



**Oregon Department of Agriculture
Water Quality Program**

Johnson Creek: Water Quality Status & Trend Reports

Johnson Creek Science Symposium

October 22, 2019

Brenda Sanchez, Water Quality Policy Specialist ODA



A Division of Responsibility

Oregon Department
of Environmental Quality



Oregon Department
of Forestry



Oregon Department
of Agriculture

Agricultural Water Quality
Management Act 1993

1972 CWA

Senate Bill 502 Clarified:

- ODA has lead authority to regulate farming practices for water quality
- Must meet water quality standards set by Environmental Quality Commission

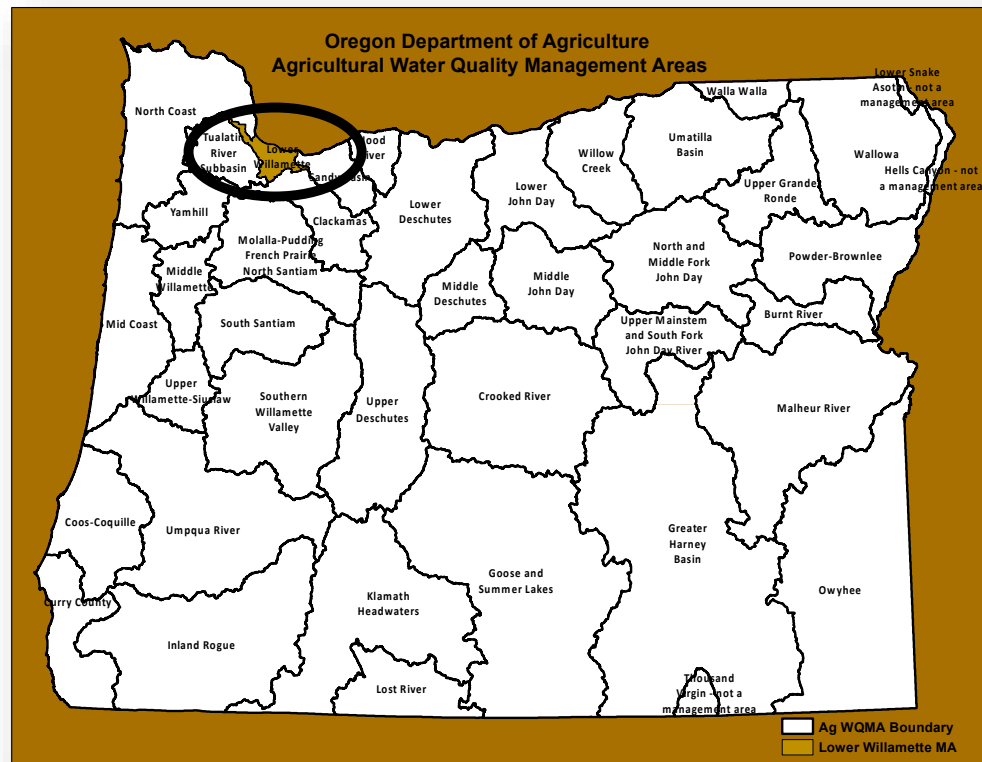
History of Agricultural Water Quality Management in Oregon

ODA Designated 38 Agricultural Water Quality Management Areas

- ✓ Established Local Advisory Committees
- ✓ Drafted and Adopted Ag WQ Area Rules for Each MA
- ✓ Prepared 38 Watershed-Based Area Work Plans (Reviewed Biannually)

ODA works with SWCDs to Implement Area Plans

- Local Expert & Non-Regulatory Technical Assistance and Outreach.
- Voluntary First.





Lower Willamette Agricultural Water Quality Management Area Plan

November 2018

Developed by the
Oregon Department of Agriculture
Lower Willamette Local Advisory Committee

With support from the
East Multnomah Soil and Water Conservation District
West Multnomah Soil and Water Conservation District
Clackamas Soil and Water Conservation District

<http://oda.direct/AgWQPlans>

LOWER WILLAMETTE Agricultural Water Quality Management Area Plan and Rules



The Oregon Legislature passed the Agricultural Water Quality Management Act in 1993. It requires the Oregon Department of Agriculture (ODA) to prevent and control water pollution from agricultural activities. As a result, ODA worked with local Quality Management Area Plans and advisory committees to develop Water Rules throughout the state. Area Plans are reviewed and updated by ODA and the local original Lower Willamette Area Plan and Rules were approved by ODA in 2003.

THE AREA PLAN

The Area Plan guides local landowners and their conservation partners on how to prevent pollution. It includes information on agricultural water quality concerns and recommendations for addressing them. The Area Plan does not tell anyone how to farm, ranch, or otherwise use natural resources. Rather, it includes recommended practices from which a landowner can choose. The practices can help meet business and conservation goals, while also preventing water pollution.

- Agricultural water quality concerns in the Lower Willamette area are primarily:
- Temperature
 - Nutrients
 - Chlorophyll a
 - pH
 - Dissolved oxygen
 - Toxics (DDE and DDT)
 - Bacteria
 - Mercury



THE AREA RULES

The Agricultural Water Quality Program focuses on voluntary and cooperative efforts by landowners and others to protect water quality. However, the Agricultural Water Quality Management Act also includes enforcement to ensure prevention and control of water pollution from agricultural sources. Area Rules allow landowners flexibility in how they protect water quality. Area Rules describe conditions that landowners must achieve on agricultural lands, rather than practices they must implement.

ODA Phone: (503) 986-4700 | Web: <http://bit.do/AgWQPlans> | Fax: (503) 986-4730

CONTINUED ON BACK

Lower Willamette Agricultural Water Quality Management Area Water Quality Status and Trends Report

Oregon DEQ's Water Quality Status and Trends Report for the Oregon Department of Agriculture's Biennial Review of the Agricultural Area Rules and Plans
August 2018

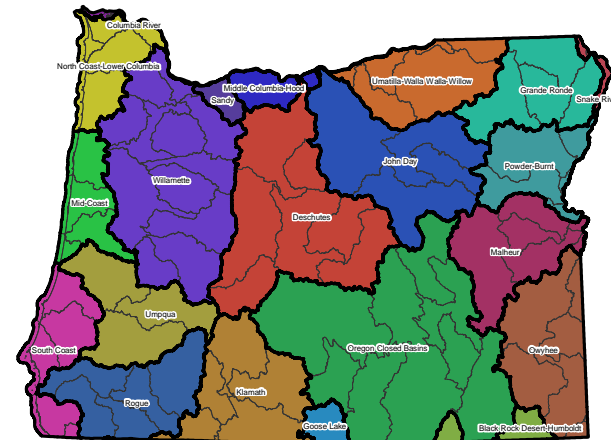
Water Quality Division
700 NE Multnomah St.
Suite 600
Portland, OR 97232
Phone: 503-229-5696
800-472-4011
Fax: 503-229-5850
Contact: Kyra Mickia
www.oregon.gov/DEQ

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



State of Oregon
Department of
Environmental
Quality

- Product of Oregon Department of Environmental Quality
- First Created for ODA's Biennial Review of Area Plans
- ODEQ will now produce at the Basin Level for all users.
- Available Online



Lower Willamette Agricultural Water Quality Management Area Water Quality Status & Trends Report Johnson Creek



Oregon
Department
of Agriculture

Purpose of Water Quality Status and Trends Reports

Water Quality Status and Trend Reports are created to inform discussions centered around water quality topics such as:

- What's working and what's not working (to improve water quality)
- Pollution sources and solutions
- Data gaps
- Future monitoring requirements

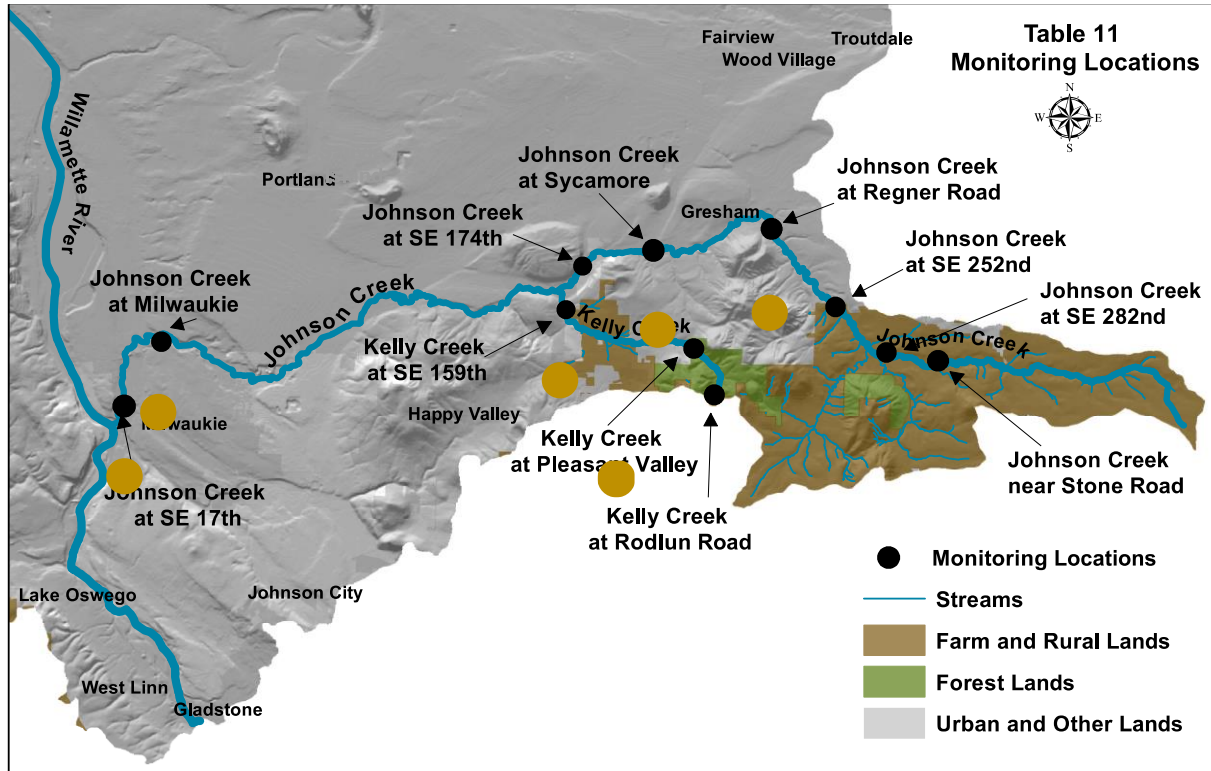
Status and Trends Analysis

Status: Monitoring stations which had at least 2 years of recent data

Trend: Monitoring stations which had at least 8 years of recent data.

Parameters included in S&T Reports:

- *Temperature*
- *pH*
- *Dissolved oxygen*
- *Total suspended solids*
- *Total phosphorus*
- *Bacteria*
- *Other WQ parameters as available*



● S&T USGS and ODEQ Monitoring Sites

Water Quality Status & Trends Johnson Creek

**Table 11: Water Quality Status and Trends at
Monitoring Locations in the Lower Willamette Management Area**

(See Figure 4 for locations)

ODEQ's 2017 and 2018 Lower Willamette Water Quality Status and Trends Analysis.

See full report online at: <https://www.oregon.gov/deq/wq/programs/Pages/wqstatustrends.aspx>

Upstream		Downstream (Best Fit)								
(1) ODEQ (individual samples 2000 to 2018) and (2) USGS Data (continuous data 2000 to 2018)										
Reported: Number samples exceeding the water quality standard expressed over total number of observations taken over time.										
Monitoring Locations	(2) Johnson Ck. at Regner Road		(2) Johnson Ck. at Sycamore		(2) Kelley Creek at SE 159th		(2) Johnson Ck. at Milwaukie		(1) Johnson Ck. at SE 17th	
Pollutants	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
+ Temperature	744/ 3293 (22.5%)	1372/ 6543 (21%)	855/ 3331 (25.6%)	2047/ 6694 (30.5%)	461/ 3203 (14.4%)	1111/ 6367 (17.4%)	3016/ 6109 (49.4%)	2779/ 6645 (41.8%)	-	-
Bacteria: <i>E. coli</i>	-	-	-	-	-	-	-	-	45/103 (43.7%)	47/113 (41.6%)
pH	-	-	-	-	-	0/10	-	0/1	1/125	1/111
Dissolved Oxygen	-	-	-	-	-	-	-	-	4/114	19/111
± TSS	-	-	-	-	-	-	-	-	-	17/111
Trending Status										
Trend: ↑ - Improving ↓ - Declining ST - Steady NT - No Significant Trend (-) - Data Not Available										
	(2) Johnson Ck. at Regner Road		(2) Johnson Ck. at Sycamore		(2) Kelley Creek at SE 159th		(2) Johnson Ck. at Milwaukie		(1) Johnson Ck. at SE 17th	
Pollutants	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
Temperature	↓	↓	↓	↓	NT	↓	↓	NT	-	-
Bacteria: <i>E. coli</i>	-	-	-	-	-	-	-	-	↓	↑
pH	-	-	-	-	-	-	-	-	ST	NT
Dissolved Oxygen	-	-	-	-	-	-	-	-	NT	NT
∞ Total Phosphorous	-	-	-	-	-	-	-	-	-	↑
± TSS	-	-	-	-	-	-	-	-	-	NT

Limitations

- **Sampling for some parameters are monthly grab samples.**
- **There was no data in the Status & Trend Report for agricultural lands along Johnson Creek.**
- **The report did not have Third-Party data included for the basin.**
- **Funding for monitoring can end and new funding can be challenging to acquire.**

Benefits

- **Water Quality Monitoring is essential to managing water resources.**
- **Analyzed and compared to state water quality standards.**
 - **Is water quality meeting standards for beneficial uses such as drinking water, recreation, and aquatic habitat?**
- **Analysis can Identify data gaps**
- **Identify emergent water quality issues**
- **Establish baselines for individual water quality parameters by stream.**
 - **Baselines can be monitored for change, alert to issues, or where improvements are needed.**

Water Quality Data: Managing Agricultural Water Quality in a Changing Climate



- The hydrologic cycle will include more frequent and intense droughts and floods in many agricultural regions.
- More frequent droughts and shifting precipitation patterns lower water levels in rivers, lakes and streams, leaving less water to dilute pollutants.
- Higher temperatures cause more frequent algal blooms and reduce dissolved oxygen levels, both of which can cause fish kills and do significant harm to ecosystems.
- Increased frequency and intensity of storm events increase soil erosion and transport of other pollutants.



Thank You

Brenda Sanchez, Oregon Department of Agriculture



Oregon
Department
of Agriculture