



Applying knowledge to improve water quality

# Pacific Northwest

## Regional Water Program

A Partnership of USDA NIFA  
& Land Grant Colleges and Universities

Spring 2010  
PNWATER 182

### Henry's Fork of the Snake River Watershed

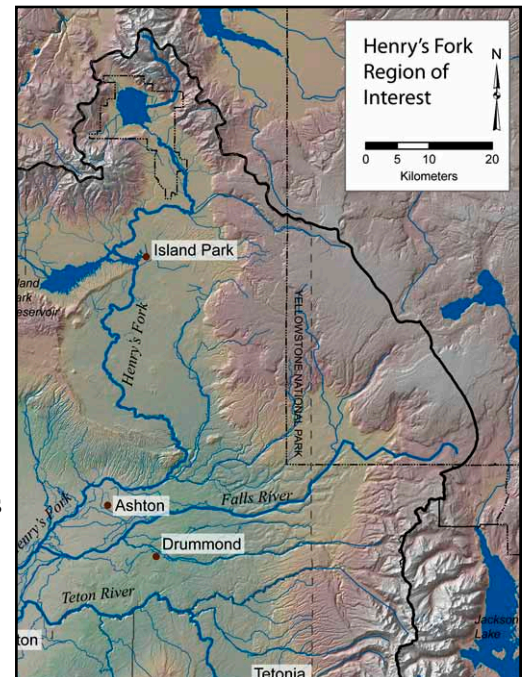
Henry's Fork watershed in eastern Idaho and western Wyoming has traditionally been irrigated farming country bordering the world class trout fishing river. As with many rural watersheds in the West, the Henry's Fork is experiencing rapid replacement of agriculture with suburban, exurban, and resort development. This change in land use has resulted in alteration of water withdrawal, conveyance and use patterns that have altered ground-surface water interactions and increased the diversity of water users.

Researchers and educators from Humboldt State University in California are conducting a National Integrated Water Quality Program (NIWQP) project funded for 2009-2011 by the USDA-NIFA (National Institute of Food and Agriculture) under Section 406 of the 1998 Agriculture Research, Extension, and Education Reform Act. The competitive grant program requires integrating research, extension, and education to better serve multifunctional agricultural activities. The Humboldt team, headed by Associate Professor Dr. Robert Van Kirk, is working closely with local stakeholders to develop water conservation strategies, promote effectiveness of those strategies, and train the next generation of water professionals.

The objectives of the work in the watershed are:

- ◆ Develop quantitative models of ground/surface water use and flow pathways under historic, current, and anticipated future water/land use scenarios
- ◆ Identify socioeconomic and physical mechanisms that will encourage water conservation and efficient water management on developed lands
- ◆ Prepare and distribute to decision-makers, planners, and stakeholders educational materials describing the watershed's hydrologic system and water conservation benefits and strategies
- ◆ Facilitate development by the Henry's Fork Watershed council of a water conservation and management strategy to increase water availability for agriculture while enhancing ecological benefits in key stream reaches
- ◆ Provide experiential training to an interdisciplinary team of environmental science graduate and undergraduate students

The past year, since the awarding of the grant, the main focus has been training students in the disciplines they will need to accomplish the goals and objectives of the grant proposal. The PIs of the grant have met with the local stakeholders for their input and inclusion in the outreach activities. The foremost local groups that are collaborating with Humboldt team members are Steve Trafton of Henry's Fork Foundation, who is co-facilitating meetings of the Watershed Council and providing field area logistical support. Amy Verbeten of Friends of the Teton River is also arranging stakeholder meetings and organizing education/outreach forums. A long time partner of the Henry's Fork stakeholders, Dale Swenson of the Fremont-Madison Irrigation District (FMID), is co-facilitating meetings and supporting the team's efforts as well.



Henry's Fork watershed map.



## 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.htm>

#### 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 Charlotte Clausing:  
360-392-4319

[cclausing@nwic.edu](mailto:cclausing@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](mailto:seago.jan@epa.gov)

Dr. Van Kirk has been working on water management in the Henry's Fork Watershed since 1994, when he became the first research director of the Henry's Fork Foundation. His knowledge of the watershed and the interaction of the water users are derived from a long history working with the stakeholders and investigating the hydrologic interactions within the basin. The results of these investigations have formed the scientific basis for conservation and management efforts throughout the watershed, including the Henry's Fork Drought Management Plan that was mandated by federal legislation authorizing transfer of title of some irrigation infrastructure in the watershed from the federal government to FMID. One of the major outputs of these research efforts is a large database of calculated natural flows for every major stream in the watershed. Dr. Van Kirk has also collaborated with the University of Idaho's Water Resources Research Institute and Idaho Department of Water Resources on research projects.



Project Faculty: Dr. Mark Baker, Dr. Yvonne Everett, and Dr. Rob Van Kirk.

The present project is divided into three major annual objectives:

- ◆ Hydrologic model development. The hydrologic model will begin with the natural flow data already compiled by Van Kirk. These data are in the form of estimated daily flow in every major headwater ground and surface water source in the watershed over a 30-year period.
- ◆ Identification of water conservation and management mechanisms. Based on information needs and challenges identified by stakeholders and decision-makers in phase one of the stakeholder involvement, the team will investigate potential physical, economic, regulatory, and social mechanisms that could be applied in the watershed to promote water conservation and efficient management on developed lands.
- ◆ Preparation and dissemination of educational materials. Driven by information gathered from stakeholders and decision-makers in phases one and two, the team will develop and disseminate educational and informational materials summarizing our research findings in formats appropriate to each stakeholder group as part of phase three. Some of this information will focus on steps individual landowners can take to conserve water and help ensure efficient management of existing irrigation systems.

To learn more about the project and the project team, please visit <http://www.humboldt.edu/~henrysfk>. All photos courtesy of Dr. Rob Van Kirk, from the noted web site.

### 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 National Institute of Food and Agriculture.

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

*This material is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under Agreement No. 2008-51130-04734.*