

### Several creeks in the Lower Skagit watershed need your help

Water in several tributary creeks that flow into the Lower Skagit River is too warm and may be harming salmon and trout (salmonids) which need cold water to survive. The streams include the Nookachamps, East Fork Nookachamps, Otter Pond, Turner, and Lake creeks in the Nookachamps basin; as well as Hansen and Red creeks just east of Sedro-Woolley, and Fisher and Carpenter creeks south of Mount Vernon. The warm temperatures, which occur in the late-summer, low-flow season also create more favorable conditions for bacteria and other pathogenic organisms.

To restore these waters to meet Washington's water quality standards, the Department of Ecology (Ecology) is working with local Skagit organizations and citizens on ways to improve water quality. We would like your comments on the *Lower Skagit Tributaries Temperature Total Maximum Daily Load Water Quality Improvement Report* (reports are also sometimes known as a *total maximum daily load* assessments, or *TMDLs*).

#### Cool streams with plenty of dissolved oxygen are important for water quality and fish

Just as it is necessary for human life, oxygen is essential for salmonid fish, which need cold, oxygen-rich waters to stay healthy during critical life stages. Oxygen in water is called dissolved oxygen (D.O.) and cold water holds more D.O. than warm water. In waters with less D.O., fish and other aquatic life can be physically stressed and more prone to disease. If creek temperatures get above the lethal limit (25°-27°C [or 77°-78° Fahrenheit]), fish may die.

Stream temperature standards are set by Ecology and are reviewed and approved by the federal Environmental Protection Agency. These standards are established to protect the most sensitive beneficial uses of local waters. In the lower Skagit creeks, the standards protect several salmon and trout species that use these streams for spawning, rearing of young, and migration.

#### PUBLIC MEETINGS AND PUBLIC REVIEW PERIOD

You are invited to join us at one or both of two sessions on:

##### Monday, February 25, 2008

Burlington Public Library  
820 E Washington Ave.

##### Session 1

**Open House at 3-3:30 p.m.**  
**Public meeting to provide your comments begins at 3:30 p.m.**

##### Session 2

**Open House at 6:30 - 7 p.m.**  
**Public meeting to provide your comments begins at 7 p.m.**

**Comment period runs through March 26. Copies of the Report will be available at Skagit County libraries and online at:**

[http://www.ecy.wa.gov/programs/wq/tmdl/watershed/tmdl\\_info\\_nwro.html](http://www.ecy.wa.gov/programs/wq/tmdl/watershed/tmdl_info_nwro.html)

#### Submit comments or ask questions:

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Better land and water management can lead to cooler stream temperatures. Here are some of the ways to cool streams:

**Add native trees to shade the stream and keep the water cool.** Trees increase stream bank stability, shade out invasive plants, and provide a cool microclimate near the stream.

**Prevent sediment from eroded banks and cleared land.** Increased sediment makes streams shallower and wider, which exposes more water to warming by the sun. Sediment on stream bottoms can also reduce incoming cooler groundwater.

**Use water-conserving irrigation practices that lessen the negative impacts to the water that feeds the stream.** Increased flow in streams helps keep the water cool, while shallower streams may warm more quickly.

**Reduce or eliminate hardening of stream banks.** This reduces the cooling effect of groundwater or wetlands.

**Reduce impervious areas to allow more infiltration of precipitation.** If more land near streams is paved for roads or parking lots, a greater proportion of rainfall will reach the stream as warmed surface runoff, rather than as rainfall that infiltrates and is cooled by soil temperatures.



#### Understanding and correcting problems

Ecology conducted a study of late-summer stream temperatures in Hansen, Nookachamps, East Fork Nookachamps, Lake, Fisher and Carpenter Creeks. Scientists used numerical computer models to test whether fully-grown native trees along these creeks would provide sufficient shade to block the sun and keep the streams cooler. The study determined that with mature streamside vegetation, these creeks would remain several degrees cooler each summer, enough to improve dissolved oxygen levels and relieve some

overheating experienced by cold-water fish.

Ecology plans to inform landowners if their parcel could use additional streamside vegetation or if their land management practices could be improved to help protect streams. Working through a basin steward or through local organizations, Ecology expects to provide technical and financial assistance for landowners who are willing to make riparian improvements.

#### Ecology recommendations for working with Skagit landowners

Ecology proposes that more landowners be encouraged to add vegetation to shade the creeks. The Ecology strategy includes the existing Conservation Reserve and Enhancement Program (CREP), administered by Skagit Conservation District, and some new elements:



- Under CREP, landowners receive rental fees for land next to streams that is planted and maintained in native plant buffers.
- Ecology is encouraging local organizations to develop a basin steward program. A basin steward would work with individual landowners to improve land use practices and riparian conditions along creeks. Restoration could include planting native trees, controlling reed canary grass, reducing erosion, and other practices to improve health of the land and streams.
- Ecology encourages Skagit County to develop a program to purchase conservation easements on selected properties with approved, established and well-maintained streamside areas. Conservation easements are written agreements attached to the title of a property and offer permanent protection to retain the natural functions of ecologically important areas.

During the public comment period that runs through March 26, the *Lower Skagit Tributaries Temperature Total Maximum Daily Load Water Quality Improvement Report* will be available at the **Skagit Valley College Library**, as well as at libraries in Burlington and Mount Vernon:

Burlington Public Library  
820 E Washington Ave  
Burlington 98233-1904

Hours: M-Th 11 a.m.-8 p.m.  
F-Sa 11 a.m.-5 p.m.

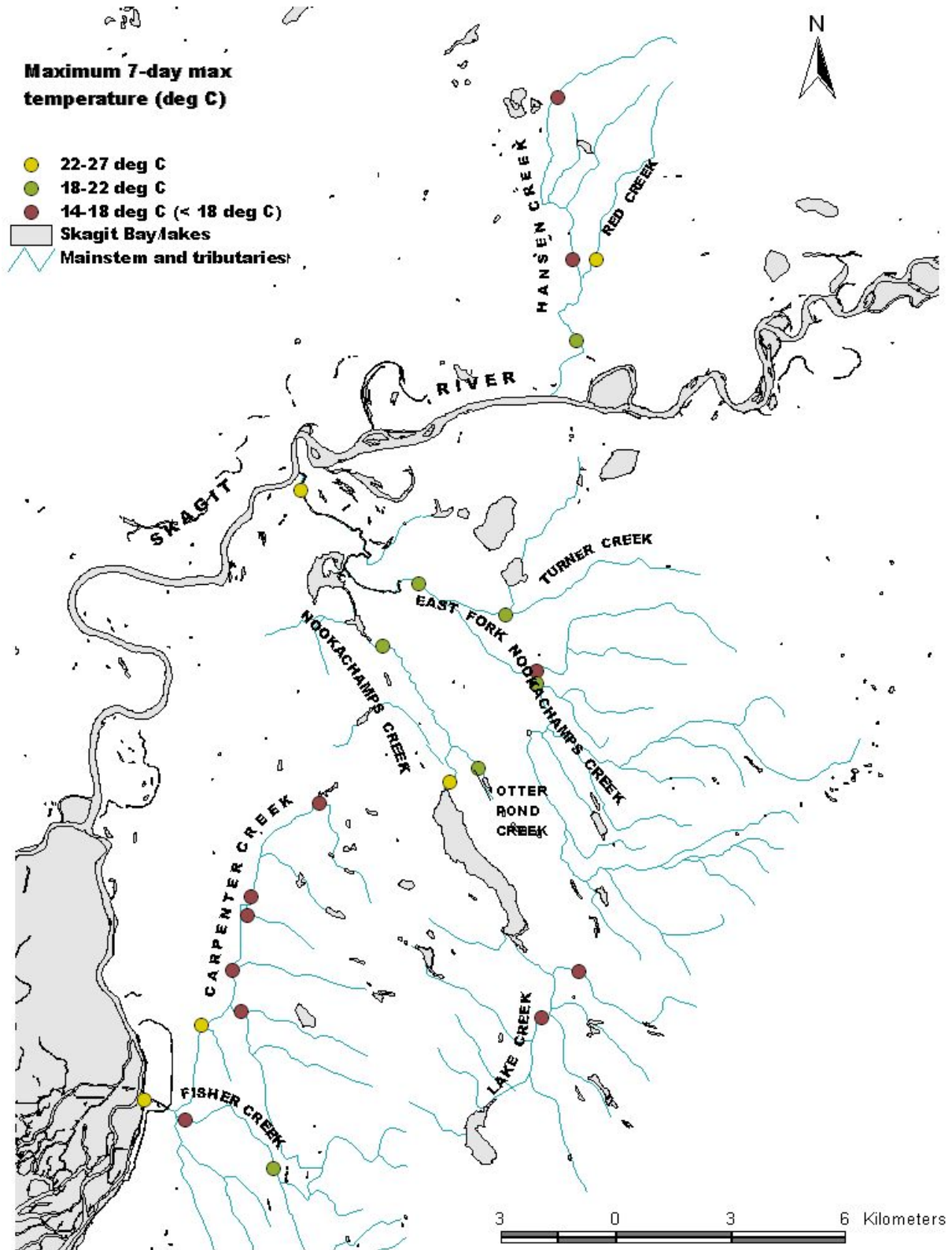
Mount Vernon Public Library  
315 Snoqualmie St  
Mount Vernon 98273-4226

Hours: M-Th 10 a.m.-8 p.m.  
F-Sa 10 a.m.-5 p.m.; Su 1-5 p.m.

**You can find also find additional information at:**

**[http://www.ecy.wa.gov/programs/wq/tmdl/watershed/tmdl\\_info-nwro.html](http://www.ecy.wa.gov/programs/wq/tmdl/watershed/tmdl_info-nwro.html)**

If you need this publication in an alternate format, call the Water Quality Program at 360-407-6404. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.



Nine creeks in the Lower Skagit Watershed are too warm in late summer. Washington State Department of Ecology is asking residents and local Skagit organizations to help with actions to restore the health of these creeks