

Lake Water Quality Program

Environmental Planning Initiatives



2014 Annual Report

City Of Lakes

The City of Greater Sudbury is recognised as the 'City of Lakes', with a geographic area of 3,627 square kilometres, about two-thirds the size of Prince Edward Island. Greater Sudbury boasts 330 lakes, more lakes than any other municipality in Canada. Our lakes are a valued natural resource to our citizens who have a vested interest in the health and quality of these rich community assets.

Lake Water Quality Program

The Lake Water Quality Program helps to ensure that Greater Sudbury is positively recognised as a City of Lakes. The Lake Water Quality Program advocates for the ecological health of the lakes, provides lake water quality monitoring and education, offers technical support to lake stewardship groups and the community, and provides research into various issues related to lake water quality.

Staffing

The City of Greater Sudbury provides funding for the full-time position of the Program Co-ordinator and a seasonal Lake Water Quality Field Intern. These positions are responsible for the day-to-day program and activities including water quality monitoring, shoreline home visit program, technical assistance to lake stewardship groups and the Lakes Advisory Panel. Additional duties include organizing the annual Water Gathering, website content and report writing.

Summary of Activities

In conjunction with its partners, the Lake Water Quality Program carried out the annual Spring Phosphorus Sampling, a Native Aquatic Vegetation Survey, the Lake Stewardship Grant Program and co-ordinated the Shoreline Home Visit Program. In summary:

- 30 lakes sampled for spring phosphorus
- 5 lakes surveyed native aquatic vegetation and Eurasian watermilfoil
- 8 lake stewardship grants awarded
- 7 Lakes Advisory Panel meetings
- 28 active lake stewardship groups

Lake Water Quality Program Components

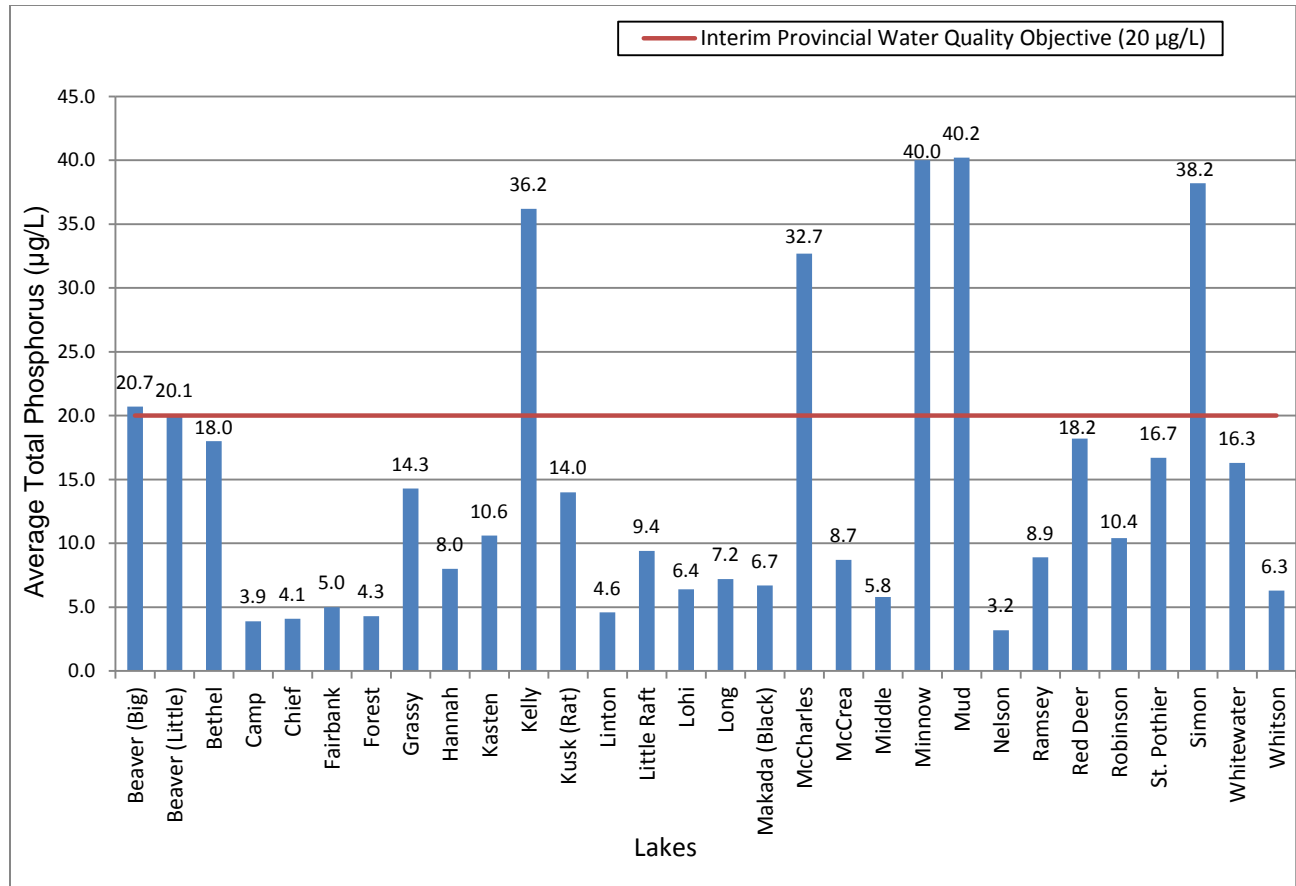
Spring Phosphorus Sampling Program

The City of Greater Sudbury has been sampling a group of local lakes for spring phosphorus for the past 13 year. These lakes were chosen based on their historical phosphorus levels, waterfront development pressures, and requests from lake stewardship groups. Phosphorus is the main nutrient (fertilizer) that controls the growth of algae. Phosphorus is sampled in the spring shortly after the ice has left the lake and after an episode called "spring turnover". Phosphorus enters a lake primarily through surface water runoff from human sources such as septic systems, fertilizers, agriculture practices, municipal and industrial wastewater and detergents. As well, depending on the type of vegetation cover, soil conditions and bedrock, phosphorus can enter a lake by way of natural sources.

Spring Phosphorus Results

The spring phosphorus sampling was conducted on 30 lakes during the month of May 2014. Results for the lakes that were sampled are shown in the graph below. Individual spring phosphorus graphs for lakes sampled this year are found at the end of this report. Of the lakes sampled, seven lakes had phosphorus concentrations greater than the Interim Provincial Water Quality Objective of 20 µg/L (micrograms per litre). Phosphorus concentrations that are at or above this level indicate that the lake is eutrophic or nutrient rich. Other chemical parameters sampled included conductivity, chloride, sodium and dissolved organic carbon. These results are listed in the table below.

The bar graph below indicates the
2014 spring phosphorus sampling results 30 lakes.



The table below indicates the 2014 sampling results for conductivity, dissolved organic carbon, sodium and chloride.

Lake	Chloride (mg/L)	Conductivity (µS/cm)	Dissolved Organic Carbon (mg/L)	Sodium (mg/L)
Big Beaver	1.6	43.2	6.55	1680
Little Beaver	20.1	114	9.87	12200
Camp	<0.2	24.4	3.1	710
Chief	0.28	19.3	3	690
Fairbank	1.2	58.1	2	1190
Forest	1.3	31.8	3.4	1190
Grassy	10.4	163	6.5	7940
Hannah	79.6	348	4.08	44550
Kasten	<0.2	23.6	5.9	800
Kusk	10.3	154	6.66	7810
Linton	0.25	22.4	3.7	740
Little Raft	0.99	31.8	3.3	1150
Lohi	6.49	57.3	3.6	3930
Long	28.3	173	4.5	17200
Makada	2.71	58.6	5.25	2050
McCrea	101	428	4.45	58500
Middle	52.8	265	4.17	31200
Nelson	<0.2	23.6	2.4	690
Red Deer	3.96	50.1	10.7	2870
St. Pothier	4.4	54.4	6.99	2830
Simon	80.3	841	5.4	57100

Native Aquatic Vegetation Survey

Starting in 2011, the City of Greater Sudbury initiated a three-year program to control Eurasian Water-milfoil in several local lakes using a biological control agent – the milfoil weevil. EnviroScience Inc was contracted by the City to culture locally collected milfoil weevils and stock these in the affected lakes. As a follow-up, the Lake Water Quality Program surveyed 5 lakes, specifically mapping and identifying the native aquatic vegetation (macrophytes) and the Eurasian watermilfoil (EWM) beds not surveyed by EnviroScience Inc. From July to September, 2014, five lakes were surveyed: Hannah, Long, McFarlane, Richard and St. Charles. Due to time restraints, Simon, Middle and Grant lakes were not sampled. The surveys were conducted from a boat and the survey involved two parts: 1) a visual survey of native aquatic plants on the surface of the lake and just below the water line and 2) rake tosses to determine the type and percentage of native aquatic plant species and EWM growing under water. The rake toss method is commonly used in scientific studies and in lake management to sample macrophytes. Rake tosses were done at the weevil stocked sites as well as other EWM beds in the lakes. In total, 29 different native aquatic plants species were found. A full report of the findings is available under separate cover on the City of Greater Sudbury's website.

Community Outreach

Shoreline Home Visit Program

New summer cottages and year-round waterfront home development has increased over the past decade. Many people are moving into some of the most sensitive and important ecosystems we have - our shorelines. As a result, there have been many shoreline alterations throughout the City that are impacting the health of our lakes.

The Lake Water Quality Program co-ordinated the Shoreline Home Visit Program. These visits provided waterfront homeowners with advice on healthy shoreline practices including how to best manage their shoreline, protect the lake water quality, and maintain the health of the ecosystem. The visits are free, confidential and non-regulatory. Homeowners received additional information specific to their needs as well as a complementary Nature Clean product and an “On the Living Edge” handbook for waterfront living.

Sudbury Children’s Water Festival

This was the 7th year that the Lake Water Quality Program participated in the water festival and it was a huge success with over 800 grade 3 students visiting the festival and attending bilingual activity centres. The Lake Water Quality Program staff present taught students the need for diversity in shorelines and the impacts and causes of erosion. Each teacher received posters and handouts for their classrooms. The Children’s Water Festival in Greater Sudbury is organized by the Sudbury and District Health Unit with the support of many community organizations.

Natural Shoreline Demonstration Site

In the spring and fall of 2009, the City of Greater Sudbury's Lake Water Quality Program in partnership with Science North and the Nickel District Conservation Authority's Source Water Protection Program established a Natural Shoreline Demonstration site on Ramsey Lake. Funding for this educational project was received from the Ministry of Environment's Source Water Protection Program, the City of Greater Sudbury and Science North. Natural shoreline planting workshops and tours of the demonstration site are available to the community and shoreline homeowners to learn how they can improve the health of shorelines on their property.

Lakes Advisory Panel

The Lakes Advisory Panel is appointed by City Council to provide advice and recommendations to the municipality on matters relating to lake water quality in Greater Sudbury. The current Panel members were appointed in 2010 for a four-year term, ending with the term of Council in 2014. A total of 7 meetings were held in 2014.

Members

The Lakes Advisory Panel is made up of three City Councillors, eight community volunteers, five technical experts and two City staff.

Community Volunteers

Dan Bazinet, Chair
Lin Gibson, Vice- Chair
John Bassett
Robert Hay

Christine Hurst
Debbie Lee
Lilly Noble
Wendy Wisniewski

Technical Experts

Burgess Hawkins – Sudbury & District Health Unit
Dr. John Bailey – Vale Living With Lakes Centre
Dr. Charles Ramcharan – Laurentian University

Ed Snucins – Ontario Ministry of Environment
Anoop Nail –Conservation Sudbury

City Councillors

Jacques Barbeau
Joe Cimino

Terry Kett

Lake Stewardship Grant Assistance Program**Introduction**

Established as a pilot project in 2005, Lake Stewardship Grant Program assists lake stewardship groups in carrying out projects that protect and improve the water quality and natural environment of the lakes. The Grant Program is funded by the City of Greater Sudbury through its Lake Water Quality Program. The Lakes Advisory Panel awards individual grants to stewardship groups in Greater Sudbury.

Grant applicants were required to demonstrate how their proposed project would improve or protect the water quality of the lake and/or watershed and increase support from the lake community. In total, 8 applications for funding were received with each applicant receiving \$500.00. The following is a list of the successful applicants.

Funding recipients for 2014**Four Lakes Community Association**

Project Name: Signage Project

Greater Sudbury Watershed Alliance

Project Name: Edit and translate into French the content of the GSWA Brochure and Septic Booklet

Lake Panache Campers Association

Project Name: Awareness Signage, Shoreline Planting and Summer Community BBQ

Lake Wanapitei Home and Campers Association

Project Name: Signage and Initial Development of Walleye Stocking

Minnow Lake Restoration Group

Project Name: Stormwater event sampling

Ramsey Lake Stewardship Committee

Project Name: Building rain garden in the watershed

Richard Lake Stewardship

Project Name: Signage design and printing

Simon Lake Stewardship

Project Name: Shoreline Planting and First Newsletter

Stewardship Groups

Currently, there are 28 lake stewardship groups throughout the Greater Sudbury area, acting as important agents for positive change in shoreline living practices.

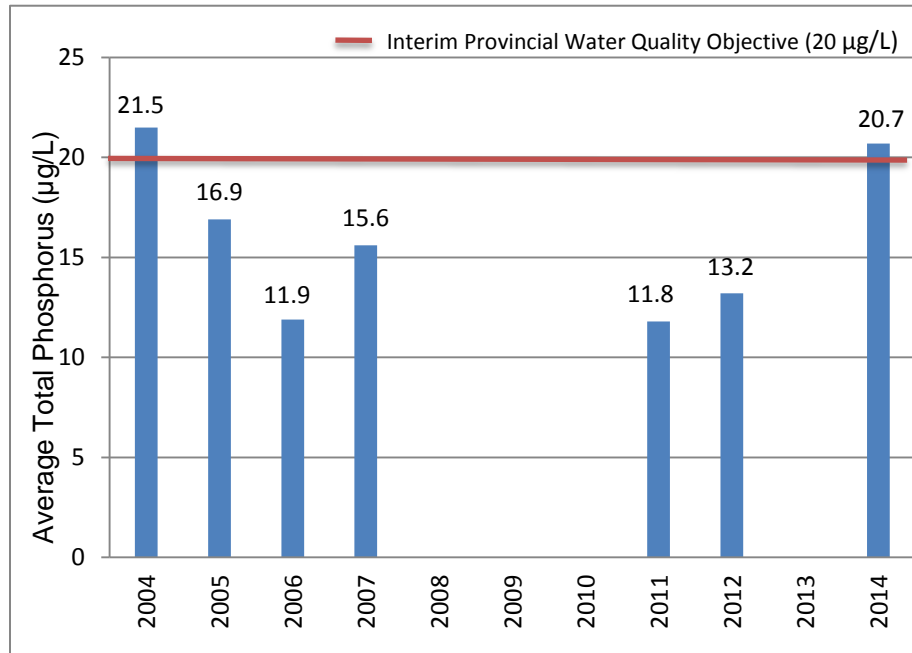
The following is a list of the active lake stewardship groups in Greater Sudbury.

Stewardship Group	Lake(s)	Website
Friends of Bennett Lake	Bennett Lake	
Black Lake	Black Lake	
Broder 23	Broder 23 Lake	
Crooked Lake	Crooked Lake	
Fairbank Lake Cottagers Association	Fairbank Lake	
Friends of McFarlane Lake	McFarlane Lake	
Grassy Lake	Grassy Lake	
Four Lakes Association	Joe, Hanmer, Frenchman and Dixon Lakes	
Ironside Lake	Ironside Lake	
Kukagami Lake Campers Ass.	Kukagami Lake	
Kusk (Rat) Lake	Kusk (Rat) Lake	
Lake Nepahwin Stewardship Group	Nepahwin Lake	
Lake Panache Campers Association	Panache Lake	Website
Lohi Lake	Lohi Lake	
Long Lake Stewardship	Long Lake	
McCrea Lake Stewardship Group	McCrea Lake	
Minnow Lake Restoration Group	Minnow Lake	Website
Richard Lake Stewardship	Richard Lake	Website
St. Charles Lake	St. Charles Lake	Website
Silver Lake	Silver Lake	
Simon Lake	Simon Lake	Website
Vermilion Lake	Vermilion Lake	
Windy Lake Stewardship	Windy Lake	
Onwatin Lake Stewardship	Onwatin Lake	Website
Ramsey Lake Stewardship Committee	Ramsey Lake	Website
Vermillion River Stewardship	Vermillion River	Website
Whitewater Lake	Whitewater Lake	Website
Lake Wanapitei Lake Stewardship	Wanapitei Lake	

Spring Phosphorus Graphs for Lakes Sampled in 2014

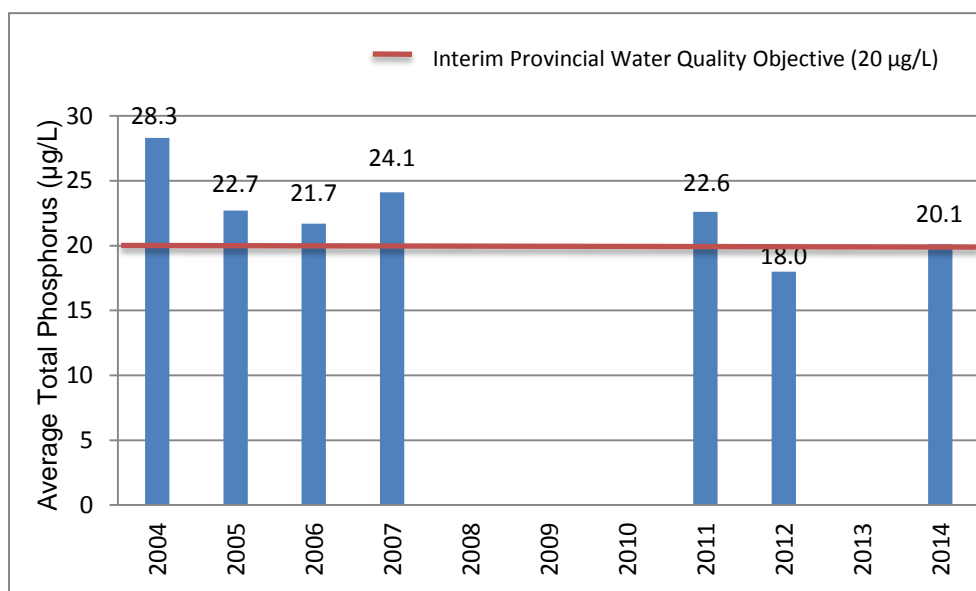
Big Beaver Lake

The bar graph below indicates the spring phosphorus results for Big Beaver Lake from 2004 to 2014.



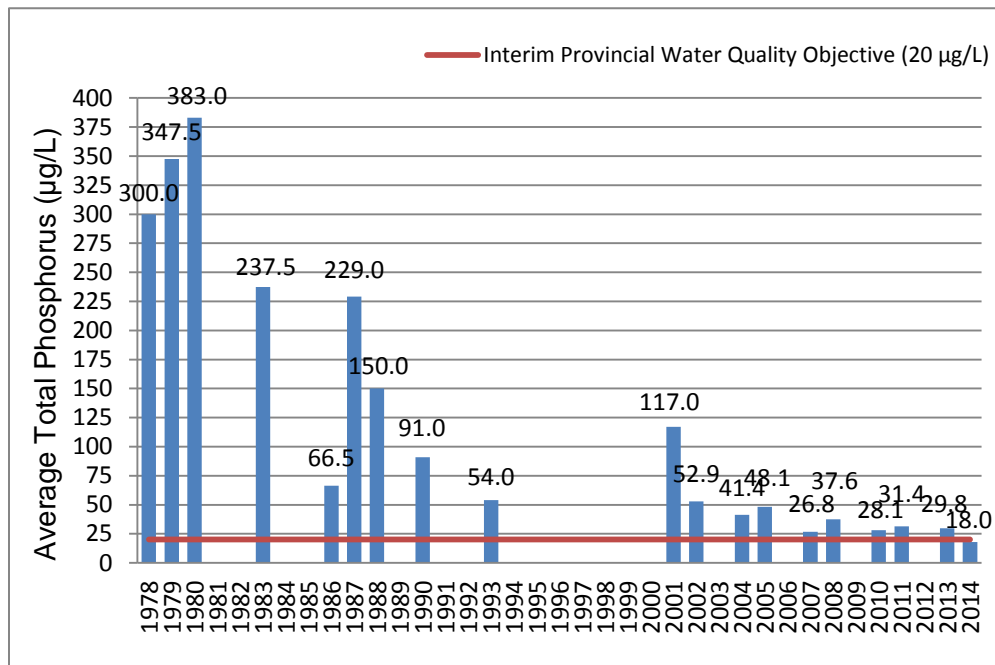
Little Beaver Lake

The bar graph below indicates the spring phosphorus results for Little Beaver Lake from 2004 to 2014.



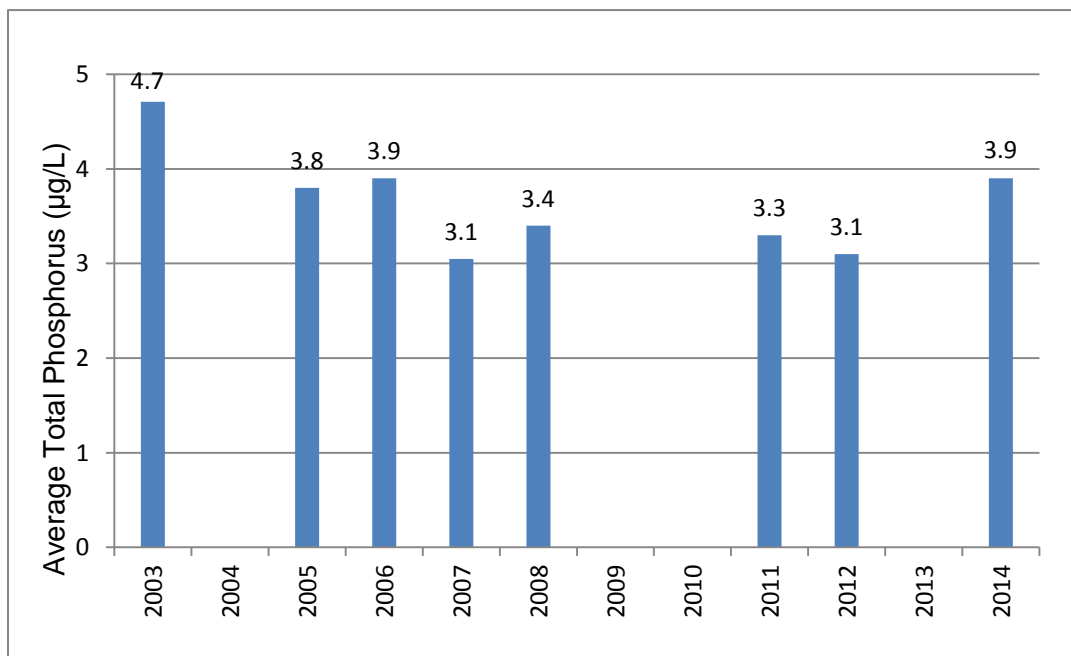
Bethel Lake

The bar graph below indicates the spring phosphorus results for Bethel Lake from 1978 to 2014.



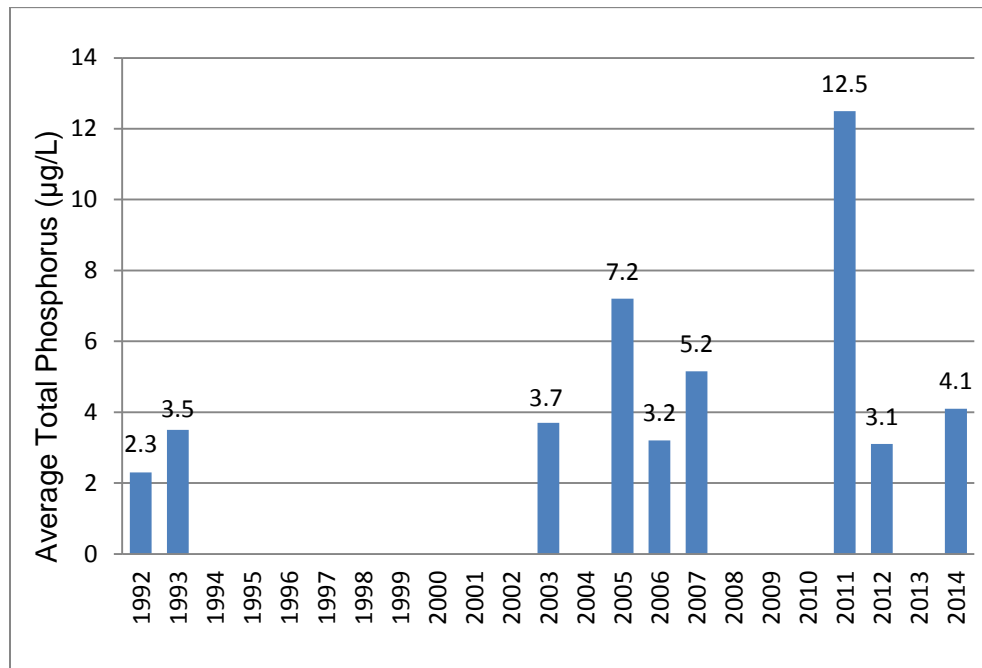
Camp Lake

The bar graph below indicates the spring phosphorus results for Camp Lake from 2003 to 2014.



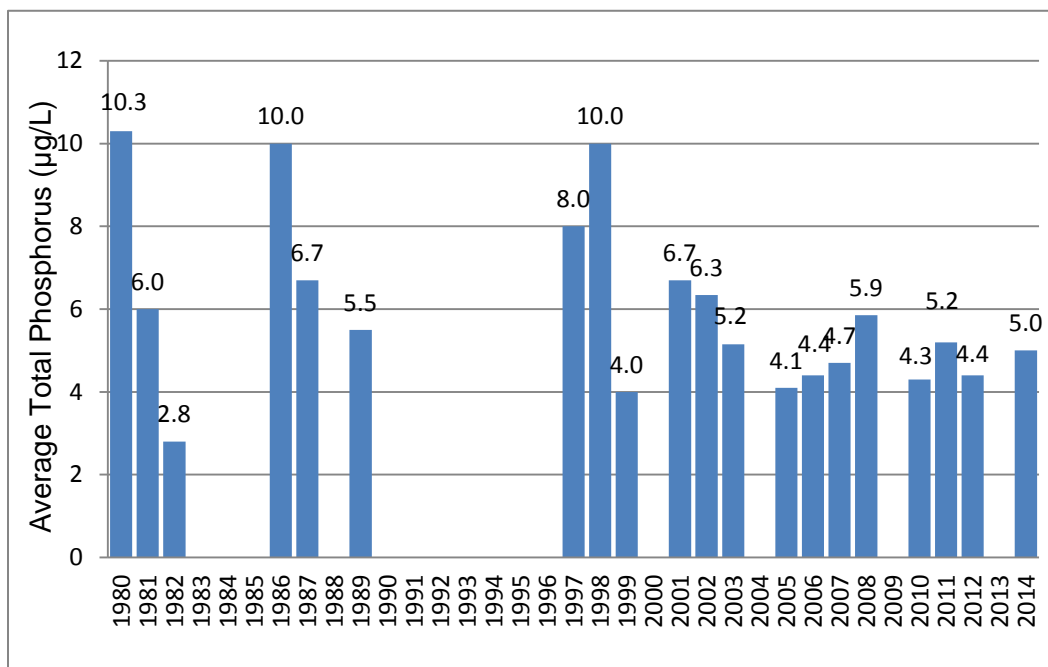
Chief Lake

The bar graph below indicates the spring phosphorus results for Chief Lake from 1992 to 2014.



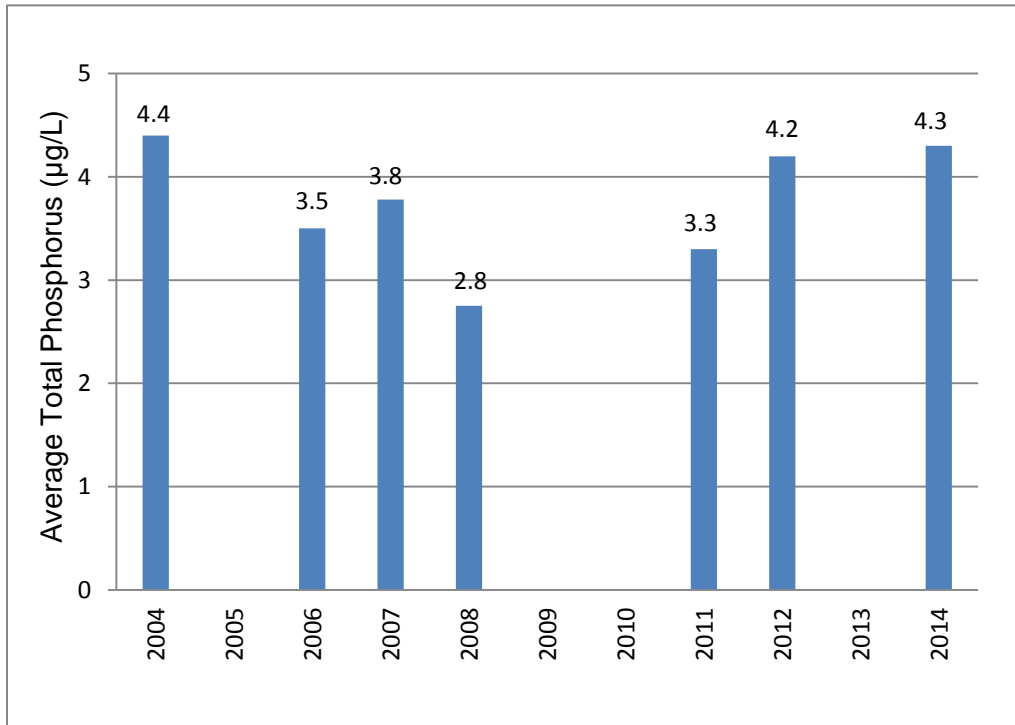
Fairbank Lake

The bar graph below indicates the spring phosphorus results for Fairbank Lake from 1981 to 2014.



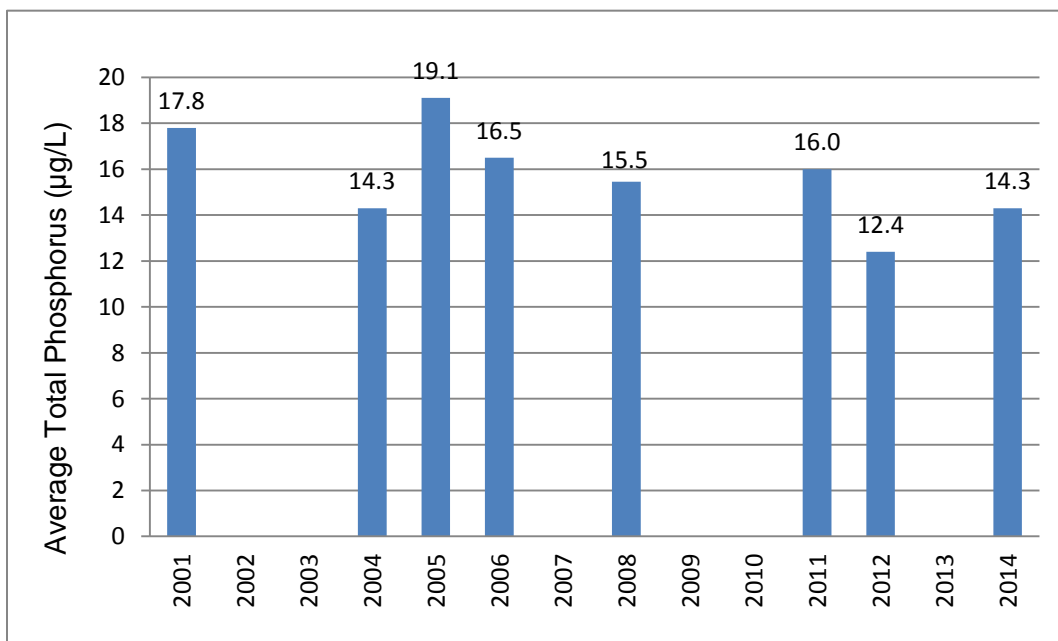
Forest Lake

The bar graph below indicates the spring phosphorus results for Forest Lake from 2004 to 2014.



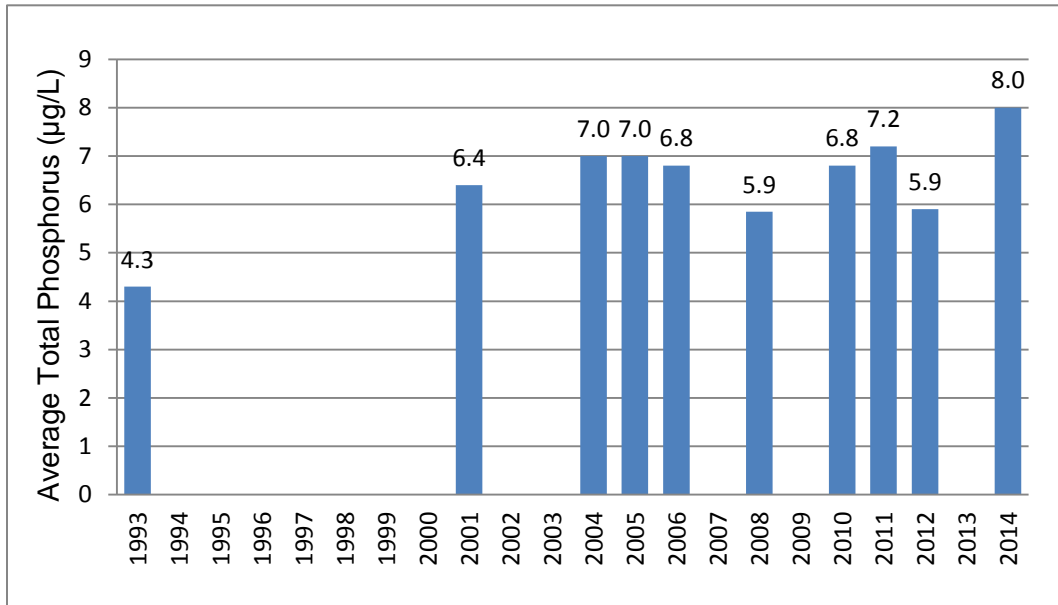
Grassy Lake

The bar graph below indicates the spring phosphorus results for Grassy Lake from 2001 to 2014.



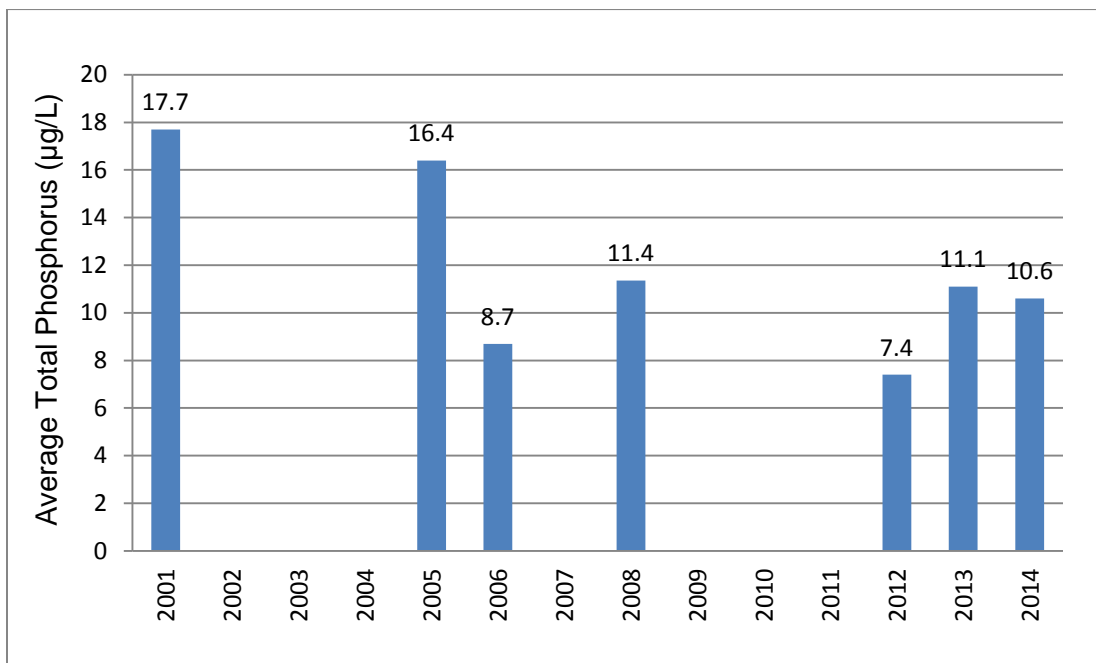
Hannah Lake

The bar graph below indicates the spring phosphorus results for Hannah Lake from 1993 to 2014.



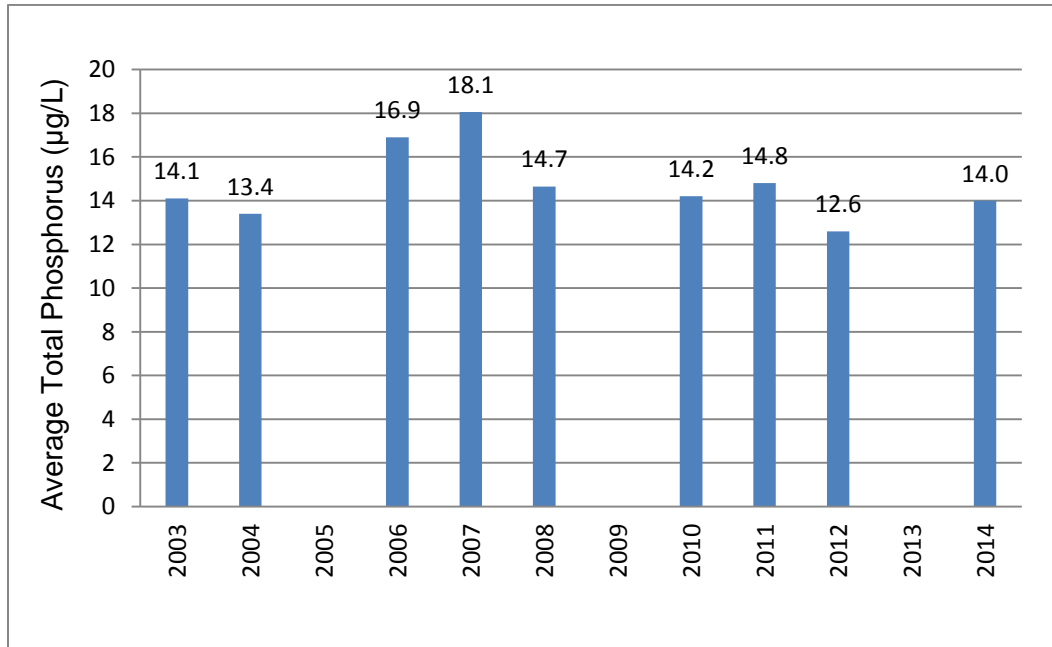
Kasten Lake

The bar graph below indicates the spring phosphorus results for Kasten Lake from 2001 to 2014.



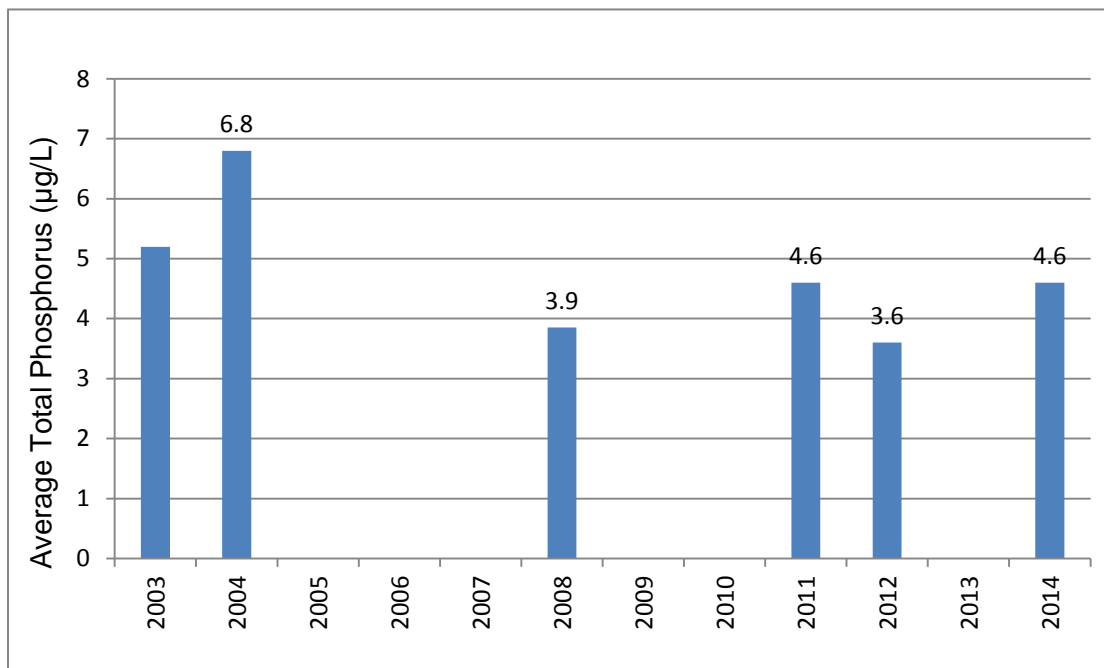
Kusk Lake

The bar graph below indicates the spring phosphorus results for Kusk Lake from 2003 to 2014.



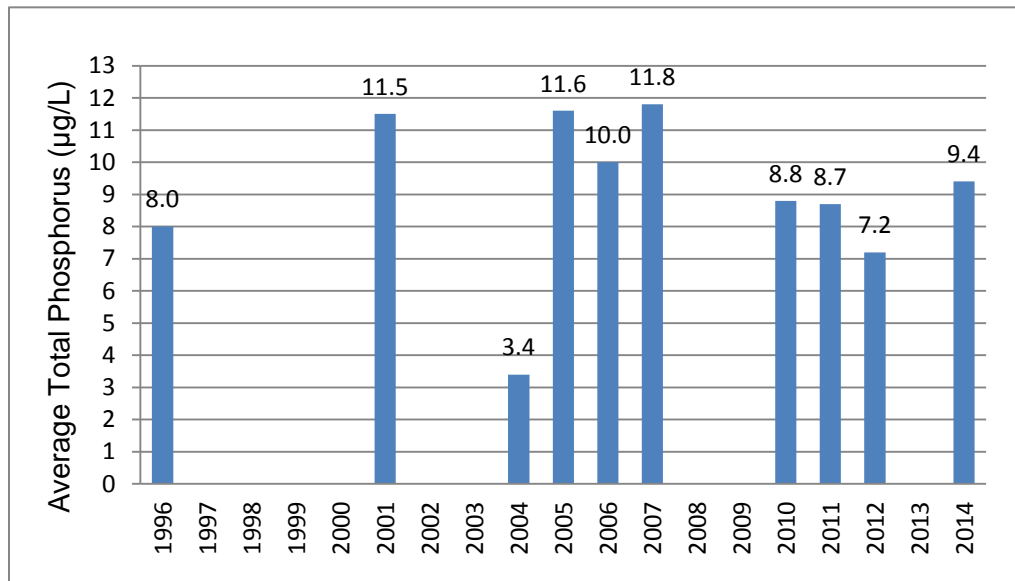
Linton Lake

The bar graph below indicates the spring phosphorus results for Linton Lake from 2003 to 2014.



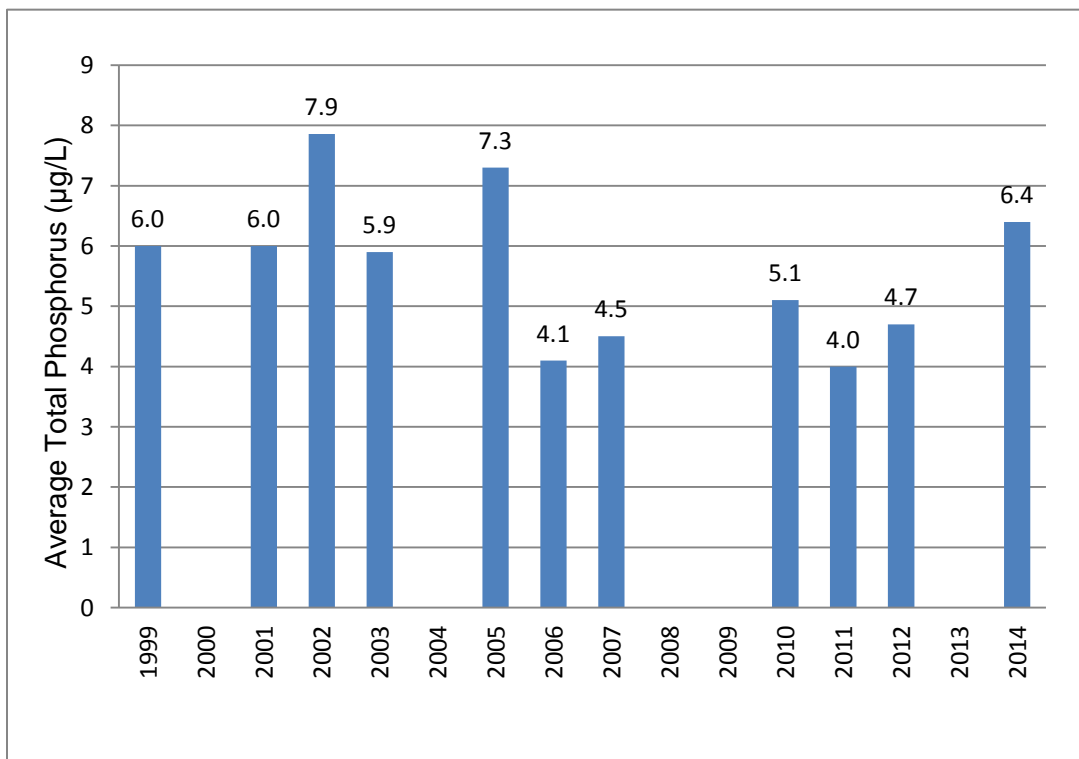
Little Raft

The bar graph below indicates the spring phosphorus results for Little Raft Lake from 1996 to 2014.



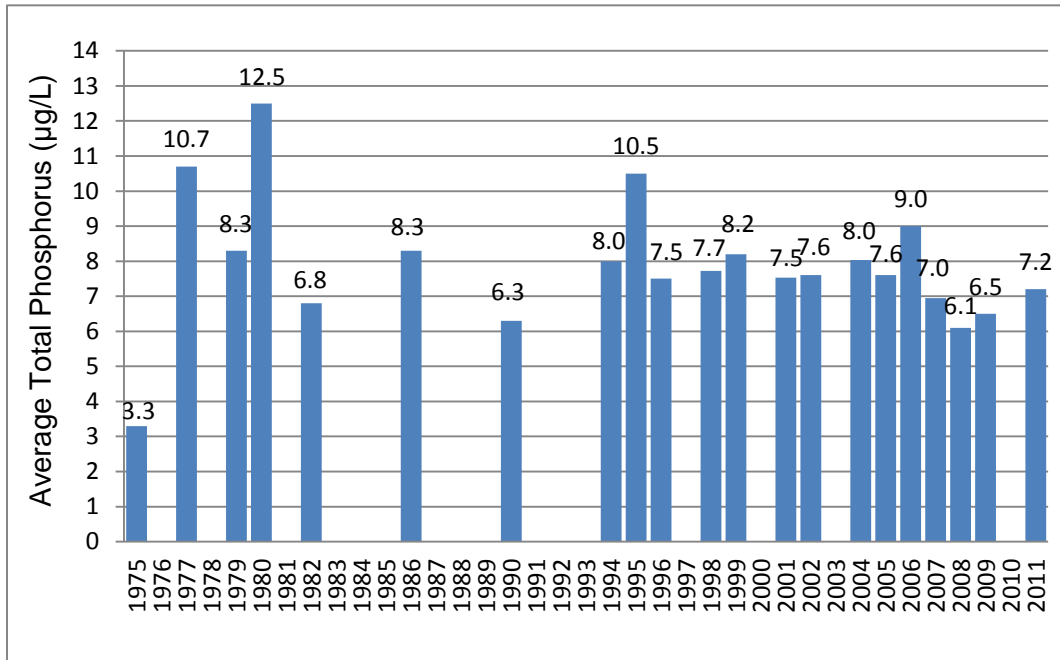
Lohi Lake

The bar graph below indicates the spring phosphorus results for Lohi Lake from 1999 to 2014.



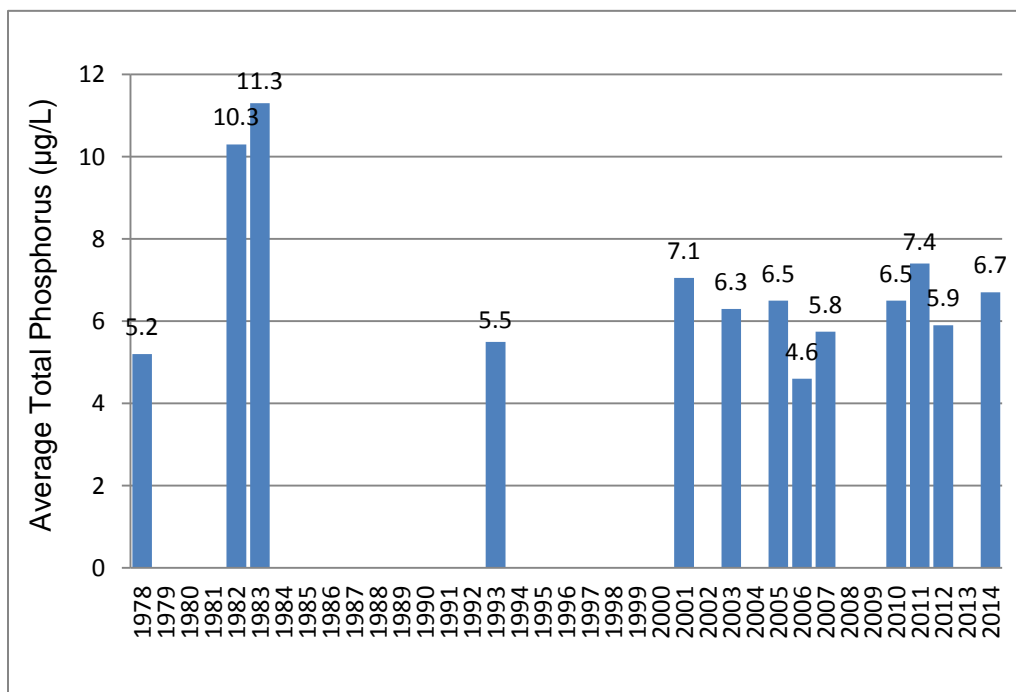
Long Lake

The bar graph below indicates the spring phosphorus results for Long Lake from 1975 to 2014.



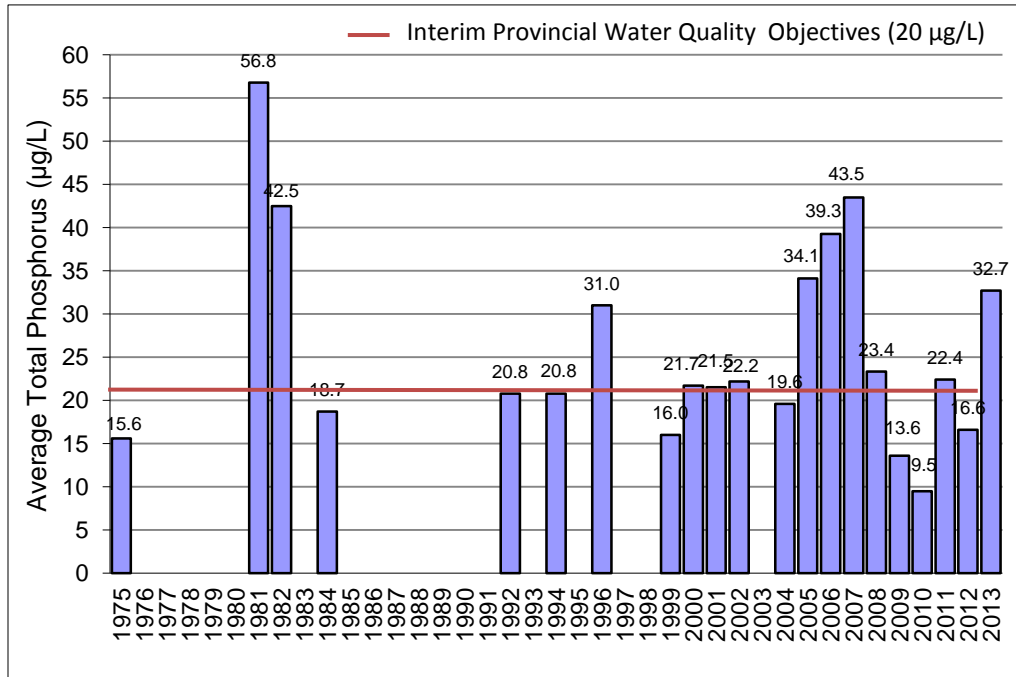
Makada (Black) Lake

The bar graph below indicates the spring phosphorus results for Black Lake from 1978 to 2014.



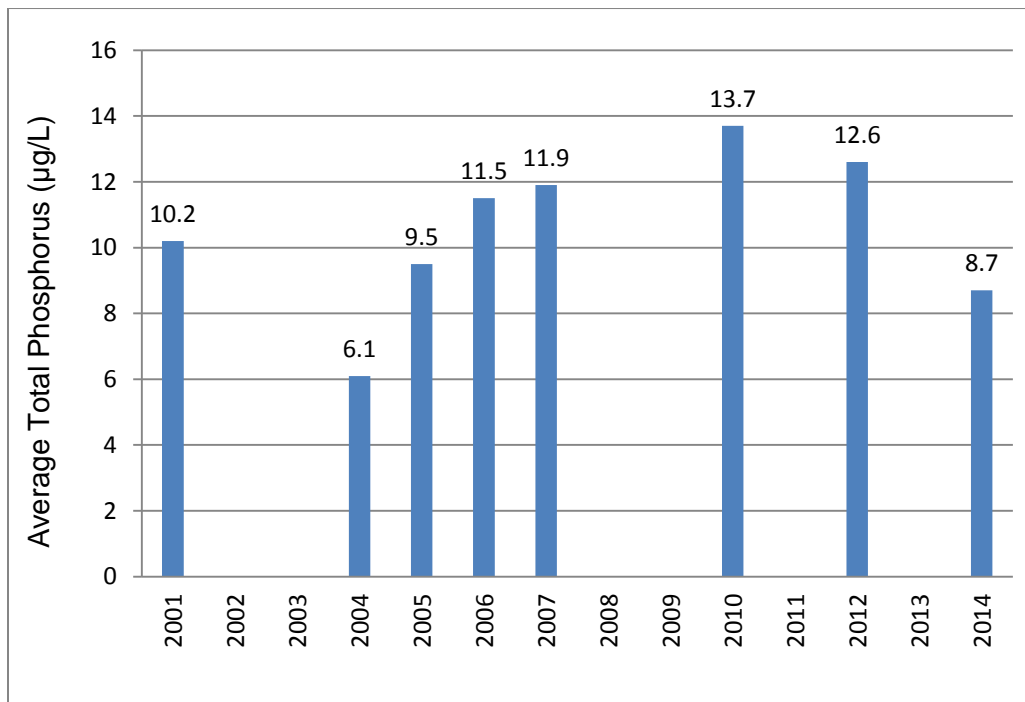
McCharles Lake

The bar graph below indicates the spring phosphorus results for McCharles Lake from 1975 to 2014.



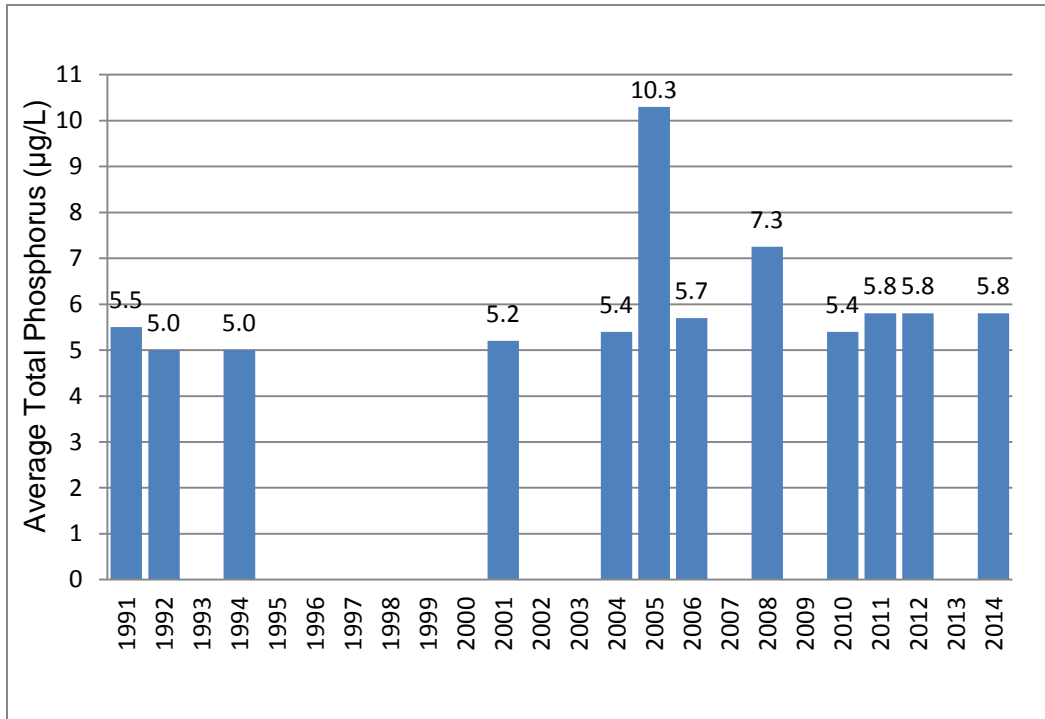
McCrea

The bar graph below indicates the spring phosphorus results for McCrea Lake from 2001 to 2014.



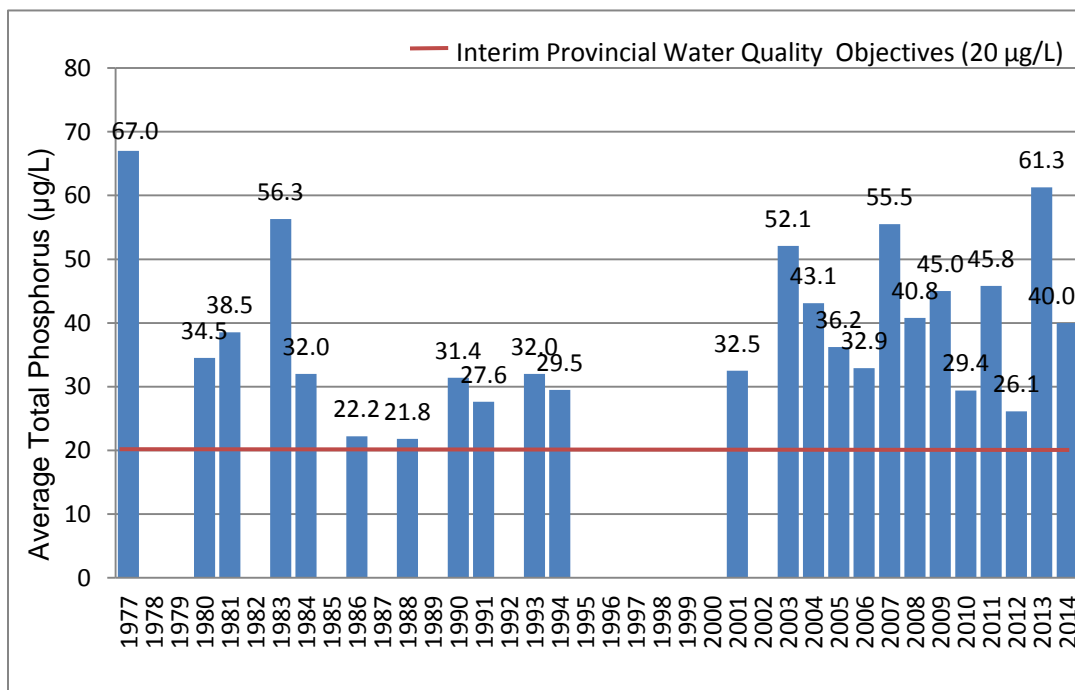
Middle Lake

The bar graph below indicates the spring phosphorus results for Middle Lake from 1991 to 2014.



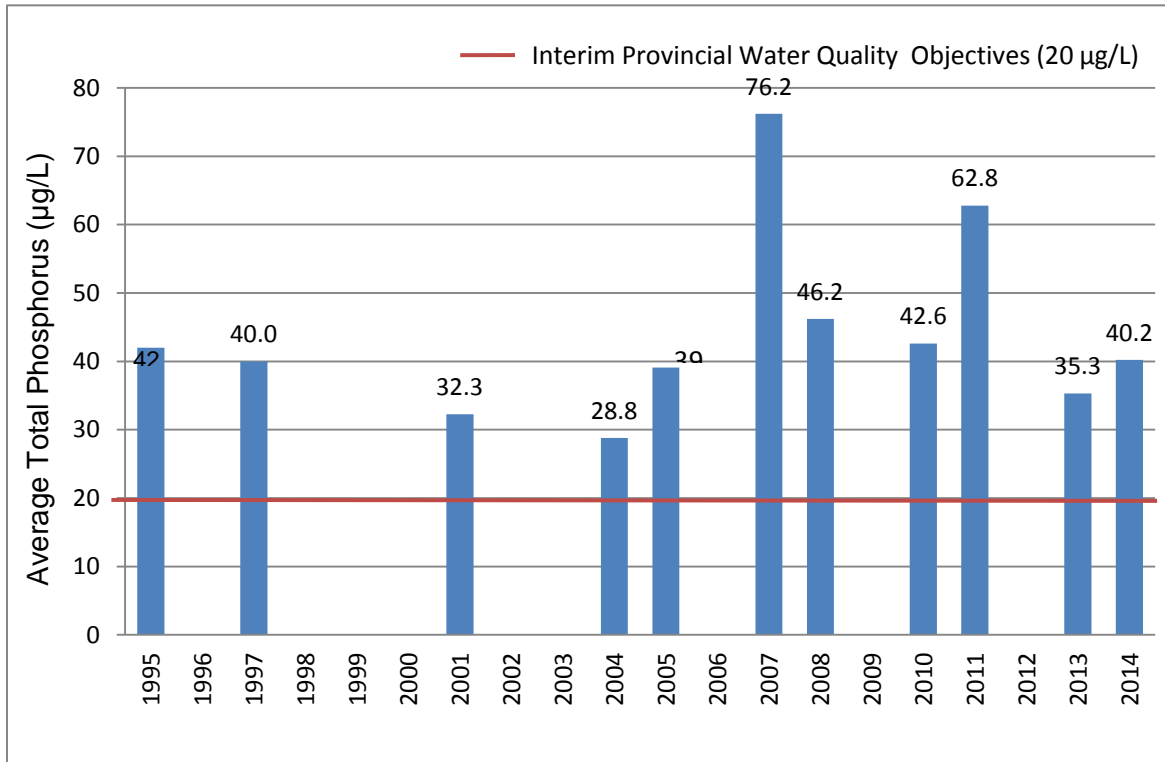
Minnow Lake

The bar graph below indicates the spring phosphorus results for Minnow Lake from 1977 to 2014.



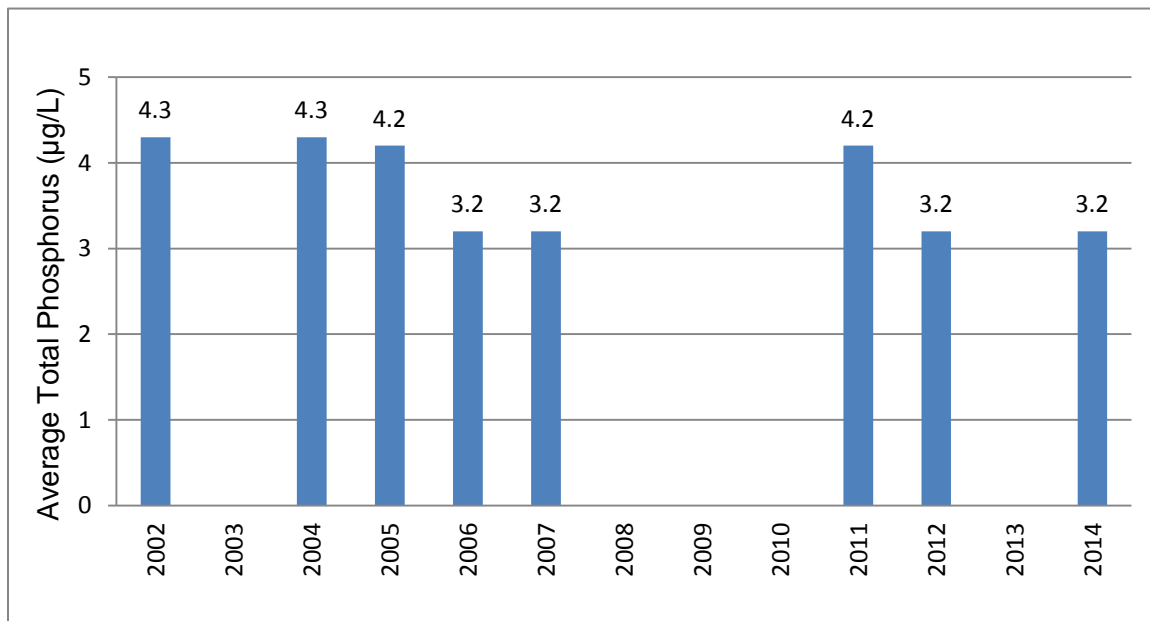
Mud Lake

The bar graph below indicates the spring phosphorus results for Mud Lake from 1995 to 2014.



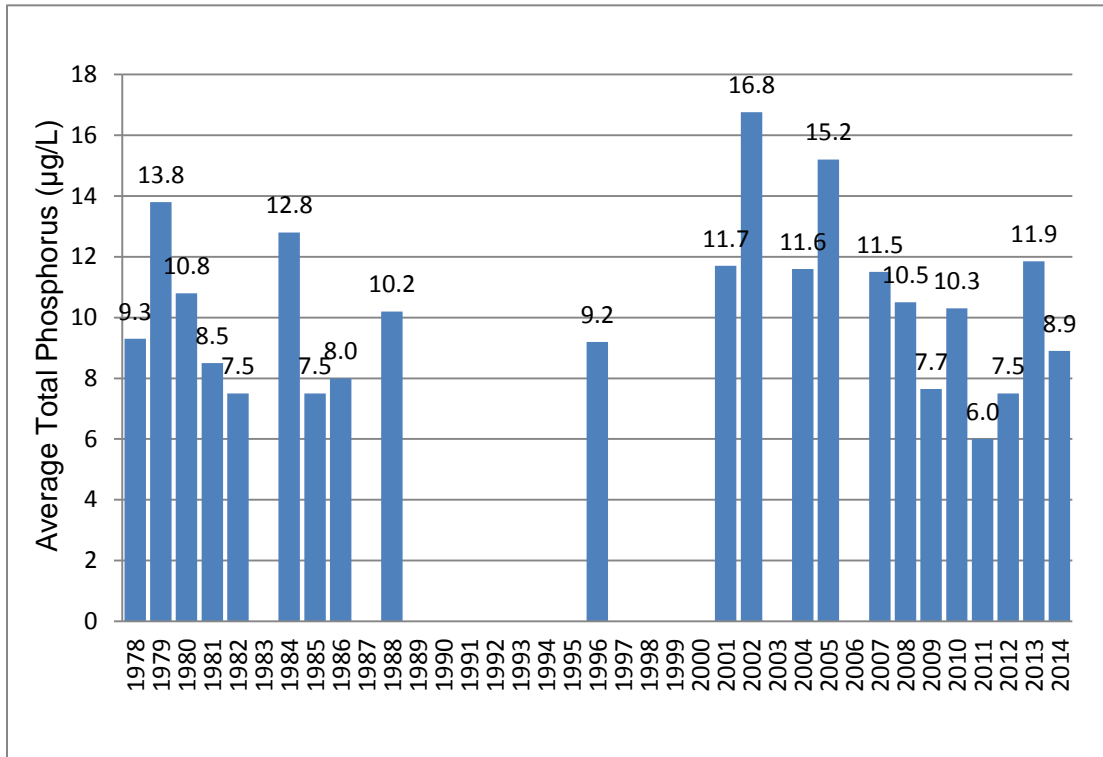
Nelson Lake

The bar graph below indicates the spring phosphorus results for Nelson Lake from 2002 to 2014.



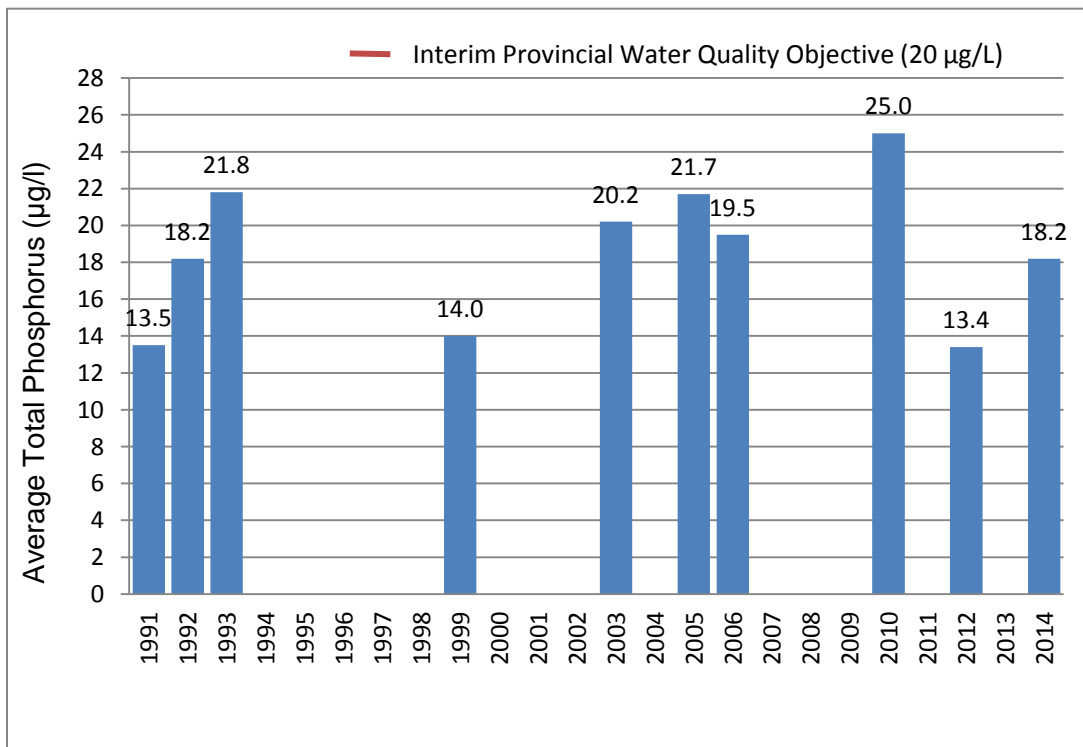
Ramsey Lake

The bar graph below indicates the spring phosphorus results for Ramsey Lake from 1978 to 2014.



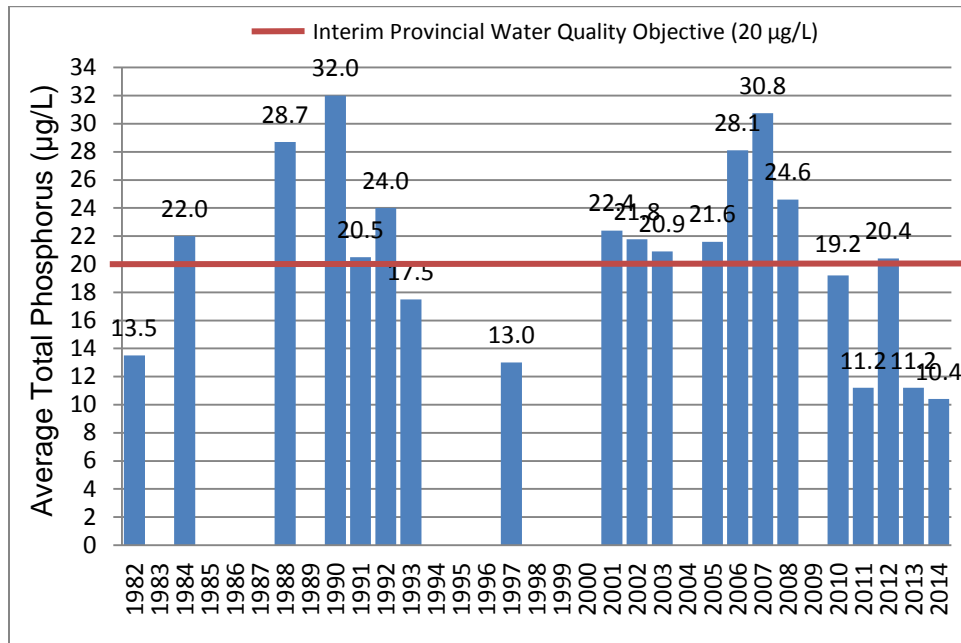
Red Deer Lake

The bar graph below indicates the spring phosphorus results for Red Deer Lake from 1991 to 2014.



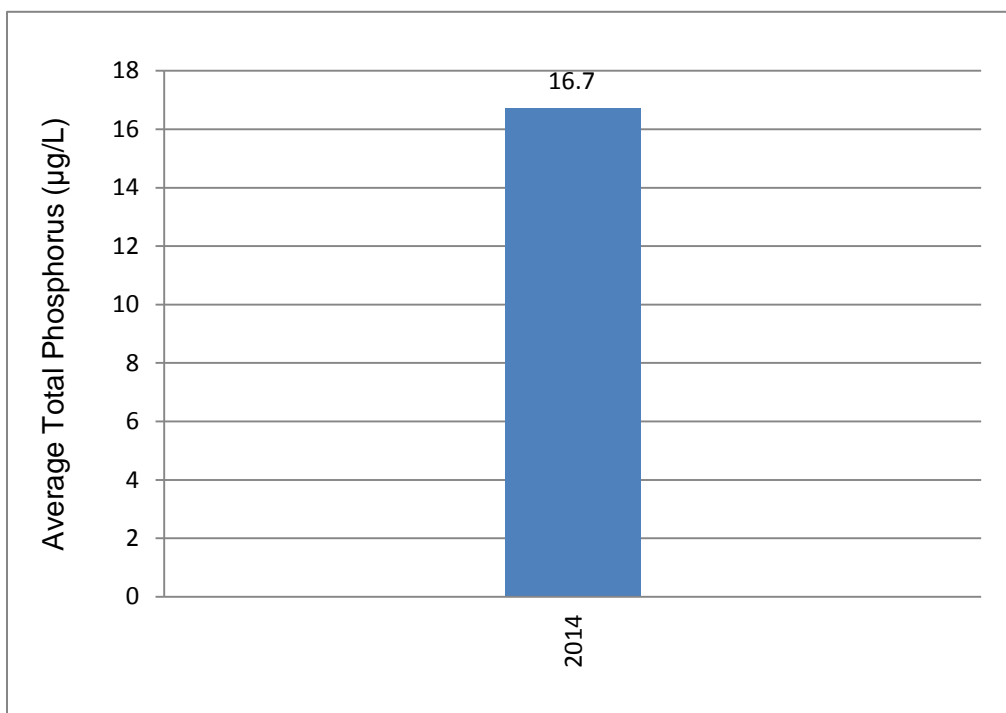
Robinson Lake

The bar graph below indicates the spring phosphorus results for Robinson Lake from 1982 to 2014.



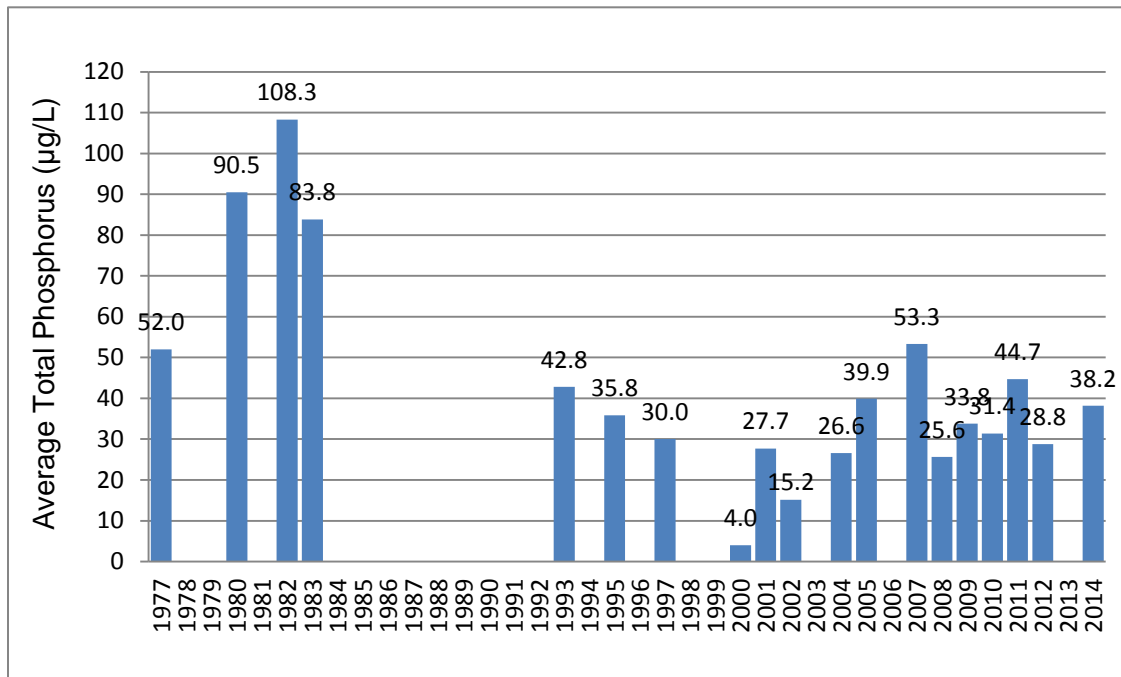
St. Pothier Lake

The bar graph below indicates the spring phosphorus result for St. Pothier Lake for 2014.



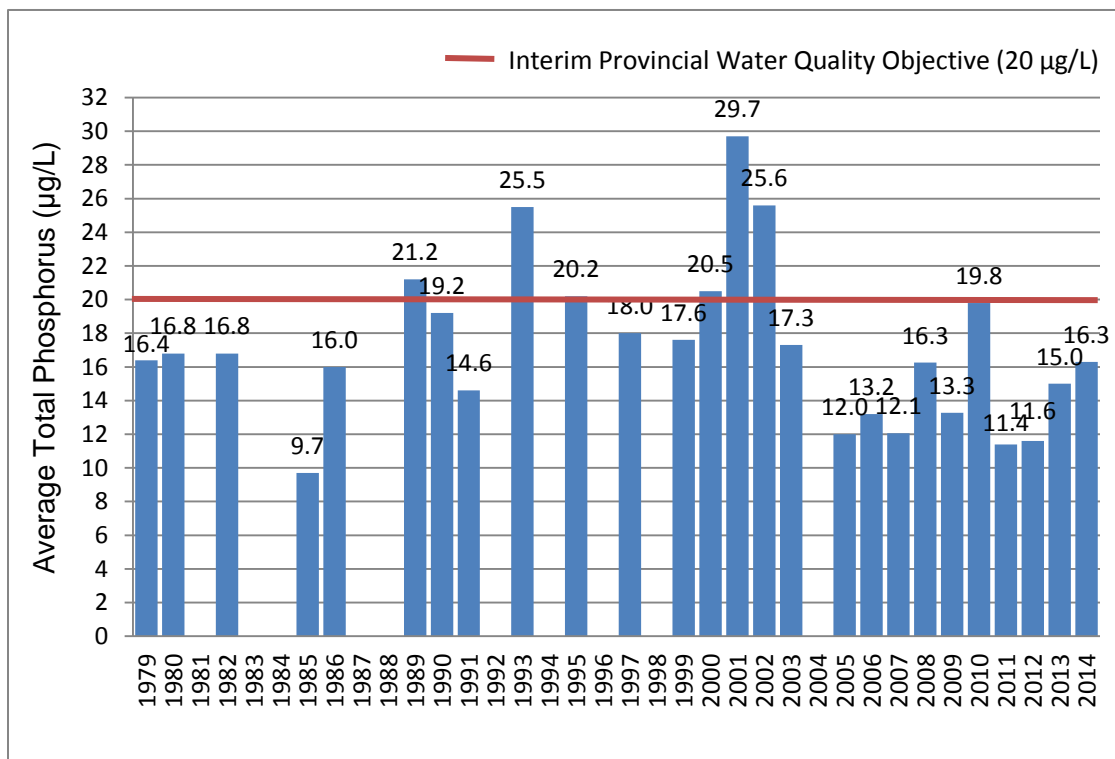
Simon Lake

The bar graph below indicates the spring phosphorus results for Simon Lake from 1977 to 2014.



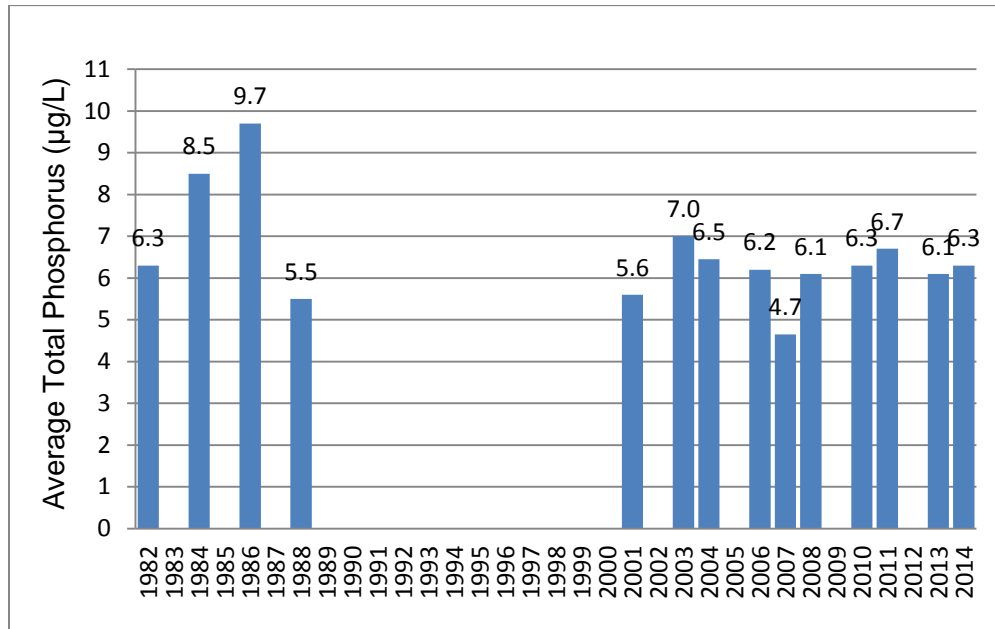
Whitewater

The bar graph below indicates the spring phosphorus results for Whitewater Lake from 1979 to 2014.



Whitson

The bar graph below indicates the spring phosphorus results for Whitson Lake from 1982 to 2014.



For further information, contact

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