# Wisconsin's Citizen Lake Monitoring Network


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Citizen Lake Monitoring Network Coordinator

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

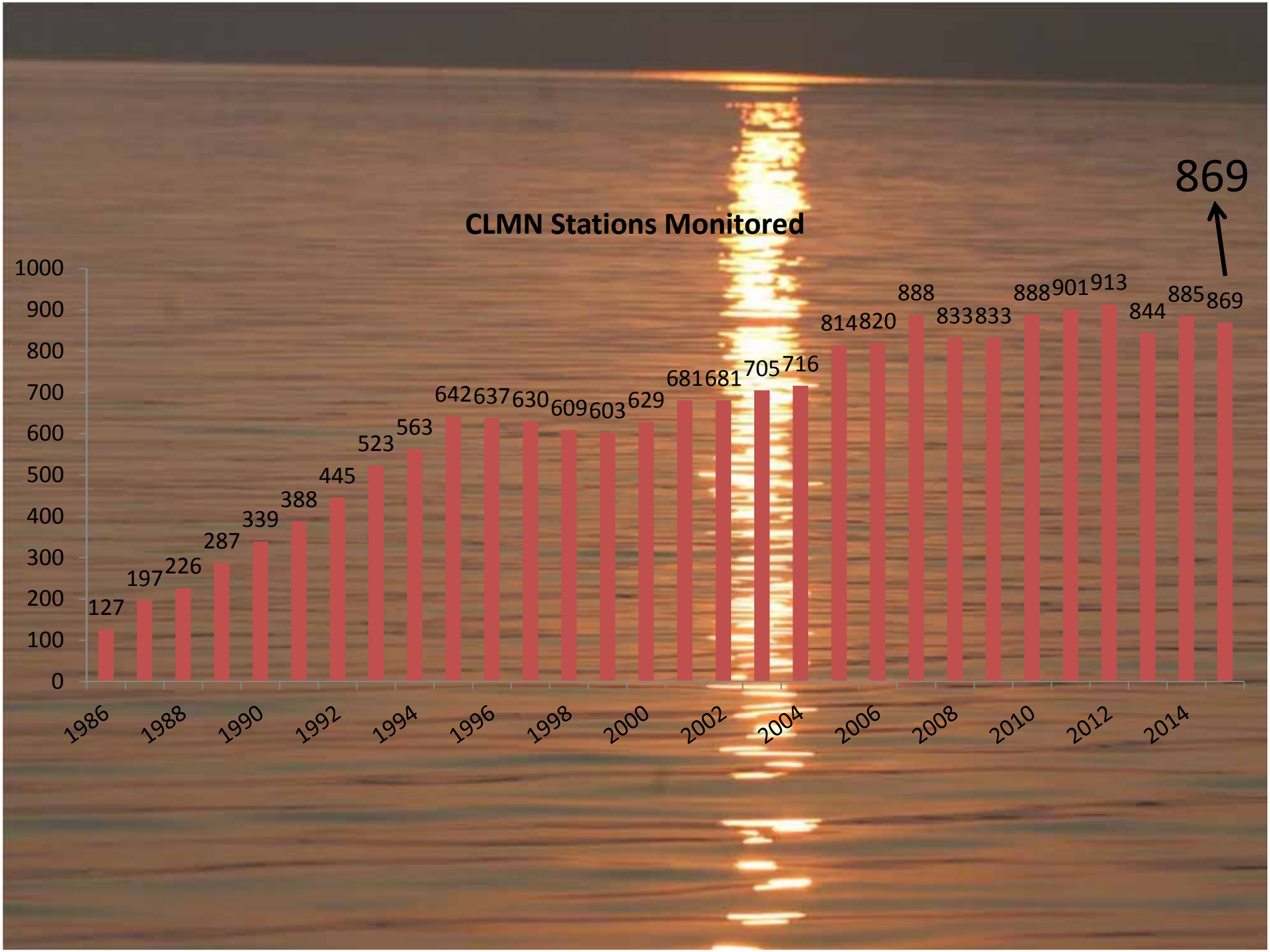
**CLMN Educator & Regional Coordinators**

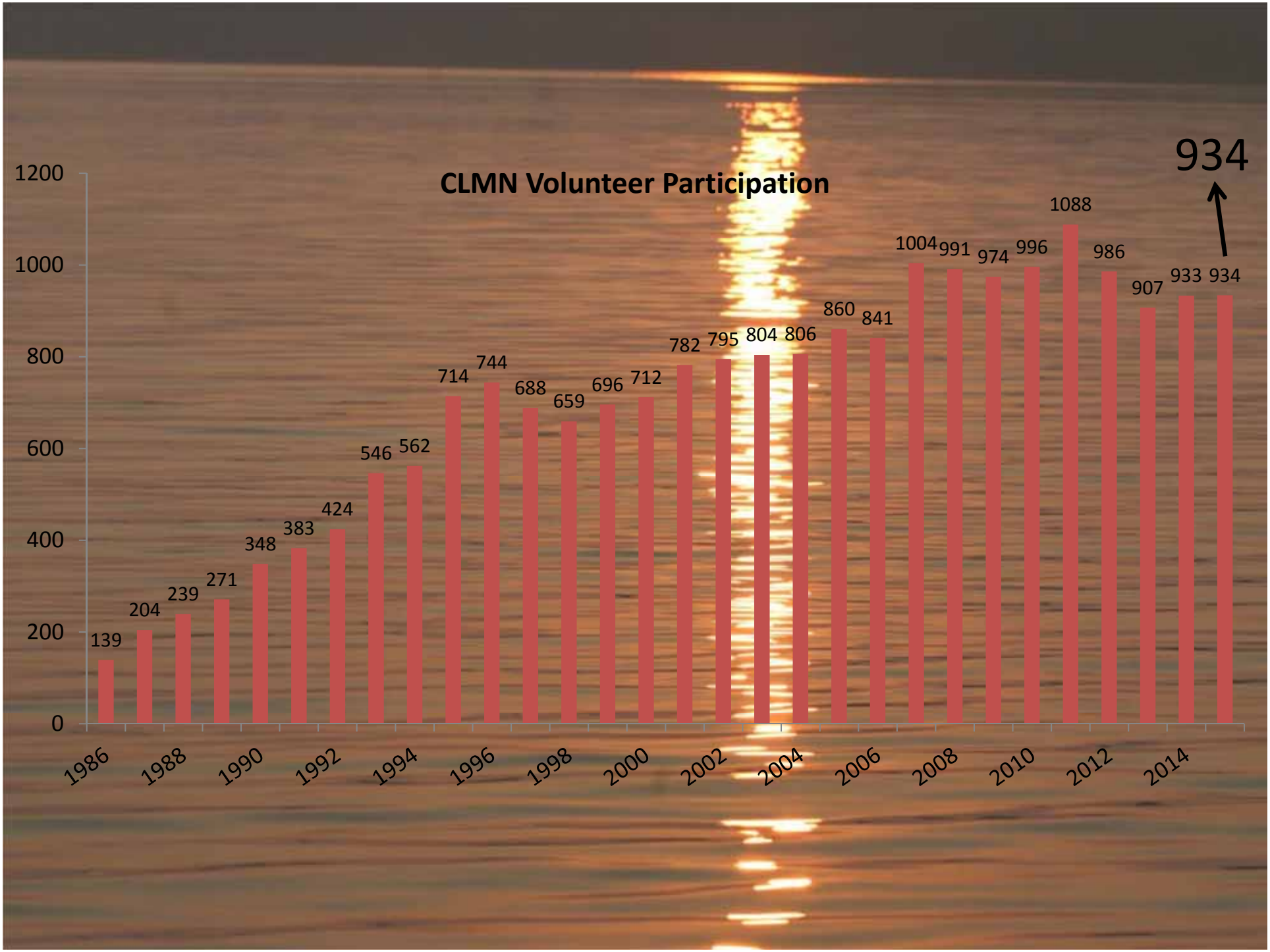
Provide equipment, training, and support

Summarize and interpret data

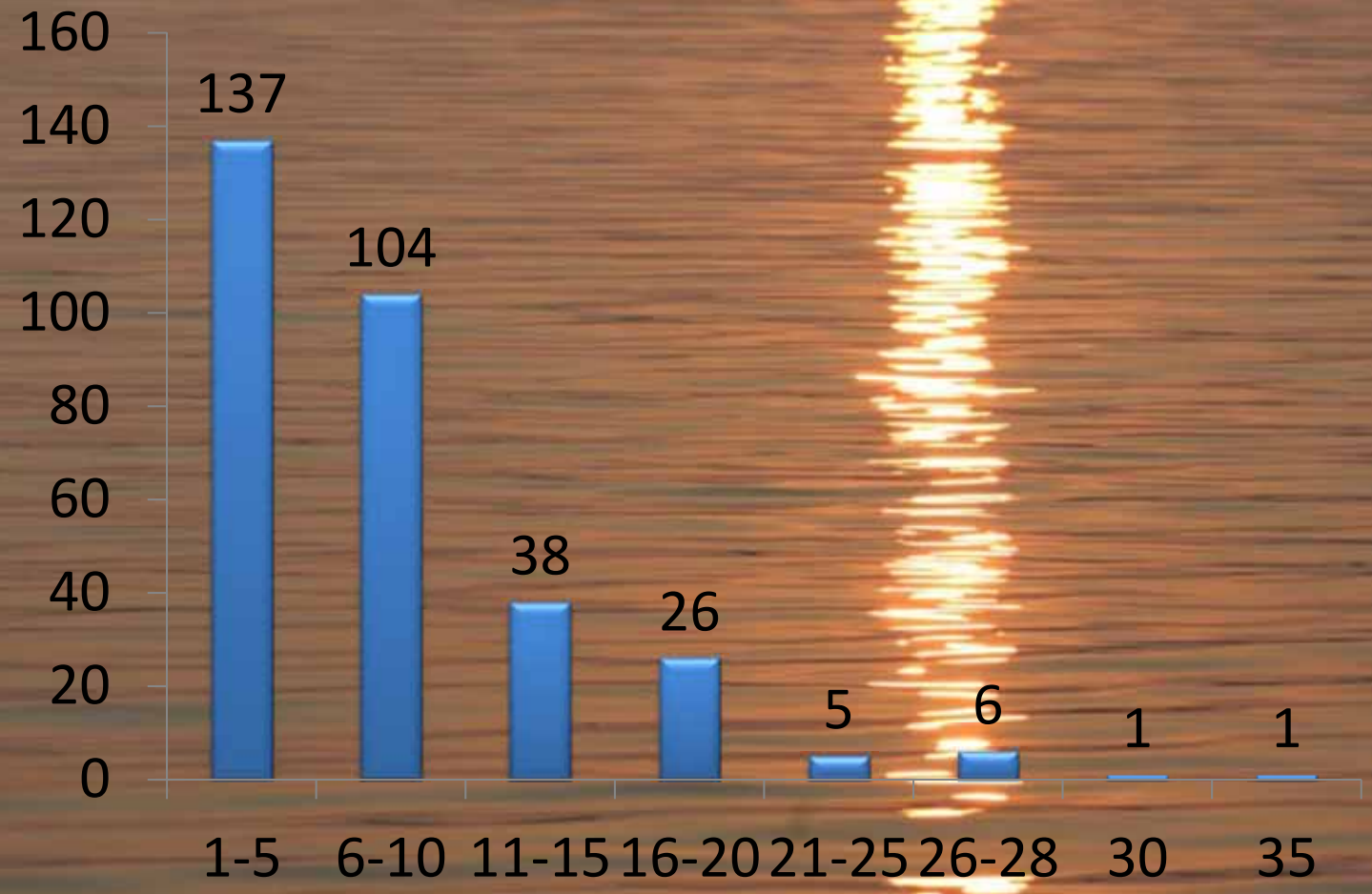
**Volunteer Citizens**

Collect data and report to state database


CLMN Stations Monitored
869
1000
900
800
700
600
500
400
300
200
100
0
127
197
226
287
339
388
445
523
563
642
637
630
609
603
629
681
681
705
716
814
820
888
833
833
888
901
913
844
885
869
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014


CLMN Volunteer Participation
934
1200
1000
800
600
400
200
0
139
204
239
271
348
383
424
546
562
714
744
688
659
696
712
782
795
804
806
860
841
1004
991
974
996
1088
986
907
933
934
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014

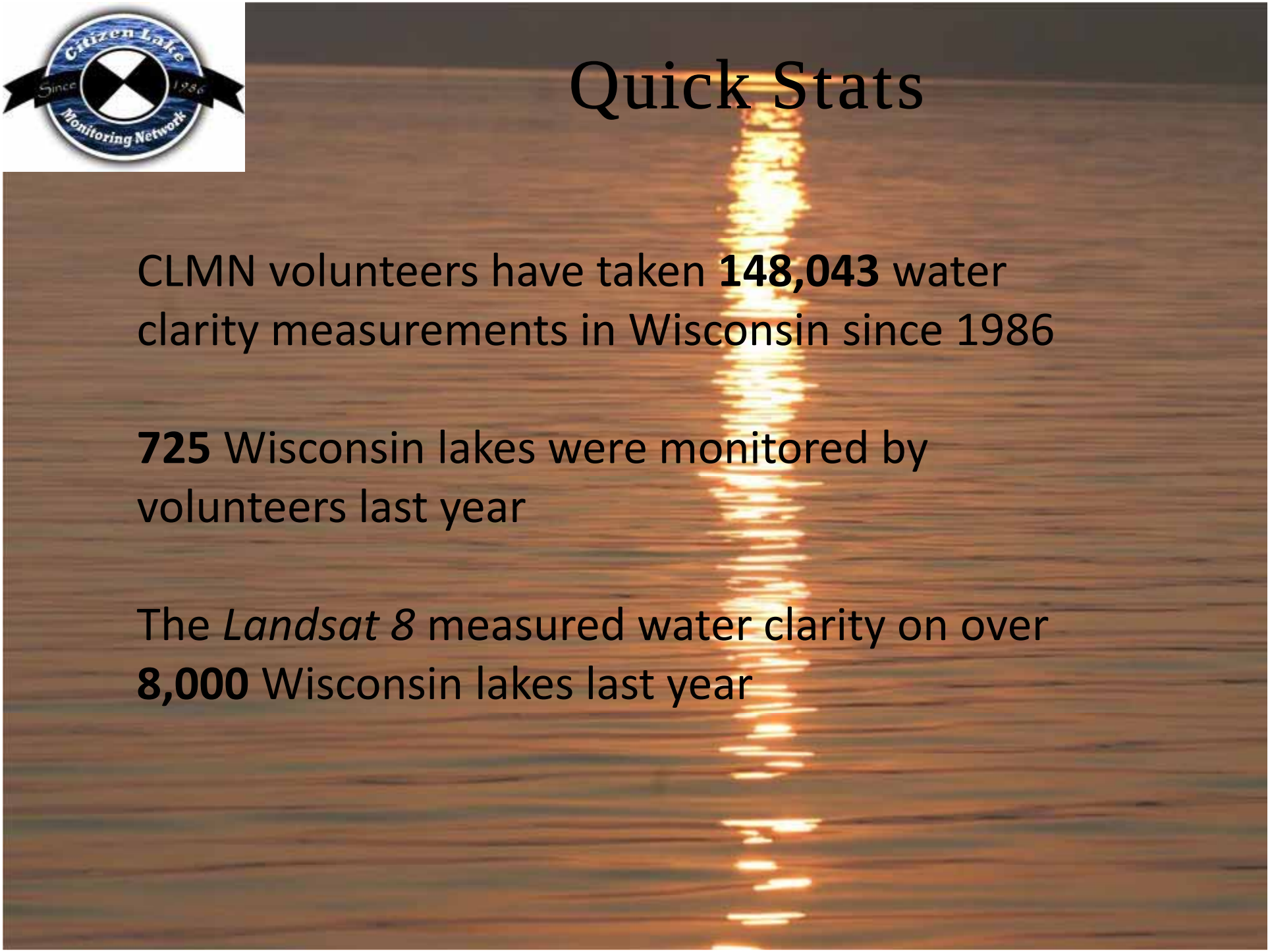
# How many years have you been a CLMN volunteer?




Water clarity monitoring
using a Secchi disc

# NASA's Landsat 8 Satellite: monitoring lakes from space

Volunteer data makes this possible



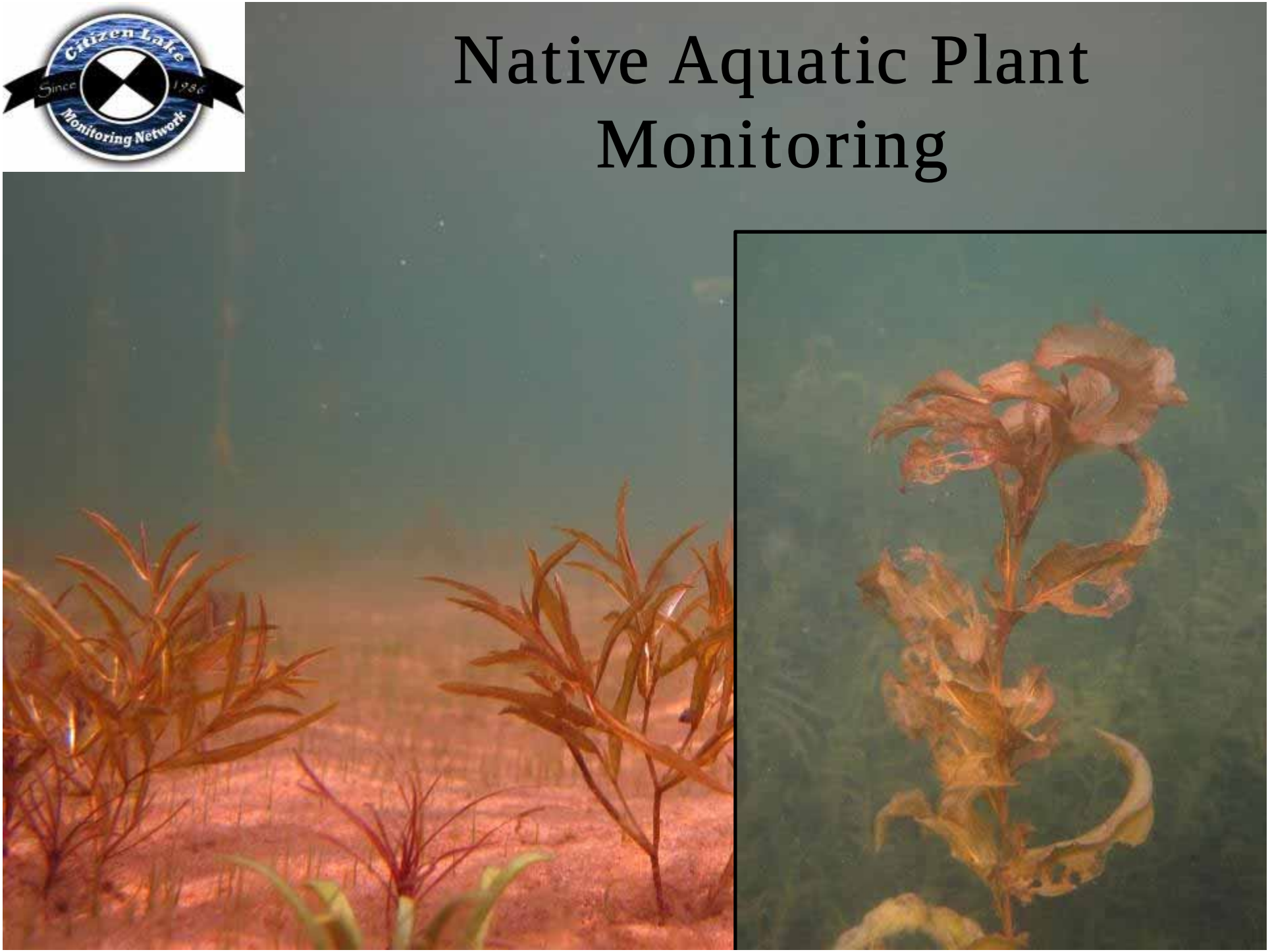
# Quick Stats

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

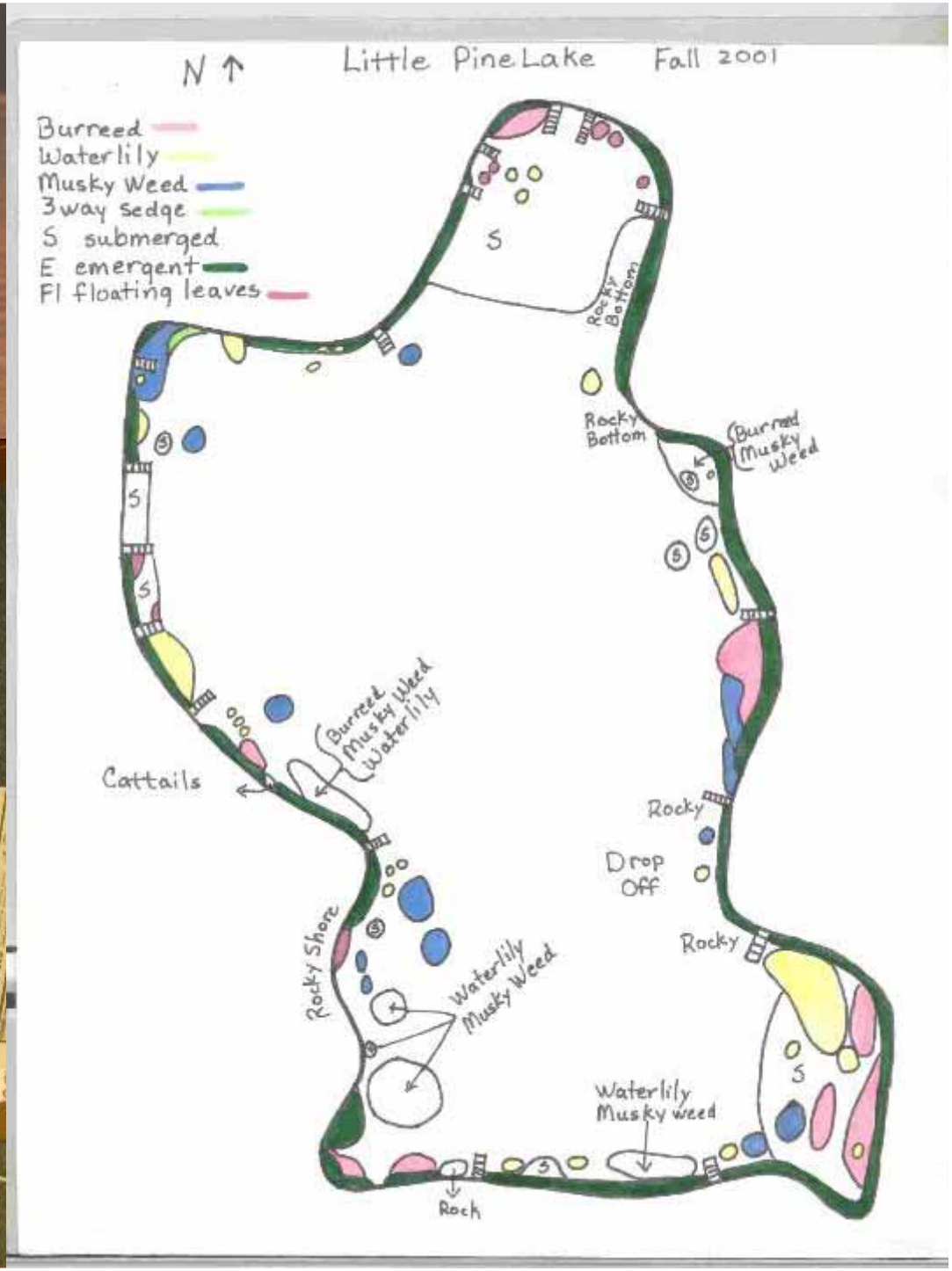
**725** Wisconsin lakes were monitored by volunteers last year

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

# Invasive Plant Monitoring

# Invasive Plant Monitoring


# Invasive Animal Monitoring

# Water Chemistry Monitoring

# Water Chemistry Monitoring

# Temperature Profile Monitoring

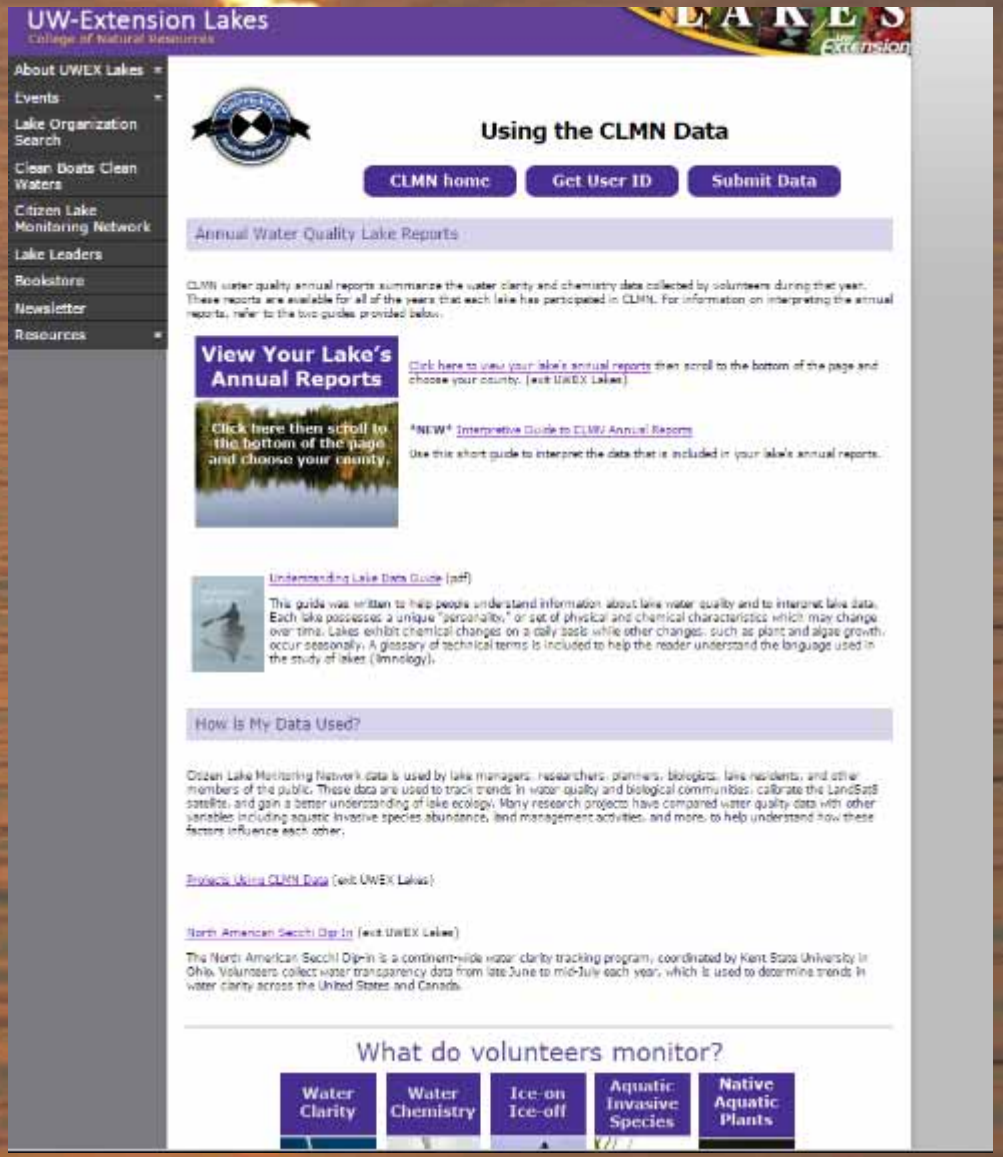
# Anyone can access the data

CLMN annual reports (water chemistry/clarity)

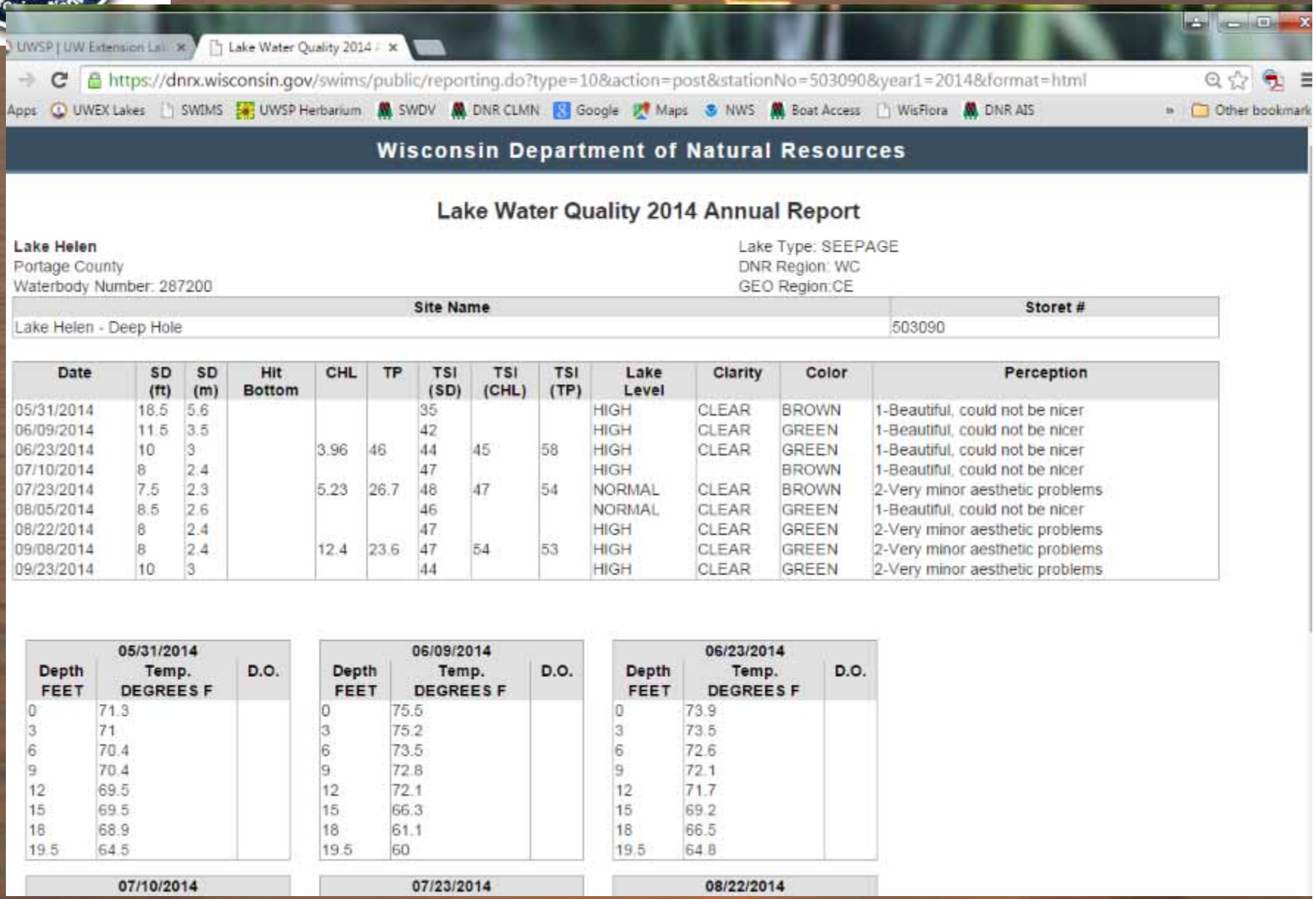
Revisions coming soon

Feedback welcome

Surface Water Integrated Management System (SWIMS) database



# Anyone can access the data



UWSP | UW Extension Lak... | Lake Water Quality 2014 ...

https://dnrx.wisconsin.gov/swims/public/reporting.do?type=10&action=post&stationNo=503090&year1=2014&format=html

Apps | UWEX Lakes | SWIMS | UWSP Herbarium | SWDV | DNR CLMN | Google | Maps | NWS | Boat Access | WisFlora | DNR AIS | Other bookmarks

**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 | | 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 | |

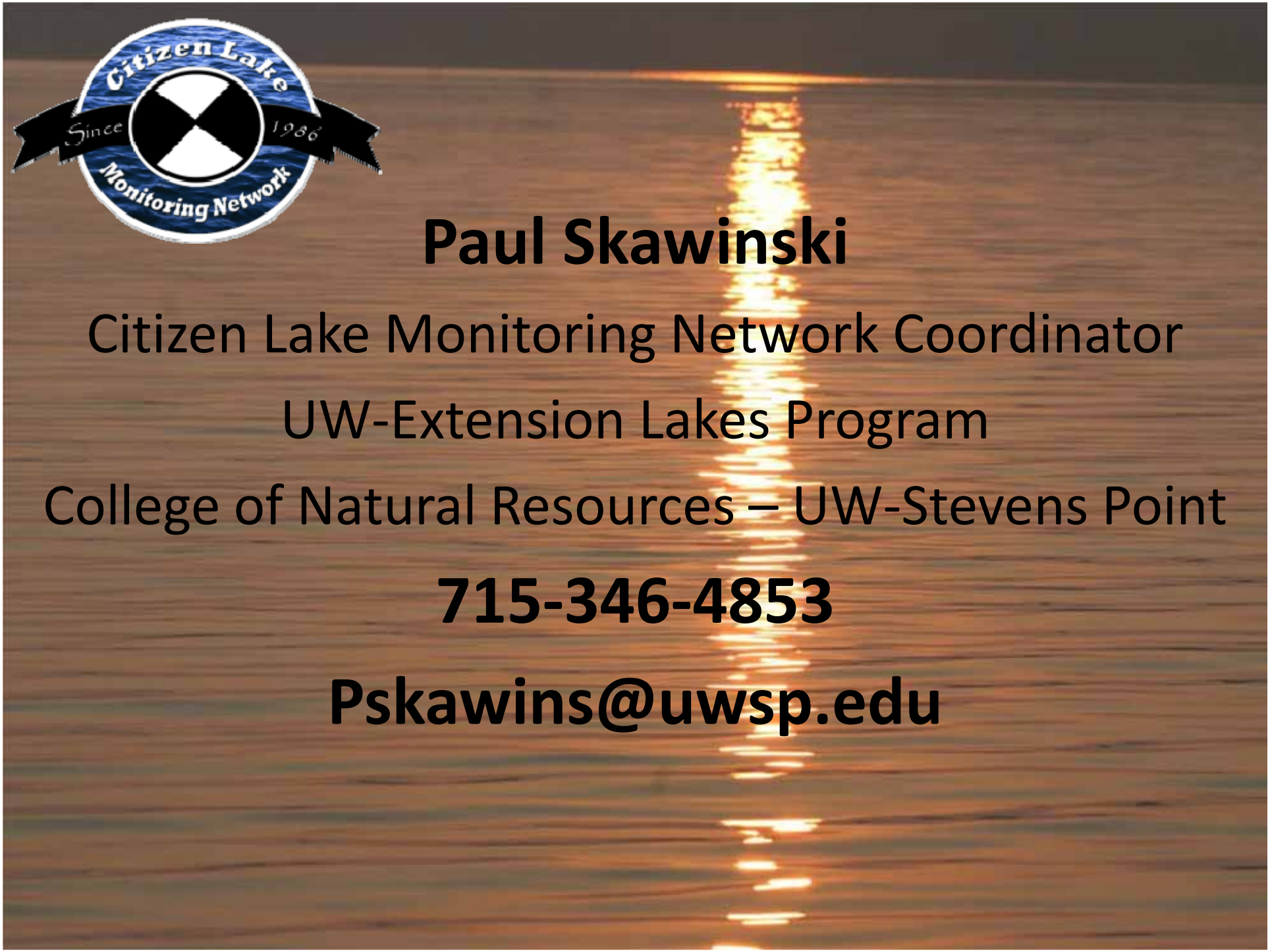
| 06/23/2014 | | |
|---|---|---|
| Depth FEET | Temp. DEGREES F | D.O. |
| 0 | 73.9 | |
| 3 | 73.5 | |
| 6 | 72.6 | |
| 9 | 72.1 | |
| 12 | 71.7 | |
| 15 | 69.2 | |
| 18 | 66.5 | |
| 19.5 | 64.8 | |

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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