Fox Lake Inland Lake and Protection and Rehabilitation District

Annual Meeting

August 5, 2017

Neal O'Reilly, Ph.D.

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Nuisance Aquatic Plants

FOX LAKE LONG-RANGE AQUATIC PLANT MANAGEMENT PLAN UPDATE (2014-2018)

PREPARED FOR:

THE FOX LAKE INLAND LAKE PROTECTION AND REHABILITATION DISTRICT AND THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES

JUNE 15, 2014

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FOX LAKE LONG-RANGE (2007-2010/12) AQUATIC PLANT MANAGEMENT PLAN

PREPARED FOR:

THE FOX LAKE INLAND LAKE PROTECTION AND REHABILITATION DISTRICT AND THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES

NOVEMBER 8, 2006

Hey and Associates, Inc.
Water Resources, Wetlands and Ecology

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Chapter NR 107

AQUATIC PLANT MANAGEMENT

NR 107.01 Purpose.
NR 107.02 Applicability.
NR 107.03 Definitions.
NR 107.04 Application for permit.
NR 107.05 Issuance of permit.
NR 107.06 Chemical fact sheets.
NR 107.07 Supervision.
NR 107.08 Conditions of the permit.
NR 107.09 Special limitation.
NR 107.10 Field evaluation use permits.
NR 107.11 Exemptions.

Note: Chapter NR 107 as it existed on February 28, 1989 was repealed and a new Chapter NR 107 was created effective March 1, 1989.

NR 107.01 Purpose. The purpose of this chapter is to establish procedures for the management of aquatic plants and control of other aquatic organisms pursuant to s. 227.11 (2) (a), Stats., and interpreting s. 281.17 (2), Stats. A balanced aquatic plant community is recognized to be a vital and necessary component of a healthy aquatic ecosystem. The department may allow the management of nuisance–causing aquatic plants with chemicals registered and labeled by the U.S. environmental protection agency and labeled and registered by firms licensed as pesticide manufacturers and labelers with the Wisconsin department of agriculture, trade and consumer protection. Chemical management shall be allowed in a manner consistent with sound ecosystem management and shall minimize the loss of ecological values in the water body.

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89; **correction made under s. 13.93 (2m) (b) 7., Stats., Register, December, 2000, No. 540.**

NR 107.02 Applicability. Any person sponsoring or conducting chemical treatment for the management of aquatic plants or control of other aquatic organisms in waters of the state shall obtain a permit from the department. Waters of the state include those portions of Lake Michigan and Lake Superior, and all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, watercourses, drainage systems and other ground or surface water, natural or artificial, public or private, within the state or its jurisdiction as specified in s. 281.01 (18), Stats.

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89; **correction made under s. 13.93 (2m) (b) 7., Stats., Register, December, 2000, No. 540.**

NR 107.03 Definitions. (1) "Applicator" means the person physically applying the chemicals to the treatment site.

(2) "Chemical fact sheet" means a summary of information on a specific chemical written by the department including general aquatic community and human safety considerations applicable to Wisconsin sites.

(3) "Department" means the department of natural resources.

History: Cr. Register, February, 1989, No. 398, eff. 3–1–89.

NR 107.04 Application for permit. (1) Permit applications shall be made on forms provided by the department and shall be submitted to the district director for the district in which the project is located. Any amendment or revision to an application shall be treated by the department as a new application, except as provided in s. NR 107.04 (3) (g).

Note: The DNR district headquarters are located at:
1. Southern — 3911 Fish Hatchery Road, Fitchburg 53711
2. Southeast — 2300 N. Dr. Martin Luther King Jr. Dr., Box 12436, Milwaukee 53212
3. Lake Michigan — 1125 N. Military Ave., Box 10448, Green Bay 54307
4. North Central — 107 Sutliff Ave., Box 818, Rhinelander 54501
5. Western — 1300 W. Clairemont Ave., Call Box 4001, Eau Claire 54702
6. Northwest — Hwy. 70 West, Box 309, Spooner 54801

(2) The application shall be accompanied by:

(a) A nonrefundable permit application fee of $20, and, for proposed treatments larger than 0.25 acres, an additional refundable acreage fee of $25.00 per acre, rounded up to the nearest whole acre, applied to a maximum of 50.0 acres.

1. The acreage fee shall be refunded in whole if the entire permit is denied or if no treatment occurs on any part of the permitted treatment area. Refunds will not be prorated for partial treatments.

2. If the permit is issued with the proposed treatment area partially denied, a refund of acreage fees shall be given for the area denied.

(b) A legal description of the body of water proposed for treatment including township, range and section number;

(c) One copy of a detailed map or sketch of the body of water with the proposed treatment area dimensions clearly shown and with pertinent information necessary to locate those properties, by name of owner, riparian to the treatment area, which may include street address, local telephone number, block, lot and fire number where available. If a local address is not available, the home address and phone number of the property owner may be included;

(d) A description of the uses being impaired by plants or aquatic organisms and reason for treatment;

(e) A description of the plant community or other aquatic organisms causing the use impairment;

(f) The product names of chemicals proposed for use and the method of application;

(g) The name of the person or commercial applicator, and applicator certification number, when required by s. NR 107.08 (5), of the person conducting the treatment;

(h) A comparison of alternative control methods and their feasibility for use on the proposed treatment site.

(3) In addition to the information required under sub. (2), when the proposed treatment is a large–scale treatment exceeding 10.0 acres in size or 10% of the area of the water body that is 10 feet or less in depth, the application shall be accompanied by:

(a) A map showing the size and boundaries of the water body and its watershed.

(b) A map and list identifying known or suspected land use practices contributing to plant–related water quality problems in the watershed.

(c) A summary of conditions contributing to undesirable plant growth on the water body.

(d) A general description of the fish and wildlife uses occurring within the proposed treatment site.

(e) A summary of recreational uses of the proposed treatment site.

(f) Evidence that a public notice of the proposed application has been made, and that a public informational meeting, if required, has been conducted.

1. Notice shall be given in 2 inch x 4 inch advertising format in the newspaper which has the largest circulation in the area affected by the application.

2. The notice shall state the size of the proposed treatment, the approximate treatment dates, and that the public may request within 5 days of the notice that the applicant hold a public informational meeting on the proposed application.

a. The applicant will conduct a public informational meeting in a location near the water body when a combination of 5 or more individuals, organizations, special units of government, or local units of government request the meeting in writing to the applicant

Chapter NR 109

AQUATIC PLANTS: INTRODUCTION, MANUAL REMOVAL AND MECHANICAL CONTROL REGULATIONS

NR 109.01 Purpose.
NR 109.02 Applicability.
NR 109.03 Definitions.
NR 109.04 Application requirements and fees.
NR 109.05 Permit issuance.
NR 109.06 Waivers.
NR 109.07 Invasive and nonnative aquatic plants.
NR 109.08 Prohibitions.
NR 109.09 Plan specifications and approval.
NR 109.10 Other permits.
NR 109.11 Enforcement.

NR 109.01 Purpose. The purpose of this chapter is to establish procedures and requirements for the protection and regulation of aquatic plants pursuant to ss. 23.24 and 30.07, Stats. Diverse and stable communities of native aquatic plants are recognized to be a vital and necessary component of a healthy aquatic ecosystem. This chapter establishes procedures and requirements for issuing aquatic plant management permits for introduction of aquatic plants or control of aquatic plants by manual removal, burning, use of mechanical means or plant inhibitors. This chapter identifies other permits issued by the department for aquatic plant management that contain the appropriate conditions as required under this chapter for aquatic plant management, and for which no separate permit is required under this chapter. Introduction and control of aquatic plants shall be allowed in a manner consistent with sound ecosystem management, shall consider cumulative impacts, and shall minimize the loss of ecological values in the body of water. The purpose of this chapter is also to prevent the spread of invasive and non–native aquatic organisms by prohibiting the launching of watercraft or equipment that has any aquatic plants or zebra mussels attached.

History: CR 02–061: cr. Register May 2003 No. 569, eff. 6–1–03; **correction made under s. 13.92 (4) (b) 7., Stats., Register March 2011 No. 663.**

NR 109.02 Applicability. A person sponsoring or conducting manual removal, burning or using mechanical means or aquatic plant inhibitors to control aquatic plants in navigable waters, or introducing non–native aquatic plants to waters of this state shall obtain an aquatic plant management permit from the department under this chapter.

History: CR 02–061: cr. Register May 2003 No. 569, eff. 6–1–03.

NR 109.03 Definitions. In this chapter:

(1) "Aquatic community" means lake or river biological resources.

(2) "Beneficial water use activities" mean angling, boating, swimming or other navigational or recreational water use activity.

(3) "Body of water" means any lake, river or wetland that is a water of this state.

(4) "Complete application" means a completed and signed application form, the information specified in s. NR 109.04 and any other information which may reasonably be required from an applicant and which the department needs to make a decision under applicable provisions of law.

(5) "Department" means the Wisconsin department of natural resources.

(6) "Manual removal" means the control of aquatic plants by hand or hand–held devices without the use or aid of external or auxiliary power.

(7) "Navigable waters" means those waters defined as navigable under s. 30.10, Stats.

(8) "Permit" means aquatic plant management permit.

(9) "Plan" means aquatic plant management plan.

(10) "Wetlands" means an area where water is at, near or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions.

History: CR 02–061: cr. Register May 2003 No. 569, eff. 6–1–03.

NR 109.04 Application requirements and fees. (1) Permit applications shall be made on forms provided by the department and shall be submitted to the regional director or designee for the region in which the project is located. Permit applications for licensed aquatic nursery growers may be submitted to the department of agriculture, trade and consumer protection.

Note: Applications may be obtained from the department's regional headquarters or service centers. DATCP has agreed to send application forms and instructions provided by the department to aquatic nursery growers along with license renewal forms. DATCP will forward all applications to the department for processing.

(2) The application shall be accompanied by all of the following unless the application is made by licensed aquatic nursery growers for selective harvesting of aquatic plants for nursery stock. Applications made by licensed aquatic nursery growers for harvest of nursery stock do not have to include the information required by par. (d), (e), (h), (i) or (j).

(a) A nonrefundable application fee. The application fee for an aquatic plant management permit is:

1. $30 for a proposed project to manage aquatic plants on less than one acre.

2. $30 per acre to a maximum of $300 for a proposed project to manage aquatic plants on one acre or larger. Partial acres shall be rounded up to the next full acre for fee determination. An annual renewal of this permit may be requested with an additional application fee of one–half the original application fee, but not less than $30.

(b) A legal description of the body of water including township, range and section number.

(c) One copy of a detailed map of the body of water with the proposed introduction or control area dimensions clearly shown. Private individuals doing plant introduction or control shall provide the name of the owner riparian to the management area, which includes the street address or block, lot and fire number where available and local telephone number or other pertinent information necessary to locate the property.

(d) One copy of any existing aquatic management plan for the body of water, or detailed reference to the plan, citing the plan references to the proposed introduction or control area, and a description of how the proposed introduction or control of aquatic plants is compatible with any existing plan.

(e) A description of the impairments to water use caused by the aquatic plants to be managed.

(f) A description of the aquatic plants to be controlled or removed.

(g) The type of equipment and methods to be used for introduction, control or removal.

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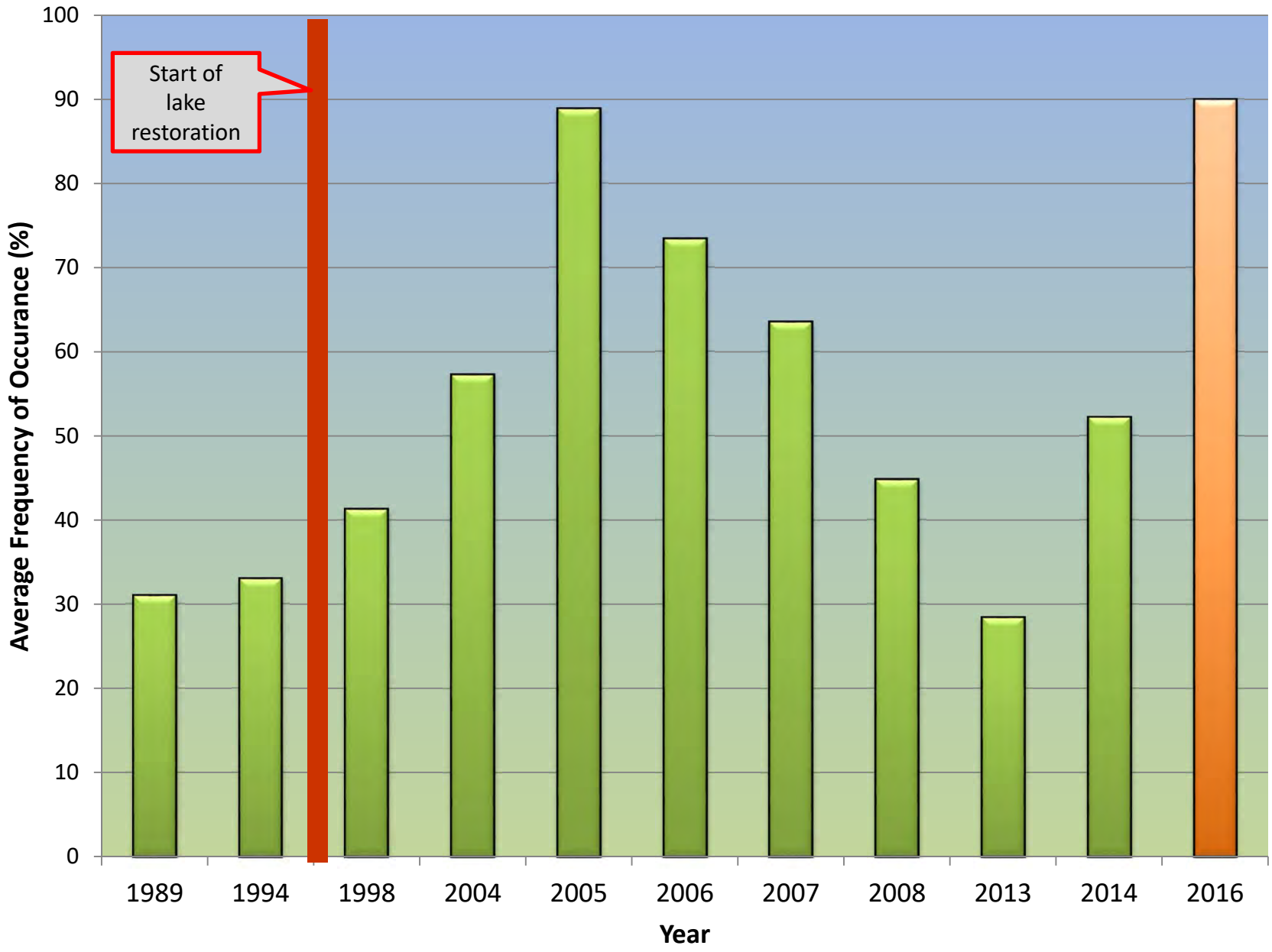
Advisory Committee

- *Cheryl Witkowski* – Fox Lake Inland Lake Protection and Rehabilitation District
- *Dennis Buren* – Lake Resident
- *Bob Cerniglia* - Lake Resident
- *Louis Leizinger* – Fox Lake Anglers
- *Chuck Orsay* - Lake Resident
- *Dennis Pufahl* - Lake Resident
- *Dale Winkelman* - Lake Resident
- *Ann Tepp* - Lake Resident
- *Wendy Crary* - Lake Resident
- *Kathy Rydquist* – Coordinator - Fox Lake Inland Lake Protection and Rehabilitation District
- *Susan Graham* – Regional Lake Coordinator, Wisconsin Department of Natural Resources
- *Laura Stremick Thompson* – Area Fishery Manager - Wisconsin Department of Natural Resources
- *Neal O'Reilly* – Committee Facilitator – Ecological Research Partners, LLC.

Committee Meetings

- *September 1,2016*
- *September 16,2016*
- *September 23,2016*
- *October 11,2016,*
- *October 14,2016,*
- *November 2,2016,*
- *November 16, 2016*
- *December 2,2016*
- *January 17,2017*
- *February 2/2017*
- *June 26,2017*
- *July 12,2017 and*
- *July 19,2017*


Start of lake restoration
Average Frequency of Occurance (%)
100
90
80
70
60
50
40
30
20
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1989
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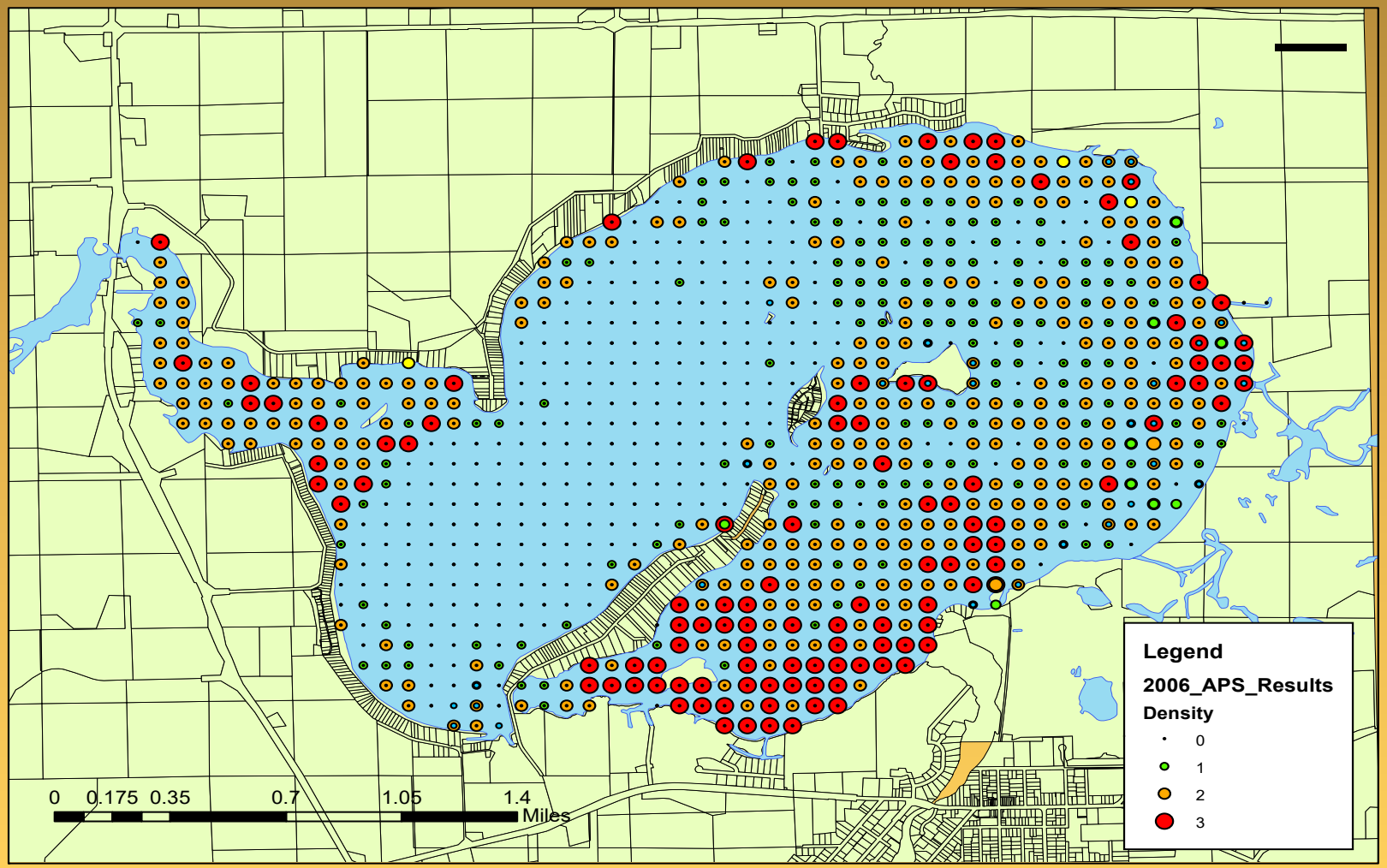
2006
2007
2008
2013
2014
2016
Year

Density 2006



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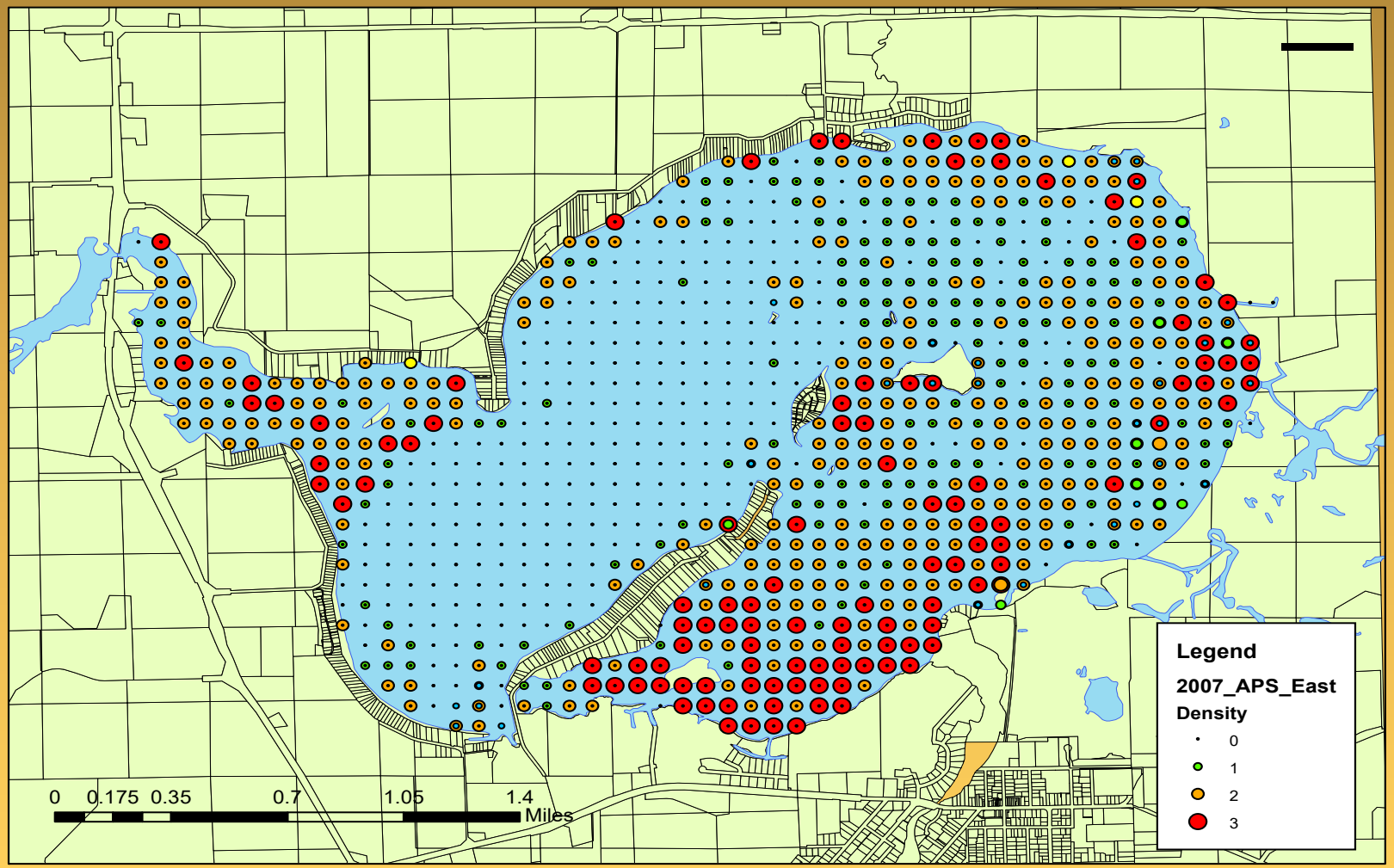
Density 2007



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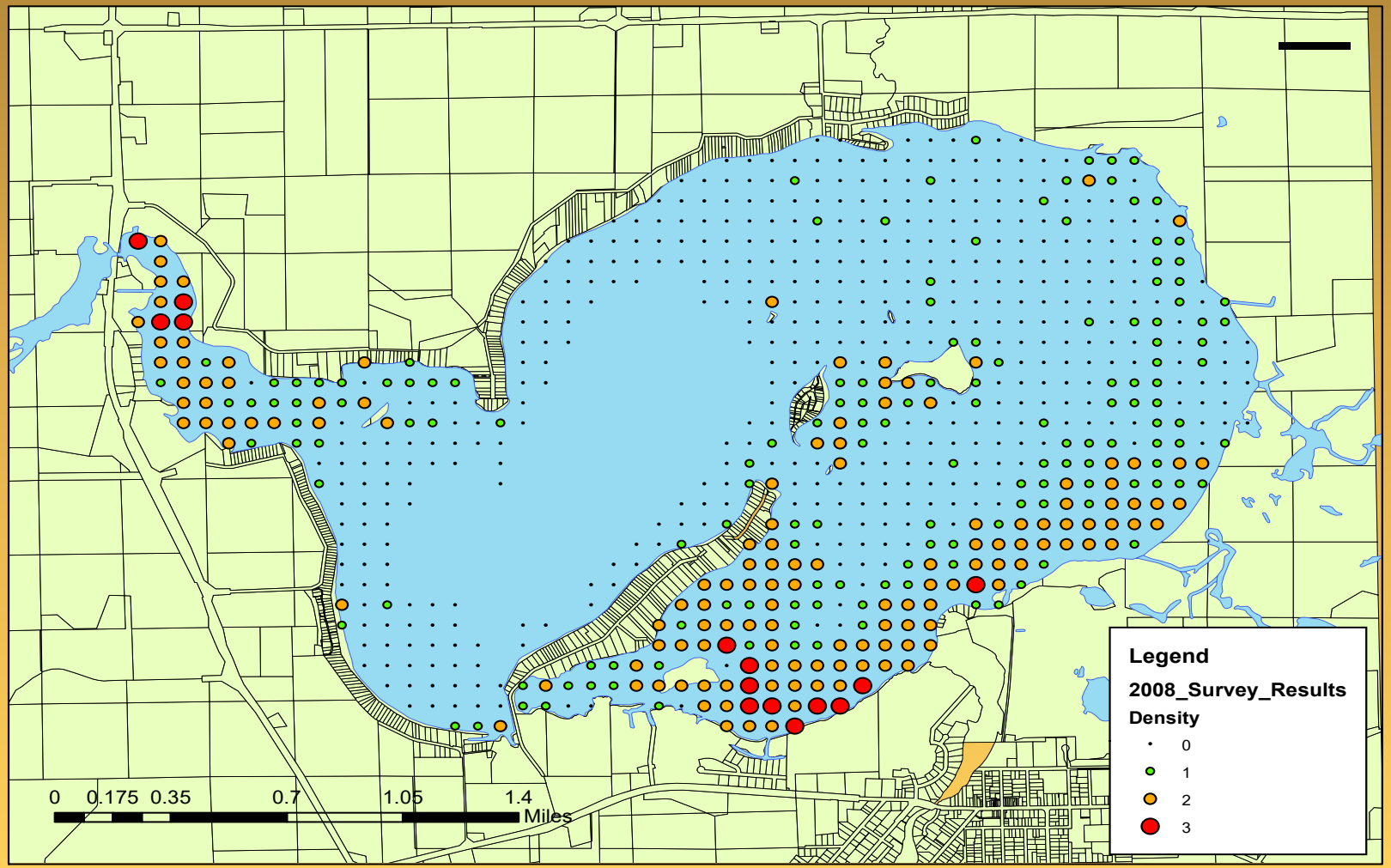
Density 2008



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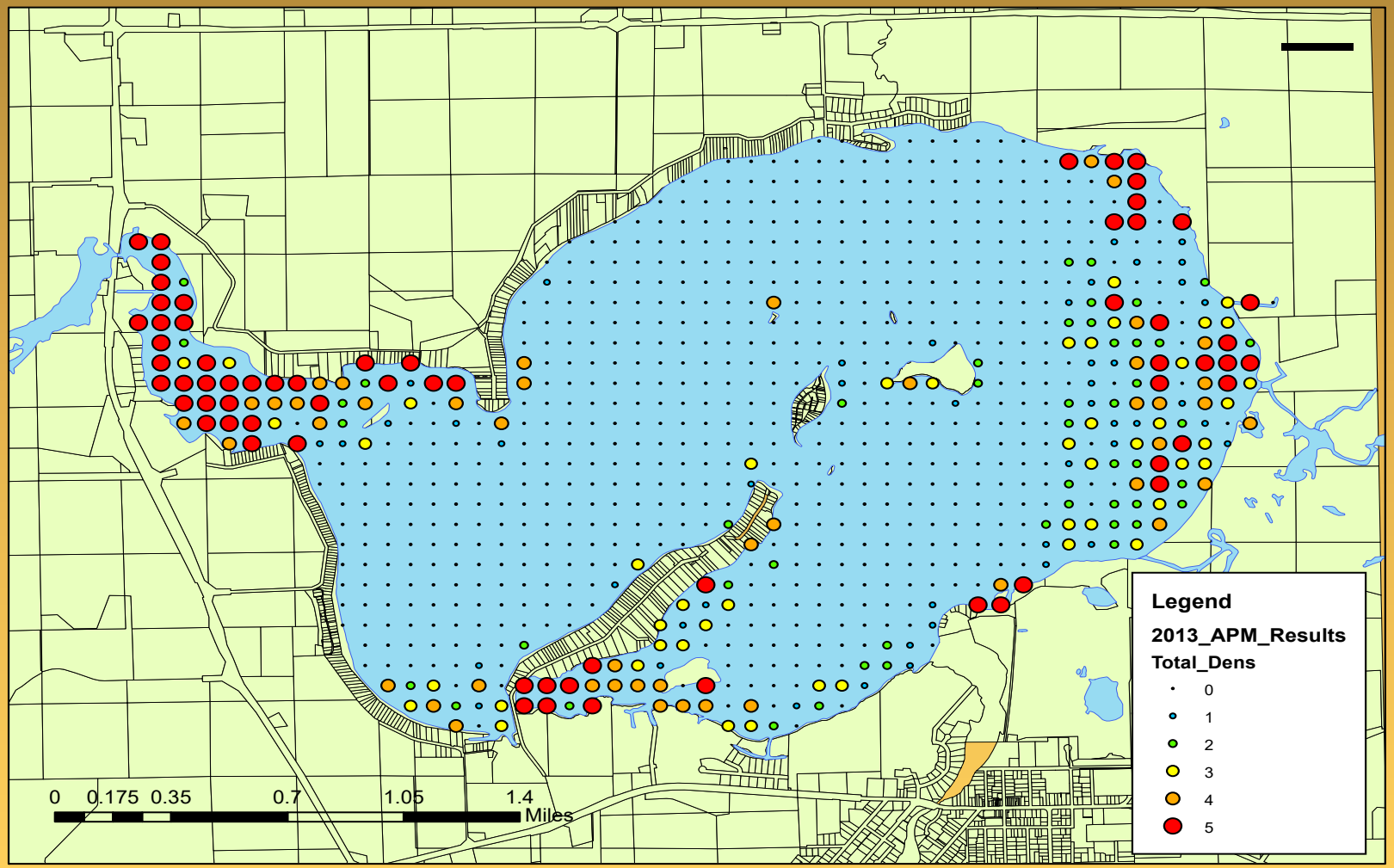
Density 2013



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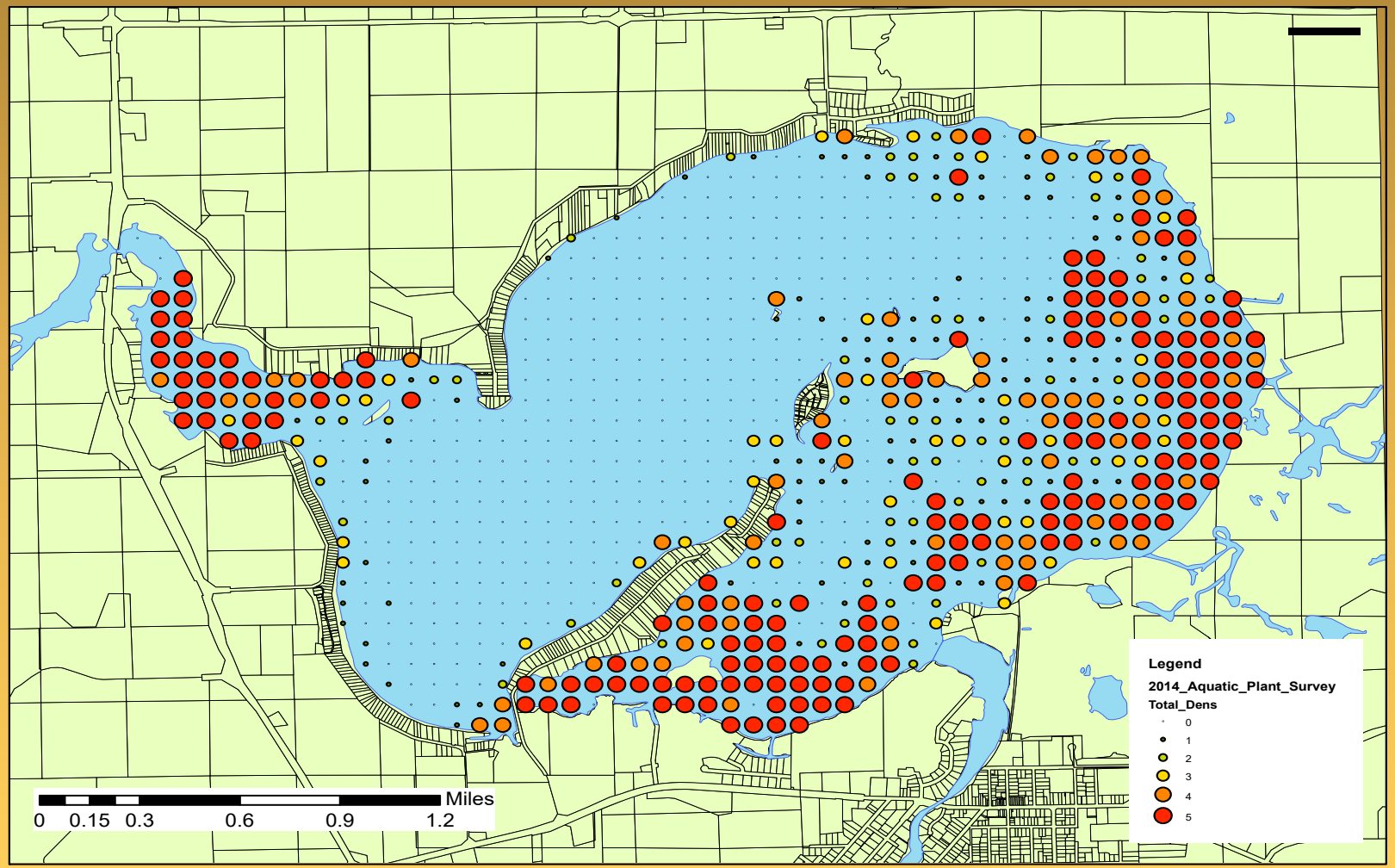
Density 2014



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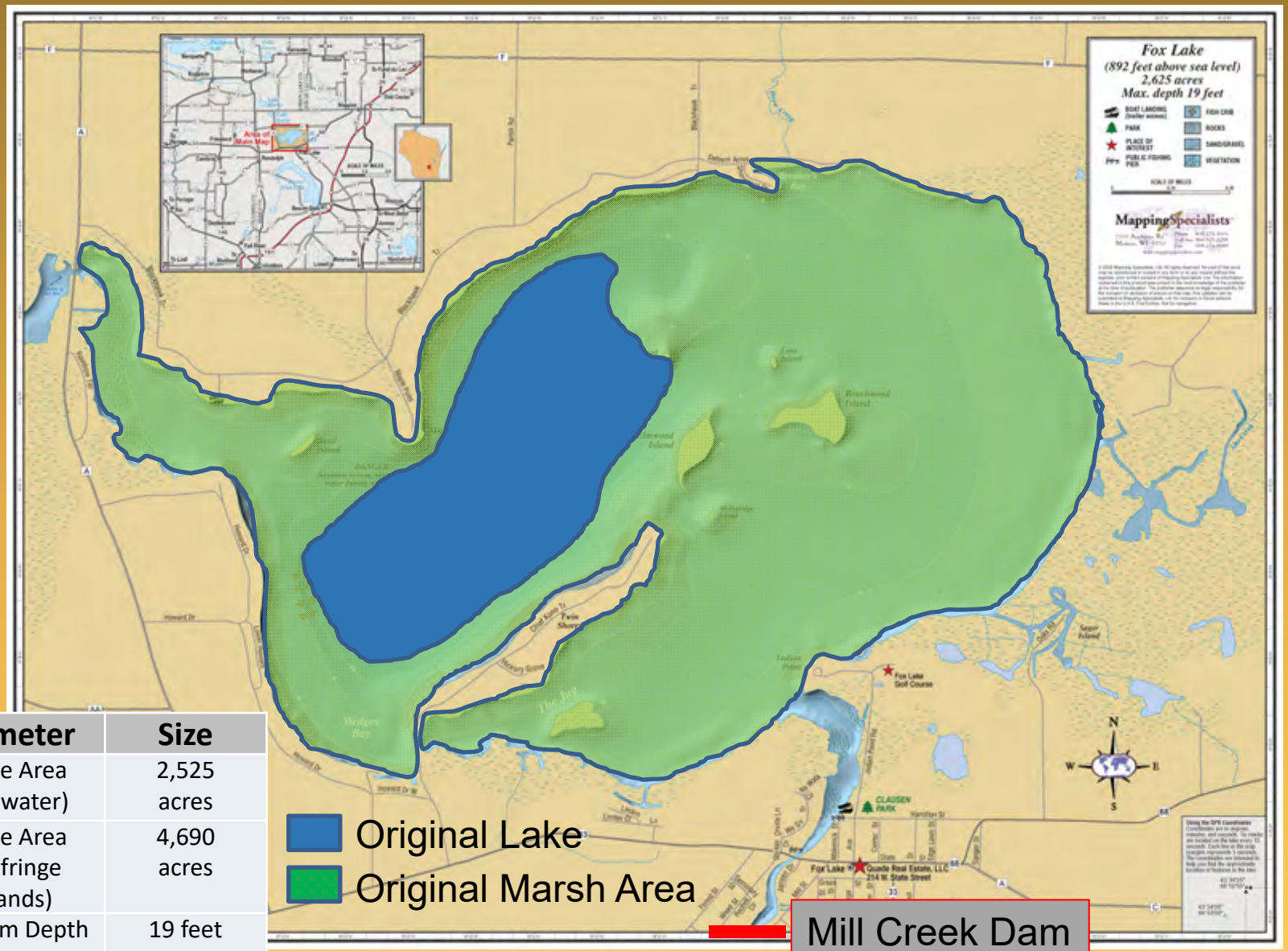
Fox Lake Has Two States

Fox Lake

- Like a teeter totter, Fox Lake can flip from clear water and dense rooted aquatic plants to turbid conditions with algae dominating.



Parameter	Size
Surface Area (open water)	2,525 acres
Surface Area (with fringe wetlands)	4,690 acres
Maximum Depth	19 feet
Mean Depth	5 feet

Map Source: Quade Real-estate

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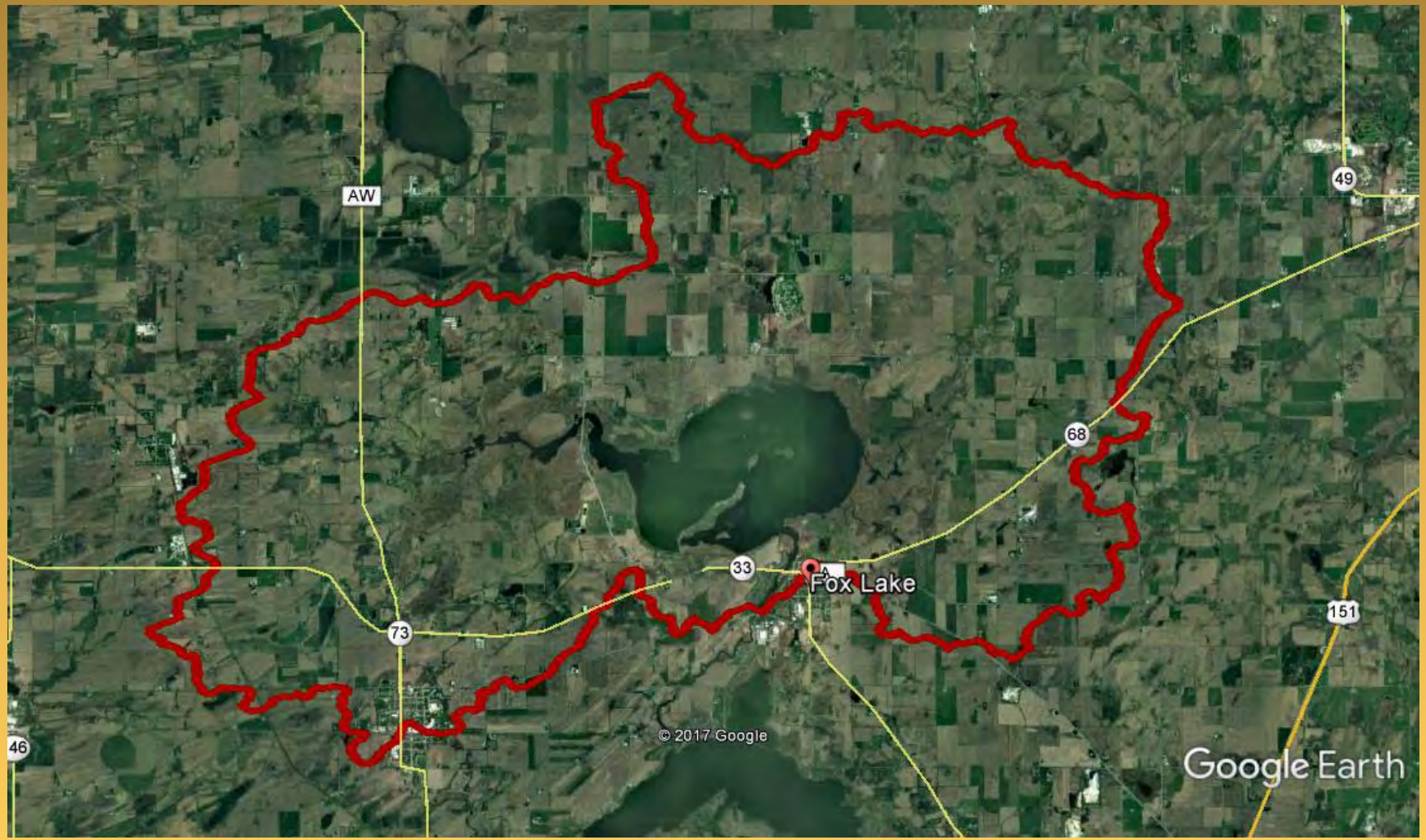
38,778 acres



Agriculture 76%

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The type of aquatic plant density depends a lot on winter ice and spring water clarity

New Aquatic Plant Management Plan Issues:

- Address the *continuing changing conditions* experienced in Fox Lake and include recommendations for a variety of conditions ranging from an overabundance of rooted aquatic plants to those with spare vegetation in the lake,
- Facilitate *navigation to open water* in selected shallow areas affected by abundant aquatic plant growth,
- Facilitate *recreational lake uses in nearshore areas* for lake residents that have recreational impairment caused by abundant plant populations,

New Aquatic Plant Management Plan Issues:

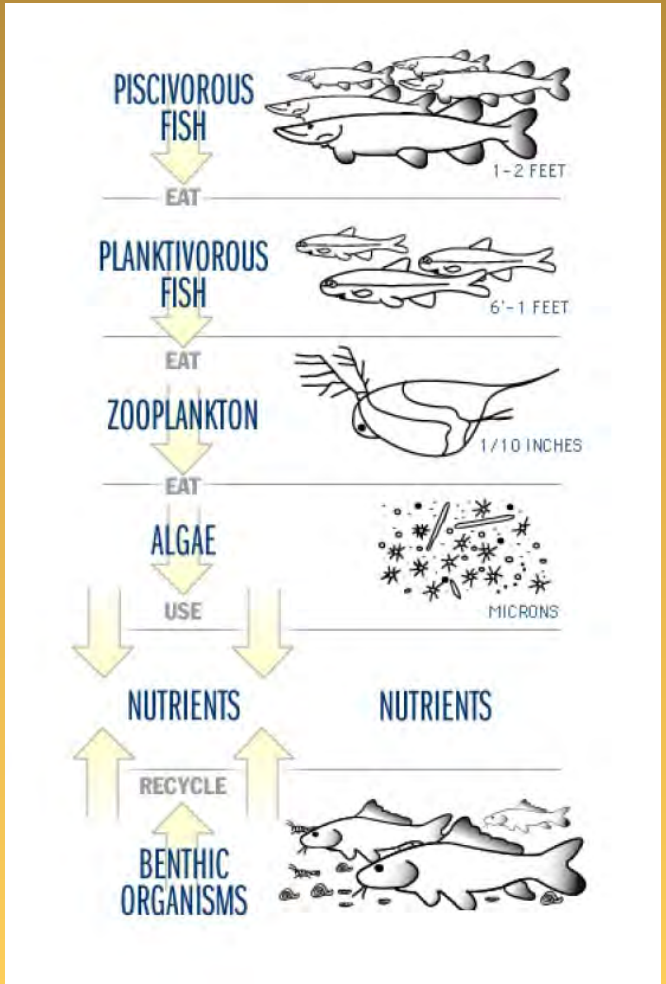
- Address the introduction of the exotic wetland species *Phragmites* and *purple loosestrife*,
- Continue to educate the local community on the benefits of aquatic plants, and
- Promote ecologically sound management strategies, and establish a long-term monitoring strategy.

Fox Lake Restoration Plan

- The health of a lake is a function of the health of the aquatic ecosystem.

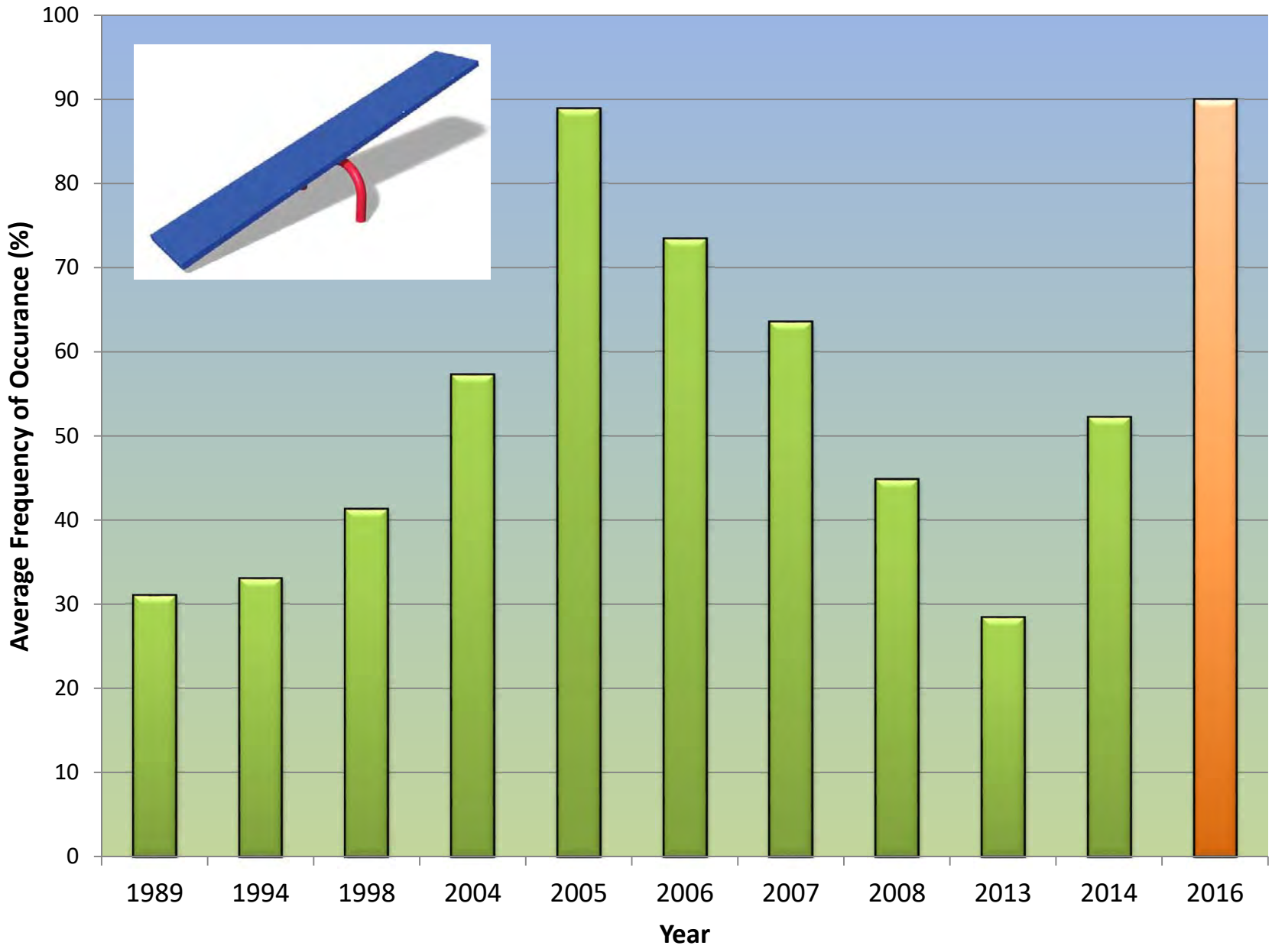
Fox Lake Restoration Plan

- For a healthy fishery we need:
  - habitat in the form of spawning, nursery and areas
  - Strong predator prey relationships
- For clear water we need:
  - Low nutrient levels
  - Habitat for zooplankton
  - Fish community not dominated by planktivorous fish



Importance of Aquatic Plants

- Provide refuge for fish.
- Provide refuge for zooplankton.
- Prevent re-suspension of bottom sediments by wind and boats.
- Tie up nutrients that could be used by algae.


100
90
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40
30
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10
0
Average Frequency of Occurance (%)
1989
1994
1998
2004
2005
2006
2007
2008
2013
2014
2016
Year

Adaptive Management Strategy

Abundant

- Very dense rooted aquatic plants found at more than 70 % of the historic plant sampling sites.
- Plant abundance that is causing interference in lake-wide navigation.
- Plant community with invasive species found at greater than 30 % of the historic plant sampling sites

Moderate

- Moderate density of rooted aquatic plants found at between 40 and 70 % the historic plant sampling sites.
- Limited interference in lake-wide navigation.
- Limited abundance of invasive species. Found at less than 30 percent of the historic plant sampling sites.

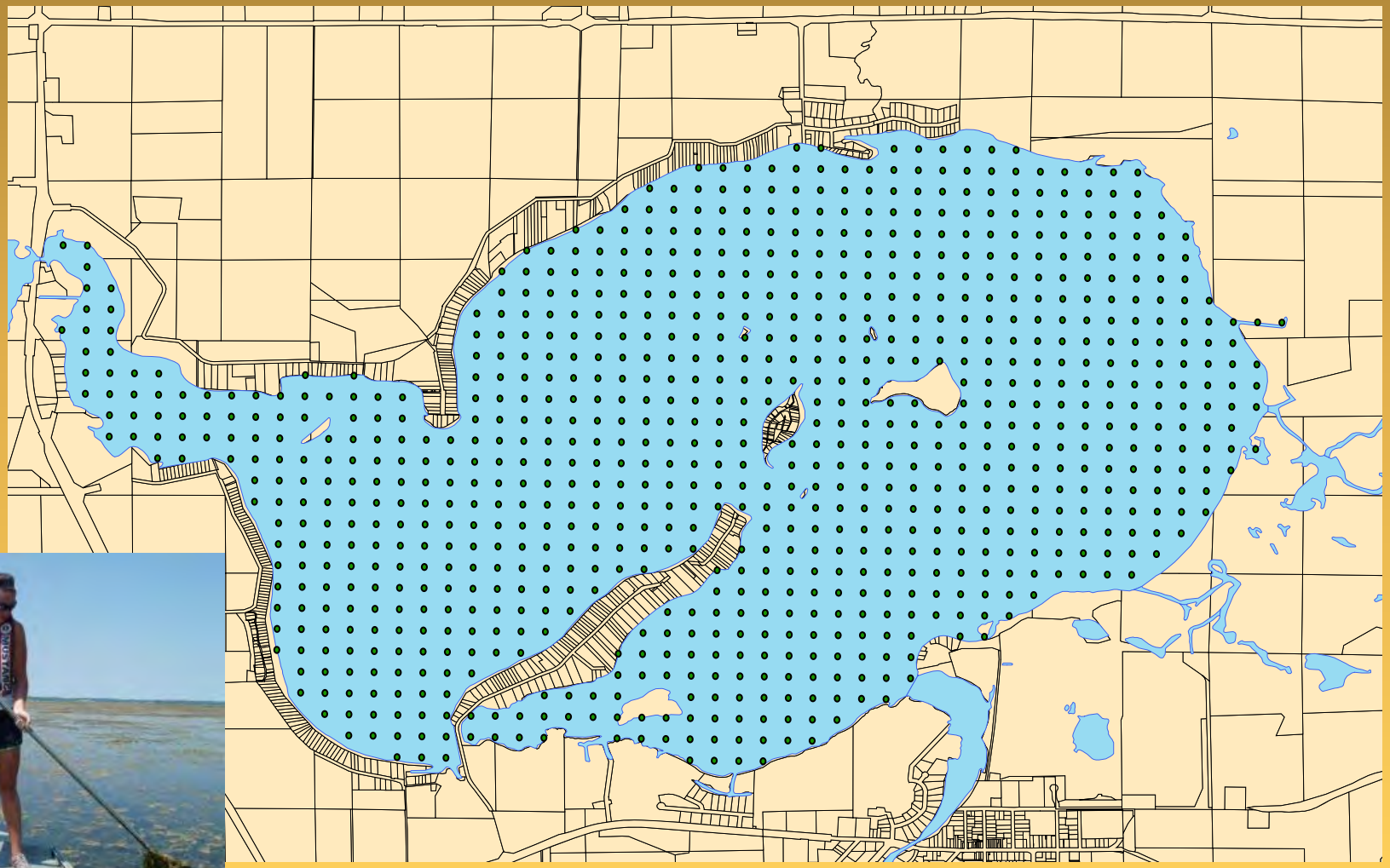
Sparse

- Sparse rooted aquatic plants with plants found at less than 40% of the historic plant sampling sites.
- Fishery in decline due to lack of habitat created by rooted aquatic plants.
- Poor water clarity due abundant of algae.

Adaptive Management Strategy

Condition	Abundant	Moderate	Sparse
Plant Types	Eurasian Water Millfoil >30%	Eurasian Water Millfoil <30%	All plants <40%
Average Plant Density	3 at greater than 70% of sampling sites	2 to 3 at 40 to 70% of sampling sites	1 or less at most sites and plants found at less than 40 of sampling sites
Water Clarity	Clear water	Varies	Turbid Algae Dominated
Level of Navigational Use Impairment	High	Varies on the location in lake	Limited Impairment
Interference with Swimming	High	Varies on the location in lake	Limited Interference

Aquatic Plant Surveys



888 Sample Points

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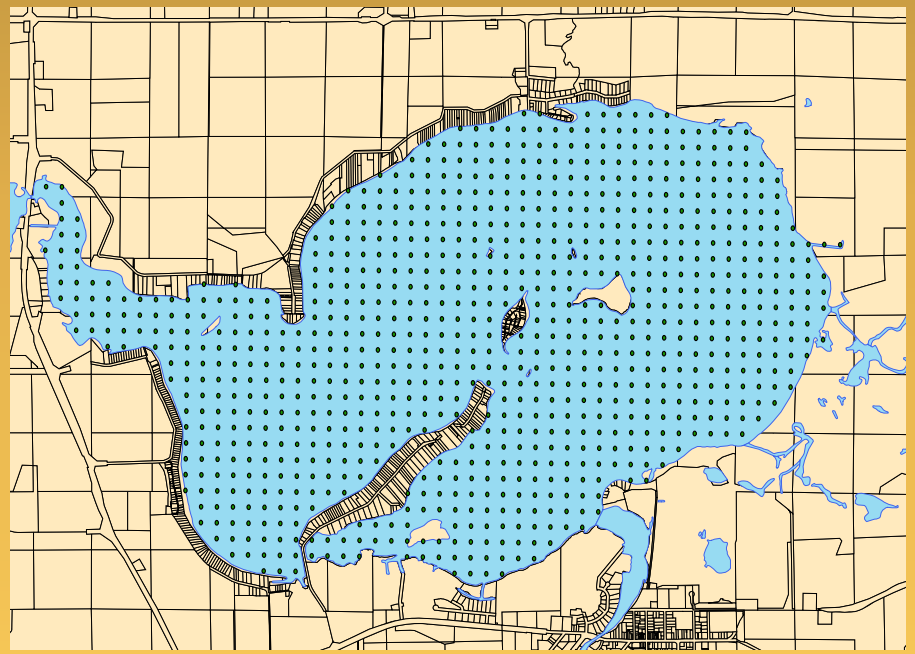
Ranking of Plant Density

	Rating	Coverage	Description
(Sparse)	1		A few plants on rake head
(Normal)	2		Rake head is about ½ full Can easily see top of rake head
(Nuisance)	3		Overflowing Cannot see top of rake head

Source: WDNR and UWEX

Determination of which category the lake is in will be based on the following factors:

1. Results of the previous years rooted *aquatic plant survey* and the *increasing or declining trend* in lake-wide plant abundance.



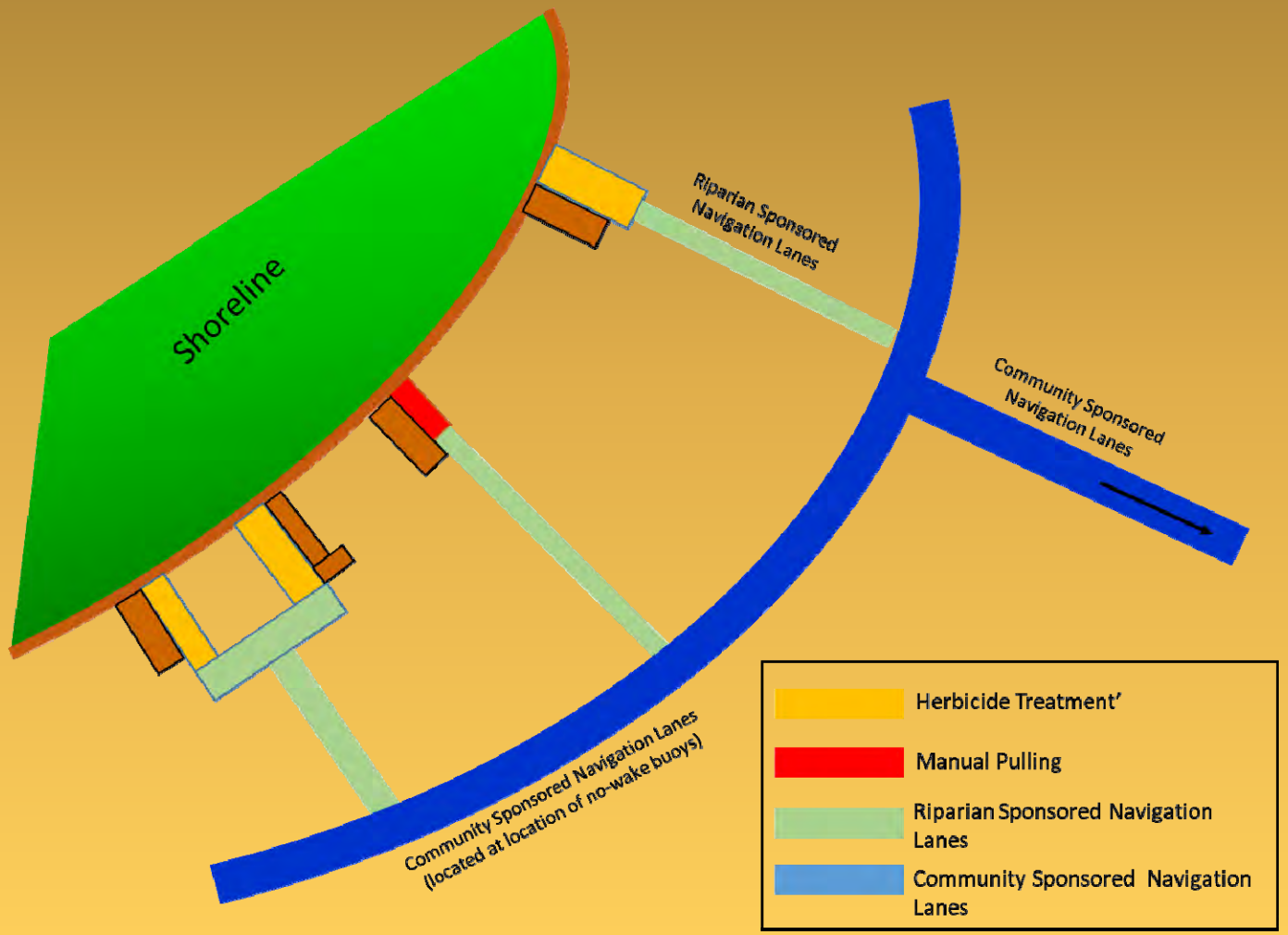
Determination of which category the lake is in will be based on the following factors:

- Results of the previous year's *fishery surveys* and whether or not critical species that rely on rooted aquatic plants for successful reproduction and survival are stable or in decline.

Determination of which category the lake is in will be based on the following factors:

3. Abundance and density of aquatic plants at the treatment property at the time of the proposed treatment, and whether or not there is *interference of recreational use at the site*.
   - For the purposes of aquatic plant management, *recreational use is defined as boating, swimming and nearshore fishing*.
   - Under Wisconsin Administrative Code NR 107 this determination will be made by the Wisconsin Department of Natural Resources.

Integrated Aquatic Plant Management Strategy



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Integrated Plant Management Strategy

Abundant

- Community sponsored navigation lanes
- Aquatic plant harvesting near piers and to create riparian sponsored navigation lanes*
- Use of non-selective herbicides around piers*
- Hand Pulling of plants around piers*

Moderate

- Community sponsored navigation lanes where needed
- Aquatic plant harvesting near piers and to create riparian sponsored navigation lanes*
- Use of non-selective herbicides around piers*
- Hand Pulling of plants around piers*

Sparse

- No community sponsored navigation lanes
- Limited aquatic plant harvesting near piers and to navigation lanes where nuisances exist*
- Hand Pulling of plants around piers*

Nearshore Areas

- ***Abundant and Moderate Plant Abundance***
  - Hand-pulling, or raking of a *30-foot wide* area perpendicular to shore in accordance with NR 109.06(2),
  - Use of *non-selective herbicides*, with a state permit, to control any plants *around piers* that are inhibiting boat access, swimming or fishing,
  - Use of *nonselective herbicides*, with a state permit, to create *riparian sponsored navigation lanes*,
  - *Aquatic plant harvesting*, with a state permit, near piers and to create *riparian sponsored navigation lanes*.

Nearshore Areas

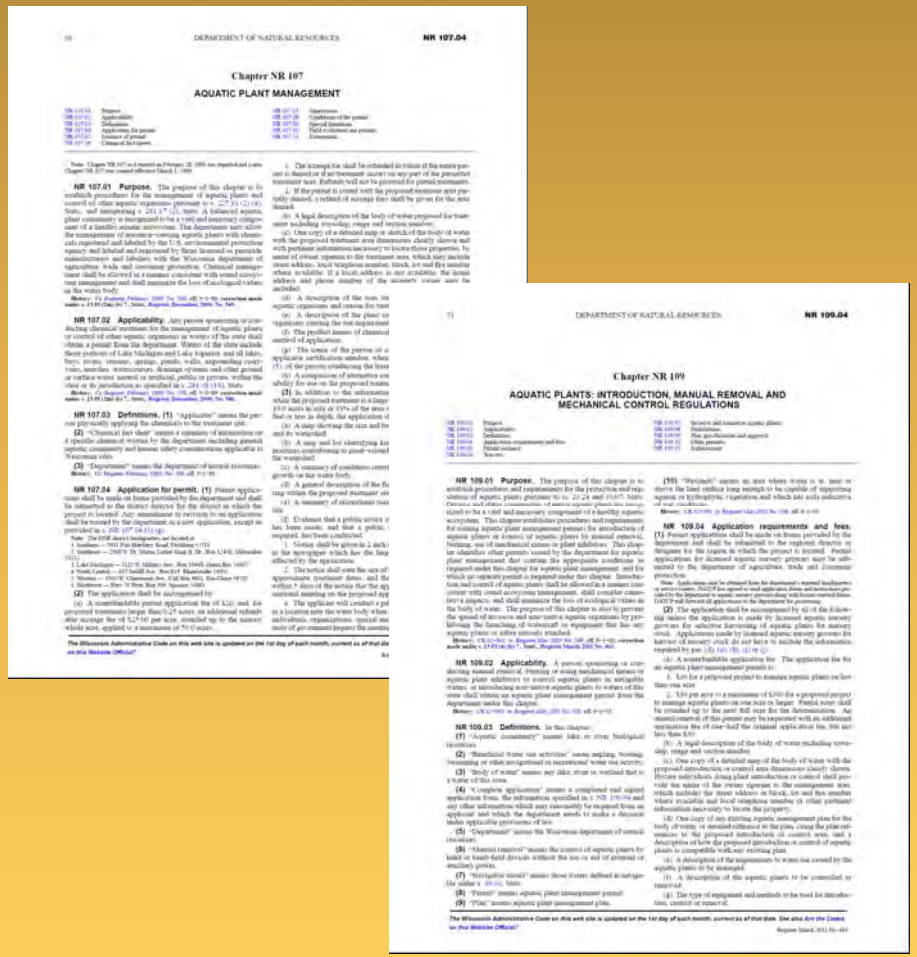
- ***Sparse Plant Abundance***
  - Limited aquatic plant harvesting near piers and to navigation lanes where nuisances exist.
  - Hand Pulling of plants around piers.

Nearshore Areas

- As has been the policy in the past, the *onsite supervisor* will determine if herbicides can be used based on plant density.
- Herbicide treatment would be *denied* if any of the following conditions exists:
  - Site is very shallow (less than 3-feet) and has mucky substrate making the area unsuitable for swimming.
  - Plants present are washed in or floating.
  - Rooted plants are sparse.
  - There is no pier.
  - Fish spawning is actively occurring.

Nearshore Areas

- The use of *herbicides* or *mechanical harvesting* on Wisconsin lakes is regulated under Wisconsin Administrative codes NR 107 and NR 109 and a ***permit*** from the Wisconsin Department of Natural Resources is required. http://dnr.wi.gov/lakes/plants/.


DEPARTMENT OF NATURAL RESOURCES NR 107.04

Chapter NR 107

AQUATIC PLANT MANAGEMENT

DEPARTMENT OF NATURAL RESOURCES NR 109.04

Chapter NR 109

AQUATIC PLANTS: INTRODUCTION, MANUAL REMOVAL AND MECHANICAL CONTROL REGULATIONS

Nearshore Areas

- Residents are allowed to remove native and non-native plants *without a permit* in a 30-foot wide area around their piers to allow for navigation and recreation.

Community Sponsored Navigation Channels

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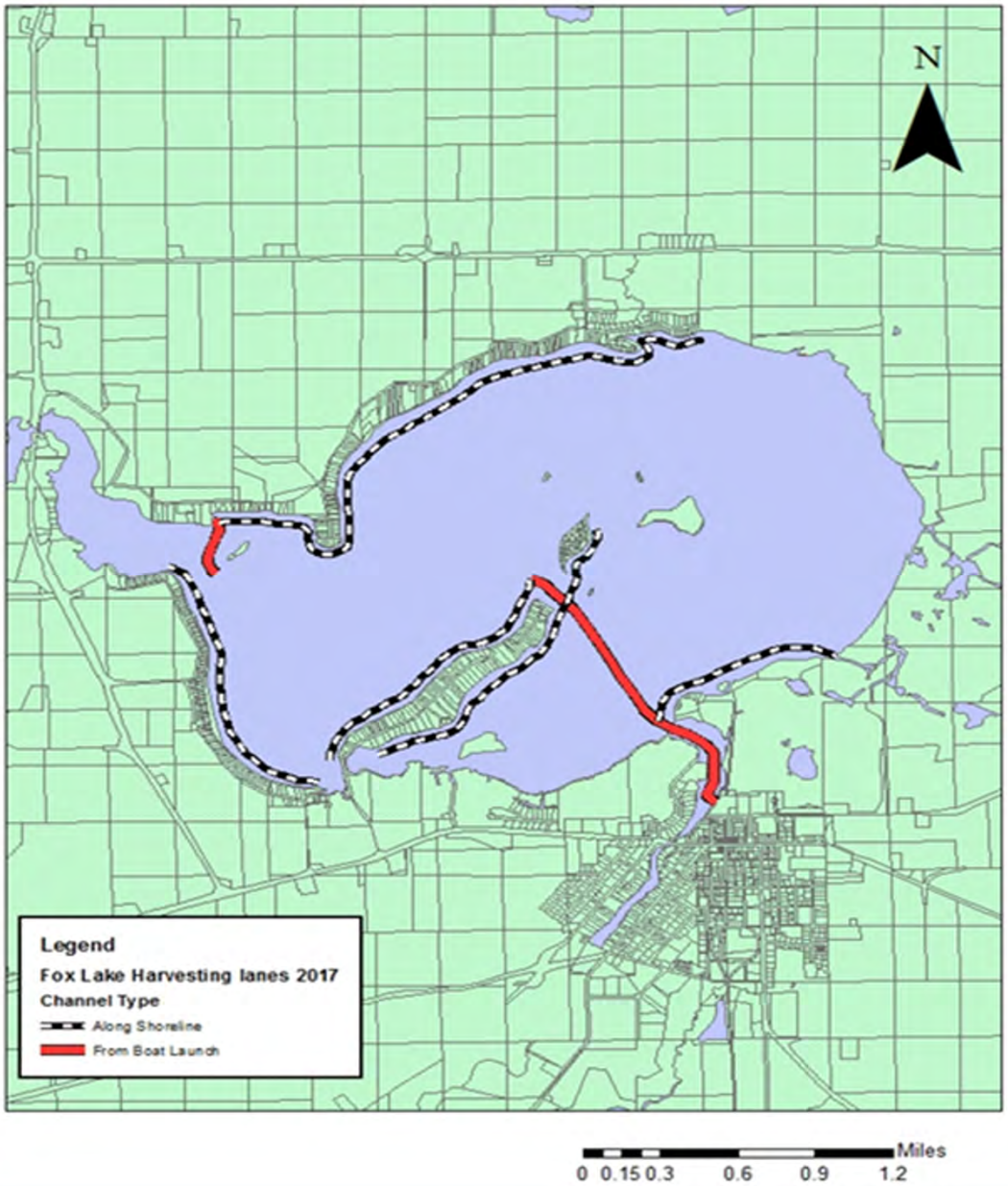
Fox Lake 2017 Community Navigational Lanes

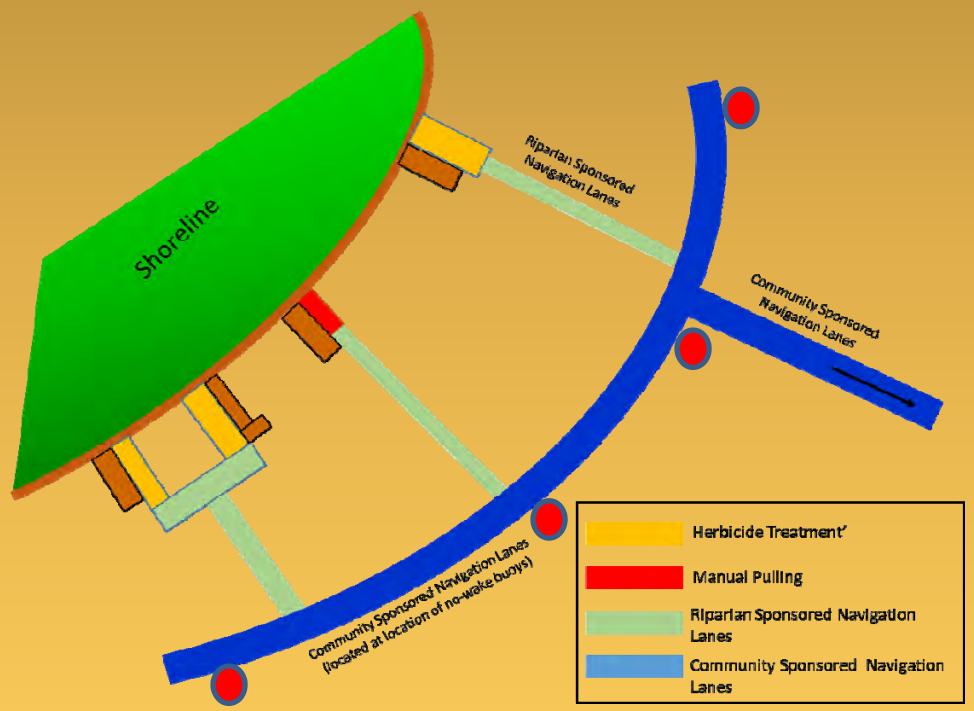


Community Sponsored Navigation Channels

- The proposed location of navigation channels on the lake correspond to:
  - The areas of highest plant density,
  - Minimal depth requirements for operation of harvesting equipment, and
  - Locations that will not interfere with near shore recreation.

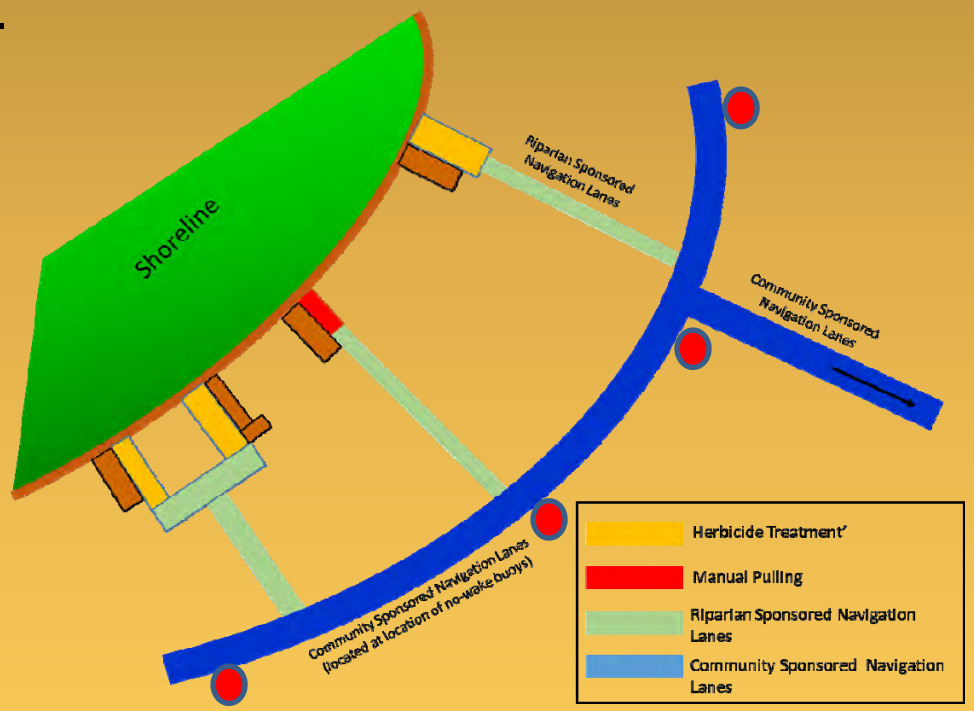
Community Sponsored Navigation Channels

- The channels would be *<u>approximately 150-feet off shore</u>* just inside the existing no-wake buoys.



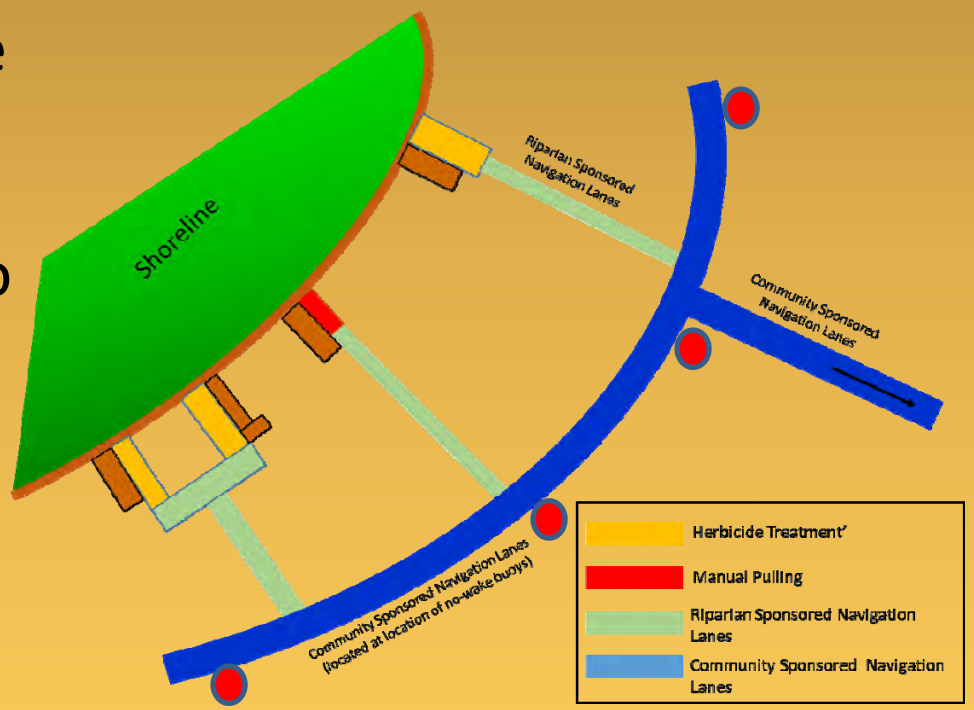
Community Sponsored Navigation Channels

- The channel will be *50 foot in width* the channel will extend from 150 feet off shore to approximately 200 feet off shore, within the lake no-wake zone.



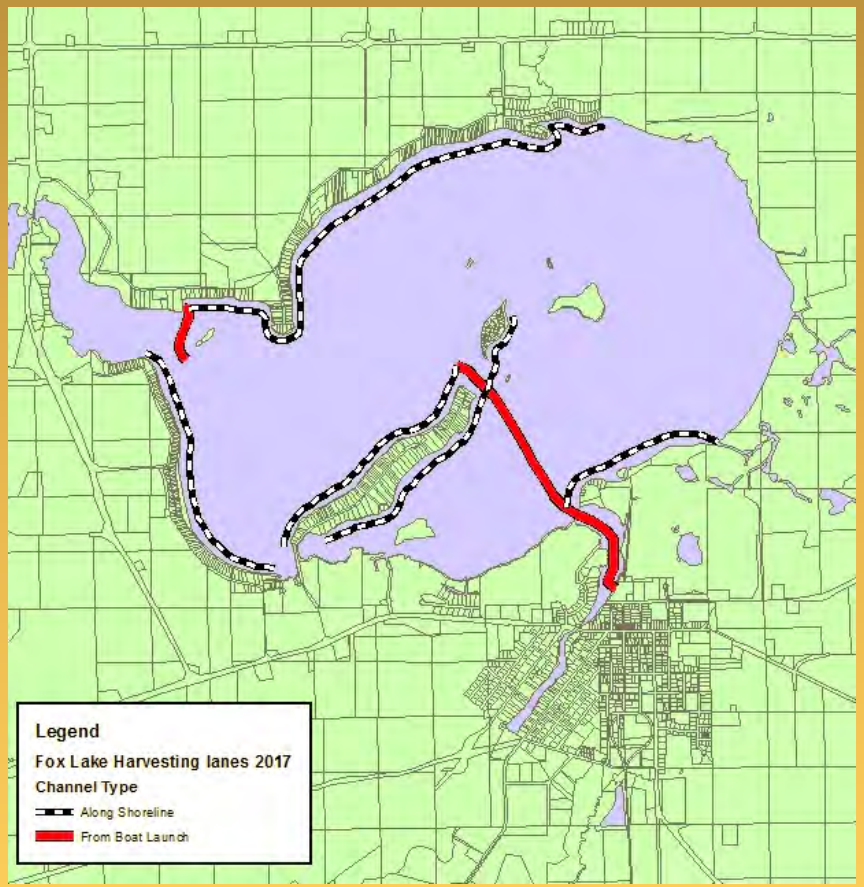
Community Sponsored Navigation Channels

- It was the recommendation that the community sponsored navigation channels should not be too close to piers, swimming rafts or other off-shore recreational equipment to prevent user conflicts and that located at 150-feet off shore would protect public safety.



Community Sponsored Navigation Channels

- The location of these channels may be modified from year to year depending on *plant densities*, *nuisance conditions*, and *input from the public*.



Community Sponsored Navigation Channels

- Frequent use of cut channels by boaters should be encouraged to reduce the number of cuttings (and cost) required to maintain the channels.
- During periods of moderate plant densities the number of navigation channels may be reduced to only areas with nuisance conditions.

Community Sponsored Navigation Channels

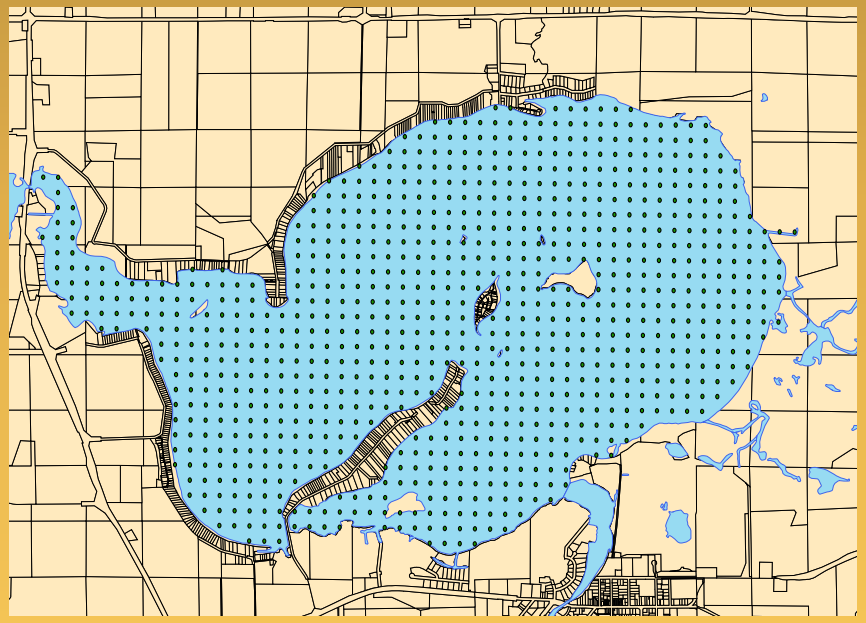
- The community sponsored navigation channels will be funded by the Fox Lake Inland Lake Protection and Rehabilitation District (FLILPRD) through a *special charge on all households* within the lake district boundaries.
- Maintenance of the navigation lanes will only take place if adequate funds are placed in the annual budget by the electorate at the annual meeting.

Community Sponsored Navigation Channels

- For calendar year 2017 the electorate approved a budget of *$70,000* for this purpose.
- Any money not used in an annual year for navigation channels maintenance will be placed in a *segregated account* for future navigational channel maintenance.

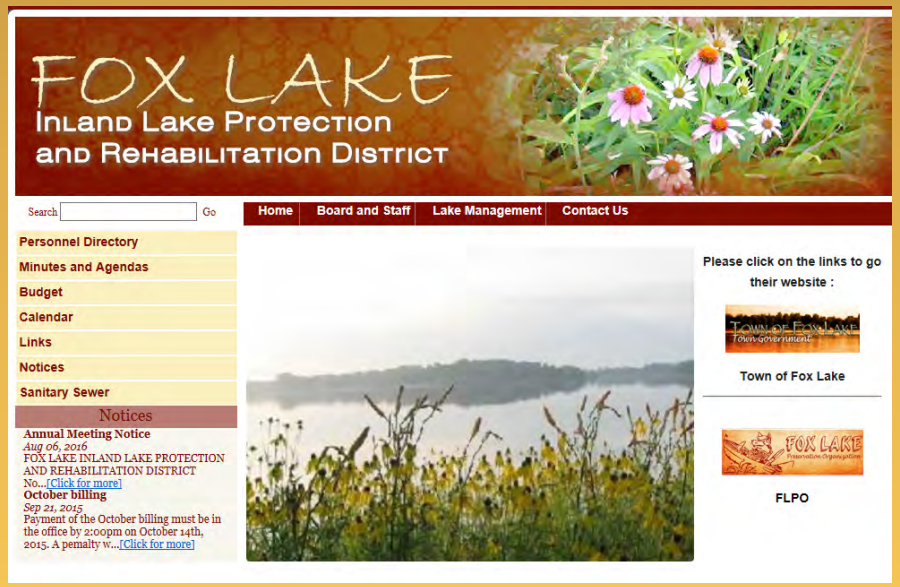
Monitoring Strategy

- A comprehensive aquatic plant survey should occur every year to assist with future planning.
- Also water quality monitoring will continue through the DNR's "*Self-Help Monitoring*" Program.



Public Communication

- To improve *communications* with residents the lake management district has obtained a grant from DNR to update its web-page and developed other social media.



Drew Creek Watershed

Questions

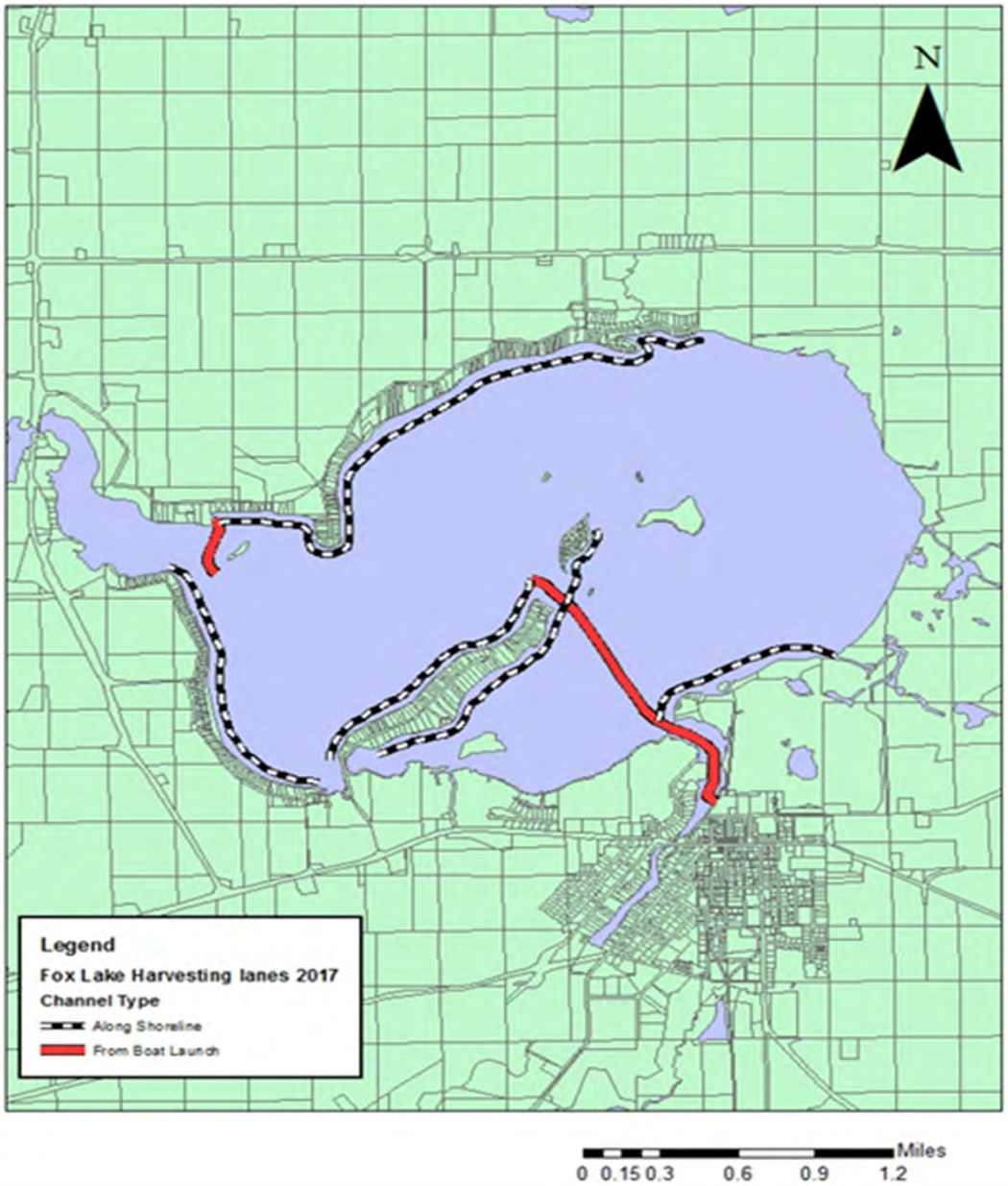
Ecological Research Partners

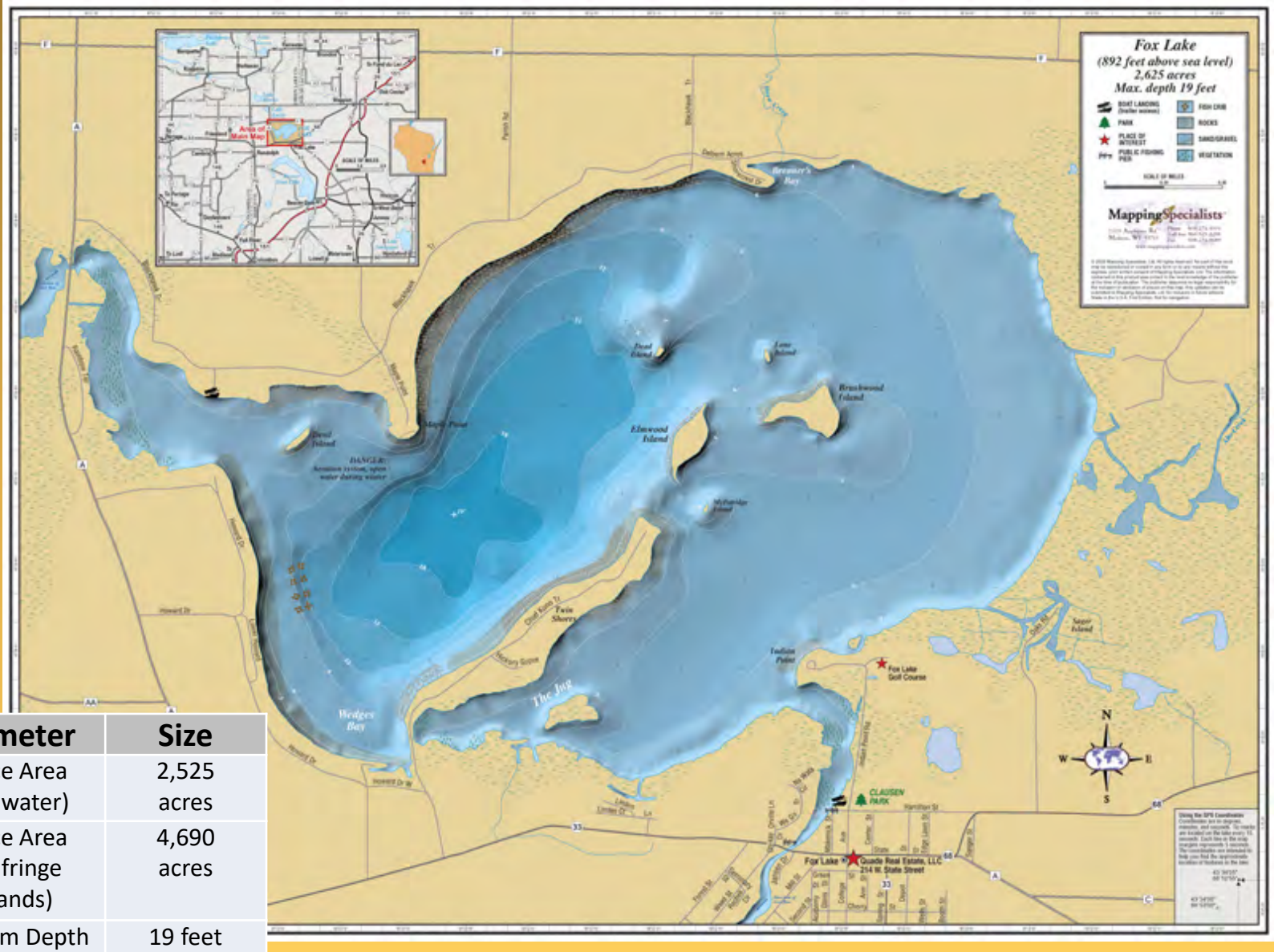
where science meets society

TAX KEY NUMBER	PROPERTY OWNER	LAKE ADDRESS	PHONE
018-1313-1413-015	Tammy Butz	W10217 DelBern Acres	262-626-3349
018-1313-1413-017	James Peterson	W10229 DelBern Acres	414-899-7194
018-1313-1413-022	Neal Oliver	W10251 Delbern Acres	262-367-0961
018-1313-1413-024	Cherie Witkowski	W10259 DelBern Acres	210-1116
018-1313-1423-002	Robert Schlak	W10403 Blackhawk Trail	262-255-2676
018-1313-1423-004	Ron Fehn	W10409 Blackhawk Trail	414-412-2277
018-1313-1423-015	Scott Quandt	W10451 Blackhawk Trail	920-360-5844
018-1313-1534-012	James Yarnot	W10753 Blackhawk Trail	414-529-5279
018-1313-1534-013	Robert Shaw	W10757 Blackhawk Trail	281-802-9309
018-1313-1534-014	Scott Walis	W10759 Blackhawk Trail	630-881-7043
018-1313-1534-015	Gutekunst property	W10763 Blackhawk Trail	262-242-6571
018-1313-1534-016	Ralph Swanson	W10769 Blackhawk Trail	708-949-8473
018-1313-1541-009	David Pappas	W10565 Blackhawk Trail	443-996-2055
018-1313-1542-012	Daniel Lang	W10659 Blackhawk Trail	920-296-7800
018-1313-1542-038	Ted Maestranzi	W10621 Blackhawk Trail #2	847-498-2751
018-1313-1542-039	John Lorenty	W10610 Blackhawk Trail#3	630-842-0255
018-1313-1542-040	Charles Nelson	W10621 Blackhawk Tral #4	262-227-5675
018-1313-1542-041	Ronald Jacobson	W10621 Blackhawk Trail #5	608-212-8491
018-1313-2111-005	Steve Schuchardt	W10935 Blackhawk Trail	608-630-7371
018-1313-2111-012	Brian Cahoon	W10993 Blackhawk Trail #1	920-450-6930
018-1313-2112-001	Dennis Gaber	W11023 Blackhawk Trail	414-852-1657
018-1313-2112-003	Kevin Shafer	W11011 Blackhawk Trail	414-352-1073
018-1313-2113-008	Matt Handeland	W11042 Howard Drive	952-913-8663
018-1313-2141-001	James Herbrand	N10608 Howard Drive	928-6824
018-1313-2141-002	Dennis Lusky	N10606 Howard Drive	748-3939
018-1313-2141-005	Tom Labs	N10616 Howard Drive	928-6326
018-1313-2141-009	Jerome Brooks	N10628 Howard Drive	262-554-6038
018-1313-2141-028	Dennis Konkol	N10694 Howard Drive	262-370-0186
018-1313-2144-001	John Wisniewski	N10602 Howard Drive	414-418-1348
018-1313-2144-007	Michail Johnson	N10578 Howard Drive	928-6446
018-1313-2144-020	Dan Hoechst	N10524 Howard Ave	608-772-4809
018-1313-2144-022	Del Marschall	N10518 Howard Ave	920-219-9533
018-1313-2144-023	Michael Christoph	N10512 Howard Ave	608-235-5466
018-1313-2144-016	Timothy Dugan	N10542 Howard Ave	414-758-0505
018-1313-2144-018	Dennis Yarnont	N10532 Howard Ave	414-672-0043
018-1313-2221-004	Adam White	N10896 Maple Beach	928-6643
018-1313-2221-010	Jeanette Janz	N10872 Maple Point	414-651-4045
018-1313-2221-020	Garron Gibson	N10828 Maple Point	920-983-0051
018-1313-2221-021	Jerry Pruitt	N10820 Maple Point	928-2428
018-1313-2221-025	Thomas Runte	N10805 Maple Point	414-529-2287
018-1313-2221-028	Tom Lutes	N10823 Maple Point	920-319-0001
018-1313-2222-002	Ann Tepp	W10811 Blackhawk Trail	262-334-5029

TAX KEY NUMBER	PROPERTY OWNER	LAKE ADDRESS	PHONE
018-1313-2222-009	Andrew Zajac	W10859 Blackhawk Trail	312-613-1786
018-1313-2222-010	Dave Wippert	W10865 Blackhawk Trail	414-507-1789
018-1313-2222-011	Len Glick	W10869 Blackhawk Trail	847-401-9697
018-1313-2241-003	Steve Zoellick	N10595 Chief Kuno Trail	847-426-3770
018-1313-2243-009	Rbt. Norenberg	N10491 Chief Kuno Trail	392-9072
018-1313-2244-001	James Chmielewski	N10598 Chief Kuno Trail	612-308-6138
018-1313-2244-002	Wanda Algeo	N10594 Chief Kuno Trail	928-6827
018-1313-2244-003	Wanda Algeo	N10590 Chief Kuno Trail	928-6827
018-1313-2244-004	Bernard Chlysta	N10584 Chief Kuno Trail	630-279-4996
018-1313-2244-019	Harry Jacobson	N10587 Chief Kuno Trail	920-583-3394
018-1313-2244-026	Ken Ostermann	N10545 Chief Kuno Trail	920-344-2072
018-1313-2244-029	Dennis Faith	N10557 Chief Kuno Trail	847-421-2212
018-1313-2244-030	Jacquelyn Quirk	N10559 Chief Kuno Trail	414-881-1058
018-1313-2321-004	Robert Salzmann	N10819 Elmwood Is	608-831-9052
018-1313-2324-022	Robert Coe	N10809 Elmwood Is	920-344-8068
018-1313-2332-001	Anthony Siebert	N10643 Chief Kuno Trail	262-389-7215
018-1313-2332-004	Jan Pearce	N10653 Chief Kuno Trail	262-227-4619
018-1313-2332-009	Larry Schoenberger	N10675 Chief Kuno Trail	262-617-3842
018-1313-2332-012	Marcia Rechek	N10687 Chief Kuno Trail	920-210-6045
018-1313-2332-015	Steve Engmann	N10697 Chief Kuno Trail	920-428-2806
018-1313-2332-003	Steve Speidel	N10651 Chief Kuno Trail	630-217-1405
018-1313-2332-028	Paul Roscoe	N10668 Chief Kuno Trail	847-636-3808
018-1313-2343-000	Jay Sugar	W10212 Indian Point	262-789-7860
018-1313-2343-001	John Haertel	W10206 Indian Point	414-659-5316
018-1313--2343-002	Kurt Koeppel	W10198 Indian Point	920-366-4327
018-1313-2344-001	C. Crane	W10186 Indian Point	414-254-2808
018-1313-2344-002	Joan Carlin	W10182 Indian Point	928-2220
018-1313-2721-003	Mike Werner	N10441 Chief Kuno Trail	928-6290
018-1313-2721-006	Louis Leizinger	N10421 Chief Kuno Trail	928-2567
018-1313-2721-010	Susan Fox	N10439 Chief Kuno Trail	414-964-4546
018-1313-2723-011	Bill Nelson	N10390 Howard Drive	608-630-4004
018-1313-2723-008	James Panosh	N10402 Howard Drive	630-209-2598
018-1313-2723-009	Mike Drury	N10398 Howard Drive	715-218-2962
018-1313-2723-010	Gary Miszewski	N10394 Howard Drive	928-2028
018-1313-2723-033	Thomas Byrne	N10350 Howard Drive	262-549-1514
018-1313-2723-037	Amy Reiland	N10342 Howard Drive	262-644-7932
018-1313-2811-006	Anne Kocher	N10486 Howard Ave	212-365-0136
018-1313-2811-007	Sean Rutter	N10478 Howard Ave	262-641-0347
018-1313-2811-033	Steve Heitman	N10428 Howard Drive	414-840-1913
018-1313-2811-034	A. Hundrieser	N10426 Howard Drive	773-248-2951
018-1313-2811-035	Nancy Minske	N10422 Howard Drive	847-845-6216
018-1313-2814-001	Mark Knepfel	N10414 Howard Drive	920-918-4117
018-1313-2814-002	Frank Liberio	N10408 Howard Drive	630-258-9986
018-1313-2814-003	Mike Tegtmeyer	N10406 Howard Drive	847-420-3436
018-1313-2814-004	Mike Burnica	N10404 Howard Drive	708-738-8539

Fox Lake 2017 Community Navigational Lanes



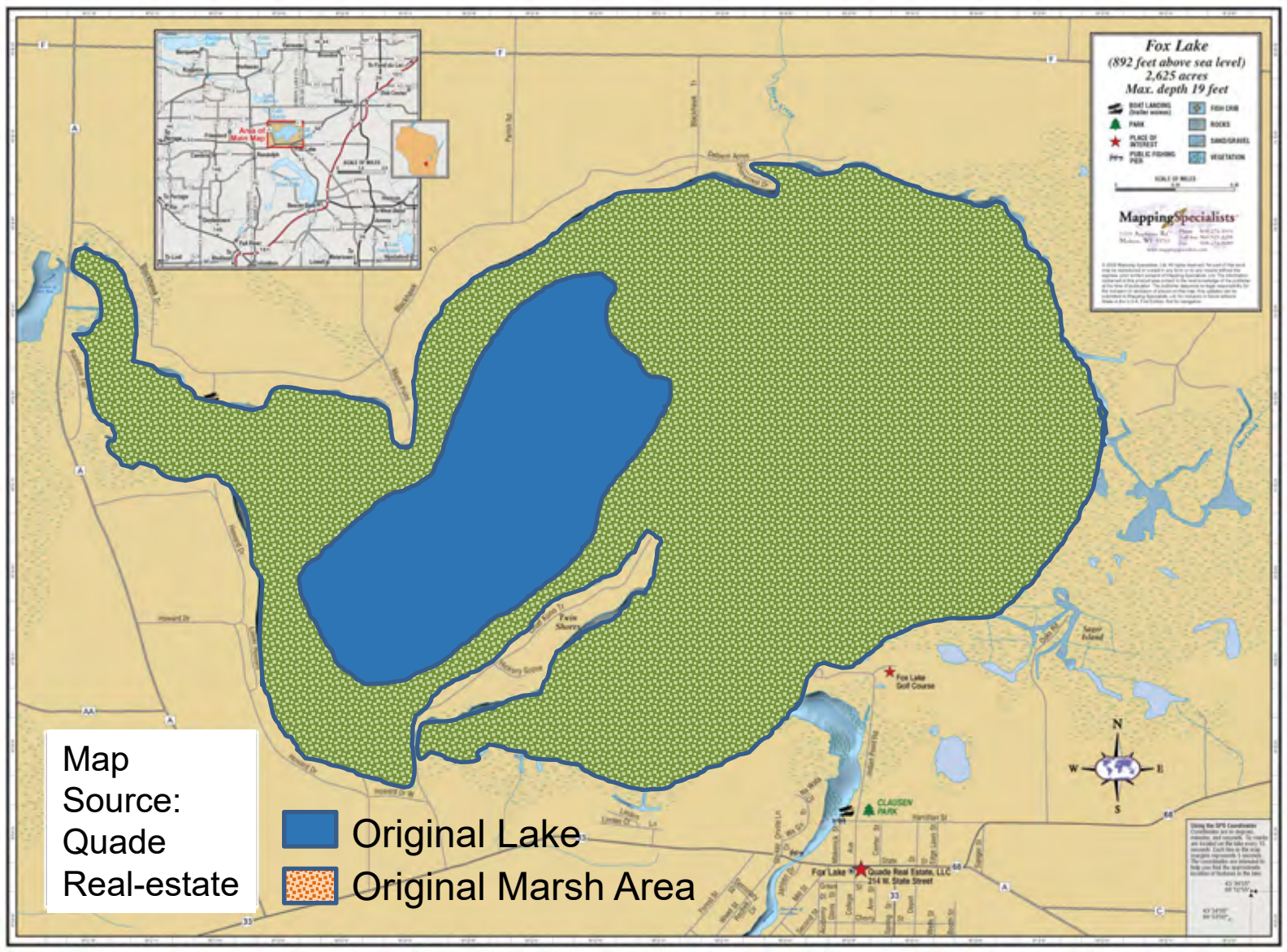


Parameter	Size
Surface Area (open water)	2,525 acres
Surface Area (with fringe wetlands)	4,690 acres
Maximum Depth	19 feet
Mean Depth	5 feet

Map Source: Quade Real-estate

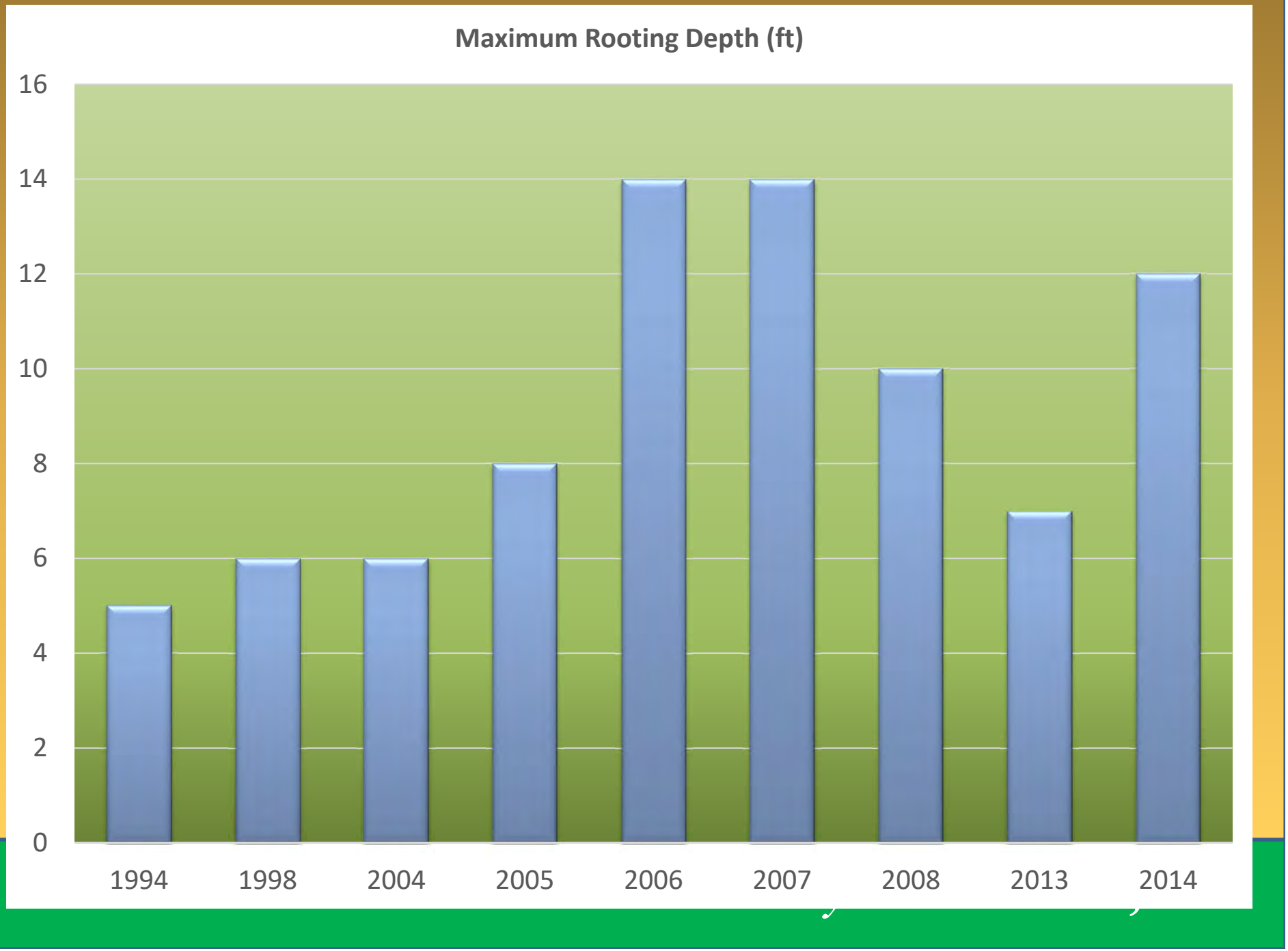
Ecological Research Partners

where science meets society



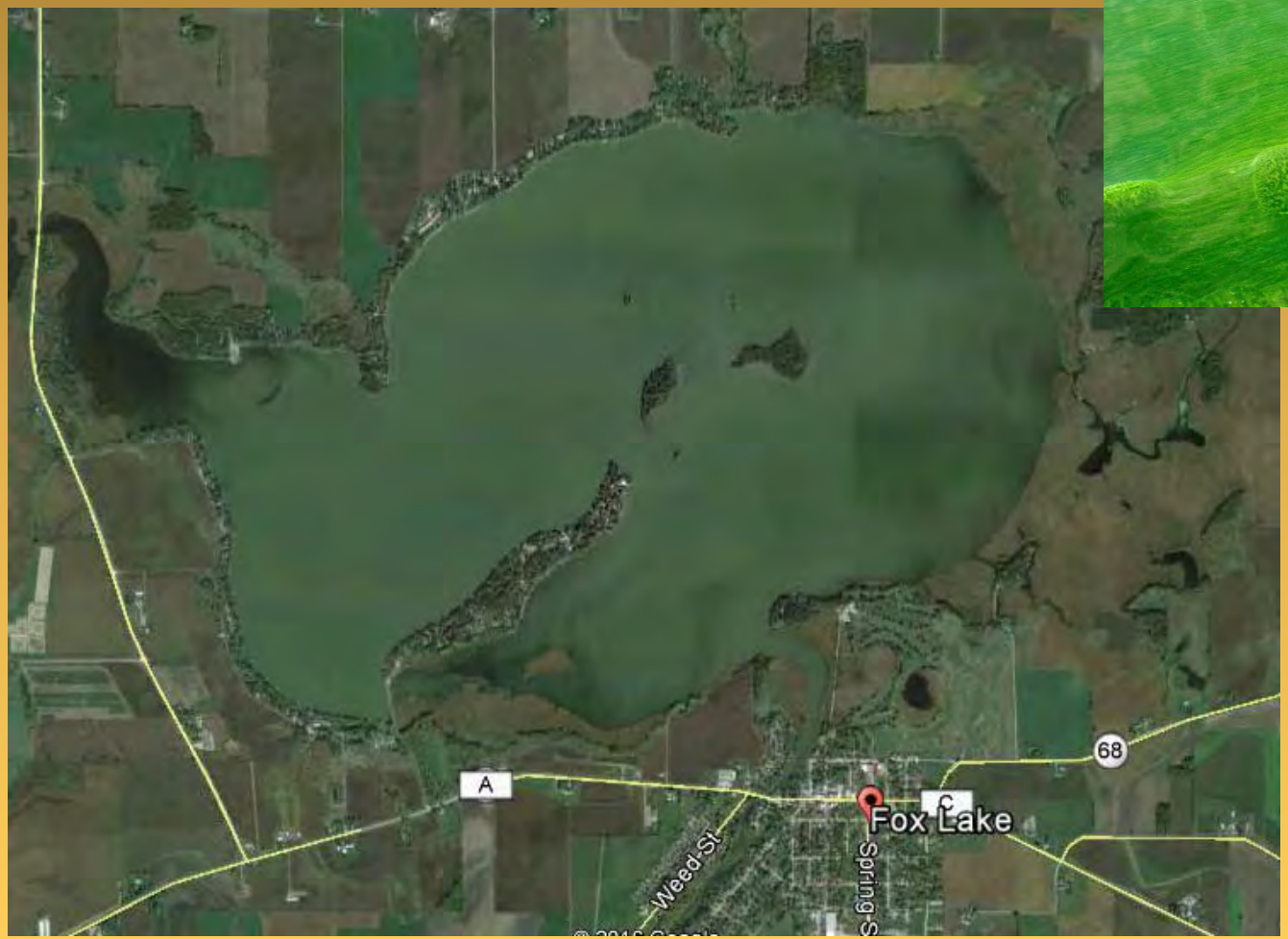
Ecological Research Partners

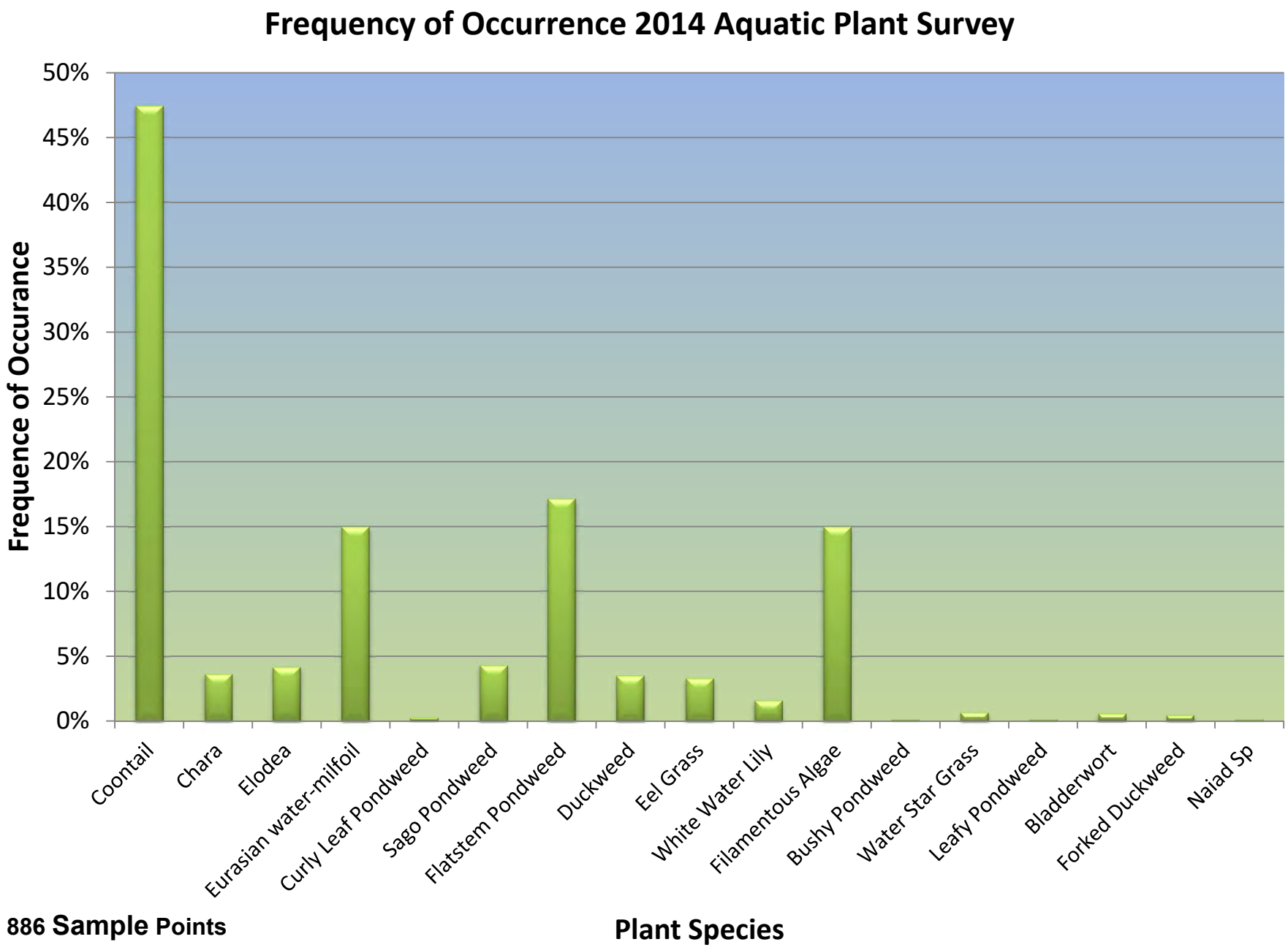
where science meets society

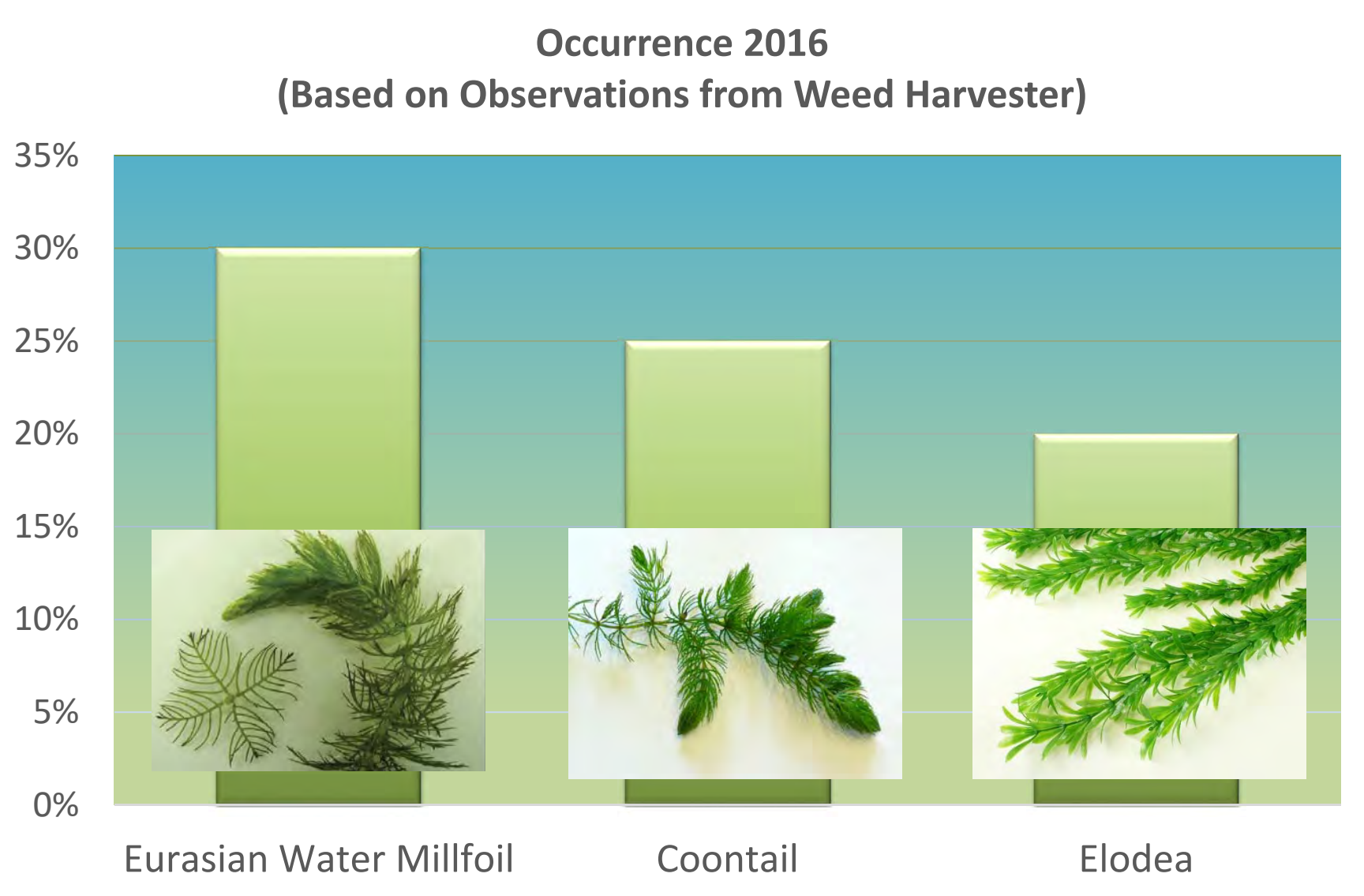

Maximum Rooting Depth (ft)
16
14
12
10
8
6
4
2
0
1994
1998
2004
2005
2006
2007
2008
2013
2014

2005

2013

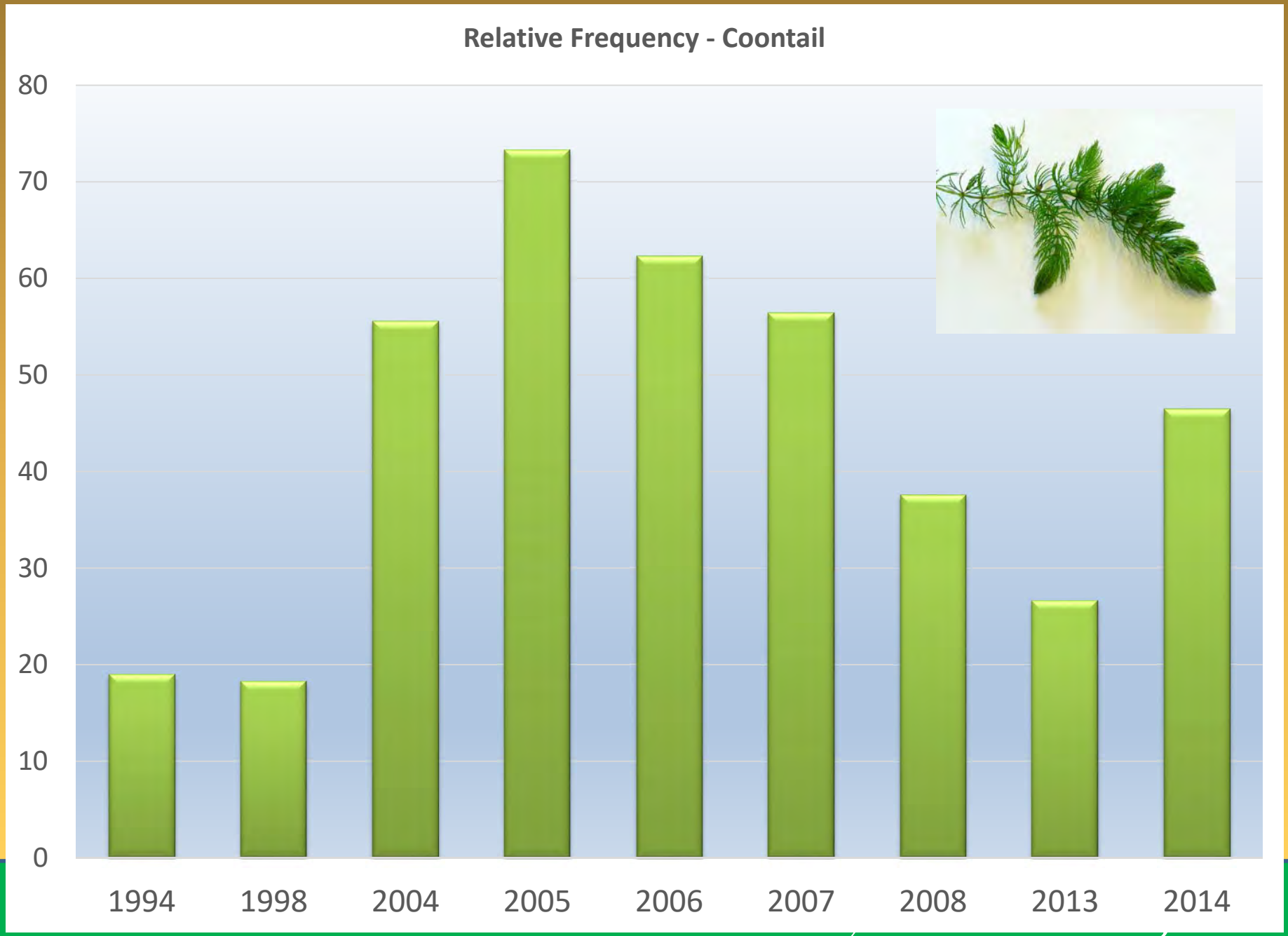



Frequency of Occurrence 2014 Aquatic Plant Survey
Frequence of Occurance
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Coontail
Chara
Elodea
Eurasian water-milfoil
Curly Leaf Pondweed
Sago Pondweed
Flatstem Pondweed
Duckweed
Eel Grass
White Water Lily
Filamentous Algae
Bushy Pondweed
Water Star Grass
Leafy Pondweed
Bladderwort
Forked Duckweed
Naiad Sp
886 Sample Points
Plant Species



Ecological Research Partners

where science meets society


Relative Frequency - Coontail
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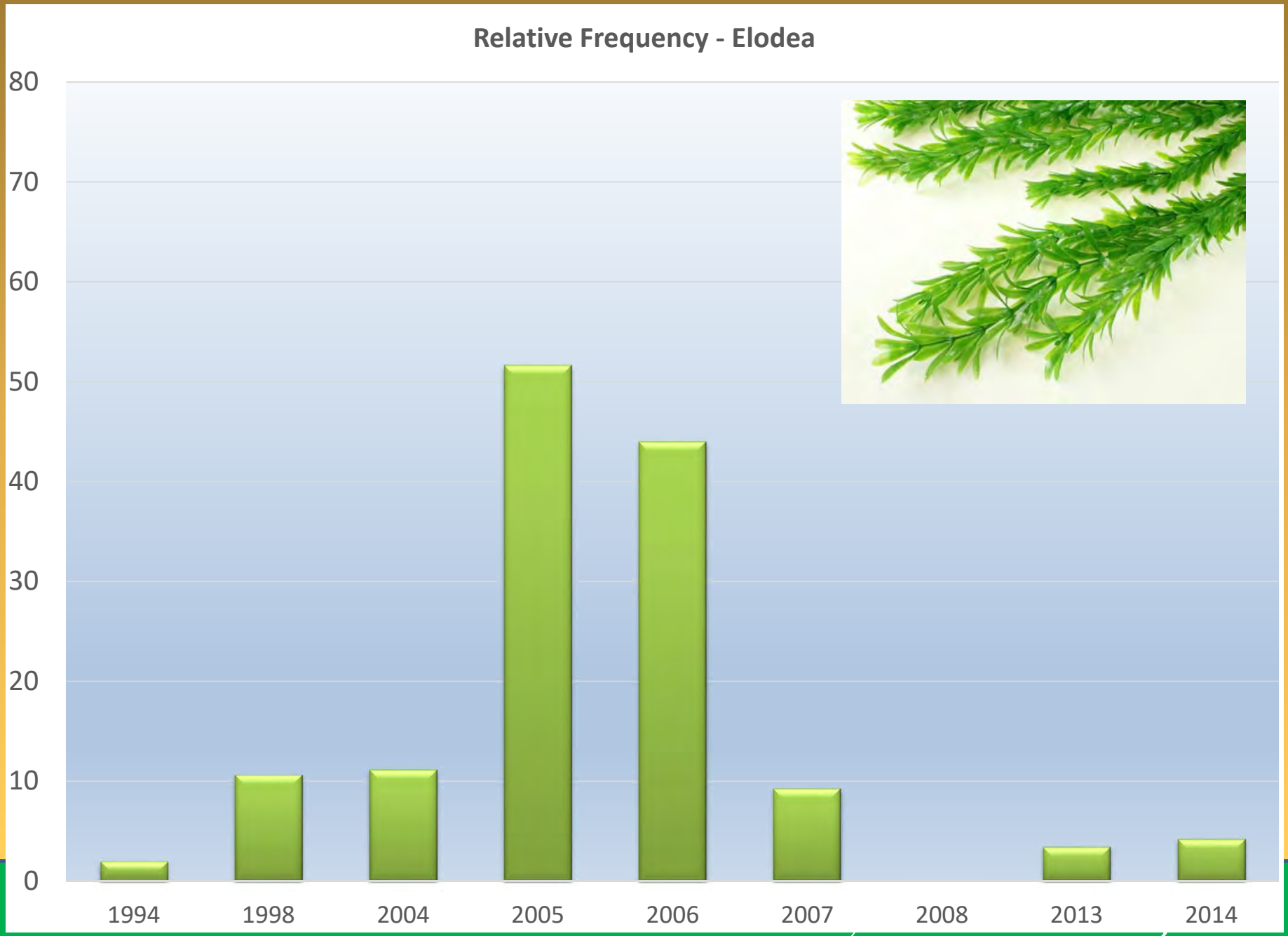
70
60
50
40
30
20
10
0
1994
1998
2004
2005
2006
2007
2008
2013
2014


Relative Frequency - Elodea
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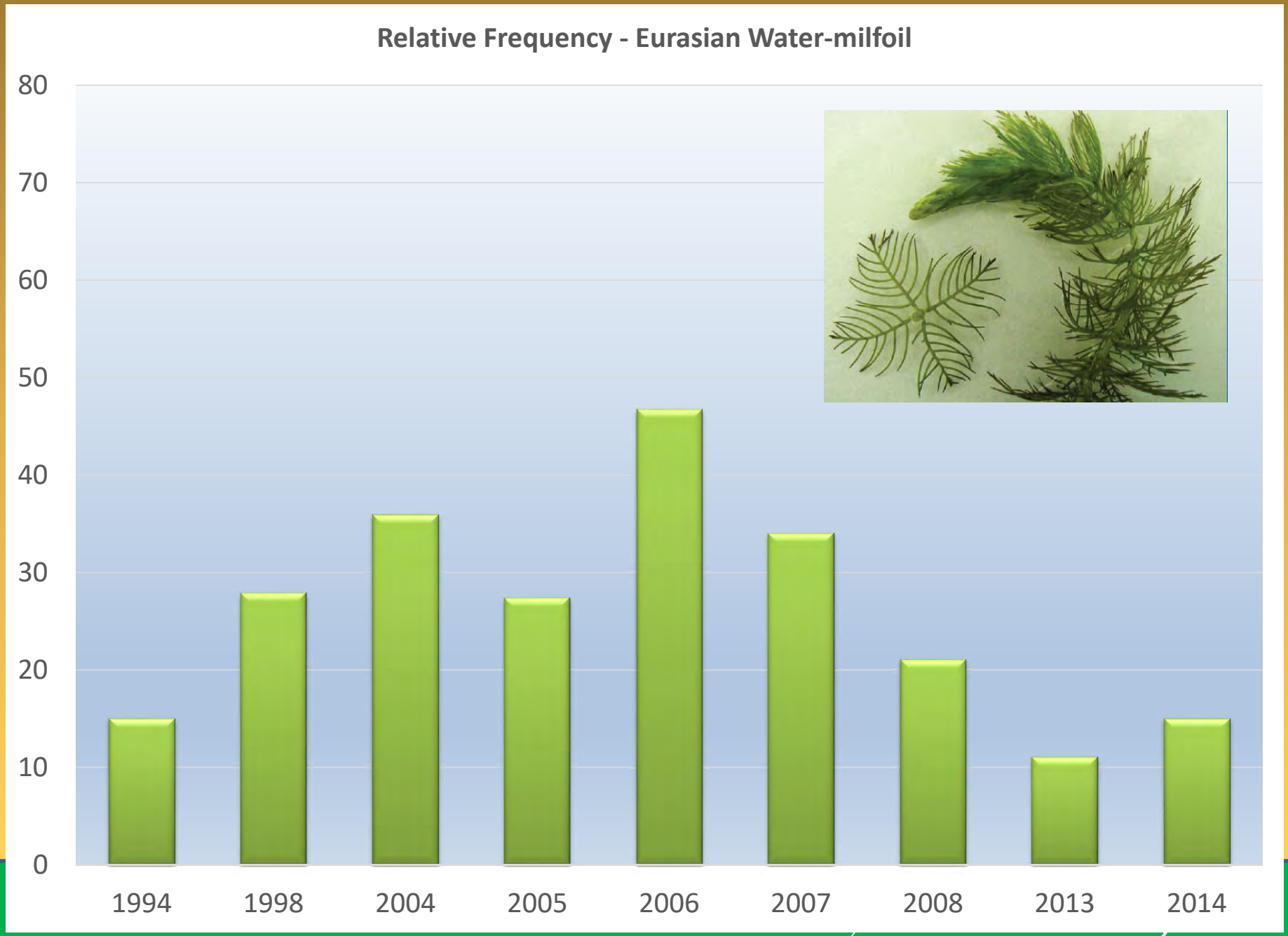
50
40
30
20
10
0
1994
1998
2004
2005
2006
2007
2008
2013
2014


Relative Frequency - Eurasian Water-milfoil
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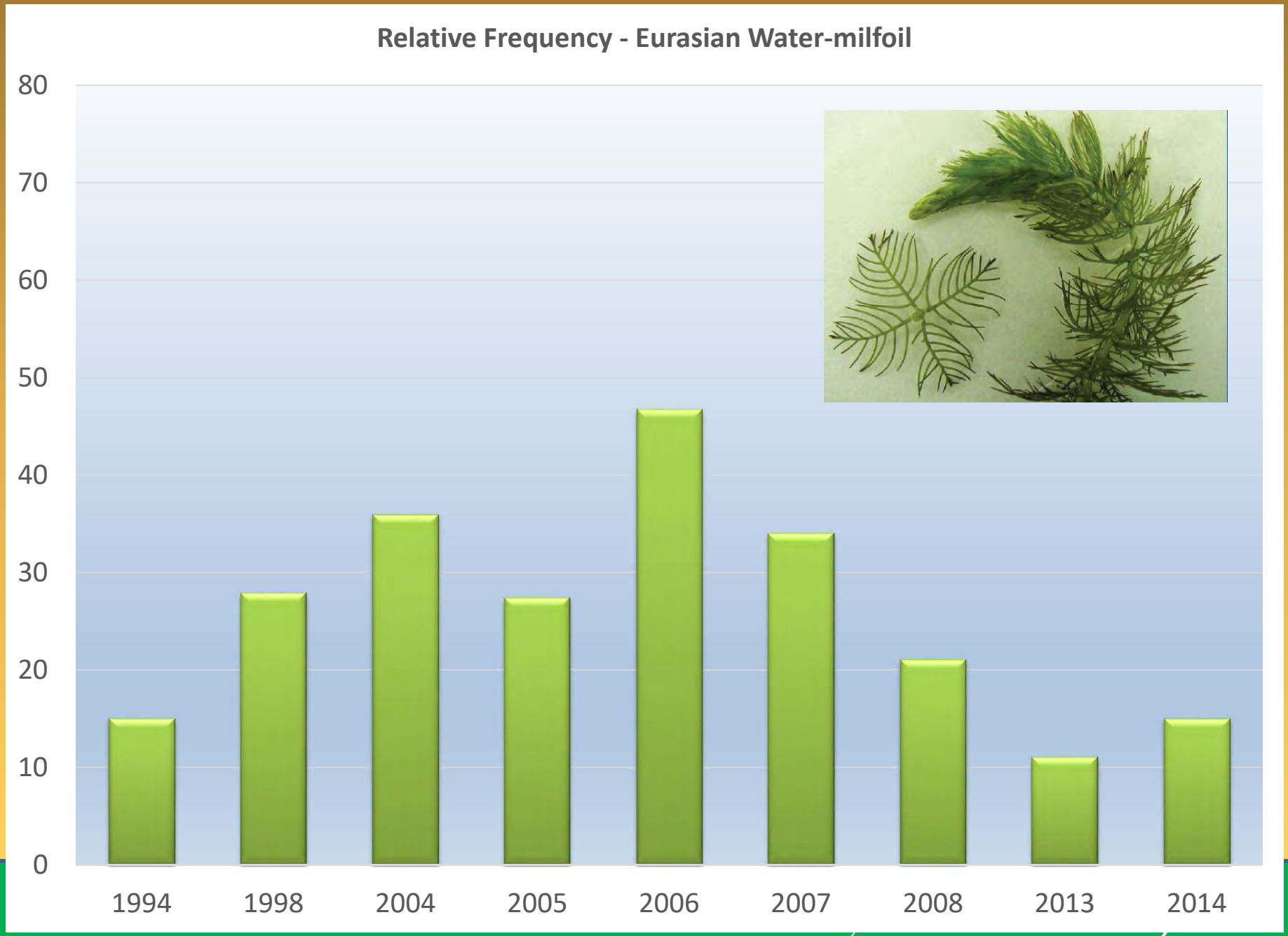
70
60
50
40
30
20
10
0
1994
1998
2004
2005
2006
2007
2008
2013
2014


Relative Frequency - Eurasian Water-milfoil
80
70
60
50
40
30
20
10
0
1994
1998
2004
2005
2006
2007
2008
2013
2014

Eurasian Water Milfoil

- Eurasian watermilfoil is an invasive aquatic plant native to Europe, Asia and northern Africa.
- It was first reported in Wisconsin in the 1960s.

RECENT STUDIES HELP TO UNDERSTAND THE EFFECTS OF EURASIAN WATERMILFOIL ON WISCONSIN LAKES.

Michelle Nault

In the early 1990s, Eurasian watermilfoil (EWM) was described in a report to the legislature: "A super weed capable of stopping a speeding boat [which] has a chokehold on Wisconsin lakes." In order to better understand the impacts of EWM in Wisconsin, DNR staff compiled a decade's worth of data collected on hundreds of waterbodies across the state. The results may surprise you, and challenge some commonly held beliefs about this invasive aquatic plant species.

Eurasian watermilfoil is still absent from many Wisconsin waterbodies

Eurasian watermilfoil is a submerged aquatic plant native to Europe, Asia and northern Africa. It was first reported in the United States in the 1940s and in Wisconsin in the 1960s. Like many other invasive species, the natural factors that keep EWM populations in balance in its native range are missing in Wisconsin. This means that EWM has the potential to cause changes to our native aquatic ecosystems, as well as cause navigational, recreational and aesthetic issues when occurring at high population densities.

Since its initial introduction, EWM has spread throughout the state primarily as an unintentional aquatic hitchhiker on recreational boats and trailers. It is now documented in approximately 650 Wisconsin inland lakes and flowages. Although this number of waterbodies with EWM may seem high, less than 5 percent of the nearly 15,000 lakes within the state have EWM. The majority of lakes with public access do not have EWM, especially in the northern portion of the state. From the perspective of how many lakes could be affected, versus how many currently have EWM, resource managers are optimistic that the low percentage of Wisconsin lakes with EWM speaks to the success of our aquatic invasive species prevention and control programs.

Preliminary results from a multi-year statewide study looking at the rate of spread of aquatic invasive species indicate that the number of newly discovered EWM populations has stabilized, further suggesting that prevention programs are successfully minimizing the spread of EWM into new lakes.

Genetics makes a difference

Eurasian watermilfoil in one lake can be quite genetically different than that found in another lake, challenging any notion of a simplified management strategy.

Eurasian watermilfoil is distinguished from other aquatic plants in having whorls of four, feather-like leaves along the stem, with each individual leaf having 12 or more pairs of hair-like leaflets. Native watermilfoil species usually have similar whorls of feather-like leaves, but have fewer than 12 pairs of leaflets on each leaf.

Several genetic DNA studies have recently been done on watermilfoil populations across the United States and within Wisconsin. Researchers have

10. *Wisconsin Natural Resources*

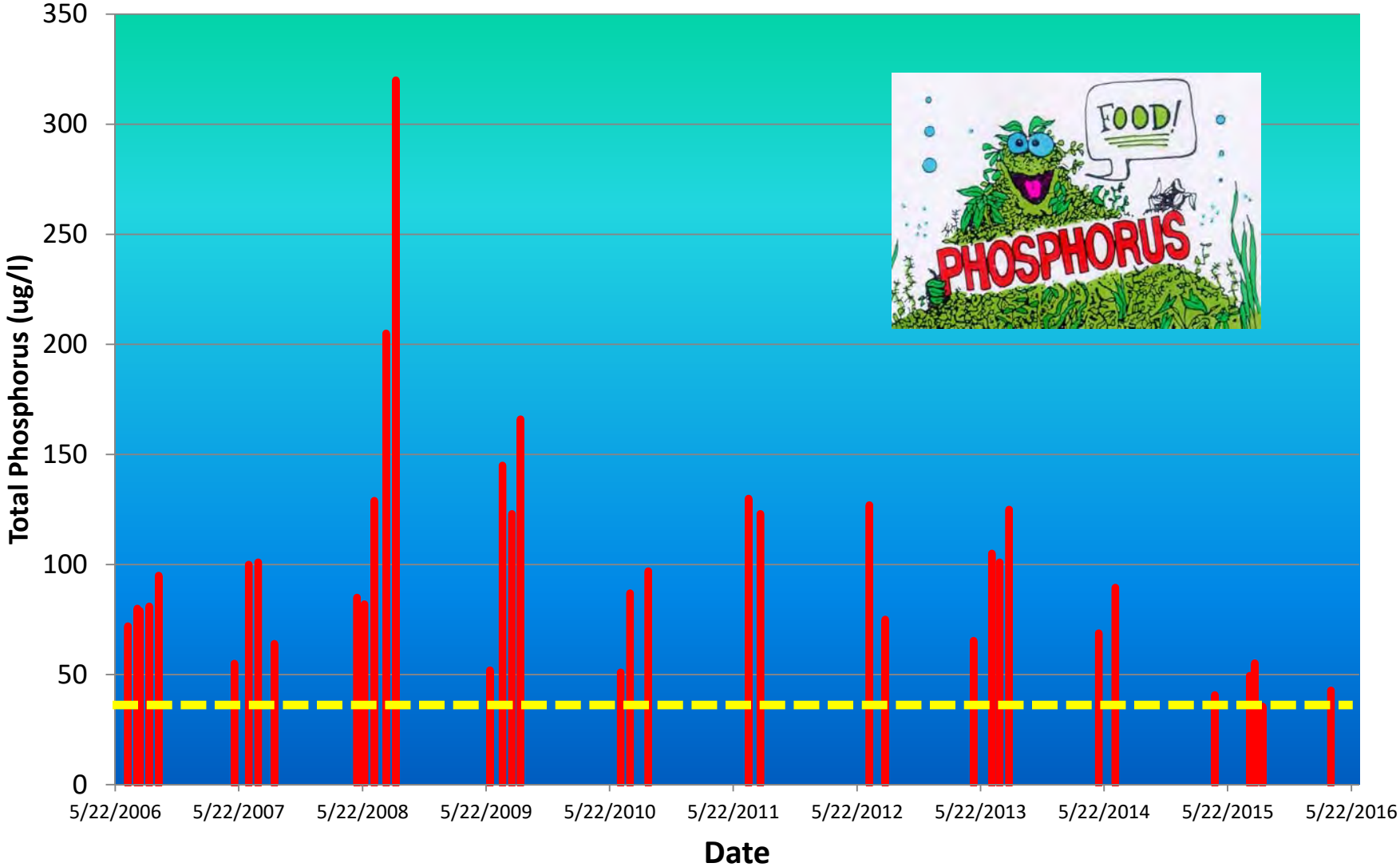
Source: Wisconsin Natural Resources Magazine
August 2016

Eurasian Water Milfoil

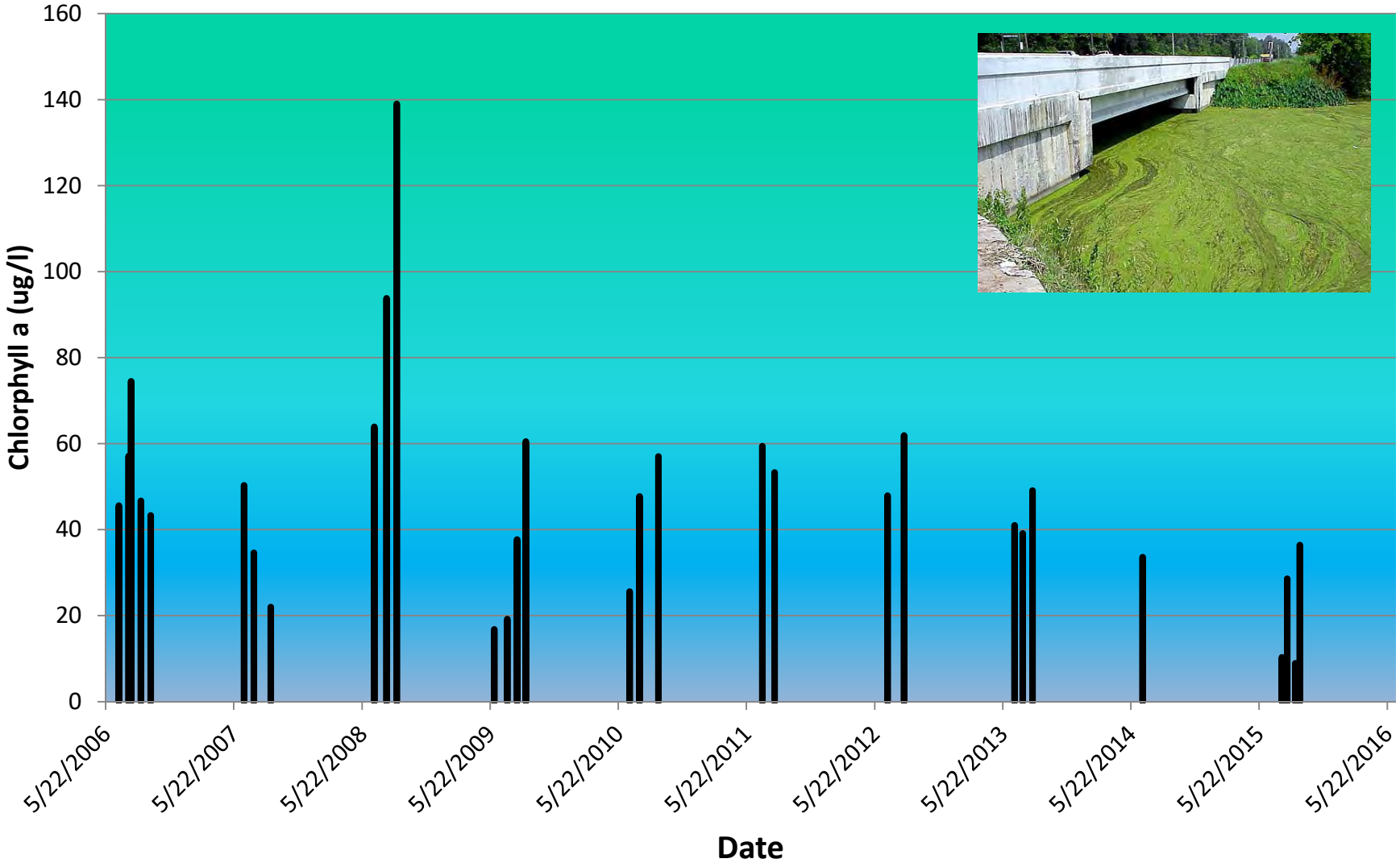
- In can grow several inches per day.
- Needs less light than our native plants so grows in deeper water and under the ice.
- Has a thick stem the like rope wraps around props.

Water Quality

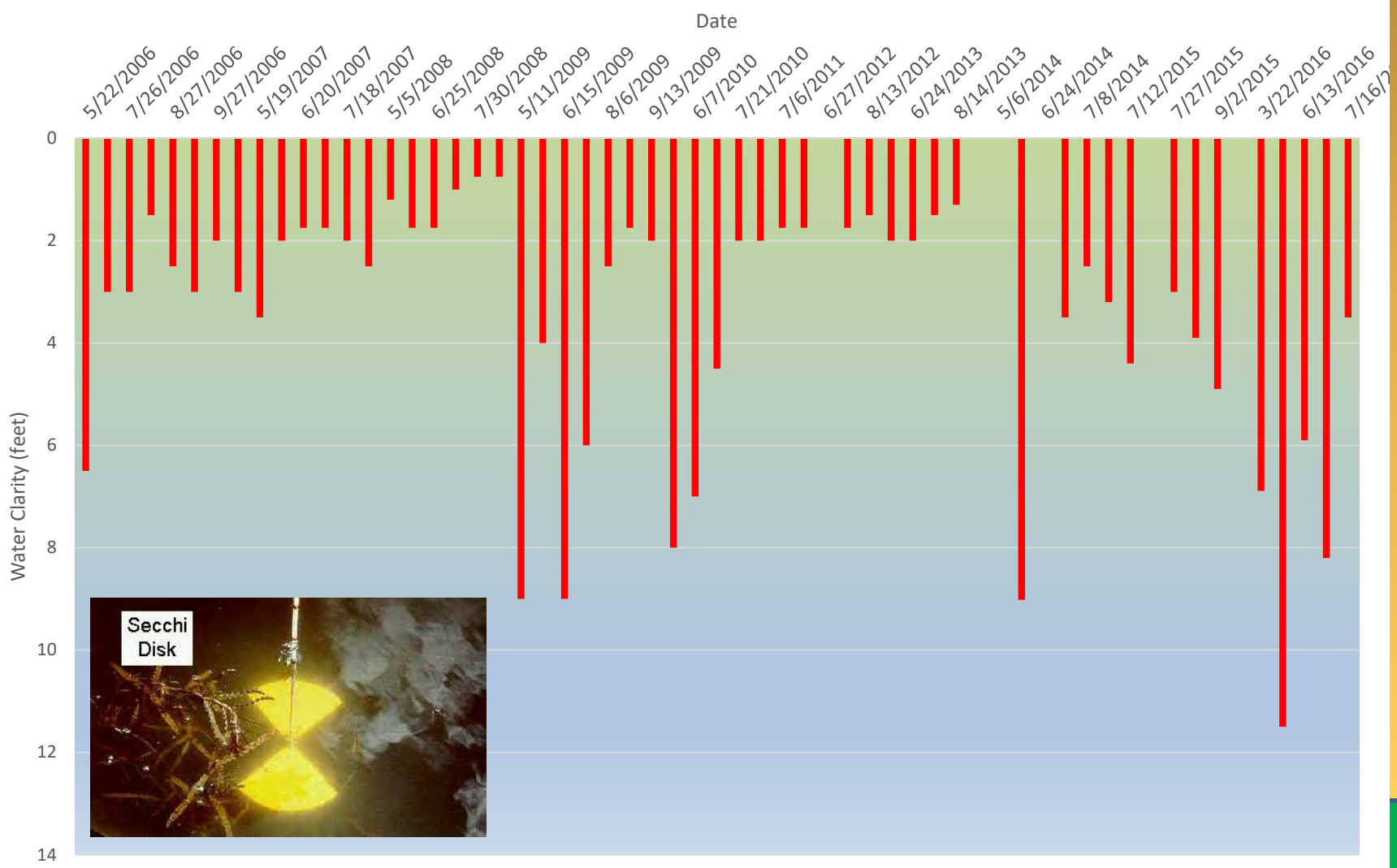
Water Quality Data (Phosphorus)



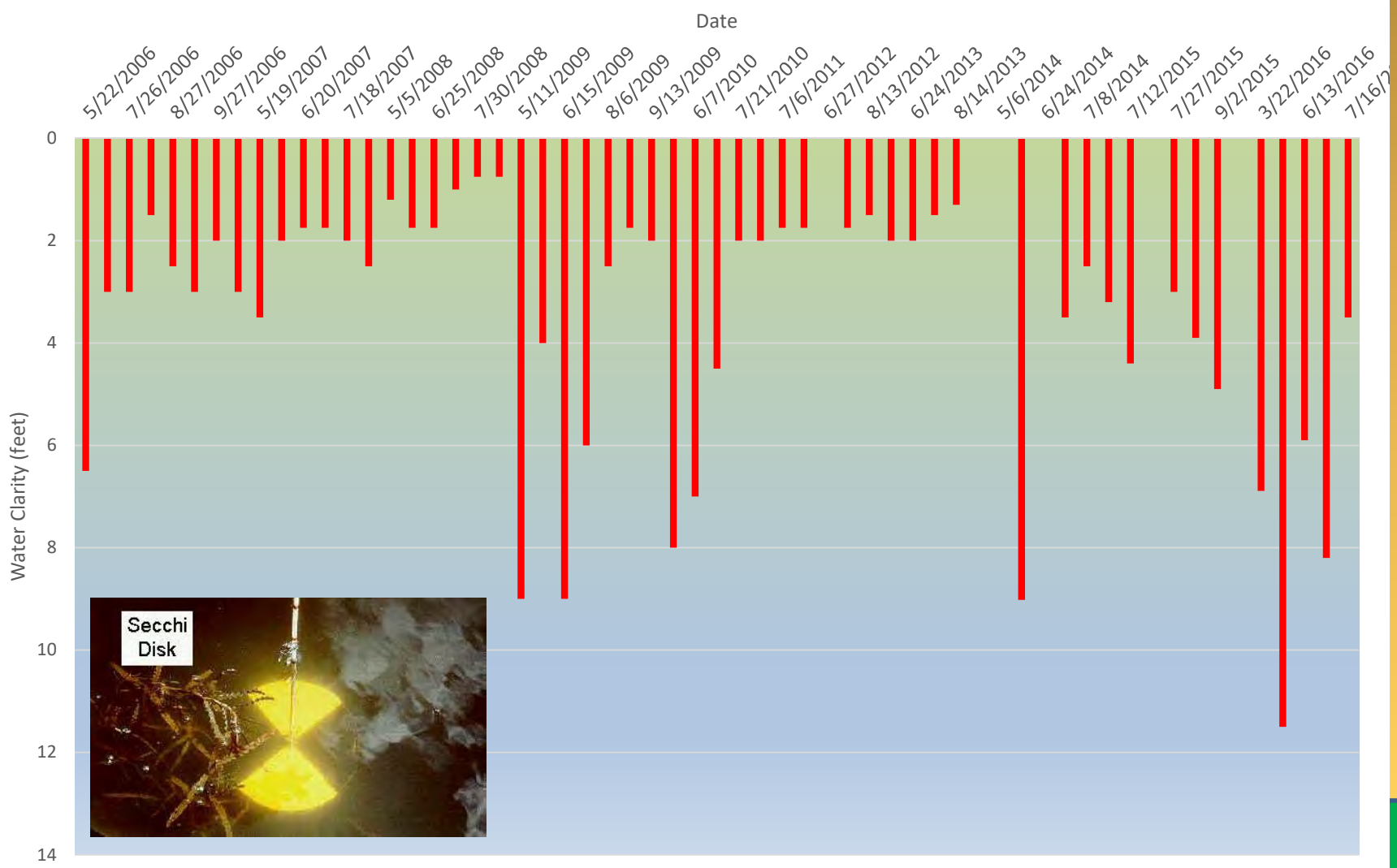
Water Quality Data (Chl a)



Water Quality Data (Water Clarity)



Water Quality Data (Water Clarity)



Fox Lake Restoration Plan

1. Shoreline Stabilization
2. Aquatic Plant Management
3. Fishery Management
4. Dam Replacement
5. Public Education
6. Watershed Protection

RESTORING FOX LAKE

A SUMMARY OF THE DRAFT PLAN

SEPTEMBER 1995

FOX LAKE CITIZEN ADVISORY COMMITTEE

Mary Danoski, *Chair*
Fox Lake Coordinator

Dave Neuendorf
UWEX

Robert Hayes
Fox Lake
Commercial Representative

Kent Smith
Land Conservation Board

Dean Kohl
Fox Lake Chamber of Commerce

Kenneth Babros
Water Skiier Group

Kathleen Rydquist
Dodge County Lakes Association

Joan Schmidt
Farm Representative

John Richter
South Hole
Advancement Association

Robert McCloud
Fox Lake Property Owners

Lowell J. Keach
Fox Lake Protection &
Rehabilitation District

Ed Benter, *Chair*
Town of Fox Lake

Sam Moore
Duck Hunting Club

Sonny Petkowski
City of Fox Lake

Sherman Jacobson
Walleyes for Tomorrow

Fox Lake Restoration Plan

THE FUTURE OF THE LAKE DEPENDS ON YOU!

Restore and protect the fishery, wildlife and recreation values of Fox Lake by implementing a sustainable, ecologically-based management plan that promotes increased water clarity, aquatic plant diversity, and lake stability.

Goal statement for restoration of Fox Lake, drafted at the Lake Management Planning Workshop, January 1995

Last January, a group of concerned community leaders, anglers, hunters, boaters, lake business owners, and resource management professionals gathered to discuss the future of Fox lake. The workshop participants agreed that Fox Lake was sick and in need of long-term care.

A key outcome of the workshop was that a public participation process, involving all interested lake users, would guide the development of a plan for the restoration of Fox lake. The public participation and planning process includes four steps:

1) Identify broad goals for the desired future condition and management of Fox Lake. Develop a restoration goal statement (completed at Lake Management Planning Workshop, January 1995).
2) Form a Lake Restoration Advisory Committee comprised of representatives of local government and lake user groups to assist DNR with the coordination of public participation in the process of developing, approving and implementing a lake restoration plan.
3) Through public forums, news media and newsletters, spread the word about the proposed lake restoration plan. Obtain comments on proposed plan through public meetings, forums, news media, letters and phone calls.
4) Write final restoration plan. Prepare environmental assessment on proposed plan. Hold public information meetings/hearings as necessary.

Where are we now?

At the January Lake Management Planning Workshop, participants representing the various lake user groups developed the restoration goal described. The group also recommended formation of a citizen advisory committee to provide local perspective and insight to the DNR specialists who would develop the technical aspects of the lake restoration plan. The committee held its first meeting in June, and will meet monthly. All meetings are open to the public.

Over the past few months, DNR staff and members of the Fox Lake Protection and Rehabilitation District, with input from the citizen advisory committee, have been working on a draft lake restoration plan. This newsletter summarizes the draft plan; we hope it answers many of your questions. Through the fall and winter, Lake Forums will provide everyone with a chance to discuss the draft restoration plan for Fox Lake. Please participate in the Lake Forums in the coming months, and contact the people listed with questions or comments.