Ontario

Ministry of
Natural Resources
Blind River Area Office

March 2007

Blind River Water Management Plan

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Natural Resources
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Blind River
Water Management Plan

This water management plan (WMP) sets out legally enforceable provisions for the management of flows and levels on this river within the values and conditions identified in the WMP.

In instances where, due to emergency energy shortages, the Independent Electricity System Operator (IESO) requests that owners of the waterpower facilities and associated water control structures seek relief from certain provisions of this WMP, the Ministry of Natural Resources (MNR) will consider those requests expeditiously and, after consultation with the IESO, may allow short-term relief from certain provisions.

The mandatory provisions of this WMP will be waived, as appropriate, when the dam owners (which may include other dam owners, such as MNR) are requested to do so by a police service or other emergency measures organization.

This plan does not authorize any other activity, work or undertaking in water or for the use of water, or imply that existing dams(s) meet with safe design, operation, maintenance, inspection, monitoring and emergency preparedness to provide for the protection of persons and property under the *Lakes and Rivers Improvement Act*. Approval of this WMP does not relieve the dam owners from their responsibility to comply with any other applicable legislation. For the purposes of this plan, an operational plan means a plan for the management of flows and levels.

Approval of this plan does not grant a dam owner the right to flood Crown land or the land of any other person without first obtaining the Crown's or that person's consent, nor does it authorize any infringement of the rights of the Crown or of any other person.

MNR acknowledges funding assistance provided by 1149377 Ontario Limited [owners of Chiblow Lake Generating Station and Canoe Lake (Scarfe) Generating Station] for this WMP. MNR also acknowledges the technical assistance provided by Hatch Energy and Synexus Global for this WMP.

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1 Review and Approval Page

WATER MANAGEMENT PLAN
FOR WATERPOWER
for the
BLIND RIVER

Sault Ste. Marie District,
Northeast Region

Town of Blind River
1149377 Ontario Ltd.
for the 10-year period April 1, ~~2005~~ 2007 to March 31, ~~2015~~ 2017

In submitting this plan, we confirm that this water management plan for waterpower has been prepared in accordance with *Water Management Planning Guidelines for Waterpower*, as approved by the Minister of Natural Resources on May 14, 2002.

R V Gallagher — July 7/05

Mayor Robert Gallagher
Town of Blind River — Date

May 6/2005

Andrew Gucciardi
1149377 Ontario Ltd. — Date

I concur that this water management plan has been prepared in accordance with *Water Management Planning Guidelines for Waterpower*, as proved by the Minister of Natural Resources on May 14, 2002, and recommend it be approved for implementation.

July 27/05

Trevor Woods, District Manager
Sault Ste. Marie District
Ministry of Natural Resources — Date

Approved by:

Rob Galloway — Mar. 29/07

Robert Galloway, Director
Northeast Region
Ministry of Natural Resources — Date

In 1994, MNR finalized its Statement of Environmental Values (SEV) under the Environmental Bill of Rights. The SEV is a document that describes how the purposes of the EBR are to be considered whenever decisions are made that might significantly affect the environment are made in the Ministry. During the development of this water management plan, the Ministry has considered its SEV.

Mississauga First Nation has reviewed Appendixes "I" and "J" of this water management plan, in accordance with the provisions of the Water Management Planning Guidelines Appendix "D" for Waterpower (MNR 2002) and the Supplementary Agreement to Establish a Consultation Protocol in Respect of Article 3.11 of the Mississauga Land Claim Settlement Agreement, dated for reference the 27th day of April 1994.

Lawrence Boyer, Chief
Mississauga First Nation

July 20/05
Date

2 INTRODUCTION

2 Introduction

2.1 Plan Goal and Principles

The goal of water management planning is to "contribute to the environmental, social and economic well-being of the people of Ontario through the sustainable development of waterpower resources and to manage these resources in an ecologically sustainable way for the benefit of present and future generations" (MNR, 2002).

The following principles, as defined in Section 4 of the *Water Management Planning Guideline for Waterpower* (MNR, 2002), were used in the planning and preparation of this water management plan.

- Maximum Net Benefit to Society
- Riverine Ecosystem Sustainability.
- Planning Based on Best Available Information
- Thorough Assessment of Options
- Adaptive Management
- Timely Implementation of Study Findings.
- Aboriginal and Treaty Rights.
- Public Participation.

2.2 Terms of Reference

The Terms of Reference (TOR) as approved by the Steering Committee, the Power Producers and the Ministry of Natural Resources (MNR) are attached as Appendix A. Within the Terms of Reference are the members of the Steering Committee/Planning Team, Advisors and the Public Advisory Committee.

2.3 Resource Values, Interests and Issues

The resource values and interests on the Blind River system are described in Sections 3, 4 and 6 of this document. The issues of the Blind River System, as they relate to the resource values and interests of stakeholders, the general public and First Nations are described in Section 6 of this plan.

2.4 Plan Objectives

The objectives of this plan are to

- establish the best operating regime for the entire water system while sustaining or improving the ecosystem and respecting the impacts on various stakeholders
- improve the overall management of the water system
- protect the fish and wildlife

- increase the understanding of "cause and effect" with the operators of the structures and plants
- improve communications between the stakeholders and the operators
- formalize monitoring, compliance, enforcement and plan amendment processes.

2.5 Public Consultation

The Water Management Planning Guidelines for Waterpower (MNR, 2002) emphasize the importance of public consultation during development of a water management plan. In this regard, at the start of the water management planning process a Public Consultation Plan was prepared (Appendix G). There were three key stages of public consultation during preparation of the Blind River Water Management Plan:

Stage One - Planning Organization and Commencement

- A public notice of commencement of the water management planning process was issued. This included an invitation to participate in the initial scoping process.
- A Public Information Centre was held at the Blind River Marina on August 8, 2002 to explain the water management planning process, goals, and objectives and invite input to the planning process on issues and resource values.

Stage Two - Scoping, Options and Draft Plan Review

- A Public Information Centre was held at the Blind River Marina on October 30, 2003 to inform the public of progress with the water management planning process and to invite comments on the options considered and the preliminary preferred option prior to finalizing the plan.

Stage Three - Plan Viewing

- A final opportunity to view the approved water management plan will be provided to the public.

The Public Consultation Program Report is included in Appendix H.

A Public Advisory Committee was also established. The role of the Public Advisory Committee was to:

- provide input to the planning team on local water management issues
- comment on any water management planning documents
- liaise informally with the local community to obtain their input on water management issues
- encourage the local community to attend information sessions and provide input to the plan.

2.6 First Nation Participation

MNR held several meetings with representatives of the Mississauga First Nation to ensure their participation in the water management planning process as recommended in

the Water Management Planning Guideline for Waterpower (MNR, 2002). Under the Supplementary Agreement to Establish a Consultation Protocol in Respect of Article 3.11 of the 1994 Mississauga Land Claim Settlement Agreement, the Province of Ontario agreed, and is required to include and consult with Mississauga First Nation, in the establishment of special standards to be applied to the Blind River system. Part of this document is included in Appendix I.

At the commencement of the water management planning process, discussions focused on development of a First Nation Participation Protocol. The protocol is included in Appendix I and outlines the general principles to be followed, the dialog/protocol methods and approaches to be used, specific principles for aboriginal participation in the planning process, and information required from the Mississauga First Nation.

The initial First Nation Community Information Session was held on November 6, 2002 to advise members that the water management planning process was commencing, to explain the goals and objectives, and to invite input on First Nation resource values, issues and desired benefits.

A second First Nation Community Information Session was held on November 19, 2003 to update the community on progress with the water management plan, including options and a preliminary preferred option, and to provide another opportunity for input and comment.

A First Nation Participation Program Report is included in Appendix J.

3 PHYSICAL AND BIOLOGICAL DESCRIPTION

3 Physical and Biological Description

3.1 Blind River and Geographic Setting

The Blind River watershed is approximately 1052 km^2, situated within the Great Lakes-St. Lawrence Forest. This area consists largely of rugged and gently rolling uplands, interspersed with lakes and wetlands.

Coldwater lakes in the headwaters have healthy and self-sustaining populations of lake trout and brook trout, with splake present in some lakes. The upper reaches of the Blind River system are protected as a Waterway Provincial Park. This area includes about 75 km of the Blind River and its tributaries, starting about 40 km north of the Town of Blind River. Included within this Park are Astonish, Ezma, Swamp, Upper Mace, Lillypad, Claim, Lower Mace, Stone, Pathfinder, Keelor, and Pepler Lakes.

The Blind River flows into the northwest end of Matinenda Lake, the largest lake in the watershed (see Figure 3.1). Matinenda Lake has also been called Matinatinda and Tendiwenda Lake. This coldwater lake has a healthy natural lake trout population. It also has a large number of camps and cottages, as well as two operating tourist establishments. Matinenda Lake and some of the surrounding area has also been recently designated as a Natural Environment Provincial Park. Flow out of Matinenda Lake is regulated by a water control dam owned and operated by MNR. This dam is situated approximately half way on a short section of the river between Matinenda Lake and Chiblow Lake, the second largest lake in the watershed.

Chiblow Lake is connected to Little Chiblow Lake (also called Denman Lake) by a navigable channel. Both Chiblow and Little Chiblow Lakes have healthy lake trout populations, as well as some warm water sport fish, including walleye and smallmouth bass. There are seasonal and permanent residences on these lakes, as well as one tourist lodge.

At the outflow from Chiblow Lake there is an MNR control dam and a generating station (GS) owned and operated by 1149377 Ontario Ltd. From here the river passes through High Lake and then Canoe Lake. Canoe Lake has also been called Falls and Scarfe Lakes, as two separate lakes. Canoe Lake has a second hydroelectric generating station owned and operated by the same company as the Chiblow Lake generating facility. Canoe Lake drains into Cataract Lake.

The next major lake in the river system is Lake Duborne (also called Lake of the Mountains). This lake has a large number of permanent and seasonal residents, as well as three tourist operations. This lake has both warmwater and coldwater fish populations. The water level in Lake Duborne is controlled by the Blind River Dam. This MNR dam is situated within the Town of Blind River, and has a small hydro generating station owned and operated by the Town of Blind River. The river between Lake Duborne and this river outlet dam has a large number of mainly permanent residences, as well as several businesses. Immediately downstream of this dam, the Blind River discharges into the North Channel of Lake Huron.

Most of the land adjacent to the Blind River between the south shores of Chiblow and Matinenda Lakes to the municipal boundaries of the Town of Blind River are within a Land Claim Settlement Agreement with the Mississauga First Nation.

3.2 Biological Description

3.2.1 Blind River

The river above Matinenda Lake is variable in form, having slow moving sandy and muddy sections, as well as faster gravel/boulder riffles. There are some brook trout in the section of river between Matinenda and Pepler Lakes, although no fish were captured by electrofishing during the stream survey of this reach. This section is outside of the planning area. There is a very scenic falls at the inflow to Matinenda Lake, which is a popular picnic area with boaters.

The river between Matinenda and Chiblow Lakes is approximately 1 km in length, with the dam situated approximately half way down. The section above the Matinenda Lake dam is navigable and slow moving. The habitat is suitable mainly for pike or smallmouth bass. The section of river downstream of the dam is faster moving, with a sand, gravel and cobble substrate. The area immediately downstream of the dam was enhanced with cobbles and fractured rock to improve stream habitat, when the latest dam reconstruction took place in 1984. Approximately the lower 75% of this river section is influenced mainly by the level of Chiblow Lake and is navigable by boat. The remainder of this section of river is above the influence of Chiblow Lake, and has gravel and cobble riffles.

At the outflow of Chiblow Lake most of the flow is diverted within a 2.4 m diameter penstock. The flow through the original streambed is leakage flow or overflow when levels are high. This section of the river is approximately 600 m in length, and is steep and cascading through a series of rapids and riffles before flowing into High Lake. This section is predominantly bedrock, boulders and cobble. The upper section below the Chiblow Lake dam was enhanced with angular fractured rock for stabilization and habitat enhancement. The flow through this section is low, and tends to become almost dry during the summer months. Invertebrates were abundant but no minnow or other fish species were sampled by electrofishing.

The river section at the outflow of High Lake to Canoe Lake is very short consisting of two 50 m sections of river with a small pond in between. The stream in these sections is steep and cascading, mainly over bedrock.

The river between Canoe Lake and Cataract Lake is mainly diverted through the penstocks of the Canoe GS. There is some flow through the original stream bed, but is only leakage flow or overflow during high flows. This section is mainly sheet flow over bedrock, with some very small pools, and a main channel that has a bedrock base. There were invertebrates found during the stream assessment but no fish or minnow species present, except at the inflow to Cataract Lake.

The river between Cataract Lake and Lake Duborne is divided into two distinct sections. The upper reach of river in this area historically will almost dry up some years. At the outflow of Cataract Lake is a scenic falls, which is largely sheet flow over bedrock. Below this is a reach of river approximately 250 m in length that is fast moving over gravel, cobbles and boulders. This section was assessed as part of the Standard Stream Assessment. Invertebrates and minnow species were relatively abundant in this section. This area is an important spawning location for Lake Duborne walleye. At the Highway 557 bridge the river transforms into a more

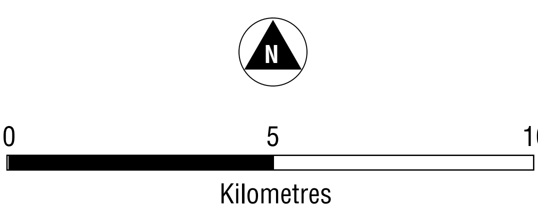

Figure 3.1
Blind River Water Management Plan
Study Area

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lacustrine environment, being deeper, wider and slow moving. This section of river is easily navigable from Lake Duborne.

The Blind River from Lake Duborne to the Blind River dam is also navigable by boat. There have been no detailed assessments conducted on the lower Blind River. This reach of river is eutrophic, slow moving and relatively shallow, with much of the river less than 2 m deep. This is largely the result of flooded lands due to higher water levels created by the Blind River dam. Large areas of the river become overgrown with submergent aquatic vegetation during the summer months. Fish species present include northern pike, walleye, rock bass, yellow perch, pumpkinseed and smallmouth bass. Various alien and introduced species now present in the Great Lakes may also be present in the Blind River, but only up to the Blind River dam.

3.2.2 Matinenda Lake

Matinenda Lake is a deep cool oligotrophic lake, with an area of 3566 ha, and a maximum depth of 85 m (280 ft). It is an irregularly shaped water body made up of three interconnected basins. The mainly rocky shoreline is interspersed with sandy beaches. It has an excellent population of natural lake trout, with ample excellent spawning habitat.

Lake surveys have been conducted in 1966 and 1985. Several creel surveys have been conducted. Fish species present include lake trout, brook trout, smallmouth bass, northern pike, lake whitefish, lake herring, yellow perch, burbot, rock bass, black bullhead, longnose sucker, white sucker and rainbow smelt.

Because of the proximity to the Town of Blind River, and the large number of seasonal and permanent residences on the lake, there is a very high recreational value associated with angling on this lake. Commercial trap netting took place in Matinenda Lake in the early 1950s.

Lake trout in this area spawn from approximately the first week of October to the last week of October, with water temperature ranges from approximately 13°C to 9°C. Observed depth of spawning has been as shallow as 0.2 m, with no confirmed maximum depth. Indications from spawning studies on Matinenda and nearby lakes have been that the majority of lake trout spawn at a depth of less than 2 m.

In the fall and winter of 1987 there was documented exposure of lake trout eggs caused by water level drawdown. The water level in early October 1987 was low (234.72 m Canadian Geodetic Datum, CGD), due to a dry summer, and was lowered to 234.21 m CGD by March 25, 1988. This resulted in exposure of lake trout eggs under the ice, causing mortality. It appeared that the lake trout may have spawned in water as shallow as 0.20 m. As a result of this, a comprehensive lake trout spawning study was initiated, and much closer monitoring and regulation of winter draw down was implemented.

A comprehensive lake trout spawning habitat study was done in 1988 (MNR 1988). This was done to supplement a similar but more limited study done in 1985 (MNR 1985). In the 1988 study 129 spawning shoals were identified, and of these 39 were found to be utilized. Spawning took place between October 9 and October 27, at water temperatures from 13°C on October 9 to 9°C on October 27. Lake trout were captured in depths ranging from 0.5 m to 4.5 m, with 78.6% in the 0.5 to 2.0 m

range. The surface water levels during this time varied from 234.55 to 234.65 m CGD (0.30 m to 0.38 m gauge). This study found that the minimum water level for lake trout to access optimal spawning habitat is 234.70 m CGD.

3.2.3 Little Chiblow and Chiblow Lake

Little Chiblow and Chiblow Lake are considered to be one lake for management purposes, as they are connected by a wide channel. Chiblow Lake is a deep, well-oxygenated lake with a surface area of 2087 ha, a maximum depth of 70 m, and an average depth of 23.9 m. There is a well-established native population of lake trout, an abundant population of lake whitefish, as well as smallmouth bass and very few walleye. Other fish species present include yellow perch, burbot, rainbow smelt, lake herring, common white sucker, longnose sucker and rock bass. Both of these lakes are declared fish sanctuaries for the period from October 1 to the Friday before the last Saturday in April each year.

Several creel surveys have been done on Little Chiblow and Chiblow Lakes. The most recent creel survey done was done during the summer of 1998 on Chiblow Lake. Total estimated effort was 12,212 angler hours. An estimated total of 1,449 lake trout and 334 smallmouth bass were harvested during the survey period. Angler success rate was 0.244 lake trout and 1.209 smallmouth bass per hour. Most anglers were Americans, and still fishing was the most popular technique. The average length of lake trout harvested was 46.3 cm (18.2 in.) and the average length of smallmouth bass was 34.4 cm (13.5 in.). These numbers are similar to creel survey results done in previous years.

A lake trout spawning habitat survey was conducted by the MNR in 1985 (MNR 1985). Spawning habitat was mapped in both Chiblow and Little Chiblow Lakes. Good quality spawning habitat was found to be abundant in Chiblow Lake while being somewhat limited in Little Chiblow Lake. The reduced size and quality of shoals in Little Chiblow Lake is primarily due to the basin characteristics and smaller size. The smaller size of the lake results in reduced wave action. Wave action is necessary for cleaning and aeration of lake trout shoals. This report recommended that fall and winter water level drawdowns be kept to the minimum necessary to provide flood mitigation. Actual spawning depths were not determined in this study.

3.2.4 High Lake

High Lake is a small warmwater lake. It has a surface area of 53.5 ha, and a maximum depth of 8.0 m. Fish species present include smallmouth bass, northern pike, lake whitefish, yellow perch, common white sucker, lake herring, and pumpkinseed.

3.2.5 Canoe Lake

Canoe Lake is a shallow warm water lake, with an area of 169 ha, a maximum depth of 10.0 m, and a mean depth of 4.8 m. The lake consists of two main basins connected by narrow channels. Fish species present include walleye, northern pike, lake herring, rainbow smelt, lake whitefish, yellow perch, common white sucker and

lake trout. Lake trout have been found in the lake in very small numbers, but are suspected to have come down from Chiblow Lake.

A lake survey was conducted in 1976, and Fall Walleye Index Netting (FWIN) surveys were conducted in 1998 and 2002.

3.2.6 Cataract Lake

Cataract Lake is a small shallow, warm water lake. It has an area of 108 ha, a maximum depth of 4.9 m, and an average depth of 1.7 m. Fish species present include walleye, northern pike, common white sucker, rock bass, smallmouth bass, pumpkinseed, yellow perch, and brown bullhead.

A lake survey was conducted in 1976 and a FWIN survey was conducted in 1999. This survey indicated a low abundance of walleye. The population was found to be quite small, and there appeared to be only limited successful reproduction taking place. The main species sampled were northern pike and yellow perch.

3.2.7 Lake Duborne

Lake Duborne is 933 ha in area, with a maximum depth of 33.5 m. The east and west sections of the lake are relatively shallow (less than 6 m), providing suitable habitat for walleye. In the middle section of the lake a deep and cool basin provides good conditions for lake trout. Fish species present include lake trout, walleye, lake whitefish, lake herring, yellow perch, northern pike, smallmouth bass, rock bass, common sucker, greater redhorse, brown bullhead, pumpkinseed, muskellunge, longnose gar, bowfin, and rainbow smelt. Lake surveys were conducted in 1965 and 1986. The lake has been stocked in the past with lake trout and walleye. Because of the proximity to the Town of Blind River, and the large number of seasonal and permanent residences on the lake, there is a very high recreational value associated with angling on this lake.

Up until 1950 a fish ladder for spawning walleye was in place to allow fish to pass the Blind River dam. The fish ladder deteriorated to the point where it had to be removed or replaced. It was not replaced mainly because of the increasing threat of sea lamprey. A program was undertaken for a short time (1954) to capture, tag and release North Channel (of Lake Huron) walleye, and release half of the captured fish above the dam. This project was repeated in 1965.

Lake Duborne supported a prolific lake trout fishery before 1950. Through the 1960s the lake trout population declined. This decline was attributed to several factors, including spawning shoal deterioration due to cultural eutrophication, excessive poaching of spawning fish, excessive predation on eggs and young, and exposure of eggs due to winter drawdowns. Beginning in 1976 MNR undertook a lake trout rehabilitation project, mainly involving a specialized stocking program. Stocking assessments in subsequent years (1981, 1982, 1986) indicated good survival and reproductive success.

A comprehensive lake trout spawning study was conducted for Lake Duborne in 1982 (MNR 1982). In this study over 31 potential lake trout spawning areas were identified and several attributes were characterized. These attributes included

minimum and maximum depth, substrate composition type, substrate size, substrate shape, substrate condition, orientation, exposure to prevailing winds, as well as climatic conditions and water temperatures at the time of sampling. This study was initiated because of a serious decline in lake trout numbers over an approximate 20-year period before this study. It was evident that there was a complete reproductive failure by the lake trout population. One of the potential contributing factors to this reproductive failure that was investigated was winter drawdowns. Exposure of eggs to air due to reduced winter drawdowns will cause mortality of any exposed eggs. In this study all potential spawning locations were identified. Lake trout spawning was verified using two methods. The first method was visual observations from boats. Using this method only three lake trout were seen spawning with approximately 23 hours of effort. The second method involved using gill nets specially marked to determine capture depth. Using this method 38 lake trout was sampled over 21 nights of sampling. At the time of this study lake trout did not begin spawning until October 28, at which time the water temperature reached 10.6°C and the study was terminated on November 15. It was concluded that due to the small sample size, and for various other reasons the spawning depth and the effects of the winter drawdown could not be accurately determined. The range of depths lake trout was captured in range from 0.5 m to 13.0 m. The mean capture depth was 3.0 m. However it should be pointed out that results using this type of method only indicate depth of fish at capture, and not necessarily the depth at which the fish would have spawned.

3.2.8 Species at Risk

There are a number of species at risk that are known to be, or are possibly present in the planning area. Species at risk in Canada are classified by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Provincially, species at risk are classified by the Committee on the Status of Species at Risk in Ontario (COSSARO). The categories are similar, but not identical. The COSEWIC categories of endangered species are extinct, extirpated, endangered, threatened, and species of special concern. There is also a “Data Deficient” category for species where insufficient data is available to make a determination, and a “Not at Risk” designation meaning that species has been evaluated and found not to be at risk. The main difference in the classification methods is the addition of a status “Endangered (Not Regulated)” in the COSSARO classification. COSSARO recognizes the COSEWIC species designations.

Endangered species are those species that are at greatest risk of imminent extirpation or extinction. The only species within this category that is confirmed to be present in the planning area is the bald eagle. Endangered species that are possibly present in the planning area, but have not been confirmed, or could be present in nearby adjacent areas, include the eastern cougar, golden eagle, and peregrine falcon.

Wood turtle, under the COSSARO classification, is listed as Endangered (Not Regulated), which is one of the three exceptions in which the provincial classification is at a higher risk status than the federal classification. The COSEWIC classification for wood turtle is Species of Special Concern. There is the potential for wood turtles to be present within the Blind River system.

Species listed as "Threatened" by COSEWIC and COSSARO are species that are likely to become endangered if limiting factors are not reversed. Threatened species that are known to be present near, but not in the planning area include the least bittern and Blanding's turtle. Species of Special Concern are those that are particularly sensitive to human activities or natural events, but are not listed as endangered or threatened by COSEWIC and COSSARO.

Species of Special Concern are native Ontario species that on the basis of best scientific evidence, is sensitive to human activities or natural events (COSSARO). Species of Special Concern known to be present in the planning area include red shouldered hawk, great blue heron, eastern milksnake, northern brook lamprey, and the monarch butterfly. Species that have not been confirmed as present in the planning area, but are possibly present, or are or may be present in adjacent areas include the eastern wolf, yellow rail, red-headed woodpecker, West Virginia White Butterfly, and the Eastern Massasauga Rattlesnake.

It is not anticipated that any adverse effects would result from flows and levels prescribed within this plan for any of these species. Ongoing district, regional, and provincial species at risk programs and field work may provide additional information on species at risk in the planning area, which will be evaluated as it comes available. No detailed information on species at risk will be made public in this document.

3.3 Water Quality

Water quality is normally considered to be outside of the scope of water management plans. However, there are circumstances where levels and flows can have an effect on water quality. In order to make this determination, it is necessary to have an understanding of existing water quality. In addition, it is important to have good baseline information at the initiation of planning. Future comparisons will not be possible if we do not have baseline information, which would have the potential to be a significant data gap at the next round of planning.

A surface water quality sampling program was initiated during the summer of 2002 to establish baseline water quality conditions within the Blind River watershed. A total of eight sampling stations were selected at inlet and outlet points within the study area. The locations of the sampling stations are shown in Figure 3.2. Analysis was conducted by Ministry of the Environment (MOE) central laboratory in Etobicoke, Ontario. The eight locations are as follows:

- BR1-02 - Matinenda Lake inlet
- BR2-02 - Matinenda Lake outlet
- BR3-02 – High Lake outlet
- BR4-02 – Duborne Lake outlet
- BR5-02 – Chiblow Lake outlet
- BR6-02 – Cataract Lake outlet
- BR7-02 – Canoe Lake outlet
- BR8-02 – Blind River.

Samples BR1 and BR2 were collected on June 27, 2002, samples BR3 and BR4 were collected on June 28, 2002 and samples BR5-BR8 were collected on July 2, 2002. The

samples were preserved as per standard sampling protocol and then analyzed for the following parameters:

- *General chemistry* (Temperature, pH, conductivity, alkalinity, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), and Total Organic Carbon (TOC)
- *Major ions* (calcium, magnesium)
- *Nutrients* (nitrogen (as NH_3 + NH_4), nitrates, nitrites, Total Kjedahl Nitrogen (TKN), and Total Phosphorus)
- *Trace Metals.*

The results of the sample analyses are summarized in Table 3.1 and discussed below based on a comparison with provincial and federal water quality objectives and guidelines.

3.3.1 General Chemistry

Measurements of pH varied between 7.09 and 7.32 with an average value of 7.15. A pH of <7 is considered acidic, a pH of 7 is considered neutral and a pH of >7 is considered basic. The highest value was recorded at Blind River at the inflow to Lake Huron. All values were within the range of values set out for aquatic life for both Provincial Water Quality Objectives (PWQO) and the Canadian Water Quality Guidelines (CWQG).

Water temperatures measured at the eight sampling sites during the summer ranged between 20.0 and 27.2°C. Temperatures that were recorded in the downstream reaches of the watershed were generally higher than those recorded in the upper reaches. This is likely due to the greater exposure to sunlight and sections of shallow waterbodies as the water flows downstream. Additional water temperature data for Matinenda Lake, Canoe Lake, and Lake Duborne is included in Appendix B.

Conductivity measurements ranged from 24 to 39 µS/cm. This range is considered acceptable for this region.

Alkalinity values varied between 6.8 and 14.0 mg/L $CaCO_3$. These values fall below the range for Ontario Drinking Water Objectives (ODWO) of 30 to 500 mg/L $CaCO_3$, an indication of the poor buffering capacity of this water.

Total dissolved solids for the eight sampling sites ranged between 16.0 and 25.0 mg/L. The highest value was recorded at the downstream site where the Blind River empties into Lake Huron. The values were well below the ODWO value of 500 mg/L.

Total suspended solids varied between 0.5 and 2.6 mg/L. Again, the highest value was recorded at the Station 8, where the Blind River empties into Lake Huron downstream of the Town of Blind River. This value likely reflects the sediment load washoff from nearby streets and sidewalks.

Figure 3.2
Blind River Water Management Plan
Water Quality Sampling Locations

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Table 3.1
Surface Water Quality Assessment and Comparison with Relevant Objectives And Guidelines

		Sample Site and Sample Number								Water Quality Standards				
General Chemistry		**BR1-02 C95525-0001**	**BR2-02 C95525-0002**	**BR3-02 C95525-0003**	**BR4-02 C95525-0004**	**BR5-02 C95525-0005**	**BR6-02 C95525-0006**	**BR7-02 C95525-0007**	**BR8-02 C95525-0008**	**PWQO**	**ODWO**	**CWQG**		
Parameter	**Units**											**CAP**	**CLW**	**CIW**
pH		7.12	7.14	7.11	7.18	7.12	7.09	7.10	7.32	6.5-8.5	6.5-8.5	6.6-9.0		
Temperature	C	20.0	22.0	20.3	23.1	21.9	27.2	25.7	27.2					
Conductivity	µS/cm	26.0	24.0	25.0	28.0	25.0	25.0	25.0	39.0					
Alkalinity	mg/L $CaCO_3$	6.8	7.9	7.2	8.2	6.8	6.9	7.0	14.0		30-500			
Acidity	mg/L $CaCO_3$	0.92	n/a	0.92	n/a	0.91	n/a	0.99	n/a					
Total Dissolved Solids (TDS)	mg/L	17.0	16.0	16.0	18.0	16.0	16.0	16.0	25.0		500		500-3500	3000
Total Suspended Solids	mg/L	0.5	1.4	0.5	0.5	0.5	2.0	0.8	2.6					
Major Ions										**PWQO**	**ODWO**	**CWQC**		
Parameter	**Units**											**CAP**	**CIW**	**CLW**
Calcium	mg/L	2.84	2.97	2.80	3.04	2.82	2.89	2.85	4.65				1000000	
Magnesium	mg/L	.713	.659	.711	.809	.714	.740	.728	1.16					
Nutrients										**PWQO**	**ODWO**	**CWQG**		
Parameter	**Units**											**CAP**	**CIW**	**CLW**
Nitrogen; NH3 + NH4	mg/L	.002	.016	.002	.006	.002	.009	.007	.038	.02				
Nitrogen; nitrite	mg/L	.002	.002	.001	.002	.001	.001	.001	.003		10	.06		10
Nitrogen; nitrate + nitrite	mg/L	.093	.008	.080	.014	.076	.017	.030	.007		10			100
Total Kjeldahl Nitrogen (TKN)	mg/L	.16	.24	.16	.23	.16	.22	.21	.38		.15			
Total Phosphorus	mg/L	.006	.007	.004	.007	.004	.007	.006	.016	20				

Table 3.1
Surface Water Quality Assessment and Comparison with Relevant Objectives And Guidelines

		Sample Site and Sample Number								Water Quality Standards				
General Chemistry		**BR1-02 C95525-0001**	**BR2-02 C95525-0002**	**BR3-02 C95525-0003**	**BR4-02 C95525-0004**	**BR5-02 C95525-0005**	**BR6-02 C95525-0006**	**BR7-02 C95525-0007**	**BR8-02 C95525-0008**	**PWQO**	**ODWO**	**CWQG**		
Parameter	**Units**											**CAP**	**CLW**	**CIW**
Trace Constituents										**PWQO**	**ODWO**	**CWQG**		
Parameter	**Units**											**CAP**	**CIW**	**CLW**
Mercury	µg/L	.02	.02	.02	.02	.02	.02	.02	.02	0.2	1	0.1	3	
Aluminum	µg/L	20	31.2	10.3	22.7	9.04	20.4	13.7	37.2	75	100	5-100	5000	5000
Barium	µg/L	6.9	7.52	6.51	6.89	6.52	6.65	6.42	8.26		1000			
Beryllium	µg/L	.00396	.00884	.00364	.00689	.00103	.00364	.00201	.00916	11			100	100
Cadmium	µg/L	.165	.0628	.0617	.144	.268	.0209	.0621	.0995	0.1	5	0.017	80	5.1
Cobalt	µg/L	.13	.0519	.015	.798	.126	.0401	.268	.330	0.6				
Chromium	µg/L	.233	.196	.1	.252	.013	.0585	.13	.178	100	50	8.9	50	4.9
Copper	µg/L	.300	.399	.200	.352	.341	.300	.358	.558	1	1	2-4	500-5000	200-1000
Iron	µg/L	19.9	133	11.2	35.9	6.78	43.2	39	460	300		300		5000
Manganese	µg/L	2.56	24.9	2.38	7.51	1.73	10.3	6.33	37.8					200
Molybdenum	µg/L	.697	.697	.939	.778	.616	.778	.697	.939	10		73	500	10-50
Nickel	µg/L	.375	.214	.0426	.373	.042	.686	.216	.601	25		25-150	1000	200
Lead	µg/L	2.6	1.93	2.6	1.21	1.62	.486	2.09	3.95	5	10	1-7	100	200
Strontium	µg/L	12.3	11.7	12.2	13.0	12.2	12.6	12.4	17.1					
Titanium	µg/L	.117	.406	.468	.371	.0566	.38	.159	.932					
Vanadium	µg/L	.0269	.291	.0789	.0164	.0164	.291	.0269	.482	7			100	100
Zinc	µg/L	1.18	1.32	.828	6.65	1.25	1.00	1.04	1.45	20	5	30	50000	1000-5000

Notes:
PWQO = Provincial Water Quality Objectives, MOE 2002; ODWO = Ontario Drinking Water Objectives, MOE 2002; CWQG = Canadian Water Quality Guidelines, CCME 2002;
CAP = Criteria for Aquatic Life Protection; CIW = Criteria for Irrigation Watering; CLW = Criteria for Livestock Watering.
Shaded values represent exceedances of PWQO.
na = not available.

3.3.2 Major Ions

Calcium concentrations at the eight sampling sites varied between 2.82 and 4.65 mg/L. The only guidelines that exist for calcium are the CWQG for Livestock Watering. The values determined for the sites were well below the CWQG value of 1000 mg/L.

Magnesium levels at the eight sampling sites ranged between 0.659 and 1.160 mg/L. No surface or drinking water quality standards exist for magnesium.

3.3.3 Nutrients

Nitrogen (as NH_3 + NH_4) ranged from 0.002 to 0.038 mg/L with one sample being above the PWQO of 0.02 mg/L.

The eight nitrate sample sites ranged between 0.008 and 0.093 mg/L, which is well below the ODWO value of 10 mg/L. Nitrate concentrations in natural, uncontaminated water typically do not exceed 5 mg/L. Higher concentrations are often indicative of external sources of contamination such as fertilizers, municipal wastewater, and drainage from barnyards, feedlots or septic tanks.

Nitrite concentrations at the eight sampling sites ranged between 0.001 and 0.003 mg/L, which are well below the ODWO value of 10 mg/L and the CWQG value of 0.06 mg/L for protection of aquatic life.

Ammonia/ammonium levels at the eight sampling sites ranged between 0.002 and 0.038 mg/L. The PWQO value of 0.02 mg/L was exceeded at the site farthest downstream where the Blind River empties into Lake Huron.

Total Kjedahl Nitrogen (TKN) at the eight sampling sites ranged between 0.16 and 0.38 mg/L. This range of values exceeded the ODWO value of 0.15 mg/L; however this value is not health related.

Total phosphorus for the eight sampling sites ranged between 0.004 and 0.016 mg/L. No firm PWQO value is in place at the present time but to avoid nuisance algae concentrations average total phosphorus concentrations should not exceed 0.02 mg/L. None of the sampling sites had values above this level.

3.3.4 Trace Metals

The concentrations of the trace constituents measured in the samples were generally below the available PWQO. The exceptions were cadmium, cobalt and iron. Cadmium exceeded the interim PWQO value of 0.1 μg/L at Stations l, 4 and 5. Cobalt levels exceeded the PWQO value of 0.6 μg/L only at Station 4 where the value was found to be 0.798 μg/L. The PWQO value of 300 μg/L for iron was exceeded at Station 8. This station was the most downstream location in the sampling program.

3.3.5 Summary

In summary, laboratory analysis of water quality samples taken in early summer 2002 reflects watercourses that are slightly impacted by human activities with the downstream reaches showing the most impacts.

In all samples, organically bound nitrogen (TKN) was found in elevated concentrations. While this could be indicative of rural activities such as leaching of fertilizers, septic systems, etc, other nutrient levels would also be elevated if this were the case. Also, the watershed is sparsely populated and is not used for agriculture. These elevated TKN concentrations are, therefore, likely the result of soil erosion.

Elevated levels of trace metals including cadmium at Stations 1, 4 and 5, cobalt at Station 4 and iron at Station 8 pose no threat to humans for recreational purposes. Stations 4 and 8 were the two most downstream stations and elevated concentrations of trace metals, Total Dissolved Solids, Total Kjedahl Nitrogen, ammonia/ammonium as well as pH and temperature are likely the result of a cumulative increase in the level of human activities at the downstream end of the watershed.

3.4 Bathymetry

Bathymetric mapping previously available for Matinenda Lake, Chiblow Lake, Little Chiblow (Denman) Lake and High Lake is included in Appendix C. During this water management planning exercise, new bathymetric mapping was undertaken for Canoe Lake, Lake Duborne and the lower Blind River and is also included in Appendix C. See Section 7.2.5 for information on the technique used for recent bathymetric mapping.

4 SOCIOECONOMIC DESCRIPTION AND PROFILE

4 Socioeconomic Description and Profile

4.1 General

4.1.1 First Nations

Part of Mississauga Village is situated along the shores of the Blind River. The members of this community are very closely connected to the river. Many community members reside on the shores of or very close to the Blind River. Some residents draw water directly from the river for household use.

A Land Claim Settlement that includes areas along the Blind River is presently in the final stages of completion. There are also ongoing negotiations for flooded lands in the Blind River among the federal and provincial governments and Mississauga First Nation.

Mississauga First Nation is located 5 km west of Blind River on Highway 17 in the District of Algoma. Mississauga has several variations in spelling, and means “river in the north of many mouths” in Ojibiway. The population consists of 463 persons living on reserve, and 501 living off reserve (Mississauga First Nation website). The landbase consists of 1977.2 ha. A map showing the extent of the First Nations lands is shown in Figure 4.1. This area includes part of the shoreline of Little Chiblow Lake, much of the shoreline of Chiblow Lake, part of the shoreline of Matinenda Lake, parts of the Blind River shoreline, and all the shoreline of High, Canoe and Cataract Lakes. All land surrounding both the Chiblow Lake GS and the Canoe Lake GS is First Nation land.

In the 1994 Settlement Agreement the Mississauga First Nation temporarily excluded titles to the lands occupied by the Canoe Lake GS until December 31, 2037. At this time the transfer of the administration and control of these lands shall be transferred to Canada to be formally set apart as reserve lands for the use and benefit of Mississauga.

The titles to the lands occupied by the Chiblow Lake GS were also temporarily excluded from the 1994 Settlement Agreement, until February 28, 2043 in this case. At this time the transfer of the administration and control of these lands shall be transferred to Canada to be formally set apart as reserve lands for the use and benefit of Mississauga.

The dates for the transfer of these lands coincide with the termination dates of the existing respective Water Power Lease Agreements (WPLAs). The Canoe Lake GS operates under WPLA 154. This WPLA originated in 1996, and will terminate December 31, 2037. The Chiblow Lake GS operates under WPLA 153, which was originated in 1996 and will terminate February 28, 2043.

4.1.2 Resident Community Profiles

Details on permanent and seasonal residents in the Blind River Watershed are provided by lake and river section in Sections 4.2 to 4.6.

4.1.3 Hydroelectric Power Generation

Hydroelectric power generation is an important socioeconomic activity on the Blind River system. These facilities are described in more detail in Section 5.

4.1.4 Angling

Angling

An aerial creel survey was done on a set of lakes in the Blind River watershed during 2001 by MNR as part of a regional lake trout initiative. Lake trout lakes within the Blind River system were included in this survey, including Matinenda, Duborne, Little Chiblow, Chiblow and Canoe Lakes. Survey days were selected at random to determine weekday and weekend angling pressure. Preliminary results for these lakes are presented in the tables below.

Table 4.1
Aerial Creel - Summer Months
(Weekends - 2001)

Lake	Average Number	Variance	Estimated Effort Weekends (hr)	Estimated Effort Season (hr)	Area (ha)	Estimated Effort (angler hr/ha)
Duborne	2.00	4.89	3,248.00	10,192.00	933.2	10.92
Matinenda	9.30	24.46	15,103.20	39,841.20	3,566.6	11.17
Chiblow	8.10	74.99	13,154.40	29,212.40	2,087.8	13.99
Little Chiblow	1.90	3.88	3,085.60	5,255.60	637	8.25
Canoe	0.40	1.60	649.60	4121.60	169	24.39

Table 4.2
Aerial Creel - Summer Months
(Weekdays - 2001)

Lake	Average Number	Variance	Estimated Effort Weekends (hr)	Estimated Effort Season (hr)	Area (ha)	Estimated Effort (angler hr/ha)
Duborne	2.00	7.43	6,944.00	10,192.00	933.2	10.92
Matinenda	7.13	25.55	24,738.00	39,841.20	3,566.6	11.17
Chiblow	4.63	17.70	16,058.00	29,212.40	2,087.8	13.99
Little Chiblow	0.63	1.13	2,170.00	5,255.60	637	8.25
Canoe	1.00	1.43	3,472.00	4,121.60	169	24.38

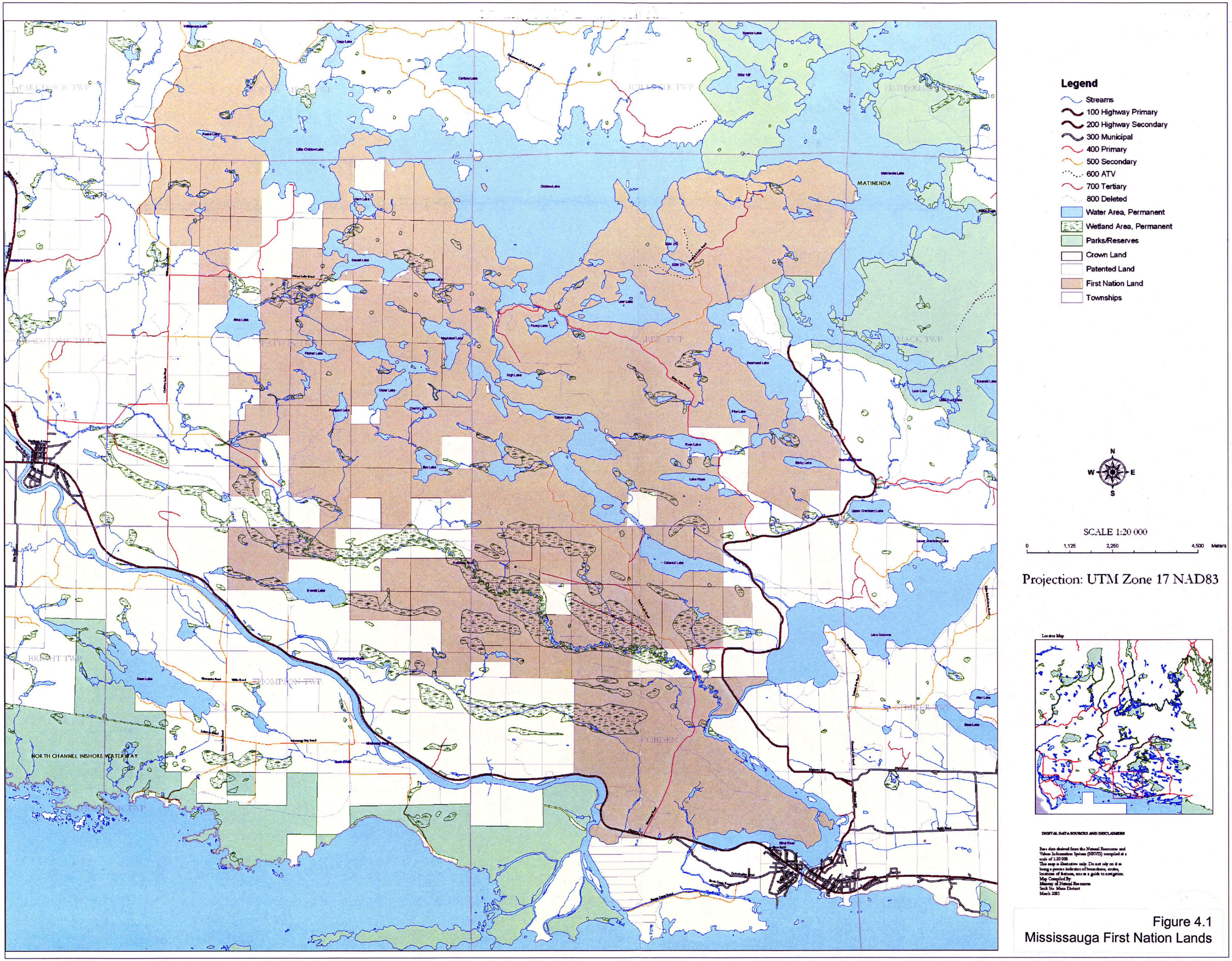

Figure 4.1
Mississauga First Nation Lands

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Table 4.3 Aerial Creel - Winter Months (2002)				
Lake	**Average Number**	**Estimated Effort Season (hr)**	**Area (ha)**	**Estimated Effort (angler hr/ha)**
Duborne	0	0	933.2	
Matinenda	.454	1,574.9	3,566.6	0.44
Chiblow	Closed	0	2,087.8	0
Little Chiblow	Closed	0	637	0
Canoe	0	0	169	0

Baitfish Harvesting

The entire WMP planning area is included within registered baitfish harvest areas, or falls within the lands of the Mississauga First Nation. A summary of baitfish harvested within the planning area is listed in Table 4.4. The baitfish harvest summaries include entire townships within the planning area, and therefore may not have been harvested from the study lakes. These numbers are presented primarily to reflect the local economic importance.

Table 4.4 Baitfish Harvest Summary			
	Minnows (dozens)	**Crayfish (dozens)**	**Suckers (dozens)**
1999	5270		
2000	6069		
2001	6228	32	998
2002	8457	70	624

4.1.5 Hunting and Wildlife

The entire Blind River watershed falls within MNR Wildlife Management Unit 37. Within this unit there are open seasons for migratory birds, small game, deer, bear and moose. Elk were reintroduced to the area in April 2001, and are present in small numbers. There is no open season for elk in Ontario. Hunting is popular during the open seasons. The main species sought are grouse, deer, bear and moose. Moose and bear hunting are of particular importance for tourist operators.

Bear Hunting

A Bear Management Area (BMA) allows the operator exclusive use of these areas for outfitter based hunters. In 2002 there were 31 export permits for bear issued to non-residents out of the local MNR office. This number could include bear outside of the study area, and permits may have been issued at other locations for animals taken in this area. It also does not include any bear harvested by resident hunters. A major change to the season for hunting of bear in 1999 has required time for the industry to adjust.

There is one BMA within the WMP planning area. The remaining area falls within the Mississauga First Nation. There have been some changes in the allocation of this BMA recently, which should be resolved by early 2004. No hunts were conducted by a BMA operator within the plan area in 2001 and 2002. In 1999 there were 7 hunters and 2 bear harvested. In 2000 there were 16 hunters and 6 bear harvested.

4.1.6 Trapping

There are currently four trap line areas within this WMP study area. Species trapped include beaver, marten, mink, otter, bobcat, muskrat, weasel, fox, wolf, coyote lynx, and fisher. Of the furbearing species, beaver numbers are most readily affected by water level fluctuations. Winter drawdowns result in exposure of beaver lodges and feed beds, usually resulting in mortality. Total harvest summaries for the registered traplines within the planning area are listed in Table 4.5.

4.2 Matinenda Lake

4.2.1 Access

There is only one public access point to Matinenda Lake located at the south end of the lake, at the end of Highway 557. This access point is operated by the Town of Blind River and a tourist lodge. The Town of Blind River entered a partnership with the lodge and MNR to operate the access point to Matinenda Lake, beginning in the summer of 2002. The Town provides staff at this location to assist boaters.

4.2.2 Shore-Based Businesses

The lodge at the access point is the largest business on Matinenda Lake with boat rentals, a campground, accommodations, tavern and dock shop. This lodge has a Land Use Permit for a waterlot for docks. This business operates year round, catering to snowmobile anglers and snowmobile trail riders during the winter months.

Another tourist establishment, a smaller seasonal family run business with cabins and boat rentals, is situated in the south basin of the lake and has water access only.

4.2.3 Residential Use

There are 218 privately owned properties on Matinenda Lake. Of these, 212 are seasonal residences, and six are permanent residences. A large number of these properties are owned by residents of the United States. All of these properties are accessible by water only, which elevates the importance of water levels to these property owners.

Table 4.5
Blind River System Furbearer Harvest Summary

Year	Beaver	Mink	Marten	Otter	Fisher	Lynx	Bobcat	Muskrat	Raccoon	Red Squirrel	Weasel	Colored Fox	Timber Wolf	Coyote
2002	86	6	6	5	0	0	2	8	5	0	1	2	4	2
2001	143	9	12	4	6	0	5	31	1	0	5	2	1	0
2000	91	5	1	0	0	0	0	7	0	0	1	0	0	0
1999	61	6	12	5	0	0	0	9	0	2	4	1	0	0
Average	95	7	8	4	2	0	2	14	2	1	3	1	1	1

4.2.4 Matinenda Cottage Owners Association

This association is very active on Matinenda Lake. Annual meetings are held, and newsletters are published. There are approximately 100 property owners represented in the association at present. In recent years this number was over 160. Average attendance for Cottage Owner's Association meetings is 50 members (pers. comm. President of Matinenda Lake Cottage Owners Association).

The Association has made several recommendations over past years to MNR related to water levels in Matinenda Lake. In past years shoreline erosion in some sections of the lake associated with high water levels has been an issue raised during annual meetings. The membership has found the levels during 2002 satisfactory. The recommendations of this association have been incorporated into Option 2 of this WMP.

The Association has limited records for Matinenda access point use. During June of 2002 access point use averaged 26 users per day, with 6 of the users being non-residents.

4.2.5 Angling

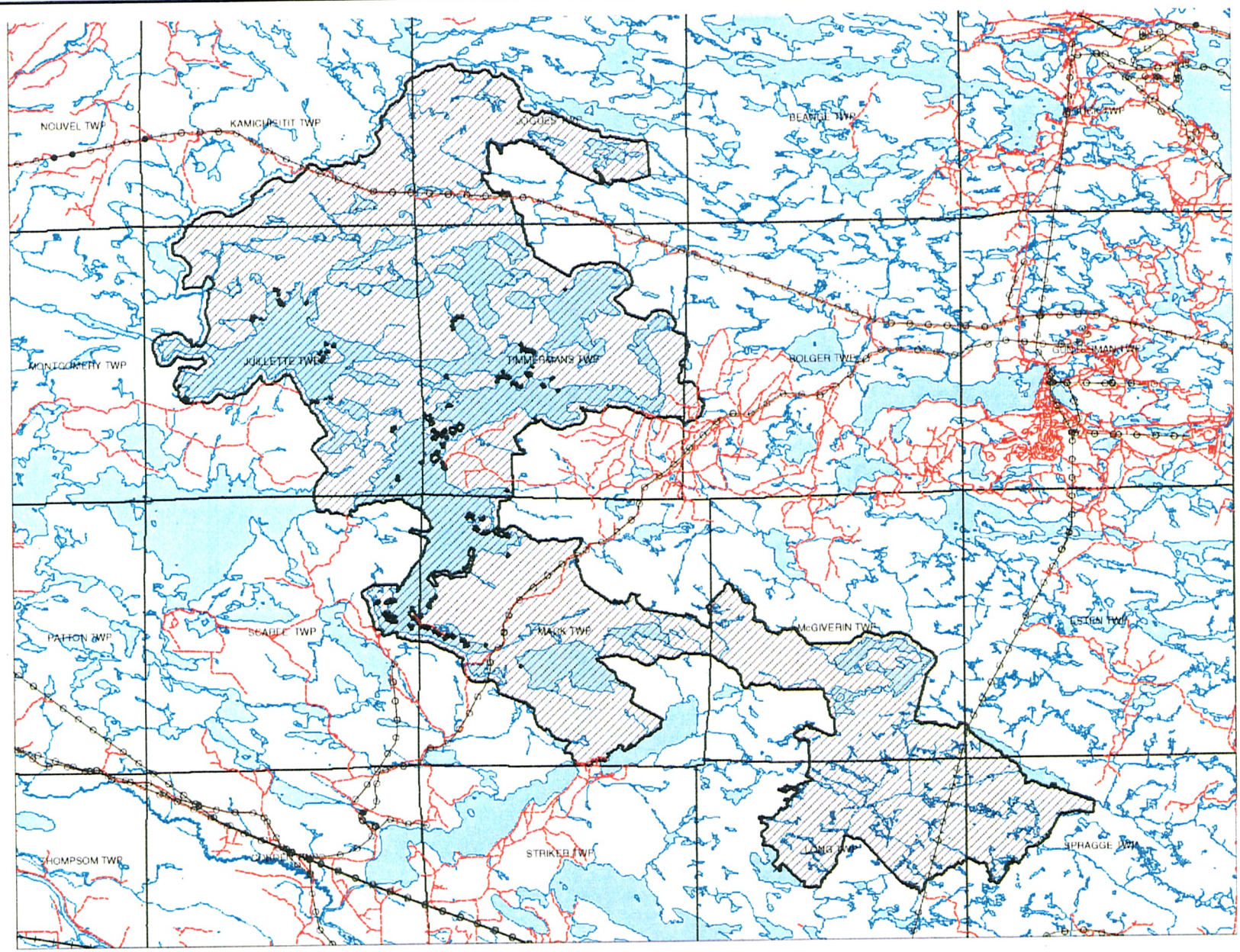
Matinenda Lake supports an important native lake trout fishery. The lake trout fishery has always drawn numerous anglers to the lake. A record 22 kg (49 lb) lake trout, measuring 122 cm (48 in) long and 71 cm (28 in) girth, was caught on July 14, 1988.

Smallmouth bass are also sought by many anglers. Other game fish species present are northern pike, lake whitefish, and yellow perch.

4.2.6 Parks and Protected Areas

4.2.6.1 Matinenda Lake Natural Environment Provincial Park

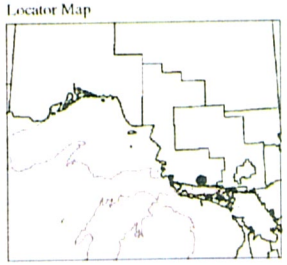
The 29 417 ha Matinenda Lake Natural Environment Provincial Park was regulated as a park (P221) in 2003. This park encompasses all of Matinenda Lake and areas to the east and north, but does not include any other lakes within the WMP area (see Figure 4.2). This park includes the Matinenda Pine-hemlock and Matinenda Jack Pine Barrens/Peak Lake Pine Hemlock natural heritage areas. This status provides restriction on permitted uses within the park area. Commercial timber harvest, mineral exploration and mining, and aggregate extraction are not permitted. Other traditional uses such as fishing, hunting, and existing camps and properties will continue.



Approved Boundary
Public Notification Map
Matinenda
Provincial Park
(Natural Environment Class)
P221

- Matinenda Provincial Park
- Forest Reserves
- Existing Protected Areas
- Lakes
- Streams
- Lot Lines
- Townships
- Roads
- Utility Lines
- Railroad Tracks

Locator Map



This map is illustrative only. Do not rely on it as being a precise indicator of routes, locations of features, nor as a guide to navigation.

This map is not a legal survey. For a more precise description of the boundaries of this provincial park, refer to the plan known as P221, Matinenda Provincial Park, filed on the 7th day of June, 2003 in the office of the Surveyor General, Ministry of Natural Resources.

Published June 2003

Basedata Source:
MNR DISTRICT NRVIS Database, 2000
Scale 1:126000

Figure 4.2
Ministry of Natural Resources
Blind River Water Management Plan
Matinenda Provincial Park

Back of figure

4.2.6.2 Blind River Waterway Provincial Park

The Blind River Waterway Provincial Park includes approximately 75 km of the Blind River and its tributaries, starting at the inflow to Matinenda Lake and continuing upstream to the headwaters. This entire park is outside of the WMP planning area. The falls at the inflow to Matinenda Lake are included within this park.

4.2.7 Other Recreational Uses

Snowmobiling
Snowmobile trails in the area are shown in Figure 4.3. The snowmobile season extends from late December to the end of March. Matinenda Lake is used extensively by snowmobilers. Winter lake access by snowmobile using groomed trails, is available at the end of MacDonald's Bay and from Loon Lake to the south access point on Matinenda Lake. The groomed trails in this area are maintained by the Blind River Snow Riders, which is an affiliate of the Ontario Federation of Snowmobile Clubs (OFSC). The number of season trail passes sold locally has varied between 280 and 450 in the past 2 years (pers. comm. OFSC).

Open Water Season Recreational Use
Matinenda Lake is used extensively for recreational purposes such as canoeing, boating, swimming, and water skiing. Tourists and residents enjoy scenic viewing and nature watching as well.

Ontario Provincial Police records of boat checks on Matinenda Lake indicate an average of 15 boat contacts per patrol during July 2003.

4.3 Chiblow Lake

4.3.1 Access

There are two summer access points to Chiblow Lake, one at a lodge on Little Chiblow Lake and the other at the southeast end of the lake. Both access points are owned and controlled by the Mississauga First Nation.

4.3.2 Shore-Based Businesses

A tourist lodge owned and operated by Mississauga First Nation is the only operating business on Chiblow Lake. This lodge depends heavily on the Chiblow Lake fishery for its clientele. Plans are being developed to replace the main lodge building but there are presently no other development plans for this lodge or Chiblow Lake.

4.3.3 Angling

Little Chiblow and Chiblow Lake are frequently used for lake trout and smallmouth bass fishing. Both lakes are closed to fishing from October 1st each year to the following April 26.

4.3.4 Residential Use

There are two residences occupied year round, and approximately 20 seasonal residences on Chiblow Lake and Little Chiblow Lake. Many of these residences are situated within the Mississauga First Nation Reserve, and many of the property owners are residents of the United States.

4.4 Canoe Lake

4.4.1 Access

There is one main access point to Canoe Lake. This access is within the lands of the Mississauga First Nation.

4.4.2 Shore-Based Business

The only business operating on Canoe Lake is the Canoe Lake Generating Station.

4.4.3 Residential Use

There is one permanent resident on Canoe Lake and one seasonal residential property on Canoe Lake. The property owners on Canoe Lake have reported improved level control since operation of the generation facility began.

4.4.4 Angling

Fish species present in Canoe Lake include northern pike, walleye, smallmouth bass, rock bass, brown bullhead, lake herring, lake whitefish, yellow perch, rainbow smelt and common white sucker. The main species fished are smallmouth bass, northern pike and walleye. The lake trout population in Canoe Lake is very small.

4.5 Lake Duborne

4.5.1 Access

There is no public access point on Lake Duborne. There is public access to Lake Duborne by boat from public access points on the lower Blind River.

4.5.2 Shore-Based Businesses

There are three operating businesses on Lake Duborne. Two of these are tourist operators. One of these has cabin rentals, and operates remote outpost camps from a floatplane base at this location. The other tourist operator has cabin rentals, as well as camping and recreational vehicle sites. There is also a bible camp that operates year round.

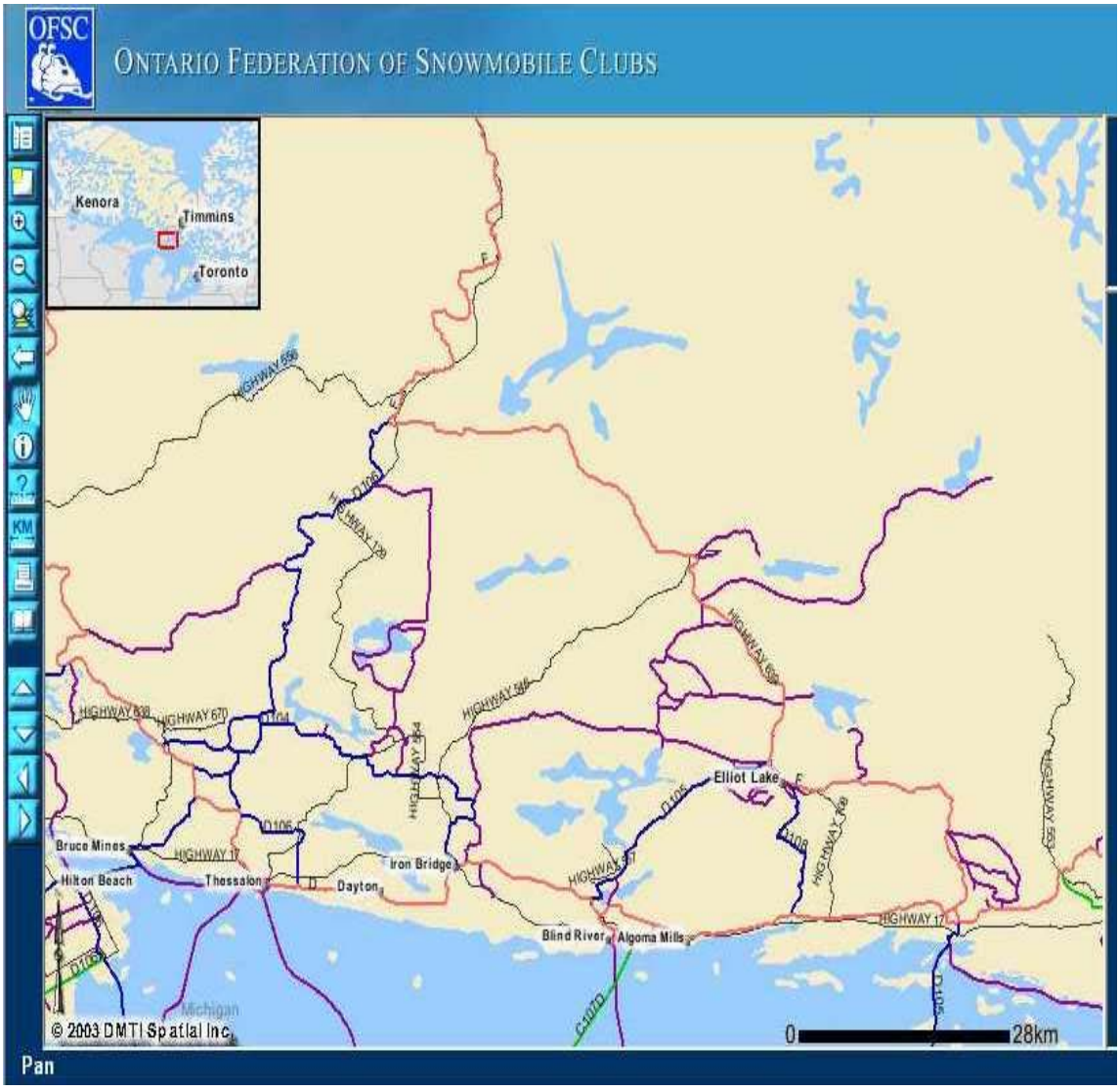


Figure 4.3
Snowmobile Trails in the Area

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4.5.3 Residential Use

There are 128 seasonal and 27 permanent residential properties on Lake Duborne. Almost all of these properties have road access. All of these residences have docks, and frequently travel on Lake Duborne and the lower Blind River. Many of them also draw water from the lake for household use, or have wells that are influenced by water levels.

4.5.4 Angling

Lake Duborne has several sport fish species, including lake trout, walleye, northern pike, smallmouth bass and perch. Downstream of Lake Duborne to the Blind River Dam the fishery is primarily northern pike and smallmouth bass, with some walleye.

4.5.5 Other Recreational Uses

Open Water Season Recreational Uses
The large number of residents on Lake Duborne results in extensive use being made of the water mainly during the summer months for activities such as boating, water skiing, and paddling.

Snowmobiling
Lake Duborne is used extensively for snowmobiling. Three OFSC trails converge on Lake Duborne. These trails are marked and have signage, and are maintained by the Bind River Sno-Riders, which is the local chapter of the Ontario Federation of Snowmobile Clubs.

4.6 Town of Blind River and the Lower Blind River

4.6.1 Town of Blind River

The Town of Blind River is located on the Trans-Canada Highway (Highway 17), 140 km east of Sault Ste. Marie in the District of Algoma. Blind River was incorporated May 14, 1906 and has a population of 3963 (2001 Census).

4.6.2 Access and Facilities

There are three public access points to the Blind River downstream of Lake Duborne. Two of these are maintained by the Town of Blind River. There are also four municipal parks, two secondary schools and a First Nation “Pow Wow” ground along this section of river.

4.6.3 Residential Use

There are 9 seasonal and 92 permanent residential properties along the lower Blind River. Virtually all of these residents have docks and frequently travel on the Blind River system.

4.6.4 Shore-Based Businesses

There are eight businesses along the shore of the Blind River between Lake Duborne and the Blind River dam. Three of these are shore-based businesses. These include a bed and breakfast/spa, a tavern, and an outpost camp tourist operator. Bed and breakfast/spa clientele use the water frontage for recreational use. The tavern has several docks available for patrons. The tourist operator uses this property as a floatplane base for several aircraft. This location is shallow and weedy making it easily affected by water level fluctuations. During low water level conditions the aircraft moorage at this location can become unusable.

There is limited agricultural activity in close proximity to the river. There is a stable/kennel situated on the Potomac River that is a tributary of the Blind River.

4.6.5 Municipal Water Supply

The MOE requires a Permit to Take Water for any user of more than 50,000 L/d. The Town of Blind River is the only registered permit holder drawing water from the Blind River.

The Municipal water supply is a well field directly adjacent to the river, upstream of the Blind River Dam. Each well in the well field is located within 20 m of the Blind River and the wells obtain a significant portion of their water from the river. The Trow Report (Trow, 2002), that was done to study the Blind River municipal water supply, indicated that the recharge of the municipal well field is primarily induced by the Blind River.

The Town of Blind River also had a Municipal Groundwater Study conducted in 2002 (Harden, 2002). One of the main purposes of this study was well source water identification and protection. The total allowable taking of water by the Town of Blind River is 4,671,283 m^3/d. The maximum allowable greatly exceeds the potential recharge of the aquifer estimated at 207,000 m^3/d. If the municipal system is run at capacity, only 5% of the water could be derived from groundwater, with remaining drawn from the Blind River (Harden, 2002).

The Town of Blind River began construction of a new water treatment facility in 2005. The source water supply has not been changed.

4.6.6 Economic Development Plans

There have been few recent development proposals for the Town of Blind River. A proposal for a trailer park at the north end of the Town of Blind River, along the

shores of the Blind River has been put forward. There was also a proposal for a strawberry farm in the same area.

4.6.7 Angling

Many locals and First Nation members fish in the lower Blind River and West Arm. The main species present is pike, with some smallmouth bass and walleye.

4.6.8 Other Recreational Uses

Open Water Season Recreational Uses
The proximity to the Town of Blind River makes the lower Blind River popular for summer uses such as swimming, boating, and paddling. The Blind River up to and including Lake Duborne is a navigable waterway, and as such has channel markers maintained by the Department of Fisheries and Oceans. There are sections of the river channel that are shallow (approximately 1 m) enough to allow navigability to be affected by low water levels.

Snowmobiling
The lower Blind River is used extensively for snowmobiling during the winter months. Part of the river is used as a main corridor to connect to OFSC trails. The trails on the river are marked, but not maintained. Ice safety on this section of trail is readily affected by changes in flows and levels.

5 WATER POWER FACILITIES AND OTHER WATER CONTROL STRUCTURES

5 Water Power Facilities and Other Water Control Structures

5.1 Waterpower Companies and Facilities

There are three hydroelectric facilities on the Blind River, two of which are owned and operated by 1149377 Ontario Limited (Chiblow and Canoe/Scarfe Lake Generating Stations) while the Town of Blind River owns the other plant.

5.1.1 1149377 Ontario Limited

The company owns two run-of-river hydroelectric generating stations on the Blind River, which they purchased in 1996 from an ownership group that included Algonquin Power Systems Inc. Hatch Energy operates and maintains these facilities under contract.

The Chiblow Lake GS is located near the outflow of Chiblow Lake, approximately 17 km northwest of the Town of Blind River. This 1450 kW (1.45 MW) station was constructed in 1992-1993, and consists of a concrete dam (owned by MNR and operated by Acres), and a 580 m long, steel overland penstock, with a diameter of 2.4 m, which leads to the GS. The powerhouse contains a single turbine with a rated flow capacity of 13.0 m^3/s. Discharge from the station passes into the northern end of High Lake.

The present Chiblow Lake dam was originally built in 1954. In the early 1950s the original dam failed, which caused the Canoe (Scarfe) Lake dam to fail, and also destroyed the Canoe (Scarfe) GS. Shortly after, the Ontario Department of Lands and Forests (now MNR) erected a new concrete water control dam at the old dam site on Chiblow Lake.

The Canoe (Scarfe) Lake GS is located at a natural steep outlet from Canoe Lake (also known as Scarfe Lake). This 2000 kW (2.0 MW) station, constructed in 1986-1987, is approximately 13 km north of the Town of Blind River. The plant consists of a concrete dam with three spillway bays, a 19 m long overflow section and two intakes connected to steel penstocks, which run approximately 150 m to the powerhouse. The powerhouse contains two Francis turbines, each with a rated flow of 5.2 m^3/s, that discharge into Cataract Lake.

The Canoe Lake dam controls a drainage area of 594.4 km^2. This site had been used to provide hydroelectric power to the Town of Blind River as early as 1914. The Deagle family of Blind River operated the facility from the mid 1930s until the mid 1950s. The GS was destroyed when the dam at Chiblow Lake failed and washed out the Canoe (Scarfe) Lake) dam as well.

5.1.2 Town of Blind River

The Town of Blind River is located on the north shore of Lake Huron, approximately 140 km east of Sault Ste. Marie. The town was incorporated in 1906 and has a population of about 3600 persons.

The Town of Blind River operates two 50 kW units as a 100 kW hydroelectric GS on the Blind River, located within the Town of Blind River approximately 300 m upstream of the Blind River outlet into the North Channel of Lake Huron. The hydro station utilizes head potential created by the Blind River Dam, which is owned by MNR and operated by the municipality.

5.2 Water Control Structures

The four dams in the Blind River watershed are generally operated according to procedures identified in the *Blind River Watershed Study* (MNR 1994). The dams are operated for a number of purposes including power production, spring flood control, fisheries protection and recreation.

5.2.1 The Matinenda Lake Dam

The Matinenda Lake Dam is located at the west side of Matinenda Lake in Scarfe Township, and controls a drainage area of 467.4 km^2. The dam was originally built as a timber structure for log-driving purposes but was last used as such around 1920. It has been replaced several times, the latest occurring in 1984 when the MNR rebuilt the dam as a 2.9 m high reinforced concrete gravity structure with two 4.27 m wide stop-log sluiceways, each with a maximum of five stop logs, and a 30 m long overflow wall.

5.2.2 The Chiblow Lake Dam

The Chiblow Lake dam, originally constructed in the 1950s, is a concrete dam that consists of two centrally located spillways equipped with wooden stop logs, with wing walls extending to shore on both sides of the spillways. This dam controls a drainage area of 554.2 km^2. The easternmost spillway discharges through another stop log equipped bay and then directly into the Chiblow Lake GS intake pipe. While the dam is owned by MNR, 1149377 Ontario Ltd. operates the structure according to the defined operating procedure for the Chiblow Lake GS. The dam has a head of 2.7 m, a maximum height of 3.9 m and a length of approximately 37 m. The maximum flow capacity at Chiblow Lake Dam is 85.9 cms.

5.2.3 Blind River Dam

The Blind River Dam is located on the section of the Blind River that flows through the Town of Blind River immediately upstream of its outflow to Lake Huron. The watershed area for this dam is 1051.9 km^2, of which 583.9 km^2 is the drainage between the Blind River Dam and the Matinenda Lake Dam. The original Blind River Dam was built more than 100 years ago on private land to operate a sawmill. The first concrete structure was built in 1939 and was operated by the Town of Blind River until 1966 when the Province of Ontario agreed to take it over. The dam was rebuilt in the year 1974 by the MNR as a concrete structure with moveable winches on rails. During the 1974 reconstruction a fish slide was replaced with a fifth control gate. Since its construction, the Blind River Dam has seen major renovations with the addition of a generating facility (1998), an overflow gate in the right (west) bay (1998) and concrete rehabilitation (1999).

The Town of Blind River operates a small hydroelectric generating station adjacent to this dam. The dam consists of three stop-log sluices, one mechanical gate, and a small two unit (2 x 50 kW) generating facility owned and operated by the Town of Blind River. The Blind River Dam has a maximum height of 4.9 m, a maximum head of 3.7 m, and a length of 45.6 m. The stop-log gates are 4.3 m. The power generated by the station is sent to municipal buildings located on Martin and Hudson Streets. This structure affects head-pond water levels upstream to Duborne Lake.

5.3 Current Operating Parameters

Existing target operating ranges (rule curves) for Matinenda Lake, Chiblow Lake and Canoe (Scarfe) Lake are shown in Appendix D.

5.3.1 Matinenda Lake

Historic average, maximum and minimum water level information for Matinenda Lake since 1975, is summarized in Figure 5.1. The historical monthly average water level over the 28 year period varies from a low of 234.80 m CGD (0.55 m gauge) in February to a high of 0.885 m 235.138 m CGD (0.89 m gauge) in March, while the minimum water level of 234.42 m CGD (0.17 m gauge) was recorded in October.

Historically, an average water level of slightly over 234.85 m CGD (0.66 m gauge) has been maintained throughout the summer months. A slight drawdown beginning in the fall and reaching its lowest level in February is evident. As the spring freshet fills the lake, the long-term maximum is seen in March. The lake then gradually returns to summer levels through May and into June (Table 5.1). The average monthly water level fluctuates approximately 0.651 m over the period of historic records.

Table 5.1
Matinenda Lake Dam Operation Plan

	Gauge Level (m)			Elevation (m CGD)	
	Min	**Max**	**Target**	**Min**	**Max**
Jan	0.54	0.60	0.57	234.79	234.85
Feb	0.51	0.57	0.54	234.76	234.82
Mar	0.48	0.54	0.51	234.73	234.79
Apr	0.60	0.66	0.66	234.85	234.91
May	0.60	0.66	0.66	234.85	234.91
Jun	0.60	0.66	0.66	234.85	234.91
Jul	0.60	0.66	0.66	234.85	234.91
Aug	0.60	0.66	0.66	234.85	234.91
Sep	0.60	0.66	0.66	234.85	234.91
Oct	0.60	0.66	0.66	234.85	234.91
Nov	0.57	0.63	0.63	234.82	234.88
Dec	0.54	0.60	0.60	234.79	234.85

There have been three main factors considered in establishment of the water levels for Matinenda Lake. These are the spring freshet, summer levels for recreation and seasonal residences, and fall and winter levels for lake trout spawning and egg incubation.

Four stop logs are available for each gate. The average total logs in the dam (including both gates) ranges from an average high of 7.6 in June to a low of 2.0 in March. Based on the historical records typically all four logs are kept in both gates from early to mid-May until September. During this period one or two logs may be pulled to adjust water levels on Matinenda Lake.

Drawdown for the winter minimum begins after the Labour Day weekend and is accomplished by October 15 to allow the lake trout to spawn in late October. Normal operating practice is to remove six stop logs from the dam in October. It is desirable keep the lake above the October drawdown level over the winter to prevent the exposure of eggs from lake trout that have spawned on the shallow shoals. The operating plan for this dam allows for up to 0.15 m in water level reduction below the potential spawning level. This potential maximum difference should still not affect lake trout eggs, as lake trout are not known to spawn at less than 0.20 m deep. However, the best practice is to avoid allowing winter levels to drop into this range. Logs are replaced in the dam during April to early May once the spring freshet passes. This brings the dam back to its full compliment of eight logs for the summer.

Tourism and recreational uses of Matinenda Lake are considered to be very important. In addition to having a large number of seasonal residences, and two operating and two presently closed tourist operations, the lake is heavily used for recreational purposes and angling.

There are no specified minimum flow releases for Matinenda Lake, at any time of the year. The primary consideration in the operation of this dam has been to maintain stable summer water levels. A section of river approximately 1 km in length, between Chiblow Lake and the Matinenda Lake Dam, is partially dependent on discharge from this dam. This section of river is relatively flat, consisting of a boulder, stone and gravel substrate. Only the section of river immediately downstream of the dam for approximately 100 m is not affected by the level of Chiblow Lake.

5.3.2 Chiblow Lake

The Chiblow Lake Generating Station is operated as a “run-of-the-river” plant. Depending on inflows, the plant has the capacity to closely regulate the lake water levels through the use of computer controls that sense the lake levels and adjust the flows through the plant appropriately. When flows are above the capacity of the plant, then stop logs are pulled from the dam structure to release additional water.

Measurement of the lake level is accomplished at the top of the wing wall where MNR has installed a metre gauge. A reading of 1.0 m is the top of the wing wall and a reading of 0 m on the gauge corresponds to an elevation of 232.16 m CGD.

During the summer season, as shown in Appendix D, the lake is generally held between levels of 231.76 m CGD (0.60 m gauge) to 232.96 m CGD (0.80 m gauge) to allow for recreational activities. Drawdown for the winter minimum begins after the

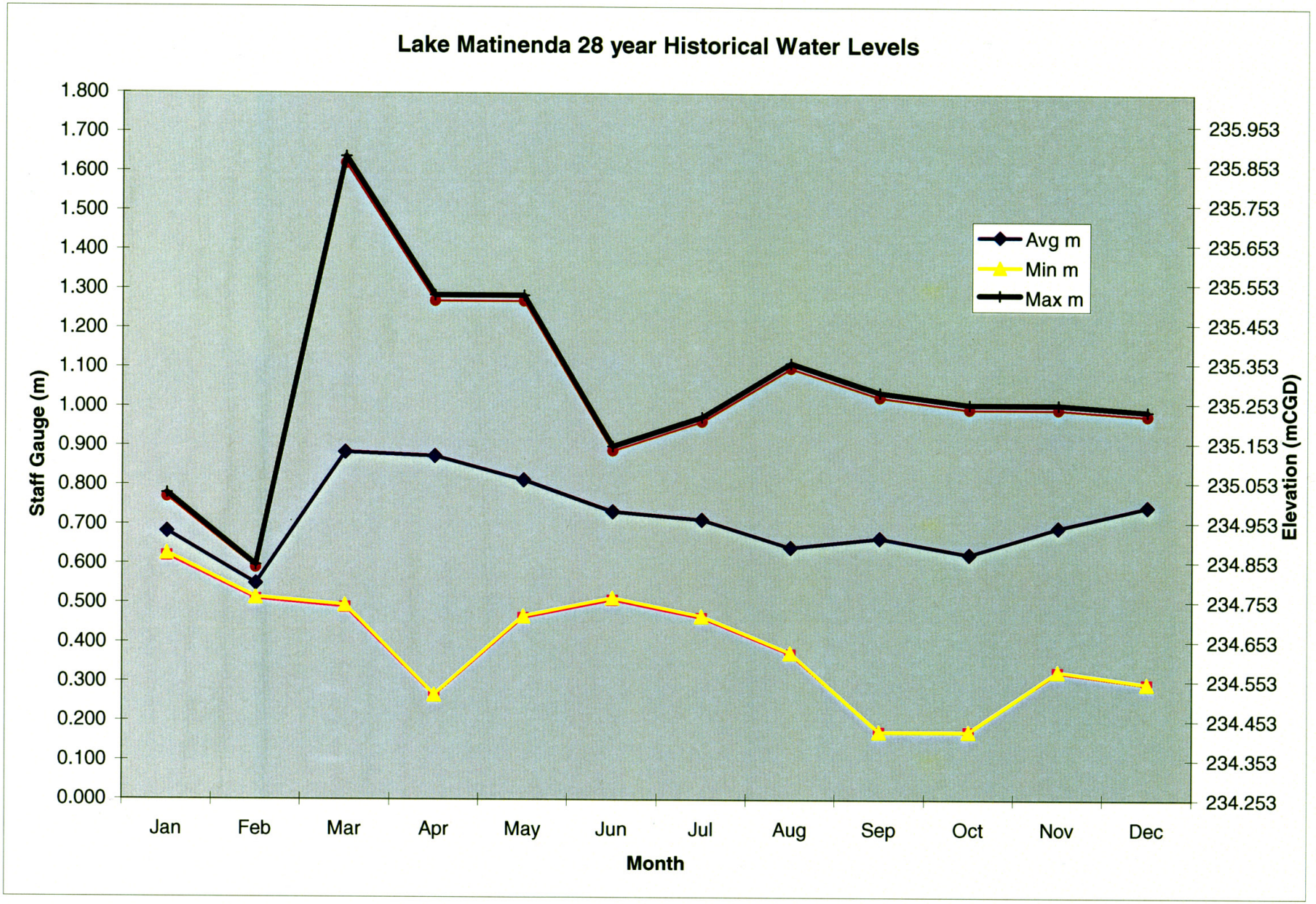

Lake Matinenda 28 year Historical Water Levels
Staff Gauge (m)
1.800
1.700
1.600
1.500
1.400
1.300
1.200
1.100
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
Elevation (mCGD)
235.953
235.853
235.753
235.653
235.553
235.453
235.353
235.253
235.153
235.053
234.953
234.853
234.753
234.653
234.553
234.453
234.353
234.253
Avg m
Min m
Max m
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

Figure 5.1

Back of figure

Labour Day weekend and is accomplished by October 15 to allow the lake trout to spawn in late October. It is desirable to keep the lake above the October drawdown level over the winter to prevent the exposure of eggs from lake trout that have spawned on the shallow shoals. Therefore, the level recorded on October 15 becomes the minimum level allowed until the end of May.

After the lake trout have spawned, it is permissible to allow the lake level to rise over the winter. In March, the lake is then drawn down again to allow reservoir space for the spring freshet. This procedure assists in controlling the amount of water flowing to the Blind River dam during the freshet.

During May, the lake is allowed to rise to the summer levels. There is no procedure to accommodate minimum flows out of the lake during the summer period.

Water from the Chiblow Lake Dam is conveyed to the Chiblow Lake GS within a 550 m long penstock with a diameter of 2.4 m. The original streambed is steep and swift, with large boulders, rubble and bedrock substrate, and is supplied water only by stop-log leakage or overflow from the Chiblow Lake Dam. This reach of the river was one of the study sites evaluated using the MNR Stream Assessment Protocol. Although various species of invertebrates were sampled in this assessment, no fish species were found using electrofishing.

A graph in Appendix D illustrates current, normal operating parameters for Chiblow Lake. Extraordinary precipitation events may have the effect of moving the lake levels outside of the normal parameters.

5.3.3 Canoe (Scarfe) Lake

The Canoe (Scarfe) GS on Canoe Lake is also operated as a “run-of-the-river” facility. Canoe Lake has little reservoir capacity compared with Matinenda and Chiblow Lakes. The dam structure with its three stop-log bays of 4.25 m width each and a 19 m spillway has been designed to pass large volumes of water with very low heads in order to alleviate flooding conditions. Water levels on Canoe Lake are tightly controlled with marginal seasonal variations except during extraordinary events. The control system at the generating station is capable of maintaining water levels within a very close range under normal conditions and the hydro plant operator attempts to work within a range of 0.15 m.

There is no provision for minimum flows during dry periods. A graph in Appendix D illustrates the normal operating range of Canoe (Scarfe) Lake. The level of the top of the wing wall equals 0.36 m on the gauge, and a gauge reading of 0 corresponds to an elevation of 208.07 m CGD.

5.3.4 Lake Duborne – Lower Blind River

The present operating rule curve for Lake Duborne is included in Appendix D.

The Blind River Dam controls the water levels for the lower Blind River as well as Lake Duborne. Along this section of the waterway there are a large number of

permanent residences, some seasonal residences, several businesses, three tourist establishments, several parks, as well as various uses by First Nations.

Most years there is insufficient water to operate any of the generating facilities on the Blind River system during July and August. This results in very low flows through the system during these months. The lacustrine reaches of the river experience very low flows, but relatively stable levels. Much of the lower Blind River, including the West Arm, becomes wetland habitat with large areas of submergent and floating vegetation. This is related to the fact that construction of the Blind River Dam and the block dam at a former outlet in the West Arm flooded this area to a level approximately 2 m higher than the original level. The riverine portions of the Blind River under low flow conditions undergo large reductions in wetted perimeter. The stream survey conducted in 2002 indicated most of these small sections have very limited fish populations, but abundant invertebrate populations.

This dam is owned by MNR and operated by the Town of Blind River under a Dam Operating Agreement (Appendix E). Summer and winter water levels are maintained between 179.60 and 179.66 m CGD (0.60 and 0.75 m gauge), and the spring and fall levels are required to be maintained at about 0.60 m gauge, as per the Dam Operating Agreement. Water levels are maintained by placement or removal of stop logs, or adjustment of the mechanical gate. The micro generators are operational when excess water is passed through the dam, normally when the level exceeds 179.60 m CGD (0.69 m gauge).

Sea lamprey gates are installed at the Blind River dam to prevent upstream migration of sea lamprey. Migration occurs when the water temperature reaches 6°C.

6 ISSUES, RESOURCE VALUES AND INTERESTS

6 Issues, Resource Values and Interests

6.1 Issues, Resource Values and Interests Identified through Public Consultation

Several issues were identified during initial public consultation activities and they are listed by lake in Table 6.1. Table 6.1a is a summary of comments received from the public at the Draft Plan Stage. Table 6.2 summarizes resource values and interests identified by the public during public consultations. Additional information on biological and socioeconomic resource values is contained in Sections 3 and 4.

6.2 First Nation Values

Several studies have been undertaken in the past to identify locations of historical aboriginal significance. A review of these studies was conducted for the Blind River WMP. As a result of this review, First Nation values have been updated considerably in the MNR Natural Resource Values and Information System (NRVIS) database, as well as the Mississauga First Nation's own values records. Identification of these values will help ensure their protection. For example, one issue identified by First Nations was the possible impacts on medicinal plants, including *wiikenh,* of water levels. Some of these locations, where they have been identified, (e.g., for *wiikenh)* will be mapped in the MNR database. If any activities are proposed to be undertaken in this vicinity, such as dock installation, or dredging, this value would be flagged, and would not be allowed.

There are several known sites of significant native cultural heritage importance within the WMP study area. These include known sites of historical occupation, cultural significance, burial grounds, as well as pictographs. These will not be identified in this report, to protect them. Mississauga First Nation retains control over disclosure of any of these values.

Table 6.1
Issues Identified Through Public Consultation

Waterbody	Permanent Resident (PR) or Seasonal Resident (SR)	Issue(s)	Potential Solution(s)
Matinenda	PR/SR	1. Minimize hazards to navigation (shoals/rocks) 2. Water Level – docking and access. Prefer summer water levels to fluctuate between 0.69 to 0.71 m. 3. Keep water at best level for fish spawning in the spring and fall. 4. Minimize shoreline erosion.	Raise summer water levels slightly above historical levels to address navigation and summer docking/access. Change summer water levels from the historical 234.85 to 234.91 m CGD (0.60 to 0.66 m gauge) to suggested 234.94 to 234.96 m CGD (0.69 to 0.71 m gauge). Historical fall and spring drawdowns have built in provisions for fish spawning habitat requirements. Suggest and provide examples to cottage owners of mitigative measures to prevent further erosion.
	SR	1. Properties within bay eroding. 2. Effects of erosion on fishery. 3. Associated cost of erosion (Marine cable/ transformer near shore). 4. Beach quality (clay/sand). 5. Water clarity (clay).	Suggest and provide examples to cottage lot owners of mitigative measures to prevent further erosion.
	SR	1. Ecology considerations vs. power producers demand for water. 2. If drawdown is aggressive, rocks and shoals will become marine navigational hazards.	Identified resource values will continue to be given priority and the sustainability of ecosystems will be tied into the selected dam operating water levels. Drawdown will equal or be greater than historical water levels. Therefore known marine navigational hazards such as shoals and rocks continue to be safety considerations for experienced and non-experienced watercraft operators on Lake Matinenda.
Chiblow Lake	PR	1. Has Mississauga First Nation (MFN) been asked to sit on the Water Management Planning Team? 2. Is there a native advisor or component to the plan? 3. Has anyone considered traditional ecological knowledge?	MFN has a representative on the Blind River Water Management Plan's (BRWMP) planning team. First Nations values, interest or concerns are discussed with community members throughout the development of the BRWMP and are incorporated into the plan. First Nations have an Advisory Committee, and also have representation on the planning team/steering committee. First Nations are invited to contribute traditional knowledge and values.

Table 6.1
Issues Identified Through Public Consultation

Waterbody	Permanent Resident (PR) or Seasonal Resident (SR)	Issue(s)	Potential Solution(s)
Canoe Lake		No issues were raised.	
Duborne	PR	1. Would like to see water levels maintained at the high water mark. 2. Fishing success seems to be tied in with the fluctuations of water levels. 3. Water levels kept consistently too low. Would like water levels to be 8 to 10 in. higher than August 8, 2002 level.	Duborne is maintained at high water mark when Blind River dam is at staff gauge reading 179.66 m CGD (0.75 m gauge). There are so many variables to fishing success that it is very difficult to associate this with water level fluctuations that have been relatively small. The water level on August 8 was approximately at 179.56 m CGD (0.65 m gauge). The current operating level of the Blind River with normal precipitation, the range of 179.60 m CGD (0.69 m gauge) minimum and 179.66 m CGD (0.75 m gauge) maximum, will alleviate shallow water in the gentle sloping bays and provide for docks/boat houses built upon fixed height cribbing.
	SR	1. Interest in the Blind River water management plan originates from the fact that there the water level is too low to allow access to dock. 2. Currently (August 7, 2002) 6 to 8 ft of shoreline is being warmed by the summer sun, which could be unhealthy for the lake and its occupants. The water level of Duborne should remain static with the exception to volume increase and controls required for spring run-off. 3. In early August the Cataract falls and river were still. The flow from Granary was also very low. With the amount of rain this summer, the volume currently finding its way over the Cataract Falls is unacceptable. 4. Economic well being may take precedence over environmental.	Identified resource values will continue to be given priority and sustainability of ecosystems will be tied into the selected dam operating water levels. Hydrology of this watershed would not support minimum flows over the Cataract Falls, without lowering the summer levels of Matinenda, Chiblow and Duborne lakes. With conventional docks and boathouses built upon cribs, the range of water levels within water bodies is limited. Natural flows without dams on the water system, the Cataract Falls for the months of July and August with normal precipitation, would have little to no flow. However consideration will be given to aesthetics of the falls.
	SR	1. Water levels are allowed to get too low.	The current operating level of the Blind River with normal precipitation, the range of 179.60 m CGD (0.69 m gauge) minimum and 179.66 m CGD (0.75 m gauge)

Table 6.1 Issues Identified Through Public Consultation			
Waterbody	**Permanent Resident (PR) or Seasonal Resident (SR)**	**Issue(s)**	**Potential Solution(s)**
		2. Water levels change too suddenly (in a few hours overnight).	maximum, will alleviate shallow water in the gentle sloping bays and provide for docks/boat houses built upon fixed height cribbing. Continuing efforts will be made to maintain consistent water levels year to year on water bodies with control structures within the Blind River watershed.
Blind River	PR	1. Key issue is to bring the water level up. It should be up at least 1 ft (August 19, 2002).	The current operating level of the Blind River with normal precipitation, the range of 179.60 m CGD (0.69 m gauge) minimum and 179.66 m CGD (0.75 m gauge) maximum, will alleviate shallow water in the gentle sloping bays and provide for docks/ boat houses built upon fixed height cribbing. In the summer of 2003 water levels for Duborne was a reflection of the upper limit for the Blind River dam. The water level at the Blind River dam on August 11, 2002 was 234.93 m CGD (0.68 m gauge)
		2. Find out where the pollutants are coming from and clean that up.	Water quality is one of several values identified in Water Management Planning. Water quality is outside of the scope of WMPs unless it is affected by levels or flows. The plan term will be set in the approved plans. Throughout the plan and upon renewal, achievements and shortcomings will be reviewed to bring in any new data and to ensure ecosystems are being sustained.
	PR	1. Who is monitoring water flows along the river? 2. Power producers should provide flow rate information and monies for rehabilitation projects. 3. MNR should have their own flow rate data.	The dam operators monitor flows along the watercourse. Copies of water level data are sent to the MNR, as a requirement of the Dam Operating Agreements now in place. Money for rehabilitation projects has not been provided in the past by operators on the Blind River. If a specific problem was identified, directly affected by hydroelectric operations, MNR would investigate this option.

Table 6.1 Issues Identified Through Public Consultation			
Waterbody	**Permanent Resident (PR) or Seasonal Resident (SR)**	**Issue(s)**	**Potential Solution(s)**
			Ongoing effectiveness monitoring will ensure desired outcomes are achieved. The plan term will be set in the approved plans. Throughout the plan and upon renewal, achievements and shortcomings will be reviewed to bring in any new data and ensure ecosystems are being sustained. Audits of water levels periodically occur at dams that are independently controlled.
	PR	1. Water quality from Lake Duborne to the Potomac River is clear. However beyond that point to the mouth of the Blind River, the water is murky. Work on waterside properties may have an influence.	Water quality is outside the scope of WMPs unless it is affected by levels or flows. Throughout the plan and upon renewal, achievements and shortcomings will be reviewed to bring in any new data and ensure ecosystems are being sustained. There are no water quality problems identified that have been identified as being the direct or indirect result of hydroelectric operations. Shoreline work being performed on public (Crown) land requires an approved work permit under the Public Lands Act. Regular inspections are performed at the work site to ensure conditions of the work permit are met. Mitigative measures such as sediment control are prescribed conditions within a work permit. Failure to obtain a work permit or contravention to the conditions is an offence under the Public Lands Act.
	PR	1. Maximum and minimum water levels fluctuate too much. 2. Weed islands are more abundant in the west arm when water levels are lower. Safety for boaters and floatplanes becomes a concern.	The current operating level of the Blind River with normal precipitation, the range of 179.60 m CGD (0.69 m gauge) minimum and 179.66 m CGD (0.75 m gauge) maximum, will alleviate shallow water in the gentle sloping bays and provide for docks/boat houses built upon fixed height cribbing. Continuing efforts will be made to maintain consistent summer water levels year to year on water bodies with control structures within the Blind River watershed.

Table 6.1
Issues Identified Through Public Consultation

Waterbody	Permanent Resident (PR) or Seasonal Resident (SR)	Issue(s)	Potential Solution(s)
	PR	The water gets too low which affects swimming, boating and fishing all along the shoreline here.	The current operating level of the Blind River with normal precipitation, the range of 179.60 m CGD (0.69 m gauge) minimum and 179.66 m CGD (0.75 m gauge) maximum, will help alleviate shallow water along the shoreline of the Blind River. Continuing efforts will be made to maintain consistent summer water levels year to year on water bodies with control structures within the Blind River watershed.
	PR	1. Restrict water fluctuation to within acceptable levels. 2. Better communication between the MNR and the Town of Blind River.	Continuing efforts will be made to maintain water levels within operating range from year to year on water bodies with control structures within the Blind River watershed. Ongoing communication between the Town of Blind River and the MNR will continue to ensure water levels fall within the approved operating range.
	PR	1. Maintain a consistent water level that is not too low and allows us to reach our docks. 2. Restrict water fluctuations to within acceptable levels and time frames. 3. Provide an MNR, Town of Blind River or contract personnel to be specifically assigned to the responsibility for monitoring.	The current operating level of the Blind River with normal precipitation, the range of 179.60 m CGD (0.69 m gauge) minimum and 179.66 m CGD (0.75 m gauge) maximum, will alleviate shallow water in the west arm of the Blind River. In the summer of 2003 water levels for Duborne was a reflection of the upper limit for the Blind River dam. A component of water management planning is the development of a range of options with regards to water levels and flows at each dam within the watershed. A preferred option will be decided upon and reviewed through consultation. Once in place, the preferred operating regime will have regulated parameters to keep water fluctuations within limits at a given time of the year. A designated staff member from the Town of Blind River monitors and reports readings to the MNR for ongoing review of water levels and flows.

Table 6.1a
Issues Identified Through Public Consultation
Draft Plan Review Stage

Waterbody	Permanent Resident (PR) or Seasonal Resident (SR)	Issue(s)	Potential Solution(s)
Duborne	SR	Would like the level of Lake Duborne raised at least 6 inches above the 2003 levels to facilitate dock access. Lake Duborne levels get too low, probably because dam operators on the system are not communicating	Water levels in this range are above the operating range for the Blind River dam, and could result in flooding in some areas. Dock should be adjusted to accommodate WMP levels. The Blind River WMP will require any operator making a change, such as adding or removing stop logs, to notify the other two operators within one working day.
Little Chiblow/Chiblow	SR	Water levels are too high in the spring and too low in the fall. MNR should monitor levels, not utility operator Chiblow summer levels vary too much Chiblow lake trout fall/winter drawdown strategy does not address realistic spawning period	Water levels in the spring to be managed as in existing Chiblow rule curve. Fall water level to be constant for a longer period and held to insure lake trout spawning is protected. MNR shall periodically audit water levels to verify records. Summer range of levels on Chiblow Lake could be reduced, as suggested in Option 2. Chiblow/Little Chiblow rule curve modified to address the actual period over which lake trout are likely to spawn. Changed from a drawdown to one day, October 15, to a 5-week period, October 1 to November 7.

Table 6.1b lists issues identified through discussions with First Nations at the Draft Plan Review stage.

Table 6.1b
Issues Identified Through First Nation Participation
Draft Plan Review Stage

Waterbody	Permanent Resident (PR) or Seasonal Resident (SR)	Issue(s)	Potential Solution(s)
Lower Blind River	SR/PR	Water levels may be affecting traditional medicinal plants, including *wiikenh*.	Work with MNR to identify these plants and locations, and investigate options available, such as relocation, seeding, or means of protection.
	SR	Water levels artificially high due to construction of dam, and has resulted in erosion of archaeological and cultural heritage sites.	Continue to work with MNR to identify these sites and identify if there are any options available to protect remaining sites.
Lake Duborne	SR	Water levels artificially high due to construction of dam, and has resulted in erosion of archaeological and cultural heritage sites.	Continue to work with MNR to identify these sites and identify if there are any options available to protect remaining sites.
Matinenda Lake	SR	Water levels artificially high due to construction of dam, and has resulted in erosion of archaeological and cultural heritage sites.	Continue to work with MNR to identify these sites and identify if there are any options available to protect remaining sites.
Chiblow Lake	SR	Water levels artificially high due to construction of dam, and has resulted in erosion of archaeological and cultural heritage sites.	Continue to work with MNR to identify these sites and identify if there are any options available to protect remaining sites.
Little Chiblow	SR	Water levels artificially high due to construction of dam, and has resulted in erosion of archaeological and cultural heritage sites.	Continue to work with MNR to identify these sites and identify if there are any options available to protect remaining sites.
General	SR	Levels should be available electronically	MNR will maintain an electronic database of levels. Levels will be available on request.
	SR	Improved communications are needed for level monitoring and reporting	This WMP clarifies, improves, and requires reporting of levels.
	SR	Continue dialogue after completion of this WMP	Effectiveness and ongoing monitoring require continuous dialogue on WMP issues.

Table 6.2
Interests and Values

Waterbody	Value(s)	Reasonable Value/Interest											
		Boating	Water Skiing	Fishing	Hunting	Off Road	Canoeing	Bird watching	Wildlife Viewing	Skiing	Hiking	Swimming	Float Plane
Matinenda	Fish Spawning	105	1	1	1							3	
	Public Safety												
Chiblow		1											
Canoe Lake													
Duborne	Cataract Falls	3	1	2	2	1	1	1	1	1	1	1	1
	Fish Spawning												
	Public Safety												
Blind River	Water Quality	7	2	6	1		5	3	2	1		5	1
	Fish Spawning												
	Access												
	Longview/Shivron Park												

Note:

Number of people at PIC indicating an interest or value for a particular section on the Blind River system.

7 DATA GAPS AND BASELINE DATA COLLECTION PROGRAM

7 Data Gaps and Baseline Data Collection Program

7.1 Data Gaps and Priorities

Table 7.1 lists the key gaps in baseline information for each waterbody or segment of the Blind River system at the start of this WMP. Water quality is normally considered to be outside the scope of water management pans. However, there are circumstances where levels and flow can have an effect on water quality. In order to make this determination, it is necessary to have an understanding of existing water quality. In addition, it is important to have good baseline information at the initiation of planning. Future comparisons will not be possible if we do not have baseline information, which would have the potential to be a significant data gap at the next round of planning.

Table 7.1
Key Data Gaps in Baseline Information

Waterbody	Data Gap	Priority
Upper Blind River	Stream Assessment	High
Matinenda Lake	Current Lake Trout Population Status	High
Chiblow Lake	Current Walleye Population Status Current Lake Trout Population Status Lake Trout Timing, Location and Depth	High High High
High Lake	Current Fish Community Information Water Quality Data	Medium Medium
Canoe Lake	Current Walleye Population Status Water Quality Data Current Lake Trout Population Status	High Medium Medium
Lake Duborne	Poor Bathymetric Information Current Lake Trout Population Status Current Lake Trout Spawning Information Current Walleye Population Status Water Quality Data	Medium Medium Medium Medium Medium
Lower Blind River	Lack of Bathymetry Information Lack of Aquatic Community Information Lack of Standardized Assessment Protocol	High High Medium

7.2 Baseline Data Collection Program

7.2.1 Upper Blind River

A standard stream survey was conducted in the upper Blind River above Matinenda Lake. This survey was done using the standard MNR Protocol for Wadable Streams. Preliminary results indicate the aquatic community in the river above Matinenda Lake to be healthier than downstream sections. This is indicated by the numbers and abundance of aquatic organisms being greater in this reach of the river than downstream areas.

7.2.2 Matinenda Lake

The status of the Matinenda Lake lake trout population was assessed in the spring of 2002, by conducting a Spring Littoral Index Netting (SLIN) survey. This study was conducted primarily to establish baseline conditions for the lake trout population at the initiation of this WMP. The 2002 SLIN indicated a healthy lake trout population, with good evidence of recruitment. Abundance estimates were in the high range when compared to other regional lakes.

7.2.3 Chiblow Lake and Little Chiblow Lakes

Lake Trout
The status of the Chiblow and Little Chiblow Lakes lake trout populations were assessed in the spring of 2002, by conducting a SLIN survey. The lake trout population on Little Chiblow Lake was found to be in excellent condition, with high abundance numbers and healthy population structure. The Chiblow Lake lake trout population was found to be in a less healthy state than Little Chiblow Lake. Abundance numbers were considerably lower, and the population indicates some signs of stress. There is recruitment taking place, as indicated by numbers of young fish, but numbers of larger fish were low. This could be due to overexploitation. Interestingly, more lake trout were sampled during the 2002 Fall Walleye Index Netting (FWIN) survey, than the 2002 SLIN survey. This may have been partly due to initiation of spawning behavior by lake trout when temperatures reached 10°C during the 2002 FWIN survey.

Walleye
Historically walleye have been confirmed as being present in Chiblow and Little Chiblow Lakes, although in small numbers. No assessments had previously been done in a number of years to determine the walleye population status. A FWIN survey was conducted in 2002 to determine the present state of the walleye population. FWIN is the standard methodology used by MNR to assess walleye populations. No walleye were sampled in the course of the 2002 surveys. This would indicate there are very few or no walleye present in the lake.

7.2.4 Canoe Lake

Current Walleye Population Status
The status of the Canoe Lake walleye population was assessed in the fall of 2002, by conducting a FWIN program. This study was conducted primarily to establish baseline conditions for the walleye populations at the initiation of this Plan. A similar study was conducted in 1998 but was not completed. In this index survey no walleye were captured. This indicated that walleye are not present in the lake, or are present in very small numbers. No assessment has been done to attempt to determine the reason for the lack of walleye.

Water Quality Data
Water quality samples were collected throughout the Blind River system, including the outflow of Canoe Lake. Results of this sampling are discussed in Section 3.3.

Current Lake Trout Population Status
The status of the Canoe Lake lake trout population was assessed in the spring of 2002, by conducting a SLIN survey. This study was conducted primarily to establish baseline conditions for the lake trout population at the initiation of this Plan.

In the 2002 SLIN survey no lake trout were sampled. This is consistent with results of a partial SLIN that was conducted in 1999. This indicates that there are very few or no lake trout present. This type of assessment does not provide an indication as to the reason for the lack of lake trout. The 2002 FWIN survey also did not sample any lake trout. Fisheries management options for this lake require review, and further studies to determine an appropriate course of action.

7.2.5 Lake Duborne

Lake Trout
The lake trout population in Lake Duborne is considered to be a highly valued ecosystem component. Two main factors related to lake trout were examined within the scope of this plan. These were spawning habitat and lake trout population status. Spawning habitat was examined primarily to attempt to determine actual spawning depth, as may be affected by low winter water levels. The lake trout population was assessed as part of the baseline information required for this plan.

Because of the large amount of effort required to conduct the 1982 study, and the inconclusive results, a different approach was used to determine spawning depth for lake trout. It was decided to attempt to locate actual lake trout spawn using a scuba diver. In northwestern Ontario use of scuba divers trained to identify lake trout spawn has worked well. A scuba diver was trained to identify lake trout spawn using printed materials as well as actual underwater videos of divers demonstrating the technique, showing actual lake trout eggs. The identified shoals from the 1982 study were ranked based on all available information. In-water observations began on November 8, when the water temperature was at 7°C. By this time all lake trout spawning should have been completed. The diver was only able to spend part of 3 days searching due to poor weather conditions. The study was cut short due to early ice forming on the lake on November 22, 2002. Fifteen shoals were examined, representing what were considered to be the most likely spawning habitat. All shoals were examined from about 0.3 m depth down to the deepest extent of suitable substrate. The parental stock for the planted lake trout was a strain of lake trout that would have the genetic predisposition to spawn at shallow depths. There are other known strains of lake trout that would have the genetic predisposition to spawn at greater depths.

Results of this exercise unfortunately proved inconclusive. No lake trout eggs were located. There are several possible reasons for this including the following:

- The actual spawning shoals being utilized were not correctly identified.
- The lake trout may be spawning at depths deeper than were checked.
- Hatchery raised fish, if still present in the lake, may have lacked the genetic or environmental cues and were unable to locate each other.

- Hatchery fish, if still present in the lake, may have been unable to locate suitable substrate.

- The fluctuations in fall water temperature did not provide suitable spawning stimulus.

- The lake trout may be an intermittent spawning population, and the majority may not have spawned that year.

- There may be no lake trout spawning occurring.

If possible this survey using scuba observations will be repeated in the fall of 2003.

The status of the Lake Duborne lake trout population was assessed in the spring of 2002, by conducting a SLIN survey. This study was conducted primarily to establish baseline conditions for the lake trout population at the initiation of this Plan.

Results of the 2002 SLIN indicate the lake trout population to be in a stressed condition. This is likely due to overexploitation as indicated by the population structure. Very little recruitment is evident. The lake trout catch per unit effort and abundance estimates based on this survey were very low when compared to other regional lakes.

Lake trout stocking was resumed in 2003 by MNR to help address the stressed status of the Lake Duborne population.

Walleye

The status of the Lake Duborne Walleye population was assessed in the fall of 2000 and 2002, by conducting a FWIN program. This study was conducted primarily to establish baseline conditions for the walleye populations at the initiation of this Plan. The walleye abundance in Lake Duborne as reflected by the catch-per-unit-effort (5.75 walleye-net^{-1}) can best be described as low. The catch-per-unit-effort for walleye in the previous FWIN was 5.08 walleye-net^{-1} suggesting that walleye abundance has not changed significantly since 2000 (AOFRC 2003). There does appear to have been a significant increase in walleye growth between the last two sampling periods. This may be due to the recent presence of rainbow smelt.

Bathymetry

The bathymetry of Lake Duborne was mapped (Appendix C) during the summer of 2002 using the Bathymetric Automated Survey System (BASS). This method utilizes a Global Positioning System (GPS) unit integrated with digital sonar and a computer with BASS software. With this technique map data points are continually collected as the survey is conducted using a boat. Each map data point has a depth and GPS coordinate. Hundreds of thousands of these points are collected for an average lake. Computer software is then used to assemble the information into a bathymetric map. This method is considerably more accurate than methods used in the past, and gives the added advantage of allowing the data to be manipulated for purposes such as modeling. This mapping provides a much greater level of detail and accuracy than the previous map.

Water Quality
Water quality samples were collected throughout the Blind River system, including the outflow of Lake Duborne. Results of this sampling are discussed in Section 3.3**.** A temperature logger recorded water temperatures at the outflow of Lake Duborne for most of 2002 and the results are presented in Appendix B. Two temperature thresholds to note are those that correspond with the initiation of spawning for lake trout and walleye. Lake trout in this area spawn when the surface temperature reaches about 10 to 13°C (MNR 1982), which corresponded to a date of October 6 to October 21 in 2002. Walleye in this area begin spawning when the water temperature warms to about 6°C, which corresponded to a date of May 6 in 2002.

7.2.6 Lower Blind River

The bathymetry of the Lower Blind River (Appendix C) was mapped using the same technique as discussed above for Lake Duborne.

A standard stream survey was conducted in the lower Blind River at Cataract Falls, Canoe (Scarfe) Lake outlet, and Chiblow Lake outlet. This survey was done using the standard MNR Protocol for Wadable Streams. MNR does not have an approved standard methodology for assessing large rivers. For this reason only those reaches of the Blind River that could be assessed using an approved standard technique were sampled. The Wadable Stream Protocol requires that the stream be shallow enough to wade in safely. This means that depending on the nature of the stream bottom and the depth velocity of the stream must be less than about 1.5 m deep. This assessment technique involves measurement of several attributes of a stream, including width, depth, sinuosity, substrate type, substrate size, water temperature, cover types, bank slopes, bank stability, aquatic invertebrate community, and fish community.

MNR is in the process of developing a standardized technique for sampling larger rivers. When this methodology is developed remaining non-wadable reaches of the Blind River may be assessed.

8 OPTION DEVELOPMENT AND EVALUATION

8 Option Development and Evaluation

8.1 Background

The major water bodies included within the scope of this WMP have a relatively large number of seasonal and permanent waterfront residences. There are also several businesses that are situated on the Blind River system that are affected by the water level to some extent. These people have expressed concerns as to how the water levels affect their homes, seasonal residences, properties and businesses.

The four water control structures on the Blind River system have been in place for a number of years. The water levels for each of the waterbodies has been continually fine tuned and adjusted to meet various concerns as they were identified. The regulation of the water levels has been largely to address social and environmental considerations, with no changes in water level regulation for the sole purpose of optimization of hydroelectric revenues.

The main valued ecosystem components identified within the system are lake trout in Matinenda Lake and Lake Duborne, walleye in Lake Duborne and pike and walleye in the lower Blind River.

There have been very few issues identified with respect to the riverine portions of the system. Minimum flow requirements have been considered but not included. The main reaches of concern are more affected by the level of the adjacent lakes than by flow rate alone. If a minimum flow requirement was included as a condition for any reach of river within this plan, the tradeoff would have been an increased width of the operating band for the upstream waterbodies. The hydrology of this system cannot accommodate sustained minimum flows, without affecting the water levels of the lakes involved. The main waterbodies in the plan area, including Chiblow, Little Chiblow, Matinenda and Lake Duborne have a large number of seasonal or permanent residential properties. The concerns of these property owners, and the main valued ecosystem components, specifically lake trout and walleye, have been given most weight during evaluation. Any minimum flow requirements would affect the levels of these waterbodies. The hydroelectric facilities are operated as run of river, with very limited amount of peaking type of operation, so flows are not entirely regulated. The main reaches of river of concern are more affected by the level of the adjacent lakes than by flow rate alone.

The three hydroelectric generating facilities are operated primarily as run-of-the-river. They have very limited flexibility to operate in a peaking mode, for short periods of time, and within a very narrow range. Chiblow GS has the most potential to operate in a peaking mode for very short periods (few hours), and within a narrow range (0.15 m), depending on the time of the year. However, the downstream generating station at Canoe Lake has a very narrow operating band (0.15 m) and small area, limiting peaking type operation upstream.

The main water bodies of concern, as identified by public consultation within the scope of this WMP are Matinenda Lake, Lake Duborne and the lower Blind River. The remaining reaches and water bodies have had very few issues or concerns associated with them.

8.2 Aquatic Ecosystem Guidelines

The Aquatic Ecosystem Guidelines (AEGs) prescribe an ecosystem approach to address issues associated with the riverine environment in water management planning. This can be achieved by including elements of the natural flow regime into the operation of the regulated river system, to the extent possible. Characteristics of a river system's natural pattern of flows and levels that are important for maintaining ecological function are used as a guide to set revised flow and level objectives to address the health of the aquatic ecosystem in a comprehensive manner. This is important because actions and activities that are good for individual species may not consistently benefit the broader ecosystem (Poff et al. 1997). Studies of natural systems show that some species do best in wet years and others in dry, and that overall biological diversity and ecosystem function benefit from variation in species success (Tilman et al. 1994, in Poff et al, 1997). River management objectives related to ecosystem integrity cannot be met without maintaining or restoring certain hydrological characteristics of a system's natural flow regime (Richter et al. 1997). Similarly, reservoirs are more productive and stable when operated under hydrological regimes that more closely approximate those with which local species and communities have evolved (Kallemeyn 2000).

The hydroelectric generating facilities on the Blind River system are operated primarily as run-of-the-river. In this regard the flow patterns are altered partially from the natural flow regime. The primary effect of regulation has been stabilization of summer levels on the lower Blind River, Lake Duborne, Canoe Lake, Chiblow Lake, Little Chiblow and Matinenda Lake, as well as partial flood mitigation. The water levels on all the lakes in the planning area still experience a near normal range in seasonal levels. The riverine sections affected primarily by the operation of the hydroelectric facilities are very limited in size. This is largely because most of the riverine levels of the Blind River system within the planning area are largely affected by adjoining lake levels.

Most years there is insufficient water to operate any of the generating facilities during July and August. This results in very low flows through the Blind River system during these months. The lacustrine reaches of the river experience very low flows, but relatively stable levels. Much of the lower Blind River including the West Arm becomes wetland habitat with large areas of submergent and floating vegetation. The riverine portions of the Blind River under low flow conditions experience large reductions in wetted perimeter. The stream survey conducted in 2002 indicated most of these small sections have very limited fish populations, but abundant invertebrate populations.

Minimum flows have not been incorporated as a requirement of this WMP for two main reasons. The first is that these facilities are all operated primarily as run-of-the-river. As such most of the river experiences a wide range of flows. The proposed ranges for water levels within the planning area lakes are relatively small. Most of the riverine reaches within the plan area are primarily affected by the level of the adjoining lake.

The second main reason is that the maintenance of stable levels in the major lakes in this system has been assigned a greater value than the very small reaches of river that would benefit from establishment of minimum flow. This position is supported by the public, through consultation. Hydrology of the watershed will not support minimum flows, without allowing summer levels to drop. Protection of lake trout spawning levels could also be compromised by provision of minimum flows. Provision of minimum flows during the winter months could result in lowering of lake levels below the lake trout spawning depth, resulting in mortality to lake trout eggs. Lake trout have evolved with natural fluctuations

in lake levels. This pattern would have consisted of slowly lowering levels during the summer, rising somewhat in the fall, and then lowering over the winter. This natural pattern would also have played a role in maintenance of the spawning habitat, mainly cleansing by wave action, which would be more effective at summer levels. However, the range in regulated summer water levels, would likely be less than the natural range. This could result in the quality of shoals being reduced at greater depths, which could adversely affect lake trout reproduction. The extent or existence of this effect is not known.

During the summer months there is usually insufficient flow for hydroelectric generation. There is normally a small flow present during July and August. The source of this flow is leakage, other tributaries, or normal runoff. This WMP will require that these leakage flows continue in the natural riverbed downstream of the Chiblow Lake dam and the Canoe (Scarfe) Lake dam. The Blind River dam does not have a diversion associated with it. This leakage flow amount, in the order of 0.002 m^3/s, will help sustain any aquatic organisms that may have adapted to these low leakage flow in the original stream beds. The stream assessment conducted in 2002 found abundant populations of invertebrates in most of these areas. The leakage flow shall not be stopped be means such as jacking down the stop logs, or otherwise sealing the logs to completely prevent leakage. There have been some years before construction of the hydroelectric facilities and dams, when some sections of the Blind River had very little or no flow during the summer months.

8.3 Methods to Develop Options, and Criteria to Evaluate Options

Options were developed by considering existing MNR dam operations and existing hydro plant operations, and determining where water levels could be modified to address aquatic ecosystem concerns and values, along with public and First Nation issues and values.

The key criteria used to evaluate the options were as follows:

- extent of improved conditions for the aquatic ecology and/or tourism/recreation compared with the status quo (Option 1)

- degree of economic effect on hydroelectric generation resulting from improved conditions for the aquatic ecology and/or tourism/recreation, compared with the status quo

- effect on First Nation values and interests compared with the status quo.

The method used to evaluate the options was the VISTA DSS suite computer model developed by Synexus Global Inc. (an Acres company). This model determined how water would be managed on the Blind River system for each option, by optimizing hydroelectric generation and then constraining it by incorporating ecological and social conditions. The economic impact on hydroelectric revenues was then determined. Modeling was done for an average, wet and dry year using historical hydrology available for the Blind River.

Three options were developed for the purposes of this WMP. The planning team believed that most issues, certainly the high priority issues, could be addressed with

these options. The limited number of options is the result of two main factors. First the operation of the Blind River system has been continually fine tuned and improved over the past 20 years to address various problems and issues as they were identified. Second, the degree of human development along the Blind River limits the options available. There are a number of aspects of the natural flow regime that could be incorporated into the operational plans for the river system. These would not receive much public support at this time. As the public becomes more aware of environmental considerations, the benefits of incorporating elements of the natural flow regime will meet less resistance. There could also be economic consequences to the hydro operators by making some of these natural flow regime related changes.

8.4 Description of Options

8.4.1 Option 1 - Status Quo

Option 1 represents the status quo. As discussed earlier, structures on the system have been in place for a number of years, and the operational plan for each of the structures has been adjusted to meet various concerns as they have been identified. This option reflects the operation of the river system from approximately 1987 to 2002. The Blind River Dam was reconstructed in 1974, with the GS installed in 1998; the Canoe (Scarfe) GS was built in 1987; the Chiblow GS was installed in 1993; and the Matinenda Lake dam was rebuilt in 1984. The operational plans included in this option have been adjusted over time to address concerns as they were identified. The main mechanism for this was through correspondence usually in the form of complaints to the Blind River Area Office of the MNR.

With this option, Lake Duborne will continue to be operated in the range of 179.60 m CGD (0.69 m gauge) minimum to a 179.66 m CGD (0.75 m gauge) maximum as shown in the rule curve graph in Appendix D. In years with normal precipitation, issues raised by cottage lot owners on Lake Duborne and landowners along the Blind River south of Lake Duborne will be addressed. Available habitat for fish and wildlife within this operating range provides for lifecycle needs of existing species. At the minimum elevation of 179.60 m CGD, known lake trout spawning shoals are protected. The existing range ensures aquatic vegetated backwaters are available for pike spawning in the spring, and allows availability of habitat for aquatic insects and various fish species, and wildlife throughout the growing season. It also provides for walleye spawning in the spring as in previous years.

With Option 1 Chiblow Lake would continue to be operated as in past years, as described in Section 5.3.2 and Appendix F. This option allows a 0.20 m summer operating range. Some concerns were raised over fluctuating water levels in Chiblow Lake, which this option does not address. The lake trout spawning period allowed for in Option 1 is only 1 day in length, on October 15. This could result in lake trout spawning at a higher elevation, because the lake elevation could be higher, if the spawn is before or after October 15. This date is approximate, and does not address the natural variability in timing of spawning. This could allow lake trout eggs to be exposed to air before they hatch around the end of March, as lake levels are reduced over the winter. This would cause mortality to all exposed eggs.

Option 1 would mean no change to operating levels on Matinenda Lake from past years. This would not address the wishes of the majority of property owners on the lake.

8.4.2 Option 2 - Changes to Water Level Operations on Matinenda Lake and Chiblow Lake

Option 2 represents a revision to Option 1 based on input from the public consultations during the WMP process and review of lake files and fisheries surveys conducted within the Blind River System. This option differs from Option 1 in two ways. First the summer level for Matinenda Lake will be adjusted to a slightly higher level as noted in Table 8.1. The second change is to the rule curve for Chiblow Lake. The range of summer levels has been reduced from 0.20 to 0.15 m to address concerns over excessive variation in summer levels. The other change is to address the lake trout spawning and incubation protection strategy. The previous rule curve required a drawdown to a range of 232.46 m CGD (0.30 m gauge) minimum, 232.56 m CGD (0.40 m gauge) maximum, only for October 15. The revised strategy requires a drawdown to this level range by October 1, and held until November 7. The reasons for this change are twofold. First, is to allow for the inter-annual variability in lake trout spawning. Second, is to ensure that the spawning shoals in the fall are not exposed in late winter prior to hatching of lake trout eggs. Lake trout eggs are known to hatch between the end of January and early April, with the majority hatching in early March.

8.4.3 Option 3 - Lower Summer Water Levels on Matinenda Lake

Option 3 involves lower summer water levels on Matinenda Lake to address erosion concerns by property owners in Sullivan's Bay (see Table 8.2).

This option changes only the summer operating level for Matinenda Lake, to 234.70 to 234.76 m CGD, a reduction in summer level of approximately 0.15 m from previous operating levels. The property owners in this area believe this will help reduce erosion to their properties.

8.5 Results of Modeling Water Levels for Each of the Options Considered

The results of modeling the water levels for the three options considered are provided in Appendix F. The predicted variations in water levels are shown for Matinenda, Chiblow, and Canoe Lakes, as well as Lake Duborne for each option under wet, average and dry conditions.

Synexus Global used the *Vista* DSS Suite to perform the model runs. Inputs to the model included facility definitions, operational constraints, historic hydrology sequences and a representation of the market on which the generating plants on the Blind River system sell power.

Table 8.1 Option 2 (Preferred Option) Matinenda Lake		
	Historical Water Levels (Option 1)	**Proposed Target Water Levels (Option 2)**
Summer Water Levels *(Raise summer water levels as follows to address low summer water level concerns by a majority of cottage lot owners)*		
Minimum	234.85 m CGD (0.60 m gauge)	234.92 m CGD (0.67 m gauge)
Maximum	234.91 m CGD (0.66 m gauge)	234.97 m CGD (0.72 m gauge)
Fall and Winter Water Levels *(Begin drawdown in September after Labour Day weekend as is being done now)*		
Mid-October level	234.91 m GCD (0.66 m gauge)	Target level of 234.91 m (0.66 m gauge) and hold constant in October during lake trout spawning
Maximum winter drawdown level	234.73 m GCD (0.51 m gauge)	234.75 m (0.50 m gauge) until late March to protect lake trout eggs during incubation
Option 2 (Preferred Option) Chiblow/Little Chiblow Lake		
Summer Water Levels *(Reduce summer water level range as follows to address summer water level variability concerns by some cottage lot owners)*		
Minimum	232.75 m CGD (0.60 m gauge)	232.81 m CGD (0.65 m gauge) June 1 to August 15 232.71 m CGD (0.55 m gauge) Aug 15 to Sept 1
Maximum	232.96 m CGD (0.80 m gauge)	232.96 m CGD (0.80 m gauge)
Fall Water Levels *(Begin drawdown in September after Labour Day weekend)*		
Minimum level	232.46 m CGD (0.30 m gauge) October 15 only	232.46 m CGD (0.30 m gauge) and hold constant during lake trout spawning Oct 1 to Nov 7
Maximum level	232.56 m CGD (0.40 m gauge) October 15 only	232.56 m CGD (0.40 m gauge) Oct 1 to Nov 7

Table 8.2 Option 3 Matinenda Lake		
	Historical (Option 1)	**Proposed (Option 3)**
Summer Water Levels		
Minimum	234.85 m CGD (0.60 m gauge)	234.70 m CGD (0.45 m gauge)
Maximum	234.91 m CGD (0.66 m gauge)	234.76 m CGD (0.51 m gauge)
Fall and Winter Water Levels		
Same as Option 2		
Other Lakes		
No change to present Operating regime		

The facility definitions included a mathematical representation of Matinenda Lake, Chiblow Lake, High Lake, Canoe Lake and Lake Duborne. Furthermore, the physical structures at these locations were also represented mathematically. These structures include the Chiblow, Canoe (Scarfe) and Blind River hydroelectric plants, and all release structures at all of the dams.

MNR provided some rule curves for use as the operational constraint guidelines at each reservoir to ensure that the model runs optimized the three options accurately, as they have been proposed (see Appendix D).

The historic hydrology records from Environment Canada gauge 02CD006 that were used in the model span 1968 to 1999. A wet, average and dry year was selected from among these records to be used as the inflow to each reservoir in the model runs. Based on these records the wet year type occurs approximately once every 5 years, the average year type occurs approximately once every 5 years, and the dry year type occurs once every 10 years.

LT *Vista* was set up with three scenarios representing the three options described in Section 8.4. These three scenarios were run for a 1-yr time horizon for each hydrologic year type. Optimized water level trajectories at each reservoir were then analyzed to ensure that the options were feasible in all year types. The model inputs assumed that both MNR and the water power generators will operate with the goal of maintaining target water levels. However, it is recognized that this is not always possible, depending on inflows. If target water levels cannot be achieved, the secondary goal is to ensure that water levels stay within maximum and minimum compliance limits (see Section 10).

A comparison was then made of the economic effects on hydroelectric generation and the results are summarized in Table 8.3. The results show small impacts to the system hydroelectric generation between the options. While there is a slight gain or loss, depending on whether it is an average, dry or wet year, the overall change is anticipated to be marginal when considering operations over several years.

Option 3 is not favored as it does not improve summer water levels for cottagers on Matinenda Lake.

Table 8.3 - Economic Evaluation of Options
Difference From Status Quo Operations

Dry Year 1987	Chiblow GS		Scarfe GS		Blind River GS		System Total	
	diff MWh	diff %	diff MWh	diff %	diff MWh	diff %	diff MWh	% of Status Quo
Option 1	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%
Option 2	7.04	0.16%	21.15	0.26%	-0.21	-0.48%	27.98	0.22%
Option 3	-1.68	-0.04%	44.97	0.55%	-0.23	-0.53%	43.05	0.34%

Avg Year 1994	Chiblow GS		Scarfe GS		Blind River GS		System Total	
	diff MWh	diff %	diff MWh	diff %	diff MWh	diff %	diff MWh	% of Status Quo
Option 1	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%
Option 2	-116.10	-1.87%	8.76	0.08%	-0.70	-1.10%	-108.04	-0.61%
Option 3	-70.33	-1.13%	23.00	0.20%	-0.05	-0.07%	-47.37	-0.27%

Wet Year 1983	Chiblow GS		Scarfe GS		Blind River GS		System Total	
	diff MWh	diff %	diff MWh	diff %	diff MWh	diff %	diff MWh	% of Status Quo
Option 1	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%
Option 2	223.49	2.69%	293.60	2.12%	-2.35	-2.46%	514.74	2.31%
Option 3	132.11	1.59%	175.59	1.27%	0.23	0.25%	307.93	1.38%

Note: Based on 3 years of data (wet, average and dry) between 1968 and 1999 for a 1 year study period (January 1 through Dec 31)

9 THE PREFERRED OPTION

9 The Preferred Option

9.1 Option 2 – General

Option 2 is the preferred option which incorporates water level changes that most members of the public requested. The proposed changes in target water levels for Matinenda and Chiblow Lakes are shown graphically in Figures. 9.1 and 9.2 at the end of this section. No changes to existing target water levels are proposed for Canoe (Scarfe) Lake or at Blind River Dam (see Figures. 9.3 and 9.4). This option is not expected to have adverse environmental effects and is anticipated to have positive social effects in terms of slightly increased summer water levels for cottages on Matinenda Lake. Also, no significant adverse economic effects on hydroelectric generation are anticipated based on the results shown in Table 8.3 and assuming target water levels for Matinenda Lake (Table 9.1) can be maintained. This option also addresses the main issues identified related to fisheries.

9.2 Matinenda Lake

The operating plan for Matinenda Lake is included in Table 10.1, and reflects a slightly higher summer and fall operating range than exists at present. The Matinenda Cottagers Association represents the majority of landowners on Matinenda Lake. The preferred option addresses the recommendations made by this group. There are four seasonal residences in Sullivan's Bay on Matinenda Lake that have erosion concerns with higher water levels, as are set in this option. However, there are other mitigative measures that can be implemented by these landowners to address the problems they are experiencing. The main problem in this bay is caused by high water levels coupled with strong south winds. This causes erosion of the clay-loam soil adjacent to the shoreline. Erosion in this area could be abated by placement of natural vegetation, armour stone or other similar measures. The slight increase in water levels could have an effect on the littoral zone of Matinenda Lake. The depth at which light can penetrate would be reduced by the corresponding increase in lake level. It is not expected that this small increase in lake level would have a noticeable effect on the littoral community. With time, the aquatic community could shift vertically by a corresponding amount, where possible. Other effects could result from this slightly higher summer water level caused by the cyclical effect of wetting and drying. This is a natural phenomenon, but the areas affected would be slightly shifted. This process causes some changes in plant communities and invertebrates near the water land interface. Because Matinenda Lake is an oligotrophic lake, with predominantly rubble, sand, gravel, and bedrock shoreline, with very little littoral plant development, it is expected that all of these effects will be very small.

9.3 Chiblow Lake

This option represents a change to the fall operational plan for Chiblow Lake to better ensure lake trout reproductive success. The previous strategy assumed a spawning period window that was too short, targeted at October 15. A period beginning earlier in October, and ending after the first week of November better allows for seasonal variability in the timing of spawning. The operating plan for Chiblow Lake is included in Section 10, Figure 10.2, Chiblow Lake Operating Plan. In addition, a slightly higher minimum target summer water level is proposed for Chiblow/Little Chiblow Lake as noted in Table 8.1.

There were no other problems identified through the public consultation process and/or fisheries reviews with this range of levels. The tourist establishment, First Nations, most seasonal residents and permanent residents were otherwise satisfied with the operational ranges in place.

9.4 Canoe Lake

This option will not change the operational levels for Canoe Lake. The operating plan for Canoe (Scarfe) Lake is provided in Table 10.1. Canoe Lake operates within a very narrow range to prevent flooding of riparian areas.

9.5 Lake Duborne/Lower Blind River

Option 2 does not change the operational regime for the Blind River dam. The operating plan for the Blind River dam is provided in Table 10.1. The operation of the Blind River dam controls levels on the lower Blind River as well as Lake Duborne.

Fig. 9.1 Matinenda Lake - Preferred Option vs. Existing Target Operating Levels

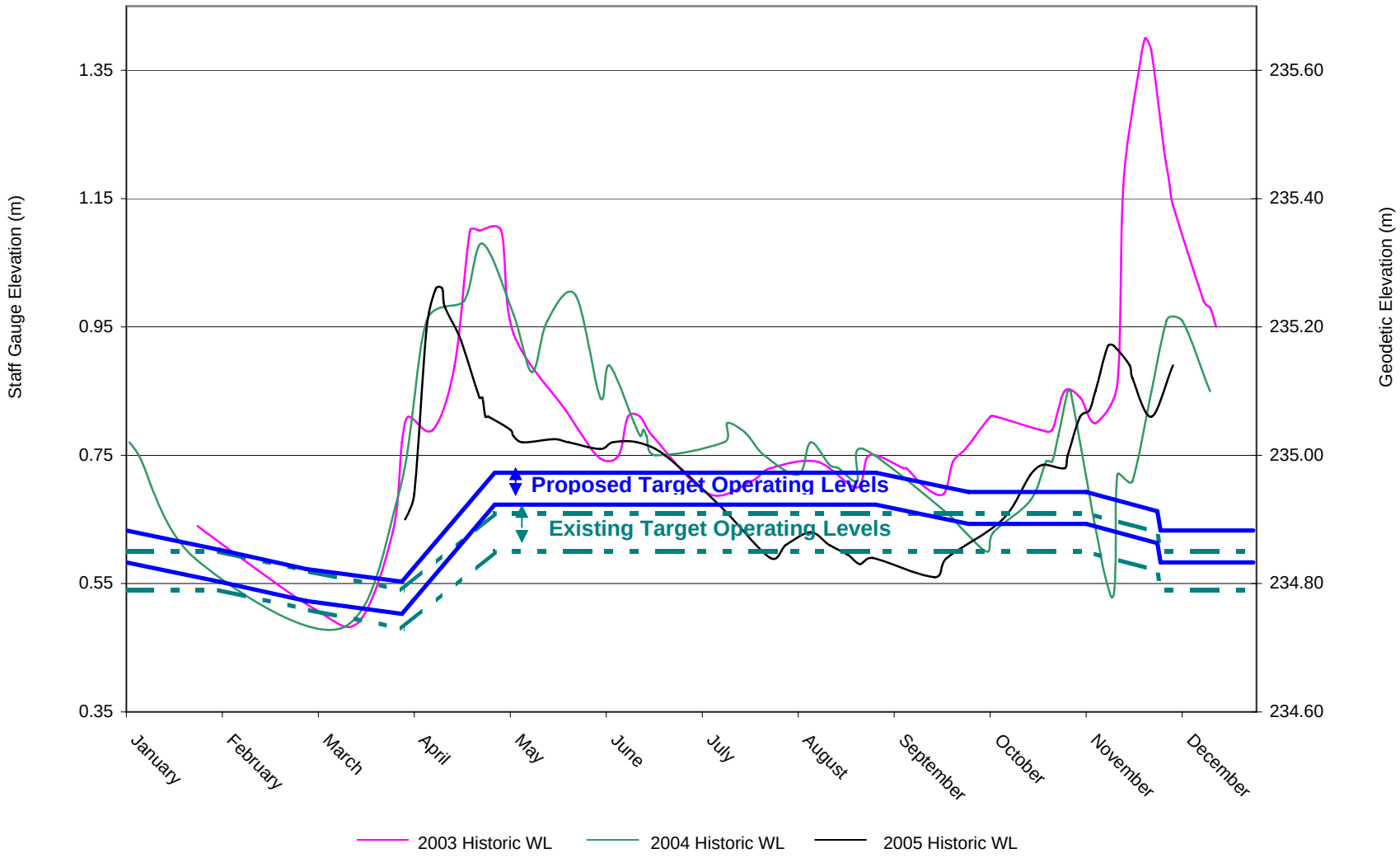


Fig. 9.2 Chiblow Lake - Preferred Option vs. Existing Target Operating Levels

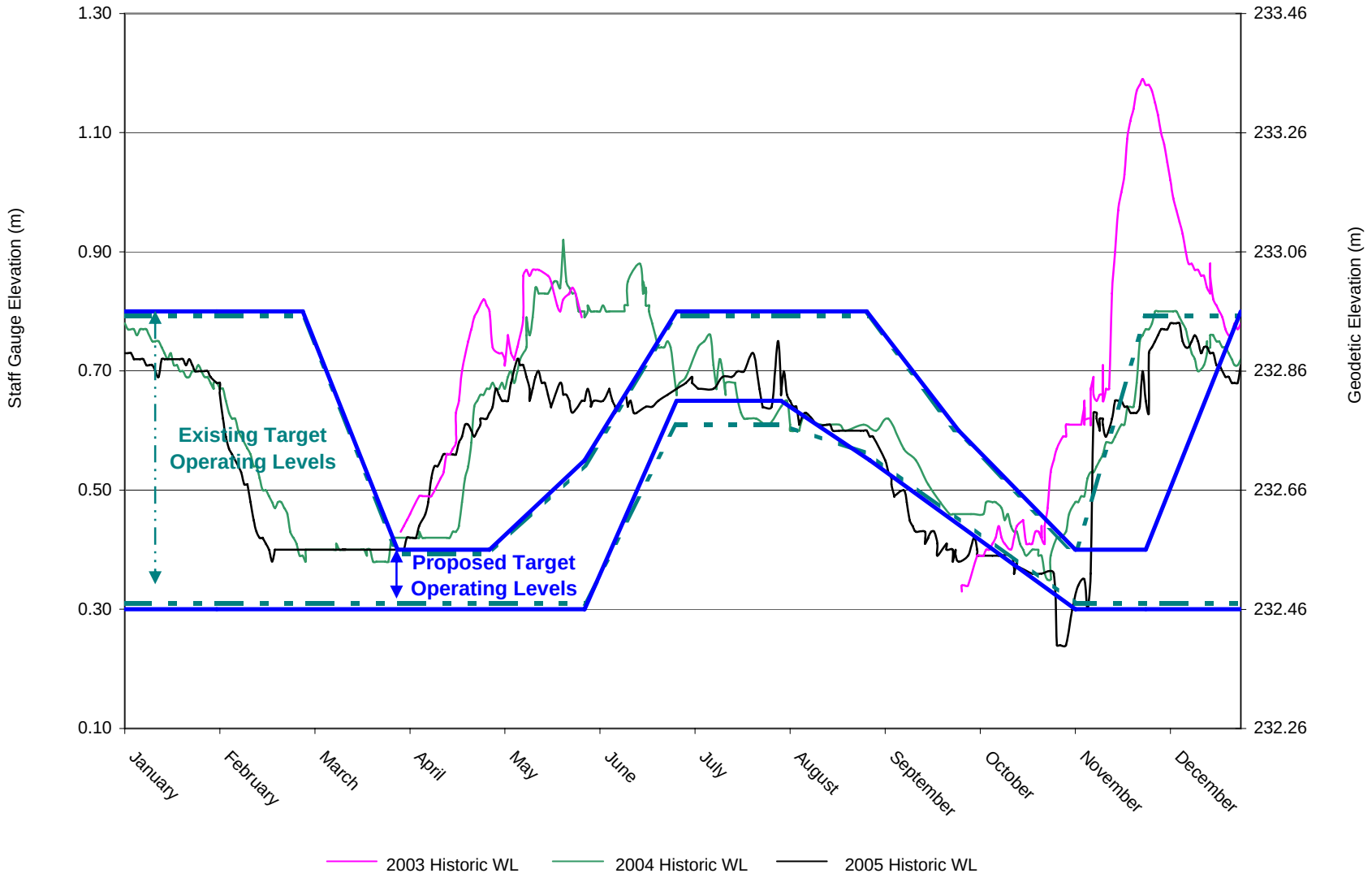


Fig. 9.3 Scarfe/Canoe Lake - Preferred Option
(Target Levels Same As Exisitng Levels)

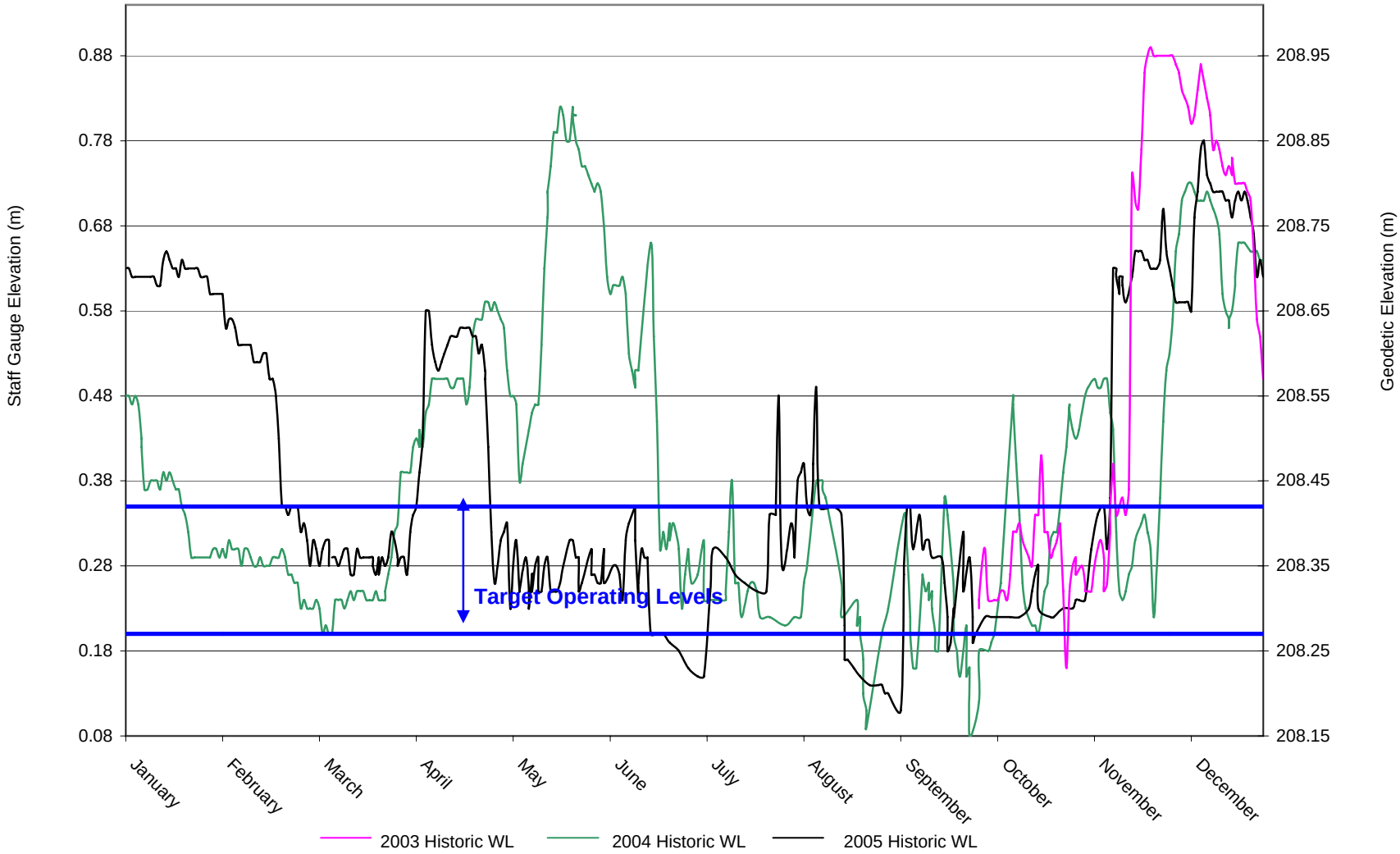
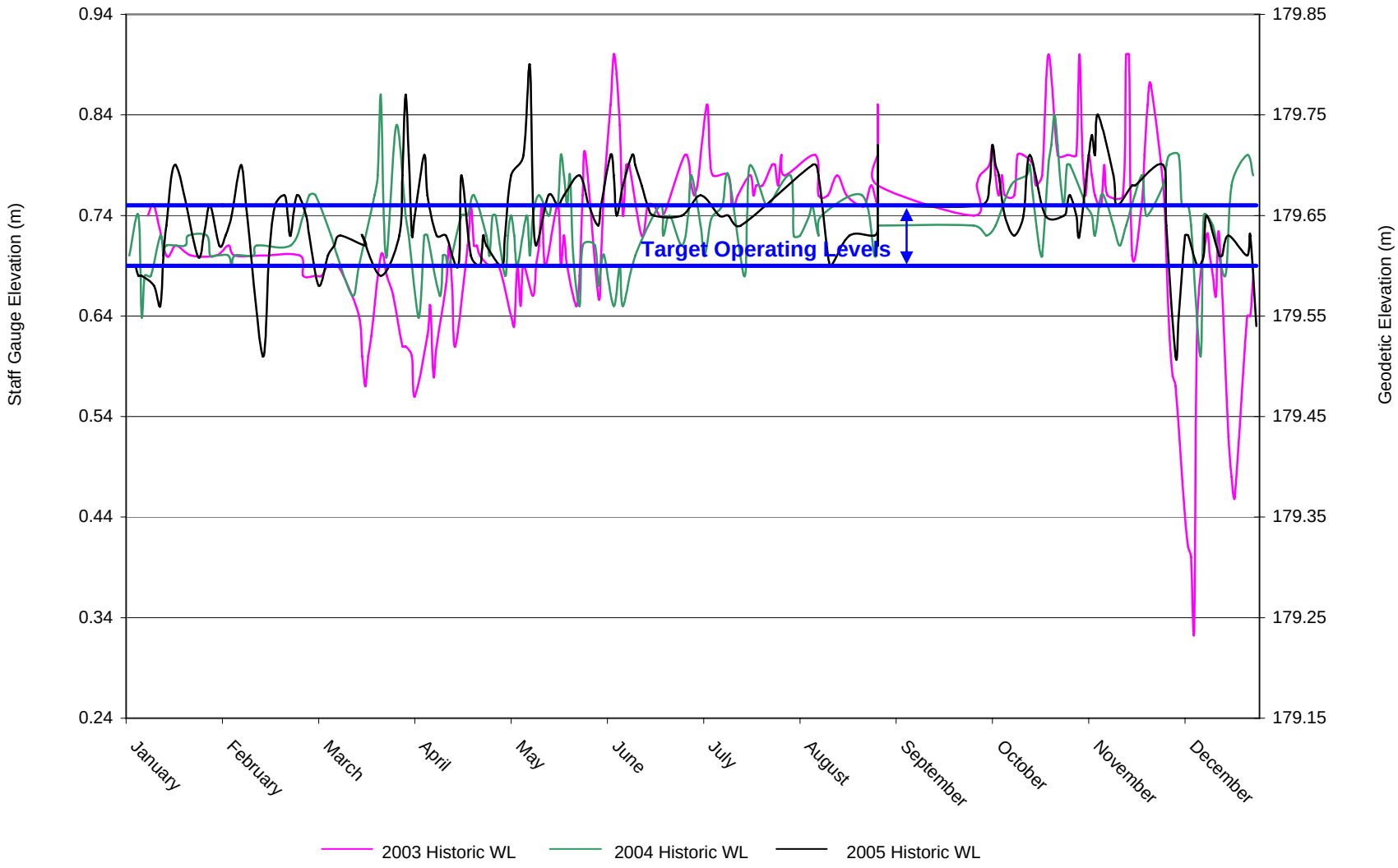


Fig. 9.4 Blind River - Preferred Option
(Target Levels Same As Existing Levels)



10 DESCRIPTION OF OPERATING PLANS (For Each Waterpower Facility and Water Control Dam)

10 Description of Operating Plans (for Each Waterpower Facility and Water Control Dam)

Operating rule curves for each lake are shown in graphical and tabular format at the end of this section and are discussed in more detail below.

In discussions earlier in this WMP involving options, option development and operating plans, target levels were proposed for those periods of the year associated with a specific issue such as summer levels or lake trout spawning/rearing period (e.g., Table 8.1). Target levels are considered to be the levels the system operators strive to achieve, but are too tight for compliance purposes, mainly during the spring and fall, since natural fluctuations in levels and flows may cause levels to go outside the target range. Therefore, compliance limits for the operation of the Blind River system facilities have been revised to reflect typical water level ranges resulting from recent historical inflows. These changes are evident mainly in the spring and fall, and are primarily the result of spring runoff, spring rains, and fall rains. The main objectives for the operation of these structures, specifically summer water levels, flood mitigation, and lake trout reproductive protection, as described in the option descriptions, continue to be addressed with these changes to compliance limits in the operating plans.

The changes in the WMP operating plans are necessary because the target levels are achievable much of the time, but not all of the time. For compliance purposes, enforcement of the target levels would not be practical, and frequent excursions would occur due to natural events, not within the control of the facility operators. The revised compliance levels reflect normal seasonal patterns that are expected in run-of-the-river operations.

10.1 Coordination

Each of the respective dam operators is responsible for managing the water levels within the prescribed ranges. Any time an adjustment is made to water levels by installation or removal of a stop log, or adjustment of a mechanical gate, the operator making the change will notify both of the other two operators by fax as soon as possible, but before the end of the next business day. This is necessary to ensure that the other operators can react by making any required corresponding adjustments before undesirable level changes occur. The advantage of using notification by facsimile instead of telephone or e-mail is that other people will have access to the information, and may initiate appropriate action if required, in the event that the intended recipient is not available.

10.2 Matinenda Lake/Dam

Operation of the Matinenda Lake dam will be similar to recent years, with a minor increase to summer levels. Summer target water levels would be maintained between 234.92 m CGD (0.67 m gauge) and 234.97 m CGD (0.72 m gauge). Water levels would be reduced during September to a target level of 234.91 m CGD to establish a suitable level for lake trout spawning. Between January and March the level will be allowed to fall to 234.75 m CGD (0.50 m gauge), to capture the spring freshet and allow for flood management downstream.

Details of the Matinenda Lake Operating Plan are provided in Table 10.1. Both target levels and compliance levels are provided. Target levels are included to provide direction for operation of the dam, and are not intended to be used for compliance purposes. Compliance levels are mandatory levels for this WMP.

10.3 Chiblow Lake/Dam

The operating range of water levels for Little Chiblow/Chiblow Lake will remain the same, but some modifications to operations within the range are proposed to improve summer water levels for recreation and fall water levels for lake trout spawning. Control of the lake levels will be accomplished through a generation plant operation and/or the manipulation of stop logs in the dam. 1149377 Ontario Ltd. will remain responsible for maintaining lake levels within the following parameters under normal circumstances.

- Summer period – from the beginning of June until mid August, the lake will be held between 232.81 m CGD (0.65 m gauge) and 232.96 m CGD (0.80 m gauge). Generally, there is little generation carried out during this period. From mid August until after the Labour Day weekend, the lake may be allowed to drop to 232.71 m CGD (0.55 m gauge).

- Fall period – after the Labour Day weekend the lake will be drawn down to between 232.46 to 232.56 m CGD (0.30 to 0.40 m gauge). The minimum level obtained on October 1 becomes the Minimum Operating Level (MOL) for the rest of the fall and winter in order to avoid exposing trout spawn to the air. The MOL is held constant (when possible) throughout the month of October to facilitate the spawning of trout. Following November 7, the lake is allowed to rise depending on available water to a maximum of 232.96 m CGD (0.80 m gauge). Creating a reservoir of water by raising the lake to 232.96 m CGD (0.80 m gauge) is preferred so that minimum flows can be maintained through the generating stations to prevent freezing of the equipment during the winter period.

- Winter period – the lake is held between the MOL and 232.96 m CGD (0.80 m gauge).

- Spring period – during the months of February and March, logs are generally removed from the dam to allow the lake to be lowered to between the MOL and 232.56 m CGD (0.40 m gauge). This drawdown is necessary to facilitate the inflow of freshet and to control flooding conditions. At the end of May, the trout hatch is complete and the lake is returned to summer operating levels.

- Compliance levels are provided in Table 10.1.

This WMP will require the leakage flows continue in the natural riverbed downstream of the Chiblow Lake Dam. This leakage flow amount, in the order of 0.002 m^3/s, will help sustain any aquatic organisms that may have adapted to these low leakage flows in the original stream beds. This leakage flow shall not be stopped by means such as jacking down the stop logs, or otherwise sealing the logs to completely prevent leakage.

Details of the Chiblow Lake Dam operating plan are provided in Table 10.1.

10.4 Canoe Lake Dam

The operating levels for Canoe Lake will remain as they have developed over the past several years. Control of the lake levels will be accomplished through a generation plant operation and/or the manipulation of stop logs in the dam. 1149377 Ontario Ltd. will remain responsible for maintaining the lake levels within the following parameters under normal circumstances:

- Full Year – the lake target level will be between 208.27 to 208.43 m CGD (0.20 to 0.36 m gauge).
- Compliance levels are provided in Table 10.1.

This WMP will require that leakage flows continue in the natural riverbed downstream of the Canoe Lake Dam. This leakage flow amount, in the order of 0.002 m^3/s, will help sustain any aquatic organisms that may have adapted to these low leakage flows in the original stream beds. This leakage flow shall not be stopped by means such as jacking down the stop logs, or otherwise sealing the logs to completely prevent leakage.

Details of the Canoe Lake Dam operating plan are provided in Table 10.1.

10.5 Blind River Dam

Operation of the Blind River Dam will remain similar to the regime followed since 1998. It will be operated to maintain water levels between 179.60 m CGD (0.69 m gauge) and 179.66 m CGD (0.75 m gauge).

Details of the Blind River Dam operating plan are provided in Table 10.1.

Table 10.1
Operating Plans for Blind River Facilities

Facility	Time Period	Minimum Target Level (mCGD)	Maximum Target Level (mCGD)	Minimum Compliance Level (mCGD)	Maximum Compliance Level (mCGD)	Minimum Target Level (mStaff)	Maximum Target Level (mStaff)	Minimum Compliance Level (mStaff)	Maximum Compliance Level (mStaff)	Required Flow (m^3/s)
Blind River Dam	Jan 1 - Jan 31	179.600	179.660	179.600	179.710	0.69	0.75	0.69	0.80	N/A
	Feb 1 - Mar 31	179.600	179.660	179.600	179.680	0.69	0.75	0.69	0.77	N/A
	Apr 1 - May 31	179.600	179.660	179.600	179.760	0.69	0.75	0.69	0.85	N/A
	Jun 1 - Sep 30	179.600	179.660	179.600	179.660	0.69	0.75	0.69	0.75	N/A
	Oct 1 - Nov 30	179.600	179.660	179.600	179.760	0.69	0.75	0.69	0.85	N/A
	Dec 1 - Dec 31	179.600	179.660	179.600	179.710	0.69	0.75	0.69	0.80	N/A
Canoe (Scarfe) Lake Dam	Jan 1 - Jan 31	208.270	208.420	208.270	208.770	0.20	0.35	0.20	0.70	N/A
	Feb 1 - Mar 31	208.270	208.420	208.270	208.670	0.20	0.35	0.20	0.60	N/A
	Apr 1 - May 31	208.270	208.420	208.270	208.920	0.20	0.35	0.20	0.85	N/A
	Jun 1 - Sep 30	208.270	208.420	208.270	208.420	0.20	0.35	0.20	0.35	N/A
	Oct 1 - Dec 31	208.270	208.420	208.270	208.920	0.20	0.35	0.20	0.85	N/A
Chiblow Lake Dam	Jan 1 - Feb 28	232.460*	232.960	232.460	232.960	0.30*	0.80	0.30	0.80	N/A
	Mar 1 - Mar 31	232.460*	232.560	232.460	232.560	0.30*	0.40	0.30	0.40	N/A
	Apr 1 - May 31	232.460	232.960	232.460	233.360	0.30	0.80	0.30	1.20	N/A
	Jun 1 – Aug 15	232.810	232.960	232.760	232.960	0.65	0.80	0.60	0.80	N/A
	Aug 16 – Aug 31	232.710	232.960	232.760	232.960	0.55	0.80	0.45	0.80	N/A
	Sep 1 – Sep 30	232.460	232.560	232.460	232.760	0.30	0.40	0.30	0.60	N/A
	Oct 1 - Nov 7	232.460*	232.560	232.460	232.660	0.30*	0.40	0.30	0.50	N/A
	Nov 8 - Nov 30	232.460*	232.960	232.460	233.360	0.30*	0.80	0.30	1.20	N/A
	Dec 1 - Dec 31	232.460*	232.960	232.460	233.360	0.30*	0.80	0.30	1.20	N/A
Matinenda Lake Dam	Jan 1 - Jan 31	234.750	234.850	234.750	235.260	0.50	0.60	0.50	1.01	N/A
	Feb 1 - Feb 28	234.750	234.850	234.750	234.880	0.50	0.60	0.50	0.63	N/A
	Mar 1 - Mar 31	234.750	234.800	234.750	234.800	0.50	0.55	0.50	0.55	N/A
	Apr 1 - May 31	234.920	234.973	234.750	235.600	0.67	0.72	0.50	1.35	N/A
	Jun 1 - Jun 15	234.920	234.973	234.920	235.100	0.67	0.72	0.67	0.85	N/A
	Jun 16 - Aug 31	234.920	234.973	234.920	234.973	0.67	0.72	0.67	0.72	N/A
	Sep 1 - Sep 6	234.920	234.943	234.890	234.943	0.67	0.69	0.64	0.69	N/A
	Sep 7 - Sep 30	234.890	234.943	234.890	234.943	0.64	0.69	0.64	0.69	N/A
	Oct 1 - Oct 31	234.890	234.943	234.890	234.943	0.64	0.69	0.64	0.69	N/A
	Nov 1 - Nov 7	234.890	234.910	234.890	234.943	0.64	0.66	0.64	0.69	N/A
	Nov 8 - Dec 31	234.830	234.910	234.750	235.600	0.58	0.66	0.50	1.35	N/A

* October 1 level becomes minimum level until March 31 for Chiblow Lake Dam

Fig. 10.1 Matinenda Lake Dam Operating Plan

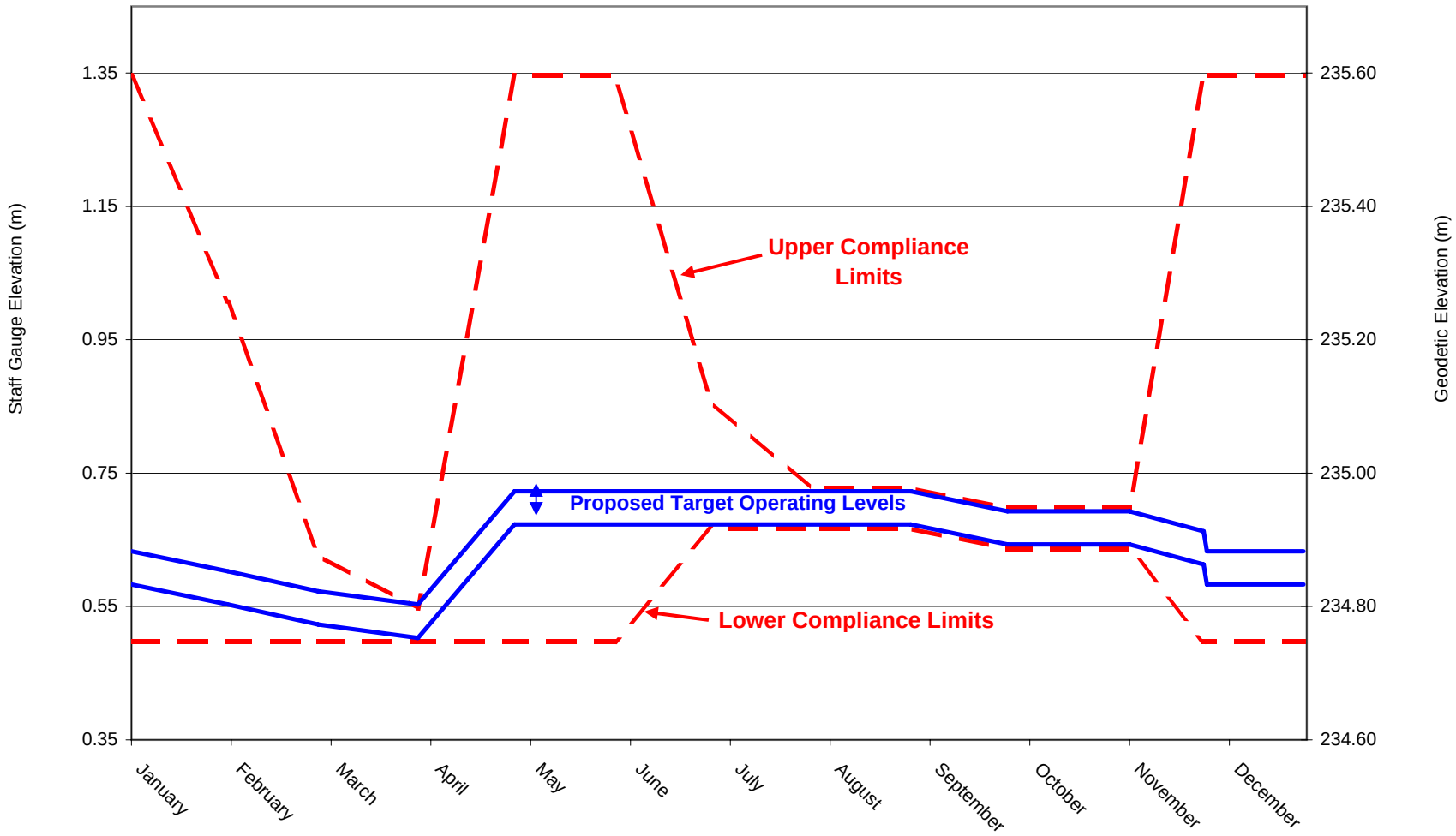


Fig. 10.2 Chiblow Lake Dam Operating Plan

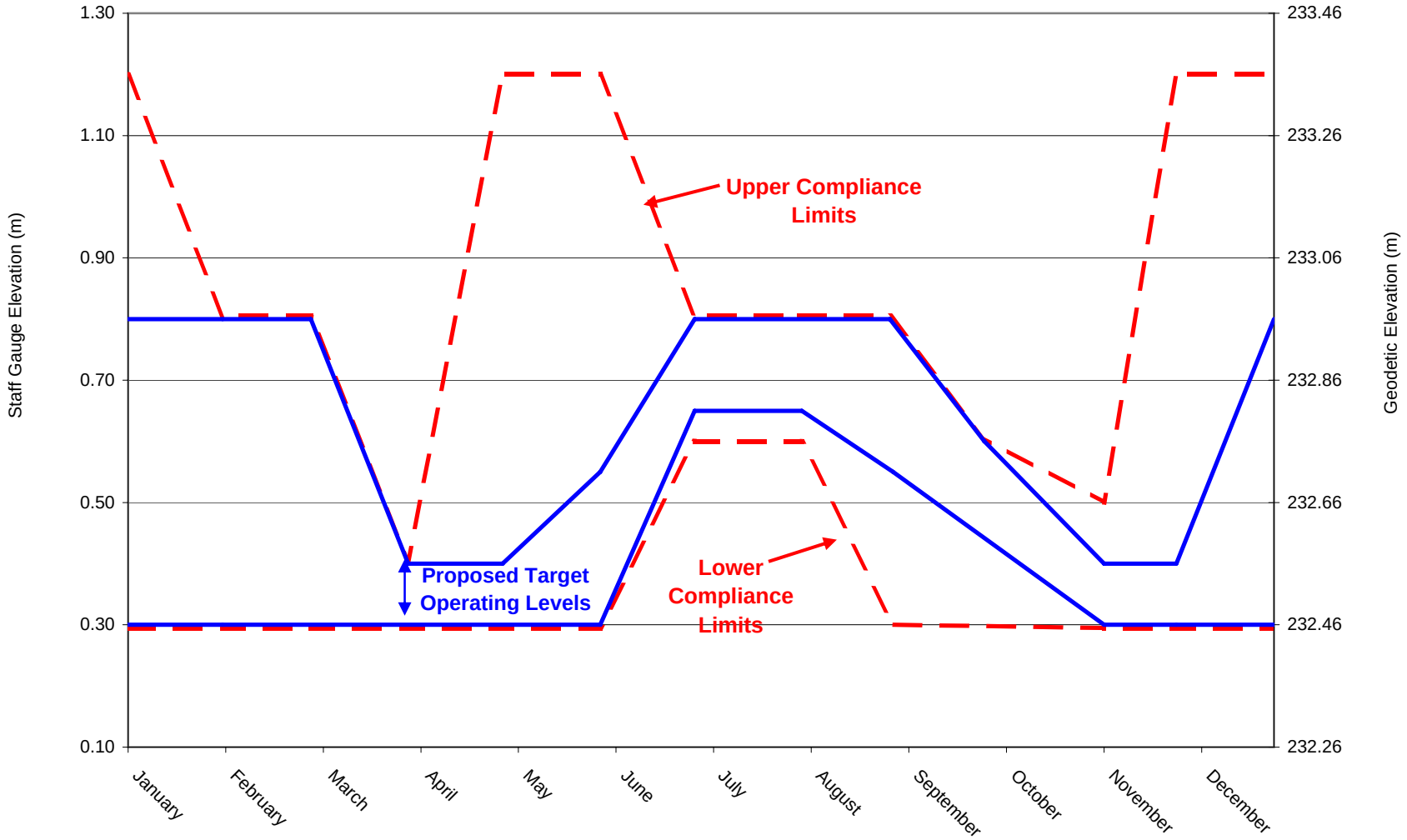


Fig. 10.3 Scarfe/Canoe Lake Dam Operating Plan

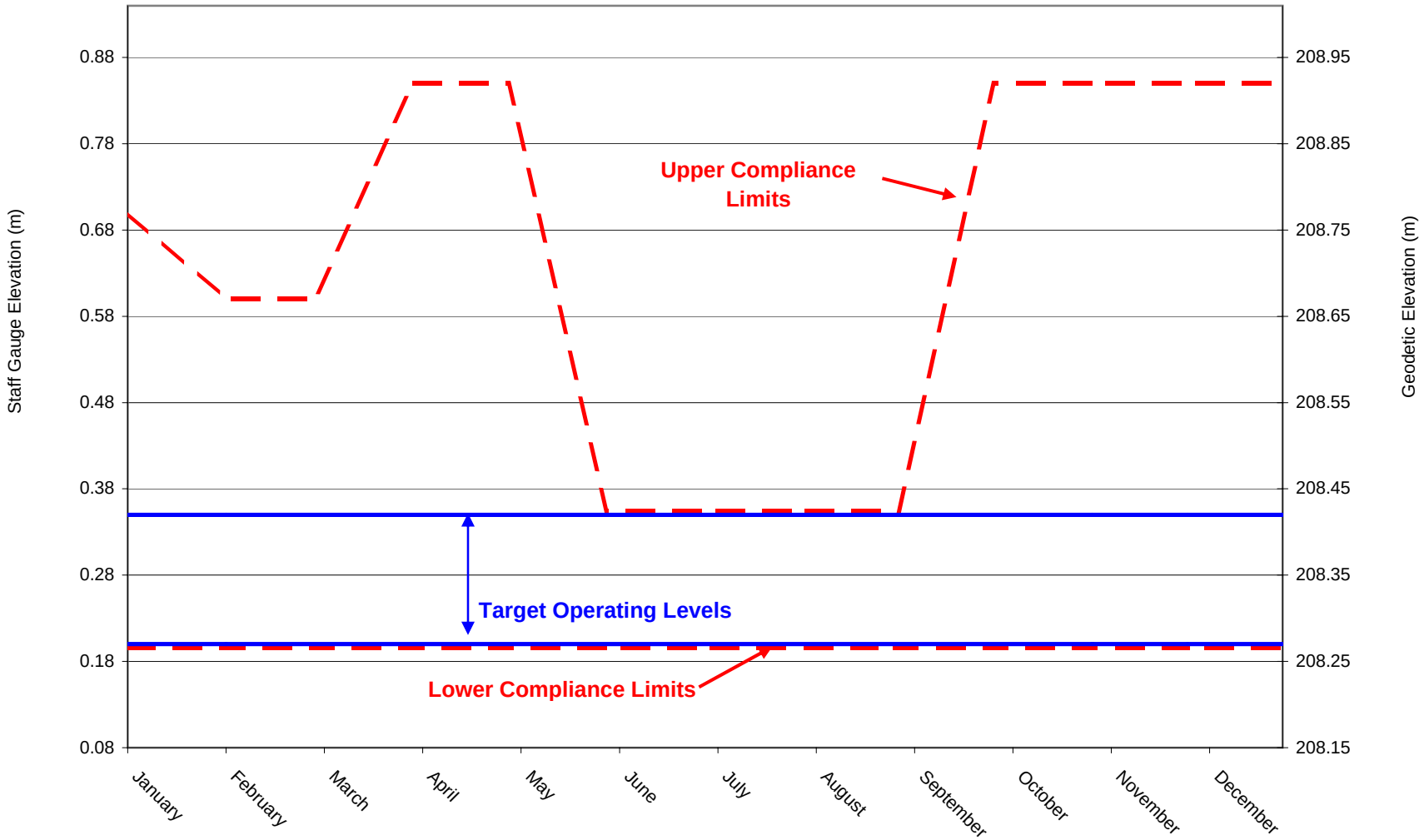
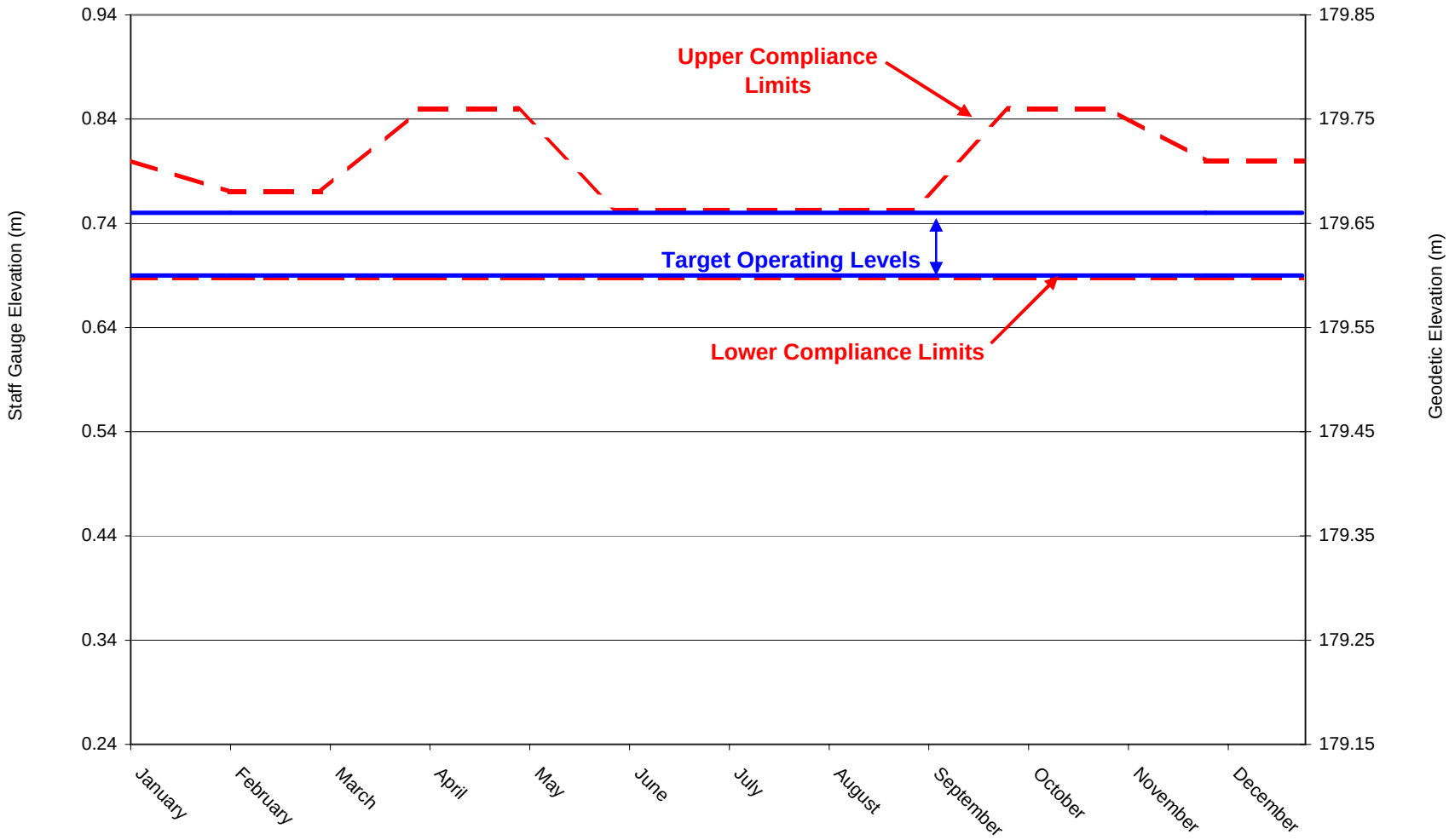


Fig. 10.4 Blind River Dam Operating Plan



11 EFFECTIVENESS MONITORING PROGRAM

11 Effectiveness Monitoring Program

11.1 General

The Water Management Planning Guidelines for Waterpower (MNR, 2002) indicate that Effectiveness Monitoring (EM) is required to evaluate changes implemented through the WMP process, as well as the effects of hydro-electric facility operations. Effectiveness monitoring is not only applicable to ecological values, but also social and economic values. If an operating regime for a waterbody is changed, the EM program should be specifically designed to evaluate the introduced change. If no changes are made to a particular operating regime, an EM program is not required for the waterbody regulated or affected by that operating regime. The Guidelines also indicate that EM is primarily the responsibility of the proponent. In the case of the Blind River WMP, the proponents are 1149377 Ontario Ltd., the Town of Blind River, and MNR. MNR owns three of the four dams regulated by this plan. The fisheries assessment component of EM for the Blind River WMP shall be conducted by MNR. The waterpower operators on this river system have a very limited capacity to conduct such studies.

This EM program has been developed to ensure that operational changes are effective in meeting the ecological and socioeconomic objectives of this WMP. Physical and biological indicators will be used to measure the effectiveness of alterations to flow characteristics in meeting ecosystem goals. Socioeconomic feedback will be primarily from the public, the proponents, riparian landowners, and cottage associations. The results of the EM program will be evaluated on an ongoing basis by the Standing Advisory Committee (SAC), and will be used for the next round of planning.

EM for this WMP can be grouped into four main areas. These are lacustrine fisheries assessments of the main sport fish species (valued ecosystem components), riverine assessments, ongoing water level data collection, and social aspects. EM is also described as being either mandatory or recommended. Mandatory monitoring activities are those items identified as being required by this WMP, and wording such as ‘shall conduct’ or ‘is required’ is used. Mandatory EM is listed in Table 11.1. Recommended EM is for subject areas not affected by operating regime changes in this WMP, but where an improved understanding and or up-to-date information will be of value for the next round of planning, adaptive management, or for ongoing resource management.

11.2 Fisheries Assessments

Matinenda Lake

The change to the operating regime for Matinenda Lake involves summer water levels. This small change is not anticipated to have any measurable impact on fish species. The main metric for evaluation of these levels will be feedback from the Matinenda Cottagers Association and the public.

However, Matinenda Lake is a very important local lake trout fishery. It would be of considerable benefit for the next planning cycle, if improved and up-to-date lake trout information is available. Lake trout are the primary valued ecosystem component in this lake. A lake trout index survey should be repeated in 5 years (2007). A year class strength evaluation should be done to assist with the determination of the potential for low winter water levels to have been a contributing factor to weak or absent year classes.

The spawning depth range of lake trout should be determined. Two studies have been conducted to delineate the main spawning shoals. However the actual depth of spawning could not be confirmed from these studies. It is recommended that a lake trout egg survey be conducted using scuba divers, to confirm the depth range of lake trout spawning. It is unfortunate that in the winter of 1987/88 part of a year class of lake trout was lost due to low winter water levels. The timing of lake trout spawning should also be determined annually for at least five consecutive years, beginning in 2004. Monitoring of water temperatures at each of the generating facilities will assist in this determination. This information will be important in the next WMP cycle to confirm that the strategy used for protecting lake trout spawning and egg incubation is appropriate.

Table 11.1
Mandatory Effectiveness Monitoring Requirements

Waterbody	Issue and Objective	Monitoring Study	Required Data and Frequency	Method and Protocol	Responsibility	Reporting Requirements and Timelines
Lower Blind River	Walleye spawning timing	Water temperature	Water temperature readings (3/week Apr 1 to May 31)	Surface temperature with thermometer	Town of Blind River	
Canoe Lake	Walleye spawning timing	Water temperature	Water temperature readings (3/week Apr 1 to May 31)	Surface temperature with thermometer	1149377 Ont. Ltd.	
Chiblow Lake	Timing of Lake Trout spawning	Water temperature Monitoring of Lake Trout spawning	Water temperature readings (3/week Oct 1 to Nov 30) Spawning duration: Annually 2007-2012	Surface temperature with thermometer Visual observations	1149377 Ont. Ltd. MNR	

Chiblow Lake

A specific strategy is being implemented for Chiblow Lake to enhance lake trout reproductive success. The change is to address the typical lake trout spawning period in this area, requiring that the October 1 level become the minimum level until the end of March, and that levels be held constant between October 1 and November 7. Verification of actual lake trout spawning periods by calendar and water temperature will verify the validity of this period. It may be possible for the next planning cycle to adjust these dates based on improved information. This requires collection of water temperature data for the plan duration, as well as determination of actual spawning periods for a minimum of five consecutive years, beginning in 2005. An estimate of inter-annual variability in spawning periods will also be required. Determination of actual spawning periods is easiest done by visual monitoring of known spawning locations.

A lake trout index survey should be repeated in 5 years (2007). A year class strength evaluation should be done to assist with the determination of the potential for low winter water levels to have been a contributing factor to weak or absent year classes. A study should also be conducted (similar to that proposed for Matinenda Lake) to supplement existing lake trout spawning information, by verifying location, depth and timing of lake trout spawning. This information will be of value in the next WMP cycle, to clarify the timing for water level regulation targeted at protection of lake trout spawning and egg incubation. The location, temperature, depth and timing of lake trout spawning will also clarify whether the October 1 to November 7 constraint is warranted, or could be modified, based on study findings.

Canoe Lake

No change to the operating regime for Canoe Lake has been put forward in this WMP. Lake trout and walleye are the primary valued ecosystem components in Canoe Lake. The SLIN and FWIN conducted in 2002 indicate very poor populations of lake trout and walleye. An investigation/review should be conducted by MNR to determine an appropriate management strategy for this lake. The management strategy should be implemented before 2009, to allow sufficient time for an evaluation at the start of the next WMP cycle.

Lake Duborne

No changes to the operating regime for the lower Blind River or Lake Duborne have been put forward in this WMP.

Lake trout and walleye are the primary valued ecosystem components in Lake Duborne. A lake trout index survey and FWIN survey should be repeated in 5 years (2007). The lake trout egg survey initiated in 2002, which had inconclusive results, should also be completed. This information will confirm the locations and depths that are used for lake trout spawning, and will help in management of the lake trout population in this lake, which is in a stressed condition.

11.3 Riverine Assessments

Results of the 2002 Wadable Stream Survey of the Blind River are to be compiled and interpreted. When MNR approves a large river assessment protocol it should be conducted on the appropriate sections of the river for the next WMP cycle.

11.4 Water Measurements

Requirements for water level and flow measurements are discussed in Section 12. Additional temperature measurements will be important for monitoring the timing of spawning activities. Because spawning usually corresponds very closely to water temperature, development of a temperature database will be very useful in determining the timing and the inter-annual variability of spawning, primarily for lake trout and walleye. The temperature data can be verified and correlated with actual confirmed observations of spawning activities. The temperature data will also facilitate such observations by identifying the times when observations should be made.

11.5 Socioeconomic Factors

No specific socioeconomic monitoring program is proposed for this WMP. Economic concerns of the Town of Blind River or 1149377 Ontario Ltd. can be expressed at any time to the MNR. Social or other concerns may be provided at any time by First Nations, the public, riparian landowners, cottage associations, or other interested parties, to the MNR. All written correspondence will be kept on file by MNR for review by the SAC. If warranted, the WMP amendment process may be implemented at any time, at the discretion of the district manager.

12 COMPLIANCE MONITORING PROGRAM FOR THE BLIND RIVER WATER MANABEMENT PLAN

12 Compliance Monitoring Program for the Blind River Water Management Plan

12.1 Introduction

As each WMP is completed and approved, subsection 23.1(7) of the LRIA requires the facility operators to operate their facilities in accordance with the approved plan. The waterpower companies will be responsible for ongoing self-monitoring through a Compliance Monitoring Program specified within the WMP.

Compliance is adherence to a set of rules or requirements.

Monitoring can generally be described as observing, recording or detecting an operation or condition.

Compliance monitoring is used to determine whether an operator conforms to the approved plan.

A monitoring strategy is presented in the following section. The operators are 1149377 Ontario in the case of the Chiblow Lake Dam and GS, as well as the Canoe Lake Dam and GS; the Town of Blind River in the case of the Blind River Dam and GS; and MNR for the Matinenda Lake Dam.

12.2 Compliance

12.2.1 Mandatory Compliance

Operational requirements placed on the facilities as outlined in this WMP are considered mandatory unless clearly specified otherwise and/or the provisions outlined in this WMP for high or low water conditions are met. In instances where, due to (acute/emergency) energy shortages, the IESO requests that the operator seek relief from certain provisions of this plan MNR will consider those requests expeditiously and after consultation with IESO may allow short term relief from certain provisions. A copy of the IESO request must be provided to MNR. Table 12.1 outlines the absolute mandatory flows and levels for the Blind River WMP.

Mandatory provisions of this WMP will be waived, as appropriate, when the plan holder and MNR are requested to do so by a police agency or other recognized emergency organization. Conditions outlined in this water management plan may not apply when managing operations outside of the agreed upon operational rule curves if a low or high water indicator has been met. As a result, operators will not automatically be out of compliance with this WMP when they operate outside the defined operating range while these indicators exist.

Table 12.1
Target Water Levels and Compliance Limits

Facility	Time Period	Minimum Target Level (mCGD)	Maximum Target Level (mCGD)	Minimum Compliance Level (mCGD)	Maximum Compliance Level (mCGD)	Minimum Target Level (mStaff)	Maximum Target Level (mStaff)	Minimum Compliance Level (mStaff)	Maximum Compliance Level (mStaff)	Required Flow (m^3/s)
Blind River Dam	Jan 1 - Jan 31	179.600	179.660	179.600	179.710	0.69	0.75	0.69	0.80	N/A
	Feb 1 - Mar 31	179.600	179.660	179.600	179.680	0.69	0.75	0.69	0.77	N/A
	Apr 1 - May 31	179.600	179.660	179.600	179.760	0.69	0.75	0.69	0.85	N/A
	Jun 1 - Sep 30	179.600	179.660	179.600	179.660	0.69	0.75	0.69	0.75	N/A
	Oct 1 - Nov 30	179.600	179.660	179.600	179.760	0.69	0.75	0.69	0.85	N/A
	Dec 1 - Dec 31	179.600	179.660	179.600	179.710	0.69	0.75	0.69	0.80	N/A
Canoe (Scarfe) Lake Dam	Jan 1 - Jan 31	208.270	208.420	208.270	208.770	0.20	0.35	0.20	0.70	N/A
	Feb 1 - Mar 31	208.270	208.420	208.270	208.670	0.20	0.35	0.20	0.60	N/A
	Apr 1 - May 31	208.270	208.420	208.270	208.920	0.20	0.35	0.20	0.85	N/A
	Jun 1 - Sep 30	208.270	208.420	208.270	208.420	0.20	0.35	0.20	0.35	N/A
	Oct 1 - Dec 31	208.270	208.420	208.270	208.920	0.20	0.35	0.20	0.85	N/A
Chiblow Lake Dam	Jan 1 - Feb 28	232.460*	232.960	232.460	232.960	0.30*	0.80	0.30	0.80	N/A
	Mar 1 - Mar 31	232.460*	232.560	232.460	232.560	0.30*	0.40	0.30	0.40	N/A
	Apr 1 - May 31	232.460	232.960	232.460	233.360	0.30	0.80	0.30	1.20	N/A
	Jun 1 – Aug 15	232.810	232.960	232.760	232.960	0.65	0.80	0.60	0.80	N/A
	Aug 16 – Aug 31	232.710	232.960	232.760	232.960	0.55	0.80	0.45	0.80	N/A
	Sep 1 – Sep 30	232.460	232.560	232.460	232.760	0.30	0.40	0.30	0.60	N/A
	Oct 1 - Nov 7	232.460*	232.560	232.460	232.660	0.30*	0.40	0.30	0.50	N/A
	Nov 8 - Nov 30	232.460*	232.960	232.460	233.360	0.30*	0.80	0.30	1.20	N/A
	Dec 1 - Dec 31	232.460*	232.960	232.460	233.360	0.30*	0.80	0.30	1.20	N/A
Matinenda Lake Dam	Jan 1 - Jan 31	234.750	234.850	234.750	235.260	0.50	0.60	0.50	1.01	N/A
	Feb 1 - Feb 28	234.750	234.850	234.750	234.880	0.50	0.60	0.50	0.63	N/A
	Mar 1 - Mar 31	234.750	234.800	234.750	234.800	0.50	0.55	0.50	0.55	N/A
	Apr 1 - May 31	234.920	234.973	234.750	235.600	0.67	0.72	0.50	1.35	N/A
	Jun 1 - Jun 15	234.920	234.973	234.920	235.100	0.67	0.72	0.67	0.85	N/A
	Jun 16 - Aug 31	234.920	234.973	234.920	234.973	0.67	0.72	0.67	0.72	N/A
	Sep 1 - Sep 6	234.920	234.943	234.890	234.943	0.67	0.69	0.64	0.69	N/A
	Sep 7 - Sep 30	234.890	234.943	234.890	234.943	0.64	0.69	0.64	0.69	N/A
	Oct 1 - Oct 31	234.890	234.943	234.890	234.943	0.64	0.69	0.64	0.69	N/A
	Nov 1 - Nov 7	234.890	234.910	234.890	234.943	0.64	0.66	0.64	0.69	N/A
	Nov 8 - Dec 31	234.830	234.910	234.750	235.600	0.58	0.66	0.50	1.35	N/A

* October 1 level becomes minimum level until March 31 for Chiblow Lake Dam

Low and high water indicators are defined as:

Low Water Indicator
The Blind River facilities, which have no minimum downstream flow but do have a minimum reservoir/head- pond water level will meet the Low Water Indicator when all of the following conditions are met:

- outflow from the facility is at the minimum possible outflow (i.e., all discharge facilities are closed, and generation is shut down)
- head-pond/reservoir water level is decreasing.

A High Water Indicator exists when all of the following conditions are met:

- water level in the head pond/reservoir is at or above the maximum water level stipulated in the WMP
- head-pond/reservoir water level is increasing
- discharge facilities have been operated to discharge the maximum discharge possible (without exacerbating flood damages)

12.2.2 Incident Notification

1149377 Ontario Ltd. and the Town of Blind River are required to contact MNR for all incidents of failing to meet mandatory components of the operating plan within 24 hours of the incident being discovered. The owner/operator will explain the nature of the incident, why it happened if known, what is being done to bring operations back into compliance, and how long it will take.

12.2.3 Incident Reporting

1149377 Ontario Ltd. and the Town of Blind River will be required to report any deviations from the WMP to MNR within 10 working days, together with a rationale for the deviations, and proposals for remediation of any problems, if necessary. This report shall be signed and dated by the owner/operator.

MNR will take into account the nature, severity and the reasons for the non-compliance. The utility owner will be provided with a fair and reasonable opportunity to explain what happened and their actions before any enforcement action is taken.

12.2.4 Enforcement

1149377 Ontario Ltd. and the Town of Blind River will operate their waterpower facilities in accordance with their approved WMP or will be held accountable. 1149377 Ontario Ltd. and the Town of Blind River must report to MNR all incidents of failing to meet the mandatory components of the plan. MNR will from time to time carry out compliance inspections of the site as provided for in section 20 of the LRIA.

MNR will determine the response to non-compliance in accordance with legislation and policy.

MNR will review each instance of non-compliance. These reviews will take into account a number of factors including weather, the compliance history of the offender, the intent of the offender, failure of equipment and unforeseen events.

12.3 Compliance Monitoring

Monitoring Strategy Statement
The facility operators will maintain a monitoring program to report on the implementation of the Water Management Plan and the defined operational regimes contained within. The monitoring program will be robust enough to validate compliance with the flow and level regimes prescribed in the WMP. The monitoring strategy includes monitoring, reporting and public involvement/awareness strategies.

The Compliance Monitoring Program (CMP) will rely on the proponents' self-monitoring to ensure ongoing compliance as well as ongoing monitoring. This CMP specifies which measurements are to be taken as well as when and why measurements are to be taken and will be supplied by 1149377 Ontario Ltd. and/or the Town of Blind River.

Compliance monitoring requirements and rationale are provided in Table 12.2.

In addition to the reporting as described above, the local operators on the Blind River system have historically provided the MNR Blind River Area Office with operational reports up to three times per week depending on season, indicating levels, flows and stop-log configurations or changes. This communication between operators is essential for effective regulation of flows and levels in the Blind River system. Water temperatures shall also be included in these reports.

Owners will maintain records of all level and/or flow information that are required by the plan for a period of 1 year beyond the expiry of the Blind River WMP. It is also mandatory that data be archived for a minimum of 5 years. Therefore any data collected near the end of the WMP term must be kept for 5 years from the day it is collected to ensure the minimum 5 year requirement is met. At the conclusion of this time period the owner will provide a copy of the data to MNR. Where daily averages are required for compliance monitoring, 1149377 Ontario Ltd. and the Town of Blind River shall maintain records of the data used to calculate the daily average values and are required to supply this raw data upon request of the Ministry.

It is recognized that water level measurements may be unavailable from time to time due to equipment failure or environmental conditions. 1149377 Ontario Ltd. and the Town of Blind River will maintain data for their respective facilities and make it available to MNR upon request for audit activities. MNR will maintain data for its facilities at the MNR regional office in the City of Timmins. MNR will undertake a number of compliance activities, such as monitoring of real-time water levels and flows from time-to-time or occasional audits.

1149377 Ontario Ltd. and the Town of Blind River shall make the data required in this plan, available to an MNR inspector or engineer when requested to do so. In the absence of a specific request contained in the plan, or from time to time by an inspector, the owner shall supply the data annually on the anniversary of the signing of this plan, by March 31 of the following year.

Table 12.2 Compliance Monitoring Requirements and Rationale				
Facility	**Data Requirement**	**Reporting Period**	**Rationale**	**Responsibility**
Blind River Dam	(Jan 1 to Dec 31) Daily instantaneous water level (5 per week)	Annually or on request by MNR for inspections	Requirement to monitor levels of the lower Blind River and Lake Duborne	Town of Blind River
Canoe (Scarfe) Lake Dam	(Jan 1 to Dec 31) Daily instantaneous water level (5 per week), daily minimum, maximum and total generation flow	Annually or on request by MNR for inspections	Lake levels are WMP requirement; flows required to build database for next WMP	1149377 Ontario
Chiblow Lake Dam	(Jan 1 to Dec 31) Daily instantaneous water levels (5 per week), daily minimum, maximum and total generation flow	Annually or on request by MNR for inspections	Lake levels are WMP requirement; flows required to build database for next WMP	1149377 Ontario
Matinenda Lake Dam	Water level 1/month minimum		Remote location of dam and slow rate of change reduce monitoring requirement	MNR

Upon the request of the Ministry, 1149377 Ontario Ltd. and the Town of Blind River shall supply stage discharge/stage storage data, flow and level data for what ever time period requested or other hydrological data for any particular facility. When requested by MNR to supply such information the proponent shall do so in the timeframe indicated in the request. It is a condition of the WMP that any data or information (i.e. stage discharge, stage storage, etc), deemed necessary by MNR and not supplied during the planning process will be supplied within 6 months of this plan coming into force.

Note: *Where there is a reference to flow and level data being created, stored or shared the intent, unless otherwise specifically indicated, is the data will be raw data and will not be otherwise interpreted or summarized by the owner. With respect to the Blind River WMP all information will be supplied in electronic format to the MNR for each facility. Where facilities are dispatched by the IESO and there is incentive contained within their water power purchase agreement then hourly level and flow data shall be required.*

Gauges used for monitoring flows and levels are described below in Table 12.3. If any changes in flow or level monitoring gauges are proposed by operator (e.g., change in location, upgrade to gauge, recalibration of existing gauge, etc), the operator must outline the changes in writing to the MNR office identified with compliance responsibility.

Table 12.3 Gauges/Instrumentation Used for Monitoring of Levels and Flows			
Waterbody or Control Structure	**Gauge Location and Type**	**Type of Data Collected**	**Comments**
Blind River Dam	Fixed staff gauge on Blind River Dam	Water level	
Canoe (Scarfe) Lake Dam	Ammeter/voltmeter Fixed staff gauge at Canoe Lake Dam	Calculated facility outflow, Lake elevation, head	Flow calculated from power produced and head
Chiblow Lake Dam	Ammeter/voltmeter Fixed staff gauge at Chiblow Lake Dam	Calculated facility outflow, Lake elevation	Flow calculated from power produced and head
Matinenda Lake Dam	Manual reading of staff gauge at dam or public access point during open water season	Lake elevation	More frequent measurements may be made during open water season from the public access point

12.4 Annual Reporting

The facility operator will prepare an Annual Compliance Report in the format provided by MNR outlining:

- actual operations as compared to WMP
- detailed description of out of compliance occurrences
- rationale for out of compliance occurrences
- proposals for remediation of problems, if necessary
- as well as the data requirements as outlined in Table 12.2.

12.5 Public Involvement and Awareness

Public awareness, public involvement and transparency for compliance monitoring will be achieved primarily through the use of a Standing Advisory Committee (SAC) for the Blind River WMP. For the purpose of the Blind River WMP the existing Resource Management Advisory Committee (RMAC) has functioned as the PAC, and will also serve as the SAC. The RMAC has existed for a number of years, and is expected to have an ongoing role in local resource management. The Blind River WMP SAC will advise, monitor and assist in the implementation of the Blind River Water Management Plan. The SAC will be composed of a number of citizens representing a diversity of interests and expertise, some of whom might be members of the existing Planning Team and PAC, or any membership as named by the District Manager.

The SAC will monitor the implementation of the plan and produce an annual status report by March 31 of each year to be distributed to 1149377 Ontario Ltd., the Town of Blind River, MNR, First Nations and the public. The SAC will review all data collected during the monitoring of the plan and provide a communication link with the public to foster and maintain credible relationships.

13 PLAN REVIEW, AMENDMENT AND RENEWAL

13 Plan Review, Amendment and Renewal

13.1 Plan Review and Renewal

Once the plan is approved by MNR, it will remain in effect for a period of 10 years. It will then be subject to review and renewal as determined by the Steering Committee. The plan review process will be initiated 18 to 24 months prior to the end of the plan term. The result of any periodic review of a water management plan may trigger an extended review. This may follow the steps taken in creating an initial plan, as outlined in the Water Management Planning Guidelines. There may be no change in the plan, or review may necessitate an amendment or revision to the plan.

The plan could be reviewed sooner than 10 years if a key issue triggers the review process (i.e., a request to build/rebuild a dam with a different design, or significantly amend a lease). Subsequent reviews of the plan will be carried out as required and as determined by MNR and waterpower producers. The review will involve full public consultation through public notices, consultation sessions, open house, and EBR postings where required. An unscheduled plan review may be required at any time if the current plan becomes obsolete for any reason.

When new data, information or issues arise as a result of new policies, research, studies or monitoring, the standing advisory committee should review the information, and may request a review of the operating regime of one or more waterpower facilities or associated water control structures by MNR or the Steering Committee. If the WMP needs to be amended, MNR will issue an order to amend the plan.

Amendments can be made to the WMP and Operational Plans during the term of the plan provided that the outcomes remain consistent with the goals and objectives defined in the WMP. Amendments may be minor (in the immediate vicinity of one dam) or major (extensive geographic areas upstream or downstream of a dam or have an impact on environmental, social or economic attributes). Amendments to the goals and objectives require that the plan development process be followed and some degree of public consultation may be required depending on the type of amendment.

13.2 Plan Amendment Procedure and Categorization

Amendments to the WMP can be made during the term of the plan provided the outcomes remain consistent with the goals and objectives of the WMP. The SAC will review and advise on new information as it is gathered. If new information indicates that operating regimes need to be adjusted, using the formal amendment process, MNR will issue an order to amend the WMP (MNR 2002). The SAC will be given an opportunity to comment on plan amendments.

Three categories of amendments are provided:

- administrative
- minor
- major.

The amendment process involves

(a) submission of a request for an amendment
(b) review of the request by the MNR District Manager, with advice from the SAC
(c) acceptance or denial of the request
(d) if acceptance, assignment of a category to the amendment
(e) completion of all applicable planning requirements, including public consultation
(f) record-keeping requirements.

Any request must be accompanied by sufficient information to allow the MNR District Manager to determine whether the proposed amendment should proceed, and whether the amendment should be treated as administrative, minor or major.

The amendment request must contain the following information:

(a) a brief description of the proposed amendment
(b) the rationale for the proposed amendment and a discussion of its significance
(c) if new operations are proposed

    (i) a brief description of the proposed operations, and a description of the previously approved operations in the water management plan which will be changed by the proposed amendment
    (ii) an outline of the applicable planning requirements for the proposed operations, including public consultation, based on the planning requirements for similar operations in a water management plan.

The MNR District Manager is responsible for determining whether an amendment should proceed, and for categorizing the amendment as administrative, minor or major. In making this determination, the District Manager will assess the appropriate extent of public consultation and MNR review and approval necessary.

The District Manager considers the following factors in determining whether to grant the request for an amendment, and in determining the appropriate category for the amendment:

(a) whether there are legitimate time constraints which must be met for reasons of public safety, biological or industrial necessity, or public convenience and necessity
(b) whether there has been previous notification that the requested amendment will be required, and the degree to which planning and public consultation has taken place previously (e.g., decisions deferred in the water management plan; amendments required after public consultation in other planning processes)
(c) the adequacy of the information concerning the resource features, land uses and values potentially affected and the anticipated potential effects of the requested operations
(d) the number of previous requests for similar amendments.

The decision on the amendment request, and the appropriate category of amendment, will normally be made within 30 days of receipt of the request. The MNR District Manager will prepare a written decision, and any disagreements with the categorization of the amendment, will be recorded in that written decision.

13.2.1 Administrative Amendments

If the MNR District Manager decides that a proposed amendment should proceed, and that the appropriate category of amendment is administrative, the MNR District Manager will approve the amendment when the necessary planning has been completed. (NOTE: There are no formal public consultation requirements for the preparation of an administrative amendment).

Documentation requirements for administrative amendments include

(a) the amendment request
(b) replacement text for the changes to the approved water management plan
(c) a map of the area affected by the amendment, if applicable
(d) all documentation associated with the planning of operations, if applicable, including any associated supplementary documentation
(e) recommendations from the SAC.

13.2.2 Minor Amendments

If the MNR District Manager determines that a proposed amendment should proceed, and that the appropriate category of amendment is minor, one formal public consultation opportunity will be provided. At least 15 days prior to a final decision on approval of a minor amendment, the MNR District Manager will issue a Notice of Minor Amendment Inspection which indicates that the proposed minor amendment is available for inspection at the Blind River MNR area office.

An example of a minor amendment may be the request for a generating station to adopt a 30 cm increase in operating elevations when all required approvals have been satisfied.

The notice will normally contain the following information in concise non-technical language:

(a) a statement that the proposed minor amendment will be approved by a specified date unless concerns are raised
(b) a statement that further public consultation may be required if concerns are raised
(c) a map of the river reach/area for which the amendment is being prepared
(d) a description of the subject matter of the proposed amendment
(e) the method by which the public may obtain additional information on the proposed amendment
(f) a request for comments
(g) the names of appropriate contact people
(h) a brief explanation of how comments received will be dealt with according to the relevant provisions of the Freedom of Information and Privacy Act
(i) a statement of the relevant opportunities for resolution of issues.

The French Language Services Act will govern the provision of French language services for public consultation in the preparation of a minor amendment.

If the response to the public notice indicates no significant concerns, or if any concerns received can be resolved with no substantial change to the proposed amendment, the MNR District Manager will approve the amendment.

If the response to the public notice indicates significant unresolved concern about the proposed amendment, the amendment request will be recategorized as major, unless the MNR District Manager, with the concurrence of the MNR Regional Director, determines that the objection is unreasonable or that the amendment is a matter of urgency. In the latter case, the MNR District Manager will approve the amendment, with the concurrence of the MNR Regional Director.

If an issue arises during the preparation and review of the minor amendment, the issue resolution procedure described above will apply, with whatever modifications are necessary in the circumstances.

Documentation requirements for minor amendments include the same requirements as for administrative amendments (see Section 13.2.1), as well as documentation of the results of the formal public consultation opportunity for inspection of the amendment.

13.2.3 Major Amendments

If the MNR District Manager determines that a proposed amendment should proceed, and that the appropriate category of amendment is major, formal public consultation opportunities will be provided at two stages.

Public notices will be issued by the MNR District Manager at each stage of the public consultation process.

Notices will normally contain the following information, in concise non-technical language:

(a) a statement of the purpose of the notice and the public consultation opportunity
(b) a map of the river reach/area for which the major amendment is being prepared
(c) a description of the subject matter of the proposed amendment
(d) the particulars and schedule for any additional formal public consultation opportunities
(e) the method by which the public may obtain additional information on the proposed amendment
(f) a request for comments
(g) the names of appropriate contact people
(h) a brief explanation of how comments received will be dealt with according to the relevant provisions of the Freedom of Information and Privacy Act
(i) statement of the relevant opportunities for resolution of issues

The French Language Services Act, as amended from time to time, will govern the provision of French language services for public consultation in the preparation of a major amendment.

Stage One of the public consultation process for major amendments will begin by issuing a Notice of an Information Centre, at least 30 days before the date of the information centre. At the same time as the Notice of an Information Centre is

issued, the provisions of the Environmental Bill of Rights (EBR), as amended from time to time, require that a Registry Proposal File be prepared and submitted to MNR's Land Use Planning Branch, Main Office for placement on the EBR Environmental Registry.

A 30-day period is provided after the information centre for interested persons to provide comments on the proposed amendment. The required documentation for the major amendment is then produced and submitted to MNR for review. After the review, the major amendment will be certified by the MNR District Manager and recommended for approval by the MNR Regional Director.

Stage Two of the public consultation process for major amendments will begin by issuing a Notice of Major Amendment Inspection. This notice will be issued upon MNR approval of the major amendment, and will provide direction on how to obtain access to the major amendment documentation. At the same time as the Notice of Major Amendment Inspection is issued, the provisions of the Environmental Bill of Rights (EBR), as amended from time to time, require that a Registry Decision File be prepared and submitted to MNR's Land Use Planning Branch, Main Office for placement on the EBR Environmental Registry.

If an issue arises during the preparation of a major amendment, the issue resolution procedure will apply, with whatever modifications are necessary in the circumstances.

Documentation requirements for major amendments include the same requirements as for administrative amendments, as well as documentation of the results of public consultation. A brief description of how MNR's Statement of Environmental Values (SEV) under the Environmental Bill of Rights (EBR), as amended from time to time, has been considered in the development of the major amendment must also be produced, in the form of an SEV briefing note.

13.2.4 Amendment Records and Distribution

All approved amendments will form part of the approved water management plan. A copy of each approved amendment will be filed with the approved water management plan at the appropriate MNR district office immediately upon approval. A record of all amendment requests and all approved amendments will also be maintained.

REFERENCES

REFERENCES

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