

# 6B DIAMOND LAKE VEGETATION SURVEY

## HISTORY

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Diamond Lake and the surrounding area were, in part, donated to the Minneapolis Park & Recreation Board (MPRB) in 1926 and 1936. At the time the land was incorporated into the park system, most of the area was covered by wetlands. Pearl Lake (now Pearl Park) and the Todd Park areas were filled for use as parkland and athletic fields.

In 1942 the Works Progress Administration (WPA) constructed an overflow for Diamond Lake. The outflow pipe carries water from the northeast shore of Diamond Lake to Minnehaha Creek. At the time the pipe was constructed, the high water level was 112.9 feet above city datum (July 1942). The Minneapolis City Council established the lake levels on May 29, 1942. The permanent elevation for the outlet invert was set at 110.3 feet and the "temporary" level set at 111.5 feet. On July 14, 1943, the plank weir at the outlet was set so that the water level would drop from the current 113.0 feet to 112.1 feet. In November of 1943, the lake level had dropped to 111.9 feet; the lake outlet apparently remained at this level.

The lake was undergoing 2 to 3 foot level fluctuations seasonally and in conjunction with precipitation cycles. In 1991, under DNR permit #91-6163, the MPRB was authorized to place a weir at an elevation of 822.5 feet (NGVD, 1929; 112.2 feet city datum) in the Diamond Lake overflow raising the water level 1.9 feet from the existing control elevation of 110.3 feet. The reason behind changing the historic level of Diamond Lake was that the MPRB wished to re-establish emergent aquatic macrophytes for the restoration of wildlife habitat.

## Assessment

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Diamond Lake is listed as one of the "protected waters" of the state and is classified as a Type 5 wetland according to the Minnesota Department of Natural Resources' (MDNR) Circular 39, "Wetland Types and Definitions". Type 5 wetlands are inland open water areas less than 10 feet deep fringed with emergent vegetation.

The MDNR's permit #91-6163 from 1991 carried with it provisions regarding the monitoring of the emergent aquatic vegetation in Diamond Lake to be completed every two years. Visual macrophyte surveys were conducted by the MPRB's Environmental Operations Section in July of 1994, 1996, 1998, and August of 2000, 2002, 2004, and 2006. Table 6B details which plant species were found and their approximate acreages for each year surveyed.

Figure 16C shows the approximate locations for the different types of vegetation found in Diamond Lake in August 2006. Not shown on the map or in the calculations is the presence of lesser duckweed (*Lemna minor*). *Lemna minor* was present over much of the water surface at the time of the survey along with areas of filamentous algae.

**Table 6C. Macrophyte survey results for Diamond Lake. 1996 data is not available.**

<b>Species</b>	<b>1994</b>	<b>1998</b>	<b>2000</b>	<b>2002</b>	<b>2004</b>	<b>2006</b>
White Water-Lily ( <i>Nymphaea odorata</i> )	16.2	19.7	15.6	9.6	5.1	7.9
Narrow-leaf Cattail ( <i>Typha angustifolia</i> )	5.6	2.6	3.6	0	6.7	0
Hybrid Cattail ( <i>Typha x glauca</i> )	0	0	0	8.7	0	9.2
Hardstem Bullrush ( <i>Scirpus acutus</i> )	0.3	0	0	0	0.04	0
Purple Loosestrife ( <i>Lythrum salicaria</i> )	0.1	0	0.04	0.1	0	+
Broad-leaf Arrowhead ( <i>Sagittaria latifolia</i> )	0.2	0	0	0	0	0
Coontail ( <i>Ceratophyllum demersum</i> )	0	0	0	0	0	1.6
Mixed Submerged Vegetation	26.2 †	35.4 †	18.1 ‡	37.1*	30.6*	12.9*
Mixed Emergent Vegetation					12.4	
Vegetation Absent	7.3	9.6	18.6	2.4	0.27	26.4
<b>Total Acreage Vegetated</b>	<b>48.6</b>	<b>57.7</b>	<b>37.3</b>	<b>55.5</b>	<b>54.8</b>	<b>31.6</b>
<b>Total Acreage of Emergents</b>	<b>22.3</b>	<b>22.3</b>	<b>19.2</b>	<b>18.4</b>	<b>24.2</b>	<b>17.1</b>
Total Lake Area	55.9	67.3	55.9	57.9	55.1	58.0
% of Acreage Vegetated by Emergents	40	33	34	32	44	29

+ One individual detected.

† The mixed submerged vegetation includes Elodea, Narrow-leaf Potamogeton, Coontail, Water Stargrass and Curly-leaf Pondweed.

‡ The mixed submerged vegetation includes Elodea, Coontail and Water Stargrass.

\* The mixed submerged vegetation includes Elodea, Coontail, Water Stargrass and Curly-leaf Pondweed.

\* The mixed submerged vegetation includes Elodea, Coontail, Narrow-leaf Potamogeton, and White Water-Lily

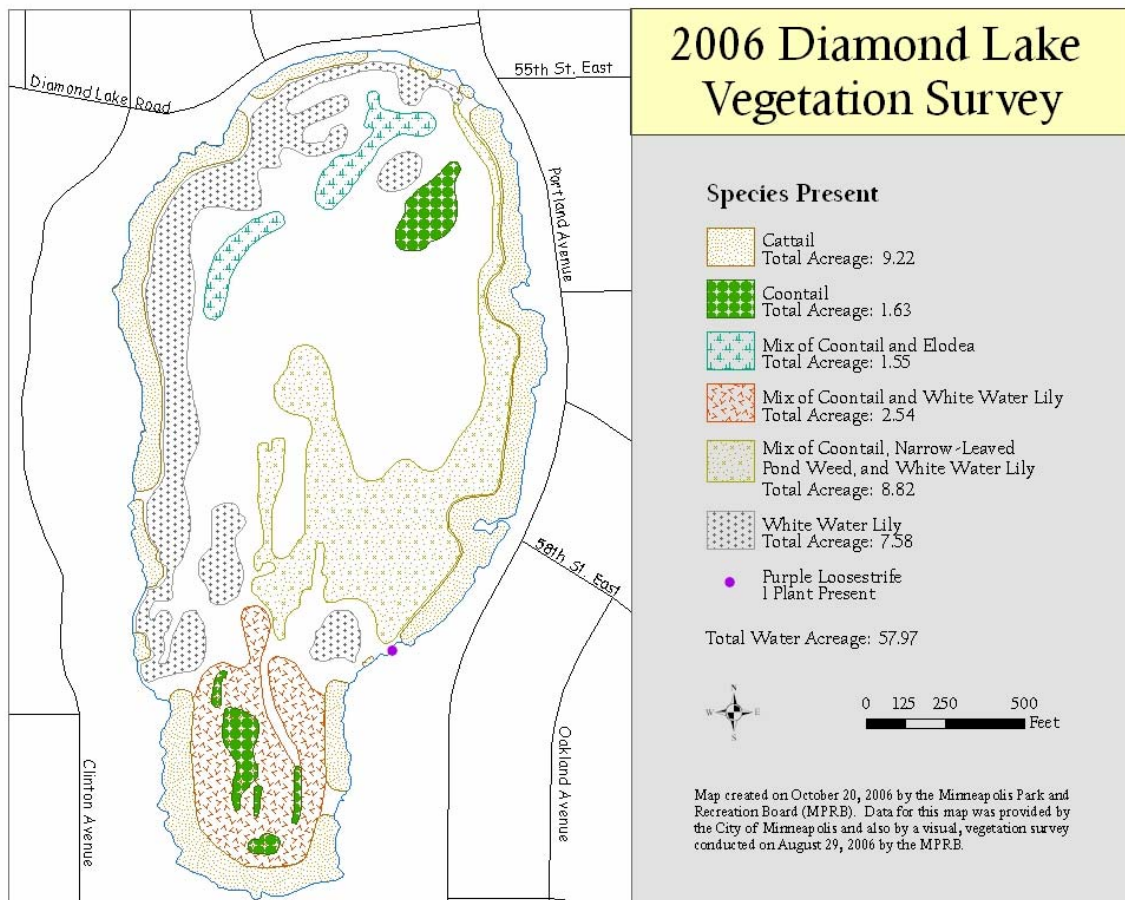


Figure 6E. 2006 Diamond Lake vegetation survey.

## DISCUSSION

Comparison between the given years is difficult. Different MPRB employees have completed the visual survey over the years and estimations of total lake area have varied by about 10 acres (55-65 acres). The species present have remained relatively constant (identification of the cattail species is questionable and the narrow leaf potamogeton in 1998 was probably *p. foliosus*) and the total acreage of emergent vegetation has been similar with the percent of emergent vegetation ranging from 29 to 44 percent. The mixed submergent vegetation was lower this year when compared to previous years and unvegetated open water area was the highest reported. White water lily acreage increased from 2004, but remains lower than most previous years. Cattail remained within the range of other surveys. Curly-Leaf Pondweed was found during a visual survey on July 28, 2004 but not during the 2006 survey. Only one Purple Loosestrife plant was found in 2006.