

### Operating the System

MNR's Muskoka River Dam Operation Manual (1997) provides a series of tables and curves for each dam that establish the discharge characteristics for the various structures based on lake elevation and the number of stop logs present in each sluiceway of the dam. Operators utilize this information to establish the appropriate stop-log or valve settings to achieve the target lake levels and downstream flows. Operating ranges for flows have been established for most structures, with typical flow targets displayed in a similar format as lake level. Operating flow ranges for Bala Reach downstream of Bala dams, the corresponding historical flow data from the period 1982-1998, and the flow/water level rating (relationship) curve for Bala Reach are presented in the adjacent plots.

**Target Flow** – this is the preferred flow for hydropower generation at downstream power facilities as specified in the Hackner-Holden Agreement. This flow is well within the capacity of the downstream reach, and would meet other social and ecological needs.

**Minimum Flow** – the flow required to maintain ecological integrity, and is defined over a specific time period; i.e. 7Q20 is the 7 day low flow that occurs approximately once every 20 years.

**Normal Operating/Conservation Zone** – the range of flows that meets the majority of social and ecological needs (including hydropower) while providing flexibility to account for normal weather events.

**Flood Control Zone** – this zone is used to facilitate the controlled release of flood runoff throughout the year.

**Buffer Zone** – this zone establishes the minimum flow requirements for the downstream river reach to meet ecological and social requirements. Careful balancing of lake levels and river flow is required when these conditions are reached in the watershed.

**Flood Damage Zone** – flows above this limit are known to result in downstream flooding.

**Low Water Zone** – flows below this limit may cause both environmental and recreational hardship.

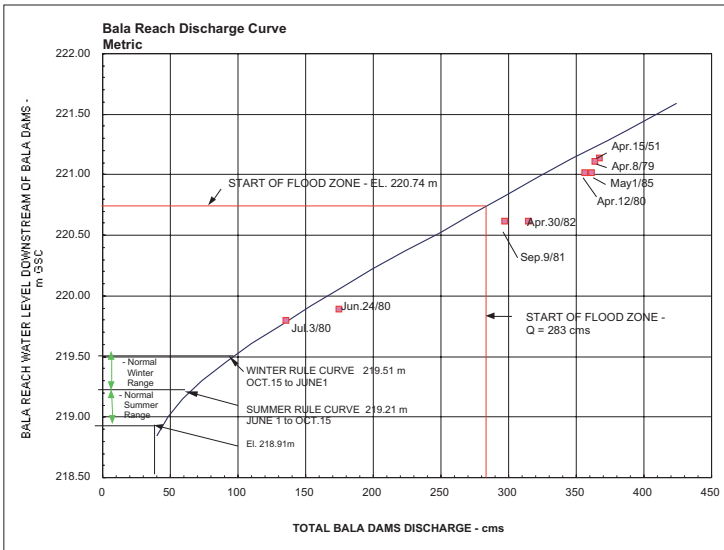
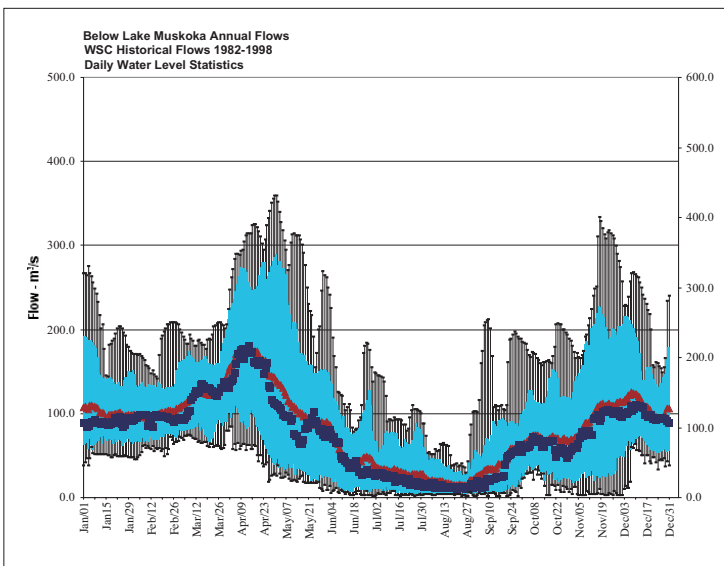


Figure 5.4  
Muskoka River Water Management Plan  
**Operating Flows on Bala Reach Downstream of Bala Dams**

