



Oregon Department of Environmental Quality

# Drinking Water Assessment for the Umatilla Agricultural Water Quality Management Area

October 2023

## Overview

- Public drinking water systems in the Umatilla River Agricultural Water Quality Management Area (Ag WQMA) utilize surface water and groundwater sources to serve approximately 56,843 persons regularly.
- 12 public water systems have recent (within the past ten years) Maximum Contaminant Level (MCL) exceedances for *E. coli* bacteria.
- 19 public water systems have recent alerts for elevated [ $\geq 5$  milligrams per liter (mg/L)] nitrate concentrations. Of these, eight have MCL exceedances.
- 123 of 522 private domestic well sample results submitted to OHA's Real Estate Transaction program in the area measured nitrate concentrations above 5 mg/L.
- This management area includes the [Lower Umatilla Basin Groundwater Management Area](#) (LUBGWMA).
- Contaminants in water supplies potentially related to agriculture occur near human populations, agriculture land uses, and aquifers susceptible to contaminant infiltration.
- Department of Environmental Quality (DEQ) recommends Oregon Department of Agriculture (ODA) work with the appropriate Soil and Water Conservation Districts (SWCDs) to implement best management practices (BMPs) in and around private domestic and public drinking water wells to reduce high nitrate levels. Several public water systems have installed treatment or drilled new wells to address nitrate levels in the LUBGWMA. BMPs to reduce nitrate levels are still beneficial in helping communities reduce long term costs associated with treatment, operations, maintenance, and sustainability.
- DEQ recommends public water systems utilize [Source Water Protection Practices](#) to prevent potential contamination and increase resiliency.
- Resources for addressing risks to drinking water supplies can be found in the [Groundwater Resource Guide](#).

## Water Use

Fifty-seven public water systems obtain domestic drinking water from surface water and groundwater sources in the management area. Drinking water is an important beneficial use under the federal Clean Water Act. When Clean Water Act standards are met in source waters, a drinking water treatment plant using standard technology can provide water which meets the Safe Drinking Water Act maximum contaminant limits (MCLs). There are two community public water systems using a combination surface water and groundwater sources to serve 35,369 people. There are 25 community public water systems in the area using only groundwater wells to serve approximately 16,257 people on a regular basis, in addition to visitors at recreation sites. There are 12 non-transient, non-community workplace or school public water systems using groundwater, serving 1,415 persons regularly. The remaining 18 public water systems are transient non-community or Oregon very small

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(state-regulated) systems with an estimated service population of 3,802. See **Table 1** below for a list of public water systems, their classifications, sources and activity status, and populations served.

Agricultural land uses (diverse irrigated and non-irrigated crops and livestock) represent over 40% of management land area and are present near many of the public water system wells. The Umatilla Basin Groundwater Management Area (LUBGWMA) is located in the northwest corner of the Umatilla Agricultural WQMA. The eastern portion of the WQMA is mostly federal lands.

## **Bacteria**

*E. coli* bacteria alerts for public water systems are generated by the Oregon Health Authority when detected in sample results. Within the management area, 12 public water systems have had recent alerts for detections of *E. coli* (see **Table 1**). Several of the water systems have had recent alerts for total coliform and no violations.

## **Nitrates**

Nitrate alerts for public water systems are generated by the Oregon Health Authority when nitrate sample results exceed 5 mg/L. Within the management area, 19 public water systems have had alerts in the last 10 years and eight of these have exceeded the MCL (see **Table 1**).

The drinking water MCL for nitrate is 10 mg/L. These contaminants are often related to animal and cropland agriculture and on-site septic systems. The locations of nitrate contamination of private domestic wells (see below) and public drinking water sources are near agricultural land use such as alfalfa and irrigated crops. Data for nitrate leaching potential in soils show that the area is predominantly a mix of moderate, moderately high, and high leaching potential, according to data from the Natural Resources Conservation Service.

Oregon Health Authority rated some of the public water system wells in the Ag WQMA for contaminant susceptibility for land use impacts to drinking water sources based on Source Water Assessments, aquifer characteristics, and well locations and construction. The area has a mix of moderate and high susceptibility wells. Measures to reduce leachable nitrate in soils and managing irrigation to prevent leaching would reduce risk to groundwater sources of drinking water.

DEQ only addresses drinking water issues identified for public water systems. A query of Oregon Water Resources' water rights database for private domestic points of diversion (using a threshold of 0.005 cfs for domestic surface water rights that are household use only, not irrigation) identified 32 private domestic surface water rights in the Umatilla River WQMA, mostly located outside of the LUBGWMA.

There are numerous private groundwater wells for domestic use. The Domestic Well Testing Act database (real estate transaction testing data) for 1989-2018 indicates 70 significant detections of nitrate (>7mg/L) in private wells out of 522 total results included in the database for this area. Of those private wells, 37 had nitrate concentrations  $\geq 10$ mg/L. A majority of the private wells with high nitrate are located within the LUBGWMA. To mitigate these potential issues, attention may be needed on well depth, well construction, nitrate leaching potential of local soils, and proximity to nutrient sources such as septic systems, fertilizer use sites, and high concentrations of livestock.

## **Lower Umatilla Groundwater Basin Management Area**

Since 1990, an area encompassing northern Morrow and Umatilla counties has been designated as the Lower Umatilla Basin Groundwater Management Area (LUBGWMA) due to elevated nitrate levels (>7 mg/L). Some work has been done by the LUBGWMA Committee to reduce nitrate levels and educate communities about the associated risks. Learn more here: <https://lubgwma.org/> There are 11 public water systems in the LUBGWMA that have had to take actions such as installing treatment or drilling replacement wells due to elevated nitrates. There are 6 additional public water systems whose wells have elevated levels of nitrates approaching the maximum contaminant level and may need to take action in the future.

**Table 1. Public Water Systems in the Umatilla River Ag WQMA**

Note: This table does not include public water systems which purchase drinking water from these water systems but does include the population served by wholesale customers in the Total Population.

PWS ID	Public Water System Name	Drinking Water Source	System Type	Population	MCL Exceedance
<i>Groundwater systems</i>					
4190228	Crossroads Truck Stop	Inactive system (3 wells)	NC	250	
4190240	Birch Creek Golf Course	1 well	NC	25	E. Coli
4190925	Bar M Ranch	Inactive system (2 wells)	NC	10	
4191071	OPRD Emigrant Springs State Park	2 wells	NC	200	
4191072	OPRD Hat Rock State Park	1 well	NC	500	E. Coli Nitrate
4191122	ODOT HD Stanfield Rec Area	2 wells (1 inactive emergency)	NC	200	
4193656	OPRD Deadmans Pass Rest Area	2 wells (1 inactive emergency)	NC	500	
4194982	Pilot Travel Center-Stanfield	Inactive system (1 well)	NC	950	
4190178	COE McNary Dam	2 wells	NTNC	120	
4100914	City of Umatilla	4 wells	C	7605	
4101309	Hat Rock Water Company	1 spring, 1 well	C	108	Nitrate
4191232	Hat Rock Mobile Court	3 wells (1 active, 2 inactive)	C	60	
4100375	Power City Water Co-Op	1 well	C	70	
4100371	Charles Tracts Water Company	2 wells	C	249	
4105798	Sunridge Water Inc	2 wells	C	200	E. coli
4100374	North Hill Water Corporation	3 wells (1 active, 2 inactive emergency)	C	100	E. Coli
4194311	Punkin Center School	1 well	NTNC	100	
4100368	City of Helix	1 well	C	190	E. Coli
4101415	Chart Subdivision	1 well	C	125	E. Coli
4101045	Country Squire Estates	2 wells (1 inactive emergency)	C	150	E. Coli
4101099	Vista Home Park	1 well	C	300	E. Coli
4195066	Hermiston Junior Academy	1 well	NTNC	40	
4101044	Tierra Linda Estates	2 wells	C	450	
4100376	Westland Estates Water System	Inactive system (2 wells)	C	60	
4100064	City of Athena Water System	4 wells	C	1170	E. Coli
4194562	Lamb Weston - Hermiston	3 wells (2 active, 1 inactive emergency)	NTNC	500	E. Coli Nitrate
4101136	US Army Depot--Umatilla (Admin)	3 wells (2 active, 1 inactive emergency)	NTNC	35	

41945 61	Hermiston Power LLC	5 wells (1 active, 4 inactive emergency)	NP	22	Nitrate
41934 26	Union Pacific RR-Hinkle Yard	2 wells (1 active, 1 inactive emergency)	NTNC	100	
41000 01	City of Adams Water Dept	1 well	C	370	
41008 42	City of Stanfield	4 wells (3 active, 1 inactive emergency)	C	2115	
41002 70	City of Echo	2 wells	C	715	
41950 21	USDA Ag Research Station	1 well	NTNC	30	
41011 23	Halls Trailer Court	2 wells (1 active, 1 inactive emergency)	C	60	
41006 17	Rieth Water District	1 well	C	150	
41006 15	Heritage Improvement District	1 well	C	125	
41006 14	Green Meadows Water Corporation	1 well	C	75	
41006 19	Stewarts Addition	1 well	C	50	
41006 16	McKay Acres Improvement District	2 wells	C	75	
41006 22	Frontier Mobile Home Park	1 well	NP	20	
41006 26	City of Pilot Rock	2 wells	C	1505	
41934 53	Spout Springs Water Board	1 spring	NC	100	
41952 07	Rocket Mart-Hermiston	1 well	NC	60	
41952 36	Bellinger Produce Llc	1 well	NC	100	E. Coli Nitrate
41951 73	Short Stop #1	1 well	NC	200	
41952 80	Alive And Well	1 well	NC	50	
41953 14	Comfort Inn & Suites-Hermiston	2 wells	NC	100	Nitrate
41912 45	Oregon Trail Cafe	2 wells (1 active, 1 inactive emergency)	NC	25	
41912 40	Space Age Fuel	2 wells (1 active, 1 inactive emergency)	NC	975	Nitrate
41015 07	Stanfield Hutterian	2 wells	C	70	
41059 55	UPS-Hermiston	1 well	NTNC	60	
41954 33	Fed Ex - Hermiston	1 well	NTNC	80	
41954 57	River Point Farms Packing	1 well	NTNC	60	E. Coli
41952 13	River Point Farms LLC	Inactive system (1 well)	NTNC	250	Nitrate
41955 65	Amazon Data Hermiston	1 well	NTNC	40	
<i>Surface Water Systems</i>					
41003 72	City of Hermiston	1 surface water intake (Columbia River) and 5 wells (4 active, 1 inactive emergency)	C	18200	E. Coli

41006 13	City of Pendleton	1 surface water intake (Umatilla River) and 8 wells	D	17169	
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*System Type: C - "Community Water System (C)" means a public water system that has 15 or more service connections used by year-round residents or that regularly serves 25 or more year-round residents.*

*NTNC - "Non-Transient Non-Community Water System (NTNC)" means a public water system that is not a Community Water System and that regularly serves at least 25 of the same persons over 6 months per year.*

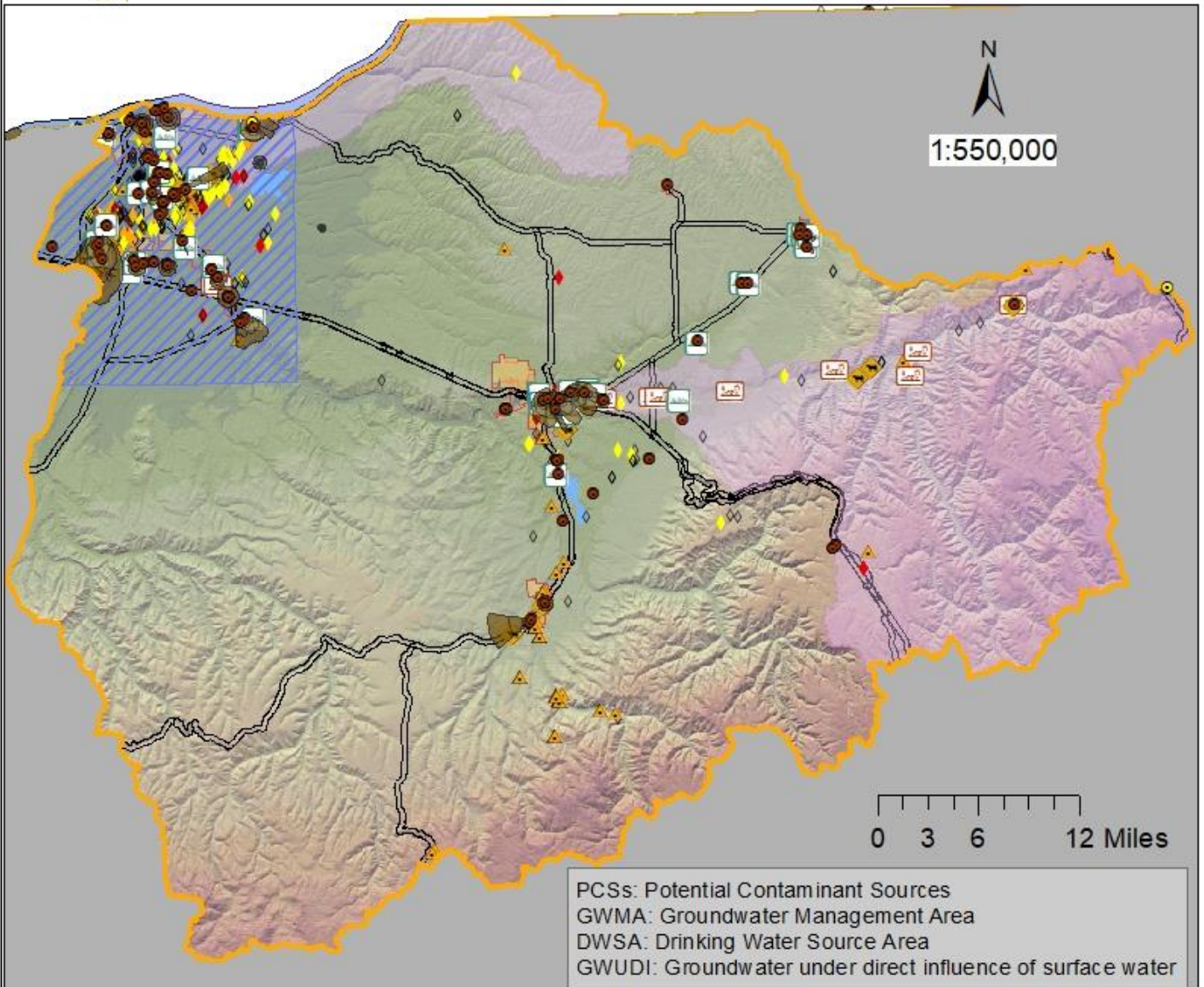
*NC - "Transient Non-Community Water System (NC)" means a public water system that serves a transient population of 25 or more persons.*

*NP - "State Regulated Water System (NP)" means a public water system, which serves 4 to 14 service connections or serves 10 to 24 people. Monitoring requirements for these systems are the same as those for Transient Non-Community water systems.*





# Drinking Water Source Areas for Public Water Systems in Umatilla River Agricultural Water Quality Management Area



PCSSs: Potential Contaminant Sources  
 GWMA: Groundwater Management Area  
 DWSA: Drinking Water Source Area  
 GWUDI: Groundwater under direct influence of surface water

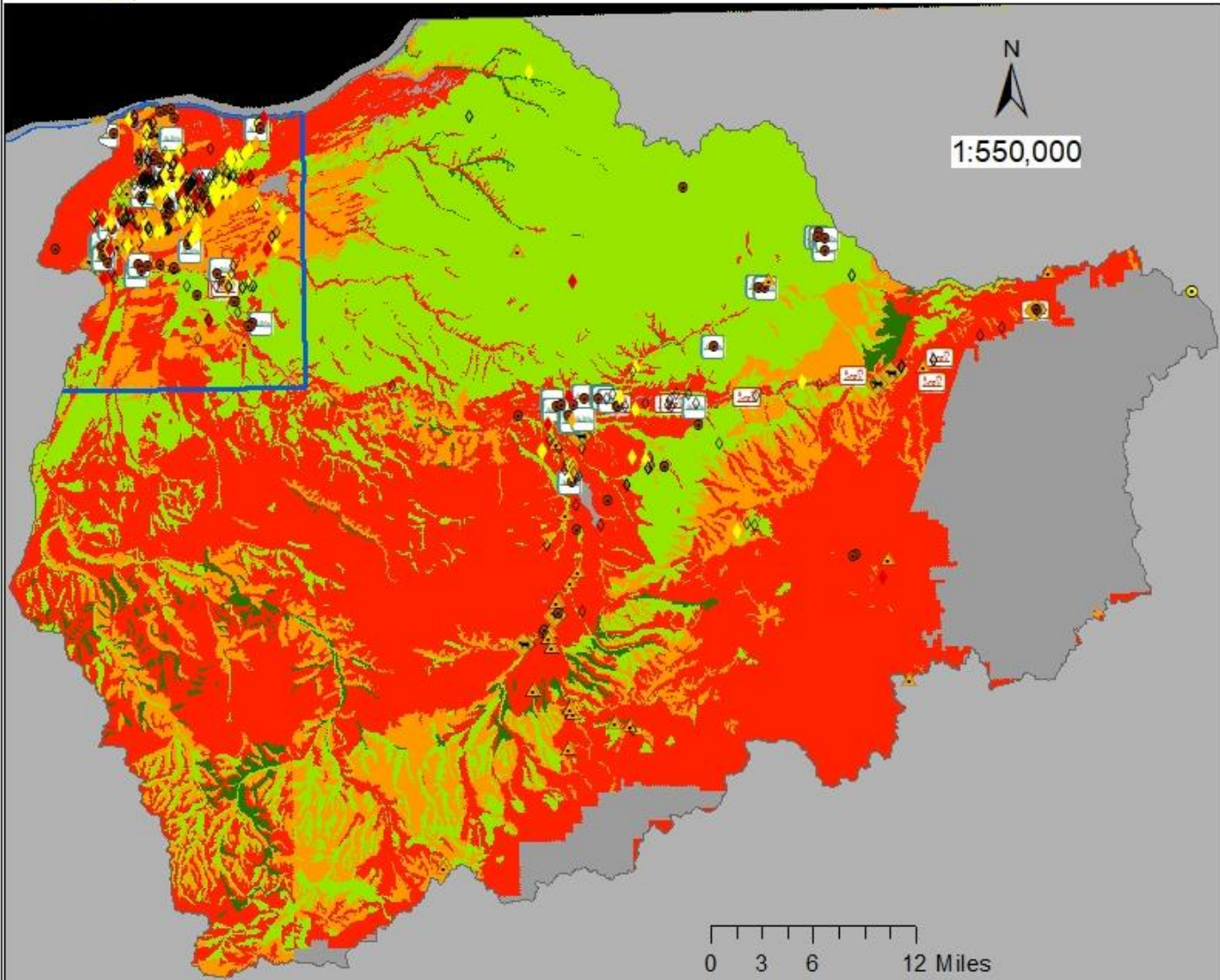
Umatilla WQMA	Cropland PCSSs	Nitrate: Private Well Testing	
Groundwater DWSA	Animals PCSSs		0 to 3 mg/L
Surface watershed for GWUDI	Other Ag PCSSs		3 to 7 mg/L
Surface water DWSA	Domestic SWRights		7 to 10 mg/L
Public Water Supply Spring	Lower Umatilla GWMA		10 to 50 mg/L
Public Water Supply Well	City Limits (2017)	>50 mg/L	

The Drinking Water Source Area (DWSA) delineations define areas that supply the drinking water system. For groundwater this is defined as the area on the surface that overlies that portion of the aquifer that supplies water to a well or spring. DWSAs for wells typically show the 1-, 2-, 5-, and 10- or 15-yr time of travel zones that indicate the amount of time it takes groundwater to move to the wellhead. DWSAs for springs typically show area of short-, intermediate-, and long-term groundwater flow to the spring. DWSAs for surface water represents the watershed that supplies the waterbody where the intake is located.





# Drinking Water Source Areas for Public Water Systems in Umatilla River Ag WQMA: Nitrate Leaching Potential

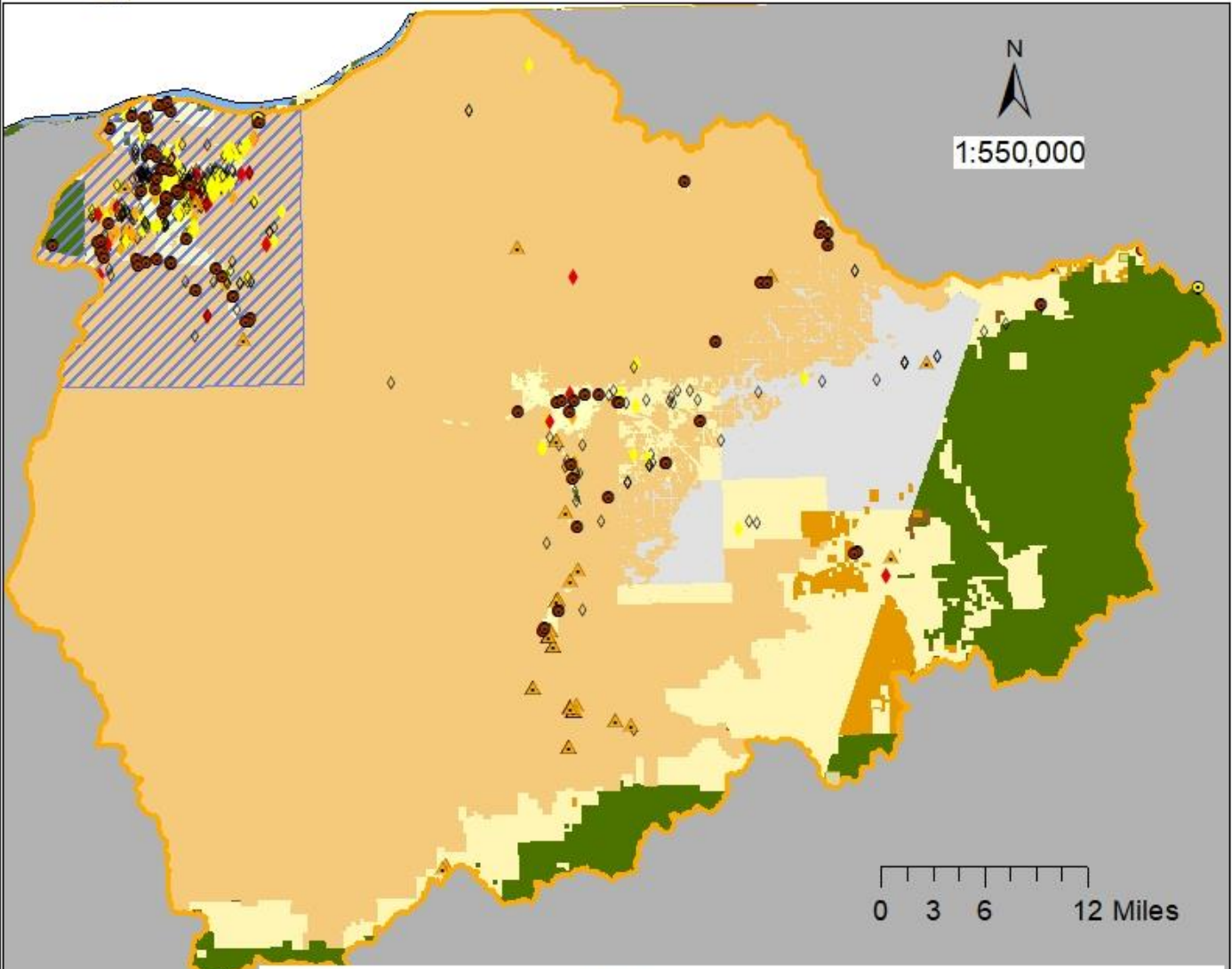


Lower Umatilla GWMA		Nitrate: Private Well Testing	Nitrate Leaching Potential Rating
	Public Water Supply Spring	0 to 3 mg/L	Not rated or not available
	Public Water Supply Well	3 to 7 mg/L	Low
	Cropland PCSs	7 to 10 mg/L	Moderate
	Animals PCSs	10 to 50 mg/L	Moderately high
	Other Ag PCSs	>50 mg/L	High
	Domestic SW Rights		

The Drinking Water Source Area (DWSA) delineations define areas that supply the drinking water system. For groundwater this is defined as the area on the surface that overlies that portion of the aquifer that supplies water to a well or spring. DWSAs for wells typically show the 1-, 2-, 5-, and 10- or 15-yr time of travel zones that indicate the amount of time it takes groundwater to move to the wellhead. DWSAs for springs typically show area of short-, intermediate-, and long-term groundwater flow to the spring. DWSAs for surface water represents the watershed that supplies the waterbody where the intake is located.



# Drinking Water Source Areas for Public Water Systems in Umatilla River Ag WQMA: Land Use/Ownership



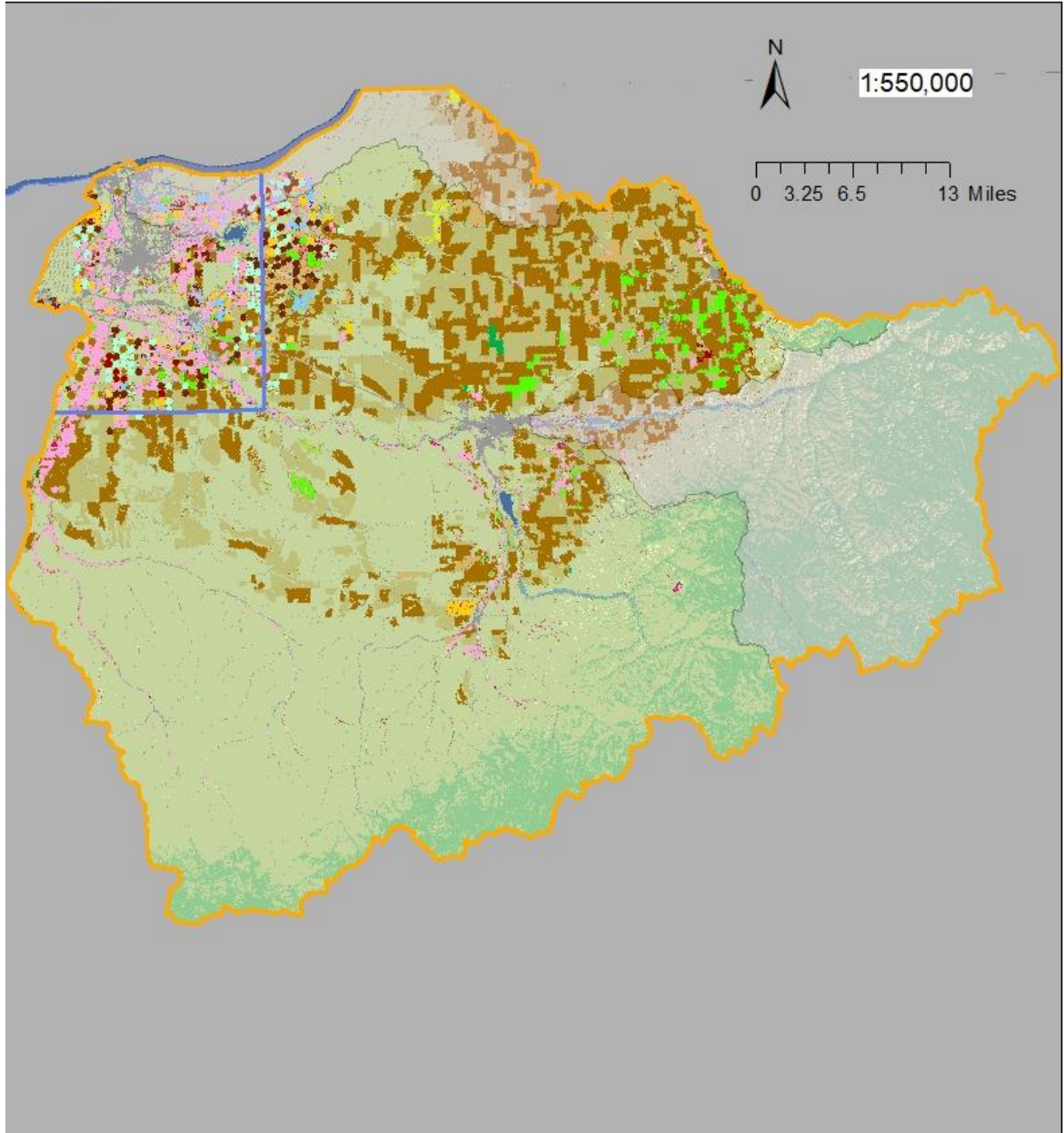
Land Ownership (2017)		Nitrate: Private Well Testing
	Private Urban Lands	0 to 3 mg/L
	Private Rural Lands	3 to 7 mg/L
	Agriculture	7 to 10 mg/L
	Private Industrial Forests	10 to 50 mg/L
	Local Government	>50 mg/L
	State Dept. of Forestry	
	State - Other	
	Bureau of Land Management	
	U.S. Forest Service	
	Federal - Other	
	Bonneville Power Administration	
	Bureau of Indian Affairs	
	Undetermined	
	Water	

The Drinking Water Source Area (DWSA) delineations define areas that supply the drinking water system. For groundwater this is defined as the area on the surface that overlies that portion of the aquifer that supplies water to a well or spring. DWSAs for wells typically show the 1-, 2-, 5-, and 10- or 15-yr time of travel zones that indicate the amount of time it takes groundwater to move to the wellhead. DWSAs for springs typically show area of short-, intermediate-, and long-term groundwater flow to the spring. DWSAs for surface water represents the watershed that supplies the waterbody where the intake is located.





# Drinking Water Source Areas for Public Water Systems in Umatilla River Ag WQMA: Crops (NASS 2017)



The Drinking Water Source Area (DWSA) delineations define areas that supply the drinking water system. For groundwater this is defined as the area on the surface that overlies that portion of the aquifer that supplies water to a well or spring. DWSAs for wells typically show the 1-, 2-, 5-, and 10- or 15-yr time of travel zones that indicate the amount of time it takes groundwater to move to the wellhead. DWSAs for springs typically show area of short-, intermediate-, and long-term groundwater flow to the spring. DWSAs for surface water represents the watershed that supplies the waterbody where the intake is located.

- Corn
- Sorghum
- Sweet Corn
- Barley
- Spring Wheat
- Winter Wheat
- Rye
- Oats
- Millet
- Mustard
- Alfalfa
- Other Hay/Non Alfalfa
- Buckwheat
- Sugarbeets
- Dry Beans
- Potatoes
- Other Crops
- Onions
- Peas
- Herbs
- Clover/Wildflowers
- Sod/Grass Seed
- Fallow/Idle Cropland
- Apples
- Open Water
- Developed/Open Space
- Developed/Low Intensity
- Developed/Med Intensity
- Developed/High Intensity
- Barren
- Evergreen Forest
- Shrubland
- Grass/Pasture
- Woody Wetlands
- Herbaceous Wetlands
- Triticale
- Peppers
- Greens
- Dbl Crop WinWht/Corn
- Lettuce
- Radishes
- Turnips

## **Contact**

For more information, please contact the [Drinking Water Protection Program](#) or send an email to [drinkingwater.protection@deq.oregon.gov](mailto:drinkingwater.protection@deq.oregon.gov).

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