

**CONTROLLING WATER USE TO PROTECT WATER QUALITY
WITHIN WESTERN ALLOCATION SYSTEMS***

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I. Overview

- **Our position** is that there is a gap in water quality protection: even if existing pollution control programs are improved, it would not be sufficient -- there must be limits on water use or regulation of land use.
- **Our recommendations** suggest that control of water use to protect water quality can be accomplished with a minimum of conflicts with water rights established and maintained under state law.
- **Our approach** is directed at the state level; comments today will emphasize Colorado with some examples of other western states, but our book covers all 19 western states.
- **Your interest** in the protection of recreation may have much in common with the concerns and opportunities addressed when we talk about the protection of water quality. In his opening remarks to this group, David Getches stressed the need for State water quality standards to protect the maintenance of important recreational uses.

* the material presented here is based upon and excerpted from a book by D. Getches, L. MacDonnell & T. Rice, *Controlling Water Use: The Unfinished Business of Water Quality Protection* (1991) (See Appendix A)

II. Colorado Case Studies

Two Forks Dam

We included this project as an example of depletion degradation. The project was subject to state water quality laws under Section 401 of the Clean Water Act. If the project proceeded as planned, there would have been a reduction in the amount of high quality water that would run through the Roberts Tunnel to the North Fork in dryer years, causing a concentration of some metals. The metals are from abandoned mines and natural sources. Currently high quality water from Dillon Reservoir is imported through the Roberts Tunnel. Project opponents argued that the increased metals concentration would violate state standards for one or more of 5 metals -- cadmium, copper, lead, silver or zinc. Additionally, the state Division of Wildlife concluded that such concentrations could cause a 20% fish kill in the river.

There was also concern with a reduction of flows causing a concentration of pollutants in the Williams Fork basin, although there was no data available to support this -- the plan was to monitor the system.

Arkansas River Exchanges

Another illustration of depletion -- here was an application to state water court to approve a proposed exchange plan. The standard here was not compliance with state water law but rather noninjury to other water rights holders.

The plan by the applicant City of Pueblo was to use treated effluent sewage in the exchange. Opponents to the plan, the upstream cities of Cañon City and Florence, argued that the exchange plan would decrease the quantity of flows and that the remaining water

would be of lower quality because of increased concentration of pollutants. The water court established minimum flow levels that must be maintained. The statute requires that the exchange may not "impair the rights of others". -- Here, the court found two harms: (1) lower flows could require Florence to upgrade its municipal treatment facility to meet the drinking water standards; and (2) a reduction in flows would probably cause the state to impose tougher discharge limitations on the treatment plant shared by Florence and Cañon City.

III. Examples From Other Western States

Colorado case studies illustrate water quality effects from depletion. We've identified four other water use-related causes of water quality problems, illustrated with examples primarily outside of Colorado.

1. Physical alteration: the storage of water physically alters water quality

Shasta Dam, California

Shasta Dam and Shasta Reservoir are operated by the Bureau of Reclamation as part of the Shasta Unit of the Central Valley Project. Water in the upper levels of the Shasta Reservoir is heated by the sun while in storage, and releases of this heated water during late summer and fall have caused violations of state water quality objectives in the Sacramento River that are intended in part to protect salmon spawning conditions.

The solution was not to require that a greater volume of water be released. In May 1990, the State Water Resources Board amended the Bureau's water rights permits to include terms and conditions for fishery protection. The Board did this under its water rights issuance

authority, although the issue was originally a water quality matter. The Board's order included a compliance schedule for construction of a device in Shasta Reservoir that would allow releases to be selected from various reservoir levels, thus controlling the temperature of water releases.

2. Pollution migration: withdrawal of water causes existing pollutants to migrate

Salt Lake Valley, Utah

About 40% of the Valley's water supply comes from groundwater underlying the Valley. As a result of pumping activity, low quality water and contaminants from a shallow water table aquifer are migrating to a deeper, confined artesian aquifer. In order to address the problem, the Utah State Engineer's office established a moratorium on new groundwater withdrawals, except for small domestic wells. Additionally, the office established interim guidelines that limit approved and used rights to three-quarters of their potential annual withdrawal. Rights approved but not used are limited to one-half their maximum. It is uncertain whether the State Engineer or the State's Water Pollution Control Committee has the authority to enforce the guidelines.

3. Incidental pollution: unregulated returns of water after use can add large amounts of new pollutants

Kesterson Reservoir, California

Kesterson is an extreme example of the water quality problems caused by agricultural return flows. Irrigation return flows or drainage containing salt as well as trace elements like selenium had collected in the Kesterson Reservoir. The selenium was ingested by the wildlife

through the food chain, causing the death and deformity of fish and waterbirds. In 1985, the State Water Resources Control Board ordered the closure and cleanup of the area. The Dept. of Interior and the Westlands Water District agreed on a plan to halt drain flows from the agricultural uses. Numerous entities have been working on possible measures to alleviate the problem, several of which would affect the amount or manner of water use.

4. Cumulative effects of multiple water uses can degrade water quality

Colorado River Salinity

Salinity in the Colorado River is a graphic example of two principles of the water use / water quality relationship: (1) many small uses can create a major water quality problem through continuous use, reuse, and return flows; and (2) different types of water use related causes of quality degradation can combine to compound the water quality problem -- depletion, evaporation, evapotranspiration and exports.

IV. Protecting Water Quality Within State Water Allocation Systems

States generally don't limit water uses to protect water quality. Water uses are regulated primarily to protect others with water rights. Restricting water uses is generally seen as a last resort, and the public's interest in water quality is often subordinated to maintaining the integrity of the appropriation system. In fact, several states, including Colorado, have declared by statute that water quality will not affect water uses or water rights (CRS § 25-8-104 (1989)). Colorado's Water Quality act protects water rights in several other sections as well (CRS §§ 25-8-203(e); 25-8-203(f); 25-8-305(b), 25-8-503(5), 25-8-504(1)).

Opportunities for further integration of water use and water quality protection, exist and fall under four general headings:

- coordination between water allocation and water quality agencies;
- protection of water quality within the water allocation system;
- use of special management areas; and
- regulation of water use within the water quality protection system.

These opportunities, discussed below, hold the potential for controlling water use to protect water quality with a minimum of conflict with the exercise of water rights established under state law.

Coordination of water quality and water allocation responsibilities

Several states have some level of coordination, ranging from informal agreements to total integration of these responsibilities in a single agency. A survey was done as part of our study and most states responding expressed a need for improved coordination.

Examples of coordination are: (1) the New Mexico State Engineer serves on the Water Quality Control Commission; (2) the State of Washington combines the water allocation program and the water quality control program into one executive department under the same director; (3) the Colorado State Engineer has begun to implement SB 181 and has established a Water Quality Branch within the Division of Water Resources. There may be an opportunity now for the State Engineer to enforce the water quality standards at least under his authority with regard to groundwater permits and substitute supply plans.

Opportunities for protecting water quality under the prior appropriation system

Historically, there has been a limited recognition of water rights holders interest in water quality maintenance. The appropriator has a right to expect the continuation of stream conditions both in terms of quality and quantity, so that he can continue to make a particular beneficial use of water. Injured water users may seek redress through the state or division engineer's office. Additionally, there have been many court cases involving complaints by one water user of another user's pollution. But this traditional tort litigation has many obstacles to being an effective solution.

Some suggestions for ways water quality concerns can be brought into state allocation and administrative systems:

1. **State law could require agencies to consider water quality in making a determination that the use will not impair existing rights, the use is beneficial, and the use is in the public interest.**

Colorado requires that exchanged or substituted water be of a quality (as well as quantity) that can "meet the requirements of use" to which the exchanged-for water has been applied (CRS § 37-80-120(3); CRS § 37-92-305(5)). The Division 2 water court has considered this language in adjudicating the Arkansas River exchanges, discussed above.

The beneficial use requirement is being applied more broadly to prohibit inefficient water use and could be expanded to prohibit undue water degradation. The efficiency principle prevents appropriators from commanding more water than is reasonably necessary to satisfy

their own appropriations; senior appropriators are not entitled to monopolize large quantities of water to assure delivery through leaky ditches or a shallow well. Similarly, a polluter should not be able to use the stream to carry away so much waste that it limits other uses. The same principle would prevent depletions so great that pollutants become overly concentrated in the remaining water.

Many western states now consider the public interest in their permit issuing procedures. Some states provide statutory criteria for determining what the public interest factors are that must be considered and about eight states expressly or impliedly include water quality (See Controlling Water Use at 105, Table 7).

In those states where public interest factors are not defined by statute, water agency officials may have difficulty determining the "public interest." Technically trained individuals charged with making water decisions are accustomed to basing findings about water quantity or quality on engineering factors or quantifiable standards. They may be less equipped to determine other aspects of the public interest, such as recreational impacts or social and economic factors. Further, water allocation officials may be uncomfortable dealing with water quality effects if another agency has primary water quality authority, and prefer to condition the issuance of permits on satisfaction of water quality standards set by the water quality agency.

Water allocation that includes considering the public interest can protect water quality without offending the prior appropriation doctrine. Recitation that the public interest will be a factor has little practical effect, however, if the agency applying it has no statutory enforcement authority, or if statutory mandates differ among water agencies. Administrative officials also need more specific guidance than the simple phrase "public interest" conveys.

2. State law could protect instream flows for the purpose of protecting water quality

Instream flow laws recognize that the benefits of maintaining instream flows outweigh the potential limits on development, allocation, or consumptive use of water. State law usually prescribes the purposes or standards for setting a minimum instream flow. Typically the flow is based on the amount of water needed to sustain cold water fisheries or for recreation; in Colorado the standard has been cold water fisheries. An incidental effect may be that the quality of water needed for other purposes is at least somewhat protected. Flows needed for fish or recreation may be inadequate to safeguard water quality, and the law will be adequate to protect those interests only if the state statute permits consideration of water quality in setting the flows to be protected. Colorado's statute, which allows appropriations of water for instream flows sufficient to "preserve the natural environment to a reasonable degree" is broad enough to be used to maintain water quality. The law has been applied administratively, however, only to protect flows based on fish and wildlife needs.

3. States could include water quality in their consideration of the public trust

Courts in a few western states have recognized that the state has a trust responsibility to all citizens in the allocation of state waters. Water is public property under several state constitutions, held and allocated by the state for the benefit of the people. Permits to use state waters must be consistent with the state's fiduciary responsibility for how water is used.

The public trust has no single definition. The doctrine was judicially created to deal with special situations and its meaning may depend on the courts' view of each case. Protection of water quality would be among the duties of agencies under any application of the

public trust. Courts have said that trust interests include water quality, as well as several other interests such as fish and wildlife, recreation, and navigation.

Use of water management areas to protect water quality

Many western states have established special management areas to preserve and equitably allocate water supplies, usually groundwater. Typically, groundwater withdrawals exceed recharge in these areas. Management consists of limiting pumping to control depletions, although water quality protection may be an additional objective. Several states have authorized establishment of these areas specifically to respond to water quality problems (See Appendix B).

In 1988 the Colorado legislature established the Cherry Creek Basin Water Quality Authority to address water quality problems in Cherry Creek Reservoir southeast of Denver. (CRS §25-8.5-101 to -120). The Authority has responsibility for water quality planning for the reservoir and basin, and is to perform studies and make recommendations concerning (1) maximum allowable loads of pollutants, (2) erosion controls, (3) urban runoff controls, and (4) septic system maintenance. Revenue sources for the Authority include an *ad valorem* tax on all property within its boundaries, a one-time fee on new land development, and a reservoir user fee. A master plan to control nonpoint sources of pollution has been developed and implemented by the Authority. Also in 1988, the Colorado legislature expanded the authority of water conservancy districts to include programs and activities related to agricultural nonpoint source pollution control (CRS § 37-45-118(1)(p)).

Regulating water use under water quality programs

There are several ways typical state water quality programs established under the federal Clean Water Act can consider the effects of water use. These include the nonpoint source program, antidegradation review, and section 401 certification.

A lack of funds has prevented many states from having effective nonpoint source control programs. Colorado had one of the first federally approved nonpoint source management plans. The source of funding for the program is the wastewater treatment construction grants program; nonpoint source control receives twenty percent of the federal construction grants funds and local entities provide forty percent of the total costs in matching revenues. As of 1990 about \$1.3 million in federal funds had been targeted for Colorado nonpoint source programs, with close to another \$1 million available for implementation. The Water quality Control Division has set nonpoint source funding priorities and solicited proposed Project Implementation Plans for the priority areas. Ten funded demonstration projects are underway to correct nonpoint source pollution. Additionally, funds support two monitoring programs and a groundwater wellhead protection program. Public education also is an important part of Colorado's program: currently there are four funded nonpoint source pollution education programs.

Applicants for a federal license or permit to undertake an activity that will discharge pollutants are required under the Clean Water Act to obtain a certification from the state that the discharge will meet state water quality requirements (33 USC § 1341(a)(1)). This certification process allows states to ensure that activities requiring a dredge and fill permit under section 404 of the Clean Water Act, or hydroelectric facilities requiring a license from the Federal Energy Regulatory Commission (FERC), also comply with state water quality

requirements, which can exceed federal standards. States have limited experience to date in using the section 401 certification process to protect their water quality interests. Colorado made somewhat restrictive use of the certification process in the Two Forks Dam case.

State water quality standards must conform with an "antidegradation" policy that assures that certain existing uses, and water quality necessary to protect them, will be maintained. Certain high quality waters that exceed standards necessary to protect existing uses also must be maintained unless it is determined through a public process that lowering the quality is necessary to accommodate important economic or social development.

V. Recommended State Approaches

- **The activities of water allocation and water quality agencies should be formally coordinated**

Clear and direct coordination of these responsibilities is essential. Formal linkages are necessary to ensure effective coordination; they should be based on a legislative directive that clearly establishes water quality protection as part of the mission of every state agency whose actions potentially affect water quality and that provides guidance on how to weigh various factors bearing on agency decisions.

A comprehensive state water plan should guide an integrated process of water allocation and water quality protection.

- **Water quality considerations should be integrated into water allocation systems**

Water quality impacts should be weighed by state agencies in all proposed water allocation decisions and should be a basis for special conditions on applications for new water rights and changes of use or for denials of such applications.

In exercising discretionary powers to issue permits or administer water uses, state officials should not allow uses that impair water quality to the detriment of other water uses.

Decision makers should have authority to impose conditions on existing as well as new uses, including restricting diversions if necessary to protect water quality and other water uses.

Existing programs such as the section 401 certification and antidegradation requirements of the Clean Water Act should be seen as state tools for controlling water uses that cause deterioration of water quality.

- **Instream flow laws and programs should be expanded to include water quality objectives**

Maintaining water quality should be seen as a legitimate and valuable use of instream flow rights. Instream flow programs should be administered to protect and improve water quality. Where necessary, laws should be amended to specify that water quality is among their purposes.

Other efforts (e.g., water rights purchases) to protect existing base flows and to retire some consumptive uses to improve flows for water quality should be encouraged.

- **The use of special management areas should be expanded to address critical water quality problems**

Special water management areas can be used to develop effective, coordinated approaches to protect the quality of surface and groundwater and remedy problems causing low quality waters.

Potential controls in special water management areas should extend to all activities adversely affecting water quality including controlling how water rights are used.

Control measures may include requirements for use of best management practices in irrigation, limitation on water diversions (existing or new), and protection of instream flows.

- **Nonpoint sources need to be effectively regulated**

States need to give special attention to developing strong programs that control agricultural return flows, mine runoff, and urban sources of pollution, including comprehensive and enforceable requirements of using the best water management practices, water conservation, and discharge controls.

Special water management areas can be designed to deal effectively with certain kinds of nonpoint source problems.

- **Water quality should be a major part of all relevant planning processes**

State water plans should integrate water quality and water allocation objectives and methods. The plans should announce a coherent policy with which all agency decisions must be consistent.

Water quality issues must be considered in all water project proposals and in recreation and wildlife planning.

A mechanism should be set up to coordinate water quality planning with statewide and local land use plans, both important tools in ensuring water quality.

- **Increased funding and political support are vital to the success of a water quality program**

Citizen action is the key to initiating all recommendations in this report. Without an informed, active citizen effort all reforms will be defeated by the opposition of those whose short-term financial interests would be affected.

Citizen education about the importance of water quality and the need to control water uses is needed to build a political base to get the new programs suggested here funded and successfully operating.

Innovative programs should be developed to provide funding for better water management and protection.

Appendix A

Controlling Water Use: The Unfinished Business of Water Quality Protection

Summary

- *Western states are struggling with water quality problems that are not covered by existing regulation*
- *Most uncontrolled water quality degradation today relates to water uses authorized by state water allocation systems*
- *States can respond to public demands to improve water quality by better use of western water law*

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A p p e n d i x B

**States Authorizing Special Water Management Areas
for Water Quality Protection Purposes**

<u>State</u>	<u>Area Designation</u>	<u>Water Quality Concern</u>
Alaska	Critical Water Management Area	Imminent water shortage in area due to chemical contamination rendering source unusable
Hawaii	Water Management Area	Actual or threatened water quality degradation
Kansas	Intensive Groundwater Use Control Area	Unreasonable deterioration of water quality
Montana	Controlled Groundwater Areas	Excessive groundwater withdrawals causing contaminant migration and degradation of groundwater quality
Nebraska	Special Protection Area	Nonpoint source-related groundwater contamination
Oregon	Area of Groundwater Concern Groundwater Management Area	Groundwater contamination from nonpoint sources Nitrate or other contamination above specified levels
Texas	Critical Underground Water Area	Water contamination including saltwater intrusion
Washington	Ground Water Management Area	Land use resulting in contamination or degradation of groundwater quality