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# COON LAKE AUGUST 2009 AQUATIC VEGETATION SURVEY

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Field survey conducted by Kelly LaFortune  
in accordance with policies and procedures of the MN DNR



# Survey Summary and Notes

**Survey Dates: 8/23-25/2009**  
**(On cover page, floating-leaved vegetation in Coon Lake)**

## Summary

Coon Lake is located in Anoka County, Minnesota. An aquatic vegetation survey was undertaken in August of 2009 at the request of the Coon Lake Improvement Association (CLIA). The purpose of this survey was to assess the health and diversity of the aquatic plant communities in the basin, with special emphasis regarding the population of non-native Eurasian watermilfoil present. Some comparisons with survey results from August of 2008 will also be presented in this report.

The August 2009 survey took place over three days. The report that follows is a summary of these survey findings.



**Coon Lake supporting a variety of recreation in 2009**

### Coon Lake

A total of 25 species were found in Coon Lake during the August 2009 survey, compared with 23 species identified in August of the previous year. Both of the newly-identified species were free-floating “duckweeds”. Of these species identified in 2009, 3 were free-floating, 3 were emergent and the remaining 19 species were considered submergent vegetation. Two species identified during this survey were non-native, Eurasian watermilfoil (*Myriophyllum spicatum*) and Curly-leaf pondweed (*Potamogeton crispus*). Both of 2008 surveys as well.

Native submergent species were found in 70% of stations sampled, compared with 85% in the previous year. However, fewer points were accessible in the heavily vegetated western bay of the lake in 2009, which may account for some of the decrease. No vegetation was found in Coon Lake in depths greater than 11.7 feet. The average number of submerged native species at each sample point was 2.8 +/- 1.



Western bay of Coon Lake-August 2009

## Lake Information

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**DOW Lake ID:** 02004200  
**Survey Dates:** 8/23-25/09

### General Lake Information

**Basin Area (acres):** 1,259 (1,098 littoral)  
**Public Accesses:** 3  
**DOW Maximum Lake Depth:** 27.00  
**DOW Secchi Depth:** 7.75

### Lake Survey Conditions

**Survey Crew:** Kelly LaFortune and Tom Straka  
**Dates:** 8/23-25/2009  
**Air Temp-average (F):** 75°  
**Water Temps (F):** 75-77°  
**Sky Conditions:** clear, variable light to gusting winds, 5-12 mph (West)



Coon Lake, Anoka County

# Lake Sample Station Summary

DOW Lake ID: 02004200

Survey Dates: 8/23-25/09

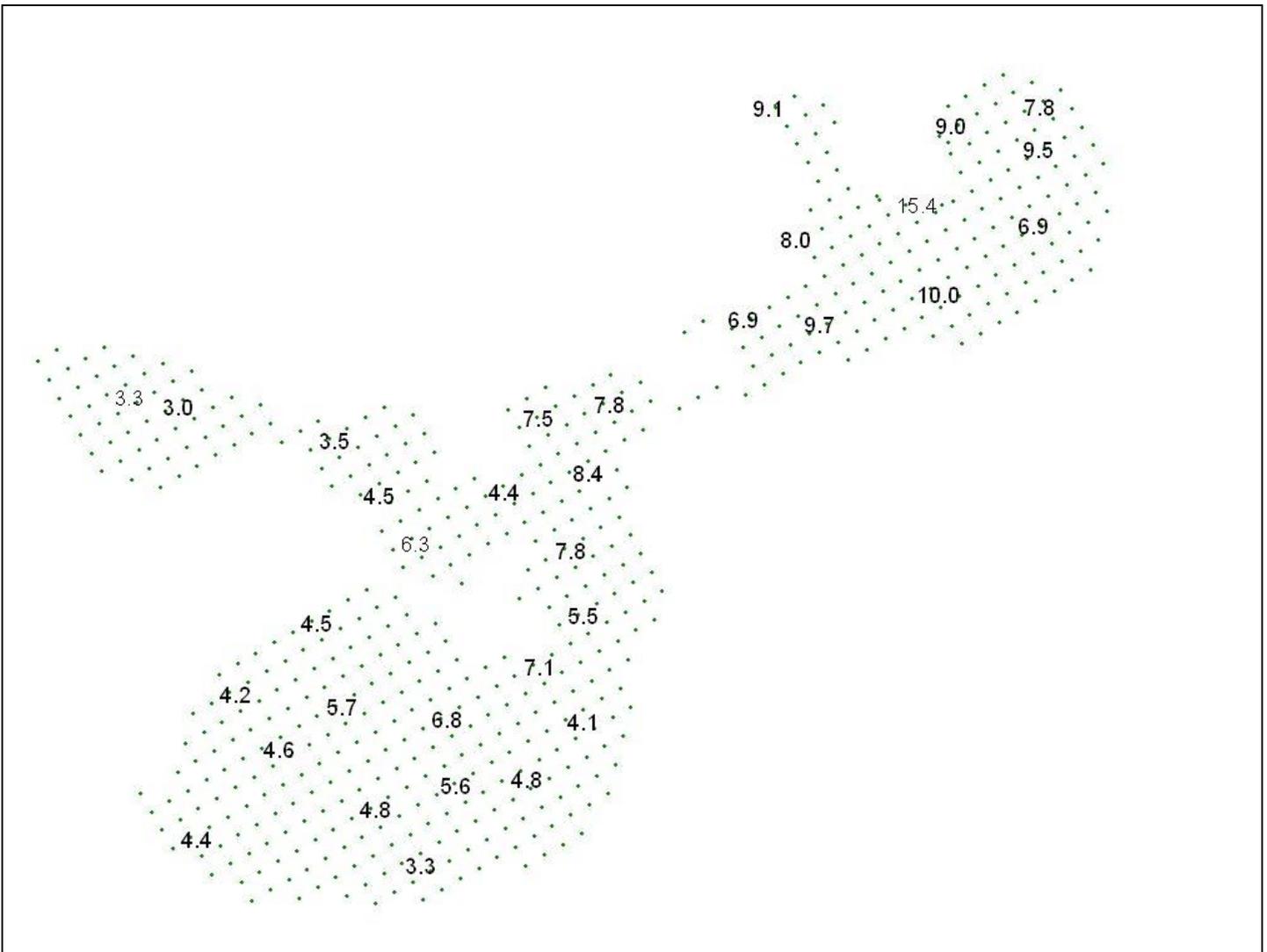
## Sample Station Information

**Number of Sample Stations:** 568 of 604 sampled

**Maximum Depth (of stations sampled):** 22.6 feet

**Mean Depth:** 5.5 feet

**Minimum Depth:** 1.5 feet



Map of sample depths in Coon Lake during August 2009 survey  
Values reflect depths (in feet). Points with no values were on shore or otherwise not surveyable

More detailed depth information may be made available to the Coon Lake Improvement Association along with this report. Due to size constraints, point-by-point depths cannot be added here.

# Lake Sample Station Summary

DOW Lake ID: 02004200

Survey Dates: 8/23-25/09

## Vegetation Summary and Analysis

**Maximum Depth of Submergent Vegetation Growth:** 11.7 feet

**Lakewide Species Richness:** 25 (includes emergent vegetation)

**Percent of Vegetated Plots:** 70

Species*	# of Plots Occurring	Species Frequency**	Standard Error
<i>Ceratophyllum demersum</i>	237	58.8%	0.025
<i>Potamogeton zosteriformis</i>	202	50.1%	0.025
<i>Elodea canadensis</i>	201	49.9%	0.025
<i>Potamogeton robbinsii</i>	163	40.4%	0.024
<i>Najas flexilis</i>	142	35.2%	0.024
<b><i>Myriophyllum spicatum</i></b>	100	24.8%	0.022
<i>Potamogeton illinoensis</i>	98	24.3%	0.021
<i>Vallisneria americana</i>	71	17.6%	0.019
<i>Potamogeton amplifolius</i>	56	13.9%	0.017
<i>Chara sp.</i>	33	8.2%	0.014
<i>Nymphaea odorata</i>	20	5.0%	0.011
<i>Utricularia vulgaris</i>	17	4.2%	0.010
<b><i>Potamogeton crispus</i></b>	13	3.2%	0.009
<i>Potamogeton richardsonii</i>	9	2.2%	0.007
<i>Potamogeton strictifolius</i>	6	1.5%	0.006
<i>Nuphar variegatum</i>	5	1.2%	0.006
<i>Potamogeton praelongus</i>	5	1.2%	0.006
<i>Stuckenia pectinata</i>	4	1.0%	0.005
<i>Ranunculus longirostris</i>	3	0.7%	0.004

\*Species in **bold** are non-native to Minnesota waters

\*\*Species frequencies were calculated based on points sampled that were less than the maximum depth where plants were found (per Crowell 2007)

The August 2009 survey found the submergent vegetation community of Coon Lake is dominated by a native species, *Ceratophyllum demersum*. This species was also dominant in the August 2008 survey, found in 53.2% of vegetated points in that survey. Emergent vegetation species identified in the 2009 survey included hardstem bulrush (*Scirpus acutus*), common cattail (*Typha sp.*) and three-square bulrush (*Scirpus pungens*). These species were scattered around the shorelines of the basin. Three free-floating species of duckweed (star duckweed-*Lemna trisulca*, lesser duckweed-*Lemna minor*, and greater duckweed-*Spirodela polyrhiza*) were also identified. These species were found in the heavily vegetated west bay of the lake.

# Non-Native Vegetation Summary

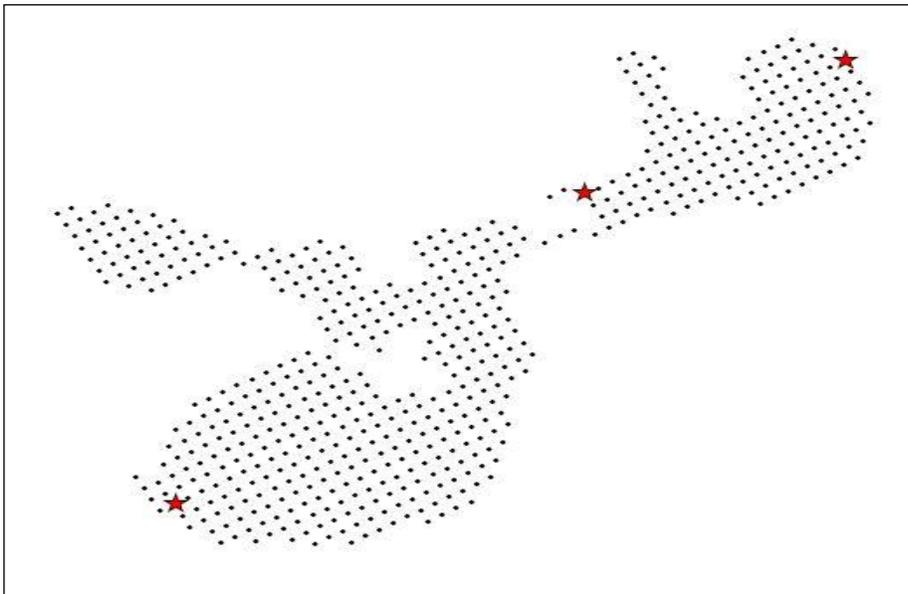
## *Potamogeton crispus* in Coon Lake

DOW Lake ID: 02004200

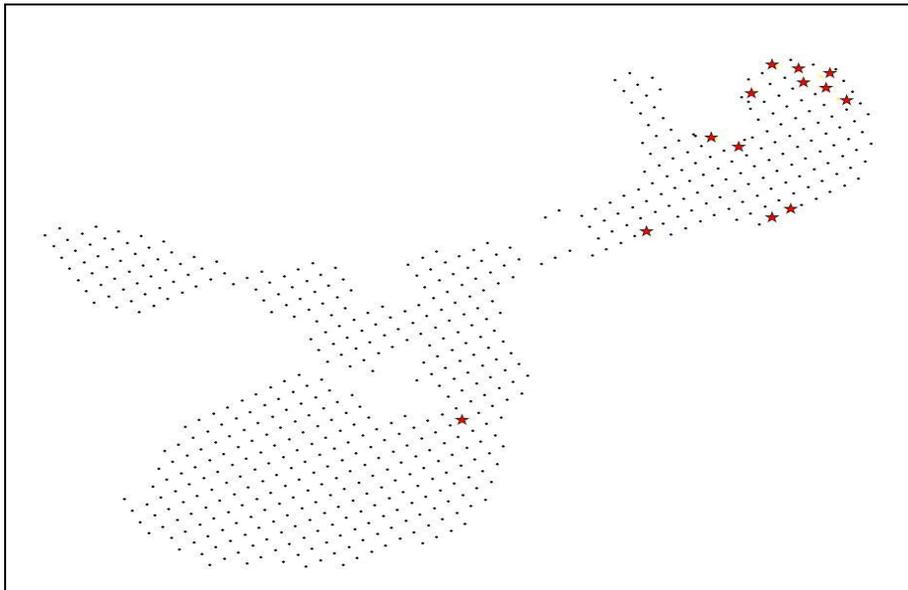
Survey Dates: 8/23-25/09

### Curly-leaf pondweed

The abundance of curly-leaf pondweed increased slightly between the vegetation surveys of 2008 and 2009. In the August 2008 survey, the exotic was found in approximately 0.6% of the stations sampled in Coon Lake. In contrast, the species was identified in 3.2% of the stations sampled in August of the current year. Small variations in plant populations between years are not uncommon, and are not necessarily indicative of management practices in a basin. All points with identified curly-leaf pondweed showed low densities of the plant in 2009 (abundance = 1).



Sample locations where *Potamogeton crispus* was found on Coon Lake  
August 2008 (denoted by red stars)



Sample locations where *Potamogeton crispus* was found on Coon Lake  
August 2009 (denoted by red stars)

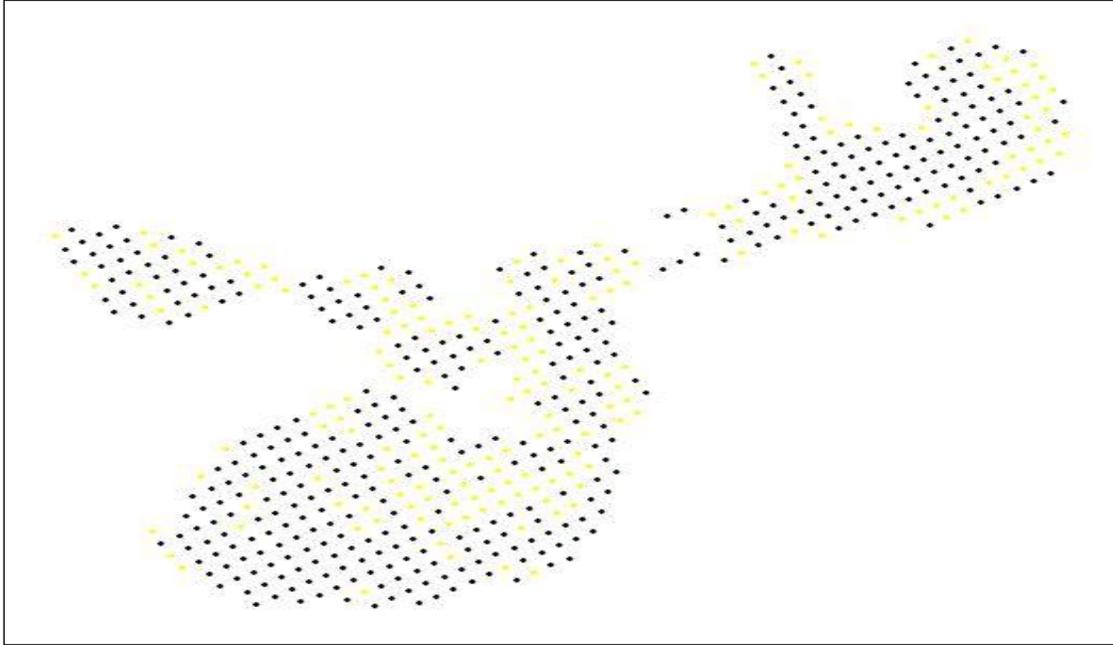


# Non-Native Vegetation Summary

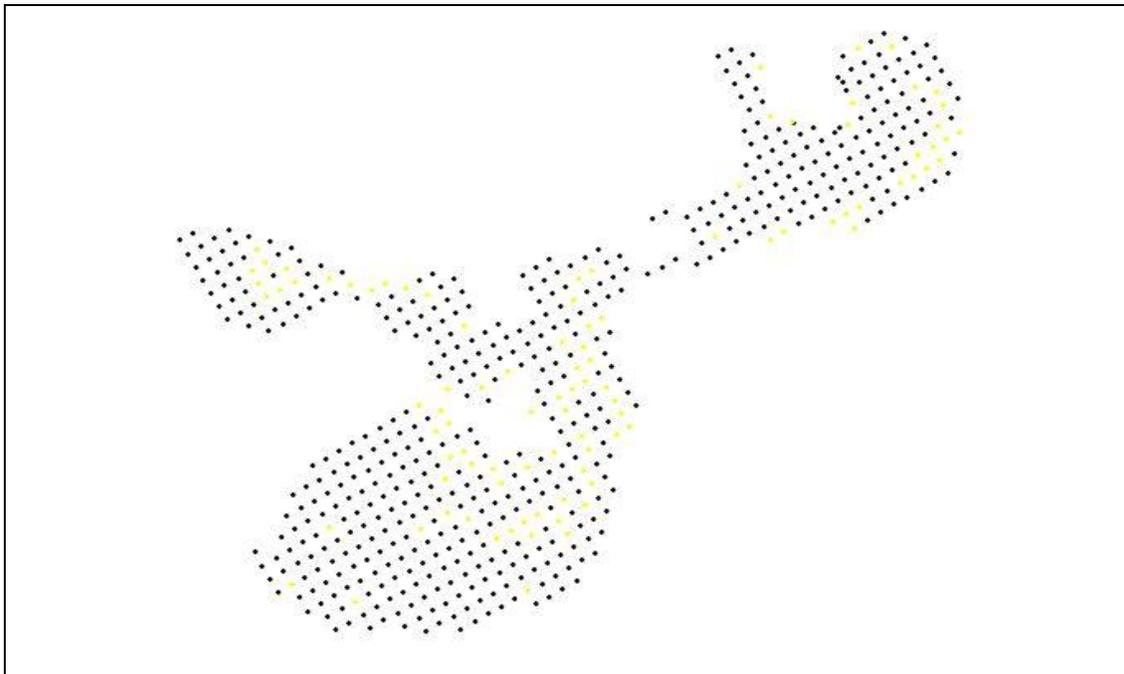
## *Myriophyllum spicatum* in Coon Lake

DOW Lake ID: 02004200  
Survey Dates: 8/23-25/09

### Eurasian watermilfoil



Sample locations\* where *Myriophyllum spicatum* was found in Coon Lake - August 2008



Sample locations\* where *Myriophyllum spicatum* was found in Coon Lake - August 2009

\*Locations where Eurasian watermilfoil was identified are shown in yellow.

# Non-Native Vegetation Summary

## *Myriophyllum spicatum* in Coon Lake-cont'd

DOW Lake ID: 02004200

Survey Dates: 8/23-25/09

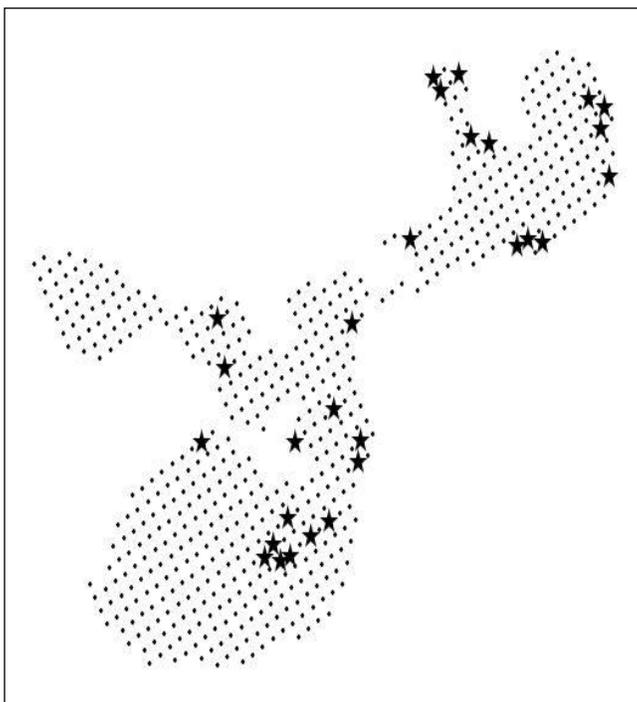
### Eurasian watermilfoil

Eurasian watermilfoil decreased in species frequency between the two surveys, from 32.7% in August of 2008 to 24.8% in the August 2009 survey. However, many of the stations in the heavily vegetated west bay of the lake were not surveyable during the August 2009 survey. Eurasian watermilfoil was found in the surveyable areas of the bay.

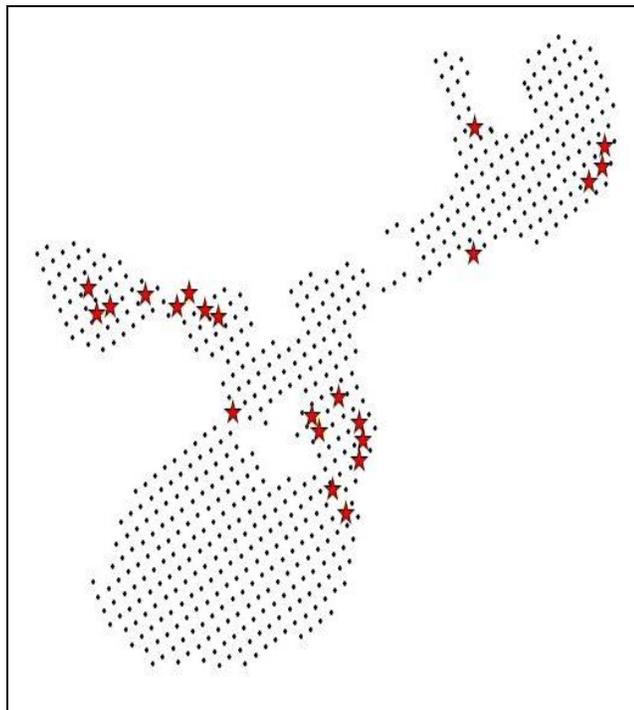
The figures below identify the areas of greatest density of Eurasian watermilfoil identified during the 2008 and 2009 aquatic vegetation surveys. These densities represent abundances of 3 and 4 according to Minnesota DNR criteria for judging abundances during a point-intercept survey (Crowell 2007).



EWM to surface in Coon Lake-August 2009



Areas of dense EWM growth in August 2008



Areas of dense EWM growth in August 2009

# Coon Lake Ecology and Management

DOW Lake ID: 02004200

Survey Dates: 8/23-25/09

## Nutrients

Nutrients have a very complex role in aquatic ecosystems and can be influenced by a number of factors. The major sources of nutrients such as phosphorus to most urban lakes stem from the practices of homeowners in the watershed. Runoff from lawn clippings and excess fertilizers is a common source of phosphorus pollution and can promote algae blooms. Large die-offs of vegetation in a basin (such as after an aquatic herbicide treatment or the natural mid-summer die-off of curly-leaf) can also cause an increase in nutrients.



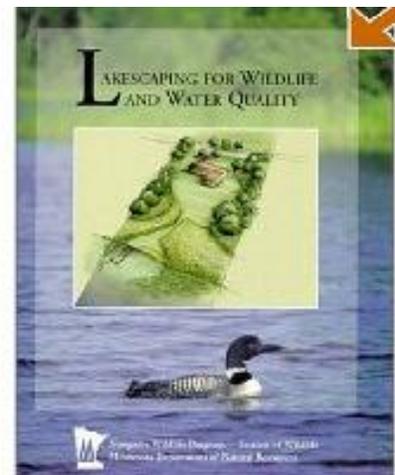
Filamentous algae, seen here in the August 2009 survey, is commonly seen in lakes with a high nutrient load.



## Shoreland Management

Although there is little landowners can do about natural plant die-offs, you can improve water quality by minimizing runoff. The Minnesota DNR has several references available to landowners interested in learning how to minimize their negative impacts on our lakes and streams. The publication listed below is an excellent place to start, and can be purchased through the DNR, or your local book retailer. Contact the MNDNR Information Center for more information.

Lakescaping for Wildlife & Water Quality, by Carrol L. Henderson, Carolyn J. Dindorf, and Fred J. Rozumalski. St.



Paul, MN: Minnesota Department of Natural Resources, Section of Wildlife, Nongame Wildlife Program  
c1998.