



Michigan's Citizen Volunteer Partnership for Lakes

PROGRAM MANUAL

Managed By:

Michigan Department of Environmental Quality

Michigan Lake & Stream Associations, Inc.

Michigan State University Department of Fisheries and Wildlife

Great Lakes Commission

Huron River Watershed Council



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F. AQUATIC PLANT IDENTIFICATION AND MAPPING

Introduction

Rooted aquatic plants are a natural and essential part of the lake, just as grasses, shrubs and trees are a natural part of the land. Their roots are a fabric for holding sediments in place, reducing erosion and maintaining bottom stability. They provide habitat for fish, including structure for food organisms, nursery areas, foraging and predator avoidance. Waterfowl, shore birds and aquatic mammals use plants to forage on and within, and as nesting materials and cover. Though plants are important to the lake, overabundant plants can negatively affect fish populations, fishing and the recreational activities of property owners. In this situation, it is advantageous to manage the lake and its aquatic plants for the maximum benefit of all users. To be able to do this effectively it is necessary to know the plant species present in the lake and their relative abundance and location. A map of the lake showing the plant population locations and densities will greatly aid management projects.

The Aquatic Plant Identification and Mapping parameter is the most labor-intensive volunteer activity within the CLMP. Typically, a team of volunteers from each enrolled lake is involved, with assistance from a MiCorps biologist.

Preparation begins with volunteers attending a half-day intensive training on aquatic plant identification and mapping techniques. Prior to heading to the lake, the volunteers develop a sampling strategy for their lake, based on size and known areas of plant growth. Sampling transects (straight lines parallel to shore) are identified, along which plant samples are collected, generally at the one, four and eight foot depths with a constructed sampling rake. The rake is tossed out into the lake and retrieved from the four compass directions. The density of each plant species is determined by its presence on one, two, three or all four of the rake tosses. The sampling effort often requires several days. The data from all the transects then are used to create a plant distribution map and report.

Quantifying the aquatic plant populations of a lake is not an easy task. On many lakes, people working of the water surface can't even see the plants growing below. Additionally, sampling procedures which will collect aquatic plant data that can be statistically analyzed are complicated and time consuming. Consequently, the Cooperative Lakes Monitoring Program (CLMP) is testing qualitative techniques that allow volunteer monitors to generally assess the aquatic plants in their lake. This assessment may be viewed as a "snapshot" of the species of plants in the lake, their general location and relative abundance. Although not quantitative, the CLMP's assessment will provide valuable information about a lake's aquatic plants that is often missing in many lake and aquatic plant management programs.

The procedure used in the CLMP assessment is written up in the book, *A Citizen's Guide for the Identification, Mapping and Management of the Common Rooted Aquatic Plants of Michigan Lakes*. Copies of this book may be obtained from Michigan Lake and Stream Associations, Inc.

(MLSA) or Michigan State University Extension. As discussed in the book, the assessment procedure may be slightly modified to accommodate the volunteer monitor's skills and resources.

Training

On-site training is required for this parameter. The CLMP leadership team will be hosting training sessions for this and other parameters in April or May at the annual spring Michigan Lakes and Streams Association conference.

Equipment Checklist

- boating safety equipment and anchor
- copy of monitoring procedures (*A Citizen's Guide for the Identification, Mapping and Management of the Common Rooted Aquatic Plants of Michigan Lakes*)
- a depth map of the lake
- field recording sheets
- weighted sounding line
- weighted rake and retrieving line
- zip-lock bags
- clipboard
- pencil or indelible ink pen
- camera (optional; digital preferred)

Sample Collection

Sample collection procedures are detailed in Chapter 5 of *A Citizen's Guide for the Identification, Mapping and Management of the Common Rooted Aquatic Plants of Michigan Lakes* by Wandell and Wolfson (2007). Additionally, this reference provides information on aquatic plant identification (Chapter 3) and how to make a plant collection (Chapter 4). A plant collection can aid with volunteer training for the plant mapping project.

Photographs

Photographs are an excellent way to document the plants you find. When photographing plants, it helps to lay the plant on a light-colored background, with the leaves spread out so that distinguishing features can easily be seen (leaf shape, size, number of leaflets, etc.). If you are unsure of the identity of a plant, a few good photos could eliminate the need to ship actual specimens to MSU for identification; instead, a quick email with a few digital photos may be sufficient for expert identification, and a faster response. Photographs of plants from your lake can also be a useful tool for educating neighbors and members of your lake community about the plants that are found in your lake, and a good reference for you for future surveys.

Reporting Results

When the aquatic plant sampling is over, complete the aquatic plant map and data sheet as described in the book by Wandell and Wolfson. Make a good copy of the map and data sheet and mail both along with the lake map delineating sampling stations and a list of the aquatic plant identification code numbers used in the mapping project for species identification to the aquatic plant contact listed on page 2.