

Lake Water Quality Program

Environmental Planning Initiatives



2017 Annual Report



City Of Lakes

The City of Greater Sudbury is recognised as the 'City of Lakes'. With over 330 lakes, it contains more lakes than any other municipality in Canada. These lakes are prized by our citizens who have a vested interest in their health and quality.

Lake Water Quality Program

The Lake Water Quality Program helps 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 Watershed Advisory Panel. Additional duties include website content management and report writing.

Summary of Activities

In collaboration with its partners, the Lake Water Quality Program carried out annual spring phosphorus sampling, the Love Your Lake shoreline assessment program, aquatic vegetation mapping, weekly cyanobacteria watch on Ramsey lake, the Lake Stewardship Grant Program and co-ordinated the Shoreline Home Visit Program. In summary:

- 34 lakes sampled for spring phosphorus
- 297 properties on Long Lake were surveyed through the Love Your Lake shoreline assessment program
- St. Charles Lake was selected for an aquatic vegetation mapping project undertaken by the Lake Water Quality program. Mapping of all 303 points on St. Charles Lake was completed during the 2017 season.
- Weekly cyanobacterial bloom (blue-green algae) watch conducted on Lake Ramsey during the summer months including the use of a new fluorometer to test reflectance values of water samples to help detect potential cyanobacterial blooms
- 9 lake stewardship grants awarded for a total of \$4500 in funding to local lake stewardship groups
- 7 Watershed Advisory Panel meetings held in 2017
- 30 active lake stewardship groups total, 1 new stewardship created in 2017: Lake Robinson Stewardship

Lake Water Quality Program Components

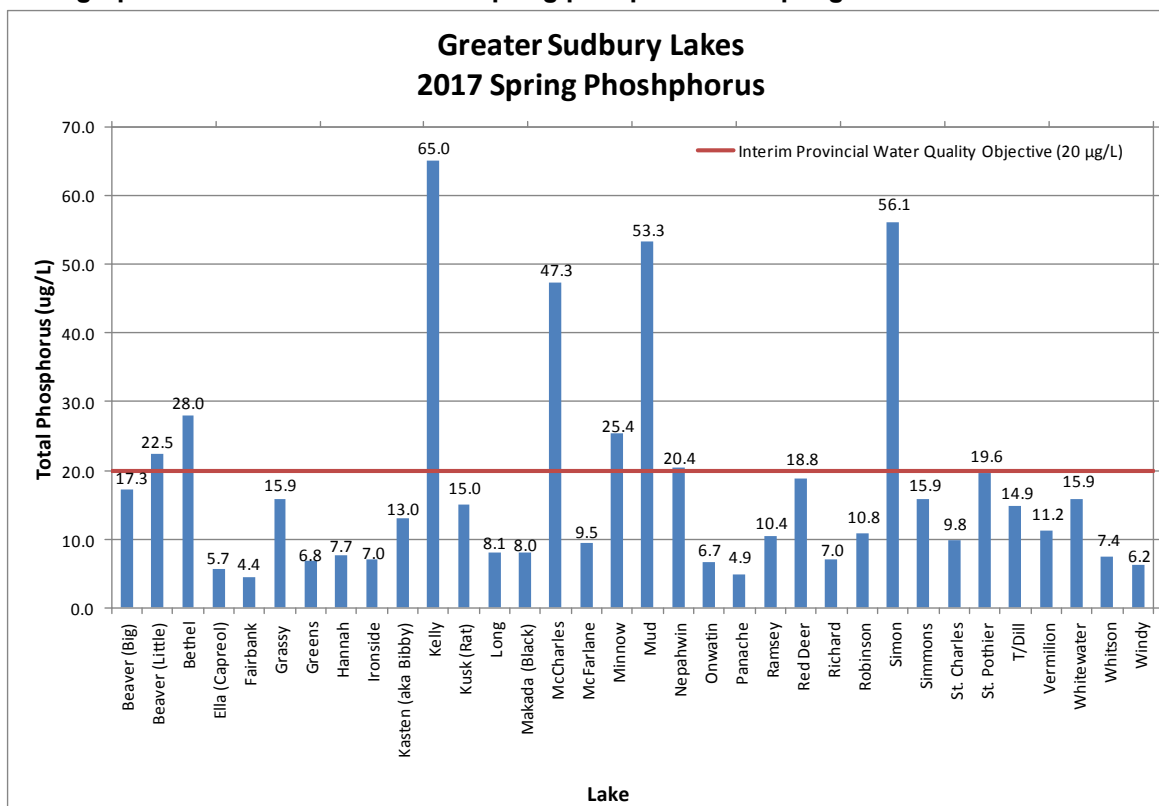
Spring Phosphorus Sampling Program

The City of Greater Sudbury has been sampling a group of approximately 67 local lakes for spring phosphorus since 2001 on a rotating basis. These lakes were chosen based on their historical phosphorus levels, waterfront development pressures, and requests from lake stewardship groups. Phosphorus is the main contributing nutrient that controls the growth and development of algae. Spring phosphorus samples are taken during a natural phenomenon called “spring turnover”. This event occurs shortly after ice off in the early spring when the water on the surface warms up and becomes the same temperature as the bottom of the lake. Through wind action the surface water mixes with the bottom layers creating equilibrium in the water column. This is the optimal time for phosphorus samples in the Canadian Shield as recommended by the Ontario Ministry of the Environment and Climate Change. Phosphorus can enter a lake through natural sources, such as aerial deposition, wildlife, vegetation cover, and soil. Phosphorus can also enter our local lakes through human activity, including fertilization of lawns and gardens, agricultural practices, detergents and cleaners, and private, industrial and municipal wastewater.

Spring Phosphorus Results

The spring phosphorus sampling was conducted in May on 34 lakes, at 37 total sites. Sampling results 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, eight 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 likely eutrophic and nutrient rich.

The bar graph below indicates the 2017 spring phosphorus sampling results for 34 local lakes.



Weekly Cyanobacteria (Blue-green Algae) Watch

Lake Water Quality Program staff checked for signs of cyanobacterial blooms on Lake Ramsey once a week throughout the summer. This was the second year that the City undertook this initiative which aims to provide early warning of developing cyanobacterial blooms for residents and operators of the David Street water treatment plant. The initiative involved a weekly visual check of the entire lake, including beaches, main basins and small bays by way of a motor boat. The 2017 season also included the use of an Aquafluor Fluorometer which helps detect trace levels of cyanobacteria in the water during the weekly surveys. The 2017 visual check confirmed one (1) cyanobacterial bloom extending just north of Keast Drive during one survey instance only, July 25th.

Aquatic Vegetation Mapping – St. Charles Lake

Between July 31, 2017 and August 8, 2017 members of the Lake Water Quality program at the City of Greater Sudbury performed a vegetation survey of St. Charles Lake to identify all species present within the lake at the time of the survey. The goal of the project was to create a database of locations in which aquatic vegetation species are present including invasive Eurasian Watermilfoil. Lakes will be revisited in future years to determine whether various species populations are growing or shrinking which will help the city create invasive species management strategies.

The sampling procedures done by the City of Greater Sudbury were based on procedures outlined in the Recommended Baseline Monitoring of Aquatic Plant in Wisconsin: Sampling Design Field and Laboratory Procedures, Data Entry and Analysis, and Applications by the Wisconsin Department of Natural Resources. Using calculations outlined in the Wisconsin Department of Natural Resources document as well as a journal article (Mikulyuk et al 2010), 303 sampling points were created based on lake surface area, depth and the shoreline development factor. Each point was sampled by canoe using a double sided rake and three rake tosses at each location as per the outlined procedure. Aquatic vegetation was identified and recorded. Maps were then created to show the distribution of each species within the lake and the relationship between the various species found within the lake. Future mapping projects are planned for 2018.

Community Outreach

Love Your Lake Program

Love Your Lake, a program of the Canadian Wildlife Federation and Watersheds Canada, offers comprehensive shoreline surveys and stewardship education to individual shoreline residents. In Greater Sudbury, the field work and administration of this program is undertaken by Lake Water Quality staff. Underway locally since 2014, Love Your Lake yields individualized, confidential recommendations to shoreline residents over an entire lake. Residents are encouraged to become stewards of their lake by acting on the recommendations to improve the health of their lake.

In 2017 the Lake Water Quality program began Love Your Lake shoreline assessments on Long Lake. Due to the large size of Long Lake and the number of properties the assessments were to be done over a number of years. In 2017 a total of 297 properties and their shorelines were assessed and completed for a total of 15.3km of shorelines assessed.

Sudbury Children's Water Festival

This was the 13th 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

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.

Watershed Advisory Panel

The Watershed Advisory Panel is appointed by City Council to provide advice and recommendations to the municipality on matters relating to watershed and lake water quality in Greater Sudbury. The current Panel members were appointed in 2015 for a three -year term, ending with the term of Council in 2018. A total of 7 meetings were held in 2017.

Members

The Lakes Advisory Panel is made up of one City Councillor, eight community volunteers, six technical experts and two City staff.

Community Volunteers

Lin Gibson - Chair

Mary Henderson – Vice Chair

Jeffery Huska

Margaret McLaughlin

Lily Noble

Paul Truskoski

Wendy Wisniewski

Sarah Woods

Technical Experts

Burgess Hawkins – Sudbury & District Health Unit

Derrick Luetchford - MNR

Dr. John Gunn – Vale Living With Lakes Centre

Ed Snucins – Ontario Ministry of Environment

Anoop Naik –Conservation Sudbury

Dr. Charles Ramcharan – Laurentian University

City Councillors

Mark Signoretti

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,

9 applications for funding were received with all applicants receiving the full \$500 grant. The following is a list of the successful applicants.

Funding recipients for 2017

Clearwater Lake Stewardship Group

Project Name: Community Public Boat Launch Signage & BBQ Event

Amount Received: \$500

Fairbank Lake Camp Owners' Association Inc

Project Name: Water Safety – Solar Powered Navigational Marine Lights/Beacons

Amount Received: \$500

Four Lakes Community Association

Project Name: Saving Our Environment Calendar

Amount Received: \$500

Friends of McFarlane Lake

Project Name: Water Quality Monitoring

Amount Received: \$500

Long Lake Stewardship

Project Name: Gotta' Love Your Lake

Amount Received: \$500

Onwatin Lake

Project Name: Preserve, Protect, Participate Project Onwatin

Amount Received: \$500

Ramsey Lake Stewardship Committee

Project Name: Yellow Fish Campaign & Cigarette Clean-Up Campaign

Amount Received: \$500

Simon Lake Stewardship Group

Project Name: Richard Lake Awareness Booklet

Amount Received: \$500

Lake Wahnapiatae: Home and Campers Association

Project Name: No Littering Signage Project

Amount Received: \$500

Stewardship Groups

Currently, there are 30 lake stewardship groups throughout the Greater Sudbury area, acting as important agents for positive change in shoreline living practices.

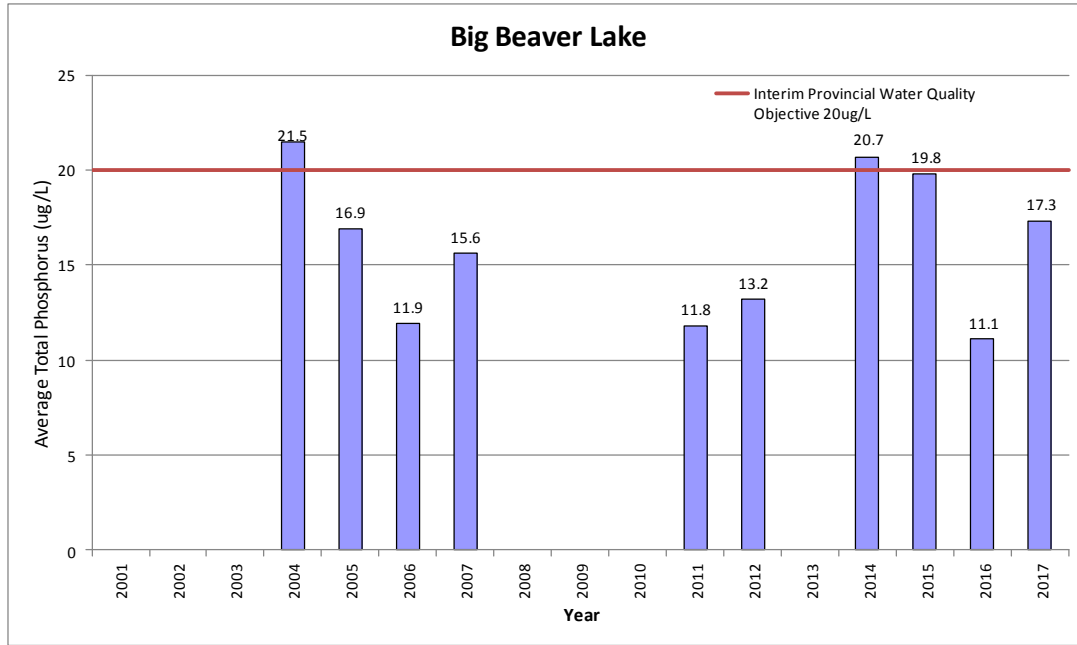
The following is a list of the active lake stewardship groups in Greater Sudbury. Lake Robinson Stewardship Committee is a new stewardship group as of 2017.

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	
Forest Lake Stewardship Committee	Forest Lake	
Four Lakes Association	Joe, Hanmer, Frenchman and Dixon Lakes	
Ironside Lake	Ironside Lake	
Kukagami Lake Campers Association	Kukagami Lake	
Kusk (Rat) Lake	Kusk (Rat) Lake	
Lake Nepahwin Stewardship Group	Nepahwin Lake	
Lake Panache Campers Association	Panache Lake	Website
Lake Robinson Stewardship	Robinson Lake	
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	

Phosphorus Graphs for Lakes Sampled in 2017

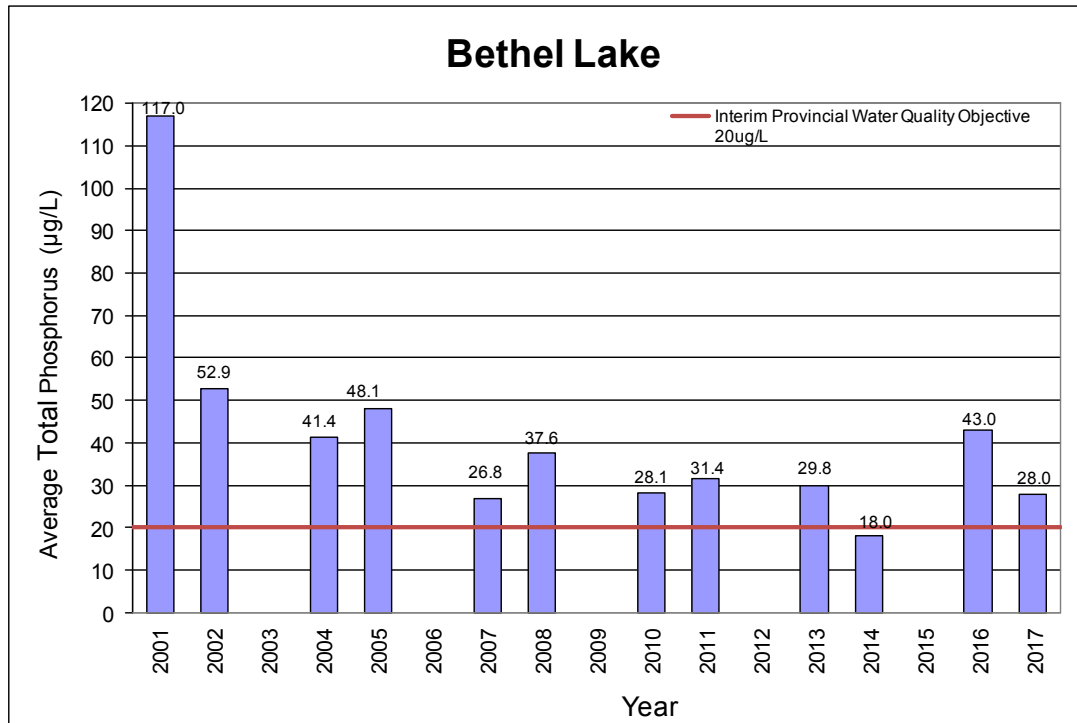
Big Beaver Lake

The bar graph below indicates the spring total phosphorus results for Big Beaver Lake from 2001 to 2017.



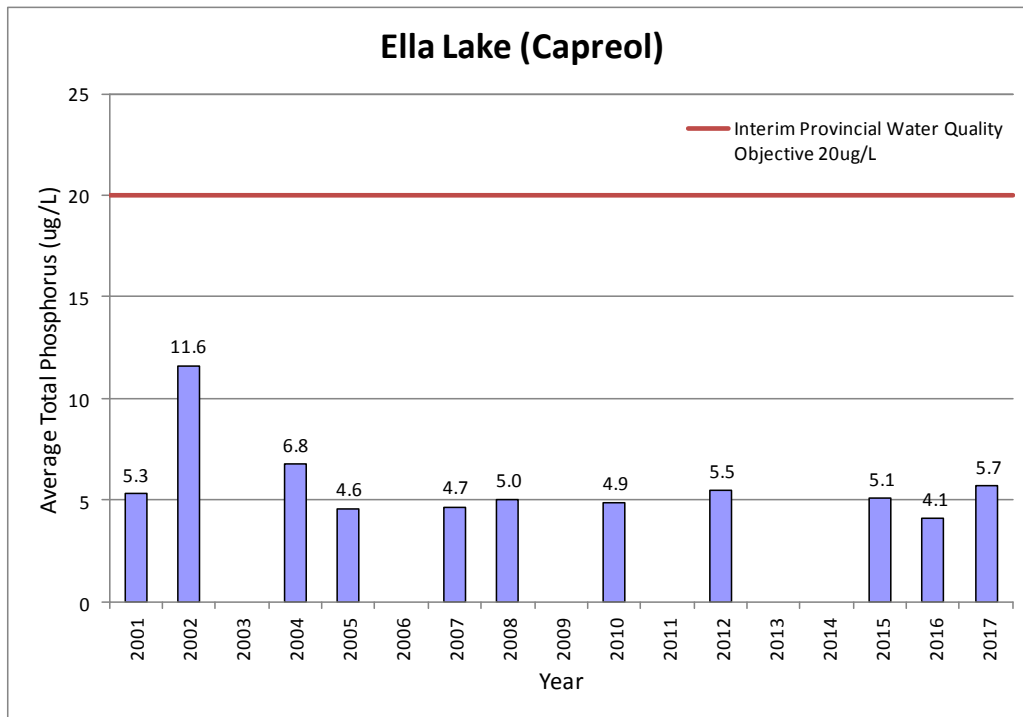
Bethel Lake

The bar graph below indicates the spring total phosphorus results for Bethel Lake from 2001 to 2017.



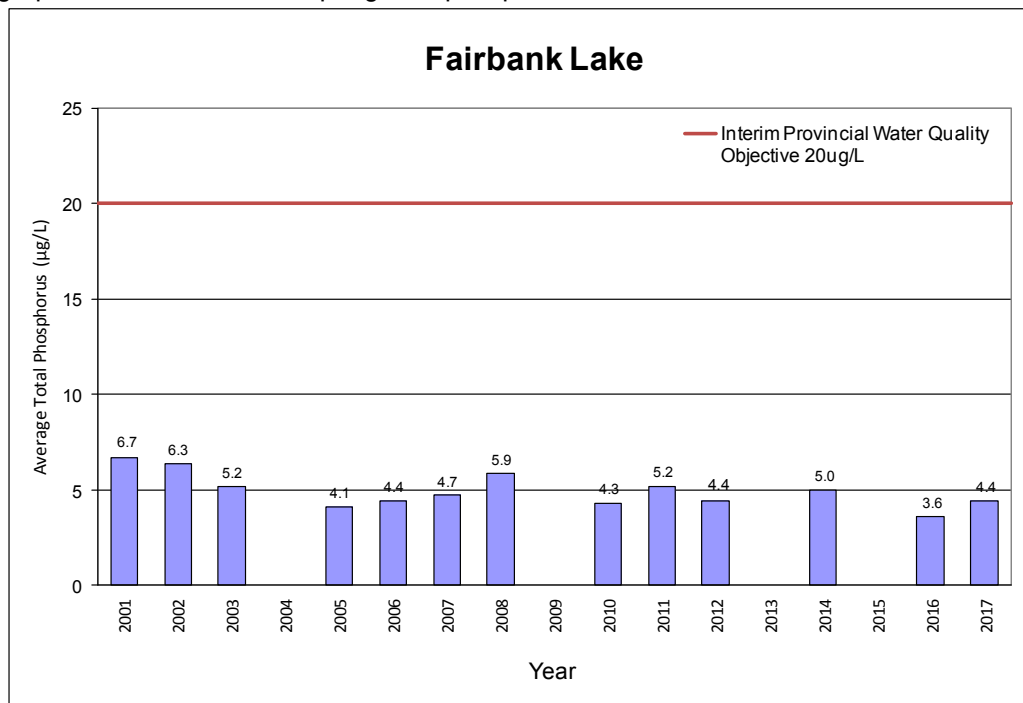
Ella Lake (Capreol)

The bar graph below indicated the spring total phosphorus results for Ella Lake from 2001-2017.



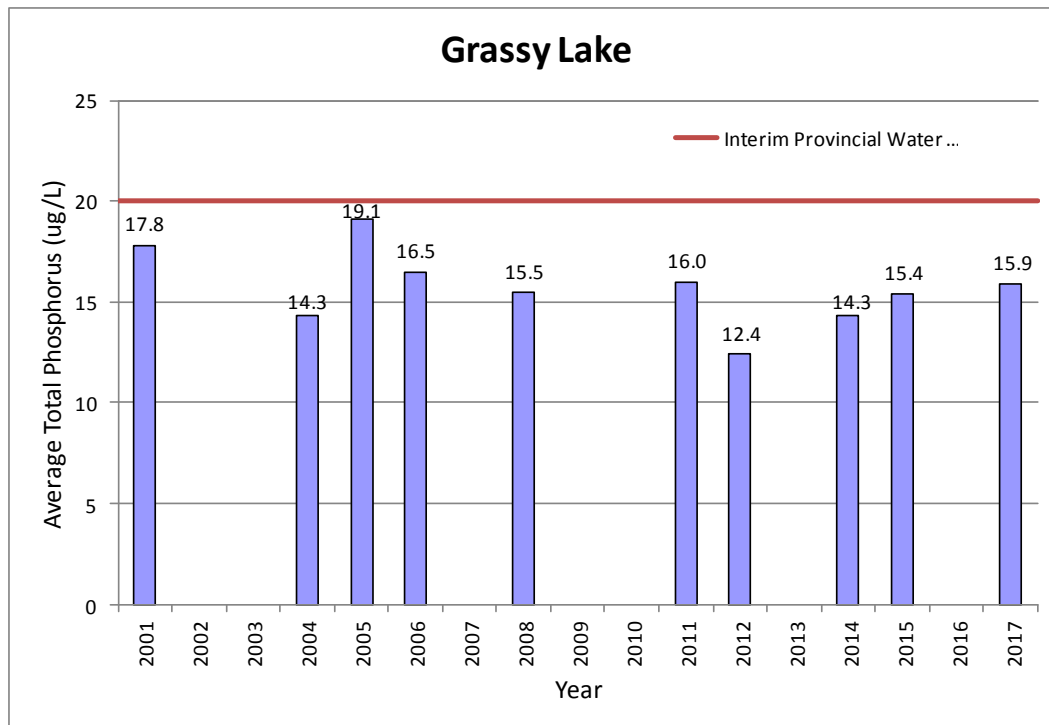
Fairbank Lake

The bar graph below indicates the spring total phosphorus results for Fairbank Lake from 2001-2017.



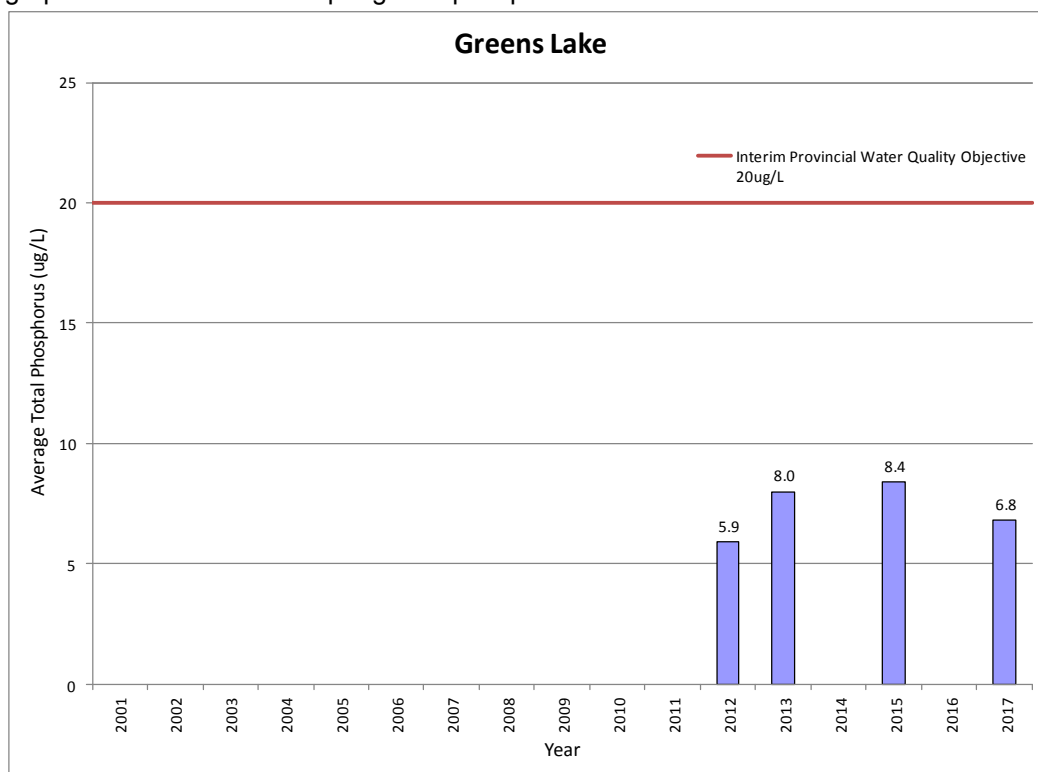
Grassy Lake

The bar graph below indicates the spring total phosphorus results for Grassy Lake from 2001-2017.



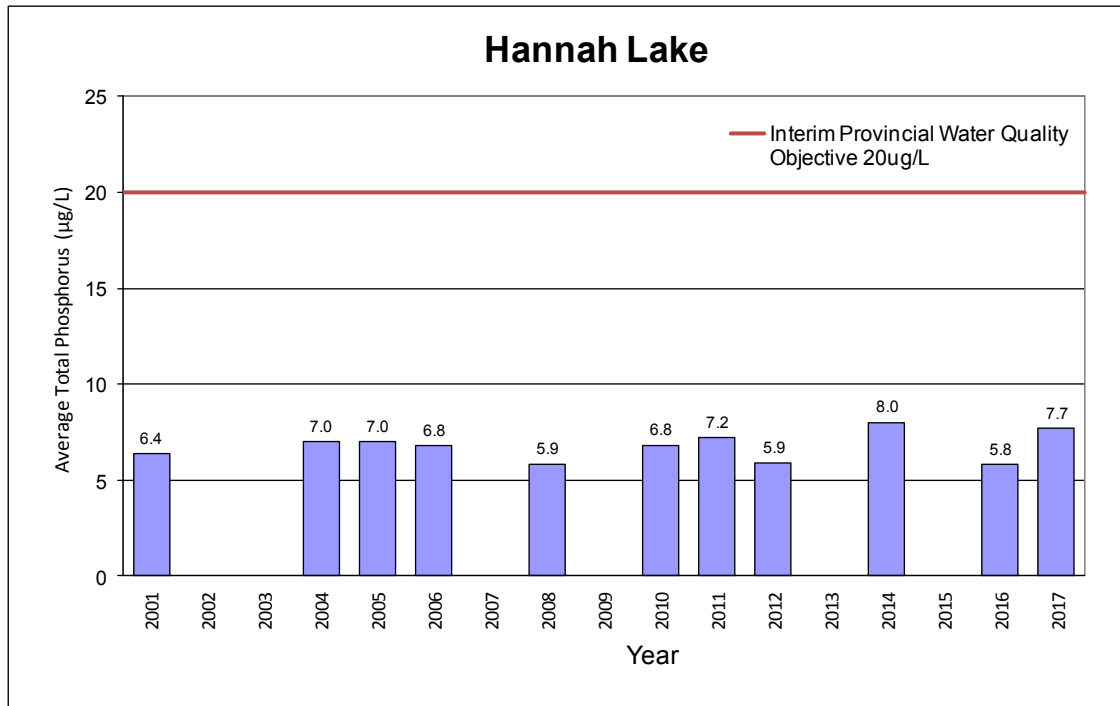
Greens Lake

The bar graph below indicates the spring total phosphorus results for Greens from 2001-2017.



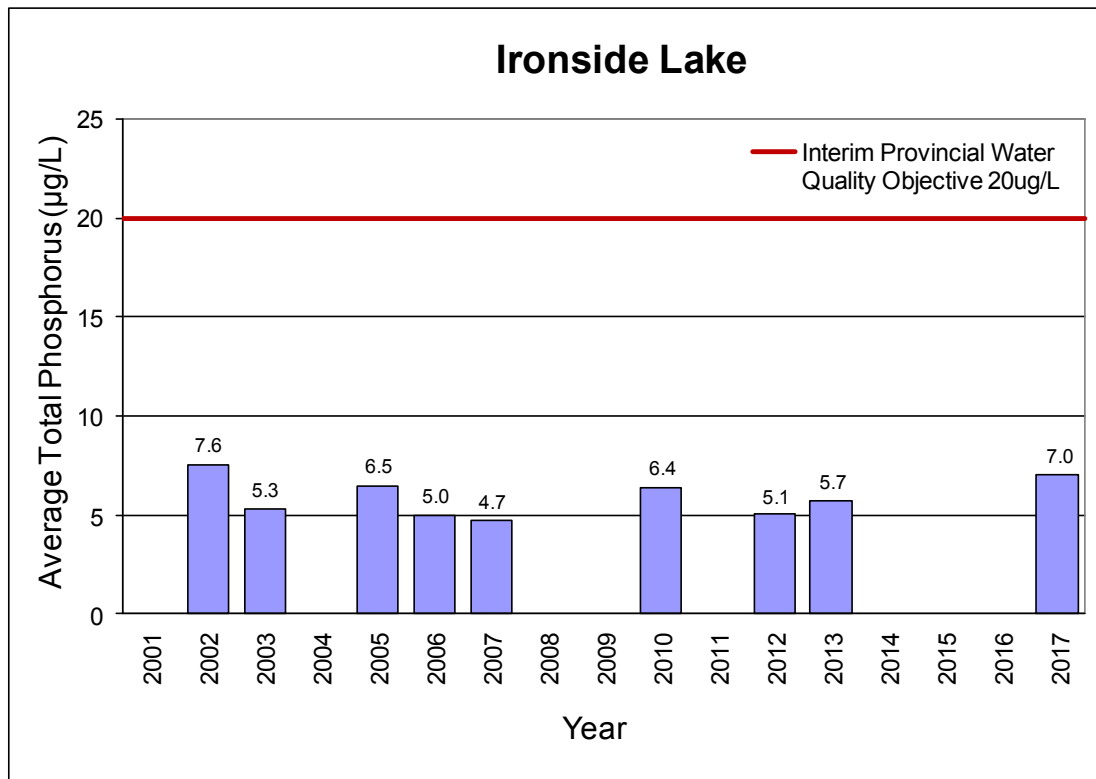
Hannah Lake

The bar graph below indicates the spring total phosphorus results for Hannah Lake from 2001-2017.



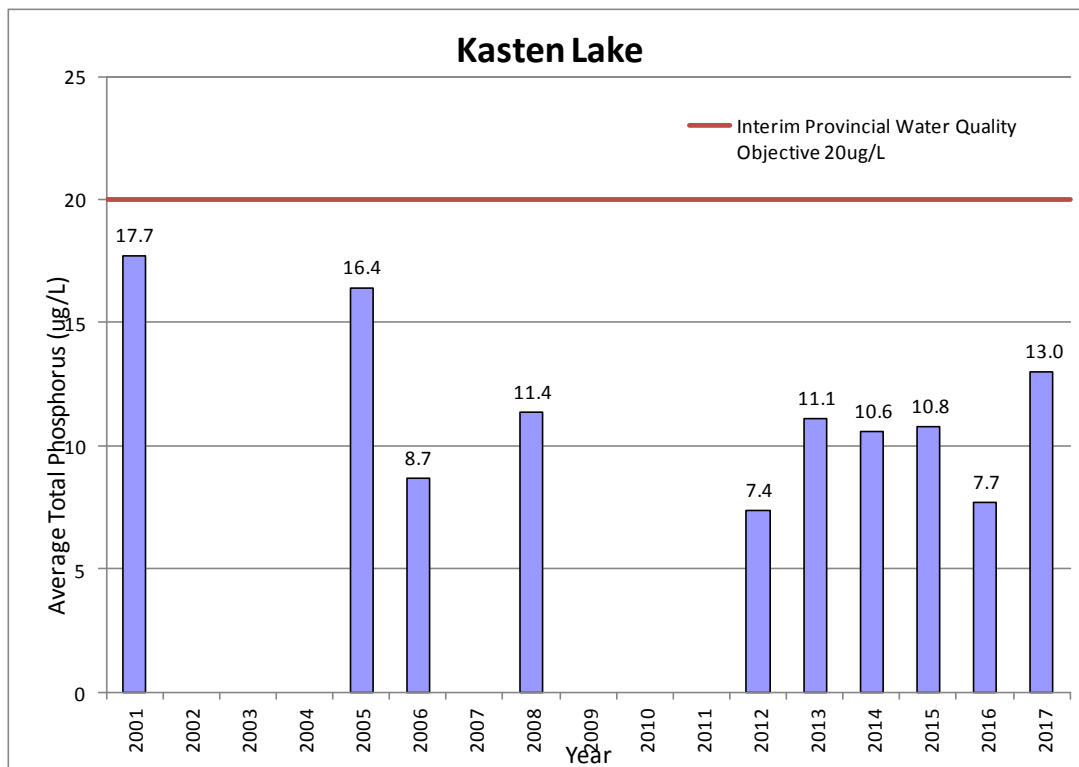
Ironside Lake

The bar graph below indicates the spring total phosphorus results for Ironside Lake from 2001-2017.



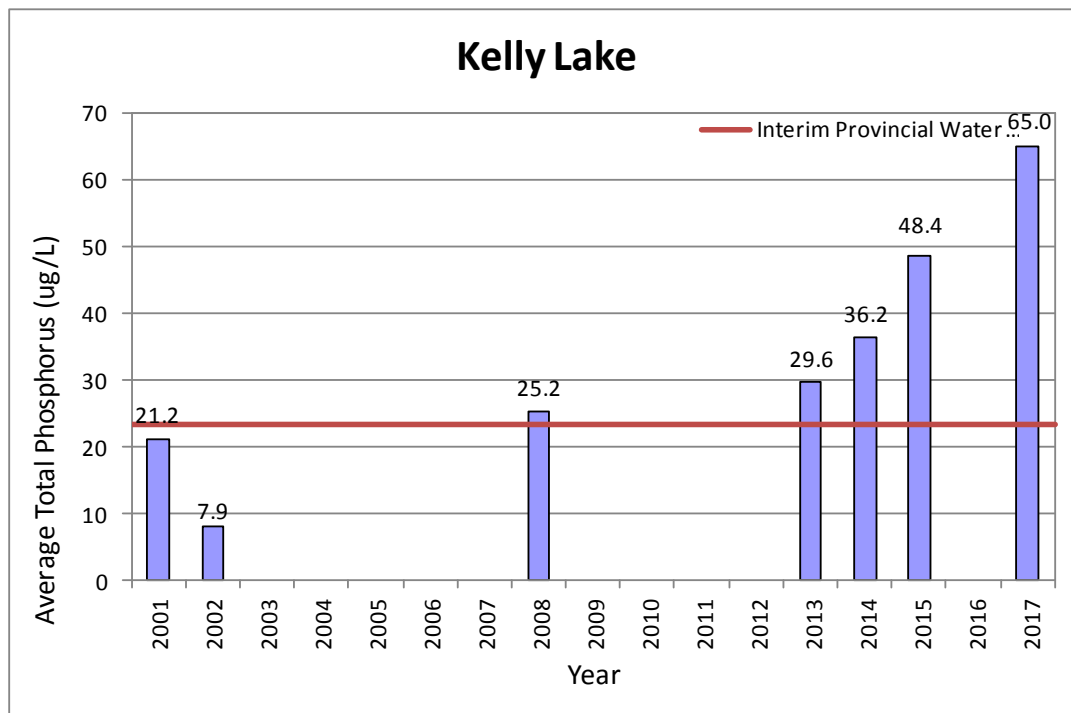
Kasten (Bibby) Lake

The bar graph below indicates the spring total phosphorus results for Kasten (Bibby) Lake from 2001-2017.



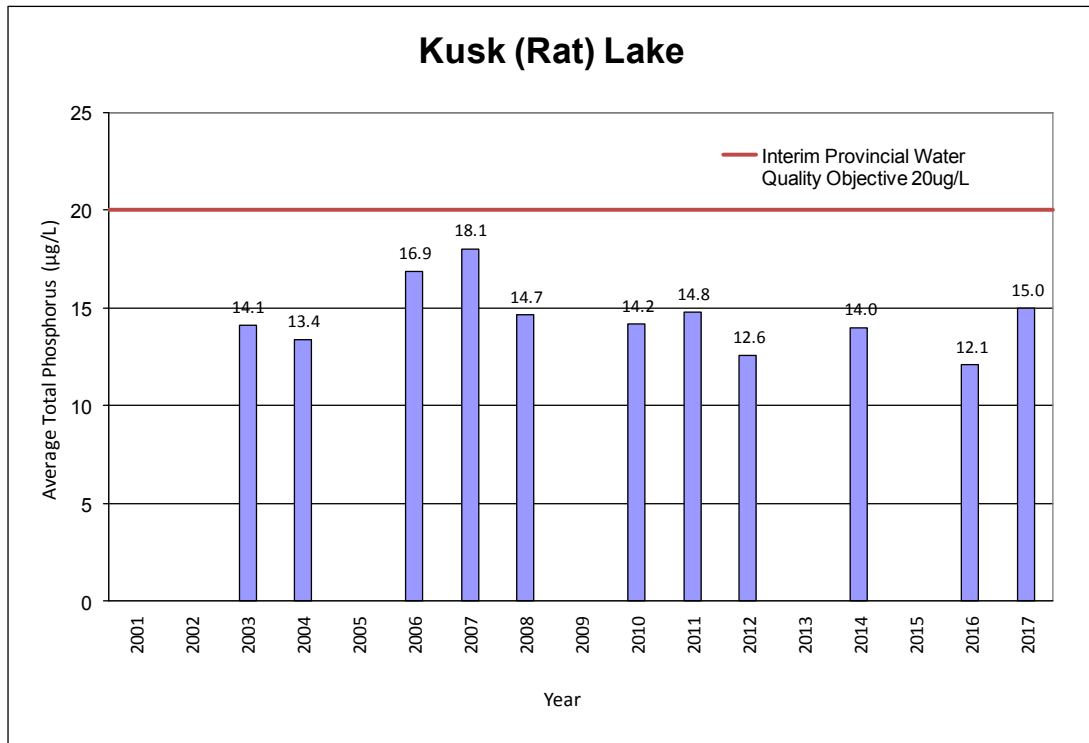
Kelly Lake

The bar graph below indicates the spring total phosphorus results for Kelly Lake from 2001-2017.



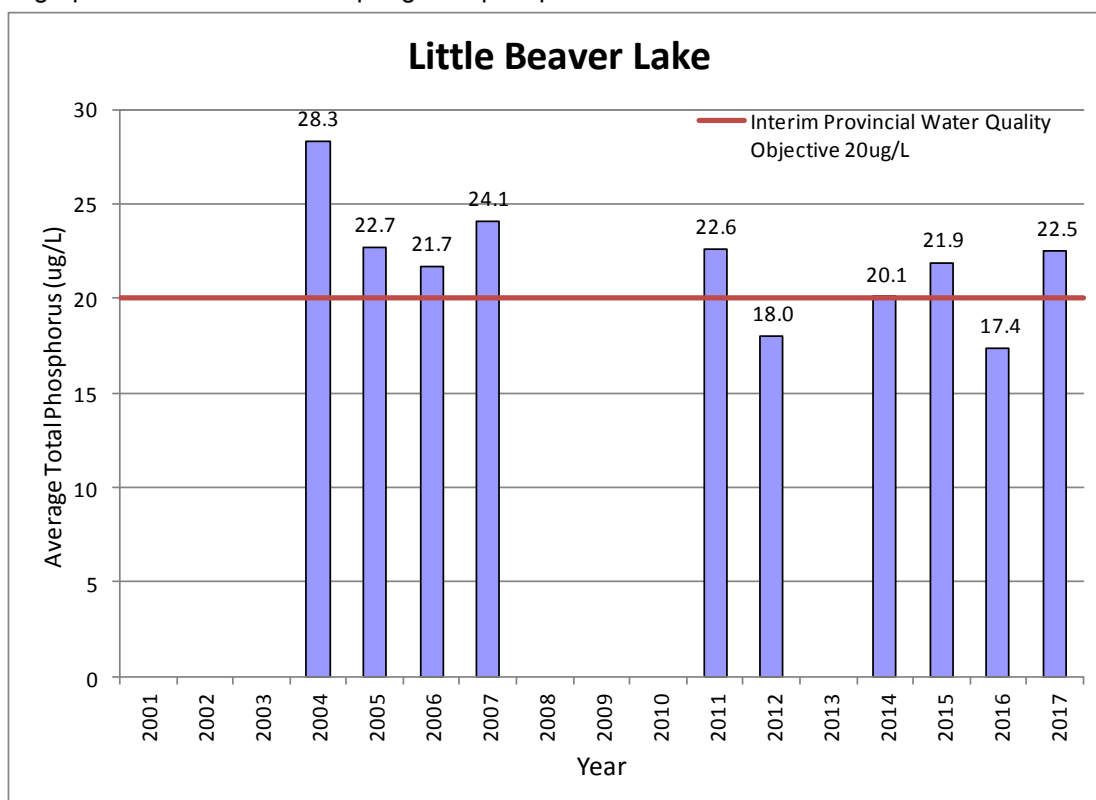
Kusk (Rat) Lake

The bar graph below indicates the spring total phosphorus results for Kusk (Rat) Lake from 2001-2017.



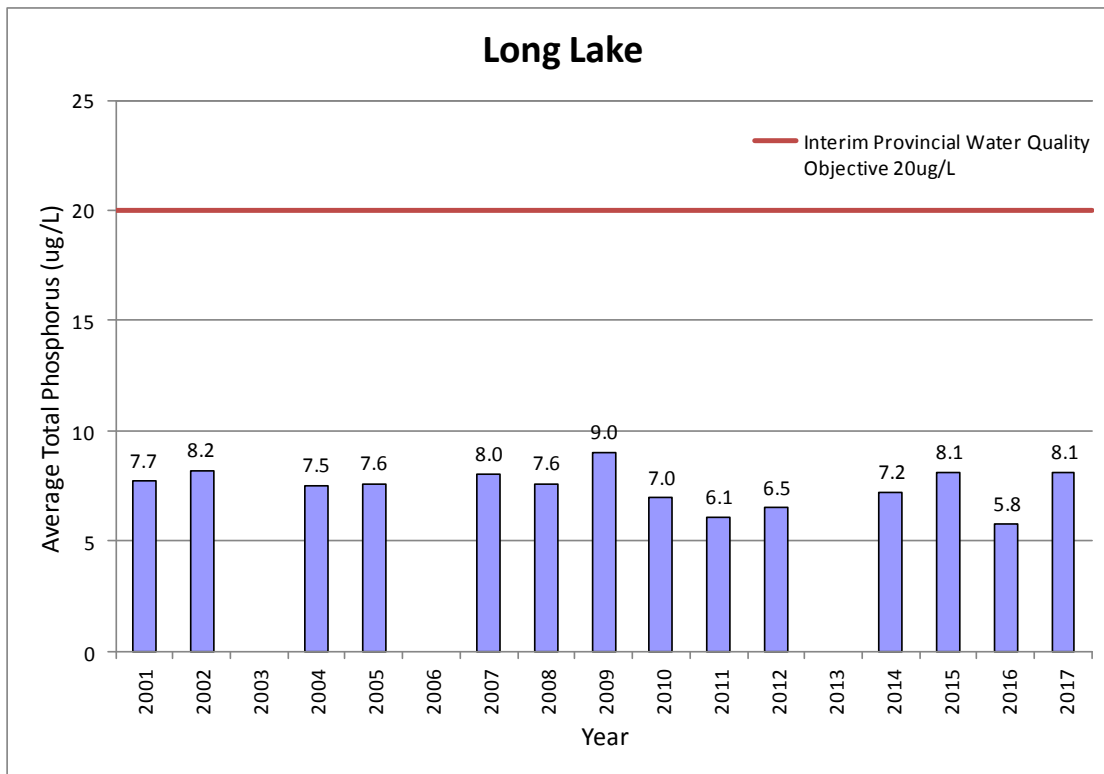
Little Beaver Lake

The bar graph below indicates the spring total phosphorus results for Little Beaver Lake from 2001-2017.



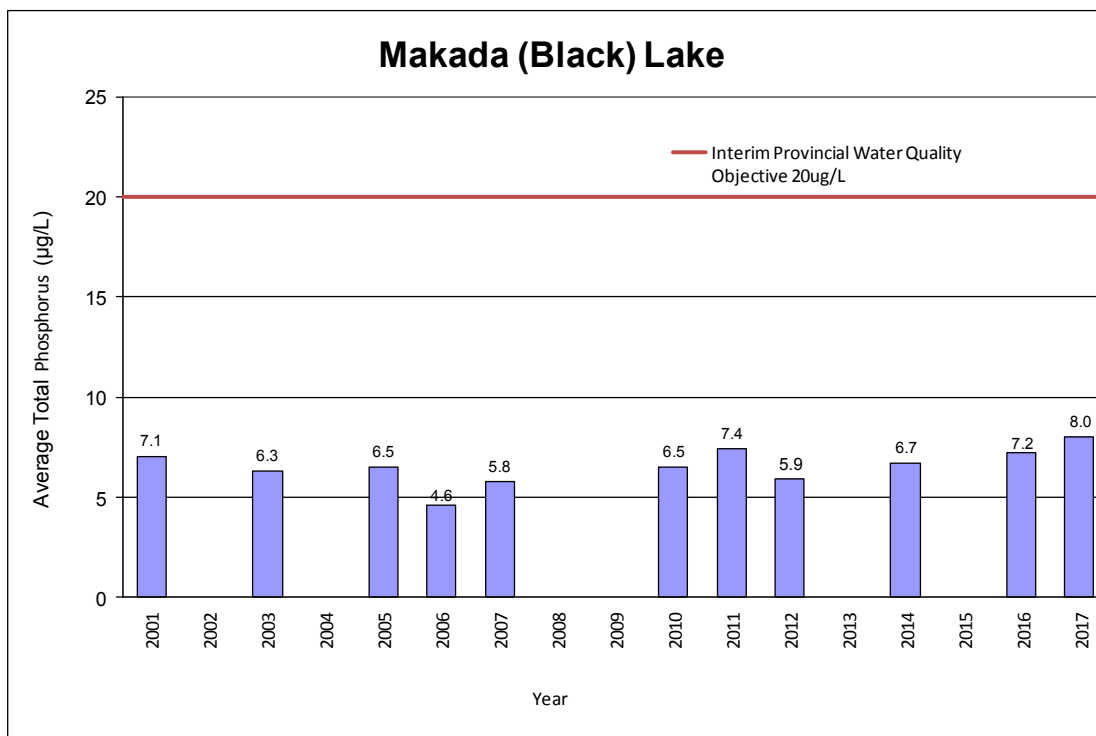
Long Lake

The bar graph below indicates the spring total phosphorus results for Long Lake from 2001-2017.



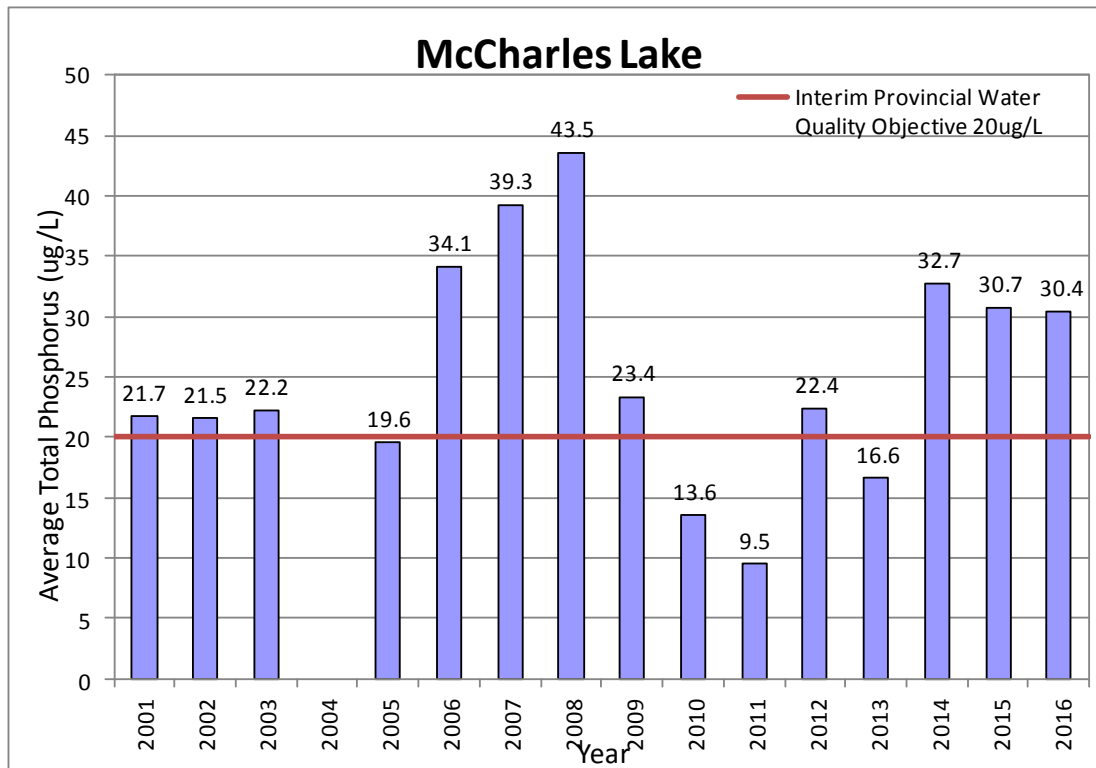
Makada (Black) Lake

The bar graph below indicates the spring total phosphorus results for Makada (Black) Lake from 2001-2017.



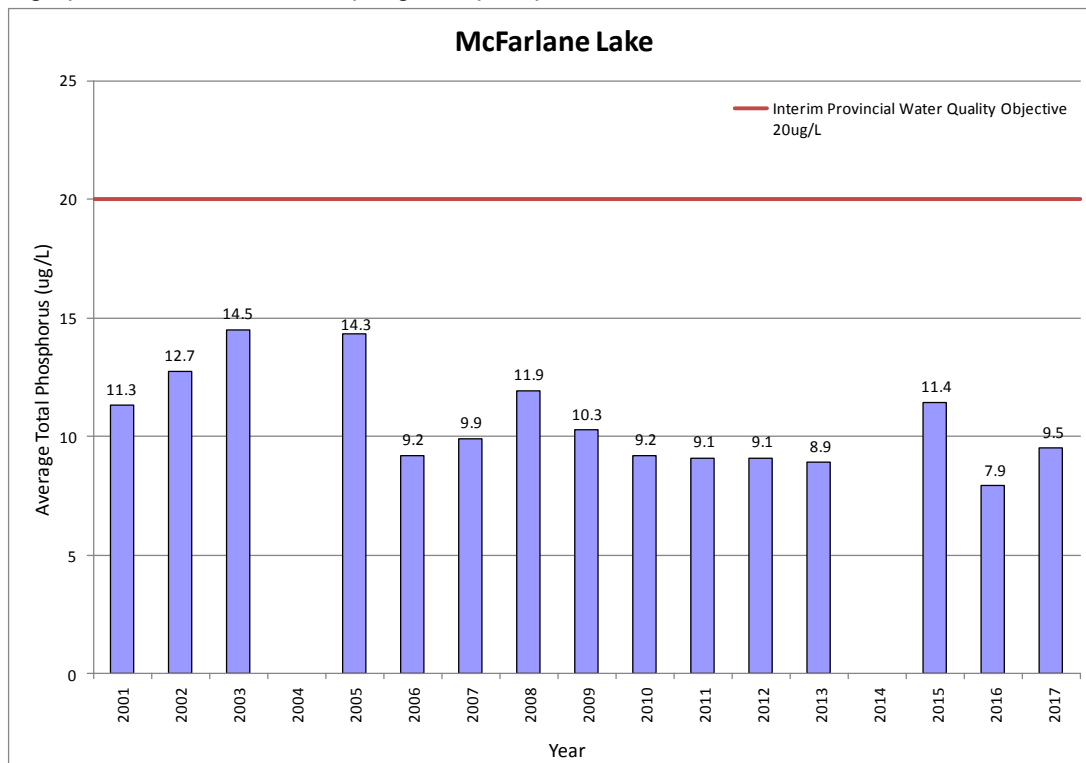
McCharles Lake

The bar graph below indicates the spring total phosphorus results for McCharles Lake from 2001-2017.



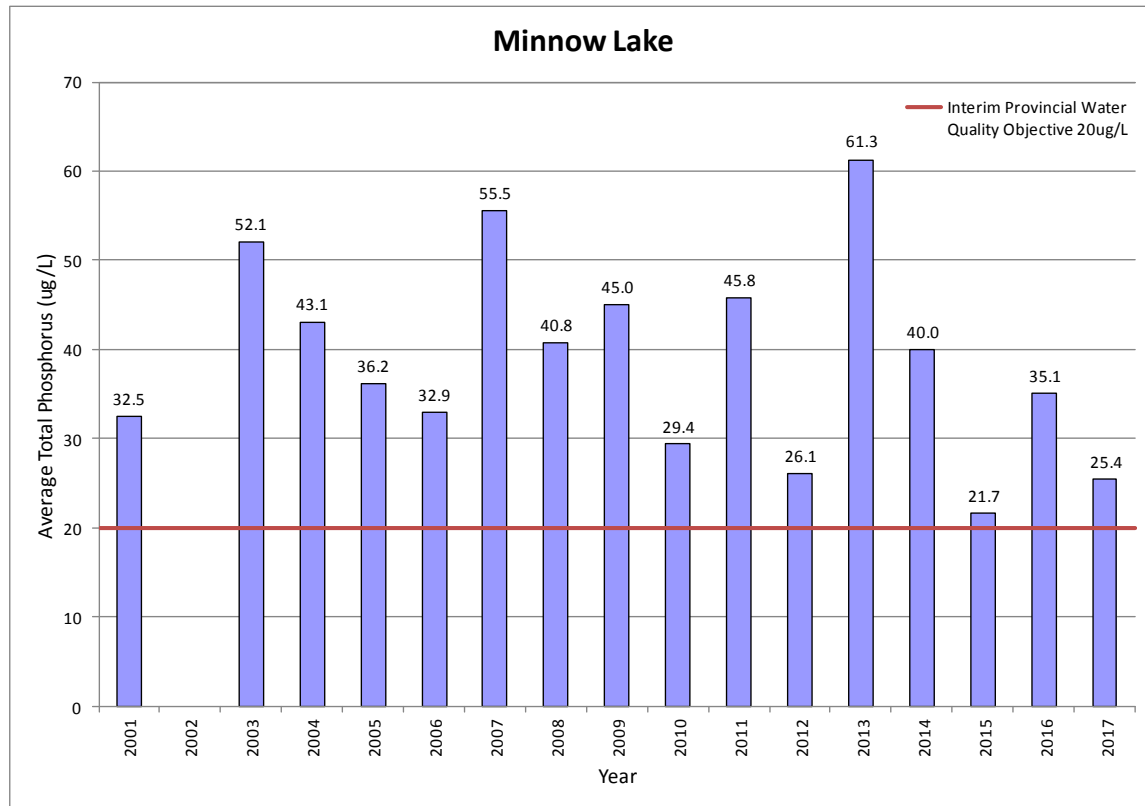
McFarlane Lake

The bar graph below indicates the spring total phosphorus results for McFarlane Lake from 2001-2017.



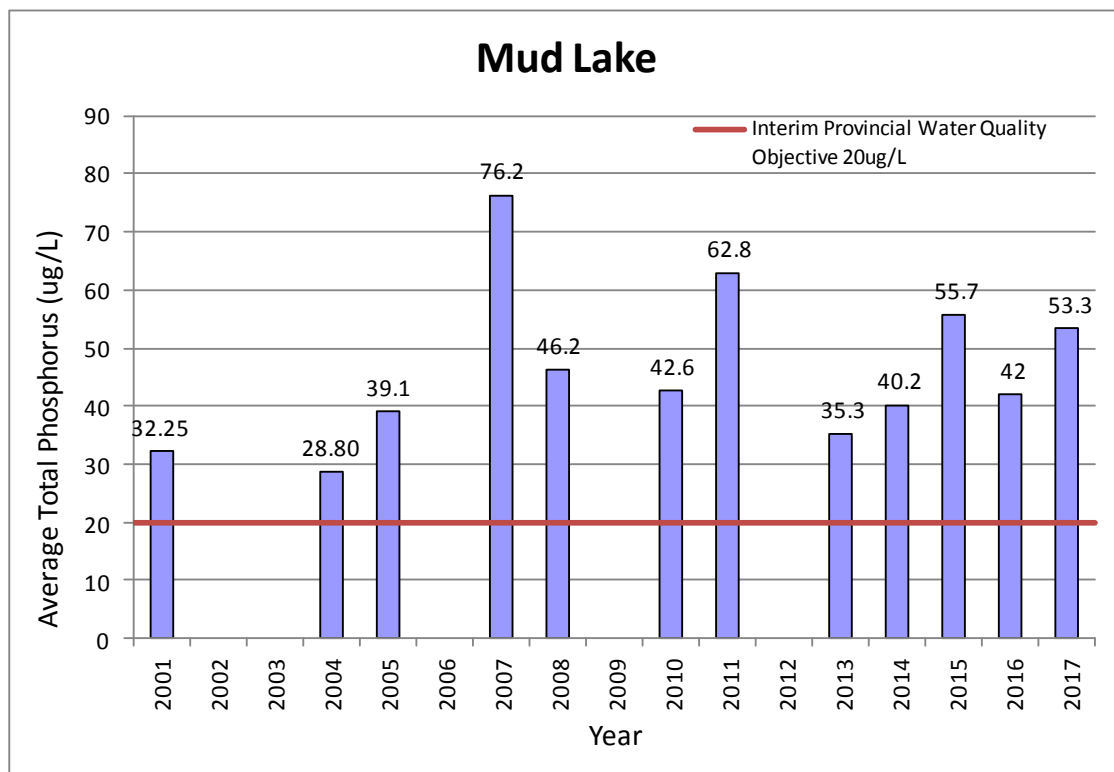
Minnow Lake

The bar graph below indicates the spring total phosphorus results for Minnow Lake from 2001-2017.



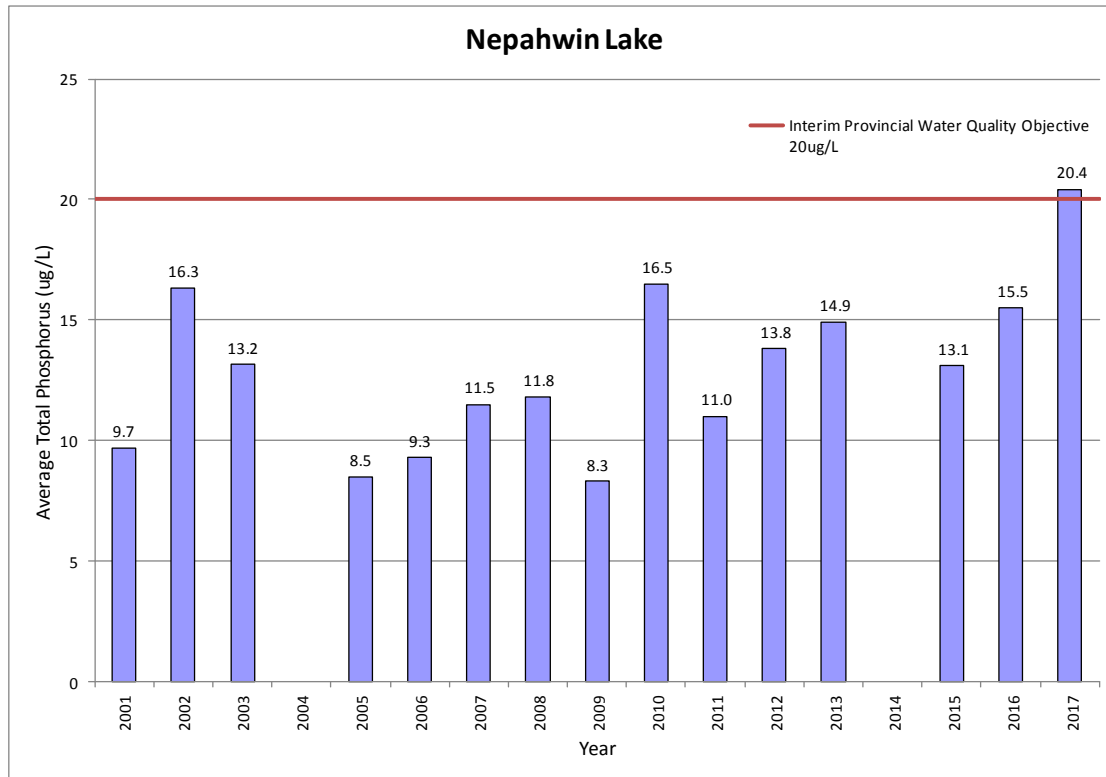
Mud Lake

The bar graph below indicates the spring total phosphorus results for Mud Lake from 2001-2017.



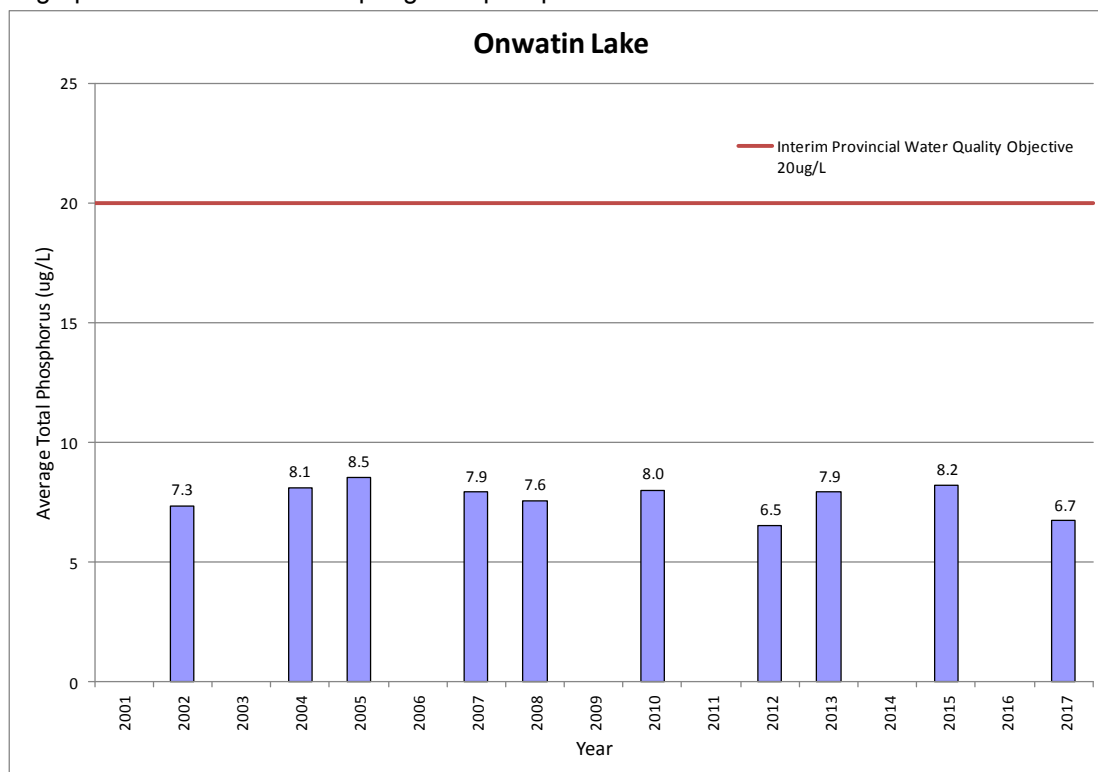
Nepahwin Lake

The bar graph below indicates the spring total phosphorus results for Lake Nepahwin from 2001-2017.



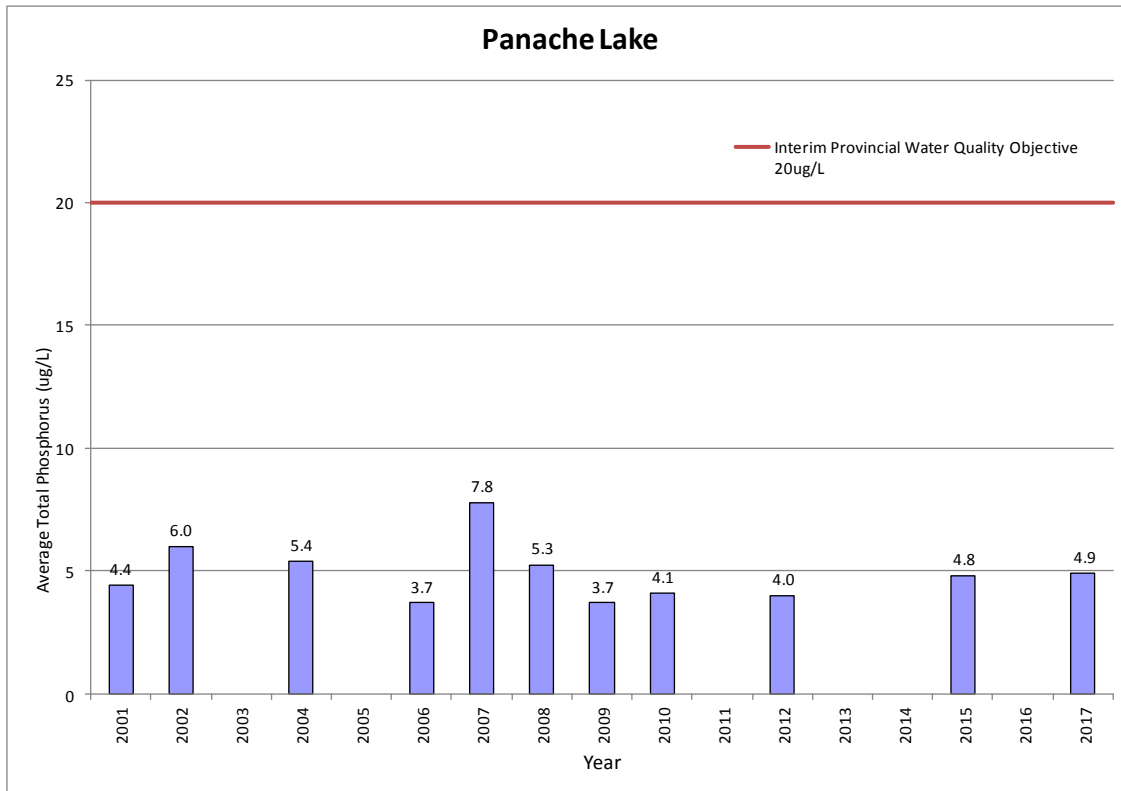
Onwatin Lake

The bar graph below indicates the spring total phosphorus results for Onwatin Lake from 2001-2017.



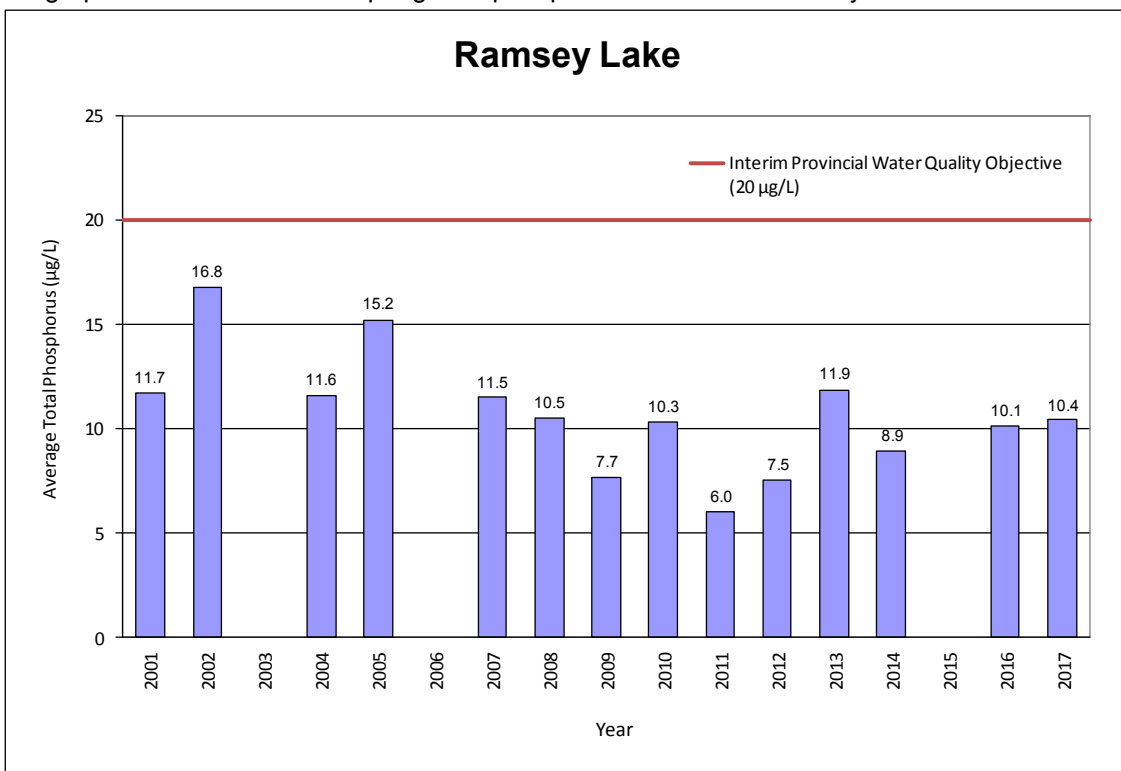
Panache Lake

The bar graph below indicates the spring total phosphorus results for Panache Lake from 2001-2017.



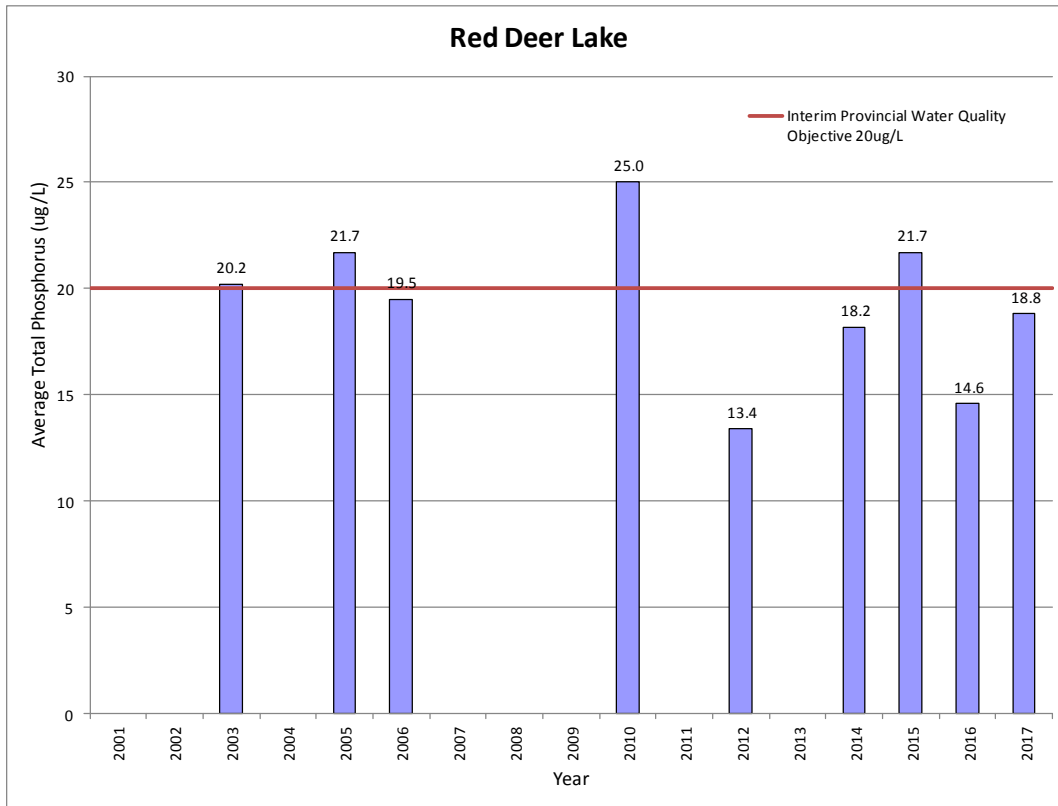
Ramsey Lake

The bar graph below indicates the spring total phosphorus results for Ramsey Lake from 2001-2017.



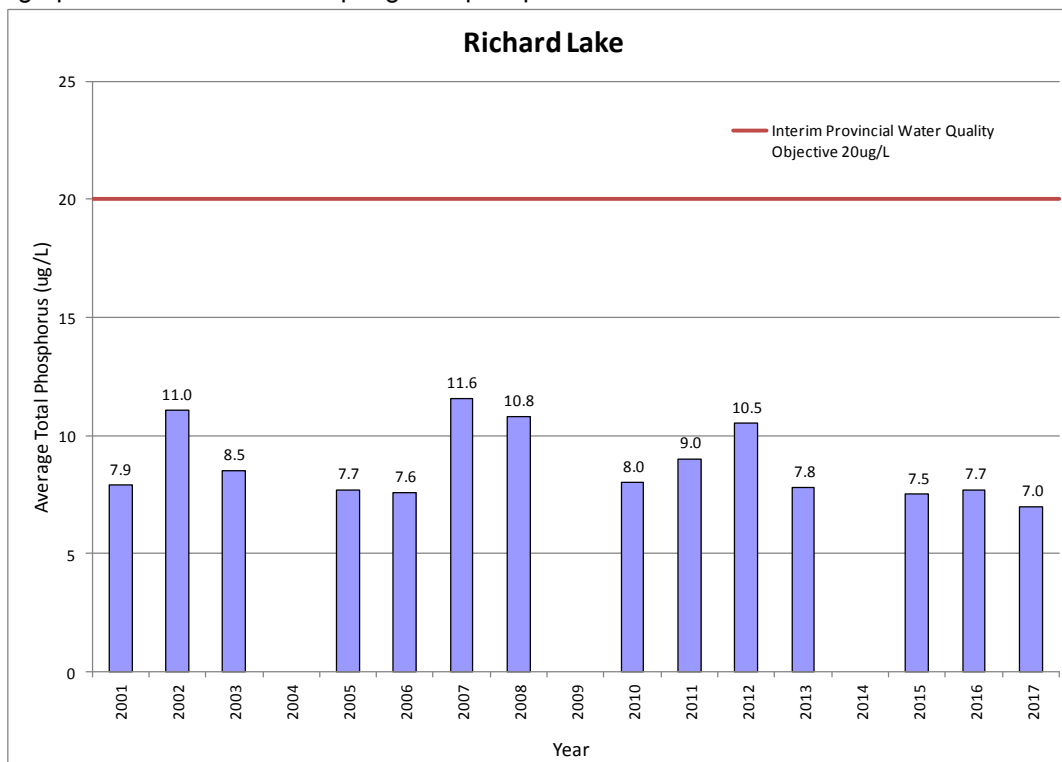
Red Deer Lake

The bar graph below indicates the spring total phosphorus results for Red Deer Lake from 2001-2017.



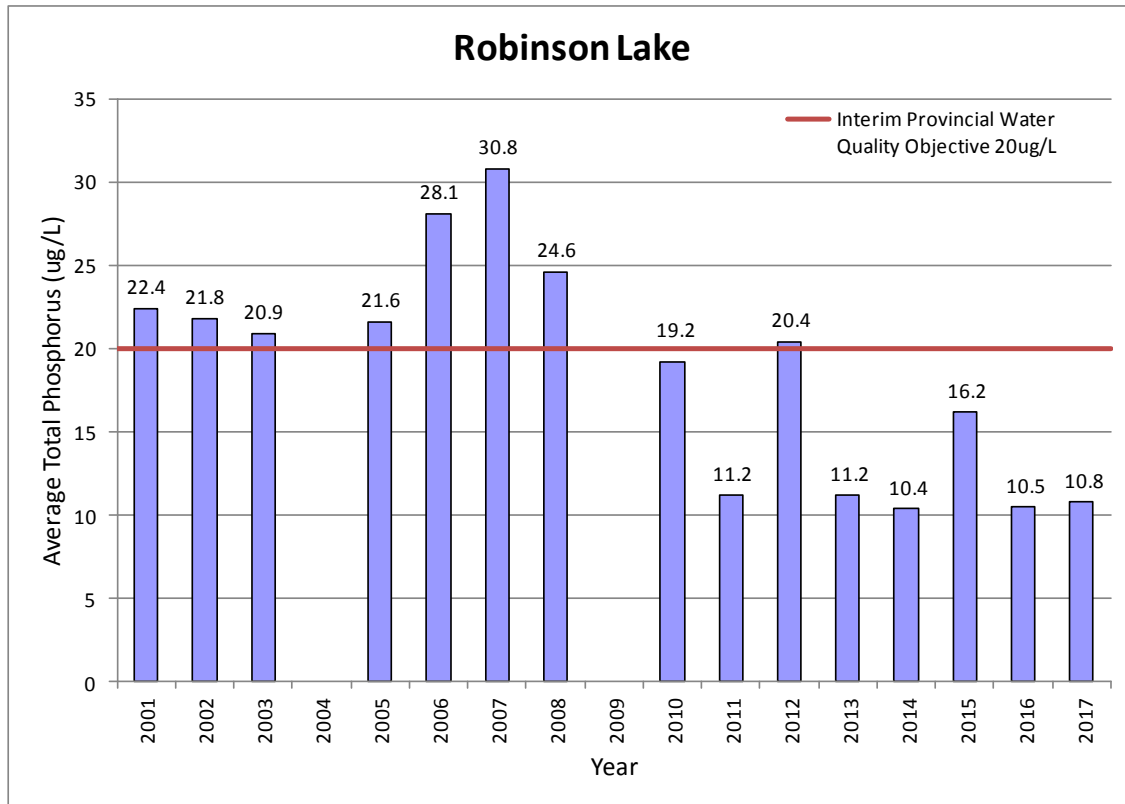
Richard Lake

The bar graph below indicates the spring total phosphorus results for Richard Lake from 2001-2017.



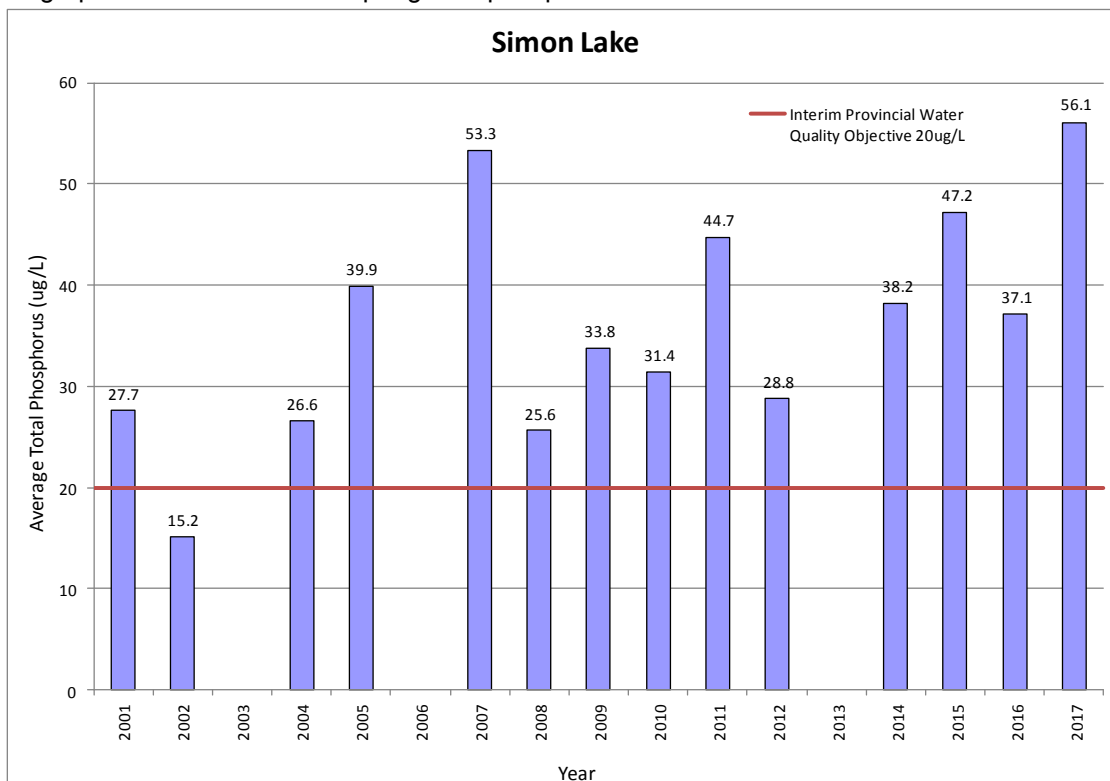
Robinson Lake

The bar graph below indicates the spring total phosphorus results for Robinson Lake from 2001-2017.



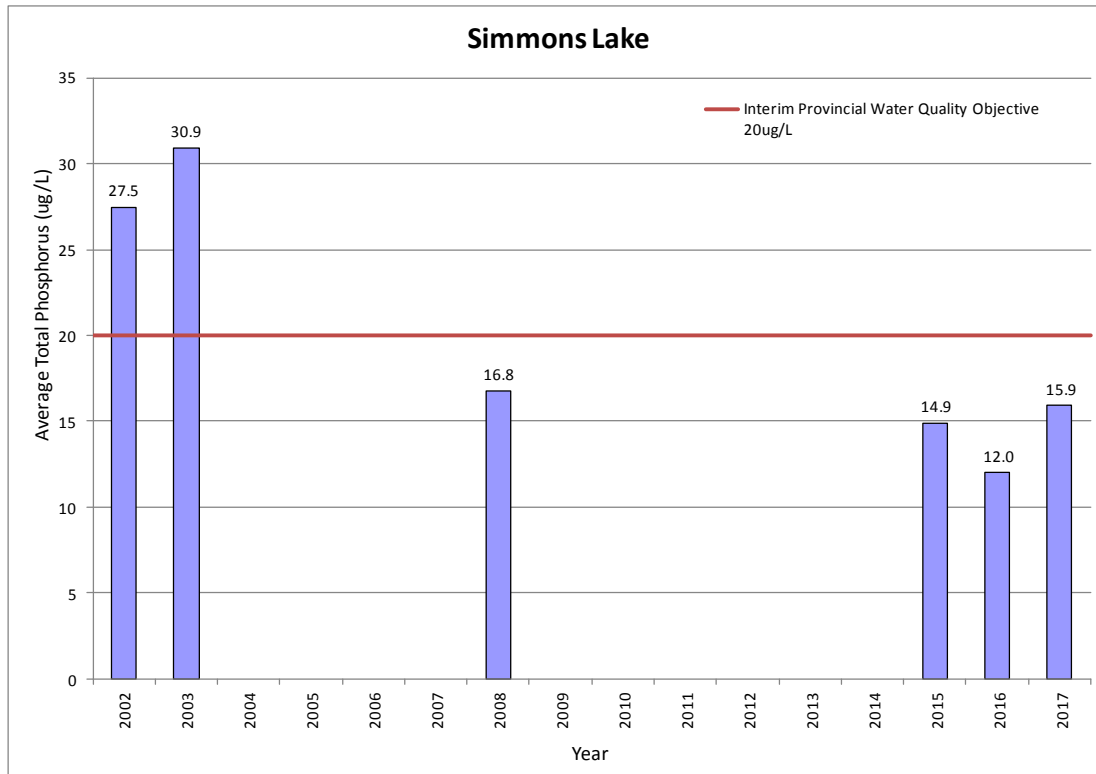
Simon Lake

The bar graph below indicates the spring total phosphorus results for Simon Lake from 2001-2017.



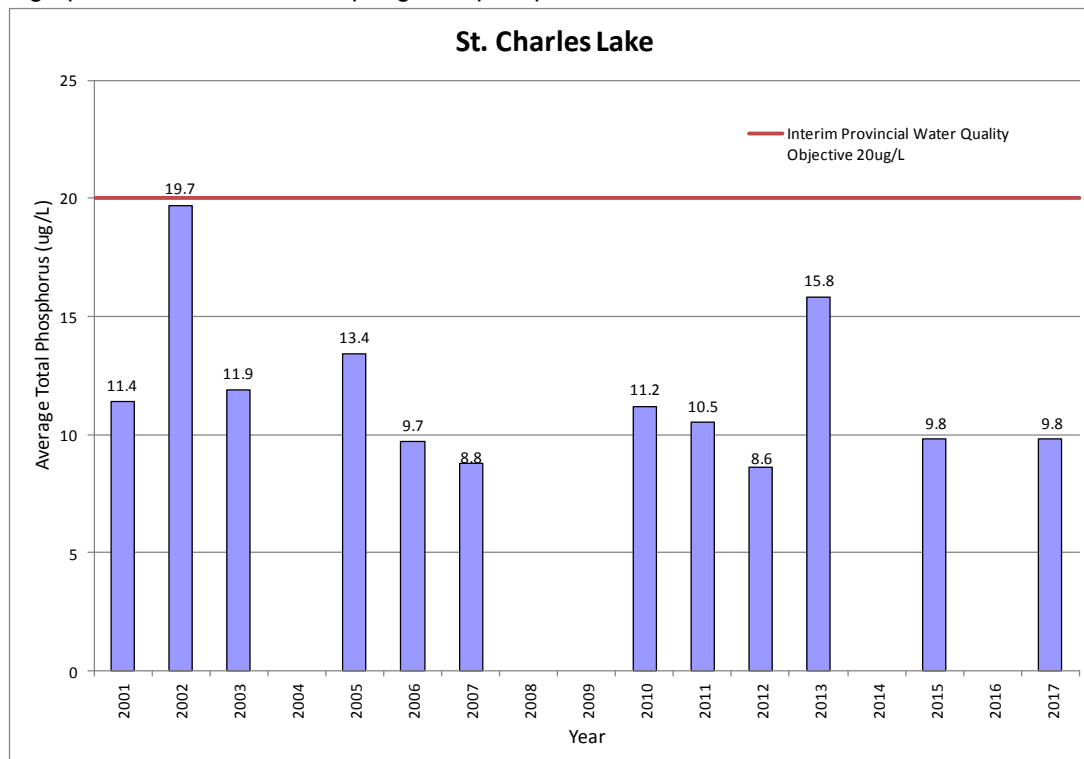
Simmons Lake

The bar graph below indicates the spring total phosphorus results for Simmons Lake from 2001-2017.



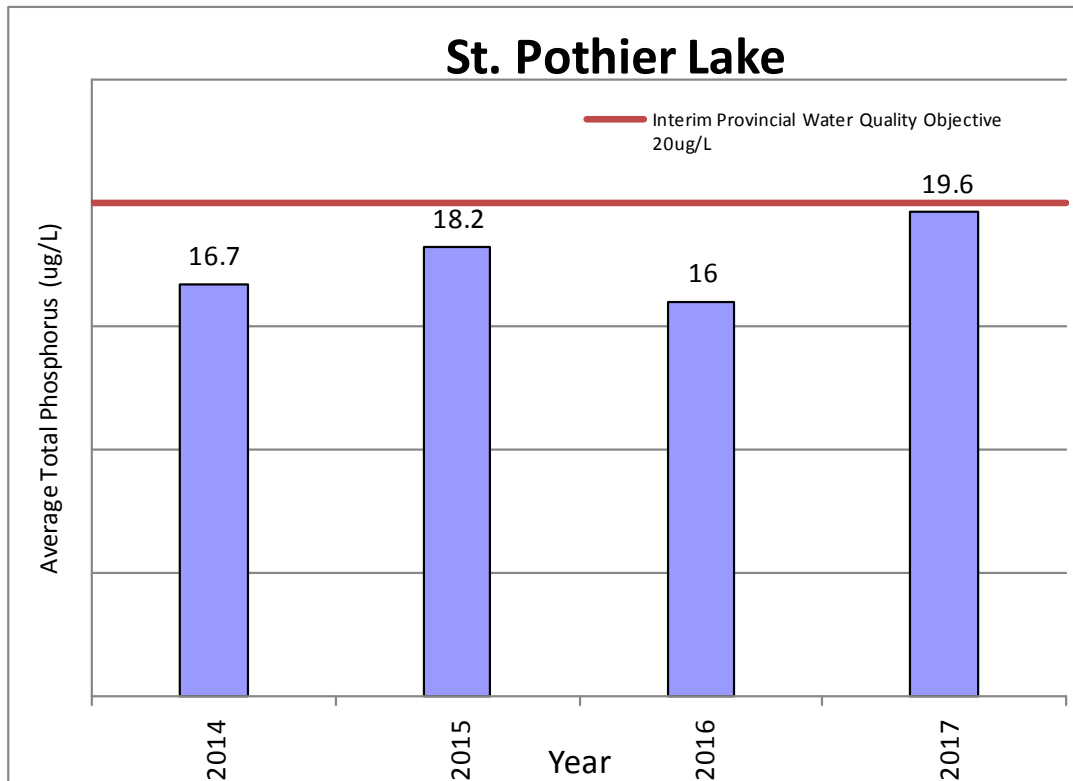
St. Charles Lake

The bar graph below indicates the spring total phosphorus results for St. Charles Lake from 2001-2017.



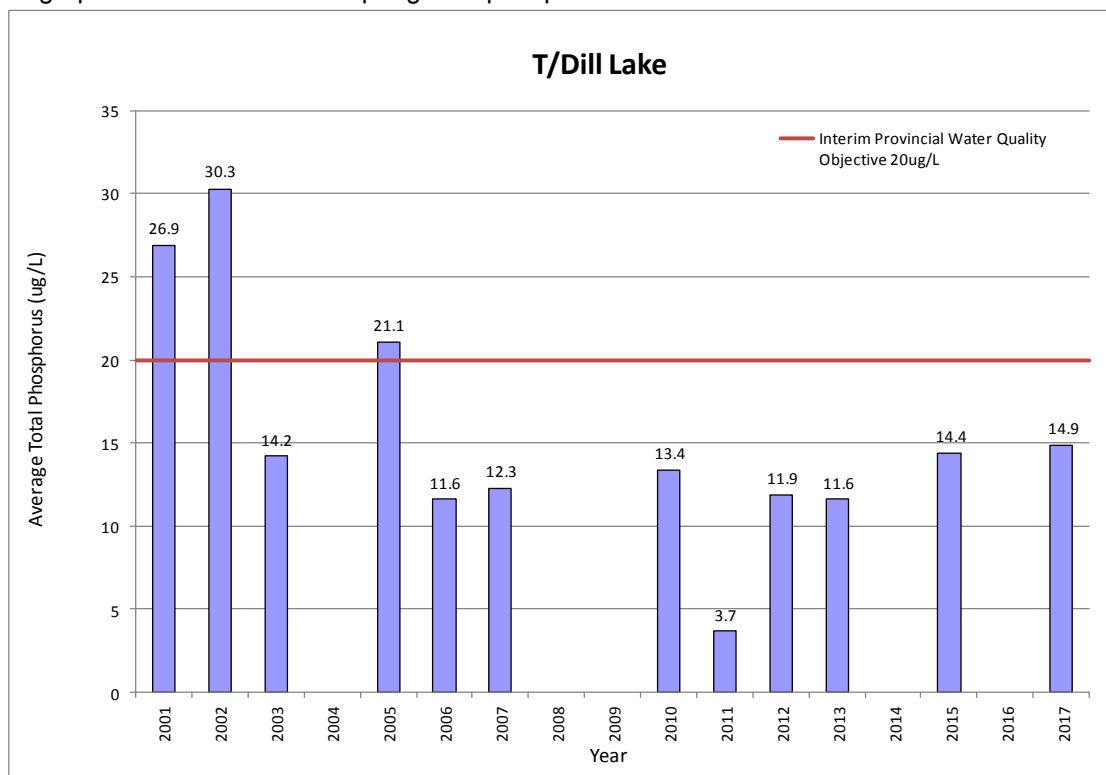
St. Pothier Lake

The bar graph below indicates the spring total phosphorus results for St. Pothier Lake from 2014-2017.



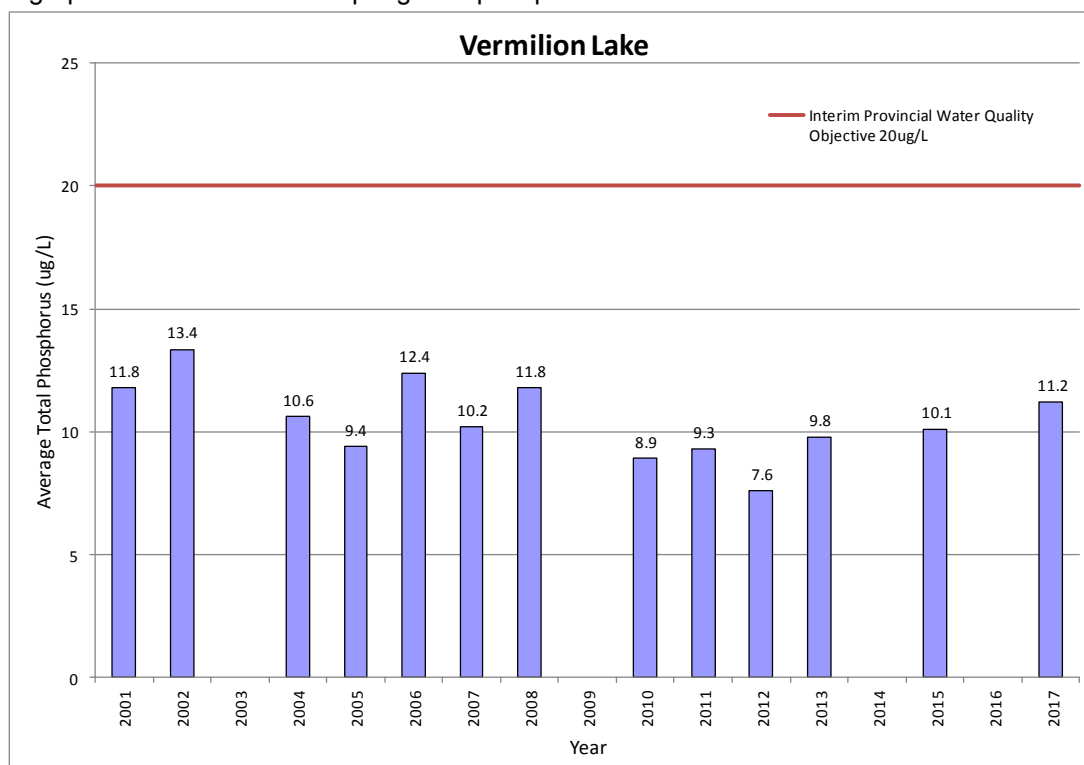
T/Dill Lake

The bar graph below indicates the spring total phosphorus results for T/Dill Lake from 2001-2017.



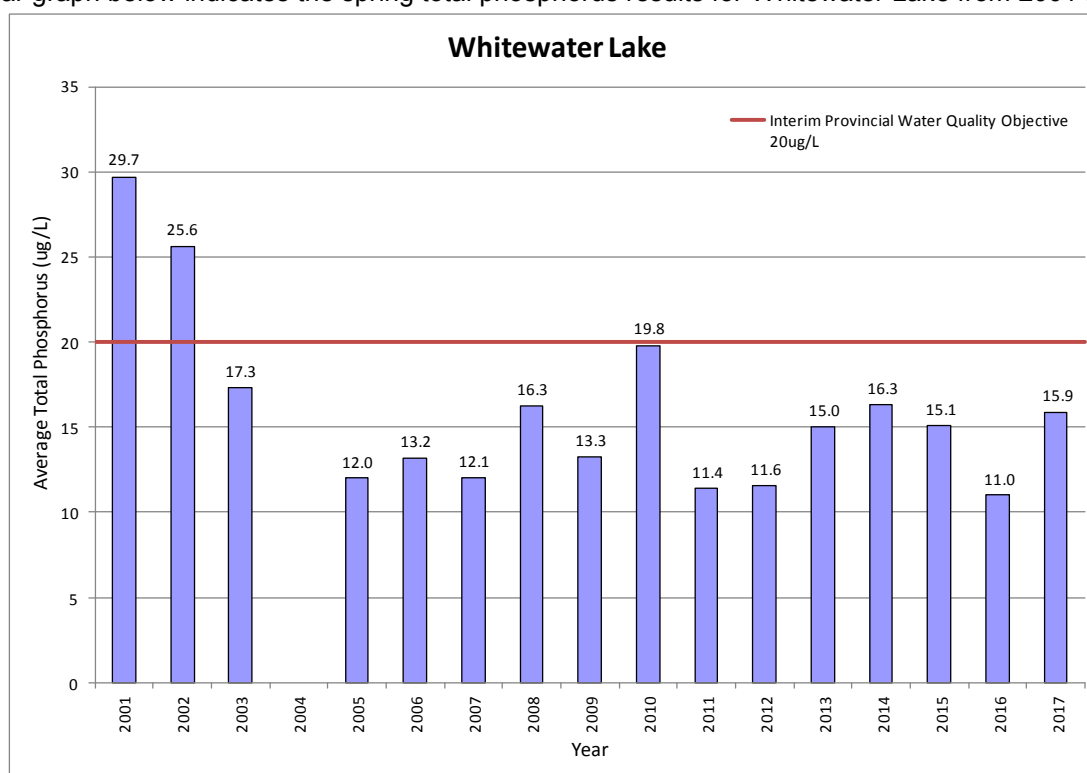
Vermilion Lake

The bar graph below indicates the spring total phosphorus results for Vermilion Lake from 2001-2017.



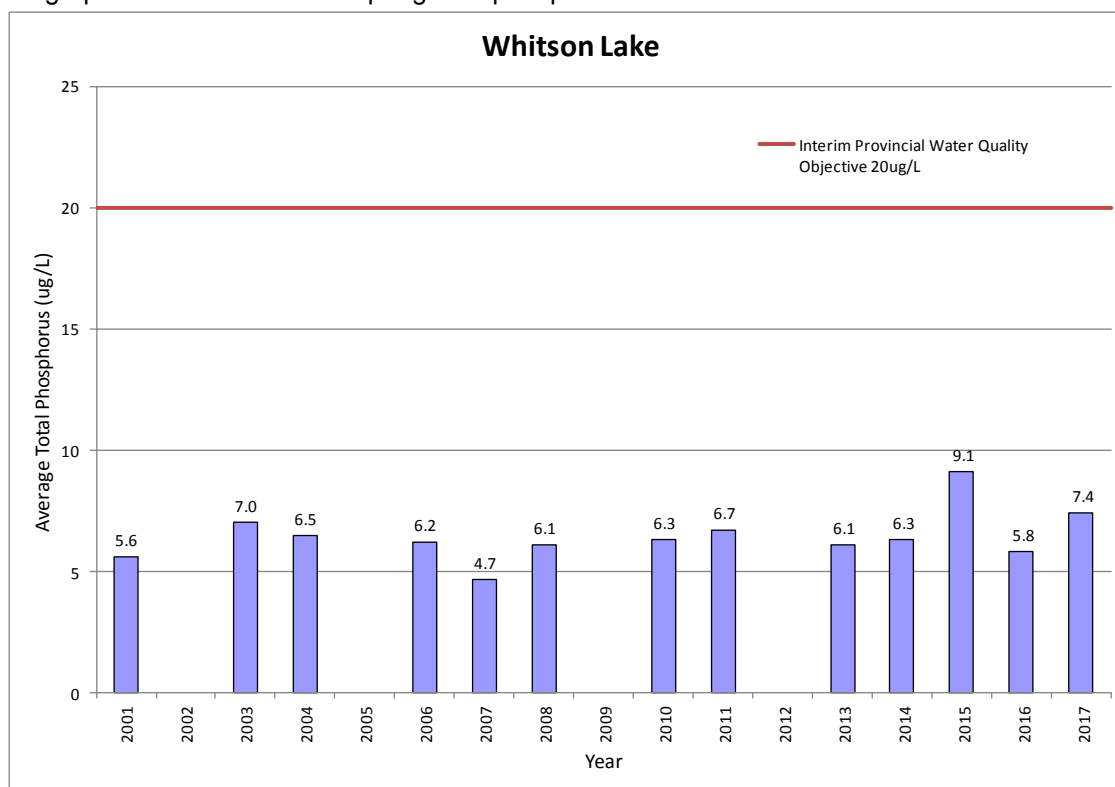
Whitewater Lake

The bar graph below indicates the spring total phosphorus results for Whitewater Lake from 2001-2017.



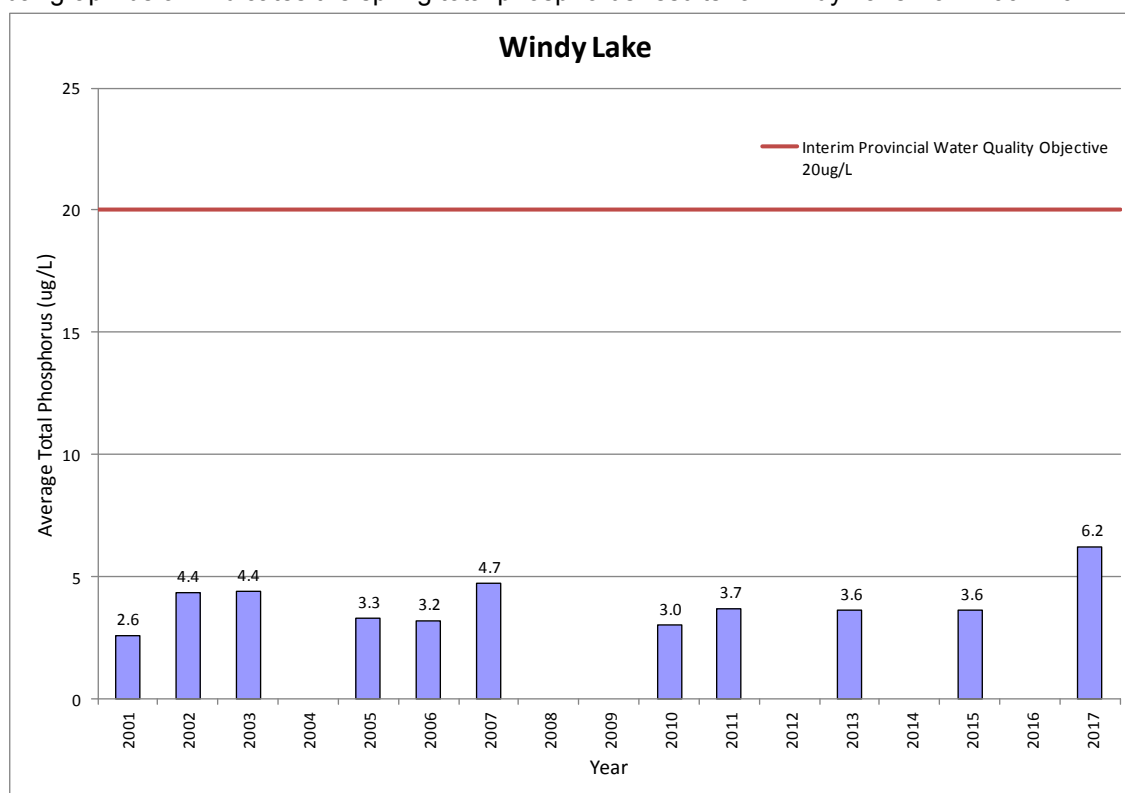
Whitson Lake

The bar graph below indicates the spring total phosphorus results for Whitson Lake from 2001-2017.



Windy Lake

The bar graph below indicates the spring total phosphorus results for Windy Lake from 2001-2017.



For further information, contact

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