



Applying knowledge to improve water quality

Spring 2006
PNWWATER 082

Pacific Northwest

Regional Water Program

A Partnership of USDA CSREES
& Land Grant Colleges and Universities

State of Washington Water Research Center

With approximately 50,000 miles of streams and rivers, 7,800 lakes, and 3,200 miles of coastline, water is an essential resource for the economic, social, and cultural well-being of the state of Washington. Helping to find practical solutions to the technical and social issues related to managing this resource is the goal of the State of Washington Water Research Center (SWWRC). The Center is part of a nationwide association of 54 federally authorized water resources institutes located at land grant universities throughout the United States and its territories. Located on the Washington State University campus in Pullman since its inception in 1964, the SWWRC has a threefold mission: to oversee the conduct of applied water-related research, to foster the education and training of our Nation's future water professionals, and to transfer research results to those who manage or use the Nation's water resources.



The SWWRC is run by a Director who specializes in water resources and Program Directors in environmental limnology, groundwater systems, outreach and education, vadose zone processes, and watershed management. Helping to establish research priorities is a Joint Scientific Committee comprised of representatives from universities around the state as well as the Washington Department of Ecology, the Washington Department of Health, and the US Geological Survey. However, the network of faculty and resources extends far beyond the core group of individuals. The Center has partnered with numerous other faculty throughout the university, state, and region.

The Center attracts funding from local, state, and federal sources and has ongoing projects throughout the world. Sponsored research activities have included investigations of primary productivity on the Columbia and Snake Rivers, lake restoration, dam safety, water conservation, inventories of water sources, water quality degradation due to the eruption of Mount St. Helens, and groundwater contamination to name just a few. Current and recently completed projects include the following:

The King County Department of Natural Resources & Parks is currently funding research to determine how best to balance agricultural and ecologic requirements with regard to ditch maintenance. The work is revolving around 12 primary goals involving fish utilization of waterways as functions of habitat and water quality, temperature impacts of different types of riparian vegetation, dissolved oxygen modeling, reed canarygrass control measures, and erosion minimization techniques. Research findings show how through proper timing and mitigation, maintenance of agricultural waterways can provide a net positive impact on fish habitat.

Determining Total Maximum Daily Loads (TMDL) is an important requirement of the Clean Water Act. The SWWRC is involved in several projects related to collection of field data in support of the state agencies



Pacific Northwest Regional Water Quality Coordination Project Partners

Land Grant Universities

Alaska

Cooperative Extension Service
Contact Fred Sorensen:
907-786-6311

<http://www.uaf.edu/ces/water/index.html>

University Publications:

<http://www.alaska.edu/uaf/ces/publications/>

Idaho

University of Idaho
Cooperative Extension System
Contact Bob Mahler: 208-885-7025
<http://www.uidaho.edu/wq/wqhome.html>
University Publications:
<http://info.ag.uidaho.edu/Catalog/catalog.html>

Oregon

Oregon State University
Extension Service
Contact Mike Gamroth: 541-737-3316
<http://extension.oregonstate.edu/>
University Publications:
<http://extension.oregonstate.edu/catalog/>

Washington

Washington State University
WSU Extension
Contact Bob Simmons:
360-427-9670 ext. 690
<http://wawater.wsu.edu/>
University Publications:
<http://pubs.wsu.edu/>

Northwest Indian College
Contact: Michael Cochrane:
360-392-4299
mcochrane@nwic.edu or
<http://www.nwic.edu/>

Water Resource Research Institutes

Water and Environmental Research
Center (Alaska)
<http://www.uaf.edu/water/>

Idaho Water Resources
Research Institute
<http://www.boise.uidaho.edu/>

Institute for Water and
Watersheds (Oregon)
<http://water.oregonstate.edu/>

State of Washington
Water Research Center
<http://www.swwrc.wsu.edu/>

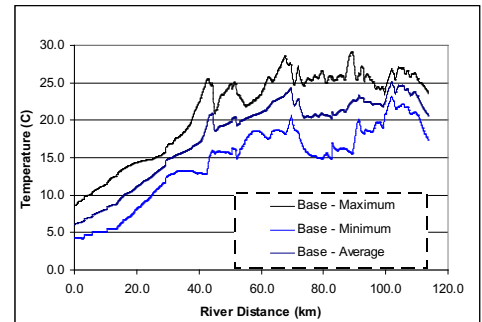
Environmental Protection Agency

EPA, Region 10
The Pacific Northwest
<http://www.epa.gov/r10earth/>

Office of Research and Development,
Corvallis Laboratory
<http://www.epa.gov/wed/>

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responsible for completing the goals. Work is currently ongoing in the Little Spokane River to determine the amounts of fecal coliform, temperature, total suspended solids, and phosphorus entering the waterway. Field investigations and numerical modeling of the processes is being done in cooperation with the Spokane County Conservation District and the Department of Ecology.



SWWRC is currently working in partnership with the US Geological Survey and the states of Idaho and Washington to determine the amount of water available in the Spokane Valley – Rathdrum Prairie (SVRP) aquifer. The interaction between surface and groundwater is an area of investigation not well understood at the present time. The result of this collaborative effort will be a water supply model of the SVRP aquifer capable of determining the affects of groundwater pumping on the 7-day low flow in the Spokane River.



Sediment erosion is a significant source of pollutants to regional streams and rivers. Using high resolution aerial imagery, researchers were able to identify the locations and quantify the amounts of erosion being supplied to Potlatch Creek for the Idaho Department of Environmental Quality. Ephemeral gullies like the one illustrated in the figure supply a good deal of the sediment load and identifying the precise location is paramount for prioritizing the

implementation of best management practices.

The Center is funding several projects just getting under way that will be examining the role of mercury pollution in the environment, colloidal transport of nutrients through tile drains, and soil erosion prediction and modeling. These are just an example of the wide array of projects conducted through the SWWRC. Project completion reports and additional information on the SWWRC can be found at: <http://www.swwrc.wsu.edu/> or by contacting Dr. Michael Barber at (509)335-5531.

National Water Quality Program Areas

The four land grant universities in the Pacific Northwest have aligned our water resource extension and research efforts with eight themes of the USDA's Cooperative State Research, Education, and Extension System.

1. Animal Waste Management
2. Drinking Water and Human Health
3. Environmental Restoration
4. Nutrient and Pesticide Management
5. Pollution Assessment and Prevention
6. Watershed Management
7. Water Conservation and Management
8. Water Policy and Economics

CSREES is the Cooperative States Research, Education, and Extension Service, a sub-agency of the United States Department of Agriculture, and is the federal partner in this water quality program.