

## WATER QUALITY SUMMARY

### **RANGELEY Lake**, Rangeley (Franklin County)

MIDAS: 3300, Sample Station # 1

Introduction: The Maine Department of Environmental Protection (Maine DEP) and the Volunteer Lake Monitoring Program (Maine VLMP) have collaborated in the collection of lake data to evaluate water quality, track algal blooms, and determine historical water quality trends. This dataset does not include bacteria, mercury, or nutrients other than total phosphorus (TP).

Water quality monitoring datasets for Rangeley Lake Sample Station # 1 have been collected since 1970. During this period, 8 years of basic chemical information was collected in addition to Secchi disk transparency (SDT) measures. In summary, the water quality of Rangeley Lake is considered to be above average, based on measures of SDT, total phosphorus (TP) and chlorophyll-a (Chla). The potential for nuisance summertime algal blooms on Rangeley Lake is low.

Water quality measures: Rangeley Lake Sample Station # 1 is a non-colored lake (average color 9 SPU) with an average SDT of 7 meters (23 feet). The range of upper water column TP for Rangeley Lake (Station 01) is 2-9 parts per billion (ppb) with an average of 5 ppb, while Chla ranges from 1.2-2.9 ppb with an average of 2.0 ppb. Recent dissolved oxygen (DO) profiles show an absence of DO depletion in deep areas of the lake. The potential for TP to leave the bottom sediments and become available to algae in the water column (internal loading) is very low. Oxygen levels below 5 parts per million can stress certain cold water fish, and a persistent loss of oxygen may eliminate or reduce habitat for sensitive cold water species. This is not a problem for Rangeley Lake at this time.

### Sample Station # 2 (City Cove)

Water quality monitoring datasets for Rangeley Lake on this cove Sample Station # 2 have been routinely collected since 1992. During this period, 1 year of basic chemical information was collected along with 12 years of Secchi disk transparency (SDT) measures. In summary, the water quality of Rangeley Lake (Station 02) is considered to be slightly above average, based on measures of SDT, total phosphorus (TP) and chlorophyll-a (Chla). The potential for nuisance summertime algal blooms on Rangeley Lake is low.

Water quality measures: Rangeley Lake Sample Station # 2 is a non-colored lake (average color 9 SPU) with an average SDT of 5.2 meters (17 feet). Some Secchi disk readings at this site were visible all the way to the bottom of the cove and thus SDTs underestimate water quality. The upper water column TP for Rangeley Lake (Station 02) is 8 parts per billion (ppb) for the cove and 5 ppb for the main body of the lake. Only one sample for TP has been taken in the cove and no Chla values have been measured there. Dissolved oxygen (DO) profiles show an absence of DO depletion in the cove. The potential for TP to leave the bottom sediments and become available to algae in the water column (internal loading) is very low.

#### Sample Station # 4 (off Hane's point in Greenville Cove)

Water quality monitoring datasets for Rangeley Lake Sample Station # 4 have been routinely collected since 1992. During this period, several years of basic chemical information was collected along with 12 years of Secchi disk transparency (SDT) measures. In summary, the water quality of Rangeley Lake (Station 04) is considered to be above average, based on measures of SDT and total phosphorus (TP). The potential for nuisance summertime algal blooms on Rangeley Lake is very low.

Water quality measures: Sample Station # 4 in Rangeley Lake is non-colored (average color 9 SPU) with an average SDT of 7.2 meters (24 feet). The upper water column TP for Greenville cove (Station 04) ranges from 2-5 parts per billion (ppb) with an average of 4 ppb. Recent dissolved oxygen (DO) profiles show an absence of DO depletion in deep areas of the lake. The potential for TP to leave the bottom sediments and become available to algae in the water column (internal loading) is very low. Oxygen levels below 5 parts per million can stress certain cold water fish, and a persistent loss of oxygen may eliminate or reduce habitat for sensitive cold water species. This is not a problem for Rangeley Lake at this time.

Water quality monitoring datasets for Rangeley Lake Sample Station # 5 have been collected since 1996. During this period, 3 years of basic chemical information was collected in addition to Secchi Disk Transparencies (SDT). In summary, the water quality of Rangeley Lake is considered above average based on measures of SDT, total phosphorus (TP), and Chlorophyll-a (Chla). The potential for nuisance algal blooms on Rangeley Lake is low.

#### Sample Station # 5

Water Quality Measures: Rangeley Lake Sample Station # 5 is a non-colored lake. The one color data available for Sample Station # 5 was 20 SPU. Other sampling stations on Rangeley Lake were also < 30 SPU. The average SDT at Sample Station # 5 is 7.1 m (23.5 ft). The range of water column TP for Rangeley Lake, Sample Station # 5, is 2-6 parts per billion (ppb) with an average of 4 ppb. Chla has not been taken at this sample station but is considered low at all other stations. A recent dissolved oxygen (DO) profile showed no DO depletion in deep areas of the lake. The potential for phosphorus to leave the bottom sediments and become available to algae in the water column (internal loading) is low. Oxygen levels below 5 parts per million stress certain cold water fish, and a persistent loss of oxygen may eliminate or reduce habitat for sensitive cold water species.

Further information: See the Maine DEP *Explanation of Lake Water Quality Monitoring Report* for measured variable explanations. Additional lake information can be obtained by contacting Maine DEP at 207-287-3901 or VLMP at 207-783-7733, and at these Websites: <http://www.lakesofmaine.org> and <http://www.maine.gov/dep/water/lakes/index.html> and <http://www.mainevolunteerlakemonitors.org>.

Filename: rang3300\_01, Revised: 12/06, By: dbh