

**DECEMBER 2022**  
**PERFORMANCE MEASURE INFORMATION SHEET**  
**KOOTENAY LAKE: NAVIGATION**

**SUMMARY**

**Goal:** Minimize disruptions to commercial navigation and transportation.

**Recommended Performance Measure**

<b>Objective/ Location</b>	<b>Performance Measure</b>	<b>Description</b>
Navigation/Kootenay Lake	Navigability	Number of days per year that ferry routes are navigable at elevations between 1738ft (529.8m) and 1752ft (534m). More is better.

**INTRODUCTION**

The BC Ministry of Transportation and Infrastructure operates the ferry service on Kootenay Lake, which docks at the Balfour and Kootenay Bay terminals, and the Harrop cable ferry. Inland ferries operate under private contract with the Ministry of Transportation and Infrastructure. Currently, two ferries are being used to transport passengers and vehicles between the Balfour Terminal and Kootenay Bay. The larger of the two, the MV Osprey 2000, was built in 2000 and is used all year round. The MV Balfour was built in 1954 and is used during the summer peak season and when the MV Osprey 2000 is taken out of service for maintenance.

Communications with the BC Ministry of Transportation and Infrastructure indicate the Balfour terminal had a number of navigational challenges due to the relatively narrow channel width and shallow sections. Recent dredging has reduced these limitations. The current operational guidance for the MV Osprey 2000, the larger vessel with a deeper draft, identifies safe navigation at lake elevations at the Balfour terminal (which is close to the Queens Bay gauge) between 1737ft (529.7m) and 1753.5ft (534.5m).

Operation of the Harrop cable ferry is also limited by low waters below 1738ft (529.8m) and high waters above 1752ft (534m), when the ferry cannot dock at the approach ramp safely.

The Columbia River Treaty Review Technical Studies process—the only past performance measure process for the Kootenay system—did not include performance measures for navigation on Kootenay Lake. Therefore, this is the first time a performance measure has been developed for Kootenay Lake Navigation.

**RECOMMENDED PERFORMANCE MEASURES**

The research team recommends using the ferries' safe operating elevations for this performance measure, which tracks the number of days per year that the lake levels (measured at the Queens Bay gauge) are between 1738ft (529.8m) and 1752 (534m).

<b>Objective/ Location</b>	<b>Performance Measure</b>	<b>Description</b>
----------------------------	----------------------------	--------------------

Navigation/ Kootenay Lake	Navigability	Number of days per year that ferry routes are navigable at elevations between 1738ft (529.8m) and 1752ft (534m). More is better.
---------------------------	--------------	--

### COMPARISON OF RECOMMENDED PERFORMANCE MEASURE WITH HISTORICAL OPERATIONS

The performance measure is likely to be achieved in all but the most exceptionally low water conditions (Figure 1)

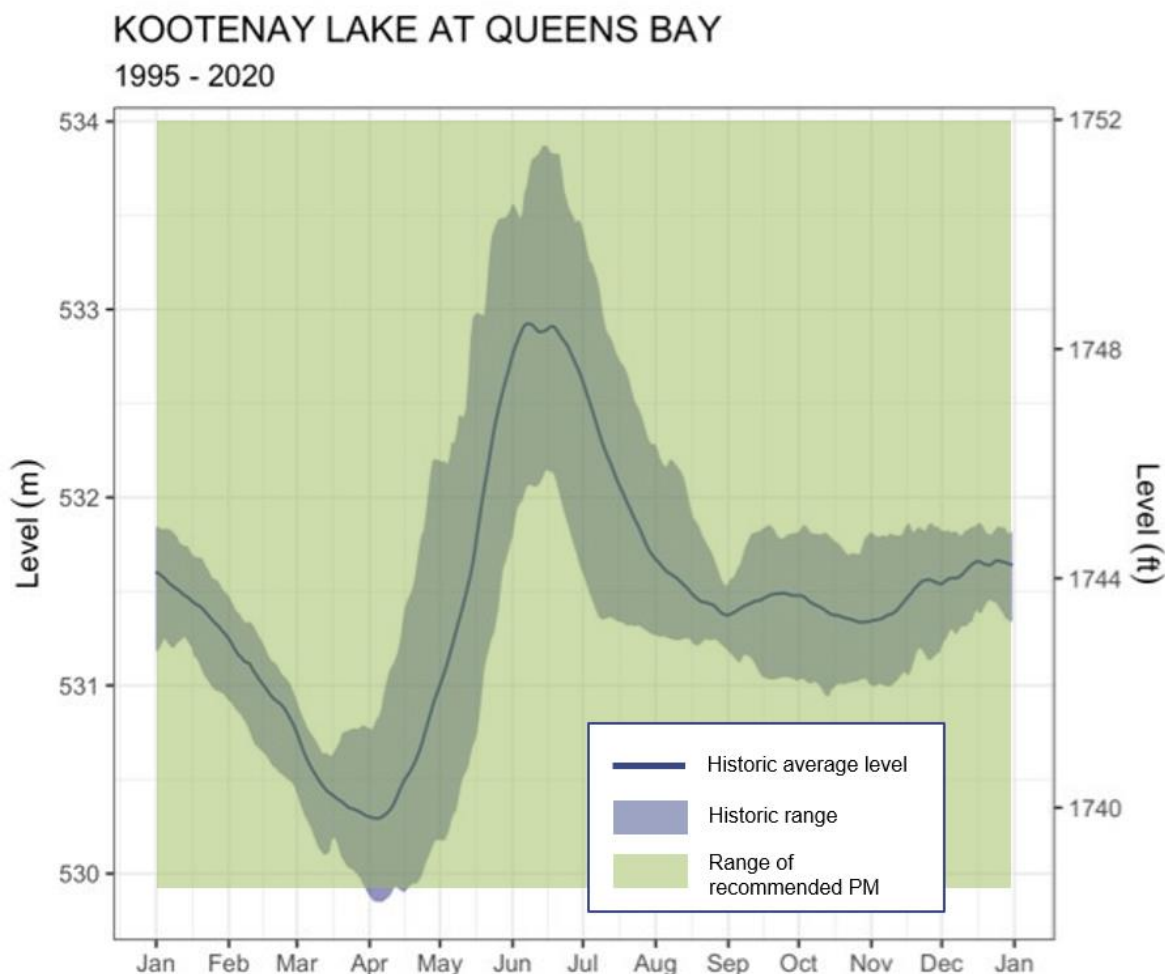


Figure 1: Range of historic reservoir elevations in comparison to recommended PM

### CALCULATIONS

For each scenario:

1. Assemble the simulated results for daily reservoir elevations over the simulation period.
2. Count the number of days over each year that the reservoir water levels are within the critical elevations.
3. Summarize all statistics.

## **KEY ASSUMPTIONS AND UNCERTAINTIES**

- Each scenario is simulated using the same set of system constraints, input assumptions (e.g., load forecasts) and historic basin inflows.
- Assumes that the critical elevations for each site are accurate.