

## WATER QUALITY SUMMARY

### **CHINA LAKE, China**

MIDAS: 5448, Sample Station # 1(West)

The Maine Department of Environmental Protection (Maine DEP), Kennebec Water District (KWD), China Regional Lakes Alliance (CRLA), and the Volunteer Lake Monitoring Program (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.

Water quality monitoring datasets for China Lake (west station) has been collected since 1971. During this period, 13 years of basic chemical information was collected in addition to 32 years of Secchi Disk Transparency (SDT). In summary, the water quality of China Lake is considered poor based on measures of SDT, total phosphorus (TP), and chlorophyll-a (Chla). The potential for nuisance summertime algal blooms on China Lake is moderate to high.

Water Quality Measures (west station): China Lake is a lightly-colored lake (average color 28 SPU) with an average SDT of 3.9 meters (12.8 feet). The range of upper water column TP for China Lake is 12 - 26 parts per billion (ppb) with an average of 18 ppb. Chla ranges from 1.9 - 40.4 ppb with an average of 11.0 ppb. Recent dissolved oxygen (DO) profiles show high 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 high. Oxygen levels below 5 parts per million stress certain coldwater fish and a persistent loss of oxygen may eliminate or reduce habitat for sensitive coldwater species (e.g., lake trout/togue and landlocked Atlantic salmon).

Comments: China Lake is managed and continually monitored directly through the China Regional Lakes Alliance (CRLA) and the Kennebec Water District. China Lake is also on the State listing of lakes non-attaining water quality standards. A volunteer watershed survey was completed in 1989 with the assistance of the Kennebec County Soil and Water Conservation District, and follow-up water-shed BMP implementation work has been completed in subsequent years through CRLA efforts.

Nutrient Management: A China Lake Total Maximum Daily (Annual Phosphorus) Load (TMDL) report was prepared by Maine DEP during 2000-01, with assistance from the Maine Association of Conservation Districts (MACD) project team. Following China Lake stakeholder and public reviews, this document was approved by US-EPA (New England) on November 5, 2001. This final report, with the EPA-New England review summary/approval letter, can be found on the Maine DEP webpage:  
<http://www.maine.gov/dep/water/monitoring/tmdl/tmdl2.html>

### Sample Station # 2

Water quality monitoring datasets for China Lake (southeast station) have been collected since 1970. During this period, 18 years of basic chemical information was collected in addition to 29 years of Secchi Disk Transparency (SDT). In summary, the water quality of China Lake is considered poor based on measures of SDT, total phosphorus (TP), and chlorophyll-a (Chla). The potential for nuisance summertime algal blooms on the southeastern basin of China Lake is high.

Water Quality Measures (southeast station): China Lake is a lightly-colored lake (average color 26 SPU) with an average SDT of 3.8 meters (12.5 feet). The range of upper water column TP for China Lake is 15 - 35 parts per billion (ppb) with an average of 20 ppb. Chla ranges from 2.0 - 46.9 ppb with an average of 10.8 ppb. Recent dissolved oxygen (DO) profiles show high 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 high. Oxygen levels below 5 ppm stresses certain coldwater fish and a persistent loss

of oxygen may eliminate or reduce habitat for sensitive coldwater species (e.g., lake trout/togue and landlocked Atlantic salmon).

**Comments:** China Lake is managed and continually monitored directly through the China Regional Lakes Alliance and the Kennebec Water District. China Lake is also on the state listing of lakes non-attaining water quality standards. A volunteer watershed survey was completed in 1989 with the assistance of the Kennebec County Soil and Water Conservation District, and follow-up watershed BMP implementation work done in subsequent years through CRLA efforts.

**Nutrient Management:** A China Lake Total Maximum Daily (Annual Phosphorus) Load (TMDL) report was prepared by Maine DEP during 2000-01, with assistance from the Maine Association of Conservation Districts (MACD) project team. Following China Lake stakeholder and public reviews, this document was approved by US-EPA (New England) on November 5, 2001. This final report, with the EPA-New England review summary/approval letter, can be found on the Maine DEP webpage:  
<http://www.maine.gov/dep/water/monitoring/tmdl/tmdl2.html>

### Sample Station # 3

**Water quality monitoring datasets for China Lake (northeast station)** have been collected since 1977. During this period, 16 years of basic chemical information was collected in addition to 27 years of Secchi Disk Transparency (SDT). In summary, the water quality of China Lake is considered poor based on measures of SDT, total phosphorus (TP), and chlorophyll-a (Chla). The potential for nuisance summertime algal blooms on China Lake is high.

**Water Quality Measures (northeast station):** China Lake is a lightly-colored lake (average color 31 SPU) with an average SDT of 4.1 meters (13.5 feet). The range of upper water column TP for China Lake is 15 - 33 parts per billion (ppb) with an average of 19 ppb. Chla ranges from 0.7- 82.0 ppb with an average of 11.3 ppb. Recent dissolved oxygen (DO) profiles show high 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 high. Oxygen levels below 5 ppm stress certain coldwater fish, and a persistent loss of oxygen may eliminate or reduce habitat for sensitive coldwater species (e.g., lake trout/togue and landlocked Atlantic salmon).

**Comments:** China Lake is managed and continually monitored directly through the China Regional Lakes Alliance and the Kennebec Water District. It is also on the state listing of lakes non-attaining water quality standards. A volunteer watershed survey was completed in 1989 with the assistance of the Kennebec County Soil and Water Conservation District, and follow-up watershed BMP implementation work has been carried out in subsequent years through CRLA efforts.

**Nutrient Management:** A China Lake Total Maximum Daily (Annual Phosphorus) Load (TMDL) report was prepared by Maine DEP during 2000-01, with assistance from the Maine Association of Conservation Districts (MACD) project team. Following China Lake stakeholder and public reviews, this document was approved by US-EPA (New England) on November 5, 2001. This final report, with the EPA-New England review summary/approval letter, can be found on the Maine DEP webpage:  
<http://www.maine.gov/dep/water/monitoring/tmdl/tmdl2.html>

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>.