Six Mile Lake

Survey Results & Recommendations 2012

Submitted By:

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Introduction

Characteristics of the Lake

Six Mile Lake is a 407-acre lake located in South Arm and Echo Townships, Charlevoix and Antrim Counties, Michigan (T32,31 N R 7W, Sec 19,30,31,5,6,8). Six Mile Lake falls within the Pine watershed and is almost on the border of the Elk watershed. These watersheds cover portions of several counties including Antrim, Charlevoix and Kalkaska counties.

Sections of the shoreline have been developed for single family year-round homes and seasonal summer cottages. Other sections of the lake are undeveloped. A formal lake-use survey was not included in this study, but observations made while working on the lake indicate that the lake is used for fishing, boating and swimming.

PLM's Integrated Plant Management Program

An Integrated Plant Management program should focus on preserving and protecting desirable plant life while controlling unwanted "weed" species through remediation services. In addition, these preventative programs should strive to keep the lake free of unwelcome plants that are known to be pests elsewhere in the region.

The first step of PLM's Integrated Plant Management Program is to *evaluate* and record current lake conditions and lake residents' goals. Next is to *prescribe* a lake specific management plan to control unwanted plant growth. *Implementation* of the agreed upon lake management plan is the final step of the program. After the program has been implemented, PLM will assess the results and use the information to modify and improve priorities, processes and plans – starting the cycle again. The key to a successful Plant Management Program is to minimize the total long term impacts of noxious aquatic vegetation while preventing new infestations and protecting the aquatic environment.

Why Do Aquatic Plants Become a Nuisance?

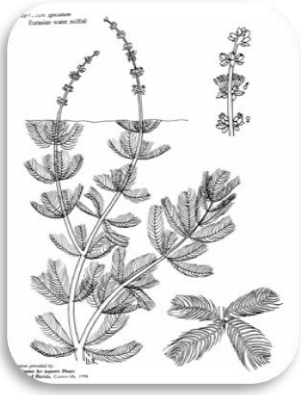
In moderation, aquatic plants are good for the lake, providing habitat for fish and other organisms and stabilizing bottom sediments. Plants get to be a problem when their growth becomes excessive and interferes with the use of the lake. At high levels, even native plants can disrupt the balance and be viewed as "invasive". A number of factors can result in excessive growth of aquatic plants. In many, or perhaps most cases, several factors have combined to result in the problem.

Exotic plant species cause many of the most serious weed problems. Exotic plants are plants that are not native to this area, which have been brought to the area and released.

Because they often have few natural enemies (their pests, pathogens, etc. may not have come over with them), they grow out of control. When exotic aquatic plants such as Eurasian watermilfoil and Curlyleaf pondweed invade a lake, they often form extensive dense populations, crowd out native species and reduce the quality of habitat for other organisms.

Human activities also increase the input of nutrients and nutrient-rich sediments to the lake. Nutrients feed the growth of algae in the water and settle on the bottom, where they provide a rich substrate for aquatic plant growth. Nutrient inputs increase the overall growth of all aquatic plants (exotic and native) and algae. Preventing excess nutrients from entering your lake is much less expensive than trying to fix the problems they cause.

Eurasian watermilfoil



EWM, an exotic species, is an extremely aggressive submerged aquatic plant that has the abilities to form a monoculture among vegetation. EWM spreads by fragmentation (every inch of plant can sprout new growth) and has a very strong root system. EWM forms a canopy above native plants, choking out the competition. EWM also has the ability to overwinter underneath the ice, allowing it to be present throughout the winter. This gives the plant a head start in growing during the spring and chokes out native plants very quickly. EWM should be controlled as soon as it is found within a waterbody to prevent further infestation and loss of native plant diversity. NOTE: Once a native plant is lost in a lake, there is no guarantee it will return.

Variable leaf milfoil

Variable leaf milfoil, looking very similar to its native relative, Northern milfoil, is a whorled milfoil that can form dense canopies similar to its more distant exotic relative. Dense beds of VLM can quickly cause ecological problems for a lake as well impacting recreational uses of a lake. Variable leaf milfoil is best controlled using systemic herbicides as biological control methods have not been proven widely effective and mechanical removal can further the spread. Although Variable leaf milfoil is native to North America, it is considered highly invasive and needs to be properly managed.

Curlyleaf pondweed

Curlyleaf pondweed, an exotic species, usually emerges early each spring, flowers and sets seed in the late spring and early summer, and then collapses by the first week in July. There are, however, exceptions to this pattern regarding juvenile plants, part of this re-growth community can occasionally be found in the late summer or early autumn. These small plants are capable of over-wintering below ice cover. Curlyleaf can be a severe nuisance during the early part of the peak recreational use season. Early control of this species is recommended so that the plant is not allowed to produce large quantities of biomass that die naturally and decompose in early July when water temperatures and the potential for oxygen stress are high Early treatment/management is also encouraged to take place prior to seed production therefore, reducing the next generation of early

pondweed growth.

Algae

Algae are basically divided into planktonic, filamentous, and macroalgae forms. Planktonic algae are microscopic, free floating plants, often referred to as "water bloom". In large number, the algae can cause water to appear green, brown, yellow, or even red. Filamentous algae, commonly called "pond scum" can form raft-like masses over the water surface. Since they are vulnerable to winds and currents, they are generally restricted to bays, bayous, and sheltered shorelines. Filamentous algae can grow attached to the lake bottom, weeds and docks. The filamentous algae will frequently detach from the lake bottom and form floating mats. The macroalgae includes three types, chara, starry stonewort and nitella. Chara grows like a carpet on the bottom of the lake. It is nature's water filter and is excellent for fish bedding. Chara grows approximately one inch a week during the summer months.

An over abundance of algae is an indicator that there is an excess amount of nutrients within the water column/lake, causing the waterbody to become overly productive. Algae are very beneficial in a lake ecosystem and can be thought of as the base of the food chain. Therefore, some alga is required.

However, when an alga reaches the point of hindering the use of the lake, control measures are available. Firstly, actions should be taken within the watershed to promote a healthy lake ecosystem and decrease nutrient loading, etc. However, no immediate change will be seen with these actions. Therefore, many lakes opt to include limited algae control within their management program.

Management Goals for Six Mile Lake

- The primary goal of aquatic plant management in Six Mile Lake is the control of exotic aquatic plants, where found. The exotic plant species, Eurasian watermilfoil should be controlled throughout Six Mile Lake. Variable leaf milfoil, also an invasive plant, should be controlled throughout Six Mile Lake as well. The abundance of these species should be reduced to the maximum extent possible, and efforts should be made to reduce their recovery after treatment.
- Aquatic plant management should preserve species diversity and cover of native plants sufficient to provide habitat for fish and other aquatic organisms. Native plants should be managed to encourage the growth of plants that support the Six Mile Lake fishery (by creating structure and habitat) provided that they do not excessively interfere with recreational uses of the lake (e.g., swimming and fishing) in high-use areas. Where they must be managed, management techniques that reduce the stature of native plants without killing them (e.g., harvesting, contact herbicides) should be used whenever possible. Specific areas should be set aside where native plants will not be managed, to provide habitat for fish and other aquatic organisms. Muskgrass (*Chara*) should be allowed to grow throughout the lake, except in where it grows so tall as to interfere with boating and swimming.
- The species Starry stonewort, if found on the Six Mile Lake should be actively controlled and managed. Starry stonewort is in the same family as Muskgrass (Chara) but is considered to be an exotic invasive species. Starry stonewort, which looks very similar to the beneficial species Chara, is appearing in more and more lakes. Chara is a highly desired plant because it is typically low growing, keeps the water clear and can slow down the invasion of exotic weed species. Starry stonewort also forms dense mats, but unlike chara, it can grow from 5 to 7 feet tall. Starry stonewort can be very detrimental to a lake's

Starry stonewort

ecosystem and has the ability to kill off native plants and have a negative impact on a lake's fisheries.


Phragmites

- The invasive terrestrial plants, Purple loosestrife and Phragmities should be controlled along the shoreline and adjacent wetlands where present. Both species are exotic and have the ability to displace beneficial native vegetation. Purple loosestrife grows 2 -4 feet tall and is a vibrant magenta color. It is very aggressive and can quickly become the dominant wetland vegetaion. Phragmites (common reed) is a wetland grass that ranges in height from 6 to 15 feet tall. "Phrag" quickly becomes the dominant feature in aquatic ecosystems, aggressively invading shorelines, wetlands, and ditches. This plant creates dense "strands" - walls of weeds crowding out beneficial native wetland vegetation and indigenous waterfowl habitats. Spreading by fragmentation and an extensive root system, Phragmites ultimately out-competes native plant life for sun, water and nutrients.
- Conditions in Six Mile Lake should not be allowed to deteriorate below present levels. Expansion of aquatic plant problems should trigger an adjustment in the aquatic vegetation management strategy. To support such responses, an annual record of vegetation and management should be maintained.
- Preventative measures that protect the lake from further nutrient enrichment should be identified and implemented.

Vegetation Survey Results

Planning/Evaluation

Vegetation surveys determine the locations of target and non-target plant species. The results of the surveys are used to determine the most appropriate management strategy. The vegetation surveys also document the success of the prescribed management program. An AVAS survey is the State of Michigan approved method for conducting a complete aquatic vegetation survey. The Aquatic Vegetation Assessment Site (AVAS) survey divides the parts of the lake capable of growing plants (littoral zone) into subareas and records the cover of each aquatic plant found in each "site". This method of surveying takes into account not only the types of plant species present in the lake but also the densities of those species. AVAS surveys are also an excellent way to track plant species trends over time. A Grid Point Intercept Survey documents plants growing at specific GPS points. An AVAS survey was used on Six Mile Lake in order to get a full understanding of the plants growing throughout the lake. A goal of invasive plant management is to have native plants increase while exotic plants decrease over time. The success of this goal can be illustrated through the use of the AVAS data collected over several years. Further, tracking plant trends can signify if and when an introduction of an exotic species is found or if changes are occurring in the plant biomass of the lake.

Table 1: Plant Species Found In Six Mile Lake – June 2012

AVAS Code	Common Name	Scientific Name	% Cumulative Cover
	Submerged- exotic or invasive		
1	Eurasian watermilfoil	Myriophyllum spicatum	31.97
19	Variable leaf milfoil	Myriophyllum heterophyllum	10.89
	Submerged- native		
3	Muskgrass	Chara	16.60
4	Thinleaf pondweed	Potamageton spp.	0.19

5	Flatstem pondweed	Potamageton zosteriformis	2.01
7	Variable pondweed	Potamageton gramineus	0.02
10	Illinois pondweed	Potamageton illnoensis	0.22
11	Largeleaf pondweed	Potamageton amplifolius	8.09
12	American pondweed	Potamageton americanus	0.09
14	Water stargrass	Zosterella dubia	0.09
15	Wild Celery	Vallisneria americana	0.83
17	Northern milfoil	Myriophyllum sibiricum	1.05
21	Elodea	Elodea Canadensis	0.32
22	Bladderwort	Utricularia valgaris	0.01
24	Buttercup	Ranunculus longirostris	0.95
	Emergent- Native		
30	Water lily	Nymphaea odorata	11.17
31	Spadderdock	Nuphar variegata	7.19
32	Water shield	Brasenia schreberi	0.19
39	Cattail	Typha spp.	13.99
40	Bulrush	Scirpus spp.	20.12
	Total		**126.00%**

Aquatic Vegetation

A survey of Six Mile Lake to determine plant types, populations and aquatic problems was conducted on June 15, 2012. A complete survey was conducted at this time. Six Mile Lake supports a highly diverse and highly dense community of aquatic plants. Several species of aquatic plants were encountered in the June 2012 survey of the lake (Table 1).

Of the plants listed in Table 1 all are native North American species, except Euraisan watermilfoil. Although Variable leaf milfoil (VLM), is considered native to North America, in most lakes in Michigan where it is found, it grows very aggressively and is considered an invasive plant. Common exotic plants found on Michigan lakes are Eurasian watermilfoil, Curlyleaf pondweed and Purple loosestrife. These plants are non-indigenous aquatic nuisance species, i.e., plants from other places. These exotic plants cause considerably more problems than most native species. Eurasian watermilfoil can attain nuisance levels of growth at almost any time of year, whereas curly leaf pondweed completes its lifecycle and drops out of the water column by approximately the Fourth of July.

The native plant species in Six Mile Lake benefit the lake, performing such functions as stabilizing sediments and providing habitat for fish and other aquatic organisms. In general, native species cause few problems, compared with those caused by exotic plants. Three species commonly found in higher densities on Six Mile Lake are Chara, Wild celery and Northern milfoil.


Chara


Largeleaf pondweed


Northern milfoil

Strategies for Achieving Lake Management Goals

Aquatic Plant Control Techniques

Areas of the lake that support vegetation will grow plants, despite intense efforts to remove them. Aquatic vegetation provides important benefits to a lake, including stabilizing sediments, providing habitat for fish and other aquatic organisms, and slowing the spread of exotic plant species. In general, native plants interfere less with recreation and other human activities than exotic species. The invasive plant species, Eurasian watermilfoil and Variable leaf milfoil concentrate their biomass at the water surface where it strongly interferes with boating, swimming and other human activities. This growth form also allows exotic plants to displace native plants and form a monospecific (i.e., single species) plant community. The dense surface canopies of Eurasian watermilfoil and Variable leaf milfoil provide a lower quality habitat than that provided by a diverse community of native plants. Control of exotic plant species minimizes interference of plant growth with human activities and protects the native vegetation of the lake. The goal of environmentally responsible aquatic plant management therefore, is not to remove all vegetation, but to control the types of plants that grow in the lake and the height of plants, to minimize interference with human activities.

It is important that control techniques meet the needs and expectations of lake users. Each technique has advantages and disadvantages. Many aquatic plants are relatively susceptible to some control measures but resistant to others. Too often, lake groups select a control technique before determining what their needs are.

Chemical control, or use of aquatic herbicides, is the most common strategy for controlling exotic plant species. Aquatic herbicides provide predictable results and there is a great deal of research and data regarding theses products. Many of the aquatic herbicides available can be used to selectively control exotic species with minimal or no impact on native species.

Mechanical harvesting is best suited for native plant species. Most native plant species have a higher tolerance to aquatic herbicides and require higher dosage rates (higher cost and reduced selectivity). Mechanical harvesting can be used to provide relief from native plant species if they are causing a recreational nuisance. Harvesting does not kill the plants, but simply reduces it's stature, leaving lower growth for fish habitat and sedimnet stabilization. Mechanical harvesting of Eurasain watermilfoil is **not** recommended as it will expedite its spread throughout a lake through fragmentation.

Biological control options for nuisance aquatic vegetation are limited. Grass carp, which indiscriminately devour aquatic vegetation, have been restricted in many states because of their nonselective grazing and fear they may escape into nonintended waters. The use of the milfoil weevil (Euhrychipsis lecontei) to control Eurasian watermilfoil has been implemented in many Michigan lakes. PLM Lake & Land Management Corp has many years of experience paticapating in weevil stocking, evaluations and longterm observations related to their performance and sustainability. Although the milfoil weevils may impact EWM populations in certain situations, the use of this tool remains unpredictable.

Bacteria product formulations and application techiques has greatly improved in recent years. Granular bacteria products can be applied to specific shoreline areas to reduce organic muck that has acumulated over the years. As waterbodies age, organic sediment can build up due to excessive plant

and algae growth. This process is called eutrohpication. Increasing native populations of bacteria can slow this process down. Reductions in the depth of muck may depend on many variables. Most importantly, the percent of sediment that is organic. The more organics in the sediment, the greater the potential for muck reduction via bacteria augmentation.

Aeration can be a beneficial tool to sustain ecological balance within an aquatic ecosystem. By maintaining sufficient oxygen levels throughout a waterbody, the entire eutrophication process can be slowed down, the health of the fishery can be maintained and overall water quality can be improved. The implementation of an aeration system to control rooted aquatic plant growth is not recommended. Rooted plants, such as Eurasian watermilfoil, will not be affected by aeration. Similar to the use of biological control, the impact of aeration on improving water quality and reducing organic sediment will vary greatly from site to site. Therefore, it is extremely important to thoroughly evaluate each site's conditions and expectations before implementing an aeration system.

Integrated Pest Management (IPM) approaches to aquatic plant control IPM emphasize spending more effort evaluating the problem, so that exactly the right control can be applied at just the right time to control the pest. IPM approaches minimize treatment costs and the use of chemicals. Lake management planning ensures the most appropriate, cost-effective treatment for your lake. Planning is an essential phase of Integrated Pest Management and includes lake vegetation surveys, water quality evaluation and a detailed, written lake management plan. Having the plan in place helps lake users know what to expect from lake management. Survey results provide a permanent record of conditions in the lake and the impact of management practices.

Exotic Plant Management

Aquatic herbicides currently represent the most reliable, effective, selective means for controlling Eurasian watermilfoil and Variable leaf milfoil. There are currently five systemic herbicides, 2,4-D (Navigate), 2,4-D amine (Sculpin G), triclopyr (Renovate 3 & OTF), 2,4-D/Triclopyr combination (Renovate Max G) and fluridone (Sonar or Avast), which can be used to achieve long-term, selective control of Eurasian watermilfoil and Variable leaf milfoil. Systemic herbicides are capable of killing the entire plant. Several contact herbicides, including diquat (Reward or Solera) can also provide short-term control of Eurasian watermilfoil and Variable leaf milfoil. These herbicides kill only the shoots of the plant, and plants regrow relatively rapidly from their unaffected below ground parts.

Systemic herbicides control milfoil with little or no impact on most native plant species. Under ideal conditions, several consecutive annual applications of these herbicides can reduce the milfoil to maintenance (low) abundance, such that only relatively small spot treatments are required to keep it under control. For this strategy to succeed, it is necessary to treat most of the milfoil in the lake each time.

Harvesting of milfoil is **not** recommended. This plant spreads by fragmentation and regrows significantly more rapidly than most native plant species; thus continued harvesting of mixed plant beds typically leads to nearly complete domination of the aquatic vegetation by milfoil.

Short-term control of curly leaf pondweed is easily achieved using low dose rates of a number of aquatic herbicides, including fluridone (Sonar), endothall (Aquathol-K, Hydrothol 191) and diquat (Reward). In the absence of long-term control techniques these contact herbicides should be used to control curly leaf pondweed in areas where it causes problems. Herbicide dose rates used to control curly leaf pondweed should be kept sufficiently low to minimize the impact on native plants. Should cost-effective, environmentally acceptable long-term curly leaf pondweed controls be developed, they should be considered as an option in the future for Six Mile Lake.

Purple loosestrife can be selectively controlled through the use of triclopyr (Renovate). Purple loosestrife is an exotic species, which is out competing native vegetation, destroying valuable wetlands and animal habitat and expanding in density along the Six Mile Lake. In past years our options to manage this nuisance weed has been extremely limited to prevention, manual removal or broad spectrum herbicide treatments, which not only killed the Purple Loosestrife but also the native vegetation remaining in the treatment areas.

Phragmites, if found on Six Mile Lake, can be selectively controlled through the use of glyphosate or imazapyr (Habitat) herbicides. Phragmites is an exotic species, which can out compete native vegetation, destroying valuable wetlands and animal habitat.

Native Plant Management

Native plants should be controlled primarily by harvesting. Unlike Eurasian watermilfoil and Variable leaf milfoil, most native plants do not regrow rapidly after harvesting, and a single harvest is often sufficient to control them for the entire summer. Normally low-growing species should not be controlled unless unusually fertile growing conditions allow them to grow tall in areas of high recreational use. Contact herbicides applied at higher rates can be effective at controlling native plants that are causing a nuisance close to shore, in between docks.

Algae Management

Areas of excessive filamentous algal growth or muskgrass (*Chara*) growth can be controlled using copper-based algaecides. Treatments should be confined to shallow areas where these algae cause a serious interference with recreation. Muskgrass should only be controlled where it grows up to the surface. Even in these areas, muskgrass treatments should be designed to take off the top layers of growth without exposing bare sediments, so as to preserve the beneficial functions of this species.

Monitoring

It is important to maintain a record of lake conditions and management activities. Vegetation surveys monitor types and locations of plants in the lake, providing information that is essential to the administration of efficient, cost-effective control measures. Vegetation surveys also document the success or failure of management actions and the amount of native vegetation being maintained in the lake. Water quality monitoring can identify trends in water quality before conditions deteriorate to the point where remediation is prohibitively expensive or impossible. Records of past conditions and management activities also help to keep management consistent despite changes in the membership of the Lake Association. Records should include (at a minimum):

- Temperature, dissolved oxygen and Secchi disk depth should be measured in the lake. Temperature and dissolved oxygen profiles should be obtained in the deep hole, so as to monitor the timing and extent of oxygen depletion in the hypolimnion (i.e., bottom water).
- Total phosphorus and nitrates should be measured in the surface and bottom water at least two times per season (spring and late summer) to monitor nutrient accumulation in the hypolimnion.
- Lake vegetation should be surveyed on an annual basis (late-spring and/or late summer/early fall) to document the results of plant management efforts and provide information necessary for planning future management.

Nutrient Loading Abatement

Lakeshore property owners should be encouraged to use phosphorus-free fertilizers on lawns and other areas that drain into Six Mile Lake or the adjacent wetlands. Lakeshore residents should also be encouraged to manage their waterside landscapes according to the recommendations outlined in publications on this topic available from the MSU Extension.

It is also important to remember that rooted plants derive most of their key nutrients from the sediments; thus they respond slowly, if at all, to reductions in nutrient loading. In fact, if reductions in nutrient loading lead to improved water clarity, the growth of rooted plants will probably increase.

If organic material (muck) accumulates to undesirable levels in shoreline areas, bacterial treatments should be considered as a way to alleviate the buildup. PLM MD (Muck Digestion) Pellets are a combination of natural beneficial bacteria, enzymes, and vitamins that stimulate the biological activity of the lake bottom. This stimulation allows the bacteria to feed on the organic sediment, therefore reducing the muck levels over time.

Prevention

Eurasian watermilfoil and curly leaf pondweed can easily be introduced to Six Mile Lake by plant fragments carried on boats and/or boat trailers. A variety of other troublesome exotic plants and animals that can be introduced to Six Mile Lake are also transported this way. Preventing their inadvertent introduction to Six Mile Lake can significantly lower the cost of future lake management. Education can be an effective preventative measure. Newsletter articles should alert lake residents to the threat from exotic nuisance plants and animals. Warning signs should be erected at any public boat access sites, if applicable, that encourage boaters to clean boats and trailers when launching or removing watercraft from the lake.

Six Mile Lake Management Recommendations for 2012

Management options are dependent on many factors, including but not limited too, species abundance (density), species richness, species location and many lake characteristics. Whenever an exotic and/or invasive species is found within an aquatic environment, action needs to be taken to prevent long term ecological damage as well as recreational and aesthetic loss that will take place.

Submersed Aquatic Plants

Treatments with the herbicides, Triclopyr and/or 2,4-D, in localized treatment areas to slow the spread of Eurasian watermilfoil should be conducted. The herbicides Triclopyr and 2,4-D, control Eurasian watermilfoil and Variable leaf milfoil with little or no impact on most native plant species. Since they are selective, systemic herbicides, they can actually kill milfoil plants. Under ideal conditions, several consecutive annual applications of Renovate or 2,4-D can reduce Eurasian watermilfoil to a maintenance (low) abundance. For this strategy to succeed, it is necessary to treat all the milfoil in the lake each time they are applied. Recent Michigan regulation restricting 2,4-D use in the vicinity of drinking water wells may result in the inability to apply 2,4-D near the shoreline of the lake.

Triclopyr is a systemic herbicide with selectivity very similar to 2,4-D. Triclopyr is not subject to the well setback restrictions that currently affect 2,4-D. Therefore, triclopyr can be used to control Eurasian watermilfoil in near shore areas.

Several contact herbicides, including diquat (Reward) can also provide short-term control of Eurasian watermilfoil. These herbicides kill only the shoots of the plant, and plants regrow relatively rapidly from their unaffected belowground parts.

Whole lake fluridone(Sonar) treatment options should also be explored. Due to the amount of both types of milfoil, one treatment option to control both plants is ideal. Systemic, granular treatments will likely offer the best avenue for controlling both these plants.

Mechanical harvesting should not be conducted near or in any area infested with Eurasian watermilfoil.

Conventional Herbicide treatments

Native plant treatments with contact herbicides and algaecides in residential shoreline areas will minimize nuisance native vegetation and algae. The initial treatment would be scheduled from mid-May to early June depending upon growing conditions with possible follow up treatments. Native plants are permitted for control through the Michigan DEQ using contact herbicides, which work to suppress and remove the abundance of the native plants. Using contact herbicides in beach/swim areas can effectively allow for native plants to still grow in many areas of the lake.

Monitoring and Water Quality Testing

Aquatic vegetation and water quality will be monitored to document the condition of the lake and to provide warning of any changes in the condition of the lake that need to be addressed by additional lake management activities.

The recommended management program for 2012 and 2013:

- Continue to monitor plants and perform routine vegetation surveys
- Water quality evaluation of lake
- Prepare for herbicide treatment of lake

Final Recommendations

Based on the current density of both Variable leaf milfoil and Eurasian watermilfoil, management options should be considered to protect the recreational and ecological values of Six Mile Lake, as well as property values surrounding the lake. It is most likely that these densities will quickly expand if left unmanaged. A management program should allow for management on a lake wide basis. A majority of the milfoil is growing near the drop-off where water depths quickly increase. Plants in this area often go unnoticed to recreational users until they reach the surface. Milfoil will quickly reach the surface and continue to spread and inhibit fishing/boating/swimming, etc as well as having long term negative effects on the ecological habitat. Control needs to start as soon as possible. In order to allow the lake to be managed as one, formation of a Special Assessment District should be explored. If an SAD is already in place and you would like a formal bid for management of Six Mile Lake, please contact PLM. PLM can also assist with the formation of a SAD.