

## **INTRODUCTION**

This is the second report in an annual series of four reports prepared by the Salmon Technical Team (STT) of the Pacific Fishery Management Council (Council) to document and help guide salmon fishery management off the coasts of Washington, Oregon, and California. The report focuses on Chinook, coho, and pink salmon stocks that have been important in determining Council fisheries in recent years, and on stocks listed under the Endangered Species Act (ESA) with established National Marine Fisheries Service (NMFS) ESA consultation standards. This report will be formally reviewed at the Council's March meeting.

This report provides 2011 salmon stock abundance forecasts, and an analysis of the impacts of 2010 management measures, or regulatory procedures, on the projected 2011 abundance. This analysis is intended to give perspective in developing 2011 management measures. This report also constitutes the first part of an Environmental Assessment (EA) to comply with National Environmental Policy Act (NEPA) requirements for the 2011 ocean salmon management measures. An EA is used to determine whether an action being considered by a Federal agency has significant impacts. This part of the EA includes a statement of the purpose and need, a summary description of the affected environment, a description of the No-Action Alternative, and an analysis of the No-Action Alternative effects on the salmon stocks included in the Council's Salmon Fishery management Plan (FMP).

The STT and Council staff will provide two additional reports prior to the beginning of the ocean salmon season to help guide the Council's selection of annual fishery management measures: Preseason Report II and Preseason Report III. These reports will analyze the impacts of the Council's proposed alternatives and adopted fishery management recommendations. Preseason Report II will constitute the second and final part of the EA, and will include a description of the affected environment relevant to the alternatives management measures considered for 2011 ocean salmon fisheries, a description of the alternatives, and an analysis of the environmental consequences of the alternatives. Preseason Report II will analyze the potential impacts of a reasonable range of alternatives, which will inform the final fishery management measures included in Preseason Report III. Together, these two parts of the EA will provide the necessary components to determine if a finding of no significant impact (FONSI) or Environmental Impact Statement (EIS) is warranted.

Chapter I provides a summary of stock abundance forecasts. Chapters II and III provide detailed stock-by-stock analyses of abundance, a description of prediction methodologies, and accuracy of past abundance forecasts for Chinook and coho salmon, respectively. Chapter IV summarizes abundance and forecast information for pink salmon. Chapter V provides an assessment of 2010 regulations applied to 2011 abundance forecasts. Three appendices provide supplementary information as follows: Appendix A provides a summary of Council stocks and their management objectives; Appendix B contains the Council's current harvest allocation schedules, and; Appendix C contains pertinent data for Oregon production index (OPI) area coho. For NEPA purposes, Chapters I-IV describe the affected environment and Chapter V provides a description and analysis of the No-Action Alternative.

### *Purpose and Need*

The purpose of this action, implementation of the 2011 ocean salmon fishery management measures, is to allow fisheries to harvest surplus production of healthy natural and hatchery salmon stocks within the constraints specified under the Salmon FMP, the Pacific Salmon Treaty (PST), and consultation standards established for ESA listed salmon stocks. In achieving this goal, management measures must take into account the allocation of harvest among different user groups and port areas. The Salmon FMP also establishes nine more general harvest-related objectives:

1. Establish ocean exploitation rates for commercial and recreational salmon fisheries that are consistent with requirements for stock conservation objectives, specified ESA consultation standards, or Council adopted rebuilding plans.
2. Fulfill obligations to provide for Indian harvest opportunity as provided in treaties with the United States, as mandated by applicable decisions of the Federal courts, and as specified in the October 4, 1993 opinion of the Solicitor, Department of Interior, with regard to Federally-recognized Indian fishing rights of Klamath River Tribes.
3. Seek to maintain ocean salmon fishing seasons that support the continuance of established recreational and commercial fisheries, while meeting salmon harvest allocation objectives among ocean and inside recreational and commercial fisheries. These allocations will be fair and equitable, and fishing interests shall equitably share the obligations of fulfilling any treaty or other legal requirements for harvest opportunities.
4. Minimize fishery mortalities for those fish not landed from all ocean salmon fisheries as consistent with optimum yield (OY) and bycatch management specifications.
5. Manage and regulate fisheries, so the OY encompasses the quantity and value of food produced, the recreational value, and the social and economic values of the fisheries.
6. Develop fair and creative approaches to managing fishing effort and evaluate and apply effort management systems as appropriate to achieve these management objectives.
7. Support the enhancement of salmon stock abundance in conjunction with fishing effort management programs to facilitate economically viable and socially acceptable commercial, recreational, and tribal seasons.
8. Achieve long-term coordination with the member states of the Council, Indian tribes with Federally recognized fishing rights, Canada, the North Pacific Fishery Management Council, Alaska, and other management entities which are responsible for salmon habitat or production. Manage consistent with the Pacific Salmon Treaty and other international treaty obligations.
9. In recommending seasons, to the extent practicable, promote the safety of human life at sea.

These objectives, along with the conservation objectives established under the ESA, provide "sideboards" for setting management measures necessary to implement the Salmon FMP, which conforms to the terms and requirements of the MSA and the National Standards Guidelines.

Implementation of 2011 management measures will allow fisheries to harvest surplus production of healthy natural and hatchery salmon stocks within the constraints specified under the Salmon FMP and consultation standards established for ESA-listed salmon stocks.

### *STT Concerns*

Forecast values of the Sacramento Index (SI) exceeded their postseason estimates in both 2009 and 2010. The SI is a combined-age index of adult SRFC ocean abundance, composed primarily of age-3 and age-4 fish. The current forecast model uses escapement of jacks in one year to predict the SI in the following year because of data limitations for this stock. Yet the escapement of jacks only conveys information about the 3-year-old component of the SI in the following year. In years when a strong cohort follows a

weak cohort, the 3-year-old component of the SI should comprise a larger portion of the SI than it did on average during the historic period for which data are available. This means that there is a potential for the SI forecast to be biased high in years when the strength of successive cohorts is increasing.

The 2011 SI forecast has been made under similar conditions as the 2009 and 2010 forecasts, with jack escapement used in making the forecast exceeding jack escapement in the preceding year. Hence there is potential for the 2011 SI forecast to be biased high.

Age-specific escapement and river harvest data can enable the formulation of age-specific abundance forecasts, which will likely reduce the bias associated with forecasting a combined-age index with information from a single year class. The STT strongly encourages the continued development of coded-wire tag (CWT) collection and scale ageing programs in the Sacramento Basin, which will help address some of these concerns.