

# INSTITUTIONAL CONSTRAINTS TO WATER MANAGEMENT IN NEW MEXICO

UNM Student Union Ballroom

Friday, May 20, 2016

## Conference Summary

With another dry year on New Mexico's Rio Grande, some 150 people gathered in the University of New Mexico's Student Union Building on May 20, 2016 to discuss *Institutional Constraints to Water Management in New Mexico*. The conference, organized by UNM's Center for Water and the Environment<sup>1</sup>, the Utton Transboundary Resources Center at the UNM School of Law<sup>2</sup>, and the University's Water Resources Program<sup>3</sup>, brought together staffers for the state's entire US Congressional delegation, led by Rep. Michelle Lujan Grisham, with academics and water management practitioners from local, state, federal, and Pueblo governments.

Conference participants identified challenges that complicate management of water resources in New Mexico – watershed health, surface water quality, and the coordinated operation of the state's reservoirs – and heard from practitioners and experts about institutional constraints standing in the way of better dealing with the problems. They also heard messages of successes and opportunities – things that are being done now to overcome the problems, and strategies that can be taken in the future to make the state's water management system work better. This report highlights the key points in the conversation in each of the conference focal areas.

### Watershed Health

#### Issue

- Unhealthy forests increase the risk of fire, threatening our watersheds and water supplies.

#### Constraints

- Fragmented ownership and jurisdictions increase the difficulty of watershed management intended to reduce fire risk.
- Wildfire funding eats into resources needed to prevent catastrophic fire through forest restoration.
- Poor quality forests and bureaucratic hurdles inhibit the economic growth of New Mexico's forest products industries.



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<sup>1</sup> <http://cwe.unm.edu/>

<sup>2</sup> <http://uttoncenter.unm.edu/>

<sup>3</sup> <http://wrp.unm.edu/>

## Successes and opportunities

- Santa Fe's water bills raise money for watershed restoration, demonstrating a public willingness to pay for ecosystem services.
- Legislation has been proposed, but not yet passed, that would pay for federal wildfire costs out of a separate emergency fund as is done for hurricanes, rather than requiring money to be shifted from long term restoration efforts to meet near term disaster response.

New Mexico's forested mountains are a key link in the state's water supply chain, with watersheds providing much of the flow to the state's rivers. As the 2011 Las Conchas fire demonstrated, overgrown, unhealthy forests pose a significant threat to the state's water supplies. Ash-clogged runoff from post-fire flooding forced Albuquerque to shut down its San Juan-Chama Project intakes in the summer of 2011 and filled small reservoirs with debris and sediment. In addition, overgrown forests reduce water supply because a substantial fraction of winter snow falling on dense forest canopy is lost to sublimation before it has a chance to melt and flow into the state's rivers and streams. Efforts at the state and federal level to restore forest health through thinning and prescribed burning have made modest progress but have been hampered by problems of cost, scale, and the fragmented jurisdictions of private, state, and federal ownership of the state's forested lands.

One challenge to scaling up forest restoration work is the need to create economic opportunities for the use of the wood being removed in forest-thinning projects. For a forest products industry to be viable, reliable and consistent, forest restoration funding is essential so that private industry can commit to the capital investments needed to hire and train employees and to supply the necessary equipment and other infrastructure to remove the small diameter trees and return forests to healthy conditions. To create a viable forest products industry that supports forest restoration, the agencies overseeing the process must ensure that their bureaucratic processes are not an obstacle to the collaborative work that is needed.

Federal funding mechanisms for forest restoration and wildfire response also are a major roadblock. Currently, emergency wildfire response effectively cannibalizes funding for forest restoration work. While federal response to hurricanes and other emergencies comes from a dedicated budget account, the U.S. Forest Service and the Department of Interior must pull money from other non-emergency accounts to cover the cost of increasing wildfire expenses as the annual acreage burned rises. In 1995, wildfire management was 16 percent of the Forest Service Budget. By 2015, that had risen to 52 percent, with the result that the money for forest restoration – which might reduce the cost and devastation of future fires – must be spent instead fighting fires today. Several legislative fixes have been suggested, including the Wildfire Disaster Funding Act, that would create a budget mechanism similar to that used to fund Federal Emergency Management Agency hurricane responses, which use a dedicated pot of money so that disaster response does not take money away from ongoing programs. However, to date none of those legislative fixes has been able to win Congressional support because of opposition on the part of some members to the way the funding mechanisms related to the rest of the federal budget.

## Surface Water Quality

### Issues

- Abandoned mines pose a threat to surface water quality, especially in northwestern New Mexico.
- Upstream municipal water contamination poses a risk to downstream water use, especially by traditional Pueblo communities.
- Changes in the Rio Grande's geomorphology caused by upstream damming have caused the river's channel to incise above Albuquerque, threatening irrigation infrastructure, ecosystem health, and cultural values.

## Constraints

- Fragmented jurisdictional geography and regulatory responsibilities complicate dealing with water quality problems; surface water does not follow governmental boundaries.
- Poor communication across institutional boundaries.
- A lack of money and institutional support for major work needed to halt the erosion impact of Cochiti Dam.



## Successes and opportunities

- Habitat and river channel restoration at the Pueblos of Sandia and Isleta.
- Coordination of stormwater quality permitting among diverse jurisdictions of the greater Albuquerque metropolitan area.

Like the problem of forest restoration, managing across a complex array of fragmented jurisdictional boundaries complicates the task of managing the quality of New Mexico's surface waters. The jurisdictional complexities are both geographic, as water flows across many different governance boundaries, and legal, as many different government entities have regulatory authority over different aspects of the water quality challenge.

The Gold King Mine spill in August 2015 exposed the weaknesses in the relationship between federal, state, and tribal regulators and their water quality monitoring systems. Water contaminated by old mine waste flowed down Cement Creek above Silverton, Colorado, and into the Animas River as it flowed out of Colorado and into New Mexico above the community of Farmington and the Navajo Nation. Response to the incident was complicated by the overlapping government jurisdictions as the river flowed across state and tribal borders – three federal Environmental Protection Agency regions and the agency's national headquarters were involved, along with three states and three sovereign Native American tribes. The difficulties in responding to the spill were compounded by disagreements between state, federal, and Navajo Nation environmental officials, creating public confusion about the risk associated with the mine drainage as it moved downstream through New Mexico and the Navajo Nation.

Similar fragmentation complicates efforts to manage water quality on the Middle Rio Grande through central New Mexico. Cochiti Dam, built by the U.S. Army Corps of Engineers, and completed in 1973, has changed the river's flows patterns and sediment loads, creating a deeper and narrower river channel in the Middle Rio Grande's northern reaches that threatens riparian habitat through Sandia and other Pueblos on that reach of the river, along with irrigation infrastructure of the Middle Rio Grande Conservancy District. Sandia Pueblo has begun restoring the river channel, reconnecting the flood plain to the river, removing invasive species, and regenerating native species, especially cottonwoods. Workers created terraced features to lower the surface of the Rio Grande's banks, allowing overbanking flows and flood plain reconnection in the absence of the river's large pre-dam spring floods. Work to halt the continued threat of an incising river will be very costly, however, suggesting the need for an infusion of sustained federal funding and possible changes in river management to better simulate its pre-dam hydrology.

The Environmental Protection Agency's Municipal Separate Stormwater Sewer Systems (MS4) Permit program in the Middle Rio Grande is an attempt to overcome the jurisdictional boundaries in water quality regulation by coordinating stormwater quality management efforts across the Albuquerque metropolitan area under a single regulatory framework. In the past, separate MS4 permits were issued to large municipal entities with jurisdiction

over stormwater infrastructure, including the city of Albuquerque, the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), the state Department of Transportation, and the University of New Mexico. In addition, in the past a broader statewide general permit governed smaller jurisdictions. The new EPA Urbanized Area MS4 Permit combines the large and small agency MS4 permits under a single umbrella in an effort to better coordinate measures to be taken in the greater Albuquerque metropolitan area to reduce surface water pollution in stormwater runoff in the urban area. However, the challenges of establishing collaboration among nearly 20 federal, state, and local partners under a single stormwater discharge permit cannot be underestimated.

## Reservoir Operations

### Issues

- Opportunities for benefits to New Mexico water users by changing the way operation of the nine reservoirs on the Rio Grande are coordinated.

### Constraints

- Jurisdictional fragmentation.
- Endangered Species Act requirements.
- Statutory authorizations that restrict the purpose for which federal dams may be used.

### Opportunities and successes

- Spring 2016 modification of El Vado Reservoir operations created a spawning flow for the endangered Rio Grande silvery minnow.
- Proposed legislation to request a National Academy of Sciences study of Rio Grande coordinated reservoir operations to help inform decision-making.
- Waivers that have allowed flexibility in releases of San Juan-Chama project and other waters to meet environmental flow requirements and water user needs.

The discussion of reservoir operations in this conference was built on a foundation laid a decade earlier in the Rio Grande Reservoir Symposium organized by UNM's Utton Center. That symposium and a special issue of the UNM School of Law's Natural Resources Journal published in the summer of 2007<sup>4</sup> wrestled with the question of how coordination of operations among the various agencies managing and benefitting from the river's reservoir might improve benefits for multiple parties. The Rio Grande system includes nine reservoirs owned and operated by two federal agencies (the US Bureau of Reclamation and the Army Corps of Engineers) with a host of downstream water users. Consequently, the water supply and environment depend on how the system is operated. Unfortunately, there are no reservoirs in New Mexico on the main stem of the Rio Grande above Elephant Butte that can be used for regulated storage. Coordination of reservoir operations among federal and state managers, and local water users is an ongoing challenge. Legal constraints, especially in the Corps' strict interpretation of its flood control mission and statutory authorization, make changing operations to meet additional or varying needs, an ongoing challenge.

With Endangered Species Act requirements to support the Rio Grande silvery minnow acting as a major constraint on river operations, the local, state, and federal agencies responsible for Middle Rio Grande water operations in 2016 experimented with revised operation of El Vado Reservoir to provide water for a spring spawning pulse flow. With the approval of the neighboring states of Colorado and Texas, New Mexico water managers were permitted to hold additional water in El Vado to provide a pulse of water to stimulate spawning by the minnow. This agreement was an example of the way additional operational flexibility can achieve multiple water management goals within

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<sup>4</sup> The Natural Resources Journal special edition on New Mexico's Rio Grande Reservoirs may be found here: [http://lawschool.unm.edu/nrj/volumes/47/v47\\_no3.php](http://lawschool.unm.edu/nrj/volumes/47/v47_no3.php)

the increasingly constrained water supply. The pulse did not require additional water; it merely shifted the timing of its delivery.

Expanding the flexibility in the operation of Cochiti Reservoir, one option frequently discussed to better manage flows through central New Mexico (especially for environmental purposes), faces significant hurdles. Completed in the 1970s for flood control purposes, Cochiti Reservoir under most conditions has large available capacity that might be used to store water temporarily for other purposes. Significant challenges must be met if that multi-use purpose is to be achieved. The first is the congressional authorization under which the dam was built. Changing the reservoir's use may require congressional action. Even more important is the potential impact of changed operations on Pueblo de Cochiti, upon whose land Cochiti Reservoir is located. The Pueblo has concerns about changes in reservoir operations that may cause waterlogging of agricultural lands below the dam and inundation of culturally important sites above the dam. Increased storage in Cochiti may also back water up into Bandelier National Monument, which introduces further complexity to the concept.

## Conclusion

Across the day's presentations, a number of common themes emerged that suggest paths forward for reducing institutional constraints to New Mexico's water management:

- Funding needs for research to identify new legislation, new policies and new management strategies that can limit constraints (e.g. reservoir operations)
- Improved coordination between federal, state and local agencies to identify opportunities for management alternatives that can be implemented within existing constraints (e.g. pulse flow in river systems)
- Development of mechanisms and strategies to create incentives for innovation (e.g. forest products, water markets)
- Identification of funding sources to address high priority problems (e.g. mine land reclamation, forest thinning)
- Development of incentives or create initiatives to encourage cooperation and collaboration to create strategies for dealing with water resource issues (e.g. regional stormwater permits)