Cranberry, Johns, and Mill Creeks
Temperature TMDL Advisory Group Meeting

Friday, December 9, 2011 – 1:00 to 3:00 p.m.
Mason County Public Works, 100 W. Public Works Dr., Shelton

Attendees

Citizens
- Robert Johnson
- Patricia Vandehey
- Conley Watson

Ecology, WA State Dept. of
- Anise Ahmed
- Phil Crane
- Kim McKee
- Lydia Wagner

Mason Conservation District
- Evan Bauder

Mason County Public Health
- Stephanie Kenny

Mason County Public Works
- Loretta Swanson

Shelton, City of
- Steve Goins
- Dennis McDonald

Simpson Lumber Company
- Linda Matthews

Squaxin Island Tribe
- John Konovsky

Washington Sea Grant
- Teri King

WSU Mason Extension Office
- Emily Sanford
- Bob Simmons

Technical Study Q&A

Anise Ahmed, Department of Ecology, Environmental Assessment Program

The report was written with the help of the Squaxin Island Tribe (SIT). Most streams begin with low temperatures. As the water flows downstream, it warms up due to solar radiation and not enough riparian vegetation. These streams begin with warm temperatures in lakes or wetlands. Downstream the water cools but not enough because they are starting with higher temps. These creeks are not meeting the water quality standards (WQS) with the high temperatures at the headwaters. The study recommends increasing the amount of riparian vegetation. Even with this, it may still be difficult to meet WQS. Another possible action that could help is drawing water from the lake at the lower depth, increasing the flows in the creeks.

Squaxin Island Tribe (SIT): A unique nature of the streams for the fisheries is the last 2-3 miles is where spawning chum occurs. In late August and early September the water is colder than other places in the Puget Sound. These fisheries are an important resource to all of Puget Sound.

Advisory Group (AdvGrp): *How would you increase the flow?* **Ecology (Ecy):** Groundwater feeds the creeks. One way to increase the amount is to increase the length and meandering of the creek. For example, increase the length from 1 to 2 miles to increase areas where groundwater feeds the creek.

AdvGrp: *Is there a connection between water withdrawal and amount of water in the creek?* **Ecy**: We don't know.

AdvGrp: *Is the groundwater coming from the aquifers?* **Ecy**: The base flow comes from groundwater and increases the surface water.

AdvGrp: *Why isn't Deer Creek part of this study?* **SIT**: The SIT submitted data in 2003, 2004, and 2005. During the time they collected the data, the creek met the water quality standards for temperature.

AdvGrp: *When water is pumped out of a well and put into a drain field, how does it affect groundwater for available water in nearby streams?* **Ecy**: The water stays in the watershed. Geology affects how it gets into the aquifer. **SIT**: Regarding Johns Creek, if water is put in the shallow aquifer it will end up in the creek sooner. Johns Creek is also connected to a deeper aquifer. This could change the water quality parameters, causing an increase of warmer water. **Ecy**: It depends on where the drain field is located. The situation is dependent on the weather and could take time to move.

AdvGrp: *How much do we know about whether the flow going into the shallow aquifer and going out at the deeper aquifer are going to stay the same? Is there water mining in between?* **Ecy**: There is currently an ongoing groundwater study which is the initial phase of a longer groundwater monitoring study. The U.S. Geological Survey (USGS) website has the Phase I report. Ecology has requested more money in the state government budget to increase the study.

AdvGrp: *Is the model more sensitive to shade or groundwater realignment?* **Ecy**: We used the temperature model to see what areas are sensitive. It predicts whether the temperatures will go up or down depending on some variable. These variables are usually flow or shade. We conclude from the model results an increase in riparian shade is needed.

AdvGrp: *When considering planting trees along the creek, are there particular types that are best? Is it dependant on the type of ground?* **Ecy**: It is generally best to stay with the existing vegetation types. In wetlands increasing vegetation will not help. This area is a unique case and we don't know how to minimize the heating upstream of the wetland. More information is still needed. **AdvGrp**: *The whole idea seems predicated on staying ahead of global warming. Will putting more trees in the area really cool the water?* **Ecy**: The trees will make a difference. It is possible these creeks may not meet water quality standards even after an increase in vegetation. There is still a significant benefit to having more trees.

AdvGrp: *Is it possible to meet the WQS by just adding shade?* **Ecy**: Some reaches of the stream will meet them but not all of them.

AdvGrp: *Is there any correlation with stormwater draining into streams?* **Ecy**: The critical times for creeks is summer when rainfall is less. There is still the potential for rainfall. Rain tends to be cooler and would help cool the water instead of warming it up. Most of the modeling included base flows when temperatures are potentially the highest.

Lakes

AdvGrp: *Could we consider addressing lakes by drawing water at different depths?* **SIT**: This is a complex question and issue. The water heats up and cools off in different parts of the lake. **Ecy**: An increase to the depth/width ratio generally has good results. **AdvGrp:** *Are there areas for this effort where we can do this?* **SIT**: The easiest answer is to add wood in Johns Creek. This will narrow the channel, create more pools and ripples, and could create cooler water. All the areas are low on wood and we should start at the bottom. **Ecy**: Dredging would change the substrate and we would have to restore it. **SIT**: The SIT is working with the Salmon Recovery Funding Board (SFRB) to look at the lower sections.

AdvGrp: *Can you turn on/off different lakes in the model?* **Ecy**: This was originally in the study but since it isn't the current situation it was removed. **SIT**: The easiest fix to turn off Lake Limerick. They did another profile to see if it stratifies and it does. If we could pull water from the bottom it would help Cranberry Creek. **Ecy**: It could work with existing lakes and look at different depths. We need to have caution in considering where we withdraw the water.

Large Woody Debris (LWD)

AdvGrp: *What changes in temperature would we see with an increased amount of wood in the creeks? What is the degree of benefit?* **Ecy**: The model can only predict the shade benefits. Increasing wood in the creeks would slow down the velocity giving the water longer time to cool. **AdvGrp:** *Can you model the depth to width ratio?* **Ecy**: We can change depths into the model. **AdvGrp:** *What would be the maximum width?* **SIT**: During the average July flow, it is 1 foot until you get to wetlands.

AdvGrp: *Where were they moving the root wads?* **SIT**: A bunch of creeks have had LWD placed in them so it could be numerous places. **AdvGrp**: *Are there particular types of trees you want for this activity?* **SIT**: This is a specialized effort to get a good root wad. Adding LWD is a restoration activity and requires a variety of permits.

Webb Hill Biosolids Facility (Biosolids treatment and land application facility)

AdvGrp: This area has had sludge applied since 1985, along with adding quick lime to bring the pH up to a certain level. *Do these actions affect temperature?* **Ecy**: It heats up the water. **AdvGrp**: It is not applied in the lined areas, but on fields, which goes into groundwater which goes to aquifer. **Ecy**: If it infiltrates into a shallow aquifer it could impact it.

AdvGrp: In 2000 they requested a 6.6 million gallon lagoon put in. Nobody seems concerned. This overflows into groundwater. Everything is connected and the water will go where it wants to. **SIT:** We don't have an accurate picture of where the water flows in the Webb Hill area. The groundwater model could help with this question.

AdvGrp: Ecology paid for a large study on Webb Hill. **SIT**: There were five different methods used in the study. Webb Hill is on the edge and is sometimes in/out. We need a more sophisticated model.

AdvGrp: Concern expressed about the very high rate of nitrates. Landowners have tried to plant hay to pull some of the nitrates out but in 2010 the rates were still high. **Ecy**: Nitrates could be an issue.

Related website links:

- Ecology, Environmental Assessment Program. **Webb Hill Biosolids Facility Hydrogeologic Investigation – Phase I, September 2007**: http://www.ecy.wa.gov/programs/eap/wrias/Planning/docs/webhill_biosolids.pdf
- Ecology, Environmental Assessment Program. **Webb Hill Biosolids Facility Hydrogeologic Investigation – Phase 2, June 2008:** http://www.ecy.wa.gov/programs/eap/wrias/Planning/docs/InterimPhase2Report.pdf
- Ecology, Waste 2 Resources. **General Permit for Biosolids Management**: http://www.ecy.wa.gov/programs/swfa/biosolids/pdf/BiosolidsManagement.pdf
- Ecology, Waste 2 Resources. **Responsiveness Summary – General Permit for Biosolids Management Comment Period: May 19, 2010 – June 22, 2010**: https://fortress.wa.gov/ecy/publications/SummaryPages/1007021.html
- Mason County Public Health. **Biorecycling Treatment and Beneficial Use Facility (Webb Hill) Frequently Asked Questions**: http://www.co.mason.wa.us/forms/Community_Dev/webb_hill_faq.pdf

Instream Flow Q&A

Phil Crane, Department of Ecology, Water Resources Program

It is hard to create more water. Many streams are dependent on groundwater. Other than importing water from other watersheds, there aren't opportunities to get water into the streams. The City of Shelton has a reclaimed water program. Ecology and the Squaxin Island Tribe disagree over water rights in the Johns Creek area. The issue elevated and currently remains in the courts.

The Water Resources Planning process for WRIA 14 was shut down. Because of this, some of the opportunities to address issues were put on the shelf. The instream flow rule was adopted in 1984. Some areas are closed for water withdrawal. **SIT**: The Port of Shelton passed a stipulation agreement, which Ecology signed, addressing where the Port gets water for the Johns Creek operations. One lawsuit is off the books. **AdvGrp:** Port said they gave up some of their wells. **Ecy**: Yes, they will transfer to City water supply. **SIT:** They are still looking for a leak where they are losing water.

AdvGrp: *This watershed includes Shelton Creek, so can the upper reach of Shelton Creek affect the groundwater in lower Johns Creek?* **SIT**: We don't understand this yet. There may be a connection between Shelton and Cranberry Creeks. All the streams are in a tight area and without more sophisticated tools it is hard to see where the groundwater is moving to. Data gathered by various models used by Ecology, the SIT, and the Port of Shelton will give a better idea of what is going on.

AdvGrp: *Regarding industrial operations, is water going back into the ground?* **Ecy**: The mill is a large user and water may go back into a stream. They are currently in a transition period and the Port will continue using wells until 2013. The change will not happen right away. **SIT**: This is a pretty leaky aquifer system. **Ecy**: There are 1-2 confining aquifers. **AdvGrp**: *Will data from the models show the critical recharge areas?* **Ecy**: We don't know.

City of Shelton (COS): The Public Utilities District (PUD) has an agreement with the COS. If landowners connect to the system they will help pay for the equipment. **AdvGrp:** The city will determine the user charge. **COS**: All users pay a connection fee, and except for the Port of Shelton, are retail customers. There are properties that may never be connected.

AdvGrp: *Why doesn't Ecology address flow in TMDLs?* **Ecy** (Kim McKee): Ecology follows the model used by the Environmental Protection Agency (EPA). The original Clean Water Act (CWA) addresses how to approach water quality management and planning. The CWA defines pollution as "the man-made or man-induced alteration of the chemical, physical, biological, and radiological Integrity of water." **SIT**: The amount of water in a stream is a physical property. **Ecy**: We limit our focus to the integrity of the water and how we approach our temperature TMDLs. We apply this approach statewide. **SIT**:: Temperature is a biological property. Ecology has a narrow definition of physical property.

Related Website links:

- Ecology, Water Resources. **Instream Flow homepage**: http://www.ecy.wa.gov/programs/wr/instream-flows/isfhm.html
- Ecology, Water Resources. **Watershed Management homepage**: http://www.ecy.wa.gov/watershed/index.html
- City of Shelton. **Regional Water & Wastewater Plan:** http://www.ci.shelton.wa.us/public_works/public_works_sewerplan.php
- U.S. Environmental Protection Agency (EPA). **Summary of the Clean Water Act**: http://www.epa.gov/lawsregs/laws/cwa.html
- U.S. Environmental Protection Agency (EPA). **40 CFR 130.2 Definitions**: http://edocket.access.gpo.gov/cfr_2011/julqtr/pdf/40cfr130.2.pdf
- U.S. Environmental Protection Agency (EPA). **Impaired Waters and Total Maximum Daily Loads**: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/
- GPA Access, Electronic Code of Federal Regulations (e-CFR). **Title 40: Protection of Environment, Part 130 – Water Quality Planning and Management**: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=6e2d17e03863b4d82f941c75e4a10ef4&rgn=div5&view=text&node=40:22.0.1.1.17&idno=40

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Meeting materials are available online at http://www.ecy.wa.gov/programs/wq/tmdl/oakland_bay/index.html.

Next meeting

Date: Friday, February 3, 2012*****
Time: 1:00 – 3:00 p.m.
Place: Mason County Public Works, 100 W. Public Works Dr., Shelton

To make the meetings more productive and stay on task, Ecology asks advisory group members to consider the following regarding areas on or near Cranberry, Johns, and Mill Creeks:

- Identify areas where we need more shade. Provide as many specifics as possible *(address, which creek is nearby)*.
- Identify landowners in areas where we need more shade. Provide as many specifics as possible *(name, phone, e-mail).*
- Is there currently any riparian type work going on? If so, please provide specifics. *(What is the work? Who is doing it? Where is it happening?)*

***Update**: The date of this meeting changed to January 30, 2012.