Lake Lawrence Lake Management District Virtual Meeting 19 March 2026 6:30-8:30 p.m.

AGENDA for 19 March 2026 LMD Meeting

- **Call to Order**
  - Introductions
  - Approval of Agenda
- Approval of 19 February 2026 Meeting Minutes
- **Public Communications**
- **Recuring/Continued Business: -** Janice
  - 2026 Budget as of March 2026
  - Work Orders/Purchases/Invoices
- **Old Business:**
- Senate Bill S-3518.1 update – Barry
- Cyanobacteria Mgmt. Plan (CMP) update – Barry
- LMD Renewal 2027 Subcommittee Update – Barry/Janice
- Continuing Discussion of “SHALLOW WATER SIGNS” & Public Boat Launch Sign - update - Barry
- 2026 LMD Invasive/Nuisance Aquatic Weed/FWL/YFI Treatment Plan update – Barry
- 2026 Yellow Flag Iris Treatment Plan update – Barry
- 2026 Fragrant Water Lily Treatment Plan update/Recommendation – Barry
- 2026 Treatment Notification Card
- 2026 Meetings & Survey Dates
- GRANT Funding update – Kim Farnes
- Lake Water Level & Floating Island Issue update – Frank
- **New Business:**
- **Other Business:**
- **Good of the Order**
- **Adjourn**

Call to Order

- Introductions/Roll Call/Attendance
- Approval of 19 March 2026 Agenda as amended
  - MOTION:
- Approval of 19 February 2026 Meeting Minutes as amended
  - MOTION:

Public Communications

- Please mute yourself until you are recognized to speak.
- Please Choose the “raise your hand” option to address the committee. You will be promoted to a panelist when it is your turn to speak and be seen. To be seen, please turn on your camera. If you are dialing in, press *9 to “raise your hand.” Make sure you also choose *6 to unmute yourself.
- After you have made your comments please mute yourself.

Recurring/Continued Business

- Budget – Janice Leitzke
  - 2026 Budget as of end of March 2026
  - Work Orders/Purchases/Invoices (next slide)

Lake Lawrence Management District
Financial Report

	2026 Budget	2026 Actuals thru 3/18/2026	2026 Variance	2026 Actual Notes
REVENUE				
Penalties - Operating Assessment			-	
Investment Earnings			-	
Operating Assessment Charges	118,000		(118,000)	
Algae Grant	25,000		(25,000)	$41,017 owed from Grant
TOTAL REVENUE	**143,000**	**-**	**(143,000)**	Revenue not yet reported from TC
EXPENSES				
Administrative Rate at 5%	**5,900**	**-**	**5,900**	
Nuisance Weed Program	80,000	137	79,863	Expect to treat 34 acres @ $72k CLP4, $136.74 APAM permit
Algae Mitigation	210,000		210,000	
Cyanobacteria Mgmt Plan (CMP)	60,000	9,791	50,209	Herrera Contract of $93,287 ends 6/2026, $15,844 remaining as of 2/1/2026
Yellow Flag Iris	1,500		1,500	Treat in April
Lily Treatment	3,500		3,500	Will check in June/July if need treatment in Aug/Sept
Nutrient Testing	15,000		15,000	
Prof Svcs - Advertising	1,100	(144)	1,244	$144 reimbursement from 2023 to be corrected in 2026
Total Professional Services	**371,100**	**9,784**	**361,316**	
Supplies	125		125	
Annual Meeting and Picnic	500		500	
Small Tools & Minor Equip	300		300	
Communications (Mailers)	1,290		1,290	
Operating Leases/Rentals (LLCC)	60		60	
Website & admin technology	400		400	
Misc.	5,000	1,446	3,554	Renewal Expenses-$317 for public hearing ads, $1,073 for ballot mailing, stamps $55.52
Total Supplies & Operating Expenses	**7,675**	**1,446**	**6,229**	
TOTAL EXPENSES	**384,675**	**11,229**	**373,446**	
NET (Revenue-Expenses)	***$ (241,675)***	***$ (11,229)***	***$ 230,446***	
Beginning Fund Balance		$ 419,460		As of March 2026 TC is estimating our 2026 beginning fund balance at $428,711
Ending Fund Balance		**$ 408,230**		

Financial Report 2026 Mar 18 LLMD Financial Report 3/18/2026

Lake Lawrence Management District
Details of Financial Report

Expense Detail			03/18/26		
Date	**Amount**		**Account**	**Payee**	**Notes**
Prior Year	$	(143.52)	Advertising	Correction for 2024	50% RFP ad in Dec 2023 s/b coded to Long Lake
11/13/2025	$	210.35	CMP C-01	Herrera #60640R	Sept 27-Oct 31 2025, to be booked in 2026
11/13/2025	$	2,869.13	CMP C-02	Herrera #60640R	Sept 27-Oct 31 2025, to be booked in 2026
11/13/2025	$	107.14	CMP C-03	Herrera #60640R	Sept 27-Oct 31 2025, to be booked in 2026
11/13/2025	$	320.70	CMP D-03	Herrera #60640R	Sept 27-Oct 31 2025, to be booked in 2026
12/5/2025	$	55.52	Renewal expense	Barry Halverson	2 books of stamps and 4 certified Letters
1/5/2026	$	317.20	Public Hearing-Renewal	CR Publishing #307914	AD#136069 for Jan 8 and 15th
2/13/2026	$	6,091.33	CMP C-02	Herrera #61460	Jan 1-30 2026
2/13/2026	$	191.99	CMP D-03	Herrera #61460	Jan 1-30 2026
3/4/2026	$	1,072.82	Mailing ballots	Nisqually Print, #NPNP308(	Postage $305.55, Labor $126, Envelopes $393.82, Paper $156.17, Tax 91.28
3/1/2026	$	136.74	Permits	Dept of Ecology	APAM Fee $136.74 (1/4 of $500 permit+16.96 Processing fee for 2026
	$	**11,229.40**	Total of above		
	$	11,229.40	**Total Expenses per LLMD Financial report**		
	$	11,229.40	Less items submitted but not confirmed by Thurston County		
	$	-	**Total Expenses confirmed per Thurston Co rpt $**		
CMP Study:					
2024	$	42,210.70			
2025	$	25,441.61			
2026	$	9,790.64			
	$	77,442.95	Agrees to Herrera Invoice Summary of $77,442.95		
	$	15,844.05	Budget Remaining from $93,287 total		
	$	8,982.83	Amount Reimbursed on Grant, Expenses through Aug 2024 only		
	$	41,017.17	Amount owed from Grant		
Estimated Pending costs approved by SC					**@ Feb Meeting**
estimate	$	271.99	Treatment Postcards	Nisqually Post & Print	165 postcards, 89.1 labor $42, Stamps 128.70 tax 12.19
	$	320.00			Notice of LMD Establishment
	$	320.00			Notice of public Hearing for Roll of Rate
	$	1,000.00			Special Assessment Hearing Notice
	$	71,308.00	plus tax		Curly Pondweed Treatment 34 acres SonarOne, Apr 2026
	$	1,500.00			YFI Treatment

Work Orders/Invoices

1. Notice of LMD Establishment published in Local Paper within 10 days of Ordinance creating LMD – Notice published by BoCC Clerk of the Board. Estimated cost is $320.00. Actual cost was $ _____
2. Notice of Public Hearing for Roll of Rates & Charges – Notice published by BoCC Clerk of the Commission. Est. Cost is $320.00. Actual cost was $_____
3. Special Assessment Public Hearing Notification – **Quote = $1,000**. Send out 16 April 2026. Cost was $_____
4. Treatment Notification Card – **Quote $500**. Send out 31 March 2026 cost was $271.99.
5. Weed Treatment – **Quote $71,308+/-** 34 Acres. Send WO to contractor March 15. Treatment Mid-April, Mid–May, and Mid-June 2026. Cost was $_____
6. YFI Treatment - **$1,500**. 5-15 May 2026. Same cost as last year.

Items 1-6 are updates from February 2026 meeting.

No new items to approve.

OLD BUSINESS

Senate Bill S-3518.1 Update

- 30 May DFW sent us a letter outlining their concerns
- 4 June sent email to WA LMDs to update their contact information
- 6 June sent DFW ltr and other info to WA State LMDs for their input by 14 Jun
- 14 June sent email to WA State LMDs with 2 dates for virtual mtg 19 & 20 Jun
- 19 & 20 June met virtually with WA State LMDs
- 24 June sent email with ltr to DFW addressing their concerns
- 30 Aug WALPA sent email – would like to be involved and support revision of RCW 36.61. Want to work with LMDs on changes. Waiting for date/time to set up mtg to discuss.
- 2 Sep sent email to DFW asking for a response – Responded that they will have an answer by mid-September.
- 18 Oct 2024 rec'd letter from DFW reiterating their position that the bill must include a change to the RCW regarding restructuring of public entity assessment fees in paragraph 36.61.160.
- 4 Nov 24 – Email to our legislative sponsors of the bill and WDFW representatives letting them know where the LMDs stood, asking for their input on the LMD Assessment Table and discontinuing any effort to pursue this legislation this coming session until we have had time to further discuss the bill with all City/County LMD managers and other stake holders.
- 21 Nov 24 – Email to all LMD Leadership, WALPA, and LMD City/County managers requesting their review/discussion of proposed changes to RCW 36.61 and WDFW's concerns.
- 16 Jan 25 – Virtual meeting with LMDs, WALPA and City/County LMD Representatives to discuss bill, identify any changes desired, confirm support for bill and existing changes and identify next steps. WALPA agreed to moderate discussion with DFW – Clark to reach out to them. WALPA agreed to reach out to all city/county LMD representatives to get them involved (ongoing).

Cyanobacteria Management Plan (CMP) Timeline

- G • Nov 2023 - Grant request submitted
- G • Jan 2024 - Grant approved by Ecology – funding not until July 2024
- G • Feb 8, 2024 – RFP submitted for contractor to do plan.
- G • 8 Mar 2024 – BoCC approved RFPs Clerk of the Board issued Public Notice
- G • Apr/May 2024 – Bids received and evaluated
- G • May/June 2024 – Contract issued (June 18th)
- G • June/July 2024 – Contractor begins study – EH held virtual kickoff meeting with contractors 12 July
- G • 25 July 2024 – Mtg #1 2hr Public Mtg to discuss project objectives & monitoring plan
- G • July 2024 – SC receives 1st Draft of Quality Assurance Project Plan (QAPP) for review (we have 2 wks)
  - 6 Sep 2024 – Rec'd 1st Draft of QAPP for review - Reviewed same day.
  - 9 Oct 2024 – Rec'd Final Draft of QAPP for review – Signature copy going out 11 Oct.
- G • August 2024 – Ecology reviews QAPP – 6 Sep – 8 Oct 24?
- G • Aug/Sep 2024 – Final review of QAPP – 9 Oct 24

G = Green = Completed On Time

Y = Yellow = Late – Program Jeopardized

R = Red = Mission Fail

Cyanobacteria Management Plan (CMP) Timeline (continued)

- G 25 Sep 24 – Lake Sediment Sampling (Completed)
- G Oct 24-Oct 25 – LMD responsibility. Weekly water level monitoring/reporting (On track)
- G 5 May 2025 – Mtg #2 1 hr. w/SC to discuss monitoring update.
- G May 2025 – Rec'd $8,982.83 in Grant Funding. Additional funding expected Oct 25.
- G 11 Dec 2025 – Mtg #3 2 hrs. w/SC to discuss Phosphorus Budget & Mgmt. Alternatives.
- 16 Apr 2026 – Mtg #4 2 hrs. Public Mtg to go review/discuss DRAFT CMP.
- 11 Jun 2026 – MTG #5 2 hrs. w/SC to discuss final CMP.
- Jun/Jul (Changed from April) 2026 – RFP issued for contractor to implement plan
- Aug/Sep (Changed from May) 2026 – Contractor identified
- Mar/Apr 2027 (Changed from Jun-Oct 2026) – Plan/contract/treatment executed.

G **G = Green = Completed On Time**

Y **Y = Yellow = Late – Program Jeopardized**

R **R = Red = Mission Fail**

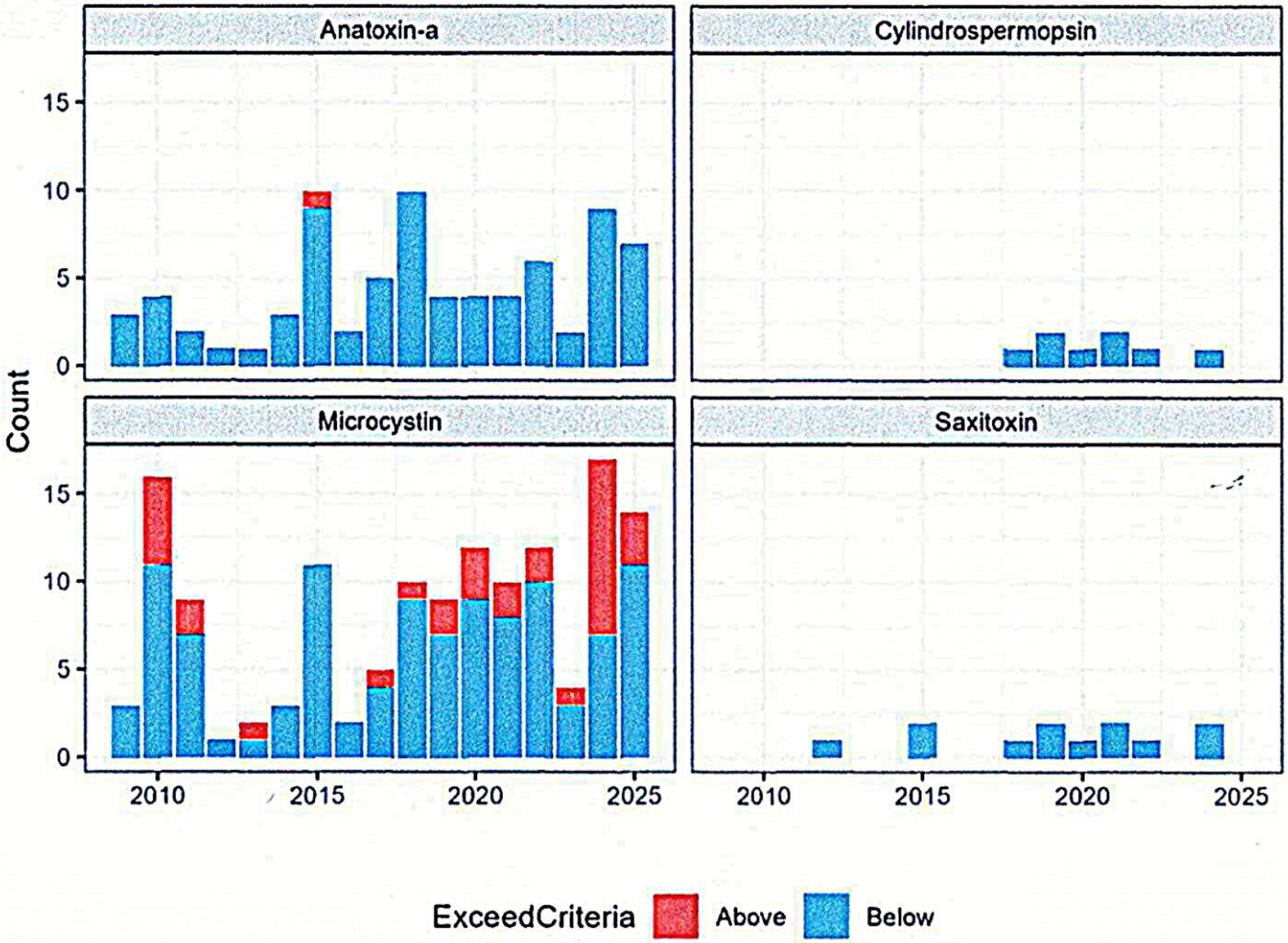
Once we get the CMP Final Plan it will take 1-2 months to obtain approval of the plan from Ecology before we will be able to use a treatment regime recommended by the plan.

Teresi, Joseph (ECY) 30 Sep 25
to me

Hi Barry,
The LCMP must be reviewed and approved by Ecology prior to seeking additional algae program funding for implementation. As stated in the guidelines, algae control applications must have an approved plan in place prior to the end of the application period.
To accommodate extra time for completing and addressing comments for the Lake Lawrence CMP, it might be best to wait to apply until FY28. If the plan ultimately recommends a particular treatment, you may implement that treatment next fall, but at your own expense.
Generally, I work with Will Hobbs to review and provide comments/edits for recipients to address before finalizing the plan. It may take about a month to review depending on our capacity.
Best,
Joey
Joseph Teresi (he/him)
Aquatic Invasive & Algae Control Financial Assistance Project Specialist
Water Quality Program - Financial Management Section
Washington State Department of Ecology

What are we attempting to control/Improve?

- Toxic Algae Blooms.
  - Total Phosphorus “P”
  - PHOSPHORUS SEQUESTRATION METHODS & COSTS Total “P” estimated at 6,717 – 7,709 lbs.
- Dissolved Oxygen Levels at deeper depths.



Year	Days with Warning or Danger
2010	59
2011	35
2012	0
2013	16
2014	0
2015	35
2016	0
2017	13
2018	13
2019	19
2020	35
2021	29
2022	19
2023	13
2024	**147** (includes blooms going through Feb 2025)
2025	28

Phosphorus Inactivation Preliminary Comparison

	Alum	Lanthanum	Iron	Calcium
Commercial Products	Available from general chemical suppliers	PhosLock EutroSorb G	ZVI Iron Salts	OASE SeDox
Mode of Inactivation	Forms stable complexes with dissolved phosphorus. Forms floccules that pull particulate phosphorus from the water column. Stable at pH range 5.5 to 9	Forms stable complexes with dissolved phosphorus. Does NOT form floccules Stable at pH <9	Iron oxyhydroxides provide binding sites for phosphate and other ions. Iron-phosphate bonds may break down in low oxygen conditions.	Forms Calcite ($CaCO_3$), stripping P from water column. Precipitates may dissolve in hypolimnion Less effective at pH<9
Mass Ratio (kg product to kg P)	2 to 20 Al : P	5 La : P	44 Fe : 1	50 SedDox : 1
Lawrence Dose	**6,800 kg Al (unbuffered)** **66,200 kg Al (buffered)**	16,500 kg La **(165,000 kg EutraSorb G; 331,000 kg Phoslock)**	**149,000 kg**	**165,000 kg SedOx**
Potential Negative Consequences	Possible toxicity with improper application	Possible in-lake or sediment but not expected at planned doses and formulation. (La is applied bound to clay and will bind with P)	Not expected	Not expected
Permitting	Approved in Ecology Permit	Approved in Ecology Permit	Approved in Ecology Permit, but not for anoxic areas	Approved in Ecology Permit
Treatment Cost (does not include monitoring +permit)	**$90,000 (low dose; unbuffered)** **$1,200,000 (buffered)**	**$1,800,000**	**$270,000**	**$2,700,000**
Longevity	**1 year (unbuffered)** **5 to 10 years (buffered)**	**5 to 10 years**	**1 to 2 years**	**<3 to 5 years**
20 Year Cost Estimate (mid-point longevity; not adjusted; includes $50K for monitoring/treatment)	**$2.8M (unbuffered)** **$3.3M (buffered)**	**$4.9M**	**$4.3M**	**$13.8M**

Phosphorus Inactivation of the Lake Sediments

Remove phosphorus available for algae from the water column.

Several chemicals are available

- Alum
- Lanthanum
- Iron
- Calcium
- Additional proprietary blends

Does not improve bottom oxygen or fish habitat

Aluminum Sulfate (ALUM)

- **ALUM** (Info provided during work session with Solitude Lake Management 22 January 2026 & AquaTechnex 29 January 2026 – Videos posted)

- Alum is safe to use for people and fish when dosed correctly. A combination of aluminum sulfate and sodium aluminate is used in the treatment. Cyanobacteria thrive on phosphorous but the aluminum binds with it, settles it to the bottom and essentially forms a protective blanket locking the phosphorus into the lakebed.
  - Alum treatments inactivate the internal cycling of inorganic and organic phosphorus.
  - The alum is applied near the water surface, removing phosphorus from the water column as it flocculates and settles. It then covers the bottom sediments to further prevent the internal release of phosphorus from the sediments.
  - pH testing is done throughout treatment to ensure pH levels do not spike. Buffering agents can be added to keep pH levels consistent during application. For our lake buffering agents would need to be added.
  - Alum strips the water column of algae with the unintended effect of increasing light availability and therefore increasing the area of rooted plant growth in lakes. More aquatic plant growth in deeper areas of lake where it did not previously grow.
  - New testing requirements are being recommended in the updated APAM. Will require higher testing costs.
- ALUM applied to Green Lake, Seattle, WA 1991, 2004 and 2016 ($800,000). (Info found online)
  - Repeat treatments needed every 5-10 years depending on volume of phosphorus entering lake through vents, streams, rivers, overland flow, etc.
- ALUM applied to Black Lake, Olympia, WA (Info provided by Lake Stintzi, Black Lake SUD)
  - 2017 – Light application ~$500,000 – three years later toxic algae shows up again.
  - 2021 ($1.4 Million – included testing and buffering agent). No blooms since. Hopefully will last 10+ years.

ALUM Testing Requirements (2026 APAM)

Table 5: Monitoring Schedule Summary for Alum

Frequency	pH (in situ)	(Vertical profile) pH, Temperature, Conductivity, Dissolved Oxygen, % Saturation	Hardness (as CaCO3)	Total alkalinity (mg/L)	Dissolved organic carbon (mg/L)	Total aluminum (µg/L)	Sulfate (mg/L)
Pre-treatment	—	✓	✓	✓	✓	✓	✓
During	✓	✓	—	—	—	—	—
Day after treatment	—	✓	✓	✓	✓	✓	✓
2 weeks	—	✓	✓	✓	✓	✓	✓
1 month	—	✓	✓	✓	✓	✓	✓
2 months	—	✓	✓	✓	✓	✓	✓
6 months	—	✓	✓	✓	✓	✓	✓
9 months	—	✓	✓	✓	✓	✓	✓
12 months*	—	✓	✓	✓	✓	✓	✓

Pre-treatment must include a minimum of 3 samples within 3 months of treatment.
*Some post-treatment sampling events may be suspended as described in S6.B.2.g.

BARE BONES ALUM TESTING COSTS (Herrera)

Cost Estimate for	Alum Treatment Monitoring				
Herrera Project No.	XX-XXXX-XXX				
2/6/2026		Task No.	1	2	Total
Herrera Labor based on:	Burdened Labor Rates		Alum Monitoring	Reporting to Ecology	
Schedule		Task Start Date	1/1/2027	1/1/2027	
		Task End Date	10/1/2027	11/1/2027	
Staff	Labor Category	2026 Burdened Labor Rates			
Garcia, David	Scientist III	$144.55	56	0	56
Clark, Timothy	Scientist V	$231.38	7	13.5	20.5
		Total Hours per Task	63	14	76.5
		Subtotal Labor	$9,715	$3,124	$12,838
		Subtotal Herrera Labor	**$9,715**	**$3,124**	**$12,838**
Travel and Per Diem (PD)					
Item	Unit	Unit Cost			
Auto Use	Mile	$0.725	910	0	910
		Subtotal Per Diem	**$660**	**$0**	**$660**
Laboratory Costs					
Item	Unit	Unit Cost			
Aluminum	Sample	$25.00	18	0	18
Alkalinity	Sample	$21.00	18	0	18
Sulfate	Sample	$32.00	18	0	18
DOC	Sample	$55.00	18	0	18
Hardness	Sample	$30.00	18	0	18
		Subtotal Lab Costs	**$2,934**	**$0**	**$2,934**
Other Direct Costs (ODCs)					
Item	Unit	Unit Cost			
Courier	Cost	$100.00	2	0	2
Water quality multimeter (YSI)	Day	$125.00	7	0	7
		Subtotal ODCs	**$1,075**	**$0**	**$1,075**
		Subtotal Per Diem, Lab Costs, and ODCs	**$4,669**	**$0**	**$4,669**
		Grand Subtotal	**$14,383**	**$3,124**	**$17,507**
		Grand Total			**$17,507**

Note: Herrera adjusts labor rates annually in January unless contract specifies otherwise.

This assumes:

1. Thurston County EH collects required samples during their routine May and June events. Only the costs for additional lab analysis are included for those events.
2. A consultant travels to Lawrence for sampling on 7 occasions – during January, February, March, day after treatment, the 2-wk after sample in May, Sep (6 mos. after), and Dec (9 mos. after). Consultant will bring needed equipment, but would need a boat from lake resident to reach monitoring sites.
3. Two sites will be sampled for the additional analytes.
4. Additional chemical analysis will be conducted at IEH Lab in Seattle at rates recently quoted to Herrera.
5. Herrera rates are assumed for additional sampling and reporting to Ecology. (This could be done by applicator, TCEH, or with training LMD members).
6. Cost est. focuses on bare minimum reporting and does not include a summary report evaluating effectiveness and recommendations for adaptive management.

Bare Bones Cost if we get help from County = $17,507

Eutrosorb G (Lanthanum)

- EutroSORB G - Has 10% Lanthanum. (Info provided during work session with EutroPHIX 15 January 2026 – Video posted)
- PHOSPHORUS SEQUESTRATION METHODS & COSTS Total "P" estimated at 6,717 – 7,709 lbs.
  - Total reset for all P $1,624,500 to $2,166,000
  - 10 Year Plan - $162,450-$216,600 per year
  - 20 Year Plan - $81,225 - $108,300 per year

Estimate provided by Aquatechnex

- Currently used in the following lakes:
  - Long Lake – routine applications – sometimes 2x a year $200,000+ - no toxic algae blooms since 2021 when treatments started.
    - 2024 Application:
      - May 15, 2024 – 20,000 lbs. of Eutrosorb to 259.38 acres - $62,552
      - May 29, 2024 – 16,400 gals of Aluminum Sulfate (to strip water column) to 259.38 acres - $62,552
      - August 14, 2024 – 12,700 lbs. of Eutrosorb G to 165 acres (12" and deeper areas) - $78,703
      - Did not include testing costs – Long Lake did their own – Those cost would be ~ $22,100

Total: $203,807
Not including testing

  - Spanaway Lake – Once a year whole lake application $160,000 2023, Aug 2024, Late May and Early Aug 2025 – Have still had toxic algae blooms. Still studying Oxygenation System
  - Kitsap Lake – ~$200k a year – good success. Prior to 2024 Phosloc was used ($175,000). They are now using Eutrosorb G.

Eutrosorb SI (Lanthanum & Iron)

- **Iron-Bound Lanthanum**. (Info provided during work session with EutroPHIX 15 January 2026 – Video posted)
- New product. Environmental Impact Statement (EIS) in process. Out in Dec 25.
- Granular product – does not strip water column of algae like ALUM and ZVI.
- Should be authorized in March 2026 with publishing of new APAM.
- Will continue to monitor progress and evaluate EIS when completed.

EutroSORB G & SI Testing Requirements (2026 APAM)

Table 6: Monitoring Schedule Summary for Lanthanum Products

Frequency	pH, Temperature, Conductivity, Dissolved Oxygen, % Saturation	Hardness (as CaCO3)	Total alkalinity (mg/L)	Dissolved organic carbon (mg/L)	Total Lanthanum (µg/L)	Filterable Lanthanum (µg/L)
Pre-treatment	✓	✓	✓	✓	✓	✓
Day after treatment	✓	✓	✓	—	✓	✓
1 month	✓	✓	✓	—	✓	✓
2 months	✓	✓	✓	—	✓	✓
3 months	✓	✓	✓	—	✓	✓
6 months	✓	✓	✓	—	✓	✓
9 months	✓	✓	✓	—	✓	✓
12 months*	✓	✓	✓	—	✓	✓

Pre-treatment must include a minimum of 3 samples within 3 months of treatment.

* Some post-treatment sampling events may be suspended as described in S6.B.2.g.

Zero Valent Iron (ZVI)

- **Zero Valent Iron (ZVI) – Hepure Product – inert product** (Info provided during work session with Hepure 29 January 2026 – Video posted)
  - **Approved by APAM – not experimental.**
- **Benefits of Zero Valent Iron Remediation (ZVI):**
  - **Cost-effective** – ZVI remediation provides the most value in consideration of reactivity and longevity in comparison to chemical oxidants
  - **Safe** – does not contain harmful chemicals and are safer to handle when compared to chemical oxidants
  - **Long-term treatment (3-15 years longevity)** – zero valent iron powder provides a long-term treatment solution
  - **Sustainable/recycled/green** – Hepure's ZVI is recycled iron cuttings from production facilities which may be otherwise disposed at a landfill
  - **Destroys contaminants with no toxic end products or by-products** – ZVI is a biotic reaction which destroys the contaminate with no intermediation by products such as dichloroethane and vinyl chloride
  - **Synergistic with bioremediation treatments** – conditions the aquifer for ongoing bioremediation without providing potential bio-toxic chemicals or unfavorable aquifer conditions such as pH
  - **Not impacted by Soil Oxidant Demand (SOD)** – does not react with the soil so all reactivity can be directed to the contaminant

Zero Valent Iron (ZVI) (Info provided by NW Aquatic)

- **Currently being used at Steilacoom Lake, Pierce County, WA. Don't know of any other lakes using ZVI in WA State.**
- **Granular ZVI used as a targeted product over vents in lake floor or water entry locations (Streams, etc.)**
- **Powder ZVI used to strip water column over large areas of lake.**
- **2024**
  - **April/May granular over vents. Treated with Hydrothol (algicide) prior to using ZVI.**
  - **July 14,000 lbs. of powder in both basins of lake.**
  - **Regular testing done.**
- **2025**
  - **Apr/May granular used over vents.**
  - **July 7,000 lbs. of powder used in south basin only.**
  - **Sep 7,000 lbs. of powder used in south basin only.**
  - **Regular testing done (monthly).**
  - **Used some Hydrothol (algicide), not necessary to control toxic algae – used to get rid of excess filamental algae at member's request.**
  - **No toxic algae blooms in 2025**
- **May work here at Lake Lawrence.** **We have been quoted a cost of $193k +**

Granular – 12,000 lbs. = $30,000
Shipping = $5,950
Application Costs = $9,000
Sub Total = $44,950
Power – 14,000 lbs. = $50,820
Shipping = $4250
Application Costs = $61,095
Sub Total = $116,165
TOTAL = $161,115

ZVI PROS & CONS (Herrera)

Pros	Cons / Questions
Cheaper (~10 to 15% of the cost of alum for a sediment dose)	**Uncertain effectiveness:** sediment anoxia and production of iron-sulfide may prevent stable iron sequestration by ZVI. Initial dosing *may* initially overcome the existing sulfate, but ongoing inputs of sulfate(e.g., organic matter, surface and subsurface weathering of sulfur-containing minerals). This would require future ZVI-dosing.
No human health impacts are expected.	***Potential Aesthetic Impact?*** When iron is oxidized, it generates a rusty orange color. Could a high iron dose result in "orange water events" during lake turnover? Chemical equilibrium modeling could be done to evaluate this possibility.
No toxicity impacts expected for fish/aquatic life (but some concern for gill-clogging during treatment; see con).	Nano ZVI may cause respiratory distress in fish by clogging gills. (However, we would expect fish to avoid areas of treatment and the clouds of turbidity).

ZVI Testing Requirements (2026 APAM)

Table 7: Monitoring Schedule Summary for Iron Products

Frequency	pH, Temperature, Dissolved Oxygen, % Saturation	Nitrate (mg/L)	Total Iron (µg/L)
Pre-treatment	✓	✓	✓
Day after treatment	✓	✓	✓
1 month	✓	✓	✓
2 months	✓	✓	✓
3 months	✓	✓	✓

Pre-treatment must include a minimum of 3 samples within 3 months of treatment.

* Some post-treatment sampling events may be suspended as described in S6.B.2.g.

OASE Lake Therapy Product (Calcium Choloride)

(Info provided during work session with OASE Living Water 22 January 2026 – Video posted) (Info provided by OASE Distributor)

- OASE Lake Therapy – Using Calcium Chloride based products – Not currently approved by APAM. Would require an experimental use plan.
  - OASE Recommends:
    - SeDox initially to address water quality (striping P from water column) which would also address bio-available P at the water/sediment interface and provide oxygen to the water and a dose of dissolved inorganic carbon (Total Alkalinity). This would restore the overall health of the lake, making it more resilient to conditions that lead to HABs. Cost is $254 per 50lb bag and would require one 50 lb bag to eliminate 1.5 lbs of P. With our lake having ~ 6,700 to 7,700 lbs of P the cost would be ~ $11.1 Million.
    - SchlixX Plus costing $319 per 50 lb bag and applied in the early part of the season (April) over time to reduce sediment levels. Estimated cost for this ~$1.2 Million. What time frame are we talking about? This will help with overall lake health by digesting the organics while binding up nutrients given off from the digestion of said organics.
  - Our CMP Contractor has suggested this product may not be best product for our lake based on our low or soft water pH levels. This calcium based product performs better in hard water. After reviewing our water tests OASE does not feel pH would be a problem.
  - Product currently not approved by WA State. Would require Experimental Phosphorus Sequestration Product Use Plan through WA State Dept of Ecology. OASE had agreed to pay for this cost.

Hypolimnetic Oxygenation System (Mechanical System) (Info provided during work session with Clarity Resources Group 22 January 2026 – Video posted)

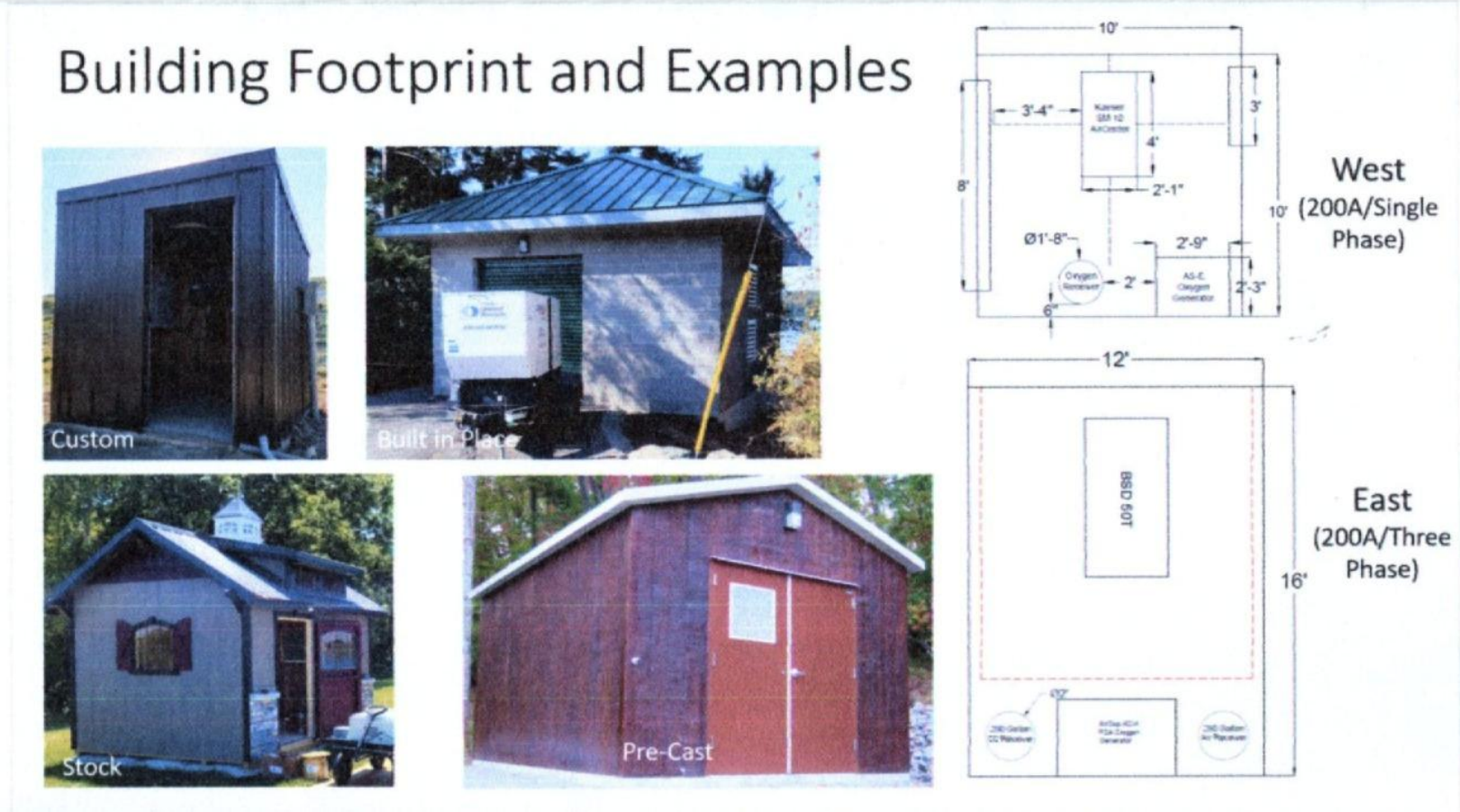
- **Oxygenation System** (info provided by Sandy Williamson, Spanaway Lake & Herrera Inc.)
  - Currently being studied by Pierce County for use in Spanaway Lake.
  - Air injection system pumped into deepest parts of lake to pump oxygen into lake.
  - Multiple basins/deep areas may require multiple pumping stations.
  - Requires land to install generators, tubes from generators into water at deepest points.
  - 24/7 electricity to run system. ~ $25,000 a year.
  - Frequent maintenance. Requires maintenance contract.
- Cost – Very expensive, but exact costs dependent on lake. Costs are "forever costs". Initial costs about $2 Million.

POSSIBLE LOCATIONS OF OST SYSTEM

West Lake Location:
James & Ruth Boyle Property
Have not discussed with them yet – plan to do so prior to March LMD Mtg

East Lake Location:
Wildaire HOA Property
Have discussed with them – Willing to do this. 25 Feb Mtg with HOA Board to discuss further. I will be attending to answer HOA Board questions.

OST SHORE BLDG FOOTPRINT EXAMPLES



Electrical Connection with PSE – Frank Hudik

Trenching for electrical – Frank/Mark

Permitting requirements – Barry working with County Permit Dept.

Design – Barry working with Pierce Cty Water Resource Dept Project Mgr for Spanaway Lake – Brianne Blackburn

Hypolimnetic Oxygenation

Oxygen Saturation Technology (OST)

- Ensures that the deepest waters of the lake remain oxygenated throughout the summer.
- Maintains chemical conditions such that phosphorus is immobilized in the lake sediments.
- Will increase binding opportunity for phosphorus introduced from groundwater.
- *Added benefit:* Provides cool habitat for cold-water fish, like trout

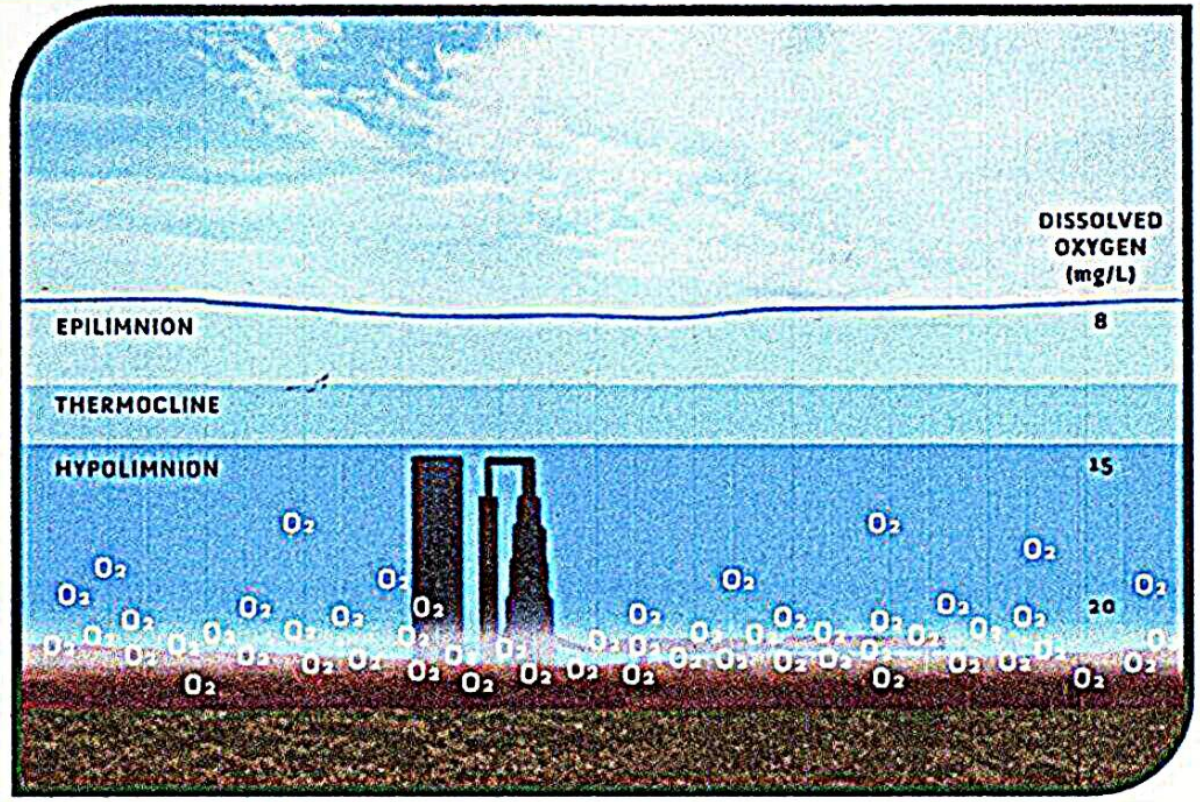


Diagram shows Naturalake OST distributing oxygen rich water throughout the hypolimnetic layer, blanketing and penetrating the sediment.

Recommended Timeline

Design, permitting, and construction will take two to three years. Operational by 2026.

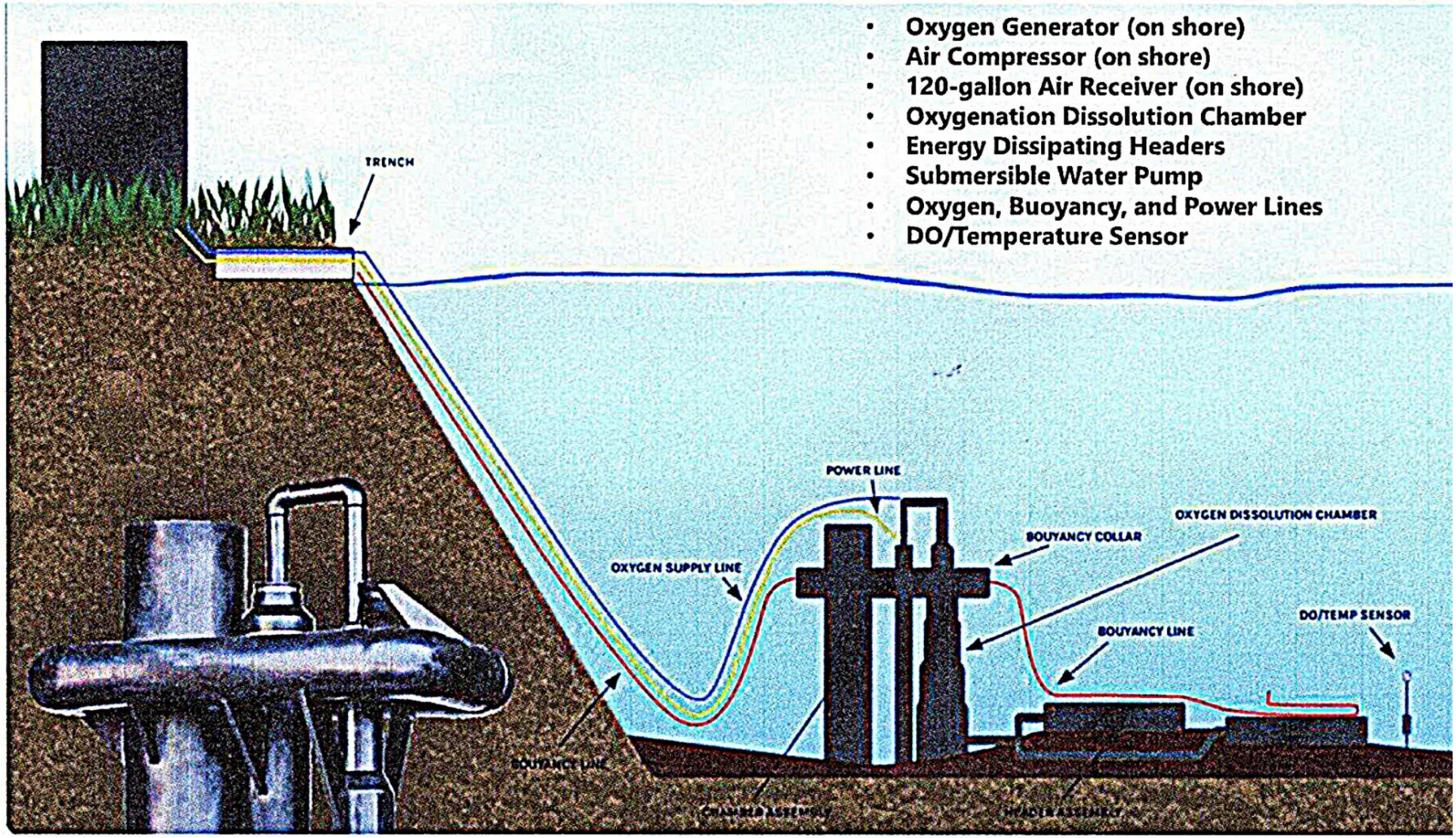
Estimated Cost

$1.8 million for construction

$20 thousand in annual operation

OST System Components

- Oxygen Generator (on shore)
- Air Compressor (on shore)
- 120-gallon Air Receiver (on shore)
- Oxygenation Dissolution Chamber
- Energy Dissipating Headers
- Submersible Water Pump
- Oxygen, Buoyancy, and Power Lines
- DO/Temperature Sensor



Onshore Oxygen Supply (PSA)

Compressed Air Supply

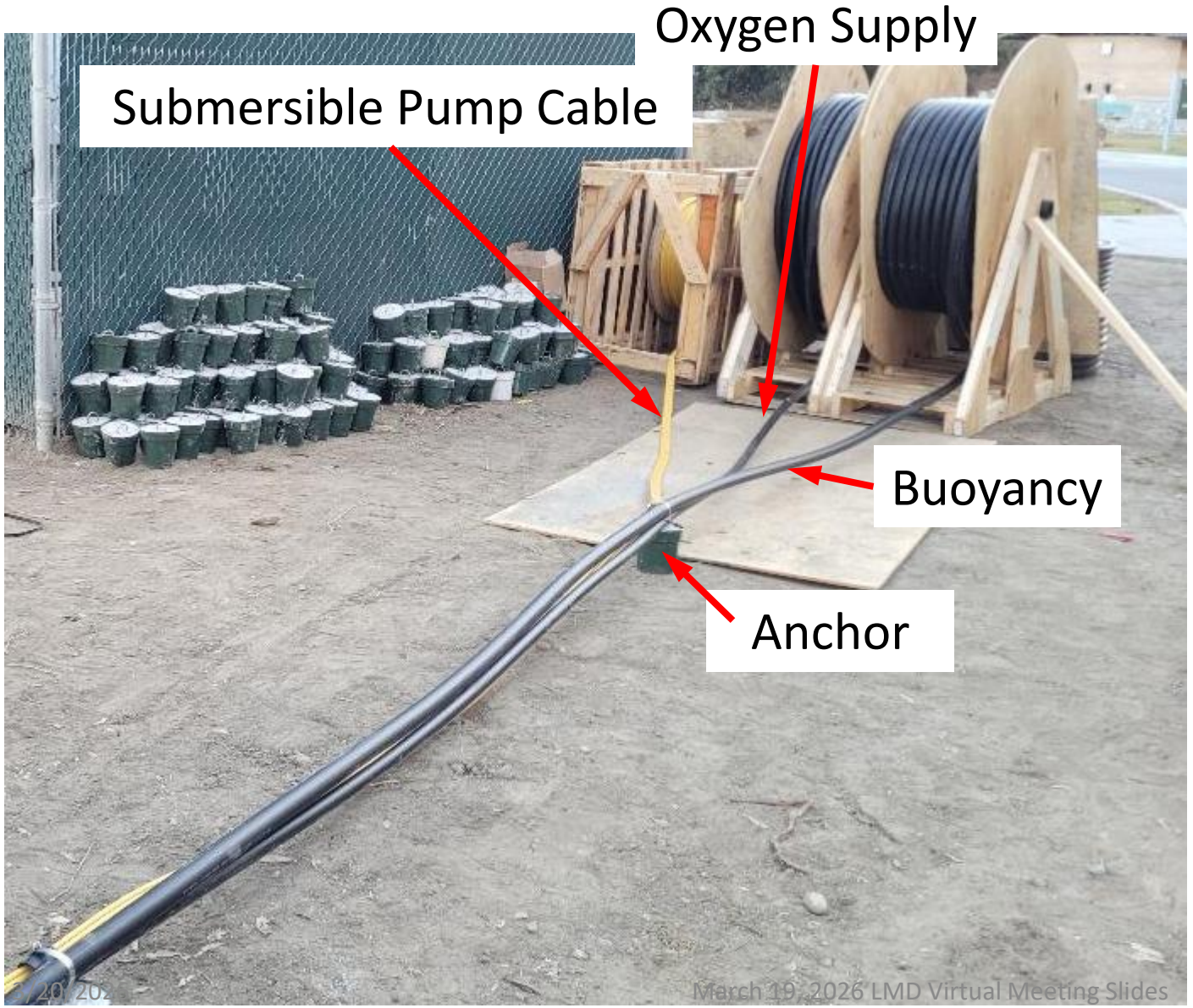
Oxygen Generator
(Nitrogen Stripper)

Oxygen Receiving Tank

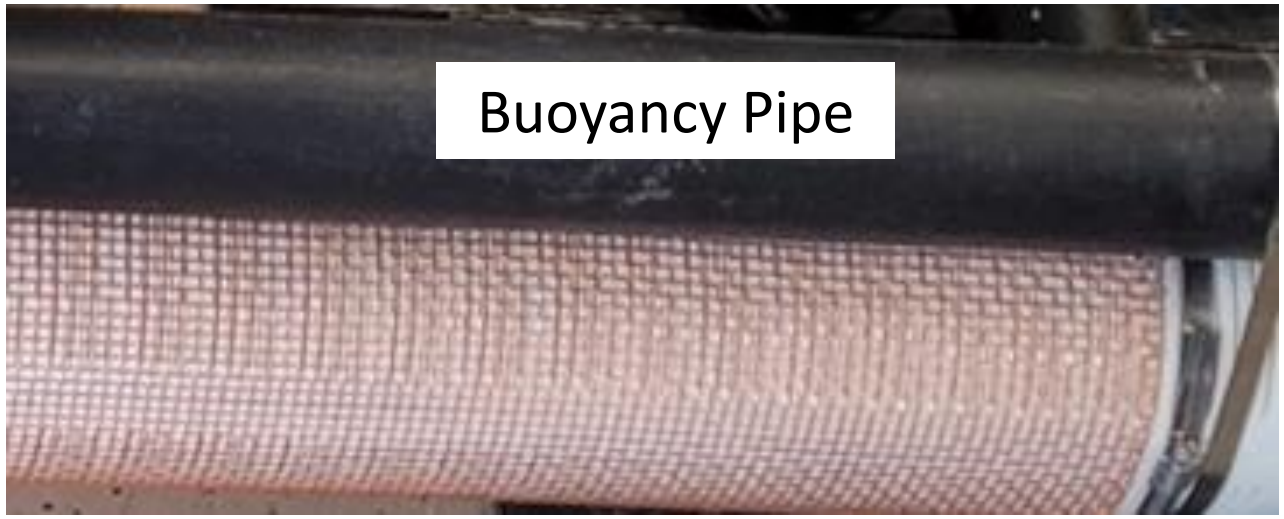
Concerns

- **Risk of shock** – GFCI breakers on all 3-Phase pumps. A 3-phase Ground Fault Circuit Interrupter (GFCI) prevents electric shock in water by constantly monitoring the current balance among all three phases. If a leakage current occurs (e.g., electricity traveling through water to ground), it detects a tiny imbalance – typically 20 mA or less – and cuts power within 1/40th of a second.
- **Noise** –
  - The Compressor has a noise rating of 67 dba.
  - The Generator has a noise rating of 72 dba.
  - For comparison, a 3 Hp exhaust fan has a noise rating of 80-90 dba.
  - Further noise dampening by insulating the exhaust hood and creating a 90-degree turn.
- **How do we ensure it does not sink into bottom of lake?**

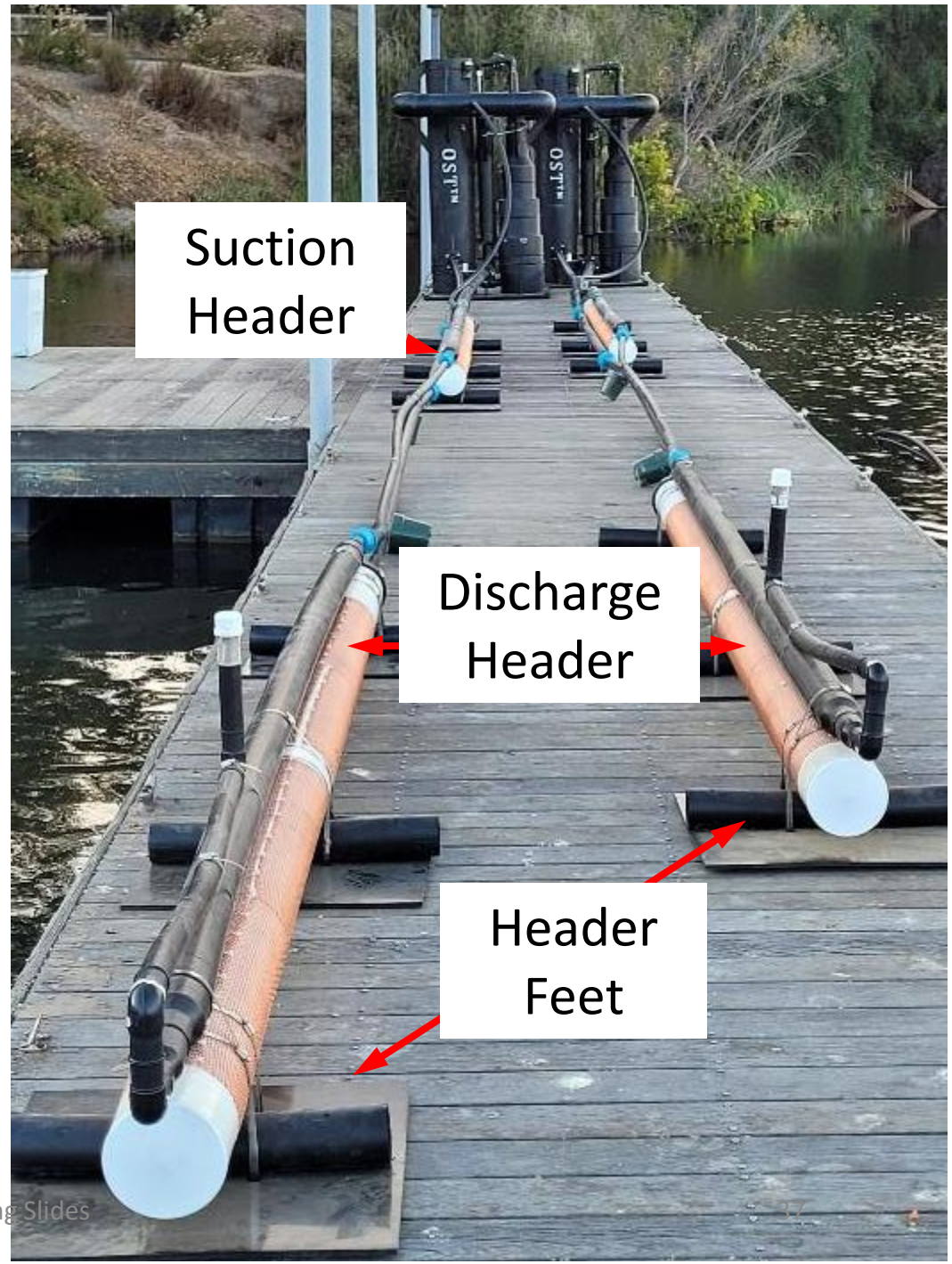
Umbilical – O_2 Supply & Pump Power Supply



Suction & Discharge Headers



100s of slotted openings covered with copper mesh.



OST Meetings & Updates

- 4 Mar 26 – Met with Brianne Blackburn, Pierce County Water Resources LMD Program Manager and Program Lead for the OST System they are planning on deploying in Spanaway Lake. They are at 90% design.
  - They decided to do a 200-foot setback for the building to preempt problems with A SEPA and Conditional Use Permit Process. They are digging a ditch from the bldg. to the water and burying the cables for the system.
  - DNR is requiring a lease agreement for the part of the system that enters the water (that they own).
  - No Issues with WDFW.
  - No issues with Army Corps of Engineers (Only required a letter) Approved within 24 hrs.
  - They are bldg. a concrete block maintenance bldg. , concrete floor, metal insulated roof, Roll-Up Garage Door on one end with a wide steel door on the other. Small electric heater inside. Exterior lights, Warning System for malfunctions.
  - She will notify me when they start construction so I can visit and take YOUTUBE Videos throughout the process. Commented that their entire department was following our Phosphorus Briefings on our YOUTUBE Channel.
  - They have identified no issues with noise, electricity, etc.

FULL RESET COST COMPARISON

			RECOMMENDED FULL RESET OF ALL 7,250 LBS. OF "P"													
PRODUCT	DISTRIBUTOR	CONTRACTOR	Cost per lb. of "P" Unbuffered & Buffered	Amt of "P" In lake 7,250 lbs. X lb. Buffered & Unbuffered = Total Reset	Cost Per Lb./Gal Buffered & Unbuffered	Total Product Cost for total reset	Time to Apply Product	App Cost per lb. / Gal	Total App Cost	Shipping / Handling Costs	Total Treatment Costs	Analytes Required to be tested w/new APAM Mar 26	Testing Costs - figured by Herrera	Can Product be applied over yrs?	Total Cost Product + App + Shipping + Testing	APAM Approved
ALUM	None-Commodity	AquaTechnex			$1.80 / Gal		?	Included in Product Cost		$0.60 /Gal shipping		DO/pH/Temp/ Conductivity/% Saturation/Hardness (as CaC03)/Total Alkalinity (mg/L)/ Dissolved Oxygen Cargon (mg/L)/ Total Aluminum (ug/L) / Sulfate (mg/L)	$18,000	Yes - See below		Yes
ALUM	None-Commodity	Soliitude Lake Mgmt	$195 per lb.Buffered : 1 lb. "P"	$195 per lb of "P" x 7,250 = $1.41 million		$1.41 million	96 hrs	Included in Product Cost				DO/pH/Temp/ Conductivity/% Saturation/Hardness (as CaC03)/Total Alkalinity (mg/L)/ Dissolved Oxygen Cargon (mg/L)/ Total Aluminum (ug/L) / Sulfate (mg/L)	$18,000	Yes - See below	$1.42[illegible] million	
EutroSORB G	EutroPHIX / SePro		50 lbs. : 1 lb. "P"	362,500 lbs.	$3.60	$1.31 million	4-6 Work Days	$1.16 lb.	$420,500	None	$1,721 million	pH/DO/Conductivity/% DO Saturation.		Yes - See below		Yes
EutroSORB SI Wet	EutroPHIX / SePro		2.5 Gal : 1 lb. "P"	18,125 Gals	$72 /Gal	$1,31 million	2-4 Work Days	$18 / Gal	$326,250	None	$1,627 million			Yes - See below		Yes
EutroSORB SI Dry			10 lbs. : 1 lb. "P"	72,500 lbs.	$18 / lb.	$1,31 million	2-4 Work Days	$3 / lb.	$217,500	None	$1,518 million			Yes - See below		
Sedox MAX	OASE		33.3 lbs. : 1 lb "P"	241,425 lbs.Product	$4 lb. Bulk or $6.57 lb. MSRP	$966 k assume bulk	Contractor Dependent - assume high end of $3 per lb.= $724,275				$1,692 million	Experimental Use Plan - Will require extensive testing. OASE will assume most testing costs through experimental phase		Yes - See below		No
ZVI	hepure		30 lb. : 1 lb "P"	217,500 lbs	$2.75 lb.	$598,125	64-80 hrs.	$1,993.75 per acre	$164,000	$48k shipping / 12 k handling	$822,125			Yes - See below		

Average Cost: $1,594 million

Lowest Cost at $823 k

PARTIAL RESET (20%) COST COMPARISON

PRODUCT	DISTRIBUTOR	CONTRACTOR	Lbs. : Lbs. "P" or per acre of lake	Amt of "P" In lake 7,250 lbs. = Total Reset	Cost Per Lb./Gal	Total Product Cost for total reset	Time to Apply Product	App Cost per lb. / Gal	Total App Cost	Shipping / Handling Costs	Total Treatment Costs	Analytes Required to be tested w/new APAM Mar 26	Testing Costs - figured by Herrera	Can Product be applied over yrs?	Total Cost Product + App + Shipping + Testing		APAM Approved
RECOMMENDED PARTIAL TREATMENT - Cost depends on how much "P" you want to sequester. Let's assume we want to sequester 20% of the "P". 20% of 7,250 lbs = 1450 lbs																	
ALUM	None-Commodity	AquaTechnex		50-80 Gals per acre	$1.80 / Gal	$36 k low end to $57.6 k high end	20 hrs	Included in Product Cost		$0.60 /Gal shipping		See Above - Same requirement regardless of dose applied	$18,000				Yes
ALUM	None-Commodity	Soliitude Lake Mgmt	$195 per lb.Buffered : 1 lb. "P"		$195 lb. Buffered	$282,750	20 hrs	Included in Product Cost				See Above - Same requirement regardless of dose applied	$18,000		$300,750		
EutroSORB G	EutroPHIX / SePro		50 lbs. : 1 lb. "P"	72,500 lbs.	$3.60	$261,000	1-2 Days	$1.16 lb.	$84,100	None	$345,100	pH/DO/Conductivity/% DO Saturation.					Yes
EutroSORB SI Wet	EutroPHIX / SePro		2.5 Gal : 1 lb. "P"	3,625 Gals	$72 /Gal	$261,000	1-2 Days	$18 / Gal	$26,100	None	$287,100						Yes
EutroSORB SI Dry			10 lbs. : 1 lb. "P"	14,500 lbs	$18 / lb.	$261,000	1-2 Days	$3 / lb.	$43,500	None	$304,500						
Sedox MAX	OASE		33.3 lbs. : 1 lb "P"	48,285 lbs.	$4 lb. Bulk or $6.57 lb. MSRP	Using Bulk: $193,140	Contractor Dependent - assume high end of $3 per lb.= $144,855				$337,995	Experimental Use Plan - Will require extensive testing. OASE will assume most testing costs through experimental phase					No
ZVI	hepure - 20% of "P"		30 lbs. : 1 lb. "P"	43,500 lbs.	$2.75	$119,625	1-2 days	$136.45 per acre x 300 acres	$40,935	$15k Ship & Handling	$160,560	DO/pH	One Time $12,000 for test set				
ZVI	hepure - contractor recommended initial dose		166 lbs per Acre	50,000 lbs.	$2.75 lb.	$137,500	16-20 hrs.	"	$40,935	$15 k Ship & Handling	$193,435	DO/pH	One Time $12,000 for test set		$205,435		Yes
MECHANICAL SOLUTION																	
			How many OST Systems are required?	How many pumps at each station?	Cost for all stations & Pumps	Cost for Equip Install?	Time to Install System	Cost for two equipment bldgs w/power?	Annual Electrical & Maint Cost	Shipping / Handling Costs	Initial Install Costs	Analytes Required to be tested w/new APAM Mar 26	Testing Costs - figured by Herrera	Can Product be applied over yrs?	Total Cost Product + App + Shipping + Testing	How can it be applied over yrs?	APAM Approved
OST	Clarity Resources Group	Clarity Resources Group	Two Generator/Compressor Stations. One in each basin.	4 for East Basin & 2 for West Basin	$1.5 to $2 million	Included	2 wks by Clarity Staff	Power: $85K from Scenic Shores does not include trenching (1000 ft); $100k from Wildaire- Trenching not req. Bldg Const ?	$60k	$10 k	$1.7 million to 2.2 million	$0 app to uplink test equip to phone ~$30 per month	$0 app to uplink test equip to phone ~$30 per month	No - Can install 1 system vs. 2	$1.7 to 2.2 million	Do only East Basin initially at $1.2 million; if it works do West Basin	Yes

Average Cost: $315 k

Lowest Cost at $160 - 190 k

Total Cost $2.2 m
1 Sys $1.5 m

TESTING EQUIPMENT/COSTS
If we do this testing it will save us approximately $7,500 per phosphorus application.

Would need this equipment by December 2026 to start testing January 2027. Some equipment requires lengthy lead times to obtain so would need to place order in June/July 2026.

YSI xylem 1700/1725 Brannum Lane, Yellow Springs, OH 45387-1107 Email: ysi.info@xylem.com Phone: 1-877-726-0975				Fondriest Environmental, Inc., Website: www.fondriest.com/ysi-exo1 ; phone: 888-426-2151					
Part #	**Test Equipment**	**Cost**		**Part #**	**Test Equipment**	**Cost**			
626870-2	ProDSS Handheld with GPS	$2,982		599960	EXO handheld display	$3,300			
626910	ProDSS 4-Port Cable w/ shallow sensor 10 meter length	$3,700		599501-01	EX01 multi-paramenter quality sonde with 4 sensor ports, 10 m depth sensor	$5,900			
626900	ODO with pre-installed sensor cap	$1,269		599100-01	EXO optical dissolved oxygen sensor	$2,300.00			
626902	Conductivity and temperature	$893.10		599870	EXO conductivity & temperature sensor	$1,150			
626903	pH with pre-installed sensor module	$570		577601	EXO guarded pH sensor	$785			
				577611	EXO guarded pH/ORP sensor	$895	(what does the ORP do?)		
626905	Nitrate with pre-installed sensor module	$772		599710	EXO guarded ISE nitrate sensor	$995	(is this the same thing?)		
626210	Total Algae, PC (Chlorophyll + phycocyanin	$4,046		599102-01	EXO freshwater total algae sensor (chlorophyll + phycocyanin)	$3,995			
626946	Large, hard-sided carrying case	$521		599020-01	Case	$680			
TOTAL:		**$14,753**				**$20,000**			
	Calibration Requirements								
060907	Conductivity calibrator , 1000 umhos/cm (8ea, pint)	$184							
603824	2 pints each of 4, 7, and 10 pH buffers	$107							
003885	1 mg/L nitrate standard (500 mL)	$112							
003887	100 mg/L nitrate standard (500 mL)	$120							
TOTAL:		**$523**							
	Other Testing Equipment								
	Wildco Instruments Wildlive Supply Company 86475 Gene Lasserne Blvd, Yulee, FL 32097 Website: www.wildco.com Phone: 800-799-8301				Eijkelkamp North America Website: www.royaleijkelkamp.com				
UX-05486-00	Wildco 1510-C20 Kemmerer Water Sampler, 3 to 600' depth, Acrylic, 1.2L	**$778**			Kemmerer water sampler, set	**$873.50**			
	AMAZON.COM								
BUWUSMU	7.87 Inch Plastic Secchi Disk Set - With black and white quadrants, steel cone, holding line, and 30 meter tape measure for clarity measurements	**$26.99**							
TOTALS:		**$16,080.99 + TAX**			**OR**	**$21,423.49 + TAX**			

Low End = **$17,000** High End = **$22,000**

WHAT ARE OUR OPTIONS

FACTS

1. Shallow, 320-acre eutrophic lake – Max depth 25’ – Avg depth 12’
2. Two basins with shallow channel between them
3. Recurring cyanobacteria blooms – mostly microsystin
4. Season low dissolved oxygen conditions in Hypolimnion – below 2 and 5 mg/L
5. Total phosphorus load – 7,250 lbs
6. Initially we want to target 20-25% of total “P” or 1450-1812 lbs. for sequestration with additional applications as funds allow

ASSUMPTIONS

1. Given average pH of Lake – ALUM will require a buffering agent

CRITERIA/WEIGHTING

- **Water Quality & Lake Response =**
  - Dissolved Oxygen (DO) Impact
    - Negative (Score 0) – Likely to reduce DO or increase oxygen demand
    - Neutral (Score 1) – No impact
    - Positive (Score 3) – Improves or stabilizes DO conditions
  - pH Compatibility
    - Negative (Score 0) – Risk of harmful pH change or limited application window
    - Neutral (Score 1) – Minimal or manageable pH impact
    - Positive (Score 3) – No pH impact
  - Phosphorus Removal from water column
    - Negative (Score 0) – No meaningful removal
    - Neutral (Score 1) – Partial or short-term removal
    - Positive (Score 3) – Consistent, effective removal
  - Phosphorus Sequestration – Sediment
    - Negative (Score 0) – Does not bind phosphorus in sediment
    - Neutral (Score 1) – Finds phosphorus but may release under certain conditions
    - Positive (Score 3) – Strong, long-term binding based on field use
  - Longevity of Effect
    - Negative (Score 0) – Weeks to months
    - Neutral (Score 1) – 1-3 years
    - Positive (Score 3) – 4 or more years

CRITERIA/WEIGHTING (cont.)

- **Cyanobacteria Considerations =**
  - Expected Cyanobacteria Reduction
    - Negative (Score 0) – No demonstrated bloom reduction
    - Neutral (Score 1) – Indirect or inconsistent reduction
    - Positive (Score 3) – Demonstrated reduction in bloom frequency or severity
  - Risk or Short-Term Bloom Situation
    - Negative (Score 0) – Documented Risk
    - Neutral (Score 1) – Possible under certain conditions
    - Positive (Score 3) – No known risk
- **Implementation & Flexibility =**
  - Incremental/Phased Application Potential
    - Negative (Score 0) – One-time or limited application
    - Neutral (Score 1) – Some flexibility
    - Positive (Score 3) – Easily applied incrementally with cumulative benefit
  - Sensitive to Lake Conditions
    - Negative (Score 0) – Highly sensitive to temperature, mixing, or low DO
    - Neutral (Score 1) – Moderately sensitive
    - Positive (Score 3) – Performs reliably across conditions
- **Cost & Logistics =**
    - Negative (Score 0) – Highest Cost
    - Neutral (Score 1) – Moderate Cost
    - Positive (Score 3) – Lowest Cost

CRITERIA/WEIGHTING (cont.)

- **Monitoring & Regulatory =**
  - Water Testing Requirements
    - Negative (Score 0) – Recurring testing of 4 or more laboratory analytes during and after treatment
    - Neutral (Score 1) – Required testing of 1-3 analytes during and after treatment
    - Positive (Score 3) – Required monitoring of field analytes only (Temp, pH, DO)
  - Regulatory Approval Status (WA State)
    - Negative (Score 0) – Not approved/experimental use plan required
    - Neutral (Score 1) – Conditional or limited approval
    - Positive (Score 3) – Fully approved for intended use
- **Ecological & Human Safety =**
  - Aquatic Life & Habitat Safety
    - Negative (Score 0) – Known or likely harm – potential negative consequences if product not used correctly
    - Neutral (Score 1) – Some risk under specific conditions – as seen at other lakes
    - Positive (Score 5) – No known harm based on field use
  - Human, Pet, & Wildlife Safety
    - Negative (Score 0) – Known or likely harm – potential negative consequences if product not used correctly
    - Neutral (Score 1) – Some risk under specific exposure scenarios
    - Positive (Score 5) – No known risk

OPTIONS	ALUM	EutroSORB G	EutroSORB SI	Sedox MAX	Zero Valent Iron	Oxygenation Saturation System
CRITERIA						
WATER QUALITY & LAKE RESPONSE						
DO Impact						
pH Compatibility						
"P" Removal From Water Column						
"P" Sequestration - Sediment						
Longevity of Effect						
CYANOBACTERIA CONSIDERATIONS						
Expected Cyanobacteria Reduction						
Risk or Short-Term Bloom Stimulation						
IMPLEMENTATION & FLEXIBILITY						
Incremental/Phased Application Potential						
Sensitivity to Lake Conditions						
COST & LOGISTICS						
MONITORING & REGULATORY						
Water Testing Requirements						
Regulatory Approval Status (WA State)						
ECOLOGICAL & HUMAN SAFETY						
Aquatic Life & Habitat Safety						
Human, Pet, & Wildlife Safety						
TOTALS:						

OPTIONS

1. DO NOTHING
2. USE ONE OF THE STANDARD PHOSOPHORUS SEQUESTRATION PRODUCTS – ALUM, Lanthanum [EutroSORB G or SI], Calcium [OASE - SedoxMAX], Zero Valent Iron (ZVI) [Iron]
3. USE OXYGENATION SATURATION TECHNOLOGY (OST) (Clarity Resources Group) – Mechanical Method
4. USE A MIX OF PRODUCT(S) WITH/WITHOUT OST

OPTION #1 - DO NOTHING

- Not a responsible option

OPTION #2 - USE ONE OF THE STANDARD PHOSOPHORUS SEQUESTRATION PRODUCTS (ALUM, Lanthanum [EutroSORB G or SI], Calcium [OASE - SedoxMAX], Iron)

- ALUM – Most difficult & controversial to apply & test – moderately expensive – proven results
- Lanthanum – Difficult & testing regimen has increased greatly – expensive – proven results
- Calcium (OASE – SedoxMAX) – Not currently authorized for use in WA State & would require an experimental use plan – moderately expensive – results not known
- Iron – Least difficult with fewest testing requirements & costs – least expensive – results not known

NOTE: None of these products by themselves improves oxygen levels and fish/aquatic habitat

OPTION #3 - USE OXYGENATION SATURATION TECHNOLOGY (OST) (Clarity Resources Group)

- OST –
  - Mechanical/No chemicals/No testing requirements/monitoring equipment part of system/Requires permits, landowner approval, substantial capitol costs for electrical hookups and maintenance building – Scientifically works to reduce/mitigate phosphorus problems
  - Forever maintenance/electricity Costs – Estimate for one year $85k

OPTION #4 - USE A MIX OF PRODUCT(S) WITH/WITHOUT OST

- Mix of products without OST – Products are designed to work with themselves – not others. Mixing ALUM and Iron products would cause additional harm/problems. Lanthanum could be applied before or after use of Iron
- Mix of products with OST – The only one that would work effectively with OST is Iron. Iron and Oxygen (OST) creates a chemical reaction that enhances water quality, fish/aquatic organism environment, and simultaneously reduces/mitigates harmful algal blooms

LMD RENEWAL 2027

HOW DO WE GET THERE?
12 STEPS TO LMD FORMATION (IAW RCW 36.61 & Thurston County Lake Management District SOP)

STEP 1 – Draft Petition (RCW 36.61.030 sub para 1)

- G • 20 Mar 2025 – SC decisions on renewal of LMD.
- G • 4 Mar 2025 – DRAFT petition/resolution of renewal completed.
- G • 4 Mar 2025 – DRAFT petition sent to County for approval - Approved by EH 5 Mar 25.

STEP 2 – Petition Complete & Sent to Property Owners (RCW 36.61.030 sub para 1)

- G • 1 May 2025 – Sent petition to all property owners for signature (**RCW requires 20%** by acreage of assessed properties). We have **592** acres of assessed parcels. Require signatures of parcel (assessed) owners owning at least **119** acres of property within LMD to move forward.

STEP 3 – Gather Petition Signatures (RCW 36.61.030 sub para 1)

- G • 17 June 2025, received petitions for **225.60 acres (38.1% of the 592 acres of the LMD)**.
- G • 17 July 2025 SC approves petition list and DRAFT Resolution of intent.

STEP 4 – Petition Sent to and Received by County (RCW 36.61.030 sub para 1)

- G • 24 July 2025 Petition and DRAFT Resolution of Intent delivered to EH.

G = Green = Completed On Time

Y = Yellow = Late – Program Jeopardized

R = Red = Mission Fail

HOW DO WE GET THERE?
12 STEPS TO LMD FORMATION (IAW RCW 36.61 & Thurston County Lake Management District SOP) (cont.)

STEP 5 – BoCC approves Resolution of Intent to Establish LMD #26 & Sets public hearing. (RCW 36.61.030 sub para 4)

- 25 Sep 20252 EH emailed BoCC requesting approval of timeline for LMD Renewal.
- 4 Nov 2025 – BoCC Issues Resolution of Intention to form Lake Lawrence LMD No. 26 & calls for public hearing.
- 2 Dec 2025 – Notice of public hearing sent via Certified Letter to State Partners (DNR, OFM, WDFW/Ecology
- 3 Dec 2025 – Notice of public hearing sent via USPA First Class mail to all LMD Members
- 1 and 8 Jan 2026 – Notice of public hearing published in Nisqually Valley News.
- 12 Jan 2026 – Notice of public hearing emailed to LMD members and state partners.

STEP 6 – Public Hearing to determine Public Interest & Financial Feasibility (RCW 36.61.040 and 050)

- 20 Jan 2026 – BoCC holds public hearing.

STEP 7 – 3 Feb 2026 BoCC approves/disapproves of LMD Renewal. If approved adopts Resolution of Findings & Determinations for vote of property owners. (RCW 36.61.070)

STEP 8 – 17 Feb 2026 Ballots mailed to property owners for vote. (RCW 36.61.080 - 100)

- 11 March 2026 – All ballots must arrive NLT 5:00 p.m. Ballots arriving after that will not be counted.
- 12 March 2026 – Ballots counted – residents invited – Atrium Rochester Room #255 at 10:30 am.
  - Majority of votes NO – LMD will dissolve 31 December 2026
  - Majority of votes YES – LMD will renew 1 January 2027

G = Green = Completed On Time

Y = Yellow = Late – Program Jeopardized

R = Red = Mission Fail

LMD Ballot Count
1030-1230 12 Mar 26

Total Paying Parcels = 678
Total that voted = 249
Weighted Vote:
Total Yes Votes = 79,155
Total No Votes = 8,581
Percent Yes Votes = 90%

1 to 1 Vote:
Total Yes Votes = 210
Total No Votes = 39
Percent Yes Votes = 84%

Percent Yes Votes of
Total LMD membership =
37%

HOW DO WE GET THERE?
12 STEPS TO LMD FORMATION (IAW RCW 36.61 & Thurston County Lake Management District SOP) (cont.)

STEP 9 – 31 March 2026 BoCC adopts ordinance creating LMD if majority votes YES. (RCW 36.61.100)

STEP 10 – 9 or 10 April 2026 Notice of LMD Establishment published in Local Paper within 10 days of adoption (RCW 36.61.100).

9 & 16 April 2026 **Notice of Public Hearing for Rolls & Rates published in NVN.**

9 April 2026 Notice of Objection Public hearing sent to property owners at least 20 days in advance of public hearing (RCW 36.61.140).

STEP 11 – 28 Apr 2026 Public Hearing on Roll of Rates & Charges. (RCW 36.61.140)

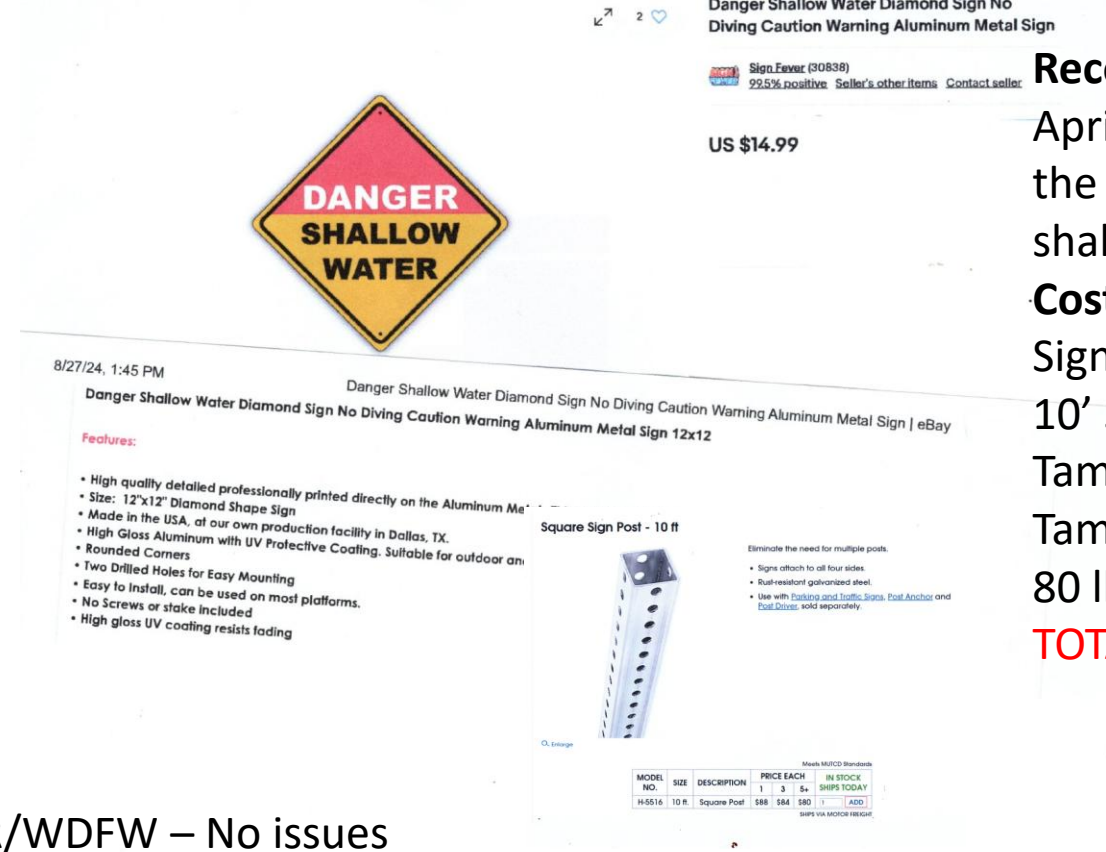
STEP 12 – 28 Apr 2026 or May 2026 BoCC Approves/Disapproves/Amends the Resolution Confirming the Roll of assessment for Lake Lawrence No. 26. (RCW 36.61.130)

- Within 30 days of approving the Resolution Confirming the Roll of Assessment the county legislative authority will file the resolution and pertaining documents with the County Treasurer (RCW 36.61.220)
- January 2027 – Lake Lawrence LMD No. 26 operational.

G = Green = Completed On Time

Y = Yellow = Late – Program Jeopardized

R = Red = Mission Fail



Recommendation:

April 2025 install 3 signs on steel stakes 100-150’ apart across the southern end of Lake Lawrence to warn boaters of extreme shallow water dangers.

Cost:

Signs – 3 x $20 = $60

10’ Square Sign Post – 3 x $84ea. +tax & Shipping = $100 ea.

Tamper Proof Bolts – 10 x $14+tax (Home Depot)

Tamper Proof Nuts – 10 x $12+tax (Home Depot)

80 lb Concrete – 3 x $6 + tax (Home Deport_

TOTAL: $404+tax +/- 10% APPROVE AT 17 OCT 24 LMD MTG

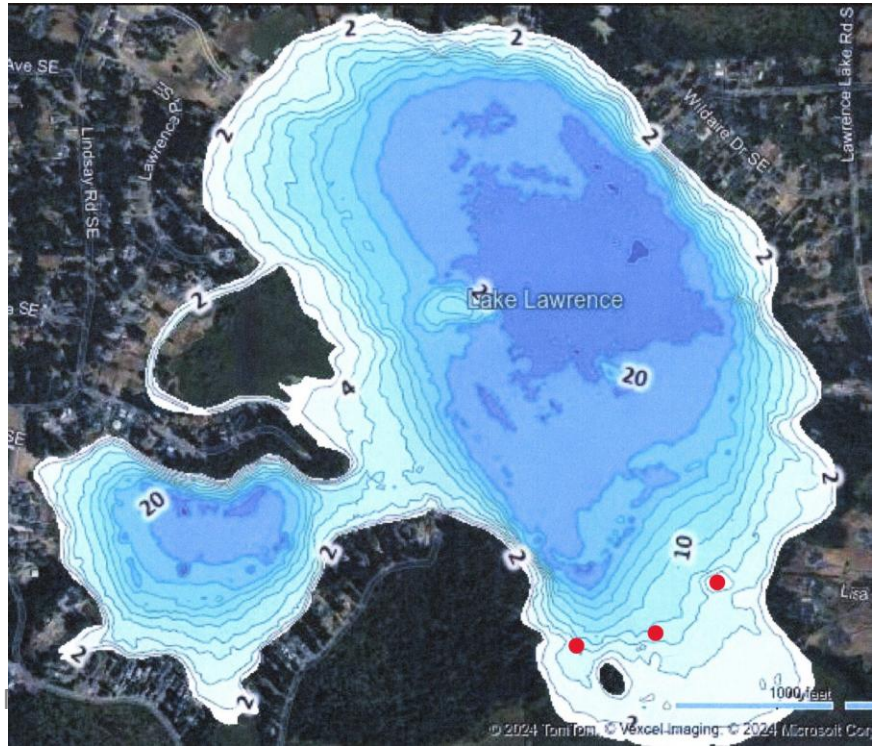
DNR/WDFW – No issues

County EH – ?

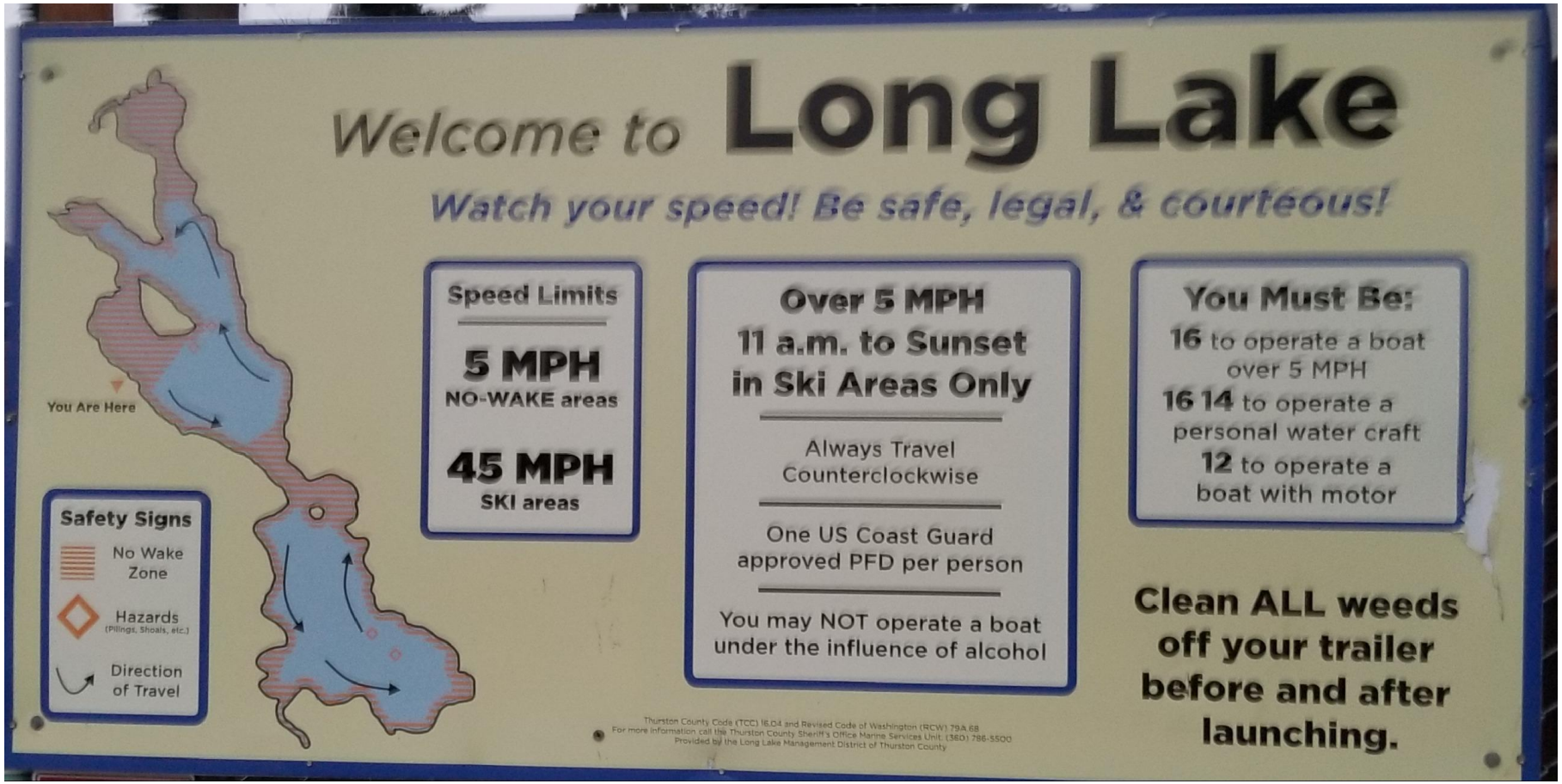
County Sheriff – Deputy Cady, Boating Enforcement Officer – No legal issues as long as lake organization board approves.

We have three 10’x3” Galvanized Posts – Will try to drive into lake bottom May 2026 – need help!

If we can get these posts in place, we will purchase the signs.



POSSIBLE ALTERNATIVE OR ADDITIONAL SIGNAGE



Long Lake paid and installed this sign at their public boat launch. They don't recall the cost. It was done by Signarama, Hawks Prairie

Sign is 4'x8' and 3' off the ground. Will require 2 ea. - 4x4 or 4x6" posts 10' long

Welcome to **Lake Lawrence**

Watch your speed! Be safe, legal, & courteous!

Speed Limits

5 MPH
NO-WAKE areas
45 MPH
SKI areas – Must remain at least 200 ft from shorelines, boat launches or swim areas

Safety Signs

No Wake Zone

Hazards

Direction Of Travel

FIRES ARE PROHIBITED

PLEASE CALL SHERIFF WHEN FIRES ARE PRESENT 360.704.2740
THURSTON COUNTY PARK CODE 10.76.190

Over 5 MPH
In Ski Areas Only 11 a.m. to Sunset or 8 p.m. (whichever occurs first)

Speeds over 5 MPH must Travel Counterclockwise

One US Coast Guard approved PFD per person

You may **NOT** operate a boat under the influence

You Must Be:

16 to operate a boat over 5 MPH or a personal watercraft

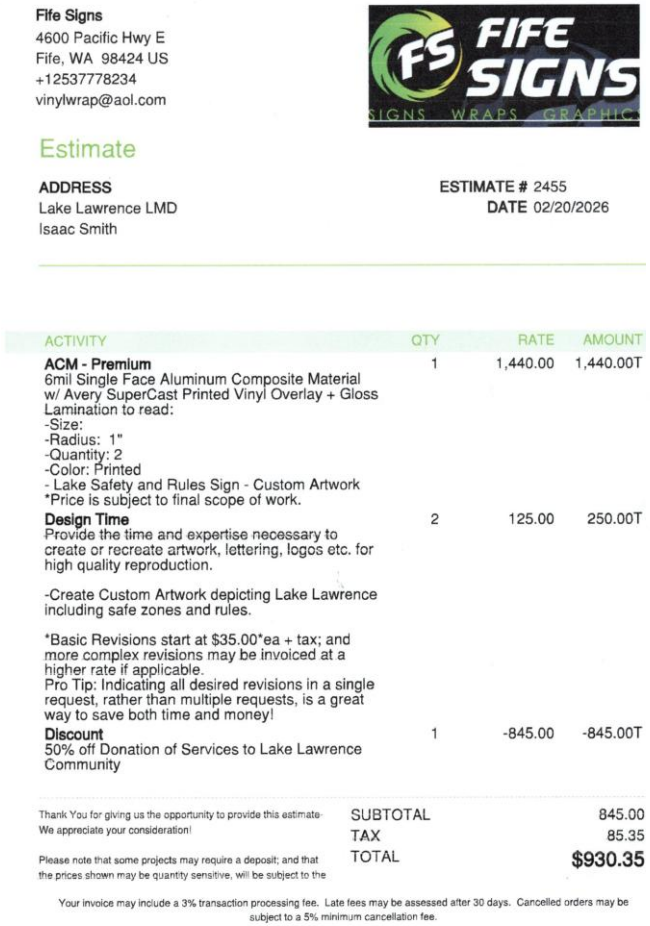
12 to operate a boat with motor

Clean ALL weeds off your boat & trailer before and after Launching to prevent transfer of invasive weeds.

PACK IT IN
PACK IT OUT

Thurston County Code (TCC) 16.04 and Revised Code of Washington (RCW) 79A.68
For more information call the Thurston County Sheriff's Office Marine Services Unit: (360) 786-5500
Provided by the Lake Lawrence Lake Management District of Thurston County

QUOTE



Fife Signs
4600 Pacific Hwy E
Fife, WA 98424 US
+12537778234
vinylwrap@aol.com

Estimate

ADDRESS
Lake Lawrence LMD
Isaac Smith

ESTIMATE # 2455
DATE 02/20/2026

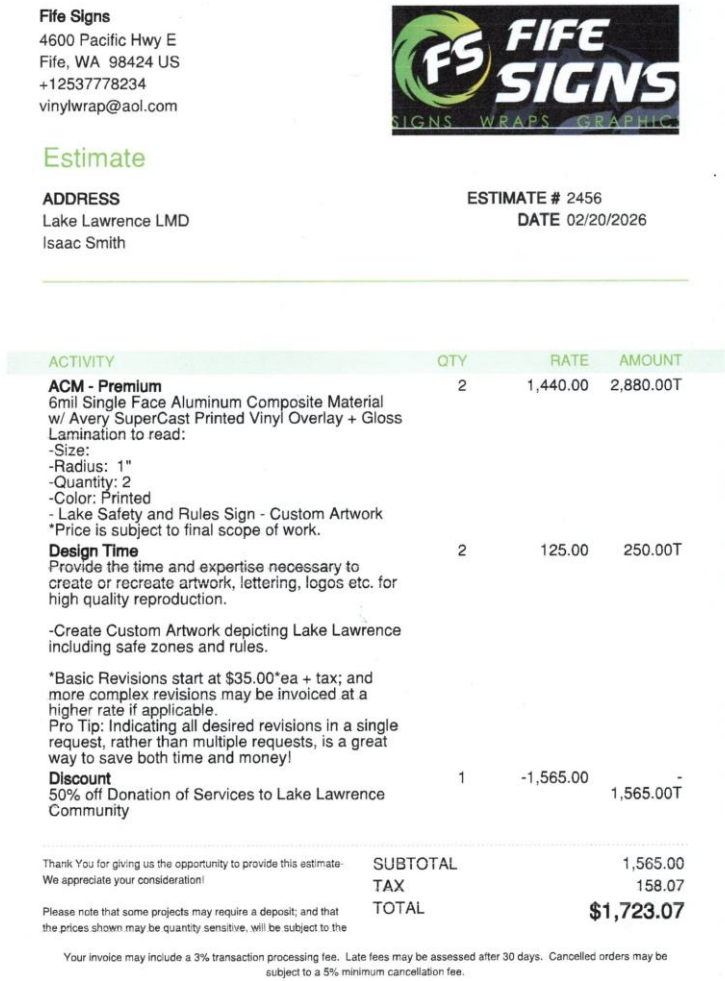
ACTIVITY	QTY	RATE	AMOUNT
ACM - Premium 6mil Single Face Aluminum Composite Material w/ Avery SuperCast Printed Vinyl Overlay + Gloss Lamination to read: -Size: -Radius: 1" -Quantity: 2 -Color: Printed - Lake Safety and Rules Sign - Custom Artwork *Price is subject to final scope of work.	1	1,440.00	1,440.00T
Design Time Provide the time and expertise necessary to create or recreate artwork, lettering, logos etc. for high quality reproduction. -Create Custom Artwork depicting Lake Lawrence including safe zones and rules. *Basic Revisions start at $35.00*ea + tax; and more complex revisions may be invoiced at a higher rate if applicable. Pro Tip: Indicating all desired revisions in a single request, rather than multiple requests, is a great way to save both time and money!	2	125.00	250.00T
Discount 50% off Donation of Services to Lake Lawrence Community	1	-845.00	-845.00T

Thank You for giving us the opportunity to provide this estimate- We appreciate your consideration!

Please note that some projects may require a deposit; and that the prices shown may be quantity sensitive, will be subject to the

SUBTOTAL	845.00
TAX	85.35
TOTAL	**$930.35**

Your invoice may include a 3% transaction processing fee. Late fees may be assessed after 30 days. Cancelled orders may be subject to a 5% minimum cancellation fee.



Fife Signs
4600 Pacific Hwy E
Fife, WA 98424 US
+12537778234
vinylwrap@aol.com

Estimate

ADDRESS
Lake Lawrence LMD
Isaac Smith

ESTIMATE # 2456
DATE 02/20/2026

ACTIVITY	QTY	RATE	AMOUNT
ACM - Premium 6mil Single Face Aluminum Composite Material w/ Avery SuperCast Printed Vinyl Overlay + Gloss Lamination to read: -Size: -Radius: 1" -Quantity: 2 -Color: Printed - Lake Safety and Rules Sign - Custom Artwork *Price is subject to final scope of work.	2	1,440.00	2,880.00T
Design Time Provide the time and expertise necessary to create or recreate artwork, lettering, logos etc. for high quality reproduction. -Create Custom Artwork depicting Lake Lawrence including safe zones and rules. *Basic Revisions start at $35.00*ea + tax; and more complex revisions may be invoiced at a higher rate if applicable. Pro Tip: Indicating all desired revisions in a single request, rather than multiple requests, is a great way to save both time and money!	2	125.00	250.00T
Discount 50% off Donation of Services to Lake Lawrence Community	1	-1,565.00	-1,565.00T

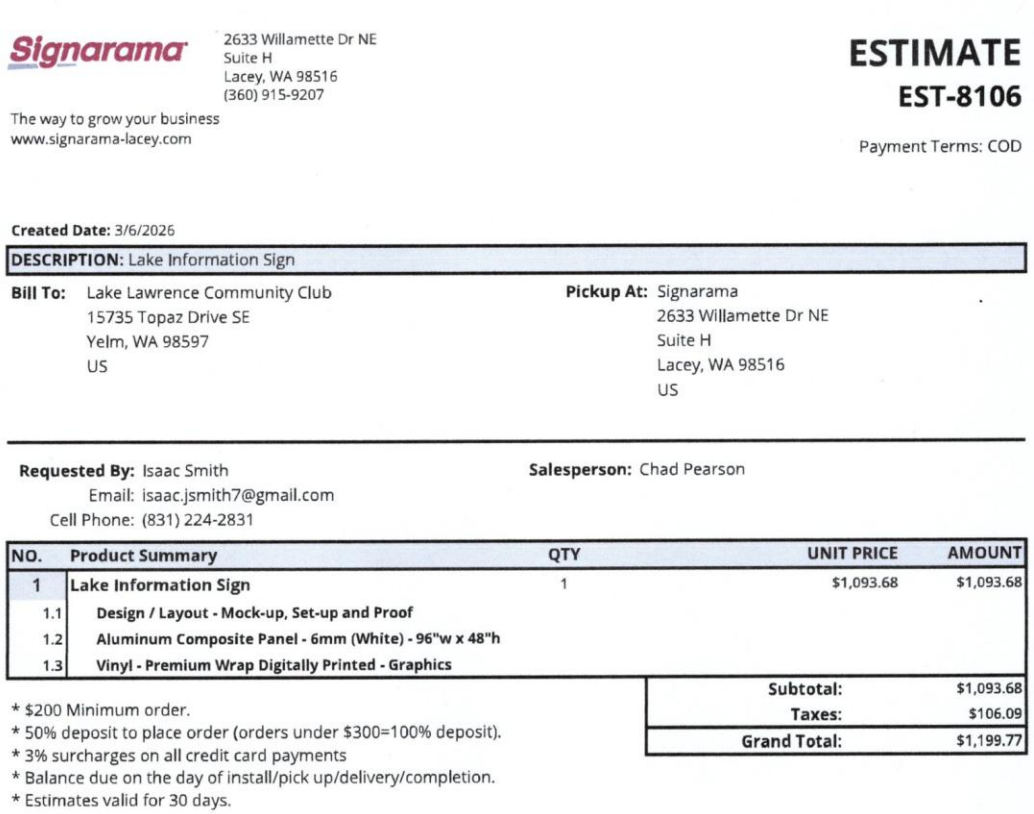
Thank You for giving us the opportunity to provide this estimate- We appreciate your consideration!

Please note that some projects may require a deposit; and that the prices shown may be quantity sensitive, will be subject to the

SUBTOTAL	1,565.00
TAX	158.07
TOTAL	**$1,723.07**

Your invoice may include a 3% transaction processing fee. Late fees may be assessed after 30 days. Cancelled orders may be subject to a 5% minimum cancellation fee.

LLCC wants to purchase one of the signs. This invoice would be split in half and separate invoices sent to each entity: LMD Cost would be = $861.54 including tax.



Signarama
2633 Willamette Dr NE
Suite H
Lacey, WA 98516
(360) 915-9207

The way to grow your business
www.signarama-lacey.com

ESTIMATE
EST-8106

Payment Terms: COD

Created Date: 3/6/2026

DESCRIPTION: Lake Information Sign

Bill To: Lake Lawrence Community Club
15735 Topaz Drive SE
Yelm, WA 98597
US

Pickup At: Signarama
2633 Willamette Dr NE
Suite H
Lacey, WA 98516
US

Requested By: Isaac Smith
Email: isaac.jsmith7@gmail.com
Cell Phone: (831) 224-2831

Salesperson: Chad Pearson

NO.	Product Summary	QTY	UNIT PRICE	AMOUNT
1	**Lake Information Sign**	1	$1,093.68	$1,093.68
1.1	**Design / Layout - Mock-up, Set-up and Proof**			
1.2	**Aluminum Composite Panel - 6mm (White) - 96"w x 48"h**			
1.3	**Vinyl - Premium Wrap Digitally Printed - Graphics**			

Subtotal:	$1,093.68
Taxes:	$106.09
Grand Total:	$1,199.77

* $200 Minimum order.
* 50% deposit to place order (orders under $300=100% deposit).
* 3% surcharges on all credit card payments
* Balance due on the day of install/pick up/delivery/completion.
* Estimates valid for 30 days.

Generated On: 3/9/2026 9:47 AM

Page 1 of 2

LLCC wants to purchase one of the signs:
LMD Cost would be = $1,199.77 including tax.

SIGN AUTHORIZATION/REVIEW

- Thurston County Sheriff's Office – Marine Services Unit, SGT Nault – Reviewed signage Feb 24, 2026. Information updated. Approved.
- Thurston County Parks – Ed Marson – Parks Mgr. – Approved.
- WDFW – Chad Buck – No problem with signage. May require cultural resource review permit. Chad Buck, Land Agent, Costal Region, WDF Chad.buck@dfw.wa.gov . WDFW working Cultural Resource Review Permit. May take some time. But does not see a problem.

- MOTION: Recommend approval of $861.54 to purchase sign once all approvals/permits have been obtained.
- MOTION: Recommend approval of $50.00 to purchase cement/bolts/nuts to assemble sign frame.

2026 LMD Invasive/Nuisance Aquatic Weed Treatment Plan

- G • July 2025 – LMD budget $80,000 for 2026 for Invasive/Nuisance Aquatic Weed Control.
- G • 19 August 2025 – Survey Committee & ARS conduct end of year survey to assess type of weeds and density.
- G • October 2025 – Virtual meeting with contractor to discuss 2026 treatment plan – Met with contractor 2 Oct 25. Contractor working on est. for 2026 treatment for weeds and Algae Treatment.
- G • Prior to Feb 2026 - Contractor to provide cost/application recommendations for Spring 2026 treatment of Curly Pondweed. Total area to be treated = ~34 acres. Cost est. = $71,308 includes additional 3 acres.
- 31 March 2026 - APAM Notice mailed to lake front residents 10 days prior to any treatment. APAM Notice Cost $271.99. Will be Mailed 31 March 2026/
- April – August 2026 - Survey Committee – monthly lake surveys.
- Mid-April/May/June (a few weeks earlier than last year) – Treatment of invasive/nuisance aquatic weeds using Sonar One. Recommended by contractor.

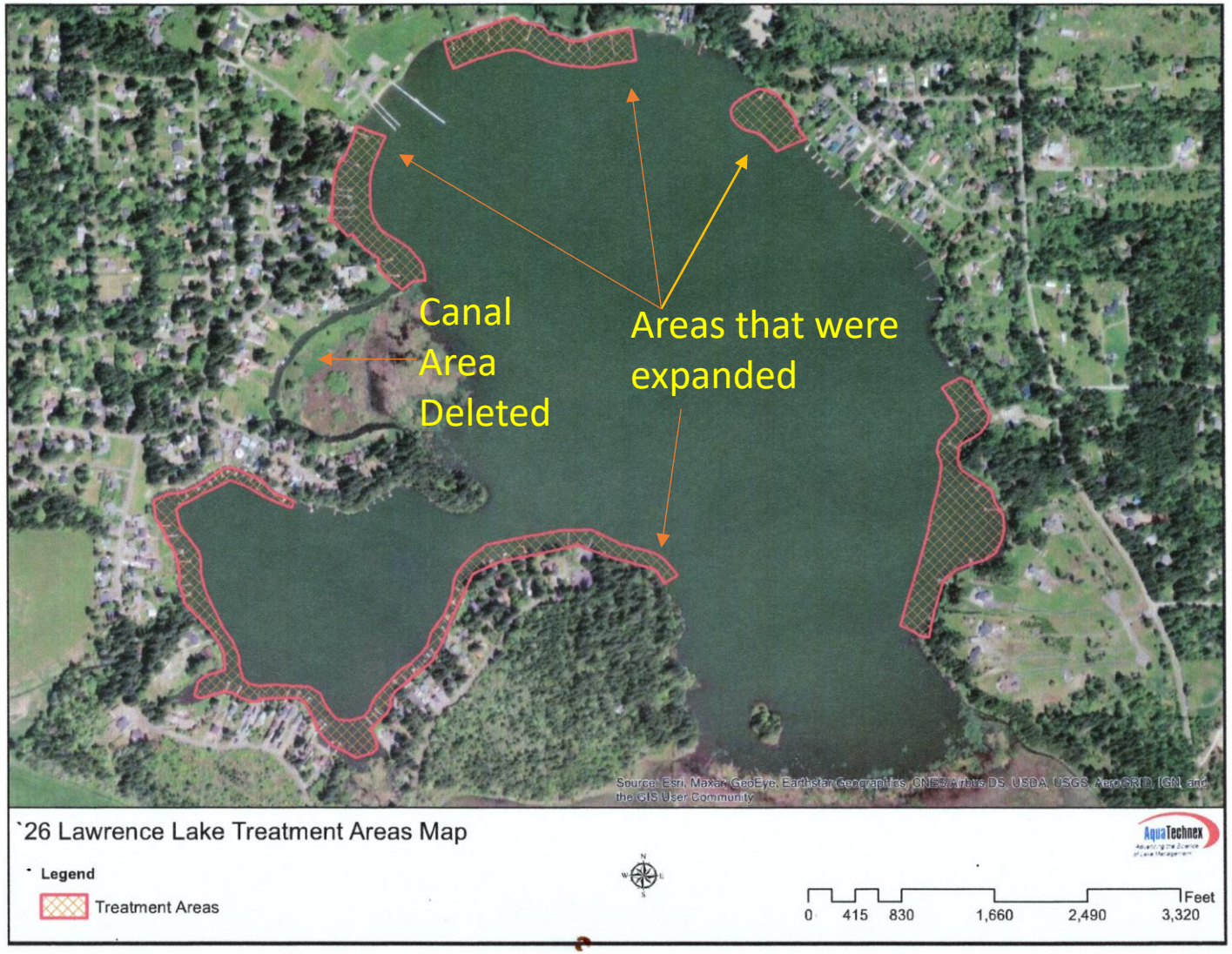
G = Green = Completed On Time

Y = Yellow = Late – Program Jeopardized

R = Red = Mission Fail

YEAR	COMMENTS
2016	• CLP first identified by Thurston County ARS at Public Boat Launch in East Basin • Apr-Jun Treated with Sonar Q and Sonar PR
2017	• Apr-Jun Treated with Sonar Q and PR • County ARS started working on a new prescription for Aquathol K that LMDs (Long and Lawrence) were told would be more effective against CLP
2018	• Aquathol K approved by County early Spring 2018 • Surveys showed CLP had spread south from Boat Launch in the East Basin and around to the southeast side of the East Basin and across the channel north to the southeast end of Goat Island in the East Basin • Jul treated with Aquathol K (Killed CLP) • NOTE: Didn't know until end of 2022 that Aquathol K Killed the CLP plant but not the Turion Seed and Tubers (roots)
2019	• Aquathol K used (Killed CLP plant but not seeds/roots))
2020	• Aquathol K used (Killed CLP plant but not seeds/roots)
2021	• May-Jun Treated with Sonar PR to kill Narrow Leaf and Elodea • CLP seen throughout Southern End of East Basin – No reduction and appears to have spread
2022	• Surveys showed CLP had spread west of the Boat Launch into the West Basin and from the southeast end of Goat Island north up the canal • LMD leadership started working with County ARS and contractors to identify an acceptable product to kill CLP • Jul 2022 Aquathol K used to at least kill CLP plant in attempt to stop spread
2023	• Surveys showed CLP had spread further north in the West Basin and further north from the southeast side of the East Basin • No treatment in 2023 (contracting issue) • November 2023 secured approval from County to treat CLP with Galleon SC
2024	• Surveys showed CLP has spread even further north and east in the West Basin and from the mouth of the canal north in the East Basin • June & July 2024 treated CLP with Galleon SC
2025	• Surveys showed CLP has remained consistent, however seed bed production persists and will require several years to control • Contractor Recommended use of Sonar One earlier to prevent Turion (Seed production). This is a more expensive product than Galleon SC but does more to control other invasive plants as well. • Three applications made April through May 2025
2026	• Survey showed CLP had spread to areas on the north and east side of the main lake • Contractor recommended treatment of all existing areas plus new area with Sonar One • Three applications scheduled for April through June 2026

2026 CURLY PONDWEED TREATMENT MAP



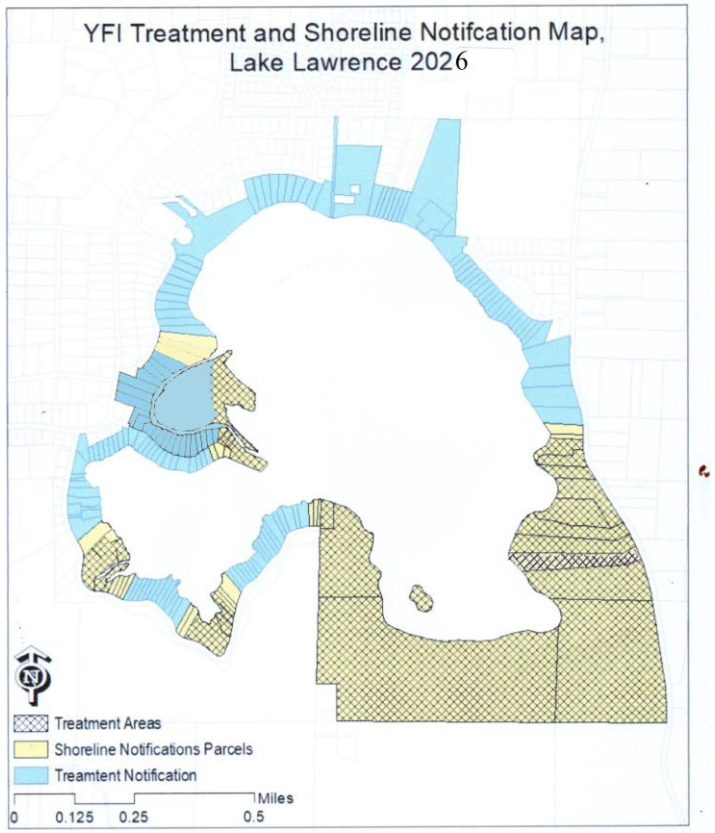
Sonar One 2026
34 Acres
3 applications – three-four weeks apart
First Treatment: Mid April 2026
Second Treatment: Mid of May 2026
Third Treatment: Mid June 2026
Cost: ~$71,308 or $2097.29 per acre ($65 per acre more than 2025)

Previous Treatments:
2021 – Sonar One – 25 Acres
2022 – Aquathol K – 33.5 Acres
2023 – No treatment
2024 – Galleon SC – 26 Acres
2025 – Sonar One – 31 Acres red outlined areas
2026 – Sonar One – 34 Acres (Blue = add areas)

YELLOW FLAG IRIS TREATMENT MAP

NOTES:

1. The canal area will not be treated.
2. Only the East Side of Goat Island will be treated.
3. In July/Aug 2026 a new YFI survey will be done to determine future YFI treatments.
4. YFI Permission letters are for a 5-year period.



2026 LMD Yellow Flag Iris Treatment Plan

- G • Oct 2025 – County Noxious Weed confirms treatment ($1,500 cost to LMD & $2,000 cost to County via Grant Funds)
- Jan/Mar – Send out and Receive permission letters for treatment:
  - G • Jan 2, 2026 – Sent out first email to capture permission letters from 24 private parcels
  - G • Jan 26, 2026 – Sent out second email.
  - G • Feb 16, 2026 – Sent out third email.
  - G • Feb 23-27, 2026 – Sent permission letters to PW Noxious Weed
- 31 March 2026 – Send out treatment notification cards.
- 12-13 or 19-20 May 2026 – PW Noxious Weed treats YFI. Email from Mike Murphy, Noxious Weed Mgr.
- Cost to LMD $1,500 Approved at 19 Feb 2026 Mtg

G = Green = Completed On Time

Y = Yellow = Late – Program Jeopardized

R = Red = Mission Fail

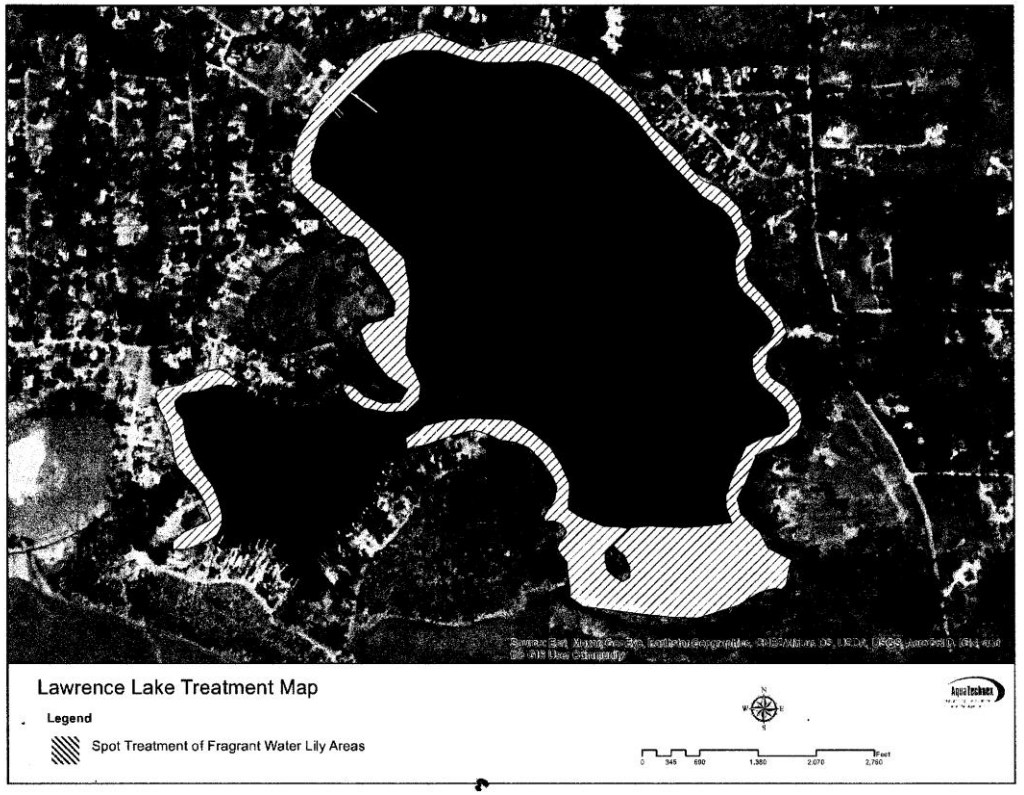
2026 LMD Fragrant Water Lily Treatment Plan

- 15 Jul – 15 Aug – Treatment of Fragrant Water Lily, if required (to be determined in June or July 2026 following lake survey).

2024 Treatment –
2.5 Acres

2025 Treated
Approx 3 Acres

Treatment Costs:
Jul 19 - $1,540
Jul 20 - $1,517
Jul 22 - $2,373
Sep 24 - $2,500
Aug 25 –$1,875



G = Green = Completed On Time

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R = Red = Mission Fail

2026 TREATMENT NOTIFICATION CARD FOR CURLY PONDWEED & YFI

Business and Residential Notice

In Treatment Area and in ¼ Mile Notification Shoreline Area.

Distribution Date: 27 March 2026

Selected sites on Lake Lawrence will be treated with aquatic herbicides on or between 15 April 2026 and 15 October 2026

Product(s) planned for use: Sonar Q, Sonar AS, Sonar One, Polaris, Aquathol K, Clearcast or Galleon SC

Active Ingredient(s): Fluridone (Sonar), Dipotassium salt of Endothall (Aquathol K), Penoxsulan (Galleon), Imazapyr (Polaris) or Imazamox (Clearcast)

Plants/Algae targeted: Common Elodea, Curly, Narrow & Big Leaf Pondweed, Yellow Flag Iris, Fragrant Water Lily or other species to control invasive, noxious and/or nuisance weeds.

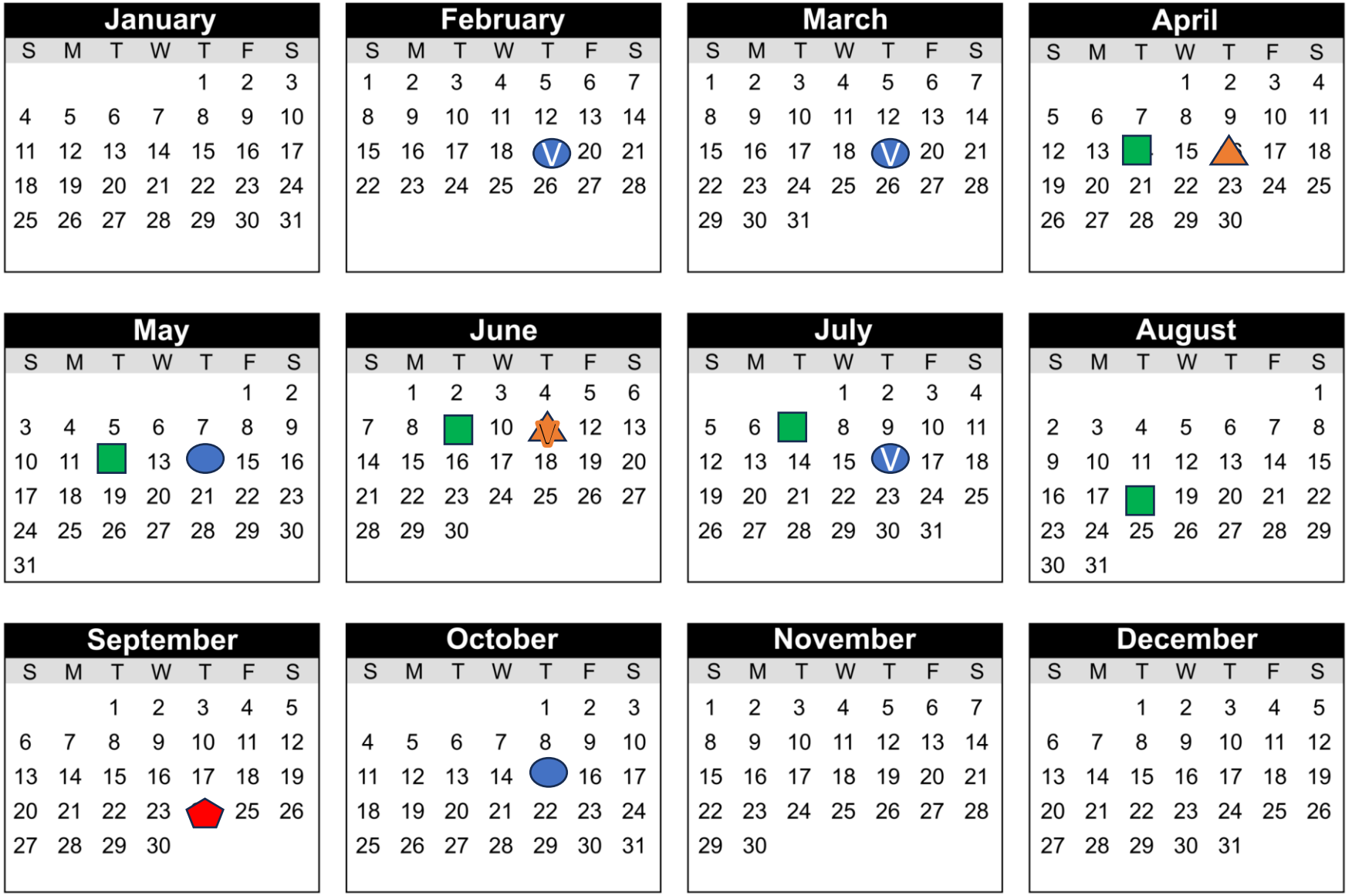
Location of treatment(s): The attached map shows possible treatment areas. Only those areas that physically contain target plants will be treated. The applicator will post signs in the treated and potentially affected areas no more than 48 hours prior to treatment. The signs will describe any water use restrictions or advisories. If you are withdrawing water for potable or domestic water use, livestock watering, or irrigation, and have no alternate water source, please contact Kyle Langan, Aqua Technex, LLC at 360-330-0152 or kyle@aquatechnex.com to arrange an alternate water supply. If you want additional notification prior to treatment, or have further questions, please contact Kyle using the Information above or Barry Halverson, Lake Lawrence LMD at 253-341-6059 or email lakelawrence750@gmail.com

Map of Potential Treatment sites in Lake Lawrence

Scan QR Code to go to permit web page

This herbicide treatment is regulated under a permit issued by the Washington State Dept. of Ecology. Permit No. WAG994131

2026


January
S M T W T F S
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31
February
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 V 20 21
22 23 24 25 26 27 28
March
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 V 20 21
22 23 24 25 26 27 28
29 30 31
April
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12 13 15 17 18
19 20 21 22 23 24 25
26 27 28 29 30
May
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17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
June
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7 8 10 12 13
14 15 16 17 18 19 20
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July
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26 27 28 29 30 31
August
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September
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October
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11 12 13 14 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31
November
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8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30
December
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6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31
LEGEND
LMD MTGS
CMP MTGS
SURVEYS
ANNUAL MTG
V VIRTUAL

2026 SC Meeting Schedule (6:30-8:30 p.m.):

- Thursday 19 February (Virtual)
- Thursday 19 Mar (Virtual)
- Thursday 14 May (In Person)
- Thursday 16 July (Virtual)
- Thursday 15 Oct (In Person)

2026 CMP Meeting Schedule:

- Mtg#4 – Thursday 16 Apr 2026 2 hours Virtual w/All LMD 6:30-8:30 p.m.
- Mtg#5 – Thursday 11 Jun 2026 2 hours virtual w/SC 6:30-8:30 p.m.

2026 Survey Schedule – 9 a.m. (3 hours):

- Tuesday 14 Apr
- Tuesday 12 May
- Tuesday 9 June
- Tuesday 7 July
- Tuesday 18 August

Annual Meeting – 6:30-8:30 p.m.

- Thursday 24 September

FUNDING FOR LAKE LAWRENCE

Registered for HAB grant webinar - 3/26 -

Registered for SAW - Secure Access Website

Continue working on grant application due Nov 2026

Other Funding Ideas

Non Profit - Individuals and businesses can donate.

Need their own structure - Board of Directors - Bank Acct - Meetings

Letter of Interest Drafted - Vote on distributing?

501c4

Non Profit - Not Tax Deductible Donations (Pattison Lake Association)

501c3

Non Profit - Tax Deductible Donations i.e: Friends of Lake Lawrence

GRANT FUNDING UPDATE

- Kim Farnes
- Objective – to obtain one grant a year beginning in 2027.
- Grant Opportunities:
  - 1 Oct 2026 - $50,000 Grant for Freshwater Algae Control Grant Program for Fiscal Year 2028. Fund Manager: Joseph Teresi, Aquatic Invasive & Algae Control Grants Manager, Dept of Ecology, joseph.teresi@ecy.wa.gov
    - Cyanobacteria control and management
  - Storm Water Drainage & Erosion Control (LLCC HOA Park/Wildaire HOA Park & Drainage)
  - Habitat Restoration Goat Island/County Park/HOA Parks
  - Water quality monitoring equipment (Secchi Disk/Kemmerer Gauge/Water Quality Sonde w/4 Probes & 50FT Cable – same one as used by Thurston County Environmental Health) – John Haberline john.haberline@co.Thurston.wa.us
  - Water quality testing equipment
  - Locating and capturing phosphorus output at lake vents (springs) to determine actual amount of "P" coming into lake through these springs.
  - Federal Grants EPA Grants under Clean Water Act – to fund OST Costs

September 24, 2026, Annual Meeting

- Guest Speaker: Kevin Hansen, Thurston County Hydrologist
- Talking Points:
  - Hydrology of Lake Lawrence and surrounding area
  - Aquifers in and around area and how they impact our lake
  - Soil composition around Lake Lawrence and how that impacts septic system flow into the lake
  - Test results from local wells/public wells/water systems, what those tests show (Phosphates, etc.) in the water that may impact water quality at the lake
  - Recycle time for lake water
  - ANYTHING ELSE?

LAWRENCE LAKE WATER MEASUREMENTS

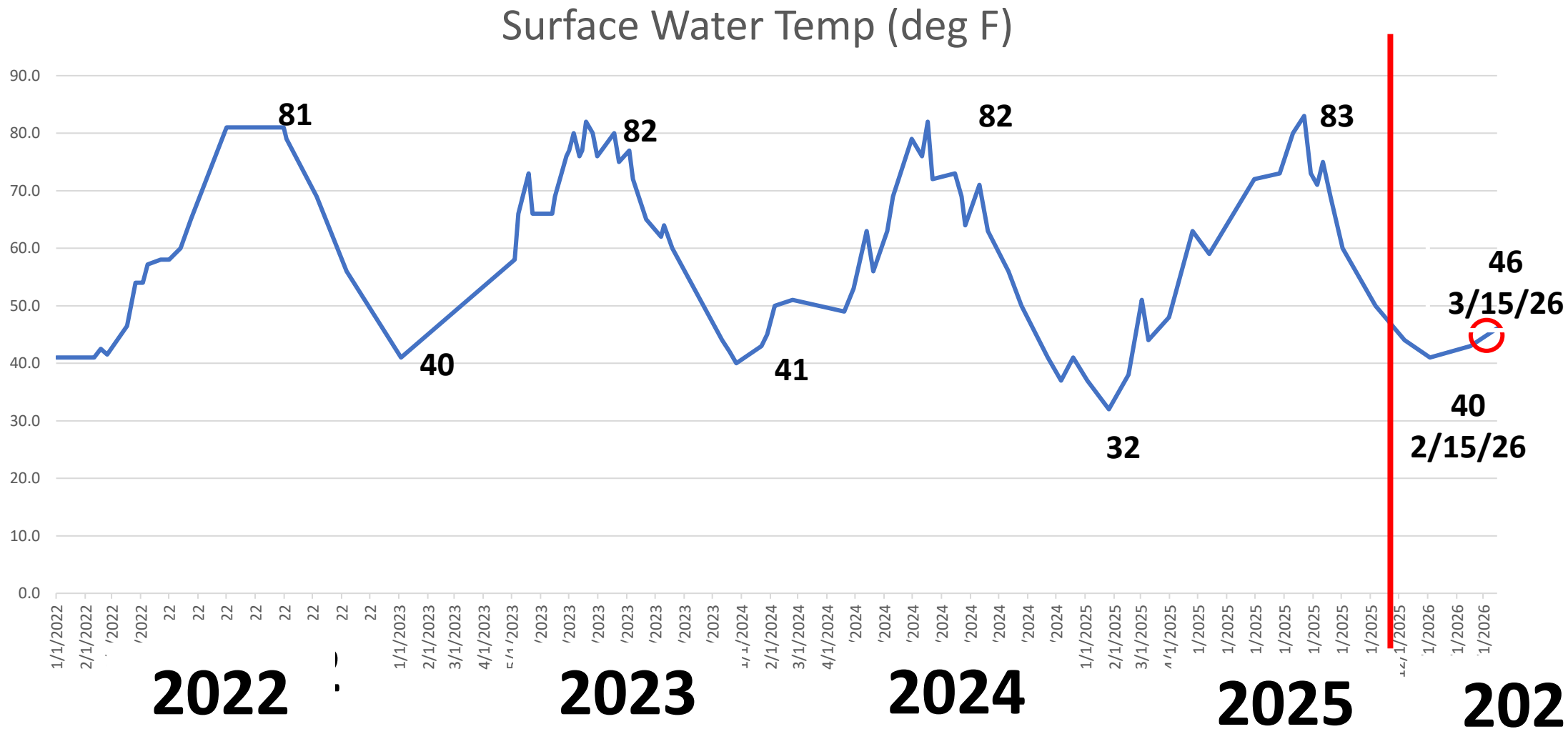
- 3 January 2026 – Water started flowing out of the Wier.



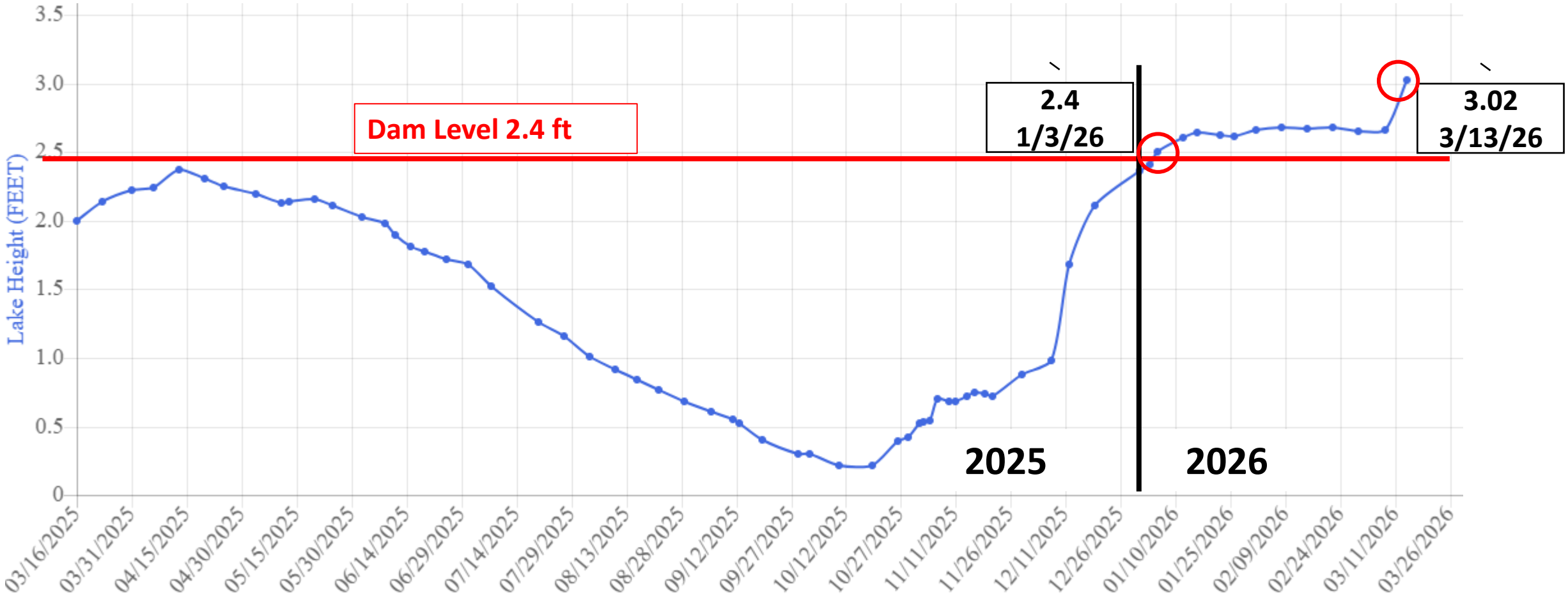



Lawrence Lake LMD
19 March 2026

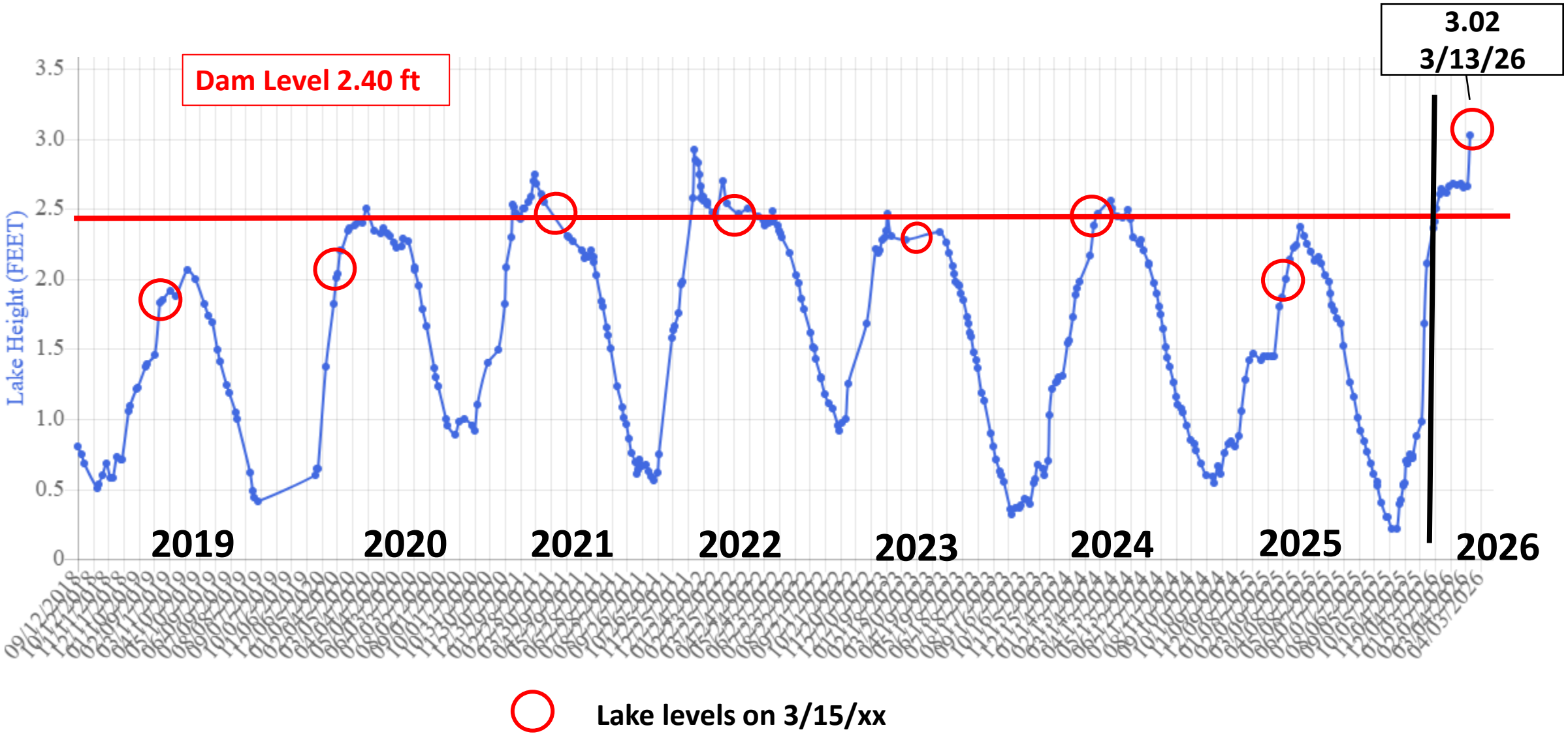
Lawrence Lake Surface Water Temperatures
(LAW 2: West Basin near HOA Park)



Lawrence Lake Water Surface Level LAW 2
ref: https://liquidearthlake.website/gauge/scaleddetailsoney/47



Lawrence Lake Water Surface Level
ref: https://liquidearthlake.website/gauge/scaleddetailsall/47



Lake levels on 3/15/xx

Floating Island Issue

History retained for continuity.

Updated 10/16/25

Floating Mat Issue

Mat sighted September 2025. Location: western shore of West Basin (~ 8’ W x 60’ L x 5’ deep)

Floating Mat Issue: status

- 2022-2023 Numerous communications LMD/T-County/WA DNR/WA FW
- Oct 23 Site survey by boat: LMD/FW/DNR
- Dec 23 DRAFT Presentation vetted through Lawrence Lake LMD Steering Committee
- Dec 23 Presentation sent to State Representative Abbarno's Office
- 26 January 2024 Presentation to Rep Abbarno, FW/DNR
- April 24 Lawrence Lake's State Voting District change: Reps Wilcox, Barkis; Sen McCune
- 4 April 24 New floating mat discovered, towed and secured in protected cove
- 13 May 24 LMD Floating Mat Presentation to Rep Wilcox
  - Staff directed to contact State DNR leadership for follow-up action
- 1 July 24 Follow up action: Presentation to WA State Agencies:
  - Presentation Major Point: State Constitution: DNR has Jurisdictional Authority for lake bottom beyond High Water Mark
  - Attended: Departments of Ecology, Fish and Wildlife representatives
  - Did not attend: DNR, Hilary Franz – Commissioner of Public Lands (elected official)
- 3 Sep 24 ECY/DNR/FW meeting with Rep Wilcox staff
  - *Lake Lawrence eutrophication is a "natural process"*
  - *"Human influence might be a beneficial premise for a study"*
  - *Sediment removal is LMD responsibility*

Floating Mat Issue: status/update

- 28 Oct 24 LMD presented the Floating Island Issue to Army Corp of Engineers (ACE) federal regulatory representative Alexandra Hammond, Seattle District Office
  - Summary: *ACE is at the tail end of any process or planning for dredging etc but can assist with any required federal permits including EPA*

Current Status: May 2025

- Floating Island issue remains a safety issue for Lawrence Lake
  - New reported incident September 2025 "mudberg" lodged on western side of Western Basin (picture)
- Presentations to Representatives Orcutt, Abarno negated by redistricting (20>2) Apr 2024
- Presentation to Representative Wilcox negated by Nov 2024 election/retirement
- State ECY/DNR/FW representatives assume no responsibility for the Floating Island Issue
- Federal ACE will only assist with federal "tail end" permitting (e.g., EPA)

Proposed actions for Steering Committee consideration

1. Tour Representative Marshall and ACE representative Hammond
2. Incorporate current Cyanobacteria lake study (contractor) findings/recommendations into presentation
3. Steering Cmte letter To: Commissioner of Public Lands, cc: BoCC, State Representatives: Barkis, Marshall

NEW BUSINESS

Other Business

- Good of the Order
  - TROUT PLANTINGS:
    - 5 Feb 26 – 90 Trout
    - 12 Feb 26 – 236 Trout
    - 18 Feb 26 – 250 Trout
    - 24 Feb 26 – 20,000 Trout
  - HOA ANNUAL MEETINGS:
    - Scenic Shores - April 11 11a.m.-1 p.m. Moose Lodge, Yelm, WA
    - Wildaire
    - LLCC – 20 June 2026
  - Pet Waster Stations
  - 7th Annual VFW Fishing Derby 8 a.m. - 28 March – Lake Lawrence Public Boat Launch – Register now at https://www.zeffy.com/en-US/ticketing/7th-annual-fishing-derby
  - Seminars/Webinars
    - 24 Feb 26 – WA State Dept of Ecology Webinar - Water Quality Standards rulemaking informational webinar for harmful algal blooms & Lak Nutrient Criteria – Told me that Lake Lawrence harmful algal blooms/nutrient levels exceed all EPA, Ecology & DOH guidelines (See next slide for how EPA developed criteria)
      - Updates on rulemaking – harmful-algal-blooms rulemaking link
      - Updates on Rulemaking - lake-nutrient-criteria rulemaking link
      - Sign up for email updates about these rulemakings at: https://public.govdelivery.com/accounts/WAECY/subscriber/new?topic_id=WAECY_61

Other Business

- Seminars/Webinars 16, 18, 23 & 25 March 2026
  - 16 March 2026 10 a.m. to 1 p.m. – U.S. EPA HAB Seminar - https://www.epa.gov/system/files/documents/2026-02/epa-cyanosymposium-2026-announcement_2-12-2026_v2.pdf
    - Discussed how toxins (Microcystin – impact fish that we eat)
  - 18 March 2026 10 a.m. to 1 p.m. – U.S. EPA HAB Seminar – Same link as above.
    - University of Toledo - How HABs impact human health
    - CDC One Health Harmful Algal Bloom System (OHHABS) https://www.cdc.gov/ohhabs/data/index.html

How EPA Developed Criteria

- They considered ways for how nutrients ultimately impact drinking water sources, recreation, and aquatic life uses.
- Used stressor-response models.
  - How do increased nutrients negatively effect how we and aquatic life use the water?