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DEQ's Perspective on Water Quality Issues

Presented to: Eastern Oregon Water Roundtable
*A Flow Path for the Future of Oregon's
Water Resources*

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Today's Topics

- DEQ's Focus on Water Quality
- Surface Water and Groundwater
- Point Source vs Nonpoint Source
- Solutions
- Future Challenges



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DEQ's Focus on Water Quality

DEQ's Mission Statement is to be a leader in restoring, maintaining, and enhancing the quality of Oregon's air, land, and water.

To that end, DEQ's Water Quality Program protects "waters of the State" for beneficial uses.



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DEQ's Focus on Water Quality

Beneficial Uses include:

- Public and Private Domestic Water Supply
- Industrial Water Supply
- Irrigation
- Livestock Watering
- Fish & Aquatic Life
- Wildlife & Hunting
- Fishing
- Boating
- Water Contact Recreation
- Aesthetic Quality
- Hydro Power
- Commercial Navigation & Transportation



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Surface Water and Groundwater

DEQ protects the beneficial uses of both surface water and groundwater because they are linked and both are important.

Common threats to the beneficial use of surface water include temperature, nutrients, sediment, bacteria, pesticides, and metals. (e.g., Umatilla, John Day, Malheur, Grande Ronde, Owyhee, Powder Rivers)

Common threats to the beneficial use of groundwater include nitrate, pesticides, and metals (e.g., Hermiston area, Ontario area).



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Threats to Surface Water Quality

Water quality standards for surface water are developed to protect the most sensitive beneficial use.

In most Oregon streams, aquatic life is the most sensitive beneficial use.

High stream temperatures, excessive nutrients and sediment are common threats to aquatic life.



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Threats to Groundwater Quality

Drinking water is generally the most sensitive beneficial use for groundwater.

Common threats to groundwater quality include nitrate, pesticides, and metals.



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Defining Pollution Sources

Water pollution can come from either point sources or nonpoint sources.

Point source pollution comes from a discrete point, like a pipe discharging from a factory or a wastewater treatment plant.

Nonpoint source pollution is more diffuse, and comes from broader land use activities like construction, forestry, urban development, transportation, and agriculture.



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Addressing Point Source & Nonpoint Source Pollution

For both point and nonpoint source pollution issues, DEQ follows a similar path:

- characterize the physical system and the environmental issues,
- establish controls to protect beneficial uses, and
- monitor for effectiveness.



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Protecting Water Quality

DEQ addresses both point and nonpoint source pollution of surface water by developing a “Total Maximum Daily Load” (TMDL) for pollutants of concern.

DEQ addresses nonpoint source pollution of groundwater by developing a “Groundwater Management Area” (GWMA) Action Plan.

The goal of both a TMDL and a GWMA Action Plan is to reduce the pollutant load to a level which protects beneficial uses.



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Changing Focus

Historically, point sources were the obvious cause of significant water quality problems.

Today, nonpoint source pollution is the largest contributor to water quality problems.

Point source pollution is largely under control through water quality based effluent limits contained in discharge permits.



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Solutions

Many of the solutions to water quality problems are simple.

For instance, restoring streamside vegetation and proper stream function to “water quality limited” streams will address many surface water concerns including temperature, sediment, nutrients, and bacteria.

Similarly, proper management of nutrients, irrigation water, and pesticides can minimize the most widespread groundwater quality problems.



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Point Source Solution

An example of a local point source solution is Heinz Frozen Foods.

Heinz Frozen Foods, a large food processing facility located in Ontario, discharges process wastewater to the Snake River.

By June 2010, they will reduce their phosphorus load to the Snake River by 80%.

They also have a voluntary future goal of completely eliminating their discharge to the River.



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Nonpoint Source Surface Water Solutions

Two examples of a local nonpoint source solutions for surface water are Willow Creek and the Luther Wetland in the Malheur River Basin.

Local groups such as the Malheur Watershed Council, the Malheur SWCD, and the Irrigation Districts are working with landowners to reduce water use and associated agricultural runoff.

There is broad based support from State and Federal agencies.

Willow Creek Pipeline Project



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Willow Creek Pipeline Project



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Luther Wetland





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Nonpoint Source Groundwater Solution

An example of a local nonpoint source solution for groundwater is the Northern Malheur County Groundwater Management Area.

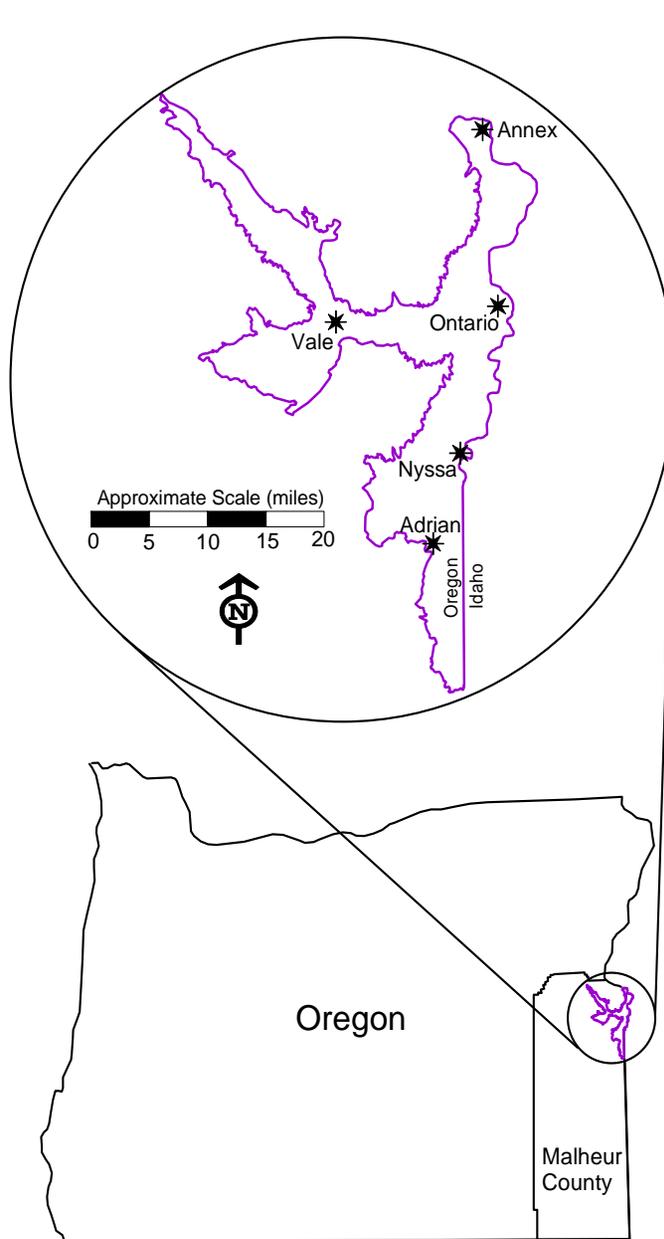
The Northern Malheur County GWMA is an area with wide-spread groundwater nitrate contamination, caused primarily by nonpoint source activities, that exceeds a certain trigger level (7 mg/l nitrate).

Water Quality Program

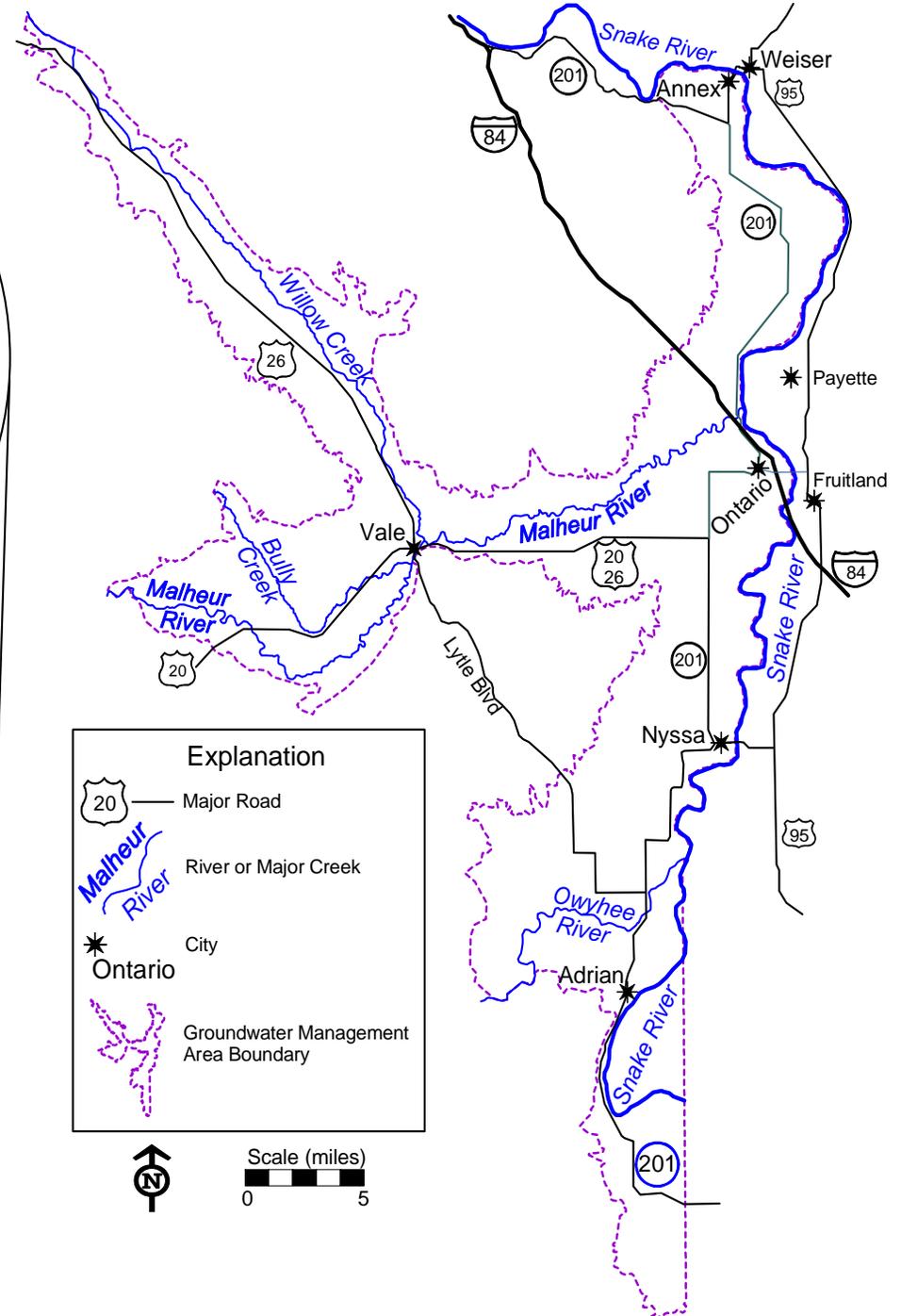
Location and Boundary of the Northern Malheur County Groundwater Management Area



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The boundary of the Groundwater Management Area starts at the mouths of the Malheur and Owyhee Rivers where they converge with the Snake River and extends to the uppermost irrigation canals.



Explanation	
	Major Road
	River or Major Creek
	City
	Groundwater Management Area Boundary



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Solutions

Over the past 20 or so years, nutrient and irrigation management practices in the region have changed.

- Fall-applied N is down by 17% while yield increased.
- The total amount of N applied is down by 9.5%.
- 20% of onion acreage is now drip irrigated.
- Growers using drip irrigation are using 32% less N.

These changes have resulted in groundwater quality improvement. Nitrate concentrations are decreasing in more wells than are increasing, and the area-wide trend is beginning to decrease.



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Who Deserves Credit for this Success?

The people at the OSU Experiment Station, OSU Extension, SWCD, Watershed Councils, and the local growers.

Through their cooperative efforts, best management practices (BMPs) have been identified, promoted, and implemented.

DEQ's role has been to provide financial aid for BMP research and outreach, and to collect and analyze groundwater quality data.



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Future Challenges

To implement nonpoint source water quality solutions, we need a combination of education, regulation, and incentives.

Furthermore, many nonpoint source issues will require the cooperation of other agencies (Federal, State, and local), academia, and members of the general public.

Any Questions?



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**For more information on DEQ's
Water Quality Program, please visit
www.Oregon.gov/DEQ/WQ/**

North Fork Malheur River