

CHEHALIS BASIN PARTNERSHIP
Chehalis Tribe “Lucky Eagle” Casino
Rochester, Washington
December 21, 2007
9:30 a.m. – 12:30 p.m.

Meeting Summary

MEMBERS & ALTERNATES PRESENT

Bonnie Canaday, Chair, Mayor Pro-Tem, City of Centralia
Chanele Holbrook-Shaw, Citizen, Thurston County
Ellie McMillan, Chehalis Basin Fisheries Task Force
Debbie Carneveli, Department of Fish and Wildlife (Alternate)
Kahle Jennings, City of Centralia (Alternate)
Lee Napier, Grays Harbor County (Alternate)
Terry Harris, City of Chehalis
Art Lehman, Port of Centralia
Kernen Lien, Lewis County
Jim Hill, Citizen, Lewis County (Alternate)

Lyle Hojem, Citizen, Lewis County
Ann Wick, Department of Agriculture
Terry Willis, Citizen, Grays Harbor
Mark White, Confederated Tribes of the Chehalis
Reservation (Alternate)
Robert Fink, Mason County
Bob Beerbower, Grays Harbor
Chris Hempleman, Department of Ecology
Mark Swartout, Thurston County
Chuck Caldwell, Port of Grays Harbor

OTHERS PRESENT

Valerie Gow, Puget Sound Meeting Services
Matt Ely, U.S. Geological Survey (USGS)
Mark Savoca, USGS
Kathy Jacobson, Chehalis Basin Education Consortium

John Penberth, Citizen
Nadine Romero, Thurston County
Corinne Tobeck, Lewis County
Glen Connolly, Confederated Tribes of the
Chehalis Reservation

GENERAL PARTERSHIP BUSINESS

Welcome, Introductions and Roundtable Comments

Chair Canaday called the meeting to order at 9:34 a.m. Everyone present provided self-introductions.

Discuss and adopt draft-meeting summaries for November 16, 2007

The Chehalis Basin Partnership deferred approval of the minutes of the November 16, 2007 meeting to the January meeting.

SPECIAL PROJECTS AND PRESENTATIONS

Potential Scope of Work to Assess Water Resources of the Chehalis River Basin

Ms. Napier introduced Matt Ely, U.S. Geological Survey (USGS), who has been assisting the Steering Technical Committee (STC) on an implementation action to develop a potential scope of work to assess water resources in the Chehalis Basin. It's been approximately one year since USGS representatives met with the STC concerning the issues. In September, funding was received for a data collection exercise on a groundwater/surface water interaction study that involved obtaining stream flow measurements at selected points to gauge some of the gaining and losing reaches of the system.

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After completion of the exercise, USGS was asked to create a proposal to address the larger issue of water availability and water resources in the Chehalis River Basin. USGS developed a proposal for a multiyear, comprehensive basin-wide study of water resources. A draft copy of the proposal was recently provided to the STC.

Mr. Ely reported the presentation will cover the approach of the study. USGS has conducted several similar studies throughout the State of Washington. Currently, several studies include Chambers Clover, Skagit County, Bainbridge Island, and the eastside of the state as well. USGS also assisted other WRIA studies as well.

USGS approaches these types of studies through the development of a website, as well as methods of quality assurance and quality control. USGS establishes plans for communication to ensure everyone is informed and that problems are addressed as they emerge.

Because the Chehalis Basin is a large watershed, much work has already been accomplished. However, there are large data gaps. The first step is to begin compiling all available data and studies. There are many agencies, municipalities, tribes, state and federal agencies, including USGS have done work, collected data, and completed reports. The work involves compiling and assembling the data and developing a comprehensive database while following quality assurance and quality controls.

Streamflow data is important, which USGS has been collecting at many sites for many years. There are also other agencies and counties that collect streamflow records. Another large component is groundwater data encompassing wells. There are three large databases belonging to the State Department of Health, State Department and Ecology (DOE), and USGS containing well records each using different naming conventions and ways to locate a well in the database. The major task is inputting hydrogeologic water-level data into databases that is accurate and in a consistent format.

Other data gathering includes groundwater withdrawals and returns, obtaining data from wastewater treatment plants, irrigation pullouts, and water usage from exempt wells based on population factors and previous and future trends.

Historical climate records are also obtained as well as historical and current land use, land cover, and soils maps.

Mr. Ely referred to the importance of aquifer and confining-unit properties and understanding what the hydrogeology looks like and what those properties are and what other investigators have discovered on how water moves through the system.

The first element of the study is obtaining data from known sources. The second step is identifying additional data needs and pursuing other data collection efforts to include:

- Well-records inventory
- Field inventory
- Establishing monthly monitoring network
- Instrument wells with continuous recorders
- Conduct stream base flow measurements
- Survey locations of additional monitoring well sites

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Mr. Ely reported USGS has many stream gauges installed along the Chehalis Basin creating good coverage of the basin.

Mr. Ely described the efforts involved in building a three dimensional hydrogeologic framework, which is a large endeavor, constructing water-level maps, estimating water usage, and estimating groundwater recharge.

After collection and consolidation of all data and additional field studies, USGS prepares and publishes a report describing the hydrogeologic framework and conceptual model.

Terry Harris asked what occurs if the two years of data collection are not indicative of normal weather patterns. Mr. Ely replied USGS conducted a study in another basin during the beginning of a drought in 2001. He noted there really isn't an "average year," which is why collection of the historical record is so important. It's important to know whether data collection is occurring during a wet or dry year. Modeling is a simulation of a system based on input of the data. Calibration of the model is necessary to ascertain whether the model matches specific years of drought or wet conditions. Once USGS is convinced the model is accurately representing the system, USGS then moves forward on the basis that the model will provide appropriate answers. He noted that none of the products can be considered an end point because science continues to move forward.

John Penberth noted that there is much information Mr. Ely is providing. He questioned the outcome of the effort and said it appears the efforts involve ascertaining the water table level at numerous locations or trying to "catch 100 rabbits in a football field." One hundred-year and 500-year increments should be studied because data collection efforts appear to cover the short-term rather than the long-term. It's already known that certain times of the year, water level is lower. Historical records should be examined in 100-year increments.

Mr. Ely replied that in some cases for streamflow data, 80-year records are available. There are historical water levels from previous time periods. The effort involves collection of data today rather than 10 years ago. The length of the study will help to understand how the system operates. There are basic laws of physics that govern how water moves. The effort involves understanding the system to apply the laws of physics through the collection of data, which involves continuous collection and refinement of data. The study period is typical involving the collection of water levels and streamflow over a two-year period as well as reviewing the historical record. The results will generate a record that pretty well identifies how the system operates and how water moves. USGS completes a scientific study through collection of data, reporting of data, and then generates a report on what USGS believes the system is doing, how it operates, and how it responds to new stresses. Decisions based on the outcome of the study are made by other entities and not by USGS. Mr. Ely stressed the importance of making decisions based on best available science.

Terry Willis asked about the length of the study. Mr. Ely said the total length of the study will likely be approximately four years. Ms. Willis asked about the end of the study period after USGS transfers the model and whether it's possible to keep the model running and what is involved in maintaining the model. Mr. Ely replied that after USGS obtains the initial data, a numerical flow model is developed, tested, evaluated, verified, and validated. USGS reports on the limitations and assumptions. USGS tests different scenarios or management alternatives. This is followed by USGS producing a series of reports with the first report explaining the system of the geology followed by a second report on the model and the simulations and output. USGS builds the models using data available to anyone. After completion of

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the model, the model is available to the public. USGS provides training on the model and transfers the model to a designated representative. There is likely expertise available at the city or county level as well as DOE to run the models. Mr. Ely shared information on other training programs through the USGS on running models. There is an option of an annual maintenance agreement consisting of updating and maintaining the accuracy of the model.

Mark Swartout commented on the importance of the study. The most desirable outcome is to retain and update the model. USGS is using data available today as well as other studies to build the model. There will be future instances when a jurisdiction applies for a water right and wants to fund efforts to supplement data pertinent to the model cell of where that jurisdiction is located. That effort would change the outcome of the model for all locations, which means the model must be continually updated as more information becomes available. During watershed planning efforts, the message learned is that it's not possible to manage available water resources unless the source is understood as well as how the system operates. The exercise will help the Partnership learn how to better manage the resource.

Mr. Ely described how the models can be used by local jurisdictions, consultants, and others. The model is a large, regional model to help the Partnership understand how much water is available, how it moves through the system, and how it responds to general stresses. For example, the City of Chehalis may want to put in a new wellfield. The regional model might not be sufficient to answer all the questions, whereas the city hires a consultant who takes the model and carves out a section and populates the section with recent data. The consultant then reruns the model. Mr. Ely said he developed a model for Thurston County in the early 90s and still receives calls from consultants to assist in updating the model and providing feedback to the consultant regarding the model.

Art Lehman asked if USGS utilizes any atmospheric conditions. Mr. Ely said data for a groundwater model are different than what is included in a flood frequency model. There are climate stations that provide real-time climate data that could be inputted to the precipitation runoff model to obtain more real-time predictions and forecasting. USGS does similar work for the Bureau of Reclamation in eastern Washington. For example, the Bureau of Reclamation needs to know how much water reservoirs will receive because they have to manage reservoir releases. The recharge model can be set up to a real-time predictive mode. However, a groundwater model, even with precipitation, moves at a much slower rate.

Mr. Lehman referred to the recent flooding and asked whether it was possible by gauging the jet stream to ascertain how much water the storm carried to predict in advance rainfall conditions in the region. Mr. Ely said real-time forecasting predictions involve the work of meteorologists. USGS does not normally track daily climate conditions. USGS reviews historical and recent trends as well as snowpack conditions and temperatures. Environmental modeling and predictions is a tough business and no one can ever account for flooding events.

Chanele Holbrook-Shaw asked whether the modeling only pertains to groundwater flow. Mr. Ely said the study is a groundwater model that accounts for streamflows and streamflow routing. The model will simulate streamflows for a specific point in time. The model can also account for additions of new wells or groundwater recharge and other changing factors but not on a daily basis. The model can provide monthly data.

Mr. Penberth asked whether it's possible to use groundwater to supplement river water to restore the river to a specific flow level. Mr. Ely said it's not uncommon to switch from surface water to groundwater. However, it's not the amount of water availability, but when and where it's used. One of the things to test

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is conjunctive use where surface water is used for a specific period of time and then switched to groundwater irrigation until flows reach a specific level before switching back to surface water to avoid impacts to fish. It is possible to test those types of scenarios. It's important to determine the source of groundwater to ensure it is not coming from a river or a stream. Modeling can help place a well in a location to have the least effect on a river.

Ann Wick inquired about archiving project records and the format. Mr. Ely said USGS can archive the records in several formats. USGS transfers all the data to the sponsor. USGS retains copies of data on its computer servers. After several years and after completion of the project, hard copies of the data are boxed and forwarded to the federal archive center, which can be retrieved at any time.

Mr. Ely introduced Mark Savoca, Supervisory Hydrologist, USGS, who referred to the previous question about forecasting weather. USGS is in the process of developing a numerical model that takes National Weather Service river and flood forecasts into point specific information for forecasting when rivers are expected to peak based on weather conditions. USGS now has the capability to take point data and translate it to a specific area where floodwaters will be present. The data identifies where and when flooding stage is expected to occur. USGS is seeking an opportunity to continue to develop the model.

Mr. Lehman commented about the possibility of watching the weather forecast the day after Thanksgiving and calculating the rainfall coming into the Lewis County area. He asked whether it's possible with enough information to determine the amount of rainfall the area would receive. Mr. Savoca said it would be possible because all the information would have been inputted and the National Weather Service would utilize the information in its model to transmit precipitation runoff and subsequent river flow and river stage. That is typically as far as the National Weather Service will go. However, with that information, the River Forecast Center could translate the information into river stage and river flood as a starting point for USGS to input to the numerical model for distribution. Mr. Savoca said as the Northwest continues to experience weather changes, there will be a greater frequency of substantial flooding and that many counties, cities, and organizations that have investments in infrastructure in land and homes will need to get a better understanding of timing and the destructive force of flooding based on weather forecasting.

Bob Fink inquired about problems associated with forecasting inaccurate information. Mr. Savoca said the question pertains to relying on an inaccurate forecast. With the National Weather Service and USGS, there is constant updating of the weather to update any flooding forecast. The data generated is a series of maps and as subsequent maps are generated, updated weather forecast information is included. He confirmed there is a degree of uncertainty in forecasting. There is always some degree of uncertainty until an event occurs. The effort by USGS is for an early warning system. However, anyone using the system has to be willing to admit that the results may not be precise because of the number of variables within the model simulation. The most appropriate use of a model simulation is to provide an average value.

Mr. Penberth commented that it was unlikely anyone could have predicted the flooding. The damage started in the headwaters of the Chehalis River with the mountain sliding into the river. As the debris flowed, it built up against bridges causing pressure on the river. The flood wiped out one water system in Pe Ell and destroyed the pumping system. As it continued to descend the river it gathered speed and distributed debris along the valley.

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Mr. Lehman referred to the jet stream forecast and the possibility of providing advance warning. Mr. Penberth said it's a valid point. He said he used to work for the Department of Emergency Services and was one of the onsite river watchers who advised emergency services. The point is valid and is another example of procedures entities must employ when weather conditions merit some action.

Mr. Ely concluded his comments and advised that the approach of the study may evolve as the study progresses and conditions change. He provided contact information for anyone having questions. A Chehalis River Basin project page on the website has been developed that is tied to the seepage report at this point. Data will be added to the website.

Lee Napier asked about agenda topics for the January STC meeting. Mr. Swartout advised the USGS study will be a major agenda item at the next STC meeting on January 3, 2008 at 9:30 a.m. at the Washington Department of Fish and Wildlife building on Capitol Way in Olympia.

Post Flood Update/Feedback – Video of Flooding

Ms. Wick distributed a copy of an internal employee newsletter from the Washington State Department of Agriculture conveying concerns about problems associated with flooding that the agency can assist with. If members are receiving calls regarding agriculture pesticides, the agency is scheduling a spring collection event for disposal. Citizens who need assistance in stabilizing chemicals can contact the agency for assistance.

Mark White displayed and narrated a series of photographs of the December flooding in the areas of Centralia, Chehalis, and the Confederated Tribes of the Chehalis Reservation. He offered to provide copies of the photographs to members.

Lyle Hojem recalled the 1931 flood and described the destruction to the area. The flood covered Centralia for approximately six days.

Chair Canady shared that she received a telephone call on the Friday before the flood from a citizen indicating a flood will likely occur based on the weather forecast because of the snow in the mountains and the amount of the precipitation estimated to fall. It's usually referred to as the "Pineapple Express." She said no one knew at that time the extent of the flood because no two floods are the same.

Jim Hill commented that the 1996 flood was similar to the recent flood.

Mr. Hojem commented that the north and south forks of the river peaked 10 hours apart. If the peak had occurred simultaneously, flooding would have been much worse.

Glen Connolly, Environmental Specialist and Mark White, Confederated Tribes of the Chehalis Reservation, played and narrated a video of flooded areas taken from a helicopter one hour prior to peak flooding. The tribe has a software/hardware package that interlaces GPS and video to develop a map. Mr. White said the video begins near his home near the new Great Wolf Lodge and includes Chehalis, Centralia, Porter, Chehalis Reservation, Rochester, and Oakville. Immediately following the flood, all high water points on the reservation were marked. Future building, within the reservation boundaries, will not be allowed lower than the high water points. He noted last year, a tribal member was very upset because she was required to build her home six feet above ground. Her home, which is located in a floodplain, escaped damage from the recent flood.

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Members shared stories about their respective experiences during the flood and information on evacuation measures for many people stranded on their roofs. The Coast Guard rescue of over 160 people was the second highest rescue effort since the Katrina hurricane.

Kahle Jennings reported approximately 600 homes in Centralia were flooded to some degree.

Mr. Connolly displayed the GPS map of the helicopter route over the flooded areas of the region.

Next Meeting

The next meeting of the CBP is January 25, 2008.

Adjournment

Chair Canaday wished everyone a merry Christmas.

There being no further business, Chair Canaday adjourned the meeting at 11:52 p.m.

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