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US Army Corps of Engineers®

Environment

Value to the Nation

CIVIL WORKS



Rivers
Lakes
Wetlands
Coasts







Sustainable Choices. . .
Sustainable Actions

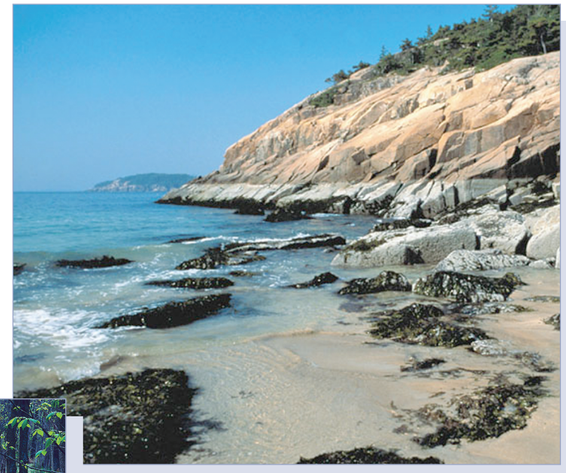
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Water Resources

Value of Our Nation's Water Resources

From the thousands of miles of coastal shoreline and rivers to the lakes and wetlands that dot our nation's landscape, America is fortunate to have an abundance of water resources.

As a nation, we value these resources for their natural beauty, for the many ways they help meet human needs, and for the fact that they provide habitat for millions of plants, fish and wildlife.



Over the past few decades, we also have come to understand how fragile these aquatic resources are and how essential it is to conserve, protect and restore them. Our nation has learned many hard lessons about the incredible importance of maintaining a balance between human needs and sustaining the environment.





Our programs support an array of nationally important environmental goals, including:

- Restoring ecosystem health;
- Conserving and improving habitats for plants, fish and wildlife;
- Protecting and restoring rare, threatened, and endangered species;
- Providing conservation and education;
- Keeping our nation's waters clean; and
- Achieving no overall net-loss of wetlands.

U.S. Army Corps of Engineers personnel work hard to apply those lessons to the decisions they make every day; decisions that will affect current and future generations. The Corps cares for nearly 12 million acres of rivers, lakes and adjacent lands in 43 states. We also are responsible for wetlands and coastal areas of value in every state. We are dedicated to ensuring the protection and restoration of these resources.



Corps Environmental Operating Principles

- **Strive to achieve environmental sustainability.** An environment maintained in a healthy, diverse and sustainable condition is necessary to support life.
- **Recognize the interdependence of life and the physical environment.** Proactively consider environmental consequences of Corps programs and act accordingly in all appropriate circumstances.
- **Seek balance and synergy among human development activities and natural systems** by designing economic and environmental solutions that support and reinforce one another.
- **Continue to accept corporate responsibility and accountability** under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.
- **Seek ways and means to assess and mitigate cumulative impacts to the environment**; bring systems approaches to the full life cycle of our processes and work.
- **Build and share an integrated scientific, economic, and social knowledge base** that supports a greater understanding of the environment and impacts of our work.
- **Respect the views of individuals and groups interested in Corps activities**, listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the nation's problems that also protect and enhance the environment.



In recent years, the Corps has moved toward a watershed approach to water resources management. Using this approach the Corps considers how aquatic resources interact with one another across broad regions and what impact human activities and changes will have on those interactions.

We have adopted seven environmental operating principles that guide us in our water resource management efforts (*see inset*). We are assisted by an Environmental Advisory Board consisting of scientists, engineers and scholars that provides independent, external advice and recommendations. We are dedicated to working with a wide variety of groups, individuals, and agencies to foster and promote a healthy environment.



"The mission of the Corps has evolved from "builder" to encompass "developer/manager" and "protector." In the past, our science was not adequate to fully understand the impacts of our actions on the environment. That is now changing as science improves. From the Everglades of South Florida to the rivers of the Pacific Northwest, America is reevaluating those past decisions."

— LTG Robert B. Flowers
the Army's 47th Chief of Engineers.

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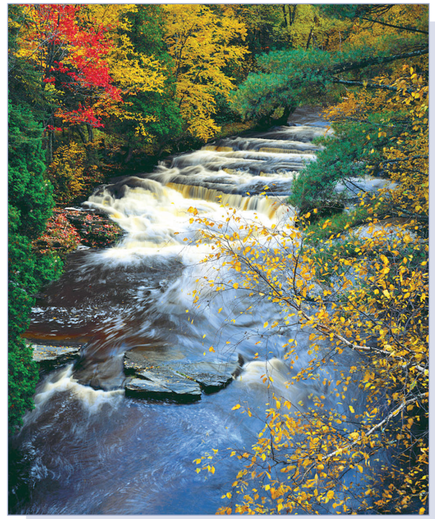
Taking Care of Our Rivers

From the mighty Mississippi to backwater sloughs, our nation's rivers, whether large or small, play an important role in our lives. They bring us clean water, irrigation for our crops, food, and a place to play. In many cases, they are a source of electricity and transportation.

The Corps is dedicated to managing these valuable resources in a sustainable way that will effectively meet human needs while also addressing environmental goals. Every year the Corps implements numerous projects that:

- protect or restore river habitats;
- restore floodplains; and
- stabilize river banks.

The Corps also is working to improve water flow in many rivers. The goal is to avoid either too much water, which can lead to flooding, or too little, which can be harmful to fish, wildlife and humans.



We keep environmental considerations at the forefront of our thinking as we undertake the design and construction of the projects that are so crucial to keeping our nation's rivers safe for navigation. For example, the Corps has installed "fish ladders," at a number of locks and dams, which allow fish to safely bypass the locks.

The Corps performs computer modeling of planned navigation projects to fully assess and limit environmental effects. We take care to dredge during "environmental windows," which are times when sensitive species, such as salmon and sea turtles, are less vulnerable. Whenever possible, we work to ensure that navigation projects have a positive environmental impact by reusing dredged material to restore and create wetland habitats.

The Corps is placing a growing emphasis on evaluating the impact of its environmental efforts and making adjustments to improve their effectiveness. One example is the environmental management project on the Upper Mississippi River. This is a series of studies and projects aimed at ensuring the coordinated development of the water resources in the area, with an emphasis on habitat restoration. We are carefully monitoring and tracking the changes being made, assessing their environmental impact and adapting our approaches to reflect the lessons learned.

Principles in Action:
Nine Mile Run

In the early 1900s, Frederick Law Olmstead Jr., saw the Nine Mile Run river valley for the first time and envisioned the potential for a parkland oasis in the middle of urban Pittsburgh. Sadly that dream has not been realized. In subsequent decades, the river's banks have become severely degraded by erosion from urban storm runoff, low water flow in the summer, sewage overflows and the dumping of huge quantities of slag.

The Corps is working closely with several county, state and federal agencies to reverse these trends and realize Olmstead's dream. The ambitious goal is nothing less than the rehabilitation of the area's entire aquatic ecosystem. The completed project will include a more natural stream channel to prevent erosion and restoration of the floodplain, wetlands, and other aquatic habitats.

Taking Care of Our Lakes



Wherever you find a river you also will likely find several lakes along its path to the sea. The Corps is responsible for managing many of these lakes, which are valuable sources of recreation, water supply, and electricity and home to a rich tapestry of game and fish and rare, threatened or endangered species.

The Corps is committed to being effective stewards of these lakes and the surrounding lands. Each year we undertake projects to:

- Maintain or improve fish and wildlife habitats;
- Protect rare, threatened and endangered species;
- Improve water quality;
- Restore degraded ecosystems;
- Replant shorelines and implement other initiatives to prevent erosion; and
- Educate lake visitors about the importance of environmental stewardship.

Projects like these are implemented through close working partnerships with many different federal, state, local and private natural resources organizations. For instance, in Illinois in the Kaskaskia River basin, which includes Lake Shelbyville and Carlyle Lake, the Corps and a number of other agencies are working closely with area residents to implement a watershed approach to resource management that involves looking in an integrated way at needs and opportunities. This effort includes projects to rehabilitate oxbows, provide safe passage for shovelnose and pallid sturgeons and manage bank erosion.



Principles in Action:
The Pilot Lakes Program

The Corps and seven other federal agencies have an innovative pilot program designed to "reinvent" thirty-two lakes nationwide by involving area residents in Citizen Focus Groups that actively participate in lake management. Thirteen of these lakes are Corps-managed.

Together, the Corps and these focus groups are assessing environmental and economic challenges affecting the lakes and developing innovative solutions to address them. This includes streamlining processes and procedures in order to speed progress in achieving goals. Emphasis is placed on cooperative efforts between federal agencies and others interested in federal lakes.

For instance, at Lake Ouachita in Arkansas, the Corps is part of a cooperative effort involving the Arkansas Watershed Advisory Group. The effort is aimed at developing a watershed approach to lake management. Projects to date have included workshops on aquatic vegetation, watershed management and marine sanitation and the introduction of new legislation pertaining to marine sanitation.

Successful pilot projects, will serve as role models for nationwide enhancement efforts on federal lakes.

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Taking Care of Our Wetlands

Where rivers, lakes and oceans touch the land you will often find wetlands. Lying on the border between water and land, wetlands have often been called the nurseries of life because they provide a rich mix of nutrients, insects, and plants that make them ideal nesting, resting, feeding and breeding grounds for many different types of creatures.

Over a third of all federally listed rare and endangered species live in or depend upon wetlands. Wetlands also help control flooding, improve water quality and serve as rest stops for migratory birds.



Through the development of new projects, the operation of existing programs and its regulatory program, the Corps plays a central role in:

- Protecting and preserving existing wetlands;
- Restoring degraded wetlands;
- Creating new wetlands; and
- Enhancing the quality of wetlands.

These efforts are making vital contributions to the national goal of no overall net-loss of wetlands. Over time it is hoped they will contribute to gains in wetlands.





Principles in Action: *California's Central Valley*

The Corps is proud to be one of the major partners in the Central Valley Joint Habitat Venture–a collaborative effort to protect, restore and enhance public and private wetlands and secure adequate water to support 4.7 million migratory waterfowl. The valley has been identified as the most important waterfowl watering area along the Pacific Flyway.

It is estimated that California has lost 90 percent of its wetlands over the past two centuries. To begin reversing this trend, the partnership has created a 16,000 acre wetland–the Vic Fazio Yolo Wildlife Area–near Sacramento. As part of the project, the Corps helped build ponds, develop a riparian forest and establish other features to create shelter and breeding grounds for waterfowl. Yolo is the largest wetland restoration project of its kind in the Western United States.

Taking Care of Our Coasts

Rivers ultimately flow to the sea. Our coasts are areas of tremendous beauty and great ecological and economic value. However, many coastal areas are in peril from development, storms, flooding, erosion and pollution.



The Corps is a major partner in Coastal America, a coalition of 13 federal agencies and many state, local and private organizations that are working together to address environmental problems along the coasts. The Corps has been the lead agency on over 75 completed Coastal America projects.

Beyond Coastal America, the Corps also is involved in a number of other projects, which are aimed at reducing shore erosion, restoring beach habitat and oyster beds, cleaning up contaminated sites, and preserving and restoring wetlands and estuaries.

Principles in Action: *Regional Management*

Every summer a "dead zone" appears off the coast of Louisiana. This zone, which averages almost 7,000 square miles, provides too little oxygen to support most marine life. The zone is caused by excessive nitrogen pollution entering the area from the Mississippi River watershed.

The zone is destroying the marine ecosystem and threatening the livelihood of thousands of individuals and communities involved in the recreation and commercial fishing industries. The Corps is involved in a federal-state partnership working to eliminate the dead zone by restoring or building wetlands and riparian buffer zones along waterways in the area and by reducing fertilizer and sediment runoff to restore the natural balance.

This effort is part of a broader regional sediment management (RSM) approach, in which the Corps and partners collaborate to manage sediment as a resource in a system context. Too much sediment can block river channels and boat harbors, clog storm outfalls and smother reefs. Too little can lead to beach erosion, wetland loss and habitat loss for sea turtles and other animals.

The RSM approach attempts to manage sediment using natural processes to help solve engineering problems, potentially saving money and improving the environment. The Corps is involved in RSM efforts in California, Florida, Alabama, Mississippi, Louisiana, Texas, Michigan, New York, New Jersey and North Carolina.

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Sharing the Challenge

There is a great deal of planning and effort that goes into protecting our nation's aquatic resources, while also ensuring that society's needs are met. Effective partnerships among federal, state, and local government agencies and private organizations are essential to success.

Did you know?

Associated with Corps lands and waters are:

- **Nearly 50 state and federal fish hatcheries;**
- **200 state wildlife management areas;**
- **25 federal wildlife refuges; and**
- **More than 150 state parks.**



Looking Ahead: Sustainable Development



We regularly evaluate emerging trends and issues which might have an impact on the nation's water resources and adjust our efforts as necessary. Some concerns that will likely have an effect on the future management of the nation's water resources are:

- Globalization;
- Economic and trade growth;
- Climate changes;
- Aging infrastructure;
- Population increases and demographic shifts;
- Terrorism;
- Investment in science and technology; and
- Environmental values.

As we confront the challenges that lie ahead, we will continue to help foster sustainable development, recognizing the close link between environmental health, social well-being and economic prosperity.



US Army Corps of Engineers®

Visit our Value to the Nation website: www.CorpsResults.us

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