

**Cisco Chain Riparian Owners Association
Cisco Chain of Lakes Aquatic Invasive Species Control
Program 2021 Performance Monitoring Report
Date: 03/01/2022**

An agreement between the US Forest Service (Ottawa National Forest) and the Cisco Chain Riparian Owners Association (CCROA).

Grant/Agreement Number:	17-PA-11090700-008
Cooperator Name:	Cisco Chain Riparian Owners Association
Performance Start Date:	01/01/2021
Performance End Date:	12/31/2021
Report Source:	Cooperator
Report Due Date:	03/31/2022
Agreement Start Date:	03/08/2017
Expiration Date:	03/01/2022

On October 2015, CCROA submitted a Title II Project Submission Form to the Gogebic County Resource Advisory Committee (RAC) to monitor and control Eurasian watermilfoil within the Cisco Chain of Lakes (GOG-16-002). On August 24, 2016, the Gogebic RAC recommended funding their proposal in the amount of \$10,000. On September 9, 2016, the Forest Supervisor approved the project. A new participating agreement between the Forest Service and CCROA was created on March 8, 2017 (17-PA-11090700-008). This agreement continues work begun with a 2012 RAC application (GOG-12-045), awarded through Participating Agreement # 14-PA- 11090700-008 in 2014.

Aquatic Invasive Species Monitoring

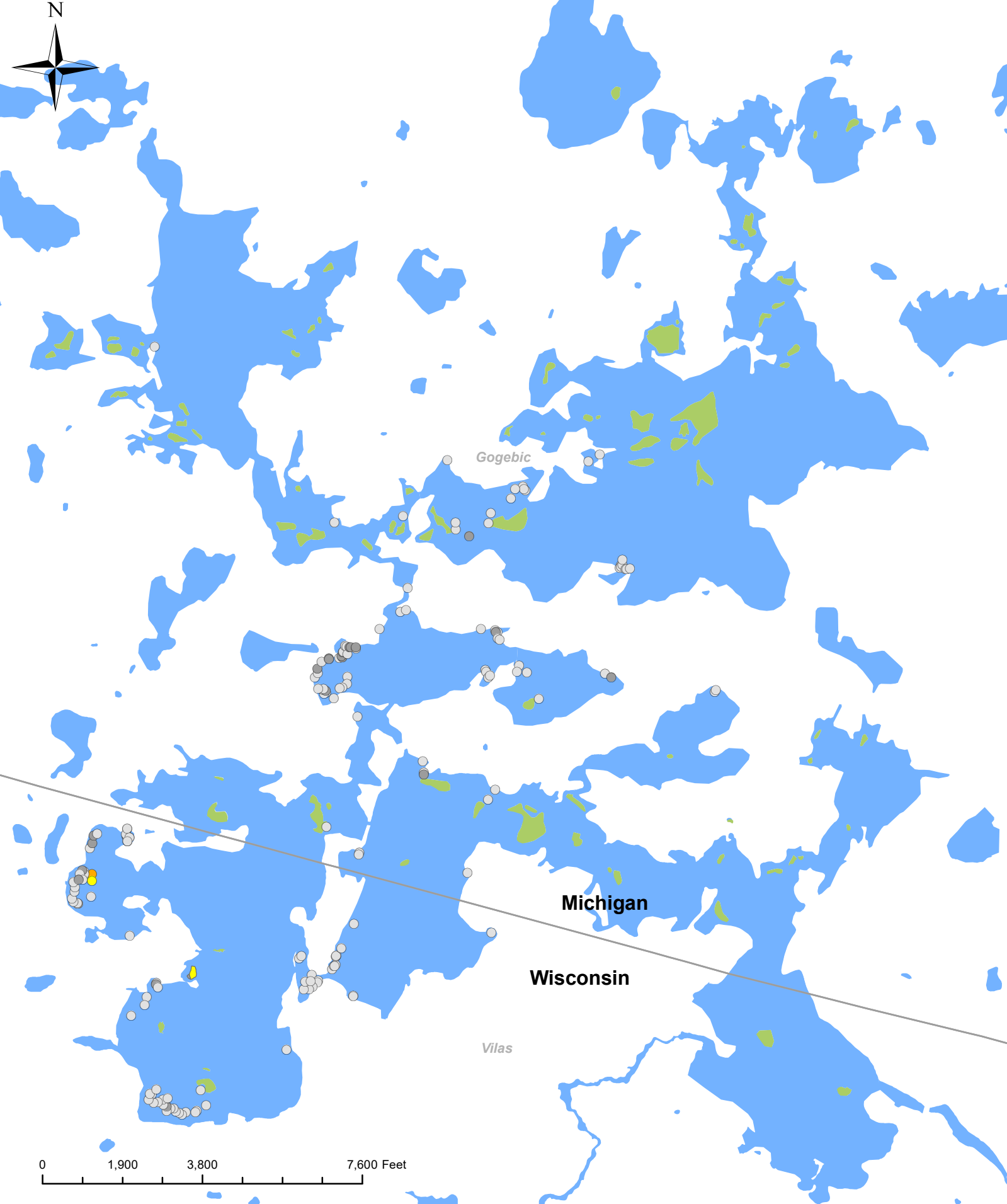
Aquatic invasive species (AIS) monitoring mainly focuses on Eurasian watermilfoil and curly leaf pondweed, but includes other aquatic and wetland plant species. Monitoring efforts are qualitative in nature; meaning information collected describes general condition versus measured or quantitatively collected and calculated values. Smaller sites are geo-referenced with a GPS point and extent is determined by visually estimating coverage in foot-circumference. This is an observed estimate of exact extent, not footprint. On average, these sites are less than a 0.10 of an acre in size. Larger sites, typically greater than a 0.10 of an acre in size, are circumnavigated and extent in acres is calculated and represented on a map with a polygon. Abundance or density estimates are on a five-part scale ranging from very sparse to dense.

Depending on the management strategy and degree of EWM infestation, all lakes on the Cisco Chain receive at a minimum one full lake mid/late season survey. These surveys are funded by various sources, including RAC funds.

All AIS monitoring results will be shared with the Ottawa National Forest, including locations of Eurasian watermilfoil, curly leaf pondweed, and purple loosestrife.

Table 1: Cisco Chain AIS Survey List, 2021.

Date	Lake	AIS Species Detected	Survey Type
6/4/2021	Thousand Island	EWM	Pre management - EWM
	Morley	EWM	
	Lindsley/Fishhawk	EWM	
6/16/2021	Thousand Island & Channels	EWM	Pre management - EWM
7/9/2021	Big	EWM	Mid-season - AIS
	West Bay	EWM	
	Big	EWM	
7/10/2021	Big	EWM	Mid-season - AIS
	Thousand Island	EWM	
	West Bay	EWM	
	East Bay	EWM	
	Mamie	CLP	
7/10/2021	East Bay		Mid-season - AIS
7/13/2021	Mamie	CLP	Mid-season - AIS
	Cisco	CLP	
7/16/2021	Cisco & Channels	EWM	Mid-season - AIS
	Poor	EWM	
	Indian	None	
	Lindsley	EWM	
	Fishhawk	EWM	
7/17/2021	Thousand Island	EWM, CLP & Purple loosestrife	Mid-season - AIS
	Big Africa	None	
	Little Africa	None	
	Record	None	
7/30/2021	Thousand Island	EWM	Mid-season - AIS
7/16/2021	Morley	EWM	
	Lindsley	EWM	
7/17/2021	Clearwater	None	Mid-season - AIS
10/7/2021	Thousand Island	No EWM detected in any management area except one plant on Morley	Post Management Evaluation
	Morley		
	Lindsley		
	Fishhawk		

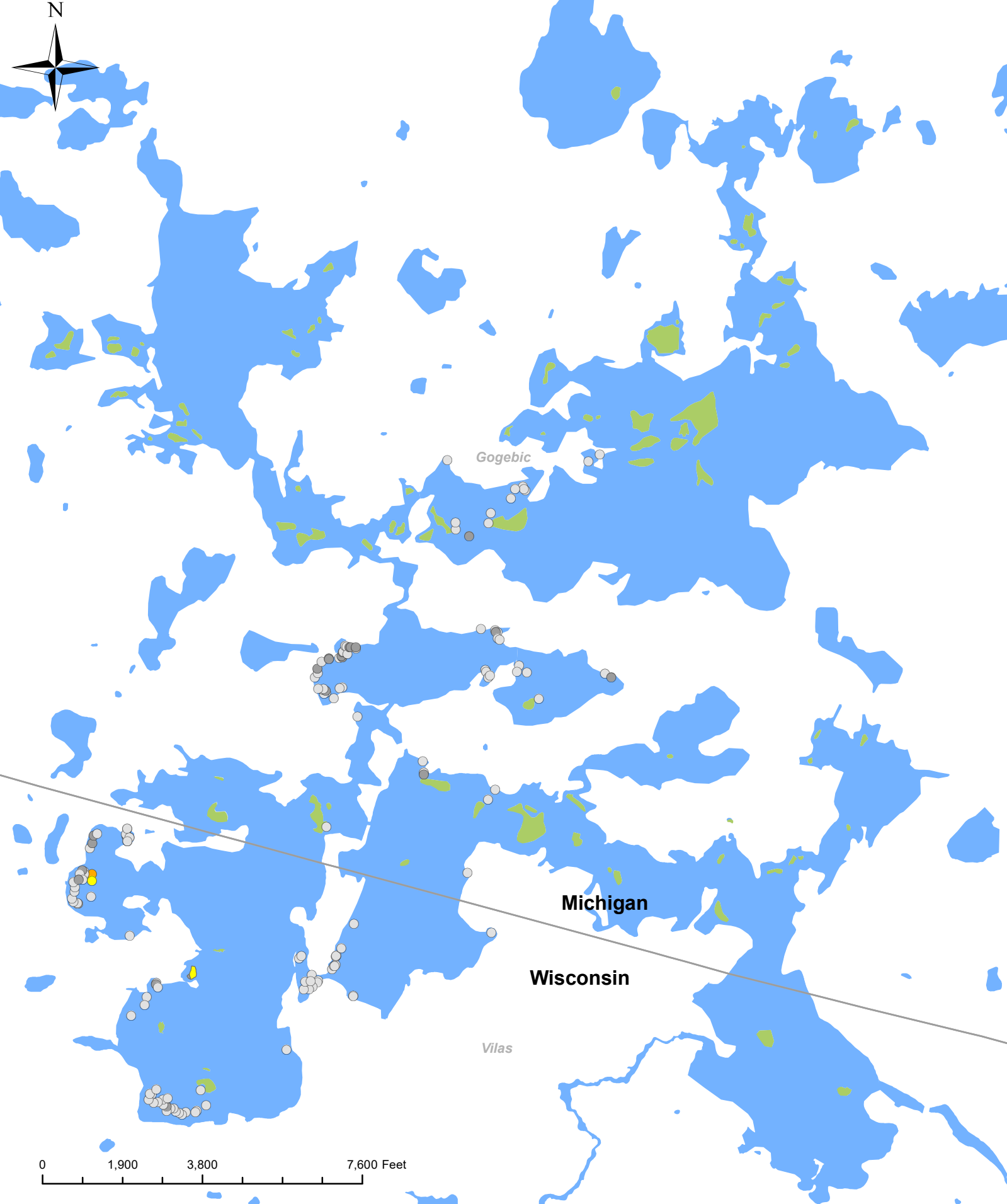


Cisco Chain of Lakes - Vilas County, WI & Gogebic County, MI
Map Date & Creator: 2/21/2022, Many Waters, LLC
Source: WDNR Hydro, ESRI Base Maps,
MiGDL Lake_polygons_200403
File: CiscoChain_EWM_2021

EWM Abundance Estimate

- Very Sparse
- Sparse
- Moderate
- Moderate-Dense
- Dense

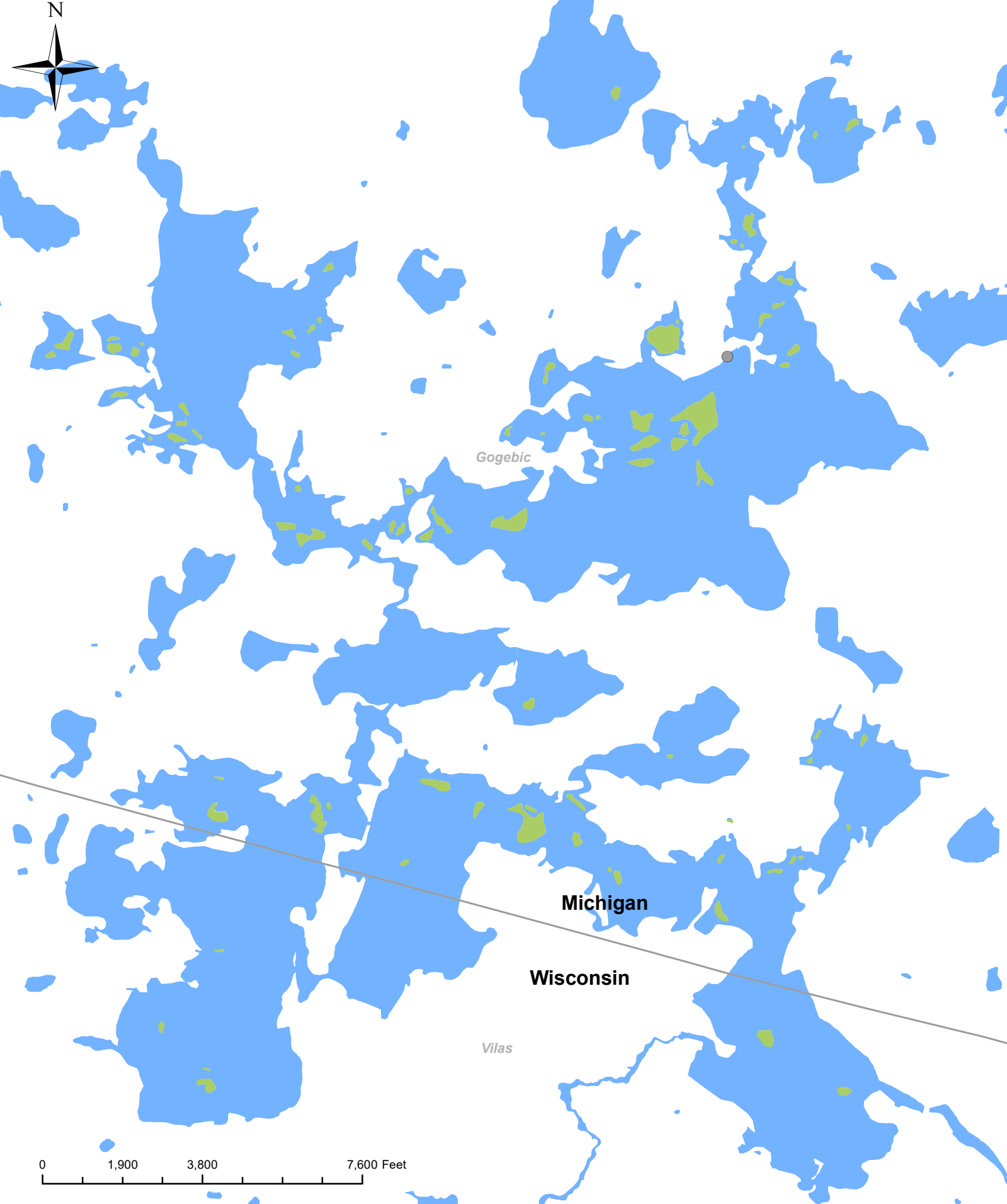
**Cisco Chain of Lakes
2021 EWM Locations**



Cisco Chain of Lakes - Vilas County, WI & Gogebic County, MI
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- EWM Abundance Estimate**
- Very Sparse
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**Cisco Chain of Lakes
End of the Year
2021 EWM Locations**

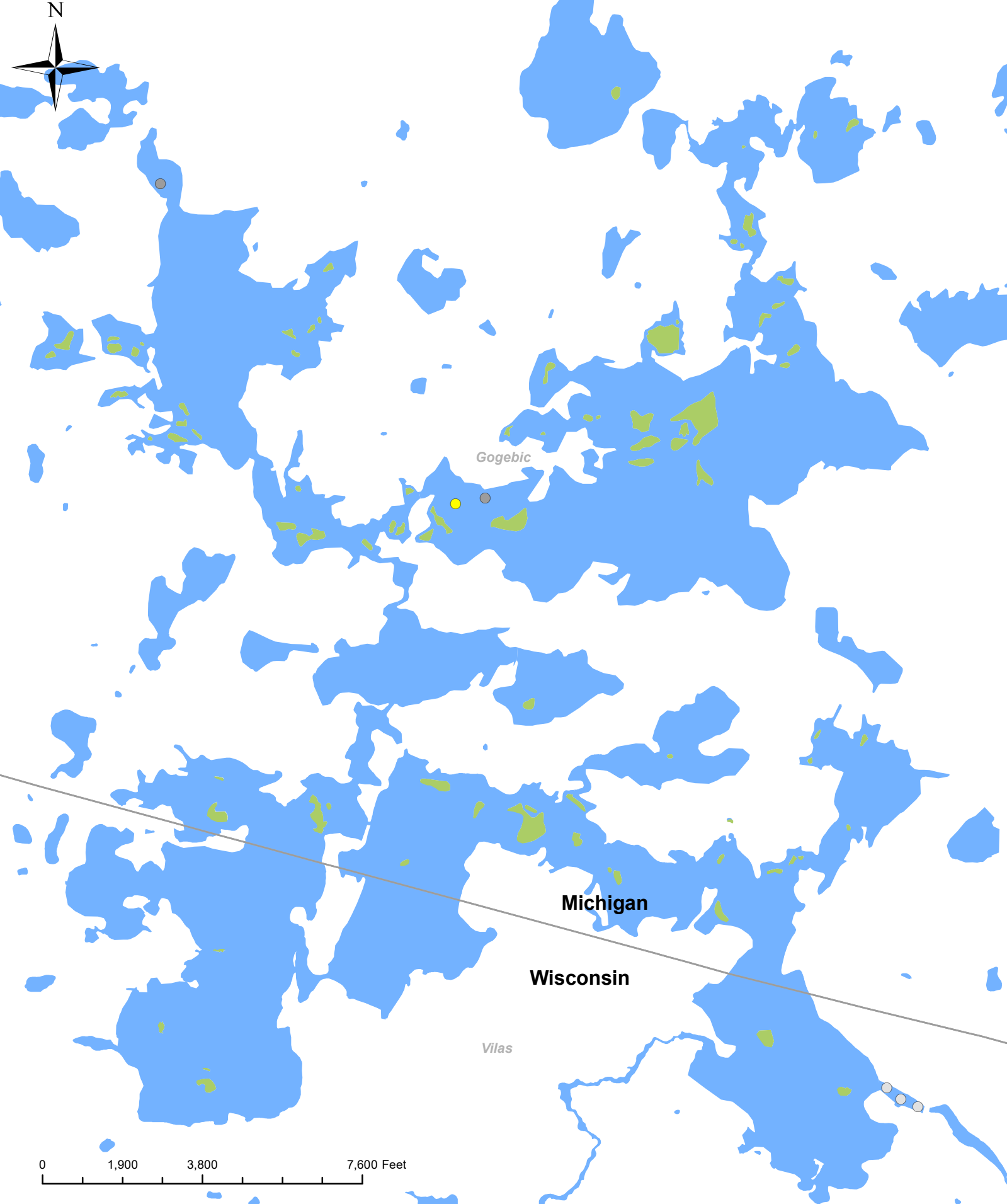


Cisco Chain of Lakes - Vilas County, WI & Gogebic County, MI
Map Date & Creator: 2/21/2022, Many Waters, LLC
Source: WDNR Hydro, ESRI Base Maps,
MiGDL Lake_polygons_200403
File: CiscoChain_OtherAIS_2021

Abundance Estimate

- Very Sparse
- Sparse
- Moderate
- Moderate-Dense
- Dense

**Cisco Chain of Lakes
Purple loosestrife Location
2021**



Cisco Chain of Lakes - Vilas County, WI & Gogebic County, MI
Map Date & Creator: 2/21/2022, Many Waters, LLC
Source: WDNR Hydro, ESRI Base Maps,
MiGDL Lake_polygons_200403
File: CiscoChain_OtherAIS_2021

Abundance Estimate

- Very Sparse
- Sparse
- Moderate
- Moderate-Dense
- Dense

**Cisco Chain of Lakes
Curly- leaf Pondweed Locations
2021**

Aquatic Invasive Species Management

Hand removal and spot treatments are the two main strategies to control EWM populations on the Michigan Side of the Cisco Chain. Curly leaf pondweed is not being controlled at this time. In 2021, management work consisted small scale herbicide treatments by PLM Lake and Lake Management with ProcellaCOR, and hand removal by Many Waters LLC.

Chemical treatments with ProcellaCOR occurred on Lindsley, Morely, Fishhawk, and Thousand Island Lakes. Treatments occurred on June 22nd 2021, totaling 14.97 acres. ANC permit numbers are as followed.

- Lindsley Lake - ANC9804843
- Fishhawk – ANC9806892
- Morley - ANC9804846
- Thousand Island – ANC9804845

Hand removal focused on isolated and small EWM colonies on Thousand Island Lake, connecting channels, Cisco Lake, Poor Lake, and Lindsley Lake. Thirty-nine and a half dive hours removed 148 EWM plants (Table 2).

General Dive Locations

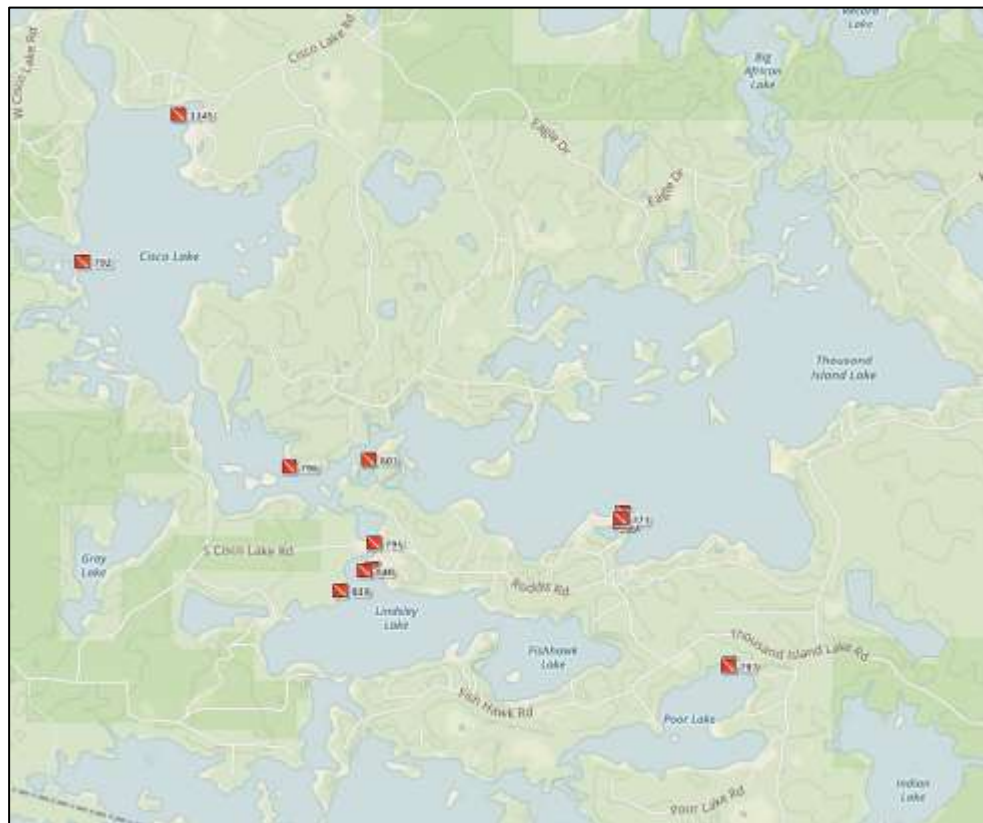


Table 2: Summary of dive efforts – Cisco Chain, 2021.

Date	Location	Plants Pulled	Wet Weight (lbs)	Dive Hours	Weather Conditions	Notes	General Dive Location Information	
6/17/2021	Cisco Lake	8	0.75	15	Sunny, 65 degrees, SW winds 10 mph	Additional dive time spent on West Bay Lake	46.2469540	89.4445140
		7	0.75				46.2386860	89.4522940
	Channels	2	0.5				46.2271140	89.4355520
		23	2.75				46.2228290	89.4286830
6/19/2021	Lindsley Lake	3	0.5	6	Sunny, 60 degrees, WNW winds 5-10 mph	Additional dive time spent on West Bay Lake	46.2213827	89.4288535
							46.2212694	89.4293972
	Poor Lake	12	0.75				46.2201677	89.4313561
							46.2159034	89.3998935
9/6/2021	Poor Lake	11	0.5	12.5	Mostly sunny, 55 degrees, light wind		46.2160089	89.3997904
							46.2159034	89.3998935
	Lindsley Lake	1	0.25				46.2212690	89.4293970
							46.2275240	89.4290580
	Channels	2	0.5				46.2239941	89.4077789
							46.2239323	89.4080881
	Thousand Island	30	3				46.2239429	89.4082032
							46.2245473	89.4084919
							46.2242127	89.4085084
							46.2241299	89.4086126
							46.2240378	89.4087563
46.2241870				89.4086499				
10/18/2021	Cisco Lake	8	2.5	6	Sunny, 55 degrees, calm	Additional dive time spent on West Bay Lake	46.2386857	89.452294
	Cisco Channel	41	14				46.2271143	89.435552

Agreement Contributions

The original agreement included \$10,000 of USFS funding, planned as \$2,000 per year for contract expenses to control EWM. CCROA match included \$18,000 for contract expenses to control EWM, DEQ permit costs, pre/post treatment evaluations, and AIS surveys. CCROA exceeded the planned match in 2020 and 2021.

Table 3: CCROA & USFS Contributions

Year	CCROA Contribution	USFS Contribution	Activity
2017	\$0.00	\$0.00	Work in 2017 was funded by an earlier agreement.
2018	\$7,017.23	\$3,934.15	EWM herbicide treatments in Morley and Thousand Island Lakes, DEQ permits, surveys, and scuba diver control.
2019	\$10,866.00	\$2,065.85	EWM herbicide treatments in Morley, Thousand Island, and Lindsley Lakes, DEQ permits, surveys, and scuba diver control.
2020	\$12,094.52	\$2,000.00	AIS surveys, DEQ permits, and scuba diver control
2021	\$10,858.28	\$2,000.00	AIS surveys, DEQ permits, and scuba diver control
TOTAL	\$40,836.03	\$10,000.00	

Eugene Clark, President
Cisco Chain Riparian Owners Association

