Water for New Mexico Rivers

> "Instream flow is just another water right that can be administered under the existing system of laws. You can do it in a way that avoids injury and you're not overturning the prior appropriation doctrine. It's a powerful tool to allow the states to be able to deal with endangered species, TMDLs and a whole bunch of other federal mandates."
>
> Tom Annear, Wyoming Game and Fish, Utton Center E-Flows Conference, 2010.

The Rio Grande, the Pecos, the Gila, the San Juan, the Canadian—New Mexico's rivers are synonymous with the state's culture and natural heritage. New Mexicans overwhelmingly care about the health of the state's rivers and that includes flows to support fish and river dependent wildlife. Rivers, wetlands, and riparian areas comprise a very small part of our landscape—a mere 1 percent. This 1 percent plays an essential role in renewing the state's water supply for its two million residents; for sustaining the state's second largest industry—tourism; for producing food and fiber; and for sustaining New Mexico's web of life. Eighty percent of all sensitive vertebrate species in New Mexico use riparian or aquatic habitats at some time during their life cycle. Two-thirds of the state's Important Bird Areas (IBAs) can be found along our rivers, which provide critical breeding, wintering, and stepping stone habitat during continental migration. For many New Mexicans, our rivers are considered sacred arteries that feed deep cultural connections to the land. For others, our rivers provide significant amenity and recreational values.

Los Pinos River
Photo by Susan Kelly

History of Flow Alteration

Since the early development of irrigation, humans have altered the natural flow of rivers. The extent of alteration has increased with population growth and economic development in the arid west. Large-scale water development projects, like the Elephant Butte Reservoir with a capacity to capture and store twice the annual flow of the entire river, became commonplace with the passage of the Reclamation Act of 1902 and the Flood Control Act of 1936. Today, the state's surface-waters are fully appropriated, and it is difficult to find a river in New Mexico that doesn't have significant changes to its natural flow patterns.

Some human uses actually sustain flows, such as downstream deliveries for municipal use

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and to satisfy Compact obligations or return flows from farm fields and municipal wastewater. Still, human uses on the whole have dramatically changed the pattern of flows in our rivers. The Rio Grande is a good example. The Middle Rio Grande in New Mexico has dams on both the mainstem and major tributaries. As a result of these dams and agricultural diversions, 100-year-peak and channel-forming flows have been cut by half. In the southern reach of the Rio Grande of New Mexico and West Texas, the annual volume of flows is one-tenth of pre-development flows. Elephant Butte and Caballo Reservoirs completely eliminate the historic peak spring floods downstream of the storage dams. The dams release a nearly constant hydrograph of high flows in late summer but discontinue any releases in winter months. The lowered groundwater table caused by intensive groundwater pumping continues to pull water from the river, thus reducing flows. Below El Paso, the river is nearly de-watered except for return flows from irrigated fields that supply a small base flow for the next 100 river-miles.

There is hope, however; freshwater ecosystems are some of the most resilient ecosystems on the planet—quick to recover when the essential components of natural flow regimes are restored.

Hydrograph of Rivers

Our native plant and animal life do best when the rivers they rely upon are managed to maintain or mimic natural flow patterns. Each component of a river's natural hydrograph—base flows, monsoon pulses, snowmelt surges, high flows, and large floods—is key to sustaining the integrity of a river's processes and functions. It is not possible to return to pre-development conditions but managing our rivers to recreate important components of their unique natural flow patterns can exert a very positive influence on the health of New Mexico's rivers. Mimicking a river's natural hydrograph is a much more efficient way to improve river health than providing minimum stream flows alone.

Non-native species enjoy a competitive advantage over native New Mexico species when natural flow patterns are altered. Existing alterations to the seasonality and the volume of flows currently impair the ecological viability of our rivers: 55 percent of New Mexico's native fish species are threatened, endangered, or already extinct; 31 percent of New Mexico's assessed stream miles have water quality impairments; and, 90 percent of New Mexico's original riparian forests no longer exist. There is hope, however; freshwater ecosystems are some of the most resilient ecosystems on the planet—quick to recover when the essential components of natural flow regimes are restored.

Unhealthy rivers don't just jeopardize New Mexico's fish and water-dependent wildlife; they make all New Mexicans more vulnerable. Healthy rivers are the original "green infrastructure," providing free services that would take millions of our tax dollars to replace. For example, healthy river systems store and release flood peaks, recharge groundwater, maintain channel capacity for water deliveries and flood flows, transport sediment through the system, and retain and remove pollutants protecting our drinking water supply.

Future Trends

Increasing climate variability—changes in the average temperature or amount of precipitation, or the seasonality of precipitation—could further stress the ecosystem health of our state rivers. Parts of New Mexico are likely to see greater limitations in water availability within the next generation (2050). As water demands exceed supply, it is likely that new infrastructure and interbasin transfers will be proposed, further jeopardizing river health. These projects should be carefully evaluated, since healthy rivers will boost New Mexico's

ability to adjust to a changing climate by attenuating the impacts of increased frequency and severity of droughts and floods. For this reason, when we consider new infrastructure projects, we should consider benefits to both people and ecological communities. Infrastructure projects should be designed and authorized to allow for multiple purposes and to operate under conditions of future variability. Vulnerability assessments for biodiversity and hydrologic alteration have been conducted in New Mexico and can help prioritize and focus our management and restoration of our rivers.

Water Rights

Historically, western water laws and policies did not contemplate dedication of water for rivers. Beginning in the 1970s, western states with a prior appropriation water rights system similar to New Mexico's began to recognize the importance of healthy rivers and to enact instream flow programs: Colorado and Montana in 1973 and Washington in 1974. Oregon followed suit in 1987. In 2001, Texas created a well-funded statewide instream flow program. Today, nine of the eleven continental states from the Pacific Ocean to the Rocky Mountains have statutory instream flow programs and sixteen of the eighteen states west of the 100th meridian recognize instream flow as a beneficial use. Implementation of these programs has been successful despite concerns about impairment of senior water rights and administrative challenges. The success of these instream flow programs is measured in thousands of permanent permits for instream flow across the West.

River Flows Benefit Landowners

One illustration of the success of western river flow programs is the State of Montana. There, river flows were championed by an alliance of ranchers and Trout Unlimited. As a result of their joint lobbying efforts, the Montana legislature broadened the state's instream flow program and permanently established it under Montana's water code. In Montana, instream flows have brought economic diversity and stable prosperity to ranchers through conservation, which keeps producers on the land and supports their stewardship of the land. Additional direct benefits to senior water rights holders from streamflow augmentation include protection of unused or conserved water rights from forfeiture, a market for temporary leases of water during low water years, and a decrease in the likelihood of federal intervention in states' water rights administration where flows benefit threatened and endangered species.

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Legal Status in New Mexico

New Mexico lagged behind other western states in addressing instream flows until recently. From 1955 to 1990, N.M. State Engineer Steve Reynolds held steadfastly to the opinion that appropriation of surface-water under New Mexico law was dependent upon a diversion of water. During Reynolds' tenure, grassroots efforts to obtain legislative approval for a "non-diversionary" instream flow program failed to secure passage.

In 1998, the Attorney General of New Mexico issued an opinion stating there is nothing in the New Mexico Constitution, statutes, or case law barring the State Engineer from approving an application to change the purpose of use of an existing water right to instream flow. The opinion concluded that New Mexico law does not

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require a diversion to beneficially use water and a court would likely define beneficial use to reflect current concepts of public interest, waste, and reasonable use. The Office of the State Engineer (OSE) indicated, in a parallel memorandum, that it could act favorably on an application for instream flow if there was sufficient dominion and control over the flow, such as accurate and continuous gauging devices to perfect the right and demonstrate continued use of the water. As a result, the Attorney General limited the reach of its opinion to applications for instream use with substantial metering but suggested a court of law could more broadly interpret the state's statutory requirement of "constructed works."

Since the Attorney General's opinion, significant changes in the state's water law, regulations and practice have culminated in the application of water rights for the benefit of fish and wildlife. Following on the heels of the Attorney General's Opinion, the state was hit with record drought and the surface flows on the Pecos River and Rio Grande were inadequate to support native fish protected under the Endangered Species Act. In 1999 and from 2001 to 2004, the OSE granted permits to the Bureau of Reclamation and the N.M. Interstate Stream Commission (ISC) for the release of water from reservoirs to augment stream flows for endangered fish species on the Pecos River and Rio Grande.

Strategic Water Reserve

In 2005, the state legislature enacted the Strategic Water Reserve, authorizing the ISC to dedicate water to river flows and implicitly recognizing that water for fish and wildlife is a beneficial use under New Mexico law. The Strategic Water Reserve authorizes the ISC to use reserved water or water rights to benefit listed species and to avoid additional listings of species. NMSA 1978, § 72-14-3.3(B)(2) (2005). That same year, the OSE amended the regulatory definition of "beneficial use" to include "fish and wildlife." NMAC § 19.26.2.7(D). In 2008, the ISC utilized the Strategic Water Reserve for the benefit of a listed species for the first time. The OSE granted a permit to the ISC to divert groundwater to augment flow in the Pecos River for the federally threatened Pecos Bluntnose Shiner. For more information, please see the chapter "Strategic Water Reserve" in this edition of *Water Matters!*.

Other Programs in New Mexico

In 2009, the OSE authorized federal and private water rights holders to leave water instream for the benefit of the federally protected Chihuahua Chub under a rarely used water conservation statute. NMSA 1978, § 72-5-28(G). Under this law, water right owners may enroll in a State Engineer approved water conservation plan allowing them to fallow acreage and not divert from a stream or well. This strategy protects the owners from forfeiture or abandonment of their water rights and can result in increased river flows. Originally conceived as a mechanism to facilitate water conservation and allow water right holders to avoid forfeiture from non-use, the statutory program is a unique tool in New Mexico's river flow toolbox.

Another effort underway is the establishment of an environmental water transaction program in the U.S. Bureau of Reclamation's Rio Grande Project located in southern New Mexico and western Texas. Under voluntary agreements with existing water right owners, water rights can be suspended from application to existing irrigated acreage and transferred to riparian habitat. Water will be diverted or pumped from the river to irrigate native trees, shrubs, and grasses much like an irrigated commercial crop. Private and/or public funding will be used to pay for the water and water rights. All voluntary

suspension and transfers will require the approval of the Elephant Butte Irrigation District Board.

A more far-reaching proposal under discussion in the Rio Grande Project is to temporarily lease a block of water on a periodic basis for a peak release to mimic the historic spring floods along a 105-mile reach of the Rio Grande below the Elephant Butte Dam. Benefits of flood flows to the river ecosystem include enhanced biologic productivity, nutrient cycling, leaching of salts, enhanced channel dynamics and maintenance, and sediment transport. Authority for non-agricultural use of water in the Rio Grande Project is permitted under the Miscellaneous Purposes Act of 1920.

From 2007 to 2011, the legislature appropriated almost $8 million for 47 community-supported river and watershed restoration projects statewide. These projects are led by a broad array of New Mexican entities including irrigation districts, soil and water conservation districts, municipalities, Pueblos, watershed groups, and other non-profits. In just the first two years of funding, the River Ecosystem Restoration Initiative benefited over 2,000 riparian acres and 30 river miles in 17 counties, created 222 restoration-related jobs in the private sector, and matched state appropriations dollar-for-dollar in federal and private funding or in-kind services. The positive effects of this initiative are apparent in every corner of the state. The totality of these efforts over the last decade reflects both the physical and the economic benefits of restoring altered river flows and New Mexicans resourcefulness in sustaining river ecosystem health in a state where political support for river flows is not robust.

In August of 2013, Governor Martinez announced that she would be pursuing $1.5 million in capital outlay funding for a new river restoration program, to be known as the New Mexico River Steward Program. When she announced this new program, the governor challenged all New Mexico communities to use their existing resources to protect river habitats.

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Next Steps for New Mexico

The Utton Center sponsored a well-received workshop on environmental flows in March of 2010 in partnership with Rio Grande Restoration and a number of other groups. Representatives of state agencies attended, as well as several state legislators. There were presentations on the programs in other Western states, both from a policy and scientific perspective, discussions among stakeholder groups, and presentations on New Mexico's programs. A common theme was that New Mexico is hindered by not having staff dedicated to making progress on these issues: functions are spread out among N.M. Department of Game and Fish, N.M. Environment Department, the OSE, and the ISC. Clarification of agency responsibilities and better coordination and collaboration on river health issues among state natural resource agencies could assist in the progress.

By obtaining a better understanding of the state's rivers, actions can be focused in areas where most needed and feasible to achieve success. When resources allow, this information must be well integrated in the activities of the State agencies and in basin wide, state, and regional water plans. Finally, reliable legislative funding of the Strategic Water Reserve and the governor's new River Steward Program could empower the State to take advantage of opportunities to improve river flows and support community-based restoration of instream ecosystem function and watershed health when they arise.

By Beth Bardwell, Director of Freshwater Conservation, Audubon New Mexico (2011)

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