Report to the Pacific Fishery Management Council on Klamath River Fall Chinook Interim Management Measures for Ocean Salmon Fisheries in 2024 and Potentially Beyond

Agenda Item C.4.a
Supplemental KRWG Presentation 1
March 2024

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Presentation Overview

- Background
- Objectives
- Current workgroup focus
- Updated stock-recruit analysis
- Alternative management options and considerations
- Data/monitoring needs
- Summary

Background

- Klamath Dam Removal Project will restore anadromy to approximately 400 miles of river and stream habitat above the current dams (Iron Gate, Copco 1 and 2, J.C. Boyle).
- Habitat restoration will occur above and directly below the current dams.
- Reservoir drawdown began in January of 2024 and deconstruction begins spring of 2024.
- Anadromous fish passage is expected in September/October of 2024.
- New freshwater fishery regulations have been developed in California and Oregon to facilitate a successful restoration project and preclude harvest of Chinook.

Objectives

- Consider interim PFMC management objectives that go beyond the HCR prescribed targets.
- Promote repopulation and recovery of Chinook.
- Buffer against potential near-term loss in productivity due to dam removal.
- Rebuild the overfished KRFC stock.
- Balance conservation and harvest.
- Evaluate need and timeline for potential new analyses/methodologies.

Workgroup focus to date

- Describe current management.
- Update 2005 stock-recruit analysis.
- Develop alternatives that introduce conservation benefit across various levels of abundance.
- Analysis of potential exploitation rates and resulting escapement.
- Assess data/monitoring needs.

Updated stock-recruit analysis

- Stock was last assessed in 2005 (brood years 1979-2000, ”old data”)
- 17 years of more recent data (brood years 2001-2017, “new data”)
- The 2005 analysis was replicated with new data.
- Asked the question: How has KRFC productivity and capacity changed since 2005?
- Provides context for management under the current framework.

Key results

- Productivity (α) has declined:
  - old data, old time period = 8.53
  - new data, new time period = 4.70

- Capacity (β) has changed by a small amount
  - old data, old time period = 2.52e-05
  - new data, new time period = 2.74e-05

Updated Stock Recruit Analysis - Continued

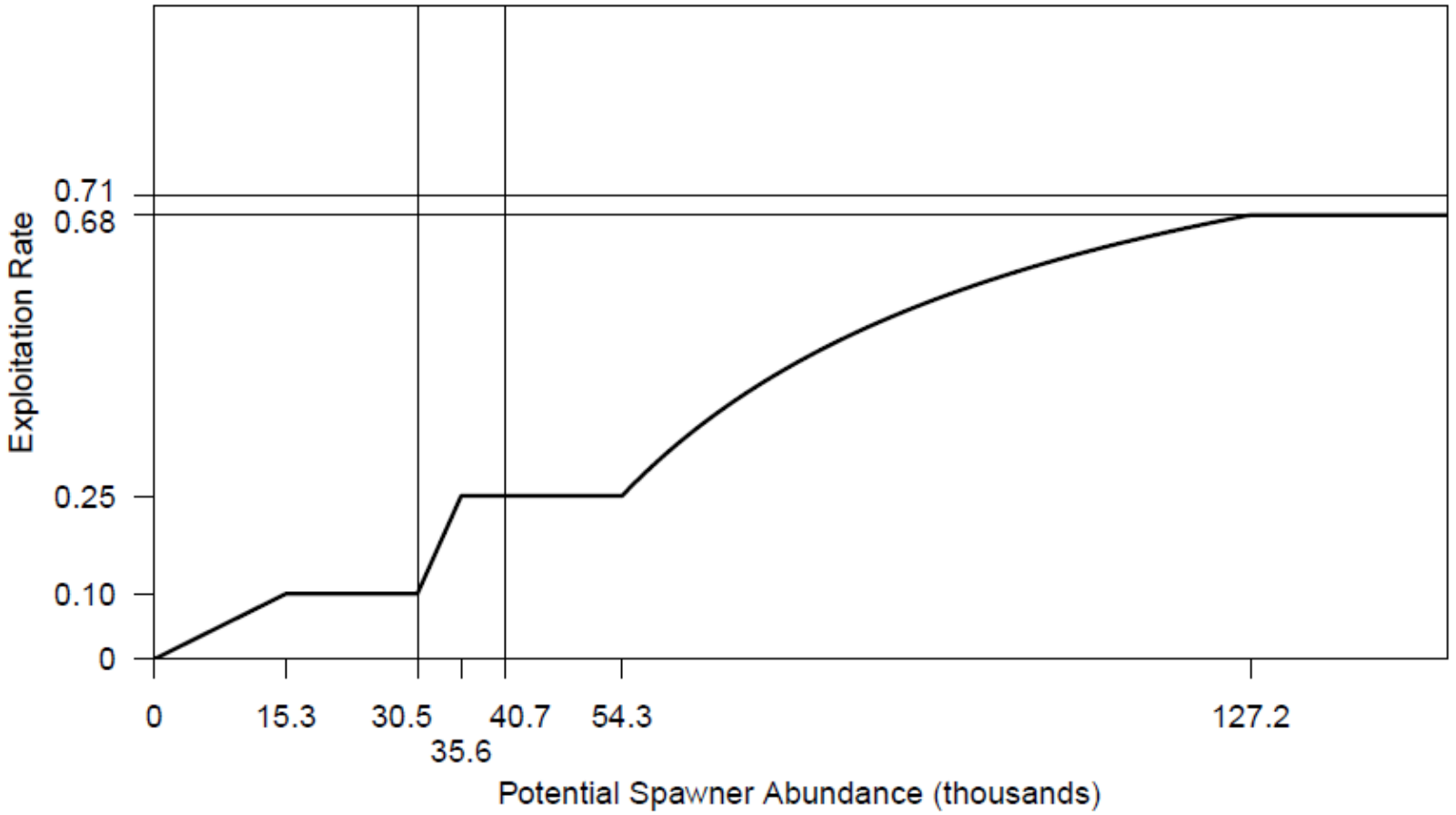
- New data indicates reduced productivity over last 17 brood years compared to the 2005 analysis.
- Lower productivity can reduce production of fish available for harvest, ability of the stock to recover from an overfished status, and the ability to repopulate newly available habitat.
- Managers may want to take this into account when determining if precaution is warranted during annual fishery planning process.
- Maximizing production (targeting or exceeding Smax) and escapement is one strategy to achieve the objectives of the KRFC rebuilding plan and the Klamath Dam Removal Project

Alternative Management Considerations

- Eight alternatives proposed for Council consideration, including status quo.
- Seven alternatives offer some conservation benefit
- Conservation benefit (in terms of reduced exploitation rates) appears at low, mid, and/or high abundances depending on the alternative.
- Retrospective analysis of exploitation rates and resulting natural-area escapement illustrates cost/benefit across a wide range of historical preseason projections of potential spawner abundance.

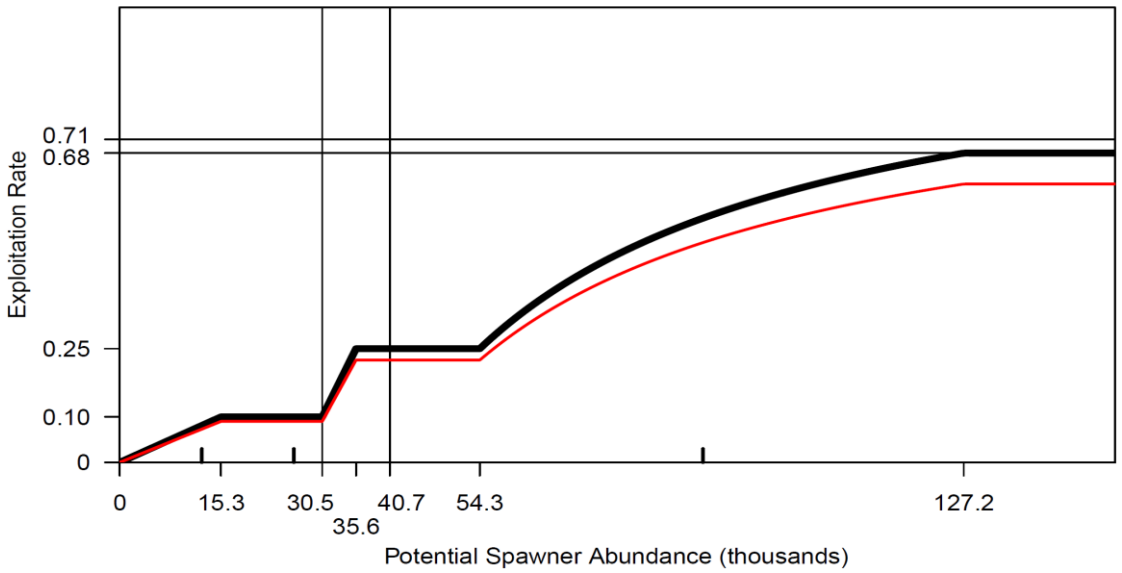
Alternatives

1 Status quo

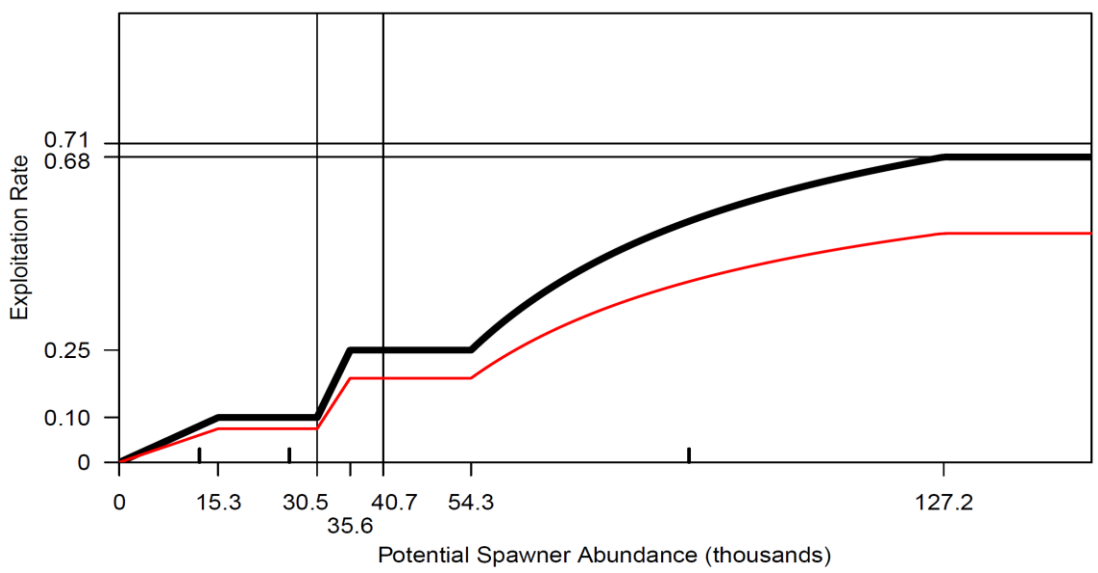


Alternatives

2.a



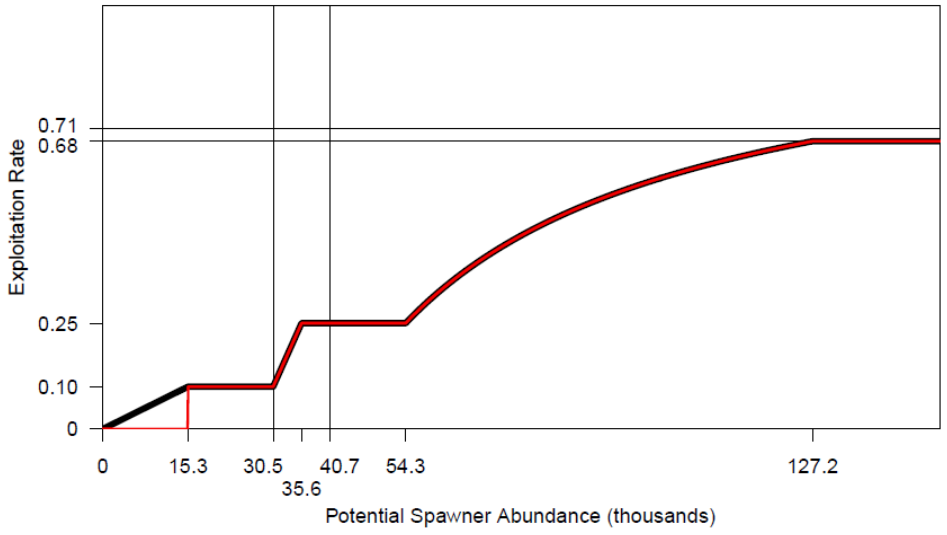
2.b



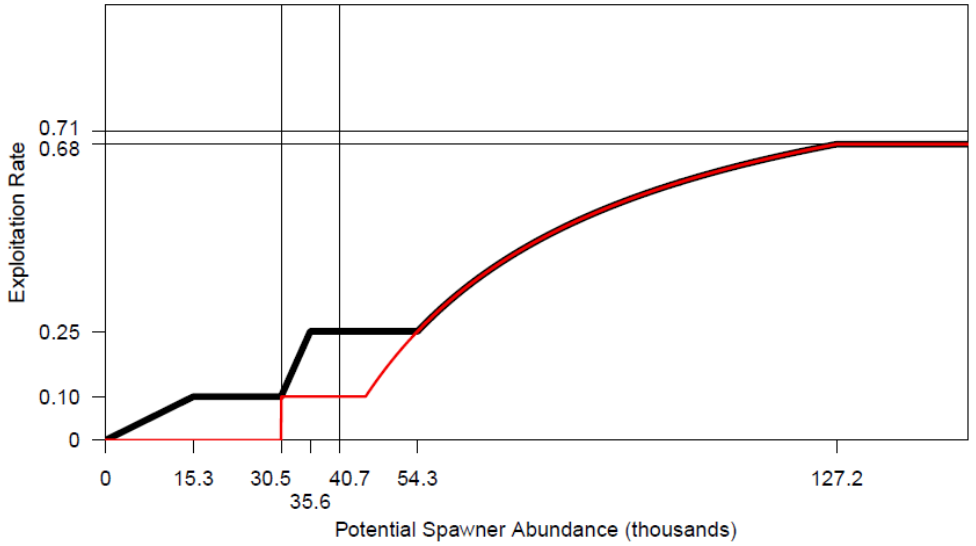
Reduced ER at all levels of abundance

Alternatives

3.a

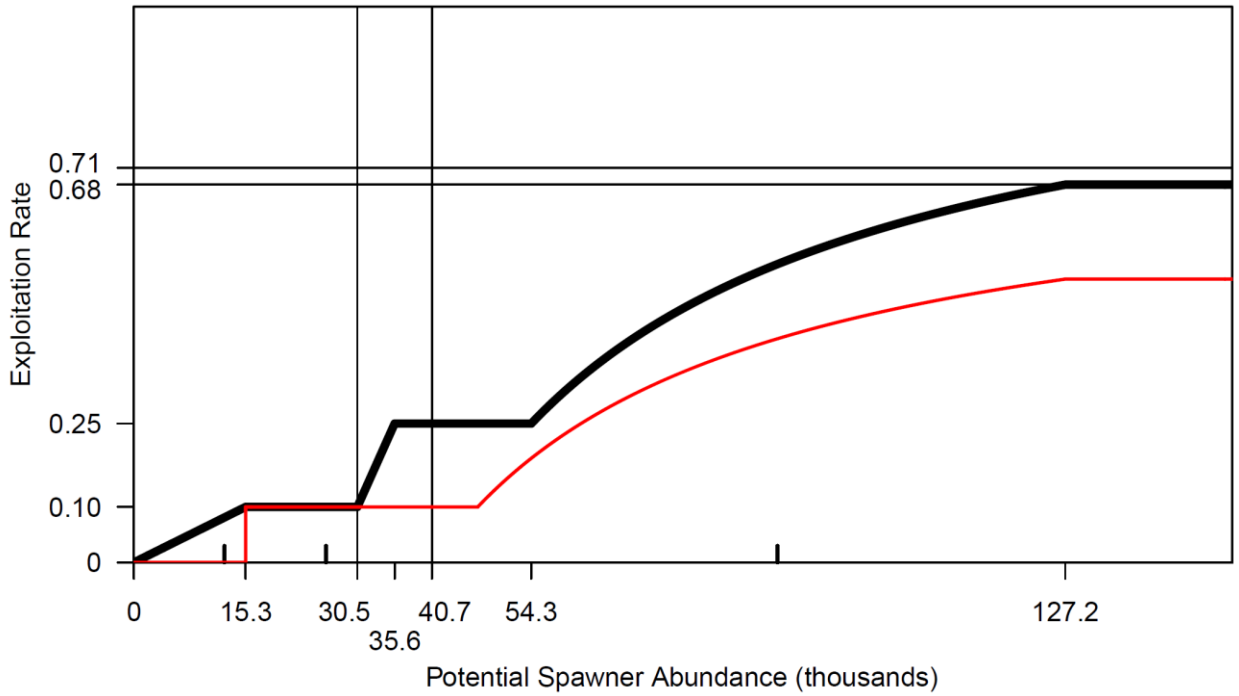


3.b



Reduced de minimis fisheries

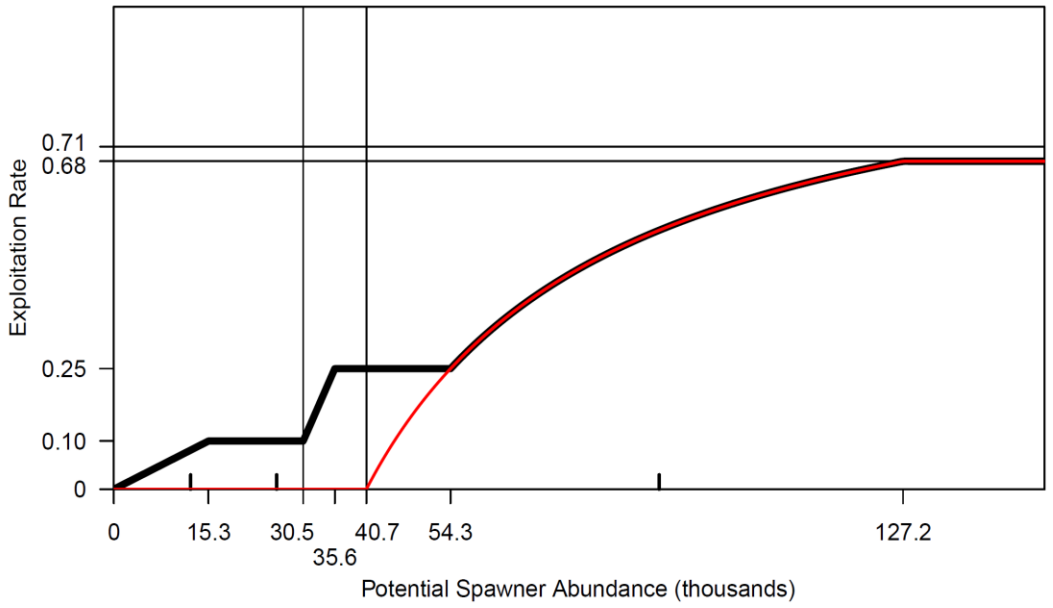
Alternatives



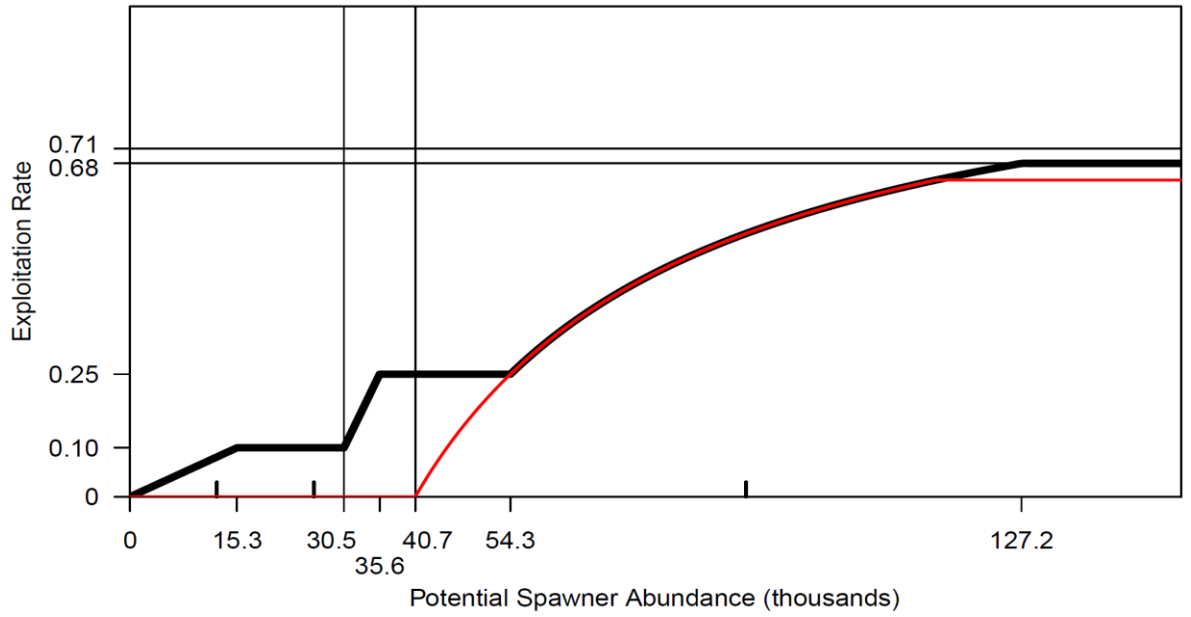
Reduced de minimis fisheries and buffer ER

Alternatives

5.a



5.b



Eliminate de minimis fisheries

5.b also reduces max-allowable ER

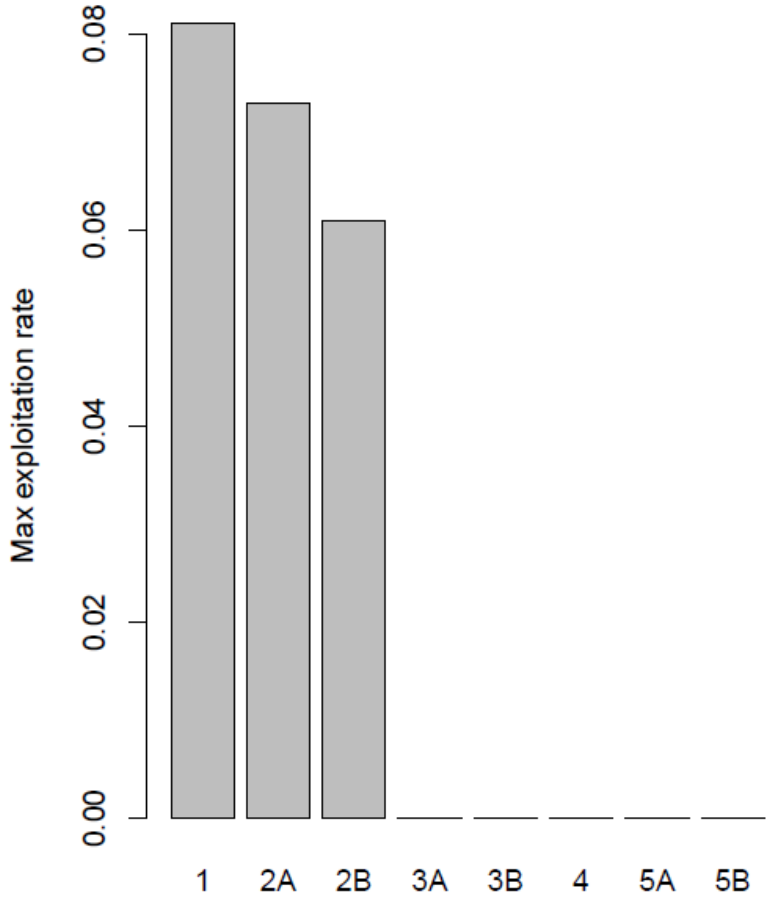
Analysis of Alternatives

- Analyzed by examining maximum exploitation rates and minimum escapement for a range of abundance levels:

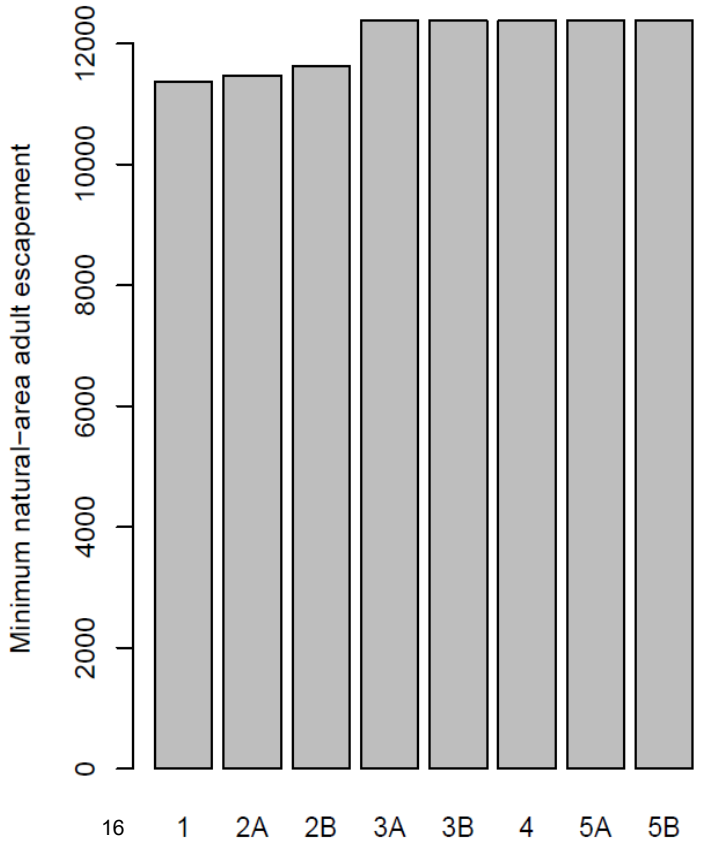
Very low-	2017:	12,383
Low-	2023:	26,238
Moderate-	2019:	87,893
High-	2013:	230,473

Results – very low abundance

Exploitation rate

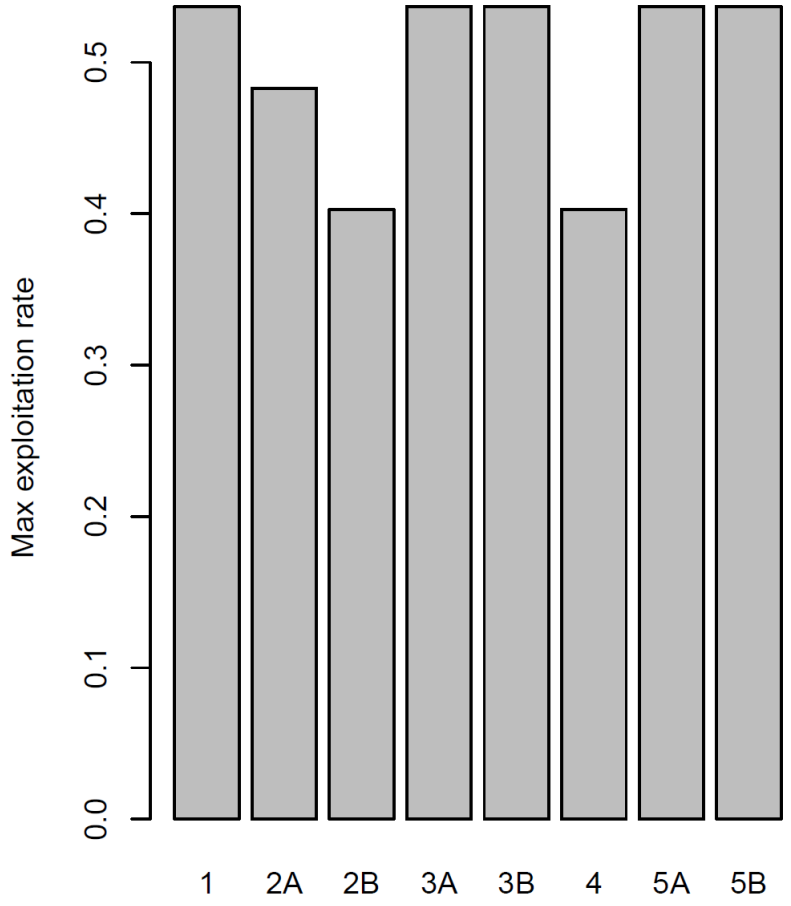


Escapement

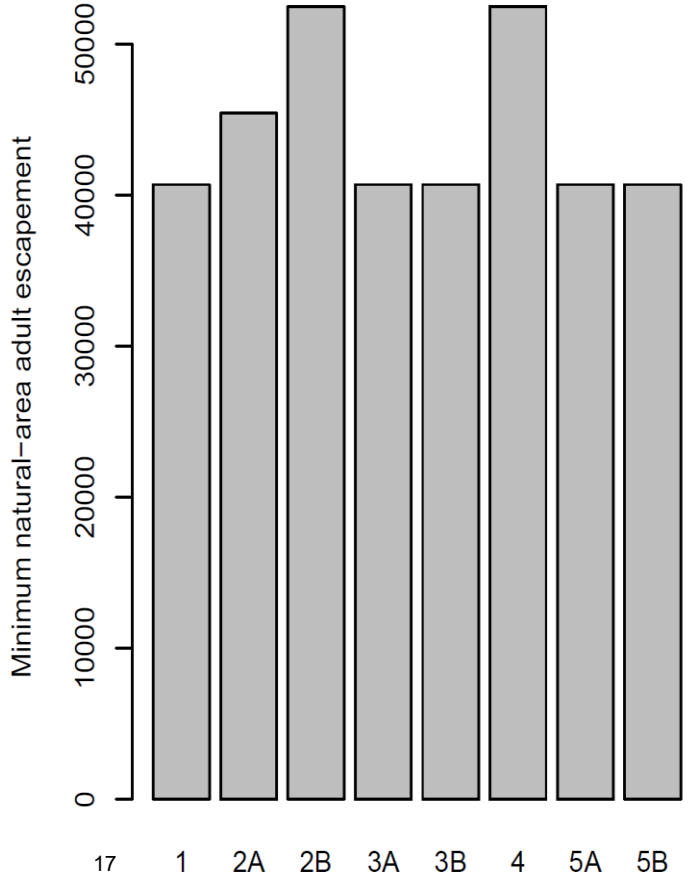


Results – moderate abundance

Exploitation rate



Escapement



Data and Monitoring Needs

- Maintaining the current level of freshwater and ocean monitoring is essential to the management and conservation of this stock.

- Annual KRFC stock assessment relies on age-structured data from hatcheries, natural spawning areas, and river fisheries; coded-wire tag recoveries from ocean and river surveys; age structure estimates based on scale age analysis, total ocean harvest, and total escapement to the Klamath Basin derived from nearly comprehensive monitoring efforts.

- Reduction or elimination of efforts to obtain these data on an annual basis would have negative effects on the stock assessment. This incudes freshwater monitoring in newly available habitat.

Summary

- Added conservation may be warranted.
  - Facilitate a successful dam removal and restoration project
  - Plan fisheries to account for reduced productivity of the stock
  - Provide appropriately balanced ocean regulations to complement freshwater regulations in new habitat that will prohibit the take of salmon
  - Hasten rebuilding, repopulation, and the potential for increased fishing opportunity in the future

Summary

- Council may consider alternatives for 2024 and possibly beyond.
- Future work could include:
  - Continued work on stock recruit analysis
  - Changes to the conservation objective and/or the HCR (FMP amendment)
  - Other forecast tools, management frameworks, or management objectives may be possible