A Limnological Condition Assessment and Lake Management Plan Update for:

Lake Ogemaw

Ogemaw County, MI

Plant and Water Quality Assessments Prepared by:

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Executive Summary

Primary Goal of the Lake Ogemaw Management Plan

The primary goal of Lake Ogemaw Management Plan is to modify conditions within the lake to enhance species and habitat diversity and thereby stabilize the ecosystem by promoting the production of conservative species and inhibiting the production of those plants that are weedy or more opportunistic. The attainment of this goal is expected to foster conditions that will make Lake Ogemaw more resilient to the rapid proliferation and domination of the aquatic ecosystem by invasive nuisance species. Success will also enhance recreational opportunities, including the fishery and the cultural utility of the resource. Any applied management strategy will focus on mitigating against the effects of cultural disturbance and be applied in a manner to minimize further disturbance of the ecosystem.

Proximal Management Goals

Nuisance Plant Production Management: The primary goal of the vegetation management plan is to mitigate against cultural and natural disturbances by modifying the quality of the Lake Ogemaw flora through the prescriptive use of selective plant management agents and strategies. In recent years, the submersed flora of Lake Ogemaw has been threatened by several invasive plant species. Selective plant management agents are used to suppress the production of opportunistic and invasive species that are prone to form monocultures and suppress the production of preferred, conservative plant species. Watermilfoil is currently present in the lake and has been a serious nuisance for many years. It has; however, been successfully suppressed. The density and distribution of Watermilfoil in Lake Ogemaw is being closely monitored. Wild celery is also invasive in Lake Ogemaw. Control efforts have yielded only modest results and MI DEQ restrictions on the total size of treatment zones make this plant the dominant nuisance in the lake in the later summer. A broad range of control strategies have been used for celery control in Ogemaw Lake with varying degrees of success. Starry stonewort is another invasive exotic plant (algae) species that has been found in the lake, every year since 2006. It appears to possess the ability to crowd out all other plant species found in Lake Ogemaw but has failed to be a significant nuisance in the lake. It is still expected to have a dramatic impact on the fishery.

AQUEST TIP

Disturbed Aquatic Ecosystems

Characteristics

- Noxious Plants and Algae
- Compromised recreational and utilitarian values
- Loss of aesthetic value
- Rapidly changing conditions, such as blooms of algae, plant monocultures, fish kills.

Common Disturbances

- Lake shore development,
- Watershed development,
- Pollution inputs (plant nutrients and sediments),
- Introduction of exotic organisms,
- Boating in shallow areas,
- Random, non-ecologically based management practices.

Water Quality Management: Water quality management is typically focused on matters related to lake fertility as they impact the production of suspended algae (phytoplankton) and the fishery. Lake Ogemaw is very shallow and water clarity can be impaired by storms that may suspend bottom sediments. The proliferation and production of zebra mussel is likely to play a significant role as a determinant of water transparency, plant nutrient dynamics, and ultimately, fisheries production. The spread of zebra mussels is typically accompanied by tremendous increases in water clarity and a shift to undesirable algae that are not consumed by the zebra mussel. The water clarity in Lake Ogemaw is already good and it does not appear that zebra mussel will cause the water to become noticeably clearer.

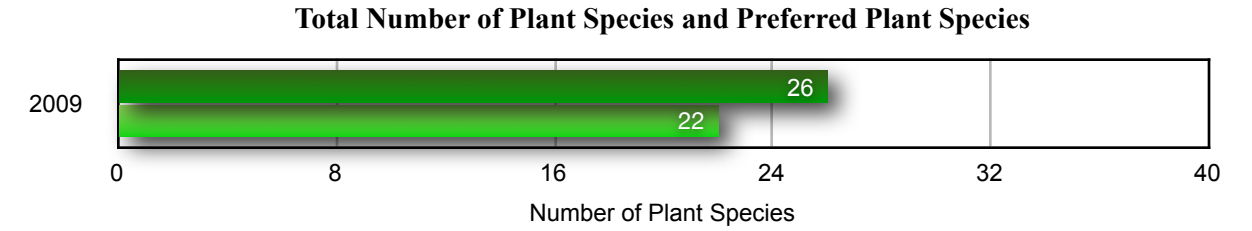
Plant nutrient concentrations in the sediments are obviously capable of supporting luxuriant rooted plant production. Water column nutrient concentrations appear to be capable of supporting enough algae production to support a reasonable fishery. Blue green algae blooms can be a public health concern. Efforts should be made to limit unnecessary nutrient loading in Lake Ogemaw because internal sources appear to be more than adequate to support a moderately productive freshwater

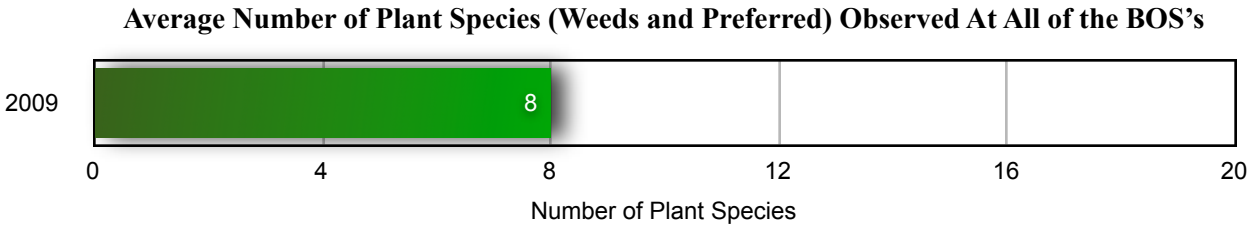
fishery. Water quality conditions should be maintained or altered to favor the greatest degree of phytoplankton species diversity and if possible, restrict the production of harmful, blue green algae blooms.

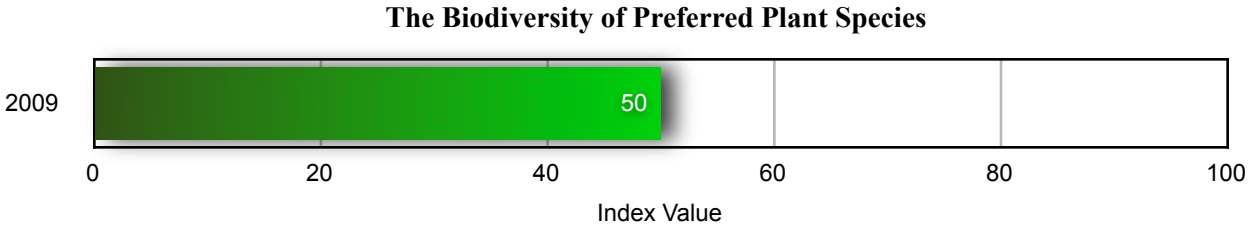
Other Management Considerations

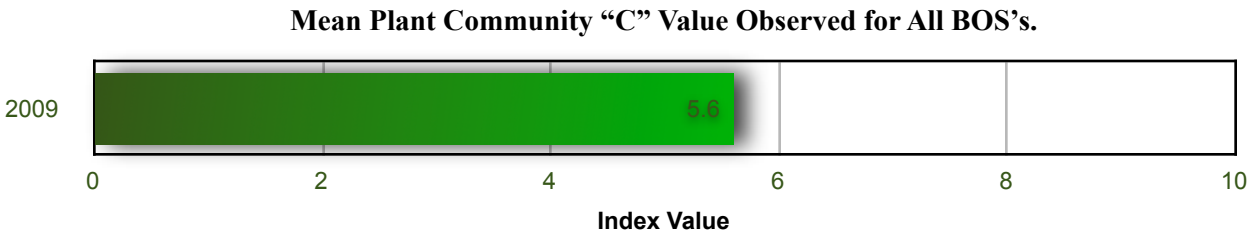
The Lake Ogemaw fishery is an important resource for Lake Ogemaw residents. The vegetation and water quality management programs are intended to benefit all forms of recreation including fisheries production and angling opportunities by improving the quality of the flora and mitigating against conditions that may lead to the proliferation of blue green algae. The uncontrolled spread of starry stonewort will drastically reduce the utility of spawning areas and may result in the loss of fishery productivity. This plant must be monitored closely and the fisheries protection program should be continued. Swimming and boating represent other key resource uses. The primary goal of the Lake Ogemaw Management Plan is consistent with the maintenance of conditions that will enhance opportunities for the pursuit of these recreational activities.

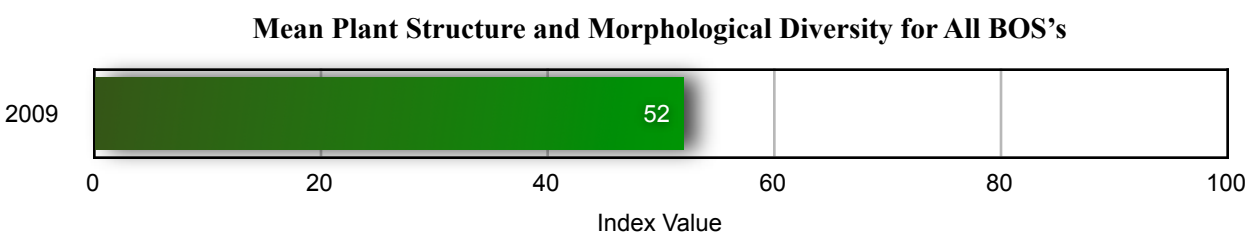
Table 1. A graphic overview of key plant community indices, 2009.

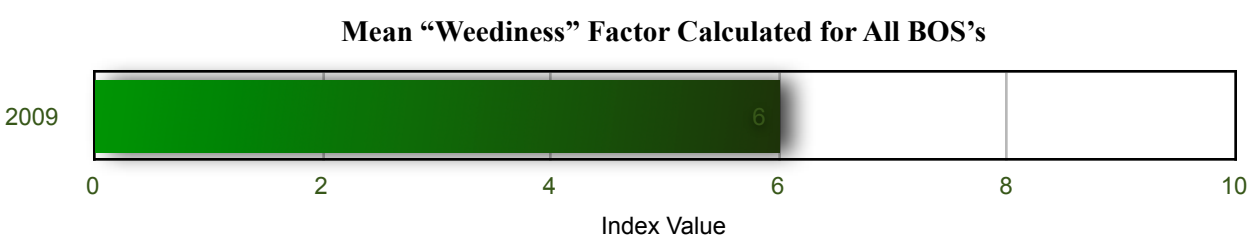












Summary Management Opinion

Part 1: Observations and Primary Considerations

- Lake Ogemaw is very plant productive compared to most other inland Michigan lakes,. Most of the major indices generated from observations made in 2009 are considered to be good to excellent. Lake Ogemaw supports a far greater number of plant species than most lakes. Species richness is excellent. Biodiversity indices are also very good relative to most other lakes. The distribution and density patterns of plants in Lake Ogemaw are considered to be very good. However, milfoil, wild celery, and curly leaf pondweed are very weedy in Lake Ogemaw. Consequently the weed index for the lake is higher than other lakes. These species require most of the management effort but other species also require some management in discrete areas of the lake. Starry stonewort and an emerging type of broad leaf pondweed are likely to require more effort in the future to suppress nuisance populations in the shallow areas of the lake.
- Despite the emergence of herbicide tolerant milfoil genotypes in many lakes throughout Michigan, efforts to suppress milfoil in Lake Ogemaw have been remarkably successful. The early season treatment of milfoil growing off-shore provided temporary but acceptable relief in 2007 but provided relief for the entire growing season in 2008. The total area covered by milfoil in 2009 was very high but not the highest on record. It is, however relatively easy to control in Lake Ogemaw and it is not expected to be a serious nuisance in the lake in 2010 except in the very early summer. The degree to which it may be a nuisance will be in part dictated by the severity of the winter. A severe winter can drastically reduce nuisance production of milfoil.
- The area covered by starry stonewort (as total BOS where present) declined sharply from the levels observed in 2007 as a result of the herbicide combinations used to control wild celery. This may be repeated in 2010 and starry stonewort may not become a great nuisance in the lake.
- Wild celery production continues to be the greatest plant nuisance in Lake Ogemaw because it is so difficult to control. Celery covered nearly the entire bottom of the lake; however, control efforts in 2009 were better than the results obtained in previous years and better than control obtained in other Michigan Lakes. Greater attention shall be given to those strategies that provided better control in 2009. Clear water conditions will also help to discourage celery from growing as a nuisance near the wwater surface.
- A new exotic species known as either Java or Taiwanese Moss was identified in the lake in 2009. It is very common throughout the lake, but may not be a nuisance. Effort to control this plant on another lake were very successful and cost effective.
- Total planktonic primary production appears to be adequate to support a moderately productive fishery. There is an abundance of suitable spawning habitat to support a vibrant warm water fishery; however, the total spawning area is expected to decline sharply as starry stonewort spreads in the lake.
- Lake Ogemaw is considered to be susceptible to blue green algae blooms. Recent studies and anecdotal evidence indicate that the domination of plankton communities by blue green algae may be a result of filter feeding zebra mussel.

Part 2. Management Recommendations

Milfoil is expected to return to extreme nuisance levels in Lake Ogemaw in 2010. The milfoil in Lake Ogemaw is probably a milfoil hybrid. It was discovered in 80% of all observation sites in 2009; however it was not a nuisance in every place it was observed. Advances in milfoil management should result in even better control in 2010; however two treatments may be necessary.

Starry stonewort appears to be particularly sensitive to one of the herbicides that are used to control celery. Consequently, starry stonewort has not developed into the nuisance that it has become in numerous other lakes. The impact of starry stonewort on the fishery cannot be underestimated. Consequently, it must be monitored closely.

Wild Celery is an extreme nuisance in Lake Ogemaw. The adoption of a new treatment strategy expected to yield better results.

Several preferred species exhibited a potential to grow at nuisance levels in 2009. Pondweeds may become a nuisance near boat docks where they can be managed with herbicides.

Curly leaf pondweed, another exotic, opportunistic, invasive weed was not observed at nuisance levels in Lake Ogemaw in 2009, but is expected to grow to nuisance levels in the coming years. Aggressive management effort is strongly recommended if this plant becomes significant nuisance in Lake Ogemaw. Some benthic algae (filamentous algae or chara) management may be required in 2010.

- Plant community monitoring must be continued in 2009 to monitor trends in ecosystem development. Most of the preferred species that dominated the lake in the late summer of 2009 are not expected to grow to extreme nuisance levels; however, a permit application for nuisance weed control should be submitted to the Michigan DEQ in case discrete treatment is required in areas of the lake.
- No opportunistic, nonnative, problem fish species were detected in the lake in 2009.

LakeScan Methods: Bio Observbation Sites (BOS)

Aquatic vegetation grows in three distinct zones or Tiers in Lake Ogemaw that roughly correspond with increasing depth or proximity to the shoreline. Vegetation community observation sites were established in all three zones and are numbered to facilitate various analyses of plant community data by tier. The bioassessment sites (BOS) are depicted on Figure 1. By convention, the near shore BOS are considered collectively as part of the tier 3 zoneThe tier 4 zone is characterized by deeper water and is generally more plant productive than the near-shore tier 1 BOS. The Tier 4 observation sites are those observations sites that are adjacent to islands. Tier 5 observation sites are offshore.

Figure 1.1 Aquatic Vegetation Observations Sites (BOS) used to evaluate plant community matrices in Lake Ogemaw, Ogemaw County, MI.

Table 1.1 The total number of BOSs assigned to each tier in Figure 1.1.

TIER	BOS TOTALS
Tier 3	254
Tier 4	74
Tier 5	22

Plant Community Biodiversity

4.1 Total Macrophyte Species or Species Richness

Total % Vegetation Cover of Aquatic Vegetation Observation Sites:

The maximum area covered by any single plant species in a given year is used to create a map of conditions that represent submersed plant growth for the entire year. All of the BOS's in all of the tiers supported plant growth in 2009 (100%). Milfoil and wild celery occupied fewer of the BOSs in 2009 than in prior years. This is the result of more effective treatment. The percent cover of most species varies tremendously from year to year. Preferred species cover was observed to be within acceptable limits.

Table 4.1.1. A list of plant species and plant species groups observed in Lake Ogemaw.

PLANT NAME, CODES, AND SELECTED ATTRIBUTES							
	CODE #	SHORT NAME	COMMON NAME	SCIENTIFIC NAME	"C" VALUE	"i" VALUE	MORPHOTYPE
1	1	EWM	Eurasian Watermilfoil	*Myriophyllum spicatum L*	3	9	feathery
2	4	GWM	Green/Variable Watermilfo	*Myriophyllum verticillatum L. or M*	7	6	feathery
3	12	WWCF	White Water Crowsfoot	*Ranunculus sp.*	8	4	feathery
4	15	BLAD	Common Bladderwort	*Utricularia vulgaris L.*	7	4	feathery
5	17	MiniB	Mini-Bladderwort	*Utricularia sp.*	9	4	feathery
6	20	CNTL	Coontail	*Ceratophyllum sp.*	3	7	bushy
7	27	ELD	Elodea	*Elodea sp.*	3	6	bushy
8	35	NAID	Naiad	*Najas sp.*	4	7	bushy
9	40	CHARA	Chara	*Chara sp.*	6	3	bushy
10	42	Nitella	Nitella	*Nitella sp.*	6	3	bushy
11	43	NitT	Tufted Nitella	*Nitella sp.*	6	3	bushy
12	45	StSt	Starry Stonewort	*Nitellopsis obtusa (Desv.) J.Groves*	3	9	bushy
13	46	Moss	Water Moss	*Drepanocladus sp. or Fontinalis sp*	6	5	bushy
14	50	CLP	Curly Leaf Pondweed	*Potamogeton crispus L.*	2	9	narrow leafy
15	51	FSP	Flat Stem Pondweed	*Potamogeton zosteriformis Fern.*	6	5	narrow leafy
16	52	WSG	Water Star Grass	*Zosterella dubia (Jacq.) Small*	6	5	narrow leafy
17	54	ROB	Robbins Pondweed	*Potamogeton robbinsii Oakes*	8	2	narrow leafy
18	57	WSP	White Stem Pondweed	*Potamogeton praelongus Wulfen*	8	5	broad leafy
19	59	AMER	American Pondweed	*Potamogeton nodosus Poiret*	7	5	broad leafy
20	60	MLF	Medium Leaf Pondweed	*Potamogeton alpinus Balb.*	8	2	broad leafy
21	61	VP	Variable Pondweed	*Potamogeton graminius L.*	7	5	broad leafy
22	62	ILP	Illinois Pondweed	*Potamogetion illinoensis Morong*	6	5	broad leafy
23	63	BLP	Broadleaf Pondweed	*Potamogeton amplifolius Tuckerma*	7	5	broad leafy
24	65	WBLP	Weedy Broad Leaf Pondwe	*Potamogeton amplifolius Hybrid*	4	6	broad leafy
25	67	FLP	Floating Leaf Pondweed	*Potamogeton sp.*	7	6	floating leaf pondw
26	70	Stuk	Sago Pondweed	*Stuckenia sp.*	3	6	stringy
27	71	TLP	Thin Leaf Pondweed	Thin Leaf Pondweed (7)	5	5	stringy
28	72	ZAN	Horned Pondweed	Horned Pondweed	7	5	stringy
29	80	VAL	Wild Celery	Wild Celery	3	7	grassy
30	100	WL	Waterlily	Waterlily (2)	6	5	floating leaf
31	101	SPAD	Spadderdock	Spadderdock (3)	6	5	floating leaf
32	102	WSh	Water Shield	Water Shield	7	5	floating leaf
33	108	SMTW	Smartweed	Smartweed (2)	5	4	floating leaf
34	122	SPIR	Giant Duckweed	Giant Duckweed (2)	5	6	floating

Plant Species Occurrence

Table 2 is a listing of plants that were observed in the lake during the survey dates listed in the headings. The % of the total BOS where the plants were observed is listed. This percentage value is sometimes referred to as the percent occurrence for each species. This measurement can also used for analysis of point intercept data and transected data sampled by a wide variety of means and methods. It is rare that the total number of species, in a given year, in a Michigan Lake, is greater

Table 4.1.2. The percentage of total BOS inhabited by individual and grouped lant species observed in Lake Ogemaw.

SPECIES OCCURRENCE				
Species Short Name	Percent of BOS's Where Species Was Observed			
	2006	2007	2008	2009
EWM	85%	95%	78%	80%
GWM		31%	1%	3%
WWCF		1%	17%	
BLAD	91%	39%	9%	31%
MiniB	18%	4%	7%	0%
CNTL	1%		2%	0%
ELD	2%		1%	2%
NAID		41%	60%	56%
CHARA	75%	47%	74%	87%
Nitella	11%			
NitT	28%			
StSt		74%	10%	3%
Moss		29%	79%	66%
CLP	33%	23%	7%	1%
FSP	1%	4%	3%	3%
WSG	1%		3%	2%
ROB	0%			
WSP	71%	51%	62%	13%
AMER	10%		2%	13%
MLF				3%
VP	0%	3%	67%	44%
ILP	0%	73%	14%	64%
BLP		35%		
WBLP	0%	11%	23%	30%
FLP	0%			
Stuk		78%	57%	24%
TLP			2%	2%
ZAN			1%	
VAL	0%	76%	79%	70%
WL			44%	41%
SPAD			22%	25%
WSh			4%	5%
SMTW			6%	4%
SPIR			2%	

Plant Community Biodiversity

4.2 Total Macrophyte Species or Species Richness

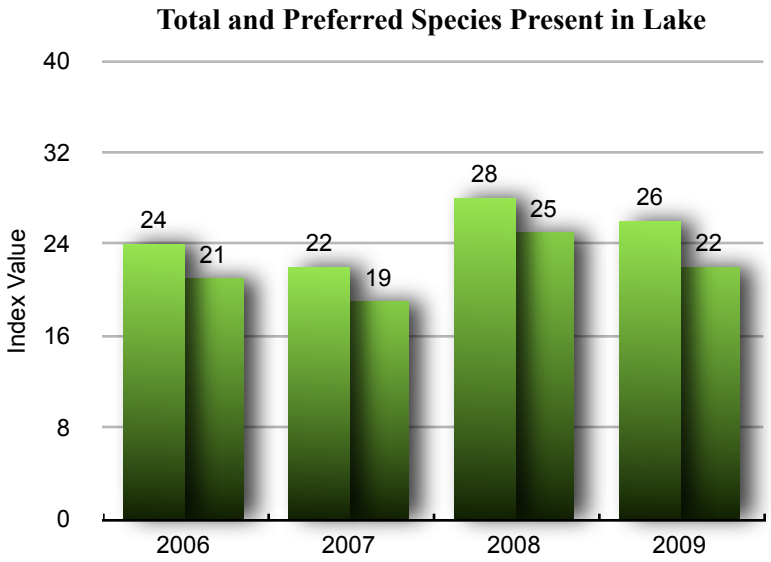


Figure 4.2.1 The species richness (total number of species) in Lake Ogemaw.

Plant Species Richness

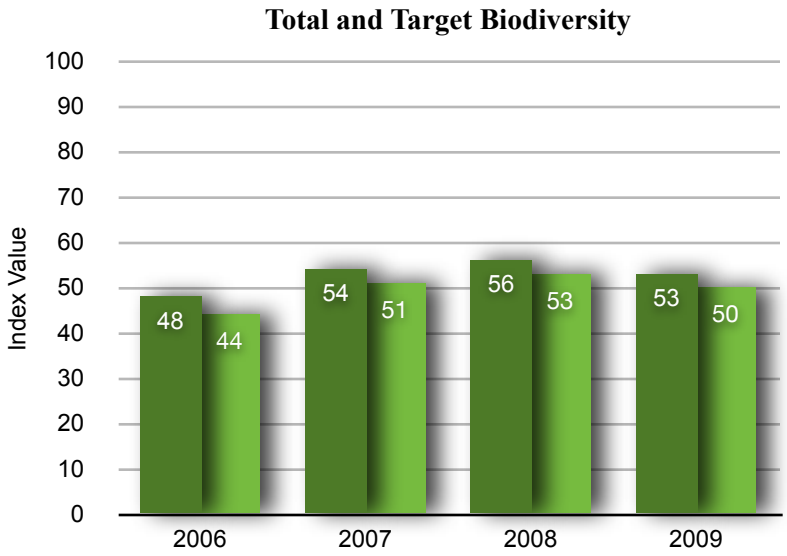
The total number of plant species present in a lake is an important measurement when considered within the context of biodiversity estimates. The number of species may be high in a given lake but if this does not correspond with high biodiversity, it would indicate that there a species that are present, but at very low levels. Rarely are more than 20 macrophyte species found during a single survey event and it is rare that the total number of species found in an inland lakes is

Plant Species Richness (Total Species Present):

Thirty-four submersed, floating leaved, or floating aquatic plant species have been observed in Lake Ogemaw since monitoring was begun. Twenty-six species were found in Lake Ogemaw in 2009 which is only slightly less than 2008. Those species that were not present in 2009 were merely not observed because of the timing of the surveys. Other species were observed; however, because of the adjustment in the survey timing. The total number of species value is considered to be incredibly high for a lake in the Michigan lower peninsula. The plant community appears to be very dynamic and species seem to change in area cover and typology each year.

Plant Community Biodiversity

4.3 Total and Preferred Macrophyte Species Biodiversity



Biodiversity Indices:

Biodiversity is a measure of the number of species present and the total number of BOSs where the species are observed. This index is based on a widely accepted biodiversity index from the late 1950's. The higher the biodiversity value, the better. The lighter shaded bars represent the biodiversity calculated for desired species only where the invasive or weedy species have been excluded from the calculations.

Figure 4.3.1 Total biodiversity and preferred species biodiversity (sans milfoil, starry stonewort, wild celery, and curly leaf pondweed in dark black).

Plant Community Biodiversity:

The relative biodiversity of Lake Ogemaw has been very high during the entire evaluation period. (Figure 4.3.1.). Starry stonewort was expected to spread in Lake Ogemaw and result in a loss of species; however, celery control operations appear to have prevented the spread of starry stonewort in 2009. Starry stonewort must be carefully watched in Lake Ogemaw.

Plant Community Quality

4.4 "C" Value

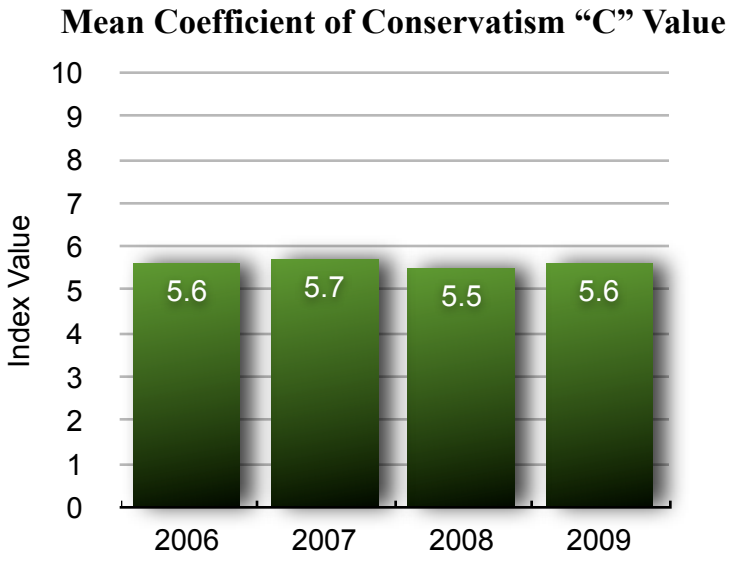


Figure 4.4.1. Lake Ogemaw macroflora mean annual "c" values.

"C" Values:

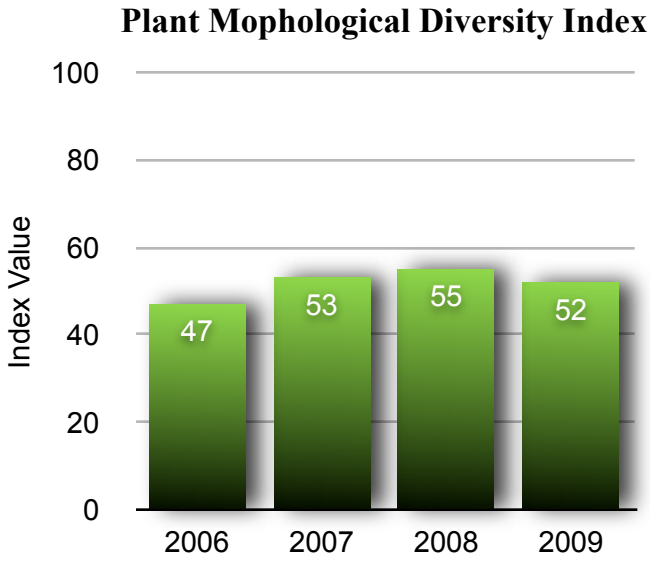
Submersed plant communities that are dominated by conservative, rather than opportunistic species are generally considered to be more desirable by persons who use lakes for a variety of purposes. Lakes that are dominated by opportunistic species are generally considered to be "too weedy". A "c" value (coefficient of conservatism), ranging from 1 to 10, is assigned to each species to describe how likely a plant is to be found in either disturbed or conservative (stable) ecosystems. Opportunistic plants, that are more tolerant of cultural disturbance are usually considered to be the worst weeds and are assigned lower "c" values. Plant species found in stable, less disturbed lakes are not usually considered to be "weedy" and are assigned higher values. The mean "c" value can be used to roughly estimate the quality of the lake flora.

Plant Community Quality:

The quality of the plant community, considered in terms of "c" value, is considered to be excellent, relative to other lakes in the region. Higher "c" values suggest that the Lake Ogemaw ecosystem is also more stable than other regional lakes. The mean "c" value in Lake Ogemaw could decline if the spread of starry stonewort is not prevented. Weedy broadleaf pondweed has been assigned a high "C" value that may not be merited. This plant will be closely monitored in 2010 and adjustments shall be made in the analysis if warranted.

Plant Community Quality

4.5 Vegetation Morphological Complexity



Foliar Complexity

The variety of leaf type and morphometry of the plant plant species found in the plant community can also be used as a measure of plant community quality. Studies have shown that fisheries production and quality is greater where plant communities are considered diverse in terms of leaf type and plant morphology. The Foliar Complexity value is just like the biodiversity index except that it is based on how many differnt leaf types are present rather than how many different species are present.

Figure 4.5.1. Submersed macrophyte community leaf complexity or morphotype is presented

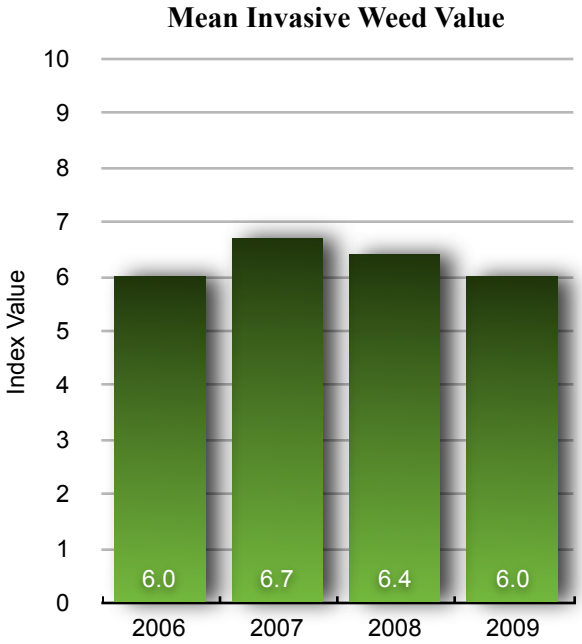
Foliar Complexity

The variety of vegetation leaf type and complexity appears to be excellent in Lake Ogemaw. This index has only recently been generated and it is difficult to compare the value to other lakes; however, the values presented for Lake Ogemaw are much higher than other lakes.

		YEAR			
LEAF TYPE	leaf value	2006	2007	2008	2009
feathery	1 - 3	47%	19%	16%	20%
bushy	4 - 9	23%	23%	32%	36%
narrow leaf	10	10%	4%	2%	2%
large leaf	11 - 14	20%	24%	23%	20%
sub & floating leaf	15	0%	0%	0%	0%
stringy leaf	16	0%	11%	8%	5%
grassy leaf	17 - 20	0%	11%	11%	11%
floating leaf	21 - 23	0%	8%	8%	7%
free floating	24 - 26	0%	0%	0%	0%
mean value		0%	0%	0%	0%

Plant Community Quality

4.6 Weediness Index



Weed Index

A weed is a plant that is out of place. A weed index has been developed and is based upon what is known about each individual species and how likely that plant is to become a nuisance. The probability that it will be a nuisance in a given lake is based upon the density of the plant and the type of distribution. Even Eurasian watermilfoil is not a nuisance when it is found to be rare in a given lake. The Weediness index uses density information and an understanding of how aggressive or invasive a plant species might be to generate an index that estimates how much effort might be needed to mitigate against weedy or nuisance conditions. Lower numbers are good - higher numbers mean that more management effort will be required to maintain good conditions.

Weediness Index

The weediness or mean invasive weed value is higher in lake Ogemaw than most lakes that have been subjected to this analysis. As a consequence, greater effort and more cost will be required to maintain acceptable conditions in Lake Ogemaw, relative to similar Michigan Lakes.

Plant Community Quality

4.7 Distribution and Density

Plant Distribution and Density:

The quality of the plant community can also be considered from the perspective of density and distribution. Density and Distribution are subjective values that are used to describe how much vegetation is observed per unit area and how it distributed within the BOS. These data are used in the computation of the relative "weediness in a lake". Field data are evaluated as follows:

Density Values

Density "a" Rare: The plant species has been observed; however, it is unlikely that the plant could be found again if the observer were to return to the observation site.

Density "b" Present: This designation is an artifact from methods used in the early 1990's and should not be used. It is listed here; however, because the term is still used by the MI DEQ. The "b" value is used instead of the "c-" value that is used in the field. This value is used to describe plants that could be found if the observer were to return the observation site, but the plant is not common or dominant in the observation zone.

Density "c" Common: This term is used to describe plant species that are common throughout the observation site.

Density "d" Dense: This term is used to describe the production of a species or perhaps several species that totally dominate the observation site where they form dense low-growing meadows or impenetrable surface mats of vegetation.

Distribution Values

Distribution "s" Scattered: The plant is observed to be randomly scattered around the observation site, usually as a single plant or small clump of plants comprised of several stems.

Distribution "sp" Scattered Patches: The plant is observed as clumps of several plants scattered around the observation site.

Distribution "p" Patchy: The plant is observed to cover large patches or areas within the observation site; however, the plant does not cover more than 50% of the total area.

Distribution "cp" Contiguous Patches: This term is used to describe plant growth that is usually dense and where places that are not occupied by the described species appear to be patches within the mass of vegetation produced by the described species.

AQUEST TIP:

Rationale for Managing Aquatic Vegetation

The need to manage aquatic vegetation arises when vegetation cover and biomass become sufficiently high to disrupt the natural balance of a lake and interfere with recreation. This type of growth is often referred to as nuisance or invasive. Excessive growth of aquatic plants interferes with nearly all forms of recreation and causes many biological problems. Dense plant growth at the water surface impedes exchange of gases between the air and water, thereby contributing to nighttime dissolved oxygen depletion and large daily pH fluctuations, conditions which are detrimental to fish and other aquatic life. Production of desirable sport fish (e.g., largemouth BOSs) is maximized at intermediate levels of plant cover and biomass. Excessive plant cover makes it difficult for larger fish to capture smaller food fish, which can lead to reduced production of larger piscivorous fish and to stunted populations of small forage fish.

Invasive exotic aquatic plants (i.e., plants that do not naturally occur in the same geographical area) often produce particularly severe problems. Exotic species, such as Eurasian watermilfoil (*Myriophyllum spicatum* L.) and curly leaf pondweed (*Potamogeton crispus* L.), expand rapidly to supplant native vegetation and form dense monospecific beds. Compared with most native aquatic plants, these exotic species concentrate their stems and leaves at the water surface. Thus they interfere with recreation to a much greater degree than comparable quantities of native plants. Not all lakes are equally likely to be severely affected by invasive exotic plants. Generally lakes that are characterized by highly developed shorelines and lakes that are subjected to intense recreational use are most susceptible to invasive species problems.

At moderate density levels, aquatic plants provide important benefits to the lake, including sediment stabilization, invertebrate habitat and cover for small fish. Thus, management of problem aquatic plant growth should be carried in such a way as to preserve desirable aquatic vegetation or preferred plant species. Most preferred species are characteristic of stable, undisturbed ecosystems and are not usually considered to be nuisances. Effective aquatic plant management can preserve beneficial aquatic vegetation in a number of ways. Selective techniques control problem species with minimal effect on desirable ones. Desirable vegetation can also be preserved by limiting the application of control techniques to areas where they are needed. In general, some areas in every lake should be set aside for little or no management in order to preserve species that are sensitive even to selective controls.

AQUEST TIP:

Blue Green Algae Concerns

Blue green algae are becoming an important issue for many riparian property owners. Recent studies have revealed disturbing findings regarding the toxicology of substances made and released into the water by these nuisance algae. These substances can seriously threaten the public health and poison pets and wildlife. Studies are in progress related to the potential risks that the lake users may encounter when exposed to blue green algae blooms. Riparian property owners are urged to not panic, but take some precautions. Until these studies are completed, it is recommended that persons not swim in waters where blue green algae blooms are evident. These conditions would include blooms where it appears that green latex paint has been spilled on the water, or that the water in enclosed bays is covered by an oil slick. Blue green algae blooms are usually temporal events and may disappear as rapidly as they appear. Riparian property owners should learn to recognize blooms and act accordingly.

AQUEST TIP:

Water Quality Protection

Nuisance algae blooms and suspended sediment problems can be abated by “slowing the flow” of water off of the landscape. When runoff is channeled through dense vegetation or structure, such as rocks or cobbles, sediments can settle out and phosphorus (an algae growth stimulant) can be extracted from the runoff water before it reaches the lake where it can degrade water quality. It is also a good idea to limit or ban the use of phosphorus containing fertilizers in areas that drain into lakes.