

---

## Owner, State, U.S. Agree to Split Stream-Repair Cost

by Ross Anderson Seattle Times staff reporter, Copyright © 2000 The Seattle Times Company

*Editor's note: A representative of the Simpson Timber Company will be presenting on the topic of this article at the conference "Water Marketing in Washington: Negotiating for the Future" November 15 at the Seattle Art Museum. See inside for details.*

SHELTON, Mason County August 3, 2000 - As Washington waterways go, Goldsborough Creek is hardly a familiar name.

Even folks in Shelton, where the creek drains 80 square miles of Olympic Peninsula timberland, are not sure where to find it.

But big things are about to happen here. After 79 years of captivity, Goldsborough Creek will soon run free again.

Just days after Snake River dams got an indefinite federal reprieve, public officials and private land-owners yesterday unveiled an agreement to remove obsolete Goldsborough Dam and restore the salmon stream.

Beginning next spring, Goldsborough will be the first substantial Washington dam to be removed in an effort to restore habitat for endangered salmon runs, officials said at a brief ceremony.

"We're going to do this all over the state," said Rep. Norm Dicks, D-Tacoma, who helped get federal money to help pay for the project.

State officials say there are about 1,000 dams in Washington, from Grand Coulee to lesser-known spans like Goldsborough.

It is an ancient structure, about 100 feet long and 14 feet high, constructed of wood and crumbling concrete. It spills a broad stream of water into a shallow gully lined with moss-covered rocks, broken concrete, ferns and alder trees.

It is in a second-growth woods behind a Ford car dealership a few hundred yards west of Highway 101 outside Shelton. Local sportsmen fish below the dam for steelhead, coho and cutthroat trout.

Built in 1921, it once supplied electricity for Shelton, then diverted water to the big Simpson Timber mill. Simpson owns the dam and much of the land around it.

Perhaps the biggest contrast to Snake River dams is the politics. All parties have agreed the dam should go.

"There is consensus in the community that this is the right thing to do," Dicks said yesterday. "And I loove consensus."

But there are some parallels to the larger, more controversial dams.

Goldsborough Dam was built with little regard for migrating fish. It effectively cut off about 14 miles of freshwater habitat that once supported healthy runs of coho and chum salmon, steelhead, cutthroat trout, perhaps even endangered chinook.

A fish ladder was once built, but the spillway has gradually eroded the streambed, digging a chasm impassable for fish.

A dramatic act of nature led to its impending demise, said Jerry Ficklin, an environmental manager at Simpson. Three years ago, a "100-year flood" inundated the creek, washing out parts of the dam and leaving it useless to the company, he said.

With Puget Sound salmon stocks teetering toward endangered status, Simpson's owners decided the time was right to restore the stream, Ficklin said. "The owners are very serious about stewardship of the land," he said. "It's a family philosophy."

The company negotiated with state and federal authorities, who will share the estimated \$4.8 million cost of removing the dam and restoring 2,000 feet of streambed.

The company will pay \$1.1 million, and will turn over most of the water rights to an environmental trust, Ficklin said.

"This is not a small project," said Jim Fraser, a state fish biologist. "This is more like a small river than a creek. But it is a very doable project. There is lots of good fish-rearing habitat upstream."

Once the dam is gone, the challenge is to remove an 80-year load of silt and debris above the dam and use it to fill the streambed below.

The project offers a taste of what engineers would face in dismantling Snake River dams, with vast quantities of debris.

"We should learn something here at Goldsborough," Ficklin said. "We're setting up time-lapse cameras to monitor the streambed. We hope to learn what happens when you remove a dam - what lives and what doesn't. So when we take out a larger dam, we'll have a better idea what to expect." ~~~

---

<http://earth.golder.com/waawra/>

---

---

# A Mid-Term Report on 4(d) Rules and Processes

by Keith Wolf, Senior Biologist – Golder Associates Inc.

**Taking Notes:** Last winter I wrote an article for the AWRA newsletter entitled "The New 4 (d) Rules - ESA Oz or Path to Effective Environmental Auditing and Response Planning? The premise of that article was that the 4(d) rule-making process had the potential to: 1) bamboozle and bewilder both people and fish; or, 2) produce some tangible results and provide a bona fide coping pathway for managing human activities under the Endangered Species Act. Well, I'm here today to report some noteworthy mid-term progress and describe some encouraging and credible planning developments.

**Reports:** Given several lofty goals and broad claims being made about this time last year, the task of actually attaining *ESA Nirvana* fell directly upon scientists, state, federal, tribal and local governments, and notably: the *Butcher, the Baker, and the Candlestick maker*. Most impressive has been the response by the public. Out of the woodwork has come those with no previous perspectives on fish biology, habitat ecology, harvest rates, hydro-power operations, hatchery science, and advanced notions such as the Pacific Decadal Oscillation, to meet the challenge head on. Nonetheless, it continues to take no less than a comprehensive stakeholder (*geek speak* for "the public") to successfully negotiate our way through ESA.

Cooperative and collaborative participation has been the solution. This is especially vital given the enormous challenge of dealing with the largest and most complex listing of a single species in the history of ESA. Even six months ago it seemed almost impossible to deal pragmatically with the listing of Puget Sound chinook, especially given the significant urban context in which it occurred. But now, and mainly because of a successful merging of science, public policy, and locally-led ecosystem approaches, our attempts to address the listing deserve more than a passing grade, or at the very least, and "A" for effort.

**Homework:** Considerable work remains, and we must answer several questions in the affirmative to get an A+ and extra credit points (no curve on this test). Questions like:

*Can we actually implement comprehensive conservation plans, such that, recovery of chinook and bull trout is attained within a reasonable time-frame?*

*Are recovery programs reasonable given competing needs of people and salmon?*

*Is the "best available science" being applied?*

*Will these programs provide enough protection to avert future listings for coho and sea-run cutthroat?*

Finally, *Will these programs stand the test of four principles required under the 4(d) process?*

1. **Substance:** Science-based; provisions, criteria, and requirements are based on sound science that is protective of the target species;

2. **Certainty:** Adequate funding or funding mechanisms are available; adequate personnel are available to implement programs and plans; enforcement capability is adequate; and protective measures are required, not voluntary;

3. **Monitoring:** To ensure implementation and effectiveness; and,

4. **Adaptive Management:** On-going evaluation to improve standards, methods, and approaches.

**A Note From the Office:** Today's rules, and those envisioned for the near future, contain guidance on what category of activities are most likely to cause some harm or injury to listed fish, like irrigation diversions that dry up spawning and rearing habitats or construction activities in a stream that crush salmon nests during spawning season.

"Our approach to enforcing these rules will be based upon old-fashioned common sense and good science," Stelle said. "We'll look to those harmful activities that clearly kill salmon, like bulldozers in streams with spawning salmon, and we'll look to other federal, state or local conservation efforts to address more marginal activities that may, nonetheless, have cumulative effects on the listed fish and their habitats," Stelle said. Because the approach is so new and the rules so detailed, NOAA Fisheries said it will embark on a series of workshops in California, Oregon and Washington beginning in July to explain the new approach to citizens. The rules themselves, except for those provisions applying to steelhead, won't go into effect until December. The provisions applying to steelhead, which are essentially identical to those governing chinook, coho, chum and sockeye, will become effective September 8, 2000, because their schedule is governed by a court order. Salmon ESUs effective date is January 6, 2001.

**The Golden Rule:** The Tri-County effort, a voluntary assembly of local governments, tribes, environmental coalitions and business coalitions have joined together for the common purpose of recovering salmon and responding to listings under ESA. The Tri-County plan is being presented in anticipation of its fitting within NMFS' 4(d) rule released July 10, 2000.

The Tri-County plan focuses on the one area where local governments and organizations can have the greatest benefit – salmon habitat. In order to protect existing habitat and prevent further degradation over the next few years, the plan will change how government conducts its own operations and those vital activities it permits.

---

Over the long-term, the plan would recover salmon by: restoring critical habitat; concentrating on watershed-based recovery efforts; and monitoring efforts to evaluate success. The proposed Tri-County salmon protection plan covers the following:

- **Roads:** Best management practices would reduce sediment and erosion and restrict repair work, except in emergencies, during spawning.
- **Stormwater Management:** New guidelines would require implementation of new methods of catching and treating stormwater.
- **Land-use and Development Regulations:** Construction and other development near salmon-bearing water bodies would face increased scrutiny under the Tri-County plan. Those projects near water would have to either follow prescriptive guidelines or conduct a scientific evaluation on the impact to fish before any permits could be issued.
- **The Built Area:** This "options" document is in draft form and spells out specific habitat assessment methods and implementation strategies.
- **Habitat Acquisition and Restoration:** Providing usable, high-quality habitat for returning salmon and other species.
- **Watershed-based Recovery Plans:** Long-term salmon recovery plans would be created for individual watersheds by local governments, businesses, environmental groups, and others.
- **Adaptive Management:** The plan establishes system to monitor salmon recovery actions, gather information, evaluate new methods or approaches, and implement necessary changes over time.

The NMFS and USFWS will be reviewing the plan and discussing it with the Tri-County participants over the summer. It is possible that the plan will change, and it is expected to be published for public comment before being finalized.

The USFWS will be reviewing the Tri-County plan to ensure that their rules for the bull trout are coordinated with NMFS' 4(d) rule for chinook.

**Review:** The West Coast 4(d) rule and the Tri-County effort are only two examples of "common purpose" planning. Many other examples exist in places like Pacific and Klickitat Counties, with the Colville and Skagit River Tribes (SSC), and within many cities, counties, and multi-purpose governments. The take-home message here is that literally thousands of citizens are now wholly engaged in the planning, implementation, monitoring and reporting programs, all aimed at salmon recovery and habitat restoration. While tremendous efforts on behalf of salmon preceded the initiation of 4(d), this level of across-the-board involvement was not the case before listing of Puget Sound chinook. Our past record of accomplishment, or lack thereof, was based primarily upon opportunistic approaches. Up until very recently, we latched onto "silver bullet" mentality and paid far too much

attention, and money, to those promising simple answers. The 4(d) process has taught us there is no such thing. There never was any free (school) lunch. We now are conducting our salmon recovery business under the correct assumption that it will take a lot of very hard work and adept thinking to be successful.

Perhaps one of the most significant gains in the last six months has been this realization of past mistakes and failing grades. The 4(d) process and other parallel efforts have thus enabled a much higher level of strategic thinking and planning. Now, it is the actual recovery planning process that guides us. These plans spawn (*sorry*) the actual restoration, protection and recovery projects. The final step is funding and implementation. The strategic planning process ensures we are doing the right projects, in the right order, and spending money the right way. We've learned to look before we leap, and think before we spend.

Important programs like the Tri-County forum, and equally notable efforts underway in the Cities of Everett and Renton, the Agriculture, Fish and Water discussion, The Forests and Fish Plan are in the implementation queue. And, the Governor's Salmon Recovery initiative, the Salmon Recovery Funding Board, and its locally-led salmon habitat recovery processes, are contributing to a comprehensive charting for the future of salmon, steelhead, bull trout, and other species.

**Mid-Term Grades and Exams:** The need for continued coordination between all the parties involved is considerable. The groundwork for conducting assessments and engaging effective response planning has been laid. It seems we're all pointed in the right direction. However, to be successful, actual implementation of well-developed plan elements is the next critical assignment. Monitoring results and adaptively managing the outcomes will follow. Likewise, continued improvements in the delivery of science, overall funding mechanisms, streamlined ESA permitting processes, and a much stronger commitment to local processes by state and federal government, must be forthcoming. These last examples are clear deficiencies and must be corrected.

The 4(d) rule sparked and enabled an all-inclusive approach to the salmon crisis. Its overall structure allowed creative and substantial progress over the last six months by enriching the science and challenging the public to a higher level of participation. Graduation ceremonies will be scheduled for the day when salmon and bull trout are delisted and other species and their habitats are protected from slipping into the warranted listing category - not before. Our collective tasks will be finished when further listings under ESA are effectively averted, and when the needs of people and fish are found not to be as mutually exclusive as once thought.

Grades on this final exam will be assigned later. ~~~

---

---

# Water for Tacoma, Seattle and South King Co. OK'ed

OLYMPIA (Aug. 1) - Getting water to growing communities in and around Tacoma, Seattle and South King Co. remains on track - but it was a close call.

The Washington Department of Ecology (Ecology) has informed officials from Seattle, Tacoma and smaller communities in South King Co. that it's okay to transport Tacoma water via the Pipeline 5 or Second Supply Project Pipeline to Seattle and South King Co. The conclusion followed Ecology's recent review of Tacoma's 1986 water-right permit.

The permit review was prompted by Ecology's review of Tacoma's draft water system plan and Seattle's draft environmental impact statement to build a pipe that would connect Tacoma's water system to Seattle's system.

During the permit review, Ecology wrestled with a significant question regarding the intentions of the 1986 permit to deliver water to the Seattle system. The thorough legal research concluded that Tacoma had planned to provide water to Seattle, and Ecology had approved that plan in the 1986 water-right permit.

But Ecology Director Tom Fitzsimmons said it was a close call.

"If Tacoma and Seattle had not had the wisdom 20 years ago to take specific actions to plan for their long-term water needs, our conclusion would have been different," Fitzsimmons said. "This took exhaustive research and legal examination, but we are confident based on the facts that we have a sound legal direction on the 1986 water-right permit.

"This situation shows why we need to re-examine our century-old water laws and make them work for the 21st Century," he added. "Our existing water laws make it very difficult to provide water that growing communities and declining fish runs need."

Tacoma's 1986 water-right permit allows the city to withdraw 64.6 million gallons of Green River water each day, when river flows permit, to serve homes and businesses in Tacoma and parts of Pierce and King counties. Since Ecology issued the permit, Tacoma reached an agreement with the Muckleshoot Tribe to maintain river flows above the state-prescribed flows in the original permit to protect fish.

Legislators wrote Washington's laws on surface-water uses in 1917 with the purpose of developing the state. Today, millions of people live in Washington, and much of the water that can be used is already spoken for, resulting in shortages in some areas.

"Communities as big as Tacoma and Seattle and as small as Benton City and Sunnyside are forced to manage water primarily under laws that are nearly a century old," said Fitzsimmons. "We need to reform our state's water laws so that they work for today's and tomorrow's economy and environment." ❧

## WA-AWRA Board Members

**President:** Peter Sturtevant  
(425) 453-5005, x5284  
psturtev@ch2m.com

**Vice-President:** Fran Solomon  
(206) 296-1924  
fran.solomon@metrokc.gov

**Newsletter Editor:** Chris V. Pitre  
(425) 883-0777  
cpitre@golder.com

**Secretary:** Stephen Hirschey  
(425) 649-7066  
shir461@ecy.wa.gov

**Treasurer:** Ingrid Wertz  
(206) 633-4486  
ingridw@nwlinc.com

**Past-President:** Teresa J. Platin  
(425) 453-5005, x5235  
tplatin@ch2m.com

**Director:** Grant Bailey  
(425) 893-6429  
grantb@jsanet.com

**Director:** Naomi Chechowicz  
(206) 440-4602  
chechon@wsdot.wa.gov

**Director:** Chris Cleveland  
(360) 943-7525  
ccleveland@brwnald.com

**Director:** Adam Gravley  
(425) 623-7580  
adamg@prestongates.com

**Director:** Logan Harris  
(360) 424-8226  
lharris@nwifc.wa.gov

**Director:** Stan Miller  
(509) 456-6024  
smiller@spokanecounty.org

**Director:** Erin Nelson  
(206) 543-6272  
erin.nelson@metrokc.gov

**Director:** Ann Root  
(206-789-9658)  
aroot@adolfson.com

**Director:** Mike Wert  
(206) 624-9190  
mwert@shap.com

**Student Chapter President:**  
Johnny Grady  
(206) 616-9145  
grady96@u.washington.edu

**Faculty Advisor:**  
Derek Booth  
(206) 543-7923  
dbooth@u.washington.edu

---

---

# Quad Cities Water Right Application Denied

**OLYMPIA** (June 26) – A legal concern has arisen surrounding a long-term request for water from the Columbia River by the cities of Richland, Kennewick, Pasco and West Richland.

The so-called “Quad-Cities” water right application sought to divert water from the river at an eventual rate of 80,000 gallons per minute to meet the cities’ request over the next 50 years.

Upon a recent and thorough review of the application by the Washington State Department of Ecology and the Attorney General’s office, it has been learned that the original water-right application made in 1991 by the city of Richland expired in 1996 and was erroneously reinstated in 1997. The reinstated application added the cities of Kennewick, Pasco and West Richland to the request and expanded the place of use to include the four cities.

“We’ve been working in good faith with the cities and we were nearing completion on a water right that would provide long-term solutions for the region when we ran into this hurdle,” said Keith Phillips, water resources manager for the agency. “We know a reliable and environmentally viable water plan is essential to the community’s future. But in this instance, state law does not allow us to reinstate an expired application, and legally we cannot proceed with this particular request.”

In 1992, Ecology curtailed work on requests for diversions from the Columbia River when a moratorium was put in place. The closure was made retroactive to applications for new water filed after Dec. 20, 1991, the date when Snake River sockeye salmon were designated as endangered by National Marine Fisheries Service.

When the moratorium was lifted by the Legislature in 1997, a new rule for managing new water-right requests from the Columbia River was prepared, and work to process pending water-right applications resumed. Under the current rule, Ecology must consult with local, state and federal agencies and Indian tribes before making decisions on new water diversions from the Columbia River.

In July 1999, Ecology received comments regarding the Quad-Cities application from state, local, federal and tribal agencies as part of the consultation process. Ecology staff began to focus attention on the Quad-Cities application last fall. The cities also began to prepare a supplemental environmental impact statement (EIS) to respond to concerns raised by Ecology and the consulting agencies.

This spring, during a review of the entire application and the EIS document, Ecology administrators learned the application should not have been reinstated.

Under a preliminary permit issued in 1993 for the original application, Richland was required to supply specific information on how the water would be used and who the proposed users would be. Although the agency gave the city a two-year extension as allowed under statute, the information was not submitted by the city before the permit expired in April 1996. Under the statute, if the recipient of a preliminary permit does not collect the data required within the time provided, the permit is canceled and the application rejected.

“Today we share a great deal of frustration about this new discovery,” Phillips said. “While the law makes it clear the application could not be legally reinstated in 1997, we are convinced the work put into this project is still valid. We are committed to finding water to meet immediate needs – and we will keep working on a long-term regional supply system for the cities.”

Although an unfortunate setback for the cities, Ecology Director Tom Fitzsimmons said the legal snag could serve as a catalyst for revamping the state’s antiquated water-management code in the face of endangered-species listings and the rigidity of state water laws.

“We need local government officials and state legislators to help us to find water solutions that are both *environmentally* and *legally* sound,” Fitzsimmons said. “If we don’t, there will continue to be water gridlock in the Columbia River Basin – and the entire state.”

---

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 WA Section of AWRA. Comments on articles are welcome.

Reprints and circulation for non-profit purposes are allowed without additional permission if proper credit is given to both the source and the author.

Submissions are welcome for the Oct-Nov-Dec, 2000 newsletter. The submittal due date is October 6, 2000. The editor reserves the right to make changes for reasons of length, grammar or clarity. Contact Chris Pitre at (425) 883-0777, or send submittals directly via:

Internet Mail: [cpitre@golder.com](mailto:cpitre@golder.com) (most document/graphic formats are acceptable). Recent newsletters are available on: <http://earth.golder.com/waawra/>

---

---

# Ecological Processes Controlling Sediment in Streams: Implications for Salmon Habitat Recovery

by Lisa Vaughn, Andreas Kammereck, P.E., and Keith Wolf, Golder Associates Inc.

A variety of natural processes contribute to the role of sediment in stream channels. These natural processes control sediment input, storage and transport levels that have historically sustained properly functioning ecosystems and maintained biodiversity for salmon and trout. Some of the most critical of these processes include climate, geology, vegetation and stream bank slope. Spawning distributions throughout channel networks and spawning abundance within specific channel reaches are influenced by channel type and the geomorphologic processes defining channel type. Human activities, such as land-use practices, also significantly affect sediment in streams because they disrupt and fragment these important natural processes and physical instream features. Such alterations in ecological processes can negatively affect salmonid rearing and spawning habitat, and in turn impact salmonid abundance and distribution.

Ultimately, salmon habitat recovery efforts must address those factors limiting the potential for ecosystem health. Thus, a systemic and systematic approach to evaluating the processes that control sediment in streams is critical. This should include assessment of issues such as physical instream structure and channel composition influencing the delivery, transport, mobilization, recruitment and storage of stream materials.

## **STREAM CHANNEL GEOMORPHOLOGY**

The Washington Forest Practices Board defines a stream channel by the transport of water and sediment between two identifiable banks. Channel condition and morphology are influenced by factors such as sediment transport capacity and sediment supply rates that exist throughout the entire channel network. Changes in the inputs of fine and coarse sediment to stream channels can have a broad range of effects on salmonid habitat. Increases in coarse sediment can create channel instability and reduce the frequency and volume of pools, while decreases can limit the availability of spawning gravel. Increases in fine sediment can fill in pools, decrease the survival rate of eggs deposited in the gravel, and lower the production of benthic invertebrates. This includes increases in sediment input from landslides, roads, agricultural practices, construction activities, and bank erosion; decreases in gravel availability caused by dams and floodplain constrictions; and changes in sediment transport brought about by altered hydrology and reduction of large woody debris.

The condition and morphological characteristics of a particular stream channel define the channel type by reflecting the interaction between the input fac-

tors (sediment, water and woody debris) and the ability of the channel to store and transport these inputs. Channel type is defined by channel forming processes such as, flow depth, channel slope, sediment supply and large woody debris recruitment.

Routing of stream material (sediment) includes two important components, the material itself and the energy necessary to deliver the material. The rate of material routing is determined largely by watershed condition and the temporal and spatial components involved in the transfer and storage and release of material between stream reaches. The processes that govern sediment storage, release and transport are functions of specific flow regimes and the ability of a particular stream segment to store or transport sediment.

Depending upon the geomorphologic characteristics of a particular stream channel, as sediment is supplied to a stream channel, it is either stored in depositional zones or transported downstream as sediment load. Numerous factors influence and control sediment supply, storage and transport. Sediment supply mechanisms include mass wasting events (such as landslides), surface erosion and soil creep. Mass wasting and surface erosion are the primary sources of sediment in stream channels. Mass wasting naturally occurs on forested mountain slopes and is an integral part of a healthy forest ecosystem. Mass wasting, unlike surface erosion, involves the introduction of rocks and coarse grain materials. Surface erosion usually involves the introduction of fine sediments, which occurs as detachable soils present on steep slopes are moved into stream channels via rainfall, overland flow, wind and other such events. Sediment production rates, transport, storage and the overall sediment output generated by the range of processes acting within a drainage system are quantified by developing a sediment budget.

## **LIMITING FACTORS**

A multitude of human activities can alter natural sediment supply rates. Forest management practices may accelerate sedimentation through increased mass wasting and surface erosion. These events alter the relative proportion of fine sediments (sands, silts and clays) that enter the stream channel. This associated increase in fine sediments may have extensive effects on channel morphology and the transport and storage capacities of a particular channel network. Dramatic decreases in salmonid egg and fry survival occur as fine grain in-channel sediment exceeds 11 percent (measured by mass, fine grained material defined as < 0.85 mm). Excessive sediment inputs alter

---

stream morphology and cause the channel to become wide and shallow, disrupting channel forming and maintenance processes, and riparian vegetation. Increases in sediment supply decrease pool availability by filling and aggrading these important salmonid rearing habitats. Another significant effect of human disturbance includes isolation of a channel from its floodplain. The floodplain can act either as a source or sink for stream sediments. Floodplains help to minimize streambed scour by dispelling the elevated energy levels associated with flood events.

The riparian area associated with a stream channel is extremely effective in controlling the supply and storage of sediment. Vegetated stream banks act as a filter for soil particles and significantly improve bank stability, which decreases the frequency and intensity of mass wasting and soil erosion events. During storm and rainfall events, riparian vegetation dissipates stormwater runoff. In the absence of such vegetation, stormwater containing high levels of sediment enter the stream and cause excess erosion and bank undercutting. Additionally, the riparian area serves as the primary source of in-stream large woody debris.

#### **PHYSICAL STRUCTURE IN STREAMS**

It has been shown that in smaller headwater streams, large woody debris (LWD) is the primary influential factor affecting the storage and routing of sediments in stream channels (Washington Forest Practices Board). According to Bisson et. Al., (cited in Washington Forest Practices Board) LWD inhibits downstream sediment loading which could fill important rearing pools, clog spawning gravel and diminish invertebrate populations that are an important salmonid food source. LWD serves as a storage site for silts and sands as they become trapped and embedded within the woody material. LWD captures, stabilizes and stores spawning gravel, reverses channel incision and helps to reconnect the channel with its floodplain. Physical structures also trap and uniformly distribute salmon carcasses necessary for delivering the important compliment of nutrients for all seven species of Pacific salmon and 137 species of birds, mammals, amphibians, and reptiles. LWD also prevents scour of streambed gravel through dissipating shear stress generated by high flows

and through the creation of low flow pool habitats. LWD also contributes significantly to channel morphology and complexity through deep pool formation and riffle-pool spacing. Large woody debris serves as a substrate for benthic macroinvertebrates, which is an important salmonid food source.

#### **SUMMARY**

Sedimentation, and related processes, can directly affect salmonid populations in a number of ways. Increases in fine grain sediments aggrade and fill pool habitat, inundate spawning gravel, trap young fry, deplete total oxygen supply and suffocate developing eggs and larvae. Excess fines can obstruct and irritate fish respiratory organs, and often destroy the protective mucous membrane present on the eyes and scales, increasing vulnerability to disease and infection. Turbid streams tend to have higher water temperatures and lower dissolved oxygen concentrations due to the fact that the suspended sediments more readily absorb heat. Suspended sediments reduce light penetration, affecting photosynthesis and in turn, salmonid food supply. In extreme amounts, sediment can dislodge plants and invertebrates that are important components of the food web.

The geomorphologic processes that contribute to and control sediment in streams are critical to the overall function of the ecosystem as a whole and also critical for ongoing efforts to restore salmon habitat. The supply, storage and transport of sediment in streams are part of an intricate system of ecologically balanced natural processes that can be significantly affected through a number of human disturbances. It is important that these processes are viewed in a systemic context, incorporating other important all ecological processes at work within the same watershed. It is also critical to recognize the affects that alterations within these systems have on riparian function and corresponding salmonid populations. Therefore, careful and critical identification of the processes affecting riparian function and ecological balance in stream systems is a key factor in developing successful salmon habitat recovery projects.

For more information, please contact Keith Wolf at (425) 883-0777, e-mail: [kwolf@golder.com](mailto:kwolf@golder.com) ☞

---

## **Tacoma City Light Finalizes Cowlitz Mitigation Plan**

From <http://www.wa.gov/wdfw/do/newreal/aug1100b.htm>

A dozen state and federal resource agencies, conservation groups, The Yakama Tribe and the City of Tacoma have negotiated a comprehensive mitigation plan which focuses on the restoration of wild fish on the Cowlitz River watershed while ensuring continuing opportunities for sustainable fisheries now and in the future.

The settlement agreement is expected to fulfill requirements by the Federal Energy Regulatory Commission relicensing of the Cowlitz River Hydroelectric Project operated by the City of Tacoma Public Works Department.

The agreement is a commitment by all signature parties to ecosystem improvements, wild salmon recovery and significant improvements to hatchery practices in the Cowlitz basin.

---

---

---

## 2000 State Chapter Conference

### Water Marketing in Washington: Negotiating for the Future

Planning for the fall State Chapter Conference is moving along. Several speakers have already accepted invitations to speak, including the keynote speaker. The conference will be held at the Seattle Art Museum in downtown Seattle on Wednesday, November 15. It will be a full day conference with individual presentations and panel discussions. Topics presented will include:

- Legal, economic, and scientific frameworks for water marketing
- Perspectives from outside Washington
- Case studies of water marketing transactions and potentials in Eastern and Western Washington.

The conference will feature Larry MacDonnell as keynote speaker. Mr. MacDonnell is the former director of the Natural Resources law Center in Boulder, Colorado and now works for his own firm, Sustainable Initiatives. He is a noted expert on western water policy and has actively researched water marketing in the West. Other speakers will include experts on legal, economic, environmental, and scientific aspects of water marketing in Washington. The perspective of Native American tribes will be presented by representatives of the Colville and Muckleshoot tribes. The role of the Washington Water Conservancy Boards in water marketing will be evaluated. A representative from the Washington Department of Ecology will present the state's perspective on water markets. The afternoon sessions will feature discussions of case studies of different market transactions currently occurring in Washington. Both rural and urban examples will be presented including the Washington Water Trust, the Yakima Bureau of Reclamation, Eastern Washington irrigators, and Western Washington municipal water suppliers. The focus will be on creative approaches to water marketing being tried in Washington.

Water marketing in Washington is not yet very active, but there is considerable interest in water rights transfers to new uses and the purchase of water rights. This Annual Conference will attempt to address the uncertainties about the legal, economic and technical framework for water marketing in Washington. We will attempt to create a forum to advance the future of water marketing in Washington.

Watch for details of the conference in upcoming flyers, future newsletters, and the AWRA Washington Section web page. Registration for the conference is \$100 and includes lunch. For more information, please contact conference co-chairs Ann Root (206-789-9658 or [aroot@adolfson.com](mailto:aroot@adolfson.com)) or Naomi Chechowitz at (206-440-4602 or [chechon@wsdot.wa.gov](mailto:chechon@wsdot.wa.gov)).

Send checks only payable to "AWRA Washington Section." No credit cards or purchase orders please. Refunds up to November 3, 2000 less a \$10 administration fee. Please mail checks to:

AWRA, Washington Section Annual Conference  
c/o Ingrid Wertz, Taylor Associates  
3917 Ashworth Ave. N.  
Seattle, WA 98103

---

---

### What this State Section is All About!

The WA State Chapter of the AWRA fosters educational and professional development. **Student support** is provided in the form of two annual student fellowships, sponsorship of a student chapter at the University of Washington, underwriting of a special meeting in the late spring hosted by the student chapter, and other subsidies. **Interorganizational support** is fostered with local, interstate and international organizations. A **bimonthly newsletter** is published containing in-depth analysis and editorials on current issues. Several **dinner meetings** are held throughout the year providing good food and good company followed by a presentation by featured guests. **Brownbags** are organized on special issues as they arise. The annual climax is the **Annual Section Fall Conference**; the next one will be held November 15, 2000. The Conference is the principal funding vehicle for many Section activities, including providing financial support to the Section's Student Fellowship program. A **dedicated board** of 15 members meets regularly to plan, organize and facilitate events. The Washington Chapter hosted the highly successful **1999 National AWRA Conference** in Seattle. If you wish to learn more about your Section and/or wish to participate more in Section activities, you will be warmly welcomed. Please contact any of the board members listed on Page 4.

# Announcement of Corporate Sponsorship Positions

## AWRA 2000 Annual Fall Conference

The Washington State Section of the AWRA will be hosting its Annual Conference at the Seattle Art Museum on November 15, 2000. The conference, "**Water Marketing in Washington : Negotiating for the Future,**" will focus on the legal, economic, and technical framework for water marketing in our state. The Conference Organizing Committee would like to extend to you an excellent opportunity for corporate sponsorship that will provide recognition of your firm in this key forum involving over 200 water resources professionals from our state. To participate, please fill out this form and return it to the address indicated by *September 1<sup>st</sup>* along with a check payable to AWRA Washington Section. If you have any questions, please contact Ingrid Wertz at (206) 633-4486 (e-mail: [ingridw@taylorassoc.net](mailto:ingridw@taylorassoc.net)). *The AWRA State Section is a non-profit organization as defined under section 501 (c) (3) of the Internal Revenue Code. For your records, our Tax Identification Number is 91-1203579.*

Yes! We would like to become a Co-Sponsor of the 2000 AWRA-WA Fall Conference. Enclosed is a check in the amount of \$ \_\_\_\_\_ payable to AWRA Washington Section.

Company Name \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Contact Name/Title \_\_\_\_\_

Telephone \_\_\_\_\_ E-mail \_\_\_\_\_

<u>Sponsorship Categories</u>	<u>Contribution</u>	<u>Selection (x)</u>
-------------------------------	---------------------	----------------------

<b>Perfected Water Right</b>	\$750	_____
------------------------------	-------	-------

- Your corporate poster (2'x3') displayed in museum foyer during registration, lunch, and breaks
- Prominent recognition of your firm's name & logo on the AWRA State Section's web site
- Verbal recognition of your firm's support from stage during the morning & afternoon sessions
- Prominent recognition of your firm's support in the conference program packet
- Acknowledgement of your firm's support in the next newsletter following the conference
- One complimentary conference registration (\$100 value), includes a 2001 State Section membership
- Two complimentary registrations to a 2001 AWRA State Section dinner meeting of your choice (\$50 value)

<b>Certificated Water Right</b>	\$500	_____
---------------------------------	-------	-------

- Recognition of your firm's name & logo on the AWRA State Section's web site
- Recognition of your firm's support in the conference program packet
- Acknowledgement of your firm's support in the next newsletter following the conference
- Two 2001 AWRA State Section memberships (\$50 value) for two members of your firm
- Two complimentary registrations to an AWRA State Section dinner meetings of your choice (\$50 value)

<b>Water Right Permit</b>	\$250	_____
---------------------------	-------	-------

- Recognition of your firm's support in conference program packet
- Acknowledgement of your firm's support in the next newsletter following the conference
- One 2001 AWRA State Section membership (\$25 value) for a member of your firm
- One complimentary registration to a 2001 AWRA State Section dinner meeting of your choice (\$25 value)

I am an authorized agent of the above company and by signing below commit to this sponsorship

Signature	Title	Date
-----------	-------	------

Return Address:	AWRA, Washington Section	
	Ingrid Wertz, Treasurer	Phone: (206) 633-4486
	3917 Ashworth Ave. N.	Fax: (206) 633-4571
	Seattle, WA 98103	e-mail: <a href="mailto:ingridw@taylorassoc.net">ingridw@taylorassoc.net</a>

---

---

## **2000 – 2001 FELLOWSHIP ANNOUNCEMENT**

The Washington State Section of the American Water Resources Association (AWRA) is seeking nominations for a 2000-2001 Fellowship Award of \$1500. For the 2000-2001 academic year, two fellowship awards will be given. One award will be to a member of a Washington Section affiliated Student Chapter. The other award will go to a student enrolled in a graduate program at a college or university in Washington State. This fellowship is for a full-time graduate student completing an advanced degree in an interdisciplinary water resources subject. In addition to the \$1500, the award includes membership in both the State and National AWRA, a one-year subscription to the *Journal of the American Water Resources Association*, and admission to the Washington State Section Annual Conference.

Each department with qualified applicants may submit one nomination for the award. The application packet, limited to **five** pages, should include the following:

- 1. A brief letter of nomination from the department head;**
- 2. Completed Application Form;**
- 3. Statement of goals and objectives for graduate work;**
- 4. Detailed description of research interest; and**

Qualified students need to fill out the application form and prepare the additional information requested above and mail it to the address below. The letter of nomination may be mailed under separate cover by the department head or included with the applicant's package. Items two through four constitute the application package and must be prepared by the applicant. Nominations will be evaluated on the basis of:

- 1. The interdisciplinary nature of the course of study and research;**
- 2. The effectiveness of the response in communicating research objectives;**
- 3. The potential for application of the work to the current needs in water resources management; and**
- 4. The overall impression of the application package.**

Nominations must be received by **September 15, 2000**. The Fellowship Committee will evaluate the applications received and will recommend a recipient and two alternates (the second and third highest rankings) to the Washington Section Board of Directors. The Board will select the recipient by November 8, 2000. The winners will be notified as soon as the board approves the award. Special recognition will be given to the fellowship recipients at the State Section's annual conference in November.

The recipients will prepare an article describing their research for the Section newsletter.

For additional information call Stan Miller at (509) 456-3604, or e-mail him at: [smiller@spokanecounty.org](mailto:smiller@spokanecounty.org).

Mail all applications to:

**Stan Miller, Fellowship Committee Chair**  
**AWRA Washington State Section**  
**1329 S. Ferris Court**  
**Spokane, WA 99202**

# 2000 – 2001 AWRA Fellowship Application

## **The Fellowship**

Each year, the Washington State Section of the American Water Resources Association (AWRA) offers an annual Fellowship of \$1500 to full-time graduate students completing an advanced degree in an interdisciplinary water resources subject. Since 1998 two fellowship awards have been given. One award is to a member of a Washington Section affiliated Student Chapter. The other award goes to a student enrolled in a graduate program at any college or university in Washington State. In addition to the \$1500, the award includes a one-year membership in both the State and National AWRA, a one-year subscription to the *Journal of the American Water Resources Association*, and admission to the Washington State Section Annual Conference.

The information provided in the following application will help the Fellowship Committee select this years fellowship recipients.

## **Personal Information**

The following information will allow us to contact you to obtain additional information on your application or proposed work. It will also be used to notify you of your standing after the applications have been reviewed.

Applicant Name \_\_\_\_\_ Phone (\_\_\_\_) \_\_\_\_ - \_\_\_\_ / (\_\_\_\_) \_\_\_\_ - \_\_\_\_  
Address \_\_\_\_\_

E-mail Address \_\_\_\_\_

Other information that might help us contact you (e.g. work hours when you will not be at one of your listed phones).

\_\_\_\_\_  
\_\_\_\_\_

## **Academic Background**

Describe your previous academic experience below.

<u>Educational Institution</u>	<u>Area of Study</u>	<u>Degree Granted</u>	<u>Year</u>
--------------------------------	----------------------	-----------------------	-------------

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

---

---

**Current Academic Program**

Describe the program in which you are currently enrolled. This is the program which will be evaluated for purposes of the 1999-2000 fellowship award.

Educational Institution Area of Study Degree Expected Completion Date

\_\_\_\_\_

\_\_\_\_\_

Thesis or Dissertation Topic \_\_\_\_\_

Major Professor \_\_\_\_\_

**Proposed Course Work**

List the courses you have taken or plan to take as part of your degree program. Include the course grade for those classes you have completed.

Course Number Course Title

Grade

<u>Course Number</u>	<u>Course Title</u>	<u>Grade</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**Final Application**

For additional information call Stan Miller at (509) 456-3604.  
Mail the completed Application and support materials to:

**Stan Miller, Fellowship Committee Chair**  
**AWRA Washington State Section**  
**1329 S Ferris Court**  
**Spokane, WA 99202**

---

# Past Underpricing of Water: A Water Market Obstacle?

by Sarah Brandt, Jones & Stokes Associates

In a currently airing television commercial, popular comedian Denis Miller walks among rows of ice-blue refrigerators chock full of bottled water. He pauses, gives the viewers his famous ironic grin, and asks, incredulous, "Can you believe that they charge a dollar for this stuff?" He holds a bottle aloft, "A dollar?!?"

Miller's disbelief that consumers would actually pay for a resource that liberally flows from their taps reinforces the public perception that potable water is (or should be) cheap. After all, water is abundant, reusable, and infinite, and therefore (barring costs to transport it from source to tap) should be as free as the air we breathe, right? Wrong. What Miller and drinking water consumers across the nation fail to recognize is that nearly a century of political and economic forces have led to artificially low water prices. Many hidden costs associated with safe and legal drinking water provision (i.e., compliance with regulations, water system upkeep, treatment, etc.) fail to trickle down to the customer (no pun intended), creating a consumer population that does not understand the true cost of safe drinking water provision.

As AWRA prepares for its Annual Washington State Conference focusing on the future of water markets, it is important to look toward underpricing and the ways public perception may create obstacles to creating an efficient water marketing system. This article offers a brief summary of political factors that have contributed to the historic underpricing of water, emphasizing the role of federal subsidization. Over time, underpricing has created public consumers who fail to understand the true cost associated with safe drinking water provision. As the transition to a more open water market progresses, public education and outreach will be a crucial step to remedying common misperceptions and moving more smoothly towards an economic system that efficiently allocates drinking water.

**A Brief History of Water Pricing:** Because water is necessary for sustaining life and has, historically, been perceived as a public good, policy makers in the early 1900s were wary of allowing markets (based on private ownership of a public good) to dictate water allocation. Concerned that water speculation or market monopolization could hurt the public, politicians began to create public policies that they believed would most fairly and efficiently allocate the resource.

Unfortunately, mistrust of water markets led to the creation of public policies that, among other things, hindered the transfer of water rights, leading to both economic and environmental inefficiencies. Exacerbating these inefficiencies was an early trend towards federal subsidization of major water projects. In the

early part of the twentieth century, the federal government began funding the construction of massive water storage and delivery projects. Such efforts were intended to help convert arid lands into fertile farmlands with the aim of enticing settlers to move west. Hundreds of dams were constructed with full support of the federal dollar.

As agency budgets, payrolls, and affected land values increase, interest-free loans, payment deferrals and extensions, and skyrocketing interest rates in the 1970s and 1980s meant that federal subsidization of some water projects approached 95 percent. This subsidization translated into lower water prices for the consumer, masking the true cost of water provision. After nearly a century of underpricing, it is no wonder that the general population believes that water has always been, and should remain, relatively cheap.

## **Looking Ahead: Public Education and Outreach:**

As the market begins to capture (and bill for) the true costs of water, water purveyors will meet with resistance from consumers not accustomed to paying for the true cost of this service. States and water systems face even greater pricing pressures due to the 1996 Safe Drinking Water Amendments, which link federal funding to the ability of water systems to demonstrate technical, managerial, and financial capacity. Thus, many systems will need to find ways to maintain system function, comply with regulations, and demonstrate financial solvency, a burden that consumers will likely bear in the form of higher water prices.

Public education and outreach will play a crucial role in making the transition to water markets a smooth process. By helping consumers understand the multitude of factors that contribute to safe drinking water provision, consumers' willingness to pay will be increased and resistance to rate hikes potentially diminished. Accurately reflecting costs in drinking water pricing structures could also increase water conservation (saved water equals saved money for consumers) and improve water resource protection efforts (reducing the costs of treatment and monitoring borne by consumers).

The perception that water should be cheap, if not free, stems from nearly a century of artificially low prices brought about by public policy and federal subsidization. However, if efforts are made to educate the public about the true cost and value of safe drinking water provision, the transition to economically and environmentally efficient water markets will be much smoother. And perhaps, in time, Americans will not be so amused when Miller asks why Americans are willing to pay for such a valuable resource. ☺

---

---

# The Central Puget Sound Water Supply Forum Outlook

by Geoff Tallent, Watershed Lead, Department of Ecology, Northwest Regional Office

June's AWRA Dinner meeting featured a presentation on *the Central Puget Sound Water Supply Outlook Report* prepared by the Central Puget Sound Water Suppliers' Forum. Guillemette Regan with the Seattle Public Utilities discussed the background of the water suppliers' forum, the recently published first phase of the Outlook, and the future phases.

**The Forum** - The Central Puget Sound Water Suppliers' Forum is made up of the major water suppliers, representatives of the counties, the regional water associations, and others. It was convened in 1998 to jointly assess long term water demand, supply, and potential shortfalls in King, Pierce and Snohomish Counties. The Forum's work was, in part, motivated by the recent Endangered Species Act listings and the need to supply water for people and fish. The Forum was also motivated by a desire to improve the link between Growth Management Act planning and water supply planning. Regan emphasized the significance of creating a forum where the interests of 158 larger water utilities and many more smaller utilities come together to address common issues, share information, and begin to take on regional planning.

The Forum's primary product to date is the Outlook. The Outlook is intended to:

- Coordinate water system planning in the region;
- Assess current and future water supply and demand with a common methodology;
- Enable water suppliers to work collaboratively with Tribes, watershed planning groups, ESA efforts, fisheries agencies, and other stakeholders;
- Develop common methods for data collection, tracking, and reporting;
- Highlight areas where water demand is projected to exceed supply;
- Identify potential new and alternative supply options such as conservation and reuse; and
- Help link water resource issues between ESA and the Growth Management Act.

The Outlook is also a key element of the Water for People – Water for Fish Proposed Framework developed jointly by King County and Seattle. The Outlook is divided into three phases to be developed over time.

**Outlook Phase I** - The first phase, completed in February 2000, includes a compilation of current and forecasted municipal water demand and an inventory of major water supply sources and infrastructure. Service area, demand, population, and conservation data was collected from 76 utilities serving 77% of the regional population, the Puget Sound Regional Council population projections, and State Department of Health data. Estimates were made for areas where data was not

available. Regan indicated that Phase I shows that there is adequate supply to meet demand for the next 20 years, with the exception of a few "hot spots."

**Outlook Phase II** - Phase II of the Outlook, underway since June of 2000, will be concerned with four tasks:

- Identifying municipal water supply areas of concern;
- Identifying potential supply solutions;
- Identify opportunities for conservation; and
- Identifying potential resource and management options for areas with water supply shortfalls, including addressing ESA issues.

The water suppliers' forum has created four work-groups to address these issues.

**Conservation** – the conservation work group will explore the feasibility and efficacy of conservation measures as a means to address water supply needs.

**Reuse** – the reuse work group will explore opportunities for using reclaimed water for regional needs.

**Conventional Solutions** – the conventional solutions work group will look at existing proposals for expanding the supply as well as other opportunities for supply, storage, and distribution.

**ESA/Fish Issues** – the ESA workgroup will gather information on where off-stream water use is a concern for salmon. The intent is to rely on the existing salmon recovery groups to identify water quantity and in-stream flow needs, but allow water suppliers to participate in developing solutions.

The work of these four committees will ultimately come together into a comprehensive set of options for how to meet the projected demand. The ultimate product of phase II will be a review and evaluation of these options. The water supplier's forum is currently looking for participants to join the four work groups.

**Outlook Phase III** - Phase III of the Outlook is a yet-to-be-defined multi-stakeholder process to bring water supply planning, growth, and fish issues together. Regan presented a diagram with Watershed and ESA planning on one side and regional (the Outlook) and local water supply planning on the other. Phase III is where the two efforts intersect in a coordinated process. Out of the coordinated multi-stakeholder process, Phase III envisions regionally consistent water supply, ESA, and growth management strategies which feed back into local water supply plans.

Regan concluded by emphasizing the Forum's recognition of the need for this type of coordination and desire to work with other water-related interests such as the Tri-County ESA effort, watershed groups, Tribes, and the state to define how this coordination will take place in Phase III. ☞

---

---

## Upcoming Events

### September Dinner Meeting:

---

---

#### **"Salmon Habitat Rehabilitation Efforts, North Fork Stillaguamish: Historical Reconstruction Using Engineered Log Jams"**

*Featuring:*

**Tracy Drury, GeoEngineers and Mike McHugh, Tulalip Tribe**

**Wednesday, September 27, 2000**

5:30 social hour, followed by dinner and program at the Rock Salt Steakhouse

Registration flyers will be circulated by mail and e-mail and will be posted on <http://earth.golder.com/waawra/>.

For more information, contact: Ingrid Wertz, Treasurer Phone: (206) 633-4486

Fax: (206) 633-4571

e-mail: [ingridw@taylorassoc.net](mailto:ingridw@taylorassoc.net)

---

See <http://earth.golder.com/waawra> for web site links.

**August 27-31, 2000. [International Conference on Riparian Ecology and Management in Multi-Land Use Wetlands.](#)** 2000 AWRA Annual Summer Specialty Conference, Portland, Oregon.

**October 16-18, 2000, Symposium on the Hydrogeology of Washington State,** Landmark Convention Center Tacoma, Washington, <http://www.wa.gov/ecology/hg/index.html>.

**October 24-25, 2000, Agriculture and Water Quality in the Pacific Northwest,** Bend, Oregon. For information, call (509) 252-4165. <http://www.agwaterqualitynw.org>.

**November 3-5, 2000. [Third Water Information Summit-Water Web Consortium.](#)** Meeting Announcement and Call for Papers, Miami, Florida.

**November 6-9, 2000. [AWRA 2000 Annual Water Resources Conference.](#)** Miami, Florida.

**November 15, 2000, Water Marketing in Washington: Negotiating for the Future.** Washington State AWRA Fall Conference at the Seattle Art Museum. See <http://earth.golder.com/waawra/> for additional details.

**December 13-16, 2000, Ground Water: A Transboundary, Strategic And Geopolitical Resource** Conference Announcement: Call for Participation, Las Vegas, NV. Assn. of Ground Water Scientists & Engineers, Michael E. Campana, Chair ([aquadoc@unm.edu](mailto:aquadoc@unm.edu), <http://www.ngwa.org/education/agwse2.html>)

**January 7-9, 2001, International Symposium on Integrated Decision-making for Watershed Management,** Chevy Chase, Maryland. <http://www.conted.vt.edu/watershed.htm>.

**May 20-24, 2001, Integrated Surface and Groundwater Management, Orlando, Florida, ASCE,** [www.asce.org/conferences](http://www.asce.org/conferences)

---

---

From: <http://www.wa.gov/wdfw/do/weekendr/weekendr.htm>:

#### **Olympic Peninsula/South Sound:**

- While salmon may still be king on the coast, **Dungeness crab** is coming on strong - particularly in Hood Canal, where crabbers are potting their limit in record time. WDFW's Tony Floor took three friends out last weekend and caught more crab than he could handle in three hours. "It's just incredible out there right now," said Floor, who said he had to throw back plump 6½-inch crabs to stay within the six-crab-per-customer limit. His secret: Drop your pots in the eel-grass that grows where rivers enter the canal. The crabs will be lining up to enter your pot. For those who want bigger fish to fry, WDFW is releasing **200 large steelhead** weighing up to 12 pounds a piece in four Grays Harbor lakes this weekend. Releases include 100 into Lake Aberdeen, 100 into Lake Sylvia and 50 into each of the two Vance Creek Ponds (Elma Ponds). The bag limit for trout is five fish, but remember that only two of those can be over 20 inches. And don't forget that the wildflowers are in bloom on **Mount Rainier** and that the time to see them is short. Purple lupine, glacier lilies, magenta paintbrushes and countless other species create a visual spectacle that has become a symbol of the Northwest. They don't call it Paradise for nothing.

---

---

**2000 Membership Application / Change of Address Form**

( ☒ please circle, as appropriate ☑ )

Annual membership in the state chapter costs \$25.

(If you attended the 1999 June Conference, you are already a member for 2000 – Welcome!)

Name \_\_\_\_\_ Position \_\_\_\_\_ Affiliation \_\_\_\_\_

Street Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone(\_\_\_\_\_) \_\_\_\_\_ Fax(\_\_\_\_\_) \_\_\_\_\_ E-mail \_\_\_\_\_ @ \_\_\_\_\_

Check if you would like to be actively involved on a committee.  
You will be contacted to determine what committee involvement you would like.

2000 Membership Dues (through November 2000): \$25.00. **Checks only.** Please make check payable to **AWRA Washington Section.**

Mail to: AWRA, Washington Section  
c/o Ingrid Wertz, Taylor Associates  
3917 Ashworth Ave. N.  
Seattle, WA 98103

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 word processing and graphics support on this newsletter.***

---

American Water Resources Association, Washington Section  
3917 Ashworth Ave. N.  
Seattle, WA 98103

Non Profit  
U.S. Postage PAID  
Seattle, WA  
Permit #1399

---

\*A Membership Benefit\*

<http://earth.golder.com/waawra/>

\*Please Post & Circulate\*