



# Focus on Teanaway Basin

from Ecology's Water Quality Program

## A plan to improve stream temperatures

### What is the issue?

The Teanaway River in upper Kittitas County is a rearing and spawning area for coldwater fish, including Chinook salmon, rainbow trout and steelhead trout. However, studies show the river and its reaches are impaired by high temperatures during the summer. Because river measurements made in the early 1990s showed temperatures exceeded state numeric standards, the Teanaway river system was placed on the Washington State 303(d) list of impaired water bodies.

### What is the Teanaway Temperature TMDL?

The federal Clean Water Act of 1972 requires states to develop plans (called Total Maximum Daily Loads or "TMDLs") to correct the problems found in impaired waterbodies. The Teanaway Temperature TMDL has been developed to help improve stream temperatures to meet state water quality standards.

### Why is temperature important in the Teanaway?

- Temperature has a profound effect on organisms that live or reproduce in the water, including both fish and amphibians.
- Increased stream temperatures during the summer affect these organisms by decreasing the supply of oxygen, disrupting metabolism, increasing susceptibility to toxins, increasing vulnerability to disease, reducing the ability to avoid predators, and reducing food supply.
- When water temperatures become too high, salmon and trout suffer a variety of ill effects, ranging from decreased spawning to death.

### What did we find in the Teanaway Temperature TMDL?

In the summer of 1998, maximum daily water temperatures in the Teanaway River system ranged from 12°C (54°F) near the headwaters to 26°C (79°F) near the mouth. State numeric water-quality standards are 16°C (61°F) for the upper reaches and 18°C (64°F) for the lower reaches. Temperatures during 1998 exceeded the numeric standards throughout the basin, except near the headwaters. Temperatures in the lower basin exceeded the standard more than 75 percent of the summer. Under state standards, when temperatures exceed the numeric criteria, natural conditions apply.

Ecology's study indicated that maximum daily water temperature could be reduced approximately 3°C to 4°C (5°F to 7°F) if streams are returned to more natural conditions. This can be accomplished by establishing a mature riparian corridor and reducing the amount of

sediment entering the streams. Also, improved stream flows could increase the stream's ability to handle heat loads, further reducing stream temperatures. Land management activities, such as forest management, grazing, agriculture, and residential development, may affect temperatures adversely where they damage vegetation adjacent to streams, cause excessive erosion of stream banks, add sediment to streams, reduce instream flow, or return warmed water to the stream.

## **What actions are proposed in the Teanaway TMDL?**

Voluntary actions to repair and replace native riparian vegetation in buffer zones along streams are proposed. Water conservation measures also are encouraged. Technical assistance and funding are available through local, state and federal agencies. The Washington State Department of Ecology can assist in identifying such opportunities.

Kittitas County regulations already provide for protection of riparian areas, under the Critical Area Ordinances (CAO) and Shoreline Management regulations. On forested lands, the Department of Ecology, the state Department of Natural Resources, and the USDA Forest Service have undertaken numerous actions to protect riparian areas and reduce sediment input from road erosion and logging.

## **What has been done?**

Many Teanaway landowners have upgraded their irrigation practices, and most of the irrigation delivery water is now piped. These irrigation improvements conserve significant amounts of water, resulting in higher flow levels in the river. The Kittitas County Conservation District has worked with several landowners to plant riparian vegetation on their property, and many landowners have independently installed riparian plantings themselves. Several groups, including the Bonneville Power Administration, the Natural Resources Conservation Service and the Washington State Department of Ecology, have helped fund this important work.

## **For more information, please contact:**

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The TMDL reports are available via Ecology's TMDL webpage at:

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

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