PERFORMANCE MEASURE INFORMATION SHEET # 10

MID COLUMBIA RIVER: RECREATION

Objective / Location	Performance Measure	Units	Description	MSIC
Recreation/Mid Columbia River	Access Days	# access days by activity by region	Sum of # days reservoir elevation is within the preferred range for shore-based and water-based activities	7 days

Description

The City of Revelstoke supports a variety of day use recreation activities along the shoreline and on the mid Columbia River (downstream of Revelstoke Dam to Shelter Bay). The nature of recreational activity in this area is notably different from the upstream area, and is associated largely with near-urban opportunities along waterfront areas. Recreational opportunities include hiking, biking, walking, viewing and picnicking, boating and fishing.

The local community benefits from improvements to the quality and diversity of recreation and tourism experiences through a greater quality of life, as well as through local economic development benefits that result from increased usage. A number of key factors that affect recreational quality and use include:

- Diversity and abundance of fish and wildlife, since many recreational activities are focused on enjoyment of these natural resources
- Ability to safely access the water or shorelines for water-based and shore-based activities
- Visual quality of viewscapes (appearance of the river related to avoidance of exposed mudflats/dust)
- Avoidance of navigational hazards

Performance Measure

During the Columbia WUP process, developing a recreation PM for this section of the system presented a special challenge because recreational opportunities are influenced both by flows in the river and by the elevation of Arrow Lakes Reservoir to different extents at different times of the year. The Recreation Technical Subcommittee suggested that a PM be developed that incorporates both these issues for motor boating and shoreline use. These two activities were chosen because they broadly represented a range of other uses. For example, “shoreline use” also refers to non-motorized boating activities that rely on easy access to the shoreline. However, data on preferred flows associated with activities on the mid Columbia River were particularly weak and a more formal investigation into the relationship between Columbia flows and Arrow elevations and the impact of this relationship on recreation would have been required.

For boat access, the Recreation Technical Subcommittee identified preferred elevations over the recreation season that would provide "good opportunity" for a broad range of interests, including access via boat ramps, usability of boat ramps, quality of boating within that range of elevations, and fishing opportunities. The boat access measure was not tied directly to physical structures (i.e., boat ramps). The shoreline access measure was defined around a range of

elevations that constituted "good opportunity" for shore-based activities, with activities decreasing in frequency when the water is above this elevation threshold.

The elevation thresholds were developed based on critical water levels for viewshed quality, shore-based activities and water-based activities, as summarized in RL&L (2001).

For the NTS analysis, the recreational seasons were modified from those used in the WUP based on input received during the Oct 2010 NTS Stakeholder Session.

NTS PM Definitions

Area	Measure	Dates	Critical Elevation Zone
Arrow Lakes Reservoir	Boat Access Days	01 May to 30 Sept	# days at or above 1435 ft
	Shoreline Access Days	01 April to 30 Sept	# days below 1435 ft

Calculations

For each scenario:

1. Assemble the simulated results for month-end reservoir elevations over 60 years (1940-2000; Figure 1).
2. Count the number of days over the defined recreation season that the reservoir water levels fall above the threshold for boat access and below the threshold for shoreline access.
3. Summarize all statistics (Figures 2 and 3).

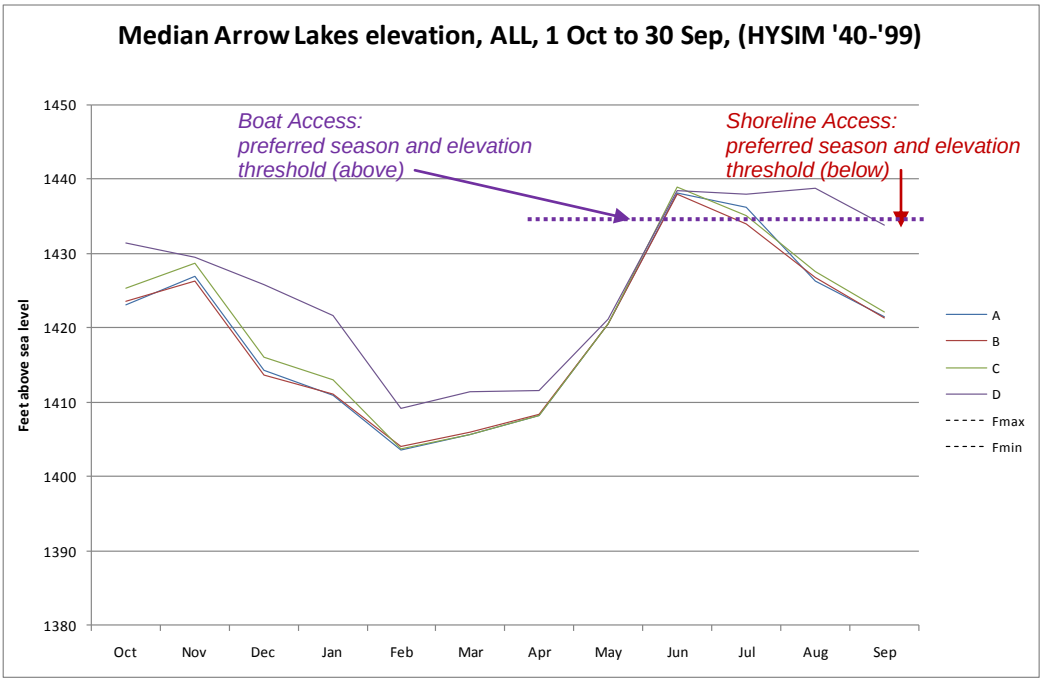


Figure 1. HYSIM Simulated Mid Columbia River (Arrow Lakes) elevations. Median over 60 years showing the preferred elevation threshold for recreation (boat access and shoreline access).

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 (1940 – 2000).
- Assumes that there is minimal recreational use outside the defined recreation season.
- Assumes that the preferred season and elevations are accurate.
- Uncertain whether the preferred recreation elevations for the mid Columbia River are capturing the essence of access issues for boating and shoreline use.

Results

Scenario D (no NTS) provides the greatest number of boat access days within the preferred elevation zone on the mid Columbia River. Conversely, this scenario represents the least desirable option for providing shoreline access to the river.

All of the "with NTS" scenarios (A through C) perform similarly for both boat and shoreline access, with no one scenario providing any significant benefit to recreation over the other.

Figure 2. Boat Access Days – HYSIM Results for all NTS scenarios

	Scen A	Scen B	Scen C	Scen D
Max	112	123	115	142
90th	58	58	60	101
Mean	36	30	36	71
Med	42	33	37	86
10th	1	0	0	18
Min	0	0	0	0

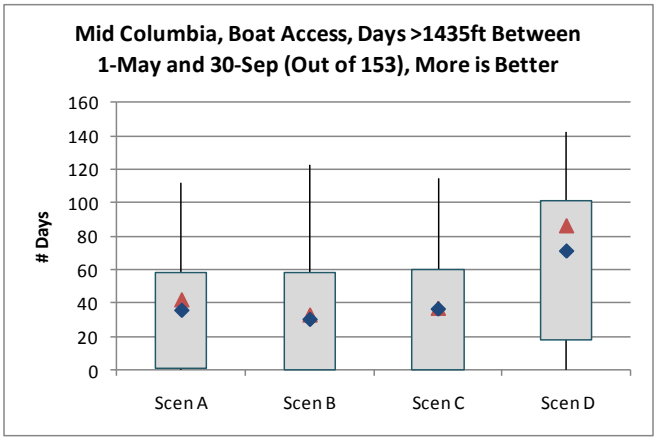
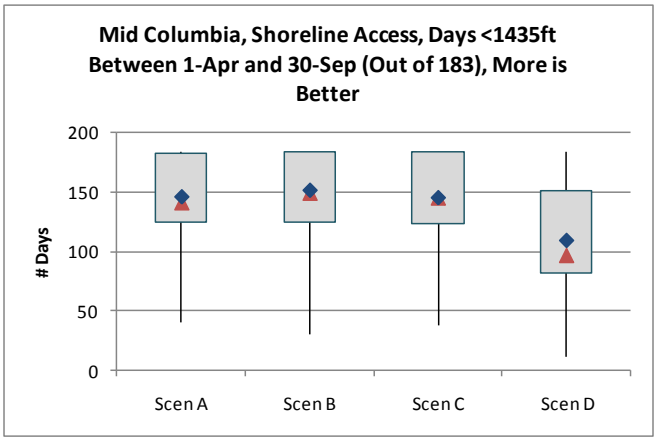


Figure 3. Shoreline Access Days – HYSIM Results for all NTSA scenarios

	Scen A	Scen B	Scen C	Scen D
Max	183	183	183	183
90th	182	183	183	151
Mean	146	151	145	109
Med	141	149	145	97
10th	125	125	123	82
Min	41	30	38	11



References

RL&L Environmental Services Ltd. 2001. Water Use Plans – Environmental information review and data gap analysis. Volumes 1 & 2. Prepared for BC Hydro, Burnaby by RL&L Environmental Services in association with Robertson Environmental Services Ltd., Pandion Ecological Research Ltd., Bruce Haggerstone Landscape Architect, Pomeroy & Neil Consulting Ltd. and DVH Consulting. RL&L Report No. 858V1-F.