



Applying knowledge to improve water quality

Pacific Northwest

Regional Water Program

A Partnership of USDA CSREES
& Land Grant Colleges and Universities

Drinking Water and Human Health

Winter 2003
PNWWATER 010



Overview

Pollutants such as pesticides, nitrates and pathogens entering groundwater and surface waters are health hazards to the community. Ground water is the primary source of drinking water for most of the private and many of the public water supplies in the Pacific Northwest, except for Alaska. In Alaska, while larger public water systems utilize ground water, surface water is the primary source outside larger cities. Groundwater is generally more reliable both in quantity and quality than surface water. As a result it is generally less expensive and more reliable to develop a groundwater source. Public water supplies are regularly tested under the Safe Drinking Water Act; however, private wells are generally not tested on a regular basis since testing is not required. Failing onsite sewage systems, excessive fertilizer or animal manure applications are a particular threat to human health, especially in areas where surface waters or shallow well supplies are used for drinking, recreation and shellfish harvesting. The region's four Land Grant Universities have a broad range of



research-based educational materials that relate to protecting drinking water including groundwater and surface waters from pollutants, as well as wellhead protection and proper onsite sewage system maintenance and operation.

Desired Outcomes

- Homeowners properly maintain and operate their on-site sewage systems
- On-site septic system users properly dispose of potentially harmful household chemicals
- Water well users understand the potential health threats of contaminants
- Water well users proactively protect wellheads and fill and/or seal unused wells
- Contamination of groundwater is reduced



ALASKA Contacts

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Fred Sorensen, Water Quality Coordinator, Anchorage, (907) 786-6311, dffes@uaa.alaska.edu

ALASKA Publications

CRD-00011 Living in the Interior

CRD-000111 Living in Anchorage

EMB Emergency Water Brochure

GWQ-00547 Protect Water Resource-Understand Pesticide Movement

GWQ-00548 Protecting Alaska's Water Resources

HCM-01557 Water Cistern Construction for Small Houses

HCM-02020 Water Softeners Annual Maintenance

HCM-04950 Suggestions for Installing Domestic Water Storage Tanks

HCM-04954 A Guide for Assessing Risks and Costs of Water Well Drilling...

OREGON Contacts

Gail Glick Andrews, Extension Water Quality Educator, Corvallis, (541) 737-6294, gail.glick.andrews@orst.edu

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Dan Sullivan, Extension Soil Scientist, Corvallis, (541) 737-5715, dan.sullivan@oregonstate.edu

OREGON Publications

EC 1340 Why Do Septic Tanks Fail?

EC 1341 Septic Tank-Soil Absorption Systems

EC 1342 Holding Tanks

EC 1343 Septic Tank Maintenance

EC 1374 Rural Domestic Water Supply

EC 1488 Backflow Protection for Private Water Systems

EM 8651 Twelve Things You Can Do to Protect Your Well Water

EM 8752 Keeping Your Well Water Well

EM 8752S Agua Limpia en Su Pozo (Keeping Your Well Water Well)





IDAHO Contacts

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Gregory Moller, Environmental Chemistry/Toxicology Research, Moscow, (208) 885-6057, gmoller@uidaho.edu

Steven McGeehan, Water Testing/Chemistry, Moscow, (208) 885-7900, stevenm@uidaho.edu

IDAHO Publications

CIS 872 Nitrate and Groundwater

CIS 873 Water Testing

CIS 1001 Water Treatment and Conditioning Systems for Private Water Supplies

CIS 1011 Why Soften Household Water

CIS 1069 Drinking Water and Recreational Water Quality: Microbial Criteria

EXT 672 Slow Sand Filters for the Control of Giardiasis in Private Water Supplies

BULL 811 Groundwater and Wellhead Protection in the HUA

WASHINGTON Contacts

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Michael Barber, Civil and Environmental Engineering, Pullman, (509) 335-6633, meb@wsu.edu

WASHINGTON Publications

EB 0995 Drinking Water:
Bacteriological Safety and Treatment

EB 1136 How to Select a Home Sewage
Treatment System

EB 1475 Septic System Waste
Treatment in Soil

EB 1525 Sodium Content of Your
Drinking Water

EB 1631 Protect Your Groundwater:
Survey Your Homestead Environment

EB 1633 Role of Soil in Groundwater
Protection

EB 1671 Properly Managing Your
Home Septic System

EB 1672 Properly Managing Your
Mound System

EB 1673 Properly Managing Your
Pressure Distribution System

EB 1714 Abandoned Wells: Forgotten
Holes to Groundwater

EB 1721 Defining Water Quality

EB 1746F6 Household Waste Water
Treatment

EB 1746F1 Improving Drinking
Water Well Condition



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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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.



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.