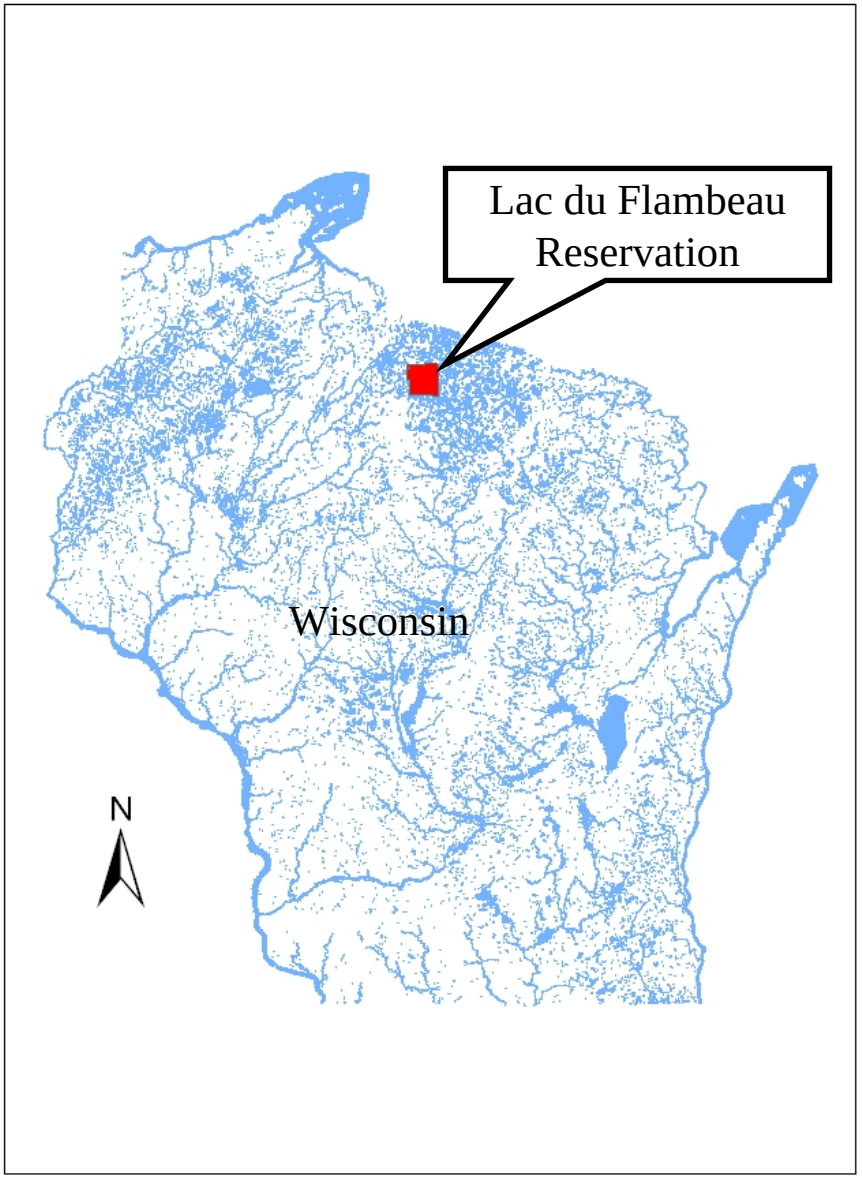
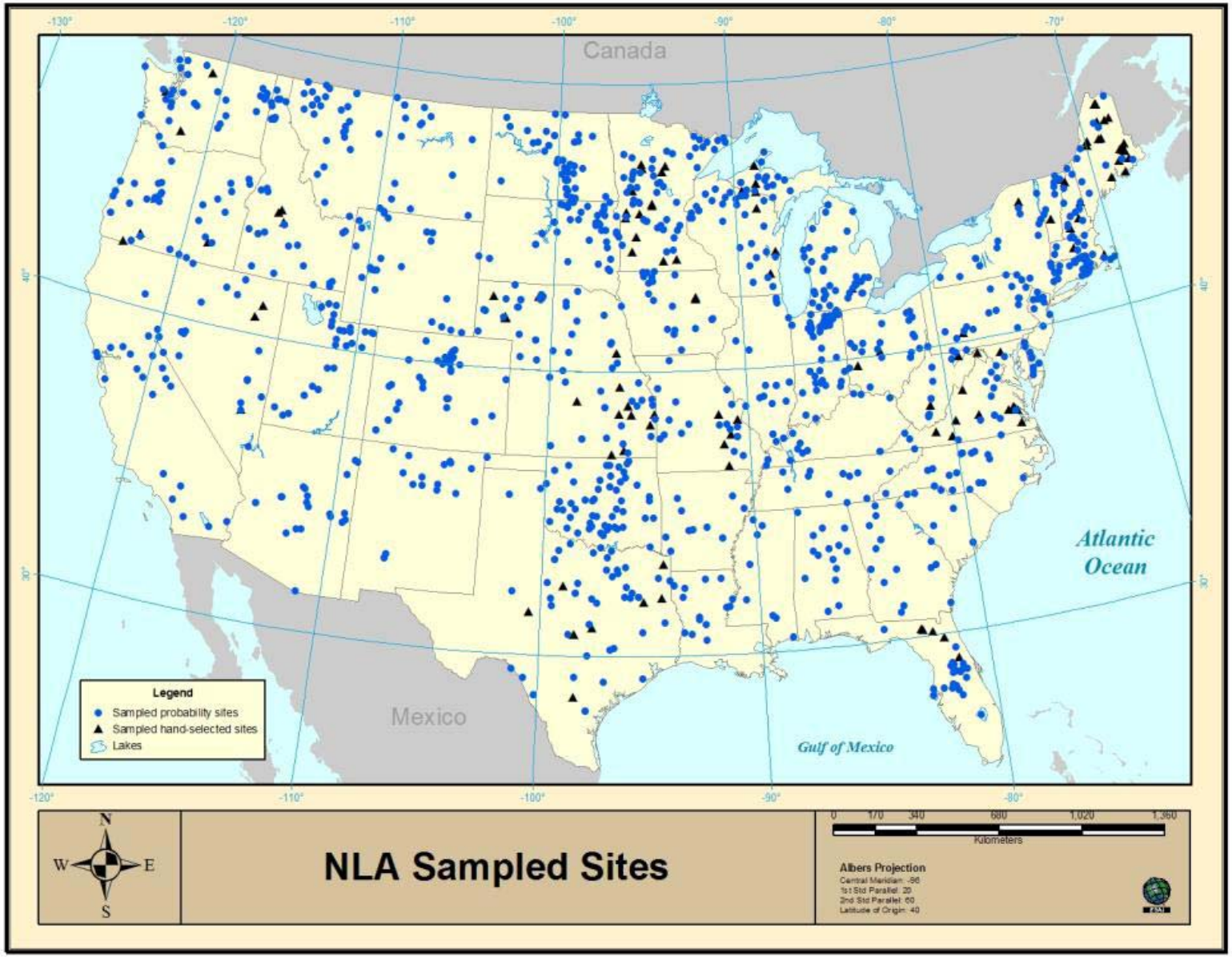
Lac du Flambeau Band of Lake Superior Chippewa Indians

Gretchen Watkins

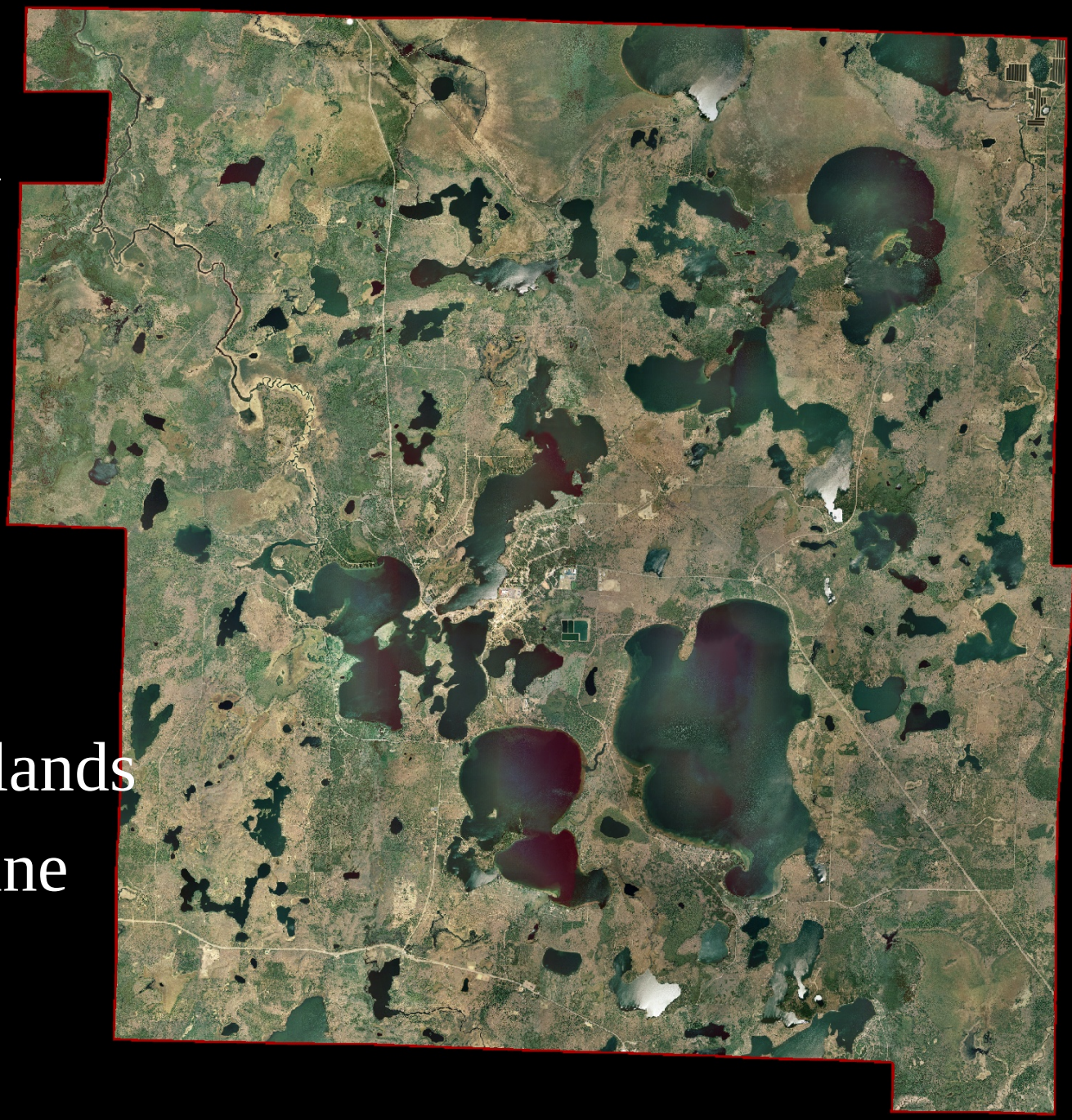
National Lake Assessment

Tribal Perspective


Lac du Flambeau
Reservation
Wisconsin
N


-130°
-120°
-110°
-100°
-90°
-80°
-70°
Canada
40°
30°
Atlantic Ocean
Legend
Sampled probability sites
Sampled hand-selected sites
Lakes
Mexico
Gulf of Mexico
-120°
-110°
-100°
-90°
-80°
N
W
E
S
NLA Sampled Sites
0 170 340 680 1,020 1,360
Kilometers
Albers Projection
Central Meridian: -96
1st Std Parallel: 20
2nd Std Parallel: 60
Latitude of Origin: 40

Lac du Flambeau Reservation Water Resources



- 260 - lakes
- 71mi - streams
- 24,000ac - wetlands
- 433mi - shoreline

Tribal Water Resource Program

- Monitoring and assessment
- Public education and outreach
- Grant proposal writing and administration
- Data management, STORET submissions
- QA/QC
- Nonpoint source program
- Restoration demonstration projects
- Water quality standards program – write/revise standards, 401 certifications, 303(d) type assessment

Monitoring and Assessment
Benefit : Capacity building

Public Education and Outreach
Benefit: Credibility

Grant proposal writing and administration, Data management, STORET submissions, QA/QC
Benefit: Standardized, constant, comparable results

Nonpoint source program and restoration demonstration projects

Benefits: Standardized assessment for progress and identifying areas of concern

Water quality standards program – write/revise standards, 401 certifications, 303(d) type assessment

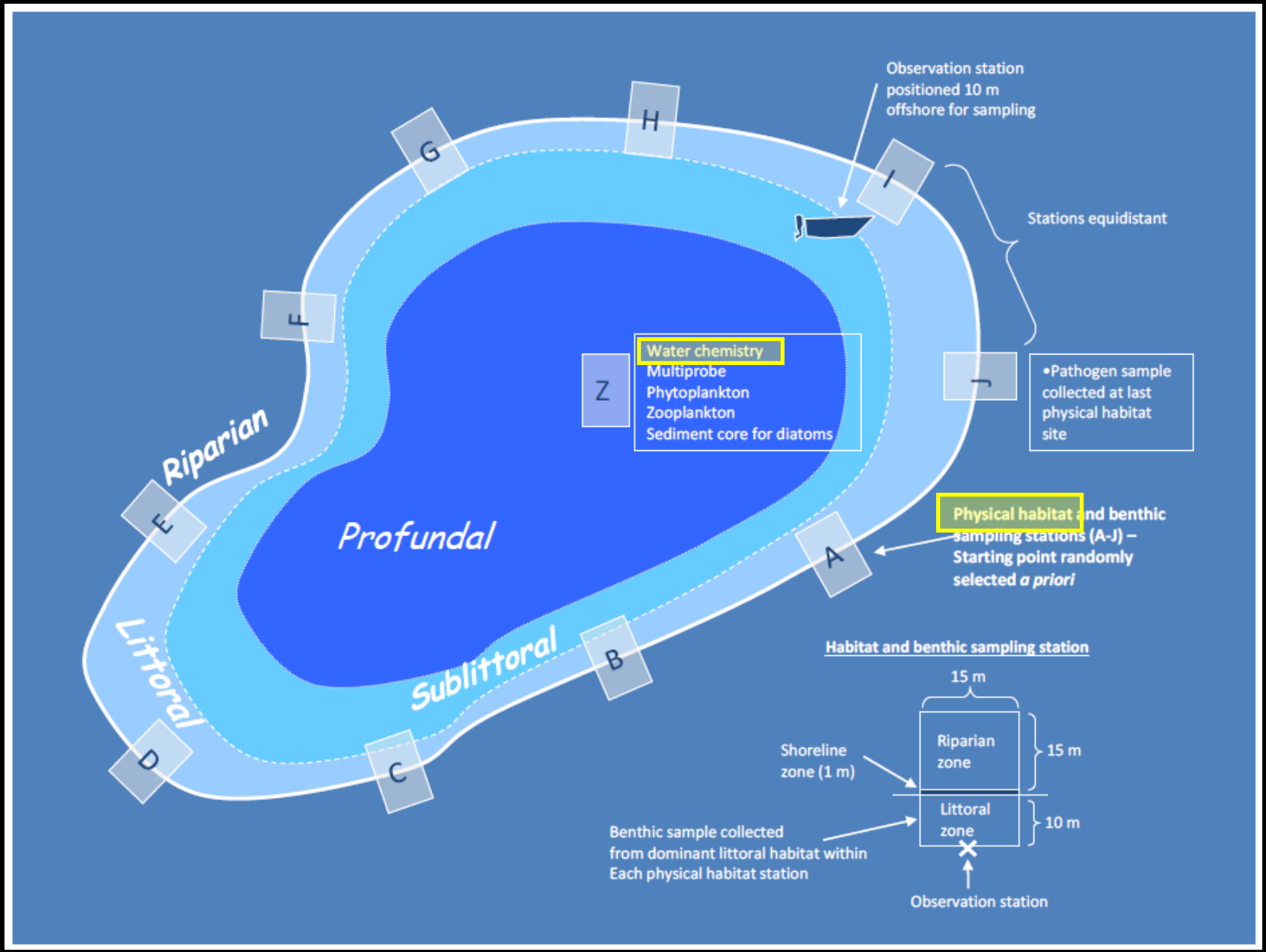
Benefit:

- Develop site specific criteria
- Identify waters to be protected as outstanding or exceptional resource waters

Methods of Expanding on the National Lake Survey

Monitoring an additional 11 lakes flowing the NLS protocol for:

- Nutrients, pH, DO, turbidity temperature, and Secchi
- Bacteria
- Habitat



NLA sampling approach for a typical lake. Sampling locations are denoted by letters A-J and Z. Riparian, littoral, sublittoral, and profundal lake zones are depicted, as is the schematic design of a shoreline physical habitat station.

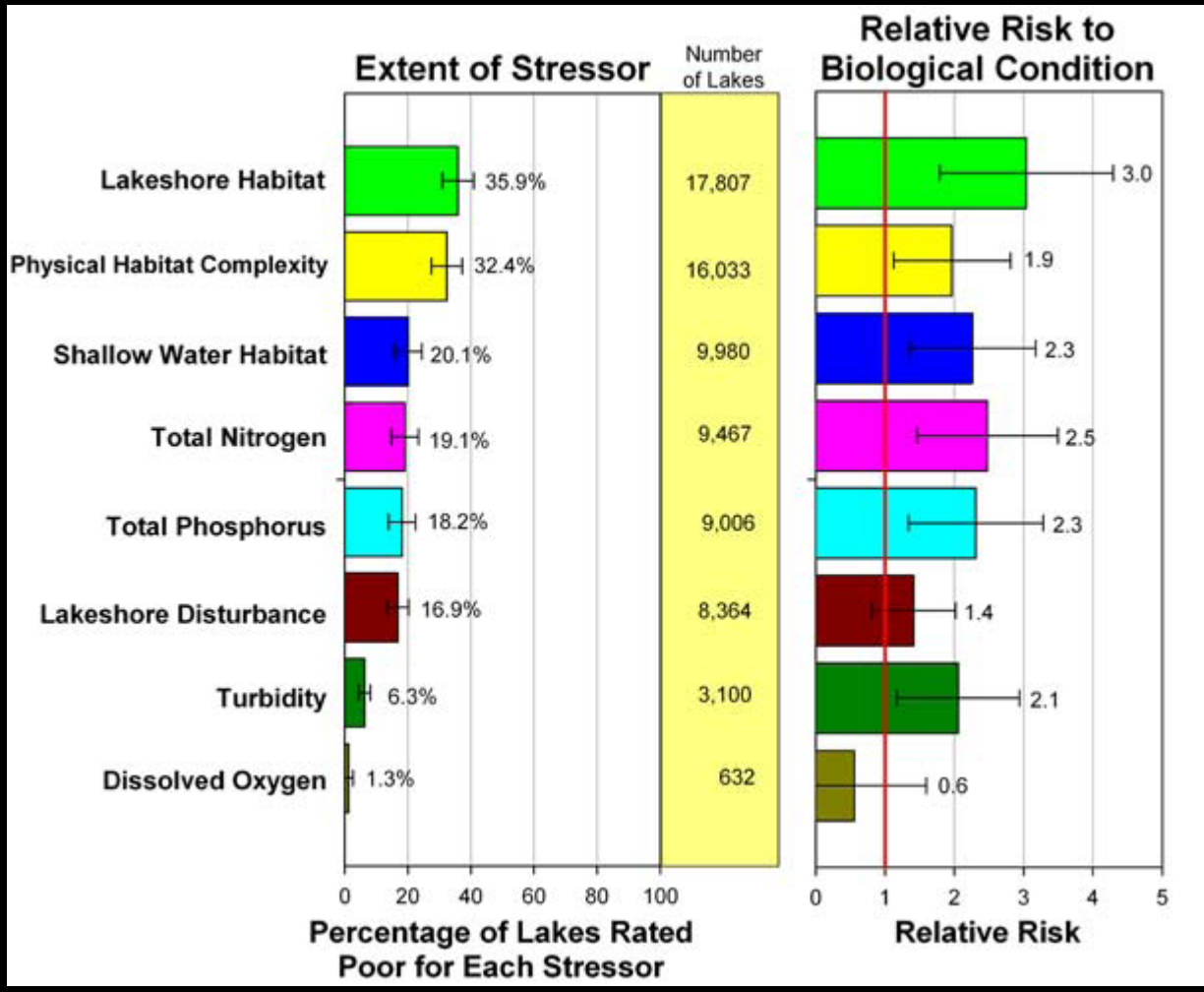
Picture from National Lake Assessment Report

Lac du Flambeau Reservation Water Resource Habitat and Chemical Assessment

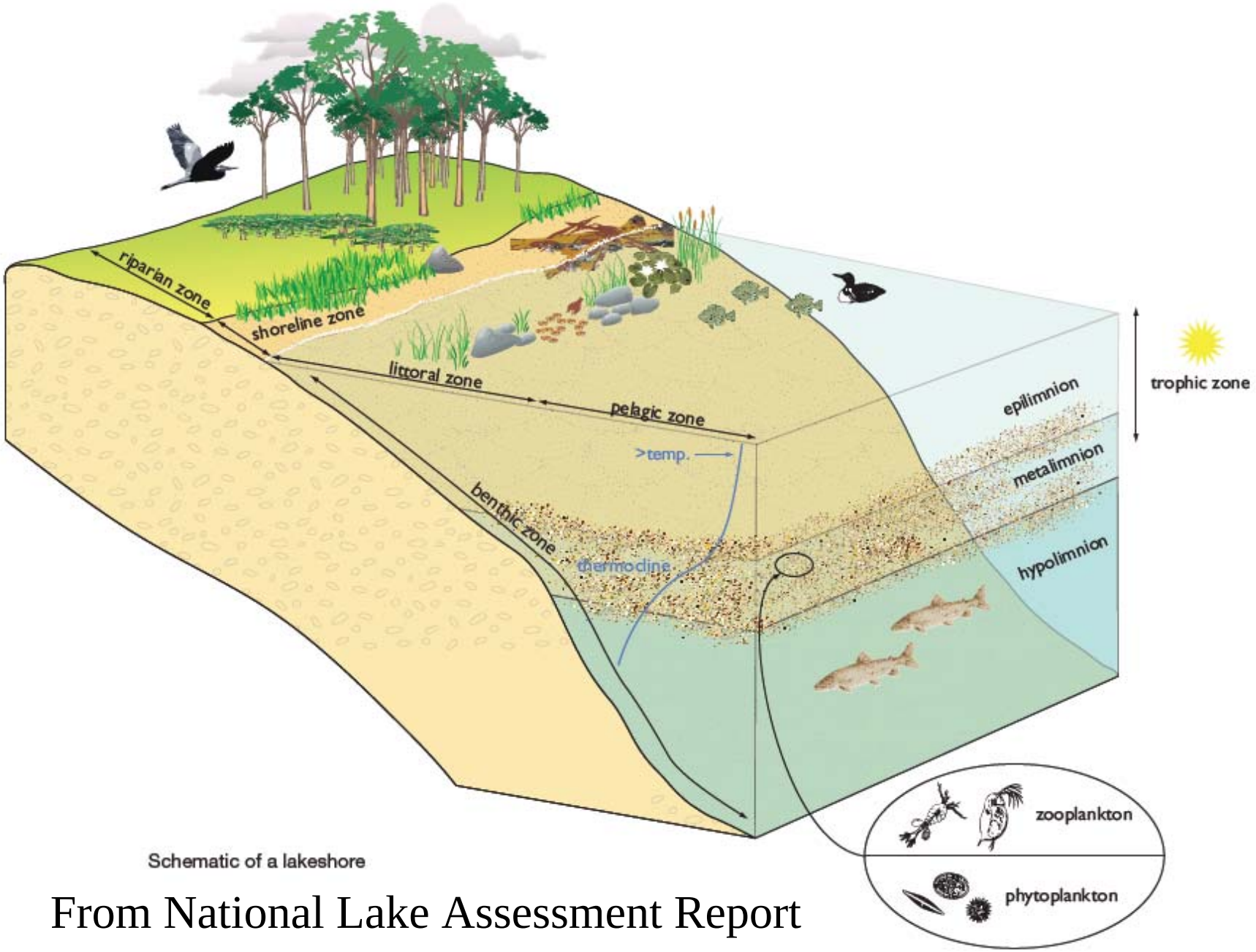
- 260 Lakes (11 assessed)
- 290 miles of lake shoreline (28.5 miles assessed)
- 19,000 acres of lake surface area (11,900 acres assessed)
- 47 miles of total shoreline protected as Outstanding Tribal Resource Waters

Lake Physical Habitat -

Of the stressors included in the NLA, poor lakeshore habitat is the biggest problem in the nation's lakes; over one-third exhibit poor shoreline condition. Poor biological health is three times more likely in lakes with poor lakeshore habitat



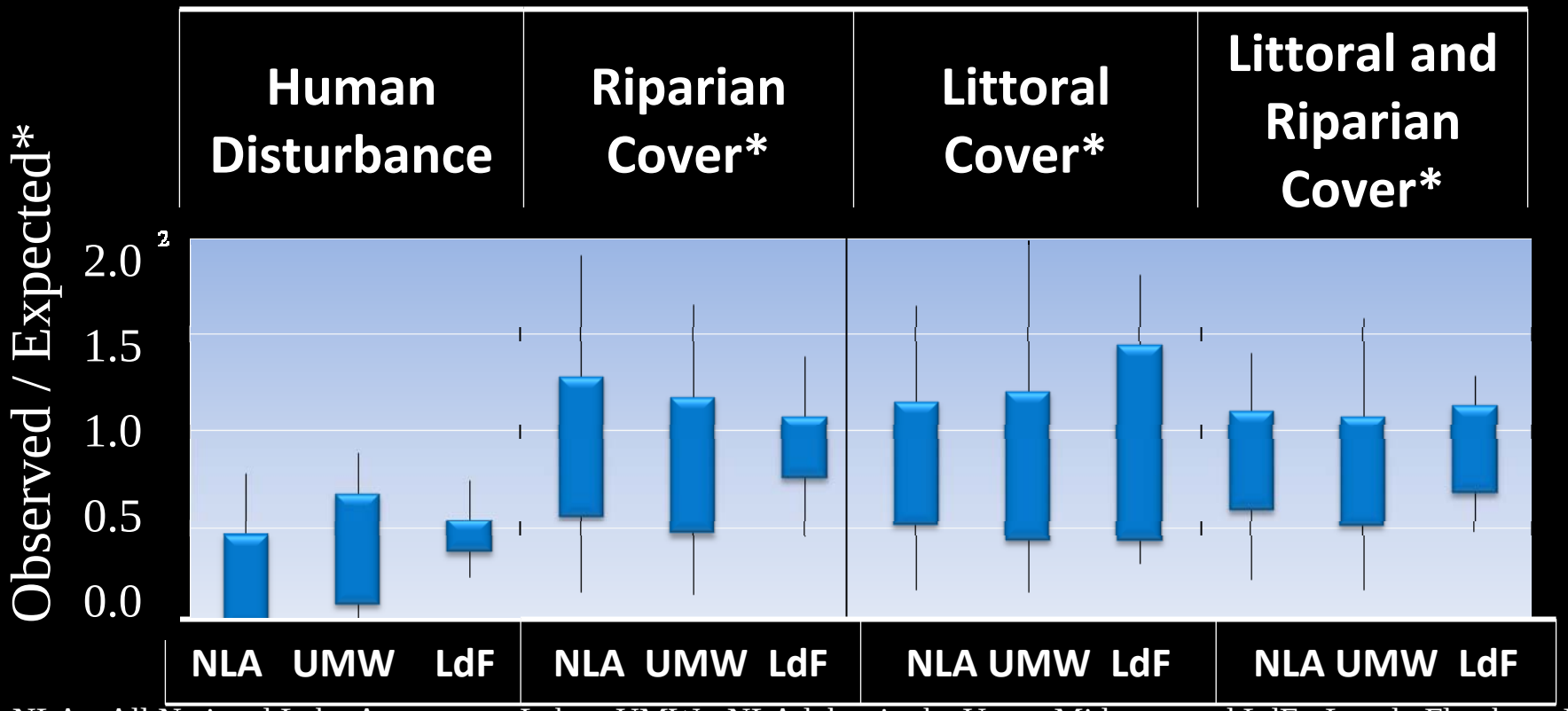
From National Lake Assessment Report



Schematic of a lakeshore

From National Lake Assessment Report

Physical Habitat

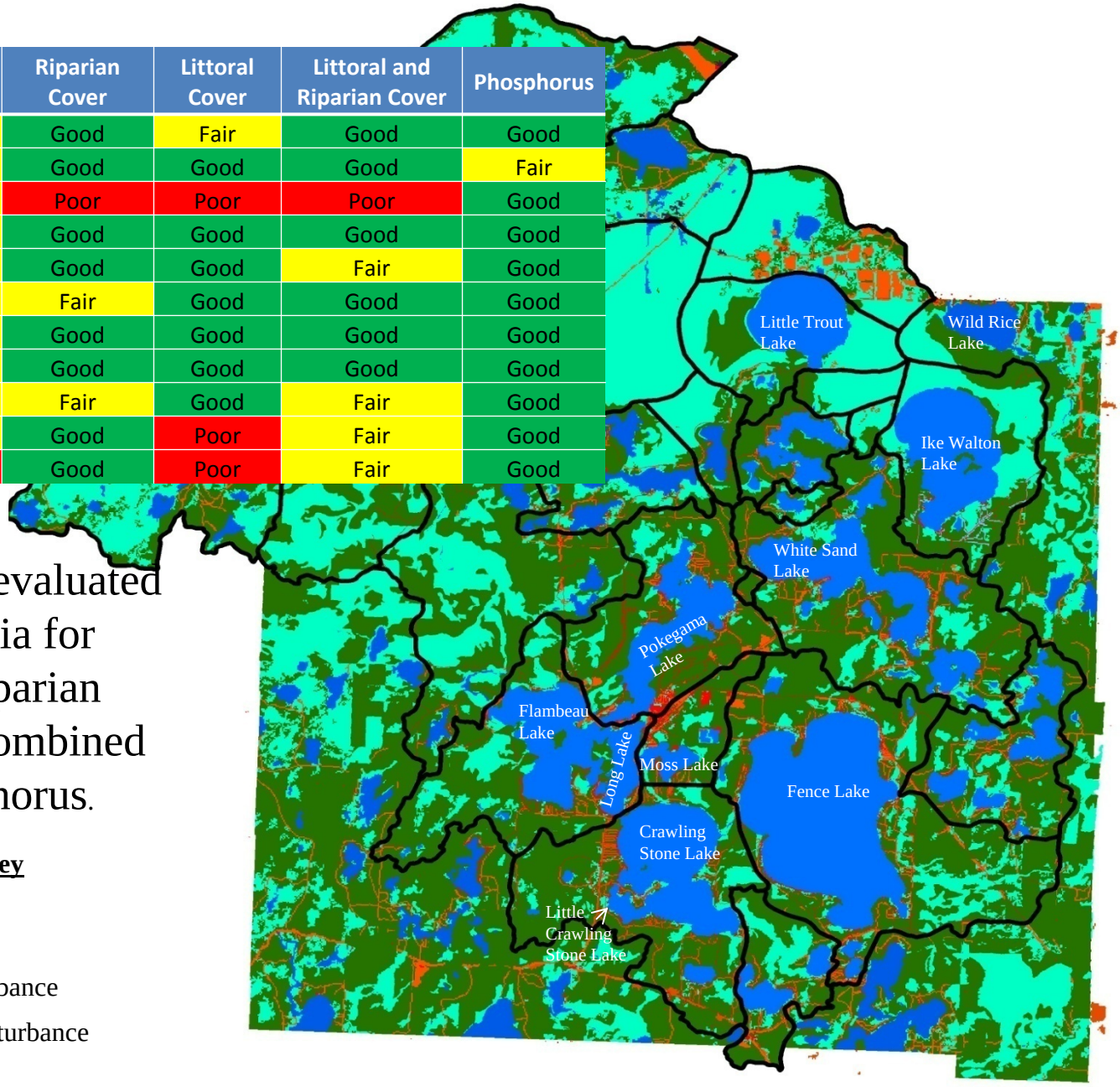


NLA= All National Lake Assessment Lakes, UMW= NLA lakes in the Upper Midwest, and LdF= Lac du Flambeau Lakes

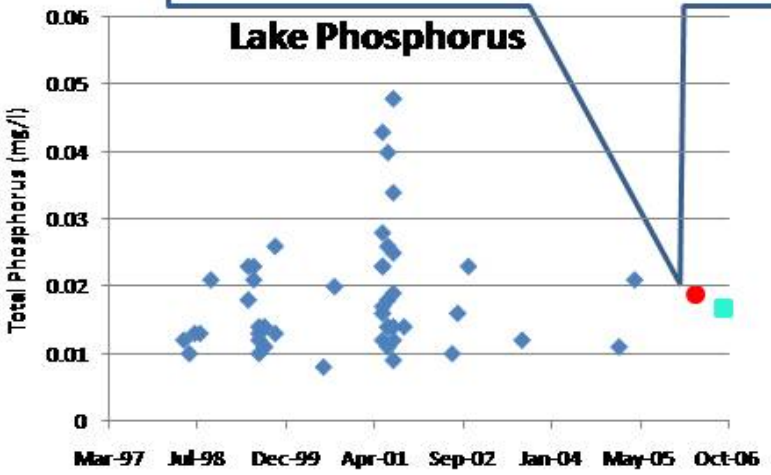
The first indicator of physical habitat is lakeshore human disturbance and reflects direct human alteration of the lakeshore itself. *The next three indicators are the observed over expected values for the vegetation and physical features along shorelines and adjacent upland areas (riparian), and the aquatic plants living in the near shore shallows including the natural features, like snags and rocks (littoral).

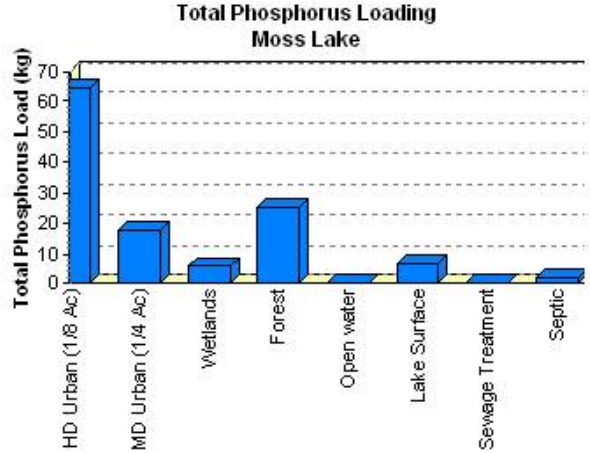
Lake	Human Disturbance	Riparian Cover	Littoral Cover	Littoral and Riparian Cover	Phosphorus
Ike Walton Lake	Medium	Good	Fair	Good	Good
Moss Lake	Medium	Good	Good	Good	Fair
Little Crawling Stone Lake	Medium	Poor	Poor	Poor	Good
Pokegama Lake	Medium	Good	Good	Good	Good
Flambeau Lake	Medium	Good	Good	Fair	Good
Little Trout Lake	Medium	Fair	Good	Good	Good
Wild Rice Lake	Medium	Good	Good	Good	Good
White Sand Lake	Medium	Good	Good	Good	Good
Long Lake	Medium	Fair	Good	Fair	Good
Big Crawling Stone Lake	Medium	Good	Poor	Fair	Good
Fence Lake	High	Good	Poor	Fair	Good

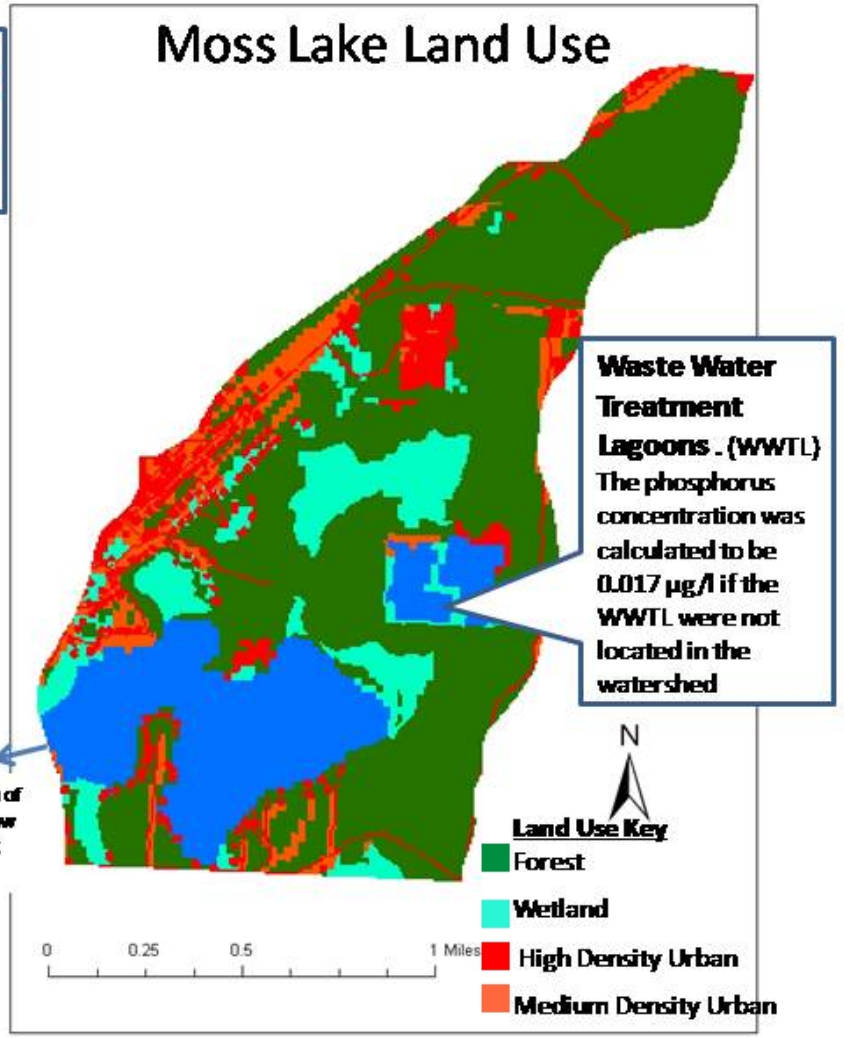
Lac du Flambeau lakes evaluated by NLA condition criteria for Human Disturbance, Riparian Cover, Literal Cover, Combined Cover, and Total Phosphorus.



Calculated Lake Phosphorus is 0.019 mg/l
based on phosphorus load from land uses
Actual average phosphorus is 0.018 mg/l





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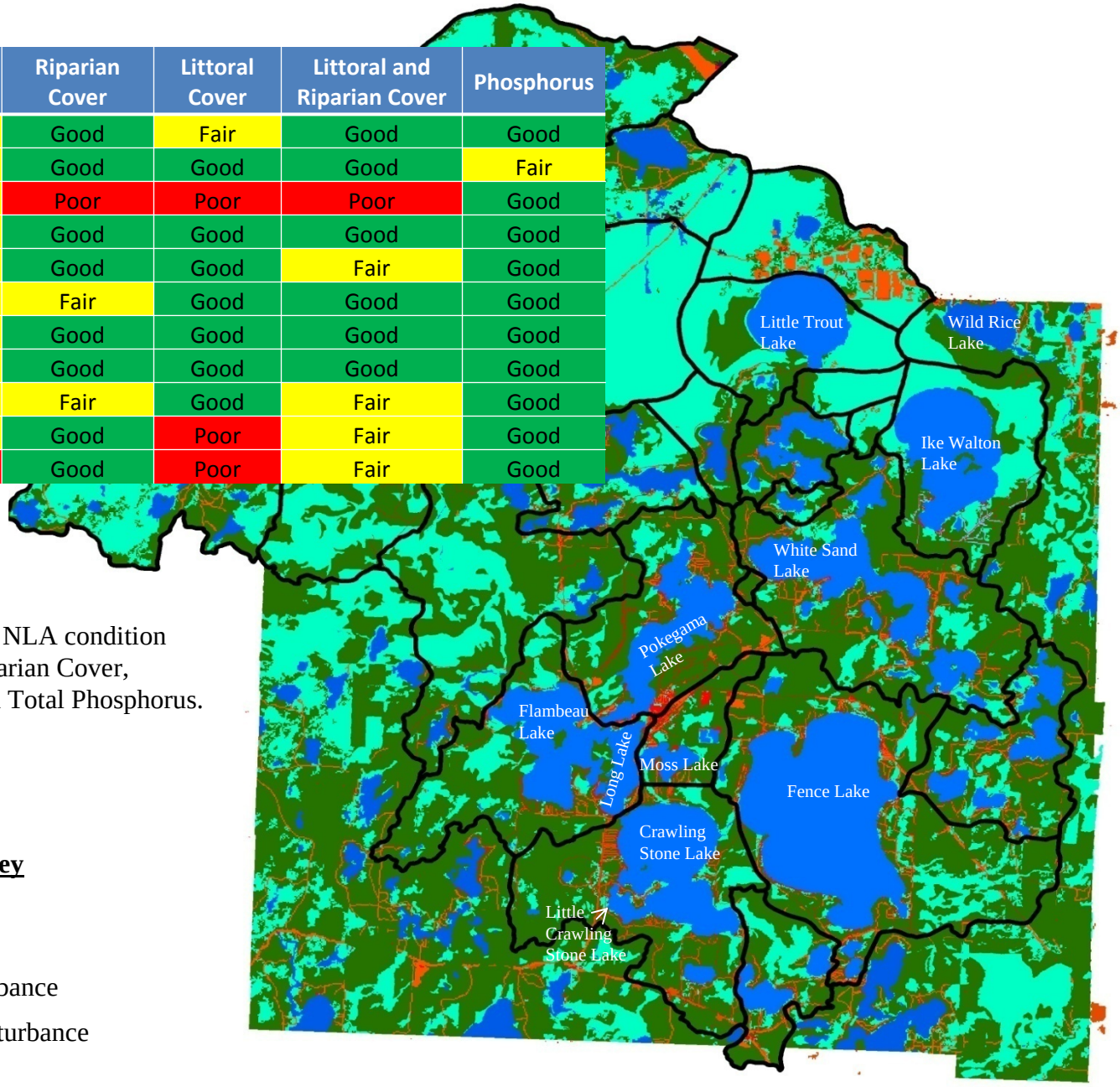
Lac du Flambeau lakes compared to NLA condition criteria for Human Disturbance, Riparian Cover, Literal Cover, Combined Cover, and Total Phosphorus.



Shoreline Codes and Outreach are Working

What we gained from the National Lake Assessment

- Training on standardized protocol for lake sampling, especially habitat sampling
- Standard metrics to compute habitat condition
- Statistically valid representation of the condition of lakes in a similar region, sharing similar ecological characteristics to Lac du Flambeau to compare our data against

Recommendations:

Create a web tool to plug and chug the data entry for analysis and STORET entry

Questions?

Special Thanks to the National Lake Assessment Team

Particularly: Phil Kaufmann, USEPA National Health and Environmental Effects, Research Lab/ORD Western Ecology Division

Information used from:

http://www.epa.gov/lakessurvey/