

A microscopic view of water showing numerous golden-brown, filamentous structures, likely algae, against a blue background. The filaments are radiating from a central point at the bottom right, creating a fan-like pattern. The background is filled with smaller, more diffuse blue and greenish particles.

2022 DEQ HABs Activities: Program Review and Going Forward

2023 HABs Stakeholder Meeting
March 17, 2023

Outline

- 2022 recap
 - Resource timeline
 - Drinking water monitoring
 - qPCR Innovation Project
 - Recreational response monitoring
 - NLA HABs work
- Looking ahead – 2023 season



2022 Cyanotoxin work at a glance

Project	In Process	Released	Total
Drinking Water Cyanotoxin Monitoring		747	747
Drinking Water Cyanotoxin Monitoring Supplemental		1	1
qPCR Cyanobacteria Innovation Project	45		45
Recreational Cyanotoxin Monitoring	2	15	17
TMDL HABs Samples (Deschutes Lakes)	23		23
National Lakes Assessment - HABs	14	35	49
Ross Island Lagoon cyanoHABs Water Quality		7	7
Grand Total	84	805	889

Resource Staffing Timeline

- Hired a field technician, Kayla Nowlin, May 2022.
- Mike Mulvey retired in September 2022.
- Aaron Borisenko retired in January 2023.
- Wade Peerman as acting WQM.
- Hired Karen Williamson as Water Quality Manager starting in April 2023.



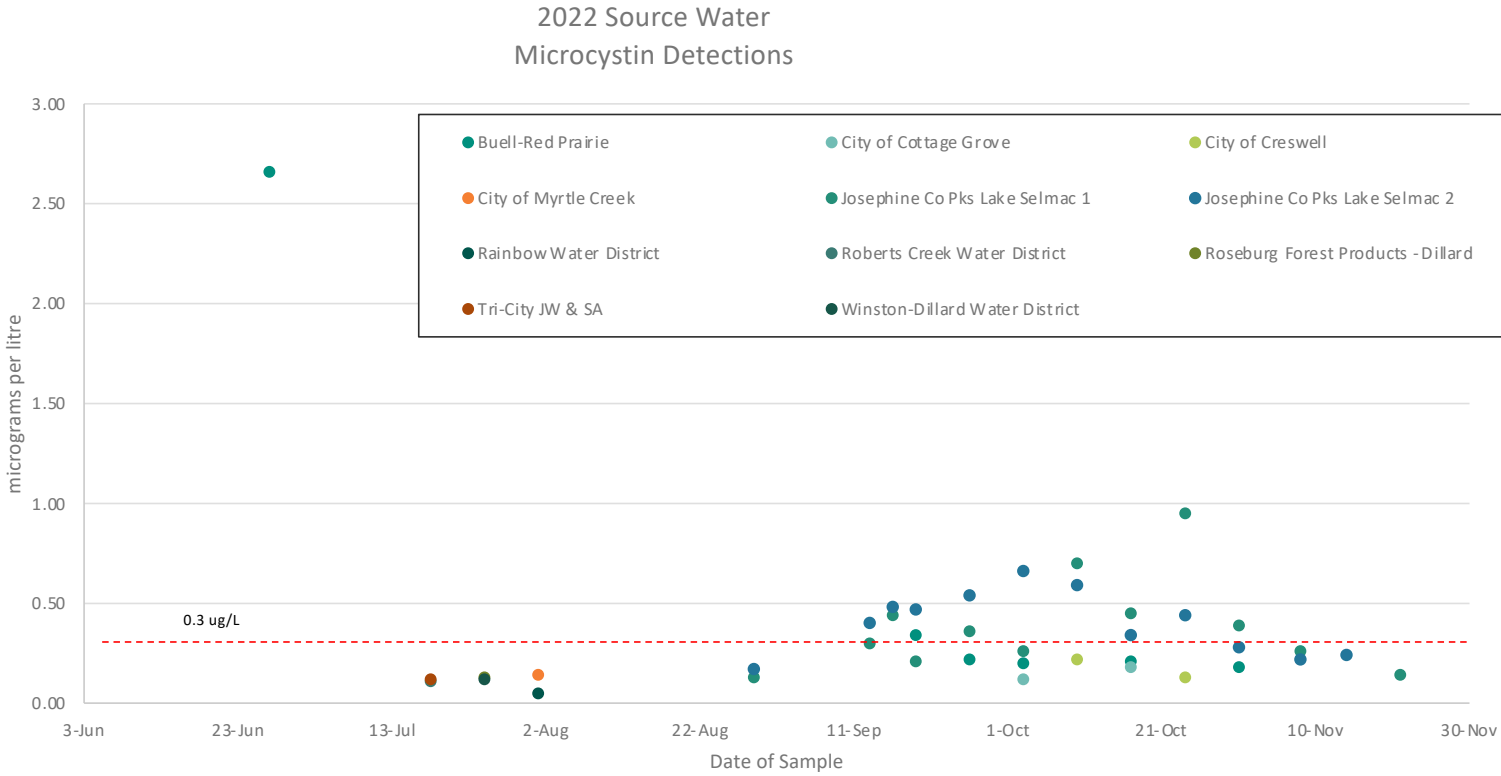
Resource Equipment Timeline

- July 2021 - 2nd CAAs installed
 - Failed Microcystin/Anatoxin IDOC
- July 2022 – Sent to Manufacturer via Servicer
- September 2022 – No longer supported/unrepairable
- October 2022 – Contacted by Manufacturer
- January 2023 – CAAS Returned to lab

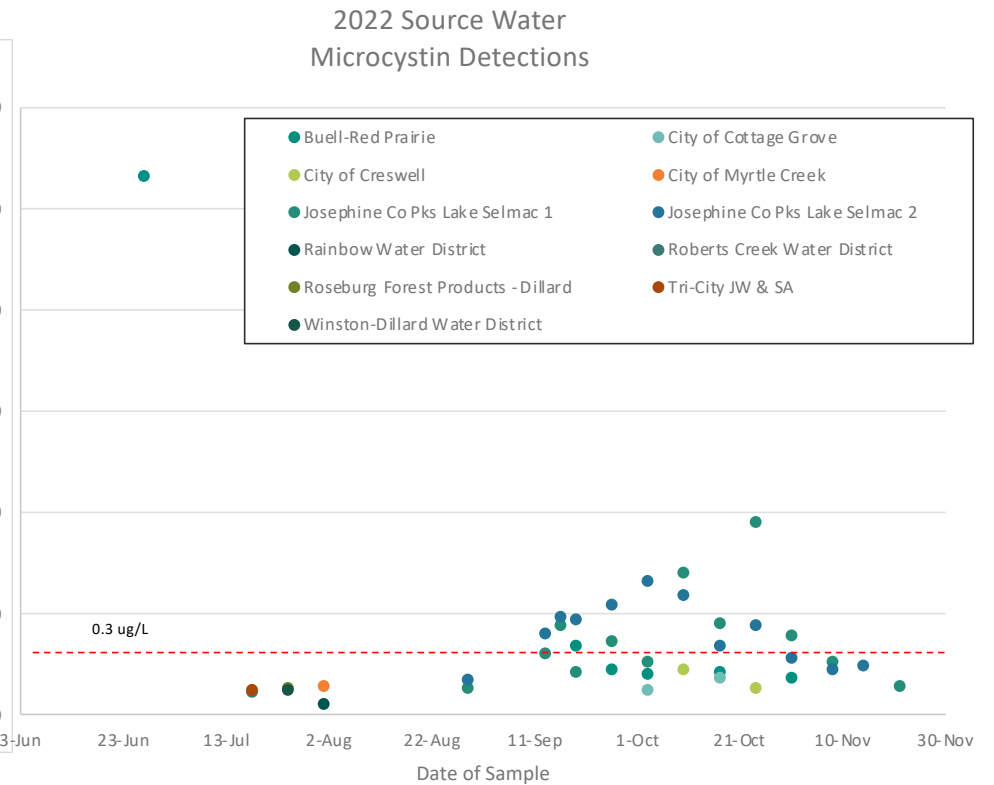
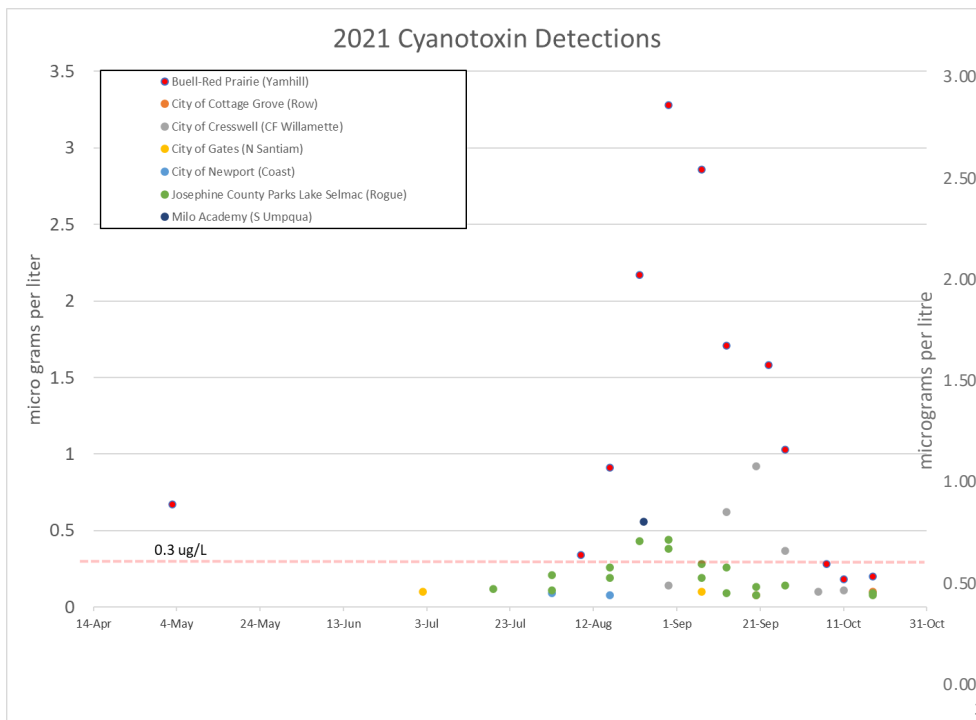
Summary of Cyanotoxin Results 2022

- 56 locations at 54 facilities participated in the program in 2022
- No drinking water detections at any facility
- 42 facilities had no detectable cyanotoxins in their source water
- 12 facilities had 39 microcystins detections, 1 cylindrospermopsin detection
- 2 facilities had 16 detections >0.3 ug/L, all microcystins
 - Buell-Red Prairie (Yamhill): 6 detections
 - Josephine Co Park- Lake Selmac (Rogue): 24 detections; 12 at Selmac 1, 12 at Selmac 2

2022 – Drinking Water Monitoring

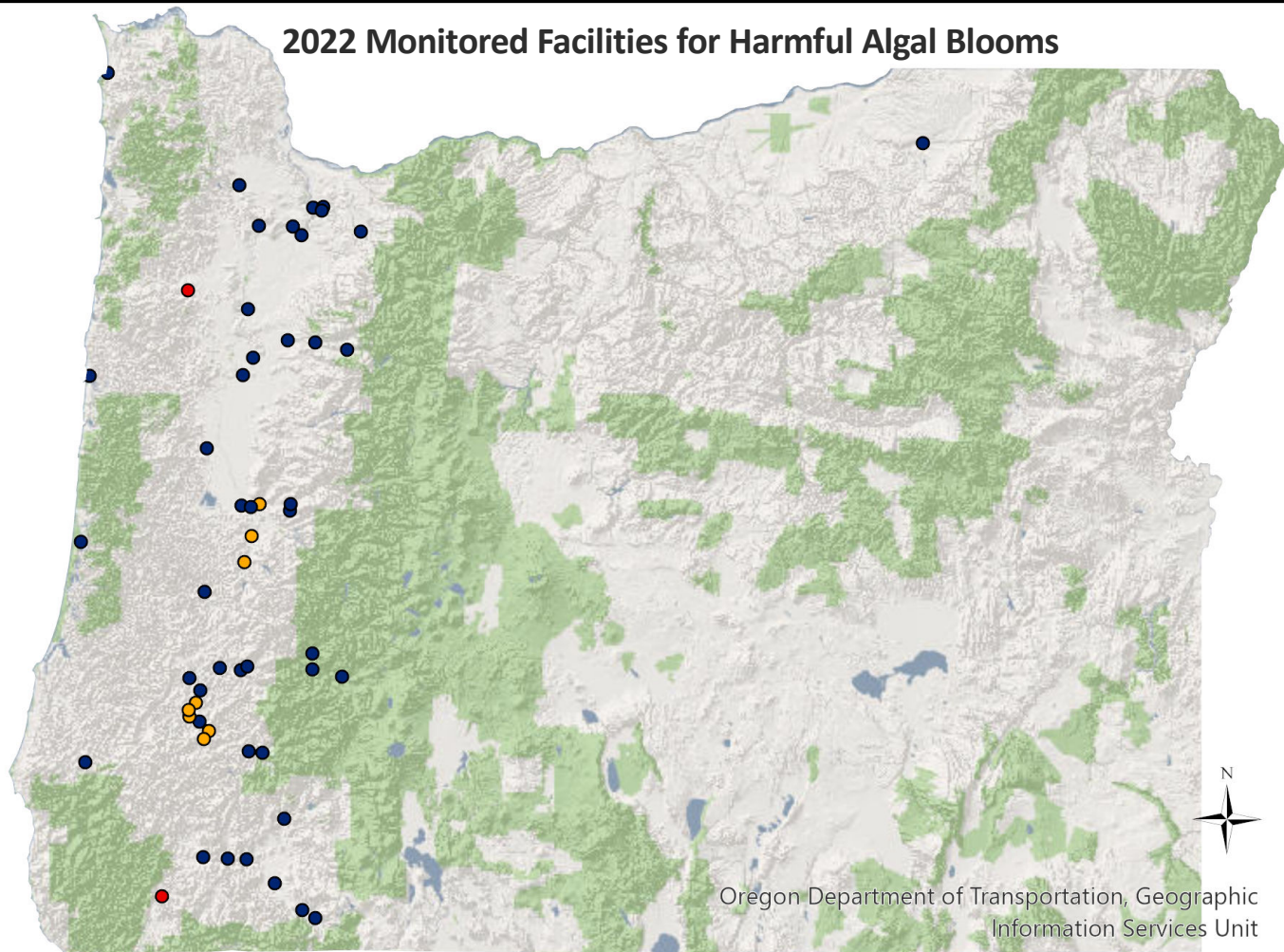


2021 vs. 2022



2022 Monitored Facilities for Harmful Algal Blooms

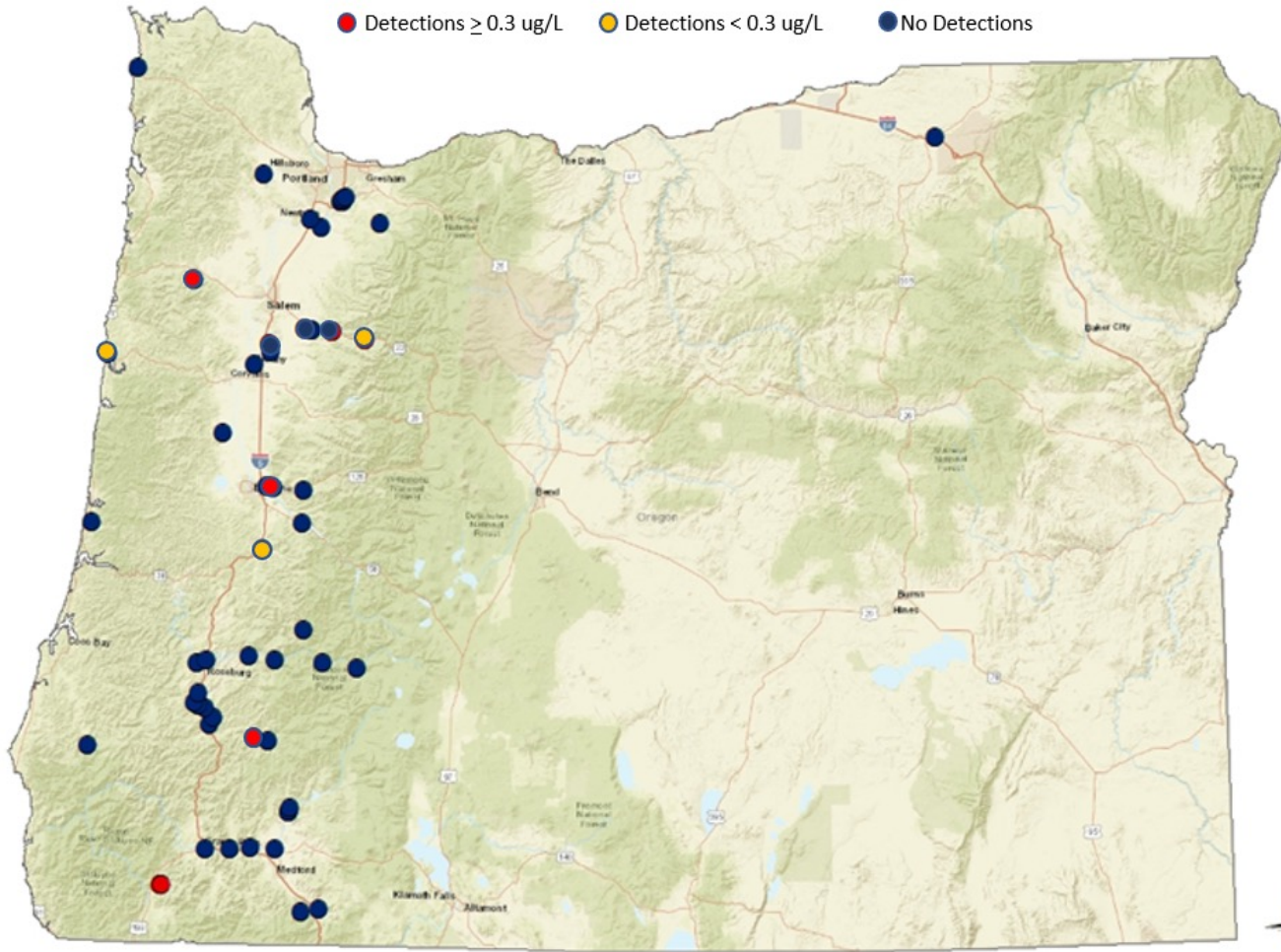
- No Detections
- Detections < 0.3 ug/L
- Detections ≥ 0.3 ug/L



Oregon Department of Transportation, Geographic Information Services Unit

2021 Monitored Facilities for Harmful Algal Blooms

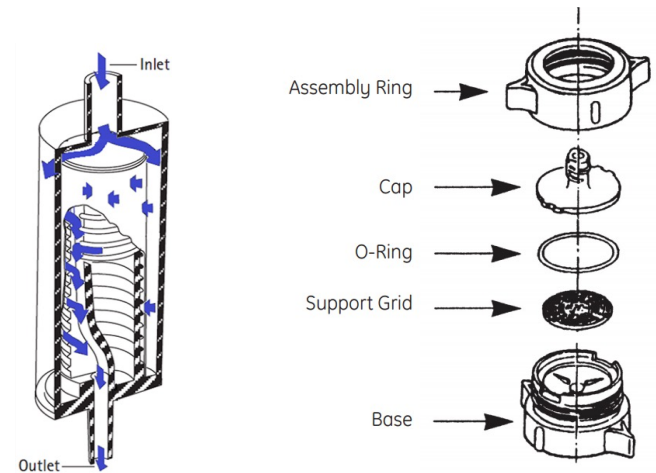
● Detections ≥ 0.3 ug/L ● Detections < 0.3 ug/L ● No Detections



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

2022 – qPCR Innovation Project

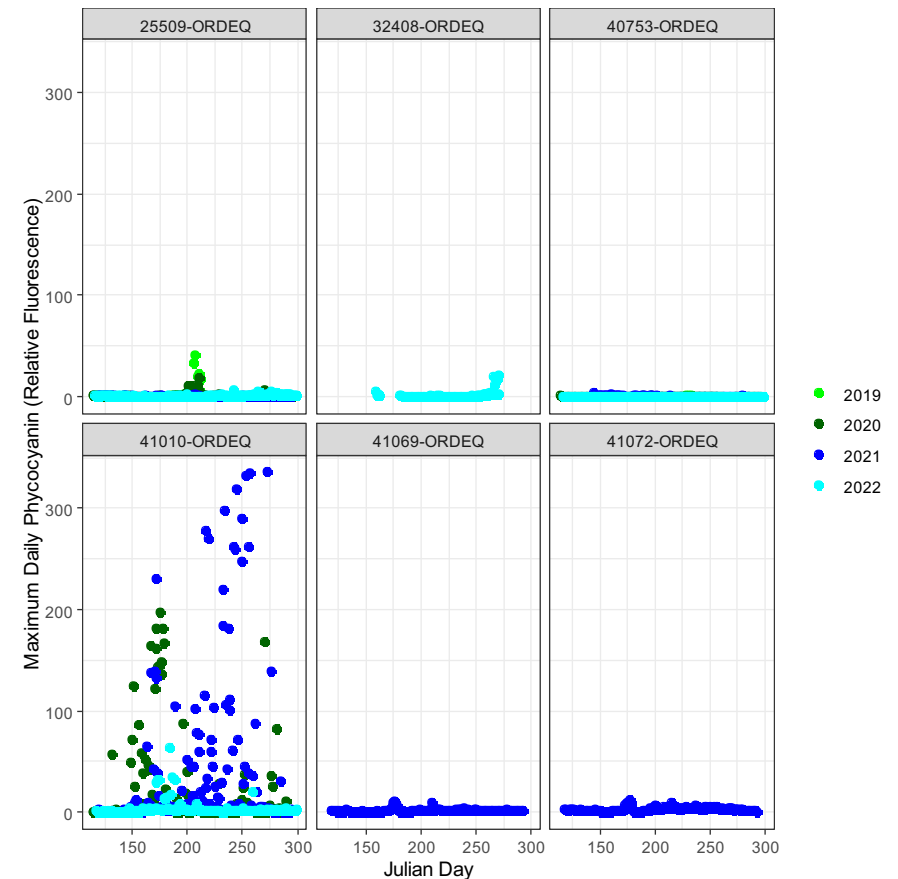
- Focused on method development
 - Field vs. lab filtration
 - Swin-Lok vs. Sterivex filters
- qPCR analysis in progress at lab
- Preliminary analysis complete at EPA ORD



Sterivex (left) vs. Swin-lok filters (right)

Upper Deschutes CyanoHABs TMDL project

- Monitoring since 2019
 - 2022 monitoring included Odell Lake, Crescent Lake, Crane Prairie Reservoir, and Lava Lake
- Main results so far:
 - Spatial complexity of CyanoHABs matter for satellite and on-the-ground detection
 - Satellite imagery can be used to monitor CyanoHABs in Oregon waterbodies
 - Water quality and toxin data correspond to satellite data in some water bodies



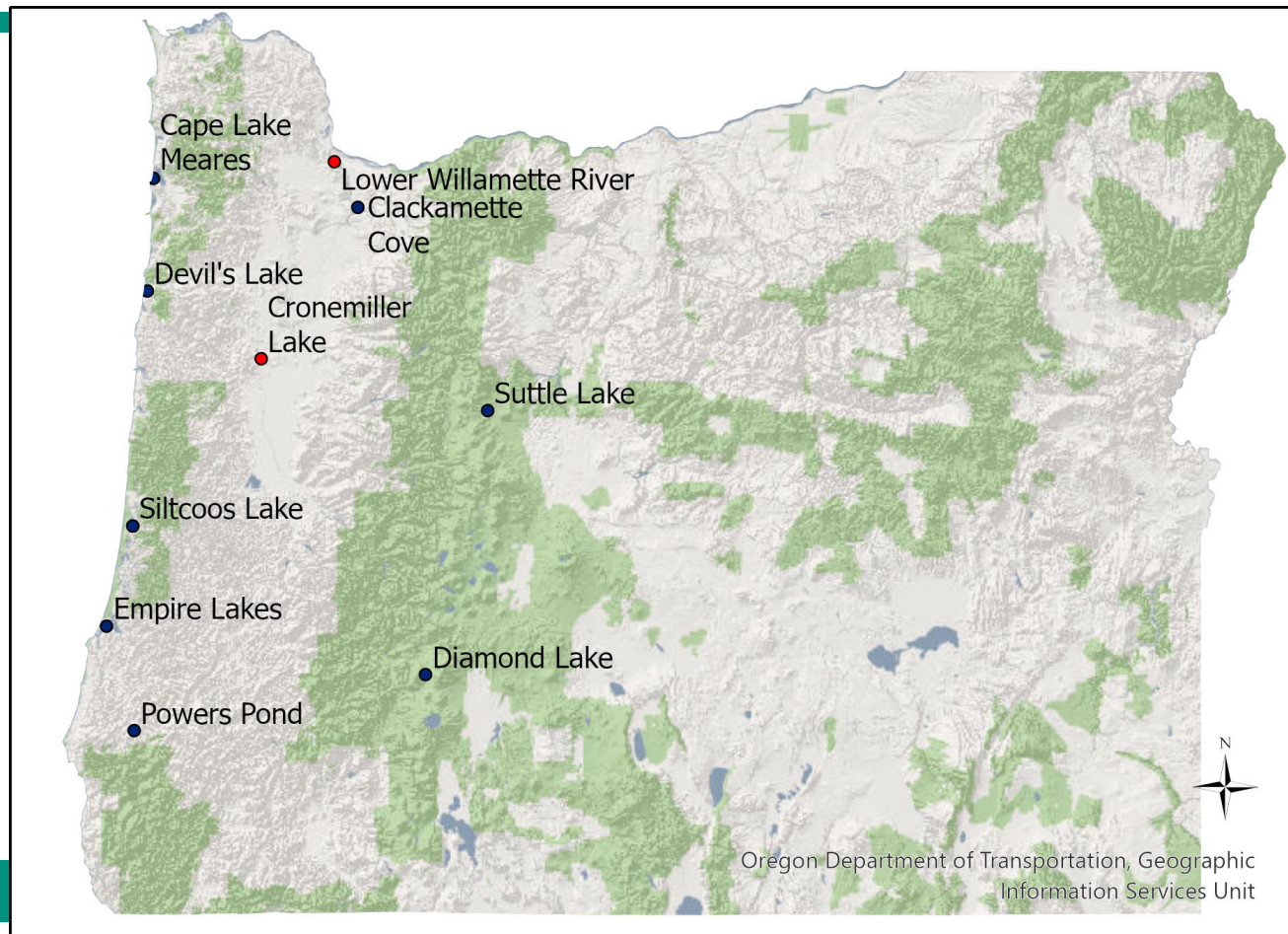
2022 – DEQ Recreational HABs response

● No Advisory Issued

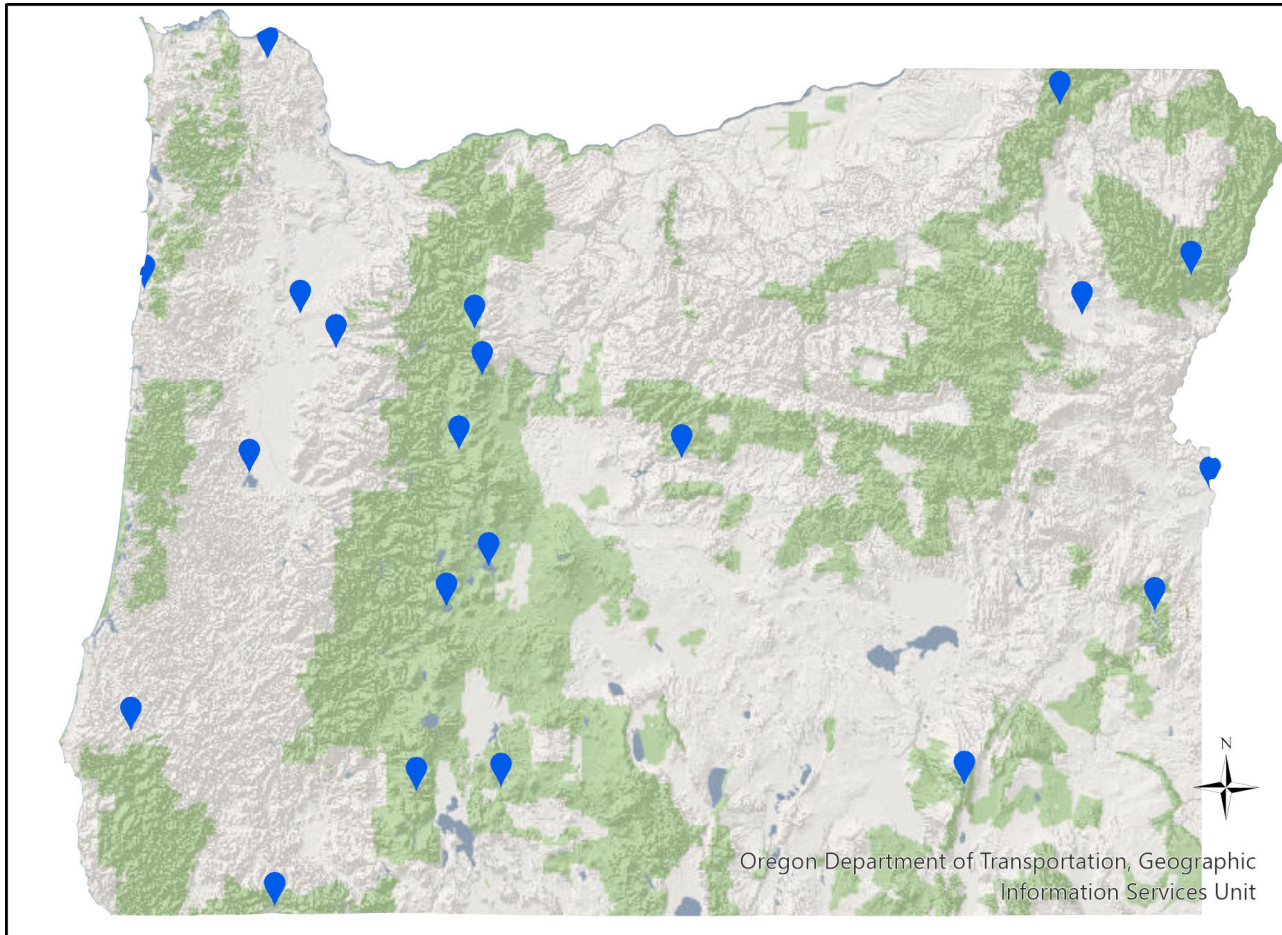
● Advisory Issued

Other advisories issued at:

- Willow Creek Reservoir
- Hells Canyon Reservoir
- Brownlee Reservoir
- Upper Klamath Lake



National Lakes Assessment - HABs



- 22 Lakes – Randomly Selected
- qPCR
- ELISA
- Profile Data
- From June to October

Challenges

- Supply chain
 - Instruments
 - Expendible supplies
 - Shipping
- Staffing
 - Retention
 - Recruiting
 - Onboarding



2023 – Future outlook

- Drinking water monitoring –
 - no other changes planned yet
- qPCR Innovation project –
 - Sampling completed
- Upper Deschutes TMDL –
 - proposal for 2023 approved
 - monitoring begins next month
- Recreational response –
 - Pre-made response kits
 - Ground Truthing

Questions?

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