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Water Quality Thermal Credit Trading

METHODS FOR QUANTIFYING THERMAL CREDITS FOR WATER QUALITY TRADING

by Tom Dupuis, Jason Smesrud, and Dawn Wirz, CH2M HILL,
and David Primozich, Willamette Partnership

INTRODUCTION

The Willamette Partnership and Willamette Ecosystem Marketplace

The Willamette Partnership is a coalition of Oregon business leaders, innovative regulators, engaged academics and public interest advocates committed to increasing the pace, scope, and effectiveness of conservation in the Willamette Basin. The Partnership has come to understand that restoring the health of a watershed while sustaining a thriving economy will require a coordinated approach that no jurisdiction, agency, or private interest has the resources or incentive to undertake alone. The Partnership is seeking to demonstrate new options to reduce the cost and conflict of compliance with regulations while delivering broader ecological results. One way the Partnership will do this is by leading an effort to build a new suite of tools tied to strategic ecological priorities and market-based incentives called the Willamette Marketplace.

The concept behind ecosystem markets is fairly simple. Environmental regulations set standards to protect natural resources. Industries, businesses, developers, and individuals who change the land or water must meet regulatory standards or compensate for additional unavoidable impacts. For example, a city might require a developer who cannot avoid impacts to a wetland to replace that wetland's impacted functions. Also, state or federal laws may require cities and industries to clean and cool wastewater before releasing it into a river. Where impacts cannot be avoided completely or where a resource can be better protected elsewhere, ecosystem markets provide a way for regulated parties to more efficiently and effectively meet their environmental obligations. In an ecosystem market, the regulated entities can opt to become "buyers" of verified ecosystem services, paying others — for example, farm and forest land owners and managers ("sellers") — to restore wetlands, plant trees along streams or provide other ecosystem improvements. In so doing, markets provide a way to attain greater long lasting environmental benefit at lower cost.

Ecosystem markets make good economic sense, letting us invest money much more effectively. For example, in an ecosystem marketplace, cities and industries that discharge clean, but warm water into rivers and streams would be able pay land managers to plant streamside shade trees or restore wetlands that cool water naturally throughout their watershed (as opposed to only at the regulated point of discharge). Restoration of these natural processes will create substantially more benefits to the larger ecosystem and are typically much less expensive than traditional engineered approaches. The long-term goal is to develop a marketplace that facilitates environmentally strategic investments which target priority ecological areas and functions and accommodates transactions that address the full spectrum of ecological values.

Thermal WQ Trading

Credit Units

Tualatin Precedent

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Water quality credit trading is one tool in the ecosystem marketing toolbox designed to achieve our watershed goals. More detailed descriptions of concepts and benefits of trading can be found in recent guidance from the US Environmental Protection Agency (EPA), both national (see EPA, *Water Quality Trading Policy*, January 2003) and specific to the northwest region (see EPA Region 10, *Water Quality Trading Assessment Handbook: EPA Region 10's Guide to Analyzing Your Watershed*, July 2003). The Oregon Department of Environmental Quality (OODEQ) also has developed trading guidance (see www.deq.state.or.us/wq/trading/faqs.htm).

ARTICLE OVERVIEW

This article summarizes work that CH2M HILL has recently completed for the Willamette Partnership. The purpose of this work was to develop methods for quantifying thermal credits generated by various watershed restoration practices. The units of credit considered here are expressed in millions of kilocalories per day (Mkcal/d). A calorie is a metric system unit of heat energy denoting the amount of energy needed to raise the temperature of one gram of water by one degree Celsius (°C); a kilocalorie is 1,000 calories. This quantification method is consistent with how ODEQ usually expresses thermal allocations under the Clean Water Act program which establishes Total Maximum Daily Loads (TMDLs) for water quality impaired waters. [Another customary unit of heat energy is British Thermal Units (BTUs), one BTU equals about 250 calories.] Several TMDLs, including a temperature TMDL, were completed for the Willamette Basin by ODEQ in late 2006.

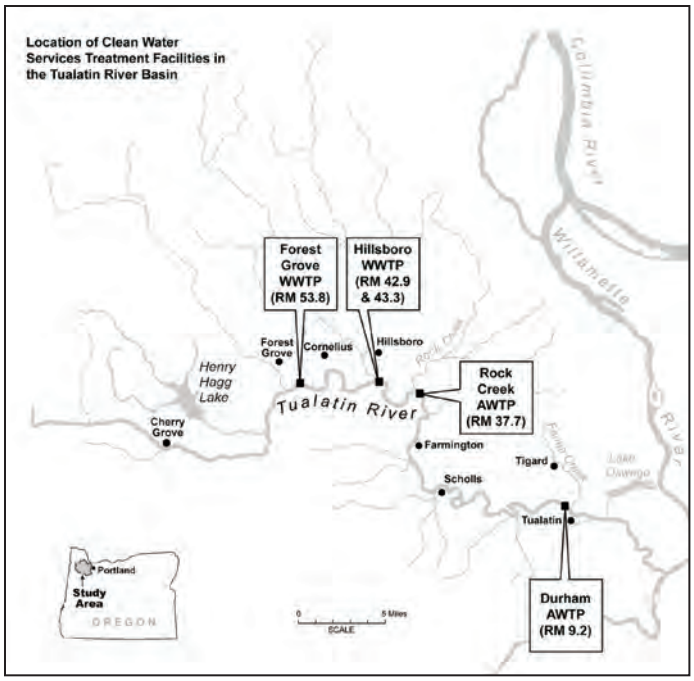
So far your authors are aware, formal temperature trading programs do not yet exist anywhere else in the country other than Oregon. The primary example of a temperature trading program in Oregon is that established for the Tualatin Basin, as formalized in the Clean Water Act watershed permit issued for Clean Water Services (CWS) — the public utility providing wastewater and stormwater management for the Basin. The units for credit for the Tualatin thermal credit trading program are also expressed as Mkcal/d. The CWS experience set an important precedent which is described in more detail in this article where relevant.

Thus, while water quality trading limited to only thermal units of Mkcal/d does not achieve the Willamette Partnership's long-term goal for a marketplace in which a variety of ecosystem services might be traded, it is nonetheless one important initial step that is supported by an existing regulatory precedent.

Thermal credit producing practices addressed in this article include:

- Flow Augmentation
- Riparian Shading
- Wetland Systems
- Wastewater Reclamation and Reuse

For each of these practices, this article describes: the potential types of projects; approaches to credit generation; and applicable technical and policy considerations.



Finally, the article briefly describes the Excel-based credit evaluation tool that has been developed for the Willamette Partnership which can be used to calculate thermal credits for the restoration practices listed above.

Floodplain restoration is a fifth type of restoration action envisioned by stakeholders and researchers in the Willamette Basin. Floodplain restoration refers to reconnecting side channels in the floodplain that have been cut off from the mainstem, selective removal of bank hardening structures, and restoration that would provide "stepping stones" of cold water refugia along the river. The methods and tools for this type of restoration are being developed by Oregon State University, University of Oregon, and ODEQ, and are not included in this article (see Hulse/ Gregory, TWR #49).

Thermal WQ Trading

Credit Creation

Releases

Transferred Rights

Diversion Changes

ODEQ Temperature Model

Thermal Offsets

Case-by-Case Modeling

Water Right Protections

FLOW AUGMENTATION

All flow augmentation projects are subject to the requirements and limitations of Oregon Water Law.

Types of Flow Augmentation Projects

Flow augmentation can create thermal credits in the following two ways:

- When the flow augmentation water is cooler than the temperature of the receiving stream/river.
- When the increase in flow as a result of augmentation increases the velocity of the stream/river, and hence decreases the travel time, thereby reducing the amount of time that a reach of river/stream is exposed to solar warming.

Types of augmentation projects include:

- Water releases from reservoir storage (for example the CWS precedent — see below).
- Transfer of water rights that creates additional flow within a river/stream reach:
  - Water releases from reservoir storage to a downstream water user: this flow is typically protected instream down to the point of diversion for the water user.
  - Transfer of live flow water rights to an instream right: this option may occur when cropland is converted to native trees for riparian restoration, thus reducing irrigated areas and allowing a portion of the water right to be transferred instream to support ecological restoration. Instream water rights are typically protected (on the water body that the legal rights are subject to) downstream to the confluence with the next larger order stream.
  - Transfer of water right to downstream water user or change of point of diversion to downstream location.
  - Change of point of diversion from a tributary to downstream location on the mainstem: this option involves leaving cooler tributary water instream and removing warmer mainstem water downstream. In addition to the thermal benefits, there are significant flow benefits within the tributary. This typically involves moving a pumped diversion or replacing a gravity diversion with a downstream pumped diversion.

Flow Augmentation Credit Generation Precedents

A precedent for defining flow augmentation temperature credit has been established for the Tualatin River by CWS and ODEQ. ODEQ's river temperature model, Heat Source, was used to predict how much of a temperature change (delta T) would occur at two critical locations just upstream of each of CWS' advanced wastewater treatment facilities as a result of CWS' flow augmentation water released from Hagg Lake. July and August were determined to be the critical period for reconciling the thermal load to offset (in Mkcal/day) with credits from flow augmentation. Figure 1 (next page) is a summary sheet taken from CWS' 2006 annual water quality credit trading report, which shows that the augmentation flow of 38 **c**ubic **f**eet per **s**econd (cfs) more than offsets the excess load from CWS' Durham facility and offsets more than half of the excess load from CWS' Rock Creek facility. The credits were calculated by multiplying the reduction in temperature in the river upstream of each facility by the applicable seasonal river flow.

Approach to Flow Augmentation Credit Generation for the Willamette

A process similar to the Tualatin could be used for reservoir augmentation for the Willamette River and/or its tributaries. Additionally, several different types of water rights transactions within the basin could result in verifiable credits. Modeling analyses would need to be done on a case-by-case basis to document the delta Ts at critical tributary and mainstem locations. Thermal credits would be created by translating these delta Ts to Mkcal/day based on the applicable river flow at each location for the applicable time period.

Flow Augmentation Technical and Policy Considerations

As noted, all flow augmentation projects will be subject to the requirements and limitations of Oregon Water Law. The ability of a water right to be modified and to be protected instream is subject to statutory and administrative rules enforced by the Oregon Water Resource Department (OWRD).

Establishing protected instream flows may be influenced by the following:

- Priority date of the water right relative to other water rights on the same water body
- Water availability to satisfy the water right during the period that thermal credits are needed
- Potential for injury to other water users from a water right transfer

Monitoring of water protected instream can also be a challenge, depending on the location and availability of flow monitoring data.

Thermal WQ Trading

To assess the value of a proposed trade involving flow augmentation, each water right transaction will have to be reviewed for legal and technical aspects with legal counsel and/or a certified water rights examiner, and with the OWRD Watermaster. A monitoring plan should also be required for each project that allows calculation of flows protected instream for credit verification.

Figure 1: Summary Sheet taken CWS 2006 Annual WaterQuality Credit Trading Report

ANNUAL CWS THERMAL BUDGET — **YEAR: 2006**

Year number of permit: 3

MEDIAN FARMINGTON FLOW: 172.5 cfs

Rock Creek WWTP

Loading from WWTP Effluent				**Annual Thermal Load after Flow Augmentation Credit**
Mean effluent flow:	45.7	cfs		
Mean effluent temperature:	22.0	°C		
Median river flow at outfall:	126.4	cfs		
Mixing zone flow:	31.6	cfs	Thermal load from WWTP: 812 million kcal/d	
System potential temperature:	14.7	°C		219 million kcal/d
Mixing zone temperature change:	+4.3	°C		
Allowed Loading from WWTP Effluent				
Median river flow at outfall:	126.4	cfs		
Mixing zone flow:	31.6	cfs	Allowed thermal load: -26 million kcal/d	
Allowed temperature increase	0.25	°F		
System potential temperature:	14.7	°C		
Credit for Flow Augmentation				
Refer to WWTP data for calculation of thermal credit			Thermal credit for flow augmentation: -567 million kcal/d	

DURHAM WWTP

Loading from WWTP Effluent				**Annual Thermal Load after Flow Augmentation Credit**
Mean effluent flow:	25.1	cfs		
Mean effluent temperature:	21.9	°C		
Median river flow at outfall:	172.5	cfs		
Mixing zone flow:	43.1	cfs	Thermal load from WWTP: 234 million kcal/d	
System potential temperature:	18.1	°C		0 million kcal/d
Mixing zone temperature change:	+1.4	°C		
Allowed Loading from WWTP Effluent				
Median river flow at outfall:	172.5	cfs		
Mixing zone flow:	43.1	cfs	Allowed thermal load: -23 million kcal/d	
Allowed temperature increase	0.25	°F		
System potential temperature:	18.1	°C		
Credit for Flow Augmentation				
Refer to WWTP data for calculation of thermal credit			Thermal credit for flow augmentation: -325 million kcal/d	

CREDIT FOR RIPARIAN SHADE RESTORATION/PRESERVATION

Total stream miles this year	8.7	miles	Thermal credit for shade: -76 million kcal/d

CUMULATIVE THERMAL BUDGET FOR CWS ACTIVITES IN THE TUALATIN BASIN

	Thermal Load after FA Credit		Thermal Credit for Shade		Net Thermal Input to Tualatin Basin
	Annual	*Cumulative Average*	*Annual*	*Cumulative*	
Year 1	312 million kcal/d	312 million kcal/d	-30 million kcal/d	-30 million kcal/d	282 million kcal/d
Year 2	200 million kcal/d	256 million kcal/d	-53 million kcal/d	-83 million kcal/d	173 million kcal/d
Year 3	219 million kcal/d	244 million kcal/d	-76 million kcal/d	-159 million kcal/d	84 million kcal/d
Year 4					
Year 5					

Thermal WQ Trading

Shade-O-Later Sub-Model

2:1 Offset Requirement

TMDL Models Available

Wetland Processes

Salem Demonstration Model

Good Predictions

RIPARIAN SHADING

Riparian shading projects involve tree planting within riparian areas to provide stream shading.

Riparian Shading Credit Generation Precedents

CWS and ODEQ established a precedent for defining riparian shade restoration temperature credits on the Tualatin River. Shade credits are defined using ODEQ's Heat Source model (specifically, the Shade-O-Later sub-model) to predict the effective shade provided by a specific grouping of restoration plantings. These effective shade predictions were used, along with estimates of the stream surface area affected by the shade, to calculate how much of the solar insolation load (thermal load from the sun) would be blocked by the shade. Estimating the number of kilocalories per day per square foot of stream that would be blocked and the number of square feet of stream affected provides the number of Mkcal/d of credit. Credits for a given planting year are defined as those that would occur when the vegetation reaches full maturity. However, a ratio of 2:1 is used for offsetting current thermal loads from the treatment facilities because it will take years before the vegetation reaches full maturity. In other words, two miles of vegetation has to be planted for every mile used for an offset credit.

Approach to Riparian Shading Credit Generation for the Willamette

A process similar to that approved by ODEQ for CWS on the Tualatin River has been used for the Willamette River. The Willamette temperature TMDL developed and utilized various modeling tools for evaluating riparian shade. These included the Heat Source model for some of the tributaries, and the CE-QUAL-W2 model (applied by Portland State University and ODEQ) for the mainstem river and several major tributaries downstream of the reservoirs operated by the US Army Corps of Engineers (Corps). These existing models can be used to directly evaluate the benefits of increased riparian shade for these tributary and mainstem river reaches.

Riparian Shading Technical and Policy Considerations

The ODEQ-approved program for the Tualatin River can be adapted for use on the Willamette River with relatively few changes.

WETLAND SYSTEMS

Types of Wetland Restoration Projects

Three primary types of wetland systems projects have been considered, including:

- Development of constructed wetlands to cool effluent prior to discharge
- Restoration of natural wetlands for cooling effluent prior to discharge
- Restoration of floodplain wetlands that cool tributary streams

All of these projects rely on the same basic thermodynamic processes for water cooling. In general, water cooling in wetland systems occurs through both passive evaporative and radiant cooling. Passive evaporative processing dominates in the summer months and radiant processes are most significant in the winter months. Effective water cooling in these systems can be accomplished by using a relatively large land area with shallow water depths and dense emergent vegetation for shading. In some situations, wetland systems can also provide cooling benefits much in the same way as floodplain/hyporheic restoration (increased and/or delayed seepage of water through cooler shallow groundwater system).

Wetland Restoration Credit Generation Precedents

The Natural Treatment Systems Demonstration Project at the City of Salem's Willow Lake Water Pollution Control Facility includes two surface flow wetland cells — a "Constructed Wetland" cell and a "Habitat Wetland" cell. Treated effluent has been routed through both wetlands and detailed temperature monitoring at inlet and outlet locations has also been collected since mid-2004. While this project has not to date been used for thermal credit generation, the facility has provided invaluable data for understanding the effects of wetlands on water temperature and for the calibration of a numerical energy balance model for wetland systems. CH2M HILL and Watershed Sciences modified code within the Heat Source version 7.0 model to account for thermal dynamics within an emergent vegetation shaded wetland system and obtained good predictions for the Salem wetlands over a wide range of operational and physical conditions.

The "Heat Source Wetlands model" developed along with this project provides a tool for predicting the temperature effect across a wetland system under a wide range of varying conditions of wetland configuration. These varying conditions include: water depth; emergent vegetation coverage; flow and hydraulic retention time; influent temperature; climate conditions; and topographic and riparian vegetation

Thermal WQ Trading

Credit Definition

Agencies Involvement

Evaluation Methods

Screening Tool

Reducing Effluent

TMDL Allocations

shading. The model has since been applied to a potential wetland project for the City of Albany and validated with data from pond/wetland systems in California as well.

Approach to Wetland Restoration Credit Generation for the Willamette

The credit definition process for wetlands creation/restoration would be similar to riparian restoration in that credits would have to be established project-by-project in relation to how each would affect river temperature. This could be accomplished using the Heat Source Wetlands model to quantify the thermal load reduction. Cooling in wetlands is also something that can be directly measured in the field after the wetland system has been constructed or modified, much like temperature and thermal loads can be measured at the end-of-pipe for a point source discharge.

Wetland Restoration Credit Technical and Policy Considerations

Any wetland project involving modifications to existing wetlands will need to be developed in coordination with the Corps and other relevant state and federal agencies.

As with other restoration activities that involve establishing vegetation, wetland restoration projects will take time to develop adequate vegetation cover before the full shading and water cooling potential is realized. Like the riparian shading approach, wetland restoration projects will require an established method for addressing the success of vegetation plantings and their development of shade over time. Aerial survey methods will likely be the most effective way to accomplish monitoring of vegetation success in large wetlands.

While the Heat Source Wetlands model is integrated into an Excel spreadsheet, operating the model requires running **g**eographic **i**nformation **s**ystem (GIS) analyses, and obtaining detailed climatic, vegetation, and wetland configuration data. This process therefore requires specialized experience.

In order to provide partners with a simplified tool that a less experienced user could operate, CH2M HILL developed a "screening level" wetlands evaluation tool. Using a single conservative design climate scenario and conservative simplifying assumptions for a standard constructed wetland design configuration, multiple Heat Source Wetlands models were run varying two primary design variables: 1) hydraulic retention time (the duration of time in which discharged water is retained in the wetland, which is affected by the flow rate and wetland volume); and 2) water temperature entering the wetland.

The results from these screening level model runs were subsequently described by regression equations developed for each month of the year. The resulting screening tool allows a user to enter just three inputs on a monthly average basis: 1) wetland acreage; 2) flow entering the wetland; and 3) water temperature entering the wetland.

The screening tool output then provides the estimated change in water temperature (cooling or heating) across the wetland and the corresponding thermal credits that would be generated for each month of the year.

WASTEWATER RECLAMATION/REUSE

Types of Water Reclamation/Reuse Projects

Reclamation/reuse projects include the following:

- Reclamation/reuse of point source wastewater discharges creates direct credit by reducing the flow (and hence the heat load) of the discharge
- Cooling of these discharges can also reduce the thermal load, thus creating credit

Water Reclamation/Reuse Credit Generation Precedents

A precedent for this type of trading was established for CWS' watershed permit, which allows direct thermal load credits for any wastewater reclamation/reuse to offset excess thermal loads from either of its treatment facilities that discharge to the Tualatin River.

Approach to Water Reclamation/Reuse Credit Generation for the Willamette

Thermal allocations in the Willamette temperature TMDL for point sources are expressed in Mkcal/d. Reductions in thermal loads below the allocations that are achieved by reclamation/reuse would generate credits that could be traded in a fully developed trading program.

Thermal WQ Trading

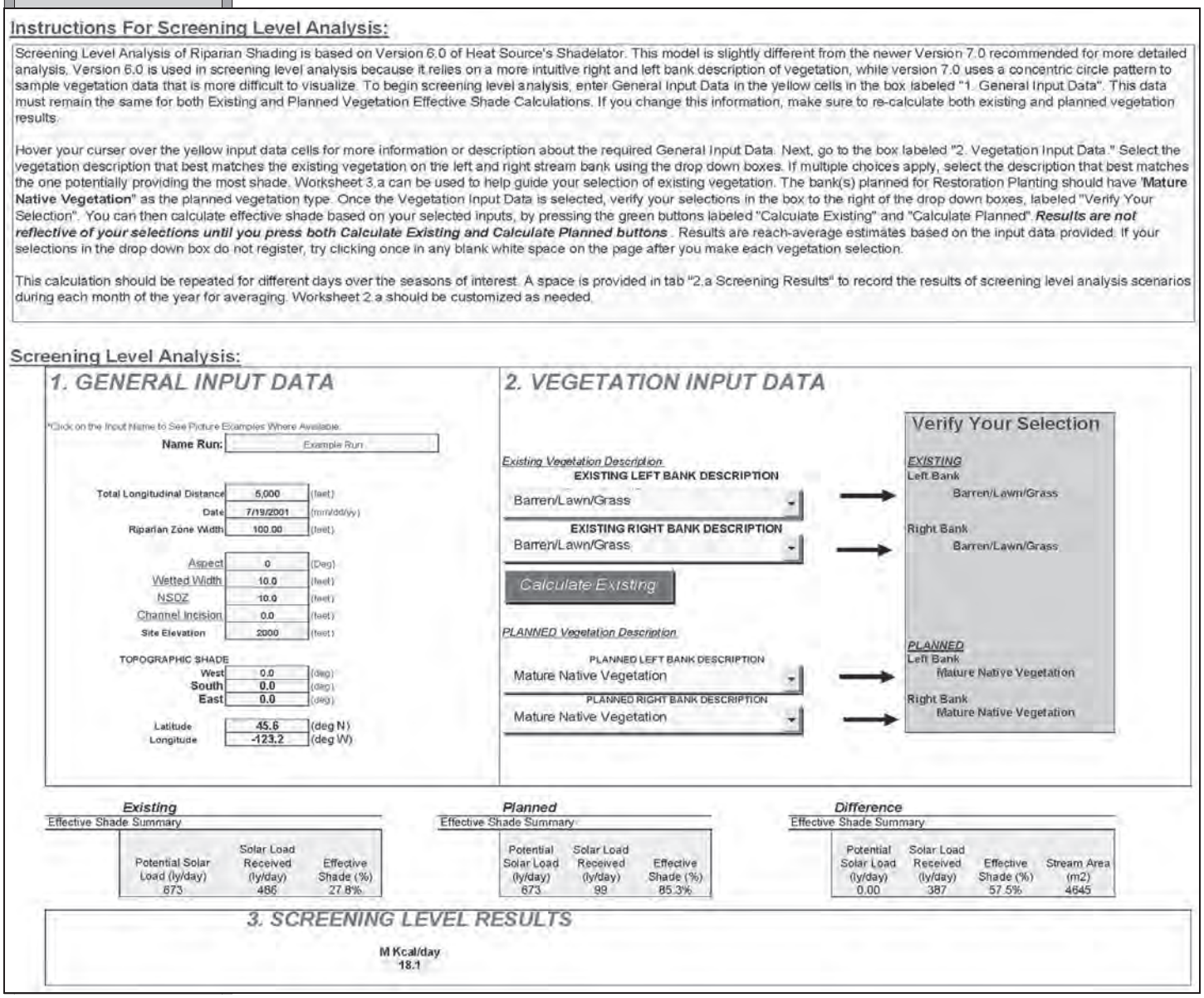
Screening Level & Detailed Options

WILLAMETTE RIVER THERMAL CREDIT EVALUATION TOOL

A single, standardized spreadsheet tool (using Microsoft Excel software) was developed by CH2M HILL that provides opportunities for the user to calculate thermal credits (in common units of Mkcal/d) for different types of credit generation activities.

Thermal credit generation activities covered by this tool include those we have discussed in this article, namely: flow augmentation; riparian shading; wetland systems; and reclamation and reuse of wastewater. For each of these activities, worksheets contain both a "screening level analysis" and a "detailed analysis" section. The screening level is intended to allow a user to provide some relatively simple inputs to evaluate if a particular activity, and the anticipated scale of the activity, generates credits that are in the range of what is needed or intended to participate in the market (see Figure 2 (this page) and Figure 3 (page 9) for an example of screening level analyses for riparian shading and wetlands). The detailed analyses require more comprehensive external analyses (generally fairly sophisticated computer modeling using agency-accepted models) in order to develop the inputs that get entered into this tool. Credits calculated using the more robust analytical methods could be considered ready for the marketplace.

Figure 2: Screening Level Analysis for Riparian Shading



Thermal WQ Trading

Adjustment Ratios

Varied Allocations

Season-Specific Calculation

Credit Calculator Available

The current version of the tool does not include any credit adjustment ratios — such as priority location ratios — at this time. This is because the primary precedent used for these calculations is the thermal credit trading program currently in place for the Tualatin Basin, which does not employ such location ratios. If any ratios are deemed necessary or appropriate for any of these activities, they can readily be accounted for by users or included in future versions of the tool. For example, the Tualatin precedent does require that riparian shade credits have a 2:1 time-to-maturity ratio applied, as described earlier in this paper.

The calculations in this workbook yield a single Mkcal/d result for each type of activity. It is anticipated that this single value would represent the average for the season in question — which is consistent with the Tualatin precedent. In the Willamette temperature TMDL, there are some designated management agencies that have varying thermal allocations depending on different location-specifc fishery uses, life stages and seasons. Thus, for example, an entity seeking to generate credits for a particular season (e.g. supporting summer fish migration) via riparian shade restoration, could do a screening level analysis for a central date or for multiple months during that season to get an approximation of the seasonal average. If the credit indicated is in the range desired, then the user could then do the detailed modeling analysis for the entire summer season and the tool will calculate the average daily value for that season. If multiple seasons are to be used for credit generation, the user can do screening level and detailed analyses for each season with the tool.

Conclusion

This article has provided a conceptual overview of methods that could be used to quantify thermal credits within a water quality trading program. Readers interested in reviewing or using the described Credit Calculator for screening level analysis are encouraged to visit:

www.willamettepartnership.org/tools-templates

More information about ecosystem markets and how they are being developing in the Willamette Basin can be found at the Partnership's website:

www.willamettepartnership.org

This article has described the methods and tools that have been developed to date. Although based, for the most part, on precedents within an already approved thermal credit trading program (CWS' program in the Tualatin Basin), the regulatory specifics regarding the applicability and extension of these tools to the greater Willamette Basin are still being finalized at ODEQ.

For Additional Information, contact:
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Thomas Dupuis, PE, has 30 years of experience in watershed and water quality management in over 30 states and two territories. His primary focus over the last 20 years has been assisting CH2M HILL's clients in complying with the Clean Water Act. Specific expertise includes water quality credit trading, site-specific criteria, total maximum daily loads, water quality-based permitting, and antidegradation demonstrations. He is currently technical lead for CH2M HILL's project for the Willamette Partnership to assist in developing an ecosystem marketplace. Tom also was a key player in the development of the landmark watershed permit issued to Clean Water Services in the Tualatin Basin. Prior to joining CH2M HILL, Mr. Dupuis worked for the North Carolina water quality and water resources agencies, and before that for a private environmental research firm in Wisconsin. He received bachelors and masters degrees in environmental engineering from Marquette University in Milwaukee.

David Primozich has served as Executive Director since the founding of the Willamette Partnership in the fall of 2004. David has been engaged in natural resource policy and management for more than a decade. Prior to working with the Willamette Partnership Board to form the Willamette Partnership, David managed production of the Willamette Subbasin Plan to guide fish and wildlife conservation investment in the Willamette Basin. He also managed production of the first comprehensive Parks and Open Space Plan for Yamhill County, Oregon.

Jason Smesrud, PE, CWRE, CPSS, has over 10 years of experience in irrigation and drainage engineering with a focus on irrigation water management and engineering soil/plant systems for wastewater reuse, natural treatment systems, phytoremediation and native plant restoration. This experience includes work with clients across the US on all phases of permitting, modeling, design, construction and monitoring. Jason also serves as CH2M HILL's global technology leader for Agricultural Services. Mr. Smesrud received an MS in Bioresource Engineering from Oregon State University and a BS in Soil Science, Evergreen State College. He is also a Registered Professional Engineer in Oregon, a Certified Water Rights Examiner, and a Certified Professional Soil Scientist.

Dawn Wirz, EIT, has extensive expertise in hydrology and water quality modeling. Her hydrology experience includes: overland flow and erosion modeling, including hydraulic modeling of gradually varied flow in steep pipelines; sewer and water system modeling using Mouse, MIKEURBAN, Infowater, and GIS networks; evaluation and pre-design of alternative systems for wastewater treatment; temperature and shade modeling with the model Heat Source; and water quality modeling for TMDL applications. Ms. Wirz received an MS in Engineering and a BS in Biological Systems Engineering from Washington State University.

Thermal WQ Trading

Wetlands Credits Analysis

Figure 3. Example of Screening Level Analysis for Wetland Restoration

Instructions For Screening Level Analysis:

A screening level analysis can be performed for typical constructed wetlands designed for temperature control by entering the flow diverted through the wetlands, the wetland area, and the temperature of effluent prior to discharge into the wetlands within the Screening Level Analysis Section. The effluent temperature reduction and subsequently, thermal credits, are then estimated from correlation equations developed from analysis of multiple Heat Source-Wetlands model runs.

The correlation equations were developed for a standard wetland design configuration and over three levels of hydraulic retention time, or HRT, (1, 3, and 5 days) and three levels of influent temperature for 2004 climate conditions. The three influent temperature levels were adjusted for each month of the year to span a 10 degree Celsius range around reported values from four point souce discharges into the Willamette representing municipal and industrial effluent. The standard wetland configuration had the following characteristics: 8 acres; 4.15 MG storage volume; 85% dense emergent wetland vegetation in 1-foot deep "shallow zones"; 15% open water in 5-foot deep "deep zones"; no topographic or other non-emergent vegetation shading; deep zones placed in a N-S orientation. Assuming similar volume/area ratios and emergent vegetation configurations, the correlation equations should apply to a wide range of flows and wetland sizes as long as the HRT and water temperature entering the wetland are within the ranges used for developement of the calibration equations.

Hover your curser over the input data descriptions for more information or guidance on required input data.

Screening Level Analysis:

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flow Diverted Through Wetlands (mgd)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(cfs)	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55
Wetland Area (acres)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Wetland Volume (MG)	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
Hydraulic Retention Time (days)	2.075	2.075	2.075	2.075	2.075	2.075	2.075	2.075	2.075	2.075	2.075	2.075
Monthly Average Effluent Temperature Prior to Discharge (deg C)	15.0	17.0	20.0	22.0	23.0	24.0	25.0	26.0	25.0	24.0	20.0	16.0
Monthly Average Temperature Reduction Through Wetlands (deg C)	4.5	4.8	4.1	3.9	3.2	3.1	2.8	4.1	4.5	5.6	5.3	4.2
delta T												
Thermal Credits Generated (M Kcal/d)	17.04	18.13	15.50	14.80	12.25	11.59	10.55	15.37	17.04	21.21	20.24	15.89

Correlation equation coefficients

a=	0.334	0.356	0.388	0.407	0.407	0.424	0.440	0.446	0.409	0.384	0.368	0.332
b=	-2.303	-3.090	-5.353	-6.571	-7.392	-8.374	-9.447	-9.100	-7.436	-5.630	-4.112	-2.915
x=	0.469	0.505	0.482	0.475	0.469	0.478	0.475	0.470	0.504	0.519	0.511	0.569
y=	0.146	0.339	0.353	0.373	0.435	0.420	0.412	0.410	0.441	0.458	0.357	0.378

delta T = aT(HRT)^x + b(HRT)^y

Tribal TAS

Tribal Options

Transportation Bill "Rider"

Oklahoma Specific

TRIBAL "TREATMENT AS STATE"

OKLAHOMA TRIBES FACE SPECIAL "TREATMENT"

by David Moon and David Light, Editors

BACKGROUND: "TAS"

The federal Clean Water, Safe Drinking Water, and Clean Air Acts (CWA, SDWA and CAA) authorize the US Environmental Protection Agency (EPA) to treat eligible Indian tribes in the same manner as a State (referred to as "**t**reatment **a**s **s**tate" or TAS) for the purposes of delegating the authority to administer the regulatory programs implementing these Acts on Indian lands. As with states, TAS-qualifying tribes may opt to establish their own environmental standards (subject to EPA finding they are at least as protective as federal standards) and implement tribal environmental programs in lieu of federal programs administered directly by EPA.

In addition, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) explicitly includes a provision that affords tribes substantially the same treatment as states with respect to certain provisions of the Act. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) also provides a role for tribes. Although the Toxic Substances Control Act (TSCA) and the Emergency Planning and Community Right-to-Know Act (EPCRA) do not explicitly provide for TAS, EPA has taken the position that it has the discretion to approve tribes to implement certain programs in the same manner as states in order to fill gaps in how the statutes are implemented in Indian country.

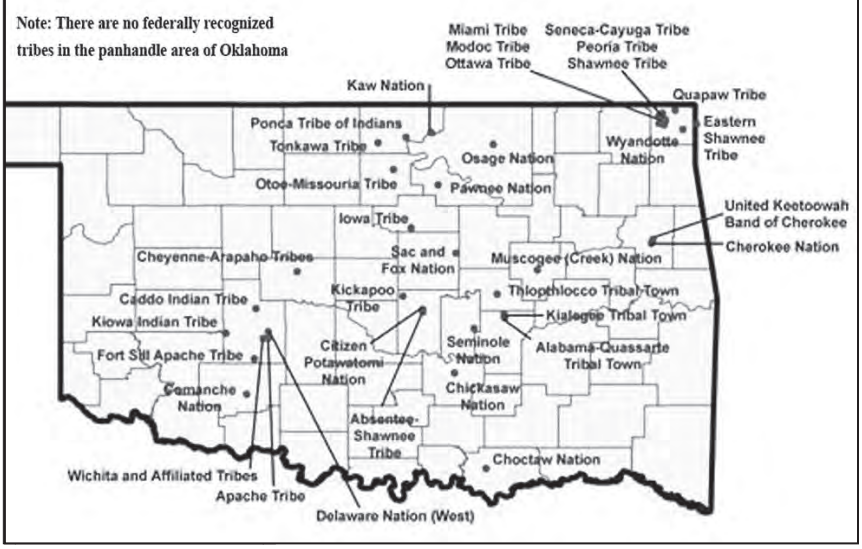
OKLAHOMA TRIBES: Special TAS?

THE "MIDNIGHT RIDER"

During a late night transportation bill conference committee session on July 28, 2005, Senator James Inhofe, R-Oklahoma, Chairman of the US Senate Environment and Public Works Committee and lead negotiator for the Senate on the conference committee, inserted two decidedly non-transportation sections (as a "rider") into a bill scheduled to be voted upon the next day. This amendment significantly and adversely impacted the tribal sovereignty of Oklahoma Indian tribes — specifically their rights to manage and regulate environmental programs on Indian lands and reservations. The House and Senate voted to approve the bill the next day. President Bush signed into law the 836-page "Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Uses" (SAFETEA-LU), on August 10, 2005.

Various Oklahoma tribes expressed shock when they learned of Senator Inhofe's rider. The rider severely limits the rights of Oklahoma tribes — and only Oklahoma tribes — to freely participate in a TAS process. The tribes subsequently dubbed this amendment the "Midnight Rider" — alluding to its final-hour, late-night insertion. The amendment occurred without tribal consultation, notice to other Congressional members (including the Oklahoma Caucus) or debate. No reason for changing long-established environmental legislation and demonstrably functioning procedure was put forth.

Oklahoma Tribes



ARTICLE OVERVIEW

This article first reviews the transportation bill amendment (SAFETEA-LU, Section 10211). The consultation process that EPA undertook prior to Congress enacting, in 1987, legislative amendments that first provided for Indian tribes to be treated as states for the purposes of the CWA and SDWA (CAA inclusion occurred a few years later) is then outlined. Challenges by various states to EPA decisions approving certain tribal TAS applications are described, including the Oklahoma Department of Environmental Quality's appeal of EPA's approval of the Pawnee Nation's TAS application. Relevant decisions by the Ninth and Tenth Circuit Courts of Appeals are discussed. The last section describes actions that have taken place since the rider's passage, including: efforts to repeal Section 10211; an updated EPA strategy for TAS; and continuing efforts by an Oklahoma tribal working group to resolve State concerns over water quality standards.

Tribal TAS

State Authority

Veto Power

Indian Country Control

Agreement Required

CWA Delegation

Federal Indian Policy

Tribal Authority

PROVISIONS of the 2005 AMENDMENT

The first provision of the 2005 SAFETEA-LU amendment allows the State of Oklahoma to assert its environmental regulatory authority over Indian lands in Oklahoma by requesting this authority from EPA. EPA does not generally approve the implementation of state environmental programs within Indian country. EPA instead retains its own jurisdiction, implementing federal environmental standards until and unless tribal environmental programs have been approved pursuant to the TAS process.

The amendment's second provision requires tribes to enter into cooperative agreements with the State of Oklahoma *prior* to determining the tribes' eligibility to receive federal delegation of any portions of environmental regulatory programs requiring TAS designation. The tribes note that this provision gives the State of Oklahoma de facto veto power over any attempt by tribes to obtain TAS status and characterize it as an overt intrusion on longstanding tribal sovereignty.

Specifically, Section 10211 of SAFETEA-LU, P.L. 109-509, 119 Stat.1144, provides:

SEC. 10211. ENVIRONMENTAL PROGRAMS.

(a) OKLAHOMA.—Notwithstanding any other provision of law, if the Administrator of the Environmental Protection Agency (referred to in this section as the ''Administrator'') determines that a regulatory program submitted by the State of Oklahoma for approval by the Administrator under a law administered by the Administrator meets applicable requirements of the law, and the Administrator approves the State to administer the State program under the law with respect to areas in the State that are not Indian country, on request of the State, the Administrator shall approve the State to administer the State program in the areas of the State that are in Indian country, without any further demonstration of authority by the State.

(b) TREATMENT AS STATE.—Notwithstanding any other provision of law, the Administrator may treat an Indian tribe in the State of Oklahoma as a State under a law administered by the Administrator only if—

(1) the Indian tribe meets requirements under the law to be treated as a State; and

(2) the Indian tribe and the agency of the State of Oklahoma with federally delegated program authority enter into a cooperative agreement, subject to review and approval of the Administrator after notice and opportunity for public hearing, under which the Indian tribe and that State agency agree to treatment of the Indian tribe as a State and to jointly plan administer program requirements. (sic)

119 Stat. at 1937.

HISTORICAL BACKGROUND

Tribes & Federal Water Quality Law

EPA is charged with establishing federal water quality standards under CWA mandates. These standards are required, at minimum, to include instream water quality criteria protective of designated water uses and an anti-degradation policy.

Under the CWA, establishment of water quality criteria, standards, and implementation programs may be delegated to states, subject to EPA approval and limited on-going oversight. Indian tribes long advocated for similar federally-delegated authority to manage water quality programs on their respective tribal lands and reservations. On January 24, 1983, the President published a "Federal Indian Policy" supporting the role of tribal governments in environmental matters affecting their reservations. The policy was implemented for EPA on November 8, 1984, by then EPA Administrator William D. Ruckelshaus. This policy has been reaffirmed periodically since 1984, most recently by Administrator Steven Johnson on September 26, 2005 (*Environmental Protection Administration Policy for the Administration of Environmental Programs on Indian Reservations,* November 8, 1984; available at: www.epa.gov/indian >> EPA Indian Policies).

Subsequent to the 1983 Federal Indian Policy, several more years of intense lobbying resulted in tribal governments becoming eligible for TAS through a relatively simple addition to the 1987 CWA amendment process addressing tribal TAS. Senator Burdick, floor manager of the proposed 1987 CWA Amendments, explained that the purpose of section 518 [of the CWA] was to "provide clean water for the people of this Nation" by giving "tribes...the primary authority to set water quality standards to assure fishable and swimmable water and to satisfy all beneficial uses." 133 Cong. Rec. S1018 (daily ed. Jan 21, 1987).

Congress amended the CWA (P.L. 100-4 on February 4, 1987) to provide Indian tribes the option to be treated as a State "to the degree necessary to carry out the objectives of this section [Water Pollution Prevention and Control]..." 33 U.S.C.A. § 1377 (e) (2007). Following considerable consultation with an informal work group composed of representatives from Indian tribes, states, and EPA, as well as

Tribal TAS

extensive public hearings, EPA published pertinent proposed amendments to the federal regulations for water quality standards on September 22, 1989 (see 54 Fed. Reg. 39098). These amended rules addressed how EPA would treat qualified Indian tribes as states for the purposes of (among other things): water quality standards; certification programs; and the establishment of a mechanism to resolve unreasonable consequences that might result from an Indian tribe and a State adopting differing water quality standards on common bodies of water (see 56 Fed. Reg. 64876). At the time, EPA noted that Congress had expressed a preference for tribal regulation of water quality to assure compliance with the goals of the CWA. *Id.* at 64876-79.

Jurisdiction Disputes

On December 12, 1991, the final rule was published in the Federal Register amending the existing water quality standards and adding 40 CFR Part 131, which became effective January 13, 1992. See 56 FR 64876. EPA had taken a very strong position as part of its federal interest in effective management of water quality on Indian lands and reservations — noting the serious and substantial impacts of activities that affect surface water, critical habitat quality, and mobility of pollutants in surface waters. *Id.* EPA recognized that there would be complex and difficult jurisdictional disputes between tribes and states. Nonetheless, it was EPA's position that:

> EPA's ultimate responsibility is protection of the environment. In view of the mobility of environmental problems, and the interdependence of various jurisdictions, it is imperative that all affected sovereigns work cooperatively for environmental protection, rather than engage in confrontations over jurisdiction.

Id. at 64979

GAO Report on TAS

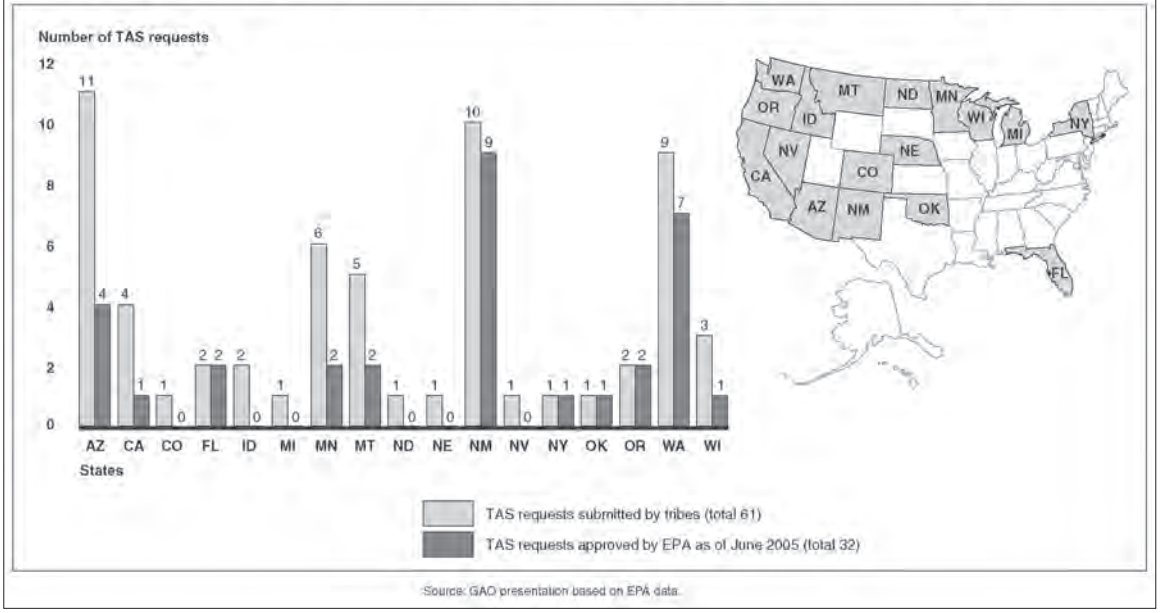
A report to Senator Inhofe and Senator John McCain (Chairman, Committee on Indian Affairs) by the US General Accounting Office (GAO) examined TAS activities. The report notes that, out of 562 federally recognized tribes, 32 tribes' TAS applications had been approved by EPA as of June 2005 (out of a total of 61 requests). GAO, Report to Congressional Requesters, October 2005, *INDIAN TRIBES, EPA Should Reduce the Review Time for Tribal Requests to Manage Environmental Programs*, No. GAO-06-95, at 3 (Oct. 2005) [hereinafter GAO Report]. An EPA memo dated January 23, 2008 notes that ten more tribes have received TAS status since the GAO Reports' release (see page 10, this TWR).

SAFETEA-LU was enacted shortly prior to the release of the GAO Report. The report mentions the rider and notes that the Pawnee Nation of Oklahoma is the only TAS-approved tribe in Oklahoma (GAO Report at 6).

TAS Requirements

As noted, Indian tribes must apply to EPA for TAS approval. EPA must approve a TAS application if four requirements are met. To be approved for TAS (a prerequisite for obtaining CWA, SDWA and/or CAA program authority), a tribe must demonstrate its eligibility by showing that it: (1) is officially recognized by the Secretary of the Interior; (2) has a governing body that is currently carrying out substantial governmental duties and powers over a defined area; (3) has jurisdiction over the land where the resources are located; and (4) is capable of administering the program. (GAO Report at 2).

Figure 1: States Where Tribes Have Submitted and Been Approved for TAS under the Three Environmental Acts, as of June 2005



Source: GAO presentation based on EPA data.

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Program Approval

After EPA approves a tribe's TAS request, the tribe needs to obtain EPA authorization to implement and enforce a given program. EPA generally recommends that tribes adopt the standards of the adjacent states when first setting tribal standards. However, EPA does not track the extent to which tribes adopt adjacent state standards. CWA regulations require a tribe to hold a public hearing so that interested parties can review and comment on the tribe's proposed water quality standards before EPA approves them. EPA's regulations under the SDWA require the agency to announce in the *Federal Register* that the tribe has the authority to administer a program and allow 30 days to request a public hearing. Under its regulations for implementing the CAA's operating permits program, EPA must also announce its approval for a tribe to administer a program in the *Federal Register*; however, the notice is not subject to public comment. (GAO Report at 2-3)

Under the CWA, a tribe may submit a request to EPA for TAS status and then submit a request for approval of its adopted water quality standards, or submit both the TAS request and the water quality standards approval request at the same time. (GAO Report at 7)

Dispute Mechanism

While EPA had established a CWA dispute resolution mechanism to address disagreements between tribes and states, no parties had used the mechanism to address such disagreements at the time the GAO Report was released (GAO Report at 6). On the other hand, significant litigation has occurred.

TAS LEGAL CHALLENGES

Not all affected states and local governments have agreed with EPA's TAS determinations and several have filed appeals of EPA's determinations in federal district courts. The appeals led to several important decisions.

Lawsuit Issues

The GAO Report succinctly laid out the issues:

> "Recent lawsuits and disagreements between parties over EPA's approval of tribes' TAS status and authority to implement and enforce a given environmental program (program authority) highlight the sensitivities associated with TAS approval. On the one hand, tribes want to be treated as states and assume program responsibilities to protect their environmental resources because they are sovereign governments and have specific knowledge of their environmental needs. Tribes also generally believe that TAS status and program authority are important steps in addressing the potential impacts of economic development affecting their land. On the other hand, in some cases, states are concerned that tribes with program authority may impose standards that are more stringent than the state's, resulting in a patchwork of standards within the state and potentially hindering the state's economic development plans. In addition, conflicts sometimes arise between states and tribes over the extent of tribal jurisdiction in cases where Indian lands are no longer located within formal reservations or in cases in which nontribe members live within reservation areas."

Standards Patchwork

GAO Report at 1.

TAS Process Upheld

A reading of the following cases reveals that both the Ninth and Tenth Circuit Courts of Appeals have consistently upheld EPA's TAS process and decisions. See *City of Albuquerque v. Browner*, 97 F.3d 415 (10th Cir.1996) (court upheld EPA's decision approving Isleta Pueblo's standards that were more stringent than New Mexico's); *Montana v. EPA*, 137 F.3d 1135 (9th Cir.1998) (court upheld EPA's decision that the Confederated Salish and Kootenai Tribes could set water quality standards for non-Indian fee lands on the reservation); and *Arizona Public Service Co. v. EPA*, 211 F.3d 1280 (D.C. Cir. 2000) (court held Congress expressly delegated authority to tribes to regulate air quality on privately-owned fee land located within a reservation).

PAWNEE NATION TAS CHALLENGE

WQ Authority Sought

The Pawnee Nation of Oklahoma submitted a TAS application in 1998 that requested delegation of federal authority to set water quality standards. The Pawnee Nation sought the authority because of environmental issues impacting the Nation's access to clean water, which limited their economic development opportunities, according to Monty Matlock, Director, Pawnee Nation Department of Environmental Conservation and Safety.

Various state and federal agencies expressed different positions on the matter. One State and one federal agency submitted comments opposing the Pawnee's application: the Oklahoma Corporation Commission and the US Fish and Wildlife Service. Other tribes and agencies that submitted comments in support of the Pawnee's included: the Kaw Nation; the federal Indian Health Service; the federal Natural Resources Conservation Service; and the Oklahoma Conservation Commission.

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ODEQ Challenge

Six years after the Pawnee's application, EPA issued a decision in April 2004, partially approving the application to administer a water quality standards program and certification program for lands that lie fully or partially within the exterior borders of the Pawnee's tribal trust lands. Thereafter, the Oklahoma Department of Environmental Quality (ODEQ) filed a Petition challenging EPA's final decision on March 18, 2005. *Oklahoma Dept. of Environmental Quality v. U.S. Environmental Protection Agency*, No. 05-9517 (10th Cir. 2005) (*ODEQ v. EPA*). The Pawnee's attorney at the time, Charles Tripp, told reporters that the Pawnee Nation "would create regulations at least as restrictive as the states. It's quite possible that the state fears tribes will make regulations that are too restrictive." US Water News Online (May 2005). In that same article, the tribe's attorney said he was confused by the state's lawsuit because it had come within a week after a meeting with ODEQ Secretary Miles Tolbert: "I thought we were in the middle of negotiating a system that would be beneficial for everybody. To turn around and file a lawsuit indicated there was no good faith to the negotiations, but instead it was a stalling tactic."

"Crazy Quilt"

While ODEQ was appealing EPA's decision, interest-based groups such as One Nation United, the Oklahoma Independent Producers Association and the Oklahoma Farm Bureau were also lobbying Senator Inhofe to repeal the TAS provisions as applied to Oklahoma Indian Tribes. Oklahoma agencies and organizations generalized on the particular tribe's TAS designation. They expressed the opinion that if all Oklahoma tribes chose TAS, tribal environmental jurisdiction would create an unworkable "crazy quilt" of regulation that would drive business away from the state and put remaining Oklahoma businesses at a competitive disadvantage. See Transcript of Barbara Lindsey, National Director, One Nation United, Environmental Federation of Oklahoma Conference (June 24, 2005).

ODEQ v. EPA was pending before the 10th Circuit Court of Appeals when the SAFETEA-LU rider passed. The parties, therefore, filed an Unopposed Motion to Dismiss Petition in September 2005 to dismiss the case. We will leave it to the reader to ponder whether concerns about the clear judicial precedent set in the previous TAS-approval challenges cited above influenced the timing and intent of Senator Inhofe's rider.

TAS TIMELINESS ISSUES

GAO Report Request

Senator Inhofe initially responded to lobbyists' tribal jurisdiction concerns by asking the General Accounting Office (GAO) for a report on TAS applications. The GAO Report at 3-4, replying to Senators Inhofe and McCain, stated that "You asked us to report on the (1) extent to which EPA has followed its processes for reviewing and approving tribal requests for treatment as a state and program authorization under the Clean Water, the Safe Drinking Water, and the Clean Air Acts; (2) programs EPA uses to fund tribal environmental activities and the amount of funding it has provided to tribes between fiscal years 2002 and 2004; and (3) types of disagreements that have occurred between parties over EPA's approval of tribes' TAS status and program authorization and the methods that have been used to address these disagreements."

TAS Approval Delays

GAO found that EPA's response time to TAS requests has been a problem for other tribes in addition to the Pawnee Nation. Of the 32 requests that were approved from 1991-2005, review times ranged from three months to nearly seven years. Nineteen of the TAS reviews took one year or more for approval. EPA had 29 TAS requests still under review as of June 2005 when the report was prepared. GAO noted that 24 of those requests were under review for more than two years and that two of those requests were still under review after ten years. "EPA regulations require that the agency process TAS requests in a 'timely' manner and internal guidance issued in 1998 emphasizes the importance of an efficient review process. However, EPA has never developed a written strategy that clarifies what it means by timeliness, including performance goals, and does not routinely track the time it takes to complete its review of these requests." (GAO Report at 15).

Other GAO Findings

The GAO Report pointed out some of the issues involved in the process: "EPA officials agreed that more could be done to improve the timeliness of the review process but said that complex issues — including evolving Indian case law and jurisdictional issues — may have contributed to the lengthy reviews. Furthermore, EPA's review process is not always transparent on the status of tribes' TAS requests. Lack of transparency limits tribes' understanding of what issues may be delaying EPA's approval and what actions, if any, may be needed to address the issues." As part of its recommendations, GAO stated that EPA should "develop a written strategy, including estimated time frames, for reviewing tribes' TAS applications for program authority and updating the tribes on the review status. In commenting on a draft of this report, EPA agreed with GAO's findings and emphasized its commitment to addressing the issues raised in the report." GAO Report, Highlights.

Tribal TAS

TAS Approvals

Tribes: Water Quality Standards & Criteria

http://www.epa.gov/waterscience/tribes/approvtable.htm

Indian Tribal Approvals

July 11, 2007

Indian Tribal Approvals for the Water Quality Standards Program

TRIBE	EPA REGION	DATE FOUND ELIGIBLE TO ADMININISTER A WQS PROGRAM	DATE INITIAL WQS APPROVED BY EPA
Pueblo of Isleta (NM)	6	October 13, 1992	December 24, 1992
Pueblo of Sandia (NM)	6	December 24, 1992	August 10, 1993
Pueblo of San Juan (NM)	6	May 12, 1993	September 16, 1993
Puyallup Tribe of Indians (WA)	10	May 25, 1994	October 31, 1994
Seminole Tribe (FL)	4	June 1, 1994	September 26, 1997 (Big Cypress Reservation) November 18, 1998 (Brighton Reservation)
Miccosukee Tribe (FL)	4	December 20, 1994	May 25, 1999 March 15, 2001 (Miccosukee Reserve Area)
Confederated Salish and Kootenai Tribes of the Flathead Reservation (MT)	8	March 1, 1995	March 18, 1996
Confederated Tribes of the Chehalis Reservation (WA)	10	March 7, 1995	February 3, 1997
Pueblo of Santa Clara (NM)	6	July 19, 1995	July 19, 1995
Pueblo of Picuris (NM)	6	August 7, 1995	August 7, 1995
Pueblo of Nambe (NM)	6	August 18, 1995	August 18, 1995
Mole Lake Band of the Lake Superior Tribe of Chippewa Indians, Sokaogon Chippewa Community (WI)	5	September 29, 1995	January 22, 1996
Pueblo of Pojoaque (NM)	6	March 21, 1996	March 21, 1996
Tulalip Tribes (WA)	10	May 9, 1996	
Fond du Lac Band of Chippewa (MN)	5	May 16, 1996	Dec 27, 2001
Hoopa Valley Tribe	9	May 17, 1996	September 11, 2002
Grand Portage Band of Chippewa (MN)	5	July 16, 1996	November 2, 2005
Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation (MT)	8	August 29, 1996	April 25, 2000
White Mountain Apache Tribe (AZ)	9	February 3, 1997	Sep 27, 2001
Pueblo of Tesuque (NM)	6	April 29, 1997	April 29, 1997
Confederated Tribes of the Warm Springs Reservation (OR)	10	May 25, 1999	September 28, 2001
Pueblo of Acoma (NM)	6	April 17, 2001	April 17, 2001
Confederated Tribes of Umatilla (OR)	10	Apr 30, 2001	Oct 18, 2001
Spokane Tribe of Indians (WA)	10	July 23, 2002	April 22, 2003
St. Regis Band of Mohawk Indians NY)	2	Oct 16, 2002	
Kalispel Indian Community (WA)	10	November 4, 2002	June 24, 2004
Port Gamble S'Klallam (WA)	10	24 Sept 2003	27 Sept 2005
Makah Indian Nation (WA)	10	23 Dec 2003	29 Sept 2006
Hualapai Indian Tribe (AZ)	9	22 July 2004	17 Sept 2004
Pawnee Nation (OK)	6	4 Nov 2004	
Coeur D'Alene Tribe (ID)	10	5 Aug 2005	
Ute Mountain Ute (CO)	8	26 Sept 2005	
Big Pine Band of Owens Valley (CA)	9	24 Oct 2005	18 Jan 2006
Pueblo of Taos (NM)	6	8 Dec 2005	19 Jun 2006
Navajo Nation (AZ, NM, UT)	9	20 Jan 2006	11 Apr 2006
Paiute-Shoshone Indians of the Bishop Community (CA)	9	11 Apr 2006	
Northern Cheyenne (MT)	8	11 Aug 2006	
Twenty-Nine Palms (CA)	9	26 Oct 2006	
Pyramid Lake Paiute (NV)	9	30 Jan 2007	
Lummi Tribe (WA)	10	5 Mar 2007	
Confederated Tribes of the Colville Reservation (WA)	10	Not applicable	Promulgated 6 Jul 1989

Tribal TAS

MIDNIGHT RIDER & AFTERMATH

Repeal Pressure

Before GAO issued its findings and report on Indian tribes' TAS applications, and without any tribal consultation, Senator Inhofe inserted Section 10211 into the final SAFETEA-LU bill and President Bush signed it into law in August, 2005.

After learning of the Oklahoma tribes' being singled out in the "Midnight Rider," the National Tribal Environmental Council (NTEC) enlisted the aid of other tribes and tribal environmental attorneys to aid the Pawnee Nation and other tribes in Oklahoma in requesting a repeal. NTEC organized trips to Capitol Hill, hosted conference calls, provided educational dialogues at other tribal organizational meetings, and attempted to educate both EPA and GAO on the environmental issues facing Oklahoma tribes. NTEC and the tribes were actively engaged with Senator Inhofe's staff concerning the issues surrounding the Pawnee TAS application and informing the ongoing GAO investigation at the time of the rider's passage. They received no prior indication that such a rider was even being contemplated.

Tribal Sovereignty

Cherokee Nation Principal Chief Chad Smith wrote Senator Inhofe on November 30, 2005, to express his concern about the circumstances surrounding the rider's insertion into the transportation bill.

Chief Chad Smith stated:

> This provision is an enormous intrusion on tribal sovereignty, and goes against centuries of precedent…It is imperative that you assist in correcting the situation created by the rider. Any efforts in this regard must include repeal or revision of the language in the context of full and open discussion by all interested parties, including Indian nations. (emphasis in original)

Letter from Chad Smith, Principal Chief, Cherokee Nation, to Senator James Inhofe (November 30, 2005).

Many other Oklahoma Indian tribes also wrote letters asking for repeal of the rider to the Oklahoma Congressional delegation and House Resources and Senate Indian Affairs Committees during the same time. The United Indian Nations of Oklahoma, Kansas and Texas and the National Congress of American Indians also passed resolutions asking for the repeal of the rider.

The Wyandotte Nation wrote EPA that the rider:

> [W]as never the subject of consideration in either congressional committee with jurisdiction over Indian affairs, that is, the Senate Committee on Indian Affairs or the House Resources Committee...[and] without benefit of debate in the final hours of the Conference Committee negotiations...Congress never considered the impact it would have on tribes in Oklahoma.

Letter from David McCullough, Attorney, Wyandotte Nation, to Richard E. Greene, Administrator, EPA, at 2 (February 21, 2006).

EPA/Tribe Consultation

EPA counsel and staff conducted a listening session with Oklahoma Indian Tribes on March 21, 2006, to solicit meaningful consultation on the interpretation of the rider. This session was well received by the Oklahoma tribes. The Wichita and Affiliated Tribes wrote EPA's General Counsel that the listening session was "an important first step," to address tribal concerns and comply with the President's government-to-government consultation policy. Letter from Gary McAdams, President, Wichita and Affiliated Tribes, to Ann Klee, EPA General Counsel, at 1-2 (Mar. 21, 2006).

The Osage Nation met with EPA's General Counsel and American Indian Environmental Office to discuss the rider and its affects on Oklahoma Indian tribes in November 2007. At that time, EPA stated that the State of Oklahoma had not yet applied to EPA for the authority to assert State environmental regulations on Oklahoma Indian lands — as allowed under the rider. EPA expressed its desire to work with the Oklahoma tribes to arrive at a solution that was least intrusive on tribal sovereignty.

EPA's 2008 Strategy for TAS Reviews

EPA Strategy for Improvement

EPA recently released its strategy in response to the 2005 GAO Report in a Memorandum dated January 23, 2008: "Strategy for Reviewing Tribal Eligibility Applications to Administer EPA Regulatory Programs" (Memorandum is available on EPA's website: www.epa.gov/tribalportal/laws/tas.htm >> scroll down to "Related TAS Topics" and click on "Strategy for Reviewing"). The Strategy guides EPA's internal processes for reviewing TAS eligibility applications to administer EPA regulatory programs, but does not address the processes used to review program submissions or TAS applications for grants or cooperative agreements. It contains important information for anyone involved in the TAS process or TAS issues and several appendices with useful TAS information for applicant tribes.

Deviation Caveat

The Strategy on its first page notes that the "purpose of this memorandum is to establish the U.S. Environmental Protection Agency's strategy for improving the review of tribal applications for treatment in the same manner as a state (TAS) to administer EPA regulatory programs. This Strategy takes effect immediately." The footnote regarding the purpose of the memo, however, sets out an important caveat: "This Strategy document sets out the TAS process EPA intends to follow. EPA retains the discretion to deviate from this process when appropriate. This Strategy imposes no binding legal requirements."

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EPA Actions

The Strategy lays out the "Strategic Actions" as follows:

This Strategy is designed to facilitate the timely review of TAS applications to administer EPA regulatory programs, consistent with the above purpose, and to improve ongoing communications with tribal applicants. Under this Strategy, EPA takes strategic actions in five specific areas:

1. Common expectations – EPA works with tribes to establish common expectations concerning the TAS process.
2. Tools for tribal applicants – EPA supplies additional tools to assist applicants in preparing TAS applications and to facilitate timely reviews.
3. Internal review procedures – EPA establishes improved internal review procedures to facilitate more efficient TAS reviews and continues to promote consistent application of established TAS review criteria.
4. Open communications – EPA works with each tribal applicant to facilitate regular and effective communications regarding the TAS review process.
5. Reaching out, where appropriate, to other governments and the public – EPA identifies potential approaches for EPA to reach out to other governmental entities and to the public to improve understanding of TAS.

Strategy at 2.

Oklahoma Situation

In regard to the Oklahoma Tribes, EPA chose not to address the disparate treatment. Instead, the Strategy simply adds a footnote: "Special provisions of law apply to tribes in the State of Oklahoma. Tribes in Oklahoma should contact EPA for more information on TAS eligibility for EPA regulatory programs." (Memo at 9).

Interim Solutions Pending Repeal of Rider

WQ Standards Working Group

The primary concern of business interests who are opposed to TAS status, as noted in the GAO Report, is the possibility of multiple water quality standards. It is interesting to note that well before the rider was enacted, a number of the Oklahoma Indian Tribes had already formed an "Oklahoma Tribal Model Water Quality Standards Working Group" to address just this issue. Using the State of Oklahoma's water standards as a template, this Working Group has since drafted model Tribal Water Quality Standards (TWQS). The draft standards were submitted to EPA for review on June 26, 2006. On August 28, 2006, EPA returned its comments. The working group has held consultation sessions with the State and is continuing to address EPA's comments.

Tribal Provisions

The TWQS largely involve a change in language to reflect tribal oversight — e.g. replacing "Oklahoma Water Quality Standards" with "Tribal Water Quality Standards" and replacing "waters of the state" with "Tribal Waters," etc.

New provisions are included to amend the fish consumption criteria as necessary to protect tribal populations with a higher consumption rate and the possible designation of "Culturally Significant Waters" as a new designated beneficial use has been added. EPA's comments are primarily clarity-of-language suggestions and no major objections are evident.

Another entity that has the responsibility for assisting Oklahoma Indian Tribes is the Inter-tribal Environmental Council (ITEC). ITEC, through the Cherokee Nation, receives funding from EPA to provide technical training in inspection and testing of environmental conditions and in GPS and GIS applications to assist the Oklahoma tribes in their respective technical development. As tribes develop their technical and political environmental expertise, there is an increasing dialogue to address concerns with the exercise of authorities.

Osage Nation Collaboration

Another approach to resolve potential disputes over watershed management that the Osage Nation is considering, in the exercise of its tribal sovereignty, is to participate voluntarily in facilitated meetings with other affected Osage County entities to discuss cooperative watershed management activities to arrive at mutually-agreed solutions. These types of facilitated meetings involving water quality have been successful in other parts of the country. One example is the cooperative agreement entered into between the Navajo Nation and the Arizona Department of Environmental Quality that, among other things, recognizes the jurisdiction of the Navajo Nation over lands within its reservation and establishes a plan to share the cost of pilot projects. (GAO Report at 6).

Cooperative Agreements

Two Oklahoma tribes have been working with the Oklahoma Department of Environmental Quality to try and come up with a cooperative agreement as required by the rider, the Quapaw and Citizen Band Potawatomie. The Citizen Band Potawatomie has submitted a preliminary draft of a cooperative agreement with the State to EPA for review. Apparently, there are 37 federally recognized tribes in Oklahoma with a land base that could potentially apply for TAS status (from EPA's Region 6 website: www.epa.gov/tribalportal/whereyoulive/region6.htm).

Tribal TAS

TAS Symposium

CONCLUSION

The Oklahoma Indian Tribes continue to believe that Senator Inhofe's rider, which placed Oklahoma tribes' TAS process in a different class than anywhere else in the nation, should be repealed. Meanwhile, the Working Group is moving forward on its work on the model Tribal Water Quality Standards and addressing EPA concerns. As noted above, EPA failed to address the Oklahoma Indian Tribes situation when it released its new Strategy for TAS authorization.

The Osage Nation is working with EPA and the University of Tulsa, Native American Law Center to plan a symposium on TAS issues, water quality standards and watershed management solutions in the near future, according to Kathleen Supernaw, Counsel for the Principal Chief (Osage Nation). The purpose of the two-day symposium, Supernaw said, is to provide attendees with the latest information and facilitate working relationships between the tribes and State of Oklahoma entities.

For Additional Information:

Various EPA websites contain a significant amount of information about the TAS process and requirements. In researching for this article, however, it become apparent that the information is scattered and poorly linked. We have noted below the URLs for a number of these sites so our readers can access the information more easily.

Treatment in the Same Manner as a State: www.epa.gov/tribalportal/laws/tas.htm
Tribal Water Quality Standards and Criteria: www.epa.gov/waterscience/tribes/
Tribal Water Quality Standards that have been approved by EPA
(links to specific tribes' standards):
www.epa.gov/waterscience/standards/wqslibrary/tribes.html
State, Tribal & Territorial Standards
(click on site's map to go to information for each state):
www.epa.gov/waterscience/standards/wqslibrary/
Tribal Assumption of Federal Environmental Laws (general explanation):
www.epa.gov/tribalcompliance/waterresources/wrregsdrill.html#assumption

Anti-Speculation Article Response

The Water Report and Sandra Zellmer, the author of "Anti-Speculation & Water Law" (TWR #50), received the following response:

Dear Professor Zellmer:

Boone Pickens and 100 ranching neighbors in the Texas Panhandle are developing a commercial project to sell some of their privately-owned ground water in the Ogallala Aquifer to a downstate Texas municipal user. The 300,000 surface acres currently owned are divided about equally between Mr. Pickens and the other landowners.

Local ground water conservation districts established by the Texas Legislature will regulate production of the ground water. In general, production limits would be approximately 1½ acre feet per acre per year, with an annual drawdown maximum of 1%, and the affected portions of the aquifer could not be drawn down more than 50% before production must stop completely. In addition, the best interests of the Pickens-lead sellers and a municipal user such as Dallas or Fort Worth will dictate development methods designed to make production more or less perpetual. This kind of result will be achieved through use of three or four "mini well fields" among which production would be rotated every few years, plus conjunctive use of ground water and surface water supplies of the buyer. It actually will not be a big science challenge to carry out a substantial municipal project, while at the same time observing sound production and conservation techniques and allowing aquifer recharge.

You understand, I assume, that ground water is privately owned by the landowner under Texas law. Private ownership has been modified, however, by the regulatory scheme I describe above which is designed to strike a balance between production and conservation needs. Mr. Pickens and his group are strong advocates of sensible, moderate production which preserves the water rights indefinitely. That is both good business and good stewardship of the natural resource.

The users of Ogallala Aquifer water resources who have already depleted their water, or are getting close to that point, are irrigation farmers. They are not especially supportive of these production limits. Some have even said they enjoy something of a "protected" status.

Our project of 200,000 acre feet per year would represent only about 8% of the total production from the four-country area. We are a very minor factor. The 1.8 million acre feet now produced is about 95% irrigation farming.

Your story in The Water Report about robber barons, bogey men, schemers, water monopolies and (gasp!) speculators is a curious mix of fact and hyperbole. In one place you state:

> "Perhaps the most brazen of the modern-day water barons is T. Boone Pickens. This free-wheeling entrepreneur, widely known in the oil and gas fields, has of late turned his attention to water, much to the dismay of residents of the counties and states surrounding his West Texas ranch."

That is really over the top. You have, as you know, cast Mr. Pickens in a very negative light. Unfortunately, you do not know enough about our particular project to make that kind of judgment about him or our project. As a lawyer, I see those kinds of attacks all the time as part of an adversarial proceeding. But I would not have thought that this is such an atmosphere.

I am not commenting on other aspects of your story because I do not have the necessary background or knowledge. If your research had been more complete, and you had taken the time to talk to people actually involved in the Pickens group project, you could have achieved some measure of balance in your presentation. Whether your intent is academic or journalistic, balance is usually a good result. This story is quite readable but is not a fair or complete picture as to Mr. Pickens and our project.

Sincerely,
Robert L. Stillwell, General Counsel
Mesa Water LP and Pickens Group

Idaho Water Law

IDAHO WATER LAW

UPDATE FROM COEUR D'ALENE CONFERENCE

by David Moon, Editor

Introduction

A two-day conference on Idaho Water Law took place in Coeur d'Alene on May 15 and 16, 2008. The comprehensive conference, organized by Law Seminars International, concentrated on new legislation, ongoing litigation and major regulatory actions in Idaho and neighboring Washington. It was clear from several presentations at the conference that north Idaho's relative lack of interest in water matters is being altered by tremendous growth, a shared aquifer and river basins with eastern Washington, and the upcoming adjudication process.

North Idaho Adjudication

Director Dave Tuthill, Jr. of the Idaho Water Resources Department provided the Idaho state policy perspective in his presentation. The most important news for north Idaho water users was the fact that an adjudication of a large area in the Idaho Panhandle is going forward. Notices regarding the process are expected to be sent out within the next six months "letting them know: 'it's time to file your claims.'" Although attempts were made to derail the adjudication entirely, the 2008 Idaho Legislature instead made several adjustments to its scope and enabled it to go forward. Some confusion, however, remains in the area regarding exactly what is involved. This author encountered this issue of local knowledge while visiting with a Coeur d'Alene attorney, albeit not a water lawyer, who was under the impression that the adjudication was voluntary and was unsure when it would begin.

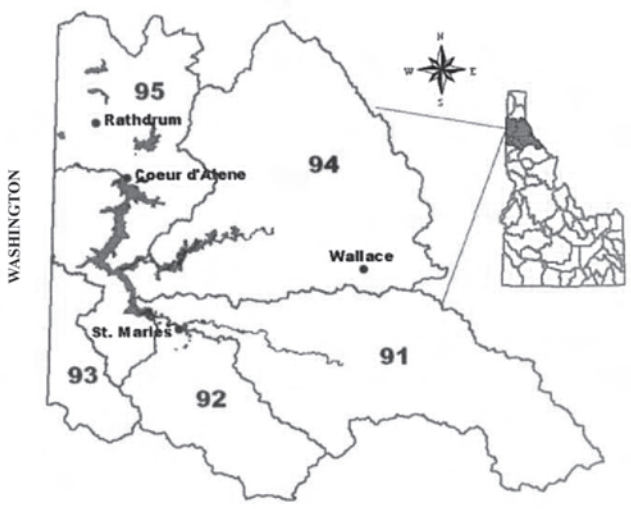
Adjudication Scope Adjusted

Prior to 1963 in Idaho, groundwater water rights could be acquired simply by drilling a well and using the water. Before 1971, surface water rights (including springs) could be acquired by diverting water and putting it to beneficial use. After 1963 and 1971, respectively, water rights could only be obtained by applying for and receiving a permit from the Idaho Department of Water Resources. The North Idaho Adjudication (NIA) will determine both surface and groundwater rights for those senior water rights that did not go through the permit system.

Three Phases

As noted by Director Tuthill, NIA is scheduled to proceed in three phases, in accordance with Idaho Code § 42-1406B. Phase 1 will address Basins 91-95 (Coeur d'Alene and Spokane River Basins — see map), Phase 2 will concern Basin 87 (Palouse River Basin) and Phase 3 will deal with Basins 96 and 97 (Clark Fork-Pend Oreille River Basins). One of the changes made by the Legislature was to carve the Kootenai River Basin (Basin 98) out of the scope of the first phase of the adjudication (Idaho Code § 42-1414). Chris Meyer of Givens Pursley LLP in Boise pointed out that a major motivation for the NIA is the desire to strengthen Idaho's position in documenting its water use and management vis-á-vis the State of Washington (see Meyer, TWR #42). The Kootenai River (Basin 98) flows into Canada, not Washington. Currently, there are no significant water right conflicts on the Kootenai River although there are environmental conflicts over water use, particularly with respect to operation of Libby Dam.

North Idaho Adjudication: Phase I



There were two other legislative amendments to the adjudication in 2008. The Legislature provided for the deferral of the adjudication of small individual domestic and stockwater claims (Idaho Code § 42-1406B(1). Under this provision, holders of these rights are given the *option* of filing claims in the adjudication at this time. Those rights are not lost for failure to file. A similar deferral was provided in the Snake River Basin Adjudication in southern Idaho. Rep. Dell Raybould of the Idaho House of Representatives — in answer to a question that noted that 50% of north Idaho water use is domestic according to a recent newspaper account — said that the failure of water users to file for domestic and stockwater rights will potentially weaken protection provided by an adjudication. He went on to say that he believes that people will voluntarily file and pay the $25 fee to be part of the group whose rights are adjudicated and thus protected. Rep. Raybould added that doing so would be an extremely cheap way to obtain protection for one's water right.

Idaho Water Law

The Legislature also reduced the fees charged for claims to match the fees set for the Snake River Basin Adjudication (SRBA) in 1987. Northern Idahoans had expressed their belief that the doubling of fees was unfair and that they should pay the same amount as southerners did during the Snake River adjudication. Additionally, this legislation caps the filing fee for power generation projects at a maximum of $250,000.00 each. Idaho Code § 42-1406B(1).

McCarran Amendment

NIA is being modeled largely on the SRBA process that is nearing completion in southern Idaho. The current SRBA Judge (John M. Melanson) has been assigned to serve as the presiding judge over NIA. Like the SRBA, the NIA will be a McCarran Amendment proceeding under 43 U.S.C. § 666. Under the McCarran Amendment, when a state court proceeding undertakes a "general stream adjudication" (whereby adjudication determines all water rights in the entire river basin) the federal government is deemed to have waived its sovereign immunity. As a consequence, federal water rights — including tribal water rights — may be adjudicated in the state court. As Chris Meyer noted in his materials (as of April 21, 2008), "the State [of Idaho] is negotiating a stipulation with the federal government confirming that it may defer domestic and stock water claims consistent with the McCarran amendment... ."

Evidence Requirement Increased

One big difference planned in the NIA, as compared to the SRBA, is how the Idaho Water Resources Department handles beneficial use claims, according to Meyer. "In the SRBA, a claimant simply filed a form asserting the existence of such a right. The Department initiated an often time-consuming process of soliciting and evaluating evidence in support of the claim. The Department has learned, the hard way, to demand such evidence up front. The end result is expected to be a more streamlined process (from the Department's perspective) and a more rigorous process (from the applicant's perspective)." Several speakers noted expectations that the NIA will move quicker because the parties will be able to rely on the substantial body of law developed during the SRBA. The Idaho Supreme Court heard a series of "basin-wide" issues on interlocutory appeal in the SRBA, a process that presumably won't be repeated.

Benefits of Adjudication

Another expectation surrounding the NIA, is that the adjudication process will "force a number of skeletons out of the closet...Water rights that people have held (or claimed) for years may be disallowed" and others "will be substantially cut back," Meyer said. Director Tuthill, Chris Meyer and Rep. Raybould all agreed that the adjudication is necessary to permanently settle the water rights in the area and will provide several benefits: unused rights are culled, a basis is established for conjunctive management of groundwater and surface water, federal and tribal rights are settled, and the basis is set for potential interstate conflicts with Washington. "Knowledge is power," Rep. Raybould concluded. [IDWR's website for the NIA is located at: www.idwr.idaho.gov/water/North_Id_Adju/]

Interstate Issues: Washington/Idaho

Adam Gravley of Gordon Derr LLP moderated a panel on the prospects for resolving water issues between Idaho and Washington. Adam updated the conference on the Yakima River Basin adjudication (also known as "Acquavella") that has been ongoing since 1977. The "end is in sight" with all but one subbasin having been completed. Acquavella is expected to be finalized in the next several months. The court is busy preparing for the close of the adjudication. The "Proposed Final Decree" has been issued and objections to it have been submitted in various parties' briefing. The key issue remaining, according to Gravley, is whether the court should retain jurisdiction over the case for a short period of time to be sure it is properly implemented or retain jurisdiction forever.

Jurisdiction Question

Conjunctive Use Problems

Another topic that Gravley touched on involves the groundwater/surface water interplay. Conjunctive management has become the primary issue in the Yakima River Basin, with only surface water rights having been adjudicated. Junior groundwater rights are *not* currently being curtailed by senior water rights. In addition, Washington is struggling with the issue of "exempt wells." Users of such wells are continuing to pump water at will. Surface water users, however, have their rights to divert water curtailed as deemed appropriate — despite their senior position to the "exempt well" owners.

Shared Aquifer

One impetus for the North Idaho Adjudication (NIA) is the aquifer shared by water users in Washington and Oregon, known as the Spokane Valley-Rathdrum Prairie Aquifer (SVRP Aquifer). Guy Gregory, Senior Hydrogeologist for the Water Resources Program in the Washington State Department of Ecology presented a talk at the conference on the "Hydrogeology of the Spokane Rathdrum Aquifer: Framework, Constraints and Opportunities." The SVRP Aquifer is unusual, as explained by Gregory, in that the "hydraulic connectivity is off the scale. It's like a bucket of sand in a granite bowl." As noted in Gregory's presentation, the aquifer is recharged by rainfall/precipitation that is "direct to the aquifer in very little time."

The two states embarked on a regional study of the SVRP Aquifer to better understand the aquifer/river relationship and help manage the water resources between the two states, including "regional mitigation" possibilities in the future, Gregory said. Among some of the interesting findings of the study is that in

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"Losing" Stream

States' Cooperation

Idaho groundwater is *not* tributary to surface water, so stream flows in the Spokane River in Washington are not affected by groundwater recharge or groundwater pumping in Idaho. Instead, the river's flows are totally dependent on outflow from Post Falls Dam. At the same time, the surface water is tributary to the groundwater and, in fact, the "Spokane River loses 500 cfs [as it infiltrates into groundwater] between Lake Coeur d'Alene and the state line," Gregory said.

Washington and Idaho entered into a Memorandum of Agreement in 2007 regarding the SVRP Aquifer. The states are working on "forging a water future together" and trying to determine how they can adopt a "groundwater model using the same standards" in both states. Gregory noted that since the two states share three major river basins, they are striving to "build a water management strategy that is acceptable to Idaho and Washington." By coming up with a strategy for the SVRP Aquifer, they can avoid the need for federal intervention where problems arise and develop tools and techniques that can be used in the other basins shared by the two states.

Idaho State Water Plan Revision

Helen Harrington, Manager of the Water Planning Section of the Idaho Water Resources Department (IDWR), spoke on the planned update to the Idaho State Water Plan (Water Plan) and several key issues and developments that will affect revisions. The Water Plan was last revised in 1996. It acts as the guiding document for Idaho water resources by providing a "framework for use."

Water Plan Issues

Since the 1996 Revision, several events and issues have arisen that will undoubtedly impact any changes. Harrington noted the Nez Perce Settlement Agreement of 2004 (see Rigby, TWR #18); completion of the SRBA; innovative water exchanges in the Lemhi and Wood River Basins (natural flow rental pools); land and water purchases (e.g. the Pristine Springs purchase) by the Idaho Water Resource Board (IWRB); changing land uses; managed recharge; and climate variability. In addition, new attitudes are resulting in surface storage being once again under consideration.

$11 Million Water Purchase Addresses Variety of Needs

Pristine Springs Purchase

During the month of April 2008, the Idaho Water Resource Board (IWRB) in a partnership with the city of Twin Falls, and North Snake and Magic Valley groundwater districts, completed a series of transactions resulting in the purchase of the Pristine Springs fish farm operation. The transactions are designed to address conflicts between spring water users and groundwater users in Magic Valley as well as provide the city of Twin Falls with a fresh water source to improve the quality of its water supply and provide for future growth of the city.

State Ownership

In addition to the numerous water supply benefits of the transaction, the State will own water rights for over 300 **c**ubic **f**eet per **s**econd (cfs) of water, 400 acres of prime river front property (including 200 irrigated acres), fish hatchery and hydropower facilities, and other buildings on the property. The water rights will still belong to the State, but a portion of them will be placed into trust for the benefit of the groundwater districts and the City of Twin Falls. The water rights involved consist of 25.3 cfs fresh water right from Alpheus Creek; approximately 215 cfs reuse water right from Alpheus Creek; 61.9 cfs fresh water rights from Sunnybrook Springs; and a 4.5 cfs geothermal groundwater right.

Mitigation of "Call"

The acquisition of Pristine Springs provides groundwater users with replacement water to address the Blue Lakes Trout Farm delivery "call" by making available 10 cfs of water for mitigating groundwater user's depletions on spring flows at the Blue Lakes trout facility. (A "call" is a request by a senior water right owner to shut off sufficient junior water rights to satisfy the water needs of the senior user.) The acquisition provides for a permanent solution to one of the water calls in the Eastern Snake Plain Aquifer and keeps farmland in production that would have been dried up by the call. The transaction provides the groundwater users with a water source that will be directly and efficiently diverted to the Blue Lakes Trout Farm headgate. IDWR's press release noted that this "is a vastly superior solution than the curtailment of groundwater pumpers in which only 20 percent of the water from the curtailment would actually accrue to Blue Lakes Trout Farm and then only over an extended period of time."

Water Districts' Costs

The water districts will pay $11 million in total, $1 million initially plus $10 million and interest for 10 years as part of a loan from IWRB. The IWRB will eventually have the $10 million plus 4% interest returned to its revolving loan program, which will be used to finance other water projects across Idaho.

Economic Impact

The water provided by the water districts will avoid the need to curtail as many as 30,000 acres of groundwater-irrigated farmland, thereby avoiding an estimated economic impact of $80 million to $100 million to the region, according to IDWR. The purchase also avoids potential water delivery calls from Pristine Springs and the city of Twin Falls. In addition, the acquisition resolves a lawsuit between the Idaho Department of Environmental Quality and the former owner of Pristine Springs concerning the amount of effluent returned to the Snake River by the fish farm operation.

Idaho Water Law

City Benefits

Minimum Streamflows

Beneficial Use

Diversion Rate Limited

The city of Twin Falls benefits from the plan and will contribute $10 million to acquire a clean water source in order to comply with federal water quality standards (short term note to be repaid). The alternative for the city was to build a $33 million water treatment facility. Part of the cities' water system had test results that exceeded the standard, or maximum contaminant level (MCL), for Arsenic in 2006. Under the transaction, the city will also have use of additional spring water to meet future growth.

Included in the acquisition of Pristine Springs are two hydropower facilities that will generate approximately $100,000 per year under current agreements with Idaho Power. That revenue, in excess of operating costs, will be returned to the IWRB revolving loan program. As part of the agreement, IWRB will lease the property back to the current owner to continue some fish farming operations for at least the next two years. The funds gained from the lease will further reduce the Board's purchase price.

The $5 million in funding was appropriated to the IWRB by the Idaho Legislature in 2006 to acquire water and facilities to help resolve water conflicts in the Thousand Springs area. As noted by Helen Harrington in her presentation, IDWB is the only entity that can hold minimum stream flows in Idaho (held in trust for the public).

Delivery "Calls" and System Capacity Limitations

Jeff Fereday of the law firm of Givens Pursley, LLP in Boise, covered the topic of Rural Water Use in an Urbanizing Environment. His speech addressed water law and policy issues raised when formerly surface water irrigated farmland is converted to residential subdivisions or other urban uses.

Fereday's presentation also dealt with cases involving "calls" for water delivery, where senior water users seek curtailment of junior rights to enable the senior users to divert their full water rights. In a recent case, however, the principle that a senior water right owner can only receive the amount that they actually need for beneficial use once again resulted in a lesser amount being allowed for the senior user. When a delivery call occurs, IDWR must consider whether the senior user has a need for the full amount of water being sought. This usually involves whether or not the senior user is irrigating their entire place of use. The "Director 'has the duty and authority' to consider circumstances when the water user is not irrigating the full number of acres decreed under the water right." *American Falls Reservoir District No. 2 v. IDWR* (American Falls), 143 Idaho 862, 154 P.2d 433, 447-48 (2007).

In an even more recent case, a senior water user (Twin Falls Canal Company (TFCC)) sought curtailment of junior groundwater users sufficient to produce a diversion rate of 3/4 miner's inch (.015 cfs) per acre at TFCC's headgate on the Snake River to irrigate its approximately 198,000-acre place of use. The opinion issued by Hearing Officer Gerald Schroeder included a decision that TFCC would be limited to 5/8 miner's inch due to the fact that TFCC's assertion of the amount needed was "contradicted by the internal memoranda [of TFCC] and information given to the shareholders in the irrigation district. It is contrary to a prior judicial determination. It is inconsistent with some of the structural facilities and exceeds similar SWC [Surface Water Coalition] members with no defined reason." *In the matter of Distribution of Water to Various Water Rights Held by or for the Benefit of A&B Irrigation District, et al*., IDWR Opinion at 55 (April 29, 2008).

Conclusion

The conference covered several additional topics relating to Idaho and Washington water law not discussed in this article, including interstate allocation issues, the evolving law of municipal water rights, tribal reserved rights and water quality/instream flow issues on the Spokane River. One panel also provided an excellent discussion on water rights transfers and water marketing trends in Idaho. [Conference materials are available from Law Seminars International, 800/ 854-8009 or website: www.lawseminars.com]

For Additional Information: David Moon, 541/ 485-5350 or email: thewaterreport@hotmail.com

David Moon has practiced water law in Eugene, Oregon with the Moon Firm. He previously practiced in Bozeman, Montana with Moore, Refling, O'Connell & Moon. He is currently an editor of The Water Report. Mr. Moon received his undergraduate degree at The Colorado College and his JD at the University of Idaho Law School. He is a member of the Oregon, Idaho and Montana Bars. Moon has practiced water law for over 28 years in Montana and Oregon.

WATER BRIEFS

WETLANDS DELINEATION WEST

NEW CORPS GUIDANCE

On June 4, the US Army Corps of Engineers (Corps) Portland District announced the publication and one-year trial implementation period of the Western Mountains, Valleys and Coast Interim Regional Supplement (Supplement) to the Corps' 1987 Wetland Delineation Manual (1987 Manual). This interim document will be tested for one year prior to finalization; the one year period will be effective 30 days from the date of the public notice (i.e. July 4, 2008).

This Supplement is one of a series of regional supplements to the 1987 Manual. The 1987 Manual provides technical guidance and procedures, from a national perspective, for identifying and delineating wetlands that may be subject to regulatory jurisdiction under Section 404 of the Clean Water Act (33 U.S.C. 1344) or Section 10 of the Rivers and Harbors Act (33 U.S.C. 403). According to the 1987 Manual, identification of wetlands is based on a three-factor approach involving: 1) indicators of hydrophytic vegetation; 2) hydric soil; and 3) wetland hydrology. This Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Western Mountains, Valleys, and Coast Region, which consists of portions of 12 states, including Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington, and Wyoming..

The Supplement is part of a nationwide effort to address regional wetland characteristics and improve the accuracy and efficiency of wetland-delineation procedures. Regional differences in climate, geology, soils, hydrology, plant and animal communities, and other factors are important to the identification and functioning of wetlands. These differences cannot be considered adequately in a single national manual. The development of this Supplement follows National Academy of Sciences recommendations to increase the regional sensitivity of wetland delineation methods (National Research Council 1995). The intent of this Supplement is to bring the 1987 Manual up to date with current knowledge and practice in the region and not to change the way wetlands are defined or identified.

The procedures given in the 1987 Manual, in combination with wetland indicators and guidance provided in this Supplement, can be used to identify wetlands for a number of purposes, including resource inventories, management plans, and regulatory programs. However, the determination that a wetland is subject to regulatory jurisdiction under Section 404 or Section 10 must be made independently of procedures described in this supplement. Federal jurisdiction over identified wetlands has evolved as the result of several US Supreme Court decisions, most recently in *Rapanos v. United States*, 547 U.S. 715, 125 S. Ct. 2208 (2006) — see Bicker, TWR #29; Walston, TWR #30; Water Briefs, TWRs #31 & #41 and MacDougal, TWR #47.

This Supplement is designed for use with the current version of the 1987 Manual and all subsequent versions. Where differences in the two documents occur, this Supplement takes precedence over the 1987 Manual for applications in the Western Mountains, Valleys, and Coast Region.

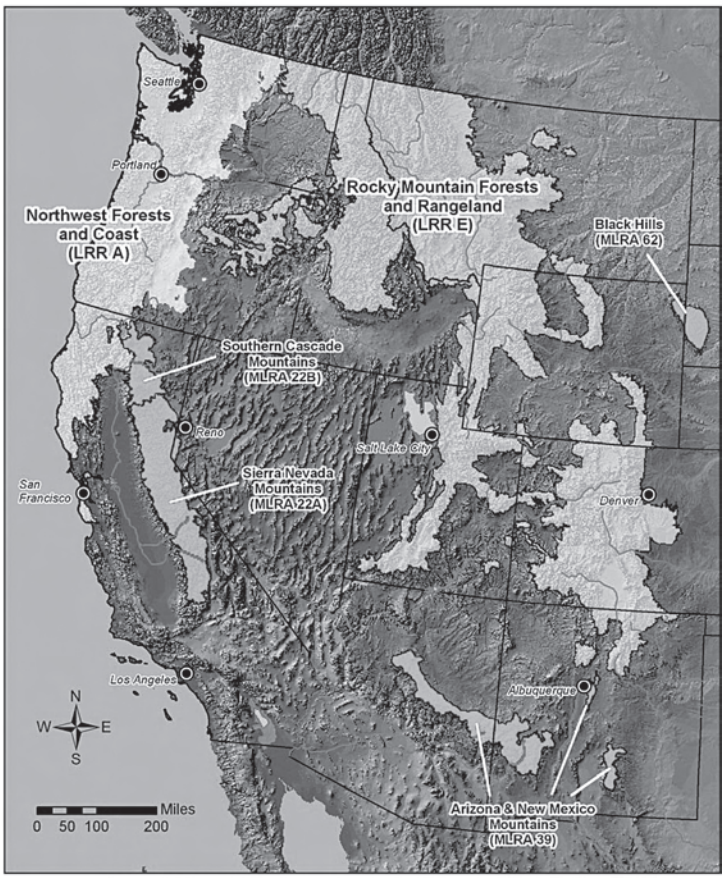
THE FOLLOWING GUIDANCE IS ALSO SUPERSEDED BY THIS SUPPLEMENT:

"Questions & Answers on the 1987 Manual" (October 1991)
"Clarification and Interpretation of the 1987 Manual" (March 1992)
"Revisions to National Plant Lists" (January 1996)
"NRCS Field Indicators of Hydric Soils" (March 1997)

Comments on this Supplement should be submitted to: Katherine Trott (CECW-CO), US Army Corps, 441 G Street NW, Washington DC 20314-1000 or email: 1987Manual@usace.army.mil

The 1987 Manual, this Supplement, including data forms and field evaluation questionnaire, as well as the independent peer review report and response document, the environmental assessment/FONSI prepared under NEPA, and copies of public comments are available on the Corps website: www.usace.army.mil/inet/functions/cw/cecwo/reg/reg_supp.htm

For info: Mike Turaski, Corps, 503/ 808-4381 or email: Michael.R.Turaski@usace.army.mil



Generalized map of the Western Mountains, Valleys, and Coast Region. The region consists mainly of USDA Land Resource Regions (LRR) A and E, but also includes the Sierra Nevada Mountains (MLRA 22A), Southern Cascade Mountains (MLRA 22B), Arizona and New Mexico Mountains (MLRA 39), Black Hills (MLRA 62), and other mountainous areas not shown that are dominated by coniferous forests on the slopes and coniferous woodlands, hardwood riparian woodlands, shrublands, or meadows in the valleys, down to the lower limit of the ponderosa pine zone.

WATER BRIEFS

ENVIRONMENT INDICATORS US
EPA REPORT

On May 20, EPA released its 2008 *Report on the Environment* (EPA 2008 ROE), a resource that citizens can use to better understand trends in the condition of the air, water, land and related changes in human health and the environment in the United States. The EPA 2008 ROE will also inform and focus EPA activities to improve and protect America's environment.

There are both positive and negative trends contained in the report. The purpose of the EPA 2008 ROE is to create a reliable set of information that can be used for year-to-year comparisons as well as planning.

The EPA 2008 ROE could also lead to the development of new indicators, new monitoring strategies, and new programs and policies in areas EPA determines to be highly important based on measured environmental trends.

Later this year, EPA will also publish the 2008 Report on the Environment: Highlights of National Trends (2008 ROE Highlights), which summarizes highlights of the EPA 2008 ROE with less technical detail.

For info, contact: Suzanne Ackerman, EPA, 202/ 564-4355 or email: ackerman.suzanne@epa.gov
EPA 2008 ROE WEBSITE: www.epa.gov/roe

WATER QUALITY DATA US
REAL-TIME INFO: USGS WEBSITES

Real time water-quality data are now easily accessible online through the US Geological Service (USGS) WaterQualityWatch website: http://water.usgs.gov/waterwatch/wqwatch.

Real-time water quality measurements are available at more than 1,300 sites across the United States in streams with watersheds as small as a few square miles to more than a million square miles in the Mississippi River. Measurements include streamflow, water temperature, specific conductance, pH, dissolved oxygen, and turbidity.

The public also uses the on-line data to decide whether conditions, such as water temperature or turbidity, are favorable for recreational activities such as fishing, boating or swimming.

As the science advances, real-time measurements for relatively simple parameters such as temperature, conductance, and turbidity can be used to help predict more health-related conditions, such as if E. coli levels will exceed safety standards at beaches. For example, predictions of E. coli are part of a system used by the City of Wichita to ensure public safety during the Annual Riverfest in May of each year (http://ks.water.usgs.gov/Kansas/rtqw/sites/07143672/htmls/ytd/p31648_ytd_all_uv.shtml).

For info, contact: Andrew Ziegler, USGS, 785-832-3539 or email: aziegler@usgs.gov;
Jennifer LaVista, USGS, 703/ 648-4432, jlavista@usgs.gov
ADDITIONAL USGS REAL-TIME WATER WEBSITES:
http://water.usgs.gov/waterwatch/
http://groundwaterwatch.usgs.gov/

WATER TRANSFERS US
PERMIT NOT NEEDED: NEW EPA RULE

EPA has announced a rule to clarify that National Pollutant Discharge Elimination System (NPDES) permits issued under the federal Clean Water Act (CWA) are not required for transfers of water from one body of water to another. Such transfers include the routing of water through tunnels, channels, or natural stream courses for public water supplies, irrigation, power generation, flood control, and environmental restoration.

According to EPA Assistant Administrator for Water Benjamin Grumbles, "Clean water permits should focus on water pollution, not water movement. EPA is committed to working with our state, tribal, and local partners to reduce environmental impacts associated with transfers and will continue to use all appropriate tools such as standards, best management practices, and watershed plans."

Thousands of water transfers currently in place across the country are vital to the nation's water supply and infrastructure systems. Whether an NPDES permit is needed has been an issue in numerous court cases in recent years. EPA's new rule defines water transfers as an activity that conveys or connects waters of the United States without subjecting the transferred water to intervening industrial, municipal, or commercial use. Pollutants introduced by the water transfer activity itself to the water being transferred would still require an NPDES permit under the rule. Furthermore, this rule does not prevent states or tribes from using their own authorities to address water transfers, including the use of non-NPDES permits.

In 2004, the question of whether NPDES permits were necessary for water transfers went before the US Supreme Court in *South Florida Water Management District v. Miccosukee Tribe of Indians*. The Court did not rule directly on the issue, which left unresolved the uncertainty many felt about the need for an NPDES permit (see Glick, TWRs #2 & #35). EPA issued an interpretive statement in 2005 explaining that Congress intended water resource-management agencies and other state authorities to oversee water transfers, not the NPDES program. This rulemaking codifies that position.

Over the last several years EPA has been advancing water quality improvements related to water transfers and other hydrologic modifications through watershed planning and management measures. For example, last summer EPA issued the *National Management Measures to Control Nonpoint Source Pollution from Hydromodification* guidance that provides recommended best management practices for addressing the effects of changes in flow. The recently released *Handbook for Developing Watershed Plans to Restore and Protect Our Waters* can assist communities as they analyze water quality priorities in their watersheds and identify management measures to reduce causes of impairments.

For info: Shakeba Carter-Jenkins, EPA, 202/ 564-4355 or email: carter-jenkins.shakeba@epa.gov
EPA WEBSITE: www.epa.gov/npdes/agriculture

WATER SOURCE MOA WA
CITY-TRIBE MOA

In May 2008, the City of Olympia, Washington (City), and the Nisqually Indian Tribe (Tribe) announced a Memorandum of Agreement (MOA) which initiates a historic partnership involving a new regional water source known as the McAllister Wellfield. The new regional water source partnership between the City and the Tribe is believed to be the first of its kind between a municipality and an Indian tribe.

The MOA involves the joint development of the McAllister Wellfield, including mitigation of potentially impacted water bodies. The MOA also provides for the creation of a Stewardship Coalition to benefit the Nisqually Watershed. A proposed

WATER BRIEFS

transfer of water rights to the wellfield still requires Washington State Department of Ecology approval. The City and the Tribe hope to be operating the McAllister Wellfield by 2012.

McAllister Springs, the City's primary source of water is located at the headwaters of McAllister Creek in northeastern Thurston County. Although the springs produce high-quality water, the location is vulnerable to potential contamination. The Tribe currently relies on shallow, low-producing wells next to the Nisqually River as its main source of water. Because of the source vulnerability and supply limitations, both the City and the Tribe have been looking for options to develop and secure a more sustainable source of water.

With this MOA, the City and the Tribe will move their potable water sources to a location known as the McAllister Wellfield. The wellfield taps a large aquifer with very high-quality water which will provide a more reliable, protected and long-term sustainable source of water.

The MOA also includes the creation of a Stewardship Coalition to strengthen the sustainability and resource stewardship of the water bodies throughout the Nisqually Watershed region. Goals of the Coalition will include: water conservation; aquifer protection; monitoring of mitigation; and funding of stewardship projects. The Coalition is intended to be a regional organization that will include other local water purveyors and organizations. Both the City and the Tribe believe the Coalition will become a model for water stewardship.

The City acquired the 20-acre wellfield property in the mid-1990s, along with a protection area that includes 100 acres of development rights surrounding the wellfield site. This MOA has the potential to increase the volume of water available to the City and the Tribe by up to 10 million gallons of water per day. The City and the Tribe will each develop their own water pumping and distribution systems from the wellfield site.

Reducing the current pumping at McAllister Springs and moving to the new source at McAllister Wellfield will help restore higher water flows to McAllister Creek. Known by the Tribe as Medicine Creek, McAllister Creek is not only the site of the signing of the Medicine Creek Treaty of 1854, but also is the site of some of the Tribe's most important ancestral villages and is traditionally a sacred place for the Nisqually. Through the MOA, the City and the Tribe also agree to ensure a perpetual state of conservation for McAllister Springs and nearby Abbott Springs.

Under the MOA, the Tribe will be responsible for mitigation of all potential impacts to the Nisqually River, including habitat improvements.

For info:
Rich Hoey, Director of Water Resources, City of Olympia Public Works Department, 360/ 753-8495 or email: rhoey@ci.olympia.wa.us
Joe Cushman, Planning Director Nisqually Indian Tribe, 360/ 456-5221 x1112 or email: cushman.joe@nisqually-nsn.gov

GW SUPPLIES OK

ASR PILOT PROJECTS

A bill recently passed by the Oklahoma Legislature last month aims to replenish selected underground water supplies throughout the state. The bill was signed by Gov. Henry on April 21 and went into effect immediately.

SB 1410, which received unanimous bipartisan support, authorizes the Oklahoma Water Resources Board (OWRB) to oversee aquifer recharge pilot projects that will channel surface runoff into subsurface cavities and pores for storage and later use. The OWRB will collect and analyze data from the projects and submit the findings to the Legislature, other governmental entities and the public. OWRB is also directed to form a technical workgroup to review findings of the pilot projects as well as assist in selecting potential aquifers and locations for the most feasible recharge demonstration projects. The projects will seek to increase aquifer yields for both public water supply and agricultural use.

"Both the spirit of the legislation and the implementation of this technology are entirely consistent with the current update of the Oklahoma Comprehensive Water Plan, which seeks to establish safe and reliable water supplies for the future of the state and its citizens," says Duane Smith, Executive Director of the OWRB. Smith added, "While we strongly advocate additional studies of our aquifers and groundwater basins, especially concerning determinations of their reliability in providing water supply to Oklahomans, we must also investigate technologies, such as artificial recharge, that show promise in augmenting this supply."

For info: Duane Smith, Executive Director, OWRB 405/ 530-8800

SALMON PROTECTION NW

COLUMBIA/SNAKE BIOPS

NOAA Fisheries Service, the federal agency charged with protecting Northwest salmon listed under the federal Endangered Species Act (ESA), on May 5 released three biological opinions that provide far-reaching plans for the protected salmon species.

A **bi**ological **op**inion (BiOp), a requirement of the ESA, sets forth benchmarks other federal agencies must meet to avoid undue harm to listed fish. All three of the May BiOps will be in effect for at least 10 years.

Two of the plans govern federal agencies' operations of 14 hydropower dams in the Columbia River basin and 12 other Northwest dam-related irrigation projects on the Upper Snake River in Idaho. The third sets forth a plan for managing salmon harvests for Indian tribes in Washington, Idaho, and Oregon, and for those states themselves.

A judge had rejected the agency's earlier biological opinions for both hydropower operations and the irrigation projects. Thirteen populations of salmon, including steelhead, are affected by some or all of the dams and are listed for protection under the ESA.

NOAA made a number of changes to make the hydropower biological opinion more robust since its public release as a draft document last October. Changes included:

- The new document includes a strengthened climate change section, which takes climate shifts and their likely effect on salmon into consideration.
- The new biological opinion factors in the effects of hydro operations on killer whales and green sturgeon to make sure that those important species are not adversely affected as steps are taken to protect salmon.
- The analysis supporting these opinions was based on the best available science and validated by several independent science reviews.

For info, contact: Brian Gorman, NOAA Fisheries Service, 206/ 526-6613
NOAA Fisheries BiOp website: www.nwr.noaa.gov/Salmon-Hydropower/Columbia-Snake-Basin/Final-BOs.cfm

WATER BRIEFS

CLIMATE CHANGE & AG US USDA REPORT

Crop failures, insect damage and extended water shortages are among the potential effects of climate change identified in a new report by the US Department of Agriculture (USDA) and other agencies. The report, which integrates the federal research efforts of 13 agencies, finds that climate change already is affecting water resources, agriculture, land resources and biodiversity in the US and will continue to do so. The West and Southwest already are seeing increased drought conditions and a trend toward reduced mountain snowpack and earlier spring runoff, according to the report. Further progress on increasing water use efficiency could help mitigate the impacts of climate change on water resources, the report says.

The document was written by 38 authors from universities, national laboratories, non-governmental organizations, and federal service. It underwent expert peer review by 14 scientists through a Federal Advisory Committee formed by the USDA.

For info: William Hohenstein, USDA, 202/ 720-669

WEBSITE: www.climatescience.gov/Library/sap/sap4-3/default.php

TCE SETTLEMENT AZ

EPA and the US Department of Justice (USDOJ) recently announced that Motorola, Inc., Siemens Corp. and GlaxoSmithKline will collectively pay a $500,000 civil penalty for system failures that led to the release of **tri**chloro**e**thylene (TCE) into the public drinking water system in Scottsdale, AZ. The settlement resolves violations of the North Indian Bend Wash consent decree, filed in 2003, which occurred when TCE above contamination limits was released from the Miller Road Treatment Facility on two separate occasions, in 2007 and 2008.

EPA and USDOJ demanded the significant penalties provided for under the federal Superfund law for each groundwater violation as well as demanding penalties for inaccurate reporting of the incidents to the regulator.

The Indian Bend Wash Superfund Site is approximately 13 square miles and is located in Scottsdale and Tempe, AZ. In 1981, TCE was discovered in several drinking water wells in the area. Since September 1988, EPA has required the construction of treatment facilities to contain the TCE and to provide potable water to Scottsdale. On June 6, 2003, a settlement was reached that obligated Motorola, Siemens and SmithKlineBeecham, now GlaxoSmithKline, to continue operating and maintaining the enhanced remedy.

Though the Miller Road Treatment Facility is owned and operated by the Arizona American Water Company, under the terms of the consent decree, Motorola, Inc., Siemens Corporation and GlaxoSmithKline are responsible for the remedy, which requires pumping and treating contaminated groundwater so that TCE does not exceed an acceptable limit of 5 parts per billion.

The first incident at the Miller Road facility occurred in October 2007 when a blower failure resulted in groundwater leaving the facility above the contamination level. Subsequently, equipment failures in January 2008 resulted in untreated groundwater entering the drinking water system above contamination limits.

After the second system failure, the Miller Road Treatment Facility was shut down to investigate and remedy system malfunctions. Following approval from EPA, the Arizona Department of Environmental Quality and Maricopa County officials, in late April the system was restarted. Upgrades and operation and maintenance improvements include: additional safety measures; the presence of an operator 24 hours a day; daily sampling; and the installation of new control panels and alarms. Moreover, the most contaminated well is no longer used by Arizona American Water Company.

The complaint and stipulation and order were both filed May 19 in US District Court in Phoenix.

For info:

Margot Perez-Sullivan, EPA, 415/ 947-4149 or email: perezsullivan.margot@epa.gov

Andrew Ames, USDOJ, 202/ 514-2007 or email: Andrew.ames@usdoj.gov

WQ STDS SETTLEMENT OR CWA, TOXICS & ESA PROTECTION

EPA has committed to take action on Oregon's water quality standards for toxic contaminants based on whether they protect threatened and endangered species, settling a two-year old lawsuit brought by the Portland, Oregon-based Northwest Environmental Advocates (NWEA). "The Clean Water Act gives EPA three months to approve or disapprove Oregon's standards," said Nina Bell, NWEA Executive Director. "Instead, EPA has (already) taken four years." The settlement commits EPA to making a decision by not later than April 1, 2009. As part of the settlement, EPA also agreed to pay NWEA $60,000 for its cost of litigation.

Water quality standards are used to set limits for industries and municipalities that discharge under permits. States are required to review and revise as appropriate their water quality standards at least every three years, then submit the revised and new standards to EPA for approval. EPA is required to review the state-submitted standards to determine whether they meet the requirements of the Clean Water Act (33 U.S.C. §§ 1313(c)(1) and (3)).

For info: Nina Bell, NWEA, 503/ 295-0490

STORMWATER CONSTRUCTION PERMIT US EPA PERMIT PROPOSAL

EPA is proposing to reissue its stormwater Construction General Permit for a two-year time period. The permit would apply where EPA is the permitting authority which is in five states, most territories, and most Indian country lands. The draft permit utilizes the same terms and conditions as EPA's 2003 permit which expires in July 2008. EPA is proposing the permit to coordinate it with a second effort that is underway to establish national clean water standards, known as an effluent limitation guideline, for the construction and development industry. Upon finalization of the guideline, EPA plans to include its provisions into a new and improved Construction General Permit to be reissued no later than July 2010. EPA is also requesting comment on the criteria the agency will use to recognize local erosion and sediment control program requirements in this and future permits.

For info: Shakeba Carter-Jenkins, EPA, 202/ 564-4355 or email: carter-jenkins.shakeba@epa.gov

EPA WEBSITE: www.epa.gov/npdes/stormwater/cgp

CALENDAR

June 16-17 CA
Land Use & Climate Change Seminar, Los Angeles. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

June 16-20 OR
Water Governance and Conflict Management Course, Corvallis. OSU. For info: OSU website: http://oregonstate.edu/conferences/watergovernance2008/

June 16-21 Italy
4th European Centre for River Restoration (ECRR) International Conference on River Restoration, Venezia. RE: Hydrology, Geomorphology, Ecology & Economics. For info: Website: www.ecrr.org/pagina/documents/ecrr4conf.pdf

June 17 OR
Managing Carbon: Policy & Practice Conference, Portland. Sponsored by Northwest Environmental Business Council, Lovinger Kaufmann LLP, and Oregon Business Association. For info: NEBC, 800/ 985-6322, email: sue@nebc.org or website: www.nebc.org

June 17 OR
The Port, the Harbor & the Great Clean-Up, Portland. City Hall. For info: Rick Bastasch, City of Portland, 503/ 823-0275 or website: www.portlandonline.com/river/

June 17-18 WA
Low Impact Development Series Course 2: Permeable Pavements Course, Seattle. For info: College of Engineering website: www.engr.washington.edu/epp/cee/

June 17-18 DC
River Action Day, Washington D.C. Sponsored by American Rivers. For info: Josh Klein, AM, 202/ 347-7550 or website: www.americanrivers.org

June 18-20 WA
Introduction to Channel Migration Zone Delineation Course, Spokane. For info: NWTEC website: http://www.nwetc.org

June 19-20 WA
Introduction to Aquatic Toxicology: Understanding Impacts of Organic Chemicals and Metals on Aquatic Ecosystems Course, Bellingham. Emerald Bay at the Bellingham Yacht Club. For info: NWTEC website: http://www.nwetc.org

June 22-25 MD
Sustainability 2008-Green Practices for the Water Environment Seminar, National Harbor. Gaylord National on the Potomac. For info: WEF, email: registration@wef.org or website: www.wef.org/Sustainability

June 23-27 France
River Restoration: Fluvial-Geomorphic and Ecological Processes Course, Provence. Beaumont du Ventoux. For info: Institute Beaumont website: http://institutbeaumont.com/

June 24 FL
Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) Workshop, Orlando. RE: Clean Water Act, Scope of the NPDES Program, other water regulations (e.g., SPCC, Wetlands), case studies and more. For info: Trinity Consultants, 800/ 613-4473 or website: www.trinityconsultants.com

June 24 OR
Clean Water State Revolving Fund Workshop, Pendleton. City Hall Community Rm. Sponsored by Oregon DEQ. For info: Larry McAllister, DEQ, 800/ 452-4011 x6412

June 24 AZ
The Importance of the Colorado River for Arizona's Future, Phoenix. Arizona Biltmore Resort. Sponsored by the Arizona Water Resources Research Center. For info: Sharon Megdal, WRRC, email: smegdal@cals.arizona.edu orwebsite: www.cals.arizona.edu/AZWATER

June 24-26 MT
National Tribal Conference on Environmental Management, Billings. Holiday Convention Center. RE: Major Issues and Training Opportunities on Human Health & Environment in Indian Country. For info: Karen Rudek, NTCEM, 202/ 564-0472 or website: www.ntcem8.org

June 24-27 OR
Air & Waste Management Association's Annual Conference, Portland. Oregon Convention Center. For info: A&WMA website: www.awma.org/ACE2008/

June 26 OR
Clean Water State Revolving Fund Workshop, Bandon. City Library. Sponsored by Oregon DEQ. For info: Larry McAllister, DEQ, 800/ 452-4011 x6412

June 26-27 NV
National Wetlands Conference, Reno. For info: CLE International, 800/ 873-7130 or website: www.cle.com

June 26-27 NV
Law of the Colorado River Conference, Reno. Grand Sierra Resort & Casino. For info: CLE International, 800/ 873-7130 or website: www.cle.com

June 29-July 1 UT
Adaptive Management of Water Resources II, Snowbird. Snowbird Resort. Sponsored by the American Water Resources Assoc.. For info: AWRA, 540/ 687-8390 or website: www.awra.org

June 29-July 3 AK
Permafrost on a Warming Planet: Impacts on Ecosystems, Infrastructure and Climate, AWRA Conference, Fairbanks. University of Alaska. For info: AWRA, 540/ 687-8390 or website: www.awra.org

June 30-July 2 VA
Riparian Ecosystems and Buffers: Working at the Water's Edge, 2008 Summer Specialty AWRA Conference, Virginia Beach. Founder's Inn and Spa. For info: AWRA, 540/ 687-8390 or website: www.awra.org

July 2 OR
Clean Water State Revolving Fund Workshop, Wilsonville. Willamette Rm. Sponsored by Oregon DEQ. For info: Larry McAllister, DEQ, 800/ 452-4011 x6412

July 6-9 Australia
1st International Conference on Technologies and Strategic Management of Sustainable Biosystems, Perth. RE: Technical Aspects of Sustainable Biosystems and Their Integration into Society. For info: Website: www.etc.murdoch.edu.au/IOBB2008

July 8-10 OR
Wetland Demystified! Navigating the Complicated World of Wetland Delineation, Regulation, and Restoration Course, Troutdale. For info: NWTEC website: http://www.nwetc.org

July 9-11 ND
Summer 157th Council Meeting (Western States Water Council), Medora. AmericInn Hotel. For info: Cheryl Redding, WSWC, 801/ 561-5300, email: credding@wswc.state.ut.us or website: www.westgov.org/wswc/J208

July 14-16 CO
CUAHSI Biennial Colloquium on Hydrologic Science and Engineering, Boulder. UCAR. Sponsored by Consortium of Universities for the Advancement of Hydrologic Science Inc.. For info: CUAHSI website: www.cuahsi.org/biennial/index.html

July 14-18 UT
Short Course: Principles and Practice of Stream Restoration, Part I, Logan. Utah State University. For info: USU website: http://uwrl.usu.edu/streamrestoration/default.htm

July 14-18 CA
Hydro Vision 2008 Conference, Sacramento. Convention Center. For info: HCI website: www.hcipub.com

July 16-18 CA
4th Young Water Professional Conference, Berkeley. Clark Kerr Campus of the University of California. For info: Email: flocdoc@pacbell.net or website: www.iwa-ywpc.org

July 16-18 MN
13th Annual National Gathering of Tribal Drinking Water and Wastewater Professionals and Tradeshow, Prior Lake. Mystic Lake Casino Hotel. Sponsored by the Native American Water Association. For info: NAWA website: www.nawainc.org/gathering.htm

July 16-20 UT
Stream Restoration Short Courses, Logan. Utah State University. For info: College of Natural Resources, 435/ 753-9152 or email: laelp@cc.usu.edu

July 17 OR
Oregon Water & Wastewater Infrastructure Finance Summit, Silverton. Oregon Garden. For info: Chris Marko, Rural Community Assistance Corporation, 503/ 228-1780 or email: cmarko@rcac.org

July 17 OR
Solar Power: Projects & Permitting Seminar, Portland. World Trade Center. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

July 17 NV
15th Indigenous Environmental Network: Protecting Mother Earth Conference, Lee. For info: IEN, 218/ 751-4967 or website: www.ienearth.org/

July 17-18 NM
Natural Resources Damages Litigation Seminar, Santa Fe. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

July 17-19 CO
Rocky Mountain Mineral Law Institute 54th Annual Meeting, Snowmass/Aspen. For info: RMMLF, 303/ 321-8100, email: info@rmmlf.org, or website: www.rmmlf.org

July 18 OR
"Water, Wetlands, Carbon and Biofuels: Creating Environmental Capital" Seminar, Portland. World Trade Center. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

July 20-25 Brazil
International Wetlands Conference, Cuiaba. For info: Conference website: www.cppantanal.org.br

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July 22 OR
Oregon Invasive Species Summit, Salem. Northwest Viticulture Center. Sponsored by the Oregon Invasive Species Council. For info: Lisa DeBruyckere, OISC, 503/ 704-2884, email: lisad@createstrat.com or website: http://oregoninvasiveshotline.org

July 22-24 NC
International Water Resources: Challenges for the 21st Century & Water Resources Education, Durham. Sponsored by UCOWR & NIWR. For info: UCOWR, 618/ 536-7571, email: ucowr@siu.edu or website: www.ucowr.siu.edu/

July 24-25 CA
CEQA Conference, Sacramento. For info: CLE International, 800/ 873-7130 or website: www.cle.com

July 28-29 CA
Environmental Resource Litigation, San Francisco. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

July 31-August 1 NM
New Mexico Water Law Seminar, Santa Fe. The Eldorado Hotel. For info: CLE International, 800/ 873-7130 or website: www.cle.com

August 3-7 FL
7th Annual StormCon Stormwater Pollution Prevention Conference, Orlando. For info: StormCon website: www.stormcon.com/sc.html

August 4-5 CA
California Climate Change, San Francisco. For info: CLE International, 800/ 873-7130 or website: www.cle.com

August 4-5 TX
Water: Desalinization, Process and Wastewater Issues and Technologies, College Station. Texas A&M. RE: 4th Annual Shortcourse: Hands-On Workshop. For info: Carl Vavra, TAMU, 979/ 845-2758, email: cjvavra@tamu.edu or website: www.tamu.edu/separations

August 4-5 AZ
Arizona Water Law Conference, Phoenix. For info: CLE International, 800/ 873-7130 or website: www.cle.com

August 6-11 WI
International Conference on Mercury as a Global Pollutant, Madison. Monona Terrace Community Convention Center. RE: Scientific Advances Concerning Mercury Pollution. For info: James Hurley, 608-262/ 0905, fax: 608/ 262-0591, or website: www.mercury2006.org/

August 6-8 TX
20th Annual Texas Environmental SuperConference, Austin. Four Seasons Hotel. For info: Texas Enviro & Nat. Res. Law Section, email: texenrls@gmail.com or website: www.texenrls.org/calendar.html

August 7-8 WA
Renewable Energy in the Pacific Northwest, Seattle. Washington State Convention & Trade Center. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

August 8 OR
Oregon Department of Fish and Wildlife Commission Meeting, Salem. For info: Director's Office ODFW, 503/ 947-6044, email: odfw.commission@state.or.us, or website: www.dfw.state.or.us

August 10-15 CA
Short Course: Geomorphic and Ecological Fundamentals for River and Stream Restoration, Truckee. Sagehen Creek Field Station. For info: Field Station website: http://sagehen.ucnrs.org/courses/geomorph.htm

August 11 TX
Water Sales & Transfers Seminar, Corpus Christi. For info: Lorman Education Services, 866/ 352-9539 or website: www.lorman.com/seminars/

August 11-12 WA
TMDLs in the Pacific Northwest, Seattle. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

August 12 NM
2008 New Mexico Water Research Symposium, Socorro. Macey Center, New Mexico Tech. For info: Cathy Ortega Klett, WRRI, 575/ 646-1195 or website: http://wrri.nmsu.edu

August 12-13 MT
Montana Water Policy Interim Committee Meeting, TBA. For info: Krista Lee Evans, Lead Staff, 406/ 444-1640; Committee website: leg.mt.gov

August 14-15 CA
CEQA Conference, Los Angeles. For info: CLE International, 800/ 873-7130 or website: www.cle.com

August 15 HI
National Environmental Policy Act & Hawai'i EIS Law Seminar, Honolulu. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

August 16-20 ON
American Fisheries Society Annual Meeting, Ottawa. For info: AFS website: www.fisheries.org/afs/

August 17-23 Sweden
World Water Week: Progress & Prospects in Water, Stockholm. RE: Focus on Sanitation. For info: Katarina Andrzejewska, Stockholm International Water Institute, email: katarina.andrzejewska@siwi.org or website: www.siwi.org

August 18-22 UT
Short Course: Principles and Practice of Stream Restoration, Part II, Logan. Utah State University. For info: USU website: http://uwrl.usu.edu/streamrestoration/default.htm

August 19-21 WA
Advanced ArcGIS 9 for Fisheries and Wildlife Biology Applications Course, Olympia. The Evergreen State College. For info: NWTEC website: http://www.nwetc.org

August 20-22 CO
Colorado Water Congress Summer Convention, Vail. Vail Marriott Mt. Resort & Spa. For info: CWC, 303/ 837-0812 or website: http://cowatercongress.org

August 26-27 WA
Introduction to ArcHydro - Managing and Mapping Hydrologic Data with ArcGIS Course, Olympia. The Evergreen State College. For info: NWTEC website: http://www.nwetc.org

August 28-29 CA
Environmental Litigation Seminar, Los Angeles. For info: Law Seminars Int'l, 800/ 854-8009, email: registrar@lawseminars.com, or website: www.lawseminars.com

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