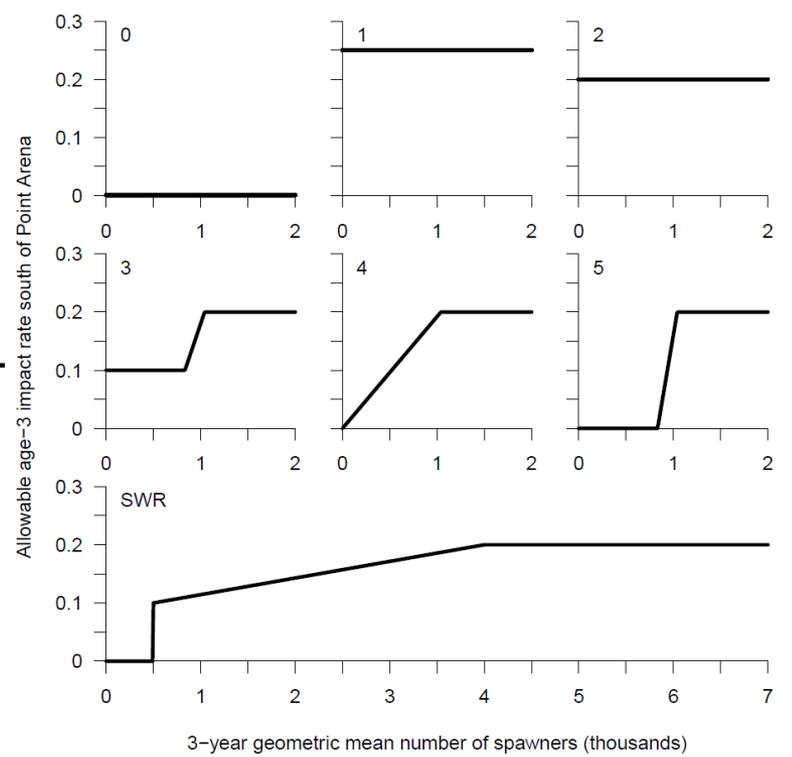
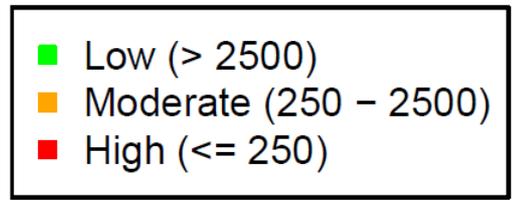
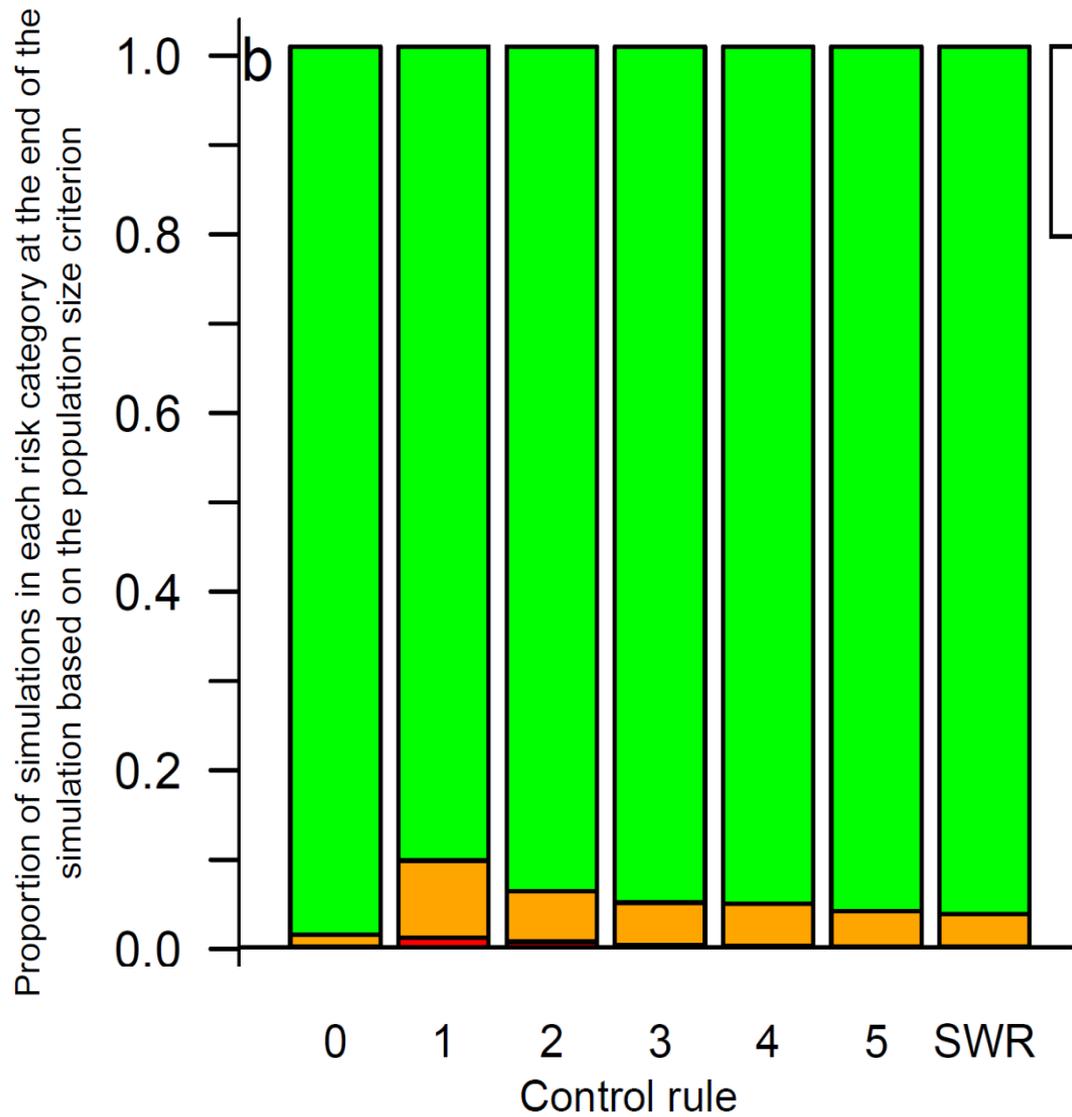


Winter-run Chinook salmon cumulative carcass counts during the spawning season from 2003 to 2013.



Winter Run Documents on the Council's Web Site

- [Final Implementation of the 2010 Reasonable and Prudent Alternative Sacramento River Winter-Run Chinook](#) Management Framework for the Pacific Coast Salmon FMP (April 30, 2012)
- [Management Strategy Evaluation for Sacramento River Winter Chinook Salmon](#) (February 28, 2012)
- [Final Harvest Biological Opinion, Sacramento River Winter Run Chinook Salmon](#) (April 30, 2010)
- NMFS White Paper; Abundance-based Ocean Salmon Fisheries Management Framework for Sacramento River Winter-run Chinook (March, 2012 Briefing Book)

Additional Link cited in the Fed. Register Notice

- [The Winter Run Harvest Model](#) (May, 2012)

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of Availability of a Management Strategy Evaluation for Sacramento River winter Chinook salmon; Request for Comments

SUMMARY: The Pacific Fishery Management Council (Council) requested that the National Marine Fisheries Service (NMFS) take into consideration alternative harvest control rules for a listed salmon species for which the Council has management interests. The Council is concerned that the existing control rule may be too restrictive in years of low abundance, particularly in years when the escapement threshold drops below 500 fish, and result in zero fishery impacts rather than the *de minimis* impacts that are allowed for other Endangered Species Act (ESA) listed species. The Council is interested in exploring alternatives that would provide some limited harvest opportunity, without significantly increasing the risk to the species. Therefore, NMFS is requesting that the public provide comments on a preferred harvest control rule contained in a Management Strategy Evaluation (MSE) for Sacramento River winter Chinook salmon (winter-run). Winter-run harvest control rules subject to comment include the current reasonable and prudent alternative implemented by NMFS as part of the ESA consultation standard on the ocean salmon fishery and alternative control rules analyzed in a Management Strategy Evaluation that were designed to be more responsive to the status of the listed species. The MSE for winter-run is an analysis conducted by NMFS Southwest Fisheries Science Center

as a result of the April 2010 jeopardy biological opinion under the ESA on ocean salmon fishery impacts on winter-run. In general, the purpose of an MSE is to inform selection of an abundance-based management framework for impacts to endangered species. For winter-run the MSE was specifically used to evaluate the performance of alternative control rules in terms of conservation and fishery objectives.

DATES: Information and comments on the Management Strategy Framework and in particular a preferred Control Rule must be received at the appropriate address or fax number (see **ADDRESSES**), no later than 5:00pm, on [insert date]. We encourage the public's involvement in selecting and providing rationale for a preferred control rule that may be taken into consideration during the annual salmon management process.

ADDRESSES: You may submit comments on this document, identified by NOAA-NMFS-2013-XXXX, by any of the following methods:

- **Electronic Submissions:** Submit all electronic public comments via the Federal eRulemaking Portal: <http://www.regulations.gov>. To submit comments via the e-Rulemaking Portal, first click the "submit a comment" icon, then enter NOAA-NMFS-2011- in the keyword search. Locate the document you wish to comment on from the resulting list and click on the "Submit a Comment" icon on the right of that line.
- **Mail:** Submit written comments to XX XX, NMFS, 501 W. Ocean Blvd., Suite 4200, Long Beach, CA 90802. Include the identifier "NOAA-NMFS-2011-" in the comments.
- **Fax:** 562-980-4047; Attn: XX XX.

Instructions: Comments must be submitted by one of the above methods to ensure that the comments are received, documented, and considered by NMFS. Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered. All comments received are a part of the public record and will generally be posted for public viewing on www.regulations.gov without change. All personal identifying information (e.g., name, address, etc.) submitted voluntarily by the sender will be publicly accessible. Do not submit confidential business information, or otherwise sensitive or protected information. NMFS will accept anonymous comments (enter "N/A" in the required fields if you wish to remain anonymous). Attachments to electronic comments will be accepted in Microsoft Word or Excel, WordPerfect, or Adobe PDF file formats only.

FOR FURTHER INFORMATION CONTACT: Heidi Taylor, NMFS SWR, 562-980-4039.

SUPPLEMENTARY INFORMATION:

Background

In April 2010, NMFS completed a biological opinion (2010 BiOp) on the Authorization of Ocean Salmon Fisheries Pursuant to the Pacific Coast Salmon Fishery Management Plan (Salmon FMP) and Additional Protective Measures as it affects the Sacramento River Winter Chinook Salmon (winter-run) Evolutionary Significant Unit (ESU) (NMFS 2010). In the 2010 BiOp, NMFS found that given the current management structure of the fishery and the measures in place to protect winter-run, it was expected that spawning returns of winter-run would be reduced 10-25 percent per cohort from impacts associated with incidental harvest in the ocean salmon fishery. These impacts occur primarily as a result of removal of age-3 winter-run, almost exclusively south of Point Arena, when fishing activity is permitted in those areas in conjunction with the seasonal and size restrictions associated with the proposed action (2010 BiOp). The

results from the O'Farrell et al. (2012a) cohort reconstruction indicate that the majority of these impacts were associated with the recreational fishery in this area.

The analysis also indicates that ocean fishery spawner reduction rate has averaged 20 percent in years when ocean fisheries occur (O'Farrell et al. 2012a), regardless of the spawning abundance of winter-run.

Over the last decade, this winter-run population (and consequently the entire ESU) has had years of positive growth (cohort replacement rates greater than 1.0) while sustaining ocean fishery impacts. The population increased to as many as 17,000 spawners in 2006. Therefore, NMFS concluded that the anticipated impacts of the fishery, based on past performance of both the fishery and the winter-run population, were not expected to reduce the likelihood of survival and recovery of the species during periods when the winter-run population is stable or increasing. To a large degree, the consultation standards and management measures described in the 2010 BiOp designed to protect winter-run specifically, as well as other stocks of Chinook salmon, have served to reduce fishery impacts on the winter-run Chinook salmon population to a level that is consistent with an expectation of survival and recovery for the species.

However, NMFS identified that measures that would avoid or constrain the fishery's impacts on winter-run during periods of decline or increased extinction risks were not in place. Without any explicit means to further constrain impacts after consideration of winter-run status in the fishery management process, the potential exists for total spawner reduction rates associated with the ocean salmon fishery to approach, or exceed, 25 percent during periods of time when risks of extinction are significantly increased. Therefore, NMFS concluded that the proposed operation of the fishery without consideration for additional actions that would be

taken when winter-run are at low abundance was not sufficient to ensure that the fishery was not likely to appreciably reduce the likelihood of survival and recovery of winter-run.

Reasonable and Prudent Alternative (RPA)

The Endangered Species Act requires that NMFS identify RPAs to a proposed Federal action that has not ensured against the likelihood of jeopardizing a listed species. By regulation, an RPA is defined as “alternative actions identified during formal consultation that can be implemented in a manner consistent with the intended purpose of the action, that can be implemented consistent with the scope of the Federal agency’s legal authority and jurisdiction, that is economically and technologically feasible, and that the NMFS believes would avoid the likelihood of jeopardizing the continued existence of listed species or resulting in the destruction or adverse modification of critical habitat” (50 CFR 402.02).

NMFS’ approach when developing the RPA was to address the foundation of the jeopardy conclusion, which is the lack of explicit controls in the ocean salmon fishery management process to constrain and reduce impacts when the status of winter-run is depressed and the extinction risk is increased. In order to incorporate this consultation standard into the ocean salmon fishery management process, NMFS developed a winter-run management framework that meets the objective of the RPA and also provides a methodology that is practical given; the Salmon FMP, the ocean salmon fishery management process, and the information that may be available for consideration. The 2010 BiOp required that the framework be implemented as the consultation standard of the ocean salmon fishery for winter-run before NMFS issued ESA Council guidance for the 2012 fishing season.

The purpose of the RPA was to establish a long-term management framework that accounts each year for the status of winter-run and specifies a level of age-3 impact rate that is

responsive to that status and consistent with the requirement to avoid jeopardy. At the time of the 2010 BiOp, the information and analyses required to establish specific management objectives or acceptable impact targets given various conditions, and the tools needed to incorporate those criteria into the fishery management process were not available. Additional analytical effort was required before this framework could be developed and implemented. In the interim, NMFS determined that the winter-run population had been in significant decline since 2006, and concluded that conservative management measures should be taken and fishery impacts reduced pending completion of the new management framework. Options were given to the Council to either increase size limits or reduce fishing effort (seasonal closures) in the recreational fishery in 2010 and 2011 to produce a qualitative constraint and reduction in winter-run impacts (see NMFS 2010 for explanation of interim RPA rationale).

Framework Development

A key factor in the jeopardy determination was the lack of quantitative analysis on levels of appropriate fishery impacts given any condition or status of winter-run, especially during times when the population had increased extinction risk due to low abundance. In response to the RPA mandate, the NMFS Southwest Fisheries Science Center Salmon Assessment Team engaged in an effort to develop the analytical tools required to evaluate various fishery exploitation control rule alternatives in a formal Management Strategy Evaluation process. The term “Management Strategy Evaluation” is being used to represent all aspects of the analytical work developed to support the decision-making process and implementation of a new fisheries management framework.

Management Strategy Evaluation (MSE)

The purpose of the MSE was to simulate winter-run population dynamics as well as monitoring, assessment, and implementation of the fishery management system under a variety of prospective fishery management “control rules”. The control rules specify the allowable level of incidental take (age-3 impact rate) for ocean fisheries in a given year. For example, a control rule which allows a fixed annual fishing impact rate could be simulated and compared to other control rules that specify reduced allowable impact rates when population abundance is low. The goal of this simulation work was to evaluate the relative performance of various control rules in terms of conservation and fishery criteria.

In order to perform the simulations, a model was developed for winter-run such that the prescribed fishing impact rate under a control rule could be directly input as a source of mortality (with its attendant uncertainty). This mortality affected spawning abundance, leading directly to the generation of the next cohort, and on throughout the population simulation (Winship et al. 2012). The MSE evaluated three control rules with constant age-3 fishery impact rate target scenarios representing: no impact (0 percent), estimated historical fishery impact rate (25 percent), and current era fishery impact rate (20 percent). The MSE also considered other variations of control rules with decreasing age-3 fishery impact rates at decreasing population abundance levels (Winship et al. 2012). A control rule that closely approximates the winter-run fisheries management framework described in the 2012 RPA was subsequently evaluated within the same MSE structure for comparison. Those results are included as an addendum in the Winship et al. 2012 report that can be accessed at the following website <http://swfsc.noaa.gov/publications/CR/2012/2012Winship.pdf> or by requesting a hard copy (see ADDRESSES above). The performance of alternative control rules were compared in terms of established population performance criteria and the implications for ocean fisheries. A paper

consistent with the Winship et al. (2012) report describing the winter-run MSE was subsequently published (Winship et al. 2013).

Winter-run Harvest Model (WRHM)

Implementation of the framework control rule by the Council required the development of a winter-run harvest model (O'Farrell et al. 2012b). The WRHM is used to determine the expected age-3 impact rate as a function of fishery management measures. It allows the Council to design ocean salmon fishery management measures on an annual basis such that the allowable impact rate specified by the control rule is met. For example, if the control rule limits the allowable impact rate to 20 percent given the current population status of winter-run, the WRHM will be used within the Council process to design commercial and recreational fishing seasons to meet this standard. It is important to note that the WRHM will produce a pre-season prediction of the impact rate. A post-season estimate of the rate will also be made through cohort reconstructions to monitor the performance of the harvest model and management framework. The WRHM is updated annually, and shares many of the same characteristics and structure as other models developed for use in the Council process such as the Klamath Ocean Harvest Model (KOHM) and Sacramento Harvest Model (SHM). The WRHM was subject to the Council's Salmon Methodology Review and was first used in the 2012 preseason management process. A copy of the winter-run harvest model Report can be found on the following webpage: <http://swfsc.noaa.gov/publications/TM/SWFSC/NOAA-TM-NMFS-SWFSC-489.pdf>, or on the Council's webpage: http://www.pcouncil.org/wp-content/uploads/SRWC_MSE_2012_02_28.pdf.

Overview of the Current Control Rule

With regard to the Salmon FMP, NMFS' goal was to identify a threshold(s), based on the status of winter-run, that would trigger additional measures to reduce the impact of the ocean salmon fishery when abundance was low. This ESU currently consists of a single population, confined to areas below currently impassable barriers. Recovery goals and strategies include the establishment of additional populations of the species through barrier removal or modification, habitat restoration and management, and conservation hatchery inputs. Over time, as additional information concerning species' status and its response to various natural and anthropogenic factors become available, the thresholds identified in this framework may change.

The fisheries management framework for managing winter-run impacts in the ocean salmon fishery has two components. The first specifies that the management constraints for winter-run, including minimum size limits and seasonal constraints south of Point Arena for both the commercial and recreational fisheries, will continue to be implemented at all times regardless of abundance estimates or impact rate cap (see 2010 BiOp). The second component implements an abundance-based framework that reduces the allowable impact rate when spawner returns are low. The impact rate cap is determined annually based on the geometric mean of the most recent three years of spawning return estimates for winter-run generated by (1) carcass surveys conducted on the Sacramento River by the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife and (2) hatchery broodstock for Livingston Stone National Fish Hatchery. Preliminary return estimates from the prior season are typically made available to the Council's Salmon Technical Team in January for use in the March/April salmon management process. For the purposes of this fisheries management framework, the estimates of spawning returns that will be considered reflect all spawning returns, both natural and hatchery origin, including jacks. The preseason forecast of the age-3 impact rate will depend on the salmon

fishery management measures adopted each season, as determined by the WRHM. Postseason estimates of realized impact rates will be evaluated as the data become available, but deviations from the preseason projection in both the positive and negative direction are expected.

The framework described in the 2012 RPA is based on: the conclusions of the 2010 BiOp; the status and trends of the winter-run population in recent decades (the 1970 to 2011 time series data); the MSE (Winship et al. 2012); the framework for assessing viability of threatened and endangered Chinook salmon and steelhead in the Sacramento-San Joaquin Basin (Lindley et al. 2007); and additional information and analyses that support these documents as well as consultation with other NMFS biologists working on ESA-listed salmon conservation in the Central Valley.

Public Comment and Availability of the winter-run Management Strategy Evaluation

NMFS seeks input from the public on a preferred control rule analyzed in Winship et al. 2012. The comment period will conclude at 5:00pm on XX XX, 2013. NMFS will consider all comments received by the end of the comment period as we move forward to consider potential changes to the management approach. The full document describing the MSE is available at the following website http://www.pcouncil.org/wp-content/uploads/SRWC_MSE_2012_02_28.pdf and by mail upon request. NMFS is specifically interested in comments and information regarding a preferred control rule analyzed in the management strategy evaluation for ocean salmon fisheries south of Point Arena that is responsive to the status of the species. Management strategy 1 allowed for a zero age-3 impact rate, management strategy 2 used a historical impact rate of 25 percent, management strategy 3 used the current era impact rate of 20 percent. These provided context for analyzing the risk associated with management strategies 4 through 6 that required a reduction in impact rates at certain abundance thresholds (Winship et al. 2012). The

current RPA (management strategy SWR) was also analyzed with results presented Winship et al. 2012 (addendum), and we welcome comments on this control rule as well.

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