Cooperative Lakes Monitoring Program

Cooperative Lakes Monitoring Program training for

Exotic Aquatic Plant Watch

PILOT PROJECT

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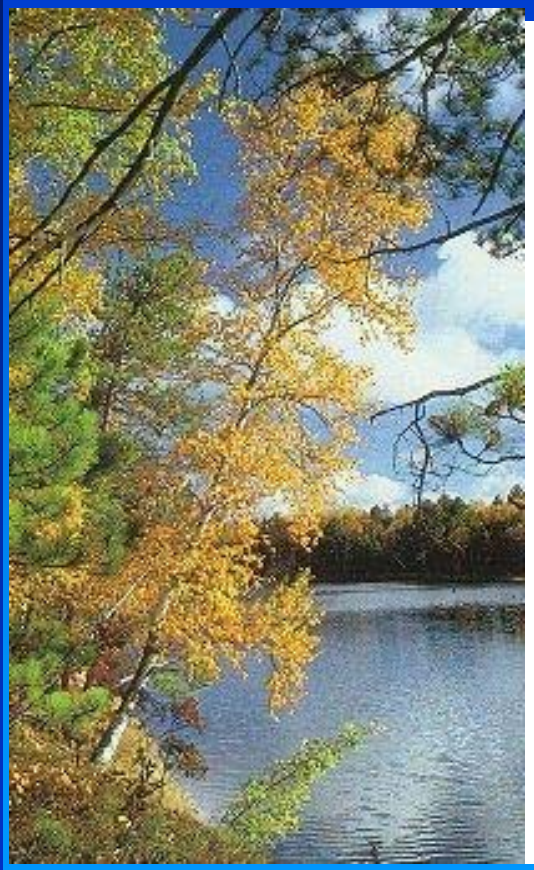
Michigan
GREAT LAKES • GREAT TIMES

Howard Wandell



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The Self-Help Legacy

- Program began in 1974 with Secchi disk and summer chlorophyll - second oldest program in country.
- In 1992 MOU with ML&SA to administer program.
- In 1993 added spring overturn total phosphorus.
- In 1998 added late-summer total phosphorus and summer chlorophyll reinstated.
- In 2000 added dissolved oxygen/temperature.
- In 2001 added aquatic plants.
- Also in 2001 Clean Michigan Initiative funding.
- In 2005 incorporated into Mi Clean Water Corps.

Exotic Aquatic Plant Watch

WHY

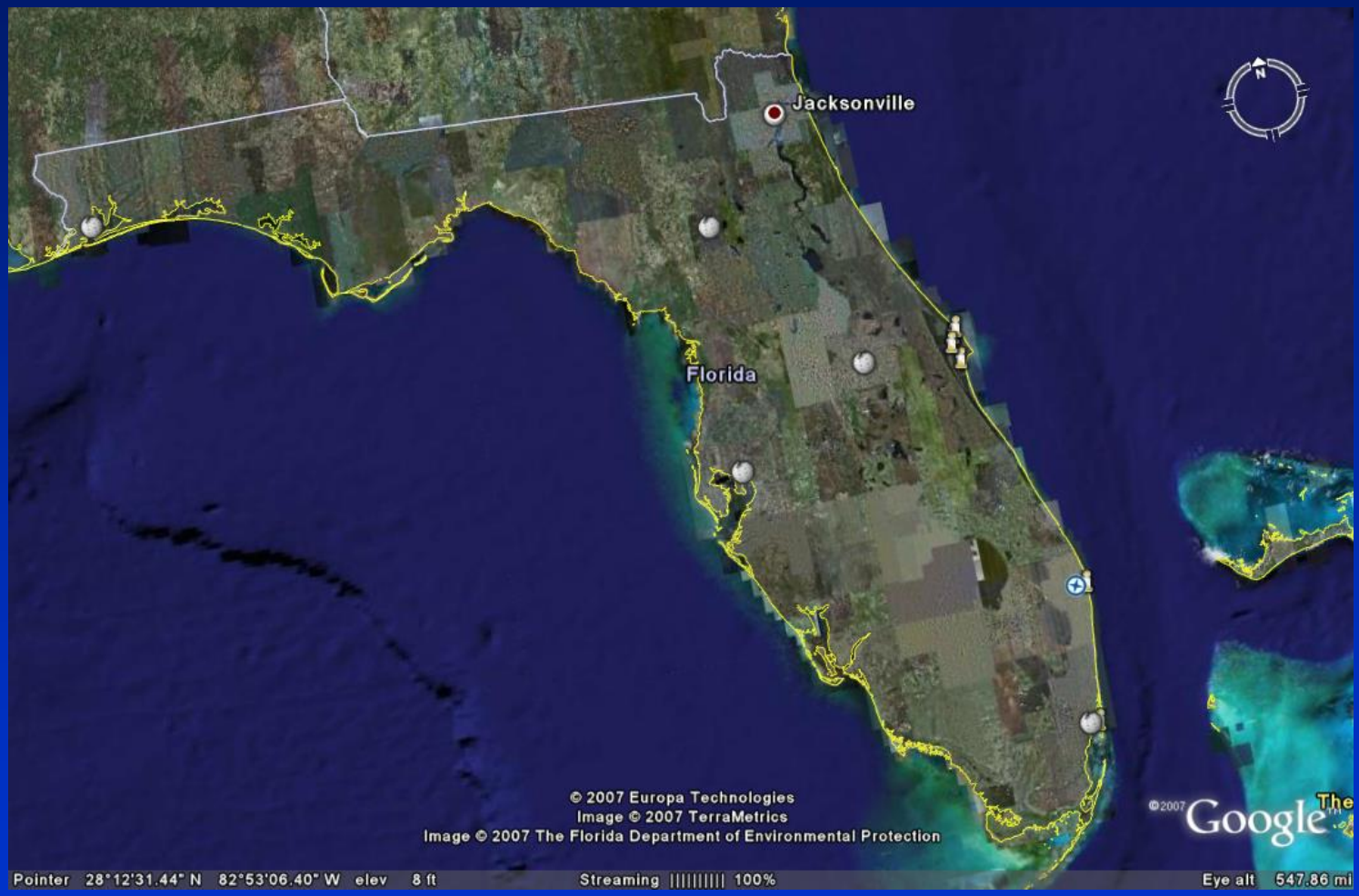
- Exotic species are a significant threat to Michigan's lakes.
- Exotic species can be managed if detected early and responded to rapidly (Early Detection/Rapid Response).

Exotic Aquatic Plant Watch

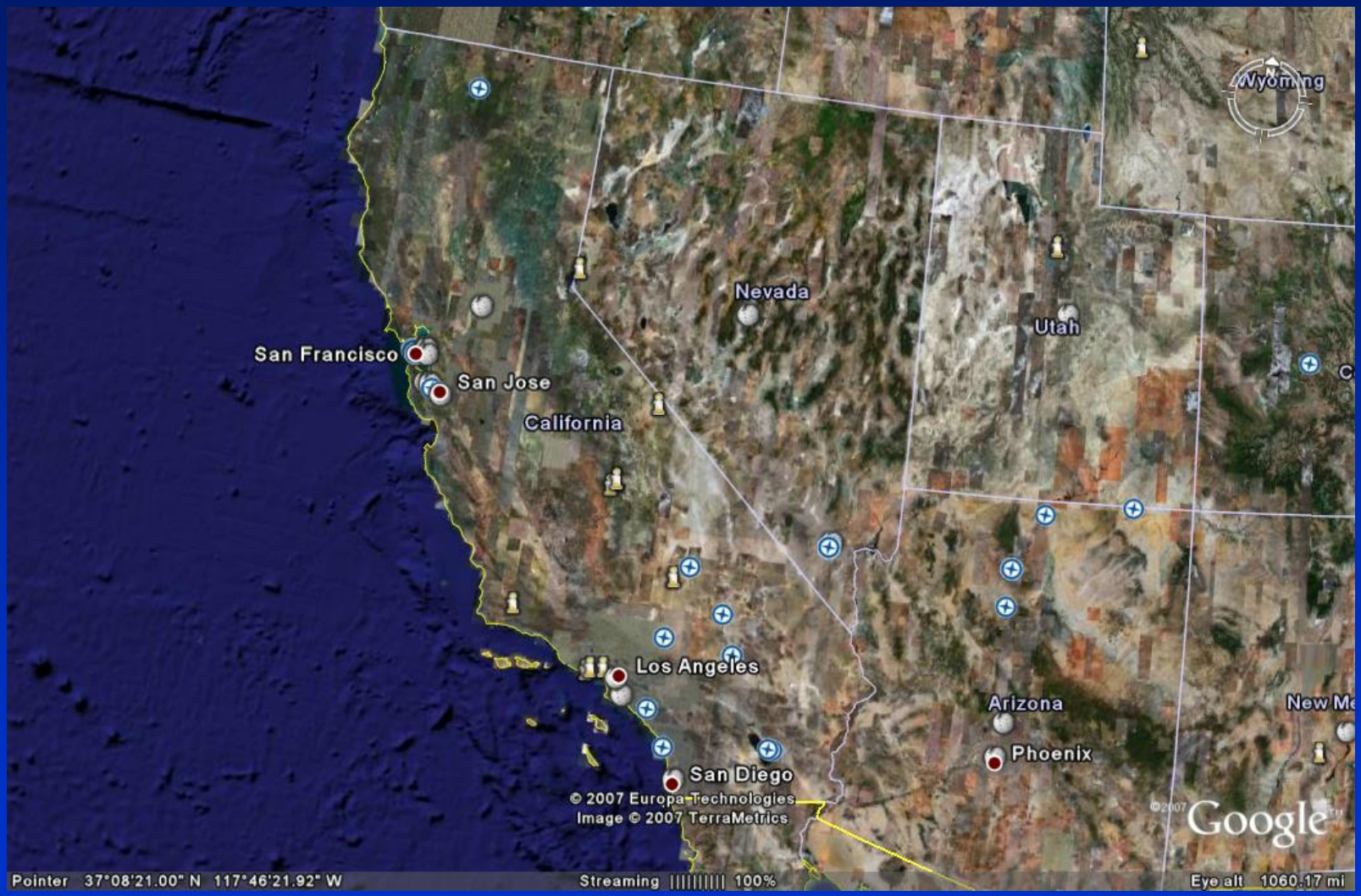
WHO

- Lake communities that currently do not have exotic species or are managing existing populations and have them under good control (maintenance control).
- The program will have less value for lake communities that currently have exotic species covering large areas. It will help these lake communities identify new exotics that may invade the lake.

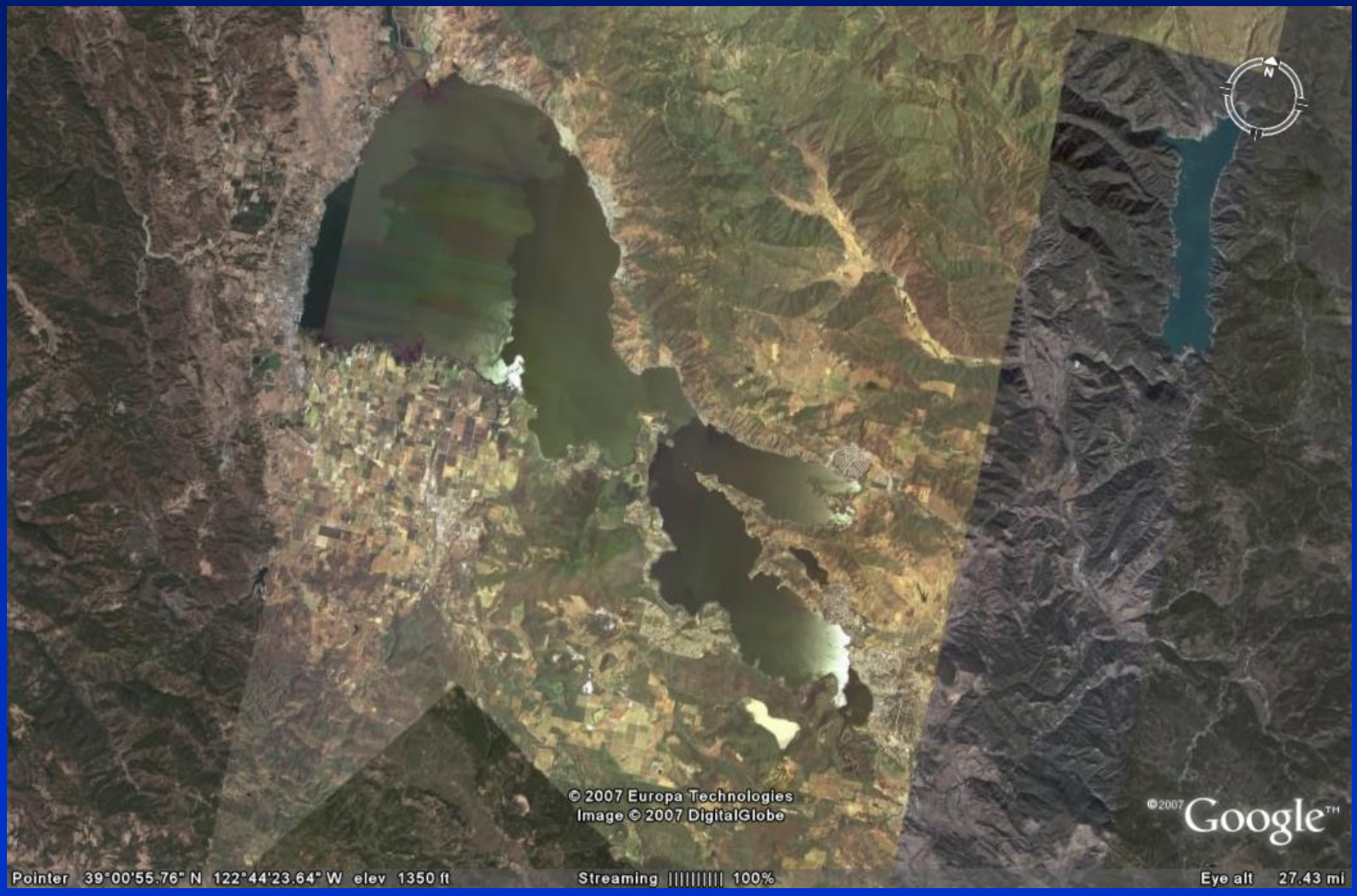
Example of Early Detection/Rapid Response



Example of Early Detection/Rapid Response



Example of Early Detection/Rapid Response



EARLY DETECTION – Know the Exotics

- Eurasian Milfoil
- Curly-leaf Pondweed
- Hydrilla

Exotic Watch Packet

- Welcome letter
- Exotic Aquatic Plant Watch monitoring procedures
- 3 plant identification cards

  Eurasian milfoil, curly-leaf pondweed and hydrilla
- Integrated Pest Management publication
- Cisco Chain of Lakes article
- Directions of building plant rake
- Clean Boats/Clean Waters brochure
- Example sign
- Google Earth handout
- Exotic species web sites

Things you will need to have.

- boating safety equipment and anchor,
- a depth map of the lake,
- global positioning system (GPS) unit,
- computer and scanner,
- Internet access,
- weighted sounding line,
- weighted rake and retrieving line,
- zip-lock bags,
- clipboard, and
- pencil or indelible ink pen.

Eurasian Water-Milfoil

(*Myriophyllum spicatum*)

Highly invasive plant, able to form dense mats near the surface that entangle motor boat propellers and interfere with swimming. Spread by watercraft and trailers.

- Delicate feather-like leaves. Leaflets are mostly the same length.
- Leaves are usually limp when out of water.
- Leaves arranged in whorls (circles) of 3 to 5 around stem.
- Usually 12 to 21 leaflet pairs per leaf.

- Long spaghetti-like stems.

If you suspect a new infestation, report it to your local DNR service center.

Printed on Recycled Paper LP/04

Curly-leaf Pondweed

Potamogeton crispus

(harmful exotic)

Leaf two to three inches long, 1/4 to 3/8 inches wide and very wavy. Margins of leaf are very finely toothed along the edge.

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Photograph from *A Field Guide to Valuable Underwater Aquatic Plants of the Great Lakes* (MSU Extension Bulletin E-1902)

Have you found *Hydrilla verticillata*?

If you think so, please follow these steps carefully.

Step 1. Collect 5 or 6 inches of the plant.

Step 2. Compare your plant's features with these drawings to rule out the most often confused native plant, Elodea.

Step 3. Complete the I.D. card.

Step 4. Shake the water off your specimen. Use 2 tablespoons of rubbing alcohol to moisten a paper towel. Place both in a sealable plastic bag.

Step 5. Mail the I.D. card and sealed sample bag to the following address: Hydrilla Hunt, Michigan Sea Grant, Michigan State University, 334 Natural Resources, East Lansing, MI 48824.

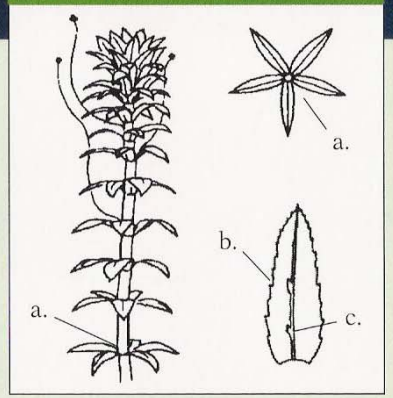
You will be contacted within a few weeks, ***if lab analysis confirms it is hydrilla.*** Thank you for helping protect Michigan's waterways.

David Webb/TVA

Hydrilla

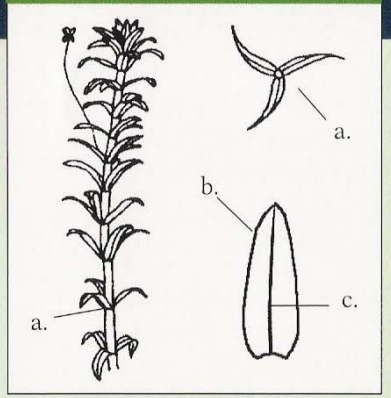
Hydrilla or Elodea? Read the Leaves to Tell the Difference

Hydrilla (Exotic)



a. 4 or 5 leaves at each node
b. Leaves have visible teeth
c. Leaf vein has small spines

Elodea (Native)



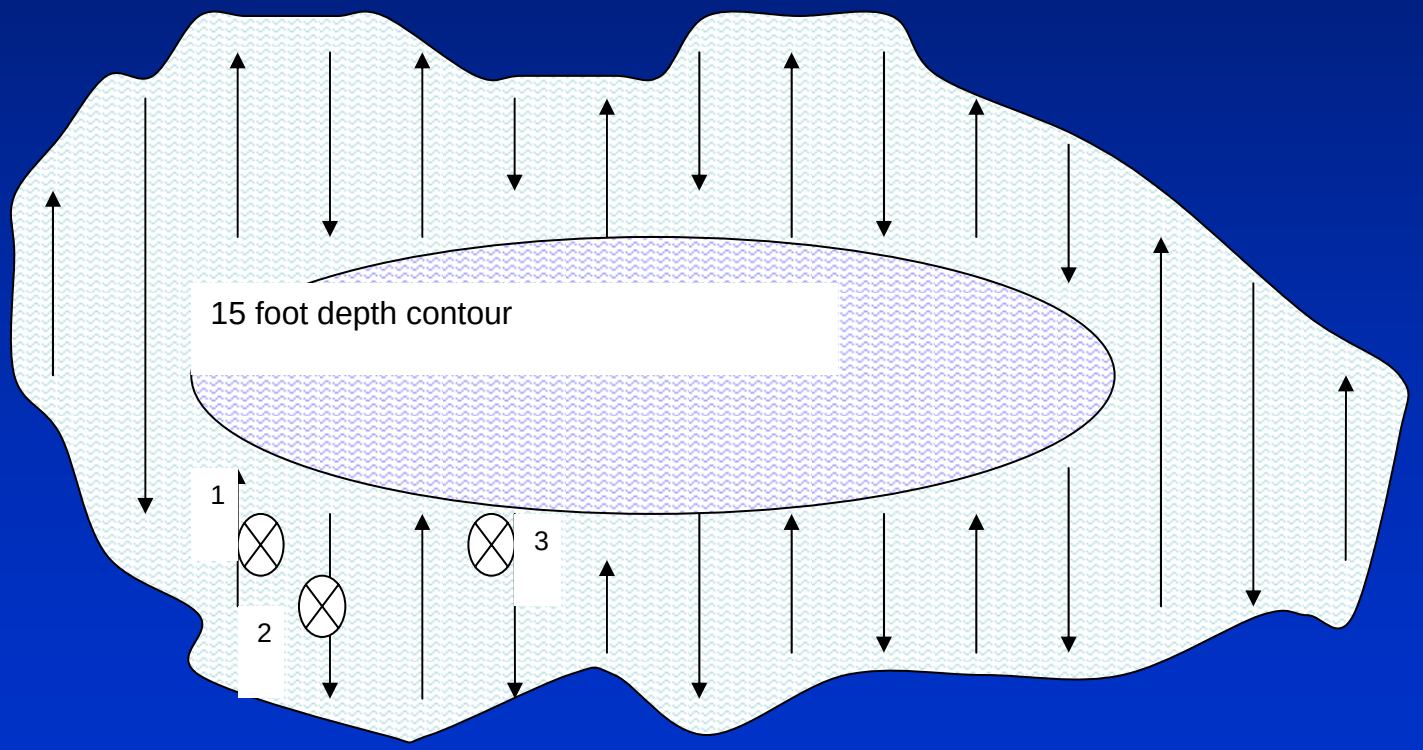
a. Only 3 leaves at each node
b. Leaf edges appear smooth
c. Leaf vein is smooth underneath

Practice with real plants

Mapping Exotics in the Lake – hopefully none are found

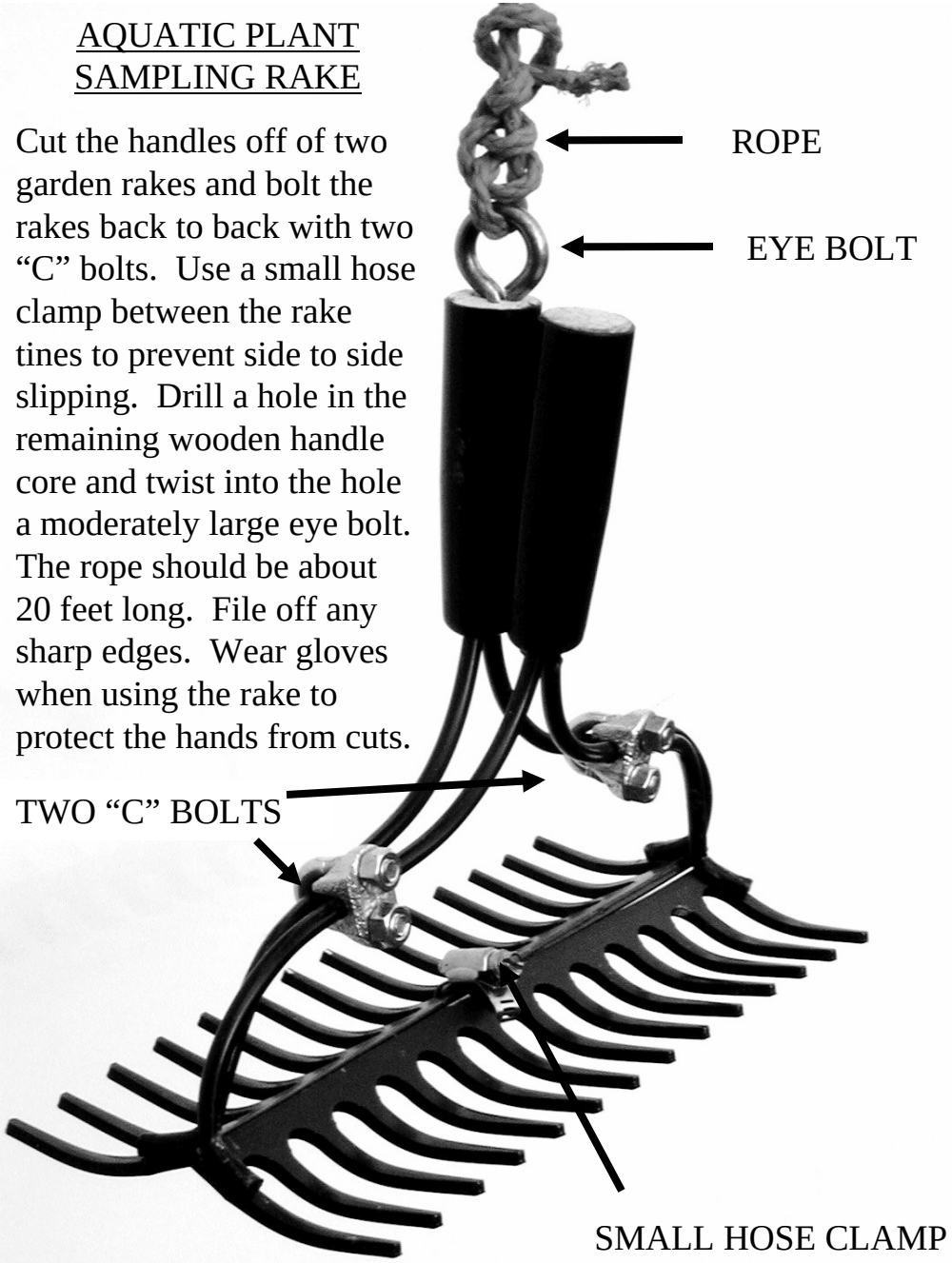
Written Procedures

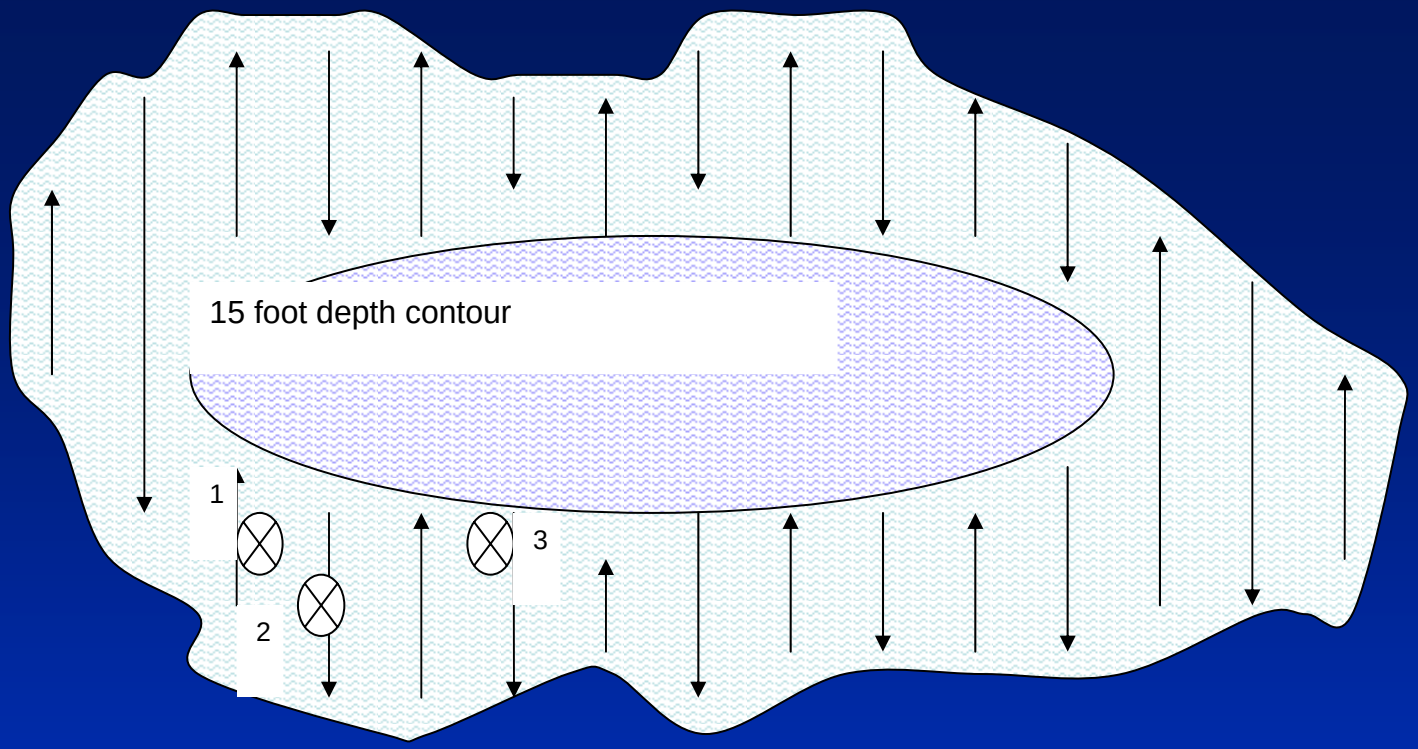
Set up transects across the lake from shore out to the 15 foot depth contour. Travel along the contours looking and using the sampling rake to find exotic species.



AQUATIC PLANT SAMPLING RAKE

Cut the handles off of two garden rakes and bolt the rakes back to back with two "C" bolts. Use a small hose clamp between the rake tines to prevent side to side slipping. Drill a hole in the remaining wooden handle core and twist into the hole a moderately large eye bolt. The rope should be about 20 feet long. File off any sharp edges. Wear gloves when using the rake to protect the hands from cuts.





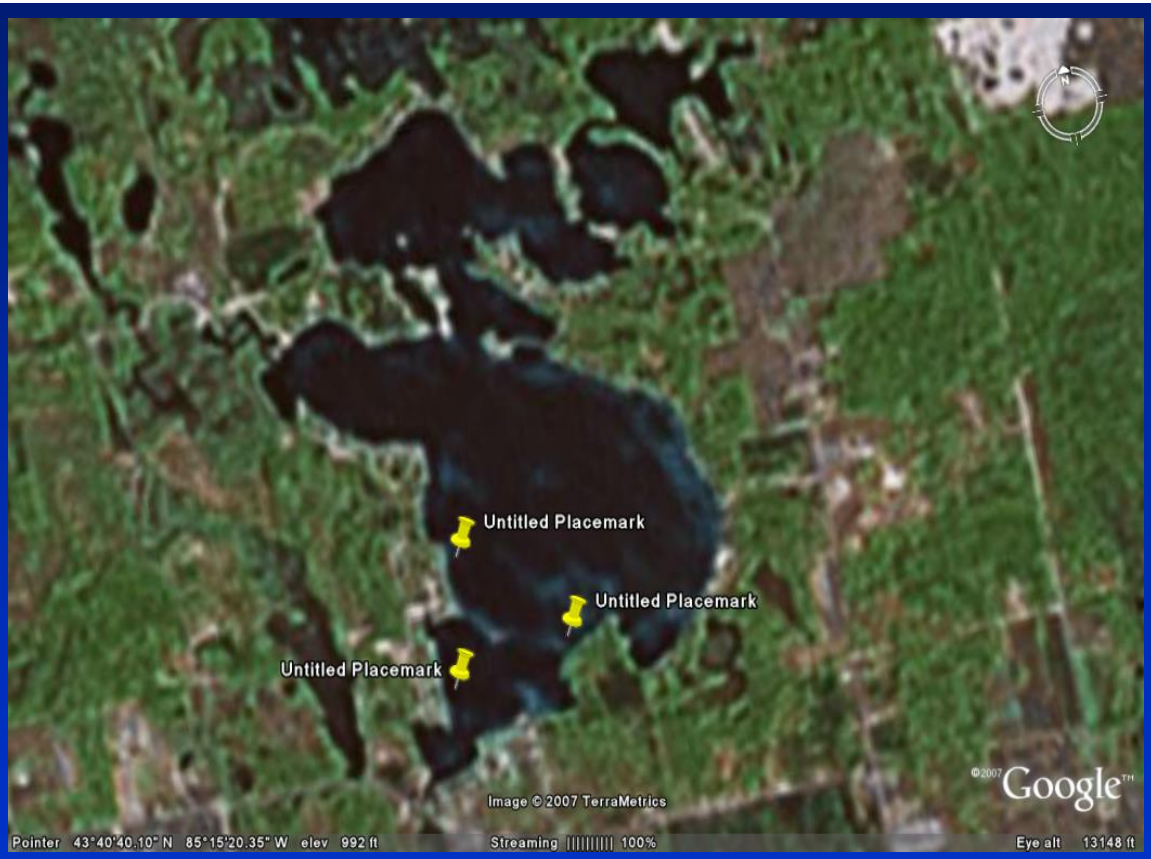
If a bed of exotic plants is found mark the site on your lake map and use your GPS unit to identify the coordinates of the site. In the example above 3 sites are found. Give each site a number. Record each site's number and coordinates on a separate sheet of paper. If you are uncertain if the plant is an exotic you may send a sample to the MSU support staff.

Dead Spider Lake

Coordinates Sheet for Exotic Plant Locations

1. 43º 40’ 16.34” N 85º 15’ 48.24” W
2. 43º 40’ 19.39” N 85º 15’ 28.17” W
3. 43º 40’ 30.42” N 85º 15’ 44.18” W

Google Earth Map – With three exotic plant sites located. These maps can give “exact” plant locations. You may use the Google Earth map to refine your hydrographic map.



Monitoring Report

Email to DEQ **or who**

- Map of lake (will need to scan map and send as an electronic file).
- Coordinate sheet (save as a Word or Excel file and send as an electronic file).
- Google earth map if completed (save as a JPEG file and send as an electronic file).

Quality Control

- About 5 to 8 project participants will be asked to submit samples for quality control.
- We will contact you if you will be asked to submit samples.

Management of Exotic Aquatic Plants

- Protection
- Eradication
- Maintenance Control

Protection

Cooperative Lakes Monitoring Program

EXOTIC AQUATIC PLANT WATCH

Web sites (pilot project)

MiCorps
Monitoring Michigan's Water Quality

USGS Nonindigenous Aquatic Species – nas.er.usgs.gov/

Aquatic Nuisance Species Task Force – www.anstaskforce.gov/default.php

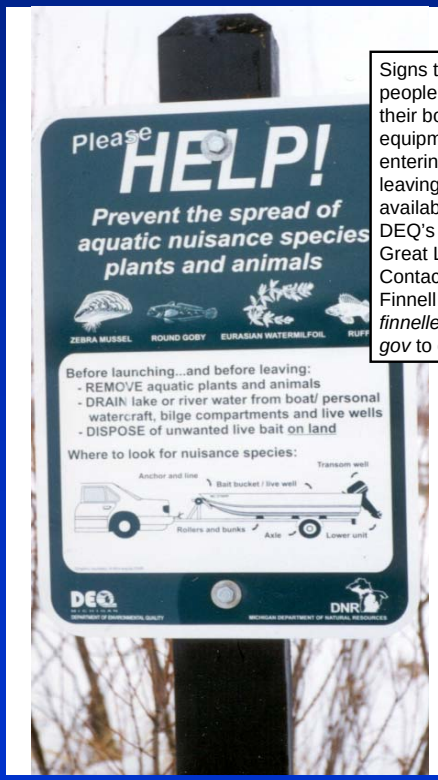
California Hydrilla Eradication Program – www.cdfa.ca.gov/phpps/ipc/hydrilla/hydrilla_hp.htm

Center for Aquatic and Invasive Plants – aquat1.ifas.ufl.edu

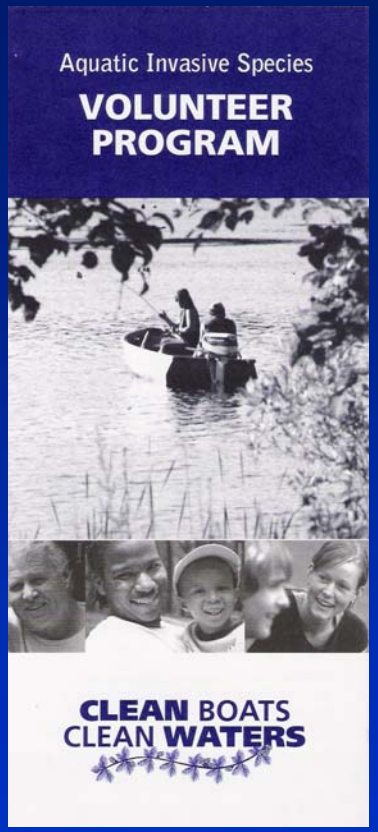
USDA National Invasive Species Information Center – www.invasivespeciesinfo.gov/aquatics/main.shtml

Michigan Sea Grant – www.miseagrant.umich.edu

MiDEQ Aquatic Nuisance Control – www.michigan.gov/deq/0,1607,7-135-3313_3710---,00.htm



Signs to advise people to clean their boats and equipment before entering and leaving the lake are available from the DEQ's Office of the Great Lakes. Contact Ms. Emily Finnell at *finnelle@michigan.gov* to get a sign.



Eradication

and another thing . . .

Cisco Chain of Lakes: **Invaded**

Eurasian Watermilfoil's Unwelcome Presence

Angela G. Poovey, Jeremy G. Slade, & John G. Skogerboe

The Cisco Chain of Lakes is a system of 15 interconnected lakes located on the Michigan-Wisconsin border (Figure 1). These lakes vary greatly in size, ranging from 1,000 acres to less than 100 acres. With more than 200 miles of shoreline, the Cisco Chain is an important natural, recreational, and economic resource to the Upper Great Lakes Region. Although numerous homes and resorts line the lakeshores, the Ottawa National Forest encompasses much of the surrounding watershed. Included in the national forest are three wilderness areas protected by the Wilderness Act of 1964. The Sylvania Wilderness Area (SWA) is near the Cisco Chain, and consists of old-growth forests and several lakes. The SWA supports a diverse vegetative community, including sensitive, threatened, and endangered plant species that occur in lakes, along the shoreline, and upland. Because of its pristine environment, the SWA attracts hikers, campers, bird watchers, and boaters.

Eurasian watermilfoil (*Myriophyllum spicatum* L.), an exotic, invasive submersed aquatic plant, has been present for many years in Michigan's Lower Peninsula and neighboring Wisconsin Counties of Iron and Vilas; however, it was not discovered in the Cisco Chain of Lakes until 2000. A milfoil infestation of 57 acres was found in Clearwater Lake, which was about 34 percent of the lake's surface area. Shoot fragments probably entered Clearwater Lake through a public boat access, and then floated directly downstream to Little Africa Lake, where the infestation was less than one (1) acre, 5 percent of the lake's surface area.

Eurasian watermilfoil forms dense surface canopies, which cause adverse environmental, recreational, economic and aesthetic impacts. These canopies

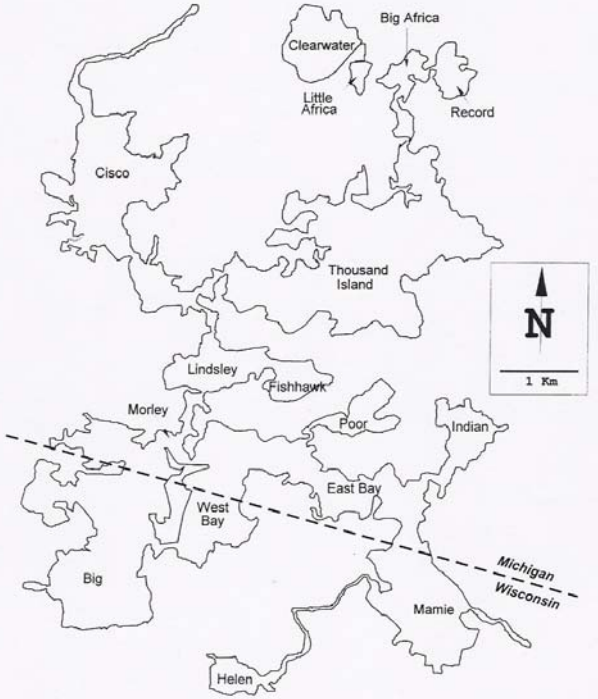


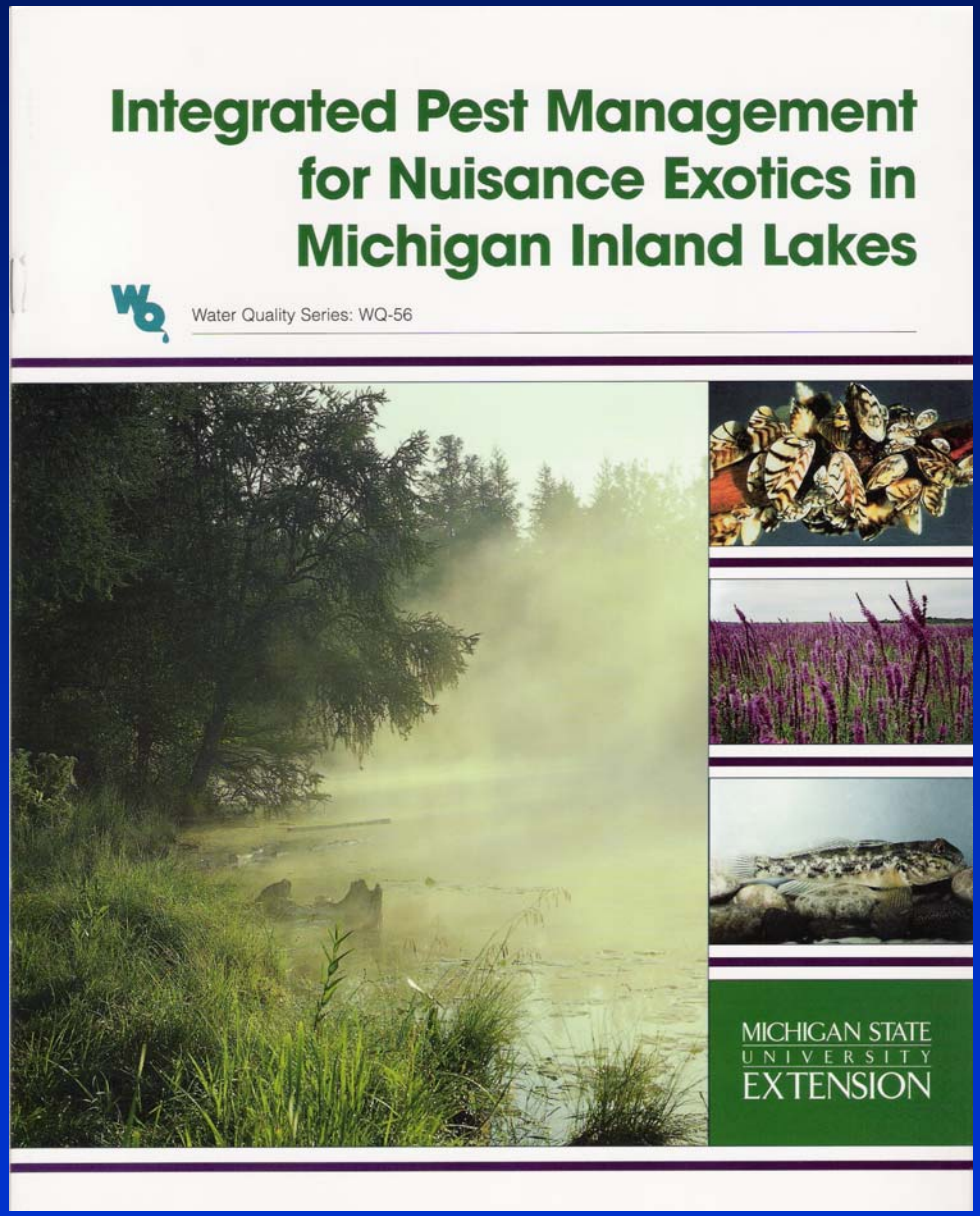
Figure 1. Map of Cisco Chain of Lakes on the Michigan-Wisconsin border.

can reduce native plant diversity and abundance, decrease aquatic macroinvertebrate diversity, and inhibit growth of predatory fish (e.g., walleye, pike, muskie, and bass; Colle and Shireman 1980, Cheruvelil et al. 2002). Dense plant canopies also interfere with navigation, clog water intakes, and limit use of boat launches and swim beaches. As plant mats cover the water surface, they contribute to low dissolved oxygen levels (anoxia), enhance release of nutrients, and produce strong vertical gradients in pH and temperature in the water column; all of which may stress aquatic organisms.

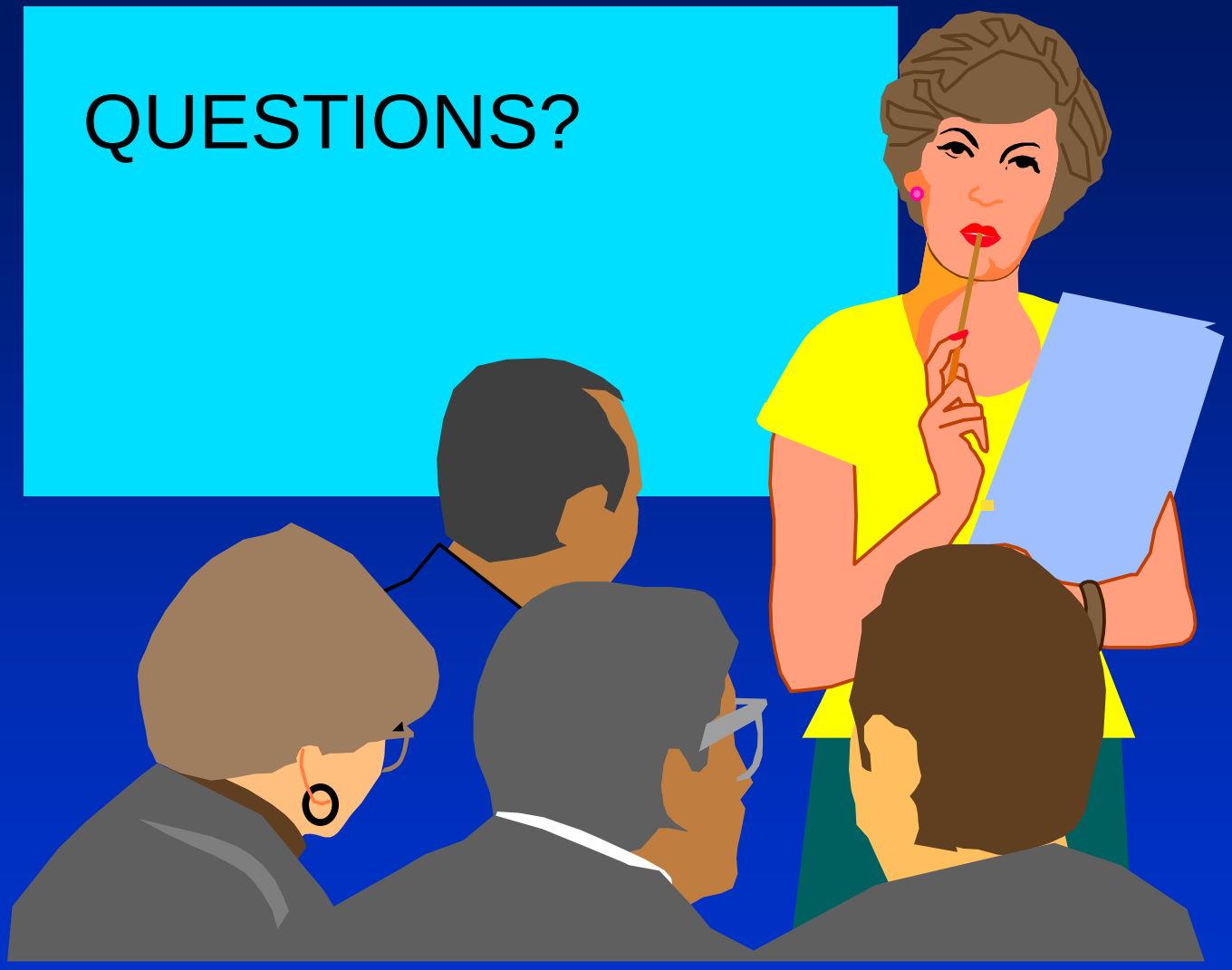
Cisco Chain Riparian Owners Association Takes Action

Once established, Eurasian watermilfoil is very difficult to eradicate. Its over-wintering capability enables

Maintenance Control



QUESTIONS?



Evaluation Form

- Please take a few minutes to fill out the evaluation form for this session.
- You can leave them in the box when you are done.