

Lower Umatilla Basin Groundwater Management Committee (LUBGWMA)

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**House Interim Committee on Agriculture, Land Use, and Water
Wednesday, September 21st
2:30 – 5:00 PM**

Salini Sasidharan | LUBGWMA



**Oregon State
University**

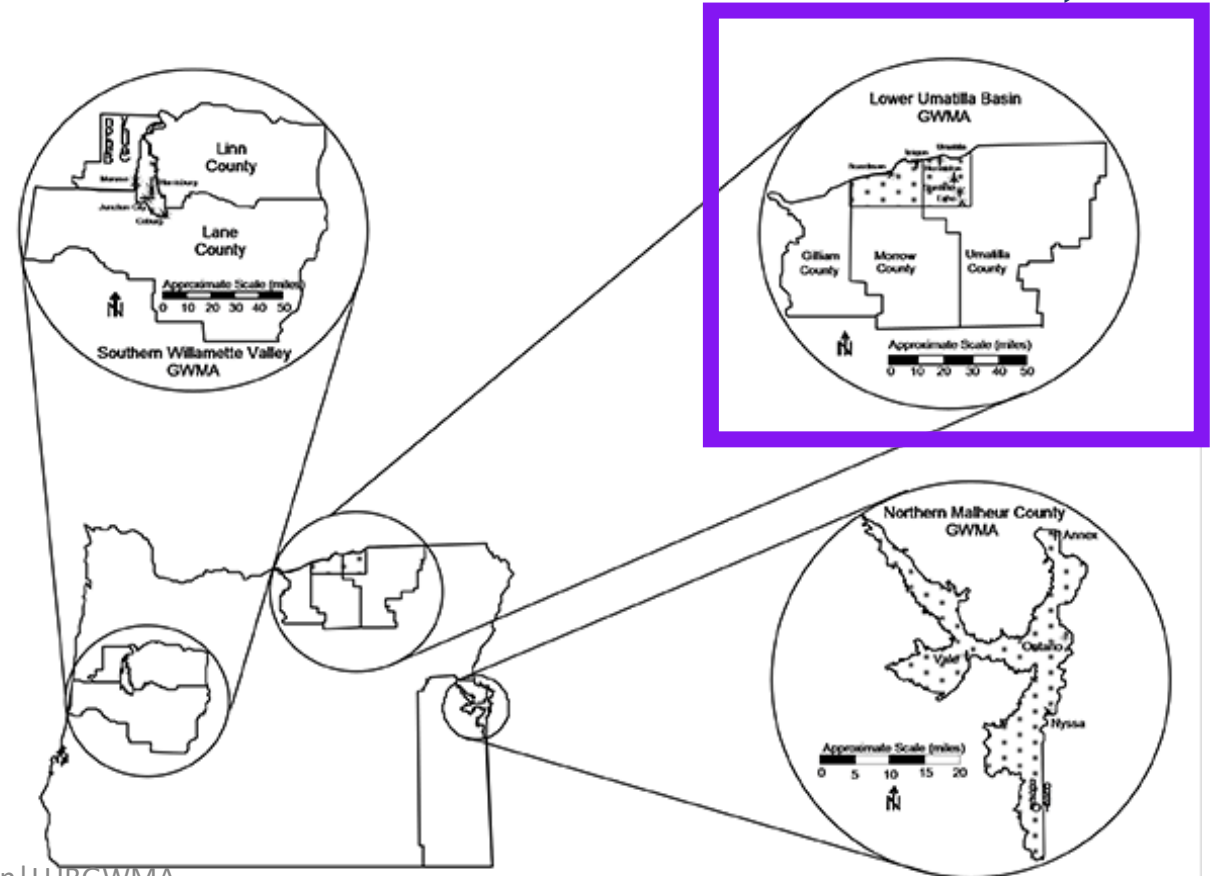


Oregon State
University

Lower Umatilla Basin Groundwater Management Area

Oregon Department of Environmental Quality (DEQ) declared the Lower Umatilla Basin, a Groundwater Management Area (GWMA) in 1990

The LUBGWMA encompasses approximately 562 square miles of land in northern Umatilla and Morrow Counties



Health effects from nitrates in your water.



Cancer



Birth defects



Disruption of thyroid function



Blue baby syndrome

U.S. EPA has set a maximum contaminant level of 10 mg/L or ppm for nitrate for drinking water.



Treatment for Contaminated Well Water

Reverse Osmosis

Distillation

Ion Exchange



Goal of The LUBGWMA Committee

Second Lower Umatilla Basin Groundwater Management Area Local Action Plan

Identification and implementation of practices that will reduce groundwater **nitrate concentrations** to less than 7 mg/L throughout the region.

Sustain this reduction so that public and private drinking waters remain safe to drink

Repeal GWMA declaration via ORS 468B.188.



Purpose of LUBGWMA



**PROVIDE LOCAL
KNOWLEDGE AND
EXPERTISE**



**DEVELOP AND
PROMOTE A LOCAL
ACTION PLAN**



**WORK WITH
AGENCIES AND
STAKEHOLDERS**



RECEIVE FEEDBACK

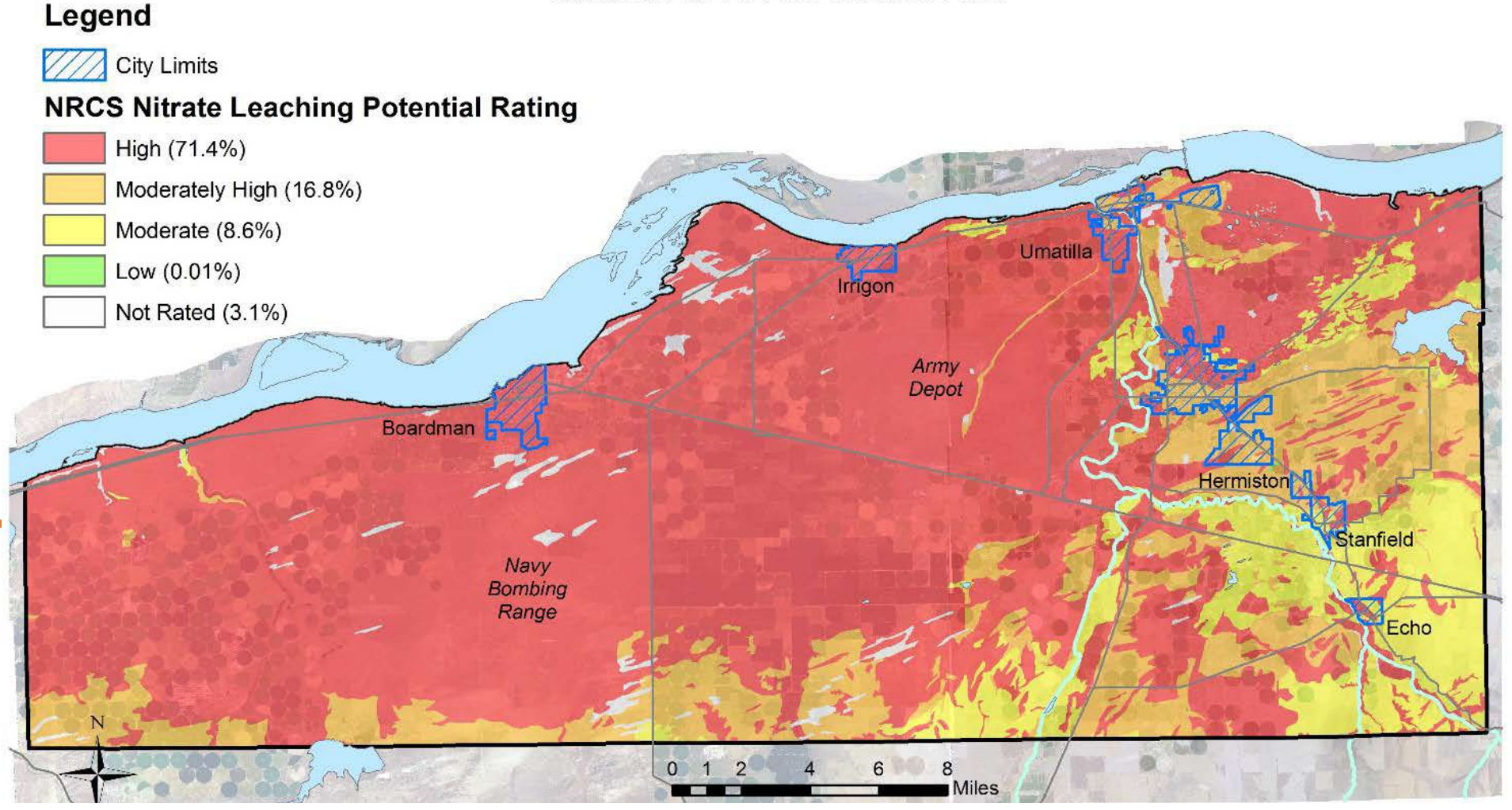


**ENCOURAGE A
HOLISTIC LOOK AT
WATER IN THE GWMA**



NRCS calculated Nitrate Leaching Potential

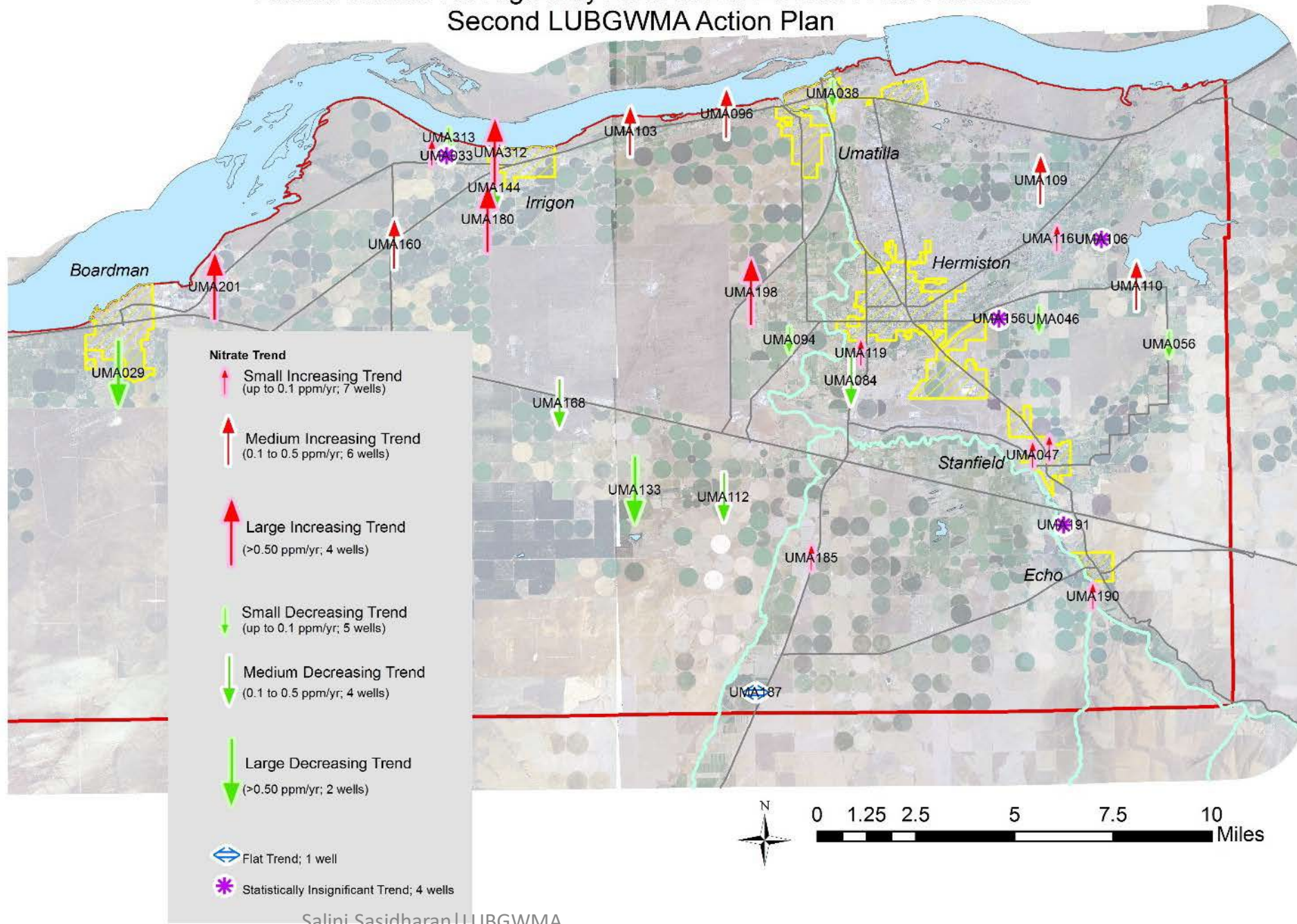
Nitrate Leaching Potential Rating of the Lower Umatilla Basin Groundwater Management Area
Second LUBGWMA Action Plan



Nitrate Trends at LUBGWMA

(33 wells)

The nitrate concentration has been increasing since 1997 but at slower rates since about 2004.



Spatial variability of nitrate concentrations and trends

Nitrogen cycle

Biogeochemical processing

Variable sources of nitrogen in the environment

Temporal changes in source and delivery

Differing recharge characteristics

The nature and thickness of material over the aquifer

The hydraulic properties

Three-dimensional groundwater flow system

Stratification of solutes

Land uses and nitrogen sources



Potential Sources of Nitrate Contamination

(Second LUBGWMA Action Plan)

**Irrigated
agriculture**

**Land
application of
food processing
wastewater**

**Confined
animal feeding
operations**

**Livestock
Operations**

**Rural, Open,
and Green
Spaces**



Irrigated Agriculture

Best Management Practices (BMPs) for nutrient management focus on implementing the 4Rs of agronomic practice (right rate, timing, placement & source or type) to minimize irrigation water and fertilizer movement of nitrogen below the root zone during the growing and winter seasons.



A large, curved image on the left side of the slide shows an industrial facility at sunset. The sky is a mix of orange, yellow, and blue. In the foreground, there are large, white, cylindrical structures, possibly part of a water treatment or processing plant. In the background, there are several tall smokestacks emitting dark smoke, and the lights of the facility are visible. The water in the foreground reflects the lights and the sky.

Land Application of Food Processing Industrial Process Wastewater

- Goal 1: Assess and adopt **best management practices** for land application.
- Goal 2: **Minimize site conditions and land application practices** that increase the chance of leaching nitrate to groundwater.

Rural, Open, and Green Spaces (ROGs)

Achieve	Goal 1: Achieve an increased level of knowledge and cooperation around groundwater quality resulting in reduction of nitrate levels.
Reduce	Goal 2: Reduce nitrate concentrations by implementing best practices in residential, open and green space areas.
Reduce	Goal 3: Reduce the nitrate concentration from septic systems.
Reduce	Goal 4: Reduce the potential for contamination of wells; conduct analytical testing for nitrates in domestic wells and educational outreach to domestic well owners on point-of-use treatment options.
Provide	Goal 5: Provide technical support for local governing bodies to adopt rules in accordance with Oregon statute.





Confined Animal Feeding Operations (CAFOs)

- Goal 1: **Collect, contain, treat and/or store manure and process wastewater** at CAFOs in a manner that is protective of groundwater.
- Goal 2: **Beneficially utilize nutrients** at CAFOs and prevent leaching of nutrients to groundwater.
- Goal 3: Keep current with CAFO BMPs and provide CAFO education outreach.



Livestock Operations

- Goal 1: Reduce groundwater nitrate concentrations caused by livestock.
- Goal 2: **Organize outreach and education** efforts to increase community awareness of groundwater vulnerability and best management practices for livestock operations.
- Goal 3: Identify **best management practices (BMP)** effectiveness and best management practice adoption of updated BMP's



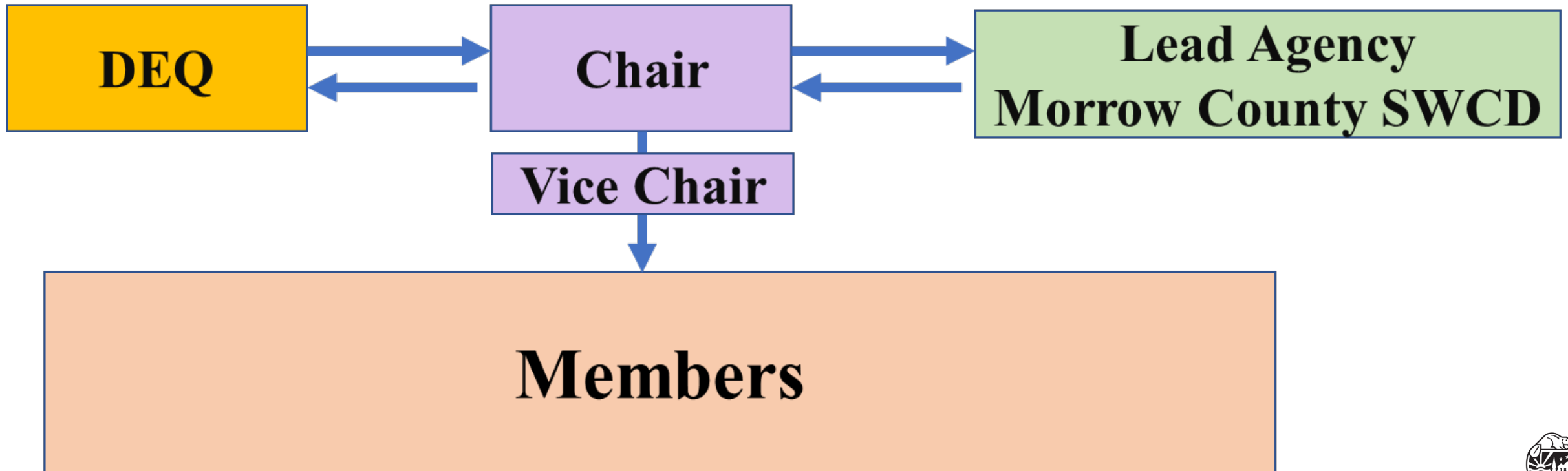
Public Water Systems

- Protect the drinking water source
- Meet water quality standards
- Avoid costly remediation
- Prevent the burden of finding a new source
- Uphold the community's reputation for having a clean drinking water supply.

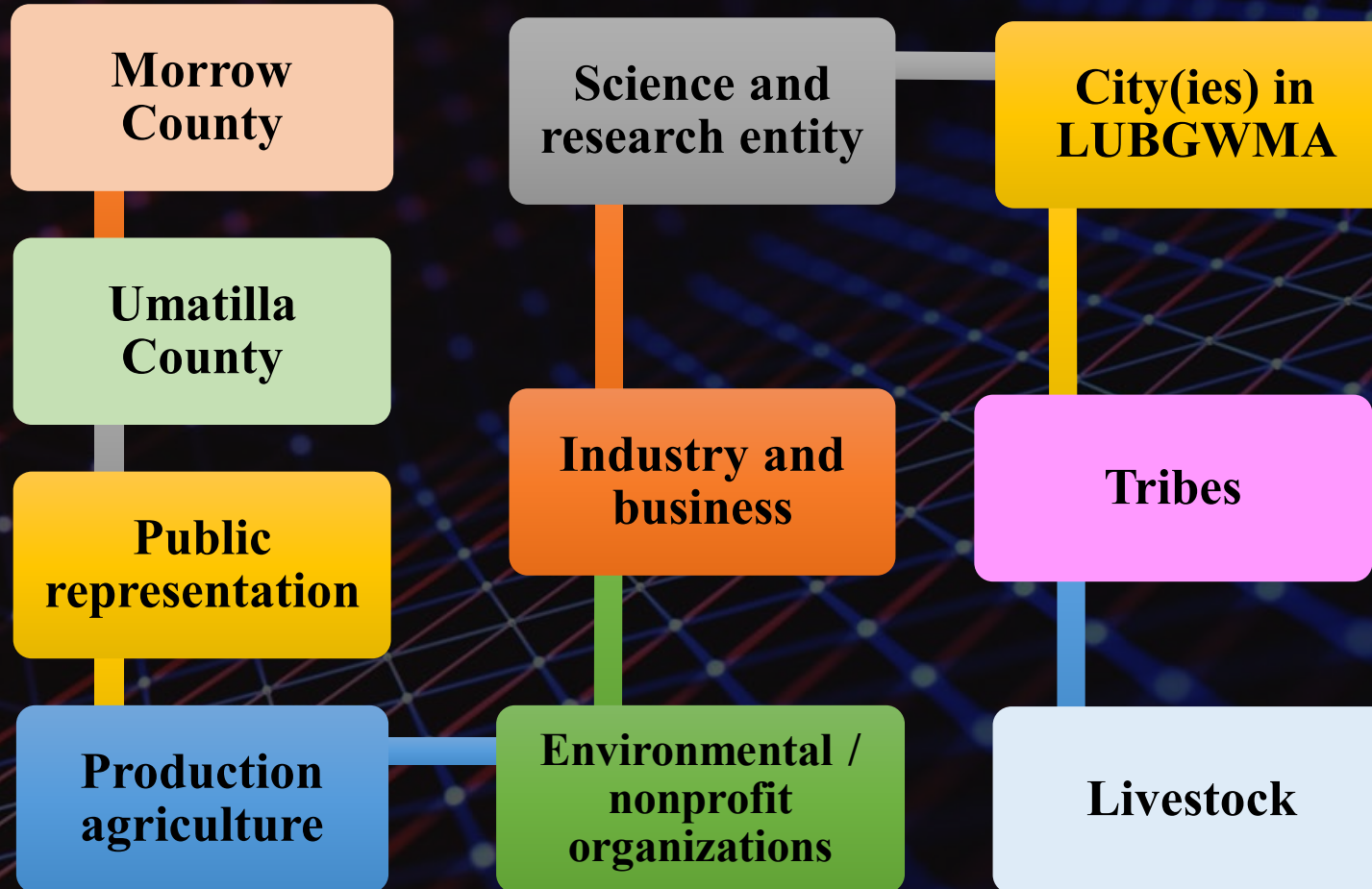
The Second Local Action Plan (2020) (Assessment of Voluntary Approach)

- If a **GWMA is located on agricultural lands** or in an area designated as an exclusive farm use zone, the Act makes the **Oregon Department of Agriculture (ODA)** responsible for **developing the portion of the Second Local Action Plan** that addresses farming practices.
- **The Committee, ODA and DEQ** have agreed to **implement a voluntary approach** for addressing the groundwater contamination
- **DEQ's** responsibility to determine if **mandatory actions or regulatory changes** are necessary to achieve the goal of groundwater protection
- **DEQ** will work with the Committee to develop rulemaking and implement requirements for those sources over which they have **jurisdictional authority**.
- **ODA** will work with the Committee to develop and implement additional mandatory requirements for **agricultural and rural lands**.

Organizational Structure



Membership (Under Revision since September 30th, 2022)



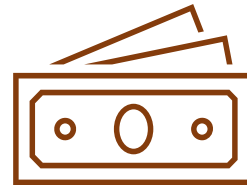
Chair of LUBGWMA



Scientific
Questions



Collaborate
with Experts



Research
Funding



Innovative
Solution



Long-term Goal



**Organized
Platform**



**Promote
Synergetic
Activities**



**Solutions for
the Region**



**Promote
Research**



Reliable Data



**Education and
Outreach**



**Decision
Supporting
Tool**



**Funding
Opportunities**

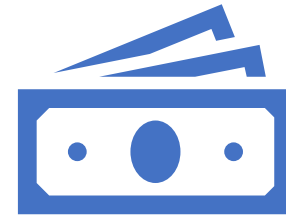
Support Needed from Legislators and State Agencies



Monitoring Network



LUBGWMA Local Administrator



Targeted Funding for Implementation of Solutions



Thank you