



Water Cleanup Plans

Taking the temperature of the Wenatchee watershed

Issue and Background – Measuring Stream Temperature

This summer between July 29 and August 15, the Washington State Department of Ecology (Ecology) will measure stream temperatures in several rivers and streams in the Wenatchee watershed using airborne thermal infrared imaging. Increased water temperature is one of the leading water-quality problems in Washington's waterways. Federal law requires states to identify and clean up waters that don't meet water quality standards. These water quality cleanup plans are also called Total Maximum Daily Loads or TMDLs.

Ecology will contract with Watershed Sciences LLC to fly a maximum of 236 miles of streams by helicopter between July 29 and August 15, 2002. The helicopters will be mounted with Forward Looking Infrared Radiometry (FLIR) thermal-imagery equipment. The equipment will take infrared photographs of the rivers to provide a visual image of each river's surface temperatures. Ecology is also placing temperature gauges in the rivers to confirm flight data with field readings. The helicopters will fly no lower than 1,000 feet (the length of about three football fields) and will work between 2 and 5 p.m., when daytime temperatures are highest.

Why is Ecology using helicopters and thermal imaging technology?

There are more than 600 polluted waters on the statewide cleanup list and about 300 of them have temperature problems. There are 8 listings for temperature on the 1998 303(d) list in the Wenatchee watershed. Several state, federal and tribal agencies in Oregon and Washington have successfully used infrared imaging to help identify and address environmental problems. The data from Ecology's studies will be valuable to waterfront landowners, tribes, local governments, watershed planning units, and state water-quality managers for planning stream restoration efforts, particularly in determining where to plant vegetation to decrease river temperatures.

What will the helicopters take pictures of, and how will they be used?

The focus of images will be the center of the stream. It will cover an area of approximately 100 by 150 meters (330 by 490 feet) and will have a spatial resolution of approximately 0.5 meters (less than 2 feet). Infrared and photographic images will be collected along the entire length of the streams. The information from the adjacent land areas may be used to estimate shading from vegetation.

Why is water temperature a problem?

High water temperature is bad news for aquatic life, water supplies, wildlife habitat, recreation, and the spawning, rearing and migration of fish. Elevated temperature influences the health and survival of native fish. Fish require cold water for healthy habitat. Lack of vegetation along the river, sediment (from eroding banks, etc.), and low stream flows typically cause higher temperatures in rivers and lakes.

How is this going to affect landowners along the rivers being studied?

Stream improvements to reduce temperatures will be discussed and coordinated with landowners and local officials. There are many benefits for landowner involvement and assistance, including improved water quality, compliance with federal Clean Water Act requirements, and preventing endangered-species listings of fish or other aquatic animals.

For more information, please contact Chelan Conservation District's Mike Rickel at (509) 664-0265 or Ecology's David Schneider at (509) 454-7894. The TDD number is (509) 454-7673.