

**CHEHALIS BASIN PARTNERSHIP
STEERING TECHNICAL COMMITTEE
Washington State Department of Fish and Wildlife
600 Capitol Way
Olympia, WA
February 3, 2011
9:30 AM**

Meeting Summary

MEMBERS, ALTERNATES, AND GUESTS PRESENT

Janel Spaulding, CBP/Grays Harbor College
Julie Balmelli-Powe, Lewis County Farm Bureau
Mark Swartout, Thurston County
Kahle Jennings, City of Centralia
Glen Connelly, Confederated Tribes of the Chehalis
Reservation
Peggy Clifford, DOE
Nadine Romero, Thurston County

Jerry Louthain, HDR
Chris Hempleman, Department of Ecology (DOE)
Tom Gow, Puget Sound Meeting Services
Jim Hill, Citizen, Lewis County
Bob Burkle, Washington Department of Fish and
Wildlife (WDFW)
Erik Borgen, Washington Water Trust
Chanele Holbrook-Shaw, Citizen, Thurston County

Welcome & Introductions

Mark Swartout called the meeting to order at 9:36 a.m. Everyone present provided self-introductions.

Continued Discussion on Water Banking in the Chehalis Basin and Background on the Washington Water Trust

Erik Borgen provided an overview on Washington Water Trust (WWT). WWT is a non-profit 501(c) 3 entity organized to enhance stream flows statewide. The approach is based on a voluntary, cooperative, and market-based process. All actions are voluntary for parties of the transaction. WWT works with a number of tribes and other partners throughout the state as well as with DOE in addition to other non-profits, such as the National Fish and Wildlife Foundation. WWT transacts business in a confidential and non-regulatory environment allowing the organization to serve as a buffer between landowners and DOE.

Chanele Holbrook-Shaw arrived at the meeting.

The organization was established in 1998 and is the second oldest water trust in the nation. The organization is similar to a land trust by working directly with property owners. WWT works in 16 critical basins in the state, which doesn't include the Chehalis because the basin is not listed in critical condition at this point because there are no species listed as endangered. Other basins have multiple ESA listed species.

Mr. Borgen reported that both surface water and groundwater is a public resource. Washington practices the prior appropriation doctrine of first in time, first in right. During times of water shortage, senior right holders receive water first with junior holders required to cut back. Water use must also be for a beneficial use to include irrigation, commercial, domestic, and instream use for recreation and fish. The state has a five-year use it or lose it rule. Water right owners must use water rights at least once every five years to keep the right active. Property owners often put water rights in the WWT to avoid losing those rights.

The Trust Water Program allows the use of the water for instream flow without losing the right. Trust water is managed and protected by DOE. Of importance is the priority date. When submitted to the Trust Water Program, the right retains its seniority, which is important to the landowner because when they remove the water from the Trust, they can maintain the same priority date.

Other benefits of the program is expedited processing and flexibility in terms of the length of banking time ranging from temporary, permanent, short- and long term basis.

Mr. Swartout asked whether the owner of the right can attach stipulations on how the water can be used when submitted to the bank. Peggy Clifford said it depends on whether the deposit is a donation or a lease. If the request is reasonable, DOE can prescribe the use. It could be used for other ag uses.

Mr. Borgen and Ms. Clifford addressed questions on the usage of water deposited in the program.

Mr. Borgen reviewed the basic premise of the program involving leasing, donating, or purchasing water rights. To date, WWT has transacted 60 leases involving annual compensation to the landowner. It provides flexibility to the landowner as the lease term can be flexible and enables a better understanding of the trust program. Purchasing is more difficult to complete with only 12 completed to date. Purchasing provides more flexibility for the trust as the place and purpose of the use can be changed as well as new points of diversion. Donations can be either temporary or permanent. Most donations are temporary.

Bob Burkle noted that when WDFW purchases land with a water rights, the department donates it to WWT.

With leases and purchase transactions, the landowner is subject to a review of water right validity by DOE. With donations, that does not occur. Mr. Swartout asked whether a donation can only include that portion of the water right that has been perfected. Ms. Clifford said there are some conflicts in the law as one provision indicates DOE should examine all donations while another law stipulates that donations can be accepted. As long as DOE does not have to enforce against the donated water right, DOE will hold it in trust and can be released in the same condition. The donation does not guarantee that it's a valid right. DOE will hold a donation in trust and it's considered exercised. If there is a push to exercise it and DEO has to protect it against another right that may require DOE to look at the right in more detail. That situation has not occurred at this point.

Mr. Borgen described other transactions by WWT to include split season leasing for streams where there are low flows during certain times of the summer. WWT works with farmers to forego the last cutting of hay and compensating farmers for putting water into the stream.

Mr. Borgen reviewed several completed projects:

- Taneum Creek – Several partners working with WWT increased winter instream flows by 29 cubic feet per second (cfs) over 21 miles of stream while helping to improve irrigation systems for the shareholders of Taneum Canal Company.
- Bruton Ditch Source Substitution – Instead of pulling water from the tributary, a fish barrier was removed increasing flows to 2 cfs in the summer.

Chanele Holbrook-Shaw asked how the projects are funded. Mr. Borgen said funding is obtained from multiple sources to include the Salmon Recovery Funding Board or the Columbia Basin Water Transaction Program through the Bonneville Power Administration and the Northwest Planning Council to mitigate the impact of dams on the Columbia River System. All examples where instream flows were increased were banked in the trust program. WWT seeks projects as well as funding sources. WWT is similar to a land trust, which constantly seeks multiple funding sources.

- Teanaway River - WWT worked with landowners along the river to bank water into the trust from the Teanaway River. It's also an area where some split leases were completed.
- Salmon Creek - WWT worked closely with the Confederated Tribes of the Colville Reservation to restore flows as well as working with the irrigation district to re-water a portion of the creek and restore salmon runs.
- Touchet River is the largest tributary to the Walla Walla River. Last year, WWT restored 7 cfs by working with landowners to transition from irrigated wheat to dry land wheat farming. The farmers are compensated for reduced profits, which helps keep ag in production.
- Cascade Creek, Orcas Island – WWT purchased a portion of the water right (.25 cfs in June, July and August and .5 cfs in September and October).
- Walla Walla – since early 2000, the river would nearly dry up in the summer. There are ESA listed species in the river and its tributaries. The area is experiencing tremendous growth and an increase in permitted wells. Two main aquifers serve the area including a shallow gravel aquifer and a 400-foot basalt aquifer. There has been a major impact on the streams because of exempt wells. Subsequently, rules were adopted setting instream flow and prohibiting new summer surface water diversions and limiting new use to flow improvement and environmental enhancement projects and restricting withdrawals from the gravel aquifer. The wells are not exempt from regulation. The wells are limited to 1,000 gallons a day for outside use and 250 gallons a day for household use. Ms. Clifford said the restriction is an additional regulatory overlay that applies to the one area in the location of the gravel aquifer. Mr. Burkle explained that the issue pertained to the potential of not allowing any exempt wells and development because of ESA listed species. The overlay was the solution to enable new development to occur. Ms. Clifford said the solution essentially was taking the area that was experiencing problems within the watershed and adding another layer of regulations. The watershed group was very active and it involved all stakeholders within the basin. Many different solutions were discussed. The overlay was generally accepted as the best option. WWT worked to find a water right to use as mitigation. It is a one-time purchase of a certificate to allow outdoor watering. The county was very involved in the process as well. Mr. Borgen reported WWT worked with DOE and the Walla Walla Exchange and purchased water rights to deposit into the Trust Water Program. Each new homebuilder paid WWT \$2,000 and received a mitigation certificate from DOE, which is then recorded by the county. WWT debits the water that is put instream of ½ acre foot for each certificate until the original water right runs out.
- Dungeness Basin Water Exchange – Within the Dungeness Basin, groundwater and surface water rights are fully allocated and flows are currently insufficient for instream flow needs and for economic growth. Economic growth is potentially hampered by water scarcity. WWT is working closely with DOE and the county to ensure a resolution is determined.

Mr. Swartout said one of the arguments for ensuring watershed planning units remain intact is because of those types of issues. Relationships are established in the watershed planning units that help to resolve very complicated water issues. The Dungeness resolution was a result of the Chelan agreement, which has been in existence for over 20 years. That is why watershed planning units including the Chehalis are so important because they can deal with those types of issues.

Mr. Borgen reported that within the Dungeness all new groundwater allocations are required to be offset to reduce impacts on surface water flows by purchasing mitigation credits from an exchange. Within the exchange there are different types of transactions. The primary objective of the water exchange is supporting new water allocations in the watershed while restoring and protecting stream flows in the Dungeness River, its tributaries, and small independent streams.

Mr. Swartout referred to the electronic copies of supplemental sections to the Watershed Management Plan transmitted electronically to members with the meeting agenda. He encouraged members to review the supplemental papers on water quantity core issues and water conservation/use efficiency as a way to remind everyone what the CBP has been working on. The work with US Geological Survey (USGS) on modeling is taking some time but the purpose of the work is to address some of the core issues. Water banking is mentioned in the watershed plan as well.

Ms. Hempleman commented that the supplemental issue papers were well written. Mr. Swartout said there were several volunteers who participated in drafting the papers with Bob Wheeler from Triangle Associates consolidating and formatting the document. A core group of volunteers comprised of Lee Napier, Mark Swartout, Kahle Jennings, and others drafted the Watershed Management Plan that was based on the issues papers to ensure it was readable and understandable.

Mr. Jennings said Mr. Borgen visited him and City of Centralia wastewater staff to discuss agriculture and irrigation rights, which are essentially groundwater rights. The City is interested in donating the rights because when the City removes affluent from the river the City will need to mitigate that loss. He views the relinquishment of the irrigation rights as mitigation for the reclaimed water that will no longer be contributed to the river. He asked if it's necessary to work with WWT to put the rights in trust or whether the City should work directly with DOE. Ms. Clifford suggested the City should work through WWT especially if there are any questions about the right that need to be examined prior to donation.

Discussion ensued on utilization of a full water right and what happens when the full amount of the water right is not used. Jerry Louthain commented that it's possible to use a 100-acre water right on 50 acres for three years and then 100 acres for the next two years and retain the full water right.

The committee discussed next steps. Mr. Swartout commented that the Nisqually watershed unit spent some of its DOE funds on a feasibility study for water banking. He suggested a similar pursuit for the Chehalis. However, funding continues to be an issue. Ms. Hempleman said dependent upon the outcome of the budget, there may be competitive project funding opportunities to consider. Ms. Spaulding said the CBP applied for a water storage feasibility study on the Newaukum and for the USGS project. One project was submitted to DOE's capital budget request and one to the department's operating budget. Ms. Hempleman said it may be possible to submit a request under the Husseman grant program.

Mr. Swartout asked about the budget amount necessary for a feasibility study. The Nisqually study cost \$25,000, which involved only one of a two-step process.

Ms. Clifford suggested narrowing the scope of the study to an area where the basin is encountering problems. Mr. Jennings mentioned the 1995 DOE study of the Chehalis that revealed a 300% allocation basin-wide and that the basin doesn't meet minimum instream flows at Porter an average of 77 days of year. Upstream of that area could be the focus of a study. Mr. Louthain mentioned the work that the Partnership completed in the Skookumchuck basin on mapping water rights, which could assist in the study. It could be beneficial to pursue a segmented study, such as the Newaukum or the Skookumchuck. Mr. Jennings suggested including the tribes because of the tribe's priorities for different streams. Ms. Hempleman suggested scheduling a presentation to the Partnership on water banking and including an article in the *Drops of Water* publication. Lewis County Conservation District is preparing an article about its landowner programs for the next edition of the publication. She suggested submitting an article on water banking for the same edition as another article highlighting opportunities for landowners.

Mr. Swartout suggested determining some next steps for consideration by the Partnership. Mr. Jennings suggested developing a strategy or a targeted area for the Partnership to consider.

Ms. Hempleman asked Mr. Borgen to consider authoring an article for the next *Drops of Water* edition in April. Ms. Spaulding advised that the article is due in March for the April edition. Ms. Hempleman suggested including WWT on the agenda in May to tie back to the April edition, which might attract attendance of landowners to the CBP meeting. Mr. Jennings questioned whether it's possible to tie the subject to interruptible water rights.

Ms. Holbrook Shaw asked whether the focus is ag users or residential users. Mr. Swartout said the focus can be on any user.

Mr. Jennings commented on last year's bad crop of corn and the likelihood that farmers will plant more corn this year to make up for those losses, which means a lot of water will be used for irrigation. There are multiple things going on. Ms. Clifford referred to the Irrigation Efficiency Program for farmers to enable greater efficiency in irrigation through the provision of equipment. That might be an option where the water could be banked in the trust. There are several funding sources for moving farmers to a more efficient method of irrigation. That water could be saved for the stream. Ms. Hempleman noted that there are also farm ponds that close drainages that contribute to flooding problems. There may be some federal funds from different programs. Mr. Borgen said the suggestion for having an overall strategy is important for the involvement of WWT.

Mr. Swartout suggested having the Partnership's presentation end with what water banking might be able to do for the Chehalis basin. That might spark some interest in pursuing the issue further. Currently, there is no incentive for ag producers to be efficient with water. Water banking enables more efficiency, which also improves instream flow while farmers can take a portion of their water right and bank it without losing the right because of increased efficiency.

Members agreed to schedule WWT's presentation during the Partnership's February meeting.

Presentation on 3-D Groundwater Modeling in Scatter Creek

Mr. Swartout introduced Hydrogeologist Nadine Romero. Ms. Romero has completed some work in modeling as well as providing some good information to USGS and the U.S. Army Corps of Engineers on flooding.

Ms. Romero presented information on the numerical model completed on the Scatter Creek aquifer.

Thurston County's Public Works Department contracted her to develop a numerical model for the Scatter Creek aquifer. The work took approximately eight months. The primary purpose was identifying the location of a new municipal wellfield and where wells could be drilled. Work products included an updated view of contamination, which included work by the Environmental Health Department studying fecal coliform and nitrate impacts. Project objectives included construction of the model, complete geology, complete cross sections, study all water levels, gather all contaminate water quality lists in time, and identify some of the land use zones. The outcome resulted in a numerical model.

When the County Commissioners initially asked about the state of the Scatter Creek aquifer, there wasn't much information other than water quality parameters. There was no information on the performance of the wellfield, as it appeared to have a slight decrease in nitrate impacts over time. At the beginning, a preliminary model was developed. Now, a visual water flow model is available. Ms. Romero acknowledged

the assistance Brad Zulewski. Together, they worked on the model every Tuesday. In September, contaminant engines were added to the model.

Mr. Swartout added that the model will provide a visual idea of what the Partnership will receive from USGS. Ms. Romero acknowledged that models are very expensive. Each city spent \$1 million on numerical models using older USGS studies.

The model is a simple one layer model. Scatter Creek is underlined by bedrock of a continuous outburst flood unit from the Yelm Glacial Lobe termed the Qgyo3 unit as mapped by the Department of Natural Resources. The geology of the basin was carefully mapped. The model encompasses 40 square miles and includes all hydraulic heads through time. There are geologic maps and cross sections to identify all the physical hydrogeology of the basin. The cities paid \$1 million for a five layer model, which were never calibrated, as the heads were 100 feet lower in real time than in theoretical time resulting in data gaps. In the Scatter Creek model, the model includes differences in the elevation of heads. Groundwater was mapped very carefully based on a 40 well observation network. The wells are actively monitored four times a year as well as completing water quality studies. Good data were available to run the calibration of the model. Calibration is critical for any numerical model. It's important to match observed hydraulic heads to simulated scenarios to see if they are equal.

After developing the model, a simulation was completed with the heads off by approximately seven feet. That required changing some properties of the model to bring the two lines together. Ms. Romero described the process for matching heads in the model. They were able to match the model from the higher hydraulic connectivity to the pumping wells.

In September, contaminate engines were added to the model to help understand why the wellfields are experiencing concentrations of nitrates of up to 7 parts per million at the wellfield in the recent past. It was possible to see and account for the concentrations at the wellfield from the nitrates impact. Ms. Romero explained how new technology was able to cut nitrate levels in subdivisions on septic systems. At concentrations of 10 parts per million, nitrate contamination can create blue baby syndrome because babies can suffocate drinking water at 10 parts per million of nitrate contamination. In the Scatter Creek system, there are zones experiencing 8 to 12 parts per million. Today, according to the World Health Organization, people who continually drink low levels of nitrate contaminated water of less than 5 parts per billion over 20 years are likely to develop brain and colon cancers at a very high rate. However, one of the counteractions is drinking coffee, or eating food rich in vitamin C, which could potentially cut the rate in half.

Ms. Romero described how the model can account for how long it takes for nitrates from septic systems to reach the wellfield. The loss of dairy farm operations in the Scatter Creek aquifer during the last three years have led to dropping levels of nitrates.

Ms. Romero said she used the USGS seepage study, which was completed for the basin in 2007, which was one of the largest seepage studies in the state, because the studies measure flows along the basin during low flows, end of day, and during the summer. One of the biggest increases in hydraulic head for groundwater is the Scatter Creek basin as it enters the Chehalis River. She compared the model with USGS studies and was able to calibrate the model.

Mr. Romero described a series of modeling exercises she performed with the model to help calibrate the data. One of the conclusions of the numerical model was limiting development in some specific areas because of impacts to wells. The Scatter Creek aquifer is only 100 feet thick and is unprotected. However, it dilutes readily as water flows through the system.

Ms. Holbrook-Shaw commented on the wealth of information supplied by the model as well as the questions that it raises. Ms. Romero said that although the aquifer is vulnerable, impacts have significantly reduced because of the loss of dairy farms. It may be that the diverse plums are not found in the rest of Thurston County, but because of the flow they are anchored in a linear pattern. New development could create plums arching down to the Chehalis River. The model provides a tool to work with land use planning.

Ms. Romero described how she can input a 100-year flood to determine impacts to water levels. The model can be used for FEMA mapping. There are many potential uses of the model.

Discussion ensued on groundwater storage options in the Scatter Creek basin.

Mr. Swartout said a similar model for the entire Chehalis basin would provide the potential for managing water. There are surface withdrawals that are interruptible. If it was possible to have resources available to farmers to drill wells instead of pumping from the river, a model could assess how long withdrawals from wells influence river flows. It's that lack of information that limits the ability to manage the resources. Thurston County is proceeding in a good direction by using science for policymaking. There will always be political pressures but science is assisting in making those decisions.

Ms. Romero said she teaches her students model-based reasoning because there is so much complexity in a numerical model. Twenty years ago, it took two days to run a simulation. Today, it's a matter of minutes. She builds other models for the county, such the edge of cliffs and banks within a subdivision. Subdivisions are seeking permits to build and the county was encountering some difficulties in addressing those conditions. A model was developed to model what could occur during at severe 1,000 year storm.

Mr. Jennings questioned why the county is allowing subdivisions in rural areas if the premise of growth management is preventing sprawl. Mr. Swartout said it's possible that many of the subdivisions were submitted many years ago and are grandfathered.

Mr. Romero demonstrated a modeling exercise.

Mr. Swartout reported that the USGS model used by Olympia, Lacey, and Tumwater uses much larger cells. During discussions with USGS, the agency agreed to provide a gross model with large cells. Each city had to populate the cells with more refined data, which added to the cost by each jurisdiction. The investment of \$1 million was in populating the cells with data than what was provided by USGS. It was important for the jurisdictions to have the data because when asking for a water right, 100% mitigation is required because the water rights are within a closed basin. With the availability of the model, it reduces the mitigation requirement or it may increase it somewhere else, such as the unexpected impacts Yelm was creating to the Deschutes River, which required mitigation. However, the impacts to the Nisqually River were much less. It allows the water right applicant to mitigate the true impact to surface water.

Members agreed to schedule Ms. Romero's presentation during the Partnership's May meeting.

Review Draft Article about Chehalis Water Quality Improvements

Ms. Hempleman referred to the draft article she prepared for the *Drops of Water* publication, which summarizes Scott Collyard's study and focuses on the results rather than the technical aspects of water quality testing. If the article is too long, most people will not read it. It's also important to attract different groups to follow up with articles on current projects and activities. Bob Amrine with the Lewis County Conservation District is also preparing an article on conservation programs.

Ms. Hempleman asked members to provide comments electronically to her by February 15 to meet the early March publication deadline.

Update on SBP Supplemental Organization

Ms. Spaulding reported she forwarded the signed agreement with the pro bono attorney. The attorney has been focused on another priority case and will contact her next week. Ms. Spaulding said she would like to invite him to a Partnership meeting possibly in March to address questions from members. She's provided the attorney with some preliminary background information. The attorney is reviewing the watershed management partnership as the organization type for transitioning to a new organization.

Mr. Swartout noted that there may be some changes to the current law, which eliminates the 10% cap of using water-related revenues for funding of watershed management activities

February CBP Agenda, March STC Agenda

Members reviewed the February CBP proposed agenda:

- Bob Amrine update on Lewis County Conservation District
- Presentation by Dr. Alan Hamlet, University of Washington, Climate Impacts Group, on climate changes and changing hydrologic extremes
- Presentation by Erik Borgen on Washington Water Trust

Mr. Swartout suggested contacting Terry Willis on whether the Flood Authority should be informed about the presentation by Mr. Borgen.

The March STC agenda includes:

- Possible follow-up on supplemental organization
- Discuss meeting location for future STC meetings. Mr. Burkle advised that he's obtained approval to schedule meetings at the WDWF office in Montesano. Members discussed the pros and cons of traveling to Montesano for monthly STC meetings and other possible meeting locations. Ms. Hempleman offered to research potential meeting locations.

Adjournment

With there being no further business, the meeting was adjourned at 11:59 a.m.

Prepared by Valerie Gow, Recording Secretary/President
Puget Sound Meeting Services