Queets River Natural Spring/Summer Chinook Draft Rebuilding Plan Briefing

Report Developed by: the Salmon Technical Team and tribal co-managers

The Preliminary Draft Rebuilding Plan Analysis is available under
E.3.Attachment 1

Outline

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Introduction

- In 2023, Queets River natural spring/summer Chinook met the criteria for overfished status, and Notice of this status determination was provided to the Pacific Fishery Management Council (Council) by the National Marine Fisheries Service (NMFS) in November 2023

- The Fishery Management Plan (FMP) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) require that a rebuilding plan be developed and implemented within two years of the formal notification from NMFS to the Council of the overfished status.
  - ➢In response, the Council directed the Salmon Technical Team (STT) to propose a rebuilding plan for Council consideration within one year.
  - ➢ Council will review the draft plan and adopt a preliminary preferred alternative for public review during the September session.
  - ➢Council will then adopt a final rebuilding plan for recommendation to NMFS at the November 2024 Council meeting.

- The overfished status designation was based on adult spawner escapement during 2019-2021.

- Given the life cycle of ocean-type Chinook salmon, these return years coincide predominately with the 2014-2018 Brood Years (BY).
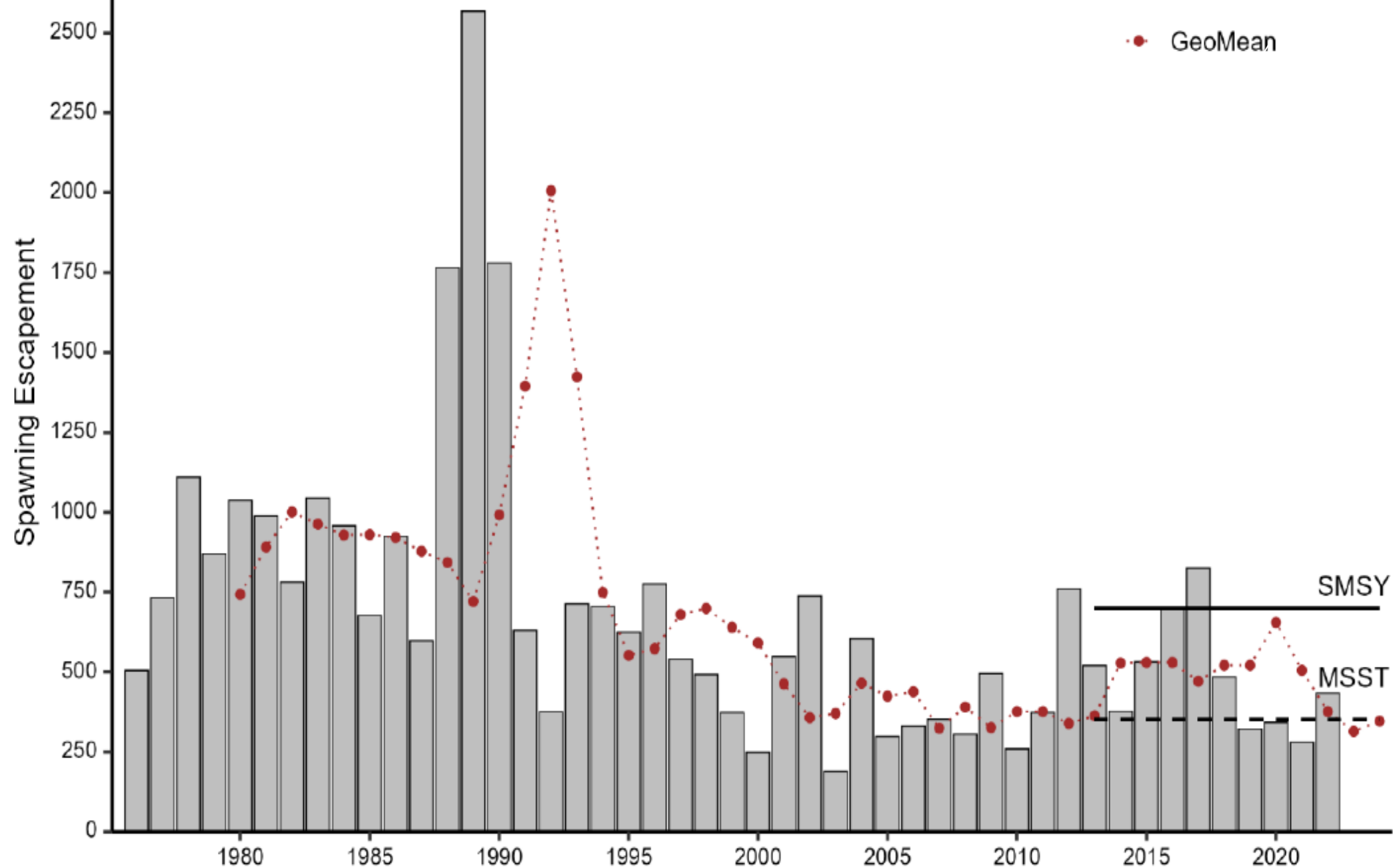
Figure 2.0.a. Spawning escapement of adult Queets sp/su Chinook.

Watershed Location & Geography

- The Queets River Basin includes: the Clearwater River, Salmon River, Matheny Creek, Sams River, and Tshletshty Creek.

- The Queets River originates at the foot of the Humes Glacier on Mount Olympus, located on the Olympic Peninsula of western Washington, and generally flows southwest before entering the Pacific Ocean near the village of Queets within the Quinault Indian Reservation (QIR). The river flows through a relatively low gradient, heavily forested alluvial valley.

Migration patterns of Washington Coastal Chinook

- Washington coast fall Chinook have a northern migration on the Pacific coast of North America, distributing along the narrow continental shelf and among the island matrix of the British Columbia (BC) and Southeast Alaska (SEAK) coastline (Riddell et al., 2018).

- There has been only one coded-wire tagged (CWT) group of Chinook released into the Queets River that originated from a coastal spring or summer stock, offering very limited CWT recovery information from which ocean distribution can be inferred.
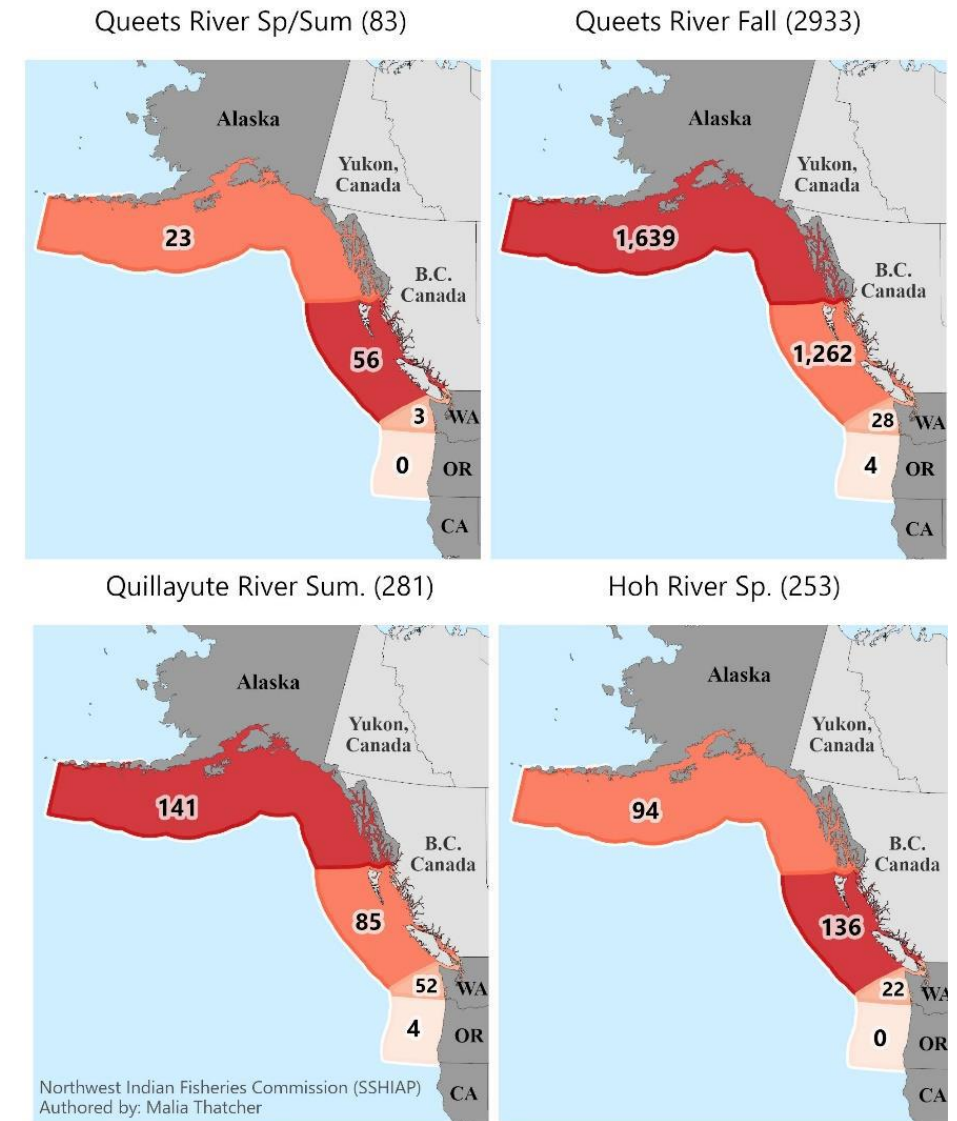

Figure 2.3.3.a. Spatial distribution of expanded ocean fishery CWT recoveries for Queets sp/su (top left; BY 1978), Queets fall (top right; BYs 2014 – 2018), Quillayute summer (bottom left; BYs 2014 – 2015 & 2017 – 2018), and Hoh spring run Chinook (bottom right; BYs 1977 & 1979)

Factors Contributing to Overfished Status

- As part of the rebuilding plan the STT, in coordination with co-managers from the Quinault Indian Nation and Washington Department of Fish and Wildlife evaluated potential factors that led to the overfished status determination, including:
  - ➢Freshwater survival
  - ➢Marine survival
  - ➢Harvest impacts

Freshwater Conditions

- The STT focused on freshwater conditions from 2014-2019, since these are the years that would have influenced the early-life survival of out-migrants returning as adults in 2019-2021.

- Freshwater conditions during those years were considered poor, and likely had a negative effect on freshwater survival (go the summary in the QRP to get the exact language)
  - ➢ The lowest flows in the 2015 and 2016 water years were recorded at the end of August, slightly earlier than most years, possibly affecting adult fish passage for the later component of the sp/su run in lower portions of the system.
  - ➢ The timing of these conditions may also have affected the survival and outmigration of subyearlings.
  - ➢ These BYs are significant as their offspring contributed to the low escapement years observed from 2019-2021.

Table 3.1.1.a. Queets River minimum annual and May-Sept. flows, 2001-2020[a].

Water Year	Annual Low Flow		May-Sept. Low Flow	
	CFS (median = 393.5)	Date	CFS (median = 410.5)	Date
2001	735	08/01/01	735	08/01/01
2002	468	09/29/02	468	09/29/02
2003*	352	11/04/03	401	09/03/03
2004*	386	10/05/04	520	08/20/04
2005	281	09/25/05	281	09/25/05
2006	381	09/16/06	381	09/16/06
2007*	352	10/05/07	421	09/27/07
2008	590	09/23/08	590	09/23/08
2009	365	08/28/09	365	08/28/09
2010	401	08/30/10	401	08/30/10
2011	473	09/21/11	473	09/21/11
2012	405	09/29/12	405	09/29/12
2013*	344	10/09/13	613	08/26/13
2014	376	09/15/14	376	09/15/14
2015	404	08/27/15	404	08/27/15
2016	437	08/30/16	437	08/30/16
2017	372	09/16/17	372	09/16/17
2018	325	09/06/18	325	09/06/18
2019	416	09/06/19	416	09/06/19
2020	439	09/15/20	439	09/15/20

a/ Red font indicates flows less than the 20-year median low flow. Asterisks indicate years when the annual low flow did not occur during May-Sept. Shading indicates critical BYs, and red borders identify below average summer flows and years when low flows were reached slightly earlier than usual.

Marine Conditions

- Queets sp/su Chinook experienced relatively poor ocean conditions from 2014 to 2020

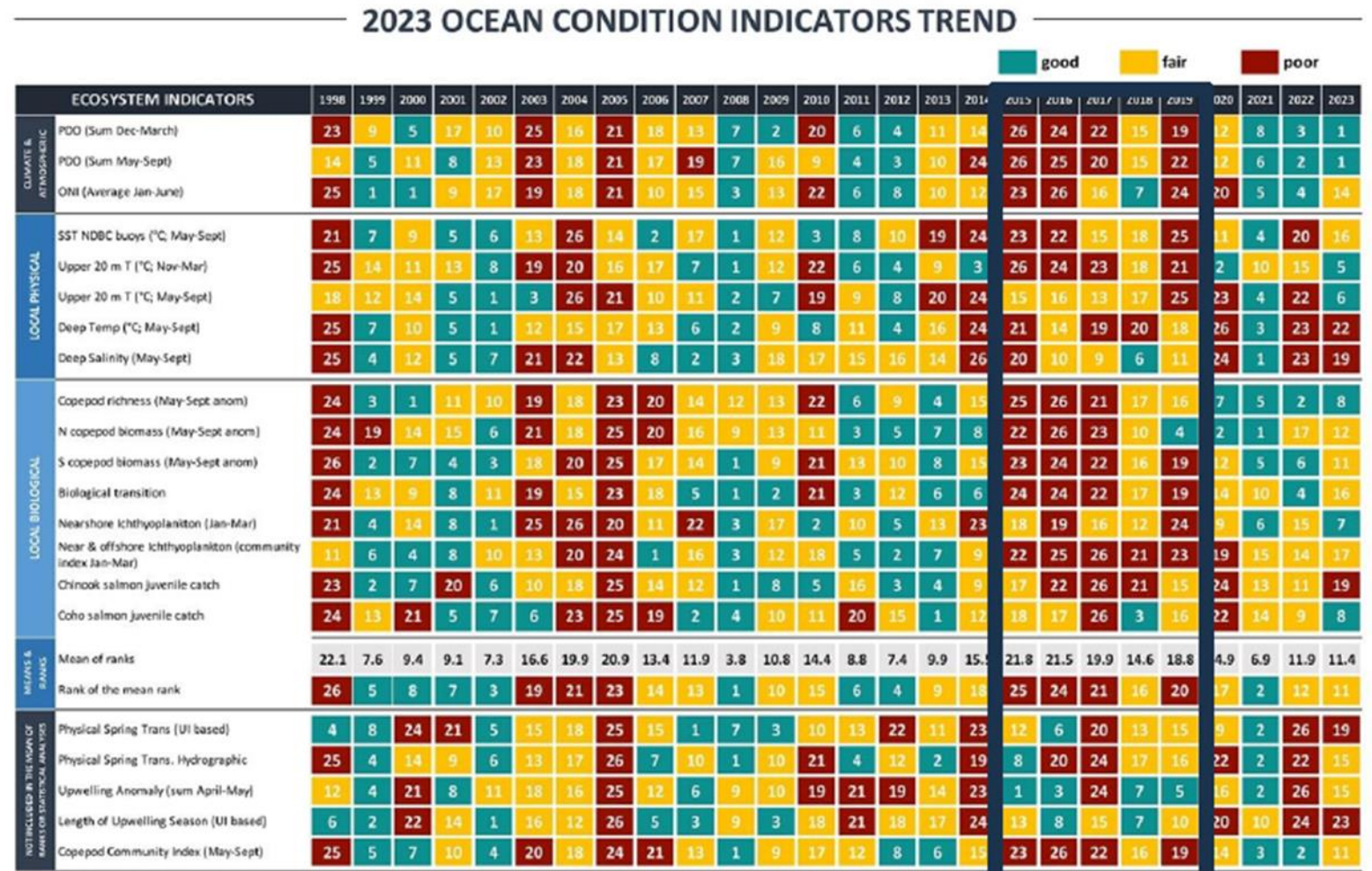Figure 3.2.1.a. Ocean indicators for years 1998 through 2023. Source: Northwest Fisheries Science Center (https://www.fisheries.noaa.gov/west-coast/science-data/ocean-conditions-indicators-trends). Rectangle box highlights the critical years when the progeny of the 2014-2018 spawners would have entered the marine environment.

Harvest Overview

- Freshwater fisheries have essentially been closed since 2000.

- Ocean salmon fisheries include: Council fisheries north of Cape Falcon, northern British Columbia, and Southeast Alaska fisheries

- CWT data for assessing ocean fishery impacts is limited*

- Proxy stocks used to draw information from include:
    - Queets River fall Chinook (closest in proximity)
    - Quileute River summer Chinook (closest in run timing)

Alternatives and Recommendations

- Management Alternatives

- Recommendations from co-managers and STT

- Model results used to estimate the rebuilding time for the alternatives

Alternative 1: Status Quo ("no action")

During the rebuilding period, continue to use the current management framework and reference points, as defined in the FMP and the PST, to develop annual fishery regulations.

➢ Under this scenario, the results of the rebuilding time analysis suggest that the probability of achieving rebuilt status stabilizes at a maximum of approximately one percent in year-four.

➢ This is below the 50 percent threshold, suggesting rebuilt status may never be achieved under current conditions and that the rebuilding time, T_{target}, is projected to exceed the ideal T_{max} of 10 years.

See Section 4.4 of the Rebuilding Plan analysis.

Alternative 2: Suspend non-tribal ocean fisheries north of Cape Falcon

Suspend non-tribal North of Falcon Council-area ocean salmon fisheries to minimize impacts within Council jurisdiction to the extent feasible on Queets sp/su Chinook until the stock meets the criteria for rebuilt status.

> ➢ Under this Alternative, the probabilities of achieving rebuilt status stabilize at a maximum of one percent for the low ER scenario and two percent for the high ER scenario. This is below the 50 percent threshold, and the rebuilding time, T_{target}, is projected to exceed the ideal T_{max} of 10 years.

See Section 4.4 of the Rebuilding Plan analysis.

Co-manager Recommendations

- Habitat restoration projects identified, co-managers to seek funding to initiate long-term programs, including monitoring systems

- Hatchery supplementation projects

- Precautionary inseason management

- External outreach to PSC

STT Recommendations

- Review of management reference points

- Improve availability of data to make informed decisions on the reference points

Estimated Rebuilding Time

- MSA requires T_{min} and T_{max}.

- T_{min}: the amount of time the stock is expected to take to rebuild to MSY biomass level in the absence of any fishing mortality
    - ➢"expected" means to have at least a 50 percent probability of attaining MSY.

- T_{max}: the maximum time for rebuilding a stock. Ideally, Tmax is no greater than10 years.

- T_{target}: the target time for rebuilding the fishery in as short a time as possible, considering the status and biology of the overfished stock, the needs of the fishing communities, and recommendations by international organizations

Estimated Rebuilding Time (continued)

- To estimate T_{min}, an impact rate of zero is assumed, meaning all fisheries affecting the stock would cease until the stock was rebuilt.

- Because the Council does not have jurisdiction over fisheries that occur in Alaska or Canada, or tribal, in-river, and other fisheries that may impact the stock, a 'no-fishing' alternative is not a viable option for the Council to consider.
  - ➢ Also, a 'no-fishing' alternative does not meet the purpose and need because it would restrict tribal fisheries in a manner that is inconsistent with their treaty rights.

- However, because T_{min} does serve as a bookend in the analysis of rebuilding probabilities over a ten-year period when assuming an Exploitation Rate of zero, this 'T_{min} scenario' fulfills the requirement of NS1 in calculating the minimum time (T_{min}) estimated to achieve rebuilt status.
  - ➢ It is for this purpose only that the 'T_{min} scenario' is included in this document (see Section 4 of the draft rebuilding plan analysis).

Rebuilding Time Analysis

- Unless decided otherwise, the criterion for an overfished stock to achieve rebuilt status is a geometric mean of the three most recent years of spawning escapement that meets or Maximum Sustainable Yield (measured by spawning escapement, S_{MSY})

    ➤ For Queets spring/summer Chinook, S_{MSY} is set at 700.

- A model was developed for the 2018 Rebuilding Plans that-projected rebuilding times across a variety of alternative rebuilding strategies (O'Farrell and Satterthwaite 2021). The STT used a similar, but simplified, approach based on that model to estimate rebuilding times for Queets spring/summer Chinook.

    ➤ See Appendix B in the draft rebuilding plan for methods and additional details.

Rebuilding Time Analysis (continued)

- Rebuilding time is defined as the point at which the probability of achieving rebuilt status (3-year geomean $>=$ S_{msy}) exceeds 0.50.
  - ➢ Alternative I: Status Quo
  - ➢ Alternative II: Suspend NOF non-treaty Council-area ocean salmon fisheries
  - ➢ T_{min}: Close all fisheries that impact Queets sp/su Chinook

- Results for Alt II and T_{min} are provided as a range due to uncertainties regarding the level of ocean fishery impacts on Queets sp/su.

Rebuilding Time Analysis (Continued)

Table 4.5.a. Projected rebuilding probabilities by year for each Alternative and the T_{min} Scenario. The projected rebuilding time is indicated in bold as the year in which the rebuilding probability first exceeds 0.50

Alternative	Year									
	1	2	3	4	5	6	7	8	9	10
Alternative I	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Alternative II_LowER	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02
Alternative II_HighER	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02
T_{MIN}_LowER	0.00	0.00	0.01	0.10	0.15	0.14	0.15	0.15	0.15	0.14
T_{MIN}_HighER	0.00	0.00	0.08	0.45	**0.62**	0.61	0.61	0.61	0.61	0.62

Probabilities never exceed 0.50!

Conclusions:

- It is unlikely that a change in harvest strategy would directly result in achieving rebuilt status for Queets sp/su Chinook within the ideal rebuilding timeframe of 10-years
- Recommendations for habitat improvements and increased data availability specific to the stock may be a reasonable approach
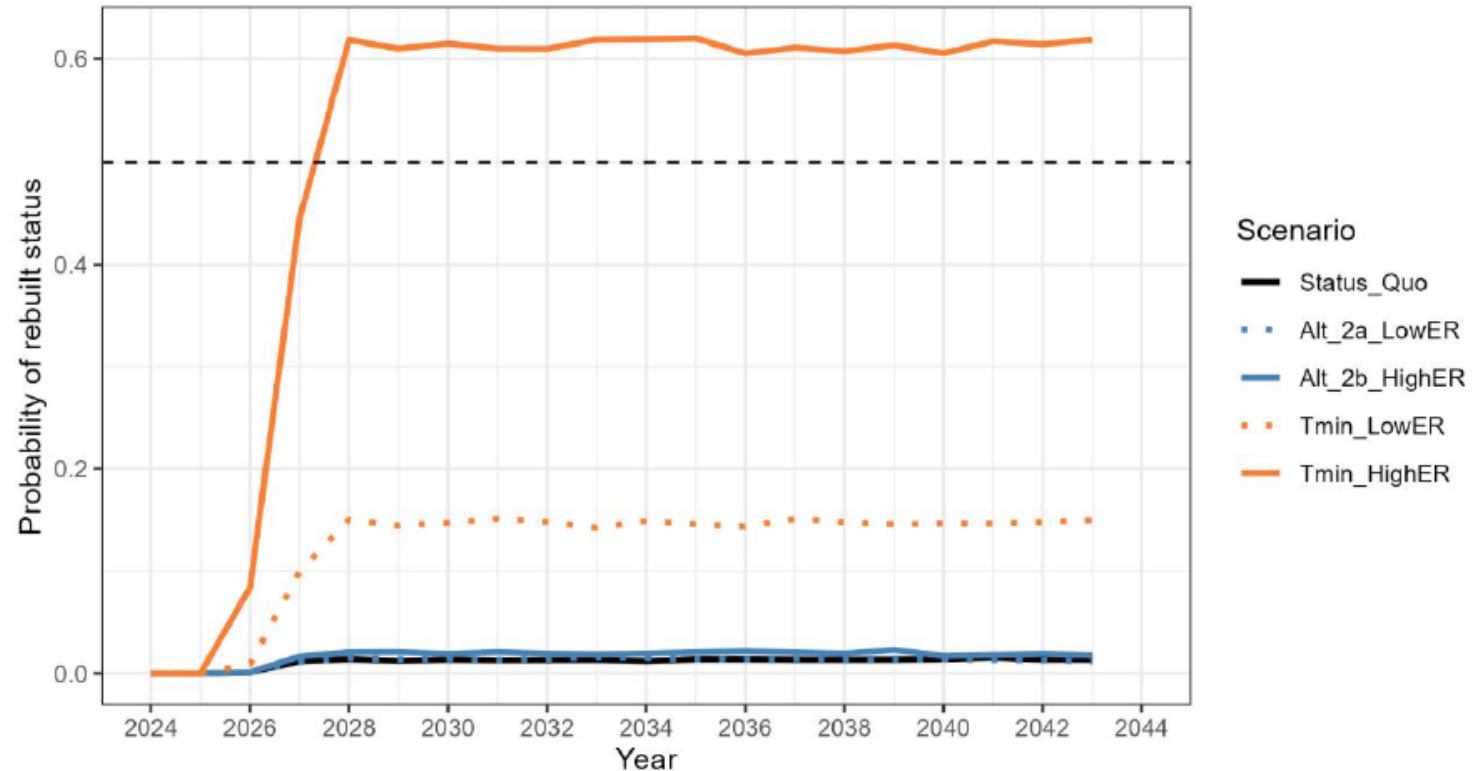
Rebuilding Time Analysis

Figure 4.5.a. Projected probability of achieving rebuilt status by year under the three alternatives and the T_{min} scenario. The rebuilding time (T) for each scenario is defined as the first year in which the probability of achieving rebuild status exceeds 0.50 minus 2023 (the year in which the stock was designated as overfished).

Next Steps

- September 2024 – Council adopts for public review a preliminary preferred alternative

- November 2024 – Council adopts a final preferred alternative for recommendation to NMFS

- November 2025 – NMFS regulatory process complete for implementing rebuilding plan

Questions?