Harmful Algae Blooms (HABs) and Wiser Lake

WHATCOM COUNTY
HEALTH AND COMMUNITY SERVICES

What are HABs?

- Naturally occurring bacteria
- Also called cyanobacteria, blue-green algae
- Occur in freshwater and saltwater
- Thrive in warm water, stagnant flow, high nutrient waters
- Blooms occur when algae grows uncontrollably

Wiser Lake HAB. Source - WCHCS

Why Do We Care?

- Can produce toxins that are harmful to animals and people
- Microcystin (liver toxin) and Anatoxin-a (nerve toxin) most common
- Not all blue-green algae produce toxins
- Different sources of exposure

Wiser Lake Algae Bloom – Source: Whatcom County Public Works

What To Do During a Bloom

- Do not swim where a bloom is visible
- Do not let pets drink the water
- Keep kids, pets and livestock away
- Clean fish well and discard entrails
- Contact WCHCS

Collecting HAB sample. Source - WCHCS

WCHCS HAB Program

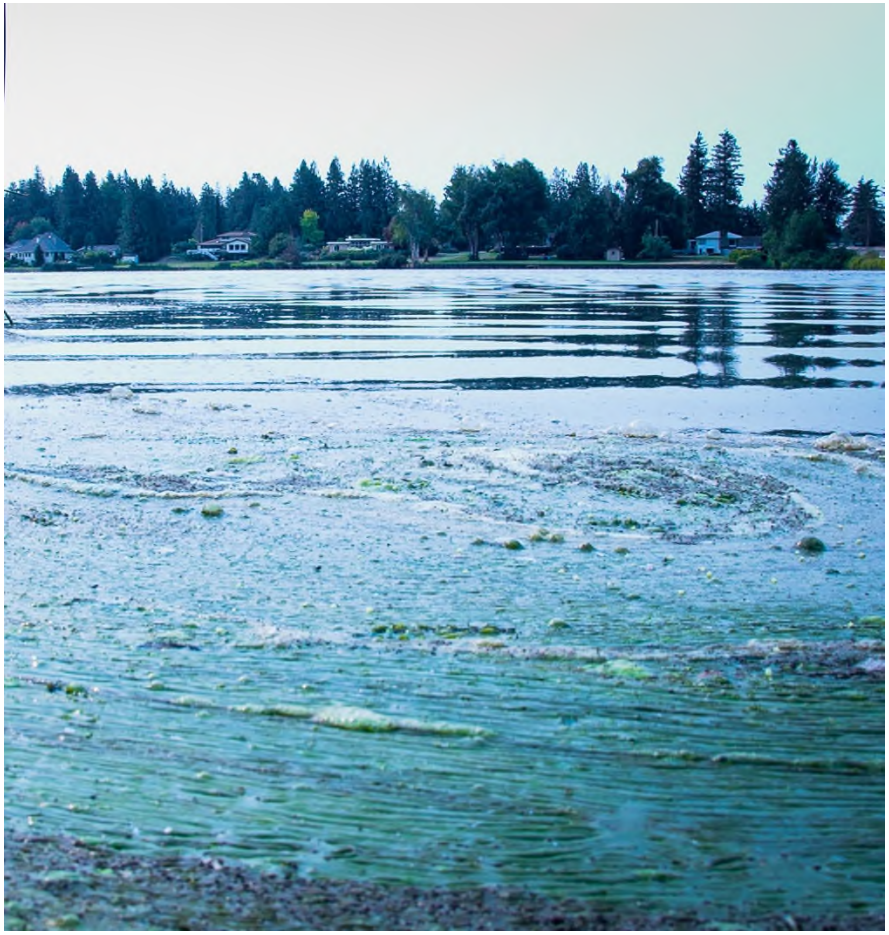
- Report-based
- Data collection is sporadic
- Partner with DOE

www.nwtoxicalgae.org

- Recreational guidelines set by DOH
- Post signage and notify community

Algae Sampling Kit. Source – Anna Mostovetsky

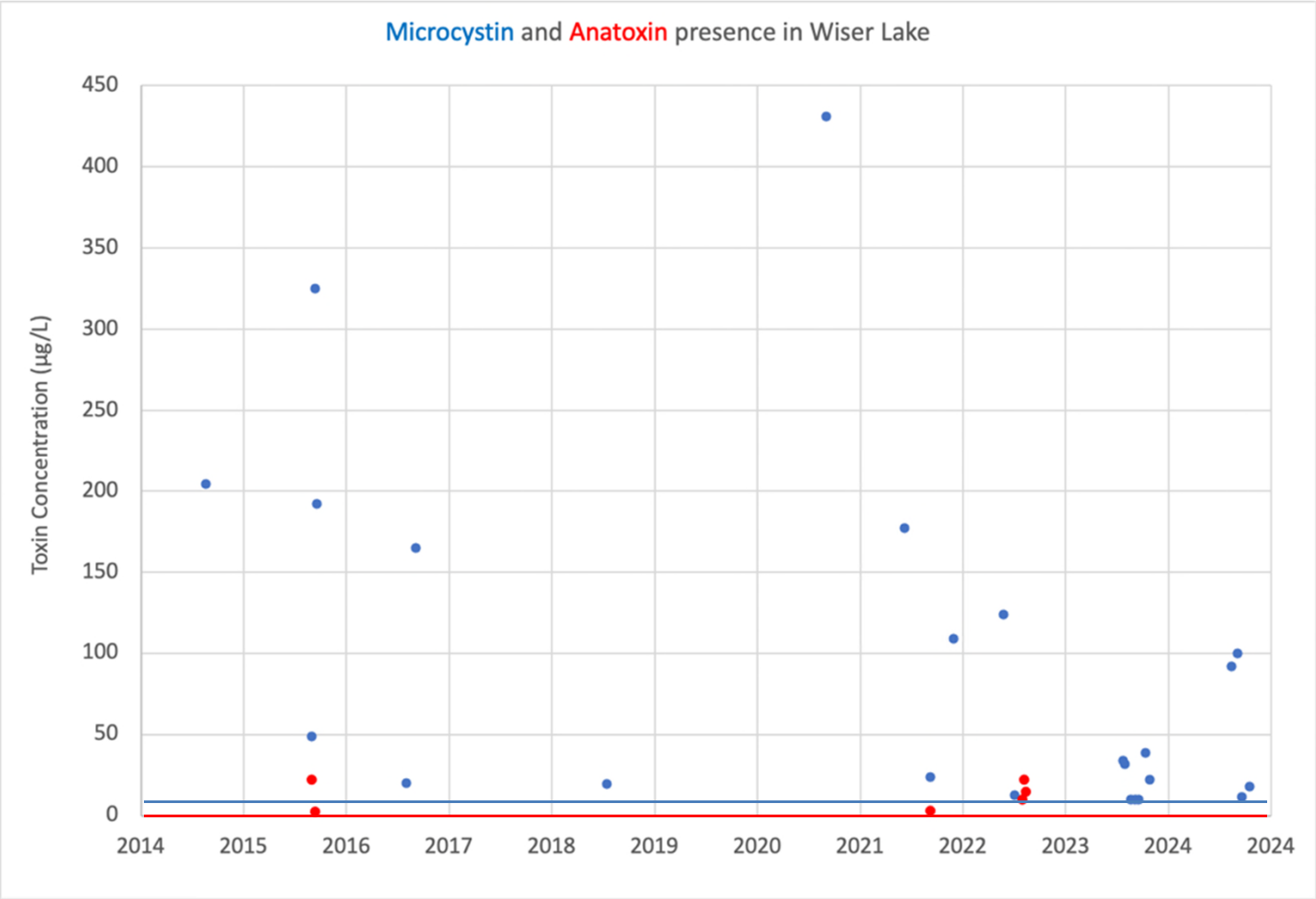
Wiser Lake HABs



Wiser Lake HAB. Source - WCHCS

- Multiple complaints about Wiser Lake
- Data available starting in 2014
- High toxin levels detected almost annually
- Primarily Microcystin and some Anatoxin

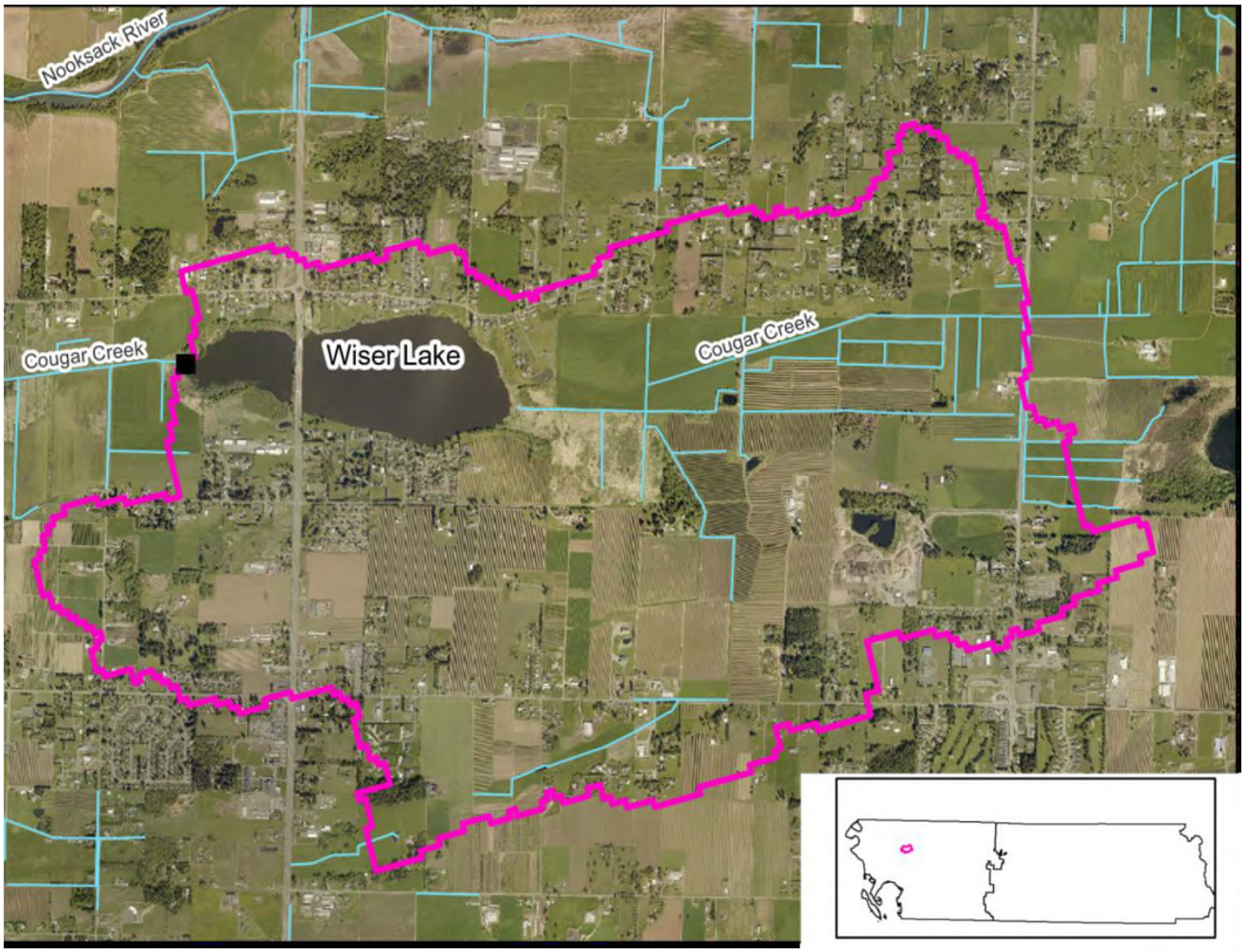
Elevated Toxins



Wiser Lake Background

- 3 miles south of Lynden; divided by Guide Meridian
- 116 acre, shallow lake (max depth 10ft)
- Recreational use: WDFW boat launch
- Lakefront residences
- Migratory waterfowl roosting site

Wiser Lake Background



- Cougar Creek main inlet/outlet
- Ag use: 69%, Residential: 21% Water, forest, wetland: 10%
- 533 OSS systems

Wiser Lake Watershed. Source - WCHCS

Dept. Of Ecology Grants

Wiser Lake HAB. Source - WCHCS

- Freshwater Algae Control Grants Program – DOE
- Funding to study the lake and find the source of nutrients
- Two $50K grants awarded to WCHCS
- Multi-year process

Project Steps

1) Develop QAPP (Quality Assurance Project Plan)

2) Execute a year of field data collection

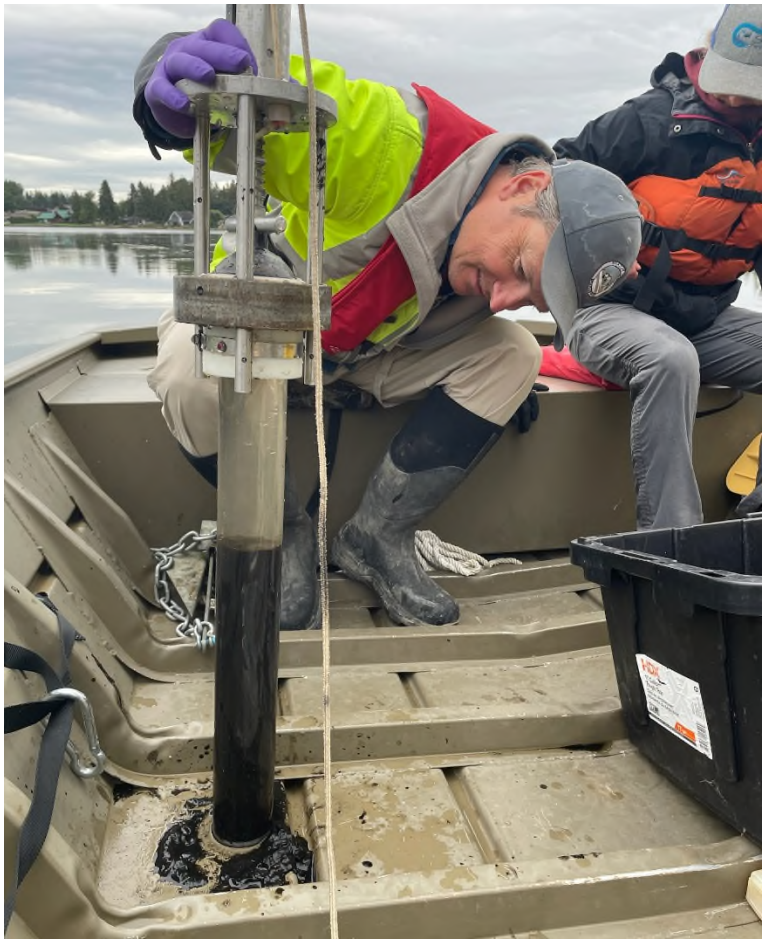
3) Data analysis

4) LCMP (Lake Cyanobacteria Management Plan) and remediation recommendations

5) Community Outreach

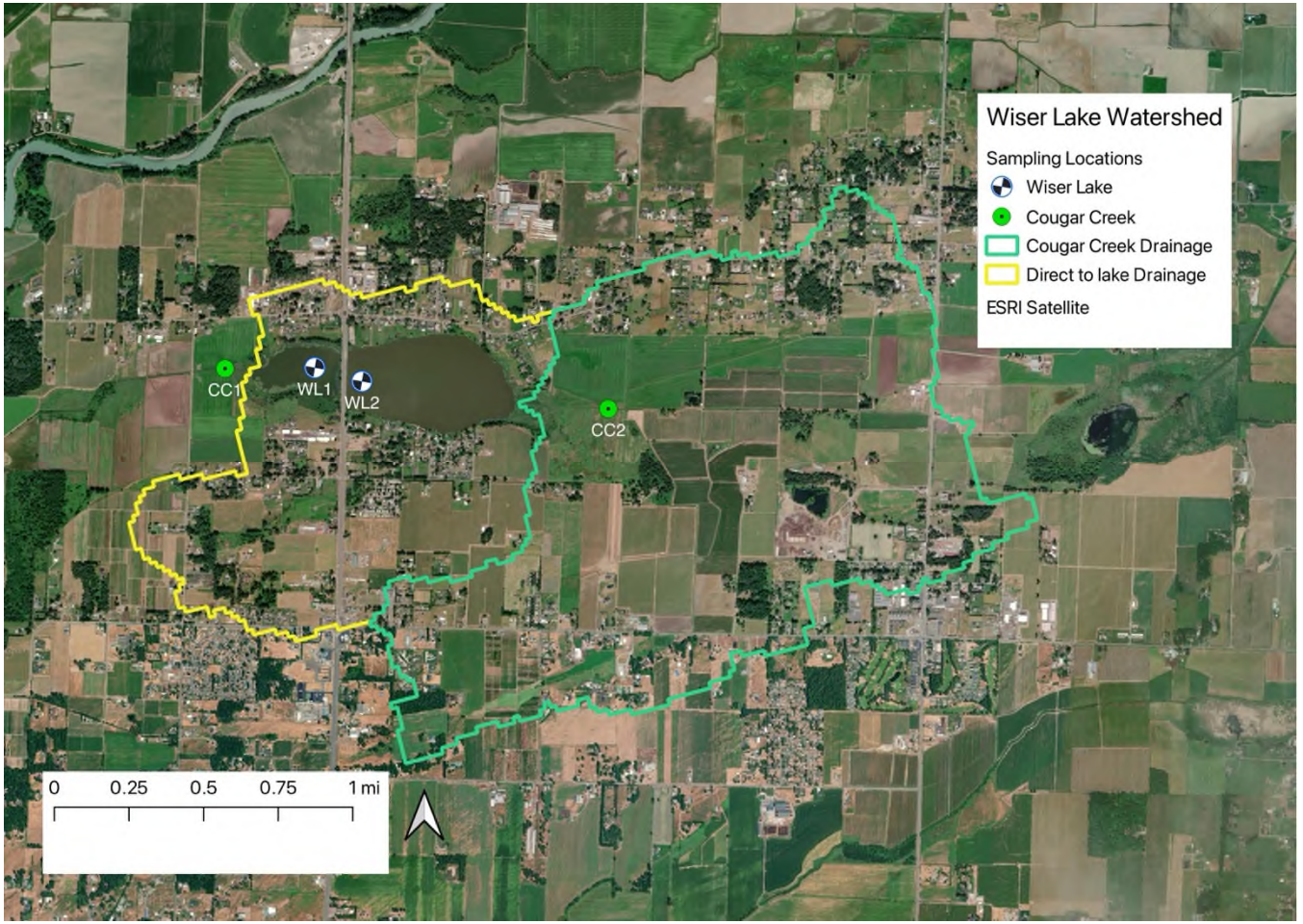
Monitoring Plan

- 5/23 – 4/24
- Stream monitoring
- Lake and stream water quality
- Waterfowl surveys
- Sediment core sampling
- Phytoplankton, zooplankton



Sediment core sampling on Wiser Lake. Source - WCHCS

Monitoring Locations



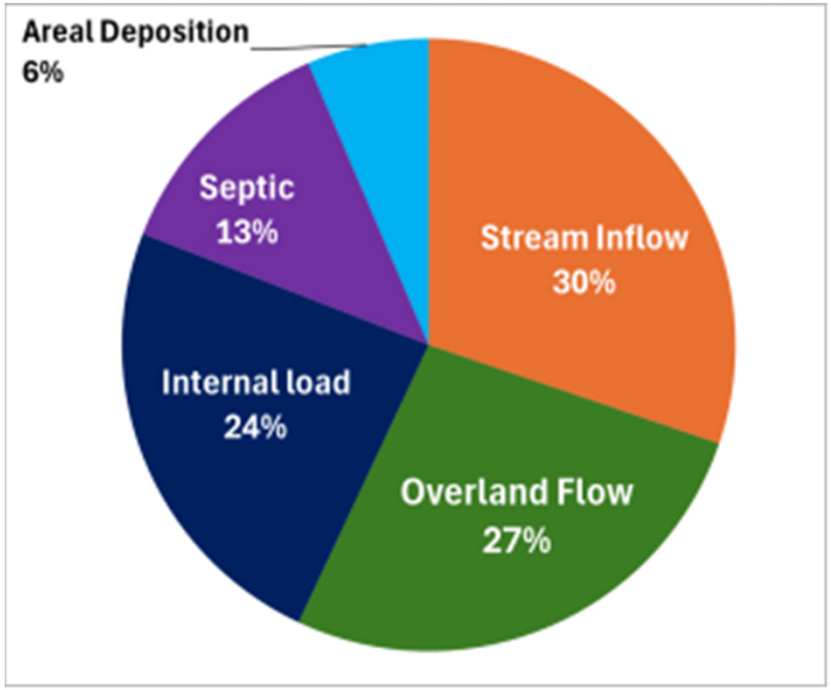
LCMP Development

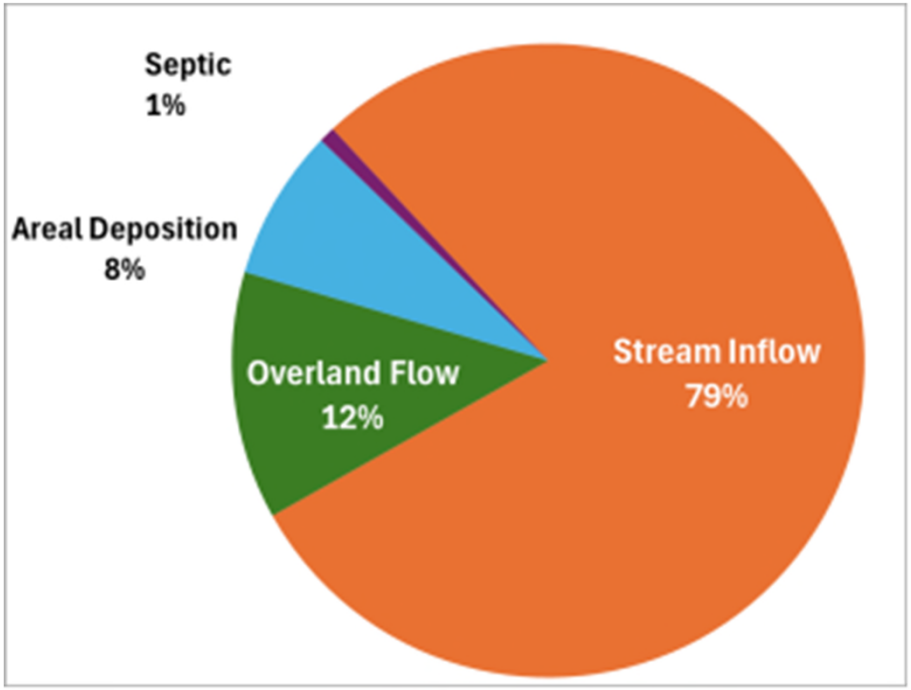
- Hired Aquatic Insight
- Data analysis
- Development of nutrient and water budgets
- Recommendations for phosphorous reduction and/or treatments

Cougar Creek. Source: WCHCS

Results and Findings

- Phosphorus and Nitrogen Budgets





Results and Findings

- High phosphorus and nitrogen levels
- High conductivity and pH
- Poor lake visibility in summer
- Well mixed throughout the year
  - Dissolved oxygen and temperature consistent throughout water column
- Toxin producing blue-green algae in late summer/fall
- Inconclusive results from waterfowl data

Control Options

- **Reducing P in sediment (short-term)**
  - Alum or lanthanum treatment
  - Artificial circulation?
- **Watershed Protection (long-term)**
  - Work w/ WCD to reduce manure applications
  - Phosphorous free lawn fertilizer program
  - Shoreline restoration and waterfowl mgmt
  - Continued septic inspections/upgrades
- **Continued monitoring necessary**

Outreach

- **Three total community meetings**
  - One in Fall 2023
  - Two in Spring 2025
- **Web content**
- **Recordings and LCMP available on website**
- **PIO team was very helpful**

Other Partnerships

- Department of Health
- Department of Ecology
- Whatcom County Public Works
- Re Sources
- WDFW
- Western Washington University
- EcoAnalysts; Aquatic Analysts; IEH Lab
- King County Environmental Lab

Next Steps

- Partnership and community involvement is key
- Lake Association or Lake Management District formation
- Grant funds to cover cost of treatments
- Has to be a long-term investment

Resources

- **WCHCS HABs**

https://www.whatcomcounty.us/4235/Harmful-Algae-Blooms

- **WA Department of Health**

https://doh.wa.gov/community-and-environment/contaminants/blue-green-algae

- **NW Toxic Algae**

https://www.nwtoxicalgae.org

- **CDC**

https://www.cdc.gov/habs/index.html

Questions?

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WHATCOM COUNTY
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