Water for America

The western States are experiencing increasing water supply challenges, and the continuing drought makes these pressures more acute. Being proactive is the best approach to prevent conflict over the limited water resources by stretching existing supplies and improving aging infrastructure through realistic and cooperative local approaches.

Dirk Kempthorne, Secretary of the Interior
July 10, 2006

Water across the Nation provides the foundation of life itself. In 2009, the Department of the Interior is proposing $21.3 million for a Water for America initiative to secure reliable water supplies for the 21st century. In a collaborative effort, the Bureau of Reclamation and U.S. Geological Survey will generate information, apply new technologies, and strengthen partnerships to help address the water needs of the Nation.

Reclamation is the largest supplier and manager of water in the 17 Western States. Its responsibilities span the management, development, and protection of water and related resources, positioning the Bureau to work with States and others on water planning and management. The USGS is the Nation's premier source of information on water quantity and quality and assists water managers in developing water resources and monitoring water availability. In 2009, these bureaus will:

- Enhance the Nation's water knowledge with the first water census in 30 years and a modernized streamgage network to provide real-time flood and drought information.
- Plan for the Nation's water future by working with States and others to expand expertise and support local planning and modeling efforts.
- Expand, protect, and conserve the Nation's water resources, including support for the recovery of endangered species.

ADDRESSING 21ST CENTURY WATER CHALLENGES

In a September 2007 report, the National Science and Technology Council concluded that "Abundant supplies of clean, fresh water can no longer be taken for granted." Mirroring this sentiment, the Council of State Governments recently noted that "Water, which used to be considered a ubiquitous resource, is now scarce in some parts of the country, and not just in the West…. The water wars have spread to the Midwest, East, and South as well." "Water conflicts," the Council continued, "are occurring within States, among States, between States and the Federal government, and among environmentalists and State and Federal agencies."

Competition for water is increasing because of rapid population growth and increased environmental and energy needs. Chronic drought and the effects of a changing climate complicate the challenges of meeting the Nation's water needs. These pressures are growing. For example, meeting the Nation's ethanol production target of 7.5 billion gallons per year by 2012 will require 30 billion gallons of water a year. If just 25 percent of an expanded corn crop requires irrigation, ethanol production would demand one trillion gallons of water per year—nearly the combined annual usage of the cities in Arizona, Colorado, Idaho, and Nevada.

Emerging water conflicts between human settlements and wildlife have already surfaced in the Klamath River basin and, more recently, in the California Bay Delta, jeopardizing water deliveries to 25 million Californians. In the Southeast, drought is

impacting water supplies for Alabama, Georgia, and Florida. With the extensive involvement of partners and a concerted multi-bureau effort, however, some recent successes in the Klamath Basin also demonstrate the results that can be achieved with strategic investments in water management.

> The principal water problem in the early twenty-first century will be one of inadequate and uncertain supplies…. Intensifying scarcity is likely to be the rule, as growing demands from nearly all water-using sectors will compete for finite levels of developed supply and remaining free flowing water that support environmental and other instream uses…. Successful management of scarcity will require more systematic, comprehensive, and coordinated approaches.
>
> *Envisioning the Agenda for Water Resources Research in the Twenty-First Century.*
> National Research Council,
> National Academy of Sciences, 2006

WATER FOR AMERICA THE DETAILS

The Interior Department can help address the water needs of the Nation. Using State and local partnerships, innovative science and technologies, and better planning, this Nation can secure reliable water supplies for the 21st century.

The 2009 budget includes an increase of $21.3 million for a comprehensive Water for America initiative to avert crises and assure 21st century water supplies. The initiative will launch the first water census in 30 years—a nationwide assessment of water availability, water quality, and human and environmental water use to be completed by 2019. Good management begins with good information. The initiative includes investments to modernize the Nation's 7,000 streamgages and increase knowledge of our water supplies. In phase one, USGS will upgrade 350 streamgages and reactivate 50 gages that had previously ceased operations and initiate research related to surface and groundwater interactions.

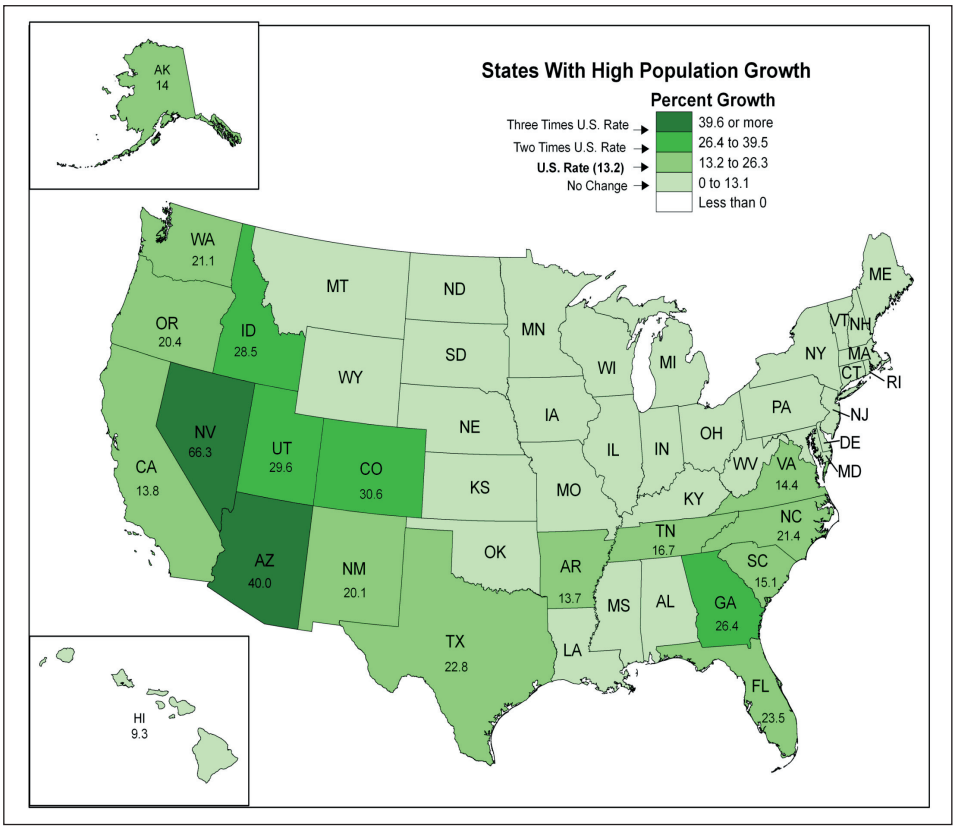
The initiative will evaluate alternatives to respond to changing water needs. Reclamation will partner with State, local, and tribal governments to use new technologies in water planning and management within a watershed context. This partnership will include various studies as well as the awarding of competitive grants based on West-wide criteria. Reclamation will also partner with urban, rural, and agricultural water users to stretch existing water supplies and implement measures to protect endangered species at high-risk watersheds in 12 States.

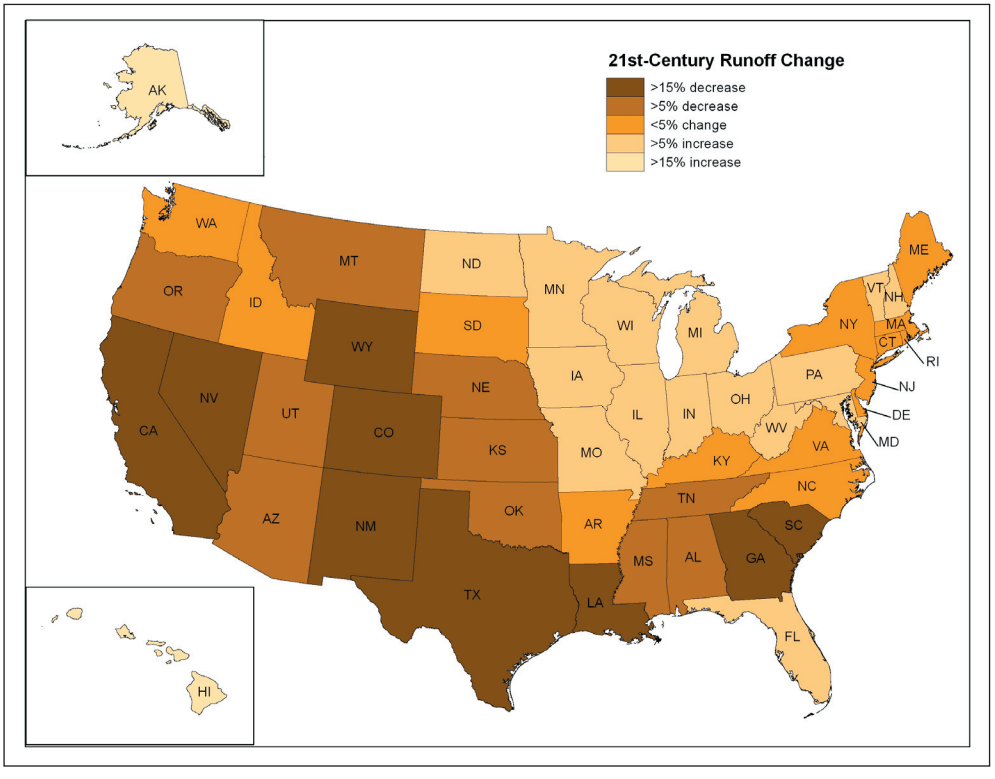
Rapid population growth and environmental and energy needs are increasing competition for limited water supplies. Chronic drought and changing precipitation patterns in the context of a changing climate are complicating water management. The arid Southwest and West face significant constraints on water availability. With 28 percent of the U.S. population, the arid West accounts for 80 percent of the average water consumed. Continued growth and development in areas where surface supplies are limited require some combination of developing new supplies and using and managing existing supplies more efficiently. Water availability is also a concern in many areas near the Nation's coasts. The lack of potential sites for surface-water storage, coupled with the potential for salt-water intrusion into aquifers and rivers, tests the capacity of these areas.

Water quality also presents challenges. Passage of the Clean Water Act in 1972 has resulted in improved water quality in streams and rivers that receive discharges from municipal waste treatment plants and industrial facilities. However, pollution from storm water, agriculture, and livestock runoff continues to impact water quality and is difficult to monitor, control, and mitigate.

Underlying the Nation's ability to manage its water supplies is the need for increased and improved information and knowledge, improved planning at a level that addresses regional water needs, and expanded protection and conservation of water.

INCREASING USE—DECREASING AVAILABILITY





There is a need for more and better water information, specifically data on water use, efficiencies, and water availability, to facilitate decisionmaking. While there exists a substantial amount of data on streamflows, much of which is now available on a real-time basis, there is less data and less reliable information related to water quality and ground water and rural water supplies. Further, some of the vital water information management systems that are now available are threatened by reductions in Federal funding and lack of necessary maintenance.

Water Needs and Strategies For a Sustainable Future
Western Governors' Association, June 2006

ENHANCING OUR NATION'S WATER KNOWLEDGE

In a 2004 report on the Nation's water problems, the National Research Council recommended a more central role for the Federal government in one crucial aspect of resolving the Nation's increasing water problems – research to inform water resource management. Knowledge gaps include understanding of human impacts and climate change on streamflow, lake and reservoir storage, groundwater recharge, and soil moisture. To improve water resource projections, including better anticipating the role of climate variations, requires a significant increase in assessment capability.

The Water for America initiative includes $8.2 million that would enhance USGS assessments of surface and groundwater, generating information to help model floods, drought, and regional-scale phenomena. Analyses and modeling would integrate information on the hydrologic properties of landscapes with surface and groundwater assessments.

Water Census — The 2009 Water for America initiative includes $6.2 million for the first water census in three decades. The last overall assessment of water resources for the Nation was published by the Water Resources Council in 1978. Since that time, dramatic changes in water availability and use have occurred as a result of demographics, economic development, environmental issues, technology, law, and a changing climate.

The census would generate information to assist others to manage water in the context of competing demands with a national groundwater information system, new technology that integrates surface and groundwater information, and better measurements that result in better management of water resources. The census will build on and integrate existing water information systems, including the National Water Information System, National Streamflow Information Program, National Cooperative Geologic Mapping program, Cooperative Water program, and National Water Quality Assessment program.

The census will provide information on the history and current status of water storage in aquifers and reservoirs, flows in rivers and aquifers, water quality, and water use; analyses of the limits of sustainable water development on a regional scale; and analytical tools, such as modeling, to improve understanding of complex water issues.

This information will equip water managers with:

- Objective methods to quantify environmental flows needed for aquatic life.
- Improved tools to predict the impact of regional ground water development on the flow, temperature, and chemical quality of rivers.
- Approaches to evaluate dispersed sources of pollution and their impacts on water quality.
- Improved understanding of the effects of climate variability and potential changes on water resources.

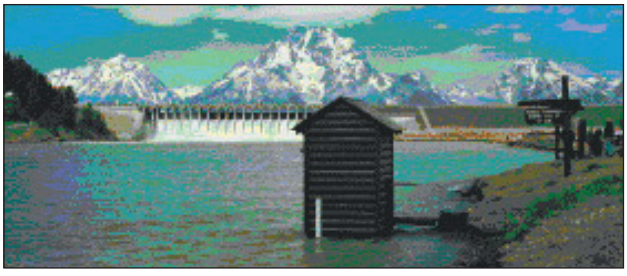
Streamgage Network — Effective decisionmaking about water allocations and usage requires knowledge about streamflow quantity and quality. For more than 100 years, USGS has collected, managed, and disseminated data on stream behavior. The USGS currently operates and maintains a nationwide streamgaging network of about 7,000 gages in collaboration with 800 State, local, municipal, and tribal partners. These partners share in the funding of the network, which operates with nationally consistent methods of data collection. Within the network, 4,700 streamgages have been identified through the

MODERNIZATION OF THE NATIONAL STREAMGAGING NETWORK

The internet delivery of USGS near real-time streamflow and water-level data has led to expanded uses and new demands for hydrologic data. Local, tribal, State, and Federal agencies; companies with an interest in water resources; and private citizens have come to rely upon the USGS real-time streamflow web pages for information for a wide variety of purposes.

The National Oceanic and Atmospheric Administration's Geostationary Operational Environmental Satellites currently meet USGS needs for transmitting data from the streamgages to a central data delivery system. However, due to impending modernization of satellite technology and the adoption of higher transmission-rate standards for GOES, starting in 2013, the radios that currently send data from the streamgages to the GOES satellite will cease to function, and the USGS streamgages will no longer be able to transmit data for dissemination to customers.

The new radios will allow the streamgages to send updated data every hour instead of every four hours, so the National Weather Service and emergency responders have the most up-to-date information possible.



National Streamflow Information Program plan, as critical to ensure a consistent, historical record of streamflow. Despite management improvements and cost efficiencies in recent years, the overall number of gages on the network has declined since 1980 from 7,800 streamgages to 7,000. Many of these streamgages contained records longer than 30 years.

The Water for America initiative includes $2.0 million to expand the streamgage network and provide real-time data transmission to permit better management during floods and droughts. The initiative will also increase the number of streams with gages; modernize 350 of the 7,000 streamgages with real-time telemetry; improve the network stability; and re-establish 50 streamgages discontinued in the past two decades.

PLANNING OUR NATION'S WATER FUTURE

States with the highest population growth rates are also among the States facing the most significant chronic constraints on water availability. Over the last decade, Nevada, Arizona, Colorado, Idaho, and Utah all experienced growth of 25 percent or more. In the East, Georgia also experienced growth of over 25 percent and, like States in the West, faces severe water constraints. Indeed, Georgia now faces its most extreme drought in 100 years.

Through reservoir storage, transbasin diversions, groundwater development, water rights transfers, conservation, and other measures, western communities are meeting water needs in the face of limited water resources and population growth. However, some areas are experiencing the physical limits of these remedies to water shortages. With increasing pressure on water for domestic, agriculture, industry, recreational, and wildlife uses, States face difficult choices in allocating scarce water supplies.

Recent crises in the Klamath River and Middle Rio Grande basins, where farmers, cities, Tribes, and wildlife were all impacted by shortages, demonstrate these conflicts. Most recently, drought in the southeastern United States has exacerbated regional conflict over water uses, leading to a regional water summit facilitated by the Secretary of the Interior with the goal of addressing, through collaboration and within a watershed framework, competing water needs.

In the coming decades, no natural resource may prove to be more critical to human health and well-being than water. Yet, there is abundant evidence that the condition of water resources in many parts of the United States and the world is deteriorating…demands for water resources to support population and economic growth are fixed in quantity and already are fully allocated in most areas.

The future water crisis is unlikely to materialize as a monolithic catastrophe that threatens the livelihoods of millions. Rather it is the growing sum of hundreds, perhaps thousands, of water problems at regional and local scales and not just in the semi-arid West, as interstate conflicts over new water supplies for the metropolitan Washington, D.C. region and Atlanta, Georgia testify.

Confronting the Nation's Water Problems
National Research Council,
National Academy of Sciences, 2004

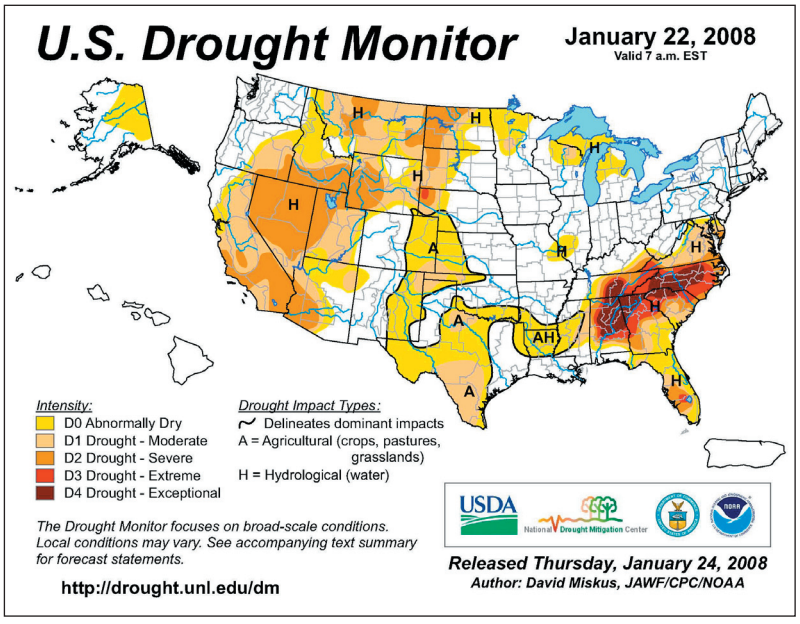
Water resources are managed at the local level by water districts, towns, cities, Tribes, and communities. A cohesive effort to effectively manage water in the 21st century requires engagement by all water users, water managers, and others. These collaborative efforts benefit from cross-jurisdictional coordination and technical expertise. Through the Water for America initiative, Interior will assist States, local governments, and Tribes to meet increasing demands, better define water sources and alternatives, and plan for improved management.

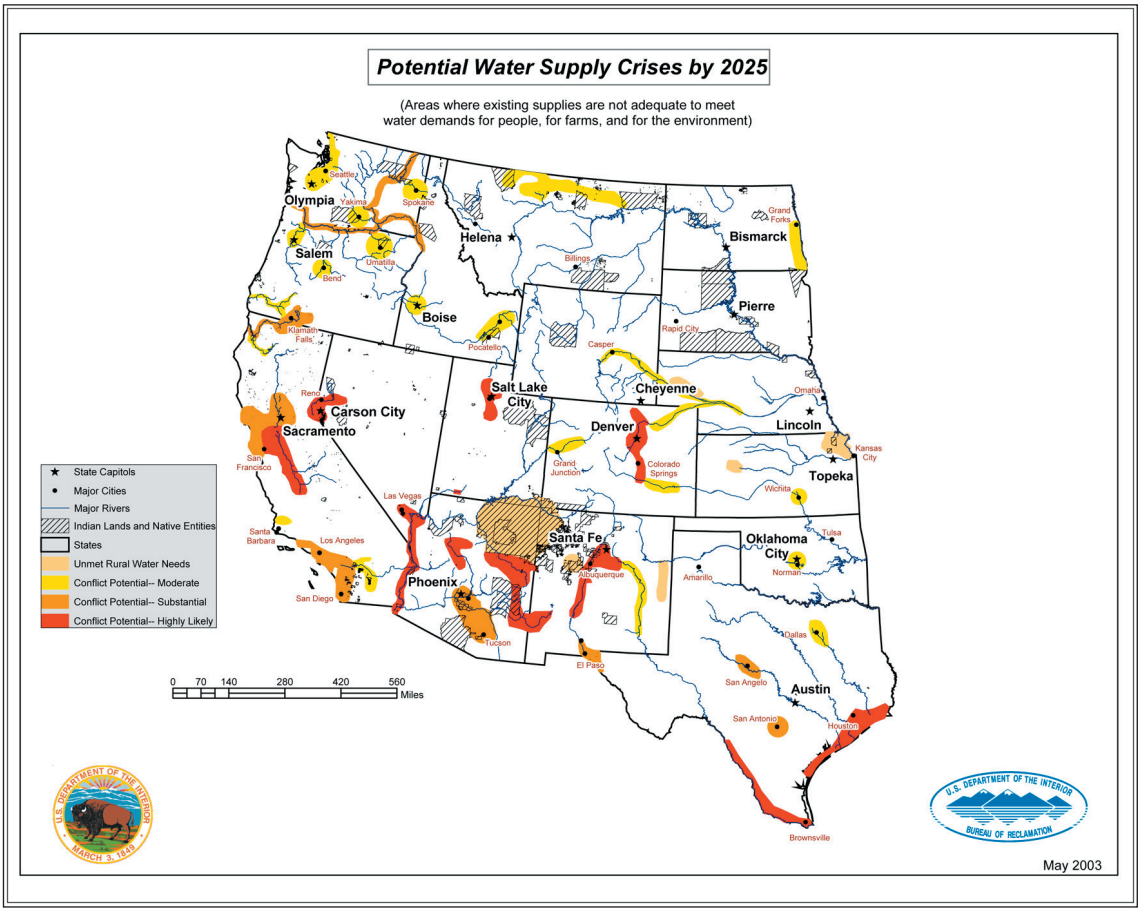
The 2009 budget includes $8.0 million for basin watershed planning and smaller-scale geographical studies, an increase of $1.6 million over 2008. The geographical studies will be informed by and complementary to the watershed basin studies. Building on existing partnerships, Reclamation will provide the technical expertise and seed money to update watershed plans. The planning process will incorporate the results of USGS analysis of census results, including integrated surface and groundwater studies, and will utilize Reclamation's improved water management models.

Reclamation, working cooperatively with States, Tribes, and local water users, will complete coordinated water management and improvement plans that focus on all significant issues within a water basin context. The budget includes $4.0 million for this planning process that will incorporate results from basin-wide studies to identify specific issues related to water, land, and other resource management challenges.

Through this planning process, Reclamation will assist communities to reconcile increasing water demands with decreased or altered availability of water supplies. Reclamation will work with State and local partners to lead two to three comprehensive basin-wide water supply and demand studies throughout the West over a two-year period, beginning in 2009. The 2009 budget includes $4.0 million for these studies. The studies will focus on areas with willing partners and high levels of anticipated water supply and demand imbalances. Potential study areas include major western river basins such as the Colorado, Republican, Sacramento/San Joaquin, Columbia, and Snake Rivers. Each study will:

- Use state-of-the-art projections of future supply and demand.
- Analyze existing water and power operations and infrastructure and capability to meet future demands.
- Engage stakeholders in determining options to meet future water needs.





EXPANDING AND CONSERVING SUPPLIES TO MEET INCREASING DEMANDS

Investments in infrastructure and programs to manage water are essential to address the variances in distribution and availability that are plaguing many communities. Increasing water demands for ethanol and biofuel production will exacerbate this situation in some regions of the country. Endangered species considerations also complicate the resolution of water issues. All solutions will need to consider increased water conservation.

Expanded Grants Program—Reclamation proposes to recast both its Water 2025 and Water Conservation Field Services programs to stimulate water conservation and improved water management through an integrated approach that addresses urban, rural, and agricultural uses of water throughout the West. A new water conservation challenge grant and financial incentive program will increase or stretch water supplies through water conservation, technology, water reuse and recycling, and new or improved infrastructure development – leveraging Federal dollars with State and local funds.

The expanded grant program will utilize approaches developed through the Water 2025 and Water Conservation Field Services programs. Through an integrated focus on rural, urban, and agricultural water needs, Reclamation will work with local communities and award competitive grants based on West-wide criteria to jumpstart projects that will result in improved water supplies and management for many unmet needs.

The 2009 Water for America initiative includes $15.0 million, including an increase of $2.6 million for challenge grants, to support partnering with urban, rural, and agricultural water users to stretch existing water supplies through such things as:

- Real time monitoring, measurement, and control.
- New technologies to reuse and recycle wastewater.
- Canal lining or piping to reduce seepage.

Endangered Species Conservation — Conservation of water resources for endangered species increasingly triggers water conflicts. Resolution of these conflicts requires cooperative conservation. In the Klamath River basin, conflict is giving way to collaborative actions to conserve habitat and water resources for fisheries while protecting water for traditional purposes. In the Platte River basin, Reclamation is undertaking actions to protect a diverse ecosystem in coordination with other Federal, State, and local agencies.

Through the Water for America initiative, Reclamation plans to apply an additional $8.9 million to protect endangered species in major river systems in 12 States. These efforts include:

- Acquiring water to increase flows on the Platte River.
- Improving tributary habitats for spawning on the Columbia and Snake Rivers.
- Restoring flood plain habitat in the Yakima River Basin.
- Restoring silvery minnow habitat in the Middle Rio Grande River.
- Restoring habitats on the Colorado River.
- Restoring habitat for coho salmon and listed suckers in the Klamath River Basin.
- Improving conditions for endangered species in the California Bay-Delta.

> Greater cooperation and coordination between Federal and State water and fish wildlife agencies is necessary to improve the prospects for aquatic species conservation and recovery and to assure the continued economic vitality of the West.
>
> *Water Needs and Strategies for a Sustainable Future*
> Western Governors' Association, June 2006

GREAT LAKES WATER AVAILABILITY AND USE PILOT STUDY

The 2009 Water for America initiative is intended to build upon the pilot Water Availability and Use Study that USGS began in 2005. The USGS began the study in order to fill the need for information about how much water is available in the Great Lakes Basin. The focus of the study is on improving fundamental knowledge of the water balance of the Basin, including flows, storage, and withdrawals of water.

Parts of eight Great Lakes States, including Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and New York, constitute the U.S. portion of the Great Lakes Basin and are at the forefront of most of the issues dealing with water in the Lakes and flowing to the Lakes. As a result, the most important partner for this project is the Council of Great Lakes Governors, which has coordinated work among the water-resources managers in the eight States to develop uniform policies for diversion and use of Great Lakes water. Information about the amount of water used and available is at the heart of these policies and is used by Federal natural resource agencies and others. For example, the Environmental Protection Agency uses streamflow data to estimate chemical loading to the Lakes, and the National Oceanic and Atmospheric Administration, in conjunction with the U.S. Army Corps of Engineers, uses USGS data and analyses to forecast lake levels. In addition, other Interior bureaus use information on water availability for ecosystem evaluations in national parks and national wildlife refuges. Finally, the information is also important to bi-national partners such as the International Joint Commission, the Great Lakes Commission, and Environment Canada's National Water Research Institute.