WA AWRA
American Water Resources Association

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Washington Section

PRESIDENT'S NOTES

by Pete Sturtevant, CH2M Hill, President, AWRA Washington Section.

Its hard to believe, but this is the last Newsletter of the Section's operating year which culminates in our annual State Conference. As you've undoubtedly seen if you've been receiving this Newsletter, this year's Conference will again be held at the Seattle Art Museum, which has proven to be a popular venue the last 4 years. The day-long Conference will be held on November 15. The theme is a very timely one for Washington: "Water Marketing in Washington: Negotiating for the Future". Water Marketing has emerged as a viable method for efficient re-allocation of water resources in a number of western states and is beginning to be applied here in Washington. Our Conference will examine the benefits and possible pitfalls of this approach in our state.

Elsewhere in this issue you will see a notice of elections for the 2001 Chapter Board. As always, Board Elections are held immediately following the conclusion of the State Conference. If you would like to nominate someone to serve on next year's Board, please follow the instructions on the Notice for submitting nominations.

I would like to give my thanks and appreciation to all of the Board members and a number of other volunteers who have helped to make this a great year for our chapter. My Vice-President, **Fran Solomon**, my Secretary, **Steve Hirschey** and my Treasurer, **Ingrid Wertz**, have all done a fine job of helping me stay on top of Chapter business. I would also like to express special thanks to several others whose efforts this year have been instrumental in our maintaining the status of one of the premier state water resource organizations in the United States, as recognized last year with our award as Outstanding AWRA State Chapter. Newsletter Editor, **Chris Pitre**, continues to produce an outstanding newsletter discussing timely, regional water resource topics. **Ann Root** and **Naomi Chechowitz** have labored long and hard for most of this year to organize our State Conference. **Erin Nelson** deserves recognition for shouldering the four Dinner Meetings and assuring that these highly informative events have come off without a hitch.

Let me close by stating that I hope we have met our goal of providing you, the members, with timely and useful water resource information. As events over the last decade have demonstrated, water issues will continue to be a dominant force in shaping our lives in the region. We will continue to provide a forum where ideas can be presented and consensus hopefully achieved for dealing with vital water resource topics. I ask for your continued support in the upcoming year.

Nov. 15, see pages 10-12

CELP versus Ecology: Much Ado About Nothing

As discussed in the accompanying article on the following page, water conservancy boards are a problematic new mechanism for water management, unable to produce decisions that correctly apply state water law. Although self-destruction seems inevitable, a Washington State Ssuperior Court judge has added to the denouement by ruling that Washington Department of Ecology's rules governing conservancy boards exceed statutory authority. Specifically, Ecology illegally granted the boards jurisdiction over water right decisions not authorized under the original enabling legislation. Center for Environmental Law & Policy, et al. v. Washington Department of Ecology, Thurston County Superior Court No. 00-2-00156-5, Oral Opinion (9/8/00).

The Court held that conservancy boards may process applications to transfer water rights from and between places of use. However, changes in purpose, season and other parameters of a water right are outside the jurisdiction of the boards and can only be processed by Ecology. The Court did not resolve questions about changes in point of diversion or withdrawal attendant to a transfer of place of use, and those issues have been set over for negotiation or additional briefing by the parties.

The basis of the Court's decision is found in the legislative history of the statute. In 1997, when the Washington legislature enacted the water conservancy board statute, the governor vetoed parts of the bill. Ecology's duly adopted rules for the boards were promptly challenged by environmental groups as exceeding the scope of jurisdiction granted by the statute after removal of the vetoed sections. The Court rejected a post-legislation letter from the Governor attempting to explain the basis of his veto.

As a result of this ruling, a number of board decisions will be held invalid and conservancy boards are left with a fairly limited docket. The Court's decision invites legislative amendment to restore full power to the boards. Meanwhile, several water users have stated they will attempt to intervene in order to protect their interests. Given the numerous problems attendant to conservancy boards, it will take more than a jurisdictional fix to make them work.

-- Rachael Paschal Osborn

Washington's Water Conservancy Boards: Lessons on Local Control (Part II of II)

By Rachael Paschal Osborn, Attorney, Spokane, WA

Introduction

This is the second installment of a two-part article describing the issues surrounding Washington's new water conservancy boards. Part I, published in the June-July 2000 newsletter, surveyed legislative history and the laws governing conservancy boards. This installment examines the decisions of the boards, and some of the issues they raise.

Decisions of the Boards

Sixteen water conservancy boards have been created, 2 in the Department of Ecology's southwest region, 1 in the northwest, 5 in the central region and 8 in the eastern region of the state (eastern and central share several boards). Although centralized statistics are not available, it appears that a few dozen applications are pending with the boards. To date about 15 decisions have been issued, most of which have been reversed or modified by the Washington Department of Ecology (Ecology).Numerous appeals to the State Pollution Control Hearings Board have resulted.

The single most serious problem emerging from the conservancy board process is the inability of the boards to accurately identify and apply state water law to the applications before them. The most common error involves approval of applications to transfer inchoate or unused water. This type of change is particularly significant because of its implications for impairment to existing rights.

For example, a Chelan applicant had already received notice from Ecology that his unused water right was not eligible for transfer. He nonetheless applied to the conservancy board, which issued a draft decision approving the transfer. A similar problem cropped up in Lewis County, where Ecology was required to reverse the board's approval of an inchoate transfer. An appeal to the State Pollution Control Hearings Board netted the applicant an agreement to allow transfer of the perfected portion of the right, along with a promise by Ecology to expedite other applications. Two decisions by the Yakima County board to change inchoate municipal rights were so defective that the applicant withdrew its applications altogether.

Technical problems also abound. Because water users rarely produce actual data about their water usage, the boards resort to estimates and assumptions to obtain water quantity information including rates of consumption, evaporation and evapotranspiration, return flow and percolation. Frequently it is the applicant's consultant who provides these details. The potential for over-estimating water usage caused by this approach is borne out in the review drafts by which Ecology routinely advises the boards to use defensible data.

Issues

Numerous questions have arisen about the efficacy of the water conservancy board process. This section describes some of the issues identified to date.

Public Costs

Although efficiency in decision- making was touted as a prime reason for creating conservancy boards, no one should be fooled into thinking that the state is saving any money. Ecology's review of conservancy board decisions is more cumbersome and expensive than if the agency simply processed the decisions itself. Staff put aside their own tasks in order to meet the statutory 45-day review deadline and provide continuous training and technical assistance to the Boards.

This problem will only increase as more boards are created and Ecology is required to provide them with continuous training and technical and editorial assistance. At present, Ecology's offices in Yakima and Spokane each devote nearly one full-time staff position to dealing with the boards, tracking and intensively reviewing decisions both in draft and final forms.

Public costs are also high due to the inexpert public interest evaluation conducted by the boards. While public interests are closely linked with environmental protection, conservancy board decisions pay little attention to these issues. It is frankly understood that the role of conservancy boards is to facilitate private water usage, not promote public values in a public resource. For example, transfer approvals issued by the Benton County board equating private economic gain with the public interest contained no mention of environmental impacts in the source waters, the Columbia River.

Conflict of Interest

A curious trend has emerged – newly appointed conservancy board members in several counties have themselves submitted applications for water right changes. The statute prohibits board member participation in decisions in which they have an interest, and so these applicant-members recuse. While recusal is appropriate, it is also fair to question the likelihood of a water conservancy board denying an application promoted by one of its members.

Board Competence

Water law is complex, deriving from a mix of arcane statutes, old and new court decisions, and long-standing administrative practices. Ecology's repeated review and reversal of numerous board decisions illustrates the inability of lay board members to assimilate and apply these complexities.

While board members may be well-meaning in their efforts, experience counts heavily in the water decision process. Conservancy boards are practicing on real, live applications and time and again they are having trouble getting it right.

In the normal administrative process, Ecology's permit writers receive months of training, supervision and editorial assistance until they can be entrusted to write decisions on their own. Conservancy board members get 32 hours of training (and some complain that that is too much). The quality of board decisions has been and can be expected to remain poor.

Jurisdiction

Water conservancy boards are decisional bodies of limited jurisdiction. They lack statutory authority to resolve all issues that come before them. For example, several boards have encountered issues relating to overlapping water rights, relinquishment, and extension of perfection periods. The boards cannot deal with these issues. Again, Ecology is left to clean up the paperwork, raising questions about the efficiency of the process.

Of particular concern, boards lack jurisdiction over federally reserved water rights and on Indian reservations. This issue was recognized by Ecology in its approval of the Okanogan County conservancy board. Ecology's letter of approval limits the board's authorization "to process water right change applications throughout the county except on lands or water sources within the exterior boundaries of the Colville Reservation and on the Colville Confederated Tribes' off-reservation trust land allotments."

Ecology's stated rationale was that issues regarding regulatory jurisdiction on Indian reservations are not "fully settled in the law." Presumably this rationale would apply to all reservations in Washington; however it has not been incorporated as a limitation on any other boards.

Finally, of course, conservancy board jurisdiction over certain types of transfers remains in limbo following the Thurston County decision in CELP v. Ecology (see sidebar). A number of applications and conservancy board decisions are on hold pending the outcome of appeals.

Priority versus money

In Hillis v. Ecology (1997), the Supreme Court ruled that water right applications from the same source of water must be processed in order of receipt. The water conservancy board process stands the priority system on its head. Applicants who cannot, by law, get their transfers processed by Ecology move to the conservancy board line and receive expedited processing. Ironically, because Ecology must intensively review the boards' decisions, applicants receive attention from the state to which they would not be entitled under normal processing rules. Clearly this raises questions about the fairness, and possibly the constitutionality, of the water conservancy board process.

At bottom, the ability to get special processing comes down to money. Not only do the boards charge substantial fees, but successful applicants typically hire consultants and lawyers to function as de facto staff to the boards, providing expertise and time that the boards lack. Consultant advice, not surprisingly, favors the client, a fact not readily discerned by all boards. For example, the Yakima County board submitted a final decision to Ecology printed on the applicant's lawyer's pleading paper. The decision was reversed by Ecology. To this author's knowledge, no consultant has yet recommended to a conservancy board that his or her client's water right be relinquished.

Conclusion

Water conservancy boards are not saving any money for the people of the state of Washington. The panoply of the legal and technical issues relating to water transfers are not being fully considered. The public interest is not being considered. The quality of water resource decisions has declined. In short, water conservancy boards are not living up to the expectations of the legislature. Radical legislative treatment is needed and an objective review of the program will likely result in a decision to abolish it.

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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.

Submissions are welcome for the Jan-Feb-Mar, 2001 newsletter. The submittal due date is January 6, 2001. 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 (most document/graphic formats are acceptable). Recent newsletters are available on: http://earth.golder.com/waawra/

Water Resources Management Goals and Plans: Next Steps for State-Local Cooperation

By: Kathy Callison, Attorney

In 1971, the Washington State legislature passed the landmark Water Resources Act of 1971 (Chap 90.54 RCW), which expresses the legislature's intent to balance economic growth and protection of the environment. That statute provides that "[p]roper utilization of the water resources of this state is necessary to the promotion of public health and the economic well-being of this state and the preservation of its natural resources and aesthetic values. Adequate water supplies are essential to meet the needs of the state's growing population and economy. At the same time instream resources and values must be preserved and protected." The statute continues, "Development of water supply systems which provide water to the public generally in regional areas shall be encouraged." Citing the "maximum net benefits test" required by the Water Resources Act, the Dept. of Ecology developed a rule establishing procedures for the reservation of water for future public water supply (Chap. 173-590 WAC).

Following the procedures in the WAC, the North Thurston County jurisdictions initiated a planning process for such a reservation. A report issued in 1982 delineated a geographic area within which the projected water supply needs for a fifty-year period were identified, and recommended water conservation, monitoring, water quality and adoptive management steps for the region. The Reservation of Future Public Water Supply for Thurston County was subsequently adopted by the Department of Ecology as Chap. 173-591 WAC in 1986. Unfortunately, DOE has largely ignored the Reservation mechanism. Only one other Reservation was adopted, in Clark County.

The Public Water System Coordination Act of 1977 (Chap. 70.116 RCW) was enacted based on the legislature's finding that "an adequate supply of potable water for domestic, commercial and industrial use is vital to the health and well-being of the State." The means identified to "maximize efficient and effective development of the State" are "to establish critical water supply service areas related to water utility planning and development; to provide for the development of minimum design standards within those areas; to assist in the administration of financial assistance programs for public water systems; and to assist water systems to meet reasonable standards of quality, quantity and system pressure."

Responding to this direction from the legislature, the cities of Lacey, Olympia and Tumwater and Thurston County developed a Coordinated Water System Plan (CWSP) which was approved by the Washington State Department of Health and adopted by all the regional jurisdictions in 1986. Pursuant to that plan, a priority service provider is identified for the critical water supply service area. Developments proposed in that area must meet urban-level water service standards for construction, and must agree to terms of approval for new water level systems, where municipal water service is not readily available. These terms may include agreement to convey physical facilities to the service provider and to hook up at such time as water service from the priority service provider is available. The CWSP has proven fairly effective in reducing proliferation of independent water systems and accommodating logical extension of municipal water service.

In 1985 the State enacted legislation authorizing the designation of groundwater management areas for the purpose of meeting state and local water quality and quantity goals, and "effective management of water resources to meet future needs." RCW 90.44.400. Partly in response to that mandate, and partly based on significant water quality goals identified in the Thurston County Comprehensive Plan, the Thurston County jurisdictions adopted the North Thurston County Groundwater Management Plan in 1992. Since that time, the jurisdictions have jointly developed and managed ongoing water quantity and quality monitoring programs, and a regional wellhead protection ordinance, has been adopted by all four jurisdictions.

The Washington State Growth Management Act of 1990 (SHB 2929, Laws of 1990, 1st Ex. Session, ch. 17) encourages the availability, in a timely way, of necessary capital facilities to serve new development. In "The Growth Management Revolution in Washington Past, Present and Future", Settle and Gavigan state, "The apparent central purposes [of the Growth Management Act] are (1) avoiding sprawling settlement patterns by concentrating new development in urban areas, and (2) ensuring adequate public facilities to serve new development through infrastructure and concurrence requirements." Evidence of adequate water supply is required under the Act.

In response to that mandate, Thurston County and the three cities modified their Coordinated Water System Plan in 1996 to make the boundaries of the Critical Water Supply Service Area consistent with the boundaries of the Urban Growth Area (UGA). In that way the utilities insured that proposed development in the UGA would receive review for consistency with urban design standards, and that mechanisms would be in place to facilitate hookup to municipal water in the future.

Several statutes have been enacted in the 1990s to encourage water conservation. One is RCW 90.54.180, enacted in 1990, which provides direction ranging from public education to system construction. Another is RCW 90.03.380, enacted in 1991, which promotes interties between water systems. RCW 19.27.70 encodes conservation plumbing code requirements. RCW 90.46, enacted in 1992, encourages use of reclaimed water. The North Thurston region has undertaken an aggressive water conservation campaign, in large part because the local wastewater treatment facility is running out of capacity. Approximately 30% of pre-1993 3-7 gallon per flush toilets in businesses and households served by the utilities have been replaced with low-flow 1.6 gallon-per-flush toilets.

Average water use reduction per capita for all regional conservation programs in the 90s is estimated at 4%. Water systems are also required by the Washington State Dept. of Health to include water conservation plans in their water system plans.

Most recently, the regional governments and other shareholders in the watershed are developing plans for water quantity, quality and habitat under the watershed planning statute, RCW 90.82.

Issues & Recommendations

Despite all this planning, in good faith, to provide urban-level service in identified growth areas, and while achieving real gains in conservation and environmental protection, the municipal utilities of Thurston County face difficult challenges in their ability to serve. Those challenges require a coordinated and cooperative response from state and local governments, similar to the previously outlined approaches.

Although Western Washington is famous for its plentiful rainfall, during the 1990s increased water demand by growing populations has coincided with reduced stream flows and dwindling salmon stocks. Decisions from the courts and the Washington Departmentof Ecology have cast uncertainty over the extent and validity of water rights. As a result, water resources allocation and management structures face a difficult transition. It is time to build on past planning efforts and move cooperatively toward implementation of legislative mandates relating to water. Steps toward that goal might include:

- The utilities, regulators, environmental interests, and the public need to work towards criteria for allowing withdrawals where it can be demonstrated that the timing, location and quantity of the impact is such that it does not harm fish or the environment.

- A database of water quantity and geologic information supporting responsible water resource allocations should be established and regularly updated. For example, in North Thurston County, a USGS model of regional groundwater conditions, along with area-specific studies undertaken by the municipal water service providers, can be augmented by regional groundwater monitoring and wellhead protection monitoring by the utilities, to create a more complete picture to support water resource allocation decisions.

- An update of the Reservation of Water for Future Public Water Supply could also be undertaken in cooperation with the State, based on the above information, thereby providing some assurance that water is available to serve future growth.

- Where new water withdrawals or transfers of water rights are proposed, evaluations of the extent of impacts should be based upon methods of analysis that are mutually acceptable to both state and local participants, and data could be made available to support the analysis. Guidance on methodology and availability of data to support the analysis could be especially beneficial to the smaller utilities that do not have the resources readily available to conduct expensive studies.

- Once the extent of potential impacts of any proposed water use have been quantified as precisely as possible, a "toolbox" of mitigation strategies for any impacts should be available. These mitigation strategies might include water quality improvements, habitat enhancements, enhanced water conservation efforts and additional surface or groundwater storage and release to support watershed functions.

- Enhanced water resources management strategies might include more precise management at water short times, including limitations on the exercise of junior water rights. This strategy should be pursued cautiously, with adequate notice to potentially affected parties and with special legislated protections for municipal and domestic uses. If properly managed, such a system might allow for issuance of new permits in "closed basins" and would stimulate a more active market in water rights, with value placed on seniority and seasonal use. A state and local partnership might include purchase and retirement of irrigation rights for transfer to instream uses and municipal uses during peak demand periods.

- The municipal service providers need adequate assurances that the quantities of water identified in their water right permits and certificates, will be given the protections necessary to support future growth.

- Water markets to buy and sell water rights are being established; however, they only exist on a per transaction basis. Each buyer must find each seller, and the price is set based on the exigencies of the individual transaction. Small to medium-sized utilities are not in a good position to participate in those markets, due to unequal access to information and inability to consummate deals in the typical timeframes and at the current prices, based on limited pricepoints. At a minimum, a transaction database needs to be established. The regional governments are in the best position to undertake such an information sharing exercise, under the RCW 90.82 WRIA planning processes, with the possibility of an expanded market facilitation role for the planning group in the future based on the outcomes of the planning process.

- Finally the two key state agencies involved with water utilities—the Department of Ecology on the water source side and the Department.. of Health on the utility management side—must coordinate their efforts. Renewed efforts to see the "big picture" are essential to resolving inconsistent directions and to coordinate the varying mandates: Growth Management, instream flow protection, ESA and Safe Drinking Water Act.

With a cooperative approach, and based on the many plans that have laid the ground work for responsible water resource management, state and local stakeholders can and must build the more sophisticated resource management structure needed in this complex regulatory and environmental setting. ≈

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Rule proposed to set Skagit River instream flows

Ecology Fact Sheet

What is the proposal?

The Washington Department of Ecology (Ecology) is proposing to establish instream flows for the Lower and Upper Skagit River and Cultus Mountain tributaries. Instream flows are set by rule to ensure adequate water remains in the river system to protect fish and other uses in a stream. Instream flows, if adopted, will be a condition to all pending and subsequent water right applications. The proposed rule will also establish the amount of water that may be available for appropriation from surface and ground waters in the Skagit Basin.

Why set instream flows?

There are 62 Water Resource Inventory Areas (WRIAs) or river basins in Washington State. Ecology has adopted instream flow rules for 18 WRIAs — about one-third of all state river basins. No new instream flows have been adopted since 1986. The Lower and Upper Skagit River and Cultus Mountain tributaries are among the basins for which instream flows have not been established by state rule.

The Skagit Basin, which comprises WRIAs 3 and 4, is an important basin with seemingly abundant water and fish. However, the recent federal listing of Puget Sound Chinook salmon as "threatened" under the Endangered Species Act coupled with increasing population growth have compelled Ecology to ensure there is adequate water to protect salmon in the basin.

How are instream flows set?

To set the volume of water required to maintain an adequate instream flow in a particular WRIA, several factors are considered including:

- The hydrology of a stream and its natural variations in stream and base flow during a calendar year.
- Fish habitat needs at various life stages.
- Existing data and other relevant factors.

The method generally used by Ecology and the Washington Department of Fish and Wildlife is the "Instream Flow Incremental Methodology" (IFIM). The instream flow studies also evaluated the importance of the Skagit River estuary in providing valuable fish habitat at important times of the year and for various life stages. New research techniques were required to understand the fish needs in the delta areas.

Who will be affected by the proposed rule?

The proposed rule affects water in the entire Skagit basin, except for the Samish River sub-basin. Once adopted, an instream flow rule acquires a priority date similar to that associated with a water right. Water rights in place at the time an instream flow is adopted are unaffected by the rule. However, any right issued after rule adoption is subject to the requirements of the instream flow rule. A "junior" water right would contain provisions requiring the diversion of water authorized by the water right to cease when the stream flow drops to the levels protected in the rule. All new water rights issued after the rule is adopted could be interrupted on a frequent basis, particularly in the months of August and September. Water right applications in the Skagit Basin are on hold until the instream flows are addressed.

Who are the local partners?

In December 1996, a workgroup was formed under a Memorandum of Agreement to address water-planning issues in the Skagit Basin. The workgroup consists of representatives from the city of Anacortes, Skagit County Board of County Commissioners, Skagit County Public Utility District No. 1, the state departments of Fish and Wildlife and Ecology, and three tribal governments—the Upper Skagit Indian Tribe, the Swinomish Indian Tribal Community, and the Sauk-Suiattle Indian Tribe. One specific element of the agreement was to recommend instream flows on the lower Skagit River mainstem and the Cultus Mountain tributaries. Recommended flows were forwarded to Ecology for formal rule making in May 1999.

What about watershed planning?

By recommending instream flows and identifying the amount of water available for appropriation, the proposed rule would provide a foundation for future watershed planning in the Skagit River watershed. Planning elements include:

- Setting instream flows.
- Establishing biological and ecological criteria limiting withdrawals.
- Establishing water availability.

The Skagit River Watershed Planning Team is considering instream flow requirements and water availability in the Samish Basin (an independent watershed in Skagit County) and other tributaries of the Skagit River.

How will the rule be adopted?

The instream flows will be formally adopted through Ecology's rule-adoption process. We will offer ample opportunities for people to get information about and comment on the draft rule. The draft rule writing is a collaborative effort between the planning workgroup, affected tribes, Ecology and other state agencies. The rule adoption will be coordinated by Ecology's watershed lead for the Skagit Basin.

For more information, contact:

Rod Sakrison, Skagit Basin Watershed Lead, at (425) 649-4447 (e-mail: rsak461@ecy.wa.gov)

Christine Corrigan, Public Involvement Coordinator, at (360) 407-6607 (e-mail: csun461@ecy.wa.gov)

The proposed rule will be available online at Ecology's website [http://www.ecy.wa.gov] along with this document and related publications: #98-1813-WR, Setting Instream Flows in Washington State; #Q-WR-95-104, An Overview of the Instream Flow Incremental Methodology. Find publications under Publications—Water Resources, by year of publication, or call the Ecology library at 360-407-7472 to order.

A Few Words on Habitat Conservation in Washington State

By Naomi Chechowitz, member of The Nature Conservancy of Washington

As our urban growth continues to consume open areas in Washington, many people are working to protect the state's natural heritage. As the landscape becomes more fragmented by the built environment, conservation efforts become ever more like collecting the pieces of a puzzle—trying to fit them together to make an integrated whole that is sustainable and viable over the long term.

All native habitats of Washington are at risk; however some are in greater jeopardy than others. There has been a statewide loss of up to 90 percent of wetlands in urban areas, 70 percent of tidally influenced wetlands, and 90-98 percent of estuarine habitat in coastal urban areas. Streams and riparian habitats have been substantially altered. Environmental damage has affected 75 percent of Washington's rivers. There are 1,022 dams on the state's waterways. Thirty-eight percent of wild salmon habitat has been lost, while 56 percent of the remaining habitat is at risk. Water in 250 rivers is over-allocated. The remaining old-growth forests in the state are patchy and highly fragmented. Over 70 percent of native grasslands have been converted to other uses; most of the remaining exists on steep slopes. Oak woodlands are naturally rare and made more so by development. Few large tracts remain. Eighty percent of shrub-steppe habitat has been lost to agriculture and grazing.

The Nature Conservancy (TNC) of Washington is just one group that is working to conserve the state's native habitats—including the water, air, and earth needed to sustain naturally diverse plant and animal communities. The TNC's conservation process includes ecoregional planning. Ecoregions are areas of land and water defined by similar geology, landforms, climate, vegetation, and ecological processes. About 80 ecoregions have been identified within the United States; some are shared with Canada and Mexico. Ecoregional planning is the process TNC uses to set conservation priorities. The ecoregional planning process is used to select general areas where conservation action is needed; this is followed by more detailed planning, action, and monitoring at specific sites.

Within each ecoregion, TNC works with partners to develop a "portfolio" or network of areas that, if appropriately managed, can best ensure the long-term survival of the full complement of the ecoregion's viable native species and community types. The ecoregional planning process has two steps: 1) data development and analysis, and 2) portfolio development and assessment. The first step involves assembling relevant data on the ecoregion's species and communities (termed "conservation targets") and their known locations. The second step selects the most efficient group of sites that collectively meet conservation goals for all of the ecoregion's conservation targets. Currently, an ecoregional planning process involving Washington State is for the Willamette Valley/Puget Trough/Georgia Basin ecoregion. Once the ecoregional planning process is complete for this ecoregion TNC will focus on implementing conservation action on sites identified in the portfolio and will work with various partners and stakeholders to achieve conservation success across the ecoregion.

Negotiations in the U.S. Congress this past summer over the Interior Department's spending bill have served to spotlight conservation issues. The bill will reflect many of the elements outlined in the recently created Conservation and Reinvestment Act (CARA). A major component of CARA is the provision of full and permanent funding of the Land and Conservation Fund (LWCF). Congress created the LWCF in 1964 to fund the acquisition and development of land and water areas for conservation and outdoor recreation. It is funded by revenue from offshore oil drilling. The reasoning is that as we deplete our nonrenewable natural resources we should reinvest the proceeds into protecting the natural and cultural heritage. However, Congress has routinely failed to provide for full funding of LWCF. Now with more LWCF monies available to states, groups like the TNC of Washington can work with state and local, public and private partners to more effectively conserve remaining native habitat.

One such effort is TNC's plans to bring the entire Ellsworth Creek watershed under protection, allowing all the elements of the system to function to sustain the whole. The Ellsworth Creek watershed, located in the Willapa Hills, is one of the last examples of lowland forest/estuarine habitat in the state. It is home to a large array of plant and animal species, many of which are rare. The effort to conserve the watershed is aided by several generous private donations, LWCF funds, and other sources.

Here are some of the ways individuals and groups can help in conservation efforts.

- Identify lands available for purchase.
- Raise public interest in acquisition of key properties.
- Make a partial or outright donation of land identified for purchase.
- Contact or meet with congressional delegates to discuss the conservation value of specific properties.
- Buy and hold key tracts until public funds are available.
- Contribute funds to help purchase a property identified for conservation.
- Form partnerships with other organizations for the purpose of acquiring lands for conservation.
- Write letters to the editor and articles for newspapers or magazines in support of specific land acquisitions.

Blackbird Mine Site
Remediation & Biological Restoration

By Arthur J. Fleming, P.E. & Robin Kirschbaum, Golder Associates

The Blackbird Mine is a copper and cobalt mine located in the mountainous headwaters of the Salmon River (a tributary to the Snake and Columbia Rivers) 20 miles southwest of Salmon, Idaho. The site covers over 900 acres and contains an open pit and 15 miles of underground workings.

Since the mid 1900s, acid drainage containing elevated concentrations of copper and cobalt from waste rock, tailings, and the mine adits has been discharging to surface waters. By 1960, these metals discharges, especially copper, contributed to the elimination of spring/summer run Chinook salmon in Panther Creek, a tributary of the Salmon and Snake rivers.

The site is currently being remediated by a group of mining companies under an EPA Administrative Order on Consent (AOC). The objective of the Early Action work was to define and implement source control actions which would quickly reduce the loading of copper and cobalt to concentrations that would allow re-introduction of spring/summer run Chinook salmon to Panther Creek. This article describes some of the key hydrologic and water quality issues and how various remediation alternatives were evaluated.

History Mining began at the site in the 1890's and continued intermittently through the late 1960's. Copper and cobalt were the principal products. The mine still contains significant cobalt reserves. Several million tons of ore and waste rock were produced by the mine, which was originally developed underground and later expanded to include an open pit. The waste rock (excess overburden, and material mined to get to the ore) was deposited in multiple dumps over a wide area of the site.

Drainage from the mine contains a high concentration of copper, and a low pH. Additionally, surface water from waste rock dumps and springs, containing copper and cobalt has affected water quality downstream of the site. These metals, especially copper, are toxic to fish, even at very low concentrations. As a result of these mine and surface water discharges, spring/summer run Chinook salmon were eliminated from Panther Creek.

Topography and Climate The project area is steep and mountainous. Most undisturbed areas are forested. The elevation of the site ranges from 6800 feet near the water treatment plant, to over 8000 feet at the highest point of the site, which is also near the rim of the Blacktail open pit. Precipitation at the site averages approximately 21 inches annually, mostly as snow. Summer thunderstorms are infrequent but occasionally severe. Thunderstorms have caused debris flows from waste rock dumps. Streamflows in the area are dominated by snowmelt which occurs from April through late June.

Environmental Issues: The ore body and much of the waste rock exhibit net acid generation potential. Acid rock drainage results from the pyritic minerals in the waste rock, oxidizing to produce sulfuric acid, which dissolves copper (and other metals) in the ore bearing materials and produces dissolved copper and cobalt in the site streams.

Erosion from the steep waste rock piles has been a source of sediments affecting water quality as well as another source of total and dissolved metals in the site runoff water.

These metal discharges have resulted in impacts to benthic invertebrates and fish and resulted in the elimination of spring/summer run Chinook salmon from Panther Creek. Snake River spring/summer run Chinook salmon have been listed as threatened under the Endangered Species Act.

Project Approach: The primary objectives of the project are to improve water quality sufficient for all life stages of salmonids by 2002, provide three years of water quality data showing that required concentrations are met during different portions of the hydrologic cycle, and reintroduce juvenile salmon by 2005. To this end, Golder Associates Inc. is providing engineering services to the Blackbird Mine Site Group (BMSG) for Early Actions, a Remedial Investigation/Feasibility Study, and biological restoration work at the site, along with several subconsultants and contractors.

Description of Early Actions: The objectives of the arly ction were set forth in the AOC as follows:

"To evaluate and design an Early Action to abate an imminent and substantial endangerment to the public health, welfare or the environment that may be presented by the actual or threatened release of hazardous substances at or from the Site so that implementation of the design approved by EPA under this Order can begin as soon as possible under a separate enforcement agreement or order or amendment to this Order."

To meet these objectives, the main features of the Early Actions include collection and treatment of contaminated waters, and diversion of clean waters around the project site. Contaminated waters have been collected, stored and conveyed to the existing water treatment plant, which was expanded to provide a 1,000 gpm capacity.

Analysis of Alternatives The first step in the Early Action process was to prepare an Analysis of Alternatives (AOA) to evaluate and select the appropriate

actions. Alternatives were evaluated in accordance with the Engineering Evaluation and Cost Analysis (EE/CA) guidance for removal actions conducted under CERCLA. All of the alternatives which were formulated were tested for effectiveness, implementability, capital and O&M costs, and consistency with long term remedies.

Alternative configurations were based on:

- Diversion of clean water;
- Collection, diversion, and transport of Bucktail Creek basin water to the WTP via a new portal and adit to the mine;
- Collection, storage, treatment of Meadow Creek basin water;
- Regrading and capping of waste rock located in the Meadow Creek valley and constructing a concrete channel for clean water; and
- Relocation of several outlying waste rock dumps into the pit.

All alternatives require some surface water storage to accommodate the large volume of runoff expected from the design 100-year spring snowmelt, which is estimated to be a runoff snow-water-equivalent of approximately 14 inches. The alternatives must also meet design water quality criteria, which were assumed at current water treatment plant effluent requirements.

Underground Mine Storage The selected alternative includes a surface water storage dam on Meadow Creek located just above the 7100 portal and adit. This dam provides storage for approximately 50 ac-ft of snowmelt runoff, and is approximately 100 feet high at the dam centerline. Since it was not efficient to construct a large storage facility for the Bucktail basin, contaminated water from the Bucktail basin is collected behind a large diversion dam and conveyed to a new portal into the mine for storage. Calculations based on mine records of the underground workings support an available mine storage volume of almost 200 ac-ft, however, to be conservative, EPA limits underground storage to 50 ac-ft.

Waste Rock Removal Effectiveness: The improvements in the runoff water quality realized by removing waste rock remain uncertain. Areas subject to waste rock removal are being monitored to determine the quality of the residual surface runoff, as well as the near surface groundwater flows. Evaluation of these results is expected to be difficult because of the interaction of solubility, temperature, pore volume flow rates, time dependent chemical reactions, and foundation conditions.

Collection Ditch Effectiveness: Ditch effectiveness, defined as the ratio of water collected (diverted water) in the ditch divided by the total water flowing towards the ditch, is assumed to be 80%. Contributing factors include: permeability of ditch invert, depth of rock below the ditch, rock fractures, and the amount of shallow ground water flows. A field study to confirm this efficiency rate is currently being performed

Biological Restoration: After 3 years of demonstrating that water quality is acceptable, juvenile chinook salmon will be reintroduced into Panther Creek. This is part of the overall Biological Restoration program which includes: modifying the existing (Sawtooth) hatchery to rear smolt for release in Panther Creek, constructing acclimation ponds in Panther Creek, constructing an adult fish trap in Panther Creek to capture returning adults, increasing livestock exclusion areas on private lands, and realigning 1.2 miles of Panther Creek that were reportedly straightened for agricultural purposes in the 1960's. Monitoring will be required for 30 years.

Summary: The Blackbird site Early Action remediation work was initiated in late 1994. The major construction work was performed over three phases with the Early Action work completed in late 1999. Waste rock removal and water collection, diversion and treatment are the primary methods of remediation. Metals concentrations downstream of the mine in Panther Creek have begun to decline as various components of the Early Actions have been completed. Additionally, improvements in water quality are expected as residual metals are flushed from the system.

The project team is currently removing off site sediments and tailings from portions of Panther Creek. This effort was recently restarted after a brief hiatus resulting from forest fires in the project basins.

2000 State Chapter Conference
Water Marketing in Washington: Negotiating for the Future

The chapter 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.

A tentative program schedule for the conference is provided on the back side of this sheet.

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 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 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) or Naomi Chechowitz at (206-440-4602 or 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.

Washington Section AWRA
Fall Conference
Seattle Art Museum
November 15, 2000
Program Schedule

Time	Topic	Speaker
7:30	Registration	
8:30	Remarks By Section President and Conference Co-Chairs	
8:45	**Keynote Address – Larry MacDonnell – Sustainable Initiatives**, Boulder, Colorado	
9:15	**BACKGROUND ISSUES IN WATER MARKETS, PART I**	Moderator - TBA
	Legal Considerations Related to Reallocation	**Sarah Mack**, Stoel-Rives
	Economic Aspects	**Dr. Ralph Murphy**, Evergreen State College
	Scientific/Technical Issues	**Chris Pitre**, Golder Associates
	Environmental Perspective	**Rachael Paschal**Osborn, Attorney
10:35	Break	
10:55	**BACKGROUND ISSUES IN WATER MARKETS, PART II**	Moderator - TBA
	The Role of Conservancy Boards	**Dr. Darrell Olsen**, Benton County
	Tribal Perspective	**Steve Suagee**, Colville Tribe
	Department Of Ecology Perspective	**Keith Phillips**, Dept. of Ecology
11:55	Lunch	
1:30	Awards	
1:45	**CREATIVE APPROACHES TO WATER MARKETS IN WASHINGTON - NON-URBAN EXAMPLES**	Moderator – **Adam Gravely**, Preston, Gates, And Ellis
	Washington Water Trust	**Patty McCleary**, Washington Water Trust
	Yakima Bureau of Reclamation Water Purchases	**Jim Esget**, Yakima Bureau of Reclamation
	Goldsborough Creek Restoration Project	**Jerry Ficklin**, Simpson Timber Company
3:15	Break	
3:35	**CREATIVE APPROACHES TO WATER MARKETS IN WASHINGTON – URBAN EXAMPLES**	Moderator – TBA
	Seattle Public Utilities' Municipal Transactions	**Paul Reiter**, Seattle Public Utilities
	Perspective of Smaller Municipalities	**Kathy Callison**, Attorney
5:00	Closing, and 2001 Board Elections	

The Annual Meeting of the Washington Section of the American Water Resources Association Will Immediately Follow the Adjournment of the Conference, Including Elections for the 2001 Section Board

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 1st* 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*). 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_____

Sponsorship Categories	**Contribution**	**Selection (x)**

Perfected Water Right $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)

Certificated Water Right $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)

Water Right Permit $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: ingridw@taylorassoc.net

Salmon Habitat Restoration in the Stillaguamish Basin

by Diane Perkins, Student Chapter Member

The AWRA September Dinner Meeting, held at the Rock Salt Steak House on Wednesday the 27th, was on regional salmon habitat restoration. It was attended by more than two dozen individuals; including student members from the University of Washington and professionals from the public, private and non-profit sectors.

The speakers, Tracy Drury of GeoEngineers, and Mike McHugh of the Tulalip Tribes, are both recent graduates of the University of Washington. The first presentation by Tracy Drury, titled "The North Fork Stillaguamish Engineered Log Jam Project ", discussed a restoration project complicated by local infrastructure. The primary objective of this project was to create and maintain Chinook holding pools. A secondary objective was protecting the structural integrity of a bridge, known as the C-Post Bridge. Five engineered log jams were installed to bifurcate the channel and to perform a function similar to that of rock groins. After installing the first structure, construction methods were altered for the following four. The methods were changed in large part as an attempt to reduce fish kill during construction. Juvenile salmon were the most vulnerable to kill, and the change in construction methods was estimated to reduce kill by 90%. Through GIS analysis it was determined that additional pools had been successfully created. Further, the structures successfully withstood the high flows of their first winter season in place. Tracy developed a defensible method for the design and construction of log jams with structural stability, and his thesis work included developing a methodology for local scour prediction. He believes that his work on this project helps to demonstrate that river engineering and habitat enhancement can together be successful.

Mike McHugh's talk was titled "Biological Monitoring of ELJs in the North Fork Stillaguamish". His objectives were to create and enhance holding pool habitat for Summer Chinook, to increase bank protection, and to create areas for in-channel LWD (Large Woody Debris) accumulation. Reducing the poaching that was occurring at the C-Post Bridge was a further objective. Mike noted that this fish population had previously been in decline. His methods included physical and biological studies both pre- and post-construction. His findings included: 1.) the installation of the log jams did not shift the sediment movement or load, and 2.) the average residual pool depth and wood cover increased dramatically. This is significant because 70% of the fish utilize this fourteen mile reach. In addition to the successful increase in holding pool habitat number and depth and the successful increase in LWD accumulation, the fish population was observed to have shifted from the bridge to structure number 5, thereby making poaching much more difficult. The hope is that this kind of work will give the fish a greater chance to survive.

Both talks emphasized the need to consider the context of restoration projects. Factors to be considered for mitigation included local infrastructure, sediment dynamics, and anthropogenic effects. By successfully dealing with these issues rehabilitation of the salmon habitat can more readily occur.

Upcoming Events

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

October 19, 2000, 12p.m.-1p.m. Salmon Habitat Recovery in Washington State, ASCE Water Resources brown bag meeting, Rollie Gepert, Interagency Committee (IAC) for Outdoor Recreation, Brown and Caldwell, 999 3rd Ave., Ste. 500, Seattle.

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., 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, 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

2001 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.

2001 Membership Dues (through November 2001): $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

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