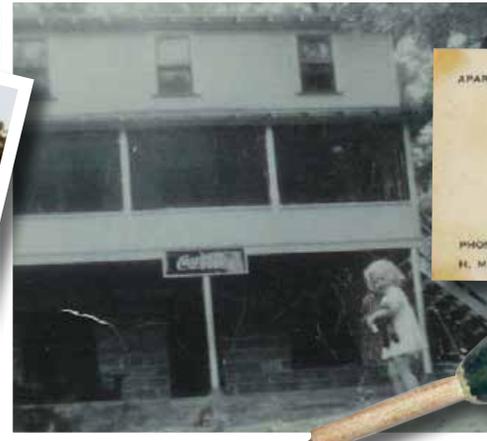


THE MICHIGAN RIPARIAN

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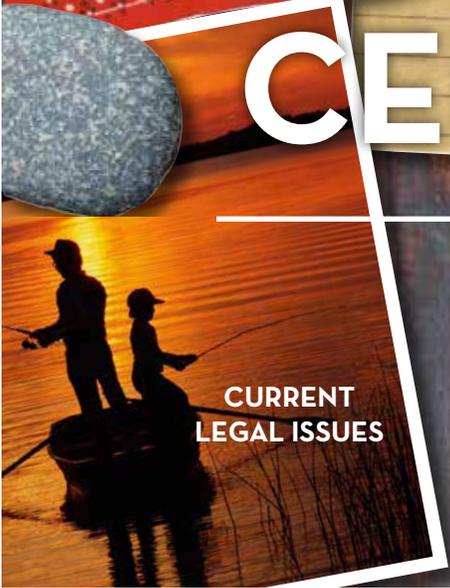


APARTMENTS - COMFORTABLE ROOMS - PLENTY SHA...
MARTENS LODGE
CEDAR LAKE
BOATS - COTTAGES - BAIT
PHONE
H. MARTENS, PROP.
MARCELLUS
MICHIGAN



TALES
FROM
YEARS
GONE BY

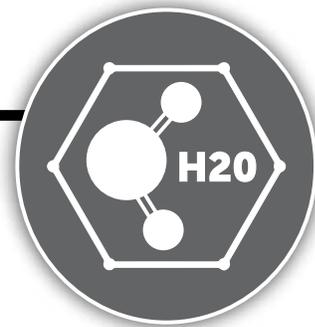
CEDAR LAKE



CURRENT
LEGAL ISSUES

AQUATIC PLANT SURVEYS:
HOW AND WHY

INTERVIEW
WITH A RIPARIAN

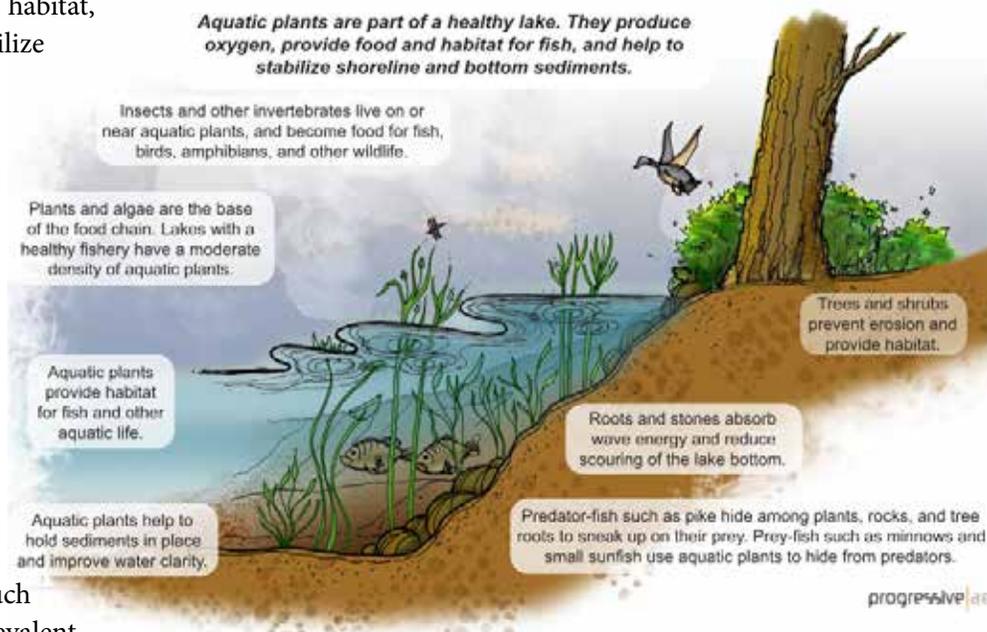


AQUATIC PLANT SURVEYS: HOW AND WHY

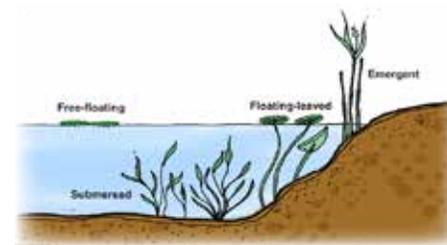
PAUL HAUSLER AND RICK BUTEYN | PROGRESSIVE AE

Aquatic plants are an important component of lake ecosystems. They produce oxygen during photosynthesis, provide food, habitat, and cover for fish, and help stabilize shoreline and bottom sediments.

The distribution and abundance of aquatic plants is dependent upon several variables including light penetration, bottom type, temperature, water levels, and the availability of plant nutrients. Rooted plants generally grow at depths of about 20 feet and less. In deep lakes, rooted plants are generally restricted to near-shore areas and along drop-offs. In shallow lakes, plants can colonize much of the bottomland and may be prevalent across the lake.



There are four main aquatic plant groups: submersed, floating-leaved, free-floating, and emergent. Usually, submersed plant species will be found in off-shore areas, while floating-leaved and free-floating plants are more common near shore. Emergent plants are found along the shoreline. Each plant group provides important ecological functions. Maintaining a diversity of aquatic plants is important to sustaining a healthy fishery and a healthy lake.



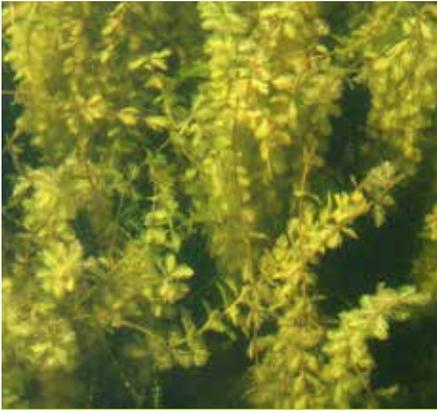
(CONTINUED ON PAGE 25)



SURVEY DRONE PHOTO



UNDERWATER RAKE TOSS



EURASIAN MILFOIL (MYRIOPHYLLUM SPICATUM)



STARRY STONEWORT (NITELLOPSIS OBTUSA)



PHRAGMITES (PHRAGMITES AUSTRALIS)

Invasive, exotic species are a statewide concern. If left unchecked, invasive species can outcompete beneficial native plants and spread quickly throughout a lake. Invasive species of primary concern in Michigan lakes include Eurasian milfoil, starry stonewort, and Phragmites. Eurasian milfoil and starry stonewort are

submersed species and Phragmites is an emergent species.

presence of invasive plant species, and help inform management decisions.

AQUATIC PLANT SURVEYS

Aquatic plant surveys can be beneficial for a variety of reasons. An aquatic plant survey can provide important information about the type and distribution of plants, detect the

There are several aquatic plant survey methods. Some methods are relatively simple while some are more labor-intensive. With the widespread

(CONTINUED ON PAGE 26)

Keeping Surface Water Clean & Enjoyable

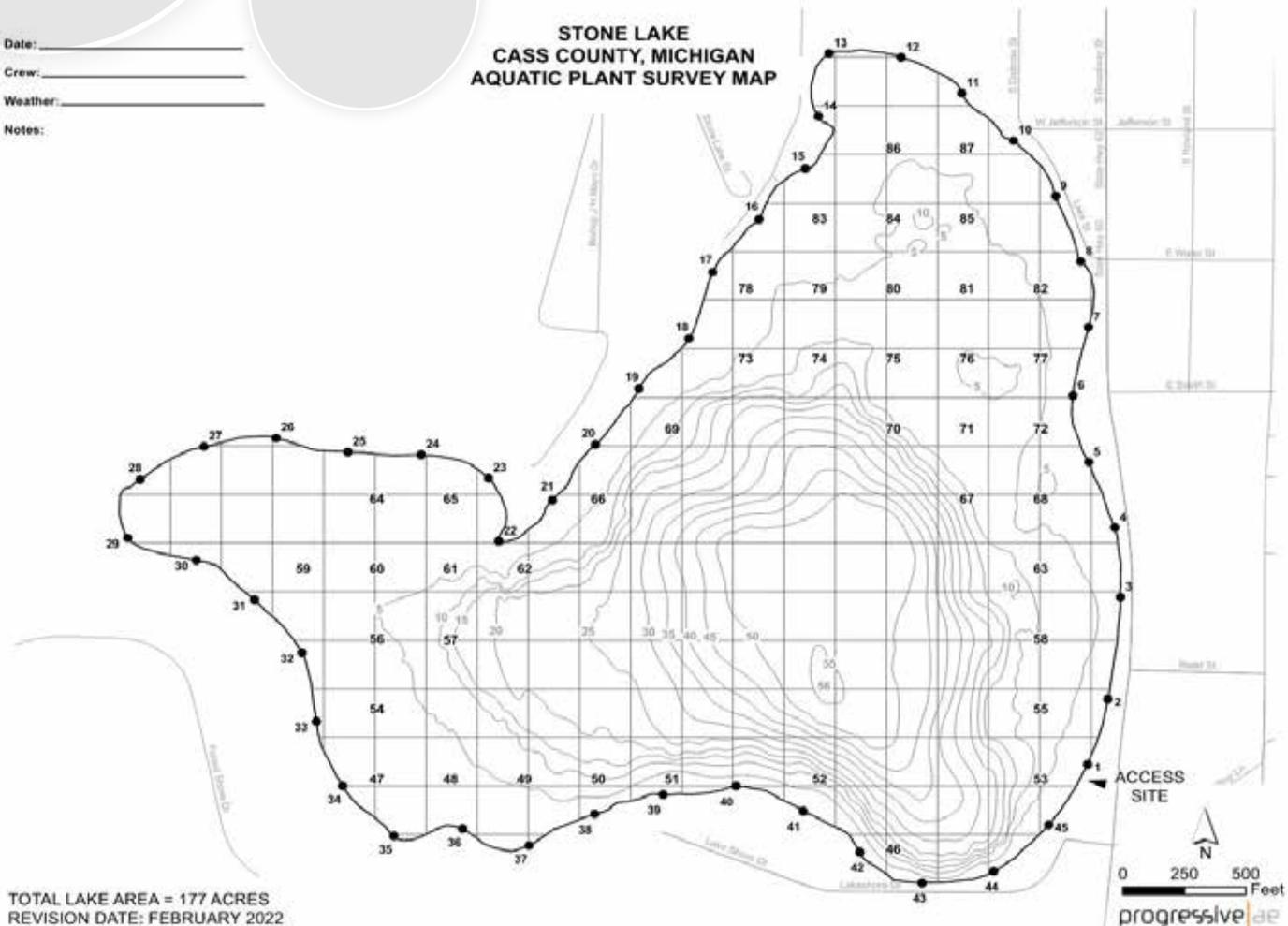


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AQUATIC PLANT SURVEYS: HOW AND WHY

(CONTINUED FROM PAGE 25)

Date: _____
Crew: _____
Weather: _____
Notes: _____



THE MAP ABOVE SHOWS THE SHORELINE AND OFF-SHORE GPS REFERENCE POINTS ON STONE LAKE IN CASS COUNTY. AT EACH REFERENCE POINT, PLANT SAMPLES ARE COLLECTED TO EVALUATE PLANT TYPES.

use of global positioning systems (GPS) in recent years, GPS-guided surveys are much more common. With this approach, GPS reference points or waypoints are established along the shoreline and the shallow-water portions of the lake, and plants are identified at each waypoint. This approach is referred to as the point-intercept method.¹ Many lake scientists rely on this method because it can provide reliable data that can be analyzed statistically.

Once plant types at each of the reference points in the lake have been identified, the information can be tabulated and the percent frequency of each plant species calculated. Percent frequency is the number of sites (or percent of sites) where each plant species is found, as shown in the table on page 28. Annual plant surveys can be used to monitor changes in plant composition and location over time.

(CONTINUED ON PAGE 28)

AQUATIC PLANT SURVEYS: HOW AND WHY

(CONTINUED FROM PAGE 26)

STONE LAKE AQUATIC PLANTS

September 17, 2021

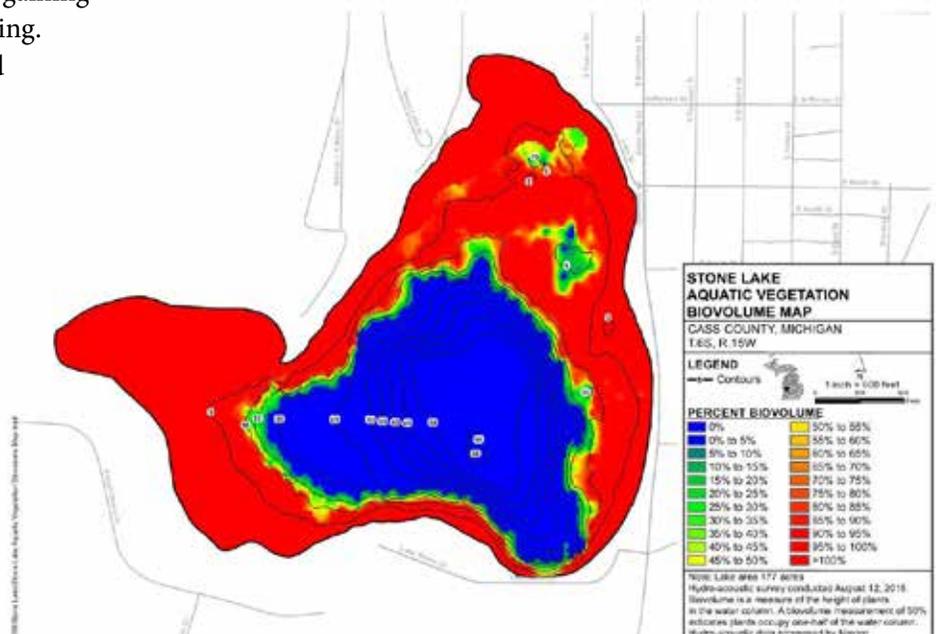
COMMON NAME	SCIENTIFIC NAME	GROUP	PERCENT OF SITES WHERE PRESENT
Whitestem pondweed	<i>Potamogeton praelongus</i>	Submersed	89
Coontail	<i>Ceratophyllum demersum</i>	Submersed	69
Wild celery	<i>Vallisneria americana</i>	Submersed	58
Water marigold	<i>Bidens beckii</i>	Submersed	29
Robbins pondweed	<i>Potamogeton robbinsii</i>	Submersed	29
Small pondweed	<i>Potamogeton pusillus</i>	Submersed	24
Flat-stem pondweed	<i>Potamogeton zosteriformis</i>	Submersed	9
Eurasian milfoil	<i>Myriophyllum spicatum</i>	Submersed	9
Slender naiad	<i>Najas flexilis</i>	Submersed	9
Chara	<i>Chara sp.</i>	Submersed	7
Thin-leaf pondweed	<i>Potamogeton sp.</i>	Submersed	7
Richardson's pondweed	<i>Potamogeton richardsonii</i>	Submersed	7
Elodea	<i>Elodea canadensis</i>	Submersed	7
Water stargrass	<i>Heteranthera dubia</i>	Submersed	4
Illinois pondweed	<i>Potamogeton illinoensis</i>	Submersed	2
Curly-leaf pondweed	<i>Potamogeton crispus</i>	Submersed	2
Variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>	Submersed	2
White waterlily	<i>Nymphaea odorata</i>	Floating-leaved	89
Yellow waterlily	<i>Nuphar sp.</i>	Floating-leaved	67
Cattail	<i>Typha sp.</i>	Emergent	44
Swamp loosestrife	<i>Decodon verticillatus</i>	Emergent	24
Purple loosestrife	<i>Lythrum salicaria</i>	Emergent	24
Bulrush	<i>Schoenoplectus sp.</i>	Emergent	11
Phragmites	<i>Phragmites australis</i>	Emergent	11
Pickerelweed	<i>Pontederia cordata</i>	Emergent	9
Iris	<i>Iris sp.</i>	Emergent	2

One of the important uses of plant survey data is to identify the location of invasive plant species. With the use of GPS, herbicide treatments or other plant control methods can be targeted more accurately.

(CONTINUED ON PAGE 29)

Another plant survey tool that is gaining popularity is hydro-acoustic plant mapping. With this technique, a specially-equipped depth finder is used to map the location of plant beds and measure the height of the plants in the water column. Hydro-acoustic mapping can be coupled with a point-intercept survey to identify plant types and locations.

Periodic monitoring of aquatic plants is an important element of a long-term lake management strategy. Plant surveys can provide valuable information regarding plant diversity, invasive plant introductions, fishery habitat, and lake health. In lakes undergoing plant control, plant surveys are essential to informing management decisions, and the efficacy and impacts of plant control measures. R.



STONE LAKE BIO-VOLUME MAP, AUGUST 2016.

REFERENCES

¹Madsen, J.D. and R.M. Wersal. 2017. A Review of Aquatic Plant Monitoring and Assessment Methods. *Journal of Aquatic Plant Management* 55: 1-12.

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Lishawa concluded, "I am also proud of other new developments that our team has been a part of for Long Lake monitoring and lake management. In our first intern year, they scanned three small adjacent lakes and made bathymetric maps. One of the most exciting developments for us has been the use of drones by lake resident Dennis Wiand to map the lake with GPS-linked, high-resolution photos. These photos show the exact location of Eurasian watermilfoil. Then, with live drone video on the treatment boat, he directs the application of herbicides to the precise locations where Eurasian watermilfoil is growing. Drone use has expanded our awareness of evolving lake conditions, enabled shoreline mapping, and made our overall programs more effective. While I have stepped down after nearly 28 years of volunteering, I feel confident that Len Klein, Rick Dahlstrom, Brent Schnell, and others will continue to make sure they do everything possible to preserve and protect our beautiful Long Lake for the future." R

SEASONAL ACTION ITEMS



RECOGNIZE

Thank an association volunteer for their hard work. Attending membership meetings is an excellent way to show your appreciation.

01



VOLUNTEER

Find something you can do to help your association; no contribution is too small. Use your skills and offer to do something you enjoy.

02



PLAN

Consider a project that will help to protect your water from invasive species. Put together a proposal for the CBCW grant program.

03



WRITE

Consider writing about your waterbody for *The Michigan Riparian* magazine. Our readers enjoy sharing in your success stories and learning about inland waters all around the state.

04



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