

FEDERAL AGENCY WATERSHED APPROACHES

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION – NATIONAL MARINE FISHERIES SERVICE

OVERVIEW

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries or NMFS) is responsible for the conservation of living marine resources, including marine, estuarine, and anadromous species. NMFS administers the federal Endangered Species Act for marine and anadromous species; manages commercial fisheries under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA); consults with federal agencies on federal activities that may adversely affect living marine resources or their habitats under the Fish and Wildlife Coordination Act and the MSFCMS; and conducts habitat restoration under a variety of statutes.¹ NOAA Fisheries does not have a policy on watershed protection, nor are any of the agency's programs specifically governed by a watershed approach. Several individual projects, however, use the watershed approach on a case-by-case basis.

NOAA FISHERIES' WATERSHED APPROACH & PROGRAMS

ENDANGERED SPECIES ACT

NOAA Fisheries' Office of Protected Resources (OPR) administers the federal Endangered Species Act (ESA) for marine and anadromous species. At the national level, OPR develops, implements, and administers programs for the protection, conservation, and recovery of species protected under the Act. The office also develops and implements policies, procedures, and regulations for permits to take listed species.²

NOAA Fisheries' Northwest Regional Office has adopted a watershed approach to salmon recovery planning in the region. Twenty-six species of salmonid and steelhead have been listed as endangered or threatened in Washington, Oregon, Idaho, and California. The ESA

requires that recovery plans contain (1) objective, measurable goals for delisting; (2) a comprehensive list of the actions necessary to achieve the delisting goals; and (3) an estimate of the cost and time required to carry out those actions.

The Northwest Regional Office intends to develop recovery plans for all salmonid species in nine "recovery planning domains" or watersheds. In each of these domains, NMFS will form geographically based Technical Recovery Teams (TRTs). The TRTs will (1) identify population and species delisting goals; (2) characterize habitat/fish abundance relationships; (3) identify the factors for decline and limiting factors for each species, as well as the early actions that are important for recovery; (4) identify research, evaluation, and monitoring needs; and (5) serve as science advisors to groups charged with developing measures to achieve recovery.³

At present, TRTs have been established for each of the domains,⁴ with the exception of southwest Washington, where there are currently no listed species. The TRTs are at differing stages of accomplishing their goals, but none yet have accomplished all five of the goals listed above. NOAA Fisheries hopes to rely upon local watershed plans in each of the domains as components of its ESA recovery plans.⁵

NORTHWEST FISHERIES SCIENCE CENTER: WATERSHED PROGRAM

NOAA Fisheries' Northwest Fisheries Science Center in Seattle, Washington, has a Watershed Program that conducts research on physical and biological processes that influence aquatic ecosystems in the Pacific Northwest, effects of land management on those ecosystems, and the ensuing effects on the health and productivity of anadromous fish populations and their habitats.

The Watershed Program has four teams that seek to: (1) quantify fish responses to changes in watershed, habitat, or ecosystem conditions; (2) quantify the effects of natural or human disturbance on watershed processes and

¹ Cole, Richard, Timothy D. Feather, and Phillip K. Letting. "Improving Watershed Planning and Management Through Integration: A Critical Review of Federal Opportunities." Nov. 2002. Institute for Water Resources Report 02-R-6: p. A-20. 5 Dec. 2003
<<http://www.iwr.usace.army.mil/iwr/pdf/Watershedplan02r6.pdf>>.

² Endangered Species Conservation. NOAA Fisheries. 4 Dec. 2003
<http://www.nmfs.noaa.gov/prot_res/overview/es.html>.

³ Northwest Salmon Recovery Planning. NOAA Fisheries. 10 Dec. 2003
<<http://research.nwfsc.noaa.gov/trt/overview.htm>>.

⁴ Puget Sound, Willamette and Lower Columbia River, Interior Columbia River, Oregon Coast, Southern Oregon/Northern California Coast, and Northern California, Southcentral California, and California Central Valley.

⁵ Dornbusch, Patty (NOAA Fisheries, Northwest Regional Office). Personal communication. 15 Dec. 2003.

habitat conditions; and (3) evaluate the effectiveness of various habitat and watershed restoration strategies or techniques.⁶

The Restoration Team attempts to identify how stream and salmonid productivity is influenced by site-specific and watershed-scale habitat restoration efforts.⁷

HABITAT RESTORATION

NOAA's Restoration Center, which is housed in NMFS's Office of Habitat Conservation, works to enhance living marine resources, benefiting the nation's fisheries through habitat restoration. The Restoration Center restores degraded habitats; advances the science of coastal habitat restoration; transfers restoration technology to the private sector, the public, and other government agencies; and fosters habitat stewardship and a conservation ethic.⁸

The NOAA Restoration Center assesses damage claims for injuries to trust resources in marine and coastal settings as a result of violations under environmental laws, such as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), the Oil Pollution Act (OPA), the Clean Water Act, and the Marine Protection, Research, and Sanctuaries Act. The center then uses the recovered damages to restore, replace, or acquire the equivalent of injured resources. The NOAA Restoration Center also engages in a number of non-litigation-related activities, such as restoration of coastal Louisiana under the Coastal Wetlands Planning, Protection, and Restoration Act, and providing grants for restoration through its Community-based Restoration Program.⁹

The Restoration Center has not developed a policy on making restoration decisions on a watershed basis, although they do plan to develop such policy. The center does, however, conduct restoration in a watershed context on a case-by-case basis.¹⁰

⁶ The Watershed Program. NOAA Fisheries' Northwest Fisheries Science Center: 4 Dec. 2003
<<http://www.nwfsc.noaa.gov/research/divisions/ec/wpg/index.cfm>>.

⁷ Restoration Effectiveness. NOAA Fisheries. 4 Dec. 2003
<<http://www.nwfsc.noaa.gov/research/divisions/ec/wpg/Restoration.cfm>>. See also: Watershed Program Strategic Research Plan 2003/2004. NOAA Fisheries. 4 Dec. 2003 <www.nwfsc.noaa.gov/research/divisions/ec/wpg/documents/WatershedStrategicResearchPlanOct03funds.doc>.

⁸ Welcome to NOAA Restoration Center. NOAA Fisheries. 12 Dec. 2003
<<http://www.nmfs.noaa.gov/habitat/restoration/>>.

⁹ NOAA Restoration Center: What We Do. NOAA Fisheries. 12 Dec. 2003
<<http://www.nmfs.noaa.gov/habitat/restoration/about/whatwedo.html>>.

¹⁰ Allee, Becky (NMFS, Office of Habitat Conservation, Restoration Center). Personal communication. 15 Dec. 2003.

HABITAT CONSERVATION

NOAA Fisheries participates in a number of watershed- and ecosystem-based planning efforts, such as Special Area Management Plans under the Coastal Zone Management Act, Comprehensive Conservation and Management Plans under the National Estuary Program, and other efforts led by the Army Corps of Engineers or state agencies. When NOAA Fisheries provides comments on proposed projects to federal or state agencies, watershed impacts are often considered in addition to impacts on specific marine species.

ECOSYSTEM-BASED MANAGEMENT GUIDELINES

NOAA Fisheries is currently developing guidelines to take an ecosystem-based approach to carrying out the agency's charge to manage marine resources under the Marine Mammal Act, MSFCMA, and the Endangered Species Act. The first draft of the guidelines will be available in April 2004. The agency will also be undertaking four ecosystem-based pilot projects.¹¹

NOAA'S COASTAL SERVICES CENTER

NOAA's Coastal Services Center has a Landscape Characterization and Restoration (LCR) Program, which helps coastal resource managers examine the effects of management actions on coastal habitats.¹²

LCR has developed a conceptual GIS-based model to help managers prioritize wetland habitats within a watershed. Called the Spatial Wetland Assessment for Management & Planning (SWAMP), the model examines a wetland's contribution to water quality, hydrology, and habitat.¹³ The primary objective of SWAMP is to aid land use planning and management by providing information about the relative ecological importance of wetlands within a watershed.¹⁴

¹¹ Holliday, Mark (NOAA Fisheries). Personal communication. 4 Dec. 2003.

¹² The Landscape Characterization and Restoration (LCR) Program – Program Goal. 22 Oct. 2001. NOAA Coastal Services Center: 29 Dec. 2003
<<http://www.csc.noaa.gov/lcr/index.html>>.

See also: NOAA Coastal Services Center: "Decision-Support Tools: Deciding What's Right for You." Fact Sheet. A fact sheet that summarizes some of the different types of decision-support tools used in natural resource management.

¹³ The Landscape Characterization and Restoration (LCR) Program – Spatial Wetland Assessment for Management and Planning. 8 Jul. 2003.

NOAA Coastal Services Center: 29 Dec. 2003
<<http://www.csc.noaa.gov/lcr/text/swamp.html>>.

¹⁴ Sutter, Lori. "Spatial Wetland Assessment for Management and Planning (SWAMP): Technical Discussion." 2001. NOAA Coastal Services Center Publication No. 201-29-CD, Charleston, SC.

U.S. ARMY CORPS OF ENGINEERS

OVERVIEW

In recent years, the U.S. Army Corps of Engineers (Corps) has adopted a number of policies in an effort to transition the agency towards a watershed approach to regulating aquatic resources in planning, constructing, and operating Federal water resources projects. While the Corps has long been involved in large-scale water resources planning and development, the agency's increasing emphasis on environmental protection and restoration has led to a shift in the temporal and spatial scale of how projects are evaluated. In seeking to implement a watershed approach that will increase regulatory, ecological, and economic efficiency, the Corps has begun to reform many of the policies and procedures that guide both Civil Works water resources projects and wetland permitting and mitigation.

THE CORPS' WATERSHED APPROACH AND FEDERAL WATER RESOURCES DEVELOPMENT PROJECTS

The Corps' Civil Works program is organized according to geographic "basins," and the Corps has been involved in river basin-based projects and watershed-scale studies for many years. The Corps' authority to plan and implement projects at a basin-wide scale is based on several statutes. The Flood Control Act of 1917 authorized the Corps to conduct comprehensive watershed studies to look at the relationship between flood control and navigation, hydropower, and other water resource uses. The Corps' first river basin management projects were authorized by Congress and undertaken in the Lower Mississippi River region in the 1920s. Nationwide basin studies were authorized in the 1930s in order to examine how to most efficiently provide flood control, hydropower, water supply, and navigation functions. In the 1960s and 1970s the Corps conducted many basin studies. For most of the 20th century, the Corps, along with the Bureau of Reclamation, the Tennessee Valley Authority, and other federal entities, exercised a great deal of control over large-scale river basin management and development of water resources throughout the country.¹⁵

Since the passage of the 1986 Water Resources Development Act (WRDA), the Corps has been required to secure 50 percent of Feasibility Phase study costs and 25 percent of Pre-construction Engineering and Design

Phase costs from non-federal partners. Non-federal partners share construction costs at varying levels depending on the project purpose and the Corps now cedes operations and maintenance responsibility to non-federal partners. The new cost sharing and operations and maintenance requirements have shifted the scope of Corps projects away from the broader river basin view to a more "individual project focus."¹⁶ Though the act generally brought a narrower scope of planning and project development to Corps water resources development projects, in recent years the Corps has been authorized to undertake more activities related to environmental protection and restoration. The Flood Control Act of 1986 authorized the Corps to perform "restoration in a watershed if a Corps project has directly contributed to a watershed problem."¹⁷ Reauthorizations of WRDA in 1990, 1992, and 1996 gave the Corps progressively more responsibility for environmental protection and more authority to undertake large-scale environmental restoration projects related to aquatic resources and related habitat, including wetlands.¹⁸ WRDA amendments in 2000 further augmented the Corps' watershed planning authority "to assess water resource needs of the U.S. watersheds across the full array of the USACE water resource authorities."¹⁹

In recent years, the Corps' Civil Works program has openly embraced a watershed approach in its policies and vision statements. In January 1999, the Corps issued Policy Guidance Letter # 61 (PGL), "Application of Watershed Perspective to Corps of Engineers Civil Works Programs and Activities." For the purposes of the wide range of Corps Civil Works programs, the document defined a watershed perspective as a viewpoint that "encourages collaborative efforts which advocate the integration of interests in the watershed by identifying, scoping, and developing comprehensive water resources management goals." The Corps' Civil Works watershed perspective was said to include environmental, economic, and social sustainability; "coordinated planning and management of water and related land resources" within and between each level of government; adaptive management; integration of programs and activities within and among

¹⁶ Cole, Feather, and Letting, 7-9.

¹⁷ National Research Council, *New Strategies for America's Watersheds*. Washington, D.C.: National Academy Press, 1999. (p. 174).

¹⁸ National Research Council, *New Directions in Water Resources Planning for the U.S. Army Corps of Engineers*, 65.

¹⁹ Cole, Feather, and Letting, 2.

¹⁵ Cole, Feather and Letting, 7.

Civil Works programs and with other government agencies; “identification of future water resource demands;” “use of interdisciplinary teams;” “public input;” and evaluation of “monetary and non-monetary trade-offs.” In order to integrate such a perspective into Civil Works programs, the document says that, “opportunities should be explored and identified where joint watershed resource management efforts can be pursued to improve the efficiency and effectiveness of the Civil Works Programs.” To move the watershed approach from a broadly stated ideal to a programmatic reality, the memorandum states, “the watershed perspective and principles will be incorporated into the existing guidance for the affected Civil Works programs.”²⁰ Many of the watershed-based goals expressed in the PGL appear in later Corps planning and guidance documents.

The “2000 Planning Guidance Notebook” includes a “Watershed Perspective” as one of the key “Planning Principles” of the Corps Civil Works activities. It states that, “Civil works planning should incorporate a watershed perspective, whether that planning involves a project feasibility study or a more comprehensive watershed study... Specifically, civil works planning should consider the sustainability of future watershed resources, specifically taking into account environmental quality, economic development and social well-being.” The Notebook, like the PGL, stresses the importance of using an inclusive process and an approach that incorporates the “full spectrum of technical disciplines” in planning with a watershed perspective in addition to sustainability concerns.²¹ While the Planning Guidance Notebook does not directly address mitigation decision-making, the watershed planning and study programs discussed in the Notebook are part of a broader Corps watershed approach that can be linked to permitting and mitigation strategies, as discussed below.

In October 2000, the Corps further demonstrated its commitment to adopting a watershed perspective when it joined several other federal agencies in embracing the “Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management.”²² Though the Unified Federal Policy has not been widely implemented and pertains primarily to resource planning and management activities on federal lands, the assessment and man-

agement methodologies that the policy directs the agencies to develop may encourage the agencies to transition to a watershed approach in all their activities.

The Corps has continued to incorporate the watershed approach in more areas of its programs. The “Civil Works Program Strategic Plan” issued in September 2002 states that “the watershed is the best unit of analysis” for Civil Works activities and reiterates the importance of using “a watershed approach to integrated water resources management” including a “comprehensive interdisciplinary view across the natural and social sciences.” The Strategic Plan highlights the sustainability benefits of a watershed approach, stating “comprehensive plans and solutions have the advantage over piecemeal approaches for addressing both short-term and long-term water resources challenges without mortgaging the future viability of natural resources.”²³

While the Strategic Plan states that the Corps’ established practices of “interdisciplinary work that joins multiple perspectives” and adaptive management “reinforce a watershed approach,” many of the goals, objectives, and proposed initiatives in the plan are related to further integrating the watershed approach into Civil Works activities. In the Strategic Plan, the Corps stated their intent to “seek authorities and policy and procedural reforms that better align existing Civil Works programs and activities with watershed thinking and that increase meaningful balance among economic, environmental, and social goals in delivering water resources solutions.” In addition to broad objectives, such as supporting “the formulation of regional and watershed solutions to water resources problems,” the Strategic Plan recommends many concrete procedural, funding, and organizational changes that could facilitate a transition to a watershed approach. Specific proposals include “providing guidance to encourage our Districts to develop reconnaissance studies at a broader scale,” increasing the funding level for such studies from \$100,000 to \$250,000-500,000, and encouraging “greater integration across ... Civil Works Business Programs in their program planning.”²⁴

THE CORPS REGULATORY PROGRAM AND THE WATERSHED APPROACH

While the Corps regulatory program has typically made compensatory wetlands mitigation decisions under §404 of the Clean Water Act on a project-by-project basis, the agency has increasingly emphasized the watershed

²⁰ Application of Watershed Perspective to Corps of Engineers Civil Works Programs and Activities (Policy Guidance Letter # 61), 29 Jan. 1999. U.S. Army Corps of Engineers. 16 Dec. 2003 <http://www.usace.army.mil/civil-works/cecwp/branches/guidance_dev/pgls/pdf/pgl61.pdf>.

²¹ Planning Guidance Notebook, 22 Apr. 2000. U.S. Army Corps of Engineers. 17 Dec. 2003 <<http://www.usace.army.mil/inet/usace-docs/eng-regis/er1105-2-100/entire.pdf>>. (p. 2-16.)

²² Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management, Fed. Reg. 65(202), 18 Oct. 2000 (FR 65:62565-62572[00-26566]).

²³ Civil Works Program Strategic Plan (Draft), Sept. 2002. U.S. Army Corps of Engineers. 17 Dec. 2003 <<http://www.iwr.usace.army.mil/iwr/strategicplan/strategicplan.pdf>>. (p. 42-43.)

²⁴ U.S. Army Corps of Engineers, Civil Works Program Strategic Plan (Draft), 44-63.

approach in recent years. The project-by-project mitigation approach was reinforced by several policy documents released during the 1990s, including the 1990 Corps/EPA Memorandum of Agreement (MOA)²⁵ and the 1995 guidance on wetland mitigation banking,²⁶ both of which expressed a preference for on-site and in-kind compensatory mitigation. While these documents established a clear preference for on-site and in-kind mitigation, both allow for the use of off-site mitigation in the form of mitigation banking to compensate for impacts to small wetlands and when off-site mitigation is deemed environmentally preferable to on-site mitigation. The banking guidance stated that one of the major benefits of banks is that they can “provide economically efficient and flexible mitigation opportunities, while fully compensating for wetland and other aquatic resource losses in a manner that contributes to the long-term ecological functioning of the watershed within which the bank is to be located.”²⁷

A 1995 paper authored by the Chief of the Corps’ regulatory program recommended that watershed plans be used to inform permitting and mitigation decisions by “focus[ing] development in such low value wetland areas, and focus[ing] compensatory mitigation in the areas identified as priority restoration areas.”²⁸ The Corps’ regulatory program has employed a watershed approach to issuing permits using several watershed-scale planning mechanisms. A 1997 paper states that “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” and “the Corps Headquarters Regulatory Branch encourages the field regulators to work with non-Federal interest to develop general permits and programmatic general permits and well-placed mitigation banks.”²⁹

²⁵ Memorandum of Agreement Between the Department of the Army and The Environmental Protection Agency: The Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines. 1990. U.S. Environmental Protection Agency. 17 Dec. 2003

<<http://www.epa.gov/owow/wetlands/regs/mitigate.html>>.

²⁶ Federal Guidance for the Establishment, Use and Operation of Mitigation Banks. Fed. Reg. 60(228). 28 Nov. 1995 (FR 60:58605-58614).

²⁷ Federal Guidance for the Establishment, Use and Operation of Mitigation Banks. Fed. Reg. 60(228). 28 Nov. 1995 (FR 60:58605-58614).

²⁸ Studt, John F. April 1995. “Watershed Management and the Corps Regulatory Role.” Paper prepared for the Association of State Wetland Managers in Watershed Management and Wetland Ecosystems, Background Report for Wetlands ’95 Symposium. Tampa, Florida. See Appendix A. in: Brumbaugh, Robert. December 1997. “Watershed Study Impediments: Field Regulatory Survey Discussion Paper.” IWR Report 97-PS-2. U.S. Army Corps of Engineers, Institute for Water Resources.

²⁹ Brumbaugh, Robert. “Watershed Study Impediments: Field Regulatory Survey Discussion Paper.” Dec. 1997. Institute for Water Resources Report 97-PS-2: p. ix.

ADVANCED IDENTIFICATION OF DISPOSAL AREAS

The Advanced Identification of Disposal Areas (ADIDs) is one planning tool used by the Corps for watershed planning. The CWA Section 404(b)(1) Guidelines give the Corps and EPA authority to initiate and conduct ADIDs as a means of identifying “aquatic sites considered to be either generally unsuitable as disposal sites or generally suitable for disposal sites” for dredged and fill material.³⁰ ADIDs are primarily intended to be information gathering and aquatic resources characterization efforts and they often include “mapping or identification of wetlands functions and wetland categorization.” Although they are not often used for permitting purposes, ADIDs “should result in general permits for the identified generally suitable disposal sites (areas where permitting can occur).”³¹

SPECIAL AREA MANAGEMENT PLANS

As part of Corps watershed planning efforts, ADIDs are often undertaken in connection with Special Area Management Plans (SAMPs). SAMPs are another of the primary tools available to Corps regulators to evaluate wetland conditions and develop permitting schemes on a watershed scale. The SAMP process was authorized under the Coastal Zone Management Act amendments of 1980. SAMPs are meant to yield “watershed, or regional, comprehensive plans that can be prepared to facilitate Corps permitting.” Unlike ADIDs, SAMPs are undertaken with the “intent of producing a definitive regulatory product” such as a general permit.³² SAMPs “aim to set a regional or watershed context for planning water projects and for finding logical points of intersection for integrating management activities to meet environmental quality, national and regional economic development, and quality of life goals.”³³ Like ADIDs, SAMPs are not necessarily explicitly confined to a watershed or other ecologically based boundary; rather, they are typically defined “in response to political situations.”³⁴

Recognizing the value of SAMPs and seeking to maximize the chance of their success, the Corps issued a

³⁰ Brumbaugh, Robert. “Opportunities to Improve Regulation of Aquatic Resources on a Watershed-Basis: Regulatory and Planning Links in Three Districts.” Aug. 2001. U.S. Army Corps of Engineers, Institute for Water Resources. p. xi.

³¹ Brumbaugh, Robert. “Opportunities to Improve Regulation of Aquatic Resources on a Watershed-Basis: Regulatory and Planning Links in Three Districts.” Aug. 2001. U.S. Army Corps of Engineers, Institute for Water Resources. p. xii.

³² *Ibid.*

³³ U.S. Army Corps of Engineers, Civil Works Program Strategic Plan (Draft), 45.

³⁴ Brumbaugh, “Watershed Study Impediments: Field Regulatory Survey Discussion Paper,” viii.

Regulatory Guidance Letter (RGL) SAMPs in 1986.³⁵ The RGL states, “A good SAMP reduces the problems associated with the traditional case-by-case review,” provides predictability for development interests, and “assures that individual and cumulative impacts are analyzed in the context of broad ecological needs.” Because SAMPs are often long, expensive, and complicated endeavors, the RGL lays out specific criteria for the circumstances in which a SAMP is an appropriate tool. According to the RGL, SAMPs should only be used for areas that are “environmentally sensitive and under strong development pressure;” where there is a “sponsoring local agency to ensure that the plan fully reflects local needs and interest;” there is “full public involvement in the planning and development process;” and all of the parties involved “express a willingness at the outset to conclude the SAMP process with a definitive regulatory product.” An ideal SAMP yields two types of regulatory products: “appropriate local/state approvals and Corps general permit (GP) or abbreviated processing procedure (APP) for activities in specifically defined situations;” and “a local/state restriction and/or an Environmental Protection Agency (EPA) 404(c) restriction ... for undesirable activities.”³⁶ While most permit requests should be covered by one of the two categories laid out in the regulatory products of the SAMP, individual permit review may still be required when a proposed project does not fit in either class. Though SAMPs are very useful in establishing a regulatory framework that can streamline the permitting process, the process is often very slow and fraught with legal challenges from all sides because of the rigidity of the final products.³⁷

Whether the Corps undertakes a SAMP, ADID, another type of regionally based study (e.g. stream corridor assessment, watershed or regional Environmental Impact Study), or any range of planning oriented studies, the agency has acknowledged the importance of cooperation between Civil Works Planning Program staff and the Regulatory Program Staff to “generate one body of information for the benefit of both programs” and to maximize efficiency.³⁸

While planning efforts over the last several years have been increasingly shaped by a watershed perspective, recent Corps documents highlight the importance of

using a watershed approach in permit decision-making. The “Army Corps of Engineers Standard Operating Procedures for the Regulatory Program” (SOP) issued in 1999 incorporates instructions for field staff to use a watershed approach in their activities. The SOP “highlights critical portions of the U.S. Army Corps of Engineers implementing regulations to be used in reviewing permit applications,” including instructions for Corps permit reviewers on how to make mitigation decisions.³⁹ The SOP states that districts should not consider the preference expressed in the 1990 Corps/EPA MOA for on-site and in-kind mitigation as “hard and fast policy” because “Corps field experience has shown ecological value in pursuing practicable and successful mitigation within a broader geographical context.” The SOP goes on to say that, “the bottom line test for mitigation should be what is best for the overall aquatic environment.”⁴⁰

In 2001, the National Research Council (NRC) issued a report analyzing federal compensatory mitigation policies and practices under the Clean Water Act §404 program. The report issued many recommendations on how to make the program more efficient and ecologically effective. One of the primary conclusions of the report was that “a watershed approach would improve permit decision making.” The NRC concluded that mitigation decisions “should follow from an analytically based assessment of the wetland needs in the watershed and the potential for the compensatory wetland to persist over time.”⁴¹

Regulatory Guidance Letter 02-2 issued in 2002, includes instructions to Corps district staff on a number of issues related to compensatory mitigation decisions including the adoption of a watershed approach. The RGL instructs districts to “use watershed and ecosystem approaches when determining compensatory mitigation requirements, consider the resource needs of the watersheds where impacts will occur, and also consider the resource needs of neighboring watersheds.” The RGL states that watersheds should be identified using the U.S. Geologic Survey’s Hydrologic Unit Codes. The guidance also directs district staff to institute a watershed approach by encouraging applicants “to provide compensatory mitigation projects that include a mix of habitats, such as open water, wetlands, and adjacent uplands” because “when viewed from a watershed perspective, such projects

³⁵ Regulatory Guidance Letter No. 86-10. 2 Oct. 1986. U.S. Army Corps of Engineers. 17 Dec. 2003 <<http://www.usace.army.mil/inet/functions/cw/cecwo/reg/rpls/rjl86-10.htm>>.

³⁶ Regulatory Guidance Letter No. 86-10. 2 Oct. 1986. U.S. Army Corps of Engineers. 17 Dec. 2003 <<http://www.usace.army.mil/inet/functions/cw/cecwo/reg/rpls/rjl86-10.htm>>.

³⁷ Brumbaugh, “Watershed Study Impediments: Field Regulatory Survey Discussion Paper,” viii.

³⁸ Brumbaugh, “Opportunities to Improve Regulation of Aquatic Resources on a Watershed-Basis: Regulatory and Planning Links in Three Districts.” v.

³⁹ Army Corps of Engineers Standard Operating Procedures for the Regulatory Program (Introduction). 15 Oct. 1999. U.S. Army Corps of Engineers. 16 Dec. 2003 <www.nwp.usace.army.mil/op/g/notices/Reg_Stan_SOP.pdf>.

⁴⁰ U.S. Army Corps of Engineers, Army Corps of Engineers Standard Operating Procedures for the Regulatory Program (Introduction), 23.

⁴¹ National Research Council, *Compensating for Wetland Losses Under The Clean Water Act*. Washington, D.C.: National Academy Press, 2001. (p. 3-4).

often provide a greater variety of functions.” RGL 02-2 also reiterates the position that mitigation banking and in-lieu-fee programs can be an integral part of a comprehensive watershed approach, stating, “consolidated mitigation facilitates a watershed approach to mitigating impacts to waters of the United States.” While the RGL makes it clear that, when weighing such factors as on-site versus off-site mitigation, in-kind versus out-of-kind mitigation, buffers and uplands as mitigation, and preservation as mitigation, district staff are to consider the relative benefits to the larger watershed or region. Future guidance on each of these specific topics will help to clarify the implementation of a comprehensive watershed approach at the Corps.⁴²

⁴² Regulatory Guidance Letter No. 02-2, 24 Dec. 2002. U.S. Army Corps of Engineers. 23 Oct. 2003
<http://www.usace.army.mil/inet/functions/cw/cecwo/reg/RGL2-02.pdf>

The Corps is currently developing and testing a new database that, when fully implemented, will help in the transition to a watershed approach by creating a central clearinghouse of impact and mitigation data that can be used for regulatory and planning purposes. Each impact and mitigation site the database will include site location information using hydrologic unit codes so that data can be compiled and analyzed on the watershed level. The database will be integrated with a Geographic Information System for more efficient review of permit applications and analysis of impacts and cumulative effects across various geographic scales.⁴³

⁴³ Environmental Law Institute. Third Stakeholder Forum on Federal Wetlands Mitigation: Forum Report. Washington, D.C.: Environmental Law Institute, 2003. (p. 18.) See also Aquatic Resources News. A Regulatory Newsletter: Vol. 2, Issue 4, Winter 2003, p. 13.

USDA FOREST SERVICE

OVERVIEW

The U.S. Department of Agriculture's Forest Service (USDA Forest Service) manages lands and resources to preserve ecological diversity and productivity for recreation, range, water, timber, fish, and wildlife. The Service also offers technical and financial assistance to states and private landowners, conducts research, and provides education and outreach.⁴⁴

The USDA Forest Service has acknowledged and addressed the watershed approach for environmental management for over a decade. In the mid-1990's, the Chief of the Forest Service collaborated with the Director of the Bureau of Land Management in an agency-wide move toward adopting a watershed perspective to aquatic conservation, initiating the development of guidance on watershed analysis at the ecosystem scale.⁴⁵ In 1995, "Ecosystem Analysis at the Watershed Scale" was completed under the direction of the Regional Interagency Executive Committee and the Intergovernmental Advisory Committee, a group composed of representatives from several federal, state, and tribal agencies and organizations.⁴⁶ Over the last 15 years, it has become widely held within the Service that watershed analysis leads to effective monitoring and restoration, and is critical to historical, present-day, and future management issues. Today, the watershed approach has "become a way of life" for many Forest Service regions.⁴⁷

Issued in 2000, the USDA Forest Service Strategic Plan specifically sets the goal of sustaining the country's watersheds, in order to "improve and protect watershed conditions." Strategies to achieve these goals and objectives include implementation of a roadless area conservation policy, collaborative planning and stewardship, national standards for watershed assessment, planning for priority watersheds identified through the Clean Water Action Plan, soil and water quality and watershed restoration projects, and an increase in the treatment of abandoned mines and contaminated sites. The milestone goal

of these strategies will be a 20 percent increase in the number of watersheds with restored or improved conditions by 2006.⁴⁸

FOREST SERVICE'S APPROACH

Within the National Forest System, competing uses for water exist among numerous stakeholders.⁴⁹ Each national forest has its own Nature of Land and Resource Management Plan (LRMP) establishing guidance for interdisciplinary decision-making, coordination of the forest's multiple uses, and for sustained yields of products and services. As watersheds are considered one of the forest's multiple uses, watershed-scale management is a component of each LRMP, although there are no provisions for watershed-scale assessment. Specific goals and projects for watershed management are contained within the frameworks of individual LRMPs.⁵⁰

The broad purpose of the Forest Service's watershed program is to maintain the multiple uses of national forests, which include habitat, scenic and recreational use, sustainable hydrological flow, and other public interests. The Service focuses on improving and maintaining water quality, and it endorses a set of best management practices for forest lands and waters. Water quality monitoring has also become an integrated forest management practice. Tracking consumptive uses of water on national forest lands, in addition to water quality, is an important, and perhaps unique, part of the Forest Service's approach to water resource planning and management.⁵¹ The Aquatic Conservation Strategy, in development since 1987,⁵² is intended to restore and maintain the ecological health of watersheds and aquatic ecosystems on public lands. The strategy has become an integral part of major Forest Service actions, such as the Northwest Forest Plan.⁵³

⁴⁴ Cole, Feather, and Letting, A-8.

⁴⁵ McCammon, Bruce. Personal communication. 13 Nov. 2003.

⁴⁶ "Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis." Aug. 1995. Version 2.2. Regional Interagency Executive Committee/Intergovernmental Advisory Committee. 18 Dec. 2003 <<http://www.or.blm.gov/ForestPlan/Watershed/watershd.pdf>>.

⁴⁷ McCammon, Bruce. Personal communication. 13 Nov. 2003.

⁴⁸ *USDA Forest Service Strategic Plan (2000 Revision)*. 2000. U.S.D.A. Forest Service. 16 Dec. 2003 <<http://www.fs.fed.us/plan/stratplan.pdf>>.

⁴⁹ Knopp, Christopher. Personal communication. 5 Dec. 2003.

⁵⁰ Cole, Feather, and Letting, A-9.

⁵¹ Knopp, Christopher. Personal communication. 5 Dec. 2003.

⁵² McCammon, Bruce. Personal communication. 13 Nov. 2003.

⁵³ *News Release – Agencies Release Aquatic Conservation Strategy Final Supplemental Environmental Impact Statement*. 31 Oct. 2003. USDA Forest Service/USDI Bureau of Land Management. 8 Dec. 2003 <http://www.or.blm.gov/pao1/newsreleases/CY03/20031031-Aquatic_Conservation_Strategy/ACS_News_Release.pdf>.

WATERSHED PROGRAMS

Watershed management activities are administered by the Watershed, Fish, Wildlife, Air and Rare Plants (WFW) section of Forest Service. The program is broad and varied, addressing water use, water supply rights, restoration, and both preventative and mitigative best management practices. Wildfire, TMDLs, and abandoned mine lands are just a few of the forest management issues that the Forest Service handles on a watershed scale.⁵⁴ Within WFW, there exist four main programs:

- (1) Watershed Improvement and Restoration. Watershed improvement needs are identified and stored on corporate databases.⁵⁵ Restoration of damaged lands occurs through the application of timely restorative practices.
- (2) Burned Area Emergency Response. With a goal of protecting life, property, water quality, and further damage to deteriorated ecosystems, this program addresses the special situations created by wildfires, including loss of vegetation, erosion, runoff, sedimentation, endangered species and risks to community water supplies.⁵⁶
- (3) Water Quality Management. Program efforts primarily relate to implementing, monitoring, and improving the Service's "Best Management Practices," which aid the achievement of state water quality standards during Forest Service management activities. The program also addresses all TMDL issues occurring on National Forest System lands.
- (4) Water Uses. The program seeks to identify and protect all uses of water on National Forest lands.

⁵⁴ Knopp, Christopher: Personal communication. 5 Dec. 2003.

⁵⁵ *Ibid.*

⁵⁶ Watershed, Fish, Wildlife, Air and Rare Plants. U.S.D.A. Forest Service. 8 Dec. 2003 <<http://www.fs.fed.us/biology/watershed/index.html>>.

Specific components include the maintenance of water rights records and the identification and protection of drinking water supplies.⁵⁷

The Service also provides funding to a variety of groups to carry out watershed management practices and principles. Numerous research groups, state and private foresters, and other individuals working with the National Forest System receive these grants every year.⁵⁸ Assistance to rural communities and natural resource-based business seeks to support healthy communities, diverse economies and sustainability, with emphasis on capacity-building, collaborative planning, research and technology, and stewardship principles.⁵⁹

FUTURE DIRECTION

USDA Forest Service has embraced watershed-scale management throughout the agency as a whole and in the field. The benefits of watershed-scale management have been recognized for endangered species protection, water quality improvement, and a variety of other purposes.⁶⁰

The Forest Service continues to solidify a watershed approach by strengthening its water quality improvement and restoration programs, prioritizing watershed needs, and identifying watersheds where flow diversions may threaten forest uses. With a historic foundation of stewardship and strong watershed-based partnerships, the agency anticipates continuing programs for sustainable use and preservation of water and watershed resources into the future.⁶¹

⁵⁷ Knopp, Christopher: Personal communication. Feb. 2004.

⁵⁸ Knopp, Christopher: Personal communication. 5 Dec. 2003.

⁵⁹ Cole, Feather, and Letting, A-I I.

⁶⁰ McCammon, Bruce. Personal communication. 13 Nov. 2003.

⁶¹ Knopp, Christopher: Personal communication. Feb. 2004.

USDA NATURAL RESOURCES CONSERVATION SERVICE

OVERVIEW

The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) provides watershed protection planning assistance to individuals, groups, and local governments. The agency offers financial assistance to various communities for watershed projects and conducts surveys and inventories of the nation's soils and other natural resources.⁶² NRCS does not, however, have a comprehensive policy on how to apply the watershed approach to activities related to the Farm Bill and other areas.⁶³

Since passage of the 1996 Farm Bill, NRCS has administered its watershed program through what the agency calls locally-led conservation. This approach, which is an extension of the agency's traditional assistance to individual farms and ranchers, gives local people, generally with the leadership of conservation districts and NRCS technical assistance, the ability to assess their natural resource conditions and needs, set goals, identify ways to solve resource problems, and use the agency's array of programs to implement solutions.⁶⁴

NRCS's Watersheds and Wetlands Division, which is currently undergoing a reorganization,⁶⁵ develops policies related to wetland and watershed protection and oversees administration of the agency's incentive programs, including the Wildlife Habitat Incentive Program, Wetland Reserve Program, Emergency Watershed Protection Program, Watershed Protection and Flood Prevention Program (PL 566), and the wetland conservation provisions of the Food Security Act (Swampbuster).

WATERSHED SURVEYS AND PLANNING

The Watershed Protection and Flood Prevention Act (PL-566)⁶⁶ was authorized in 1954. Amendments offered in 1996 consolidated several programs into the Watershed Surveys and Planning Program.⁶⁷ PL-566 provides fund-

ing for NRCS to work in cooperation with other federal, state, and local agencies to develop river basin studies, floodplain management studies, floodplain insurance studies, and interagency coordination and program formulation. These plans serve as guides for the development of resources and as the basis for coordination with other water resource management and development projects.⁶⁸

PL-566 also authorized the Watershed Protection and Flood Prevention Program, also known as the Watershed Program. The program was designed to assist federal, state, local agencies, local government sponsors, tribal governments, and program participants to protect and restore watersheds from damage caused by erosion, flood-water, and sediment; to conserve and develop water and land resources; and to solve natural resource and related economic problems on a watershed basis. The program provides technical and financial assistance to local people or project sponsors, builds partnerships, and requires a financial contribution from local and state partners.⁶⁹

WATERSHED AND FLOOD PREVENTION OPERATIONS

FLOOD PREVENTION PROGRAM

Under NRCS's Flood Prevention Program (PL-534), the agency conducts flood prevention activities in 11 watersheds designated by the 1944 act.⁷⁰ Under the program NRCS may install watershed improvement measures to reduce flood, sedimentation, and erosion damages; further the conservation, development, utilization, and disposal of water; and the conservation and proper utilization of land.⁷¹

WATERSHED OPERATIONS

The Watershed Protection and Flood Prevention Act of 1954 (PL-566) encouraged federal, state, and local

⁶² Cole, Feather, and Letting, A-17.

⁶³ Frost, Jack. Personal communication. 10 Dec. 2003.

⁶⁴ *The NRCS Watershed Program Role In Locally-Led Conservation*. USDA Natural Resources Conservation Service. 10 Dec. 2003 <http://www.nrcs.usda.gov/programs/watershed/locally_led/locallyled.html>.

⁶⁵ Cerna, Albert. Personal communication. 10 Dec. 2003.

⁶⁶ 16 U.S.C. 1001-1008.

⁶⁷ *Watershed Protection, Watershed Surveys, and Flood Prevention*. USDA Natural Resources Conservation Service. 4 Dec. 2003 <<http://www.nrcs.usda.gov/programs/watershed/index.html>>.

⁶⁸ *Natural Resources Conservation Service: Watershed Surveys and Planning*. [FULL CITE NEEDED.]

⁶⁹ *Watershed Purpose, Surveys and Planning*. USDA Natural Resources Conservation Service. 4 Dec. 2003 <http://www.nrcs.usda.gov/programs/watershed/Surveys_Plngh.html#Purpose>.

⁷⁰ *Flood Prevention Program (PL 78-534)*. USDA Natural Resources Conservation Service. 10 Dec. 2003 <<http://www.nrcs.usda.gov/programs/watershed/pl534.html>>.

⁷¹ *Watershed Protection, Watershed Surveys, and Flood Prevention*. USDA Natural Resources Conservation Service. 10 Dec. 2003 <<http://www.nrcs.usda.gov/programs/watershed/index.html>>.

agencies to cooperate to prevent erosion, floodwater, and sediment damages; to further the conservation, development, utilization, and disposal of water; and to further the conservation and proper utilization of land in authorized watersheds.⁷²

Through both PL-534 and PL-566, NRCS provides technical and financial assistance for the implementation of flood prevention and watershed protection projects. Funding may be provided through cost-sharing or loans and loan services.⁷³

WATERSHED REHABILITATION

Since 1948, the USDA watershed program has funded the construction of more than 11,000 flood control dams in 47 states. Many of these dams, which were constructed with a 50-year design life span, are in need of rehabilitation. Amendments to the Watershed Protection and Flood Prevention Act in 2000 provided NRCS with the authority to assist communities with rehabilitation of their dams. The legislation authorizes the agency to work with local communities and watershed project sponsors to address public health and safety concerns and potential environmental impacts of aging dams. NRCS provides technical and financial assistance in planning, designing, and implementing watershed rehabilitation projects or removal of dams.⁷⁴

EMERGENCY WATERSHED PROTECTION

The Emergency Watershed Protection (EWP) program supports emergency measures, including the purchase of flood plain easements, for runoff retardation and soil erosion prevention. The program intends to safeguard lives and property from floods, drought, and the products of erosion on any watershed whenever fire, flood or any other natural occurrence is causing or has caused a sudden impairment of the watershed.⁷⁵ NRCS provides up to 75

percent of the funds needed to restore the natural function of a watershed. The community or local sponsor of the work pays the remaining 25 percent, which can be provided in cash or in-kind services.⁷⁶

NRCS INSTITUTES

NRCS also oversees several institutes that develop and test science-based tools, methods, and procedures for use by agency staff as well as provides training. The *Natural Resources Inventory and Analysis Institute* includes the Natural Resources Inventory (NRI), a statistical survey of land use and natural resource conditions and trends on non-federal lands. The NRI program serves as the federal government's principal source of information on the status, condition, and trends of soil, water, and related resources in the United States.⁷⁷

The *Watershed Science Institute* is a group of interdisciplinary specialists who develop technical tools to help agency field staff analyze watershed-based resource issues. The Institute provides expert consultation on resource problems and trains others in the use of new or updated tools and procedures. The Institute's watershed-based research and technology development focuses on nutrient management, riparian areas, stream corridors, ecological health indicators, restoration, and management.⁷⁸

The *Wetland Science Institute* develops applied scientific techniques for wetland conservation needs; provides expert technical consultation to NRCS and others for resolving problem areas in the field; develops and disseminates NRCS technical guidance documents; and services as resident technical experts, providing specialized training in wetland science. The Institute also serves as the NRCS technical liaison with government and university research and technology centers, ensuring the coordination and cooperative development and dissemination of emerging wetland science information.⁷⁹

⁷² [Natural Resources Conservation Service: Watershed and Flood Prevention Operations](#). [FULL CITE NEEDED.]

⁷³ [Natural Resources Conservation Service: Watershed and Flood Prevention Operations](#). [FULL CITE NEEDED.]

⁷⁴ [Overview – Rehabilitation of Aging Dams](#), June 2003. USDA Natural Resources Conservation Service. 10 Dec. 2003 <http://www.nrcs.usda.gov/programs/ws_reinvent/Rehab/Fact%20Sheet-Rehab%20Overview.pdf>.

⁷⁵ [Emergency Watershed Protection](#). USDA Natural Resources Conservation Service. 23 Dec. 2003 <<http://www.nrcs.usda.gov/programs/ewp/>>.

⁷⁶ [Traditional Types of EWP Assistance](#). USDA Natural Resources Conservation Service. 10 Dec. 2003 <http://www.nrcs.usda.gov/programs/ewp/traditional_ewp.html>.

⁷⁷ [Natural Resources Inventory](#). USDA Natural Resources Conservation Service. 10 Dec. 2003 <<http://www.nrcs.usda.gov/technical/NRI/>>.

⁷⁸ [Watershed Science Institute](#). USDA Natural Resources Conservation Service. 10 Dec. 2003 <<http://www.wsi.nrcs.usda.gov/about/>>.

⁷⁹ [Wetland Science Institute: Mission and Functions](#). USDA Natural Resources Conservation Service. 10 Dec. 2003 <<http://www.pwrc.usgs.gov/wli/wlimiss.htm>>.

U.S. FISH AND WILDLIFE SERVICE

OVERVIEW

The U.S. Department of Interior Fish and Wildlife Service's (FWS) mission is to "conserve, protect, and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people."⁸⁰ This mission expresses the Service's focus on habitat management and protection, as well as endangered species management under the Endangered Species Act.⁸¹ In recent years, the FWS has adopted an ecosystem approach, which is "based on all of the biological resources within a watershed and considers the economic health of communities within that watershed."⁸²

The FWS developed its ecosystem approach during the 1990s, recognizing that a single animal, species or piece of land cannot be conserved in isolation from its surrounding environment or along politically defined boundaries.⁸³ Prior to the adoption of the ecosystem approach, the Service had not successfully implemented a recovery plan to de-list any endangered aquatic species.⁸⁴ In 1995, the Service released a directive that introduced and provided guidance on ecosystem-based management.⁸⁵ Since that time, FWS has worked to protect and manage species and habitats by protecting and managing "geographic areas including all the living organisms, their physical surroundings, and the natural cycles that sustain them."⁸⁶

FWS'S APPROACH

FWS characterizes the ecosystem approach as the following:

- Having a primary goal of conserving natural biological diversity and ecosystem integrity, while supporting a sustainable level of human use;

- Development of common goals and decision-making among stakeholders;
- Consideration of all biological and socio-economic factors in management decisions;
- Management decisions made along natural, ecologically defined boundaries;
- Adaptation of ecosystem management strategies to changing biological and societal circumstances.⁸⁷

FWS implementation of this approach to ecosystem management emphasizes (1) thinking in terms of systems, relationships, and processes; (2) cross-program collaboration within the Service; and (3) communication among stakeholders.⁸⁸

WATERSHED PROGRAMS

FWS has delineated 53 ecosystems in the United States, based on groupings of watersheds defined by the U.S. Geological Survey.⁸⁹ FWS uses watersheds to define ecoregions because 45 percent of the listed endangered and threatened species have been shown to depend directly upon watershed processes within aquatic, wetland and riparian habitats. Ecosystem teams have been established in each of the 53 ecosystem units. Teams vary in their composition and activity; some are composed entirely of FWS field staff, while others include representatives from private landholder interests, nongovernmental organizations, state agencies, and other federal agencies. The teams' primary mission is to facilitate coordinated planning efforts across various activities and branches of the FWS, while maintaining the best interests of ecosystem health and focusing habitat and endangered species management.⁹⁰

The FWS ecosystem approach to policy planning or review includes watershed considerations, although it was not initially intended to be a formal watershed policy, program, or watershed initiative. FWS regional offices often collaborate with local and state governments, other federal

⁸⁰ [U.S. Fish & Wildlife Service](http://www.fws.gov/). U.S. Fish and Wildlife Service. 5 Dec. 2003 <<http://www.fws.gov/>>.

⁸¹ *Ibid.*

⁸² [Ecosystem Conservation](http://ecosystems.fws.gov/). U.S. Fish and Wildlife Service. 5 Dec. 2003 <<http://ecosystems.fws.gov/>>.

⁸³ [National Policy Issuance #95-03](http://policy.fws.gov/npi95_03.html), 9 Feb. 1995. U.S. Department of the Interior; Fish and Wildlife Service. 5 Dec. 2003 <http://policy.fws.gov/npi95_03.html>.

⁸⁴ Cole, Feather; Letting, A-20.

⁸⁵ [National Policy Issuance #95-03](http://policy.fws.gov/npi95_03.html), 9 Feb. 1995. U.S. Department of the Interior; Fish and Wildlife Service. 5 Dec. 2003 <http://policy.fws.gov/npi95_03.html>.

⁸⁶ [Ecosystem Conservation](http://ecosystems.fws.gov/). U.S. Fish and Wildlife Service. 5 Dec. 2003 <<http://ecosystems.fws.gov/>>.

⁸⁷ Noss, R. Scott M., and E.T. LaRoe. "Endangered Ecosystems of the United States: A Preliminary Assessment of Loss and Degradation." Feb. 1995.

[Biological Report](http://training.fws.gov/library/pubs9/habitatmgmt/concept.html) 28: 58. U.S. Fish and Wildlife Service/National Biological Service. 5 Dec. 2003 <<http://training.fws.gov/library/pubs9/habitatmgmt/concept.html>>.

⁸⁸ *Ibid.*

⁸⁹ [Ecosystem Conservation](http://ecosystems.fws.gov/). U.S. Fish and Wildlife Service. 5 Dec. 2003 <<http://ecosystems.fws.gov/>>.

⁹⁰ Nims-Elliott, Robin. Personal communication. 3 Nov. 2003.

agencies, for- and non-profit groups, and landowners in efforts that address watershed management issues.⁹¹ For example, the Service assists interstate commissions in the development of fishery management plans for harvested species at risk. These plans are often linked with watershed-based ecosystem restoration plans. FWS also aids in the development of management plans for refuge lands and Department of Defense military reservations. The planning process is compatible with any regional breakdown of management activities, including the watershed approach (although few state fish and wildlife agencies are regionally organized by watershed).

FWS also works with state and federal agencies to restore threatened and endangered aquatic species by “re-establishing watershed functions through removal of, or passage around, manmade barriers in rivers and streams.” In another example, FWS recently entered into a Memorandum of Agreement (MOA) with the U.S. Environmental Protection Agency and the National Marine Fisheries Service. The 2001 MOA calls for more formal interaction regarding the Clean Water Act, which is increasingly being executed through a watershed management approach.⁹²

GRANTS AND FUNDING

Generally, the FWS provides grants for wetlands, endangered species, coastal environmental management, and other important components of a watershed approach, although there are none specific to watershed management activities.⁹³ For example, the majority of the grants from the Partners for Fish and Wildlife Program are for wetland restoration on private lands. Some of the criteria by which projects are selected support the watershed approach.⁹⁴

NATIONAL WETLANDS INVENTORY

The FWS also administers a National Wetlands Inventory (NWI), a center that produces information about the characteristics, quantity, and status of the nation’s wetlands and deepwater habitats. The NWI has produced maps of U.S. wetlands for about 90 percent of the lower 48 states and 18 percent of Alaska.⁹⁵ These maps

are used for a variety of purposes, including planning for watersheds and drinking water supply protection.⁹⁶

The NWI Program has recently developed procedures to produce watershed-based wetland and natural habitat integrity assessments using remotely sensed information. This work involves enhancing NWI digital data to include descriptors for wetland landscape position, landform, water flow path, and waterbody type and then using the expanded NWI database to produce a preliminary assessment for 10 functions, which include surface water detention, streamflow maintenance, nutrient transformation, sediment and other particulate retention, shoreline stabilization, fish and shellfish habitat, waterfowl and waterbird habitat, other wildlife habitat, and conservation of biodiversity. The assessments are based on an approach called Watershed-based Preliminary Assessment of Wetland Functions (W-PAWF). W-PAWF uses documented best professional judgment by wetland specialists from federal, state, and local agencies and the academic community to develop correlations between wetland characteristics in the NWI database and the 10 wetland functions. The assessment can also be used for predicting the cumulative effect of wetland losses on these functions for individual watersheds. At present, preliminary wetland assessments can be prepared for individual watersheds where the FWS receives support from state and municipal agencies.⁹⁷

The NWI program has also developed a set of 10 remotely sensed indices for evaluating and monitoring wetlands and other natural habitats in watersheds. These indices, which address the extent of natural habitats and their alteration, include: natural cover (the amount of natural habitat remaining), wetland extent, vegetated stream corridor, wetland and other waterbody buffers, standing waterbody extent, channelized stream length, dammed river/stream length, wetland disturbance, and habitat fragmentation by roads. The tenth index is a composite of these indices. Collectively, these ten indices provide a useful tool for today’s natural resource managers to evaluate the extent and general condition of natural habitats statistically and to compare past, present, and future conditions.⁹⁸

⁹¹ Gallihugh, Jeannette. Personal communication. 28 Oct. 2003.

⁹² Federal Register Environmental Documents: Memorandum of Agreement Between the Environmental Protection Agency, Fish and Wildlife Service, and the National Marine Fisheries Service Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act. 22 Feb. 2001. U.S. Environmental Protection Agency. 18 Dec. 2003 <<http://www.epa.gov/fedrgstr/EPA-WATER/2001/February/Day-22/w2170.htm>>.

⁹³ Gallihugh, Jeannette. Personal communication. 28 Oct. 2003.

⁹⁴ Nims-Elliott, Robin. Personal communication. 3 Nov. 2003.

⁹⁵ National Wetlands Inventory: About Us. U.S. Fish and Wildlife Service. 17 Dec. 2003 <<http://www.nwi.fws.gov/aboutus.htm>>.

⁹⁶ National Wetlands Inventory: Overview. U.S. Fish and Wildlife Service. 17 Dec. 2003 <<http://www.nwi.fws.gov/overview.htm>>.

⁹⁷ Tiner, Ralph. “Re: Request: review of federal agency summary interim documents.” E-mail to Roxanne Thomas. 20 Jan. 2004.

⁹⁸ *Ibid.*

U.S. ENVIRONMENTAL PROTECTION AGENCY

OVERVIEW

With a focus on water quality improvement, the U.S. Environmental Protection Agency (EPA) began advocating the watershed approach for environmental protection in the early 1990s. Although the nation's waters had achieved significant improvements in biological, chemical, and physical integrity since passage of the Clean Water Act in 1972, a 1994 report found that nearly 40 percent of U.S. waters were still impaired. In response, EPA has increased its support of watershed-scale initiatives to restore and protect the nation's waters throughout the past decade.⁹⁹

In 2002, the EPA Assistant Administrator for Water reaffirmed this commitment to watershed management stating, "The watershed approach should not be seen as merely a special initiative, targeted at just a selected set of places or involving a relatively small group of EPA or state staff. Rather, it should be the fulcrum of our restoration and protection efforts, and those of our many stakeholders, private and public. Failure to fully incorporate the watershed approach into program implementation will result in failure to achieve our environmental objectives in many of our nation's waters."¹⁰⁰

Indeed, EPA has several programs and policies through which its watershed approach is implemented. Much of the agency's strategy involves encouraging state, tribal, and local governments to support community-based watershed initiatives by providing direct grants and technical assistance.

EPA'S APPROACH

EPA defines the watershed approach as "a coordinating framework for environmental management that focuses public and private sector efforts to address the highest priority problems within hydrologically-defined geographic areas, taking into consideration both ground and surface water flow."¹⁰¹ The agency's watershed

approach emphasizes the role of state, tribal, and local agencies and organizations, as well as public and private interests, in watershed protection and management.¹⁰² EPA guiding principles stress that effective stakeholder involvement creates environmental protection, community building, and lasting solutions.¹⁰³

While watershed-focused efforts will have varying objectives and outcomes, according to the EPA, key elements should generally include: (1) partnerships among stakeholders, (2) geographic scope of management units based on hydrological considerations, and (3) management and decisions based on sound scientific data.¹⁰⁴ EPA does acknowledge that watersheds can be delineated at varying scales, each with different implications for problem identification, as well as differing roles for political authorities and other stakeholders. However, the agency emphasizes the identification of "geographic management units" within which watershed policies may be implemented and monitored.¹⁰⁵

WATERSHED PROGRAMS

The EPA supports watershed plans and initiatives across the nation in a variety of ways. The agency's approach to watershed management is largely non-regulatory and information-based, with the purpose of finding creative solutions to achieve the goals of the Clean Water Act. An important aspect of the EPA's approach is establishing partnerships with state, tribal, and local authorities. The agency often provides funding, technical support, and planning guidance to states, tribes and local groups to implement the Clean Water Act and Safe Drinking Water Act.¹⁰⁶

The Clean Water Act's §319 Nonpoint Source (NPS) Management Program requires individual states to complete an assessment of nonpoint source (NPS) pollution problems within the states' waters, as well as a manage-

⁹⁹ *Watersheds: Introduction*. 23 Aug. 2002. U.S. Environmental Protection Agency. 3 Dec. 2003 <<http://www.epa.gov/owow/watershed/framework/ch1.html>>.

¹⁰⁰ Mehan, III, G. Tracy. Memo to Office Directors and Regional Water Division Directors, U.S. Environmental Protection Agency, Washington, D.C. 3 Dec. 2002.

¹⁰¹ *Watersheds: What is a Watershed Approach?* 23 Aug. 2002. U.S. Environmental Protection Agency. 3 Dec. 2003 <<http://www.epa.gov/owow/watershed/framework/ch2.html>>.

¹⁰² U.S. Environmental Protection Agency, *Watersheds: Introduction*.

¹⁰³ National Research Council. *New Strategies for America's Watersheds*. Washington, D.C.: National Academy Press, 1999. (p. 256).

¹⁰⁴ *Watersheds: Guiding Principles*. 23 Aug. 2002. U.S. Environmental Protection Agency. 3 Dec. 2003 <<http://www.epa.gov/owow/watershed/framework/ch3.html>>.

¹⁰⁵ National Research Council, *New Strategies for America's Watersheds*, 255.

¹⁰⁶ Norton, Douglas. Personal communication. 4 Nov. 2003.

ment plan to address the identified problems. Section 205 of the Act provides funds to assist the states in the assessment and management planning process, while §319 established a funding program to provide financial assistance for implementation of the state's NPS management program.¹⁰⁷ More than \$238 million in §319 funds were allocated for Fiscal Year (FY) 2004. In keeping with EPA's movement towards the watershed approach, emphasis is placed on NPS controls in a watershed framework.¹⁰⁸

Another EPA grant program, the Watershed Initiative, began in 2002. Requesting \$20 million for the program for FY 2004, the agency plans to provide grant to as many as 20 watersheds across the country to implement watershed-based programs for the improvement of water quality.¹⁰⁹ Since 1995, Congress has appropriated \$15 million annually for Wetland Program Development Grants (WPDGs). These funds, provided to states, tribes, local governments, and non-profit organizations, have been awarded for a variety of regional projects that "develop and refine comprehensive wetlands programs."¹¹⁰ In keeping with the agency's increasing emphasis on watershed-based initiatives, the FY 2003 WPDG Guidelines state that the agency will give priority to watershed-based efforts to integrate wetland management into broad watershed protection approaches.¹¹¹ EPA also provides general guidance for watershed managers on grants and loans that may be available from other federal government sources through its web site and a 1999 publication, *Catalog of Federal Funding Sources for Watershed Protection*.¹¹²

In addition to its grant programs, EPA also provides education and outreach related to watershed management. For example, the Watershed Academy offers live and online training, as well as publications in water law and policy, watershed and water quality management, TMDL training, landscape ecology and smart growth, restoration, community-based management, and other related courses. Because much of the training is available

online or on CD, it is widely available, both nationally and internationally.¹¹³

EPA has also adapted its regulatory programs to the watershed approach. The agency is developing guidance for watershed-based National Pollutant Discharge Elimination System (NPDES) permits. These permits would apply to multiple point sources located within a defined geographic area, such as a watershed's boundaries. This initiative promotes the watershed approach by taking into consideration watershed-wide goals, as well as the impact of multiple pollutant sources and stressors.¹¹⁴ State regulators are encouraged to issue permits based on watershed needs, rather than focusing on individual facilities. EPA supported the recent issuance of the nation's first watershed-based NPDES permit in the Tualatin River watershed of Oregon. The permit, issued by the Oregon Department of Environmental Quality, covers four wastewater facilities and a stormwater system operated by Clean Water Services of Hillsboro, which is located in a suburban area southwest of Portland.¹¹⁵

Section 303(d) of the Clean Water Act requires the states to develop a list of impaired waters that do not meet the water quality standards that they have set for them. States must then develop Total Maximum Daily Loads (TMDLs) for these impaired waters.¹¹⁶ The development of TMDLs can play a central role in development of watershed plans. TMDLs require the calculation of the total amount of a given pollutant that can be loaded into a waterbody over a specified period of time while still meeting state water quality standards. The acceptable total load for a waterbody is allocated among all the sources of the pollutant in the watershed. TMDL development can help focus watershed planning and watershed restoration activities because they are based on a specific, measurable environmental goal—the achievement of state water quality standards—for specific waterbodies.¹¹⁷

Through reauthorization to the Clean Water Act in 1987, Congress established the National Estuary Program to improve the quality of estuaries deemed of national importance. Administered by the EPA, the Act requires

¹⁰⁷ Federal Water Quality Programs. The State of Iowa. 15 Jan. 2004. <<http://www.state.ia.us/government/dnr/organiza/epd/prgrmdsc/nonpt/wqp.htm>>.

¹⁰⁸ Federal Register Environmental Documents: Nonpoint Source Program and Grants Guidelines for States and Territories. Diane Regas. 23 Oct. 2003. U.S. Environmental Protection Agency. 3 Dec. 2003 <<http://www.epa.gov/fedrgrstr/EPA-WATER/2003/October/Day-23/w26755.htm>>.

¹⁰⁹ Watershed Initiative: Fact Sheet. 8 Oct. 2003. U.S. Environmental Protection Agency. 3 Dec. 2003 <<http://www.epa.gov/owow/watershed/initiative/budget.form/2004factsheet.html>>.

¹¹⁰ FY 03 Wetland Program Development Grants Guidelines. Robert H. Wayland. 26 Aug. 2002. U.S. Environmental Protection Agency. 3 Dec. 2003 <<http://www.epa.gov/fedrgrstr/EPA-WATER/2002/August/Day-26/w21670.htm>>.

¹¹¹ *Ibid.*

¹¹² Cole, Feather, and Letting, A-5.

¹¹³ Watershed Academy Web: Online Training and Management. 16 Dec. 2003. U.S. Environmental Protection Agency. 4 Mar. 2004 <<http://www.epa.gov/watertrain/>>.

¹¹⁴ Watershed-Based National Pollutant Discharge Elimination System (NPDES) Permitting Implementation Guidance - Draft. Aug. 2003. U.S. Environmental Protection Agency. 3 Dec. 2003 <http://www.epa.gov/npdes/pubs/watershed_guidance_aug_03.pdf>.

¹¹⁵ News Release: DEQ Issues First in the Nation Watershed-based Permit to Clean Water Services. 1 Mar. 2004. Oregon Department of Environmental Quality. 9 Mar. 2004 <<http://www.deq.state.or.us/news/prDisplay.asp?docID=1494>>.

¹¹⁶ Overview of Current Total Maximum Daily Load - TMDL - Program and Regulations. 19 Mar. 2003. U.S. Environmental Protection Agency. 5 Apr. 2004 <<http://www.epa.gov/owow/tmdl/overviewfs.html>>.

¹¹⁷ Painter, William. "Re: Action: input on ELI watershed summary document." E-mail to Palmer Hough. 13 Feb. 2004.

plans to be developed for attaining or maintaining water quality in an estuary. There are currently 28 estuaries in the National Estuary Program (NEP).¹¹⁸ Each NEP must create and implement a Comprehensive Conservation and Management Plan (CCMP) to meet the goals of §320 of the Clean Water Act. The plan must address all aspects of environmental protection for the estuary, including water quality, habitat, living resources, and land use. Based on a scientific characterization of the estuary, the CCMP is developed and approved by a broad-based coalition of stakeholders. The CCMP establishes priorities for action, research, and funding, and serves as a blueprint to guide future decisions and activities related to the estuary.¹¹⁹ Unlike traditional regulatory approaches to environmental protection, the NEP targets a broad range of issues and engages local communities in the process. The program focuses not just on improving water quality in an estuary, but on maintaining the integrity of the whole system, including chemical, physical, and biological properties, as well as economic, recreational, and aesthetic values.¹²⁰

The Source Water Assessment and Protection Program (SWAP), mandated under the Safe Drinking Water Act (SDWA) Amendments of 1996, requires each state to develop and implement a program to assess the threat of contamination from source waters for each public drinking water supply system. Source Water Assessments (SWAs) are valuable in assessing a watershed and developing a plan to protect water resources. Many states' SWAs include some level of hydrologic modeling to determine catchment and/or recharge areas of the greatest influence to the public water system, which can be used in preparing an overall watershed assessment. An inventory of potentially significant sources of contamination to the public water system also must be included in all SWAs. Federal guidance for the SWAP Program recommends the development of Source Water Protection Plans to follow up on the results of the SWAs, which many communities around the country have developed and begun to implement. These efforts could be considered a foundation for comprehensive watershed protection planning in watersheds with public drinking water supplies.¹²¹

¹¹⁸ [National Estuary Program](#). 21 Nov. 2003. U.S. Environmental Protection Agency. 13 Feb. 2003 <<http://www.epa.gov/owow/estuaries/>>.

¹¹⁹ [National Estuary Program: Comprehensive Conservation and Management Plans](#). 16 Jan. 2004. U.S. Environmental Protection Agency. 13 Feb. 2003 <<http://www.epa.gov/owow/estuaries/ccmp/>>.

¹²⁰ Laurson, Nancy. "Re: Action: input on ELI watershed summary document." E-mail to Palmer Hough. 5 Feb. 2004.

¹²¹ Coutlakakis, Denise. "the SWAP piece." E-mail to Palmer Hough. 18 Feb. 2004.

Wetlands protection through integrated watershed management is specifically recognized and encouraged by the EPA. In addition to the programs described above, the agency is currently involved in developing guidance to make compensatory mitigation decisions in a watershed context, funding state watershed projects through state Wetland Protection Grants, integrating a watershed approach into federal floodplain management, and supporting meetings on wetlands and watershed planning.

FUTURE DIRECTION

EPA's Assistant Administrator for Water created the Watershed Management Council (WMC) in 2002, which is composed of agency personnel from headquarters and regional offices. The Council was charged with making recommendations on how to advance the watershed approach, develop program integration strategies for EPA and other federal programs, and establish goals for training pertinent regional and headquarter employees on water-related statutes.¹²²

EPA's Office of Water, Oceans, and Watersheds (OWOW) has identified "Program Integration in a Watershed Context" as one key to their future success. To that end, the office has established watershed teams to encourage state and local governments to support community watershed efforts. The Smart Growth team is currently developing and disseminating analytic and legal tools to support local land use management for water quality improvement. The Watershed Planning Team seeks to ensure consistency in planning processes. The Sustainable Finance Team is working to increase the ability of watershed-based partnerships to procure sustainable sources of financing for watershed protection and restoration initiatives.¹²³ By 2005, EPA plans to provide decision support tools to local watershed managers.¹²⁴

¹²² Mehan, III, G. Tracy. Memo to Office Directors and Regional Water Division Directors, U.S. Environmental Protection Agency, Washington, D.C. 3 Dec. 2002.

¹²³ Regas, Diane. "New OWOW Watershed Teams." E-mail to OWOW staff. 15 Oct. 2003.

¹²⁴ Cole, Feather, and Letting, A-I.

FEDERAL HIGHWAY ADMINISTRATION

OVERVIEW

The Federal Highway Administration (FHWA) is responsible for providing financial and technical assistance to the states for road construction and maintenance projects. There are two offices within the FHWA's Planning, Environment and Realty Program that are charged with minimizing the negative environmental impacts of projects supported by Federal-aid Highway Program funds: the Office of Natural and Human Environment and the Office of Project Development and Environmental Review. These offices work through the FHWA's 52 Division Offices and state departments of transportation (DOTs) to ensure that wetlands protection, water quality, air quality, and other environmental standards imposed by federal environmental and transportation rules and statutes are upheld in all activities supported by federal-aid highway funds.

Since the early 1990s the FHWA has been exploring and encouraging approaches to transportation planning and environmental mitigation that are integrated with ecosystem and watershed goals. According a 2002 report, it is FHWA's policy to "promote and support watershed planning and the coordination of transportation planning with effective watershed planning to reduce erosion and nonpoint source pollution from highway construction, maintenance, and operations."¹²⁵ While the agency does not have an explicit policy on the watershed approach or any designated watershed programs, recent rule changes, guidance, and memoranda signal a shift away from a project-by-project approach to compensatory wetland mitigation, toward a more flexible approach informed by a larger watershed and ecosystem perspective. Through the allocation of research funds and a new recognition program, FHWA is encouraging state DOTs to develop watershed-based approaches to compensatory mitigation.

FHWA'S WATERSHED APPROACH

The FHWA is a decentralized agency that directs a national program of federal aid for highway and related transportation improvement. State DOTs initiate and implement actions under the program in concert with the FHWA division office located in each state. However,

since the early 1990s, the agency's headquarters offices have taken several steps to encourage the adoption of a watershed approach to compensatory mitigation and to general transportation planning. Internal policy changes and guidance, combined with statutory mandates, have placed the FHWA on its current trajectory.

Recent transportation bills have moved the FHWA toward greater integration of transportation and environmental planning and a more flexible ecosystem and watershed-based approach to compensatory mitigation. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) requires transportation planning to include an evaluation of environmental impacts.¹²⁶ ISTEA also moved the agency towards an ecosystem approach insofar as it "provides clear and specific authority for advance inventory of wetlands resources, participation in local and regional planning efforts for management of wetlands ecosystems and development of mitigation of unavoidable wetlands impacts."¹²⁷

When ISTEA was reauthorized in 1998 as the Transportation Equity Act for the 21st Century (TEA-21), it took significant steps towards integrating transportation development and mitigation in a watershed context. TEA-21 established a preference for using wetland mitigation banks to provide compensatory mitigation for wetland impacts caused by transportation projects receiving federal-aid highway funding. The TEA-21 preference was designed to make wetland mitigation more efficient, flexible, and ecologically effective in the larger watershed context. The mitigation banking preference encourages transitioning from the project-by-project automatic on-site mitigation preference to a more ecologically driven mitigation decision-making process. TEA-21 is designed to ensure that although mitigation conducted at mitigation banks is off-site, banks must be in the same service area as the impacts, which are defined by watershed and ecoregional boundaries. Beyond simply ensuring that banked mitigation occurs in the same watershed as impacts, guidance issued by FHWA in July 2003 states, "Local watershed needs will be considered in conditioning permits and selecting mitigation alternatives to ensure

¹²⁶ Cole, Feather, and Letting, A-22.

¹²⁷ Garrett, P.A. and F.G. Bank. *The Ecosystem Approach and Transportation Development*. Oct. 1995. Federal Highway Administration. 9 Dec. 2003 <<http://www.fhwa.dot.gov/environment/ECSYSAPP.htm>>.

¹²⁵ Federal Highway Administration. "Environmental Policy Statement." 1994. p. 5. 23 Feb. 2004 <<http://environment.fhwa.dot.gov/guidebook/vol2/doc9b.pdf>>.

that broad scale watershed and landscape management objectives are met by the selected mitigation approach.”¹²⁸

While recent transportation bills, guidance, and rule changes have been designed to move FHWA toward a more flexible, efficient, and ecologically informed compensatory mitigation policy, the agency continues to explore how to encourage a more comprehensive watershed approach. In a 1996 paper entitled “Transportation Planning—The Watershed Connection,” FHWA argued that “the planning processes for transportation development and watershed management should be inter-meshed.” The paper cited wetland mitigation as an area in which a watershed view of actions and impacts is especially appropriate. Rather than the piecemeal project-by-project mitigation approach, the paper recommends that transportation agencies “plan and implement mitigation actions that contribute directly to established wetland protection goals of the watershed.”¹²⁹

Among its objectives, The FHWA’s “Strategic Plan for Environmental Research, 1998-2003” planned to “develop tools for integrating transportation system planning and watershed-based resource management to enhance and preserve natural resource values and functions.” The plan goes on to state that, “Watershed-based planning has the potential to improve the effectiveness of mitigation, reduce mitigation costs, and help prevent adverse cumulative and indirect impacts from transportation projects.” A number of tasks are laid out in the Strategic Plan to help transition towards a watershed approach to wetland mitigation:

- “Develop ongoing communication and partnerships among watershed stakeholders, regulatory agencies, and the transportation community in watershed and transportation planning.
- Analyze watershed resources and recommend techniques and practices to reduce or minimize transportation impacts on watershed functions and values.
- Develop a pilot program to serve as a model for the integration of transportation system planning and watershed management.”¹³⁰

¹²⁸ [Federal Guidance on the Use of the TEA-21 Preference for Mitigation Banking to Fulfill Mitigation Requirements under Section 404 of the Clean Water Act](http://www.fhwa.dot.gov/environment/wetland/tea21bnk.htm). 11 July 2003. Federal Highway Administration. 10 Dec. 2003 <<http://www.fhwa.dot.gov/environment/wetland/tea21bnk.htm>>.

¹²⁹ Bank, Fred G. [Transportation Planning—The Watershed Connection](http://www.fhwa.dot.gov/environment/wtrshd96.htm). Federal Highway Administration. 9 Dec. 2003 <<http://www.fhwa.dot.gov/environment/wtrshd96.htm>>.

¹³⁰ [Strategic Plan for Environmental Research, 1998-2003](http://www.fhwa.dot.gov/environment/straplans.pdf). Apr. 1998. Federal Highway Administration. 10 Dec. 2003 <<http://www.fhwa.dot.gov/environment/straplans.pdf>>. (p. 14.)

FHWA WATERSHED PROGRAMS

In 2001, “Environmental Stewardship and Streamlining” was designated as one of the FHWA’s three goals. One of the primary objectives of this goal is to increase “ecosystem and habitat conservation.” FHWA is focusing on ecosystem and habitat conservation as a key form of environmental stewardship because, “it allows highway agencies to mitigate project impacts with flexible, regional, ecosystem approaches rather than site-specific mitigation plans that are often more costly and provide less ecological benefit.”¹³¹ The Exemplary Ecosystem Initiative (EEI) program is one result of the agency’s efforts to achieve the ecosystem and habitat conservation objective. The EEI program is meant to “identify projects as examples of exemplary ecosystem initiatives and direct national focus and resources to them” in order to encourage their duplication and adaptation for use elsewhere.¹³² The agency hopes to implement 30 exemplary ecosystem initiatives in at least 20 states by 2007.

Though the EEI program is intended to recognize initiatives that integrate transportation development with an ecosystem approach generally, mitigation planning and policy is one of the primary areas of focus. One of the specific project types that is eligible for recognition in the EEI program is “development of general watershed-based environmental impact assessment and mitigation approaches.” Of the eight initiatives that have been recognized through the EEI program thus far, four were related to wetland and ecological restoration. Of these four, two programs, the North Carolina Ecosystem Enhancement Program and the Washington State watershed-based mitigation initiative, are efforts to institute watershed-based approaches to mitigating wetland impacts from highway projects.¹³³

The EEI program is primarily intended to recognize, highlight, and encourage the duplication of innovative programs to integrate transportation development and ecosystem management. The FHWA promotes the innovative approaches recognized through the EEI programs at conferences and training workshops throughout the country. Though there is not a formal grant program connected to the EEI program, the Office of Human and Natural Environment and the Office of Project Development and Environmental Review provides some funding for EEI programs through their research budgets.

¹³¹ [FHWA Vital Few Goal: Environmental Stewardship and Streamlining—Criteria for Selection of Exemplary Ecosystem Initiatives](http://www.fhwa.dot.gov/environment/ecoinitc.htm). Federal Highway Administration. 9 Dec 2003 <<http://www.fhwa.dot.gov/environment/ecoinitc.htm>>.

¹³² *Ibid.*

¹³³ Shrouds, JM. [Designation of FHWA Exemplary Ecosystem Initiatives for 2003](http://www.fhwa.dot.gov/environment/eei/03desmem.htm). 24 Nov. 2003. Federal Highway Administration. 10 Dec. 2003 <<http://www.fhwa.dot.gov/environment/eei/03desmem.htm>>.

INTERAGENCY EFFORTS

THE UNIFIED FEDERAL POLICY FOR A WATERSHED APPROACH TO FEDERAL LAND AND RESOURCE MANAGEMENT

The Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management (UFP) was part of President Clinton's 1998 Clean Water Action Plan.¹³⁴ The UFP was signed by representatives of the Departments of Agriculture, Commerce, Defense, Energy, and Interior, as well as the U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, and the Tennessee Valley Authority. It became effective October 18, 2000. The policy was developed to "reduce water pollution from Federal activities and foster a unified, watershed-based approach to Federal land and resource management."¹³⁵ While the UFP is not a rule or regulation and does not include any new authority or funding, it does call on the participating agencies to develop new procedures and methodologies for assessing and managing watersheds that include significant amounts of federal land. Though the new assessment and management methodologies are to be applied only to federal lands, they may well influence federal policy relating to managing aquatic resources on non-federal land.

The UFP includes objectives in four areas "(1) development of common water assessment procedures; (2) adoption of a watershed management approach; (3) improved consistency and compliance with federal, state, tribal, and interstate water quality requirements; and (4) enhanced collaboration with all stakeholders."¹³⁶ Objectives relating to the watershed assessment goal include: developing procedures for "delineating, assessing, and classifying watersheds" and "conduct[ing] assessments of watersheds that have significant Federal lands and resources."¹³⁷

The watershed management objective calls for using a "watershed management approach when protecting and

restoring watersheds." It encourages federal agencies to: "work collaboratively to identify priority watersheds;" identify and designate aquatic resources that are especially valuable or significant; "improve watershed conditions through restoration and adaptive management;" "base watershed management on scientific principles and methods;" and "identify and incorporate watershed management goals into our planning, programs, and actions."¹³⁸

In order to improve the federal government's compliance with Clean Water Act requirements, the policy calls for the agencies to "review agency policies to improve compliance" and "integrate water quality standards and watershed management goals." To enhance collaboration the policy calls on the agencies to "improve cooperation among Federal agencies;" "improve cooperation with States, Tribes, and local governments;" "expand opportunities for participation of interested stakeholders;" "expand opportunities for dialogue with private landowners" who may be impacted by Federal land and resource management; "develop and implement a coordinated monitoring and evaluation approach;" and "share training, information, and technical expertise."¹³⁹

Though the UFP has not been officially rescinded there has been very little planning or focus on its implementation since its adoption in 2000.¹⁴⁰

ECOSYSTEM ANALYSIS AT THE WATERSHED SCALE: FEDERAL GUIDE FOR WATERSHED ANALYSIS

"Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis" Version 2.2 (the guide) was developed by the Regional Interagency Executive Committee and the Intergovernmental Advisory Committee, which represent several state, federal, local, and tribal agencies. Issued in August 1995, the Guide was part of the implementation of the Aquatic Conservation Strategy (ACS) set forth in the Northwest Forest Plan

¹³⁴ Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management, 9 May 2001. [cleanwater.gov](http://www.cleanwater.gov), 23 Dec 2003 <<http://www.cleanwater.gov/ufp/>>.

¹³⁵ Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management, Fed. Reg. 65(202), 18 Oct. 2000. (FR 65: 62566-62569).

¹³⁶ Updates: Unified Federal Policy on Watershed Management, Fall 2000. U.S. Environmental Protection Agency, 23 Dec 2003 <<http://www.epa.gov/owow/info/WaterEventsNews/fall2000/unified.html>>.

¹³⁷ Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management, Fed. Reg. 65(202), 18 Oct. 2000. (FR 65: 62570).

¹³⁸ *Ibid.*

¹³⁹ Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management, Fed. Reg. 65(202), 18 Oct. 2000. (FR 65: 62570-62571).

¹⁴⁰ Goo, Robert (U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds). Personal communication. 16 Jan. 2004.

(NWFP).¹⁴¹ While the NWFP and the ACS were developed to establish a coordinated management scheme for federal forestlands in the range of the northern spotted owl, they also take into account impacts on the ecosystem scale, as well as other threatened species such as salmon and steelhead.¹⁴²

Under the ACS, a watershed analysis is required when certain activities are proposed in designated “riparian reserve” and “key watershed” areas.¹⁴³ The guide is intended to provide a consistent but flexible framework for watershed analysis to be conducted by Forest Service and BLM interdisciplinary teams.¹⁴⁴ Section I of the guide describes the watershed analysis process while Section II includes more detailed information about the “methods and techniques” to be employed by agency personnel involved in analysis.¹⁴⁵ The guide stresses the need for flexibility, adaptability, and openness throughout the watershed analysis process, including the involvement of tribes, state and local government, and the public at large. Ensuring that federal efforts are compatible with and complimentary to other watershed analysis and planning efforts is also emphasized.¹⁴⁶

The watershed analysis process described in the guide is intended as a consistent method of identifying and analyzing watershed conditions in order to provide a context for management decision-making, including “identifying

resource protection and monitoring needs and restoration opportunities” for Clean Water Act implementation. The analysis process described in the guide is a six-step process that includes:

- Characterization of the watershed
- Identification of issues and key questions
- Description of current conditions
- Description of historical or ‘reference conditions’
- Synthesis and interpretation of information
- Development of ‘recommendations.’¹⁴⁷

Seven “core analysis topics”—erosion processes, hydrology, vegetation, stream channel considerations, water quality, species and habitats, and human uses—are examined in every watershed analysis. In addition to these core topics, any number of other “watershed-specific problems or concerns” are analyzed depending on the specific character of the watershed.¹⁴⁸ Section I of the guide describes how each of the seven core topics is to be considered at each of the six steps in the analysis process and Section II goes into considerably more depth and technical detail about issues to be considered and methodological concerns.

To date, complete watershed analyses have been performed for approximately 95 percent of the watersheds in the NWFP area. While the watershed analysis teams are not required to use the guide or any other pre-established methodology, the guide serves as the model for watershed analyses performed under the ACS.¹⁴⁹

¹⁴¹ “Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis.” Aug. 1995. Version 2.2. Regional Interagency Executive Committee/Intergovernmental Advisory Committee. 27 Dec. 2003 <<http://www.or.blm.gov/ForestPlan/Watershed/watershd.pdf>>. (p. 1, 11).

¹⁴² Morris, Steven (Regional Ecosystem Office, NOAA Fisheries). Personal communication. 22 Jan. 2004.

¹⁴³ *Ibid.*

¹⁴⁴ “Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis,” Version 2.2.

¹⁴⁵ “Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis (Section II. Analysis Methods and Techniques).” Version 2.3. Oct. 1996. Regional Ecosystem Office. 28 Dec. 2003 <<http://www.or.blm.gov/ForestPlan/Watershed/watershd-llrpdf>>.

¹⁴⁶ “Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis,” Version 2.2, 4.

¹⁴⁷ “Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis,” Version 2.2, 3-4.

¹⁴⁸ “Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis,” Version 2.2, 1-12.

¹⁴⁹ Morris, Steven (Regional Ecosystem Office, NOAA Fisheries). Personal communication. 22 Jan. 2004.