

INTERNATIONAL RAINY LAKE BOARD OF CONTROL
INTERNATIONAL RAINY RIVER WATER POLLUTION BOARD

SPRING 2007 REPORT

Submitted to

The International Joint Commission

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BOARD MEMBERS AND STAFF

	Canada	USA
IRLBC Members	Rick Walden ¹ PEng Peter Williams PEng	Michael Pfenning PhD COL Leland Grim
IRRWPB Members	John Merriman William Darby PhD	Jeffrey Stoner PG Nolan Baratono
IRLBC Engineering Advisors	Rick Walden PEng	Edward Eaton PE
Joint Board Secretary		Kari Layman PE

¹ *Interim appointment*

1 INTRODUCTION

The International Rainy Lake Board of Control (IRLBC) and the International Rainy River Water Pollution Board (IRRWPB) report jointly to the International Joint Commission (IJC) in the spring and the fall of each year. Both reports address activities and basin issues of interest occurring since the previous report and may include sections on specific topics under review by the Boards. In addition, the spring reports address regulation of Rainy and Namakan lakes over the past calendar year, while the fall reports address environmental quality and related issues.

Section 2 of this report summarizes the regulation of Rainy and Namakan lakes during 2006. Section 3 of the report addresses other activities of the Boards and items of interest in the basin. A map of the basin ([Figure 1](#)) can be found in the Appendix.

2 LAKE LEVEL REGULATION

The year 2006 proved to be another one of marked contrasts for water levels and flows in the Rainy-Namakan basin, particularly for Rainy Lake. The first 4 to 5 months of the year for Namakan and Rainy lakes were marked by a more or less normal winter draw down followed by a strong, but short-lived, early snowmelt runoff at the end of March and early April and near normal spring rainfall. The remainder of the year was characterized by very dry basin conditions and declining lake levels and flows. Although Namakan Lake remained within its IJC rule curve band throughout the year, Rainy Lake fell below its IJC lower rule curve in late August and below its drought line (DL) in early October where it remained through year's end. In response the Boards issued a public advisory on the dry basin conditions in October and authorized two Rainy Lake outflow reductions in December. The 2006 quarter-monthly precipitation for the Lac la Croix and Rainy-Namakan subbasins is shown in [Figure 2](#). Water levels, net inflows and outflows for 2006 are shown on [Figures 3](#) and [4](#), respectively, for Namakan and Rainy lakes. [Figure 5](#) provides a legend for these figures.

Namakan Lake started the year with its level at 78 percent of the rule curve band, its inflow at 80 percentile and its outflow at 70 percentile. Inflow remained near or above 75 percentile until early March, then declined to 65 percentile by March 27th. Outflow started the year near 180 m³/s and declined slowly through the end of March to just above 100 m³/s. The lake level declined in a near linear fashion through most of the first quarter of the year, having reached 41% of band by March 27th. Rainy Lake started the year with its level at 58% of band, its inflow at 70 percentile and its outflow at 80 percentile. Inflow remained near 70 percentile through the third week of February, then started declining, reaching 50 percentile by March 17th and 35 percentile by March 29th. Outflow started the year near 330 m³/s and declined slowly through the end of March to just under 200 m³/s. The lake level declined in a near-linear fashion through most of the first quarter of the year, with its level near 50 percent of band through March 29th.

An early and strong snowmelt runoff commenced near the end of March. However, this runoff was short-lived and was not sustained and incremented by the usual rainfall amounts that occur in May and June. As a result, the inflow to Namakan Lake peaked in early April and did not rise higher in May as it would normally do. Similarly, the inflow to Rainy Lake peaked before mid-April and rose to only a slightly higher second peak in May.

Due to a continued lack of rainfall, inflows to Namakan Lake declined sharply from early June through the end of July and continued declining at a somewhat slower rate through the end of September, while

inflows to Rainy Lake declined sharply from mid-May through the end of July before the rate of decline slowed and finally ceased in mid-September. Although the inflows to Namakan and Rainy lakes were the maximum of record (for time of year) in early April, they were only 25 percentile and 20 percentile, respectively, by the end of June. In spite of the varying inflows in the first half of the year, the Companies (Boise Paper Solutions and Abitibi Consolidated, Inc.) varied the outflows to keep the lakes rising within their rule curve bands. In late March and early April the outflows from both lakes had to be increased in order to keep the lake levels from exceeding their upper rule curves. Both outflows exceeded 90 percentile in April. Namakan Lake reached 98 percent of its rule curve band on April 10th, while Rainy Lake reached 98 percent of its band on April 8th. The levels of both lakes moved toward the middle portion of their bands through June. At the end of June, Namakan was at 44 percent of band and Rainy was at 51 percent. The water levels of Namakan and Rainy lakes remained within their IJC-defined rule curves throughout the first half of the year. Although not a violation of the IJC 2000 Order for Rainy and Namakan lakes, the level of Crane Lake (part of the Namakan Chain of lakes) did exceed the Namakan upper rule curve level in April.

Inflow to both lakes continued to be below normal through the third quarter of the year and the lakes continued to decline through this period, with Rainy Lake inflow falling below 10 percentile in mid-July. Outflows from Namakan Lake were gradually reduced as the inflows and lake levels declined and the lake level remained within the IJC rule curve band. Namakan Lake ended September right at its lower rule curve. Outflows from Rainy Lake were set to the IJC minimum in mid-July, where they remained through early December. Rainy Lake levels fell below the IJC lower rule on August 29th and by the end of September had declined to 18 cm (7 in) below the lower rule curve and only 3 cm (1 in) above the IJC drought line.

The dry conditions persisted and even deepened, somewhat, through the fourth quarter of the year. The Boards issued a public advisory on the very dry basin conditions on October 27th. Inflows to Namakan Lake for the October through December period were only 6 percentile, while inflows to Rainy Lake set a new minimum of record for the period since 1911.

Namakan Lake started the quarter at its lower rule curve (LRC) level with its outflow at 30 m³/s, the minimum specified by the IJC. However, as the rule curves start to slope downward more steeply on October 1st, the Companies were able to keep the lake level within the IJC operating band through the quarter in spite of the low inflows, with outflows ranging from 30 to 53 m³/s. In early December, given the low level of Rainy Lake, the IRLBC authorized the Companies to maintain the level of Namakan Lake in the lower portion of its operating band (rather than the middle portion). Namakan Lake ended the year at 36 percent of band.

Rainy Lake started the fourth quarter 19 cm (7.4 in) below its LRC and only 2.5 cm (1 in) above its drought line (DL), with its outflow at the specified IJC minimum of 100 m³/s. Under the terms of the IJC's 2000 Order for Rainy and Namakan lakes, the DL is the level at which the IRLBC can reduce the outflow below 100 m³/s, at its discretion, to as low as 65 m³/s, subject to consultations with resource agencies, affected municipalities and others. Rainy Lake fell below its DL on October 5th, but both Boards agreed that the current outflow provided a reasonable balance between the needs of the lake and the river and so no further reduction in outflow was authorized at that time. This assessment was reviewed through October and November. By November 30th, Rainy Lake was 44 cm (17 in) below its LRC and 19 cm (7.4 in) below its DL. Projections indicated that, without an outflow reduction, the lake level would likely continue to decline and be over 45 cm below its LRC on March 31st. Consequently, after extensive consultations by both Boards, and considering in particular the fishery on Rainy Lake and Rainy River and the risk to the Emo water intake on the river, outflow reductions were approved by

the IRLBC and public news releases issued. Rainy Lake outflow was reduced from 100 to 80 m³/s in two steps on December 11th and 12th (approved on December 7th; news release on December 8th) and further to 65 m³/s in two steps on December 20th and 21st (approval and news release on December 19th). Monitoring of dissolved oxygen levels at two locations in the river on a weekly basis and monitoring of the river level at the Town of Emo, Ontario water supply intake were implemented. Rainy Lake ended the year 40 cm (16 in) below its LRC and 10 cm (4 in) below its DL. Dissolved oxygen levels measured to date at the two locations have been well above the guideline for the protection of fish.

3 BASIN ISSUES AND OTHER BUSINESS

3.1 Hydropower Peaking

Concerns about the impacts of hydropower peaking operations (at Fort Frances – International Falls) on the Rainy River were raised at public meetings held by the IJC in 2001. Since then, the matter has been the subject of much discussion and review by the IJC, the Boards, the Companies, the “Committee on the Environmental Effects of Peaking on the Rainy River” and representatives of the various resource agencies with dealings in the basin. This matter and the various viewpoints held have been well documented since 2001 in the annual and, in recent years, spring and fall reports of the Boards to the IJC, most recently in the Boards’ Fall 2006 Report to the IJC.

In the fall of 2006 the Boards directed members Peter Williams, representing the IRLBC, and Nolan Baratono, representing the IRRWPB, to convene an informal work group with representatives from Abitibi, Boise, the Canadian Department of Fisheries and Oceans (DFO) and the Minnesota Department of Natural Resources (MDNR) with the task of informally developing a means to address the spring peaking concerns. The initial meeting of this “Peaking Work Group” was on November 29, 2006 at the Rainy River Community College Water Resources Center in International Falls, MN. The goal of the meeting was to design and establish an informal process that will provide for an annual balancing of hydropower needs with fish spawning needs during the spring spawning period on a two year trial basis.

The work group agreed to establish an annual 2½ month spring spawning window during which no hydropower peaking will take place for 2007 and 2008. The general start and end dates for this window will be April 15th to June 30th, but the process will allow for adjustment of the start date to reflect for the actual start of the walleye spawn and adjustment of the end date when an extended sturgeon spawning and incubation period is anticipated. The process calls for a review of spawning and hydropower conditions at least 15 days before the end date of the window and allows for adjustments to address emergency conditions at any time during the window.

Work group members agreed that water temperature is the best indicator to determine the start and end of walleye and sturgeon spawning at this time. For 2007 the resource agencies will use water temperatures as recorded at the Abitibi, Boise and Town of Emo water intakes. The work group recommends installation of remotely accessible, continuous temperature sampling and recording probes at a downstream location to be determined (possibly Manitou Rapids) and immediately below the dam at the Fort Frances / International Falls.

The Peaking Work Group met again on March 15, 2007. The Group members acknowledged that peaking during the spring of 2007 was highly unlikely due to the current drought and resulting low inflows to Rainy Lake. After examining current conditions (hydrology, weather forecasts, water temperature and extent and thickness of ice cover) the Work Group set the spring spawning window

start date for April 15th with a tentative end date of June 30th. The Group set the mid-window meeting for June 8th. At this meeting the Group will determine the final spring spawning window end date for 2007.

Also at the March 15th meeting, the resource agencies outlined two collaborative studies (partners include DFO, MDNR and OMNR) they are hoping to conduct during the spring of 2007. The first is a study of the sturgeon spawn on Rainy River with the second study looking at water temperature along the length of the Rainy River from ice-out to mid-summer. Data from these studies will be shared with the Work Group, the IRLBC and the IRRWPB.

The work group will conduct an annual review of the process each year in October, during which any changes for the following spring will be agreed to through consensus of the group. In October 2008, the work group will determine whether to continue operating under this informal agreement for 2009 and future years. The IRLBC and IRRWPB leads will be responsible for scheduling and recording meetings and reporting on work group activities to the Boards.

3.2 Rainy Lake and Namakan Reservoir Environmental Monitoring Workgroup

A detailed summary of monitoring work completed to date was included in the Boards' Fall 2006 Report to the Commission. Since then, over-winter work has included analysis and reporting on data collected from fisheries creel surveys, index netting, fisheries contaminant sampling and paleolimnological investigations. For 2007, several studies are being planned.

The U.S. National Park Service (NPS) intends to continue its beaver telemetry study. The NPS, the MDNR and the Ontario Ministry of Natural Resources (OMNR) will initiate a tagging study of lake sturgeon on the Namakan Reservoir. This is in preparation for a larger study of lake sturgeon planned by the NPS for the Namakan reservoir starting in 2008. The MDNR also intends to do fisheries community index netting on the South Arm of Rainy Lake and Namakan Reservoir in 2007. The OMNR will attempt to do similar index netting on Lac La Croix, and the MDNR will continue its annual creel survey on Rainy Lake.

Invasive species are a growing concern to the resource agencies. For example, spiny water flea has been confirmed in both eastern and western ends of the Namakan Reservoir, Rainy Lake and in Saganaga Lake. All agencies will be increasing their efforts to monitor and slow the spread of such species.

The resource agencies continue to advise the Boards they are concerned about their ability to sustain monitoring efforts in the future, and they are unable to undertake any downstream or socio-economic assessments. These concerns and the concerns of the Boards were conveyed to the Commission by the Boards in their October 19th presentation to the IJC at its fall 2006 semi-annual meeting in Ottawa. In a letter dated December 8, 2006 to the IJC, the Boards explained in greater detail the issues that have evolved, as the Boards see them, related to monitoring and reviewing the effects of the 2000 Rainy and Namakan Lake Rule Curve changes on the natural, social and economic resources of the Rainy River and the Rainy-Namakan basin.

The Board letter pointed out that the natural resource monitoring group has spent considerable time alerting the Boards to these issues and that the IJC, as well as the Boards, need to respond to them in a timely manner regarding their concerns. The letter represented a written attempt by the Boards to more clearly identify monitoring and reporting information gaps, looking to the IJC for direction and advice

on how to fill the gaps so that sufficient information exists to allow assessment of the impacts of the 2000 Order for Rainy and Namakan lakes when it becomes subject to review in the year 2015.

In response, the Commission's February 8, 2007 letter to the Boards proposed development of a Plan of Study (POS) that would be provided to both federal governments for their consideration. The IJC proposal envisioned a six member team to develop a POS, addressing the concerns raised in the Boards' memorandums, that would outline the monitoring and analysis required to lead to a scientifically defensible review of the 2000 Order by the year 2015. The Commission requested the Boards' assistance in identifying potential candidates to serve on the team, including members of the Boards who would be willing to participate.

The Boards' responded by providing a list of potential candidates to the Commission in a letter dated March 9, 2007.

3.3 IJC International Watersheds Initiative - Rainy River Modeling

In the Fall 2006 Report to the IJC, the Boards provided a detailed discussion on the development of a computer hydraulic model of the Rainy River from International Falls – Fort Frances to Lake of the Woods under the Watersheds Initiative. This work is being accomplished by the U.S. Army Corps of Engineers under Amendment 15 of the 1998 Memorandum of Agreement between the U.S. Section of the IJC and the U.S. Department of the Army. It is the Boards' understanding that the work is proceeding on schedule with adjustments having been made for some weather-related delays in accomplishing Lidar survey field work in the fall of 2006. The IJC was provided with a progress report on the work by the Corps of Engineers on January 25, 2007.

3.4 Emerging Issues

Pine Island Peat Mining Project

In the Fall 2006 Report to the IJC, the Boards made a number of recommendations regarding the Pine Island Peat Mining Project. As a follow up to those recommendations, the IRRWPB sent a letter dated January 19, 2007 to the Minnesota Pollution control agency (MPCA) outlining the recommendations of the Board as follows:

The MPCA should, at a minimum, institute the following mercury monitoring effort:

- Duration - beginning with the 2007 water year and continuing for a minimum of 10 years following commencement of mining and processing operations at Pine Island or as necessary to determine mercury concentration trends,
- Site Locations - monitor two sites, the South Fork of the Black River at Loman (Hwy 11 crossing) and the Rainy River (International Bridge at Baudette),
- Sampling Parameters and Frequency - sample each site for total mercury and methylmercury three times per year (once in the spring during runoff and twice during the summer, except during times when the Rainy River flows are less than 10 percent of average daily flows or when there is no flow in the Black River),

- Reporting - annual data reports to the IRRWPB with a final report due within 15 years or when data are sufficient to determine mercury concentration trends, whichever occurs first.

To date, there has been no response received from the MPCA to the Board's letter. The proponent proposes to start preparing the site this year. It is expected that actual mining of peat will not start for 2 to 3 years.

Proposed Hydropower Developments on the Namakan River below Lac la Croix

In 2004 the Ontario Ministry of Natural Resources Renewable Energy Section issued a Request for Expressions of Interest for three sites on the Namakan River west of Quetico Park, as one of the Ontario Government's power generation initiatives. In December, 2005, following a competitive process, the Ojibway Power and Energy Group (OPEG), a partnership between the Lac La Croix First Nation and Chant Construction, became the formal "applicant of record" for waterpower sites on the Namakan River.

Hydropower proposals in Ontario are subject to the Ontario Ministry of the Environment's Environmental Screening Process for Electricity Projects, the Ontario Ministry of Natural Resources Water Power Program Guidelines, and the Canadian Environmental Assessment Act.

In December 2006, OPEG issued a public "Notice of Commencement" for an environmental screening process as required above. Two Notices were issued, one for Hay Rapids and High Falls, and one for Myrtle Falls. All three proposals were for overflow weirs and a "run-of-the-river" mode of operation. The Hay Rapids and High Falls weirs were proposed to be 1.5 m and 1.2 m high, respectively, and the height of the Myrtle Falls weir was unspecified at the time. The weirs were proposed to "attenuate river flows within historical flood limits".

The sites are approximately 22 km and 6 km downstream from the 8 m high Snake Falls at the outlet of Lac La Croix. There is no proposal pertaining to Snake Falls; hence, the proposed developments will not affect water levels or discharge rates on Lac La Croix. Downstream hydrological impacts on the international waters of Namakan Lake will be determined through the environmental screening process. However, the proposal for overflow weirs is not anticipated to have significant hydrologic impacts on international waters.

Since fall 2006, OPEG has commenced a number of environmental assessment (EA) studies, including fisheries, geological and hydrological studies, to assemble the information necessary to meet its engineering and EA obligations. These investigations will continue through 2007. It is likely that a draft plan will be available for public review later in the EA process. In the meantime, the public is invited to obtain more information or comment on the proposals through OPEG's website at www.opeg.ca.

4th International Lake of the Woods Water Quality Forum

The Rainy River Basin Water Resources Center hosted the 4th Annual International Lake of the Woods Water Quality Forum on March 7 and 8, 2007. The Center is located at the Rainy River Community College in International Falls. The Forum was attended by some Members and staff from both the IRLBC and the IRRWPB. Three working groups were held on Wednesday, March 7th consisting of Nutrients and Algae, Monitoring Coordination and Aquatic Invasive Species. At these informal focused

meetings, collaborators developed projects, reviewed research/monitoring initiatives over past year and discussed future action items and goals for the upcoming year.

Monitoring Coordination Recommendations:

- Hire a Monitoring Coordinator through the Water Resources Center.
- Improve communication among lake associations and watershed organizations in the basin by trying to engage specific groups of interest through next year's working group contact lists.
- Assess basin-wide capacity to conduct condition monitoring, special studies and problem investigation and determine through a survey of forum participants the availability of volunteers, agency staff, boats and equipment.

Additional needs identified by the Monitoring Working Group:

- Water Resource Center capacity development, most notably development of data management capability.
- Further development of the Remote Sensing project on Lake of the Woods, Rainy Lake and the Namakan Chain of lakes.

Nutrients and Algae Recommendations:

- Members will review the Lake of the Woods Draft Assessment Information provided by the MPCA and provide comments and/or data to the MPCA that may assist the MPCA in determining whether to place Lake of the Woods on the US Impaired Waters List.
- Members will assist with development of a nutrient model for Lake of the Woods.

Aquatic Invasive Species (AIS) Recommendations:

- Continuation of the Working Group during future WQ Forums.
- Mapping of AIS infestations within the basin.
- Make AIS the Emerging Issues theme for the 2008 WQ Forum.

The symposium portion of the Forum was held on Thursday, March 8th. Technical presentation subjects included cyanobacteria and microcystin toxicity, paleolimnology, techniques for determining land use changes, updates on mercury studies, developing partnerships and local capacity, development of a nutrient mass balance model for Lake of the Woods and the two Emerging Issues presentations (one focusing on adaptive management and the other discussing development of methods that may prove useful in regulation of cyanobacteria abundance).

Following the symposium, the Lake of the Woods Water Sustainability Foundation reception was held at the Holiday Inn in International Falls. The Foundation's featured speaker was Dr. John Carey the Director General of Water Science and Technology, Environment Canada. Dr Carey's talk focused on options for transboundary cooperation appropriate for the Lake of the Woods and Rainy River Basins.

3.5 Meetings

IJC Fall Semi-Annual Meeting

IRLBC and IRRWPB members and staff attended the fall semi-annual meeting of the IJC in Ottawa on October 19, 2006. The Boards' presentation addressed water quality on the Rainy River (monitoring programs, fish consumption advisories and municipal/industrial point source discharges), basin issues (hydropower peaking operations, rule curve monitoring program funding concerns, potential mercury

contamination concerns related to the Pine Island Bog Horticultural Peat facility, the proposed Minntac development and Namakan River hydropower development), other Board activities (May tour of water treatment facilities and August basin tour and annual meetings), basin projects and funding under the IJC's Watersheds Initiative program (including Rainy River surveys and modeling), emerging basin issues (including Rainy River turbidity and nutrient loads) and lake regulation. The Boards' joint fall 2006 report was submitted to the IJC in draft form in October and finalized on December 1st; it is posted on the Boards' web sites.

Board Conference Calls and Meetings

The two Boards continued to maintain close contact during the reporting period. Five joint conference calls were held; on December 4th, 7th and 19th in 2006 and January 29th and March 2nd in 2007. The primary topic of discussion on all of the calls centered on regulation of Rainy and Namakan lakes in light of very dry basin conditions, but also included basin issues (hydropower peaking, rule curve monitoring program funding concerns, proposed Pine Island Peat Mine, proposed hydropower developments on the Namakan River below Lac la Croix), Board reports, news releases and newsletters, Board membership, and preparation for meeting with the IJC at its April 2007 semi-annual meeting.

3.6 Board Membership

Since the last reporting period, the following changes have occurred to the membership of both boards.

IRLBC:

Effective December 19, 2006, Leland Grim's appointment as a United States Member was extended for three years. Syed Moin resigned his appointment as Canadian Member and Co-Chair effective, January 10, 2007. On that same day, Rick Walden, the Canadian Engineering Advisor, was appointed the Interim Canadian Member and Co-Chair.

IRRWPB:

John Merriman announced his retirement and subsequent resignation of his appointment as Canadian Member and Co-Chair, effective March 30, 2007.

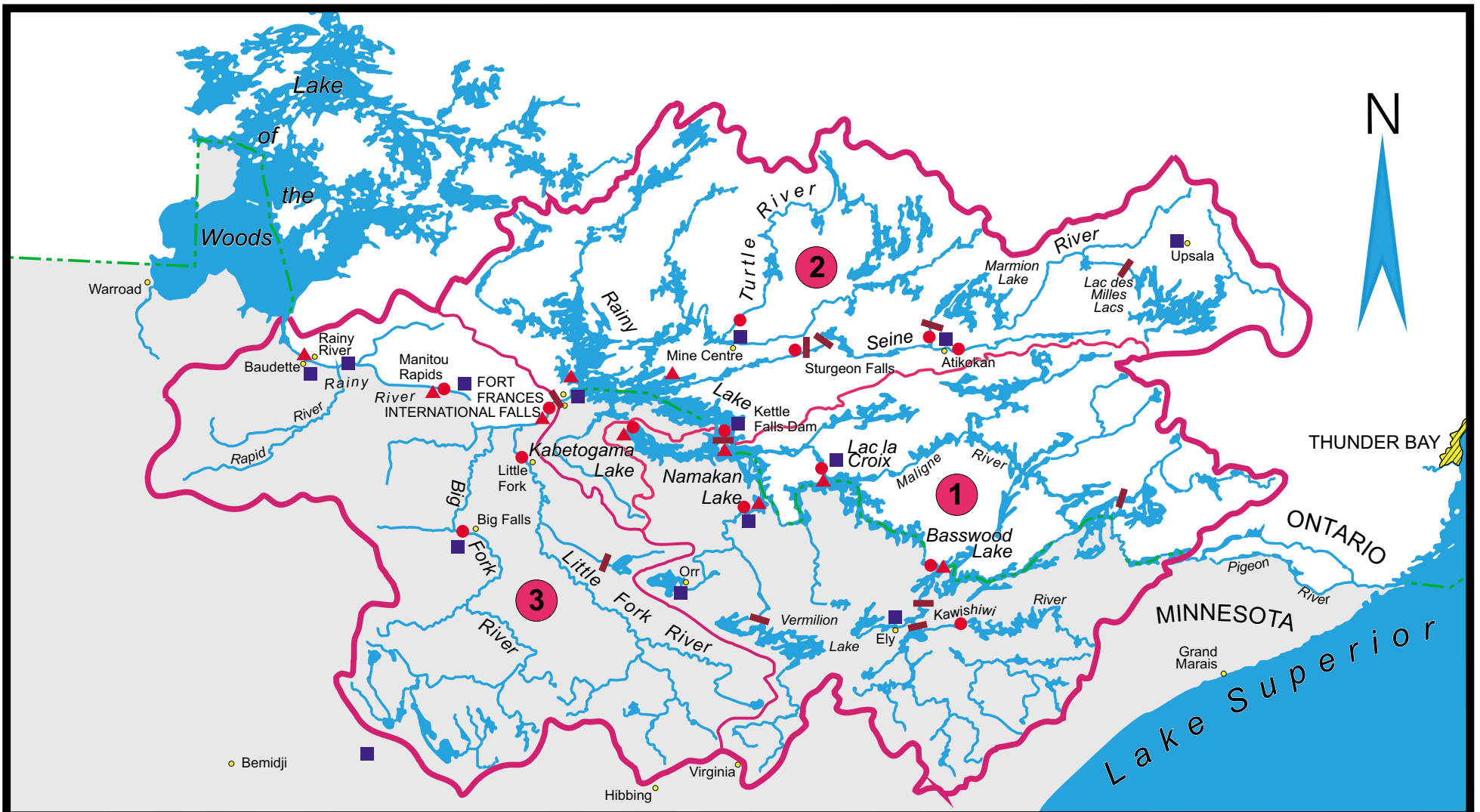
It is understood that permanent replacements for the Canadian Co-Chairs of the two Boards will be made, once some changes within Environment are complete. The appointments are normally drawn from Environment Canada staff.

APPENDIX

Figure 1	Rainy River Drainage Basin Map
Figure 2	Rainy Basin Precipitation
Figure 3	Namakan Lake Elevation, Net Inflow and Outflow
Figure 4	Rainy Lake Elevation, Net Inflow and Outflow
Figure 5	Legend for Lakes and River Graphs

NOTE

All precipitation, water level and flow data used in the text and figures of this report were taken from the database of the Secretariat of the Lake of the Woods Control Board. At the time of preparation of this report, this data was still provisional and subject to revision.



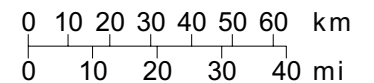
LEGEND

- International Boundary - - - - -
- Drainage Basin - - - - -
- Sub-Basins - - - - -
- ① Namakan Lake
- ② Rainy Lake
- ③ Rainy River

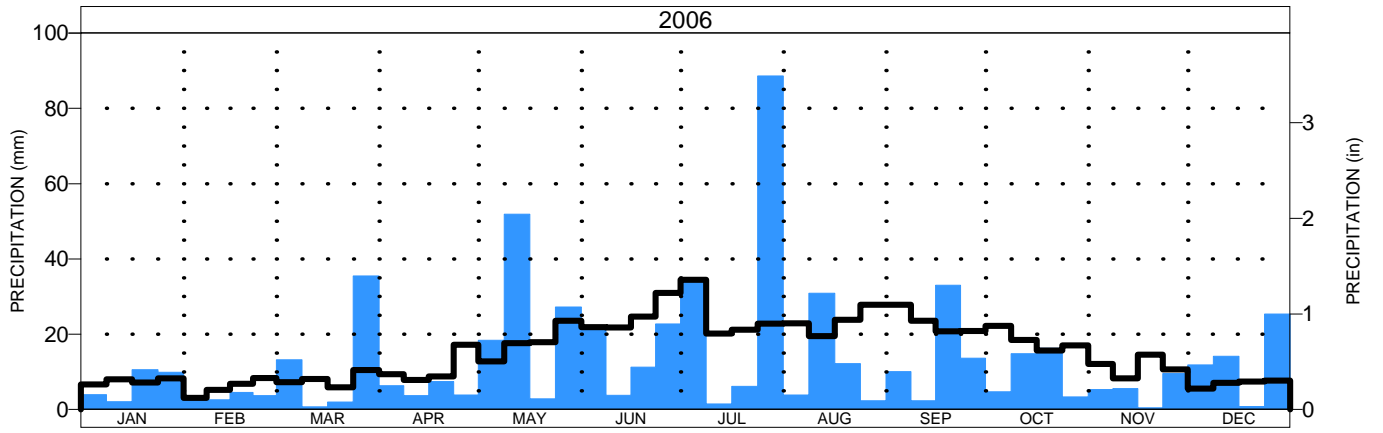
- Control Dams - - - - -
- Data Gauges (Near Real Time)
- Stream Flow - - - - - ●
- Water Level - - - - - ▲
- Precipitation - - - - - ■

**International Rainy Lake Board of Control
IRLBC**

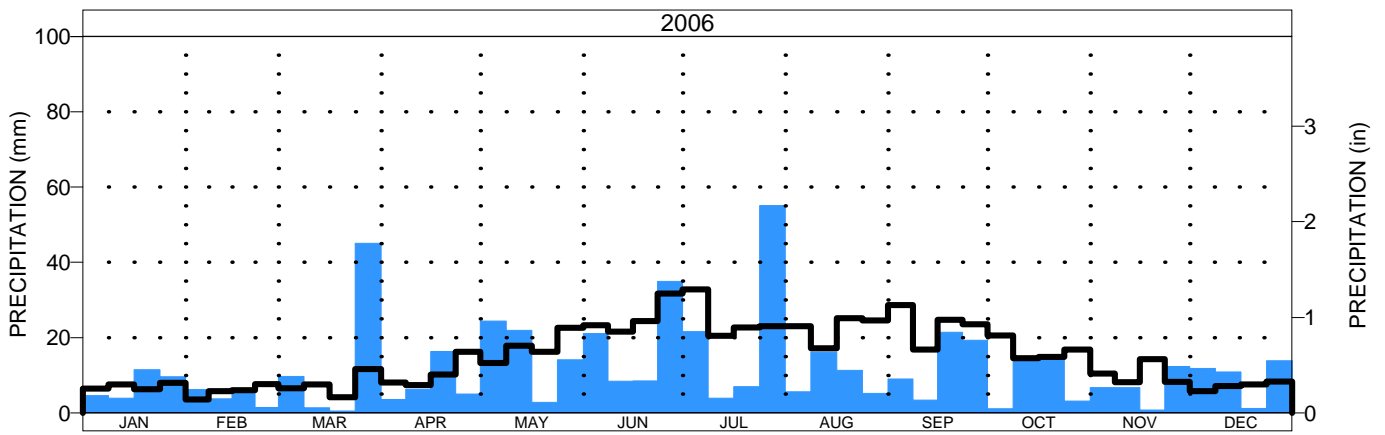
**Rainy River
Drainage Basin**



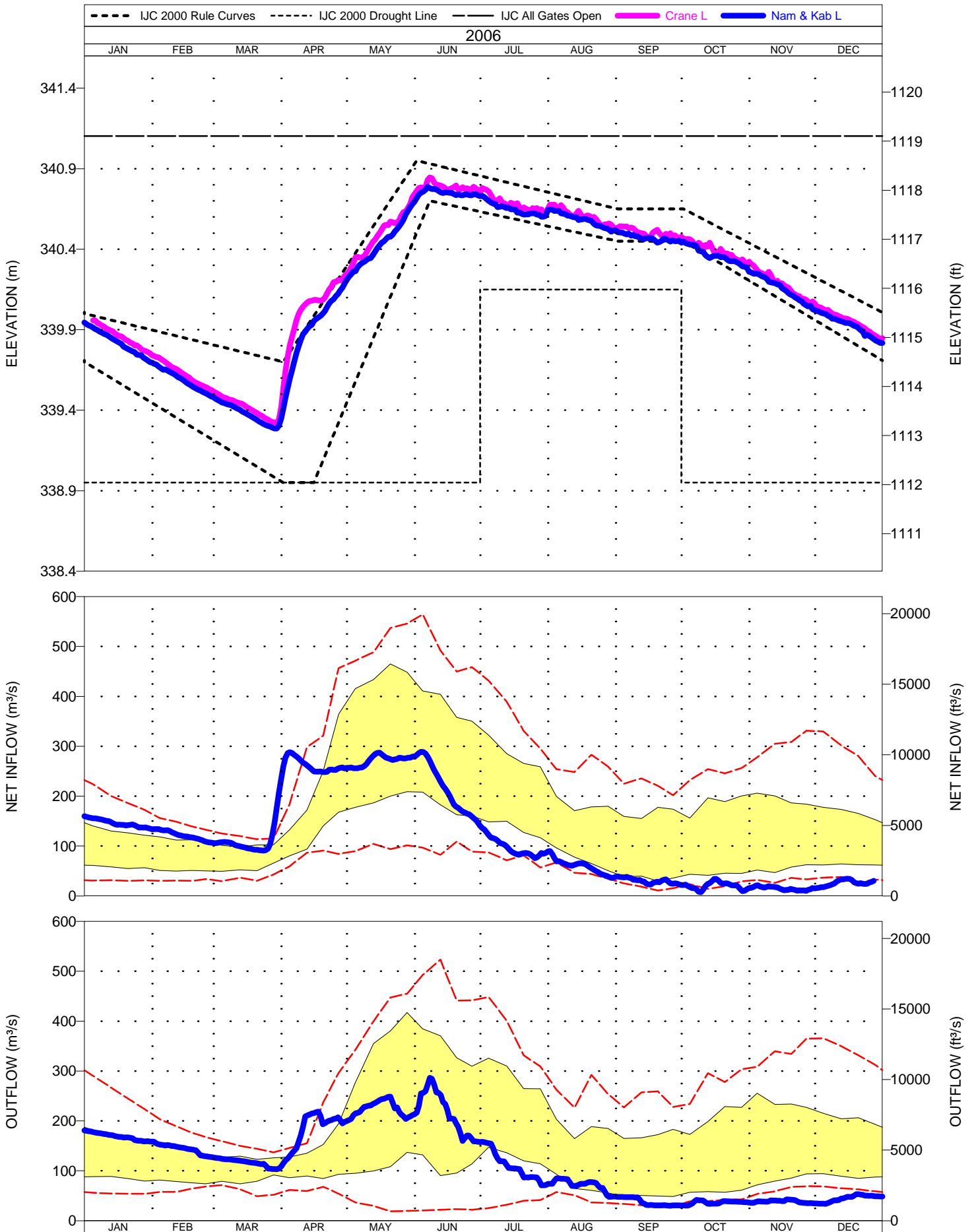
LAC LA CROIX PRECIPITATION



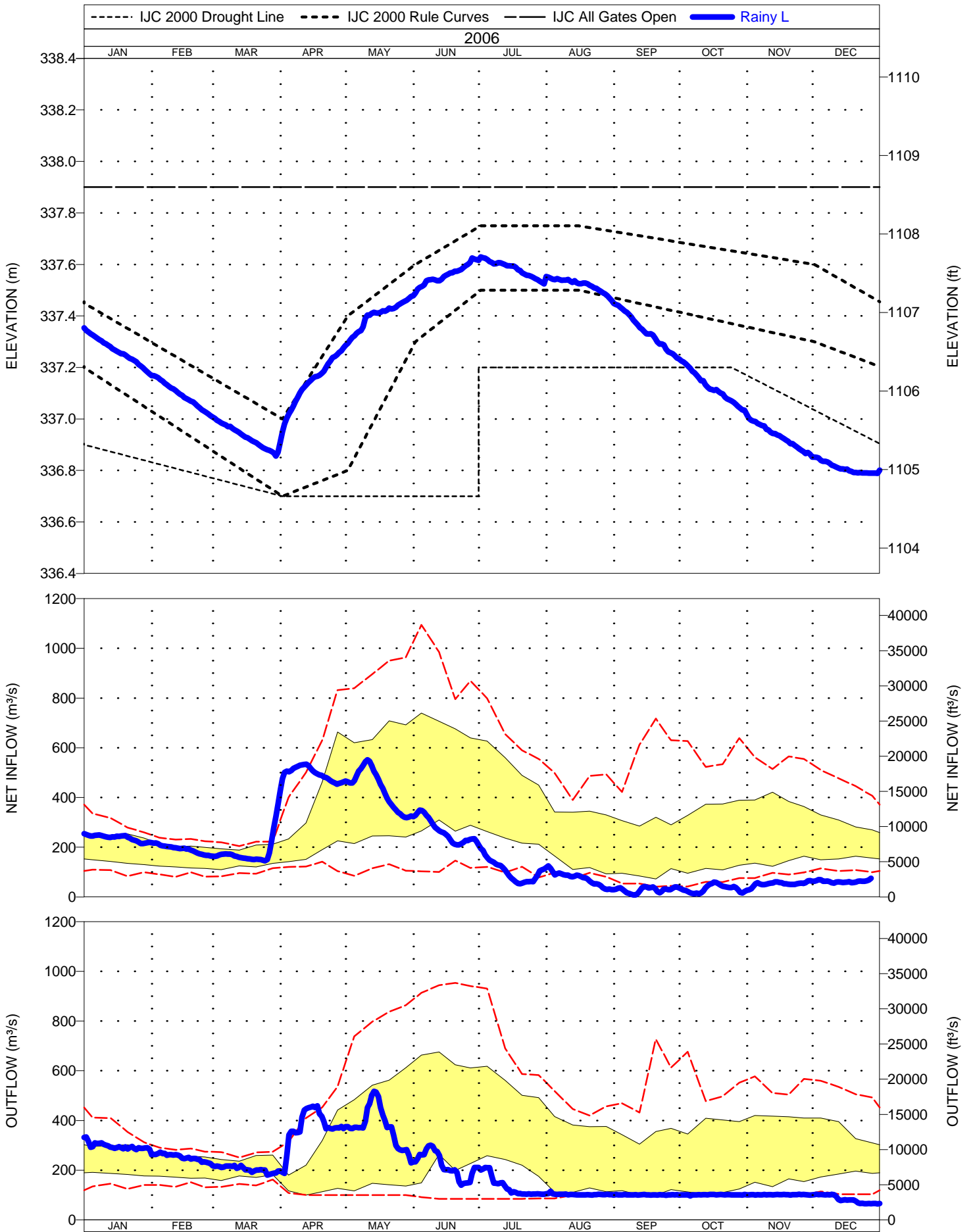
RAINY-NAMAKAN PRECIPITATION



NAMAKAN LAKE



RAINY LAKE



LEGEND - LAKE AND RIVER GRAPHS

PRECIPITATION



Actual data for year shown, plotted as quarter-month totals
(last quarter-month is usually incomplete)



Average - over the years 1970-1999

WATER LEVELS & FLOWS

Actual Data



Actual data for the dates shown
- levels are 1-day means plotted daily
- inflows are 7-day means plotted daily
- outflows are daily values

Rule Curves (Namakan & Rainy Lakes)



IJC 2000 Upper & Lower Rule Curves



IJC 2000 Drought Line



IJC Upper Emergency Level



IJC "All Gates Open" Level

Statistical Data

50

Maximum level/flow recorded and its year of occurrence



Level/flow has been above this line 10% of time.



Normal level/flow range
- level/flow has been above this range 25% of time
- level/flow has been within this range 50% of time
- level/flow has been below this range 25% of time



Level/flow has been below this line 10% of time

77

Minimum level/flow recorded and its year of occurrence

All statistical levels are based on 3-day means at month quarter points.

All statistical flows are based on quarter-monthly means.

Percent data is based on the period 1970-1999.

Datums for water levels are:

- Namakan Lake - USC&GS (1912) datum
- Rainy Lake - USC&GS (1912) datum