

Wisconsin's Citizen Lake Monitoring Network



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UW-Extension Lakes Program



Wisconsin Lakes Partnership



Science



Citizens



Education





Citizen Lake Monitoring Network (CLMN)

- 1986 – 139 volunteers collecting water clarity data on 113 Lakes
- 1990 – pilot expansion – 25 lakes
 - Clarity, total phosphorus, chlorophyll, temperature, & dissolved oxygen
- 1991 – Some regions have volunteers monitoring for aquatic invasive species (AIS) and native aquatic plant communities
- 2006 – AIS statewide effort initiated
- 2009 – Additional AIS added. Online data entry launched
- 2013 – Special projects
 - Pilot Lake level monitoring
 - Landsat 8 “calibration” initiated
- 2015 – Special projects
 - Continuous temperature monitoring



Recruitment

Our Volunteers

Have a love of lakes

Want to learn more about the lakes they live on and enjoy

Understand the effects of water quality on property values

Want to preserve their lakes for future generations



Roles

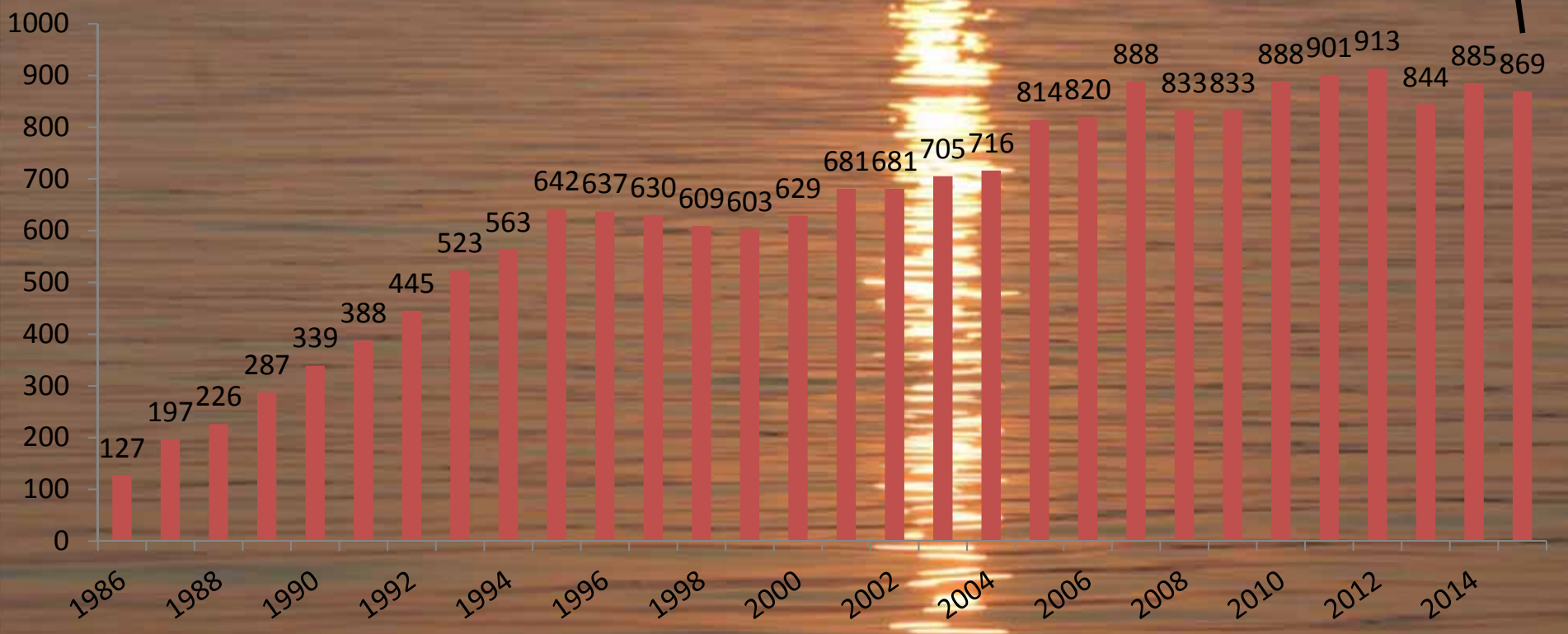
CLMN Educator & Regional Coordinators

Provide equipment, training, and support
Summarize and interpret data

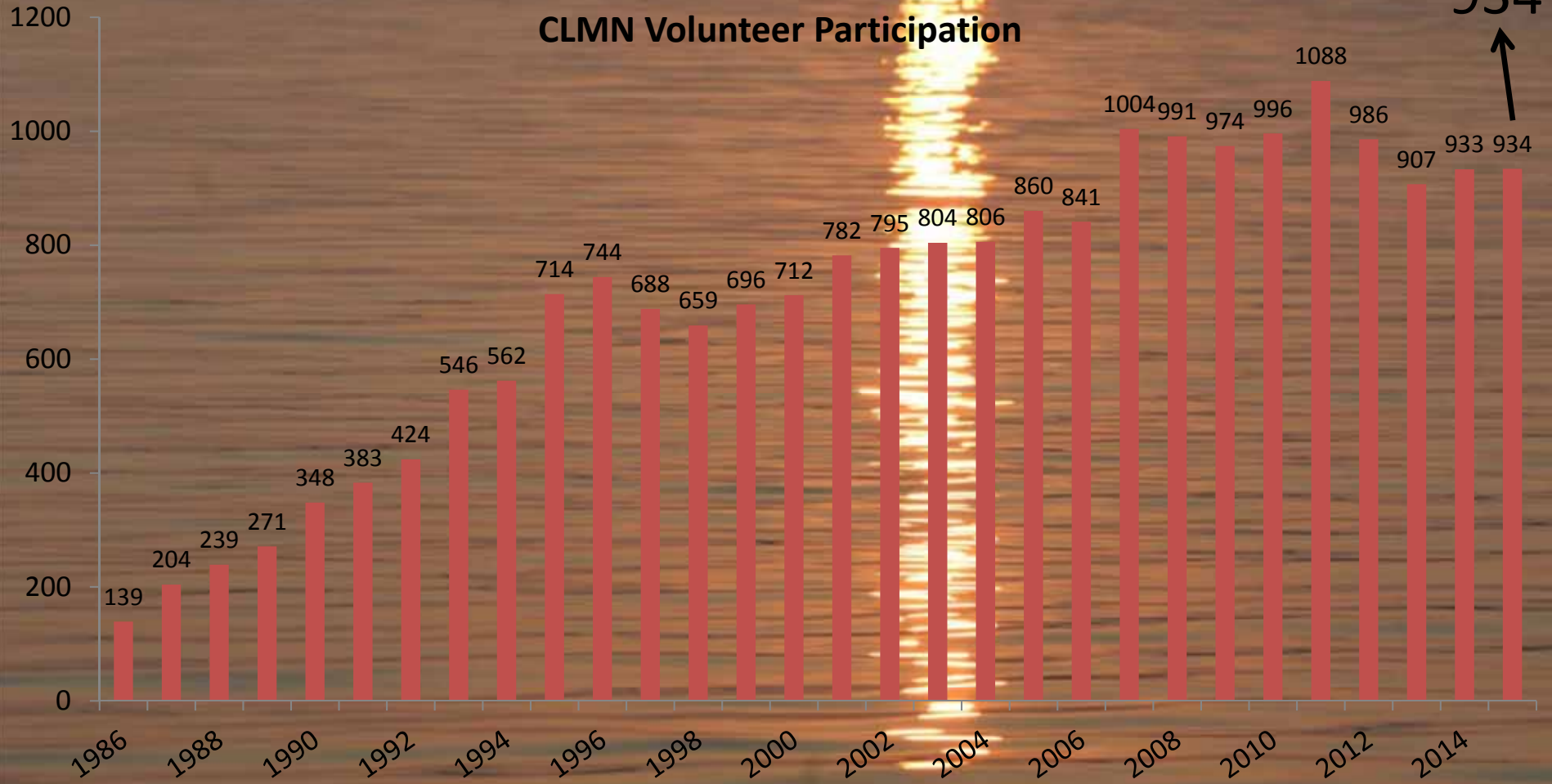
Volunteer Citizens

Collect data and report to state database

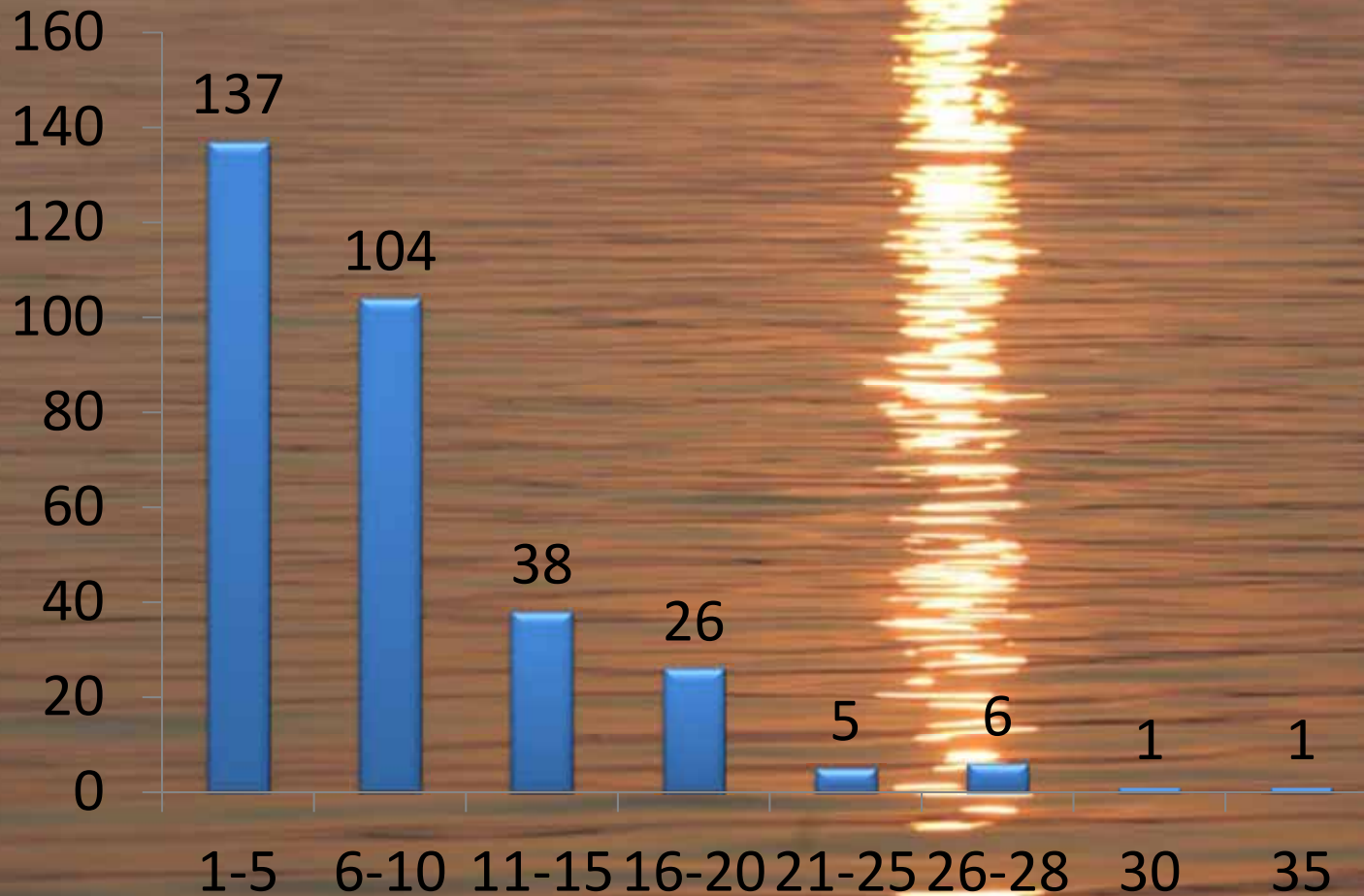
CLMN Stations Monitored

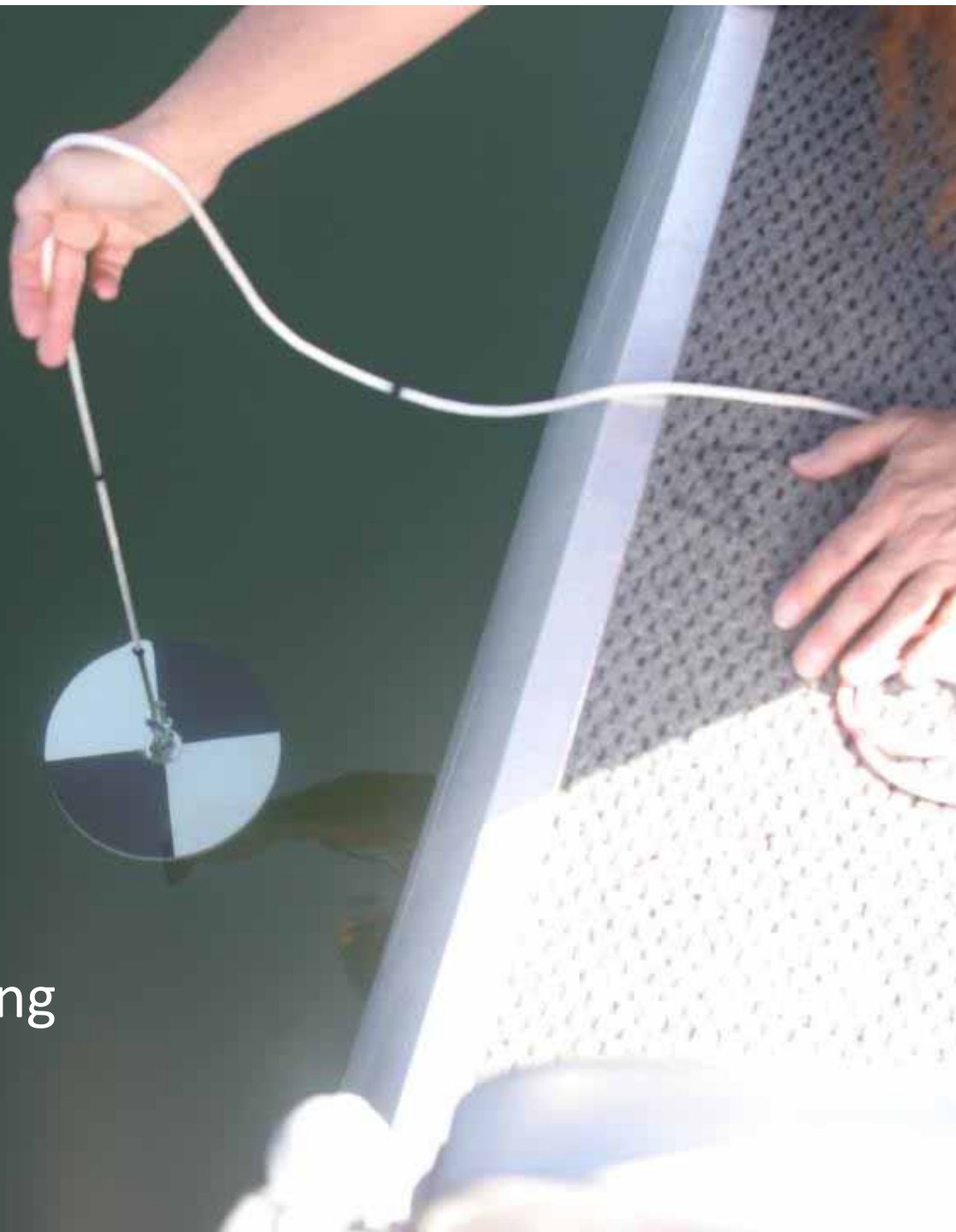


CLMN Volunteer Participation



How many years have you been a CLMN volunteer?





Water clarity monitoring
using a Secchi disc



NASA's Landsat 8 Satellite: monitoring lakes from space



Volunteer data
makes this possible



Quick Stats

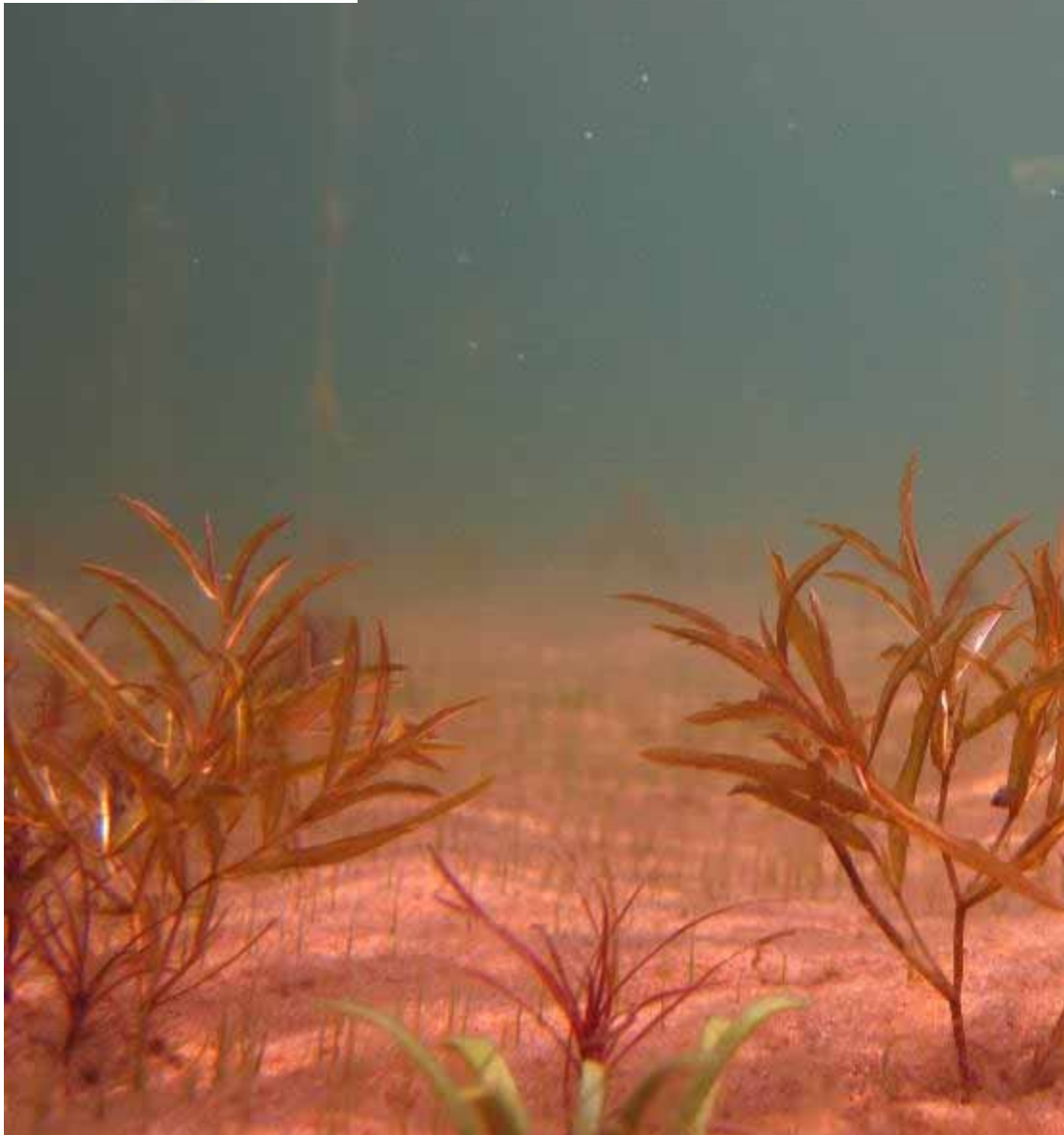
CLMN volunteers have taken **148,043** water clarity measurements in Wisconsin since 1986

725 Wisconsin lakes were monitored by volunteers last year

The *Landsat 8* measured water clarity on over **8,000** Wisconsin lakes last year

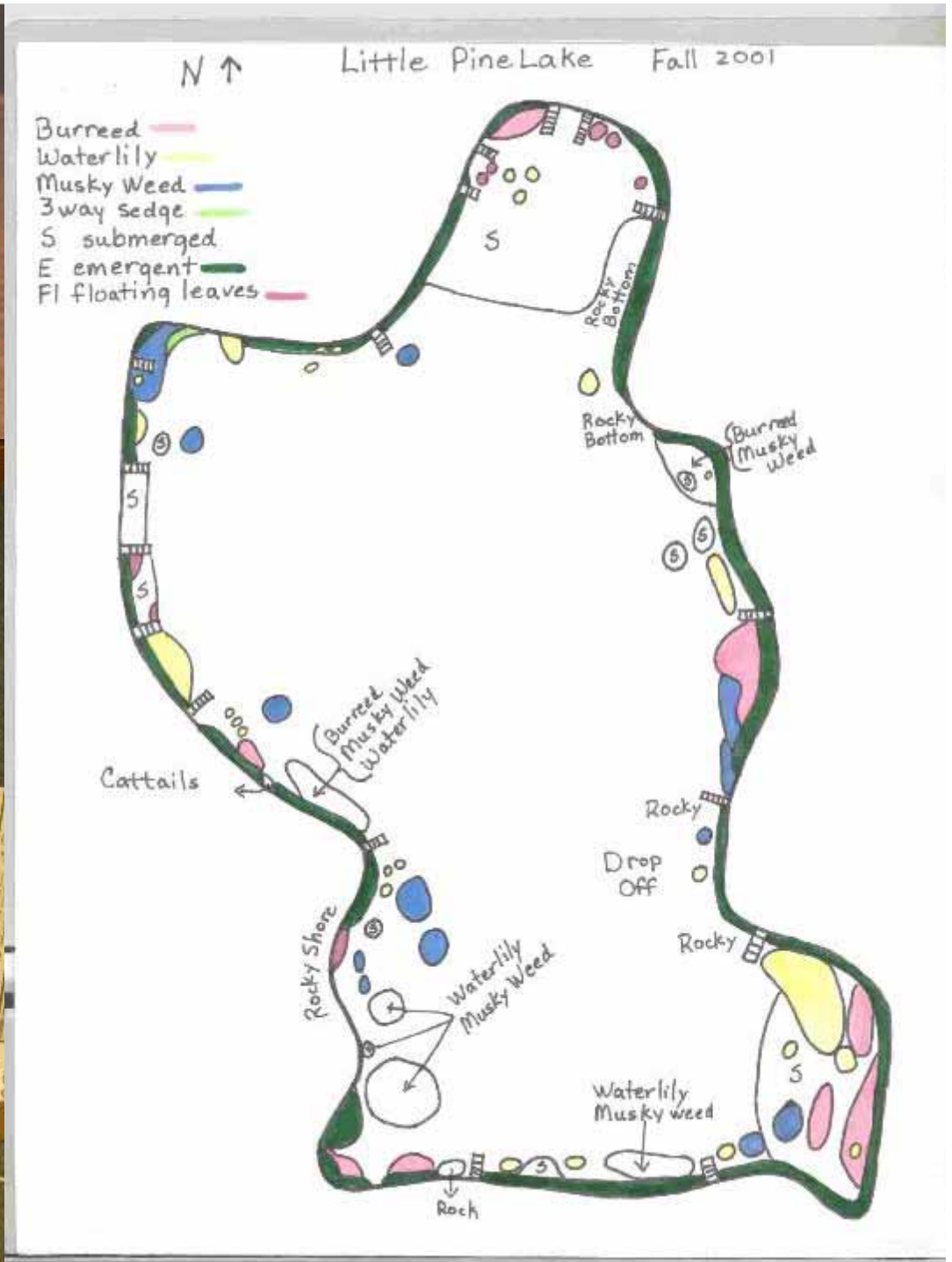


Native Aquatic Plant Monitoring





Native Aquatic Plant Monitoring





~~Native~~ Aquatic Plant Monitoring



Myriophyllum spicatum
Eurasian watermilfoil
* Paul Skawinski 2014



Invasive Plant Monitoring





Invasive Plant Monitoring

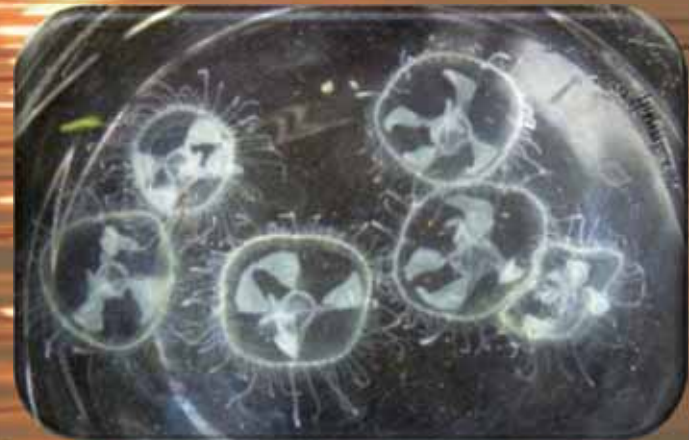


Galerucella californiensis
Black-margined loosestrife beetle
* Paul Skawinski 2014





Invasive Animal Monitoring





Water Chemistry Monitoring





Water Chemistry Monitoring





Temperature Profile Monitoring





Anyone can access the data

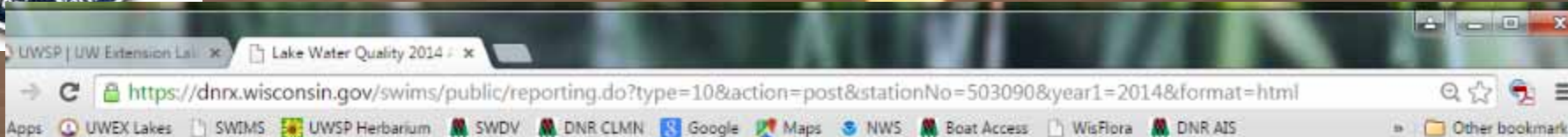
CLMN annual reports
(water chemistry/clarity)
Revisions coming soon
Feedback welcome

Surface Water Integrated
Management System (SWIMS)
database

The screenshot shows the website for UW-Extension Lakes, College of Natural Resources. The page is titled "Using the CLMN Data" and features a navigation menu on the left with items like "About UWEX Lakes", "Events", "Lake Organization Search", "Clean Boats Clean Waters", "Citizen Lake Monitoring Network", "Lake Leaders", "Bookstore", "Newsletter", and "Resources". The main content area includes a header with the CLMN logo and buttons for "CLMN home", "Get User ID", and "Submit Data". Below this is a section for "Annual Water Quality Lake Reports" with a paragraph explaining that CLMN reports summarize water clarity and chemistry data. There are two main links: "View Your Lake's Annual Reports" with a sub-link "Click here to view your lake's annual reports then scroll to the bottom of the page and choose your county." and "NEW! Interpretive Guide to CLMN Annual Reports" with a sub-link "Use this short guide to interpret the data that is included in your lake's annual reports." There is also a link for "Understanding Lake Data Guide (.pdf)" with a sub-link "This guide was written to help people understand information about lake water quality and to interpret lake data. Each lake possesses a unique 'personality,' or set of physical and chemical characteristics which may change over time. Lakes exhibit chemical changes on a daily basis while other changes, such as plant and algae growth, occur seasonally. A glossary of technical terms is included to help the reader understand the language used in the study of lakes (limnology)." A section titled "How is My Data Used?" explains that CLMN data is used by lake managers, researchers, planners, biologists, lake residents, and other members of the public to track trends in water quality and biological communities, calibrate the Landsat satellite, and gain a better understanding of lake ecology. At the bottom, there is a section titled "What do volunteers monitor?" with five categories: "Water Clarity", "Water Chemistry", "Ice-on Ice-off", "Aquatic Invasive Species", and "Native Aquatic Plants".



Anyone can access the data



Wisconsin Department of Natural Resources

Lake Water Quality 2014 Annual Report

Lake Helen
Portage County
Waterbody Number: 287200

Lake Type: SEEPAGE
DNR Region: WC
GEO Region: CE

Site Name	Storet #
Lake Helen - Deep Hole	503090

Date	SD (ft)	SD (m)	Hit Bottom	CHL	TP	TSI (SD)	TSI (CHL)	TSI (TP)	Lake Level	Clarity	Color	Perception
05/31/2014	18.5	5.6				35			HIGH	CLEAR	BROWN	1-Beautiful, could not be nicer
06/09/2014	11.5	3.5				42			HIGH	CLEAR	GREEN	1-Beautiful, could not be nicer
06/23/2014	10	3		3.96	46	44	45	58	HIGH	CLEAR	GREEN	1-Beautiful, could not be nicer
07/10/2014	8	2.4				47			HIGH	CLEAR	BROWN	1-Beautiful, could not be nicer
07/23/2014	7.5	2.3		5.23	26.7	48	47	54	NORMAL	CLEAR	BROWN	2-Very minor aesthetic problems
08/05/2014	8.5	2.6				46			NORMAL	CLEAR	GREEN	1-Beautiful, could not be nicer
08/22/2014	8	2.4				47			HIGH	CLEAR	GREEN	2-Very minor aesthetic problems
09/08/2014	8	2.4		12.4	23.6	47	54	53	HIGH	CLEAR	GREEN	2-Very minor aesthetic problems
09/23/2014	10	3				44			HIGH	CLEAR	GREEN	2-Very minor aesthetic problems

05/31/2014		
Depth FEET	Temp. DEGREES F	D.O.
0	71.3	
3	71	
6	70.4	
9	70.4	
12	69.5	
15	69.5	
18	68.9	
19.5	64.5	

06/09/2014		
Depth FEET	Temp. DEGREES F	D.O.
0	75.5	
3	75.2	
6	73.5	
9	72.8	
12	72.1	
15	66.3	
18	61.1	
19.5	60	

06/23/2014		
Depth FEET	Temp. DEGREES F	D.O.
0	73.9	
3	73.5	
6	72.6	
9	72.1	
12	71.7	
15	69.2	
18	66.5	
19.5	64.8	

07/10/2014

07/23/2014

08/22/2014



Lake Level Monitoring Pilot





Q12: How important are these possible future directions of CLMN to you?

	Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Very Unimportant	Total
Increased emphasis on AIS detection and monitoring	63.21% 189	22.41% 67	14.05% 42	0.33% 1	0.00% 0	299
Adding more ecological components to lake monitoring (frogs, loons, rare plants, etc.)	33.00% 98	42.42% 126	21.55% 64	2.36% 7	0.67% 2	297
Tracking precipitation and lake level changes	45.95% 136	35.14% 104	16.55% 49	2.03% 6	0.34% 1	296
Increasing the use of CLMN data to drive lake management decisions	69.00% 207	22.00% 66	8.67% 26	0.00% 0	0.33% 1	300



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