Water Cleanup Plans

Taking the temperature of the Walla Walla watershed

Issue and Background – Measuring Stream Temperature

Increased water temperature is one of the leading water-quality problems in Washington. Federal law requires states to identify and clean up the bodies of water that do not meet water-quality standards. With local assistance, the Washington State Department of Ecology (Ecology) will be developing water cleanup plans, also known as Total Maximum Daily Load (TMDL) plans to address the temperature problems.

This summer, between July 29 and August 15, Ecology will measure stream temperatures in several rivers and streams in the Walla Walla watershed using thermal infrared imaging. The survey area includes the Touchet River from the mouth to just above the city of Dayton and portions of the North Fork Touchet, South Fork Touchet, and Wolf Creek. Yellowhawk Creek and Upper Mill Creek may also be surveyed.

Ecology will contract with Watershed Sciences LLC to fly approximately 100 miles of streams in the watershed by helicopter. The helicopters will be mounted with Thermal Infrared Radiometry (TIR) equipment. This imaging method has also been called Forward Looking Infrared Radiometry (FLIR). 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?

More than 600 polluted bodies of water are on the statewide cleanup list [303 (d) list] and about 300 of them have temperature problems. Four of these temperature listings are in the Walla Walla 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 photograph?

The focus of the 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.

July 2002

Ecology is an equal opportunity agency.

Publication Number 02-10-035

Printed on Recycled Paper

Why is water temperature a problem?

High water temperature is bad news for aquatic life, water supplies, wildlife habitat, recreation, and for spawning, rearing and migration of fish. Elevated temperature influences the health and survival of native fish. Many species of fish (especially salmon, trout, and steelhead) 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?

The Walla Walla TIR studies are designed to develop a wide area assessment of temperature issues in the watershed and not to evaluate individual properties. However, stream improvements to reduce temperatures will be discussed and coordinated with local officials and landowners. Having local residents and officials involved in the process brings benefits such as improved water quality, compliance with federal Clean Water Act requirements, and preventing endangered-species listings of fish or other aquatic animals.

How will Ecology use this information?

The information will provide a better perspective on the health of specific bodies of water and help Ecology and local communities develop effective water-cleanup plans. Our goal is to identify solutions and to have local landowners voluntarily implement temperature improvement activities in the Walla Walla watershed. Ultimately, Ecology will use a combination of tools – including education, technical and financial assistance, wastewater discharge permits, and compliance actions to improve the quality of the water.

For more information, please contact Dave Knight at (509) 329-35939 or email him at dkni461@ecy.wa.gov The TDD number is 711.