



Water Cleanup Plans

Stillaguamish River Watershed

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Water quality studies underway

The Washington Department of Ecology (Ecology) is conducting water quality studies in the Stillaguamish River watershed. During the summer of 2001, three studies will be underway in addition to ongoing water quality monitoring in the basin. One study will assess fecal coliform bacteria, dissolved oxygen, and metals in the main stem and tributaries of the Stillaguamish River. A second study will assess temperature, and a third study will collect information on macroinvertebrate (aquatic insect) communities in the river bottom.

You are invited to attend a public meeting to hear more about the Stillaguamish studies in Arlington, Washington, at the Arlington Boys and Girls Club on Tuesday, July 24, 2001.

Please plan to attend a public meeting at:

**Arlington Boys and Girls Club
Community Room
18513 – 59th Avenue NE, Arlington
Tuesday, July 24, 2001
7:00 p.m.**

Water cleanup plans

Federal law requires states to identify sources of pollution in waters that fall short of water quality standards and develop cleanup strategies. States must determine how much pollution the waters can receive and still be considered healthy. This determination is called the total maximum daily load or TMDL. The TMDL allocates the amount of a pollutant that individual sources can contribute, and the plan for cleaning up existing pollution is called a water cleanup plan.

Water cleanup plans provide a common-sense and science-based approach to cleaning up polluted water to meet state water quality standards. Water cleanup plans have three phases:

- Conducting a water quality study,
- Developing cleanup strategies, and
- Developing detailed plans and implementing the activities.

Ecology conducts water quality studies to understand the pollutant sources and to develop computer models that are used to set TMDLs. This is the technical phase of water cleanup plans. Ecology then works with local agencies and organizations to develop cleanup strategies based on the TMDL. This is called the summary strategy phase. Ecology works further with local agencies and

organizations to develop detailed plans from the cleanup strategies and to implement the activities in the plan to bring water quality within the standards. This is the detailed implementation phase.

Stillaguamish River fecal coliform, dissolved oxygen, and metals study

Ecology is conducting a study of fecal coliform bacteria, dissolved oxygen, and heavy metals in the lower Stillaguamish basin, focusing on the old Stillaguamish channel, the main stem Stillaguamish River, and Port Susan north of Kayak Point.

The study will examine the current status and causes for documented dissolved oxygen, pH, turbidity, and bacteria (fecal coliform and enterococcus) problems. The current levels of copper, lead, nickel, arsenic, and mercury in the river and in various sources will also be measured. Weather permitting, this study will also examine if these problems are worse after rainstorms when nutrients, bacteria, and other contaminants in the run-off can affect water quality.

Some surveys are being carried out in coordination with current monitoring by the Stillaguamish Tribe, Snohomish County Surface Water Management (SWM), and other local groups. Specific coordination of bacterial sampling in Port Susan with the Stillaguamish Tribe is currently underway. Flow gages are operated and maintained by the U.S. Geological Survey, Snohomish County, Stillaguamish Flood District, and Ecology.

Sampling in the basin began in August 2000, and will continue through November 2001. During 2000, seven recreational beaches were sampled for bacteria each week for one month. During 2001, bacteria and water quality will be sampled during critical low flow conditions and again during storm events, and metals will be sampled quarterly.

Since the study began, the geographic area has expanded to include Port Susan, and the project plan has been updated to reflect this change. Further modifications to monitoring design will be considered, although time and money constraints prevent major changes at this point. The updated plan is available for review (see information below).

The draft Stillaguamish River Fecal Coliform, Dissolved Oxygen, and Metals Quality Assurance Project Plan is available on the Internet at www.ecy.wa.gov/biblio/0103065.html or call 360-407-6486 to obtain a copy.

For more information regarding this study, contact Joe Joy at 360-407-6486 or jjoy461@ecy.wa.gov.

Stillaguamish River temperature study

Ecology is conducting a study of instream water temperature in the Stillaguamish River watershed. Many beneficial uses of water, such as water supply, stock watering, wildlife habitat, shellfish, and the spawning, rearing, and migration of fish, are affected by temperature. Fish require cold water

for healthy habitat, and state water quality standards place a limit on the maximum temperature for streams. Erosion of sediment (from banks or adjacent land), lack of vegetation along the river, and low stream flows typically cause higher water temperatures. To examine these conditions, temperature will be studied using instream readings of temperature and flow, aerial infrared images of stream temperature, and surveys of streamside habitat.

The infrared images will be conducted using Forward Looking Infrared Radiometry (FLIR). The FLIR equipment will be mounted on a helicopter to image the river surface temperature. Information from FLIR will be verified by readings from numerous temperature gages in the rivers. The completed temperature picture will help landowners, local governments, watershed planning groups and state water quality managers identify where temperatures are too warm. The surveys and helicopter flights will take place in the Stillaguamish River basin between July 15 and August 30. **To obtain a handout with more detailed information on FLIR, please call 425-649-7213.**

From June through October, Ecology will measure air and water temperature continuously at fifty-seven locations along the river. Relative humidity will be recorded at five of these locations. Flow will be continuously measured by five stream gages along the river, and measured instantaneously at twenty-one locations. The habitat survey will be conducted by walking along the stream and measuring channel geometry, stream gradient, stream width and depth, tree height, and tree canopy density.

This information will be used to develop a computer model describing how temperature, flow, and the condition of the riverbanks are connected throughout the basin. The model will allow Ecology and other agencies and organizations to anticipate how management practices in the watershed influence stream temperature.

For more information regarding this study, contact Greg Pelletier at 360-407-6485 or gpel461@ecy.wa.gov.

Stillaguamish River macroinvertebrate study

Ecology is conducting a study of the macroinvertebrate (aquatic insect) communities on the river bottoms of the Stillaguamish basin. During the study, Ecology will collect samples from twenty locations for the purpose of describing the biological health of waters that have exceeded state temperature standards. The study will look at the relationship between water quality, watershed characteristics, and the kinds of macroinvertebrates found in the bottom of the river. Results from this study will be used to help determine whether the biological condition of the river can be tied directly to other conditions addressed by the TMDL process, like temperature and dissolved oxygen.

Snohomish County Surface Water Management (SWM) is also sampling macroinvertebrates at the same time in seven to ten of the same locations using different scientific methods to see if the results from the two methods can be compared. The comparison will be used to determine the extent to which past and future biological monitoring by the two agencies can be compared.

Ecology and SWM will select sampling locations this summer during June and July, and sampling will be done in August and September. All rivers that provide Chinook habitat will be sampled by August 15th in order to prevent disturbance of the fall run.

For more information regarding this study, contact Chad Wiseman at 360-407-6682 or cwis461@ecy.wa.gov.

Ongoing water quality monitoring

Ecology continues long-term monitoring of water quality throughout the state. Temperature, pH, conductivity, dissolved oxygen, turbidity, total suspended solids, bacteria (fecal coliform), nutrients, and discharge are measured monthly at most stations. Dissolved metals are measured every other month at a few stations. The nutrients measured include ammonia, nitrate, nitrite, total nitrogen, total phosphorus, and soluble reactive phosphorus.

Ecology began monitoring in 1959, and is currently monitoring at 80 stations statewide, including five stations on the Stillaguamish River, and four lakes within the Stillaguamish basin. A map of station locations and preliminary reports of where samples have not met water quality standards can be found on Ecology's web page at: www.ecy.wa.gov/programs/eap/fw_riv/rv_main.html.

This monitoring is used to help local organizations and state agencies identify water bodies that are not meeting water quality standards, and to initiate and follow up on water cleanup plans. Summary results are available online, and additional data can be requested.

For more information regarding this study, contact Bill Ward at 360-407-6621 or bwar461@ecy.wa.gov.

Stillaguamish studies

<u>WHAT</u>	<u>WHEN</u>	<u>AGENCY</u>
Fecal Coliform, Dissolved Oxygen	Aug 2000- Nov 2001	Ecology
	Ongoing	Stillaguamish Tribe
Macroinvertebrates	Summer 2001	Ecology
	Summer 2001	Snohomish County SWM
Metals	Quarterly during 2001	Ecology
Temperature	Summer 2001	Ecology
Water Quality	Ongoing	Ecology
	Ongoing	Stillaguamish Tribe
	Ongoing	Snohomish County SWM

For this information in alternative formats or for other special accommodations, please call (425) 649-7213 or (425) 649-4259 (TDD). Ecology is an Equal Opportunity Agency.