



PRESIDENT'S NOTES



Planning Ahead

Joe Mentor, Jr., President, AWRA Washington Section

Wallace Stegner once said something to the effect that "a professional is someone who knows what to look for, where to look, and what to do with what he (or she) finds." These are skills that come with training, and that are sharpened by experience.

Professionals also learn that their chances of finding what they are looking for are greatly enhanced by recognizing strengths and weakness, and identifying opportunities; in order words, by planning ahead.

Our AWRA Chapter's Board is looking for ways to make our Chapter more successful. For this reason, we have engaged in a long-range planning exercise. Board member Chris Konrad, USGS, is chairing the Long Range Planning Committee. Former Board member John Hoey, Jones & Stokes, has volunteered to serve as facilitator. Our goals are pretty straightforward: to grow the organization, and to make the membership base more sustainable over time.

We recently had our first strategic planning retreat as Board Members, at Central Washington University in Ellensburg. The retreat was a great success. An unexpected benefit was to establish a connection with CWU's Natural Resources Graduate Program, which as Board Member Tom Ring, Yakama Nation, pointed out has much the same focus as we do. We spent time brainstorming new activities for the Chapter. We developed an outline for the strategic plan and identified our next steps to completing the plan. We are committed to developing a long range strategic plan for the Chapter over the next several months. The Boards intends to present the strategic plan to the members in November 2004, at our next annual meeting.

The first order of business for our strategic planning retreat was to clearly articulate our objectives for the Chapter. Our first objective is to grow the organization. Historically, most of our members have joined the organization by attending the annual conference. Over 500 people have attended at least one of our last five conferences. Yet the total membership in any given year never exceeds 150 people. In order to grow we need to recruit new members. More importantly, we need to do a better job retaining members who at one time or another decided to join the organization. We need your help with this. If you didn't attend last year's conference, please renew your membership. If you did attend, think about who you know in the water resources community who did not attend. Ask them to renew.

This leads to our second objective. We need to find ways to make the membership base more sustainable. We have been discussing ways to do so. One way is to provide more benefits to the membership. Another way is make the Chapter more relevant.

In the coming months we will be soliciting input from our members. We need your input. The Board can't sustain an organization without the support of its members. This is your organization, and we need your active participation to make it more successful. ☺

**ALL AWRA MEMBERS/GUESTS/FRIENDS/FAMILY ETC. are invited to a
networking/hot topic/friendly chat/idea sharing/no host/no fee**

social happy hour

at the

ROCK BOTTOM BREWERY

550 106th Avenue NE, Ste 103, Bellevue, Washington

Friday, June 4th

We're going to try this out and see if anyone is interested -

HOPE TO SEE YOU THERE!

Here Come the Plans! The State of Watershed Planning in Washington

Jacqueline Klug, Washington Department of Ecology, Seattle, WA.

It has been six years since the Watershed Planning Act was passed and approved by the Legislature and Governor. Communities in 45 of the state's 62 water resource inventory areas (WRIAs) have chosen to take on the task of developing a locally based plan to manage water resources in the watershed. After years of meeting, investigating water issues and deliberating different management solutions, the first few watershed planning units have reached their goal of developing a final management plan. The Nisqually Watershed Planning Unit became the first plan in the state to be approved when it was signed by Pierce, Thurston, and Lewis Counties on April 13th, 2004. A few other watershed planning units have released draft plans and are waiting for final county approval. Many more watershed plans are due from planning units in the upcoming year (18 by the end of 2004). With the release of these plans, it seems like an opportune moment to review the process by outlining some of the findings and recommendations contained in the first wave of plans.

Required Elements of the Plan

While the *Watershed Planning Act* provides considerable flexibility to local communities regarding the issues they address and mechanisms for assessment, the Act does require each planning unit to de-

velop an assessment of water availability. This assessment includes how much water is physically available, how much has been appropriated, how much water is actually being used, and how much will be needed in the future. The plans are also required to identify groundwater recharge areas, and develop strategies for providing water for meeting all needs for water including fish and people. Optional elements that may be addressed include water quality, fish habitat and instream flows. Upon approval by the planning unit and the participating counties, the Department of Ecology (Ecology), is required to implement the recommendations through rule making, if necessary. If the local government accepts obligations, they must adopt necessary ordinances or take other actions to fulfill their obligations as soon as possible. Ultimately, the plan will be viewed as an expression of the public's interest and will influence the issuance of water rights in the watershed.

Common Findings and Recommendations

Watershed planning, by its very nature, is a place-based planning process that is intended to create specific plans tailored around the unique facts and issues of each watershed. Consequently, the recommendations and findings of the plans logically vary from watershed to watershed. Each watershed has

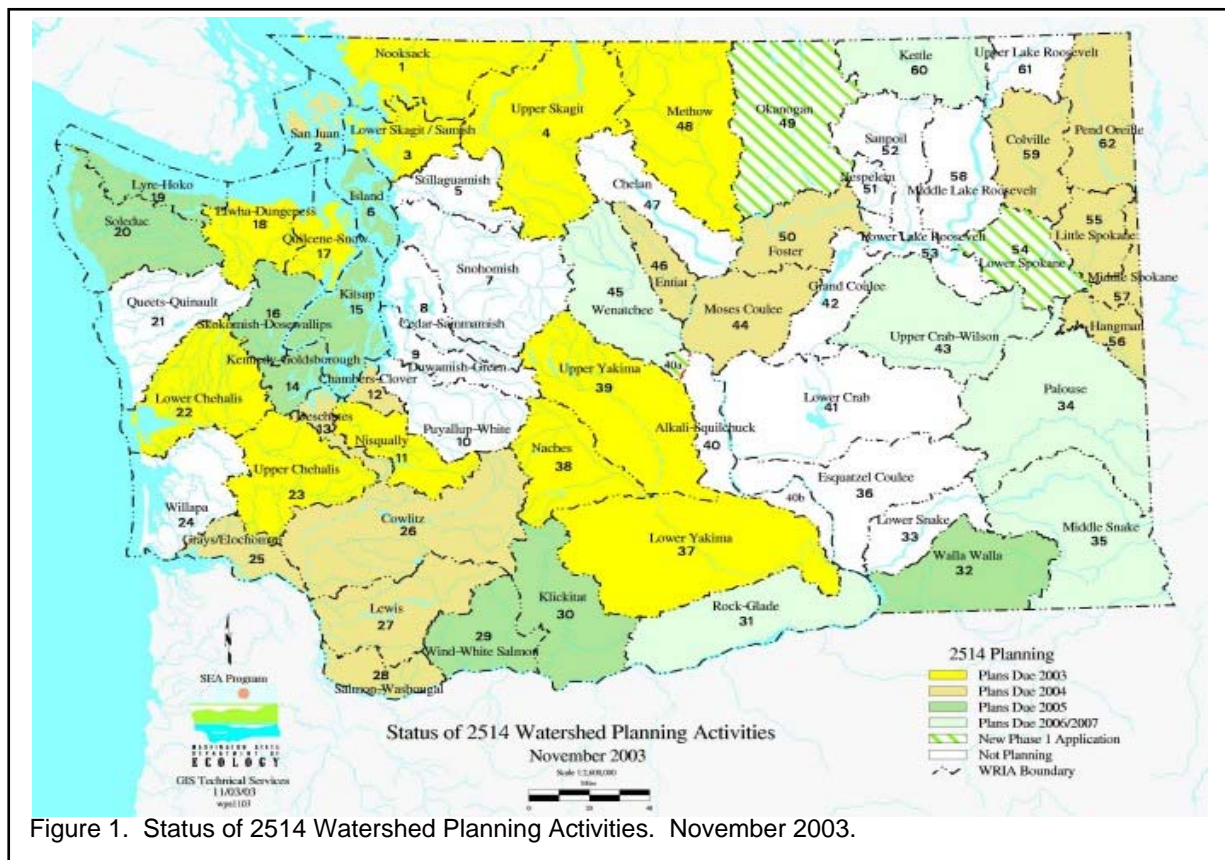


Figure 1. Status of 2514 Watershed Planning Activities. November 2003.

its own set of hot issues—whether they are stormwater, seawater intrusion, irrigation inefficiencies, addressing illegal water use or resolving outstanding water rights disputes. Despite these differences, there are some general themes seen in the released plans and some common solutions proposed.

Water availability and securing new water sources for growing populations are common themes emerging in all watersheds. Closely related is the concern for timely processing of water rights by Ecology. To address these issues, a few of the planning units have proposed developing a regional water supply source that could serve future growth in the region. There have also been recommendations for greater local involvement in the administration of water rights as a method to expedite the processing of water rights. Of the plans released thus far, many recommend establishing or fostering water markets and helping facilitate transfers of existing water rights to solve future water needs. Some watershed plans have gone as far as recommending adjudications to clarify the existing water rights in the basin. Greater regulatory presence by Ecology, through the establishment of water masters or some other means has also been suggested to help managing water rights. Curtailing the proliferation of exempt wells is yet another issue which many watershed groups are attempting to address. There have been proposals requesting that both Ecology and local governments play a greater role in management of exempt wells.

In watersheds across the state, local communities are coming to understand that water resources and land use are inextricably linked. Thus, watershed planning units are discovering that land use activities have a significant impact on the quantity as well as quality of water. For instance, groundwater recharge is being altered from land use which impacts both ground and surface water quantities. Consequently, planning units are recommending actions to address stormwater runoff such Low Impact Development pilot developments, or updating county Critical Aquifer Recharge Areas or Critical Area Ordinances required under the Growth Management Act to protect water quantity and water quality.

In several watersheds planning under the *Watershed Planning Act*, the planning process is being used to establish instream flow rules or amend existing ones. Under this capacity, the planning units have conducted instream flow studies to recommend the es-

tablishment or modification of existing instream flow rules. Regardless if the planning units directly chose to take on the instream flow component of watershed planning, all watersheds are required to develop strategies for satisfying minimum instream flows for fish. Solutions for achieving instream flows include buying water rights for instream flow purposes, promoting water conservation, and exploring the use of reclaimed water to help augment water withdrawals in critical flow periods.

Next Steps: The Challenges of Approval and Implementation

After the watershed plan is approved by the watershed planning unit, the plan must clear another hurdle. All plans must be approved by all participating counties in the watershed. A problem which has emerged from the first few plans is that many of the recommendations are more conceptual rather than specific. Therefore, it may be difficult for governments to accept vague obligations. With constraints of limited funding, approaching deadlines, and the need to develop a plan that all parties could agree on, it is not surprising that the plans addressed general concepts rather than created specific recommendations. Consequently, the implementation phase will likely include refining the management recommendations, in addition to establishing an implementation framework and plan.

Refining the recommendations, gaining final approval from all parties, and structuring and funding implementation of the plan are all challenges that lie ahead for the planning units. The plans might not meet all the parties' expectations, but the plans have gathered needed information and present a good roadmap for how water could be managed in future. Watershed planning might not be the "fix" that many envisioned, but it is not a failure. Several of the issues related to water management in Washington State are likely too large to be tackled on a watershed scale, causing some to think the entire system of water management needs to be changed, from laws to human behavior. The watershed plans might not induce all of the needed changes, but it has spread the message to the local level that all parties need to compromise in order to sustain use of the state's water resources. ❧

Note: The opinions expressed in this article are those of the author alone and do not necessarily represent those of the Department of Ecology.

Red alder on the rise – making a comeback both economically and ecologically

Carol Volk, College of Forest Resources, University of Washington

There are two icons that have called much attention to the Pacific Northwest (PNW), big coniferous trees and anadromous salmon. The survival of both of these legendary icons has merged as we have learned the importance of upland and watershed processes to aquatic ecosystems and salmonid populations. However, today when we look at the forest composition of watersheds there is another very prominent tree species, red alder (*Alnus rubra*). It's a nitrogen-fixing, deciduous species that doesn't usually make the top billing as an icon of the PNW. Although this tree has been seen as a trashy, soft wood in the past, it is making a comeback-- both as a profitable, harvestable species and as an ecologically important species. With a domestic market price of \$645 (POND value) the economical value of harvesting alder is easy enough to point out. For a similar quality log alder is second only to Western Redcedar (\$1000 POND) and surpasses hemlock, spruce, and Douglas-fir. However, the ecological advantages to having alder within the watershed is still under scientific question. Over the past five years we have investigated the influence of riparian red alder on the entire food web of aquatic communities. We have scraped algae off rocks, caught flying and swimming bugs, and fished for four inch trout in the streams of old-growth forests and adjacent red alder watersheds of the Olympic peninsula--all to figure out if we should pay attention to the young sprightly alder forests as much as the ancient old-growth forests.

Red alder is a deciduous, nitrogen-fixing tree species that has been a part of the PNW landscape for thousands of years, even dominating the forest composition in SW Alaska during the Late-Holocene. It is a primary successional species, and is currently known for its prominence in floodplain areas and harvested watersheds as it can quickly regenerate in disturbed areas. For centuries stands of alder have been known as nutrient-rich islands in the forest, with as much as 50 kg N/ha/year being deposited into surrounding soils. This nitrogen and associated nutrients is often utilized by soil microbes and fungi as well as surrounding plants. Recent studies have also shown that these nutrients can be flushed from upland soils and transported into stream and river systems, subsidizing the nutrient cycle of aquatic ecosystems.

In the past few years we have found streams with prominent alder populations in the riparian area to have increased amounts of both dissolved and particulate nutrients when compared to old-growth coniferous forested streams. This trend has been observed in both surface and groundwater and has included higher levels of nitrate, phosphate, total nitrogen and phosphorus, magnesium, calcium, and iron. Specifically, we observed a strong relationship between the percent of alder within the watershed and the surface water nitrate concentration (Figure

1). This trend has also been found in coastal Oregon and southeastern Alaska (Piccolo and Wipfli 2002; Compton et al. 2003). These nutrients are often available for uptake by microbial communities and algae, both of which are important food resources for a variety of aquatic organisms.

We have also observed that the benthic algal film

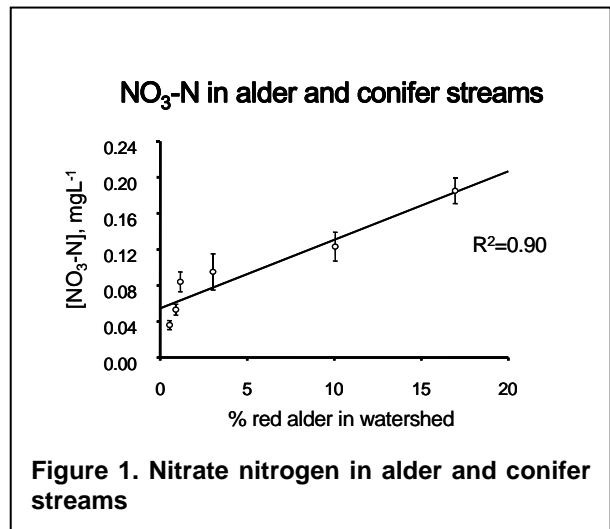
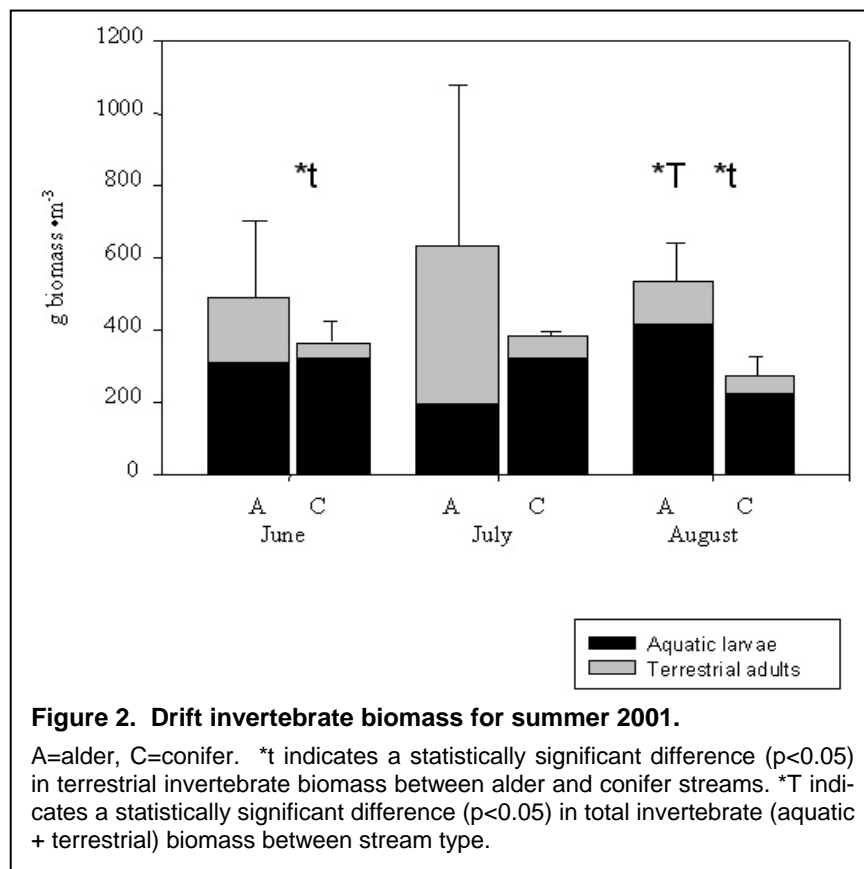


Figure 1. Nitrate nitrogen in alder and conifer streams

coating streambed rocks is much thicker in alder streams and also enriched with phosphate, presumably due to the high concentrations of phosphorus within the water column. Increased algal biomass was observed in spring and fall seasons while summer and winter algal biomass was similar between coniferous and alder dominated streams. Many factors beyond nutrient resources, such as light availability and grazing can also control algal biomass. In the summer sampling, we suspected that high counts of grazing invertebrates during summer sampling controlled algal biomass rather than nutrient limitation. Not only is thicker algae on rocks a challenge to the most dexterous of stream ecologists to stay on their feet, but it suggests that there are ample food resources for grazing aquatic organisms.

If there is more algae and leaf litter in alder streams, it makes sense that the animals feeding on these resources would go wild with skyrocketing population booms in alder streams. We have observed at least 3-4 times the amount of terrestrial and aquatic adult invertebrate populations in alder streams than found in old-growth ecosystems (Figure 2). The biomass of drifting invertebrates, a common food resource for fish populations is also greater in alder than conifer streams. This translates to a buffet bar of food resources for fish as well as other insectivores, like birds and bats that prefer to feed in riparian areas. The diversity of aquatic invertebrates is also higher in alder streams, contributing to the idea that plentiful resources promotes a plentiful selection of species—which can be useful when disturbances wipe out



populations and functionally equivalent species surviving the disturbance flourish.

Although fish aren't quite as interested in the biodiversity of alder forests, the higher abundance and biomass of invertebrates attracts the attention of fish populations. Some of our preliminary results suggest that higher levels of specific essential fatty acids are found in fish from alder-dominated streams. The growth rates of fish are still under investigation, but soon we hope to know if fish from riparian alder patches have faster growth rates than coniferous counterparts.

Both the quantity and quality of aquatic food resources in alder streams make them an important compartment of the habitat network of freshwater ecosystems. We obviously do not condone the logging of old-growth forests and replacement with alder as old-growth forests offer a multitude of resources and habitat for terrestrial and aquatic resources, but we do suggest that riparian alder is making an important and functional contribution to aquatic ecosystems and shouldn't be logged or moved in favor of replanting coniferous species. Although known as a cheap wood in previous years, recently the sales price of alder has skyrocketed, making it a profitable harvestable material. Despite the economic boom of alder, the nutrient resources and habitat provided by alder forests isn't ecologically overshadowed.

It is still crucial to freshwater ecosystems to have sources of coniferous forest throughout watersheds to provide large woody debris, shade, and upland habitat, yet alder is also a functionally important part of the landscape that should be integrated into forest management plans rather than replaced by coniferous forests. While coniferous areas provide stable large woody debris resources that maintain ample physical habitat for aquatic organisms, riparian alder patches may be providing ample food resources that aren't as available in other sections of the watershed. Allowance of this heterogeneous landscape of alder and conifer provides a variety of habitat resources for aquatic organisms and their predators.

In the end, after nubbing down at least five toothbrushes for scraping algae, counting hundreds of thousands of bugs under the microscope, and enjoying several weeks of 'fishing' on the peninsula over the years, the answer is Yes. The nutrients from alder forests appear to supplement aquatic ecosystems, providing an extra boost of nutrients that are not always available in old-growth forests. These nutrients are taken into the food web and translate into more algae and invertebrates, and potentially more or larger fish as well. Alder is just one of the many nutrient resources available to freshwater ecosystems, as nutrients from red alder play a similar role in freshwater ecosystems as the salmonid carcasses deposited after anadromous spawning. Alder might not be the complete answer to food resources for anadromous salmon fry, but it is certainly one supplement that may aid anadromous fish fry and resident fish species make their own comeback. ☺

Compton et al. 2003. Nitrogen export from forested watersheds in the Oregon Coast Range: the role of N₂ fixing red alder. *Ecosystems* 6:773-785.

Piccolo, J.J. and M.S. Wipfli. 2002. Does red alder (*Alnus rubra*) in upland riparian forests elevate macroinvertebrate and detritus export from headwater streams to downstream habitats in southeastern Alaska? *Can J Fish Aquat Sci* 59: 503-513.

April Dinner Meeting Review

By: Carolyn Butchart, CH2M Hill

Mr. Alan Stay, Muckleshoot Indian Tribal Attorney, was the AWRA 2004 2nd quarter dinner guest speaker. Mr. Stay talked about his role with the Muckleshoot Indian tribe and their perspective on the Endangered Species Act (ESA).

Mr. Stay began his presentation with an overview of Indian life in the Pacific Northwest before the 'white man' came and conquered. Indians lived off the land – nothing more, nothing less. Indians fished and preserved.

There were two alternatives for white man to settle on the land that the Indians lived on, treaty or kill. The crown of Spain and Portugal promoted treaties between the Indian and white man. Treaties were/are supreme law, they override ALL other law. Nonetheless, killing was a faster (more convenient and economic) way to obtain land. In all fairness though, a number of treaties were signed between white man and Indian.

Unfortunately these treaties were re-interpreted through time which resulted in less and less land and water and fishing for the Indian. Mr. Stay used the following analogy to help the audience interpret the position of an Indian. The question posed – “what is the one thing you would keep if you were told to give everything else you own away? What is the most precious ‘thing’ to you, that you would keep?” For the Indian the answer was ‘source of life, their right to fish’. Decades, and now century later, you are asked to give up that one thing that you were allowed to keep when you had to give up everything else you cherished! Now the ‘white mans’ ESA has declared salmon endangered and/or extinct, and consequently the Indian has to give back the one thing they were allowed to keep!

Mr. Stay made it clear that in the Indians perspective, other things need to be addressed before they are told they cannot continue their basis of living. Water passage, allocation, and quality for starters.

The Indians have always had an inherent (unwritten) understanding of conservation – if the natural resource was low, the Indians respected and complied with that. In this situation however, they do not feel it evenhanded to be restricted to fish while other threatening issues need to be corrected that will enable the salmon runs to be as plentiful as they once were.

Someone asked Mr. Stay what got him interested in working with the Indians. Mr. Stay replied that he was working on a college project that brought him to an elderly Indian woman's house in the middle of nowhere. After his work was finished, he went back to his car only to find he had a flat tire. The woman's son offered to bring him back into town, over a 2-hour round trip for the Indian boy. When Mr. Stay returned to retrieve his car, the flat tire had been changed and the car washed. From that day forward Mr. Stay found an appreciation and beauty in the Indian people and has been dedicated to their cause ever since.

Mr. Stay has represented Indian Tribal legal fish and wildlife interests for over three decades. He started his career with the Navajo Tribe in 1971 after graduating from the University of Washington Law School. In 1974 he began work for the Muckleshoot Indian Tribe on the case leading to Judge Boldt's decision in the early 80's defining the Tribe's share of salmon harvest. For the next 15 years, Mr. Stay worked for the Colville Confederated Tribes involved in legal work related to natural resource management. In the last 7 years, he has returned to the Muckleshoot Indian Tribe addressing Endangered Species Act and related fish and wildlife management issues for the Tribe.

Mr. Stay has played a key role over his career in shaping the Muckleshoot Indian Tribe's policies and actions with regard to management of their natural resources. His work, concerning fish and wildlife, has always been at the central focus of tribal culture. ~~~

June Dinner Meeting

Making Low Impact Development (LID) a Reality in Residential Communities

Featuring: Len Zickler

AHBL, Inc.

Wednesday, June 23, 2004

5:30 Social and Dinner, followed by the Program at 7:00 p.m.

At Hale's Ales Brewery and Pub, 4301 Leary Way NW (in the Fremont neighborhood of Seattle)

On-line directions can be found at <http://www.halesales.com>.

Low Impact Development (LID) is an environmentally sensitive approach to land development and stormwater management that is designed to preserve the land's natural hydrologic conditions. LID strives to mimic nature by minimizing impervious surface, infiltrating stormwater through biofiltration and bioretention facilities, retaining contiguous forested areas, and maintaining the character of the natural hydrologic cycle. AHBL is collaborating with Puget Sound jurisdictions to develop low impact development standards for their communities. As a result of this collaboration, AHBL is involved in a LID pilot housing project, "The Meadows", a partnership between Pierce County and a private developer.

AHBL principal, Len Zickler, AICP, ASLA will present information about LID, focusing on how it can protect and restore our communities from the effects of sprawl and deterioration of the environment utilizing "The Meadows" as a case study. Len is a recognized leader in LID, presenting at the U.S. Green Building Council's Greenbuild conference in 2003 as well as to the American Institute of Architects, Washington E&A Services, and King County.

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English translation now available: *The Public Fountains of the City of Dijon*, by Henry Darcy, 1856

For the first time, *The Public Fountains of the City of Dijon* by Henry Darcy has been translated from its original French to English. This book is a full-length translation of Henry Darcy's account of the water supply system he built in Dijon, France in 1840. "Written in 1856 as an engineer's guide to water and the construction of water supply systems, the book is an encyclopedia of mid-18th century knowledge of water, wells, springs, pipe-making, and other topics. In an appendix devoted to water filtration, Darcy describes the experiments that led to the formulation of the law of water movement through sand that we know as Darcy's Law."

From the foreword by Dr. Jack Sharp, Jr. of the University of Texas, "Patricia Bobeck's wonderful translation opens a window into the engineering science of the early 19th century, its challenges, and its modern implications. Scientists, engineers, policy analysts and the well-read general public will find this a most intriguing volume." This translation contains 28 plates of Darcy's engineering drawings that were originally published as a companion volume to the 647-page French text. ∞

To order *The Public Fountains of the City of Dijon*, contact: Kendall/Hunt Publishing Company, Phone: 800-228-0810 or 563-589-1000, FAX: 800-772-9165 or 563-589-1046, E-Mails: orders@kendallhunt.com

Upcoming Events

AWRA – Washington Section Social Happy Hour will be held June 4th at Rock Bottom Brewery in Bellevue. This event is for the purpose of networking, hot topic, friendly chat, idea sharing discussions. No host, no fee. AWRA members and friends are invited.

AWRA – Washington Section June Dinner Meeting featuring Len Zickler on June 23rd. Please see the meeting announcement on the front page of this newsletter.

AWRA national, regional, and state conference meeting schedule. <http://www.awra.org/meetings/>.

Washington Hydrologic Society. Monthly meetings. Brian Drost at (253) 428-3600 ext. 2642 (bwdrost@usgs.gov) or Llyn Doremus (360) 592-2632 (ladoremus@aol.com).

Members: please submit events you would like included in future newsletters to: smaunz@golder.com

About the Newsletter. *This newsletter is a publication of the Washington Section of the American Water Resources Association. It is published bi-monthly or quarterly. This is a forum for members to share ideas and opinions. Opinions expressed in the AWRA Newsletter are those of the authors and do not necessarily represent the official position of the AWRA – Washington Section. Comments on articles are welcome.*

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Submissions are welcome for the July-Aug-Sept, 2004 newsletter. *The submittal due date is July 7, 2004. The editor reserves the right to make changes for reasons of length, grammar, or clarity. Contact Sandra Maunz at 425/883-0777, or send submittals directly to: smaunz@golder.com. Recent newsletters available online at: www.wa-awra.org.*

2004 Membership Application / Change of Address Form
(☞ please circle, as appropriate ☜)

Annual membership in the state chapter costs \$25.

(If you attend the 2003 November Conference, your conference registration includes 2004 membership.)

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Please indicate if you prefer to receive your newsletter electronically.

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

2004 Membership Dues: \$25.00. **Checks only.** Please make check payable to **AWRA Washington**

Section.

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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 Inc. for document processing and graphics support on this newsletter.

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