

**Policy Conflicts and Sustainable Water Resources Development
in New Mexico's Rio Grande Basin**

edited by

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Publication No. WRP-2
February 2000
Water Resources Program
University of New Mexico
Albuquerque, NM 87131-1217
Price: \$13.50

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ACKNOWLEDGEMENTS

We gratefully acknowledge the financial support of the Office of Sustainable Development and Intergovernmental Affairs, National Oceanic and Atmospheric Administration, U.S. Department of Commerce (Reference No. 40AANA903262) and the contract officer, Dr. Richard Podgorny.

PREFACE

The chapters of this report represent the work of students who took Water Resources 573, Interdisciplinary Water Resources III, during summer 1999. This course is the required capstone seminar for Master of Water Resources (MWR) graduate students in the Water Resources Program at the University of New Mexico. Drs. Michael E. Campana (hydrology), Paul Matthews (water law and policy), and David Brookshire (environmental economics) were the instructors. The class focused on three contemporary issues within the Rio Grande basin: 1) arsenic in the waters of the basin, including both the conflict between the City of Albuquerque and Isleta Pueblo over arsenic in the Rio Grande and the impending change in drinking water standards for arsenic; 2) the hydrologic impacts and fire management aspects of the restoration of the ponderosa pine forest in the Sangre de Cristo Mountains; and 3) the economic and environmental impacts of preserving the silvery minnow, an endangered species living in the Rio Grande.

Three chapters deal with the issues of arsenic in the Rio Grande and the City of Albuquerque's drinking water. The City of Albuquerque and Isleta Pueblo have a significant conflict over water quality standards for arsenic in the Rio Grande. In 1987, Congress amended the Clean Water Act to allow Indian tribes to be treated as states in some circumstances, including the establishment of water quality standards. The Isleta Pueblo established its own standards, and in 1992 they were approved by the U.S. EPA. Isleta's standard for arsenic is more stringent than that mandated by

the EPA, which is permissible under the Clean Water Act. The more stringent standard is justified because Pueblo members use the Rio Grande for ceremonial purposes. Five miles upstream from the Isleta Pueblo boundary is the City of Albuquerque's discharge point for its water reclamation plant. Discharge from the plant is controlled by a National Pollution Discharge Elimination System (NPDES) permit. The permit was being revised when Isleta's water quality standards were approved by the EPA, and as a result, the City of Albuquerque was required to meet these more stringent standards. However, implementation was delayed for four years by a negotiated settlement between the parties. The standards were challenged in court, but the Supreme Court ruled they were valid. A related arsenic issue concerns the levels of natural arsenic in the City of Albuquerque's ground water supply. The U.S. EPA is about to promulgate an interim standard for arsenic in drinking water which will almost surely be lower than the current 50 parts per billion (ppb) standard. The City will have to treat its ground water to meet the new lower standard; the cost for treatment will depend upon how low the standard is set and the treatment option.

Two chapters focus on ponderosa pine forest restoration and its potential effects on watershed hydrology and fire management. Water quality and water quantity depend on how a watershed is managed. One of the current controversies in the Southwest is the restoration of ponderosa pine forests. Under natural conditions, a ponderosa pine forest consisted of huge pine trees and glades with the forest floor exposed to sunlight. Periodic fires would burn the grass and smaller trees while leaving the larger ponderosa unharmed. Fire suppression, grazing and logging have changed the nature of the forest. Today the forest is made up of thickets of puny trees that are often so thick it is difficult to walk through the woods. Sunlight seldom reaches the forest floor. Restoration would consist of thinning the forest to allow larger trees to grow and glades to be reestablished. National Forest managers have started some experimental efforts to restore the forests in the Southwest. But restoration may have a significant impact on water quantity and quality, which could impact the traditional Hispanic and Indian communities that rely on water from the forest lands. Although these communities may benefit by providing a labor force to thin the forest, this effect is temporary and will be insufficient to sustain the communities. The tradeoffs are difficult to balance; on one hand, restoration of a natural system is generally viewed as positive, but what impact will this have on water availability and quality and how will this impact the traditional communities? An equitable solution may be difficult. Fire management policy will also be affected.

The Rio Grande's population of silvery minnows is on the endangered species list. To protect this species, sufficient water must be left in the river, but New Mexico water law does not recognize in-stream flow as a beneficial use. Although a recent Attorney General's opinion recognizes the right to establish in-stream flows in New Mexico, this opinion has not yet been tested. No application for an in-stream flow permit has been made, and the process for making such an application has not been established. The Endangered Species Act protects the silvery minnow, but since the Rio Grande is a fully appropriated stream, where will the water come from to preserve it? Will the agricultural community surrender its water? Or the City of

Albuquerque? Four chapters address this complex issue, which will likely have far-reaching implications for water management in the basin.

The instructors wish to thank the students for their efforts, and hope that this report may help to solve some of the problems now facing the Rio Grande basin. These problems must be solved before sustainable development can occur in the basin.

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