

SALMON TECHNICAL TEAM REPORT ON RISK MANAGEMENT FRAMEWORK – RISK TABLES AND OTHER APPROACHES, INFORMATIONAL

During the annual preseason process for developing ocean salmon seasons, the Council implements established risk management measures such as those outlined in the Pacific Salmon Fishery Management Plan (FMP) and provided to the STT in the form of Council guidance. Examples of these include the reduction in the F_{MSY} (either by 0.10 or 0.05 depending on if F_{MSY} is a direct estimate or proxy value) to determine the F_{ABC} to account for scientific uncertainty and Council guidance to target higher escapement levels or to reduce fishery exploitation rates through buffering harvest control rules to account for environmental uncertainty and precautionary management.

At their September 9 meeting, the STT was presented with information on two potential additional risk management tools.

Salmon Risk Tables

The STT was briefed and reviewed informational materials presented on potential methods for incorporating environmental factors into assessment and management of Klamath River fall Chinook (KRFC) and Sacramento River fall Chinook (SRFC) in the form of a risk table approach. The risk table approach would in theory correspond to a scale of buffers to apply to a desired management metric.

The STT notes that this method of incorporating environmental variables does not necessarily improve forecast performance but rather is a method for applying a buffer to management metrics based on environmental conditions or assessment performance. Currently, environmental variables are considered in Council salmon management decisions through review and briefing on spotlight charts, which provides insight on the status of a variety of ocean ecosystem indicators and marine survival risks for Pacific salmon. Council members have, in the past, taken these environmental conditions into consideration when recommending extra precautionary measures for a particular salmon season.

Risk tables could provide an alternative and more structured approach to incorporating these precautionary measures into salmon management; however, substantial additional work would be needed to structure, define, and categorize the variables within the risk table and an associated buffer scale. At present, the mechanism for implementation is not defined as to whether the resulting buffer would apply to forecasts, fishery exploitation rates, or targeted escapement levels.

Methods for assessing and responding to bias and uncertainty in the U.S. West Coast salmon abundance forecasts

The STT received an overview of the paper '*Methods for assessing and responding to bias and uncertainty in the U.S. West Coast salmon abundance forecasts*' from Dr. Will Satterthwaite. The paper identifies two proposed forecast performance metrics (C for bias and sigma for imprecision) and proposes approaches to apply buffers and/or bias corrections to forecasts (as opposed to

buffering the spawner escapement or fishery exploitation rates). The STT plans to further discuss whether and how the two forecast performance metrics could be incorporated into STT annual reporting. With regards to the implementation of bias corrections and buffers, the STT focused their discussion on KRFC and SRFC in particular.

In recent years, particularly in 2021 and 2022, a large source of error was implementation (harvest model) error. The move to in-season management in fisheries South of Cape Falcon beginning in 2025 is expected to significantly reduce this implementation error and keep fishery exploitation rates closer aligned with preseason projections. Additionally, while there is a clear path outlined in the paper for implementing bias corrections and/or buffers for SRFC under the current forecast approach and management structure, the Council is currently making progress towards updating the entire management framework for this stock. The potential benefit of applying a buffer or bias correction to the SRFC forecast would need to be reevaluated under any future updated management regime.

Additional Considerations

The STT currently does not have an official representative from the Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, United States Fish and Wildlife Service, or Northwest Fisheries Science Center. STT representatives from these agencies could potentially contribute additional perspectives on these risk management approaches.

PFMC
09/16/26