



# Water Cleanup Plans

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## Skagit River Watershed

Coordinator: Margot Stiles, 425-649-7228 or msti461@ecy.wa.gov

### Water quality studies underway

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The Washington Department of Ecology (Ecology) is conducting water quality studies in the Lower Skagit River watershed. During summer 2001, Ecology is assessing water temperature. The results of the temperature study will be used to set the total maximum daily load (TMDL) that the water can accept and remain healthy for fish and other organisms. Ecology has already set a TMDL for bacteria (fecal coliform) in the watershed based on a water quality study completed in 1997. Water cleanup plans will be developed for temperature and fecal coliform to meet these TMDLs.

Ecology also completed studies of dissolved oxygen (1997) and flow (2000) in the Lower Skagit. Standards for dissolved oxygen are being met, and no cleanup is necessary. A TMDL was set for dissolved oxygen, however, in order to continue meeting standards in anticipation of future uses. Flow studies are used to support studies like temperature and dissolved oxygen. In addition to these studies, Ecology is continuing long-term water quality monitoring in the watershed.

You are invited to attend a public meeting to hear more about Ecology's work in the Lower Skagit River watershed in Mount Vernon, Washington, at Skagit Valley College on Wednesday, July 25<sup>th</sup>.

**Please plan to attend a public meeting at:**

**Skagit Valley College  
Ford Hall Room F101  
2405 E. College Way, Mount Vernon  
Wednesday, July 25, 2001  
7:00 p.m.**

### Water cleanup plans

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A water cleanup plan addresses existing pollution. Federal law requires states to identify sources of pollution in waters that fall short of water quality standards and develop cleanup plans. States must determine how much pollution the water 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 specific pollutant that individual sources can contribute, and water cleanup plans describe how each source can meet that limit.

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
- Outlining cleanup strategies
- Developing and implementing detailed plans.

The technical phase of a water quality cleanup plan involves conducting water quality studies in order to understand pollutant sources and possible use of computer models to set TMDLs. Ecology then works in the summary strategy phase with local organizations and the public to develop cleanup strategies based on the TMDL. Finally, in the detailed implementation phase, Ecology works further with local organizations and the public to develop detailed plans from the cleanup strategies and to implement the activities in the plan to bring water quality within the standards.

For the bacteria cleanup plan, the study and cleanup strategy phases have been completed. The next step is detailed implementation. For the temperature water cleanup plan, the study will be initiated this summer, and the cleanup strategy will be completed. Then detailed implementation will be done for both temperature and bacteria at the same time. Ecology is beginning to work with the local organizations and the public to plan implementation activities for these water cleanup plans.

## **New temperature study in Lower Skagit tributaries**

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Many beneficial uses of water are affected by temperature, including water supply, stock watering, wildlife habitat, shellfish, and the spawning, rearing, and migration of fish. Fish require cold water for healthy habitat, and state water quality standards place a limit on the maximum temperature for streams. Higher water temperature can be caused by erosion of sediment (from banks or adjacent land,) lack of vegetation along the river, and low stream flows.

This summer Ecology is conducting a study of stream temperature in Fisher, Carpenter and Nookachamps Creek. This study is a new one being conducted in conjunction with temperature studies on other waters within Washington State and using a different technology from the temperature study previously proposed. The conditions affecting temperature will be studied using in-stream readings of temperature and flow, aerial infrared images of stream temperature, and surveys of streamside habitat.

Aerial infrared images will be collected using Forward Looking Infrared Radiometry (FLIR). The FLIR equipment will be mounted on a helicopter to image the river's surface temperature. FLIR data will be verified by readings from numerous temperature gages in the rivers. This 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 Lower Skagit watershed between July 15 and August 30. **To obtain a handout with more detailed information on FLIR, please call 425-649-7213.**

*For more information regarding this study, contact Greg Pelletier at 360-407-6485 or [gpel461@ecy.wa.gov](mailto:gpel461@ecy.wa.gov).*

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**For this information in alternative formats or other special accommodations, please call (425) 649-7213 or (425) 649-4259 (TDD). Ecology is an equal opportunity employer.**

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## Bacteria study in the Lower Skagit

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Ecology completed a study of water quality in the Lower Skagit watershed in 1997. This study focused on bacteria (fecal coliform) and dissolved oxygen in the mainstem of the Skagit River downstream of Sedro-Woolley and the North and South Forks near Skagit Bay.

Bacteria levels exceeding standards were found in tributaries, mainstem, and forks of the Skagit River. For clean water in Skagit Bay, each tributary must meet water quality standards. This study identified cleanup priorities for bacteria in Nookachamps, Carpenter and Fisher Creek, a source upstream of Kulshan Creek, and sources draining to the Rexville pump station. Reduction of Mount Vernon combined sewer overflows (CSOs) and continued compliance of wastewater treatment plants with permit limits in Mount Vernon, Sedro-Woolley, Burlington, and Big Lake (Skagit County Sewer District #2) were also identified as important.

*For more information regarding bacteria and dissolved oxygen studies, contact Paul Pickett at 360-407-6000 or [ppic461@ecy.wa.gov](mailto:ppic461@ecy.wa.gov). The complete report is available at: <http://www.ecy.wa.gov/biblio/97326a.html> The data summary for this report is available at: <http://www.ecy.wa.gov/biblio/96345.html>*

## Ongoing water quality monitoring

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Ecology has been monitoring water quality continuously since 1959, and is currently monitoring at 85 stations statewide - including 2 stations on the mainstem of the Skagit River and several lakes within the Lower Skagit watershed in coordination with local volunteers.

Ecology intends to continue long-term monitoring of water quality in the Skagit River watershed. Temperature, pH, conductivity, dissolved oxygen, turbidity, total suspended solids, bacteria (fecal coliform), nutrients, and discharge are measured. The nutrients measured include ammonia, nitrate, nitrite, total nitrogen, total phosphorus, and soluble reactive phosphorus. 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 at: [www.ecy.wa.gov/programs/eap/fw\\_riv/rv\\_main.html](http://www.ecy.wa.gov/programs/eap/fw_riv/rv_main.html) A map of station locations and preliminary reports of where samples have not met water quality standards can be found on the web page, and additional data can be requested.

*For more information regarding this study, contact Bill Ward at 360-407-6621 or [bwar461@ecy.wa.gov](mailto:bwar461@ecy.wa.gov).*

## Completed dissolved oxygen and flow studies

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Dissolved oxygen data collected in 1993 suggested that the Skagit River did not meet water quality standards. Upon re-evaluation, however, the data was found to have insufficient quality control. During the more recent study conducted in 1997, Ecology found that dissolved oxygen standards are currently met, but the standards could be threatened by future growth in municipal wastewater discharges. The study was used to assign allocations for point sources to ensure that the river continues to meet dissolved oxygen standards.

Ecology conducted a brief study of stream flows in Fisher and Carpenter Creeks during September 2000. This survey was limited by low flows, which require additional resources and methods beyond the scope of this assessment. This initial snapshot of late-summer flows and connections between surface and groundwater will be applicable to other studies.

For more information regarding bacteria and dissolved oxygen studies, contact Paul Pickett at 360-407-6000 or [ppic461@ecy.wa.gov](mailto:ppic461@ecy.wa.gov). The complete report is available at: <http://www.ecy.wa.gov/biblio/97326a.html>  
The data summary for this report is available at: <http://www.ecy.wa.gov/biblio/96345.html>

For more information regarding the flow study, contact Charles Pitz at 360-407-6675 or [chpi461@ecy.wa.gov](mailto:chpi461@ecy.wa.gov). The complete report is available at: <http://www.ecy.wa.gov/biblio/0003049.html>

## Detailed implementation for clean water

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During 1999 and 2000, Ecology worked with members of the community to begin a water cleanup plan to address the bacteria problems found by these studies. A strategy was developed and presented to the public for comments in the spring of 2000. Since then, a significant amount of locally organized implementation has already taken place. For example, the city of Mount Vernon has designed and constructed improvements that greatly reduce the impact of combined sewer overflows. Some nonpoint sources of pollution have also been addressed, including riparian restoration work by the Skagit Conservation District and septic education programs by Skagit County.

The next step is to identify what remains to be done in detailed implementation for temperature and bacteria in the Lower Skagit. We are seeking descriptions and locations of current implementation and monitoring activities in the Lower Skagit River watershed. We would like to organize this information in an updated GIS map and database to be made available for use by organizations in future watershed planning. Ecology will use this database to identify implementation gaps that need to be filled to meet water quality standards and will coordinate with existing participating groups to cover those gaps.

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*Do you or your organization work on management of agricultural practices or septic systems? Do you work on restoration, easements, or land purchase of stream banks? Please let us know if and how a GIS database of similar ongoing work and implementation needs in the Lower Skagit River watershed could be of use to you – or if you are currently working on similar mapping projects. Please take time to fill out the form below and mail it to us.*

### We'd like to hear from you!

Let us know what you think. Write to us below, check the boxes that apply to you, give us your name and address, and send the form to Ecology.

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Name \_\_\_\_\_  
Address \_\_\_\_\_  
City/ZIP \_\_\_\_\_  
Phone/E-mail \_\_\_\_\_

A database would be useful to me.  
 I have design ideas for a database.  
 I would like my projects included in a database.  
 Please keep me informed.

Please mail to: Margot Stiles, Department of Ecology, 3190 160<sup>th</sup> Ave. SE, Bellevue, WA 98008-5452  
or send E-mail to: [msti461@ecy.wa.gov](mailto:msti461@ecy.wa.gov)