



## Reorienting the Bureau of Reclamation

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When considering restoration programs, The United States Bureau of Reclamation (USBR) is not a typical restoration agency. The USBR has existed for nearly a century, but only recently has habitat restoration become a priority for the agency. In March of 1997, the USBR assessed its role in water resource management and development. As a result of this assessment the USBR dramatically redefined its focus. The role of the agency changed from the development of large federally financed irrigation projects to protecting water quality through conservation practices and restoration projects (BOR 1997). The intention of this review is to look at how this changing role has made the USBR one of the nation's largest agencies involved in restoration projects.

### Background

In the early part of the 1900's, as the part of the US west of the Mississippi River was being rapidly developed there was a growing need for dependable water supplies. Individuals did not have the ability to undertake large-scale irrigation projects that were necessary to meet these needs. This led to the establishment of the U.S. Reclamation Act of 1902. The purpose of the act was to stimulate economic development in the western United States. The Reclamation Act also designated that funds generated from the sale of public land in the American West be used to develop water supplies there through the construction of water storage and irrigation projects (Guttenberg 1998). The Reclamation Act created an agency called the Reclamation Service to develop the necessary large-scale irrigation projects. The Reclamation Service would later be renamed the United States Bureau of Reclamation (Dawdy 1989).

The USBR created hundreds of dams and reservoirs throughout the western United States in an effort to use the arid lands of the American West. Today these facilities provide one out of five western farmers enough water resources to successfully cultivate crops. The 58 hydroelectric power facilities constructed by the USBR make it the ninth largest source of electricity in the United States (BOR 1998).

The above evidence would suggest that USBR has been very successful in developing water resources for the American West. It was thought that once the original mission of the USBR had been accomplished that the agency should be dissolved. The majority of the irrigation projects that the USBR implemented are now managed by local water districts. In fact, part of the new mission of the USBR is to transfer title and operation of these facilities to local beneficiaries. Currently the USBR has about 8,000 employees, which is less than half the amount it had in 1950. Under a plan proposed by the Secretary of the Interior in 1987, this number was expected to fall to about 4,000 employees. This plan was initially thought to be the first step in phasing out the USBR entirely (Dawdy 1989).

In 1993, Vice president Al Gore challenged the USBR to redefine its mission in an Accompanying Report of the National Performance Review of the Department of the Interior. The Vice President noted that eliminating the USBR would face opposition from representatives of the western states, and he stated that the USBR still retained a "significant federal role in water management." He proposed that the USBR "foster organizational changes that are flexible and are able to respond to climatic conditions and public values." He also stressed that the agency address environmental issues associated with water use in the installed projects (Dept. of Int. 1993).

## **A Changing Mission**

The current mission of the USBR is "to manage, develop, and protect water and water related resources in an environmentally and economically sound manner in the interest of the American public." There is to be an emphasis on water conservation, recycling, and reuse. The overriding goal of the USBR is to "meet increasing water demands of the West while protecting the environment and the public investment" (BOR 1997).

In order to accomplish this new mission, the USBR is involved in many different types of restoration projects. The policy of the agency, as stated by Commissioner Eluid Martinez, is; " to select a cross section of projects that are the most environmentally worthwhile" (BOR 1995). The USBR, however, has a history of involvement in developing water resources, therefore many of the restoration projects it selects are related to water resources. Since the USBR primarily works cooperatively with other agencies on restorations, many sites they help to restore have been selected by these other agencies (BOR 1996). Remaining sites are chosen based on their feasibility, benefits, and costs.

Restoration of riparian habitat is a major focus of the USBR. Riparian areas are essentially the lands adjacent to streams and rivers that have an influence on the biophysical characteristics of those riverian systems. For example, a stream flowing through a forested area would have cooler water temperatures than if it flowed through a prairie because it is shaded from sunlight. Riparian zones serve to protect the water quality of river systems by filtering inflow from the surrounding upland areas. Restoring these zones helps to enhance fish and wildlife habitat, thereby protecting endangered species such as the Snake River Sockeye Salmon and threatened species such as the Chinook Salmon (Beard 1994).

The USBR also restores instream flows that are necessary for increasing migratory fish populations (Beard 1994). In 1996, the USBR instigated the controlled flooding of the Grand Canyon in an attempt to restore the riparian quality of the Colorado River below the Glen Canyon Dam. Construction of dams and reservoirs on the Colorado River have eliminated annual spring floods and have left the beaches depleted and spawning grounds for fish uninhabitable. In an effort to mimic the natural pattern of historic spring floods, the USBR released 45,000 cubic feet of water per second from Glen Canyon Dam (the water is normally released at a controlled rate of about 10,500 cubic feet per second.) This controlled flood was carried out to restore the sand bars and beaches along the Colorado River in the Grand Canyon (Beard 1994).

A USBR report stated the flood created more than 55 beaches alongside the river, most within the 62 miles from Glen Canyon Dam to the confluence of the Colorado and Little Colorado rivers. The beaches along the canyon have been increased as much as 30 percent and the flooding created numerous large backwater channels that serve as habitat for endangered fish species such as the humpback chub. The flood also stirred up trapped sediments that provide nutrients for plants and therefore improved conditions for fish (US Water News 1996).

Geologists are able to model changes to the riparian environment using computer simulations and therefore were able to monitor the success of this particular restoration (US Water News 1996). After analyzing the initial data, this was deemed to be a successful attempt at restoring the river's riparian habitat back toward its natural pre-dam condition (Beard 1994).

The USBR is also involved in riparian restorations that have different types of goals in mind, such as reducing sedimentation or increasing water quality. Methods for these types of restorations range from simply planting trees within riparian zones to the reconstruction of dikes or other irrigation control structures. It is not the intention of this review to discuss restoration techniques; these can be reviewed in other publications, so will not be discussed here.

Restoration of wetlands in the prairie pothole region of the Northern Great Plains is also a priority for the USBR (BOR 1990). The agency has developed a Wetlands Development, Restoration, and Management Initiative for managing these wetlands over the next decade (BOR-WDP 1998). This initiative was established to restore, enhance, and develop wetlands, riparian habitat, and associated uplands on lands modified by USBR projects. This initiative allows the USBR to purchase agricultural land that had previously contained wetlands. As of 1990, 22,000 acres of land had been acquired for restorations (BOR 1990). Since the inception of the Wetland Development Initiative, the USBR has been involved in over 100 wetland restoration, enhancement, development, and research projects. For information on these specific projects connect to the following URL: (<http://www.gp.usbr.gov/www/wetland1.htm>).

The USBR also formed an interagency agreement with the U.S. Fish and Wildlife Service (FWS) to provide technical assistance and expertise on restorations associated with the North American Waterfowl Management Plan (BOR-WDP 1998). The FWS also requested USBR participation on wetland projects on National Wildlife Refuge system lands.

The USBR also collaborates on restoration projects with state resource management agencies as well as county conservation districts. In addition, the USBR works with private organizations such as The Nature Conservancy, Trout Unlimited, and the Audubon Society. The USBR provides technical support and supplies matching funds for restorations on lands belonging to these organizations (BOR 1996). Partnerships such as these incentive programs and challenge grants are some methods by which the USBR encourages water conservation and environmental restoration on non-federal land.

The USBR is also attempting to understand the adverse effects of its own projects on ecosystem functions. The Bureau of Reclamation has established an Ecological Research and Investigations Group (ERI) to provide a better understanding of ecosystems and their functions on USBR lands (BOR-ERI 1998). ERI cooperates with other state and federal agencies to conduct research,

perform laboratory studies, and project-specific field investigations to determine how water quality and habitat values are affected by USBR water control structures. Some specific goals of ERI are to: 1) understand and help manage large water delivery and related systems for the protection of riparian plant and animal communities; 2) evaluate environmentally sound techniques for wetland vegetation eradication or restoration; 3) oversee design and operation of constructed wetlands for the improvement of water quality related to non-point pollution and wastewater effluent; 4) select vegetation, planting schemes, and habitat features that are suitable for important wildlife and waterfowl species (BOR-ERI 1998). The Ecological Research and Investigations Group will play an important role as the USBR continues to redefine its role as a federal agency. Ecological restoration is a new role for the USBR and it is important that the agency have a good understanding of ecosystem functions when doing future restoration projects.

Evaluating the success of USBR restorations is done through monitoring, technical analysis, and public perception. Area managers for the USBR are in charge of the monitoring activities and technical analysis associated with evaluating these restorations. On many riparian restorations the USBR examines flow requirements and habitat characteristics necessary to improve fish and wildlife habitat, and then uses hydrologic analysis to determine if they are meeting these requirements. These evaluations are done over several years in order to account for natural fluctuations (BOR-WDP 1998). The partnerships formed with other agencies also provide an element of quality control for the restoration projects. When two or more agencies are involved in a restoration, the success of the restoration must meet the expectations of both agencies.

As a federal agency, the USBR must also strive to seek the approval of the American public. The continued existence of the USBR, or any public agency, depends on public approval of its actions. (Dawdy 1989) The public is continuously evaluating the success of restorations done by the USBR. Unsuccessful restorations will often attract public attention, so it is important that the USBR evaluate all of its restorations. Additionally, evaluating their restorations will help them to improve any future restorations.

For an agency familiar with constructing such structures as the Hoover Dam and the Grand Coulee Dam, creating a water control structure for a wetland restoration is fairly basic. The USBR definitely has the technical expertise to manipulate a landscape. It remains to be seen, however, if the USBR is able perform a successful ecological restoration on their own. It will be cooperation with other resource management agencies that will enable many of their restorations to be successful.

### **The Future of the Bureau**

The Bureau of Reclamation has been identified as a model of reinvention because of employee involvement in implementing the new initiatives. On October 26, 1995, the USBR was presented an "Innovations in American Government" Award by the Ford Foundation and the John F. Kennedy School of Government at Harvard University. The USBR was selected from a field of 1,450 state, local, and federal applicants (BOR 1995). Receiving such an award recognizes the fact that the agency has successfully redefined itself.

When the USBR was formed it was given the large and difficult mission of helping to develop the western half of the nation and to provide it with the water resources it needed. It took decades to accomplish such a large mission, but it has essentially done so. The new mission of the agency, to protect and restore quality water resources of the American west, is just as large and difficult as its previous mission. Through cooperation with other agencies, congressional support, and employee dedication, the USBR may be well equipped to accomplish this new mission as well.

## References

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