



The Water Report™

Water Rights, Water Quality & Water Solutions in the West

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LITIGATION ON THE COLORADO RIVER

CONFLICTS IN SEARCH OF SOLUTIONS

by Michael Gheleta, Brownstein Hyatt Farber Schreck (Denver, CO)

INTRODUCTION

The Colorado River has been called the most contentious, legislated, regulated, litigated river in the US, if not the world. As a stream that flows through seven western states and comprises the major source of water for one of the most arid regions of the country, perhaps this is not surprising. The body of law commonly known as the “Law of the River” is an extensive and ever evolving assembly of federal and state statutes, interstate compacts, contracts with the US, an international treaty, operating criteria, administrative decisions, and court decisions and decrees.

One manner in which the Law of the River has evolved in recent years is through decisions of federal and state courts. While much attention has been focused on agreements reached between states, the US, districts and other interests on the Colorado River, a number of important court cases have been litigated in the past several years. Some have been judicially resolved, others have been concluded through settlements following litigation, while still others continue in litigation and settlement processes that are ongoing.

The recent litigation on the Colorado River has spanned the entire basin geographically, from the mountain canyons of Colorado, to the vast storage reservoirs Lake Powell and Lake Mead, to the sands along the international border with Mexico. The litigation has encompassed a broad range of substantive issues as well, including: federal and state water law; environmental law; contract law; and even international and treaty law. Considered as a whole, the recent cases are instructive with respect to the diverse and sometimes unexpected ways that solutions are reached to conflicts on this most contentious of western rivers.

Black Canyon National Park Water Rights

LITIGATION LEADING TO SETTLEMENT

Black Canyon National Monument was proclaimed by President Hoover in 1933 under the Antiquities Act “for the preservation of the spectacular gorges and additional features of scenic, scientific, and educational interest...” Anyone who has ever personally witnessed the grandeur of the rugged, sheer-walled gorge through which flows the Gunnison River, a Colorado River tributary, is struck by the central role played by the river in carving the canyon.

Two decades after presidential establishment of Black Canyon National Monument to protect these features, in 1956 Congress authorized the Aspinall Unit (originally the Curecanti Unit) as an initial component of the Colorado River Storage Project Act (CRSPA). The Aspinall Unit is comprised of three dams on the Gunnison River just upstream of Black Canyon. Storage in the Aspinall Unit, whose Blue Mesa Reservoir holds nearly one million acre-feet (AF), facilitates Colorado’s use of its Colorado River entitlement (51.75% of water remaining after satisfying the Upper Basin’s obligations to

Colorado Basin Litigation

Reserved Water Right

Flows Claimed

Settlement Agreement

the Lower Basin and Mexico) in two respects. First, water users in Colorado can make direct beneficial use of water stored in the reservoirs. In addition, Colorado relies upon the storage pool for releases from the Upper Basin to the Lower Basin of the Colorado River, comprising an “insurance policy” allowing downstream interstate obligations to be satisfied in drought years without the need to curtail beneficial uses in Colorado.

The water rights and legal authorities governing the competing water needs of Black Canyon and the Aspinall Unit, respectively, were for many years never directly addressed by the courts. Then in 1978, a Colorado water court (water court) entered a decree awarding the US a conditional federal reserved water right for Black Canyon National Monument. Under the doctrine of “federal reserved water rights,” a reservation of federal lands carries with it an implied reserved water right if water is necessary to fulfill reservation purposes, with a priority date as of the date of establishment of the reservation. While establishing the US’ legal entitlement to a federal reserved water right, however, the water court deferred quantification of the reserved right until the US filed a further application.

The US filed its quantification application with the water court over two decades later in 2001, near the end of the Clinton Administration. In that application, the US claimed a range of flows, including: year round base flows of at least 300 cubic feet per second (cfs); “shoulder” flows (flows between the low base flows and the high peak flows) capped at 3,350 cfs; and peak flows in excess of 10,000 cfs. True to the contentious nature of actions on the Colorado River, even purely intrastate ones, the application was opposed by hundreds of protestants. A variety of grounds for denial of the application were advanced, including allegations that: the amount claimed was not the minimum amount necessary for reservation purposes; that the 1956 Aspinall Unit authorization had implicitly modified the prior reserved right established in 1933; and that the reserved right was inconsistent with federal obligations under CRSPA.

Rather than allowing the water court to resolve the quantification issues through litigation, in 2003 US Department of Interior officials in the Bush Administration and officials from the State of Colorado negotiated a settlement agreement concerning quantification of the water right for Black Canyon. By then, Black Canyon had been designated a National Park in legislation which was deliberately neutral regarding water rights. Under the proposed settlement, the US would hold the federal reserved water right with a base flow of 300 cfs. In contrast to the 2001 quantification application, however, a state agency, the Colorado Water Conservation Board, would hold ownership of a water right covering peak flows up to 14,500 cfs. The US amended its earlier quantification application to reflect the newly negotiated agreement.

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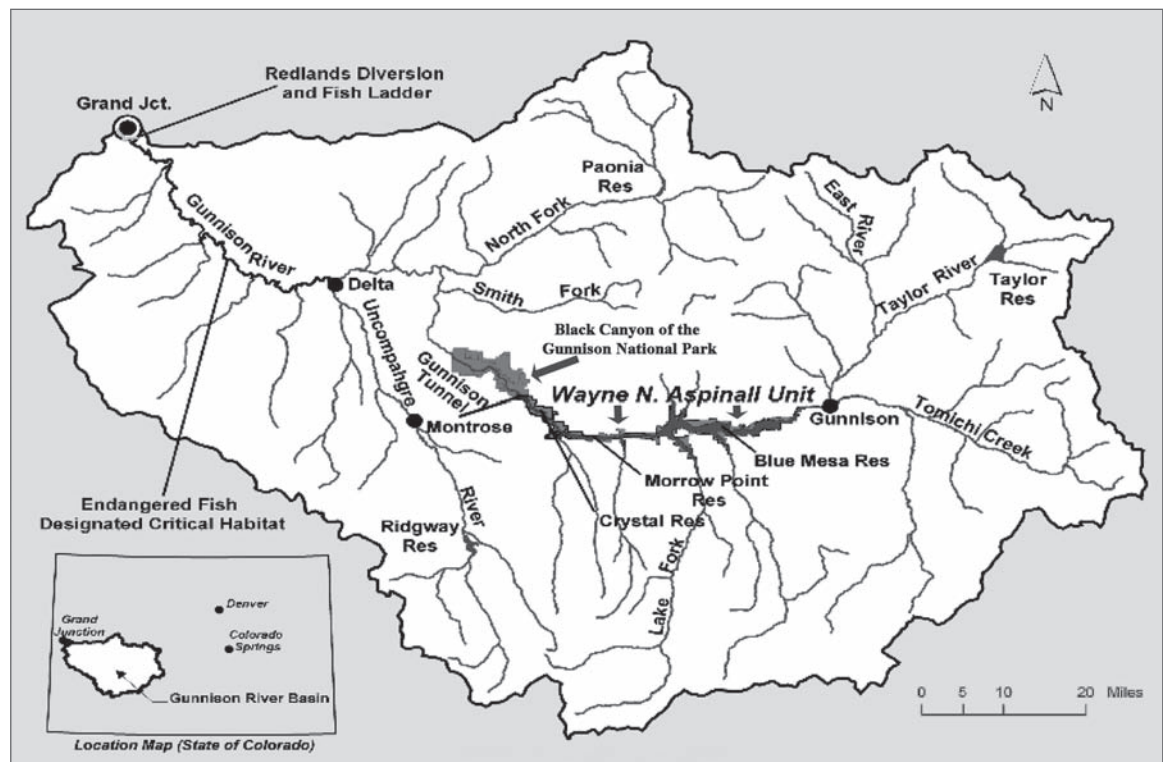
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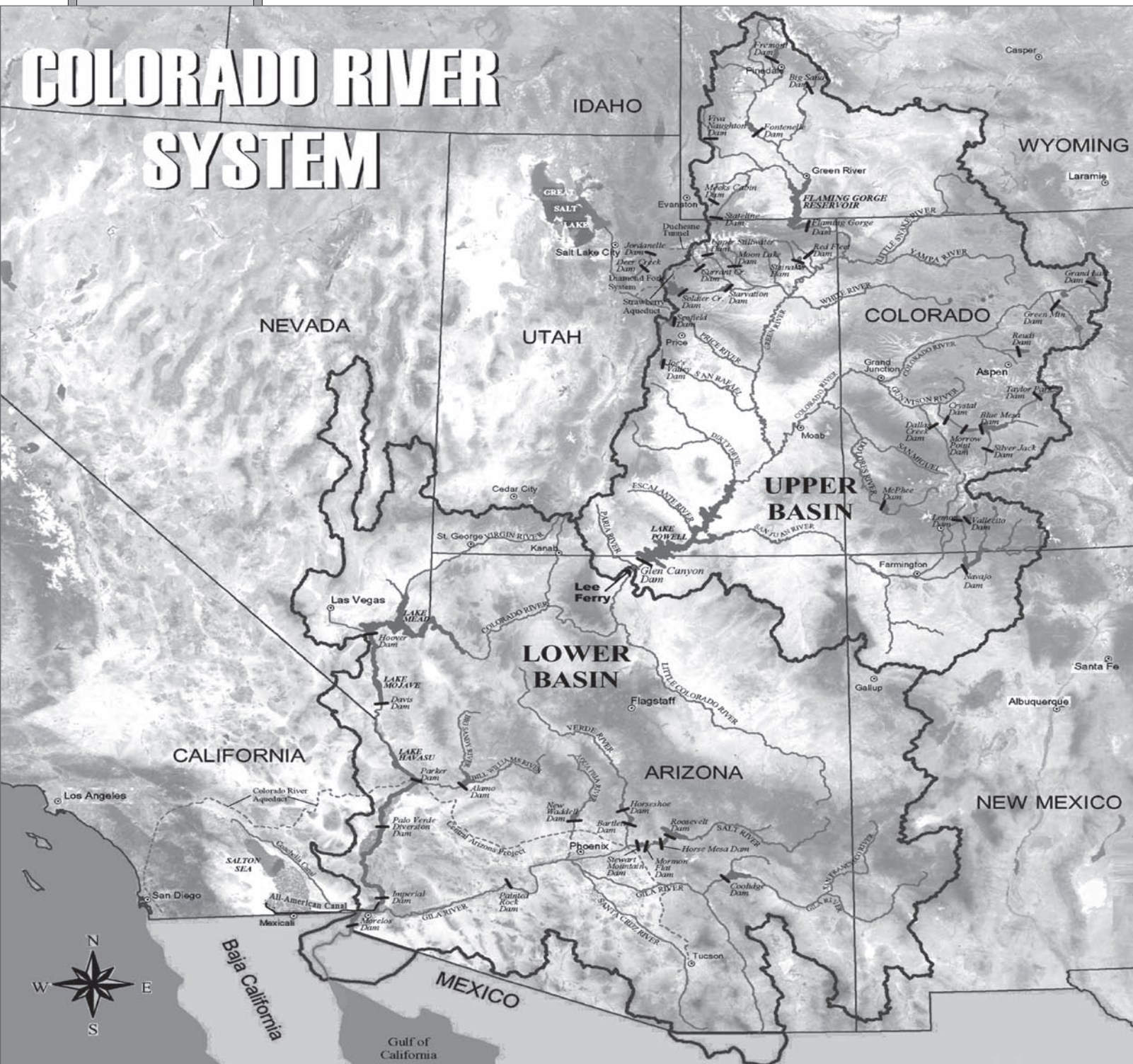
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Colorado Basin Litigation

Environmental Challenge

Environmental groups who were displeased with the settlement and the manner in which it was negotiated challenged it by filing suit in the US District Court in Colorado. In their complaint, the environmental plaintiffs alleged that the Interior Department's negotiation and execution of the agreement violated a number of federal statutes, including: the National Park Service Organic Act; Black Canyon of the Gunnison National Park Act; the National Environmental Policy Act (NEPA); the Endangered Species Act (ESA); and the Administrative Procedure Act (APA). The state water court stayed the quantification proceeding while the US District Court case moved forward, a result that was affirmed by the Colorado Supreme Court.



Colorado Basin Litigation

NEPA Ruling

After the US unsuccessfully attempted to dismiss the federal case, the US District Court issued an order setting aside the agency action in *High Country Citizens' Alliance v. Norton*, 448 F.Supp.2d 1235 (D.Colo. 2006). In its ruling, the US District Court found that the federal defendants had violated NEPA in negotiating and executing the agreement with the State of Colorado. The US District Court held that permanent relinquishment of a water right with a 1933 priority date for this national park, which was effectively the result of the settlement, constituted a "major federal action" requiring compliance with NEPA. NEPA requires a public process for agency consideration of environmental impacts of major federal actions — the US District Court found that the federal defendants unlawfully attempted to reach a resolution of completing interests without involving the public in this significant decision.

Unlawful Delegation

The court also found that the federal defendants had unlawfully delegated to the State of Colorado responsibility for performance of duties that Congress had consigned to the US. Specifically, federal defendants' delegation of the determination of the need for "shoulder flows" to the State was held to be contrary to: the National Park Service Organic Act; the Wilderness Act; and the Black Canyon National Park Act. In addition, the court held that the federal defendants had unlawfully disposed of federal property without congressional authorization, as only Congress has the power to dispose of federal property. In the court's view, the federal defendants contracted to give up what Congress had earlier authorized: a 1933 federal reserved water right to the quantity of water needed by Black Canyon for instream flows.

Rationale

Overall, the court held that federal defendants' entry into the settlement agreement with the State violated their nondiscretionary, affirmative duties to protect Black Canyon's resources. The Interior Department could decide not to place a call based on a validly established water right. However, it could not permanently relinquish a federal water right. Accordingly, the agency action was set aside as unlawful.

Find Provisions

Neither side appealed the district court's decision, and the parties entered into mediation. This time the settlement process included not only federal and state agencies, but also representatives of environmental groups, water users, power interests and municipalities. After a year of discussions, and with trial approaching, the parties reached another settlement and together submitted to the Colorado water court a proposed decree on a water right for Black Canyon National Park. As approved by the water court, the final decree includes all three flow components from the US' original 2001 quantification application: the 300 cfs base flow, as well as variable peak and shoulder flows, which are reduced during extended droughts. The settlement also included coordination with endangered fish needs in the Lower Gunnison River. It provided for subordination to all water rights with adjudicated priorities senior to the Aspinall Unit rights, and to certain in-basin future uses ("subordination" of a water right means that a water right holder agrees not place a "call" on the river requiring upstream junior appropriators to cease their diversions to satisfy the senior downstream water right). Finally, the settlement included provisions to coordinate the needs of Black Canyon National Park and the CRSPA's Aspinall Unit, addressing the interplay of these two neighboring and competing federal interests on the Gunnison River.

Navajo Nation Breach of Trust Litigation

ALLEGATIONS REGARDING UNMET WATER NEEDS AND COLORADO RIVER MANAGEMENT PROGRAMS

Reservation Needs

In March 2003, the Navajo Nation Indian Tribe filed suit against the US in US District Court in Arizona, challenging the Interior Department's handling of the Tribe's water needs for the Navajo Reservation with respect to the Colorado River above Lake Mead in the Lower Basin. In this case, *Navajo Nation v. U.S. Dept. of Interior*, (D. Ariz. Case No. CV-03-0507-PCT-PGR), the Tribe is asserting claims for breach of trust and violation of NEPA. Numerous Lower Basin parties immediately took interest in the case and intervened by stipulation, including: the State of Arizona; the Central Arizona Water Conservancy District; the Salt River Project; the Arizona Power Authority; the State of Nevada's Colorado River Commission and Southern Nevada Water Authority (jointly); the Metropolitan Water District and Coachella Valley Water District (jointly); and the Imperial Irrigation District.

Breach of Trust & NEPA

The case almost immediately proceeded into settlement discussions. The Navajo complaint (Complaint) alleges that as the Navajo Reservation (Reservation) is adjacent to the Colorado River, that the establishment of the Reservation by Treaty, Acts of Congress, and Executive Orders created an implied federal reserved water right. The Complaint further contends that a trust relationship exists, with the trust corpus consisting of the Navajos' beneficial interest in and rights to water of the Colorado River to make the Reservation a livable homeland. The alleged failure of the US to take all actions necessary to protect the trust corpus (all the property in the trust) constitutes a breach of the federal trust responsibility, according to the Complaint.

Homeland Claim

Adjudication

As further described by the Complaint, the Navajos' beneficial rights in the Lower Basin were not adjudicated, and were expressly left open in the case of *Arizona v. California*, 376 U.S. 340 (1964). The Little Colorado River Adjudication, an ongoing proceeding in Arizona state court, may result in

Colorado Basin Litigation

Trust Obligations

a declaration of water rights to serve some, but not all, Navajo lands and water needs. The Interior Department is obligated to uphold the trust responsibility to the Navajo Nation even while Congress charges the agency with other responsibilities, including those under the Colorado River Compact, the Boulder Canyon Project Act, and NEPA, according to the Complaint.

The Complaint alleges that the Interior Department has breached the government's trust obligation to the Navajo by failing to consider the Tribe's water rights and unmet water needs in taking (or failing to take) actions in four areas.

THE COMPLAINT'S ALLEGATIONS INCLUDE:

- The 2001 Colorado River Interim Surplus Guidelines purports to allocate all surplus waters of the Colorado River on an annual basis, without consideration of Navajo rights and needs.
- Interior's adoption of the Implementation Agreement EIS, and the Secretary of the Interior's agreement to deliver California's share of Colorado River water under the Quantification Settlement Agreement (QSA) and inadvertent overrun and payback policy failed to take account of Navajo rights and needs.
- The regulations for interstate banking on the Colorado River allow entitlement holders — other than the Navajo — to store Colorado River water that they would otherwise be unable to use, and to develop reliance on such waters, without consideration of Navajo rights and needs.
- The Secretary of the Interior (Secretary) has contracted to deliver Central Arizona Project (CAP) water without regard to Navajo unquantified rights, and has refused to contract with the Navajo for delivery of CAP water.

Relief Sought

Overall, the Complaint seeks a declaration that the US has breached its fiduciary obligations to the Navajo by failing to consider Navajo water right claims and needs in these programs. It seeks to hold unlawful and to set aside the Surplus Guidelines EIS and Implementation Agreement EIS. The Complaint further requests that Interior actions proposing to allocate unallocated Colorado River water be enjoined. Finally, the Complaint seeks to enjoin the Secretary from refusing to determine the quantity and extent of Navajo water rights and needs prior to taking further action to allocate annual surplus flows.

Negotiations

The implications of this case and its potential impact are significant. Accordingly, litigation of the case has been stayed for nearly five years in order to allow negotiations to proceed among the Navajo, the US, and other interested parties, primarily in Arizona. The Interior Department appointed an Indian water rights settlement team to conduct the negotiations. Nevada and California parties have a representative at the negotiations. Participants in the Little Colorado River Adjudication have participated in joint settlement discussions. The most recent series of extensions stays the case until October 13, 2009. Only time will tell whether these issues are resolved through settlement or litigation.

Glen Canyon Dam Litigation

CHALLENGES TO BIOLOGICAL OPINIONS AND ANNUAL OPERATING PLANS UNDER ESA AND NEPA

Lake Powell

In addition to the Aspinall Unit discussed above, another key facility of the Colorado River Storage Project is Glen Canyon Dam located in northern Arizona. The Dam creates Lake Powell, which is 186 miles long and is the second largest reservoir in the country. Lake Powell stores water enabling the Upper Basin states on the Colorado River to meet their compact delivery obligations to the Lower Basin states. Environmental groups have used the courts in recent years to challenge operation of Glen Canyon Dam. In 2006, the Center for Biological Diversity filed a suit in US District Court in Arizona challenging operation of Glen Canyon Dam based on alleged adverse effects it was having on the humpback chub, an endangered fish listed under ESA, and its critical habitat. *Center for Biological Diversity v. U.S. Bureau of Reclamation* (D. Ariz. Case No. 3:06-00494 DGC). After a court ruling on preliminary motions, that case was resolved with the Bureau of Reclamation (Reclamation) agreeing to perform additional NEPA and ESA compliance on the operation of Glen Canyon Dam.

Operating Regime

In late 2007, the Grand Canyon Trust filed suit in US District Court in Arizona, once again challenging operation of Glen Canyon Dam (Dam) and its alleged impact on the humpback chub and its habitat.

Grand Canyon Trust v. U.S. Bureau of Reclamation (D. Ariz. Case No. CV-07-8164-PHX-DGC). The plaintiff's original complaint alleged that Reclamation's operation of Glen Canyon Dam, particularly the Dam's operating regime of "modified low fluctuating flow" (MLFF) jeopardizes the humpback chub and its habitat and does not comport with the ESA. The complaint further claimed that Reclamation must comply with ESA and NEPA in issuing Annual Operating Plans for the Dam. The plaintiff contends that a "seasonally adjusted steady flow" (SASF) system would be more compatible with the chub. MLFF consists of fluctuating water releases tied largely to the demand for electricity, while SASF more closely tracks the natural hydrograph.

Hydroelectric Production

Colorado Basin Litigation

Biological Opinions

"High Test Flow"

Recent Rulings

A 1994 Biological Opinion of the US Fish and Wildlife Service (USFWS) determined that Dam operations jeopardize the humpback chub and adversely modify its habitat. The 1994 Opinion set forth reasonable and prudent alternatives intended to eliminate jeopardy, including one providing for Dam operation on an experimental basis under SASF. The original complaint alleged that operation of the Dam did not comply with this reasonable and prudent alternative. After the complaint was filed, however, USFWS issued a new 2008 Biological Opinion calling for a five-year experimental plan of steady flows in the fall, a high test flow, and operation otherwise under the MLFF operating regime (2008 BiOp available at: www.usbr.gov/uc/envdocs/bo/FinalGCDBO2-26-08.pdf). The high test flow is designed to benefit the endangered fish by creating more favorable habitat, including sand bars and backwaters. The 2008 Biological Opinion concluded that Dam operations would not jeopardize the chub or adversely modify its critical habitat, relying in part on evidence showing increases in population levels since 1995, subsequent to the 1994 Biological Opinion. [Editor's Note: The experimental "high test flow" was actually conducted beginning on March 5, 2008. Then Secretary of the Interior Dirk Kempthorne pulled the levers at Glen Canyon Dam to release high flows into the Colorado River, a part of which runs the 277 mile length of Grand Canyon National Park. Water was released through Glen Canyon Dam's powerplant and bypass tubes to a maximum amount of approximately 41,500 cfs for about 60 hours. The experiment was designed to enhance the habitat in the canyon and its wildlife, and learn more about these complex natural systems.]

The plaintiff filed a motion for summary judgment on its original complaint, and also filed a supplemental complaint challenging the sufficiency of the 2008 Biological Opinion. The US filed a cross-motion for summary judgment and a motion to dismiss. The court resolved the pending motions in a September 26, 2008 ruling.



The court first found that the Grand Canyon Trust's original complaint was not moot, even though it challenged the 1994 Biological Opinion later replaced by the 2008 Opinion, since the complaint clearly alleged that Reclamation's operation of Glen Canyon Dam violated ESA. In addition, the court held that Reclamation's Annual Operating Plans do not require separate NEPA or ESA compliance. Reclamation's adoption of the Annual Operating Plans does not constitute "agency action" triggering ESA or NEPA review. Rather, the Secretary of the Interior selected the operating regime for Glen Canyon Dam in other documents that had undergone independent NEPA and ESA review, including the 1996 Record of Decision (ROD) selecting the MLFF alternative as the flow regime, and the Operating Criteria for the Dam adopted under the 1992 Grand Canyon Protection Act. Annual Operating Plans make projections of reservoir releases based on forecasted hydrology and criteria established in the 1996 ROD and Operating Criteria, but do not themselves choose among different operating regimes. Reclamation does not exercise "discretion" in the Annual Operating Plan that could "inure to the benefit" of the humpback chub — prerequisites for a determination that there is "agency action" requiring ESA or NEPA review.

The court issued a ruling in the next phase of the case on May 26, 2009, following additional briefing. That ruling addressed both compliance with NEPA and ESA. As part of an adaptive management plan, Reclamation had created a 2008 Experimental Plan which

Colorado Basin Litigation

ESA Violation

modified MLFF in certain respects to benefit the chub, performing an Environmental Assessment which concluded that the environmental impact would not be significant. The court found that the Environmental Assessment did not violate NEPA, given the limited purpose of the 2008 Experimental Plan and the procedural nature of NEPA. The court also held that the 2008 Biological Opinion did not violate the Grand Canyon Protection Act.

However, the court further ruled that the 2008 Biological Opinion did not comport with the federal Endangered Species Act. In the court's view, the 2008 Biological Opinion, which reached the new conclusion that MLFF did not result in jeopardy to the chub or adversely affect its critical habitat, did not adequately explain the change of position from the 1994 Biological Opinion, which had found jeopardy and adverse impact on critical habitat. While the US cited improvements in chub populations since 1995, the Court referenced subsequent studies suggesting that operations under MLFF continued to degrade habitat.

Having found this ESA violation, the court remanded the 2008 Biological Opinion to USFWS for reconsideration, giving the agency until October 30, 2009 to revise the Opinion. Should the agency's revised opinion conclude that MLFF operations do *not* violate ESA, the case will proceed with limited briefing setting forth positions on the validity of the revised Biological Opinion, followed by a further decision by the court as to the adequacy of that Opinion. If the revised opinion withdraws USFWS' conclusion that MLFF operations do not violate ESA, or otherwise concludes that they violate ESA, then the parties must file a status report by November 6, 2009 advising the court of the new conclusion. In that event, the court will schedule a status conference to learn Reclamation's intentions in light of the new opinion, and to consider what additional steps the court should take in the litigation, including possible further briefing and remedies.

BiOp Reconsideration

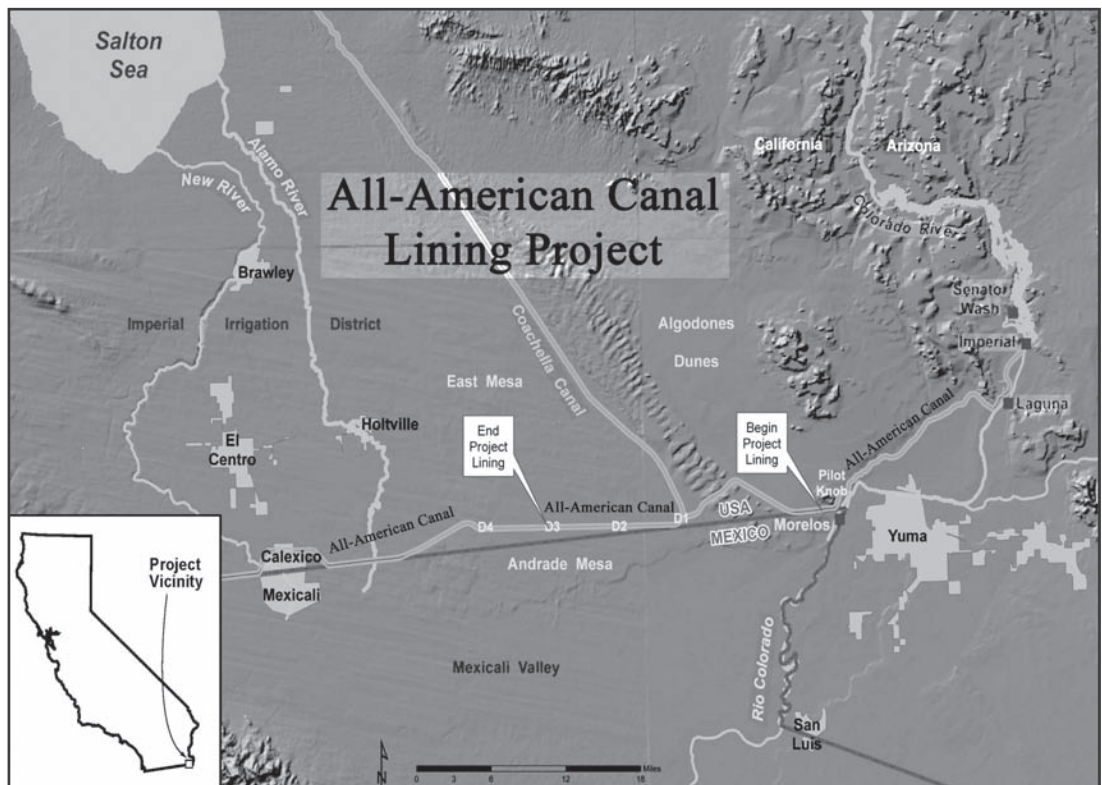
Challenge to the All-American Canal Lining Project

FEDERAL COURT EDICTS ON TRANSBOUNDARY ISSUES, AND CONGRESSIONAL INTERVENTION

Water users on the Colorado River were reminded of another important piece of litigation recently. This past spring, more than 300 officials and other interested parties gathered in the Imperial Valley near the Mexican border to celebrate the imminent completion of the All-American Canal (AAC) Lining Project. The AAC Lining Project involves the construction and concrete lining of a 23-mile stretch of canal running parallel to the longstanding unlined All-American Canal. The canal transports water from the Colorado River west to the Imperial Irrigation District and Coachella Irrigation District, major users of Colorado River water. For many decades, the unlined canal leaked, allowing seepage to escape across the Mexican border. The seepage had replenished the aquifer underlying the Mexicali Valley in Mexico, which is utilized for irrigation by farmers there.

Canal Lining

Seepage Effect



Colorado Basin Litigation

Saved Water Uses

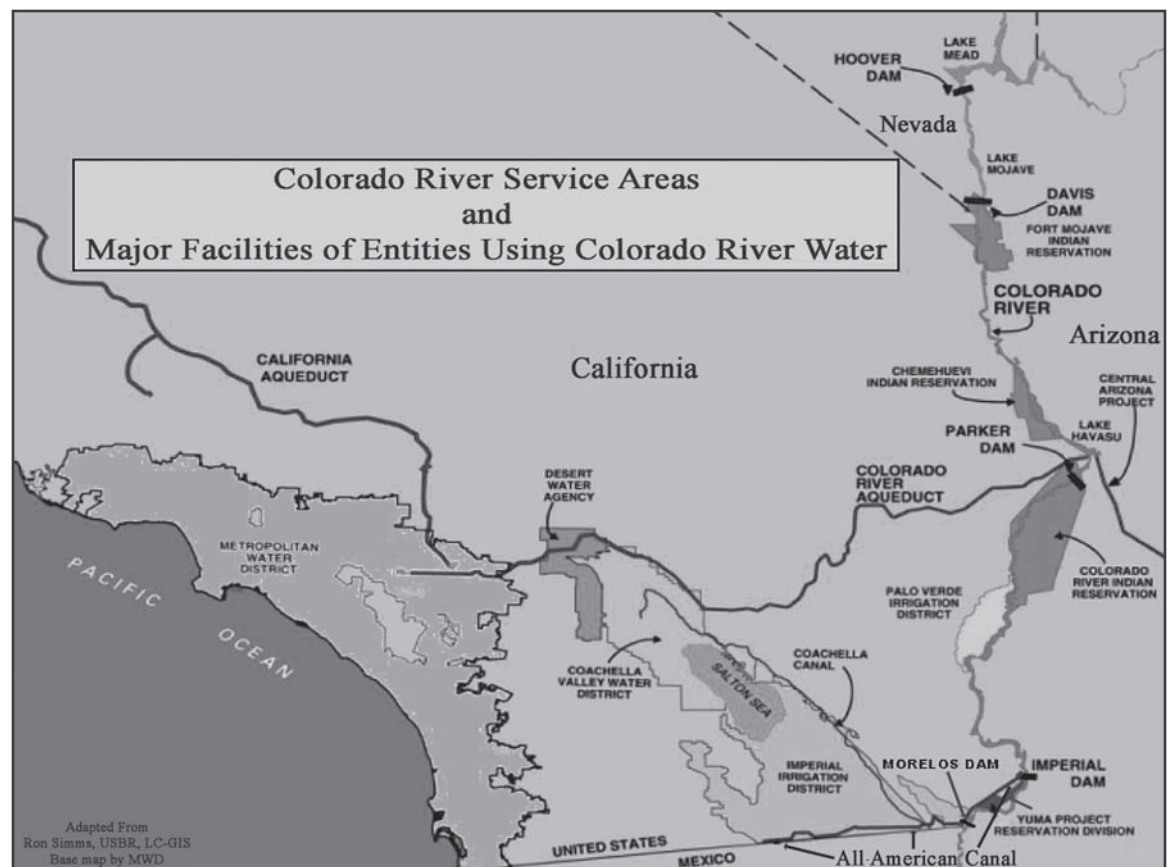
Mexican Aquifer Recharge

Plaintiff's Assertions

The AAC Lining Project is an important measure with respect to resolving settlement of certain Indian water rights, as well as historic overuse of Colorado River water by California interests. The project was the subject of Congressional legislation in 1988 and 2000, directing that canal seepage be reduced and the water saved used to facilitate settlement of Indian water rights issues. The project is also a key aspect of the Quantification Settlement Agreement (QSA), a series of measures and actions reached among California water districts in 2003 in an effort to bring California's use of Colorado River water within its entitlement of 4.4 million AF. Pursuant to the 2003 Colorado Water Delivery Agreement, a component of the QSA, the AAC Lining Project was designed to conserve 67,500 acre-feet (AF) of All-American Canal losses. Some 56,000 AF of that savings will be made available to the San Diego County Water Authority through a transfer agreement with the Imperial Irrigation District. The remaining saved 11,500 AF of water will go to the San Luis Rey Indian water right settlement parties.

In July 2005, a group of plaintiffs, including Mexican economic interests and environmental groups in Mexico and the US, filed a class action lawsuit in US District Court in Nevada challenging the AAC Lining Project. *See Consejo de Desarrollo Economico de Mexicali, AC ("CDEM") v. United States*, 438 F.Supp. 1176, 438 F.Supp.2d 1194, 438 F.Supp.2d 1207 (D. Nevada 2006). In their complaint, the plaintiffs alleged that operation of the All-American Canal has provided recharge to the Mexicali aquifer for 63 years in amounts up to 100,000 AF annually, and that the Mexicali area and its economy have come to depend upon canal seepage. Many parties intervened in the litigation, including: water districts in Arizona and California; all seven Colorado River Basin states; the Mexican government; San Luis Rey Indian water rights settlement parties; and others.

Two types of claims were raised in the complaint — water rights counts and statutory counts. In the water rights counts, which encompassed a constitutional component, the plaintiffs claimed an unconstitutional deprivation of water rights. They argued that by eliminating seepage coming from the All-American Canal, the US had unconstitutionally deprived the plaintiffs of property without due process of law. Plaintiffs sought a judicial determination of water rights to seepage water, which they alleged Mexicali interests could establish as a matter of prior appropriation, estoppel (legal principle that prevents a person from asserting or denying something in court that contradicts what has already been established), Mexican federal law, and principles of international and equitable apportionment and comity (courtesy between nations that obligates their mutual recognition of each other's laws).



Colorado Basin Litigation

Water Rights Court

In a separate water rights count, the plaintiffs claimed that doctrines of equitable apportionment and use required varying the strict rules of priority (under the Prior Appropriation Doctrine, presumably) to the necessities of the particular situation. They alleged that Mexicali had relied upon historic seepage and that the AAC Lining Project would irreparably harm the Mexicali aquifer. Therefore, they argued, the court should impose a physical solution accommodating all and resulting in optimum utilization of water resources.

In the US District Court's ruling on the US' motion to dismiss in *CDEM v. US*, the court dismissed the plaintiffs' water rights counts. The court held that it lacked jurisdiction and that plaintiffs lacked standing under the 5th Amendment of the US Constitution, which was the legal underpinning of these counts. In the court's analysis, the plaintiffs who were Mexican citizens with property outside the US, are not protected by the 5th Amendment. Moreover, the 1944 Treaty between the US and Mexico allocates 1.5 million acre-feet of Colorado River water to Mexico "from any and all sources," which would include Colorado River water seeping from the All-American Canal. The court indicated that only parties to a treaty can enforce it, and that they must resolve disputes through diplomatic means, not in US federal courts.

Statutory Claims

The plaintiffs also raised statutory claims under NEPA, ESA, and other statutes. In their NEPA count, plaintiffs claimed that the US failed to prepare a supplement to the 1994 Final EIS for the AAC Lining Project despite significant new circumstances or information relevant to environmental concerns. They also claimed that the 1994 Final EIS itself was legally inadequate in its failure to analyze transboundary effects in Mexico of proposed actions in the US.

NEPA Ruling

The court rejected plaintiffs' NEPA claims, finding that no supplemental EIS was required. In doing so, the court held that NEPA does not apply to impacts in Mexico from activities in the US. NEPA contains no statutory language regarding extraterritorial impacts, and the statute applies only in areas over which the US maintains legislative control. As for certain "rebound" transboundary impacts alleged by the plaintiffs (impacts in Mexico leading to impacts in the US), the court found these to be too speculative. Whether the loss of seepage will cause impacts across the border is within the control of Mexico. With no control over Mexico's decisions regarding use of water resources, the causal link is too attenuated for relief. Finally, the court held that the EIS's analysis of domestic impacts was not arbitrary and capricious.

ESA Claims

In their ESA claims, plaintiffs alleged that Reclamation had violated ESA Sections 7 and 9 by not reinitiating consultation due to the listing of the Peirson's milk-vetch, taking of Yuma clapper rail, and existence of new information on wetlands in Mexico affected by the project. As it had done regarding NEPA, the court found that ESA's Section 7 consultation requirement applies only within the territorial jurisdiction of the US, with no intent of extraterritorial application evident from ESA text, regulations or purpose. In addition, Reclamation and the US Fish and Wildlife Service lack control over impacts to wetlands and species in Mexico. Because Mexico's share of Colorado River water is limited by the 1944 Treaty, Reclamation has no authority to ensure that more water reaches wetlands or species in Mexico.

Congressional Action

The plaintiffs appealed the US District Court decision to the Ninth Circuit Court of Appeals. While the case was on appeal, Congress enacted provisions in the 2006 Tax Relief and Health Care Act (2006 Act) which the US argued effectively mooted the claims in the litigation. Section 395(a) of that Act directed the Secretary of the Interior to "without delay, carry out" the AAC Lining Project preferred alternative "[n]otwithstanding any other provision of law." Congress also reaffirmed in Section 397 of the 2006 Act that the 1944 Treaty "is the exclusive authority" for addressing impacts outside the boundaries of the US from projects within US territorial limits.

9th Circuit Decision (mootness)

The Ninth Circuit issued a ruling in early 2007 relying largely on the newly passed legislation, enabling the AAC Lining Project to finally proceed. *CDEM v. US*, 482 F.3d 1157 (9th Cir. 2007). The court ruled that legislation enacted while a case is pending on appeal, making it impossible for the court to grant relief, requires dismissal on grounds of mootness. Moreover, Congress may exempt specific projects from the requirements of environmental laws. Applying these principles, the court held that as a matter of statutory construction, the 2006 Act rendered moot the challenges to commencement of the Project based on NEPA, ESA and other statutes. The 2006 Act directs that construction proceed "without delay" and "notwithstanding any other provision of law," and each of the claims would delay project commencement. Therefore, the court found that the 2006 Act exempted the AAC Lining Project from the statutory violation claims. Having determined the statutory reach of the 2006 Act, the court proceeded to hold the 2006 Act constitutional. In the court's analysis, it found that the 2006 Act did not violate the 10th Amendment, separation of powers clause, or equal protection clause. Nor did the 2006 Act deprive plaintiffs of protected constitutional interests without due process.

Jurisdiction

With respect to the water rights or constitutionally based claims, the Ninth Circuit determined that the federal courts lacked subject matter jurisdiction. In particular, the court found that the equitable apportionment and estoppel claims were barred by sovereign immunity, since APA waives immunity for

**Colorado
Basin
Litigation****State's
Cooperation****Tribal Interests
Unresolved**

violations of statutes, and not common law. The plaintiffs did not seek review in the US Supreme Court, leaving the AAC Lining Project free to proceed to completion, and closing this chapter of transboundary differences on the Colorado River.

Conclusion

The litigation over the past few years on the Colorado River is noteworthy in what it has *not* included, namely, disputes among the seven states sharing use of the waters of the River. The Basin states have worked hard to resolve their differences out of court as part of the evolution of the Law of the River, including the 2007 Interim Guidelines addressing potential shortages on the River and storage levels in Lake Powell and Lake Mead. *See* TWR #47, Water Briefs. This process may have been helped by the states developing alliances in defending federal actions on the River challenged by other interests, as in the Navajo Nation and Glen Canyon Dam cases.

In the litigation that has occurred, federal environmental statutes have provided an opportunity for environmental groups and others to seek outcomes favorable to them. These litigation tools have included NEPA, ESA, and other statutes related to protection of specific features or areas, as evidenced by the Black Canyon and Glen Canyon Dam litigation. Unresolved issues concerning Indian water rights and needs, and the impact of federal programs on tribal interests, will be an important area for the future. As shown by the Navajo Nation case, Tribes may use environmental laws such as NEPA as well as claimed federal reserved water rights (tribal rights) to assert their interests.

Finally, the litigation has shown that the courts cannot resolve every dispute on the River. The All-American Canal case demonstrates that international disputes are not amenable to being resolved in US federal courts, that diplomacy must play an important role, and that Congress will step in where necessary to preclude judicial outcomes which could adversely affect national interests. Through these judicial decisions, settlement decrees, and legislative enactments, the evolution of the Law of the River continues to flow just like the River itself.

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Interstate Groundwater

Management Agreement

50/50 Split

INTERSTATE GROUNDWATER ALLOCATION

NEVADA - UTAH DRAFT SNAKE VALLEY MANAGEMENT AGREEMENT

by David Moon, Editor

Introduction

Following nearly four years of negotiations, the States of Nevada and Utah released a draft agreement for the management of the Snake Valley Groundwater System on August 13. The Snake Valley straddles the Nevada-Utah border and its groundwater is used in both states. The draft “*Agreement for Management of the Snake Valley Groundwater System*” (Agreement) establishes a cooperative relationship between the states regarding the allocation and management of the interstate groundwater resources in the valley. The principal outcome of the Agreement’s implementation is that the groundwater resources of the basin — currently determined to be 132,000 acre-feet (AF or afy (acre feet per year)) — will be equally split between the two states. The Southern Nevada Water Authority (SNWA) is also a signatory to the agreement for limited purposes. According to the joint press release issued by the two states, “The agreement is the culmination of years of work by a committee comprised of state water experts, landowners and legal advisors.”

A substantial amount of information exists regarding the aquifer underlying Snake Valley — including studies compiled by the United States Geological Survey, the States and other parties. However, Utah and Nevada acknowledged in the Agreement that such information is insufficient to determine with precision the “Available Groundwater Supply.” For this reason, the Agreement includes provisions to continue various studies and monitoring efforts, and allows for additional future development of the groundwater resource if the two State Engineers agree that new data shows that additional groundwater exists. The Agreement notes, though, that “[B]ased on the best currently available data, the States agree that the Available Groundwater Supply as of the date of this Agreement is 132,000 afy.” Agreement at 4.

Significantly, the Agreement is “not intended to be an interstate compact, entered pursuant to the Compact Clause of the U.S. Constitution, Art. I, Section 10, Cl. 3. This Agreement is entered into between the States with the intention of avoiding an equitable apportionment action regarding the Snake Valley Groundwater Basin in the United States Supreme Court.” Agreement, p. 1.

Some stakeholders have already begun attacking the plan, primarily water users in Utah and in the Snake Valley in Nevada. Some Las Vegas residents have also been complaining about the enormous cost of the related pipeline project. The deadline to submit written comments on the draft Agreement for the Snake Valley groundwater system has been extended to Wednesday, September 30. Public meetings were held in August in both Nevada and Utah.



Interstate Groundwater

Pipeline Easements

Water Division Mandated

Background

LAS VEGAS INTERESTS

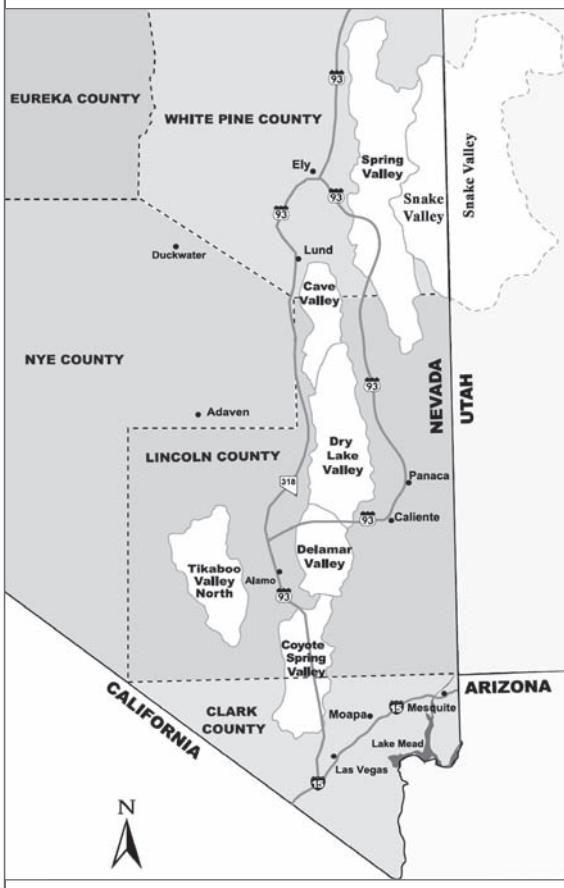
Snake Valley encompasses an area of over 500 square miles in western Utah and eastern Nevada. Water use in the Snake Valley aquifer has developed slowly in both States. Most of the aquifer's recharge occurs in Nevada and flows down-gradient into Utah, while the majority of historic discharge (use) has occurred in Utah.

The issue of managing the Snake Valley's water came to the forefront in 1989 when the Las Vegas Valley Water District (SNWA's predecessor in interest) filed water right applications and announced its intention to build a pipeline to carry Snake Valley water to Las Vegas (approximately 285 miles south). In 2004, the United States Congress passed Pub. L. 108-424, which created easements for SNWA project pipelines. The federal statute also required the States to agree on the division of the underground water, while protecting existing water rights and allowing the maximum sustainable beneficial use of water, *prior* to any interbasin transfer from groundwater basins located within both States. The Agreement is intended to satisfy the requirements of that law.

The Las Vegas Valley Water District (LVVWD) applications with the Nevada State Engineer were to appropriate approximately 50,000 AF of water from Snake Valley in Nevada to be piped to Clark County (Las Vegas). These applications were part of a series of water right applications intended to transport rural groundwater to municipal uses through a large system of pipelines in central and eastern Nevada. The proposed points of diversion for LVVWD's Snake Valley applications are within Nevada. LVVWD is now part of the Southern Nevada Water Authority (SNWA), which was formed by a cooperative agreement with six other agencies in southern Nevada (Big Bend Water District, City of Boulder City, City of Henderson, City of Las Vegas, City of North Las Vegas, Clark County Water Reclamation District).

SNWA Groundwater Resources Development

This map shows several valleys where SNWA is developing groundwater resources for its use. As set forth in the SNWA 2009 Water Resource Plan (Plan), Executive Summary: "The 2009 Water Resource Plan assumes the development of 134,000 acre-feet per year (AFY) of in-state groundwater based on current permits and outstanding applications." The Plan was released prior to the Nevada Utah Agreement. Chapter 2 of the Plan discusses SNWA's Water Resources Portfolio, including the groundwater permits and pending applications.



Coyote Spring Valley is located in northern Clark County. In 1998, SNWA purchased 7,500 AFY of water rights in this valley, along with five one-acre parcels of land for placement of future wells to develop the water rights. Another 1,500 AFY was purchased in 2002, for a total of 9,000 AFY. In addition, the Las Vegas Valley Water District (LVVWD) has 27,512 AFY in applications, filed in 1989, for water rights in Coyote Spring Valley. In March 2002, the Nevada State Engineer issued Order No. 116912 regarding these groundwater applications. Per the ruling, SNWA constructed eight monitoring wells and is conducting extensive monitoring.

In 2003, SNWA requested that the Nevada State Engineer act on 17,000 AFY of water right applications filed in 1989 for groundwater in Three Lakes Valley (North and South) and Tikaboo Valley (North and South). Following an administrative hearing in 2004, the Nevada State Engineer issued Ruling No. 5465 in 2005, approving permits totaling 8,905 AFY.

To develop and convey SNWA's 1989 groundwater rights, applications, and acquired rights from Delamar, Dry Lake, Cave, Spring and Snake valleys for use by SNWA's member agencies in Clark County, SNWA has proposed a pipeline project as defined in the Southern Nevada Water Authority Clark, Lincoln and White Pine Counties Groundwater Development Project. The proposed pipeline would extend from the Las Vegas Valley to Spring and Snake valleys. Based on SNWA's current permitted rights, acquired rights, and pending applications, up to 137,000 AFY could be developed from these valleys, 3,000 AFY of which would be transferred to Lincoln County based on a 2003 agreement.

In 2007, the Nevada State Engineer issued Ruling No. 5726, granting SNWA 60,000 AFY of groundwater from Spring Valley, the pumping of which is limited to 40,000 AFY for the first ten years. In addition to these groundwater rights, SNWA began acquiring various ranch properties in Spring Valley in mid-2006. In addition to substantial land holdings, SNWA also acquired surface and groundwater rights associated with the properties. To date, SNWA has acquired approximately 34,000 AFY of surface water rights, 6,000 AFY of groundwater rights and 24,000 AFY of supplemental water rights. SNWA does not intend to export the surface water rights associated with these ranches. Instead, the surface water rights will be used to help manage the groundwater basin and support other environmental management activities associated with groundwater development.

Legal Considerations

Interstate
Groundwater

A “*Benefits Memo*” issued in association with the Agreement outlines the legal alternatives involved when two states are accessing a shared aquifer. [“*Benefits of a Nevada Utah Agreement*” — available online at: www.waterrights.utah.gov/ >> Snake Valley Agreement >> *Benefits Memo*]

THE *BENEFITS MEMO* DESCRIBES SOME PERTINENT LEGAL CONSIDERATIONS THUSLY:

CONTROVERSY SOLUTIONS

Equitable Split

Where a groundwater aquifer is located in two States, each receives an equitable share so long as the right of the other to its share is not unduly infringed. When one State takes what it believes is its share and a controversy arises, three possible solutions arise: (1) a negotiated settlement; (2) an interstate compact; or (3) an original action in the U.S. Supreme Court seeking equitable apportionment of the joint resource. *Benefits Memo*, p. 3.

SUSTAINABLE BENEFICIAL USE

Sustainable
Groundwater

The *Benefits Memo* also notes that the concept of “sustainable beneficial use” is common to Utah and Nevada law, meaning that aquifer diversions cannot exceed long-term recharge. *Id.* at 3.

“Reasonable
Use”

The concept of ‘sustainable beneficial use’ is common to Utah and Nevada law, meaning that aquifer diversions cannot exceed long-term recharge.” *Id.* at 3. “Under Utah law, the rule of reasonableness requires that a prior groundwater user cannot demand that groundwater levels remain the same as when he first made his appropriation. But, any drop in groundwater levels must be ‘reasonable.’ It is contrary to public interest to keep the aquifer completely full just to support existing water levels. *Id.* at 6.

THE AGREEMENT ITSELF SETS OUT OTHER PERTINENT WATER LAW CONSIDERATIONS, INCLUDING:

Safe Yield
Doctrine

Utah acknowledges that the safe yield doctrine that governs Groundwater appropriation in Utah generally allows for the appropriation of Groundwater in a manner that is sustainable and results in a reasonable amount of drawdown in the Groundwater aquifer. Such appropriations necessarily impact the existing hydrologic system and captures discharge available to phreatophytes, streams and natural lakes...Nevada acknowledges that the perennial yield doctrine that governs Groundwater appropriation in Nevada generally allows for the appropriation of Groundwater that is discharged through natural evapotranspiration processes and/or some portion of the subsurface flow to adjacent basins. The majority of Groundwater appropriation within Nevada throughout the state’s history has been premised upon the capture of Groundwater naturally discharged as phreatophytic evapotranspiration. Agreement at 3.

Uncertainty and Litigation Costs

UTAH CONCERNS - LEGAL OPTIONS

Opposition
in Utah

The *Benefits Memo* includes a section entitled “Is the Agreement Better Than No Agreement?” This section addresses the “tremendous opposition throughout Utah” to the Snake Valley component of the SNWA project due to “political, environmental, and even cultural reasons.” Utah officials urge interested parties to “consider the Agreement, and the reasoning behind it, objectively and impassionately” and point out that the principal alternative to the Agreement — litigation before the US Supreme Court — is “fraught with challenges and uncertainty, in addition to the cost of the litigation (which could be very high).”

WEIGHING THE LEGAL OPTIONS, THE *BENEFIT MEMO* STATES:

Equitable
Apportionment

Without an Agreement, Utah’s only legal remedy if Nevada’s development of Snake Valley water harms Utah interests is an original action in the U.S. Supreme Court seeking a decree apportioning the aquifer...For example, a plaintiff in an original action must have permission from the Supreme Court to file the lawsuit based on the showing of actual, present harm. The size of SNWA’s project means certain areas can be pumped while others rest. In the future, when and if SNWA’s Snake Valley pumping appears to create the harm necessary for Utah to get the Supreme Court’s permission for a lawsuit, Nevada could cease pumping from Snake Valley for a time and, depending on many factors, Utah may or may not be able to proceed. Further, the equitable apportionment doctrine is so complex and unpredictable that it is impossible to predict Utah’s odds of prevailing in such a lawsuit. Another example: even if Utah were to prevail in an equitable apportionment suit, there is no guarantee the U.S. Supreme Court would address adverse impacts on specific water rights or provide “mitigation” for such impacts or the environmental harm SNWA pumping could cause. This consideration is especially important because the mitigation the Agreement provides to holders of Utah water rights in Snake Valley is more protection than Utah law requires. Such protection could be lost in a lawsuit.

Interstate Groundwater

Utah's Legal Decision

In short, Utah's top water officials have, in conjunction with their lawyers, considered the related facts, issues, and law and determined that a negotiated agreement is preferable to pursuing long and costly litigation at some future time. The proposed Agreement is a better way to address and mitigate potential adverse effects of the SNWA project in Snake Valley than a lawsuit would be. And it is much better than no agreement or having Utah try to "veto" the Nevada project when Utah has no authority to exercise such a veto. This point is critical in a broader sense, because Utah officials would resist the involvement of Nevada officials in Utah water policy decisions. And, indeed, there may be Utah projects for which Nevada's support would be helpful. Further, failure to reach an agreement could increase tensions related to other water issues, such as management of the Colorado River. Finally, the Agreement gives Utah an important opportunity, mandated by Federal law, to address the numerous and complex issues involved with the development and future management of Snake Valley water resources. Utah should respond wisely and take full advantage of that opportunity. In this regard, the Agreement fairly divides the Snake Valley aquifer whether or not the SNWA project is built. *Id.* at 8-10.

Draft Agreement

INTENT & PROVISIONS

Intent

The intent of the Agreement is to: define each state's responsibilities; establish a framework for cooperation between the states on natural resource issues of mutual interest; and provide protections for existing water rights and the health of the aquifer. The agreement includes provisions to preserve and protect existing water rights in both states, including water rights at the Fish Springs National Wildlife Refuge in Utah.

Groundwater Use Standard

Maximum Sustainable Beneficial Use

The standard agreed to in the Agreement for groundwater use is the "development of the maximum sustainable Beneficial Use of water resources within each state through the establishment of procedures to administer the development of shared interstate water resources in a cooperative and equitable manner." Agreement at 3. The Agreement goes on to further explain the meaning of "maximization of sustainable Beneficial Use" by stating:

"Available Groundwater Supply"

...Consumptive Use from the Snake Valley Groundwater Basin [shall] be reasonably related to the Available Groundwater Supply within the Snake Valley Groundwater Basin, and as such, prohibits 1) the mining (or overdrafting) of Groundwater; 2) the degradation of water quality; and 3) the diminishment of the physical integrity of the Groundwater basin. The States agree to re-consult, at the request of either of them, regarding the Available Groundwater Supply, and adopt such measures as may later be agreed upon to redetermine the Available Groundwater Supply or otherwise maintain the maximum sustainable Beneficial Use of the water resources of the Snake Valley Groundwater Basin. In the event these consultations conclude that withdrawals exceed the redetermined Available Groundwater Supply, the State Engineers are to take action to reduce withdrawals by priority such that Consumptive Use in each state is limited to the redetermined Available Groundwater Supply. *Id.* at 6.

Allocation

Available Groundwater Supply

The "Available Groundwater Supply" is defined in the agreement as 132,000 AF, and is divided equally between Nevada and Utah (see below). This supply amount was derived from the Basin and Range Carbonate Aquifer System Study (BARCASS), which was conducted by the US Geological Survey. Both states agree that this study represents the best scientific data currently available.

Proposed Water Division

	Nevada	Utah
Category 1-Allocated	12,000 ac/ft	55,000 ac/ft
Category 2-Unallocated	36,000 ac/ft	5,000 ac/ft
Category 3-Reserved	18,000 ac/ft	6,000 ac/ft
Total	66,000 ac/ft	66,000 ac/ft

Groundwater Categories

For the purposes of apportionment, the groundwater resources of the Snake Valley basin were divided into three separate categories, resulting overall in a 50/50 split of 132,000 AF between the two states.

AGREEMENT GROUNDWATER APPORTIONMENT CATEGORIES INCLUDE:

- (1) **ALLOCATED GROUNDWATER:** water set aside for existing rights with a priority date prior to October 17, 1989 (the date of SNWA's applications in Nevada). These amounts are 55,000 AF in Utah and 12,000 AF in Nevada.
- (2) **UNALLOCATED GROUNDWATER:** water available to the State Engineers of both states to appropriate in the future in accordance with the laws of their respective jurisdictions (Utah 5,000 AF; Nevada 36,000 AF). This means that any approval of SNWA applications by the Nevada State Engineer must be limited as a consequence of the Agreement to no more than 36,000

Interstate Groundwater	AF rather than the 50,000 AF that SNWA applied for. The State Engineers shall condition permits to appropriate Unallocated Groundwater to require a Hydrologic Monitoring and Management Plan be developed for appropriation approvals in excess of 1,000 acre-feet/year; and require that all wells be equipped with access ports of sufficient diameter to allow the measurement of the water levels therein.
Future Development	(3) RESERVED GROUNDWATER: water the State Engineers may grant when and if reliable data is gathered indicating this water can be safely and sustainably withdrawn without impacting other water rights holders (Utah 6,000 AF; Nevada 18,000 AF). The Agreement provides that neither State Engineer may allow appropriations of Reserved Water unless both agree that data demonstrate the water can be sustainably withdrawn without impacting uses under Categories 1 and 2 and/or over-drafting the aquifer.
Adaptive Management	<p>Monitoring and Management</p> <p>The Agreement requires the States to jointly identify on-going areas of concern, including available groundwater supplies, groundwater levels, and effects of additional pumping on existing water rights, wetlands, springs, and riparian areas. There are requirements to make all data generated by the Agreement open to the public and available on Nevada and Utah websites. There is a requirement for periodic reevaluation of hydrologic data and water availability by the two states.</p>
Environmental Concerns	<p>The Agreement requires extensive monitoring and mitigation to address environmental concerns, including potential impacts on sensitive species and damage to wetlands and air quality. The details of this process is set forth in a separate agreement between Utah and SNWA entitled the “<i>Snake Valley Environmental Monitoring and Management Agreement</i>” (<i>Environmental Agreement</i>), which is attached to the Agreement as Appendix C. A significant focus of providing for environmental mitigation is that it intends to prevent the listing of certain species under the federal Endangered Species Act, which could cause the US Fish and Wildlife Service to exert control over Snake Valley water to protect critical habitats.</p>
Snake Valley Hold	<p>SNWA’s Snake Valley Water Applications</p> <p>Actions on SNWA’s Snake Valley water right applications (54022-54030) are held in abeyance until September 1, 2019. Prior to action on these applications by the Nevada State Engineer, there is a requirement in the Agreement for the gathering of hydrologic, biologic and other data in the basin for use by the Nevada State Engineer in the application process (as well as for their use in other processes).</p>
“Adverse Impact”	<p>“Adverse Impact”</p> <p>“Adverse Impact” is defined in the Agreement as follows:</p> <ul style="list-style-type: none"> a. In the case of an Existing Permitted Use of Groundwater, a lowering of the water level that is caused by withdrawals of Groundwater by a junior, permitted Groundwater right, and that can be demonstrated to negatively affect that well’s ability to produce Groundwater in a manner substantially similar to the well’s historical production; or b. In the case of Existing Permitted Uses for which the point of diversion is a spring, a reduction in spring flow to an amount less than the Existing Permitted Use, and that can be demonstrated to be less than the spring’s historical supply. <p>Agreement at 1.</p>
SNWA Use Impacts	<p>A significant part of the Agreement concerns potential impacts from the pending SNWA’s Snake Valley water right applications, even though, as noted above, these applications would be held in abeyance until 2019.</p> <p>First, as concerns the <i>Environmental Agreement</i> noted above, Utah and SNWA “agree to work together to coordinate management activities conducted pursuant to this Agreement and monitoring and management activities conducted pursuant to the Environmental Agreement in order to make informed determinations as to whether Groundwater withdrawals have caused an Adverse Impact to an Existing Permitted Use.” Agreement at 10.</p>
SNWA Mitigation	<p>If an Adverse Impact is identified, the agreement establishes a review and appeal process to address the impact and remedy it through pumping management, compensation or other actions. SNWA has agreed to address Adverse Impacts to Utah water rights through a process where potentially injured parties register a simplified claim with SNWA. SNWA must respond within ten days to any written complaint by a water user that SNWA’s pumping impairs his rights. SNWA may immediately offer mitigation, and if the water user finds the mitigation unacceptable, the user may appeal to an interstate panel comprised of the State Engineers of Utah and Nevada.</p>
Alternate Forum	<p>Nevada agrees to address Adverse Impacts to Utah water right holders in accordance with Nevada law administered by the Nevada State Engineer, which simplifies the process to resolve these claims if the injured party wishes to participate. Finally, an injured party gives up no legal right to pursue these issues in an alternate legal forum if they choose to do so rather than participate in the process established in the agreement.</p>

Interstate Groundwater

Mitigation Fund

Mitigation Options

Metering Diversions

Mediation

Monitoring and Mitigation

A monitoring and mitigation fund will be established by SNWA to provide compensation for impacts from its groundwater diversions. If any permits are issued to SNWA pursuant to its pending applications, SNWA shall establish a mitigation fund sufficient to accomplish the mitigation of any reasonably anticipatable Adverse Impact, which shall be maintained throughout the tenure of the permit. SNWA must maintain a balance of at least \$3 million in the mitigation fund, which may be used to deepen wells, reimburse pumping costs, or provide other mitigation measures, so long as SNWA maintains groundwater development and withdrawal facilities in Snake Valley.

MITIGATION OPTIONS ARE SET OUT IN THE AGREEMENT:

Mitigation options that may be offered shall include, but shall not be limited to:

1. Redistributing Groundwater withdrawals geographically;
 2. Reducing or ceasing Groundwater withdrawals at specific points of diversion;
 3. Deepening of well(s), repairing or replacing pumps and other infrastructure, and reimbursing for increased pumping costs;
 4. Providing alternate water supplies;
 5. Augmenting water supply for senior rights and resources using surface and Groundwater sources;
 6. Other measures as agreed to by SNWA and the owner of the Existing Permitted Use.
- Agreement at 7.

Metering Disputes

One provision in the Agreement which hasn't garnered much publicity concerns the metering of groundwater diversions, including the metering of existing water rights. The Agreement states: "The State Engineers shall meter, or cause to be metered, the withdrawal of Groundwater pursuant to any water right with a duty or diversion quantity that exceeds 100 (one hundred) acre-feet per year and report said diversions on a calendar year basis." Agreement at 5.

Disputes

If any disputes arise over the interpretation of the Agreement, the parties have agreed to first, have their respective State Engineers resolve the "claim or controversy." Should the State Engineers fail to reach a resolution, "the signatories shall select a neutral mediator agreeable to both States who shall mediate the dispute. The States shall share the cost of the mediator equally." *Id.* at 10. As drafted, SNWA is included in the selection process as a "signatory."

Conclusion

The Agreement will continue to draw harsh criticism from its critics. The manner in which Agreement negotiations between the States of Nevada and Utah were conducted has already drawn complaint. As noted in the *Benefits Memo*, during the negotiations "confidentiality restrictions prevented Utah officials from responding to the consistent negative reports concerning Snake Valley issues." Restricted public involvement during that process may have made the draft Agreement possible, but officials must now deal with the backlash of this approach. Fears of Las Vegas "stealing" Utah's water or the rural water of upstate Nevada will also undoubtedly be expressed, along with inevitable comparisons to the infamous Owens Valley situation made famous in the movie "Chinatown."

Nonetheless, it is hard to envision major changes occurring in the Agreement. Obviously, Nevada and Utah officials have worked long and hard on crafting an Agreement that equitably divides the groundwater resources of the interstate basin. The Agreement itself provides for some flexibility for the future and provisions for adjustments should studies show that the assumed amount of "Available Groundwater Supply" is incorrect. Vigilance, however, will be critical for those who rely on groundwater resources in the Snake Valley, as the developments proposed take place, to insure that the aquifer is not "mined" (overdrafted).

FOR ADDITIONAL INFORMATION:

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BOB CONRAD, Nevada Dept. of Conservation and Natural Resources, 775/ 684-2712

or email: bconrad@dcnr.nv.gov;

AGREEMENT WEBSITE: Agreement, Press Release, *Benefits Memo* and a PowerPoint presentation may be downloaded at: www.waterrights.utah.gov

David Moon practiced water law in Eugene, Oregon with the Moon Firm until recently. He previously practiced in Bozeman, Montana with Moore, Refling, O'Connell & Moon. He is currently an editor of The Water Report and the Oregon Insider. Mr. Moon received his undergraduate degree at Colorado College and his JD at the University of Idaho Law School. He is a member of the Oregon, Idaho and Montana Bars. Moon has practiced water law for over 29 years in Montana and Oregon.

Mercury Study

Contamination Levels

Atmospheric Deposition

MERCURY CONTAMINATION IN FISH

USGS NATIONWIDE STUDY

Condensed/edited from United States Geological Survey Documents

Introduction

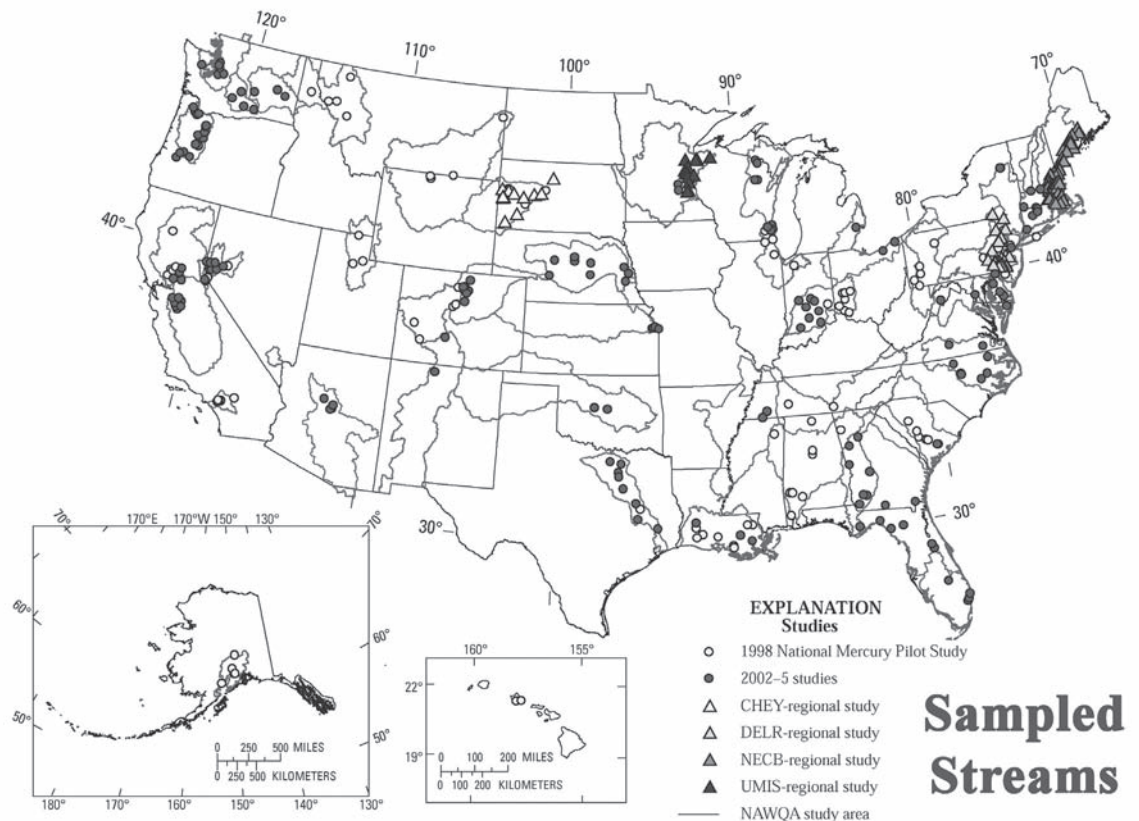
On August 19, the United States Geological Survey (USGS) released a study that assesses mercury contamination in fish, bed sediment, and water from 291 streams across the nation: *Mercury in Fish, Bed Sediment, and Water from Streams Across the United States, 1998–2005* by Barbara C. Scudder, Lia C. Chasar, Dennis A. Wentz, Nancy J. Bauch, Mark E. Brigham, Patrick W. Moran, and David P. Krabbenhoft.

Scientists detected mercury contamination in every fish sampled in each of the 291 streams across the country, according to the USGS study. Approximately a quarter of these fish were found to contain mercury at levels exceeding the criterion for the protection of people who consume average amounts of fish, as established by the US Environmental Protection Agency (EPA). More than two-thirds of the fish exceeded the EPA level of concern for fish-eating mammals. This study was conducted by scientists from USGS as part of the National Water-Quality Assessment and Toxic Substances Hydrology Program.

Mercury Concerns, Monitoring, and Control

Mercury is one of the most serious contaminants threatening our nation's waters because it is a potent neurotoxin in fish, wildlife, and humans. It is a global pollutant that ultimately makes its way into every aquatic ecosystem through one of two routes: point-source discharges or atmospheric deposition (rain, snow, dry particles). The main source of mercury to natural waters is mercury that is emitted to the atmosphere and deposited onto watersheds by precipitation. However, atmospheric mercury alone does not explain contamination in fish in our nation's streams. Naturally occurring watershed features, like wetlands and forests, can enhance the conversion of mercury to the toxic form, methylmercury (see below).

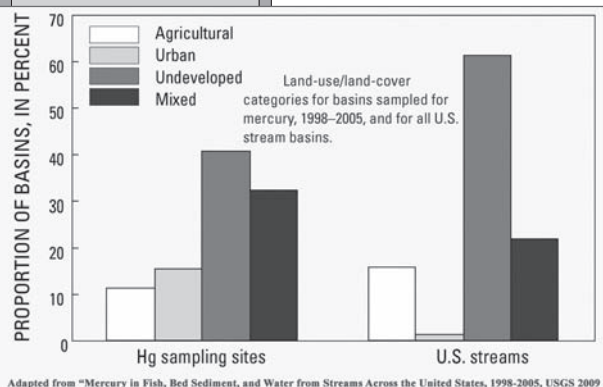
Streams sampled for mercury, 1998–2005. (Regional studies are: CHEY, Cheyenne-Belle Fourche River Basins, 1998–9; DELR, Delaware River Basin, 1999–2001; NECB, New England Coastal Basins, 1999–2000; and UMIS, Upper Mississippi River Basins, 2004.)



Mercury Study

Coal Source

Although there has always been some mercury in the atmosphere from natural sources (volcanoes and degassing of elemental mercury from the oceans), human activities have increased the amount of mercury emitted to, and deposited from the atmosphere. Anthropogenic (human-caused) sources of mercury to the atmosphere are largely from combustion of materials that contain mercury, with coal-combustion (electric utility boilers and commercial/industrial boilers) being the largest source in the US, according to the 1997 EPA Report to Congress.



Mercury is deposited from the atmosphere primarily as inorganic mercury. Methylation — the conversion of inorganic mercury to organic methylmercury — is the most important step in the mercury cycle because it greatly increases toxicity and potential for accumulation in aquatic biota. As methylmercury is formed in an ecosystem, some portion of it is transferred to the water, and some portion of methylmercury in water is taken up or bioaccumulated by the base of the aquatic food web, such as in algae. Animals higher up in the food web accumulate mercury from their food. Methylmercury in aquatic food webs increases at every trophic level (biomagnifies) to reach highest levels at the top of the food web, such as in top-predator fish (fish that eat mostly other fish). Methylmercury levels in top-predator fish are typically more than one million times higher than methylmercury levels in the water that the fish inhabit, and nearly all of the mercury found in fish tissue is methylmercury.

Human Influences

There are numerous human-influenced disturbances that result in greater conversion of inorganic mercury to methylmercury. These include reservoir construction (Bodaly and others, 1997) and sulfate loading (a widespread atmospheric pollutant, and occasionally associated with land use) (Drevnick and others, 2007; Gilmour and others, 1998; Jeremiason and others, 2006). Such disturbances can increase the amount of methylmercury in aquatic ecosystems, including fish that inhabit those ecosystems, even without a change in mercury loading.

State Programs

All 50 states have mercury monitoring programs, and 48 states issued fish-consumption advisories for mercury in 2006, the most recent year of national-scale reporting to EPA. EPA regulates mercury emissions to air, land and water. In February 2009, the EPA announced that it intends to control air emissions of mercury from coal-fired power plants by issuing a rule under the Clean Air Act.

EPA Regulation

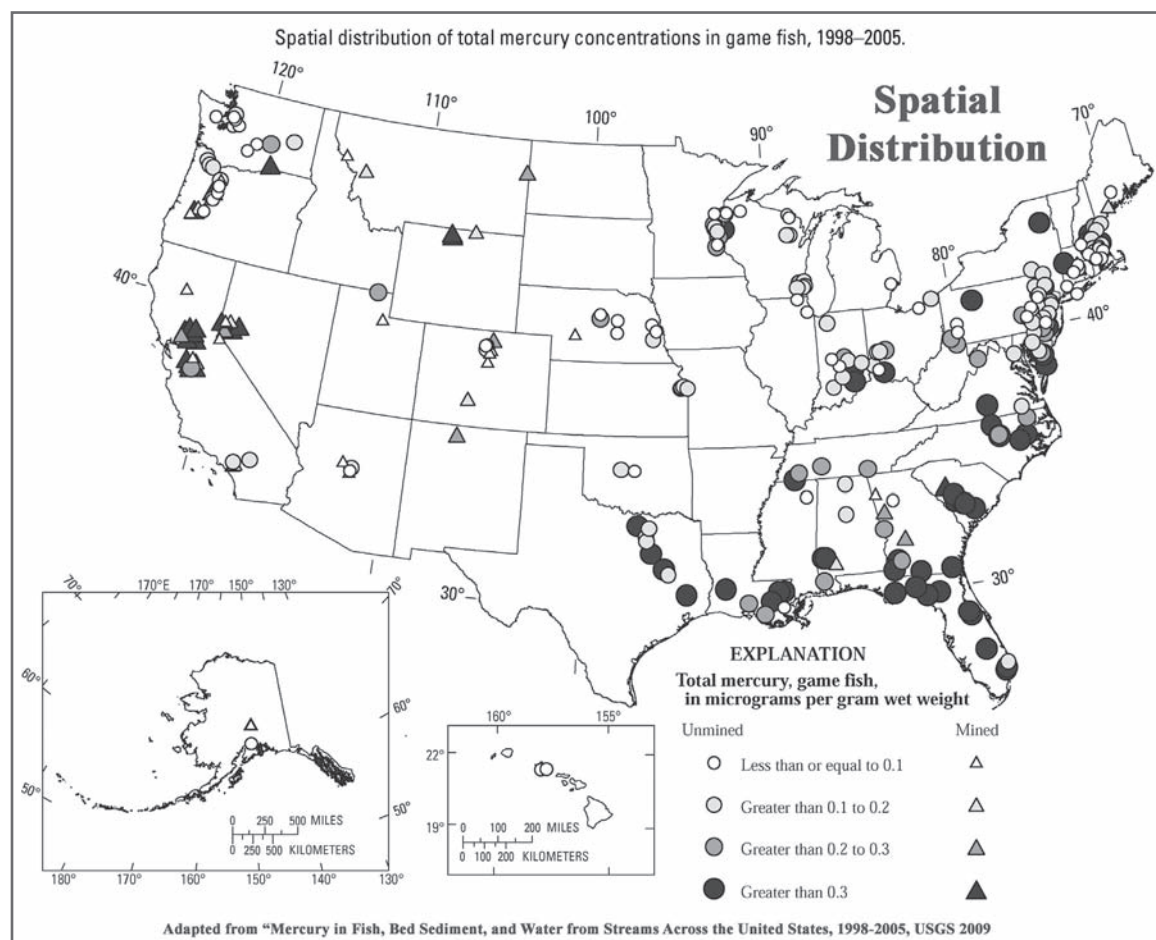
Sites in mined basins sampled for mercury, 1998–2005, and all known gold and mercury production mining sites (present and historical). [Locations for production mining sites from Mineral Availability System-Mineral Industry Location System of the U.S. Bureau of Mines and Mineral Resources Data System of the U.S. Geological Survey] (U.S. Geological Survey, 2004.)



Mines & Mercury

Mercury Study

Game Fish



Scope and Methodology

Study Purpose

The purpose of this study was to determine the geographic and geochemical characteristics of stream basins that relate to fish-mercury levels in streams. The study involved a one-time sampling of streams across the US for mercury in fish, water, and streambed sediment. Nearly all the mercury in fish is in the methylmercury form, so it is important to assess methylmercury in natural waters to understand fish-mercury levels. Methylmercury and other chemical characteristics were measured in water and streambed sediment.

Mining

USGS studied mercury contamination from 291 streams across the nation, sampled from 1998 to 2005. Atmospheric mercury is the main source to most of these streams, but 59 of the streams also were potentially affected by gold and mercury mining. Stream basins that were designated as "mined" were treated separately for the purposes of USGS data analyses; however, this distinction was made only for data analyses in the report and does not necessarily imply impacts of mining in these basins.

Representative Streams

The streams were selected to represent a range of stream ecosystem types across a large geographic range. Streams were targeted in watersheds that were agricultural, urbanized, undeveloped (forested, grassland, shrubland, and wetland land cover), and mined (for gold and mercury). The streams span a range in environmental conditions. Since USGS studies targeted specific sites and fish species, the findings may not be representative of mercury levels in all types of freshwater environments across the US.

Methodology

Mercury (Hg) was examined in top-predator fish, bed sediment, and water from streams that spanned regional and national gradients of Hg source strength and other factors thought to influence methylmercury (MeHg) bioaccumulation. Each site was sampled one time during seasonal low flow. Predator fish were targeted for collection, and composited samples of fish (primarily skin-off fillets) were analyzed for total Hg (THg), as most of the Hg found in fish tissue (95–99 percent) is MeHg. Samples of bed sediment and stream water were analyzed for THg, MeHg, and characteristics thought to affect Hg methylation, such as loss-on-ignition (LOI, a measure of organic matter content) and acid-volatile sulfide in bed sediment, and pH, dissolved organic carbon (DOC), and dissolved sulfate in water.

Findings on Concentration and Locations

Mercury
StudyFish
Concentrations

Highest Levels

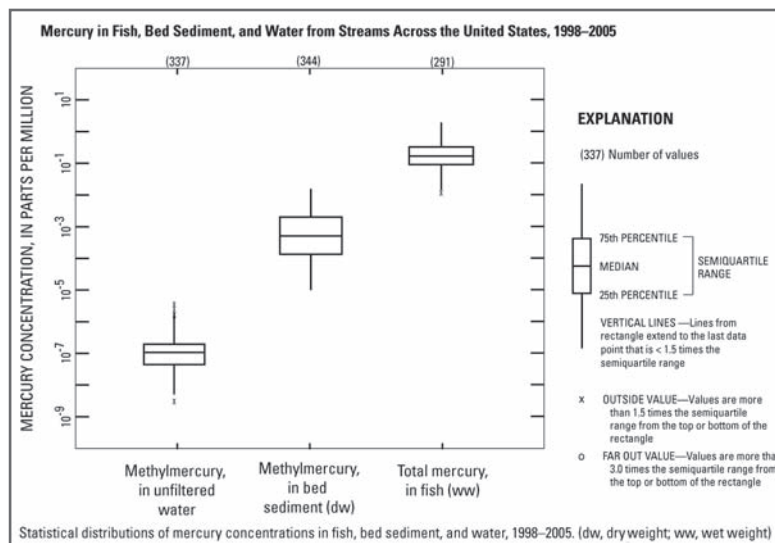
Bed
Sediment

Fish-Hg concentrations at 27 percent of sampled sites exceeded EPA human-health criterion of 0.3 micrograms per gram wet weight. Exceedances were geographically widespread, although as noted above, the study design targeted specific sites and fish species and sizes, so results do not represent a true nationwide percentage of exceedances.

Some of the highest levels of mercury in fish were found in the tea-colored or “blackwater” coastal-plain streams in North and South Carolina, Georgia, Florida and Louisiana — areas associated with relatively undeveloped forested watersheds containing abundant wetlands compared to the rest of the country. The highest levels of THg concentrations in fish were from those blackwater streams draining forests or wetlands in the eastern and southeastern US, as well as from streams draining gold- or Hg-mined basins in the western US (1.80 and 1.95 micrograms THg per gram wet weight, respectively). High levels of mercury in fish also were found in relatively undeveloped watersheds in the Northeast and the Upper Midwest.

For unmined basins, length-normalized Hg concentrations in largemouth bass were significantly higher in fish from predominantly undeveloped or mixed-land-use basins compared to urban basins. Hg concentrations in largemouth bass from unmined basins were correlated positively with basin percentages of evergreen forest and also woody wetland, especially with increasing proximity of these two land-cover types to the sampling site; this underscores the greater likelihood for Hg bioaccumulation to occur in these types of settings.

Increasing concentrations of MeHg in unfiltered stream water, and of bed-sediment MeHg normalized by LOI, and decreasing pH and dissolved sulfate were also important in explaining increasing Hg concentrations in largemouth bass. MeHg concentrations in bed sediment correlated positively with THg, LOI, and acid-volatile sulfide. Concentrations of MeHg in water correlated positively with DOC, ultraviolet absorbance, and THg in water, the percentage of MeHg in bed sediment, and the percentage of wetland in the basin.



Potential Health Effects

Mercury levels in fish were related to the concentration of methylmercury in stream water; the density or abundance of evergreen forest and wooded wetland in a stream’s watershed; increasing dissolved organic carbon concentration; and decreasing pH. The positive correlation with wetland abundance was expected because researchers have long known that these landscapes are particularly conducive to conversion of inorganic mercury to methylmercury.

Some fish may be unsafe to eat because of high mercury levels. Fish are an important part of a healthy diet, however, so the best thing people can do is to become informed. Visit websites of EPA, US Food & Drug Administration (FDA), and your State’s health agency to find out which fish from which waterbodies in your area are safe or not safe to eat. EPA and FDA provide guidelines so that the public can make informed decisions about which fish species are safe to eat — these agencies recommend including fish as part of a healthy diet but urge choosing kinds (species) of fish that are lowest in mercury. They also let us

Wetlands
CorrelationFish
Advisories

Mercury Study**EPA website**

know which fish to minimize or avoid. EPA has established a criterion of 0.3 part per million (mg/kg, wet weight) for methylmercury in fish for the protection of people who consume average amounts of fish.

EPA has established a website with information on fish-consumption advisories associated with mercury contamination (www.epa.gov/mercury/advisories.htm). This site links to both Federal and State advisories. State agencies typically produce more locally tailored information, including maps, lists of fish species collected from specific water bodies, average concentrations of mercury, and specific consumption guidelines. Fish consumption advice is often tailored to sensitive populations (children and women of child-bearing age) and non-sensitive populations.

New Federal Mercury Regulation

Decisions by EPA regarding new national mercury emissions regulation will be significantly aided by the improved scientific understanding provided by this study of how mercury sources, watershed cycling, and stream-based food webs interact. Previous to this study, a very limited number of studies had delved into the details of what controls mercury contamination levels in stream ecosystems.

Clean Air Act

Section 112 of the 1990 Clean Air Act Amendments (CAAA) identify seven priority air pollutants, of which mercury is one, and require EPA to identify the sources of 90% of each pollutant and subject these sources to maximum achievable control technologies. Current considerations for mercury by EPA are specific to coal and oil fired electric utilities. This study's results relate to CAAA Section 112(d)(2), which specifies that "any non-air quality health and environmental impacts" can be considered before making a determination on standards for new or existing sources. The study results provide many new insights into factors regulating mercury contamination levels of stream-based food webs, including the importance of methylmercury sources within watersheds. Finally, the results from this study support the notion that not all locations are equal in terms of how they respond to mercury loads and changes to mercury loads. It is important for decision makers to realize that different watersheds, and often different areas within the same watershed, may respond differently to changes in atmospheric mercury loads.

Location Importance**Conclusions**

"This study shows just how widespread mercury pollution has become in our air, watersheds, and many of our fish in freshwater streams," said Secretary of the Interior Ken Salazar. "This science sends a clear message that our country must continue to confront pollution, restore our nation's waterways, and protect the public from potential health dangers."

Travel Distances

The detection of mercury in every fish sample was not a surprise to the authors because mercury can be transported long distances in the atmosphere, and the science is such that it is now possible to detect low levels of mercury. The fact that a quarter of fish samples were above EPA's mercury criterion was also not surprising because 48 of 50 States have fish consumption advisories. This means that 48 out of 50 States have at least one commonly consumed fish species that exceeds the 0.3 ppm EPA criterion for the protection of people who eat average amounts of fish. Mercury is currently the second leading cause of impaired waters in the US, accounting for over 9,000 impaired water bodies (as of August 26, 2009). The findings were not a surprise, but emphasize widespread occurrence of methylmercury contamination of aquatic ecosystems.

Impaired Waters

USGS scientist Barbara Scudder, the lead author of the study added, "This study improves our understanding of where mercury ends up in fish in freshwater streams. The findings are critical for decision-makers to effectively manage mercury sources and to better anticipate concentrations of mercury and methylmercury in unstudied streams in comparable environmental settings."

FOR ADDITIONAL INFORMATION:

BARBARA SCUDDER, USGS, 608/ 821-3832 or email: bscudder@usgs.gov

MARK BRIGHAM, USGS, 763/ 783-3274 or email: mbrigham@usgs.gov

USGS WEBSITE:

Full report and additional information available at: <http://water.usgs.gov/nawqu/mercury>

WATER BRIEFS

**INSTREAM WATER RIGHT OR
DAM REMOVAL TRANSFER**

Savage Rapids Dam on the Rogue River in Oregon, 39 feet high and 500 feet long, is being removed this summer in accordance with an August 2001 Consent Decree that was issued to settle a federal court case against Grants Pass Irrigation District (GPID) under the Endangered Species Act (ESA) and a water right cancellation case in the Oregon State Supreme Court. GPID agreed to transfer its power water right for 800 cubic feet per second (cfs) to instream use, as part of the larger accord leading to the removal of the dam. The huge water right, previously used to operate GPID's pump system to lift water from the river up to GPID's canals, has a priority date of June 17, 1918, which will transfer to the new instream water right for the Rogue River. The instream right runs from May through September of each year, typically the driest period in the Rogue Basin. Phil Ward, director of the Oregon Water Resources Department (OWRD), signed a final order transferring the power right to instream purposes on August 6, 2009.

Because of its scenic beauty, world-class whitewater, and renowned fishery, the Rogue River was one of the original group of rivers designated as "wild and scenic" with the passage of the federal Wild and Scenic Rivers Act in 1968. WaterWatch of Oregon, an environmental group that focuses on water rights in Oregon, played a leading role in advocating for Savage Rapids Dam removal and brokering the removal accord with GPID. WaterWatch estimated that the removal of the dam would open up access to 500 miles of spawning and rearing habitat for salmon and steelhead in the Rogue Basin. The total estimated project cost is \$39.3 million and dam removal is scheduled to be completed this fall.

Dan Shepard, General Manager of GPID, told The Water Report that the new instream water right is also "good for GPID since it guarantees a set amount of water will be available at GPID's point of diversion for its new pumps" that divert water into the GPID irrigation system.

For info: OWRD: www.wrd.state.or.us/; Bob Hunter, WaterWatch, 541-826-4399 or www.waterwatch.org; Dan Shepard, GPID, 541/ 476-2582

**PERCHLORATE REGS US
SUPPLEMENTAL COMMENTS**

The US Environmental Protection Agency (EPA) is seeking comment on additional approaches to analyzing data relating to its perchlorate regulatory determination. To submit comments, visit www.regulations.gov and follow the online instructions. Comments must be received on or before September 18.

For info: www.epa.gov/safewater/contaminants/unregulated/perchlorate.html

**STORMWATER PERMITS CA
CONSTRUCTION GENERAL PERMIT**

On September 2, the California State Water Resources Control Board (SWRCB) adopted a new construction general permit (CGP) to replace Order 99-08-DWQ. This new CGP will become effective July 1, 2010. SWRCB Order No. 99-08-DWQ remains in effect until July 1, 2010. SWRCB plans to produce guidance that will summarize the permit. All information on the new (and "old") CGP will be posted on the SWB website (see below) once it becomes available. Additionally, State Water Board staff will be hosting training, outreach and workshop events over the coming months (weeks) on this topic.

For info: Greg Gearheart, SWRCB, 916/ 341-5892, email: stormwater@waterboards.ca.gov or website: www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml

**WASTEWATER DISPOSAL CA
SANTA MARGARITA RIVER CASE**

On August 4, the Los Angeles office of Bingham McCutchen LLP, scored a major victory for the firm's client, Eastern Municipal Water District. Judge Consuelo Marshall of the Central District of California ruled in favor of Eastern in the case of *United States v. Eastern Municipal Water District*, Case No. CV 04-8182 CBM (RNBx). The case involved the rights and responsibilities of various parties with respect to the waters of the Santa Margarita River, one of the last free-flowing rivers in Southern California. Litigation over water rights to the Santa Margarita has been on-going for nearly the past 100 years. Unlike prior disputes, this case revolved around the disposal and use of recycled water, such as highly treated municipal wastewater or sewage.

In 1990, the plaintiffs (the US, on behalf of Camp Pendleton, and Fallbrook Public Utility District) entered into an agreement with the defendants, Eastern and Rancho California Water District. The contract required the US and Fallbrook to help Eastern and Rancho obtain an amendment to San Diego's Basin Plan, which governs discharges into water bodies. The amendment relaxed certain discharge standards to allow for the discharge of recycled water directly into the Santa Margarita River. In return, Eastern and Rancho agreed to discharge a certain percentage of their recycled water into the Santa Margarita River, which then would be used by Camp Pendleton and Fallbrook after undergoing additional treatment to bring it to potable standards. Almost immediately, the relevant environmental agencies vetoed the plan by refusing to issue the required permits. After years of trying to convince the agencies to issue the permits, Eastern and Rancho were ultimately compelled to send their recycled wastewater outside of the Santa Margarita River watershed to support continued growth that was taking place in the Riverside County areas that Eastern and Rancho served.

Seeking \$300 million, the US and Fallbrook filed suit, claiming: the contract was breached; water rights were violated; and development within Eastern and Rancho's service areas caused downstream groundwater degradation. In a 120-page decision, Judge Marshall rejected all of the government's and Fallbrook's claims, ending the decades-long dispute. **For info:** Michael Sherman, Bingham McCutchen LLP, 213/ 680-6465 or email: michael.sherman@bingham.com

**ARKANSAS RIVER CO/KS
INTERSTATE SETTLEMENT**

The States of Kansas and Colorado made a joint filing today with the US Supreme Court that will end the Court's active consideration of *Kansas v. Colorado* involving waters of the Arkansas River, officially ending a case that has spanned over two decades. The case is ending because the States' chief water officials — Chief Engineer David Barfield in Kansas and State Engineer Dick Wolfe in Colorado — have reached agreement on the final technical issues pending in the

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case. The agreement specifies how Colorado's replacement requirements will be evaluated in order to maintain compliance with the Arkansas River Compact.

"We're not saying additional disputes don't exist, because they do," said Barfield. "However, Colorado has shown us by this agreement that they are willing to resolve certain disputes without litigation. That being said, Kansas has an enforceable Supreme Court decree with regard to the Arkansas River Compact to rely on if needed."

Kansas filed suit against Colorado in 1985. The case resulted in four opinions of the US Supreme Court (Court). Among other things, the Court approved a complex computer program to calculate water depletions in Colorado, and the Court also required Colorado to pay \$34 million in damages to Kansas for past overuse of water. The Kansas-Colorado Arkansas River Compact was negotiated in 1948 between the States of Kansas and Colorado with participation by the federal government. Its stated purposes are to settle existing disputes; remove causes of future controversy between Colorado and Kansas concerning the waters of the Arkansas River; and to equitably divide and apportion the waters of the Arkansas River between Colorado and Kansas, as well as the benefits arising from John Martin Reservoir.

For info: Kansas Division of Water Resources: www.ksda.gov/dwr/; www.ksda.gov/dwr/; Colorado Office of the State Engineer: <http://water.state.co.us/>

SEWER OVERFLOWS WA PUGET SOUND PROTECTION

The City of Seattle (Seattle) and King County have agreed to increase their efforts to protect Puget Sound from wastewater overflows during severe rainstorms, according to compliance orders issued August 26 by EPA. EPA issued the orders to address violations of the two governments' federal Clean Water Act wastewater discharge permits. "We know that sewer overflows regularly deliver harmful pollution to Puget Sound," said Michelle Pirzadeh, EPA's Acting Regional Administrator in Seattle. "What we are requiring of the city and county is clear: they must take steps to reduce the volume and

frequency of overflows. We must make sure our treatment plants are doing their best to reduce the amount of untreated wastewater entering Puget Sound waters."

Seattle currently manages 92 combined sewer overflow (CSO) locations and King County manages 38. When the systems exceed their capacity during heavy rainstorms, these systems overflow and discharge untreated water into Lake Union, Lake Washington, the Duwamish River and Puget Sound. In 2007, Seattle's system overflowed approximately 249 times and King County's system overflowed approximately 87 times. Each year, an estimated 1.94 billion gallons of untreated sewage and polluted runoff are discharged from Seattle and King County CSO outfalls into Puget Sound or its tributaries. This overflow can also carry high levels of grease, petroleum and other chemicals from roadways, parking lots and other paved surfaces. Both Seattle and King County have already added some water storage capacity to their systems, which has reduced the volume of overflows.

Seattle's compliance order addresses wastewater discharge permit violations found during a March 2008 EPA investigation. The order requires Seattle to prepare an overflow emergency response plan, a plan to ensure the collection system is cleaned in a more systematic way, and a plan to create more collection system storage to prevent some CSO overflows from discharging. The order will also require Seattle to prepare a plan to reduce the number of basement backups and a plan to reduce the number of dry weather overflows. EPA expects Seattle to be in compliance with the conditions of the compliance order by March 2012.

King County's compliance order requires it to submit a plan to observe and document some of King County's CSO outfalls after a rainfall event to ensure there is no debris being discharged with the CSOs. The order also requires King County to upgrade their Elliot West CSO Treatment Plant to ensure proper treatment of overflows that may occur there during wet weather events. EPA expects King County to comply with the order by March 2010.

For info: Edward Kowalski, EPA, 206/553-6695 or EPA website: http://cfpub.epa.gov/npdes/home.cfm?program_id=5

HIGH PLAINS AQUIFER US USGS QUALITY STUDY

Water produced by the High Plains aquifer, which provides water to eight states, is generally acceptable for human consumption, irrigation, and livestock watering, according to a US Geological Survey (USGS) study highlighted at the summer meeting of the Western States Water Council. *Water Quality in the High Plains Aquifer, Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming, 1999–2004*. The study warns, however, that heavy use of water for irrigation and public supply, and leakage down inactive irrigation wells are resulting in long-term gradual increases in concentrations of contaminants such as nitrate and dissolved solids from the water table to deeper parts of the aquifer where drinking-water wells are screened. "This increase in contaminant concentrations over time has important implications for the long-term sustainability of the High Plains aquifer as a source of drinking water," said lead author of the USGS study, Dr. Jason Gurdak. "Once contaminated, the aquifer is unlikely to be remediated quickly because of slow rates of contaminant degradation and slow groundwater travel times in the aquifer; deep water in some parts of the aquifer is about 10,000 years old."

The High Plains aquifer, also known as the Ogallala aquifer, is the Nation's most heavily used groundwater resource. The majority is used for irrigation, but nearly two million people also depend on the aquifer as a source of drinking water. Nebraska hosts the largest segment and square mileage of the water source. USGS scientists analyzed water for more than 180 chemical compounds and physical properties in about 300 private domestic wells, 70 public-supply wells, 50 irrigation wells, and 160 shallow monitoring wells sampled between 1999 and 2004. The study also assessed the transport of water and contaminants from land surface to the water table and deeper zones used for supply, to predict changes in concentrations over time.

Currently, water quality is generally acceptable for drinking. More than 85 percent of the 370 wells used for drinking met federal drinking-water standards. Nitrate, which is derived mostly from human sources such as

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fertilizer applications, was greater than the federal drinking-water standard of 10 parts per million in about six percent of the drinking-water wells. None of the pesticides or volatile organic compounds detected exceeded drinking-water standards. "Most of the contaminants that exceeded drinking-water standards were of natural origin such as arsenic, dissolved solids, fluoride, iron, and manganese," Gurdak said.

For info: Dr. Jason Gurdak, USGS, 303/236-4882 x222 or email: jjgurdak@usgs.gov; Report available online at: <http://pubs.usgs.gov/circ/1337/>

GEO-SEQUESTRATION US CARBON DIOXIDE INJECTION

EPA is requesting comments on new information it has received about geologic sequestration of carbon dioxide. During geologic sequestration, carbon dioxide is injected underground for long-term storage to reduce emissions of carbon dioxide to the atmosphere. Under the Safe Drinking Water Act (SDWA), EPA protects underground sources of drinking water from threats related to injection activities.

The new information supplements the agency's 2008 proposed rule that, if finalized, would create a new class of injection well and establish requirements under the authority of SDWA to ensure that geologic sequestration activities do not endanger drinking water sources. The publication reviews research and data on geologic sequestration and presents an alternative the agency is considering related to the proposed injection depth requirements for carbon dioxide. In addition, the publication announced that EPA is evaluating the need for a more comprehensive regulatory framework to manage the geologic sequestration of CO₂.

The agency is requesting public comments, which are due by November 24. More information on geologic sequestration and how to submit comments is available on EPA's website. **For info:** www.epa.gov/safewater/uic/wells_sequestration.html

NPDES PENALTY NE MISSOURI RIVER DISCHARGES

Tyson Fresh Meats, Inc. (Tyson), the world's largest supplier of premium beef and pork, has agreed to pay a

\$2,026,500 civil penalty to settle allegations that it violated terms of a 2002 consent decree and a federally-issued pollution discharge permit at its meat processing facility in Dakota City, Nebraska, the US Justice Department and EPA announced on August 21.

In April 2002, Tyson, known as IBP Inc. until May 2003, entered into a consent decree with the federal government and the Nebraska Department of Environmental Quality to bring wastewater discharges at its facility into compliance with state and federal law. Tyson discharges an average of five million gallons of treated effluent from its Dakota City facility into the Missouri River each day. The 2002 consent decree required IBP to complete a \$2.9 million nitrification system that was intended to reduce the amount of ammonia in its wastewater discharges to the Missouri River.

According to an August 20 filing in US District Court in Omaha, the government alleged that from July 2003 through March 2004, Tyson failed to properly operate the nitrification system as required by the 2002 consent decree, and as a result had numerous discharges of fecal coliform and nitrites in violation of its 2002 NPDES permit. Specifically, nitrites in the discharge caused high levels of toxicity to aquatic life in the Missouri River. "This penalty serves as an example that we take violations of these agreements seriously and we will take appropriate steps to insure that their provisions are followed," said John C. Cruden, Acting Assistant Attorney General for the Justice Department's Environment and Natural Resources Division.

For info: Chris Whitley, EPA, 913/551-7394 or email: whitley.christopher@epa.gov

WATER EXCHANGE WA EXEMPT WELLS MITIGATION

The Washington Department of Ecology (Ecology) has established a water exchange for those seeking to buy or sell water to offset groundwater pumping in Upper Kittitas County. The Upper Kittitas Water Exchange is designed to help groundwater users identify mitigation water for their projects. Mitigation can generally be achieved by acquiring an existing water right to offset a new use in the same water source. A new webpage

associated with the program provides information on how to access mitigation water for new uses through a water banking system. Information and application forms are available online.

An emergency rule closing Upper Kittitas County to new groundwater withdrawals was adopted by Department of Ecology on July 16, 2009. A map of the affected area is available on Ecology's website at: www.ecy.wa.gov/programs/wr/cro/kittitas_wp.html. Those with vested building permit applications or issued building permits as of July 16, 2009, may develop using permit-exempt wells as their water source. New developments proposed after July 16, 2009, cannot rely on a permit-exempt withdrawal without providing mitigation water to offset their use.

Ecology and Kittitas County are working to adopt a permanent rule to co-manage groundwater withdrawals in Upper Kittitas County until more is known about the aquifers there. A study designed to gain a better understanding of the connection between groundwater and surface water will commence soon. **For info:** Kurt Walker, Ecology, 509/454-4237, email: kw461@ecy.wa.gov or website: www.ecy.wa.gov/programs/wr/cwp/wtrxchn.html

AMMONIA SPILLS NE/KS \$3.65 MILLION CWA PENALTY

A pipeline company and two of its former operating firms will jointly pay a civil penalty of \$3.65 million to resolve violations of the Clean Water Act (CWA) resulting from anhydrous ammonia spills in Nebraska and Kansas, the US Justice Department (DOJ) and EPA announced August 14. The spills which occurred in 2004 resulted in significant fish kills in surrounding waterways. Magellan Ammonia Pipeline, of Tulsa, Oklahoma; Enterprise Products Operating, of Houston, Texas; and Mid-America Pipeline Company (aka MAPCO), also of Houston, agreed to the settlement in the form of a consent decree filed in US District Court in Kansas City, Kansas.

In a complaint filed jointly with the consent decree, the US alleged that Magellan, which owned the pipeline, along with operating firms Enterprise and MAPCO, were responsible for two anhydrous ammonia spills in 2004. The first spill occurred in September

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2004, near Blair, Nebraska, killing an estimated 1,000 fish along North Creek and a golf course pond. The second spill occurred in October 2004, near Kingman, Kansas, killing more than 20,000 fish along a 12.5-mile section of Smoots Creek. The rupture of the pipeline near Blair resulted in the hospitalization of one individual and emergency responders evacuated homes within a one-mile circumference of the break. Additionally, the Kingman rupture resulted in a 40-foot high vapor cloud that was a mile long and resulted in evacuations as well. The United States further alleges that as operators of the pipeline system, Enterprise and MAPCO violated the federal Comprehensive Environmental Response, Liability and Compensation Act (CERCLA) by failing to immediately notify the National Response Center about the spills.

"The Kingman spill caused severe environmental damage, killing all fish for more than 10 miles in Smoots Creek, which is one of Kansas' high-quality streams. The penalty to be paid under this settlement reflects the seriousness of the violation," said Ron Hammerschmidt, environmental services division director for EPA Region 7. "The actions the company will take under the settlement should help prevent this kind of spill from happening in the future."

Under the terms of the settlement, Magellan has agreed to spend an additional \$550,000 on improvements to prevent or minimize releases along selected segments of its pipeline system, and will establish a program to minimize third-party damage to the system. Magellan presently operates the ammonia pipeline, having terminated its operating agreement with Enterprise and MAPCO in 2007. Additionally, through the consent decree, Magellan has promised to make a series of required improvements in its employee training, leak response procedures, and protocols for detecting and responding to leaks and ruptures.

The consent decree is subject to a 30-day public comment period and approval by the federal court. A copy of the consent decree will be available on DOJ's website: www.usdoj.gov/enrd/Consent_Decrees.html

For info: Chris Whitley, EPA, 913/ 551-7394 or whitley.christopher@epa.gov

SUPERFUND SETTLEMENT CA GROUNDWATER TREATMENT SYSTEM

EPA has reached a settlement with Northrop Grumman Space & Mission Systems Corporation (Northrop Grumman), two related entities, and 43 cash-out parties that requires Northrop Grumman to cleanup groundwater contamination at the Puente Valley Operable Unit of the San Gabriel Valley Superfund Site, Area 4, in Southern California. Northrop Grumman, representing all of the settling defendants, will spend an estimated \$21 million to build a groundwater cleanup system that uses wells to pump out contaminated groundwater, preventing it from further migration. Northrop Grumman will also install water conveyance pipelines and construct a treatment plant to remove Volatile Organic Compound (VOC) contaminants from the groundwater. The treated water will be used for drinking water supply, water reclamation projects, or discharged to surface water.

The site involved is an area of contaminated groundwater located beneath the City of Industry, the cities of La Puente and Walnut, and portions of unincorporated Los Angeles County. The groundwater was contaminated by over 60 source properties that used VOCs for degreasing, metal cleaning and other purposes. EPA listed several areas of contaminated groundwater within the San Gabriel Valley as Superfund sites in 1984. Contaminated groundwater associated with all of the San Gabriel Valley Superfund sites lies under significant portions of Alhambra, Irwindale, La Puente, Rosemead, Azusa, Baldwin Park, City of Industry, El Monte, South El Monte, West Covina, and other areas of the San Gabriel Valley. There are 45 water suppliers in the Valley that use the San Gabriel Basin groundwater aquifers to provide 90 percent of the drinking water for over one million people.

Northrop Grumman has already spent over \$10 million implementing the intermediate zone remedial action in compliance with an order EPA issued on March 21, 2002. The settlement also provides for reimbursement of \$465,420.90 to EPA, and \$90,000 to the California Department of Toxic Substances Control for past costs. The work to be performed by Northrop

Grumman on behalf of all of the Settling Defendants implements a substantial portion of EPA's interim site cleanup plan. Other portions of the cleanup plan are being addressed by other responsible parties. The Northrop Grumman Consent Decree is the ninth Consent Decree for the site. The total value of the all of the work and settlements for the performance of the interim clean up exceeds \$70 million.

For info: Francisco Arcaute, EPA, 213/ 244-1815 or email: arcaute.francisco@epa.gov

ADJUDICATION DEFAULT WA YAKIMA RIVER BASIN

The Washington Department of Ecology (Ecology) recently published legal ads in three Central Washington newspapers notifying 6,630 lawsuit defendants of a court hearing on water right claims in the Yakima River Basin adjudication, as required by law. The ads are one of the final stages of the adjudication of surface water rights in the Yakima Basin lawsuit begun in 1977. *Ecology vs. Acquavalla* required everyone who claimed a right to surface water in the Yakima River Basin to file and defend their claims before the Yakima County Superior Court. The ads announced a "Motion for Default Order and Entry of Default Judgment."

A water rights adjudication is a legal procedure to determine who has a valid water right, who has first priority to water during shortages, and how much water can be used. The Yakima adjudication has brought certainty to the ownership, management and marketing of thousands of water rights on the Yakima River and its tributaries in Kittitas, Yakima, Klickitat and Benton counties.

The 6,630 defendants listed in the ads are those who did not respond to the original 1977 Yakima County Superior Court summons to claim surface water in the Yakima Basin. Anyone on the list who doesn't step forward at an October 8, 2009, court hearing may be found in default of the 1977 summons and lose any claim or right to the use of surface waters of the Yakima Basin.

The Yakima Adjudication began 32 years ago to resolve conflicts over water use in the Yakima Basin. It is the largest and most complex adjudication in state history involving more than 40,000 surface water users represented by more

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than 2,000 claims to water rights. The final court decree in the adjudication is not expected until at least 2010 and is contingent on the outcome of water right appeals in Subbasin 23, the last of 31 subbasins to be adjudicated.

For info: Ben Bonkowski, Ecology, 360/ 407-6603, email: bbon461@ecy.wa.gov or www.ecy.wa.gov/programs/wr/rights/adjhome.html

GRAYWATER CODE**CA****NEW STANDARDS**

In response to the drought, the California Building Standards Commission (CBSC) on July 31st adopted new graywater standards. Graywater is untreated household waste water which has not come into contact with toilet waste, including: used water from bathtubs, showers, and bathroom wash basins; and water from clothes washing machines and laundry tubs. Graywater does not include: waste water from kitchen sinks or dishwashers; or laundry water from soiled diapers.

California's Graywater Standards were adopted as part of the new "2008 California Green Standards Building Code"—the nation's first Green Building Standards code, making it legal to use graywater everywhere in California. It is unlawful to install a graywater system without first obtaining a permit from the local (city or county) building department. The new standards became effective on August 1.

For info: CBSC website: www.bsc.ca.gov/default.htm

NONPOINT PROGRAM**SD****UTILITIES RECEIVE EPA AWARD**

EPA recently recognized the City of Sioux Falls wastewater utility and the Minnehaha Community Water Corporation (Minnehaha) for significant and innovative investments in clean water and safe drinking water in separate ceremonies in Sioux Falls on August 25.

Sioux Falls earned its award by being the first city to receive funding through South Dakota's new Clean Water State Revolving Fund (CWSRF) nonpoint source incentive rate

program, which rewards wastewater and stormwater projects with a lower loan interest rate for activities that directly address nonpoint sources of pollution in local waters. Nonpoint source pollution includes runoff from urban and rural areas that enters surface waters. In 2008, Sioux Falls' wastewater utility secured loans totaling approximately \$57 million to fund storm sewer improvements and the construction of a new sanitary sewer, while simultaneously contributing over \$4 million to best management practices for the Central Big Sioux River Watershed Restoration project.

Minnehaha is a regional water provider that has used Drinking Water State Revolving Funds to develop and implement a strategy to reduce levels of radio-nuclides, nitrate, iron and manganese in the water supplies of two local communities. Minnehaha expanded its water supply, water treatment, and delivery system to provide water that is compliant with Safe Drinking Water Act regulations to the towns of Garretson and Colton. This project provided a regional solution to water quality problems that offers clear public health benefits for those served by the water system.

For info: Brian Friel, EPA, 303/ 312-6277; CWSRF website: www.epa.gov/owm/cwfinance/cwsrf/index.htm

RESTORATION MARKET NW VOLUNTARY FLOW MARKETPLACE

The launching of the first national voluntary water restoration marketplace was recently announced by the Bonneville Environmental Foundation (BEF). The program aims to increase water flow in critically dewatered US rivers and streams. As part of this initiative, BEF issues Water Restoration Certificates™ (WRCs) under its BEF Flow Restoration Standard. The WRCs represent verified restored river flow in high priority stream areas. The National Fish and Wildlife Foundation (NFWF) has certified the standards and criteria for all BEF WRC projects to ensure that water is returned at a time and place that will produce real environmental

benefits including supporting fish and wildlife habitat. Markit Environmental Registry (formerly TZ1 Registry), a global provider of registries for carbon and ecosystems markets, has been appointed as the official WRC registry. Markit Environmental Registry assigns individual serial numbers to WRCs based on WRC project data and tracks them throughout their lifecycle to help ensure that water returned to the environment is never counted twice.

BEF's \$1 certificates represent 1,000 gallons of water restored to critically dewatered streams. Like carbon offset markets, a business can acquire offsets to mitigate for environmental impacts. BEF is working to avoid water shortages now anticipated in 36 different states — beginning with projects in Oregon and Montana.

BEF's website — www.BEFwater.org — includes tips on reducing water consumption, calculating consumption, and purchasing the water restoration credits. Downloadable white papers on the topic are also available from this website.

Helen Robinson, Managing Director of Markit Environmental Registry, said: "The WRC is a first of its kind and has a powerful potential to restore rivers and streams. Water is a key global issue and one that naturally lends itself to market mechanisms. We are very excited to be at the forefront of this new environmental market with an innovative organization like BEF, and to play a part in creating a robust and credible product."

Margie Gardner, CEO of the Bonneville Environmental Foundation, said: "Markit Environmental Registry understands environmental markets and provides BEF and the emerging water restoration marketplace with a globally credible platform on which to issue and trace the WRCs. Since the Registry is online, it will increase the visibility of WRCs and ensure access to a more extensive marketplace."

For info: Rob Harmon, BEF, 206/ 463-4986 or email: robharmon@b-e-f.org
 Claire Gorman, Markit, +44 20 7064 6032 or email: Claire.Gorman@markit.com

September 15-16 **OR**
2009 Ocean Renewable Energy Conference IV, Seaside. Seaside Convention Ctr. Sponsored by Oregon Wave Energy Trust. For info: Conf. website: www.oregonwave.org

September 16 **MT**
Montana Water Law: How to Navigate the New Water Appropriations Permitting & Change Application Process, Helena. Montana Assoc. of Counties, 2715 Skyway Drive. Sponsored by DNRC & Montana Watercourse. For info: Janet Bender-Keigley, MT Watercourse, 406/ 994-6671 or website: www.mtwatercourse.org/

September 16-17 **OR**
Sustainable Stormwater Symposium, Portland. Ecotrust Jean Vollum Natural Capital Ctr. For info: ASCEOR website: www.asceor.org/stormwater_home

September 16-17 **CA**
Stormwater Regulations in California Course, Oakland. For info: NWETC, 206/ 762-1976 or website: <http://nwetc.org>

September 16-17 **WA**
Construction Site Erosion & Pollution Control Lead (CESCL) - UW Engineering Program, Shoreline. For info: UW Engineering website: www.engr.washington.edu/epp/cee/cec.html

September 17-18 **CA**
ACWA's 2009 Water Law Workshop, Costa Mesa. The Westin South Coast Plaza. Sponsored by Assoc. of California Water Agencies. For info: ACWA, 916/ 441-4545 or website: www.acwa.com

September 18 **WA**
Ecosystem Goods & Service Valuation Course, Seattle. NW Environmental Training Hqtrs. For info: NWETC, 206/ 762-1976 or website: <http://nwetc.org>

September 21 **OR**
Water Rights Academy, Tillamook. OSU Extension, 2204 4th Street. Sponsored by Water for Life. For info: Helen Moore, WFL, 375-6003, email: helen.moore@waterforlife.net or website: www.waterforlife.net

September 21 **OR**
16th Annual Stormwater Conference, Portland. For info: Holly Duncan, Environmental Law Education Center, 503/ 282-5220, email: hduncan@elecenter.com or website: www.elecenter.com

September 21-22 **WA**
Resolving Interstate Water Conflicts Seminar, Spokane. Red Lion River Inn. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

September 21-22 **CA**
California Environmental Quality Act Seminar, San Francisco. For info: CLE International, 800/ 873-7130 or website: www.cle.com

September 22 **OR**
Water Rights Academy, Seaside. Riverside Suites, 102 N. Holladay. Sponsored by Water for Life. For info: Helen Moore, WFL, 375-6003, email: helen.moore@waterforlife.net or website: www.waterforlife.net

September 22 **NV**
Challenges Faced by MWD to Adapt to Long-Term Water Curtailments, Las Vegas. Golden Nugget Hotel. Sponsored by Nevada Water Resources Association: Southern Nevada NWRA Dinner Forum+H82. For info: NVWRA, 775/ 473-5473 or website: www.nvwra.org/

September 22-23 **MD**
Artificial Recharge of Ground Water, Baltimore. Sponsored by the National Ground Water Assoc.. For info: NGWA, 800/ 551-7379 or website: www.ngwa.org

September 22-23 **MD**
Pharmaceuticals & Endocrine Disrupting Chemicals in Water: 7th Int'l Conference, Baltimore. For info: National Ground Water Assoc. website: www.ngwa.org

September 23-26 **MD**
Environment, Energy & Resources Law Summit: 17th ABA Section Fall Meeting, Baltimore. Baltimore Marriott Waterfront. For info: ABA website: www.abanet.org/environ/fallmeet/2009/

September 24 **OR**
Wind Power Seminar, Portland. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

September 24 **OR**
Climate Change: Positioning Your Business, Portland. DoubleTree Hotel-Lloyd Center. Sponsored by Northwest Environmental Business Council. For info: NEBC, 503/ 227-6361 or website: www.nebc.org

September 24 **NY**
U.S. Energy Business Conference: Looking Beyond the Crisis, New York. Sponsored by Financial Times & Environmental Expert. For info: www.ftconferences.com/energy

September 24-25 **MN**
Land Conservation & Clean Water Summit, Chaska. For info: www.arboretum.umn.edu/landconservationcleanwater.aspx

September 24-25 **OR**
OWRC Water Law Seminar, Redmond. Eagle Crest Resort. Sponsored by Oregon Water Resources Congress. For info: OWRC, 503/ 363-0121 or website: www.owrc.org/

September 24-25 **CA**
California Environmental Quality Act Seminar, San Diego. For info: CLE International, 800/ 873-7130 or website: www.cle.com

September 24-25 **TX**
Conservation Easements Seminar, Austin. For info: CLE International, 800/ 873-7130 or website: www.cle.com

September 24-25 **MD**
Artificial Recharge of Ground Water Course, Baltimore. For info: NGWA, 800/ 551-7379 or website: www.ngwa.org

September 25 **CA**
California Environmental Quality Act Seminar, Santa Monica. DoubleTree Guest Suites. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

September 25 **WA**
Washington Water Trust 4th Annual Benefit Celebration, Seattle. Mt. Baker Community Club, 2811 Mount Rainier Dr. South. For info: Lea Whitehill, Washington Water Trust, 206/ 675-1585 x102, email: lea@washingtonwatertrust.org or website: www.washingtonwatertrust.org

September 27-30 **MT**
Wild Trout Symposium, West Yellowstone. Holiday Inn Sunspree Resort. For info: Dirk Miller, email: dirk.miller@wgf.state.wy.us or website: www.wildtroutsymposium.com

September 28-29 **FL**
Aquifer Storage Recovery in the US: National Status of Projects, Issues & Solutions Conference, Orlando. Holiday Inn Select. For info: American Ground Water Trust, 800/ 423-7748 or website: www.agwt.org/events/2009/09FL_ASR9Reg1.htm

September 28-30 **CO**
Watersheds, Water, and Land Use Planning Symposium, Denver. Red Lion Hotel Central. Western States Water Council. For info: Cheryl Redding, WSWC, 801/ 561-5300, email: credging@wswc.state.ut.us or website: www.westgov.org/wswc/meetings.html

Sept. 29-Oct. 1 **CA**
9th Biennial State of the Estuary Conference, Oakland. Downtown Oakland Marriott. Ecological Health of the San Francisco Bay-Delta Estuary. For info: EPA website: www.epa.gov/region09/water/

September 30 **CA**
Overview of Fluvial Geomorphology Course, Davis. Da Vinci Bldg. For info: UC Davis Extension, 800/ 752-0881 or website: <http://extension.ucdavis.edu>

September 30-Oct. 2 **FL**
Southeast Stormwater Assoc. 09 Conference, Tallahassee. For info: SESWA, 850/ 561-0904 or website: www.SESWA.org

Sept. 30-Oct. 2 **MT**
Joint Meeting of AWRA MT Section & UM Center for Riverine Science, Missoula. Holiday Inn Parkside. For info: Conf. website: <http://awra.org/state/montana/events/conference.htm>

October 1-2 **MT**
Montana Water Law Seminar: 9th Annual, Helena. Great Northern Hotel. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

October 1-2 **MT**
River Center Conference/Montana AWRA, Missoula. Sponsored by U of M River Center & MT AWRA. For info: <http://water.montana.edu/awraabstracts/>

October 2-5 **CO**
Ground Water & Climate Change Conference, Boulder. For info: National Ground Water Assoc., 800/ 551-7379 or website: www.ngwa.org

October 4-8 **FL**
2009 International Water Conference, Orlando. Hilton in the Walt Disney World Resort. For info: Conf. website: www.eswp.com/water/

October 5-8 **AZ**
10th Biennial Conf. for Research on the Colorado Plateau, Flagstaff. Northern Arizona University. For info: 928/ 523-7759 or sbcs.wr.usgs.gov/cprs/biennial.html

October 5-9 **NV**
CA-NV Section American Water Works Assn Annual Fall Conference, Las Vegas. Riviera Hotel. For info: CA-NV Section website: www.ca-nv-awwa.org

October 6 **WA**
Environmental Crimes & Penalties Seminar, Seattle. Washington State Convention & Trade Ctr. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

October 6-7 **CA**
27th Biennial Groundwater Conference & 18th GRAC Annual Meeting, Sacramento. Sacramento Convention Ctr. For info: GRAC website: www.grac.org

October 6-7 **CA**
Integrated Regional Water Management Program: Interactive Symposium, Davis. UC Davis, Buehler Alumni Ctr. For info: UC Davis Extension, 800/ 752-0881 or website: <http://extension.ucdavis.edu>

October 6-8 **WA**
Erosion & Sediment Control Course, Seattle. NWETC Hqtrs, 650 South Orcas Street. For info: NWETC, 206/ 762-1976 or website: <http://nwetc.org>

October 7 **WA**
Offshore Energy: Wave, Tidal & Wind Conference, Seattle. Sponsored by NEBC. For info: NEBC, 503/ 227-6361 or website: www.nebc.org

October 7-9 **NV**
Water Smart Innovations Conference & Expo, Las Vegas. South Pt. Hotel & Conf. Ctr. Sponsored by SNWA & EPA. For info: WSI website: www.watersmartinnovations.com

October 8-9 **NM**
NEPA: Writing the Perfect EA/FONSI or EIS Course, Santa Fe. For info: NWETC, 206/ 762-1976 or website: <http://nwetc.org>

October 9 **CA**
CEQA: A Step by Step Approach Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or website: <http://extension.ucdavis.edu>

October 9-11 **AZ**
Preservation on the Colorado Plateau - Powell Symposium, Page. Rainbow Bridge, Utah. For info: Conf. website: www.powellsymposium.org

October 10-14 **FL**
WEFTEC: 82nd Annual Water Environment Federation Technical Exhibition & Conference, Orlando. Orange Co. Convention Ctr. For info: WEFTEC website: www.weftec.org

October 11-14 **WA**
Bioenergy Engineering '09, Bellevue. Hyatt Regency. Sponsored by American Society of Agricultural & Biological Engineers. For info: Conf. website: www.bioenergyengineering2009.com

October 13 **OR**
Water Rights Academy, Klamath Falls. Klamath Community College Bd. Rm, 7390 S. 6th. Sponsored by Water for Life. For info: Helen Moore, WFL, 375-6003, email: helen.moore@waterforlife.net or website: www.waterforlife.net

October 14 **WA**
Brownfields Redevelopment: Building Sustainable Communities, Tacoma. Tacoma Convention Center. Sponsored by Northwest Environmental Business Council. For info: NEBC, 503/ 227-6361 or website: www.nebc.org

October 14-15 **NE**
Platte River Symposium, Kearney. For info: Lorrie Benson, UNL Water Center, 402/ 472-7372, email: lbenson2@unl.edu or website: <http://watercenter.unl.edu>



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(continued from previous page)

October 14-16 **NE**
Western States Water Council 161st Council Meeting, Lincoln. Holiday Inn Lincoln Downtown. For info: Cheryl Redding, WSWC, 801/ 561-5300, email: credding@wswc.state.ut.us or website: www.westgov.org/wswc/meetings.html

October 14-16 **NM**
54th Annual New Mexico Water Conference, Isleta. Isleta Casino & Resort. Sponsored by New Mexico Water Resources Research Institute. For info: Peggy Risner, WRI, 575/ 646-4337 or website: <http://wri.nmsu.edu/conf/conf09/conf.html>

October 14-16 **CA**
Ground Water Management Issues Forum, Tahoe City. Granlibakken Conf. Ctr. Lodge. For info: NGWA, 800/ 551-7379 or website: www.ngwa.org

October 15 **CA**
Water Quality Regulation & Permitting Course, Davis. Da Vinci Bldg. For info: UC Davis Extension, 800/ 752-0881 or website: <http://extension.ucdavis.edu>

October 15-16 **UT**
Utah Water Law Seminar, Salt Lake City. Marriott Downtown. For info: CLE International, 800/ 873-7130 or website: www.cle.com

October 15-18 **CA**
Environmental Law Conference at Yosemite, Fish Camp. Tenaya Lodge at Yosemite. Sponsored by the Environmental Law Section - State Bar of California. For info: Bar website: www.calbar.ca.gov/

October 16 **CA**
Habitat Conservation Plan Implementation Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or website: <http://extension.ucdavis.edu>

October 19-20 **CO**
Colorado Water Law Seminar, Denver. Sponsored by Colorado Water Congress. For info: CWC website: www.cowatercongress.org

October 20-21
The Ecology of Pacific Salmonids Course, Vancouver, B.C. For info: NWETC, 206/ 762-1976 or website: <http://nwetc.org>

October 20-22 **CO**
Environmental Site Restoration/Mitigation Course, Denver. For info: NWETC, 206/ 762-1976 or website: <http://nwetc.org>

October 21 **NC**
Stormwater Management in the Carolinas, Charlotte. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

October 21 **CA**
Groundwater Law & Hydrology Course, Davis. Da Vinci Bldg. For info: UC Davis Extension, 800/ 752-0881 or website: <http://extension.ucdavis.edu>

October 21-22 **OR**
Upstream Fish Passage - Fish Behavior, Engineering & Related Considerations Course, Umatilla. For info: NWETC, 206/ 762-1976 or website: <http://nwetc.org>

October 21-22 **GA**
NEPA: Writing the Perfect EA/FONSI or EIS Course, Atlanta. For info: NWETC, 206/ 762-1976 or website: <http://nwetc.org>

October 21-22 **CO**
A River Odyssey: 1989 to 2029 Conference, Berthoud. For info: Jennifer Brown, South Platte Forum, 402/ 960-3670, email: jennifer@jbbrown.com or website: www.southplatteforum.org

October 21-22 **CA**
Introduction to the California Environmental Quality Act Course, Oakland. The Washington Inn. For info: NWETC, 206/ 762-1976 or website: <http://nwetc.org>

October 22-23 **AZ**
Water & Land for Renewable Energy in the Southwest, Tucson. Marriott University Park Hotel. Sponsored by Southwest Hydrology. For info: Conf. website: www.swhydro.arizona.edu/renewable

October 23 **OR**
Sustainability & Green Building for Commercial & Governmental Growth, Portland. World Trade Center, 121 SW Salmon+H163. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

October 23-24 **NV**
2nd Annual Intern'l Conference on Energy, Logistics & the Environment, Las Vegas. The Mirage Hotel. For info: www.globalcommerceforum.org

October 25-27 **WY**
Western Legislatures, Sustainable Futures: Western States Energy & Environment Symposium, Jackson. Teton Village. Sponsored by Wyoming State Legislature. For info: Conf. website: www.wsees.com

October 26-27 **OK**
International Water Technologies for Emerging Regions (WaTER) Conference, Norman. University of Oklahoma. For info: OU, 405/ 325-5913, email: sabatini@ou.edu or website: <http://water.ou.edu>

October 26-28 **OR**
Assoc. of State Drinking Water Administration Meeting, Portland. For info: ASDWA, 703/ 812-9505, email: dmason@asdwa.org or website: www.asdwa.org

October 26-29 **NV**
Preserving Endangered Lakes Through Research, Reno. University of Nevada, Reno. RE: Closed-basin Lakes. For info: www.nevada.edu/symposium

October 26-30 **WA**
Wetland Delineation Training, Bothell. UW Bothell. For info: UW Engineering website: www.engr.washington.edu/epp/cce/wet.html

October 27-30 **OR**
Oregon Watershed Council Gathering, Klamath Falls. Running Y Ranch. Sponsored by Network of Oregon Watershed Councils. For info: John Moriarty, 541/ 682-8323 or website: www.oregonwatersheds.org/