



Applying knowledge to improve water quality

Pacific Northwest

Regional Water Program

A Partnership of USDA CSREES
& Land Grant Colleges and Universities

Summer 2006
PNWWATER 090

Watershed Research in Oregon:

Umatilla Area NRI Water Project

Oregon State University researchers, in collaboration with scientists from the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), are examining the response of two river systems in northeastern Oregon, the Umatilla and Walla Walla, to surface water diversion. While many research projects have examined the impact of large hydroelectric dams on river systems, very few have addressed the impact of small dams that draw off river water for irrigated agriculture and municipal water supplies. This is true despite the fact that small dams are many times more numerous than large dams. This OSU/CTUIR project involves looking at what actually happens to the fish and invertebrates, including insects living in the riparian area adjacent to the river, along a series of small dams that draw surface water for irrigation.



In September 2005, David Wooster and Sandra DeBano, riparian entomologists at OSU's Hermiston Agricultural Research and Extension Center, and Jesse Schwartz, a fisheries biologist with the CTUIR, were awarded a 3-year, \$465,000 USDA-CSREES National Research Initiative (NRI) grant to lead this research. NRI grants support important, high-priority research in the biological, environmental, physical, and social sciences that is relevant to agriculture, food, and the environment.



In regions of the west with limited water supplies and a high level of agriculture, allocation of water for irrigated agriculture is important to the local economy. However, there's also a lot of interest in trying to leave more water in rivers for salmon and steelhead. There is actually very little science about the relationship between water withdrawals and the impacts on fish and invertebrates. The team of researchers hopes to be able to aid water managers in assessing irrigation strategies by providing them with useful, accurate information about the effects of diversions on river dependent organisms.

The research team will determine whether the effect of water withdrawal is consistent with a proportional model, where the response of the ecosystem is proportional to the amount of water withdrawn, or a threshold response model, where there is little response below the threshold, but a large response above



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/>

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 Dan Burns:
360-392-4328

dburns@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/>

For more information contact
Jan Seago at 206-553-0038 or
seago.jan@epa.gov

The Project

Land Grant Universities, Water Research Institutes, and EPA Region 10 have formed a partnership to provide research and education to communities about protecting or restoring the quality of water resources. This partnership is being supported in part by the USDA's Cooperative State Research, Education, and Extension System (CSREES).

Our Goal and Approach

The goal of this Project is to provide leadership for water resources research, education, and outreach to help people, industry, and governments to prevent and solve current and emerging water quality and quantity problems. The approach to achieving this goal is for the Partners to develop a coordinated water quality effort based on, and strengthening, individual state programs.

Our Strengths

The Project promotes regional collaboration by acknowledging existing programs and successful efforts; assisting program gaps; identifying potential issues for cross-agency and private sector collaboration; and developing a clearinghouse of expertise and programs. In addition, the Project establishes or enhances partnerships with federal, state, and local environmental and water resource management agencies, such as by placing a University Liaison within the offices of EPA Region 10.

the threshold. Responses to diversion may take different forms: there could be a change in the abundance of what is there (lower numbers of individuals), a change in composition (different types of individuals), a combination of these responses, or something totally unexpected.

For more information on this project contact David Wooster at 541-567-6337 or david.wooster@oregonstate.edu.



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.