

Pine Mountain Lake & Bass Pond Management

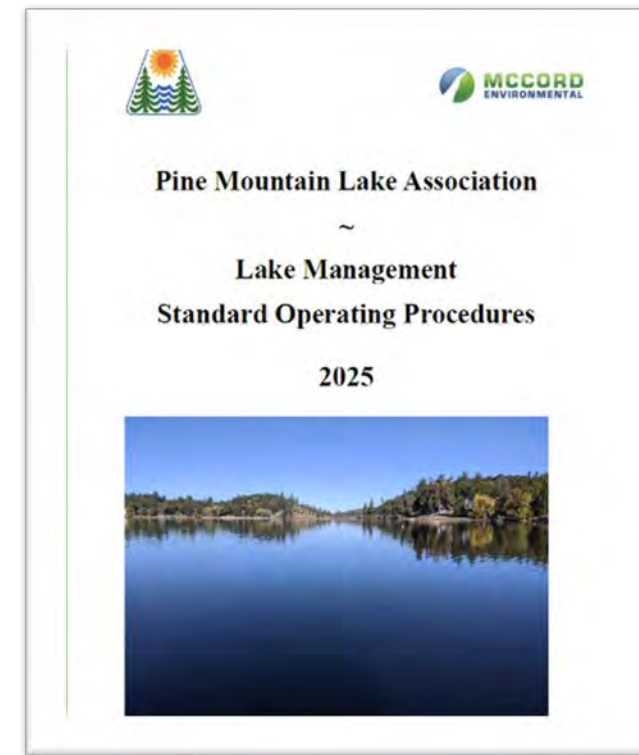
A summary of lake conditions, and current & future lake management activities

May 17, 2025

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Maintenance & Operations Mgr.

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The Lake's Watershed



Lake area = 200 acres
PMLA area = 2,200 acres
Watershed = 18,000 acres

Buck
Meadows



Dam Safety

It damn well better be safe!
So far, so good since 1969

Field Log

log ID: PMLA-PMA-0218-2020

Pine Mountain Lake Association

Pine Mountain Lake

Pine Mountain Lake, California 95321, US

General Info

Log #* 43

51 F

Clouds

Wind: 4 mph South-East

8% Humidity

Start Date/Time* 02/18/2025 7:19 am

End Date/Time* 02/18/2025 8:34 am

Lead Staff* Tony Filippi

Additional Staff

Billed No

Water Quality

Products/Services

Big Cr. Dam Inspection Form - Daily

Stage Gage Reading (ft): Node: Dam and Parameter: undefined

2550.24 ft

Rain Gage Level (in): Node: Dam and Parameter: undefined

in

Evaporation Pan Level (in): Node: Dam and Parameter: undefined

10 in

Pond A (lower) Level: Node: Dam and Parameter: undefined

0.2 in

Pond B (upper) Level: Node: Dam and Parameter: undefined

0.36 in

General Site Observations:

Maintenance performed:

Dam Inspections & Reports

Regular

- Daily by security
- 2-3 x/week by Maint. Dept.
- 4-6x/year by Lake Mgr
- Annual inspection & outlet gate “exercise” by state

Periodic

- Online, controllable video camera
- Earthquake monitoring/alerts via USGS
- Extreme overflow monitoring via online stage gage

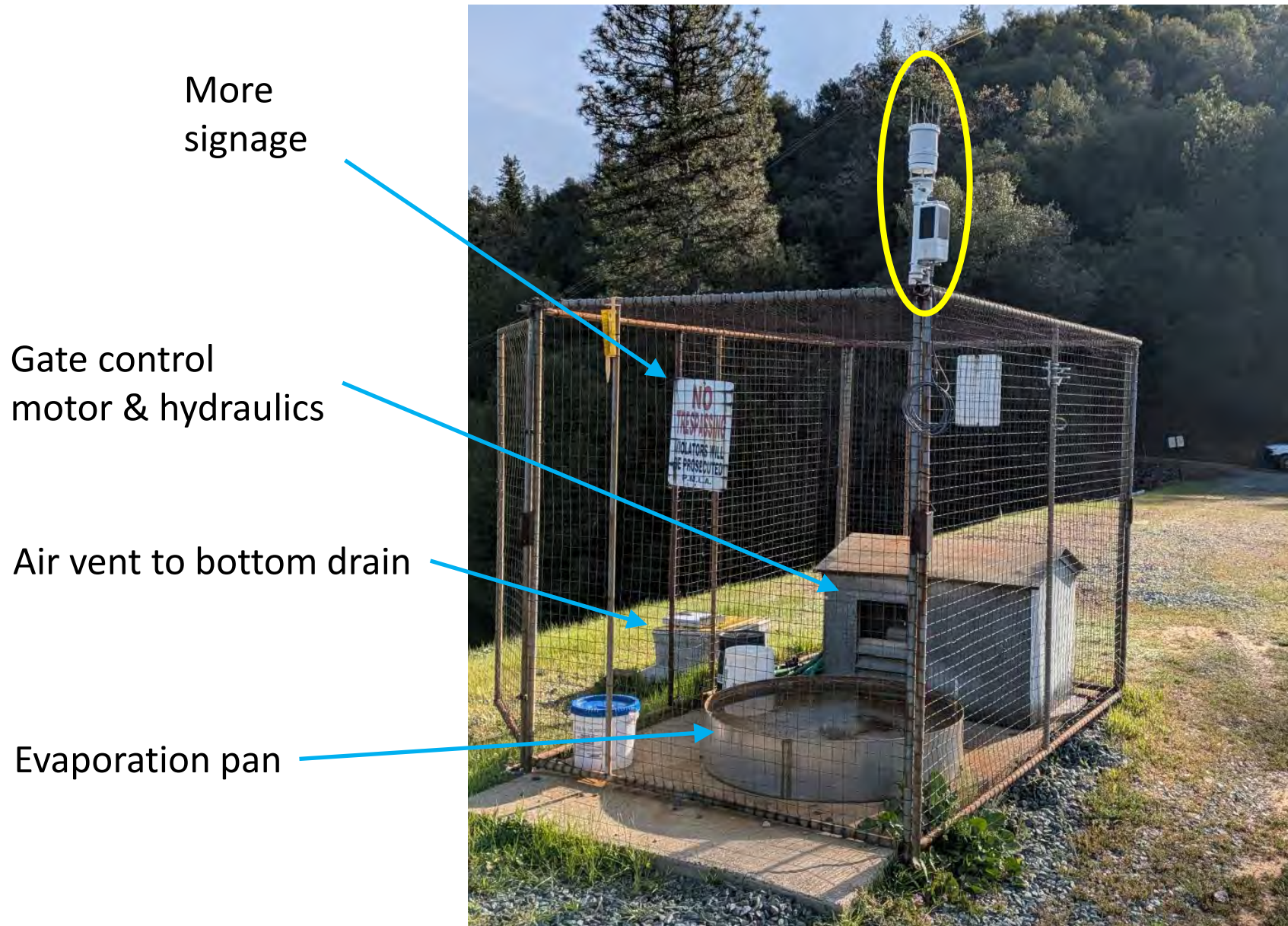
DSOD’s 2024 inspection report: “The owner has satisfactorily completed all the maintenance items listed in the previous inspection report and maintenance level repairs...The dam is well maintained, and no outstanding maintenance items were identified during this inspection.”

Dam O&M Activities

- Cleanout spillway drains, seal cracks
- Vegetation mgt. (weeding, planting)
- Rodent control
- Track storms



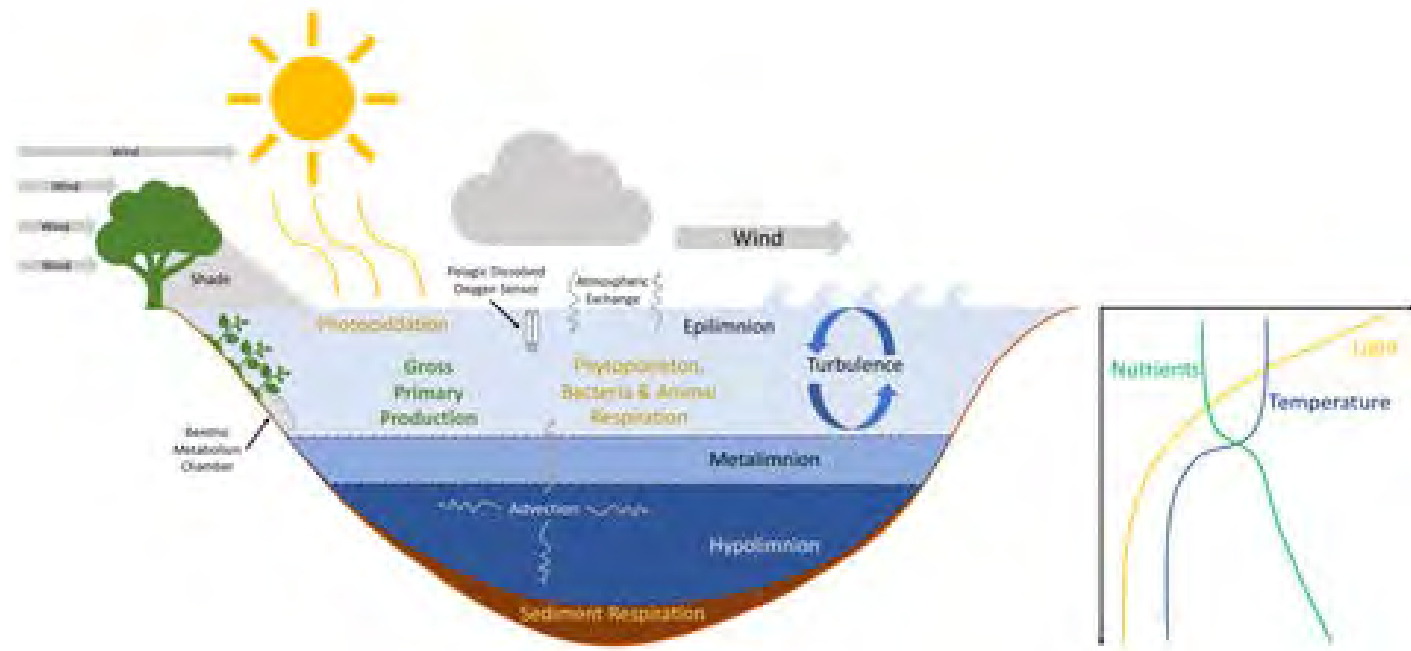
Dam Outlet Control



Weather Station

- Temperature
- Wind speed & direction
- Relative humidity
- Atmos. pressure
- Precipitation
- Solar radiation

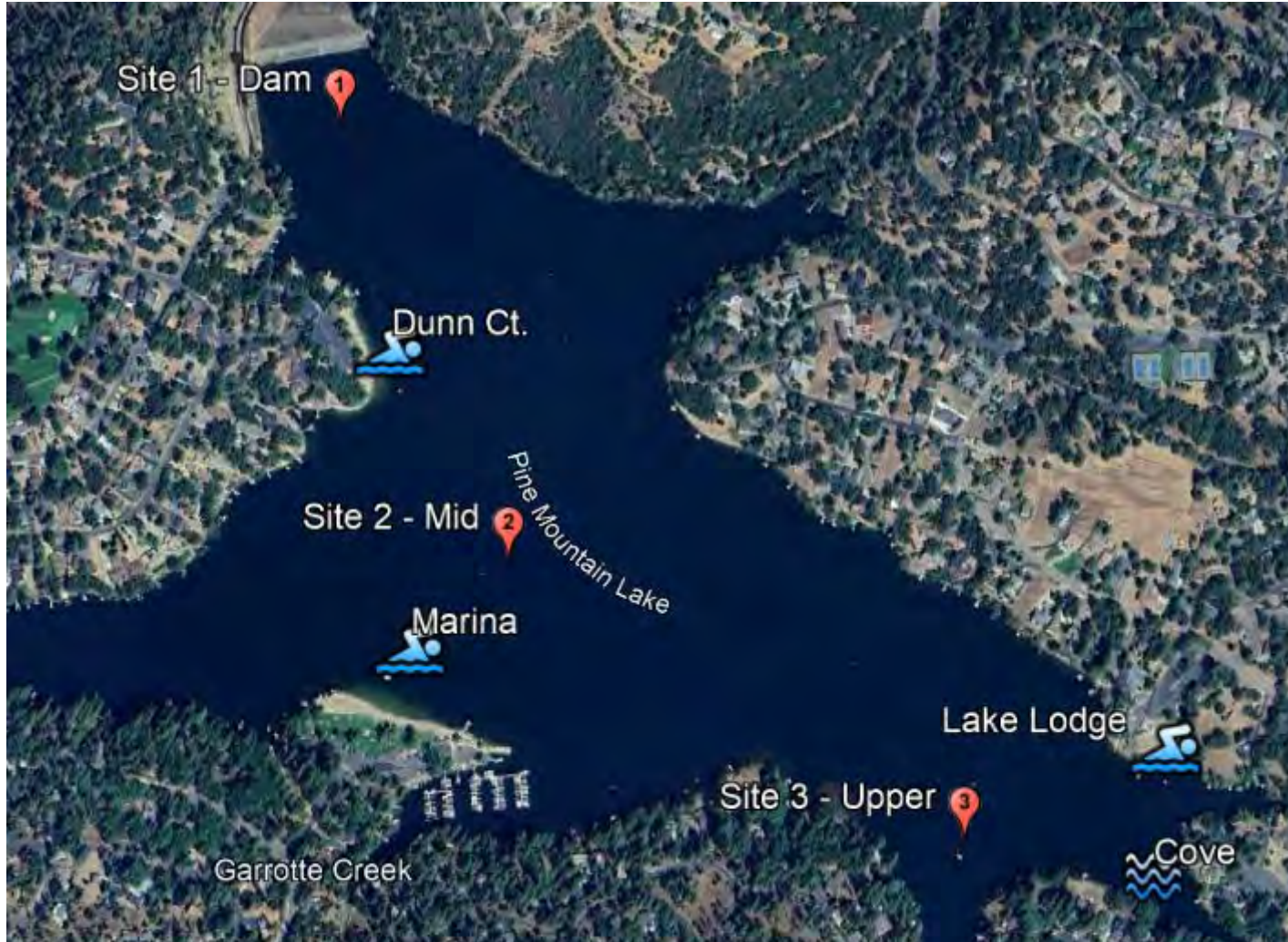
Lake water level



Lake Limnology

And more words to impress your neighbors

Monitoring Sites



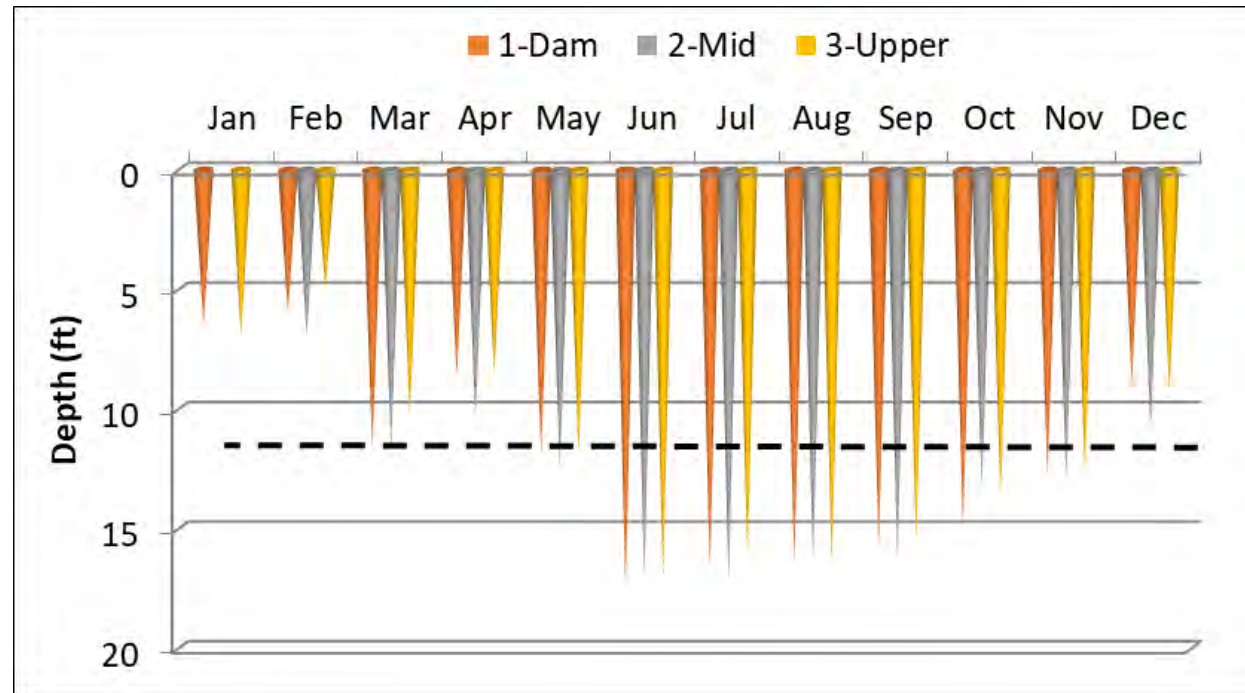
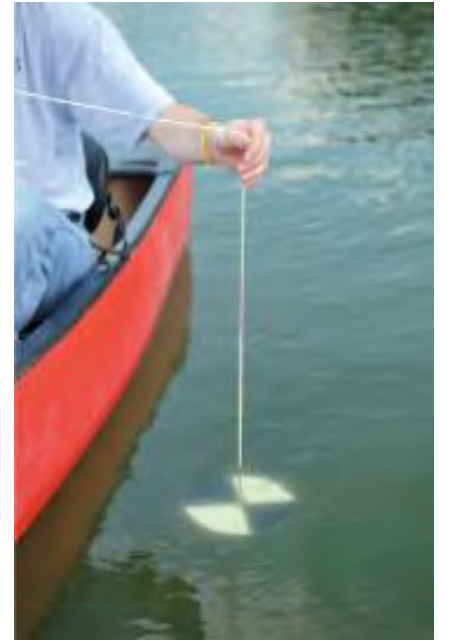
Red = Lake

Blue = Beach

Cove = cyanotoxins

Water Clarity

- Minor site differences
- Clearest in summer; most turbidity from winter runoff
- Surface clearer; deeper more variable from stirring



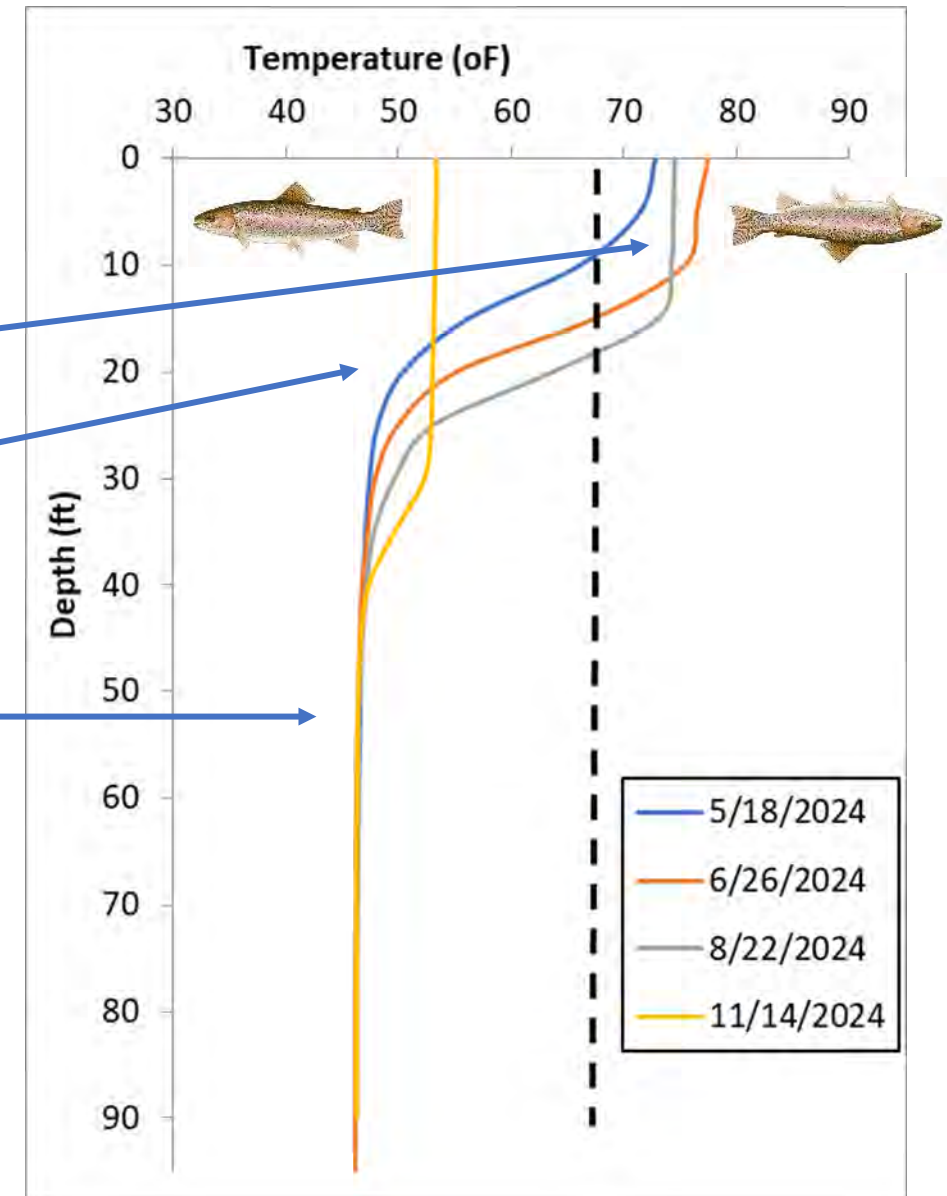
*Secchi Depth
> 12 ft is good*

Water Temperature

Surface temperature peaks mid-summer

Region of greatest temperature change =
“thermocline”

Bottom stays cold

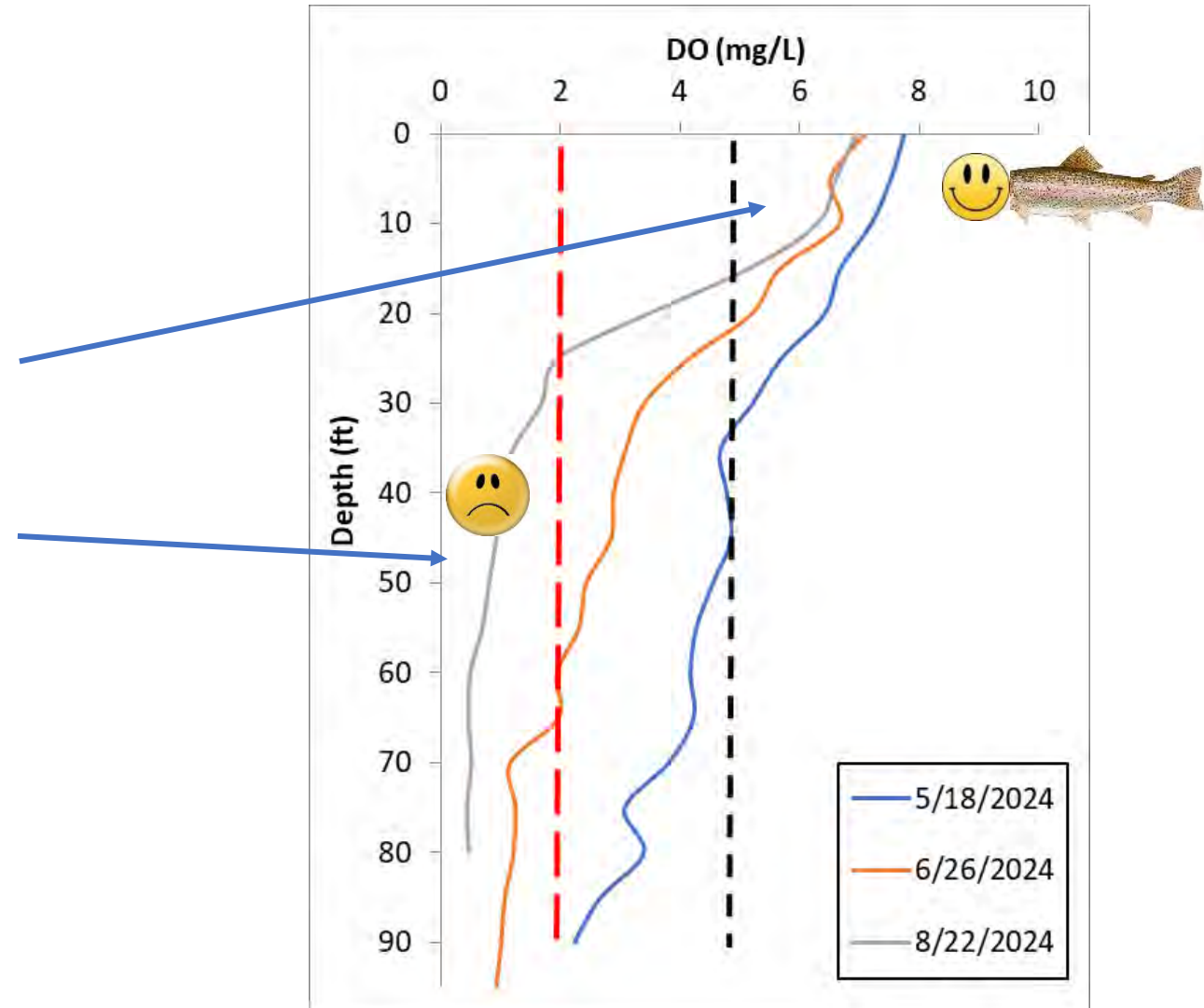


- Stratified spring-fall
- Hottest mid-summer
- Inflows sink in winter; float in spring

Trout prefer temp. <68 oF

Dissolved Oxygen

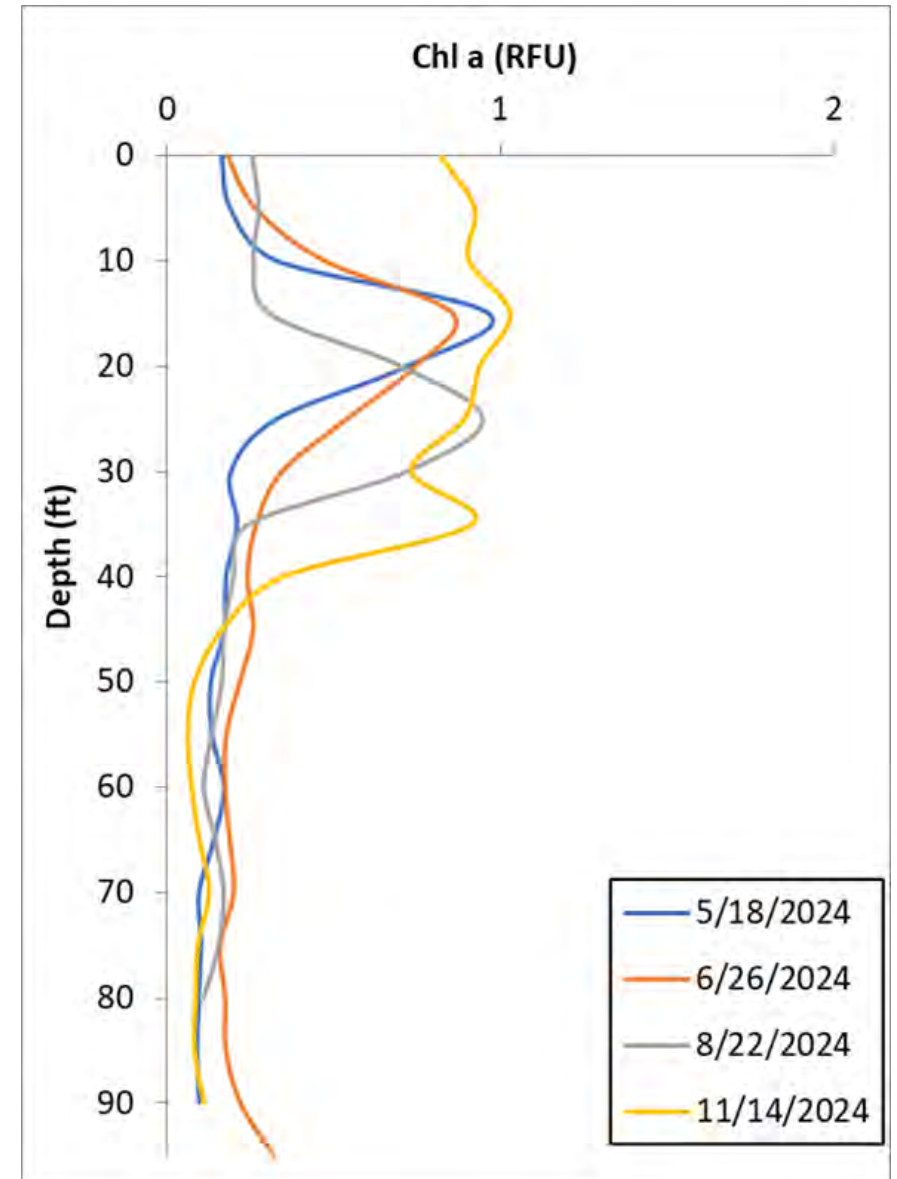
- DO near surface from air diffusion & photosynthesis
- DO lost quickly below thermocline by respiration
- Similar pattern every year



- *DO < 5 mg/L stresses fish*
- *DO < 2 mg/L changes chemistry*

Algae

- Max spring-summer
- Max around thermocline
 - UV from above
 - Nutrients below
 - Predation low
- Oligotrophic (low productivity)
- Mix of plankton species (good)
- Algae toxins not detected



<25 RFU is oligotrophic

Golden (and other) Mussels – Coming to a Lake Near You!

ACK!!

- Capable hitch hikers
- More tolerant to temp., calcium, salinity, pH
- Damage boats
- Clog intakes
- Change ecosystems

Management Approach

- Outreach
- Monitor lake conditions
- Track regional spread
- Clean, drain, dry
- Register & inspect watercraft



Golden Mussel Habitat Suitability


Pine Mtn. Lake Conditions

- Calcium 7-9 mg/L
- pH 7-8
- Temp 5-25 C

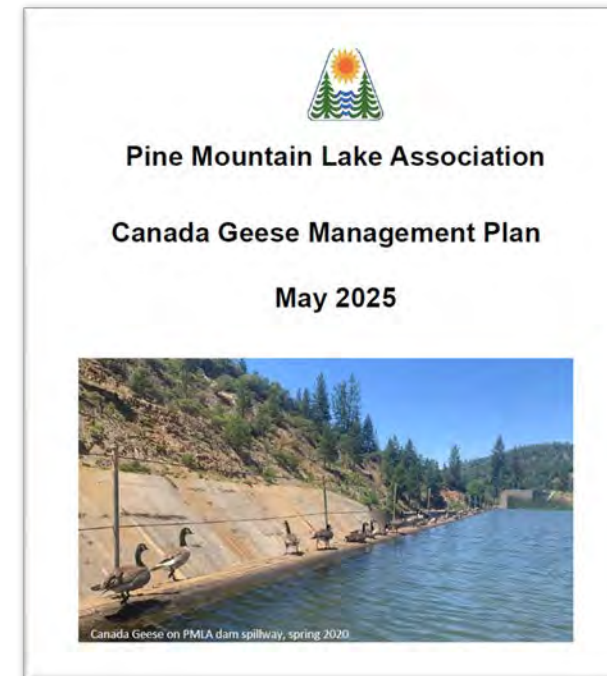
Golden mussel Habitat Suitability				
CDFW	Calcium (mg/l)	pH	Temperature	
High	10	>7 - <10	26-32°C	• Adult mussels survive long-term
				• Reproduction and full life-cycle completion occurs
				• Calcium is not a limiting factor
Moderate	5	>7 - <10	16-26°C or 32-35°C	• Adult mussels survive long-term
				• Reproduction can occur, but survivorship is reduced due to inadequate calcium for veliger development
				• Survivorship increases as calcium increases up to 10 mg/L
Low	3	>7 - <10	5-15°C or 35-40°C	• Adult mussels survive long-term
				• Reproduction may occur, but veligers cannot survive
				• Introduced late-stage veligers may survive and settle
Very Low	<3	>7 - <10	<5°C or >40°C	• Adult mussels can't survive long-term
				• Adult mussels are more resistant to gradual changes in salinity, like those seen in estuaries and can survive at higher salinities for several hours

Source: DA Dept. Fish & Wildlife

Canada Geese Management – “Progressive Response”

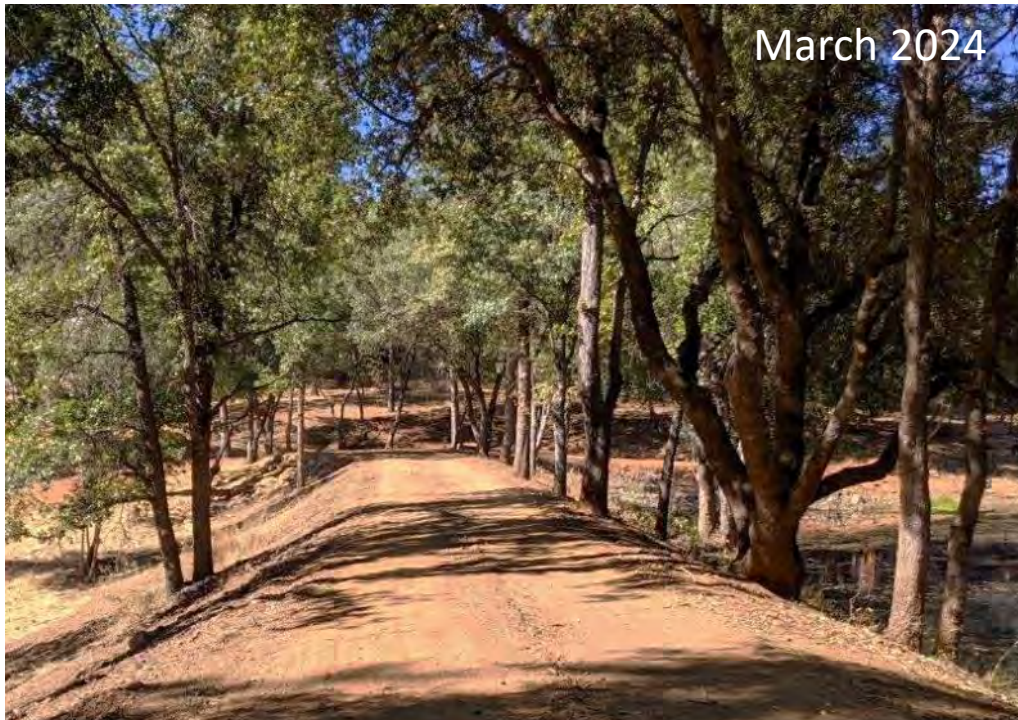
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- Monitor
 - Outreach
 - Clean use areas
 - Oil eggs
 - Harass
 - Hunt

- Staff out-competed on large area
- Prevent & deter costs > benefits



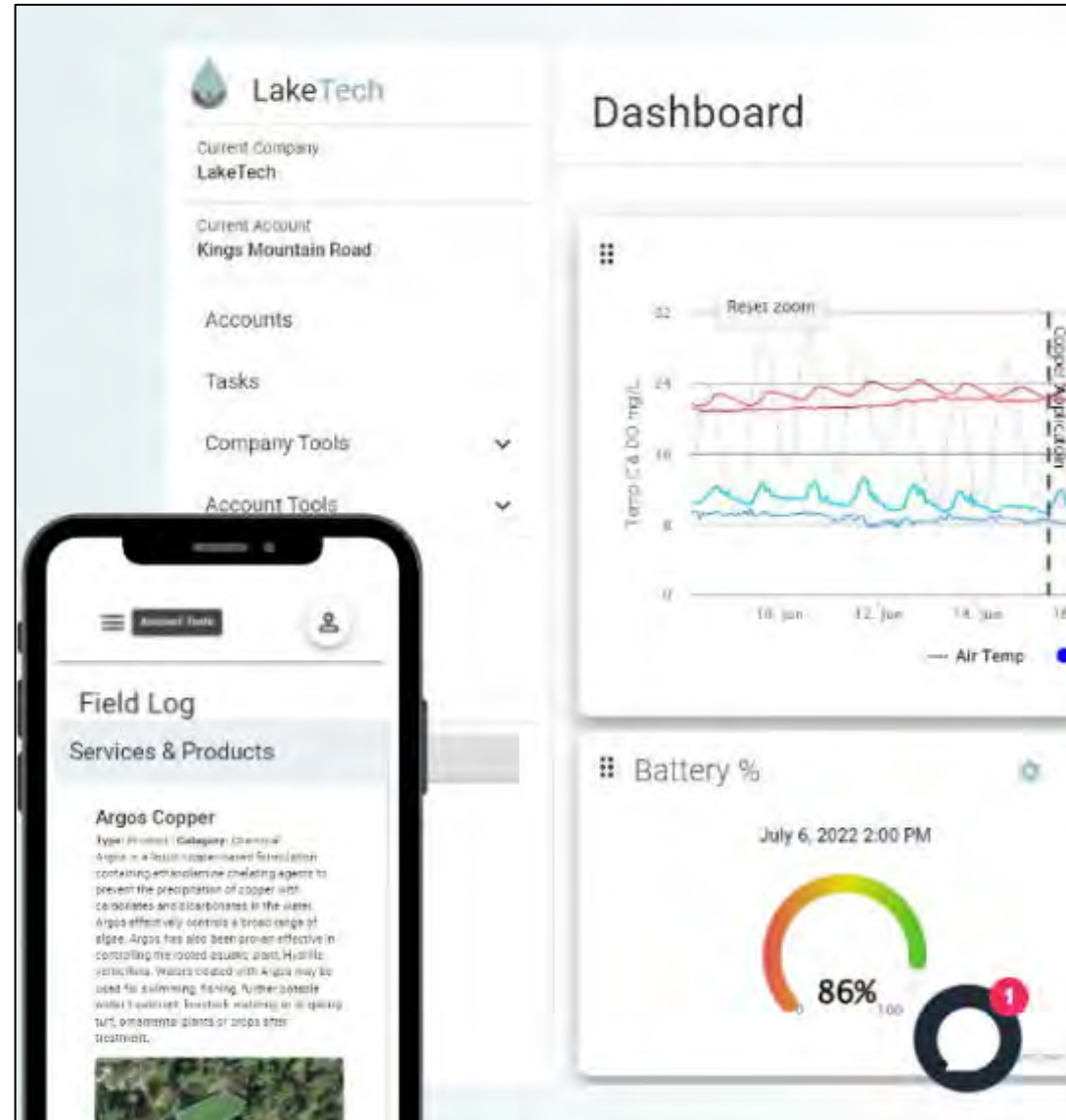
Bass Pond Challenges (& Responses)

- Equestrian center (housekeeping)
- Muck biotic dosing (dosing)
- Trees on dam (trim, monitor)
- Shoreline reeds (harvest)
- Spillway (lowered)



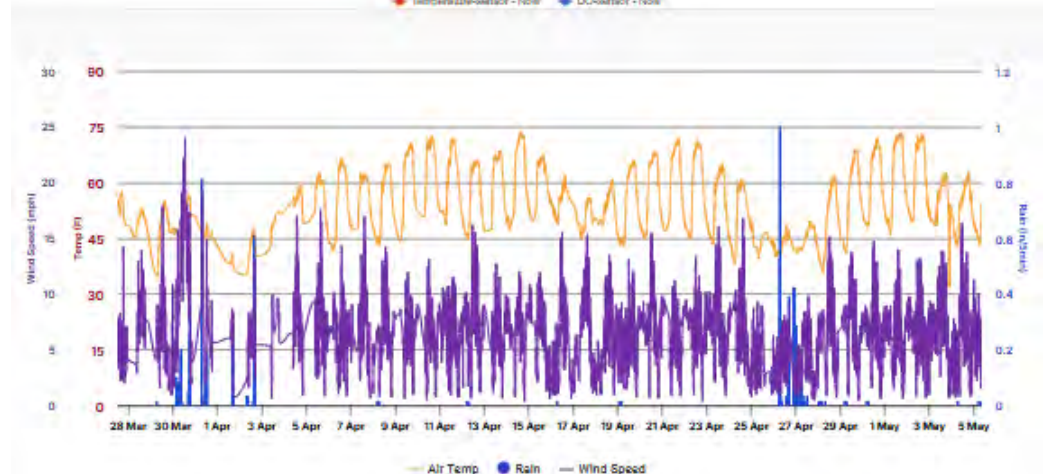
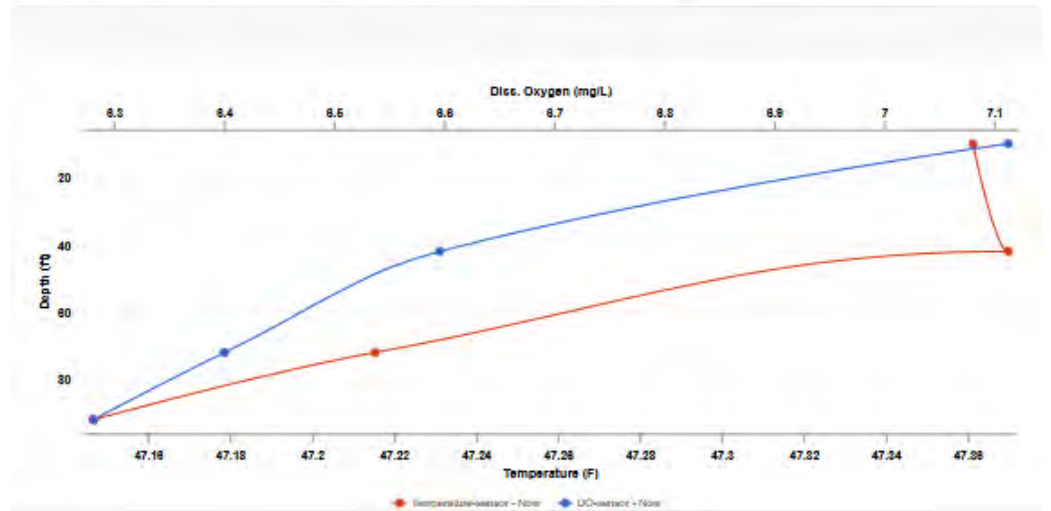
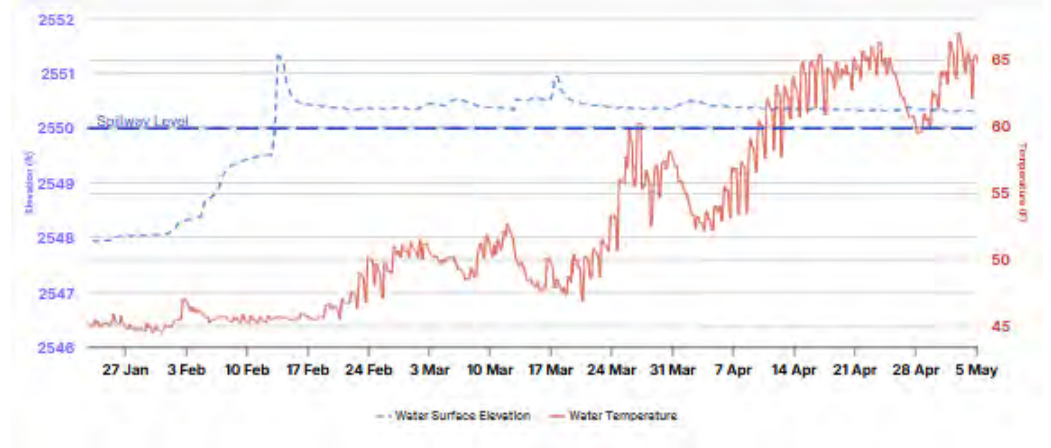
New Online Lake Mgt. Tool

- Weather station
- Temp. & DO buoy
- Water level
- Easy uploads w/ checks
- Visual aids w/ trigger
- Field logs & photos



Data for PMLA Website

- Water level & surface water temperature over time
- Dissolved oxygen & water temperature over depth
- On-dam weather data
- Beach pathogen reports?



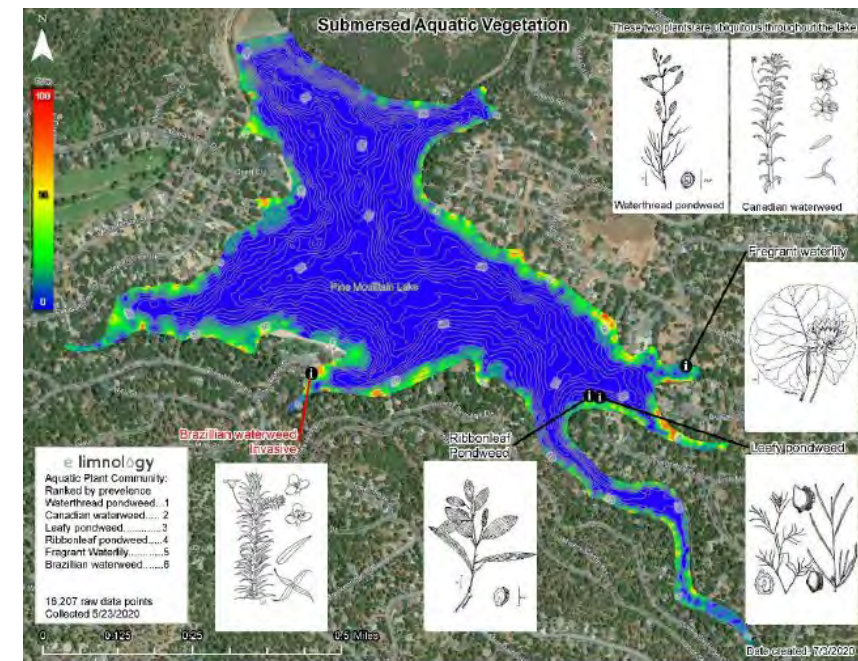
<https://www.pinemountainlake.com/lake-graph/>

New for 2025

- Aquatic plant re-survey
- Outreach articles
- Fecal indicators at beaches
- Sister HOAs discussions

Wish List:

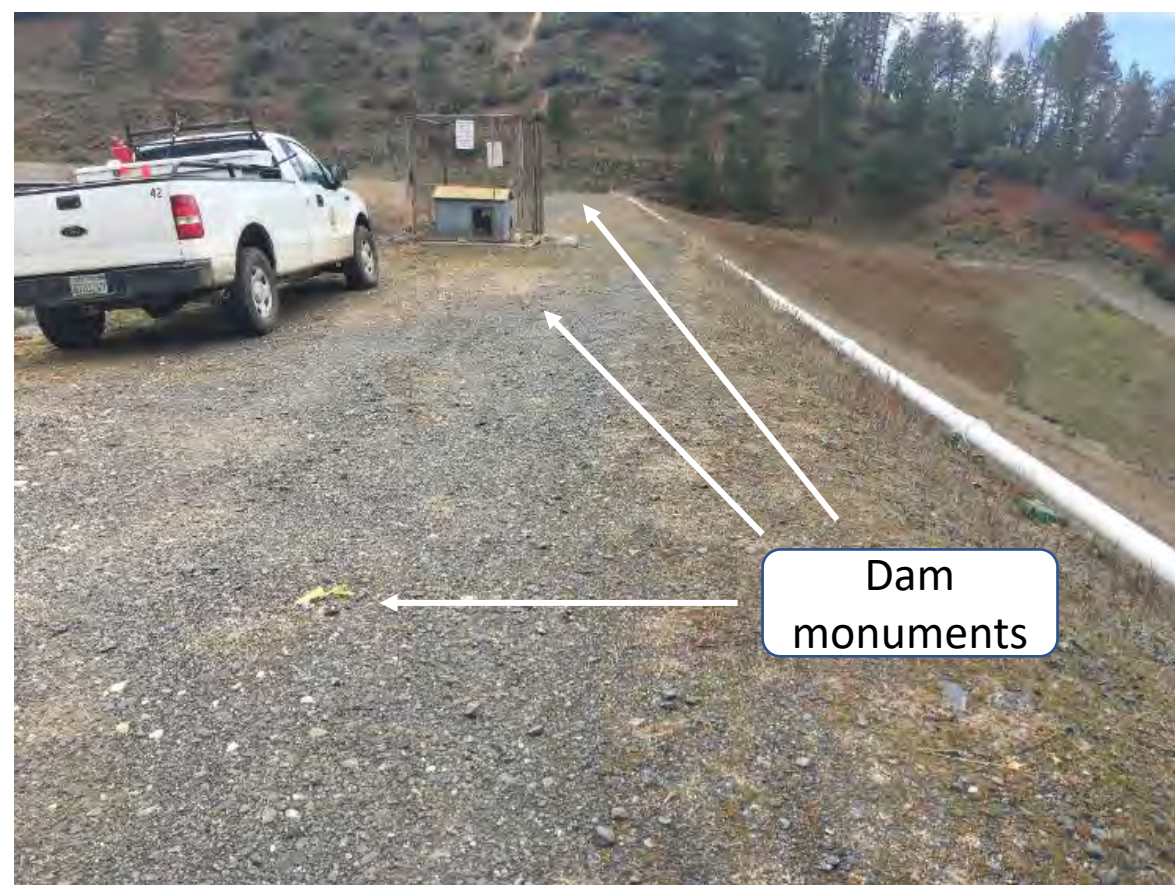
- Geese depredation permit
- Fall hypolimnetic (deep-water) release
- Dam surface map



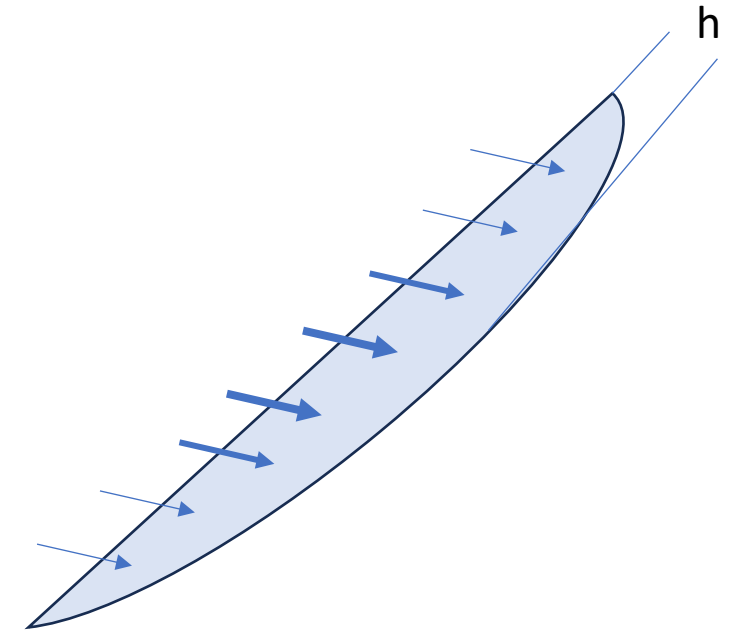


Keep Pine Mountain Lake Blue!

Dam Monuments, Observation Wells, and Seepage Ponds



USGS Gage Upstream on Big Creek



Canada Geese Extras

- Hunt in fall; remainers disperse
- Hunting season excludes March-Sept.
- Sampled feces: toxic bacteria NOT detected
- Depredation permit NOT granted → need stronger support from Tuol. Co. EHS

October 2024 at golf course



May 2024 by Lake Lodge

