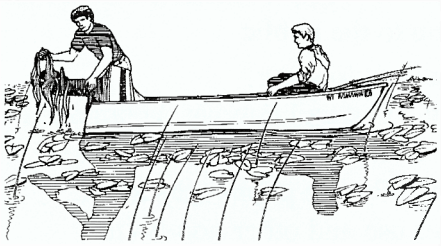
GENEVA LAKE'S AQUATIC PLANT MANAGEMENT

INTRODUCTION

Aquatic Plant Management (APM) on Geneva Lake has been and continues today to be primarily to reduce aquatic plant's interference with recreational use. When compared with many lakes in the state, Geneva Lake's aquatic plant problems are not a hindrance to the lake's enjoyment and are not a major lake problem.

Beaches and lakefront areas are either treated with chemicals or cut to remove weeds that interfere with recreational use. Geneva Lake's size, shape and pier numbers have resulted in *chemical treatment* being the most popular *APM* technique. Between 1950 and 1969 over 19,000 pounds of *copper sulfate* and 29,000 pounds of *sodium arsenite* were applied to Geneva Lake in an attempt to control aquatic plants.

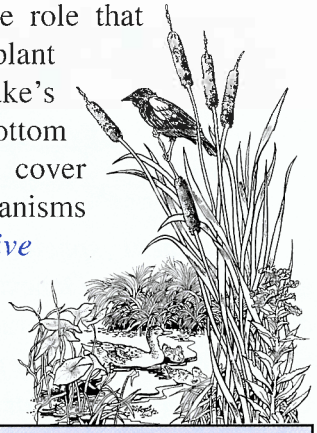


Within the last 25 years more sophisticated chemicals have become available that are more selective and effective in controlling plants. All chemicals used in lakes go through a rigorous approval process for use in aquatic environments. Lake chemical applications in Wisconsin are regulated by the Wisconsin Department of Natural Resources, requiring a permit and licensed applicator to apply the chemicals under the Wisconsin Department of Natural Resources' supervision.

NEW AQUATIC PLANT LAWS

In September 2001 Wisconsin passed new Legislation, s 23.24 and s 30.715 Wis. Statutes, that represents some of the most significant changes to aquatic plant management in decades. These changes are intended to protect and develop diverse and stable aquatic plant communities through education, research and by regulating how they are managed.

This new legislation hopes to increase people's awareness about the role that stable and diverse aquatic plant communities play in a lake's overall well being. Lake bottom and shoreline stabilization, cover and habitat for aquatic organisms and deterring *non-native invasive* plants are but a few of aquatic plant's benefits.



MAJOR CHANGES IN WISCONSIN'S NEW AQUATIC PLANT REGULATIONS

- Lakes need to prepare APM Plans
- Mechanical harvesting requires a permit
- Launching of crafts suspected to have aquatic plants or zebra mussels is prohibited
- Other methods of plant control and plantings will require a permit
- Some manual cutting and removal will be exempt from permits

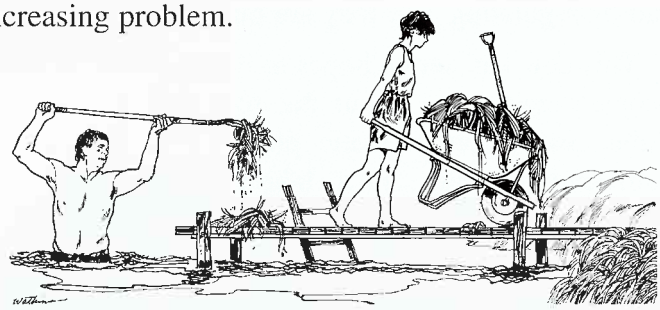
*Italicized, blue colored words are defined in the glossary on the last page of this Summary Information Sheet

GENEVA LAKE'S APM PLAN

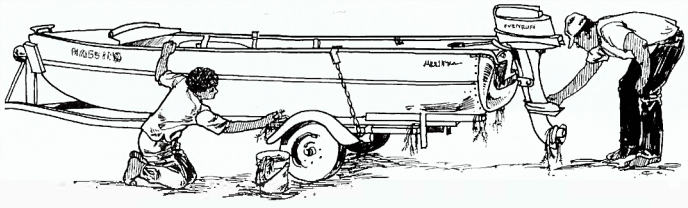
(A complete copy of Geneva Lake's Aquatic Plant Management Plan and Survey are available at the Geneva Lake Environmental Agency.)

Aquatic plant surveys were conducted on Geneva Lake in 1976, 1994 and 2001. Geneva Lake does not experience many of the aquatic plant problems common to other southeastern Wisconsin lakes. Generally speaking, Geneva Lake has a good, healthy and diverse aquatic plant population. Of concern are the non-native invasive species Eurasian water milfoil (*Myriophyllum spicatum*), curly leaf pondweed (*Potamogeton crispus*) and the nuisance levels of wigeon grass (*Ruppia maritima*).

With over 5,000 boats residing on Geneva Lake, *fragmentation* and the subsequent nuisances incurred from plant litter on beaches and shorelines is an ever-increasing problem.



Submergent species are the dominant type of aquatic plant in Geneva Lake. Extensive shoreline development and alteration along with wave action have made an *emergent plant* population rare. Geneva Lake seldom has *algae blooms* of such duration or magnitude as to require treatment. The *zebra mussel* infestation in recent years may change the type of algae present thus causing a different type of algae problem. Increased water clarity caused by the zebra mussel may also cause an increase in the amount and depth of the submergent aquatic plant community.



APM GOALS AND OBJECTIVES

The major goals and objectives for *APM* on Geneva Lake are:

GOAL - Manage for long-term community stability
- **OBJECTIVE** - Control exotic and weedy plant species
- **OBJECTIVE** - Preserve stands of native aquatic plants

GOAL - Maintain high level of quality lake recreation
- **OBJECTIVE** - Manage aquatic plants according to recreational use

GOAL - Educate users about the plan and the role of aquatic plants in lakes
- **OBJECTIVE** - Hold public informational meetings on the plan
- **OBJECTIVE** - Inform users about the value of aquatic plants, especially native plants
- **OBJECTIVE** - Develop a shared municipal responsibility for stewardship of the lake and its aquatic communities
- **OBJECTIVE** - Develop educational material for distribution to the public

GOAL - Reduce nutrient loading
- **OBJECTIVE** - Cut and remove accumulated plants
- **OBJECTIVE** - Pursue public education about fertilizer use and other non-point pollution loading

GOAL - Meet NR 109 requirements and be eligible for cost sharing on the purchase of harvesting equipment
- **OBJECTIVE** - Develop management plan in accordance with emergency rules developed in spring 2002 anticipating that NR 109 will be the same
- **OBJECTIVE** - Have plan reviewed by appropriate parties to include WDNR, local communities and riparians

MANAGEMENT PRACTICES

Several *APM* techniques are available including nutrient inactivation, screens, hand controls, chemical treatment, harvesting and biological treatment. For Geneva Lake, only harvesting, hand controls and chemical application are considered most applicable. Thus Geneva Lake's *APM* plan concentrates on these *APM* techniques.

Most *APM* on Geneva Lake is done using chemical treatment. The *APM* plan focuses on implementing a harvesting program to compliment the chemical program. This plan does not intend to do away with chemical treatment but encourages an educated assessment of what means are most effective in accomplishing the plan's goals. Chemical treatment will still be an important part of Geneva Lake's *APM*.

MANAGEMENT CRITERIA

Not all of Geneva Lake's shorelines require the same level of management. Management levels must be decided based on the plant community's composition and the specific management objectives.

The management area must also be identified. The majority of *littoral area*, area with growing plants, is within 200 yards of shore. Most, if not all, *APM* will take place within this area.

The presence and density of plants will be used to identify the need for *APM*. Aquatic plant communities will be classified as native, mixed or weedy.

MANAGEMENT PRACTICES

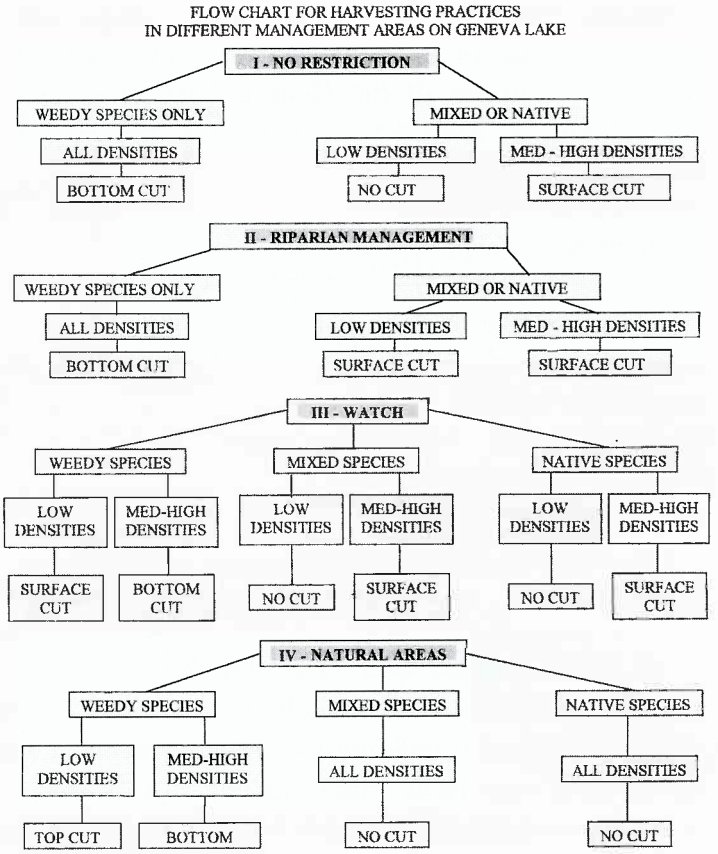
With different areas having different management objectives any *APM* must be sensitive to those objectives. Different cutting techniques such as surface cut, bottom cut or shallow cut can impact the same plant differently. Thus depending upon the zone, plants present and desired affect, different cutting techniques will be used. (See flow chart.)

Chemical treatment is recognized as a viable option yet with chemical application the intent is to eradicate plants. Chemical applicators must be informed as to where valued species grow and the treatment's effectiveness must be evaluated.

When either mechanical or hand harvesting, all cut plant material should be collected and transported to an approved site for composting and use as a soil conditioner. Chemical application and harvesting programs should be coordinated to reduce exposure of harvested plants to chemicals.

RECOMMENDATIONS

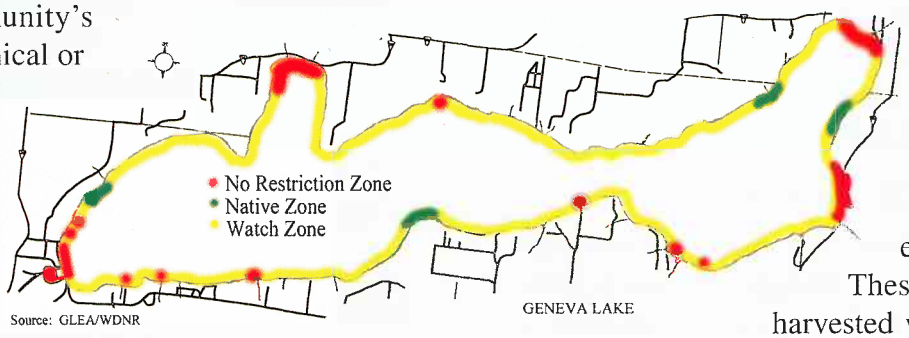
The Geneva Lake shoreline has been categorized into four different zones. These zones and a brief discussion follow.



No Restriction Zones are heavily recreated and/or are areas providing major access points to the lake. They include public beaches, launches, docks and officially designated mooring areas. In these areas extensive management is preferred to minimize interference with recreation. Chemical application may be preferred due to the number of piers and buoys. Ecological importance is slight and not a major consideration.

Natural Zones are shorelines with undisturbed habitat typified with good species diversity of native plants and a healthy community. They serve as cover and habitat for a variety of aquatic organisms. These areas should generally be left alone. *APM* is restricted to minimal. Their ecological importance is very high.

Watch Zones are generally those areas not identified as one of the other zones. They represent the largest segment of the Geneva Lake shoreline. *APM* should be limited to only what is needed for the plant community's improvement. Chemical or mechanical *APM* may be used. These areas may have a high ecological importance yet may be undergoing a change due to past management or invasion.



Source: GLEA/WDNR

Riparian Management Zones are overlay areas that can exist in any of the other zones. They are defined as 30 ft. wide strips extending out from shore and should include the riparian's structures, pier, buoys and rafts. They may also include plant beds predominated by Eurasian water milfoil, curly leaf pondweed or purple loosestrife. They are located by the riparian with consideration to both the area's recreational use and ecological importance. These zones can be hand harvested without a permit. These areas have variable ecological importance because they are located close to shore and may be used for spawning. The structures may offer cover and food.

SUMMARY AND CONCLUSION

- New *APM* rules require that before any *APM* is conducted on a lake an *APM* Plan must be adopted.
- State approval is required for not only chemical application but now for mechanical harvesting.
- All *APM* must be as established in the *APM* Plan.
- Eurasian water milfoil, curly leaf pondweed and purple loostrife are now listed as "invasive plants."
- Minimizing interferences with recreational use while maintaining the healthy and diverse aquatic plant community are the overall goals of the Geneva Lake *APM* Plan.
- The Geneva Lake *APM* Plan identifies different lake areas and recommends different management for those areas.
- The Plan considers chemical application and mechanical harvesting as viable means for accomplishing the different management goals.
- The Geneva Lake *APM* Plan encourages harvesting to be used more widely than at present.

GLOSSARY

algae bloom - A condition found in water when small free floating plants become so dominant they color the water green.

Aquatic Plant Management (APM) - The purposeful management of plants growing in water.

chemical treatment - The use of registered chemicals to control lake plants.

copper sulfate - A copper based chemical used to control aquatic plants.

emergent plant - Plant species that grow in the water with some stem and leaves above the water.

fertilization - The addition of nutrients to a lake that results in increased plant growth.

fragmentation - The breaking of aquatic plant material by boats or waves into smaller pieces.

littoral area - Areas in a lake where there is enough light for aquatic plants to grow.

non-native invasive - Plants not normally found in a given area that have invaded the plant community.

sodium arsenite - An arsenic based chemical used to control aquatic plants.

submergent species - Plant species that grow predominately under the water.

zebra mussel - An Eastern European clam-like organism that has invaded North America's freshwaters.

This Summary Information Sheet (SIS) is the third in a series of information sheets produced to better understand Geneva Lake and its management. These Summary Sheets are educational publications that summarize larger more detailed reports on Geneva Lake. They are prepared by the Geneva Lake Environmental Agency with the assistance of the original authors and with financial assistance from a WDNR Lake Planning Grant and with local monies from the Geneva Lake Environmental Agency. Additional copies are available at the Geneva Lake Environmental Agency, 262-248-5253 or Email to glea@genevaonline.com. Ask for SIS #3.