

## **1.0 INTRODUCTION**

This document has been prepared by the staff of the Pacific Fishery Management Council (Council) and the Salmon Technical Team (STT) to describe the Council's proposed ocean salmon management options for 2009 and characterize their expected impacts on ocean salmon fisheries and the stocks which support them. The Council solicits public comments on the proposed management options in preparation for adopting final management recommendations at its April meeting. This report is analogous to a draft National Environmental Policy Act (NEPA) analysis of a range of alternatives for 2009 ocean salmon management measures.

Oral and written comments may be presented at public hearings at the times and locations displayed on the inside front cover of this report. Additional comment will be accepted at the April Council meeting at the Westin San Francisco Airport, Millbrae, California. Written comments received at the Council office by March 30, 2009 will be copied and distributed to all Council members (Council staff cannot assure distribution of comments received after March 31).

## **2.0 SELECTION OF FINAL MANAGEMENT MEASURES**

The Council's final ocean salmon season recommendations will be based on the range of options presented in this report and guidance received from deliberations at management fora such as the north of Cape Falcon planning process - sponsored by the States of Washington and Oregon and the treaty Indian tribes in that area, and from public hearings sponsored by the Council and the States of Washington, Oregon, and California. Final recommendations concerning season dates, catch quotas, and exploitation rates may vary from the range of options presented in this report depending upon determination of allocations, allowable harvest levels, public comment, or the final impact analyses completed by the STT. Elements of the options may be recombined to alter season patterns; measures such as bag limits, days of fishing per week, special landing restrictions, and other specific regulatory details may also change. In addition, inseason modification of management measures may be used to ensure achievement of the Council's management objectives.

Specific details pertaining to season structure and special regulations for the treaty Indian troll fishery north of Cape Falcon are established in tribal regulations. Chinook and coho quota levels for the treaty Indian troll fishery may be adjusted if significant changes in incidental fishing mortality result from tribal regulations, preseason or inseason.

The impact analyses presented in this document reflect uncertainties and limitations of information available at the time of the March 2009 Council meeting. At this point in the planning cycle, the STT's impact assessments reflect four key assumptions relative to stocks impacted by Canadian and Alaskan fisheries: (1) abundance levels for Canadian Chinook and coho stocks identical to 2008 forecasts; (2) 2009 catch levels for southeast Alaskan, north-central British Columbia, and West Coast Vancouver Island (WCVI) fisheries equal to 2008 catch ceilings established under the aggregate abundance based management (AABM) provisions of the 1999 Pacific Salmon Treaty (PST) Agreement (WCVI outside sport catch assumed to equal the 2008 observed level), reduced from 2008 in accordance with the 2009 Chinook Annex to the PST, with minimum size limits identical to those in place for 2008; (3) 2008 observed catch levels and size limits for Canadian fisheries operating under individual stock based management (ISBM) regimes pursuant to the 1999 PST agreement; and (4) base packages for management of southern U.S. inside fisheries. In mid-March, U.S. and Canadian fishery managers will exchange information regarding preseason expectations for fisheries and the status of Chinook and coho stocks. Following this exchange, the Pacific Salmon Commission's (PSC's) Chinook model will be calibrated by the PSC Chinook Technical Committee to determine the allowable catch ceilings under the 2009 PST agreement. Abundances and fishery expectations will be adjusted in the Council's fishery planning models, and inside fisheries will be shaped by state and tribal co-managers. The adjustments of

stock abundances and fishery expectations, and the shaping of inside fisheries, may result in estimated stock impacts that differ from those presented in this report. The final regulations adopted by the Council in April are intended to be consistent with Council's salmon fishery management plan (FMP) objectives, guidance provided by the National Marine Fisheries Service (NMFS), obligations under the PST, and other applicable law.

### **3.0 SALMON TECHNICAL TEAM CONCERNS**

#### **3.1 *Oregon Coastal Chinook***

The STT does not make a quantitative forecast of the Oregon coast fall Chinook. In the past, the STT has relied on an increasing trend in escapement, and the fact that the stock consistently met or exceeded its goal for many years, to justify an expectation that the stock would continue meet its conservation objective. The escapement index for north migrating Oregon coast fall Chinook has declined sharply for the past four years and the stocks failed to meet their post-season escapement goal in 2007 and 2008.

#### **3.2 *Need for Landing Requirements***

The STT recommends that landing restrictions be employed to require landings within the area where the fish are caught. Unless such restrictions are adopted, fleet mobility increases the difficulty of inseason management, catch accountability, and collection of biological data such as genetic stock identification (GSI) samples or coded-wire-tag (CWT) recoveries.

### **4.0 SALMON FISHERY MANAGEMENT PLAN REQUIREMENTS**

The Council's Salmon FMP includes objectives for setting annual management measures to regulate ocean salmon fisheries between the U.S./Canada border and the U.S./Mexico border. The objectives include biological, administrative, and allocation requirements. In recommending final management measures, the Council attempts to meet all objectives in a fair and balanced manner, while maintaining established priorities.

Biological objectives for stocks originating in the Council area or impacted by Council area ocean fisheries are listed in Table 3-1 of the Salmon FMP. The objectives generally consist of meeting spawning escapement numbers associated with maximum sustainable yield (MSY), or exploitation rate limits designed to support recovery of depressed stocks while encompassing a long term average harvest approximating MSY.

Biological objectives can be modified through formal plan amendment, technical amendment, or regulatory amendment. For the 2009 management measures, an additional management objective for KRFC has been proposed by regulatory amendment. The current KRFC conservation objective requires a spawner reduction rate of no more than 67 percent and a minimum of 35,000 adults spawning in natural areas. The proposed regulatory amendment would require a minimum natural area spawning escapement of 40,700 adult KRFC as a pre-season management objective in 2009 and 2010, and possibly beyond. This proposal resulted from a rebuilding plan adopted by the Council after KRFC triggered an Overfishing Concern by failing to meet the 35,000 natural area adult spawner objective in 2004, 2005, and 2006.

Administrative objectives are requirements for meeting other applicable law outside of the Salmon FMP. These requirements include ESA consultation standards, international treaties, and tribal trust responsibilities. The Salmon FMP defers to NMFS consultation standards for salmon stocks listed under the ESA in regards to biological conservation objectives. The Council considers the ESA requirements sufficient to meet the intent of FMP conservation objectives for the annual management measures as well as the Magnuson-Stevens Act (MSA) overfishing provisions requiring rebuilding of depressed stocks to

MSY levels. Section 5.0 of this document provides greater detail on ESA listed stocks, while impacts of the Council adopted salmon management measures on ESA listed stocks are included in Table 5.

The Salmon FMP requires compliance with relevant terms of the PST. Section 6.0 of this document provides greater detail on PST provisions and stocks, while impacts of the Council adopted salmon management measures on those stocks are included in Table 5.

Treaty trust responsibilities of the Salmon FMP require the Council to abide by Court orders in the *U.S. v. Washington* (Puget Sound), *Hoh v. Baldrige* (Washington coast), and *U.S. v. Oregon* (Columbia River) cases, and the Solicitor General opinion (Klamath River) governing allocation and management of shared salmon resources. Much of the North of Falcon forum is dedicated to annual negotiations establishing allocation among the tribes, non-Indian fishing sectors, and ocean and inside interests. The results of these negotiations allow the Council to complete final management measure recommendations while meeting its biological, administrative, and allocation objectives. Among the annual agreements reached by the co-managers in the North of Falcon forum are conservation objectives for Puget Sound and Washington coastal stocks. These objectives can supersede the Salmon FMP conservation objectives for annual management measures and for Council action when a Conservation Alert is triggered; however, they cannot be used in place of the FMP objectives for determination of an Overfishing Concern; nor can they supersede ESA consultation standards. In recent years, the annual agreed to conservation objectives for Puget Sound and Washington coastal coho have been based on the comprehensive coho agreement.

The Columbia River treaty tribes establish periodic management agreements with the state co-managers and Federal agencies. These agreements are approved pursuant to provisions of *U.S. v. Oregon* procedures. Recent agreements have included an entitlement for the treaty tribes of 50 percent of the coho return destined for areas upstream from Bonneville Dam. Council area fisheries are shaped in order to meet this requirement in some years.

The Yurok and Hoopa Valley tribes are entitled to up to 50 percent of the harvest of KRFC, which is calculated as a harvest of KRFC equal to that taken in all non-Indian fisheries. The Council must account for all harvest impacts when assessing the achievement of KRFC conservation objectives.

In addition to the allocation objectives associated with sharing between treaty Indian and non-Indian sectors, the Salmon FMP includes formulas for sharing Chinook and coho quotas north of Cape Falcon between commercial and recreational sectors, and among recreational port areas, and for coho south of Cape Falcon between commercial and recreational sectors. Options for the 2009 salmon management measures adopted by the Council meet the allocation requirements for fisheries north of Cape Falcon in the Salmon FMP. The allocation provisions for the area south of Cape Falcon are also met, although the available coho impacts are less than the minimum required for distribution of directed harvest to the commercial sector. The Salmon FMP allows flexibility to provide some directed harvest to the commercial sector during the annual preseason process.

## 5.0 SPECIES LISTED UNDER THE ENDANGERED SPECIES ACT

Since 1989, NMFS listed the following 17 Evolutionarily Significant Units (ESUs) of salmon under the ESA:

Species	ESU	Status	Federal Register Notice
Chinook Salmon ( <i>O. tshawytscha</i> )	Sacramento River Winter	Endangered	70 FR 37160 6/28/05
	Snake River Fall	Threatened	70 FR 37160 6/28/05
	Snake River Spring/Summer	Threatened	70 FR 37160 6/28/05
	Puget Sound	Threatened	70 FR 37160 6/28/05
	Lower Columbia River	Threatened	70 FR 37160 6/28/05
	Upper Willamette River	Threatened	70 FR 37160 6/28/05
	Upper Columbia River Spring	Endangered	70 FR 37160 6/28/05
	Central Valley Spring	Threatened	70 FR 37160 6/28/05
	California Coastal	Threatened	70 FR 37160 6/28/05
Chum Salmon ( <i>O. keta</i> )	Hood Canal Summer-Run	Threatened	70 FR 37160 6/28/05
	Columbia River	Threatened	70 FR 37160 6/28/05
Coho Salmon ( <i>O. kisutch</i> )	Central California Coastal	Endangered	70 FR 37160 6/28/05
	S. Oregon/ N. California Coastal	Threatened	70 FR 37160 6/28/05
	Oregon Coastal	Threatened	73 FR 7816 2/11/08
	Lower Columbia River	Threatened	70 FR 37160 6/28/05
Sockeye Salmon ( <i>O. nerka</i> )	Snake River	Endangered	70 FR 37160 6/28/05
	Ozette Lake	Threatened	70 FR 37160 6/28/05

As the listings have occurred, NMFS has initiated formal consultations and issued biological opinions (BOs) that consider the impacts resulting from implementation of the Salmon FMP, or from annual management measures, to listed salmonid species. NMFS has also reinitiated consultation on certain ESUs when new information has become available on the status of the stocks or on the impacts of the Salmon FMP on the stocks. The consultation standards referred to in this document include (1) reasonable and prudent alternatives, (2) conservation objectives for which NMFS conducted Section 7 consultations and arrived at a no-jeopardy conclusion, and (3) NMFS requirements under Section 4(d) determinations. A list of current BOs in effect, the species they apply to, and their duration follows:

Date	Evolutionarily Significant Unit covered and effective period
March 8, 1996	Snake River Chinook and sockeye (until reinitiated)
April 28, 1999	Oregon Coastal natural coho, Southern Oregon/ Northern California coastal coho, Central California coastal coho (until reinitiated)
April 28, 2000	Central Valley spring Chinook (until reinitiated)
April 27, 2001	Hood Canal summer chum 4(d) limit (until reinitiated)
April 30, 2001	Upper Willamette Chinook, Upper Columbia spring Chinook, Lake Ozette sockeye, ten steelhead ESUs and Columbia River chum (until reinitiated)
April 27, 2004	Sacramento River winter Chinook (April 30, 2010)
March 4, 2005	Puget Sound Chinook (April 30, 2010)
June 13, 2005	California coastal Chinook (until reinitiated)
Expected Prior to May 1, 2009	Lower Columbia River natural coho, Lower Columbia River Chinook

Amendment 12 to the Salmon FMP added the generic category “species listed under the ESA” to the list of stocks in the salmon management unit and modified respective escapement goals to include “manage consistent with NMFS jeopardy standards or recovery plans to meet immediate conservation needs and

long-term recovery of the species”. Amendment 14 specified those listed ESUs and clarified which stocks in the FMP management unit were representative of the ESUs.

NMFS, in a letter received by the Council on March 3, 2009, provided guidance on protective measures for species listed under the ESA during the 2009 fishing season. The letter summarized the requirements of NMFS’ BOs on the effects of potential actions under the salmon FMP on listed salmon and provided the anticipated consultation standards of the BOs in preparation for the 2009 management season, as well as further guidance and recommendations for the 2009 management season.

The ESA consultation standards, exploitation rates, and other criteria in place for the 2009 management season are presented in Table 5. Some listed stocks are either rarely caught in Council fisheries (e.g., spring Chinook from the upper Columbia River) or already receive sufficient protection from other salmon FMP and ESA standards (e.g., Central Valley spring Chinook). NMFS has determined that management actions designed to limit catch from these ESUs, beyond what will be provided by harvest constraints for other stocks, are not necessary.

Of the listed Chinook and coho, Council-managed fisheries have a significant impact on Sacramento River winter Chinook, Central Valley spring Chinook, California Coastal Chinook, Snake River wild (SRW) fall Chinook, lower Columbia River (LCR) fall Chinook, and all of the coho stocks. Additional listed salmonid ESUs found within the Council area, but not significantly impacted by Council managed fisheries, include:

Chinook

- |  |  |
|--|--|
| Snake River spring/summer (threatened) | Puget Sound (threatened)                 |
| Upper Willamette (threatened)          | Upper Columbia River spring (endangered) |

Sockeye

- |                          |                                  |
|--------------------------|----------------------------------|
| Snake River (endangered) | Ozette Lake Sockeye (threatened) |
|--------------------------|----------------------------------|

Chum

- |                             |                                |
|-----------------------------|--------------------------------|
| Columbia River (threatened) | Hood Canal summer (threatened) |
|-----------------------------|--------------------------------|

Steelhead

- |   |   |
|---|---|
| Southern California (endangered)            | Central Valley, California (threatened) |
| South-central California coast (threatened) | Central California coast (threatened)   |
| Upper Columbia River (endangered)           | Upper Willamette River (threatened)     |
| Middle Columbia River (threatened)          | Lower Columbia River (threatened)       |
| Snake River Basin (threatened)              | Northern California (threatened)        |

## 6.0 OBLIGATIONS UNDER THE PACIFIC SALMON TREATY

### 6.1 Chinook Salmon Management

A new agreement under the Pacific Salmon Treaty was negotiated in 2008 and formally accepted by both the U.S. and Canada in December of 2008. This new agreement took effect on January 1, 2009, and includes 30 percent reductions in the catch ceilings for aggregate abundance based management (AABM) fisheries off the West Coast Vancouver Island, and in Northern British Columbia, and a 15 percent reduction in the catch ceilings for AABM fisheries in Southeast Alaska Chinook relative to the catch ceilings in effect for these fisheries since 1999. Under the terms of the 2008 agreement, Council fisheries for Chinook salmon continue to be subject to the individual stock based management (ISBM) provisions of Annex 4, Chapter 3, adopted in 1999. These provisions require the AEQ exploitation rate by all U.S.

fisheries south of the U.S./Canada border be reduced by 40 percent from the 1979-1982 base period for Chinook stocks failing to achieve escapement goals adopted by the Pacific Salmon Commission (PSC).

Many Chinook stocks of concern to the Council are affected by fisheries off Canada and Alaska. Maximum allowable catches by aggregate abundance based management (AABM) fishery complexes off the WCVI, Northern British Columbia, and Southeast Alaska are determined through the annual calibration of the PSC Chinook Model. Canadian fisheries that are not included in AABM complexes are managed under ISBM constraints which require a 36.5 percent reduction in AEQ exploitation rates relative to the 1979-1982 base period on Chinook stocks that are not expected to achieve agreed MSY spawning escapement goals. Expectations for Canadian and Alaskan fisheries harvest and stock abundance forecasts are incorporated into Chinook FRAM to estimate total exploitation rate impacts from all marine fisheries (Table 5).

Key considerations for Canadian domestic fishery management for Chinook in 2009 include, (1) meeting domestic conservation obligations for WCVI, Strait of Georgia, and Fraser River stocks; (2) Chinook harvests by native fisheries; and (3) incidental impacts during commercial and native fisheries directed at pink (odd years), sockeye and chum salmon. It is anticipated that the details of the fishery regulatory package off WCVI will be driven by levels of allowable impact on WCVI, Lower Strait of Georgia, and Fraser River Chinook and Interior Fraser (Thompson River) coho.

## 6.2 *Coho Salmon Management*

In 2002, the PSC adopted a management plan for coho salmon originating in Washington and Southern British Columbia river systems. The plan is directed at the conservation of key management units, four from Southern British Columbia (Interior Fraser, Lower Fraser, Strait of Georgia Mainland, and Strait of Georgia Vancouver Island) and nine from Washington (Skagit, Stillaguamish, Snohomish, Hood Canal, Strait of Juan de Fuca, Quillayute, Hoh, Queets, and Grays Harbor). Exploitation rate limits for intercepting fisheries are established for individual management units through formulas specified in the 2002 PSC Coho Plan, and are based on total allowable fishery exploitation rates. Based on preseason abundance forecasts, total allowable exploitation rates for U.S. management units in 2009 are summarized in the table below.

The categorical status of U.S. coho management units is reported to comply with obligations pursuant to the 2002 PSC Southern Coho Agreement. Categorical status is employed by the PST under the 2002 Coho Agreement to indicate general ranges of allowable total exploitation rates for U.S. and Canadian coho management units. Three categories are employed: low (total exploitation rate less than 20 percent), moderate (total exploitation rate 20 percent to 40 percent), and abundant (total exploitation rate greater than 40 percent). For the Puget Sound management units, the 2002 Coho Agreement uses the thresholds and stepped harvest rate goals from the Comprehensive Coho management plan, developed by Washington and the Puget Sound tribes. Actual exploitation rate constraints for Canadian fisheries on U.S. coho management units are determined by formulas that specify sharing of allowable exploitation rates and a “composite rule.” The composite rule adjusts constraints for Canadian fishery exploitation rates based on the number of U.S. management units which fall in a given category. For example, if only one Washington coastal coho management unit is in low status, Canadian fisheries are constrained to a total exploitation rate on that unit of 12 percent; if two or more Washington coastal management units are in low status, the constraint becomes 10 percent. The minimum allowable exploitation rate by Canadian fisheries on U.S. coho management units is 10 percent.

Some confusion may arise from the methods employed to report the categorical status for Washington coastal coho management units. For these units, a range is reported for the allowable exploitation rates based on the relationship between the pre-season abundance forecast and the upper and lower values of

the spawning escapement ranges corresponding to MSY production. Maximum exploitation rates are computed using the lower end of the escapement range and minimum exploitation rates are computed using the upper end of the escapement range. For purposes of reporting the categorical status, an allowable exploitation rate is computed using the mid-point of the MSY escapement range.

U.S. Management Unit	Total Exploitation Rate Constraint <sup>a/</sup>	Categorical Status <sup>b/</sup>
Skagit	35%	Moderate
Stillaguamish	35%	Moderate
Snohomish	40%	Moderate
Hood Canal	65%	Abundant
Strait of Juan de Fuca	40%	Moderate
Quillayute Fall <sup>c/</sup>	18%-67% (43%)	Abundant
Hoh <sup>c/</sup>	47%-79% (63%)	Abundant
Queets <sup>c/</sup>	54%-82% (68%)	Abundant
Grays Harbor	40%	Abundant

a/ Preliminary, total mortality exploitation rate ceilings. Constraints will ultimately be determined through preseason planning processes. For Puget Sound management units, the exploitation rate constraints reflect application of draft Comprehensive Coho rules. For the Quillayute, Hoh, and Queets management units, exploitation rate constraints represent the potential range associated with escapement goal ranges (the values in parentheses reflect the exploitation rate associated with the mid-point of the spawning escapement goal range).

b/ Category titles correspond to the general exploitation rate ranges depicted in paragraph 3(a) of the 2002 PSC Coho Agreement or the exploitation rate status determinations exchanged during the negotiations that culminated in the 2002 Agreement. For Puget Sound management units, the categorical status categories reflect application of draft Comprehensive Coho rules. No formal status classification system has yet been developed for Washington coastal management units; the categorical status levels are based on exploitation rate values depicted in parentheses.

c/ For Washington Coastal coho management units, spawning escapement ranges correspond to estimates for MSY escapements. The exploitation rate ranges for these management units are based on preseason abundance forecasts and the upper and lower ends of the ranges. Maximum exploitation rates are computed using the lower end of the escapement range; minimum exploitation rates are computed using the upper end of the escapement range. The categorical status is determined based on the mid-point of the escapement range. Note that the exploitation rates used to report categorical status do not represent maximum allowable rates for the management units.

Key considerations for Canadian fishery management for coho in 2009 are expected to include, (1) meeting domestic conservation obligations for Interior Fraser (including Thompson River) coho; (2) coho harvests by native fisheries; (3) incidental impacts during commercial and native fisheries directed at Chinook, sockeye, pink, and chum salmon; and (4) the desire to provide increased opportunity for sport fisheries through mark-selective retention regulations. The Canadian fishery regimes affecting coho will be driven by Canadian domestic allowable impacts on the Thompson River component of the Interior Fraser management unit (in previous years, Canadian fisheries were managed so as not to exceed a 3 percent maximum exploitation rate).

The projected status of Canadian coho management units in 2009 indicates continuing concerns for the condition of Interior Fraser coho. The Interior Fraser coho management unit is anticipated to remain in *low* status, resulting in a requirement to constrain the total mortality fishery exploitation rate for all 2009 U.S. fisheries to a maximum of 10.0 percent.

## 7.0 CHINOOK SALMON MANAGEMENT

### 7.1 *South of Cape Falcon*

Prior to 2008, Chinook salmon management south of Cape Falcon was typically predicated on the Central Valley Index (CVI) and KRFC stock abundance forecasts. However, concern over a very low CVI forecast for 2008 led to the development of an abundance forecast and harvest model based specifically on SRFC. The Sacramento Index (SI) abundance forecast and Sacramento Harvest Model (SHM) are confined to the area south of Cape Falcon. The 2009 abundance projections relevant to Chinook harvest management south of Cape Falcon are:

- *SRFC*. The SI forecast is 122,200 SRFC adults. When compared to post-season estimated values of the SI, the forecast value is ranked the second lowest, with only the 2008 value being lower.
- *KRFC*. The age-3 forecast is 474,900 fish, which is above average. In contrast, the age-4 forecast of 25,200 is the lowest on record. The age-5 forecast is 5,600 fish. The 2008 preseason forecast was 31,600 age-3, 157,200 age-4, and 1,900 age-5 fish.
- *Oregon Coastal Chinook*. Quantitative abundance predictions are not made for these stocks for use in annual development of Council area fishery regulations. Qualitative expectations of abundance are based on parental year spawner escapements and hatchery indicator stock data used in the PSC management process.

### 7.1.1 Objectives

Key Chinook salmon management objectives shaping the options south of Cape Falcon are:

- NMFS consultation standards and annual guidance for ESA listed stocks as provided in Section 5.0 above. Relevant stocks for the area south of Cape Falcon include Sacramento River winter Chinook, California Coastal Chinook, SRW fall Chinook, and LCR natural tule Chinook.
- *SRFC*. Hatchery and natural-area spawner escapement goal of 122,000 to 180,000 adults (FMP conservation objective).
- *KRFC*. Natural area spawning escapement of at least 40,700 adults (2009 Council guidance) and spawner reduction rate not to exceed 66.7 percent (FMP conservation objective), 50:50 tribal:non-tribal sharing of adult harvest (Department of Interior Solicitor Opinion).
- *Oregon Coastal Chinook*. An escapement of 150,000 to 200,000 naturally spawning adults represented by 60-90 naturally spawning adults per mile in nine standard index streams (FMP conservation objective).

### 7.1.2 Achievement of Objectives

Fishery quotas under the Options are presented in Table 4. Stock-specific management criteria and their forecast values under the Options are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality under the Options are summarized in Table 6. Table 7 provides a breakdown of impacts by fishery and area for LCR tule Chinook. Appendix A presents tables of SRFC impacts by fishery/time/area under the three options.

- *SRFC*. The SRFC conservation objective of 122,000 to 180,000 adult spawners is met by each of the three Options. However, at the time of publication, the structure of potential recreational Chinook fisheries in the Sacramento River Basin had not been determined by the California Fish and Game Commission, which has jurisdiction over California inriver recreational fisheries. In 2008, a Sacramento River late-fall Chinook target fishery occurred from November 1 through December 31, 2008. In the region of the Sacramento River where this fishery took place, the STT assumes that half the November catch is SRFC, while the other half is Sacramento River late-fall run. The forecast escapement under Option I (Table 5) assumes that 65 SRFC would be harvested in a Sacramento River late-fall run target fishery if it began in late November rather than the November 1 opening that occurred in 2008. However, if the 2008 Sacramento River late-fall run target fishery were to be repeated in 2009, a harvest of 1,200 SRFC would be assumed. Given the 2008 river fishery structure and ocean fisheries described in Option I, the forecast escapement of SRFC adults would be 120,900, which is below the lower end of the conservation objective.

- *Oregon Coastal Chinook.* Council-area fisheries have a minor impact on mid- and north-Oregon coastal Chinook stocks and negligible impacts on most Chinook stocks subject to the 1999 PST Agreement. Stock abundance forecasts for some Canadian stocks, and actual PST landing limits on Canadian fisheries are not presently known. These stock abundance forecasts and PST landings limits will be known prior to the April Council meeting. Constraints on SRFC will minimize Council area fishery impacts to south-Oregon coastal Chinook.

All of the Options for Chinook fisheries south of Cape Falcon satisfy NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives for other relevant stocks listed in Table 5.

## 7.2 North of Cape Falcon

Abundance projections relevant to Chinook harvest management north of Cape Falcon are:

- *Columbia River hatchery tules.* Combined production of Lower River Hatchery (LRH) and Spring Creek Hatchery (SCH) stocks is predicted to be nearly equal to the 2008 preseason expectations. The 2009 LRH forecast abundance is 88,800, up from 59,000 in 2008. The 2009 SCH forecast abundance is 59,300, which is down from the 87,200 forecast in 2008.

### 7.2.1 Objectives

The key Chinook salmon management objectives shaping the options are:

- NMFS consultation standards and annual guidance for ESA listed stocks as provided in Section 5.0 above. Relevant stocks for the area north of Cape Falcon include Columbia Lower River wild fall Chinook, LCR natural tule Chinook, SRW fall Chinook, and Puget Sound natural Chinook.

### 7.2.2 Achievement of Objectives

Fishery quotas under the options are presented in Table 4. Stock-specific management criteria and their forecast values under the Options are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality under the Options are summarized in Table 6. Table 7 provides a breakdown of impacts by fishery and area for LCR tule Chinook.

- *LCR natural tule fall Chinook.* All options result in an exploitation rate below the 38.0 percent consultation standard maximum. LCR tules are the constraining Chinook stock for fisheries north of Cape Falcon in 2009.
- *SRW fall Chinook.* Because LCR tules are much more constraining than SRW fall Chinook this year, SRW Chinook will not constrain ocean fisheries north of Cape Falcon in 2009.
- *Puget Sound Chinook.* Council-area fisheries have a minor impact on ESA-listed Puget Sound Chinook and negligible impacts on most Chinook stocks subject to the 1999 PST Agreement. At this point there appears to be sufficient flexibility within Council and inside area fisheries as a whole to achieve compliance with NMFS consultation standards for the Puget Sound Chinook ESU.

All of the options for Chinook fisheries north of Cape Falcon satisfy NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives for other relevant stocks listed in Table 5.

## 8.0 COHO SALMON MANAGEMENT

Abundance projections relevant to coho harvest management in Council area fisheries:

- *Oregon Coastal Natural (OCN) coho.* The OCN forecast of 211,600 is more than three times the 2008 preseason forecast of 60,000.
- *Oregon Production Index (OPI) Hatchery coho.* The 2009 forecast for hatchery coho from the Columbia River and the coast south of Cape Falcon of 1,073,100 is much larger than the 2008 forecast of 216,100. The Columbia River early coho forecast is 672,700 compared to the 2008 forecast of 110,300 and the Columbia River late coho forecast is 369,700 compared to the 2008 forecast of 86,400.
- *Lower Columbia River Natural (LCN) coho.* The 2009 LCN forecast is 32,700 adults returning to the mouth of the Columbia River, compared to a forecast of 13,400 in 2008.
- *Puget Sound coho.* The forecast for Skagit, Stillaguamish and Snohomish coho are below the FMP conservation objective, assuming fisheries similar to 2008. However these stocks, along with other Puget Sound coho stocks, are subject to the provisions of the 2002 PSC coho agreement and the comprehensive coho agreement, which permits harvest at specified rates based on annual stock status classification.
- *Interior Fraser (Thompson River) coho.* This Canadian stock continues to be depressed, and even with constraints for LCN and OCN coho, this stock will be a management factor in the 2009 ocean coho fisheries north of Cape Falcon.

### 8.1 Objectives

Key coho salmon management objectives shaping the options are:

- NMFS consultation standards and annual guidance for ESA listed stocks as provided in Section 5.0 above. Relevant stocks include Central California Coast coho (south of the Oregon/California border), Southern Oregon/Northern California Coastal (SONCC) coho, OCN coho, and LCN coho. Based on this guidance, the maximum allowable exploitation rates are: a combined marine/freshwater exploitation rate not to exceed 15.0 percent for OCN coho, a combined exploitation rate in Council-area and mainstem Columbia River fisheries not to exceed 20.0 percent for LCN coho, and a marine exploitation rate not to exceed 13.0 percent for Rogue/Klamath hatchery coho, used as a surrogate for the SONCC coho ESU.
- Terms and requirements of the 2002 PSC coho agreement for stocks originating along the Washington coast, Puget Sound, and British Columbia as provided in Section 6.2 above. Relevant stocks for the area north of Cape Falcon in 2009 include Skagit, Stillaguamish, Snohomish, and Upper Fraser coho.
- Minimum escapement of 50 percent of Upper Columbia coho above Bonneville Dam (*U.S. v. Oregon* annual management agreement).
- Providing sufficient escapement of Columbia River early and late coho to meet hatchery egg take goals and inriver harvest objectives.

## 8.2 Achievement of Objectives

Fishery quotas under the options are presented in Table 4. Stock-specific management criteria and their forecast values under the Options are provided in Table 5. Projected fishery landings, bycatch, and bycatch mortality under the Options are summarized in Table 6. Table 7 provides a breakdown of impacts by fishery and area for LCN, OCN, and RK coho. Table 8 provides expected coho mark rates for west coast fisheries by month.

- *LRN coho.* All options satisfy the maximum 20.0 percent exploitation rate, with marine exploitation rates ranging from 13.2 percent to 10.0 percent. These exploitation rates, while satisfying the combined Council-area marine and mainstem Columbia River fisheries, represent Council-area fisheries only. Shaping of the inriver fisheries could require changes in marine fisheries to meet the combined exploitation rate limit.
- *Skagit, Stillaguamish and Snohomish coho.* Although these stocks are below their exploitation rate ceilings, all Options fail to meet the spawner escapement goals set in the FMP. However, the FMP goal is not a constraint in 2009, as annual management goals are allowed under the FMP if they are agreed to by the parties of *U.S. v. Washington*.
- *OCN coho.* All options satisfy the maximum 15.0 percent total exploitation rate, with marine exploitation rates ranging from 10.1 percent to 8.7 percent.

All of the options for all fisheries satisfy NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives for other relevant stocks listed in Table 5.

## 9.0 IMPORTANT FEATURES OF THE OPTIONS

Significant changes from recent seasons are highlighted below, but this section is not intended to be a comprehensive description of the options. For detailed information on the proposed ocean salmon season options see Tables 1 (non-Indian Commercial), 2 (recreational), and 3 (Treaty Indian).

### 9.1 Commercial

All 2009 Options for fisheries south of Cape Falcon are very restrictive, owing to the low forecast abundance of SRFC. Proposed commercial fisheries in areas south of Cape Falcon begin on or after September 1, 2009 to minimize impacts on SRFC spawners returning to the Sacramento River Basin in 2009.

Option I allows for limited Chinook and coho fisheries from Cape Falcon to the Oregon/California border. From Cape Falcon to Humbug Mountain, a Chinook fishery would be open from September 1 through 30 with non-mark selective coho retention until attainment of the coho quota. The coho quota is set preseason to 11,000, but a transfer from remaining July-August recreational fishery quota is allowed on an impact neutral, fishery equivalent basis. Landings would be restricted to 100 Chinook and 100 coho per vessel per calendar week. In the Oregon portion of the Klamath Management Zone (KMZ), a Chinook-only fishery would begin on September 8, with 1,000 Chinook quota and a 50 Chinook weekly landing limit. No fishing would be allowed south of the Oregon/California border.

Option II is similar in structure to Option I, but with reduced quotas for both coho and Chinook, and a reduced weekly landing limit for Chinook. The Cape Falcon to Humbug Mountain season dates remain the same, but the preseason coho quota is reduced to 10,000 fish. In the Oregon KMZ, the Chinook quota is reduced to 500. No commercial fisheries would be allowed south of the Oregon/California border.

Option III is closed to all commercial salmon fishing south of Cape Falcon.

Options for the area north of Cape Falcon are generally similar in structure as seasons in recent years, although coho quotas are substantially higher, reflecting both the increased abundance of OPI hatchery coho stocks, and the more liberal 20.0 percent exploitation rate ceiling for LRN coho specified in the NMFS guidance for 2009.

A mandatory yelloweye rockfish conservation area closure was added in 2007 to the permanent salmon regulations (50 CFR 660.405) as part of NMFS regulations to implement Amendment 16-4 to the Groundfish FMP (71 FR 78638, December 29, 2006.). The closure prohibits commercial salmon trolling in Washington Marine Catch Area 3 from 48°00.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°14.00' W. long. to 48°02.00' N. lat.; 125°16.50' W. long. to 48°00.00' N. lat.; 125°16.50' W. long. and connecting back to 48°00.00' N. lat.; 125°14.00' W. long. The area also overlaps part of the “C-Shaped” yelloweye rockfish conservation area (YRCA), designated as an area for salmon trollers to voluntarily avoid, which has been in place since 2003.

## 9.2 *Recreational*

For areas south of Cape Falcon, all three recreational Options contain coho fishing opportunity in Oregon, while Chinook retention is only allowed in Options I and II. The Options reflect the forecast of a large abundance of coho, yet the constraining low abundance of SRFC.

Option I allows a combination of Chinook directed, coho directed, and all-species fisheries south of Cape Falcon. A mark-selective coho fishery would be open from July 1 through the earlier of August 31 or a 110,000 marked coho quota in areas between Cape Falcon and the Oregon/California border. North of Humbug Mountain, the bag limit would be three coho, while in the Oregon KMZ, the limit would be two coho. The fishery would continue north of Humbug Mountain in September with Chinook retention allowed, a 7,000 marked coho quota, and a two fish bag limit, only one of which may be a Chinook. Quota remaining from the July-August recreational fishery could be transferred to either the September recreational fishery or the September commercial fishery, on an impact neutral, fishery equivalent basis. In both the Oregon and California portions of the KMZ, a Chinook fishery would be open from August 29 through September 7. No other recreational salmon fisheries would be open in California.

Option II allows for an earlier start of the coho fishery in Oregon areas south of Cape Falcon than specified in Option I. From Cape Falcon to the Oregon/California border, a coho directed fishery would open June 20 through the earlier of August 31 or attainment of a 95,000 marked coho quota. The bag limit would be two fish per day both north and south of Humbug Mountain. As in Option I, a combined coho and Chinook fishery would be open between Cape Falcon and Humbug Mountain for the month of September, or until the attainment of a 5,000 marked coho preseason quota, with transfer from the June-August quota allowed. Chinook fishing would be allowed in the Oregon portion of the KMZ from August 29 through September 7. No salmon fisheries are proposed for California in this Option.

Option III does not allow any Chinook retention for areas south of Cape Falcon. Coho directed fisheries occurring from Cape Falcon to the Oregon/California border would be open July 1 through the earlier of August 30 or a preseason quota of 70,000 marked coho. The fishery would only be open Wednesday through Sunday to reduce incidental mortality of Chinook. As with Options I and II, the month of September would be open for salmon fishing from Cape Falcon to Humbug Mountain, but with no Chinook retention allowed and a 5,000 preseason marked coho quota, and transfer from the July-August quota allowed. No salmon fisheries are proposed for California in this Option.

North of Cape Falcon, options are generally similar in structure to seasons in recent years, although coho quotas are substantially higher than in 2008, reflecting both the increased abundance of OPI hatchery coho stocks, and the more liberal 20.0 percent exploitation rate ceiling for LRN coho specified in the NMFS guidance for 2009.

Option I includes mark-selective recreational Chinook fisheries in the area between Cape Falcon and the Queets River. Mark-selective Chinook requirements would provide more access to abundant coho stocks while meeting the constraints on ESA listed LCR tule Chinook.

In the all-species recreational fishery, all four subareas north of Cape Falcon have options for seven and five days per week. The intent of the five day per week option is to prolong the season through at least Labor Day.

There is no area 4B add on fishery in any option for 2009 as coho quotas are sufficient to provide the Neah Bay subarea with a full summer fishery.

### **9.3 Treaty Indian**

Options are generally similar in structure as in recent years, although coho quotas are substantially higher, reflecting both the increased abundance of OPI stocks in general, and specifically the less restrictive standard for LCN coho specified in the NMFS guidance for 2009.

## **10.0 SOCIOECONOMIC IMPACTS OF PROPOSED OPTIONS**

The short-term economic effects of the proposed options for non-Indian fisheries are shown in Tables 9 and 10. Table 9 shows troll impacts expressed in terms of estimates of potential exvessel value. Table 10 shows recreational impacts in terms of trips generated and coastal community personal income impacts associated with the recreational fishery under each option. The exvessel values provided for the troll fishery options in Table 9 and income impact values provided for the recreational fishery options in Table 10 are not directly comparable. Long-term social and economic effects are dependent on the impacts of this year's harvest on future production. In general the Council manages to meet escapement objectives for salmon that are expected to achieve optimum yields and rebuild depressed stocks.

Fishing effort estimates for the recreational fishery south of Cape Falcon are based on the effort estimates developed by the STT for their modeling of impacts. North of Cape Falcon recreational fishery average catch per unit effort (CPUE) is used for coho (the 2001 and 2007 seasons) and Chinook (the 2008 season). The CPUE for Chinook in Option I was adjusted downward for the Columbia River and Westport subareas based on expected marked Chinook encounter rates of 0.45 and 0.60, respectively. The expected harvests used to estimate effects on the commercial fishery are taken from Table 6. Additionally, last years prices have been assumed to be the best estimator of prices expected in the coming season. The 2008 commercial Chinook prices were at record high levels. To the degree that these prices were driven by the limited local supply and there is an increase in opportunity this year, there may be a decline in price in 2009; therefore, the estimates provided may overstate expected salmon exvessel revenue.

Figures 1 and 2 show estimated coastal community income impacts for the commercial troll and recreational options, respectively, compared to historic impacts in real (inflation adjusted ) dollars.

In general, income impact estimates provide information on the amount of income associated with a particular activity. Reductions in income impacts may, but do not necessarily, reflect net losses to a community but likely correlate with losses to those businesses and individuals with income dependence on the activity. Additionally, in some cases, reductions in ocean harvest may result in either greater

inside fishing opportunity or escapement, which may contribute to future production, depending on the carrying capacity of the system to which the stocks escape.

It appears that the North of Cape Falcon recreational fishery will be limited by the Chinook quotas, except where there would be a mark-selective Chinook fishery (under Option I in the Columbia River and Westport subareas). For that Option and those subareas, the coho quotas would likely be the main factor limiting total effort.