

Lake Water Quality Program

Environmental Planning Initiatives



2007 Annual Report

CITY OF LAKES

The City of Greater Sudbury is recognized as the “City of Lakes”. With a geographic area of 3,627 square kilometers, 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 and our citizens continue to have a vested interest in the water quality and health of these rich community assets.



LAKE WATER QUALITY PROGRAM

In the wake of amalgamation of the new City of Greater Sudbury, important questions arose. Who is responsible for our lakes? What is the overall health of our lakes? In the summer of 2000, the Lake Water Quality Program was created to respond to these concerns. 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. The Lake Water Quality Program also helps to ensure Greater Sudbury is positively recognized as a City of Lakes.

PARTNER

The Lake Water Quality Program is a partnership comprising the City of Greater Sudbury and other public and private sector organizations including: Ministry of the Environment’s Lake Partner Program, the YMCA Employment Services, the Nickel District Conservation Authority, the Sudbury and District Health Unit, the Co-operative Freshwater Ecology Unit and the many Lake Stewardship Groups.



STAFFING

Co-ordinator, Lake Water Quality Program, City of Greater Sudbury

The City of Greater Sudbury provides funding for the full-time position of the Program Co-ordinator. This position is responsible for the day-to-day program and activities including water quality monitoring, shoreline home visit program, technical assistance to lake stewardship groups and lake improvement advisory panel. Additional duties include the supervision of temporary interns and summer students, organizing the annual Living With Lakes Forum, website content and report writing.

Lake Water Quality Summer Student

With funding provided by YMCA Employment Services, the Lake Water Quality Program was able to hire one summer student for 17 weeks through the Provincial Summer Jobs Service Program.

SUMMARY OF ACTIVITIES

In conjunction with its partners, the Lake Water Quality Program carried out the annual Spring Phosphorus Sampling, the Lake Stewardship Grant Program and co-ordinated the Shoreline Home Visit Program.

In summary:

- 46 lakes sampled for spring phosphorus
- 10 shoreline visits conducted
- 15 information packages delivered
- 22 public request for lake information were fulfilled
- 13 Lake Stewardship Grants awarded



GREATER SUDBURY LAKE IMPROVEMENT ADVISORY PANEL

The Lake Improvement 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 2007 for a three year term.

Members

The Lake Improvement Advisory Panel comprises six community volunteers and five technical experts.

Community Volunteers

Dr. Chris Nash, Chair
 Michael Bardeggia
 Perry Sarvas
 Tom Sheppard
 Dr. Graeme Spiers
 Don Waddell

Technical Experts

Dr. John Gunn, LU/Co-operative Freshwater Ecology Unit
 Bill Keller, MOE/Co-operative Freshwater Ecology Unit
 Paul Sajatovic, Nickel District Conservation Authority
 Ed Gardner, Sudbury and District Health Unit
 Dr. David Pearson, Laurentian University/Science North

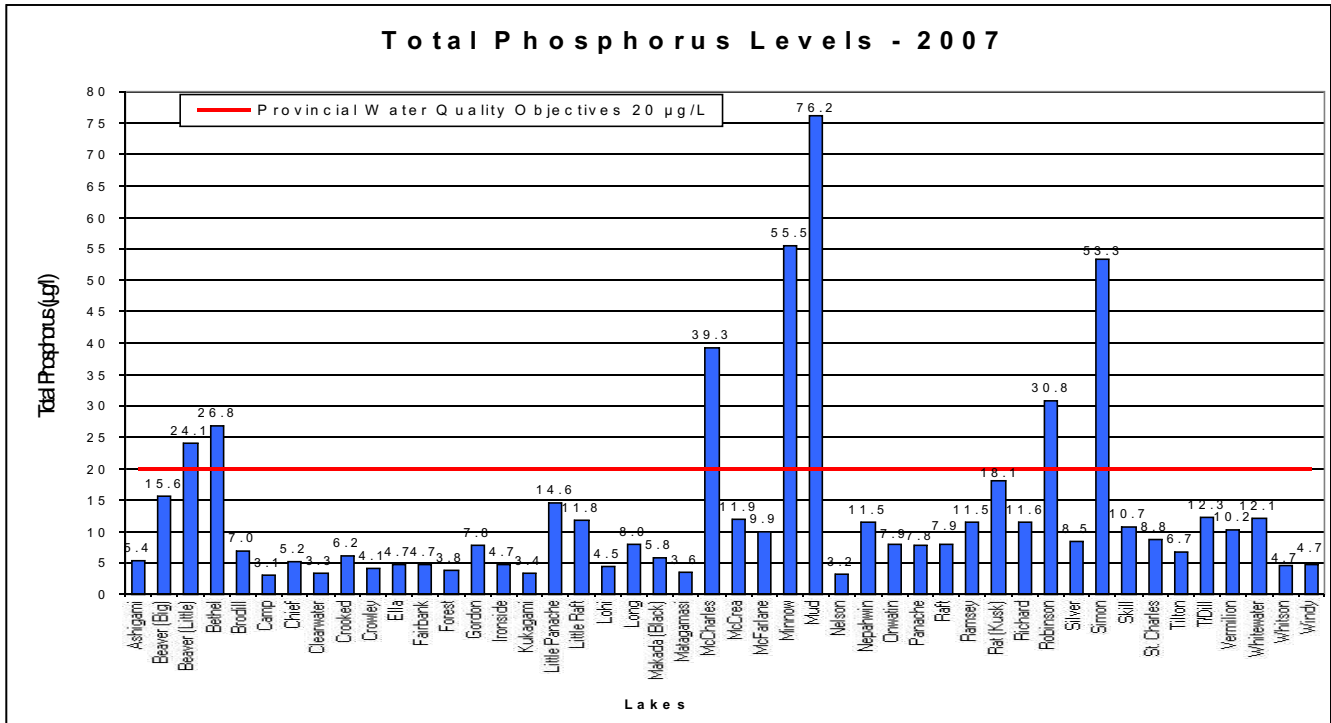
LAKE WATER QUALITY PROGRAM COMPONENTS

Spring Phosphorus Sampling Program

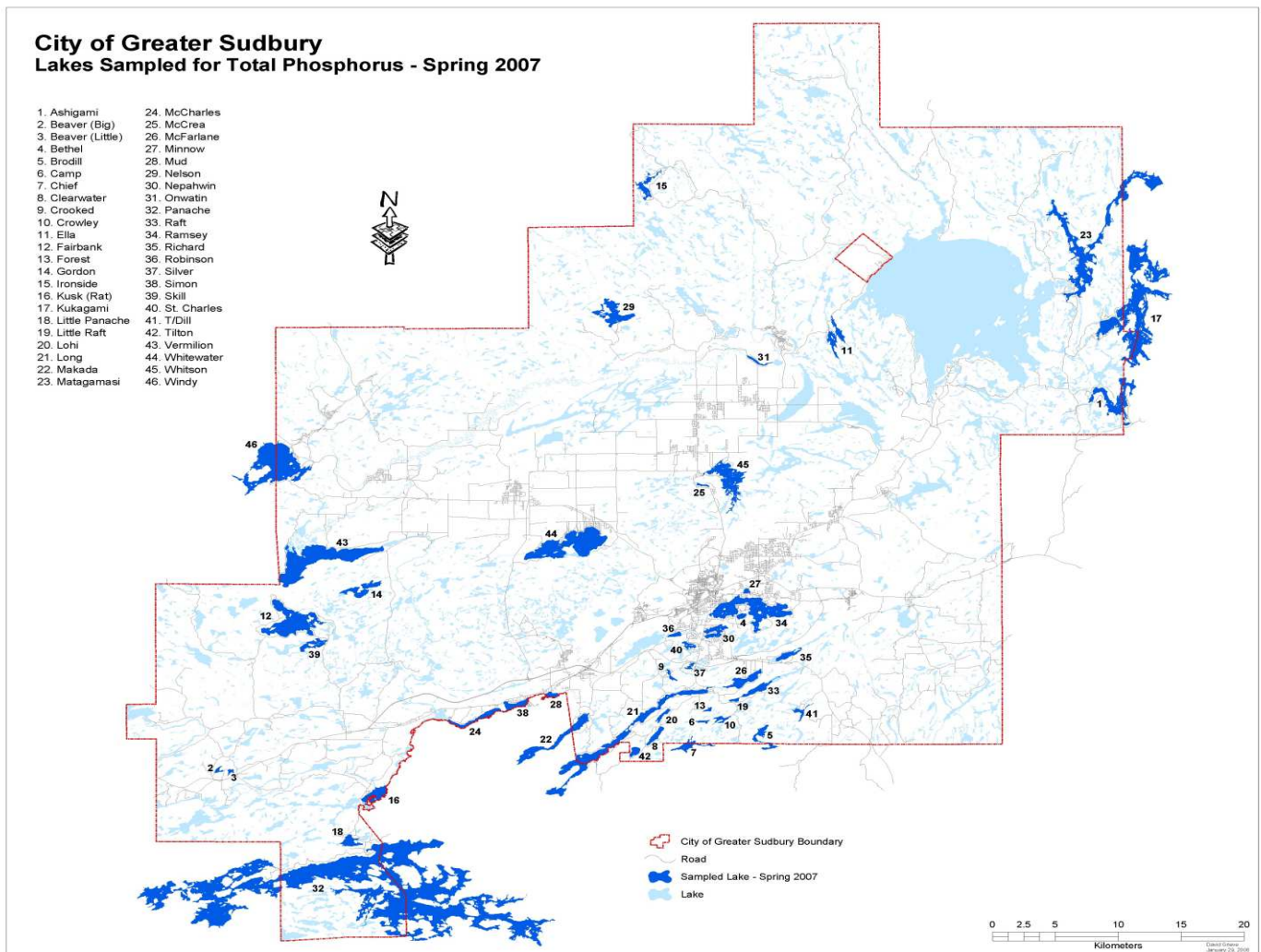
In May, the 2007 Spring Phosphorus Program sampled 46 lakes. These lakes were chosen based on their historical phosphorus levels, waterfront development pressures, and requests from lake stewardship groups. Phosphorus is the main nutrient (fertilizer) that controls the growth of algae. Phosphorus is 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. Also, depending on the type of ground cover, soil conditions and bedrock, phosphorus can enter a lake by way of natural sources.

Spring Phosphorus Results

The following graph displays the 2007 spring phosphorus results for the 46 lakes. Of those, 7 lakes had phosphorus concentrations greater than the Provincial Water Quality Objective of 20 µg/L (micrograms per litre). Refer to the following map for lake locations and Appendix 1 for additional water quality information.



Map showing the lakes sampled for spring phosphorus in 2007.



SHORELINE HOME VISIT PROGRAM

Introduction

New summer cottages and year-round waterfront home development has increased over the past decade. Many people are moving in to 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 and the flora and fauna.



For the third year in a row, the Lake Water Quality Program co-ordinated the Shoreline Home Visit Program to assist waterfront property owners in protecting, conserving, enhancing and restoring water quality and shorelines in Greater Sudbury.

Shoreline Visits

The Lake Water Quality Program conducted 10 Shoreline Home Visits. The visits provided waterfront homeowners with advice on healthy shoreline practices including how to best manage the shoreline, protect the lake water quality, and maintain the health of the ecosystem. The visits were free, confidential and non regulatory and ranged from 15 minutes to one hour depending on the individual interest and concerns. Homeowners received additional information specific to their needs as well as a complementary Nature Clean product and a "On the Living Edge" handbook for waterfront living. Following the visit, they received a written assessment of the home visit complete with helpful recommendations and suggestions.



FINANCIAL SUMMARY

The Lake Water Quality Program received funding from partner agencies to assist with the operating costs. The total cost of the 2007 Lake Water Quality Program was \$120,987. Cash contribution was provided by the YMCA Employment Services to hire a Summer Student. In-kind contributions were provided by the Ontario Ministry of the Environment.

CONTRIBUTORS	# OF POSITIONS	# OF WEEKS	SOURCE	AMOUNT
LABOUR - CASH				
YMCA Employment Services	1	17	Provincial	\$ 1,120
SERVICES - IN KIND				
Ministry of Environment - Lake Partner Program			Provincial	\$13,500
		SUB TOTAL		\$14,620
City of Greater Sudbury			Municipal	\$106,367
		TOTAL		\$120,987

LAKE STEWARDSHIP GRANT ASSISTANCE PROGRAM

Introduction

The Lake Stewardship Grant Assistance Program is funded by the City of Greater Sudbury through its Lake Water Quality Program. The Greater Sudbury Lake Improvement Advisory Panel awards the individual grants. Established as a pilot project in 2005, the Program assists Lake Stewardship Groups in carrying out projects that protect and improve the water quality and natural environment of the lakes. There are currently 37 Lake Stewardship Groups

Background

In fulfilling its mission to, "serve as a watchdog on behalf of all citizens in the community and actively promote and protect the ecological health of the lakes", the Lake Improvement Advisory Panel decided to initiate the Lake Stewardship Grant Assistance Program to encourage and support the development and activities of Lake Stewardship Groups. City Council approved recommendations to earmark funds from the Lake Water Quality Program's budget to be used for the grant program.

The application and funding criteria were drafted by members of the Lake Improvement Advisory Panel with input from City staff. Proposed projects were required to demonstrate how they would improve or protect the water quality of the lake and/or watershed and increase support from the lake community. Successful applicants were chosen by the Lake Improvement Advisory Panel. In total, 13 applications for funding were received and the total amount of funds allocated was \$7,370. The following is a summary of the activities and accomplishments of these successful projects. For a complete list of all the Lake Stewardship Groups in Greater Sudbury, refer to Appendix 3.

Fairbank Lake Camp Owners Association Inc.

Project Name: Shoreline Enhancement

The project goal was to enhance the shoreline of Fairbank Lake by planting seedlings of native plants. The \$ 500 grant received from the City in 2007 was used to purchase seedlings for planting by our members to enhance the filtration between septic systems and the lake. This was accomplished by giving each Fairbank Lake camp owner 2-5 year old shrub seedlings. The Association purchased 420 Ninebark and 280 Highbush cranberry. The total cost was approximately \$ 1000 with the Association covering the balance. In the past 2 years, the camp owners have planted around 1400 shrubs. With each year the Association is seeing more awareness in the campers with regards to taking positive action in protecting the ecological health of Fairbank Lake.

Friends of Bennett Lake

Project Name: Improving Bennett Lake Water Quality

The project objective was to improve the water quality of Bennett Lake by reducing the erosion in the Bennett Lake watershed. Bennett Lake is a shallow lake that empties into Nepawhin Lake. It has a clearly defined watershed with steep slopes that lead directly to the lake with little opportunity for filtration or diversion. As such the slopes are susceptible to erosion with the silt washing into the lake. The trails (7 - 10 km) around Bennett Lake are being used more each year for skiing, snowshoeing, hiking, and mountain biking. Compaction of the soil with the resulting loss in vegetation and erosion has been observed in several sensitive areas.

Kukagami Lake Campers Association

Project Name: Water Quality Monitoring

The Kukagami Lake Campers Association was founded in 1978 and became incorporated in 2006. They represent six lakes in the Northeastern geographic area of the City of Greater Sudbury: Bugg Lake, Kukagami Lake, Matagamasi Lake, Portage Lake and Wahnapeitei east Lake. The Association is concerned with the water quality for the purpose of swimming, drinking and for the health of wildlife species. The grant obtained by the City of Greater Sudbury was used to cover water testing expenses. The Association also participated in the Ministry of the Environment's Lake Partner Program to record water clarity readings. They also produced and mailed out 360 newsletters to lake residents with educational information on waterfront living.

LAKE STEWARDSHIP GRANT ASSISTANCE PROGRAM, continued**Little Lake Panache Property Owners Association****Project Name:** Phosphorus Reduction 2007

The long-term goal for the Little Lake Panache Property Owners Association is the reduction of phosphorus migration into the lake. The Association decided to plant native vegetation of trees and shrubs within the buffer zone of the shoreline of Little Panache in order to help reduce phosphorus from entering the lake and to enhance the quality of the shoreline. The Association waited until August (late in the planting season) to purchase their plants in order to save 22% off the spring price from a local greenhouse. Ninebark and Nannyberry shrubs and Silver maple trees were planted. The Association is also encouraging the importance of septic system maintenance, natural fertilizers and eco-friendly household products in order to improve the water quality of the lake.

Friends of McFarlane Lake Stewardship Group**Project Name:** Enhanced Water Quality Monitoring and Newsletter

The beginning of Friends of McFarlane Lake Stewardship Committee goes back to the year 2000 when a small group of concerned residents from McFarlane Lake felt the need to become educated on lake quality issues. In 2007, funding was received to produce and circulate close to 300 copies of the Friends of McFarlane Lake community newsletter, which has had a total of 5 published newsletters since its inception in 2005. These newsletters are also posted on the City of Greater Sudbury's Lake Water Quality website. The mission statement of the Friends of McFarlane Lake Stewardship Committee is to protect and keep their lake healthy and to understand the contributing factor affecting the water quality of McFarlane Lake and the watershed. Through funding from the Lake Stewardship Grant Program, the stewardship group continues to make every effort to maintain this crucial mission towards healthy waters in their community.

McCharles Lake Stewardship Group**Project Name:** Barley Straw Application to control algae growth

The McCharles Lake Stewardship Group received funding to purchase and place barley straw bundles to control the growth of algae in McCharles Lake. The Group received assistance from the Simon Lake Stewardship Group. Unfortunately, the barley straw had no effect on the algae this year.

Minnow Lake Restoration Group**Project Name:** Storm water Delta Survey

The Minnow Lake Restoration Group is a non-profit charitable organization dedicated to improving the water quality of Minnow Lake and in the enhancement of the surrounding area. Funding was initially provided to determine the size of the storm water outlets in Minnow Lake. Storm water runoff into Minnow Lake comes from a catchment area that includes several main arteries including Bancroft Drive and the Kingsway. Laurentian University was contacted in order to organize summer students to survey the 6-8 storm water inflows. To date, the storm water deltas have not yet been mapped, however plans have been made for work to be done in 2008.

Onwating Lake Stewardship Committee**Project Name:** Onwatin Lake Stewardship Committee

The goal of the the residents of Onwatin Lake was to establish the Onwatin Lake Stewardship Committee. The Committee was formed to address and deal with potential water quality issues caused by industrial and human activities in its watershed. The Committee was able to encourage residents to become members and support the creation of the stewardship group. An initial meeting was held at the home of one of the organizing member to learn about the geography, history and biology of the lake. The Onwatin Stewardship Committee is the newest Lake Stewardship Group in Greater Sudbury with 10 volunteers on the Committee.

LAKE STEWARDSHIP GRANT ASSISTANCE PROGRAM, continued**Rayside Belfour Community Action Network - Whitewater Lake**

Project Name: Whitewater Lake Clean Up and Invasive Species Awareness

The group purchased Invasive Species Awareness signs to be posted at the various boat launches on Whitewater and Vermillion Lakes. The signs are available through the Ontario Federation of Anglers and Hunters but currently only in English. The Rayside Belfour CAN used the funds to have the signs translated and reproduced in French.

Richard Lake Stewardship Committee

Project Name: 3rd Annual Richard Lake Clean Up

The 3rd Annual Richard Lake Clean Up and BBQ was held at the Mine Mill Campground and was a great success with lots of food, music and good fun. The local media, MCTV, Channel 10, Sudbury Star and the radio station were on hand to cover the event. Scuba divers recovered debris and garbage from the lake bottom. The event had children's games and a fish pond. The Richard Lake Clean Up had almost 100 sponsors and thanks to them, most of supplies for the picnics were either donated or purchased with the gift certificates offered to us. The penny table helped pay for miscellaneous expenses so we came out good. For more information on the Richard Lake Stewardship Group, visit their website at www.richardlake2005.tripod.com.

Simon Lake Community Stewardship Group

Project Name: Barley Straw application to control algae growth

The Simon Lake Community Stewardship Group became organized early in 2007 in response to the excessive growth of algae in Simon Lake over the past 2 summers. Between 20 and 30 community volunteers helped with placing barley straw bundles in Simon Lake in the spring to help control the growth of algae in the lake. Previous experiments (1997) with barley straw showed promising results, unfortunately the barley straw appeared to have no noticeable impact on the growth of the algae.

Valley East Ratepayers's Association

Project Name: Water and Algae Sampling

The Valley East Ratepayer's Association requested grant money to collect samples of algae in the lake. Water and algae sampling were taken from Frenchman, Hanmer and Joe lakes. Their intent was to compare levels of algae present in 2007 to the levels of the previous two years. Communication with various experts leads to the conclusion that the algae growth is a natural process related to the lower levels of acidity in the water.

Windy Lake Stewardship Committee

Project Name: Water Quality Sampling

The Windy Lake Stewardship Committee is a volunteer non-profit organization with clear objectives to monitor water quality and protect their valuable resource for generations to come. They currently have 50 members, all with a vested interest in the future of Windy Lake. The water quality sampling program was completed in August. With the grant money provided by the Lake Water Quality Program, water samples were collected for phosphorus at ten locations on Windy Lake and analyzed at Testmark Laboratories Ltd. in Garson.

APPENDIX 1

Trophic State of Lakes and 2006 Lake Profiles

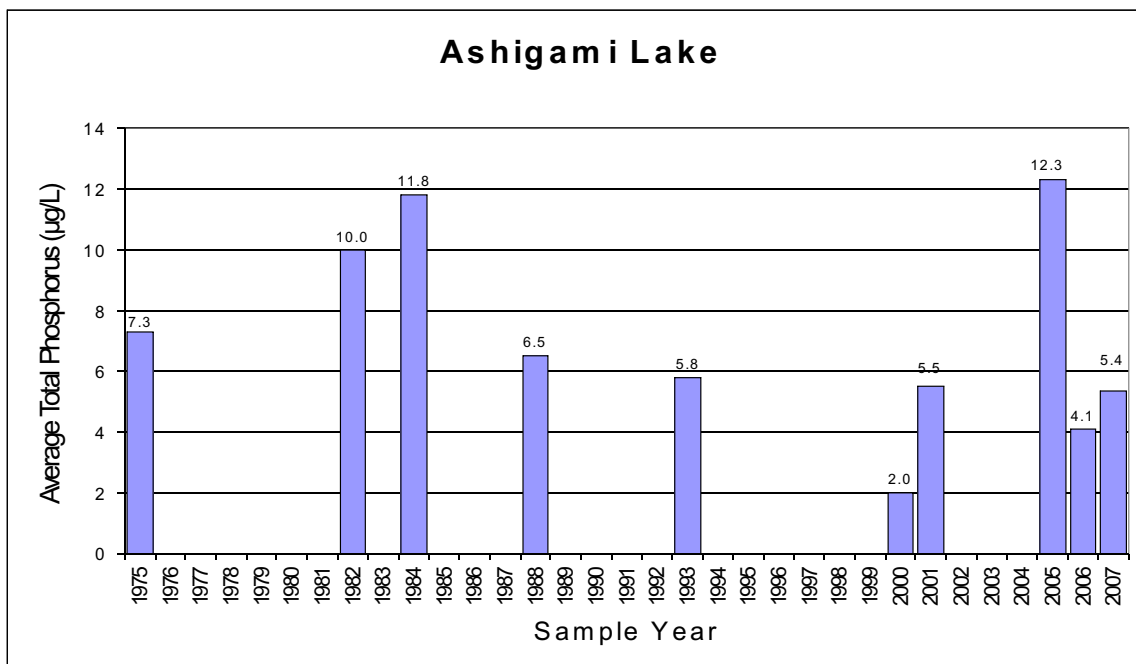
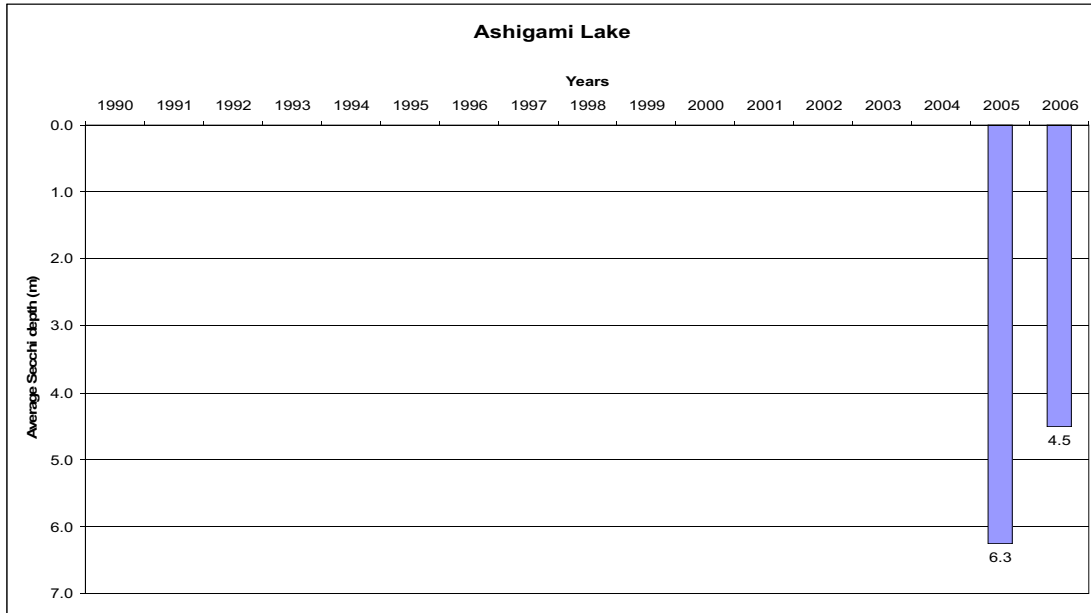
TROPHIC STATE OF LAKES

Trophic state is an indicator of water quality. Lakes are classified into three categories based on trophic state: oligotrophic, mesotrophic and eutrophic. These categories reflect a lake's nutrient and water clarity levels. An increase in the trophic state can result in adverse ecological changes in a lake. This increase is known as eutrophication and usually occurs naturally at very slow rates but does occur faster due to human activities in a watershed.

Trophic Level	Phosphorus Concentration (µg/L)	Secchi Disc Depth (m)	Characteristics
Oligotrophic	<10	>5	<ul style="list-style-type: none">•Clear, deep and free of weeds and large algae blooms•Low in nutrients, have low primary production, and do not support large fish populations•May be a lake trout lake•Watershed usually contains few wetlands
Mesotrophic	11-20	3 - 4.9	<ul style="list-style-type: none">• More nutrients and production than oligotrophic lakes, but not as much as eutrophic lakes•Some aquatic vegetation and wetland areas that support a wide variety of wildlife• Able to support a wide variety of fish
Eutrophic	>21	<2.9	<ul style="list-style-type: none">•Most productive lakes and tend to be shallow•Have larger areas of aquatic vegetation•Have large wetland areas• May be susceptible to algae blooms• Support large fish populations•Prone to oxygen depletion in the hypolimnion

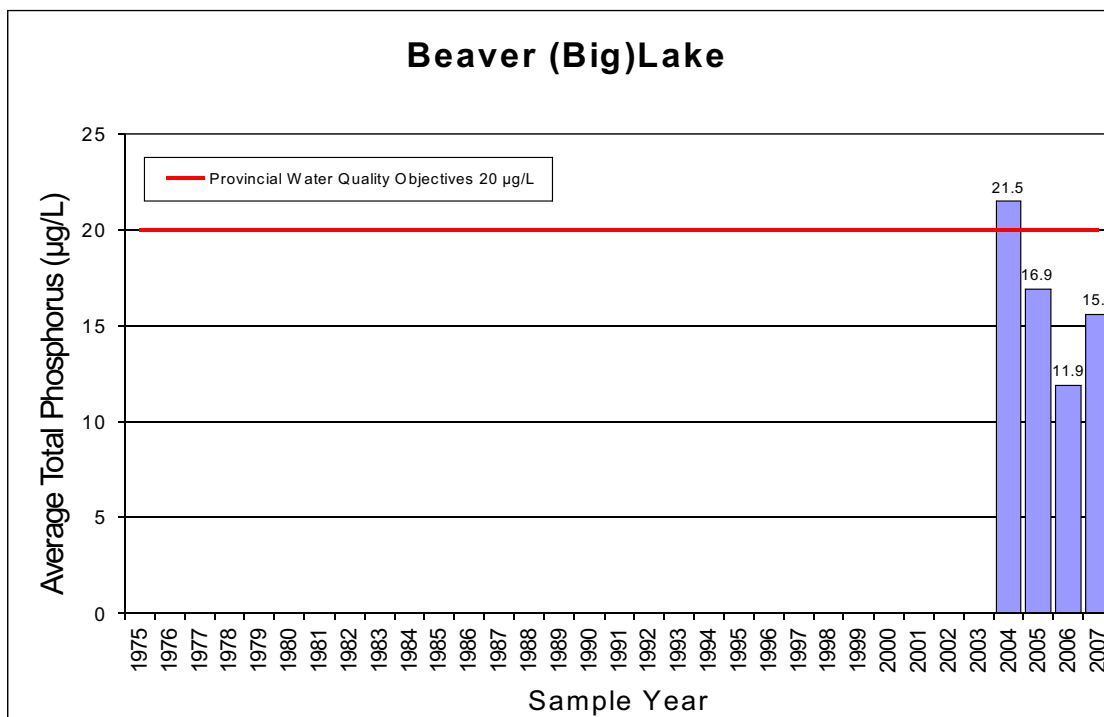
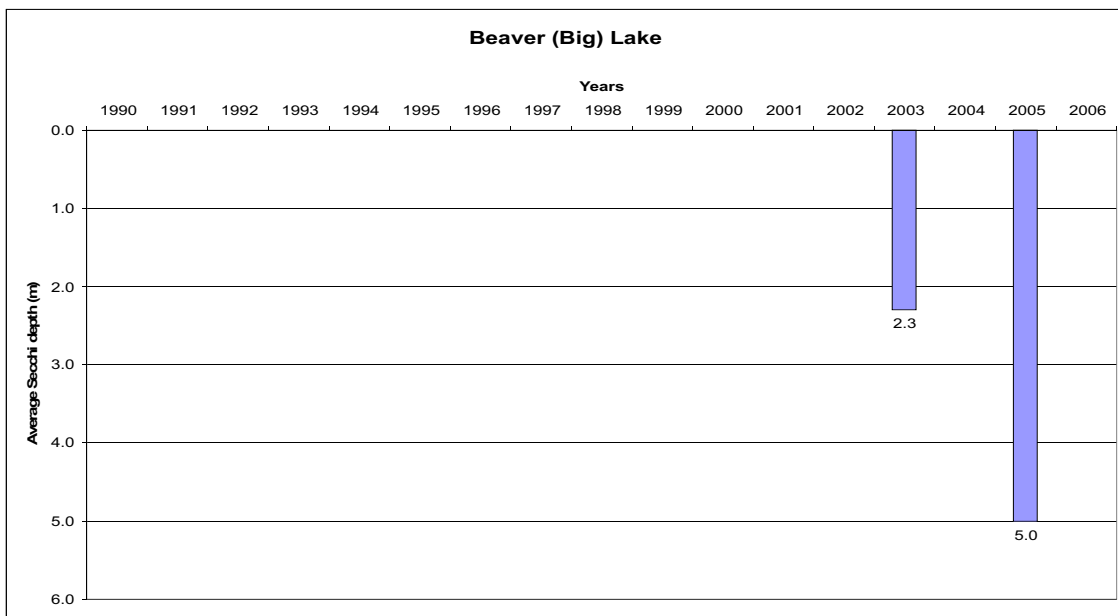
Ashigami Lake

Township:	Scadding	Phosphorus (2007):	5.4 µG/L
Watershed Unit:	Sturgeon River	Secchi Depth (2005):	6.25 m (20.5 ft)
Surface Area:	434.7 ha	Maximum Depth:	n/a
Perimeter:	39.8 km	Average No. of residents	n/a



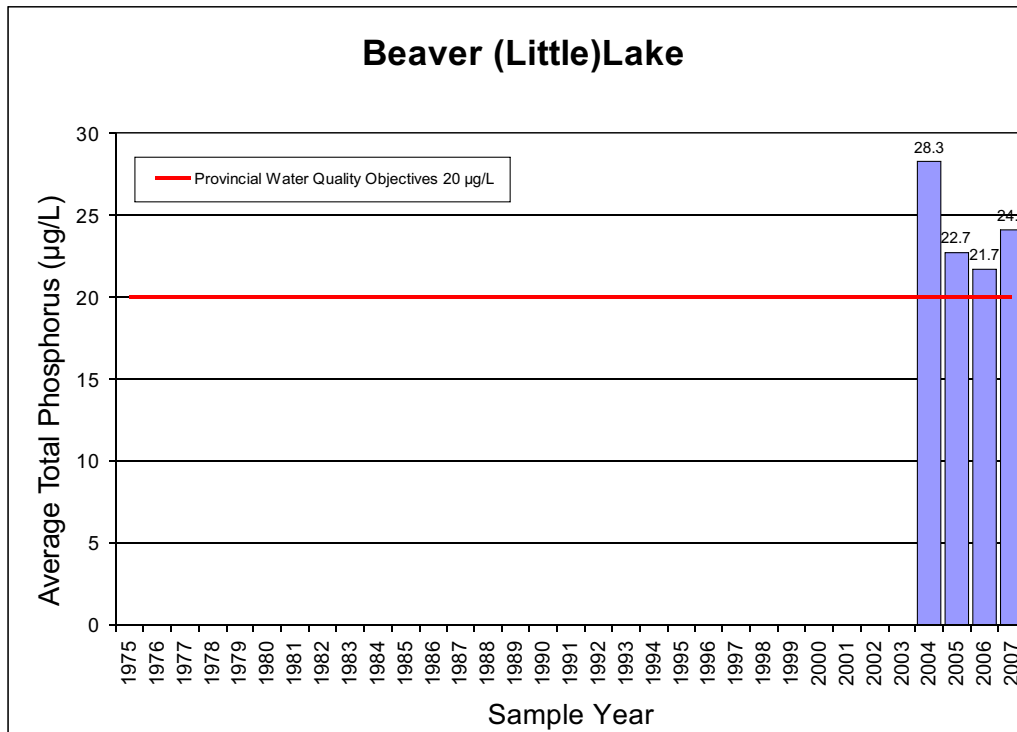
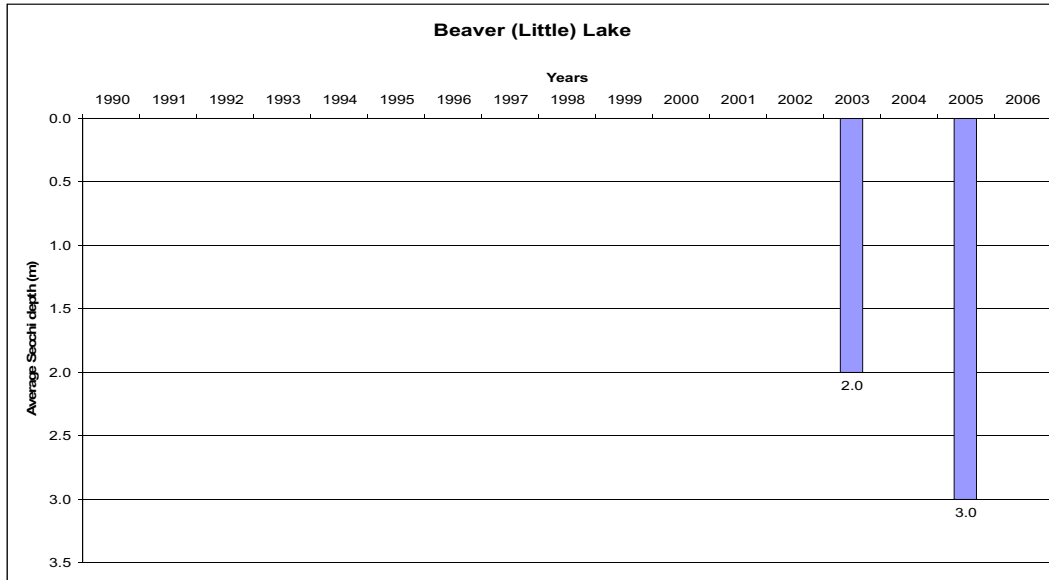
Beaver (Big)

Township: Lorne	Phosphorus(2007): 15.6 µG/L
Watershed Unit: Lower Vermilion	Secchi depth (2005): 4.0 m (13.1 ft)
Surface Area: 20.1 ha	Maximum depth: n/a
Perimeter: 2.9 km	Average No. of residents: n/a



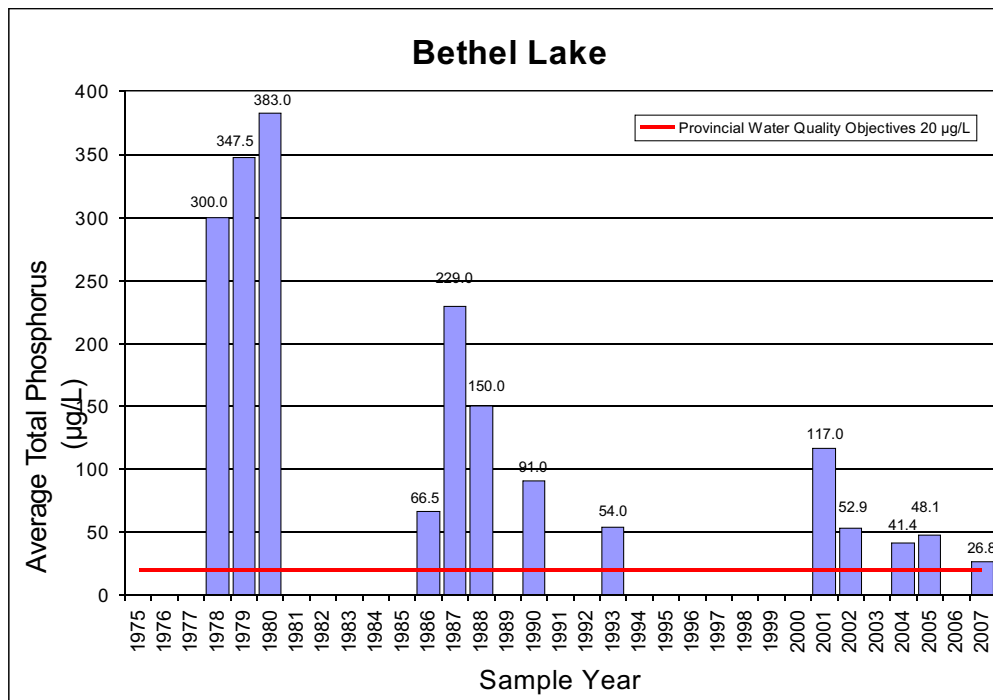
Beaver (Little)

Township: Lorne	Phosphorus (2007): 24.1 µG/L
Watershed Unit: Lower Vermilion	Secchi Depth (2005): 3.0 m (9.8 ft)
Surface Area: 16.9 ha	Maximum Depth: n/a
Perimeter: 2.4 km	Average No. of residents: n/a



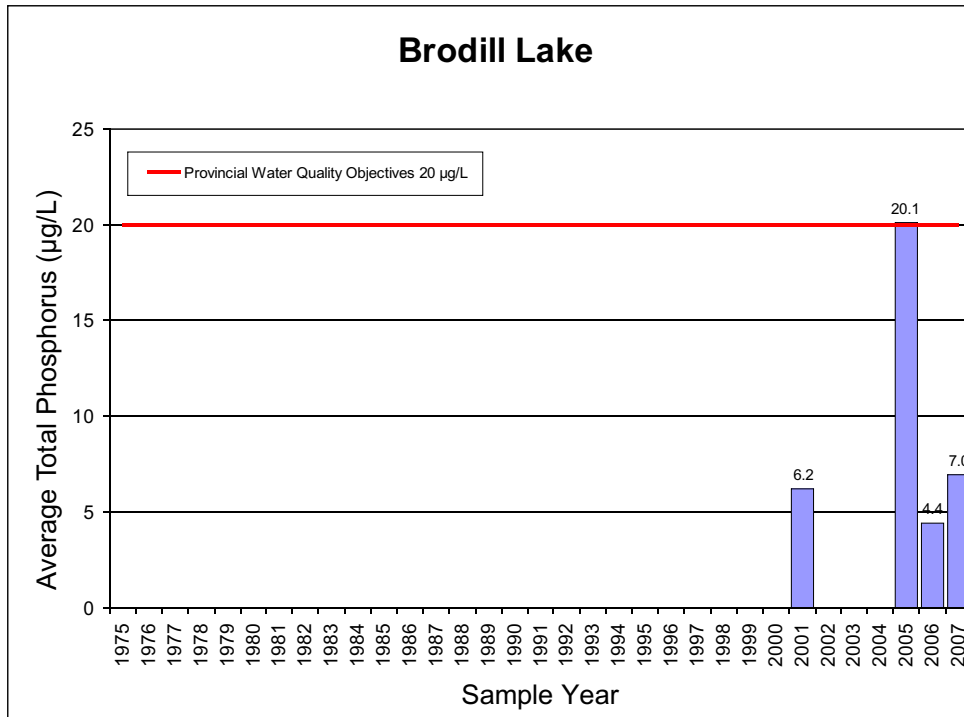
Bethel

Township:	McKim	Phosphorus (2007):	26.8 $\mu\text{G/L}$
Watershed Unit:	Ramsey	Secchi Depth:	n/a
Surface Area:	31.2 ha	Maximum Depth:	4 m (13 ft)
Perimeter:	2.4 km	Average No. of residents:	30



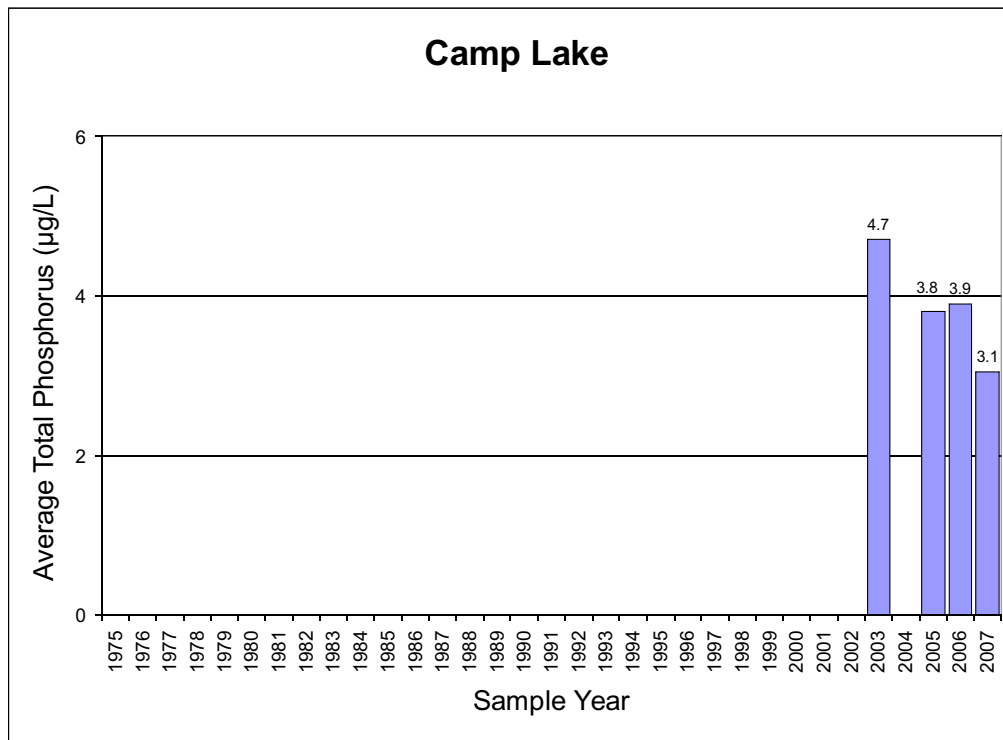
Brodill

Township:	Broder	Phosphorus (2007):	7.0 µG/L
Watershed Unit:	East Wannipitae River	Secchi Depth:	n/a
Surface Area:	112.1 ha	Maximum Depth:	30 m (98.4 ft)
Perimeter:	12.9 km	Average No. of residents:	2



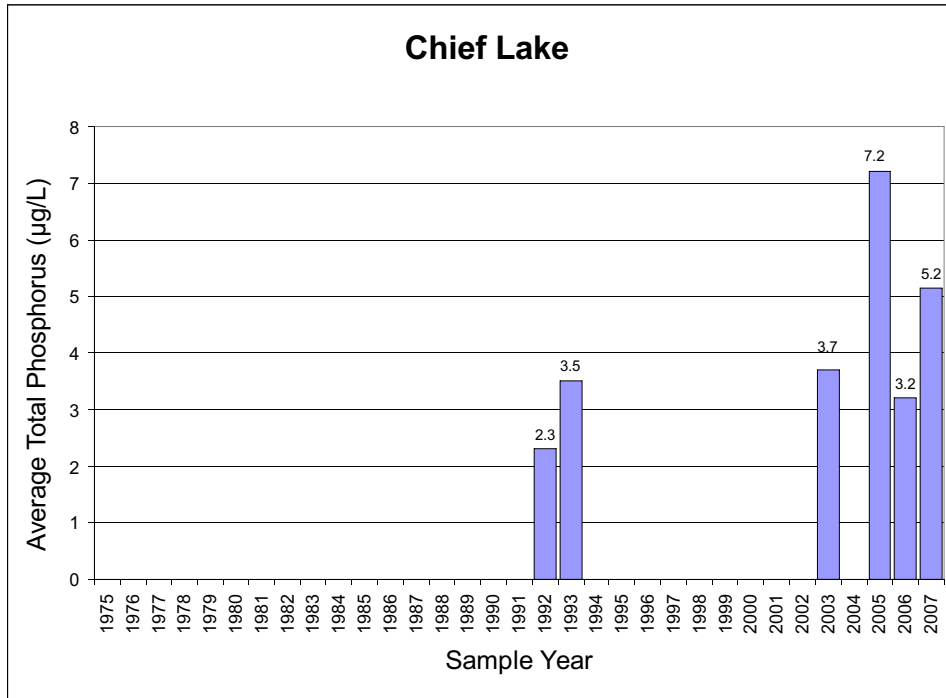
Camp

Township:	Broder	Phosphorus (2007):	3.1 µG/L
Watershed Unit:	East Wannipitae River	Secchi Depth:	n/a
Surface Area:	19.9 ha	Maximum Depth:	14 m (45.9 ft)
Perimeter:	3.0 km	Average No. of residents:	0



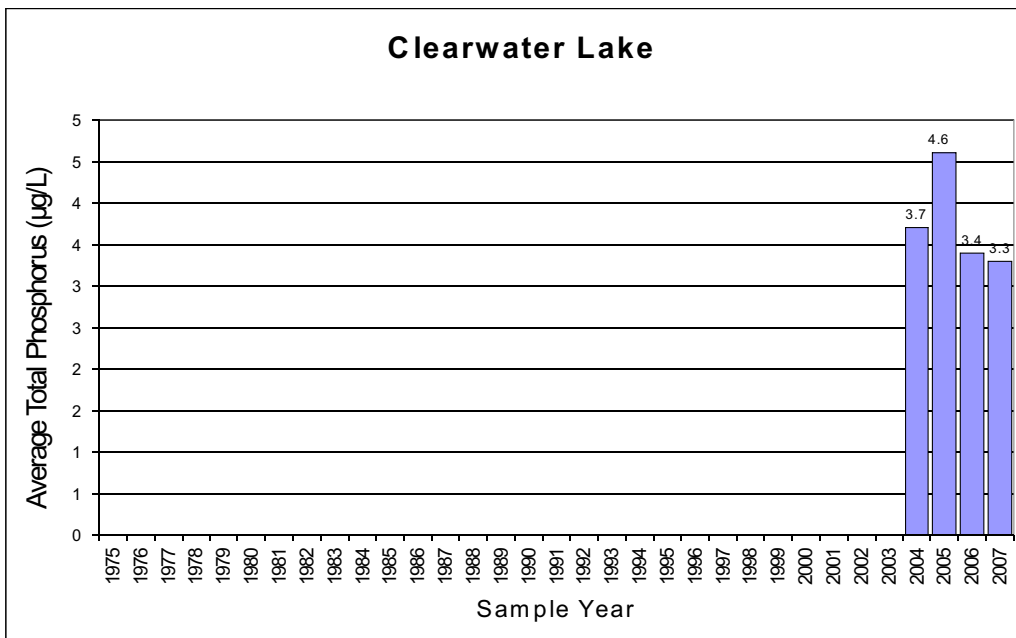
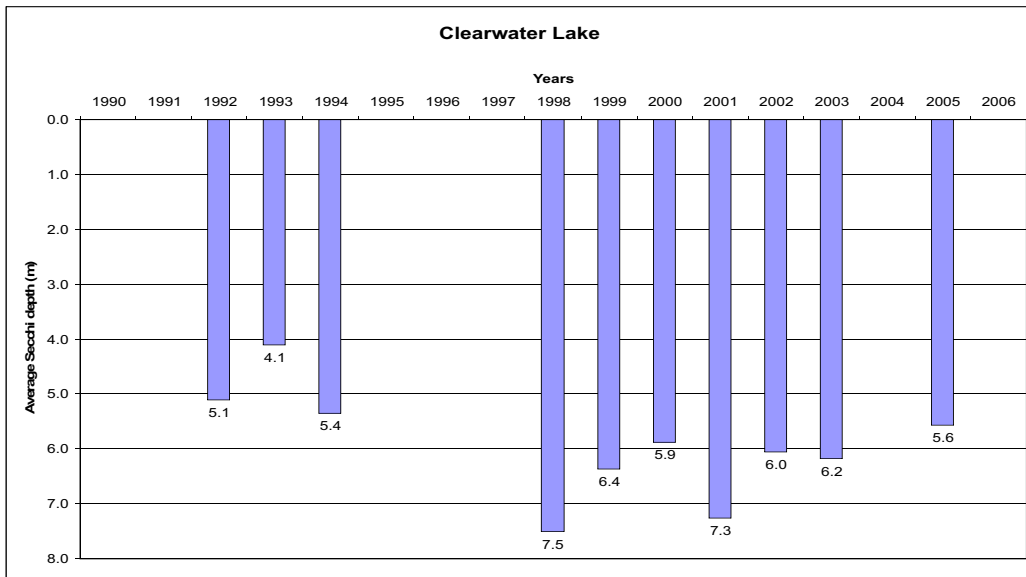
Chief

Township:	Tilton	Phosphorus (2007):	5.2 µG/L
Watershed Unit:	East Wannipitae River	Secchi Depth:	n/a
Surface Area:	105.2 ha	Maximum Depth:	34 m (111.6 ft)
Perimeter:	12.6 km	Average No. of residents:	1



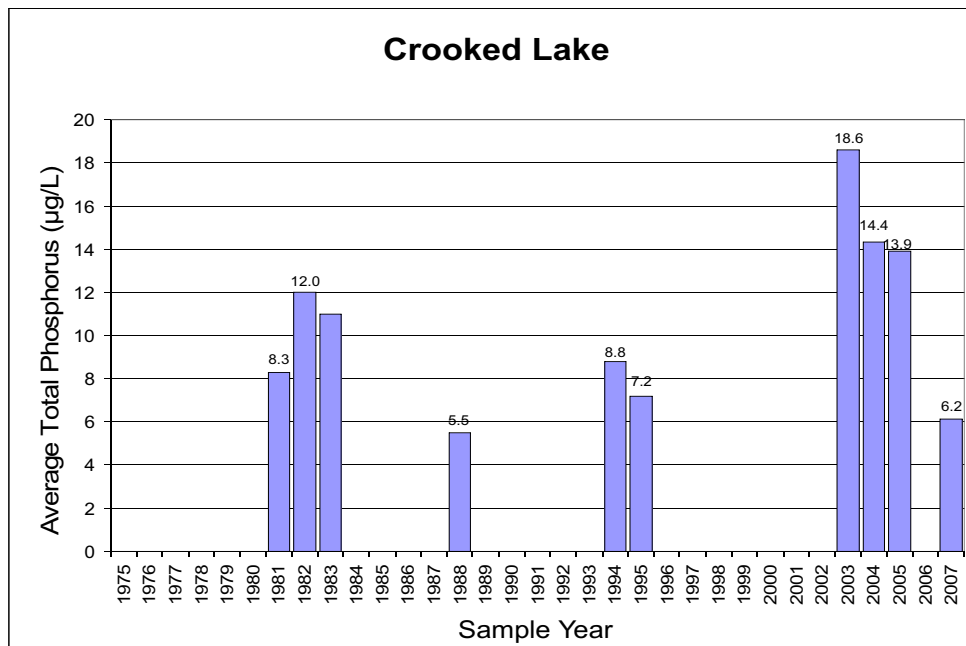
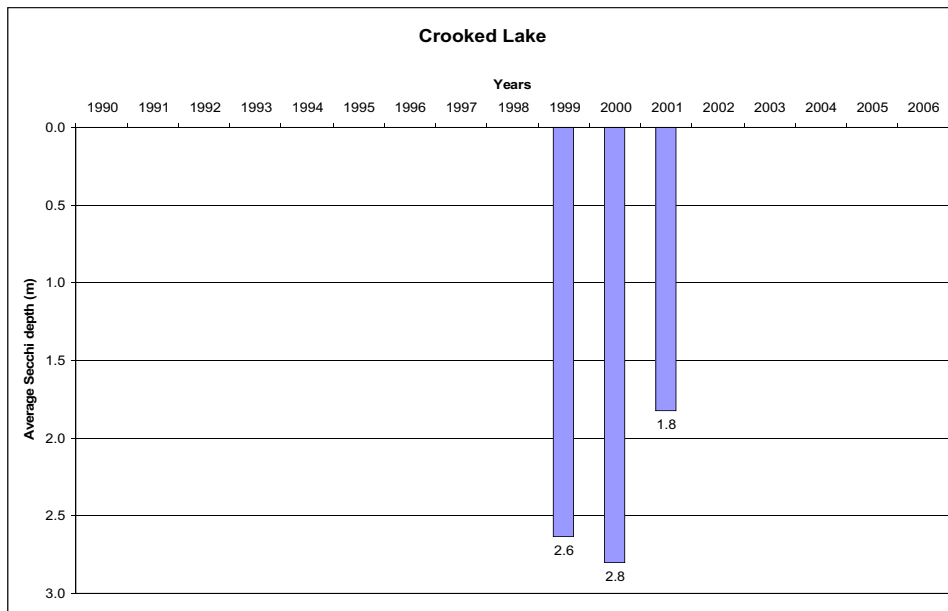
Clearwater

Township: Broder	Phosphorus (2007): 3.3 µG/L
Watershed Unit: Panache	Secchi Depth (2005): 5.6 m (18.4 ft)
Surface Area: 76.0 ha	Maximum Depth: 18.3m (60ft)
Perimeter: 5.0 km	Average No. of residents: 128



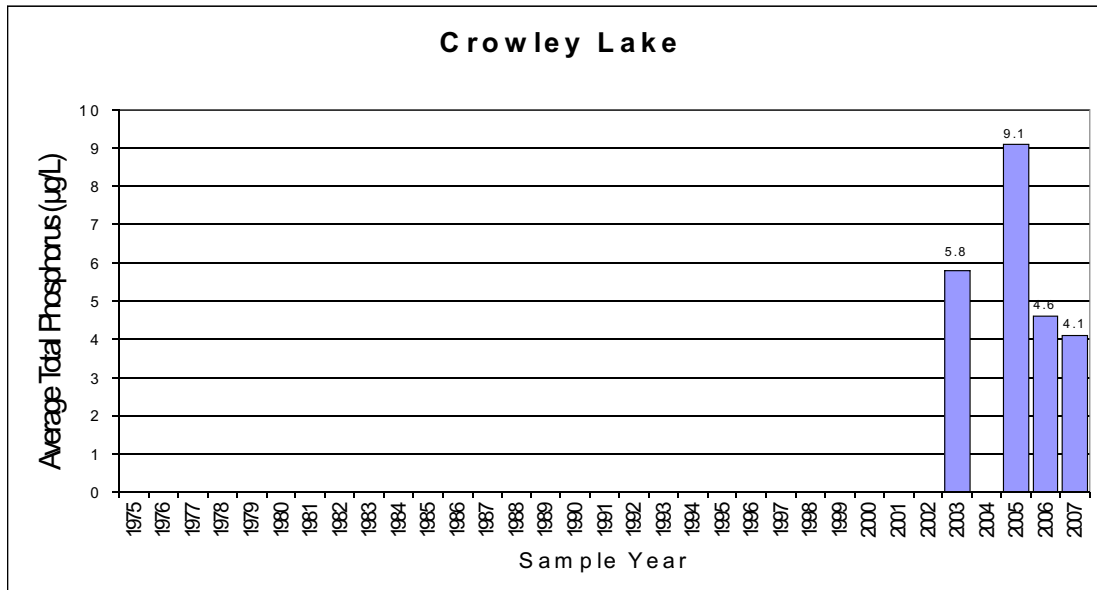
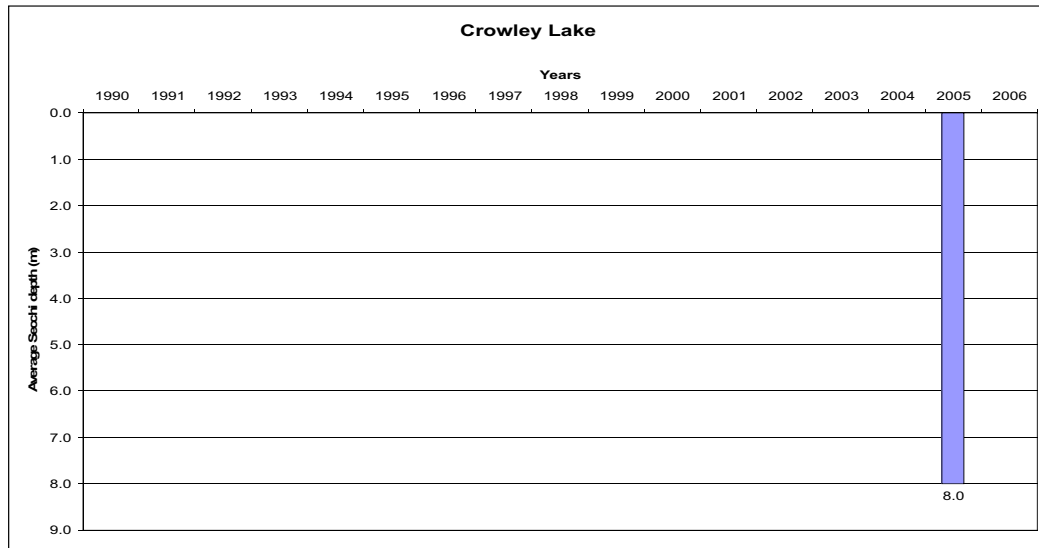
Crooked

Township:	Broder	Phosphorus (2007):	6.2 $\mu\text{G/L}$
Watershed Unit:	Upper Junction Creek	Secchi Depth (2001):	1.8 m (6 ft.)
Surface Area:	43.5 ha	Maximum Depth:	16 m (52.5 ft)
Perimeter:	6.2 km	Average No. of residents:	0



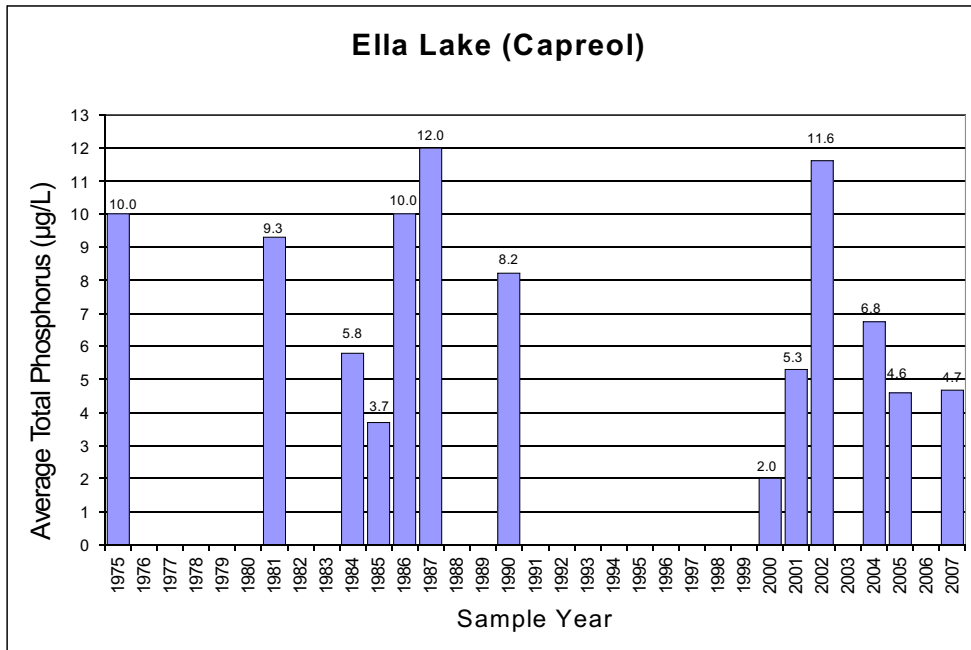
Crowley

Township: Broder	Phosphorus (2007): 4.1 µG/L
Watershed Unit: Panache	Secchi Depth (2005): 8 m (26.2 ft.)
Surface Area: 43.5 ha	Maximum Depth: 16 m (52.5 ft)
Perimeter: 6.2 km	Average No. of residents: 0



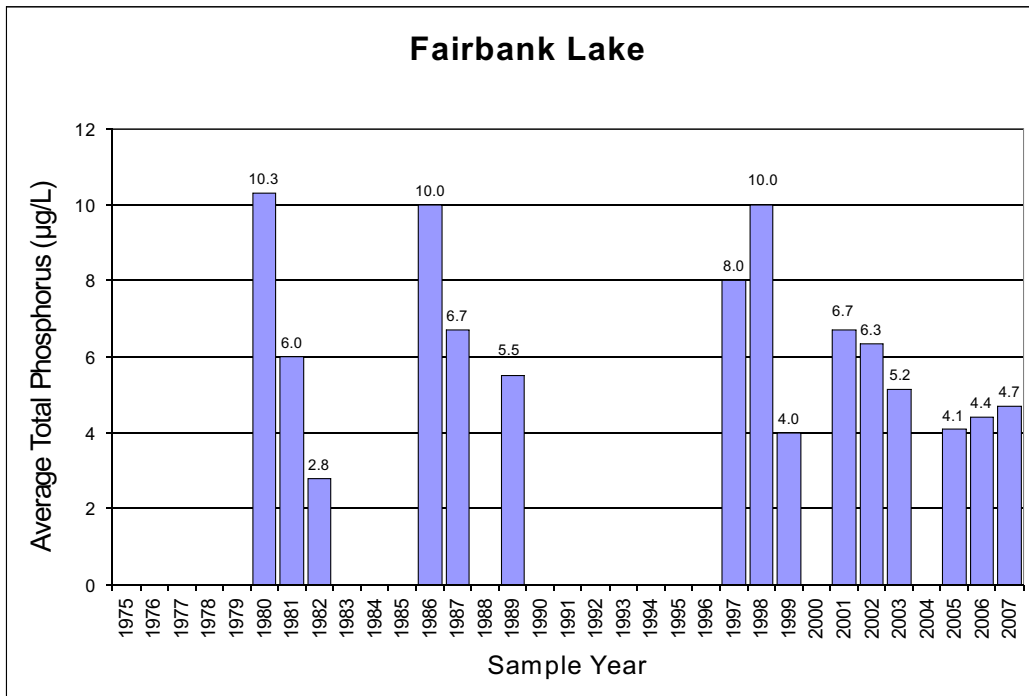
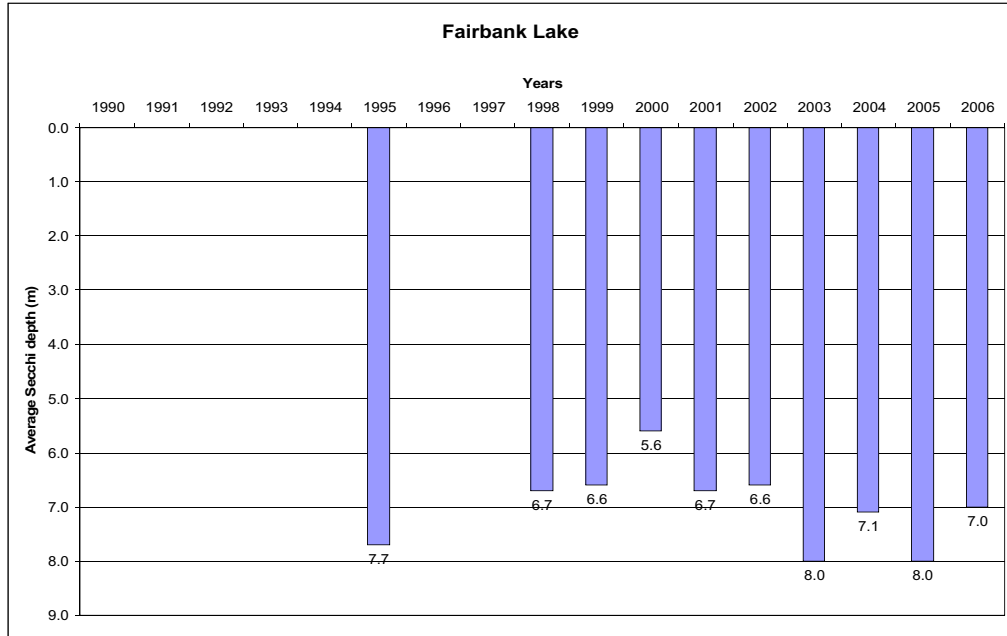
Ella

Township:	Capreol	Phosphorus (2007):	4.7 µG/L
Watershed Unit:	Wanapitei	Secchi Depth (2005):	4.4 m (14.4 ft.)
Surface Area:	166.1 ha	Maximum Depth:	24.4m (80 ft)
Perimeter:	17.7 km	Average No. of residents:	50



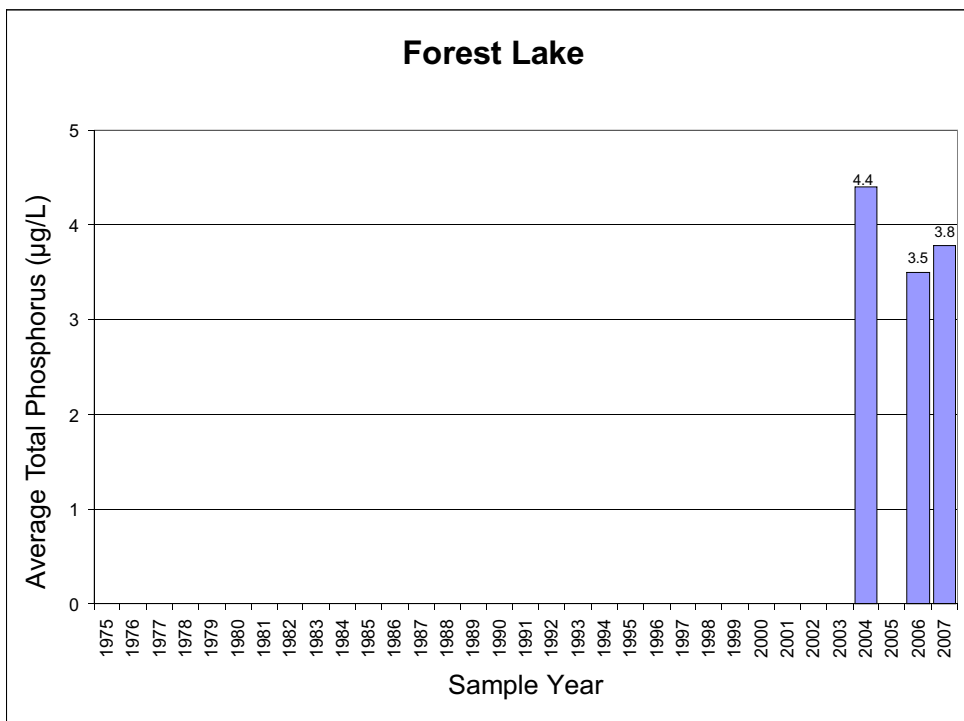
Fairbank

Township: Fairbanks	Phosphorus (2007): 4.7 $\mu\text{G/L}$
Watershed Unit: Fairbank	Secchi Depth (2006): 7.0 m (23 ft.)
Surface Area: 705.1 ha	Maximum Depth: 42.7 m (140 ft.)
Perimeter: 28.2 km	Average No. of residents: 417



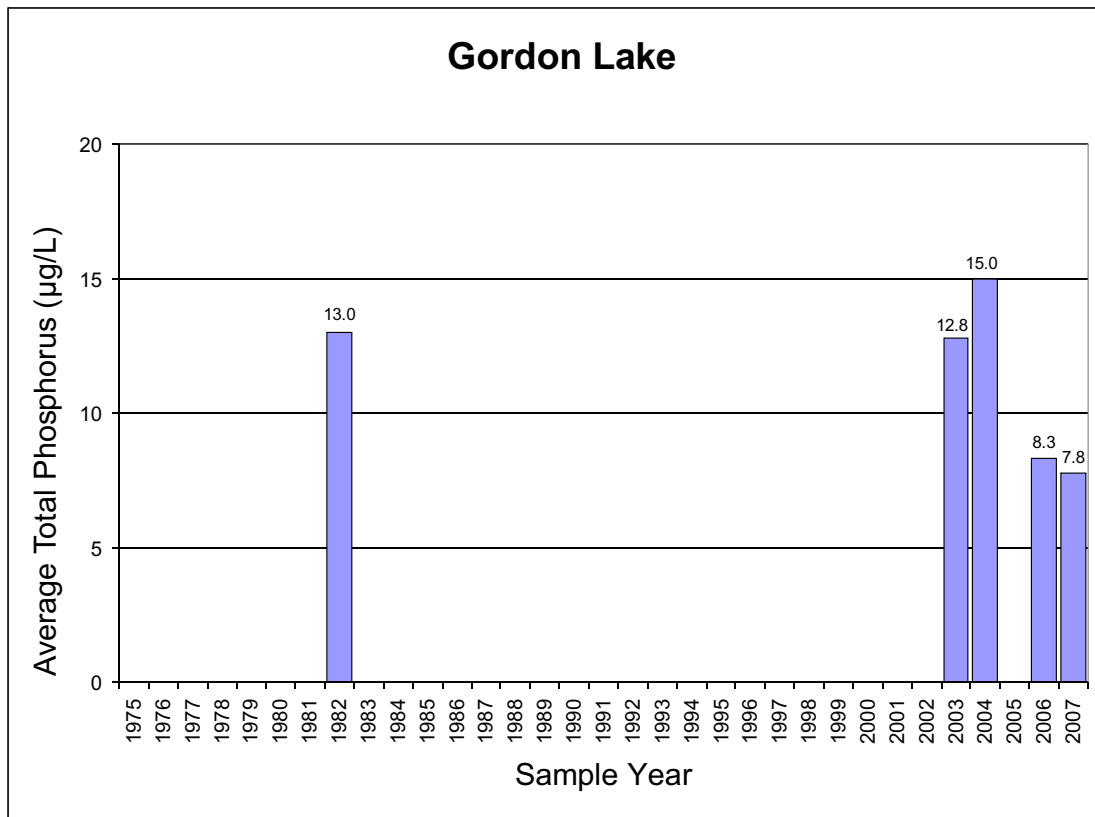
Forest

Township:	Broder	Phosphorus (2007):	3.8 µG/L
Watershed Unit:	Panache	Secchi Depth:	n/a
Surface Area:	15.8 ha	Maximum Depth:	12 m (39.4 ft.)
Perimeter:	2.2 km	Average No. of residents:	21



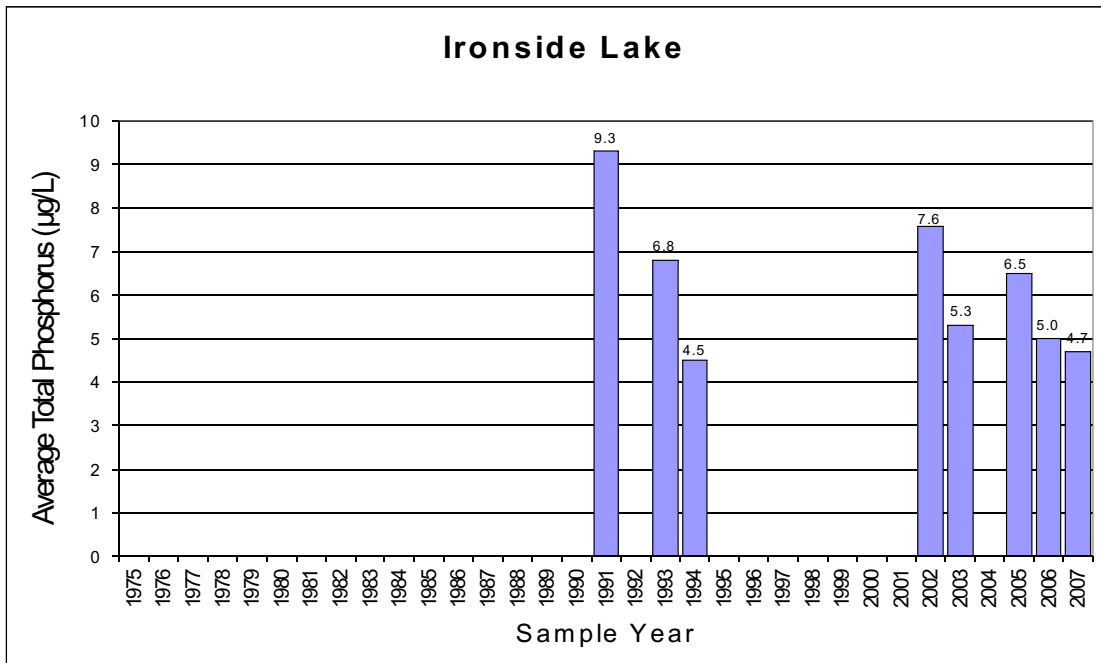
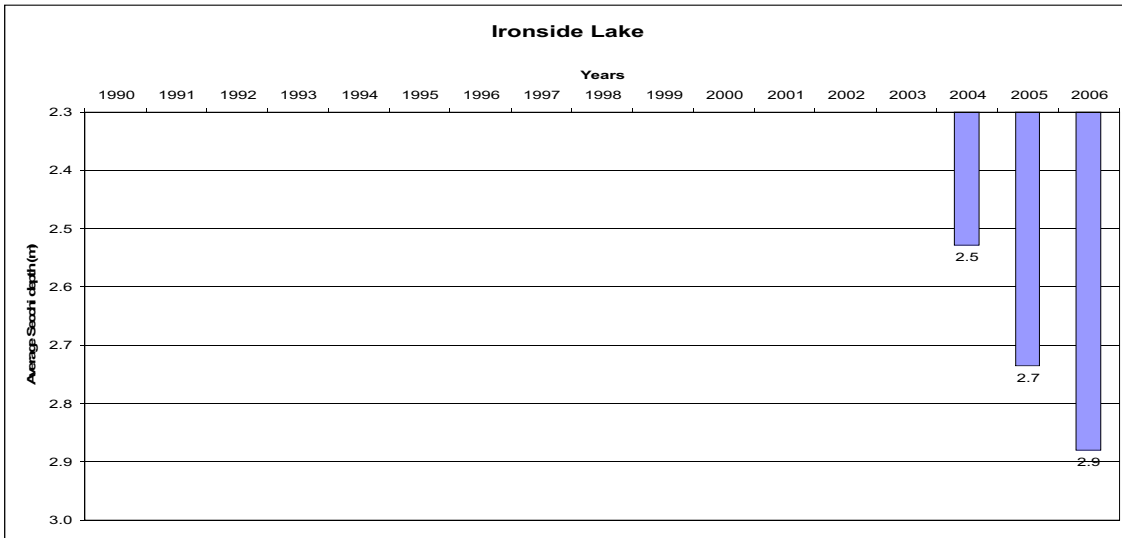
Gordon

Township:	Fairbanks	Phosphorus (2007):	7.8 µG/L
Watershed Unit:	Mid Vermilion	Secchi Depth:	n/a
Surface Area:	180 ha	Maximum Depth:	n/a
Perimeter:	13.7 km	Average No. of residents:	2



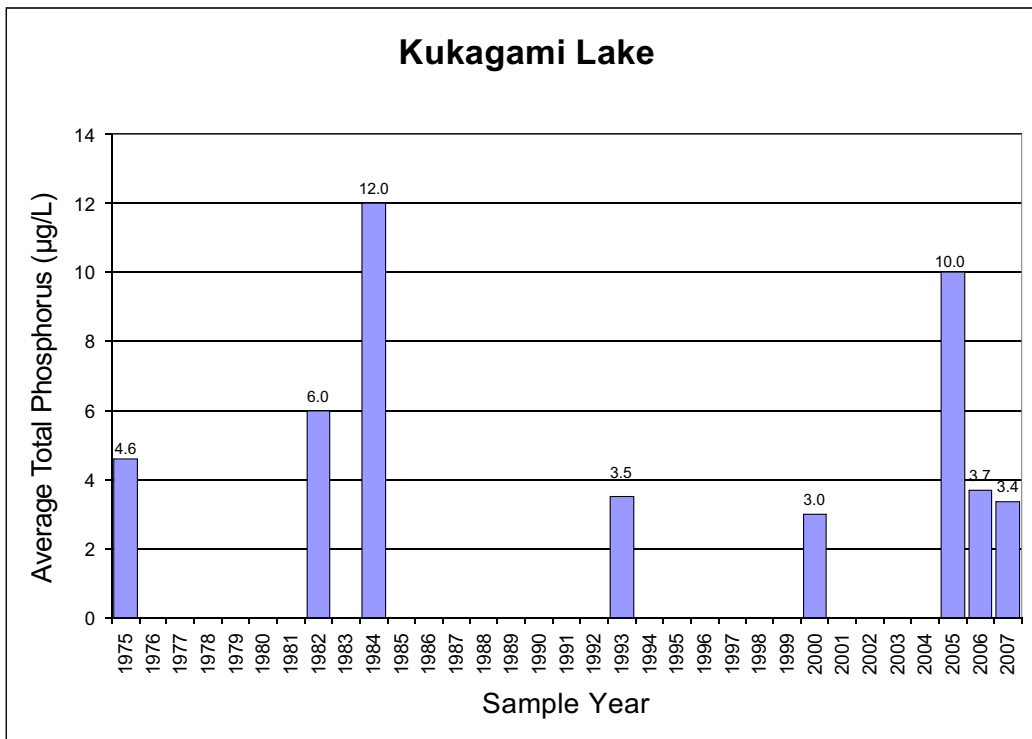
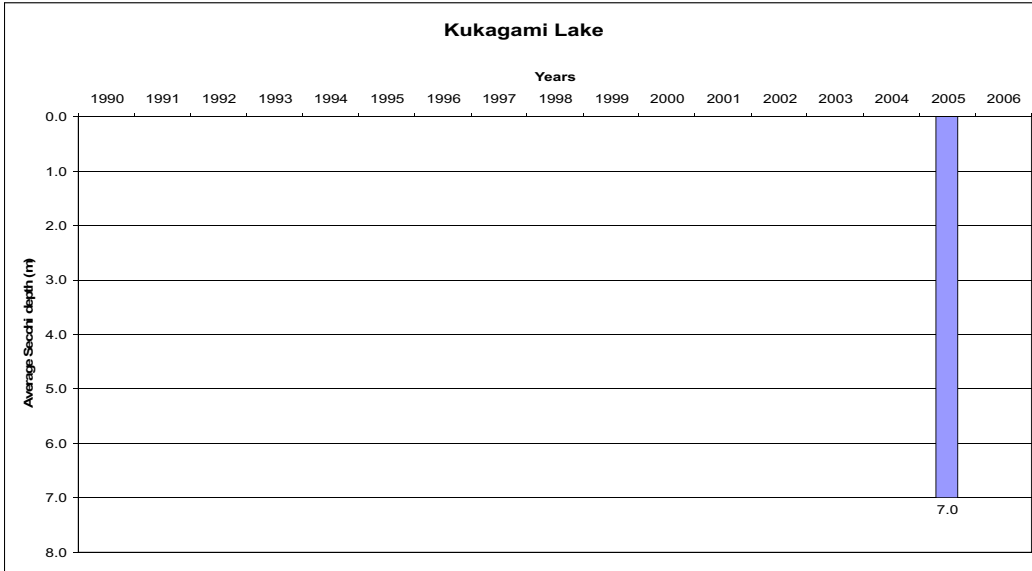
Ironside

Township:	Hutton	Phosphorus (2007):	4.7 µG/L
Watershed Unit:	Roberts River	Secchi Depth (2006):	2.9 m (8.9 ft)
Surface Area:	80.4 ha	Maximum Depth:	n/a
Perimeter:	10.8 km	Average No. of residents:	30



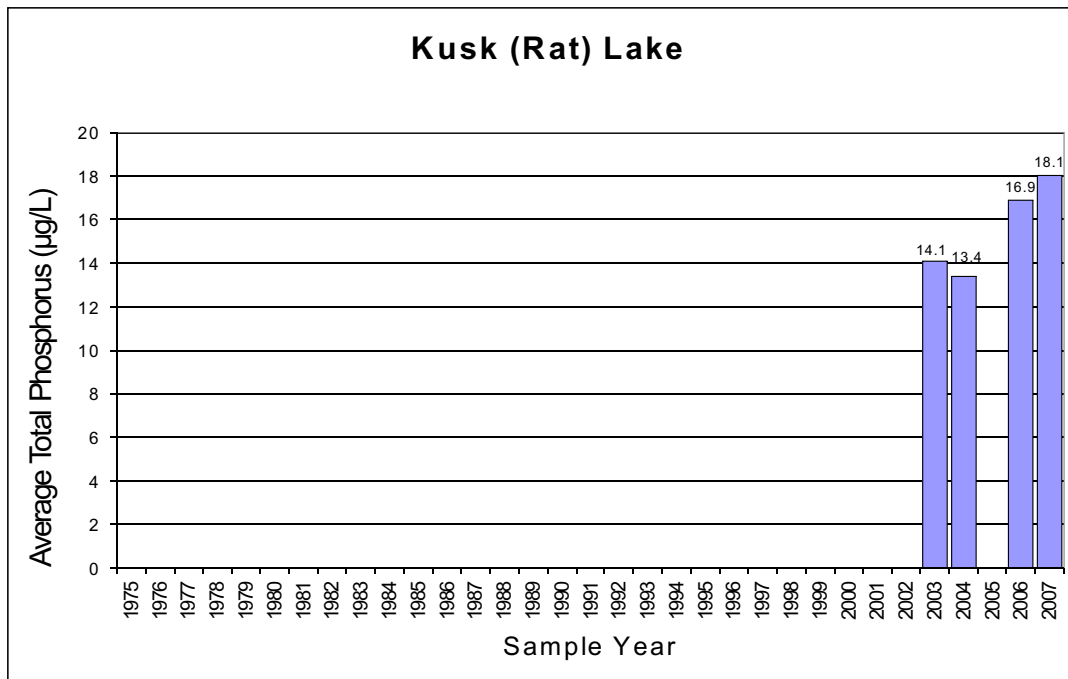
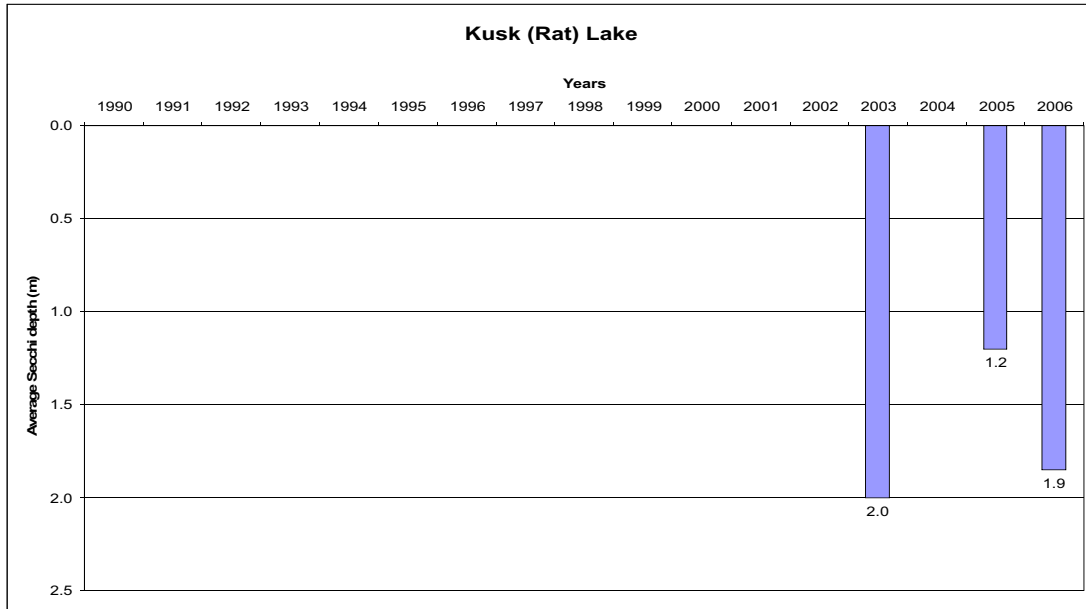
Kukagami

Township: Kelly	Phosphorus (2007): 3.4 µG/L
Watershed Unit: Kukagami	Secchi Depth (2005): 7.0 m (23 ft)
Surface Area: 1864.8 ha	Maximum Depth: n/a
Perimeter: 130.9 km	Average No. of residents: n/a



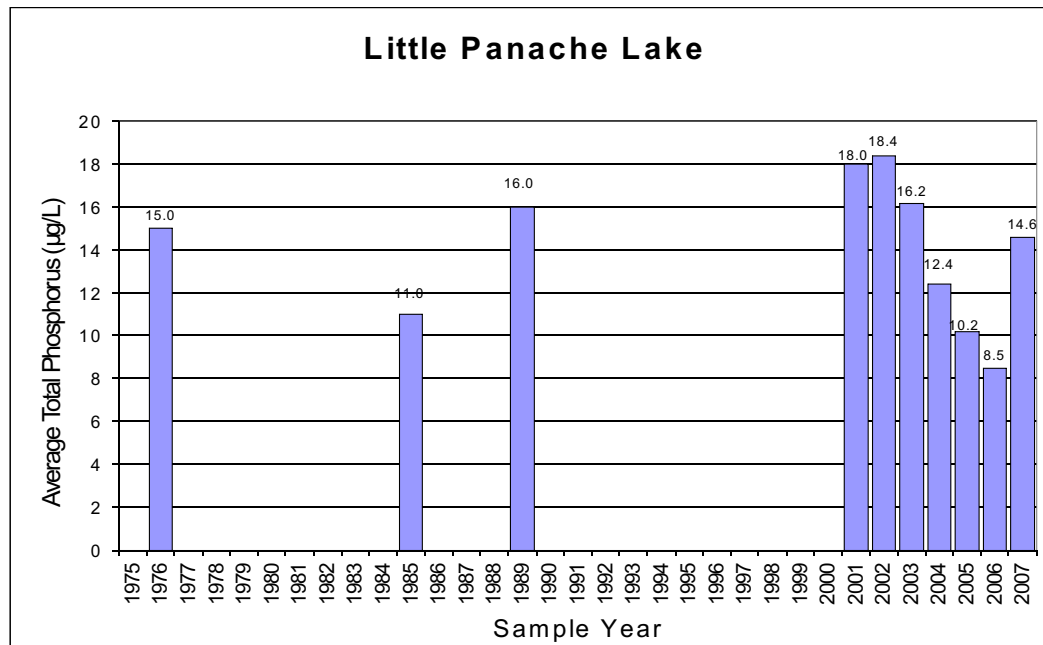
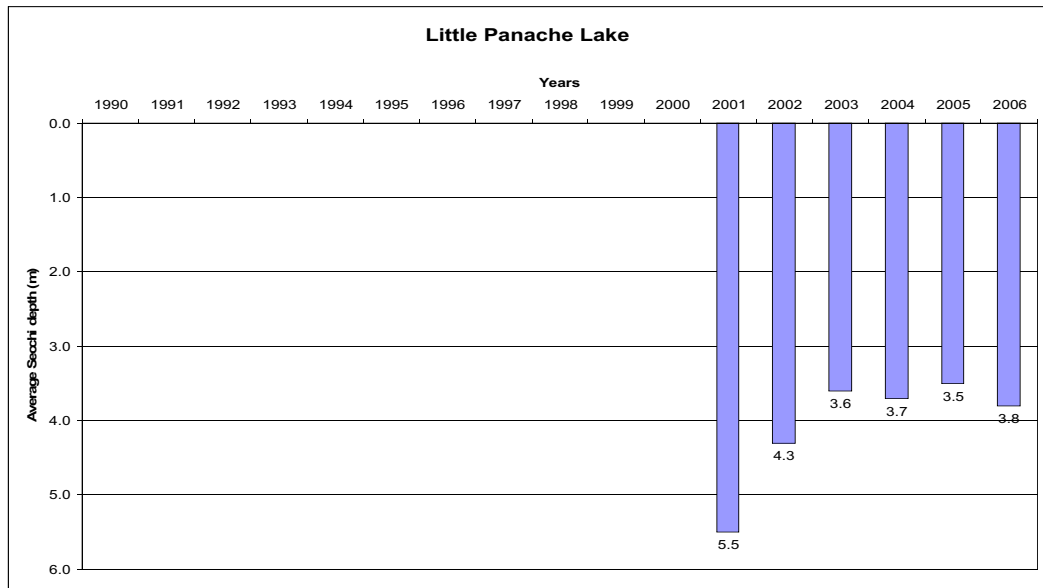
Kusk (Rat)

Township: Louise	Phosphorus (2007): 18.1 µG/L
Watershed Unit: Lower Vermilion	Secchi Depth (2006): 1.9 m (6.2 ft)
Surface Area: 174.9 ha	Maximum Depth: n/a
Perimeter: 10.5 km	Average No. of residents: 41



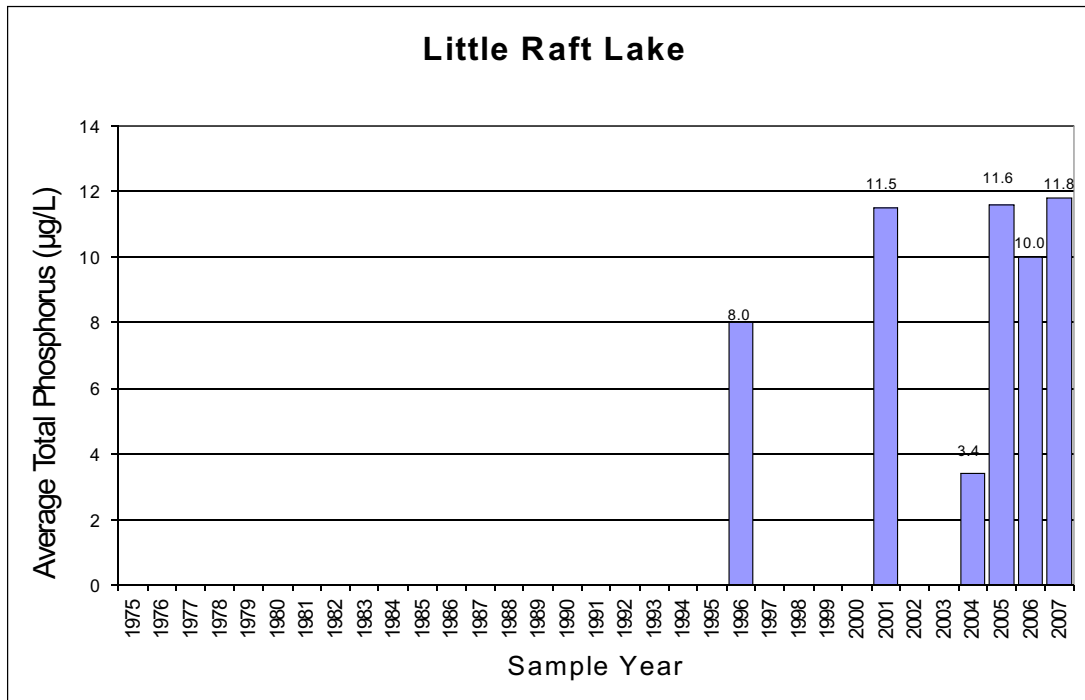
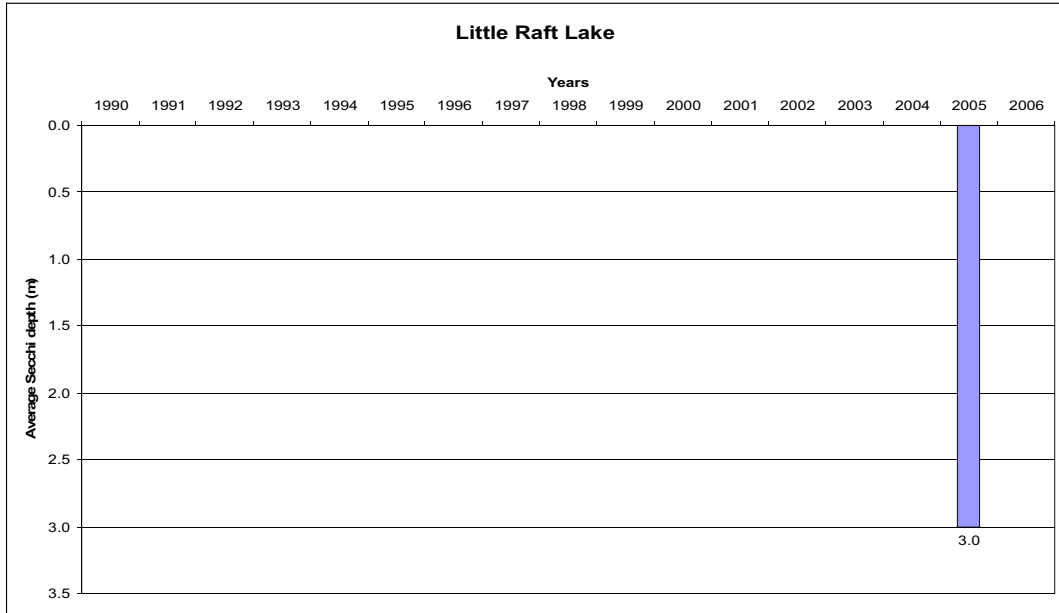
Little Panache

Township:	Louise	Phosphorus (2007):	14.6 µG/L
Watershed Unit:	Panache	Secchi Depth (2006):	3.8 m (12.4 ft)
Surface Area:	102.9 ha	Maximum Depth:	27.4 m (90 ft)
Perimeter:	6.9 km	Average No. of residents:	119



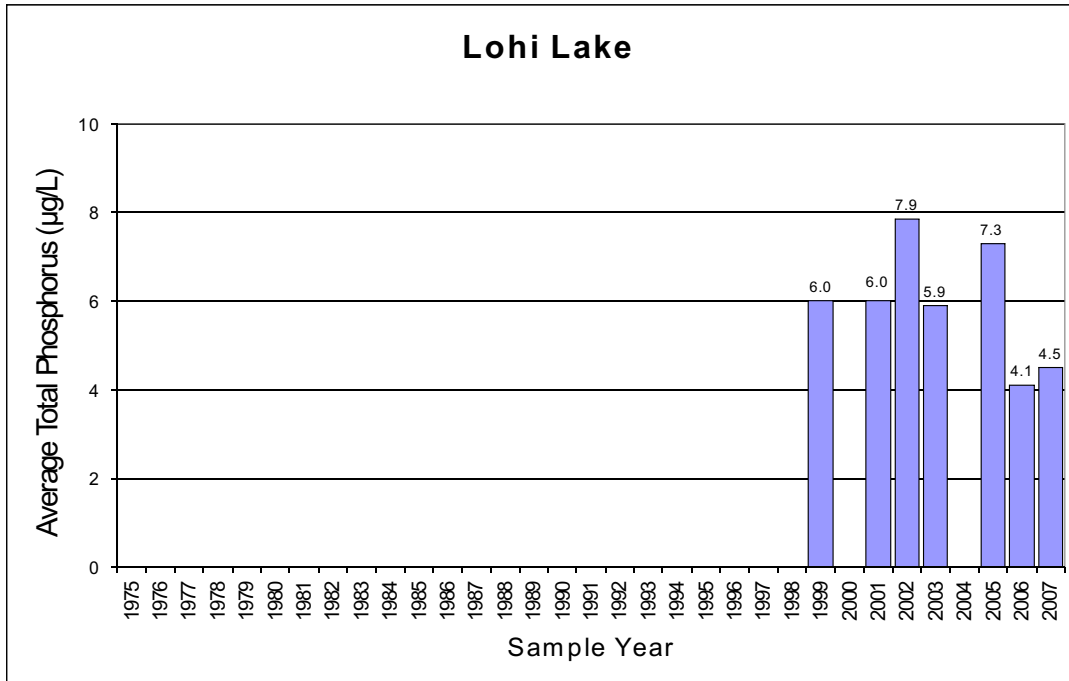
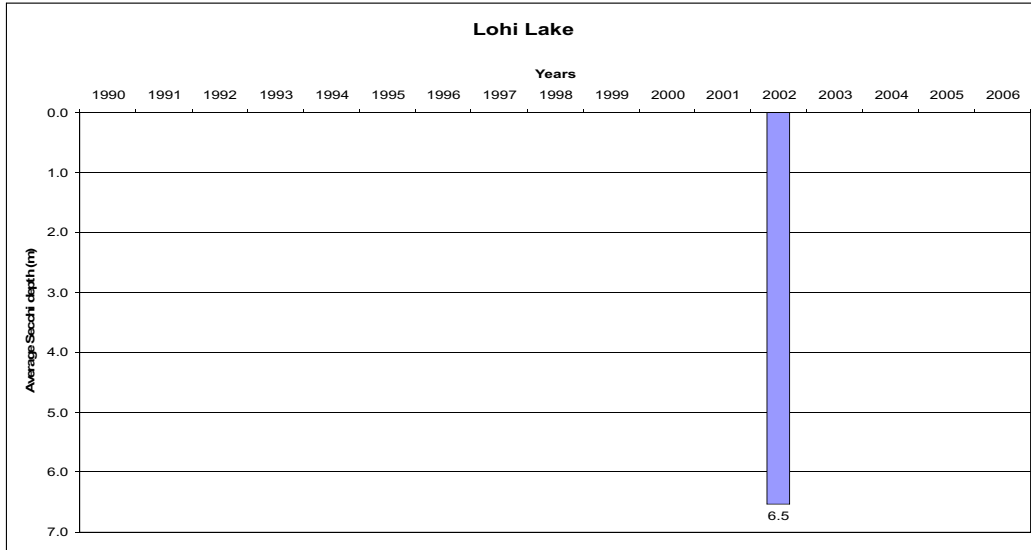
Little Raft

Township:	Broder/Dill	Phosphorus (2007):	11.8 µG/L
Watershed Unit:	East Wannipitae River	Secchi Depth (2005):	3.0 m (32.8 ft)
Surface Area:	19.7 ha	Maximum Depth:	3.0 m (32.8 ft)
Perimeter:	2.3 km	Average No. of residents:	8



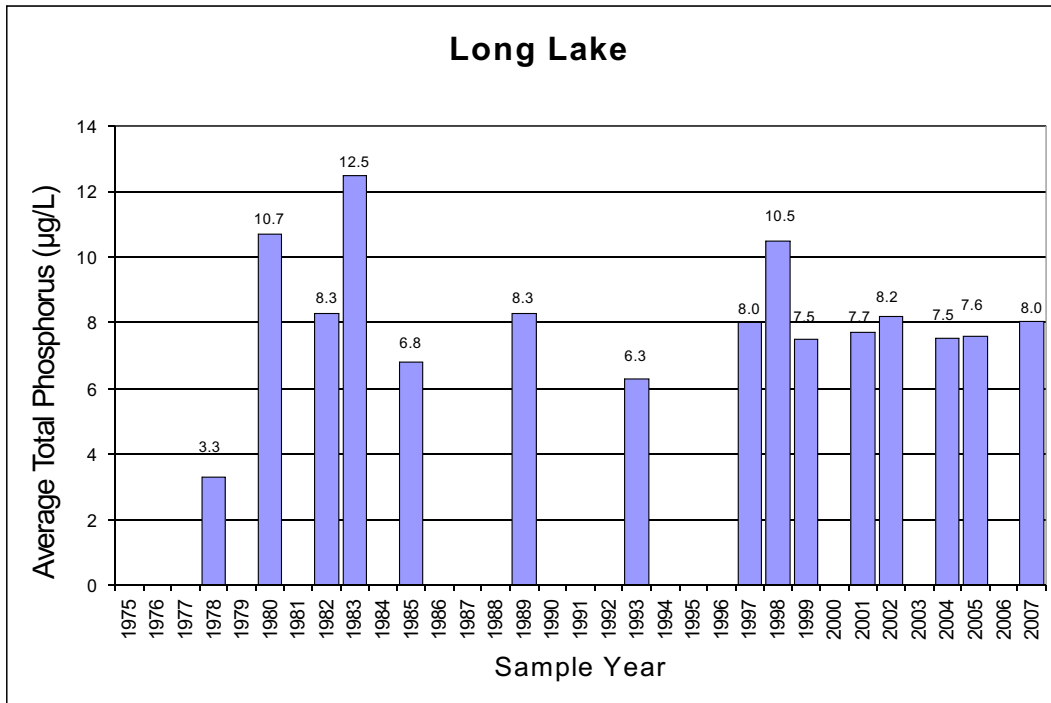
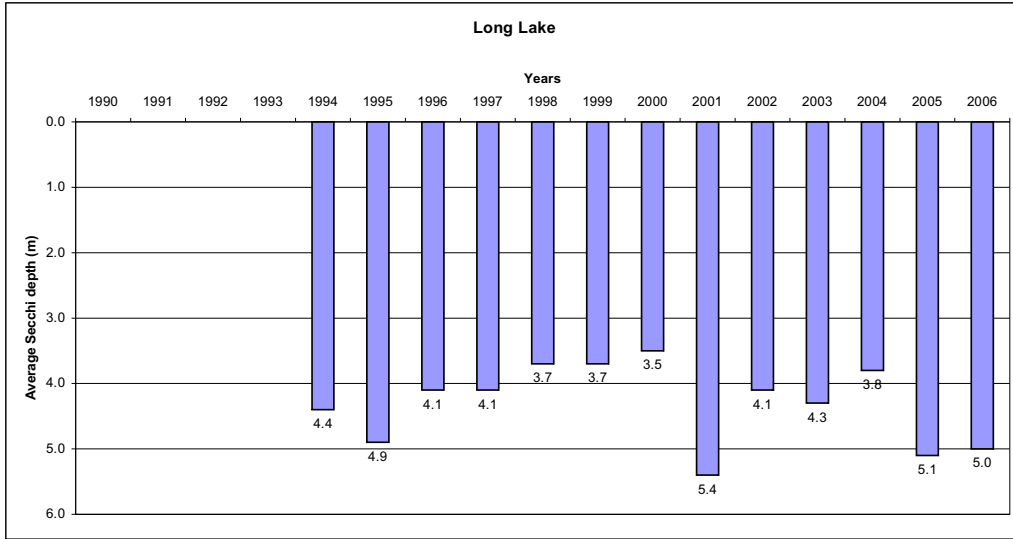
Lohi

Township:	Broder	Phosphorus (2007):	4.5 µG/L
Watershed Unit:	Panache	Secchi Depth (2002):	6.5 m (21.3 ft)
Surface Area:	41.6 ha	Maximum Depth:	19 m (62.3 ft)
Perimeter:	4.4 km	Average No. of residents:	65



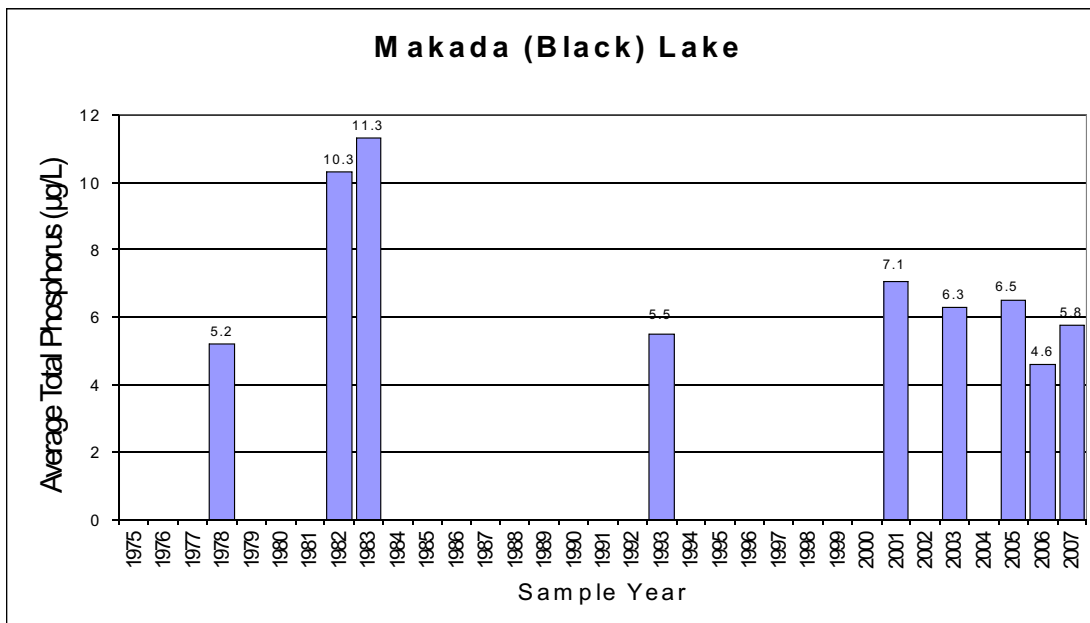
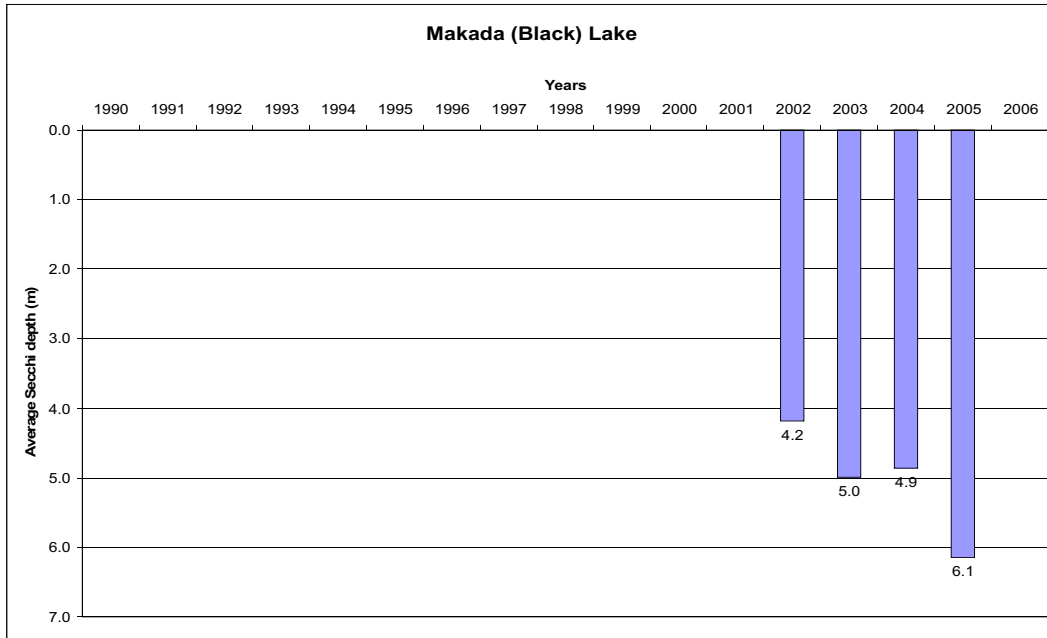
Long

Township:	Eden	Phosphorus (2007):	8.0 µg/L
Watershed Unit:	Panache	Secchi Depth (2006):	5.0 m (16.4 ft)
Surface Area:	861.3 ha	Maximum Depth:	36.6 m(120ft)
Perimeter:	52.9 km	Average No. of residents:	1083



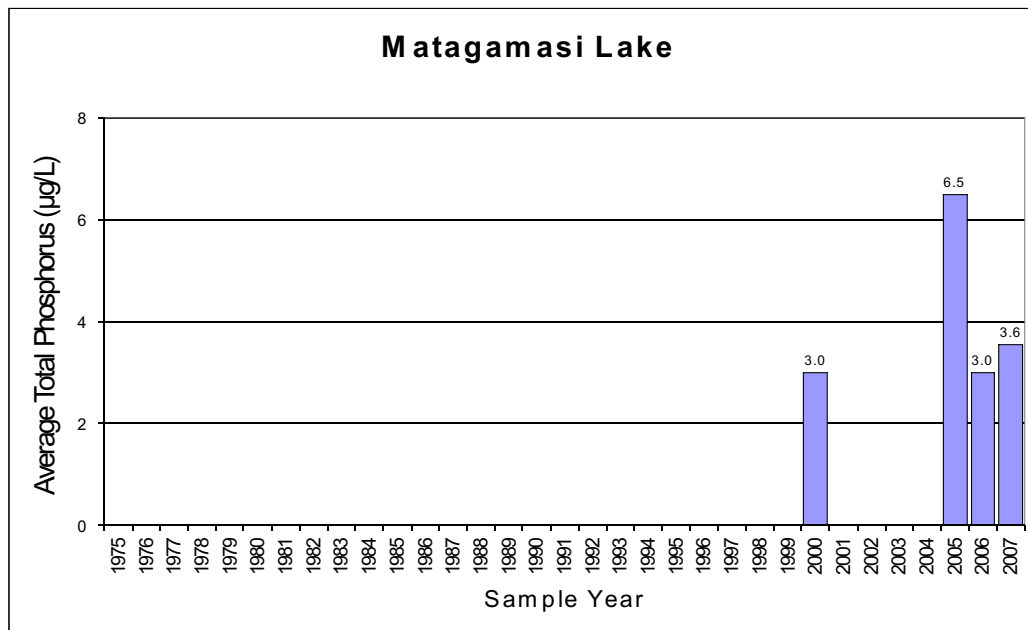
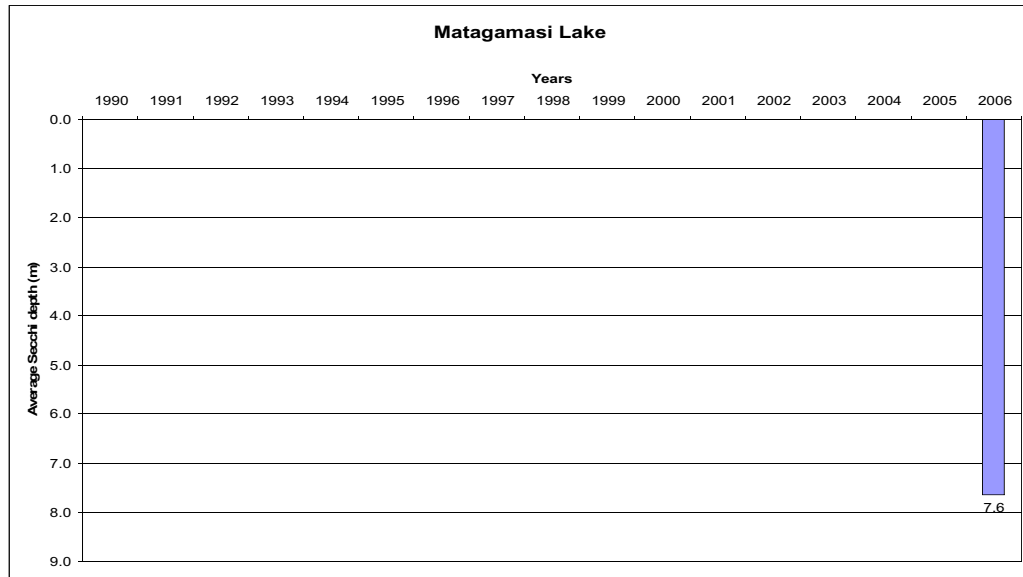
Makada (Black)

Township: Waters	Phosphorus (2007): 5.8 µG/L
Watershed Unit: Panache	Secchi Depth (2005): 6.1 m
Surface Area: 353.8 ha	Maximum Depth: n/a
Perimeter: 18.9 km	Average No. of residents: 137



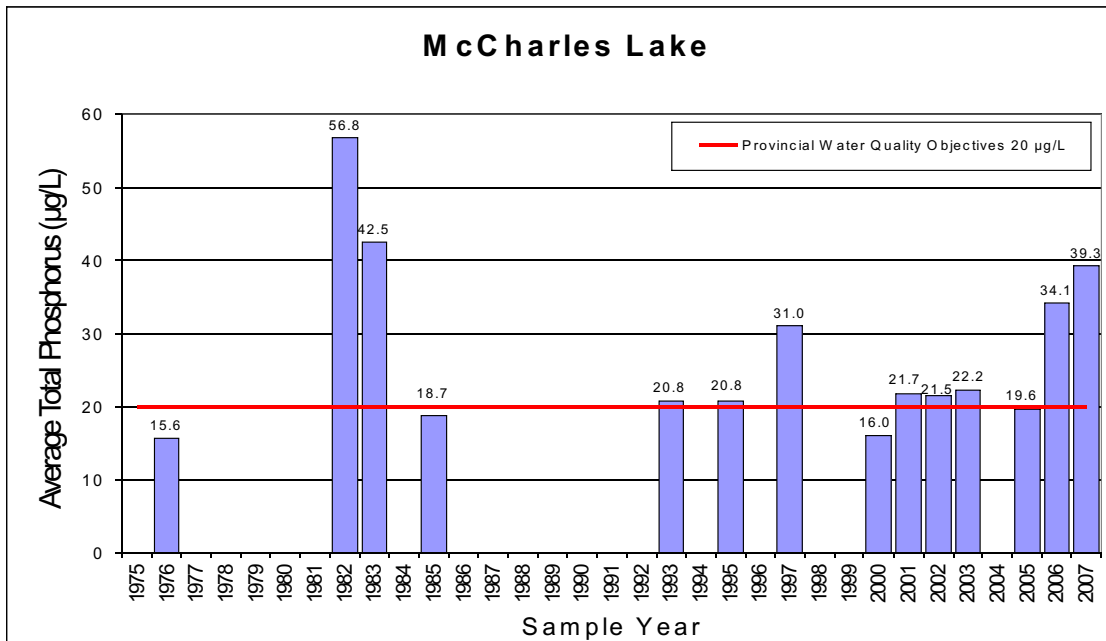
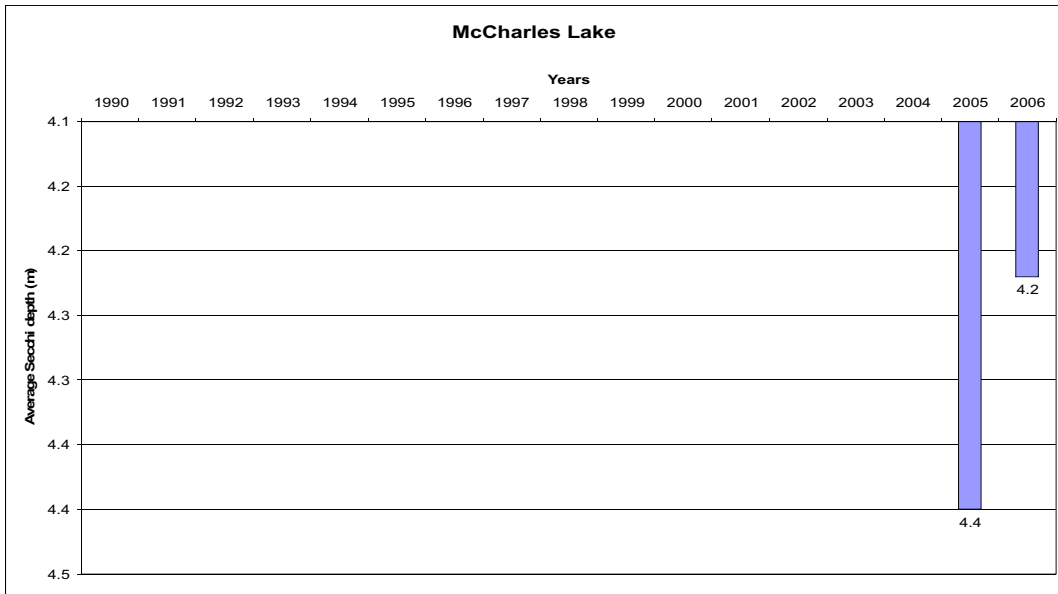
Matagamasi

Township:	Rathburn	Phosphorus (2007):	3.6 µG/L
Watershed Unit:	Kukagami	Secchi Depth (2006):	7.6 m (25 ft)
Surface Area:	1317.1 ha	Maximum Depth:	n/a
Perimeter:	107.9 km	Average No. of residents:	n/a



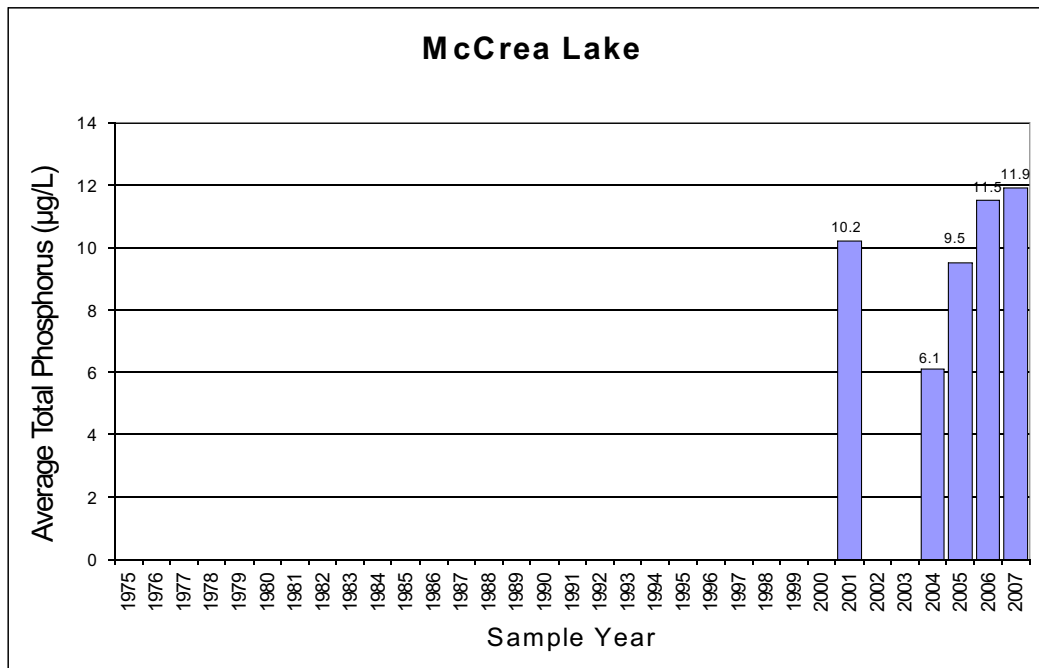
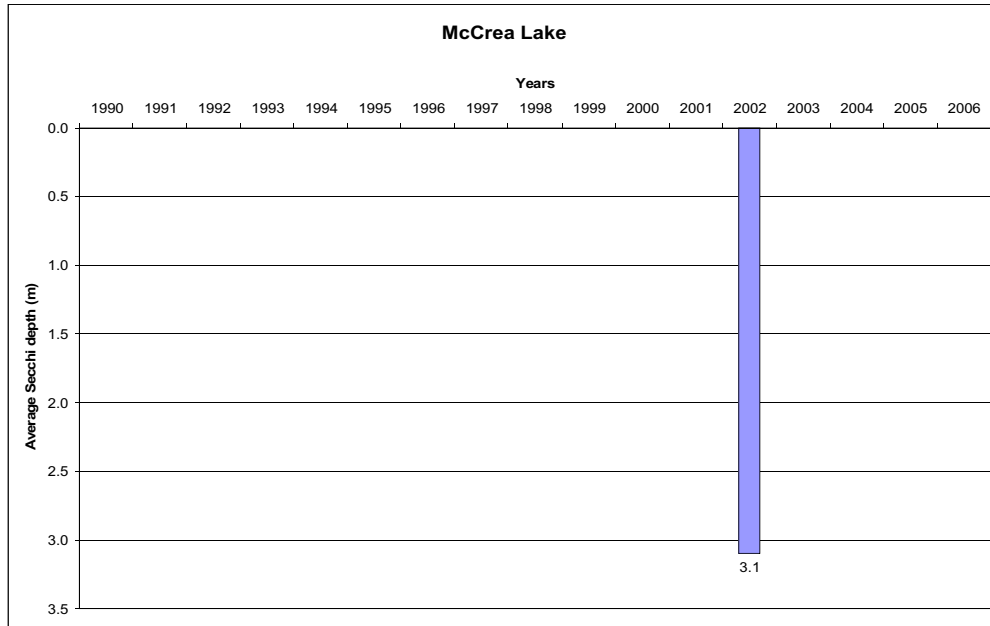
McCharles

Township:	Graham	Phosphorus (2007):	39.3µG/L
Watershed Unit:	Lower Junction Creek	Secchi Depth (2006):	4.2 m (13.8 ft)
Surface Area:	150.1 ha	Maximum Depth:	12.2 m (40 ft)
Perimeter:	12.7 km	Average No. of residents:	121



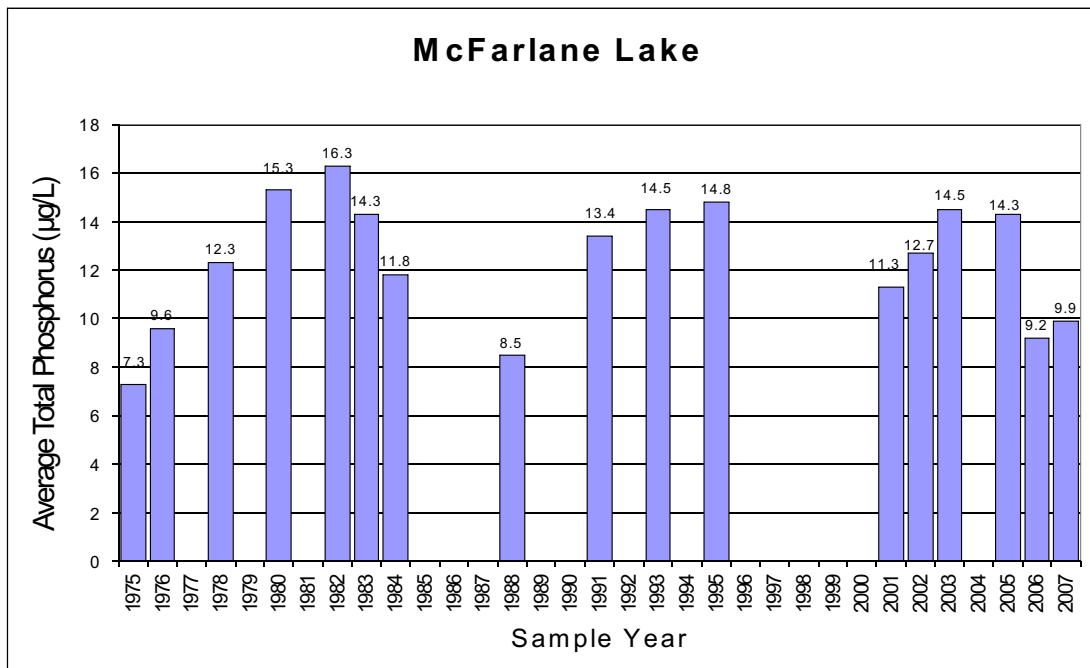
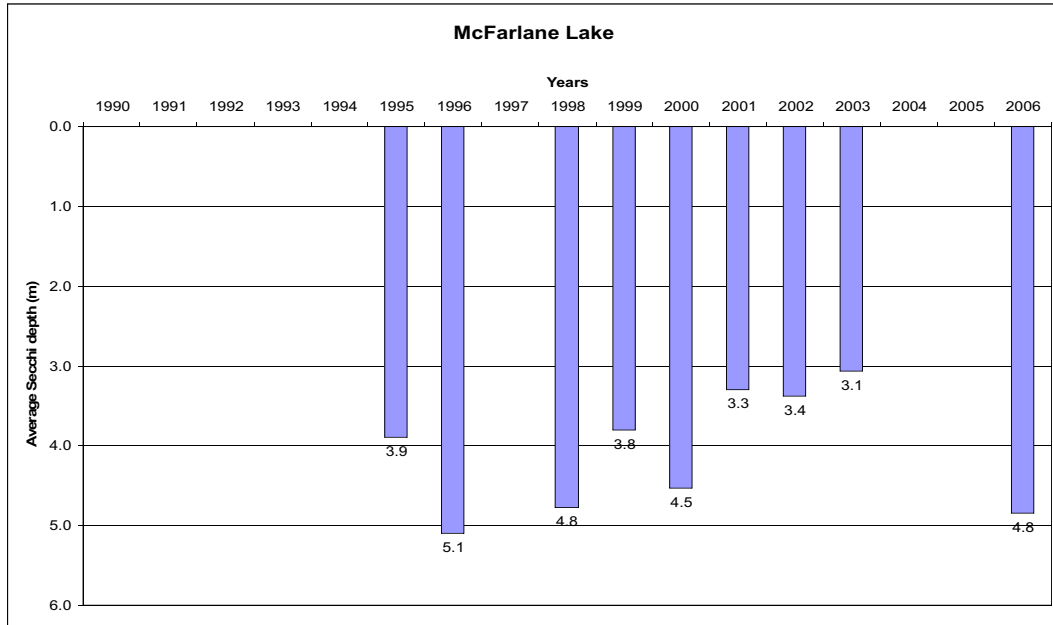
McCrea

Township:	Bleazard	Phosphorus (2007):	11.9 µG/L
Watershed Unit:	Whitson River	Secchi Depth (2002):	3.1 m (10 ft)
Surface Area:	15.7 ha	Maximum Depth:	4 m (13 ft)
Perimeter:	2.6 km	Average No. of residents:	84



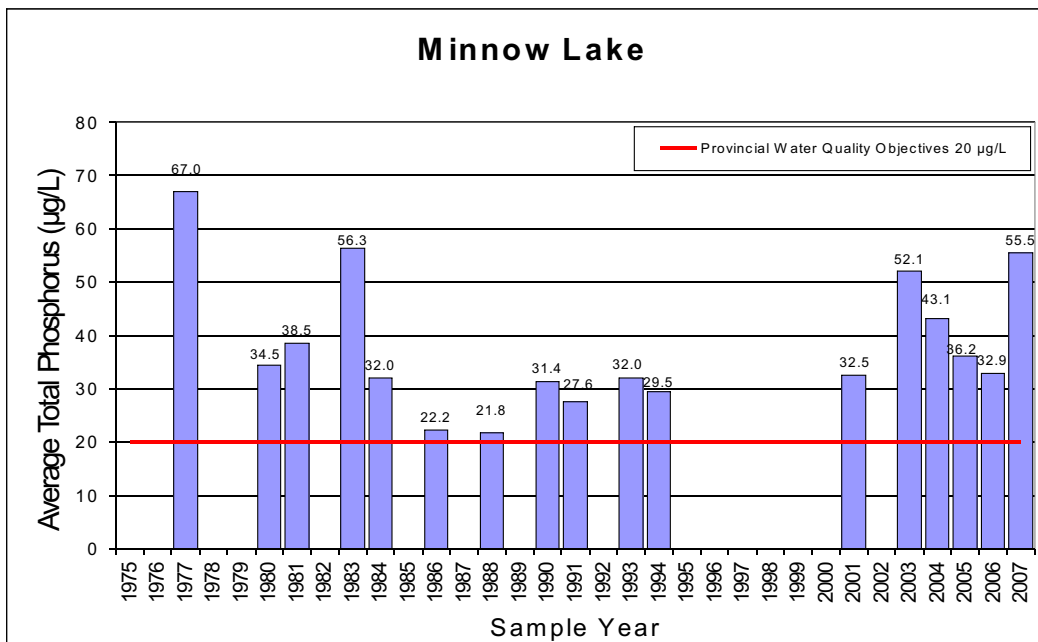
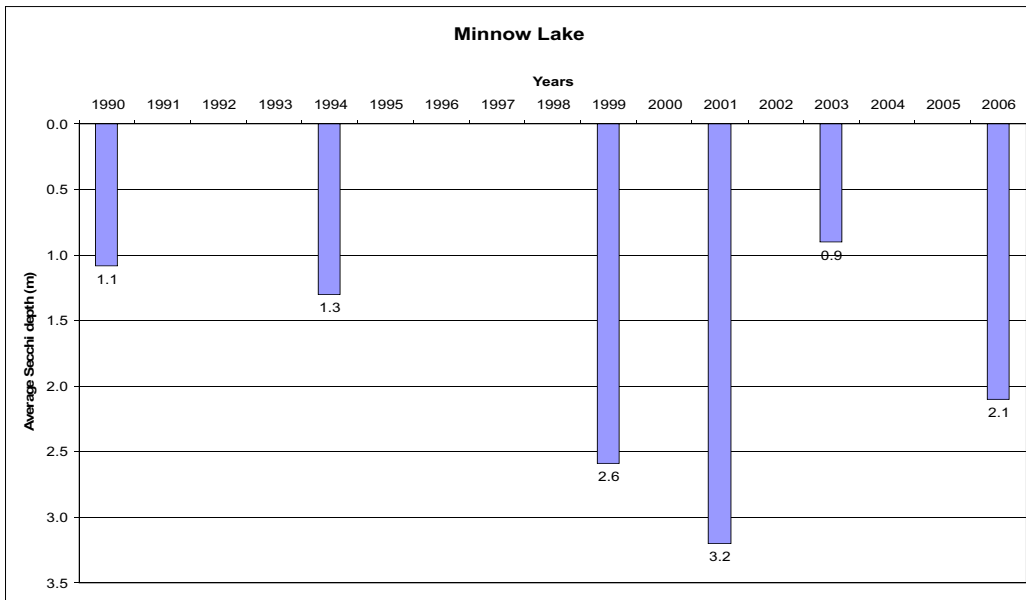
McFarlane

Township:	Broder	Phosphorus (2007):	9.9 µG/L
Watershed Unit:	Panache	Secchi Depth (2006):	4.6 m (15 ft)
Surface Area:	166.1 ha	Maximum Depth:	18.3 m (60 ft)
Perimeter:	9.6 km	Average No. of residents:	283



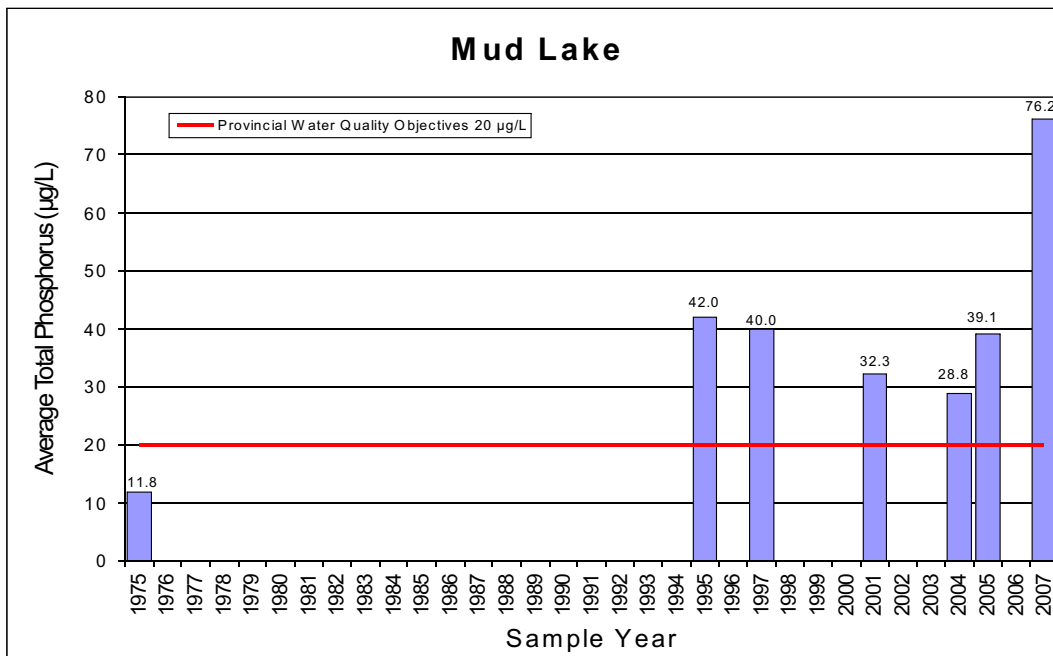
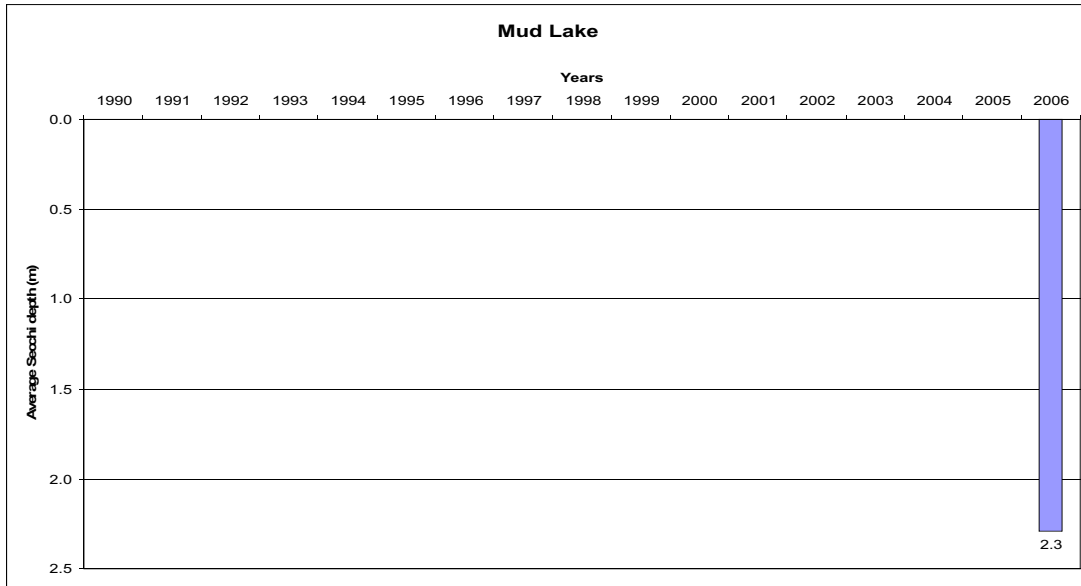
Minnow

Township:	McKim	Phosphorus (2007):	55.5 µG/L
Watershed Unit:	Ramsey	Secchi Depth (2006):	2.1 m (7.0 ft)
Surface Area:	20.9 ha	Maximum Depth:	3 m (10 ft)
Perimeter:	2.1 km	Average No. of residents:	105



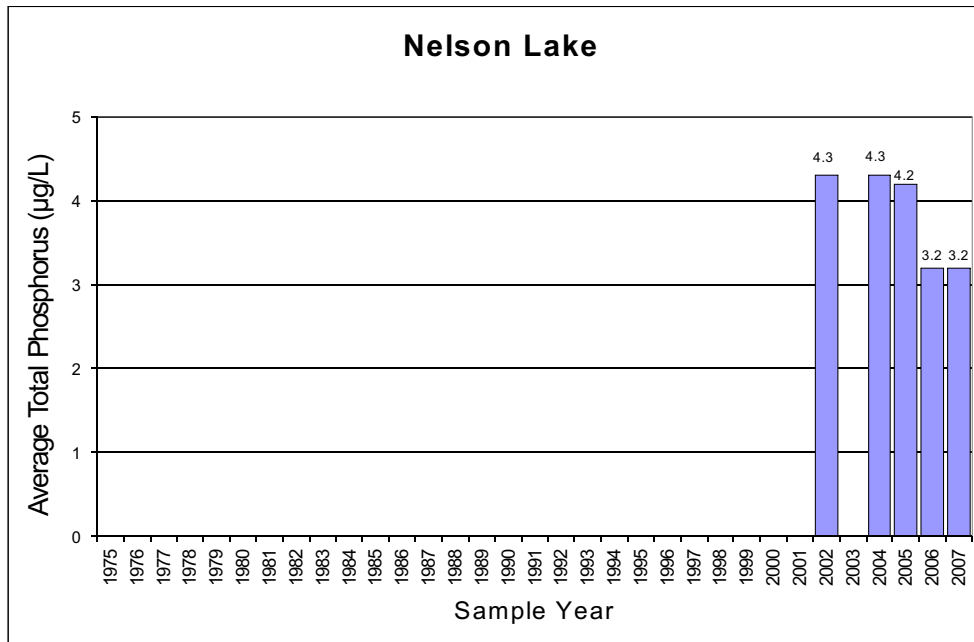
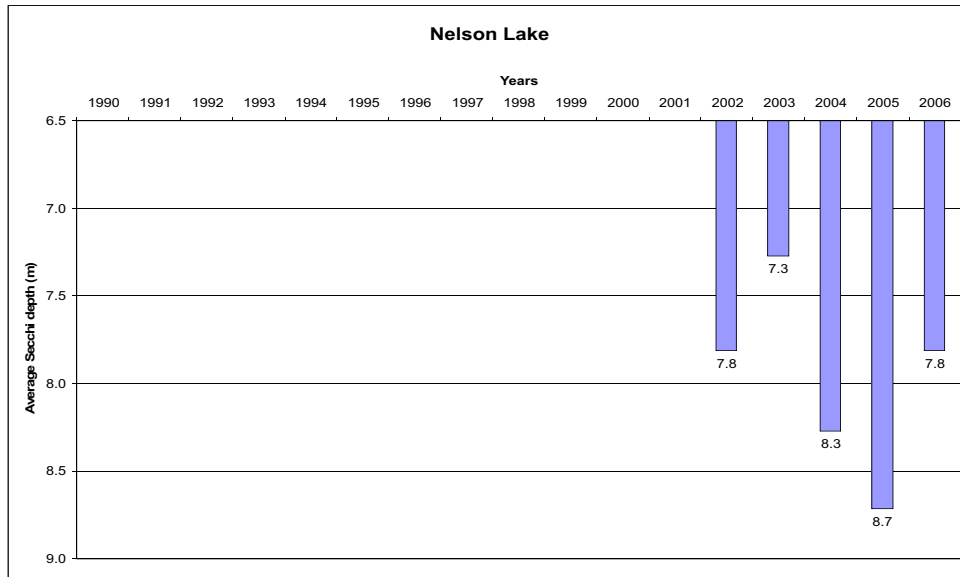
Mud

Township:	Waters	Phosphorus (2007):	76.2 µG/L
Watershed Unit:	Lower Junction Creek	Secchi Depth (2006):	2.3 m (7.5 ft)
Surface Area:	47.8 ha	Maximum Depth:	3 m (10 ft)
Perimeter:	4.2 km	Average No. of residents:	n/a



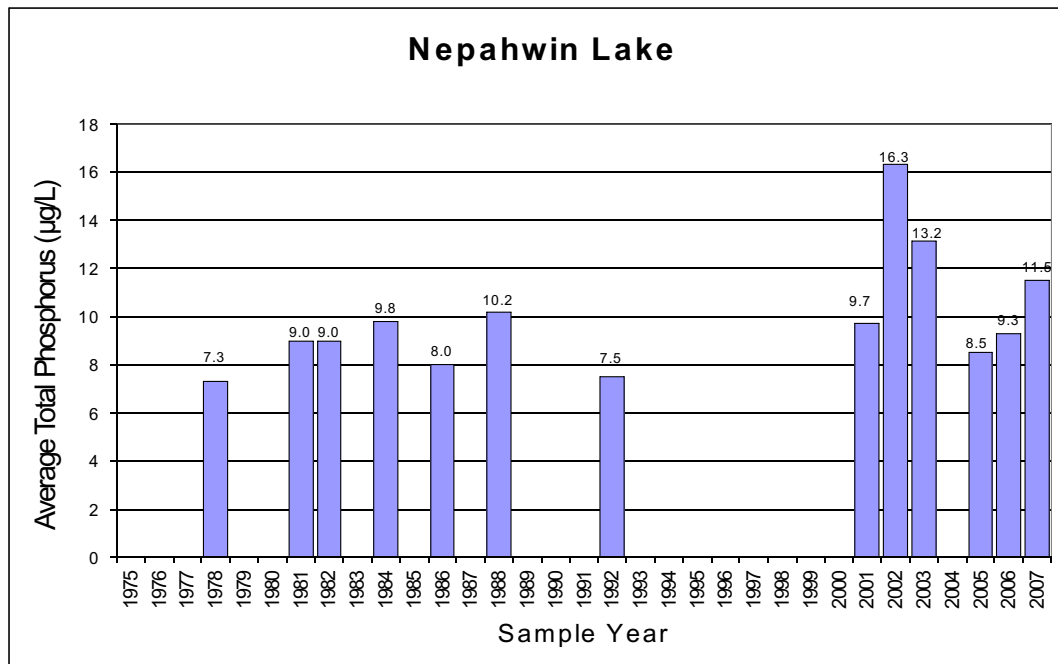
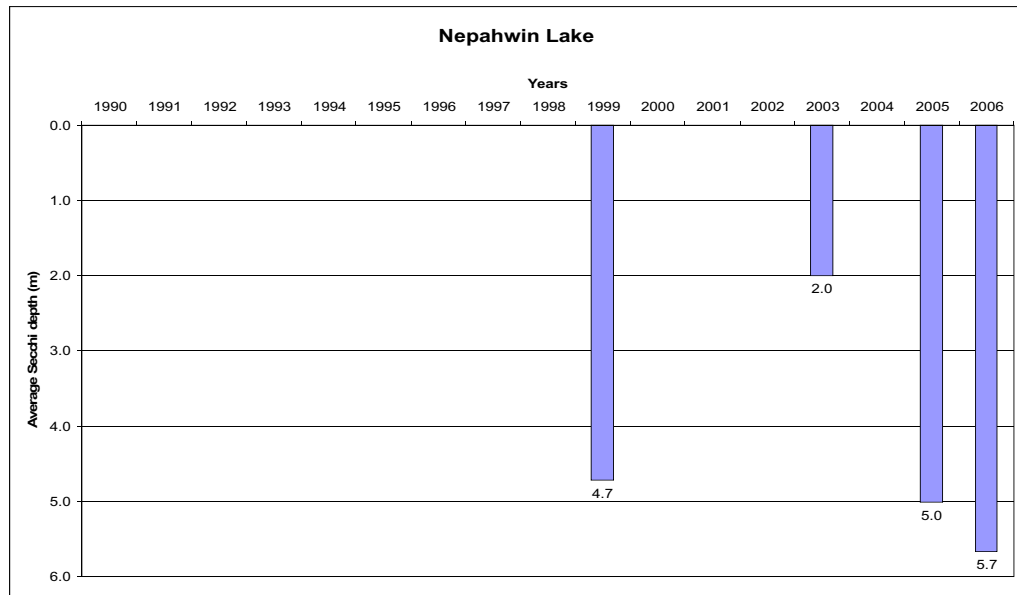
Nelson

Township:	Bowell	Phosphorus (2007):	3.2 µG/L
Watershed Unit:	Nelson River	Secchi Depth (2006):	7.8 m (26 ft)
Surface Area:	308.8 ha	Maximum Depth:	n/a
Perimeter:	21.2 km	Average No. of residents:	35



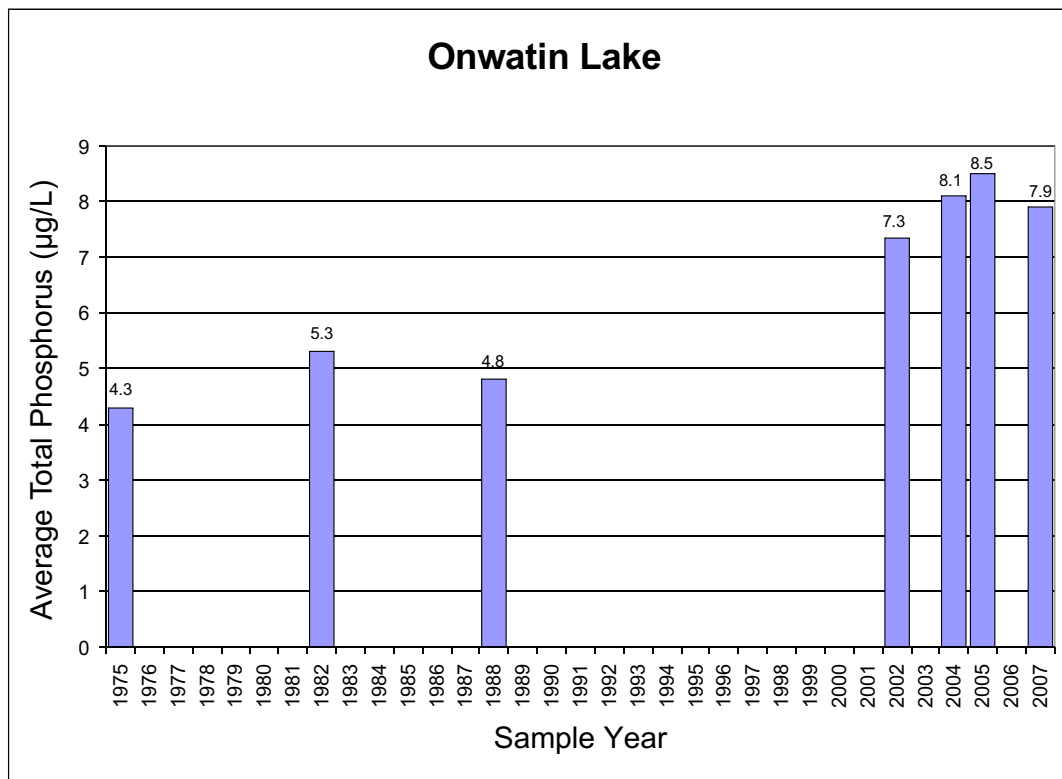
Nepahwin

Township:	McKim	Phosphorus (2007):	11.5 µG/L
Watershed Unit:	Ramsey	Secchi Depth (2006):	5.7 m (19 ft)
Surface Area:	127 ha	Maximum Depth:	18.3 m (60 ft)
Perimeter:	11.8 km	Average No. of residents:	1825



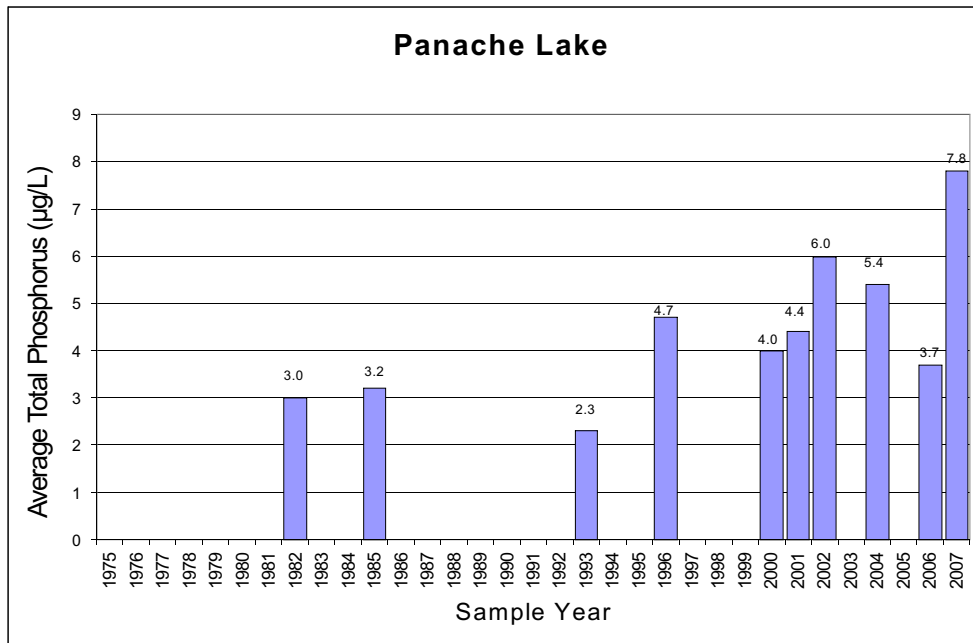
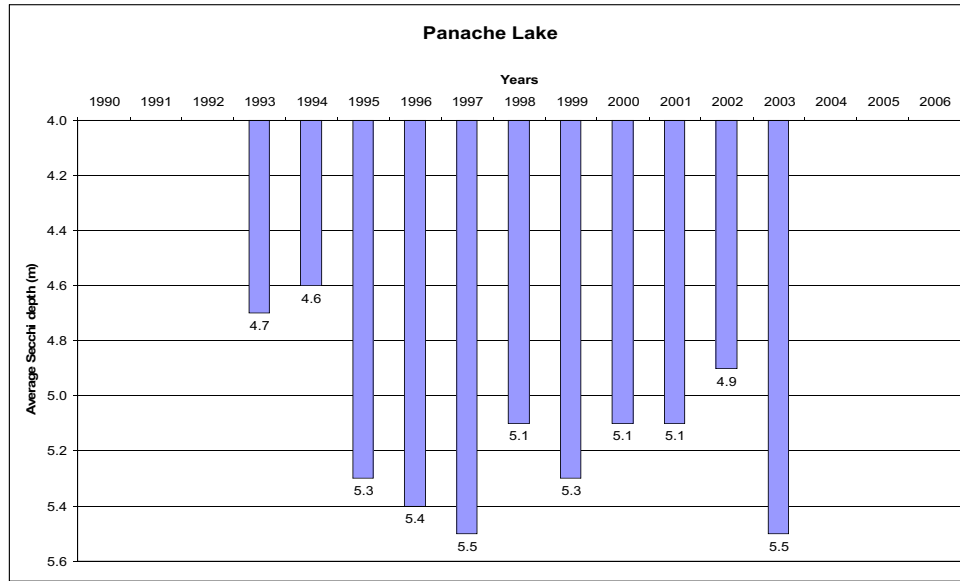
Onwatin

Township:	Hanmer, Capreol	Phosphorus (2007):	7.9 µG/L
Watershed Unit:	Upper Vermilion	Secchi Depth:	n/a
Surface Area:	34.2 ha	Maximum Depth:	4.0 m (13 ft)
Perimeter:	5.4 km	Average No. of residents:	70



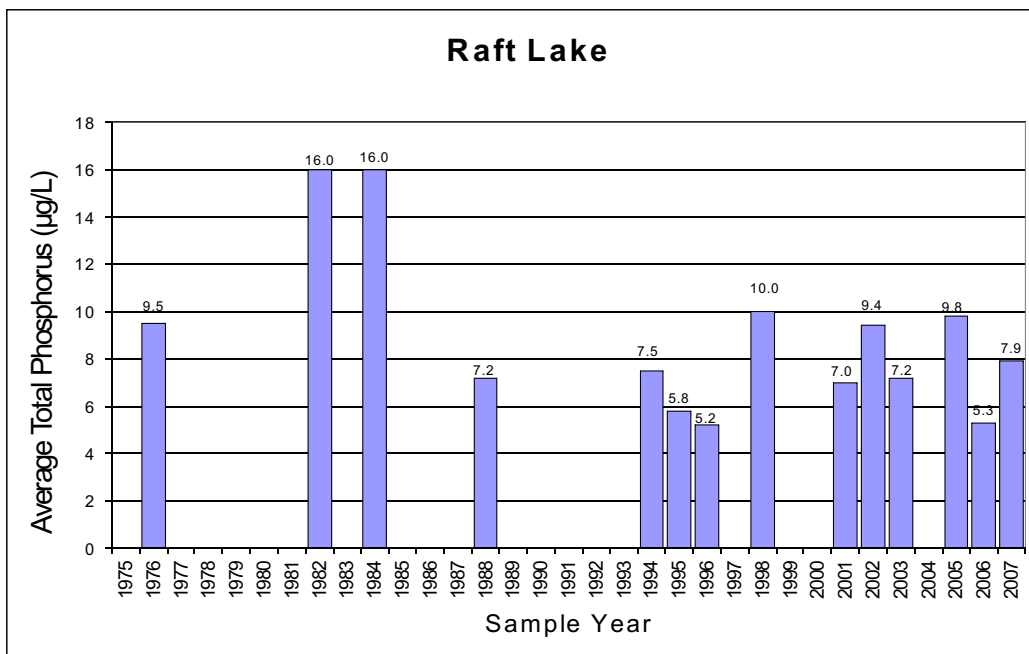
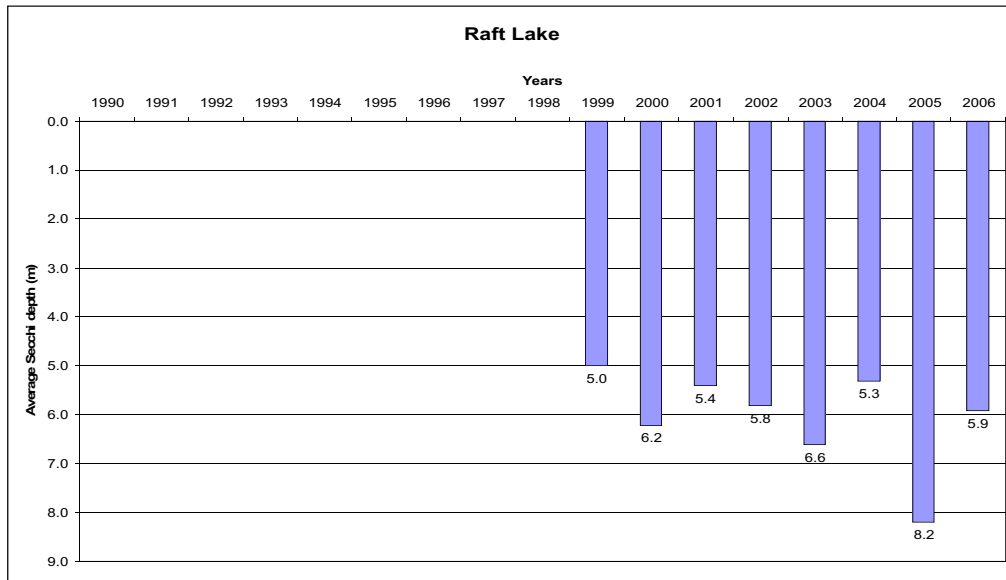
Panache

Township:	Dieppe	Phosphorus (2007):	7.8 µG/L
Watershed Unit:	Panache	Secchi Depth (2003):	5.5 m (18 ft)
Surface Area:	8034.1 ha	Maximum Depth:	54.9 m (180 ft)
Perimeter:	417.9	Average No. of residents:	515



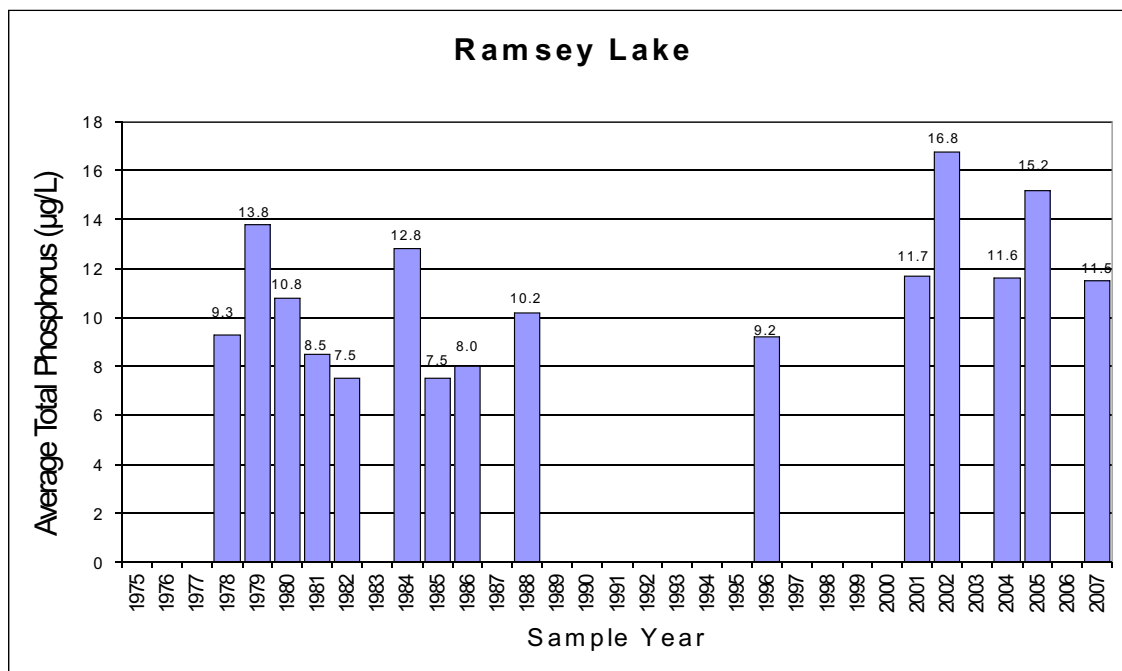
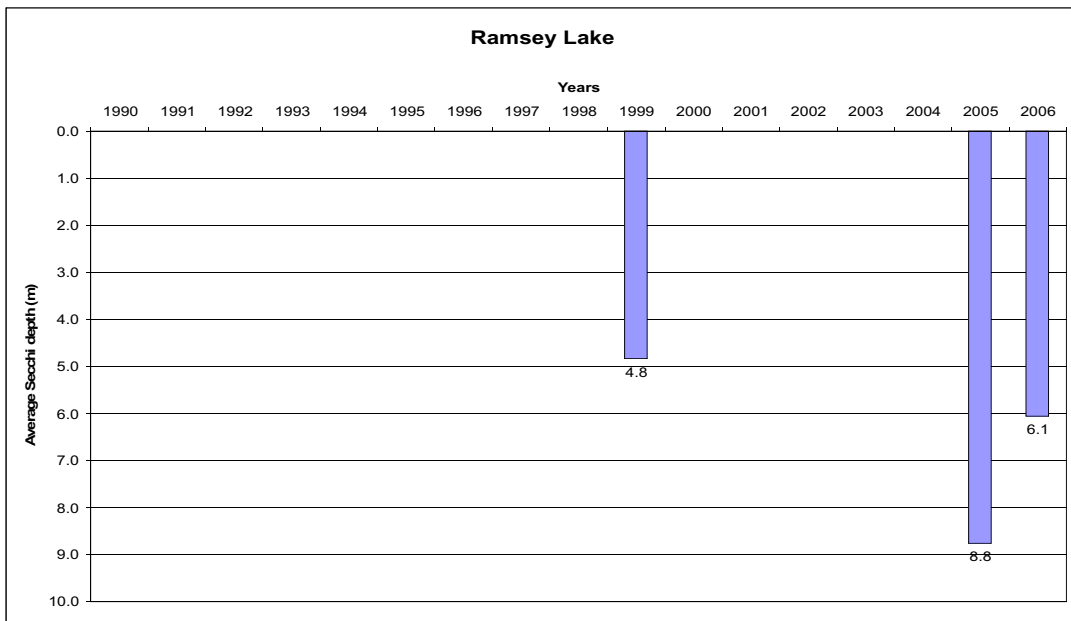
Raft

Township:	Broder/Dill	Phosphorus (2007):	7.9 $\mu\text{G/L}$
Watershed Unit:	East Wannipitae River	Secchi Depth (2006):	5.9 m (19 ft)
Surface Area:	109.6 ha	Maximum Depth:	14 m (45.9 ft)
Perimeter:	9.3 km	Average No. of residents:	29



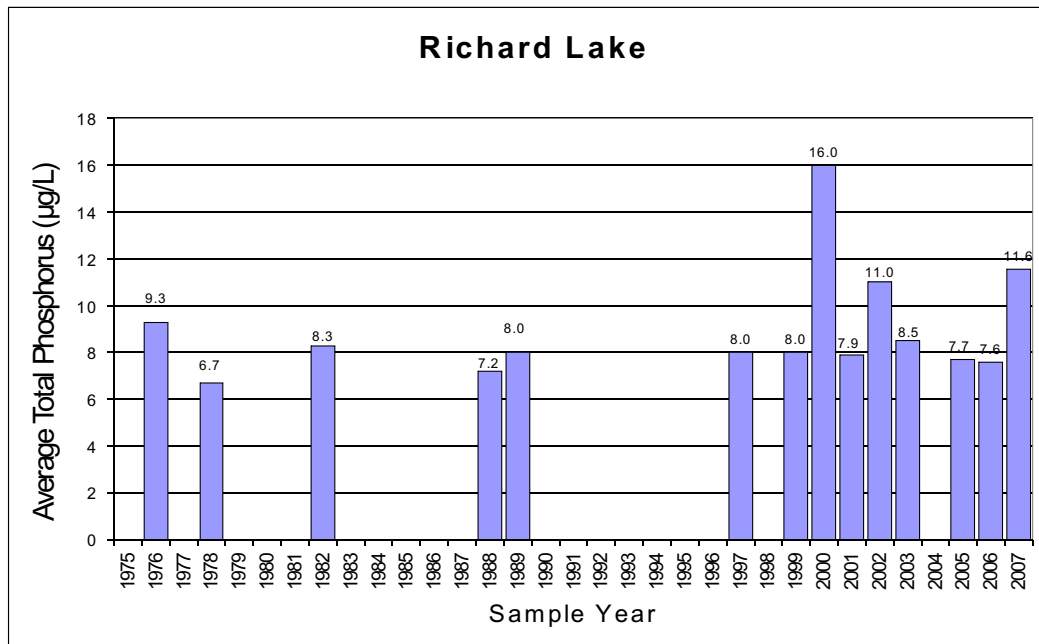
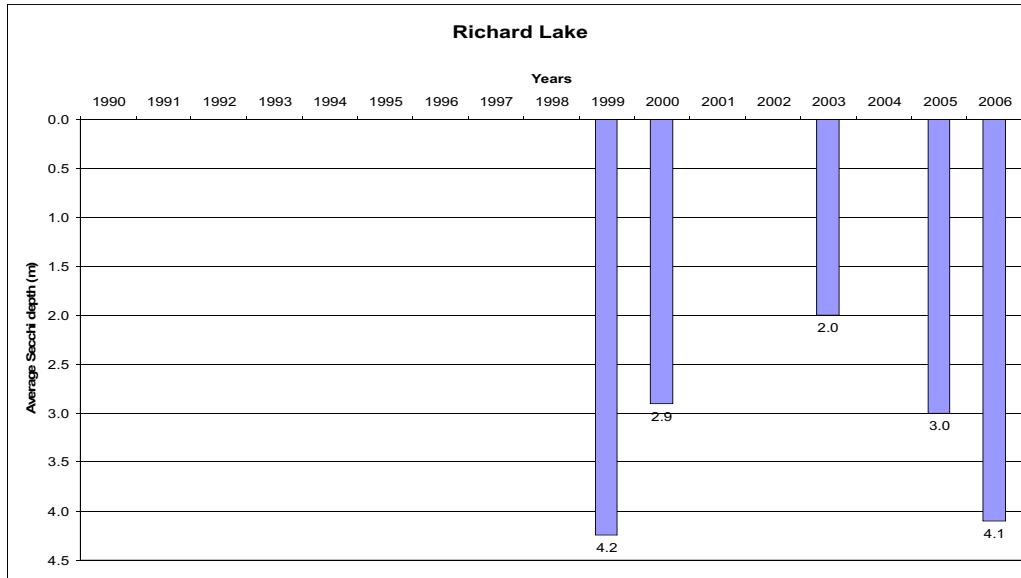
Ramsey

Township: McKim	Phosphorus (2007): 11.5 µG/L
Watershed Unit: Ramsey	Secchi Depth (2006): 6.1 m (20 ft)
Surface Area: 792.2 ha	Maximum Depth: 18.3 m (60 ft)
Perimeter: 34 km	Average No. of residents: 882



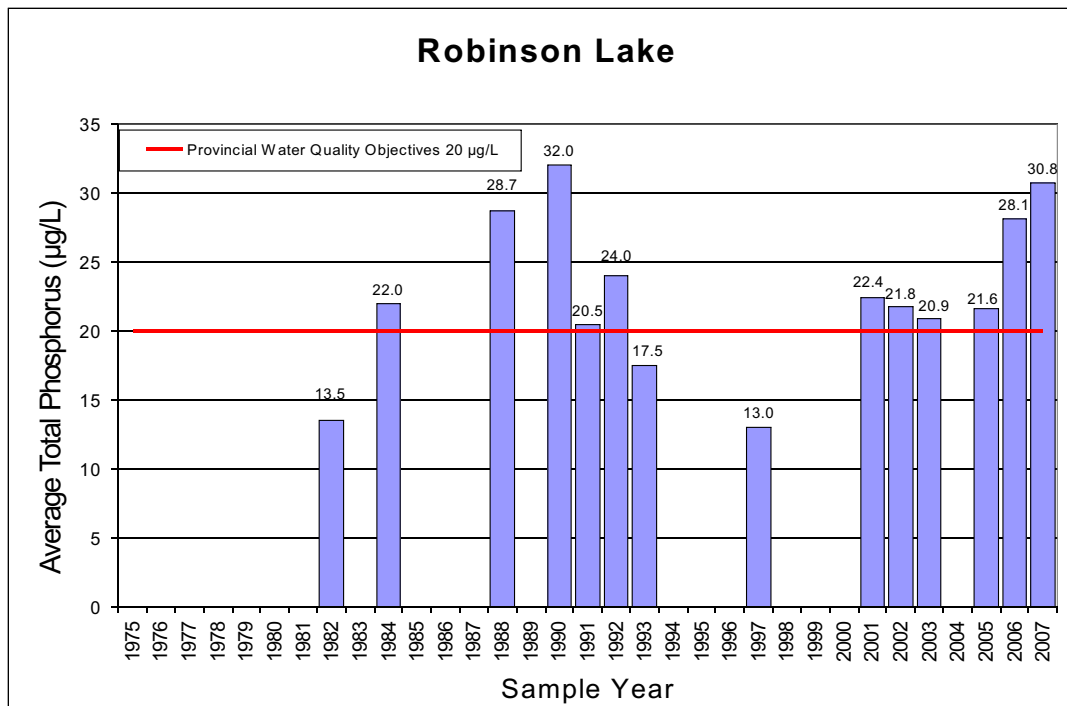
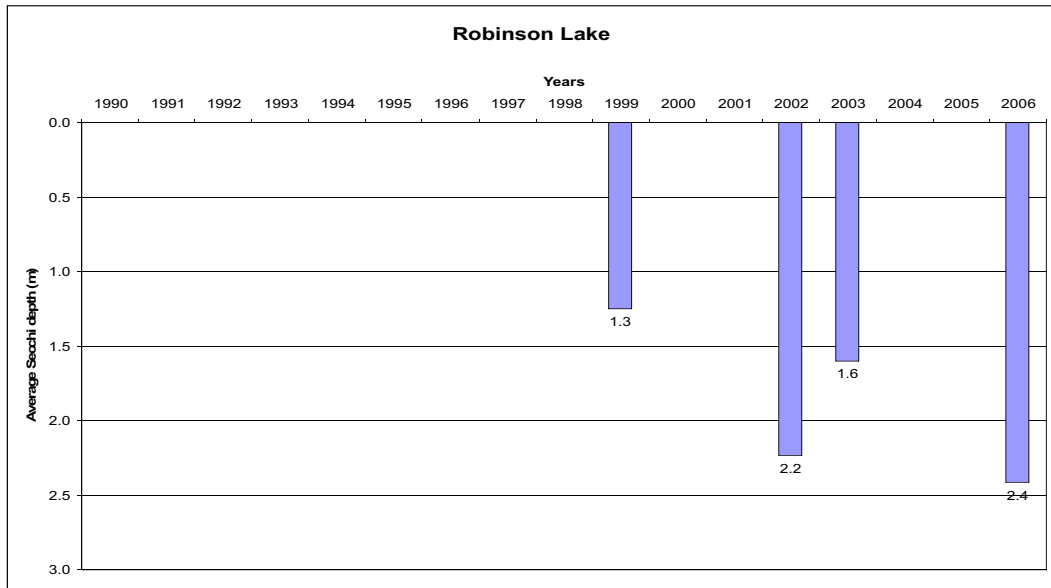
Richard

Township: Dill	Phosphorus (2007): 11.6 µG/L
Watershed Unit: Panache	Secchi Depth (2006): 4.1 m (13.5 ft)
Surface Area: 83.6 ha	Maximum Depth: 9 m (30ft)
Perimeter: 6.7 km	Average No. of residents: 121



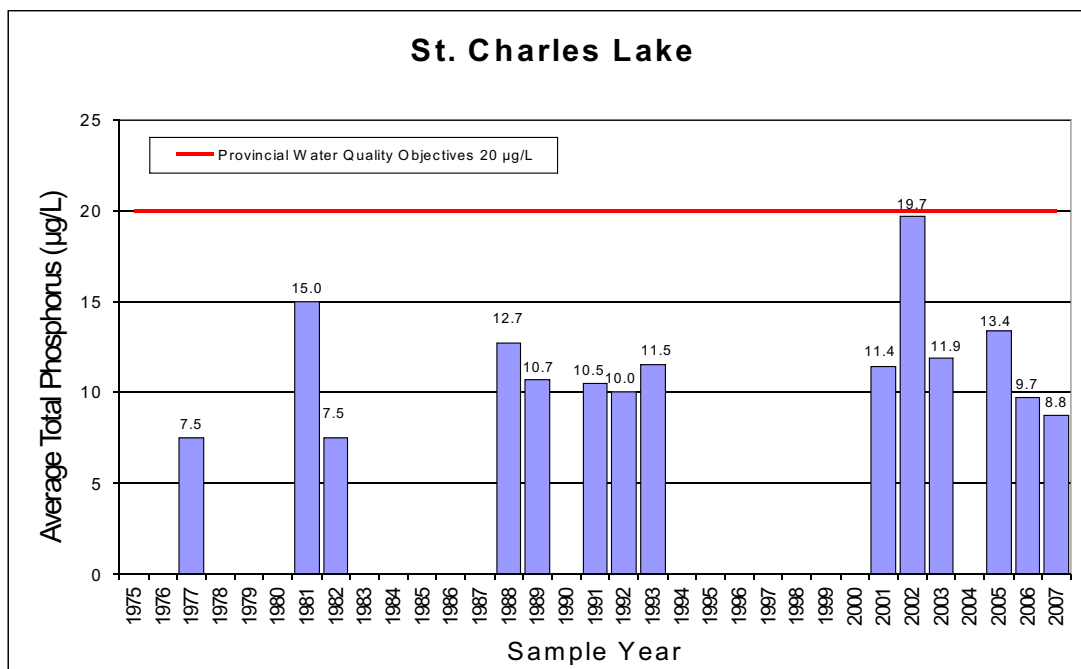
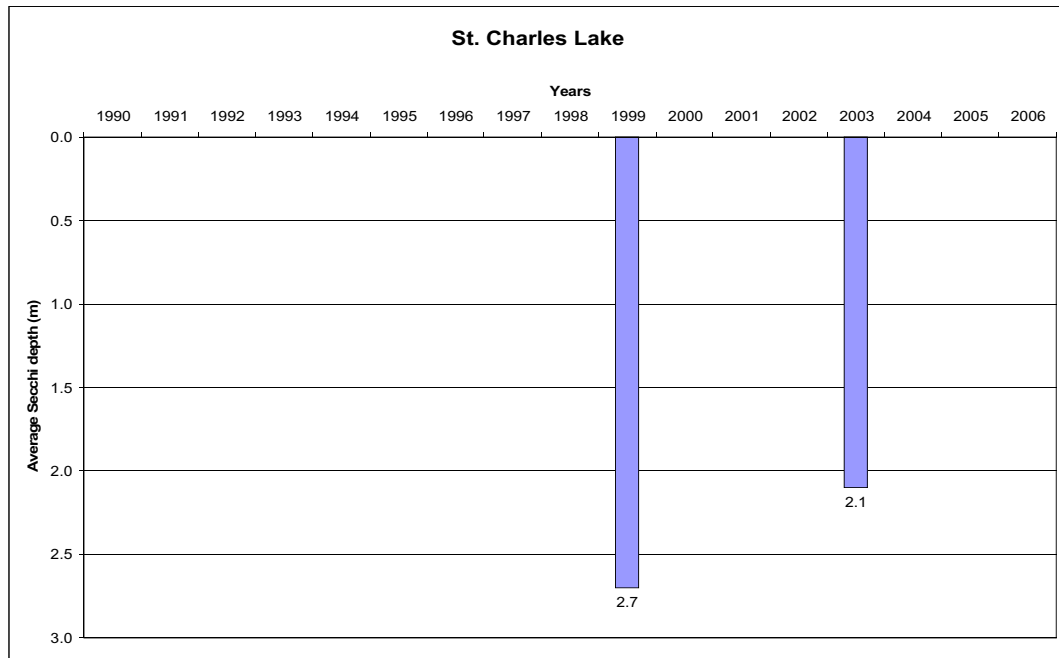
Robinson

Township: McKim	Phosphorus (2007): 30.8 µG/L
Watershed Unit: Ramsey	Secchi Depth (2006): 2.4 m (8 ft)
Surface Area: 33.6 ha	Maximum Depth: 2m (6.5 ft)
Perimeter: 2.8 km	Average No. of residents: 38



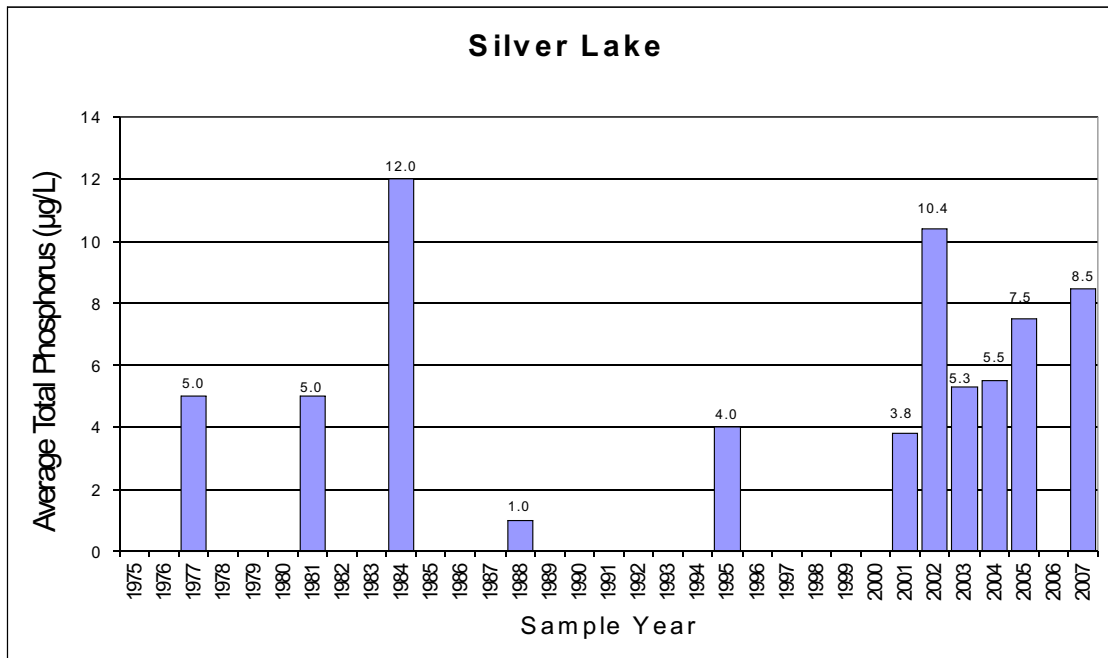
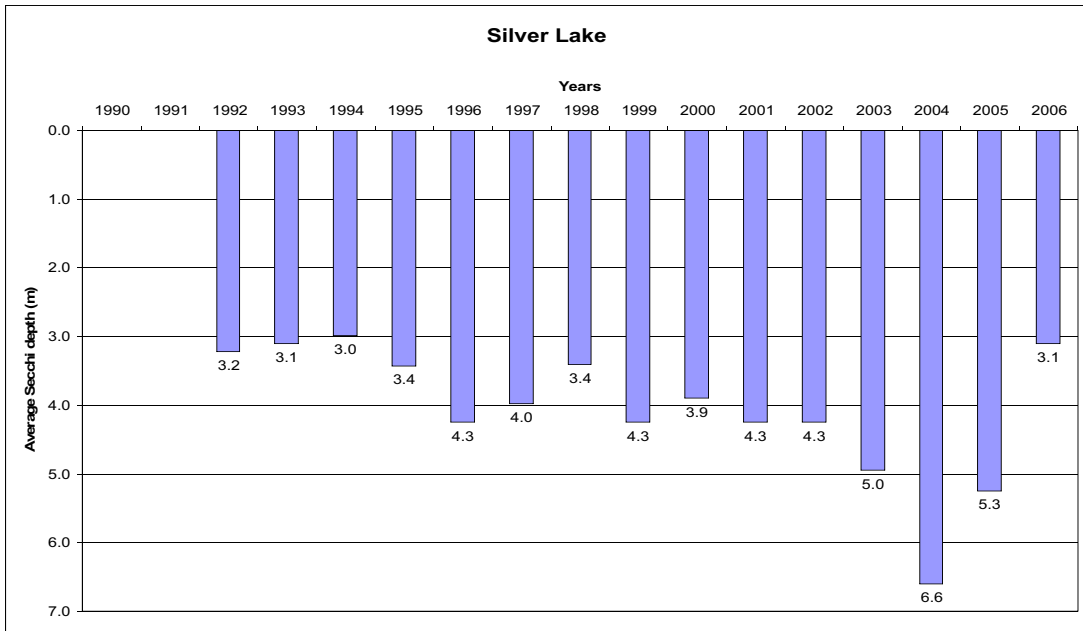
St. Charles

Township: Broder	Phosphorus (2007): 8.8 µG/L
Watershed Unit: Ramsey	Secchi Depth (2003): 2.1 m (6.8 ft)
Surface Area: 41.3 ha	Maximum Depth: n/a
Perimeter: 5.1 km	Average No. of residents: 268



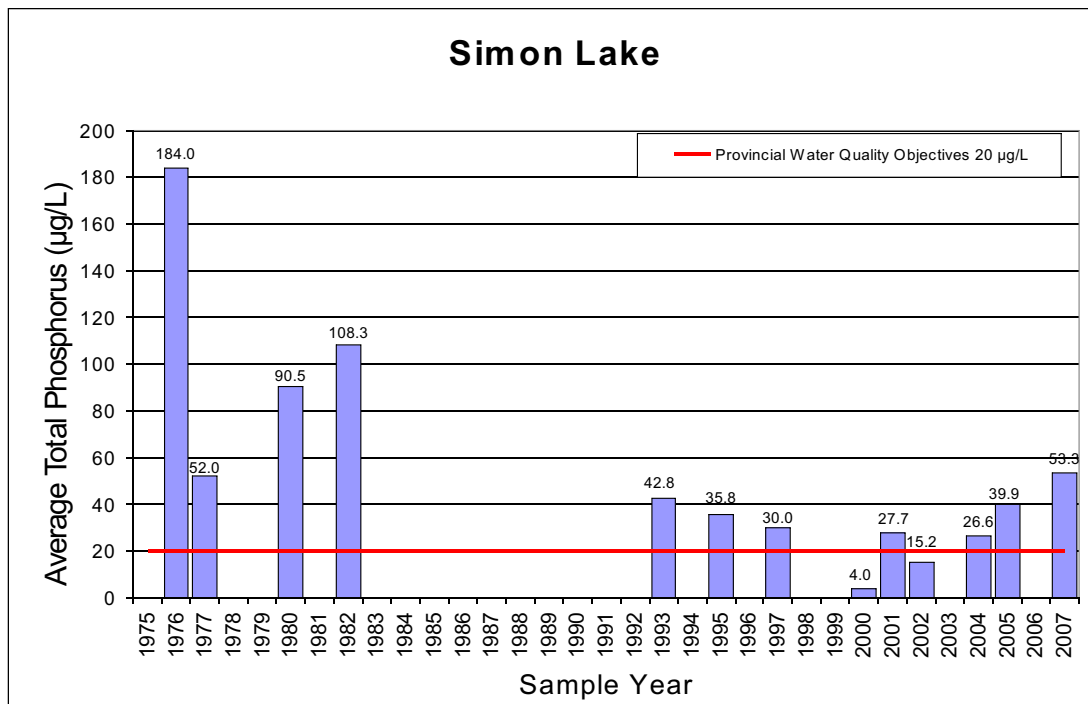
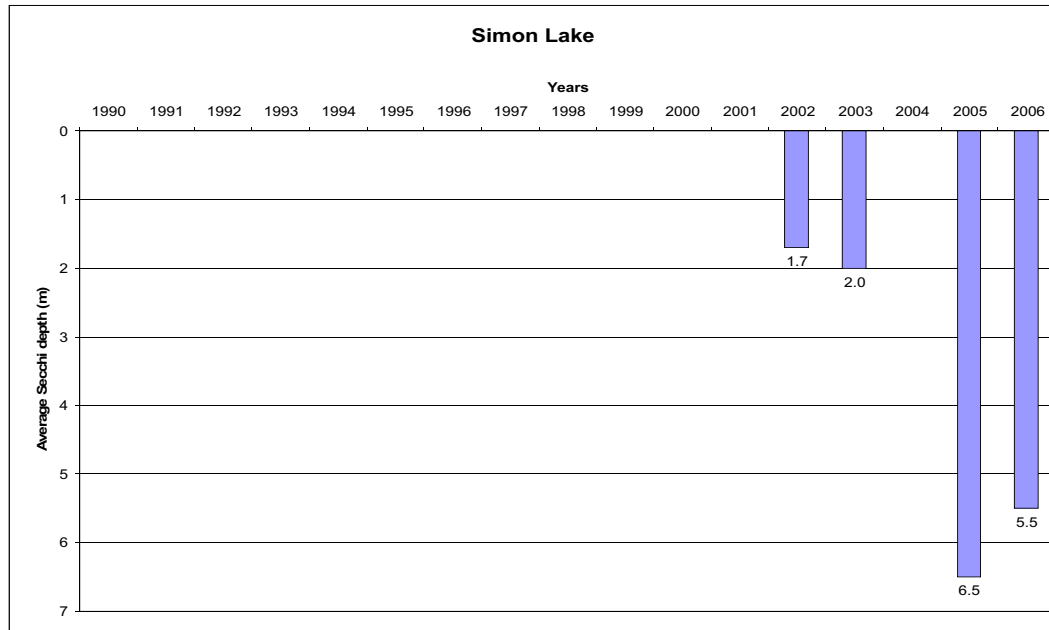
Silver

Township: Broder	Phosphorus (2007): 8.5 µG/L
Watershed Unit: Panache	Secchi Depth (2006): 3.1 m (10 ft)
Surface Area: 21.8 ha	Maximum Depth: 10 m (32.8 ft)
Perimeter: 3.6 km	Average No. of residents: 31



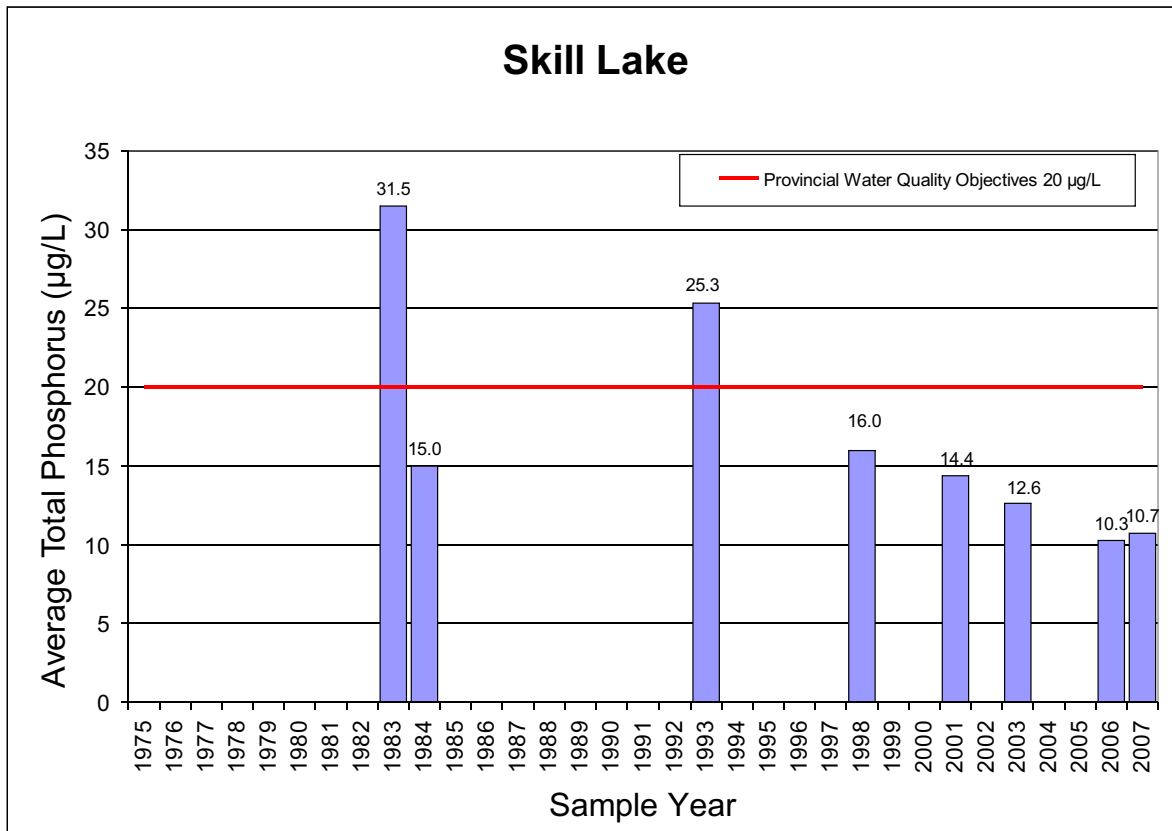
Simon

Township:	Graham	Phosphorus (2007):	53.3 µG/L
Watershed Unit:	Lower Junciton Creek	Secchi Depth (2006):	5.5 m (18 ft)
Surface Area:	102 ha	Maximum Depth:	12.2 m (40 ft)
Perimeter:	6.2 km	Average No. of residents:	155



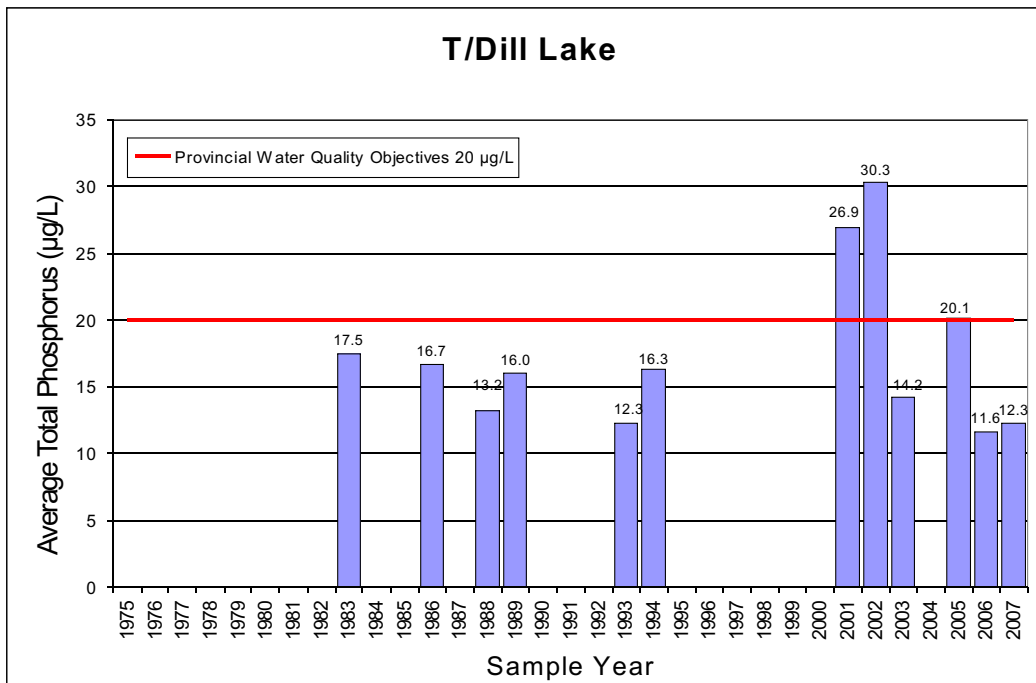
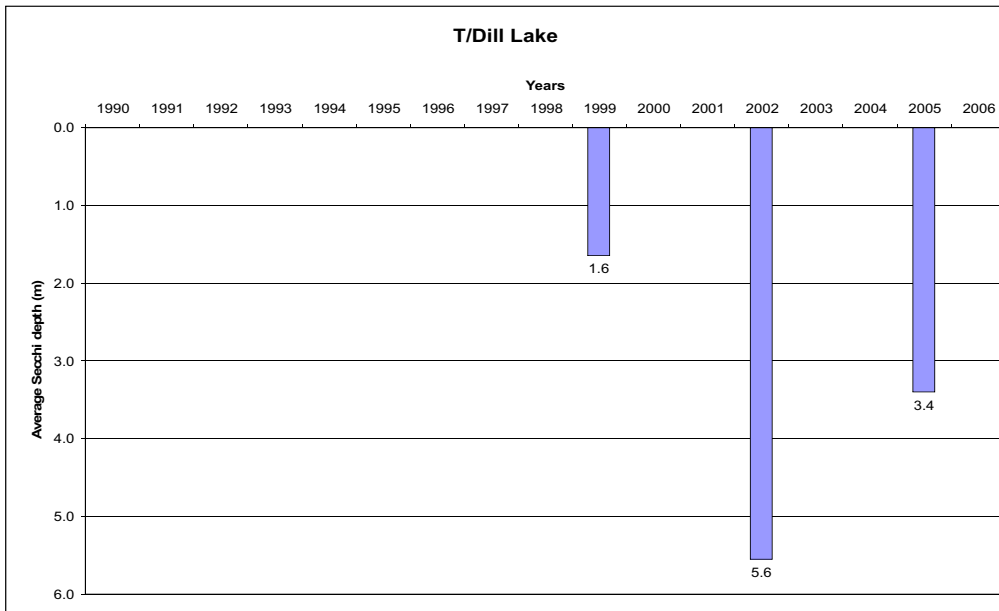
Skill

Township:	Denison	Phosphorus (2007):	10.7 µG/L
Watershed Unit:	Fairbank	Secchi Depth:	n/a
Surface Area:	112.7 ha	Maximum Depth:	n/a
Perimeter:	10.0 km	Average No. of residents:	n/a



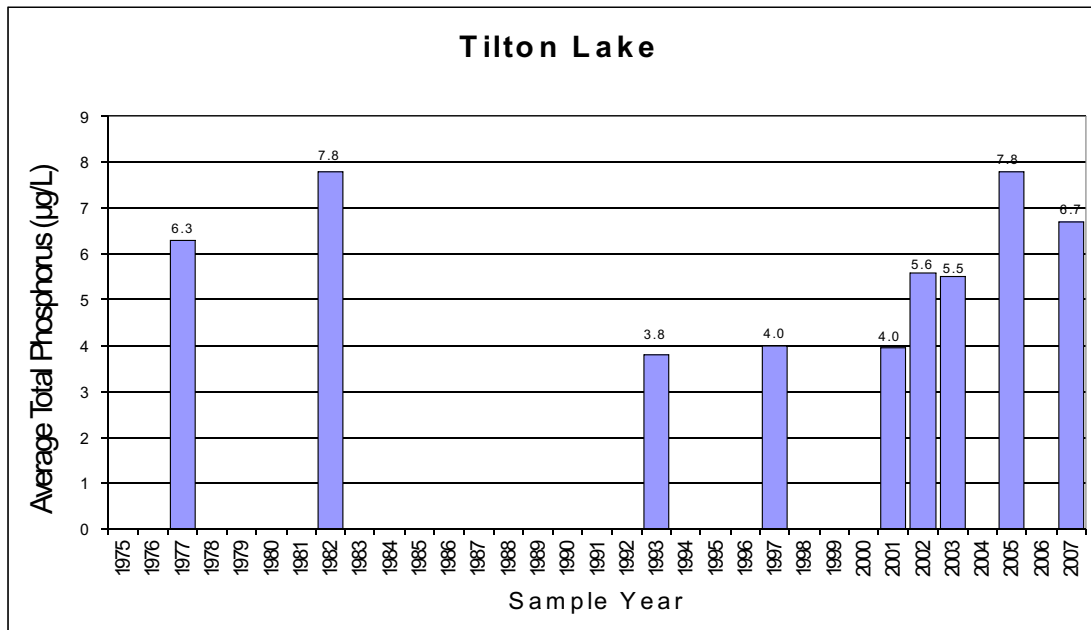
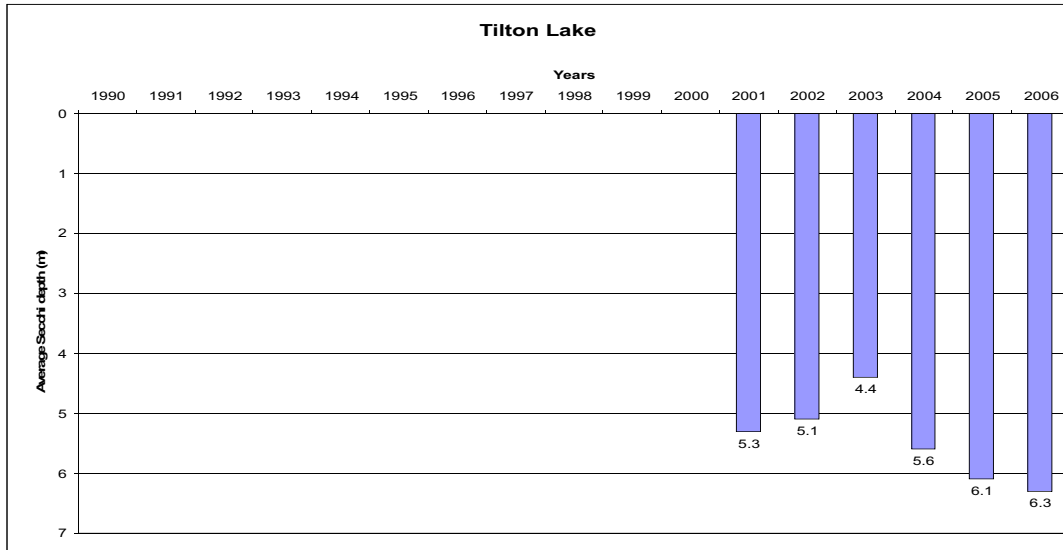
T/Dill

Township: Dill	Phosphorus (2007): 12.3 µG/L
Watershed Unit: East Wannipitae River	Secchi Depth (2005): 3.4 m (11 ft.)
Surface Area: 44.4 ha	Maximum Depth: 4 m (13.1 ft.)
Perimeter: 8.2 km	Average No. of residents: 49



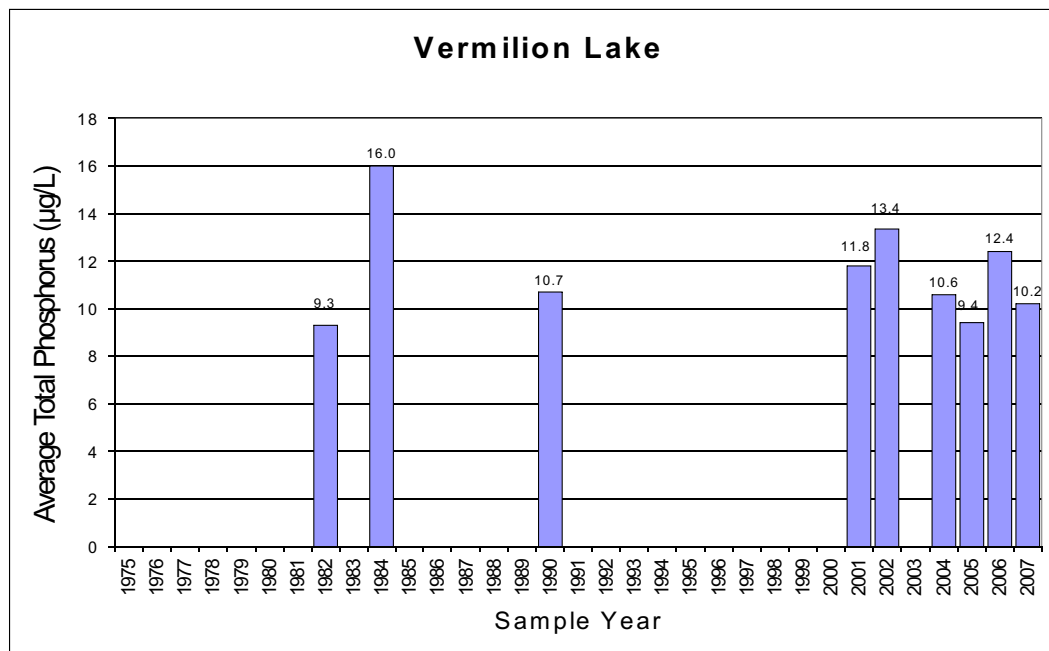
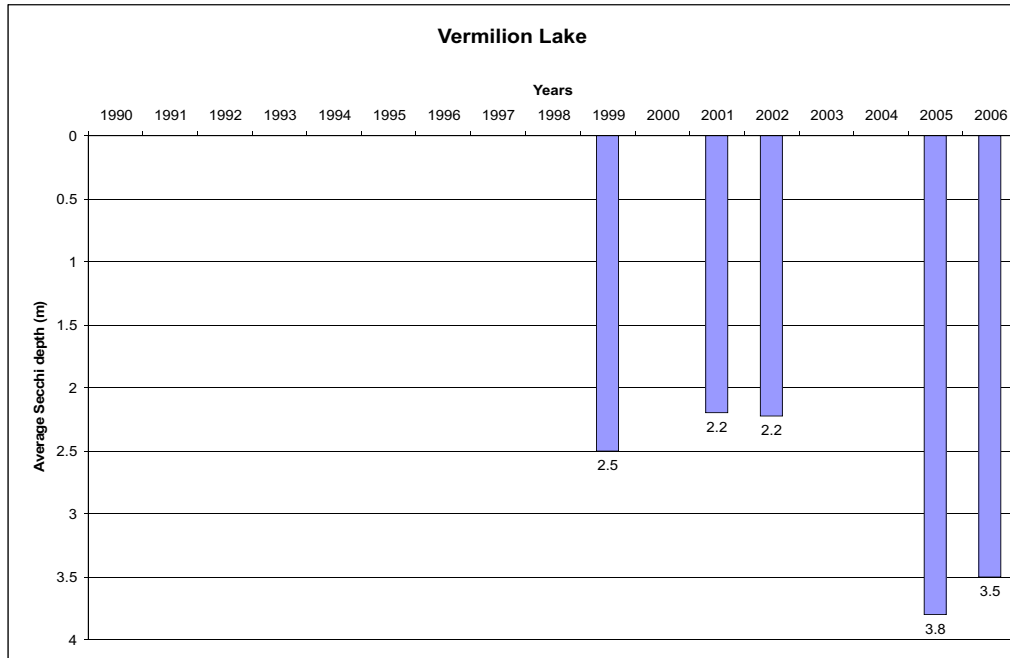
Tilton

Township:	Tilton	Phosphorus (2007):	6.7 µG/L
Watershed Unit:	Panache	Secchi Depth (2006):	6.3 m (21 ft)
Surface Area:	51.7 ha	Maximum Depth:	n/a
Perimeter:	3.1 km	Average No. of residents:	73



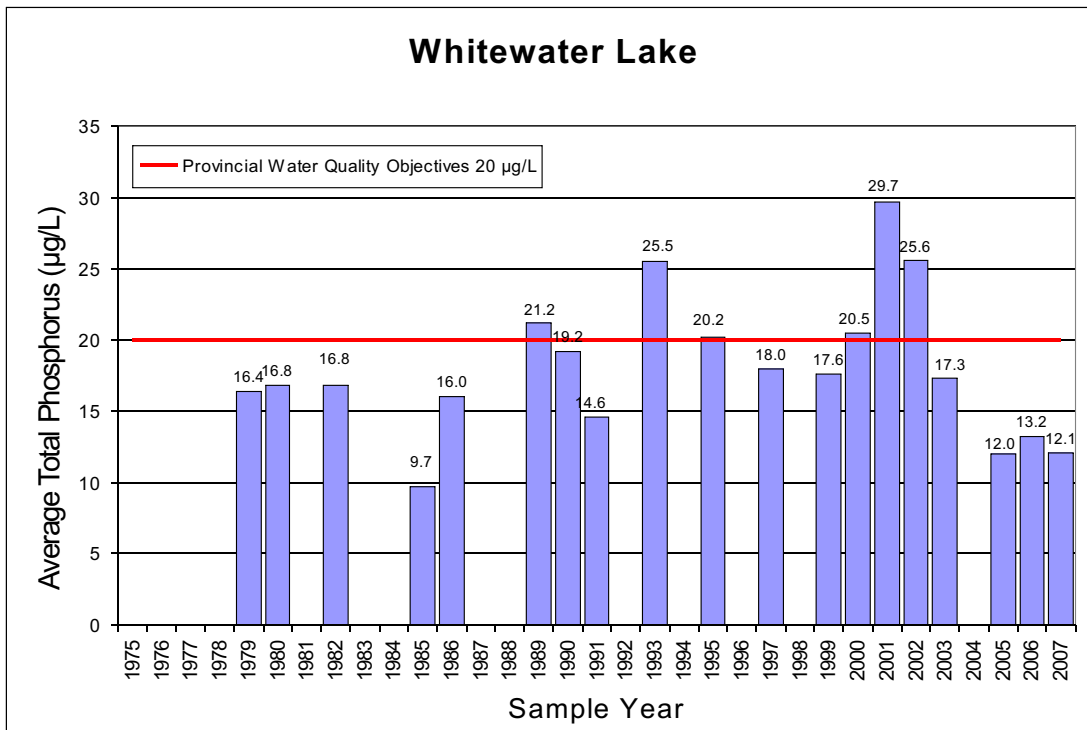
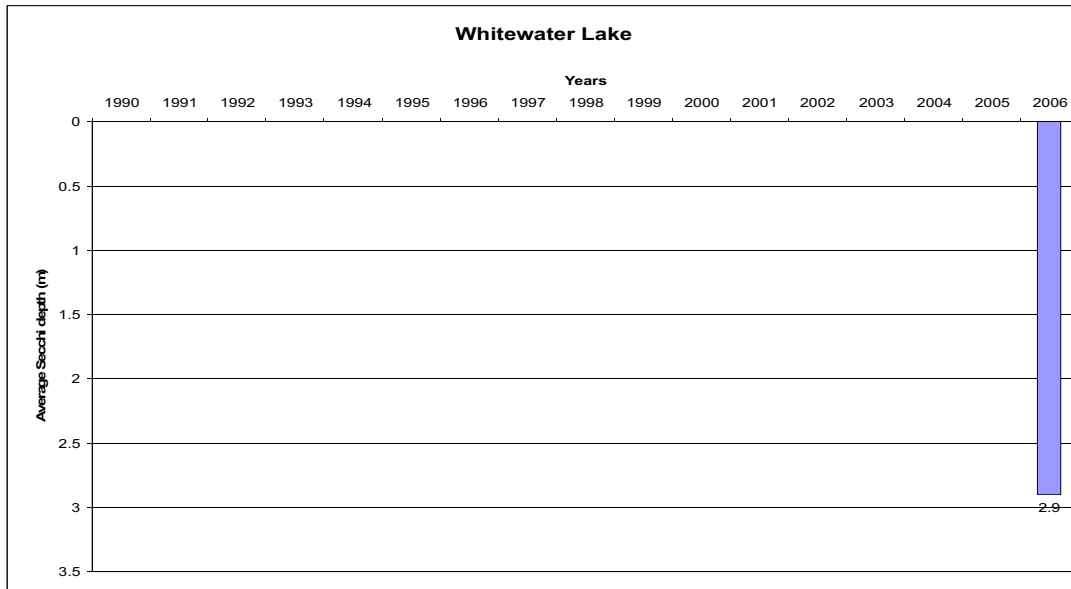
Vermilion

Township:	Fairbanks	Phosphorus (2007):	10.2 µG/L
Watershed Unit:	Mid Vermilion	Secchi Depth (2006):	3.5 m (11 ft)
Surface Area:	1126.6 ha	Maximum Depth:	12.2 m (40 ft)
Perimeter:	32.4 km	Average No. of residents:	234



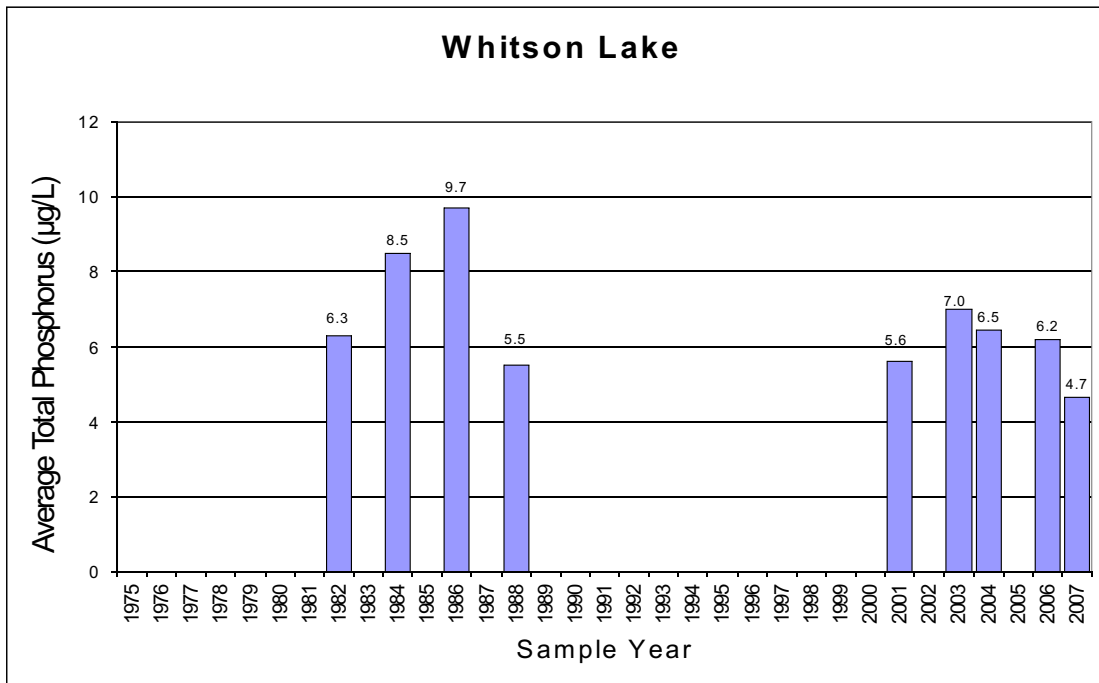
Whitewater

Township: Snider	Phosphorus (2007): 12.1 µG/L
Watershed Unit: Whitewater	Secchi Depth (2006): 2.9 m (9.5 ft)
Surface Area: 949.1 ha	Maximum Depth: 10.7 m (35 ft)
Perimeter: 29.5 km	Average No. of residents: 447



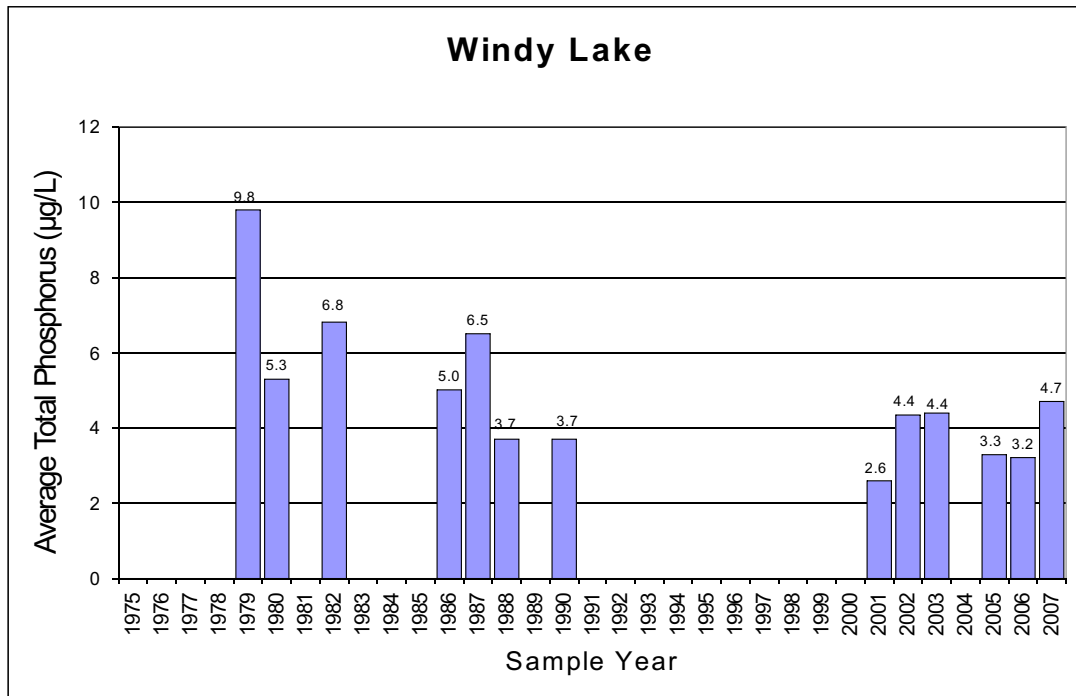
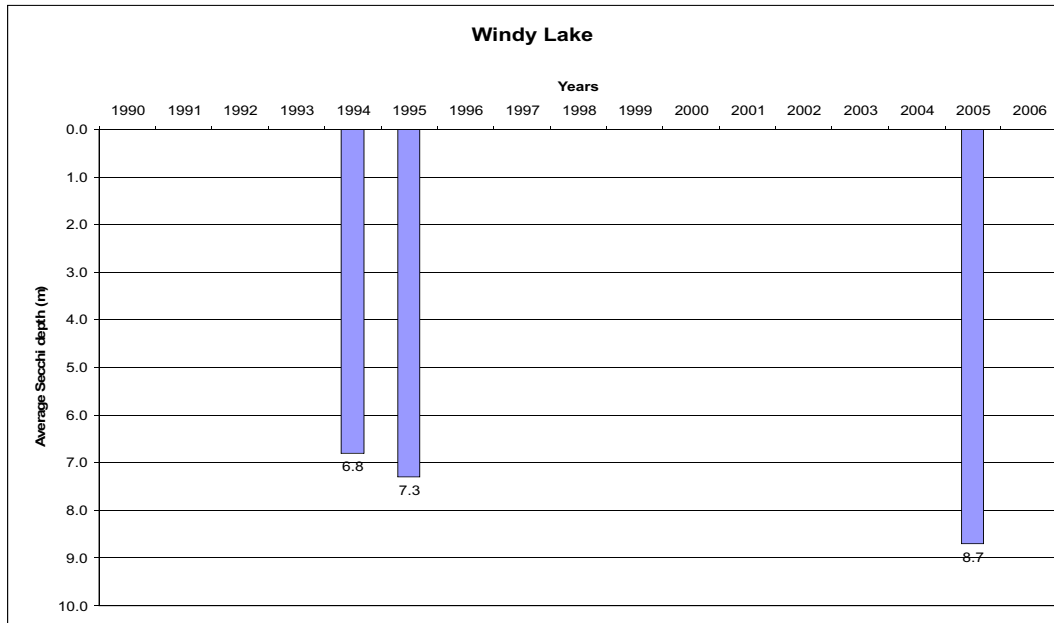
Whitson

Township: Bleazard	Phosphorus (2007): 4.7 µG/L
Watershed Unit: Whitson River	Secchi Depth (2006): 5.2 m (17 ft)
Surface Area: 473.4 ha	Maximum Depth: 16.8 m (55 ft)
Perimeter: 45.9 km	Average No. of residents: 61



Windy

Township: Cascaden	Phosphorus (2007): 4.7 µG/L
Watershed Unit: Onaping River	Secchi Depth (2005): 8.75 m
Surface Area: 1129 ha	Maximum Depth: n/a
Perimeter: 40.4 km	Average No. of residents: 148



2007 Spring Phosphorus Sampling Program Results - City of Greater Sudbury

LAKE NAME	SAMPLE STATION	DATE	TP1 (µg/L)	TP2 (µg/L)	pH	Alkalinity CaCO ₃ (mg/L)	Conductivity	Potassium (mg/L)	Sodium (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Calcium (µg/L)	Magnesium (µg/L)	Dissolved Organic Carbon (mg/L)	Chlorophyll A (µg/L)
Ashgami	3	14-May-07	5.7	5.0	7.30	35	35.8	0.28	0.96	0.66	0.79	<0.1	<0.03	0.29	3270	914	4.38	1.2
Beaver (Big)	1	15-May-07	15.7	15.5	7.12	<10	48.3	na	1.62	0.69	5.6	<0.1	0.077	<0.08	3620	1860	3.3	6.24
Beaver (Little)	2	15-May-07	24.1	24.1	6.94	12	148	na	22.8	41.7	7.2	<0.1	<0.03	0.28	6380	3450	6.89	3.7
Bethel	3	15-May-07	27.2	26.4	7.55	43	260	na	41.2	52.1	<0.1	<0.03	6.5	0.46	16000	6240	4.38	2.2
Brodill	1	15-May-07	7.8	6.1	7.06	<10	26.2	na	0.97	0.45	8.2	<0.1	<0.03	<0.08	1940	773	2	2.3
Camp	1	15-May-07	2.6	3.5	7.19	<10	28.2	na	0.92	0.32	7.9	<0.1	<0.03	<0.08	2240	753	1.3	<0.5
Chief	3	15-May-07	7.1	3.2	5.93	<10	26.1	na	0.89	0.55	7.4	<0.1	<0.03	<0.08	1560	570	1.3	2.1
Clearwater	1	15-May-07	3.3	na	6.65	<10	62.9	na	4.92	7.48	9.9	<0.1	<0.03	<0.08	4140	1070	1.6	0.81
Crooked	3	15-May-07	6.3	6.0	6.74	<10	39.6	na	1.91	2.97	10.6	<0.1	<0.03	<0.08	2510	1110	2	2.1
Crowley	1	15-May-07	3.6	4.6	6.91	<10	28.3	na	0.97	0.51	7	<0.1	<0.03	<0.08	2150	737	3.6	1.8
Ella	1	14-May-07	3.6	4.3	7.13	<10	34.3	0.27	0.74	0.88	5.3	<0.1	<0.03	1.88	2230	668	2.7	1.5
Ella	3	14-May-07	6.1	4.7	7.16	24	34.1	0.34	1.28	0.98	5.3	<0.1	<0.03	0.15	2680	741	2.6	1.7
Fairbank	2	15-May-07	4.1	4.5	7.23	<10	60.6	na	1.39	1.5	9.9	<0.1	<0.03	0.12	6280	1580	1.1	3.4
Fairbank	3	15-May-07	5.7	4.5	7.19	11	60.3	na	1.45	1.4	8.7	<0.1	<0.03	0.26	8220	1580	0.87	1.9
Forest	1	15-May-07	3.7	3.8	5.41	<10	78.7	na	1.56	1.5	7.2	<0.1	<0.03	<0.08	2420	871	1.1	<0.5
Gordon	1	15-May-07	7.7	7.8	7.14	<10	33.7	na	1.01	0.38	4.8	<0.1	<0.03	<0.08	3010	1020	2.2	3.4
Ironside	3	14-May-07	4.2	5.2	7.15	<10	26.9	0.42	0.69	<0.2	4.5	<0.1	<0.03	<0.08	2090	649	4.25	0.55
Kusk (Rat)	1	15-May-07	17.5	18.8	7.22	22	161	na	12.5	12.9	44	0.18	<0.03	0.7	19600	3820	2.5	3.4
Kukagami	4	14-May-07	3.2	3.5	7.25	<10	33.6	0.27	0.72	0.41	7.5	<0.1	<0.03	0.081	2930	751	2.7	<0.5
Little Panache	2	15-May-07	11.5	11.3	7.41	23	98.9	na	7.14	8.49	5.4	<0.1	<0.03	0.11	9640	2250	2	2.6
Little Panache	3	15-May-07	14.3	21.3	7.98	25	117	na	13.3	14.6	13.5	<0.1	<0.03	<0.08	10100	2340	3.2	1.3
Little Raft	1	17-May-07	11.8	na	7.18	<10	48.5	na	1.72	0.96	5.9	<0.1	<0.03	<0.08	2880	1120	1.5	1.6
Lohi	1	15-May-07	5.1	3.9	6.20	<10	78.9	na	5.93	8.22	8	<0.1	<0.03	1.22	3800	1190	1.8	1.5
Long	1	15-May-07	6.5	6.3	7.09	21	206	na	24.4	31.5	10.9	<0.1	<0.03	<0.08	8780	3010	1.9	2.7
Long	5	15-May-07	9.3	10.0	6.94	17	142	na	15.1	19.2	10	<0.1	<0.03	0.4	6380	2230	1.8	0.81
Makada (Black)	1	15-May-07	6.2	5.3	7.18	<10	65.4	na	2.97	2.85	8.6	<0.1	<0.03	<0.08	5120	2000	2.4	2.5
Matagamasi	1	14-May-07	3.6	3.5	6.91	<10	27.7	0.36	1.23	0.35	6	<0.1	<0.03	0.092	2960	787	2.6	<0.5
McCharlies	4	15-May-07	38.0	40.5	7.41	34	709	na	70.3	94.8	304	0.78	<0.03	1.57	94500	13300	3.4	15.5
McCrea	1	14-May-07	11.7	12.1	7.20	32	276	1.51	80.6	114	9.8	<0.1	<0.03	0.24	8650	2930	3.9	3.3
McFarlane	2	17-May-07	9.7	10.1	7.10	<10	273	na	47.1	65.1	13	<0.1	<0.03	0.086	13000	4810	2.2	3.1
Mimnow	1	17-May-07	57.8	53.2	7.53	36	635	na	117	163	<0.1	<0.03	17.9	0.22	23500	4750	3.4	8.94
Mud	3	15-May-07	77.0	75.4	7.09	31	820	na	88.1	96	421	1.12	0.13	2.29	117000	16300	3.2	13
Nelson	1	14-May-07	2.8	3.6	7.16	18	26.7	0.34	0.72	0.25	5.4	<0.1	<0.03	0.42	2240	631	2.2	<0.5
Nepahwin	1	17-May-07	11.6	11.4	7.42	<10	523	na	82.2	121	18.9	<0.1	<0.03	0.16	17400	5900	2.4	3.7
Onwatin	2	14-May-07	7.2	8.6	7.20	11	56.6	0.61	1.91	1.6	6.1	<0.1	<0.03	0.25	5240	na	4.23	<0.5
Panache	3	15-May-07	7.8	na	7.18	<10	58	na	3.4	3.36	7.9	<0.1	<0.03	<0.08	4230	1420	2	1.8
Raft	2	17-May-07	7.9	na	7.15	<10	43.1	na	1.22	0.9	6.6	<0.1	<0.03	<0.08	2540	1070	1.7	0.92
Ramsey	4	17-May-07	11.3	11.7	7.29	<10	272	na	52	69.4	13	<0.1	<0.03	0.22	14200	4480	2	<0.5
Richard	3	17-May-07	12.5	10.6	7.14	<10	159	na	20.2	23.7	7.5	<0.1	<0.03	<0.08	7410	2970	3.8	<0.5
Robinson	2	17-May-07	29.9	31.6	7.30	<10	325	na	68.4	98	16.2	<0.1	<0.03	0.16	16700	5280	2.8	3.2
Silver	1	17-May-07	8.5	8.4	7.02	<10	266	na	52.4	76.7	12.4	<0.1	<0.03	0.092	6250	2760	1.5	2.4
Simon	2	15-May-07	51.4	49.0	7.33	47	792	na	83.4	106	384	1.13	<0.03	1.74	117000	16300	4.03	17.9
Simon	4	15-May-07	56.7	56.1	7.38	35	799	na	86.2	117	387	1.12	<0.03	1.63	122000	17300	3.1	19.3
Skill	1	15-May-07	10.5	10.9	7.07	<10	36.1	na	1.24	1.3	5.5	<0.1	<0.03	<0.08	3470	887	3.7	<0.5
St. Charles	1	17-May-07	8.5	9.0	7.19	113	182	na	27.3	34.3	12.7	<0.1	<0.03	0.12	8580	3340	2.7	<0.5
T/Dill	2	15-May-07	11.3	13.2	7.15	<10	33.8	na	1.43	2	5.6	<0.1	<0.03	0.14	2490	1180	3.6	1.1
Tilton	1	17-May-07	8.4	7.0	7.05	43	51.7	na	2.12	2.8	11.7	<0.1	<0.03	0.086	2860	922	1.4	<0.5
Vermillon	3	15-May-07	10.8	9.6	7.33	22	80.7	na	3.48	4.23	15.3	0.17	<0.03	<0.08	8910	1890	2.6	1.9
Whitewater	2	14-May-07	11.8	12.4	7.37	38	154	na	11.8	12.7	25.3	<0.1	<0.03	0.19	16200	na	4.84	1.3
Whitewater	3	14-May-07	12.7	11.3	7.54	40	164	1.47	14	15.7	25	<0.1	<0.03	0.18	17600	6110	4.94	0.88
Whitson	3	14-May-07	4.3	5.0	7.20	<10	110	0.81	15.4	17.9	9.9	<0.1	<0.03	2.34	5090	1740	4	1.1
Windy	2	15-May-07	4.4	5.0	7.22	<10	58.8	na	6.2	8.66	7.6	<0.1	<0.03	<0.08	2760	913	1.5	<0.5

APPENDIX 2

Frequently Asked Questions from the Shoreline Home Visits

Frequently Asked Questions

How can I inform neighbors and visitors who own and operate speedboat on the lake?

Spread the word. Speedboats that drive too fast through narrow waterways create large waves that scour away at the shoreline and harm wildlife habitat, as well as create unsafe boating conditions for smaller crafts and swimmers. Contact the Greater Sudbury Police Service to address any major concerns.

What are the rules and regulations for ice huts?

All ice huts need to be registered with the Ministry of Natural Resources and depending on your location they need to be removed before a certain date. Unfortunately, many ice hut owners are not disposing of their trash properly and do not always remove their huts in the spring, resulting in polluted waters and shorelines. This raises concern for stronger enforcement.

How can I control invasive species in my area?

Invasive species can be easily spread through out the lakes by water crafts. Get to know the invasive species in your area and make sure to contact the Invasive Species Hotline (1-800-563-7711) for more information.

Am I allowed to remove aquatic weeds and leeches from my shoreline?

Some weeds, which are aquatic plants, have more benefits than disadvantages. Leeches normally live in waters with low dissolved oxygen, but can be an abundant food source for many shoreline animals. Make sure to contact the Nickel District Conservation Authority (705-674-5249) before attempting to remove any plants or leeches. What steps do I take in creating a sand beach on my shoreline?

Building a beach near the shoreline of your lake property may be harmful to fish and other aquatic species. Beach building efforts are usually unsuccessful, especially in area with high waves. Think about creating an upland beach above the high water mark, which will provide the same enjoyment as a lowland beach.

Why are there so many aquatic plants in my lake?

Large amounts of aquatic vegetation can be caused by several different factors including the amount of light available, water levels, water temperature, type of lake bottom sediments, current or wave action, and the concentration of dissolved gases and nutrients such as chemicals found in fertilizers, pesticides and leaking septic systems.

What affect is the increasing number of Cormorants having on our lakes?

Cormorants are a native species to Ontario that almost vanished in the 60's and 70's but has dramatically made a healthy return. Although there is a lot of controversy regarding whether or not these birds are a threat to our lakes, rivers and streams, there is no sufficient evidence that they have become a problem at this time. For more information contact your local Ministry of Natural Resources Office.

What types of alternatives to chemical fertilizers and pesticides can I use?

Corn gluten is a healthy and natural fertilizer that helps to feed the lawn and eliminate weeds. Scalding the weeds with hot water is also another viable option. Insects can be removed more naturally using pressure sprays of air or water. Pheromone traps, baits and lures, or physical barriers such as mulch can also be used to deter unwanted pests.

Where can I find native plant species to help restore my shoreline?

Do some research to find out what grows best in your area according to soil, rock and light conditions. Your local nursery should sell most native species, but make sure to try and locate your plant specie according to its scientific (Latin) name, rather than its common name.

Should I be worried about blue-green algae on my lake?

Although it is not likely that you will drink water contaminated with blue-green algae (cyanobacteria), boiling water does not remove the toxins. Blue-green algae can have unpleasant odours and should be avoided because it can cause illness, skin irritations, and allergic reactions.

APPENDIX 3

Lake Stewardship Groups in Greater Sudbury

Lake Stewardship Groups in Greater Sudbury

STEWARDSHIP GROUP	LAKE(S)	TOWNSHIP	WATERSHED UNIT
Bass Lake	Bass	Fairbank	Fairbank
Beaver Lake	Beaver (Big)	Lorne	Lower Vermilion
Beaver Lake	Beaver (Little)	Lorne	Lower Vermilion
Broder 23 Lake	Broder 23	Broder	East Wanapitei River
Clearwater Lake	Clearwater	Broder	Panache
Ella Lake	Ella	Lorne	Lower Vermilion
Ella Lake	Ella (Capreol)	Capreol, Norman	Wanapitei
Fairbank Lake Cottagers Association	Fairbank	Fairbank, Trill, Drury,	Fairbank
Forest Lake	Forest	Broder	Panache
Friends of McFarlane Lake	McFarlane	Broder, Dill	Panache
Ironside Lake	Ironside	Hutton	Roberts River
Kusk (Rat) Lake	Kusk (Rat)	Louise	Lower Vermilion
Lake Panache Camper's Association www.lakepanachecampers.com	Panache	Dieppe	Panache
Little Lake Panache Property Owners Association	Little Panache	Louise, Dieppe	Panache
Little Round Lake	Little Round	Waters	Panache
Lohi Lake	Lohi	Broder	Panache
Makada (Black) Lake	Makada	Waters	Panache
McCharles Lake Stewardship Group	McCharles	Graham	Lower Junction Creek
Minnow Lake Restoration GrOp www.minnowlake.ca	Minnow	McKim	Ramsey
Nepahwin Lake	Nepahwin	McKim	Ramsey
Onwatin Lake	Onwatin	Capreol, Hanmer	Upper Vermilion
Raft Lake Ratepayers Association	Raft	Dill, Broder	East Wanapitei River
Ramsey Lake Advisory Panel	Ramsey	McKim	Ramsey
Richard Lake Stewardship Committee www.richardlake2005.tripod.com	Richard	Dill	Panache
St Charles Lake	St Charles	Broder	Ramsey
Silver Lake Committee	Silver	Broder	Panache
Simon Lake	Simon	Graham	Lower Junction Creek
Skill Lake	Skill	Denison	Fairbank
Tilton Lake	Tilton	Tilton	Panache
Valley East Ratepayers Association	Dixon	Wisner	Upper Vermilion
	Frenchman	Wisner	Upper Vermilion
	Hanmer (Bass)	Hanmer	Upper Vermilion
	Joe	Wisner	Rapid River
	Nelson	Bowell	Nelson River
Vermilion Lake	Vermilion	Fairbank	Mid Vermilion
Wanapitei Lake	Wanapitei	Rathburn, Mackelcan, Scadding, MacLennan,	Wanapitei
Whitewater Lake	Whitewater	Snider, Rayside, Creighton	Whitewater
Windy Lake Stewardship Committee	Windy	Dowling	Onaping River

Contact Us

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