Adopted Regulation Strategy – LWCB Regulation Meeting – June 2, 2005

Overview

The Winnipeg River drainage basin is again in a state of having excess water that will negatively impact on most interests. A very early spring freshet and warm April temperatures had led to concerns from basin residents of dry conditions but rainfall was sufficient to keep inflows above normal for most of the spring and more rainfall in late May has pushed inflow into the high range.

Lac Seul

a) Overall Objectives

With current Lac Seul levels and inflows above normal, and Winnipeg River levels in Manitoba well above normal, regulation over the near term will be geared towards avoiding high levels on Lac Seul and minimizing high water impacts downstream.

Given the current basin conditions, and reviewing the input of various interests in the Draft Regulation Guide, the following overall objectives from now through September are proposed:

- Regulate Lac Seul level and outflow to manage flood risk on the lake and downstream in Ontario and Manitoba.
- Attempt to meet the preferred Lac Seul, Pakwash Lake and English River levels for the fishery and tourist outfitter interests.
- Supply water requested by Ontario Power Generation and Manitoba Hydro for hydroelectric energy generation; avoid spill in wet conditions and violation of low flow constraints in dry conditions.
- Use Lac Seul storage to offset Lake of the Woods high/low outflows for the benefit of users of the Winnipeg River in Manitoba.

b) Scenarios

The attached graph for Lac Seul shows scenarios of lake levels that would result from 4 different combinations of assumed inflows and outflows. It should be noted that the scenarios show a range of possible future conditions and are not forecasts. Inflows are net total inflow to Lac Seul.
The scenarios are:

S1 – very high inflow - 95 %ile Lac Seul basin inflow
S2 – high normal inflow - 75 %ile Lac Seul basin inflow
S3 – moderate inflow - 50 %ile Lac Seul basin inflow
S4 – low normal inflow - 25 %ile Lac Seul basin inflow

c) Strategy

i) Low Inflow Conditions

- At the present time, a return to low inflow conditions appears unlikely anytime soon. However, conditions could change quite quickly if warmer, drier weather predominates over the summer.
- Reduce outflows as necessary to maintain the lake level above lower quartile. If the required reductions would lead to English and/or Winnipeg River flows less than minimum requirements of the provincial power utilities, consultations would be necessary with the

OMNR in Red Lake and Sioux Lookout, as well as with the two provincial power companies, to determine an appropriate balance between upstream and downstream conditions.

- Severely restrict outflow to maintain lake levels above lower decile. In 1988 Lac Seul outflow was reduced to 25 m^3/s and, in 1981 and 1977, outflow was reduced to 0 for an extended period. Again, consultations would be necessary to appropriately balance upstream and downstream interests.

ii) Moderate Inflow Conditions

- As of May 27, Lac Seul inflow had risen from the high end of the moderate range to the high range due to the May 25-26 rain event. Therefore, the strategy that follows will apply if conditions improve with lake levels and inflows moving back into the moderate range.
- Under moderate inflow conditions, the first goal would be to ensure that Lac Seul level rises to no higher than 356.75 m (1170.4 ft) and that Ear Falls discharge is below 450 m^3/s.
- An effort should be made to transition Lac Seul levels (or projected levels) from the current 85 %ile to near upper quartile by the end of June (356.36 m / 1169.2 ft).
- If flows on the Winnipeg River in Manitoba are high, use the storage available in Lac Seul to minimize the water released downstream. From late June through August, Lac Seul should be maintained in the range of 356.4 to 356.75 m (1169.3 to 1170.4 ft).
- Maintain Lac Seul outflow within a range of approximately 100 to 400 m^3/s to satisfy the overall objectives and maintain the lake level in the 25-75 %ile range.

iii) High Inflow Conditions

- As of the meeting on June 2, 2005, Lac Seul outflow is to remain at 400 m^3/s for the near term. If more action is required to limit the rate of rise of Lac Seul while flows in the Winnipeg River in Manitoba are still high, and if the Lake St. Joseph diversion is under the authority of the LWCB, reduce the diversion as necessary before increasing Lac Seul outflow above 400 m^3/s. If/once the Lake St. Joseph diversion has been reduced but flows in the Winnipeg River are still high, and it becomes possible to reduce Lac Seul outflow, reduce the outflow before reopening the diversion.
- Balance Ear Falls outflow with the rise in Lac Seul level to reduce flood risk both on Lac Seul and on downstream areas such as Pakwash Lake.
- An effort should be made to transition Lac Seul levels (or projected levels) to near upper quartile by the end of June (356.36 m / 1169.2 ft). Outflows should remain below 450 m^3/s for moderately wet conditions, below 500 m^3/s for most conditions and below 600 m^3/s in all but extreme conditions.
- Regulate Lac Seul outflow to as high as 500 m^3/s at Ear Falls to prevent the lake level exceeding 356.75 m (1170.4 ft) from June 30 to September 30; the Lake St. Joseph diversion should be reduced to the extent necessary to achieve this.
- Once the diversion is closed, regulate outflow to as high as 600 m^3/s to prevent the lake exceeding 356.9 m (1170.9 ft), to as high as 800 m^3/s to prevent the lake exceeding 357.05 m (1171.4 ft) and as high as necessary to ensure that the upper storage limit of 357.2 m (1171.9 ft) is not exceeded.

Lake of the Woods

a) Overall Objectives

Lake of the Woods levels are rising as a result of the May 25-26 rain event. As with Lac Seul, regulation over the near term will be geared towards avoiding high levels on the lake and minimizing high water impacts downstream.

Given the current basin conditions, and reviewing the input of various interests in the Draft Regulation Guide, the following overall objectives from now through September are proposed:

- Carry out lake regulation with due regard for the Canada-United States Treaty and Canadian legislation regarding Lake of the Woods levels and outflows.
- Adjust lake level and outflow to achieve a balance between upstream and downstream interests, as inflow dictates.
- Within the regulation parameters for Lake of the Woods, regulate outflows to assist in meeting targets/preferences for the Winnipeg River in Manitoba
- Work towards achieving somewhat lower summer levels on Lake of the Woods, in the order of up to 15 cm (6 in) as per the Board commitment made following the 2001 high water year.

b) Scenarios

The attached graph for Lake of the Woods shows scenarios of lake levels that would result from 4 different combinations of assumed inflows and outflows. The scenarios show a range of possible future conditions and are not forecasts. The scenarios are:

S1 – high inflow – 90 %ile total Lake of the Woods inflow
S2 – high normal inflow – 75 %ile total Lake of the Woods inflow
S3 – moderate inflow – 50 %ile total Lake of the Woods inflow
S4 – low normal inflow – 25 %ile total Lake of the Woods inflow

c) Strategy

i) Low Inflow Conditions

- Although a return to low inflow conditions appears unlikely at this time, conditions can change dramatically.
- Outflow reductions should be kept to a minimum until the end of the spawning period on the Winnipeg River
- Reduce outflow to as low as 150 m^3/s to prevent the lake from declining below 322.7 m (1058.7 ft) and to as low as 100 m^3/s to prevent to lake from declining below 322.6 m (1058.4 ft)
- If Lake of the Woods level drops below 322.2 m (1057.1 ft) reduce outflow to 70 m^3/s, following consultations with OMNR and OMOE regarding fishery and water quality concerns.
- In 1988 and 1987, Lake of the Woods outflow was reduced to 100 m^3/s and in 1977 it was reduced to 63 m^3/s.

ii) Moderate Inflow Conditions

- Inflow to Lake of the Woods has climbed from 60 %ile to upper quartile in the past week and is expected to hit 90 %ile due to the May 25-26 rain event. Therefore, the following strategy will only apply when/if inflows decline into the moderate range.
- Outflow reductions should be kept to a minimum until the end of the spawning period on the Winnipeg River an outflow increases should be kept moderate during the spawning period.
- If drier conditions later in the summer lead to a drop in Lake of the Woods levels, attempt to

keep the summer lake level 10-15 cm (4-6 in) below the summer peak median level of 323.14 m (1060.2 ft) in accordance with the commitment made by the Board following the high water year of 2001. Try to balance this with avoiding outflows in excess of the generation capability at Kenora, optimizing hydroelectric generation downstream and attempting to provide optimum conditions for other river residents and interests.

- Through June, attempt to limit Lake of the Woods outflow changes that would adversely affect nesting loons on the Winnipeg River.
- Through June and early July, try to manage lake levels to limit the rate of rise for wild rice.
- Set outflow to as much as 800 m^3/s to prevent the peak lake level from exceeding 323.09 m (1060 ft) for the benefit of Lake of the Woods cottagers and south shore residents, if inflow is no higher than median.
- Lake of the Woods should be regulated to target for an end of September water level between 322.8 m (1059.0 ft) and 323.0 m (1059.7 ft) with a preferred level no higher than median (322.9 m/1059.4 ft) with outflow between 300 and 700 m^3/s.

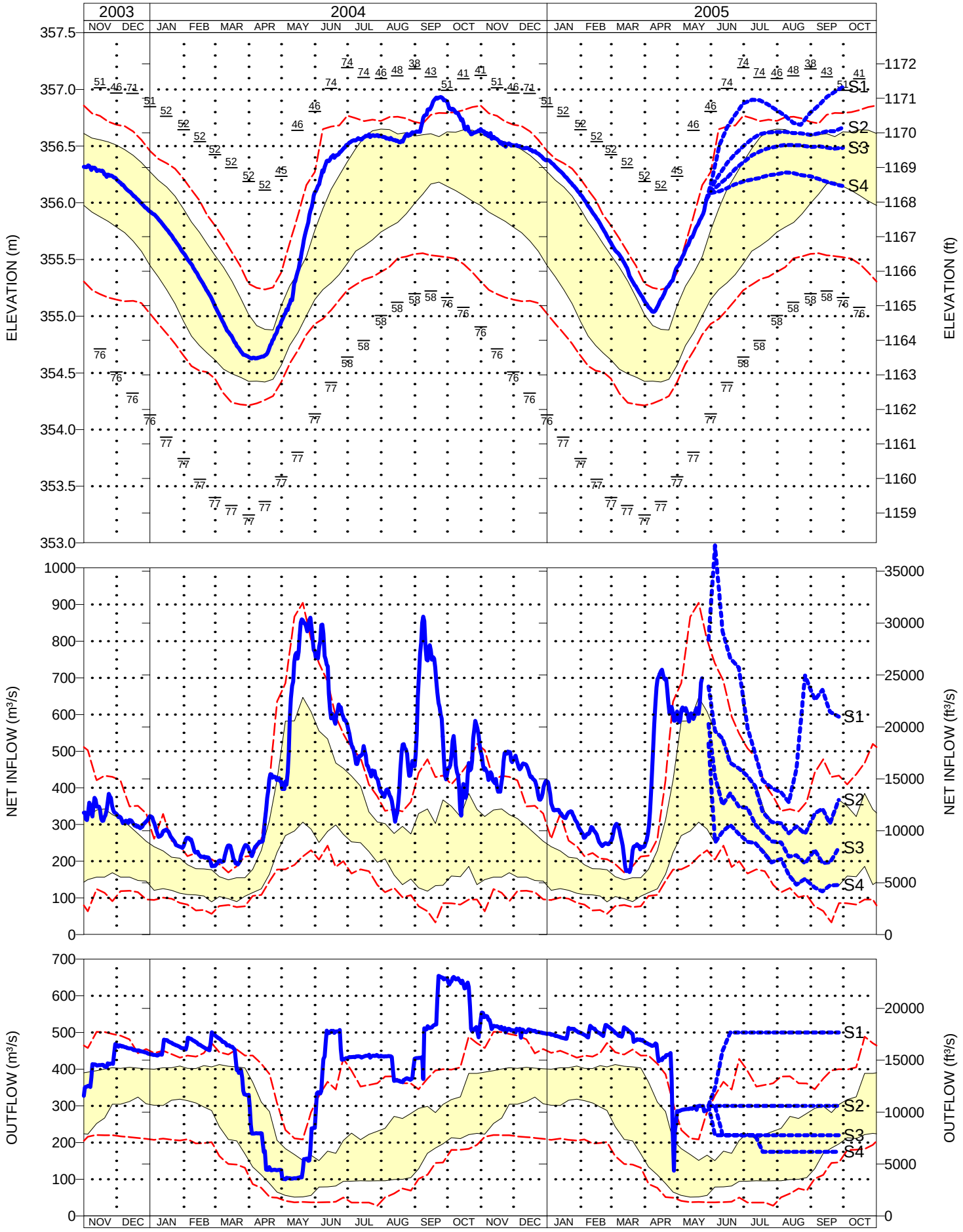
iii) High Inflow Conditions

- Outflow is to be increased from 900 to 1000 m^3/s on Thursday, June 2, 2005.
- Balance higher water levels on the lake with the impact of increased outflows downstream, both in Ontario and Manitoba.
- Do not increase outflow above 800 - 900 m^3/s to keep the lake level (or projected level) below upper quartile.
- Increase outflow as necessary to try to prevent the lake level (or the projected level) from rising above 323.47 m (1061.25 ft), which is the legislated top of the normal operating range. Note however, that the Convention and Protocol states “during periods of excessive precipitation the total discharge from the lake shall, upon the level reaching 1061 sea-level datum, be so regulated as to ensure that the extreme high level of the lake shall at no time exceed elevation 1062.5 sea level datum”. In future years, the Board may wish to consider making use of this flood storage during periods of high inflow.
- An attempt should be made to keep outflow increases to a maximum of 100 m^3/s per week, except during the spawning season when it would be desirable to not exceed 50 m^3/s per week. Note on the scenarios, however, that persistent 90 %ile inflows would necessitate inflow increases of 200 m^3/s per week.

LWCB
Lake of the Woods Control Board

LAC SEUL

ISSUED: 2005.05.27
** Provisional Data **



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LAKE OF THE WOODS

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