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Office of Wetlands, Oceans and Watersheds

A Watershed Decade

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A Watershed Decade

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EPA

The Office of Wetlands, Oceans and Watersheds

A Watershed Decade

Contents

Foreword

The Office of Wetlands, Oceans and Watersheds (OWOW) is one of four program offices in the Office of Water (OW) at the Environmental Protection Agency's (EPA) headquarters in Washington, DC. OWOW shares responsibility for safeguarding the nation's water resources with three other OW offices, EPA's 10 regional offices, and the states, tribes, and territories that implement many aspects of their water programs. Several other federal departments and agencies are also partners in implementing our programs, notably the Army Corps of Engineers, the National Oceanic and Atmospheric Administration, and the United States Department of Agriculture. Our sister OW offices include the Office of Science and Technology (OST), the Office of Wastewater Management (OWM), and the Office of Ground Water and Drinking Water (OGWDW). Together with OWOW, these offices implement key components of the nation's core clean water programs. OST's responsibilities include issuing effluent guidelines and conducting activities related to the development of water quality standards and criteria. Among other responsibilities, OWM oversees implementation of the National Pollutant Discharge Elimination System (NPDES) permit program, including storm water management, and the administration of the State Revolving Loan Fund. OGWDW is charged with the critical job of protecting public health by ensuring safe drinking water and protecting ground water.

OWOW's activities and programs further the objectives of several laws. These include the Clean Water Act; the Ocean Dumping Ban Act; the Coastal Zone Act Reauthorization Amendments; the Marine Plastic Pollution Research and Control Act; the Shore Protection Act; the Marine Protection, Research and Sanctuaries Act; and the Coastal Wetlands Planning, Protection and Restoration Act.

This report chronicles OWOW's efforts and progress over the past decade. People are the key ingredients in OWOW's accomplishments, and our workforce is highly trained and motivated. Approximately 175 people currently work in OWOW, but over the history of the organization more than 400 people have served in the Office. Each of them has brought unique perspectives, skills, and ideas and has contributed in a variety of ways to the accomplishments outlined on the following pages. OWOW has made extensive use of internships, the Senior Environmental Employee Program, exchange programs with states and other federal agencies, and developmental rotations with regions and other EPA offices to broaden the skills and perspectives of our staff. Nearly half of the permanent work-force, at the time of this writing, are charter members of the organization.

There are many challenges ahead in protecting and restoring America's aquatic resources. The American public will be served by the creativity, dedication, and commitment of the people of OWOW as we meet those challenges.

To learn more about EPA's Office of Water, visit OW on the Web at www.epa.gov/ow or check out one of the four OW program offices:

Office of Wetlands, Oceans and Watersheds	www.epa.gov/owow
Office of Science and Technology	www.epa.gov/ost
Office of Wastewater Management	www.epa.gov/owm
Office of Ground Water and Drinking Water	www.epa.gov/ogwdw

—Bob Wayland
Director, Office of Wetlands, Oceans and Watersheds

A Watershed Decade

1991

April 1991	Office of Wetlands, Oceans and Watersheds is approved by Administrator William Reilly.
May 1991	First American Wetlands Month is established.
May 1991	Approval of first Comprehensive Conservation Management Plan (CCMP) under National Estuary Program for Puget Sound.
June 1991	Ocean dumping of sewage sludge ends.
July 1991	Revisions to Total Maximum Daily Load (TMDL) program under section 303(d) of the Clean Water Act.

1992

March 1992	EPA holds third national volunteer water monitoring conference.
April 1992	1990 national water quality report to Congress (305(b)) is released.
April 1992	Buzzards Bay CCMP is approved.
May 1992	Peconic Bay, Coastal Bend and Bays, San Juan Bay, and Tillamook Bay are designated "Estuaries of National Significance."
August 1992	EPA and Department of the Army sign agreement on elevation and resolution of EPA concerns with proposed wetlands permits.
August 1992	EPA's Office of Research and Development publishes *An Approach to Improving Decision Making in Wetlands Restoration and Creation*.
Fall 1992	"Turning the Tide on Trash," a curriculum on marine debris for grades K through 6, is completed.
October 1992	With an EPA grant, the *Private Landowners' Wetlands Assistance Guide for Maryland* is published, the first in a series of state documents for voluntary stewardship.

1993

January 1993	Management measures guidance for coastal nonpoint source programs is issued.
January 1993	Narragansett Bay CCMP is approved.
March 1993	Watershed '93 attended by more than 1,000 people from federal agencies, states, local governments, watershed groups, and private sector.
August 1993	Guidance on forestry best management practices to protect wetlands is issued.
August 1993	OWOW represents EPA in development, with eight other agencies, of a new federal wetlands plan to provide an effective and flexible approach to protection of wetlands.
August 1993	Guidance on the level of review necessary and the flexibility afforded under wetlands regulations is issued.
December 1993	San Francisco Bay CCMP is approved.

1994

January 1994	Fourth national directory of volunteer monitoring programs lists 516 programs in 45 states engaging 340,000 volunteers in monitoring and cleanup projects.
January 1994	EPA and the Departments of Agriculture, Army, and Interior sign agreement to streamline wetland procedures for farmers.
March 1994	EPA approves New Jersey's assumption of the wetlands permit program.
March 1994	1992 national water quality report to Congress (305(b)) is released.
April 1994	EPA holds fourth national volunteer monitoring conference.
May 1994	Stakeholder Initiative on Alaska wetlands issues completed, provides greater incorporation of unique environmental and social circumstances.
October 1994	Watershed Academy is launched.
October 1994	*The Watershed Approach—Our Framework for Ecosystem Protection* is released.
October 1994	National Water Quality Monitoring Council convenes, chaired by EPA and USGS.
October 1994	Congress increases funding for Wetlands Program Development Grants to $15 million.

October 1994	Congress increases funding for state nonpoint source grants to $100 million.
November 1994	Albemarle-Pamlico Sounds and Long Island Sound CCMPs are approved.
December 1994	With *The Dredging Process in the U.S.: An Action Plan for Improvement*, a national dredging policy is completed.
February 1995	OWOW-led Intergovernmental Task Force on Monitoring Water Quality (ITFM) publishes *Strategy for Improving Water-Quality Monitoring in the United States*.
February 1995	EPA publishes a compilation of 33 fact sheets on wetlands and programs that protect them.
March 1995	Galveston Bay and Santa Monica Bay CCMPs are approved.
March 1995	EPA and Department of the Army issue guidance on flexibility afforded to small landowners for section 404 discharges affecting up to 2 acres of nontidal wetlands.
June 1995	Delaware Inland Bays CCMP is approved.
July 1995	Charlotte Harbor, New Hampshire Estuaries, Morro Bay, Mobile Bay, Maryland Coastal Bays, Columbia River, and Barnegat Bay designated "Estuaries of National Significance."
October 1995	Sarasota Bay CCMP is approved.
November 1995	EPA and four other federal agencies issue *Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks* as a means of achieving flexible and effective compensatory wetland mitigation.
November 1995	EPA collaborates with various stakeholders to develop forestry guidance that enhances protection of valuable wetlands and gives greater certainty to landowners.
January 1996	Uniform National Discharge Standards provisions are added to the Clean Water Act to control discharges from Department of Defense vessels.
April 1996	1994 national water quality report to Congress (305(b)) is released.
May 1996	EPA establishes nine key elements for strengthened state nonpoint source programs.
May 1996	*Environmental Principles for Golf Courses in the United States* is released by EPA and Golf and Environment Initiative.
May 1996	National Marine Debris Monitoring Program is initiated.
June 1996	*The Watershed Approach Framework* is published, establishing guiding principles for watershed management.
July 1996	Agreement reached on plan to dredge New York/New Jersey Harbor to protect the environment and promote economic growth.
August 1996	EPA holds fifth national volunteer monitoring conference.
August 1996	EPA issues clean marina handbook demonstrating economic benefits of sound environmental management.
September 1996	Delaware Estuary and Massachusetts Bays CCMPs are approved.
October 1996	Casco Bay CCMP is approved.
October 1996	Web-based training begins with *Academy 2000* (now called *Watershed Academy Web*).
November 1996	*Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter* is signed.
November 1996	Indian River Lagoon CCMP is approved.
December 1996	Barataria-Terrebonne Estuaries CCMP is approved.
January 1997	Biological Assessment of Wetlands Working Group is established to foster state, tribal, and local assessment of wetland conditions.
January 1997	American Heritage Rivers Initiative is announced.
March 1997	Tampa Bay and New York/New Jersey Harbor CCMPs are approved.
April 1997	*Surf Your Watershed* goes live on the Internet, allowing citizens to type in their Zip Codes to learn about their local watersheds.

May 1997	Launching of "Year of the Ocean" (1998).
June 1997	EPA holds first tribal wetlands workshop with the Oneida Nation.
August 1997	New York/New Jersey Mud Dump Site is closed; Historic Area Remediation Site is opened.
September 1997	Conditional approval of coastal nonpoint source programs for Massachusetts, New Jersey, Rhode Island, Michigan, and Wisconsin.
October 1997	Index of Watershed Indicators, describing health of the nation's 2,262 watersheds, is released.
October 1997	Conditional approval of coastal nonpoint source programs for Delaware, Pennsylvania, Maryland, Guam, American Samoa, and Northern Mariana Islands.
November 1997	Following *Pfiesteria* outbreaks on the mid-Atlantic coast, EPA and other federal agencies issue federal response plan.
November 1997	Conditional approval of coastal nonpoint source programs for Florida, New Hampshire, New York, Mississippi, Puerto Rico, and U.S. Virgin Islands.
January 1998	Conditional approval of Oregon's coastal nonpoint source program.
January 1998	EPA's Science Advisory Board publishes *Ecological Impacts and Evaluation Criteria for the Use of Structures in Marsh Management*.
February 1998	Conditional approval of coastal nonpoint source programs for South Carolina, North Carolina, Maine, and Virginia.
February 1998	EPA and eight other federal agencies establish national goal of 100,000-acre annual net gain in wetlands by 2005.
April 1998	1996 national water quality report to Congress (305(b)) is released.
May 1998	EPA celebrates American Wetlands Month with publication of the booklet *Wetlands—Our Vital Link Between Land and Water*.
June 1998	Conditional approval of coastal nonpoint source programs for Alabama, Connecticut, Washington, Hawaii, Alaska, Louisiana, and California.
June 1998	U.S. Coral Reef Task Force is created.
June 1998	National Oceans Conference held in Monterey, California.
July 1998	EPA holds first national water quality monitoring conference.
August 1998	Version 1 of modernized STORET is released to meet emerging data needs associated with watershed protection.
September 1998	*Environmental Management Handbook*, a guide to environmental protection for ports, is published.
September 1998	10th anniversary of International Coastal Cleanup Campaign.
September 1998	Fifth national directory of volunteer monitoring programs lists 770 programs in all 50 states, engaging 460,000 volunteers is published.
October 1998	Congress increases state nonpoint source grants to $200 million.
October 1998	Coral Reef Task Force convenes in Key Biscayne, Florida.
November 1998	Congress passes Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA).
November 1998	EPA joins 15 federal agencies in issuing stream restoration handbook.
February 1999	Coastal Bend Bays CCMP is approved.
February 1999	Creation of National Invasive Species Council.
March 1999	Watershed Information Network (WIN), a roadmap to consolidated watershed information and services, is launched on the Internet.
April 1999	EPA makes maps of state-listed impaired waters available on the Internet.
April 1999	First Watershed Assistance Grants are awarded.
May 1999	First Five-Star Restoration Grant is awarded.

May 1999	Final rule clarifying which ditching, channelization, and land-clearing activities are subject to Clean Water Act wetland requirements is published.
May 1999	EPA and Navy complete final regulations for Phase I "Uniform National Discharge Standards (UNDS)."
July 1999	With an EPA grant, the National Association of Counties and the International City and County Managers Association publish *Protecting Wetlands, Managing Watersheds—Local Government Case Studies*.
October 1999	Maryland Coastal Bays and Columbia River CCMPs are approved.
December 1999	Maryland becomes first state with fully approved coastal nonpoint source program.
December 1999	Tillamook Bay CCMP is approved.
March 2000	Nationwide Permit 26, single largest source of generally permitted wetland losses, is eliminated and replaced by activity-specific permits.
March 2000	Coral Reef Task Force publishes *National Action Plan for Coral Reef Conservation*.
March 2000	Federal court holds, in *Pronsolino* v. *Marcus*, that Clean Water Act authorizes EPA to include nonpoint sources of pollutants in section 303(d)/TMDL program.
April 2000	Full approval of Rhode Island's coastal nonpoint source program.
April 2000	EPA holds second national water quality monitoring conference.
April 2000	EPA holds sixth national volunteer monitoring conference.
May 2000	EPA and USGS jointly release National Hydrography Dataset (NHD), a geographic database for integrating and mapping information about U.S. surface waters.
May 2000	*River Corridor and Wetland Restoration* web site launched.
May 2000	EPA and Environmental Law Institute (ELI) celebrate 10 years of National Wetlands Awards.
June 2000	100th Five-Star Restoration Grant awarded.
June 2000	1998 national water quality report to Congress (305(b)) is released.
July 2000	Revised regulations for the Total Maximum Daily Load program are published.
July 2000	California's coastal nonpoint source program is fully approved.
October 2000	Congress passes Estuaries and Clean Waters Act.
October 2000	San Juan Bay CCMP is approved.
October 2000	Congress increases state nonpoint source grants to $238 million.
October 2000	EPA and three other federal agencies issue guidance on use of in-lieu-fee arrangements for compensatory wetland mitigation.
October 2000	Puerto Rico's coastal nonpoint source program is fully approved.
October 2000	Release of updated draft guidance on management measures for agriculture.
November 2000	EPA publishes *Tribal Wetland Program Highlights* in collaboration with 12 tribes and native organizations.
December 2000	Congress passes Coral Reef Conservation Act.
December 2000	EPA releases updated guidance on management measures for marinas and recreational boating.
January 2001	Morro Bay CCMP is approved.
January 2001	Action plan to address Gulf hypoxia is transmitted to Congress.
March 2001	*Guiding Principles for Constructed Treatment Wetlands* is published.
March 2001	EPA marks 10-year anniversary of its toll-free Wetlands Helpline (1-800-832-7828, contractor-operated).
April 2001	EPA announces implementation of the "Tulloch Rule" to protect wetlands from discharges of dredged material associated with mechanized equipment.
May 2001	*Volunteer Wetland Monitoring Resource Guide* is published.

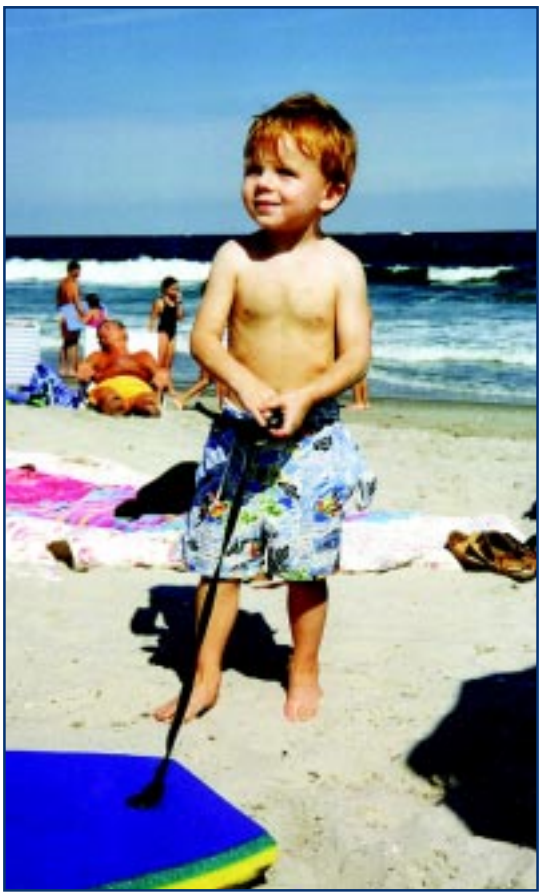
Steve Delaney, U.S. Environmental Protection Agency

Aquatic Resources: An American Treasure

Our economy depends on clean water; we all pay when water is polluted. Contamination of drinking water sources means higher health risks and increased treatment costs. Closed beaches and contaminated rivers mean lost revenue for local businesses that serve tourists, anglers, and recreationists. Swimmers at polluted beaches and lakes face possible threats from viruses and bacteria. Protecting our nation's liquid assets is vital for our economic future as well as for our own health and well-being.

In a recent report, *Liquid Assets 2000: America's Water Resources at a Turning Point*, EPA documented the critical importance of our water resources to our nation's economy. In many ways, clean water is the fuel that powers the nation's economic engine.

- A third of all Americans visit coastal areas each year, making a total of 910 million trips while spending about $44 billion.
- Water used for irrigating crops and raising livestock helps American farmers produce and sell $197 billion worth of food and fiber.
- The $111 billion generated annually by the U.S. fishing industry is heavily dependent on healthy watersheds. About 70 percent of commercially harvested fish depend on wetlands and nearby coastal waters at some stage in their life cycle.
- A *Money* magazine survey found that clean water and clean air are two of the most important factors Americans consider in choosing a place to live.
- Manufacturers use about 9 trillion gallons of fresh water every year. The soft drink manufacturing industry alone uses more than 12 billion gallons of water annually to produce products valued at almost $58 billion.



Patty Scott, U.S. Environmental Protection Agency

John McShane,
U.S. Environmental Protection Agency

Progress and Challenges

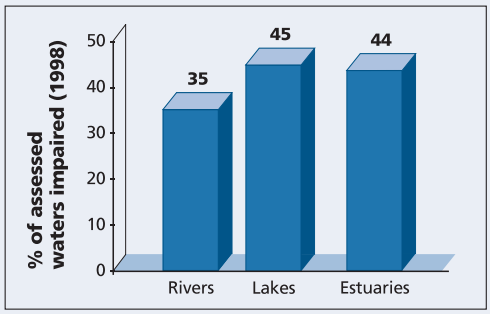
The United States has made tremendous progress in cleaning up America's waters over the past 30 years. The nation's significant investment in upgrading sewage treatment and minimizing discharges from industrial facilities has removed billions of pounds of pollutants from our waterways and more than doubled the number of waters safe for fishing and swimming.

Despite this resounding success, many challenges remain. An overwhelming majority of Americans—218 million—live within 10 miles of a lake, river, stream, or coastal area that does not support its designated uses set by the states under the Clean Water Act. States have identified almost 300,000 miles of rivers and streams and more than 5 million acres of lakes that do not meet water quality goals. Many of these waterways are not considered safe for fishing and swimming and do not support healthy fish or other aquatic life.

Runoff polluted by agricultural lands, residential areas, city streets, forestry practices, and even pollutants deposited from the air now poses the greatest threat to our nation's waters. At the beginning of this new millennium, problems such as habitat destruction, landscape modification, invasive species, and the depletion or contamination of ground water present new challenges not easily solved by traditional engineering-based pollution control.

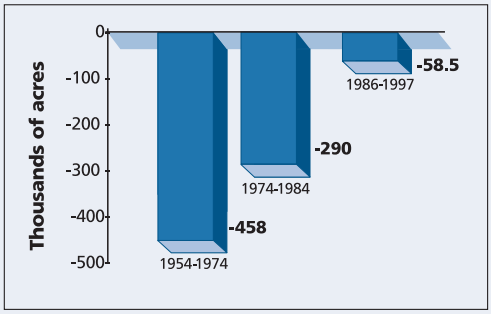
Over the past decade, the Environmental Protection Agency's Office of Wetlands, Oceans and Watersheds (OWOW) has helped to lay the groundwork for a new era of environmental protection. Many of the accomplishments of the past 10 years have been achieved through collaborative watershed partnerships. Although EPA is encouraged by these successes, it is apparent that much work remains to be done. Meeting the challenges of the new millennium will require innovation, adaptation, technological advances, and additional partnerships. The watershed paradigm will provide the framework for addressing these complex environmental problems through coordinated, collaborative efforts at the local level.

Our rivers, lakes, and coastal waters are cleaner today than 25 years ago, but...



....many assessed waters are still not considered safe for swimming and fishing.

Losses of wetlands have been significantly reduced, but....



...less than half of the wetlands in the contiguous states remain and annual losses continue to exceed gains.

Bruce Batten, U.S. Fish and Wildlife Service

Meeting the Challenges
The Rise of Watershed Management

In 1890 John Wesley Powell, second director of the United States Geological Survey, suggested that the western United States be organized into watershed units to facilitate an integrated approach to natural resource management. Powell's recommendations were not followed, and for the better part of the 20th century the country managed its water resources in a piecemeal fashion. The industrial age transformed the country: along with mass production of consumer goods and a workforce that moved from farm to factory, air and water pollution fouled the skies, streams, and shores. The publication of Rachel Carson's *Silent Spring*, the blowout at Platform A in the Santa Barbara channel, and the conflagration on the Cuyahoga River provoked a public outcry, the organization of the first Earth Day, and in December 1970 the establishment of the Environmental Protection Agency. The Administration and Congress crafted a new Clean Water Act (CWA) in 1972, which provided uniform national technology-based pollution control requirements for most industrial and municipal "point sources" of water pollution. The act also provided for water quality-based controls where the minimum technology approach was inadequate.

In 1987 the CWA was amended to provide for programs to abate polluted runoff in discharges not conveyed by point sources (e.g., pipes, channels, outfalls, etc.). Substantial grant support for these programs followed.

These efforts, pursued by governments at all levels, industry, and private citizens, brought about considerable progress but also revealed the limits of effectiveness of separately implementing the programs. They also highlighted the prevalence of problems *not* readily amenable to solution through traditional tools—sprawl, terrestrial habitat destruction, air deposition, and others.

In 1990 EPA was in search of a new paradigm that could guide efforts in the last decade of the 20th century and beyond. Looking at a number of EPA's own geographically targeted efforts, the Agency recognized that the time had come for a basin-wide approach like the one Powell had envisioned. Efforts to clean up the Chesapeake Bay in the 1980s had illustrated the value of such an approach. A coalition of concerned citizens, academicians, and government officials recognized that the bay's aquatic resources would still be at risk even if all the sewage treatment plants were brought into compliance with the law. Only through coordinated efforts at all levels of government, and among both the public and private sectors, and through the use of both mandatory and voluntary programs would the bay's important resources be restored. Several other geographically based programs, such as the National Estuary Program, the Great Lakes Program, and the Wellhead Protection Program, were also beginning to demonstrate the advantages of bringing together the people who use and benefit from the water resource to plan for and implement environmental improvements.

Thus began the Office of Water's movement from a pollutant-by-pollutant, industry-by-industry, facility-by-facility fragmented approach to a more holistic

watershed approach. EPA began to actively encourage states, tribes, local, and other federal partners to join in taking this "place-up" perspective. By focusing on the problems holistically within a watershed, managers at all levels could better understand the cumulative impact of various activities, determine the most critical problems, better allocate limited financial and human resources to address those needs, engage stakeholders, win public support, and make real improvements in the environment. Over the past 10 years, the Office of Water has encouraged this approach not only for its own programs (nonpoint sources, wetlands, permits, standards, drinking water, and coastal programs) but also as a way to integrate efforts of sister agencies, states, tribes, local governments, industry, and nonprofits.

Regional Pilots

In the early 1990s EPA initiated a large number of watershed projects in each of the 10 regions to broaden the practice of watershed management. EPA staff played a variety of roles, ranging from leader and catalyst to facilitator and participant. The successes of many of these initial projects—Savannah River, Clear Creek, Canaan Valley, Merrimack River, and Big Darby, to name a few—confirmed that the Agency was headed in the right direction.

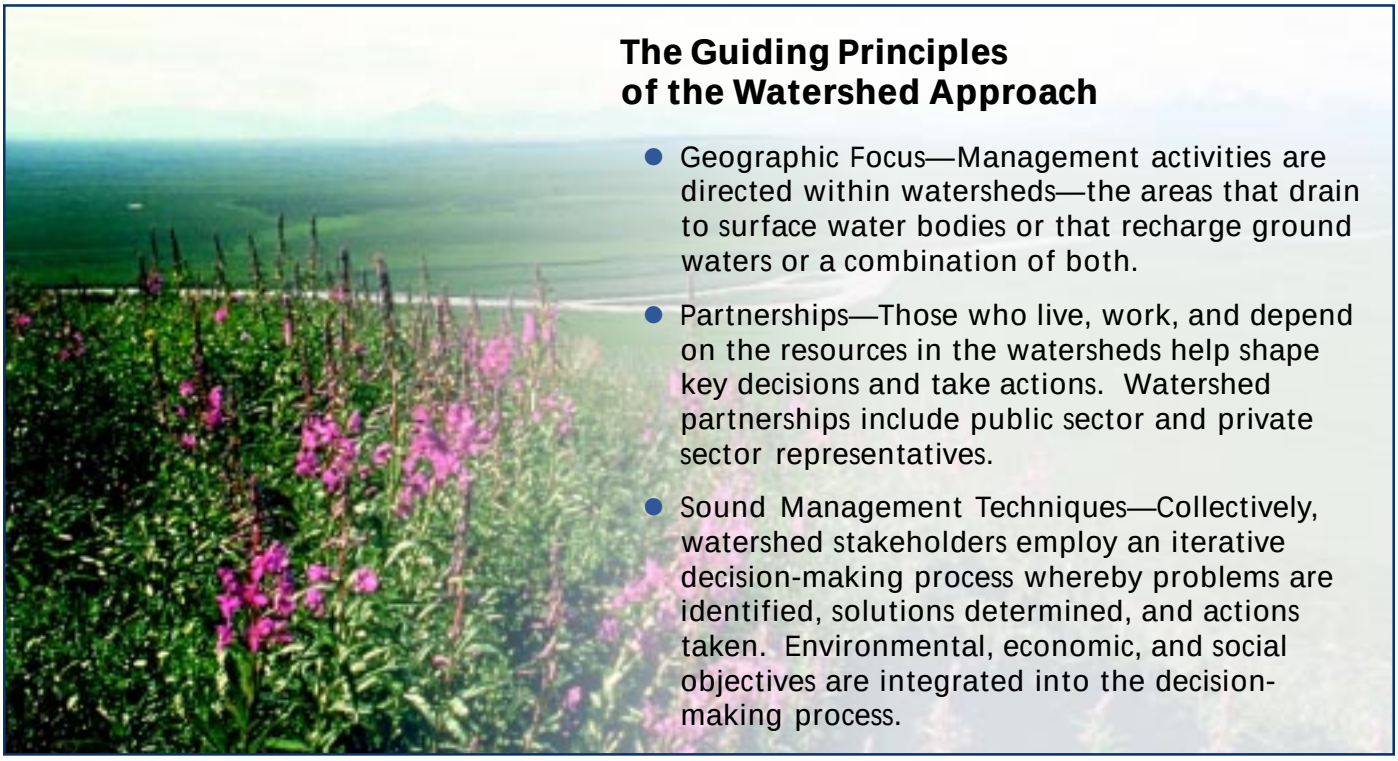
To spread the word about the watershed approach, OWOW has employed a variety of outreach efforts, including newsletters, national conferences, publications, and campaigns. Through a series of annual reports, OWOW helped document early watershed success stories.

Watershed Events

Since 1991 OWOW has worked with other federal agencies to publish *Watershed Events*. Through this popular newsletter, with a circulation of more than 6,000, OWOW continues to provide a vehicle to share ideas, tools, and success stories among federal, state, local, and private watershed practitioners across the country. Copies are available at www.epa.gov/OWOW/info/WaterEventsNews.

Watershed '93 and Watershed '96

In 1993 and 1996 OWOW spearheaded two major national conferences on watershed management. *Watershed '93: A National*



J & K Hollingsworth, U.S. Fish and Wildlife Service

The Guiding Principles of the Watershed Approach

- Geographic Focus—Management activities are directed within watersheds—the areas that drain to surface water bodies or that recharge ground waters or a combination of both.
- Partnerships—Those who live, work, and depend on the resources in the watersheds help shape key decisions and take actions. Watershed partnerships include public sector and private sector representatives.
- Sound Management Techniques—Collectively, watershed stakeholders employ an iterative decision-making process whereby problems are identified, solutions determined, and actions taken. Environmental, economic, and social objectives are integrated into the decision-making process.

Conference on Watershed Management, cosponsored by 11 federal agencies and supported by numerous stakeholders, attracted more than 1,000 people from all walks of life to hone their understanding of watershed approaches, build new relationships, learn from others' experiences, and explore options for the future. A follow-up conference, *Watershed '96*, attracted nearly twice as many participants, and countless others joined the conference through satellite downlinks from across the country.

Adopt Your Watershed

In 1997 to encourage stewardship of the nation's water resources, OWOW launched an "Adopt Your Watershed" campaign. OWOW created a national, on-line catalog (www.epa.gov/adopt) of organizations involved in protecting local water bodies, including formal watershed alliances, local groups, and schools that conduct activities such as volunteer monitoring, cleanups, and restoration. More than 3,000 groups are listed watershed-by-watershed, making it easy for anyone to find out how to get involved.

Realigning policies and procedures to integrate the watershed approach has been challenging. Through a high-level Watershed Management Policy Committee and various interagency workgroups, OWOW facilitated many EPA and cross-agency reinvention efforts. Some programmatic changes, such as removing barriers to issuing permits on a watershed basis, have dramatically reshaped the way EPA, other federal agencies, and the states do business.

Watershed Framework Document

In 1996 guided by several years of watershed experiences, OWOW published *Watershed Approach Framework* (www.epa.gov/OWOW/watershed/framework.html), which helped further define the watershed approach and established its key guiding principles. The document, developed with input from state and tribal officials, outlined specific steps EPA's Office of Water could take to better support the watershed approach. It also described how states and tribes could adopt comprehensive statewide watershed frameworks.

The Six-Part Strategy

In 1992 EPA adopted a six-pronged strategy to support the watershed approach.

- Try it—Initiate and carry out activities on a watershed basis.
- Advertise it—Promote the approach using a variety of opportunities, including conferences, newsletters, and publications.
- Integrate it—Align programs on a watershed basis.
- Finance it—Provide funding for pilot projects and capacity building.
- Develop tools for it—Provide training and technical assistance.
- Measure it—Monitor success and make changes as necessary.

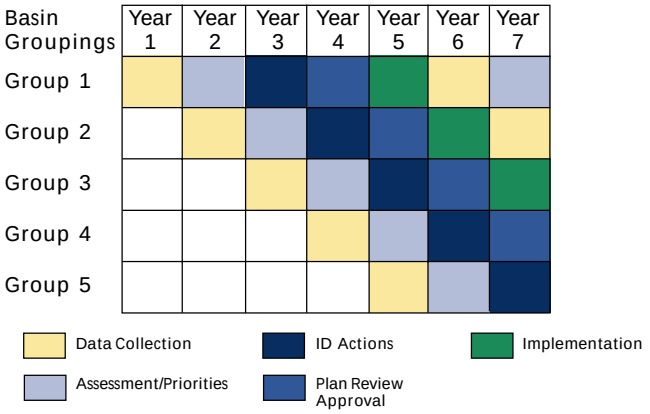
Over the past 10 years, this six-part strategy has borne considerable fruit, and it continues to guide EPA's efforts to reinvent its programs in support of the watershed approach.

Watershed Assistance Grants

In 1998 EPA teamed up with River Network, a national nonprofit organization specializing in organizational skill-building, to establish the Watershed Assistance Grants Program. The purpose of this program is to support local watershed partnerships during their development and to contribute toward watershed protection and restoration actions. To date, 69 projects have been funded, totaling more than $1 million. The funded projects include the following:

- The Mississippi River Basin Alliance (Mississippi) is helping communities implement nutrient management and watershed planning systems to address the "dead zone" at the mouth of the Mississippi through a facilitated consensus-building process of public meetings, workshops, and conferences.
- The Rogue Basin Coordinating Council (Oregon) is preparing a collaborative assessment of all human-made barriers to anadromous fish passage within the basin and developing an action plan for barrier removal.
- The Navajo Nation (Arizona) is implementing a community program to address the concerns of resource degradation and implement best management practices.

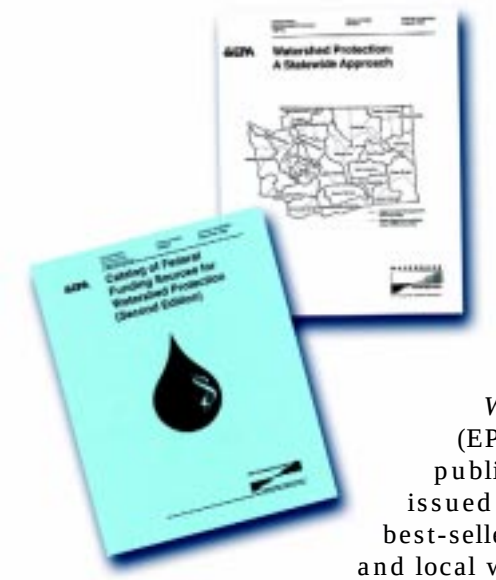
State Rotating Basin Approach



Process Guides

In 1995 OWOW published *Watershed Protection: A Statewide Approach* (EPA-841-R-95-004). It describes the benefits of rotating basin management programs and provides examples of successful programs set up by state agencies. Another publication, *Watershed Protection: A Project Focus*, provides a blueprint for designing and implementing successful watershed projects.

To help finance the approach, OWOW has used its limited resources to support model efforts and to build local and state capabilities. Clean Water Act section 319 grants and state wetlands development grants, for example, now support more comprehensive approaches to dealing with nonpoint source pollution and wetland protection. Recognizing the need for additional funding at the local level, EPA launched the Watershed Assistance Grants Program in 1998.



The Catalog of Federal Funding Sources for Watershed Protection (EPA-841-B-99-003), first published in 1997 and reissued in 1999, remains a best-seller among federal, state, and local watershed practitioners alike. The second edition of the document highlights federal grants and loans that may be used at the local level to support watershed projects, and it contains references to many other good publications and web sites on funding and technical assistance.

Good tools, sound science, and experienced personnel are instrumental to successful watershed management. OWOW has responded to these needs with state-of-the-art training and technical assistance.

The Watershed Academy

In 1994 OWOW initiated the Watershed Academy to provide training for federal, state, local, and private watershed practitioners. Over the years, more than 20 states have received direct assistance for developing comprehensive state watershed approach strategies. The Academy's *Inventory of Watershed Training Courses* (EPA-841-D-98-001), which currently includes summaries of 180 courses, provides easy access to information about training opportunities offered by other federal and state agencies, as well as the private sector. In addition to field and classroom experiences, the new Web-based (www.epa.gov/watertrain) training site now includes 40 self-paced modules and self-tests and offers an entirely Internet-based Distance Learning Certificate Program.

EPA/OPM Watershed Partnerships Seminar

Working in partnership with the U.S. Office of Personnel Management's (OPM) Management Development Centers, EPA designed and implemented several Watershed Partnership seminars. These 2-week residential seminars emphasize community-based partnership building and decision-making in unique geographic areas. Basic skills, potential pitfalls, and rewarding results of community-based environmental partnering and decision-making are explored. Tools and strategies for building partnerships and working effectively at the community level are provided. This seminar is the only course developed collaboratively by an agency and OPM to be incorporated into OPM's Management Development curriculum. About 150 EPA staff, 40 representa-

tives of other federal agencies, 30 state employees, and 50 private sector, local government, and nonprofit organizations have completed the seminar.

Lessons Learned

Top Ten Watershed Lessons Learned (EPA-840-F-97-001), a publication developed by OWOW in 1997, took stock of the Office's experiences and offered solid advice to

watershed managers on important lessons learned over the past decade. This document continues to offer valuable advice to both new and old watershed practitioners on what works and what does not.

Stream Corridor and Ecosystem Restoration

Fifteen federal agencies, with leadership from EPA and the U.S. Department of Agriculture, developed a guide to restoring stream corridors so that they can be used for drinking water supply, fish and wildlife habitat, recreation, and agriculture, as well as flood prevention and erosion control. *Stream Corridor Restoration: Principles, Processes, and Practices* (EPA-841-R-98-900) reflects the collective experience, skills, and technology of these federal agencies and their private sector partners. Recognition of the value of stream corridors has come with the understanding of what has been lost through uninformed or misguided actions on many streams and the watersheds that nourish them.

Internet Technologies

Taking full advantage of new Internet technologies, OWOW launched the *Surf Your Watershed* (www.epa.gov/surf) web site in April 1997. Simply by pointing and clicking, citizens can find their watershed, learn about its condition, and link to other key environmental data.

Building on *Surf*, OWOW joined forces with other federal agencies in 1999 to develop the new Internet-based *Watershed Information Network* (www.cleanwater.gov/win) to provide consolidated information about watershed programs and resources. WIN answers basic questions like the following: "What is the environmental condition of my watershed?" "What tools are available?" "How can I get involved?" Information is broken down watershed-by-watershed, covering more than 2,000 watersheds in the country. WIN also links users to financial, technical, and hands-on assistance available from EPA and other federal and nonfederal partners.

WIN includes the *Index of Watershed Indicators (IWI)*, which describes the health of the aquatic resources of each watershed. IWI uses a scoring system based on a number of layers of data such as state water quality assessments, fish consumption advisories, and incidence of contaminated sediments. IWI also provides information on the relative vulnerability of each of the nation's watersheds to future contamination.

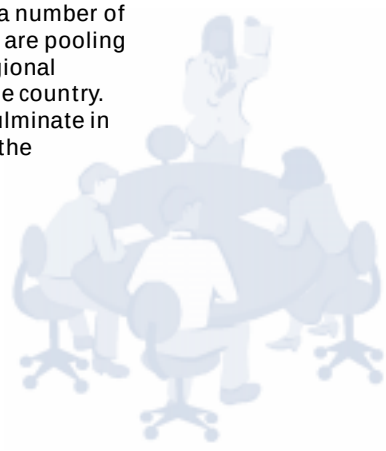
Surf Your Watershed
A Service to Help You Locate, Use, and Share Environmental Information about Your Place.

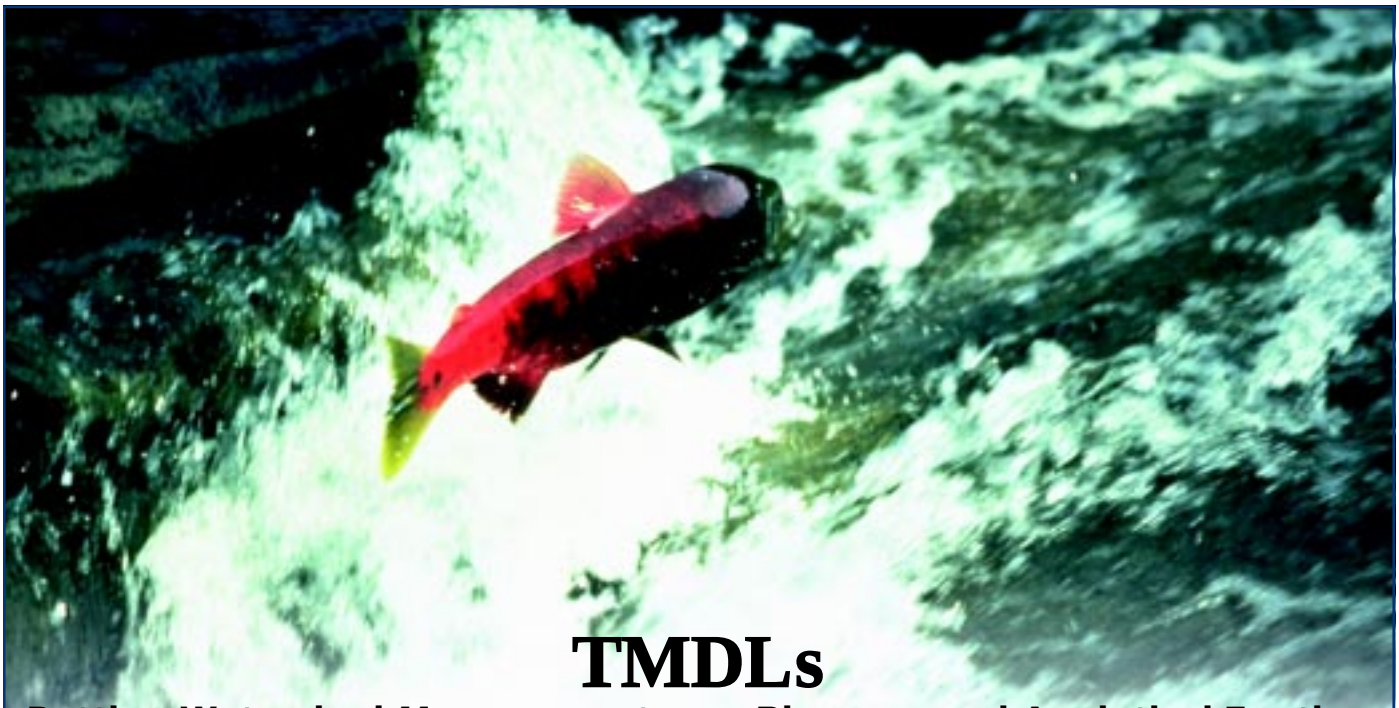
Watershed Information Network WIN

Taking the Pulse of America's Watersheds

Watershed Roundtables and the National Watershed Forum

To measure our success to date, a number of federal agencies, including EPA, are pooling their resources to support 13 regional watershed roundtables across the country. These roundtables, which will culminate in a National Watershed Forum in the summer of 2001, are bringing diverse stakeholders together for dialogue and information exchange on community-based watershed protection and restoration efforts. In 2001 OWOW will release a watershed restoration report summarizing the findings of the roundtables and suggesting new directions.





U.S. Fish and Wildlife Service

TMDLs

Putting Watershed Management on a Rigorous and Analytical Footing

The TMDL Program

Under section 303(d) of the 1972 Clean Water Act, states, territories, and authorized tribes are required to develop lists of impaired waters—303(d) lists. These impaired waters do not meet the water quality standards that states have set for them, even after point sources of pollution have installed the required levels of pollution control technology. The law requires that states establish priority rankings for waters on the lists and develop Total Maximum Daily Loads (TMDLs) for these waters.

What Is a TMDL?

A TMDL specifies the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and it allocates pollutant loadings among point and nonpoint pollutant sources. By law, EPA must approve or disapprove state lists and TMDLs. If a state submission is inadequate, EPA must establish the list or the TMDL. TMDLs are a form of "pollution budget" and can be the analytical underpinning for watershed management and protection decisions by the local community and the state.

In recent years OWOW has taken several steps to support the use of the watershed approach through the TMDL program. Although TMDLs have been required by the Clean Water Act since 1972, states and EPA did not emphasize implementation of section 303 (d) until the mid-1990s. Several years ago citizen organizations began to bring legal actions against EPA seeking the listing of waters and development of TMDLs. To date, there have been about 40 legal actions in 38 states. EPA is under court order or consent decrees in many states to ensure that TMDLs are established by either the state or EPA.

Some 2,000 TMDLs have already been developed, but states, tribes, and EPA have listed about 20,000 waterbodies as needing TMDLs because of more then 36,000 impairments (combination of pollutants and waterbodies). These waterbodies represent approximately 40 percent of the nation's assessed waters, including more than 300,000 river and shore miles and 5 million lake acres.

Regulations to implement the TMDL provisions of the Clean Water Act were established in 1985 and amended in 1992. In July 2000 additional revisions were adopted. The current regulations mandate that states list impaired and threatened waters, develop TMDLs, and make progress toward attaining state water quality standards. Additional funding has been secured to support state and EPA efforts, and OWOW is working to provide technical assistance to make it easier to develop TMDLs. Over the past year and a half, OWOW has issued a series of protocol documents for pathogens, nutrients, and sediments; posted maps of impaired waters and key policy documents on the TMDL web page; and sponsored numerous workshops and training sessions for key partners.

Controlling Polluted Runoff

During the last decade of the 20th century, nonpoint source (NPS) pollution or "polluted runoff" emerged as the leading threat to our nation's waters. Beginning in the 1990s, OWOW, state water quality agencies, and other public and private sector groups began to devote considerable resources and energy to combating this emerging national problem.

The National Nonpoint Source Program

Under section 319 of the Clean Water Act, all states and territories and more than 50 tribes have established NPS management programs to control polluted runoff. Congress began to award NPS grants to states on an annual basis in 1990, increasing funding from $38 million in fiscal year (FY)1990 to $100 million in FY1995, to $200 million in FY1999, and finally to $238 million in FY2001. Through these grants, EPA has funded a variety of programs and on-the-ground projects to address pollution from farmland, animal feeding operations, septic tanks, urban and suburban developments, and forestry operations; to repair and protect damaged streambanks, riparian areas, and wetlands; and to educate homeowners, students, and others on steps they can take to prevent NPS pollution. Most projects are implemented in conjunction with other partners, including the U.S. Department of Agriculture; other federal, state, and local government agencies; and local watershed associations and citizens groups.

Nonpoint Source Success Stories

To highlight the achievements of states, tribes, local governments, watershed groups, and private citizens in reducing polluted runoff, OWOW published two volumes of *Section 319 Success Stories* (EPA-841-S-94-004 and EPA-841-R-97-001). Highlights include the reopening of previously polluted waters to shellfish harvesting; the return of trout to streams from which they had been absent for decades; the reduction of pollutants running off from farms; the development of new state-enforceable authorities that are resulting in widespread implementation of needed management practices throughout the state; and the formation of effective local citizen-based partnerships to remediate local NPS pollution problems. Volume III, to be released in 2001, will show even greater progress.

The Coastal Nonpoint Pollution Control Program

Recognizing that the high concentration of human population in coastal areas (with more than 50 percent of Americans living within 50 miles of coastal waters) places great stress on coastal water quality, Con-

Strengthened State Nonpoint Source Programs

In recent years, states have taken several major steps to increase the effectiveness of their NPS programs. Most significantly, states have upgraded their NPS programs to reflect nine key elements that the states and OWOW collectively agree represent high-quality programs. These include clear, quantified goals and objectives; effective partnerships with all public agencies and private-sector groups that have a role to play in controlling NPS pollution; implementing the right mix of both statewide approaches to tackle widespread problems and watershed-based approaches to protect water quality where people live and work; and well-organized priority systems.

Many states have significantly increased their own funding programs (beyond the 40 percent match required for section 319 grants) to accelerate the states' implementation of NPS and watershed programs. Some of these states (e.g., California, Florida, North Carolina, Pennsylvania, Oregon, and Wisconsin) are providing significant sums ranging from $10 million to more than $50 million annually to support these activities.

gress enacted the Coastal Zone Act Reauthorization Amendments of 1990 to focus special efforts on combating NPS pollution in coastal waters. Congress mandated that EPA publish "management measures," which describe the best available, economically achievable techniques to protect coastal waters from nonpoint source pollution, and that states develop programs in conformity with those measures. OWOW's publication of those management measures was a ground-breaking event in the history of NPS pollution control, in that it presented one large volume of the best available information on NPS control techniques, their effectiveness, and their costs. At present, six states have fully approved coastal nonpoint pollution control programs; another 23 conditionally approved programs are working toward final approval. These state programs include, as required by law, state-enforceable policies and mechanisms as necessary to ensure implementation of the management measures.

State Enforcement Authorities

Although most state NPS activities are implemented on a voluntary basis, with technical and/or financial assistance provided by the states and others, many states have enhanced their programs by adding enforceable authorities to their implementation "toolboxes." A number of states have added specific authorities regarding storm water controls, forestry practices, and the management of animal feeding operations. OWOW has assisted in this effort by working with the nonpartisan Environmental Law Institute to develop a set of three volumes that highlight the different approaches currently used by states to ensure that needed NPS measures are implemented. These include direct requirements that particular measures be implemented, "bad actor" laws that supplement voluntary approaches (usually with financial support) with regulatory backup, enforceable state water quality standards, and general nuisance laws.

OWOW Teams up with Office of Wastewater Management to Use More Than a Billion Dollars from the Clean Water State Revolving Loan Fund

Over the past 13 years, the Clean Water State Revolving Loan Fund (CWSRF) has funded nonpoint source and estuary projects. In FY2000 almost $190 million was made available for NPS projects, with 28 states taking advantage of the CWSRF's flexibility. A total of more than $1.2 billion has been provided to NPS and estuary projects over the life of the program. The types of NPS and estuary projects continue to diversify, ranging from implementation of agricultural best management practices to septic tank upgrades and underground storage tank remediation. Land conservation to protect wetlands, riparian areas, and sources of drinking water continues to gain a growing share of the CWSRF.

Working with Other Federal Agencies

Federal agencies manage almost one-third of all land in the United States, and they also manage many of the nation's water resources. Therefore, federal agencies such as the Forest Service, the Bureau of Land Management, the National Park Service, the U.S. Army Corps of Engineers, the Bureau of Reclamation, and others play a critical role in the protection of our nation's water quality. These agencies and others, including EPA, recently signed a Unified Federal Policy that charts the future course of concerted federal activities to manage watersheds to protect water quality. In addition, EPA and state nonpoint source agencies work extremely closely with the U.S. Department of Agriculture and others to combine expertise, personnel, and funds (e.g., section 319, USDA's Environmental Quality Incentives Program, and USDA's Conservation Reserve Program and Wetlands Reserve Program) to implement numerous joint programs and projects throughout the United States.

Accounting for Results

An essential program management tool is the collection and storage of information on program implementation in an easily accessible format to enable monitoring of past performance and appropriate program improvements based on that monitoring. Early in the program, OWOW developed a Grants Reporting and Tracking System to allow tracking of section 319-funded activities. OWOW is currently modifying that system to greatly enhance its capability to track improvements such as pollutant reductions that result from funded projects. Furthermore, OWOW is linking this system to other systems, both existing and under development, which will allow the Office to determine the correlation between project implementation and actual water quality improvements.

J & K Hollingsworth, U.S. Fish and Wildlife Service

Lynn Betts, USDA Natural Resources Conservation Service

Low-Impact Development and Smart Growth

In recent years, experts and increasing numbers of citizens have come to understand the significant relationship between development patterns and methods and water quality. Our society is continuing to grow, and with growth come development and its attendant impacts on environmental quality, including water quality.

OWOW has worked closely with national expert organizations, including the Center for Watershed Protection, the Watershed Management Institute, the Center for Low-Impact Development, and the Nonpoint Education for Municipal Officials program, as well as with various governmental agencies and associations, to assemble, analyze, and disseminate information on how to manage growth and development in a manner that protects water quality. Some of the most useful and successful volumes that OWOW has published or supported are *Site Planning for Urban Stream Protection, Rapid Watershed Planning Handbook, Low-Impact Development Design Strategies*, and a multivolume set of periodicals, *Watershed Protection Techniques*. EPA has also collaborated with the National Association of Counties (NACo) and the International City/County Management Association (ICMA) on *Protecting Wetlands, Managing Watersheds...Local Government Case Studies.* In addition, OWOW has created an extensive Web-based Model Ordinance Database that includes many actual municipal ordinances and also provides guidance on the many options that local governments have to modify these examples and adapt them to local circumstances and needs.

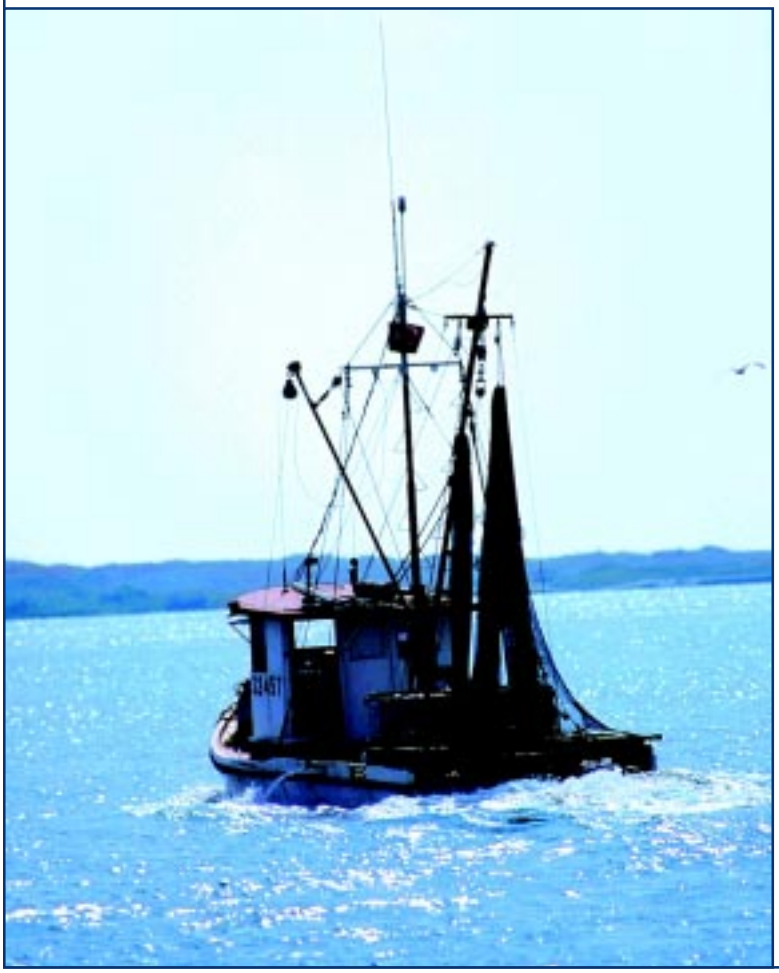
With support from OWOW, several sustainable growth pilot projects are under way in the National Estuary Program, including futures and visioning tools development at the Massachusetts Bays Estuary and Maryland Coastal Bays, development and build-out analyses in the Delaware Estuary, model community planning in Puget Sound, and an examination of the impact of regulatory programs on land use in the Lower Columbia Estuary. OWOW is also working to link the use of "Smart Growth" principles to other EPA programs, such as ground water protection, storm water management, brownfields redevelopment, and water quality permitting.

"As a former planning official myself, let me assure you that we respect the roles of the states and local governments in making land use decisions, and we are working to respond to the requests many have made to provide information on how the decisions can be made with sensitivity to impacts on aquatic resources."

—Bob Wayland, NACo/ICMA Workshop, September 2000

Gulf of Mexico Hypoxia

Along the Gulf of Mexico's Texas-Louisiana Shelf, a large "dead zone" forms each summer. This condition, which scientists call hypoxia, is characterized by reduced sunlight and decreased oxygen levels. Scientific evidence indicates that excess nitrogen from the 31-state Mississippi/Atchafalaya Rivers drainage basin drives the onset and duration of hypoxia. Approximately 40 percent of the U.S. fisheries landings, including a substantial part of the nation's most valuable fishery (shrimp), comes from this productive area.



William B. Folsom, National Marine Fisheries Service

Since 1996 OWOW has provided leadership for a state/tribal/interagency task force, charged with developing an action plan to reduce Gulf hypoxia. Efforts to address hypoxia were bolstered in 1998 when Congress passed the Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA). In October 2000 the Task Force reached consensus on a final action plan. A major goal of the *Action Plan for Reducing, Mitigating, and Controling Hypoxia in the Northern Gulf of Mexico*, published in January 2001, is to significantly reduce the size of the hypoxic zone to less than 5,000 square kilometers (1,930 square miles), a reduction of the hypoxic zone by about half of the average, over the next 15 years. The action plan calls for the development of strategies by states and tribes, on a subbasin basis, to achieve a 30 percent reduction in discharges of nitrogen through the river system to the Gulf.

Strengthening Water Quality Monitoring

Over the past decade, EPA has worked closely with states and other partners to significantly improve the quality of environmental information and to make it easier for water quality managers as well as citizens to obtain and understand such information. The vastness of our geography, the abundance of our water resources—3.5 million miles of rivers and streams—and the number of parameters of interest make adequate monitoring coverage a major challenge.

The Water Quality Reporting Process Under Section 305(b) of the Clean Water Act

The *National Water Quality Inventory Report to Congress* (prepared under section 305(b) of the Clean Water Act) is the primary vehicle for informing Congress and the public about general water quality conditions in the United States. This document characterizes the extent to which states are meeting the water quality standards they have set for their waters under the Clean Water Act, identifies widespread pollution problems of national significance, and describes various programs implemented to restore and protect our waters.

Over the past decade, considerable progress has been made in improving the consistency, comprehensiveness, and quality of this report and the state reports on which it is based. A work group of state and EPA representatives has addressed, among other issues, problems of inconsistent state assessments and the lack of comprehensive coverage of waters. As a result of these efforts, states are now taking advantage of modern information technology to provide more current and comprehensive information. States are issuing electronic updates, thus reducing the paperwork burden; they are moving toward comprehensive assessments of all waters; and they are mapping water quality information. EPA provides technical support to states that need to create or upgrade their assessment databases and their mapping capabilities.

Consolidating Reporting Under the Clean Water Act

In addition to water quality reporting under section 305(b), states are also required, under section 303(d), to identify waters that are not attaining water quality standards. EPA is working closely with its state partners to develop a consolidated assessment approach that will streamline and improve the quality of these two reports. The benefits of the consolidated approach are improved decision-making on impaired waters and clearer communication to the public on the condition of the nation's waters. EPA is working closely with a variety of stakeholders, including state water quality agencies, farming organizations, environmental groups, and industrial facilities, to make this approach a reality.

Volunteer Monitoring

Citizen volunteers are valued partners in the nationwide effort to monitor and protect our waters. Quality-assured data collected by trained volunteers can supplement professional data, especially in areas that would otherwise be unmonitored. Volunteers can help establish baseline information, observe trends, and detect emerging pollution problems. Over the past 10 years, OWOW has worked to improve the credibility of data collected by volunteers; encourage acceptance of such data by state, local, and federal agencies; and promote the growth of volunteer monitoring in all states. OWOW's volunteer methods manuals for streams, lakes, and estuaries are widely used, as is a plain English volunteer guide to quality assurance. OWOW also supports a national newsletter for volunteer monitors, regular national and regional conferences, a list-server for the exchange of questions and information, and a national database (yosemite.epa.gov/water/volmon.nsf) of volunteer environmental monitoring programs.

Water Quality Monitoring Council

The National Water Quality Monitoring Council, formed in 1997 by EPA and the U.S. Geological Survey, serves as an interagency forum for seeking consistent and scientifically defensible federal and state water quality monitoring methods and strategies, and for defining a national agenda of needed monitoring, research, and assessment models and tools. The Council has sponsored two national conferences on water monitoring and published a series of technical studies on the state of water quality monitoring, along with recommendations for improvement. OWOW cochairs the Council, which includes 35 representatives from federal, interstate, state, tribal, local, and municipal governments; watershed groups; universities; and the private sector, including volunteer monitoring programs.

Biological Monitoring

States are adopting increasingly more comprehensive and sophisticated monitoring approaches that not only measure levels of chemical pollutants but also assess the biological condition of waters—specifically, the health of aquatic communities such as benthic macroinvertebrates, fish, and algae. These bioassessments can be used to better understand existing aquatic resources, protect aquatic life, detect underestimated or missed problems, help water resource managers set priorities, assess the effectiveness of management actions, and track long-term trends in water quality. Over the past 10 years, EPA has produced a number of tools to help states develop and implement biological monitoring techniques. These include updated bioassessment protocols for wadable streams; new methods for lakes, reservoirs, and estuaries; and a database summarizing state bioassessment programs. In 1997 OWOW helped form a new national work group with the objective of improving methods and programs to evaluate the biological integrity of wetlands. This work group, composed of scientists from six federal agencies, six states, and seven universities, will soon publish a series of modules that describe the "state of the science" of wetland biological assessment.

William W. Hartley, U.S. Fish and Wildlife Service

Improving Information Technology

New and innovative technologies are revolutionizing the way environmental data can be collected, stored, displayed, and disseminated. Over the past 10 years, OWOW has taken full advantage of the latest Internet and data management systems to enhance the delivery of information to our partners and to the public.

A Modernized Data Management System

STORET (short for "storage and retrieval") is EPA's largest computerized environmental data system (www.epa.gov/storet). It serves as a central repository for the nation's water quality, biological, and physical data and is used by state environmental agencies, EPA and other federal agencies, universities, private citizens, and many others. EPA also maintains the Legacy Data Center, or LDC, which contains historical water quality data dating back to the early part of the 20th century and collected up to the end of 1998. STORET contains data collected beginning in 1999, along with older data that has been properly documented and migrated from the LDC. STORET was completely modernized in the 1990s and transformed from a complex mainframe system to a flexible PC-based system designed to be used by professionals and volunteer organizations alike. The LDC and STORET have been Web-enabled, allowing anyone with a standard web browser to navigate both systems interactively or create files of water quality data that can be downloaded to a typical personal computer.

Geographic Information Systems

OWOW has worked cooperatively with the U.S. Geological Survey over the past decade in developing geographic information system (GIS) tools such as the Reach Files and the National Hydrography Dataset. These tools will allow important water quality and flow information from a variety of databases to be connected and consistently mapped. They will also improve communication to the public on water quality issues of concern, including which local waters are impaired, what the uses of those waters are, and what pollutants are impairing them.

The Reach Files are a series of national hydrologic databases that uniquely identify and interconnect the stream segments or "reaches" that compose the U.S. surface water drainage system. The three versions of the EPA Reach File that currently exist, known as RF1, RF2, and RF3, were created from increasingly detailed sets of digital hydrography data produced by the U.S. Geological Survey. OWOW enhanced these hydrography datasets by assigning a unique reach code to each stream segment, determining the upstream/downstream relationships of each reach, and, when possible, identifying the stream name for each reach.

Although these hydrography datasets can be used for some key analyses, most of the real power comes when other data is connected (or "reach indexed") to them. Under the new National Hydrology Dataset, one can map and display very localized stream information and overlay it with water quality information from other databases. These databases include the TMDL Tracking System, used by EPA to maintain information about state lists of impaired or polluted waters; the 305(b) Assessment Database, used by the states to maintain their surface water assessment results under section 305(b) of the Clean Water Act; and the Water Quality Standards Database, which contains information on the specific uses for which waterbodies are designated (such as swimming and fishing) by the states.

8-Digit Cataloging Units

Protecting and Restoring Wetlands

Wetlands provide a number of environmentally and economically important functions in watersheds, such as flood control, water quality protection, ground water recharge, spawning areas for fish, and wildlife habitat. By the mid-20th century, when improved scientific understanding brought public recognition of these contributions, the coterminous United States had lost more then 50 percent of its original wetlands base. Nationally more than 100 million acres of wetlands had been drained or filled, and in many watersheds less than 15 percent of the original wetland acreage remained. As a result, our waters are more polluted, our cities and farms are more prone to floods, and many wetland-dependent species are in decline, threatened, or endangered. Although wetland conversions continue, the national loss rate has declined significantly over the past 40 years—from 460,000 acres to 60,000 acres annually. Other stressors, however, now affect wetland health, including pollutant loadings, hydrological modification, invasive species, and habitat fragmentation. Over the past decade, OWOW has worked toward a balanced framework of voluntary stewardship and protection programs, strengthened state and tribal programs, promoted regulatory protection for wetlands, emphasized restoration of former wetlands, and developed tools for wetland monitoring.

Avoidance/No Net Loss of Wetlands

To increase protection of the nation's critical resource waters and floodplains, OWOW worked with the USACE to adopt two new general conditions in the Nationwide Permit Program. In addition, to help ensure mitigation accountability in the Wetlands Regulatory Program, OWOW led an interagency team that issued final guidance on the use of in-lieu-fee compensatory mitigation that will help ensure effective replacement of impacted wetlands.

Strengthened State/Tribal/Local Wetlands Programs

OWOW provides technical information, program guidance, and financial assistance to help strengthen state, tribal, and

Wetlands Regulatory Program

Under Clean Water Act (CWA) section 404, a permit must be obtained before dredged or fill material may be discharged into "waters of the United States," which include many wetlands. This permit program is administered by the Army Corps of Engineers (USACE) or approved states under guidelines issued by EPA. It ensures that the environmental impacts of proposed discharges are avoided and minimized to the extent practicable, and that unavoidable impacts are mitigated or offset through wetland restoration or other activities. Over the past decade, OWOW has worked closely with the USACE to clarify the requirements of the program and to improve environmental performance.

In 2000 Nationwide General Permit 26, the long-debated "catch-all" authorization that was the single largest source of generally permitted wetland losses, was eliminated. The underpinnings of this nationwide permit had been challenged by the National Academy of Sciences, and it was replaced by six activity-specific general permits limited to minimal environmental impacts. In addition, in 2000 the threshold for obtaining a Nationwide General Permit was lowered to 1/2 acre (from 10 acres as late as 1996), and significant conditions protecting floodplains and critical resource waters were added. In 2000 EPA worked with the USACE on regulatory changes (known as the "Tulloch Rule") to clarify the scope of activities covered under section 404 to ensure that activities such as mechanized excavation, channelization, and other activities that involve discharges of dredged or fill materials are evaluated under CWA permitting requirements.

John McShane, U.S. Environmental Protection Agency

local capacities to protect and manage our nation's wetlands. The Wetland Program Development Grants Program, which began in FY1990 at $1 million per year, now provides $15 million annually to states, tribes, territories, and local governments to establish effective programs to safeguard wetland resources. These grants have funded more than 1,000 projects, including efforts to incorporate wetlands into traditional water programs, monitor and assess the quantity and quality of wetlands, enhance restoration techniques, educate the public about wetlands, and develop partnerships at the watershed level. In addition, OWOW's partnerships with the Association of State Wetland Managers and the Association of State Floodplain Managers has also helped enhance state capacity. EPA funding has gone to support training and conferences on wetland protection and restoration strategies, reaching more than 5,000 people in the past decade.

State Assumption and State Programmatic Permits

OWOW worked closely with Michigan and New Jersey to help them assume the federal permit program. EPA assisted New Jersey in developing the legislation needed to meet the assumption requirements, assisted in developing implementing regulations, and coordinated with the other involved federal agencies (USACE, Fish and Wildlife Service). Other states (such as Maine, New Hampshire, Rhode Island, Massachusetts, Connecticut, Vermont, Pennsylvania, and Maryland) administer State Program General Permits (SPGPs) as a means to reduce unnecessary duplication between state and federal programs. In these (and other states with comprehensive or partial SPGPs) the state's permit can eliminate the need to get a separate permit from the Corps of Engineers. SPGPs can serve as a stepping stone toward full assumption of the federal permit program. Additional funding to assist state efforts to become more active partners in wetlands protection, management, and restoration can increase the states' involvement nationwide and can lead toward more states assuming the federal permit program.

Outreach is another important tool used to increase long-term wetland conservation and management by enhancing public understanding of the value of wetlands and supporting innovative programs that encourage private, state, tribal, and local actions to conserve wetlands.

National Wetlands Awards

Since 1989 OWOW and the Environmental Law Institute have cosponsored the National Wetlands Awards Program. Since 1999 cosponsorship has expanded to include the Forest Service, the Natural Resources Conservation Service, the National Marine Fisheries Service, and the Fish and Wildlife Service. The awards program is designed to honor individuals from across the country who have demonstrated outstanding innovation and dedication to wetlands education, research, volunteer leadership, private land stewardship, development, and wetland program development. The winners provide shining examples of how individuals can make a difference in wetland protection and restoration.

Steve Delaney,
U.S. Environmental Protection Agency

Wetland Mitigation Banking

Wetland mitigation banking can result in environmentally sound compensatory mitigation and be an effective tool for watershed managers. In 1995 EPA and four other agencies issued the *Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks*, laying out how and when banking might be appropriately used. Mitigation banks help ensure mitigation occurs in advance of adverse project impacts and can result in economies of scale relating to the planning, implementation, monitoring, and management of mitigation projects. In addition, banks can be a way to reduce uncertainty in the section 404 permit program, by providing a source of effective compensatory mitigation for unavoidable impacts. Currently, more than 300 mitigation banks are operating or in the final stages of approval.

American Wetlands Month

In 1990 OWOW joined its partners in establishing American Wetlands Month. Across the country every May, federal agencies, state, tribal, and local governments, and private and nonprofit organizations celebrate the vital role our nation's wetlands play in the ecological and economic system. American Wetlands Month conferences, held every year since 1996 have attracted more than 1,400 people from across the country who have shared valuable information on wetland conservation and education efforts.

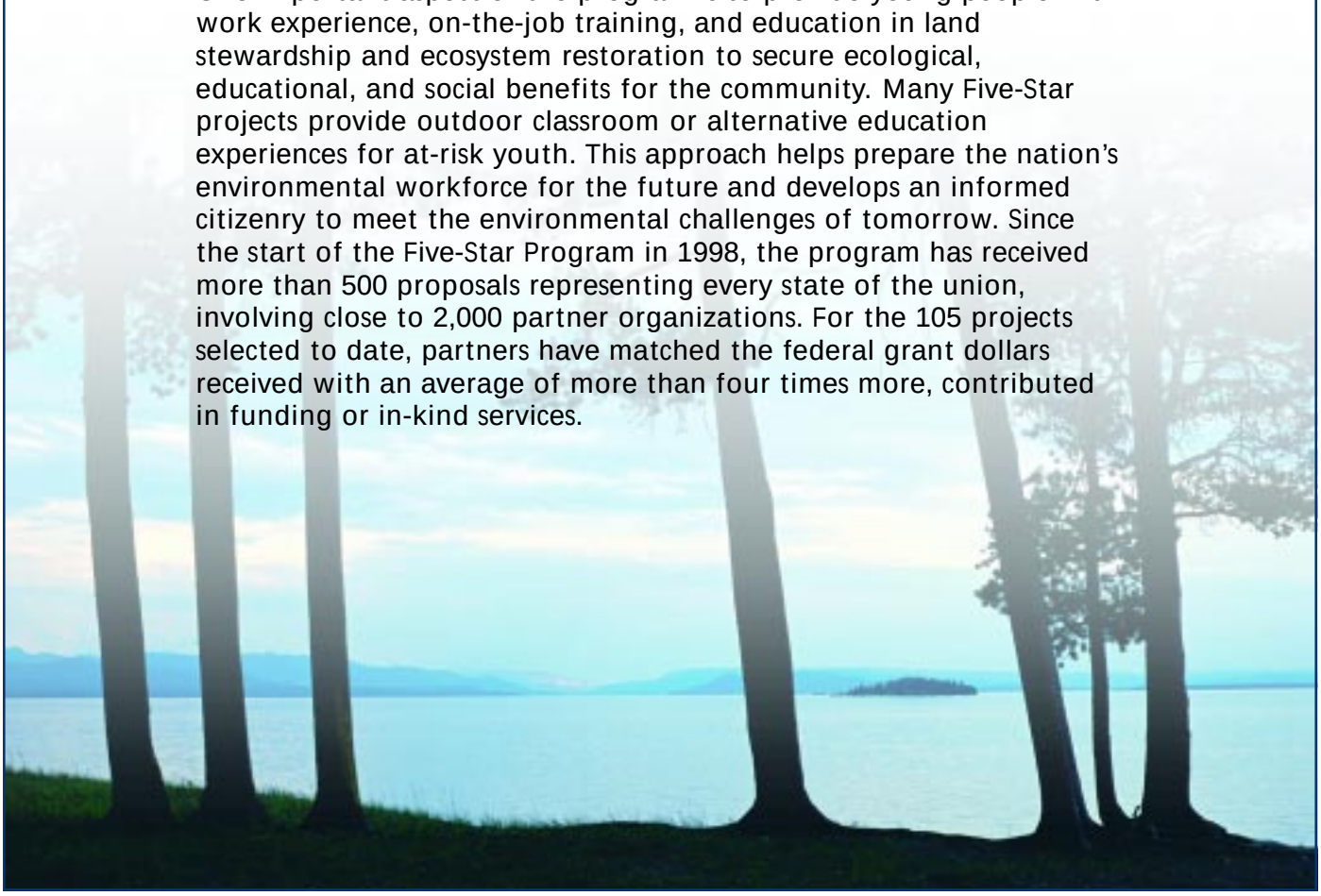
Wetlands Helpline

In 1991 OWOW established a toll-free information service on wetlands. The Helpline (1-800-832-7828) has provided information to more than 50,000 callers.

The Five-Star Restoration Program

The Five-Star Program (www.epa.gov/owow/wetlands/restore/5star) is so named because each project involves at least five partners. It often brings together organizations that have not traditionally worked together, including local corporations, public interest groups, youth corps, students, and government agencies. This voluntary partnership program offers a model for working together to improve our waters. None of us can do it alone, and we certainly will not move ahead if we duplicate efforts and compete with each other.

One important aspect of the program is to provide young people with work experience, on-the-job training, and education in land stewardship and ecosystem restoration to secure ecological, educational, and social benefits for the community. Many Five-Star projects provide outdoor classroom or alternative education experiences for at-risk youth. This approach helps prepare the nation's environmental workforce for the future and develops an informed citizenry to meet the environmental challenges of tomorrow. Since the start of the Five-Star Program in 1998, the program has received more than 500 proposals representing every state of the union, involving close to 2,000 partner organizations. For the 105 projects selected to date, partners have matched the federal grant dollars received with an average of more than four times more, contributed in funding or in-kind services.



Protecting Our Oceans and Coasts

We Americans are deeply connected to our coastal waters. In fact, more than half the nation's population—139 million people—live along our country's shorelines. Because of increasing pressures on our fragile coastlines, OWOW has placed special emphasis over the past decade on building new partnerships among governments, citizens, businesses and other stakeholders. However, the continuing migration of our population to the coasts and the fragile resources of this coastal fringe mean that a safe and certain future has not been secured.

The National Estuary Program

Since its inception in 1987, the National Estuary Program (NEP) has continued to bring communities together to protect and restore their estuaries. There are now 28 estuaries in the program, and each of them has developed or is developing a Comprehensive Conservation and Management Plan (CCMP), to be used as a blueprint to guide restoration and preservation activities in the estuary. Within the past 10 years, 23 estuary programs have completed their CCMPs; they are now implementing action plans. The remaining five programs are expected to have final CCMPs in 2001. Many accomplishments have been realized through the NEP, most notably the restoration and protection of almost 1 million acres of habitat nationwide.

The watersheds of the National Estuary Program

23 National Estuary Programs with Approved CCMPs

Program	Approved	Designated
Puget Sound	May 1991	1987
Buzzards Bay	April 1992	1987
Narragansett Bay	Jan. 1993	1987
San Francisco Bay	Dec. 1993	1987
Albemarle-Pamlico	Nov. 1994	1987
Long Island Sound	Nov. 1994	1987
Galveston Bay	March 1995	1988
Santa Monica Bay	March 1995	1988
Delaware Inland Bays	June 1995	1988
Sarasota Bay	Oct. 1995	1988
Delaware Estuary	Sept. 1996	1988
Massachusetts Bay	Sept. 1996	1990
Casco Bay	Oct. 1996	1990
Indian River Lagoon	Nov.1996	1990
Barataria-Terrebonne	Dec.1996	1990
Tampa Bay	March 1997	1990
NY/NJ Harbor	March 1997	1988
Coastal Bend and Bays	Feb. 1999	1992
Maryland Coastal Bays	Oct. 1999	1995
Columbia River	Oct. 1999	1995
Tillamook	Dec. 1999	1992
San Juan Bay	Oct. 2000	1992
Morro Bay	Jan. 2001	1995

Air-Water Initiative

Over the past decade, we have discovered that coal-fired power plants, automobiles, and other sources of airborne pollutants are a major cause of water pollution, affecting many of our estuaries and coastal waters. The Air-Water Initiative, which began in 1995, is part of the Office of Water's efforts to assess the problem of air deposition of pollutants and to find solutions that protect water quality. An Air-Water Coordinator has been designated to facilitate communication among the EPA Office of Water, Office of Air and Radiation, other EPA offices, and other federal agencies. The initiative has also funded atmospheric deposition monitoring and assessment in various coastal areas, workshops aimed at both scientists and managers, education materials and training, and other outreach activities designed to focus attention on air pollution impacts on water quality.

Steve Delaney, U.S. Environmental Protection Agency

Steve Delaney, U.S. Environmental Protection Agency

Harmful Algae Blooms and *Pfiesteria*

Following toxic outbreaks of *Pfiesteria* along the eastern seaboard in 1997, the White House called for a centralized federal response capability in the event of future outbreaks. In response, EPA and NOAA led the development of the *Federal Event Response Plan for Harmful Algal Blooms: An Initial Focus on* Pfiesteria, *Fish Lesions, Fish Kills, and Public Health*. The plan responded to state requests for assistance during major outbreaks, and it was distributed in 1998. EPA also funded 11 state agencies in the eastern United States and along the Gulf of Mexico to support existing and new rapid response and monitoring programs for *Pfiesteria*, funded a clearinghouse for *Pfiesteria*-related information, and developed a fact sheet for the public in English and Spanish.

Shellfish Beds Reopened in Buzzards Bay

Buzzards Bay in southeastern Massachusetts is known for its variety of habitats, including salt marshes, tidal streams, eelgrass beds, tidal flats, barrier beaches, and rocky shores. The bay is one of 28 estuaries in the National Estuary Program.

Over the years, cumulative impacts of local land uses, such as agriculture, industry, and recreation, have degraded water quality and contaminated shellfish beds. To address these threats, the Buzzards Bay NEP has worked with local and community organizations to implement innovative solutions.

High levels of fecal coliform bacteria, conveyed principally from storm water, were found to be the major cause of shellfish bed closings, so watershed partners worked together to fashion a solution. They developed a 3-acre constructed wetland system to remove sand, silt, trash, and other debris from storm water discharges. Thanks to reductions in bacteria levels, more than 4,000 acres of shellfish beds have been reopened. The shellfish bed restoration strategy is typical of water quality efforts in the Buzzards Bay watershed. For each problem identified, coordinated education efforts, restoration activities, and monitoring activities are undertaken to improve the area's water resources.

Ocean Survey Vessel *Peter W. Anderson*

The 165-foot-long *Peter W. Anderson* is an ocean-going vessel that assists the EPA regions in coastal and marine survey and monitoring operations. The majority of the *Anderson's* missions involve surveys for designation and monitoring of ocean dredged material disposal sites; however, included in its approximately 30 missions per year are water quality surveys, public outreach efforts, coral reef studies, public health surveys of municipal sewage outfalls, evaluations of the impacts of deposition of pollutants into coastal and marine areas, and international assistance activities in the Wider Caribbean area. Among the ship's accomplishments in the past decade are providing substantial assistance in surveying damage from a large petroleum spill in the Delaware River and locating for recovery operations several arsenic trioxide canisters lost from a container ship during a severe storm in the Atlantic Ocean.

Kennard Potts, U.S. Environmental Protection Agency

Vessel Sewage Discharge Program

Over the past 10 years, OWOW has increased its outreach efforts to make states aware of their authority, under section 312 of the Clean Water Act, to designate all or part of their waters as a no-discharge zone (NDZ) for vessel sewage. The results have been a significant increase in the number of states involved in the program and an overall increase in the number of NDZs. Currently, 18 states have all or portions of their waters designated as an NDZ for vessel sewage, resulting in 71 NDZ designations nationwide. A major benefit of the designations has been the reopening of some shellfish beds previously closed because of fecal contamination.

Uniform National Discharge Standards

EPA has partnered with the Department of Defense (DOD) to promulgate Uniform National Discharge Standards (UNDS) to regulate discharges incidental to the normal operation of DOD vessels. In 1999 EPA and DOD promulgated a joint rule that identified 25 discharges, such as bilge water and gray water, that required control. The rule also identified another 14 discharges that were determined not to require control. EPA and DOD are now developing performance standards for the 25 discharges based primarily on potential environmental impacts and feasibility.

Cruise Ships

OWOW is currently conducting a national assessment of the cruise ship industry in response to a petition received from the Bluewater Network on March 17, 2000. The petition asked OWOW to assess whether discharges from cruise ships are harming the marine environment. The assessment should be completed in 2001.

Capacity Building

OWOW provides extensive technical support and training opportunities to help build capacity at the local level for coastal watershed protection. Over the past 10 years, OWOW has sponsored numerous workshops and training sessions on the following topics:

- Regulatory and nonregulatory tools available to local decision-makers for protecting their coastal resources.
- Volunteer monitoring in estuaries.
- Land use impacts on water quality; development of comprehensive environmental monitoring plans for NEPs.
- Solutions to build capacity for addressing long-term funding challenges in estuary programs; negotiation and facilitation skills.
- Creating alternative futures scenarios to address growth impacts in coastal environments.

Captain Budd Christman, National Oceanic and Atmospheric Administration

Partnerships

OWOW has broadened its impact and effectiveness by reaching out to work in partnership with the public and private sectors. Today, more than ever, OWOW recognizes that it must involve everyone—other government agencies, businesses, communities, and individuals—to meet its environmental goals.

Many agencies and organizations have increased their commitment to ensure that they and their members do the right thing to protect water quality. OWOW has financially and actively supported a number of these voluntary efforts, including the golf industry's development of *Golf and the Environment: Environmental Principles for Golf Courses in the United States* (see box), the ski industry's new Environmental Charter, the U.S. Post Office's new *Beneficial Site and Landscape Guidelines*, and best management practice handbooks by the pork and wheat industries.

Green Ports/Green Ships Programs

Through the Green Ports and Green Ships Programs, OWOW has successfully promoted environmental stewardship concepts for U.S. ports. Under the Green Ports Program, OWOW helped the American Association of Port Authorities (AAPA) produce an environmental handbook that helps port managers implement environmentally sound practices to address potential sources of water and air pollution and to manage solid and hazardous waste. Under the Green Ships Program, EPA funded the Chamber of Shipping of America to produce a handbook for vessels that provides the shipping industry with environmentally friendly ship operation practices and complements the AAPA handbook.

NACo/ICMA

OWOW's partnerships with the National Association of Counties (NACo) and the International City/County Management Association (ICMA) have helped build local government officials' awareness of watershed protection issues. Since 1995, OWOW has supported wetland and watershed workshops at NACo and ICMA's biannual national meetings and have trained over 2,000 local government officials. EPA supported NACo and ICMA in the publication of wetland and watershed case studies and has distributed these case studies to more than 2,000 local government officials and watershed associations. EPA has also used NACo's network of county officials and managers to share information on community-based coastal initiatives, such as wellhead protection and agricultural water reuse programs.

Golf and the Environment

In 1995 OWOW became involved in the multisector Golf and Environment initiative to catalyze and support voluntary environmental improvements in the golf industry. The goal is to help the industry become a model through continued cooperation in environmental stewardship and public education. Accomplishments include development of a set of guiding *Environmental Principles for Golf Courses in the United States*, design and implementation of an environmental performance measurement pilot project, preparation of a collaboration guide to facilitate planning and partnership at the local level, and development of siting guidelines for golf course developers and local governments. In addition, the group sponsors national conferences to share information and ideas on golf and the environment.

Wildlife Habitat Council

OWOW has been a partner with the Wildlife Habitat Council (WHC) for many years. WHC has had numerous successes in helping large landowners, particularly corporations, manage their unused lands in an ecologically sensitive manner for the benefit of wildlife. More than 105 companies are WHC members, as are two dozen conservation organizations. More than 550,000 acres in 43 states, Puerto Rico, and eight other countries are managed for wildlife through WHC-assisted projects—cooperative efforts involving management, employees, community members, local conservation groups, and local, state, and federal agencies.

OWOW and WHC have adopted two (in 1995 and 2001) Memoranda of Understanding to further their common interests. They have worked together on such projects as the Cooper River (South Carolina) Corridor Project and the St. Clair River (Michigan) Waterways for Wildlife project. These projects involved partnerships with companies like Amoco, Bayer DuPont, and Ford, as well as conservation organizations like Ducks Unlimited.

Each year OWOW supports WHC's Wildlife Symposium, which brings together representatives from wildlife conservation groups, industry, and the community to share information and their enthusiasm about enhancing and restoring wildlife habitat at corporate sites. In 2001 WHC announced a record number of more than 1.2 million acres being managed for wildlife. WHC is also a partner with OWOW in the Five-Star Restoration Program, which brings together citizen groups, corporations, youth conservation corps, students, landowners, and government agencies to restore streambanks and wetlands and enables community-based restoration projects.

Nonpoint Education for Municipal Officials

Thanks to OWOW's partnership with the Nonpoint Education for Municipal Officials (NEMO) Project at the University of Connecticut Cooperative Extension, scores of towns and communities across the country are examining how their local land use plans, regulations and practices can better protect water resources. NEMO uses state-of-the-art GIS and remote sensing to help community decision-makers and landowners better understand the relationship between their activities and water resources. NEMO training workshops for EPA's National Estuary Programs have led to the creation of local coalitions to examine the effects of growth on quality of life and natural resources, reviews of local ordinances, and build-out analyses. In addition to providing financial support, OWOW serves as member of NEMO's interagency advisory group.

Know Your Watershed

Beginning in 1993, OWOW teamed up with the Conservation Technology Information Center to launch a campaign to encourage rural and agricultural communities to play an active role in managing their watersheds. Over the past seven years, the "Know Your Watershed" campaign has built a national partnership of agricultural commodity groups, farm organizations, agricultural retailers, industry, and others to address the conservation of natural resources, watershed protection, and nonpoint source pollution. In addition to developing many highly popular booklets and a video about getting started on local watershed projects, "Know Your Watershed" has been a great vehicle for disseminating information about water quality as well as wetlands and source waters. A new Core 4 project offers solid, science-based information for farmers on ways to implement practices to conserve natural resources, such as weed and pest management, conservation buffers, and conservation tillage.

Center for Marine Conservation

Since 1986 OWOW has partnered with the Center for Marine Conservation (CMC) to establish and maintain the annual International Coastal Cleanup Campaign (ICCC). The ICCC is the largest volunteer environmental stewardship activity in the world. In 1999, more than 770,000 volunteers, including 11,142 divers, from 78 countries cleaned up over 4,290 tons of trash from 11,361 miles of shoreline and underwater sites. EPA also has partnered with CMC to develop the statistically based National

Marine Debris Monitoring Program, in which volunteers gather scientifically valid marine debris data. Currently, 162 monitoring sites are established, and at 128 of them data are being collected. Eventually there will be 180 monitoring sites in the contiguous United States, Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands.

The Girl Scouts of the United States of America

In 1999 OWOW partnered with the Girl Scouts of the United States of America to establish a new *Water Drop* Patch Program. To date, more than 6,000 girl scouts nationwide have earned patches by completing watershed stewardship activities. The project recently received an award from the National Environmental Education and Training Foundation for excellence in environmental education. OWOW also participates in an interagency effort, "Linking Girls to the Land," to promote hands-on conservation activities for thousands of girl scouts.

Federal Agency Collaboration

Coastal America

The Coastal America partnership, of which EPA is a charter member, was established in 1992 to provide a forum for interagency collaboration to leverage the authorities, expertise, and resources of each member agency to address the problems of habitat loss and degradation, nonpoint source pollution, and contaminated sediments in the coastal environment. OWOW serves on both the National Implementation Team and the Education and Outreach Committee.

Recently, Coastal America has launched several innovative partnerships to help further its protection and restoration goals. The Coastal Ecosystem Learning Center network links major aquariums around the country with federal agencies to increase public awareness and involvement in coastal resource protection and restoration. The military's Innovative Readiness Training Program links the training needs of the armed forces with coastal ecosystem restoration needs. Military units have been involved in several Coastal America projects to date, including the removal of decommissioned dams to restore spawning habitat for anadromous fish populations. The National Corporate Wetlands Restoration Partnership is a voluntary private-public partnership in which corporations join with federal and state agencies to restore wetlands and other aquatic habitats. Since its inception, Coastal America has sponsored more than 500 restoration and protection projects around the country.

U.S. Coral Reef Task Force

Coral reefs and their associated communities of seagrasses, mangroves, and mudflats are sensitive indicators of water quality and the ecological integrity of the ecosystem. They are important fishery and nursery areas and recently have proved to be very important economically as tourist attractions. Reefs also provide protection from erosion. And, like rain forests, coral reefs may hold the key to new cures and vaccines.

OWOW has led EPA's participation in the Coral Reef Task Force, which is charged under the new Coral Reef Conservation Act of 2000 to coordinate federal research, preservation, and restoration activities to protect coral reef ecosystems. On March 2, 2000, the Task Force issued the *National Action Plan to Conserve Coral Reefs*. The action plan is being implemented by several working groups to the Task Force, one of which, the Water & Air Quality Working Group, is chaired by EPA. Major accomplishments of the Working Group to date include clarification by EPA and the Corps of Engineers of the protection provided under the Clean Water Act and other laws for activities that affect coral reefs, establishment of special conditions in Clean Water Act section 404 general permits for protecting coral reefs, creation of a volunteer diver reef monitoring program in the Caribbean, and increased interagency coordination and technical assistance to address the impacts of sediments and nutrients on coral reef ecosystems.

Wetlands Interagency Working Group

During the early 1990s, wetland programs were criticized as unduly complex, inconsistent, burdensome, and even ineffective. An interagency work group met to consider how to improve and streamline federal wetland programs. In August 1993 the work group identified more than 40 improvements designed to make the federal programs more "fair, flexible, and effective." Major themes included reliance on sound science in the decision-making process and increased coordination with state, local, and

tribal efforts. The group's efforts led to a groundbreaking 1995 National Academy of Sciences study on the identification and delineation of wetlands. Another major accomplishment was the creation of an administrative appeals process to allow landowners to appeal wetland delineations and permit denials without costly and time-consuming judicial proceedings. In addition, streamlined permitting was offered for small business expansions and homeowners. To simplify wetland identifications for the nation's farmers, the agencies agreed to rely on a single wetland determination by the U.S. Department of Agriculture on farmlands for both Food Security Act and Clean Water Act programs.

National Dredging Team

OWOW serves on the National Dredging Team (NDT), an interagency effort established in 1995 to promote national and regional consistency on dredging issues and to provide a forum for conflict resolution and information exchange early in the dredging process. Since 1995 the NDT has established nine Regional Dredging Teams (RDTs). The NDT has also developed and issued guidance on the creation of Local Planning Groups, or LPGs, (in 1998) and on the procedures for elevating issues from RDTs and LPGs to the NDT (in 1999). The NDT sponsored a workshop in 1999 to address Coastal Zone Management Act consistency issues involved in the dredging process and sponsored a major conference in 2001 to address future challenges in the dredging program.

American Heritage Rivers

The American Heritage Rivers Initiative is an innovative effort to foster improvements in environmental protection and natural resource conservation, historic and cultural preservation, and economic revitalization in river communities. Without any new regulations on private property owners or state, local, and tribal governments, the program is about making more efficient and effective use of existing federal resources, cutting red tape, and lending a helping hand. OWOW has been instrumental in developing and supporting the American Heritage Rivers Initiative.

The Clean Water Action Plan: A New Watershed Framework

Beginning in 1998, nine federal agencies joined with state, tribal, and local partners to identify 111 key actions to protect and restore the nation's waters and to build a new watershed framework for coordinating their plans and programs. Among some of the accomplishments under the *Clean Water Action Plan* was the development of Unified Watershed Assessments. All 56 states and territories, the District of Columbia, and more than 80 tribes submitted these comprehensive assessments of watershed health. More than 300 Watershed Restoration Action Strategies are in various stages of implementation to coordinate efforts to reduce pollution, protect natural resources, and restore wetlands and riparian zones. OWOW has played a major role in other collaborative efforts, including:

- ***Coastal Monitoring Strategy***
  A new *Coastal Research and Monitoring Strategy* issued in September 2000 presents a basic assessment of the nation's coastal research and monitoring needs and recommends an integrated framework to protect vital coastal resources. The *Strategy* reflects input from a wide range of groups and individuals, including nongovernment organizations, state and local governments, tribes, the research community, and other interests.
- ***National Coastal Condition Report***
  The first-ever *National Coastal Condition Report* will present a broad baseline picture of the condition of coastal waters. In 2000 EPA, along with the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the U.S. Geological Survey, issued a public and peer-reviewed draft for comment. When the final report is issued at the end of FY2001, it will provide national-level coastal assessment information on water quality, sediment quality, biota, habitat, ecosystem integrity, and public health. The report will serve as a useful benchmark for analyzing the future progress of coastal management programs.

Doug Norton, U.S. Environmental Protection Agency

Partners in Flight and Migratory Bird Conservation

As a logical extension of its work in protecting natural ecosystems and their associated wildlife, OWOW became involved in bird conservation efforts in the early 1990s. The primary focus was the broad coalition Partners in Flight, which formed around a widespread concern that populations of bird species that breed in North America but winter in Latin America were in steep decline. OWOW joined scores of other federal agencies, states, nongovernment organizations, academic institutions, and the forest products industry in a concerted effort to better define the problems faced by these "neotropical migrant" bird species and to begin to fashion solutions that draw on the combined expertise, authorities, energies, and resources of all of the partners.

By the mid-1990s, OWOW had moved into a leadership role in representing EPA in Partners in Flight and began to broaden its efforts into other bird conservation initiatives and activities, working in close cooperation with people from many parts of the Agency. In the late 1990s, Partners in Flight expanded its scope of concern to include all land birds and played a key role in establishing an all-bird-species conservation initiative that included Mexico and Canada, known as the North American Bird Conservation Initiative (NABCI). Partners in Flight and similar initiatives for shorebirds, waterfowl, and colonial waterbirds focus on developing conservation objectives, grounded in science and tailored to the continent's diverse ecosystems, and on developing the technical tools needed for monitoring and habitat management. NABCI builds on these in establishing institutional mechanisms with needed resources for the delivery of on-the-ground conservation action. OWOW has also played a leadership role in NABCI and has provided critical support to bird conservation through funding, helping to establish links among interested parties, providing information on bird conservation to EPA programs, establishing a comprehensive bird conservation web site (www.epa.gov/OWOW/birds), and other assistance.

EPA serves on the federal Council for the Conservation of Migratory Birds established to coordinate activities under Executive Order 13186. This is an expansion of the role EPA has played under the North American Waterfowl Conservation Act, serving on the Migratory Bird Conservation Commission, which acquires and restores wetland habitat.

Global Activities

In addition to hosting visitors from around the globe who are interested in learning more about its programs, OWOW is actively involved in a number of international initiatives to address issues that transcend our nation's borders.

The London Convention

Adopted in 1972, the London Convention (LC) established a global system to protect the marine environment from pollution caused by ocean dumping. During the 1990s, the LC banned incineration at sea and the dumping of industrial wastes and low-level radioactive wastes. In 1992 the parties to the LC began a comprehensive review of the Convention. This review resulted in the 1996 Protocol, a new treaty that is separate from the LC. The Protocol sets forth a regime that is more stringent, more comprehensive, and more protective of the marine environment than the LC. The United States signed the Protocol in 1996 and is working toward its ratification. Although the Protocol is not yet in effect, the United States is already consistent with its substantive provisions.

Cartagena Convention

The Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (the Cartagena Convention), which was adopted in 1983, is the only legally binding environmental treaty for the Wider Caribbean. It has several protocols addressing issues such as oil spills, specially protected areas and wildlife, and pollution from land-based sources. In 1999 efforts culminated in the adoption of the land-based protocol. OWOW has been involved in the drafting, negotiations, and implementation of the Cartagena Convention. OWOW has also funded pilot projects in the region to implement the land-based sources protocol, incorporated implementing language into EPA regulations, and assisted in research efforts in the Wider Caribbean.

MARPOL

The International Convention for the Prevention of Pollution from Ships (MARPOL) was created to minimize waterborne and airborne pollution from cargo vessels operating in U.S. and international waters. OWOW has provided technical support and assisted in negotiations to address emissions from ships (adopted in 1998), anti-foulants, invasive species carried in ballast water tanks, and garbage (amended in 2000).

Convention on Biodiversity

The Convention on Biodiversity was adopted at the 1992 United Nations Conference on Environment and Development (UNCED) as a means to conserve global biological diversity. Although the United States has not yet ratified the Convention, the U.S. Government has been an active participant in Convention activities. OWOW has provided technical expertise, especially in the ecosystem areas of marine and coastal diversity and freshwater diversity.

Washington Declaration on Land-Based Sources

More than 100 countries adopted the Global Program for Action for the Protection of the Marine Environment from Land-based

Activities in 1995. OWOW was intimately involved in the planning and hosting of this conference and continues to work toward the protection of the marine environment from land-based pollutant sources through its implementing programs.

International Year of the Ocean

OWOW coordinated EPA's activities supporting the 1998 celebration, *International Year of the Ocean*. This international campaign to heighten awareness of ocean and coastal issues has led to an increase in research monies for ocean issues, increased coordination among agencies, and heightened public awareness. Highlights of this year-long interagency effort included the National Oceans Conference in Monterey, California; identification of national priorities for ocean and coastal waters; and implementation of high-priority actions.

The Ramsar Convention on Wetlands

Celebrating 30 years of worldwide wetlands protection efforts, the Ramsar Convention on Wetlands boasts 123 member nations that have identified more than 1,000 wetland sites of international importance and spurred a vast array of technical research, policy development, and support networks. OWOW participates in the Convention's triennial meetings as an official member of the U.S. delegation, which is led by the State Department and the Fish and Wildlife Service. OWOW has been particularly active in providing information resources for countries developing wetlands protection and management policies.

INTECOL: International Wetlands Conference

Every 4 years, the world's top wetland scientists, policymakers, and managers convene to share information on the full spectrum of wetlands issues. OWOW participates in this global gathering to share its progress on the watershed approach, wetland policy advances, and information resources. The most recent conference was held in 2000 in Quebec. OWOW co-sponsored the event, led several panel sessions, taught technical mini-courses on wetlands, staffed an EPA wetlands information booth, and provided practical wetlands management observations.

"When we try to pick out anything by itself in nature we find it hitched to everything else in the universe."— John Muir

Steve Delaney,
U.S. Environmental Protection Agency

The Challenges Ahead

Our rivers, lakes, estuaries, and wetlands are the lifeblood of our nation. They provide a variety of services from drinking water to recreational opportunities to transportation and food. As a nation we are beginning to recognize that clean water is intrinsically tied to our quality of life. Americans are deeply concerned about their waters, and OWOW has witnessed strong public support for efforts to keep them clean and safe.

Although much progress has been made, many challenges remain. OWOW will strive to be at the forefront in helping the country meet these challenges. OWOW will continue its efforts to clean up polluted waterbodies, restore degraded habitats, and address new and growing threats such as urban sprawl and invasive species. These efforts will take creativity, commitment, and the involvement of many partners.

Over the long term, securing healthy and sustainable aquatic ecosystems will require strategies that make greater use of market mechanisms; tap the energy and perspective of state and local stewardship groups, industry, and government; and provide a foundation of fair, flexible, and effective regulation. As we begin this new millennium, OWOW firmly believes that a watershed framework offers the best opportunity for bringing people and strategies together to address the challenges ahead.

Sprawl and Watersheds

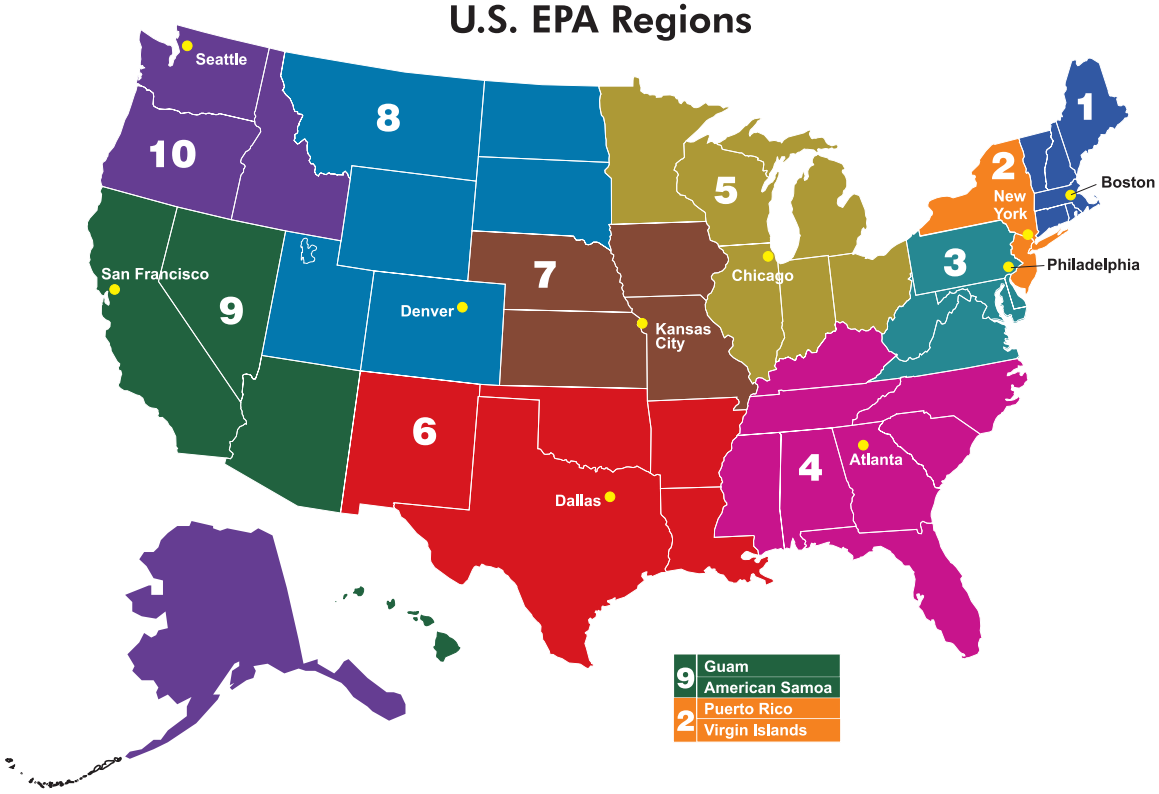
Sprawl has been identified as one of the leading causes of degradation in many watersheds. Development activities, especially unplanned growth, can result in increased storm water runoff with higher and faster flood peaks, streambank erosion, habitat loss, and groundwater recharge problems. Once 10 percent of a watershed is developed or paved over, streambeds start to degrade because of increased runoff. Some states and local communities are embracing "smart growth" and taking initiatives to protect and restore streams and adjacent floodplains.

Invasive Species

Nonindigenous, invasive species are now recognized as a major environmental threat capable of causing major adverse impacts on ecosystems, economies, and human health. They cost our country an estimated $138 billion per year in economic losses and control costs alone. According to the National Estuary Programs, invasive species now constitute the largest single threat to the biological diversity of the world's coastal waters.

S. van Mechelen, Michael Kraak,
University of Amsterdam, the Netherlands,
courtesy of Mission Sea Grant

U.S. EPA Regions



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Office of Wetlands, Oceans, and Watersheds

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