

## O'DOWD LAKE, SCOTT COUNTY: 2013 AQUATIC VEGETATION SURVEY

Inspection by the Scott Watershed Management Organization  
Scott County, MN

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**Lake:** O'Dowd (DOW# 70009500)

**Lake Surface Area:** 300 acres

**County:** Scott

**Dates of inspection:** August 28 & September  
11, 2013

**Secchi Depth:** 2.0 feet

**Survey Type:** Point-Intercept (97 points)

**Observer[s]:** M. Bokman (Scott County  
WMO)

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O'Dowd Lake  
Surveyed areas in  
orange

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**Summary:** An aquatic vegetation survey of O'Dowd Lake (70009500) was completed on September 11, 2013. Plants were present throughout the lake to a maximum depth of 8.2 feet. In the littoral zone of the lake (defined as the portion of the lake that is less than 15 feet in depth) 75% of points sampled had submersed vegetation present. Also within the littoral zone, 71% percent of sample points were comprised of native submersed vegetation. The average number of taxa per point was 0.53. Seven submersed plant taxa were found: coontail (*Ceratophyllum demersum* - 35.0% occurrence), Canadian waterweed (*Elodea canadensis* - 6.4%), White water lily (*Nymphaea odorata* - 35%), common bladderwort (*Utricularia macrorhiza* - 5.5%), Star Duckweed (*Lemna trisulca* - 17.4%), Duckweed (*Lemna* spp - .9%) and aquatic moss - %. Also present was the non-native invasive submerged plant; curly-leaf pondweed (*Potamogeton crispus* - .9%) and Eurasian watermilfoil (*Myriophyllum spicatum* - 5.5%).

### Lake Description:

O'Dowd Lake is a 300 acre lake near Shakopee, Minnesota. It is a hypereutrophic lake (excessive nutrients) that exceeds the Trophic State Index (TSI) range for lakes in the same ecoregion <http://cf.pca.state.mn.us/water/watershedweb/wdip/details.cfm?wid=70-0095-00>. The lake is currently listed on the Minnesota Pollution Control Agency's (MPCA's) Impaired Waters List as a result of excessive phosphorous. The lake is largely littoral (235 acres) (water depth from 0 to 15 feet) and historically dominated by curly-leaf pondweed and subsequent algal blooms in the summer months. Rooted plants were found to a depth of 8.2 feet, whereas the maximum depth of O'Dowd Lake is 22 feet, and has historically had water quality issues due to nutrients discharged from adjacent agricultural property and an abundance of non-native aquatic vegetation.

**Survey Objectives:**

The purpose of the survey was to identify the general frequency and distribution of native and invasive submerged aquatic plants throughout the treatment area of the lake. This survey will aid in monitoring changes in the submerged aquatic plant community through time. In addition, the survey will help to monitor the submerged aquatic plant community in response to large-scale herbicide treatments begun in 2009 and continued in 2013.

**Methods:**

We utilized a point-intercept survey method (Madsen 1999). Survey points were placed 50 meters apart using GIS. This spacing allowed for placement of 119 points on the lake, all of which were sampled in approximately 5 hours using a double sided rake (*see photos 1 below*). All sample points were used in statistical analysis of the submerged plant community. All plants recovered on the rake were recorded on a plant density scale of 0-4; however, analysis of plant densities in the lake utilized a presence/absence method (Perleberg et. al. 2012).

**Results:**

Of all points sampled, 82 had submersed native plants present; 82 sample points had a submersed plant of any kind present (includes CLP). CLP was found at one point, and Eurasian watermilfoil was found at six points. Table 1 shows the percent occurrence for all plants found in this and previous surveys. Flatstem pondweed, northern watermilfoil, stringy pondweed & chara were found in the 2012 survey but not in 2013. This could be due to the fact that the sample area was limited to only the areas there were treated. The average number of native submersed taxa per sample point was 0.5; this number excludes CLP and EWM.

**Table 1: Plant frequency for O’Dowd Lake, Scott County [ DOW# 70009500 ] (Frequency = percentage of sites in which species occurred)**

Life Forms	Common Name	Scientific Name	2008*	2008	2009*	2012*	2012	2013**	2014	2015
<b>INVASIVE SPECIES</b> Invasive species are species that are not native to Minnesota <i>and</i> cause economic or environmental harm or harm to human health.	Curly-leaf pondweed	<i>Potamogeton crispus</i>	67	-	27	59	-	1		
	Eurasian watermilfoil	<i>Myriophyllum sibiricum</i>	28	48	51	6	9	5.5		
<b>SUBMERGED</b> These plants grow primarily under the water surface. Upper leaves may float near the surface and flowers may extend above the surface. Plants are usually rooted or anchored to the lake bottom.	Canada waterweed	<i>Elodea Canadensis</i>	2	3	8	9	2	6		
	Coontail	<i>Ceratophyllum demersum</i>	37	49	42	34	43	35		
	Horned Pondweed	<i>Zannichellia palustris</i>	-	-	1	-	-	-		
	Flatstem Pondweed	<i>Potamogeton zosteriformis</i>	-	4	1	1	6	-		
	Sago Pondweed	<i>Potamogeton pectinatus</i>	-	-	7	-	-	-		
	Chara	<i>Chara spp.</i>	-	1	-	-	2	-		
	Northern watermilfoil	<i>Myriophyllum sibiricum</i>	-	3	4	-	2	-		
	Filamentous algae	<i>Spirodela spp.</i>	17	6	57	3	2	25		
	Stringy Pondweed	<i>Potamogeton sp</i>				2	2	-		
<b>FLOATING</b> These plants are rooted in the lake bottom and have floating leaves.	Star Duckweed	<i>Lemna trisulca</i>	1	34	5	-	4			
	Greater Duckweed	<i>Lemna major</i>	-	-	10	-	-	.9		
	White waterlily	<i>Nymphaea sp</i>	12	23		26	25	35		

**Table 1:** *Percent frequencies of aquatic plant occurrence in littoral zone (to 15 foot depth) at O’Dowd Lake [DOW 70009500] Scott County, Minnesota. All numbers in bold represent percent. Rows marked with an asterisk (\*) indicate spring surveys; because of the growth pattern of CLP it will be the dominating plant in most spring surveys. \*\* Only the areas treated were surveyed in 2013. A total of 97 sites were sampled compared to the whole lake in previous years.*

**Table 2: Summary of P-I results for O'Dowd Lake, Scott County [DOW# 70009500]**

<i>Year</i>	<i>Month</i>	<i>Day</i>	<i>Trtd or Un-Trtd</i>	<i>Surveyor</i>	<i>Max depth sampled (in feet)</i>	<i>Max depth of submerged plant growth (in feet)*</i>	<i>Number of points used in statistics</i>	<i>Number of points sampled with native submersed plants</i>	<i>Percentage of points sampled with native submersed plants</i>	<i>Percentage of points sampled with submersed plants</i>	<i>Average # of native submersed taxa per sample point</i>	<i>Submersed species richness (number of submersed species)</i>
2008	June	3	UT	McComas	20	14	126	112	89	100	4.9	47
2008	August	11-12	UT	McComas	18	12	102	80	78	60	.6	61
2009	July/Aug	30/3	T	Hummel	15	15	101	22	22	82	NA	NA
2012	May	31	T	McComas	23	14	111	96	86	91	.625	58
2012	August	16	T	McComas	22	11	128	98	77	77	.59	75

**Table 2:** Summary of P-I results for O'Dowd Lake, Scott County [DOW 70009500] for littoral zone (to 15' depth). \*\* indicates near shore APM treatments only.

**Table 3: Characteristics of delineations and treatments for O’Dowd Lake, Scott County [ DOW# 70009500 ]**

Year	Date	Treatment or Untreated	Target Species	Type of treatment	Area delineated in acres	Area treated in acres	Permit number	Herbicide	Target concentration	Amount applied	Applicator
2009		T	CLP & EWM	Chemical	50	48	09F-3A380	Aquathol/ Auxin-mimic	.75- 1.0ppm/ .5ppm		Midwest Aquacare
2010		T	CLP	Chemical	57.8	57.8	10F-3A396	Aquathol	.75-1.0ppm		Midwest Aquacare
2011		T	CLP	Chemical	58	58	11F-3A559	Aquathol	.75- 1.0ppm		Midwest Aquacare
2012		T	CLP	Chemical	58	58	12W-3045	Aquathol	.75- 1.0ppm		Midwest Aquacare
2013	6/4/2013	T	CLP	Chemical	34	34	13W-3A047	Aquathol	.52 gal/ac ft	88	PLM

**Table 3:** Characteristics of delineations and treatments for O’Dowd Lake, Scott County [DOW 70009500]. PLM is PLM Lake and Land Management Corp.

**Table 4: Annual secchi disk observations for O'Dowd Lake, Scott County [ DOW# 70009100]**

Year	Treated	April	May	June	July	August	Sept.	Oct.	Sum of numbers of observations for all seven months	Average Secchi disk depth [m]
2006		-	-	1.255	.85	.53	.93	1.9		1.1
2007		-	2.5	1.2	.63	.45	1.0	1.6		1.05
2008		2.7	2.45	2.6	1.45	.63	.7	1.9		1.8
2009		3.4	2.4	2.5	1.67	1.2	.75	2.0		2.0
2010		1.9	3.0	2.3	.86	.68	.81	1.0		1.5
2011		2.2	2.25	2.5	1.45	.7	.85	1.25		1.6

**Table 4:** 2006-2011 Secchi disk water clarity data for O'Dowd Lake, Scott County [DOW 70009500]. Provided by MPCA.

**References:**

Madsen, J. D. (1999). "Point intercept and line intercept methods for aquatic plant management." *APCRP Technical Notes Collection (TN APCRP-M1-02)*. U.S. Army Engineer Research and Development Center, Vicksburg, MS. [www.wes.army.mil/el/aqua](http://www.wes.army.mil/el/aqua)

Minnesota Department of Natural Resources. 2012. *Minnesota's Sensitive Lakeshore Identification Manual: a conservation strategy for Minnesota lakeshores (version 3)*. Division of Ecological and Water Resources, Minnesota Department of Natural Resources. 87 pp.