

High Vegetation Areas

Five areas had higher than average frequencies and densities of vegetation. These areas were largely protected from the heavy wave action that occurs on the main basin. They have more gently sloping littoral zones and lower density substrates. Moon Bay, State Park Bay and O’Neil Creek Bay increased in vegetation over the three years. Little Lake and Pine Harbor decreased in vegetation over the three years. These trends held true regardless of whether zone four was included in the analysis (Figure 12).

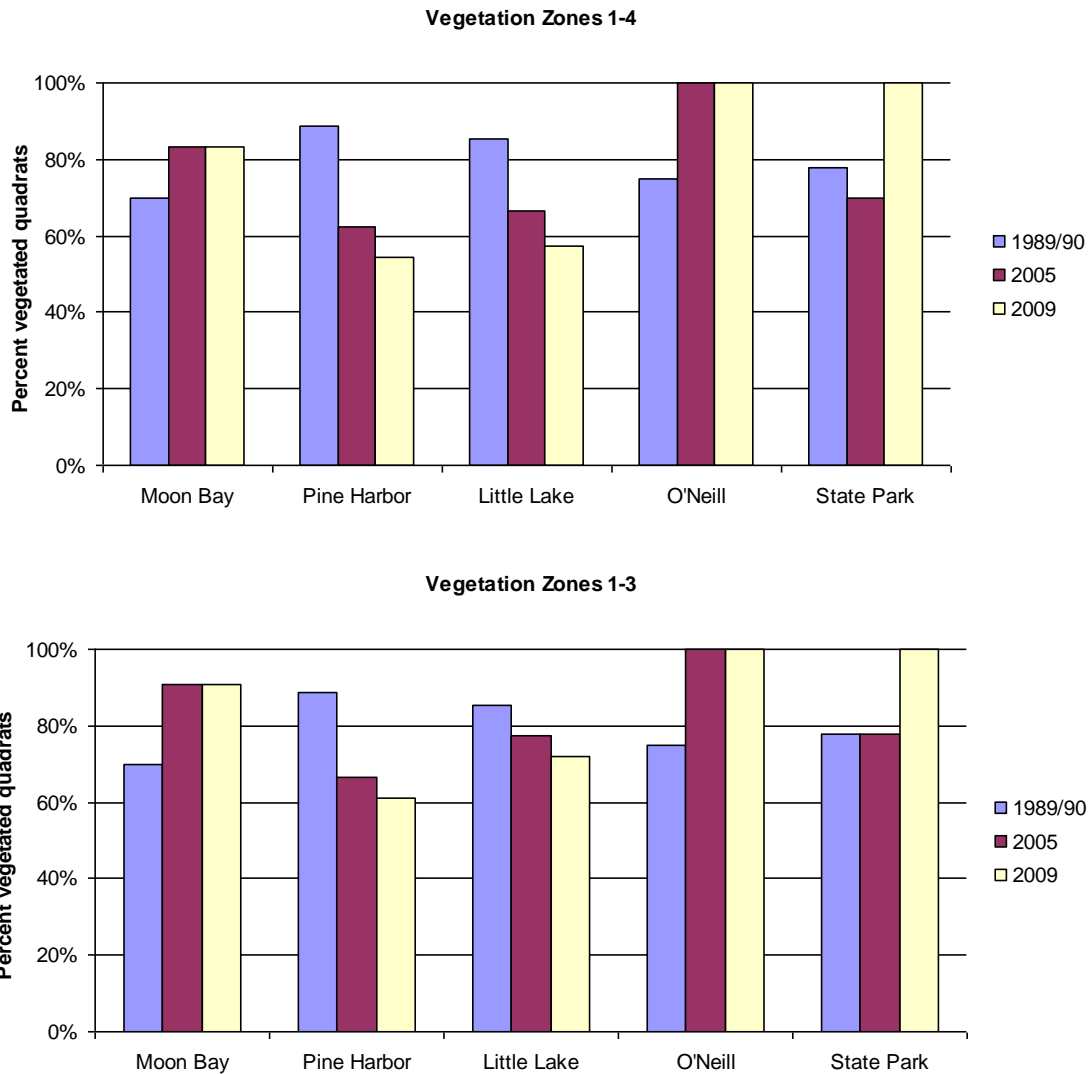


Figure 12. Percent of quadrats vegetated in areas with high frequency and density of aquatic plants.

Little Lake Wissota (transects 39-63) is located south of the main basin. It is fed from Paint Creek, Stillson Creek and Fredrick Creek. Quadrats with vegetation decreased over the three studies (Figure 11). The number of emergent and floating leaf plants decreased while the number of submergent plants increased (Table 7). *Potamogeton amplifolius*, a plant sensitive to drawdowns, was found only in 2009. Little Lake Wissota has several small patches of *Myriophyllum spicatum*; two occur south of the Stillson Creek bridge, one occurs along Highway X next to The View restaurant and one occurs near the lake Wissota Marina.

Table 7. Number of plants by classification present in Little Lake Wissota.

P = present.

	1989/90	2005	2009
<i>Eleocharis acicularis</i>		P	
<i>Pontederia cordata</i>		P	
<i>Sagittaria latifolia</i>	P		
<i>Typha latifolia</i>	P	P	
Emergent	2	3	0
<i>Ceratophyllum demersum</i>	P	P	P
<i>Elatine minima</i>	P	P	
<i>Elodea canadensis</i>	P	P	P
<i>Myriophyllum spicatum</i>			P
<i>Najas flexilis</i>	P	P	P
<i>Nitella sp.</i>		P	P
<i>Potamogeton amplifolius</i>			P
<i>Potamogeton epihydrus</i>	P		P
<i>Potamogeton nodosus</i>	P	P	P
<i>Potamogeton pusillus</i>	P	P	P
<i>Potamogeton richardsonii</i>	P	P	P
<i>Potamogeton spirillus</i>		P	P
<i>Potamogeton vaseyi</i>		P	
<i>Potamogeton zosteriformis</i>	P		
<i>Vallisneria americana</i>	P	P	P
<i>Zosterella dubia</i>	P	P	P
Submergent	11	12	13
<i>Lemna minor</i>	P	P	P
<i>Nuphar variegatum</i>	P	P	
<i>Nymphaea odorata</i>	P	P	P
<i>Spirodela polyrhiza</i>	P	P	
Floating-leaf	4	4	2

O'Neil Creek Bay (transects 97-100) is located on the western side of the Chippewa River. It is fed from O'Neil Creek and Jim Creek. Quadrats with vegetation increased to 100% in 2005 and 2009 (Figure 11). The number of submergent plants decreased and the number of floating-leaf plants increased (Table 8).

Table 8. Number of plants by classification present in O'Neil Creek Bay.
P = present.

	1989/90	2005	2009
<i>Leersia oryzoides</i>		P	
<i>Sagittaria latifolia</i>	P		
<i>Sagittaria rigida</i>	P	P	P
<i>Scirpus validus</i>	P		
<i>Sparganium sp.</i>	P		P
<i>Typha latifolia</i>	P		
<i>Zizania sp.</i>			P
Emergents	5	2	3
<i>Ceratophyllum demersum</i>	P	P	P
<i>Elodea canadensis</i>	P	P	P
<i>Najas flexilis</i>	P		
<i>Nitella sp.</i>		P	
<i>Potamogeton crispus</i>	P	P	P
<i>Potamogeton epihydrus</i>	P		
<i>Potamogeton nodosus</i>	P	P	P
<i>Potamogeton pusillus</i>	P	P	P
<i>Potamogeton richardsonii</i>	P	P	P
<i>Potamogeton zosteriformis</i>	P		P
<i>Vallisneria americana</i>	P	P	P
<i>Zosterella dubia</i>	P	P	P
Submergents	11	9	9
<i>Lemna minor</i>	P	P	P
<i>Nuphar variegatum</i>		P	P
<i>Nymphaea odorata</i>	P	P	P
<i>Spirodela polyrhiza</i>		P	P
<i>Wolffia</i>		P	P
Floating-Leaf	2	5	5

State Park Bay (transects 150-152) is a shallow (7ft) bay that houses the Lake Wissota State Park boat landing. Quadrats containing vegetation increased to 100% in 2009 (Figure 11). The number of emergent plants has decreased since 1989/90 (Table 9).

**Table 9. Number of plants by classification present in State Park Bay.
P = present.**

	1989/90	2005	2009
<i>Acorus calamus</i>	P		
<i>Carex crinita</i>	P		
<i>Eleocharis palustris</i>	P		
<i>Leersia oryzoides</i>	P		P
<i>Potentilla palustris</i>	P		
<i>Sagittaria latifolia</i>	P	P	
<i>Scirpus atrovirens</i>	P		
<i>Scirpus validus</i>	P	P	P
<i>Sparganium sp.</i>	P		P
<i>Typha latifolia</i>			P
Emergents	9	2	4
<i>Ceratophyllum demersum</i>	P	P	P
<i>Elodea canadensis</i>	P	P	P
<i>Myriophyllum spicatum</i>		P	
<i>Najas flexilis</i>		P	
<i>Nitella sp.</i>	P		P
<i>Potamogeton crispus</i>	P		P
<i>Potamogeton epihydrus</i>		P	P
<i>Potamogeton nodosus</i>	P	P	P
<i>Potamogeton pusillus</i>	P		P
<i>Potamogeton richardsonii</i>	P		P
<i>Potamogeton zosteriformis</i>	P	P	P
<i>Vallisneria americana</i>	P	P	P
<i>Zosterella dubia</i>	P	P	
Submergents	10	9	10
<i>Lemna minor</i>	P	P	P
<i>Nymphaea odorata</i>	P	P	P
<i>Spirodela polyrhiza</i>	P	P	P
Floating-Leaf	3	3	3

Moon Bay (transect 1-4) occurs at the mouth of the Yellow River. It is a shallow bay that contains thick stands of vegetation. Sampling points with vegetation increased in 2005 and remained unchanged in 2009 (Figure 11). The number of floating-leaf species increased in 2005 and 2009 (Table 10).

Table 10. Number of plants by classification present in Moon Bay.
P = present.

	1989	2005	2009
<i>Ceratophyllum demersum</i>	P	P	P
<i>Elodea canadensis</i>	P	P	P
<i>Myriophyllum spicatum</i>		P	P
<i>Potamogeton crispus</i>	P	P	P
<i>Potamogeton nodosus</i>	P	P	
<i>Potamogeton richardsonii</i>	P		P
<i>Potamogeton spirillus</i>		P	
<i>Potamogeton zosteriformis</i>	P		P
<i>Vallisneria americana</i>	P	P	P
<i>Zosterella dubia</i>	P	P	P
Submergents	8	8	8
<i>Lemna minor</i>		P	P
<i>Lemna trisulca</i>			P
<i>Nuphar variegatum</i>		P	P
<i>Nymphaea odorata</i>	P	P	P
<i>Spirodela polyrhiza</i>		P	
Floating-Leaf	1	4	4

Pine Harbor (transects 16-21) is located along the northeastern shoreline of the main basin. Two narrow shallow channels allow access to the harbor. The number of sampling points with vegetation decreased over the three years (Figure 11). The number of submergent plants increased in 2009 (Table 11). The harbor side of the island separating the two channels has a dense stand of vegetation although there are no transects extending from it so changes in this area are not assessed.

Table 11. Number of plants by classification present in Pine Harbor.
P = present.

	1989/90	2005	2009
<i>Typha latifolia</i>		P	
Emergents	0	1	0
<i>Ceratophyllum demersum</i>	P		P
<i>Elodea canadensis</i>	P	P	P
<i>Myriophyllum spicatum</i>			
<i>Najas flexilis</i>	P	P	P
<i>Nitella sp.</i>		P	P
<i>Potamogeton crispus</i>			P
<i>Potamogeton nodosus</i>	P		
<i>Potamogeton pusillus</i>	P		P
<i>Potamogeton richardsonii</i>	P	P	P
<i>Potamogeton spirillus</i>		P	
<i>Vallisneria americana</i>	P	P	P
<i>Zosterella dubia</i>	P	P	P
Submergents	8	7	10
<i>Nuphar variegatum</i>	P		
<i>Nymphaea odorata</i>	P	P	P
Floating-Leaf	2	1	1

Other Areas of Interest

There are a number of smaller dense stands of vegetation around the lake.

There is a shallow sandbar on the main basin side of the inlet from the Yellow River that contains dense patches of vegetation (transects 15-16). This area has patches of *Myriophyllum spicatum* that extend >150 meters out from the shore. This area is a common fishing area. The distance from shore that *M. spicatum* is found combined with the high boat traffic around the point between the main basin and the Yellow River is cause for concern of the spread of the plant. The sandbar is surrounded by steep slopes which will contain the spread of the plant in this area. However the sandbar itself may become subject to dense growth and boat traffic traveling through the area may carry fragments of the plant to other areas of the lake.

There are many inlets and bays along the shoreline of the main basin that have stands of vegetation (transects 26-32, 75-84). The south-southeastern shore of the main basin has sandy substrates and is largely isolated from the majority of the wave action. These conditions have allowed stands of vegetation to colonize.

The Chippewa River has a number of shallows, bays and inlets with aquatic plants (transects 87, 90, 91, 93, 94, 95, 96, 109, 111, 112, 113, 115, 126, 129, 132, 133).

There is a heavily vegetated shallow area upriver from Mallard resort (Transect 115). Two sensitive plants new to the 2009 study, *Ranunculus longirostris* and *Zizania sp.* were found in this area.

The channel connecting Moon Bay to the main basin has areas of plant growth (transects 8, 10, 12, 146, 147, 148, 149, 153, 154, 155, 156, 157)

The eastern shore of the Chippewa River (transect 116-131) and the northern shore of the main basin (transects 135-145) are largely devoid of vegetation. Steep rocky slopes and wave action combine to keep plants from colonizing these areas.