



# PRESIDENT'S NOTES

Tom Martin, President, AWRA Washington Section

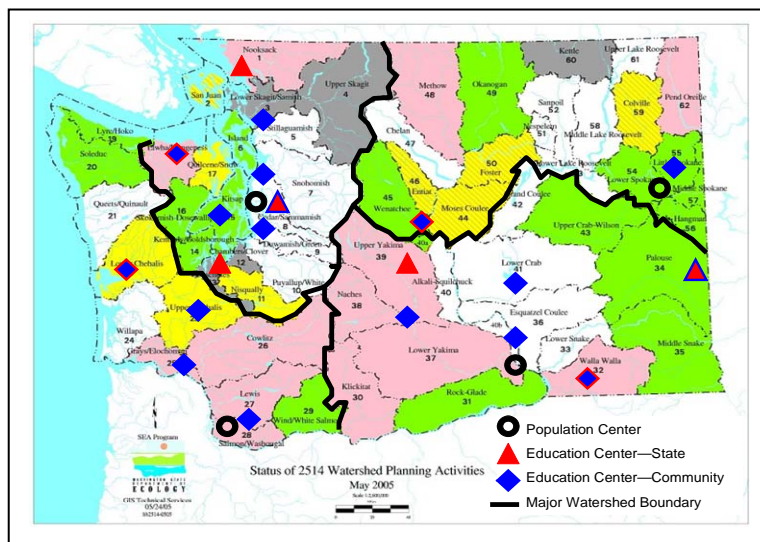
The State of Washington needs, just like General Washington needed during the American Revolution, a place to meet, express views, report news, and form plans. From about 1760's on, citizens with recently awakened political awareness logically congregated at their community's social center. During this era the community social centers were public houses (i.e., taverns and ale houses). Like ye olde public houses, today's' citizens are congregating to the meetings of the Washington Section of the AWRA (many of which are held in brewpubs – after all, the main ingredient in beer is water). They are becoming members of the association and engaging in open discussion on the best use of our water to preserve our life, liberty and pursuit of happiness.

There is strong link between the past and present forces that awake the American people and cause them to form associations. During General Washington's time, public houses were hot-beds of political discourse (he liked a good porter). The seeds of liberty were planted and nurtured in such places as the Green Dragon Tavern in Boston. The colonists were not looking for independence, initially, and widely acknowledged the British government. They considered themselves Englishmen, yet they felt isolated from every aspect of Parliament's lawmaking. Taxation without representation was the issue back then causing Americans to rise against the crown. The issue now, here in the states of the Pacific Northwest and throughout the nation, is access to the process of making decisions on water allocation in their watershed, and to essential tools for advancement of water resource science and management. Isolation of citizens from decision-making at all levels of American government has once again awakened the citizenry.

The citizens of Washington State have made great strides to uphold the principles of self-government and American democracy. The Washington State Legislature passed the Watershed Planning Act and the Salmon Recovery Act in the late 1990's, which prompted citizens to form groups in the three main watersheds of the state where salmon were at risk of becoming extinct: Puget Sound, and the Lower- and Mid-Columbia River. These groups are developing more cooperative methods of developing objectives for water resource management, and integrating local and regional salmon recovery activities into a statewide strategy.

The AWRA Washington Section applauds such local citizen participation in these collaborative, grass-roots activities. We will present our 2005 Outstanding Contribution Award to a representative of one group in each of the three watersheds. Over the past two year, the Washington Section Board of Directors developed and began implementing a long-range plan to engage members from a wider geographic distribution. We held two policy dialogues this year; one on each side of the Cascade Crest. In the future, I hope that the Section strives to transfer science and technology to local councils to provide a sound basis for water resource policy and management.

In my final Newsletter Notes as 2005 President of the AWRA Washington Section, I would like to introduce a plan for turning this hope for AWRA into reality. The map shows the four main watersheds in the state and their population and educational (and brewpub) centers. I would like to see the Board of Directors reorient their efforts to work with local water resource leaders to organize AWRA events in the central places of congregation in each of the four watersheds. This is a revolutionary idea for the Washington Section, which draws from the successes of the American experiment in democracy to restore faith in self-governance of our state's exceptional water resources. ☞



# Climate-Based Flood Rule Curves for Columbia System Dams

Se-Yeun Lee, Department of Civil and Environmental Engineering, University of Washington

The Columbia River drains portions of seven states in the United States, (Oregon, Washington, Idaho, Montana, Nevada, Wyoming, and Utah) and one Canadian province (Figure 1). The Columbia River Basin with more than 250 dams and 150 large hydropower projects is the most hydroelectrically developed river system in the world. The main purposes for operating the dams are to provide flood control and hydropower generation. During the 1990s fish flow criteria have been added to flow release rules from the dams because several species have been listed as endangered under the Endangered Species Act (ESA). However, fish flows for protecting endangered species conflict with operating for flood protection because the release time for fish flows is late spring to summer when flood control is a concern. Successful development of flood control operating curves which satisfy fish augmentation without increasing flood risk offer potential environmental and economic benefits.



**Figure 1: Major Dams on Columbia River Basin**  
<http://www.nwd.usace.army.mil/ps/colbsnmap.htm>

Recent research shows that El Niño-Southern Oscillation (ENSO) and the Pacific Decadal Oscillation (PDO) events affect winter climate of the Pacific Northwest (PNW) on an interannual time scale (Mantua and others, 1997; Barton and Ramirez, 2004). According to Hamlet and Lettenmaier (1999), the naturalized streamflow at The Dalles, Oregon during warm PDO/El Niño years is much lower than during cool PDO/La Niña years. This indicates that the needed flood control space in the system depends on climate categories as well as April to August flow volume. Current flood control rules curves are fixed on December 31; flood control release from each reservoir starts on January 1 because observed snowpack is available beginning January 1. Forecasts of monthly flow volumes based on PDO and ENSO

conditional information (creating six climate categories) are available in the fall and early winter (Hamlet and Lettenmaier, 1999). Therefore it is expected that developing flood control curves conditioned on six climate categories would permit using variable flood control rule curves. This would result in providing more water for fish and increasing the probability of refill of dams and associated hydroelectric power generation.

The US Army Corps of Engineers Hydrologic Engineering Center's Prescriptive Model, HEC-PRM is used to explore the possibility of changing December flood control curves at Libby to demonstrate the potential of conditional rule curves. HEC-PRM originally included functions for hydropower, flood, recreation, fish, etc for describing quantitatively the operation strategies for the multi-purpose dams of the Columbia River Basin system. Dam storage for flood control can be reduced on December 31 without increasing flood risk, resulting in increased fish flow and system efficiency. Only flood-related functions are considered in HEC-PRM optimizations used for this purpose. An end of July storage function (EOS) is used to avoid any problems which might be caused when the other functions are not included during these HEC-PRM optimizations. The current flood control curves for Libby Dam, named VARQ, are modified based on the optimization results and the modified curves are implemented in a simulation model called Columbia River System Simulation Model (ColSim) to investigate the benefits of changing flood control curves. Level Modified Flow data from water year 1929 to 1999 are used here for both the optimization and simulation model.

Apr~Aug Flow Volume	Flood Storage	
	VARQ	Mod 1
<4500	2,000	1,161
4500-5000	2,000	1,212
5000-5400	2,000	1,803
5400-6500	2,000	2,000
6500-7500	2,000	2,000
7500>	2,000	2,000

**Table 1: December Draft of Libby flood control curves used for ColSim conditioned on April-August flow volume (KAF).**

The Maximum flood space on December 31 resulted from the HEC-PRM optimization when they are determined using: a) only April to August flow volume; (Mod 1) and/or, b) climate categories as well as Apr-Aug flow volume (CC Mod). December flood storages based on the current unconditional VARQ rules are modified based on above HEC-PRM results. When optimization results show that required maximum flood storage value on December 31 at Libby dam is larger than 2,000 KAF, the current VARQ December flood space of 2,000 KAF is used in the

simulation model (Table 1). When Apr-Aug flow volume is less than 5,400 KAF, the storage volume for flood control at Libby dam is set less than 2,000 KAF; smaller April-August flow volumes require smaller flood space. Warm PDO/Warm ENSO has the most flexible December draft at Libby and December drafts for Cool PDO are stiffer than those for Warm PDO (Tables 2 and 3).

ColSim results using VARQ are compared with those using Mod 1 and CC Mod in terms of refill probability, spill, controlled release, hydropower production, and flood vulnerability. Refill probabilities are the same when VARQ, Mod 1 and CC Mod are used in ColSim for dams in the Columbia River basin except for Libby, Hungry Horse, and Grand Coulee dams. Compared to VARQ, Mod 1 increases Libby refill probability by 1%, while CC Mod improves refill probabilities of Hungry Horse and Grand Coulee as well as Libby dam by 1%. For the cases of WPWE, CPWE and CPNE, the lowest spill occurs during December under CC Mod and the second lowest under Mod 1. For the years of WPNE, a cumulative 106 KAF of spill occurs under VARQ, while no spill occurs during December using CC Mod and Mod 1. Spills among three simulated models for the cases of WPCE and CPCE are the same. Although the total discharged flows from Libby dam are same for all three cases, the distributions for each month are different. More flow is released from Libby during May-Aug under Mod 1 than VARQ for all years except CPCE years. Compared to Mod 1, slightly larger fish flows under CC Mod are discharged from Libby for the years of WPWE, WPCE and CPWE. Differences between CC Mod and Mod 1 for the other cases are small.

May-Jun outflows from Libby are also examined to determine how much the proposed control curves improve fish flow for 16 years when the largest seasonal differences in outflow distribution occur. Of

these 16 years, 5, 7 and 8 years satisfy the BiOp's fish requirement for VARQ, Mod 1, and CC Mod, respectively. In terms of refill probability, reduction of spill, and fish flow, CC Mod shows the best result; followed by Mod 1.

For the Libby reservoir, VARQ, Mod 1 and CC Mod rules produce 1,992, 1,999, and 2,000 GW-hr/year of energy, respectively. The average energy production of the whole Columbia System is 120,888, 120,871, and 120,876 GW-hr/year using VARQ, Mod 1 and CC Mod, respectively. CC Mod produces the highest energy in Libby and second in Columbia River System next to VARQ.

No additional flood risk at Bonners Ferry or The Dalles occurs under Mod 1 and CC Mod than under VARQ when simulated using ColSim. Because ColSim is a monthly time step model, it is necessary to make sure that there will be no increase in flooding using a daily time step model.

Developing flood control curves using climate information at Libby dam would be useful to increase refill probability and discharge for fish augmentation, without additional flood risk.

**References:**

Barton, Steven B., and Ramirez, Jorge A., 2004. Effects of El Niño Southern Oscillation and Pacific Interdecadal oscillation on Water Supply in the Columbia River Basin. *Journal of Water Resources Planning and Management*, 130 (4), 281-289

Hamlet, A.F., and Lettenmaier, D.P., 1999. Columbia River Streamflow Forecasting Based on ENSO and PDO climate Signals. *J. Water Resources Planning and Management*, 125(6), 333-341

Mantua, Nathan J., Hare, Steven R., Zhang, Yuan, Wallace, John M., and Francis, Robert C., 1997. A Pacific Interdecadal Climate Oscillation with Impacts on Salmon Production. *Bulletin of the American Meteorological Society*, 78(6), 1069-1079.

**Table 2 Required flood control storage at Libby on December 31 for CC Mod.**  
(Apr-Aug; Units = KAF)

Warm PDO/ Warm ENSO (WPWE)		Warm PDO/ Neutral ENSO (WPNE)		Warm PDO/ Cool ENSO (WPCE)	
Flow Vol.	Storage Vol.	Flow Vol.	Storage Vol.	Flow Vol.	Storage Vol.
<4,000	419	<5,300	807	<4,500	100
4,000-5,000	1,212	>5,300	2,000	4,500-5,100	973
5,000-5,900	1,500	-	-	5,100-6,500	1,889
>5,900	2,000	-	-	>6,500	2,000
Cool PDO/ Warm ENSO (CPWE)		Cool PDO/ Neutral ENSO (CPNE)		Cool PDO/ Cool ENSO (CPCE)	
Flow Vol.	Storage Vol.	Flow Vol.	Storage Vol.	Flow Vol.	Storage Vol.
<5,500	100	<5,500	1,803	<6,000	1,563
5,500-6,500	1,812	5,500-7,500	1,925	>6,000	2,000
>6,500	2,000	>7,500	2,000	-	-

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## **Diminishing Water Supply Threatens E. Washington Farmers**

**By Mark Schoesler, Special to The Times**

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This article was first published as an Op Ed in the Seattle Times. It discusses the need to implement the second phase of the Columbia Basin Project and overdevelopment of the Odessa Aquifer.

Reprint permission was obtained for the hardcopy newsletter. The article can be viewed in its entirety on the web at:

<http://archives.seattletimes.nwsourc.com/web/>

Editorial and Opinion section.

Key word: CBP

***State Sen. Mark Schoesler, R-Ritzville, is a farmer and the ranking Republican on the Senate Agriculture and Rural Economic Development Committee.***

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## Black Rock Reservoir: Is New Storage the Only Answer?

By Mona Thomasson, Army Corps of Engineers

AWRA-WA held their second Water Resource Policy Dialogue of the year on September 29, 2005 in Richland, Washington. The dialogue, focused on the proposed Black Rock Reservoir in the Yakima basin. This topic was chosen as a result of its high level of interest to water resource professionals in Washington State.

In 2003, Congress authorized and appropriated funds for the U.S. Bureau of Reclamation to initiate a "feasibility study of options for additional water storage in the Yakima River Basin with emphasis on Black Rock Reservoir." The study is to assess the benefit of storage to endangered and threatened fish, irrigated agriculture, and municipal water supply. The authorization precludes the storage study from considering a comprehensive range or package of storage and non-storage alternatives for achieving the desired benefits. Therefore, AWRA-WA sponsored this Water Resource Policy Dialogue to provide an opportunity for water resource professionals and stakeholders to discuss:

- ❑ Water resource problems and opportunities in the Yakima Basin
- ❑ Criteria for evaluation of alternatives
- ❑ Alternatives for solving the problems and taking advantage of the opportunities
- ❑ Whether Black Rock Reservoir addresses the problems and opportunities identified
- ❑ How Black Rock Reservoir rates against the evaluation criteria

The dialogue began with a speaker session to provide participants background on the study and some of the water resource issues.

Kim McCartney, Bureau of Reclamation manager of the Yakima Basin Storage Feasibility Study, was the keynote speaker. He explained that the Yakima River Basin Water Storage Feasibility Study is examining the feasibility and acceptability of storage augmentation in the Yakima River basin. Two types of solutions are being studied: (1) diversion of Columbia River water to the proposed Black Rock project to be used as an "exchange supply" for irrigation entities in the lower Yakima Basin; and, (2) creation of additional storage within the Yakima River basin. The objectives of the study are to move the Yakima River flow regime towards a normative condition for fisheries, provide a more reliable water supply for irrigators and provide additional water supply for future municipal demands.

Mr. McCartney also discussed feasibility criteria, which are technical viability, economic impacts,

social and environmental acceptability, protection of Indian trust assets, Endangered Species Act and environmental compliance, and financial feasibility, both for repayment of construction costs and on-going operations and maintenance costs. He described the study plan and achievements to date. The feasibility study and Environmental Impact Statement are scheduled to be completed in 2008.

Four speakers, representing viewpoints on additional storage in the Yakima Basin, spoke next. Gary Ballew, Deputy County Administrator for Benton County, described the importance of agriculture and the need for new storage. He emphasized that conservation and other tools are important parts of the area's strategy to manage their water resources, but that additional storage is critical. Robert Masonis, Senior Director of the NW region of American Rivers, discussed the need to determine whether water is being used efficiently and cost-effectively. Charlie de la Chappelle, the Vice Chairman of the Yakima Basin Storage Alliance presented the efforts undertaken by the region in the past 60 years to prepare for drought, conserve, and develop additional irrigation water supply. Ken Hammond, Professor of Geography (retired) at Central Washington University, discussed programs such as water marketing, fallowing of agricultural lands, and pressurized water delivery systems.

Following a lunch break and a question and answer session of the keynote speaker and panelists, the dialogue participants broke into groups to discuss the problems and opportunities, criteria for evaluation, alternatives, and the potential Black Rock Reservoir itself. Reporting out after each of the topics kept the groups on track and provided additional points of view for further discussions. More information on the outcomes from this dialogue session will be posted on the AWRA-WA website.

The policy dialogues sponsored by AWRA-WA in 2005 are providing opportunities for professionals from a broad spectrum of disciplines involved with water resources in the State of Washington to help shape our future. The first dialogue identified priority water resource policy issues to be addressed. The final dialogue will be in the form of education workshop ("Communication and Dialogue among Water Professionals, the Public and Policy Makers: Science as the Basis for Water Policy"), which will precede the AWRA National Conference on November 6, 2005 in Seattle Washington. ☺

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# NRCS – CONSERVING WATER RESOURCES

By Anthony H. Ingersoll, NRCS coordinator of the North Olympic Peninsula RC&D Council

I want to tell you a little about my agency, the Natural Resources Conservation Service (NRCS). This is a challenge because there are so many aspects to the agency that it is difficult to grasp the entire organization. The NRCS plays a big role in water resources, but our work often is overshadowed by the larger Federal and State water resource agencies. For over 40 years, the NRCS has strengthened the water stewardship capability of communities by coordinating Resource Conservation and Development (RC&D) Councils throughout the nation.

The NRCS is unique in many ways. We are, first and foremost, a technical assistance agency. Unlike the Forest Service, Park Service, or Bureau of Land Management, we have no Federal lands to manage and administer. We provide service primarily to private landowners. I remember once telling this to someone from a European country and he was flabbergasted that a government would provide that kind of service to its citizens. He said he was very impressed and wished his country had such a service available.

To acknowledge our work with water and other natural resources, we changed our agency's name to the NRCS in 1995. We were previously the U.S. Soil Conservation Service, which was formed in the 1930s to save soil, both windblown and water eroded. Over the decades, our efforts broadened to include all the natural resource concerns. We have an acronym, SWAPA, which defines our mission; the conservation and wise use of Soil, Water, Air, Plant and Animal resources.

The NRCS is a non-regulatory (we like to think of ourselves as the "white hat" wearers) agency providing service and managing Farm Programs for private landowners. While we have no enforcement authority ourselves, I believe our Service complements those government resource agencies who are charged with law enforcement and regulation. We provide technical consulting and assistance on natural resource conservation to private landowners who request it. We strive to raise the awareness of land owners about water and natural resource concerns on their property. We offer education on our conservation practices and financial incentives, cost-share, to install or implement them.

For example, the NRCS has been taking this "voluntary approach" to work with western Washington dairy farmers on improving water quality. For years the NRCS had been working with dairy farmers in this high rainfall area to "sell" them, with financial incentives, on animal waste control systems designed to prevent manure from flowing into water courses during the rainy months. We have a suite of conservation practices to capture animal waste in storage ponds and then apply this

liquid "fertilizer" to fields during the growing season.

Like many ecological science organizations we've matured in our understanding of the inter-relationship between natural resources. We have an impressive and diverse number of NRCS technical experts available to provide service to the public; in fields such as agronomy, hydrology, archeology, sociology, geomorphology, geology, wildlife biology, to name just a few. We employ these specialists at all levels in our organization, beginning at the Field Office level and moving up through Area Office, State Office, National Office, and finally to our three Regional Technology Support Centers. The NRCS operates the SNOTEL network of snowpack observation and data management platforms. Our Water and Climate Center in Portland, Oregon forecasts water supplies throughout the year for the western states.

Another area where the NRCS plays a big role in water resources is a less-well-known branch called the Resource Conservation & Development (RC&D) Program. This is where it gets challenging to explain because it is complex. In very simple terms, the concept of the RC&D program was created to: 1) look at and tackle bigger, regional natural resource projects; 2) bring diverse groups together to address a project or need within that region; and, 3) find funding to implement those projects.

In the 1960s a public law was passed to allow for the formation of an RC&D Council, an independent, non-profit, regional organization made up of local leaders from various units of government, tribes and private entities. Like any non-profit organization, the RC&D Councils seek funding through capital campaigns, grant funding (including private Foundations), and other sources to carry out their mission.

There are, today, 375 RC&D Councils throughout the United States, including in Puerto Rico, the Virgin Islands, American Samoa, Guam and Saipan, each a separate non-profit entity. The National Association of RC&D Councils, in Washington DC, is its own private non-profit, providing assistance and guidance to all the others. Each RC&D boundary is regional, often covering many counties.

What's the connection between NRCS and the RC&D Council? One of the first grants each Council applies for, to the Secretary of Agriculture, is for the NRCS Coordinator. The Coordinator is a liaison between the independent non-profit Council and the Federal NRCS. The Coordinator is not, as many believe, the Executive Director of the Council. Our role is just that, to coordinate the Council in fulfilling its mission. An RC&D mission runs down two tracks simultaneously, much like a train.

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One track is the natural resource concerns (thus the "RC" of its name) of its region and the other is the economic or community development priorities (thus the "&D" part of its name) within its region.

A local RC&D Council, along with its NRCS RC&D Coordinator, can be a key catalyst to move a large regional natural resources project forward. They can be instrumental in bringing together many and diverse partners on a common resource concern. And, this unique private/Federal team can be instrumental in securing funding from a great array of sources to implement that project.

The North Olympic Peninsula RC&D Council, for example, is presently working on a proposal to

seek funding from a large Federal agency. The project is to demonstrate the effectiveness of a stream-flow forecasting model as a useful decision making tool for a local watershed group, charged with managing valuable water resources within its watershed. This involves not only applying for and securing the funding, but building a team of partners, overseeing the role of each partner on the project, administering the grant, if received, and then demonstrating the tool's relevance on a national level. The National Association of RC&D Councils is one of our partners and will play a key role national distribution of results. ❧

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## The AWRA National Conference Arrives in Seattle

For over two years our Section has been preparing for the **annual conference of the American Water Resources Association to be held November 6-10 at the Red Lion Hotel in Seattle**. All this work has paid off and we can offer you a truly great conference. There will be 68 sessions with approximately 260 papers presented over a period of four full days! As always, the conference will cover the full range of water resources topics. Sessions of particular interest to us here in the Northwest include: panels on Salmon 2100 (Recovery) Project, Indian Water Resources Law, Dam Removal and River Restoration, and the Puget Sound Nearshore Ecosystem Restoration Initiative. There will also be special sessions on Headwater Systems and the restoration of Hood Canal. The conference plenary session features two highly prestigious speakers: Ex-Governor and Senator Dan Evans and Bruce Babbitt, former Secretary of the Interior. We also have a presentation on the Mars rovers and the search for water on Mars at our special Evening Night Event at the Experience Music Project (EMP) Museum!

In addition to an exciting and diverse technical program, AWRA-WA is organizing several social events and field trips. The evening EMP event at the Seattle Center, hosted by AWRA-WA for all conference attendees, is sure to be the highlight of the week. The museum will be open to conference attendees on Tuesday evening. Light foods will be served and this will be your chance to roam the halls of this fabulous place and wax nostalgic over the music of your youth! Dr. Adam Bruckner, Chair of the University of Washington's Aeronautics and Astronautics Department, will present some of his research into finding and using water to support inter-planetary exploration. He will also discuss last year's spectacularly successful Mars Rover Landings and their discoveries regarding water on Mars. Planned field trips include stream and wetland restoration projects, a tour of Seattle

Public Utilities' SEASStreet Low Impact Development project, a tour of the beautiful Seattle Watershed in the heart of the Cascade Mountains and a trip to the Olympic National Park and Elwha River Dam Removal Project. You won't want to miss these opportunities to view some of our region's most innovative water resources and restoration projects! We'll even lead a narrated "sea voyage" on the Bremerton Ferry Wednesday evening; an excellent opportunity for networking and viewing Seattle's incomparable skyline at night!

The AWRA-WA is also proud to host several events for student attendees. Special conference orientation events for students and opportunities for networking are being planned. A Student Career Night event is scheduled for Wednesday night featuring a panel of water resources professionals to speak to students about career opportunities in the field. Supporting the next generation of water resource professionals is one of our chapter's most important activities and we are sure these events will make the conference more accessible for students.

The last day of the conference, Thursday November 10<sup>th</sup> is devoted to Volunteers and will provide opportunities for nonprofessionals active in the water resource field to learn about innovative stream, wetland and estuarine projects occurring nationwide. This is a great chance for local nonprofits to gain knowledge and skills and we are excited to provide this forum.

As you can see, there are many exciting and educational opportunities the second week of November. On behalf of the entire Conference Planning Committee, we invite you to partake of this great opportunity and join us at the conference.

Pete Sturtevant and Tom Martin  
Conference Co-Chairs ❧

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## 2006 Board of Director Elections – November 10, 2005

*Immediately following the end of the National AWRA Conference in Seattle, the AWRA Washington Section will be conducting elections for the 2006 Board of Directors. All members are welcome to attend and to nominate other candidates, including themselves, for any of the positions. The board will elect members to the executive positions of president, vice-president, secretary, treasurer and editor at the first regular meeting of the board in January 2006.*

**Tom Martin Jr., P.E.** - Tom has served on the AWRA Board of Directors since 2001, co-chaired the 2002 Annual Conference, was Secretary in 2004, and is the outgoing president of the 2005 board. He will continue in 2006 as the past president.

**The 2005 Board of Directors is pleased to present the following candidates for the 2006 Board.**

**Scott Bender** - Scott is the Principal of Bender Consulting, LLC in Kirkland, Washington and is a hydrogeologist with over 20 years of experience in groundwater and surface water hydrology. He has a Masters degree in Hydrogeology from the University of Idaho and a B.S. in Geology from the University of Washington. His work focuses on water rights, litigation support, and groundwater control. He has won ASCE Engineering Excellence Awards for his groundwater control system designs for projects at the U.S. Embassy site in Bogotá, Columbia and at the Boston Central Artery in Boston, MA. Scott is a native Seattleite and enjoys fishing, hiking, and skiing.

**Tony Dubin** – Tony has worked as a water resource engineer with Brown and Caldwell since 1998. In that time, Tony has helped develop the Seattle office's water resource group into the company's regional center for hydrologic and hydraulic modeling, and lent his expertise to projects around the country. He is active in the latest developments in the stormwater control and combined sewer overflow issues, in Western Washington and Northern California. Tony has experience with major water management and conservation projects for the US Bureau of Reclamation in the desert southwest and development-related water rights and conjunctive use studies closer to home in Washington State. Tony has been a volunteer with the Seattle Chapter of Water for People since 2000. When not working or chasing after his young son, Tony enjoys biking, skiing, baseball and hockey.

**Carl Einberger** - Carl is a Senior Hydrogeologist and Water Resources Manager with Geomatrix Consultants in Seattle. He has been based in Seattle for the last 18 years, where he has worked as a consultant on multi-disciplinary environmental projects including water rights, water supply development, well rehabilitation, hydrology, abandoned and proposed mine investigations, contaminated site remediation and redevelopment, storm water management, and numerical groundwater and surface water modeling. Carl has a B.S. in Geological Engineering from the Colorado School of Mines, and an M.S. in Geology from the University of Wisconsin-Madison, and is a licensed hydrogeologist and engineering geologist in Washington. Carl is an avid photographer, hiker, and telemark skier, with two children who take pride in passing him on the ski runs.

**Steve Foster** – Steve is Water Resource Program Manager for the local office of HDR Engineering, Inc. and Regional Coordinator of their Environmental & Resource Management Business Class. Steve, a former Chief of Planning for the Seattle District Army Corps of Engi-

neers, served on this board from 1997 to 1999. His combined 37 years of experience in the public and private sectors have been primarily focused on water resource studies, projects and programs in the Pacific Northwest involving environmental restoration, flood control, navigation, hydropower, water supply and erosion control. Steve and his wife Pat have two adult children, Shannon and Michael. Steve enjoys biking, hiking, boating, fishing and skiing.

**Ken Gish** - Ken is a water rights lawyer in the Seattle office of Preston, Gates and Ellis, LLP. Ken's water law practice focuses primarily on assisting municipal clients obtain and secure adequate water supplies and ensuring compliance with the appropriate water quality standards. Prior to practicing law, Ken was a naval officer stationed on the submarine, USS San Juan. Ken lives in Seattle with his wife, Ellen and, when not working, enjoys cycling and hiking.

**David Hawkins** – David is a Tribal Attorney for the Upper Skagit Indian Tribe. He has represented the Tribe in the instream flow negotiations for the Skagit and Samish Basins, the Baker Dam FERC relicensing process, as well as other natural resource issues, including the Tribe's salmon recovery efforts. He is also co-counsel for the Tribe in U.S. v. Washington. Prior to becoming an attorney he ran a successful real estate company for 10 years with projects through out the western states. He is a native of Seattle and currently lives with his wife Bernadette and three children, Noah age 9, Ava age 3 and Lucas 14 months, in Anacortes. In his free time, when not chasing his children around, David enjoys cooking, hiking, basketball and sailing although he is currently without a boat.

**Jacque Klug**- Jacque is a Watershed Lead with the Department of Ecology. Her experience includes watershed planning, water rights administration, and policy development and analysis. She has a B.A. in Environmental Science from Duke University and a M.S. in Forest Resources from the University of Washington College of Forest Resources. In her leisure time, she enjoys backpacking, skiing, running, and restoring her Craftsman bungalow.

**Christopher Konrad** - Chris is a research hydrologist with the U.S. Geological Survey in Tacoma, Washington. He is involved with scientific research that informs a range of water-resources management issues in Washington State including the fate of sediments during dam removal, the hydrologic effects of land use, groundwater and surface-water exchanges, instream flows. Prior to joining the USGS, he worked as a research sci-

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entist at the University of Washington and as a hydrologist and environmental policy analyst with private consulting firms. He earned a B.S. in Biology from Stanford University and a M.S. and Ph.D. in Civil and Environmental Engineering from the University of Washington. Chris and his wife Katie live on Vashon Island with their two children. Chris spends as much of his free time as possible outside, biking, hiking, and skiing with his family and friends.

**Stan Miller** – Currently Stan is semi-retired doing water resources consulting under the business name of Inland Northwest Water Resources. Prior to venturing into retirement, Stan held the position of Program Manager for Spokane County's Water Resources Section in the County Utilities Division of the Public Works Department for over 20 years. The prime focus of the Water Resources Section is the regional aquifer protection program. In that capacity he worked toward integrating the groundwater protection efforts of all municipalities and water purveyors drawing water from the Spokane Valley-Rathdrum Prairie Aquifer on both sides of the Washington-Idaho state line. In addition to working on this program at the administrative level, Stan has developed technical information and conducted local studies on the potential impacts of storm water bio-infiltration on ground water quality and the interaction of the Spokane River and the Spokane Valley Aquifer. Stan's professional training lies in surface and ground water quality and environmental chemistry. Away from work, Stan enjoys canoeing, backpacking, running, and working on the restoration of a turn-of-the-century home.

**Jamie Morin** – Jamie is an attorney and a member of Mentor Law Group, PLLC, where her practice emphasizes water law, water utility regulation and related natural resource issues. Jamie assists clients with acquisition, transfer, and adjudication of water rights, compliance with public water system regulations, environmental review under SEPA and NEPA, and compliance with various state and federal environmental regulations. Prior to obtaining her law degree, Jamie worked as a policy consultant in Olympia, Washington, focusing on water resource management and policy, public water utility and local government issues. Jamie lives a truly water dependent life having just purchased a classic wooden yacht in which she hopes to spend more time on the water than on land.

**Chris Pitre** – Chris is an associate and senior water resources project manager at Golder Associates. He has been involved with the Washington State section of the AWRA since 1997 when he co-chaired the annual conference. He established and maintains the section's web site and has been newsletter editor for five years. Chris has undergraduate degrees in geology and chemistry, and a graduate degree in hydrogeology. He has worked with Washington's water resources since 1992, with a emphasis on watershed planning and integrated water resources management, water rights and policy, water supply management, and Aquifer Storage and Recovery (ASR). He is a licensed hydrogeologist in Washington and regularly lectures at the University of Washington.

**Tom Ring** - Tom is a hydrogeologist with the Water Resources Program of the Yakama Nation. He has held this position since 1990 and, in that role, has worked on a variety of projects involving groundwater and surface

water quantity and quality, water rights, irrigation and fisheries issues and planning for future water needs. Previously he worked for the Water Resources Program at the Washington Department of Ecology. Tom has Bachelors and Masters of Science degrees in geology from Central Washington University and Northern Arizona University respectively. He has taught geology and hydrogeology classes at Central Washington University and is a licensed geologist and hydrogeologist in Washington State. When not working, he enjoys hiking, climbing, and skiing in the mountains of the west.

**Cleve Steward** - Cleve Steward is a fisheries scientist and consultant with over 25 years experience and education in salmon and trout ecology and management, both as a government agency employee and as a consulting biologist. His firm – Steward and Associates – provides technical assistance in analyzing environmental impacts, complying with governmental regulations, and resolving conflicts involving fisheries and aquatic resources, with emphasis on water management, dams, watershed analysis, habitat restoration, and fisheries research and management. Cleve serves as scientific advisor to federal, tribal and state agencies engaged in the recovery of threatened and endangered salmon and steelhead in the Willamette and Lower Columbia Rivers. He is an avid hunter, fisherman, soccer player and youth soccer coach.

**Peter Sturtevant** – Pete is a Senior Water Resources Engineer at CH2M Hill in Bellevue. He works primarily on drainage and stream restoration projects. He has 30 years of experience in the fields of water resources and environmental impact assessment that has included water supply studies, water quality assessments, flood control, wastewater and water reuse projects. More recently his work has centered on stream stabilization and restoration. A proud Husky alumnus, Pete enjoys hiking, canoeing, sailing, and other water related activities in the Great Northwest and he bicycled across North America in 2002. Pete co-chaired the AWRA National Conference, which was held in December 1999 in Seattle and has also served as past chapter president. He is currently Co-Chair of the planning committee for the 2005 National Conference, which will also be held in Seattle.

**Mona Thomason** – Mona has worked for the U.S. Army Corps of Engineers since 1985. She is currently the chief of the Planning Branch for the Seattle District, overseeing the district's water resource development program. She supervises planners, project managers, economists, biologists, archeologists, and other staff. Projects include ecosystem restoration, flood damage reduction, navigation, and other water-related purposes. Before coming to the Seattle District, she worked as an economist at the Corps' Institute for Water Resources in the Washington D.C. area, and Los Angeles, Mobile, and Portland Districts. Mona received a B.S. in Economics from Lewis and Clark College in Portland, Oregon. In her spare time, Mona reads, gardens, does home improvement projects, and spends times with her daughters, Katie and Allie.

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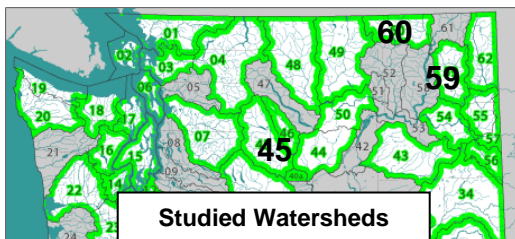
# Collaborative Policy Making in Watersheds: Understanding Implementation Progress in Washington State

By Tetyana Lysak, Washington State University, Department of Political Science

Collaborative approaches to natural resource management planning that emphasize decentralization, public participation, and flexibility in the crafting of solutions to environmental problems have become increasingly applied in the United States. In 1998, the Washington State Legislature enacted into law the Watershed Planning Act (WPA) that promotes the integration of policy efforts for instream flow and water use, water quality, and fish habitat issues. The WPA emphasizes cooperation among citizens, government agencies (federal, state and local), and Indian tribal governments to encourage stakeholders input to develop a watershed management plan.

This study looks at why certain collaborative watershed partnerships are more successful than others, as defined by the achievement of the goals of the Washington State Watershed Planning Act. The Wenatchee (WRIA 45), Colville (WRIA 59), and Kettle (WRIA 60) watersheds were selected based on the following criteria: a) a rural population density of less than 1,000 persons per square mile; b) approximately equal number of counties and tribes involved; and, c) stages of the planning process (the development of the watershed planning efforts, phase of planning (i.e., I, II or III and moving toward phase IV). The three watersheds are currently operating at very different planning stages, but have similar profiles.

A total of 30 field interviews were conducted with key participants involved in the collaborative watershed planning and decision making in three selected watersheds. The respondents were asked for their opinions and understanding of the watershed management issues being discussed. Among the questions asked were the following: (1) their role in the watershed planning process, (2) the collaborative efforts made in the watershed planning process by other major stakeholders, (3) the key reasons for collaborative successes the particular WRIA enjoyed, (4) the role of a facilitator (coordinator), (5) obstacles to collaboration, (6) the norms and rules that exist in their WRIs and (7) the role of leadership and social capital.



Relevant archival records such as computerized and quantitative data files-surveys done by others, governmental agencies' studies and manuscripts, and watershed planning groups' meeting transcripts and documents were located and are being studied. In

addition, secondary literature on collaborative watershed management, collaborative decision-making, natural and water resource policy, etc. was collected and analyzed.

Preliminary interpretation of the data reveal both challenges and opportunities of collaborative watershed planning for each of the WRIs investigated. The most important factors for success in collaborative watershed planning process are:

- a) Effective coordinators/facilitators;
- b) Inclusiveness;
- c) Trust and social capital; and,
- d) Repeat games.

The concept of repeat games represents an on-going process in which participants that interact regularly on various issues (e.g., people that interact on the long run, such as farmers, foresters, etc.) come to understand their community well and have an on-going relationship with the government agencies serving the area. Additional factors are:

- e) Norms and rules;
- f) Technical expertise;
- g) Continuity of representatives;
- h) Common vision of desired results; and,
- i) Clear organization and good communication.

The farther along a particular WRIA is in the four-stage process, the greater the collaborative success, because each stage requires more extensive collaboration to resolve pressing management issues before moving to the subsequent stages.

The factors affecting success in collaborative watershed management are currently not well understood. Future research should focus on the factors and conditions that likely contribute to collaborative success such as trust and social capital; that is why this study focuses on this specific area of concern. The findings observed in this study will have important implications for political scientists, governmental officials, and environmental groups for understanding collaborative watershed management. In addition, it will contribute to the broader theoretical literature on contemporary governance by hypothesizing on which theoretical approach provides the best explanation of factors that contribute to success and what factors maybe overlooked by existing theoretical frameworks.

**Tetyana Lysak** received a 2004 AWRA-WA student fellowship award, and will receive her Ph.D. in May 2006; she has worked in environmental organizations in the former USSR, Eastern Europe and the U.S.A., and most with the United Nations (Division of Sustainable Development). ☺

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## SALMON RESTORATION EFFORTS RECEIVE AWARD OUTSTANDING CONTRIBUTION TO WASHINGTON'S WATER RESOURCES

Each year the AWRA Washington State Section recognizes an individual or group who has significantly advanced the status of our state's water resources. This year the Section has chosen to recognize the collective efforts of people involved in several programs to restore salmon runs across the state. The award is being presented to one organization in each of the three major watersheds of Washington State where salmon are being recovered through community-based and collaborative efforts:

- [Lower Columbia Fish Recovery Board](#) • [Shared Strategy for Puget Sound](#)
- [Walla Walla Watershed Alliance](#)

In each of these watersheds individuals from diverse backgrounds, communities and disciplines have worked together over recent years to restore salmon. The AWRA Washington Section applauds the collaborative efforts of each and every individual who has participated in these organizations to establish objectives; to identify, prioritize and plan projects; and to take action to achieve salmon population recovery goals.

The award will be presented at the start of a Tuesday morning plenary session at this year's AWRA National Conference being held in Seattle, November 6-10. The Award comes with a \$500 contribution to a water resource organization. This year's contribution will be given to Washington Water Trust for use in increasing in-stream flows to improve aquatic habitat in the state. ☞

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### Upcoming Events

The Washington Section AWRA holds regular dinner meetings, including a social hour, dinner, and a speaker. Other meetings and conferences are listed on our website, <http://www.wa-awra.org>.

**October 27.** The 2005 Washington State Climate Conference "The Future Ain't What It Used To Be - Planning for Climate Disruption." <http://www.dnr.metrokc.gov/dnrp/climate-change/conference-2005.htm>.

**November 7-10, 2005.** AWRA 2005 Annual Conference. Red Lion Hotel Seattle, WA. [www.awra.org](http://www.awra.org)

**Washington Hydrologic Society.** Monthly meetings. For more information, contact Alan Black, at [ablack@hntb.com](mailto:ablack@hntb.com) or 425-450-2515.

**ASCE Water Resources Brown Bag Meetings.** The Seattle Chapter of the American Society of Civil Engineers Water Resources/Environmental (WRE) Group holds noon brown bag meetings every third Thursday of each month, unless conflicts with holidays occur on a variety of water resources topics. The location alternates each month between the consulting firm offices of HDR in Bellevue and Brown and Caldwell in downtown Seattle. See the Seattle ASCE Chapter website for information: <http://www.seattleasce.org>.

*Members: please submit events you would like included in future newsletters to: [cpitre@golder.com](mailto:cpitre@golder.com)*

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2005 Membership Application / Change of Address Form  
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Annual membership in the state chapter costs \$25.

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Check if you would like to be actively involved on a committee.  
You will be contacted by one of the board members.

2005 Membership Dues: \$25.00. **Checks only.** Please make check payable to **AWRA Washington Section.**

Mail to: American Water Resources Assoc. WA. Section  
P.O. Box 2102  
Seattle, WA 98111-2102

The American Water Resources Association is a scientific and educational non-profit organization established to encourage and foster interdisciplinary communication among persons of diverse backgrounds working on any aspect of water resources disciplines. Individuals interested in water resources are encouraged to participate in the activities of the Washington Section.

**Special Thanks!**  
**To Golder Associates for word processing and graphics support on this newsletter.**

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