

DECEMBER 2022
PERFORMANCE MEASURE INFORMATION SHEET
KOOCANUSA RESERVOIR: GRAZING

SUMMARY

Goal: Maximize the grazing opportunities within the Kooconusa reservoir drawdown zone.

Recommended Performance Measure:

Objective / Location	Performance Measure	Units	Description
Grazing access/ Kooconusa	Hectares of accessible range	# hectares per year	Number of hectares per year above 2,401.6ft (732m) May 1 to Oct. 31. More is better.

It has not been possible to verify this performance measure with the grazing license holders. The team is aware that this performance measure conflicts with the Kooconusa recreation/ tourism performance measure during June through September. Further research is required to refine these measures to minimize this conflict, if that is possible.

Additional research is needed to develop the second performance measure for grazing condition.

Introduction

Prior to inundation there were many thriving ranches with large areas of private lands along the Kootenay River, as well as grazing rights on public lands. The lower elevation portions of these grazing areas are now annually flooded by the Kooconusa reservoir. The private lands that are inundated, and a flooding easement, were expropriated before the reservoir was filled. When these lands are not flooded they remain valuable for grazing during May to October and are now under grazing licenses authorizing approximately 1,500 of the 5,000 animal-unit-months in the local area that are held by three or four local ranching businesses¹.

In addition to excluding access to these range licenses, inundation also impacts the species and the growth of the forage species in the flooded areas. The timing, duration and frequency of inundation influences seed germination, growth and persistence of different species, with long periods of inundation resulting in reduced grazing forage. Further study is required to fully understand the impacts of inundation on the potential and preferred grazing species.

It is recognized that these lands contain archeological sites that need to be protected and these areas along the upper edges of the reservoir are candidates for ecological restoration.

Performance Measure Development

Performance measure (PMs) have not been developed in past processes to evaluate the impacts of Libby dam operations on grazing opportunities. The Team interviewed the grazing licensees for well more than half of the Animal-Unit-Months within the grazing licenses that

We are confirming this with the local BC Range Officer.

overlap into the drawdown zone. The ranchers explained that the grazing areas within the drawdown zone are most productive and when these areas are flooded, they must move their cattle to higher elevation, much less productive grazing areas, where access to water can be a problem. These businesses rely on grazing from the beginning of May to the end of October, which defines the seasonal range for this performance measure. The ranchers identified two specific interests: the area that is available for grazing and the quality of the forage.

1. Accessible grazing area

Using a new digital elevation model for Kooacanusa reservoir, the Socio-Economic Integration Team identified the elevation range of the grazing licenses within the drawdown zone (Table 1).

Table 1. Grazing license information

License no.	Location	Lower elevation	Upper elevation
RAN077887A	Straddles Hwy 3	744m (2441ft)	749.5m (2459ft)
RAN078017A	North and south of Wardner Provincial Park	742m (2434.4ft)	749.5m (2459ft)
RAN077839	South of Hwy 3	732m (2401.6ft)	749.5m (2459ft)

Based on this information, the team recommends setting the lower elevation for this PM at 2401.6ft (732m). The PM will report the number of hectares that are not inundated and are thus available for grazing during the grazing period between May 1 and October 31.

2. Grazing forage inundation

A study is recommended to provide the foundation information for a second performance measure for grazing forage inundation. This will include the seasonal ecological requirements of potential and preferred forage species, both natural and seeded, and their sensitivities to inundation to identify the timing, duration and frequency of inundation parameters for a second performance measure.

The approaches used in the CRT Ecosystem Function (EF) Floodplain, Riparian and Wetlands study should be considered to document the inundation tolerances of potential forage species and incorporate the implications of climate change.

This study must be done with the full engagement of the grazing license holders and Indigenous Nations to incorporate these important local knowledge sources and ideally should engage the ecosystem function specialists working on the CRT floodplain, riparian and wetland studies to include their research on native species and the evaluation concepts they have developed.

This study is beyond the resources of the current work on Socio-Economic Performance Measures. Options to implement this study will be explored.

Recommended Performance Measure

CRT Socio-Economic Performance Measures

Objective / Location	Performance Measure	Units	Description
Grazing access/ Koochanusa	Hectares of accessible range	# hectares per year	Number of hectares above 2,401.6ft (732m) May 1 to Oct. 31. More is better.

It has not been possible to verify this performance measure with the grazing license holders. As well, the team is aware that this performance measure conflicts with the Koochanusa recreation/tourism performance measure during June through September. Further research is required to refine these measures to minimize this conflict, if that is possible.

Calculations

For each alternative:

1. Assemble the simulated results for daily elevations.
2. Sum the number of hectares that are not flooded each day for each license.
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.

Comparison of Proposed Performance Measure with Historical Operations

Based on Figure 1 (page 4), during 1980-2020 reservoir levels were generally been well above the level where the lowest elevation grazing licenses are located, except in some years in May to June. From May until August the reservoir is being filled to avoid downstream flooding and to provide flows for power generation and endangered species recovery.

CRT Socio-Economic Performance Measures

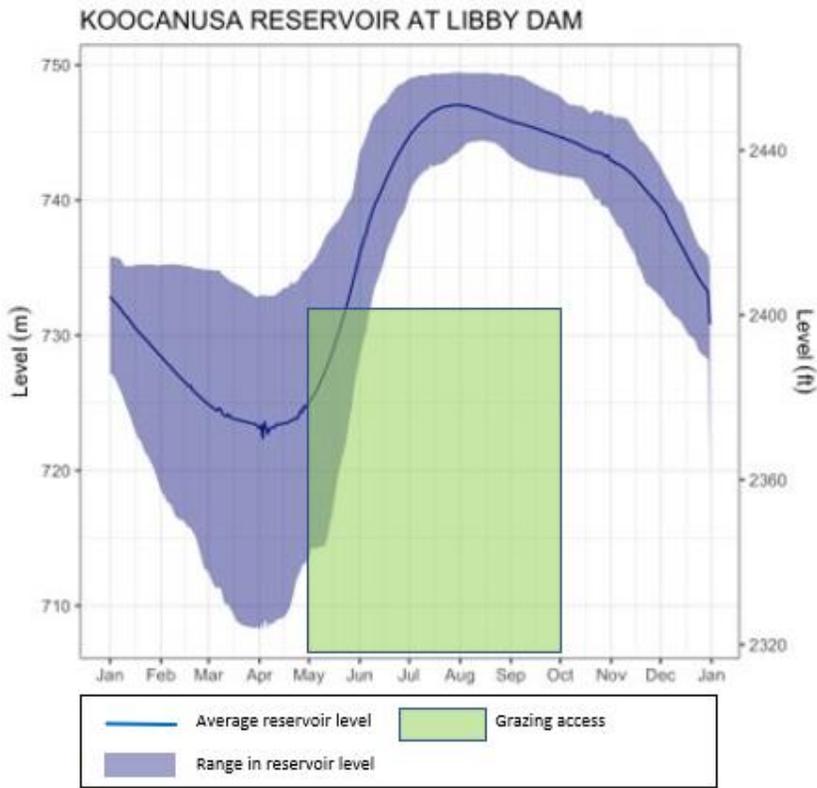


Figure 1: Kooconusa reservoir levels and grazing access

References

None