Nitrate Contamination in Groundwater

Business & The Environment Conference

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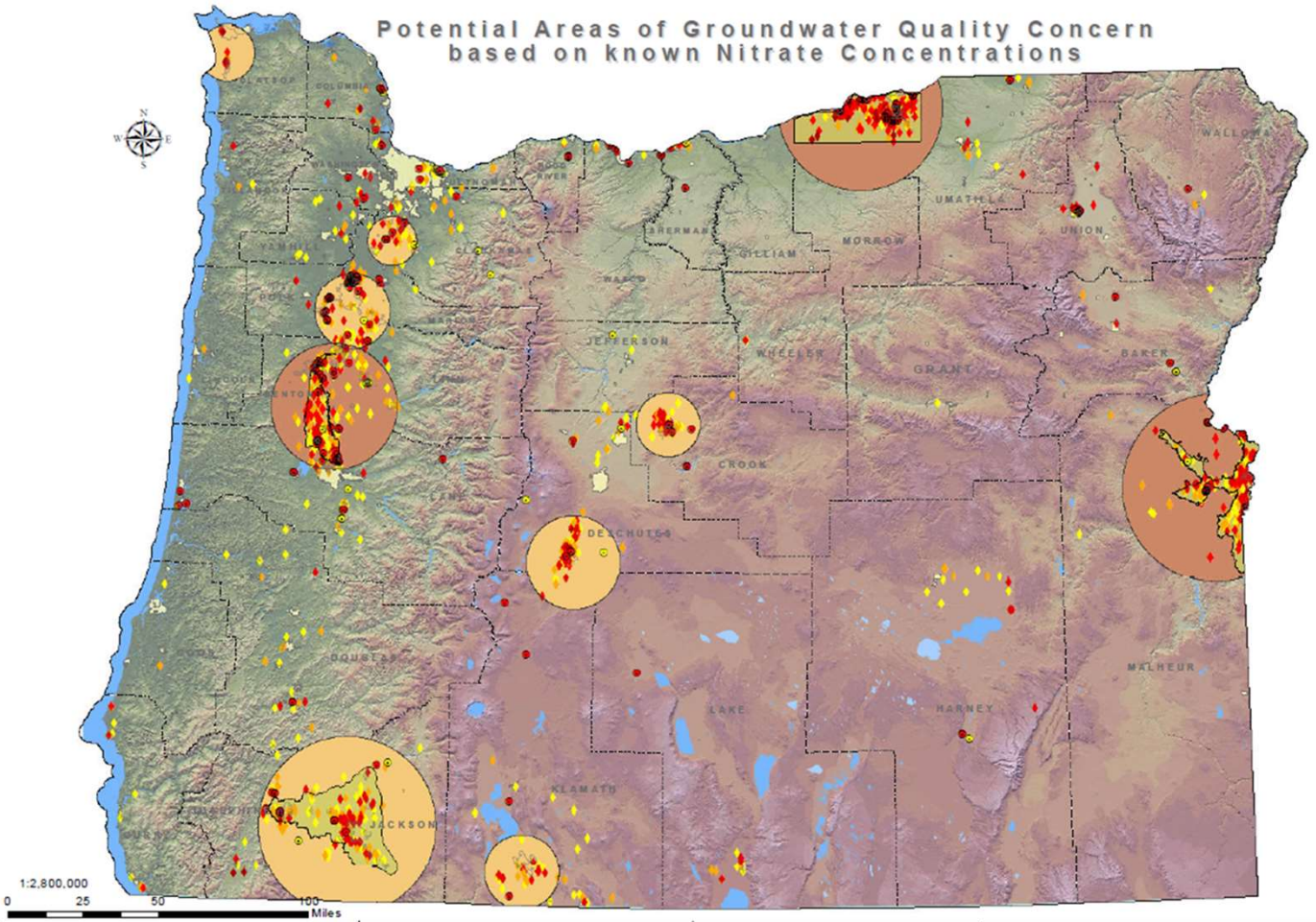
Potential Areas of Groundwater Quality Concern based on known Nitrate Concentrations



Public Water System sources with Nitrate Alerts in GW
- No alerts (not shown)
- 1 to 2 alerts (NO3 >5 mg/l)
- 3 to 100 alerts (NO3>5 mg/l)

Real Estate Transaction Nitrate Results (1989-2015)
- 0 to 5 mg/l (not shown)
- 5 to 7 mg/l
- 7 to 10 mg/l
- 10 to 50 mg/l
- > 50 mg/l

DEQ LASAR Nitrate Data - GW (no Landfills)
- 0 to 5 mg/l (not shown)
- 5 to 7 mg/l
- 7 to 10 mg/l
- 10 to 50 mg/l
- > 50 mg/l

- Rogue Study Area
- Lower Umatilla GWMA
- No. Malheur Co GWMA
- So. Willamette Valley GWM
- GW Concern Areas (GWMAs)
- GW Concern Areas
- City Limits (2010)
- County Boundary

OR DEQ/EnvironmentalSolutions (jkh, 1/2/2014) deq-hq1:IDWP:CoordinationOther Programs:GWMA:

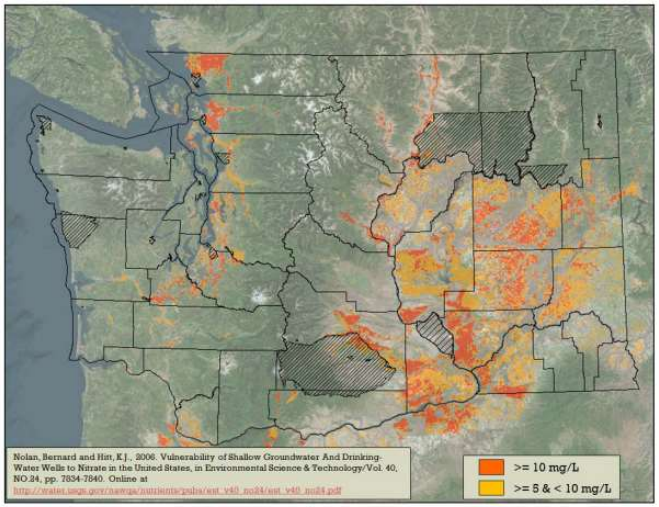
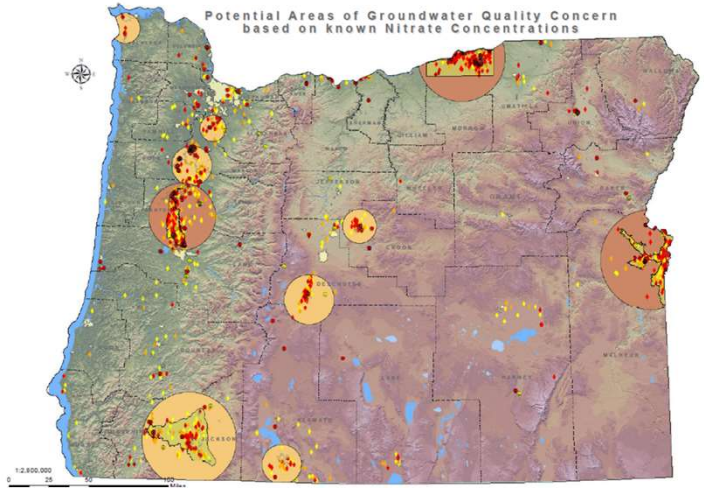
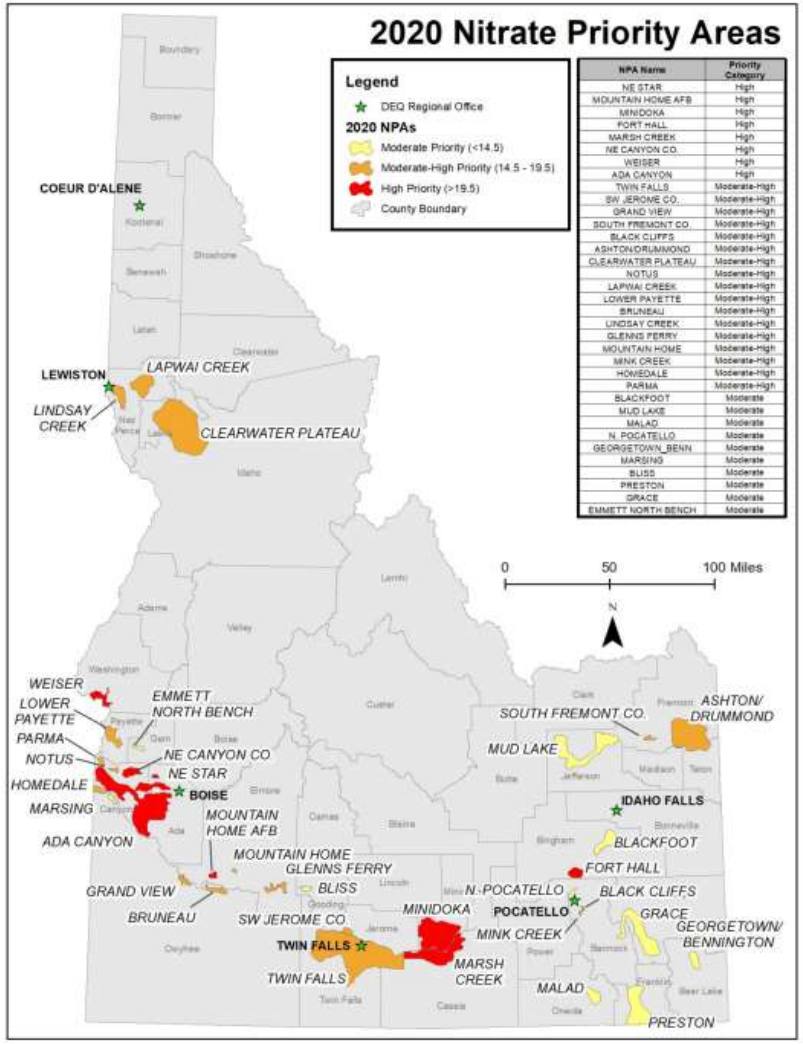
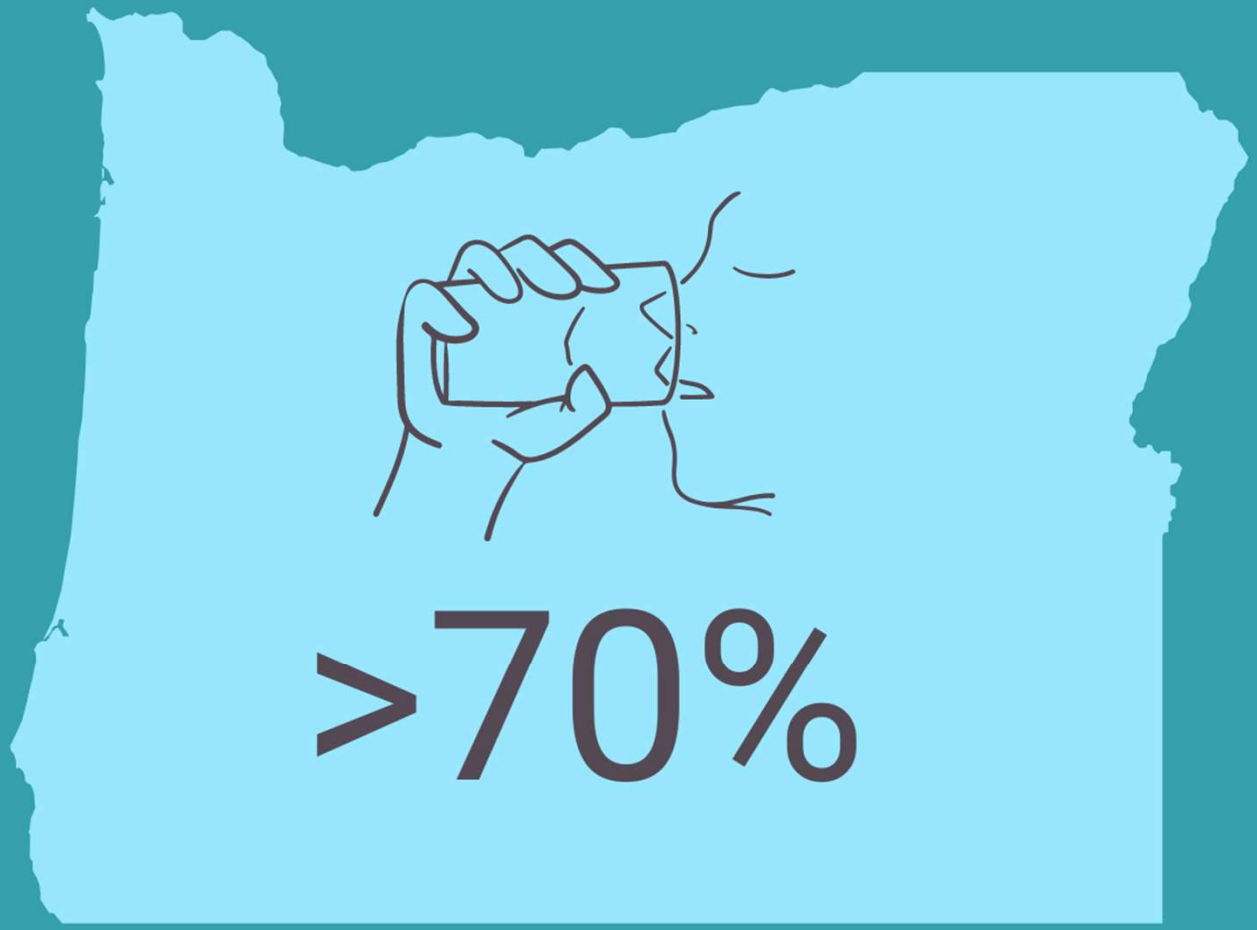


Figure 11: USGS nitrate prediction grid categories greater than or equal to: 5 mg/L Nitrate as N in shallow groundwater (extracted from Nolan, 2006).

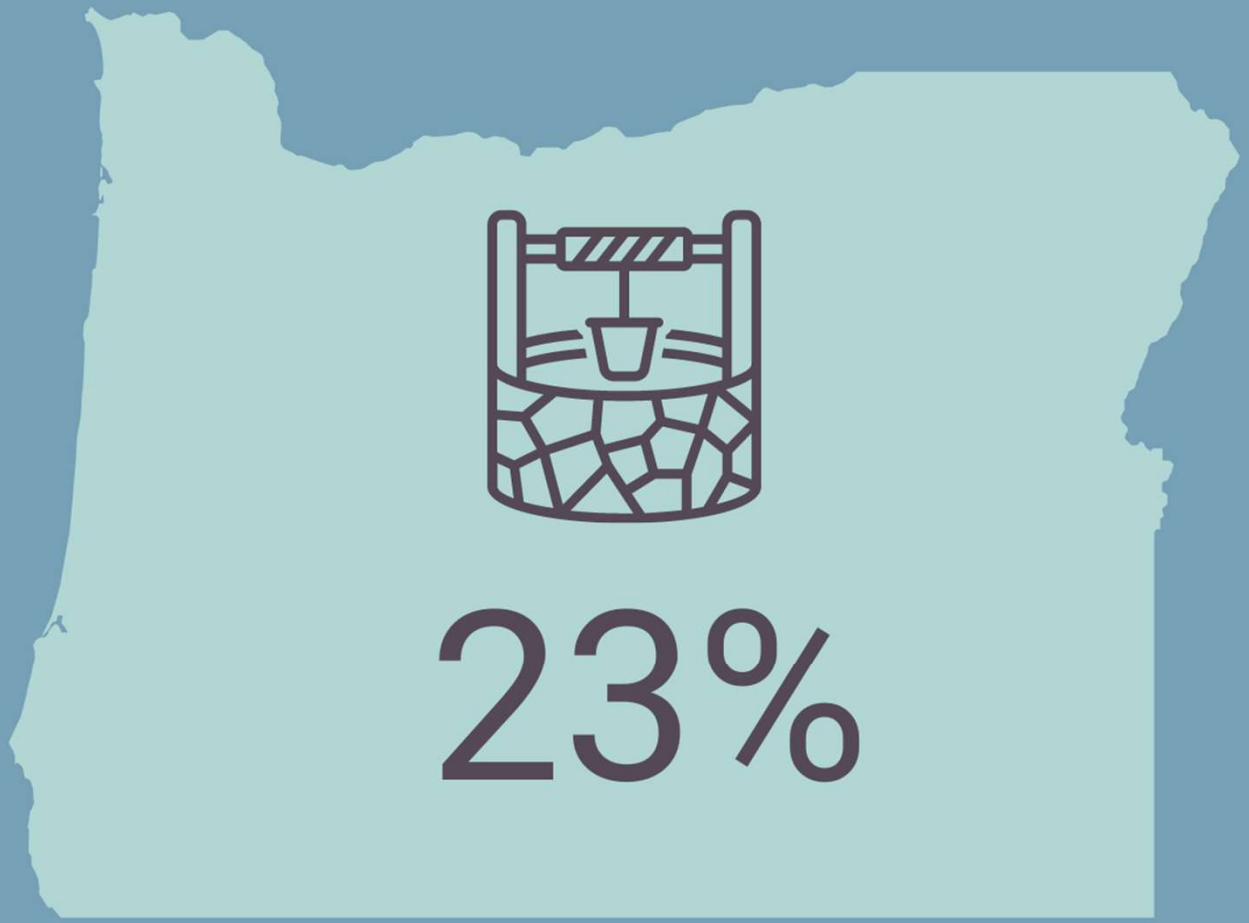




% of residents drinking groundwater

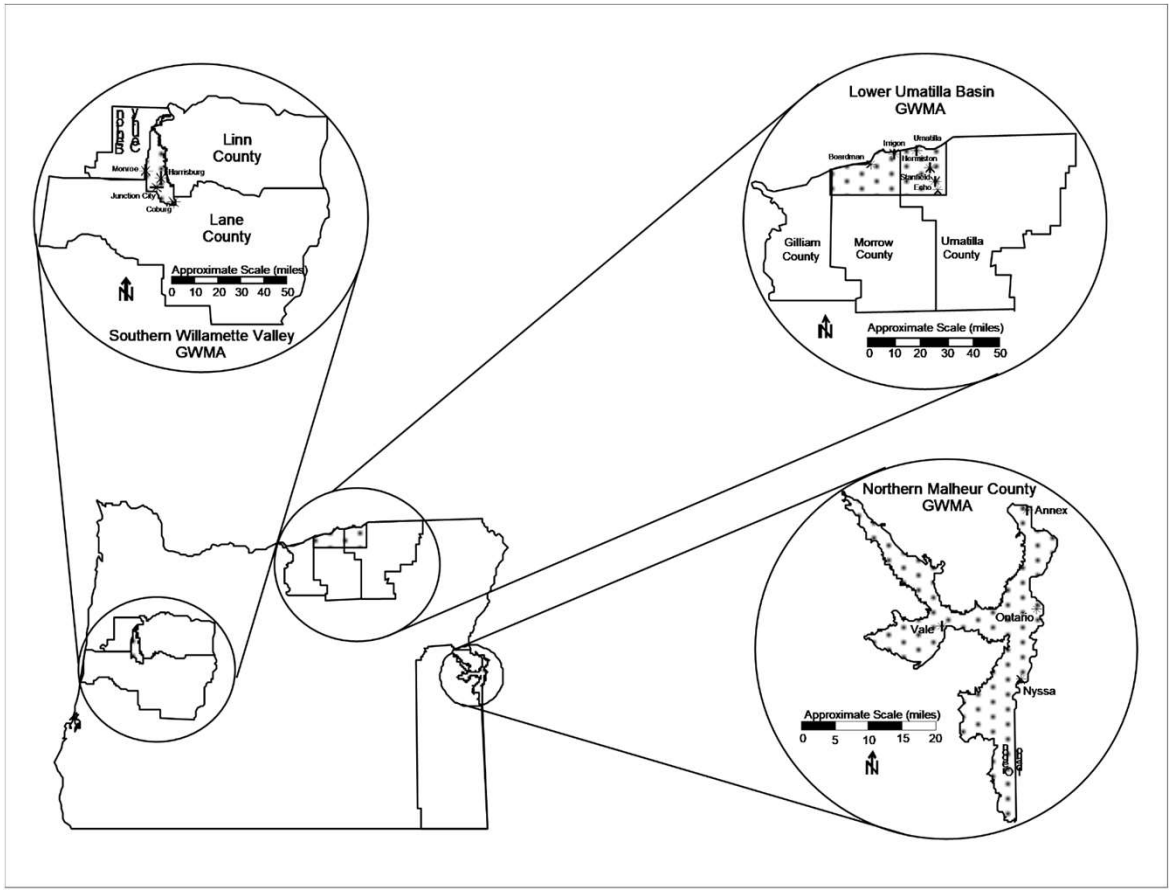


% of residents on private wells



23%

Oregon's Three Groundwater Management Areas



1. Northern Malheur County (1989)
2. Lower Umatilla Basin (1990)
3. Southern Willamette Valley (2004)

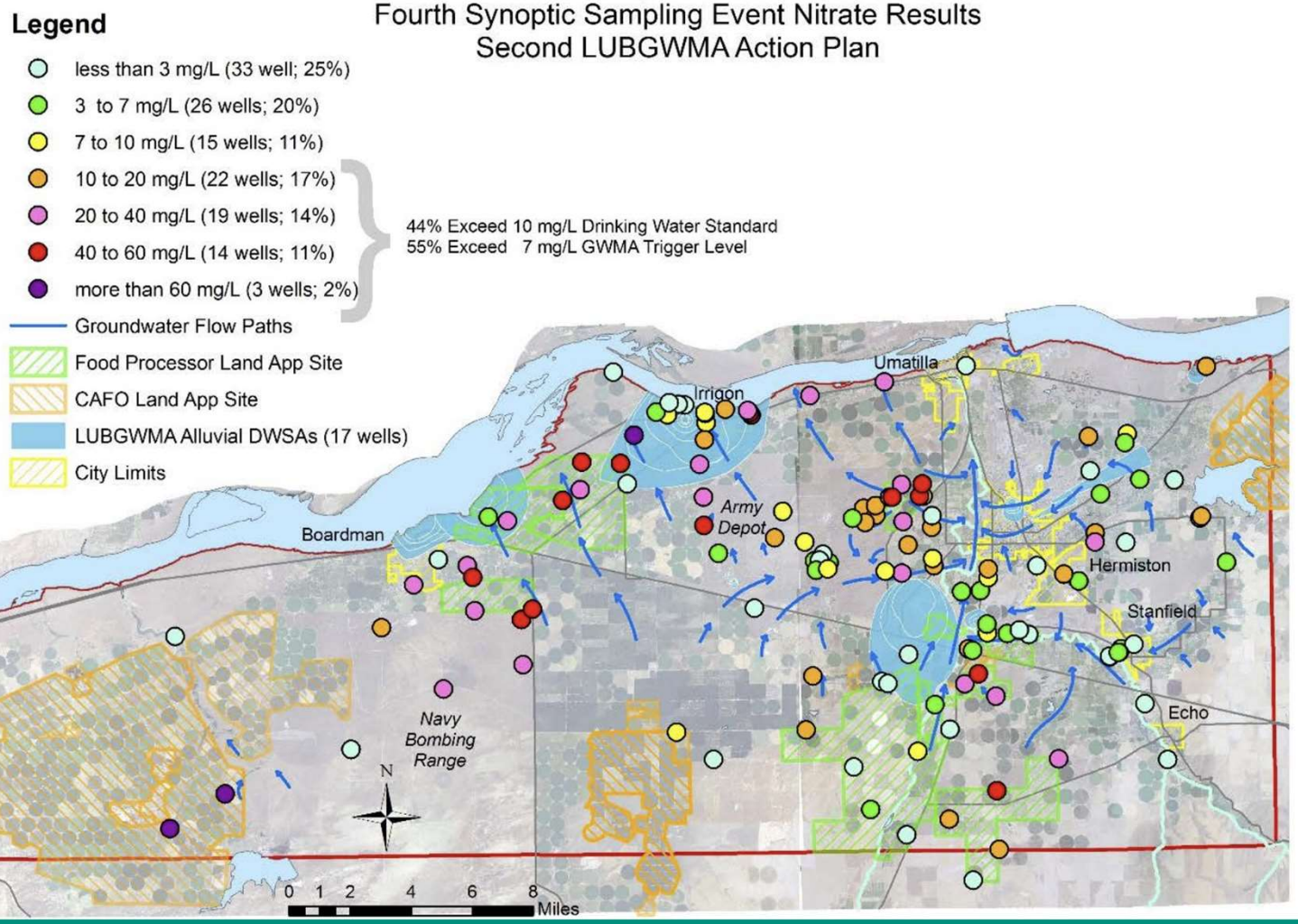
OPB
State fines Port of Morrow $1.3 million for groundwater contamination

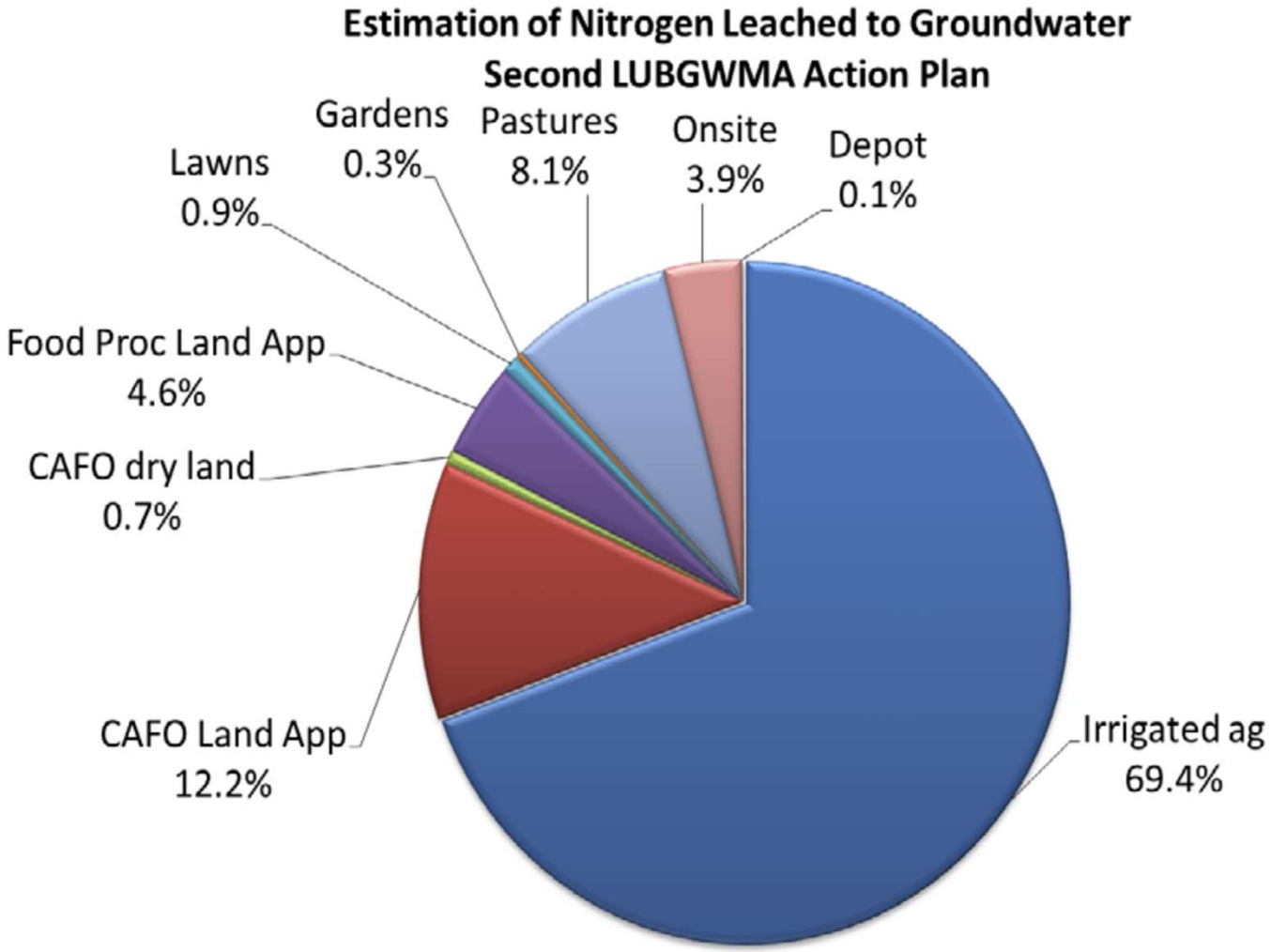
U.S.News & WORLD REPORT
Oregon County Declares Emergency Over Water Contamination

EAST OREGONIAN
Residents in Morrow County demand urgent aid from state for contaminated water

Capital Press
WATER WORRIES: Farmers, regulators struggle to address nitrate contamination

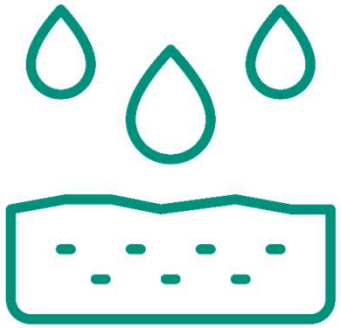
Figure 2-9
Fourth Synoptic Sampling Event Nitrate Results
Second LUBGWMA Action Plan




Estimation of Nitrogen Leached to Groundwater
Second LUBGWMA Action Plan
Gardens 0.3%
Pastures 8.1%
Onsite 3.9%
Depot 0.1%
Lawns 0.9%
Food Proc Land App 4.6%
CAFO dry land 0.7%
CAFO Land App 12.2%
Irrigated ag 69.4%

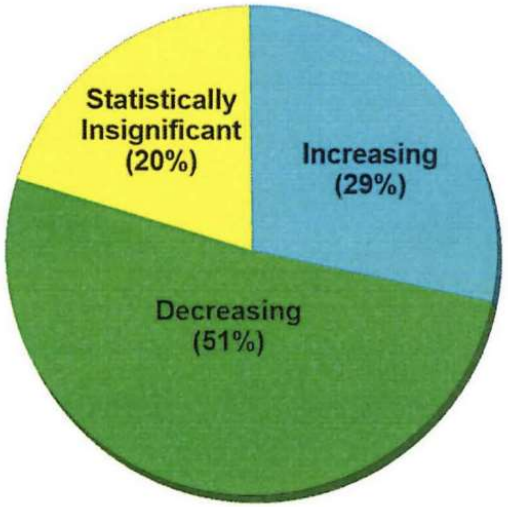
Separate but related issues:

1. Short/medium-term: Safe drinking water

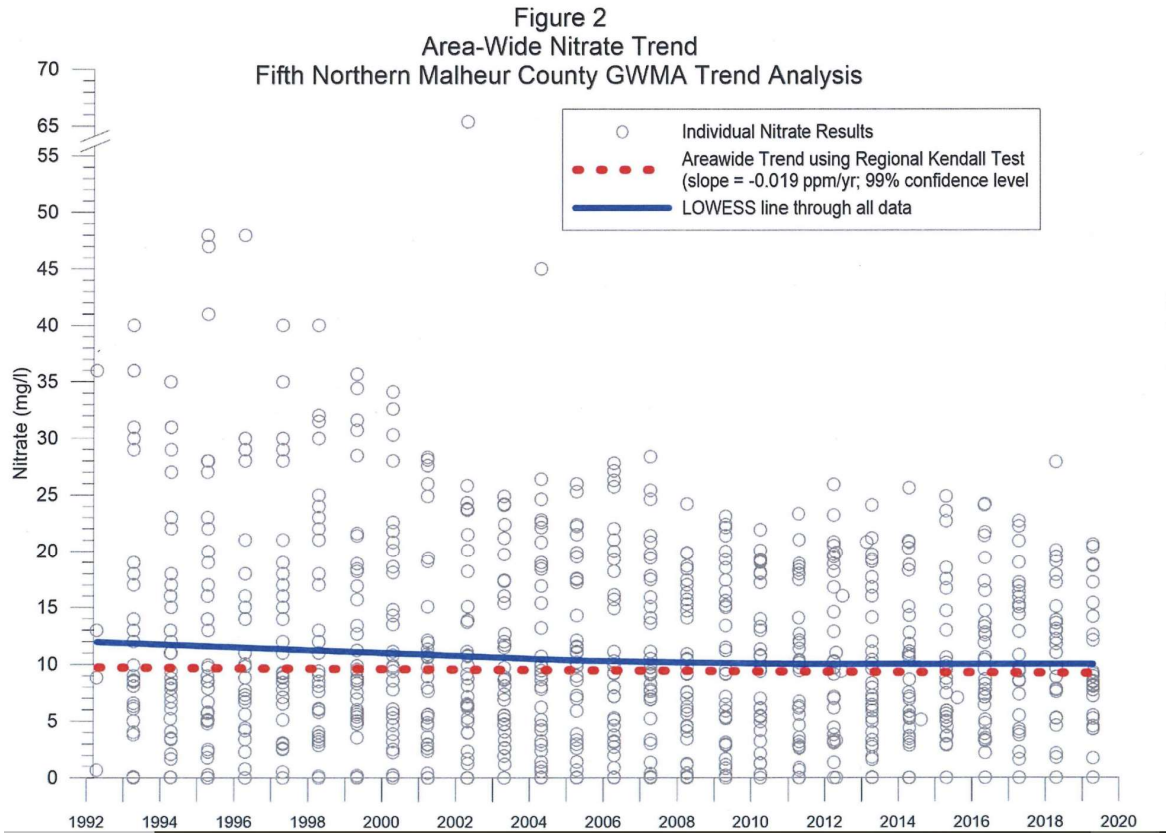


2. Long-term: Minimize nitrate loading, reduce contamination

Northern Malheur Groundwater Area



Trends of individual wells in Northern Malheur



Figures from: Northern Malheur County Groundwater Management Area Trend Analysis, 2020

Oregon Groundwater Statutes

468B.165 Ground water contaminants; maximum levels; rules.

468B.166 Technical advisory committee; duties; membership.

468B.175 Declaration of area of ground water concern.

468B.177 Actions of department after declaration of area of ground water concern.

468B.180 Declaration of ground water management area; standards.

468B.183 Duties of ground water management committee after declaration of ground water management area.

468B.188 Repeal of declaration of ground water management area.

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