



# The Water Report™

*Water Rights, Water Quality & Water Solutions in the West*

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## SACRAMENTO-SAN JOAQUIN DELTA

MAJOR LEGISLATION - REMAINING ISSUES

by Alf Brandt, Principal Consultant for the Committee on Water, Parks & Wildlife  
(California State Assembly)

### INTRODUCTION

The Sacramento-San Joaquin Delta once again played the starring role in California's water resources debate in 2009. This time, however, the State Legislature and the State Capitol — not federal and state agency conference rooms — offered the venue for the continuing Delta drama. Much of the supporting cast remained constant, composed of agencies, in-Delta community leaders, water users, and environmentalists. But a new leading man and leading lady contributed stellar performances in a production that achieved new heights in western water policy.

California's Delta has declined for much of the last decade, leading to multiple crises and the Legislature's effort to reform the way California manages one of its most valuable natural resources. The 2009 Delta/Water Legislation reflects a fundamentally different world — in the Delta and beyond — versus 30 years ago when the Legislature approved the controversial "Peripheral Canal" to take Northern California water around the Delta to the state and federal water project export pumping facilities for San Joaquin Valley agriculture and Southern California urban communities. The issues were different. The process was different. The outcome was different.

Last year's legislative process was unique in scope and intensity. Some had suggested that the Legislature would never be able to pass a comprehensive bill on the Delta, but the Legislature succeeded. The final legislation was comprehensive and addressed a wide range of Delta and other water issues — big and small. Although the Legislature did not completely change California water policy, it set a new course, particularly in the Delta. The Legislature's success was due, in large part, to the commitment and leadership of its two leaders — Senate President Pro Tempore Darrell Steinberg and Assembly Speaker Karen Bass.

Steinberg often introduced his presentations on the 2009 Delta/Water Legislation with the observation: "Now is the time for the Legislature...to act." And act the two houses did. Despite the occasional setbacks, these two leaders continued pushing their houses forward on water policy through the year, from appointment of bi-partisan, bi-cameral legislator work groups on the Delta, through the Legislature's failure to pass Steinberg's compilation bill on the last night of the regular session. In October, after Governor Schwarzenegger threatened to veto all bills if he did not get a water bill package that included a water bond, the leaders — as well as their Republican counterparts — went into a "Big 5" negotiation to discuss water policy. [Editor's Note: The "Big 5" refers to the two Democrat and two Republican leaders in the California Legislature, plus the Governor. It is used in California's budget process to negotiate big issues.] The Governor did not enforce his threat after the negotiation made progress, and called the 7th Extraordinary Session to complete the package. Only weeks later, the 2009 Delta/Water Legislation passed in the early hours of November 4. In the Delta, the bill that finally emerged was Senate Bill 1 (Simitian), Chapter 5 of the 7th Extraordinary Session of 2009.

## Delta Decisions

## Water Exports

## Delta Issues

### The Water Report

(ISSN 1946-116X)  
is published monthly by  
Envirotech Publications, Inc.  
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Eugene, OR 97402

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**Subscription Rates:**  
\$249 per year  
Multiple subscription rates  
available.

**Postmaster:** Please send  
address corrections to  
The Water Report,  
260 North Polk Street,  
Eugene, OR 97402

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### 2009 DELTA/WATER LEGISLATION: DELTA ORIGINS

The crisis that led to the Legislature taking action centered in the Delta, which is the common crux of water conflict in California. The Delta is the heart of California's water resources, in more ways than one. It is clearly the most valuable estuary ecosystem on the west coast of the Americas and the heart of the state's water system. It serves as the transfer point for Northern California's water resource abundance to the rest of the state, stretching from the San Francisco Bay Area through the San Joaquin Valley and all the way to San Diego.

The Delta's ecosystem had been "dying" (Steinberg's words) for several years and, as a result, water exports to farms and cities had been limited. Populations of fish species listed as threatened pursuant to the federal Endangered Species Act (ESA), had been crashing since the beginning of the decade, as water exports increased to peak levels in 2006. In 2007, U.S. District Court Judge Oliver Wanger (E.D-Cal-Fresno) restricted Delta water exports after concluding that the federal biological opinion, pursuant to ESA Section 7, was not legally sufficient. A serious drought had started that same year, which led to reduced water exports. Water allocations to federal Central Valley Project (CVP) water contractors on the Westside of San Joaquin Valley dropped at one point in 2009 to zero, only to recover to 10%.

The Delta ecosystem and water supply, however, were only one part of the Delta crisis. In the previous three years, the Delta suffered multiple crises and conflicts: ecosystem, water supply, levee stability, land-use, water quality, policy, program, and litigation. The issues confronting the Legislature in 2009 were very different than those in 1979-80.

DELTA ISSUES INCLUDED:

- **Water supply:** The nature of the water supply debate changed. The Peripheral Canal debate in the 1980's developed as a north-south conflict, with allegations in Northern California that Southern California was trying to "steal our water." Much of the demand for more State Water Project (SWP) water came from Southern California at that time. By 2009, however, the demand for Delta water had changed, with the San Francisco Bay Area relying on diversions directly from the Delta for 1/3 of its water supply, not to mention other diversions upstream of the Delta delivered to the City of San Francisco, East Bay and the Peninsula. The population in areas that relied on Delta diversions had grown substantially. Communities around Livermore estimated that they could last no longer than a few weeks without their Delta diversions.
- **LEVEE FAILURE RISK:** Delta farming had caused greater subsidence of Delta peat, pushing Delta island elevations several feet deeper following those of three decades ago. Some islands are 30 feet below adjacent water levels. This greater risk led the California Department of Water Resources (DWR) and the respected Public Policy Institute of California to sound the alarm of the risk of complete Delta collapse, if an earthquake caused multiple levees in the Central Delta to fail.
- **WATER QUALITY:** When fish populations collapsed, scientists identified Delta water quality and contaminants as one of the categories of causes for the fishery decline. In the last 30 years, the Central Valley has grown substantially and its agricultural drainage issues have remained. The contaminants flowing downstream from burgeoning urban communities and agricultural fields contributed to a decline in Delta water quality.
- **DIVIDED POLICY:** In the last 30 years, the Legislature has addressed certain Delta issues, but separately. In 1992, it passed a "Delta Protection Act" to limit development in the Delta, which only led to intensive development on the edges of the Delta. It created a Delta levee program in the 1980's and reformed it in the 1990's. It approved bond funding for Delta projects on several occasions since 1996. In 2002, it sanctioned the CALFED Bay-Delta Program (CALFED), which federal and state agencies had created in a 2000 Record of Decision. While all this legislation were attempts to improve Delta conditions, it had the effect of putting separate demands on the Delta, which could create conflict among those demands.
- **DEATH OF CALFED:** As the Delta crisis developed at mid-decade, CALFED collapsed. State and federal agencies remained in conflict regarding the Delta's water and ecosystem. When the CALFED agencies did not respond adequately to the ecosystem crisis, the Legislature shifted the budget for the California Bay-Delta Authority to the Resources Secretary. The Authority, comprised of federal/state agencies and Delta stakeholders, stopped meeting. As then-Assemblywoman Lois Wolk told members of Congress in 2007, CALFED had become "dysfunctional."
- **LITIGATION:** The Delta ecosystem crisis and the Schwarzenegger Administration's effort to plan and build the Peripheral Canal led to a spike in Delta litigation, regarding the ecosystem, levees, and conveyance facility investigations. Litigation outcomes included Judge Wanger's restrictions on Delta water exports and a state judge's order to shut down SWP pumps until DWR complied with the State's ESA (subsequently stayed on appeal).

Despite the changed conditions in the Delta, the Peripheral Canal remained controversial in the legislative debate, as described in the Delta Plan section below.

**Delta Decisions**

**Strategic Plan**

**A NEW “DELTA VISION”**

The Delta Crisis led to several years of debate about how to proceed. At the end of the 2006 legislative session, a legislative-gubernatorial initiative to develop a new long-term “strategic vision” for the Delta emerged. The Legislature passed SB 1574 (Kuehl), and the “Delta Vision” process started. The Governor signed the bill and then issued an executive order establishing a Blue-Ribbon Task Force and the required cabinet committee to develop that Delta Vision (see website: <http://deltavision.ca.gov/>).

The Delta Vision Blue Ribbon Task Force completed a “Delta Vision Strategic Plan” in October 2008. It included 7 goals, 22 strategies and 73 actions to create a new vision for the Delta. The legislative process relied on the Strategic Plan as the foundation for the legislation, including the legislation related to water conservation and groundwater monitoring.

**DELTA VISION GOALS INCLUDED:**

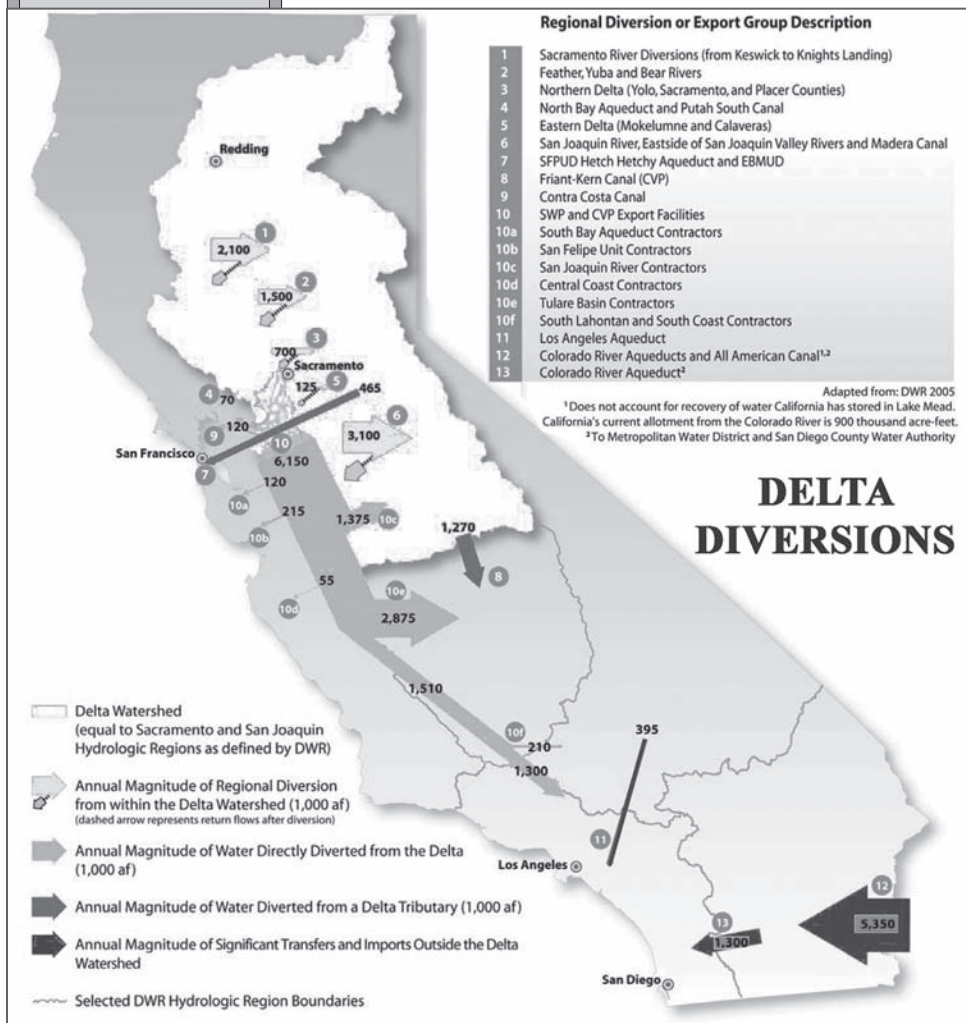
- **CO-EQUAL GOALS:** Legally acknowledge the co-equal goals of restoring the Delta ecosystem and creating a more reliable water supply for California
- **DELTA AS PLACE:** Recognize and enhance the unique cultural, recreational, and agricultural values of the California Delta as an evolving place — an action critical to achieving the co-equal goals
- **ESTUARY ECOSYSTEM RESTORATION:** Restore the Delta ecosystem as the heart of a healthy estuary
- **STATEWIDE WATER CONSERVATION:** Promote statewide water conservation, efficiency, and sustainable use
- **WATER INFRASTRUCTURE:** Build facilities to improve the existing water conveyance system and expand statewide storage, and operate both to achieve the co-equal goals
- **REDUCED LEVEE FAILURE RISK:** Reduce risks to people, property, and state interests in the Delta by effective emergency preparedness, appropriate land uses, and strategic levee investments
- **NEW GOVERNANCE:** Establish a new governance structure with the authority, responsibility, accountability, science support, and secure funding to achieve these goals

The Delta Vision Cabinet Committee then considered the Task Force’s Strategic Plan and largely adopted it, adding some additional recommendations regarding water rights enforcement. The Committee delivered its recommendations for a Delta Vision Strategic Plan to the Legislature on January 3, 2009.

**2009 LEGISLATIVE PROCESS**

The Cabinet Committee’s delivery launched the legislative process. Two water committees held hearings, which were followed by legislator work groups, bill author work groups, detailed bill proposals in “pre-print” form, hearings regarding bill proposals, negotiations, conference committee hearings, additional policy committee hearings, further negotiations, and consideration on the floor of each house. For much of the year, water conservation bills and water bond discussions proceeded on separate tracks. Water bond discussions had started with Governor Schwarzenegger’s 2006 proposal, and the final water bond bill included mostly the same categories as originally proposed.

In the days before the final package passed, negotiations were intense, as an effort to forge a bi-partisan package emerged. Placing a water bond on the ballot required a 2/3 vote in each house, which required votes from both Democrats and Republicans. While the policy bills required only a majority vote, the Governor’s demand that the final package include a water bond led to a decision to make the policy bills acceptable to at least some Republicans. The outcome therefore did not include the entire package that Democrats had advocated.



## Delta Decisions

### Water Bills

Five water bills in the 7th Extraordinary Session ultimately passed the Assembly floor by the early morning of November 4:

- SB 1 (Simitian): Delta Policy, Governance and Plan
- SB 2 (Cogdill): \$11.14 Billion Water Bond for the November Ballot
- SB 6 (Steinberg): Comprehensive Groundwater Elevation Monitoring
- SB 7 (Steinberg): Water Conservation — 20% by 2020
- SB 8 (Steinberg): Water Use Reporting, Enforcement, and Appropriations

This article focuses on the Delta bill, SB 1, because the Delta was the origin of the entire process and the other bills responded to the recommendations of the Delta Vision Strategic Plan. The Delta remained the center of the 2009 legislative debate.

### “Delta Plan”

#### SACRAMENTO-SAN JOAQUIN DELTA LEGISLATION (SB 1)

Senate Bill 1 (Simitian), Chapter 5 of the 7th Extraordinary Session of 2009, reformed State policy in the Delta, created a new Delta governance structure, and required development of a new “Delta Plan.” The bill’s centerpiece was enactment of a new “division” in the California Water Code — Division 35 (Cal. Water Code § 85000 et seq.) — where all three parts can be found. The remaining sections of the bill, which amended the Public Resources Code, related to reform of an existing Delta governance body (the Delta Protection Commission) and creation of a new Delta Conservancy.

This final Delta bill originated in bills by several authors, including Assemblyman Jared Huffman (AB 39), Senator Joe Simitian (SB 12), Senator Fran Pavley (SB 229), and Senator Lois Wolk (SB 457 and SB 458). Wolk, the Senator representing the Delta, withdrew from the Delta bill development process in August and ultimately opposed all the Delta bills, subsequently labeling the passage a “Delta debacle.” The final SB 1 vote was divided, mostly by region, on the Assembly Floor (46-29) but received a 2/3 vote on the Senate Floor (27-7).

#### Delta Policy (Part 1 of Division 35)

Since California gained statehood in 1850, Californians have demanded much from the Delta. The Legislature frequently set policies for different aspects of the Delta’s resources in isolation, often leading to policies and resources in conflict. Until recently, for example, discussion of Delta water/ecosystem policy was separate from Delta land-use policy, both legally and institutionally. While water was often at the center of Delta controversy, the connections and conflicts among the Delta’s resources became apparent as the last decade’s Delta crisis evolved. Land and waterways — and the levees that formed both — became connected in a way that had not been addressed previously. The *success* of the 2009 Delta/Water Legislation is its comprehensive scope, in Delta policy and governance.

SB 1 made some significant changes in State policy regarding the Delta. Surprisingly, the debate over many of these policy changes was relatively limited. The policy reforms aimed at connecting management of all Delta resources, so that the health of the Delta could be restored. The policy changes appear in Part 1 (General Provisions) of Division 35.

DELTA POLICY CHANGES INCLUDE:

- **REASONABLE USE/PUBLIC TRUST:** Section 85023 sets the California legal doctrines of “reasonable use” and “public trust” as the “foundation of state water management policy,” which are “particularly important and applicable to the Delta.” This section states this policy simply, without reference to the legal precedents that defined these doctrines, which allows these doctrines to continue to evolve in case law and policy.
- **SCOPE OF THE DELTA:** As an estuary ecosystem, the main part of the Delta — the oft-called “Legal Delta” — is integrally connected to the Suisun Marsh, but each has its own separate legal protections. SB 1 defined the Delta to include the Suisun Marsh, at least for the purposes of new Delta management. The bill did not repeal the State’s legal protections for Suisun Marsh, but added oversight of state and local Suisun Marsh activity to the jurisdiction of the Delta Stewardship Council. The new Delta Plan will address how these two parts of the system will work together.
- **REDUCED RELIANCE:** Section 85021 sets a state policy of reducing reliance on the Delta in meeting California’s future water supply needs. In addition to reducing reliance on the Delta, the policy supports greater State investment in regional self-reliance for water.
- **LAND USE POLICY:** Using language from California’s Coastal Act of 1976 (Cal. Pub. Res. Code § 30000) as a model, Section 85022 sets a high value on protecting the Delta’s natural and scenic resources “of hemispheric importance.” These policies, in combination with the changes to Delta governance, seek to ensure that future land-use decisions are consistent with the State’s long-term plan for the Delta. Local governments retain authority over Delta land-use decisions, but are subject to review by the State, for “consistency” with the State’s Delta Plan.
- **PROTECTION OF EXISTING RIGHTS:** From the beginning, the authors’ intent was to preserve water rights in the Delta watershed, so the Delta legislation included “savings clauses” for water rights. The original savings clauses addressed concerns that the “co-equal goals” might overcome environmental protections like California’s public trust doctrine. At the end of the regular session, however, San

### Land Use

### Policy Changes

### Existing Water Rights



## Delta Decisions

### Broad Oversight

### Authority to Plan

### Review Authority

### Local Voice

### Economic Development

#### **Delta Stewardship Council (Chapters 1-3, Part 3)**

Creation of the “Delta Stewardship Council” forms the centerpiece of the governance structure for both the Delta Vision Strategic Plan and SB 1. The key word describing the vision and structure for the Council is “comprehensive.” For the first time, there will be one body with comprehensive responsibility, authority and accountability for all aspects of the State’s Delta policy. Instead of having one agency with responsibility for Delta water, another for Delta fisheries and another for Delta land-use, the Council will have broad oversight of how other state and local agencies manage the Delta and its resources.

The Council serves as the steward of the Delta’s resources, to oversee how the state manages its own public trust resources of this estuary, as a whole. The Federal Government transferred the entire Delta to the State of California in 1850, just weeks after statehood, when it enacted the Swamp Lands Act. Today’s Delta is the result of State Government decisions, starting with the 1861 act that offered ownership of Delta lands in exchange for building a levee that would dry out the land year-round. In 1933, the State Legislature adopted the first California Water Plan, which depended on a consistent freshwater flow toward the South Delta, to repulse seawater and send the freshwater south to Central Valley farms. The 1959 approval of the State Water Project similarly relied on Delta channels to transfer water south.

Now, this Council may exercise the State’s authority over the management of State resources in the Delta. It will not be the actual Delta manager, or a super-regulator, or a mega-bureaucracy controlling every aspect of Delta management. Existing state agencies will continue to have authority to implement projects in the Delta. The Council’s key tool for overseeing those existing agencies will be its authority to develop a comprehensive “Delta Plan” (see below) and then review state and local agency actions in the Delta to determine whether those actions are “consistent” with the Council’s Delta Plan.

#### **Council Authority (Chapter 2)**

The Council’s authority remains one topic for debate about SB 1. Some opponents argue that the Council is powerless, just like its predecessor, the California Bay-Delta Authority — i.e. “the authority without any authority.” They note that the statute requires the Delta Plan to incorporate the Bay Delta Conservation Plan if it meets the requirements of the state’s Natural Community Conservation Plan Act. The final version also did not include authority to direct state agency actions, which predecessor versions had included. This was one of the compromises arising out of objections that the Council would become too powerful and usurp the authority of other existing agencies. This compromise included the Council’s countervailing authority to review other agencies’ Delta projects for consistency with the Delta Plan.

#### **Council Review of Consistency with Delta Plan (Chapter 3)**

This combination of Council authority to adopt the State’s Delta Plan and the subsequent authority to review state/local decisions in the Delta, upon appeal, provides the foundation for the Council to assert the State’s interests in the Delta. The consistency review authority allows the Council to review disputed decisions for the overall interests of the Delta, so it may steward and balance the demands on the Delta’s water and other environmental resources. Its review will ensure state and local agency actions promote the co-equal goals and are consistent with the Delta Plan.

The first step in the consistency review is determining whether the action is subject to review. Each agency must make its own consistency finding for a “covered action,” which is defined to focus on actions in the Delta that may affect either the co-equal goals or the Delta Plan. The term’s definition also includes several exemptions for regulatory actions and other continuing Delta projects. In essence, the Delta Council has to accept the Delta as it finds it and apply its review authority to future actions.

Any party may appeal a state or local agency consistency finding to the Council. The statute establishes procedures and time limits for the Council’s review. The Council may uphold the agency’s consistency determination or may remand the matter to the agency for reconsideration. The statute requires the Council to prepare written findings in either case. The agency may not proceed with a remanded action unless it submits a revised certification addressing each of the Council’s findings. The revised certification then becomes subject to a new appeal. The Council therefore may delay implementation but it does not have authority to stop an agency action permanently.

#### **Delta Protection Commission Reform (Division 19, Pub. Res. Code)**

The 1992 Delta Protection Act created the Delta Protection Commission (DPC) to develop a “resources management plan” (primarily for terrestrial resources) and oversee Delta land-use decisions, with authority to review decisions in the Delta’s “primary zone.” The DPC included both local and state officials, and had rejected a controversial development project in 2008. SB 1 reconstituted the DPC, to make its membership more focused on in-Delta and Delta County representatives. It also assigned DPC the responsibility for rewriting its resources management plan, to be consistent with the State’s new Delta Plan, and for promoting economic development in the Delta. In effect, DPC becomes the voice of local Delta residents within a context of greater state authority over protection of the Delta.

#### **Delta Conservancy (Division 22.3, Pub. Res. Code)**

California has created nine conservancies to oversee funding of environmental and resource conservation projects in particular ecosystems across the state. SB 1 creates a new one for the Delta, but its responsibilities include both the environment and economic development, similar to the Sierra Nevada

<p><b>Delta Decisions</b></p>	<p>Conservancy. This dual role originated in Senator Lois Wolk’s original Delta conservancy legislation. While SB 1 adopted much of her August proposal, the final bill authorized funding of projects that accomplished either ecosystem restoration or economic development, instead of requiring the Conservancy to do only projects that advanced both purposes. In order to ensure continuing attention to these dual purposes, the conservancy board includes five (of 11) representatives of the Delta county boards of supervisors.</p>
<p><b>Enforcement</b></p>	<p><b>Delta Watermaster (Chapter 4, Part 3)</b>                  SB 1 requires the State Water Resources Control Board to appoint a special master for the Delta, to enforce its orders and exercise the Board’s authority to enforce water rights. The scope of this authority may include both water rights and water quality, as the Board has jurisdiction and issues orders regarding both. This watermaster concept started out much broader, with authority throughout the Delta watershed and for enforcement of more than just water rights. When opposition arose, the Delta Watermaster was scaled back to a Board enforcement officer, but with a four-year term of office. The Watermaster’s authority, however, extends to reach water right permit terms and conditions that are connected to the Delta, such as operation of certain state or federal water project reservoirs.</p>
<p><b>Science Board</b></p>	<p><b>Delta Independent Science Board (Chapter 5, Part 3)</b>                  In order to sustain one successful aspect of CALFED — independent science — SB 1 creates a new Delta Independent Science Board as a successor to the CALFED Independent Science Board. The Council appoints this new board of nationally prominent scientists, which has responsibility to “provide oversight of the scientific research, monitoring and assessment programs that support adaptive management of the Delta.” The Council also appoints a Lead Scientist to run the Delta Science Program, whose mission is to inform Delta water and environmental decision-making.</p> <p><b>Repeal of CALFED Bay-Delta Program</b>                  By 2009, the CALFED Bay-Delta Program was no longer effectively addressing the Delta crisis and the state’s California Bay-Delta Authority, which oversaw CALFED implementation, had not met for several years. The Legislature had shifted all CALFED funding from the Authority to the Secretary of the Resources Agency in 2006. The Authority and the CALFED program, however, still existed in statute. SB 1 repealed the Authority’s statute, and made the Council its successor.</p>
<p><b>New Delta Plan</b></p>	<p><b>Delta Plan (Part 4 of Division 35)</b>                  Just as the Council forms the cornerstone of the new Delta governance structure, the new, comprehensive “Delta Plan” will set the direction of the paving stones for a new road forward for the Delta. The Council, which is required to complete the Delta Plan by 2012, may consider plans from various sources for inclusion in the Delta Plan. Generally, the Council will enjoy discretion for how to resolve the Delta crisis, achieve the co-equal goals, and restore the health of the Delta, as specified by SB 1.</p> <p>The Delta Plan requirements concentrate on achieving the co-equal goals of water supply reliability and ecosystem restoration. SB 1’s specificity as to requirements varies, from general objectives to specified contents. The Delta Plan’s geographic scope focuses on the Delta (including Suisun Marsh) and — unlike CALFED — does not address the entire watershed. The Delta Plan will address Delta Vision’s six substantive goals, making it a comprehensive approach to the diversity of Delta challenges.</p>
<p><b>Six Goals</b></p>	<p>LEGISLATIVELY REQUIRED DELTA PLAN COMPONENTS INCLUDE:</p> <ul style="list-style-type: none"> <li>• <b>DELTA AS PLACE:</b> To protect the Delta’s “unique cultural, historical, recreational, agricultural and economic values,” SB 1 specifies that the Delta Protection Commission will develop the proposal and requires specific elements, such as a network of state recreation areas.</li> <li>• <b>ECOSYSTEM RESTORATION:</b> The ecosystem restoration component is integrated into the co-equal goals and focused on the Delta, with some allowance of projects outside the Delta if they contribute to the co-equal goals. It describes characteristics of a healthy ecosystem as the objectives for the ecosystem restoration program, and specifies certain strategies for restoring such a healthy ecosystem.</li> <li>• <b>MORE RELIABLE WATER SUPPLY:</b> Promoting a “more reliable water supply” similarly means addressing specified objectives, such as sustaining the state’s economic vitality. Use of the word “more” reflects a decision to set a goal of improving the water supply reliability, as opposed to committing to a certain level of water supply.</li> <li>• <b>WATER CONSERVATION &amp; DELTA WATER INFRASTRUCTURE:</b> Requires the Delta Plan to promote water conservation as well as options for new and improved water infrastructure, including water storage, to allow greater flexibility in timing of Delta water exports.</li> </ul>
<p><b>Storage</b></p>	<ul style="list-style-type: none"> <li>• <b>FLOOD RISK REDUCTION:</b> Requires promotion of effective emergency preparedness and response strategies, recommendations of priorities for state investments in the Delta levee system, and integration of flood protection strategies and water supply operations throughout the Central Valley watershed.</li> </ul>
<p><b>Adaptive Management</b></p>	<ul style="list-style-type: none"> <li>• <b>SCIENCE AND ADAPTIVE MANAGEMENT:</b> SB 1 requires — across all aspects of the Delta Plan — best available science, measurable targets, integration of scientific/monitoring results into Delta water management, and formal adaptive management for ecosystem restoration and water management decisions.</li> </ul>

**Delta Decisions**

**Council Discretion**

**Federal Connection**

**ESA Considerations**

The specific language for many of these provisions arose out of the negotiation between water contractors and environmentalists, as the Delta Plan was the primary focus of concern for both sides once much of the governance provisions had been developed. The term “water contractors” is used to denote entities with contracts from either the federal Central Valley Project or the State Water Project.

**DELTA PLAN DEVELOPMENT**

SB 1 defines a process for developing the Delta Plan, but allows the Council the ultimate discretion on selecting what goes into the comprehensive Plan. The Council is required to consider the strategies and actions in the Delta Vision Strategic Plan, but the framing of those strategies and actions for inclusion in the Delta Plan remains the Council’s responsibility. Early versions of the Delta Plan bill, AB 39 (Huffman), specified state agencies to prepare specific components of the Plan, but the final version does that only for the “Delta as Place” component, where the Delta Protection Commission is responsible for developing that component. This lack of specificity may allow the Council some discretion to incorporate proposals from any number of state or local agencies into the Delta Plan.

The Delta Plan development process also provides for building a connection between the State’s effort and the Delta activities of the Federal Government, which remains a significant player in Delta management. The Federal Government holds the largest block of California water rights, regulates state/federal water project operations through the Endangered Species Act, and oversees the State’s regulation of Delta water quality pursuant to the Clean Water Act.

Sovereign immunity prevents the State from directing federal actions, but federal law may allow states some discretion on certain issues. SB 1 uses all three available federal law “hooks” for State direction of federal activity — the Coastal Zone Management Act, the Clean Water Act and Section 8 of the Reclamation Act of 1902 — by requiring Delta Plan development “consistent with” those federal laws. SB 1 further invites federal participation by requesting federal agency advisors to the DPC and the Delta Conservancy, for Delta ecosystem restoration. The Obama Administration’s decisions as to how to proceed with the State will affect how the Delta Plan is developed. The Federal Government, in its December 2009 plan for the Delta, at least signaled its intent to work closely with the State, but did not express any intent to comply with state requirements. This is a key issue that remains open for further deliberation, in Congress and the State Legislature.

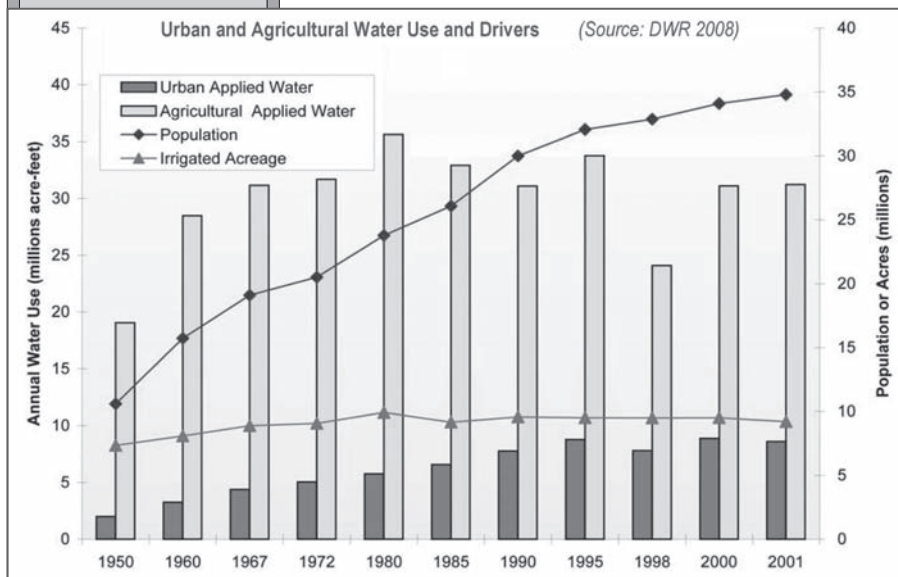
**BAY DELTA CONSERVATION PLAN (BDCP)**

At the beginning of this legislative process, the Schwarzenegger Administration’s on-going development of a “Bay Delta Conservation Plan” (BDCP) generated many questions from legislators. BDCP was described to legislators as an effort to obtain “no surprises” assurances (or “permits”) for the operation of the state and federal water projects in the Delta, pursuant to Section 10 of the federal Endangered Species Act (ESA). The Administration had been proceeding through a process to develop a **habitat conservation plan (HCP)** since 2006, in cooperation with federal and state agencies, “potentially regulated entities” (e.g. water project contractors and Delta power plant operators), and certain environmental organizations. The water project contractors were paying for much of the cost of developing a Delta HCP, so they sat on “the management committee” directing the work of the consultants developing the Plan. The Administration’s presentation of BDCP to the bi-cameral Legislator Work Group for Delta

Governance, in April, led to many subsequent questions from legislators.

LEGISLATOR’S QUESTIONS INCLUDED:

- Was BDCP the Administration’s entire plan for the Delta?
- Was BDCP just “cover” for building a Peripheral Canal, which voters rejected in 1982?
- Who would pay the substantial costs of the ecosystem restoration projects in the Delta?
- What standard for conservation applied to the BDCP?
- How would the state ESA and “Natural Community Conservation Planning Act” (NCCP Act) interact with the federal ESA in making determinations for the Delta ecosystem?
- How would the state determine the Delta’s needs for instream flows?





## Delta Decisions



The Delta is located east of the San Francisco Bay Area at the confluence of the Sacramento-San Joaquin Rivers. The Delta forms the eastern portion of the San Francisco estuary, which includes the San Francisco, San Pablo, and Suisun Bays. The Delta encompasses 738,000 acres, stretching inland nearly 50 miles. It includes portions of Sacramento and West Sacramento at its northern point, down to Tracy at its southern point, and spanning 25 miles from Antioch to Stockton. Five rivers flow into the Delta area, accounting for nearly half the snowmelt and runoff of the entire state.



The Tehachapi's, nine pumps lift two million gallons of water per minute of 518 feet into the aqueduct, which then travels across Tejon Ranch towards the Edmonston Pumping Plant.

The Administration appeared ready to proceed with construction of the controversial peripheral canal, possibly before Governor Schwarzenegger leaves office in January 2011 (term limit). Assemblyman Huffman responded, in his AB 39 (August pre-print version), by imposing conditions and requirements for BDCP, such as compliance with the State's NCCP Act and required analysis of certain issues. Water users objected.

After August hearings on the pre-print bills, water project contractors and some in the environmental community began negotiating a deal on BDCP. That agreement, completed just before the end of the regular legislative session on September 11, went into SB 68 (Steinberg), the compilation water bill that the Assembly Water, Parks & Wildlife Committee approved on the last night and sent to the Assembly Floor, where it was not taken up before the regular session adjourned.

The agreement on BDCP and related issues then continued and evolved into SB 1. The final outcome included resolution of several issues.

### RESOLVED ISSUES INCLUDED:

- **NCCP ACT:** Conditions incorporation of the BDCP into the Delta Plan and State funding for its Delta ecosystem restoration projects on compliance with the NCCP Act, which includes both an open development process and a higher standard of conservation. If the California Department of Fish & Game (DFG) concluded that BDCP complied with NCCP requirements, then BDCP would be incorporated into the Delta Plan. DFG's determination, however, is subject to appeal to the Council.
- **REQUIRED ANALYSIS:** Specifies analysis of certain issues related to the decision to build a new Delta conveyance facility for the water projects. The analysis, however, will be part of the already-required analysis under the California Environmental Quality Act (CEQA), not as an independent requirement subject to additional judicial review. The effect of this requirement is to incorporate — at least implicitly — CEQA's legal precedents.
- **INSTREAM FLOWS:** Requires the State Water Resources Control Board (SWRCB) to develop "flow criteria" for BDCP and Delta Plan planning purposes. When DWR and water users first saw the requirement for SWRCB to set instream flow requirements, they responded that the BDCP process would set such flow requirements. The compromise arising out of the negotiation provided for SWRCB to "develop" new flow criteria within nine months, but not actually take the regulatory action of imposing them on water rights. While some complain that these flow criteria are not enforceable, requiring their use in the BDCP planning process, in effect, sets a "baseline" and the basis for CEQA analysis. Then, when DWR seeks a change in its point of diversion, the statute requires SWRCB to impose "appropriate" instream flows on that permit. This provision was intensely contested, and remains controversial today, as SWRCB attempts to comply with the nine-month deadline.

BDCP also remains controversial due to its connection to a decision on "alternative conveyance" — or the Peripheral Canal. There has been some debate on whether DWR has authority to build such a conveyance, and SB 1 did not resolve that issue. Instead, the legislation has imposed requirements on any new conveyance facility, in addition to the requirements above. Before construction can start, water contractors must agree to pay for the facility and DWR must have a change in point of diversion permit from SWRCB. In addition, state and federal fishery agencies must be involved in a "transparent, real-time operational decision-making process" for any new facility. These conditions address some key conveyance issues, but concerns about a new Peripheral Canal continue to linger (see Nomellini, TWR #53).

Delta  
Decisions

## Water Bond

## Groundwater

## Conservation

## Reporting

## OTHER LEGISLATION

Most of last year's legislative effort focused on the Delta and other bills in the 2009 Delta/Water Legislation package were no less significant. Those other bills of the 7th Extraordinary Session also had origins in and implemented the Delta Vision recommendations.

**WATER BOND, SB 2 (Cogdill), Chapter 3:** Places \$11.14 billion water infrastructure bond on November 2010 ballot. Categories for project funding include: drought relief, integrated regional water management, Delta sustainability, "Statewide Water System Operational Improvement" (i.e. water storage), resource conservation and watershed protection, groundwater protection and water quality, and water recycling

**GROUNDWATER MONITORING, SB 6 (Steinberg), Chapter 1:** Creates statewide groundwater elevation monitoring program, through local agency reporting

**WATER CONSERVATION, SB 7 (Steinberg), Chapter 4:** Requires the State to achieve 20% reduction in urban per capita water use by 2020, allowing urban water suppliers flexibility in achieving the target. Also requires agricultural water suppliers to prepare agricultural water management plans and take certain actions to encourage efficient water use (e.g. at least partial volume pricing)

**WATER USE REPORTING, SB 8 (Steinberg), Chapter 2:** Eliminates certain exemptions from water use

## WHAT DIDN'T PASS

## WATER RIGHTS ENFORCEMENT TOOLS &amp; FEES

Two significant pieces of the original legislative package did not pass — water rights enforcement tools and fees. SB 5 X7 (Steinberg) would have authorized additional tools for the SWRCB to enforce water rights, including reporting, penalties, cease and desist orders, and SWRCB-initiated stream adjudications. The August version of SB 12 (Simitian) included a comprehensive proposal to charge fees to water diverters throughout the Delta watershed, to pay the costs of Delta governance and projects. SB 5 X7 did not get off the Senate floor and SB 12's fee provisions did not survive to either the final regular session bill (SB 68) or the 7th Extraordinary Session bills. The Legislature may consider some form of those bills in 2010.

## CONCLUSION

Senator Steinberg was right when he said — *last year* — that "now is the time for the Legislature" (to act). The Legislature has acted, but it cannot make all the decisions on the Delta. It has crafted a new Delta governance structure and required a comprehensive Delta Plan. It set the path forward, but the decisions on which turns to take remain to be made.

*Now* is the time for all those who care about the Delta to engage in helping prepare the Delta Stewardship Council to make those decisions, as part of the Delta Plan.

## FOR ADDITIONAL INFORMATION:

ALF W. BRANDT, 916/ 319-2519 or email: [Alf.Brandt@asm.ca.gov](mailto:Alf.Brandt@asm.ca.gov)

DELTA INFO WEBSITES: [www.deltavisionfoundation.org](http://www.deltavisionfoundation.org); [www.ppic.org](http://www.ppic.org); and <http://deltasolutions.ucdavis.edu/>

LEGISLATION WEBSITE: For more information about SB 1 and the other parts of the 2009 Delta/Water

Legislation package, see the official, complete Legislative History, compiled by the Assembly Water, Parks & Wildlife Committee — available soon at the Committee's website: [www.assembly.ca.gov](http://www.assembly.ca.gov)

**Alf W. Brandt** served as the California State Assembly's expert on water resource law and policy as the 2009 Delta/Water Legislation developed, playing a leading role in that process. Prior to his service at the Assembly Committee on Water, Parks & Wildlife, Mr. Brandt served at the federal Department of the Interior and on the Board of Directors for the Metropolitan Water District of Southern California. At Interior, he served as counsel and Federal Agency Coordinator for the CALFED Bay-Delta Program, playing a major role in writing the 2000 Record of Decision. He also tried the just compensation phase of the controversial takings case by Central Valley agricultural water districts against the federal government for Endangered Species Act regulation of the State Water Project export pumps in the Delta during the drought in the early 1990's (see, *Tulare Lake Basin Water Storage Dist. v. United States*). He earned his J.D. in 1988 from University of California, Berkeley (Boalt Hall School of Law), and his B.A. Magna cum laude in 1983 from UCLA, where he was Phi Beta Kappa. He is admitted to the bars of California, the District of Columbia, and the Court of Federal Claims.

## Stormwater & Sediments

### Recontamination Concern

### "CSOs"

### Brownfields Redevelopment

### "BMPs"

### March 4 Managing Stormwater in Washington Conference Seattle, WA

Presented by  
Northwest  
Environmental  
Business Council.

**For info:**  
[www.nebc.org](http://www.nebc.org)

## STORMWATER & SEDIMENT CONTAMINATION

MINIMIZING POTENTIAL SEDIMENT RECONTAMINATION & ASSOCIATED LIABILITY

by Eric Strecker, PE, Marcus Quigley, PE and Marc Leisenring, PE  
Geosyntec Consultants (Portland, OR and Boston, MA)

### INTRODUCTION

Addressing the contaminated sediments that reside at the bottom of many of our nation's waterways is one of the most problematic and costliest aspects of remediation efforts at numerous cleanup sites, including a number of sites designated as Superfund sites under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Moreover, the potential for recontamination via stormwater runoff and the potential future liability associated with this threat is contributing to many disused industrial sites (brownfields) not being redeveloped. Targeted, site-specific stormwater management strategies can be employed to minimize both recontamination and liability concerns.

In many ways, contaminated sediments are the "grand integrator" of watershed pollution. Sediment contamination arises from many sources, ranging from specific activities at "point sources" (discrete locations) to highly diffuse "non-point source" contributions (runoff from urban settings, agriculture, etc.). All of these sources can contribute to the contamination of sediments. The recognition of the importance of urban stormwater sources of pollution to CERCLA and/or State regulated contaminated sediment sites is increasing. Stormwater runoff from urban and industrial sites may contain pollutants that could be of concern for sediment recontamination as well as contribute to the mobilization of sediment contaminants from their original sources. Even if stormwater contamination concentrations are relatively low for some parameters, increases in stormwater runoff volumes and velocities may contribute to sediment recontamination. For instance, stormwater can increase the number and extent of "combined sewer overflows" (CSOs) in older municipal sewer systems which were designed to combine sewage with stormwater runoff during larger storm events. Stormwater can also increase below-ground infiltration volumes which may mobilize subsurface contamination or contribute to "sanitary system overflows" (SSOs) by increasing infiltration and inflow into the system. The potential for stormwater-based recontamination and the associated liabilities, either real or perceived, can limit the ability to attract interest in brownfields redevelopment, particularly in areas with downstream sediment issues.

Fortunately, our understanding of the effectiveness of stormwater runoff best management practices (BMPs) has significantly improved over the years.

THE DESIGN AND SELECTION OF EFFECTIVE STORMWATER BMPs NOW BENEFIT FROM:

- More information and recognition of potential pollutant sources — whether anthropogenic (e.g., domestic animals, vehicular, building materials, etc.) or naturally occurring (e.g. natural background levels of zinc and copper in soils)
- The ability to better factor in unit processes (i.e. a BMP's physical, biological, and chemical treatment mechanisms) into BMP selection and design
- Significantly more information on the observed performance of stormwater BMPs (e.g. the International BMP Database: [www.bmpdatabase.org](http://www.bmpdatabase.org))

However, current urban stormwater BMP requirements and local design guidance rarely, if ever, adequately consider unit processes together with observed performance for selection and design of BMPs. In most cases, there has not been adequate consideration of the specific contaminants of concern, the form of these contaminants, and the specific unit processes needed to address these pollutants in stormwater. In the case of contaminated sediment issues, it is critically important to consider stormwater runoff hydrology and chemistry when assessing the potential for sediment recontamination (and contamination). Therefore, merely following existing local design requirements and/or guidance may not ensure adequate BMP selection and design for purposes of preventing sediment recontamination.

Your authors believe there is now the potential — via more rigorous BMP selection, design, and implementation of an effective operation and maintenance program — to work with agencies responsible for overseeing contaminated sediment remediation to reach agreements that limit the potential future recontamination liability of site owners who implement such a program. This approach would necessitate careful documentation that the program was technically thorough and well implemented. Even if a complete agreement was not able to be reached with responsible agencies, a site owner/operator would have a good defense as to why their contribution should be considered minimal in any future allocation of recontamination liability.

**Stormwater & Sediments**

Potential Source

Point Sources

On-Site Infiltration

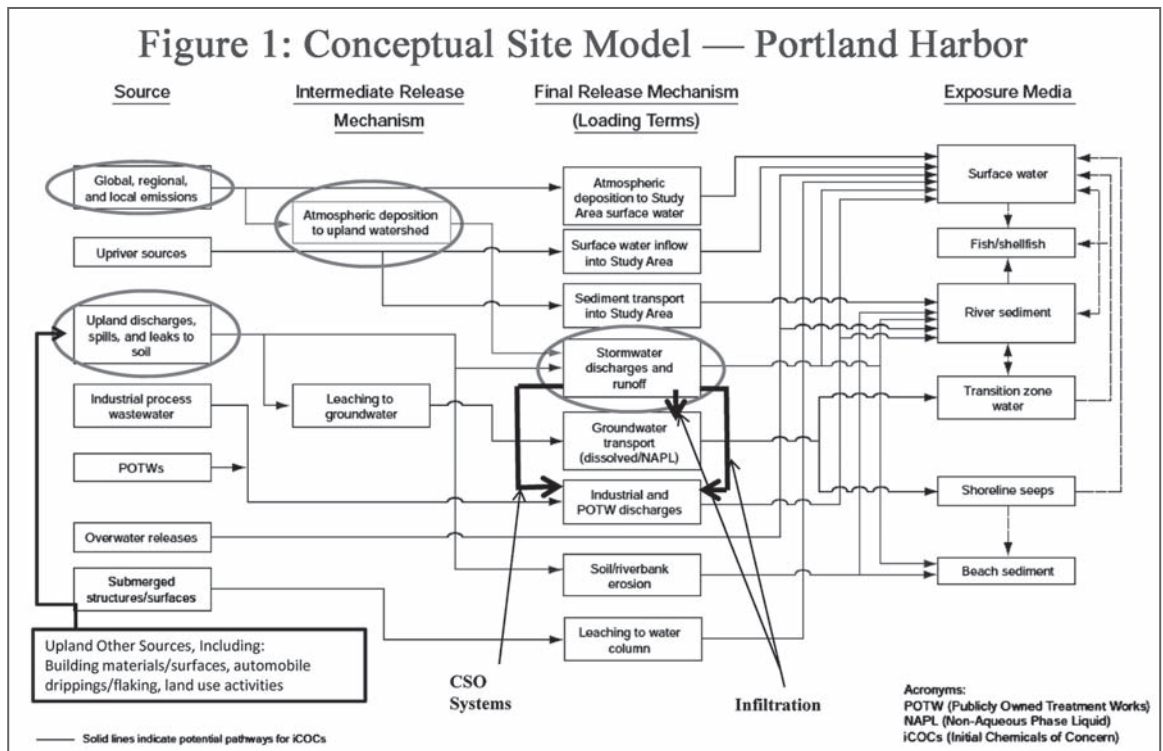
This article describes a recommended approach for addressing stormwater pollution such that recontamination potential is minimized. In general, a site owner/operator would likely need to exceed the local minimum stormwater requirements for new or re-development and/or the typical industrial general stormwater permit requirements issued under the Clean Water Act's National Pollutant Discharge Elimination System (NPDES) permit program.

**STORMWATER AS A RECONTAMINATION SOURCE**

**STORMWATER PATHWAYS FOR CONTAMINATION AND RECONTAMINATION OF SEDIMENTS**

Stormwater sources have frequently been listed as a potential source of recontamination of remediated contaminated sediment sites. Nadeau and Skaggs (2007), in an assessment of 20 sites that became recontaminated, found that stormwater sources (including separated, combined, and sanitary system overflows) have been identified as major sources of the recontamination at many of the sites.

In sediment contamination studies, the focus on sources has typically been on point sources of pollution, including: Publicly Owned Treatment Works (POTWs); Industrial Discharges; Industrial Stormwater, Spills and Leaks; brownfields' runoff; and etc. Figure 1, below, has been adapted from a conceptual model found in the *Portland Oregon Harbor Superfund Site Remedial Investigation / Feasibility Study (RI/FS) Comprehensive Round 2 Site Characterization Summary and Data Gaps Analysis Report* (Lower Willamette Group, February 21, 2007). Some of the potential urban stormwater sources that are included in upland discharges have been highlighted. Also added are pathways such as infiltration of stormwater that may contribute to additional CSOs and SSOs, and movement of below-ground contamination. Nationally, there is an increasing emphasis on onsite infiltration as one of the preferred stormwater management techniques as part of Low Impact Development (LID). Unfortunately, infiltration can result in stormwater-induced increases in contaminant mobilization and/or transport if not done carefully. The point of the additions to this conceptual model is to highlight that stormwater management is an important consideration when evaluating pollutant source release mechanisms for contamination and recontamination.



**Brownfields Re-Development, Contaminated Sediments and Stormwater**

When a property owner or purchaser is evaluating a property for redevelopment, there obviously are many factors to consider. Certainly the current status of the site and liability that the site may have in the existing contaminated sediment site is a major issue. However, an additional major concern is the potential for the site to be included in future recontamination issues, not to mention the contributions to the existing contamination if the clean-up is still being studied or otherwise in process. Brownfields sites are often within contaminated sediment watersheds. As an example, Figure 2 identifies sites where the Portland Development Commission (PDC) has been actively pursuing redevelopment on in the harbor area. The PDC has indicated that recontamination liability has been a major concern for potential buyers of these sites along with the current liability for cleaning up the harbor.

Liability Concerns

**Stormwater & Sediments**

**Figure 2: Portland Harbor Redevelopment Sites**



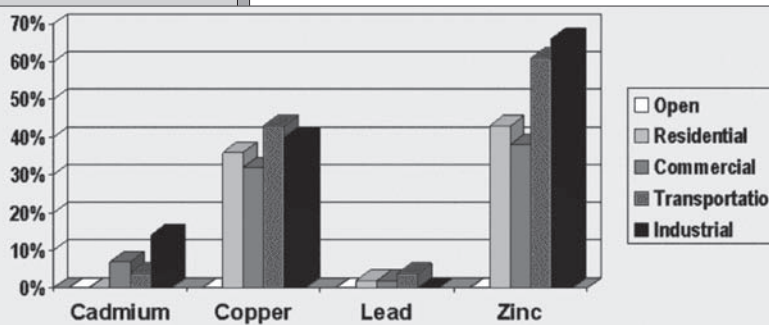
**Stormwater Recontamination Pathways and Contaminants of Concern**

There are many potential pathways for stormwater to contribute to recontamination of sediments; most notably direct contact with historic contamination. Any redevelopment plan should carefully consider how to minimize any contact of stormwater with existing contamination. If infiltration is proposed, either as a major stormwater management strategy or even incidental infiltration within landscaped areas, the management plan should ensure that infiltrating water does not come in contact with any known contamination that has been left in place in accordance with the previous site remediation efforts. Note that it may be possible to infiltrate stormwater below a known layer of contaminated soils. The redevelopment plan should also carefully design the stormwater conveyance system (underground inlets and pipes) to ensure that storm drains are well sealed and isolated from surrounding soils — particularly if passing through a contaminated zone. Stormwater conveyance systems have typically been “leaky.” In addition, even if a site does not itself have contaminated soils and/or groundwater, the redevelopment plan should consider the “position” of the site in the watershed relative to potentially increasing contact with and/or movement of pollutants down-gradient of the site. Finally, infiltration of stormwater could also increase CSO or SSO discharges if it causes shallow groundwater levels to rise and increase the inflow to drainage or sewer systems.

**Infiltration Concerns**

**Urban Runoff**

Typical urban runoff can have concentrations that exceed water quality standards, benchmarks, etc. Figure 3 shows the metals levels in Oregon urban stormwater where Copper and Zinc levels were frequently found above receiving water quality standards. Building materials themselves can be sources of pollution (e.g., galvanized metals contain zinc, treated wood may contain copper and arsenic, many roofing materials contain petroleum compounds, copper and/or zinc, etc.).



**Figure 3: Summary of Oregon Stormwater Samples That Exceeded Receiving Water Quality Criteria (Strecker et. al. 1997)**

For sites being redeveloped into industrial sites, stormwater could come in contact with industrial activities. In these cases, one should carefully craft a stormwater pollution prevention plan (SWPPP) that may have to go well beyond the typical minimum Industrial SWPPP requirements. Such plans should both ensure that the site will remain in compliance with all permit requirements and result in verifiably good water quality.

The hydrology of runoff from a site is also important. If a site is located in a CSO area, any increases in runoff volumes may increase CSO discharges. In fact, a plan that results in assisting in reducing the volume of runoff should be viewed as reducing the overall CSO sources.

The potential stormwater “Contaminants of Concern” (COCs) for contaminated sediment sites include both current and legacy pollutants. Current pollutants in urban runoff that are potentially of concern for recontamination (and some of their typical urban sources) include: copper (break pad linings, atmospheric deposition, soils, roofing materials, industrial processes, etc.); zinc (automotive tires, roofing and downspouts, atmospheric deposition, soils, industrial processes, etc.); lead (wheel balancing weights, batteries, legacy petroleum contamination, etc.); pesticides (applied to landscaping and buildings for insect control); and dioxin (atmospheric deposition from combustion). Legacy pollutants include: PCBs; mercury; pesticides (e.g., DDT); and lead in larger concentrations from older developments.

**Stormwater & Sediments**

**Stormwater Contributions**

**Avoiding Liability**

**Source Controls**

**Harvest & Use**

**Unit Processes Approach**

As examples of potential issues, in urban runoff sampling in Oregon (Figure 3), copper and zinc levels in runoff measurements exceeded receiving water quality standards in 30% to 65% of the flow-weighted composite samples taken during the 1990 to 1996 sampling that was completed for the initial Municipal NPDES permit sampling programs. Dioxin levels in normal urban runoff have been observed to exceed industrial permit limits that have been set for dioxin by two-to-three orders of magnitude. Regardless of whether these levels actually contribute to sediment recontamination, the perception that they contribute is an issue, particularly if permit benchmarks or effluent limits are exceeded.

Potential future liabilities associated with stormwater discharges could include sites that discharge “normal” urban stormwater containing contaminant concentrations that frequently exceed water quality standards (as discussed above). Most facilities do not currently have the data or comprehensive stormwater management plan to demonstrate that they do not contribute to recontamination. The issue of urban runoff levels being considered as contributing to recontamination is very relevant to brownfields redevelopment.

**COMPREHENSIVE STORMWATER MANAGEMENT PLANNING**

**AVOIDING FUTURE LIABILITY**

Any plan designed to avoid future liabilities should include extensive source, site planning, and treatment controls. Source controls include both the more “traditional” controls all the way to hydrological source controls, including such measures as harvest and use of stormwater to prevent runoff and associated pollution. Site planning includes minimizing impervious areas and routing stormwater into landscaped areas (where feasible and desirable). Many of these controls need to be evaluated with regard to potential for deeper infiltration and other potential problems. Source controls that definitely should be implemented include assuring that exposed building materials do not include pollutants that are leached into stormwater. These include zinc and copper based building materials that are often used in roofing/downspout materials as well as treated woods that can contain a variety of pollutants. Other source controls include: ensuring that all industrial activities are conducted indoors or under cover; carefully designed and managed materials loading docks; and careful site housekeeping activities — including pavement cleaning (street sweeping, etc.) and trash and debris management.

Specific hydrologic source controls can include reducing impervious surfaces via use of vegetated roofs, stormwater planter boxes, bioretention areas, etc. that are designed to soak up precipitation and runoff (which subsequently evapotranspires). Some of these systems can be used to infiltrate as well, so long as infiltration does not adversely impact CSOs and SSOs or encounter residual contamination. Stormwater harvest and use for toilet flushing and/or other non-potable uses such as process water may have potential under the right conditions. Considerations include determining that there is sufficient demand to allow quick recovery of stored runoff (e.g. irrigation use is difficult along the west coast due to seasonal nature of precipitation and “clustering” of storm events). In addition, any potential for off-site stormwater to run onto one’s site should be minimized.

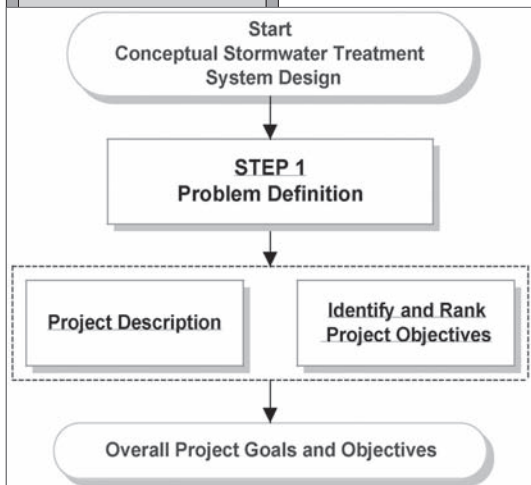
**Applying Unit Process Design to Reduce the Potential for Sediment Recontamination**

It is possible to develop a much more comprehensive and robust BMP program to address the COCs for contaminated sediments in stormwater runoff. Comprehensive planning involves a combination of careful consideration of unit processes, as well as use of observed performance evaluations, to select and design BMPs appropriate to site conditions. The probability of being a significant contributor to sediment contamination would thereby be significantly minimized.

Your authors have been involved in several national level guidance documents for the Water Environment Research Foundation (Strecker, et. al., 2005) and the National Cooperative Highway Research Program (Oregon State University, et. al., 2006) that have detailed a unit processes-based approach to BMP selection and design (referred to below as “the guidance”). What follows is a summary of how the guidance could be applied to selecting and designing BMPs for brownfields and sediment contamination sites. Note that these steps would likely be more cost-effective if adapted into a locally developed design guidance document. Such guidance could provide details concerning preferred practices determined to be appropriate to the local contaminated sediments watershed. This holds particularly true for areas where there are numerous small Brownfields sites where clearly articulated BMP selection and design recommendations would do much to avoid duplicative efforts.

**Problem Definition**

As part of the problem definition, the project should be described in detail (see Step 1). More often than not, runoff management is an integral part of a new development or redevelopment project, and the runoff management goals may be directly linked, or potentially in conflict, with other project goals. A clear project description will help identify where these potential conflicts may arise and may



**Stormwater & Sediments Goals for Brownfields**

help coordinate planning and design activities among the various project managers and subcontractors. For purposes of a brownfields development in an urban setting with contaminated sediments, the following stormwater goals may be appropriate.

STORMWATER GOALS FOR URBAN BROWFIELDS INCLUDE:

- Meet or exceed regulatory requirements (e.g. Industrial Stormwater NPDES, local requirements, etc.).
- In CSO areas, control discharges to limit contributions to CSOs (and SSOs in separated areas).
- Reduce to negligible the potential to contribute to recontamination of sediments via either stormwater pollutant sources, infiltration mobilization or movement of pollutants or contributions to CSOs/SSOs
- Stormwater controls that are appropriate for site conditions (e.g., land use types, topography, soil types, depth to groundwater, contamination characteristics) should be evaluated.
- Careful evaluation of infiltration techniques to minimize the potential for the site to mobilize or contribute to movement of pollutants from below ground contamination either on-site or down-gradient.
- Achieve or exceed Leadership in Energy and Environmental Design (LEED), etc. hydrology and water quality measures/credits.

Table 1: Urban runoff management objectives checklist (adapted from ASCE/EPA, 2002)

Category	Typical Objectives of Urban Runoff Management Projects
Hydraulics	Manage flow characteristics upstream, within, and/or downstream of BMP
Hydrology	Mitigate floods; improve runoff characteristics (peak shaving),
	Manage infiltration appropriately given site contamination and/or soils/geotechnical conditions
Water Quality	Reduce downstream pollutant loads and concentrations of pollutants
	Improve/minimize downstream temperature impact
	Achieve desired pollutant concentration in outflow
	Remove litter and debris
Toxicity	Reduce acute toxicity of runoff
	Reduce chronic toxicity of runoff
Regulatory	Comply with NPDES permit
	Meet local, state, or federal water quality criteria
Implementation	Function within management and oversight structure
Cost	Minimize capital, operation, and maintenance costs
Aesthetic	Improve appearance of site and avoid odor or nuisance
Maintenance	Operate within maintenance, and repair schedule and requirements
	Design system to allow for retrofit, modification, or expansion
Longevity	Achieve long-term functionality
Resources	Improve downstream aquatic environment/erosion control
	Improve wildlife habitat
	Achieve multiple use functionality
Safety, Risk and Liability	Function without significant risk or liability
	Function with minimal environmental risk downstream
	Contain spills
Public Perception	Clarify public understanding of runoff quality, quantity and impacts on receiving waters

Table 2: Typical Land Use Based Primary Pollutants of Concern

Land Use	Pollutant Category of Concern									
	Pathogens	Metals	Nutrients	Pesticides	Organic Compounds (hydrocarbons, oil & grease, solvents, PAHs)	Sediments	Trash & Debris	Oxygen Demanding Substances (green and food waste; sewage)	Chloride	Hydromodification <sup>(6)</sup>
Residential Development	X	P <sup>(2)</sup>	X	X	X	X	X	X	P <sup>(5)</sup>	P
Commercial/Institutional Development	P <sup>(1)(3)</sup>	P <sup>(2)</sup>	P <sup>(1)</sup>	P <sup>(1)</sup>	X	P <sup>(1)</sup>	X	P <sup>(1)(3)(4)</sup>	P <sup>(5)</sup>	P
Industrial Areas	P <sup>(1)</sup>	X	P <sup>(1)</sup>	P <sup>(1)</sup>	X	P	X	P <sup>(1)(3)(4)</sup>	P	P
Automotive Repair Shops	P <sup>(1)</sup>	X	P <sup>(1)</sup>	P <sup>(1)</sup>	X	P <sup>(1)</sup>	X	P <sup>(1)(4)</sup>	P <sup>(5)</sup>	P
Restaurants	X	P <sup>(2)</sup>	P <sup>(1)</sup>	P <sup>(1)</sup>	X	P <sup>(1)</sup>	X	X	P <sup>(5)</sup>	P
Parking Lots	P <sup>(1)</sup>	X	P <sup>(1)</sup>	P <sup>(1)</sup>	X	P	X	P <sup>(1)(4)</sup>	P <sup>(5)</sup>	P
Streets, Highways & Freeways	P <sup>(1)</sup>	X	P <sup>(1)</sup>	P <sup>(1)</sup>	X	X	X	P <sup>(1)(4)</sup>	P <sup>(5)</sup>	P

X = anticipated P = potential

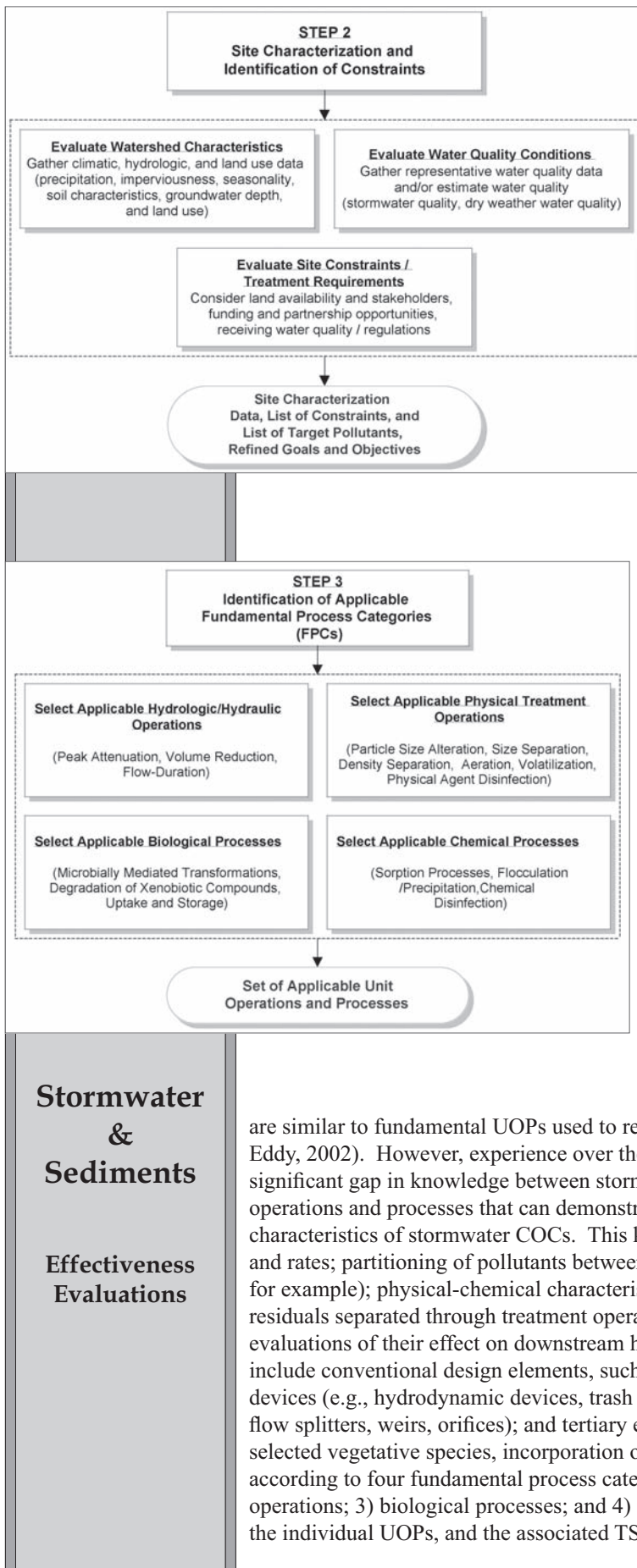
- (1) A potential pollutant if landscaping exists on-site
- (2) A potential pollutant if the project includes uncovered parking areas
- (3) A potential pollutant if land use involves food or animal waste products
- (4) A potential pollutant if combined sewer overflows, illicit sewage discharges, or septic systems are present
- (5) A potential pollutant if snow removal activities are performed
- (6) A potential pollutant depending on location of the project within in the district and the receiving water(s)

In addition to the general project details, there also likely exist project-specific details and peculiarities that should be accurately described. An early effort to clearly define the project will help maintain its focus and direction, possibly saving significant time and money during subsequent project development and implementation steps. Clearly identifying project objectives can be facilitated by starting with a check list such as that shown in Table 1.

For projects that are tributary to contaminated sediments, specific consideration of the current identified contaminants is important, along with considering constituents that could be part of future recontamination. Table 2 is an example of identification of potential pollutants of concern with general urban development categories. However, industrial sites should be carefully evaluated with regards to specific pollutants that could arise from the specific activities.

**Site Characterization and Identification of Constraints**

After a project has been described and the objectives identified, the next step in development, redevelopment, or retrofitting a project is to characterize site conditions and constraints (see Step 2). This step is critical for the assessment and identification of appropriate solutions to runoff management problems. Site conditions, including down-gradient conditions, can significantly influence runoff treatability and hydraulic and hydrologic controls. This is particularly relevant in brownfields situations, where there may either be below ground contamination remaining in place and/or down-gradient contamination issues. Through careful characterization of the hydrologic, geologic, and anthropogenic factors that affect urban runoff quantity and quality, the applicable Fundamental Process Categories (FPCs) available for runoff management practices that meet the identified project objectives can be identified.



**Identification of Applicable Fundamental Process Categories (FPCs)**

The selection of unit operations and processes (UOPs) needs to be based on an understanding of water quality (chemistry) and quantity — note that this has not been the common approach for stormwater quality control design. Most existing guidance focuses the design process on selecting “BMPs” that are expected to treat the pollutants of concern, or some surrogate pollutant such as total suspended solids (TSS), consistent with some stipulated performance measure (e.g., 80% TSS removal). Little attention is typically paid to the unit treatment operations and processes (UOPs) that occur within those BMPs or achievable effluent quality. The guidance recommends selecting UOPs that will address the pollutants of concern based on: their phases (i.e. dissolved vs. particulate); their chemistry (i.e. metal species); and/or their granulometric characteristics (i.e. size, specific gravity). Individual components of the treatment system should then be selected based on those UOPs. The understanding of the linkage between pollutants of concern, UOPs, and treatment system components is critical to the successful design, operation, and maintenance of stormwater treatment systems. This “Step 3” of the design process is discussed in this sub-section.

In particular, for projects that are upstream/upgradient from sediment recontamination sites, it is important to consider settleable solids and the dissolved/particulate partitioning of the COCs as a key factor in BMP selection and design. Unit processes that focus on removal of the settleable solids should be emphasized. In cases where the COCs are attached to fine particulates (e.g., <20 μm), removal of these small fractions require treatment process considerations that go well beyond typical settling basin and/or other hydraulic controls. Critical factors, including: turbulence; mixing characteristics; short-circuiting; resuspension; etc. — must all be evaluated to design and operate effective sedimentation-based treatment systems. In many cases, some form of media filters (including biofiltration systems) are required to adequately remove fine particulates from stormwater.

Many stormwater pollutant control mechanisms are similar to fundamental UOPs used to remove various constituents found in wastewater (Metcalf and Eddy, 2002). However, experience over the last decade has demonstrated that there continues to be a significant gap in knowledge between stormwater treatment system design/analyses and fundamental unit operations and processes that can demonstrate treatment viability as a function of the physical and chemical characteristics of stormwater COCs. This knowledge requires identification of: treatment mechanisms and rates; partitioning of pollutants between dissolved and particulate forms (e.g. heavy metals or dioxins for example); physical-chemical characteristics of transported particulate matter; and the management of residuals separated through treatment operations. It is also important to factor into treatment effectiveness evaluations of their effect on downstream hydraulic conditions. Treatment system components (TSCs) include conventional design elements, such as swales, ponds, tanks, — but also include: pre-treatment devices (e.g., hydrodynamic devices, trash racks, catch basin screens); custom hydraulic controls (e.g., flow splitters, weirs, orifices); and tertiary enhancements (e.g., soil amendments, designed media, carefully selected vegetative species, incorporation of biological removal mechanisms). All UOPs can be organized according to four fundamental process categories (FPCs), including: 1) hydrologic controls; 2) physical operations; 3) biological processes; and 4) chemical processes. Table 3 provides a summary of the FPCs, the individual UOPs, and the associated TSCs typically chosen to provide the UOP.



**Stormwater & Sediments**

**Design Approach**

**Component Placement**

**Selecting Treatment System Components (TSCs)**

TSCs are the fundamental elements of a stormwater treatment system. Each TSC provides at least one unit treatment operation or process. For instance, a dry detention basin is a TSC that provides both sedimentation and detention amongst other unit processes. The integrated unit process design approach recommends that after the potential unit treatment processes that provide water quality or quantity benefits in conjunction with project goals have been identified, the TSCs that include those processes should be selected (see Step 4).

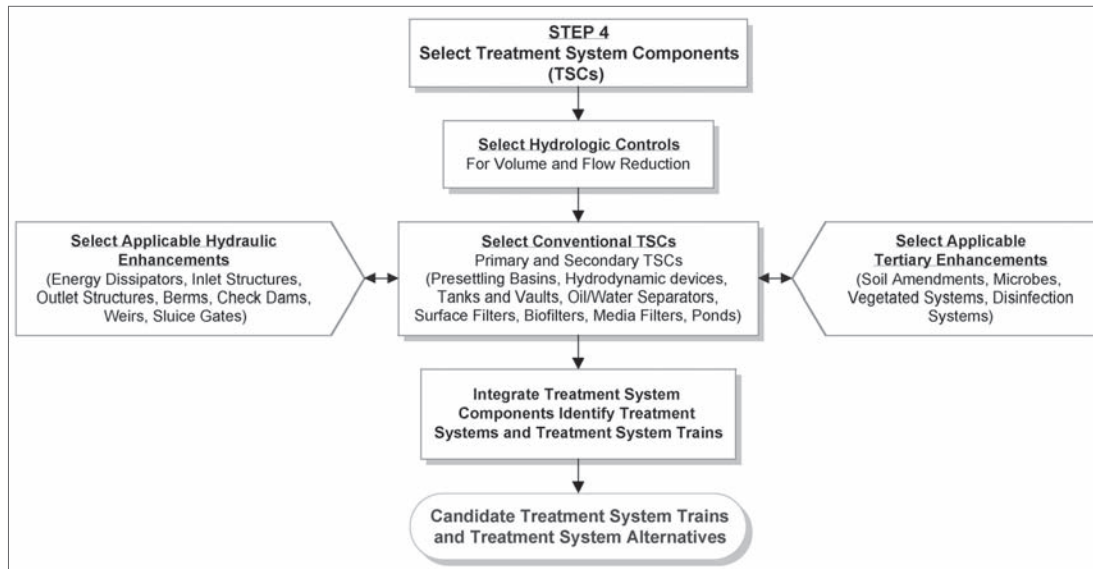


Table 3: Structural Stormwater Controls and Associated Fundamental Process Categories

Fundamental Process Category	Unit Operation or Process	TSCs Typically Chosen to Provide UOP
Hydrological Operations	Flow Attenuation	Extended detention and Retention/detention basins Wetlands Tanks/Vaults
	Volume Reduction	Infiltration/exfiltration trenches and basins Porous pavement Bioretention cells Dry swales Dry well Extended detention basins
Physical Treatment Operations	Density Separation	Extended detention and Retention/detention basins Wetlands Settling basins, Tanks/Vaults Swales with check dams Oil-water separators Vortex separators
	Size Separation and Exclusion	Screens/bars/trash racks Biofilters Porous pavement Infiltration/exfiltration trenches and basins Manufactured bioretention Systems Media/sand/compost filters Hydrodynamic separators Catch basin inserts
	Absorption	Biofilters, Bioretention systems Media/sand/compost filters Catch basin inserts Infiltration/exfiltration trenches and basins
Biological Processes	Nutrient Assimilation	Wetlands/wetland channels Bioretention systems Biofilters Retention ponds
	Uptake and Storage	Wetlands/Wetland Channels Bioretention systems Biofilters Retention ponds
	Microbially Mediated Transformation	Wetlands/Wetland Channels Bioretention systems Biofilters Retention ponds
Chemical Processes	Flocculation/Precipitation	Detention/Retention Ponds
	Adsorption and Ion Exchange	Subsurface wetlands Media/Sand/Compost filters Infiltration/exfiltration trenches and basins
	Ultra-Violet Disinfection	Shallow retention ponds Advanced treatment systems
	Chemical Disinfection	Custom devices for mixing chlorine or aerating with ozone Advanced treatment systems

Many TSCs include multiple unit processes at varying levels of effectiveness. Therefore, the placement of these components in relation to one another in a treatment system must be carefully considered. The guidance's design methodology incorporates consideration of five broad categories of treatment system components in the order at which they are typically placed, but not limited to, in a treatment train: 1) hydrologic control TSCs; 2) pretreatment TSCs; 3) conventional TSCs; 4) tertiary enhancements; and 5) hydraulic enhancement controls.

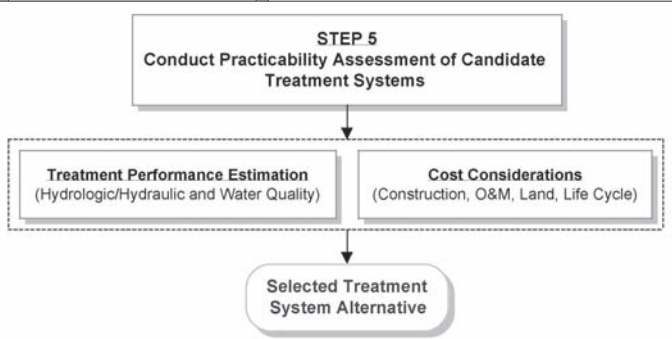
At the TSC level significant additional resources become available to the design engineer for evaluating the performance of candidate systems. The guidance recommends evaluating the best available information about the performance of TSCs. However, much of the information about field performance comes from study of wet weather controls that include only one TSC. Many TSCs have not been evaluated sufficiently in the field and thus designers must currently rely on pilot scale, laboratory, and theoretical information to evaluate these processes. In many cases, models can be quite helpful in these evaluations if applied properly.

**Stormwater & Sediments**

**Conduct Practicability Assessment of Candidate Treatment Systems**

Although there are a large number of factors to consider in evaluating candidate treatment systems, two are presented at length in the integrated unit process design guidance: 1) evaluation of expected performance; and 2) cost considerations (see Step 5). Much of the other factors are well described by practicality assessments in existing guidance.

Performance information presented in the guidance draw heavily on the International Stormwater Best Management Practices Database Project (see Strecker et. al 2003 and Strecker et al. 2004). As the guidance is focused on developing systems that target specific water quality goals, performance information is presented in conjunction with a series of pollutant fact sheets that provide one of the more useful tools developed as part of this project. The fact sheets allow designers to focus efforts on mechanisms and processes that are pollutant type and form specific and quickly get a summary of the state of the practice for that particular pollutant, including expected wet weather control system performance.



**Final Selection**

**Sizing and Conceptual Design Development of Selected Treatment System**

The processes of final selection and system sizing are shown in Step 6. BMP design involves both the mechanism for hydrologic and hydraulic controls as well as the design criteria for determining the runoff volume and/or flow rate for which to design. Extensive hydrologic and hydraulic design guidelines are included in references such as the following (detailed references follow article):

- American Society of Civil Engineers and Water Environment Research Federation (1992)
- Debo and Reese (2003)
- King County (1998)
- Mays (2001)
- Urban Drainage and Flood Control District (1999, 2001)
- Urbonas and Stahre (1993)
- Washington State Department of Ecology (2001)
- Water Environment Federation and American Society of Civil Engineers (1998)
- US Environmental Protection Agency (2004)

Several of these references are based in part upon one of the first such sets of guidelines produced for the Washington, DC Council of Governments by Schueler (1987). In addition to the several references listed above, many cities and other public agencies provide good, localized BMP design guidelines, such as the City of Portland, Oregon’s Bureau of Environmental Services (2002).

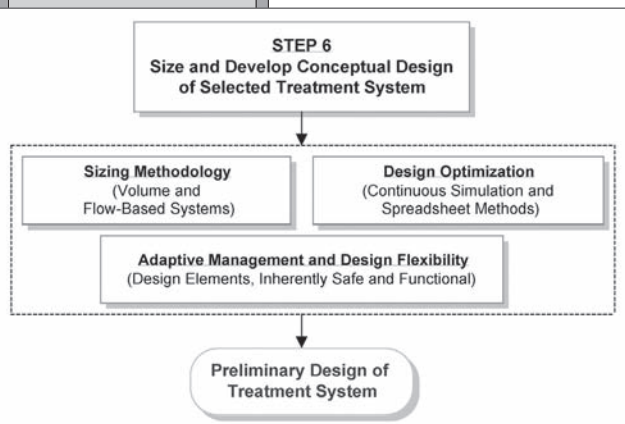
The sizing guidance recommend as part of the subject guidance manuals includes a hierarchical range of sizing options from simplest to most complex, in roughly the following order:

- 1) WEF-ASCE MOP 23 (1998) guidelines for volume control
- 2) Single-event hydrology using any of several standard methods, such as SCS method, unit hydrographs, time-area methods, design event models, etc.
- 3) Generalizations of climatically and geographically representative continuous simulation runs conducted by the research team
- 4) Consideration of derived distribution approaches of Adams and Papa (2000)
- 5) Site-specific spreadsheet continuous simulation and optimization methods (Heaney and Lee, 2004; Lee, 2003; Rapp, 2004; and Pack, 2004)
- 6) Site-specific SWMM continuous simulation

**Sizing Options**

The authors strongly advocate for the use of one of the latter two methods. Methods “5” and “6” will result in an improvement of design parameters which, in turn, will result in increased cost-effectiveness over the first four methods. To lessen the burden of performing such analyses, they could be completed on a watershed scale to provide design information for sites tributary to specific water bodies and include watershed specific design guidance.

When there are a number of sites of interest, the involved redevelopment agencies should consider developing supplemental guidance on the selection and design of BMPs. Such guidance should target reducing the potential for recontamination liability for brownfields site redevelopment and also address the retrofitting of existing facilities to limit their liability. Design information could be packaged in such a way that individual sites do not have to conduct highly detailed analyses.

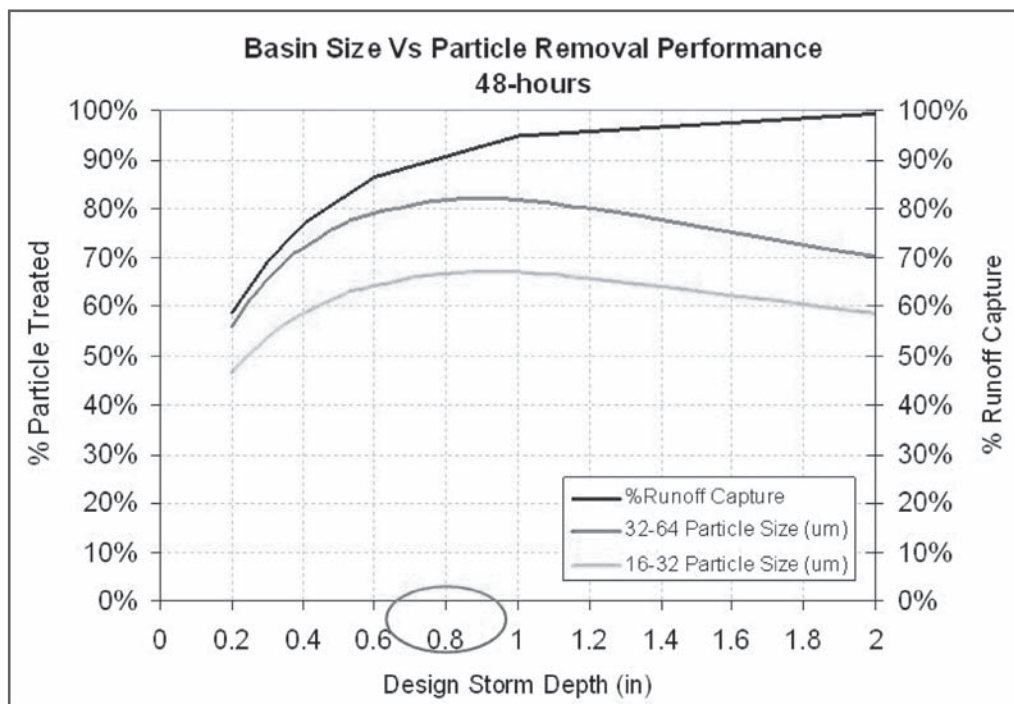


## Stormwater & Sediments

### Design Chart

The graph below is an example of a design chart based upon unit process consideration of drawdown time of 48 hours for extended detention systems and resulting percent capture and removal of fine particulates. It was developed using long-term simulation techniques to ascertain the percentage captured vs. the design storm depth (the size of the facility in tributary watershed inches) as well as the expected removal of particular size fractions of particles associated with the size of the facility. Charts or tables like this example can provide design guidance specific to the local precipitation patterns. Additional guidance on such parameters as media selection for particular constituents of concern could also be crucial, depending on the pollutant types and forms that are to be addressed.

#### Sediments – Removing Settleable Size Fractions (Lake Tahoe Area)



#### CONCLUSIONS

The current state of the practice and the availability of research studies at varying scales and complexities are allowing design engineers to move away from treating stormwater quality designs as “black box” processes. The focus can now be on achieving pollutant-specific goals through integration of unit processes and treatment system components into appropriate treatment “trains.” In particular, where the potential for recontamination of sediments is high, it is imperative that designers be much more careful in design, implementation, and operation and maintenance of BMPs in order to limit future liability concerns.

#### THE FOLLOWING POINTS BEAR REPEATING:

- Stormwater/wet weather flows are a significant source of recontamination risk
- There is BMP performance and unit processes information available to enable much more thorough BMP selection, design and performance documentation; resulting BMPs are much more likely to address pollutants and parameters of concern (TMDLs, sediment issues, etc.)
- With more rigorous BMP approaches and stormwater management plans, there should be better support for agreements with agencies responsible for contaminated sediment sites regarding future liabilities
- If no agreements are possible, at least a much better defense with regard to future (and current if site redeveloped or BMPs retrofitted prior to clean-up) recontamination allocations can be established

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### Treatment “Trains”

### Key Points

## Stormwater & Sediments

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## Interbasin Transfers

### Scope

### Climate Change & Adaptation

### Transfer Requirements

# NEW ERA OF INTERBASIN WATER TRANSFERS

by Barbara Cosens, University of Idaho School of Law (Moscow, ID)

## INTRODUCTION

An interbasin transfer of water is the diversion of water from one water source basin to another. How many of these occur depends on the scale one considers. An interbasin water transfer can take place on the scale of a transfer of water from one small stream to another, or to a transfer from water sources draining to the Pacific Ocean to water sources draining to the Gulf of Mexico. Even if you consider only large-scale transfers, trillions of gallons of water are transferred among basins each year to serve hundreds of thousands of farmers and millions of municipal residences. As noted by the US Environmental Protection Agency (EPA), in announcing its rule on the National Pollutant Discharge Elimination System and water transfers (discussed below):

Water transfers are administered by various federal, State, and local agencies and other entities. The Bureau of Reclamation administers significant transfers in western States to provide approximately 140,000 farmers with irrigation water. With the use of water transfers, the Army Corps of Engineers keeps thousands of acres of agricultural and urban land in southern Florida from flooding in former areas of Everglades wetlands. Many large cities in the west and the east would not have adequate sources of water for their citizens were it not for the continuous redirection of water from outside basins. For example, both the cities of New York and Los Angeles depend on water transfers from distant watersheds to meet their municipal demand. In short, numerous States, localities, and residents are dependent upon water transfers, and these transfers are an integral component of U.S. infrastructure.<sup>1</sup>

Water transfers may become increasingly important in the face of climate change. Scientists now tell us that even if we take measures to reduce emission of greenhouse gases, the delay in effect from past activities means that impacts will be irreversible for the next 1000 years.<sup>2</sup> Thus, while reductions in greenhouse gas emissions are important in the long-term, adaptation to climate change will also require a multi-generational focus of our efforts.

It is important to understand at the outset that climate change will not alter the total global volume of water. It will merely redistribute it on both a temporal and spatial scale. To adapt, the question will be — do we move people to water, or do we move water to people? History tells us it will be the latter. The fact that water flows, has allowed us to engineer interbasin water transfers to conform to where people live and work. Interbasin transfers have fueled the development of many major cities in the US. Adaptation to climate change is likely to drive greater interest in water transfers. Even now, climate change and population growth in arid regions are leading to new projects.

Efforts to develop major interbasin water transfers, however, face a growing list of state water law requirements, in addition to federal and state environmental law requirements. In contemplating such transfers, it is useful to understand the history of challenges to interbasin transfers. In the case of state water law, this will provide a perspective on why there is increasing scrutiny of application of the “no injury” rule in interbasin transfers from existing agricultural use to municipal use, and also why a growing number of states have adopted “area of origin protection” laws. This historic perspective can help explain what at times may seem to be disproportionate requirements. In the case of federal and state environmental laws, although generally enacted without particular focus on water transfers, the discussion of past challenges to interbasin water transfers under state and federal environmental laws can aid in careful planning to address these issues from the outset. In fact, environmental planning statutes such as the National Environmental Policy Act (NEPA) and its state law equivalents can provide both the information and the public forum to address many issues prior to construction. History informs us that environmental issues will continue to be raised if not addressed in a timely fashion.

This article begins by discussing state water laws, followed by federal and state environmental laws, in the context in which they have been enacted or used. Given the fact that most proposed interbasin transfers move water to high value municipal use, addressing these issues in the environmental compliance and design phases will reduce the likelihood of future costly challenges. A sampling of current proposals for major interbasin water transfers in the United States serves to illustrate both the increasing demand for water for municipal use and the fact that extensive environmental compliance should be undertaken prior to construction. (See Part II — in next months TWR)

## REGULATION OF INTERBASIN WATER TRANSFERS: STATE WATER LAWS

This section describes the historic context for the development of state source area protection laws and the use of the “no injury” rule, public interest criteria, and the public trust doctrine to scrutinize or limit interbasin water transfers.

## Interbasin Transfers

### Owens Valley Syndrome

### Continuing Impacts

### Basin-of-Origin Protection

### Economic Costs

### Environmental Concerns

### Subordination

### Existing Rights Protection

#### Source Area Protection Laws

Between 1905 and 1935, the Los Angeles Water Board undertook a major effort to acquire water from the Owens Valley, over 200 miles to the north.<sup>3</sup> By 1935, it owned 95% of the private farmland and 88% of the town property in the valley, and with the addition of groundwater pumping in the 1970's, envisioned serving its two aqueducts at full capacity of 666 cubic feet per second.<sup>4</sup> Even the most positive analysis of the economic benefits of the transfer describes its legacy as having a significant impact on the willingness of western rural agricultural interests to transfer water. For example, Gary Libecap's economic analysis views the purchase of land and water as good for the people of the valley, when analyzing the direct transactions and avoiding the third party impacts. His discussion of the legacy of Owens Valley, on the other hand, illustrates the much less positive impact on rural perceptions: "the Owens Valley transfer has a very negative legacy and has hindered subsequent efforts to reallocate water from agriculture to urban and environmental uses."<sup>5</sup> Libecap also quoted *The Economist* of July 19, 2003: "farmers remain suspicious of the 'Owens valley syndrome'...The 'theft' of its water...in the early 20th century has become the most notorious water grab by any city anywhere...The whole experience has poisoned subsequent attempts to persuade farmers to trade their water to thirsty cities."<sup>6</sup>

While Libecap may be correct that the short-term property values in Owens Valley rose in the face of a single relatively wealthy buyer, the story of the valley paints a picture of David versus Goliath that sometimes rises to mythological proportions in the minds of rural western water users. Not only did the water transfer alter the potential economic vision of the valley from a future based on irrigated agriculture supported by a reclamation project to one based on tourism (not a preferred economy for many rural westerners), but the litigation over environmental effects, such as air quality due to dust, continues to impact both the valley and the city of Los Angeles. One judge noted "the interminability of the [environmental] litigation, despite final judgment."<sup>7</sup>

The legacy of the real and imagined third-party and environmental effects of the "Owens Valley Syndrome" plays out today in enactment of area-of-origin protection statutes by many states. In a recent review of local area protection laws in all 50 states and the Canadian Provinces, Lawrence MacDonnell summarized the efforts to address social and economic impacts in the basin of origin through criteria for both transfer of existing water rights and development of new water rights to be diverted from the basin of origin.<sup>8</sup> The following information relies on his efforts.

Most of the criteria on third-party impacts from *change in use* of an existing water right can be found in legislation from western states, whereas criteria focused on *new* water rights are found throughout the US and Canada. This may simply reflect that with the relative scarcity of water in the West and the fact that most sources are fully appropriated, greater attention is paid to change in use. It may also reflect the Owens Valley Syndrome in which the focus is on potential loss of the economic benefits in the source basin from existing water use.

Most state water law criteria reflect concerns with the social and economic cost of water transfers. These statutes range from vague requirements to protect the local economy,<sup>9</sup> to specific limitations on the amount of land that can be fallowed in order to transfer water out of the source area.<sup>10</sup> While the economic benefits to the receiving basin often outweigh these harms in the source basin, an examination of the law indicates that in many states the legislature has nevertheless sought to assure local area economic protection. Some states even provide for mitigation of transfer impacts on tax revenue in the source area.<sup>11</sup>

Increasingly, environmental concerns are reflected in state water laws addressing water transfer. In addition to documenting loss of jobs, income, and tax revenue, third-party impacts of water transfers in the area of origin include soil erosion, blowing dust, and reduced stream flow.<sup>12</sup> MacDonnell's study shows that requirements on change in use of existing water rights include protections for fish and wildlife,<sup>13</sup> and re-vegetation and weed control for fallowed land.<sup>14</sup>

Requirements imposed on acquisition of new water rights for interbasin transfer include consideration of the future water needs within the basin of the source<sup>15</sup> and even subordination of the transferred rights to future water rights obtained for use in the source basin.<sup>16</sup> Subordination means that future water rights are given seniority in use over the transferred right, despite a later priority date (contrary to the norm of the Prior Appropriation Doctrine). In addition, many states require environmental review of interbasin transfers,<sup>17</sup> including review of impacts on water quality.<sup>18</sup> Finally, interstate compacts — concerning shared water resources that apply to the source basin — may require additional levels of review.<sup>19</sup>

#### The No Injury Rule

The rule that transfer of an existing water right can only be made if there is no injury to other existing water rights, whether junior or senior, is a basic tenant of western water common law. The incorporation of that common law concept into state water law statutes does not alter the principle in theory. For example, the Idaho Code states that "the director of the department of water resources shall examine all the evidence and available information and shall approve the change in whole, or in part, or upon conditions, provided no other water rights are injured thereby..."<sup>20</sup> The California code states that "the board...may approve such a petition for a long-term transfer where the change would not result in substantial injury to any legal user of water..."<sup>21</sup> What has changed is that with the establishment of administrative agencies, the no injury rule is more uniformly enforced with an opportunity for notice, objection, and a hearing prior to approval of a transfer.

## Interbasin Transfers

### Consumptive v. Paper Rights

#### Mono Lake Case

#### Idaho Rejection

#### Balancing Needs

#### Public Interest Criteria

#### Conservation Requirements

#### Climate Change Considerations

It is useful to consider what this means in the context of a transfer of irrigation water rights to a municipal use. First, only the amount consumptively used may be transferred. Although part of the common law of Prior Appropriation, statutes now state this expressly. Thus, the Idaho Code requires that “the change does not constitute an enlargement in use of the original right... .”<sup>22</sup> Irrigation efficiencies range considerably with irrigation method, soil type, crop type and climate. However, on average 50% of the water diverted for agricultural use is consumed, while the remainder serves to either recharge groundwater or comes back to the river as return flow. Following a water transfer, the unconsumed portion of the water right would remain in the source for diversion by junior water users. Thus, the impact of the no injury rule is to reduce the amount of water available for transfer from what would appear to be available on paper, and to require consideration of the objections of other water users from the source prior to approval of a transfer.

#### Public Trust Doctrine and State Public Interest Considerations

Although only invoked to date in California, the Public Trust Doctrine remains a potential challenge to interbasin transfers due to environmental impacts. In 1983, the California Supreme Court ruled that the state had an ongoing duty to modify water rights to protect a public trust resource.<sup>23</sup> That case involved an interbasin diversion of water from the Mono Lake watershed by the Los Angeles Department of Water and Power that was causing the lake level to drop, salinity to increase, and exposing rookeries on former islands to predators. Other states have rejected application of the doctrine. For example, the Idaho legislature enacted the following statute:

Limitations to the Application of the Public Trust Doctrine. (1)The public trust doctrine as it is applied in the state of Idaho is solely a limitation on the power of the state to alienate or encumber the title to the beds of navigable waters as defined in this chapter... (2) The public trust doctrine shall not be applied to any purpose other than as provided in this chapter. Specifically, but without limitation, the public trust doctrine shall not apply to:...

(b) The appropriation or use of water, or the granting, transfer, administration, or adjudication of water or water rights as provided for in article XV of the constitution of the state of Idaho and title 42, Idaho Code, or any other procedure or law applicable to water rights in the state of Idaho;<sup>24</sup>

It is not entirely clear that the doctrine is a product of state rather than federal common law.<sup>25</sup> If the Public Trust Doctrine is a matter of federal common law, states may not unilaterally reject its application.

Nevertheless, even if a court someday rules that the Public Trust Doctrine is a matter of federal common law and is applicable to water diversions, its application in California since 1983 has not had a substantial impact on water development and use. The California Supreme Court in *National Audubon* ruled that the application of the doctrine requires a balancing between the public interest in continued use of the diverted water and the needs of the trust resource.<sup>26</sup> The court acknowledged that the need for use may, at times, win out. Thus, the consideration of environmental and human impacts during the environmental compliance stage of project planning (discussed below), should preempt any future modification based on application of the Public Trust Doctrine.

In addition, many states would consider the Public Trust Doctrine, if applicable, to be embodied in their water codes in the form of public interest criteria. The Idaho Code, for example, prohibits development of new water rights and transfer of existing water rights “that will conflict with the local public interest... .”<sup>27</sup> In New Mexico, the state engineer may deny an application for a new water right if it is “contrary to the conservation of water within the state or detrimental to the public welfare of the state.”<sup>28</sup> Nevertheless, recent studies have shown that state agencies tend not to address the public interest criteria on the record.<sup>29</sup>

#### The Receiving Basin Conditions

Although state law criteria generally apply to the basin of origin, conservation requirements have been imposed on the receiving basin as a condition of federal assistance. For example, before the Department of Interior would support the Central Arizona Project — long proposed to bring Arizona’s share of Colorado River water to its growing cities — Arizona had to undertake management of its over-drafted groundwater basins. It did so through enactment of the Arizona Groundwater Management Act.<sup>30</sup>

Only recently has the potential for climate change to impact the receiving basin been fully recognized. The laws and institutional structures needed to address these issues are not yet in place or not yet applied, yet the impact on basins considered as sources for some proposed projects are already apparent. Tree ring studies indicate that the average annual flow of the Colorado River over the past 400 years is about 13 million acre-feet (AF),<sup>31</sup> two million AF less than the 15 million AF used to allocate the river among the upper and lower basin states in 1922.<sup>32</sup> In addition to its in-basin uses, the Colorado River serves agricultural and municipal use in southern California to the tune of at least 4.4 million AF per year.<sup>33</sup> Because the Boulder Canyon Act states the allocation as a delivery to the lower basin on a ten-year average, extended drought (regardless of climate change) would result in a call for water from the upper basin states by the lower basin states.<sup>34</sup> In 2007, the Secretary of the Interior signed an agreement with the seven Colorado River Basin states to provide guidelines for handling lower basin water shortages until 2026.<sup>35</sup> Reaching this agreement when faced with a potential crisis was a major accomplishment. Naturally, allocation decisions for shortages are best considered upfront. Interbasin water transfer projects of the future would be wise to include contingencies for climate change.

## Interbasin Transfers

### Design Life

In the Milk River basin of Montana, one of the nation's first reclamation projects serves roughly 10 percent of Montana's irrigated agriculture, or about 120,000 acres.<sup>36</sup> The project relies on a major interbasin water transfer. However, the facilities built to transfer water from the St. Mary River can no longer be operated at the original capacity. Restoration of the facilities exceeds the ability of the valley farmers to pay and ongoing efforts to seek federal assistance to restore the transfer capacity have not received approval.<sup>37</sup> Estimates of annual benefits range from \$7.7 million in agriculture and up to \$28 million in other benefits including municipal water supply, recreation, and wetlands,<sup>38</sup> yet the project cost is estimated at \$153 million. The problem facing the Milk River Valley will be present anytime a project relies on substantial public subsidy. Since the design life of the project bears no relation to the design life of the community that relies on it, the end result will be either continuing public subsidy or substantial social displacement. Publically funded interbasin transfers in the future would be wise to include contingencies for this inevitable outcome.

### Federal Regulation

#### FEDERAL AND STATE LAWS ADDRESSING THE ENVIRONMENTAL ISSUES

Environmental impacts — though considered in some state law criteria for water allocation — are primarily addressed by federal environmental law, and in some states, state environmental law. This section discusses the interaction between interbasin water transfers and federal regulation of water quality and endangered species. The section concludes with a discussion of federal and state level environmental review through the National Environmental Policy Act (NEPA)<sup>39</sup> and the state so-called mini-NEPAs which can be viewed as providing the forum for exchange of information with the public and an opportunity to address social and environmental concerns prior to construction.

#### Water Quality - Source Basin

Water quality issues resulting from interbasin transfers continue long after construction of the project. One ongoing effort serves to illustrate the far reaching implications and the need to address water quality concerns during the environmental review phase of a project.

In 1986, a California Appellate court ruled that the State Water Resources Control Board, the entity charged with both allocation of water and regulation of water quality under California law, had the authority to modify water permits to meet water quality standards. The court held that this authority extended to the federal Central Valley Project and the State Water Project, which transfer water from the Sacramento River basin to the San Joaquin River basin (*Racanelli* Decision).<sup>40</sup> Interbasin water transfer to southern California, along with other diversions, led to increased intrusion of saline water in the San Francisco Bay/Delta.<sup>41</sup> This decision was the first in a long series of efforts to address the impact of water use and transfer on water quality in the S.F. Bay/Delta and its aquatic species. The ongoing efforts to achieve the goals upheld in that decision<sup>42</sup> have imposed a substantial cost on both state and federal taxpayers, with what some have described as a failure to achieve results.<sup>43</sup>

The substantial economic, social, and political obstacles to altering major projects after completion and reliance on their continued availability suggests again that *upfront* consideration of environmental and social impacts will be the least costly approach.

#### Receiving Basin – Water Quality

In addition to impacts on the basin of origin, water quality impacts on the receiving basin have also been raised. In 2001 and again in 2006, the Second Circuit ruled that a transfer of water from a reservoir in one water basin to a creek in another basin, as part of the diversion for the municipal water supply of the city of New York, is a “discharge of a pollutant” requiring a permit under the Clean Water Act (CWA).<sup>44</sup> The water from the source basin carried a high level of sediment to an otherwise clear trout spawning stream. The basis of the court's ruling was the plain language of the CWA.<sup>45</sup> The court rejected the August 5, 2005 interpretation by EPA that a water transfer does not constitute an “addition” of a pollutant to “waters of the United States” and is therefore exempt from the National Pollutant Discharge Elimination System (NPDES) permit requirements for point sources of discharge. In doing so, it refused to grant “*Chevron* deference” to the agency interpretation because it was not done as part of rulemaking.<sup>46</sup>

In response, EPA issued a final rule on July 13, 2008, stating that “through today's rule, the Agency concludes that water transfers, as defined by the rule, do not require NPDES permits because they do not result in the ‘addition’ of a pollutant.”<sup>47</sup> This NPDES exemption applies provided the transfer has no “intervening industrial, municipal, or commercial use.”<sup>48</sup> Although interpreting precisely the same language in the CWA addressed by the Second Circuit, EPA reached the opposite result, relying on the fact that once its interpretation was promulgated as a final rule, it would be entitled to *Chevron* deference.<sup>49</sup>

Given the differences between EPA's and the Second Circuit's interpretation of the applicability of NPDES permit requirements of the CWA to water transfers, it is not surprising that EPA's rule was immediately challenged. Nine states — Minnesota, New York, Connecticut, Delaware, Illinois, Maine, Michigan, Missouri, and Washington — and the Canadian province of Manitoba, the Florida Wildlife Federation, and Earthjustice, all filed suit.<sup>50</sup> The 11th Circuit deferred to EPA's interpretation in a challenge seeking an injunction against a transfer without an NPDES permit.<sup>51</sup> Whether the Obama Administration will reconsider the rule remains to be seen. In the meantime, proponents of proposed

### Water Quality Impacts

### NPDES Permits

### EPA Transfers Rule

### Agency Deference



## Interbasin Transfers

### State Authority

transfers that will use a waterbody in the receiving basin for storage or conveyance prior to treatment and use, may want to consider the cost of removing pollutants such as sediment, components added in the source watershed, species foreign to the receiving water body, and any temperature differential between the receiving water body and the source. EPA made it clear that nothing in the rule prevents a state from imposing water quality requirements on water transfers: “[t]he Act reserves the ability of States to regulate water transfers under State law and this proposed rulemaking was not intended to interfere with this State prerogative.”<sup>52</sup>

### Dewatering

#### AQUATIC SPECIES CONSIDERATIONS

Water transfers may also affect aquatic species in either the source or receiving basin. In the receiving basin, the issues are quite similar to those discussed in the context of water quality and will not be repeated here. In the source basin, the impact on aquatic species is primarily an issue of dewatering. A review of challenges to past water transfers, arising after transfers have taken place, indicates that it would have been preferable to address the social and environmental issues upfront.

### Science v. Litigation

The science of natural and social systems is a search for the truth, whereas civil litigation is a search for finality.<sup>53</sup> Scientific inquiry has no statute of limitations, no concept of *res judicata* (principle that a final judgment of a competent court is conclusive upon the parties in any subsequent litigation involving the same cause of action). Scientific methodology is a process of disproving what we formerly thought to be true, of re-investigating questions thought solved, or of re-interpreting information in light of new discoveries.<sup>54</sup> In contrast, civil litigation is designed to close the book on a dispute, to provide a forum where no matter how flawed the inquiry, we can achieve peaceful final resolution of a dispute. In environmental and natural resource disputes, finality serves those with economic interests in the resource, whereas science serves those concerned with sustaining the resource or social system itself. The fact that one side of the litigation equation in a typical environmental or natural resource dispute seeks a goal that is not served by the forum provided helps explain why these disputes often face endless gridlock within the judicial system, or alternatively, once the judicial system provides a final answer, are revisited with new legislation.

#### Pyramid Lake Litigation

### Tribal Battle

The reality that environmental issues will continue to be visited until solved is illustrated by the ongoing battle of the Pyramid Lake Paiute Tribe (Tribe) to restore the health of the cutthroat and cui-ui fishery in Pyramid Lake.<sup>55</sup> The Truckee River takes its water supply from the snowpack of the Sierra Nevada Mountains in California, has its terminus in Pyramid Lake in the desert of Nevada, and is regulated by five major federal reservoirs and several private reservoirs.<sup>56</sup>

Pyramid Lake is located within the Pyramid Lake Paiute Indian Reservation. When viewed by John C. Fremont in 1844, the Lake and the mouth of the river were teeming with Pyramid Lake cutthroat trout (a subspecies of the Lahontan cutthroat trout) and a sucker known as the cui-ui. Diversions of the river to satisfy the irrigation project resulted in lowering of lake levels, blocking passage of fish to spawning grounds.<sup>57</sup> The Pyramid Lake cutthroat trout disappeared entirely from the Lake in the late 1930’s or early 1940’s, though a similar strain of Lahontan cutthroat trout was subsequently introduced.<sup>58</sup>

### Fishery Impacts

Years of challenges to the diversion of water from the Truckee River by the Tribe ultimately upheld the dominance of appropriative water rights for irrigation.<sup>59</sup> Reserved water rights for the Tribe were asserted by the United States in the Orr Ditch litigation beginning in 1913.<sup>60</sup> The United States sought reserved water rights solely for irrigation on the Reservation.<sup>61</sup> The Orr Ditch litigation spanned the period of 1913 to 1944, and fairly early in that timeframe it became clear that diversions to the Carson Basin were reducing lake levels and threatening the survival of the Pyramid Lake fishery.<sup>62</sup>

In 1921, the Acting Commissioner of Indian Affairs and the Reno Indian Agency debated their obligation to seek additional reserved water rights to preserve the fishery. The Acting Commissioner concluded that whereas the fishery was of mere local importance, the development of irrigated farmland in the arid West was of national concern and must take precedence.<sup>63</sup> The final Orr Ditch Decree awarded the Tribe reserved water rights only for the irrigation of 5875 acres.<sup>64</sup>

The level of Pyramid Lake and its unique fishery continued to decline. In December 1973, the United States filed suit in federal court seeking to open the Orr Ditch Decree to provide “sufficient waters from the Truckee River [for] the maintenance and preservation of Pyramid Lake [and for] maintenance of the lower reaches of the Truckee River as a natural spawning ground for fish.”<sup>65</sup> The Tribe was permitted to intervene. The US Supreme Court concluded that the Orr Ditch litigation already allowed consideration of the full measure of the Tribe’s reserved water right, and that the doctrine of *res judicata* precluded the assertion of the new claim.<sup>66</sup> The Orr Ditch litigation addressed only water use in Nevada. In 1981, the Tribe sued California asserting reserved water rights for Pyramid Lake.<sup>67</sup>

### Increasing Demands

Meanwhile, the nearby urban areas of Reno and Sparks in Nevada grew, placing an increasing demand on Truckee River water for municipal needs. Probably not coincidentally, recreational interests focused on use of the headwaters of the Truckee River around Lake Tahoe (a lake dissected by the California-Nevada border) and use of the basin’s many reservoirs grew.

## Interbasin Transfers

### ESA Impact

### Settlement Act

### Changing National Interest

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Passage of the federal Endangered Species Preservation Act of 1966, followed by the Endangered Species Act,<sup>68</sup> gave the Tribe a tool to change the engineered flow of the river. The Lahontan cutthroat trout was listed as threatened in 1975 and the cui-ui was listed as endangered in 1967.<sup>69</sup> The need for a firm municipal water supply in the Reno-Sparks area gave the tribe a powerful position. Since the proposed water transfer and some of the reservoirs are federal projects, the operation is subject to Section 7 of the Endangered Species Act, which prohibits jeopardy to a listed species by a federal activity.<sup>70</sup>

In 1990, after years of litigation and less-than-comprehensive negotiated agreements, Congress passed the Truckee-Carson-Pyramid Lake Water Rights Settlement Act.<sup>71</sup> Among other things, the Act required a process to revise the operating criteria for the Truckee River for the restoration of endangered species and to provide a drought water supply for urban areas, authorized changes to the operation of federal dams for those purposes, and provided for the purchase (from willing sellers) of water from agricultural uses served by the water transfer.<sup>72</sup> On December 5, 2008, the US Bureau of Reclamation (Reclamation) published the final rule adopting the Truckee River Operating Agreement entered into on September 6, 2008.<sup>73</sup>

Freshwater fish are considered by the Biological Resources Division of the US Geological Survey to be the single most endangered vertebrate group in the country.<sup>74</sup> Nearly two-thirds of the native fish in the Great Basin are either listed under the ESA or considered of concern by the US Fish and Wildlife Service.<sup>75</sup> Studies show a strong correlation between the location of listed species and water development, noting that water development is second only to the introduction of non-native species in posing a threat to native fish.<sup>76</sup>

Not surprisingly, the first major battle to determine just how far Congress intended to go to prevent destruction of a species when it enacted the ESA was between a dam and a fish. In a stroke of the pen the US Supreme Court gave us the full measure of the change in national interest which had occurred since the early 1900's.<sup>77</sup> Whereas policy battles between fish and consumptive use of water in the early twentieth century viewed Reclamation development for irrigation as a national interest and fish as of merely local concern,<sup>78</sup> by 1970, this had changed.<sup>79</sup>

### FORUM FOR ADDRESSING CONCERNS: ENVIRONMENTAL REVIEW

In current plans for interbasin water transfers, the environmental review required by NEPA and its state level equivalents, such as the California Environmental Quality Act (CEQA),<sup>80</sup> provide an initial forum to identify and address the problems previously found and/or challenged after construction. NEPA is triggered by federal involvement or funding.<sup>81</sup> With one notable exception, the proposals discussed in this section have federal involvement either through direct participation, funding, or permitting. This discussion focuses on NEPA, which imposes procedural requirements during the planning stages of a project. However, it is important to note that some state level equivalents also include substantive requirements to mitigate identified impacts.<sup>82</sup>

Although NEPA does not include substantive requirements, the development of an Environmental Impact Statement (EIS) will identify many of the issues discussed above, including water quality, endangered species, invasive species, dust from fallowed land, and economic impacts, based on the science available at the time.

In addition to compiling and analyzing scientific information in light of the proposed project, the agency involved must take and respond to public comments.<sup>83</sup> In this stage, many of the concerns can be addressed. Despite the absence in NEPA of a substantive requirement to modify plans in the face of identified human and environmental impact, the political reality of the cost (frequently requiring federal funding), generally public nature (frequently requiring approval by elected officials), and magnitude of the proposed transfers means that real issues raised by legitimate opposition must be addressed.

### CONCLUSION

It is very likely that in the face of climate change, reliance on interbasin water transfers to serve municipal needs will not only continue, but will increase. The history of opposition to the impacts of past water transfers, informs us that careful, upfront assessment and design will pay off in the long run. The environmental review and permitting stages offer the appropriate forums to accomplish these tasks.

Part II of this article will be presented in The Water Report #73 (March 15, 2010). Part II will examine several examples of pending plans for interbasin water transfers in the US.

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This article is a revision of a paper by Barbara Cosens entitled *The Eternal Quest for Water: Historical Overview and Current Examination of Interbasin Transfers of Water*, originally published by the Rocky Mountain Mineral Law Foundation in the Proceedings of the 55th Annual Rocky Mountain Mineral Law Institute (2009).

## Endnotes

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## COLORADO RIVER WEST QUANTIFICATION SETTLEMENT RULING

On January 14, California Superior Court Judge Ronald Candee invalidated an important agreement from 2003 that was aimed at curtailing California's overuse of its allocation of Colorado River water. In the "*Quantification Settlement Agreement*" (QSA) case, Candee ruled that some of the water transfer contracts enacted as part of the Agreement were not valid because they were based on an improper agreement by California to pay costs associated with restoring the Salton Sea in excess of the constitutional debt limit in California. *QSA Statement of Decision*, Case No. JC4353 (Jan. 13, 2010). Judge Candee noted in the decision that, "Dealing with the Salton Sea appears to the Court to have been the single most significant environmental issue faced in the QSA process." *Id.* at 33.

The landmark 2003 QSA was entered into between four California agencies that share the Colorado River and the federal and state governments. The agencies involved are the Imperial Irrigation District (IID), San Diego County Water Authority, Coachella Valley Water District and the Metropolitan Water District of Southern California. A number of contracts referred to as the QSA (and related agreements) were signed in October 2003 in an attempt to reach an overall quantification, settlement and transfer of various Colorado River water rights.

"Everyone negotiating the QSA JPA Agreement would have reasonably understood that now the State itself was purporting to unconditionally commit to pick up the entire tab for mitigation costs exceeding the capped contribution of the other QSA parties, notwithstanding the amount of those costs — even if they ultimately amounted to millions or billions of dollars — and notwithstanding the State's budget, appropriations, or other controls over expenditures." *Id.* at 36. The court then laid out the rationale for its decision (*Id.* at 37): "This Court has no ability to sanction a way to contract around the Constitution. It is clear to this Court that if this contract language is validated, executive agencies of the state can contract for amounts well over the constitutional debt limit where some amount is contingent but

everyone knows there is a very real possibility that the debt limit amount will be exceeded by simply adding language saying the obligation is an unconditional contractual obligation of the State not conditioned upon an appropriation by the Legislature, contractually binding future legislators' hands in contravention of our Constitution."

On January 15, IID put out a statement saying that it would seek a stay of the ruling and file an appeal "because the District, its water users, Southern California, and the state as a whole are better off with the QSA than without it." **For info:** Decision and related information at QSA Cases website: [www.saccourt.ca.gov/coordinated-cases/qa/qa.aspx#case-info](http://www.saccourt.ca.gov/coordinated-cases/qa/qa.aspx#case-info)

## WATER RIGHTS NV LAS VEGAS WATER APPLICATIONS

On January 28, the Nevada Supreme Court held that the Nevada State Engineer's failure to act until 2006 on certain Southern Nevada Water Authority (SNWA) permit applications filed in 1989, violated the statutory requirement that action be taken within one year. The court further ruled that this failure was not retroactively cured by 2003 Nevada legislation, which allowed longer delays for applications for municipal water. The court remanded the case to the district court for full hearings on the appropriate remedy, "namely whether SNWA is required to file new applications or whether the state engineer is required to re-notice and re-open the protest period." *Great Basin Water Network v. Taylor*, 126 Nev. Adv. Op. 2, 16 (1/28/10). The eventual remedy is unclear at this point since, as the Court noted, there was no remedy for noncompliance for the timing requirements included in the statute.

Although the case involved a "narrow, yet fundamental question" the ramifications of the ruling and subsequent decision by the district court are enormous. Acting State Engineer Jason King was quoted in news reports that it could mean "chaos" and that as many as 14,500 water rights issued between 1947 and 2002 could be affected.

For SNWA, the case turned on whether their applications were deemed to be "pending" in 2003 under the

legislative amendment. The Court concluded that "pending" applications were limited to those that "were filed within one year prior to the enactment of the 2003 amendment. And, in the absence of statutory language and legislative history demonstrating an intent that the amendment apply retroactively to SNWA's 1989 applications, we determine that the State Engineer could not take action on them under the 2003 amendment to NRS 533.370." *Id.* at 3. **For info:** Case available at: [www.nevadajudiciary.us/index.php/supremecourt](http://www.nevadajudiciary.us/index.php/supremecourt) >> Advance Opinions

## NPDES ENFORCEMENT CA ANNUAL REPORT RELEASED

On January 27, the State Water Resources Control Board of California released the NPDES 2009 annual Enforcement Report, required under section 13385(o) of the California Water Code, it is now available at the State Water Board's website (under Enforcement, Enforcement Reports; see URL below). The next quarterly update is March 31, 2010. At the time of the report, there were 1,908 NPDES wastewater facilities and nearly 30,000 facilities or permittees regulated by NPDES stormwater permits in California.

The Report shows that the total number of violations of NPDES wastewater permits declined dramatically in 2009 to a total of 3,843. That number is significantly less than any of the years of 2000-2008, with the next lowest year at 5,860 (2001) and the highest year being 2006 with 7,734 violations. The Report did note, however, that the data for 2009 was still incomplete since monitoring reports are still being reviewed by the regional boards.

Most of the violations noted in the stormwater program are reporting violations (63%); incomplete/insufficient stormwater pollution prevention plans represents the next highest category of violations at 25%.

**For info:** Rafael Maestu, SWRCB, 916/341-5894 or [rmaestu@waterboards.ca.gov](mailto:rmaestu@waterboards.ca.gov); Report available on SWRCB website: [www.waterboards.ca.gov/water\\_issues/programs/enforcement/docs/13385o\\_2009.pdf](http://www.waterboards.ca.gov/water_issues/programs/enforcement/docs/13385o_2009.pdf)

## WATER BRIEFS

**PESTICIDE LAWSUIT US****ALLEGED EPA ESA VIOLATIONS**

On January 28, the Center for Biological Diversity (CBD) filed a notice of intent to sue (NOI) EPA for failing to adequately evaluate and regulate nearly 400 pesticides harmful to endangered species throughout the nation, which also threaten human health. CBD claims that EPA has violated the Endangered Species Act (ESA) by failing to consult with wildlife regulatory agencies about the impacts of pesticides on hundreds of protected species that are threatened by pesticide use. CBD also asserts that EPA has violated the Migratory Bird Treaty Act by registering pesticides that are known to kill and harm migratory birds.

The NOI referenced 887 endangered and threatened species that may be hurt by pesticides. Some examples include the Florida panther, coho salmon, California condor, Everglade snail kite, northern Aplomado falcon, mountain yellow-legged frog, California tiger salamander, arroyo toad, Indiana bat, and green sturgeon. CBD noted that thousands of non-target animals such as mountain lions, bobcats, hawks, and owls are killed or harmed each year by poisoned baits approved by EPA, as are endangered species such as the San Joaquin kit fox, Utah prairie dog, giant kangaroo rat, and black-footed ferret.

The NOI alleged that EPA “has failed to satisfy its ESA Section 7 consultation requirements that apply to pesticide registrations and reregistrations.” The notice went on to state that EPA “is also in violation of Section 9 of the ESA for the take of listed species which is resultant from pesticide applications.” The NOI includes a detailed section on the “Legal Background” involved that covers the ESA and the relationship between ESA and the Federal Insecticide, Fungicide and Rodenticide Act. The NOI’s Factual Background includes detailed discussion of the species and pesticides involved. For anyone interested in pesticide use, the 128-page NOI provides a wealth of information.

**For info:** Jeff Miller, CBD, 510/ 499-9185 or [www.biologicaldiversity.org](http://www.biologicaldiversity.org) (1/28/10 Press Release)

**BULL TROUT REVISION WEST****CRITICAL HABITAT EXPANDED**

On January 13, 2010, the US Fish & Wildlife Service (USFWS) proposed to revise its 2005 designation of critical habitat for the bull trout (*Salvelinus confluentus*), a threatened species protected under the Endangered Species Act. In total, the Service proposes to designate approximately 22,679 miles of streams and 533,426 acres of lakes and reservoirs in Idaho, Oregon, Washington, Montana and Nevada as critical habitat for the wide-ranging fish. The proposal includes 985 miles of marine shoreline in Washington. Bull trout depend on cold, clear water and are excellent indicators of water quality. Protecting and restoring their habitat contributes to the water quality of rivers and lakes throughout the Northwest.

Under the ESA, critical habitat identifies geographic areas that contain features essential for the conservation of a listed species and other areas which USFWS believes are essential for the conservation of the species. Critical habitat designations provide extra regulatory protection to areas that may require special management considerations, and the habitats are then prioritized for recovery actions.

The battle over critical habitat for bull trout has been ongoing for some time (see Montgomery, TWR #14). Two conservation organizations, the Alliance for the Wild Rockies and Friends of the Wild Swan, filed a lawsuit against USFWS and the Department of the Interior in 2006 challenging the (then) final designations for bull trout. At that point the final designations encompassed just 3,828 miles of streams and 143,218 acres of lakes and reservoirs (see Water Briefs, TWR #24).

A draft economic analysis estimates the potential incremental cost of the proposed revised critical habitat at approximately \$5 to \$7 million a year over the next 20 years.

**For info:** USFWS website: [www.fws.gov/pacific/bulltrout/](http://www.fws.gov/pacific/bulltrout/)

**WATER MARKET WEBSITE WA****AGENCY PROGRAMS**

The Washington Department of Ecology (Ecology) has developed a new website to explain the three programs that support the emerging water market

in Washington state: the Trust Water Rights Program; the Water Acquisition Program; and Water Banking. As water supplies become more limited these programs are essential to transfer water use where it is needed the most.

There is also a link in the Trust Water Right Program to a new web page for public notices for some types of Trust Water rights. When a Trust Water Right is accepted by Ecology, if it is the result of a Donation or Trust Water Right Short-term Lease, the public notice can now be posted on their website instead of in a local newspaper. “For a trust water right donation described in RCW 90.42.080 (1)(b), or for a trust water right lease described in RCW 90.24.080(8) that does not exceed five years, the department may post equivalent information on its web site to meet the notice requirements...” [RCW 90.42.040 (5)(c)].

The letter of acceptance which will serve as a public notice for donations will be posted for the required two weeks of publication, and will remain for 30 days after the two week public notice period. The public notice for short-term leases will be similar to those that have been posted in newspapers, and will be posted on the web for two weeks, and will also remain another 30 days for comments. Ecology will post the report of examination for the leases when they are completed.

**For info:** [www.ecy.wa.gov/programs/wr/market/market.html](http://www.ecy.wa.gov/programs/wr/market/market.html)

**MONTANA REPORTS MT/WEST****COALBED METHANE/EXEMPT WELLS**

Two reports dealing with controversial issues in Montana have recently been prepared and released by the Montana Water Policy Interim Committee of the Legislature. “Coal Bed Methane Water: An Overview of Water Right Issues” and “Drilling Down: A Primer on Exempt Wells in Montana and the West,” dated January 2010, were both prepared by Research Analyst Joe Kolman for the Committee.

**For info:** Reports available at: [http://leg.mt.gov/css/Committees/Interim/2009\\_2010/Water\\_Policy/Meeting\\_Documents/meetings.asp#meeting3](http://leg.mt.gov/css/Committees/Interim/2009_2010/Water_Policy/Meeting_Documents/meetings.asp#meeting3)

**WETLAND GRANTS DATA** US  
EPA DEVELOPMENT GRANTS PROGRAM

EPA's Wetland Grants Database (WGD) houses data for Wetland Program Development Grants. This data includes: project descriptions; grant amounts; project deliverables and final reports (for closed-out grants); geolocational information; case studies; EPA and grantee contact information; and more. The WGD also features a "Model Products" section, where EPA plans to highlight some of its more valuable grant-created products. EPA hopes the WGD can be a valuable learning tool for potential grantees to learn from what others have done, as well as providing all interested parties general information about what has been developed by Wetland Program Development Grants over time. WGD is administered by EPA's Wetlands Division.

**For info:** Romell Nandi, EPA's Wetlands Division, [nandi.romell@epa.gov](mailto:nandi.romell@epa.gov)  
EPA WEBSITE: <http://iaspub.epa.gov/pls/grts/f?p=101:1> (>>public access)

**CLIMATE CHANGE INFO** US  
NOAA CLIMATE SERVICE  
NEW CLIMATE WEBSITE

On February 8, the National Oceanic and Atmospheric Administration (NOAA) announced its intent to create a NOAA Climate Service line office dedicated to bringing together the agency's strong climate science and service delivery capabilities.

Unifying NOAA's climate capabilities under a single climate office is intended to integrate the agency's climate science and services and make them more accessible to NOAA partners and other users. Planning has been, and continues to be, shaped by input from NOAA employees and stakeholders across the country, with close consideration given to the recommendations of the NOAA Science Advisory Board, National Academies and National Academy of Public Administration.

NOAA Climate Service will encompass a core set of longstanding NOAA capabilities with proven success. The climate research, observations, modeling, predictions and assessments generated by NOAA's top scientists — including Nobel Peace Prize award-

winners — will continue to provide the scientific foundation for extensive on-the-ground climate services that respond to millions of requests annually for data and other critical information.

Thomas Karl, director of NOAA's National Climatic Data Center, will serve as transitional director of NOAA Climate Service. New positions for six NOAA Regional Climate Services Directors will be announced soon and will provide regional leadership for integrating user engagement and on-the-ground service delivery within the Climate Service.

NOAA also unveiled a new Web site — [www.climate.gov](http://www.climate.gov) — to serve as a single point-of-entry for NOAA's extensive climate information, data, products and services. Known as the NOAA Climate Portal, the site addresses the needs of five broadly-defined user groups: decision makers and policy leaders, scientists and applications-oriented data users, educators, business users and the public.

Highlights of the portal include an interactive "climate dashboard" that shows a range of constantly updating climate datasets (e.g., temperature, carbon dioxide concentration and sea level) over adjustable time scales; the new climate science magazine ClimateWatch, featuring videos and articles of scientists discussing recent climate research and findings; and an array of data products and educational resources.

**For info:** Justin Kenney, NOAA, 202/482-6090 or [justin.kenney@noaa.gov](mailto:justin.kenney@noaa.gov) or [www.noaa.gov/climate](http://www.noaa.gov/climate);  
Global Climate Change Impacts in the US Report: [www.globalchange.gov/usimpacts](http://www.globalchange.gov/usimpacts)

**CLIMATE MODELING** US  
UTILITY ALLIANCE WHITE PAPER

The Water Utility Climate Alliance (WUAC), a consortium of metropolitan drinking water providers, commissioned a white paper, entitled "Options for Improving Climate Modeling to Assist Water Utility Planning for Climate Change." The goal of the white paper is to explain how climate models work; describe how models have been used in the water sector to assess potential impacts to water utility systems; and make recommendations regarding how

to improve modeling and downscaling techniques so these tools can be more useful for the water sector.

**For info:** The white paper is available at: [www.wucaonline.org/assets/pdf/actions\\_whitepaper\\_120909.pdf](http://www.wucaonline.org/assets/pdf/actions_whitepaper_120909.pdf)

**DAM REMOVAL** CA  
SAN CLEMENTE DAM

In January, NOAA joined state and local officials in a pledge to remove the San Clemente Dam to eliminate a threat to the lives and property of those along California's lower Carmel River, and help restore the watershed for federally protected steelhead trout.


The 89-year old, 106-foot high dam, which once helped bring water to residents of Monterey County, is at risk of failing during a significant earthquake or flood. Sediment has been building up behind the dam for years, making it a hazard for those living below it and almost useless as a water storage reservoir. If the dam were to fail, an estimated two million cubic yards of sediment and more than 40 million gallons of water could rush downstream with potentially disastrous consequences.

The dam removal will also aid in the recovery of steelhead trout by opening up access to more than 25 square miles of spawning and rearing habitat. Steelhead in the Carmel River were listed as threatened under the Endangered Species Act in 1997.

According to the agreement signed on January 11, NOAA, the California State Coastal Conservancy and California American Water will work along with other federal, state and local organizations to develop a project plan for the Carmel River Reroute and San Clemente Dam Removal Project by next November. The dam removal itself may take place as early as 2012.

The total cost for the project is currently estimated at about \$85 million. According to the agreement, California American Water will pay approximately \$50 million, while the California State Coastal Conservancy, with assistance from NOAA, will secure the additional \$35 million from state, federal and private funding sources by the end of this year.

**For info:** Jim Milbury, NOAA, 562/980-4006



**MARCH 4 2010**

Hilton Seattle Airport  
**SEATTLE WASHINGTON**

A Northwest Environmental Council Conference For info: [www.nebc.org](http://www.nebc.org)

**February 16 GA**

**Carbon Credits Seminar, Atlanta.** For info: The Seminar Group, 800/ 574-4852, email: [info@theseminargroup.net](mailto:info@theseminargroup.net), or website: [www.theseminargroup.net](http://www.theseminargroup.net)

**February 16 AZ**

**Pursuit of Sustainable & Reliable Water Supplies in the Desert - Brown Bag, Tucson.** WRRC, 350 N. Campbell Ave., 12-1:30pm. For info: WRRC, 520/ 621-9591, [wrrc@cals.arizona.edu](mailto:wrrc@cals.arizona.edu) or <http://cals.arizona.edu/azwater>

**February 16-18 OR**

**NW Hydroelectric Ass'n 2010 Annual Conference, Portland.** Marriott Downtown. For info: [www.nwhydro.org/](http://www.nwhydro.org/)

**February 16-19 WA**

**Creating Thriving Rural & Urban Communities Through Ecological Restoration Conference, Marysville.** Tulalip Convention Ctr. For info: [www.ser.org/sermw/Conference\\_2010.asp](http://www.ser.org/sermw/Conference_2010.asp)

**February 17 WA**

**Protecting Aquatic Ecosystems by Understanding Watershed Processes: A Guide for Planners Program, Lacey.** For info: [www.coastaltraining-wa.org/Scheduled-Classes/5.aspx](http://www.coastaltraining-wa.org/Scheduled-Classes/5.aspx)

**February 17 WA**

**UW Water Center's 20th Annual Review of Research, Seattle.** UW Seattle Campus. For info: <http://water.washington.edu/Outreach/Events/AnnualReview/annualreview.html>

**February 17 GA**

**Solar Power Seminar, Atlanta.** For info: The Seminar Group, 800/ 574-4852, email: [info@theseminargroup.net](mailto:info@theseminargroup.net), or website: [www.theseminargroup.net](http://www.theseminargroup.net)

**February 17-19 CA**

**ABA Water Law Conference, San Diego.** US Grant Hotel. Sponsored by American Bar Association. For info: ABA website: [www.abanet.org/environ/calendar/](http://www.abanet.org/environ/calendar/)

**February 17-19 NM**

**WESTCAS 2010 Winter Conference, Albuquerque.** Embassy Suites. For info: Dawn Moore, 770/ 424-8111, email: [westcas@mindspring.com](mailto:westcas@mindspring.com) or [www.westcas.org](http://www.westcas.org)

**February 18 OR**

**Future of Oregon's Water Supply & Management Seminar, Portland.** World Trade Center, 121 SW Salmon. For info: The Seminar Group, 800/ 574-4852, email: [info@theseminargroup.net](mailto:info@theseminargroup.net), or website: [www.theseminargroup.net](http://www.theseminargroup.net)

**February 18-19 Ontario**

**2010 International Conference on Stormwater & Urban Water Systems Modeling, Toronto.** For info: Computational Hydraulics Int'l website: [www.computationalhydraulics.com/](http://www.computationalhydraulics.com/)

**February 18-19 GA**

**Georgia Wetlands & Water Law Seminar, Atlanta.** For info: The Seminar Group, 800/ 574-4852, email: [info@theseminargroup.net](mailto:info@theseminargroup.net), or website: [www.theseminargroup.net](http://www.theseminargroup.net)

**February 18-19 OR**

**"The Soil-Waste Interface" - Oregon Society of Soil Scientists Winter Meeting, Troutdale.** Edgefield. Treatment Technology, Phytoremediation, Water Reuse, Treatment Wetlands, Groundwater Recharge & More. For info: [www.oregonsoils.org](http://www.oregonsoils.org)

**February 18-19 CO**

**Renewable Energy Finance Seminar, Denver.** For info: CLE International, 800/ 873-7130 or website: [www.cle.com](http://www.cle.com)

**February 19-20 OR**

**Pacific NW Ground Water Expo, Portland.** Red Lion Jantzen Beach. For info: [www.ngwa.org](http://www.ngwa.org)

**February 21-24 Costa Rica**

**21st Century Watershed Technology: Improving Water Quality & the Environment, San Jose.** Ramada Plaza Herradura. Sponsored by American Society of Agricultural & Biological Engineers. For info: ASABE website: [www.asabe.org/meetings/water2010/index.htm](http://www.asabe.org/meetings/water2010/index.htm)

**February 21-25 SC**

**2010 Land Grant & Sea Grant National Water Conference, Hilton Head Island.** Marriott Hilton Head Resort. Sponsored by National Water Program. For info: NWP website: [www.usawaterquality.org/](http://www.usawaterquality.org/)

**February 22-25 AZ**

**Southwest Membrane Operators Association Annual Symposium, Scottsdale.** Carefree Resort. For info: SWMOA, 888/ 643-0830 or [www.swmoa.org](http://www.swmoa.org)

**February 23-25 DC**

**Assn of California Water Agencies Washington, D.C. Conference, Washington.** Washington Court Hotel. For info: ACWA, 916/ 441-4545 or website: [www.acwa.com](http://www.acwa.com)

**February 25 CA**

**CEQA Update, Issues and Trends Course, Sacramento.** Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or <http://extension.ucdavis.edu>

**February 25-26 NM**

**Indian Water Rights and Water Law Conference, Albuquerque.** Doubletree Hotel. For info: Falmouth Institute: [www.falmouthinstitute.com/](http://www.falmouthinstitute.com/)

**February 25-26 MD**

**Water Quality in the Chesapeake Seminar, Baltimore.** For info: Law Seminars Int'l, 800/ 854-8009, email: [registrar@lawseminars.com](mailto:registrar@lawseminars.com), or website: [www.lawseminars.com](http://www.lawseminars.com)

**February 25-28 OR**

**Public Interest Environmental Law Conference, Eugene.** UO Law School. For info: [www.pielc.org/pages/home.html](http://www.pielc.org/pages/home.html)

**February 26 OR**

**27th Annual Benefit Dinner & Auction: The Freshwater Trust, Portland.** Art Museum. For info: [www.thefreshwatertrust.org](http://www.thefreshwatertrust.org)

**February 26 OR**

**Water Quality Conference, Portland.** For info: Holly Duncan, Environmental Law Education Center, 503/ 282-5220, [hduncan@elecenter.com](mailto:hduncan@elecenter.com) or [www.elecenter.com](http://www.elecenter.com)

**February 26 AZ**

**Transboundary Water Issues (Brown Bag), Tucson.** WRRC, 350 N. Campbell Ave., 12-1:30pm. For info: WRRC, 520/ 621-9591, [wrrc@cals.arizona.edu](mailto:wrrc@cals.arizona.edu) or <http://cals.arizona.edu/azwater>

**March 1 NV**

**Water Rights in Nevada, Las Vegas.** Golden Nugget Hotel. For info: [www.nvwa.org/events](http://www.nvwa.org/events)

**March 1-4 MT**

**Floods of Liability Conference, Pray, Chico Hot Springs.** Assn of Montana Floodplain Managers Annual Meeting. For info: [www.mtfloods.org/](http://www.mtfloods.org/)

**March 2 NV**

**Advanced Water Rights in Nevada, Las Vegas.** Golden Nugget Hotel. For info: [www.nvwa.org/events](http://www.nvwa.org/events)

**March 2-4 BC**

**New Research & Applied Science to Meet Fishery Management Needs Conference, Nanaimo.** Vancouver Island Conf. Centre. Sponsored by WA-BC Chapter of the American Fisheries Society. For info: [www.wabc-afs.org](http://www.wabc-afs.org)

**March 2-4 NV**

**2010 NWRA Annual Conference, Las Vegas.** Golden Nugget Hotel. Sponsored by Nevada Water Resources Association. For info: NVWRA, 775/ 473-5473 or website: [www.nvwa.org/](http://www.nvwa.org/)

**March 2-4 CA**

**Managing Water Resources & Drought in a Changing Climate Conference, San Diego.** Sponsored by National Weather Service Climate Services. For info: [www.watereducation.org/conferences](http://www.watereducation.org/conferences)

**March 2-4 NV**

**Nevada Water Resources Ass'n Annual Conference, Las Vegas.** Golden Nugget Hotel. For info: [www.nvwa.org/events](http://www.nvwa.org/events)

**March 3 WA**

**Conservation in Practice: UW College of the Environment Colloquium, Seattle.** UW. For info: <http://depts.washington.edu/ebcomm/colloquium>

**March 4 CA**

**Water Marketing Seminar, Santa Barbara.** For info: The Seminar Group, 800/ 574-4852, email: [info@theseminargroup.net](mailto:info@theseminargroup.net), or website: [www.theseminargroup.net](http://www.theseminargroup.net)

**March 4 WA**

**Managing Stormwater in Washington Conference, Seattle.** Hilton Seattle Airport. Presented by Northwest Environmental Business Council. For info: Sue Moir, NEBC, 503/ 227-6361, [sue@nebc.org](mailto:sue@nebc.org) or [www.nebc.org](http://www.nebc.org)

**March 4 WA**

**AWRA-WA Spring Dinner Meeting & "Recovering Puget Sound" Speech, Mercer Island.** Mercer Island Community Center, 8236 SW 24th Street, 5:30pm. For info: <http://earth.golder.com/waawra/ASP/Home.asp>

**March 4 CA**

**Land Use Law Review & Update Course, Sacramento.** Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or <http://extension.ucdavis.edu>

**March 4-5 NV**

**Family Farm Alliance Annual Meeting & Conference, Las Vegas.** Monte Carlo Resort. For info: Dan Keppen, FFA, [www.familyfarmalliance.org](http://www.familyfarmalliance.org)

**March 4-5 MT**

**2010 Clark Fork Symposium, Missoula.** U of Montana. For info: [www.umt.edu/clarkforksymposium/](http://www.umt.edu/clarkforksymposium/)

**March 5 CA**

**Carbon Credits Seminar, Los Angeles.** For info: The Seminar Group, 800/ 574-4852, email: [info@theseminargroup.net](mailto:info@theseminargroup.net), or website: [www.theseminargroup.net](http://www.theseminargroup.net)

**March 5-7 BC**

**Pacific Evolution & Ecology Conference, Vancouver Island.** Bamfield Marine Research Centre. For info: <http://web.uvic.ca/~serg/PEEC/index.html>

**March 7-10 MA**

**Urban River Restoration 2010, Boston.** Marriott Cambridge. For info: Water Environment Foundation at [www.wef.org/UrbanRiver/](http://www.wef.org/UrbanRiver/)

**March 7-9 CA**

**2010 California Water ReUse Section Annual Conference, San Diego.** Paradise Point Resort. For info: Conf. website: [www.watereuse.org/conferences/california](http://www.watereuse.org/conferences/california)

**March 9 MT**

**Water Rights: What You Need to Know, Bozeman.** Sponsored by Montana Watercourse & DNRC. For info: Janet Bender-Keigley, 406/ 994-6671, [jkeigley@montana.edu](mailto:jkeigley@montana.edu) or [www.mtwatercourse.org](http://www.mtwatercourse.org)

**March 9 AZ**

**Emerging Waterborne Pathogens Workshop, Tucson.** For info: [www.wsp.arizona.edu](http://www.wsp.arizona.edu)

**March 9 OR**

**Cascade Chapter NEBC Spring Soiree, Portland.** For info: Sue Moir, NEBC, 503/ 227-6361, [sue@nebc.org](mailto:sue@nebc.org) or [www.nebc.org](http://www.nebc.org)

**March 10 OR**

**"The Color of Water in Oregon: A Neutral Perspective of Graywater?" (Speech), Salem.** La Margarita Restaurant, 545 Ferry Street SE (Dinner at 6; Program at 6:30pm). Sponsored by Oregon AWRA Chapter. For info: Brenda Bateman, ORWD, 503/ 986-0879 or [brenda.o.bateman@wrds.state.or.us](mailto:brenda.o.bateman@wrds.state.or.us)

**March 10 CA**

**Making Effective Use of Negative Mitigated Documents Course, Sacramento.** Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or <http://extension.ucdavis.edu>

**March 10-12 West**

**Lower Colorado River Tour, River.** For info: Water Education Foundation, 916/ 444-6240, [feedback@watereducation.org](mailto:feedback@watereducation.org) or [www.watereducation.org](http://www.watereducation.org)

**March 11 CA**

**Clean Water Act Section 404: Nationwide & Other Specialized Permits Course, Sacramento.** Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or <http://extension.ucdavis.edu>

**March 11-12 MT**

**Montana Agriculture: Legal Issues Seminar, Billings.** Wingate by Wyndham. For info: The Seminar Group, 800/ 574-4852, email: [info@theseminargroup.net](mailto:info@theseminargroup.net), or website: [www.theseminargroup.net](http://www.theseminargroup.net)



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## CALENDAR

(continued from previous page)

**March 11-12** **NM**  
Law of the Rio Grande Seminar, Santa Fe. For info: CLE International, 800/ 873-7130 or website: www.cle.com

**March 11-12** **CA**  
Investing in our Water Future: A Focus on California, Santa Barbara. For info: The Seminar Group, 800/ 574-4852, info@theseminar.com, or www.theseminar.com

**March 12** **AZ**  
Private Company Water Policy (Brown Bag), Tucson. WRRRC, 350 N. Campbell Ave., 12-1:30pm. For info: WRRRC, 520/ 621-9591, wrrrc@california.waterboards.ca.gov or http://california.waterboards.ca.gov/azwater

**March 12** **CO**  
Evapotranspiration: Using the Best Science to Estimate Consumptive Use Workshop, Fort Collins. Sponsored by CSU & USDA Agricultural Research Service. For info: http://water.state.co.us/

**March 12-13** **UT**  
The Challenge of Sustainability Symposium, Salt Lake City. Rose Wagner Performing Arts Center. For info: Wallace Stegner Center, 801/ 585-3440 or www.law.utah.edu/stegner

**March 15-18** **CA**  
20th Annual International Conference on Soils, Sediments, Water & Energy, San Diego. Marriott Mission Valley. For info: www.aehsfoundation.org/

**March 16-17** **NV**  
2010 Tahoe Basin Science Conference, Incline Village. Sponsored by Nevada Water Resources Association. For info: NVWRA, 775/ 473-5473 or website: www.nvwra.org/

**March 17** **CA**  
Assn. of California Water Agencies Legislative Symposium, Sacramento. Sacramento Convention Ctr. For info: ACWA, 916/ 441-4545 or website: www.acwa.com

**March 18** **CA**  
CEQA & Climate Change: An In-Depth Update Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

**March 18-19** **WA**  
Conservation Easements Seminar: Conserving Land, Protecting Our Future, Seattle. Grand Hyatt. For info: CLE International, 800/ 873-7130 or website: www.cle.com

**March 18-19** **NV**  
Nevada Water Law Seminar, Reno. For info: CLE International, 800/ 873-7130 or website: www.cle.com

**March 18-20** **UT**  
Conference on Environmental Law 39th Annual, Salt Lake City. Grand America Hotel. Sponsored by American Bar Association. For info: ABA website: www.abanet.org/environ/calendar/

**March 22-23** **CA**  
Endangered Species Act Seminar, San Diego. For info: CLE International, 800/ 873-7130 or website: www.cle.com

**March 22-24** **CA**  
Proceeding to Develop Flow Criteria for the Delta Ecosystem Necessary to Protect Public Trust Resources, Sacramento. Cal-EPA Bldg, 1001 I Street. SWRCB Proceeding. For info: Philip Crader, SWRCB, 916/ 341-5438, pcrader@waterboards.ca.gov or www.waterboards.ca.gov

**March 23-24** **NY**  
Wall Street GREEN Trading Summit IX, New York. The Times Center. For info: Summit, 212/ 222-3775 or www.wsj.com

**March 24-26** **BC**  
Globe 2010: Energy & Environment Trade Fair, Vancouver. For Display, Contact: Sunun Setboonsarng, Oregon Business Development Dept., 503/ 229-6057 or sunun.setboonsarng@state.or.us. For info: www.globe2010.com

**March 25** **OR**  
Solar Power: Projects & Permitting Seminar, Portland. For info: The Seminar Group, 800/ 574-4852, email: info@theseminar.com, or website: www.theseminar.com

**March 25** **WA**  
Sustainable Development & Green Building Seminar, Seattle. For info: The Seminar Group, 800/ 574-4852, email: info@theseminar.com, or website: www.theseminar.com

**March 25-26** **OK**  
Oklahoma Water Law Seminar, Tulsa. For info: CLE International, 800/ 873-7130 or website: www.cle.com

**March 25-26** **CA**  
"Moving Forward" Water Education Foundation 27th Annual Executive Briefing, Sacramento. Doubletree Hotel. For info: WEF, 916/ 444-6240, feedback@watereducation.org or www.watereducation.org

**March 26** **WA**  
Water Marketing Seminar, Spokane. For info: The Seminar Group, 800/ 574-4852, email: info@theseminar.com, or website: www.theseminar.com

**March 26** **WA**  
Storming the Central Sound Conference: Action Through Education, Outreach & Service, Seattle. Art Museum, 9am-4pm. For info: Justine Asohombom, Ecology, 425/ 649-7108 or juas461@ecy.wa.gov

**March 29-31** **FL**  
GIS & Water Resources VI: AWRA Spring Specialty Conference, Orlando. Rosen Shingle Creek Hotel. For info: AWRA website: www.awra.org/

**March 31** **WA**  
Redevelopment of Contaminated Property Seminar, Seattle. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

**April 6-7** **OR**  
Oregon Brownfields Conference & Awards Luncheon, Salem. For info: Sue Moir, NEBC, 503/ 227-6361 or sue@nebc.org

**April 7-8** **WA**  
Construction Site Erosion & Pollution Control, Bellevue. UW Bellevue. For info: UW Engineering website: www.engr.washington.edu/epp/cee/wet.html

**April 8** **AZ**  
Arizona v. California & the Colorado River Basin (Brown Bag), Tucson. WRRRC, 350 N. Campbell Ave., 4:15-5:30pm. For info: WRRRC, 520/ 621-9591, wrrrc@california.waterboards.ca.gov or http://california.waterboards.ca.gov/azwater

**April 8-9** **WA**  
Clean Water & Stormwater Seminar, Seattle. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

**April 9** **ID**  
Energy Independence: Challenges Facing the West in Adopting Alternative & Renewable Energy Resources Symposium, Boise. City Hall Bldg. For info: www.lawreview.uidaho.edu/advisory.html

**April 11-14** **GA**  
Emerging Issues Along Urban-Rural Interfaces Conference, Atlanta. For info: http://emergingissues.interfacesouth.org/