

Appendix D

Trophic Status and CCME Guidelines

The CCME places TP concentrations in a table equating them to trophic levels.

Trophic Level	Trigger ranges for Lakes TP ug/l¹²
Ultra Oligotrophic	< 4
Oligotrophic	4-10
Mesotrophic	10-20
Meso-Eutrophic	20-35
Eutrophic	35-100
Hypereutrophic	>100

The CCME seeks to determine if the trophic status of a water body has changed as a result of human activity, in this case IWL. With no pre-IWL background data, reference sites with little equivalent human interference were chosen to compare to IWL.

PS3 is the incoming water site and is a creek system. TP here varies from 4 to 6,500 ug/l, with an average summer concentrations between 10.2 to 1,833 ug/l. IWL has asked for a limit of 120ug/l above background. Average incoming TP in summer 2006 (ie background) was 58% of the requested license limit, is significant, and should be taken in account when assessing the IWL operation.

The trophic status of PS-3 varies from Oligotrophic to Hypereutrophic, on average being Eutrophic.

At PS5, the outlet from IWL, the net output of IWL varies from -161 to 170 ug/l. The trophic status of PS-5 net output varies from Ultra-Oligotrophic to Hypereutrophic, with the average being Eutrophic.

At PS6 the water has flowed through 650m of marsh/bog that the CCME states "tend to exhibit high TP concentrations"¹³. Therefore it is not surprising to find that the eutrophic inflow water combined with IWL net meso-eutrophic outflow and the bog has maintained the trophic status as eutrophic at PS6. However, this is same status as the inflow water. Therefore, IWL has not caused a significant downstream impact as defined by the CCME.

¹² Canadian Council of Ministers of the Environment Ecosystem Health, Science Based Solutions, Canadian Guidance Framework for the Management of Phosphorous in Freshwater Systems, Table 4.3, page 55.

¹³ Canadian Council of Ministers of the Environment Ecosystem Health, Science Based Solutions, Canadian Guidance Framework for the Management of Phosphorous in Freshwater Systems, page 11.

Y W B

-12- 1 2 2006

MS08-275