

Columbia River Cold Water Refugia White Paper: An Overview

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Impetus

1. C-3630:

“...The Department shall strive to convene a policy level joint-State body with appropriate Oregon representatives to review available information regarding cold water refuge area migrating salmonids and the impacts of fisheries in these areas and develop a report with recommendations on possible thermal angling sanctuaries. The report is to be submitted to the Washington and Oregon Fish and Wildlife Commissions for their consideration for possible concurrent regulations.”

2. Recent low abundances of A- and B-index summer steelhead in the Columbia River Basin

3. Commission, Department, and Public concern for impacts to summer steelhead during their migration



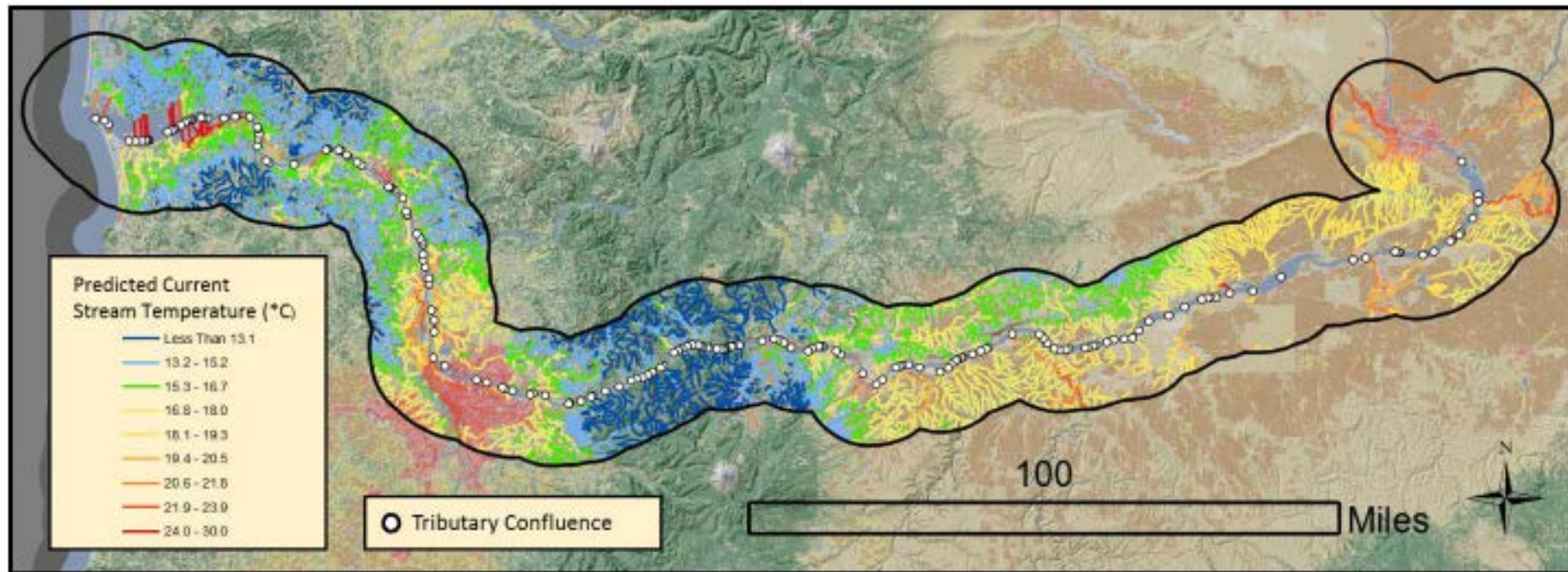
The Issue

- To minimize exposure to warmer temperatures during adult migration, salmonids temporarily move into cooler water
- During residence, fish may be subjected to recreational harvest (both target and non-target)
- Cold-water refuges simultaneously benefit anglers by concentrating fish, while potentially posing conservation risks if angling mortality exceeds harvest constraints
- Purpose of white paper is to provide recommendations for fishery management with consideration of cold-water refugia



What and Where are Cold Water Refugia?

- In the mainstem Columbia River, average August water temperatures are $\sim 22^{\circ}\text{C}$ (71.6°F)
- As they migrate upriver, many salmon and steelhead move into areas of cooler water for temporary relief, called *cold water refuges (CWR)*.
- Refuges are found where cooler tributaries flow into the river



EPA, 2021



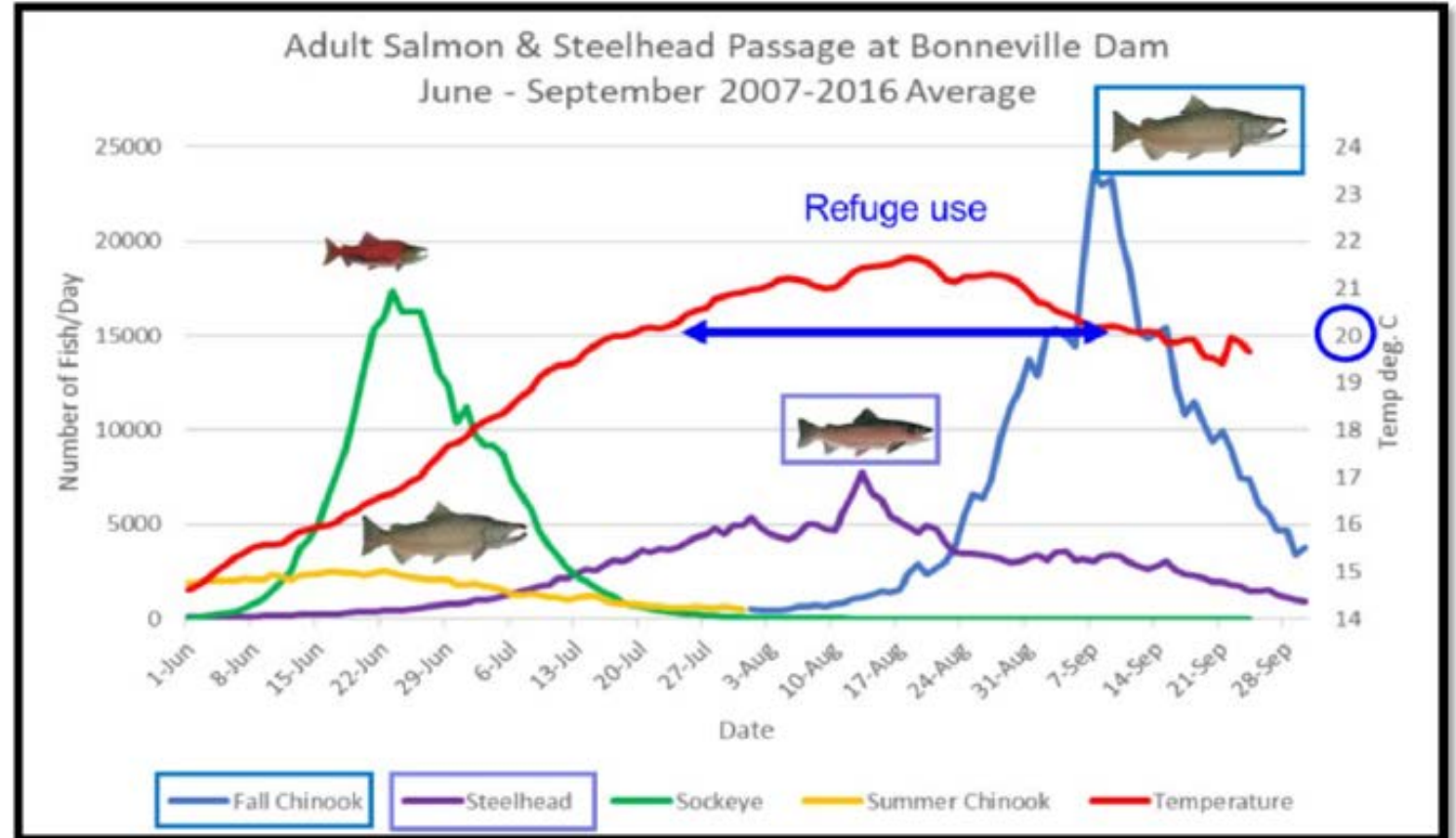
Why are Cold Water Refugia Important?

Reduce prolonged exposure to high river temperatures, which may:

- Reduce disease risk
- Reduce stress
- Reduce loss of energy reserves
- Reduce mortality risk
- Increase spawning probability

Adult summer steelhead and fall Chinook use highest because they migrate when temperatures are warmest

- **Steelhead for potentially weeks, late July through mid-September**
- Fall Chinook for typically a few days, late August through mid-September



EPA, 2021



White Paper Elements

- Focus is on impacts to A- and B-index steelhead
- What are allowable non-treaty fishery impacts and relationship to CWR?
- What are non-treaty fishery impacts in WA CWR?
- How do WA CWR non-treaty fishery impacts compare to total mortality (Asotin Creek Steelhead)?
- Gaps in our fisheries assessment knowledge



White Paper Elements: Continued

Recommendations

- Closing night fishing within the Basin in areas that remain open to salmon/steelhead due to lack of effective monitoring/enforcement
- Continuing and encouraging, a consistent, coordinated approach for basin wide regulations based on annual fish abundance and conservation need
- Columbia River menu of management tools based on two criteria: temperature and natural-origin A- and B-index steelhead abundance



Take Away

- We are managing within our harvest constraints
 - In recent low steelhead abundance years, we have taken a more precautionary approach considering some data gaps
 - Asotin Creek steelhead case study
- Impacts are small (< 1% of A- and B-index steelhead; Table 6)
- Biological benefits of closing fisheries negligible for steelhead; could have unintended consequences for other species (e.g., Chinook pHOS)





Questions?

