

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 2007 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 2007 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 Seattle Marriott Hotel SeaTac, Seattle, Washington. Written comments received at the Council office by March 27, 2007 will be copied and distributed to all Council members (Council staff cannot assure distribution of comments received after March 27).

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 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 2007 Council meeting. At this point in the planning cycle, the STT's impact assessments reflect four key assumptions: (1) abundance levels for Canadian Chinook and coho stocks identical to 2006 forecasts; (2) 2007 catch levels for southeast Alaskan, north-central British Columbia, and West Coast Vancouver Island (WCVI) fisheries equal to 2006 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 2006 observed level), with minimum size limits identical to those in place for 2006; (3) 2006 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 1999 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 guidance provided by the National Marine Fisheries Service (NMFS) and obligations under the PST.

3.0 SALMON TECHNICAL TEAM CONCERNS

3.1 *Evaluation of Fishery Impacts on Recently Listed Lower Columbia River Coho*

Lower Columbia natural (LCN) coho were listed in 2005 as threatened under the Endangered Species Act. There is considerable uncertainty regarding the distribution of these stocks. Only a small number of CWT studies were conducted from the Clackamas River and the degree to which these data might be representative of the entire stock complex is unknown. Coho Fishery Regulation Assessment Model (FRAM) evaluates impacts on two different hatchery stocks from the Columbia River, late and early. These stocks have different ocean distribution patterns with the late stock having a more northerly distribution pattern. The STT investigated alternative methods to evaluate impacts on the Lower Columbia River natural coho stock complex. The STT considered similarities between Lower Columbia River natural coho, OCN coho and early and late Columbia River hatchery coho stocks in terms of their run timing and the distributions of ocean recoveries of CWTs. In modeling the impacts of ocean fisheries on lower Columbia River coho, the STT used an aggregate of early and late hatchery stocks, weighted by the predicted ocean abundance of the unmarked component of each stock.

3.2 *Changes to Canadian Fishery Patterns*

The Chinook fishery planning tools employed by the PSC and the Council are based primarily on CWT recovery data from the late 1970's to early 1980's. During this period, the predominant WCVI troll harvest of Chinook occurred from May through September. In recent years, Canada has conducted its Chinook troll fishery off the WCVI in a much different pattern so as to minimize impacts on stocks of domestic conservation concern, particularly WCVI fall Chinook and Interior Fraser (including Thompson River) coho. Changes include the use of a smaller size limit (55 cm), taking the vast majority of Chinook harvest from October to June, and dynamic inseason management to minimize impacts on WCVI Chinook and Thompson River coho based on results of DNA sampling. The quality of impact projections of the WCVI troll fishery using existing Chinook models becomes more uncertain as the magnitude of the harvest taken under these new fishing patterns increases. The STT intends this year to modify the Pacific Salmon Commission Chinook model to better reflect the catch composition of the WCVI troll fishery in 2007. The reliability of this model estimate will be strongly influenced by the accuracy of the assumptions used about the temporal distribution of the WCVI troll catch in 2007. Methods to modify the Chinook FRAM to account for these fishing pattern changes have not yet been developed. The STT continues to work toward development of appropriate methods for use with Chinook FRAM.

3.3 *Rebuilding Exploitation Rates (RER)*

The STT is concerned that the an evaluation of the correspondence between RERs employed as jeopardy standards for certain Endangered Species Act (ESA) listed Chinook stocks and exploitation rates estimated by the Chinook Fishery Regulation Assessment Model (FRAM) has not been completed. In addition, the STT is concerned that for some stocks, the methods used to compute RERs are inconsistent with the biological characteristics of those stocks and recommends that state and tribal comanagers undertake a review to determine if those methods are still appropriate.

3.4 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 coded-wire-tag (CWT) recoveries.

4.0 SPECIES LISTED UNDER THE ENDANGERED SPECIES ACT

NMFS, in a letter received by the Council on March 1, 2007, provided guidance on protective measures for species listed under the ESA during the 2007 fishing season. The letter summarized the requirements of NMFS' biological opinions (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 2007 management season, as well as further guidance and recommendations for the 2007 management season.

The ESA consultation standards, exploitation rates, and other criteria, in place for the 2007 management season are presented below. 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 evolutionarily significant units (ESUs), beyond what will be provided by harvest constraints for other stocks, are not necessary.

Listed ESUs of species managed by the Council, NMFS consultation standards, and NMFS guidance to the Council for the 2007 season.

ESU	Stock Representation in FMP	Consultation Standard	Council Guidance for 2007
Central Valley spring Chinook - threatened	· Sacramento River spring	No consultation standard.	Same as winter Chinook guidance.
Sacramento River winter Chinook - endangered	· Sacramento River winter	Open recreational fishery south of Point Arena no earlier than first Saturday in April and close no later than the first Sunday in October south of Pigeon Point, and no later than the second Sunday in November from Point Arena to Pigeon Point, with a minimum size limit no less than 20 inches. Open commercial fishery south of Point Arena no earlier than May 1 and close no later than Sept 30, except Point Reyes to Point San Pedro to close no later than Oct 15, with a minimum size limit no less than 26 inches.	Same as consultation standard.
California Coastal Chinook - threatened	· Eel, Mattole, and Mad Rivers	≤ 16.0% age-four ocean harvest rate on Klamath River fall Chinook.	Same as consultation standard.
Lower Columbia River Chinook - threatened	· Sandy, Cowlitz, Kalama, Lewis spring · Sandy, Cowlitz, Kalama, fall · North Fork Lewis River fall	· No consultation standard. · ≤ 42.0% adult equivalent exploitation rate on Coweeman tule fall Chinook across all fisheries (anticipated standard in new BO to be completed before May 1, 2007). 5,700 MSY level adult spawning escapement.	· Meet hatchery escapement goals. · Same as consultation standard · Same as consultation standard.
Upper Willamette Chinook - threatened	· Upper Willamette River spring	No specific requirements. Rare occurrence in Council fisheries.	Same as consultation standard.
Upper Columbia River spring Chinook - endangered	· Upper Columbia River spring	No specific requirements. Rare occurrence in Council fisheries.	No additional constraints. Council area ocean fishery impacts are very minor.

Listed ESUs of species managed by the Council, NMFS consultation standards, and NMFS guidance to the Council for the 2007 season.

ESU	Stock Representation in FMP	Consultation Standard	Council Guidance for 2007
Snake River fall Chinook - threatened	· Snake River fall	At least a 30.0% reduction from the 1988-1993 average adult equivalent age-3/age-4 exploitation rate for all ocean fisheries.	Same as consultation standard.
Snake River spring/summer Chinook - threatened	· Snake River spring/summer	No specific requirements. Rare occurrence in Council fisheries.	Same as consultation standard.
Puget Sound Chinook - threatened	· Western JDF · Elwha summer/fall · Dungeness summer/fall · Mid-Hood Canal summer/fall · Skokomish summer/fall · Nooksack spring · Skagit summer/fall · Skagit spring · Stillaguamish summer/fall · Snohomish summer/fall · Lake Washington summer/fall · Green River summer/fall · White River spring · Puyallup summer/fall · Nisqually River summer/fall	NMFS guidance to the Council for shaping the 2007 fishing seasons is to manage fisheries consistent with the RMP covering the 2004-2009 fishing seasons.	· 10.0% S.U.S. E.R. · 10.0% S.U.S. E.R. · 10.0% S.U.S. E.R. · 15.0% PT S.U.S. E.R. · 15.0% PT S.U.S. E.R. · 7.0% S.U.S. E.R. · 50.0% Total E.R. 17.0% S.U.S. E.R. · 38.0% Total E.R. · 15.0% S.U.S. E.R. · 15.0% S.U.S. E.R. · 15.0% PT S.U.S. E.R. · 15.0% PT S.U.S. E.R. · 20.0% Total E.R. · 50.0% Total E.R. · 1,100 spawners
Central California Coast coho - threatened	Not yet represented.	No retention of coho in commercial and recreational fisheries off California.	Same as consultation standard.
S Oregon/N California Coastal coho - threatened	· S. Oregon coast natural · Northern California	≤ 13.0% marine exploitation rate on Rogue/Klamath hatchery coho.	Same as consultation standard.
Lower Columbia River Coho - threatened	Not yet represented in FMP. STT used combined Columbia River early and late unmarked hatchery coho as surrogate for 2006	≤ 20.0% combined marine and mainstem Columbia River exploitation rate. (anticipated standard in new BO to be completed before May 1,2007).	≤ 20.0% combined marine and mainstem Columbia River exploitation rate.

Additional listed salmonid ESUs found within the Council area, but not significantly impacted by Council managed fisheries, include:

Sockeye

Snake River (endangered)

Ozette Lake Sockeye (threatened)

Chum

Columbia River (threatened)

Hood Canal summer (threatened)

Steelhead

Southern California (endangered)
South-central California coast (threatened)
Upper Columbia River (endangered)
Middle Columbia River (threatened)
Snake River Basin (threatened)

Central Valley, California (threatened)
Central California coast (threatened)
Upper Willamette River (threatened)
Lower Columbia River (threatened)
Northern California (threatened)

Council fisheries do not have identifiable impacts on any of the listed sockeye, chum, or steelhead ESUs. Of the listed Chinook and coho, Council-managed fisheries have the most significant impact on Sacramento River winter Chinook, Central Valley spring Chinook, California Coastal Chinook, Snake

River fall Chinook, lower Columbia River fall Chinook, and all of the coho stocks. Other listed Chinook stocks are not significantly impacted in Council area fisheries. (Further discussion of ocean fishery impacts on all listed stocks will be provided in Preseason Report III).

5.0 OBLIGATIONS UNDER THE PACIFIC SALMON TREATY

5.1 *Chinook Salmon Management*

Under the 1999 PST Agreement, Council fisheries are subject to the ISBM provisions of Annex 4, Chapter 3. These provisions require the AEQ exploitation rate by all U.S. fisheries south of the U.S./Canada border be reduced by 40% from the 1979-1982 base period for Chinook stocks failing to achieve escapements at or above levels associated with maximum sustainable harvest as adopted by the PSC.

Chinook stocks of concern to the Council are affected by fisheries off Canada and Alaska. Allowable catches by 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% 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. Once the PSC Chinook Model calibration and manager-to-manager information exchanges are completed in late March, expectations for Canadian and Alaskan fisheries and stock abundance forecasts will be incorporated into Chinook FRAM for use during the remainder of the Council's pre-season management planning.

Key considerations for Canadian domestic fishery management for Chinook in 2007 include, (a) meeting domestic conservation obligations for WCVI, Strait of Georgia, and Fraser River stocks; (b) Chinook harvests by native fisheries; and (c) incidental impacts during commercial and native fisheries directed at pink, 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.

5.2 *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). Under the plan, exploitation rate limits for intercepting fisheries are established for individual management units through formulas specified in the 2002 PSC Coho Plan, based on total allowable fishery exploitation rates. Based on preseason abundance forecasts, total allowable exploitation rates for U.S. management units are summarized below.

Key considerations for Canadian fishery management for coho in 2007 are expected to include, (a) meeting domestic conservation obligations for Interior Fraser (including Thompson River) coho; (b) coho harvests by native fisheries; (c) incidental impacts during commercial and native fisheries directed at Chinook, pink, sockeye, and chum salmon; and (d) the desire to provide increased opportunity for sport fisheries through mark-selective retention regulations. It is anticipated that the details of 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% maximum exploitation rate).

Summary of 2007 total exploitation rate constraints (all U.S. and Canadian fisheries combined) for U.S. coho management units.

U.S. Management Unit	Total Exploitation Rate Constraint ^{a/}	Categorical Status ^{b/}
Skagit	35%	Moderate
Stillaguamish	50%	Abundant
Snohomish	40%	Moderate
Hood Canal	65%	Abundant
Strait of Juan de Fuca	40%	Moderate
Quillayute Fall ^{c/}	0%-57% (25%)	Moderate
Hoh ^{c/}	8%-63% (35%)	Moderate
Queets ^{c/}	0%-42% (0%)	Low
Grays Harbor	40%	Moderate

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.

The projected status of Canadian coho management units in 2007 has not yet been officially provided to the U.S.; however, preliminary information received from the Canadian Department of Fisheries and Oceans indicates continuing concerns for the condition of Interior Fraser coho. Thompson coho, a component of the Interior Fraser management unit, was recently listed under Canada's Species At Risk Act, the Canadian law analogous to the Endangered Species Act in the United States. 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 2007 U.S. fisheries south of the U.S./Canada border to a maximum of 10.0%.

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 <20%), moderate (total exploitation rate 20%-40%), and abundant (total exploitation rate >40%). 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%; if two or more Washington coastal management units are in low status, the constraint becomes 10%. The minimum allowable exploitation rate by Canadian fisheries on U.S. coho management units is 10%.

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. Based on this methodology, the allowable total exploitation rate for the Queets coho management unit is zero; consequently, the categorical status is “low.” However, this should not be interpreted to indicate that the maximum allowable exploitation rate on the Queets coho management unit is zero. The exploitation rate could be as high as 42% and still result in a spawning escapement within the MSY escapement range.

The annual status of coho management units and fishery expectations will be discussed during a manager-to-manager meeting scheduled for mid-March. Once the information exchange is completed, expectations for Canadian fisheries will be incorporated into Coho FRAM for use during the remainder of the Council’s pre-season management planning process.

6.0 CHINOOK SALMON MANAGEMENT

6.1 South of Cape Falcon

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

- *Central Valley fall Chinook*. The CVI forecast is 499,900 adult Chinook, which is 0.79 times the 2006 preseason forecast and the lowest CVI forecast since 1992.
- *Klamath River fall Chinook (KRFC)*. The age-3 forecast is 515,400 fish; the highest forecast on record. In contrast, the age-4 forecast of 26,100 is the lowest forecast on record. The age-5 forecast is 4,700 fish. The 2006 preseason forecast was 44,100 age-3, 63,700 age-4, and 2,200 age-5 fish.

6.1.1 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 4.0 above. Relevant stocks for the area south of Cape Falcon include Sacramento River winter Chinook, California Coastal Chinook, Snake River fall Chinook, and lower Columbia River natural tule Chinook.
- *Sacramento River fall Chinook*. Spawning escapement of 122,000–180,000 adults (FMP conservation objective).
- *KRFC*. Natural area spawning escapement of at least 35,000 adults and spawner reduction rate not to exceed 66.7% (FMP conservation objective), 50:50 tribal:non-tribal sharing of adult harvest (Department of Interior Solicitor Opinion), and 17% of the non-tribal ocean adult harvest to the KMZ recreational fishery (2007 Council guidance).
- *Oregon Coastal Chinook*. An escapement of 150,000-200,000 naturally spawning adults represented by 60-90 naturally spawning adults per mile in nine standard index streams (FMP conservation objective).

6.1.2 Achievement of Objectives

The Options for commercial and recreational ocean salmon fishery management south of Cape Falcon are defined in Tables 1 and 2, respectively, and Table 4 lists associated harvest quotas. 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 tules.

All of the management Options satisfy the NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives relevant to the south of Cape Falcon Chinook fisheries indicated above and in Table 5, except as noted below.

- *KRFC*. With Option I, the KMZ recreational harvest share of 18.1% exceeds the 2007 Council guidance level of 17%. However, this guidance is non-binding.
- *Columbia River tule Chinook*. With Option I, the Coweeman River tule fall Chinook AEQ exploitation rate of 44.3% exceeds the NMFS 2007 ESA guidance cap of 42.0%. However, stock abundance forecasts for some Canadian stocks, and actual PST landing limits on Canadian and Alaskan fisheries are not presently known, and preliminary values have been used to conduct the impact analysis presented in this report. These stock abundance forecasts and PST landings limits will be known prior to the April Council meeting and, together with the continued harvest negotiations in the North of Falcon forum, may result in a lower AEQ exploitation rate on Coweeman River tule fall Chinook than presented here. If not, Option I will not be a viable option and impacts in Council-area fisheries will need to be reduced to achieve an AEQ exploitation rate no greater than 42.0%.

6.2 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 28% less than the 2006 preseason expectations, resulting in a range of Chinook quotas less than that adopted for 2006. The 2007 LRH forecast abundance is 54,900, down slightly from 55,800 in 2006. The 2007 SCH forecast abundance is 21,800, down from 50,000 in 2006.

6.2.1 Objectives

The key Chinook salmon management objectives shaping the 2007 options are:

- NMFS consultation standards and annual guidance for ESA listed stocks as provided in Section 4.0 above. Relevant stocks for the area north of Cape Falcon include Snake River fall Chinook, lower Columbia River natural tule Chinook, and Puget Sound natural Chinook.

6.2.2 Achievement of Objectives

The Options for commercial, recreational, and treaty Indian ocean salmon fishery management north of Cape Falcon are defined in Tables 1, 2, and 3, respectively, and Table 4 lists associated harvest quotas. 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 tules.

All of the management Options satisfy the NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives relevant to the north of Cape Falcon Chinook fisheries indicated above and in Table 5, except as noted below.

- *Columbia River tule Chinook.* With Option I, the Coweeman River tule fall Chinook AEQ exploitation rate of 44.3% exceeds the NMFS 2007 ESA guidance cap of 42.0%. However, stock abundance forecasts for some Canadian stocks, and actual PST landing limits on Canadian fisheries are not presently known, and preliminary values have been used to conduct the impact analysis presented in this report. These stock abundance forecasts and PST landings limits will be known prior to the April Council meeting and, together with the continued harvest negotiations in the North of Falcon forum, may result in a lower AEQ exploitation rate on Coweeman River tule fall Chinook than presented here. If not, Option I will not be a viable option and impacts in Council-area fisheries will need to be reduced to achieve an AEQ exploitation rate no greater than 42.0%.
- *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.

7.0 COHO SALMON MANAGEMENT

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

- *Oregon Coastal Natural (OCN) coho.* The OCN forecast of 255,400 is 420% of the 2006 preseason forecast of 60,800.
- *OPI Hatchery coho.* The 2007 forecast for hatchery coho from the Columbia River and the coast south of Cape Falcon of 593,600 is 49% higher than the 2006 forecast of 398,800. The Columbia River early coho forecast is 73% greater than the 2006 forecast and the Columbia River late coho forecast is 23% greater than the 2006 forecast.
- *Lower Columbia River Natural (LCN) coho.* This is the first year a forecast of this stock has been made; the forecast is 21,500 adults returning to the mouth of the Columbia River.
- *Puget Sound coho.* The forecasts for Skagit and Snohomish coho are both below the FMP conservation objective, assuming fisheries similar to 2006. However these stocks along with other Puget Sound coho stocks are subject to the provisions of the 2002 PSC coho agreement, which permits harvest at specified rates based on annual stock status classification.
- *Interior Fraser (Thompson River) coho.* This Canadian stock continue to be depressed, constraining coho fisheries north of Cape Falcon in order to meet terms of the 2002 PSC coho agreement.

7.1 Objectives

Key coho salmon management objectives shaping the 2007 options are:

- NMFS consultation standards and annual guidance for ESA listed stocks as provided in Section 4.0 above. Relevant stocks include Central California Coast coho (south of the Oregon/California border), Southern Oregon/Northern California coho, and lower Columbia River natural coho.

- 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 5.2 above. Relevant stocks for the area north of Cape Falcon in 2007 include Skagit, Snohomish, and Interior Fraser (Thompson River, B.C.) coho.
- The OCN coho harvest matrix in the salmon FMP has a 2007 management objective of a combined marine/freshwater exploitation rate no greater than 20%. Based on its review of salmon FMP Amendment 13, the OCN Coho Work Group developed a modified version of this matrix, which was accepted by the Council as expert biological advice at the November, 2000 Council meeting. The modified matrix also provides for a combined marine/freshwater exploitation rate in 2007 of no more than 20.0%.
- Minimum escapement of 50% 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 impacts.

7.2 Achievement of Objectives

The Options for commercial, recreational, and treaty Indian ocean salmon fishery management in Council area ocean fisheries are defined in Tables 1, 2, and 3, respectively, and Table 4 lists associated harvest quotas. 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, and LCR tules. Table 8 provides expected coho mark rates for west coast fisheries by month.

All of the management Options satisfy the NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other objectives relevant to coho fisheries indicated above and in Table 5, except as noted below.

- *Lower Columbia River natural coho.* All options satisfy the maximum 20.0% exploitation rate, with marine exploitation rates ranging from 12.8% to 8.9%. These exploitation rates, while satisfying the combined marine and freshwater fisheries, represent marine fisheries only. Shaping of the inriver fisheries could require changes in marine fisheries to meet the combined marine and freshwater exploitation rate.
- *Snohomish coho.* When considered with preliminary plans for inside fisheries, all three options fail to meet the 40% exploitation rate ceiling and the 70,000 escapement goal. If restructuring of fisheries in the North of Falcon forum does not result in less than a 40.0% exploitation rate in southern U.S. fisheries as required by the 2002 PSC agreement, Option I will not be viable.
- *Skagit coho.* Although the 35% exploitation rate ceiling is met, all Options fail to meet the 30,000 spawner escapement goal set in the FMP. However, the FMP goal is not a constraint in 2007, as annual management goals are allowed under the FMP if they are agreed to by the parties of *U.S. v. Washington*.
- *Interior Fraser coho.* Option I is projected to exceed the 10.0% exploitation rate limit in southern U.S. fisheries based on the inside harvest regime assumed in this analysis. If restructuring of fisheries in the North of Falcon forum does not result in less than a 10.0% exploitation rate in southern U.S. fisheries as required by the 2002 PSC agreement, Option I will not be viable.

8.0 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).

8.1 *Commercial*

All options include an April commercial fishery in the Fort Bragg area that will be managed for a quota of 2,000 Chinook with a landing and possession limit of 20 Chinook per vessel per day. The scheduled openings are Monday through Friday, April 9 through April 27. It is hoped genetic stock identification (GSI) samples can be collected to provide information on stock composition of the fishery, and in particular, KRFC.

All options for the California portion of the Klamath Management Zone (KMZ) include quota fisheries during September. The September fishery is intended to provide some local opportunity in 2007 while reducing impacts on the weak 2003 brood age-4 KRFC.

Oregon KMZ fisheries are open April 10-29 and May 1-31 in all options. Quota fisheries during June through September are also included in all options, except that there is no September opportunity in Option III. The small quota fisheries are intended to provide local fishing opportunity while discouraging high effort that could result in unexpectedly high impacts on KRFC. The September closure is intended to reduce fall impacts on KRFC that would affect 2008 returns and count against 2008 harvest limits.

Central Oregon fisheries open April 10, and provide opportunity in all months through October, except for September in Option II. The September closure is intended to reduce fall impacts on KRFC that would affect 2008 returns and count against 2008 harvest limits.

Option III includes an all-salmon commercial fishery in the central Oregon area that will be managed for a quota of 10,000 coho with a landing and possession limit of 50 coho per vessel per calendar week. The scheduled openings are August 15-29, September 6-12 and 20-26. The fishery is **not** mark selective for coho. i.e., coho with intact adipose fins could be retained. The fishery would also have a landing and possession limit of 50 Chinook per vessel per calendar week, but only in September. This fishery is intended to provide access to relatively a large forecast of OCN coho, in addition to available hatchery coho stocks.

Option III includes a closure outside 6 nm in the area between the Bandon south jetty and Humbug Mt. during September and October. This closure is intended to reduce fall impacts on KRFC that would affect 2008 returns and count against 2008 harvest limits.

Options for the area north of Cape Falcon are generally similar in structure as seasons in recent years, although quotas are substantially lower, reflecting both the reduced abundance of Columbia River tule stocks in general, and specifically the more conservative RER for lower Columbia River natural tules specified in the NMFS guidance for 2007.

Options II and III North of Cape Falcon have dropped the option for Oregon permitted vessels to land their fish in Garibaldi, Oregon. The intent of this change is to reduce variability in monitoring landings inseason to ensure the relatively small Chinook quota north of Cape Falcon is not exceeded.

Option III for the north of Cape Falcon summer all-salmon fishery has a landing limit for coho north of the Queets River, but not south. In combination with the landing restriction north and south of Leadbetter Point, this results restricting landings to the area fished in three areas: Cape Falcon to Leadbetter Point,

Leadbetter Point to Queets River, and Queets River to U.S./Canada border. The coho landing limit north of the Queets River is intended to reduce impacts on Interior Fraser coho.

A mandatory yelloweye rockfish conservation area closure was added 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.

8.2 Recreational

Recreational Chinook opportunity south of Cape Falcon will include continuous seasons in all areas from at least Memorial Day through Labor Day in all options except Option III for the KMZ fishery, which would be closed July 5-14.

There are proposed weekly catch limits in the KMZ recreational fishery of no more than eight fish in seven consecutive days (Option II) and six fish in seven consecutive days (Option III).

The central Oregon recreational fishery has a proposed 24 inch Chinook total length size limit in Option II intended to moderate impacts on age-3 KRFC.

The north of Cape Falcon fishery in Option III has a Chinook minimum size limit of 26 inches total length to reduce impacts on LCR natural tules and to slow catch rates and prolong the duration of the fishery.

Options I and II have all-salmon fisheries in the Cape Falcon to Oregon/California border area beginning June 23 through September 16, or until quotas of 50,000 and 40,000 marked coho, respectively, are reached. The area between Humbug Mt. and the Oregon/California border (Oregon KMZ) would close September 4 and 5, respectively, concurrent with the ending dates for the all-salmon except coho fishery in that area.

Option III has a coho fishery in the Cape Falcon to Oregon/California border area that allows retention of no more than one unmarked coho (i.e., with an intact adipose fin) in the daily-bag-limit. The season would run June 23 through August 19 and September 1-9, or when a 15,000 total coho quota was reached. The area between Humbug Mt. and the Oregon KMZ area would close July 5-14, concurrent with the all-salmon except coho fishery in that area. This fishery is intended to provide access to relatively a relatively large forecast of OCN coho, in addition to available hatchery coho stocks.

All four subareas north of Cape Falcon have options for seven days per week and five days per week. The intent of the five day a week options is to prolong the season through Labor Day.

Option III requires closure of the Tillamook Head to Cape Falcon area beginning August 1 to reduce impacts to overfished rockfish species.

Options I and II allow an extra pink salmon in the allowable bag limit in the Neah Bay and La Push subareas to take advantage of odd year pink abundance.

Option III has an area 4B add on fishery of 3,000 marked coho due to the increased likelihood of North of Falcon recreational fisheries exhausting allowable Chinook impacts prior to Labor Day.

8.3 *Treaty Indian*

Options are generally similar in structure as in recent years, although quotas are substantially lower, reflecting both the reduced abundance of Columbia River tule stocks in general, and specifically the more conservative RER for lower Columbia River natural tules specified in the NMFS guidance for 2007.

9.0 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 the fishery to meet escapement objectives for salmon that are expected to achieve optimum yields and rebuild endangered stocks.

The primary purpose of the economic tables is to illustrate how relative economic opportunity varies under each option, as compared to the other options and the previous year. Therefore, the modeling of the recreational estimates uses 2006 seasons and effort patterns rather than a longer term average. Where no 2006 effort is available for a particular month and area, effort from a previous year is substituted. The Oregon south of Cape Falcon recreational selective coho fishery was modeled assuming the effort will respond to take the entire available quota. To the degree that this effort response does not occur, the values provided will be an over estimate. Additionally, for the troll fishery, last year's prices have been assumed to be the best estimator of prices expected in the coming season. The 2006 commercial prices were at record high levels. To the degree that these prices were driven by the limited local supply of salmon and there is an increase in supply this year, there may be a decline in price in 2007. 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 are escaping.

In past years the KMZ has benefited from the landing of commercial fish caught in the area between Cape Falcon and Humbug Mountain. In 2005 and 2006, it appears that about 10% of the fish caught off the central Oregon coast (Cape Falcon to Humbug Mountain) were landed in a KMZ port. These landings accounted for the large majority of the landings in the KMZ, primarily in the Brookings port area.

It appears that the North of Cape Falcon recreational fishery may be season limited rather than quota limited. The exception might be La Push, which had a relatively high Chinook catch per angler rate in 2006. If a similar rate occurs in 2007, the La Push fishery may reach its Chinook harvest guideline before the scheduled end of the season; however, since the entire area north of Cape Falcon is governed by an overall Chinook quota, only if that quota was reached would the subareas have to close.

