

**CHEHALIS BASIN PARTNERSHIP**  
**Chehalis Tribe “Lucky Eagle” Casino**  
**Rochester, Washington**  
**November 20, 2009**  
**9:30 a.m. – 12:00 p.m.**

**Meeting Summary**

**MEMBERS, ALTERNATES & GUESTS PRESENT**

Bonnie Canaday, Chair, Mayor Pro Tem, City of Centralia  
Lee Napier, Grays Harbor County (Alternate)  
Julie Balmelli-Powe, Lewis County Farm Bureau  
Janel Spaulding, Grays Harbor College  
Chris Hempleman, Department of Ecology (DOE)  
Art Lehman, Port of Centralia  
Chuck Caldwell, Port of Grays Harbor  
Terry Willis, Grays Harbor County  
Charlotte Danforth, Citizen  
Glen Connelly, Confederated Tribes of the Chehalis  
Reservation

Bob Burkle, Washington Department of Fish &  
Wildlife (WDFW)  
Amy Iverson, WDFW  
Teri Liomin, Chehalis Basin Fisheries Task Force  
Lyle Hojem, Citizen, Lewis County  
John Penberth, Citizen, Pe Ell  
Terry Harris, City of Chehalis  
Mark Swartout, Thurston County (Alternate)  
Tom Bougher, Veterans Conservation Corps  
Bill Schulte, Lewis County  
Miranda Plumb, US Fish and Wildlife Service  
Valerie Gow, Puget Sound Meeting Services

**GENERAL PARTNERSHIP BUSINESS**

**Welcome, Introductions, and Roundtable Comments**

Chair Bonnie Canaday called the November 20, 2009, meeting of the Chehalis Basin Partnership (CBP) to order at 9:35 a.m.

*Bill Schulte arrived at the meeting*

Everyone present provided self-introductions.

**Discuss and Adopt October 23, 2009 Meeting Summary**

A correction was requested to the minutes of October 23, 2009 on page 9 regarding the accuracy of the amount of \$96,000. The minutes of the October 23, 2009 meeting were approved as amended by consensus.

The agenda was revised to add a discussion and approval of a letter and a discussion on information from the Thurston Regional Planning Council (TRPC) regarding its regional water initiative within its 2010 work plan.

A status on the Corps of Engineers General Investigation Study was requested. Lee Napier provided an update and said a meeting is scheduled later in the day to discuss the project management plan. The group hasn't met since the Partnership's last meeting.

*Chris Hempleman arrived at the meeting.*

**SPECIAL PROJECTS AND PRESENTATIONS**

**Ecosystem Services Presentation**

***An economic analysis to value flood protection and other ecosystem services in the basin to help select projects***

Ms. Napier introduced David Batker, Earth Economics. The Partnership previously expressed interest in the work of Earth Economics. Consequently, information on the project was submitted to the Flood Authority as something the Partnership would like to sponsor. The Authority agreed to fund the project with Lewis County contracting with Earth Economics. The presentation will highlight the initial results of the Flood Authority's project.

*Miranda Plumb arrived at the meeting.*

Mr. Batker described his personal and professional background. He was formerly a resident of Centralia and worked at the coal mine as a geologist and then concentrated on economics of ecosystem services and benefits. Earth Economics is a nonprofit organization established in 1998. The organization contracted with Lewis County and was also funded through the Confederated Tribes of the Chehalis Reservation. Currently, the work is midway completed with the Flood Authority.

Previously, the environment has been viewed as a small piece while the economy is a bigger piece. Resource economics and environmental used to be a small part of the big picture which didn't contribute much to the gross domestic product (GDP). However, the economy is set within a landscape with each city and economy located within a watershed. The watershed is actually the foundation for the economy. If the environment begins breaking down, it leads to economic problems, which emphasizes why it's important to consider them jointly. The quality of life depends on human capital comprised of health, education, knowledge, and skills, followed by social capital consisting of laws, institutions, and society in general, followed by the built environment of cars, buildings, roads. Built capital is easy to measure in terms of economics. The fourth area is natural capital consisting of water, landscape, forests, fish, and all other natural elements. All built capital is generated from natural capital. In the last 15 years, ecosystem services has been acknowledged with two categories of goods that are easy to value and services, such as flood protection, salmon habitat, recreation, and electrical services that are more difficult to measure but of high value and critically important.

Mr. Batker reviewed a land cover map of the Chehalis basin watershed. Twenty-three ecosystem benefits were evaluated. One important ecosystem service is habitat restoration and salmon habitat. Another ecosystem service is flood protection which can be provided by built structures and green infrastructure or natural capital of forest and soils. Considering the proportion of how much flood protection is provided by natural systems versus built systems, natural systems typically handle most of the water by slowing the flow of water during peak flows. The built structures are important to protect particular areas, such as levees, but they narrow the floodway and can impact other areas. Conveyance of water is most beneficial through the natural system. The value of natural capital is most clear in salmon restoration. The issue Earth Economic is examining is how to make the best decision from the entire suite of benefits derived from the watershed from natural capital and built capital.

The first study evaluated the value of natural capital and was completed in 1998. Storm and flood protection by natural systems provide much dollar value. The estimated total global value of natural systems is 33 trillion dollars, which created some controversy as it rivals the value of built capital.

Another study was completed of New Orleans, Louisiana, and what occurred with the delta of the Mississippi. The delta drains 40% of the United States and comprises 40% of the nation's coastal

wetlands over the last several centuries. The levees led to the loss of 1.2 million acres of wetlands. When hurricanes hit land, it creates a storm surge of a tremendous amount of water. Wetlands serve to reduce impacts from a storm surge because plant materials hold water and slow the storm surge. For every 2.5 miles of linear wetlands, one foot is reduced from the storm surge. The coast and New Orleans was hit by hurricane Katrina. Approximately 30 linear miles of wetlands were lost with the construction of the levees resulting in substantial damage when Katrina hit causing the deaths of 1,400 people and damage estimated at \$200 million. The study was the first report to consider the full buffering value wetlands provide. Restoration of the wetlands is estimated to cost \$15 million. Existing wetlands reduced the storm surge from 29 feet to 16 feet. If the original wetlands were intact, the City may have survived the hurricane. In fact, built structures are fully dependent upon natural ecosystem services. The Corps of Engineers recognizes that with one mile of wetlands fronting a levee, the levee can be constructed three to five feet shorter, which would save taxpayers \$10 billion by lowering the height of levees. The study highlights the importance of natural capital, which is well understood in the Chehalis River basin because good flood protection means both built and natural capital. Natural systems are necessary to absorb floodwaters. Another report was recently completed for the Nisqually watershed on the benefits of natural capital.

Chehalis basin is a unique watershed as there is no snowpack and its one of the largest watersheds in the state. As learned in the floods of 2007 and 2009, it's dependent upon the location of the rainfall as to the type of flooding that will occur. Two steps are involved in the project involving a salmon model. A Natural Science Foundation grant is supporting the work. All 23 ecosystem services are being examined. Of all the models, drinking water is the easiest to model because of the source and beneficiaries. Flood protection is more complicated. However, the most complicated is salmon.

Mr. Batker described how dollar value is calculated for natural capital comprised of the benefit and the asset value. The analysis is based on considering the dollar value from different types of land use cover with each land use cover having a value for flood protection. Flood protection is not the same for each acre. For example, forests break down rainfall and slow peak flows. A more mature forest helps with infiltration dependent upon soil type. Some ecosystem services identified include flood protection and habitat restoration. Each vegetation type is considered and analyzed as to whether it provides the ecosystem service. For salmon, rivers, lakes, and wetlands are important for salmon production. For flood protection, wetlands, forests, rivers, and lakes provide flood protection.

Following that the analysis considered where dollar values are established on a per-acre basis. The values are established from academic studies. Lowest and highest values were considered to provide a range of values. Based on the value of the Chehalis basin and what it provides, it justifies a restoration budget and an investment.

Mr. Batker described how value and price are different through an example of considering the value of oxygen. Oxygen is entirely an ecosystem good with no value assigned. However, if there was a requirement to purchase oxygen, it would be very expensive. Natural systems and global climate provide oxygen at no cost with equitable distribution throughout the world on a sustainable basis. Oxygen is of immense value although the right price is zero because of the efficiency in its production. Whenever substitution of built capital for natural capital occurs, there is some trade-off. When considering the value of the Chehalis basin, real value is received without necessarily having to pay for it. When considering the allocation of investment for restoration of salmon for example, the rate of return of salmon was never factored as a value. Natural capital in the Chehalis basin provides flood protection, salmon restoration, cleaner water, and other benefits.

Mr. Batker referred to agriculture and the US economy and how agriculture, which has a high value, is often underpriced because the goal is to keep food at affordable prices. One of the issues with the Army Corps of Engineers' cost benefit analysis for the Chehalis basin is the lack of consideration for the value salmon contributes. Farming is also undervalued in traditional flood protection analysis.

To arrive at a value of natural capital within the basin including flood protection, it's only a partial value that can be determined as only some things can be identified at this time. Totaling the values across the ecosystem services per acre establishes a dollar value per acre. The figures are still underestimated because there are some values that are difficult to ascertain. Based on the study's preliminary analysis, the benefit of the Chehalis basin provides a value of \$1.2 billion in benefits each year on the low end and \$11.4 billion on the high end. Mr. Batker acknowledged the value is high and shared the analogy of how a house is highly valued while the contents are not valued as high in terms of insurance coverage during a catastrophe event. It shouldn't be a surprise that the entity containing the entire economy is of value on the scale of the economy. Economics is discovering that natural systems provide benefits on a scale as large as the dollar value contained within the system. Another element that is underway in the Chehalis is considering how much flood protection is provided in the Chehalis basin and identification of the beneficiaries.

The project includes development of four sets of maps:

- What provides flood protection by both built and natural capital
- Map of the beneficiaries and who benefits from flood protection
- What things can reduce flood protection, such as filling the floodplain or roadways constricting the conveyance of water
- Critical vector - how to determine benefits to beneficiaries at different times.

Mr. Batker displayed a draft flood model and explained why the approach could be helpful to counties and cities by analyzing what provides flood protection and what causes flooding. The diagram includes two sides representing green infrastructure (natural capital) and built capital providing flood protection (levees). The map provides a provisioning of flood protection. Some areas include robust data while other areas lack or have missing data. Another element in the analysis includes determining the causes of flooding which includes a runoff model that considers rainfall, water table level, and hydrological studies to help determine what contributes to an increase in runoff. Beneficiaries are identified as well and include farmers, residents, public infrastructure, and industry. It's also important to recognize other values provided, such as salmon habitat and drinking water and that the investment should be the best investment possible.

Mr. Batker explained that it's difficult to determine the appropriate investment and that the model will only be an introductory model. The goal is that the general study will include working with the Army Corps of Engineers to include the study within the analysis.

Mr. Batker answered questions about the importance of including the analysis within the study. The cost benefit analysis completed by the Corps of Engineers includes federal rules that were established 30 years ago dictating what is included within a cost benefit analysis. A legislative bill currently pursued by Senator Cantwell would change what's considered in a cost benefit analysis.

Terry Willis asked whether other companies are undertaking ecosystem analysis. Mr. Batker said although the organization is working with another institute, it is the first time such analysis has been used in the U.S. Similar analysis has been used in the United Kingdom, which is only considering three ecosystem services compared to the 23 ecosystem services within this study. The United Kingdom changed its cost benefit analysis to incorporate the three ecosystem services. Another point of interest involves China and how the government pays farmers a monthly check for flood protection above Beijing.

Ms. Willis commented that she's surprised that a dollar value to measure was used as opposed to assigning stars such as considering the value in terms of stars assigned to a wetland compared to a casino. By assigning dollar values, its likely wetlands would lose because from an economic standpoint, a casino contributes more economically. Mr. Batker explained that in the world of ecosystems, there are two major camps – one camp that assigns no dollar value to ecosystem services and the other that does. Currently, within the Chehalis basin, flood investment is only considered based on economic analysis along with public safety factors through a cost benefit analysis by the Corps of Engineers. As long as society allocates large resources through economic analysis, it's necessary to consider ecosystem values because it informs where built capital should be located to cause the least damage to ecosystem services.

John Penberth commented that a federal judge recently ruled that the Army Corps of Engineers is liable for damage occurring in New Orleans from the Katrina hurricane. He asked whether Earth Economics will be liable for any damage that could result from flooding if the information provided to the Flood Authority or the Army Corps of Engineers is utilized for flood protection. Mr. Batker said it's unlikely as the study hasn't been officially adopted. However, the approach is to determine the best flood protection. When an insufficient analysis occurs, there can be much damage. Another case of flooding involved the Mississippi River where record flooding occurred in 1993 as well as in 2008 after spending between \$10 billion and \$20 billion in flood protection. Levees were constructed higher on the Mississippi River causing a rapid rise in water and unprecedented flooding upstream.

Mr. Penberth suggested the figure of \$200 million for the Chehalis basin referenced during the presentation is actually \$330 million as noted by the Public Utilities District, which is a large difference. The larger figure should be promoted because that is what it will cost taxpayers from both the federal and local level to maintain the dam. He questioned why the terminology is referred to as "flood protection" when it's really river manipulation. Mr. Batker said one of the central themes of the ecosystem analysis documents how widening floodways aids in handling floodwaters as well as preserving and reducing damage to levees.

Bill Schulte said the information appears to reflect that levees are less invasive when constructed wider and lower and more damaging if built narrow and high. Mr. Batker said an analysis was completed for King County that resulted in a change in the Flood Management Plan. The analysis was on the Cedar River and the practice of continuing to build higher levees compared to the cost of purchasing properties and widening the floodway. The analysis revealed it's more cost effective to widen the floodway. However, federal regulations often conflict. If the levee is destroyed, the federal government will fund building the levee higher. However, the federal government will not pay for the purchase of property to widen the floodway. These are the issues. Some bad decisions are being made on investments as demonstrated by the Mississippi River flooding.

Bob Burkle referred to flooding on farmland and a recent study from Oregon revealing the presence of native fish in high numbers using flooded farmland. Fish productivity of the land when flooded was very

high. The Willamette River system had the highest return of wild Coho salmon in history this year. Mr. Batker said natural systems produce a set a benefits and if society is not conscious of those interconnections, one kind of infrastructure will harm another kind of benefit. Earth Economics has been studying the Green River. The area encompasses 15 cities with each one building stormwater systems to remove stormwater from cities for conveyance to the river. Meanwhile, the flood district downstream is complaining of higher peak flows annually. One set of infrastructure is destroying another while both are traditionally damaging salmon production. There must be a better a view of the issue.

Mr. Schulte said he read a study completed in the 1950s on the problems associated with flooding caused by farmers and cities channelizing rainwater runoff. Instead of taking weeks or months for precipitation to reach the river, it's now minutes or hours. He asked whether managing stormwater differently can reduce peaks rather than resorting to levees or other artificial systems. Mr. Batker agreed that is the issue. The Green River is a good example as the flood district has \$30 million a year to spend in King County. In the past, the funds were spent on levees because there were five flood districts at the bottom of the watershed with no allowance for expending the funds outside each respective flood district. Consequently, funds couldn't be expended in areas necessary to slow and control flows.

Mr. Burkle commented on effectively designing water collection systems to manage stormwater. Mr. Batker said the issue pertains to public and private investment. It's important to ensure taxpayer and private money is well spent. Not much thought has been given to how homeowners and others can make decisions in their interest while also providing flood protection. Most of the money spent is from private sources. The major elements for salmon restoration and flood protection in the Chehalis basin is slowing the flow of water with more effective recharge of groundwater at higher elevations to reduce peak flows through a natural and wide conveyance system.

Mr. Batker reported said one of the Corps' problems is the building that occurs when a levee is constructed because most people believe a levee will protect them from floods.

Julie Balmelli-Powe referred to the difficulty associated with buying out properties located in floodways. Mr. Batker said there are more options other than purchasing properties. Other options include raising buildings and other measures. Property rights are important to the issue because ecosystem analysis considers who provides the benefits, who are the beneficiaries of flood protection, and who does the damage and to what extent. It's another reason why it's important to include this piece within the project analysis.

Terry Harris said there isn't a common sense approach to the problem in any aspect as moving people out of the floodplain and relocating to higher areas will only lead to deforestation, which creates another set of problems. The issue is an insurmountable task with too much information, too many people, and too much money. Although the information is useful and necessary, there is the wish that it should be easier. Mr. Batker said he views the issue as a call for practicality. The most protection based on science is through widening a bridgeway to allow more water conveyance. That's the investment that should be undertaken. There has been one approach to flood protection that has ignored salmon production, value of farms, and other things. There is some value in levees, but a more holistic approach in the watershed is needed. It's important to make better decisions.

Mr. Burkle commented on the impact of climate change and that those elements will need to be factored in the analysis as rainfall is occurring at a rate that didn't occur in the 1920s.

Lyle Hojem pointed out that any land management action in the upper reaches of the Chehalis basin will result in the control of land reducing the tax base of both financially-constrained Lewis and Harbor Counties. He asked how that potential outcome would be factored in the analysis. To pursue an effective solution, proper land management must occur. However, that aspect wasn't factored in the economics. Mr. Batker said one of the biggest problems within the state is rural counties and the lack of income. The ecosystem approach is beneficial because when mapping values and where it's provided, it's provided in rural areas. When considering the beneficiaries and who actually gains, it's the urban areas. The urban counties receive benefits without paying for it. The only thing rural counties pay for is timber value through housing and industrial construction. One proposal to the Department of Natural Resources and others is looking at a tax on drinking water to compensate rural areas for the value of ecosystem services. There are some cases in the U.S., such as San Jose, that imposed a similar tax. Some new ideas are needed to help fund rural counties.

Ms. Balmelli-Powe stressed that flood protection is needed now. Many of the solutions will not occur in the next 10 to 15 years. Mr. Batker agreed the solution will take time and is one reason for the study. One of the goals is identifying beneficiaries because it justifies the expenditure of funds from outside the basin. The basin's importance is national, local, and state.

Mr. Penberth pointed out that the current budget will increase if the analysis is factored and that as years of delay occur, the project may implode before it even moves forward because of the cost. It may come down to each municipality having to take on the responsibility of having a taxing district to move the project forward. Mr. Batker said the benefits of using the natural system to solve the problem are less costly for obtaining the benefits. The value of researching land management in the upper reaches to slow water is a practical question that needs to be examined and it may cost less than conventional methods for holding water. There are many pieces to the puzzle. One area of concern is the opportunities available for investment in the watershed and how the region uses that opportunity to obtain the most benefits for people who live in the basin. He emphasized that both natural and built capital is needed to resolve the issues. However, the question is balance and determining that balance to provide the most benefit to the basin. The work involves a basin-wide approach, which presents an opportunity to lead many other parts of the country in the right direction if things move in the right direction in the Chehalis basin.

Chair Canaday thanked Mr. Batker for providing the information. She acknowledged that no action has occurred and the region is now facing its next season of rain. Some measures have been implemented through the program to raise homes. When completed, 144 houses will be raised, which will assist those homeowners. However, that's not the solution. A basin-wide solution is needed.

Mr. Batker invited everyone to attend a workshop in January where more maps and information will be shared as well as ideas on some practical solutions.

### **Fiscal Report**

Ms. Napier distributed a copy of the work plan that included fiscal details of each grant award outlining tasks, deliverables, start and finish dates, and beginning and ending task or fund balance for each program in the work plan. Members provided previous feedback. The original version included information on the amount award to each grant. The current version includes information on the beginning as well as the ending fund balance.

Currently, the Partnership is operating under the WRIA Phase 4 grant with \$48,926 remaining from the initial award of \$62,500. The first legislative appropriation under the Watershed Council Year 1 grant

totaled \$75,000 with a remaining balance of \$33,688. Based on the Partnership's previous direction the balance will be transferred to project implementation.

The Watershed Council Year 2 grant is another legislative appropriation. Of the \$186,149 remaining balance, the Partnership agreed to shift any balance to Watershed Coordination task. However, there is still no decision by the DOE on the \$38,000 overspent by Grays Harbor College for the Water Quality Monitoring Program. Ms. Napier reported she is meeting with DOE representatives to discuss the issue.

Planning Unit Support from DOE was a \$54,000 grant with \$10,964 remaining. The funds are used for payment of the Watershed Coordinator's time. There is an opportunity to apply for another \$30,000 to DOE that is under review because a 50% match is required, which could be accomplished through in-kind services.

The Lead Entity Operation program is work scheduled on salmon recovery over a two year-contract with the balance at \$98,112 from the original amount of \$110,000.

Mr. Schulte commented that the information appears similar to a checkbook that shows the balance of each fund. He requested a budget document showing the budget and anticipated expenses over the year. The information as presented does not represent a budget report.

Mark Swartout said that previously, the Partnership developed a work program for the next year showing each month or quarter. Mr. Schulte is requesting additional information on the current balance of each grant and the work items for 2010 along with the respective cost assigned to each item. Ms. Napier and Mr. Swartout affirmed that the STC will review the request and develop a document for review at the December meeting.

#### **Participation in Joint Letter**

Ms. Napier reported the Corps of Engineers conveyed a request to the Flood Authority and the Partnership to join the State of Washington and the US Army Corps of Engineers to provide a letter to citizens who commented at the four public workshops. The basic letter thanks citizens for taking the time to share their concerns and that their respective contact information will be used to advise them of future events. The request to the Partnership is authorization to the Chair to sign the letter. The Flood Authority authorized the Chair's signature on the letter.

Ms. Hempleman asked whether there is a plan to respond to citizen comments. Ms. Napier said she'll follow up.

Mr. Schulte suggested tabling the request until the next meeting to enable members to provide comments.

Ms. Willis asked why the Flood Authority and the Partnership are sending the same letter. Ms. Napier said there will be one signature block with four signatures for the state, Corps, Flood Authority, and the Partnership. Ms. Willis said the Corps indicated some citizens asked specific questions and that they would respond with more extensive information.

Ms. Balmelli-Powe said the letter represents a generic letter with no personalization or response to the comments or questions. She noted there were only 27 responses, which merit an individual response to each citizen.

Mr. Penberth said the letter would be an insult to those citizens who attended to seek some answers.

Mr. Schulte recommended the Partnership not send or sign the letter.

Members agreed not to participate in the letter.

**Thurston Regional Planning Council Work Program – Regional Water Initiative**

Ms. Napier distributed a copy of the draft work program from Thurston Regional Planning Council on a Regional Water Initiative in 2010. The work program is to initiate regional water planning with the Thurston PUD and TRPC. There have been concerns expressed about the approach and the lack of consultation with the Partnership. Options include sending a letter to TRPC about the existence of the Partnership and the work completed on water. She asked members to refer the matter to the STC for a recommendation.

Members agreed to refer the matter to the STC for review and a recommendation.

**Possible Agenda Items for the December 18, 2009 Meeting**

- Mark Swartout's presentation on long-term sustainability and what other jurisdictions are initiating
- Review STC's recommendation on TRPC's Regional Water Initiative
- Update on General Investigation Study
- Potential Revisit of US Army Corps of Engineers Letter

A presentation from USGS on data collection was scheduled for the January meeting.

Presentations by Don Davidson on exempt wells and Sue Kennedy from Lewis County involving the Geology/Hydrology assessment of the Doty/Dryad area were scheduled for the February meeting.

Balmelli-Powe asked whether the Partnership's agenda is included in the *Drops of Water* newsletter. Ms. Napier said the agenda is posted on the Partnership's website. It's important to establish agendas to ensure more publication of the agendas.

**ADJOURNMENT**

With there being no further business, Chair Canaday adjourned the meeting at 11:37a.m.

**Summary of Action Items:**

Approval of Meeting Summary

Approved October 28, 2009 Meeting Summary as amended.

Referral to STC

Develop a budget document for the Partnership's work plan for review at December meeting.

Agreement not to participate in joint U.S. Army Corps of Engineers Letter to citizens

Possible revisit at the December meeting following Ms. Napier's follow up with the Corps on responding to citizen questions during four public meetings.

TRPC's Regional Water Initiative

Referred to STC for review and recommendation on how to respond

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