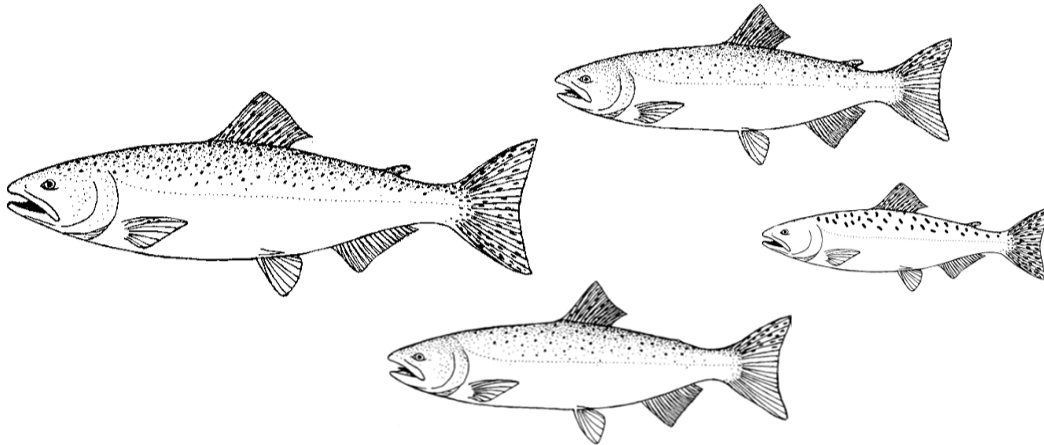


PACIFIC COAST SALMON FISHERY MANAGEMENT PLAN

*FOR COMMERCIAL AND RECREATIONAL SALMON FISHERIES
OFF THE COASTS OF WASHINGTON, OREGON, AND CALIFORNIA
AS REVISED THROUGH AMENDMENT 22*



Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, Oregon 97220-1384
503-820-2280
www.pcouncil.org

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2 ACHIEVING OPTIMUM YIELD

“Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery”

Magnuson-Stevens Act, National Standard 1

This chapter explains the Council’s means of meeting the requirements of the Magnuson-Stevens Act to achieve the optimum yield from the salmon fishery.

2.1 THEORY

Optimum yield (OY) means the amount of fish that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account protection of marine ecosystems. It is prescribed on the basis of the maximum sustainable yield (MSY) from the fishery, reduced by any relevant economic, social, or ecological factors, and provides for rebuilding of an overfished stock, taking into account the effects of uncertainty and management imprecision.

MSY is a theoretical concept that, for the purposes of the Magnuson-Stevens Act, is defined as the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological and environmental conditions and fishery technological characteristics, and distribution of catch among fleets. In Council management of naturally spawning salmon stocks, MSY is usually approached in terms of the number of adult spawners associated with this goal (S_{MSY}). Often, data are insufficient to directly estimate S_{MSY} . In these cases, the Council may use MSY proxies derived from more general estimates of productive capacity and implement harvest strategies that may be expected to result in a long-term average catch approximating MSY.

2.2 IMPLEMENTATION

The optimum yield to be achieved for species covered by this plan is the total salmon catch and mortality (expressed in numbers of fish) resulting from fisheries within the EEZ adjacent to the States of Washington, Oregon, and California, and in the waters of those states (including internal waters), and Idaho, that, to the greatest practical extent within pertinent legal constraints, fulfill the plan’s conservation and harvest objectives. On an annual basis, the Council recommends management measures to comply with annual catch limits (ACLs) and to achieve the stock conservation objectives for each stock or stock complex, based on the estimated MSY, MSY proxy, maximum sustainable production (MSP), rebuilding schedule, or ESA consultation standard (Chapter 3), while simultaneously seeking to fulfill, to the extent practicable, the harvest and allocation objectives (Chapter 5) that reflect the Council’s social and economic considerations. The subsequent catch and mortality resulting under the Council’s management recommendations will embody the optimum yield. The level of total allowable harvest, the relative harvest levels in various management areas, and the species and stock composition of optimum yield will vary annually, depending on the relative abundance and distribution of the various stocks and contingencies in allocation formulas.

The Council’s annual Review of Ocean Salmon Fisheries (stock assessment and fishery evaluation; SAFE) document and preseason reports (e.g., PFMC 2021a, 2021b, 2021c, and 2021d) assess and specify the present and historical range of harvests and harvest related mortalities that represent the optimum yield. A similar range of yields can be expected in the future, though further stock declines and listings under the ESA could result in even lower levels than experienced in the past.

3 CONSERVATION

“Conservation and management measures shall be based upon the best scientific information available.”

Magnuson-Stevens Act, National Standard 2

Conservation of salmon stocks includes determining and reporting individual stock status and establishing conservation objectives and control rules to manage harvest. To facilitate these processes, reference points, defined by the MSA and/or National Standard 1 (NS1) Guidelines and adapted for salmon stocks are used as benchmarks.

Reference points used in the FMP include:

OFL: Overfishing Limit. Defined in NS1 Guidelines as the annual amount of catch that corresponds to the estimate of MFMT applied to a stock or complex’s abundance, expressed in terms of numbers or weight of fish, and is the catch level above which overfishing is occurring.

MFMT: Maximum Fishing Mortality Threshold. Defined in NS1 Guidelines as the level of fishing mortality (F) on an annual basis, above which overfishing is occurring. MFMT is generally less than or equal to F_{MSY} .

F_{MSY} : MSY fishing mortality rate. The fishing mortality rate that results in MSY over the long term. Generally corresponds to MFMT, which is the basis of the OFL.

S_{MSY} : MSY spawner abundance. The abundance of adult spawners that is expected, on average, to produce MSY.

F_{OFL} : OFL fishing mortality rate. The level of fishing mortality (F) on an annual basis, above which overfishing is occurring; equivalent to the MFMT.

S_{OFL} : OFL spawner abundance. The abundance of adult spawners below which overfishing occurs in a given year.

ABC: Acceptable Biological Catch. Required by the MSA and defined in the NS1 Guidelines as the level of a stock or stock complex’s annual catch that accounts for the scientific uncertainty in the estimate of OFL and other scientific uncertainty, and should be specified based on the ABC control rule. ABC may not exceed OFL and should be reduced from OFL to prevent overfishing.

F_{ABC} : ABC fishing mortality rate. The annual exploitation rate associated with the ABC.

ACL: Annual Catch Limit. Required by the MSA and defined in the NS1 Guidelines as the level of annual catch of a stock or stock complex that serves as the basis for invoking accountability measures. The ACL cannot exceed the ABC.

F_{ACL} : ACL fishing mortality rate. The annual exploitation rate associated with the ACL; equivalent to F_{ABC}

S_{ACL} : ACL spawner abundance. The annual abundance of adult spawners that achieves the ACL.

MSST: Minimum Stock Size Threshold. Defined in the NS1 Guidelines as level of biomass below which the stock or stock complex is considered to be overfished (see section 3.1.4). The MSST should be no less than one-half of S_{MSY} .

3.1.7 Changes or Additions to Status Determination Criteria

Status determination criteria are defined in terms of quantifiable, biologically-based reference points, or population parameters, specifically, S_{MSY} , $MFMT (F_{MSY})$, and $MSST$. These reference points are generally regarded as fixed quantities and are also the basis for the harvest control rules, which provide the operative guidance for the annual preseason planning process used to establish salmon fishing seasons that achieve OY and are used for status determinations as described above. Changes to how these status determination criteria are defined, such as $MSST = 0.50 * S_{MSY}$, must be made through a plan amendment. However, if a comprehensive technical review of the best scientific information available provides evidence that, in the view of the STT, SSC, and the Council, justifies a modification of the estimated values of these reference points, changes to the values may be made without a plan amendment. Insofar as possible, proposed reference point changes for natural stocks will only be reviewed and approved within the schedule established for salmon methodology reviews and completed at the November meeting prior to the year in which the proposed changes would be effective and apart from the preseason planning process. SDC reference points that may be changed without an FMP amendment include: reference point objectives for hatchery stocks upon the recommendation of the pertinent federal, state, and tribal management entities; and Federal court-ordered changes. All modifications would be documented through the salmon methodology review process, and/or the Council's preseason planning process.

3.2 SALMON STOCK CONSERVATION OBJECTIVES

"To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination"

Magnuson-Stevens Act, National Standard 3

To achieve OY, prevent overfishing, and assure rebuilding of salmon stocks whose abundance has been depressed to an overfished level, this plan establishes conservation objectives to perpetuate the coastwide aggregate of salmon stocks covered by the plan (Chapter 1). The Council's stock conservation objectives (to be achieved annually) and other pertinent stock management information are contained in Table 3-1. Specific objectives are listed for natural and hatchery stocks that are part of the Council's preseason fishery alternative development process (Chapter 9), including all relevant stocks listed under the Federal ESA. The objectives may be applicable to a single stock independently or to an indicator stock or stocks for a stock complex. Stocks that are not included in the preseason analyses may lack specific conservation objectives because the stock is not significantly impacted by ocean fisheries or insufficient information is available to assess ocean fishery impacts directly. In the latter case, the stock will be included in a stock complex and the conservation objective for an indicator stock will provide for the conservation of closely related stocks unless, or until, more specific management information can be developed.

3.2.1 Basis

The Council's conservation objectives for natural stocks may (1) be based on estimates for achieving MSY or an MSY proxy, or (2) represent special data gathering or rebuilding strategies to approach MSY and to eventually develop MSY objectives. The objectives have generally been developed through extensive analysis by the fishery management entities with direct management authority for the stock, or through joint efforts coordinated through the Council, or with other state, tribal, or federal entities. Most of the objectives for stocks north of Cape Falcon have been included in U.S. District Court orders. Under those orders for Washington coastal and Puget Sound stocks (*Hoh v. Baldrige* No. 81-742 [R] C and *U.S. v. Washington*, 626 F. Supp. 1405 [1985]), the treaty tribes and WDFW may agree to annual spawner targets or other objectives that differ from the FMP objectives. Details of the conservation objectives in effect at the time the initial framework FMP was approved are available in PFMC (1984), in individual amendment documents (see Table 1 in the Introduction), and as referenced in Table 3-1. Updated conservation objectives and ESA consultation standards are available in Appendix A of the most recent Preseason Report I, and Table 5 of the most recent Preseason Report III produced each year by the STT (PFMC 2021d).

The Council's conservation objectives are generally expressed in terms of an annual fishery or spawning escapement estimated to be optimum for producing MSY over the long-term. The escapement objective may be (1) a specific number or a range for the desired number of adult spawners (spawner escapement), (2) a specific number or range for the desired escapement of a stock from the ocean or at another particular location, such as a dam, that may be expected to result in the target number of spawners, or (3) based on the exploitation rate that would produce MSY over the long-term. Objectives may be expressed as fixed or stepped exploitation or harvest rates and may include spawner floors or substantially reduced harvest rates at low abundance levels, or as special requirements provided in the Pacific Salmon Treaty or NMFS consultation standards for stocks listed under the ESA.

3.2.2 Changes or Additions

Conservation objectives generally are fixed quantities intended to provide the necessary guidance during the course of the annual preseason planning process to establish salmon fishing seasons that achieve OY. Changes or additions to conservation objectives may be made either through a plan amendment or notice and comment rulemaking if a comprehensive technical review of the best scientific information available provides evidence that, in the view of the STT, SSC, and the Council, justifies a modification. Insofar as possible, proposed changes for natural stocks will only be reviewed and approved within the schedule established for salmon estimation methodology reviews completed prior to the preseason planning process. The Council may change conservation objectives for hatchery stocks upon the recommendation of the pertinent federal, state, and tribal management entities. Federal court-ordered changes in conservation objectives will also be accommodated without a plan amendment. The applicable annual objectives of Council-adopted rebuilding programs and the requirements of consultation standards promulgated by NMFS under the ESA may be employed without plan amendment to assure timely implementation. All of these changes will be documented during the Council's preseason planning process.

The Council considers established conservation objectives to be stable and a technical review of biological data must provide substantial evidence that a modification is necessary. The Council's approach to conservation objectives purposely discourages frequent changes for short-term economic or social reasons at the expense of long-term benefits from the resource. However, periodic review and revision of established objectives is anticipated as additional data become available for a stock or stock complex.

TABLE 3-1. Conservation objectives and reference points governing harvest control rules and status determination criteria for salmon stocks and stock complexes in the Pacific Coast salmon FMP. These may change periodically. The most recent values are reported annually in Preseason Reports I and III. (Page 1 of 7)

CHINOOK					
Stocks In The Fishery	Conservation Objective	S _{MSY}	MSST	MFMT (F _{MSY})	ACL
Sacramento River Fall Indicator stock for the Central Valley fall (CVF) Chinook stock complex.	122,000-180,000 natural and hatchery adult spawners (MSY proxy adopted 1984). This objective is intended to provide adequate escapement of natural and hatchery production for Sacramento and San Joaquin fall and late-fall stocks based on habitat conditions and average run-sizes as follows: Sacramento River 1953-1960; San Joaquin River 1972-1977 (ASETF 1979; PFMC 1984; SRFCRT 1994). The objective is less than the estimated basin capacity of 240,000 spawners (Hallock 1977), but greater than the 118,000 spawners for maximum production estimated on a basin by basin basis before Oroville and Nimbus Dams (Reisenbichler 1986).	122,000	91,500	78% Proxy (SAC 2011a)	Based on F _{ABC} and annual ocean abundance. F _{ABC} is F _{MSY} reduced by Tier 2 (10%) uncertainty
Central Valley Spring ESA Threatened	NMFS ESA consultation standard/recovery plan: Conform to Sacramento River Winter Chinook ESA consultation standard (no defined objective for ocean management prior to listing).	Undefined	Undefined	Undefined	ESA consultation standard applies.
Sacramento River Winter ESA Endangered	NMFS ESA consultation standard/recovery plan: Recreational seasons: Point Arena to Pigeon Point between the first Saturday in April and the second Sunday in November; Pigeon Point to the U.S./Mexico Border between the first Saturday in April and the first Sunday in October. Minimum size limit ≥ 20 inches total length. Commercial seasons: Point Arena to the U.S./Mexico border between May 1 and September 30, except Point Reyes to Point San Pedro between October 1 and 15 (Monday through Friday). Minimum size limit ≥ 26 inches total length. Guidance from NMFS in 2010 and 2011 required implementation of additional closures and/or increased sized limits in the recreational fishery South of Point Arena. The winter-run management framework and consultation standard is an abundance based age-3 impact rate control rule established in 2018 (NMFS 2018) which sets the maximum allowable age-3 impact rate based on the forecast age-3 escapement in the absence of fisheries: above 3,000, the allowable, impact rate is fixed at 20 percent; between 3,000 and 500, the allowable impact rate declines linearly from 20 percent to 10 percent; between 500 and 0, the allowable impact rate declines linearly from 10 percent to 0 percent.	Undefined	Undefined	Undefined	
California Coastal Chinook ESA Threatened	NMFS ESA consultation standard/recovery plan: Limit ocean fisheries to no more than a 16.0% age-4 ocean harvest rate on Klamath River fall Chinook.	Undefined	Undefined	Undefined	
Klamath River Fall Indicator stock for the Southern Oregon Northern California (SONC) Chinook stock complex.	At least 32% of potential adult natural spawners, but no fewer than 40,700 naturally spawning adults in any one year. Brood escapement rate must average at least 32% over the long-term, but an individual brood may vary from this range to achieve the required tribal/nontribal annual allocation. Natural area spawners to maximize catch estimated at 40,700 adults (STT 2005).	40,700	30,525	71% (STT 2005)	Based on F _{ABC} and annual ocean abundance. F _{ABC} is F _{MSY} reduced by Tier 1 (5%) uncertainty
Klamath River - Spring	Undefined	Undefined	Undefined	Undefined	Component stock of SONC complex; ACL indicator stock is KRFC
Smith River	Undefined	Undefined	Undefined	78% Proxy (SAC 2011a)	

4. Minimize fishery mortalities for those fish not landed from all ocean salmon fisheries as consistent with achieving OY and the bycatch management specifications of Section 3.5.
5. Manage and regulate fisheries so that 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.

5.2 MANAGEMENT CONSIDERATIONS BY SPECIES AND AREA

Following, are brief descriptions of the stock management considerations which guide the Council in setting fishing seasons within the major subareas of the Pacific Coast.

5.2.1 Chinook Salmon

5.2.1.1 South of latitude 40°10' N

Within this area, considerable overlap of Chinook originating in Central Valley and northern California coastal rivers occurs between Point Arena and lat. 40°10' N. Ocean commercial and recreational fisheries are managed to address impacts on Chinook stocks originating from the Central Valley, California Coast, Klamath River, Oregon Coast, and the Columbia River. **With respect to California stocks, ocean commercial and recreational fisheries operating in this area are managed to maximize natural production consistent with meeting the U.S. obligation to Indian tribes with federally recognized fishing rights, and recreational needs in inland areas.** Special consideration must be given to meeting the consultation or recovery standards for threatened California Coastal Chinook, for threatened Sacramento River spring Chinook and endangered Sacramento River winter Chinook in the area south of Point Arena, and for threatened Snake River fall Chinook north of Pigeon Point.

5.2.1.2 Latitude 40°10' N to Humbug Mountain (Klamath Management Zone)

Major Chinook stocks contributing to this area originate in streams located along the southern Oregon/California coasts as well as California's Central Valley. The primary Chinook run in this area is from the Klamath River system, including its major tributary, the Trinity River. Ocean commercial and recreational fisheries operating in this area are managed to maximize natural production of Klamath River fall and spring Chinook consistent with meeting the U.S. obligations to Indian tribes with federally recognized fishing rights, and recreational needs in inland areas. Ocean fisheries operating in this area must

Appendix B and the tables it references provides additional specific information on the fishing communities.

11 SCHEDULE AND PROCEDURES FOR FMP AMENDMENT AND EMERGENCY REGULATIONS

Modifications not covered within the framework mechanism will require either an FMP amendment, rulemaking, or emergency Secretarial action. Depending on the required environmental analyses, the amendment process generally requires at least a year from the date of the initial development of the draft amendment by the Council. In order for regulations implementing an amendment to be in place at the beginning of the general fishing season (May 16), the Council will need to begin the process by no later than April of the previous season. It is not anticipated that amendments will be processed in an accelerated December-to-May schedule and implemented by emergency regulations.

Emergency regulations may be promulgated without an FMP amendment. Depending upon the level of controversy associated with the action, the Secretary can implement emergency regulations within 20 days to 45 days after receiving a request from the Council. Emergency regulations remain in effect for no more than 180 days after the date of publication in the Federal Register. A 186-day extension by publication in the *Federal Register* is possible if the public has had an opportunity to comment on the emergency regulation and the Council is actively preparing a plan amendment or proposed regulations to address the emergency on a permanent basis.

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