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THE SOUTHERN DELIVERY SYSTEM

GETTING TO THE FINISH LINE: PLANNING, PERMITTING & CONSTRUCTING

by John A. Fredell
Southern Delivery System Program Director for Colorado Springs Utilities

Introduction

After two decades of planning and permitting, construction of the Southern Delivery System, one of largest water projects currently under construction in the western United States, is nearing the halfway mark this year. SDS may be one of the last big water projects built in the West. Getting SDS to the construction phase took almost two decades. The climb was as steep as the 14,114-foot mountain that anchors its primary beneficiary — the City of Colorado Springs.

Working for the second largest city in Colorado, Colorado Springs planners knew a reliable water supply was critical for the City's future. The need for another way to deliver water was identified in the early 1990s, when Colorado Springs Utilities, a four-service municipal utility, initiated a long-range planning process focused on meeting the community's water needs through 2040 and beyond.

Citizens participated in the planning process through surveys, public meetings, and workshops. The end result was a comprehensive Water Resource Plan adopted by the Colorado Springs City Council in 1996. The plan concluded that multiple improvement measures — including: expansion of water conservation programs; use of nonpotable water; and improvements to the existing water system — would all be needed to meet future water needs. In addition, because Colorado Springs' existing water system was nearing capacity and major pipelines were nearly half a century old, water planners determined it was necessary to construct another major water delivery system.

The Southern Delivery System (SDS) — named for the direction from which water would be transported — was identified as the best way to deliver additional water to a growing community and enhance the reliability of the existing water system.

Southern Delivery System

Since Colorado Springs is not located on a major river or water source, the City has built an elaborate and complex water system to serve the needs of its residents. The current water system contains 25 reservoirs and dams, 200 miles of pipe, and four major pump stations that stretch across nine counties and both sides of the Continental Divide. Adding SDS to this existing infrastructure will enable Colorado Springs to transport water it already owns to Pueblo Reservoir, located some 60 miles south.

SDS will pump water that is stored in Pueblo Reservoir. This reservoir's sources include the Arkansas River and Colorado River basins, to Colorado Springs and other partners in the system (see below). Pueblo Reservoir is part of the federal Fryingpan-Arkansas Project, authorized by Congress in 1962, to serve the agricultural and municipal

Southern Delivery System

Transbasin Water

Reusing to "Extinction"

Exchange of Water

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needs of southern Colorado and to provide flood control on the Arkansas River. El Paso County residents, the county in which Colorado Springs is located, have paid more than $75 million in property taxes to help repay the construction and operation costs of the Fryingpan-Arkansas Project facilities, which includes Pueblo Reservoir. By using water stored in Pueblo Reservoir for SDS, Colorado Springs Utilities customers leverage the investment they have made in that reservoir infrastructure.

SDS will use trans-mountain water imported from the west side of the Continental Divide to the east side of the Divide, where Colorado Springs is located. The City secured these water exchange rights in the 1980s. In Colorado, water that is transferred from one basin to another can be used and reused to "extinction." [Editor's Note: Water that is allowed to be used to "extinction" has been imported from another basin — hence, there is no return flow and no other water user may complain or "call" for that water to be replaced. "Many types of water use produce ground or surface water return flows. Some examples of return flows are water that percolates below the root zone of a crop and into the shallow groundwater, water seeping from unlined earthen ditches, or discharges from wastewater treatment plants, among other sources. Return flows are important for satisfying downstream water rights, providing instream flows, and delivering water for interstate compacts…decreed water rights are entitled to maintenance of the same stream conditions that existed at the time the appropriation began. However, if the water is imported into a river basin via an entirely different source, that water can be used and reused to extinction." Justice Greg Hobbs, *The Public's Water Resource - Articles on Water Law, History, and Culture*, Denver Bar Ass'n (2007), p. 360.]

Because Colorado Springs is typically able to generate two and half times the supply through reuse and exchanges, SDS allows the City to maximize its existing water rights. Colorado Springs Utilities will "reuse" its trans-mountain water by exchanging it with water stored in Pueblo Reservoir and other storage facilities. After use, Colorado Springs Utilities releases treated water into Fountain Creek, a local creek, for use by other water users in exchange for water they store in Pueblo Reservoir or other reservoirs.

SDS water will travel out of Pueblo Reservoir through a newly constructed North Outlet Works built by the project partners. Three raw-water pump stations will move the water through 50 miles of underground pipe to a water treatment plant located in El Paso County. The water treatment plant, capable of treating 50 million gallons of water per day upon completion in 2016, will purify the water before it is delivered to Colorado Springs residents.

In addition to Colorado Springs, the project will deliver water to three other partner communities located in southern Colorado — Security, Fountain and Pueblo West. Pueblo West will draw its water from a pipe at Pueblo Reservoir; Fountain and Security will take their project water through another existing pipeline by agreement with Colorado Springs.

Permitting

As the largest beneficiary of the regional SDS project, Colorado Springs Utilities has taken the lead on planning, permitting, and construction. Major water projects require a myriad of local, state, and federal permits. Permitting is a lengthy, costly, and in many cases, controversial process. Several major water projects in the state of Colorado that began planning before SDS are still in the permitting phase and are years away from construction. These include the Northern Integrated Supply Project and Windy Gap Project, which are being permitted to supply water to northern Colorado communities. One of the key strategies the SDS planning team used was concurrent permitting to ensure approvals were finalized at about the same time for several key permits, which allowed construction to begin sooner.

SDS required an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA), which fully analyzed seven alternatives to deliver water and the environmental impacts posed by each. As part of that process, stakeholders including some community leaders from neighboring Pueblo County, voiced opposition to the project. They expressed concerns about impacts to the local community and the environment. Stakeholders were given the opportunity to express their viewpoints at dozens of public meetings and through extended public comment periods. A comprehensive communications program was launched in communities throughout the region that discussed the need, importance, and benefits of SDS to not only Colorado Springs and its partners, but to all of southern Colorado.

The US Bureau of Reclamation (Reclamation) issued the Record of Decision (ROD) for SDS in March 2009. The ROD detailed Reclamation's review of the project, the alternatives analyzed, and some of the required activities to mitigate project impacts. The ROD identified SDS originating from Pueblo Dam as the Preferred Alterative. It also cleared the way for contracts to be negotiated to store and convey water from the federal facility (Pueblo Reservoir).

One of the most challenging permits for SDS to obtain was a 1041 land-use permit required by Pueblo County. "1041 powers" (named for the legislation passed by the Colorado Assembly in 1974 authorizing

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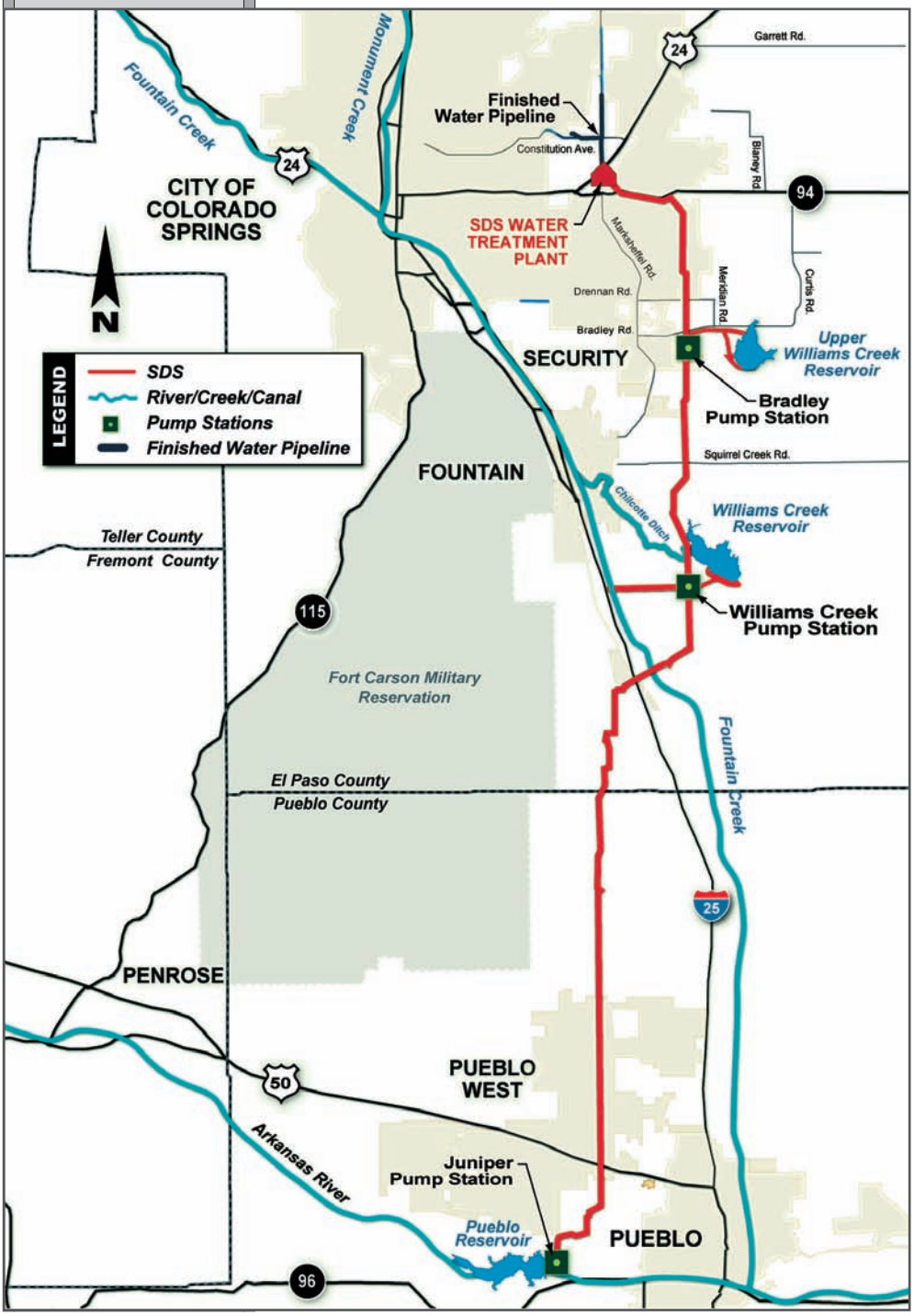
1040 Permit Conditions

the permit's use) allow local governments to identify, designate, and regulate areas and activities of State interest through a local permitting process. Pueblo County had concerns about impacts of SDS to residents of Pueblo County and chose to revise its 1041 regulations prior to the submittal of a permit application by Colorado Springs for the SDS project.

Leading up the issuance of the 1041 land-use permit, months of negotiations and extensive public consultation ensued to determine benefits for both communities. In April 2009, the Pueblo Board of County Commissioners voted 3-0 to approve it. The permit contained dozens of conditions, including mitigating environmental and construction impacts from SDS.

The permit also set aside $50 million in funding for a newly formed district to monitor and protect Fountain Creek. This creek, which starts in the watershed near Colorado Springs and flows through the City of Pueblo, will be the waterway that conveys SDS return flows (discharged water). While the Environmental Impact Statement showed return flows would only create incremental increases in the amount of water flowing down the river, there were concerns expressed by Pueblo County elected officials that SDS would exacerbate flooding in that community. Therefore, the funds will be used to control erosion, sediment, and flooding on Fountain Creek. The permit also specified the creation of new wetlands and creating curves along sections of Fountain Creek to slow water flow. These payments will begin once SDS is delivering water to Colorado Springs.



Colorado Springs also agreed to invest $75 million in planned improvements to its wastewater collection system by 2024, which would also help protect water quality in Fountain Creek. During this time, Colorado Springs Utilities also secured dozens of other critical permits and approvals necessary to build the project, including a 404 Permit from the US Army Corps and a Fish and Wildlife Mitigation Plan through the Colorado Division of Wildlife.

Project Components

The SDS project will be built in phases based on customer demands. Phase I, estimated to cost nearly $1 billion, includes these core components:

- Connection of the SDS pipeline to the North Outlet Works of Pueblo Dam
- More than 50 miles of underground, 66-inch-diameter welded-steel pipeline to transport raw water from Pueblo Reservoir to Colorado Springs
- Three raw water pump stations (50 **m**illion **g**allons per **d**ay (MGD) capacity each)
- Treatment plant (50 MGD capacity) and finished water pump station
- Pipelines to move the water into the existing distribution system

Southern Delivery System

New Reservoirs

Phase II of SDS — anticipated to be constructed when additional capacity and water storage is needed — will add two reservoirs, expand the raw water delivery capacity, and expand the water treatment plant and pump stations to be able to meet a peak capacity delivery of more than 100 MGD of treated drinking water. The new reservoirs will have different functions.

The Upper Williams Creek Reservoir will serve as terminal storage of raw water — providing critical storage during high demands and additional water for emergency situations. Given the area's propensity to drought and wildfires, the reservoir will provide water storage closer to the City of Colorado Springs. An additional consideration is that El Paso County's population is projected to grow 1.9 percent every year through 2040 — a population increase of nearly 300,000 more people. The Upper Williams Creek Reservoir and 131-foot-tall dam will hold 30,500 acre-feet of water and have a water surface area of 760 acres. It will be the largest body of open water in El Paso County and offer recreation potential, including boating, fishing, and hiking trails.

Enhanced Exchange

The Lower Williams Creek Reservoir will serve a different purpose by helping to maximize the use of water supplies. After Colorado Springs Utilities uses, treats, and returns water to Fountain Creek, a portion of that water will be stored in Lower Williams Creek Reservoir — which is capable of holding 28,000 acre-feet of water with 960 surface acres. This reservoir will enable Colorado Springs to divert return flows from Fountain Creek and store them until the community can exchange, or trade, this water for water that is stored in Pueblo Reservoir. The exchanged water would be moved through the SDS pipeline.

Funding

Rate Increases

With all major permits in hand, Colorado Springs Utilities requested the Colorado Springs City Council's approval in July 2009 for the project budget and implementation timeline. Scheduling the construction of a large project such as SDS requires a balance of multiple factors, risks, and impacts. Colorado Springs Utilities carefully considered the effects of mandating rate increases on customers' water bills along with other very important factors (including: water supply and demand risk; permit constraints; and financial/economic considerations) as part of developing the construction schedule for the project.

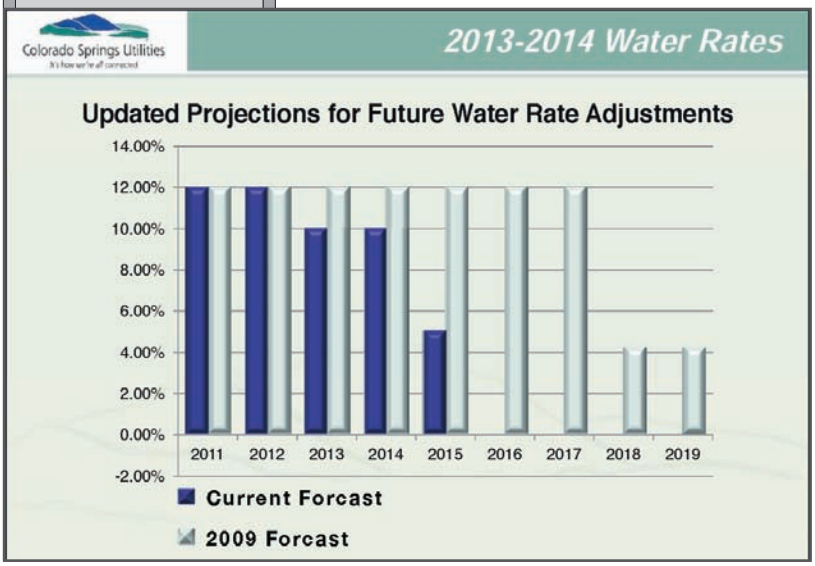
Bond Funding

Water infrastructure is typically a multi-generational investment. People who live in Colorado Springs today are benefiting from the investments that previous generations have made in the existing water system. By using bond funding, the costs for SDS are being spread over 40 years so that future beneficiaries will share in the required investment. Water rate increases were needed to help fund debt service payments.

Construction Scheduling

Concern for customer impacts was a primary driver in determining the construction schedule. Since the length of construction would impact the amount of debt repayment, staff developed several construction schedules of varying lengths of time. More aggressive construction schedules would have resulted in sharper annual spikes in water rates. Stretching construction over a longer period of time allowed for phased rate increases that ease the impacts on customers.

An SDS construction schedule concluding in 2016 has allowed Colorado Springs Utilities to implement a phased-in rate plan of 12 percent water rate increases each year beginning in 2011. However, due to historically low interest rates secured on the bonds, favorable market conditions, and rigorous project management, the utility was able to reduce rate increases in 2013 and 2014 to 10 percent. Additional increases are anticipated to be even less and the increase originally slated for 2016 has been eliminated.



The planned water rate increases are not all related to SDS. About two-thirds of the rate increases is funding SDS; the other one-third is necessary to fund maintenance and operation of the existing water system.

Based on the City's current water rates, one gallon of water costs customers approximately one-half cent. By 2016, water is still expected to cost less than one cent per gallon, which includes transporting water more than 100 miles away from Colorado's Western Slope, treating it, and reliably delivering it to customers' homes and businesses.

Development (tap) fees also have increased by 138 percent since 2002. For each new home that is built, builders and developers pay an average of $9,000 for a new water tap. That means that new residents have been and will continue to pay their share for SDS.

Southern Delivery System

Advanced Water Treatment

Colorado Springs Utilities conducted extensive public outreach to inform customers of the rate increases necessary to fund SDS. Project staff has used many forms of communications and targeted specific audiences to educate customers about the rate impacts. Staff provided rationale on the need for the project and associated rate increases with more than 150 presentations and briefings to neighborhood groups, business customers, and trade groups throughout the permitting and planning process for SDS. Rates information also was provided through local news media and posted on the website devoted to the project (*see* www.SDSwater.org).

Construction

SDS construction has been underway since 2010 and is currently about 40 percent complete. More than 38 of the 50 miles of underground pipe have been installed to date. Construction began in March on a $125 million water treatment plant, the single largest SDS component. The 82,000-square-feet plant is an advanced water treatment facility that will use ozone/biological filtration to treat water piped from Pueblo Reservoir. The 100-acre facility also will house a 10-million-gallon raw water storage tank, a 7-million-gallon treated water storage tank and a finished water pump station.

Work also will begin on three raw-water pump stations this year. Juniper Pump Station at Pueblo Lake State Park will house seven, 3,000-horsepower pumps. Williams Creek Pump Station in El Paso County includes seven, 2,250-horsepower pumps. Bradley Pump Station in El Paso County initially will have four, 2,250-horsepower pumps and eight at full build out.

The project staff reports monthly on the progress of SDS to the City Council, the project partners and the public. This report includes updates on key project accomplishments, upcoming work and challenges, current schedule, financial summaries and forecasts, as well as current progress and status of the major project components. The report is posted on the SDS website for public review.

Installing Pipe: Through mid-June, more than 38 miles of pipeline has been installed for the Southern Delivery System. The majority of the project is made up of 66-inch-diameter welded steel and mortor-lined pipeline which manufactured and installed in 50 foot length sections. It will take more than 7,000 of these to complete the pipeline.

Southern Delivery System

Market Conditions

Water Availability

Economic Benefits

Despite a few critics who have questioned the wisdom of building SDS during a recession, Colorado Springs Utilities has greatly benefited from current market conditions. Contractors and vendors are eager for the opportunities made available by SDS construction. Most bids for work for the project have come in well below original estimates. With the economic downturn, prices have been lower for construction materials and labor.

Work on the SDS project is providing a much-needed boost for regional contractors and suppliers. Of the $338 million spent on SDS planning and construction through March 2013, more than $272 million has benefited some 300 Colorado companies working on the project. To finish Phase I construction, it is estimated that it will involve roughly 3,000 workers performing more than 2.5 million man-hours.

The availability of water is critical to retaining and attracting businesses to the region, one of the fastest growing in the state of Colorado. In the last census, El Paso County surpassed Denver County as the largest in Colorado. SDS puts Colorado Springs in the enviable position to attract new businesses — and support military expansion plans. For example, the US Army base in Fort Carson has added more than 12,000 soldiers in the past few years and was projected to increase to 26,000 by 2013, according to the Fort Carson Regional Growth Plan.

Water is the backbone that supports future economic vitality, and the community's prosperity relies on the availability of water. If the City cannot provide a reliable future water supply, businesses may choose to locate in other communities that have a more stable water outlook.

Based on an independent economic study commissioned by the Chamber of Commerce Center for Regional Advancement and conducted by Summit Economics LLC, virtually the entire construction cost of SDS Phase I will come back to the community each year after 2020 in increased individual earnings due to employment gains.

Dam Connection: The newly constructed connection to Pueblo Dam, a federal facility, was completed and successfully tested in the summer of 2012. This connection serves as the origination point of the SDS project with valves to control releases to the Arkansas River and raw water delivered north through the pipeline.

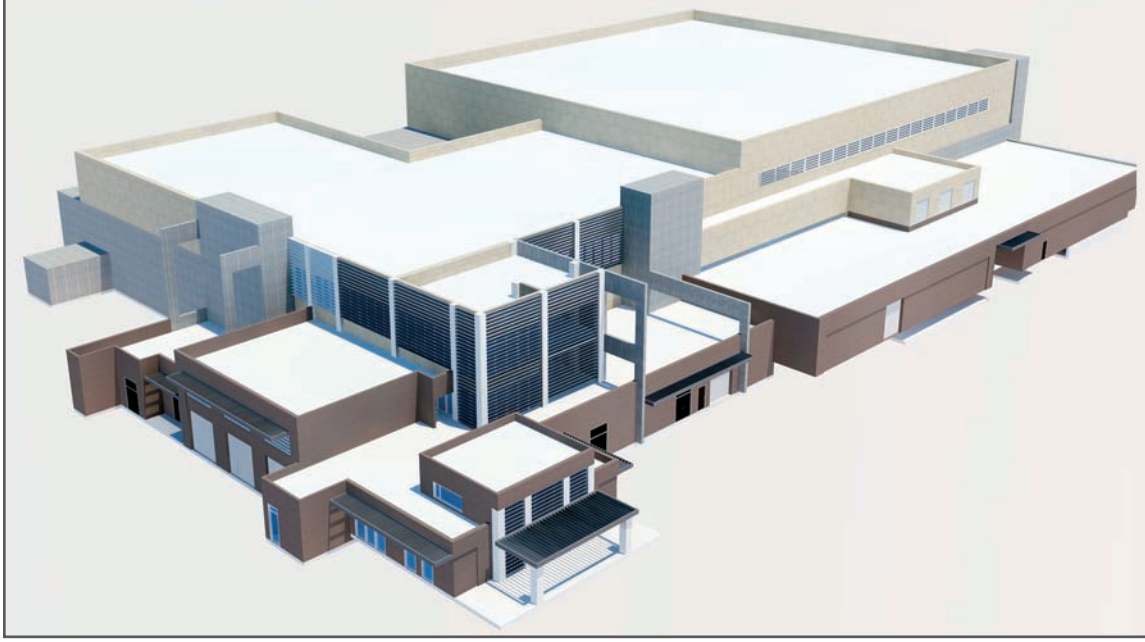
Southern Delivery System

Conclusion

Colorado Springs Utilities has made a significant investment in the planning, permitting and financing for the Southern Delivery System. The project is on schedule to begin water delivery in 2016 and currently projected to be completed at more than $68 million below budget. With SDS, Colorado Springs and its partners have significantly enhanced their water supplies and infrastructure. These communities are well poised for the future as water projects become increasingly difficult to permit and build in the western US.

For Additional Information:
John Fredell, Colorado Springs Utilities, 855/ 737-4968, sdsinfo@csu.org, or www.SDSwater.org/

Water Treatment Plant rendering: Crews broke ground on the SDS Water Treatment Plant in March 2013. The $125-million facility will have the initial capacity to treat up to 50 MGD and be expandable to 130 MGD. More than 30 Colorado companies will help support construction of the plant scheduled for completion in 2016.



John Fredell has served as the Program Director for the Southern Delivery System (SDS) since September 2007. In that role, Mr. Fredell is responsible for planning, permitting and construction of the SDS, a major water delivery system that will bring water from the Arkansas River to Colorado Springs and its project partners. John has been with Colorado Springs Utilities since 1993, and has been closely involved with development of the Southern Delivery System since 2002. Prior to his selection as SDS Program Director, he held other legal positions with Colorado Springs Utilities, most recently Deputy City Attorney-Utilities. In that role, he served on the Chief Executive Officer's leadership team. Before joining Colorado Springs Utilities in 1993, Mr. Fredell was employed by a commercial general contractor in Oklahoma City, and later owned a landscape and irrigation contracting firm in Colorado Springs. He holds a Bachelor of Science degree in finance from Oklahoma State University with a minor in economics. In addition, he holds a Juris Doctorate from the University of Oklahoma.

Klamath Adjudication

Administrative Phase

Adjudication Claims

Tribal Rights

Instream Rights

Judicial Review

PLEASE NOTE: The authors represent ranch owners petitioning for stay of the tribal water rights discussed in this article.

KLAMATH ADJUDICATION: THE JUDICIAL PHASE BEGINS

NEW ERA IN OREGON'S CONTENTIOUS WATER HISTORY

by Douglas MacDougal, Adam Orford, and Daniel Timmons, Marten Law PLLC (Portland, Oregon)

Introduction

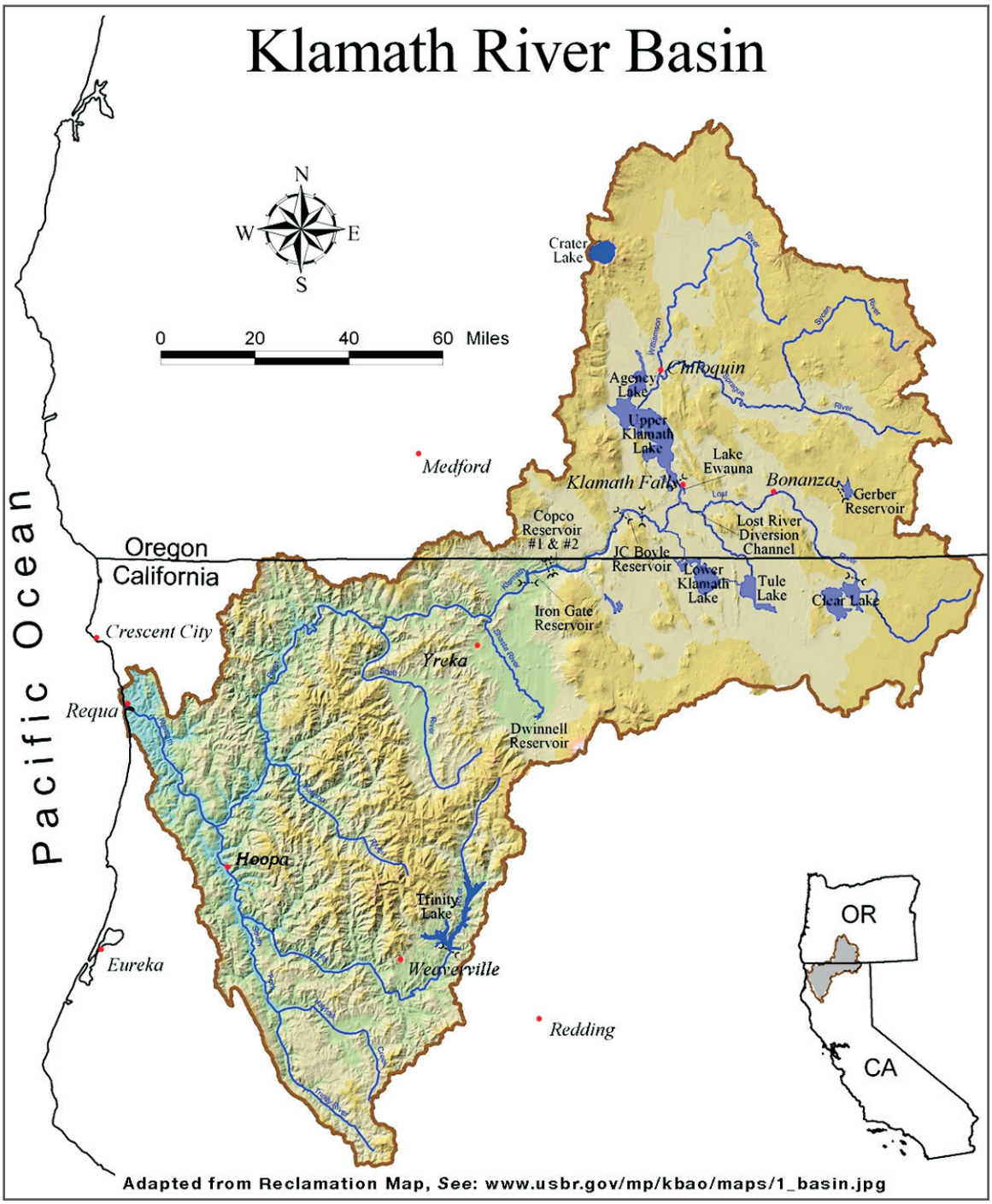
A significant milestone was reached in March of this year when senior staff of the Oregon Water Resources Department (OWRD) in Salem, Oregon, loaded up a van with over fourteen dozen boxes of case files, several file cabinets and a map case. This cargo, developed at enormous expense over dozens of years, represented thousands, perhaps tens of thousands, of man-hours of strenuous effort. The van proceeded from Salem to Klamath Falls, Oregon. There it was greeted by the Presiding Judge of the Klamath County Circuit Court (Circuit Court), who accepted the entire contents of the van, which are now deposited with that court and under its custody. In those boxes and cabinets are all the supporting files and records and exhibits from each of the contested cases and settlements in the administrative phase of the one of the most contentious water disputes in the West: the Klamath Basin Adjudication (Adjudication).

Oregon's Klamath Basin comprises 5,600 square miles, yet is one of the few basins in Oregon where claims to water pre-dating the State's 1909 Water Code have not been officially resolved or "adjudicated." This has greatly complicated state management of water resources in this already notorious "water war" battleground. Since it began in 1975, the Adjudication has drawn over 700 claims and more than 5,600 contests to those claims. The key document among all of those delivered to Klamath Falls in March of this year is known as the Findings of Fact and Order of Determination (FFOD). The FFOD is OWRD's consolidated rulings on all of the issues raised by all of the claims and all of the contests in the Adjudication. These rulings include those on the most weighty, treaty-based claims of the Klamath Tribes to maintain instream flows in virtually all of the waterbodies of the Klamath Basin in Oregon. Those claims compete squarely with irrigation (93% of all water withdrawals in Klamath County are for irrigation) and with Klamath River hydropower generation.

Under the Treaty of October 14, 1864 between the United States of America and the Klamath and Modoc Tribes and the Yahooskin Band of Snake Indians (collectively, the "Klamath Tribes" or the "Tribes"), the Tribes reserved the exclusive right to hunt, fish and gather on the reservation established by that treaty. A definitive interpretation of those treaty rights was provided by *United States v. Adair* (*Adair I*), 478 F. Supp. 336 (D. Or. 1979) aff'd as modified, 723 F.2d 1394 (9th Cir. 1983). Even though the Klamath Reservation was itself terminated in 1954, *Adair* held that the Tribes have a water right, with a priority date of time immemorial, "to as much water on the Reservation lands as they need to protect their hunting and fishing rights." *Id*. at 345. Because fish need water, and especially flowing water, for their habitat and migration, the tribal reserved water rights for fishing are instream water rights. While the federal law on the priority of tribal rights relative to other water rights was decided by *Adair*, the court did not quantify those instream rights: "Actual quantification of the rights to the use of the waters of the Williamson River and its tributaries within the litigation area will be left for judicial determination… ." *United States v. Adair* (*Adair II*), 723 F.2d 1394, 1399 (1983), citing Pretrial Order from *Adair I*, Civ. No. 75-914 (D. Or. Nov. 14, 1977). In Oregon, quantifying water rights that vested before the water code was enacted in 1909 occurs in a two-tier process. Fact-finding is done before OWRD, where it is delegated to the Office of Administrative Hearings (OAH) — the Tribes were required to introduce evidence to quantify their reserved rights. Following OAH's recommendations and OWRD's FFOD, the entire matter was transferred to the state courts for a final adjudication upon de novo (anew) review of the administrative findings.

To an outsider unfamiliar with the process, it may seem like institutional insanity to work for 37 years on adjudicating water rights at the administrative level, only to have the whole process begin again at the judicial level before a circuit court charged with de novo review of the whole case. Despite this impression, the Adjudication is, in fact, an integrated process that relies for its constitutional validity on a second, critical half: the judicial oversight and new review of everything that has gone on before. Therefore, despite news reports to the effect that the Klamath Basin Adjudication is now essentially "over" with the issuance of the FFOD, nothing could be further from the truth: the real adjudication — the Court's adjudication — is just ready to begin.

Klamath Adjudication



Water Rights Regulated

Enforcement Risk

REGULATION BY A WATERMASTER

While the Court's review may take years, the FFOD is nevertheless critical in that it has completely altered the status quo of the basin. This is because the FFOD, despite not being a final adjudication, is immediately enforceable unless stayed in whole or in part by the Court. While the hearing of the FFOD is pending in the Circuit Court, and until the final water rights decree is issued and appeals exhausted, waters can be regulated in accordance with the FFOD unless it is stayed. Equally critical, a stay requires the requesting party to post security for "all damages that may accrue by reason of the determination not being enforced." ORS 539.180. In the absence of a stay, parties who have never had their case heard before an Oregon state court are subject to regulation by the state watermaster.

Klamath Adjudication

Tribal Priority

This enforcement risk particularly impacts the "upper basin" water users, i.e., those users who rely on diversion from the rivers and streams tributary to Upper Klamath Lake, because the FFOD determined that the United States Bureau of Indian Affairs, as trustee for the Klamath Tribes, hold the "time immemorial" priority right to keep two-thirds or more of these streams' water (in an average water year) instream for the benefit of fish. Furthermore, the Tribes have agreed not to make a "call" for regulation on rights with a priority earlier than 1908, effectively removing most of the irrigators relying on the Bureau of Reclamation's Klamath Project (priority date 1905) from the risk of enforcement. Enforcement of the Tribal rights, or the Klamath Project's rights, by a "call," therefore will generally require that the water (to the extent of the call) stay in the upper basin rivers, and not be diverted for any purpose. Users in the upper basin have therefore viewed the tribal claims as a high-stakes challenge to current livelihoods and economies in a region already embattled by declining water supplies and increased demands for instream water for fish. With the administrative approval of the tribal instream flow rights, water supplies in the Basin are now over-allocated even in average years, and 2013 is no average year. To the contrary, on April 18, 2013, Oregon Governor Kitzhaber declared a state of drought emergency in Klamath County.

Given the dependence of the Klamath Basin agricultural economies on water, it was natural that irrigation groups would move to stay the enforcement of the FFOD. It therefore comes as no surprise that stay petitions followed soon after the issuance of the FFOD. It is also well known that calls have now been made on those same rights. The remainder of this article explains the current situation in the Klamath Basin, and what is expected to come next.

Enforcing the Call: the Situation on the Ground

With the issuance of the FFOD in March, the claims approved by OWRD became immediately enforceable, as noted above. Parties scrambled to read and digest the contents of the general order, the partial orders for the individual claims, and the countless cross references in those documents, but the clock was already ticking.

Calls for Regulation

On June 10, 2013, the other shoe dropped: calls for regulation began to be made. On that day, the Klamath Tribes, in conjunction with the federal Bureau of Indian Affairs (BIA), made a call on a portion of their "time immemorial" instream water rights, the Bureau of Reclamation (Reclamation) and the irrigation districts within the Klamath Project called their rights for water from Upper Klamath Lake, and the US Fish & Wildlife Service called for flows to various wildlife refuges in the Klamath Basin.

Collectively, the calls made to date potentially touch all of the rivers and streams in the Upper Klamath Basin. For now, the Klamath Tribes have made calls on about 75 miles of the more than 200 miles of their instream rights stretched across the various rivers and streams in the Upper Basin. While many irrigators will likely still need to be shut down to meet the call and keep sufficient water instream, the Tribes have not yet made calls affecting many stretches of the Upper Basin's waterways, including the Upper Williamson River, the Lower Sprague River, and the Lower Sycan River. Given low streamflows due to the ongoing drought, further calls could come at any time.

Reclamation's Call

Even without additional Tribal calls, Reclamation's call of its massive 570,110 acre-foot right in Upper Klamath Lake ultimately affects all of the Upper Basin rivers and streams, since these waterways all eventually flow into Upper Klamath Lake, and may be regulated to fulfill Reclamation's call. Given current drought conditions, the calls may ultimately lead to a significant reduction of irrigation in the Upper Basin, meaning that between 300 and 400 irrigators will be without water for the summer, and 70,000 to 100,000 head of cattle may need additional feed or to seek better pastures. *See* Scott Learn, *Klamath Tribes and Federal Government put out Historic Call for Water Rights in Drought-Stricken Klamath Basin*, The Oregonian (June 10, 2013).

Watermaster's Tasks

The Klamath watermaster and his newly-conscripted assistant watermasters are now tasked with shutting down water users to ensure that the called rights are met. This is a complicated process that requires: (1) validation of the call; (2) measurements and estimation of water needed to satisfy the call; (3) preliminary identification of and notification of junior users who may be subject to regulation; and (4) re-measurements, and if necessary, identification and notification and regulation of additional junior users. The watermaster has already begun going door to door requesting irrigators along the Sycan and Sprague Rivers to shut off their pumps. *See* Devan Schwartz, *Water Shutoffs to Expand in Coming Weeks*, Herald & News (June 22, 2013). Regulation of the Williamson and Wood River systems in the Upper Basin will soon follow. According to the watermaster, while most of the initial shutoffs were "voluntary," landowner willingness to comply with the watermaster's shut-off directives has grown "inconsistent." *See Inconsistencies: Watermaster Manually Turning off Headgates*, Herald & News (June 21, 2013). With many landowners now refusing to voluntarily shut down, the watermaster has now had to manually close over 40 headgates. *Id.*

Previous Protests

As tensions rise, the summer of 2001 remains in the back of everyone's mind. That year the Klamath Project was shut off to fulfill federal Endangered Species Act requirements, and large-scale protests erupted with the Klamath Bucket Brigade becoming national news. Despite the largely symbolic nature of the

Klamath Adjudication

protests in 2001, repeated attempts to breach the headgates of the Klamath Project's A Canal ultimately lead to the dispatch of federal marshals to protect those headgates and prevent symbolic protest from turning violent. *See* Associate Press (AP), *Judge Won't Stop Klamath Irrigation Shut-Off*, (June 14, 2013).

Today, the Oregon Water Resources Department (OWRD) has expressed new concerns for the safety of its personnel, and OWRD staff traveling throughout the basin to shut off irrigators are working in pairs and remaining in constant communication with the Klamath County Sheriff's Department. *See* Jeff Barnard, *Klamath Basin Irrigation Shutoffs Coming This Week*, AP (June 11, 2013). It remains to be seen whether individual landowner non-compliance could escalate into the reopening of closed headgates or other acts of civil disobedience mirroring the events of 2001. As a group, however, the Upper Basin irrigators are looking to the legal process to resolve their water crisis.

Situation in the Courts: Petitions for Stay

Circuit Court

It is said that the wheels of justice turn slowly, but they turn. Underlying headlines of water shutoffs and drought is a legal process that is designed to coordinate one of the most complex water litigations in the history of the State of Oregon. Oregon's adjudication statute (ORS Ch. 539), drafted in 1909, sets out this process in general terms, but has generated almost as many questions as it has answers. It has fallen to Judge Cameron F. Wogan, Presiding Judge of the Klamath County Circuit Court, to guide the parties through the complex thicket of administrative issues and water law that will ultimately control the Adjudication's outcome. A firm grasp of the sometimes arcane issues is necessary to understand where the proceedings are heading. For further information, the case files are available in Klamath County Circuit Court Cases No. WA1300001 (the general adjudication), and WS1300001 through WS1300004 (the pending stay petitions). *See* http://courts.oregon.gov/Klamath/pages/water.aspx.

Process

As already explained, the FFOD was issued in March 2013. What is less commonly understood is that the FFOD, while immediately enforceable, is not a final administrative order. It is provisional, subject to the Court's mandatory review, and subject to postponement in whole or in part (in legal terms, a "stay") during the course of that review. ORS 539.180. After resolving procedural issues, such as service on the initial list of more than 750 parties and attorneys, irrigators subject to impact from enforcement of the tribal water claims petitioned the Court for stay of those claims pending the Court's hearing of exceptions to OWRD's determinations. One Upper Basin party also petitioned for stay of enforcement of Reclamation's claim, which controls the water releases from Upper Klamath Lake to lower basin irrigators in Reclamation's Project.

Petitions for Stay

What followed demonstrates the difficulties inherent in judicial coordination of a complex case with circumstances changing rapidly on the ground. The stay petitions were filed on May 1 and May 14, 2013. Under the Court's initial case management orders, parties potentially affected by the stay petitions had 30 days to file requests to be heard on the petitions, and an additional two weeks to file briefing. The petitioners then were afforded a week to respond. In other words, the schedule contemplated completion of briefing on the question of stay between June 21 and July 5, 2013. The calls discussed above were made on June 10, 2013 — before briefing had been completed. The State of Oregon interpreted Oregon's adjudication statute to require it to immediately respond to the calls and begin enforcement, unless and until it received an order from the Court requiring otherwise. Thus, regulation began before the briefing had been completed on whether such regulation could be postponed.

Emergency Motions

Because regulation of water use began before the stay petitions had been heard, petitioners were left with a right without a remedy. The stay petitioners responded with emergency motions during the week of June 10, 2013. One sought a temporary restraining order, and another sought a temporary stay under the adjudication statute itself, citing their fear of the potential loss of cattle, crops, and livelihoods as a result of the calls, as the adjudication grinds on. The parties quickly briefed the relevant issues and the Court heard argument on both motions on Friday, June 14, 2013. At the end of the day, the Judge denied both motions, concluding that the process that had been initially set must continue through to its conclusion. In the meantime, regulation would continue — which it has.

Stay Issues

Given the issues at stake, the Court and the parties recognized the need to move forward expeditiously with the stay proceedings. On June 19, 2013, the Court and the parties reworked the case schedule, consolidating and bifurcating the stay petitions and the issues they presented. First, all parties would be heard on legal issues not related to the amount of security required to support a stay, if granted. Such issues include, but are not limited to, whether a stay is a matter of right of the petitioners or at the Court's discretion; whether parties may seek to stay rights only as to themselves or must seek to stay claims in their entirety; and (in the case of tribal water rights) whether a stay imposes unconstitutional restrictions on tribal property. As of this writing, the briefing on these issues is set to conclude on June 28, 2013, with hearings scheduled for July 2 and 3, 2013.

Security Amounts

Thereafter, the Court will schedule hearings on the amount of security that the stay petitions must post to support the stay. This security is designed to provide compensation for loss in the event that the Court's final determination of rights includes rights that were stayed. Judging by the preliminary pleadings

Klamath Adjudication

Damages Assessments

filed in the stay cases, the parties are dramatically far apart on their assessment of the appropriate amount of damages. The petitioners argue that the security should be pegged to the value of demonstrable lost numbers of fish caught during the period of the stay attributable to the claimants' instream flows being unmet. In the petitioner's view, this value is speculative, or valued at most somewhere in the range of thousands of dollars. The United States and Klamath Tribes claim that the amount should be the rental value of the water over the estimated course of the legal proceedings (gauged at 12 years), claimed at the time of this writing to total approximately $53 million. The briefing and argument over these issues has not yet been scheduled.

At the end of the arguments, the Court will determine both whether a stay may issue, and, if so, the amount of security necessary to support the stay. The petitioners will then decide whether to post that security (if possible), and, if they can, the rights will be stayed and regulation in the Klamath Basin will largely cease pending the Court's review of the merits of the case. If the judge denies the stay petition or the petitioners cannot post the security, regulation is expected to continue during that time, at least through the dry months.

Exceptions to FFOD

Currently, exceptions to the FFOD are due in March 2014. At that point, the Court will likely consolidate legal issues and design a briefing schedule to hear exceptions and issue its final determination in the form of a decree. The decree will be subject to appeal, and any number of other intervening events could slow or stall the process in the meantime. It can safely be said that the process ahead will take years. Whether that process continues subject to ongoing enforcement is the key question to be answered in the coming weeks.

Conclusion

Rumors of the end of the Klamath Basin Adjudication have been greatly exaggerated. While the administrative phase of the proceedings is complete, the second half of the process — the judicial adjudication — is just beginning. That is not to say that nothing has changed. With enforcement of administratively-approved claims now possible, long-feared water shutoffs are finally beginning in earnest. Unless Upper Basin irrigators are successful in their efforts to stay certain federal and tribal claims pending the final judicial determination of those claims, widespread irrigation disruptions with serious economic and social consequences is likely, potentially impacting the judicial process itself. If Upper Basin irrigators are forced out of business as a result of the calls, many may not be able to afford to maintain their contests and could be forced out of the adjudication process itself. On the other hand, the United States and Klamath Tribes will maintain that such is the result of both the law and the current drought, and that unless the stay requirements are met, there is no reason why their rights should not now be honored. One thing is certain: uncertainty will remain a fact of life in the Klamath basin for many years to come.

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Adam Orford represents public and private clients in complex environmental civil litigation and regulatory matters. He has conducted both trial and appellate litigation in federal and state tribunals across the country, including the Second and Ninth Circuit Courts of Appeals, Eastern District of New York, Oregon Office of Administrative Hearings, and Virginia State Corporation Commission. He regularly handles matters involving federal and state environmental and natural resource agencies, including EPA, BLM, USFWS, Oregon DEQ, and the Washington Department of Ecology. He has assisted with the environmental review and compliance aspects of numerous corporate transactions. Adam earned his J.D. from Columbia University School of Law, where he was a Stone Scholar, and served as Editor-in-Chief of the Columbia Journal of Environmental Law.

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Stormwater Technology

Continuing Evolution

Recent Innovations

New Approaches

Media Filtration

Adsorption

EC & IX Options

Selection Factors

Catch Basin Inserts

STORMWATER TREATMENT TECHNOLOGY

RECENT INNOVATIONS

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&
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Introduction

As a category, water pollution from stormwater runoff has long been identified as the greatest source of contamination to our nation's waters. The expansion of stormwater regulations in recent years has been driven by a number of factors, including the Clean Water Act (CWA), Endangered Species Act (ESA), and litigation by environmental groups. Stringent industrial benchmarks for heavy metals, suspended solids, phosphorus, and other contaminants have required the rapid and continuing evolution of stormwater management and treatment technology to meet regulatory limits. This article describes a number of recent innovations in stormwater treatment technology used for industrial sources.

Grassy swales, rain gardens, detention ponds, mobile sedimentation tanks, and other traditional stormwater treatment tools are well-established and accepted approaches, but generally require favorable site conditions, extensive collection systems, and space availability. The focus of this article is on recent innovations and more traditional approaches are covered only as they are used in combination with other treatment technologies under discussion.

Treatment Technologies

In the last few years, there has been significant evolution of both complex stormwater treatment systems, and "home-grown" systems utilizing off-the-shelf products, chemical additives, electrical energy, or other means. These have helped many facilities meet regulatory limits. These treatment technologies can be characterized in terms of both the pollutants and their approach to treatment. Regulated pollutants include: heavy metals; suspended particles; phosphorus; oils; and organic compounds. Innovative approaches to treatment include: media filtration; adsorption technologies; ion-exchange; and electrocoagulation. These are often used in combination with other mechanical forms, including: sedimentation; various forms of mechanical filtration; and dissolved air flotation.

Media filtration and adsorption are able to treat a wide spectrum of pollutants and are relatively cost-effective, but flow rate can be limited by volumes needed to achieve adequate treatment. Filters often need large surface area or high pressures for operation. Media filters use a tank or vault filled with sand, organic media, minerals, or coal to provide a three-dimensional matrix to trap particles that flow in water through the filter system. Filter systems only treat suspended particles and do not treat pollutants that are dissolved in the stormwater.

Adsorption is similar to filtration, in that some form of tank or vault is used, but instead of physical retention by a filter, pollutants are chemically attracted and attach directly to the surfaces of the treatment media. These media can be organic or inorganic; natural or manufactured. Adsorption media is placed in tanks, beds, or cartridges, and can often perform filtration and adsorption functions. Unlike a simple filter, these products can treat both suspended and dissolved pollutants.

While more capital intensive than media filtration or adsorption, **e**lectro**c**oagulation (EC) is an attractive option for heavy pollutant loads in industrial applications. EC can simultaneously treat suspended particles, oils, and heavy metals. Conversely, **i**on exchange (IX) is used in applications with relatively dilute dissolved metals or as the final step in a treatment train to remove ions that remain after primary treatment steps. Traditional IX processes can be expensive to operate and are subject to fouling, but new organic forms are proving to be lower cost alternatives.

Ultimately, the selection of the treatment technology depends on flow rate, pollutant loading, and the numerical limits that must be achieved. The trade-off between capital expense and operational costs must also be considered.

Stormwater Catch Basin Inserts (CBIs) are another common approach undergoing rapid innovation. CBIs typically use a non-woven geotextile material placed within a parking lot catch basin (or storm drain), which filter particles and/or adsorb oils in a single pass-through of stormwater effluent. These may be effective in achieving compliance where loading is intermittent or at low concentration, when the facility is close to meeting benchmark levels, or when the contaminant is well suited to retention by an insert material. Specialty-insert manufacturers (e.g. Cleanway, Gullywasher) have augmented the filtration

Stormwater Technology

Pressurized Filter

Flocculents

with adsorbent and/or ion exchange media, but these have not seen broad acceptance in the marketplace as stand-alone treatment. The advancements in the augmented CBIs rely on the addition of chemical reagents or adsorbents in the catch basin, which have a limited amount of volume and contact time with the pollutants. For this reason, augmented CBIs may only be effective in a low flow environment, for intermittent contamination, or for a limited time.

Pressurized filter technology is also evolving. This technology is a long-accepted treatment method, especially for turbidity and suspended solids. Sand filters or pressurized mixed media filters have become a standard approach for particulates, and can be used as a stand-alone technology for influent streams with the majority of the particles in excess of 25-50 microns. Typically greater than three feet deep, "deep bed systems" (see Figure 1) are now designed for particles as small as 15 microns.

When the influent has a higher population of smaller particles, a depth filter can be augmented by the use of shrimp shell extract (Chitosan) or other flocculent aids. [Editor's Note: Orthokinetic flocculation arises from induced velocity gradients in the liquid. It is here that primary particles are induced to approach close enough together, make contact and progressively form larger agglomerates, or "flocs." The principal parameter governing the rate of orthokinetic flocculation is the velocity gradient applied. The degree or extent of flocculation is governed by both applied velocity gradients and time of flocculation. These two parameters influence the rate and extent of particle aggregation and the rate and extent of breakup of these aggregates.] These have proven to be highly reliable when used in combination with sedimentation or detention facilities. Provision for back-flushing the depth filters must also be included in the design and footprint, and pumping requirements typically include a minimum of 50 **p**ounds per **s**quare **i**nch (PSI) or greater at full water quality design flow to be effective.

Figure 1

Technical Innovations

A recent innovation in the arena of media filters is the development of high efficiency disk filters. Amiad® Water Systems has produced a grooved disk filtration system that, when compressed, provides a highly efficient graduated filter media. The system is comprised of a stack of spirally-grooved interlocking disks (see Figure 2). The influent is passed to the center, and flows radially through the progressively smaller interlocking slots in the disc surface. When the media has become loaded or the pressure drop exceeds a pre-determined setpoint, the disks are de-compressed and allowed to expand axially, allowing the trapped particles to be released into a process analogous to a back-flush. A relatively small footprint and low energy requirements are advantages of the system.

Figure 2

Heavy Metals

Treating dissolved heavy metals has proven to be an especially challenging aspect of achieving compliance. Adsorption, electrocoagulation and ion-exchange have been used successfully, both as free-standing systems and in combination with other methods.

Adsorption & Metals

Adsorption is one of the most common methods to treat metals. StormwateRx Aquip system combines multiple layers of media in an above ground tank to remove particles organics, phosphorus, and metals by mechanical filtration and adsorption. If additional metals treatment is needed, StormwateRx will add a Purus® ion-exchange system for polishing. Enpurion® Water Systems use an organically grown, chemically-activated agricultural media as the key element of an adsorption/ion-exchange technology. The media is placed in a series of modules of up to four columns to provide progressively higher levels of metals removal, with the advantage that only the first module is replaced at each maintenance interval. The Aquip, Purus, and Enpurion Systems all require periodic media replacement which must be considered in the overall costs.

Electrode Uses

Electrocoagulation is a process where an electrical current is applied using electrodes in a water stream to destabilize the electrical charges of dissolved and suspended pollutants. Changing the electrical charge on the contaminants causes larger particles to form, which can either settle to the bottom or be filtered out of the solution. Electrocoagulation and electrochemical reduction systems (Water Tectonics Wave Ionics, Oil Trap, Enpurion) treat an array of pollutants simultaneously. These reactions to the electical current simultaneously achieve high levels of treatment for particulate, metals and oils. Hydrogen gas forms on the surface of the cathodes inside the reactor, which acts as a separation medium for lower density suspended particles, while larger, heavier particles are removed by sedimentation or filtration. These systems have proven highly effective for complex streams with multiple contaminants. The disadvantages of electrocoagulation are a relatively high capital cost, high energy requirements, and the need for filtration

High Costs

Stormwater Technology

Ion Exchange

Media Filters

Roof Run-Off Treatment

Oyster Shells

Compost Boxes

and/or detention tanks in combination with the electrolytic components.

Ion exchange uses a chemical reaction between a solid resin and liquid water to chemically treat pollutants. The solid phase is comprised of resins, which are held in tanks or containers. Chemicals with an electrical charge, called ions, react with the resin surface and are removed from solution. Metal ions, such as zinc or copper, literally exchange places with non-hazardous ions from the resin to render the treated water safer. Often, the chemical reaction from the exchanged ions forms water molecules, so the resulting water stream is extremely pure. Unfortunately, ion exchange is an expensive alternative.

In-ground systems such as Storm-Filter, Filterra, Bay filter and others are well-established media filters constructed in vaults to remove particles and a variety of other contaminants. Some have shown the ability to treat metals and oils, but may not have adequate removal rates for industrial applications. Some of these structures have more recently been approved to use specialized adsorption media to treat a variety of pollutants, including metals and phosphorus.

Home-Grown Solutions

"Home-grown" technologies are enjoying success in some applications, with a growing number of facilities able to achieve regulatory limits by constructing their own systems on-site. The Port of Vancouver's GRATTIX system is presented as a "rain-garden-in-a-box" and is used effectively as a roof run-off treatment unit to remove zinc and other metals. The system is designed to sit below building downspouts and filter water from building roofs before it is discharged into creeks and rivers. The GRATTIX system uses compost, soils, oyster shells, and selected plants to filter and remove pollutants as stormwater falls from a roof. The Port of Seattle is using oyster shells shoveled directly in stormwater catch basins to adsorb heavy metals, with the goal of increasing water hardness and decreasing metals. The oyster shells help neutralize the pH of the stormwater, and reduce the solubility of pollutants through neutralization and surface adsorption. The Port of Seattle claims to reduce copper up to 50% by this method.

Other home-grown technologies include compost-amended sand filters and compost boxes. The Port of Tacoma is using compost and "blooming-boxes" to treat zinc from facility roofs at the port. These systems also capture runoff from building roofs and filter the water prior to discharge. Some concern has arisen from the fact that the treatment processes become a significant source of other pollutants — such as phosphorus and nitrates — which can cause environmental issues like algae growth and low oxygen levels in lakes and streams.

Conclusion

The adoption of proactive stormwater regulations in the Western States and territories will drive further innovation and reduction in cost. As the industry matures and technology improves, more facilities are expected to adopt stormwater treatment technology as a means of achieving compliance. At the same time, it is expected that regulatory limits will continue to decrease and the available technology will likely continue to struggle to reach limits that, even now, can be on the edge of attainability.

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Water Quality Trading

EPA Definition

CWA Tool

"TBELs"

National Roundtable on Water Quality Trading

July 17-18
Cincinnati, Ohio

US Water Alliance Event
While an "invitation-only" event, all seats will be filled.
For registration availability, contact:
lkoss@uswa.us

NUTRIENT TRADING & WATER QUALITY

by Susan Parker Bodine, Partner, Barnes & Thornburg (Washington DC)

Overview

The US Environmental Protection Agency (EPA) has described water quality trading thusly:

> Water quality trading is an innovative, market-based approach that if used in certain watersheds can achieve water quality standards more efficiently and at lower cost than traditional approaches. Costs to control discharges compared with runoff for a given pollutant often vary significantly in a watershed, creating the impetus for water quality trading. Through water quality trading, facilities that face higher pollutant control costs to meet their regulatory obligations can purchase pollutant reduction credits from other sources that can generate these reductions at lower cost, thus achieving the same or better overall water quality improvement. In most cases, trading takes place on a watershed level under a pollutant cap (the total pollutant load that can be assimilated by a waterbody without exceeding water quality standards) developed through the TMDL [**t**otal **d**aily **m**aximum **l**oad] process or a similar type of water quality analysis that produces information on pollutant loadings and resulting water quality conditions.

Water Quality Trading Toolkit for Permit Writers, EPA-833-R-07-004 (Aug. 2007, updated June 2009) p.4, available from: http://water.epa.gov/type/watersheds/trading/WQTToolkit.cfm

Introduction

In this article, I address three points:

First, nutrient trading (in this article, I refer to "trading" and "offsets" interchangeably) is an available tool under the federal Clean Water Act for improving water quality.

Second, without trading, in many cases meeting nutrient water quality standards will be neither affordable nor attainable.

Third, trading will not happen if EPA or states impose too many barriers up front, before providing an opportunity to demonstrate the efficacy of trading.

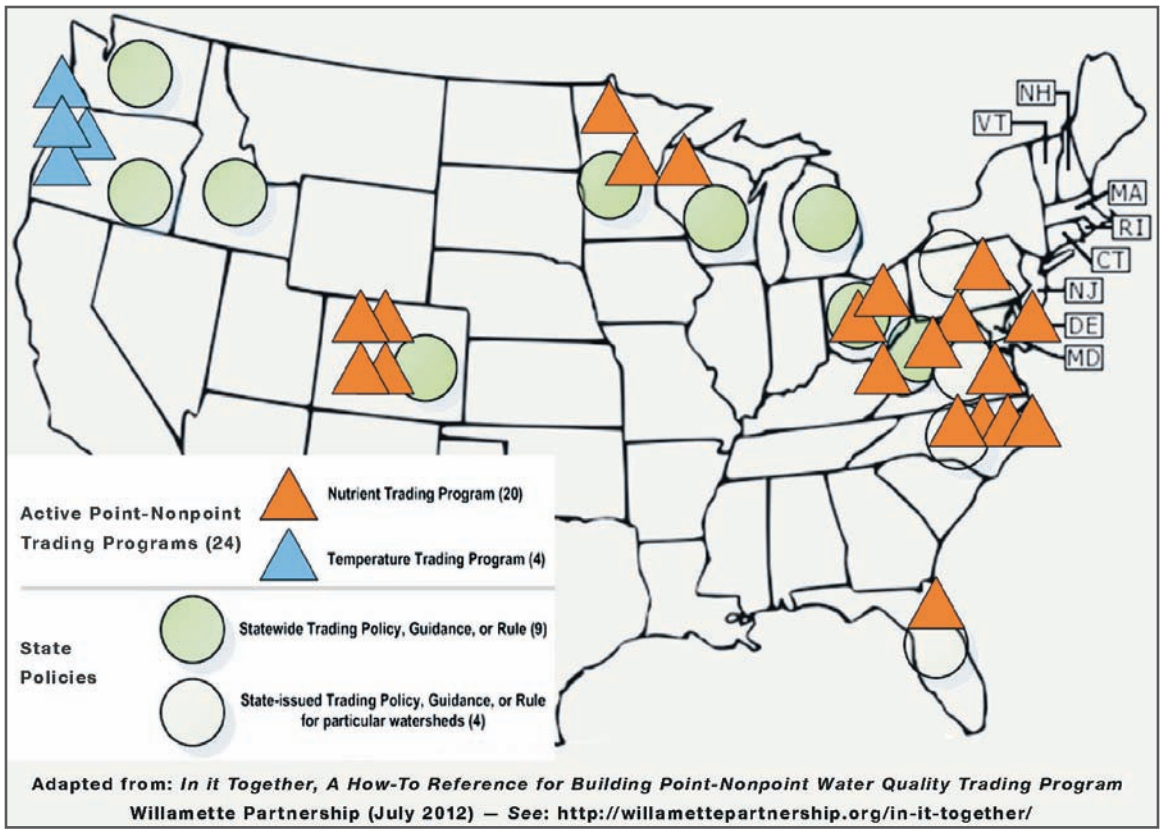
Nutrient Trading is an Available Tool Under the Clean Water Act

Trading and offsets are available tools for achieving water quality standards under the Clean Water Act (CWA). The CWA requires point sources to meet technology based effluent limitations established under CWA section 301(b)(1)(A). These effluent limitations establish a "floor" that must be met by each point source discharger and, in general, are based on best practicable control technology currently available. **T**echnology **b**ased **e**ffluent **l**imits (TBELs) do not specify what technology must be used to achieve the limit. In some cases, trading or offsets are built into the TBEL itself. *See* EPA, Office of Water, *Water Quality Trading Policy*, Jan. 13, 2013, at 6 (available as Appendix B of EPA's *Water Quality Trading Toolkit for Permit Writers*).

Unlike TBELs, **w**ater **q**uality **b**ased **e**ffluent **l**imitations (WQBELs) under section 301(b)(1)(C) apply to point source discharges as "necessary to meet water quality standards" in the receiving water. Thus, the focus of WQBELs is ambient water quality. If pollutants in receiving waters are reduced through other means, such as through reductions by other point or non-point sources, then a WQBEL that is necessary to meet water quality standards in the receiving water is different from the WQBEL that would be necessary absent the offsetting reduction from other sources. An offset or reduction achieved through trading would be incorporated into a permit writer's evaluation of whether a discharge has the "reasonable potential to cause or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 C.F.R. 122.444(d)(1)(i). As stated in EPA's permit writers manual: "a reasonable potential analysis is used to determine whether a discharge, alone or in combination with other sources of pollutants to a waterbody and under a set of conditions arrived at by making a series of reasonable assumptions, could lead to an excursion above an applicable water quality standard." NPDES Permit Writers' Manual, at 6-23 (Sept. 2010). The reasonable assumptions that are included in a permit writer's analysis may include assumptions of other reductions in pollutant discharges achieved through trading and offsets.

Unlike technology-based standards, WQBELs are not uniform and involve the professional judgment of a permit writer. Entities that argue that trading and offsets are not available tools for meeting water quality standards fail to understand the how effluent limitations are applied. The Amended Complaint in *Food and Water Watch, et al., v. EPA* (Case No. 1:12-cv-01639-RC (D.D.C. Feb. 20, 2013) is an example

Water Quality Trading



Adapted from: *In it Together, A How-To Reference for Building Point-Nonpoint Water Quality Trading Program* Willamette Partnership (July 2012) — *See*: http://willamettepartnership.org/in-it-together/

TMDL Discretion

of this misconception (*see also* Hampton and Jacobs, *TWR*# 112). Food and Water Watch also alleges that trading is an impermissible adjustment to load and wasteload allocations of a TMDL adopted under CWA section 303(d). In making this claim, the plaintiffs fail to understand the legal nature of a TMDL. A TMDL is the total amount of a pollutant that a water body may receive and still meet water quality standards. The allocation of that load is left to the discretion of states that are implementing the TMDL.

Interstate Trading

Interstate trading also is permissible under the CWA.

EPA has identified three separate authorities for interstate trading:

First, section 103(a) of the CWA directs EPA to "encourage cooperative activities by the states for the prevention, reduction, and elimination of pollution, [and] encourage the enactment of improved and, so far as practicable, uniform state laws relating to the prevention, reduction, and elimination of pollution." In its *Water Quality Trading Toolkit for Permit Writers* EPA states that: "EPA believes that encouraging states to engage in cooperative, interstate activities like establishing multijurisdictional water quality trading programs designed to prevent, reduce, and eliminate pollution is consistent with the directives in section 103(a)." *Water Quality Trading Toolkit* at 14.

Second, EPA also believes that congressional authorization under section 103(b) of an interstate compact for "cooperative effort and mutual assistance for the prevention and control of pollution" also authorizes trading among members of the compact. *Id*. at 13-14. The Ohio River Valley Water Sanitation Commission (ORSANCO) is one such interstate compact.

Third, EPA believes that section 117(g) of the CWA authorizes interstate trading in the Chesapeake Bay Watershed. *Id.* at 13,

Point-Nonpoint Trading

Appendix A to EPA's *Water Quality Trading Toolkit for Permit Writers* provides a number of examples of trading that have already taken place between point sources and between point and non-point sources. Interstate trading also is taking place, including the Ohio River Basin Interstate Water Quality Trading Project (within the basin subject to the jurisdiction of ORSANCO).

According to the US Department of Agriculture-sponsored study, *In it Together, A How-To Reference for Building Point-Nonpoint Water Quality Trading Program*, as of 2011 there were 24 active point-nonpoint trading programs in 16 states. Willamette Partnership (July 2012), study available for free download from: http://willamettepartnership.org/in-it-together/ . The map and list of programs from this study have been reproduced for this article (see above and next page).

Water Quality Trading

Nutrient Criteria

Baselines

While this article focuses on point source-nonpoint source trading, it should also be noted that a number of point source–to–point source trading arrangements are also ongoing, successful, and providing significant benefits. For example, to help achieve nutrient reductions in Long Island Sound, from 2002 to 2009 the total value of credits bought and sold among point sources through the Connecticut nitrogen trading program was $45.9 million, representing 15.5 million nitrogen credits exchanged. *See* www.ct.gov/deep/cwp/view.asp?A=2719&Q=325572.

Without Trading, Nutrient Water Quality Standards May Not Be Affordable or Attainable

EPA has been pushing states to adopt nutrient water quality criteria and nutrient water quality based effluent limitations. However, EPA's recommended criteria developed under CWA section 304(a) and some state standards are based on the level of nutrients found in pristine waters and those levels in many cases are not attainable. For example, a January 3, 2012 letter from EPA Region 8 to Montana Department of Environmental Quality, agrees that attaining Montana's draft nutrient criteria would result in widespread economic and social impact and use of a technology that has not been demonstrated as practical — justifying a variance from those criteria. Even state standards that are not based on reference waters can be unachievable *(see, e.g.* Maryland Department of the Environment, *Use Attainability Analysis for the Federal Navigation Channels Located in Tidal Portions of the Patapsco River* (2004); Maryland Department of the Environment, *Use Attainability Analysis for Tidal Waters of the Chesapeake Bay Mainstem and its Tributaries located in the State of Maryland* (2004).

Table 1 Active Trading Programs in the United States in 2011

Program	State	Market structure
Bear Creek	CO	Bilateral & Brokered trades
Chatfield Reservoir	CO	Bilateral
Cherry Creek Basin	CO	Sole-source offsets
Lake Dillon	CO	Bilateral
Delaware Inland Bays	DE	Bilateral
Lower St. Johns River	FL	Bilateral
MD Chesapeake Bay	MD	Auction & Bilateral
Rahr Malting	MN	Brokered trades
Southern Minnesota Beet Sugar Coop	MN	Bilateral & Sole-source offsets
Falls Lake	NC	Bilateral from private banks & in-lieu fees to the NC Ecosystem Enhancement Program
Neuse River	NC	Bilateral from private banks & in-lieu fees to the NC Ecosystem Enhancement Program
Jordan Lake	NC	Bilateral from private banks & in-lieu fees to the NC Ecosystem Enhancement Program
Tar-Pamlico Estuary	NC	Bilateral from private banks & in-lieu fees to the NC Ecosystem Enhancement Program
Great Miami River	OH	Sole-source offsets
Sugar Creek (Alpine Cheese)	OH	Bilateral & Brokered trades & Exchange
Ohio River Basin Trading Project	OH	Auction
Tualatin River (Clean Water Services)	OR	Sole-source offsets
Rogue River (Willamette Partnership)	OR	Sole-source offsets
Willamette River (Willamette Partnership)	OR	Sole-source offsets
Lower Columbia (Willamette Partnership)	OR	Sole-source offsets
PA Chesapeake Bay	PA	Auction & Bilateral & Brokered trades
VA Chesapeake Bay	VA	Bilateral through the VA Water Quality Improvement Fund or Brokered trades for compliance credits exchanged through the VA Nutrient Credit Exchange Association
Red Cedar River	WI	Bilateral
WV Potomac/Chesapeake Bay	WV	Auction & Bilateral

The required reductions in nutrient and sediment loadings under the EPA established Chesapeake Bay TMDL provide another example. While the total cost of achieving the reductions in the TMDL has not been quantified, based on estimates provided by Virginia and Maryland, researchers from the Maryland School of Public Policy expect the total cost to exceed $50 billion. *Saving the Chesapeake Bay TMDL: The Critical Role of Nutrient Offsets*, School of Public Policy, University of Maryland, Oct. 2012 (hereinafter *Critical Role of Nutrient Offsets*). A study commissioned by the Chesapeake Bay Commission further concludes that allowing trading could reduce those implementation costs by 36%. *Nutrient Credit Trading for the Chesapeake Bay, an Economic Study*, May 2012.

Other entities that have evaluated or are evaluating cost savings associated with nutrient trading include the World Resources Institute (WRI), Electric Power Research Institute (EPRI), and Water Environment Research Federation (WERF) (*See, e.g., Nutrient Trading in the MRB, A Feasibility Study for Using Large-Scale Interstate Nutrient Trading in the Mississippi River to Help Address Hypoxia in the Gulf of Mexico*, WRI (Apr. 17, 2013) and *Pilot Trading Plan 1.0, Ohio River Basin Interstate Water Quality*

Water Quality Trading

Cost Reductions

Trading Project (within the basin subject to the jurisdiction of ORSANCO), EPRI (Aug. 2012)). WERF factsheets on implementing watershed-based trading programs are available at: http://ww2.werf.org/am/template.cfm?section=Search&template=/cm/ContentDisplay.dfm&ContentID=6843 and WERF workshop on water quality trading at: www.wef.org/WaterQualityTrading/].

All the above referenced entities conclude that trading and offsets can reduce costs of achieving water quality improvements. However, those cost reductions will not be available unless trading and offsets are available. In fact, given the high costs of reducing nutrient loadings, it is likely that without trading nutrient standards will be unachievable and will need to be revised based on **u**se **a**ttainability **a**nalyses (UAA). Thus, restricting trading could lead to lowering water quality goals. [Editor's note: UAA is a structured scientific assessment of the factors affecting the attainment of uses specified in CWA Section 101(a)(2) — the so-called "fishable/swimmable" uses. Under 40 CFR 131.10(g) states may remove a designated use which is not an existing use, as defined in 40 CFR 131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible.]

Addressing Barriers

Trading Will Not Occur If EPA or States Impose Too Many Barriers

WITHOUT PROVIDING AN OPPORTUNITY TO DEMONSTRATE THE EFFICACY OF TRADING

There are a number of issues that must be addressed when using trading as a tool to improve water quality. How these issues are addressed will determine whether trading is available. These issues include: establishing a baseline; geographic scope; providing a legal framework; and accounting for uncertainty in nonpoint source reductions.

Baseline

Appropriate Baselines

There is some dispute over what is an appropriate baseline of reductions in nutrient loadings that must be met before a nonpoint source can generate credits available to offset point source discharges. Achieving early reductions in pollutant loadings is an objective of EPA's Water Quality Trading Policy. That objective suggests that flexibility is appropriate when establishing baselines.

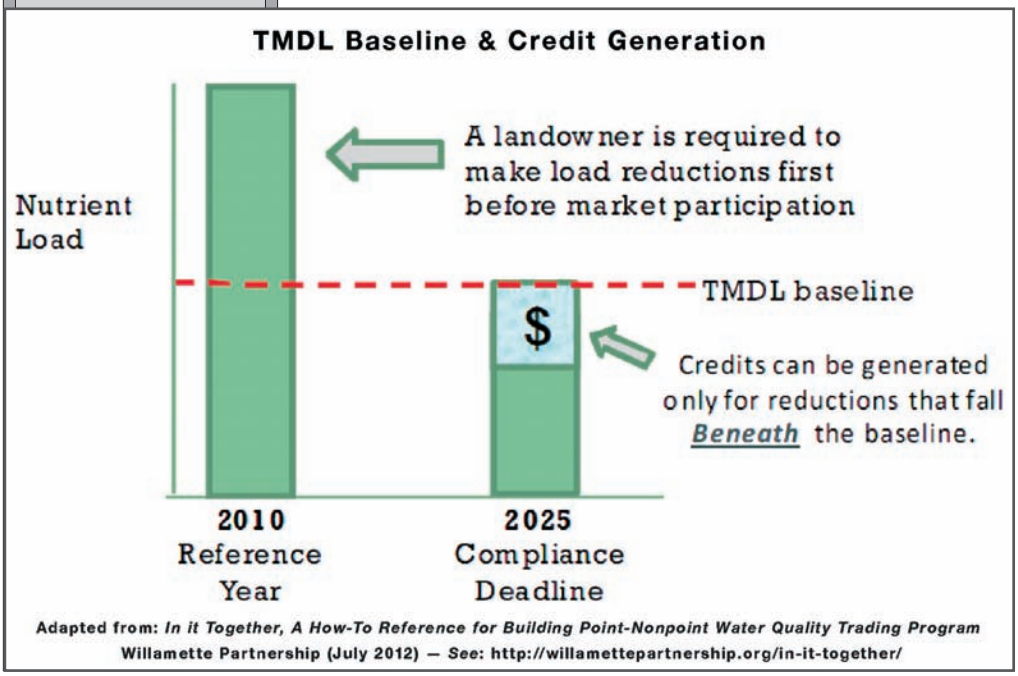
EPA's trading policy supports establishing a nonpoint source baseline based on either regulatory requirements or load allocations under a TMDL. That position is not universally accepted. The University Of Maryland School Of Public Policy suggests that current level of nutrient loadings is an appropriate baseline, which would allow credit for coming into compliance with regulatory requirements:

Acknowledging Uncertainty

> One option to consider thus is whether agricultural baselines should be set at less than the full legal requirements for agriculture, acknowledging the uncertainty of immediate legal compliance, and thus potentially accelerating the improvement of farmer nutrient management practices (a particularly important goal given the large share of total Bay nutrient loads that originate in agriculture and the low cost of many potential agricultural nutrient reductions).
>
> *The Critical Role of Nutrient Offsets*, at xxiii.

Accelerating Improvement

Many states have trading programs that establish a nonpoint source baseline that relies on the state regulatory requirements for nonpoint sources. State regulatory requirements were the basis for the Pennsylvania trading program. In 2010, Pennsylvania modified its trading program. In addition to meeting baseline requirements, nonpoint sources must also meet a threshold before generating credits. This requirement is defined as either a 100-foot manure set back, a 35-foot vegetative buffer, or a 20% adjustment made to the overall reduction. 25 PA.CODE CH. 96. However, EPA has disagreed with Pennsylvania about its program and its applicability to trades to achieve the Chesapeake Bay TMDL. *See* EPA, *Pennsylvania Trading and Offset Program Review Observations*, Feb. 17, 2012, available at: www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/EnsuringResults.html?tab2=1&tab1=2.



Water Quality Trading

Wisconsin Policies

Montana Baseline

Aggregated Load Allocations

Credit Policy & TMDL Load Reductions

States' Baselines Vary

Trading Areas

"Hot Spots" Concern

Safety Margins

The issue of defining a nonpoint source baseline has come up in other parts of the country as well. Comments on Wisconsin's trading policies support adoption of a nonpoint source baseline based on the regulatory requirements applicable to nonpoint sources. In Wisconsin, only cost-shared practices are mandatory. Despite this, Wisconsin's draft trading policy proposed to adopt a Phosphorus Index of 6 as a baseline for all nonpoint sources, in addition to all load allocations identified in a TMDL. Absent cost-sharing, Wisconsin does not impose mandatory requirements on nonpoint sources, whether or not there is a TMDL, thus commentors argue that a Phosphorus Index of 6 is not always the appropriate baseline and adopting such a baseline will reduce or eliminate the availability of credits. *See* letter dated April 26, 2013 from Madison Metropolitan Sewerage District, to Wisconsin Department of Natural Resources.

In response to comments from EPA on its trading policy, the Montana Department of Environmental Quality (MDEQ) takes a position that is similar to the Madison Metropolitan Sewerage District. MDEQ's draft trading policy defines baseline in a manner that allows a nonpoint source to generate credits as soon as it begins to reduce its nutrient load without first meeting the load allocation assigned to the nonpoint source. MDEQ points out that the nonpoint source reductions are voluntary.

One of the reasons for allowing a nonpoint source to generate credits as soon as it begins to reduce its nutrient load is that the load allocation in a TMDL is typically aggregated for all similar nonpoint sources throughout an entire watershed. Defining "baseline" so that all nonpoint source contributors need to achieve (collectively) the watershed load allocation before a credit may be generated would eliminate the majority of trading opportunities and greatly reduce the effectiveness of this policy. *See Draft Trading Policy Response to Comments*, MDEQ, Oct. 28, 2011, at 1.

One way to identify a nonpoint source baseline in a way that is consistent with EPA's Water Quality Trading Policy would be to allow nonpoint sources to achieve credit for the percentage of nonpoint source load reductions that is not assumed by a TMDL implementation plan. For example, in the Chesapeake Bay TMDL most of the **b**est **m**anagement **p**ractices (BMPs) identified in the state implementation plans are not assumed to be applied on 100 percent of available land. If the state assumed a BMP would be applied on 75 percent of available acres, then under this approach it could approve credits for BMPs on 25 percent of available acres, even if the BMPs had not yet been installed on the remaining 75 percent of acres. This approach would be consistent with EPA's goal of using trading to achieve early reductions.

Using the Chesapeake Bay watershed as an example again, it is important to note that each state defines its baseline for trading credits generated by nonpoint sources differently, and given the different regulatory requirements in each state, a uniform baseline policy would not be appropriate.

Geographic Scope

Under EPA's Water Quality Trading Policy, a trading area must be either within a watershed or within an area for which a TMDL has been approved. There can be dispute over what size watershed is used for generating tradable credits. There also can be dispute over what delivery factor is used if trades take place from within a large watershed.

The geographic scope of a trade and whether a delivery ratio is appropriate is a case-specific and water body-specific issue that should be left to the implementing state.

There are some who argue that no trades should be allowed, or should be allowed only within a very small geographic area, to alleviate concerns over "hot spots." "Hot spots" are generally a concern when dealing with toxic pollutants. Water body responses to nutrients are so highly variable and so highly dependent on site-specific factors — such as flow, shade, and hydrologic modification — that it is very unlikely that a trade would be the cause of a localized algal bloom or other adverse impact. Nutrient loadings high enough to cause a local impact can be prevented by state regulatory agencies on a case-by-case basis.

Where trading takes place under a TMDL, hot spots are unlikely due to the margin of safety required in a TMDL. Hot spots also are highly unlikely to take place as a result of trading to implement the Chesapeake Bay TMDL because over 50 million pounds of nitrogen reduction were added to the TMDL to achieve **d**issolved **o**xygen (DO) **w**ater **q**uality **s**tandards (WQSs) in four deep bay segments.

> The basinwide allowable nitrogen and phosphorus loads were determined on the basis of achieving a select set of deep-water and deep-channel DO standards in the mainstem Bay and adjoining embayments…The Bay TMDL calls for nitrogen load reductions upwards of 50 million pounds greater than that necessary to achieve the applicable DO WQS in those four Bay segments compared with many of the remaining 88 Bay segments. EPA, *Chesapeake Bay TMDL*, Dec. 2010, at 6-14.

Water quality standards in the remaining 88 segments of the Bay would be achieved with far fewer nitrogen reductions.

Water Quality Trading

Expanded Scope Benefits

Refusing to allow trading other than in local areas, to alleviate concerns over hot spots, would limit the utility of trading as a water quality improvement and cost reduction tool. The importance of allowing a broad geographic scope for trading is noted by the University Of Maryland School Of Public Policy:

> Expanding the scope of the allowable offset area has a large impact on the potential Baywide cost savings achievable. As compared with offsets limited to the same river basin and state as the WWTP, expanding the eligible area for offsets to the whole state generated an estimated 31 percent cost savings. Some basins such as the Potomac encompass multiple states. Allowing eligible offsets anywhere in the same river basin (potentially across state boundaries) increased the cost savings to 43 percent. Most impressive of all, allowing offsets to be obtained anywhere in the Chesapeake Bay watershed generated potential costs savings for the Bay cleanup of 87 percent. As these figures suggest, there are large economic advantages from a Baywide perspective to providing a maximum of flexibility in the geographic locations at which offsets can be obtained. *The Critical Role of Nutrient Offsets*, at xxiii.

Legal Framework

As noted by EPA in its Water Quality Trading Policy, there are a large variety of ways to structure a legal framework for water quality trading. These include: legislation; rulemaking; NPDES permits; TMDLs; watershed plans; private contracts; and third party contracts. *EPA Water Quality Trading Policy*, at 8; *Water Quality Trading Toolkit for Permit Writers*, EPA-833-R-07-004 (Aug. 2007, updated June 2009), *Water Quality Trading Scenario: Point Source-Nonpoint Source Trading,* at 12-15.

Credit Aggregators

The specific type of legal framework should be left to the state and the trading partner.

Trading with nonpoint sources may be the most successful where conservation partners, such as state Farm Bureaus and soil and water conservation districts function as aggregators for programs. Private entities also may serve this function. Credit aggregators can provide the oversight functions that might otherwise be left to a regulatory agency. An agricultural producer may be more likely to agree to generate credits if the producer does not need to give federal or state regulatory officials access to their property.

Addressing Uncertainty and BMP Verification

Uncertainty Mechanisms

In the *Water Quality Trading Toolkit for Permit Writers*, EPA identifies a number of mechanisms for addressing uncertainty associated with nonpoint source reductions. These include: offset ratios; monitoring BMP effectiveness; modeling BMP effectiveness; and estimating BMP effectiveness. It is important to note that a lower uncertainty about BMP effectiveness results in a lower need for a credit ratio greater than 1:1.

Modeling Reductions

By definition, nonpoint sources have no discrete discharge point that can be monitored. Because it is difficult to measure reductions in nonpoint loadings of nutrients from conservation practices adopted on the land, most trading programs use models or other calculations to estimate such pollutant reductions. For example, EPRI is using EPA's Watershed Analysis Risk Management Framework model for its Ohio River Basin pilot project. This modeling allows for the incorporation of difference in assimilation of pollutants within areas of the watershed, allowing for a broad geographic scope for trades. In addition, in the Ohio River Basin, all trades will be executed with trading ratios and will be informed by watershed modeling. As noted above, a uniform trading ratio would not be appropriate as a result of geographic differences.

Inspections

Uncertainty also is reduced by including requirements for conservation practice inspections and certification in trade agreements. Different states have different procedures for ensuring that BMPs are implemented and maintained. In most states, these procedures are implemented by the state department of agriculture. For example, the Maryland Department of Agriculture inspects at least 10% of all traded agricultural credits per year. Third-party inspections also can be used.

Willing Producers

If trading is to be successful, there must be willing nonpoint source partners from the agriculture producer community. An agricultural producer is far more likely to participate if the producer knows he or she will be interacting with familiar entities and programs, such as USDA's Natural Resources Conservation Service (NRCS) and state soil and water conservation districts. If EPA or a state water quality agency is given authority to monitor BMP implementation, maintenance, or effectiveness on agricultural land, it is likely that few or no producers will participate.

Evaluations

In addition to verification of BMP implementation, EPA's Trading Toolkit recommends programmatic evaluations, including studies "to quantify nonpoint source load reductions, validate nonpoint source pollutant removal efficiencies." These functions should be carried out by entities in the agricultural community. EPA's Trading Toolkit also recommends "ambient monitoring to ensure impairments of designated uses (including existing uses) do not occur and to document water quality conditions." This function can be carried out by environmental agencies. These programmatic evaluations should be used to improve a trading program generally, and not the success of any individual trade.

Water Quality Trading

Monitoring

Replacement Credits

In particular, changes in ambient water quality resulting from nonpoint source BMPs must be tracked over a period of time before water quality changes can be detected. Dr. Deanna Osmond of North Carolina State University recommends monitoring through programs such as USDA's Conservation Effects Assessment Project (CEAP) program. *See* Osmond, D.L., D.W. Meals, D. LK. Hoag, and M. Arabi, eds. 2012. *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The National Institute of Food and Agriculture–Conservation Effects Assessment Project Experience.* Ankeny, IA: Soil and Water Conservation Society, available at: www.swcs.org/en/publications/building_better_agricultural_conservation_programs/.

If a programmatic evaluation identifies a problem then it should be addressed by changing program requirements going forward, without invalidating a particular point source permit. Permits can be changed upon renewal to reflect revised programmatic requirements. Permits that incorporate trading could include conditions such as compliance schedules, to address issues related to lag times between BMP installation and changes to ambient water quality, impacts of extreme weather on ambient water quality, or BMP effectiveness that is less than expected. Alternatively, a state could ensure that adequate credits are available in a credit bank or exchange to allow a point source to obtain replacement credits if needed. Financial liability for the purchase of replacement credits would be addressed in any contract between the point source and the nonpoint source. In trades involving third party aggregators, the aggregator could take this risk and supply the replacement credits, if needed.

Conclusion

Nutrient trading is already occurring and, unless constrained by overly stringent policies, trading shows great promise in reducing costs for water quality improvement.

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Conservation Technology Information Center Report: Many of the issues identified in this article are addressed in a report titled: *Getting Paid for Stewardship: An Agricultural Community Water Quality Trading Guide*, Conservation Technology Information Center (July 2006),

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Interstate Water Decision

Compact Provisions

States' Allocation

"Borderless Common"

STATE CONTROL OF WATER

US SUPREME COURT RULES FOR OKLAHOMA - INTERSTATE COMPACT & COMMERCE CLAUSE ISSUES

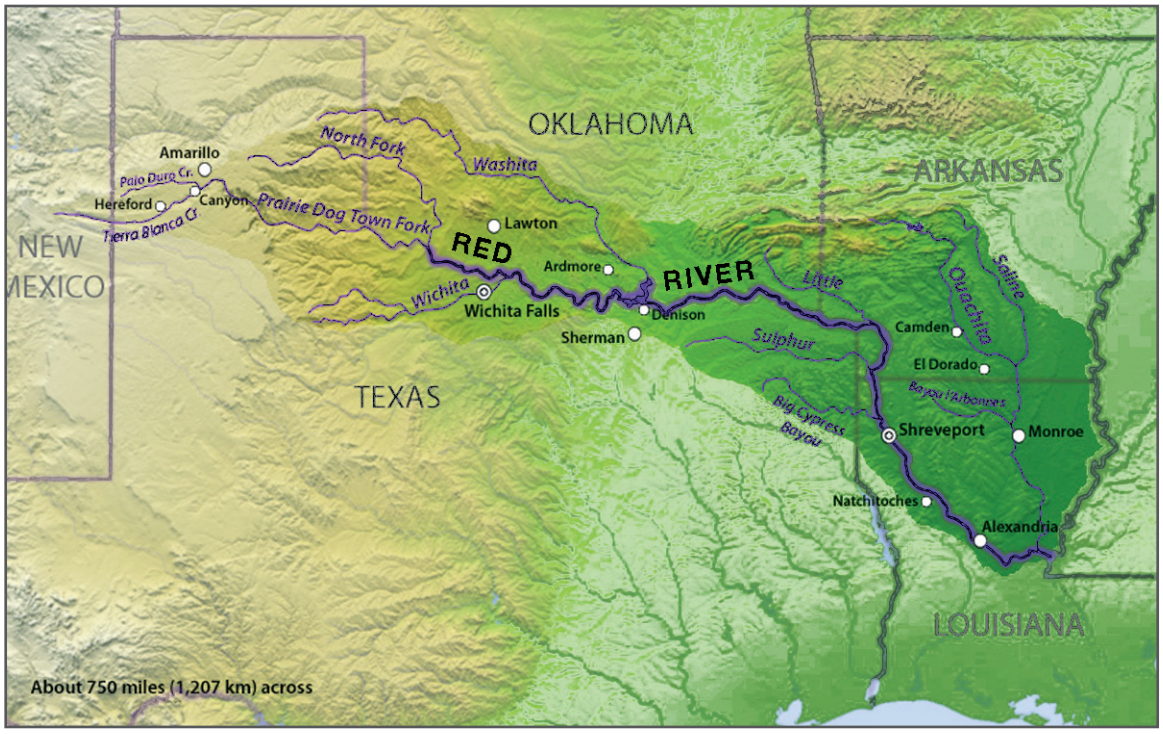
by David Moon, Editor

Introduction

Oklahoma has prevailed in a case between the Oklahoma Water Resources Board (OWRB) and a Texas water district that supports States' power and authority to control water within their own boundaries, and prevent diversions by an out-of-state entity. The decision was based primarily on interpretations of the underlying compact provisions and what *wasn't* included in the compact. The Red River Compact (Compact), 94 Stat. 3305, signed by the States in 1978 and approved by Congress in 1980, allocates water rights among the States containing the Red River basin (Texas, Oklahoma, Arkansas, and Louisiana). Tarrant Regional Water District (Tarrant), a Texas state agency responsible for providing water to north-central Texas' growing population, claimed that it was entitled to acquire water under the Compact from within Oklahoma's borders and that the Compact pre-empts several Oklahoma statutes that restrict out-of-state diversions of water. Tarrant also argued that the Oklahoma laws were unconstitutional restrictions on interstate commerce. The US Supreme Court (Court) unanimously held that Tarrant's claims lacked merit and affirmed the judgment of the Tenth Circuit. Justice Sotomayor wrote the opinion for the Court. *Tarrant Regional Water District v. Herrmann*, 569 U. S. __, No. 11-889 (2013).

Red River Compact: Intent and Silence

Section 5.05(b)(1) of the Compact, the key section at issue in the case, states: "The Signatory States shall have equal rights to the use of runoff originating in subbasin 5 and undesignated water flowing into subbasin 5, so long as the flow of the Red River at the Arkansas-Louisiana state boundary is 3,000 [CFS] or more, provided no state is entitled to more than 25 percent of the water in excess of 3,000 [CFS]." The Court stated that "[I]n Tarrant's view, this provision essentially creates a borderless common in which each of the four signatory States may cross each other's boundaries to access a shared pool of water. Tarrant reaches this interpretation in two steps. First, it observes that §5.05(b)(1)'s 'equal rights' language grants each State an equal entitlement to the waters of subbasin 5, subject to a 25 percent cap. Second, Tarrant argues §5.05(b)(1)'s silence concerning state lines indicates that the Compact's drafters did not intend to allocate water according to state borders in this section." *Slip Op*. at 10.



Interstate Water Decision

Silence

Cross-Border Rights

Pre-Emption

Core State Prerogative

Commerce Clause Limitations (*Sporhase*)

Compact Supersedes

Parties' Intent

The Oklahoma Water Resources Board (OWRB), on the other hand, maintained that the "equal rights" promised by §5.05(b)(1) "afford each State an equal opportunity to make use of the excess water within subbasin 5 of Reach II but only within each State's own borders." OWRB reads the section's silence differently from Tarrant — interpreting the "absence of language granting any cross-border rights to indicate that the Compact's drafters had no intention to create any such rights in the signatory States." The Court then noted what it saw as the crux of this portion of the case: "Unraveling the meaning of §5.05(b)(1)'s silence with respect to state lines is the key to resolving whether the Compact pre-empts the Oklahoma water statutes." *Id.* A footnote to this last sentence sets forth the Court's position on interstate compacts — once a compact receives the approval of Congress it becomes a federal law that preempts any state law that conflicts with the compact, based on the Supremacy Clause (Art. VI, cl. 2).

At this point in the decision, the Court looked to "the principles of contract law" and statutory interpretation, plus an interpretation of the intent of parties to the Compact (when it was signed). "Three things persuade us that cross-border rights were not granted by the Compact: the well-established principle that States do not easily cede their sovereign powers, including their control over waters within their own territories; the fact that other interstate water compacts have treated cross-border rights explicitly; and the parties' course of dealing." *Id.* at 14.

The "presumption against pre-emption" (i.e. the presumption that "Congress does not cavalierly pre-empt" State laws) was also discussed by the Court in Footnote 11. *Id.* at 14. However, the Court stated that the presumption is an "interpretive tool that is inapplicable" to interstate compacts due to the fact that "[W]hen the States themselves have drafted and agreed to the terms of a compact, and Congress' role is limited to approving that compact, there is no reason to invoke the presumption." *Id.*

The Court was clearly swayed by what it viewed as Tarrant's complete reliance on inferences from the "silence regarding state borders" in the key section of the Compact. "Tarrant asks us to infer from §5.05(b)(1)'s silence regarding state borders that the signatory States have dispensed with the core state prerogative to control water within their own boundaries." *Id.* at 15. "We think that the better understanding of §5.05(b)(1)'s silence is that the parties drafted the Compact with this legal background in mind, and therefore did not intend to grant each other cross-border rights under the Compact." *Id.* at 16.

A critical point of the entire decision, however, lies in the footnote to this paragraph of the decision, where the Court noted limitations on State's powers to control water within their borders, pointing to the Commerce Clause and the well-known *Sporhase* case. Footnote 11 on pages 15-16 states: "Of course, the power of States to control water within their borders may be subject to limits in certain circumstances. For example, those imposed by the Commerce Clause. See *Sporhase v. Nebraska ex rel. Douglas*, 458 U. S. 941, 954–958 (1982). Here we deal only with whether the parties' silence on state boundaries in the allocation of water under a compact suggests that borders are irrelevant for that allocation. As noted infra, at 23–24, Tarrant has not raised any Commerce Clause challenge to Oklahoma's control of the water allocated to it by the Compact." This last sentence of the footnote is confusing since Tarrant did raise a Commerce Clause challenge; the confusion is not clarified until the very end of the opinion (see below). Thus, the issue that many water users assumed would control the case — one state's ability to deny another state's use of water in light of Commerce Clause provisions prohibiting discrimination against interstate commerce in water — was not fully addressed by the Supreme Court due to their view of the facts and issues before them. Instead, the decision turned on the Court's interpretations of the Red River Compact (especially its silence on cross-border diversions) and the Court's view of the "sovereign prerogative of Oklahoma." *Id* at 16.

Oklahoma maintained that the Compact equitably allocated all the waters between the states and Tarrant's proposed diversion did not comply with the Compact. J.D. Strong, the Executive Director of the OWRB told *The Water Report* that "the case started out with Tarrant arguing that it was essentially a dormant Commerce Clause case, but it morphed into a Compact case. Oklahoma argued all along that the Compact supersedes the Commerce Clause issues. Thankfully, the Court focused on whether or not the Compact allowed Tarrant to cross over the border to divert water. Once the Court found — on this threshold issue — that the silence in the Compact meant that the States did not intend to grant that authority, the Court did not need to address other potential issues and questions in the case. Tarrant can't circumvent the Compact."

The Court also looked to other water rights compacts between States to help "ascertain the intent of the parties to this Compact." *Id.* Once again, the Court found it compelling that the Red River Compact was silent on the issue of cross-border diversions, especially in light of the practical "complexities" and "mechanics of a cross-border diversion" of water. *Id.* at 17. The Court stated that if Tarrant was correct, applicants from the three other states could apply to Oklahoma for water, OWRB would be "obligated to determine the total amount of water in Oklahoma beyond the 25 percent cap" and also determine priority

Interstate Water Decision

Conveyance Language Rejected

Purchase Offer Impact

Commerce Clause Discrimination

Court's Rationale

"Unallocated" Water

Compact Allocation

Hollow Remedy

Compact Provisions

of the rights under the Compact. "Put plainly, the end result would be a jurisdictional and administrative quagmire. The provisions in the other interstate water compacts resolve these complications. The absence of comparable provisions in the Red River Compact strongly suggests that cross-border rights were never intended to be part of the States' agreement." *Id.* at 18.

Tarrant had argued that the Compact did contain sufficient language to support cross border diversions. "There was express language in the Compact and extrinsic evidence that did indicate the drafters contemplated cross border diversions. For example, the Compact expressly allows all states to use the bed and banks of the Red River (wholly within Oklahoma) to convey 'imported or exported' water. In this context the words import and export can only relate to water transferred across state lines," said Kevin Patrick of Patrick, Miller, Kropf, & Noto, PC (Tarrant's attorney in the case).

Past behavior often plays a critical part in water rights disputes and this case is no exception. Tarrant was also undone by its previous conduct. "Since the Compact was approved by Congress in 1980, no signatory State had pressed for a cross-border diversion under the Compact until Tarrant filed its suit in 2007…Indeed, Tarrant attempted to purchase water from Oklahoma over the course of 2000 until 2002…a strange offer if Tarrant believed it was entitled to demand such water without payment under the Compact." *Id.* at 20. Ultimately, the Court found that the Compact did not preempt Oklahoma's water laws that restrict the export of water to other states.

Commerce Clause and State's Authority

Although the Court briefly alluded to the Commerce Clause in Footnote 11 earlier in the decision (see above), Tarrant's challenge to "the constitutionality of the Oklahoma water statutes under a dormant Commerce Clause theory" is addressed directly at the very end of the opinion. *Id.* at 22-24. The review of the issue received only one page of discussion by the Court. Tarrant asserted that Oklahoma's water laws impermissibly discriminate against interstate commerce for the forbidden purpose of favoring local interests "by erecting barriers to the distribution of water left unallocated under the Compact." The Court goes on to note that Tarrant argues that "because Oklahoma's laws prevent this 'unallocated water' from being distributed out of State, those laws violate the Commerce Clause." *Id.* at 23. The Court, however, found Tarrant's Commerce Clause arguments lacked merit due to the fact that the Court believed that the Compact itself did not leave any water "unallocated." Unfortunately, the opinion arrives at this critical conclusion with little explanation.

First, the opinion basically restates the key Compact provisions at issue in the case, noting that the "interpretive comment for Article V of the Compact makes clear that when the River's flow is above 3,000 CFS, 'all states are free to use whatever amount of water they can put to beneficial use,' subject to the requirement that '[i]f the states have competing uses and the amount of water available in excess of 3000 CFS cannot satisfy all such uses, each state will honor the other's right to 25% of the excess flow.' 1 App. 29–30." Following this statement, the Court comes to its crucial determination regarding "unallocated water" versus water allocated to Oklahoma — essentially deciding that there would not be any "unallocated water" in Oklahoma *unless* Texas could prove that Oklahoma was using more than twenty-five percent of the excess water (Texas had not asked for an accounting under the Compact to establish that fact). "If more than 25 percent of subbasin 5's water is located in Oklahoma, that water is not 'unallocated'; rather, it is *allocated to Oklahoma unless and until another State calls for an accounting* and Oklahoma is asked to refrain from utilizing more than its entitled share." (emphasis added) *Id.* at 23-24. Finally, once the Court found that under the Compact there are no "unallocated" waters, that finding became the reasoning underlying its ultimate conclusion: "The Oklahoma water statutes cannot discriminate against interstate commerce with respect to unallocated waters because the Compact leaves no waters unallocated."

Tarrant argued that since none of the four states may use more than 25% (and since the river does not flow into Texas), the result of Oklahoma's position is that millions of acre-feet of water may never be used. "The Court's comment that if Texas believes Oklahoma is taking more than its 25% share, Texas can call for an accounting and curtailment is a hollow remedy since limiting Oklahoma to its 25% share would do nothing to benefit Texas users," Kevin Patrick told *The Water Report.*

How this decision might be applied to other interstate situations is unclear, especially as to its Commerce Clause implications and as to what extent the legal precedents from the *Sporhase* case still apply. The Court's factual finding as to "unallocated water" under the Compact neatly ended the inquiry into interstate commerce implications in this case. The opinion's language regarding state's sovereign powers and silence in interstate compacts places more emphasis on the specific provisions contained in compacts themselves than ever before.

Interstate Water Decision

Interstate Access

Kevin Patrick set out Tarrant's position regarding the Court's findings related to the Commerce Clause to *The Water Report*. "The Court's presumption that in the absence of expressly stated permission in a compact, citizens of any state may not cross into another state to conduct commerce (i.e., commerce in water) is troubling. In our view, any presumption should have been that interstate access is always allowed in the absence of express language prohibiting it. Nor would inferring interstate access in the face of silence interfere with a state's sovereignty where the state has signed a compact and the water apportioned to that state is not affected. Under *Sporhase*, the Supreme Court has already ruled that states do not have a 'sovereignty' or ownership interest in the water within their borders, particularly of an interstate stream; and that water is an article of commerce."

Reactions to the Decision

Oklahoma Statement

J.D. Strong and OWRB issued the following statement regarding the decision: "Obviously, today's unanimous decision by the U.S. Supreme Court is vindication for Oklahoma and the two neighboring Red River Compact states who joined with us to hold Texas accountable to the promises and provisions of our 33-year-old Compact agreement. It's also a victory for the seven mostly arid western states who sided with Oklahoma and stood to lose at least as much control over their limited surface water supplies. Most importantly, though, this decision is a resounding victory for the citizens of Oklahoma and our ability to manage their water for their benefit. While the elegant defense of our position by Oklahoma's legal team spawned considerable optimism, it's a relief that the high court has reaffirmed our interpretation of long-settled agreements over the apportionment of interstate waters. After many years of legal maneuvering and saber-rattling, this should end, once and for all, Tarrant's attempts to circumvent Oklahoma's water management authority."

Tarrant (Texas) Statement

Meanwhile Jim Oliver, General Manager of Tarrant issued the following statement shortly after release of the decision. "Obviously, we are disappointed with the Supreme Court's decision. Securing additional water resources is essential to North Texas' continued growth and prosperity and will remain one of our top priorities. The population in our service area is expected to double over the next fifty years so we will act quickly to develop new sources. The decision does not address the problem of Oklahoma's lack of water infrastructure, and we believe solutions that benefit both Texas and Oklahoma still exist. We will continue to explore and advance those opportunities."

Conclusion

The Supreme Court's decision has certainly changed the landscape governing the interstate use of water. Sotomayor's opinion calls into question the extent of precedent from the *Sporhase* case, regarding interstate commerce discrimination, without providing guidance on how future interstate water use will be viewed and to what extent one state can restrict water use across its borders. This case turned on the provisions of the Red River Compact — what was specifically stated and where the Compact was silent. The decision clearly sets a very high bar concerning new interstate compacts with its pronouncements about the impact of "silence" when one is examining a compact (after the fact) for its intent.

New compacts may well be extremely difficult to draft and agree upon in light of the fact that *what isn't specifically included* may come back to haunt compact participants.

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Case at: www.supremecourt.gov/opinions/12pdf/11-889_5ie6.pdf;
Briefs at: www.scotusblog.com/case-files/cases/tarrant-regional-water-district-v-herrmann/;
Oklahoma's Compact website: http://www.owrb.ok.gov/rrccommission/rrccommission.html

David Moon is an attorney who has specialized in water law for over 30 years, practicing in Montana and Oregon. Mr. Moon is also a seasoned journalist, who for over eighteen years has reported regularly on evolving water law issues. Moon graduated from Colorado College in 1975 and received his JD from the University of Idaho in 1979. He is a member of the Montana and Oregon BARs.

WATER BRIEFS

SPECULATION DECISION CO

"CAN AND WILL" REQUIREMENTS

On June 24, the Colorado Supreme Court (Court) issued two related decisions that further explain the Court's view of the evidence necessary to satisfy anti-speculation and "can and will" requirements of Colorado water law. In *Vermillion Ranch Limited Partnership v. Raftopoulos Brothers*, Case No. 11SA86 &, *Raftopoulos Brothers v. Vermillion Ranch Limited Partnership*, Case No. 11SA124, 2013 CO 41 (June 24, 2013), the Court considered three water rights cases involving Raftopoulos Brothers (Raftopoulos) and Vermillion Ranch Limited Partnership (Vermillion). Raftopoulos and Vermillion conduct large ranching operations in northwest Colorado on neighboring properties and hold decreed water rights on Talamantes Creek, a small tributary located in a dry, remote area of Moffat County. The issues the Court considered dealt with Raftopoulos' and Vermillion's competing efforts to develop water rights on Talamantes Creek for eventual industrial and commercial use. Justice Márquez delivered the opinion of the full court.

In Case No. 11SA86 (Raftopoulos' Application (08CW89)), the water court (lower court) concluded that Raftopoulos met its burden to demonstrate a non-speculative intent to use the requested water for commercial and industrial purposes. *Slip Op*. at 19. After reviewing the evidentiary basis for that finding, however, the Court rejected the conclusion and found that the "evidence does not, however, support a conclusion that Raftopoulos demonstrated a non-speculative need for the water for industrial and commercial purposes." The Court explained the level of detail necessary to meet the non-speculative standard and how Raftopoulos' evidence was insufficient: "The mere fact that wells 'may be developed in the area' or that the partnership owns mineral rights that 'may be developed in the future,' without evidence of actual plans for such activities, does not demonstrate a non-speculative intent to actually put the water to beneficial use. Moreover, Raftopoulos provided no estimate of the quantity of water that might be needed for such activities. Similarly, the Moffat County contract does not require the county to purchase or use any specific quantity of water, nor did Raftopoulos proffer any evidence or even any estimate of the quantity of water the county might reasonably use. The Precision Excavating contract, briefly mentioned in Mr. Raftopoulos' testimony, was never offered into evidence, and nothing in the record reflects the terms of that arrangement. Both contracts were executed long after Raftopoulos filed the application in this case… Finally, Raftopoulos presented no evidence that these possible future demands could not be met through Raftopoulos' existing absolute water rights." *Id.* at 20-21.

Judge Marquez noted that while the Court did "not question the credibility of this undisputed testimony or otherwise discount this evidence, we conclude that it is insufficient, as a matter of law, to demonstrate a non-speculative intent to put the water to beneficial use. Absent any quantification of the anticipated demand for such water, Raftopoulos did not demonstrate a non-speculative need for water for industrial and commercial purposes. In short, the water court erred in determining that Raftopoulos met its burden to demonstrate a 'specific plan' to store 'a specific quantity of water' for industrial and commercial purposes. § 37-92-103(3)(a)(II)." *Id.* at 21.

In the second case, Case No. 11SA124, Vermillion filed two applications, one "seeking a finding of reasonable diligence with respect to its previously decreed conditional water storage rights (Case No. 08CW54)" and the second, "seeking to obtain new conditional storage rights for industrial and commercial purposes (Case No. 06CW61). The applications concern the same four proposed reservoir structures." *Id*. at 21-22. Raftopoulos argued that the water court erred in granting both applications "because Vermillion failed to meet its burden of establishing, pursuant to section 37-92-305(9)(b), a substantial probability that the reservoirs 'can and will' be completed with diligence and within a reasonable time." Raftopoulos also maintained that the water court "applied an incorrect standard by effectively shifting the burden to Raftopoulos, as the opposer, to prove the impossibility of construction." *Id*. at 22.

The Court first quoted the "can and will" statute: "No claim for a conditional water right may be recognized or a decree therefor granted except to the extent that it is established that the waters can be and will be diverted, stored, or otherwise captured, possessed, and controlled and will be beneficially used and that the project can and will be completed with diligence and within a reasonable time." § 37-92-305(9)(b).

The Court next explained that the "can and will" statute "goes beyond the anti-speculation doctrine of *Vidler*, 197 Colo. at 417, 594 P.2d at 568, by requiring an applicant seeking a conditional water right decree to demonstrate that the water 'can and will' be beneficially used. *Bd. Of Cnty. Comm'rs v. United States*, 891 P.2d at 961. Specifically, an applicant for conditional water rights must demonstrate a 'substantial probability that within a reasonable time the facilities necessary to effect the appropriation can and will be completed with diligence.'" *ACJ P'ship*, 209 P.3d at 1083 (quoting *Bd. of Cnty. Comm'rs v. United States*, 891 P.2d at 961).

The opinion goes on to set forth a detailed explanation of "conditional rights" under Colorado water law and discusses the nature of the "can and will" test — a "balancing test that considers several relevant factors, including but not limited to the legal and physical availability of unappropriated water… the technical feasibility of a project… the applicant's present right and prospective ability to access the property… the applicant's ability to obtain necessary permits for construction… and the economic feasibility of a project… ." (citations omitted). This part of the opinion provides a thorough discussion of the "can and will" test and is recommended for any water users interested in this area of water law. The Court also points out that the "can and will" test presents mixed questions of fact and law. *Id*. at 24-25.

WATER BRIEFS

One notable finding by the Court states that the "can and will" standard is applied differently depending on the applicant. Private parties face a stricter standard than "public entities," since the "case law has recognized that the standard governing a public entity's request for a conditional water right is generally more 'flexible' than the showing required for a private entity to secure the same." *Id*. at 33.

In support of its decision that Vermillion failed to demonstrate through evidence at trial that it "can and will" complete the reservoirs as required by section 37-92-305(9)(b), the Court pointed out the incorrect standard utilized by the water court. "Moreover, neither case cited by the water court stands for the proposition that an application should be denied under the 'can and will' standard 'only if the impediments make it impossible' for the applicant to complete the appropriation. To the contrary, they reaffirm the principle that the 'can and will' standard is a balancing test that turns on several factors." *Id*. at 34.

The opinion goes on to discuss various cases based on the "can and will" test and how the facts in those cases led to the court's decision. Again, Judge Márquez' opinion provides water users with a guide to the Court's reasoning on the standard in the case at hand and the cases cited for precedent. "These cases do not suggest that a court has no basis to deny an application under the 'can and will' requirement unless the impediments make the project impossible to complete. Rather, they accord with the general principles that the applicant bears the burden of proving, through evidence, a substantial probability that the project can and will be completed, with diligence and within a reasonable time, and that whether an applicant has demonstrated that it has met the 'can and will' requirement is a balancing test that examines several relevant factors." *Id*. at 36.

After examining some additional factors bearing on the "steady application of effort" necessary, the Court arrived at its conclusion "that Vermillion failed to meet its burden to prove by a preponderance of the evidence at trial that there is a substantial probability that the reservoirs necessary to effect the appropriation 'can and will' be completed with diligence within a reasonable time." *Id*. at 37.

For info: Case at:
www.courts.state.co.us/userfiles/file/Court_Probation/Supreme_Court/Opinions/2011/11SA86%2C%2011SA124.pdf

JOINT REGIONAL AGREEMENT ON BEST PRACTICES FOR WATER QUALITY TRADING ID/OR/WA

OPEN HOUSES IN AUGUST — PORTLAND & BOISE — 8/16 & 8/22

Water quality trading is a mechanism to help achieve local water quality improvements. Trading allows sources with very high costs of reducing pollution to negotiate equal or greater pollution reductions from sources with lower pollution reduction costs (see Cordon, *TWR*#24; Dupuis, et al., *TWR*#52; Horton & Gaddis, *TWR*#94; Cochran, et al., *TWR*#103; Lindley, *TWR*#105; Hampton & Jacobs, *TWR*#112 and Bodine, this *TWR*).

Idaho, Oregon, and Washington (NW States') water quality agencies, and US EPA Region 10 are working together with public interest groups on a joint regional agreement defining what they consider the best practices to follow when implementing water quality trading.

Open house meetings to be held on Friday, August 16 in Portland, Oregon and Thursday August 22 in Boise, Idaho, will provide an opportunity to learn about the US Department of Agriculture Conservation Innovation Grant funding an effort to craft a Joint Regional Agreement on Best Practices for Water Quality Trading for NW States. Project goals, desired outcomes, progress to date, and partner perspectives will all be presented and the final hour will be dedicated to questions, answers, and discussion.

The Willamette Partnership and The Freshwater Trust, non-profit groups interested in increasing the pace and effectiveness of restoration activities throughout the Pacific Northwest, will be facilitating these discussions.

The goal of this project is to help ensure that water quality trading programs have the quality, credibility, and transparency necessary to be consistent with the Clean Water Act and make certain all trades achieve water quality improvements. To accomplish this goal, the project will define best practices that apply in all three states and will also describe those practices that are specific to each state. This process may help to create consistency across states, increasing the confidence of participants and observers that trades produce their intended water quality benefits and comply with applicable Clean Water Act regulations.

Beginning November 2013, the NW States anticipate testing some of the ideas from the draft framework by implementing pilot projects in selected watersheds. The framework will then be revised to incorporate lessons learned through the end of the project in September 2015. Individual NW States may choose to update their own trading program's rules or guidance to incorporate the best practices, following their state's procedures for public participation and input.

Open House - Friday, August 16th - Oregon Department of Environmental Quality Headquarters
811 SW 6th Avenue, Portland, Oregon, 10am — Noon

Open House - Thursday, August 22th - Idaho Division of Environmental Quality Headquarters
1410 North Hilton Street, Boise, Idaho, 4pm-6pm

For info:
Bobby Cochran, Willamette Partnership, 503/ 946-8350 or cochran@willamettepartnership.org
Ranei Nomura, Oregon Department of Environmental Quality, 541/ 686-7799 or nomura.ranei@deq.state.or.us
Marti Bridges, Idaho Division of Environmental Quality, 208/373-0382 or Marti.Bridges@deq.idaho.gov
website: http://willamettepartnership.org/ (select "Joint Regional Agreement Process")

WATER BRIEFS

WATER DEFICIT TX

TEXAS REPORT ON MEXICO'S OBLIGATIONS

On June 20, South Texas Agriculture Commissioner Todd Staples and Texas Commission on Environmental Quality (TCEQ) Commissioner Carlos Rubinstein released a report titled: "*Addressing Mexico's Water Deficit to the United States*" (Report) detailing specific actions the International Boundary and Water Commission (IBWC) should take to compel Mexico to deliver Rio Grande water owed to Texas.

Agricultural production in the Lower Rio Grande Valley (LRGV) region relies heavily on irrigation water for its crop production. Texas A&M AgriLife Extension Service estimates the lack of irrigation water has cost $229.2 million in crop revenue loss, which will ultimately contribute to an estimated $394.9 million loss in economic output for the LRGV region and the loss of 4,840 jobs. At least 10 cities in the LRGV have been notified that if conditions persist they will run out of water by August.

According to the terms of the 1944 bi-national Water Management Treaty (Treaty), Mexico is required to release one-third of the water from its Rio Grande tributaries and reservoirs to the US for agricultural and municipal use. The agreement calls for Mexico to deliver a minimum of 350,000 acre-feet of water to the US annually. Exceptions are made during periods of extraordinary drought or severe accidents. Nearly three years into this current cycle, Mexico has delivered less than half of the 900,000 acre-feet that should have been allocated.

The Report recommends management strategies the IBWC should implement in order to compel action by Mexico. Recommendations include: modifying Mexico's internal and international reservoir operation plan to release water from upstream reservoirs that are above normal capacity; not allowing Mexico's water deficit to grow beyond current levels; and implementing Treaty provisions to allow for more flexibility in water delivery and apportioning. Recommendations also acknowledge accounting for water that flows at Fort Quitman and water salinity issues created by Mexico, and challenges the IBWC to take a stronger and more proactive management role.

For info: Report available at: www.texasagriculture.gov/Portals/0/forms/COMM/Water%20Debt.pdf

DRINKING WATER US

INFRASTRUCTURE NEEDS = $384 BILLION

EPA has released results of a survey showing that $384 billion in improvements are needed for the nation's drinking water infrastructure through 2030 for systems to continue providing safe drinking water to 297 million Americans. EPA's fifth *Drinking Water Infrastructure Needs Survey and Assessment* identifies investments needed over the next 20 years for thousands of miles of pipes and thousands of treatment plants, storage tanks and water distribution systems, which are all vital to public health and the economy. The national total of $384 billion includes the needs of 73,400 water systems across the country, as well as American Indian and Alaska Native Village water systems.

The survey, required under the Safe Drinking Water Act to be submitted to Congress every four years by EPA, was developed in consultation with all 50 states and the Navajo Nation. The survey looked at the funding and operational needs of more than 3,000 public drinking water systems across the US, including those in Tribal communities, through an extensive questionnaire. In many cases, drinking water infrastructure was reported to be 50-100 years old.

The assessment shows that improvements are primarily needed in: Distribution and transmission ($247.5 billion to replace or refurbish aging or deteriorating lines); Treatment ($72.5 billion to construct, expand, or rehabilitate infrastructure to reduce contamination); Storage ($39.5 billion to construct, rehabilitate, or cover finished water storage reservoirs); and Source ($20.5 billion to construct or rehabilitate intake structures, wells, and spring collectors). EPA allocates Drinking Water State Revolving Fund grants to states based on the finding of the assessment. These funds help states to provide low-cost financing to public water systems for infrastructure improvements necessary to protect public health and comply with drinking water regulations.

For info: http://water.epa.gov/grants_funding/dwsrf/index.cfm

NONDIVERSION DEAL CO

ASPEN INSTREAM FLOW AGREEMENT

Large water diversions have reduced the amount of water flowing in the upper Roaring Fork River for decades with only a fraction of the native flow reaching the City of Aspen (Aspen). At times, more than 90% of the native flow of the Roaring Fork is diverted from the river for transmountain delivery to the Front Range and local water diversions serving various beneficial uses. Aspen is leading local efforts this year by using one of its senior water rights to benefit flows through a critical reach of the Roaring Fork River. On June 10, the Aspen City Council authorized a nondiversion agreement with the Colorado Water Trust to bypass some water that Aspen would otherwise divert from this reach of the Roaring Fork.

The agreement was the result of an effort last March when Aspen water officials analyzed the City's water rights with the help of the Colorado Water Trust (CWT). Aspen saw that it could increase flows through the City by adjusting the amount of water it takes from the Roaring Fork River at the Wheeler Ditch, one of the three most senior water rights in a critical 2.5 mile reach of the Roaring Fork from just above Aspen to Castle Creek. Aspen determined that it can reduce its Wheeler Ditch diversions when the river falls below the 32 cubic feet per second (cfs) instream flow, adding as much as 8 cfs to the river. This water will help maintain parts of the Colorado Water Conservation Board's six-mile long instream flow water right which extends from Difficult Creek to Maroon Creek.

To accommodate this project, Aspen will lease less water to third parties than it has in the past, reduce outdoor water use, and redirect other water supplies to meet the City's critical needs. City

WATER BRIEFS

Council agreed to pursue these actions and enter into a nondiversion agreement with CWT, who will help monitor flows in the reach and help oversee the project. The nondiversion agreement specifies how Aspen will adjust the amount of water it takes from the Roaring Fork at the Wheeler Ditch.

"Leaving some of the City's water in the Roaring Fork through this short-term nondiversion agreement will allow us to understand the benefits additional water can provide to the natural habitat," added Dave Hornbacher, Aspen's Director of Utilities and Environmental Initiatives. "We see this project as a first step in crafting a broader, long-term solution for rewatering the Roaring Fork, an effort that will require the help of our entire community. This agreement allows Aspen to meet its water needs while providing as much water as possible to our river this year."

For info: Phil Overeynder, Aspen, 970/ 920-5111 or phil.overeynder@cityofaspen.com; Amy Beattie, CWT, 720/ 570-2897 or abeatie@coloradowatertrust.org

ENDOCRINE DISRUPTORS US EPA INFO REVIEW

EPA has initiated a 30-day public review of the information collection request for collecting data for a list of chemicals that will be screened for their potential to interact with the endocrine systems of humans and wildlife. EPA has also made available the list of chemicals covered by the information collection request and related policies and procedures for collecting data. This is the first time that non-pesticide commercial chemicals will be identified for endocrine screening. This second list of chemicals for endocrine disruptor screening includes 109 chemicals; 20 of the commercial chemicals found in sources of drinking water are also on the Toxic Substances Control Act work plan chemicals list for further assessment.

In 1996, Congress passed the Food Quality Protection Act and the Safe Drinking Water Act Amendments requiring EPA to screen pesticide chemicals and drinking water contaminants for their potential to produce effects similar to those produced by the female hormones (estrogen) in humans. EPA also has authority to screen certain other chemicals to identify other endocrine effects. The Endocrine Disruptor Screening Program (EDSP) also evaluates chemical effects on male hormones (androgens), the human thyroid system, and effects on wildlife. The program utilizes a two-tiered screening and testing strategy to determine whether a chemical has the "potential" to interact with the endocrine system and to conduct studies that provide information on interaction of that chemical with the endocrine system and the dose response relationship.

For info: EPA EDSP website: www.epa.gov/endo/

GROUNDWATER BANKING CA RECLAMATION RESTORATION FUNDS

The Bureau of Reclamation (Reclamation) recently announced the selection of four groundwater banking projects that will receive an estimated $12.7 million in cost-share funding under Part III of the San Joaquin River Restoration Settlement Act, including $10 million in Fiscal Year 2013 awards. Combined with local cost-share contributions, more than $39.6 million in water management improvements will be implemented through these projects for Friant Division water contractors in the San Joaquin Valley.

The selected projects are projected to yield more than 760,000 **a**cre-**f**eet (AF) of water during their 30-year project life cycle. Local water districts will implement these projects to increase and improve water supplies as part of meeting the San Joaquin River Restoration Program's Water Management Goal to reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the interim and restoration flows provided for in the Stipulation of Settlement in *NRDC, et al., v. Kirk Rodgers, et al*. Reclamation selected four projects to fund across the Central Valley Project, Friant Division, including:

Tulare Irrigation District, $1,948,891 - Tulare Irrigation District, along with Kaweah Delta Water Conservation District, plans to construct the 60-acre Cordeniz Basin and realign a portion of the Serpa Ditch to increase the district's ability to recharge groundwater. The project also includes a Groundwater Recharge Capacity Study, a Groundwater Basin Strategic Plan, and developing an Exchange Program to bank water underground in wet years in exchange for dry year surface supplies. The project's annual yield will be about 8,500 AF.

Shafter-Wasco Irrigation District, $5,000,000 – Shafter-Wasco Irrigation District, along with Delano-Earlimart Irrigation District, Kern-Tulare Water District, and Semitropic Water Storage District, plans to construct the Madera Avenue Intertie, a conveyance alternative identified in the Poso Creek Integrated Regional Water Management Plan, completed in 2007. The intertie will be a bi-directional 50-cubic-feet-per-second pipeline and pumping plant linking the Friant-Kern Canal with the California Aqueduct, including connection to SWSD groundwater banking facilities. The project's annual yield will be about 11,000 AF.

Porterville Irrigation District, $737,035 – Porterville Irrigation District plans to build new service pipelines and channels to bring surface supplies to an 1,800 acre in-lieu service area currently relying on groundwater pumping. The project's annual yield will be about 2,500 AF.

Pixley Irrigation District, $5,000,000 – Pixley Irrigation District, along with Delano-Earlimart Irrigation District, plans to construct a Joint Groundwater Bank initially investigated in a Reconnaissance Study completed in 2008. The project includes 170 acres of new recharge basins, recovery wells, a pump station, and pipeline connecting to the Friant-Kern Canal. This is the first phase of the project identified which could eventually be expanded to include additional recharge and recovery capacity. The project's annual yield will be about 3,100 AF.

For info: Erin Rice, Reclamation, 916/ 978-4415 or erice@usbr.gov.

CALENDAR

July 15 WEB
***Horne v. US Dept. of Agriculture*: Practical Implications of the Supreme Court Decision Seminar, WEB.** 3-4pm Eastern time. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

July 15-16 AZ
Arizona Water Reuse 2013 Conference, Flagstaff. Little America Hotel. Presented by Arizona Water Ass'n. For info: www.watereuse.org/sites/default/files/u8/SaveTheDatePostcardc.pdf

July 15-18 Greece
Annual International Forum on Water, Athens. For info: www.atiner.gr/water.htm

July 16-19 CO
The Environmental Awareness Bootcamp, Colorado Springs. Antlers Hilton. Presented by EPA Alliance. For info: www.epaalliance.com/envbootcampcolsprings13.html

July 17 CA
Modeling Hydromodification Impacts & Interventions: 3rd Hydromodification Seminar, Costa Mesa. SCCWRP Office, 3535 Harbor Blvd., Ste. 10. Presented by State Water Resources Control Board. For info: www.waterboards.ca.gov/water_issues/programs/stormwater/hydromodification.shtml

July 17-18 CO
3rd Annual NEPA Compliance Workshop, Colorado Springs. Antlers Hilton. Presented by EPA Alliance. For info: www.epaalliance.com/nepaworkshopJul13.html

July 17-19 CO
38th Annual Colorado Water Workshop, Gunnison. Western State Colorado University. Presented by Colorado Water Workshop. For info: Jeff Sellen, 970/ 943-3162, jsellen@western.edu or www.western.edu/academics/water

July 18 OH
National Roundtable on New Tools for Water Quality: Trading & Beyond, Cincinnati. Hilton Netherland Plaza. Presented by U.S. Water Alliance. For info: Lorraine Koss, 202/ 533-1819, lkoss@uswa.us or www.uswateralliance.org/

July 18-19 NM
Natural Resources Damages Seminar, Santa Fe. Hilton Plaza Hotel. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com or www.lawseminars.com

July 18-20 WA
Rocky Mt. Mineral Law Foundation 59th Annual Institute, Spokane. Red Lion Hotel at the Park. For info: www.rmmlf.org

July 25-26 CO
Water Transfers Conference: Nuts & Bolts, Case Studies & More, Beaver Creek. Beaver Creek Lodge. For info: CLE International, 800/ 873-7130 or www.cle.com/

July 25-26 DC
Oil, Gas & Renewable Energy on Tribal Lands: The New Landscape, Washington. Embassy Row Hotel. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com or www.lawseminars.com

July 26 OR
Habitat & Species Seminar, Portland. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

July 26 WA
GMOs: Agricultural Law & Biotechnology Seminar, Seattle. City University, 521 Wall St. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

July 27 OR
RiverFeast Gathering, Bend. Mary McCallum Park. Presented by Deschutes River Conservancy. For info: www.deschutesriver.org/

July 27 CA
Klamath River Paddle & Party, Orleans. Panamnik Bldg. Presented by Klamath Riverkeeper. For info: www.klamathriver.org/paddleparty

July 28-31 OR
Chapman Conference: Seasonal to Interannual Hydroclimate Forecasts & Water Management, Portland. Presented by American Geophysical Union. For info: http://chapman.agu.org/watermanagement/

July 28-31 BC
WEF/IWA Nutrient Removal & Recovery 2013: Trends in Resource Recovery & Use Conference, Vancouver. Sheraton Vancouver Wall Centre Hotel. Presented by Water Environment Federation and International Water Ass'n. For info: www.wef.org/nutrients/

July 29-30 CA
Environmental Regulation of Fracking Seminar, Santa Monica. DoubleTree Guest Suites. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com or www.lawseminars.com

July 29-31 WA
Western Water Seminar, Stevenson. Skamania Lodge. Presented by National Water Resources Ass'n. For info: www.nwra.org/events/2013/7/western-water-seminar-3/

July 29-Aug. 2 IL
5th National Conference on Ecosystem Restoration NCER, Chicago. Renaissance Schaumburg Convention Ctr. Hotel. For info: www.conference.ifas.ufl.edu/NCER2013/

July 31 WA
Tribal Water in the Pacific Northwest, Seattle. Renaissance Seattle Hotel. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

August 1-2 WA
Collaborative Negotiations Skills for Environmental Professionals, Seattle. For info: Northwest Environmental Training Center, www.nwetc.org

August 4 NM
Association of Clean Water Administrators Annual Meeting 2013, Santa Fe. Lodge at Santa Fe. For info: www.acwa-us.org/#!meetings

August 8-9 AZ
Arizona Water Law Conference, Phoenix. Arizona Biltmore Resort. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

August 13-15 NM
Symposium on the Settlement of Indian Water Rights Claims, Santa Fe. Hilton Santa Fe at Buffalo Thunder. Presented by Western States Water Council & Native American Rights Fund. For info: WSWC, 801/ 685-2555 or www.westernstateswater.org/upcoming-meetings/

August 14 CA
Past, Present & Future: Effectively Managing California's Groundwater Resources - Ass'n of California Water Agencies' Third Annual Regulatory Summit, Oxnard. Embassy Suites Mandalay Beach. For info: ACWA, 916/ 441-4545 or www.acwa.com/

August 14 CA
Habitat Conservation Planning Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, http://extension.ucdavis.edu/

August 15-16 CO
Clyde Martz Summer Conference: Arizona v. California at 50: The Legacy and Future of Governance, Reserved Rights, and Water Transfers, Boulder. University of Colorado School of Law. Sponsored by the Getches-Wilkinson Center. For info: www.colorado.edu/law/research/gwc/events

August 16 OR
Joint Regional Agreement on Best Practices for Water Quality Trading (Open House), Portland. ODEQ Headquarters, 811 SW 6th Avenue, 10am-Noon. For info: Bobby Cochran, Willamette Partnership, 503/ 946-8350 or cochran@willamettepartnership.org; Ranei Nomura, ODEQ, 541/ 686-7799 or nomura.ranei@deq.state.or.us

August 18-21 MN
2013 International Low Impact Development (LID) Symposium, St. Paul. St. Paul RiverCentre. For info: Nicole Freese, University of Minnesota, 612/ 624-3708, cceconf5@umn.edu or www.cce.umn.edu/2013-International-Low-Impact-Development-Symposium/index.html

August 18-22 SC
StormCon: Stormwater Pollution Prevention Conference, Myrtle Beach. Sheraton Convention Ctr. Hotel. For info: www.stormcon.com/

August 20-22 SC
SPCC & Stormwater Compliance Workshop, Hillton Head Island. The Beach House. Presented by EPA Allicance. For info: www.epaalliance.com/spcc&stormwateraug13.html

August 22 ID
Joint Regional Agreement on Best Practices for Water Quality Trading (Open House), Boise. Idaho Division of Environmental Quality Headquarters, 1410 North Hilton Street, 4-6pm. For info: Bobby Cochran, Willamette Partnership, 503/ 946-8350 or cochran@willamettepartnership.org; Marti Bridges, IDEQ, 208/ 373-0382 or Marti.Bridges@deq.idaho.gov

August 22-23 NM
Tribal Natural Resources Law Conference, Santa Fe. La Posada de Santa Fe Resort. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

August 22-23 NV
Nevada Water Law Conference, Reno. Peppermill Resort Spa Casino. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

August 29 CA
Wetlands Regulation & Mitigation Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, http://extension.ucdavis.edu/

September 1-6 Sweden
World Water Week, Stockholm. Organized by Stockholm Int'l Water Institute. For info: www.worldwaterweek.org/

September 5 CA
Effectively Integrating CEQA Streamlining to Create Sustainable Communities Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, http://extension.ucdavis.edu/

September 10-11 WA
Hydrology for the World of Work Workshop: Introduction to the Science of Applied Hydrology, Seattle. For info: www.nwetc.org

September 11-12 OR
Oregon BEST Fest: Northwest's Premier Cleantech Innovation Conference, Portland. Leftbank Annex, 101 N. Weidler Street. For info: http://oregonbest.org/bestfest/registration

September 15-18 CO
28th Annual WateReuse Symposium, Denver. Marriott City Ctr. Presented by WateReuse Ass'n. For info: www.watereuse.org/symposium28

September 15-18 Turkey
IWA's 4th Cities of the Future Conference, Istanbul. Hilton Hotel. Presented by International Water Ass'n. For info: www.iwahq.org/1zt/events/iwa-events/2013/cof2013.html

The Water Report
Water Rights, Water Quality & Water Solutions in the West
260 N. Polk Street • Eugene, OR 97402

CALENDAR

(continued from previous page)

September 16-18 China
Water for Mega Cities: Challenges & Solutions - International Specialty Conference, Beijing. Yulong International Hotel. Sponsored by American Water Resources Ass'n & Beijing Hydraulic Engineering Society. For info: www.awra.org/meetings/Beijing2013/

September 17-18 MT
13th Annual Montana Water Law Seminar, Helena. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

September 18-19 TX
The UST & AST Management Workshop, San Antonio. Saint Anthony Wyndham. For info: EPA Alliance Training Group, www.epaalliance.com

September 18-20 MT
Monitoring & Assessment of Wetland & Riparian Restoration Sites Course, Bozeman. Montana State University. Presented by Montana Water Center & Montana DEQ. For info: http://watercenter.montana.edu/training/wetlands/

September 19 WA
4th Fisheries & Hatcheries: Legal & Regulatory Frameworks Seminar, Seattle. Washington State Convention Ctr. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

September 20 WA
Model Toxics Control Act Seminar, Seattle. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

September 20 WA
Floodplains Seminar, Seattle. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

September 20 CA
California Environmental Quality Act Seminar, Santa Monica. TENTATIVE. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com or www.lawseminars.com

September 22-25 MO
Ground Water Protection Council Annual Forum, St. Louis. Chase Park Plaza Hotel. For info: www.gwpc.org/events

September 23-24 ID
Water Law in Idaho Seminar, Boise. TENTATIVE. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

September 23-24 NM
New Mexico Water Law Conference, Santa Fe. La Fonda Santa Fe. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

September 24-26 TN
2013 Water Education Summit, Chattanooga. Sheraton Read House Hotel, 827 Broad Street. For info: www.h2osummit.org/

September 25-26 TX
Water & Energy: Looking Beyond the Shales Conference, Houston. Presented by Westwater Research & Global Water Intelligence. For info: www.waterenergystrategy.com/

September 26 WA
Future Directions in Water Resource Management - AWRA Washington State Conference, Seattle. Mountaineers Seattle Program Ctr. Presented by American Water Resources Ass'n (WA Section). For info: www.waawra.org

September 26 OR
Stormwater Seminar, Portland. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

September 27 WA
Water Right Transfers Seminar, Seattle. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

September 29-Oct. 5 Turkey
1st World Irrigation Forum & 64th Meeting of the IEC (WatSav Awards), Mardin. Presented by Int'l Comm'n on Irrigation & Drainage. For info: www.worldirrigationforum.org/en/#.UYwKvXBK4-Y