



Tomahawk Lake
EWM Harvesting Report 2022

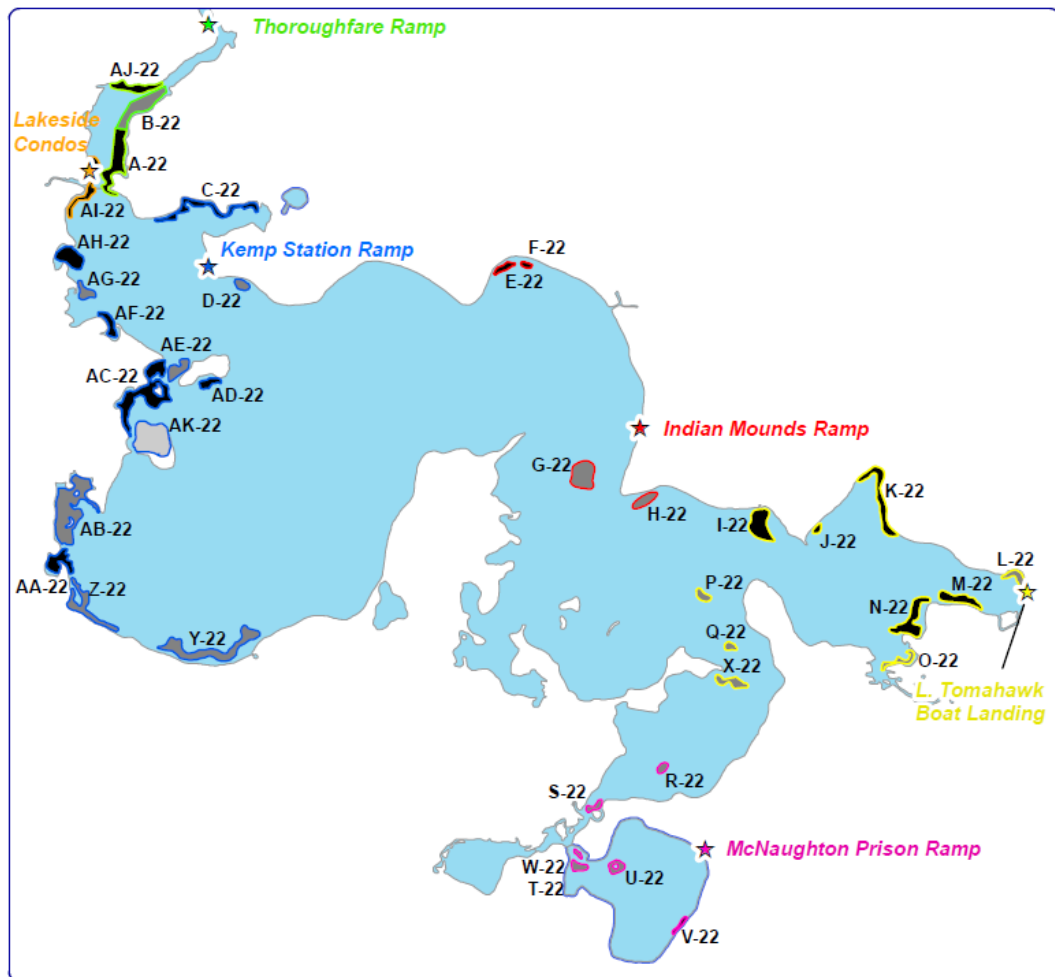
PO Box 1134 Minocqua, WI 54548



Executive Summary

- Tomahawk Lake in Oneida County, WI has an extensive population of Eurasian Watermilfoil (EWM) covering **190+ acres**
- To address the EWM population, the Tomahawk Lake Association (TLA) and Aquatic Plant Management (APM) partnered on a **multi-year program of mechanical harvesting and diver assisted suction harvesting (DASH)**
- In the first year of the program, APM completed **~90 days of mechanical harvesting, removing ~123K cubic feet of EWM from 36 prioritized sites** throughout the lake
- In addition, APM **completed DASH at 10 different locations, removing 810 cubic feet** for TLA members who received a discounted DASH rate through the program
- In total, APM **removed 123K cubic feet** of EWM from Tomahawk Lake in 2022

2022 Mechanical Harvesting Plan

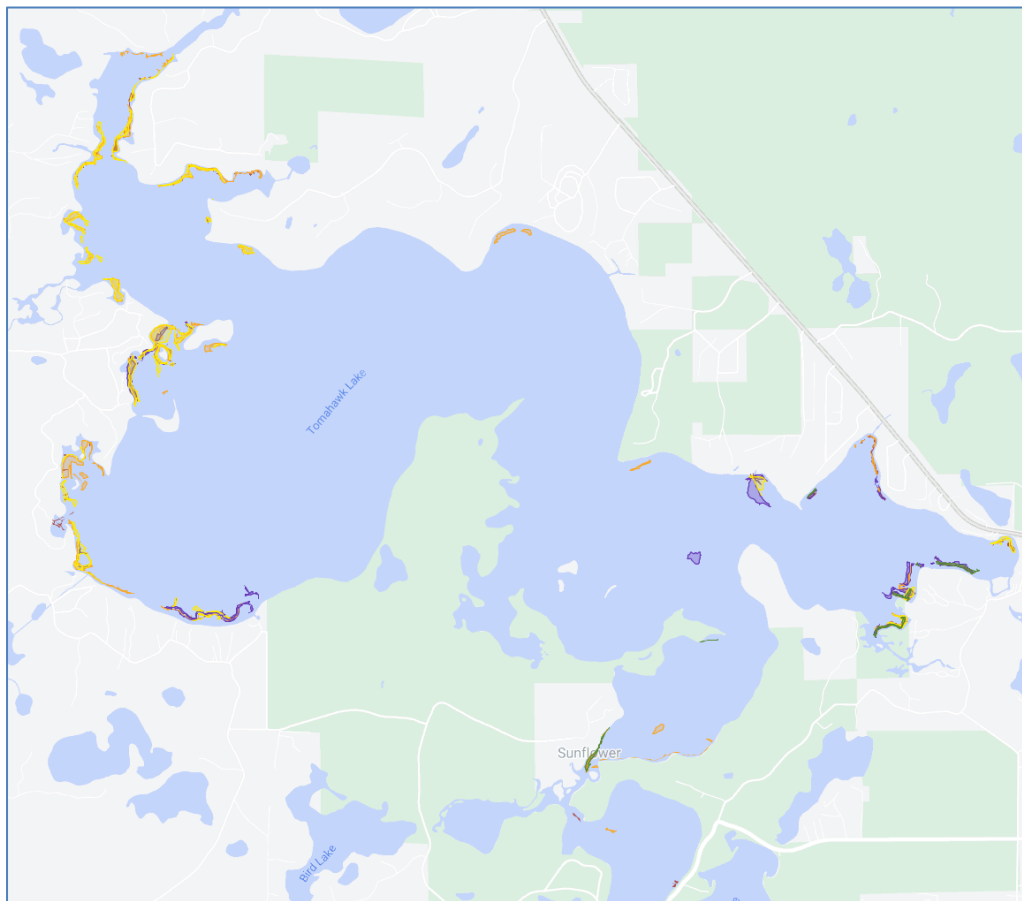


Source: 4.21.2022 EWM Survey Completed by Onterra LLC; Site Selection & Prioritization by TLA

Harvesting Approach

- **Riparian Access Lanes:** APM started the season by harvesting 'access lanes' from riparian piers/lifts to the main section of the lake
- **Total Colony Harvest:** After lanes had been harvested, the approach shifted to target full colonies prioritized by boat traffic and density
- APM worked down the priority list as **wind conditions permitted** making best efforts to **minimize transit time** between sites/offloads

2022 Mechanical Harvesting Results



Source: APM Harvest Records June – October 2022

Legend ■ Jun ■ Jul ■ Aug ■ Sep ■ Oct

Site	Acres	Treatment Hours	CF Removed
A-22	10.6	14.8	3,954
AA-22	5.1	3.3	1,287
AB-22	18.9	27.9	10,682
AC-22	16.1	48.9	20,371
AD-22	2.1	3.3	982
AE-22	3.5	10.3	3,769
AF-22	2.7	13.4	4,441
AG-22	2.5	6.9	2,243
AH-22	5.7	14.5	5,594
AI-22	5.8	19.7	5,728
AJ-22	4.8	1.9	300
AK-22	13.8	0.4	90
B-22	8.5	2.9	956
C-22	7.1	18.3	4,925
D-22	1.6	7.5	2,584
E-22	1.6	3.6	1,220
F-22	0.7	2.0	700
G-22	7.5	-	-
H-22	2.9	1.3	820
I-22	7.4	14.9	11,676
J-22	0.9	2.3	756
K-22	8.1	6.9	1,300
L-22	2.4	6.0	3,100
M-22	4.7	9.3	3,454
N-22	7.8	19.4	8,212
O-22	2.3	13.1	4,003
P-22	1.7	5.1	2,084
Q-22	1.7	-	-
R-22	1.1	2.4	950
Schuette's Rock	-	0.8	175
S-22	1.2	6.3	1,222
T-22	0.5	0.1	39
U-22	2	0.5	367
V-22	0.9	0.4	49
W-22	1.6	0.4	64
X-22	3.2	0.5	442
Y-22	13.3	18.3	9,342
Z-22	7.1	14.3	4,753
Total	189.6	321.2	122,634



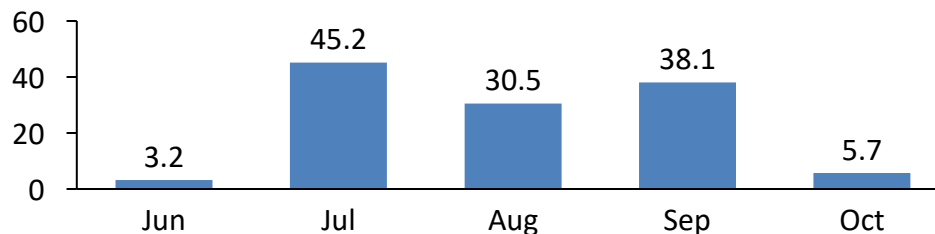
Summarized Harvesting Results

Mechanical Harvesting Commentary

- The bulk of the EWM harvest occurred in the month of July during the peak growing season, however the TLA and APM decided to also prioritize efforts at the tail end of the season (Sep/Oct) to leave the EWM plants further from the surface over the winter
- Two thirds of the EWM was harvested from 17 sites in the western portion of the lake, which had ~129 acres to target versus 60 acres on the eastern portion of the lake
- EWM fragmentation was noted by riparians as a result of boat traffic and harvesting; APM made best efforts to remove floating fragments but prioritized the total colony harvest strategy as aligned with the TLA
- The main hinderance to productivity was the distance between some of the large, dense beds in the southwest portion of the lake, and the nearest off-load location at Kemp station

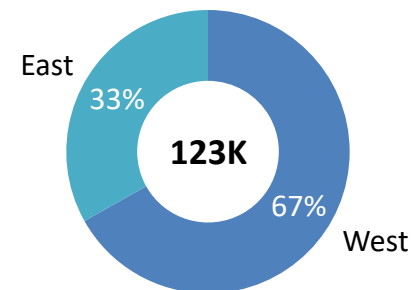
Harvest by Month

Cubic Feet (K)



Days ¹	7.1	32.1	20.5	25.1	4.9
# of Sites	17	26	11	19	11

Harvest by Lake Section



- **East:** Main offload location at Lake Tomahawk Landing
- **West:** Main offload location at Kemp Station

Source: APM Harvest Records June – October 2022

1) Day corresponds to 8 hours of harvesting; some dates included up to 14 hours of harvesting

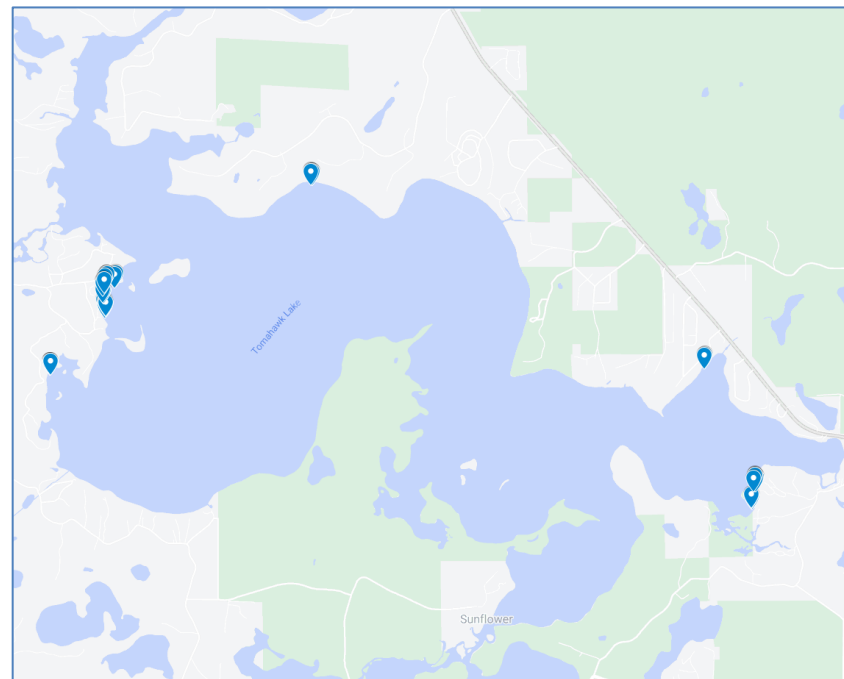


Riparian DASH Harvest Results

Diver Assisted Suction Harvesting Commentary

- 10 TLA members took advantage of the discounted DASH program to remove EWM from in and around their piers, boat lifts, and swim areas
- In total, APM was able to remove 811 cubic feet with ~79 hours of underwater dive time

Lake:	Avg. Water Depth	# of Dives	Underwater Dive Time	AIS Removed (cubic feet)
Riparian 1	3.8	5	6.7	29.5
Riparian 2	5.7	3	6.0	41.0
Riparian 3	8.7	6	8.9	122.5
Riparian 4	5.2	9	11.7	135.0
Riparian 5	9.5	2	6.8	39.0
Riparian 6	5.0	2	2.8	24.5
Riparian 7	7.8	11	18.2	239.0
Riparian 8	6.5	4	6.3	66.0
Riparian 9	4.6	4	5.8	26.5
Riparian 10	6.4	4	5.8	88.0
Grand Total	6.4	50	78.9	811.0



Source: APM DASH Records June – September 2022



Next Steps

- TLA and APM plan to create another prioritization strategy over the winter and in the late spring once the EWM population can be observed
- A less aggressive harvesting approach (i.e., fewer days) is likely going to be a component of the strategy
- TLA and APM should discuss a strategy for fragment collection as fragmentation was common complaint from riparians
- TLA should consider other management options (e.g., herbicides) for the densest beds that have high traffic (e.g., AC-22) so the harvesting can maximize time in other areas



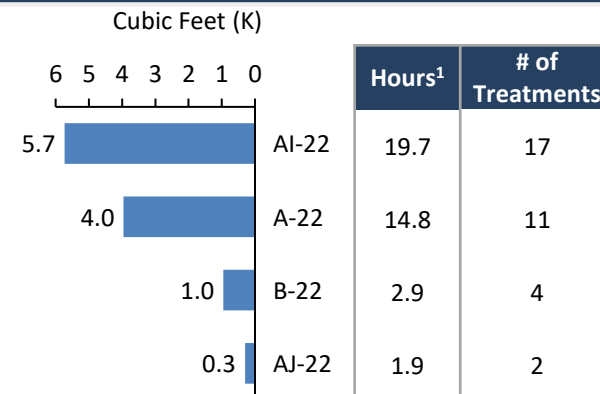
Mechanical Harvesting Maps

Mechanical Harvesting Results - Lakeside



Legend Jun Jul Aug Sep Oct

Harvest Details by Site



	Cubic Feet (K)	Hours	# of Treatments
Total	11.0	39.2	34
% of Lake	8.9%	12.2%	9.8%

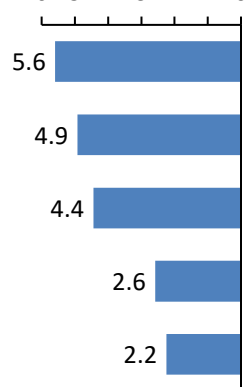
Mechanical Harvesting Results - Kemp



Harvest Details by Site

Cubic Feet (K)

6 5 4 3 2 1 0



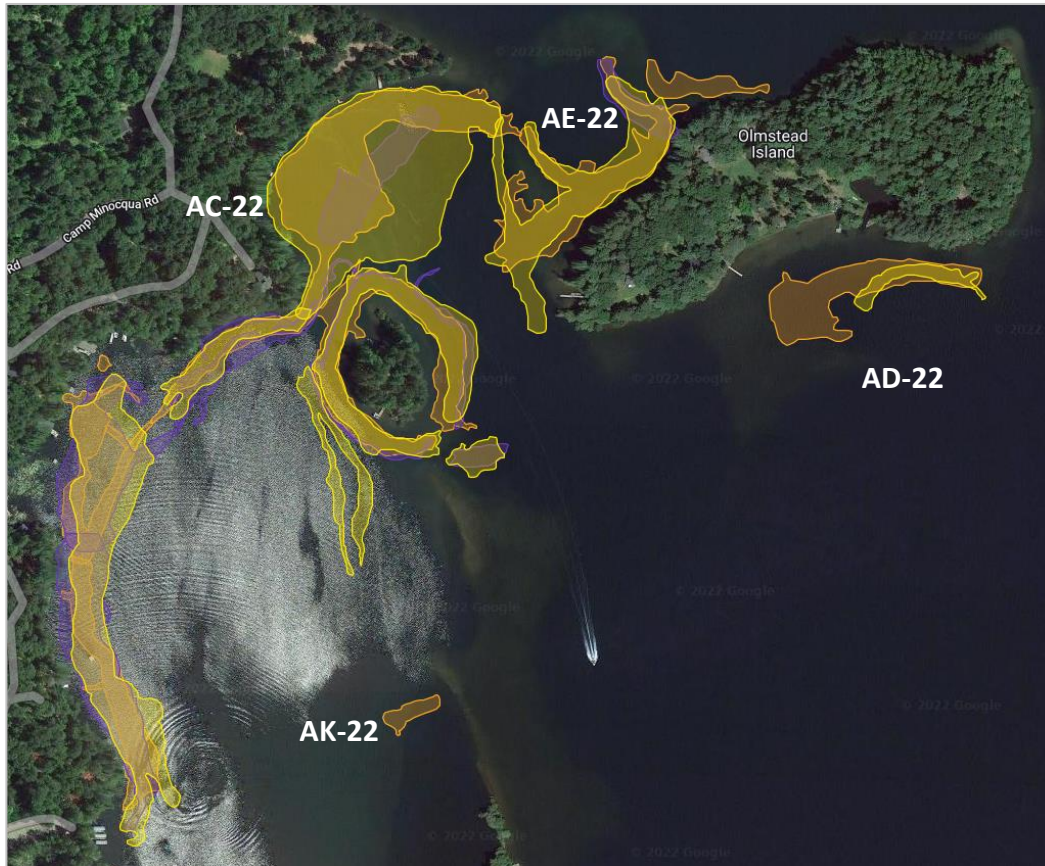
	Hours ¹	# of Treatments
AH-22	14.5	15
C-22	18.3	16
AF-22	13.4	13
D-22	7.5	8
AG-22	6.9	7

	Cubic Feet (K)	Hours	# of Treatments
Total	19.8	60.5	59
% of Lake	16.1%	18.8%	17.0%

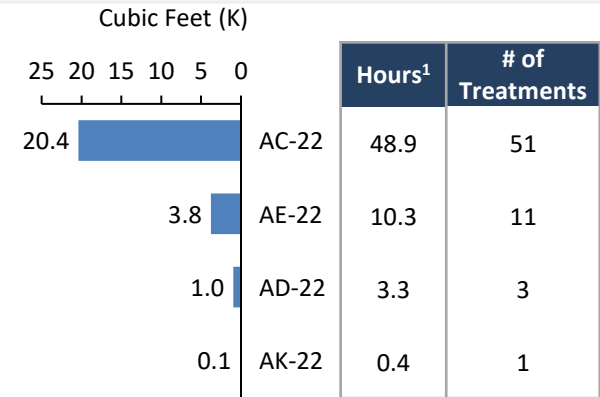
Legend

■ Jun
 ■ Jul
 ■ Aug
 ■ Sep
 ■ Oct

Mechanical Harvesting Results - Olmstead



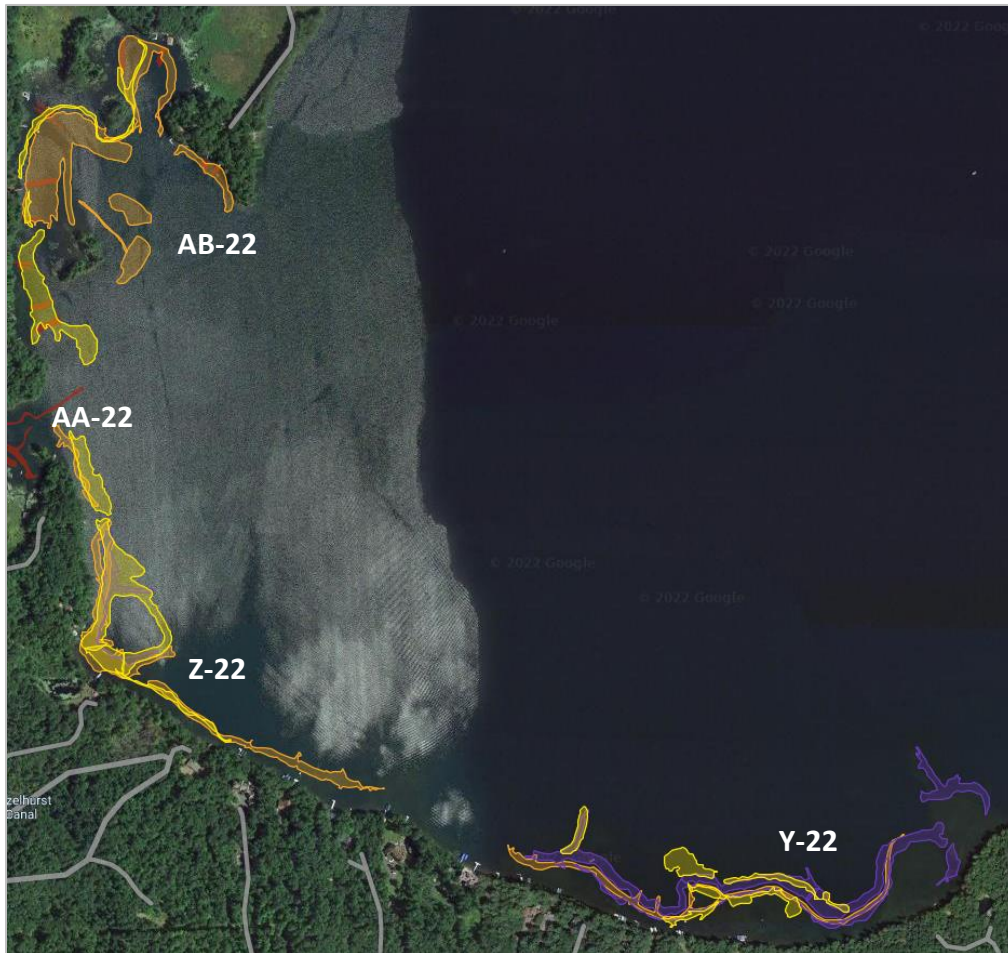
Harvest Details by Site



	Cubic Feet (K)	Hours	# of Treatments
Total	25.2	62.9	66
% of Lake	20.6%	19.6%	19.0%

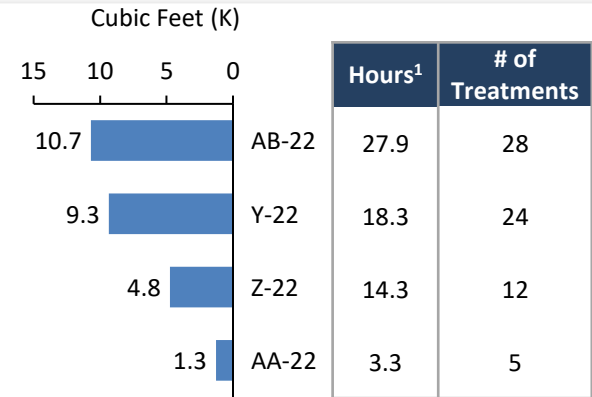
Legend Jun Jul Aug Sep Oct

Mechanical Harvesting Results - Southwest



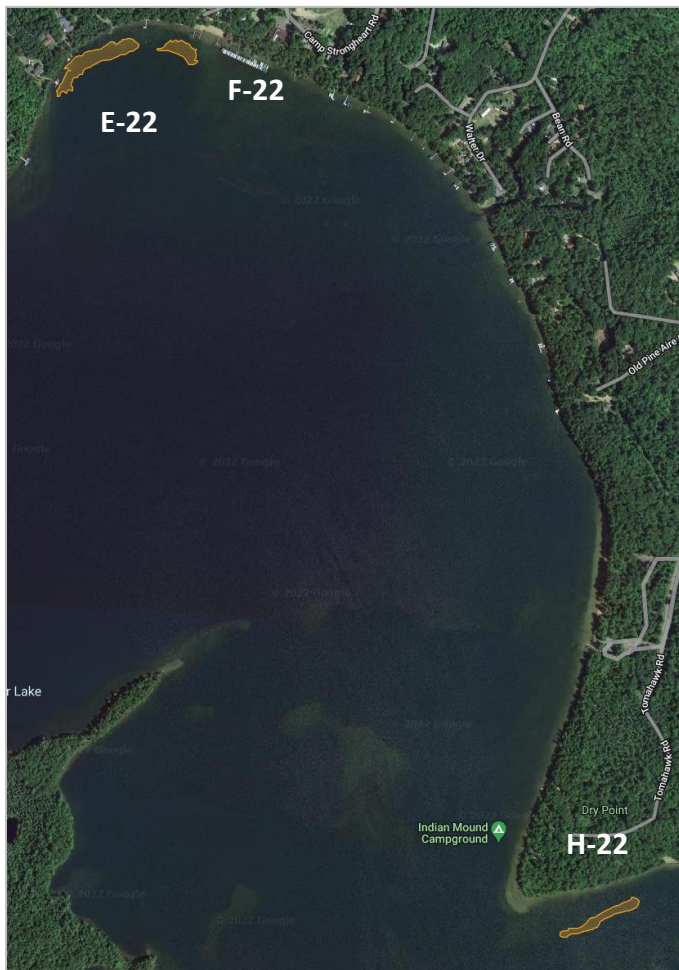
Legend Jun Jul Aug Sep Oct

Harvest Details by Site



	Cubic Feet (K)	Hours	# of Treatments
Total	26.1	63.7	69
% of Lake	21.3%	19.8%	19.9%

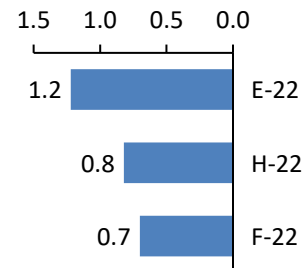
Mechanical Harvesting Results – Indian Mounds



Legend Jun Jul Aug Sep Oct

Harvest Details by Site

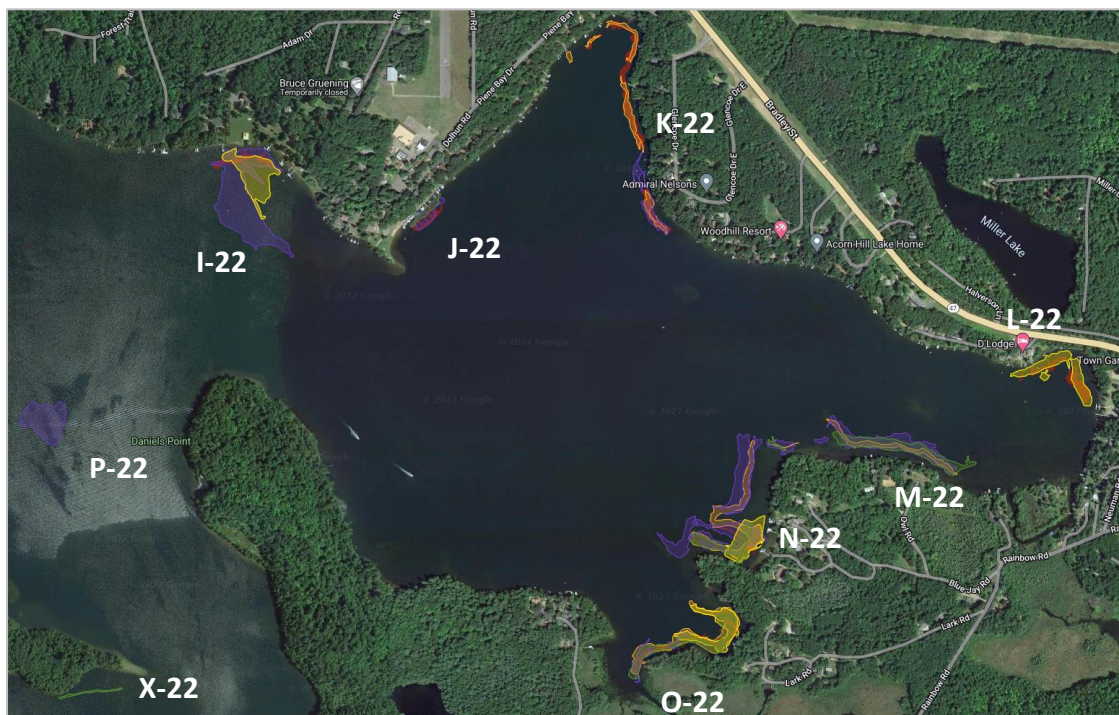
Cubic Feet (K)



Hours ¹	# of Treatments
3.6	4
1.3	2
2.0	3

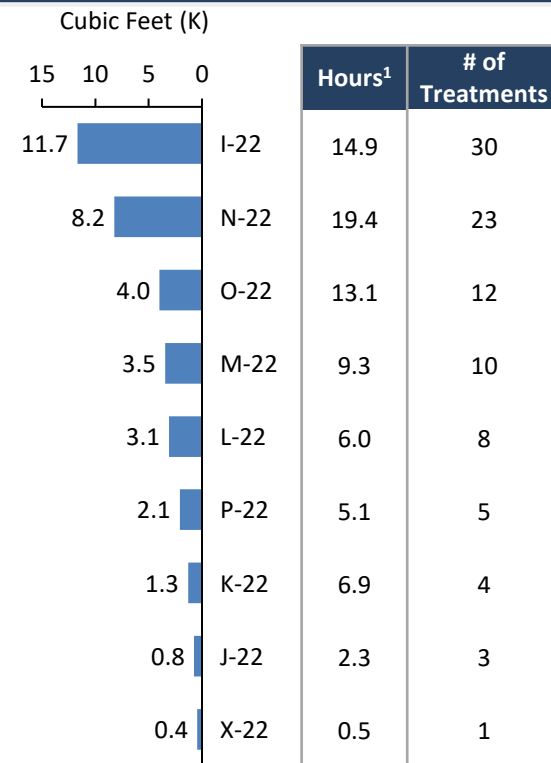
	Cubic Feet (K)	Hours	# of Treatments
Total	2.7	6.8	9
% of Lake	2.2%	2.1%	2.6%

Mechanical Harvesting Results – Lake Tomahawk



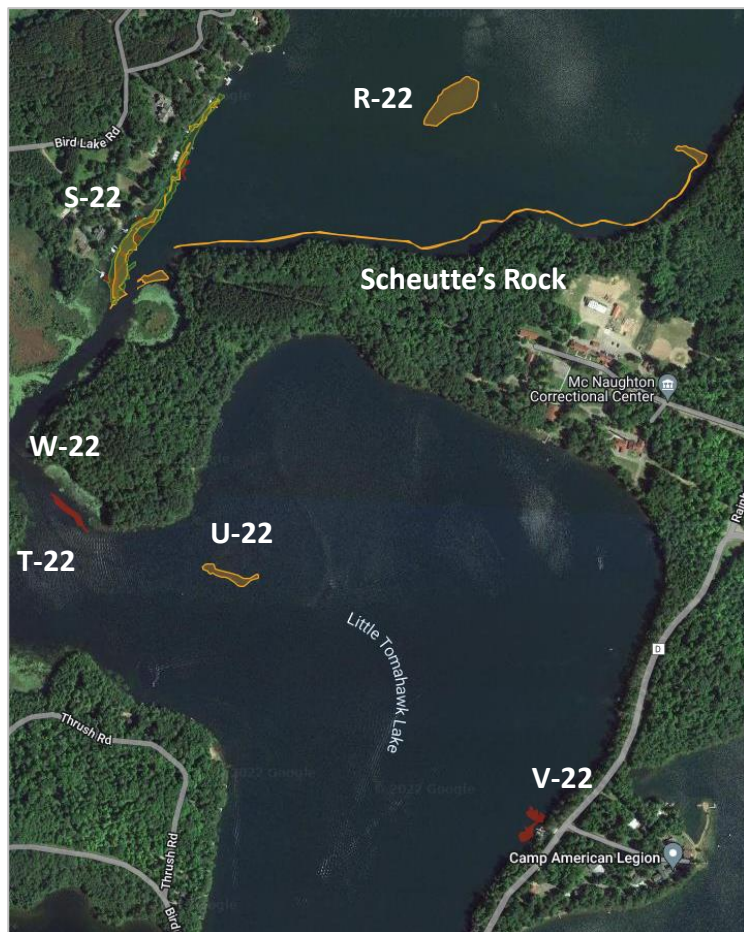
Legend Jun Jul Aug Sep Oct

Harvest Details by Site



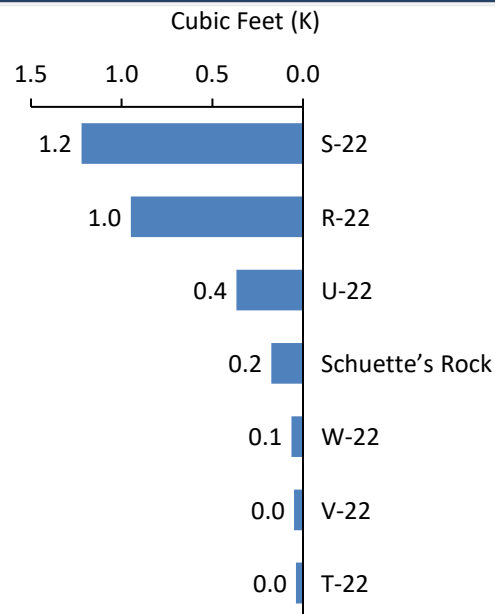
	Cubic Feet (K)	Hours	# of Treatments
Total	35.0	77.3	96
% of Lake	28.6%	24.1%	27.7%

Mechanical Harvesting Results – Southeast



Legend Jun Jul Aug Sep Oct

Harvest Details by Site



Hours ¹	# of Treatments
6.3	5
2.4	3
0.5	2
0.8	1
0.4	1
0.4	1
0.1	1

	Cubic Feet (K)	Hours	# of Treatments
Total	2.9	10.8	14
% of Lake	2.0%	3.3%	4.0%