Lakes & Waterways Board
Regular Meeting

Agenda
September 9, 2025 @ 12:00 PM
City Hall Commission Chambers
401 S. Park Avenue

welcome
Agendas and all backup material supporting each agenda item are accessible via the city's website at cityofwinterpark.org/meetings/ and include virtual meeting instructions.

assistance & appeals
Persons with disabilities needing assistance to participate in any of these proceedings should contact the City Clerk's Office (407-599-3277) at least 48 hours in advance of the meeting.

"If a person decides to appeal any decision made by the Board with respect to any matter considered at this hearing, a record of the proceedings is needed to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based." (F.S. 286.0105).

please note
Times are projected and subject to change.

agenda	estimated time

1. **Call to Order**
2. **Public Comments (for items not on the agenda): Three minutes allowed for each speaker**
3. **Public Hearings (Public participation and comment on these matters must be in person.)**
   a. Boathouse/Dock Application (BLDR-2025-0673) 1511 Harris Cir. — 10 Minutes
4. **Action Items**
5. **Non-Action Items**
   a. Nanobubble Treatment to Mitigate Harmful Algae Blooms Presentation — 25 Minutes
6. **Staff Updates**
   a. Winter Park Police Department — 10 Minutes
   b. Lakes Management — 10 Minutes
   c. Stormwater Management — 10 Minutes
   d. Upcoming Events — 0 Minutes
      - Fix It! Don't Pitch it! — September 6th 8am @ Winter Park Community Center
      - Orange County Lake Killarney Advisory Board Meeting — September 11th 5 pm @ Public Safety Building (500 N. Virginia Ave.)
      - Paddleboard Cleanup — September 13th 9 am @ Kraft Azaela/Lake Maitland
      - Get Hooked! — October 4th 7 am @ MLK Pond
      - Paddleboard Cleanup - Fall TBD @ Lake Killarney
7. **Board Comments**
   a. Discussion of Public Comments Received — 5 Minutes
8. **Upcoming Agenda Items**
   a. Discussion of Upcoming Agenda Items — 5 Minutes
9. **Adjournment**

Lakes & Waterways Board

agenda item 3.a

item type
Public Hearings (Public participation and comment on these matters must be in person.)

meeting date
September 9, 2025

prepared by
Victoria Tabor, Administrative Coordinator III

approved by
Victoria Tabor, Administrative Coordinator III

subject
Boathouse/Dock Application (BLDR-2025-0673) 1511 Harris Cir.

motion | recommendation

background

alternatives | other considerations

fiscal impact

attachments
1. BLDR-2025-0673 - 1511 Harris Cir

LAKE SHORELINE
BOATHOUSE/DOCK APPLICATIONS

BLDR-2025-0673
1511 Harris Cir

- Applicant: James Heller
- Contractor: Boon Docks and Outdoor
- Permitting Agent: Mathew Langbehn
- Structure: Dock
- New/Existing: New
- Waterbody: Sylvan

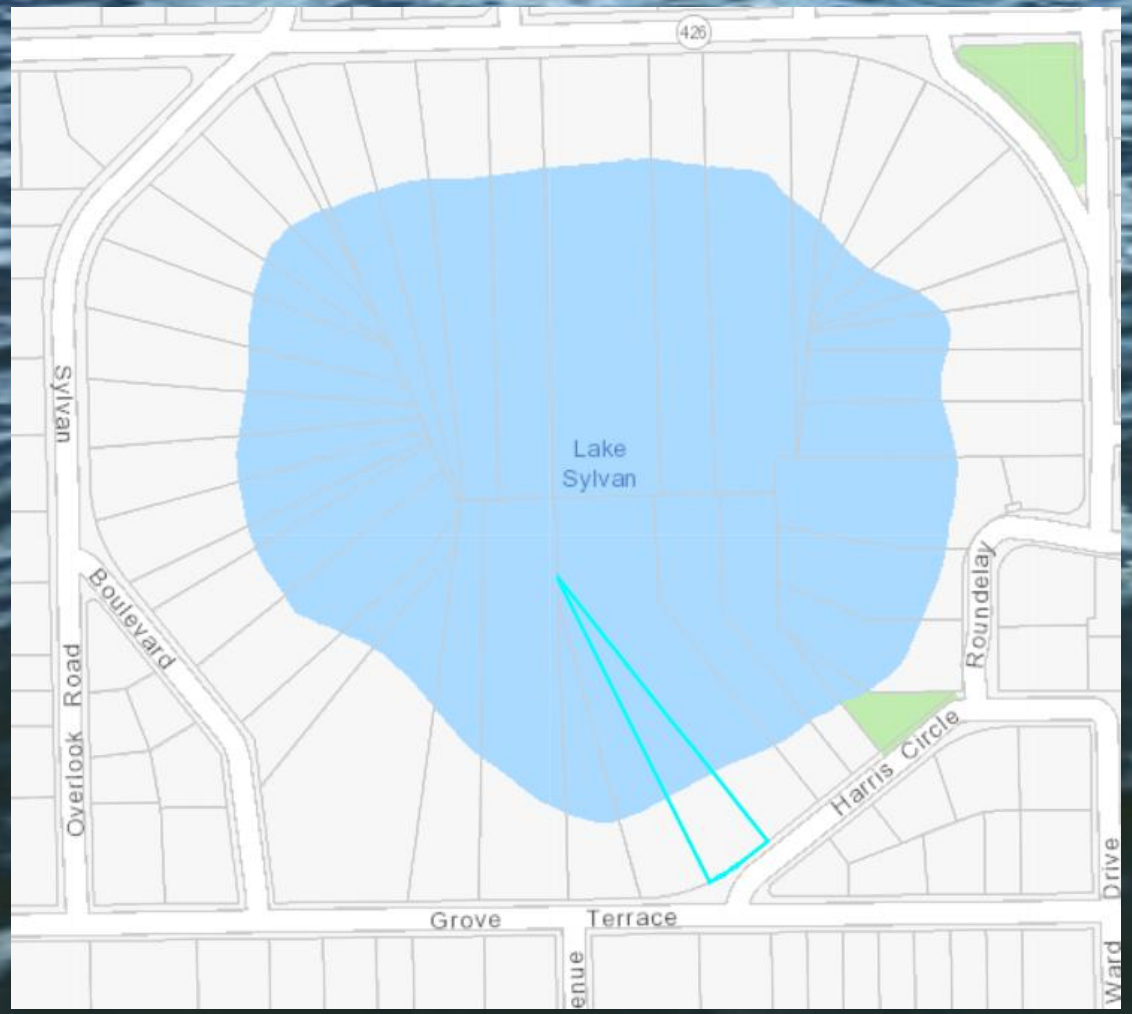
Parameters

Dock Parameter	Proposed	Allowed	Variance Req.?
Total Area (ft^2)	264	600max	No
Length from OHW (ft)	30	30’	No
Height of Roof (ft above deck)	N/A	11 max	NA
Height of Deck (ft above OHW)	1’-2’	2 max	No
Enclosures	N/A	80 ft^2 max (no plumbing/water allowed)	NA
Side Yard Setback(s) (ft)	12.5’	10’ min (5’ with Letter of No Objection)	No
Meet Vegetation Criteria?	No	50% may be cleared	N/A

Staff Recommendation: Approval. Requires Revegetation
Reviewed by: Joey Cordell

Map View

Basemap



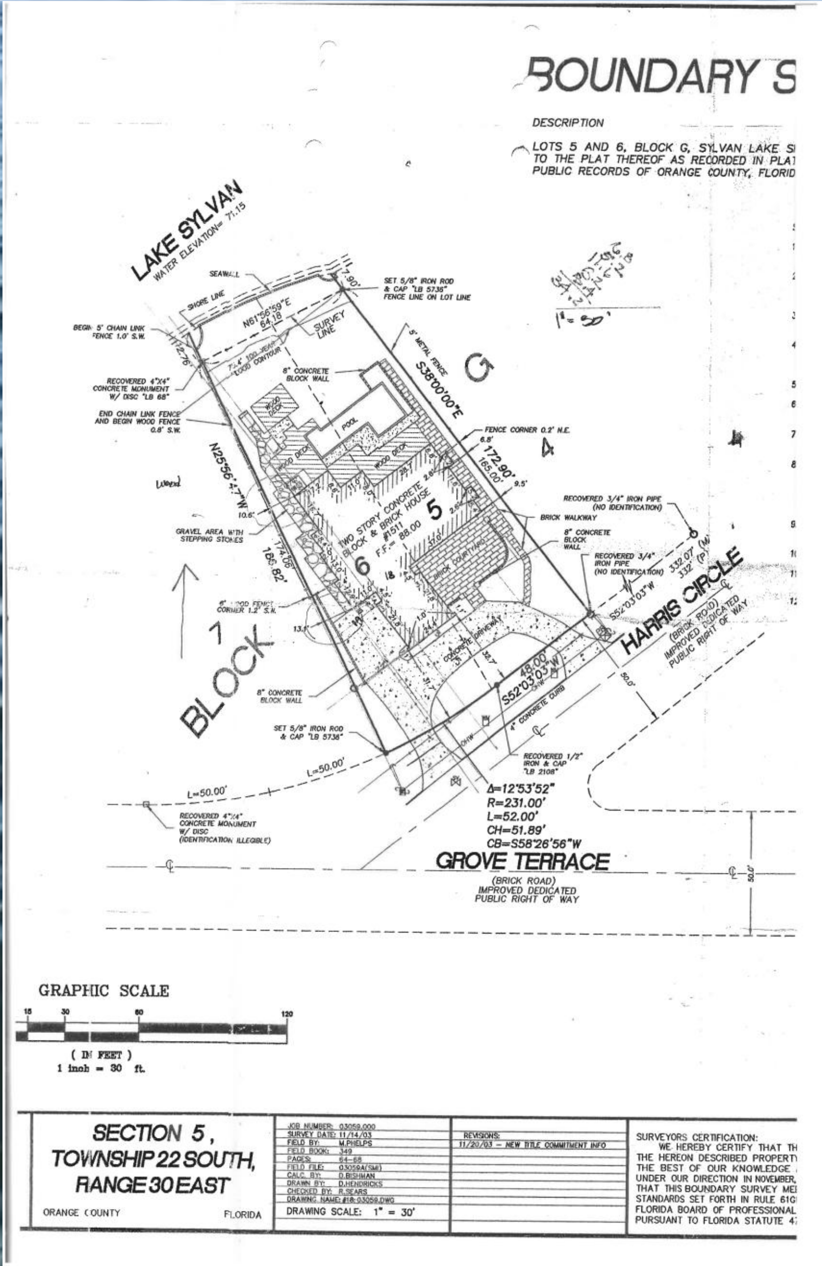
Aerial View

Birdseye View

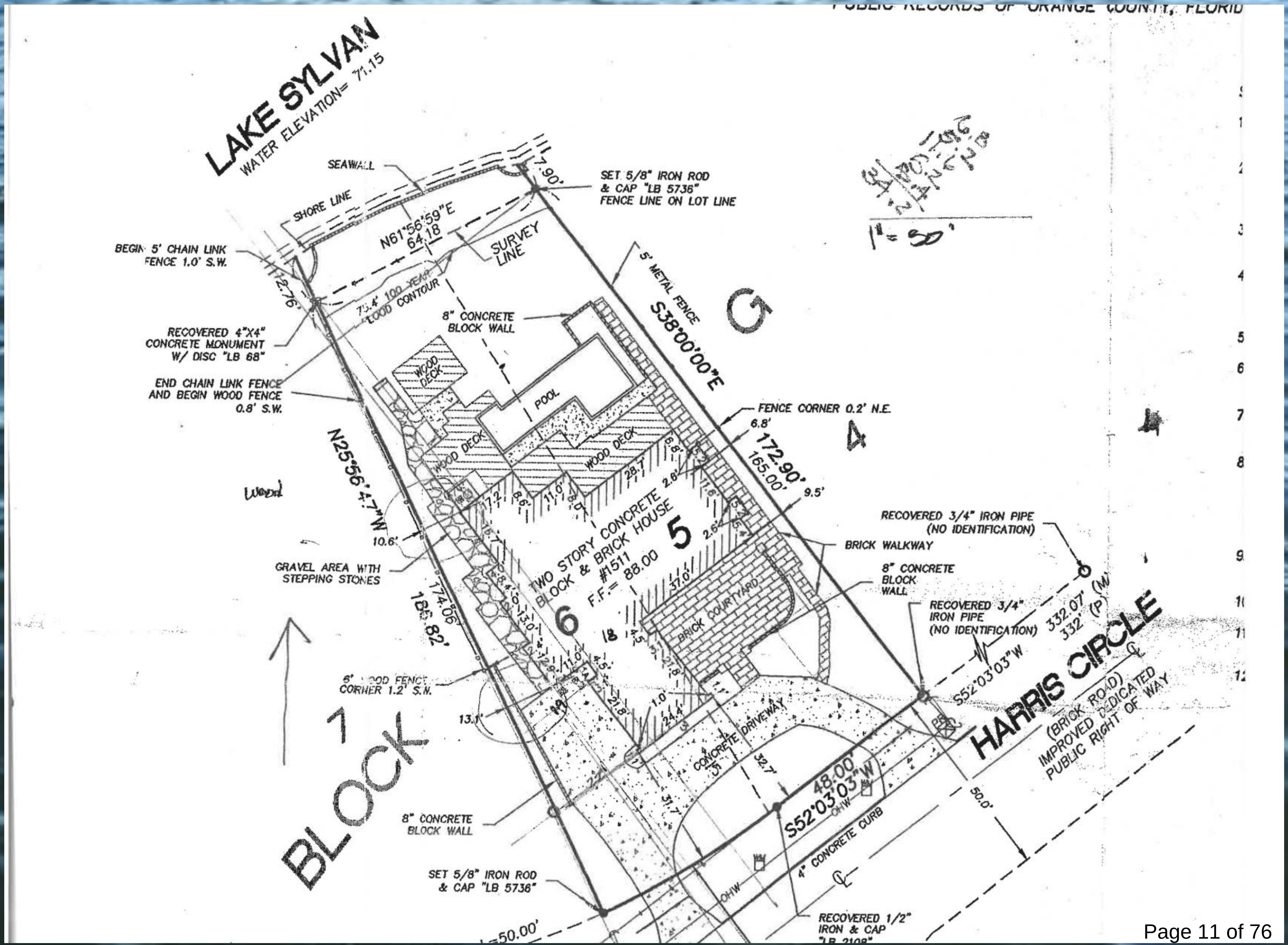
Photos

Photos

Survey

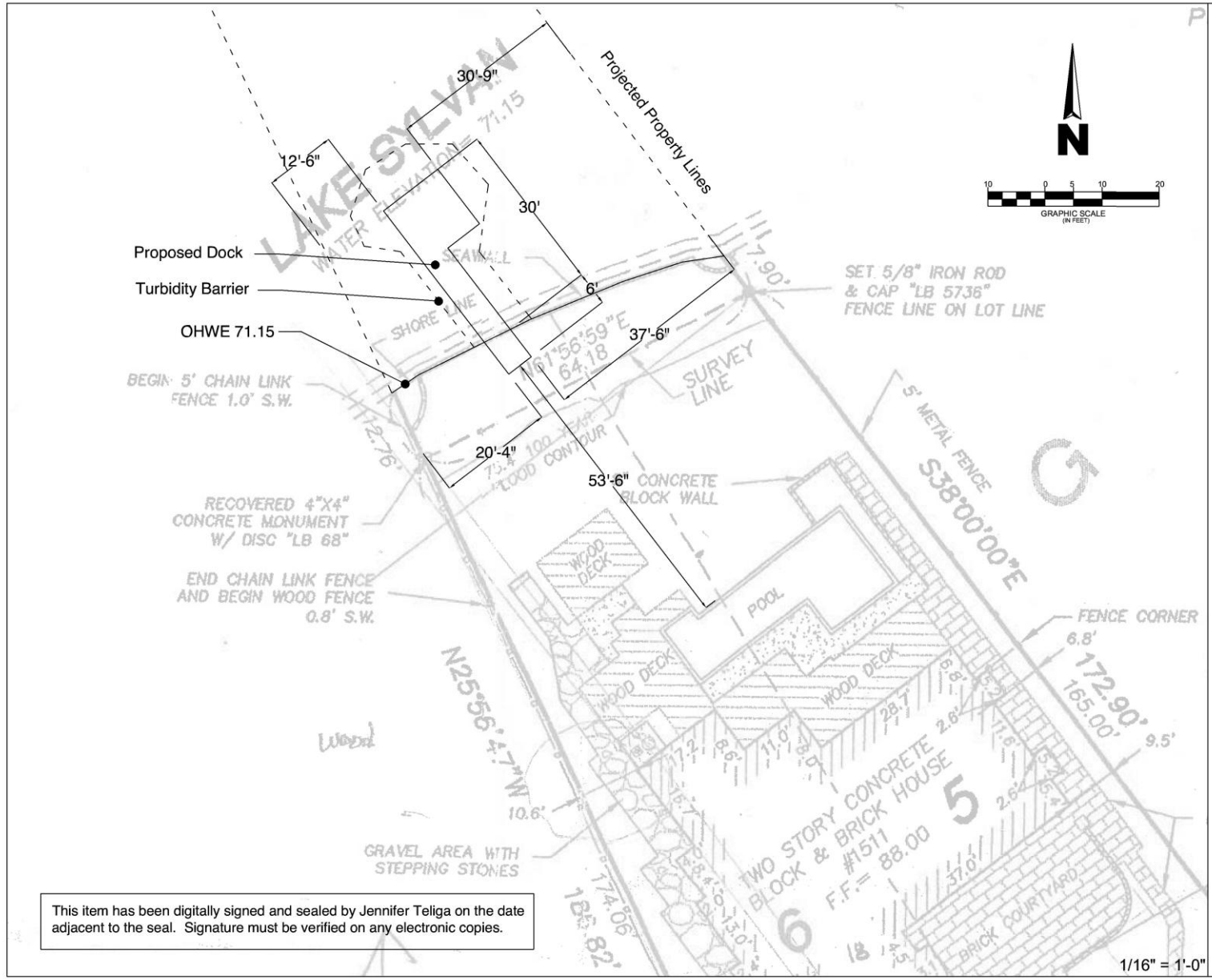


BOUNDARY S
DESCRIPTION
LOTS 5 AND 6, BLOCK G, SYLVAN LAKE S
TO THE PLAT THEREOF AS RECORDED IN PLAT
PUBLIC RECORDS OF ORANGE COUNTY, FLORID
LAKE SYLVAN
WATER ELEVATION= 71.15
GROVE TERRACE
(BRICK ROAD)
IMPROVED DEDICATED
PUBLIC RIGHT OF WAY
HARRIS CIRCLE
Δ=12°53'52"
R=231.00'
L=52.00'
CH=51.89'
CB=S58°26'56"W
GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.
SECTION 5,
TOWNSHIP 22 SOUTH,
RANGE 30 EAST
ORANGE COUNTY
FLORIDA
DRAWING SCALE: 1" = 30'
SURVEYORS CERTIFICATION:



PUBLIC RECORDS OF ORANGE COUNTY, FLORID
LAKE SYLVAN
WATER ELEVATION= 71.15
SEAWALL
SHORE LINE
SET 5/8" IRON ROD
& CAP "LB 5736"
FENCE LINE ON LOT LINE
N61°56'59"E
64.18
SURVEY
LINE
BEGIN 5' CHAIN LINK
FENCE 1.0' S.W.
75.4' 100 YEAR
FLOOD CONTOUR
8" CONCRETE
BLOCK WALL
RECOVERED 4"X4"
CONCRETE MONUMENT
W/ DISC "LB 68"
END CHAIN LINK FENCE
AND BEGIN WOOD FENCE
0.8' S.W.
5' METAL FENCE
S38°00'00"E
G
WOOD DECK
POOL
FENCE CORNER 0.2' N.E.
172.90'
165.00'
4
N25°56'47"W
TWO STORY CONCRETE
BLOCK & BRICK HOUSE
#1511
F.F.= 88.00
5
6
BRICK COURTYARD
RECOVERED 3/4" IRON PIPE
(NO IDENTIFICATION)
BRICK WALKWAY
8" CONCRETE
BLOCK
WALL
RECOVERED 3/4"
IRON PIPE
(NO IDENTIFICATION)
332.07' (M)
332' (P)
S52°03'03"W
HARRIS CIRCLE
(BRICK ROAD)
IMPROVED DEDICATED
PUBLIC RIGHT OF WAY
GRAVEL AREA WITH
STEPPING STONES
174.06'
186.82'
CORNER 1.2' S.W.
BLOCK
7
CONCRETE DRIVEWAY
48.00'
S52°03'03"W
4" CONCRETE CURB
50.0'
8" CONCRETE
BLOCK WALL
SET 5/8" IRON ROD
& CAP "LB 5736"
RECOVERED 1/2"
IRON & CAP
L=50.00'

Site Plan



This item has been digitally signed and sealed by Jennifer Teliga on the date adjacent to the seal. Signature must be verified on any electronic copies.

1/16" = 1'-0"

101. GENERAL NOTES

101.1 DETAILS SHOWN ON PLANS MAY BE FOR TYPICAL CONDITIONS. FOR CONDITIONS NOT SHOWN, PROVIDE DETAILS OF A SIMILAR NATURE, OR IF NOT CERTAIN HOW TO PROCEED, CONTACT THE ENGINEER OF RECORD.

101.2 DIMENSIONS SHOWN ON THESE PLANS SHALL BE VERIFIED BY THE CONTRACTOR OR BUILDER PRIOR TO CONSTRUCTION. THESE PLANS MAY NOT BE DRAWN TO SCALE. SCALING OF DRAWINGS IS STRONGLY DISCOURAGED.

101.3 THE CONTRACTOR SHALL COORDINATE ALL NEW WORK WITH EXISTING CONDITIONS AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER OF RECORD IMMEDIATELY AND BEFORE PROCEEDING WITH WORK.

101.4 OBTAIN APPROVAL FROM THE ENGINEER OF RECORD FOR ALL STRUCTURAL MODIFICATIONS OR SUBSTITUTIONS.

101.5 CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION PRACTICES, INCLUDING TECHNIQUES, PROCEDURES, SHORING, AND THE SEQUENCE OF CONSTRUCTION. CONTRACTOR SHOULD NOTIFY THE ENGINEER OF RECORD IF A CONFLICT ARISES DUE TO VARIATIONS OR OTHER PROBLEMS WITH THE CONSTRUCTION DOCUMENTS.

102. APPLICABLE CODES AND STANDARDS

CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THESE STRUCTURAL SPECIFICATIONS AND THE REQUIREMENTS CONTAINED IN THE FOLLOWING CODES AND STANDARDS. WHEN A DIFFERENCE EXISTS BETWEEN THESE SPECIFICATIONS AND ANY OTHER GOVERNING CODE, THE MORE STRINGENT SHALL CONTROL. ANY OTHER ITEMS NOT COVERED THEREIN SHALL BE COMMENSURATE WITH SOUND ENGINEERING AND STANDARD CONSTRUCTION PRACTICE.

102.1 2023 FLORIDA BUILDING CODE - RESIDENTIAL.
102.2 AISC MANUAL OF STEEL CONSTRUCTION - 13TH EDITION
102.3 ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE - ACI 318-14
102.4 AMERICAN WOOD COUNCIL - NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION - 2018 EDITION
102.5 ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

103. DESIGN LOADS

THIS STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING LOADS. DESIGN LOADS INDICATED ARE IN POUNDS PER SQUARE INCH UNLESS NOTED OTHERWISE. IF ANY PERMANENT MATERIALS EXCEED THESE LOADS, THE ENGINEER OF RECORD SHALL BE CONTACTED TO REVISE THE STRUCTURAL DESIGN AND CONSTRUCTION DOCUMENTS.

103.1 DEAD LOADS: WEIGHT OF STRUCTURE AND ALL THINGS PERMANENTLY ATTACHED.
DECK - 10 PSF ROOF - 10 PSF - BOTTOM CHORD

103.2 LIVE LOADS:
DECK - 40 PSF
WIND SPEED - 140 MPH
EXPOSURE - D
INTERNAL PRESSURE COEFFICIENT - 0.0 (COMPLETELY OPEN)
BUILDING TYPE: I - RISK FACTOR 1.0
GUARDRAILS AND HANDRAILS - 200 PSF
GUARDRAILS IN-FILL COMPONENTS - 50 PSF
STAIRS - 40 PSF

104. STRUCTURAL LUMBER FRAMING (DIMENSIONAL LUMBER)

104.1 UNLESS NOTED OTHERWISE, ALL STRUCTURAL LUMBER SHALL BE SOUTHERN YELLOW PINE (SYP) #2 OR BETTER

104.2 STRUCTURAL LUMBER EXPOSED TO WEATHER SHALL BE PRESSURE TREATED OR MANUALLY SEALED AT TIME OF CONSTRUCTION.

104.3 ALL FASTENERS TO BE HOT DIPPED GALVANIZED (HDG) OR STAINLESS STEEL.

104.4 ALL DECKING SHALL BE SOUTHERN YELLOW PINE (SYP) #2 OR BETTER OR WOOD/PLASTIC COMPOSITE CONFORMING WITH ASTMD7032.

104.5 HANDRAILS
HANDRAILS SHALL BE PROVIDED ON AT LEAST ONE SIDE ON EACH CONTINUOUS RUN OF TREADS OR FLIGHT WITH FOUR OR MORE RISERS

104.6 ILUMINATION
ALL STAIRS SHALL BE PROVIDED WITH ILLUMINATION IN ACCORDANCE WITH SECTION R303.7

Prepared for:
Boon Docks and Outdoor
CGC1531712
Winter Park, FL
407.538.4245
boondocksandoutdoor.com

Jennifer Teliga, P.E.
2901 Bluestem Ln.
Clermont, FL 34714
P.E. #64621
(321) 662-7503

Heller Dock
1511 Harris Cir.
Winter Park, FL 32789

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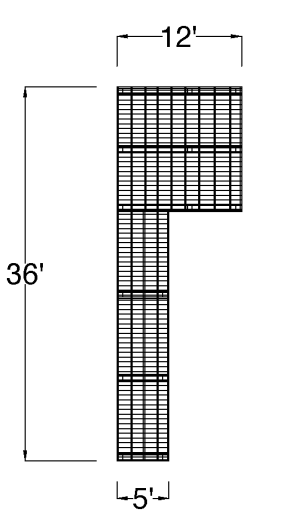
Project:
BD0-2025-09

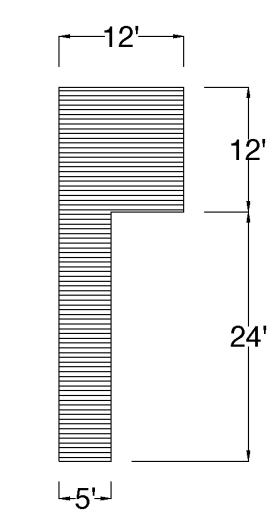
S0

Plans



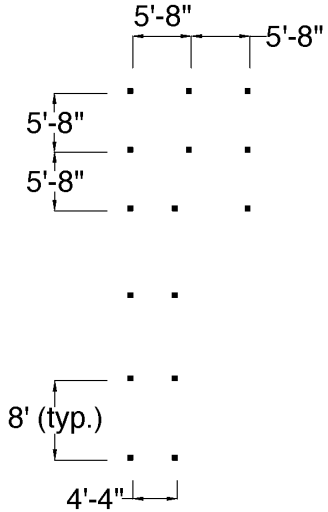
Plan View

0 10 20



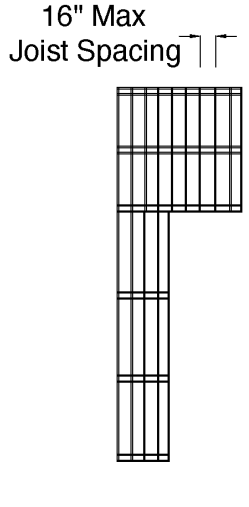
Decking Layout

0 10 20



Piling Layout

0 10 20



Framing Layout

0 10 20

TOTAL WALKWAY AND PLATFORM AREA: 264 Sq. Ft.

$\frac{3}{32}$" = 1'-0"

Prepared for:
Boon Docks and Outdoor
CGC1331712
Winter Park, FL
407-339-4245
boondocksandoutdoor.com

Jennifer Teliga, P.E.
2901 Bluestem Ln.
Clermont, FL 34714
P.E. #91621
(321) 662-7503

Heller Dock
1511 Harris Cir.
Winter Park, FL 32789

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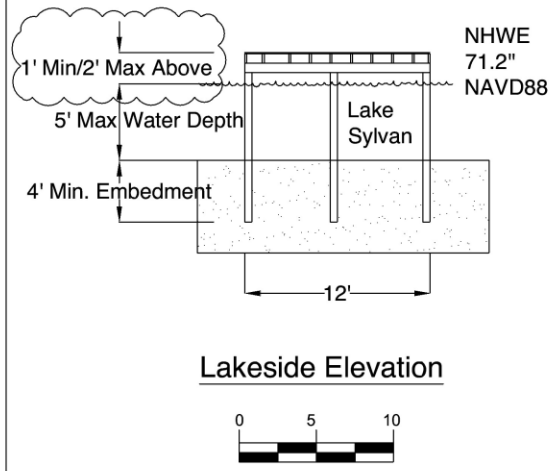
Project:
BD0-2025-09

S1

Plans

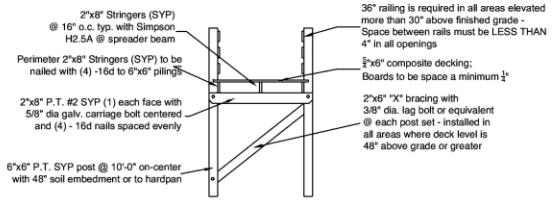


Lakeside Elevation

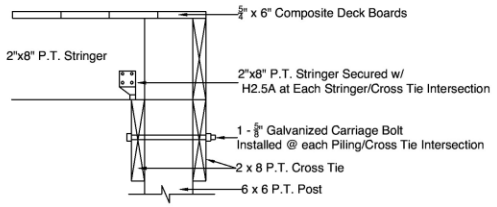
*This Space Intentionally Left Blank *

Notes:

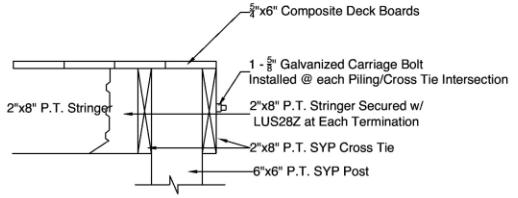
1.) All framing to be fastened with 16d HDG ring shank nails.
2.) All decking to be fastened with 2-3/4" galvanized screws - 2 per board per stringer.
3.) All lumber to be Southern Yellow Pine (SYP).



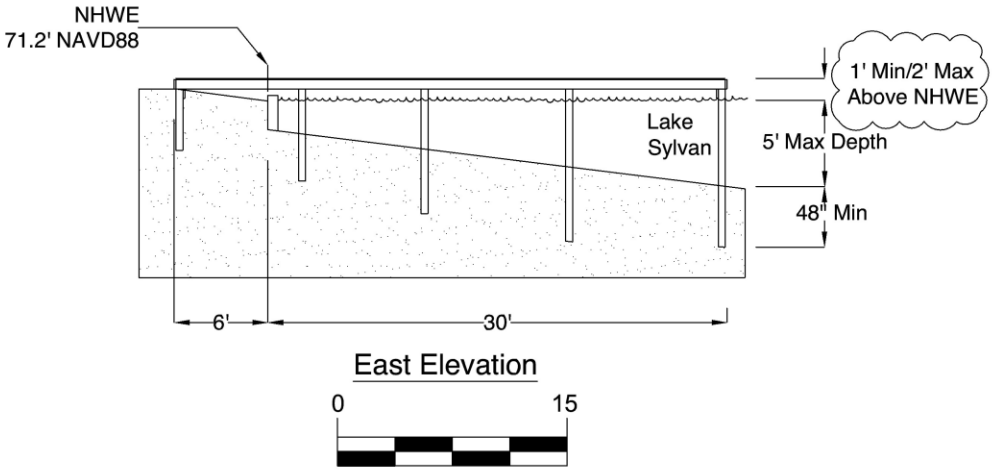
Typical Cross Section



Framing Detail



Alt. Framing Detail



East Elevation

Prepared for:
Boon Docks and Outdoor
CGC1531712
Winter Park, FL
407.539.4245
boondocksandoutdoor.com

Jennifer Tellga, P.E.
2901 Bluestem Ln.
Clermont, FL 34714
P.E. #84621
(321) 662-7503

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Project:
BD0-2025-09

S2

Lakes & Waterways Board

agenda item 5.a

item type
Non-Action Items

meeting date
September 9, 2025

prepared by
Victoria Tabor, Administrative Coordinator III

approved by
Victoria Tabor, Administrative Coordinator III

subject
Nanobubble Treatment to Mitigate Harmful Algae Blooms Presentation

motion | recommendation

background

alternatives | other considerations

fiscal impact

attachments
1. Moleaer Lk Virginia Presentation

August 2025

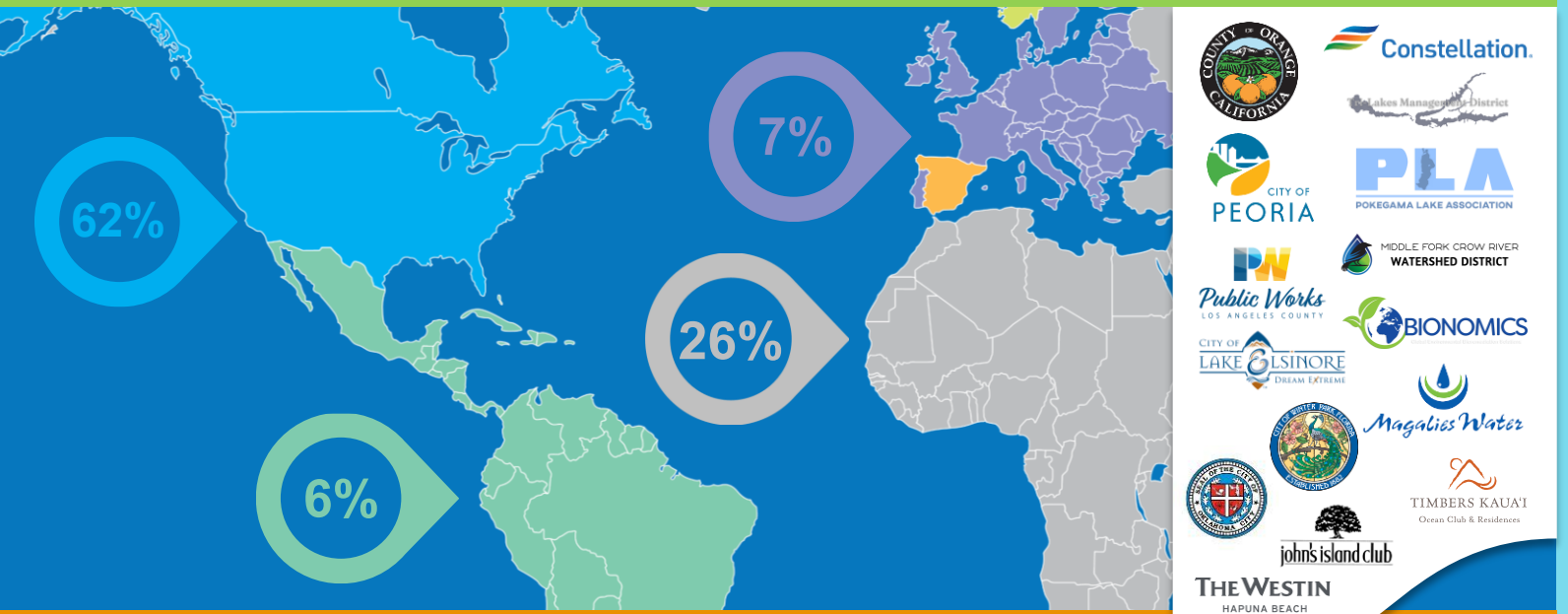
Lake Virginia

City of Winter Park, FL

Nanobubble Treatment to Mitigate Harmful Algae Blooms Blooms and Improve Resiliency

Over 4,000 Nanobubble Installations

650+ Nanobubble Installations in Waterbodies & Waterways



The Moleaer Difference

- Leader in nanobubble science and it's applications
- Largest R&D and Application Development teams with over 15 PhDs:
  - Investigating nanobubbles and their impacts in various applications
  - Developing prescriptive solutions and monitoring plans
- Largest NB treatment installation and customer base globally

Surface Water Team

Dr. Denise Devotta
Senior Limnologist

Shane Hoyt
Limnologist

Chris Stephan
Global Director of Surface Water

Erin Klores
Business Development Manager, Southeast US

Clint Hanson
Business Development Manager, Western US

Jon Morales
Business Development Manager, Central US

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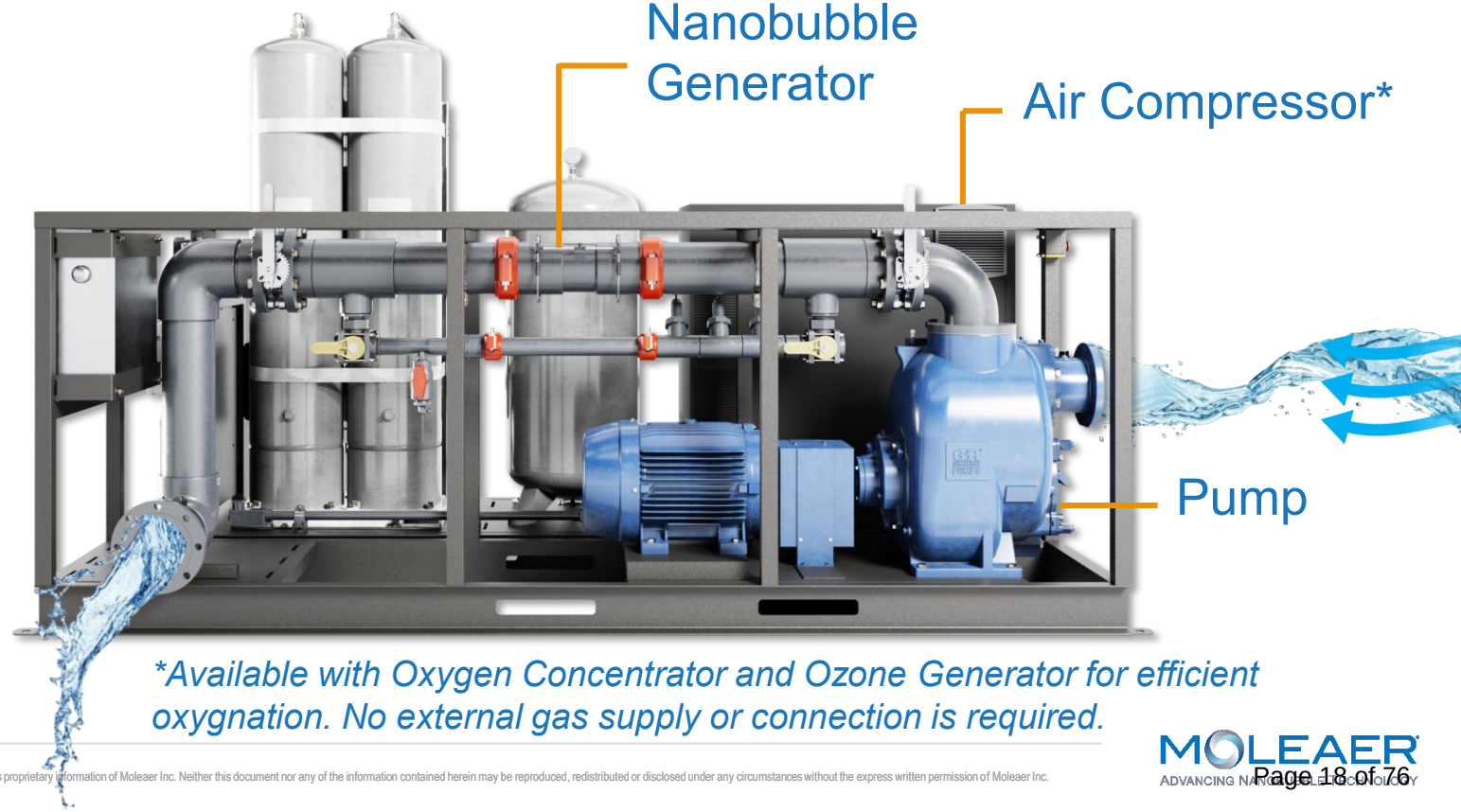
Moleaer's Patented Technology

Scalable for any size waterbody:
100's of installations over 1000 GPM

Introduces **dissolved oxygen** and **nanobubbles**:

- Most cost-effective way to provide critical dissolved oxygen to waterbodies
- Nanobubbles deliver the oxygen to the bottom where it is needed most
- Promotes natural lake recovery processes



Available with Oxygen Concentrator and Ozone Generator for efficient oxygnation. No external gas supply or connection is required.

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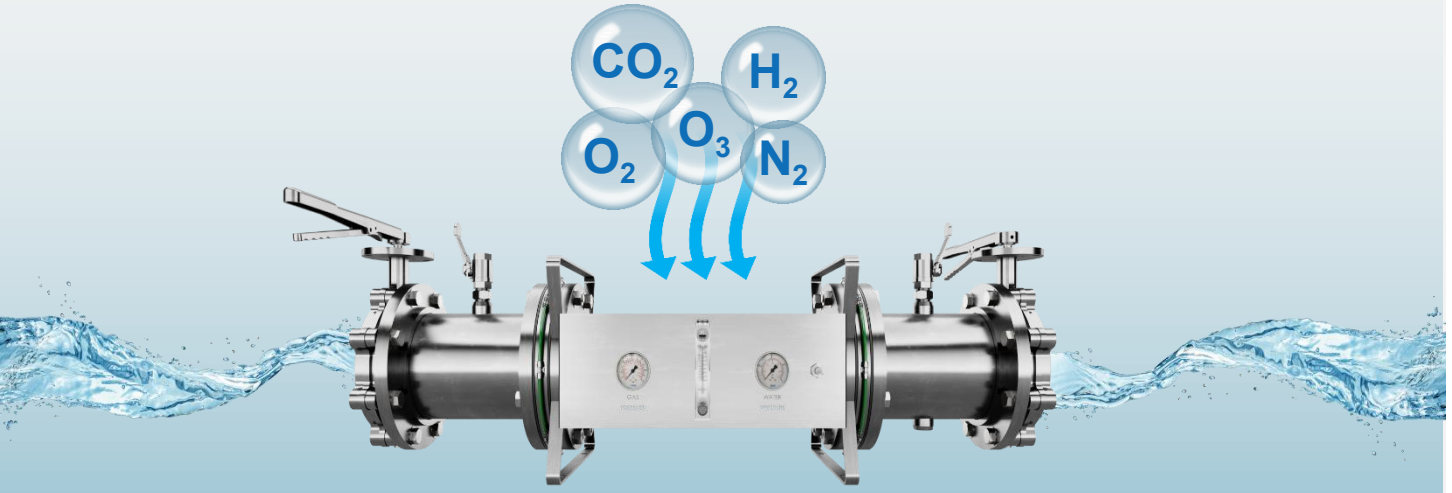
Moleaer's Nanobubble Generator

Best-in-class Oxygen Transfer Efficiency | Scalable, Versatile Easy-to-Install Technology



Moleaer's patented technology introduces two forms of gas into water: **Dissolved and Nanobubbles**

Dissolved Oxygen

Dissolved Oxygen = amount of oxygen in water.

Moleaer's technology **dissolves oxygen** with best-in-class efficiency in any depth.

Nanobubbles

Charged gas nanoparticles, 1/1000th thickness of hair.

They do not rise, **do not easily dissolve**, improve gas stability, and catalyze physical, biological, and chemical reactions.

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Case Studies

Satellite Beach, Florida

Better Muck Reduction Over Control

About the Waterbody

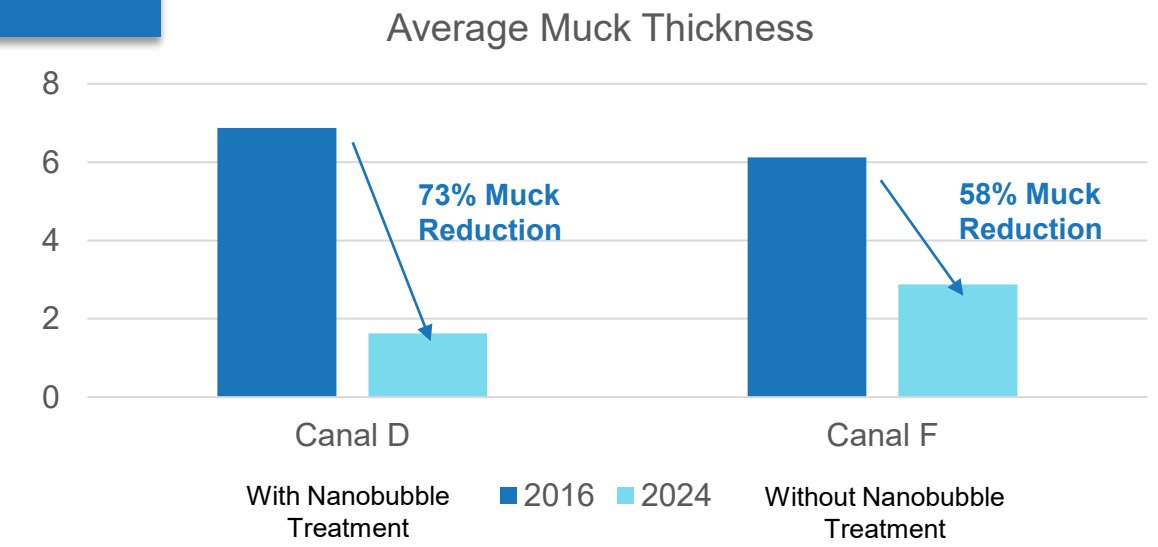
- Surface Area: 1.5 acres (0.6 ha)
- Brackish water

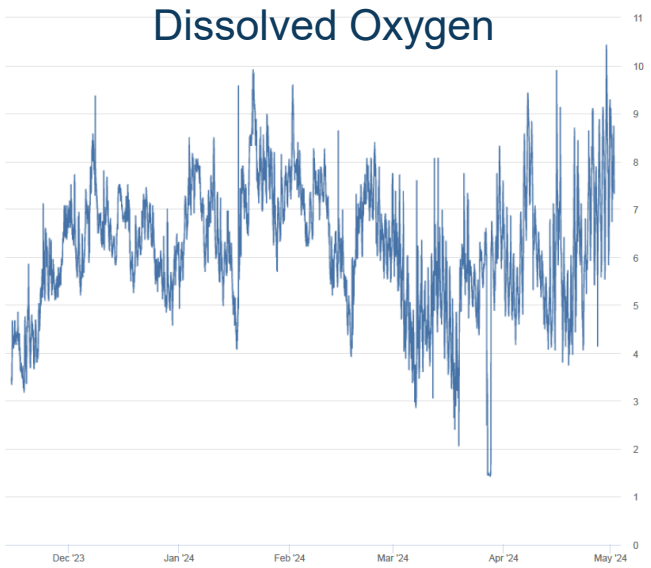
Challenges

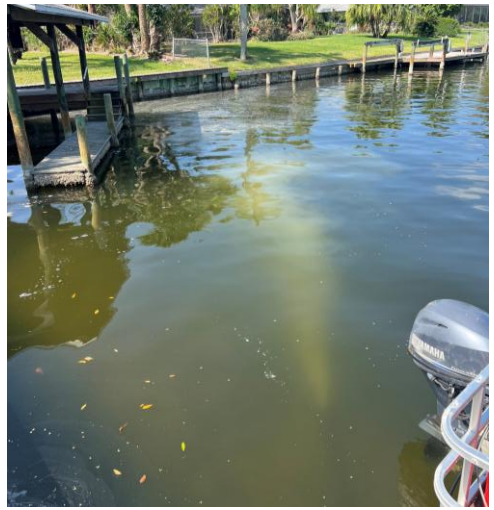
- Thick muck
- Poor water quality

Results: Clear 150 nanobubble generator

- Average 73% reduction in muck in the pilot canal, a 15% improvement over the control
- Elevated dissolved oxygen in the water column and at the sediment-water interface







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Private Golf Club, Florida

Algae Control on the 19th Hole

About the Waterbody

- 2.87 acres (1.2 ha)
- 14.35-acre feet (17,700 m^3)

Challenges

- Excessive algae in golf course ponds
- Foul odors

Results: Clear 150 & Kingfisher nanobubble generators

- Reduced algae growth
- Improved water clarity
- Eliminated foul odors

"Nanobubble technology is a sustainable and chemical-free tool for lake managers to utilize to restore lake health for our clients. By getting at the root cause of common lake issues, we can naturally improve water quality, allowing our clients to enjoy their lakes and ponds once again."

- Rick Anderson, the owner of Aquatic Balance

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Lake Elsinore, California

From Closure to Clarity

About the Waterbody

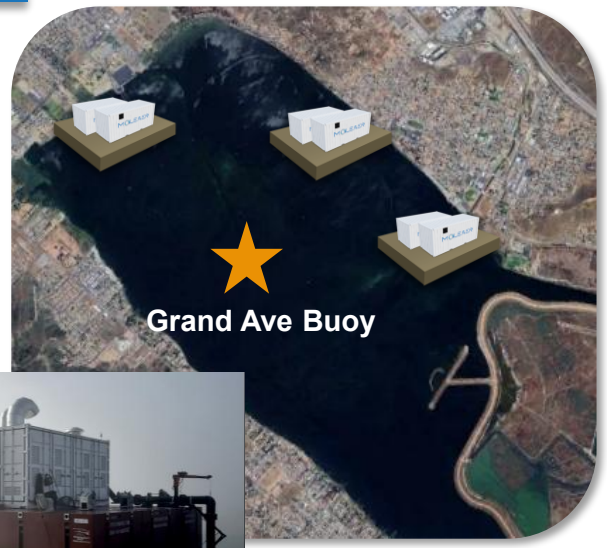
- Surface Area: 3,311 acres (1334 ha)
- Max Depth: 24 ft (7.3 m)
- Volume: 30K acre-feet (37 million m^3)
- Receives 6.5M GPD (24k m^3) of treated effluent

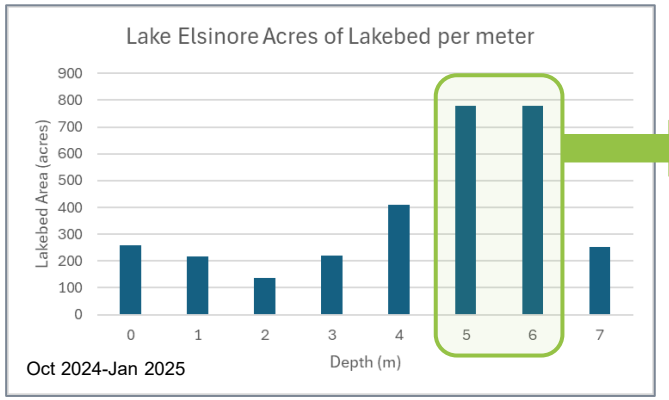
Challenges

- Recurrent lake closures due to HABs
- Poor clarity & high nutrient loading
- Economic impacts for community
- Inefficient, outdated aeration system

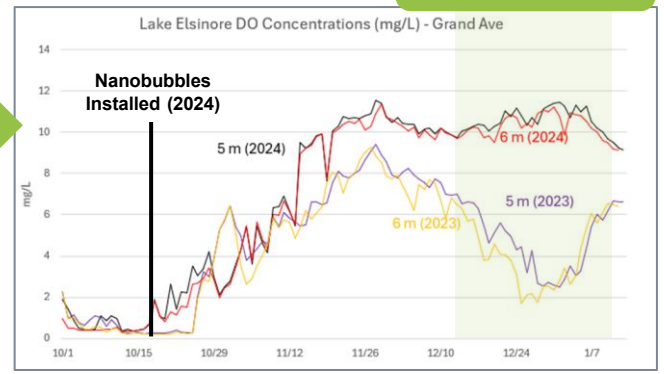
Results: (1) 2,400 GPM (545 m^3/hr) & (2) 4,500 GPM (1022 m^3/hr) Nanobubble Barges

- Significant reduction (50-90%) in early-season cyanobacteria levels
- Up to 7,000% reduction in turbidity (highest water clarity reported in 2 Years)
- Elevated DO sustained at critical depth, > 2,000 meters from nearest nanobubble unit





Seasonal DO decline did not occur with NBs



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MOLEAER
ADVANCING NANOBUBBLE TECHNOLOGY

Tadd Lake, Minnesota

Pilot: Major Improvements Compared to Control

About the Waterbody

- Surface Area: 10 acres (4 ha)
- Max Depth: 8 ft (2.4 m)
- Volume: 50-acre-feet (61,714 m^3)
- Terminal lake, connected to Upper Lake (surface area: 25 acres (0.1 km^2)

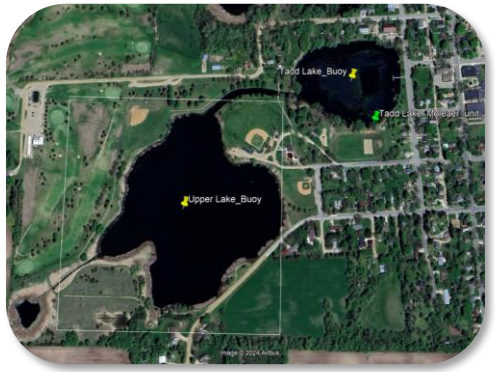
Challenges

- Poor water clarity
- Excess algae growth and odor issues
- Invasive aquatic plant proliferation
- Unable to use recreationally
- Legacy poor water quality issues

Results: 1,000 GPM (227 m^3/hr) Trailer

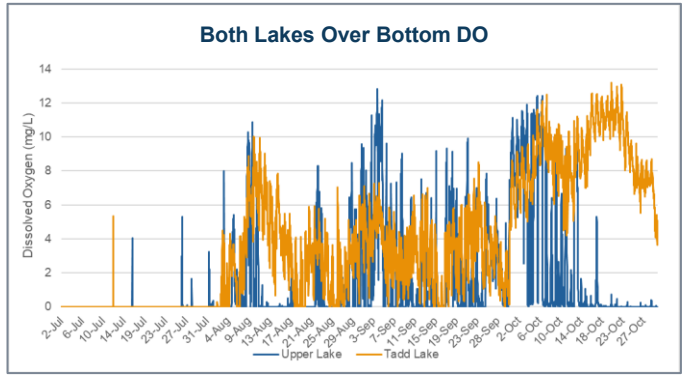
Compared to Control Lake:

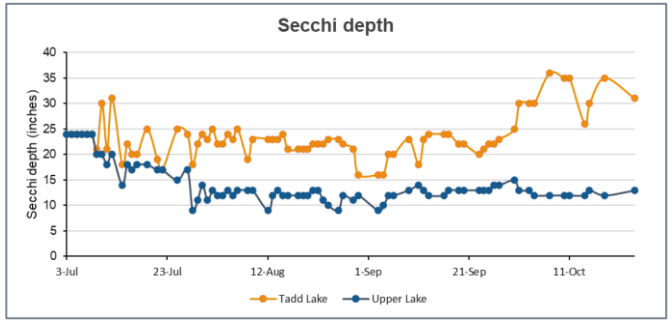
- > 2x clearer
- 2x higher over bottom DO
- ~ 4x lower orthophosphate levels
- > 4x less total algae loads



Nanobubble Pilot:

- July 2 – Oct 24, 2024
- Upper Lake: Control site





	> 3 mg/L (fish struggle)	> 1 mg/L (fish die)
Tadd	65%	88%
Upper	25%	25%

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Lake Arrowhead, Wisconsin

Pilot Marina Shows Remarkable Results in 75 Days

About the Waterbody

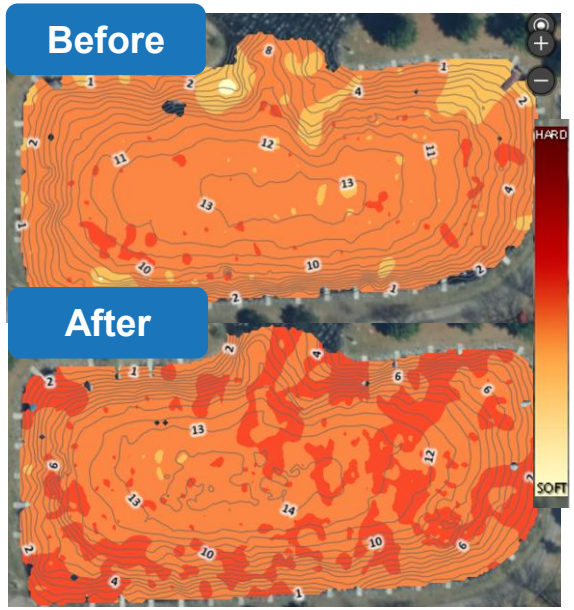
- Marina Surface Area: 2 acres (0.8 ha)
- Lake Surface Area: 300 acres (121 ha)
- Flowing Lake System: 900 acres (364 ha)

Challenges

- Excessive algae and very poor water clarity
- High muck accumulation
- Stagnant area of lake with poor circulation
- Legacy poor water quality issues

Results: 1000 GPM (227 m^3/hr) Trailer

- DO levels were 50% higher than control
- Increased depth by 1’ (30 cm)
- Water clarity improved by 2-3’ (61-91 cm)



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Hartbeespoort Dam, South Africa

Success in South African Dam Spurs Community

About the Waterbody

- Surface Area: >2,000 ha
- Max Depth: 30 m (84 ft)
- Average Depth: 9.8 m (65 ft)
- Volume: 192,800,000 m^3 (51B gal)
- Ret Time: 6 mo to 1 yr

Challenges

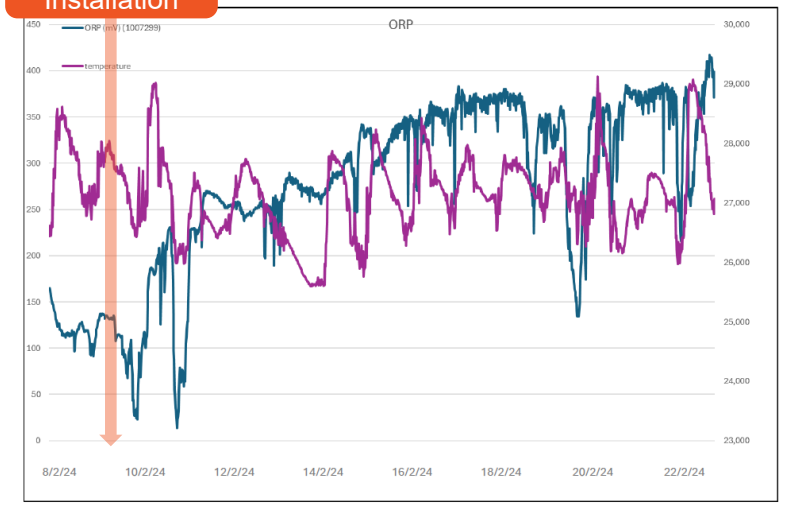
- Poor water clarity and legacy of poor quality
- Excessive algae growth
- Invasive aquatic plant proliferation
- Unable to use recreationally
- Odor issues

Results: 2,400 GPM (550 m^3/hr) Trailer

- Nutrient reduction (Ammonium, Orthophosphate)
- COD increase
- Significant bottom muck digestion in treatment zone
- Reduced nutrient flux in treatment zone and outfall
- Improved resilience against incoming nutrient load
- Cyanobacteria, Microcystin & *E. coli* reductions in treatment area & outfall

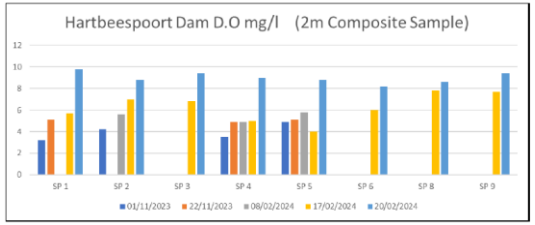
Nanobubble Installation

ORP

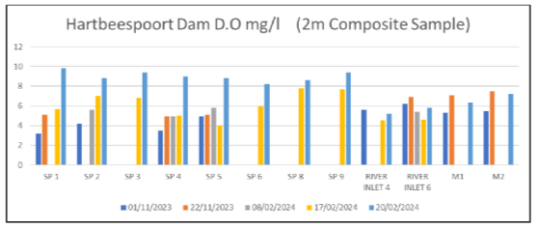


Dissolved Oxygen

Pilot Zone



Monitoring Zone



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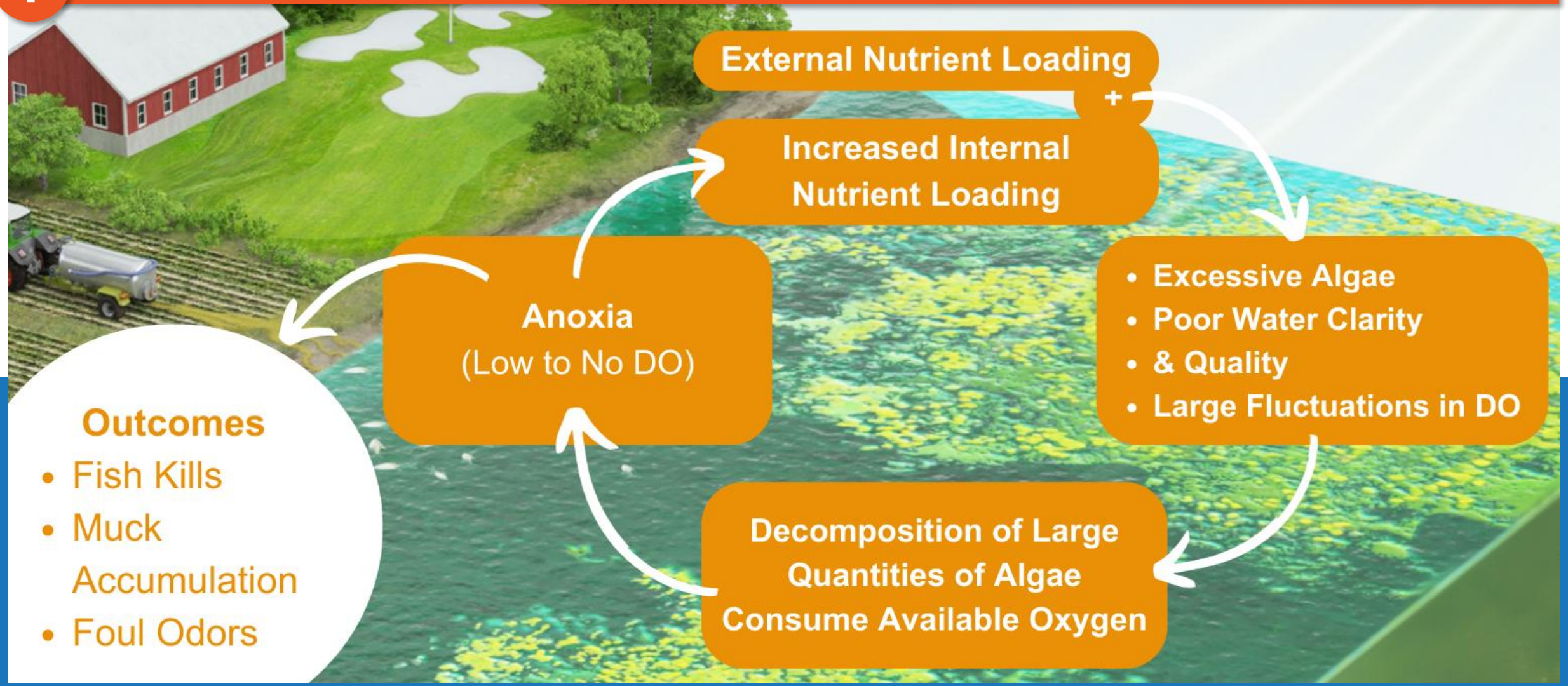
The Problem: Nutrient Loading & Anoxia Fuel Waterbody Impairment

50% of Waterbodies Globally are Impaired, Impacting Communities & Aquatic Ecology



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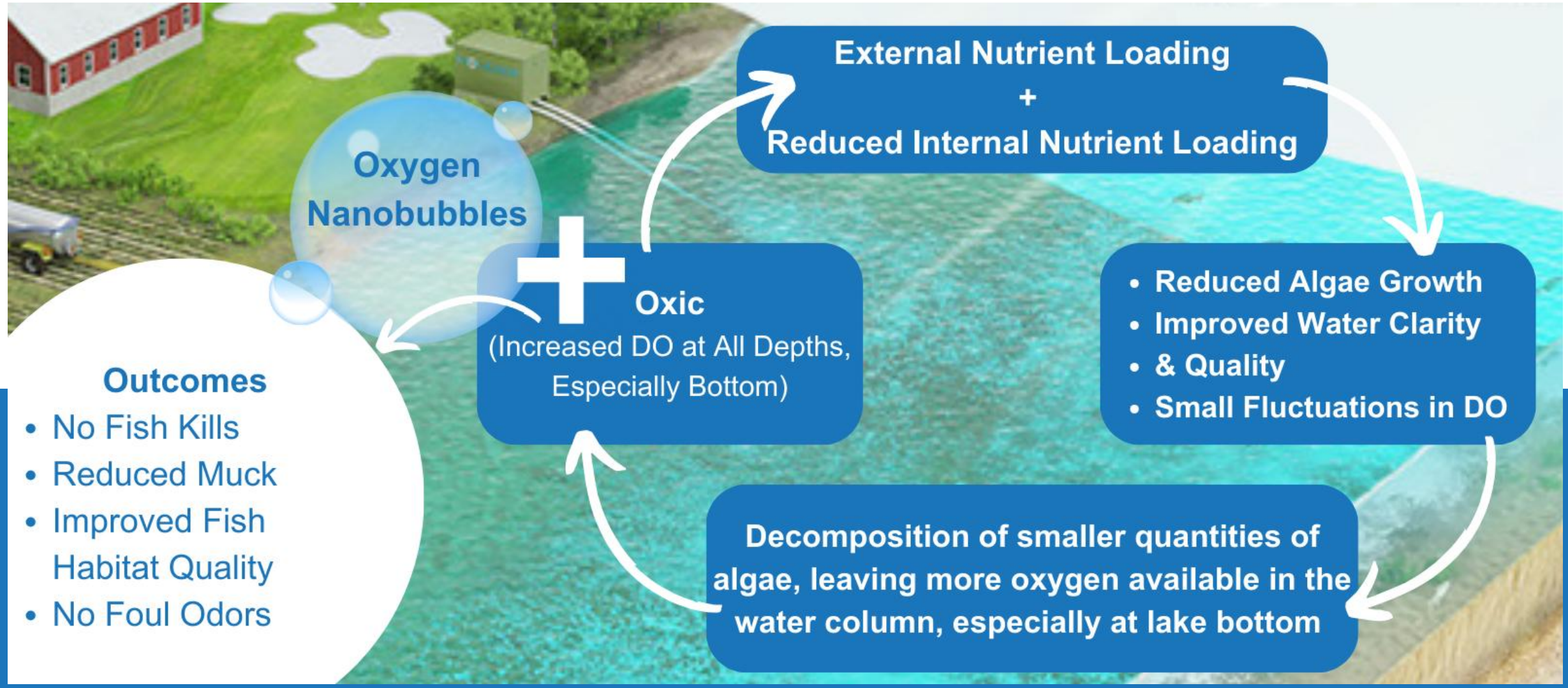
The Solution: Moleaer Nanobubble Treatment Enhances Oxic Conditions & Increases Resiliency to Restore Waterbodies



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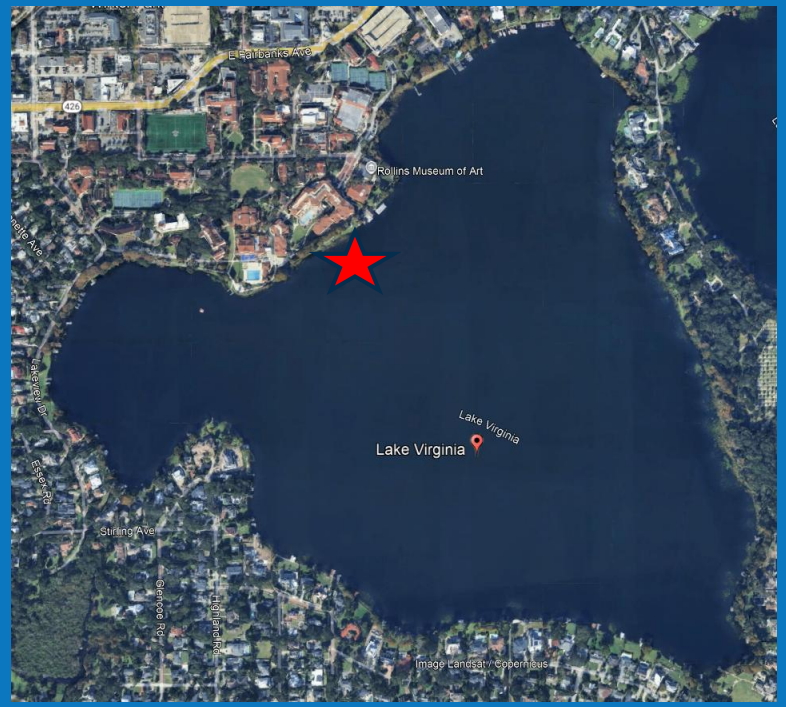
Your Waterbody: Lake Virginia, Winter Park, FL

Challenges

- HAB proliferation due to excessive nutrients
- Run off in watershed contributing to external nutrient loading
- Highly flocculant organic sediments
- Declining water clarity

Details

Surface Area: 223 acres
Volume: ~2,555 AF
Average Depth: ~ 11 ft
Max Depth: ~23 ft



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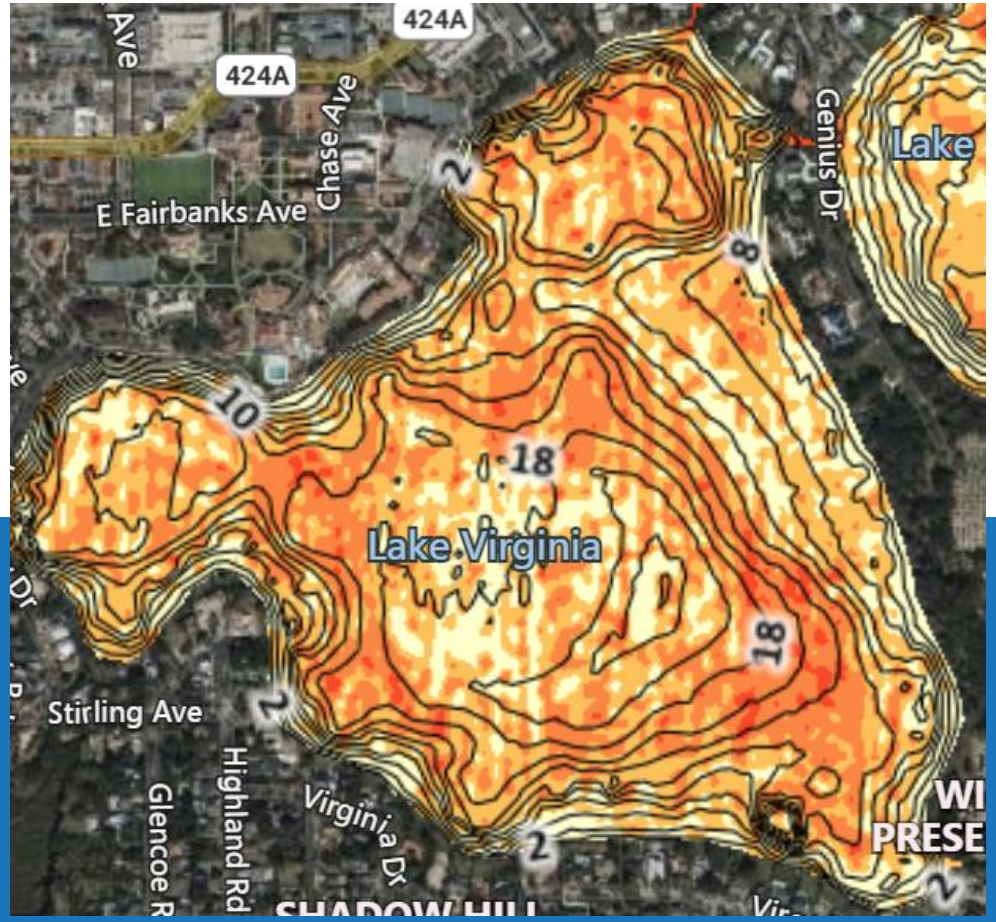
Your Waterbody: Lake Virginia, Winter Park, FL

Sediment Hardness Map



Bathymetry Map

Image from Genesismaps.com

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Your Waterbody: Lake Virginia, Winter Park, FL

Moleaer O2 O3 Treatment Goals

1. Less muck
2. Reduce algae and internal nutrient loading
3. Improve resiliency
4. Reduce bacteria levels

Success Indicators

- ✓ Reduced muck thickness
- ✓ Reduced algae and internal nutrient loading
- ✓ Increased ORP
- ✓ Reduced bacteria levels

Image : April 8, 2025

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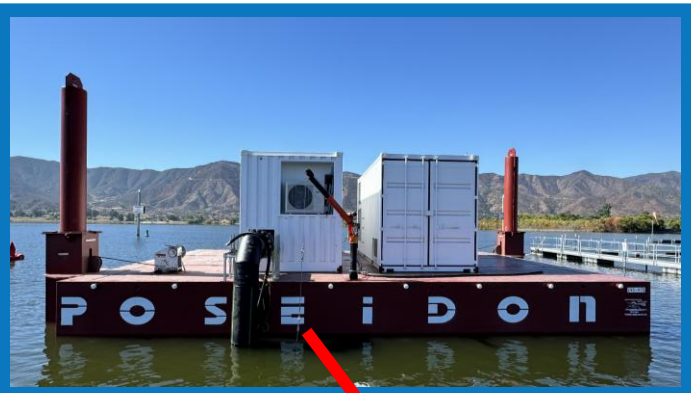
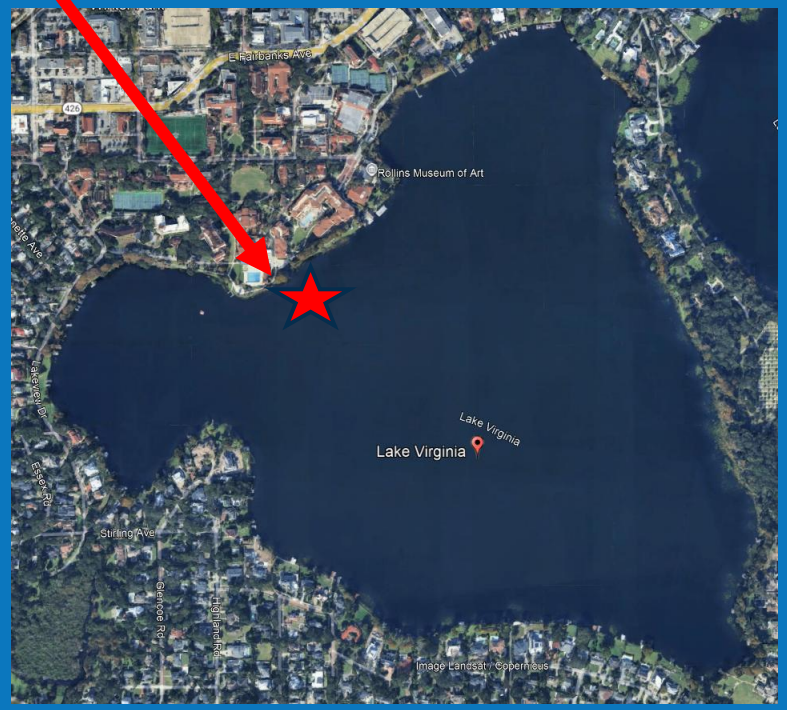
Proposed Installation Location: Lake Virginia, Winter Park, FL

Rollins College

1. Location with likely 3ph 460V power supply
2. Outside of in/out flow
3. Ability to influence large area from single treatment point





Installation details

- ✓ Barge mounted containerized O2 O3 NB System
- ✓ Intake and discharge pipes mounted to barge and do not extend out or interfere with recreational use of waterbody
- ✓ Fast and simple installation and deployment from boat ramp

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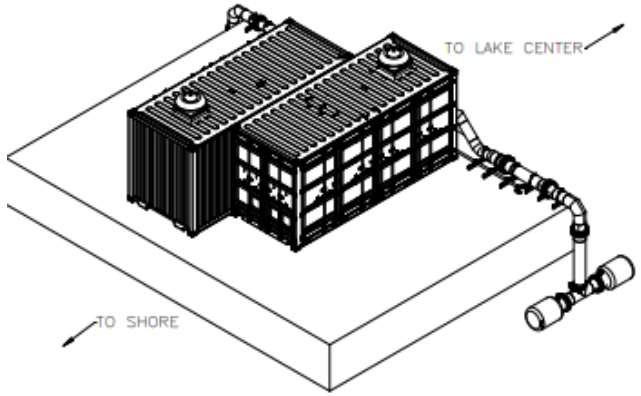
Lake Virginia, Winter Park: Nanobubble System & Installation Location

NB System

- Barge-mounted Moleaer O2 O3 nanobubble generator system
- (2) 20’ sea containers with HVAC

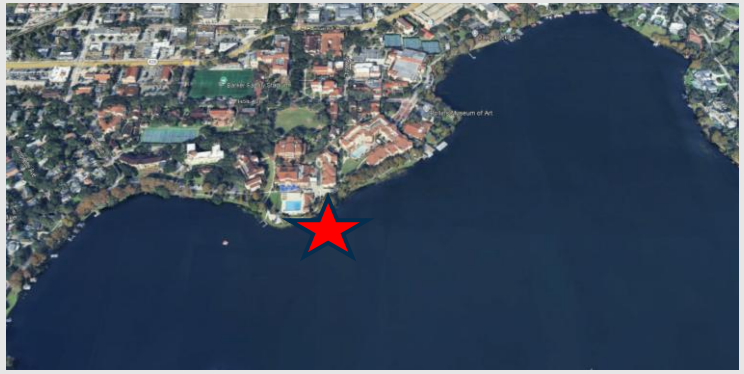
NB System Specifications



- System capable of up to:
  - 4,500 GPM
  - 108 lbs of O_2/hr
  - 1000g of O_3/hr (*up to 2 mg/L)

*In the process stream. Zero detectable O3 in waterbody.

Installation Location



- Barge to be located just off shore
- Location is lakeside near McKean Hall

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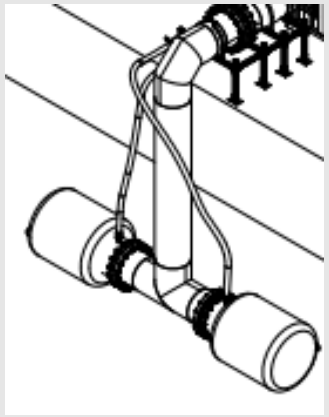
Lake Virginia, Winter Park, FL: Installation Pics

Simple Installation

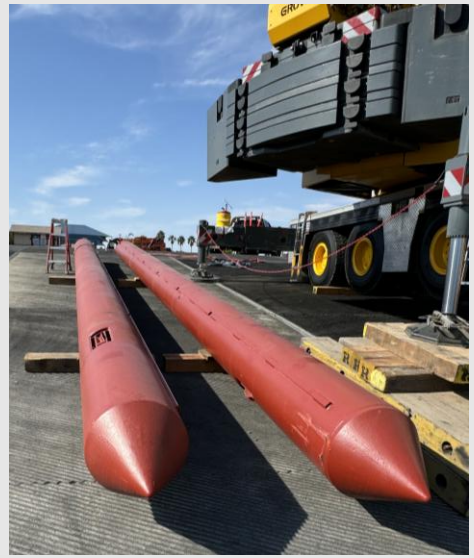
- Crane to be used to offload containers and barge at boat ramp

Intake Screen



- NOAA compliant active intake screen

Spud securement



- Spuds keep barge firmly in place, allow for changing water levels and keeps secure in inclement weather

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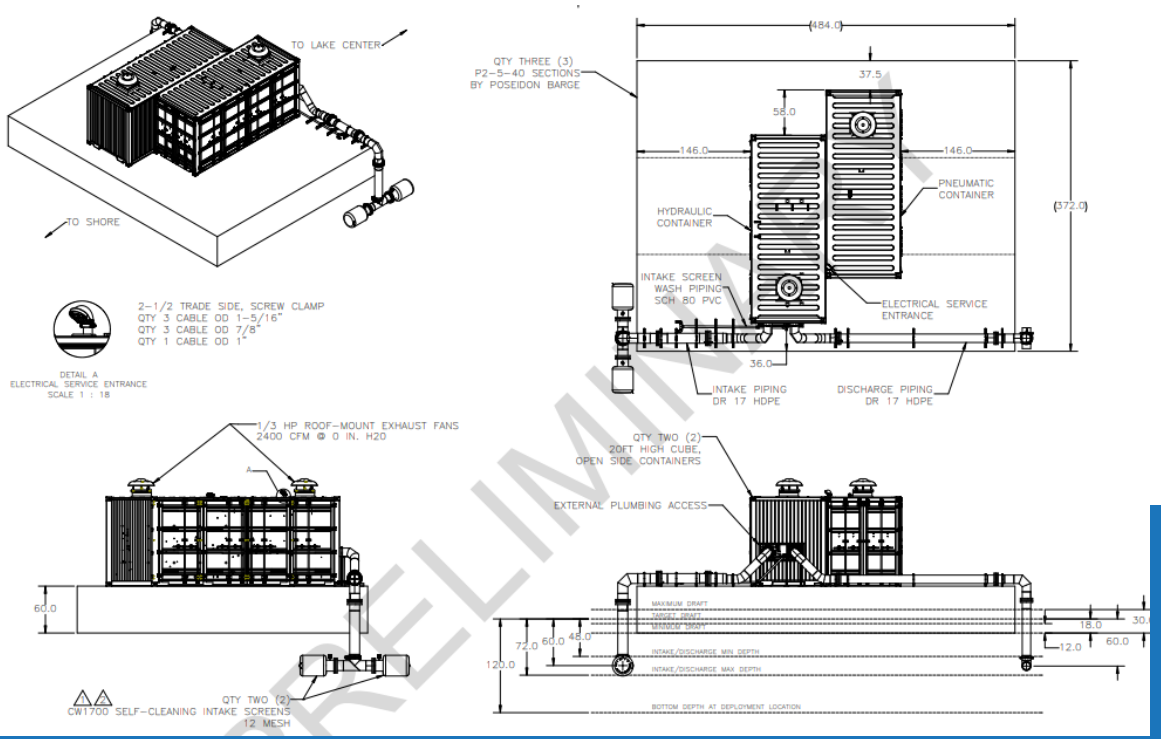
Nanobubble Treatment Strategy: Lake Virginia, Winter Park, FL

- Utilize O2 O3 nanobubbles to meet and reduce the internal oxygen demand to stop nutrient flux, improve water clarity, balance food web and mitigate harmful algae blooms
- Install barge mounted industrial grade nanobubble system with oxygen concentration and ozone generation system that requires no external consumables, except electricity
- Highly flexible system design to optimize (turn up/down, on/off) to meet changing needs and maximize efficiency
- System is sized to meet the sediment and hypolimnetic oxygen demand and also turn the volume in primary treatment area every days



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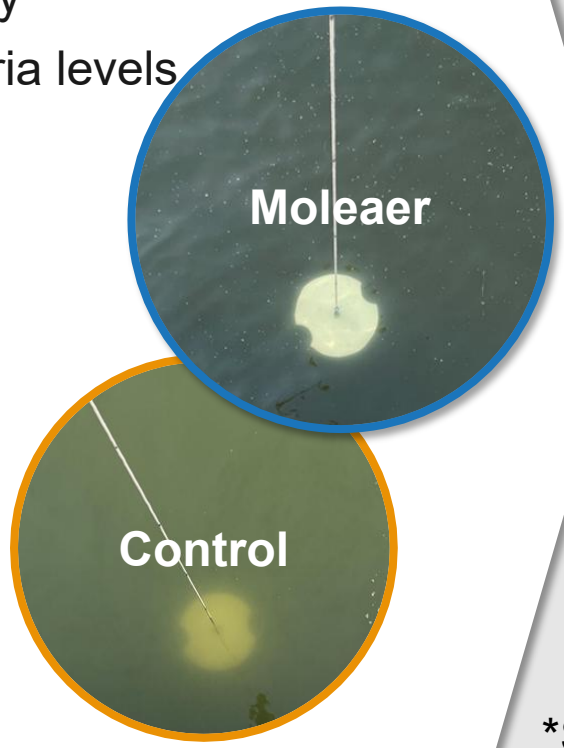
Goals: What You Can Expect from Moleaer Nanobubble Treatment

Short-Term (Within 1-2 months*)

- Improved DO and ORP levels
- Improved water clarity
- Reduced fecal bacteria levels



After 3-4 months*

- Reduction in Blue-Green Algae Loads
- Reduction or Elimination of Anoxic Conditions at Sediment Water Interface
- Maintained or Increased ORP Values Throughout the Water Column
- Reduction of Accumulated Organic Sediment
- Notable Reduction in Nuisance Nutrient Release from Sediment
- Significantly Reduced Total Coliform Levels

*Subject to site conditions

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How We Measure Success: Your Monitoring Plan

Moleaer Staff Taking Water Quality Samples

Customized Monitoring Plans to Track Progress

Up to 30 parameters measured using:

- Real-time water quality sensors
- Vertical profiling
- Depth discrete water and sediment grab samples
- BioBase® Sediment hardness mapping

To track changes in:

- Water and sediment chemistry
- Biology (phytoplankton and zooplankton speciation and enumeration)
- Muck depth and spatial extent

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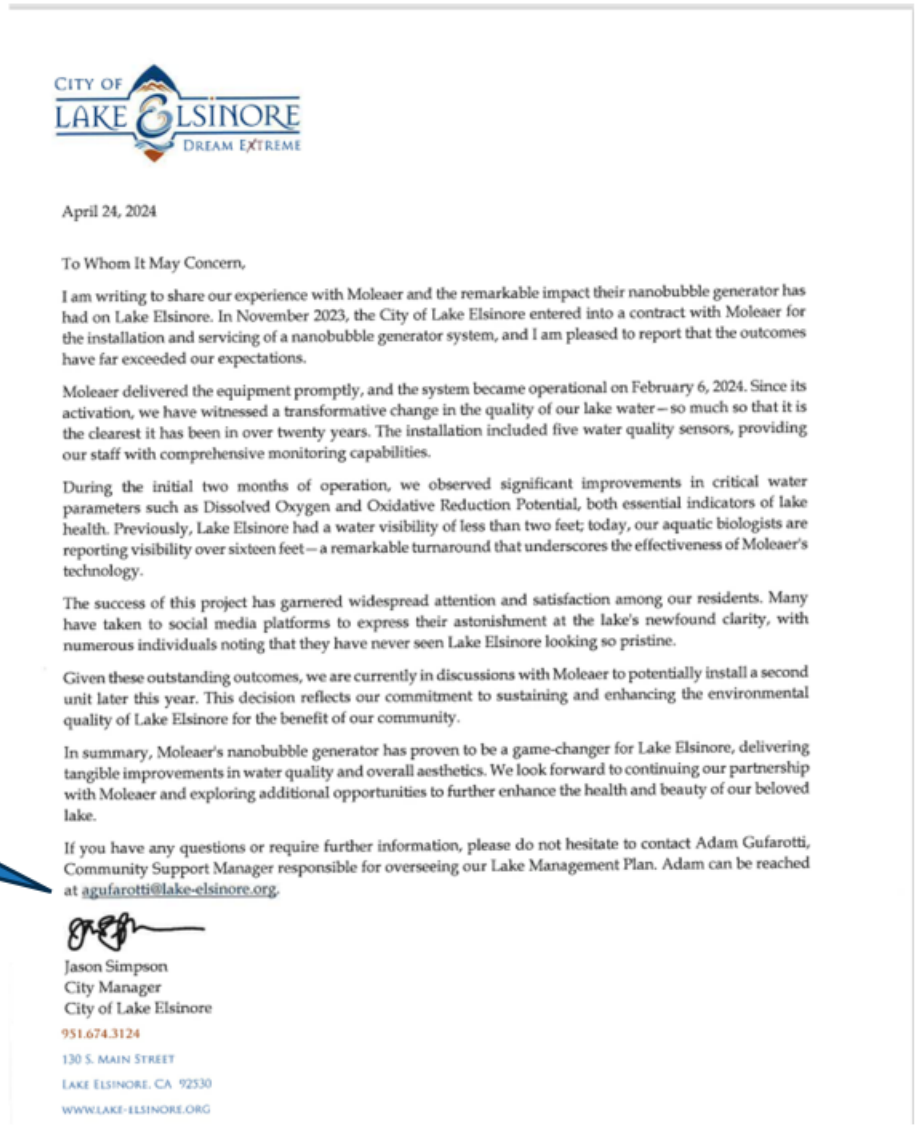
Moleaer Letter of Recommendation

Large Water Body

- **City of Lake Elsinore**

"In summary, Moleaer's nanobubble generator has proven to be a game changer for Lake Elsinore, delivering tangible improvements in water quality and overall aesthetics"



CITY OF LAKE ELSINORE
DREAM EXTREME

April 24, 2024

To Whom It May Concern,

I am writing to share our experience with Moleaer and the remarkable impact their nanobubble generator has had on Lake Elsinore. In November 2023, the City of Lake Elsinore entered into a contract with Moleaer for the installation and servicing of a nanobubble generator system, and I am pleased to report that the outcomes have far exceeded our expectations.

Moleaer delivered the equipment promptly, and the system became operational on February 6, 2024. Since its activation, we have witnessed a transformative change in the quality of our lake water—so much so that it is the clearest it has been in over twenty years. The installation included five water quality sensors, providing our staff with comprehensive monitoring capabilities.

During the initial two months of operation, we observed significant improvements in critical water parameters such as Dissolved Oxygen and Oxidative Reduction Potential, both essential indicators of lake health. Previously, Lake Elsinore had a water visibility of less than two feet; today, our aquatic biologists are reporting visibility over sixteen feet—a remarkable turnaround that underscores the effectiveness of Moleaer's technology.

The success of this project has garnered widespread attention and satisfaction among our residents. Many have taken to social media platforms to express their astonishment at the lake's newfound clarity, with numerous individuals noting that they have never seen Lake Elsinore looking so pristine.

Given these outstanding outcomes, we are currently in discussions with Moleaer to potentially install a second unit later this year. This decision reflects our commitment to sustaining and enhancing the environmental quality of Lake Elsinore for the benefit of our community.

In summary, Moleaer's nanobubble generator has proven to be a game-changer for Lake Elsinore, delivering tangible improvements in water quality and overall aesthetics. We look forward to continuing our partnership with Moleaer and exploring additional opportunities to further enhance the health and beauty of our beloved lake.

If you have any questions or require further information, please do not hesitate to contact Adam Gufarotti, Community Support Manager responsible for overseeing our Lake Management Plan. Adam can be reached at agufarotti@lake-elsinore.org.

Jason Simpson
City Manager
City of Lake Elsinore
951.674.3124
130 S. Main Street
Lake Elsinore, CA 92530
www.lake-elsinore.org

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Sustainable, Proven Solution to Solve Your Challenges

Achieve Your Goals…

Problem:
Lake has degraded water quality, specifically:

- Elevated levels of bacteria
- Muck accumulation
- Internal nutrient loading
- Harmful Algae

Goals:

- Reduce fecal bacteria levels
- Less muck and odor
- Reduce HAB events

Solution:

- Oxygen-ozone NB treatment that will:
  - Reduce fecal bacteria levels by elevating oxidation-reduction potential (ORP) of the waterbody
  - Improve water clarity and safety for recreation
  - Oxygenate the sediment-water interface, reducing nutrient levels, muck, odor, and algae growth

…with the Leader in Nanobubble Technology

- ✓ Largest NB installation and customer base
- ✓ Dedicated surface water specialists and team for your project
- ✓ Largest NB R&D and Application Development teams
- ✓ Backed by science through rigorous independent research

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Thank You!

MOLEAER®

Lakes & Waterways Board

agenda item 6.a

item type
Staff Updates

meeting date
September 9, 2025

prepared by
Victoria Tabor, Administrative Coordinator III

approved by
Victoria Tabor, Administrative Coordinator III

subject
Winter Park Police Department

motion | recommendation

background

alternatives | other considerations

fiscal impact

attachments
None

Lakes & Waterways Board

agenda item 6.b

item type
Staff Updates

meeting date
September 9, 2025

prepared by
Victoria Tabor, Administrative Coordinator III

approved by
Victoria Tabor, Administrative Coordinator III

subject
Lakes Management

motion | recommendation

background

alternatives | other considerations

fiscal impact

attachments
1. Lakes Update 2025.09.09
2. Adaptive Flood Mgmt Guide - AUG 2025

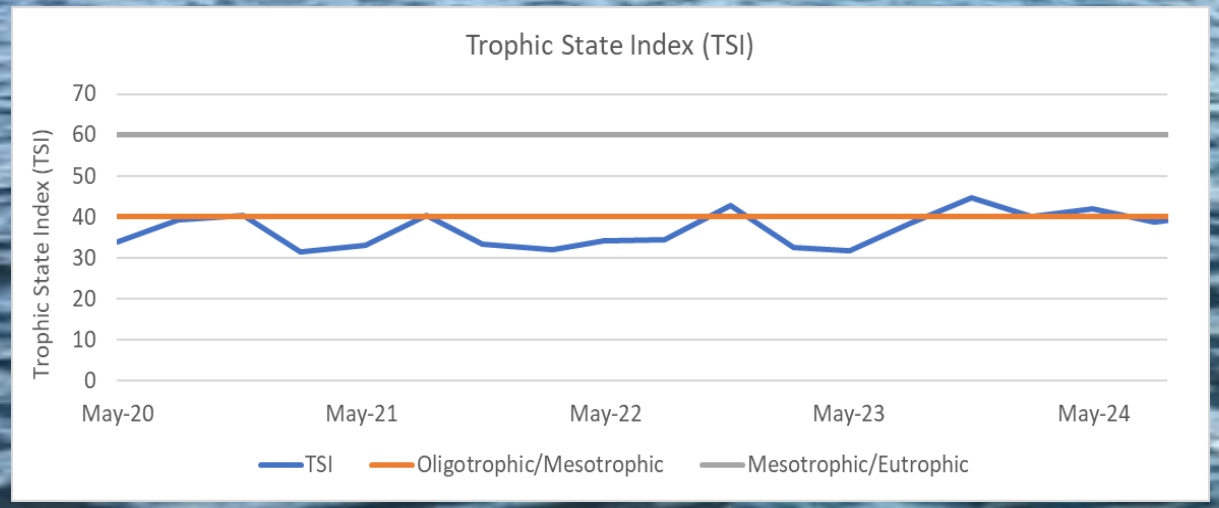
Lakes and Waterways Advisory Board

September 2025

Lakes Updates

- WP Lakes Data Updates
- Aquatic Plant Management Treatment Updates
  - Lake Killarney Canal – Salvinia Treatment
  - Lake Sylvan – Hydrilla Treatment
  - Lake Forrest – Hydrilla Treatment
  - Lake Sue – Pond Weed Treatment
  - Lake Bell – Algae Treatment
  - Small Treatments
  - Mead and Howell Preserve Treatment
- Venetian Canal & Dinky Dock Beach Closure Updates
- Weedoo Operations Update
- Flood Management Guide
- Plant of the Month
- Upcoming Events:
  - Fix It! Don’t Pitch it! – Sept 6th 8am @ Winter Park Community Center
  - Paddleboard Clean-up – Sept 13th 9am @ Kraft Azalea/Lake Maitland
  - Get Hooked – Oct 4th 7am @ MLK

Lake Bell


Trophic State Index (TSI)
Trophic State Index (TSI)
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60
50
40
30
20
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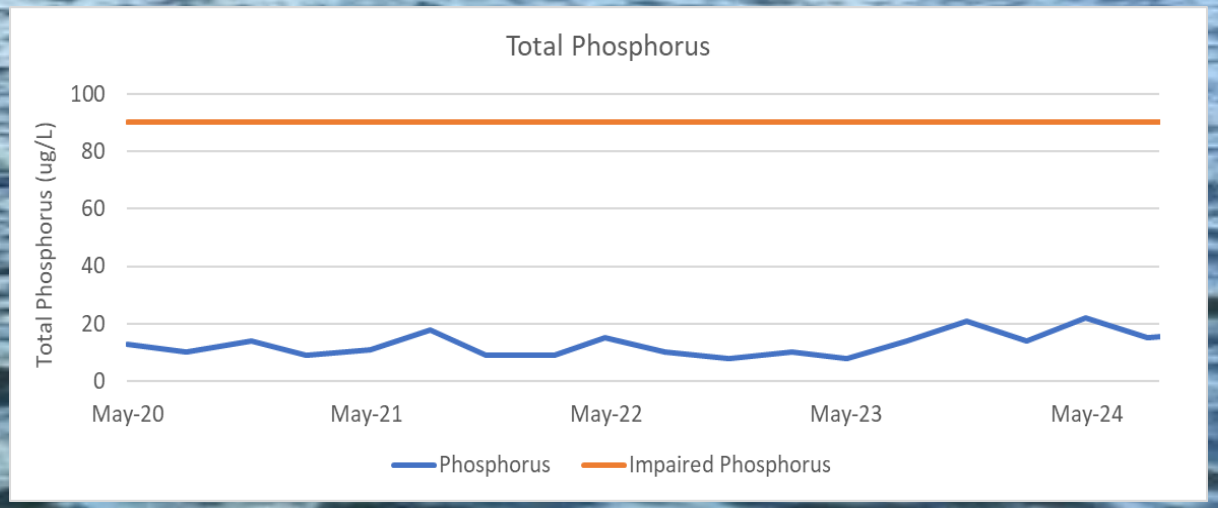
May-20
May-21
May-22
May-23
May-24
TSI
Oligotrophic/Mesotrophic
Mesotrophic/Eutrophic


Total Phosphorus
Total Phosphorus (ug/L)
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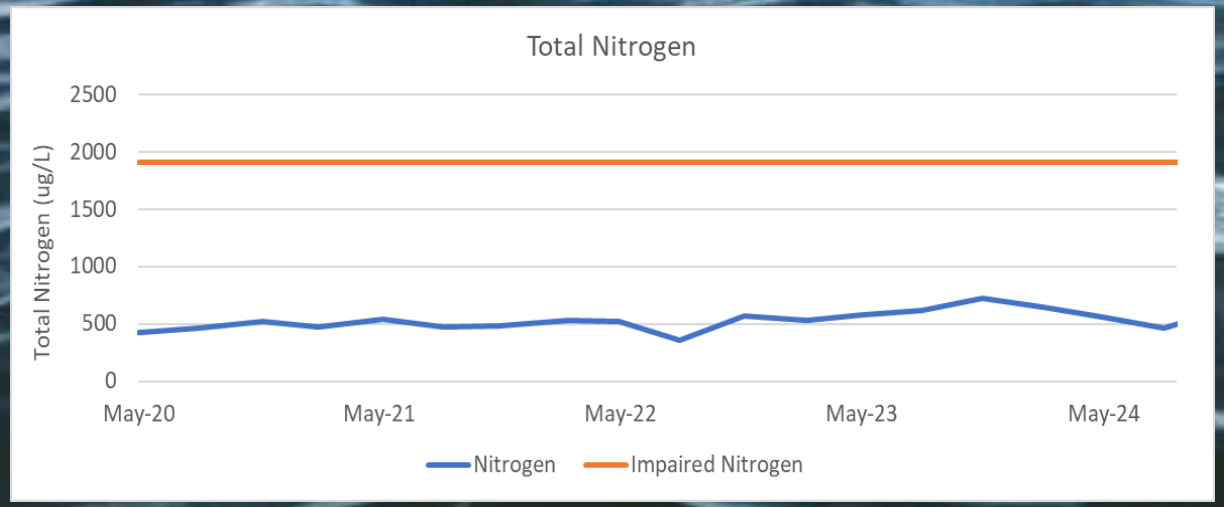
May-20
May-21
May-22
May-23
May-24
Phosphorus
Impaired Phosphorus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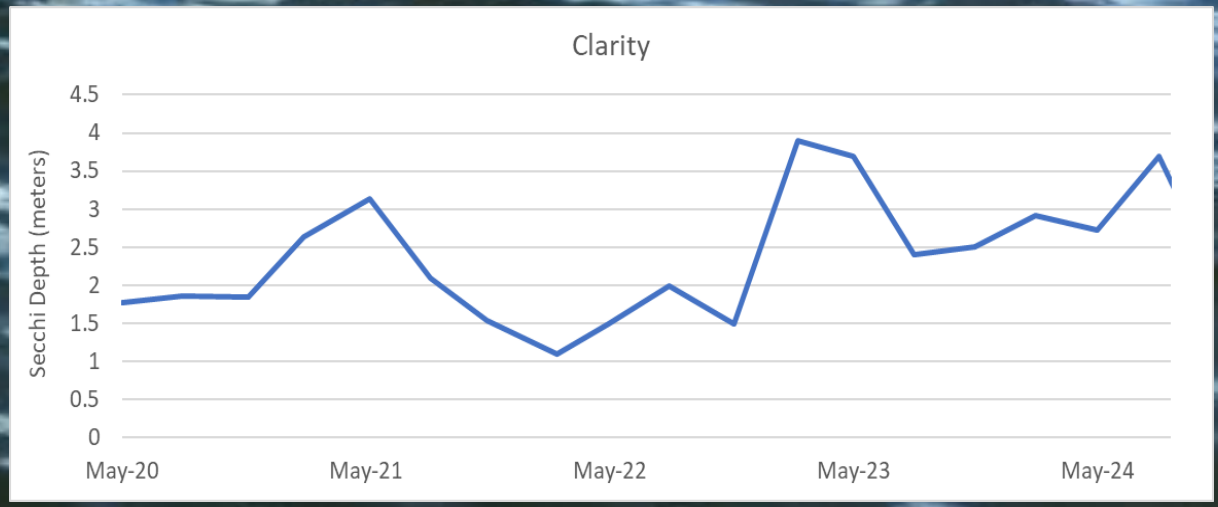
May-21
May-22
May-23
May-24
Nitrogen
Impaired Nitrogen


Clarity
Secchi Depth (meters)
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3.5
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2.5
2
1.5
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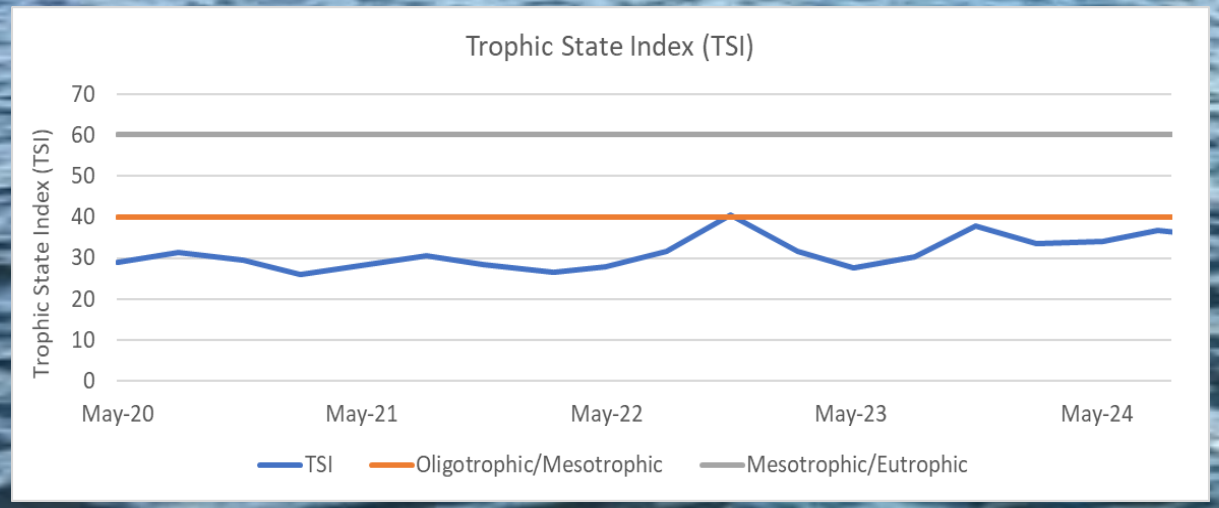
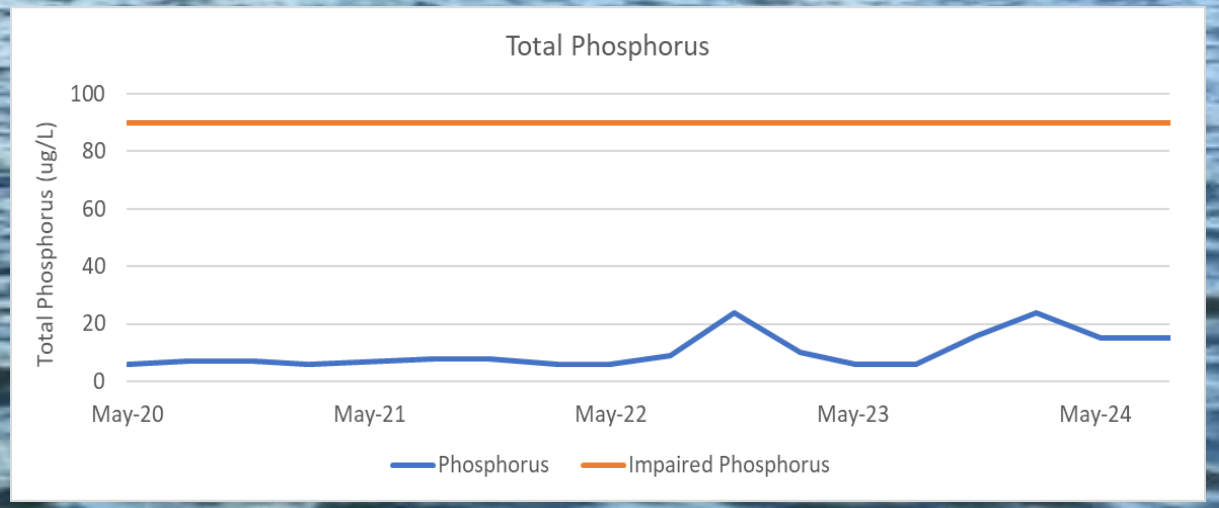
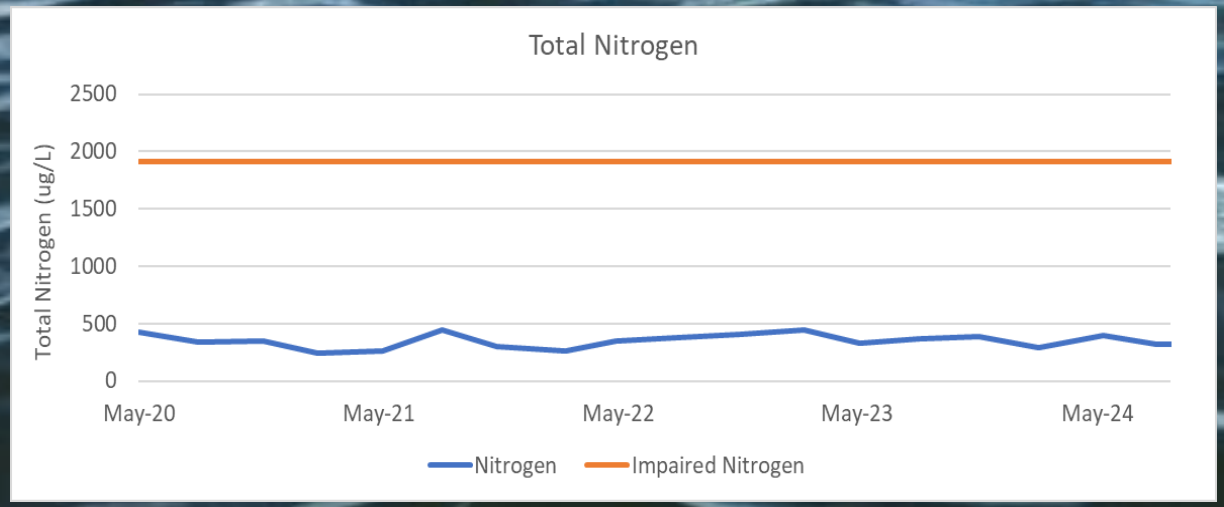
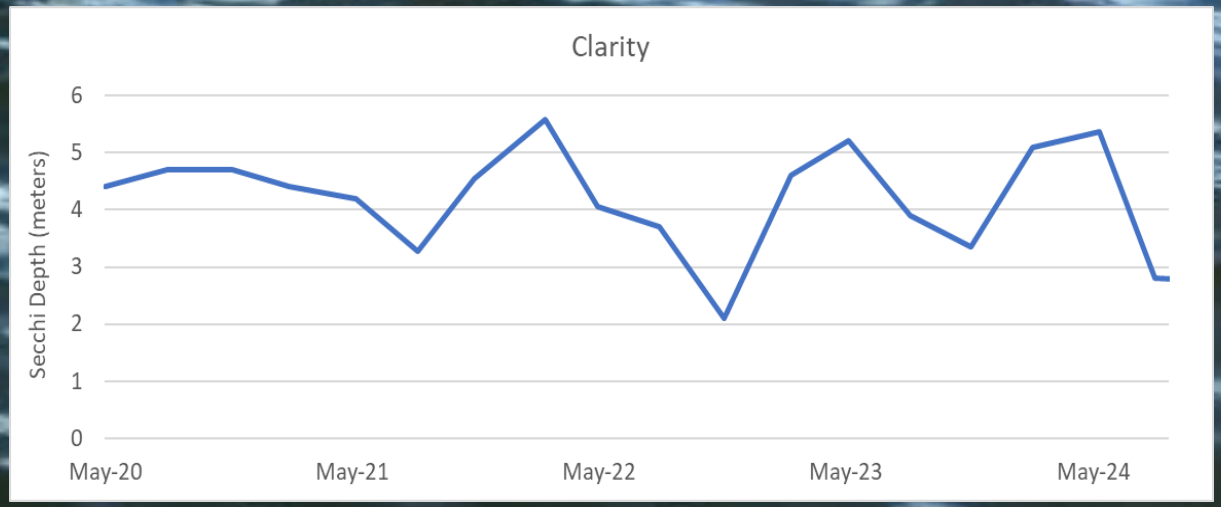
0.5
0
May-20
May-21
May-22
May-23
May-24

Lake Knowles

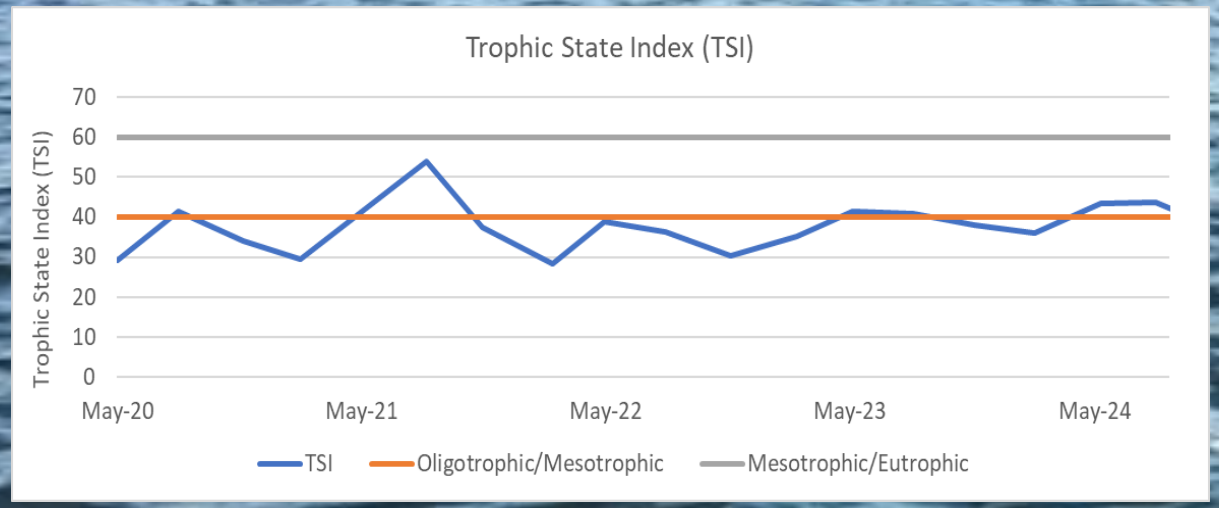


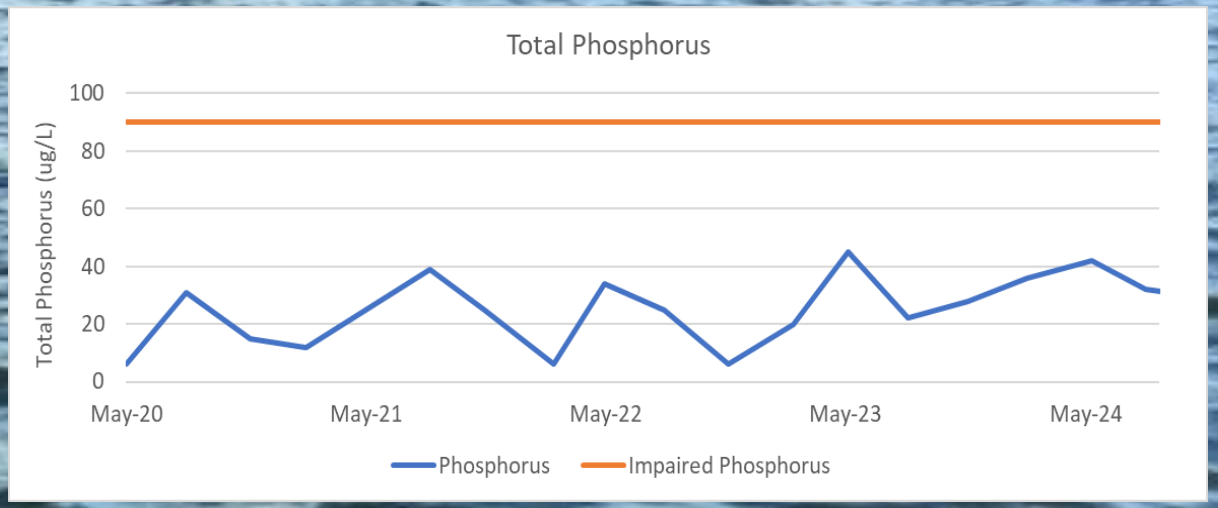


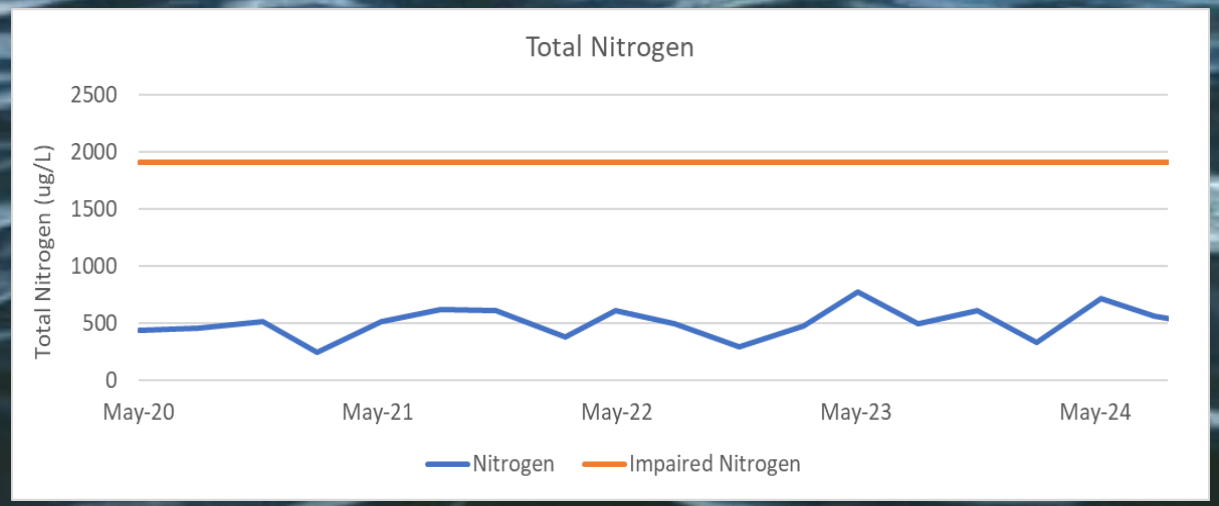


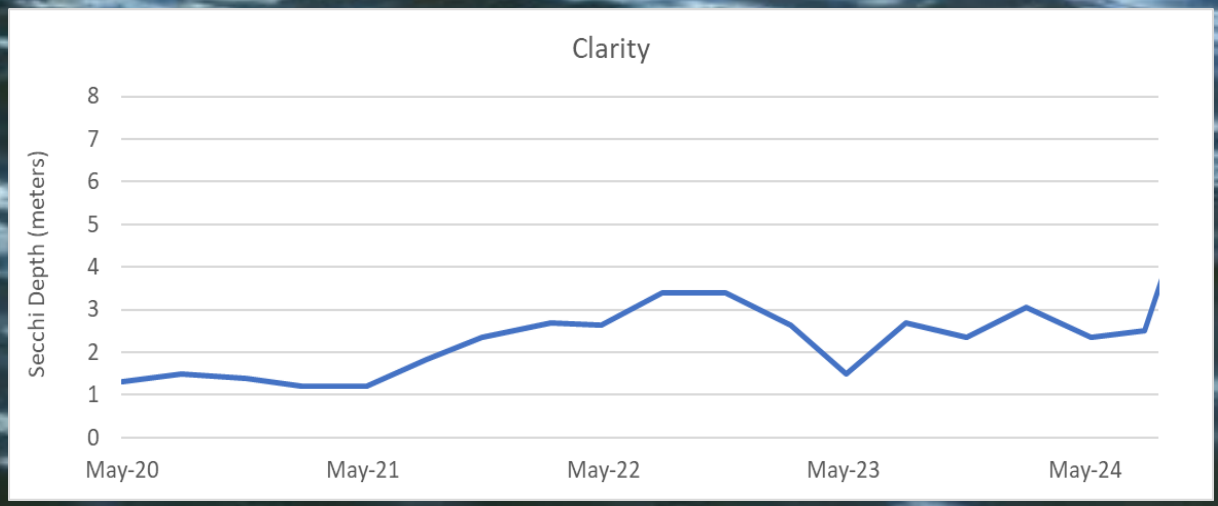


Lake Wilbar

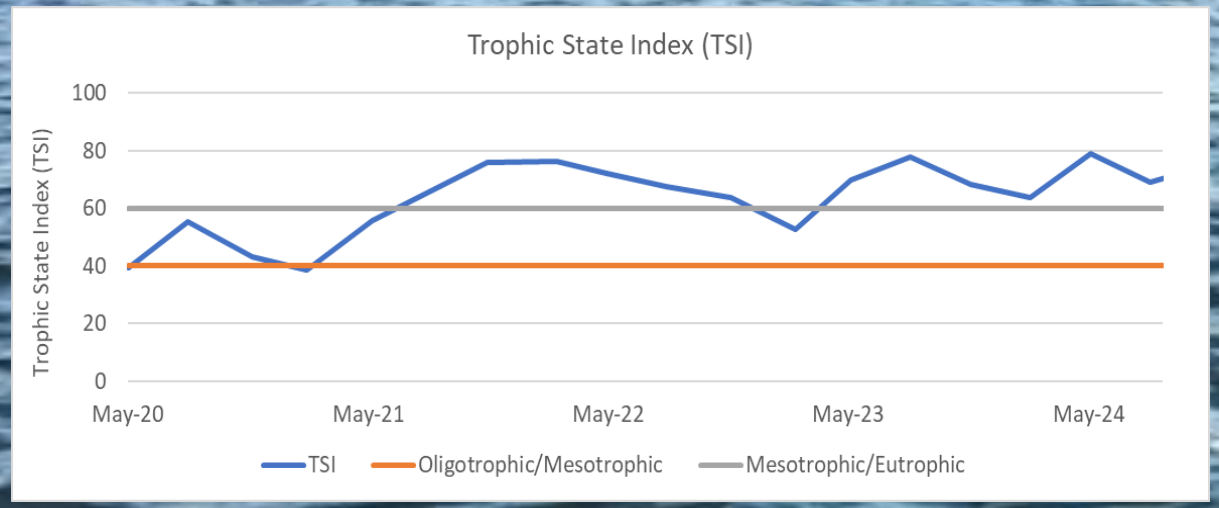

Trophic State Index (TSI)
Trophic State Index (TSI)
70
60
50
40
30
20
10
0
May-20
May-21
May-22
May-23
May-24
TSI
Oligotrophic/Mesotrophic
Mesotrophic/Eutrophic

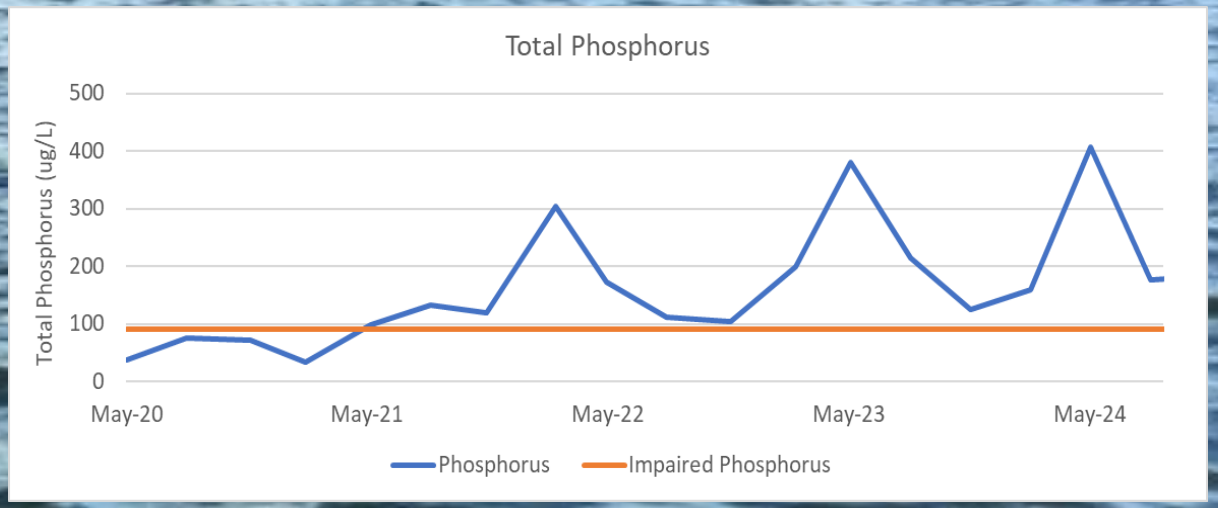

Total Phosphorus
Total Phosphorus (ug/L)
100
80
60
40
20
0
May-20
May-21
May-22
May-23
May-24
Phosphorus
Impaired Phosphorus

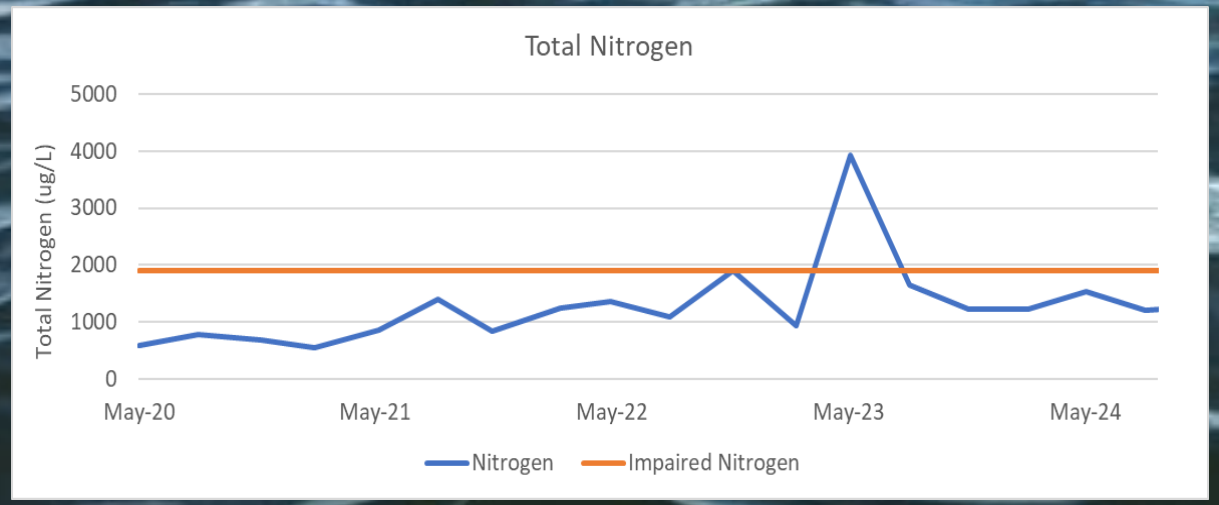

Total Nitrogen
Total Nitrogen (ug/L)
2500
2000
1500
1000
500
0
May-20
May-21
May-22
May-23
May-24
Nitrogen
Impaired Nitrogen

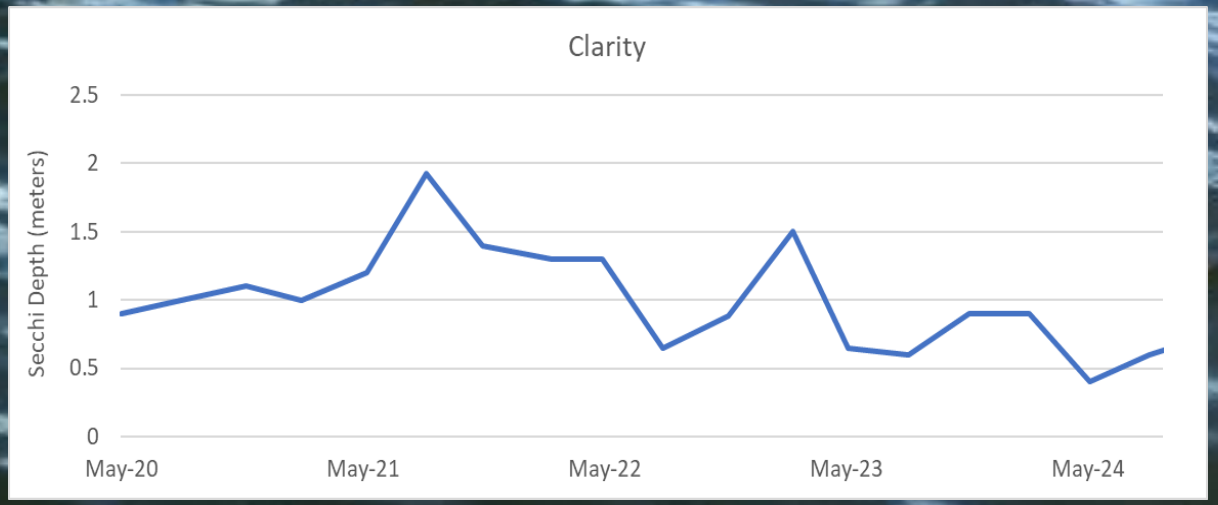

Clarity
Secchi Depth (meters)
8
7
6
5
4
3
2
1
0
May-20
May-21
May-22
May-23
May-24

Lake Midget

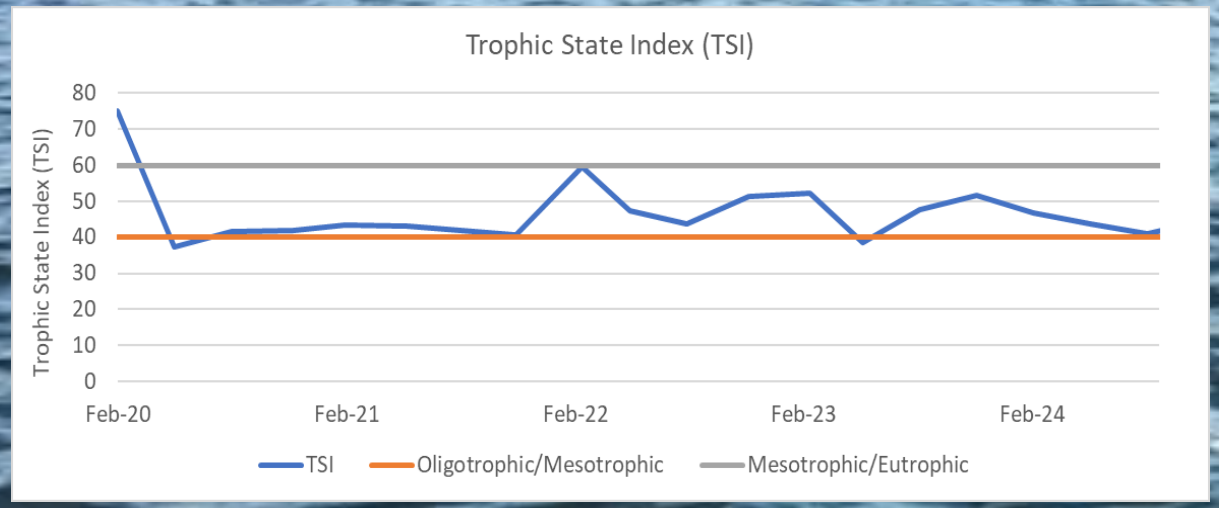

Trophic State Index (TSI)
Trophic State Index (TSI)
100
80
60
40
20
0
May-20
May-21
May-22
May-23
May-24
TSI
Oligotrophic/Mesotrophic
Mesotrophic/Eutrophic

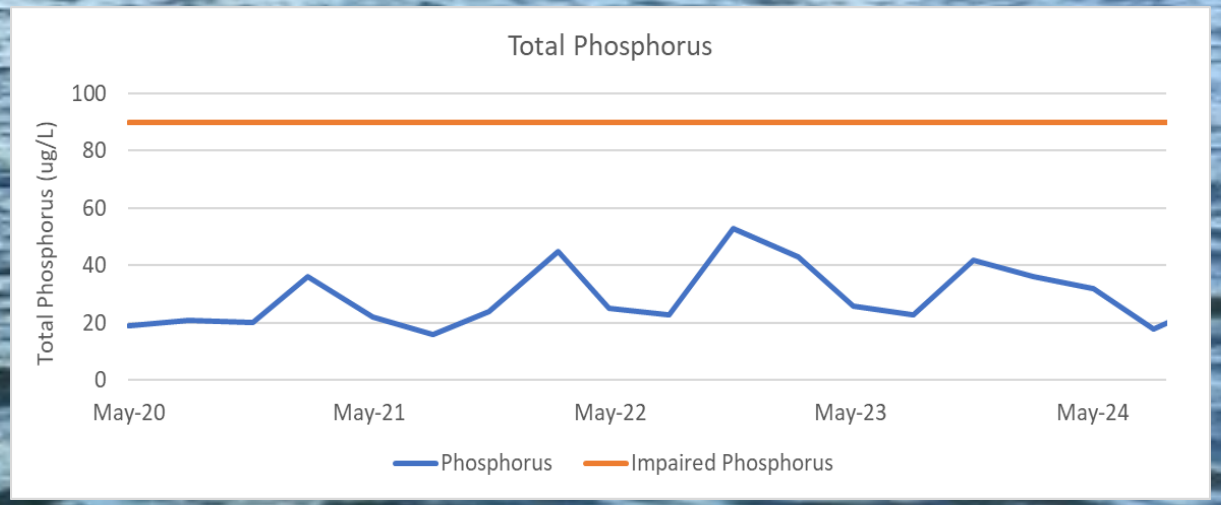

Total Phosphorus
Total Phosphorus (ug/L)
500
400
300
200
100
0
May-20
May-21
May-22
May-23
May-24
Phosphorus
Impaired Phosphorus

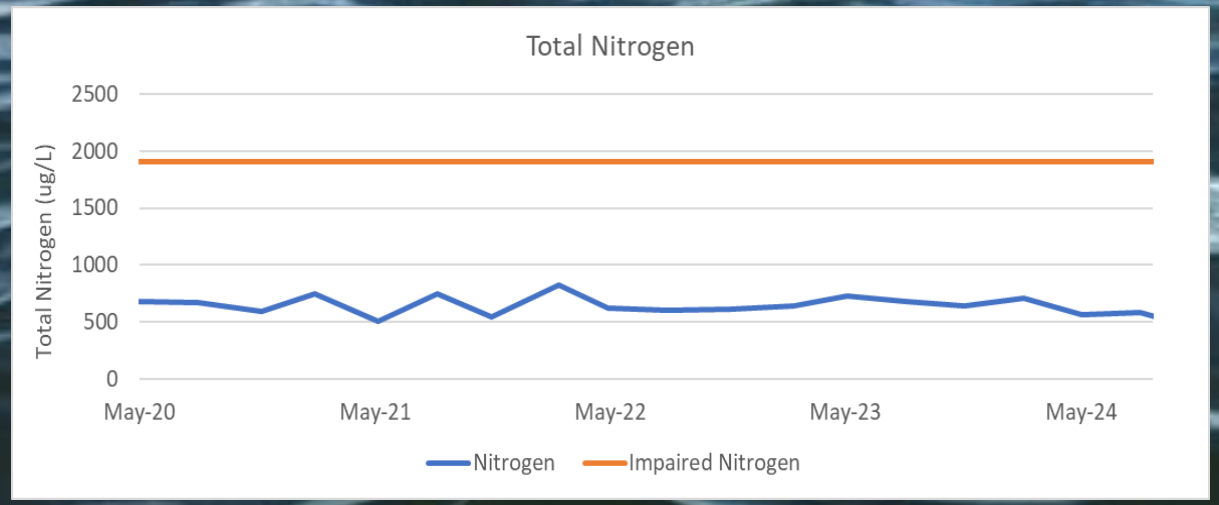

Total Nitrogen
Total Nitrogen (ug/L)
5000
4000
3000
2000
1000
0
May-20
May-21
May-22
May-23
May-24
Nitrogen
Impaired Nitrogen

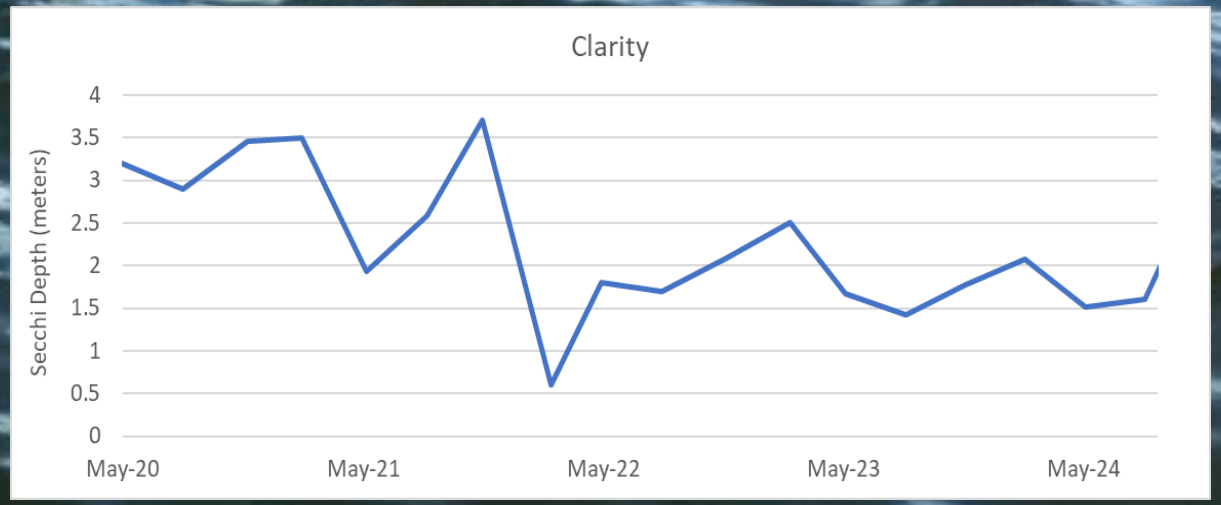

Clarity
Secchi Depth (meters)
2.5
2
1.5
1
0.5
0
May-20
May-21
May-22
May-23
May-24

Lake Rose

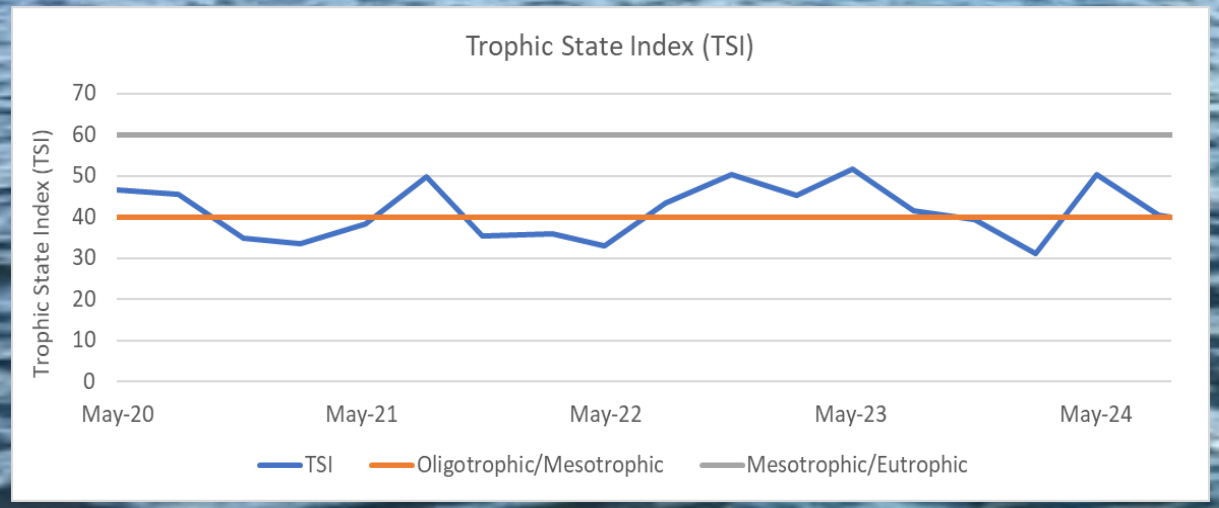

Trophic State Index (TSI)
Trophic State Index (TSI)
80
70
60
50
40
30
20
10
0
Feb-20
Feb-21
Feb-22
Feb-23
Feb-24
TSI
Oligotrophic/Mesotrophic
Mesotrophic/Eutrophic

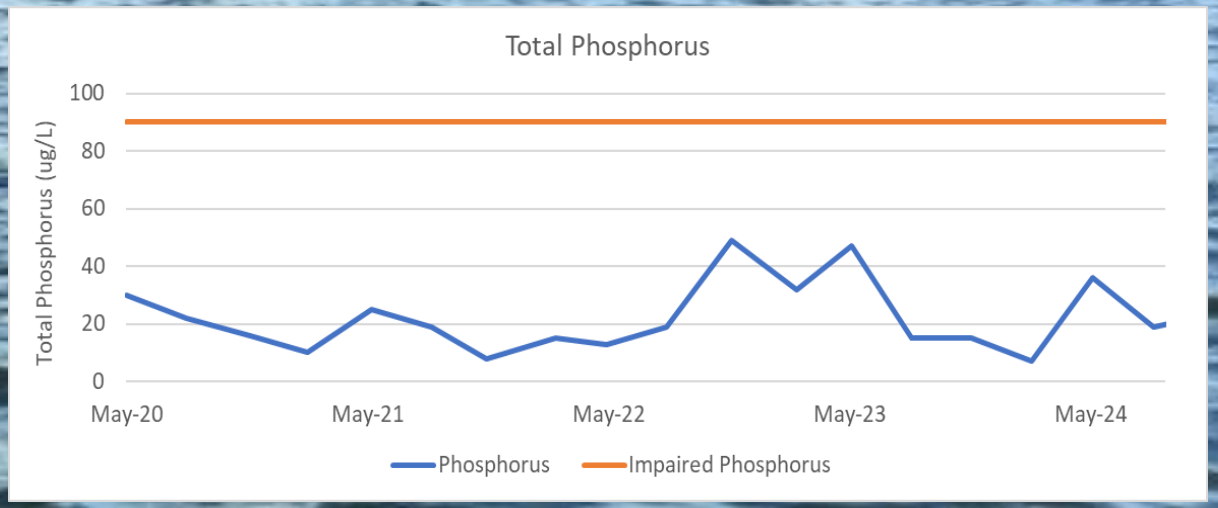

Total Phosphorus
Total Phosphorus (ug/L)
100
80
60
40
20
0
May-20
May-21
May-22
May-23
May-24
Phosphorus
Impaired Phosphorus

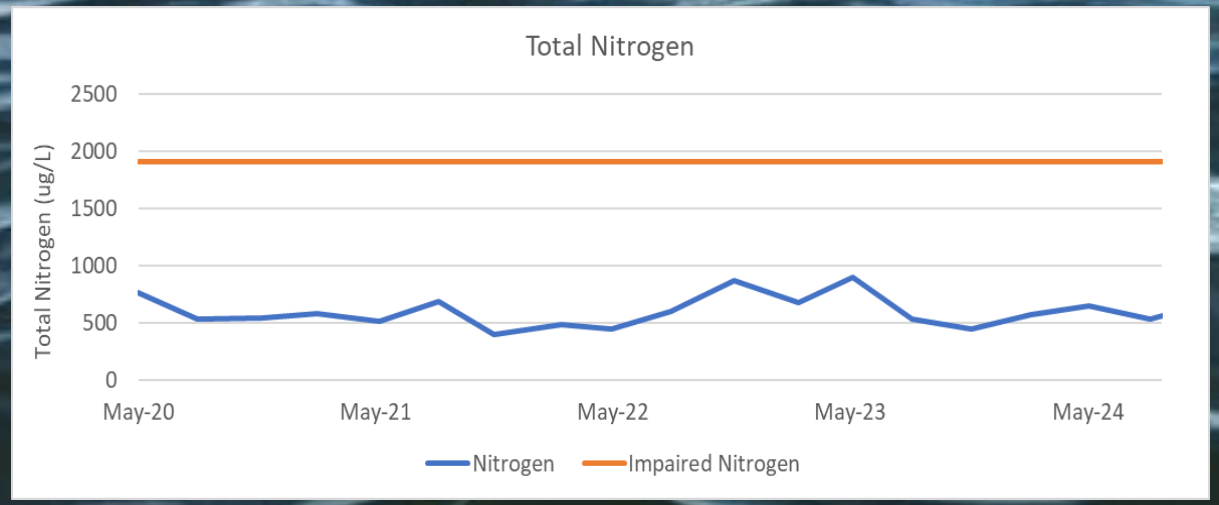

Total Nitrogen
Total Nitrogen (ug/L)
2500
2000
1500
1000
500
0
May-20
May-21
May-22
May-23
May-24
Nitrogen
Impaired Nitrogen

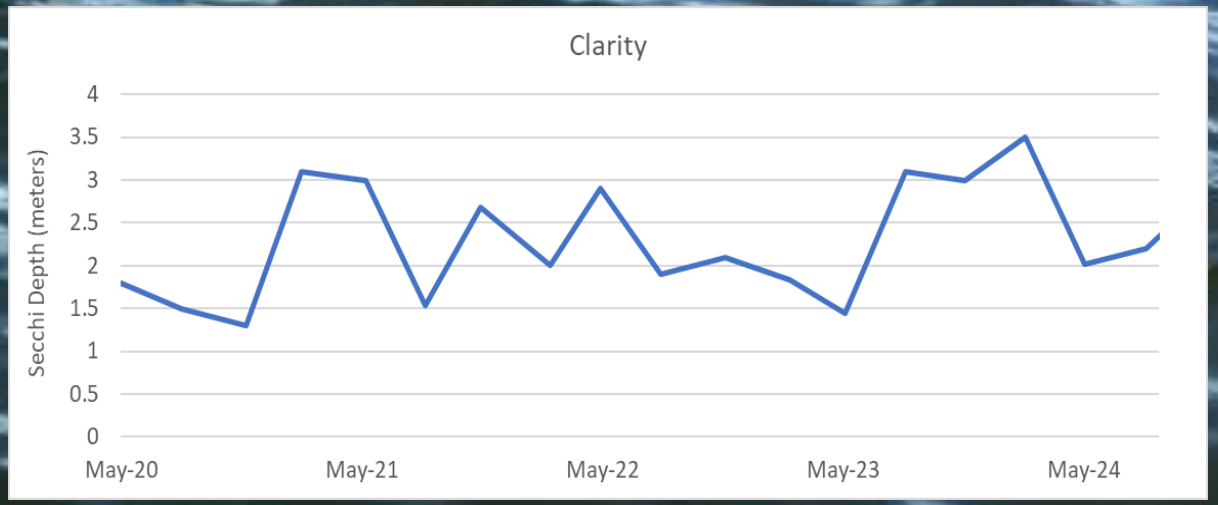

Clarity
Secchi Depth (meters)
4
3.5
3
2.5
2
1.5
1
0.5
0
May-20
May-21
May-22
May-23
May-24

Lake Temple

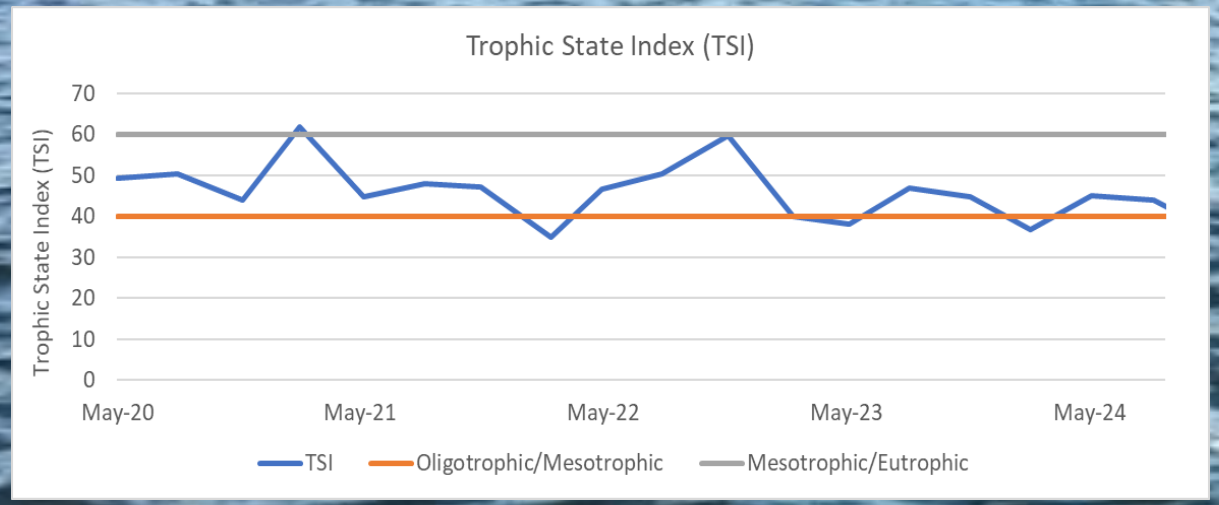

Trophic State Index (TSI)
Trophic State Index (TSI)
70
60
50
40
30
20
10
0
May-20
May-21
May-22
May-23
May-24
TSI
Oligotrophic/Mesotrophic
Mesotrophic/Eutrophic

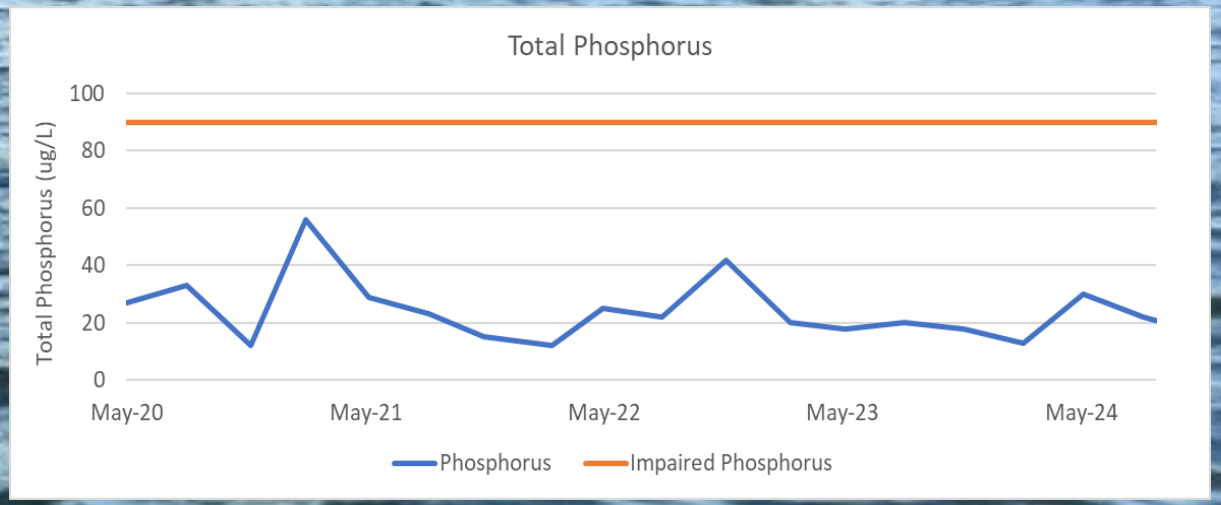

Total Phosphorus
Total Phosphorus (ug/L)
100
80
60
40
20
0
May-20
May-21
May-22
May-23
May-24
Phosphorus
Impaired Phosphorus

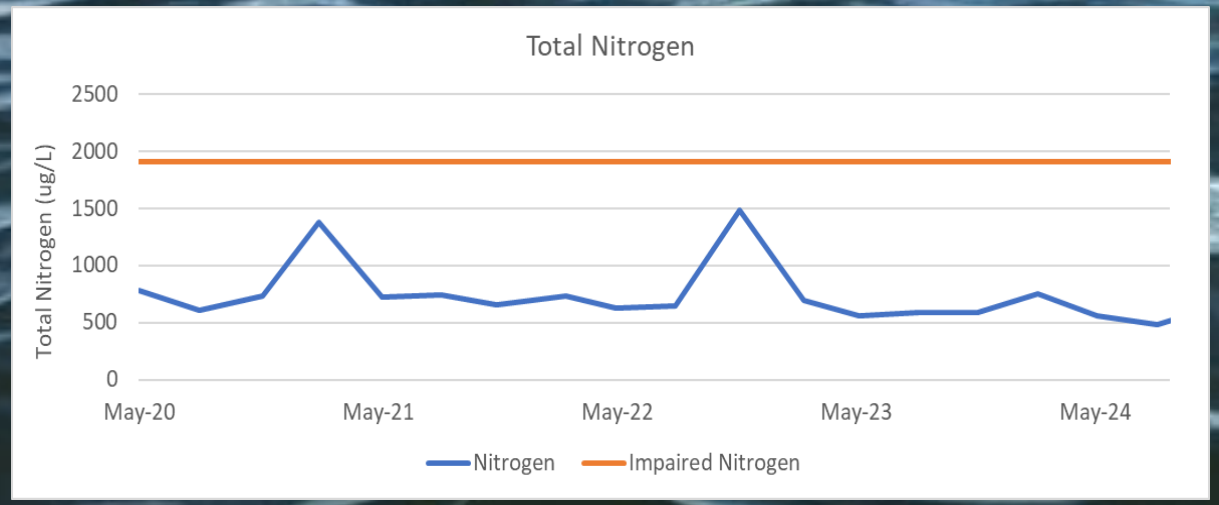

Total Nitrogen
Total Nitrogen (ug/L)
2500
2000
1500
1000
500
0
May-20
May-21
May-22
May-23
May-24
Nitrogen
Impaired Nitrogen

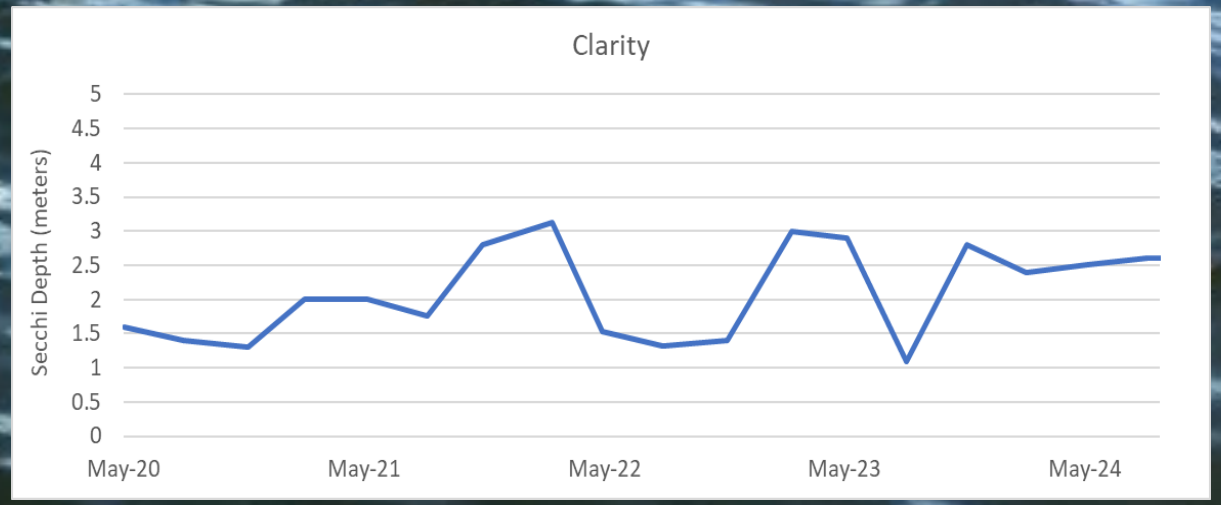

Clarity
Secchi Depth (meters)
4
3.5
3
2.5
2
1.5
1
0.5
0
May-20
May-21
May-22
May-23
May-24

Lake Tuscany

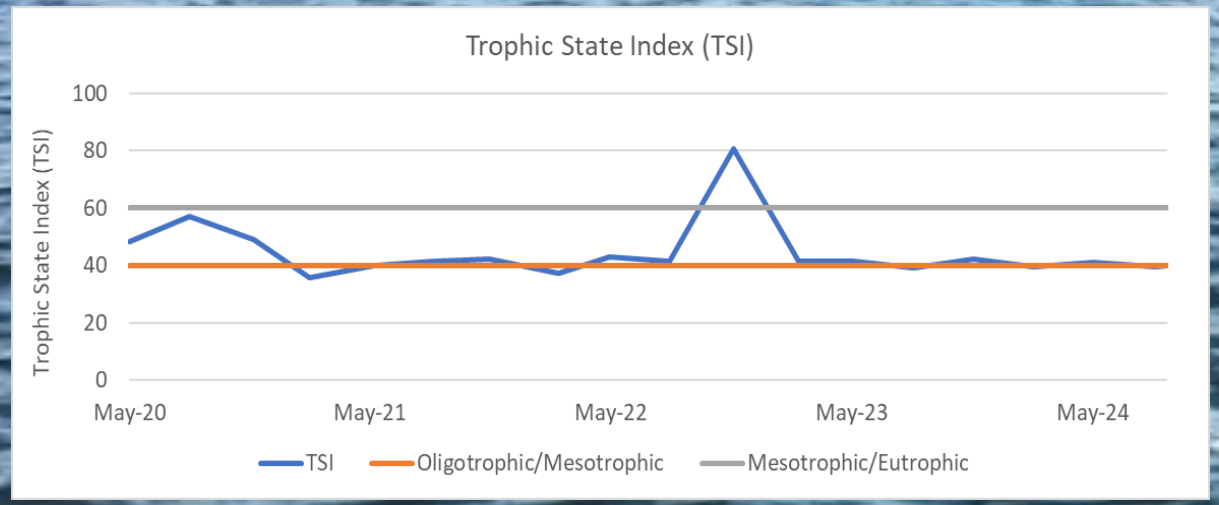


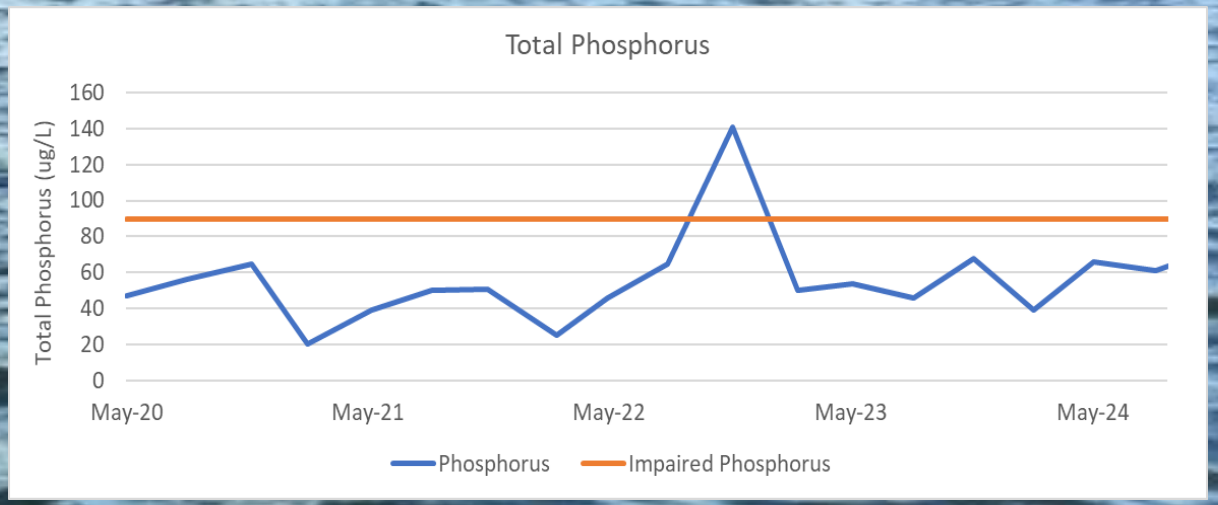


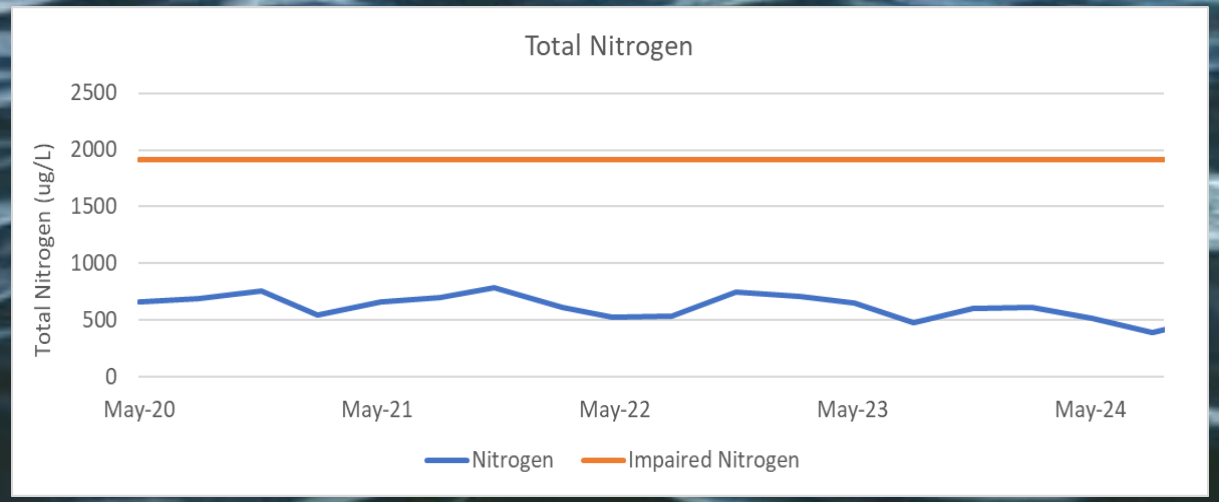


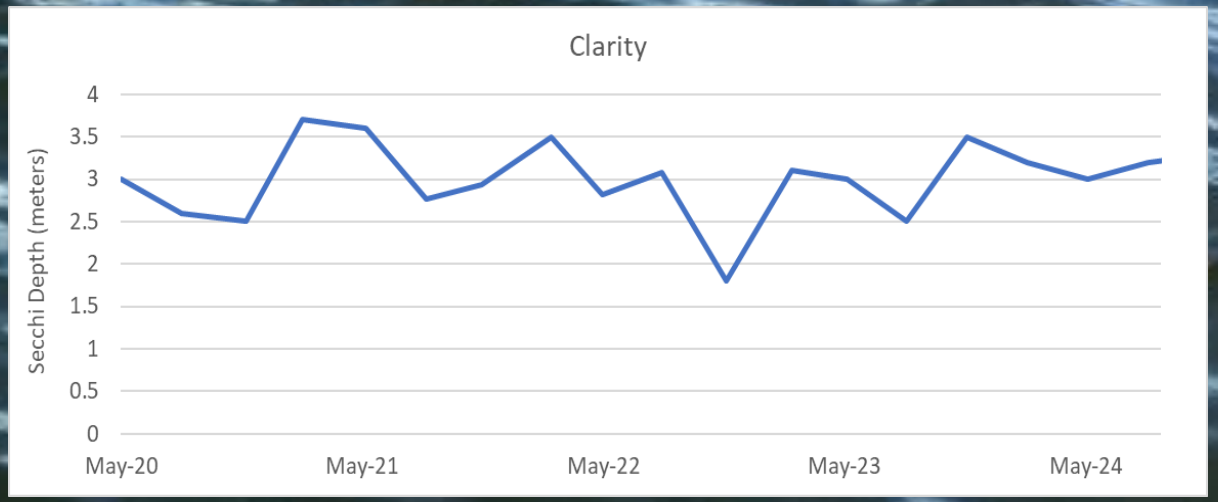


WPRC Pond

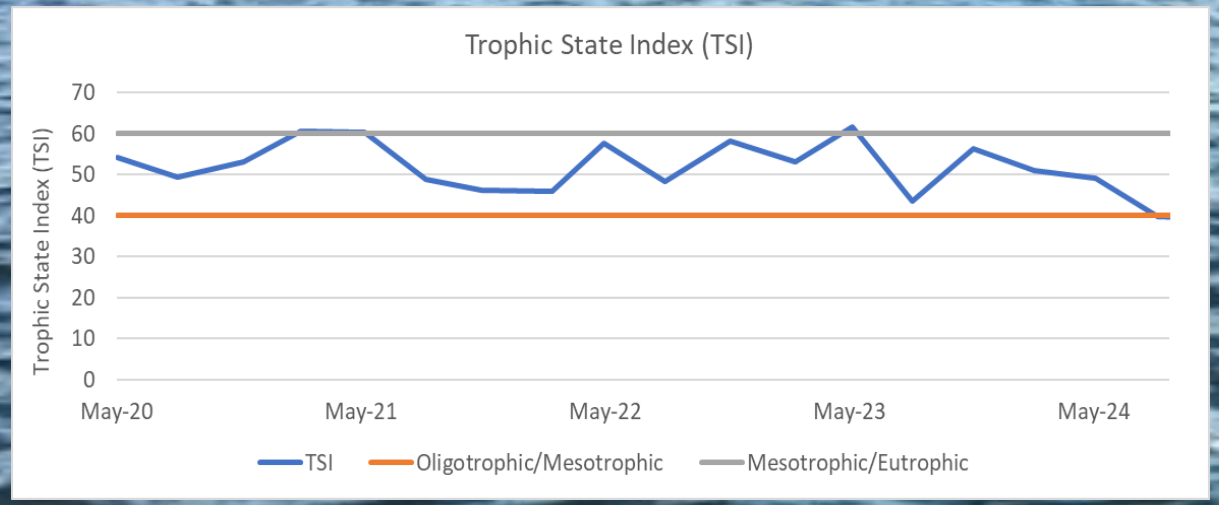

Trophic State Index (TSI)
Trophic State Index (TSI)
100
80
60
40
20
0
May-20
May-21
May-22
May-23
May-24
TSI
Oligotrophic/Mesotrophic
Mesotrophic/Eutrophic

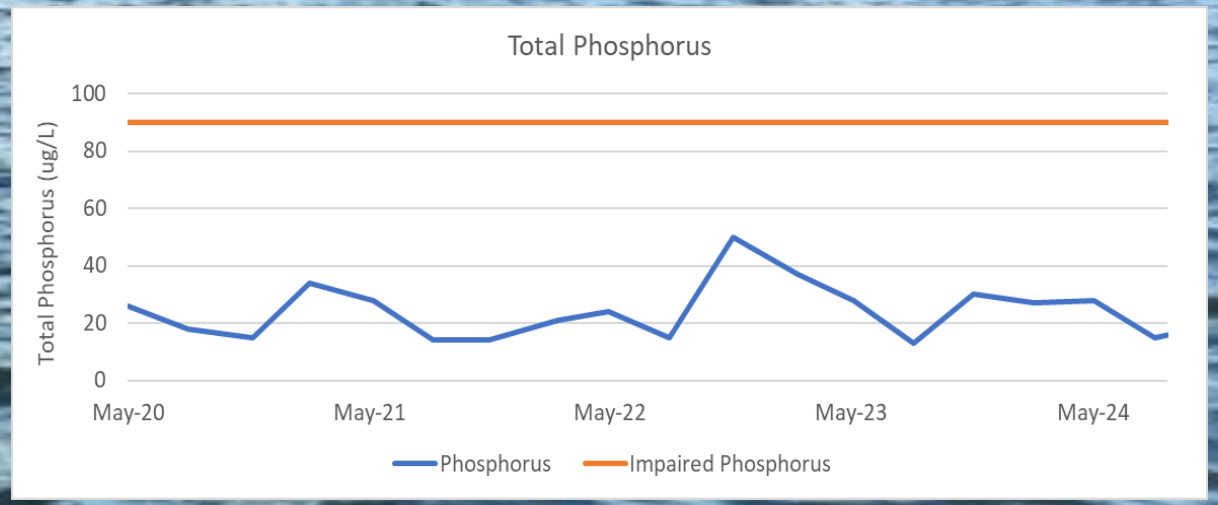

Total Phosphorus
Total Phosphorus (ug/L)
160
140
120
100
80
60
40
20
0
May-20
May-21
May-22
May-23
May-24
Phosphorus
Impaired Phosphorus

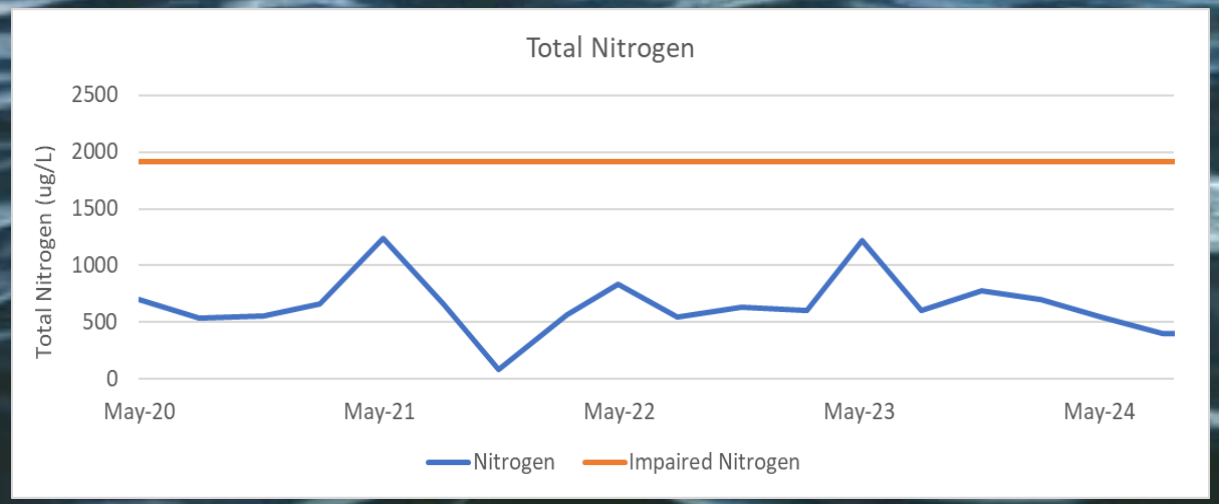

Total Nitrogen
Total Nitrogen (ug/L)
2500
2000
1500
1000
500
0
May-20
May-21
May-22
May-23
May-24
Nitrogen
Impaired Nitrogen

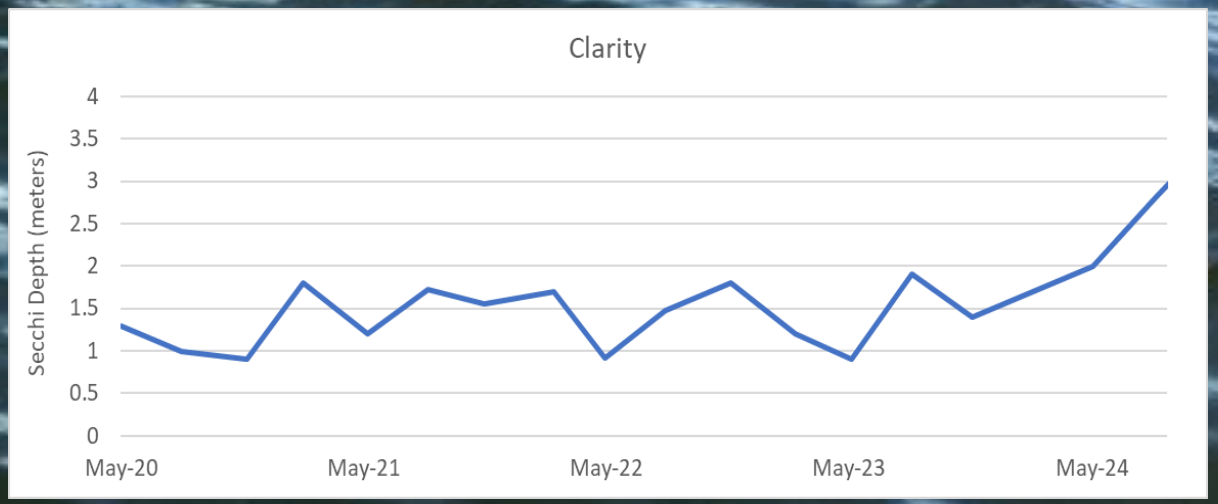

Clarity
Secchi Depth (meters)
4
3.5
3
2.5
2
1.5
1
0.5
0
May-20
May-21
May-22
May-23
May-24

Lake Sylvan

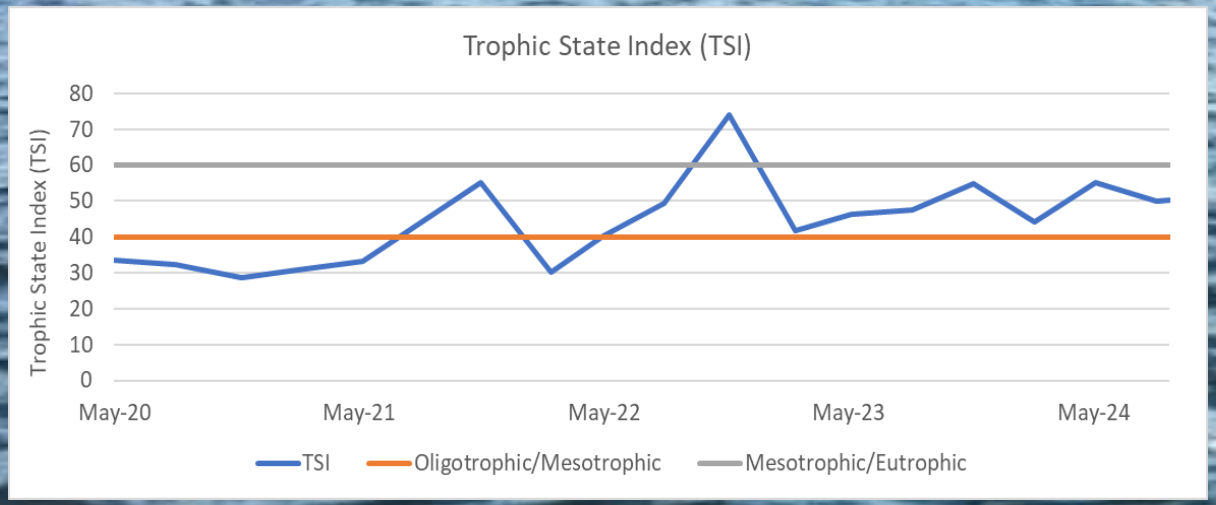

Trophic State Index (TSI)
Trophic State Index (TSI)
70
60
50
40
30
20
10
0
May-20
May-21
May-22
May-23
May-24
TSI
Oligotrophic/Mesotrophic
Mesotrophic/Eutrophic

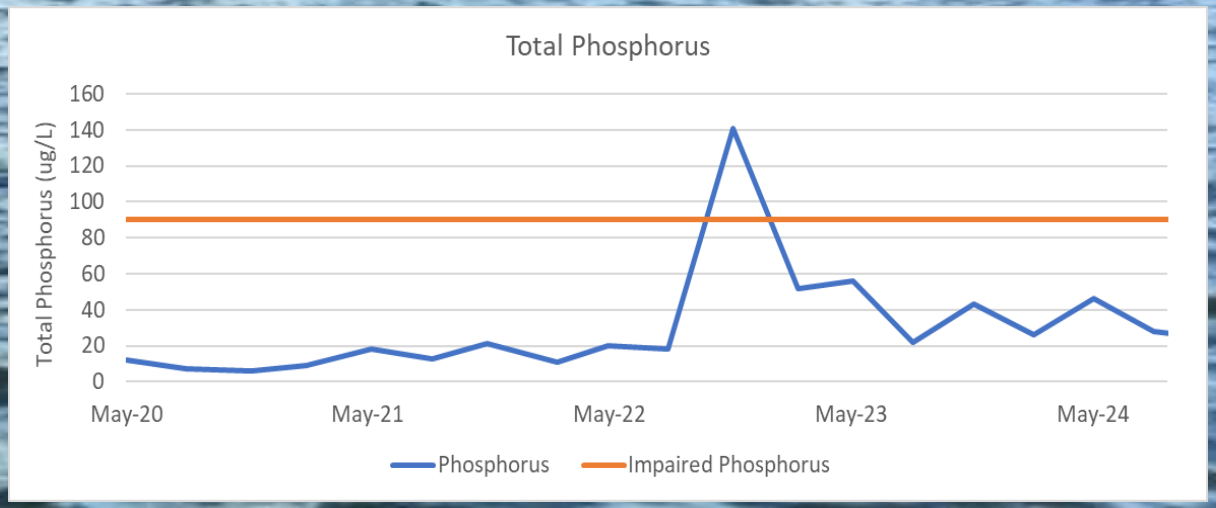

Total Phosphorus
Total Phosphorus (ug/L)
100
80
60
40
20
0
May-20
May-21
May-22
May-23
May-24
Phosphorus
Impaired Phosphorus

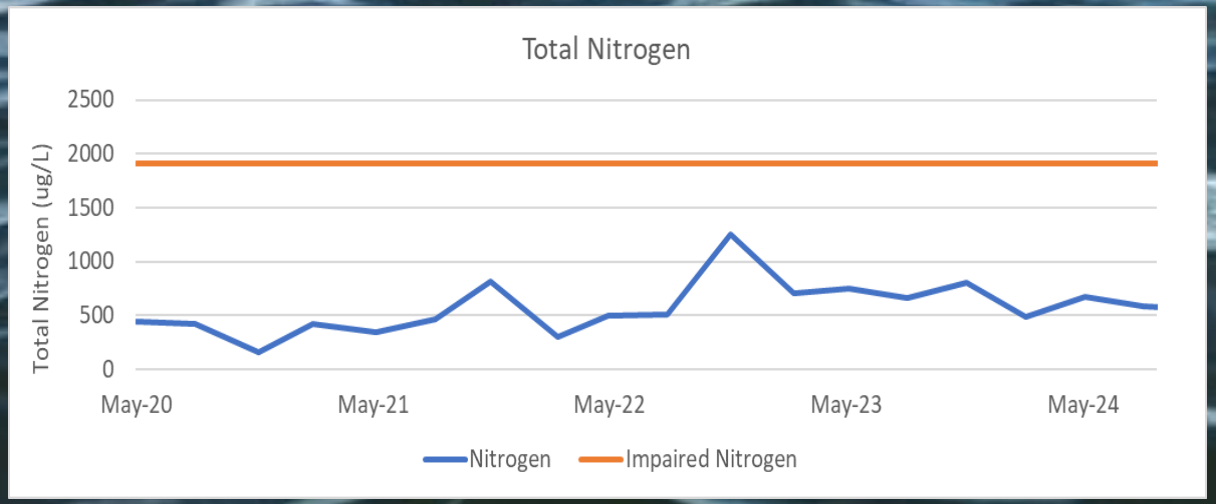

Total Nitrogen
Total Nitrogen (ug/L)
2500
2000
1500
1000
500
0
May-20
May-21
May-22
May-23
May-24
Nitrogen
Impaired Nitrogen

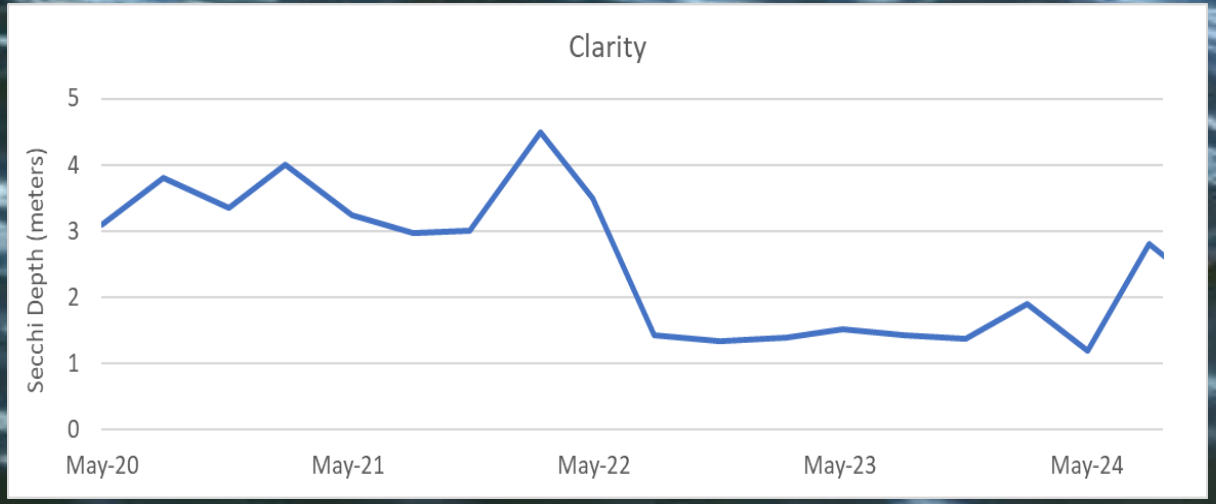

Clarity
Secchi Depth (meters)
4
3.5
3
2.5
2
1.5
1
0.5
0
May-20
May-21
May-22
May-23
May-24

Lake Chelton

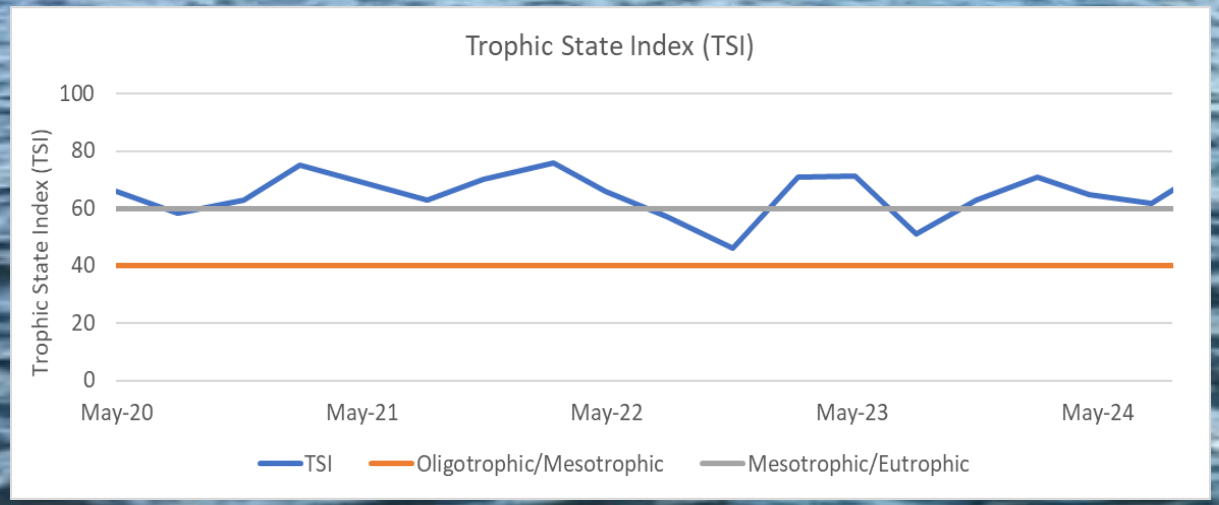


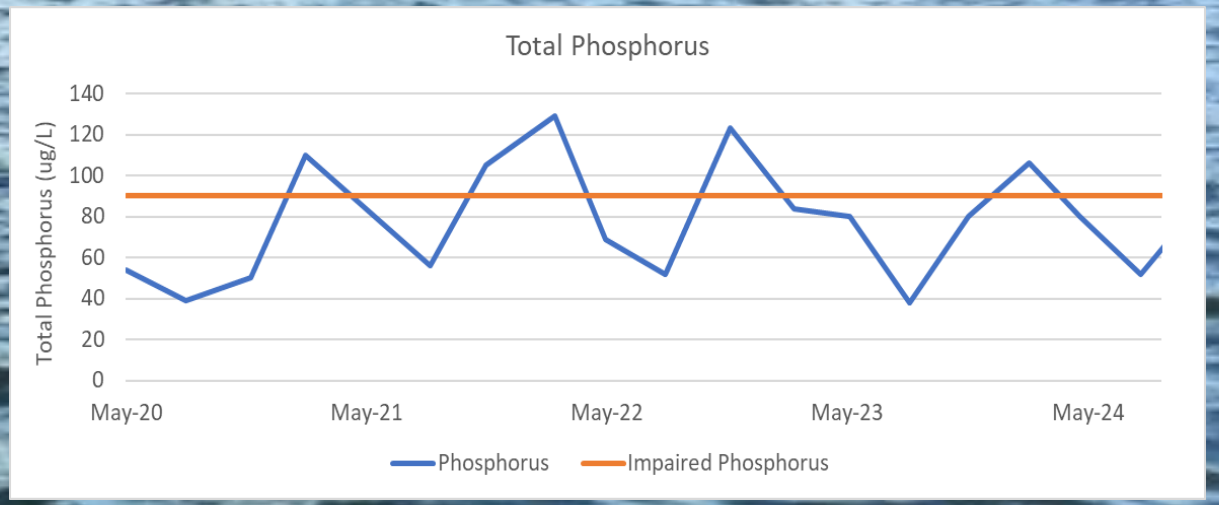


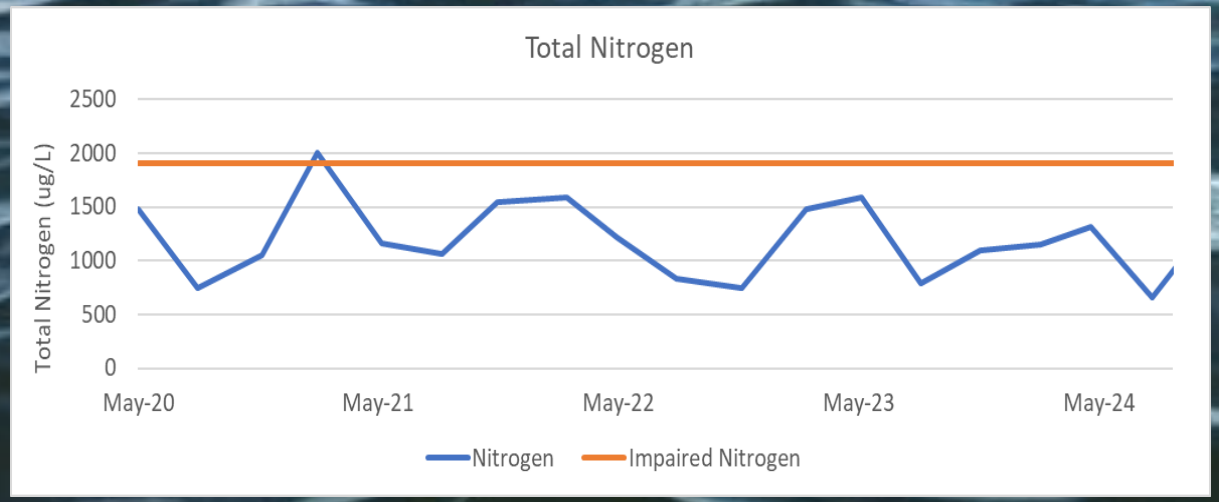


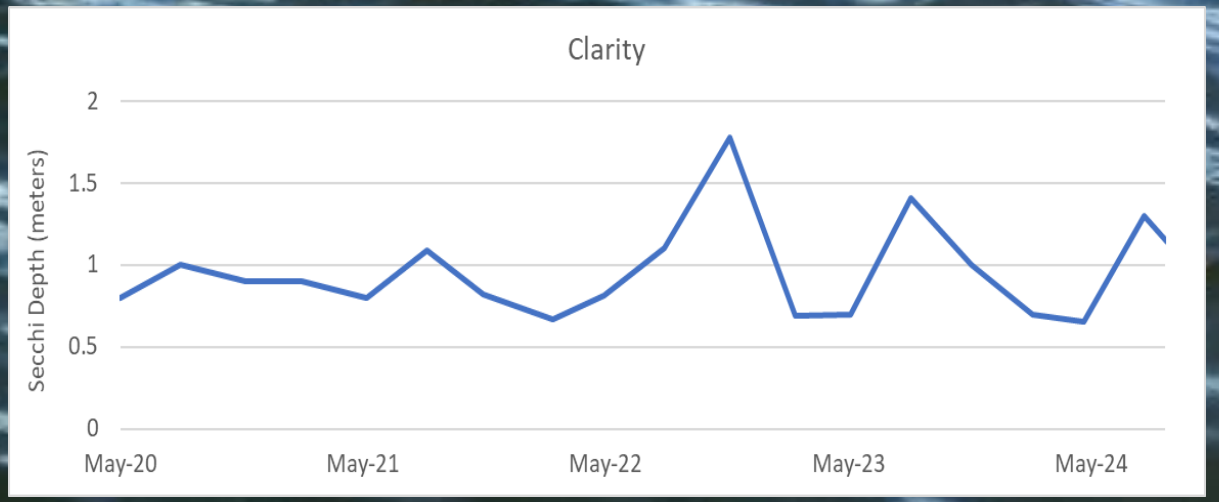


Lake Forrest

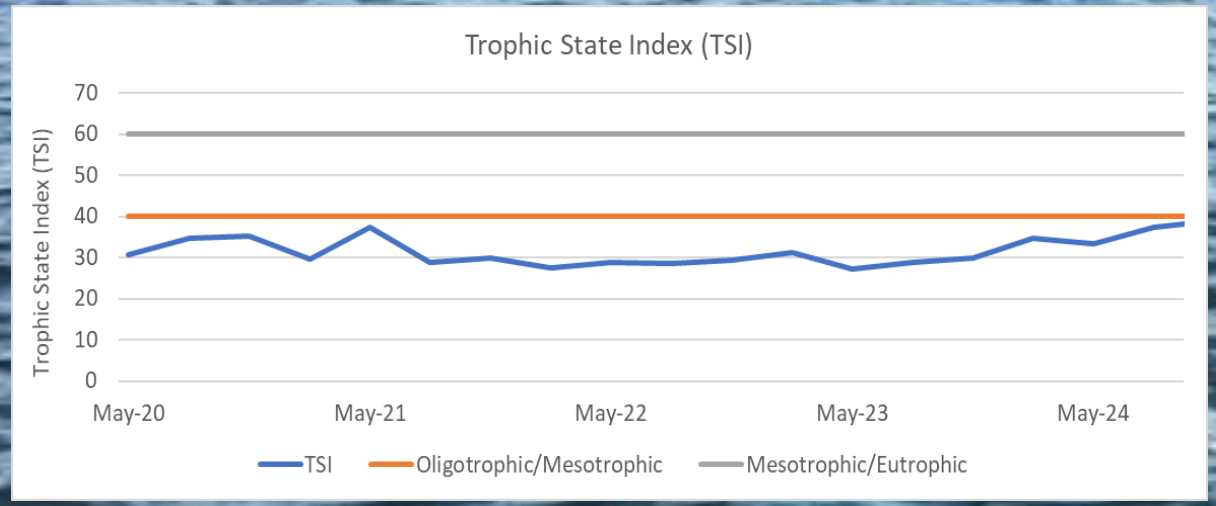


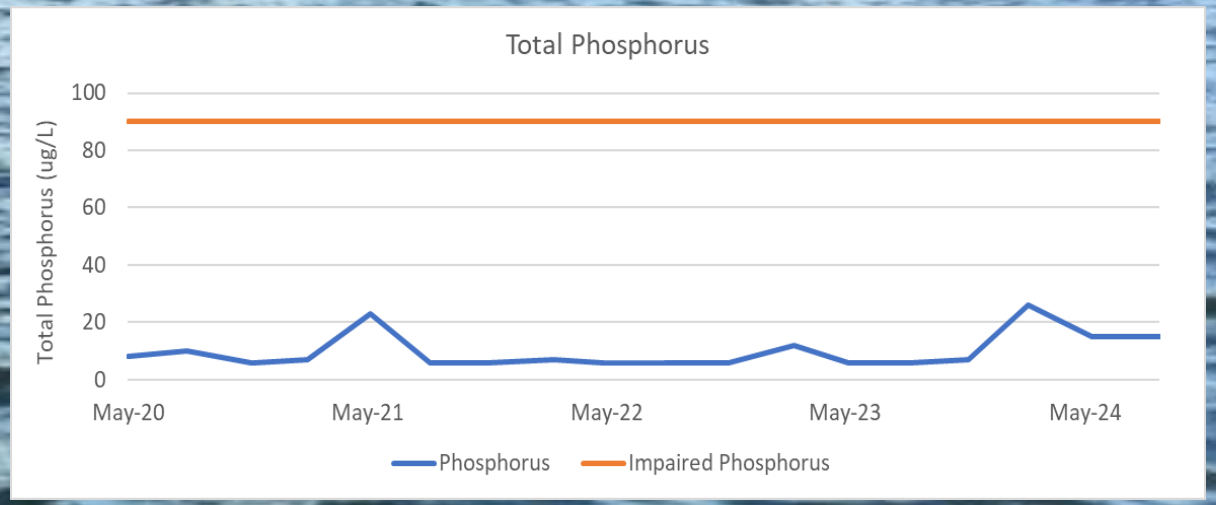


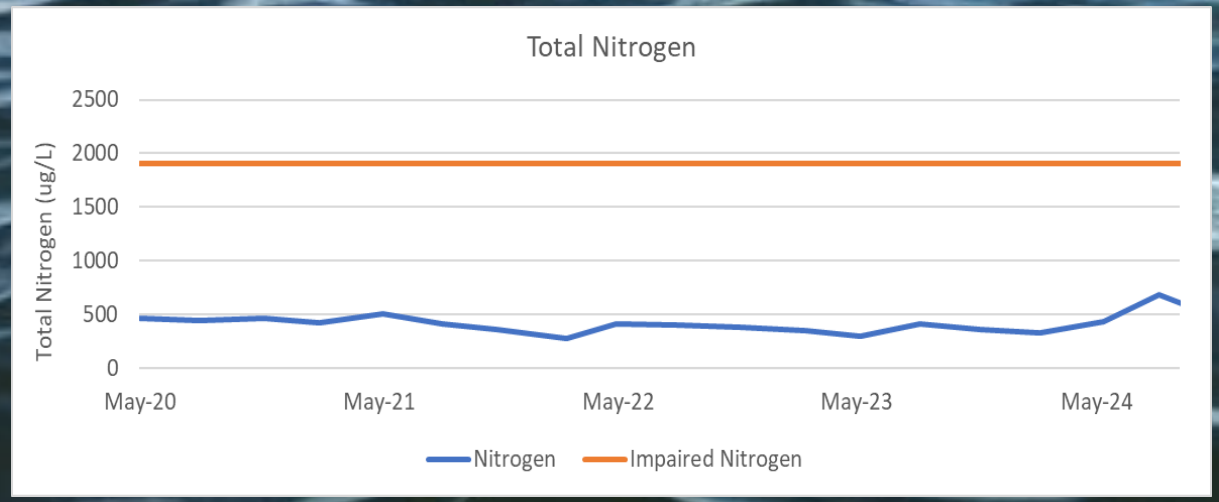


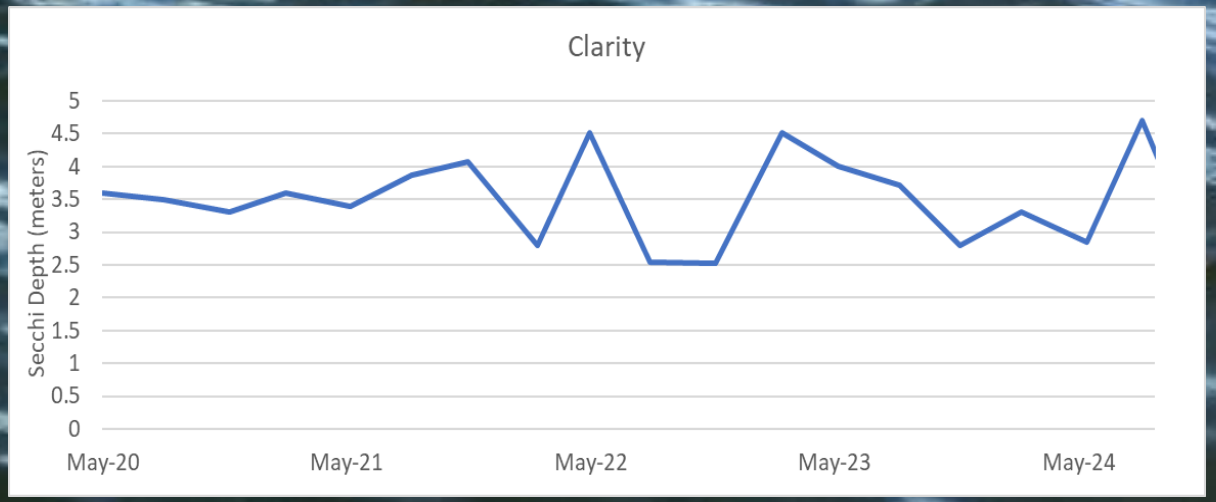


Lake Spier


Trophic State Index (TSI)
Trophic State Index (TSI)
70
60
50
40
30
20
10
0
May-20
May-21
May-22
May-23
May-24
TSI
Oligotrophic/Mesotrophic
Mesotrophic/Eutrophic

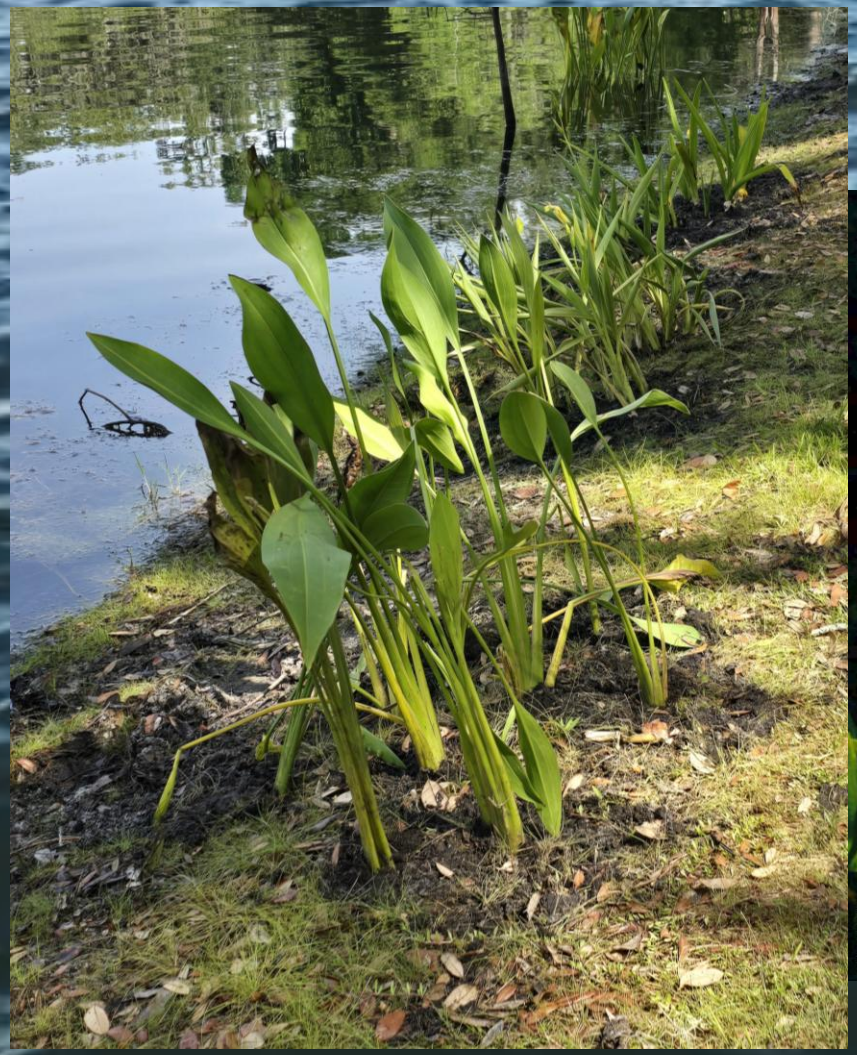

Total Phosphorus
Total Phosphorus (ug/L)
100
80
60
40
20
0
May-20
May-21
May-22
May-23
May-24
Phosphorus
Impaired Phosphorus


Total Nitrogen
Total Nitrogen (ug/L)
2500
2000
1500
1000
500
0
May-20
May-21
May-22
May-23
May-24
Nitrogen
Impaired Nitrogen


Clarity
Secchi Depth (meters)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
May-20
May-21
May-22
May-23
May-24

Plant of the Month

Duck potato (*Sagittaria lancifolia*)



https://plant-directory.ifas.ufl.edu/plant-directory/ Photos: ^

Plant of the Month
Duck potato (*Sagittaria lancifolia*)

***Sagittaria lancifolia* – Native to the southeastern United States and Parts of Central America**

Characteristics: An emergent native aquatic plant. The leaves of Duck potato is tapered to the stem, giving the plant a lance-like shape. Duck potato flowers are small and white with 3 petals. Duck potato can grow up to 3 to 6 feet in length from the roots to the tip of the leaf.

Intriguing Facts:

- Duck potato gets its name from its edible root.
- Reproduction is through root growth and seed dispersal by animals, wind and water.
- *Sagittaria lancifolia* is said to be the largest of the *Sagittaria* species.

^ Photos: https://plant-directory.ifas.ufl.edu/plant-directory/

CITY OF WINTER PARK
ADAPTIVE FLOOD MANAGEMENT GUIDE

Adopted OCTOBER 2023
Revised MAY 2025, AUGUST 2025

In May of 2023, the National Hurricane Center (NHC) changed its Tropical Weather Outlook notification from five-days to seven-days. The NHC extended the outlook due to technological advancements with satellites and modeling stating that seven-day forecasts are just as reliable as the five-day forecasts.

With this technological development, ~~daily active management of lake levels within~~adaptive flood management activities occur in the City of Winter Park ~~will occur~~ upon issuance that ~~by the National Hurricane Center (NHC) that~~ tropical activity has been identified by the National Hurricane Center (NHC) in the new~~for the new~~ Seven-Day Outlook forecast. ~~.~~ Protocols and procedures will ~~further~~ be further enacted when the NHC~~'s~~ issues a projected ~~cone~~ path, known as the cone of uncertainty, ~~touches~~ threating the Central Florida Region ~~as defined below,~~ whereby the active management of lowering lake levels will occur according to the specifications found within this guide. ~~In addition, annual notification to the Florida Department of Environmental Protection (FDEP), in writing, is required for implementing drain well activities.~~ The City Manager has the authority to override the flood management policy if circumstances dictate doing so. Any such override, including the reasoning, shall be documented in writing. In addition, annual notification to the Florida Department of Environmental Protection (FDEP), in writing, is required for ~~implementing~~lake and pond drawdown via drain well ~~activities~~.

This guide was developed in collaboration with the Lakes & Waterways and Lake Killarney ~~Advisory Boards to~~ Boards to empower the City's professional staff on adaptive lake management decisions.

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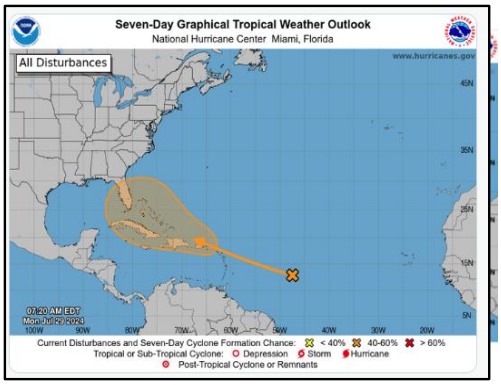
Seven-Day Outlook forecast:



Example ~~of~~ of NHC's ~~Storm Cone~~Projected Path, ~~Containing Path~~ Activating Central Florida Region:

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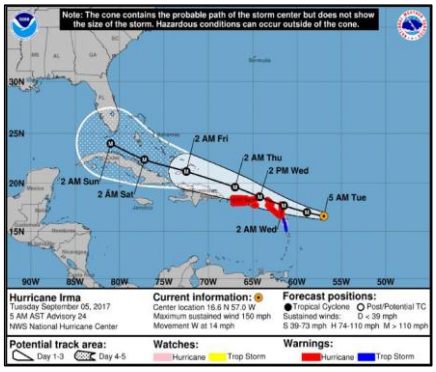

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Central Florida Region Defined:

The Central Florida Region includes the Orlando metropolitan area (Orange, Lake, Osceola, and Seminole Counties), and Sumter, Polk counties in the interior, Citrus, Hernando, Hillsborough, Pasco, and Pinellas counties on the west coast and Volusia and Brevard Counties on the east coast.

Active Lake Level Alteration Activities- City Wide Specifics

- Remove the six risers from the drain wells on Lake Killarney
- Open valve to the MLK Pond drain well
- Remove top weir board on Lake Bell
- Open gate on the Winter Park Racquet Club Pond outfall
- Check valves (2) are closed and operational at WP18 golf course
- Remove all retractable grass carp fence barriers
- Inspect all drain well intakes maintaining free and clear of debris
- Issue lake closure protocol for the Chain of Lakes at elevation of 66.1 ft.

Active and Adaptive Management of Lake Levels- Lakes Killarney and Lake Bell Plan

1. City will monitor lake elevation levels on Lake Killarney and Lake Bell daily, during hurricane season, June 1st to November 30th, via Smart Technology utilizing telemetry elevation gauges. These gauges can be accessed remotely and provide an alert notification should the elevation stage higher than desired due to an intermittent storm. Staff will not solely rely on the device but will routinely inspect and log field data.
2. During hurricane season, June 1st to November 30th, the top weir board for Lake Bell will be removed and replaced after hurricane season. ~~Desired lake elevation management requires analysis through a basin drainage study.~~
3. Removal of the six drain well risers on Lake Killarney will be enacted when the NHC's projected storm ~~cone touche~~path threatens~~s~~ the Central Florida Region (defined above). If the approaching storm turns, the risers will be reinstalled as soon as the storm threat is over.
4. City will maintain and clean drain well intakes, collection boxes and traps, and manage street cleaning services ~~especially~~ with increased frequency during hurricane season.
5. A secured email will be provided to the Lake Killarney Board to report **non-emergency** related activities or call 407-599-1313. Otherwise, follow standard emergency response by dialing 911.

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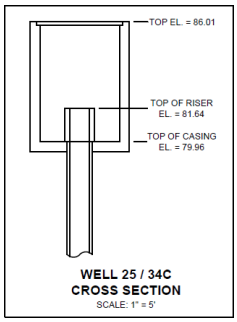
Lake Killarney Drain Well Specifications:



- Without risers on the drain wells, Lake Killarney lowers 0.1-0.2 ft per day.
- The top of each riser is on average 81.66 ft, the top of each drain well casing is on average 80.0 ft, the weir to Lake Gem discharges at 82.7 ft.

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NATURAL RESOURCES & SUSTAINABILITY DEPARTMENT CHECKLIST

During National Hurricane Season, June 1st to November 30th, the Lake Bell top weir board will be removed.

168 hours (7 days) prior to storm at any time of the year

- ☐ Monitor storm models via National Hurricane Center's (NHC) Seven-Day Tropical Weather Outlook.
- ☐ Refer to established protocol under City of Winter Park's Flood Management Guide.
  - ☐ Lower lake elevations, where permittable.
  - ☐ Lake Killarney's six drain well risers and Lake Bell top weir board will all be removed in advance whereby the ~~track~~ projected path issued by the National Hurricane Center ~~cone touches~~threatens the Central Florida region and replaces ~~it~~ the risers when the storm is no longer a threat.

120 hours (5 days) prior to storm

- ☐ Monitor storm models.
- ☐ Provide staff with tracking sheets for manpower hours and equipment usage for Federal Emergency Management Agency (FEMA) records.
- ☐ Notify laboratory of potential lake sample submittals. Coordinate with water & wastewater laboratory manager.
- ☐ Inspect control and outflow structures located on the lakes, including leaf trap devices; maintain free and clear of debris.
- ☐ Coordinate with solid waste ~~serves~~services vendor on logistics for pre and post storm.

72 hours (3 days) prior to storm

- ☐ Inspect all the weirs and grass carp barriers including the ones located downstream of lakes Bell, Killarney, Berry and Maitland; maintain free and clear of debris.
- ☐ Inspect culvert box under bridges at Temple Trl, St~~i~~erling Ave and S Pennsylvania Ave to ensure free and clear of debris.
- ☐ Inspect drain well intake structures on Lake Killarney and all land locked lakes (Knowles, Spier, Forest, Midget, as well as the Seminole County drain well on N. Lakemont Avenue); maintain free and clear of debris.
- ☐ Inspect canals within the Chain of Lakes and Howell Creek, upstream of Lake Virginia, and downstream of the Howell Branch weir.
- ☐ Coordinate solid waste services logistics and messaging with Communications Department and Assistant City Manager; includes debris management.~~.~~
- ☐ Coordinate with Urban Forestry on contracted vendor for felled tree services in creeks/conveyances.

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48 hours (2 days) prior to storm

- ☐ Meet with staff to go over responsibilities and verify contact information.
- ☐ Prioritize daily departmental functions.
- ☐ Remove MLK, Jr. Park drain well and Winter Park Racquet Club pond outfall board.
- ☐ Prepare and secure equipment and PPE:
  - ☐ All boats, vehicles, and gas cans filled
  - ☐ Clean and remove all debris from work vehicles
  - ☐ Clamshell ready and operational
  - ☐ Secure barges at Kraft Gardens
  - ☐ Move all Lakes Division supplies into boathouse or break room area (buoys, etc.)
  - ☐ Test all chainsaws and make sure that PPE is in good condition
  - ☐ Each driver with PPE in work vehicle

24 hours (1 day) prior to storm

- ☐ Remove retractable grass carp barriers at lakes Bell and Berry.
- ☐ Meet with staff to go over final details data assessment.
- ☐ Prioritize departmental functions every day.

During the storm

- ☐ Natural Resources & Sustainability ~~is not classified as a first responder and~~ does not have a manned role at the EOC center during the storm. ~~Staff to~~Staff remain in a safe location.
- ☐ All Lakes Division staff and department director will commence damage assessments when deemed safe. Office staff to service phone lines and emails. Sustainability Division staff to service phone lines and emails, ~~assisting~~assist in solid waste services logistics and communications or ~~be~~ other ~~assigned~~ assignment as required.
- ☐ Establish communication with damage assessment team with deployment time and locations.

Immediately after the storm when conditions are safe

- ☐ Damage assessment teams deployed to inspect all conveyances, outfalls, weirs, drain wells and high-risk areas (i.e. Special Flood Hazard Area- SFHA). Clear immediate hazards.
- ☐ Collector app utilized to document environmental damage. Include photos.
- ☐ Track manpower hours and equipment usage for FEMA records.
- ☐ Implement ~~lake closures~~emergency management ~~activites~~activities for lakes as deemed necessary: Chain of Lake elevation closure for Dinky Dock ramp at >66.1 ft (NAVD 88).
- ☐ Monitor and record lake elevations. Report anomalies to Public Works Department.
- ☐ Implement debris management activities.

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Days/weeks after the storm

- ☐ Post-storm environmental/water quality monitoring including environmental assets.
- ☐ Report damage assessment for state assistance and grant ~~submittals;~~submittals, such as Natural Resources Conservation Service (NRCS).
- ☐ Grass carp barriers re-installed when conditions are favorable.

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- Coordinate teams with Urban Forestry to recover fallen trees in waterways noted in damage assessments.

- Perform continual monitoring and messaging related to lake hazards:
  - Recreational use of lakes will be allowed once it is determined that safe boating activities can resume without potential damage to private property or the danger of colliding with submerged storm debris.
- Perform continual monitoring and messaging related to solid waste services and debris management until cleared.
- Effective communications with lake patrons, both residential and commercial, related to lake closures; dock safety warnings with submerged electrical components; submerged hazards warning; and lake contamination warnings.
- Perform continual monitoring and messaging related to lake elevations-reinstate drain wells and weir closures, when appropriate.
- Refer to established policy: Flood Management Guide.

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PUBLIC WORKS DEPARTMENT
STREETS DIVISION CHECKLIST

Off season preparations

- ☐ Conduct quarterly meetings with directors, supervisors, crew chiefs, and all staff to review the following:
  - ☐ Written hurricane preparedness procedures and where to locate the document.
  - ☐ Team members list including updated phone numbers to be activated during Emergency Operations Center (EOC) operations. There must be two separate teams listed for relief following the initial 24-hour period.
  - ☐ Equipment list to be used during EOC operation, ~~. Equipment list to~~ includinge~~g~~ trucks, loaders, generators, barricades and sand bagger.
  - ☐ Coordinate with the city's procurement division to secure vendors for additional bypass pumps, vacuum trucks, loaders and generators on an as-needed basis.
- ☐ Be sure to have all proper and updated forms for reporting staff's storm response activities.
  - ☐ All streets infrastructure to be inspected and maintained on predetermined schedules. The following items must be maintained year-round in proper functioning condition.
    - Storm sewer inlets, pipes, treatment structures, and outfalls
    - Traffic signals and signs
    - Street sweepers

168 hours (7 days) prior to storm

- ☐ Monitor storm models via National Hurricane Center's (NHC) Seven-Day Tropical Weather Outlook.
- ☐ Refer to established protocol under City of Winter Park's Flood Management Guide.
  - ☐ Lower lake elevations, where permittable.
  - ☐ Lake Killarney's six drain well risers and Lake Bell top weir board will all be removed in advance whereby the projected path issued by the National Hurricane Center threatens the Central Florida region and replaces the risers when the storm is no longer a threat.
  - ☐ ~~Lake Killarney drain well riser and Lake Bell top weir board will be removed in advance whereby the track issued by the National Hurricane Center cone touches the Central Florida region and replace when storms are no longer a threat.~~

72 hours to 48 hours (3-2 days) prior to storm

- ☐ Test all equipment for proper working order.
  - ☐ Make sure all equipment gas tanks are filled, and batteries are charged.
  - ☐ Generators used for supplying power to traffic signals to be tested and filled with gas.
  - ☐ Have additional gas cans filled.
- ☐ Prepare sandbagging operations site.
  - ☐ Decide with city management on an appropriate location and coordinate with the Communication Department to prepare a map, distribution schedules and notifications.
  - ☐ Mobilize sand, bags and equipment to the location.
  - ☐

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- Each household will be provided eight bags with proper proof of residency unless otherwise directed by city management.
- Prepare coordination with the police department for ID verification and traffic control.

- Increase levels of storm sewer cleaning and street sweeping operations.
- Verify schedules for both teams to begin the overnight and relief shifts.
- Hold a procedure and general safety meeting with both teams before the EOC activation.

24 hours (1 day) prior to storm

- Stop all city and private construction activities and secure sites from any potential erosion and/or wind damage.
- Mobilize and stage all heavy equipment to strategic locations to be used throughout the city.
  - NW Area - Public Safety Facility (500 N. Virginia Ave.)
  - SE Area - Fire Station #62 (300 S. Lakemont Ave.)
  - SW Area – City Lot (1210 Palmetto Ave.)
  - NE Area – City Operations Center (1409 Howell Branch Road)
- Share team member names and contact numbers with the Public Works Director and Assistant Director.
- Prepare sleeping arrangements and purchase food for the overnight shift team.
- Verify all equipment is ready in place with full tanks of gas.
- Load and secure barricades on trucks to be dispatched.

During the storm

- Stay safe inside until EOC managers clear the city staff for response activities.

Immediately after the storm when conditions are safe

- Assist Ppolice and Ffire Ddepartments to clear streets for emergency response.
- Assist the Electric and Water & Wastewater Departments clearing streets to perform their response and repair activities.
- Setup closures and barricade off flooded and obstructed streets and roadways.
- Inspect all signalized intersections for functionality and perform repairs as needed. Repairs requiring a bucket truck can only take place when winds diminish to 30mph or less.
- Clear all storm drains from obstructions to ensure proper drainage.
- Assist the city's Urban Forestry Division with downed tree removals.
- Begin assisting the Natural Resources & Sustainability Department with monitoring of the water levels in the city's lakes and ponds.
- Setup bypass pumping operations on lakes and/or ponds reaching higher levels which potentially could flood surrounding structures/homes.
- Barricade or cone off any potholes which could cause damage to vehicles.

Days/weeks after the storm

- Continue streets clearing and debris removal and storm drain clearing for proper drainage.
- Assess any potholes locations for storm pipe failures and schedule necessary repairs.
- Continue monitoring water levels in lakes and ponds and add or relocate bypass pumping activities accordingly.

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CIP PROJECT CONSIDERATIONS & STUDIES FOR STORM RESILIENCY

The flood elevation in the Winter Park Chain of Lakes is controlled by a weir located on the north side of Lake Maitland at Howell Branch Road. The control elevation for the chain of lakes was studied for a Letter of Map Revision (LOMR) in 2009. The SJRWMD confirmed that the current control elevation of 66.18 ft was best for all communities upstream and downstream and it was not to be adjusted.

The following is a suggested list that should be updated regularly and as funding allows: ÷

- Continue to develop a 5-year CIP to include the recommendations generated by the three Major Basin Studies completed in December 2024. These recommendations include:
  - Improvements to the Lake Bell, Lake Killarney, and MLK Pond drainage basins
  - Considerations for permanent lake interconnects for the City's landlocked lakes
  - Improvements to the drainage basin that contributes to the Little Econ basin
- Following FS 252.363 provision allowing to adjust/pump lake down during declared state of emergency, establish Memorandum of Understanding with SJRWMD for all potential drawdowns:

  Section 252.363 of the Florida Statutes provides that upon the declaration of a state of emergency, permits and other authorizations are tolled for the duration of the declaration, and that they may be extended automatically upon the exercise of the notice requirements of Section 252.363(1)(a) for an additional six months. The tolling and extension provisions apply to the expiration of:
  - *Development orders issued by a local government*
  - *Building permits*
  - *Florida Department of Environmental Protection or Water Management District permits issued pursuant to Part IV of Chapter 373, Florida Statutes*

- Consider purchase of additional bypass pump(s) including floating intake attachment and suction and discharge hoses.

Maintain a survey record of lowest Finished Floor Elevation (FFE) for all City lakes.

- ~~Consider increasing the volume of the MLK Pond and lowering the surrounding neighborhood flood stage~~

~~a. A flood study was performed in 2020 for the Community Redevelopment Agency (CRA) watershed basin by Geosyntec. This study provided four alternatives for increasing volume in the MLK Pond~~

~~i. Alt 1 - Exfiltration Basin~~

~~1. Decrease in peak stage: 0.26 ft~~

~~2. Estimated cost: $6,516,021~~

~~ii. Alt 2 - New interconnect to Lake Rose~~

~~1. Decrease in peak stage: 0.05 ft~~

~~2. Estimated cost: $172,378~~

~~iii. Alt 3 - Exfiltration basin and interconnect to Lake Rose~~

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1. Decrease in peak stage: 0.2 ft
2. Estimated cost: $2,065,776

iv. Alt 4 – (COMPLETED) Relocating Killarney interconnect from Beachview Ave to intersection of Morse Blvd and Harper St

1. Decrease in peak stage: 0.02 ft
2. Estimated cost: $35,830

b. Perform study to expand the overall footprint of the pond for more stormwater storage by strategically selecting park areas of lower usage
c. Consider partnering with private property owners near MLK to expand

---

- Develop 5-10 year CIPs for lake interconnections- perform hydraulic studies to determine feasibility and associated cost.

a. Lake Sylvan to Lake Mizell
b. Lake Grace to Lake Forest
c. Lake Chelton to Lake Sue
d. Lake Tuscany to Lake Temple to Howell Branch Pond
e. Lake Compton to Lake Spier

- Develop drainage study for Lake Killarney, Lake Bell and Lake Wilderness to address feasibility and cost for rerouting emergency stormwater overflow and evaluate weir elevations.

- ~~Develop drainage study for Howell Creek Basin of Winter Park that includes the Chain of Lakes, Lake Sue, and Lake Berry.~~

- ~~Develop drainage study for Little Econ Basin of Winter Park that includes Interlachen and WP18 (formally Winter Park Pines).~~

- ~~Following FS 252.363 provision allowing to adjust/pump lake down during declared state of emergency, establish Memorandum of Understanding with SJRWMD for all potential drawdowns:~~

~~*Section 252.363 of the Florida Statutes provides that upon the declaration of a state of emergency, permits and other authorizations are tolled for the duration of the declaration, and that they may be extended automatically upon the exercise of the notice requirements of Section 252.363(1)(a) for an additional six months. The tolling and extension provisions apply to the expiration of:*~~

~~*a. Development orders issued by a local government*~~

~~*b. Building permits*~~

~~*c. Florida Department of Environmental Protection or water management district permits issued pursuant to Part IV of Chapter 373, Florida Statutes*~~

- ~~Consider purchase of bypass pump(s) including floating intake attachment and suction and discharge hoses.~~
- ~~Perform a survey to record lowest Finished Floor Elevation (FFE) for all City lakes.~~

- ~~Consider installing auto-read lake level gauges with telemetry services for major City lakes.~~

- ~~Consider installing additional weather stations with telemetry services within City limits.~~

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Lakes & Waterways Board

agenda item 6.c

item type
Staff Updates

meeting date
September 9, 2025

prepared by
Victoria Tabor, Administrative Coordinator III

approved by
Victoria Tabor, Administrative Coordinator III

subject
Stormwater Management

motion | recommendation

background

alternatives | other considerations

fiscal impact

attachments
1. SW Update 9.25

Stormwater Staff Update

Stormwater CIP – Fiscal Year 2025

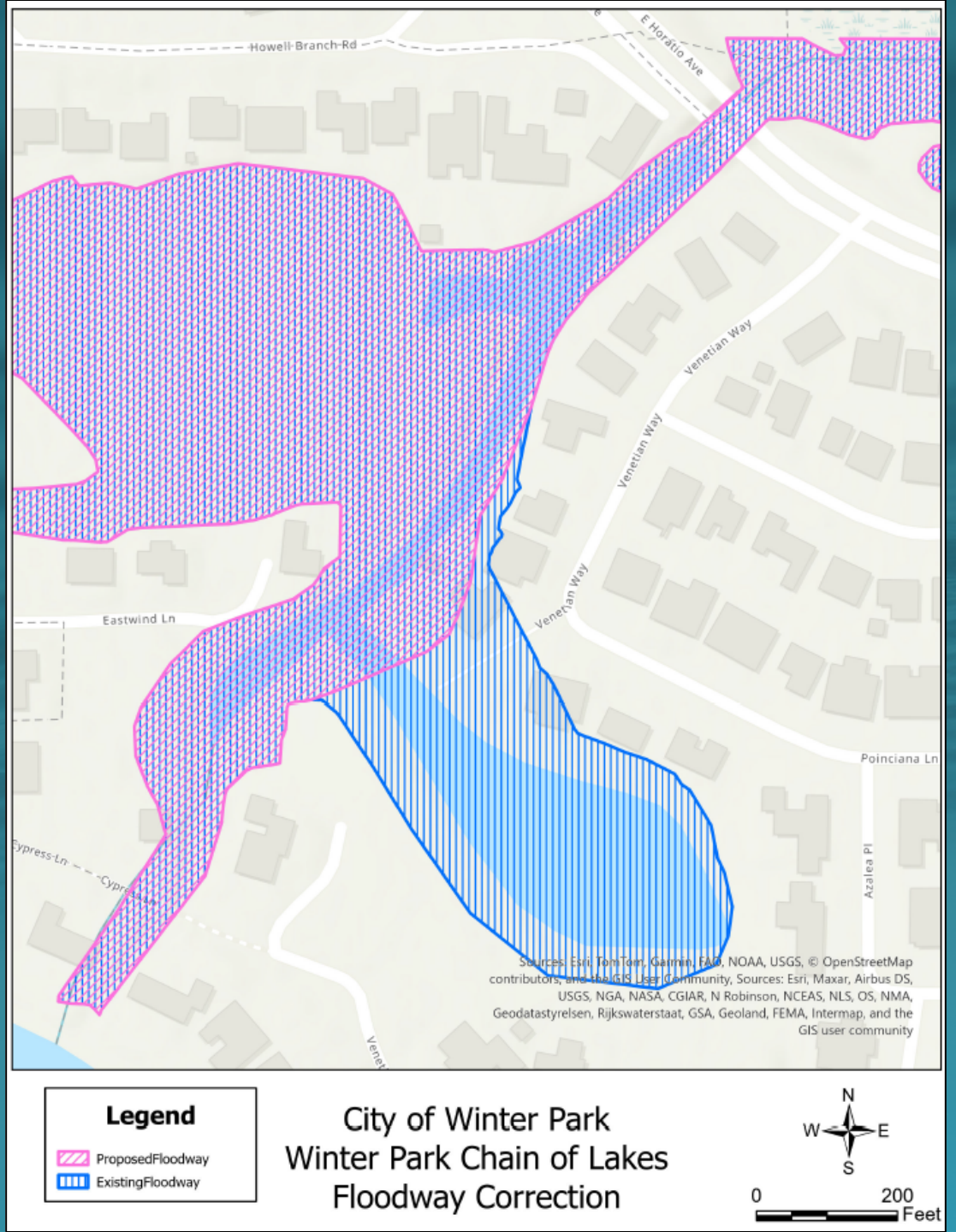
Drainage Improvements - Recent years of unusually heavy rainfall events have revealed several substandard drainage conditions in various locations throughout the City.	Annually Funded	$42,074	Several in-house drainage improvements projects for 2023-24 - **Completed** replacement of 70ft of 24 inch RCP crossing Joeline Court, and 120ft of 18 inch HDPE at the north end of Laurel Road. New inlet at Arbor Park Dr. **Ongoing** - Lake Knowles Cir/ Edgewater Ave Pipe Replacement.
			Stormwater Outfall Dredging - The City recently entered a new contract, dredging on several stormwater outfalls started in Aug 2023, and will continue as needed.
			Upcoming
			1600 Spruce Ave Pipe Replacement
			Shultz Ave Pipe Repair
			Cherokee Ave drainage improvements
Seminole County Ditch Piping (along Arbor Park Dr) – Drainage ditch behind the homes along Arbor Park Drive has a shared drainage basin with Seminole County. Funding is provided for the design and construction to pipe the ditch.	2016	$532,418	The Interlocal Agreement was approved by the City Commission and by the Seminole County Commission. 60% plans completed and submitted to Seminole County. Permit exemption documents are being prepared. Estimated start date August.
Stirling Bridge Replacement	2024	$17,243	Design is underway.
Killarney Dr - Drainage & Street Improvements	2025	$73,724	Combine failing outfalls into one outfall, includes new inlets. Construction is 30% complete. Estimated completion August 2025.
Palmer Ave at Old England - Drainage Improvements-Phase 1	2025	$249,750	Replacement outfall at Old England Ave, north of Palmer Ave. Permit application has been submitted to SJRWMD. Permit received. Additional information is being prepared for SSL authorization.
Mayflower - Drainage Ditches Dredging	2025	$120,000	Dredging of drainage ditches that begin at the Mayflower property to the north. To be paid by NRCS grant. Debris removal work has commenced.
Lake Spier Drainwell	2024	$139,870	Both wells installed. Load testing will commence early July, and will be followed by the construction of the intake structure.

Stormwater Staff Update

FEMA Floodway Correction

Stormwater Staff Update

FEMA Floodway Correction



Lakes & Waterways Board

agenda item 6.d

item type
Staff Updates

meeting date
September 9, 2025

prepared by
Victoria Tabor, Administrative Coordinator III

approved by
Victoria Tabor, Administrative Coordinator III

subject
Upcoming Events

- Fix It! Don't Pitch it! — September 6th 8am @ Winter Park Community Center
- Orange County Lake Killarney Advisory Board Meeting — September 11th 5 pm @ Public Safety Building (500 N. Virginia Ave.)
- Paddleboard Cleanup — September 13th 9 am @ Kraft Azaela/Lake Maitland
- Get Hooked! — October 4th 7 am @ MLK Pond
- Paddleboard Cleanup - Fall TBD @ Lake Killarney

motion | recommendation

background

alternatives | other considerations

fiscal impact

attachments
None

Lakes & Waterways Board

agenda item 7.a

item type
Board Comments

meeting date
September 9, 2025

prepared by
Victoria Tabor, Administrative Coordinator III

approved by
Victoria Tabor, Administrative Coordinator III

subject
Discussion of Public Comments Received

motion | recommendation

background

alternatives | other considerations

fiscal impact

attachments
None

Lakes & Waterways Board

agenda item 8.a

item type
Upcoming Agenda Items

meeting date
September 9, 2025

prepared by
Victoria Tabor, Administrative Coordinator III

approved by
Victoria Tabor, Administrative Coordinator III

subject
Discussion of Upcoming Agenda Items

motion | recommendation

background

alternatives | other considerations

fiscal impact

attachments
None