

REPORT OF THE SALMON AMENDMENT COMMITTEE  
OVERVIEW OF SCOPING CONSIDERATIONS FOR  
SALMON FISHERY MANAGEMENT PLAN AMENDMENT 16

## Introduction

Amendment 16 to the Salmon FMP will update and revise the Salmon Plan as needed to address the new requirements of the 2007 amendments to the Magnuson-Stevens Act (MSA), particularly for requirements for annual catch limits (ACLs) and accountability measures (ACLAMs), and to address the 2009 National Standard 1 (NS1) Guidelines designed to prevent overfishing. However, there are other elements of the FMP that may also need to be updated. The scoping process is designed to outline issues related to the MSA requirements and NS1 guidelines involved, and consider whether other issues should also be taken up at this time as part of this plan amendment process.

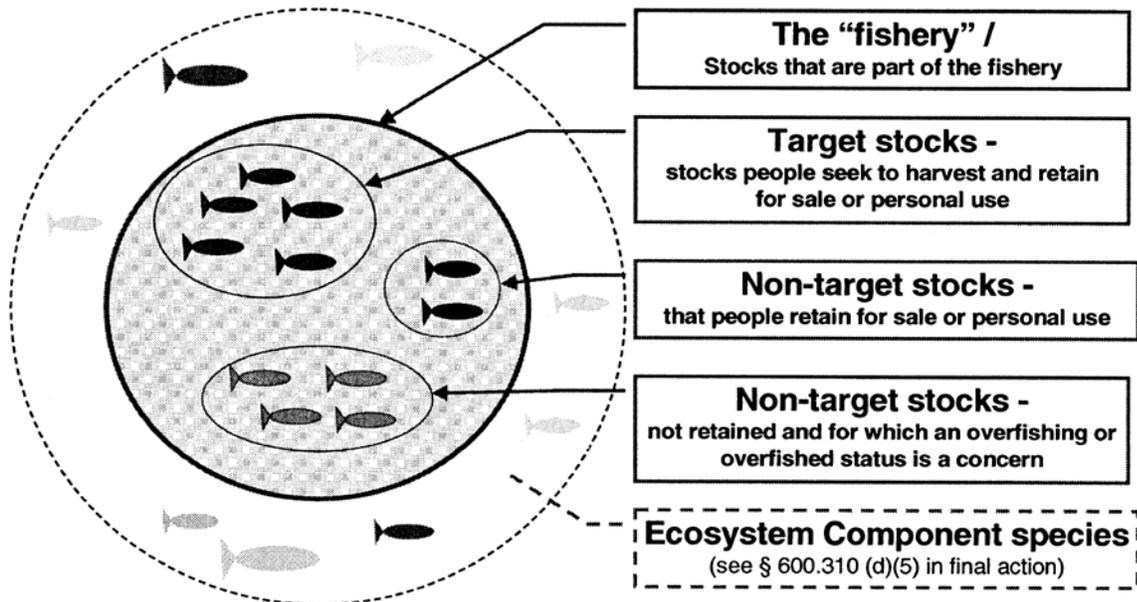
This document lists the topics currently identified in the scoping process, describes issues associated with those topics, and provides rationale for developing alternatives for some of those topics. Because of the interdependence of some topics, developing alternatives is sometimes an iterative process; therefore, some topics will be better developed than others at this stage of the process. Alternatives for some topics are included in this document, but they do not necessarily represent the complete range of reasonable alternatives for Council consideration. Alternatives have been developed primarily to illustrate the initial thoughts of the Salmon Amendment Committee (SAC) on how some issues could be addressed, and to stimulate thoughts for additional alternatives and topics. The summary of topics and potential alternatives (see pg 19) at the end of this document is based on an assessment tool designed to help identify focus requirements and NMFS guidance to consider areas for when starting an FPM FMP amendment to address addressing ACL/AM, the new MSA requirements of the MSA, and revised NS1 Guidelines. The summary table also includes additional topics for consideration in the amendment process, which were identified by the Council during earlier scoping. Again, this list of alternatives is not intended to be comprehensive, rather just a vehicle to set placeholders for potential alternatives that should be further investigated.

## Stock Classification

The MSA requires that an FMP describe the stocks<sup>1</sup> of fish involved in the fishery. The NS1 Guidelines provide a structure for classifying stocks in and around the fishery, and organizing stock complexes. These organizing principles are an important first step in developing an FMP that is consistent with the NS1 Guidelines since they affect how other key provisions of the MSA and NS1 Guidelines may be applied including, for example, Status Determination Criteria (SDC), and ACLs and AMs. In the first sections of this overview on stock classification and stock complexes, we describe options for identifying stocks in the fishery organizing the fishery including how we might designate target and non-target stocks, and any stocks that could potentially be identified as ecosystem component (EC) species, and how we might apply MSA “exceptions” for stocks managed under an International Agreement<sup>2</sup>, and “flexibilities”<sup>3</sup> that are described the NS1 Guidelines. The purpose of this overview is to summarize the considerations and available options to facilitate discussion and the scoping process. We have not at this point tried to describe specific alternatives.

## Categories of Stocks in the NS1 Guidelines

The NS1 Guidelines recommend that stocks identified in an FMP be classified as in or out of the fishery. Target stocks are in the fishery and some non-target stocks are could also be in the fishery; ecosystem components stocks are not. This classification scheme helps conceptualize how the fishery operates, which how stocks are affected by various fishery sectors a fishery, and how SDC and ACL provisions may be applied.



<sup>1</sup> The MSA and NS1 Guidelines refer to species and stock as they may be applied to different fishery situations. For the salmon fishery, we are generally trying to distinguish between stocks of salmon and so generally use that term throughout this discussion.

<sup>2</sup> MSA Section 303 note / MSRA Section 104(b)(1)

<sup>3</sup> (NS1Gs, §600.10(h)(3))

## Target Stocks

The current FMP does not distinguish between target and non-target stocks. All stocks currently identified in the FMP are considered to be “in the fishery”. Under the NS1 Guidelines target stocks are those that fishers seek to catch for sale or personal use (§600.310(d)(3)). Under to context of the Salmon FMP, these stocks could include hatchery and healthy non-ESA-listed natural stocks. These are the stocks that make up most of the catch and are substantially affected by Council area fisheries.

## Non-Target Stocks

Non-target stocks are fish that are caught incidentally during the pursuit of target stocks (§600.310(d)(4)). Some stocks are actively avoided by structuring fisheries to reduce impacts, such as reducing impacts from the fishery on ESA listed stocks. Other stocks are passively avoided because they have life history or ocean distribution characteristics that reduce their susceptibility in Council area fisheries to incidental levels, such as far-north migrating (FNM) stocks. These stocks could be classified as non-target stocks.

## Ecosystem Component Stocks

Ecosystem component stocks are not considered to be “in the fishery,” and do not require specification of references points. Ecosystem component stocks should be non-target stocks; not determined to be subject to overfishing, approaching overfished, or overfished; not likely to become subject to overfishing or overfished; and not generally retained for sale or personal use. Occasional retention of the stock would not, in itself, preclude consideration of an ecosystem component classification (§600.310 (d)(5)).

## Far-North Migrating (FNM) Chinook Stocks

FNM Chinook are a group of spring and fall stocks from the Oregon and Washington coast and Columbia River that are caught primarily in Alaskan, Canadian and terminal area fisheries. They are subject to low impacts in Council area fisheries because of their migration timing. In the current FMP, these stocks are designated as “minimal impact stocks” and are thus not subject to the procedures related to conservation alerts and overfishing concerns.

FNM stocks could be classified as ecosystem components because their ocean distribution and run timing is such that Council area fisheries cannot target these stocks, and they are arguably not generally retained in Council area fisheries. FNM stocks can also be distinguished because that have a lower vulnerability

than target stocks (and very low compared with other fish stocks), and are not likely to become overfished due to the absence of Council area management measures. As ecosystem components, reference points (ABC, ACL, SDC, MSY) would not be required for these stocks. As discussed below, some or all of these FNM stocks might also be subject to the international exception.

FNM stocks are present to varying degrees in both PFMC and NPFMC fisheries. When stocks occur in more than one fishery, the NS1 Guidelines indicate that the Councils should choose which FMP is the primary FMP in which management objectives, SDC, the stock's SDC, the stock's overall ACL and other reference points for the stocks are defined (§600.310(d)(7)). FNM stocks could be designated as primary in the NPFMC Salmon FMP. Recall that the NPFMC has delegated their salmon FMP to the State of Alaska. The NPFMC is postponing consideration of their compliance with the NS1 Guidelines for their salmon FMP until after they address this issue for their FMPs for Pollock, crab, and other groundfish stocks. Any decisions that would affect the NPFMC should be coordinated between the Councils.

### **Flexibility Provisions in the NS1 Guidelines**

In the current FMP, ESA listed stocks and hatchery stocks were granted “exceptions” to the procedures related to conservation alerts and overfishing concerns. The use of the term in the FMP is different than in the MSA and NS1 Guidelines, which only allow for “exceptions” from the ACL and AM requirements based on the two statutory exceptions: for species with a short life cycle (approximately one year) and stocks subject to international fishery agreements. Therefore, ESA listed stocks and hatchery stocks that are included in the Council area fisheries cannot be “excepted” from these requirements. However, the NS1 Guidelines do allow for “flexibility” in applying the standard approaches set forth in the NS1 Guidelines under limited circumstances and specifically refer to species like salmon with unusual life histories, and ESA listed species and hatchery stocks. The Guidelines allow the use of alternative approaches, but require that the Councils document how these alternatives are nonetheless consistent with the MSA.

#### **Endangered Species Act (ESA) Listed Stocks**

ESA listed stocks that are incidentally impacted in Council area fisheries could be classified as non-target stocks that would be in the fishery, or as ecosystem components (i.e., not be in the fishery). In either case, the incidental impacts to ESA listed stocks would still have to be accounted for and would continue to be subject to ESA Section 7 consultation. We think that the “flexibility” provided for in the NS1 Guidelines will allow us to continue to deal with ESA listed stocks much as we do now in the current FMP. They will continue to be a primary management constraint for all fisheries, but reference points for these stocks will

come primarily from ESA related procedures rather than MSA procedures, to facilitate their conservation and ultimate recovery.

ESA consultation standards could serve as SDC for listed stocks. The requirements of the ESA are sufficient to meet the intent of the provisions of the Magnuson-Stevens Act (MSA) to prevent overfishing, which are structured to maintain or rebuild stocks to levels at or above MSY and require the Council to identify and develop rebuilding plans for overfished stocks. The ESA consultation and recovery planning process is similarly structured to prevent excessive fishing mortality and recover stocks to sustainable levels. The salmon FMP considers consultation standards and recovery plans developed by NMFS for listed populations as interim rebuilding plans. The ESA processes consider uncertainty and levels of risk to listed stocks, and therefore the consultation standards for Council area fisheries meet the intent of the ACL requirements of the MSA.

#### Hatchery Stocks

Because they are relatively abundant and are the majority of fish caught in Council-area fisheries, hatchery stocks would logically be designated as target stocks that are in the fishery. As discussed above, the NS1 Guidelines allow for flexibility in how we manage hatchery stocks. With respect to MSA requirements to prevent overfishing, including specification of reference points and AM requirements, they can likely be dealt with much as they are in the current FMP.

### **Stock Complexes**

The fishery can be further described and organized for management through the use of stock complex and indicator stock designations. Stock complexes are groups of stocks with similar geographic distributions, life histories, and vulnerabilities to the fishery (§600.310(d)(8)). Indicator stocks are stocks with measurable SDC that can be used to help manage and evaluate more poorly known stocks that are in a stock complex (§600.310(d)(9)). The current FMP lists 69 stocks (or stock complexes) including 45 Chinook stocks, 22 coho stocks, and 2 pink stocks. Under the current management process, fishery impacts are assessed on most of these stocks individually to determine if its conservation objective is projected to be met preseason or if it was met postseason. The alternatives outlined below suggest ways that the stocks could be organized and how indicator stocks might be used to facilitate management and the application of SDC and other NS1 Guideline requirements. The alternatives describe some of the options, but not all of the possible strata/complex combinations.

#### Atl. 1 – Individual Stocks (Status Quo)

The fishery would consist of 69 individual stocks. Reference points (ABC, ACL, etc) would be established for each stock that has a specified conservation objective (or ESA consultation standard) and that was not designated as an exception to ACLs and AMs requirements under management by international agreement. The NS1 Guideline flexibility provisions would apply for ESA listed and hatchery stocks.

#### Atl. 2 – Two Stock Complexes<sup>4</sup>

The fishery would consist of two stock complexes based on stream of origin:

1. Chinook salmon originating in streams south of the U.S./Canada border  
Indicator stocks could include Sacramento River fall Chinook (SRFC), Sacramento River winter Chinook (SRWC), California Coastal Chinook (CCC), Klamath River fall Chinook (KRFC), Southern Oregon Coastal Chinook (SOCC), Lower Columbia River (LCR) and Spring Creek Hatchery (SCH) tule Chinook, Lewis River Wild (LRW), Snake River Wild (SRW) fall Chinook, and Upper Columbia River (UCR) summer Chinook.
2. Coho salmon originating in streams south of the U.S./Canada border  
Indicator stocks would include Rogue/Klamath (RK), Oregon Coastal Natural (OCN), Lower Columbia Natural (LCN) and Washington coastal and Puget Sound natural (and Thompson River?) coho.

#### Alt. 2a – Two stock complexes

Same as Alt. 2 except the complexes would be defined as Chinook and coho harvested in fisheries south of the U.S./Canada border. This alternative would therefore include Canadian Chinook and coho stock complexes in the fishery, although they would likely be non-target stocks.

#### Atl. 3 – Four Stock Complexes

The fishery would consist of four stock complexes based on management areas and ocean distribution patterns:

1. Chinook salmon harvested in areas between the U.S./Canada border and Cape Falcon, Oregon (Indicator stocks: LCR tules, SCH tules, LRW, UCR, SRW)
2. Chinook salmon harvested in areas south of Cape Falcon, Oregon (Indicator stocks: SOCC, KRFC, SRFC, SRWC, CCC)

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<sup>4</sup> For simplicity, we have deferred further discussion about pink stocks until we make an initial determination about their continuing status in the fishery.

3. Coho salmon harvested in areas between the U.S./Canada border and Cape Falcon, Oregon (Indicator stocks: OCN, LCN, WC, PS, Thompson River? coho).
4. Coho salmon harvested in areas south of Cape Falcon, Oregon (Indicator stocks: SONCC, OCN, LCN, WC?, PS?).

#### Atl. 4 – Five Stock Complexes

The fishery would consist of five stock complexes:

1. Chinook salmon originating in streams between the U.S./Canada border and Cape Falcon, Oregon that have significant contributions to Council area fisheries. (Indicator stocks: LCR tules, SCH tules, LRW, UCR, SRW)
2. Chinook salmon originating in streams south of Cape Falcon, Oregon that have significant contributions to Council area fisheries (Indicator stocks: SOCC, KRFC, SRFC, SRWC, CCC)
3. Chinook salmon originating in streams south of the U.S./Canada border that do not have significant contributions to Council area fisheries but are managed under the PST. This complex would be comprised of stocks with a lower vulnerability index than stocks targeted in Council area fisheries.  
(Indicator stocks: PST stocks, i.e., FNM summer/fall Chinook stocks from PS, WC, CR, NOC, and MOC). This stock complex could be managed primarily under the NPFMC salmon FMP or be designated as an exception by virtue of being managed under an international agreement.
4. Chinook salmon originating in streams south of the U.S./Canada border that do not have significant contributions to Council area fisheries and are not managed under the Pacific Salmon Treaty. This complex would be comprised of stocks with a lower vulnerability index than stocks targeted in Council area fisheries.  
(Indicator stocks: i.e., spring Chinook stocks from PS, WC, CR, NOC, and MOC - FNM stocks represented in FRAM). These stocks could be classified as ecosystem components.
5. Coho salmon originating in streams south of the U.S./Canada border (same as Alt 2 above).

### **Status Determination Criteria - SDC**

Status determination criteria are required by the MSA to be objective and measurable and the NS1 Guidelines state that SDC must be expressed in a way that enables the Council to monitor each stock or stock complex in the FMP, and determine annually, if possible, whether

overfishing is occurring and whether the stock or stock complex is overfished (§600.310(e)(2)(ii)).

## Overfished

The NS1 Guidelines define “overfished” as a situation in which a stock’s “Biomass has declined below a level that jeopardizes the capacity of the stock or stock complex to produce MSY on a continuing basis.” The use of different control rules for different stocks can be problematic when setting criteria for overfished status. For example, exploitation rate based control rules may need different criteria than biomass based control rules. A description of currently used control rules is included in Attachment 1.

Determining whether a salmon stock is “overfished” is also complicated by the fact that brood failures are not uncommon due to environmental conditions, even for productive salmon populations. Therefore, the criteria for overfished status should reflect real risk to the productive capacity of the population from low and/or sustained stock depression as opposed to natural variation.

### Atl. 1 – Three years of not meeting conservation objective (Status Quo)

The FMP currently defines an overfishing concern as failure to achieve a stock’s conservation objective for three consecutive years. If this occurs, the FMP requires an assessment to be completed within one year to determine the cause of the overfishing concern, if the concern has affected the long-term productivity of the stock, and if further action is necessary to rebuild the stock. For the purpose of periodic reports to Congress on the status of stocks, NMFS has interpreted an overfishing concern as equivalent to the stock being overfished.

This is a very conservative approach; potentially a stock with a conservation objective based on MSP could fail to meet its objective for three consecutive years, be considered overfished, and possibly subject to overfishing (see status quo below), and still have achieved  $B_{MSY}$ . This is one reason the FMP requires an assessment prior to declaring the stock overfished.

### Alt. 2 – NMFS Interpretation of Status Quo

Similar to Alt. 1 except that the overfishing concern would explicitly state that the stock was overfished if it failed to meet its conservation objective in three consecutive years.

### Alt 4 – MSST - Abundance $< B_X$ .

This alternative would establish a stock size that would trigger the overfished status in a single year, similar to the groundfish MSST of  $B_{25\%}$ . The level could be based on spawning biomass or ocean recruits, but should be associated with

some potential decline in stock productivity. The NS1 Guidelines recommend one possibility as  $\frac{1}{2} B_{MSY}$ . Currently MSST is essentially MSY or its proxy, but overfished status is not conferred until after three consecutive years.

Alt 4a – MSST – Average Abundance  $< B_X$ .

This alternative would require a geometric or arithmetic mean (or other aggregate measure) of stock size less over a period of years (e.g., three years) be than some level to confer an overfished status. This would help ensure that the status was not the result natural variation in stock abundance.

Alt 4b – MSST – Abundance  $< B_x$  for three consecutive years

This alternative would require stock size to be below a preset MSST level for three consecutive years to confer an overfished status.

## Overfishing

The NS1 Guidelines recommend two alternative criteria for determining when a stock or stock complex is subject to overfishing: 1) when the MFMT is exceeded for one year or more; or 2) when the catch exceeds the overfishing limit (OFL); however the NS1 Guidelines also allow some flexibility in application of SDC for species with unusual life history characteristics like salmon. Below are some options for defining overfishing in the salmon FMP.

Alt 1 –  $F_t > 0$  and  $B_t < B_{MSY}$  or if  $F_t > F_{MSY}$  (Status Quo)

If a stock failed to meet its conservation objective in a season in which fishing impacts occurred, then overfishing would have occurred. This was the definition used by the STT in the Klamath overfishing assessment. These criteria have only been applied when an overfishing concern has been triggered because MSY is defined as an average value, and therefore some escapement values less than MSY are to be expected.

Alt. 2 –  $F_t > F_{MSY}$  or  $F_{CONTROL RULE}$

Overfishing would be defined as a rate as opposed to an event or a biomass measure (Alt 1).

## Rebuilding - Optional

The MSA does not require that an FMP include specific criteria for rebuilding and rebuilt stock status for species that are not overfished or approaching an overfished condition. However, specification of such criteria could lead to clearer decision points and more streamlined reporting of status. This may be especially advantageous for salmon because their high productivity often results in quick recovery from low stock sizes. Frequently, stocks have recovered before criteria can be developed, and considerable time can be wasted in rebuilding efforts.

Alt 1 – Postseason -  $B_t \geq B_{\text{CONTROL RULE}}$  or  $F_t \leq F_{\text{CONTROL RULE}}$

If a stock meets its conservation objective (MSY or rebuilding schedule) but is not yet rebuilt, then its status would be rebuilding. This would apply to a rebuilding schedule adopted in a rebuilding plan as well. This was the criterion used for Klamath River fall Chinook in the NMFS report to Congress.

Alt 2 - Postseason –  $MSST < B_t < B_{\text{MSY}}$

If a stock was above its MSST but had not yet achieved its conservation objective, it would be classified as rebuilding.

Alt 3 – Undefined

This SDC could be left undefined in the FMP and deferred to a rebuilding plan or overfishing assessment.

### Rebuilt - Optional

Alt 1 – Postseason -  $B_t \geq B_{\text{MSY}}$  or  $F_t \leq F_{\text{MSY}}$  (Status Quo)

The default criterion in the FMP for a stock to be rebuilt is achieving its conservation objective in a single year. This is the default criterion in the current FMP.

Alt 2 - Postseason –  $B_t \geq B_{\text{MSY}}$

If fishing mortality rate is not a proxy for stock status (i.e., abundance), the criteria would have to be based on a measure of biomass.

Alt 3 – Undefined

This SDC could be left undefined in the FMP and deferred to a rebuilding plan or overfishing assessment. This is optional in the current FMP

### SDC for ESA Listed Stocks

ESA consultation standards could serve as SDC for listed stocks. The requirements of the ESA are sufficient to meet the intent of the provisions of the Magnuson-Stevens Act (MSA) to prevent overfishing, which are structured to maintain or rebuild stocks to levels at or above MSY and require the Council to identify and develop rebuilding plans for overfished stocks. The ESA consultation and recovery planning process is similarly structured to prevent excessive fishing mortality and recover stocks to sustainable levels. The salmon FMP considers consultation standards and recovery plans developed by NMFS for listed populations as interim rebuilding plans. The ESA processes consider uncertainty and levels of risk to listed stocks, and therefore the consultation standards for Council area fisheries meet the intent of the ACL requirements of the MSA.

## **Acceptable Biological Catch, Annual Catch Limits, and Accountability Measures – ABC, ACLs, and AMs**

The MSA and NS1 guidelines require specification of several reference points and associated control rules that are designed to ensure that overfishing does not occur and that stocks are not overfished. How ACL, AM, and other key reference points are defined will depend on other interrelated decisions regarding, for example, stock classification and stock complexes. These reference points will also be closely related to definitions of SDC. The following discussion therefore provides an overview of the considerations. It also highlights details related to management South of Cape Falcon that may be problematic.

The amended salmon plan will require more specific definitions for several key reference points including Optimum Yield (OY), Overfishing Limit (OFL), Allowable Biological Catch (ABC), Annual Catch Limit (ACL), and the ACL's corresponding Accountability Measures (AMs). In addition, the MSA now requires that the Council's Scientific and Statistical Committee (SSC) recommend an ABC using an ABC control rule; the amendment should address alternatives for the process to comply with this requirement. The NS1 Guidelines explain that specification of ABC should account for scientific uncertainty ....

Some of the key reference points include:

MSY – the largest long-term average catch under prevailing environmental conditions;

OY – the amount of catch that provides the greatest overall benefit to the nation and is prescribed based on MSY reduced by relevant economic, social or ecological factors;

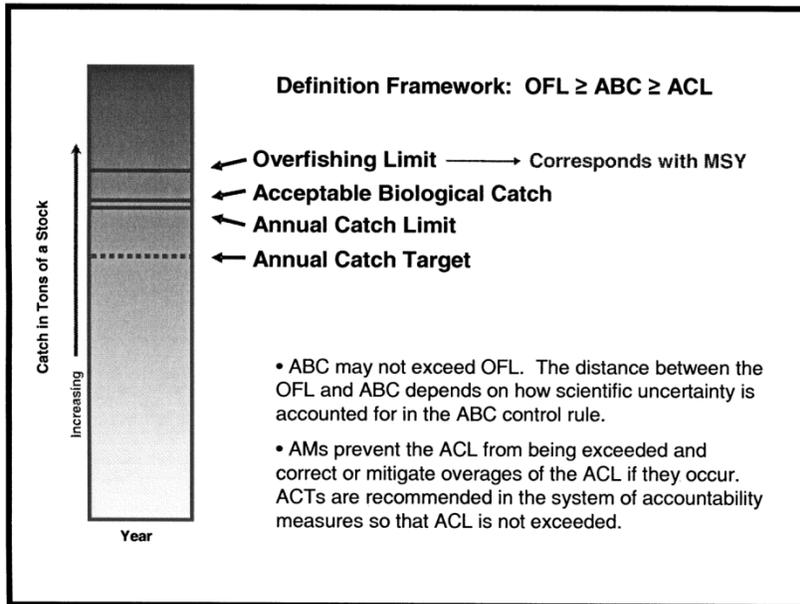
OFL – the amount of catch above which overfishing is occurring;

ABC – the amount of catch that accounts for scientific uncertainty in the estimate of OFL;

ACL – ACL serve as the basis for invoking AMs; ACL cannot exceed ABC, but may be divided into sector ACL;

ACT – the amount of catch that is the management target for the fishery and accounts for management uncertainty to control catch to levels that are at or below ACL;

AM – management controls designed to prevent ACLs from being exceeded.



There is a specific hierarchy here with  $ACL \leq ABC \leq OFL$ . It will be necessary to explain how the fishery operates to achieve OY, along with the safeguards that are included to account for scientific and management uncertainty to insure that overfishing does not occur. An example is provided using Chinook to illustrate how the fishery could be structured. To keep the example simple, it does not try to address all of the complications that would be needed in a fully developed alternative.

## ACL

In this example, the Chinook fishery is divided into two stock complexes, north and south of Cape Falcon. Each complex has several indicator stocks (see Alt. 3 under Stock Complexes above). Much of the conservatism in the NS1 Guidelines is already built in to the FMP and associated management system. For example: 1) many of the stock-specific conservation objectives are designed to achieve maximum sustained production (MSP), which is more conservative than MSY; 2) these are mixed stock fisheries with many potentially constraining stocks. A few weak stocks will constrain the fisheries in a particular year, with the remaining stocks consequently subject to less harvest than could be allowed; 3) quota management north of Cape Falcon provides inseason management control and thus helps to insure that the ACL is not exceeded; 4) if a stock fails to meet its conservation objective in any year, the FMP provides immediate corrective action (AM) by limiting fisheries to meet the conservation objective in the following year.

In this example, ABC and ACL are defined for the stock complexes. ABC could be set equal to the sum of the harvestable surpluses of all modeled stocks in each complex. The ACL would be set equal to the surplus that is available when SDC constraints on indicator stocks are reached. For example, south of Cape Falcon, in a typical year there are surplus SRFC available for harvest, but the fishery is constrained by KRFC and/or CC Chinook. The ABC would be all the

fish that could be harvested given the stock specific conservation objectives; the ACL would be the amount of catch that could be realized given the mixed stock fishery constraints.

This particular example highlights differences in management in the fisheries north and south of Cape Falcon. Fisheries north of Cape Falcon rely on quotas; fisheries South of Falcon generally do not. The NS1 Guidelines indicate that FMPs should include inseason monitoring and management measures to prevent catch from exceeding ACLs. Quotas provide a type of inseason AM. For fisheries without inseason management control to prevent the ACL from being exceeded, the NS1 Guidelines indicate that AMs should utilize ACT's that are set below ACLs so that catches do not exceed the ACL. The Council will have to consider whether the current management system south of Cape Falcon is sufficiently conservative to address the NS1 Guidelines. There are relatively few indicator stocks in the area with SRFC and KRFC being the principle drivers. The circumstances related to KRFC result in the catch being fully allocated between ocean and river fisheries. Therefore, we typically attempt to manage down to the spawner escapement floor, which means that the probability of missing the floor is arguably 50 percent every year. Review of the track record for KRFC escapement indicates that the spawner escapement floor has been missed about half the time.

So far, the thinking of the Salmon Amendment Committee is that most of the recommendations of the NS1 Guidelines related to ACLs and AMs can be addressed, although it will require a substantial rewrite of the current FMP. The area that is most problematic is whether the South of Falcon fisheries adequately address the ACL and AM requirements. Alternatives that should be considered include status quo management, greater reliance on buffers (i.e., ACT) when setting ACLs, and the use of quotas in the South of Falcon fisheries.

## AM

AM are management controls to prevent ACL from being exceeded, and to correct or mitigate overages of the ACL if they occur. AM are intended to minimize the frequency and magnitude of overages, and correct any problems that caused the overage. They can be categorized as either inseason or postseason AM.

There are no measures in the FMP identified currently as AM however, a number of actions meet the definition of inseason AM: inseason closure authority, mixed stock quota monitoring, quota partitioning, quota trading, allocation schedules, changes to gear/bag/size/trip limits, boundary modifications, landing restrictions, and reporting requirements. There are also a number of actions that meet the definition of postseason AM: annual SAFE document, overfishing concern assessment, conservation alert assessment, EFH assessment, notice to state/tribal managers, and the methodology review. Depending on the alternatives for ACL, other AM may be necessary to meet the intent of the MSA. For example, ACL for individual stocks may require inseason genetic stock identification (GSI) monitoring.

## Stocks Potentially Excepted from Specification of ACLs, ABC, and AMs

The MSA included an exception from the ACL and AM requirements for stocks or stock complexes managed under an international agreement, and the NS1 Guidelines state that for internationally-assessed stocks, specification of ABC is not required if they meet the MSA international exception (§600.310(f)(3)). The Pacific Salmon Treaty (PST) clearly qualifies as an international agreement. Whether the international exception should be applied to a particular stock requires consideration of the details of the agreement and how it affects that stock. The following criteria can be used to help evaluate whether it is appropriate to use the international exception for a stock:

- Is harvest of a stock subject to management under an international agreement;
- Can the Council area fisheries alone make any measurable progress towards ending overfishing;
- Does the international agreement provide a level of protection that is equivalent to MSA requirements;
- Is there something in the international agreement that would preclude the U.S. from taking conservation actions that might be needed to address MSA requirements;
- Would U.S. fishermen be disadvantaged as a result of applying the ACL requirements to only the U.S. portion of the catch?

### PST Chinook Stocks – U.S. Origin

There are several summer and fall Chinook stocks from Washington, Oregon, and the Columbia River that are in the FMP and also addressed in the Pacific Salmon Treaty (PST) Agreement. These stocks are involved in the Council area fishery, but might be designated as non-target stocks because they are impacted at low levels in Council area fisheries (<5% adult equivalent [AEQ] exploitation rate[ER]). The international exception could potentially be applied to these stocks because they are managed under the PST Agreement.

### PST Chinook Stocks – Canadian Origin

Two Chinook stocks (or stock complexes) listed in the FMP originate in Canada, are addressed in the PST, and are logical candidates for the ACL exception under the international agreement, particularly since the PST places responsibility for conservation measures beyond those required by the PST on the country of origin. Another possibility would be to eliminate the Canadian stocks from the list of stocks that are in the FMP and considered in the fishery, particularly if a stock complex was designated based on stream of origin rather than management area. However, at least one of the stocks in the Fraser River stock complex is a significant contributor to the Council area fisheries off Washington.

## PST Coho Stocks – U.S. Origin

Puget Sound and Washington north coastal coho are managed under provisions of the PST, which contains conservation objectives that differ from the FMP objectives. The state and tribal co-managers are pursuing a resolution to the discrepancy for at least some of those stocks. Pending the outcome of those efforts, some or all of these stocks could be excepted from the ACL requirement because they are managed under an international agreement.

## PST Coho Stocks – Canadian Origin

Two coho stocks (or stock complexes) listed in the FMP originate in Canada, and are logical candidates for ACL exception under the international agreement. Another possibility would be to eliminate the Canadian stocks from the list of FMP stocks (i.e., they would no longer be considered “in the fishery”); however, one stock (Thompson River) in the Fraser River complex is a significant constraint in Council area fisheries. Therefore, designating Canadian coho stocks as non-target stocks in the fishery in Council area fisheries may be appropriate to facilitate better monitoring and compliance with the PST.

## Pink Stocks

There are two pink stock complexes in the current FMP, Puget Sound and Fraser River. Pink salmon are caught incidentally in fisheries in northern Washington that are directed at Chinook and coho, although pinks are targeted on occasion. The pink stocks may also be a logical candidate for applying the ACL exception under the international agreement since they are also subject to management under the PST Agreement.

## **Conservation Objectives**

Several of the current conservation objectives should be reviewed and updated. As part of this scoping process, it will be important to decide whether conservation objective updates will be considered during this amendment process. If not, it would be useful to develop a priority list for the review of conservation objectives and a time line for making those changes.

Most stocks listed in the FMP have a quantified conservation objective, either explicit (e.g., 122,000-180,000 SRFC) or implicit (e.g., ESA consultation standard). The FMP provides a mechanism for updating most conservation objectives without a formal FMP amendment, requiring only review and agreement by the SSC and STT, and approval by the Council. The one exception is that the spawning escapement floor for Klamath River fall Chinook (KRFC) can only be changed by plan amendment. Amendment 14 to the FMP noted several stocks that were anticipated to have conservation objectives updated. However, since that time, only two stocks,

OCN coho and KRFC have had their conservation objectives reviewed, and neither of these was formally revised.

The stocks that may have outdated conservation objectives listed in the FMP include Puget Sound<sup>5</sup> and Washington coastal coho, OCN coho, several Washington coastal Chinook stocks, several Columbia River Chinook stocks, and Oregon coastal Chinook<sup>6</sup>. Conservation objectives for SRFC and KRFC are dated and there is new information that suggests the need for review and possible revision of these objectives (e.g., more recent MSY spawning escapement estimate of 40,700 for KRFC). The NS1 Guidelines state that management measures and reference points to implement NS1 must be based on the best scientific information available, consistent with MSA National Standard 2 (§600.310(l)(1)). Also, given the importance of these stocks to management, their review should at least be set as a high priority. Conservation objectives for ESA listed stocks are developed through the ESA section 7 consultation process; some of these may also be due for reconsideration.

The conservation objectives in the current FMP for Washington coast and Puget Sound Chinook and coho stocks include references to relevant U.S. District Court orders in *U.S. v. Washington* and *Hoh v. Baldrige* court orders that allow for changes in escapement related conservation objectives in a particular year if agreed to by WDFW and the relevant treaty tribes. This language should also be reviewed as it seems inconsistent with current management practice for at least some of the affected stocks. For example, Puget Sound coho if they managed under the PST Agreement using a variable, abundance based exploitation rate strategy. The conservation objectives for Puget Sound Chinook refer to ESA related consultation standards and MSP escapement goals with language in the FMP that allows for annual adjustment of management targets. Recent consultation standards may supersede some of the details described in the FMP.

### ***De minimis* fishing provisions**

The FMP currently provides that upon the triggering of a conservation alert for a stock, the Council will close salmon fisheries within its jurisdiction that impact that stock. Such closures occurred in 2008 and 2009 because of the status of SRFC. However, for most stocks listed in the

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<sup>5</sup> Conservation objectives for Puget Sound coho stocks will be presented to the Council via the Methodology Review process. There will be a Co-Manager presentation of the current tiered harvest rate method that has been implemented in Puget Sound as a result of the PST. This method has been in use by the co-managers for the past 10 years or so but has never been formally incorporated into the FMP. If adopted, this method will update the conservation objectives for Puget Sound coho stocks and incorporate them into the revised FMP.

<sup>6</sup> ODFW is in the process of doing stock recruitment analyses and developing escapement goals for Oregon coastal Chinook stocks. A Rogue River fall Chinook SMU Conservation Plan is scheduled to be completed this fall along with the other stocks in the South Oregon Coast (SOC) river systems. The stocks in the North Oregon Coast (NOC) river systems will be done this winter. The stocks in the mid-Oregon Coast (MOC) river systems are scheduled to be done in the summer of 2010.

FMP some form of *de minimis* fishing may occur even if a conservation alert is triggered. *De minimis* fishing provisions allow some low level of harvest when a stock is depressed to allow access to available harvest of healthy stocks.

Because *de minimis* fishing provisions involve two aspects of the FMP (conservation objectives and overfishing criteria) it is important to understand how the FMP might be changed or amended to accommodate such provisions, and how changes to either aspect could affect existing provisions. Similarly, because this FMP amendment will consider alternatives to the current SDC (overfishing criteria), it is important to understand how SDC are related to conservation objectives and *de minimis* fishing provisions.

Some *de minimis* fishing provisions are inherent in conservation objectives, in particular, those based on exploitation rates like OCN coho, which have no spawning escapement floor. Others are exceptions to conservation alert actions, such as those for KRFC and Washington coast coho. There are few stocks lacking any mechanism to allow *de minimis* fishing impacts without use of an emergency rule to implement management measures, and for only one of those stocks, Sacramento River fall Chinook (SRFC) is a preseason forecast available that can trigger a conservation alert. Oregon coastal Chinook have a conservation objective with a clear floor but no means for a preseason forecast; therefore, the stock cannot be projected to fall below its conservation objective, and thus trigger a conservation alert and the associated fishery closure. SRFC therefore, stands out as the only stock in the FMP likely to require a fishery closure pursuant to a conservation alert.

Changing a stock's conservation objectives from a spawning escapement to an exploitation rate (without an escapement floor) is one alternative for allowing *de minimis* fishing impacts. This allows the new objective to reflect the stock's unique characteristics, although the analyses needed to support the change may be more complicated. However, the process to incorporate the change into the FMP is fairly straightforward, only requiring review and approval by the STT, SSC, and Council. This is similar to, and typically coincident with, the salmon methodology review process. Another potential complication of this approach would be to establish biomass based SDC.

Changing the Council action required when a conservation alert is triggered is another possibility. The current requirement to close Council area fisheries could be changed to reduce impacts to a specified level, for example to no less than half or  $2/3$   $B_{MSY}$ , or no more than an AEQ ER of 10 percent. This approach could be used on a stock specific basis or as a blanket policy. Currently, the requirement to close Council area fisheries is a blanket policy with exceptions listed for KRFC, stocks subject to *U.S. v. Washington* or *Hoh v. Baldrige* court orders, ESA listed stocks, stocks with a base period exploitation rate of less than 5 percent, and hatchery stocks. The two former exceptions are currently specific to the conservation alert action, and allows for *de minimis* fishing impacts on a year to year basis; however those stocks are still subject to status determination for when the stock triggers an overfishing concern. When

an overfishing concern is triggered, an assessment of the cause and recommendations for rebuilding are to be developed, which may or may not allow for *de minimis* impacts. The latter three exceptions are for all overfishing criteria (conservation alert and overfishing concern), and are indeterminate in length. The MSA has specific requirements for exceptions and flexibility in application of ACL/AM; therefore, the current FMP provisions may need revision to comport with the MSA requirements.

## Summary of Topics and Potential Alternatives for Salmon FMP Amendment 16 Scoping

An amendment for incorporating MSA requirements from the 2007 amendments, and for consistency with the 2009 revised National Standard 1 Guidelines (CFR section 600.310).

### I. Stock Classification *Section 600.310(d)*

Stock Classification: Potential Alternatives	
<b>Stocks considered “in the fishery”</b>	<ul style="list-style-type: none"> <li>• Status quo: All stocks currently listed in the FMP are considered “in the fishery”</li> <li>• All stocks currently listed in the FMP, except those impacted less than [?]% by PFMC fisheries, will be considered “in the fishery”</li> <li>• Others?</li> <li>• Only the following stocks will be considered “in the fishery”:               <ul style="list-style-type: none"> <li>○ KRFC, etc etc.</li> </ul> </li> </ul>
<b>Potential “Ecosystem components (EC)”<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• Status quo: No EC species are currently identified</li> <li>• The following stocks will be considered EC species based on vulnerability to experiencing overfishing and becoming overfished due to PFMC fisheries:               <ul style="list-style-type: none"> <li>○ Far north migrating Chinook stocks with Council area base period exploitation rates of less than 5 percent.</li> </ul> </li> </ul>

Stock Complexes: Potential Alternatives	
<b>Potential stock complexes<sup>2</sup>, and any indicator stock(s)<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• Status quo: existing complexes are based on species, geography, and river of origin and indicators stocks are identified for data-poor stocks.</li> <li>• Complexes will be defined as currently organized and for purposes of setting the ACL complexes will also be based on species: one Chinook complex, one coho complex, one pink complex.</li> <li>• Complexes will be defined for purposes of setting the ACL and will be based on species and management zone relative to Cape Falcon, OR:               <ul style="list-style-type: none"> <li>○ Chinook North of Falcon</li> <li>○ Chinook South of Falcon</li> <li>○ Coho North of Falcon</li> <li>○ Coho South of Falcon</li> <li>○ Pink North of Falcon???</li> </ul> </li> <li>• Complexes will be defined for purposes of setting the ACL and will be based on species, management zone relative to Cape Falcon, OR:, and stock vulnerability               <ul style="list-style-type: none"> <li>○ Chinook North of Falcon</li> <li>○ Chinook South of Falcon</li> <li>○ PST Chinook Stocks</li> <li>○ Far north migrating spring Chinook stocks</li> <li>○ Coho North of Falcon</li> <li>○ Coho South of Falcon</li> <li>○ Pink North of Falcon???</li> </ul> </li> <li>• Other?</li> </ul>

II. Reference Points and Status Determination Criteria (SDC) *Section 600.310(e)*  
*and Section 600.310(f)*

Reference Points and SDC: Potential Alternatives	
<b>MSY<sup>3</sup></b>	<ul style="list-style-type: none"> <li>• Status quo: MSY and MSY proxies are specified based on best available science and indicator stocks are used for data-poor stocks.</li> <li>• Other?</li> <li>• For ESA listed stocks in the FMP, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and specification of all MSA-required reference points will be deferred until such time that the stocks are de-listed; in the interim, ESA consultation standards will be used to ensure the stocks’ conservation and management.</li> <li>• For hatchery stocks as defined in FMP Table 3-1, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and <i>hatchery goals</i> will serve as the conservation objective, but these stocks will not be subject to requirements for specification of MSY.</li> </ul>
<b>OFL<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• Status quo: No OFL is specified for any stock or complex.</li> <li>• OFL would be specified as annual amount of catch that corresponds to the estimate of MFMT applied to a stock or stock complex’s abundance and is expressed in terms of numbers or weight of fish.</li> <li>• Other? (something based on spawning escapement?)</li> </ul>
<b>ABC<sup>4</sup></b>	<ul style="list-style-type: none"> <li>• Status quo: ABC is not currently a reference point used for salmon.</li> <li>• ABC will be specified for <u>each stock</u> as the stock’s annual catch that accounts for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty.</li> <li>• ABC will be specified for <u>each complex</u> as the complex’s annual catch that accounts for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty.</li> <li>• ABC will be specified for <u>each stock</u> as the stock’s annual spawning escapement that accounts for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty.</li> <li>• ABC will be specified for <u>each complex</u> as the complex’s annual spawning escapement that accounts for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty.</li> <li>• Other??</li> <li>• For ESA listed stocks in the FMP, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and specification of all MSA-required reference points will be deferred until such time that the stocks are de-listed; in the interim, ESA consultation standards will be used to ensure the stocks’ conservation and management.</li> <li>• For hatchery stocks as defined in FMP Table 3-1, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and <i>hatchery goals</i> will serve as the conservation objective, but these stocks will not be subject to requirements for specification of ABC.</li> </ul>

<b>ABC Control Rule</b>	<p>Status quo: Currently, there is no “ABC control rule” used, nor an ABC; however, the stock specific conservation objectives are considered MSY control rules.</p> <p><u>Options for an ABC control rule:</u></p> <ul style="list-style-type: none"> <li>• Sum of harvestable surplus from all stocks (ABC=OFL)</li> <li>• Blanket buffer applied to OFL (ABC&lt;OFL)</li> <li>• Buffer adjusted for data quality (ABC&lt;OFL)</li> <li>• Conservation objectives based on MSP, habitat seeding, stepped exploitation rate, etc. that are more conservative than MSY (ABC&lt;OFL)</li> </ul> <p><u>Options for who applies the ABC control rule and makes the recommendation:</u></p> <ul style="list-style-type: none"> <li>• The SSC will approve the methods to compute the ABC control rule, the STT will apply the ABC control rule to identify the ABC, and make the ABC recommendation to the Council.</li> <li>• The SSC will approve the methods to compute the ABC control rule, the STT will apply the ABC control rule to identify the ABC, have it certified by the SSC, and make the ABC recommendation to the Council.</li> <li>• The SSC will approve the methods to compute the ABC control rule, the STT will apply the ABC control rule to identify the ABC, and the SSC will make the ABC recommendation to the Council.</li> <li>• ???</li> </ul>
<b>ACL<sup>4</sup></b>	<ul style="list-style-type: none"> <li>• An ACL will be based on catch and specified for <u>each stock</u>.</li> <li>• An ACL will be based on spawning escapement and specified for <u>each stock</u>.</li> <li>• An ACL will be based on catch and specified for <u>each complex</u>, but not for each stock.</li> <li>• An ACL will be based on catch and specified for <u>each complex, and</u> for each <u>indicator</u> stock.</li> <li>• An ACL will be based on spawning escapement and specified for each <u>indicator</u> stock.</li> <li>• ???</li> <li>• For ESA listed stocks in the FMP, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and specification of all MSA-required reference points will be deferred until such time that the stocks are de-listed; in the interim, ESA consultation standards will be used to ensure the stocks’ conservation and management.</li> <li>• For hatchery stocks as defined in FMP Table 3-1, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and <i>hatchery goals</i> will serve as the conservation objective, but these stocks will not be subject to requirements for specification of ACL.</li> </ul>
<b>Potential relationship(s) between OFL, ABC, and ACL</b>	<ul style="list-style-type: none"> <li>• <math>ACL_{complex} &lt; ABC_{complex} = OFL_{complex}</math></li> <li>• <math>ACL_{complex} = ABC_{complex} &lt; OFL_{complex}</math></li> <li>• <math>ACL_{complex} &lt; ABC_{complex} &lt; OFL_{complex}</math></li> <li>• <math>ACL_{stock} &lt; ABC_{stock} = OFL_{stock}</math></li> <li>• <math>ACL_{stock} = ABC_{stock} &lt; OFL_{stock}</math></li> <li>• <math>ACL_{stock} &lt; ABC_{stock} &lt; OFL_{stock}</math></li> <li>• ?</li> </ul>

<p><b>OY<sup>3</sup></b></p>	<ul style="list-style-type: none"> <li>• Status quo: OY is currently defined in the FMP as “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. The subsequent catch and mortality resulting under the Council’s management recommendations will embody the optimum yield and will be equal to or less than MSY from the fishery. 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.”</li> <li>• Revise the language in the FMP to describe that OY is based each year on the harvest allowable limited by the weakest stock(s).</li> </ul>
<p><b>SDC for determining overfishing:</b></p> <p><math>F &gt; MFMT</math></p> <p>Or</p> <p><math>Annual\ catch &gt; OFL</math></p>	<ul style="list-style-type: none"> <li>• Status quo: not explicit in FMP, but recently defined by STT for KRFC as spawning escapement &lt; conservation objective for three consecutive years and, in at least one of the three years, due to fishing mortality.</li> <li>• Overfishing will be determined at the <u>stock</u> level.</li> <li>• Overfishing will be determined at the <u>complex</u> level.</li> <li>• Overfishing will be determined as <math>F &gt; MFMT</math> annually.</li> <li>• Overfishing will be determined as <math>F &gt; F_{MSY}</math> annually.</li> <li>• Overfishing will be determined as actual catch &gt; OFL annually. (if not OFL, then ABC or MSY?)</li> <li>• Overfishing will be determined as spawning escapement &lt; conservation objective annually.</li> <li>• Other? (options for the three year time series here too?)</li> <li>• For ESA listed stocks in the FMP, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and MSA-required status determinations will be deferred until such time that the stocks are de-listed; in the interim, ESA consultation standards will be used to ensure the stocks’ conservation and management.</li> <li>• For hatchery stocks as defined in FMP Table 3-1, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and <i>hatchery goals</i> will serve as the conservation objective, but these stocks will not be subject to requirements for status determination criteria for overfishing.</li> </ul>
<p><b>MFMT<sup>2</sup></b></p>	<ul style="list-style-type: none"> <li>• Status quo: Currently not formally specified, but has recently been interpreted as a stock not meeting its conservation objective for three consecutive years.</li> <li>• MFMT will be specified for each stock as not meeting its conservation objective annually.</li> <li>• MFMT will be specified for each stock as not meeting its conservation objective for three consecutive years.</li> <li>• MFMT will be specified for each stock as the level of fishing mortality (F), on an annual basis, above which overfishing is occurring, and will be expressed as a single number (a fishing mortality rate or F value), and/or as a function of spawning biomass.</li> <li>• MFMT will be specified for each stock as the level of fishing mortality (F), on an annual basis, above which overfishing is occurring, and will be expressed as ... (a measure of reproductive potential).</li> <li>• Other?</li> </ul>

	<ul style="list-style-type: none"> <li>• For ESA listed stocks in the FMP, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and specification of all MSA-required reference points will be deferred until such time that the stocks are de-listed; in the interim, ESA consultation standards will be used to ensure the stocks’ conservation and management.</li> <li>• For hatchery stocks as defined in FMP Table 3-1, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and <i>hatchery goals</i> will serve as the conservation objective, but these stocks will not be subject to requirements for specification of MFMT.</li> </ul>
<p><b>SDC for overfished:</b> <b>MSST<sup>2</sup></b></p>	<ul style="list-style-type: none"> <li>• Status quo: Currently not formally specified, but has recently been interpreted as a stock not meeting its conservation objective for three consecutive years.</li> <li>• MSST will be specified for each stock as not meeting its conservation objective for three consecutive years.</li> <li>• MSST will be specified for each stock as ½ of its B<sub>MSY</sub> or B<sub>MSY</sub> proxy annually.</li> <li>• MSST will be specified for each stock as not meeting ½ of its B<sub>MSY</sub> or B<sub>MSY</sub> proxy for three consecutive years.</li> <li>• MSST will be specified for each stock as three year average of 2/3 of its B<sub>MSY</sub> or B<sub>MSY</sub> proxy annually.</li> <li>• MSST will be specified for each stock as three consecutive years not meeting its conservation objective and experiencing a significant downward trend.</li> <li>• Other? (any options where the time would be different for Chinook vs. coho?)</li> <li>• For ESA listed stocks in the FMP, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and specification of all MSA-required reference points will be deferred until such time that the stocks are de-listed; in the interim, ESA consultation standards will be used to ensure the stocks’ conservation and management.</li> <li>• For hatchery stocks as defined in FMP Table 3-1, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and <i>hatchery goals</i> will serve as the conservation objective, but these stocks will not be subject to requirements for status determination criteria for overfished and specification of MSST.</li> <li>• Others?</li> </ul>
<p><b>Conservation Objective<sup>5</sup></b></p>	<ul style="list-style-type: none"> <li>• Status quo: The conservation objective is a currently specified for each stock based on MSY, MSP, and/or F<sub>MSY</sub> and is used for constraining harvest and SDC.</li> <li>• The conservation objective will be specified for each stock based on a stock’s MSY or MSY proxy or MSP (??).</li> <li>• The conservation objective will be specified for each stock based on a stock’s ABC.</li> <li>• The conservation objective will be specified for each stock based on a stock’s ACL.</li> <li>• The conservation objective will be specified for each stock based on the stock complex’s ACL.</li> <li>• For ESA listed stocks in the FMP, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and ESA consultation standards will serve as the conservation objective.</li> <li>• For hatchery stocks as defined in FMP Table 3-1, the “flexibility provision” of the NS1 Guidelines (600.310 (h)(3)) will be utilized and <i>hatchery goals</i> will serve as the conservation objective, but these stocks will not be subject to requirements for reference points ... .</li> <li>• Others?</li> </ul>

### III. Annual Catch Limits (ACLs) <sup>4</sup>

ACLs: Potential Alternatives	
<b>Stocks subject to the MSA <u>annual life cycles</u> exception</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Stocks managed under an <u>international</u> agreement to which the U.S. is a party, thus proposed to be subject to the MSA <u>international</u> exception.</b>	<ul style="list-style-type: none"> <li>• PST Chinook stocks</li> <li>• PST coho stocks</li> <li>• Canadian Chinook stocks</li> <li>• Canadian coho stocks</li> </ul>
<b>ACLs will likely be specified:</b>	<ul style="list-style-type: none"> <li>• Annually</li> </ul>
<b>Potential for the stocks' or complexes' to be subdivided into sector-ACLs (e.g. commercial and recreational fishing sectors)</b>	<ul style="list-style-type: none"> <li>• Non-Indian commercial, recreational</li> <li>• Quota transfers allowed or not allowed between sector ACL?</li> </ul>
<b>Potential for the stocks' or complexes' ACLs to be subdivided into Federal, state, and/or tribal sub-ACLs</b>	<ul style="list-style-type: none"> <li>• Treaty Indian, Non-Indian</li> <li>• North of Cape Falcon, South of Cape Falcon</li> <li>•</li> </ul>

### V. Accountability Measures (AMs) <sup>4</sup>

AMs: Potential Alternatives	
<b>AM-like measures currently in the FMP that are potential 'inseason AMs'</b>	<ul style="list-style-type: none"> <li>• Status quo: there are no measures identified currently as "AMs" however, the following meet the definition of an inseason AM: <ul style="list-style-type: none"> <li>○ (e.g., include, but are not limited to: ACT; closure of a fishery; closure of specific areas; changes in gear; changes in trip size or bag limits; reductions in effort; or other appropriate management controls for the fishery)</li> </ul> </li> <li>• <i>[From those identified above, propose to classify them as inseason AMs.... Has to apply to all stocks, not just some.]</i></li> <li>• Others?</li> </ul>

<b>Potential “post-season” AMs, applied when the ACL is exceeded</b>	<ul style="list-style-type: none"> <li>• Status quo: there are no measures identified currently as “AMs” however, the following meet the definition of a postseason AM <ul style="list-style-type: none"> <li>○ Annual SAFE document</li> <li>○ Overfishing concern assessment</li> <li>○ Conservation alert assessment</li> <li>○ EFH assessment</li> <li>○ Notice to state/tribal managers</li> <li>○ Methodology review</li> </ul> </li> </ul>
<b>Potential for an ACT to be specified to prevent exceeding the ACL</b>	<ul style="list-style-type: none"> <li>• Status quo: No ACT is currently specified or used. Inseason quota tracking uses buffer for soft data to incorporate management uncertainty and prevent exceeding quotas.</li> <li>• Specify an ACT for the stock complexes’ with ACLs.</li> </ul>
<b>Potential ways to incorporate management uncertainty</b>	<ul style="list-style-type: none"> <li>• Status quo: Managing for the weak stocks results in harvest limits for most stocks that are set below their conservation objective, thus adding a layer of protection. For the weakest stocks, however ... (how is mgt uncertainty incorporated for the weakest?)</li> <li>• Account for management uncertainty only for the weakest stock that is the limiting factor for the fishery.</li> <li>• Other?</li> </ul>
<b>The FMP currently gives NMFS the ability to close the fishery inseason if it determines closure of the fishery is necessary to prevent overfishing.</b>	<ul style="list-style-type: none"> <li>• Status quo: Yes</li> <li>•</li> </ul>

## VI. Updating Specific Stocks’ Conservation Objectives

Specific Conservation Objectives: Potential Alternatives	
<b>Klamath River Fall Chinook</b>	<ul style="list-style-type: none"> <li>• Status quo: &lt; 66-67% spawner reduction rate with 35,000 adult natural area spawner floor.</li> <li>• Spawner floor of 40,700</li> <li>• <math>B_{MSY} = 40,700</math></li> </ul>
<b>Oregon Coast Chinook</b>	<ul style="list-style-type: none"> <li>• Status quo: 60-90 adult natural spawners per mile</li> <li>• Spawning escapement objectives for three components</li> </ul>
<b>Columbia Upriver Bright fall Chinook</b>	<ul style="list-style-type: none"> <li>• Status quo: 40,000 natural adult bright adults above McNary Dam</li> <li>• 60,000 natural adult bright adults above McNary Dam</li> </ul>
<b>Columbia Upriver Summer Chinook</b>	<ul style="list-style-type: none"> <li>• Status quo: 80,000-90,000 adults above Bonneville Dam</li> <li>• 29,300 adults inriver run size</li> </ul>
<b>Willapa Bay Natural Fall Chinook</b>	<ul style="list-style-type: none"> <li>• Status quo: Undetermined</li> <li>• 4,400 (WDFW goal)</li> </ul>

<b>Oregon Coastal Natural coho</b>	<ul style="list-style-type: none"> <li>• Status quo: Amendment 13 exploitation rate matrix</li> <li>• OCN workgroup matrix</li> </ul>
<b>Willapa Bay Natural Coho</b>	<ul style="list-style-type: none"> <li>• Status quo: not an FMP stock</li> <li>• 13,090 (WDFW goal)</li> </ul>
<b>Washington North Coastal Coho</b>	<ul style="list-style-type: none"> <li>• Status quo: Hoh v. Baldrige spawning escapement</li> <li>• PST exploitation rate matrix</li> </ul>
<b>Puget Sound Coho</b>	<ul style="list-style-type: none"> <li>• Status quo: PSSMP spawning escapement</li> <li>• PST exploitation rate matrix</li> <li>• Comprehensive coho agreement?</li> </ul>

## VI. De Minimis Fishing Provisions

De minimis fishing provisions: Potential Alternatives	
<b>Stock Specific</b>	<ul style="list-style-type: none"> <li>• Status quo - OCN: Conservation objective based on exploitation rate matrix</li> <li>• Status quo - KRFC: &lt; 10% age-4 ocean exploitation rate; exception to conservation alert only.</li> <li>• ?Update conservation objectives using exploitation rates</li> <li>• MSE</li> </ul>
<b>Blanket</b>	<ul style="list-style-type: none"> <li>• Status quo - Puget Sound coho, North Washington coast coho and Chinook: Annual co-manager agreement; exception to conservation alert only.</li> <li>• Status quo - Far north migrating Chinook: &lt;5% base period exploitation rate; excepted from FMP overfishing criteria (overfishing concern and conservation alert)</li> <li>• ?&lt;X% AEQ exploitation rate in Council area fisheries</li> <li>• ?&gt;X% of <math>B_{MSY}</math> projected abundance</li> </ul>

## Appendix A

### Exploitation rate control rules for salmon stocks under the current Salmon FMP

The conservation objectives in the Salmon FMP can be classified into 4 basic types of exploitation rate control rules, which prescribe an allowable maximum exploitation rate on the basis of the forecast abundance of the stock. The four types of control rules include: 1) constant escapement, 2) escapement range, 3) escapement rate with a floor, and 4) stepped, or tiered, exploitation rate. While all of these types of control rules may, or may not allow some fishing opportunity at low stock levels (*de minimis* fisheries), the escapement range goal for Sacramento River fall Chinook is the only conservation objective in the salmon FMP that does not currently allow *de minimis* fisheries.

#### Constant Escapement

Constant escapement policies, or fixed escapement goals are currently in place for Grays Harbor spring and fall Chinook, Grays Harbor coho, Quillayute spring/summer Chinook, Hoko summer/fall Chinook, Puget Sound Chinook and coho stocks, and virtually all Columbia Basin stocks except for Willamette Spring Chinook and lower Columbia natural coho. The objectives of all hatchery stocks also fall into this category. Under a constant escapement policy, the allowable exploitation rate is defined by:

$$ER = \max[0, (PS-EG)/PS]$$

Where  $ER$  is the maximum allowable harvest rate,  $PS$  is the forecast number of potential spawners in the absence of fishing, and  $EG$  is the escapement goal. Under this control rule, all potential spawners in excess of the escapement goal may be harvested (Figure 1).

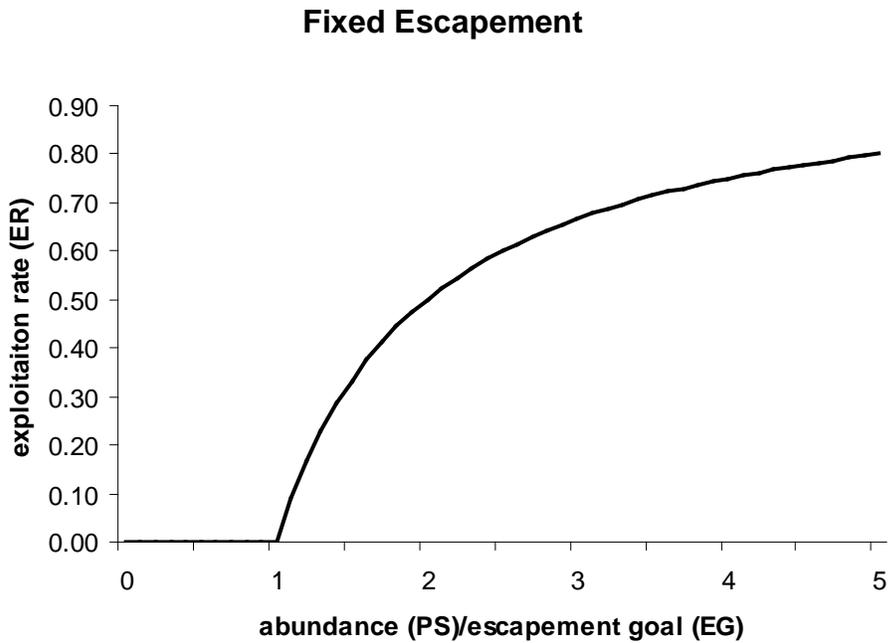


Figure 1. Exploitation rate control rule for a fixed escapement goal policy.

While the control rule dictates zero harvest when the spawning potential of the stock is forecast to be less than the escapement goal, all stocks in the FMP with fixed escapement goals either fall into one of the three exceptions to Council actions to prevent overfishing (hatchery stocks, ESA listed stocks, and stocks with minimal impacts in Council area fisheries), or are subject to a US District Court decision allowing state and tribal co-managers to agree to an annual target less than the escapement goal of record. Thus unspecified *de minimis* fisheries are allowed on all Council stocks with fixed escapement goals.

### Escapement Range

Escapement range goals are comparable to fixed escapement goals except that the goal has an upper limit (Figure 2). Escapement range goals are in place for Sacramento River fall Chinook, Oregon coastal Chinook, Willamette spring Chinook, Queets coho, Hoh coho, and Quillayute fall coho.

The control rule for an escapement range goal is described by:

$$\max[0, (PS-UEG)/PS] \leq ER \leq \max[0, (PS-LEG)/PS]$$

where *UEG* is the upper limit of the range and *LEG* is the lower limit of the range.

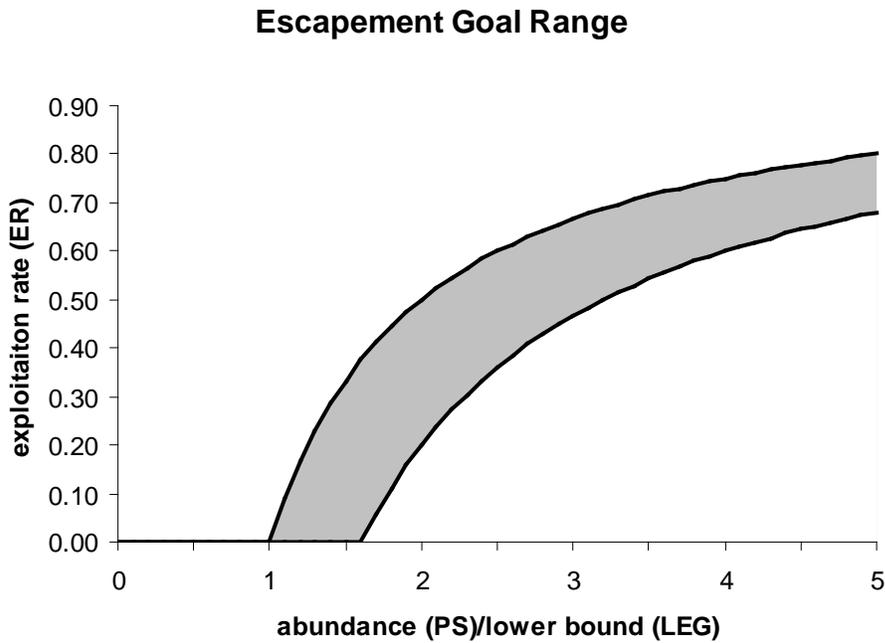


Figure 2. Exploitation rate control rule for an escapement range goal. All exploitation rates within the shaded area are permitted.

In practice, because the FMP does contain any consequences for exceeding the upper bound of the escapement goal, this policy is functionally equivalent to a constant escapement goal policy with the goal set at the lower bound of the range.

Of the stocks with escapement range goals, only Sacramento River fall Chinook do not have a provision in the FMP to allow for *de minimis* fisheries. The FMP allows state and tribal co-managers to agree to an annual target less than the escapement goal range for Washington coastal coho stocks, and Willamette spring Chinook are ESA listed, and subject to the exploitation rate exception to Council actions to prevent overfishing.

### Exploitation Rate with Escapement Floor

Stocks with this conservation goal policy include Klamath River fall Chinook, and most of the Washington coastal Chinook stocks (Queets fall, Queets spring/summer, Hoh fall, Hoh spring/summer, and Quillayute fall). In theory, the intent of this policy is to manage for a constant exploitation rate, but not let the escapement fall below a specified minimum value. In practice, this policy is essentially the same as the constant escapement except that the maximum allowable exploitation rate is specified in the FMP:

$$ER = \max\{0, \min[(PS-EF)/PS, MaxER]\}$$

where  $EF$  is the escapement floor and  $MaxER$  is the target exploitation rate when the escapement floor is not a constraint.

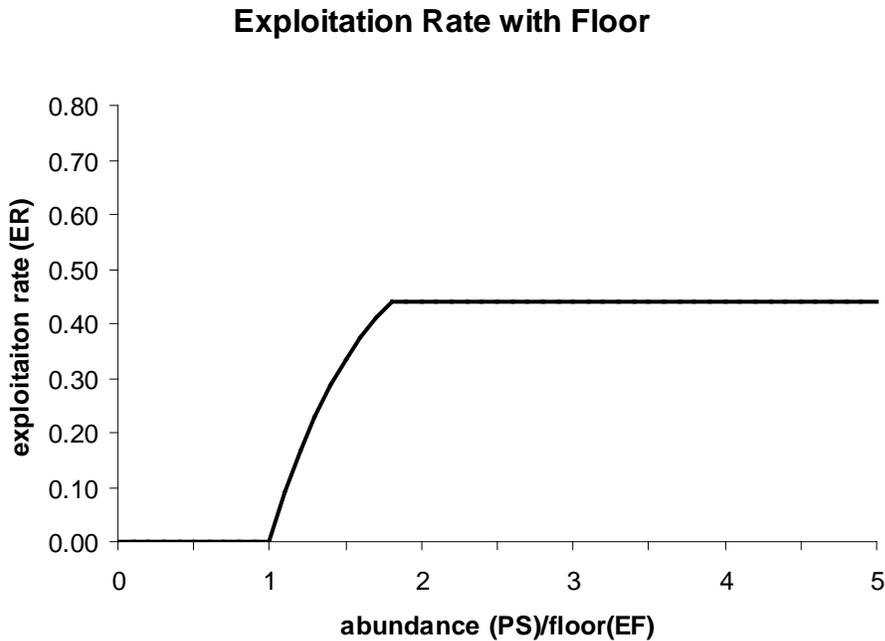


Figure 3. Exploitation rate control rule for a fixed rate policy with escapement floor.

The FMP allows state and tribal co-managers to agree to an annual escapement target less than the floor for Washington coastal stocks with exploitation rate policies with an escapement floor, so unspecified *de minimis* fisheries are allowed for these stocks. Amendment 15 to the salmon FMP establishes a special case of this policy for Klamath River fall Chinook.

The policy for KRFC is to target a spawner reduction rate (equivalent to an exploitation rate) of 0.66 to 0.67 on average, with an escapement floor of 35,000 natural area adult spawners. If spawning escapement is projected to be less than 35,000 natural area adult spawners, *de minimis* fisheries are permitted with an age-4 ocean impact rate not to exceed 0.10. If the spawning escapement is projected to be less than 22,000 natural area adult spawners under this *de minimis* fishing regime, further unspecified reductions in fisheries are required. This 0.10 age-4 ocean impact rate translates into a spawner reduction rate of approximately 0.25 (Figure 4).

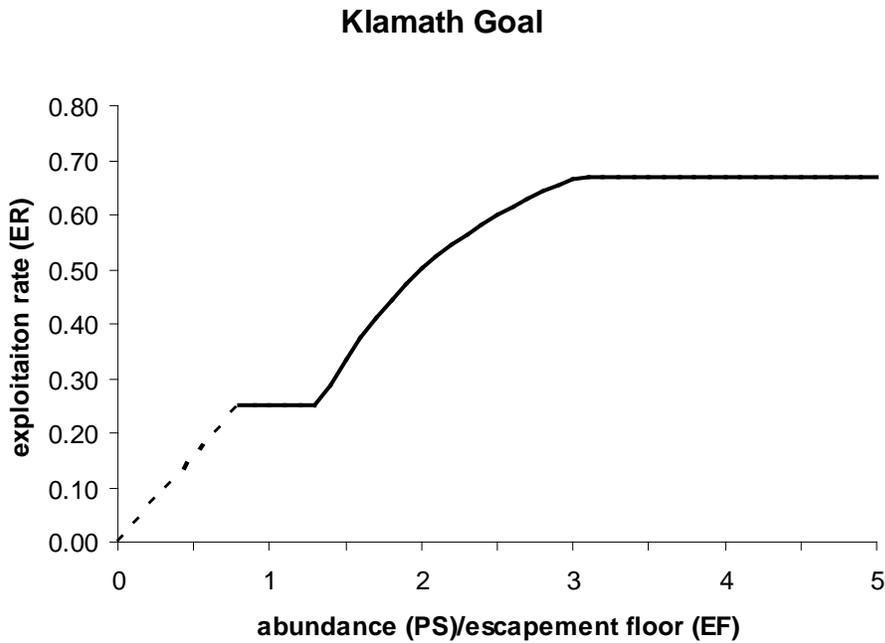


Figure 4. Exploitation rate control rule for Klamath River fall Chinook established by Amendment 15. The dashed line represents unspecified reductions in harvest impacts.

### Tiered Exploitation Rate

Tiered exploitation rates prescribe a maximum allowable exploitation rate on the basis of abundance categories or bins. Only one stock in the FMP (Oregon coast natural coho) currently has a tiered exploitation rate policy as a conservation objective, and it is excepted from Council action to prevent overfishing by virtue of being listed under the Endangered Species Act. However, Puget Sound coho stocks are currently being managed with a tiered exploitation rate policy under the coho Chapter of the Pacific Salmon Treaty. Under this policy each stock is classified into abundance categories of “critical”, “low” and “normal”. Maximum allowable exploitation rates have been identified for each abundance category on the basis of a productivity analysis for each stock. The maximum allowable exploitation rate in each year is determined by which category the stock abundance is projected to fall into that year (Figure 5). Further reductions in exploitation rates may be required based on the number of stocks within each management unit that fall into the “critical” category. This policy specifically permits *de minimis* fishery impacts on stocks that fall into the “critical” category.

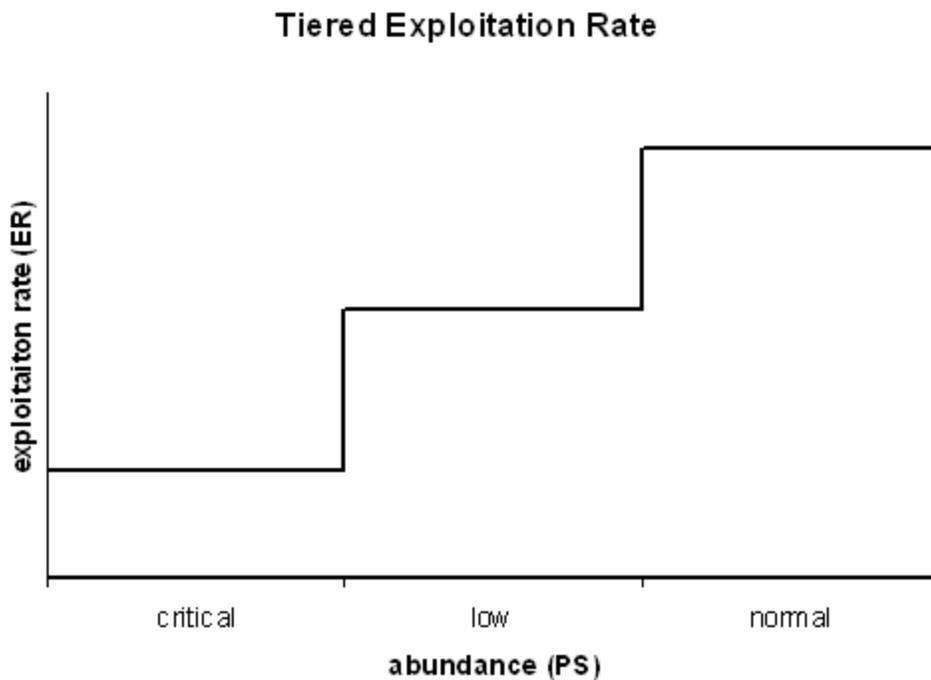


Figure 5. Tiered exploitation rate control rule in effect for Puget Sound coho stocks under the Pacific Salmon Treaty.

A special case of this policy is in effect for Oregon coast natural (OCN) coho. Though OCN coho are exempted from Council action to prevent overfishing, the FMP conservation objective has been adopted by NMFS as their ESA consultation standard. Under this policy, maximum allowable exploitation rates are prescribed on the basis of the actual escapement of spawners in the brood year of the vulnerable cohort, and a survival index based on the return rate of hatchery jacks in the prior year (Figure 6).

A similar matrix approach was developed for lower Columbia River natural coho, and serves as the basis for NMFS Endangered Species Act consultation standard. It constrains the Council's management of ocean fisheries in some years, but is not part of the FMP. A more complex version of the OCN harvest matrix, which includes lower exploitation rates at low abundance and higher exploitation rates at high abundance, was developed by the OCN review group in 2000. This modified matrix was accepted by the Council and has served as NMFS ESA guidance since 2001, but is not part of the FMP.

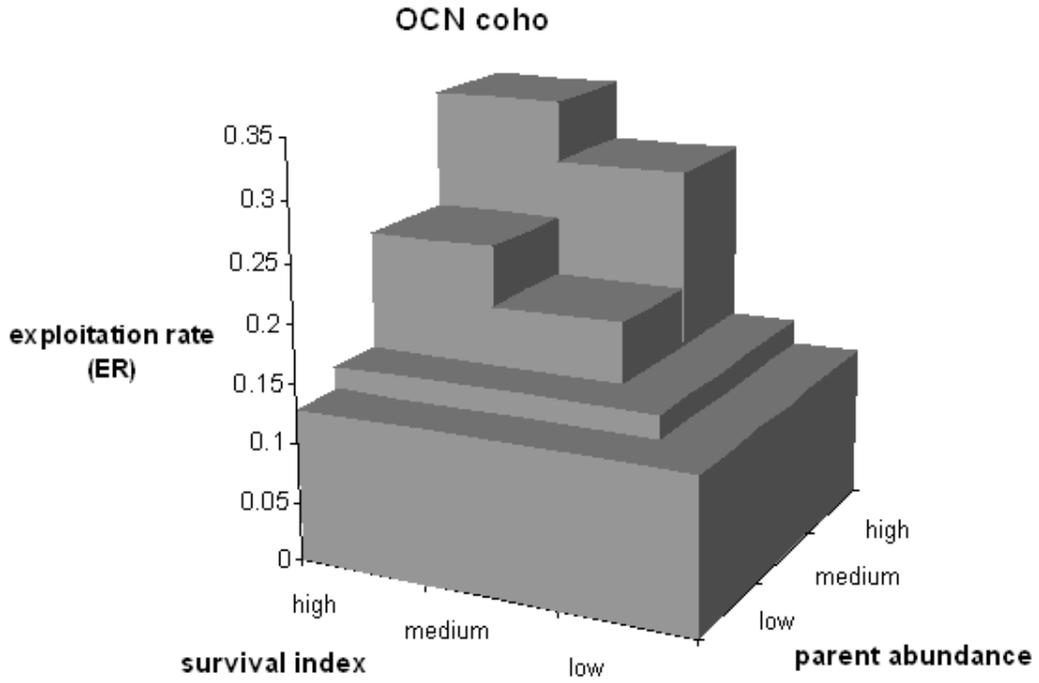


Figure 6. Exploitation rate control rule for Oregon coast natural coho. The maximum allowed exploitation rate ranges from 15% to 35% depending on the abundance of spawners in the parent brood and a survival index based on the return rate of hatchery jacks. At extremely low levels of parent abundance or survival index, the maximum rate is capped at 10-13%.