



## **Upper White River at Risk: First Steps Toward Restoration**

---

The Upper White River flows from the glaciers and snowfields of Mount Rainier, through a forested valley that is largely undeveloped to the Mud Mountain Reservoir. The Upper White appears pristine. But it has water quality problems.

Land management has changed the river in ways that threaten the health of native spring chinook salmon, bulltrout and other aquatic species. Two streams in the Upper White River basin fail to meet state water quality standards for temperature. The Clearwater and Greenwater Rivers are on a list of waters that must be restored to meet standards. Other areas have also been identified as having problems for temperature and fish habitat.

The U.S. Forest Service, the U.S. Environmental Protection Agency (EPA) and the state Department of Ecology (Ecology) produced this newsletter to let you know about the work we're doing to address these issues and how you can participate.

### **Human activities have threatened fish and other aquatic life**

---

Salmonids need cool, clean water and diverse natural habitats. The Upper White River has historically provided spawning and rearing habitat for a native run of spring chinook, as well as bull trout. It has also provided habitat for other aquatic species such as tailed frogs.

The fish lay their eggs in the gravel of streams and rivers in the Upper White basin. When the eggs hatch, the tiny fish (called alevin at this stage) live for a while in the small spaces between the rocks in the riverbed. As the fish grow, they move out of the riverbed and into the river itself. They need the food and shelter that are provided by a healthy river basin.

But years of logging, road building, and recreation use have changed the natural processes of the Upper White River basin, threatening the health and survival of the salmonids. Both the spring chinook and bull trout are listed species under the federal Endangered Species Act.

Logging removed areas of forest that acted to slow the flow of water to the streams. Stream banks were logged causing loss of shade that cooled the water. Large wood in the water was removed and could not be replaced naturally, making the streambed unstable and less able to provide a variety of fish habitats.

---

Ecology is an equal opportunity agency.

Roads further disturbed the water runoff processes and caused extensive landslides. Slides from collapsing slopes and roads put sediment into streams. Sediment can fill the spaces between rocks, smothering fish eggs and newly hatched fish, and other aquatic animals that fish need for food.

Unstable channel conditions created by too much sediment, loss of wood, channel confinement, and increased flows can lead to other serious effects. These include scouring of streambeds that destroys eggs, channel changes that leave eggs exposed to dry out, loss of safe habitat during flooding, and loss of cover from predators.

Too much sediment makes the river shallower and wider. More surface area exposed to air and sunlight warms the water. Changes in water temperature can affect timing of early development of fish, and may cause them to emerge from the riverbed when risk from flooding and predators are greater. Bull trout are very sensitive to warmer waters, with reduced survival rate of both eggs and juveniles.

### **What's being done?**

---

The U.S. Forest Service, in cooperation with EPA and Ecology, has conducted a watershed analysis of the Upper White including the Greenwater, Huckleberry, and West Fork White Rivers. This study is intended to help us better understand how the watershed processes of sediment, wood, water, and heat affect water quality and salmonid habitat.

At the same time a cooperative monitoring effort is underway to define current conditions on the river. Ecology, the Puyallup Tribe, U.S. Forest Service, Weyerhaeuser, the Muckleshoot Tribe, USGS, Tahoma Audubon, and state Fish and Wildlife are helping.

In addition, we have formed a technical workgroup of representatives of interested agencies and groups. This workgroup is helping guide the technical aspects of water restoration planning.

From the information being gathered and analyzed, we will develop a plan for restoring the watershed processes to normal levels.

### **How you can get involved**

---

We expect to complete the technical work on the water quality restoration planning effort around late spring in 2002. We will hold a public meeting at that time to discuss the restoration plan and hear what you think.

For more information, or to get on the mailing list to receive notice of the public comment period and meeting, please contact Joanne Schuett-Hames at Department of Ecology, PO Box 47775, Olympia WA 98504-7775, (360) 407-6296, email [jsch461@ecy.wa.gov](mailto:jsch461@ecy.wa.gov)

*Ecology is an equal opportunity agency. If you have special accommodation needs, please call Donna Lynch at (360) 407-7529 (Voice) or (360) 407-6006 (TDD). Email may be sent to [dlyn461@ecy.wa.gov](mailto:dlyn461@ecy.wa.gov)*