management Plans (SAMPs). ADIDs allow the U.S. Environmental Protection Agency (EPA) and Corps to identify wetlands and other aquatic resources in some defined area as suitable or unsuitable for disposal sites of dredged or fill material. Special Area Management Plan (SAMP) are watershed, or regional, comprehensive plans that can be prepared to facilitate Corps permitting. The SAMP process is authorized by the Coastal Zone Management Act. The Corps can specifically address permitting issues in a given watershed or region through a regional general permit program. Additional watershed or regional approaches are facilitated by a number of interagency programs such as the Coastal America Partnership, the National Estuary Program, and California's Natural Communities Conservation Plans.

The use of a broad-based or watershed approach to achieve regulatory goals for aquatic resources, including wetlands, may lead to a more efficient and effective Corps regulatory program. However, that program at present may be stretched beyond its capability to undertake or provide regulatory input to more than a small portion of the potential studies of watersheds subject to development pressures. Intensive

watershed studies are time consuming and costly. Further, many regulatory-driven watershed studies have not produced the desired products envisioned by the Corps at study commencement.

The Corps is also getting pressure to change the way it administers the regulatory program. Reauthorization of the Clean Water Act was debated in the 104th U.S. Congress, and companion Congressional bills filed, that, if implemented, would have also affected how wetlands are regulated, and further, how a watershed- or regionally-based wetlands management focus could be effected. These bills focused on property rights, devolution of authority to the states, and risk assessment considerations. Similar bills may be proposed in the 105th Congress.

This discussion paper represents findings of a study of watershed-based wetlands planning and management conducted by the Corps Institute for Water Resources Policy and Special Studies Division (IWR-P) for the Corps Headquarters (HQUSACE) Regulatory Branch. The study was conducted as part of the IWR Policy Studies program for Fiscal Years 1996 and 1997 for the HQUSACE Policy Division.

Study Scope

Purpose and Objectives. The purpose of the overall study is to identify watershed study impediments and opportunities for improving the Corps Section 404 regulatory program for development of watershed-based plans. Specific objectives include: (1) identifying the purposes, characteristics and products of regulatory-driven watershed-based planning studies as presently conducted; (2) examining the nature of Corps involvement for both regulatory and non-regulatory staff in these watershed studies; (3) identifying Corps field regulatory views of current deficiencies of regulatory-based watershed studies and impediments to better planning; and, (4) identifying improvement options; (5) evaluating options; and, (6) suggesting ways to implement options.

Approach.

This discussion paper describes how the Corps regulatory program conducts and participates in watershed-based planning. In particular, the paper identifies examples of wetland studies and examines attributes (purposes, planning process, Corps roles, and products) of the different types of studies (e.g., Advance Identification and Special Area Management Planning studies). The discussion paper is based on: (1) review and evaluation of pertinent guidance (e.g., Regulatory Guidance Letters such as RGL 86-10 for SAMPs); (2) a literature review of watershed and wetland plans and studies; and, (3) interviews of Corps regulatory field staff. Regulatory staff in those districts with substantial experience in watershed studies provided input to this study. Almost all were identified from two sources: a watershed case study report (White and Shabman 1995) prepared for the National Wetland Mitigation Banking Study conducted by IWR and a HQUSACE Regulatory Survey of watershed studies (Corps 1996).

Specific Questions To Be Addressed in the Study. This discussion paper addresses the following questions:

1. How are watershed-based planning and management conducted presently in the Corps regulatory program? In what types of watershed-based wetlands or other aquatic resources planning efforts do Corps regulators participate? What is the nature of Corps regulatory involvement? What is the nature and extent of participation of other Corps personnel? What planning methodologies are utilized? How are multiple and conflicting objectives addressed? What evaluation frameworks and decision criteria are employed? What are the watershed study and regulatory products? What are the regulatory products?

2. How do Corps regulatory field staff view watershed-based aquatic resources planning? What are the regulatory problems? Time and staffing? Funding? Products? Process? Plan objectives (e.g., reduced development and regulatory costs, social effects, environmental health) and extent of information to be evaluated (e.g., cultural resources, endangered species)? Do Corps regulatory staff contribute to other Corps watershed studies? In what manner?

Field staff were also asked to provide their insights regarding ways in which the regulatory program could be improved to implement watershed/ergional plans. Among the related queries were: What are the options? What new approaches should be considered? What planning tools are needed to implement the options? What are the impediments to improvement? How might other Corps staff contribute?

WATERSHED-BASED APPROACHES TO CORPS REGULATION

Corps Regulatory Program policy supports field regulators working with non-Federal entities to develop localized permitting process based upon watershed management plans. Field regulators are encouraged to participate in watershed or regional approaches/studies that will produce wetland management plans. This chapter briefly discusses precepts of watershed (and regional) wetland planning studies and basic types of watershed/regional wetland plans. These studies and plans frequently are referred to as "wetland" studies or plans. The use of the term "wetland study" or "wetland plan" in this report should be interpreted as encompassing the larger spectrum of aquatic resources which the Corps regulates.

Impetus for Watershed-based Wetlands Approaches: Recent Principles and Goals

Recent calls for a watershed approach along with a comprehensive planning approach to aquatic resources protection and management have come from many sources. President Clinton's Wetlands Plan calls for greater integration of advance planning into the Section 404 Regulatory Program, including appropriate local or watershed-based wetlands categorization frameworks (i.e., categorization of wetland parcels into suitability for protection, restoration or development). To encourage greater use of watershed approaches and comprehensive advance planning, the Wetland Plan recommendations included the following:

- Provide incentives for states/locals to integrate watershed and wetlands planning.

  Wetlands should be incorporated into the overall watershed approach, with minimum standards for wetlands protection and restoration planning.

- Endorse State/Tribal Wetlands Conservation Plans.

- Call for development of Programmatic General Permits under Section 404.

The President's Council on Sustainable Development (PCSD) recommends actions for reforming the current environmental regulatory process, including alternative performance-based management systems. The alternative system should be designed to achieve superior environmental protection and economic development through a collaborative decision-making process (PCSD 1996).

Watersheds and Section 404

The Section 404 Regulatory program can be applied to watershed-scale efforts.[1] The Corps can establish regional general permits (GPs) or programmatic general permits (PGPs) based on watershed/wetland management plans and programs to regulate wetland loss developed by another

[1] See John Studt (1995) for a discussion of the Corps regulatory program and watershed approaches. This article is reproduced in Appendix A.

governmental agency (e.g., state, regional, county, city). Typically, these efforts do not focus on watersheds *per se*. Instead they are based on some defined region (e.g., Special Area Management Plans described later in this section which generally focus on a region of interest that may not be circumscribed by watershed boundaries).

Defining a Watershed

There is no across-the-board definition or general rule for the size of a watershed that is to be the focus of wetlands regulation within a watershed context. However, there are Federally designated watersheds. Both, the U.S. Geological Survey (USGS) and the Natural Resources Conservation Service (NRCS) designate watersheds on the basis of surface hydrology. The USGS has designated a hierarchy of watersheds, or drainage basins, based on size, as part of a uniform system for mapping of drainage basins in the U.S. The two smallest watershed categories are referred to as accounting and cataloging units. There are 2,149 cataloging units (Figure 1) and 352 accounting units in the U.S. The NRCS classification systems divides the cataloging units into two smaller drainage basins, the smallest of which is the "subwatershed" with a size ranging from 10,000 to 40,000 acres. Regulatory and resource agencies should consider these designations in any determination of a suitable watershed scale for a specific study.

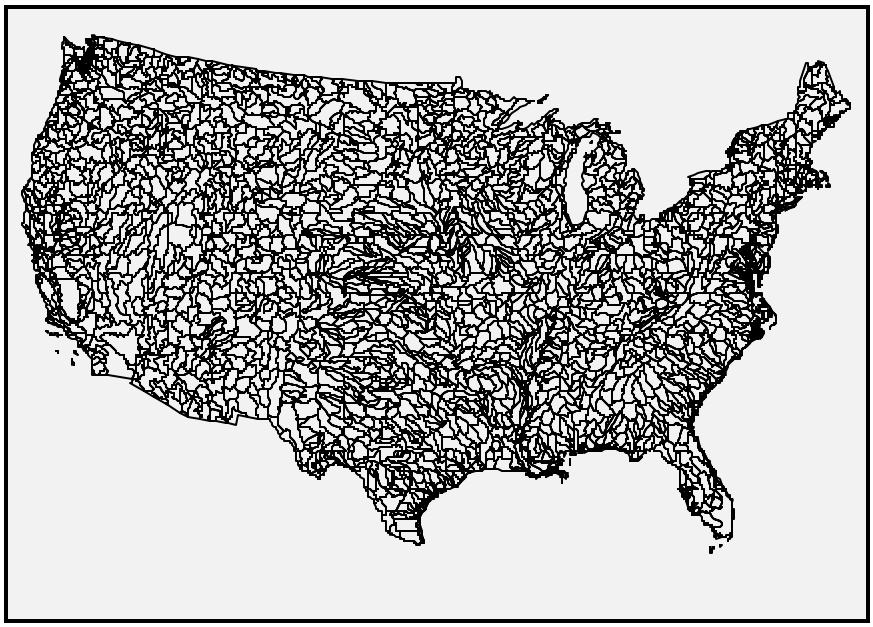

Figure 1. Cataloging Units, USGS, 1980.

What Is Watershed-based Planning?

The Watershed Planning Concept. The terms "watershed approach" and "watershed planning" are frequently used interchangeably. However, the goals, scope, and circumstances surrounding a "watershed approach" or "watershed planning" vary widely. Agencies have varying conceptions as to what watershed planning entails. Many agencies that have developed a watershed approach (whether for problem solving, development, or natural resources management) have focused on better coordination among existing programs (Stakhiv 1996). A typical purpose is for improving ecosystem management. For example, EPA is a strong advocate of the "watershed protection approach" to deal with diffuse, non-point source pollution control. Their approach is to bring in multiple stakeholders to set priorities and to decide among management actions, which is primarily a process-oriented approach. On the other hand, watershed studies that culminate in a definitive regulatory product for the Corps Section 404 Regulatory program may contain significant analytical elements (White and Shabman 1995).

Multiple-objective watershed planning is yet another watershed approach or form of watershed planning. This approach can establish goals and objectives for growth management; contain a planning and regulatory evaluation framework for regulatory purposes; define wetlands conservation goals; forecast anticipated growth patterns; analyze elements of ecological carrying capacity; assess cumulative environmental, social, and economic effects of alternative future development scenarios; clarify tradeoffs and enable explicit choices among competing objectives; and facilitate balancing of public interest factors within the context of the evaluation of alternative growth management scenarios (Stakhiv 1991).

The various examples of what have been referred to as watershed approaches or planning have been categorized as one of three basic types which are not necessarily mutually exclusive (Stakhiv 1996):

(1) Watershed-based single objective planning—a single purpose or activity is evaluated within the context of the watershed.
(2) Intra-agency coordination of multiple activities.
(3) Multiple-objective watershed planning—interagency and intra-agency coordination of multiple activities and collaboration on solving complementary problems.

The Civil Works water resources planning program exhibits multiple-objective planning characteristics, as reflected in the Principles and Guidelines (P&G) and its predecessor, the Principles and Standards (P&S), although it is not directed towards watershed planning *per se*. The P&G identify a six-step planning process. [2] These steps are: (1) identification of problems and opportunities; (2) inventory and forecast resources; (3) formulation of alternative plans; (4) evaluation of alternative plans; (5) comparison of alternative plans; and (6) selection of a recommended plan. A key component of the P&G is the evaluation system and the emphasis on economic analysis and multiple objectives (U.S. Water Resources Council 1983). The P&G evaluation includes the following objectives (or accounts):national economic development (NED); environmental quality (EQ); other social effects (OSE); and regional economic development (RED). Corps planning projects are typically water resources project-oriented. However, the approach could be applied to watershed scale planning.

Shabman (1993) suggests transferring this approach to the Corps regulatory program by extending the P&G multiple objective planning framework to a wetlands categorization process and evaluation of watershed restoration plans within an ADID process.

Watershed Planning for Wetlands. Just as "watershed planning" appears to have varying meanings and approaches, so too does planning for the wetlands and other aquatic resources component. Planning for wetlands management may be undertaken as one objective of a multiple-objective watershed planning effort. However, for regulatory purposes, it is typically conducted with a single objective (e.g., no net loss of wetlands). The specific approach may simply be one of coordination of multiple activities at the watershed scale to meet a pre-set regulatory-driven goal, or part of an analytical planning process in which alternatives are developed and evaluated in terms of how they measure up against different objectives (e.g., minimize cost objectives, maximize ecosystem outcomes) within the Section 404 "no net loss" constraints.

[2] These are presented in Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies prepared by the U.S. Water Resources Council, 1983.

Plans developed under a comprehensive multiple-objective planning process (like that mentioned earlier in this chapter) could result in conditions for granting and denying permits that make it more likely that the desired regulatory and single-objective outcomes occur. One potential example is a three-level comprehensive planning approach described by Stakhiv (1991). This approach was developed as part of a comprehensive framework for cumulative impact analysis. The three levels are: (1) "level A" analysis, a regional perspective focusing on alternative future development scenarios rather than specific permit actions; (2) "level B" analysis that builds upon the regional perspective to develop specific permit conditions for a series of general permits that conform with objectives and constraints of the "level A" process; and, (3) "level C" analysis used for extraordinary projects that would impose impacts on all areas.

Types of Watershed-based (and Regional) Plans for Wetlands and other Aquatic Resources

The following programs can focus on specific watersheds, although typically they involve portions of a watershed or extend over watershed boundaries in response to political circumstances.

Advance Identification Programs. The Advanced Identification of Disposal Sites program, which is authorized by the Section 404(b)(1) Guidelines,[3] provides for EPA and the Corps (or the State or Tribe if they have assumed the Section 404 permitting program) on their own initiative or at the request of any other party and after consultation with any affected State, that is not the permitting authority, to identify aquatic sites which are considered to be either generally unsuitable as disposal sites or as possible future disposal sites. These designations are to be used as guidelines and are not to be considered as advanced prohibitions or permits. This information can also be used by local communities to help them better understand the functions and values of aquatic resources, including wetlands. The process, initiated by the agencies or by a request from any other party, involves the review of all available water resource information, including data from the public, other agencies, and from "approved Coastal Zone Management programs and River Basin Plans."

The Advance Identification program has at least two advantages for compensatory mitigation. By giving some idea of relative values of aquatic resources, including wetlands, in the given area by virtue of their ecological importance, it can provide advanced notice of both developable and undevelopable sites. This can lead to better mitigation and reduced cost and delay associated with individual permit process. However, the ADID study classification is to serve only as an advisory guide to regulators, resources planners, landowners, and development entities in planning future activities, not advanced permit approval or denial. The process is intended to add some level of predictability to the permitting process and a better forecast and accounting of cumulative impacts to wetlands from multiple development projects in a geographic area. It should be noted that while the product of the ADID study (e.g., information on the wetland values in the study area and identification of wetland areas that should be protected or may not be protected) can be an important component of aquatic resources regulation, the approach does not implicitly or explicitly call for economic analysis, which should be an important part of any multiple-objective watershed planning effort.

[3] 40 CFR Sec. 230.80

A process for conducting an Advance Identification Study is described in an EPA draft guidance to EPA regional offices (EPA 1989)[4] and an EPA Fact Sheet (EPA 1992). First, EPA, in cooperation with the Corps, and after consultation with the state and other natural resource agencies, determines the ADID study area and assembles a team to conduct a field study of the natural characteristics and functions of the wetlands. This includes evaluation of impact of various activities associated with discharges of dredged and fill material. Second, EPA and the Corps compile the field data and literature reviews, delineating wetlands on maps and making preliminary determinations of wetland areas generally unsuitable for the disposal of fill material, and, in some cases, wetland areas that could serve as potential future disposal sites. These preliminary findings are compiled in a Technical Summary Document which is provided to review agencies for consideration and recommendations. A public notice is issued and a public meeting may be held in the study area to present the study results. The document and maps will be considered when permit applications are received by regulators for the ADID study area.

EPA had conducted 71 ADIDs with 38 completed and 33 ongoing as of February 1993 (see Figure 2). A survey by EPA headquarters of their regional offices in July 1996 identified 15 ongoing

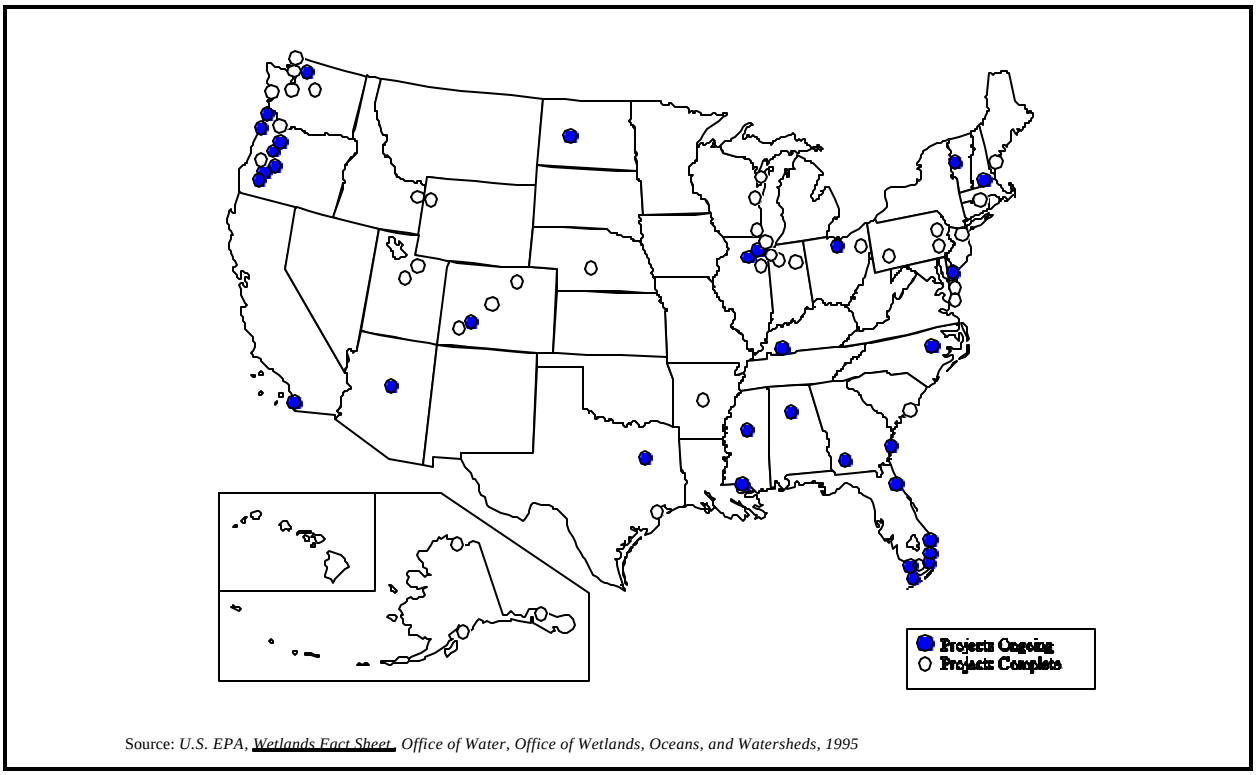

Figure 2. EPA Wetlands Advance Identification Projects, February 1993

[4] The draft document was not finalized but was transmitted to EPA field offices.

ADIDs.[5] The ADID process has been applied to areas ranging in size from less than 100 acres to more than 4,000 square miles (EPA 1995).

ADIDs are resource intensive generally, although they have been completed in as little as six months. Generally, there is an inverse relationship between the size of ADID project areas and the completeness of the analysis and effectiveness of the results (EPA 1995). EPA expects more States, Tribes, localities, and private organizations to become involved in funding or otherwise supporting ADID or similar comprehensive planning efforts.

Special Area Management Plans. Special Area Management Plans (SAMPs), authorized by a Coastal Zone Act amendment (1980), are comprehensive plans providing for natural resource protection and reasonable economic growth. SAMPs contain detailed and comprehensive statements of policies, standards, and criteria to guide public and private uses of lands and waters, and mechanisms for timely implementation in the specific geographic areas within the coastal zone. The program is funded and administered through the Office of Ocean and Coastal Resources Management in the Department of Commerce. ADIDs can be integrated into the SAMP process. The Corps of Engineers Regulatory Guidance Letter (RGL) 86-10 states that the SAMP process—collaborative interagency planning within a geographic area of special sensitivity may be applied for regulatory purposes in non-coastal areas. According to Beatley (1994), another scenario in which SAMPs may be appropriate is where natural systems lie within multiple jurisdictions with multiple use conflicts.

The Corps has no prescriptive guidance other RGL 86-10. The guidance focuses on the rationale for involvement. The RGL states:

> *"Because SAMPs are very labor intensive, the following ingredients should usually exist before a district engineer becomes involved in a SAMP:*
>
> *a. The area should be environmentally sensitive and under strong developmental pressure.*
> *b. There should be a sponsoring local agency to ensure that the plan fully reflects local needs and interests.*
> *c. Ideally there should be a full public involvement in the planning and development process.*
> *d. All parties must express a willingness at the outset to conclude the SAMP process with a definitive regulatory product."*

SAMPs tend to consist of more than only advance identification of wetland and other aquatic resources, instead including deliberate analysis of management alternatives and wetland categorization. However, since SAMPs are regulatory-driven and a part of the NEPA process (i.e., oriented towards an environmental objective), they may not be as multiple objective and analytically thorough as they might be. SAMP participants typically work together through consensus and negotiation to create a management plan and agreement.

[5] The list of ADIDs in the U.S. EPA Wetlands and Aquatic Resources Regulatory Branch Internal Memorandum, dated 3 September 1996, identifies 23 completed ADIDs. The list also includes 100 other wetland planning efforts, many very comparable to ADIDs.

SAMPs differ widely in their scope. While SAMPs are intended to be comprehensive, some do not focus on wetlands but on other water resource management objectives, such as water quality improvement. SAMPs differ widely in size and do not necessarily correspond to entire watersheds. Special areas have ranged in size from small tracts, such as Logan, Utah (approximately 2,000 acres) and San Bruno Mountain, California (3,400 acres), to Adirondack State Park, New York (approximately 6 million acres). One of the most well-known SAMPs is the Chesapeake Bay Program, approximately 64,000 square miles, which was a response to public concerns about declining water quality and diminishing fish and shellfish landings (Beatley et al., 1994). The Chesapeake Bay Program covers the entire watershed including uplands as well as wetlands.

An ideal SAMP would conclude with two products (Corps RGL 86-10):

> *(1) appropriate local/state approvals and a Corps general permit (GP) or abbreviated processing procedure (APP) for activities in specifically defined situations; and*
> *(2) a local/state restriction and/or an Environmental Protection Agency (EPA) 404(c) restriction (preferably both) for undesirable activities. An individual permit review may be conducted for activities that do not fall into either category above. However, it should represent a small number of the total cases addressed by the SAMP. We recognize that an ideal SAMP is difficult to achieve, and, therefore, it is intended to represent an upper limit rather than an absolute requirement.*

The final outcome, however, can take several forms other than formal regulatory control. Some SAMPs end as a loose, nonenforceable coalition of interests who confer with one another concerning policy goals, while other plans involve an advisory committee to counsel local governments about how to deal with specific problems (Beatley et al. 1994).

The conduct of an ADID and a SAMP is often intertwined. ADIDs are not planning efforts per se, but are tasks that can be components of plans such as SAMPs.[6] For example, the Santa Margarita Watershed Planning effort in Riverside and San Diego counties of southern California was initiated by the EPA and the Corps Los Angeles District as an ADID study in 1992. As part of the ADID, the Corps conducted a cumulative impact assessment of projects permitted by the Corps in the previous 15 years. The ADID is nearing completion.[7] The Corps envisions using information collected during the ADID to prepare a SAMP to support the conclusions reached by a local watershed planning committee. Alternatively, the Corps may issue General Permits for some activities in some areas and modify the Nationwide Permits in others in order to better manage the numerous small projects which appear to contribute to substantial cumulative impacts to the watershed's aquatic resources.

Environmental groups generally laud a watershed approach. However, many environmental groups do not support aspects of watershed planning that introduce regulatory flexibility, categorization of wetlands, or more local control of wetland decisions. For example, SAMP end products (e.g., the issuance

[6] Some ADIDs appear to have no connection to planning efforts (see: White and Shabman 1995).

[7] The ADID data collection is being supplemented by a functional assessment of the watershed's aquatic resources. The Corps and EPA are developing a regional Hydrogeomorphic model (HGM) for riverine wetlands in this watershed.

of general permits) are often opposed. Environmental groups may fear that locally controlled permitting will weaken wetlands protection. Some environmental opposition has been effective in thwarting implementation of watershed-based wetland plan components.

Other Types of Watershed Wetland Studies. The Corps Regulatory program participates in many other watershed efforts. Typically these efforts are led by local or regional organizations and governments. On one end of the watershed planning spectrum are isolated unilateral planning efforts. For example, regulatory staff in the Ventura Field Office of the Corps Los Angeles District attend meetings of a local effort in the Santa Clara River Valley in Ventura and Los Angeles Counties and contributes its wetlands expertise. This effort has been spurred on by the California Coastal Conservancy and the State Fish and Game Commission. While the actual product of the study has not been set, the Corps is interested in responding to landowner requests to streamline the regulatory process. The Utah Field Office of the Corps Sacramento District has participated in a similar type of study in Davis County, Utah. The steering committee, which included Davis County Flood Control, the Utah Division of Wildlife Resources, Utah Reclamation Mitigation Conservation Commission, the U.S. Fish and Wildlife Service, and the Corps has prepared a Davis County Wetland Conservation Plan. The goal is to conserve some of the best wetlands and upland buffers while streamlining the Corps regulatory process, through issuance of a general permit, and assisting in the flood control district management of the flood plains and shaping appropriate development. In both of these cases, non-regulatory Corps elements have also contributed to the study through in-kind Hydrology and Hydraulics (H&H) analysis.

At the other end of the spectrum are efforts associated with explicitly-defined planning processes, such as the formal Wetland Conservation Plans conducted under a State of Oregon Statute.[8] Oregon, with a strong land use planning tradition, has a planning process to address wetlands protection and management—it includes statewide planning goals and guidelines. The West Eugene Wetland Conservation Plan is an example of such a plan conducted under the authority of the Statute. The Statute requires that the plan be adopted by affected local government and approved by the Oregon Division of State Lands.

An example of a large scale comprehensive water study is the "South Florida Comprehensive Conservation, Permitting, and Mitigation Strategy for Wetlands and Other Critical Habitats." The study area, the South Florida Water Management District (the Everglades watershed), was identified by a working group formed by the South Florida Restoration Task Force (co-managed by DOI and the Corps). The intent is to develop a process and plan that coordinates regulatory and non-regulatory activities affecting wetlands. Corps regulatory staff participate in this consensus building process.

[8] ORS 196.678 to 196.682

RECENT EXPERIENCES AND CURRENT PRACTICES IN WATERSHED-BASED PLANNING FOR WETLANDS AND OTHER AQUATIC RESOURCES

Overview

This study identifies 47 watershed or regional studies in which the Corps Regulatory program has been a participant. The list of watershed or regional wetland studies is presented in Appendix B and locations shown in Figure 3. The sources of information include a survey of field offices conducted by HQUSACE Regulatory Branch in March 1996 (hereafter referred to as HQUSACE 1996 survey); follow-up communication with selected Corps field staff; and a wetlands planning case study report prepared for the National Wetland Mitigation Banking Study (White and Shabman 1995).[9] In actuality, Corps field staff has provided some level of technical input for more than the 47 watershed or regional efforts. They observe many more. For example, the EPA headquarters survey in 1996 identified 140 wetlands planning efforts (Figure 4).[10] The Corps is undoubtedly participating to some extent in most of these efforts.

Corps field offices identified 17 ADIDs in which they are participating, and they have participated in at least 23 SAMPs. Of the 23 SAMPs, 21 are either in progress or have been completed in the last few years, and one is being reopened (Port of Pascagoula Special Management Area Plan).

The states with greatest Corps regulatory participation in watershed studies appear to be Florida and Maryland, as per the HQUSACE 1996 survey. In Maryland, most are SAMPs for relatively small areas. In Florida, ADIDs predominate, although there are a number of ad hoc collaborative efforts. A number of other areas appear to have increasing watershed planning activity. For example, while not identified on the field response to the HQUSACE 1996 survey, the Puget Sound region has a number of quasi-SAMP efforts (e.g., Skagit and Snohomish studies in addition to the Mill Creek SAMP) as does southern California (including the Santa Margarita watershed and the San Marcos SAMP) and the Williamette Valley in Oregon (Wetland Conservation Plans).

The discussion in this chapter about how regulatory-driven watershed or regionally-based planning studies are conducted and the Corps role relies principally on the review of 12 watershed planning efforts. These watershed case studies basically represent efforts that, if not completed, are near completion and can provide much insight into their conduct. The sources of information for

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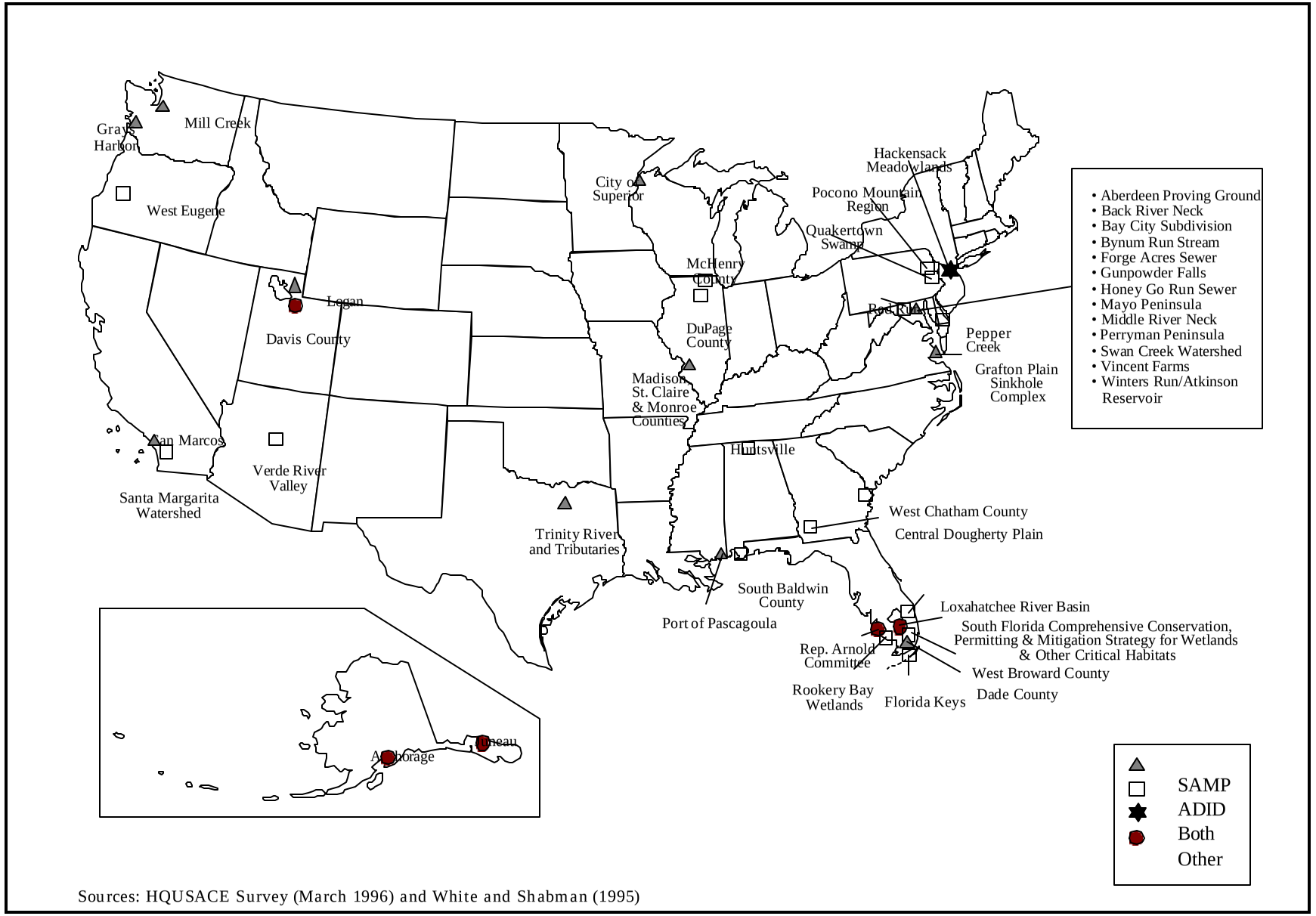
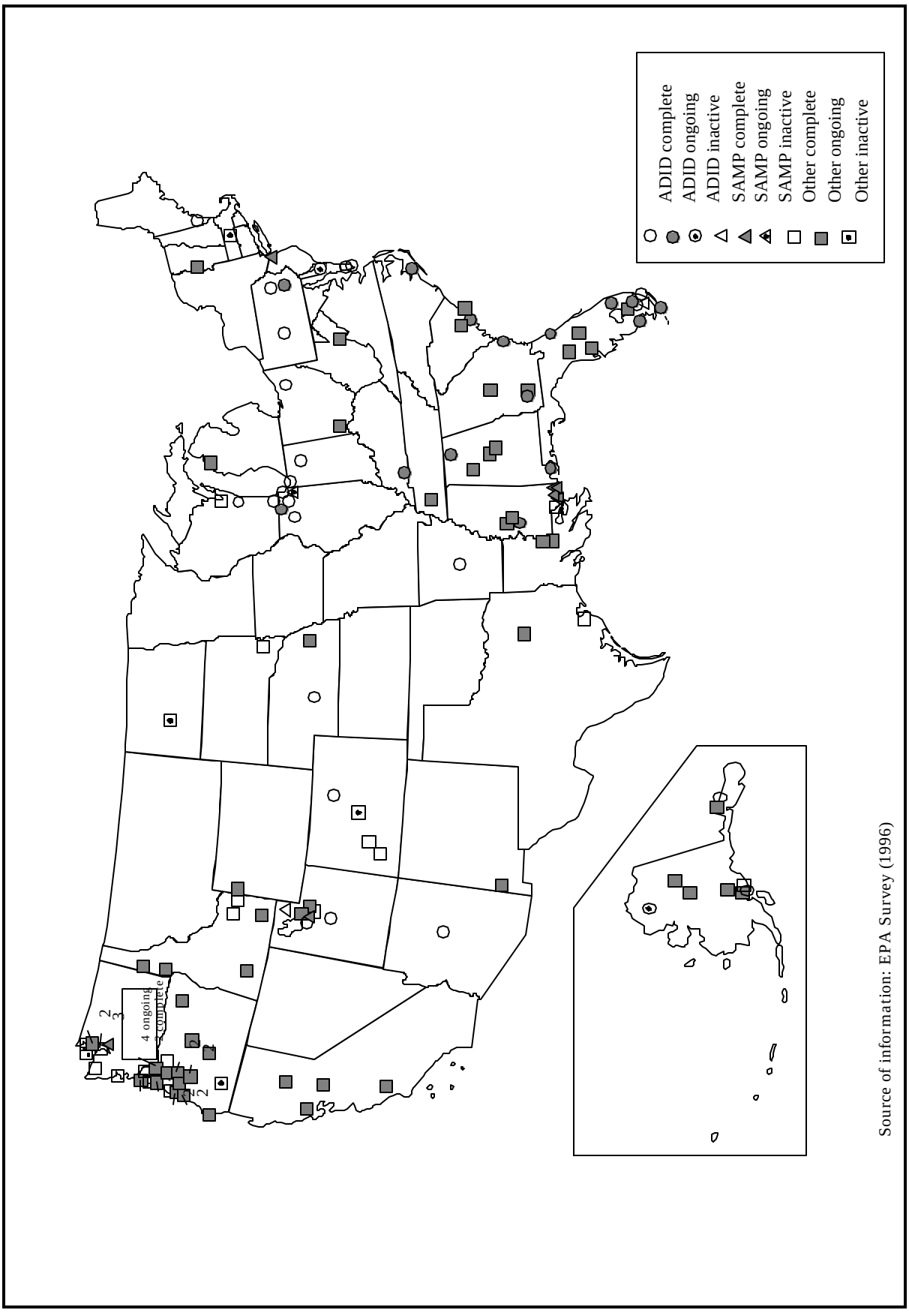
[9] During the preparation of the final draft of this report, IWR identified several more SAMPs in which the Corps was the lead Federal agency. These are included in Figure 3 and Appendix B.

[10] The EPA Headquarters Internal Memorandum, dated 3 September 1996, identifies 40 ADIDs (15 ongoing, 23 completed, and two inactive), 10 SAMPs (seven ongoing, two complete, and one inactive), and 90 other wetlands planning efforts (63 ongoing, 23 complete, and four inactive). This list, along with EPA points of contact, is presented in Appendix C. Four SAMPs identified in the EPA survey, but not included in the list of Corps studies, are: Hancock County, MS; Harrison County, MS; Jackson County, MS; Lake Calumet, IL; and West Valley City, UT. The EPA Memorandum indicates that the Lake Calumet SAMP is inactive.



Sources: HQUSACE Survey (March 1996) and White and Shabman (1995)

Figure 3. Corps Regulatory Watershed Studies, 1996



Source of information: EPA Survey (1996)

Figure 4. EPA wetland planning efforts, 1996

eight case study characterizations are largely from the National Wetland Mitigation Banking Study Report that presented case studies of watershed-based wetlands planning efforts (White and Shabman 1995). These case studies are as follows: West Eugene, Oregon (SAMP); Mill Creek, Washington (SAMP); Dade County, Florida (SAMP); Grays Harbor, Washington (SAMP); Meadowlands District Project, New Jersey (SAMP); DuPage County, Illinois (ADID); and two efforts that, while not officially SAMPs or ADIDs, had an ADID-like component and were conducted in a similar fashion to SAMPs—the City and Borough of Juneau and Municipality of Anchorage, Alaska. The four other case studies are: Port of Pascagoula Special Management Area Plan, Mississippi; the Middle River Neck and Back River Neck SAMPs, Maryland; San Marcos Creek SAMP, and the City of Superior SAMP, Wisconsin. Information for these case studies is based on interviews with Corps field staff. Basic information for all 47 identified watershed efforts is presented in Appendix B.

Initiating Factors

Initiating factors for the watershed-based planning studies vary. Local initiatives by development or resource agencies to facilitate or streamline the permitting process can be the principal driving force for SAMPs. For example, the Meadowlands SAMP was conducted in response to significant controversy and conflict regarding wetlands permitting—greater than 1,600 of 8,500 remaining wetland acres were private and zoned for development. Some initiatives may be originated by a Federal agency (e.g., EPA and/or the Corps). In some cases, regional or state initiatives or programs either direct or facilitate the effort. Watershed-based wetland plans in Oregon have been conducted under the auspices of the State of Oregon Division of State Lands which administers the wetlands planning process as dictated by state law. On the Gulf Coast in Mississippi, the Mississippi Coastal Program (enacted by state law) sets up a process for adopting management plans for "special management areas." In other instances, Federal regulatory agencies appear to have been the main, and possibly only, proponents. For example, the Verde River Valley (Arizona) ADID, which was led by the EPA and in which local Corps field office staff participated, had no local sponsor. Indeed, the local response to the effort was negative, and the Environmental Assessment recommendations were shelved. Table 1 provides examples of motivation for initiation of regulatory-driven watershed planning efforts.

Corps Involvement

Corps involvement in the watershed case studies is summarized in Table 2

Regulatory Staff Involvement. Corps regulatory staff can fill several principle roles in watershed studies. These roles are:

- lead or co-lead Federal agency
- study manager
- technical analysis
- regulatory oversight

The manner in which Corps staff or any participant fulfills these roles varies depending on the overall study process. Some studies are fully collaborative, consensually based, and operate by

TABLE 1. Initiating Factors for Watershed Planning Case Studies

Case Study	Why Effort Was Initiated
Meadowlands District SAMP, NJ	The Hackensack Meadowlands Development Commission felt that Federal wetland laws were preventing it from achieving its multiple planning objectives, which included development as well as environmental protection. A collaborative planning process—the SAMP—seemed the way to resolve the intense conflict between high development pressure and wetlands regulations.
Mill Creek SAMP, WA	Conflict between high growth and development in the area and wetlands regulations frustrated the development community and prompted local and Corps interest in a plan. There was also a desire to combine wetland planning with flood control efforts.
Grays Harbor SAMP, WA	The Grays Harbor Regional Planning Commission task force felt harbor development was constrained by a complex review process that required permits from many agencies. The Commission wanted a streamlined permit process, less burdensome for developers.
Middle River & Back River Neck SAMPs, MD	County proposals to provide sewer service to alleviate failing septic systems were designed to accommodate future development of undeveloped land. Concern for secondary and cumulative impacts as well as potential to increase unauthorized impacts led to formation of an interagency team. An abbreviated permitting mechanism for sewer expansion and development in the study area was sought.
San Marcos SAMP, CA	City of San Marcos desired a comprehensive approach to provide for flood protection and necessary mitigation for expected development in a rapidly growing area. The City desired an approach that tied in all the affected reaches at one time. The City wanted a regional general permit, but the Corps said that an individual permit was appropriate.
Dade Co. SAMP, FL	The Dade County Commission wanted to extend the 'urban services boundary' of the County into wetlands. Corps rejection of a Dade County permit application to build a high school in wetlands triggered the SAMP. The Corps required an EIS or a SAMP to resolve permitting issues associated with urban growth. The County chose the SAMP. Also, the County Comprehensive Plan required development to conform to a basin wide wetlands plan to prevent the risk of flooding and to maintain habitat values.
City of Superior SAMP, WI	In 1990, EPA Region V and the Corps St. Paul District proposed developing a SAMP to the City of Superior "as a means to plan for orderly development, to reduce impacts to wetlands, to conserve limited Federal and State regulatory resources, and to provide for wetland mitigation." At the time, sixty-five percent of the undeveloped portions of the City were wetlands.
Port of Pascagoula Spec. Management Area Plan, MS	Jackson Port Authority desired a local permitting mechanism in areas with high development pressures. Planning was done within the context of the Mississippi Coastal Program, which sets up a process for adopting management plans for "special management areas."
West Eugene ADID & Wetland Conservation Plan, OR	The City of Eugene was concerned that Section 404 would thwart development in a large section of the city which had been zoned 'industrial.' The city pursued a wetland conservation plan to control development and ensure no net loss.
Juneau, AK	The City and Borough of Juneau (CBJ) wanted to simplify wetland permitting in order to facilitate and control development in the city. Much of the remaining developable land in Juneau is wetlands, so wetland regulations greatly influence Juneau's ability to grow.
Anchorage, AK	The Anchorage Wetlands Plan was initiated because the City felt that wetlands regulations were too cumbersome and hampered economic growth. The planning objective was to streamline wetland permitting. The plan is currently being redone because of Corps GP expiration and because several interests were dissatisfied with the original categorization scheme.
DuPage Co. ADID, IL	State law created the DuPage County Department of Environmental Concerns (DEC) primarily to focus on storm water. DEC prepared an extensive County storm water ordinance to include watershed planning, wetland categorization, and mitigation supply ventures.

TABLE 2. Corps Involvement with Development of Case Study Watershed Plans

Case Study	Nature of Corps Involvement
Meadowlands District SAMP, NJ	The Corps was served as joint Federal lead agency with EPA, and contributed not only technical expertise, but substantial funding to the SAMP EIS.
Mill Creek SAMP, WA	The Corps has been the lead Federal agency for this SAMP. The Corps has provided significant staff time to assist in developing the plan and has coordinated creation of the citizen's committee and interagency committee to develop the plan.
Grays Harbor SAMP, WA	The Corps participated in technical committees that developed the plan, although NOAA was the lead Federal agency.
Middle River and Back River Neck SAMPs, MD	The Corps provided wetland expertise—field assistance, data analysis, and report review—to help Baltimore County develop plan and prepare SAMP document.
San Marcos SAMP, CA	The Corps was the lead Federal agency for this SAMP. The Corps role was one of review and evaluation of city findings. The Corps prepared an EA for an individual permit.
Dade Co. SAMP, FL	The Corps was not heavily involved in the planning effort, but has adopted an alternate permitting procedure so DERM can implement the plan.
City of Superior SAMP, WI	The Corps had several roles. They initiated development of the SAMP with EPA and participated on the Technical Advisory Committee which advised the Steering Committee during planning. The Corps and EPA requested an Uplands Analysis to ensure that no upland sites had been overlooked as practicable alternatives. The Corps prepared the EA for the general permits (5) needed for the SAMP and approved the general permits for an alternative land use scenario modified that was a modification of the City's preferred alternative..
Port of Pascagoula Special Management Area Plan, MS	The Corps participated in the Task Force (nine agencies) and prepared an EA for the SMA plan. The Corps evaluated the wetland mapping and analysis. Prior and ongoing Corps engineering studies of dredging and dredged material disposal needs were utilized in the plan formulation. In the reopened study, the Corps is conducting and/or funding studies (e.g., survey of the proposed new disposal site).
West Eugene ADID & Wetland Conservation Plan, OR	The Corps has been involved with plan development—participated on the Technical Advisory Committee, which shaped the plan's overall design. The Corps manages the Amazon Channel Complex and Fern Ridge Reservoir (in the plan area) which contributed to planning, e.g., it conducted a $300,000 study of the Amazon Channel to determine how to improve environmental values and selected West Eugene as a national demonstration site for restoration of prairie type wetlands.
Juneau, AK	The Corps was involved with plan development and prepared a draft general permit for CBJ.
Anchorage, AK	The Corps was involved during planning as a participant on the technical advisory committee. For the plan's implementation, it issued GPs to streamline permits for certain categories of wetlands. The Corps recently revised and reissued the GP to assist in implementing the Revised Anchorage Plan.
DuPage Co. ADID, IL	The Corps was not heavily involved in the planning effort but has assisted the DuPage Dept of Environmental Concerns implement the plan with issuance of a Programmatic General Permit.

committee. On the other hand, some studies may have a primary leadership with relatively little collaborative process.

Typically, the study sponsor is a non-Federal government sponsor. The Corps does not act as a study sponsor, although in a few ADIDs, the Corps has had a very strong role tantamount to a study sponsor. The greatest role exhibited by the Corps in the SAMPs is that of lead Federal agency.

The typical role for Federal agencies is in technical analysis usually through participation in technical committees. For those case studies in which the Corps was not the lead agency, the Corps was intensively involved through technical committees. In these committees, the Corps provided wetland expertise, some times in the form of field assistance and data analysis (in a sense, ADID-like tasks).

In some cases, the Corps assists in plan formulation. In any event, the Corps provides regulatory program information and may prepare an Environmental Assessment or an EIS as appropriate. The Corps has participated in task forces that collaboratively formulate and negotiate the preferred plan.

The Corps was not heavily involved in the planning effort in two of the twelve studies. In these cases, Corps regulatory involvement consisted of issuance of a programmatic general permit (DuPage County ADID, IL) and adoption of an alternate permitting procedure to implement a plan (Dade County SAMP, FL).

Non-regulatory Staff Involvement. Other elements of the Corps Civil Works water resources program have assisted in development of regulatory products. For example, Corps environmental planners commonly assist regulatory offices in the preparation of SAMPs. In the Seattle District, Engineering Division environmental planners were tasked to conduct the Mill Creek SAMP study under oversight of the Regulatory Branch. Corps non-regulatory participation is enhanced in some districts that are organized in a such a way that environmental planners are part of or within a larger division that contains the regulatory group.

It should be noted that non-regulatory Corps Civil Works environmental planners have provided direct planning technical assistance to non-Federal watershed efforts. For example, one means of assistance used has been the Section 22 Study (Planning Assistance to the States). Environmental planning staff of the Corps New England Division (now the New England District) assisted the Commonwealth of Massachusetts in their effort to implement a pilot mitigation banking program and watershed restoration program. The Division prepared a banking feasibility study and a restoration site selection protocol.

Corps engineering elements are frequent contributors to watershed planning efforts that have a regulatory genesis or emphasis. For example, Corps H&H staff have provided assistance, e.g., analysis, to local governments. In a study of the Santa Clara River, southern California, the Los Angeles District resolved H&H problems when two agencies of two adjacent counties did not have compatible H&H analyses. The H&H resolution was provided separately from the regulatory involvement or "official" study conduct. For the Davis County, Utah study, Corps H&H analysis input to the planning effort was complementary to a Corps project in the County. For the Port of Pascagoula Special Management Area Plan, Corps planning and engineering staff have participated extensively since the Port of Pascagoula has

two Federal navigation projects. Corps planning and engineering functions have funded several tasks for both the completed effort (completed in 1986) and the recently reopened effort.

Corps non-regulatory contributions were a significant part of the West Eugene study. Corps inputs included planning for the Amazon Creek Corps project, a Section 1135 project. In the overall study, Corps regulatory and planning were not really tied together; regulatory contact with the Corps non-regulatory efforts was just one of keeping themselves apprised of matters that could affect the regulatory program. Similarly, in the Meadowlands SAMP, other Corps elements were involved in the study area, because of flood control issues and the presence of a Federal navigation channel.

Funding of Corps Participation in Wetland Studies

There is no one format by which watershed-based wetland studies are funded. Similarly, Corps participation has no single format by which it is funded. More often than not, Corps participation in ADIDS and SAMPs has been funded out of the district's regulatory budget.

ADIDs. For ADIDs and other similar studies, Corps participation and support is less likely, in comparison to SAMPs, to be either specifically budgeted for or funded by other co-participants.

No distinct regulatory funds were utilized to specifically support Corps district participation in the West Eugene Study (ADID), and in the Wetland Conservation Planning effort for which the ADID was a component, nor was there non-regulatory funding. Corps Regulatory staff involvement included participation on the Technical Advisory Committee and in the development of an alternative permitting procedure.

The Jacksonville District participates in numerous ADIDs and regional planning efforts on an as needed basis as part of their regulatory program, with no specific funding.

In the Santa Margarita ADID, which was led and basically funded by EPA, the Los Angeles District received funds from EPA. However, that was to fund technical support for development and application of a regional hydrogeomorphic model (HGM), a functional assessment tool. A Corps regulator conducted dissertation research on cumulative impacts in the watershed. Other Corps involvement, such as attending meetings and working with the local watershed planning committee, was not specifically funded.

In EPA Region IV, where EPA has provided the lion's share of funding for ADIDs, no funds were transferred to the Corps, at least for six ADIDs identified by the Corps district offices in the HQUSACE 1996 survey. In the six ADIDs, EPA had provided $1,470,000 of the total of $1,760,000 allocated as of the December 1993 (EPA 1993). State and local matching funds were the other sources. Local EPA staffing (salary and travel) utilized $295,000 (e.g., typically for a half-time staffer for two to four years).

SAMPs. Regulatory offices have received funds from the HQUSACE Regulatory Branch earmarked for specific SAMPs. HQUSACE encourages cost-sharing of SAMPs, such as input of funds from local entities and other Federal agencies, and provision of in-kind services. For example, local agencies may

provide or collect wetland site data as in-kind service. As a district gets increasingly involved in a SAMP, the HQUSACE Regulatory Branch requests progress reports and future resource projections.

One of the most complex SAMPs, the Hackensack Meadowlands SAMP, was funded primarily by the local project sponsor (Hackensack Meadowlands Development Commission (HMDC)). A third party agreement and contractor was funded by HMDC to conduct studies for the SAMP. The EPA and the Corps, as joint lead agencies, contributed labor and other services to generate the Environmental Impact Statement. Each agency spent about $75,000 per year for three to four years. Corps funding (approximately $75,000) was pre-programmed with Corps HQUSACE Regulatory Branch in an EIS account (the other accounts: permit process, enforcement, wetlands, and NEPA). As indicated earlier, non-regulatory Corps elements also have been involved in the study area—regarding flood control and a Federal navigation channel. The Water Resources Development Act of 1992 had a $5 million effort for Corps assistance to the State of New Jersey (for which there is a Project Cooperation Agreement in preparation). Corps Planning Division served as a reviewer of the EIS which was done primarily by the contractor. EPA also has projects in the area.

Another of the more complex SAMPs, the Mill Creek SAMP, was conducted using a Plan of Study prepared by Seattle District regulatory staff and reviewed by the primary sponsors, King County and the cities of Kent and Auburn. The plan of study, dated 18 June 1990, was signed by all parties. The plan of study called for (1) King County and the cities of Kent and Auburn to be represented on the SAMP project management team and contribute funding and/or services to the SAMP efforts, and (2) funding/service contributions from the EPA, Corps, and Washington Department of Ecology. The plan of study called for a 24-month effort, Corps contributions of approximately $245,000, and EPA contributions of approximately $107,000.[11] Since the Corps district wanted the County committed to working with the district to develop a useful regulatory product, the Corps asked the cities of Kent and Auburn to contribute in-kind services and staff time to the effort.

The Port of Pascagoula Special Management Area Plan was largely funded with state funds. The Corps prepared an EA for the plan. The Corps Regulatory staff are participating in the reopened effort in a manner similar to the original study—no funds are being specifically provided for the study by regulatory. However, other Corps elements are contributing services and funding for some tasks—such as wetland delineation, a survey of a proposed disposal site, and dike revetment costs—as part of larger Federal navigation project studies.

The Baltimore District is participating in many small SAMP studies at the moment. This district receives no funds specifically earmarked for watershed studies. This lessens their ability to participate in more watershed studies and conduct other business at the same time.

[11] Funds for the SAMP were specifically programmed annually and received from the HQUSACE Regulatory Branch for several years. The Seattle District regulatory branch provided funding to Environmental Planning past the two years planned. A limited amount of funds were provided by Corps Civil Works Planning (i.e., for environmental planning assistance) since the information gathering would contribute to a better environmental understanding in a region with several Corps studies and projects.

Planning Process: Plan Identification and Evaluation

The watershed planning process utilized in SAMPs and ADIDs varies although sponsor, public and stakeholder participation is typically a paramount element of the process. Technical elements of watershed planning typically include mapping or identification of wetlands and their functions and categorization. Watershed-based wetland plans that have a regulatory focus generally include categorization of wetlands. Some plans do not categorize parcels in advance of permit decision, but rather establish categorization rules that can be applied at the time of development permit application (White and Shabman 1995).

ADIDs by their very nature are comprised mainly of information gathering and characterization of the study area aquatic resources. However, the SAMP process, as mentioned earlier, should inherently promote formulation and evaluation of management alternatives following the characterization of wetlands. However, the Corps SAMPs guidance (RGL 86-10) does not call explicitly for evaluation.

Pertinent process elements of the case study watershed study efforts are presented in Table 3. A discussion of several watershed efforts follows, and reference literature for these watershed efforts are listed at the end of this report in "Watershed Study Literature." The watershed case study report prepared for the National Wetland Mitigation Banking Study, IWR Report 95-WMB-8 (White and Shabman 1995), presents additional information for three of the studies: Meadowlands District SAMP; Mill Creek SAMP; and West Eugene Wetlands Plan.

In the West Eugene Plan, the City contracted with the Lane County Council of Governments to be the project manager, and Federal and state regulators agreed to let the City address wetlands through the planning process (White and Shabman 1995). Intensive public outreach programs (e.g., public workshops) were utilized to inform the public and to help create the vision and goals for the wetlands system. The effort was greatly influenced by a multi-agency technical advisory committee. One of the early studies was identification of wetlands and their functions (using the EPA ADID project). A variety of considerations were made in determining wetland parcel designations, including ecological criteria (e.g., water quality and stormwater runoff) and socio-economic criteria (e.g., recreation and proximity to urban services). Seven alternative wetland management strategies were considered, ranging from avoidance of wetlands to the maximum development scenario to a final refinement, which was adopted in the final Wetlands Plan. Objectives used to evaluate alternatives included ecological objectives, stormwater conveyance and quality, recreation, education, and economic development. Four options for parcel categorization (protection, restoration or enhancement, fill and future development, and connecting protected uplands) were considered. This categorization was evaluated using the ecological and socio-economic criteria to identify sites suitable for and deserving protection and sites for possible development. The Technical Advisory Committee with iterative input from the public did the categorization. It is not apparent, based on a review of the planning literature, that explicit economic, ecological, and social criteria were used to fully measure potential performance of prospective plans.

The Corps helped initiate the SAMP process in Mill Creek in order to improve coordination between Federal, state, and local government permit programs and resource

TABLE 3. Process Elements of Watershed Planning Case Studies

Case Study	Process/Participation Elements
Meadowlands District SAMP, NJ	The SAMP process was established to balance development and environmental protection objectives. Many agencies were intensively involved in the SAMP and EIS, including the Corps, EPA, and the HMDC, a local planning agency. Citizen interest and involvement was high, given high land values in the area and the ecological importance of remaining wetlands, and extensive public interest, surrounding social issues (noise, traffic, congestion, etc.) that would be affected upon execution of the SAMP.
Mill Creek SAMP, WA	The Corps took a major role in coordinating and developing this SAMP along with EPA. The cities of Auburn and Kent (King County) were strongly involved, and there was extensive citizen and interagency involvement. Development of planning alternatives is being performed by both an interagency and a citizens committee. The participation process has been long and drawn out.
Grays Harbor SAMP, WA	The planning began in 1975 and lasted for over 10 years. The Federal CZM Office was greatly involved with developing the plan. This was the first SAMP associated with the CZMA. There was multiple agency and some public involvement, but apparently often little agreement. The plan is completed, although some interests claim inadequate public input.
Middle River and Back River Neck SAMPs, MD	The Corps provided technical support expertise to a collaborative interagency watershed study process—Baltimore County Department of Environmental Protection and Resource Management (DEPRM) is the lead.
San Marcos SAMP, CA	The City of San Marcos conducted the study and believed there would be sufficient funding owing to development at the site that could pay for the entire project. However, the city could not muster funds or support for the effort. The Corps, EPA, and the USF&WS provided technical evaluation of plans.
Dade Co. SAMP, FL	The Dade County DERM was the local lead—and the Corps the Federal lead (because of its wetlands jurisdiction and involvement with the Everglades area). However, other Federal agencies (e.g., Park Service, EPA) were involved. The planning process included public participation.
City of Superior SAMP, WI	The primary body guiding SAMP development was the Steering Committee, composed of local and county agencies. The Technical Advisory Committee, composed of the Corps, EPA, FWS, NRCS, and State, regional, county, and local agencies, advised the Steering Committee. The planning process included public participation. The Corps, EPA, and other Federal agencies abstained from selecting a preferred alternative during development of the SAMP; final evaluation of alternatives was conducted during preparation of the EA for the general permits as part of the Section 404 permit review process.
Port of Pascagoula Special Management Area Plan, MS	Local interests (Jackson County Port Authority and the Board of Supervisors) presented a development scenario and associated plan. Subsequent plan formulation and evaluation was accomplished through negotiation sessions. Numerous drafts of alternative proposals and 18 months of negotiation were required. Plan formulation was based on consensus of all agencies.
West Eugene ADID & Wetland Conservation Plan, OR	The City of Eugene contracted with Lane County Council of Governments to coordinate the plan, which was developed with technical input from several agencies. The planning process included extensive public participation.
Juneau, AK	Juneau coordinated the planning process, although many agencies participated in developing the plan. Community meetings were held to solicit input and disseminate results. Public "preference for management" was a component of the categorization criteria, although this was de-emphasized in the final categorization scheme.
Anchorage, AK	The City led the initial effort with much Corps and EPA involvement. The plan was done in conjunction with the City's Comprehensive Plan. Two review committees guided the planning effort, a technical committee and a policy committee. There were over 40 public meetings and hearings to solicit public input.
DuPage Co. ADID, IL	The DuPage County Department of Environmental Concerns is the lead. Stakeholder involvement does not appear to be extensive. The Corps has assisted DEC implement the plan through its regulatory role.

management efforts in the basin, to assist in flood control, and to improve the predictability of the wetland permitting process. The Corps coordinated the creation of both a citizen's committee and an interagency committee to develop the plan. Wetlands were assessed for attainment of four suites or aggregates of functions, and impacts of different alternatives evaluated. Then alternative scenarios were evaluated and compared using environmental, economic/developmental, cultural, social, and engineering criteria. Each alternative was examined to see how it met each evaluation criterion. For example, economic impacts of an alternative were evaluated through the identification of increases in acreage available for development—the more wetland acreage available for development, the greater the contribution to economic development alternatives. Four of the original alternatives were screened out because they did not meet the basic requirement that there be no net loss in wetland functions and values or no loss in protection of aquatic resources. The final evaluation phase focused on how well each alternative achieved each of the goals of the SAMP. The last alternative (which was the recommended SAMP alternative) synthesized the original nine alternatives and was further refined based on information and opinions received from citizens and organizations in letters and via public workshops and meetings.

For the Meadowlands District SAMP, the study area for alternatives was based on growth patterns, land use trends, and environmental resources. Potential development areas were delineated for each alternative using three criteria: reasonableness of project land use, degree of representativeness for growth forms typical to the region, and feasibility and appropriateness of identified land uses and locations. For example, potential development areas for the Highway Corridors alternative are primarily located along major transportation routes.

Six in-District land management alternatives were screened including a no action alternative. The land management alternatives were: upland growth, redevelopment, highway corridors, and dispersed development centers. All alternatives were developed, to the maximum extent feasible, to similarly fulfill HMDC-identified social, economic, and environmental needs. Comparison was accomplished by applying a uniform set of assumptions—equivalency among the alternatives in terms of: the general magnitude of the environmental impacts, and the planning and management characteristics associated with the alternative. For example, for land use needs, characteristics such as primary office land use, commercial land use, and residential land use acreage were determined for each alternative. The six alternatives were formulated such that they had similar overall land use attributes.

The alternatives were screened to reveal the comparative land use efficiency and environmental effects of their spatial arrangements and planning concepts. The SAMP Draft EIS described the alternatives screening as an environmental analysis that compares the relative efficiency of land and resource protection associated with a series of alternative spatial arrangements for future growth in the District.

A ranking procedure was used, based on each alternative's relative potential for environmental impact (numerical measure) in eight categories. The relative ranks for eight assessed environmental impact categories were combined into a single index to identify alternatives with lower overall potential environmental impact. The single index utilized a set of weights assigned to each of the categories as per the consensus of the professional staff of each SAMP partner agency.

The City of Superior SAMP involved an inventory and evaluation of the City's wetlands, identification of several alternative land use scenarios, evaluation of wetland impacts for each land use scenario to identify the preferred alternative, and further analysis to avoid and minimize wetland impacts. First, wetlands were evaluated based on seven functions, the values of those functions, and their location on the landscape. In the meantime, the steering committee (composed of local and county agencies) directed the Northwest Regional Planning Commission and the City to develop several alternative land use scenarios representing various levels of future development in the City using different preservation-development patterns and varying rates of city population change. Seven scenarios were identified including maximum development, maximum preservation, continuing trends, adjusting continuing trends, and a no-build alternative. Basically, these alternatives represented various targets that were not constraint-driven. These land use scenarios depicted various desirable and/or probable locations for future development. The scenarios were evaluated and compared using primarily the following criteria: cost, infrastructure service and roads, and acres of wetland impacts (by type). Following identification by the Steering Committee of a scenario representing "Adjusted Continuing Trends" requiring 496 acres of wetland impacts, further analysis to avoid and minimize impacts resulted in reducing impacts to first 321 acres, and then 198 acres, under "Combination Preservation-Development Plans I and II," respectively. The 198 acres of projected wetland impact under the "Combination Preservation-Development Plan II" became the City's preferred alternative for which a Section 404 permit application was made. (Note: The Corps and EPA did not select a preferred alternative during preparation of the SAMP plan; final evaluation of alternatives was conducted as part of the Corps Section 404 permit review). During the Corps Section 404 permit review process (for regional general permits), additional concerns were raised as a result of the public notices prompting further reduction of wetland impacts to 143 acres. For example, one site was changed in status from proposed SAMP development to a compensatory mitigation site due to a newly emerged factor.

For the Port of Pascagoula Special Management Area Plan, the Mississippi Bureau of Marine Resources presented a proposed "Scenario for SMA Plan Formulation" largely based upon development concepts presented in an earlier Master Plan. The plan proposed specific management categories for priority land uses within the management units. The categories were: water dependent development; conservation (of wetlands); preservation (of wetlands); upland dredged material disposal; and wetlands enhancement, restoration, or replacement. Then, the Jackson County Port Authority (JCPA) and the County Board of Supervisors formed a joint committee to provide the SMA Task Force with more specific proposals for anticipated development and planning priorities in the SMA for long-term and short-term development needs. Planning and negotiation sessions took place in which a series of proposals addressing development, mitigation, and dredged material disposal throughout the SMA were alternatively formulated by the regulatory agencies, the Board of Supervisors, and the JCPA. Evaluation of each proposal was followed by negotiation sessions in which the objectives of each Task Force agency regarding development and conservation within the SMA was brought forth. With each succeeding proposal, the Task Force came closer to producing a compromise plan which satisfied the basic objectives of each participating agency. Numerous drafts of alternative proposals and 18 months of negotiation were required. The final plan represented a balance between development and environmental resource protection acceptable to each agency participating on the Task Force.

The Middle River Neck and Back River Neck SAMPs in Maryland consist of categorization of wetlands to facilitate issuance of Section 404 permits for local sewer projects. An interagency SAMP team

(state, county, EPA, and Corps) delineated and mapped wetlands. The six wetland functions evaluated included ecological integrity, plant habitat, wildlife habitat, aquatic habitat, flood control, and water quality. Functional value indices were estimated for each function for each wetland, using the New Hampshire method. Categorization, that is, decisions on which wetland areas could be impacted and which should be proposed for preservation, were based on the functional assessment factors included above and on "heritage elements." Designation for preservation is not meant to prohibit impacts for these wetlands outright, but to indicate an intent by the SAMP team to preserve the full functional value of these wetlands and the low likelihood of obtaining impacts for permits. Heritage element (uniqueness) factors that automatically designate wetlands for preservation include surface water connections and nontidal fringe wetlands within the 100 foot Chesapeake Bay Critical Area Habitat Protection Areas. Other heritage factors (e.g., presence or non-presence of that factor) carrying considerable weight (basically "red flags") in the categorization are: forested wetlands, historic and archaeological sites, and endangered species. Wetlands receiving the highest score for any particular function are also designated for protection, since they can serve as the reference wetland for that function in the study area. The resulting SAMP document and maps are to be utilized as reference information when making permit decisions at the County, State, and Federal level. To address the difficulty of mitigating unavoidable wetland impacts, especially for the small individual impacts of the sewer project, the County is to develop two wetland compensation areas.

The first four plans in the preceding discussion all appear at first glance to have multiple objectives. However, they did not conduct true multiple objective tradeoff analysis in their plan formulation and evaluation. Typically, targets for some objectives are set at the beginning and then environmental attributes are compared. Further, financial and economic costs and benefits are not explicitly utilized in any ranking. For example, alternatives are formulated so as to have similar amounts of residential and commercial land use as per agreed upon economic development goals. However, neither explicit economic costs and benefits are identified nor are they traded off versus other objectives. The other plan—the Middle River Neck and Back River Neck SAMPs—did not involve plan formulation, only categorization of wetlands to accommodate an expected project.

Implementation and Status

The wetland planning studies discussed in this report were generally conducted with the intent of producing a regulatory product. However, several have not been successful despite being relatively lengthy and costly. A status of these case studies is presented in Table 4. A discussion of the cost and timeliness aspects of these efforts follows in "Study Costs and Time."

There appears to be an important distinction between those plans that included a rigid categorization and those that performed wetland categorization (for management purposes) by only establishing rules that could be applied to permitting (White and Shabman 1995). Those planning efforts that did not perform rigid advance wetland categorization (i.e., did not actually delineate and categorize wetlands "on the ground") appear to face less opposition and require less time to prepare and implement the plan than those that did include rigid categorization. Resource-intensive planning efforts such as the Grays Harbor SAMP, the West Eugene Wetlands Plan, the Juneau Wetlands Plan,

TABLE 4. Status of the Watershed Planning Case Studies

Case Study	Status (as of 1996 unless otherwise indicated)
Meadowlands District SAMP, NJ	The Federal Draft EIS was issued in July 1995. The Record of Decision is expected in 1998. Operation of a component of the plan, a public commercial credit supply venture, however, is several years away, as the plan stipulates that no mitigation credits can be sold until the credit wetlands are fully functional, and HMDC has not yet begun any mitigation work.
Mill Creek SAMP, WA	The SAMP documentwent to Public Notice in August 1997.
Grays Harbor SAMP, WA	The plan is complete, but because of its advisory nature, its effectiveness is difficult to judge. It did not replace any existing regulatory protocols.
Middle River and Back River Neck SAMPs, MD	There are several phases (subwatersheds) for both SAMPs. Two phases (SAMPs) were completed in 1995 and another in 1996. Four more SAMPs are underway or are expected to begin 1997. An abbreviated permit procedure has been established with the Baltimore County DEPRM.
San Marcos SAMP, CA	The Corps issued a provisional individual permit for the 9 project reaches (the State Regional Water Quality Board could not certify the project—it wanted one reach at a time). However, the City does not have the funds to undertake the necessary mitigation for the proposed plans or full community support.
Dade Co. SAMP, FL	The plan is currently operational. DERM staff reports general satisfaction with the plan, particularly among developers, who appreciate the lack of complexity involved with meeting wetland mitigation obligations.
City of Superior SAMP, WI	The SAMP report was completed April 1995. The EA and permit decision to issue five General Permits was completed in December 1996.
Port of Pascagoula Special Management Area Plan, MS	The Special Management Area (SMA) Study was completed in 1986. The three major elements have been effected including a dredged material disposal management plan which specified three confined areas for long-term disposal of maintenance material from the Federal Pascagoula Harbor project. The SMA is being reopened at JCPA initiative to consider changed conditions related to lead discovery in a disposal area and the need for additional disposal area.
West Eugene ADID & Wetland Conservation Plan, OR	The Oregon Division of State Lands, the Corps of Engineers, and EPA have approved the plan, so it is in effect. However, one environmental group took the plan to court. The City is amending its plan, and the lawsuit was dismissed. The MOA was signed in Fall 1995.
Juneau, AK	In 1993, the City and Borough of Juneau's (CBJ) General Permit application was delayed by HQUSACE. In the interim period, an "Accelerated Individual Permitting Procedure" was set up, whereby both the Corps and CBJ had permitting responsibilities for C and D wetland categories. CBJ has only issued one permit (with Corps approval) since this cooperative arrangement began. In June 1995, CBJ received the full General Permit, to administer permits for two categories of wetlands, although to date no permits applications have been filed. Some environmental groups have threatened to legally challenge the permit. The operation of the public commercial credit supply venture has been held up due to the problems obtaining the General Permit.
Anchorage, AK	The original plan has been in effect for 10 years and has recently been revised. Some net loss of wetland resources has occurred since the original plan was adopted, but the plan did not have a no net loss goal. It is difficult to judge how successful it has been regarding wetland protection because it is not clear what would have happened to wetlands in the area had the plan not occurred. The plan revision has included a thorough assessment and categorization of wetlands. A General Permit has been developed to assist in implementation. There is broad agreement on the revised categorization scheme.
DuPage Co. ADID, IL	The plan is currently operational and, as of March 1995, the Corps now allows DEC to review most permits. DEC has already collected significant funds for one of the mitigation banks, and plans to begin mitigation work for this venture soon. DEC has so far been pleased with the plan.

the Meadowlands District Project, the Mill Creek SAMP, and the City of Superior SAMP have all taken many years; it was difficult to complete a plan to the satisfaction of all parties.[12] The Mill Creek SAMP went to Public Notice in August 1997. The City and Borough of Juneau Wetland Plan has faced opposition and legal challenges from environmental organizations that have delayed its implementation. The West Eugene Plan appeared to face a legal challenge, but the issues may have been resolved. This latter effort has been very costly and the overall planning process has taken eight years. Further, West Eugene received substantial Federal funding (approximately $4 million). Because of these reasons and others, White and Shabman (1995) caution those interested in the watershed approach in citing West Eugene as a "model" as some have done (e.g., the Association of State Wetland Managers)—it may not be easily replicated in other parts of the Nation. The City of Superior SAMP appears to have taken the least amount of time, and it was implemented within two years after completion of the SAMP report. However, the total length of time from initiation of mapping for the SAMP to finalizing the EA for the general permits was not short, approximately 6 ½ years. The City was critical of the length of time it took to complete the process. The SAMP would result in the loss of less than 0.1 per cent of wetlands within the county. The Corps EA and permit decision determined that 143 acres of wetlands were developable with compensatory mitigation. Restoration and creation measures will require at least 1:1 replacement in terms of acreage, while enhancement and preservation would require mitigation at a higher ratio. City of Superior wetlands outside the SAMP-designated fill sites are subject to the standard Section 404 permit review. Such proposed wetland fills would have to demonstrate why use a SAMP-designate site is not practicable. It should be noted that SAMP addressed a 10 year period while the five general permits are for five years. Thus, at the midpoint of the SAMP life, the general permits will need to be reevaluated, although that review might only require an abbreviated reevaluation.

Two completed and implemented planning efforts have been reopened. The Port of Pascagoula SMA Plan was reopened because of the discovery of lead in one of the dredged material disposal areas and the need for additional disposal area. The Anchorage, Alaska Wetlands Plan, in effect for ten years, was reopened in 1990 because the plan was set to expire in 1992. Also, the General Permit, which was to expire in 1993, needed to be reviewed. Another completed SAMP—San Marcos Creek— has yet to be enacted due to the lack of funds.

Study Costs and Time

Watershed-based (and regional) wetland studies typically have been costly and lengthy to conduct. As might be expected, by their very nature, SAMPs and similar types of planning efforts have required substantially more effort and caused more consternation than ADID-like efforts. Study costs, duration, and timeliness characteristics are presented in Table 5 for the case studies. This information has been gathered from interviews of Corps field office personnel, from watershed study literature identified in "Watershed Study Literature," and from White and Shabman (1995).

Three of the most well-known studies or plans at present, Meadowlands, Mill Creek, and West Eugene, have all required at least six years with none completely reaching the implementation stage,

[12] During the final stages of preparation of this report, IWR learned of another SAMP recently successfully completed for which a General Permit was issued (using an Environmental Assessment)–Logan, Utah. The Sacramento District Utah Field Office was the lead Federal agency.

TABLE 5. Watershed Planning Case Study Costs, Duration, and Timeliness

Case Study	Costs (Corps unless noted otherwise)	Duration	Timeliness
Meadowlands District SAMP, NJ	Approx. $300,000 (plus EPA approx $300,000) to generate EIS. HMDC contributed majority of funds.	8 years to date 1988-89 to Present	Completion initially expected 1993-94. Draft EIS issued July 1995. ROD expected1998. [HMDC has not yet begun any mitigation work; no mitigation credits can be sold until credit wetlands are fully functional.]
Mill Creek SAMP, WA	At least $245,000 budgeted and transmitted to Environmental Planning. EPA contributed $107,000) to generate the SAMP and the Aquatic Resources Restoration Plan.	7 years to date. 1990 to Present [had signed Plan of Study]	Completion originally expected 1992. The SAMP document went to Public Notice in August 1997.
Grays Harbor SAMP, WA	No specific budget for Corps support.	12 years 1975-1986	SAMP EIS completed in 1986, but not used as a basis for Corps regulatory decisions.
Middle River and Back River Neck SAMPs, MD	No specific budget for Corps support.	1 year for each sub-watershed study phase. Middle River: Oct 1994-Nov 1995; Back River: Feb 1994-May 1995	Several phases (subwatersheds) completed for both SAMPs. An abbreviated permit procedure established with Baltimore Co. DEPRM. Four more SAMPs underway or expected to begin 1997.
San Marcos SAMP, CA	No specific budget for Corps support.	2½ - 3 years 1992-1995	The Corps issued a provisional individual permit for the nine project reaches. City does not have the funds to undertake necessary mitigation for proposed plan. There is not full community support.
Dade Co. SAMP, FL	No specific budget for Corps support.	Approx. 5 years 1987-1992	The plan is currently operational. Ordinance and plan adopted by Dade County.
City of Superior SAMP, WI	No specific budget for Corps support.	5 years (1991-1995); 6 ½ years to issuance of general permits	SAMP completed in April 1995. EA completed in December 1996. An APP was established.
Port of Pascagoula Spec. Management Area Plan, MS	No specific budget for Corps support. Corps prepared EA. Non-regulatory Corps funds for substudies.	Approx. 4½ years 1981-1986	The three major elements have been effected. SMA reopened at Jackson County Port Authority initiative to consider changed conditions related to lead discovery in a disposal area and need for additional disposal area.
West Eugene ADID & Wetland Conservation Plan, OR	No specific budget for Corps support. The Plan includes a Corps Sec. 1135 project.	Approx. 6 years 1989-1995	The MOA was signed in Fall 1995. An APP has been set up. The City is amending the plan.
Juneau, AK	No specific budget for Corps support.	Approx. 10 years 1984-1995	In 1993, the CBJ GP application was delayed by Corps Headquarters, and an APP was set up. In June 1995, CBJ received the GP to administer permits for two categories of wetlands, although to date no permit applications have been filed. Some environmental groups have threatened to legally challenge the permit.
Anchorage, AK	No specific budget for Corps support.	3 years 1979-1982 Revision: 6 years to date. 1991 to Present	The original plan, in effect for 10 years, has recently been revised. A GP was developed to assist in implementation.
DuPage Co. ADID, IL	Minor; no specific budget for Corps support.	Not determined	Plan is operational. The Corps allows DEC to review most permits.

although the West Eugene issue that has stymied it for the last year apparently is resolved. Meadowlands is expected to be completed in 1998 (i.e., the Record of Decision), and Mill Creek may be finalized in 1998. Implementation of the plans for all three will require even more time. Even shorter duration and relatively more simple planning studies, such as San Marcos Creek SAMP, have not been regarded as successful. There are short-duration SAMP studies, such as the Baltimore District SAMPs. However, these planning studies are for very small areas and do not really involve much of the planning process per se. One SAMP has been completed and implemented within a five-year period, the City of Superior, where the Corps has issued Regional General Permits. However, six and a half years elapsed from initiation of SAMP mapping to issuance of the general permits.

Most SAMP studies have greatly exceeded their schedules. Reasons for slow-downs vary. In some cases, legal challenges or the specter of legal challenge, have stymied completion of efforts, especially in West Eugene, Anchorage, and Juneau (White and Shabman 1995). In other cases, wetland evaluation itself has taken longer than expected. For example, in the Mill Creek SAMP, substantial disagreement between the participating parties on the currency (i.e., of wetland functions) with which to compare plans delayed study progress. The inventory and wetland functions and values assessment tasks were contracted out for $100,000; the functions and values assessment alone took two years to complete and thus was already behind the two-year completion date for the entire study (specified in the Plan of Study). Among wetlands studies where the wetlands categorization (following the assessment) has been contentious are the studies in Anchorage and Juneau, Alaska.

Corps districts have generally contributed their service and time without use of definite or explicit budgets. In a few cases, usually for the preparation of an EIS, the Corps has specifically budgeted funds. In those many cases where funds are not specifically budgeted, the field offices have willingly supported and advocated the efforts, owing to the potential to facilitate and streamline the regulatory process in the study area down the line, and because of the ecological "sense" implicit in such a non-piece-meal approach. However, the rush in some areas by local entities to use the process may stretch districts beyond their limits. In Oregon, the State process (as per the State Statute) is vigorously promoted and is very rapidly being employed by local city or county agencies. The Portland District may not be able to respond to all requests in the future. In southern California, local and sub-regional ad hoc efforts may also exceed Corps district capabilities for adequate support. However, this does not mean that states and local agencies should not be proceeding quickly. The Corps needs to be able to allocate funds and staff to support these efforts. Funds that might otherwise be allocated to prepare Environmental Impact Statements and Environmental Assessments might be better allocated to watershed study participation (and preparation of related environmental documents).

ADIDs and other similar studies typically have not been completed on time. Many ADIDs in EPA Region IV that were expected to be completed in 1993 and 1994 (as per EPA 1993), were still in the process of field mapping or in report preparation for public review in 1996, as indicated by Corps field staff in the HQUSACE 1996 survey. Examples of ADID expected completion dates versus actual progress are presented in Table 6. These ADIDs were generally expected to be completed within two to three years, however, they still have not been completed four to five years later. In some cases, data collection is still in progress. In other cases, the projects have progressed as far as preparation of a revision of the Technical Summary Document. It should be noted that some ADIDs might have been completed as scheduled and thus were not included in the field level responses in 1996. It should also be noted that the

Corps role has been of a supportive nature. In most cases, a local sponsor or the EPA has been the study manager. As such, the Corps has a very limited ability to effect on-time products.

ADIDS can require substantial funding, as indicated by EPA Region IV fact sheets that presented expected costs. In the six ADIDs listed in Table 6, EPA had provided $1,470,000 of the total of $1,760,000, as of December 1993 (EPA 1993). State and local matching funds were the other sources. However, as indicated in the previous paragraph, some of these studies were still in progress three years later.

Study cost and time problems associated with SAMPs and ADIDs might be partially alleviated through use of cooperative efforts with university and non-governmental organizations. For example, in the Santa Margarita ADID in southern California, a cumulative impact analysis and assessment of wetland functions was accomplished using a doctoral dissertation prepared by a Corps regulator. It should be noted that the above problems notwithstanding, a good plan that will serve as the basis for numerous land use and resource management decisions can not be done "overnight" and is likely to be costly. The issue is one of achieving a desired end product in a timely and cost efficient and effective manner.

TABLE 6. ADID progress, EPA Region IV

ADID project	Expected costs as of 1993 (EPA 1993)		Study start (EPA 1993)	Expected study completion (EPA 1992, 1993)	Study progress (HQUSACE survey 1996)
	EPA funds (000s)	Other funds (000s)			
Central Dougherty Plain, Georgia	209	25	Scoping Aug 1990	March 1994	Draft ADID Report - Nov 1995; report revisions by EPA in progress.
West Chatham County, Georgia	361	74	1991	December 1993	Mapping completed by EPA as of Feb 1996; final wetland map in preparation.
Rookery Bay Wetlands, Florida	220	29	Scoping Feb 1991	December 1993	Final public meetings on Draft ADID held March 1996.
Florida Keys, Florida	353	100	1991	December 1993 Revised: Draft TSD report late 1994	Field work and GIS mapping completed and presented at workshop. EPA preparing TSD.
West Broward County, Florida	130	9	1989	March 1993	Field work and Draft TSD completed and results reviewed by Corps for permitting use. EPA in process of replacing wetland evaluation technique prior to finalizing TSD. No activity since January 1994.
Huntsville Area, Alabama	197	53	September 1991	September 1994	Expected to be completed in 1996 upon second and final public notice (including availability of TSD).

ISSUES, PROBLEMS, AND NEEDS: DISTRICT VIEWS

This section is based on interviews with staff of the Baltimore, Los Angeles, Jacksonville, Mobile, New York, Portland, and Seattle Corps Districts. These districts were selected for interviews based on the presence of long-term or completed wetland planning efforts in their districts or the presence of many ongoing planning efforts, as identified in the HQUSACE 1996 survey. Among those interviewed were points of contacts identified in that survey. While most of those interviewed were regulatory staff, two were environmental planners who have conducted studies for the regulatory program. It should be noted that other district regulators have also been formally involved in wetlands planning efforts. It should also be noted that the following discussion presents Corps staff views only. Views of other agencies were not obtained for this study.

Length of Time to Conduct Wetland Study

Length of time to conduct study
- Most commonly identified problem
- Causes other problems, e.g., sustained local support

The problem most commonly identified by Corps regulatory field offices is the length of time taken to conduct the wetland studies. This problem directly and indirectly causes other problems, such as those related to staffing, costs, and sustained local support.

The largest problem for the conduct of the Hackensack Meadowlands SAMP according to the New York District regulatory chief, is the fact that too much time has elapsed and that the parties for and against the SAMP are so far apart, that consensus is not attainable. Initially expected in 1993 or 1994, the Record of Decision is now slated to be issued in 1998. Because of the amount of time, at least a few permit applicants are refusing to wait for completion of the SAMP, including a major component project of the SAMP, a 200-acre wetland fill application—proposed by the Mills Corporation. A public hearing has already occurred and now the Corps is being tasked with completing a site-specific NEPA EIS without benefit of a SAMP. According to a New York District regulator, one reason for the delay was a difference in opinion between the Federal and state agencies regarding the amount and standards for information to be included in the SAMP EIS. One to two years were spent on small improvements in the document without a change in the degree of support (or lack thereof) by other agencies for the Master Plan. A second reason for the delay was the lack of support for the SAMP by cooperating agencies. According to the New York District, the Federal Resources agencies have not supported the SAMP and at least one agency has refused to sign the Memorandum of Agreement for the SAMP because its disagreement on the amount of fill intended to be allowed (for which fill fees would generate funds to clean up some of the toxic waste sites as well as undertake other environmental restoration components of the Master Plan).

Seattle District staff also identify the main problem for the Mill Creek SAMP as it taking much too long to complete. The process has only just reached the stage where politicians start deciding whether they like the staff-level interagency committee's plan. Two reasons were given for the delay. The wetland inventory and assessment of functions and values took two years to complete, much more time than

identified in the Plan of Study. The several participating parties could not agree on the currency to compare plans with respect to wetland functions until Washington Department of Ecology staff developed the Indicator Value Assessment (IVA) model. Field staff also believed there was insufficient agency/consultant staff time (and funds) for a sufficiently continuous period to finish the plan in one iteration. This led to further slowdowns caused by turnover among the interagency SAMP committee members—to be expected if the process drags out. For example, Corps staff indicated that in the last two years a major reason the process has not moved as quickly as it might have is because staff has been shifted to other high priority permit processing work on occasion. Local agencies have the same problem. None of the parties has had sufficient funds/staff to participate in a sustained project. As in the case of the Meadowlands SAMP, the ramifications of taking a long time to complete the study include the potential to limit or negate the very plans recommended by the planning process. .There is always the chance that a permit could be issued that would contribute to outdating plans developed in the SAMP, that some sites could be developed that otherwise could have been restored.

Other districts also point to the problem of an overly long study process exacerbating the problem of Corps regulatory permitting during study progress. A Los Angeles District regulator indicated the extended lengths of study time present a problem, because by the time a SAMP is completed, there many have so many project permitted that the SAMP has essentially been superseded by events. Further, study momentum and participant interest and enthusiasm is difficult to keep. Corps participation in drawn out studies (especially studies with no mandate) is also difficult. To combat this problem in one ad hoc regional study, a state agency sponsor is providing funds for a demonstration project to show participants (in this case, landowners) what they can get out of participating in the process.

ADID studies can also present similar problems in terms of the amount of time required to complete them, as indicated earlier. The West Broward ADID, located in the Jacksonville District, took so long that most of the area is now permitted. The West Broward ADID is progressively more degraded from the west (Everglades) to the Atlantic coastline. The effort to demarcate simple zones was complicated by transportation corridors. Further, according to a Jacksonville District regulator, the study was slowed down by disagreement between the EPA and the Corps as to how to assess wetlands.[13] The scoring system eventually developed has since been put to use (e.g., by the Pembroke Pines commercial wetlands mitigation bank). The West Broward ADID had no real sponsor and there was no official agreement. The ADID took approximately three to four years to conduct, sufficient time for the study area conditions to change. The problem for district regulators is what to do now about permit applications coming in for the buffer area proposed by the ADID document—the State has issued permits to these applicants. A Corps planning study is in progress in the study area—a Comprehensive Review Study of the Central and Southern Florida Project with a report due in 1999. The Regulatory Division and Planning Division staffs are working closely in an attempt to ensure that the recommended plan takes into account current or imminent regulatory actions and that regulatory actions do not preclude identified planning options.

The overall planning process for the West Eugene Wetlands Plan has taken seven years and may not yet be fully completed. As indicated earlier, Portland District regulatory participation was one of oversight

[13] The West Broward ADID was done in-house by the EPA and Corps as co-leads of an interagency team; other agencies provided technical input).

only—that of just keeping themselves apprised; the planning process was directed as per the State of Oregon Administrative Rules for land use plans. The regulatory staff indicated that their prime guiding principle was to make sure that there was an orderly and deliberate process, as per the Mitigation Memorandum of Agreement (MOA) between the Depart of the Army and the EPA (dated February 1990 and hereafter referred to as the EPA-Army Mitigation MOA).. An earlier effort in the district, the Columbia South Shore study fizzled when a lawsuit caused the City of Portland to withdraw the plan (although Corps Portland District regulators thought the plan was defendable). As a result, the Corps was cautious in development of the West Eugene Plan, but in the end, a lawsuit (by the Friends of West Eugene) still was filed based on lack of compliance with the National Environmental Policy Act and the Endangered Species Act. The lawsuit is now being dismissed.

The reopened Port of Pascagoula SMA, with no tentative completion date, has taken 1½ years to date. A Mobile District regulator points out that the SMA has been a painfully slow process due to some very strong opinions, and the push by one agency to "study things into oblivion."

Staffing

Staffing
- Bogged-down studies are biggest problem
- Field expects increasing problems as state and local entities begin to use approach extensively

Staffing problems for the Corps districts undoubtedly increase as studies bog down and exceed planned schedules and funding, as described in the previous discussion. However, several districts also identified staffing problems related to area-wide promulgation of the concept. For example, while, the Portland District indicated that staff time (and funding) is not a major obstacle at this time, the district would be concerned if many communities in Oregon became interested. District regulators have attended meetings in two communities—Warrenton and Roseburg—for efforts to develop Wetland Conservation Plans.

The Los Angeles District is participating in a number of ad hoc regional and watershed studies, including the Calluegas Creek watershed and the Santa Clara River initiatives. The Corps participates to insure that Section 404 is properly addressed and is not a road block in the future. Corps staff try to attend every meeting, since they believe there is a long-term benefit to the area's natural resources. However, these efforts interfere with permitting tasks.

Staff in the Jacksonville District expect an increase in advanced wetlands planning, although not necessarily in ADIDs. Many wetlands-related planning efforts are underway in Florida. In fact, according to staff, there may be *too many* planning teams in Florida. Included in the mix are regional planning councils (and an ecosystem management effort—a state program "ramping up" that will provide regional teams and a forum to wrestle with the regional issues), Federal-state working groups by basins, and many ad hoc regional efforts. Thus, while not many more ADIDS are expected, there will be a continued and expanded role for Corps assistance to deal with watershed-based issues. However, according to a district regulator, staffing may not be a real problem, at least for the Corps. Staffing (and schedules) are probably

more of a problem for EPA (and thus indirectly a problem for the Corps). One definite instance of staff resource problems is the Florida Keys ADID led by the EPA with county involvement, which is "dragging on." Staffing (and the logistics of travel) is affected by the great distance to the study area from Corps offices.

Public Support

Public Support
- Critical to successful study completion
- Can be strongly reduced in "drawn out" studies

Lack of local support for wetland planning, whether in the role of an official non-Federal sponsor or in the form of broad community acceptance, is a problem for the successful completion of wetland studies. An example cited by Los Angeles District regulators where there was neither a sponsor nor apparent community support was the Verde River Valley ADID in central Arizona. EPA was the lead and initiated the study. While local response was negative, EPA pushed the study anyway with support from Corps regulatory staff, and an EPA document was produced. However, the study results were shelved. The next step would have been a public notice negating the Nationwide Permit for the area. Corps regulators indicate that public release of the plan would have met a strong negative response.

The San Marcos Creek SAMP in southern California did not have full community support, especially after estimated funds initially expected to be generated by implementation of a plan failed to be supported in the planning analysis. The City was planning to assess property owners (e.g., via a community facilities tax), but the assessed property values turned out to be insufficient to provide funds necessary to accomplished the mitigation for the SAMP, which was basically a single purpose flood control channel and associated mitigation.

The issue of strong local support, or lack thereof, is also important for the Mill Creek SAMP. As mentioned earlier, one sponsor is issuing permits to fill some sites that might be otherwise restored as per a SAMP. Strong local support, according to some regulators, can consist of a commitment to keeping the options open. This local support, however, is strongly reduced when studies greatly exceed planned schedules.

Planning Expertise

Planning Expertise
- Not a commonly mentioned issue
- Planning and study management experience/knowledge will aid regulatory staff for participation in Corps water resources (non-regulatory) watershed studies
- Corps planning staff preparing watershed studies for regulatory purposes should be aware of regulatory requirements

The only opinions on level of planning expertise expressed by regulators concerned regulatory support to Corps water resources (non-regulatory) watershed studies. Baltimore District regulators indicated that regulators without planning expertise may not understand how non-regulatory Civil Works planning studies are conducted and thus cannot properly respond to the short notice requests for review often characteristic of wetlands planning studies. The Baltimore District Regulatory Branch has a Special Projects Group in which most staff have (environmental) planning experience, gained from earlier duty in civil works planning. Many of these staff are now working on regulatory aspects of state transportation projects. A regulator in another district expressed concerns of a converse nature–that planners do not have knowledge of regulatory rules. If a watershed study is being prepared for regulatory purposes, Corps planners should be aware of regulatory requirements. Central to both approaches is that district regulators should be involved in any ongoing watershed study, whether of a Corps Civil Works planning nature or of a wetland regulatory nature.

Technical Expertise

Technical Expertise
- Not a commonly mentioned issue
- One View: SAMPs may require too much technical expertise for Corps Districts. Planning and study management experience/knowledge will aid regulatory staff

While many Corps regulators interviewed indicated that Corps regulatory technical expertise was a major contribution to wetland planning, one district regulator informally offered that the district may never conduct a SAMP again, in part due to the expertise and the effort needed. The regulator indicated that the district may let the local jurisdiction conduct the SAMP, and suggested that perhaps an interagency group could conduct the study.

Other Issues and Problems

- Questions over 404(b)(1) alternatives analysis applicability and rigor
- Interagency disagreements on level of detail in wetland assessments and SAMP analysis
- Intra-Corps cooperation

A big issue is the Section 404(b)(1) alternatives analysis—on its applicability and the degree of rigor of its application to watershed wetlands planning. A district regulator indicated that a rigorous alternatives analysis may not be required because the Section 404(b)(1) guidelines are written for the individual permit. In fact, the Guidelines state in Section 230.7(b)(1), that consideration of alternatives pursuant to Section 230.10(a) of the Guidelines is not directly applicable to General Permits. In addition, the EPA-Army Mitigation MOA states, in Section II.C. (EPA-ARMY 1990) that the sequence of avoiding, minimizing, and then compensating for impacts is considered satisfied where the proposed mitigation is in accordance with specific provisions of a Corps and EPA comprehensive plan that assures compliance with the compensation requirements of the Guidelines. The Mitigation MOA further states that examples of these comprehensive plans may include SAMPs, ADIDs, and State Coastal Zone Management Plans and that

the Corps can permit some impacts with mitigation if the study area is "running out of space unless re-zoned"—that is, there are no suitable development sites left. One district, despite the interpretation that regional general permits guidance suggests that alternatives analysis need not be very rigorous, has spent considerable effort anyway.

The level of detail in the wetland assessment is also a major factor in wetlands planning breakdown. As indicated earlier, several agencies wanted more detail than did the Corps in the functional assessment of individual sites for the Mill Creek SAMP. The New York District also indicated that other agencies desired more detail for the Meadowlands SAMP analysis than was necessary for the plan evaluation. Seattle District staff believes this problem is basically one of lack of trust of the Corps (by EPA and to some extent by a state sponsor). This was also related in a sense to lack of local support or commitment, since the local community sponsors wanted the Corps to do the work and were not active participants. The Mill Creek SAMP citizen's committee, although interested, appeared not to have the strong support of city officials.

Finally, Planning Division staff frequently participate in wetland studies for regulatory purposes. There appear to be instances where roles and responsibilities of Planning Division and Regulatory staff are not well-defined and cooperation is less than desirable. This can diminish the full benefits of Planning Division contributions.

Regulatory Needs for Successful Aquatic Resources Planning

To address many, if not most, problems and issues associated with conduct and implementation of planning for protection of wetlands and other aquatic resources, Corps staff generally cite the need to speed up the process. Some issues could be resolved if a moratorium on filling of wetlands could be imposed by local agencies during the planning. Recognizing that such an action may not be practical in many, if not most cases, Corps staff identified a number of actions that could facilitate more successful wetlands planning. Needs specifically identified by those interviewed include the following:

- A clearer Section 404 authority regarding approval of local wetland plans;
- Clarification of guidance for regional general permit alternatives analysis;
- More Headquarters support for staff participation;
- Ability to dedicate FTEs to accomplish watershed plans and resources to complete study without major interruptions;
- Well defined roles and responsibilities for cooperating Corps elements;
- Standards for information to be included in the SAMP;
- Better way to inventory wetlands;
- More knowledge of planning principles and project management expertise;
- Strong support by local government;
- Agency representatives dedicated to conducting the study who will be committed to results; and,
- An issue resolution procedure.

Field staff also identified the following fundamental elements and study principles and tenets:

- Local involvement is necessary;
- The study must have a clear goal in mind;
- There must be an understanding of the planning process, and there should be agreement upon the specific process of the study;
- Change in primary study participants and agency representatives should not occur during the study (for the best results possible);
- The negotiation process should be specified at the study start; and,
- The size of the study area is important—a small study area can allow a better and more sustained focus than a large study area.

Section 404 Authority and Wetland Plans. Some Corps staff desire, if they could have anything, more clear Section 404 authority on how to approve wetland plans. For example, the Portland District uses ADIDs and the Abbreviated Permit Process (APP) to develop and implement local Wetland Conservation Plans. A clarification of Section 404, particularly with regard to general permits, would be helpful to develop and implement plans. Portland regulators indicate that, instead, the Clean Water Act itself offers opposition tools to stymie watershed-based approaches. They point to the need for clear recognition that state and local entities can have the ability to plan; there needs to be a clear mechanism for the Corps and EPA to recognize watershed plans. The regulatory agencies need to be able to issue general permits, if state and local programs meet the intent of Section 404 without current statutory constraints particularly regarding programmatic general permits. Some Corps staff indicated that at present, they do not have the sufficient flexibility to issue regional or programmatic general permits in conjunction with SAMPs .

Seattle District and Los Angeles District staff also pointed to the basic concern regarding the ability of the Corps to come up with a streamlined regulatory process. SAMPs, as per the Mitigation MOA, help to streamline the process down the line, but individual prospective projects with more than just minimal impacts (e.g., frequently the case on the upper Santa Clara River of the Los Angeles District where an ad hoc regional wetland study along a 17-mile reach of the river is underway) still must go through the individual permit review. General permits can only be used for projects with minimal cumulative and individual impacts.

A regulatory alternative to the general permit and individual permit to implement larger projects in a region with a wetland plan may be beneficial—the Section 404 Letter of Permission (LOP). The LOP is almost a general permit, but no statement is required for minimal impacts.[14] A problem is getting the other

[14] As per 33 CFR 325.2 (e)(1)(ii), the 404 Letter of Permission sets up a two-stage process for approving plans and for authorizing fill occurring in conformance with a plan. In the first stage, EPA and the Corps approve a plan and the Corps establishes an APP whereby conforming fill may be authorized. In the second stage, individuals seeking to fill in conformance with the plan apply for an LOP. The Corps processes the LOP under the stipulated procedures, including opportunity for public notice and comment, and a 30-day Corps review. In Oregon, EPA has agreed not to review the individual LOPs, but the USF&WS still requires review. Basically, in this approach, issues are settled at the plan level and are not reopened. Under the LOP process, plan approval does not specifically authorize fill—only the affirmative act of issuing an LOP provides the individual landowner with the required authorization (see Fox 1995 for a discussion of the Portland District approach).

Federal agencies to agree. The Los Angeles District is pursuing this option with the EPA and the USF&WS in the upper Santa Clara River study area.

Another problem of LOPs, noted by Fox (1995), is that it does not provide certainty or absolute predictability. There is no Corps guarantee of processing the permit in 30 days, although with avoidance and compensatory mitigation goals settled at the plan level, much uncertainty has already been removed. As indicated earlier, in West Eugene, an abbreviated permit procedure has been implemented (i.e., a LOP).

Support for Staff Participation. District staff interviewed support Corps involvement in wetlands planning as preferable to piecemeal solutions, but they point out that a large potential energy is required. Resources (funds and staff) sufficient to undertake the study from beginning to completion without major interruptions are a necessity. Certainly a mechanism that would contribute to more rapidly completed studies would lessen the problem of study participant transience. This also pertains to Corps regulatory staff dynamics in districts with relatively rapid turnovers in staff. Some staff point out a "catch-22": the Corps may need more resources (staff time) to devote to watershed study efforts in some regions in response to increasing numbers of local initiatives, but since the Corps has to process permits under current funding levels, so the Corps cannot invest in planning. Interestingly, one Corps staff identified a possible reverse incentive to participate in watershed studies—the fact that fewer permit applications (an expected consequence of watershed studies) will lead to less funding.

Several district staff indicated that SAMPs need to have staff dedicated to the study, in addition to funding, to push the study through to completion, since watershed studies require scheduling and deliberate analysis. The day-to-day nature of the permit process appears not to be conducive to participation in watershed wetland studies, especially if several such studies are underway. Some regulatory staff pointed out that permit project managers have individual area responsibilities; they cannot do their permit processing job and contribute to watershed studies at the same time—dedicated specialists are needed. One district suggested the ability to dedicate FTEs to accomplish watershed plans.

In those cases where Planning Division staff participate in wetland studies, the roles and responsibilities of planning and regulatory staff should be defined up front. This would take full advantage of Planning Division contributions and help avoid confusion as to study objectives and procedures.

In a related matter, one district (that participates in several Corps Planning Studies) indicated the need for a mechanism to budget regulatory involvement in Civil Works Planning studies, including Reconnaissance Studies. At present, participation in watershed studies are done in regulatory staff "spare" time. Thus, adequate response is often limited, especially when requests for regulatory input to planning studies have minimal response times.

Towards meeting the needs identified above, some staff stated that a more active support for regulatory participation in watershed studies would be beneficial. That is, HQUSACE Regulatory memorandums do not provide sufficient support for staff participation.

Standards and Tools. Standards and tools that would foster a more efficient study process were identified by several districts. Similar Corps/EPA standards for information to be included in the SAMP were specifically mentioned. Standards or some form of guidelines for the quality and quantity of necessary information by which to make decisions could minimize many disagreements that bog down studies. A New York District regulator indicated that (by 1996) the Meadowlands SAMP was bogged down by interagency disagreements on the level of detailed information needed to complete the SAMP.

Wetland inventory (and functional assessments) were at the center of many wetland planning problems. One staff suggested that a method to inventory wetlands is needed that will hold up to the scrutiny of regulatory delineations. That staff had participated in a well-funded SAMP inventory that did not correlate well with delineations turned in by developers. Whether or not this specific problem was a shortcoming repeated elsewhere is not the point, rather, it indicates the need for (and potential benefits of) guidelines to conduct watershed-based wetlands planning studies.

One possible solution identified was that of a moratorium on development while a SAMP is being prepared (the staff suggested that this might be accomplished through the Federal Register). Such a mechanism could probably only be employed if there was a short and defined schedule to complete the plan (e.g., one to two years, or less).

Alternative plan identification and evaluation does not appear to be recognized as a major problem according to Corps district regulators. However, a Corps environmental planner who managed the preparation of the Mill Creek SAMP, believes that decision support tools could help wetlands studies in several ways. For example, computer-based multiple objective decision support tools could provide a good rationale for plan development. These types of tools could help early in the planning process, since they would force the participants to think about and select the types of data needed to be collected. In Mill Creek, the scope of work was not sufficiently detailed to identify the types of data necessary. It should be noted, however, that many other studies appear not to have a scope of work nearly as detailed as the Mill Creek SAMP scope of work.

Expertise/Training. Watershed studies should call for knowledge of planning principles and study management. However, as one Corps regulator noted, regulatory staff, for the most part, do not have either expertise. Corps regulatory involvement and leadership in watershed studies should benefit from training in these fields, or even exposure to the pertinent concepts. Conversely, Corps planners conducting SAMP EIS's should have knowledge of Section 404 requirements.

Baltimore District staff recommend more collaborative training between Planning and Regulatory programs, such as the recent training for the ROSGEN Method for Rapid Stream Restoration Assessment. In this case, both programs paid for the instruction. The Rapid Assessments can result in Planning Documents useful to local jurisdictions in helping them plan. Collaboration of Planning and Regulatory staff has cross benefits. Regulatory delineation can certainly provide useful planning information. The Baltimore District advocated use of GIS in the district which further helps planning study evaluations and regulatory decision-making. The District indicated that a benefit for collaboration between, or integration of, Planning and Regulatory actions is that the public would see one Corps.

Local Involvement and Agency Commitment. Early support by local governments is really important. Staff pointed out a strong correlation in their districts between successful planning studies and the degree of local support early in the process. When sponsor support has been lukewarm at best, leaving it up to the Corps to push the study forward, progress has been slow, if at all. Even where agencies sincerely want the study, the process can be slow. Relatively simple ADID studies (as compared to SAMPs) bogged down and were unsuccessful when local support was lacking.

One Corps regulator, when asked if the Corps could get anything they ask for, indicated that it would be agency representatives who want results. Participants have to buy into the process (a commitment) at the beginning, and the local sponsor must be willing to lead the process.

One regulator indicated that strong Congressional support is a great help, as was the case for the West Eugene Wetland Conservation Plan. Congressional support was evidenced by the supply of Federal funds utilized to purchase private lands so that the private property taking issue was minimized. This points to another need for any recommended wetland plan—a mechanism to fund preservation and restoration of wetlands, whether through purchase or tradeable development rights, the Section 1135 program (Corps Environmental Restoration Projects), mitigation banks, or some other incentive program.

Issue Resolution Procedures. District staff commonly point to disagreements along the study path that derail study schedules and sometimes preclude study completion. These conflicts may be over wetland inventory (and assessment), Federal and other policy, and plan selection. These disagreements may stymie the process long before the process involves political officials. For the Meadowlands SAMP, the agencies are using RESOLVE–Center for Environmental Dispute Resolution to facilitate a process between the agencies to bring the SAMP process to closure.

Field views that minor and major disagreements bog down the process would appear to suggest the need for agreement as to study goal, study process, decision protocol, and conflict resolution measures prior to study commencement.

POTENTIAL IMPROVEMENTS AND IMPEDIMENTS

A Larger Focus: A Modified Approach?

A watershed or regional focus on wetlands regulation can allow the regulator and planner to shift from protecting the status quo wetlands stock to seeking opportunities to advance environmental improvement at the watershed level through wetlands creation and restoration (see Shabman 1993 for more discussion of this viewpoint). A larger perspective, whether regional or watershed-based, can allow planners and regulators to address optimal ecologic and physical suitability of many sites in terms of producing wetland functions and values and related-landscape functions while considering, at the same time, potential societal and economic development outputs of alternative solutions or plans. This approach is compatible with the approach promoted by the President's Council on Sustainable Development. A watershed focus can allow the regulator to more effectively consider fragmentation, isolation, and functional degradation of preserved wetlands in the permitting process than can a piecemeal approach.

In a call to manage wetlands with a watershed perspective, Shabman (1993) calls for relaxation of *"the current inflexibility of sequencing"* and realization that *"preservation of particular existing wetlands in time and space many not yield the greatest benefit to a watershed."* For a goal of watershed restoration, some existing wetland sites may be traded for the opportunity to restore particularly ecologically strategic and valuable sites elsewhere. Shabman states that tradeoffs may be necessary, in which case, opportunity cost logic (consideration of the costs for foregone development opportunity to the applicant/watershed) should be applied—to address questions such as "How much environmental restoration is enough?" Such an approach is on increments of restoration, not worth of restoration. This approach, which has been employed in the Columbia River Salmon restoration program (Shabman 1993), looks at cost effectiveness of alternative levels of output and use of a negotiation process with affected interests to select a justifiable level of output, e.g., mitigation.

Summary of Field Staff Recommendations

Potential improvements identified by field regulatory offices generally revolve around Section 404 authority/regional general permit uncertainties, increased staffing capabilities, study principles and standards, and expertise and technical tools. Information sharing among the districts regarding how the guidelines have been interpreted in successful wetland studies can help—perhaps in a lessons learned format. The following discussion will focus on the two latter suggested improvements that relate to the nature of regulatory staff contribution to the planning process. Adherence to the principles identified by the President's Council on Sustainable Development will require these improvements.

Studies in which Corps regulatory staff serve as principal or co-principal leads require a knowledge by participating Corps staff of planning principles. HQUSACE identification of those planning principles—standards for study conduct—appears to be a necessary first step. The basic elements of study conduct need to be identified, e.g., setting study goals, as well as valid pre-study scoping. Staff expertise may need to be expanded, that is, staff training may be required, or non-regulatory Corps planning expertise utilized. Information transfer regarding helpful evaluation tools would be beneficial. Information transfer on lessons learned, e.g., case studies of wetland planning studies, would also be helpful.

Numerous planning and evaluation technical tools are available that may provide valuable assistance to the conduct of wetlands studies. Several tools are described below. These tools do not include specific wetland assessment tools which are already part of the regulatory tool box. The following tools would become part of the wetlands planning tool box that regulators could use for watershed and regional efforts.

Available Planning Tools

The tools described below represent just a portion of the watershed/regional planner's tool box that might assist development of wetland plan.

Principles and Guidelines Accounts. Federal water resources planning evaluation is based on multiple objective analyses as embraced by the four accounts identified in the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G) (U.S. Water Resources Council 1983). Although not equally weighted in evaluation, they provide four basic objectives or accounts. The four accounts are (1) national economic development, (2) environmental quality, (3) other social effects, and (4) regional economic development. These four objectives were first identified in Water and Land Resources: The Establishment of Principles and Standards for Planning (P&S) (U.S. Water Resources Council 1973). The Principles and Standards called for balancing national economic development and environmental quality objectives.

The four accounts, P&G requirements (i.e., preferences) for the Federal program notwithstanding, provide a very useful basis by which to identify objectives and evaluate and compare alternatives for watershed-based planning, especially in light of the President's Council on Sustainable Development recommendations. The four accounts could provide vital information for planning purposes. Tradeoffs between alternative wetland plans that achieve varied objectives can be evaluated. To compare plans, an analytical approach could document the foregone level and distribution of current environmental and economic benefits resulting from a prospective wetland plan as well as the required financial outlays by various parties (Shabman 1993). Such an approach need not diminish achieving an environmental quality objective (e.g., attainment of a specific wetland function and value or suite of functions and values) as per the Section 404 authority that is the driving force of regulatory-based wetland studies.

Cost Effectiveness and Incremental Cost Analysis. Benefit-cost analysis is generally considered a prime tool to support tradeoff analysis of alternatives and decision making. However, benefit-cost analysis typically is precluded in environmental projects because of the difficulty in monetizing environmental benefits. Economics can provide other tools to assist in wetland plan alternative evaluation.

IWR and the Waterways Experiment Station have developed software for formulating and evaluating alternative watershed plans involving nonmonetary benefits. The program, *ECO-EASY: Cost Effectiveness and Incremental Cost Analyses for Environmental Planning; Beta Version 2.6,* is an automated version of the planning methodology published in Evaluation of Environmental Investments Procedures Manual - Interim: Cost Effectiveness and Incremental Cost Analyses (IWR 1995). *ECO-EASY* conducts three processing functions: *formulation* of combinations, *cost effectiveness analysis* of combinations, and *incremental cost analysis* of cost effective combinations. Every possible combination of solutions is derived and a total cost and total output estimate is calculated for each combination. The program then conducts cost effectiveness analysis whereby it first identifies the least cost combination for every possible

level of output, and then identifies the cost effective set of combinations by screening out plans where more output could be provided by another combination at the same or less cost. Once the cost effective set of combinations has been identified, the program calculates the *incremental cost* and *incremental output* of moving from each combination to the next larger combination. *ECO-EASY* also identifies the subset of the cost effective set which are the most efficient in production, or "best-buys," as scale increases from the smallest to the largest combination.

Environmental Resource Significance Determination and Documentation Protocols. Determination and documentation of an environmental resource's significance in the watershed study area is important component during the scoping and analysis of watershed planning studies. Focusing primarily on those resources that are significant in terms of importance or value in terms of the study area perspective can assist in development and analysis of alternative plans.

IWR has developed a protocol or guidance for determining and documenting environmental resources significance. The protocol is described in Resources Significance Protocol for Environmental Project Planning (IWR 1997). While developed for application to environmental project planning, the protocol has potential for application in watershed studies and permitting decisions. The protocol utilizes bases for significance–institutional, public, and technical recognition–and levels of significance.

Multiple Objective Decision Support Models. The complex nature of wetland functions and values and watershed development factors requires resources planners to consider and balance the many benefits society realizes from environmental services, including wetlands. Multiple objective analysis has been used to examine the trade-offs among environmental, economic, and social factors and among local, regional, and national outputs. Multiple objective decision support models have been developed to help identify alternatives that balance or maximize the varying outputs and to evaluate and compare different alternative plans. IWR is conducting a case study test of a set of decision support computer models in the Seattle District using the Mill Creek SAMP data. The decision support models include (1) an optimization model to identify an array of alternatives that best achieve a set of stakeholder-specified objectives and (2) multi-criteria decision making models (MCDMs) that evaluate and compare many alternatives in terms of how they achieve a suite of economic, environmental, and other criteria. The MCDMs are utilized to rank alternatives in order to assist planners and decision makers screen out the less desirable alternatives for further analysis. IWR has developed an optimization model and is updating two public domain MCDM models and software that it developed in the 1980s. IWR is also reviewing commercially available software that may be of assistance to the field. It should be noted that the Walla Walla District has already applied a commercially available software program to solve a problem on the Columbia River Fish Mitigation Program.

Shared Vision Models. Planning for environmental projects will require the involvement of multiple stakeholders in decision-making (Shabman 1995). Wetlands planning for watershed or other types of regions should have the same needs. Shared vision models (SVM) can be used by planners to integrate stakeholders into the model building activity for a dynamic problem. Shared vision models are

> *"...computer simulation models of water systems built, reviewed and tested collaboratively with all stakeholders. The models represent not only the water infrastructure and operation, but also the most important effects of that system on society and the environmental. Shared vision models take advantage of new, user friendly, graphical simulation software to bridge the gap between specialized water models and human decision-making process. Shared vision models [help].... overcome differences in backgrounds, values and agency tradition"* (IWR 1994).

IWR has utilized a user friendly, but powerful computer package—STELLA II^{R}—to develop and apply SVMs (IWR 1994). The computer package is a graphically oriented simulation modeling package that can be purchased off-the-shelf. The process being modeled is displayed as an illustration rather than a series of equations. The shared vision modeling approach offers a computer assisted tool for facilitating negotiation and agreement. However, the SVM is not a substitute for negotiation, but rather is an aid to negotiation. If stakeholders are unwilling to negotiate, or if a negotiation-based decision process is not to be used, then the SVM approach is not warranted.

Negotiation and Mediation. Negotiations can be utilized where participants are able to work together. When a negotiation process allows participation and development of alternatives by stakeholders, as is the case typically for SAMPs, it is more likely to be accepted and implemented because of the sense of shared ownership of the solution. Shared Vision Models, as mentioned above, can assist in negotiation.

In many cases, a third party is utilized where participating agencies have difficulty in finding common ground. The Corps has a history of mediation involvement. The Corps has performed the role of mediator in disputes related to Section 404 general permits (Priscoli 1988).

In 1996, IWR conducted an informal survey of Corps districts and relevant participating agencies to get their views of their experiences in negotiating statewide general permits. Based on the survey, IWR prepared a series of "practical bullets" for HQUSACE Regulatory, intended for distribution to the field (IWR 1996). Some of the practical bullets echo the field views presented in this report. Among those similar suggestions: need for continuity of personnel involved; identification of necessary stakeholders; and getting public support.

EPA Watershed Academy. The EPA Office of Water has a training program for watershed managers based on local, state, tribal, and Federal experiences in implementing the watershed approach. The "Watershed Academy" includes courses and related reference material and co-sponsored special training events. The Watershed Academy also maintains an Internet Catalogue of Watershed Oriented Training Opportunities.

CONCLUSIONS AND NEXT STEPS

The Corps strongly supports the concept of a watershed management approach to protecting the aquatic environment, including wetlands, and intends to encourage the concept through its Regulatory Program. However, watershed and regional planning efforts to accomplish regulatory objectives have been pervasively marked by an excessively slow process and/or lack of success. This discussion paper is expected to be part of a series of efforts conducted by IWR to assist more effective implementation of a watershed study approach to the Regulatory Program than has been effected to date.

The HQUSACE Regulatory Branch is reviewing the field's watershed or regional studies in terms of the problems and technical issues generated. It intends to have IWR examine further ways that watershed studies might be more effectively conducted. The HQUSACE Regulatory Branch and IWR intend to develop principles for Corps Regulatory Program participation in watershed-based planning. This effort is expected to complement a larger-scale effort at HQUSACE to embrace other Corps programs in a watershed approach.

The HQUSACE Regulatory Branch also recognizes that information transfer regarding lessons learned by some districts in their efforts to develop watershed plans will benefit other districts just beginning to participate in watershed approaches. To assist information transfer, IWR will begin preparing a watershed library that consists of journal articles, successful SAMP study reports, and identifies relevant technical tools.

In addition, the HQUSACE Regulatory Branch will define ways that they can better assist Corps regulatory field offices participate and promote a watershed approach. They will review watershed study progress to date, identify where they can address broad-based policy issues, and issue relevant guidance to address these issues.

Finally, HQUSACE Regulatory Branch would like to emphasize that the Corps Regulatory Program can cooperate with any federal, state, local, or tribal planning efforts that provide protection for the aquatic environment, including wetlands, by issuing general permits and identifying mitigation areas. This may be accomplished in conjunction with a corresponding special area management plan, advanced identification effort, or some other advanced planning forum. The Corps may also develop GPs, etc. in the absence of the aforementioned advanced planning mechanisms. In other words, if districts are made aware of an advanced planning effort that meets Regulatory Program objectives, they should move out to support these efforts with GPs.

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APPENDIX A.
"WATERSHED MANAGEMENT AND THE CORPS REGULATORY ROLE"

Paper prepared for Association of State Wetland Managers
In Watershed Management and Wetland Ecosystems, Background Report for Wetlands '95 Symposium, Tampa, FL, April 1995, pp. 75-78

Watershed Management and the Corps Regulatory Role

John F. Studt
U.S. Army Corps of Engineers

Background and History

The Corps of Engineers has multiple roles in watershed management, however, I will focus entirely on the Corps Regulatory Program in this paper. Other elements of the Corps are involved in watershed management through management of Corps managed Federal land, and providing technical assistance to states and others on watershed management through floodplain and/or coastal management branches in each Corps district.

The Corps regulatory program has been effectively protecting, and increasingly involved in management of, aquatic ecosystems for many years. Beginning in the 1890's the Corps began regulating activities in the Nation's navigable waters. Initially, the Corps role was limited to protecting the navigable capacity of the Nation's coastal ports, major rivers and other navigable waters of the U.S. Between the 1940's and the 1960's the Corps evaluation became more broad-based and by 1967 involved a specific Public Interest Review (PIR). As a very important and integral part of this PIR, the Corps carefully considers the impacts of activities on the environment. During the 1970's, the environmental protection provided by the Corps regulatory program increased substantially. In 1972 the Congress provided the Corps with the permitting authority for Section 404 of the Clean Water Act in recognition of the Corps vital historical and continuing role in protecting the Nation's aquatic environment.

Corps Support for Watershed Management

The Corps strongly supports the concept of watershed management and intends to encourage the concept through its regulatory program. We believe that watershed management, mitigation banking and programmatic general permits issued by the Corps will play an important role in encouraging watershed management.

We believe that watershed management will be undertaken by a variety of governmental levels, including states, regional watershed management authorities and local authorities. Provided the watershed management approach taken by any particular governmental body protects the aquatic environment, including wetlands, to the level that the Corps regulatory program would then the Corps regulatory program can play an important role in encouraging watershed management. As indicated above, the Corps regulatory role will primarily be in the form of issuing programmatic general permits and encouraging the establishment of mitigation banks to restore priority wetlands within the watershed.

Corps Regulatory Role

Federal, state, regional and local levels of government are increasingly viewing protection of the aquatic environment from a watershed perspective. The Corps certainly shares the view that this is the most appropriate and ecologically sound method of protecting the aquatic environment. It is important to view wetlands within the context of the overall watershed. There are wetlands that perform vital roles in protecting the watersheds physical, chemical and biological integrity and thus such wetlands should be protected. Moreover, there are wetlands that are degraded and/or which have been drained or otherwise destroyed that would, if restored, perform vital functions for the aquatic environment of the watershed. These degraded or destroyed wetlands should be the focus of any watershed management plan's efforts to restore wetlands. Finally, there are wetlands that may not perform functions that are important to the watershed or are otherwise of low value. These low value wetland areas would reasonably be identified as wetlands that could be filled for development. The watershed plan could focus development in such low value wetland areas, and focus compensatory mitigation in the areas identified as priority restoration areas.

When another governmental agency develops a comprehensive watershed management plan, then the Corps will strive to establish regional general permits or programmatic general permits (PGP), depending on whether a state, regional or local program exists, or is developed as part of the watershed management plan, which would regulate wetland losses. If there is no other governmental program that protects wetlands, then the Corps would issue a regional permit based on the plan for activities in clearly identified lower value wetlands. If another governmental agency program exists upon which the Corps can base a PGP, then the Corps would more likely issue a PGP. In either case (a regional permit or PGP), the Corps would focus compensatory mitigation requirements for its issued permits on wetland areas identified in the watershed management plan as priority restoration areas. In the best of circumstances, such priority areas for restoration of wetlands would be the subject of a wetlands mitigation bank. This would not only focus restoration on the priority wetland areas, but also minimize the regulatory burden on activities authorized by identifying in advance the mitigation through the mitigation bank.

Define watershed

There is a need to define watershed in a way that is consistent and useful for the aquatic environment. The Corps believes that the existing USGS watershed accounting system should be used. This is an established method for defining watersheds, and there is substantial hydrographic and chemical data available for the USGS accounting units. Thus, use of the USGS watershed accounting system would not "reinvent the wheel" and we would take advantage of the substantial existing data available based on the USGS system.

Mitigation Banks

Mitigation banking will, the Corps believes, be increasingly important in the Corps regulatory program in the next few years. We view this potential increased use of mitigation banks in a very positive way because of the ecological benefits of mitigation banking as a method of providing compensatory mitigation. Moreover, as outlined above, mitigation banks can play a vital role in the Corps regulatory program for providing compensatory mitigation at the priority restoration locations.

The benefits of mitigation banks as a vehicle for providing compensatory mitigation for Corps regulatory decisions include: providing restored or created wetlands in larger blocks of resource, providing more confidence that the restoration will be accomplished and will work as planned, and allowing more ecologically

beneficial locations for the mitigation. One of the greatest criticisms of the Corps regulatory program is that required compensatory mitigation is not done, or if done is not successful. Mitigation banks have the potential of vastly improving the success and environmental benefits intended through Corps regulatory decisions involving mitigation.

It is well known that larger blocks of habitat generally provide a more ecologically valuable resource. This is because the habitat will provide more area and types of habitat for fish and wildlife to utilize. In addition, larger blocks of habitat are much easier to evaluate and determine whether the required mitigation has been completed correctly. Mitigation banks also provide the opportunity to locate restored or created wetlands in areas of greatest need in the watershed. For example, there are many streams which have valuable wetland habitat in areas both upstream and downstream of degraded or drained wetlands. These drained wetlands were once part of the streams aquatic ecosystem. Such areas could be restored and provide not only the values of the restored wetlands themselves, but also would connect the other two existing valuable wetland areas. Such corridor reestablishment can increase the value of the wetlands restoration beyond the value of the actual wetlands restored. Such corridors provide areas used by wildlife for movement and also ensure a continuum of high value aquatic environment for aquatic organisms.

Another benefit of mitigation banking is that the wetland restoration or creation is typically accomplished during one construction event. This increases the potential for active participation of the Corps in ensuring that the construction is done properly and allows the individual or group conducting the restoration or creation the economy of scale in their operation.

There are essentially two types of mitigation banks -- those that are established and used for mitigation credits by a specific organization (e.g., a state department of transportation) and those that are developed for general distribution of credits to a variety of potential "debtors" (permit applicants who need mitigation "credits" to satisfy compensatory mitigation requirements). The second category of mitigation banks can be viewed in terms of those who provide the mitigation bank credits to forward their purpose (e.g., a state who operates a mitigation bank to ensure quality mitigation). In such mitigation banks the "banker" will often simply try to recoup their costs. On the other hand, private enterprise may establish a mitigation bank in which it hopes to make a profit from the sale of credits (entrepreneurial mitigation bank). The Federal government clearly has no direct role in determining the financial cost of wetland mitigation credits to be sold from the bank. The Corps regulatory concern is only to ensure that the "ecological" value of the credits sold is adequate for our purposes. Indeed, provided the applicant purchases ecologically acceptable credits, then it is only relevant to the mitigation banker and the applicant who must buy the credits what financial cost is involved.

Programmatic General Permits

Programmatic General Permits are another key element of the Corps regulatory approach to encouraging development of watershed management plans. A PGP is a type of general permit that is developed by the Corps based on a strong state, local or regional program that protects the aquatic environment. The PGP provides for a substantial reduction in duplication between the Corps regulatory program and the non-Federal regulatory program. A PGP also provides the state, local or regional regulatory authority with great flexibility in defining the specific role the non-Federal organization wants to establish. At the same time, a PGP provides many environmental safeguards to ensure the environment is protected to the level provided by the Corps regulatory program.

The reduction in duplication with non-Federal programs by PGPs is provided by the Corps review being expedited in reliance on the non-Federal agencies program. When the non-Federal agency issues its

authorization to proceed the Corps quickly provides its approval, unless there is some element of the Federal interest that requires additional review and attention.

Programmatic General Permits provide several features to ensure that the aquatic environment is protected to the level provided by the Corps regulatory program. The Corps PGP would have specific conditions that protect the aquatic environment and the Corps can add additional special conditions to any specific authorization that it issues under the PGP. Moreover, the Corps can always require any particular activity that could be authorized by the PGP to be reviewed under our individual permit evaluation process. This is called the Corps discretionary authority to require individual permits where a general permit would otherwise authorize the project.

If a situation were to occur where a specific authorization was issued by the Corps and we later determined that inadequate environmental protection had been included, then the Corps retains the authority in every case to suspend, modify and/or revoke that particular authorization and remedy the situation. Furthermore, if the Corps is made aware of a pattern of inadequate protection of the aquatic environment under the PGP the Corps can revoke the PGP and discontinue its use.

In addition to the protection for the aquatic environment listed above, the Corps would, for appropriate PGPs or portions of PGPs, establish a Preconstruction Notification procedure (PCN). This procedure ensures that the Corps reviews any potential authorizations for activities that may result in more than minimal adverse effects on the environment. For example, the Corps would establish a PCN process for activities that would occur in important habitat for anadromous fish or other populations of aquatic species that are of interstate importance. The Corps may also establish a PCN where the wetlands are of particularly high value or are otherwise of particular interest to the Federal Government.

The PGP is issued in the same manner that an individual permit is issued. That is, the proposed PGP is published for public comment through a Corps public notice and all comments received are considered before the Corps decides to issue the PGP. The proposed PGP would consist of a description of the program which the Corps is proposing to cooperate with, the terms under which a Corps authorization would be issued and special conditions which any authorized project must meet. The terms of the PGP would specify the geographic location covered by the PGP, any activities or geographic areas excluded from coverage, and the manner in which authorizations would be conveyed (e.g., whether a PCN would be required). The special conditions would establish certain requirements for authorization, including compensatory mitigation requirements. If a mitigation bank is established, conditions of the PGP could direct use of the mitigation bank to provide compensatory mitigation for some or all activities authorized under the PGP.

Once a PGP is issued, then activities that the Corps determines meet the terms and conditions of the PGP are authorized in an expedited manner under the PGP. The specific authorizations issued by the Corps under the PGP would often include additional project specific special conditions to protect the environment.

Conclusion

In conclusion, the Corps strongly supports the concept of watershed management as the best way, from an ecological perspective, to manage the aquatic resource. The Corps regulatory program will work to encourage development of watershed management plans that provide a high level of environmental protection and restoration of important degraded elements of the aquatic environment. We will encourage such watershed management plans by working with the non-Federal interest to develop general permits and PGPs and hopefully well placed mitigation banks.

APPENDIX B . REGULATORY INITIATIVES

Special Area Management Plans and Advanced Identification Efforts (and others)

(Principal sources: HQUSACE Regulatory Survey, March 1996 and White and Shabman, 1995)

DIST	STUDY TITLE	SPONSOR & FOCUS	STATUS & OTHER INFORMATION (as of 1996)
MVS	Metro East Watershed Planning Office (SAMP). Madison, St. Claire and Monroe Cos., IL	Sponsor: NRCS Desired results: wetlands education, GIS, local permitting mechanisms, possible county mitigation banks	Resource inventories & public meetings have been conducted. All watersheds under review w/special emphasis on the American bottoms. [Corps POC: Sue Janota-Summers 314-331-8185]
MVP	City of Superior SAMP. Douglas Co., WI	Sponsor: City of Superior was the lead; Northwest Regional Planning Committee and local agencies produced the SAMP. Desired results: plan for orderly development, reduce impacts to wetlands, conserve limited Federal and state regulatory resources, and provide wetland mitigation	The SAMP report was completed April 1995; EA to issue RGPs was completed December 1996 for an Abbreviated Permitting Process. Corps: initiated development of SAMP with EPA and participated on Technical Advisory Committee. [Corps POC: Steve Eggers]
NAB	Aberdeen Proving Ground SAMP. Harford Co., MD	Sponsor: Aberdeen Proving Ground Desired results: location/evaluation of wetlands on APG; an abbreviated permitting mechanism for future APG wetland impacts; field verification of NWI maps; identification of potential wetland mitigation bank and restoration areas.	In planning stage; fieldwork may begin in FY96. [Corps POC: Jon Romeo 410-962-6079/6001(fax)]
NAB	Perryman Peninsula SAMP. Harford Co., MD	Sponsor: Harford County Desired results: location/evaluation of wetlands on perryman Peninsula; permitting mech. for proposed commercial & industrial development; field verification of NWI maps; evaluation of cumulative impacts associated w/infrastructure upgrades required for proposed development.	In planning stage; fieldwork may begin in Fall 96/Sspring 97. [Corps POC: Paul Sneeringer 410-962-6029/6001, Jeff Trulick410-962-6077/6001)fax)]
NAB	Swan Creek Water-shed Restoration Partnership SAMP. Harford Co., MD	Sponsors: City of Aberdeen; Harford County DPW; and Aberdeen Proving Ground Desired results: effective working partnership between local, state & Fed. agencies; stream inventory of potential erosion, biol. resources, inadequate forest buffer; and restoration sites; data base/GIS mapping/photo records; locations of potential WMB & restoration sites; estab. of WQ monitoring stations rationale for Aberdeen's instream WQ pond.	MD DNR and Corps provided extensive assistance during planning, stream inventory, and evaluation and analysis phases. Public mtg 10/95; data used in cumulative impacts study by CENAB; several restoration sites under evaluation. [Corps POC: Paul Sneeringer 410-962-6029/6001(fax)]
NAB	Winters Run Stream Inventory/Atkisson Reservoir EIS (SAMP). Harford Co., MD	Sponsor Harford Co. DPW and Aberdeen Proving Ground. Desired results: stream inventory of potential erosion, biol. resources, inadequate forest buffer; and restoration sites; data base/GIS mapping/photo records; locations of potential WMB and retrofit sites; field verification of NWI maps; estab. of stream cross section & sediment monitoring sites; recommendations on cum. impacts of removal or notching of Atkisson Reservoir Dam.	Corps assistance in stream survey. In planning stage; field work to begin in fall '96/spring '97. [Corps POC: Matt Gall 410-962-6001(fax)]

DIST	STUDY TITLE	SPONSOR & FOCUS	STATUS & OTHER INFORMATION (as of 1996)
NAB	Bynum Run Stream Inventory SAMP. Harford Co., MD	Sponsor: Harford Co. DPW; NPDS Office. Desired results: inventory of stream erosion problems areas, biol. resources, inadequate forest buffer, & potential water quality retrofit and stream restoration projects (incl. database/GIS mapping/photo records; location of potential WMB sites; field verification maps; stream cross section and monitoring sites.	MD Conservation Corps in coord. w/MD DNR is performing the survey. Corps is leading the inventory teams. Field survey and watershed inventory half complete; Finish in 5/96; final report & public hearing 12/96. [Corps POC: Paul Sneeringer 410-962-6029/6001(fax)]
NAB	Back River Neck SAMPs (Sewer Main). Baltimore Co., MD	Sponsor: Baltimore Co. Dept Envir. Protection & Res. Mgmt (DEP&RM) Desired results: location/evaluation of wetlands on developed and undeveloped areas; an abbreviated permitting mechanism for sewer expansion and development; evaluation of cumulative impacts of development on area; establishment of WMBs; field verification of NWI maps.	SAMPs divided into a number of phases by area; one completed in FY 95, two others will be in FY 96 and 97; Estab. of WMB expected in near future. [Corps POC: Matt Gall 410-962-5693/6001(fax)]
NAB	Forge Acres Sewer SAMP and NEPA/404 Documentation. Baltimore Co., MD	Sponsor: Baltimore County DEP&RM Desired results: NEPA/404 documentation; abbreviated permitting mechanism for sewer expansion and development in study area; evaluation of cumulative effects in study area; estab. of WMBs and field verification of NWI maps.	NEPA/404 documentation & revised permit to be submitted in 97; estab. of WMBs following submittal. [Corps POC: Steve Harman 410-962-4522/6024(fax)]
NAB	Gunpowder Falls SAMP. Baltimore Co., MD	Sponsor: Baltimore County Desired results: working partnership between local, state and Fed. agencies; an abbreviated permitting mech. for future development; stream inventory of potential erosion, biol. resources, inadequate forest buffer; and restoration sites; data base/GIS mapping/photo records; locations of potential WMB & restoration sites; estab. of water quality monitoring stations and stream cross section areas.	Study in planning phase; field work to start in Spring 96 [Corps POC: Brian Yanchik 410-962-6086/6024(fax)]
NAB	Middle River Neck SAMPs (Sewer Main). Baltimore Co., MD	Sponsor: Baltimore County DEP&RM Desired results: location/evaluation of wetlands on developed and undeveloped areas; an abbreviated permitting mechanism for sewer expansion and development; evaluation of cumulative impacts of development on area; establishment of WMBs; field verification of NWI maps.	SAMPs divided into phases (by area); several completed in 95; others to begin in 97. Estab. of WMBs in near future. [Corps POC: Matt Gall 410-962-5693/6001(fax)]
NAB	Red Run ADID. Baltimore Co., MD	Sponsor: Baltimore Co. Desired results: address cumulative impacts from development to watershed that will result from authorization of 3 projects.	Completed [Corps POC: Abigail Hopkins 410-962-6080/6024(fax)]
NAB	Vincent Farms SAMP (Sewer Interceptor). Baltimore Co., MD	Sponsor: Baltimore Co. DEP&RM Desired result: location and evaluation of wetlands on peninsula; abbreviated permitting mech. for sewer expansion and devel. in study area; eval. of cumulative impacts if development on area; estab. of WMBs; field verification of NWI maps.	Public mtg held 5/96; complete field work Spring 96; report Summer 96; estab. WMBs in near future. [Corps POC: Matt Gall 410-962-5693/6001(fax)]
NAB	Honey Go Run Sewer SAMP and NEPA/404 Documentation. Baltimore Co., MD	Sponsor: Baltimore County DEP&RM Desired results: NEPA/404 documentation; abbreviated permitting mech. for sewer expansion & development; eval. of cumulative impacts if development on area; estab. of WMBs; field verification of NWI maps.	NEPA/404 documentation & revised permit to be submitted late Summer 96; estab of WMBs in near future. [Corps POC: Steve Harman 410-962-4522/6024(fax)]
NAB	Bay City Subdivision SAMP. Queen Anne's Co., MD	Sponsor: Queen Anne's County Desired result: establishment of permitting framework for slated development.	SAMP completed [Corps POC: Paul Wettlaufer 410-962-5676/6024(fax)]

DIST	STUDY TITLE	SPONSOR & FOCUS	STATUS & OTHER INFORMATION (as of 1996)
NAB	Mayo Peninsula SAMP. Anne Arundel Co., MD	Sponsor:Anne Arundel County Desired results: location and evaluation of wetlands on peninsula; abbreviated permitting mech. for sewer expansion and devel. in study area; eval. of cumulative impacts if development on area; estab. of WMBs; field verification of NWI maps.	In planning phase; field work late 96; report 97. WMB estab. after report. [Corps POC: Steve Harman 410-962-4522/6024(fax)]
NAN	Meadowlands District SAMP (& ADID). Northeast NJ	Sponsor: Hackensack Meadowlands Development Commission Desired results: GP & abbreviated permit process (Fed); streamlined permit process (State & Locals); zoning modifications; 20 yr blueprint for protection, restoration, & enhancement of natural resources in HM district, and basis for new Development Master Plan;	Cooperating agencies: USFWS; NOAA(NMFS & OCRM); NJ DEP; USEPA, Corps. DEIS issued 7/95; FEIS 7/96; ROD/SAMP anticipated 98 [Corps POC: Joseph Seebode 212-264-3996]
NAO	Grafton Plain Sinkhole Complex SAMP. York Co. & Newport News, VA	Sponsor: City of Newport News and York County Desired results: identification of high value wetlands (to preserve) & low value wetlands (OK to develop) to be accomplished through a programmatic GP administered by localities.	Postponed indefinitely due to political & public pressures & misinformation, but still public interest in a SAMP or a watershed plan; VIMS completing a GIS; VA Heritage conducting biol. surveys for a preserve site; ODU amphibian study onging. [Corps POC: Jennifer McCarthy 804-441-7792/7678(fax)]
.NAP	Pepper Creek, Delaware ADID, Sussex Co., DE	Sponsor: Delaware DNR&EC, Div. Soil & Water Conservation Focus on secondary development impacts (i.e., housing) that may result from permit to dredge channel and construct boat ramp.	Public notice provided locations of adjacent wetlands [Corps POC: Mr. Richard A. Hassel 215-656-6726/6724(fax)]
NAP	Pocono Mountain Region, ADID Pocono Mtn region, PA	Sponsor: EPA Inform public of important wetland systems- not suitable for future disposal/fill sites.	Corps & PA DER cooperated Public Notice October 88: Published ADID. [Corps POC: Mr. Richard A. Hassel 215-656-6726/6724(fax)]
NAP	Quakertown Swamp ADID, Bucks Co.., PA	Sponsor: Bucks County Conservancy Description of area and resources used to inform public; identifies “significance” as per government agencies.	Conservancy leads wetland delineation and functional assessment, and habitat studies for species of concern. Public meeting scheduled FY 96. [Corps POC: Mr. Richard A. Hassel 215-656-6726/6724(fax)]
LRC	McHenry County ADID. McHenry Co., IL	Sponsors: McHenry County & EPA ADID product (GIS inventory of county) will be used in planning developments, evaluating effects of development on water quality & flooding potential, restoration& preservation site selection, identifying potential WMB sites, and identifying areas unsuitable for fill.	Participants include: NRCS, NE Illinois Planning Commission, Fox Waterway Agency & several county resource agencies and groups). Two watersheds identified: one navigable, one high quality streams. [Corps POC: Brian L. Smith 312-353-6428Ext.4031/ 4110(fax)]
LRC	DuPage County ADID, DuPage Co., IL	Sponsor: DuPage County Dept Environmental Concerns. EPA was the Federal lead Objective: Wetlands categorization in consort with county-wide stormwater ordinance.	The plan is complete. The Corps issued a PGP in March 1995.

DIST	STUDY TITLE	SPONSOR & FOCUS	STATUS & OTHER INFORMATION (as of 1996)
POA	Anchorage Wetland Plan, Anchorage, AK	Sponsor: Anchorage Dept of Community Planning and Development Objective: streamline wetland permitting	The original plan, in effect for 10 years, has recently been revised. The plan revision included a thorough assessment and categoirzation of wetlands. A GP has been devleoped to assist in implementation. There is broad agreement on the rvised categorization scheme. [Corps POC: Mary Lee Plumb-Mentjies 907-753-2712]
POA	Juneau Wetland Plan, City and Borough of Juneau, AK	Sponsor: City and Borough of Juneau (CBJ) Objective: simplify wetland permitting in order to facilitate and control development in the city. Much of remaining developable land is wetlands; wetland regulations greatly influence Juneau's ability to grow.	CBJ has only issued one permit (with Corps approval) since this cooperative arrangement began. In 6/95, CBJ received the fulll GP to administer permits for 2 categoris of wetlands although to date no permit applications have been filed. Some environmental groups have threatened to legally challenge the permit. [Corps POC: Mary Lee Plumb-Mentjies 907-753-2712]
NPP	West Eugene Wetland Conservation Plan (ADID), Lane Co., OR	Sponsor: Lane County Council of Governments. Planning effort was conducted as per Oregon State law for wetland conservation plans.Corps participated on a multi-agency technical advisory committee. Goal: address wetland crisis (significant amount of wetlands discovered in city's primary growth area zone for industrial use.	Oregon Division State Lands, Corps, and EPA have approved the plan. A lawsuit by an environmental group (the Friends of West Eugene) is being dismissed; the City of Eugene is amending the plan as per Endangered Species issue (the Corps will undertake formal consultation with the USF&WS). [Corps POC: Dave Kurkoski 503-326-6094; Carrie Fox]
NWS	Grays Harbor SAMP, WA	Sponsor: NOAA (Office Coastal Zone Management) and Grays Harbor Regional Planning Commission The Commission felt that devlopment in the harbor was constrained by a complex review process that required permits from many agencies. The Commission felt that a plan would facilitate and streamline the permit process, making it less burdensome for developers.	The plan is complete, but because of its advisory nature, its effectiveness is difficult to judge. It did not replace any existing regulatory protocols.
NWS	Mill Creek SAMP, King Co., WA	Sponsor: Corps Conflictbetwen high growth and development in the area and wetland regulations frustrated the development community, and prompted local and Corps interest in a plan. There also was a desire to combine wetland planning with flood control efforts.	The SAMP document (in its 7th version was sent out for public review in 8/97. [Corps POC: Mike Scuderi 206-764-3479; Jonathan Smith 206-764-6910]
LRN	Huntsville, AL, ADID. Madison & Limestone Cos., AL	Sponsor: Huntsville Planning Department Desired result: establish preliminary Federal positions concerning 1) wetland & aquatic site as possible future disposal sites; 2) sites generally unsuitable for disposal or fill.	To be completed in 96 upon issuance of 2nd & final public notice. EPA contributed $197,000 of $250,000. [Corps POC: Wade Whittinghill 615-736-5181/7145(fax)]
SAJ	Florida Keys ADID. Monroe Co., FL.	Sponsors: Monroe County, EPA, USFWS, Corps Desired result: map of all lands labeled suitable, non-suitable or suitable with mitigation for development; also, lands suitable for restoration	A rapid assessment methodology completed & presented @ public workshop; GIS mapping completed; EPA preparing Tech. Assessment Doc. EPA contributing $353,000 of $453,000. [Corps POC: Bob Barron 904-232-2203]

DIST	STUDY TITLE	SPONSOR & FOCUS	STATUS & OTHER INFORMATION (as of 1996)
SAJ	Loxahatchee River Basin Wetland Planning Project (ADID). Martin Co., FL.	Sponsor: EPA? Desired result: location of wetlands in basin on GIS database system and a wetland functional assessment procedure (HGM)	GIS ongoing funded by EPA's grant program. Functional assessment in process. FWS completing the ADID. [Corps POC: Linda Farrell 407-770-2440]
SAJ	Representative Arnold Committee. Lee Co., FL	Sponsors: A group of concerned citizens, landowners, conservation groups, Fed., state and county agencies chaired by Rep. Arnold of FL legislature. Group formed in 95 to address issues raised on a permit for new state University; issues focus on urban sprawl, secondary and cumulative impacts of subsequent residential and university development. Desired result: share and enhance knowledge of area, acquire land for env. protection, improve technical basis for permitting, and estab. strategy for regional mitigation banking. They hope to develop a common vision for the communities and agencies.	Expect a report in Fall 96; Subcommittees for Land Use, Wildlife Habitat, Water Mgt, Land Acq., and Mitigation Strategy hav met, gathered info and heard presentations re: concerns; summary doc. under preparation; Recommendations being developed. [Corps POC: Bob Barron 904-232-2203]
SAJ	Rookery Bay Wetlands ADID. Collier Co., FL	Initiated at request of local env. organizations (FL Audubon Society, Collier County Audubon Society, The Conservancy, Inc.) Uniqueness of estuarine ecosystem, perceived threats to water quality entering rookery and effects of historic, current and future land use activities; A National Estuarine Research Reserve is in bay. Desired result: info. on relative functions of wetlands within area to use as a planning tool regarding future land use.	Nearing completion; final public meeting on draft ADID held 3/96; final product expected 6/96. EPA contributed $220,000 of $249,000 through 12/93. [Corps POC: Stuart L. Santos 904-232-2018/1684(fax)]
SAJ	So. Florida Comprehensive Conserv., Permitting & Mitig. Strategy for Wetlands & Other Critical Habitats	Sponsors: Consensus building process include several Federal & state regulatory & planning agencies, tribes, counties & concerned citizens. Desired result:process & plan that coordinates regulatory & non-regulatory activities affecting wetlands; improve conservation, restoration & mgt of lands toward goal of ecosystem based mgt of both natural & developed areas. Devel GIS tool to map, assess & make information available to all.	SFL Ecosystem Working Group: Mgt by Corps & EPA Ongoing: 2 HGM models developed by WES; scheduling workshops to involved counties and public. [Corps POC: Bob Barron 904-232-2203]
SAJ	West Broward County ADID. West Broward Co., FL	Sponsors: EPA and Corps are co-leaders Desired result:planning tool for developers, general public, Fed regulatory agencies	No activity since 1/94. Corps used information to identify possible future disposal sites and areas generally unsuitable for disposal of dredged or fill material. EPA contributed $130,000 of $139,000. [Corps POC: Bob Barron 904-232-2203]
SAJ	Dade County SAMP. Dade Co., FL	Sponsor: Dade Co. Dept Environmental Resource Management Corps is the Federal lead; other agencies include NPS. Goal: resolve Corps permitting issue associated with additional growth	Conducted in conduction with Comprehensive Development Master Plan revisions. Corps developed alternative permitting arrangement to implement SAMP plan. Dade Co. issued ordinance to implement plan which is currently operational.

DIST	STUDY TITLE	SPONSOR & FOCUS	STATUS & OTHER INFORMATION (as of 1996)
SAM	Special Mgt Area Plan (SMA) For The Port Of Pascagoula., Jackson Co., MS	Sponsor: Mississippi Dept. Marine Resources; Jackson Port Authority MS Coastal Program designates "special mgt areas"; SMA plan has 3 elements: area specific development proposals; a dredged material disposal mgt plan (incl 3 confined areas for LT disposal of maint. material from Pascagoula Harbor; and a mit. plan to compensate for env. and cultural losses. Desired Result: local permitting mechanism in areas with high-development pressures	SMA completed & effective in 1986; SMA "reopened" at Jackson Port Authority Initiative to consider changed conditions (Pb in one disposal area for a local industry, and additional development being planned by the JCPA; interagency mtg held 7/95 to further scope SMA planning process. [Corps POC: Mr. Arthur Middleton 334-694-3786/690-2660(fax)]
SAM	South Baldwin County ADID, Baldwin Co., AL	Sponsors: Baldwin County Office of Env. & Community Development and USEPA. Overall goal: assist county residents, regulators, planners, and elected officials in env. resource mgt by providing maps and technical documentation of ecologically sensitive areas. Identify possible future disposal sites or areas generally unsuitable for disposal in order to facilitate permit evaluation through predicting suitability for filling based on level of function provided by wetlands. Goal is to expedite permit times, identify restoration sites, and develop regional permit. ADID is in an area with highest concentration of wetlands in Alabama and fastest growth rate.	ADID team formed and area scoped, boundary selection and GIS set up completed. An HGM model is being developed. The local sponsor is currently developing detailed work plans with project tasks and schedules. Initial public meeting was held in 12/96. [Corps POC: Ms. Barbara Allen 334-694-3775/690-2660(fax)]
SAS	Central Dougherty Plain ADID. Baker, Calhoun, Dougherty, Lee & Terrell Cos., GA	Sponsor: EPA Desired result: produce scientific database on which local land use and regulatory decisions can be based. Initiated at request of a local conservation group concerned about recent wetland conversions.	Draft ADID report published 11/95 with wetland maps; public mtgs held 11/95. EPA making revisions to report based on comments Technical scoping initiated 8/90. EPA contributed $209,000 of $234,000 through Dec 1993. [Corps POC: Thomas Fischer 912-652-5558
SAS	West Chatham County ADID. Chatham Co., GA	Sponsors: Chatham County/Savannah Metropolitan Planning Commission and EPA. Identify wetlands in study area to scale suitable for land use planning purposes, classification of wetlands by type, general functions for each type. Use info to develop regional permit for study area.	Soils mapping & hydrology data completed; currently inputting vegetation parameter to produce final wetland map. EPA contributed $361,000 of $435,000 through 12/93. [Corps POC: Richard W. Morgan]
SPK	Logan SAMP, Logan Co., UT	Sponsor: City of Logan. Corps was lead Federal agency for SAMP focused on 10th West Corridor, approximately 3/4 mile wide by 4 miles long.	SAMP and EA completed c. 1995. GP issued. [Corps POC: Anthony Vigil]
SPK	Davis County Wetland Conservation Plan, Davis Co., UT	Sponsor: Davis County Corps participates and provides H&H input Objective: lock in preservation corridor. County is pushing for a general permit to streamline permitting while preserving critical wetlands and upland buffers.	Final plan; general permit is being developed. [Corps POC: Lesley McWhirter 801-295-8380]

DIST	STUDY TITLE	SPONSOR & FOCUS	STATUS & OTHER INFORMATION (as of 1996)
SPL	Santa Margarita Watershed ADID. Riverside & San Diego Counties, CA	Sponsor: Riverside County Flood Control District which requested Corps to initiate ADID. EPA is the lead and provides funds. The ADID is coordinated with local watershed planning efforts of the cities of Murietta, Temecula, and Fall Brook, counties of Riverside and San Diego, and Camp Pendleton Marine Corps Base. The focus is on the riparian system with concerns about rapid development and cumulative impacts. The California Coastal Conservancy contributed funding for hydrologic analysis of the watershed.	Corps conducted cumulative impacts assessment of Sec.404 projects authorized over last 15 years. Corps & EPA regionalized the national HGM model for riverine wetlands (Corps work funded by EPA) and now are conducting a functional assessment of watershed aquatic resources. A series of public meetings are planned to be held by late 96. Data may used to prepare SAMP to support the local watershed planning committee decisions, or Corps may issue GPs for some activities and area and modify the NWPs in other activities and areas in order to better manage the numerous small projects that have been shown to contribute to substantial cumulative impacts to aquatic resources of the watershed. Corps Civil Works Planning Div. Watershed Study commenced in 96. [Corps POC: Eric Stein 213-452-3415/4196 (fax)]
SPL	Verde River Valley ADID, AZ	Sponsor: EPA Corps staff participated There was no local sponsor; local response was negative.	Completed. EPA produced an EA; no public notice was released.. The recommendations have been shelved. [Corps POC: Cindy Lester 602-640-2671]
SPL	San Marcos Creek SAMP. CA	Sponsor: City of San Marcos Federal lead: Corps with EPA and FWS involved. Project didn't have full community support Objective: Mitigation for flood protection for expected development (project to spur development)	Project didn't have full community support. Corps completed an EA and issued a GP. [Corps POC: Bruce Henderson]
SPL	Santa Clara River Study. Ventura & Los Angeles Cos., CA	Sponsor: multiple including CA Fish & Game, Cal . Coastal Conservancy. Corps attends steering committee meetings, contributes wetland expertise Objective: Streamline regulatory process Intermediate objective: identify problems and opportunities, e.g., banks, GPs.	CCC providing funds for demonstration project (bank erosion project) [Corps POC: David Castanon]
SWF	Trinity River and Tributaries Regional Environmental Impact Statement (EIS) ROD. Dallas, Tarrant, & Denton Cos., TX	Corps prepared the EIS to address regional concerns of development in Trinity River floodplain. Cities with jurisdiction in floodplain have, through the North Central TX COG, developed a Corridor Development Certification process to complement the Corps effort. The local effort includes areas outside COE regulatory jurisdiction. Desired results: criteria to better consider individual and cumulative adverse impacts of activities proposed in floodplain (impacts on flood control, flood storage, fish &wildlife habitat, water quality).	ROD signed 4/88; Corps has since applied the criteria of the ROD to Army permit decisions. The Corridor Development Certificate process has been in place since 7/95. Integration of the two programs has encountered some difficulties, but is generally successful. [Corps POC: Presley Hatched 817-334-3990/2120(fax)]

DIST	STUDY TITLE	SPONSOR & FOCUS	STATUS & OTHER INFORMATION (as of 1996)
SWT	none	Tulsa District has discussed SAMPs with state agencies and they have been indifferent, may be due to political climate. Also, the idea of the Federal government having input to state governed activities not well received, especially if no Federal funds are provided. The State did receive an EPA grant for a state wetland strategy; Corps participates as an advisor, however, state goal is a report for the state legislature to allocate future funds. The strategy has not identified any special geographic areas for specific action.	[Corps POC: Shane Carlson 918-669-7395/7373(fax)]

APPENDIX C. U.S. EPA INVENTORY OF ADIDS AND OTHER WETLANDS PLANNING PROJECTS[15] (July 1996)

	STATUS	CONTACT
REGION I		
Lake Champlain Region Advance Planning Project, VT	ongoing	Beth Alafat
Leonard Pond Advance 404(c), MA	inactive	Ralph Abele
Southern Maine/York County ADID	complete	—
REGION II		
Hackensack Meadowlands SAMP, NJ	ongoing	Mary Anne Thiesing
REGION III		
Canaan Valley Watershed Initiative	ongoing	John Forren
Cedar Island ADID, VA	complete	Peter Stokely
Chincoteague Island ADID, VA	complete	Peter Stokely
Philipsburg/Moshannon Valley ADID, PA	complete	—
Pocono ADID, PA	complete	Peter Stokely
Quakertown Swamp ADID, PA	ongoing	Dave Cutter
Sussex County/Delaware Inland Bays ADID	inactive	Peter Stokely
REGION IV		
Alabama Mitigation Bank Task Force	ongoing	Mark LaRue
Baldwin County ADID, AL	ongoing	Veronica Fasselt
Bird Drive Everglades Basin SAMP, FL	complete	Eric Hughes
Cahaba River CBEP, AL	ongoing	Mark LaRue
Carolina Bays ADID, SC	ongoing	Eric Hughes
Carteret County ADID, NC	ongoing	Eric Hughes
Central Dougherty Plain ADID, GA	ongoing	Veronica Fasselt
Cooper River Corridor, SC	ongoing	Rhonda Evans
Dougherty County Watershed Plan, GA	ongoing	Veronica Fasselt
Florida Environmental Resource Permit Datashare Project	ongoing	Rhonda Evans
Florida Keys ADID	ongoing	Peter Kalla
Florida Mitigation Bank Siting	ongoing	Haynes Johnson
Georgia River Care 2000	ongoing	Bob Lord
Hancock County SAMP, MS	ongoing	Mike Wylie
Harrison County SAMP, MS	ongoing	Mike Wylie
Hillsborough River Greenway, FL	ongoing	Jose Negron
Huntsville Area ADID, AL	ongoing	Mark LaRue
Jackson County SAMP, MS	ongoing	Mike Wylie
Lower MS Valley Sustainable Development Economic Evaluation	ongoing	Jennifer Derby
Lower Yazoo Watershed Plan, MS	ongoing	Jennifer Derby
Loxahatchee River Basin ADID	ongoing	Brad Rieck
Northeast Shark River Slough (East Everglades) ADID, FL	complete	Eric Hughes
Pearl River ADID, MS	ongoing	Bill Ainslie
Port of Pascagoula SAMP, MS	ongoing	Mike Wylie
Rookery Bay ADID, FL	ongoing	Veronica Fasselt
Sipsey River Preservation, AL	ongoing	Mark LaRue

[15] Source: US EPA (1996). This list includes advance identification projects (ADIDs), Special Area Management Plans (SAMPs), and various other geographically-based planning efforts which either focus on wetlands protection or have significant wetlands protection components. The extent of EPA's involvement in these projects (e.g., technical and financial assistance) varies from project to project.

South Florida Comprehensive Permit & Mitigation Strategy	ongoing	Rhonda Evans
Southwest Biscayne Bay ADID, FL	complete	Eric Hughes
St. John's Forest ADID, FL	ongoing	Peter Kalla
West Broward County ADID, FL	ongoing	Jose Negron
West Chatham County ADID, GA	ongoing	Peter Kalla
West Kentucky Coalfield ADID	ongoing	Bill Ainslie
West Tennessee Tributaries	ongoing	Eva Long
White River/Yazoo Basin Synoptic Assessment, MS	ongoing	Jennifer Derby
Winyah Bay Focus Area, SC	ongoing	Marjan Farzaad
REGION V		
Grand Calumet River/Indiana Harbor Canal ADID, IN	complete	Sue Elston
Grand Traverse Bay Special Wetlands Management Plan, MI	ongoing	Sue Elston
Green Bay Special Wetlands Inventory Study (SWIS), WI	complete	Cathy Garra
Kenosha County ADID, WI	complete	Sue Elston
Kosciusko County ADID, IN	complete	Sue Elston
Lake Calumet SAMP, IL	inactive	Sue Elston
Lake County ADID (I), IL	complete	Sue Elston
Lake County ADID (II), IL	complete	Sue Elston
McHenry County ADID, IL	ongoing	Louise Clemency
Miami Valley Wetland Study, OH	ongoing	Cathy Garra
Rock Run ADID, IL	complete	Sue Elston
SEWRPC Corridor ADID, WI	complete	Sue Elston
Streetsboro Project (ADID), OH	complete	Sue Elston
REGION VI		
Faulkner Lake ADID, AR	complete	Norm Thomas
Katy Prairie Wetland Conservation Plan, TX	complete	Bill Kirchner
Lower Pearl River Wetlands Planning Project, LA	complete	Yvonne Vallette
Mississippi River and Tribs. Wetlands Planning Project	ongoing	Yvonne Vallette
Upper Gila River Watershed Project, NM	ongoing	Jim Ratterree
Upper Trinity River Basin Wetland Inventory and Planning Project, TX	ongoing	Tom Nystrom
REGION VII		
Rainwater Basin ADID, NE	complete	Diane Hershberger
Eastern Nebraska Saline Wetlands Advanced Planning Project	ongoing	Diane Hershberger
REGION VIII		
Alta Wetland Identification, UT	complete	Bob Mairley
Boulder ADID Wetlands Inventory/Ordinance, CO	complete	Bradley Miller
Brighton Basin Wetland Identification, UT	ongoing	Bob Mairley
Crested Butte Wetlands Planning, CO	complete	Sarah Fowler
Davis County Wetland Protection Plan, UT	ongoing	Bob Mairley
Lincoln County Flood Plain Mapping, SD	complete	Bob Mairley
Logan SAMP, UT	complete	Bob Mairley
Missouri River Valley Project, ND	inactive	John Peters
Park County Wetlands Planning, CO	inactive	Sarah Fowler
Salt Lake County (Jordan River) ADID, UT	complete	Bob Mairley
San Miguel County (Telluride) Wetlands Planning/Ordinance, CO	complete	Sarah Fowler
Snyderville Basin ADID, UT	complete	Bob Mairley
Teton County Wetlands Planning, WY	ongoing	Sarah Fowler
West Valley City SAMP, UT	ongoing	Bob Mairley

REGION IX

Chico Wetlands Plan, CA	ongoing	Suzanne Marr
Santa Margarita River Watershed, CA	ongoing	Mary Butterwick
Santa Rosa Vernal Pool Plain Plan, CA	ongoing	Suzanne Marr
Southwest Sacramento County Wetlands Plan, CA	ongoing	Suzanne Marr
Verde River ADID, AZ	complete	Mary Butterwick

REGION X

Alaska State Comprehensive Wetlands Management Plan	ongoing	Ted Rockwell
Anchorage Wetlands Management Plan, AK	complete	Heather Dean
Bainbridge Island Wetland Conservation Plan, WA	complete	Linda Storm
Bay City Wetland Planning, OR	ongoing	Joel Schaich
Big Wood River Basin Wetland Conservation Strategy, ID	ongoing	John Olson
Cannon Beach Wetland Planning Project, OR	complete	Joel Schaich
Clackamas County Wetlands Planning Project, OR	complete	Joel Schaich
Clallam County, Washington State Wetland Integration Strategy Wetland Conservation Plan	complete	Richard Clark
Coeur D'Alene Tribe Wetland Conservation Plan	ongoing	John Olson
Columbia South Shore Wetlands Management, OR	complete	Joel Schaich
Colville Delta ADID, AK	Inactive/renewed interest	Ted Rockwell
Corvallis (Jackson-Frazier) Wetland Planning, OR	ongoing	Joel Schaich
Dunes City Wetland Planning, OR	ongoing	Joel Schaich
Everett, Washington Lower Snohomish State Wetlands Integration Strategy Wetland Conservation Plan	ongoing	Linda Storm
Florence Wetland Planning, OR	ongoing	Joel Schaich
Gearhart Wetland Planning, OR	ongoing	Joel Schaich
Grant Pass Wetlands Conservation Plan, OR	inactive	Joel Schaich
Grays Harbor Estuary Management Plan, WA	complete	Fred Weinmann
Happy Valley Wetland Planning, OR	ongoing	Joel Schaich
Henry's Fork Basin Wetland Conservation Strategy, ID	complete	John Olson
Homer ADID, AK	complete	Phil North
Juneau ADID, AK	complete	Mark Jen
Kenai River Management Plan, AK	ongoing	Phil North
La Grande Wetland Planning, OR	ongoing	Joel Schaich
La Pine Wetland Planning, OR	ongoing	Joel Schaich
Lincoln City Wetlands Planning Project, OR	complete	Joel Schaich
Little Susitna River Management Plan, AK	ongoing	Heather Dean
Lower Chena River Watershed Management Plan, AK	ongoing	Ted Rockwell
Mendenhall River Watershed Management Plan, AK	ongoing	Mark Jen
Mill Creek Drainage Basin SAMP, WA	ongoing	Linda Storm
Nez Perce Tribe Wetland Conservation Plan, ID	ongoing	John Olson
Philomath Wetland Planning, OR	ongoing	Joel Schaich
Port Orford Wetland Planning, OR	ongoing	Joel Schaich
Prineville Wetlands Planning Project, OR	ongoing	Joel Schaich
Puget Sound Dredged Disposal Analysis Phase I, WA	complete	John Malek
Puget Sound Dredged Disposal Analysis Phase II, WA	complete	John Malek
Salem Wetlands Conservation Plan, OR	ongoing	Joel Schaich
San Juan County Wetland Conservation Plan, WA	complete	Linda Storm
Sandy Wetland Planning, OR	ongoing	Joel Schaich
Sherwood Wetland Planning, OR	complete	Joel Schaich
Skagit Wetlands and Industry Negotiations (WIN) Port of Skagit Wetland Conservation Plan, WA	ongoing	Linda Storm
Southeast Idaho Wetland Conservation Strategy	ongoing	John Olson
Springfield Wetland Conservation Plan, OR	ongoing	Joel Schaich
St. Helens Wetland Planning, OR	ongoing	Joel Schaich
Teton Valley Wetland Management Plan, ID	complete	Fred Weinmann

Tigard Wetlands Planning Project, OR	ongoing	Joel Schaich
Tillamook Wetland Planning, OR	ongoing	Joel Schaich
Toledo Wetlands Planning Project, OR	ongoing	Joel Schaich
Tualatin Wetland Planning, OR	complete	Joel Schaich
Tulalip Tribe Watershed and Wetland Conservation Plan, WA	complete	Linda Storm
Warrenton Wetland Conservation Plan, OR	ongoing	Joel Schaich
West Corvallis/Squaw Creek Wetlands Planning Project, OR	ongoing	Joel Schaich
West Eugene Wetland Conservation Plan, OR	ongoing	Joel Schaich
Wilsonville Wetland Planning, OR	ongoing	Joel Schaich

APPENDIX D. STRAWMAN REGULATORY GUIDANCE LETTER

FOR CORPS OF ENGINEERS REGULATORY PARTICIPATION IN WATERSHED MANAGEMENT PLANNING

Developed at 1997 National Regulatory Conference, Santa Fe, New Mexico (April) in Watershed Management Product Workshop chaired by John Hall, Jacksonville District

1. Goals.

Predictable decisions

Cumulative impacts assessment and quantification

Secondary impacts assessment and quantification

Appropriate mitigation

In the watershed management context, preservation and restoration should be recognized for added value as appropriate mitigation, also recognizing that creation and enhancement are important.

2. Responsibilities.

The RGL should clarify the CE Regulatory role in land use planning

The RGL should encourage local entity lead with CE acting in support role

Provide resource information to local planning entities
Incorporate/utilize USF&WS multi-species recovery plans, etc.

The RGL needs to define the end products:

General permit(s)
Integration of existing information
Develop consensus on GIS models to be used
Make GIS data sets easily accessible

3. Participation and Procedures.

Ensure early involvement of all stakeholders

Emphasize benefits to local interests

Ensure that Federal environmental interests are factored into local decisions

Emphasize Federal partnering

Ensure a good administrative record

Team identification and "buy-in" for the following:

Study area
Purpose
Scope of work
Consensus building process
Identify agency roles
Establish schedule
Identify study contributions:
Dollars, services, in kind
Issue resolution methods or procedures
? Written agreement

Give examples of processes

Annotated bibliography
Study steps
Outline
Points of contact for other studies

Encourage horizontal communication between Regulatory and Planning

Encourage Regulatory participation in Planning studies involving environmental restoration, flood control, and navigation

Include Regulatory participation in scope of work for watershed or related studies