



# Water Testing 25 Year Summary

LLPOA Lake Committee - 2023

## Loch Lomond Lake Data

- **Loch Lomond LLPOA has been collecting data on the lake since 1999, and has over 200 pages of observations.**
- There are 3 buoys placed in the lake each spring in specific locations so the data from year-to-year is fairly consistent. The buoy locations are:
  - #1 near the Dam
  - #2 South Bay (Designated Reference Location for Lake County measurements)
  - #3 North Bay
- The data sheets filled in about twice per month from May to October include a variety of observations including:
  - Total Depth with Secchi Disk
  - Visible Depth with Secchi Disk
  - Water Temperature
  - Color
  - Rainfall in past 24 hours
  - Weather conditions
  - Aquatic plants
- Below is a sample of the collected data:



Loch Lomond Lake Data					Designated VLMP Reference Location								
Date	Buoy #1 - Dam				Buoy #2 - South Bay				Buoy #3 - North Bay				
	Month	Total Depth (in)	Secchi Depth (in)	Temp (F)	Color (1-20)	Total Depth (in)	Secchi Depth (in)	Temp (F)	Color (1-20)	Total Depth (in)	Secchi Depth (in)	Temp (F)	Color (1-20)
1988 MAP		96				96				60			
5/8/1999	5	84	26		14	78	27		14	54	35		14
5/26/1999	5	84	39		14	78	37		14	60	38		14
6/14/1999	6	84	32		14	78	31		14	60	30		14
6/20/1999	6	84	25		14	78	25		14	60	26		14
5/3/2023	5	96	39	64	10	81	34	60	10	54	34	61	10
5/17/2023	5	85	22	63	10	84	48	70	11	50	22	72	11
5/31/2023	5	91	73	77	10	79	61	76	10	50	34	78	10
6/16/2023	6	88	33	69	15	76	23	69	15	48	21	72	15
7/6/2023	7	92	40	91	15	82	35	90	15	51	27	86	15
7/17/2023	7	90	22	77	10	79	21	76	10	48	15	77	11
8/1/2023	8	95	23	80.1	11	81	21	79.8	16	53	22	78.4	16
9/7/2023	9	87	24	76	16	77	20	76.2	16	47	19	77	16

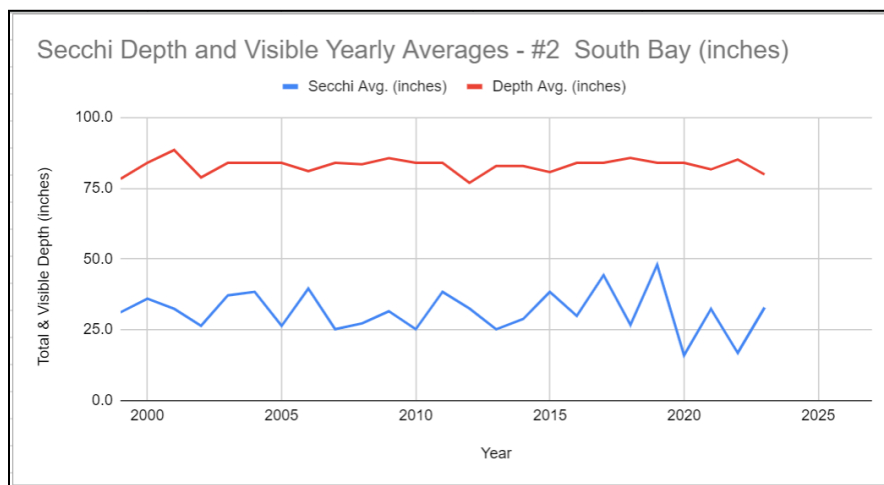
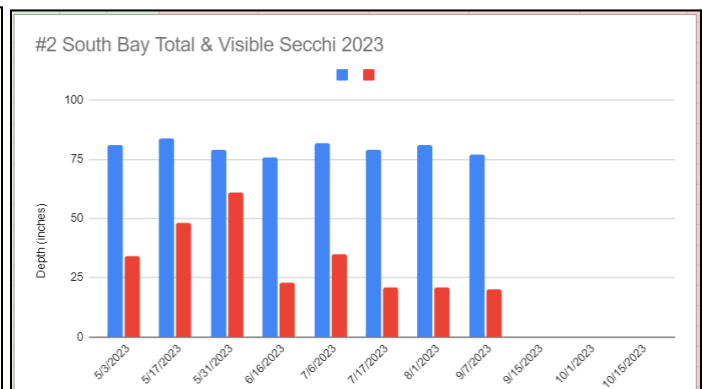
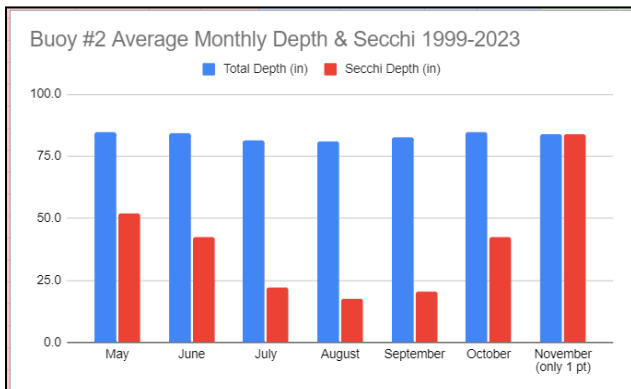
## 25 Year Averages, Minimum, and Maximum

- Below are the Average values for each Buoy location from 1999-2023:

TOTAL AVERAGE	Buoy #1 - Dam				Buoy #2 - South Bay				Buoy #3 - North Bay			
	Total Depth (in)	Secchi Depth (in)	Temp (F)	Color (1-20)	Total Depth (in)	Secchi Depth (in)	Temp (F)	Color (1-20)	Total Depth (in)	Secchi Depth (in)	Temp (F)	Color (1-20)
1988 MAP	96				96				60			
Average	94.8	33.7	76.2	12.1	83.1	32.6	73.3	12.2	54.3	28.6	75.3	12.2
Minimum	72.0	3.0	63.0	2.0	60.0	3.0	50.0	1.0	42.0	1.5	58.0	2.0
Maximum	108.0	93.0	91.0	19.0	108.0	84.0	90.0	18.0	65.0	60.0	86.0	27.0

- Below are the Average values each Month for each Buoy location from 1999-2023:

MONTHLY AVG	Mo nth	Buoy #1 - Dam				Buoy #2 - South Bay				Buoy #3 - North Bay			
		Total Depth (in)	Secchi Depth (in)	Temp (F)	Color (1-20)	Total Depth (in)	Secchi Depth (in)	Temp (F)	Color (1-20)	Total Depth (in)	Secchi Depth (in)	Temp (F)	Color (1-20)
May		95.3	55.0	69.3	12.0	84.9	52.2	69.8	11.8	54.4	41.7	71.0	11.6
June		95.2	43.9	74.7	12.2	84.4	42.6	74.5	12.8	54.7	36.3	75.2	12.7
July		95.2	21.8	83.2	12.6	81.7	22.2	79.5	12.3	54.4	21.5	81.0	12.3
August		93.5	17.3	81.8	12.4	81.1	17.6	80.4	12.5	53.3	17.3	79.9	12.6
September		94.3	22.4	76.0	11.8	82.6	20.4	70.5	12.3	53.6	20.8	73.7	12.0
October		95.5	44.8	64.0	11.1	84.9	42.3	59.8	11.3	55.5	35.4	64.0	11.6



## Aquatic Plants Observations

- **The observed aquatic plants over the entire lake is less than 5% (2015 Report), and it should be 30-40% for a healthy lake.** Imagine a 6 to 8 fold increase of aquatic plants on the lake and creating avenues for boats to balance lake ecology with recreation.
- **Over the past 25 years there have been 157 summer observations on aquatic plants at the 3 buoys. The percentage of aquatic plants has been extremely poor!**
- ***Between 92-99% of our observations indicate there were no floating-leaved or submersed plants at the 3 buoys!***

**A total of 199 observations but only 156-157 recorded aquatic plant observations**

	Buoy #1 - Dam	Buoy #2 - South Bay	Buoy #3 - North Bay
<b>0 = None</b> no floating-leaved or submersed plants	<b>153</b> <b>(97.5%)</b>	<b>155</b> <b>(98.7%)</b>	<b>144</b> <b>(92.3%)</b>
<b>1 = Minimal</b> only a very few floating-leaved or submersed plants	<b>4</b>	<b>1</b>	<b>7</b>
<b>2 = Slight</b> only a small amount floating-leaved or submersed plants	<b>0</b>	<b>1</b>	<b>2</b>
<b>3 = Moderate</b> Extensive but not complete floating-leaved or submersed plants (visible and growing close to surface; still usable)	<b>0</b>	<b>0</b>	<b>3</b>
<b>4 = Substantial</b> Complete coverage of the water surface by floating-leaved or submersed plants (boaters and swimmers would have a difficult time using this area)	<b>0</b>	<b>0</b>	<b>0</b>

## Additional Measurements

- The Lake County Health Department has also occasionally collected data over the past 25 years.
- In 2023, Loch Lomond acquired the ProQuatro device in order to take our own measurements of Dissolved Oxygen, Conductivity, Temperature, pH, and Nitrate-Nitrogen.
- The following information is an initial comparison of the Lake County and the LLPOA data. (“KMCP” are measurements taken from the shore of the pond in Keith Mione Community Park.)



Loch Lomond Lake Additional Data - ProQuatro since 8/2023									
	<i>1999-2015 Lake County Data used #2 S. Bay = Designated VLMP Reference Location; 3' depth; Averaged May-Sept Data</i>								
	<i>2023 LLPOA Data used #2 S. Bay = Designated VLMP Reference Location; 2-3' depth</i>								
<b>HEALTHY</b>	<b>80-120%</b>	<b>6.5-8 mg/L</b>	<b>0-0.200 mS/cm</b>	<b>&lt;1.0 ppt</b>	<b>0.05-0.250 g/L</b>	<b>7.0-9.0</b>	<b>0.1-1.0 mg/L</b>		
Date	TEMP (F)	DO (%)	DO (mg/L)	SPC (mS/cm)	SALINITY-ppt	TDS (g/L)	pH	Nitrate-N (mg/L)	Nitrate (mV)
1999 #2 S. Bay				0.7076					
2004 #2 S. Bay		89.3	7.73	0.8232		0.457	8.38	0.304	
2005 #2 S. Bay		96.7	8.37	1.3298		0.716	8.37	0.057	
2015 #2 S. Bay		83.34	8.42	0.7736		0.436	8.42	0.071	
8/1/2023									
#1 Dam	80.2			0.723	0.4	0.470	8.58	5.08	178.5
#2 S. Bay	79.8			0.737	0.4	0.479	8.29	5.9	174.7
#3 N. Bay	78.4			0.656	0.4	0.4266	8.65		
KMCP	75.8			0.601	0.3	0.3919	7.54	6.46	171.6
9/7/2023									
#1 Dam	76.9	50.5	4.07	0.753	0.4	0.490	8.63	1.28	192.4
#2 S. Bay	76.5	51.2	4.14	0.755	0.4	0.491	8.55	1.27	192
#3 N. Bay	77.0	54.9	4.41	0.747	0.4	0.486	8.56	1.20	193.5
KMCP	76.0	47.2	4.20	0.879	0.4	0.572	7.55	1.71	184

