Comments on Stocks Not Meeting Escapement Goals
For 2008

Mr. Chairman, I would like to just briefly comment on the status of Queets spring/summer Chinook.

- This stock has not met their spawning escapement goal for the past five years.

- While this stock is categorized as an exception to the application of the overfishing criteria in fishery management plan (FMP) Amendment 14 and do not require any specific Council actions, their condition is such that some assessment by the Council may be appropriate.

- I would like the Council to direct the Salmon Technical Team (STT) and Habitat Committee to conduct an evaluation of whether the coastal stocks continue to be exploited at less than 5 percent in Council managed fisheries and to conduct an initial assessment of the causes for their recent decline.

- I would suggest that they report back to the Council with this initial assessment within the next year.

3/11/08
PFMC

REVIEW OF 2007 FISHERIES AND SUMMARY OF 2008 STOCK ABUNDANCE ESTIMATES

Dr. Robert Kope, Salmon Technical Team (STT) member, will review the results of the 2007 fisheries and the stock abundance projections for 2008. The agencies, tribes, Council advisors, and public will then be afforded an opportunity to comment on these issues. Under agency comments, the states of Oregon and Washington may also provide details of 2007 mark-selective recreational and commercial fisheries.

The abundance forecast data set or methods for two stock groups were changed for 2008, the Central Valley Index (CVI) and Oregon Coast Natural (OCN) coho. The Scientific and Statistical Committee (SSC) is scheduled to review new methodologies for each of these stocks. The 2008 CVI forecast is 157,100. About 84% of the CVI is normally represented by Sacramento River fall Chinook, which have a spawning escapement objective of 122,000-180,000. Available stock abundance forecasts for Chinook and coho are presented in Tables I-1 and I-2 (respectively) of Preseason Report I.

The returns of both adult and jack Sacramento River fall Chinook were very low in 2007, including a jack return of about 20 percent of the previous low value on record, which occurred in 2006. The Council will have an opportunity to discuss relevant research topics on factors that may have influenced those runs (Agenda Item D.1.b, CDFG Report).

Council Action:

1. **Receive information.**
2. **Adopt 2008 stock abundance forecasts.**
3. **Discuss potential research topics.**

Reference Materials:

1. *Review of 2007 Ocean Salmon Fisheries* (Included with Briefing Book).
2. *Preseason Report I: Stock Abundance Analysis for 2008 Ocean Salmon Fisheries* (Included with Briefing Book).
3. Agenda Item D.1.b, CDFG Report.
4. Agenda Item D.1.d, Public Comment.

Agenda Order:

a. Report of the Salmon Technical Team (STT) Robert Kope
b. Agency and Tribal Comments
c. Reports and Comments of Advisory Bodies
d. Public Comment
e. **Council Action:** Review and Discuss Relevant Fishery Information and Act on 2008 Abundance Estimates as Necessary

PFMC
02/26/08

NEWS FROM NOAA
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION • US DEPARTMENT OF COMMERCE

Contact: Jim Milbury
562-980-4006

FOR IMMEDIATE RELEASE
Mar. 3, 2008

Unfavorable Ocean Conditions Likely Cause of Low 2007 Salmon Returns Along West Coast

NOAA scientists are reviewing unusual environmental conditions in the Pacific Ocean as the likely culprit for the dramatically low returns of Chinook and coho salmon to rivers and streams along the West Coast of the United States in 2007.

Researchers from NOAA's Northwest and Southwest Fisheries Science Centers are comparing data on the low food production of the California Current in 2005 that occurred when this year's returning salmon would have been entering the ocean from their natal streams to feed and grow.

The cold waters of the California Current flow southward from the northern Pacific along the West Coast and are associated with upwelling, an ocean condition caused by winds that bring nutrients to the ocean's surface and is the main source of nourishment for the ocean's food web. In 2005 a southward shift in the jet stream, delayed favorable winds and upwelling for the California Current, which normally begins in spring. The winds instead arrived in mid-July, causing high surface water temperatures and very low nutrient production within the nearshore marine ecosystem.

"We are not dismissing other potential causes for this year's low salmon returns," said Usha Varanasi, NOAA Fisheries Service Science Center Director for the Northwest Region. "But the widespread pattern of low returns along the West Coast for two species of salmon indicates an environmental anomaly occurred in the California Current in 2005."

Data released Thursday by the Pacific Fisheries Management Council indicate the 2007 returns of fall Chinook salmon to the Sacramento River in California's Central Valley were approximately 33 percent of what fishery biologists expected. Projections for 2008 are substantially lower than last year's estimate.
[http://www.pcouncil.org/newsreleases/Feb_2008_Sacramento_News_Release.pdf]

Coho salmon returning to spawning streams in California and Oregon are also considerably lower than predicted. A preliminary analysis found an average 27 percent of the parental stock returning in 12 streams monitored in California. Even though coho returns appear to improve along the coast from south to north, Oregon Coast coho salmon had less than 30 percent of their parental stock return.

Coho salmon are listed as either endangered or threatened under the Endangered Species Act in the Central/Northern California and Southern Oregon watersheds.

The National Oceanic and Atmospheric Administration, an agency of the U.S. Commerce Department, is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and information service delivery for transportation, and by providing environmental stewardship of our nation's coastal and marine resources. Through the emerging Global Earth Observation System of Systems (GEOSS), NOAA is working with its federal partners, more than 70 countries and the European Commission to develop a global monitoring network that is as integrated as the planet it observes, predicts and protects.

-30-

FOCUS AREAS OF RESEARCH RELATIVE TO THE STATUS OF THE 2004 AND 2005 BROODS OF THE CENTRAL VALLEY FALL CHINOOK SALMON STOCK

Freshwater Biological Focus

1) Was the level of parent spawners too low, for natural or hatchery populations?
2) Was the level of parent spawners too high, for natural or hatchery populations?
3) Was there a disease event in the hatchery or natural spawning areas?
4) Was there a disease event in the egg incubation, fry emergence, rearing, or downstream migration phases?
5) Was there any disease event during the return phase of the 2 year old jacks?
6) Were there mortalities at the time of trucking and release of hatchery fish?
7) Was there a change in the pattern of on-site release of hatchery fingerlings compared to trucked downstream release?
8) Was there a change in recovery, spawning and/or release strategies during hatchery operations?
9) Did thermal marking occur for any hatchery releases? What were the effects of this or other studies (e.g. genetic stock identification of parental broodstock)?
10) Was there a change in the methodology or operations of the SF Bay net pen 'acclimation' program for trucked hatchery fish?
11) Were there any problems with fish food or chemicals used at hatcheries?

Freshwater Habitat Areas Focus

1) Were there drought or flood conditions during the spawning, incubation, or rearing phases?
2) Was there any pollution event where juveniles were present?
3) Was there anything unusual about the flow conditions below dams during the spawning, incubation, or rearing phases?
4) Were there any in-water construction events (bridge building, etc.) when this brood was present in freshwater or estuarine areas?
5) Was there anything unusual about the water withdrawals in the rivers or estuary areas when this brood was present?
6) Was there an oil spill in the estuary when the 2005 brood was present, as juveniles or jacks?
7) Were there any unusual temperature or other limnological conditions when this brood was in freshwater or estuarine areas?
8) Was there any unusual population dynamics of typical food or prey species used by juvenile Chinook salmon in the relevant freshwater and estuarine areas?
9) Was there anything unusual, in the same context as above for juvenile rearing and outmigration phases, about habitat factors during the return of the 2 year olds from this brood?
10) Were there any deleterious effects caused by miscellaneous human activities (e.g., construction, waterfront industries, pollution) within the delta and SF bay areas?
11) Was there a change in the recovery of juvenile outmigrants observed in the USFWS mid-water trawl surveys and other monitoring programs in the Delta.

Freshwater Species Interactions Focus

1) Was there any unusual predation by bird species when this brood was in freshwater or estuarine areas?
2) Was there any unusual sea lion abundance or behavior when this brood was in freshwater or estuarine areas?
3) Was there any unusual striped bass population dynamics or behavior when this brood was in freshwater or estuarine areas?
4) Were northern pike present in any freshwater or estuarine areas where this brood was present?
5) Is there a relationship between declining Delta smelt, longfin smelt, and threadfin shad populations in the Delta and CV Chinook survival.
6) Was there additional inriver competition or predation with increased hatchery steelhead production?

Marine Biological Focus

1) Was there anything unusual about the ocean migration pattern of the 2004 and 2005 broods?
2) Was there anything unusual about the recovery of tagged fish groups from the 2004 and 2005 broods the ocean salmon fisheries?
3) Has the bycatch in non-salmonid fisheries (e.g., whiting, groundfish) increased?

Marine Habitat Areas Focus

1) Were there periods of reduced upwelling or other oceanographic physical conditions during the period of smolt entry into the marine environment, or during the period of marine residence up to the return to freshwater of the jacks?
2) Were there any effects to these fish from the 'dead zones' reported off Oregon and Washington in recent years?
3) Were plankton levels depressed off California, especially during the smolt entry periods?
4) Was there a relationship to an increase in krill fishing worldwide?
5) Limnology: temperature, salinity, upwelling, currents, red tide, etc.
6) Were there any oil spills or other pollution events during the period of ocean residence?
7) Was there any aquaculture occurring in the ocean residence area?
8) Was there any offshore construction in the area of ocean residence, for wave energy or other purposes?

Marine Species Interactions Focus

1) Was there any unusual population dynamics of typical food or prey species used by juvenile Chinook salmon in marine areas? (plankton, krill, juvenile anchovy or sardines, etc.)
2) Was there an increase in bird predation on juvenile salmonids caused by a reduction in the availability of other forage food?
3) Was there an increase of marine mammal predation on these broods?
4) Was there predation on salmonids by Humboldt squid?
5) Was there increased predation on salmonids by other finfish species (e.g., lingcod)?

Cumulative Ecosystem Effects Focus

1) Were there other ecosystem effects?
2) Were there synergistic effects of significant factors?

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Fisheries Science Center
2725 Montlake Boulevard East
Seattle, WA 98112-2097

February 22, 2008

MEMORANDUM TO: D. Robert Lohn, NWR
Rodney R. McInnis, SWR

FROM: Usha Varanasi, NWFSC Norm Bartoo, SWFSC

SUBJECT: Evaluating Causes of Low 2007 Coho and Chinook Salmon Returns

Returns of several West Coast Chinook and coho salmon stocks were lower than expected in 2007. In addition, low jack returns in 2007 for some stocks suggest that 2008 will be at least as bad. Here, we consider possible causes of unexpectedly low returns and make recommendations to address the issue technically.

The most prominent example is Central Valley (CV) fall Chinook salmon, for which spawning escapement is estimated to have been less than 25% of predicted returns and below the escapement goal (122,000 - 180,000) for the first time since the early 1990s, continuing a declining trend since recent peak abundance (near 800,000 spawners) in 2002.. Similar low returns have been documented for coastal coho salmon. For California populations, data compiled by the SWFSC indicate that coastal coho salmon returns this season averaged 27% of parent stock abundance in 2004, with a range from 0% (Redwood Creek) to 68% (Shasta River). In Oregon, spawner estimates for the Oregon Coast natural (OCN) coho salmon were less than 25% of predicted returns and 30% of parental spawner abundance. These returns are the lowest since 1999, approaching the low abundances of the 1990s. Columbia River coho and Chinook stocks experienced mixed returns, with some stocks near predictions and others well below predictions.

For coho salmon there is a clear north-south gradient, with returns improving to the north. California and Oregon coastal returns were down sharply, while Columbia River hatchery coho were down only slightly (82% of prediction). Washington coastal coho returns were similar to 2006, and British Columbia coho returns exceeded expectations by a moderate amount. Even within the OCN region, there was a clear north-south pattern, with the north coast region (predominantly Nehalem River and Tillamook Bay populations) returning at 46% of parental abundance while the mid-south coast region (predominantly Coos and Coquille populations) returned at only 14% of parental abundance. The Rogue population was at only 21% of parental abundance.

Low 2007 returns of jacks for three stocks suggest a continuing severe problem in 2008. Jack returns were at record low numbers for fall Chinook salmon in the Klamath Basin and Central Valley. In addition, coho salmon jack returns to the Columbia River were near record lows.

Potential Causes

There are two interrelated questions to answer: First, what caused the observed low salmon returns, and second, why did current stock abundance predictors fail to anticipate the problem? A full assessment of the problem would be premature at this time, while return data are still being processed. However, we can look at general patterns to draw some tentative conclusions.

To answer the first question, we need to recognize that salmon exhibit complex life histories, with potential influences on their production at a variety of life stages in freshwater, estuarine, and marine habitats. Thus, salmon typically have high variation in adult returns, which may be explained by a variety of human and environmental factors. However, when short-term patterns are coherent over broad geographic areas, it is likely that they are caused by regional environmental variation. This could include such events as widespread drought or floods affecting river flow and temperature, or regional variation in ocean conditions (temperature, production, predator abundance). Given the observed pattern of widespread low returns for two species this year, and a gradient from California to British Columbia, this type of regional environmental variation is the most likely cause.

In freshwater, the major recent regional event that would likely affect river flows or temperature in a number of basins was the severe California drought in 2007, which extended (with less severity) into southern Oregon. The geographic extent of this event is consistent with observed low returns, but its timing is not: the drought occurred after this year's returning salmon had migrated to the ocean. (It may, however, be a factor in future returns.) At this time, we are aware of no other widespread events in freshwater that would explain this year's returns, but it would be prudent to look more closely at river flow and temperature data throughout the region before dismissing freshwater causes.

For ocean factors, two efforts are underway by the two Centers to develop and use ocean environmental indicators to explain variations in salmon marine survival. The Northwest Fisheries Science Center is using a number of physical and biological indicators for the Oregon and Washington coasts to provide qualitative predictions of coho and Chinook salmon returns (described at http://www.nwfsc.noaa.gov/research/divisions/fed/oeip/a-ecinhome.cfm). At the Southwest Fisheries Science Center, estimates of zooplankton, rockfish, seabirds, and 15 other ocean variables have been combined into a composite productivity index to describe variation in ocean production for the central California coast. Although the relationship between this index and California salmon population dynamics has not yet been fully tested, preliminary analyses indicate it tracks the CV Chinook population index (CVI) fairly well over the past 15 years.

For the spring and summer of 2005 (the ocean-entry year for 2004 brood fall Chinook and 2003 brood coho), both approaches indicated very poor conditions for juvenile salmon entering the ocean, indicating poor returns for coho in 2006 and age 3 fall Chinook in 2007. Coast-wide observations showed that 2005 was quite an unusual year for the northern California Current, with delayed onset of upwelling, anomalously high surface temperatures, and very low zooplankton biomass (Peterson et al. 2006, CalCOFI Reports 47:30-74; see also the special issue "Warm Ocean Conditions in the California Current in Spring/Summer 2005: Causes and Consequences" in Geophysical Research Letters, Vol. 33, No. 22, 2006). For the 2006 ocean-entry year, the SWFSC index was also poor, while the indicators used by the NWFSC provided a mixed assessment, which may explain the north-south trend observed in coho returns in 2007. Taken together, these poor ocean conditions, reflected in the indicators, provide a plausible explanation for the observed low returns of coho salmon in 2006 and 2007, and the low CV fall Chinook adult returns in 2007. Consistent with the CV fall Chinook record low jack return in 2007, the ocean indicators also would predict very low CV fall Chinook adult returns in 2008.

The second question is why current stock abundance predictors for coastal coho and CV Chinook salmon failed to capture this environmental signal. The answer is probably different for the two predictors, given the different methods employed. The CVI predictor uses a sibling-type regression to predict ocean stock abundance (predominantly age-3 fish) from the return of age-2 jacks the previous year. However, this regression has overestimated the CVI for the past three years, and the PFMC Salmon Technical Team is currently re-examining the data and statistical methods used for this predictor. A sibling-type regression should account for any variation in freshwater or early ocean mortality, but does not ordinarily account for variation in the maturation schedule. Research has shown that the maturation schedule in Chinook salmon is determined in part by coincident ocean conditions. Thus, incorporating an appropriately defined index of ocean conditions in a sibling regression has the potential to improve its predictive power. The SWFSC recently received NMFS funding to evaluate the merits of this approach for forecasting Klamath River fall Chinook ocean abundance, and this work will be extended to include forecasting of the CVI. In contrast, in recent years the OCN rivers coho salmon predictor has been based on a regression that does include two environmental indices (January sea-surface temperature and spring upwelling anomalies) that has a moderately good statistical fit using data from 1970 to the present. However, for 2008 predictions, the OPI Technical Team (OPITT) adopted a revised data series starting in 1986. The environmental relationship was not statistically significant using the shorter time series so OPITT adopted an alternative method. The poor statistical fit of this predictor in recent years may indicate that the processes controlling early ocean survival for coho are no longer adequately reflected by these two variables. More inclusive indices may provide improved prediction. The multivariable approaches cited above, incorporating biological and environmental data, may more completely characterize ocean ecosystem conditions of the California Current at the appropriate scale affecting salmon early marine survival and their maturation schedules.

In summary, pending further analysis, it appears that unusual ocean conditions are the most likely cause of the low returns examined here, and that continued efforts to quantify the affects of ocean conditions on salmon population abundance should be supported.

Recommendations

We recommend that two technical tasks be undertaken to address the problem:

1) A cross Center team should be tasked to evaluate the likelihood of various causal factors for these events on a coast-wide basis for both coho and Chinook salmon stocks. It is important to have an integrated regional perspective, rather than a localized stock-by-stock analysis. The team should also make recommendations about data needs beyond what is currently available.

2) A program to re-examine predictors for these stocks should be initiated. This should focus on evaluating the statistical methods employed, the potential utility of incorporating environmental indicators into predictors, and evaluating uncertainty in predictors and the management consequences of that uncertainty.

cc. Churchill Grimes, SWFSC
John Stein, NWFSC
Steve Murawski, F

HABITAT COMMITTEE COMMENTS ON REVIEW OF 2007 FISHERIES AND SUMMARY OF 2008 STOCK ABUNDANCE ESTIMATES

The Habitat Committee (HC) received a presentation from Alice Lowe, California Department of Fish and Game (CDFG), on freshwater habitat impacts on Sacramento fall Chinook. Based on information compiled by CDFG, the agency does not believe that problems in the freshwater system precipitated the current crisis. Freshwater conditions were, if anything, better during the brood years of the current adult stock (2004-2005) than in previous years.

In addition, Agenda Item D.1.b enumerated multiple research questions related to Central Valley fall run Chinook salmon. However, the importance of estuaries was not addressed in the list. The HC notes that there is little information about juvenile survival in the estuary, including the ability of the estuary to support the numbers of Chinook entering the estuary and the potential for competition between hatchery and naturally-produced fish for estuary resources. Information from other San Francisco Bay studies indicates that other species are declining as well. Clearly, the low estimate of marine survival incorporates estuary survival, but it is important to determine whether this portion of Chinook life history is limiting production of Sacramento fall Chinook.

While the current crisis may be related to ocean survival, attention and resources must continue to focus on habitat improvements. Improving freshwater (and estuarine) habitat is necessary to provide the best possible survival for whatever run sizes materialize, and to take advantage of improved marine survival conditions when they occur.

The low levels of Chinook stocks along the coast this year raise concerns about our ability to understand and plan for changing ocean conditions. The HC suggests that managers find ways to incorporate changing ocean conditions into forecasts and harvest projections.

PFMC
3/11/08

Agenda Item D.1.c
Supplemental SAS Report
March 2008

SALMON ADVISORY SUBPANEL STATEMENT ON REVIEW OF 2007 FISHERIES AND SUMMARY OF 2008 STOCK ABUNDANCE ESTIMATES

The Salmon Advisory Subpanel (SAS) notes that the California Department of Fish and Game (CDFG) report to the Habitat Committee on Central Valley habitat conditions and juvenile outmigration does not tell the whole story.

Specifically:

1. While 2005 recoveries of juvenile salmon in the Chipps Island trawl survey were at comparable levels as previous years:
    a. Recoveries from 2006 were absent
    b. The three state hatcheries release their fish downstream from the Chipps Island trawl site.
    c. The portion of these fish's life history from Chipps Island to age-2 including their stay in and passage through San Francisco Bay was described by the presenter as a "black hole" for information.

2. No mention was made of net pen releases of state hatchery fish and the relative success of failure of the net pens, which did not operate in 2005 and 2006.

3. No information was presented on the effects of the major bridge reconstruction undertaken in the Carquinez Strait during the critical time for these fish on salmon.

4. No quantitative information on total water outflows to the ocean and water exports from the Delta was presented.

5. The information presented about restoration efforts was too qualitative and general.

In short, the SAS believes that CDFG's presentation falls a long way short of absolving Central Valley freshwater and estuary conditions of at least partial responsibility for the impending Central Valley salmon fishery failure.

PFMC
3/10/08

Subject:
From: Johnny O <outfishu@cox.net>
Date: Wed, 30 Jan 2008 09:01:22 -0800
To: Chuck.Tracy@noaa.gov

Sir, I respectfully submit to you that a large part of the salmon shortage in Washington, Oregon and California is because of the explosion of California sea lions and the increase of the Alaskan salmon harvest.The sea lions now follow boats fishing for salmon and steal our fish and our fishing gear. It doesn't take a scientist to figure this out, please speak to the fishermen that are experiencing these problems.

Thank you

John O'Riordan

Subject: Salmon population collapse
From: Rory Houchin <houchin.rory@sbcglobal.net>
Date: Wed, 30 Jan 2008 10:55:36 -0800
To: Chuck.Tracy@noaa.gov

There are many theories for the collapse of the Sacramento River salmon run. Here's another of the man made variety.
Two changes, put into effect in 2001, at the Coleman National Fish Hatchery has greatly reduced the salmon runs.

1. Hatchery personnel have been killing the early fall run chinooks and donating them to food banks without spawning them.
2. They terminated "trucking" the juvenile salmon past downstream predators and pumping stations. A policy which led to the peak run five years ago. Instead now, they just dump them in the river near Redding.

This was witnessed by a retired fish and game captain on a visit to hatchery three years ago.
You can't blame global warming for every thing. And pumping freshwater from the delta has not increased 88% to coincide with the salmon fishery collapse.
I feel it's something that should be investigated(Coleman Hatchery) and be fixed.
Thank you, sincerely,
Rory Houchin

Subject: west coast Chinook Salmon
From: Michael Edwards <deenmike@msn.com>
Date: Mon, 04 Feb 2008 00:05:58 -0800
To: Chuck.Tracy@noaa.gov

Hi Chuck
I'm Mike Edwards, Just an old Fisherman that has fished the Southern Oregon coast for, well I guess around 40 years. Really paying huge attention to what has been going on with our Salmon fishery and the puzzlement of everyone involved from what I read and also hear. For decades we have heard loud and clear that our problems when ever there is one, is ocean conditions and I mean any mis management or what ever, the blame always goes to the Ocean conditions. Well! this time we are in the middle of a huge decrease in Salmon from Washington to California and it has been the worst by far the last two seasons that I have seen with the biggest declines. The 2007 season as totaly in the toilet. I have a 24' jet and I run rivers from March until the water gets to low and drives me to my drift boat and I know how to use both. We just do not have the fish and it is not going to get better, but! much worse and the culprit is Canada with the nets they are using and as told they know exactly that they are targeting the US fish. I have a good very good friend in Alaska that commercial fishes and they target the hell out of Canadian fish by fishing those early river fisheries, Then with Canada indicating if they want to target there fish we can play the same game and target Alaskas fish. Well they are targeting Washinton and Oregons fisheries. Living in North bend Oregon a friend of mine commercial fishes part time out of Coos Bay, He said if he had to make a living just commercial fishing he'd starve seeing what he has seen in the last 3 years with commercial fisherman. Believe me I'm not sticking up for Commercial fishing one bit as I have seen the Numbers of Coho thrown back as there gear is loaded and one after another thrown back with very little servival rate. When they are dragged through the water for 30-45 minutes most are dead at arrival to the boats and the ones that aren't are stressed so bad they don't make it anyway. With huge numbers of Coho off shore the last two seasons and with no accountability because they just have no answers when these fish are out of our esturaries and at sea. If they did instead of a few sitting on there butts there would be more attention paid on the issues we now have especially when there is no excuse. When I see the Fish that the ODFW is calling our Native fish I have to laugh. I will give you one very very good example. The Sixes River Noted for its full strain of native Steelhead and Also Salmon. This fishery remembering back some years until the city guides found out about our jewel rivers in the Sixes and Elk Rivers. Both very short Rivers. The Elk with a Hatchery just 8 miles from the Pacific and only about a mile apart at the jaws of the rivers The Sixes and Elk. The last 7-10 years I have caught my share of fish on the sixes with more than half being clipped fish and in the last 4, excluding the last 2 more than 70% were clipped fish and this has been going on for god knows how many years prior, we always noticed a few but there were so many fish to us it didn't matter. scale samples proved them to be Elk River chinooks. 2 years ago was the worst season I have seen on the sixes river with the exception of last season in 2007. I landed 2 fish both clipped and I don't know of 2 dozen fish caught all season the Elk was not much better infact they might have gotten just enough fish to spawn. Its not just those 2 rivers but when there is only about 60% clipped at the hatcheries before releasing does everyone think those are a hatchery fish when caught who knows?????? But! when speaking with hatchery personels Biologist about this, they indicate that If! a Chinook that comes from a hatchery and isn't clipped becomes a native to that strain and as aggressive as the Chinook Salmon is it will spawn with the nativs and vise versa. This Bs of Natives chasing off Hatchery/Natives when spawning is total BS I have seen the way they spawn at dry creek the old Chinook Dead line where it still should be, But! it matters no longer as I'm afraid that strain of natives and hatchery fish are gone with no help from a hatchery just a mile away. That is Sickning in itself. What this cousel better do is get this commercial off shore problem taken care of with Alaska, Washington, Oregon and California and if this doesn't happen we will never see these fisheries come back. We NMeed our hatcheries runing at 100% and put fish in our esturaries this is what we pay for. CANADA I'm, telling you needs to be addressed on these issues big time and this netting is totaling rediculeous. They take take take and when I say Take its everything that cant get through those nets. Accidental catches what the heck does that mean it's a licence to catch everything and they do.

We need our hatcheries to run more than 25% as the largest hatchery in the State is running and that is the Rogue river at cole cr. Talk about rediculeous there hasn't been a run in that river for some years eather. the Springer Run is down the toilet. A river that size and prestine with no fish. Where is the Tax payers dollars going??? The General Fund????? We purchase hunting and Fishing Licence and

now the poor person whom used to be able to catch a crab to eat or dig a clam has to pay for what we have no enhancement for Razor Clams, Crabs, and everything else we have including our sturgeon and halibut all we get is restricted and we do not see our dollars working on all these issues. Its never too late to see our fisheries come back, we have seen over the years with mother nature and she always returns us back to a great Oregon, But! this time it is out of her hands. Over commercial fished and the nets are the biggest issue we have today. I thank You for your time and hope this is addressed as I don't think I'm going to quit fishing any time soon. Good Luck you have a big job ahead of you. Be honest with yourself do what this state needs, More fish. Get these hatcheris going by not having or having too many as a few have said . that isn't why there Natives are in the toilet they are nice big Chinooks that cant escape those nets. Concerned sportsman Mike Edwards

Agenda Item D.1.d
Supplemental Public Comment
March 2008

Subject: [Fwd: Salmon]
From: PFMC Comments <pfmc.comments@noaa.gov>
Date: Wed, 27 Feb 2008 08:11:33 -0800
To: Chuck Tracy <Chuck.Tracy@noaa.gov>

Subject: Salmon
From: Larry Gonzi <lagonzi@swe-inc.com>
Date: Tue, 26 Feb 2008 17:03:48 -0800
To: pfmc.comments@noaa.gov

Dear Sir,

It's a shame that I will not be able to take my Grandson salmon fishing this year. What do you tell a young boy who dreams about fishing in the wide open Pacific during the hot summer months? I could see him now as he pilots the boat, doing his best to maintain the proper heading, on our way to the fishing grounds. Yes, memories that last a life time, as I'm sure you well know...

I asked my grandson what does a fish need to survive? His simple answer, water. It's not rocket science, but it appears that the scientist and our trusted state engineers have robbed this child of his right to seek and fulfill his dreams.

We have done a great job in destroying the rivers and delta in Central and Northern California. Again, how do you explain that to a young boy. Maybe you can help me explain this to my Grandson. But, please keep your answers simple. Not to much science...

Sincerely,

Lawrence A. Gonzi
Sacramento, California

Salmon.eml	**Content-Type:**	message/rfc822
	Content-Encoding:	7bit

IDENTIFICATION OF STOCKS NOT MEETING CONSERVATION OBJECTIVES

Overfishing Concern

Each year, exclusive of stocks listed under the Endangered Species Act (ESA), the Salmon Technical Team (STT) must identify any of the natural salmon stocks with conservation objectives identified in the Salmon Fishery Management Plan (FMP) that have failed to meet their conservation objective in each of the past three years (Agenda Item D.2.a, Attachment 1). For any stock so identified that does not meet the exception criteria, an Overfishing Concern is triggered. An Overfishing Concern requires the Council direct the STT and Habitat Committee (HC) to work with State and Tribal fishery managers to complete an assessment of the cause of the conservation shortfalls and provide recommendations to the Council for stock recovery. Based on those recommendations, the Council must take actions within one year of an identified concern to prevent overfishing and begin rebuilding the stock.

In the case of natural stocks which have failed to achieve their conservation objective in each of the past three years, but are exceptions under the Salmon FMP Overfishing Criteria, the STT, HC, and Council should: (1) confirm that harvest impacts in Council fisheries continue to be less than five percent, (2) identify the probable cause of the current stock depression, (3) continue to monitor the status of the stocks, and (4) advocate measures to improve stock productivity.

Table D2_Att_2 (Agenda Item D.2.a, Attachment 2) has been extracted from the STT's Preseason Report I. It indicates that no stock subject to the Overfishing Criteria has failed to achieve its conservation objective in each of the three most recent years. Queets River spring/summer Chinook have not met their conservation objectives in the most recent five years assessed (2003, 2004, 2005, 2006, and 2007), and Quillayute spring/summer Chinook have not met their conservation objective in the most recent four years assessed (2004, 2005, 2006, and 2007). However, these latter two stocks are exceptions under the Salmon FMP Overfishing Concern criteria by virtue of historical harvest impacts of less than five percent in Council-managed ocean salmon fisheries.

Klamath River fall Chinook, which triggered an Overfishing Concern last year, achieved the spawning escapement floor of 35,000 in 2007 with an escapement of 59,731 natural spawning adults.

Preliminary estimates suggest several other stocks that are subject to the FMP Overfishing Criteria failed to achieve their conservation objectives in 2007, including:

- Sacramento River fall Chinook (2007)
- Oregon Coastal Chinook (2007)
- Grays Harbor natural coho (2006 and 2007)
- Queets natural coho (2006 and 2007)
- Quillayute fall natural coho (2006 and 2007)

Conservation Alert

The Salmon FMP (Attachment 1) states that any stock projected to fall short of its conservation objective triggers a Conservation Alert. If the stock in question has not met its conservation objective in the previous two years, the Council shall request the pertinent State and Tribal managers to complete a formal assessment of the primary factors leading to the shortfalls and report their conclusions and recommendations to the Council no later than the March meeting prior to the next salmon season.

In 2008, there are no stocks subject to the FMP Overfishing Criteria that trigger a Conservation Alert in the absence of fishing; however, Sacramento River fall Chinook are close to the trigger point and may provide limited harvestable surplus.

Council Action:

1. **Identify naturally spawning stocks failing to meet their conservation objectives (exclusive of stocks listed under the ESA).**
2. **Identify naturally spawning stocks projected to not meet their conservation objectives in 2008 (exclusive of stocks listed under the ESA).**
3. **Confirm implementation of the actions required by the Council's Overfishing Concern and Conservation Alert procedures in the salmon FMP. (For stocks that are exceptions to the Overfishing Concerns, these actions involve confirming continued low impacts by Council fisheries, identifying the probable cause of the depression, monitoring the status of the stocks, and advocating measures to improve stock productivity.)**

Reference Materials:

1. Agenda Item D.2.a, Attachment 1: Excerpt from the Pacific Coast Salmon Plan – § 3.2. Overfishing Criteria.
2. Agenda Item D.2.a, Attachment 2: Table D2_Att_2.

Agenda Order:

a. Agenda Item Overview — Chuck Tracy
b. Agency and Tribal Comments
c. Reports and Comments of Advisory Bodies
d. Public Comment
e. **Council Action:** Direct Necessary Actions Required by the Salmon Fishery Management Plan

PFMC
02/26/08

EXCERPT FROM THE PACIFIC COAST SALMON PLAN

3.2 OVERFISHING CRITERIA

"Any fishery management plan . . . shall . . . specify objective and measurable criteria for identifying when the fishery . . . is overfished . . . and, . . . contain conservation and management measures to prevent overfishing or end overfishing and rebuild the fishery;"
Magnuson-Stevens Act, § 303(a)(10)

"The terms overfishing and overfished mean a rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce the maximum sustainable yield on a continuing basis."
Magnuson-Stevens Act, § 3(29)

In applying the Magnuson-Stevens Act definition of overfishing to salmon fisheries and establishing criteria by which to identify it, the Council must consider the uncertainty and theoretical aspects of MSY as well as the complexity and variability unique to naturally producing salmon populations. These unique aspects include the interaction of a short-lived species with frequent, sometimes protracted, and often major variations in both the freshwater and marine environments. These variations may act in unison or in opposition to affect salmon productivity in both positive and negative ways. In addition, variations in natural populations may sometimes be difficult to measure due to masking by artificially produced salmon.

3.2.1 General Application to Salmon Fisheries

In setting criteria from which to judge the conservation status of salmon stocks, the unique life history of salmon must be considered. Chinook, coho, and pink salmon are short-lived species (generally two to six years) that reproduce only once shortly before dying. Spawning escapements of coho and pink salmon are dominated by a single-year class and chinook spawning escapements may be dominated by no more than one or two-year classes. The abundance of year classes can fluctuate dramatically with combinations of natural and human-caused environmental variation. Therefore, it is not unusual for a healthy and relatively abundant salmon stock to produce occasional spawning escapements which, even with little or no fishing impacts, may be significantly below the long-term average associated with the production of MSY. This phenomenon has been observed in recent years for numerous salmon stocks, including Klamath River fall chinook and several Washington coho stocks.

Numerous West Coast salmon stocks have suffered, and continue to suffer, from an onslaught of nonfishing activities that severely reduce natural survival by such actions as the elimination or degradation of freshwater spawning and rearing habitat. The consequence of this man-caused, habitat-based variation is two fold. First, these habitat changes increase large scale variations in stock productivity and associated stock abundances, which in turn complicate the overall determination of MSY and the specific assessment of whether a stock is producing at or below that level. Secondly, as the productivity of the freshwater habitat is diminished, the benefit of

further reductions in fishing mortality to improve stock abundance decreases. Clearly, the failure of several stocks managed under this FMP to produce at an historic or consistent MSY level has little to do with current fishing impacts and often cannot be rectified with the cessation of all fishing.

To address the requirements of the Magnuson-Stevens Act to clearly identify when a stock may be approaching an overfished condition or is overfished, the Council has established two separate criteria based on a stock's failure to meet its conservation objective. These criteria are denoted as a "conservation alert" and an "overfishing concern". The criteria for these two categories are based on the unique life history of salmon and the large variations in annual stock abundance due to numerous environmental variables. They also take into account the uncertainty and imprecision surrounding many estimates of MSY, fishery impacts, and spawner escapements. In recognition of the unique salmon life history, the criteria differ somewhat from the general guidance in the National Standard Guidelines (§ 600.310), but equal or exceed them in addressing the overfishing issue as it relates to salmon.

3.2.2 Conservation Alert

> *"A fishery shall be classified as approaching a condition of being overfished if, based on trends in fishing effort, fishery resource size, and other appropriate factors, the Secretary estimates that the fishery will become overfished within two years."*
>
> *Magnuson-Stevens Act, § 304(e)(1)*

To anticipate and react to potential stock declines which might lead to overfishing, the Council has established a conservation alert process with criteria and actions as described below.

3.2.2.1 Criteria

A conservation alert is triggered during the annual preseason process (Chapter 9) if a natural stock or stock complex, listed in Table 3-1, is projected to fall short of its conservation objective (MSY, MSY proxy, MSP, or floor in the case of some harvest rate objectives [e.g., 35,000 natural Klamath River fall chinook spawners]). While a projected one-year shortfall may be of little biological concern, it may also represent the beginning of production problems and is worthy of note to help prevent future stock decline.

3.2.2.2 Council Action

For all natural stocks which meet the conservation alert criteria, the Council will notify pertinent fishery and habitat managers, advising that the stock may be temporarily depressed or approaching an overfishing concern (depending on its recent conservation status), and request that state and tribal fishery managers identify the probable causes, if known. If the stock in question has not met its conservation objective in the previous two years, the Council will request the pertinent state and tribal managers to do a formal assessment of the primary factors leading to the shortfalls and report their conclusions and recommendations to the Council no later than the March meeting prior to the next salmon season.

The Council will take the following actions for stocks which trigger a conservation alert that do not qualify as exceptions under Section 3.2.4 (see Table 3-1):

1. Close salmon fisheries within Council jurisdiction that impact the stock.

2. In the case of Washington coastal and Puget Sound salmon stocks and fisheries managed under U.S. District Court orders, the Council may allow fisheries which meet annual spawner targets developed through relevant U.S. v. Washington, Hoh v. Baldrige, and subsequent U.S. District Court ordered processes and plans, which may vary from the MSY or MSP conservation objectives. Other than the exceptions noted above, the Council may not recommend ocean salmon fisheries which are expected to trigger a conservation alert.

If postseason estimates confirm that a stock conservation objective is not met, a rebuilding program for the following year is implicit in the conservation objective since it is based on annually meeting MSY or MSP. In addition, the Council reviews stock status annually and, where needed, identifies actions required to improve estimation procedures and correct biases. Such improvements provide greater assurance that objectives will be achieved in future seasons. Consequently, a remedial response is built into the preseason planning process to address excessive fishing mortality levels relative to the conservation objective of a stock.

The Council does not believe that a one year departure from the MSY/MSP spawner objective for salmon affects the capacity of a stock to produce MSY over the long-term (i.e., does not constitute overfishing as defined by the Magnuson-Stevens Act). However, the Council's use of a conservation alert and the rebuilding effect of the conservation objectives provides for sound resource management and responds to the concept in the National Standard Guidelines for action to address overfishing concerns in any one year. The Council's conservation objectives which are used to trigger a conservation alert are generally based on MSY or MSP rather than a minimum stock size threshold. In this respect, the Council's management approach is more conservative than recommended by the National Standard Guidelines.

3.2.3 Overfishing Concern

> *"For a fishery that is overfished, any fishery management plan, amendment, or proposed regulations . . . for such fishery shall–(A) specify a time period for ending overfishing and rebuilding the fishery that shall–(i) be as short as possible, taking into account the status and biology of any overfished stocks of fish, the needs of the fishing communities, recommendations by international organizations in which the United States participates, and the interaction of the overfished stock within the marine ecosystem; and (ii) not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise. . .."*
>
> *Magnuson-Stevens Act, § 304(e)(4)*

The Magnuson-Stevens Act requires overfishing be ended and stocks rebuilt in as short a period as possible and, depending on other factors, no longer than ten years. For healthy salmon stocks which may experience a sudden reduction in production and/or spawner escapement, the limitation on fishing impacts provided by the Council's MSY or MSY proxy conservation objectives provide a stock rebuilding plan that should be effective within a single salmon

generation (two years for pinks, three years for coho, and three to five years for chinook). However, additional actions may be necessary to prevent overfishing of stocks suffering from chronic depression due to fishery impacts outside Council authority, or from habitat degradation or long-term environmental fluctuations. Such stocks may meet the criteria invoking the Council's overfishing concern.

3.2.3.1 Criteria

The Council's criteria for an overfishing concern are met if, in three consecutive years, the postseason estimates indicate a natural stock has fallen short of its conservation objective (MSY, MSP, or spawner floor as noted for some harvest rate objectives) in Table 3-1. It is possible that this situation could represent normal variation, as has been seen in the past for several previously referenced salmon stocks which were reviewed under the Council's former overfishing definition. However, the occurrence of three consecutive years of reduced stock size or spawner escapements, depending on the magnitude of the short-fall, could signal the beginning of a critical downward trend (e.g., Oregon coastal coho) which may result in fishing that jeopardizes the capacity of the stock to produce MSY over the long term if appropriate actions are not taken to ensure the automatic rebuilding feature of the conservation objectives is achieved.

3.2.4 Exceptions

"Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches."
Magnuson-Stevens Act, National Standard 6

This plan contains three exceptions to the application of overfishing criteria and subsequent Council actions for stocks or stock complexes with conservation objectives in Table 3-1: (1) hatchery stocks, (2) stocks for which Council management actions have inconsequential impacts, and (3) stocks listed under the ESA.

3.2.4.2 Natural Stocks with Minimal Harvest Impacts in Council-Managed Fisheries

Several natural stock components identified within this FMP are subject to minimal harvest impacts in Council fisheries because of migration timing and/or distribution. As a result, the Council's ability to affect the overall trend in the abundance of these components through harvest restrictions is virtually nil. Components in this category are identified by a cumulative adult equivalent exploitation rate of less than five percent in ocean fisheries under Council jurisdiction during base periods utilized by the fishery regulation assessment models (1979-1982 for chinook and 1979-1981 for coho). Council action for these components, when a conservation alert or an overfishing concern are triggered, will consist of confirming negligible impacts of proposed Council fisheries, identifying factors which have led to the decline or low abundance (e.g., fishery impacts outside Council jurisdiction, or degradation or loss of essential fish habitat), and monitoring of abundance trends and total harvest impact levels. Council action will focus on advocating measures to improve stock productivity, such as reduced interceptions in non-Council-managed fisheries, and improvements in spawning and rearing habitat, fish passage, flows, and other factors affecting overall stock survival.

Table D2_Att_2. Achievement of conservation objectives for natural stocks listed in Table 3-1 of the Pacific Coast Salmon Plan. Bolded numbers indicate a failure to meet the conservation objective. Stocks listed under the Endangered Species Act are not included. (Page 1 of 2)

Stock and Conservation Objective (thousands of spawners; spawners per mile; impact or replacement rate)	**Observed or Projected Conservation Achievement** (postseason estimates of thousands of spawners or spawners per mile; preseason or postseason impact or replacement rate)									**Overfishing Criteria**		
CHINOOK	2000	2001	2002	2003	2004	2005	2006	2007[a/]	2008[b/]	Alert[c/]	Concern[d/]	Exception[e/]
Sacramento River Fall 122.0 - 180.0 adult spawners	416.8	546.1	775.5	521.6	283.6	394.0	267.9	**88.0**	**68.4**	No	No	No
Klamath River Fall - < 66%-67% avg. spawner reduction rate but no less than 35.0 adult natural spawners annually	82.7	77.8	65.6	87.6	**24.1**	**26.8**	**30.2**	59.7	**26.9**	No	**Yes**	No
Southern, Central and Northern Oregon Coast Spring and Fall No less than 60 adult spawners/mile[f/]	85.0	203.0	268.0	297.0	211.0	118.0	106.0	**42.0**	NA	No	No	No
Upper Columbia River Bright Fall 43.5 adults over McNary Dam Council area base period impacts <4%	66.4	110.5	141.7	180.0	170.6	134.8	91.0	58.7	>43.5	No	No	Exp. Rate
Columbia River Summer Chinook 80.0 to 90.0 adults over Bonneville Dam Council area base period impacts <2%	**30.6**	**76.2**	127.4	114.8	NA	NA	NA	NA	NA	NA	NA	NA
In 2004 state and tribal co-managers changed the stock definition from Chinook passing Bonneville Dam after May 31 to Chinook passing Bonneville Dam after June 14, and the goal changed to 29,000 at the river mouth	**23.2**	54.9	92.8	83.1	65.4	60.1	76.2	37.2	45.6	No	No	Exp. Rate
Grays Harbor Fall - 14.6 adult spawners (MSP)	**9.3**	**9.5**	**11.3**	19.4	31.8	19.5	17.1	NA	NA[g/]	No	No	Exp. Rate
Grays Harbor Spring - 1.4 adult spawners	3.1	2.9	2.6	1.9	5.0	2.1	2.5	NA	NA[g/]	No	No	Exp. Rate
Queets Fall - no less than 2.5 adult spawners (MSY)	3.6	**2.3**	**2.1**	4.1	3.6	3.1	**2.3**	**1.9**	NA[g/]	No	No	Exp. Rate
Queets Spring/Summer - no less than 0.7 adult spawners	**0.2**	**0.5**	0.7	**0.2**	**0.6**	**0.3**	**0.3**	**0.4**	NA[g/]	Limited[e/]	No	Exp. Rate
Hoh Fall - no less than 1.2 adult spawners (MSY)	1.7	2.6	4.4	1.6	3.2	4.2	1.5	1.7	2.9	No	No	Exp. Rate
Hoh Spring/Summer - no less than 0.9 adult spawners	0.5	1.2	2.5	1.2	1.8	1.2	0.9	**0.8**	**0.9**	No	No	Exp. Rate
Quillayute Fall - no less than 3.0 adult spawners (MSY)	3.7	5.1	6.1	7.4	3.8	6.4	5.6	**2.9**	5.5	No	No	Exp. Rate
Quillayute Spring/Summer - 1.2 adult spawners (MSY)	**1.0**	1.2	**1.0**	1.2	**1.1**	**0.9**	**0.6**	NA	2.5	Limited[e/]	No	Exp. Rate

TABLE I-3. Achievement of conservation objectives for natural stocks listed in Table 3-1 of the Pacific Coast Salmon Plan. Bolded numbers indicate a failure to meet the conservation objective. Stocks listed under the Endangered Species Act are not included. (Page 2 of 2)

Stock and Conservation Objective (thousands of spawners; spawners per mile; impact or replacement rate)	**Observed or Projected Conservation Achievement** (postseason estimates of thousands of spawners or spawners per mile; preseason or postseason impact or replacement rate)									**Overfishing Criteria**		
COHO	2000	2001	2002	2003	2004	2005	2006	2007[a/]	2008[b/]	Alert[c/]	Concern[d/]	Exception[e/]
Grays Harbor - 35.4 adult spawners (MSP)	38.1	79.1	108.7	83.9	60.7	44.1	**14.4**	**23.7**	>35.4	No	No	No
Queets - 5.8 to 14.5 adult spawners (MSY range) Includes supplemental adults prior to 2006.	8.6	24.9	13.8	10.6	8.7	6.5	**5.4**	**5.3**	>5.8	No	No	No
Hoh - 2.0 to 5.0 adult spawners (MSY range)	6.8	10.8	9.0	6.3	4.7	4.7	**1.3**	3.1	>2.0	No	No	No
Quillayute Fall - 6.3 to 15.8 adult spawners (MSY range)	13.3	18.9	23.0	14.8	13.4	11.5	**5.6**	**5.6**	>6.3	No	No	No
Western Strait of Juan de Fuca - 11.9 adult spawners	16.9	34.3	20.6	12.4	12.0	6.8	>11.9	>11.9	>11.9	No	No	No
Eastern Strait of Juan de Fuca - 0.95 adult spawners	2.1	2.6	2.5	2.9	8.5	3.4	>0.95	>0.95	>0.95	No	No	No
Hood Canal - 21.5 adult spawners (MSP)	27.2	94.8	69.3	170.3	146.9	38.1	**13.8**	>21.5	**15.0**	No	No	No
Skagit - 30.0 adult spawners (MSP)	62.9	87.0	56.0	69.2	138.8	34.7	**14.5**	>30.0	41.5	No	No	No
Stillaguamish - 17.0 adult spawners (MSP)	28.3	73.6	27.3	45.7	59.2	25.8	**8.5**	38.7	20.4	No	No	No
Snohomish - 70.0 adult spawners (MSP)	94.2	261.8	161.6	182.7	252.8	109.0	75.8	117.9	**61.9**	No	No	No

a/ Preliminary data.

b/ Preliminary approximations based on preseason abundance projections and last year's regulations or season structures.

c/ Conservation Alert - triggered during the annual preseason process if a natural stock or stock complex, listed in Table 3-1 of the salmon FMP, is projected to fall short of its conservation objective (MSY, MSY proxy, MSP, or floor in the case of some harvest rate objectives [e.g., 35,000 natural Klamath River fall Chinook spawners]).

Actions for Stocks that are not Exceptions - The Council will close salmon fisheries within its jurisdiction which impact the stocks, except in the case of Washington coastal and Puget Sound salmon stocks and fisheries managed under U.S. District Court orders. In these cases, the Council may allow fisheries which meet annual spawner targets developed through relevant U.S. v. Washington, Hoh v. Baldrige, and subsequent U.S. District Court ordered processes and plans, that may vary from the MSY or MSP conservation objectives. For all natural stocks that meet the conservation alert criteria, the Council will notify pertinent fishery and habitat managers, advising that the stock may be temporarily depressed or approaching an overfishing concern (depending on its recent conservation status), and request state and tribal fishery managers identify the probable causes, if known. If the stock has not met its conservation objective in the previous two years, the Council will request state and tribal managers to do a formal assessment of the primary factors leading to the shortfalls and report to the Council no later than the March meeting prior to the next salmon season.

d/ Overfishing concern - triggered if, in three consecutive years, the postseason estimates indicate a natural stock, listed in Table 3-1 of the salmon FMP, has fallen short of its conservation objective (MSY, MSP, or spawner floor as noted for some harvest rate objectives).

Actions required for Stocks that are not Exceptions - Within one year, the STT to recommend and the Council to adopt management measures to end the overfishing concern and recover the stock in as short a time as possible, preferably within ten years or less. The HC to provide recommendations for habitat restoration and enhancement measures within a suitable time frame.

e/ Exception -application of the conservation alert and overfishing criteria and subsequent Council actions do not apply for (1) hatchery stocks, (2) natural stocks with a cumulative adult equivalent exploitation rate of less than 5% in ocean fisheries under Council jurisdiction during the FRAM base periods, and (3) stocks listed under the ESA.

Conservation Alert and Overfishing Concern Actions for Natural Stocks that are Exceptions (those with exploitation rates limited to less than 5% in base period Council-area ocean fisheries) - Use the expertise of STT and HC to confirm negligible impacts of proposed Council fisheries, identify factors which have led to the decline or low abundance (e.g., fishery impacts outside Council jurisdiction, or degradation or loss of essential fish habitat) and monitor abundance trends and total harvest impact levels. Council action will focus on advocating measures to improve stock productivity, such as reduced interceptions in non-Council managed fisheries, and improvements in spawning and rearing habitat, fish passage, flows, and other factors affecting overall stock survival.

f/ Based on the sum of south/local and north migrating spawners per mile weighted by the total number of miles surveyed for each of the two components (2.2 miles for south/local and 7.5 miles for northern stocks).

g/ Preseason forecasts are not available for Washington coastal Chinook stocks.

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON IDENTIFICATION OF STOCKS NOT MEETING CONSERVATION OBJECTIVES

Dr. Robert Kope reported to the Scientific and Statistical Committee (SSC) that five salmon stocks have failed to achieve their conservation objectives for one year or two consecutive years. These are Sacramento River fall Chinook (2007), Oregon Coastal Chinook (2007), Grays Harbor natural coho (2006 and 2007), Queets natural coho (2006 and 2007), and Quillayute fall natural coho (2006 and 2007). If any of these stocks fails to achieve the conservation objective for three consecutive years, Overfishing Concern will be triggered.

The Queets River spring/summer Chinook and Quillayute spring/summer Chinook have not met their escapement goals for four or more consecutive years. However, these stocks are exceptions to the Council's overfishing policy because they are harvested at a less than five percent exploitation rate in Council fisheries. Klamath River fall Chinook, which triggered an Overfishing Concern in 2006, had a natural spawning escapement level above the floor in 2007.

PFMC
03/11/08

KLAMATH RIVER FALL CHINOOK STOCK ASSESSMENT AND MANAGEMENT RECOMMENDATIONS

At its March 2007 meeting, the Council confirmed that Klamath River fall Chinook (KRFC) had failed to meet the 35,000 adult natural spawning escapement objective for the third consecutive year, triggering an Overfishing Concern as specified in the Pacific Coast Salmon Fishery Management Plan (FMP) (Agenda Item D.3.a, Attachment 1). The Council directed the Salmon Technical Team (STT) to develop an assessment of the KRFC stock, as required by the FMP, in coordination with the Hoopa and Yurok tribes, the Habitat Committee (HC), and other relevant state and federal agency personnel. The assessment was to appraise fishing impacts, determine the cause of the escapement shortfalls, and assess the significance of stock depression with regard to achieving maximum sustainable yield (MSY) on a continuing basis. Further, the FMP tasks the STT and HC to provide recommendations to the Council to assure the conservation objective is met and identify actions to recover the stock.

The STT designated a subcommittee to work with tribal and other agency personnel to complete the assessment. A preliminary draft was submitted to the Council at its September 2007 meeting, and the subcommittee met on several occasions since then to complete the report (Agenda Item D.3.b, STT Stock Assessment).

Based on the direction provided in the FMP (Attachment 1), the Council will review the STT report. Then, utilizing that report and other pertinent advisory body comments, the Council will adopt its recommended actions to ensure the stock's conservation objective will be met in the future. If necessary, the action could include a specific rebuilding plan to ensure recovery to the levels that reflect MSY or other criteria. Specifically, the Council's action should:

1. Specify actions that ensure the current conservation objective or a new stock recovery objective is met. Those actions should be reflected in the Council's annual management measures, and may be incorporated into a formal rebuilding plan. The stock assessment recommendations for stock recovery are tied to criteria defining an end to the Overfishing Concern.

2. Specify criteria to define the end of the current Overfishing Concern. The Council must determine if the default rebuilding feature of the FMP is adequate to end the current Overfishing Concern, or if additional criteria, as recommended in the STT assessment, should be met in this specific case. The default criterion of achieving the conservation objective for KRFC was met in 2007 with a natural spawning escapement of 59,731 adults. The STT Assessment recommends additional requirements to end the current Overfishing Concern, including achieving the conservation objective in three of four consecutive years and achieving the best current estimate of maximum sustainable yield stock size (40,700 natural spawners) at least once.

3. Consider action on other recommendations in the stock assessment. There are a total of 13 recommendations in the stock assessment concerning fishery management, hatchery practices, research, and restoration and enhancement measures.

4. Identify how the Council's actions are to be implemented. Implementation of the Council's decisions may require action in the annual regulations or through a fishery management plan amendment. If the Council determines a special rebuilding plan beyond the default rebuilding feature in the FMP is necessary to rebuild the stock, the Council should specify the process by which those actions would be formalized (e.g., formal plan amendment, technical amendment, regulatory amendment, etc.) and provide direction for initiating the process.

Council Action:

1. **Review Agenda Item D.3.a, Attachment 1 and pertinent advisory body comments.**
2. **Specify actions to ensure the KRFC conservation objective is met.**
3. **Specify criteria to determine the end of the Overfishing Concern for KRFC.**
4. **Consider action on other recommendations in the stock assessment.**
5. **Specify how implementation of the Council's actions will be achieved, depending on the decisions under Council Actions 2 through 4 above.**

Reference Materials:

1. Agenda Item D.3.a, Attachment 1: Excerpt from the Pacific Coast Salmon Plan.
2. Agenda Item D.3.b, KRFC Stock Assessment: Assessment of factors affecting natural area escapement shortfall of Klamath River fall Chinook salmon in 2004-2006.

Agenda Order:

a. Agenda Item Overview — Chuck Tracy
b. Salmon Technical Team Assessment — Robert Kope
c. Agency and Tribal Comments
d. Reports and Comments of Advisory Bodies
e. Public Comment
f. **Council Action:** Direct Necessary Actions Required by the Salmon Fishery Management Plan

PFMC
02/22/08

EXCERPT FROM THE PACIFIC COAST SALMON PLAN

3.2.3 Overfishing Concern

> *"For a fishery that is overfished, any fishery management plan, amendment, or proposed regulations . . . for such fishery shall–(A) specify a time period for ending overfishing and rebuilding the fishery that shall–(i) be as short as possible, taking into account the status and biology of any overfished stocks of fish, the needs of the fishing communities, recommendations by international organizations in which the United States participates, and the interaction of the overfished stock within the marine ecosystem; and (ii) not exceed 10 years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise. . .."*
>
> *Magnuson-Stevens Act, § 304(e)(4)*

The Magnuson-Stevens Act requires overfishing be ended and stocks rebuilt in as short a period as possible and, depending on other factors, no longer than ten years. For healthy salmon stocks which may experience a sudden reduction in production and/or spawner escapement, the limitation on fishing impacts provided by the Council's MSY or MSY proxy conservation objectives provide a stock rebuilding plan that should be effective within a single salmon generation (two years for pinks, three years for coho, and three to five years for chinook). However, additional actions may be necessary to prevent overfishing of stocks suffering from chronic depression due to fishery impacts outside Council authority, or from habitat degradation or long-term environmental fluctuations. Such stocks may meet the criteria invoking the Council's overfishing concern.

3.2.3.1 Criteria

The Council's criteria for an overfishing concern are met if, in three consecutive years, the postseason estimates indicate a natural stock has fallen short of its conservation objective (MSY, MSP, or spawner floor as noted for some harvest rate objectives) in Table 3-1. It is possible that this situation could represent normal variation, as has been seen in the past for several previously referenced salmon stocks which were reviewed under the Council's former overfishing definition. However, the occurrence of three consecutive years of reduced stock size or spawner escapements, depending on the magnitude of the short-fall, could signal the beginning of a critical downward trend (e.g., Oregon coastal coho) which may result in fishing that jeopardizes the capacity of the stock to produce MSY over the long term if appropriate actions are not taken to ensure the automatic rebuilding feature of the conservation objectives is achieved.

3.2.3.2 Assessment

When an overfishing concern is triggered, the Council will direct its STT to work with state and tribal fishery managers to complete an assessment of the stock within one year (generally, between April and the March Council meeting of the following year). The assessment will appraise the actual level and source of fishing impacts on the stock, consider if excessive fishing has been inadvertently allowed by estimation errors or other factors, identify any other pertinent factors leading to the overfishing concern, and assess the overall significance of the present stock depression with regard to achieving MSY on a continuing basis.

Depending on its findings, the STT will recommend any needed adjustments to annual management measures to assure the conservation objective is met, or recommend adjustments to the conservation objective which may more closely reflect the MSY or ensure rebuilding to that level. Within the constraints presented by the biology of the stock, variations in environmental conditions, and the needs of the fishing communities, the STT recommendations should identify actions that will recover the stock in as short a time as possible, preferably within ten years or less, and provide criteria for identifying stock recovery and the end of the overfishing concern. The STT recommendations should cover harvest management, potential enhancement activities, hatchery practices, and any needed research. The STT may identify the need for special programs or analyses by experts outside the Council advisors to assure the long-term recovery of the salmon population in question. Due to a lack of data for some stocks, environmental variation, economic and social impacts, and habitat losses or problems beyond the control or management authority of the Council, it is likely that recovery of depressed stocks in some cases could take much longer than ten years.

In addition to the STT assessment, the Council will direct its Habitat Committee (HC) to work with federal, state, local, and tribal habitat experts to review the status of the essential fish habitat affecting this stock and, as appropriate, provide recommendations to the Council for restoration and enhancement measures within a suitable time frame.

3.2.3.3 Council Action

Following its review of the STT report, the Council will specify the actions that will comprise its immediate response for ensuring that the stock's conservation objective is met or a rebuilding plan is properly implemented and any inadvertent excessive fishing within Council jurisdiction is ended. The Council's rebuilding plan will establish the criteria that identify recovery of the stock and the end of the overfishing concern. In some cases, it may become necessary to modify the existing conservation objective/rebuilding plan to respond to habitat or other long-term changes. Even if fishing is not the primary factor in the depression of the stock or stock complex, the Council must act to limit the exploitation rate of fisheries within its jurisdiction so as not to limit recovery of the stock or fisheries, or as is necessary to comply with ESA consultation standards. In cases where no action within Council authority can be identified which has a reasonable expectation of providing benefits to the stock unit in question, the Council will identify the actions required by other entities to recover the depressed stock. Upon review of the report from the HC, the Council will take actions to promote any needed restitution of the identified habitat problems.

For those fishery management actions within Council authority and expertise, the Council may change analytical or procedural methodologies to improve the accuracy of estimates for abundance, harvest impacts, and MSY escapement levels, and/or reduce ocean harvest impacts when shown to be effective in stock recovery. For those causes beyond Council control or expertise, the Council may make recommendations to those entities which have the authority and expertise to change preseason prediction methodology, improve habitat, modify enhancement activities, and re-evaluate management and conservation objectives for potential modification through the appropriate Council process.

3.2.3.4 End of Overfishing Concern

The criteria for determining the end of an overfishing concern will be included as a part of any rebuilding plan adopted by the Council. Additionally, an overfishing concern will be ended if the STT stock analysis provides a clear finding that the Council's ability to affect the overall trend in the stock abundance through harvest restrictions is virtually nil under the "exceptions" criteria below for natural stocks.

Agenda Item D.3.b
KRFC Stock Assessment
March 2008

ASSESSMENT OF FACTORS AFFECTING NATURAL AREA ESCAPEMENT SHORTFALL OF KLAMATH RIVER FALL CHINOOK SALMON IN 2004-2006

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EXECUTIVE SUMMARY

Klamath River fall Chinook (KRFC) failed to meet the Pacific Fishery Management Council's (Council's) conservation objective of at least 35,000 adult natural spawners in 2004, 2005, and 2006. In accordance with the Fishery Management Plan (FMP), the Council convened a workgroup consisting of members of the Salmon Technical Team (STT), with assistance from members of the Habitat Committee (HC), and the tribes and resource management agencies involved with management of the Klamath River and its salmon fisheries. The charge to this workgroup was to investigate the causes of this failure, and to determine if overfishing of KRFC occurred.

The workgroup reviewed as many factors as possible that could have played a role in the decline of the Klamath Fall Chinook during the years leading up to, and contributing to, the Overfishing Concern. The Council's HC draft report provided much of the background related to factors potentially affecting the production of juvenile out migrants from the river system in the contributing brood years. These sections of the report identify problems in the basin that limit production and adversely affect juvenile survival, as well as information gaps about juvenile production and survival, and the factors affecting them. The STT provided analysis of the fishery management context for the three consecutive years in which the stock failed to meet its conservation objective, including modifications to the Klamath Ocean Harvest Model (KOHM), implemented to reduce apparent biases in 2003—2005, which resulted in reduced harvest impacts in 2006.

The habitat sections in the report present discussion of river flows, temperatures, competition, predation, and disease that affected the survival of out migrant juvenile fish. In all of these cases it was not possible to quantify a relationship between the causal factor and juvenile production that resulted in stock depression during the overfishing assessment (OA) period. The work group was unable to find any studies that confirmed the causal factors of the population decline. However there were factors identified such as incidence of disease that likely contributed to reduced survival. Another example of these likely causal factors was the unknown effect of predation by a steelhead population that was increasing during the years of Chinook decline. All of these considerations could only be speculative because of the lack of data or specific studies to demonstrate the effects. A freshwater survival index was calculated, using hatchery fingerling releases as indicators of the natural stock. Survival rates were calculated as the reconstructed abundance of hatchery cohorts age-2 September 1 in the ocean, divided by the number released. These calculated survival rates included mortality in the latter phase of river, estuary and early ocean life. The results of this analysis showed that of the affected broods only the 2001 brood and probably the upcoming 2003 brood showed depressed survival rates, but not the 2000 or 2002 broods. These sections demonstrate that early life history survival is complex, and the factors that influence it are difficult to quantify and likely vary from year to year.

The sections of the report that consider the role of fishery management in the Overfishing Concern clearly demonstrate where variability in abundance forecasts and predictions in ocean fishery impacts resulted in natural adult spawning escapements that were lower than anticipated in 2004, and 2005, and though higher than anticipated in 2006, were still below the floor of 35,000 natural adult spawners. In 2004, fishery management measures were adopted to target

the escapement floor. Ocean abundance of KRFC was slightly higher than forecasted, but impacts in ocean fisheries were substantially higher than the model predicted, resulting in a reduced terminal run and failure to meet the floor. In 2005, fishery management measures were again adopted that were intended to target the escapement floor. Ocean abundance was lower than forecast, and ocean harvest impacts again exceeded expectations resulting in failure to meet the floor for a second year. In 2006, modifications were made in the modeling of ocean fisheries to address apparent bias in some model components the forecast; however, the preseason forecast abundance was insufficient to meet the escapement floor in the absence of fishing. Through an Emergency Rule, management measures were adopted to allow summer fisheries that resulted in an expected escapement of 21,100 natural adult spawners. Ocean abundance was higher than the preseason forecast, and ocean fishery impacts were as anticipated, producing a natural adult spawning escapement greater than predicted, but still below the floor. In each of these years, fall fisheries in the preceding year had reduced ocean abundance, limiting management flexibility for summer fisheries. However, ocean abundance of KRFC was still sufficient to meet the escapement floor in the absence of fishing, though after the impacts of fall fisheries, this would have required severely restricting ocean fisheries in 2005 and 2006.

In any one year, the maximum fishery mortality rate allowable under the Council's Pacific Coast Salmon FMP, as amended through Amendment 14, is the maximum rate that would allow the stock in question to meet its conservation objective (PFMC 2003 § 3.1); or zero if the stock could not meet its conservation objective even in the absence of fishing (PFMC 2003 § 3.2.2.2). Conservation objectives may be expressed in terms of escapements, exploitation rates, or both. In the case of KRFC, the maximum allowable fishery mortality rate is implicitly defined by its ocean abundance and the minimum spawner requirement, not to exceed a spawner reduction rate of 2/3. In any one year, *overfishing* is said to have occurred if the realized fishery mortality rate exceeded the maximum allowable rate under the FMP. Thus, if a stock's ocean abundance was sufficient to meet the conservation objective in the absence of fishing, but the objective was in fact not met in the presence of fishing, then overfishing occurred and the fishery management process may generally be faulted. On the other hand, if the stock's ocean abundance was insufficient to meet the conservation objective in the absence of fishing, overfishing, if it occurred, may not have been the sole factor responsible for the stock not meeting its conservation objective. Other factors such as especially poor stock production and/or survival at earlier life stages may have been largely responsible for the stock not meeting its conservation objective.

The ocean abundance of KRFC during the period of the Overfishing Concern was high enough to have met the FMP conservation objective for this stock in each of these three years had the fisheries been sufficiently limited. The workgroup thus concludes that overfishing of KRFC occurred in 2004, 2005, and 2006. The primary cause for overfishing in 2004 and 2005 was a substantial under-forecast of the ocean commercial fishery mortality. In 2006 the primary cause was a policy decision to allow fisheries to proceed under emergency rule. Meeting the escapement floor in any one of these three years would have averted this Overfishing Concern.

The aggregate natural spawning escapement levels observed during the OAP were below the best estimate of spawning stock size at maximum sustainable yield (S_{MSY}), however they were not unprecedented. Between 1990 and 1994 there were much lower natural spawning escapements,

and for a more extended period than in 2004 through 2006, and yet the aggregate population abundance recovered. In fact some of the larger broods on record, including the parent broods of the OAP natural spawners, occurred subsequent to the 1990-1994 period. If the aggregate abundance were all that mattered, there would probably be little concern for the potential of the current shortfall to affect long-term productivity of KRFC. However, the sequential low spawning escapements in the Salmon and Scott rivers during the OAP are unprecedented. The current depression of these key natural sub-stocks does raise concerns regarding the long-term genetic integrity of KRFC that were not present during the 1990 to 1994 period. The loss of genetic integrity raises concerns for the ability of KRFC to produce MSY on a continuing basis.

The workgroup's recommendations are:

1. Consider the Overfishing Concern of KRFC ended when a natural spawning escapement of at least 35,000 adults is achieved in three out of four consecutive years with a natural spawning escapement of 40,700 adult KRFC (SMSY) or more in at least one of those three years.

2. Target a natural spawning escapement of 40,700 adult KRFC until the Overfishing Concern is ended (the rebuilding period).

3. When implementing *de minimis* fisheries during the rebuilding period, provide for an age-4 ocean impact rate of no more than 10 percent when preseason stock abundance forecasts result in pre-fishing spawning escapement projections of less than about 54,000, plus an additional requirement of introducing a sliding scale, which would reduce the allowable rate linearly from no more than 10 percent at a projected natural spawning level of 30,000 to 0 percent at a projected natural spawning level of 22,000.

4. No further modifications in parameterizing the KOHM components are recommended at this time.

5. During periods of stock rebuilding, fall fishing opportunity in areas impacting KRFC abundance should be restricted.

6. The practice of reopening the upper Klamath and Trinity rivers to recreational fishing once hatchery egg take goals are met should be suspended during rebuilding periods or when an Overfishing Concern is imminent.

7. All river fishery strata should be sampled at a minimum sampling rate of 20 percent for catch and biological information, including coded-wire tags (CWTs) used to estimate impact on natural area spawners and returns of hatchery fish.

8. No change to the current FMP conservation objective for KRFC.

9. Encourage implementation of a 25 percent constant fractional marking program at Iron Gate Hatchery.

10. Encourage further research on disease issues in the Klamath Basin as they relate to population dynamics and fishery management.

11. Encourage expanded studies of tributary and mainstem production and survival rates of KRFC. Encourage studies of early-life marine survival rates for KRFC.

12. Continued Council involvement in the FERC relicensing process, and consideration of Council recommendations by FERC.

1.0 INTRODUCTION

Amendment 9 to the Council's FMP specified the conservation objective for Klamath River fall Chinook (KRFC) was to preserve 33 percent to 34 percent of potential adult natural spawners, but no less than 35,000, in any one year. The preseason projected adult spawning escapement was 35,000 in both 2004 and 2005; however, the post season estimates were 24,100 and 26,800, respectively. In 2006 the preseason projection was 21,100, and the postseason estimate was 30,400.

KRFC failed to meet the Council's conservation objective of at least 35,000 adult natural spawners in 2004, 2005, and 2006. When a stock fails to meet its conservation objective for three consecutive years an Overfishing Concern is triggered under the terms of the Pacific Coast Salmon Plan (FMP) (PFMC 2003). An Overfishing Concern requires specific actions of the Council and its advisory bodies, and may result in a declaration by the National Marine Fisheries Service (NMFS) that the stock is overfished, and subsequent development of a rebuilding plan.

Specific actions required by the FMP when an Overfishing Concern is triggered include developing an assessment of the stock and the pertinent factors causing the stock depression, and a review of essential fish habitat (EFH) status affecting the stock. After review of the stock and EFH assessments, the Council will recommend actions to: 1) end any excessive fishing mortality; 2) specify criteria for determining the end of the Overfishing Concern; 3) achieve the conservation objective of the stock; and 4) specify actions necessary to rebuild the stock.

1.1 Purpose and Need

The purpose of this report is to satisfy the requirements of the FMP when an Overfishing Concern occurs, specifically to review the current status of KRFC, determine the level and source of fishing mortality, identify pertinent factors leading to the Overfishing Concern, and assess the overall significance of the stock depression with regard to achieving maximum sustainable yield (MSY) on a continuing basis.

The Salmon Technical Team (STT) was directed by the Council to coordinate with relevant state, tribal, and Federal agencies, and the Council's Habitat Committee (HC), to complete the stock assessment. The STT has primary responsibility for determining the status of KRFC and developing recommendations for any management changes that may be necessary to rebuild the stock for application beginning in 2008, and for determining the end of the Overfishing Concern.

During the 2006 preseason salmon management process, the Council was aware that KRFC had failed to meet the conservation objective for two consecutive years and was projected to not meet the conservation objective in 2006, even if all Council managed fishing that would impact KRFC were prohibited. These circumstances triggered a Conservation Alert according to the FMP, and required the Council to request relevant state and tribal managers to complete an assessment of the primary factors leading to the escapement shortfall. The Council assigned the HC to assess the EFH related factors associated with the Conservation Alert. The HC completed a draft report, which was the basis for part of this assessment.

This report is needed to fulfill the requirements of the FMP and the Magnuson-Stevens Reauthorization Act (MSRA) to prevent overfishing, and rebuild depressed stocks to sustainable levels. This report is the first step in a process designed to identify the cause of their depressed status and rebuild KRFC, which have triggered an Overfishing Concern, and therefore may be at risk of long term decline in MSY. KRFC are a primary constraint to ocean fisheries between Cape Falcon, Oregon and Point Sur, California, and an important contributor to catch in ocean fisheries between Humbug Mt., Oregon and Horse Mt., California, an area known as the Klamath Management Zone (KMZ). KRFC are the primary contributor to Klamath River recreational and tribal fisheries. When KRFC are depressed, fishing interests and communities in the entire area suffer hardship, as was the case in 2006 when a fishery failure was declared, and commercial ocean fisheries in southern Oregon and northern California, and the Klamath River recreational fishery were closed. Without an abundant, harvestable stock of KRFC, fisheries cannot proceed and tribal needs cannot be met, which affect the cultural, economic, and religious fabric of Klamath River tribes. An abundant KRFC stock also contributes to the ecosystem function of the marine and freshwater environment by providing food for predators, scavengers, and decomposers and nutrient transport for forest ecosystems.

1.2 Assessment Objectives

The objectives for this stock assessment were to:

- Identify potential factors affecting KRFC natural area recruitment;
- Compare the status of these factors during the overfishing assessment period (OAP) to appropriate benchmarks (e.g., long term average);
- Identify potential factors affecting KRFC natural area escapement;
- Assess the performance of the fishery management forecast model during the OAP;
- Review the fishery management decisions made during the OAP;
- Determine if excessive fishing mortality resulted in overfishing;
- Determine if the current stock depression resulted in loss of the stock's ability to achieve MSY on a continuing basis, and;
- Recommend actions to prevent future natural area escapement shortfalls.

1.3 Background

A harvest rate based management plan for KRFC was developed by the Klamath River Technical Team (KRTT) and approved by the Klamath River Salmon Management Group (KRSMG) in 1986. The plan called for a 35 percent escapement rate (later changed to 33-34 percent) for each brood of naturally spawning fish except that 35,000 naturally spawning adults would be protected in all years (35,000 escapement floor; KRTT 1986). The KRTT report is the original source for the 35,000 fish escapement floor, which together with the escapement rate at higher abundance levels, remains a key feature of the conservation objective for KRFC in the current salmon FMP. The KRTT concluded that the escapement floor of 35,000 was needed to protect the production potential of the resource in the event of several consecutive years of adverse environmental conditions. At that time, the KRTT concluded that the escapement floor represented approximately 50 percent of the adults required to achieve the best available estimate of MSY.

The harvest rate based management plan recommended by the KRTT was subsequently adopted as part of Salmon Plan Amendment 9, which was first implemented in ocean fishery regulations beginning May 1, 1989. Amendment 9 incorporated the 35,000 fish escapement floor as part of the management objective for KRFC. The Council concluded that inclusion of the floor protected the stock by reducing the risk of prolonged depressed production, provided greater long term yield, and resulted in a high probability of attaining sufficient escapement for hatchery production.

Failure to meet the 35,000 natural adult escapement goal in 1990, 1991, and 1992 led to a stock assessment by the Council and the Klamath Fishery Management Council (KFMC) (PFMC 1994). One primary recommendation adopted from that assessment was to reduce the bias in projecting ocean abundance of the stock by forcing the sibling regression relationships through the origin.

As part of its ongoing commitment to periodic review of management objectives, the Council asked the KFMC to conduct a modeling study of stock, recruitment, and yield of KRFC. The objective of the study was to evaluate the present management policy and, particularly, the 35,000 fish escapement floor. The task was assigned to the Klamath River Technical Advisory Team (KRTAT). The KRTAT updated data and analysis done originally by the KRTT (1986), and explored new areas including the effects of environmental variability on recruitment. The KRTAT (1999) concluded that use of the 35,000 fish escapement floor remained a prudent choice and "near optimal" for the purpose of optimizing long-term average yield.

Ocean fishery management to protect Endangered Species Act (ESA) listed California Coastal Chinook (CCC) salmon began in 2000. The NMFS ESA consultation standard resulted in a requirement that ocean fisheries be limited to a pre-season projected age-4 ocean harvest rate on KRFC of no more than 17.0 percent (equates to no more than 16.0 percent based on new estimation methodology adopted in 2002). This rate was the maximum observed for the three-year period[1] prior to the CCC consultation and was used to curb further declines in abundance of CCC salmon stemming from ocean fishery impacts. The consultation standard takes precedence over the Council's 33 percent to 34 percent spawner escapement rate policy as it applies to ocean fisheries, but does not affect Klamath Basin inriver fisheries.

In 2005, the Council asked for a review of the technical basis of the 35,000 escapement floor (STT 2005a), and for a review of the relationship between spawning escapement and recruitment for KRFC (STT 2005b). The STT (2005b) updated information, explored several alternative spawner-recruit models, and also considered the effects of environmental factors on recruitment. The STT did not comment specifically on the 35,000 fish escapement floor, but did provide a range of MSY escapement values that depend on the assumptions and models used. The Model 2 stock/recruitment relationship from STT (2005b) included a juvenile survival index term and was considered to represent the best available science by the STT and the Scientific and Statistical Committee (SSC). The Model 2 estimate of MSY escapement was 40,700. Although

[1] The three year period chosen to determine an appropriate harvest rate began in 1996, the year in which ESA requirements to protect Sacramento River winter Chinook salmon were first implemented.

this estimate of MSY escapement is somewhat lower than the estimate provided by the KRTT (1986) 21 years ago, the Council remained committed to reliance on the escapement floor as part of the conservation objective for KRFC. When the escapement floor was adopted into the Salmon FMP through Amendment 9, the Council required that modification of the floor could only occur by FMP amendment.

In 2006 the Council adopted Amendment 15 to the FMP, which allows *de minimis* impacts to KRFC in ocean salmon fisheries during years that might otherwise be closed because of a projected escapement shortfall of KRFC relative to the conservation objective of no fewer than 35,000 naturally spawning adults. The intent of Amendment 15 was to provide some low level of economic relief for fisheries dependent communities without significantly impacting the long term productivity of KRFC. However, the Council specifically excluded modifying the floor itself, thus demonstrating a continued commitment to the 35,000 spawner floor as a conservation objective.

1.4 Factors Potentially Affecting Natural Area Recruitment and Escapement

A number of factors could have played a role in the decline of KRFC during the years leading up to, and contributing to, the Overfishing Concern. Some of these factors could have affected recruitment of the critical broods, which may have influenced certain fishery management decisions, whereas the fishery management decisions themselves had a more direct impact on the spawning escapement in 2004, 2005, and 2006.

Factors potentially affecting natural area recruitment include:

1. Insufficient parent stock size or high adult prespawning mortality
2. Skewed or unbalanced parent distribution
3. Low egg to fry survival
    a. redd scour
4. Low juvenile freshwater or early marine survival rate
    a. Water quality, quantity, disease, etc.
5. Hatchery/wild interaction
    a. Juvenile competition, predation, genetic diversity, etc.
6. Depensatory mechanisms that limit or depress cohort survival

Factors potentially affecting natural area escapement include:

7. Unanticipated fishing effort
    a. Entry of latent effort, shifts among areas or times, etc.
8. Increased efficiency in fisheries
    a. High catch per unit of effort or contact rates, stock distribution changes, etc.
9. Population forecast errors
    a. Preseason ocean abundance, natural/hatchery components, natural mortality, maturation rates, etc.
10. Policy considerations
    a. Needs of fishing communities, allocation, management objectives, etc.

Many of these potential factors were difficult to assess because of inadequate information, but an attempt was made to at least note these potential factors and identify data shortfalls.

Factors one through six could affect recruitment of the stock, and hence the harvestable surplus available to the fisheries in a given year. Factors seven through ten fall under the umbrella of the fishery management process, the success of which determines whether the harvestable surplus in a given year is exceeded and thus whether or not the spawning escapement goal is realized. Recruitment is important to the fishery since it determines the harvestable surplus. However, given the realized recruitment in any given year, it is the responsibility of fishery management to ensure adequate escapement occurs to achieve the conservation objective in that year (assuming there is a harvestable surplus and fisheries take place). If the management target for any one year is a specified spawner escapement number (e.g., the 35,000 natural spawner floor), recruitment can affect annual spawning escapement only if it is sufficient to exceed the capacity of fisheries to achieve their allocations or sufficient to reach another constraint (e.g., KRFC 66 percent spawner reduction rate (SRR), Snake River fall Chinook index, etc.).

Sections 3 and 4 provide an assessment of the factors potentially affecting natural area recruitment and escapement, respectively.

2.0 STOCK/ECOSYSTEM DESCRIPTION

2.1 Location and Geography

The Klamath Basin lies in Northern California and Southern Oregon and encompasses 40,632 km^2 (Figure 2-1). More than half of the watershed (20,875 km^2) lies in the Upper Klamath Basin. Anadromy in the upper basin was cut off by the construction of Copco Dam #1 in 1917, and was further limited by construction of Iron Gate Dam in 1962, built to re-regulate the discharge of Copco Dam. Access to the upper Trinity Basin was cut off by the construction of Trinity Dam in 1962 and its re-regulation dam (Lewiston) in 1963, which together blocked access to the upper 459,264 acres (1,859 km^2) of the Trinity Basin, leaving an accessible watershed area of 17,898 km^2. There are various other smaller dams and water diversions in the basin (Appendix 9.3).

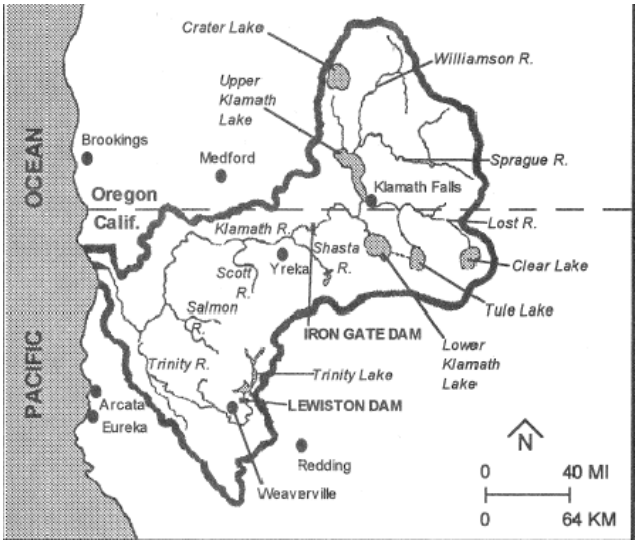

Figure 2-1. Map of the Klamath Basin.

All remaining habitat accessible to anadromous fish lies in California, though portions of the lower Klamath Basin Watershed extend into Oregon. Major tributaries to the Klamath River within the lower basin include the Trinity, Salmon, Scott, and Shasta Rivers, and Bogus Creek, which support spawning populations of KRFC.

Fall run is the predominant natural Chinook salmon run type throughout the basin. Hatchery fall Chinook production occurs at Iron Gate Hatchery (IGH) located at the base of Iron Gate Dam at the upper limit of anadromous migration in the Klamath River and at Trinity River Hatchery (TRH) located at the base of Lewiston Dam at the upper limit of anadromous migration in the Trinity River. Both facilities were constructed to mitigate for habitat loss resulting from construction of the major dams on the mainstems of the Klamath and Trinity rivers, respectively. The remaining natural populations of spring Chinook salmon occur in the South Fork Trinity and Salmon rivers. There is a hatchery program for spring Chinook salmon at TRH and for coho salmon (*O. kisutch*) and steelhead (*O. mykiss*) at both hatcheries. Other anadromous species in the basin include coastal cutthroat (*O. clarkii*), Pacific lamprey (*Lampetra tridentata*), and green sturgeon (*Acipenser medirostris*). Coho salmon in the Klamath Basin are part of the ESA-listed Southern Oregon-Northern California Coastal (SONCC) coho evolutionarily significant unit (ESU).

2.2 Life History

2.2.1 Natural Stock

Naturally spawning KRFC enter freshwater to spawn during August-September and deposit their eggs during October-December. The eggs incubate in the gravel during October-January and young fish emerge in February-March. Downstream migration begins soon after emergence (Figure 2-2). Juveniles that are ready to enter the ocean reach the estuary during June-August and ocean entrance is generally complete by the end of September. In August-September of the following year a small proportion (range 2 percent to 11 percent, 4 percent average) of each cohort, mostly males (jacks), returns to the river to spawn. The first major contribution to adult spawning escapement takes place during August-September of the following year as age-3 fish. The age-3 return is about equal proportions of males and females. The age-3 maturation rate has averaged 39 percent with a range of from 19 percent to 66 percent since the 1979 brood (Grover 2007, pers. comm.). The majority of the adult fish in each cohort are destined to spawn at age-4, although the actual number of fish that survive to spawn may be less than the age-3 return due to ocean and river fishing impacts. The age-4 maturation rate has averaged 89 percent with a range of from 61 percent to 99 percent and has been comprised of about equal numbers of males and females. The very few remaining fish of each cohort mature at age-5 or very rarely at age-6. All KRFC die soon after spawning.

Natural mortality of naturally produced fish is very high during early life history stages. Small changes in ecological conditions, whether physical or biological, can substantially decrease the chances that a cohort of fish will replace itself much less support a satisfactory level of fishery harvest. Cohorts of fish transition during their life from one of passive existence, totally dependent for their survival on surrounding physical and biological conditions, to one of active existence, wherein the fish actively seek out and compete with one another and other animals for their survival.

Recently emerged fry are totally dependent on a ready supply of high quality food items in their immediate vicinity. Their ability to seek out suitable food items and food streams increases as they grow, but their geographic range continues to be very limited until well into their first summer in the ocean due to their small size and inability to move laterally or in opposition to stream flow or ocean current conditions. Flood events or receding stream levels can strand fish in side pools that may never again reconnect with the main river flow. Low stream flow conditions increase feeding opportunities for predatory animals and decrease the amount of living space available for hiding and feeding. Predatory birds and fish likewise can have a major impact on stream rearing fish and recent ocean entrants, particularly when they are massed in large schools. Disease and parasitic infections are exacerbated or have increased effect during warm water events and/or low stream flow periods.

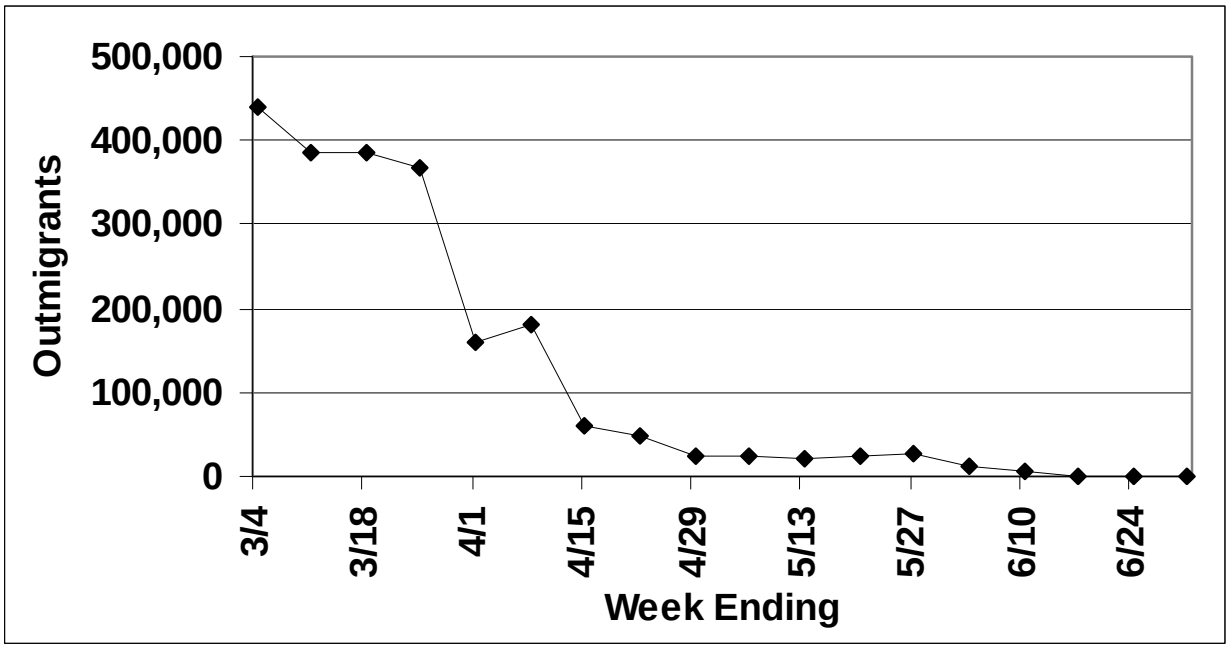

Figure 2-2. Estimated average number of juvenile Chinook salmon emigrating from the Shasta River by week, 2001-2005.

In their later years of life KRFC can make ocean migrations sometimes ranging over hundreds of miles away from the Klamath River mouth. El Niño events can adversely affect ocean salmon prey items both in terms of biomass and nutritional value. Such events can also redirect feeding habits of hungry marine mammals to prey on salmon in confined or restricted areas such as the Klamath River mouth and estuary. El Niño events can also cause the fish themselves to change migration patterns.

The relative magnitude of the survival rates experienced by stream and ocean rearing fish can be approximated based on available age-specific life history data for the stock. Table 2-1, Appendix 8.2). This example is based on an age-2 September 1 population of 380,000 fish (approximate 1979-1998 brood year average); an ocean and river fishery adult SRR of 66 percent; an assumed average of 1,250 eggs per adult spawner; the natural mortality rates used in

California Department of Fish and Game (CDFG) cohort reconstructions; average maturity rates resulting from those calculations; and CDFG Scott and Shasta rivers outmigrant estimates.

Table 2-1. Approximate KRFC life stage-specific survival rates absent fisheries.

Life history stage	Period of time: w/o fishing survival rate	Source
Egg deposition to mainstem entrance	5-8 months: 17%	Appendix 9.2
Mainstem entrance to ocean entrance	4-7 months: 5.5%	Appendix 9.2
Age-2 (Sept. 1-Aug. 31)	12 months: 50%	Goldwasser et al. 2001
Age-3 (Sept. 1-Aug. 31)	12 months: 61%	Goldwasser et al. 2001
Age-4 (Sept. 1-Aug. 31)	12 months:80%	Goldwasser et al. 2001
Age-5 (Sept. 1-Aug. 31)	12 months:80%	Goldwasser et al. 2001

This example shows that, on average, less than 6 percent of the fish that enter the mainstem areas from tributary spawning areas during February-May survive to January 1 of the following year as age-2 fish. During this time the fish are dependent for their survival on the quality and quantity of available habitat, the availability of suitable food items and food streams, and also on the ability to avoid predators. Year class strength is believed to be determined largely in the early life history stages because small changes in the survival rate during this period can have a major impact on the number of surviving fish.

2.2.2 Hatchery Stock

All fish that return to receiving facilities at the two basin hatcheries have been allowed access to the facilities for spawning since 1996. Before that year, surplus fish were sometimes denied access when egg-take goals were met. At both hatcheries the majority of juvenile fish are released directly into the river as fingerlings at or near the respective facilities when they reach an average length of about 3 inches and average weight of about 90 fish per pound. This generally occurs during May and June of the year following spawning, although release timing can be advanced if river water temperatures are projected to be less than optimal during the downstream migration period. Currently, about 18 percent of IGH and 31 percent of TRH production goals are released as yearlings in October and November (Table 2-2). CDFG policy prohibits release of surplus eggs or fry into natural rearing areas of the basin. Surplus eggs or fry may be used in inland fishery programs where the chance of escape to anadromous waters is minimal.

The two hatcheries have specific production goals for fall-run Chinook salmon which total 8.9 million fish, 6 million at IGH and 2.9 million at TRH (Table 2-2).

Table 2-2. Fall Chinook salmon production goals for Iron Gate and Trinity River hatcheries.

	Release Type[a/]		
Hatchery	Fingerling	Yearling	Total
Iron Gate Hatchery	4,920,000	1,080,000	6,000,000
Trinity River Hatchery	2,000,000	900,000	2,900,000
Total	6,920,000	1,980,000	8,900,000

a/ Fingerlings are released May – June at about 90/lb, yearlings are released October – November 15.

The maturation schedule for fingerling releases is believed to be similar to that of naturally produced fish. The maturation schedule of yearling releases is delayed because of their smaller ocean size at age due to extended hatchery rearing compared to fingerling releases (Hankin 1990) and the importance of size at age to the onset of sexual maturity in Pacific salmon (Hankin et al. 1993). The delayed maturation schedule and extended period of ocean residence of

yearling releases results in increased vulnerability to harvest in ocean and river fisheries (Hankin et al 1993; CDFG/NMFS 2001).

Hatchery fish by their confinement are able to avoid the natural perils that naturally produced fish face during their first six to eight months of life. Artificial techniques virtually ensure that every egg is fertilized and the resulting fry have a high chance for release into the stream to migrate to the ocean. The eggs and fish are protected in the hatchery by the use of chemicals that prevent or remedy diseases and parasites and the fish are fed special high protein diets that promote fast growth at this stage and result in fish that are probably larger than their naturally produced counterparts at release. Note however that yearlings, while released at a larger size than fingerlings, are likely smaller at that date than the surviving natural and fingerling-released fish of that brood year that have resided in the ocean for the past several months. Screens or other deterrents may be used to minimize predation by birds. The survival probabilities for age-2 and older hatchery fish are assumed to be the same as reported above (Table 2-1) because those estimates are based on hatchery fish data. One major difference between hatchery and natural stocks is that the egg to mainstem entrance survival estimate for hatchery fish is closer to 90 percent than the 17 percent estimated for wild fish, although their survival in the mainstem following release is probably lower because of their naivety.

IGH release policy to delay fingerling releases until May and June when the fish are ready to migrate to the sea is intended to minimize competition (interaction) with the naturally produced stream rearing fish. To the extent possible, stream environmental conditions are closely monitored at the hatcheries to ensure the fish are released when environmental conditions are suitable and the fish are ready to migrate to the sea. Following release, the hatchery fish must survive and compete with naturally produced fish and other aquatic species.

2.3 Production

2.3.1 Harvest

Prior to 1990, the average harvest of age-3 and age-4 KRFC was 234,753 in ocean fisheries and 60,900 in river fisheries (Table 2-3). Since 1990, the average harvest level has declined by 88 percent in the ocean fisheries, and by 58 percent in the river fisheries (Table 2-3). Additional historical harvest information for the river recreational and river tribal fisheries are provided in Table 2-4 and Table 2-5, respectively. Analysis of the expected and realized harvest for these fisheries during the OAP and whether this contributed to the escapement shortfall in 2004, 2005, and 2006 is presented in Section 4.

Table 2-3. KRFC ocean fishery harvest, age-3 plus age-4, 1986-2006 seasons.

	KMZ			Outside KMZ			Ocean	Inriver		
Year	Troll	Sport	Total	South	North	Total	Total	Tribal	Sport	Total
1986	43,474	6,002	49,476	97,527	155,192	252,719	302,195	25,100	21,000	46,100
1987	39,035	9,527	48,562	114,225	105,366	219,591	268,153	52,400	19,900	72,300
1988	27,928	8,778	36,706	51,379	158,613	209,992	246,698	51,100	21,800	72,900
1989	12,486	21,469	33,955	47,787	40,224	88,011	121,966	43,700	8,600	52,300
1990	4,051	7,264	11,315	76,144	21,568	97,712	109,027	7,300	3,600	10,900
1991	0	2,028	2,028	1,862	4,959	6,821	8,849	9,716	3,293	13,009
1992	171	55	226	2,760	12	2,772	2,998	5,330	974	6,304
1993	0	823	823	1,687	8,058	9,745	10,568	9,212	3,160	12,372
1994	43	1,732	1,775	1,170	4,900	6,070	7,845	11,209	1,783	12,992
1995	0	1,242	1,242	14,091	16,579	30,670	31,912	14,797	6,016	20,813
1996	774	3,468	4,242	10,349	30,007	40,356	44,598	56,322	12,741	69,063
1997	3	406	409	1,086	4,220	5,306	5,715	10,900	5,322	16,222
1998	0	111	111	4,372	466	4,838	4,949	9,395	7,603	16,998
1999	78	558	636	2,921	1,125	4,046	4,682	13,770	2,242	16,012
2000	523	4,185	4,708	11,235	26,328	37,563	42,271	29,191	5,649	34,840
2001	1,429	1,714	3,143	8,618	10,039	18,657	21,800	38,644	12,113	50,757
2002	2,164	1,615	3,779	4,903	19,372	24,275	28,054	23,663	10,321	33,984
2003	1,007	1,595	2,602	10,186	57,208	67,394	69,996	29,750	9,653	39,403
2004	**1,824**	**2,187**	**4,011**	**21,582**	**29,285**	**50,867**	**54,878**	**22,302**	**3,802**	**26,104**
2005	**248**	**952**	**1,200**	**6,342**	**4,769**	**11,111**	**12,311**	**7,442**	**1,945**	**9,387**
2006[a/]	**271**	**1,241**	**1,512**	**5,475**	**1,258**	**6,733**	**8,245**	**9,960**	**55**	**10,015**
avg 86-89	30,731	11,444	42,175	77,730	114,849	192,578	234,753	43,075	17,825	60,900
avg 90-03	732	1,914	2,646	10,813	14,632	25,445	28,090	19,229	6,034	25,262
avg 04-06	**781**	**1,460**	**2,241**	**11,133**	**11,771**	**22,904**	**25,145**	**13,235**	**1,934**	**15,169**
avg 86-06	6,453	3,664	10,117	23,605	33,312	56,917	67,034	22,914	7,694	30,608

a/ Preliminary.

Table 2-4. KRFC river recreational adult harvest and impacts, 1986-2006.

Year or Avg	Total Adult Run-Size	Quota	Landed Catch	Catch as Percent of Quota	Incidental Harvest Impacts[a/]	Total Harvest Impacts	Harvest Impact Rate (harvest/run)
1986	195,019	7,800	21,027	270%	429	21,456	0.110
1987	209,134	17,900	20,169	113%	412	20,581	0.098
1988	191,642	15,575	22,203	143%	453	22,656	0.118
1989	124,340	15,600	8,775	56%	179	8,954	0.072
1990	35,882	6,500	3,553	55%	73	3,626	0.101
1991	32,670	2,600	3,383	130%	69	3,452	0.106
1992	26,698	800	1,002	125%	20	1,022	0.038
1993	57,212	2,700	3,172	117%	65	3,237	0.057
1994	63,983	1,400	1,832	131%	37	1,869	0.029
1995	222,768	1,800	6,081	338%	124	6,205	0.028
1996	175,773	15,700	12,766	81%	261	13,027	0.074
1997	83,736	3,500	5,676	162%	116	5,792	0.069
1998	90,647	1,800	7,710	428%	157	7,867	0.087
1999	51,048	2,900	2,282	79%	47	2,329	0.046
2000	218,077	4,200	5,650	135%	115	5,765	0.026
2001	187,333	29,800	12,134	41%	248	12,382	0.066
2002	160,788	20,500	10,495	51%	214	10,709	0.067
2003	191,948	10,800	2,358	22%	48	2,406	0.013
2004	**78,943**	**4,796**	**4,003**	**83%**	**82**	**4,085**	**0.052**
2005	**65,125**	**1,244**	**1,985**	**160%**	**41**	**2,026**	**0.031**
2006	**61,629**	**300 [b/]**	**62**	**169%**	**444**	**506**	**0.008**
1986-2003	128,817	8,993	8,348	93%	170	8,519	0.066
2004-2006	**68,566**	**2,113**	**2,017**	**95%**	**189**	**2,205**	**0.032**

a/ Landed catch multiplied by 0.020408.

b/ In 2006 the adult KRFC quota was zero, however 300 impacts were assumed for non retention mortality in the steelhead/jack Chinook recreational fishery.

Table 2-5. KRFC river tribal adult harvest and impacts, 1986-2006.

Year or Avg	Total Adult Run-Size	Quota	Landed Catch	Catch as Percent of Quota	Incidental Harvest Impacts[a/]	Total Harvest Impacts	Harvest Impact Rate (harvest/run)
1986	195,019	28,250	25,127	89%	2,186	27,313	0.140
1987	209,134	59,000	53,096	90%	4,619	57,715	0.276
1988	191,642	51,725	51,651	100%	4,494	56,145	0.293
1989	124,340	52,000	45,565	88%	3,964	49,529	0.398
1990	35,882	24,500	7,906	32%	688	8,594	0.240
1991	32,670	10,300	10,198	99%	887	11,085	0.339
1992	26,698	4,920	5,785	118%	503	6,288	0.236
1993	57,212	18,500	9,636	52%	838	10,474	0.183
1994	63,983	11,800	11,692	99%	1,017	12,709	0.199
1995	222,768	15,300	15,557	102%	1,353	16,910	0.076
1996	175,773	104,100	56,476	54%	4,913	61,389	0.349
1997	83,736	21,600	12,087	56%	1,052	13,139	0.157
1998	90,647	12,000	10,187	85%	886	11,073	0.122
1999	51,048	15,300	14,660	96%	1,275	15,935	0.312
2000	218,077	28,200	29,415	104%	2,559	31,974	0.147
2001	187,333	75,500	38,645	51%	3,362	42,007	0.224
2002	160,788	50,400	24,574	49%	2,138	26,712	0.166
2003	191,948	41,400	30,034	73%	2,613	32,647	0.170
2004	**78,943**	**33,806**	**25,803**	**76%**	**2,245**	**28,048**	**0.355**
2005	**65,125**	**9,022**	**8,016**	**89%**	**697**	**8,713**	**0.134**
2006	**61,629**	**10,870**	**10,285**	**95%**	**895**	**11,180**	**0.181**
1986-2003	128,817	34,711	25,127	72%	2,186	27,313	0.212
2004-2006	**68,566**	**17,899**	**14,701**	**82%**	**1,279**	**15,980**	**0.233**

a/ Landed catch multiplied by 0.087.

2.3.2 Escapement

Most (65 percent average from 1978—2003) of the natural escapement of KRFC occurs in the Trinity River and Bogus Creek, a tributary of the Klamath (Table 2-6; Figure 2-3). A large portion of these sub-populations are near hatcheries and hatchery strays contribute substantially to natural spawning. Other major spawning populations include: the mainstem Klamath, Scott, Shasta, and Salmon rivers. These other sub-populations are relatively free of hatchery influence in most years, except for the Shasta River, which ranged from an estimated 1.2 percent to 38.7 percent and averaged 15.4 percent hatchery fish between 2002 and 2006. Other miscellaneous tributaries of the Klamath and Trinity Rivers collectively generally account for less than 10 percent of the natural spawners. Additional information on this subject is presented in Section 3.4.

Table 2-6. KRFC adult spawner escapement estimates by spawning unit, 1978-2006.

Year	Upper Trinity[a/]	Salmon River	Scott River	Shasta River	Bogus Creek	Mainstem Klamath	Other Tributaries	Total Natural	Hatchery		Total Hatchery	Grand Total
									Iron Gate	Trinity		
1978	31,052	2,600	3,423	12,024	4,928	1,700	2,765	58,492	6,945	6,034	12,979	71,471
1979	8,028	1,000	3,396	7,111	5,444	4,190	1,468	30,637	2,301	1,335	3,636	34,273
1980	7,700	800	2,032	3,762	3,321	2,468	1,400	21,483	2,412	4,099	6,511	27,994
1981	15,340	750	3,147	7,890	2,730	3,000	1,000	33,857	2,055	2,370	4,425	38,282
1982	9,274	1,000	5,826	6,533	4,818	3,000	1,500	31,951	8,353	2,058	10,411	42,362
1983	17,284	1,200	3,398	3,119	2,713	1,800	1,270	30,784	8,371	5,494	13,865	44,649
1984	5,654	1,226	1,443	2,362	3,039	1,350	990	16,064	5,330	2,166	7,496	23,560
1985	9,217	2,259	3,051	2,897	3,491	468	4,294	25,677	19,951	2,583	22,534	48,211
1986	92,548	2,716	3,176	3,274	6,124	603	4,919	113,360	17,096	15,795	32,891	146,251
1987	71,920	3,832	7,769	4,299	9,748	863	3,286	101,717	15,189	13,934	29,123	130,840
1988	44,616	3,273	4,727	2,586	16,215	2,982	4,987	79,386	16,106	17,352	33,458	112,844
1989	29,445	2,915	3,000	1,440	2,218	1,011	3,839	43,868	10,859	11,132	21,991	65,859
1990	7,682	4,071	1,379	415	732	505	812	15,596	6,719	1,348	8,067	23,663
1991	4,867	1,337	2,019	716	1,261	572	877	11,649	4,002	2,482	6,484	18,133
1992	7,139	778	1,873	520	598	366	754	12,028	3,581	3,779	7,360	19,388
1993	5,905	3,077	5,035	1,341	3,285	647	2,568	21,858	20,828	815	21,643	43,501
1994	10,906	3,216	2,358	3,363	7,817	3,249	1,424	32,333	13,808	3,264	17,072	49,405
1995	77,876	4,140	11,198	12,816	45,225	6,472	4,067	161,794	22,681	15,178	37,859	199,653
1996	42,646	5,189	11,952	1,404	10,420	2,790	6,925	81,326	13,622	6,411	20,033	101,359
1997	11,507	5,783	8,284	1,667	9,809	3,472	5,622	46,144	13,275	5,387	18,662	64,806
1998	24,460	1,337	3,061	2,466	6,630	2,913	1,621	42,488	14,923	14,296	29,219	71,707
1999	6,753	670	3,021	1,296	3,537	1,978	1,202	18,457	9,290	5,037	14,327	32,784
2000 [b/]	***23,468***	***1,544***	***5,729***	***11,025***	***34,678***	***3,271***	***3,013***	***82,728***	***71,635***	***25,976***	***97,611***	***180,339***
2001 [b/]	***35,991***	***2,607***	***5,398***	***8,452***	***11,927***	***9,832***	***3,627***	***77,834***	***37,204***	***17,908***	***55,112***	***132,946***
2002 [b/]	***10,880***	***2,669***	***4,261***	***6,432***	***17,530***	***21,650***	***2,213***	***65,635***	***23,667***	***3,516***	***27,183***	***92,818***
2003 [c/]	***31,173***	***3,302***	***11,988***	***4,134***	***15,422***	***17,722***	***3,901***	***87,642***	***31,970***	***29,812***	***61,782***	***149,424***
2004[c/]	**12,718**	**282**	**445**	**833**	**3,493**	**5,037**	**1,023**	**23,831**	**10,582**	**12,399**	**22,981**	**46,812**
2005[c/]	**12,987**	**401**	**698**	**2,018**	**5,341**	**4,622**	**722**	**26,789**	**13,955**	**13,744**	**27,699**	**54,488**
2006[c/]	**15,634**	**1,278**	**3,007**	**789**	**3,368**	**4,538**	**1,808**	**30,422**	**11,604**	**7,918**	**19,522**	**49,944**
78-03 avg	24,744	2,434	4,690	4,359	8,987	3,803	2,706	51,723	15,468	8,445	23,913	75,635
00-03 avg [b/]	***25,378***	***2,531***	***6,844***	***7,511***	***19,889***	***13,119***	***3,189***	***78,460***	***41,119***	***19,303***	***60,422***	***138,882***
04-06 avg[c/]	**13,780**	**654**	**1,383**	**1,213**	**4,067**	**4,732**	**1,184**	**27,014**	**12,047**	**11,354**	**23,401**	**50,415**
78-06 avg	23,609	2,250	4,348	4,034	8,478	3,899	2,548	49,167	15,114	8,746	23,860	73,026

a/ Trinity River upstream from the Willow Creek weir.

b/ Parent broods associated with returns comprising the overfishing assessment period.

c/ Return years comprising the overfishing assessment period.

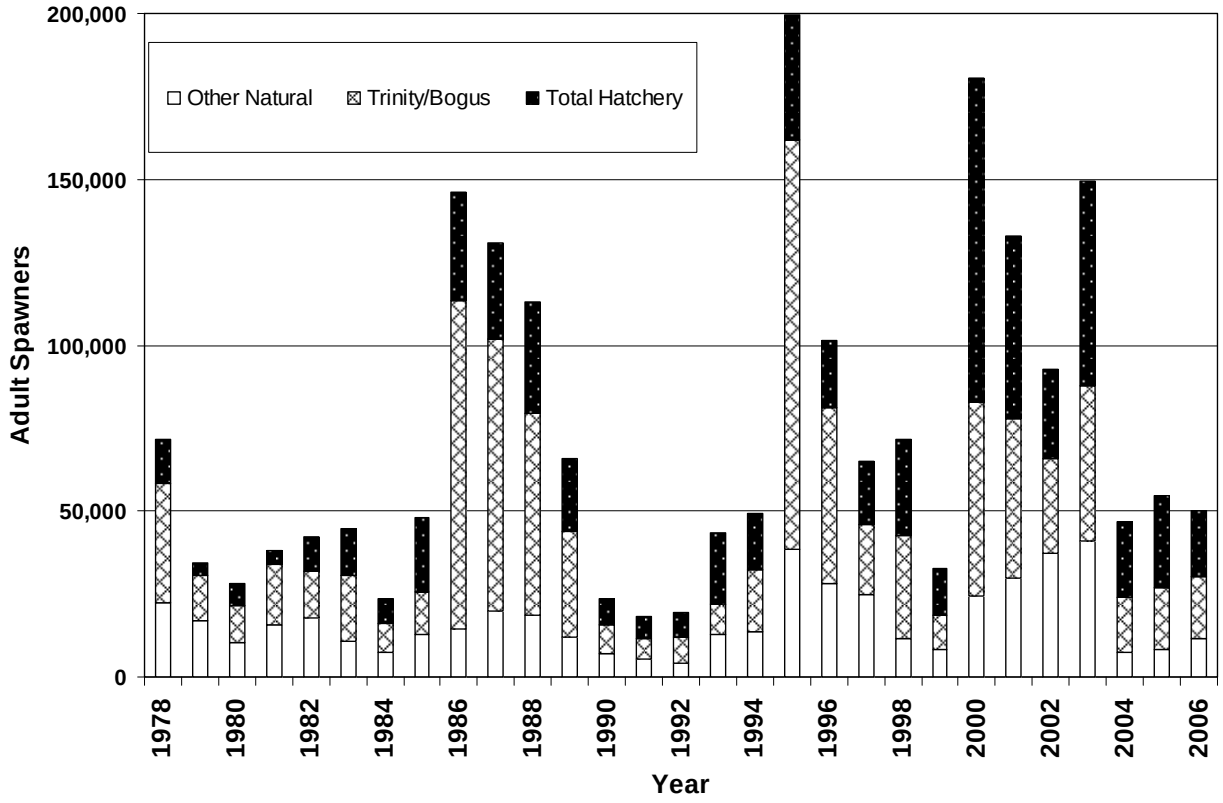

Figure 2-3. Annual spawning escapement in Klamath Basin tributaries and hatcheries, 1978-2006.

2.3.3 Natural Stock Productivity

The stock/recruitment relationship for KRFC helps to explain the effect that depressed stock status has on fisheries and spawning runs. Stock and recruitment data were analyzed by the STT (2005b) for natural spawners of the 1979—2000 broods to determine the following reference points: spawning stock size at sustainable equilibrium production (S_{UEQ}), spawning stock size at maximum sustainable production (S_{MAX}) and spawning stock size at MSY (S_{MSY}). Several models of stock and recruitment were evaluated for this analysis, and the STT (2005b) and SSC (2005) concluded that "Model 2," which included a juvenile survival index term, represented the best available science.

The Model 2 estimated reference points were S_{UEQ} = 112,300, S_{MAX} = 56,900, and S_{MSY} = 40,700. The 35,000 escapement floor thus represents 86 percent of S_{MSY} and 62 percent of S_{MAX}. The latter value means that natural escapements less than 35,000 adults would result, on average, in reduced recruits (harvestable surplus) compared to higher escapements, and that escapements greater than 35,000 up to S_{MAX} (56,900) would be expected to result in more recruits. Thus failure to meet the escapement floor for KRFC would be expected to result in reduced production of natural recruits. Above S_{MAX}, further increases in spawning escapement would be expected to result in fewer natural recruits. However, expected recruitment is still greater than that produced by S_{MSY} until natural adult spawning escapement exceeds 76,900, and is greater than recruitment expected at the escapement floor for natural adult spawning escapement up to 86,500.

2.4 Stock Status

Representative marking, using CWTs, of KRFC hatchery fish have made it possible to reconstruct the life histories of hatchery and natural fish starting with the 1979 brood, 24 broods total. These "cohort reconstructions" are estimated on a monthly basis using fishery and spawning ground CWT expansions in combination with assumed fixed natural and fishery-related non-catch mortality rates. The methodology has been reviewed by Hankin and Mohr (1993) and found to be in error in some years based on "band recovery" analysis of CWTs, but no further progress has been made in the development and implementation of this alternative approach. The available reconstruction estimates show that the average hatchery age-2 ocean population size (recruitment) of the critical broods (285,307) was 100 percent of the previous 21-year average (285,186) and all of the individual broods were within the range of recruitment observed during the previous 21 years (Table 2-7; Figure 2-4). The average age-2 ocean population size (recruitment) of naturally produced fish for the critical broods (237,552) was 45 percent of the previous 21-year average (522,895). The 2001 and 2002 brood year recruits from natural spawners were very small in a historical context, representing the third and seventh lowest, respectively, on record. The 2000 brood natural recruits (405,951) were about 78 percent of average, but well within the range of natural recruits observed during the previous 21 year period. The 2003 brood natural recruitment cannot yet be estimated (Table 2-8), but the forecast age-3 ocean abundance was the third lowest on record, and the forecast age-4 ocean abundance was the lowest on record.

Age-2 recruitment data are not available for basin sub-populations, but post-spawning data are available to show the final distribution of individual cohorts. Post-spawn data during 2004—2006 indicated below average escapement levels in all natural spawning areas of the basin, including those most heavily influenced by hatchery production, Trinity River and Bogus Creek (Table 2-4).

Population modeling work by Mohr and Fujiwara (2007) concluded that natural origin adult run sizes to the Salmon, Scott, and Shasta rivers of less than 720 adults in any year pose a threat to the long-term viability of those sub-basin populations, and the genetic integrity of the aggregate KRFC stock lies in maintaining an adequate diversity of subpopulations (particularly these). Spawning escapement was less than 720 adults in the Salmon and Scott rivers in 2004 and 2005 (Table 2-6, Figure 2-5). If the subsequent returns produced from those broods continue to be depressed there may indeed be long-term negative genetic implications as described above, and indications are that the 2005 brood year juvenile outmigrant production from at least the Scott River was very low (Table 3-1). Shasta River spawning escapement was above the 720 fish threshold level in all three years, although those values include stray hatchery fish. Excluding hatchery adults and jacks, only an estimated 492 and 708 natural origin adult spawners returned to the Shasta River in 2004 and 2006, respectively. Indications are that the 2004 and 2005 brood year juvenile outmigrant production from the Shasta River was very low (Table 3-2), particularly for brood year 2005 (the 2006 outmigrant production was unavailable at the time of this report).

Table 2-7. KRFC September 1 age-2 cohort reconstruction recruitment for hatchery and naturally produced fish from 1979-2002 brood years.

	Age-2 Recruitment		
Brood Year	Hatchery	Natural	Total
1979	283,013	906,521	1,189,534
1980	193,723	524,793	718,516
1981	104,158	217,854	322,012
1982	199,932	567,179	767,111
1983	1,156,457	1,609,472	2,765,930
1984	566,372	1,089,565	1,655,936
1985	762,771	794,089	1,556,861
1986	256,778	527,568	784,347
1987	60,327	311,514	371,841
1988	68,694	80,382	149,076
1989	13,975	68,783	82,759
1990	176,457	188,924	365,381
1991	59,668	196,444	256,112
1992	527,776	1,068,999	1,596,776
1993	26,955	400,559	427,513
1994	84,756	215,880	300,636
1995	167,653	157,675	325,328
1996	110,625	158,004	268,628
1997	601,770	674,091	1,275,861
1998	213,312	523,004	736,316
1999	353,724	699,486	1,053,210
2000	**410,816**	**405,951**	**816,767**
2001	**231,507**	**97,477**	**328,984**
2002[a/]	**213,597**	**209,228**	**422,825**
79-99 avg	285,186	522,895	808,080
cv	1.01	0.77	0.83
00-02 avg	**285,307**	**237,552**	**522,859**
cv	**0.38**	**0.66**	**0.50**
79-02 avg	285,201	487,227	772,428
cv	0.95	0.80	0.82

a/ Brood incomplete for age-5; average maturation rate used.

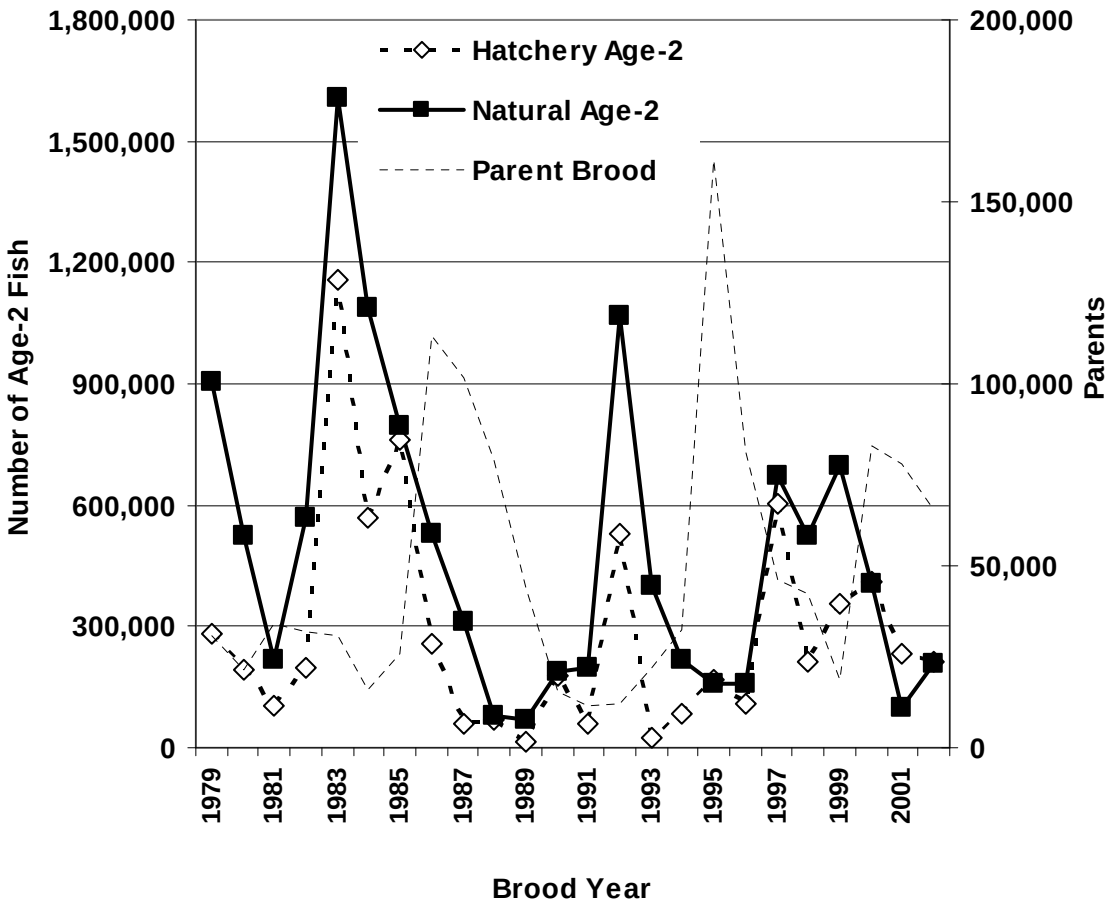

Figure 2-4. Reconstructed run size to January age-2 and natural parental brood size for KRFC, brood years 1979-2002.

Table 2-8. KRFC river run age composition, brood years 1979-2004.

Brood year	Klamath Basin Return (thousands)				
	Age-2	Age-3	Age-4	Age-5	Total
1979	28.2	30.1	20.7	1.1	80.1
1980	39.4	35.9	24.4	5.8	105.5
1981	3.8	21.7	25.7	2.3	53.5
1982	8.3	32.9	29.8	6.8	77.8
1983	69.4	162.9	112.6	3.9	348.8
1984	44.6	89.7	86.5	4.3	225.1
1985	19.1	101.2	69.6	1.3	191.2
1986	24.1	50.4	22.9	1.1	98.5
1987	9.1	11.6	21.6	1.0	43.3
1988	4.4	10.0	18.8	0.7	33.9
1989	1.8	6.9	8.2	1.0	17.9
1990	13.7	48.3	26.0	2.6	90.6
1991	7.6	37.0	18.3	0.3	63.2
1992	14.4	201.9	136.7	4.6	357.6
1993	22.8	38.8	44.2	1.7	107.5
1994	9.5	35.0	29.7	1.3	75.5
1995	8.0	59.2	20.5	0.5	88.2
1996	4.6	29.2	30.5	0.2	64.5
1997	19.2	187.1	88.2	3.7	298.2
1998	10.2	99.1	62.5	0.9	172.7
1999	11.3	94.6	96.8	5.3	208.0
2000	**9.2**	**94.3**	**40.7**	**3.9**	**148.1**
2001	**3.8**	**33.2**	**17.5**	**1.3**	**55.8**
2002[a/]	**9.7**	**43.8**	**41.8**		
2003[a/]	**2.3**	**18.6**			
2004[a/]	27.1				
Average	16.4	62.9	45.6	2.4	130.7

a/ These brood years are not yet complete.

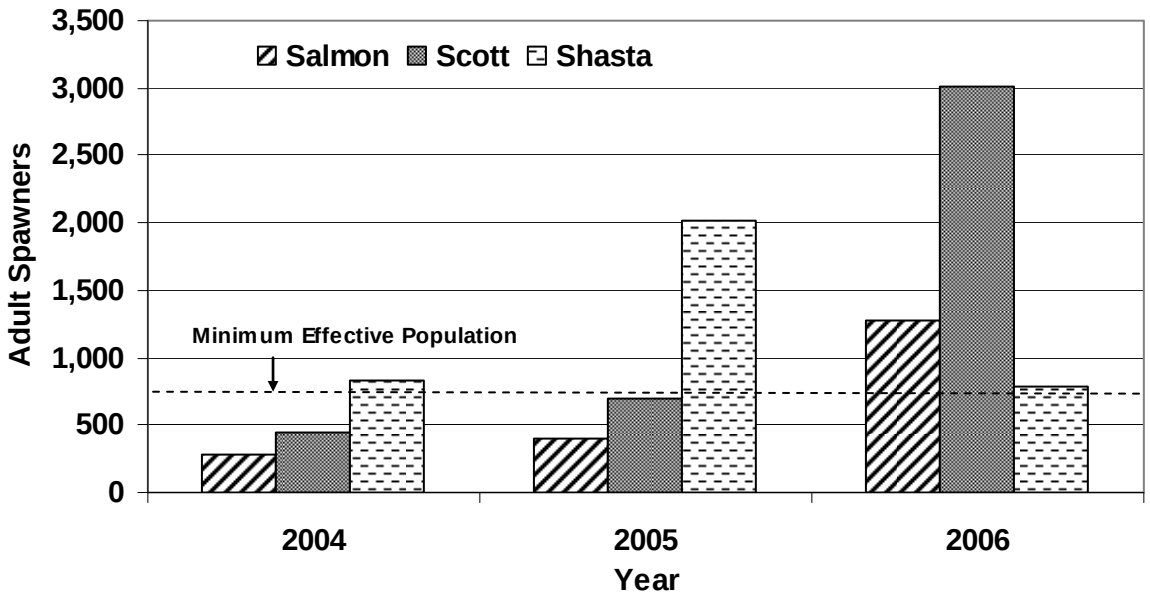

Figure 2-5. Spawning escapement in the Salmon, Scott and Shasta rivers, including hatchery strays, compared to the critical threshold escapement of 720 natural origin adult spawners (Mohr and Fujiwara 2007).

3.0 ASSESSMENT OF FACTORS AFFECTING NATURAL AREA RECRUITMENT

3.1 Parent Stock Size and Distribution

Natural spawning parental stock for the critical broods of 2000-2003 were near average or above average compared to the previous 22-year averages (Table 2-6; Figure 3-1).

The fish kill in the lower Klamath River in September 2002 was estimated to have killed between 30,500 and 68,000 adult fall Chinook salmon (CDFG 2004a), many of which were destined for the Trinity River. It was a very large run that year compared to historical levels, therefore the impact did not substantially reduce the natural escapements to below average levels for any streams in the basin except the Trinity River, which was 44 percent (10,900) of the 1978—1999 average (Table 2-4). Hatchery personnel reported no discernible impact to returning hatchery fish and hatchery fish fecundity was comparable to recent years (CDFG 2004a). It appears that low egg deposition and distribution of naturally spawning adults in 2000, 2001, 2002, and 2003 were likely not contributing factors to low recruitment of those broods.

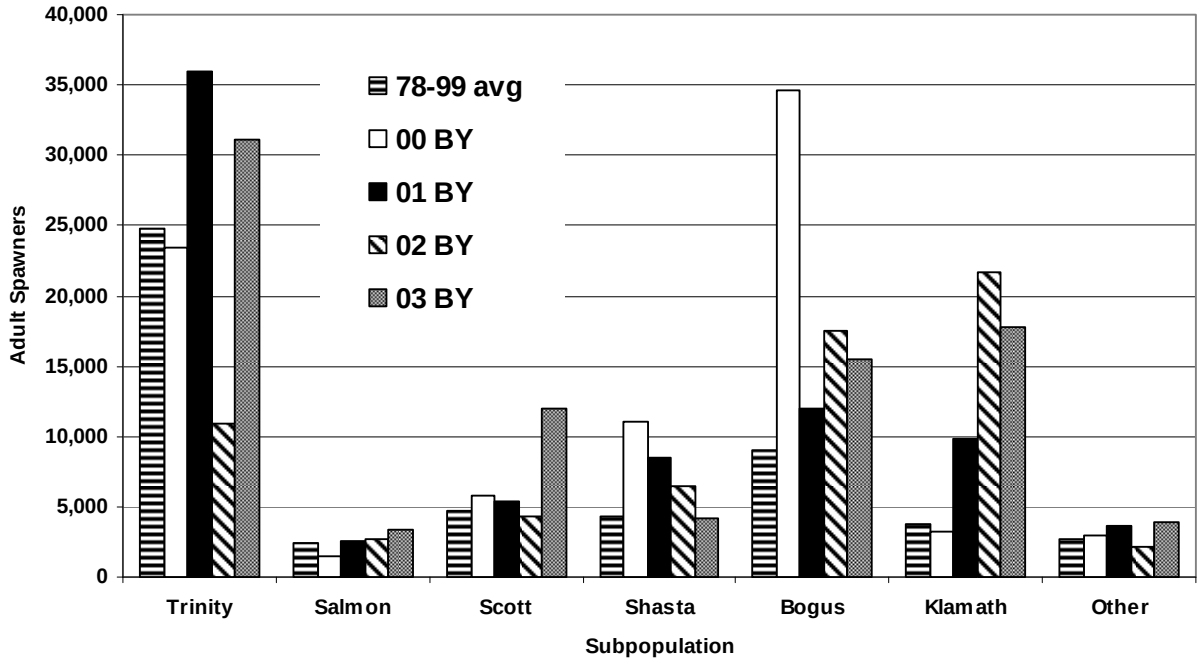

Figure 3-1. Spawning escapements to natural areas, of 2000- 2003 brood years (BY) compared with 1978-1999 averages.

3.2 Juvenile Production

The CDFG has monitored Chinook salmon juvenile production in the Scott and Shasta rivers using portable screw traps annually since 2000 and 2001 (migration years for 1999 and 2000 broods), respectively. The data show a positive relationship between emigrants and parental spawners for both rivers with a higher number of emigrants produced per adult in the Shasta River (325) compared to the Scott River (102) (Tables 3-1 and 3-2) (CDFG 2007). The emigrant

production levels of the critical 2000—2003 broods ranged from about 126,000-1.0 million fish in the Scott River and 1.0 million to 4.2 million fish in the Shasta River.

Historical production data are not available for either of these rivers with which to compare production data for the critical broods. Data collected for Scott and Shasta River Chinook salmon emigrants of the 2004 and 2005 broods indicated much lower production levels for those broods compared with the critical 2000—2003 broods. With the few years of data available, no conclusions can be drawn relative to the effects on recruitment to the critical broods.

Table 3-1. Scott River emigrant Chinook salmon estimates for 1999-2005 broods.

Brood Year or avg.[a/]	Emigrants	Lower Confidence Limit	Upper Confidence Limit	Parents	Emigrant/Parent
1999	160,906	52,719	269,093	3,021	53
2000	**457,800**	**398,422**	**517,177**	**5729**	**80**
2001	**239,483**	**140,620**	**338,346**	**5398**	**44**
2002	**125,909**	**78,709**	**173,109**	**4,261**	**30**
2003	**1,029,696**	**870,359**	**1,189,033**	**11988**	**86**
2004	178,863	154,908	202,818	445	402
2005[b/]	10,890	6,982	14,797	698	16
1999-2005 avg.	314,792	243,246	386,339	4,506	102
2000-2004 avg.	406,350	328,604	484,097	5,564	128

a/ Emigrant year is brood year plus one.

b/ Redd scour in December 2005 appeared to reduce emigrant production in 2006.

Table 3-2. Shasta River emigrant Chinook salmon estimates for 2000-2005 broods.

Brood Year or avg.[a/]	Emigrants	Parents	Emigrants/Parent
2000	**4,203,764**	**11,025**	**381**
2001	**3,509,388**	**8,452**	**415**
2002	**1,020,905**	**6,432**	**159**
2003	**2,486,076**	**4,134**	**601**
2004	295,699	833	355
2005[b/]	83,348	2,018	41
2000-2005 avg.	1,933,197	5,482	325
2000-2004 avg.	2,303,167	6,175	382

a/ Emigrant year is brood year plus one.

b/ Redd scour in December 2005 appeared to reduce emigrant production in 2006.

3.3 Spawner Success Rate

A major storm event in December of 2005 was believed to have scoured redds and incubating eggs in both the Scott and Shasta rivers (CDFG 2007). Stream flows measured in the Shasta River near the mouth reached nearly 10,000 cfs. The scour impact resulted in very low emigrant production levels in both streams and substantially delayed outmigration timing the following winter and spring (Tables 3-1 and 3-2; CDFG 2007). Based on CDFG reports and available sample data, redd scouring did not appear to be a problem for the critical 2000—2003 broods.

Age-2 recruitment estimates (R) for the critical broods were compared with previous broods in Section 2.4 (Stock Status). Those estimates, when linked to parent stock size (S) estimates, provide estimates of number of recruits per spawning adult (R/S), which is an index of pre-fishing cohort survival rate. The analysis showed that the R/S values for the critical 2000—2002 broods, for which data are sufficiently complete, were each well below the previous 21-yr brood average, and that the 2001 brood value was the third lowest on record (Table 3-3). The

expectation is that final data for the 2003 brood will show a below average R/S value based on the very low number of age-3 fish that returned to the river in 2006 (Table 2-8).

Table 3-3. KRFC natural area stock-recruitment data, 1979-2002 brood years.

Brood Year	Parents	Age-2 Recruits	Recruits/Parent
1979	30,637	906,521	29.59
1980	21,483	524,793	24.43
1981	33,857	217,854	6.43
1982	31,951	567,179	17.75
1983	30,784	1,609,472	52.28
1984	16,064	1,089,565	67.83
1985	25,677	794,089	30.93
1986	113,360	527,568	4.65
1987	101,717	311,514	3.06
1988	79,386	80,382	1.01
1989	43,868	68,783	1.57
1990	15,596	188,924	12.11
1991	11,649	196,444	16.86
1992	12,028	1,068,999	88.88
1993	21,858	400,559	18.33
1994	32,333	215,880	6.68
1995	161,794	157,675	0.97
1996	81,326	158,004	1.94
1997	46,144	674,091	14.61
1998	42,488	523,004	12.31
1999	18,457	699,486	37.90
2000	**82,728**	**405,951**	**4.91**
2001	**77,834**	**97,477**	**1.25**
2002[a/]	**65,635**	**209,228**	**3.19**
2003[b/]	**87,642**	**unkn**	**unkn**
79-99 avg	46,307	522,895	21.43
<50k avg[c/]	27,180	609,103	27.40
>50k avg[c/]	95,473	243,475	2.62

a/ Uses assumed age-4 maturation rate.

b/ Incomplete for age-4.

c/ Parent run <50,000, 1979-2002 broods.

d/ Parent run 50,000 or more, 1979-2002 broods.

The effect of parent spawning stock size on age-2 recruits was analyzed by plotting R/S values on 1979—2002 parent spawning stock sizes. This analysis indicated that the low R/S values for the critical broods were consistent with previous data for parent stock sizes above about 50,000 parents (Figure 3-2). Data for all broods in the data series showed an average R/S value of 27.4 for parent stock sizes below 50,000 fish and an average R/S value of 2.62 for parent stock sizes above 50,000 fish. The 50,000 fish value is close to the STT's estimate of S_{MAX} for the stock of 56,900 adults.

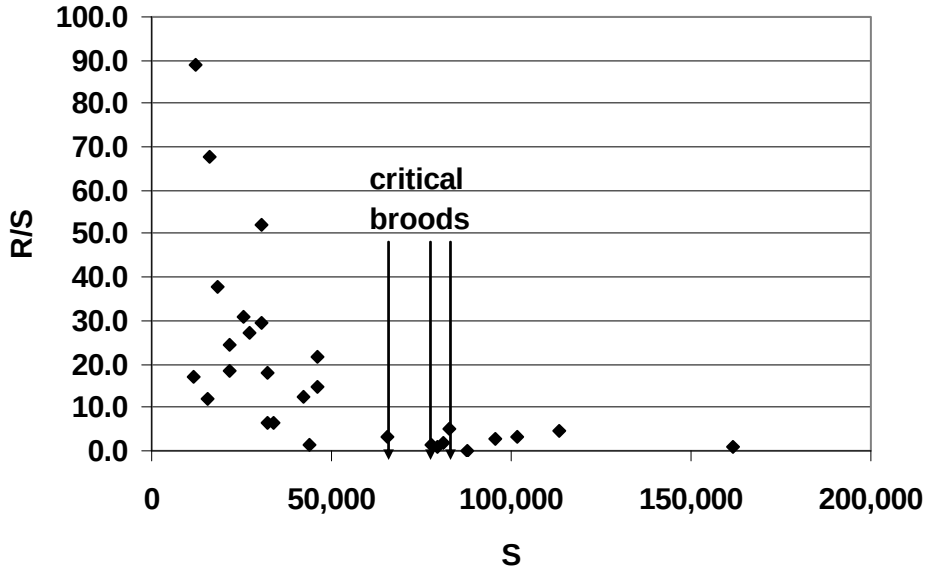

Figure 3-2. Plot of recruits per parent (R/S) on parent stock size (S); brood years 1979-2002.

Over-escapement of spawners can result in reduced realized production due to depensatory factors such as redd superposition, juvenile competition, predator attraction, and disease transmission. Low water discharge levels years could exacerbate the situation by further restricting available rearing habitat and increasing temperatures. Natural spawning escapement in 2000—2003 was above average, and above estimates of S_{MSY} and S_{MAX}, which could have resulted in reduced realized production from those broods. However, natural spawning escapement in all of these critical brood years was near the upper end of the range of spawner abundance that should produce more recruits than escapement at the floor of 35,000. The expected production of recruits from the observed spawning escapements in 2000—2003 ranged from 90 percent to 99 percent of the recruitment expected at S_{MAX}. Thus over-escapement, by itself, does not appear to have been a problem.

It seems unlikely that available spawning area is a limiting factor in the basin other than in the mainstem Trinity River near TRH and in Bogus Creek adjacent to IGH, where redd superimposition is commonly observed even in low run-size years. As discussed in Section 3.7, increased disease transmission from adult spawners was considered a possible result of the high natural spawner escapement in 2000—2003. Predation in the freshwater rearing and migration phase is also possibly a contributing factor.

3.4 River Flows

3.4.1 Klamath River Flows

This analysis compares flow conditions faced by juveniles of the critical broods of the OAP relative to the historical record by time and area. We reviewed flows from March 1 to July 31 to assess conditions faced by the OAP broods when juveniles were rearing or emigrating in the Klamath River. Flows were assessed from different areas of the Klamath River, including the Lower Klamath River (sum of flows at Orleans in the Klamath and at Hoopa in the Trinity), the

middle Klamath (at Orleans, RM 60) and the Upper Klamath (Iron Gate Dam releases). Given that low flows are thought to be the primary limiting factor during this time period, the upper ends of the hydrographs were truncated in Figures 3-3, 3-4, and 3-5 to provide more resolution during periods of low flow.

Figures 3-3 and 3-4 show similar trends in discharge between the lower and middle Klamath River locations (respectively). Flow during 2001 was extremely low, well below the 25 percentile of the period of record during most of the spring/early summer. Flow during 2002 was also relatively low at both of these locations, hovering near the 25 percentile of the period of record beginning in late April through the end of July. Flow was above the median for the period of record during most of the spring/early summer during 2003. During 2004 flow was near the median for most of the time period in the Lower Klamath River (Figure 3-3), above or near the median through mid-May in the middle Klamath River, and between the median and the 25 percentile for the rest of the spring/early summer. Therefore, it is possible that low river discharge during the spring/early summer, as illustrated by the lower and middle Klamath River hydrographs, contributed to low recruitment of the 2000 and 2001 broods, but not for the 2000 and 2002 broods.

The period of record for Iron Gate Dam flow began after the dam was constructed in the early 1960's, therefore it is not reflective of natural conditions, but of managed flow releases that are affected by agricultural diversions in the Upper Basin as well as hydroelectric operations. Beginning in 2001, these flows have largely been dictated by ESA constraints regarding Klamath Irrigation Project operations in the Upper Klamath Basin. Figures 3-5 shows that flows at Iron Gate Dam during the spring/early summer were typically above the 25 percentile of the period of record and often above the median. Therefore, flow releases at Iron Gate Dam during the spring/early summer were not considerably lower than those portrayed in the historic record, so they likely did not contribute to the low recruitment of the critical broods.

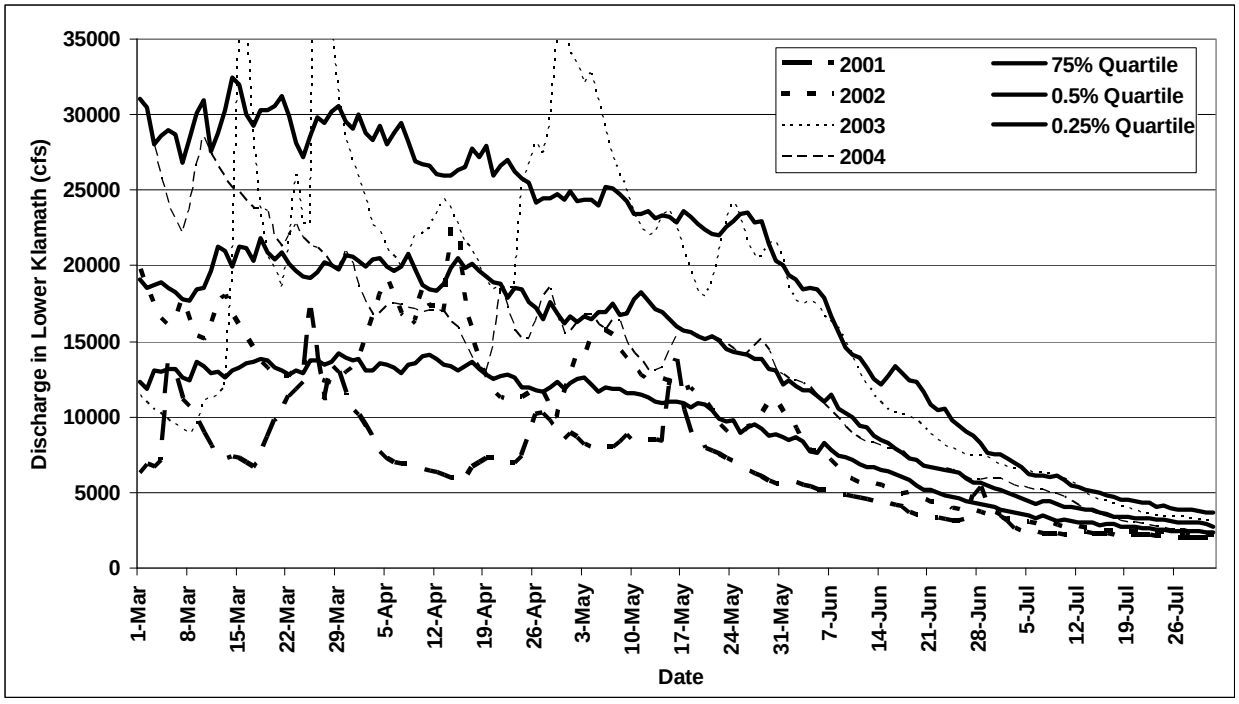

Figure. 3-3. Mean monthly flows in lower Klamath (sum of discharge from Trinity River at Hoopa and Klamath River at Orleans), March through July, relative to the historical record.

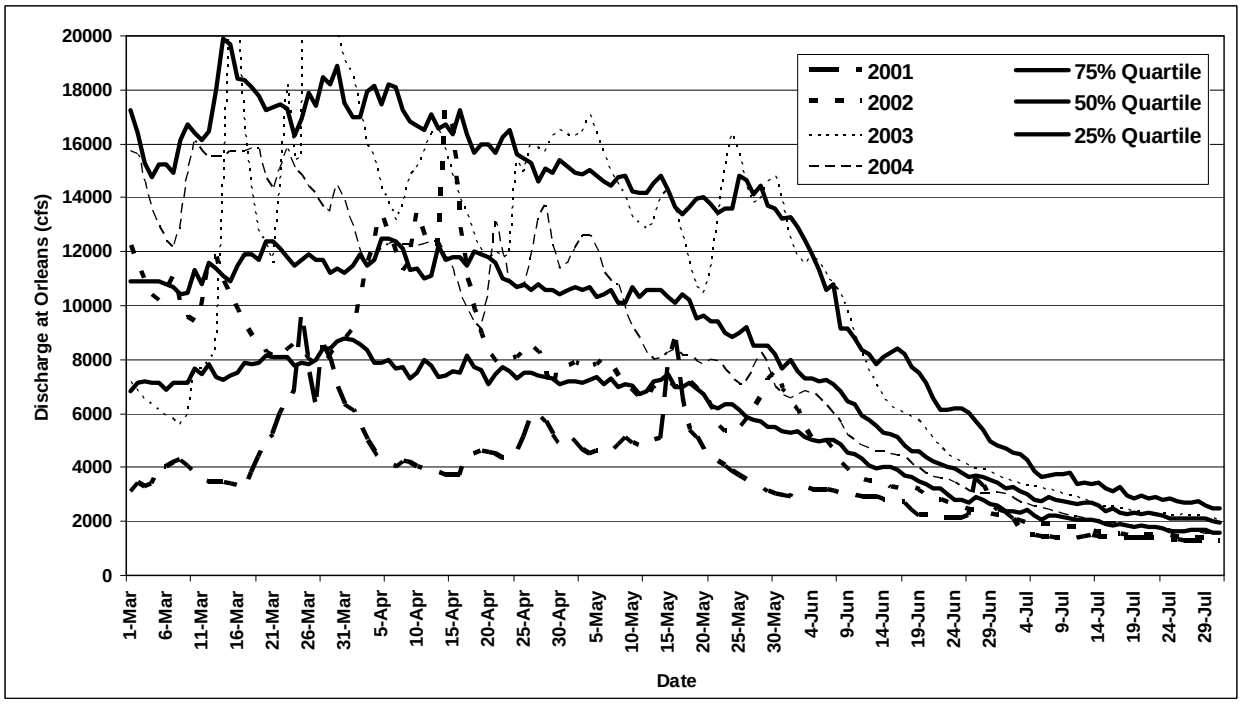

Figure 3-4. Mean monthly flows in the middle Klamath, near Orleans (RM 60), March through July, relative to the historical record.

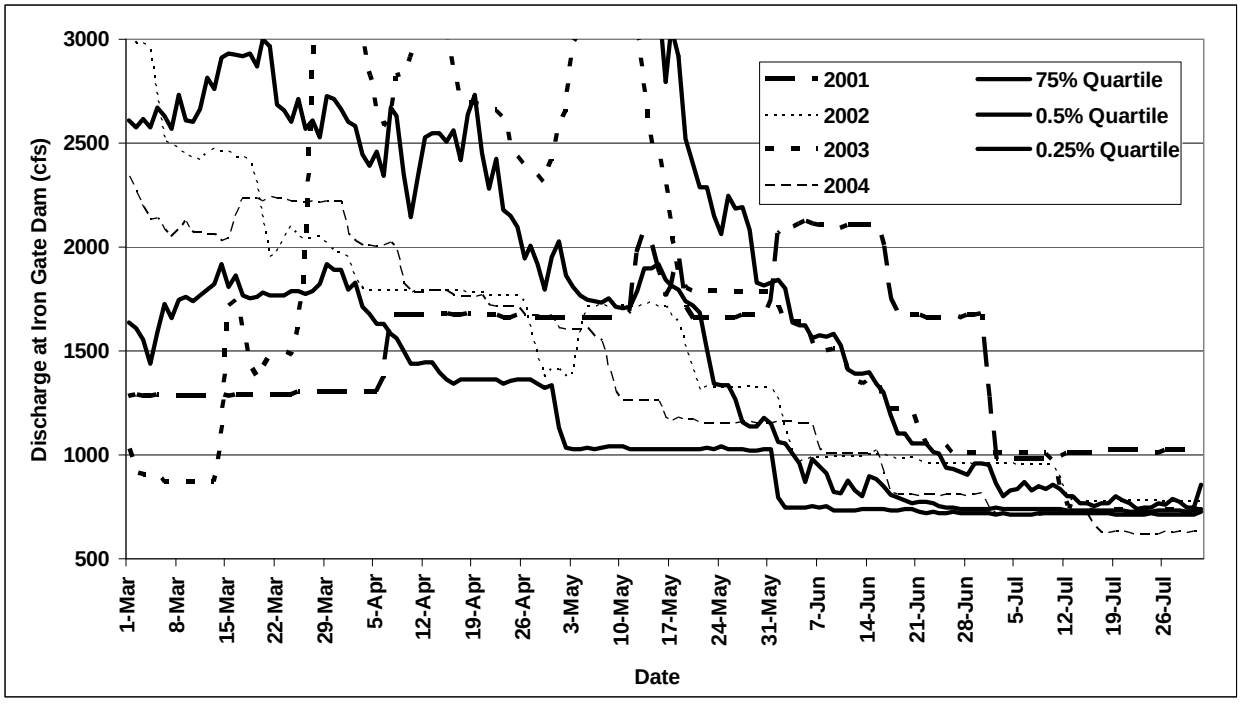

Figure 3-5. Mean monthly flows at Iron Gate Dam (RM 190), March through July, relative to the historical record.

We did not conduct an assessment of flow during the adult migration time of the parent stock for the critical broods; instead we focused on factors that could affect recruitment, not parent stock size. However it should be noted that the adult fish kill of 2002 was determined to be partially related to low flow (CDFG 2004a). The effect of 2002 adult fish kill on recruitment of the critical OAP broods is discussed in section 3.5.1.

Low flows during the time of spawning (generally from early October to mid-December) can affect recruitment by reducing the amount of available spawning habitat, thereby reducing egg survival from events such as superimposition, redd scour, and/or redd de-watering. Low or high flows during the time of egg incubation (generally October through February) can reduce egg survival from events such as redd scouring or redd dewatering.

Figure 3-6 shows that flows in the Middle Klamath during the time of incubation hovered around the mean for the period of record with some peak events (up to 50,000 cfs), but flows never neared the maximum of 240,000 cfs for the period of record.

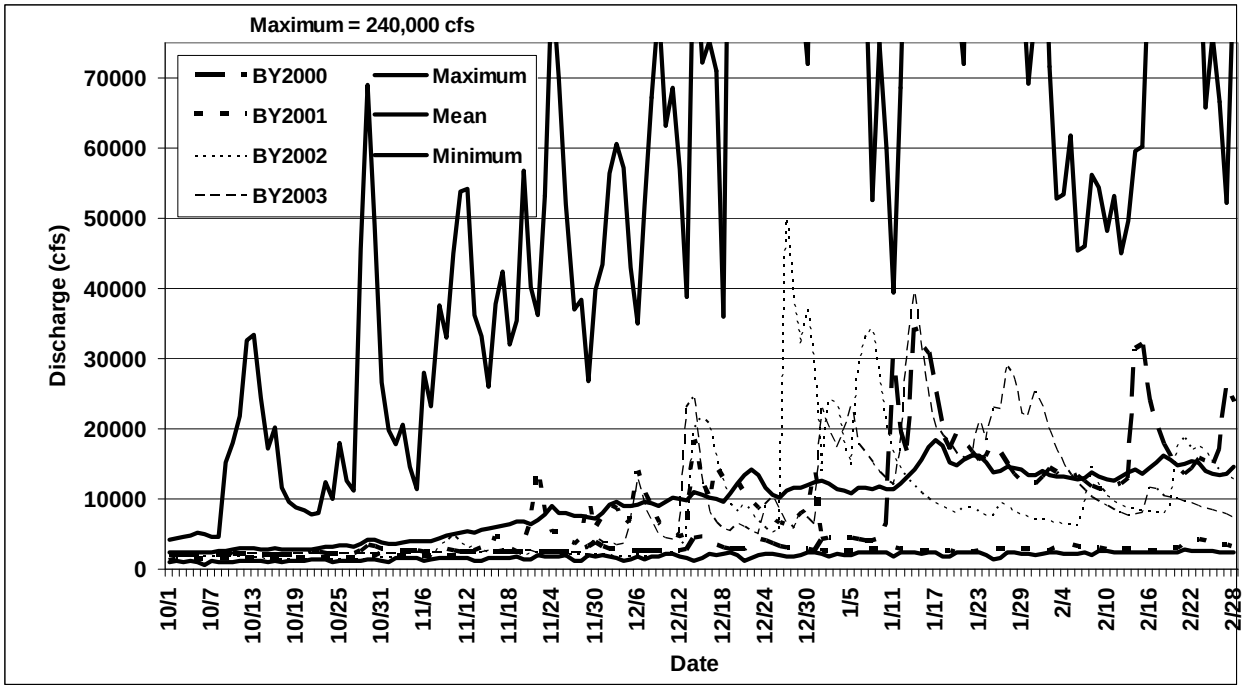

Figure 3-6. Mean monthly flows in the middle Klamath, near Orleans (RM 60) October through February, relative to the historical record.

3.4.2 Trinity River Flows

During water years 2001—2004 (brood years 2000–2003), discharge from Lewiston Dam to provide spawning and rearing habitat were similar to previous years (Figure 3-7) with the exception of safety-of-dams (SOD) releases which were sometimes required to meet operational criteria. In 2004, a month-long SOD release occurred from mid-February to mid-March but the potential impact of this on rearing Chinook salmon is unknown. The flow released was sufficient to overtop the riparian berms, which currently constrain habitat availability at moderate flow levels (generally between 300 cfs to 2,000 cfs); however, it is unknown if this increase in flow caused a premature emigration of fry and juvenile Chinook salmon or the subsequent reduction in flow led to significant stranding behind the riparian berms. During controlled high flow releases in May-June 2002, an estimated 27,000 Chinook salmon fry and juveniles were stranded in the upper Trinity River, with 97 percent of these occurring in riparian berm areas. While there was no monitoring for stranding during the 2004 SOD release, it is possible that greater numbers of fry Chinook salmon were stranded because this occurred during the peak of their emergence and rearing period. SOD releases of varying magnitude and duration have occurred in 8 of the 14 years from 1991 to 2004, including 1995 through 2000, which affected broods with relatively strong and weak returns. While the 2004 SOD release probably has an impact on naturally produced Chinook (NPC) salmon at an early life stage, because of the relative common occurrence of these events, it is unlikely the 2004 SOD had a substantial effect on 2003 brood survival.

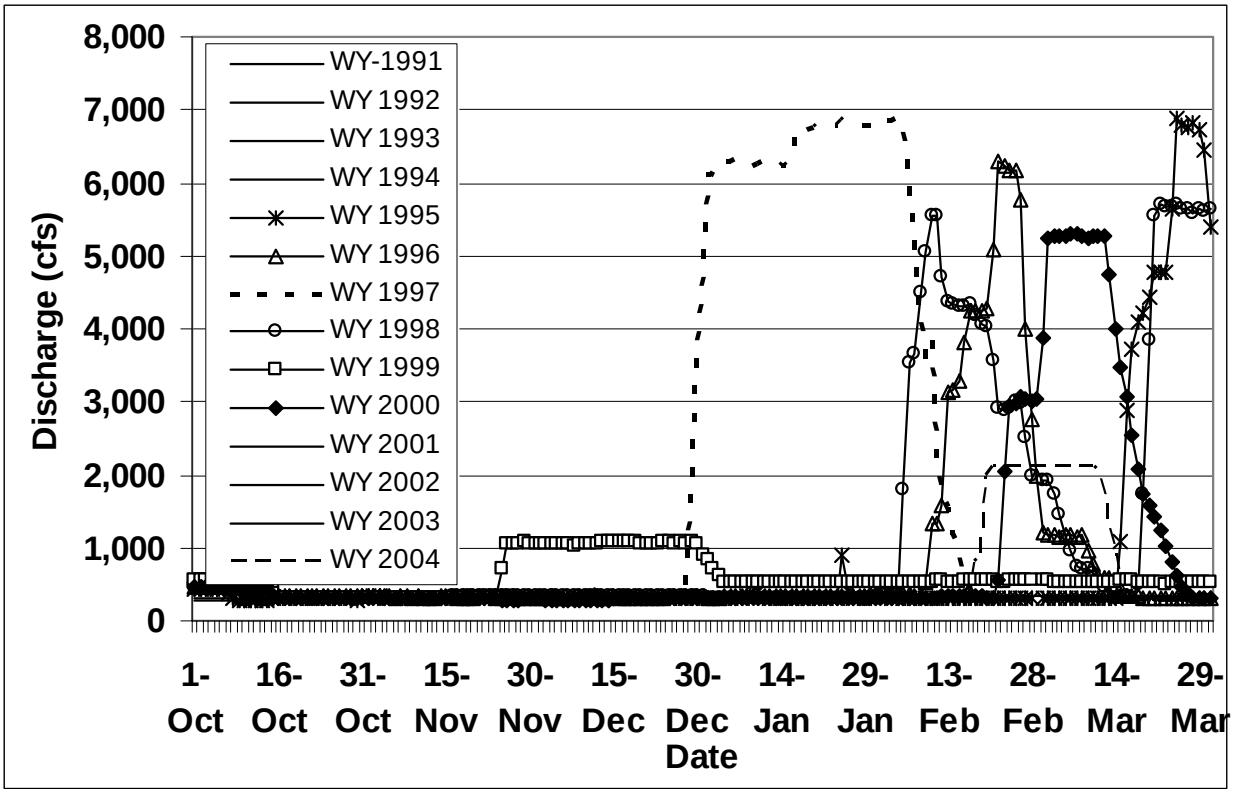

Figure 3-7. Discharge into the Trinity River from Lewiston Dam during the spawning and rearing period, 1991—2004 (brood years 1990 – 2003).

3.5 Water Quality

3.5.1 Klamath River

Fall Chinook abundance during 2004—2006 may have been affected by water quality conditions that juveniles experienced during their freshwater rearing and emigration life-stages during 2001-2004. Unfortunately, long-term data sets regarding Klamath River water quality parameters are limited. The longest-term data set regarding Klamath River water quality conditions available for this review for comparison to conditions during 2001—2004 was water temperatures measured from the U.S. Fish and Wildlife Service (USFWS) Big Bar trap (RM 50), which is located near Orleans, CA. The period of the year that juvenile fall Chinook are present, and therefore most vulnerable to Klamath Basin water quality conditions, is February-July (USFWS, 1997). Studies by Brett (1952) and Marine and Cech (2004) show that as temperatures rise above 19ºC, Chinook growth, smoltification, and/or predator avoidance decline.

To assess whether juvenile Chinook rearing and emigrating in the river during 2001—2004 experienced relatively warm water temperatures, the maximum daily water temperature from May 1-July 22 (period for which consistent data was available) in 2001 – 2004 was compared to the 25 percent, median, and 75 percent quartiles for the period of record (1991 – 2004). During 2001, water temperatures were extremely warm relative to the period of record (Figure 3-8) throughout most of the time period. During 2002, temperatures were typically above the median and above the 75 percent quartile during much of late June and July. During 2003 water temperatures typically hovered around the median. During the latter half of June 2004 through

the first week of July 2004 temperatures were relatively warm (usually above the 75 percent quartile). Given that water temperatures were exceptionally warm during 2001 and 2002 (and part of 2004), when juvenile Chinook rear/emigrate in the mainstem Klamath River, it is possible that warm water temperatures contributed to low survival of the 2000, 2001, and 2003 broods of fall Chinook, thereby contributing to low stock abundance during 2004-2006.

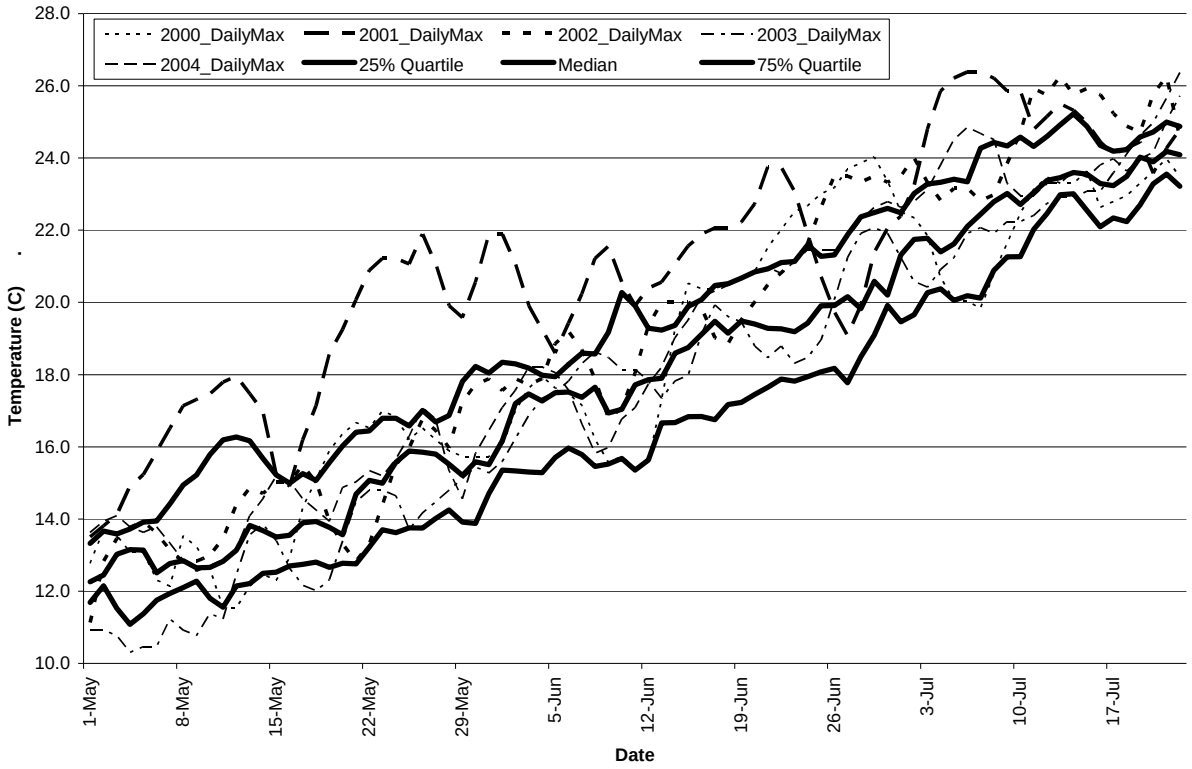

Figure 3-8. Daily maximum water temperatures at Big Bar trap (RM 50) from May 1-July 22, 2001—2004 relative to the 1st, 2nd, and 3rd quartiles from 1991 – 2004.

3.5.2 Trinity River

Portions of the recommended hydrographs were developed to provide better thermal conditions during salmonid outmigration periods during the spring/early summer, based on water year type (USFWS and HVT 1999). During normal and wetter water years, flows are scheduled to provide greater periods of optimum thermal regimes (<63ºF, 17ºC) for outmigrating salmonids while during dry and critically dry water years flows were anticipated to provide at least marginal thermal regimes (<68ºF, 20ºC). Although temperature objectives were established in developing the recommended flow schedules, flows are not managed on a real time basis to achieve the objectives. Part of the expectation of establishing a fixed schedule once the water year is established (early April) is to allow the downstream hydro-meteorological conditions to influence dam releases to restore some semblance of natural and variable thermal regime.

Discharge from Lewiston Dam is managed to meet adult holding and spawning temperature criteria (USFWS and HVT 1999). Generally releases ranging from 300 cfs (later in the year) to 450 cfs (during the summer) are necessary to meet the criteria, and during occasions when

criteria are not met flows are increased (Figure 3-9). For 2000 to 2003, water temperature objectives were generally met during fall Chinook salmon holding and spawning period (late September through November) except for minor exceedences (<1ºC) in early October during 2000, 2001, and 2003, which appear to be an artifact of shifting the compliance monitoring point (Figure 3-10). It does not appear that these relatively minor and short duration exceedences compromised the survival and spawning success of spawning fall Chinook during 2000—2004. Additional flows were released in the fall of 2003 and 2004 to assist in preventing unfavorable conditions that contributed to the adult fish die-off in the lower Klamath River in the fall of 2002 (Table 3-4, Figure 3-9). While no adult fish die-off occurred in either 2003 or 2004, the effectiveness of these flow releases from the Trinity in preventing this event is uncertain. Some of the possible negative reactions resulting from these atypical (primarily in duration) fall flows were fall Chinook salmon moving into the upper river up to two weeks early, increasing the probability of hybridizing with spring Chinook salmon.

Prior to May 20 temperatures at Weitchpec (RM 40) were in the optimum range during all years of interest (2001 to 2004) (Figure 3-11). The most favorable thermal regime through the lower Trinity River was observed for the period from May 20 through July 9, 2004 where optimal temperatures prevailed through mid-June and at least marginal temperatures through July 9. July 9 is the transition date when temperature targets shift from providing outmigration temperatures to those necessary to support upriver migrating adult salmonids in normal or wetter years.

Comparison of the percentage of days (from May 1 to July 9) that exceeded the marginal and optimal Chinook salmon outmigration temperature indicates that the 2001, 2002, and 2003 outmigrants (brood years 2000, 2001, and 2002, respectively) experienced the least favorable thermal conditions (Figures 3-12 and 3-13). During these years, optimal temperatures were exceeded 49 percent to 69 percent of the time and marginal temperatures 21 percent to 34 percent of the time. During 2004, outmigrants (brood year 2003) exceeded marginal temperatures 0 percent of the time and exceeded optimal temperatures 36 percent of the time. Similar percentages of exceeding marginal temperatures (>20 percent) occurred in 1992 (41 percent) and 1994 (29 percent) and exceeding optimal temperatures (>50 percent) occurred in 1991 (56 percent), 1992 (74 percent), 1994 (63 percent), and 1997 (50 percent). All of the broods affected by those rearing temperatures (1990, 1991, 1993, and 1996) had below average age-2 natural populations (Table 2-8). In contrast, percentages of exceeding optimal water temperatures were less than 50 percent in 1995 (24 percent), 1996 (43 percent) and 1999 (24 percent) but these broods also had below-average or average age-2 natural populations. While the desired benefit for better thermal regimes in the Trinity River with increased releases was not fully realized, the increased releases likely provided better thermal regimes than if they had not been released. Data to evaluate the relationship between thermal regimes of experienced by outmigrants in the Trinity River and Trinity specific age-2 natural populations were not available for this analysis.

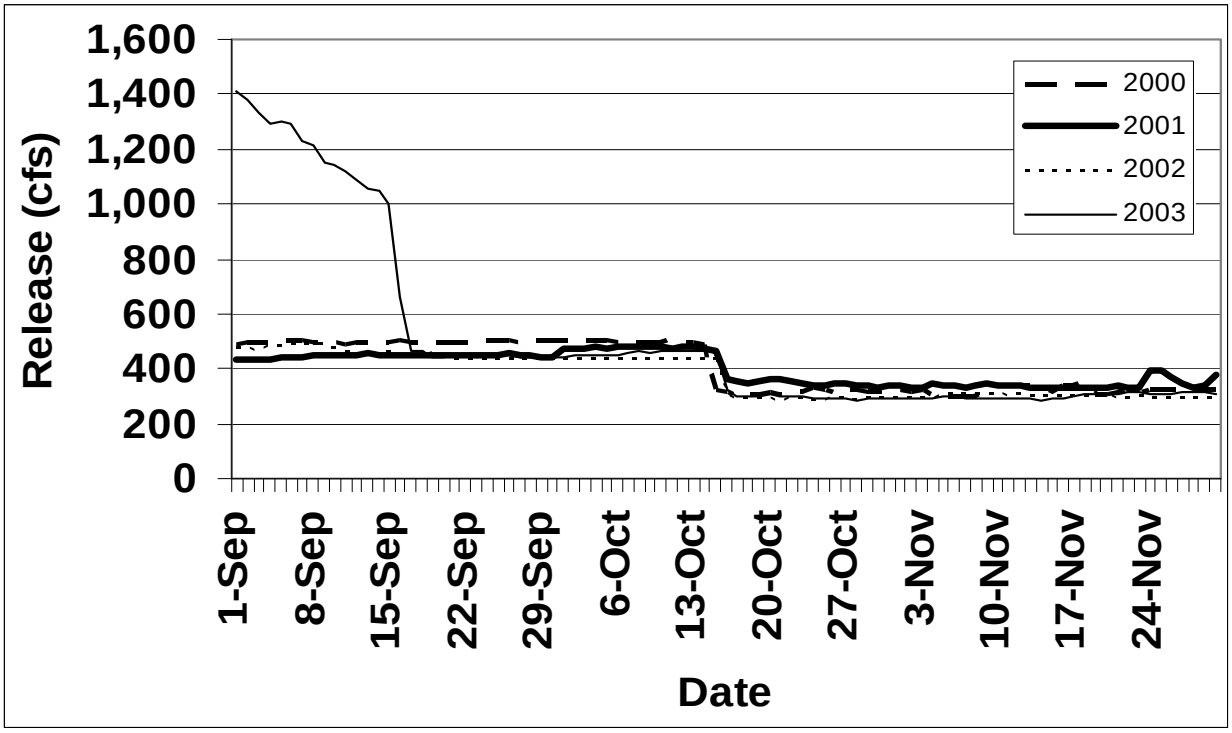

Figure 3-9. Mainstem Trinity River flow releases from Lewiston Dam from September through November, 2000—2003. Large release in 2003 through mid-September was managed release to improve water conditions in the lower Klamath River, not made to meet the holding/spawning temperature criteria for the upper mainstem Trinity River.

Table 3-4. Trinity River Record of Decision (ROD) flow requirements and compliance.

Water Year[a/]	Annual Release Volumes (acre-feet)			Channel Rehabilitation Sites Constructed[d/]
	Actual Volume Released	Volume Necessary to meet ROD Objectives	Other Fishery Flows[c/]	
2001[b/]	368,000	453,000		
2002[b/]	468,000	647,000		
2003[b/]	453,000	671,300	34,000	
2004[b/]	647,000	671,300	36,300	
2005	647,000	647,000		1
2006	815,000	815,000		4

a/ Water year begins in October of previous year (i-1) and ends in September (year i).

b/ Flow volumes were limited due to court order and ongoing litigation over the implementation of the ROD. During WY2005 full releases recommended in the ROD were able to be released.

c/ During the fall of 2003 and 2004 releases from the Lewiston Dam above ROD volumes to improve conditions in the lower Klamath River.

d/ Mechanical rehabilitation activities recommended in the ROD include 44 channel rehabilitation sites and 3 side channels.

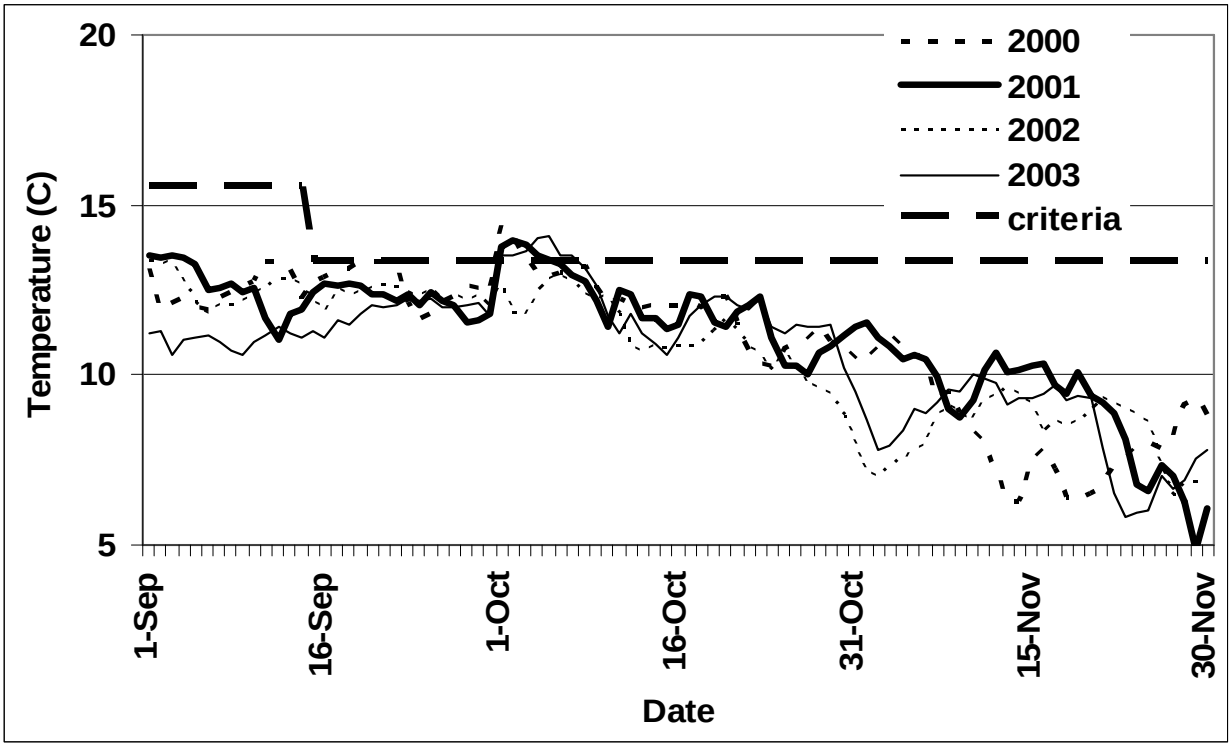

Figure 3-10. Mainstem Trinity River water temperature from September through November, 2000 – 2003.

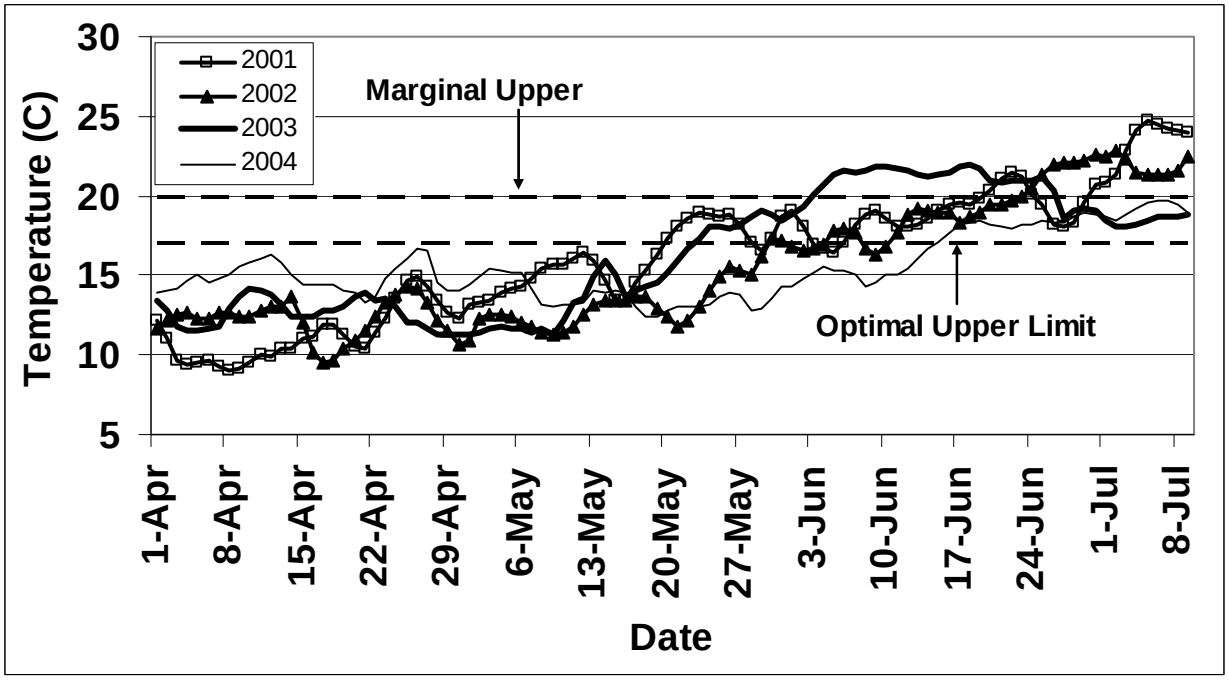

Figure 3-11. Mean daily water temperature on the Trinity River at Weitchpec, April 1 to July 9, 2001—2004. Dashed lines are upper level of optimal Chinook salmon smolt criteria (63ºF) and upper level of marginal Chinook salmon smolt criteria (68ºF).

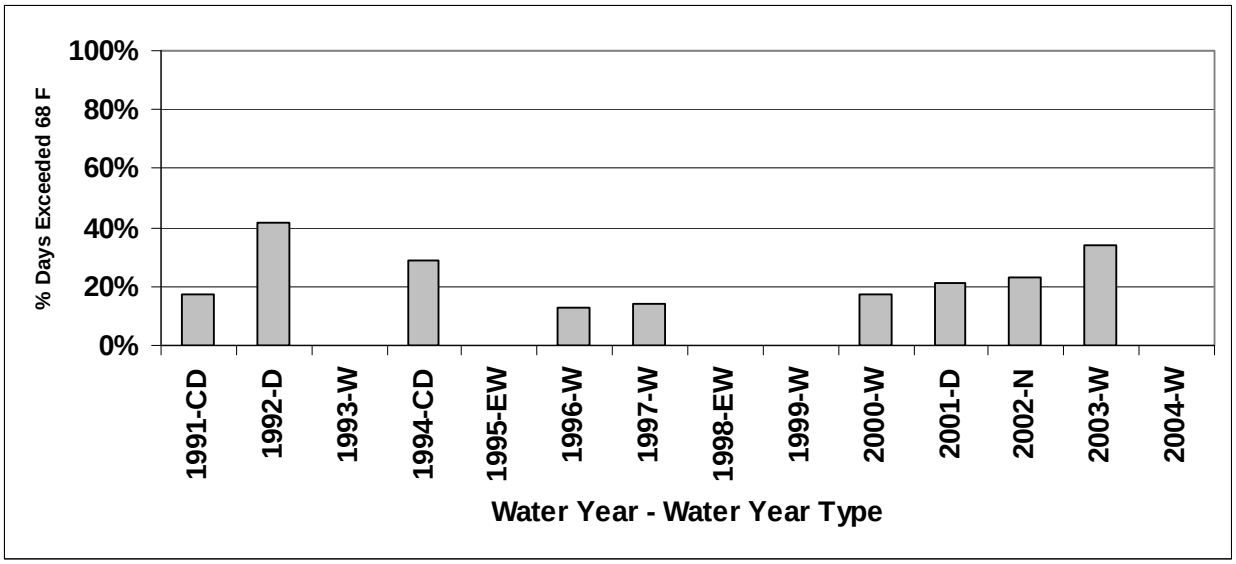

Figure 3-12. Percentage of days marginal (>68ºF) Chinook outmigrant temperature objective was exceeded on the Trinity River between May 1 - July 9 at Weitchpec. Water year is October 1 (year-1) to September 30 (year); water year 2001 affected outmigrants from brood year 2000. Water year types are actual classifications, not forecasts: CD= Critically Dry; D= Dry; N= Normal; W=Wet; EW= Extremely Wet.

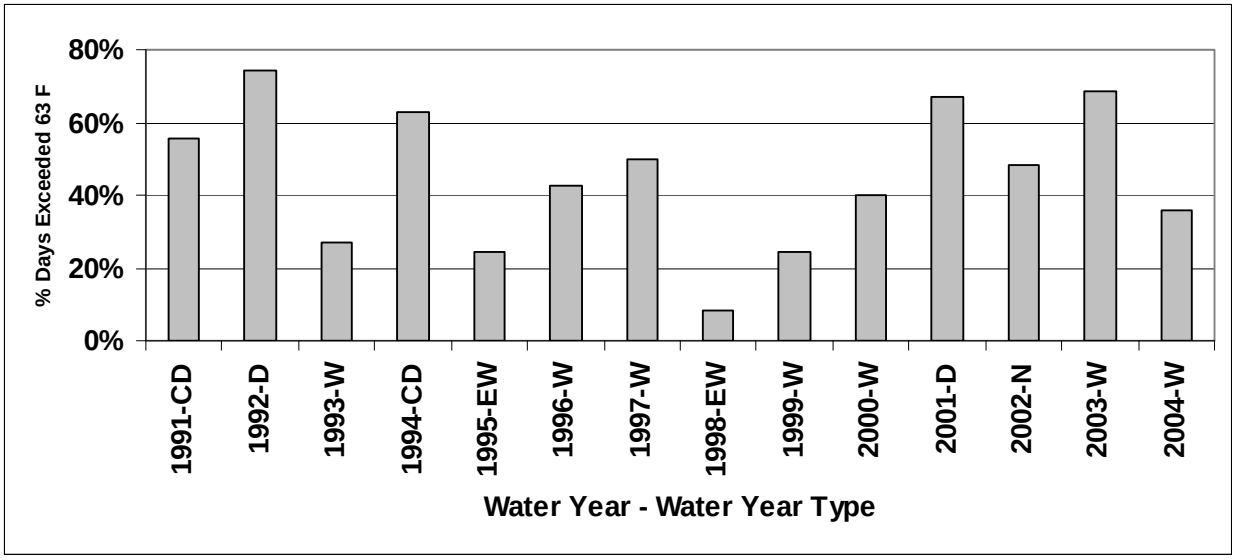

Figure 3-13. Percentage of days optimal (>63ºF) Chinook outmigrant temperature objective was exceeded on the Trinity River between May 1 - July 9 at Weitchpec. Water year is October 1 (year-1) to September 30 (year); water year 2001 affected outmigrants from brood year 2000. Water year types are actual classifications, not forecasts: CD= Critically Dry; D= Dry; N= Normal; W=Wet; EW= Extremely Wet.

3.6 Hatchery/Wild Interactions

Concern over the interaction of natural and hatchery produced fish in the Klamath Basin may extend to all the species and races propagated at the two hatcheries. These include fall-run Chinook salmon, coho salmon and steelhead trout. At TRH, the hatching and rearing program also includes spring-run Chinook salmon. In terms of pounds of fish produced, steelhead is the

most abundant of the three species propagated at TRH, followed by Chinook salmon and coho salmon. The IGH program has been almost entirely fall-run Chinook salmon in recent years.

There are many potentially negative consequences of interactions between hatchery and naturally produced fish. The short-term concerns include: 1) predation of steelhead yearlings and adults on salmon fingerlings, 2) competition for food and space between juvenile hatchery fish and naturally produced fish of all three species, 3) competition for natural spawning areas between hatchery and naturally produced adults, particularly in the immediate area of the two hatcheries, 4) alteration of the natural gene pool from hybridization of natural and hatchery fish, and 5) disease transmission to natural fish. The long-term consequences and concerns over the interaction of natural and hatchery produced salmon and trout were discussed in a CDFG and NMFS (2001) report on the subject.

3.6.1 Adults

Interactions of hatchery and naturally produced Chinook salmon adults occur on the spawning grounds in both the Klamath and Trinity basins as a result of straying by hatchery fish into natural spawning areas and naturally produced fish into the hatcheries. Straying of hatchery fish is most notable on the Trinity River where a large fraction of the natural spawners in the upper mainstem Trinity (upper 101 kms) are composed of hatchery fish. The estimated contribution of hatchery fish from 2002 through 2006 ranged from 13.5 percent to 42.8 percent and averaged 31.3 percent (Table 3-6). During the OAP the contribution of hatchery fish observed during carcass surveys averaged 37 percent. In particular, the first several miles below TRH are heavily utilized by spawning Chinook salmon, both spring-run and fall-run. Up to 85 percent of the total natural spawning Chinook carcasses recovered in the Trinity Basin are found in the first several miles below Lewiston Dam, which leads to redd superposition, matings between hatchery and natural fish, and racial mixing (Knechtle and Currier 2006).

On the Klamath River the incidence of straying appears to be greatest in Bogus Creek, a small tributary located adjacent to IGH, and in some years in the Shasta River, located approximately 10 miles downstream of IGH. In Bogus Creek the estimated incidence (as a proportion of the total Bogus Creek return) of hatchery strays ranged from 7.5 percent to 61.6 percent and averaged 34.4 percent between 1999 and 2006 (Table 3-5) During those years between 1,019 and 13,025 hatchery KRFC spawned in Bogus Creek (Table 3-5). The incidence of hatchery strays on the Shasta River ranged between 1.2 percent and 38.7 percent with an average of 15.4 percent between 2002 and 2006 (Table 3-5). In those years between 79 and 469 hatchery KRFC (adult and jacks) spawned in the Shasta River (Table 3-5). In the mainstem Klamath the percentage of hatchery adults and jacks in natural spawning populations ranged from 3.5 percent to 28.6 percent and averaged 9.7 percent during 2001 to 2005. The incidence of IGH strays in other areas of the Klamath is minimal (Sinnen 2007, pers. comm.).

As noted above, a high incidence of redd superposition occurs in the immediate vicinity of TRH in part due to a large number of hatchery strays, however this does not appear to be the case on the Klamath River (KRTAT 2007). It is likely, however, that redd superposition occurs in Bogus Creek. Other potential negative consequences of hatchery straying that may occur are the loss of genetic integrity, lowered productivity potential, lowered spawning success, and crowding in holding areas, which could lead to higher disease transmission. None of these issues have been

thoroughly investigated to date, and data are not available to compare the critical broods to historical periods.

Table 3-5. Number of adipose-clipped fish (adults and jacks) observed through the counting flumes at Bogus Creek, and observed on the upper Trinity River spawning grounds, with coded-wire-tag (CWT) expanded hatchery contributions. Data from Hampton (2007) and Walsh and Hampton (2007).

Year	Total Escapement/ Carcasses Observed	Adipose Clips Observed	CWTs Recovered	Expanded Hatchery Contribution	Hatchery Chinook as Percent of Run
			Shasta River		
2002	6,820	3	1	79	1.2%
2003	4,195	25	0	436	10.4%
2004	962	23	0	372	38.7%
2005	2,129	32	11	469	22.0%
2006	2,163	6	1	106	4.9%
Average	3,254	18	3	292	15.4%
			Bogus Creek		
1999	6,165	93	83	2,915	47.3%
2000	35,051	212	186	13,025	37.2%
2001	12,575	66	40	7,747	61.6%
2002	17,835	40	40	1,330	7.5%
2003	15,610	85	59	2,722	17.4%
2004	3,788	75	58	1,019	27.0%
2005	5,397	131	96	1,931	35.8%
2006	4,133	93	50	1,724	41.7%
Average	12,569	99	77	4,052	34.4%
			Trinity River		
2002	1,486	62	42	200	13.5%
2003	10,321	804	719	2904	28.1%
2004	3638	451	377	1539	42.3%
2005	2,096	236	214	898	42.8%
2006	3,462	247	222	899	26.0%
Average	5,595	317	275	1,749	31.3%

Adult steelhead are present in the Klamath Basin during September-March. Adult steelhead likely prey on juvenile KRFC during February and March when juvenile Chinook are emerging from the gravel. Steelhead returns have been increasing at TRH in recent years, particularly in 2003 and 2004 (Table 3-7). These fish potentially affected juvenile Chinook salmon production of the 2002 and 2003 broods. The amount of impact is not possible to estimate but should be considered a possible contributing factor to the depressed recruitment of the critical brood years of KRFC.

3.6.2 Juveniles

The degree of interaction between hatchery steelhead and Chinook salmon in the Klamath Basin is not well understood. Studies have been conducted of migration timing of IGH and TRH Chinook salmon between the hatcheries and the estuary. These findings have been important in terms of assessing the amount of time that hatchery and naturally produced fish co-exist in the mainstems and compete with one another for food and space and potentially prey upon one another.

The previous stock assessment workgroup (PFMC 1994) reviewed available field sampling data on interactions of hatchery and naturally produced Chinook salmon in the Klamath Basin. They reached the following conclusions:

1. Migration rate for hatchery fingerling releases is related to size of fish with the larger fish moving out faster than the smaller fish.
2. Small average size at release of the 1987—1989 broods coupled with larger numbers released may have had an adverse impact on the natural populations (taking up to 80 days to reach the estuary).
3. Fingerlings released at 90/lb take from 10—40 days to reach the estuary
4. Yearling releases move through the system rapidly (<10 days between hatchery and estuary) and do not pose a significant threat to naturally produced fish.

3.6.2.1 Inter- and Intra-specific Competition

Hatchery releases of fall Chinook fingerlings and coho yearlings during the outmigration period for 2000—2003 brood natural KRFC averaged slightly more than the previous 8 year (two brood cycle) average, but were within the observed range (Table 3-6). Spring Chinook releases were slightly lower. Steelhead yearling releases during the same period were substantially greater, averaging 30 percent greater from TRH and 100 percent greater from IGH than the previous 8 year average. The discharge in the Klamath Basin was particularly low during 2001 (Figure 3-4), which would have increased the effects of competition that year. It is likely that 2000 brood KRFC were negatively affected by competition from hatchery reared steelhead compared to earlier broods, and possible that 2001—2003 broods were also negatively impacted.

CDFG's recently implemented IGH "Early Release Strategy," provides additional information on the migration timing of KRFC hatchery fingerlings. The study results which are available for 2001—2003 coincide with the outmigration years of the depressed 2004—2006 runs of KRFC (Hampton 2001, 2002, 2006). Study results for subsequent years including CWT expansions for adult fish catches and escapements are not yet available. Study groups were generally released in May at IGH at an average size of about 90/lb. Dry weather conditions and low stream flows were experienced in all three study years. Stream and estuary sampling showed the fish typically migrated at a rate of about 5 miles per day (range 3 miles to 14 miles/day), which equates to an average river residency period of about 38 days. This meant that fish released on or about June 1 typically reached the estuary in early to mid July. Compared to the river residency period noted in the 1994 report, the 38 day period average for the 2001-2003 was at the high end of the range, which may have contributed to increased competition with natural fish and the high incidence of parasitic disease infestation found in trapped hatchery and natural fish during the study years.

3.6.2.2 Predation

Yearling steelhead, Chinook salmon and coho salmon have the potential to prey upon fingerling Chinook salmon during the period of time following planting to when the fish enter the ocean (Riley et al. 2004). Yearling releases of Chinook salmon take place in the fall (October at TRH and November at IGH), several months prior to when fingerling Chinook salmon begin to emerge and migrate downstream (February-August) or are released from the two hatcheries (May or June). Yearling steelhead and coho salmon are released in March, approximately 2 months prior to when fingerling Chinook salmon are released from the hatcheries, but overlapping the presence of stream rearing and migrating naturally produced Chinook salmon fingerlings. It likely takes 1-2 weeks for yearling steelhead and coho salmon (based on yearling Chinook salmon migration timing data) to reach the ocean following hatchery release, thus the

potential is high that these fish may consume a substantial number of fingerling Chinook salmon based on the numbers of fish released from the two basin hatcheries (Table 3-6). Hatchery steelhead are also known to residulize in the river and may never migrate to sea, and steelhead adults are present when naturally spawned Chinook salmon are emerging and migrating to sea, further increasing the likelihood of predation. The steelhead residualization problem below TRH may be compounded by brown trout predation. These resident sources of predatory fish further exacerbate the potential for predation on fingerling Chinook salmon.

In addition to the increased numbers of steelhead released during the outmigration of the critical KRFC broods, the size at release was also about 24 percent greater (by weight) for TRH steelhead (Table 3-6). Size at release was about 33 percent smaller (by weight) for IGH steel head releases, but almost 90 percent of steelhead releases were from TRH. The increased number and larger average size of steelhead yearling releases in the Klamath Basin during 2001—2004 may have increased the predation on critical KRFC brood juveniles in comparison to historical averages.

The Yurok Tribe (in preparation, 2008) conducted a study in the Upper Trinity River (within the first 3.2 kilometers downstream of TRH) during 2005 and 2007 to assess predation rates of residualized steelhead and recently released steelhead smolts from TRH. High predation rates were observed relative to other predation studies (Table 3-7). These relatively high predation rates, combined with the increased releases and size at release during the time the KRFC brood juveniles were in the river may have contributed to reduced recruitment during the OAP years.

Yearling Chinook salmon have also been known to prey upon fingerling Chinook salmon in the Central Valley (Sholes and Hallock 1979). However, in the Klamath Basin, Chinook salmon yearlings are released in the fall, well after the time of year natural fish are rearing and emigrating in the river and well after the time hatchery fingerlings are released in the spring, and there have been no indications of overwintering or residualization of yearling Chinook. Thus, the potential appears low for significant impact of yearling Chinook salmon on the current or following year fingerling Chinook salmon production.

Coho salmon release timing poses more of a potential problem for fingerling Chinook salmon than yearling Chinook salmon releases. Coho salmon are planted in the spring of the year following the year in which the adults were spawned. Coho salmon yearlings of the 1999—2002 broods (planted in 2001—2004) had the potential to impact fingerling Chinook salmon of the 2000—2003 broods. However, TRH yearling coho salmon releases during 2001—2004 were all within the range of nearly all previous year releases, while the IGH coho releases were generally below the number of fish released from that facility in previous years (Table 3-6). Thus, no increased impact of coho salmon on the 2000—2003 broods of KRFC seems likely based on IGH and TRH yearling coho salmon production data.

Table 3-6. Klamath Basin salmon and steelhead hatchery releases and adult steelhead returns to hatcheries with potential for interaction with natural KRFC juveniles during outmigrant years 1993 through 2005.

Outmigrant Year	Spring Chinook Fingerlings	Fall Chinook Fingerlings	Coho Yearlings	Steelhead Yearlings	Steelhead Size at Release (fish/lb)	Steelhead Adult Returns
			Trinity River Hatchery			
1993	488,219	2,342,037	384,555	337,589	4.1	551
1994	1,498,015	202,275	480,790	323,791	4.7	882
1995	1,458,984	2,153,982	549,983	879,841	4.7	376
1996	1,057,037	2,038,461	71,993	614,828	6.2	744
1997	1,034,825	2,101,306	584,970	784,844	6.6	4,046
1998	1,294,518	2,403,407	516,192	811,513	4.1	419
1999	1,148,984	2,050,636	519,273	611,443	5.7	438
2000	959,019	1,991,693	493,727	382,903	4.4	1,584
2001	**1,093,525**	**2,113,804**	**513,400**	**822,505**	**3.5**	**842**
2002	**1,032,548**	**2,084,069**	**530,285**	**624,650**	**3.9**	**2,371**
2003	**1,005,179**	**2,078,192**	**418,139**	**877,268**	**5.1**	**6,163**
2004	**1,062,912**	**2,105,708**	**517,774**	**798,449**	**3.8**	**10,283**
2005	1,115,927	2,006,066	520,563	792,861	4.2	5,691
1993-2000 avg.	1,117,450	1,910,475	450,185	593,344	5.1	1,130
2001-2004 avg.	**1,048,541**	**2,095,443**	**494,900**	**780,718**	**4.1**	**4,915**
			Iron Gate Hatchery			
1993		3,300,312	144,998	63,000	5.8	126
1994		4,962,344	76,999	74,000	10.0	163
1995		4,913,457	79,506	74,000	10.0	271
1996		5,626,408	74,250	163,000	8.0	12
1997		5,286,641	81,498	10,702	7.8	97
1998		5,103,476	79,607	35,802	10.2	127
1999		4,962,229	75,156	37,080	12.0	91
2000		5,028,070	77,147	51,324	14.0	112
2001[a/]		**4,938,000**	**46,250**	**31,897**	**18.0**	**529**
2002[a/]		**4,966,640**	**67,933**	**141,362**	**14.0**	**617**
2003[b/]		**5,116,165**	**74,271**	**192,770**	**12.0**	**481**
2004[b/]		**5,182,092**	**109,374**	**148,991**	**13.0**	**554**
2005[b/]		5,369,792	74,716	195,698	14.0	281
93-00 avg.		4,897,867	86,145	63,614	9.7	125
01-04 avg.		**5,050,724**	**74,457**	**128,755**	**14.3**	**545**
			Total			
1993	488,219	5,642,349	529,553	400,589	4.3	677
1994	1,498,015	5,164,619	557,789	397,791	5.2	1,045
1995	1,458,984	7,067,439	629,489	953,841	4.9	647
1996	1,057,037	7,664,869	146,243	777,828	6.5	756
1997	1,034,825	7,387,947	666,468	795,546	6.7	4,143
1998	1,294,518	7,506,883	595,799	847,315	4.2	546
1999	1,148,984	7,012,865	594,429	648,523	5.8	529
2000	959,019	7,019,763	570,874	434,227	4.8	1,696
2001	**1,093,525**	**7,051,804**	**559,650**	**854,402**	**3.6**	**1,371**
2002	**1,032,548**	**7,050,709**	**598,218**	**766,012**	**4.5**	**2,988**
2003	**1,005,179**	**7,194,357**	**492,410**	**1,070,038**	**5.7**	**6,644**
2004	**1,062,912**	**7,287,800**	**627,148**	**947,440**	**4.3**	**10,837**
2005	1,115,927	7,375,858	595,279	988,559	4.9	5,972
93-00 avg.	1,117,450	6,808,342	536,331	656,958	5.3	1,255
01-04 avg.	**1,062,018**	**7,192,106**	**574,541**	**925,290**	**4.6**	**5,562**

a/ Fingerling fall Chinook were released in May rather than June.

b/ Fingerling fall Chinook released in May and early June rather than all in June.

Table 3-7. Summary of hatchery steelhead predation studies.

Citation	Year(s)	River System	Methods	Sample size	Fry ingested (*n*)	Fry/ Stomach
Whitesel et al. 1993	1992-1993	Imnaha/Grande Rhonde	RST/Electro	611	8	0.01
Jonasson et al. 1994	1993-1994	Imnaha/Grande Rhonde	H&L /Electro	358	1	0
Jonasson et al. 1995	1994-1995	Imnaha/Grande Rhonde	Electro	175	2	0.01
Canamella et al.	1992	Upper Salmon River	H&L /Electro	6,762	10	0
Martin et al.	1993	Lower Snake (Tucannon)	H&L	1,713	3	0
Pearsons et al. 1994	1992	North Fork Teanaway and Jack Creek	Electro	55	0	0
Harper 1999	1993	North Fork Teanaway	RST/ H&L	59	0	0
Hawkins and Tipping; WDFW unpublished	1995-1996	Lewis	Seine	74	1	0.01
Hawkins and Tipping; WDFW unpublished	1997	Lewis	Seine	110	2	0.02
Hawkins and Tipping; WDFW unpublished	1998	Lewis	Seine	48	52	1.08
Fuss et al. 1999	1999	Elochoman	H&L	221	1	0
Fuss et al. 1999	2000	Elochoman	H&L	45	1	0.02
Wash. Dept. of Fish and Wildlife (WDFW) unpublished	2002	Kalama	RST	266	0	0
WDFW unpublished	2002	Deschutes	RST	29	0	0
WDFW unpublished	2003	Deschutes	RST	3,673	5	0
WDFW unpublished	2002	Green	RST	398	0	0
WDFW unpublished	2003	Green	RST	210	0	0
WDFW unpublished	2002	Chehalis	RST	35	0	0
WDFW unpublished	2002	Skagit	RST	6	0	0
Beachamp 1995	1983-1985	Cedar	Electro	18	0	0
Yurok Tribal Fisheries Program (YTFP)	2005	Trinity (smolts)	H&L/Frame net	2,507	155	0.06
YTFP unpublished	2005	Trinity (residuals)	H&L	216	145	0.67
YTFP unpublished	2007	Trinity (smolts)	H&L/Electro	1,636	882	0.54
YTFP unpublished	2007	Trinity (residuals)	H&L	316	435	1.38

3.6.2.3 Estuary Studies

CDFG sampled juvenile fish in the Klamath River estuary during June and July in years 1998—2003. Captured Chinook salmon were examined to determine the presence of adipose fin clips. Adipose-fin-clipped fish were sacrificed for CWT extraction and determination of race and hatchery of origin. Overlap of hatchery and NPC occurs in the Klamath River estuary after release of hatchery fish in May and June of each year (CDFG 2004b). Of interest for this analysis were relative abundance and degree of temporal overlap for hatchery and natural KRFC in the summer period of 2001 through 2004 coincident with the presence of 2000—2003 critical brood years. However, data on the overlap of hatchery and naturally produced fish are limited to the 1997—2001 brood years. There were four unique categories of Chinook juveniles found in the estuary: IGH fall Chinook; TRH fall Chinook; TRH spring Chinook; and naturally produced Chinook.

Generally, hatchery origin Chinook were most abundant in late June thorough early July of 1998 through 2002 (Wallace 2003) and comprised 24 percent to 79 percent of total juvenile Chinook captured (Table 3-8). The arrival and co-occurrence of hatchery produced fish is consistent with their release timing and rapid migration to the estuary (Table 2-2). As summer progressed, the presence of hatchery fish relative to naturally produced Chinook decreased (Wallace 2003). Meanwhile, naturally produced Chinook appeared to utilize the estuary over a much more protracted period and were detectable in seine samples as early as March and as late as September.

Table 3-8. Number of Chinook smolts recovered in the lower Klamath River estuary during June and July seining in 1998 through 2002. Hatchery values represent expanded CWT recoveries from Iron Gate Hatchery (IGH) and Trinity River Hatchery (TRH). Year is year of sampling, which relates to fish of the previous brood year.

Year	Total Chinook	IGH	TRH Fall	TRH Spring	Total Hatchery	Percent Hatchery
1998	942	608	22	117	747	79%
1999	223	79	22	26	127	57%
2000	1,835	880	54	45	979	53%
2001	1,407	185	144	4	333	24%
2002	719	125	248	41	414	58%

The duration of estuary residency by both hatchery and naturally produced juvenile Chinook reflects the significance of this habitat to pre-marine adaptation by smolts (March through September for natural fish, June through July for hatchery produced fish). Distributional overlap of hatchery and naturally produced Chinook in the estuary during June-July suggests that in years of limited habitat and/or forage base, hatchery releases may represent a significant source of additional competition for naturally produced fish. The percent of hatchery produced Chinook for the 1999 and 2001 brood years (contributing to fisheries in 2002 through 2005), relative to hatchery and natural Chinook combined occupying the estuary in the June-July period, was at or below the low end of the observed range seen for the 1997 and 1998 broods (sampled broods that contributed to fisheries in years immediately prior to the OAP. However, the 2000 brood hatchery representation (24 percent) was well below that observed in adjacent years. Based on the limited data available, it is likely the critical broods experienced average to less than average intra-specific competition from hatchery releases, unless resources, such as food or space, were unusually limiting, which may have been the case for the 2003 brood due to record low flows in 2004.

3.7 Disease

3.7.1 Adults

The 2002 fish kill included at least 34,000 adult salmonids (primarily fall Chinook) in the lower Klamath River, mature hatchery and natural area fish that had returned to the river for spawning (CDFG 2004a). The progeny of fish that died would have contributed to age-3 adults in 2005 and age-4 adults in 2006. Approximately 65,600 adult Chinook survived the fish kill to spawn in natural areas, substantially above the average escapement of adult fall Chinook to natural areas (51,700) from 1978—2003 (Table 2-6) and above the number of spawners estimated to produce maximum recruits (S_{MAX}). No other evidence of unusual disease occurred in the adult population, although a disproportionate mortality of Trinity River fish likely reduced natural spawners in that system.

Overall, the natural age-2 recruits for the 2002 brood were lower than the long-term average (Table 2-8); however, the recruits per spawner for 2002 parents was slightly above average for larger parent broods (Table 3-3). Because of the density dependence inherent in the stock-recruitment relationship (escapement exceeded S_{MAX}), from a basin wide perspective it is unlikely that the 2002 adult fish kill contributed to low recruitment of the 2002 brood. However, because several independent natural populations exist, it is also possible that the disproportionate mortality of Trinity River natural spawners may have resulted in decreased recruitment from that area.

3.7.2 Juveniles

Increasing concerns over water quality, habitat conditions, and fish health have led to increasing efforts in assessing the incidence of pathogens in outmigrating juvenile Chinook salmon. Observations of large numbers of dead juvenile Chinook salmon along the Klamath River in 2000 (Pisano 2000), high incidence of juvenile disease during recent years, and the adult fish-kill that occurred during the fall of 2002, led to heightened awareness of the salmonid fish health issues in the Klamath Basin. Following the 2002 adult fish-kill, the Klamath fish health assessment team was formed to coordinate information and facilitate cooperative monitoring efforts in the event that fish health concerns were imminent due to water quality conditions or fish health observations from field studies.

The primary pathogens implicated in the elevated disease-related mortality of juvenile Chinook salmon are the myxozoan parasites *Ceratomyxa shasta* and *Parvicapsula minibicornis* (Nichols and Foott 2005). Juvenile disease monitoring was conducted in the Klamath Basin in 2001, 2002, and 2004 (Foott et al. 2002; Nichols et al. 2003; Nichols and Foott 2006). No assessments were conducted in 2003. Monitoring has generally been divided into three areas: 1) the mainstem Klamath River above the confluence with the Trinity River, 2) the mainstem Trinity River above the confluence with the Klamath River, and 3) the Klamath River Estuary. Complete monitoring of the three areas was only conducted in 2001 and 2002.

Juvenile KRFC sampled in the Trinity River, 21 river miles above the confluence with the Klamath River, showed little incidence of infection with either pathogen (Table 3-9). In the 2002 samples from the estuary, TRH Chinook showed infection rates of 19 percent and 14 percent for *C. shasta* and *P. minibicornis*, respectively (Table 3-9), while the samples collected

from the Trinity River indicated no infection (although the sample size was small), suggesting that the primary area for infection of these fish is the lower Klamath River.

Contrary to the Trinity River, disease incidence of juvenile KRFC sampled in the Klamath River was relatively high for *C. shasta* (34 percent to 50 percent) and *P. minibicornis* (77 percent to 95 percent) (Table 3-9). Samples collected in the estuary also indicated high incidences of infection by these pathogens, although the sample size of IGH Chinook was very small. Infection rates for juvenile Chinook sampled on the Klamath River in 1995 were somewhat similar for *C. shasta* (44 percent in 1995) but were much lower for *P. minibicornis* (47 percent in 1995).

To be clear, no definitive fish disease information exists to link the incidence of fish pathogens in juveniles to poor recruitment of the critical broods 2000—2003. However, infection rates for *C. shasta* in Columbia and Fraser River Chinook are typically about 10 percent compared to KRFC infection rates of about 30 percent above the Klamath-Trinity confluence (Foott 2008 pers. comm.). Also, almost every fish that was infected with *C. shasta* was also infected with *P. minibicornis,* which causes severe anemia and osmoregulatory problems (Foott 2007 pers. comm.) and compromises the ability of infected fish to fight the *C. Shasta* infection. While there are no data on the physiological effect of infections of juvenile KRFC, it is assumed that renal impairment reduces survival. For *C. shasta* and possibly *P. minibicornis*, a polychaete worm (*Manayunkia speciosa*) is the intermediate host (Bartholomew et al. 1997). Research is currently being conducted to assess the habitat conditions for the polychaete, especially the establishment of extensive algal beds, in the Klamath River below Iron Gate Dam. McKinney et al. (1999) suggested that reductions in the magnitude and duration of peak flows due to hydroelectric operations likely have increased the amount of polychaete habitat. Returning adults acquire the disease upon entering the river or during their upstream migration, and spores are released from carcasses on the spawning grounds, which in turn infect the intermediate host. Based on the high incidence of disease detected in the Klamath River, it seems likely that juvenile incidence of disease contributed to low survival (recruitment) of OAP broods, although there is no data available to compare infection or mortality rates for the critical broods with rates for other broods.

Table 3-9 Klamath Basin juvenile Chinook pathogen infection rates. (Sample size in parentheses)

				Estuary		
Pathogen	Brood Year	Klamath	Trinity	Iron Gate CWT	Trinity CWT	Unmarked
Ceratomyxa shasta	2000	50% (34)	0% (38)	NA	NA	29% (42)
Parvicapsula minibircornis	2000	88% (25)	6% (31)	NA	NA	84% (43)
Ceratomyxa shasta	2001	37% (38)	0% (14)	60% (5)	19% (68)	26% (47)
Parvicapsula minibircornis	2001	95% (39)	0% (19)	100% (5)	14% (64)	60% (47)
Ceratomyxa shasta	2003	34% (735)	Not Sampled	Not Sampled	Not Sampled	Not Sampled
Parvicapsula minibircornis	2003	77% (732)	Not Sampled	Not Sampled	Not Sampled	Not Sampled

3.8 Other Habitat Degradation

Habitat for Chinook salmon in the Klamath River Basin has been seriously impacted over the past century and a half, beginning with gold dredging in the 1800s. Subsequent impacts from dam building and operation, grazing, agriculture, mining, wildfires, water diversion, timber harvest, floods, urbanization, and road construction have diminished the productive capacity of

the stream and river habitat. As a result, the fisheries resources of the Klamath River have undergone a major decline during the past century.

It is unlikely that activities such as mining, timber harvest, agriculture, or urbanization were substantially greater during the OAP or rearing of the critical broods. However, the cumulative effects of such activities would be expected to have long term effects that reach a critical threshold for KRFC eventually. Because of the dispersed nature of these effects, it would also be very difficult to identify a particular event that would result in crossing that threshold. It is important to recognize that chronic habitat degradation from multiple sources can combine with other factors to result in an unstable ecosystem. Such cumulative effects undoubtedly result in years of low production and survival of KRFC.

3.9 Marine Survival

3.9.1 Hatchery Fish Survival

The effects of marine survival on year-class strength are believed to be most variable in the early marine life history of the fish. The best measure of marine survival would be to calculate survival rates between smolts leaving the river and ocean abundance of the cohort at some later point in time. We can reconstruct the marine abundance of cohorts, using spawning runs, exploitation rates, and constant assumed adult natural mortality rates, back to September of the year they migrate to sea. However, because very few age-2 fish are recovered in ocean fisheries, reconstructed ocean abundance is more indicative of the cohort abundance when age-2 jacks leave the ocean to spawn. No time series of emigration estimates for naturally produced KRFC exist to compare this with; the nearest approximation is KRFC fingerling releases from the two hatcheries in the basin (STT 2005b). Use of fingerling releases as a proxy for natural smolt emigration includes mortality in the period of riverine residence and migration in the estimate of early life-history survival. Therefore, the estimate of early life history survival reflects the period from the spring, when fingerlings are released, until the following year when age-2 jacks return to spawn.

The pattern of survival between the two hatcheries for which comparative data are available is highly correlated (Figures 3-14 and 3-15), which suggests that variation in these survival rates may be primarily driven by variation in ocean conditions. Least squares trend analysis indicates IGH survival rate, when forced through zero, has been about 52 percent that of comparative TRH survival rate data (Figure 3-15). Survival of IGH and TRH fingerlings was more comparable in years when survival rate at both hatcheries was less than 0.03 (Figure 3-16). The higher survival of TRH fish is consistent with pathogens (e.g., *C. Shasta)* in the mainstem Klamath being a significant source of mortality, and having a lesser impact on fish from TRH by virtue of their shorter migration pathway in the mainstem Klamath River below the Trinity River confluence with the Klamath River at Weitchpec (RM 42). However, the overall shorter migration distance for TRH fish (RM 145) compared to IGH fish (RM 192 miles) probably contributes to the higher survival rate of TRH fish regardless of disease conditions in the mainstem Klamath River.

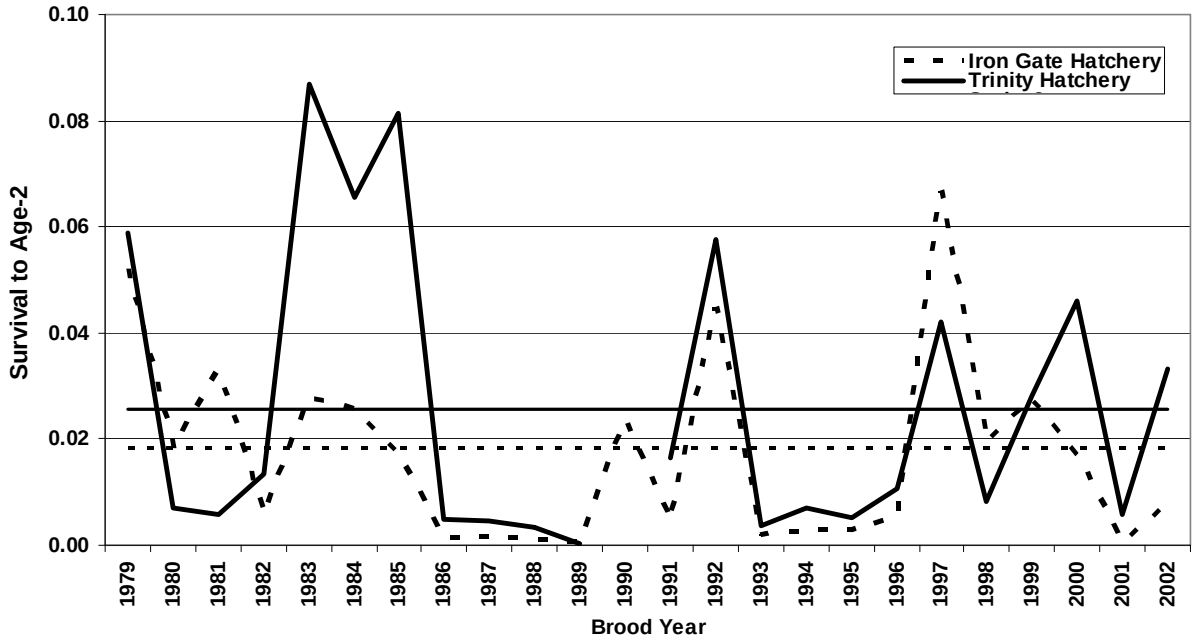

Figure 3-14. Survival of hatchery fingerling releases to age-2, September 1 and long-term averages.

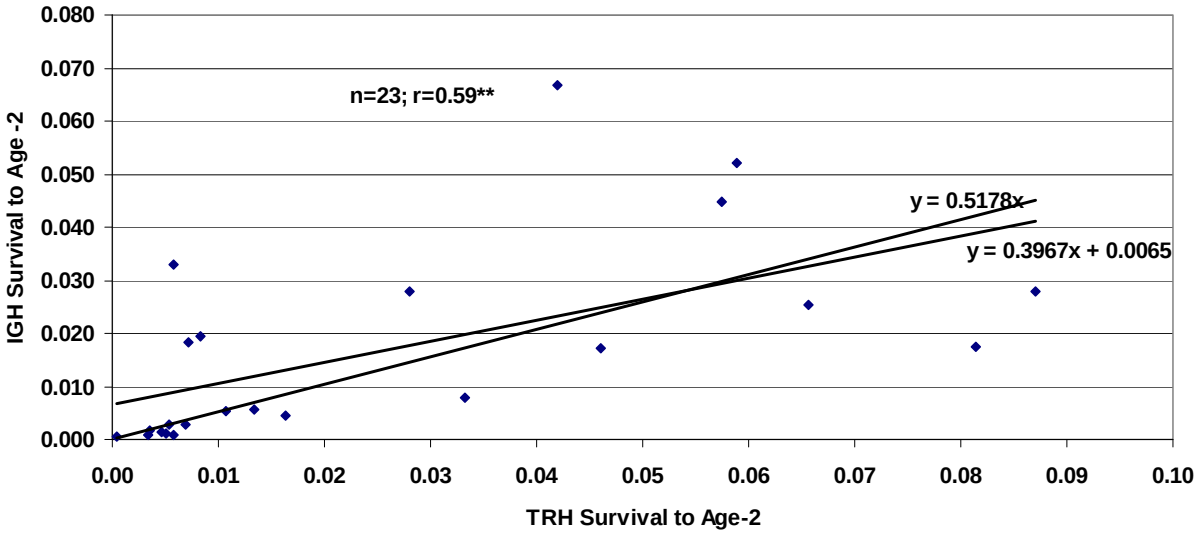

Figure 3-15. IGH and TRH fingerling release to age-2 September 1 survival rates, 1979—89 and 1991—2002 broods.

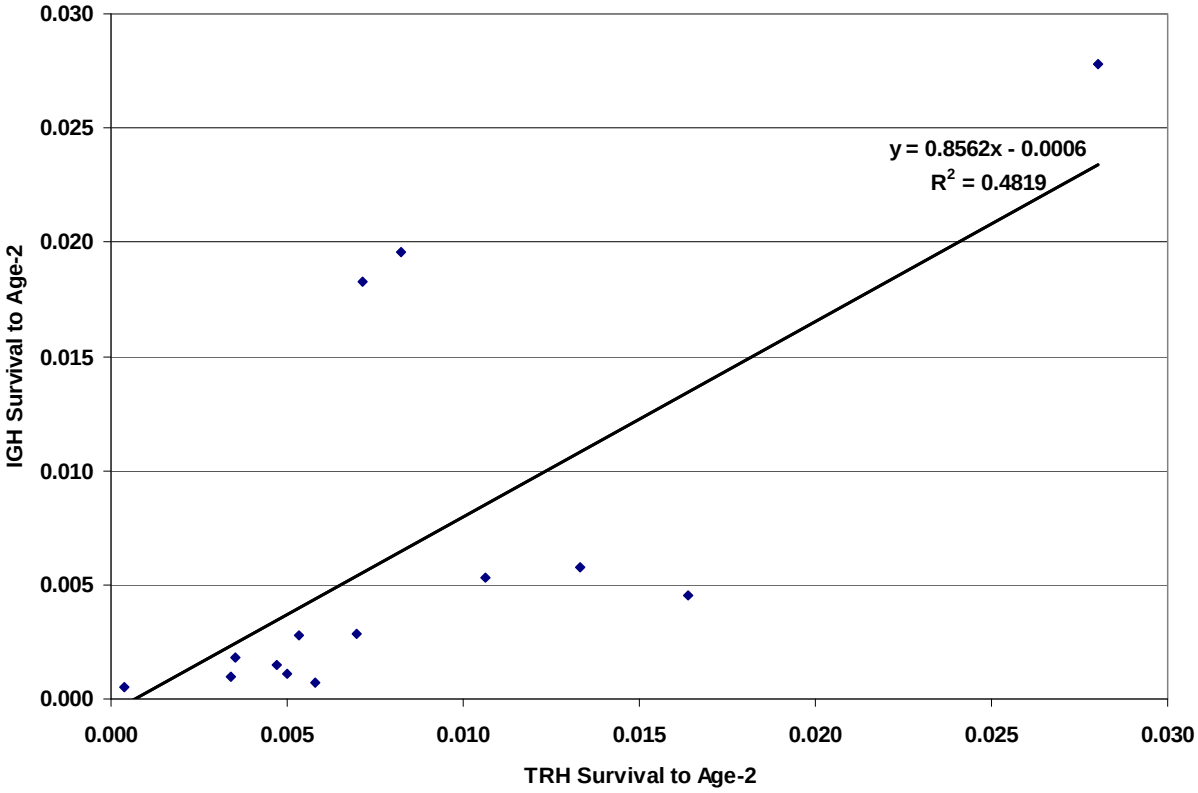

Figure 3-16. IGH and TRH fingerling release to age-2 September 1 survival rates, with high rates (>0.03) removed.

Of the 2000—2002 brood years, all exhibited the pattern of lower survival of Iron Gate fingerlings than that of Trinity River fingerlings. Actual survival rates of IGH and TRH fish of these broods was similar to or above the previous 21-year averages for the respective facilities except for hatchery fish of the 2001 brood year. The IGH 2001 brood survival rate (0.0007) was the second lowest on record and the TRH (0.0058) rate was the seventh lowest for that facility. The low survival of the IGH fish of the 2002 brood was considerably below the long-term average but there were 10 other years in the previous 21 year record with lower survival rates. The 2003 brood year was only represented by age-3 spawners, therefore the brood was too incomplete to calculate an early life-history survival rate. However, the terminal run of age-3 fish in 2006 was 18,600, the smallest run of age-3 Chinook since 1992 (Table 2-9), which suggests that the survival rate of the 2003 brood year may be even less than that of the 2001 brood year. The available data indicate depressed survival of KRFC hatchery fingerlings of the 2001 brood and probably the 2003 brood, but not of the 2000 or 2002 broods. We assume there were similar trends in the survival rates of naturally produced fish of the 2000-2003 broods.

3.9.2 Marine Mammal Predation

The Marine Mammal Protection Act of 1972 dramatically reduced the harvest or taking of seals and sea lions by man. With this protection, California sea lion (*Zalophus californianus*) and Pacific harbor seal (*Phoca vitulina richardsi*) populations have increased along the coast of California, Oregon, and Washington by an average annual rate of 5 to 9 percent (NMFS 1999). In

1997, Lowe (as cited in NMFS 1999) noted that California sea lion populations may now be larger than any historical level.

Anecdotal information from Yurok Tribal members has indicated an increase in pinniped predation upon salmonids in the Klamath River estuary during recent years. During 1998 and 1999, the Yurok Tribe, with assistance from NMFS, conducted research to estimate the magnitude of pinniped predation upon KRFC in the estuary of the Klamath River. During this study period, pinniped predation rates upon adult fall Chinook ranged from 2.3 percent (1,630 KRFC in 1999) to 2.6 percent (2,559 KRFC in 1998) (Williamson, 2001a; Williamson 2001b). Based upon the 1998—1999 study results, it seems unlikely that predation rates increased to the level that pinniped predation would have been a primary contributor to the natural spawning escapement shortfall of 2004—2006. It is also worth noting that salmonids of the Klamath Basin have coexisted with pinnipeds within the West Coast and Klamath River ecosystems for thousands of years.

4.0 ASSESSMENT OF FACTORS AFFECTING NATURAL AREA ESCAPEMENT

4.1 Fishery Management

Harvest impacts occur in ocean commercial and recreational, river recreational, and river tribal fisheries. Impacts result from retention of fish as well as incidental sources such as release of sublegal fish and drop-off/drop-out mortality. Harvest impacts are predicted prior to each fishing season using the Klamath Ocean Harvest Model (KOHM) (see section 4.1.5). Management authorities, including the Council, CDFG, and the tribes, determine annual levels of impacts to meet the conservation and allocation objectives for the stock. This combination of stock prediction and management responsibility we refer to as the fishery management process, and includes both science and policy components. The management process is collectively responsible for ensuring harvest impacts are maintained at such a level that statutory requirements are met and that the long-term productivity of stocks is preserved.

4.1.1 FMP Conservation Objective

The Salmon FMP establishes conservation and allocation guidelines for annual management of ocean salmon fisheries. This framework plan allows the Council to develop management measures responsive to annual circumstances such as relative stock abundance in the mixed stock ocean salmon fisheries.

The Council has authority to manage ocean fisheries but not inland fisheries or habitat issues; however those factors must be taken into account when setting management measures, establishing conservation and management objectives, and ensuring those objectives are met. For KRFC this means including annual forecasts of inriver fishery impacts when planning ocean fisheries to ensure the conservation objectives are met, and analyzing the effects of those fisheries if the conservation objectives are not met. It also means periodic review of conservation objectives to determine if they are appropriate for the current productive capacity of the Basin.

The FMP conservation objectives are based on achieving MSY, or an MSY proxy, for all Salmon Fishery Management Unit (FMU) stocks. The Council structures its salmon fisheries to achieve these objectives for each stock annually. If postseason estimates confirm that a stock conservation objective was not met, a rebuilding program for the following year is implicit in the conservation objective since it is based on annually meeting MSY. In addition, the Council reviews stock status annually and, where needed, identifies actions required to improve estimation procedures and correct biases. Such improvements provide greater assurance that objectives will be achieved in future seasons. Consequently, a remedial response is built into the preseason planning process to address excessive fishing mortality levels relative to the conservation objective of a stock. Because conservation objectives are generally based on MSY rather than a minimum stock size threshold, the Council's management approach is more conservative than recommended by the National Standard Guidelines.

The remedial response to stock depression acts as a default rebuilding plan, but only in terms of the biological needs of the stock, and not with regard to the socio-economic needs of fishing communities. The intent of Amendment 15 was to allow consideration of both of those needs within the short time frame necessary to complete the preseason planning process. Salmon abundance is highly variable from year to year because broods that contribute to fisheries only do so for one or two years. Therefore, developing a formal rebuilding plan to address both biological and socio-economic needs often takes longer than recovery to MSY levels. The intent of Amendment 15 was to allow management flexibility to provide some relief to fishing communities without significantly affecting the long-term productivity of KRFC, and without additional process delays. However there were concerns that the Amendment 15 analysis may not adequately account for substock viability.

4.1.2 Management Objectives

Section 5 of the FMP describes the overall objectives for the fisheries, including meeting biological objectives for the FMU stocks, meeting tribal trust responsibilities, maintaining continued participation of recreational and commercial fishing sectors, achieving optimal yield, minimizing bycatch, promoting safety at sea, etc. Section 3 of the Salmon FMP describes the conservation objectives for FMU stocks necessary to meet the dual MSA objectives of obtaining optimum yield from a fishery while preventing overfishing. Each stock within the Salmon FMU has a specific objective, generally designed to achieve MSY, MSP, or in some cases, an exploitation rate to serve as an MSY proxy.

Amendment 9 to the FMP, implemented in May 1989, established the Council's conservation objective for KRFC as a minimum natural adult brood year spawner escapement rate of 33 percent to 34 percent, but with no less than 35,000 natural adult spawners in any one year. A review of the KRFC conservation objective by the STT resulted in clarifying the minimum spawner escapement rate as a long-term annual average, which could be exceeded for a given brood in order to achieve tribal/non-tribal allocation requirements. The review was necessary because of a 1993 opinion issued by the Solicitor of the Department of Interior recognizing the rights of the Hoopa Valley and Yurok tribes to 50 percent of the available harvest of Klamath/Trinity salmon. Combined tribal and non-tribal fisheries in 2001 were limited to achieve an annual spawner escapement rate of 34 percent, the only year the spawner escapement rate has been a management constraint.

The ESA consultation standard for CCC uses KRFC as an indicator stock and limits ocean fisheries to a pre-season projected age-4 ocean harvest rate of no more than 16.0 percent.

Amendment 15 to the FMP provided flexibility to allow limited harvest of KRFC in ocean salmon fisheries during years that might otherwise be closed because of a projected shortfall in the KRFC conservation objective of 35,000 naturally spawning adults. Amendment 15 allows an age-4 KRFC ocean impact rate of no more than 10 percent, although additional inriver tribal and recreational fisheries that occur must be accounted for. Because of these additional fisheries and associated impacts with age-3 and age-5 adults, an age-4 ocean impact rate of 10 percent is roughly equivalent to a SRR of about 25 percent, or a spawner escapement rate of 75 percent. Prior to Amendment 15, if the projected escapement of natural spawners was below 35,000, all ocean salmon fisheries affecting KRFC would be closed, unless authorized by Emergency Rule as was done in 2006. While Amendment 15 does allow fishing to occur even though the 35,000 spawner conservation objective is projected not to be met, it does not change the FMP requirements relating to an Overfishing Concern. Therefore, if the 35,000 spawner escapement objective is in fact not met for three consecutive years, an Overfishing Concern would still be triggered. These impact rates associated with Amendment 15 were determined not likely to jeopardize the long term productive capacity of the stock (PFMC and NMFS 2006).

Amendment 15 has not yet been implemented, and therefore is relevant to this report primarily in the context of stock rebuilding and the implications for achieving MSY on a continuing basis.

4.1.3 Management Description

The Secretary of Commerce (Secretary) establishes annual commercial and sport ocean salmon fishing regulations for the Federal Exclusive Economic Zone (3-200 nautical miles offshore) based on recommendations of the Council. The Oregon and Washington Fish and Wildlife Commissions adopt regulations annually for the Oregon and Washington ocean recreational and commercial salmon fisheries in their respective state waters. The California Fish and Game Commission (CFGC) sets the recreational fishing regulations in state marine waters. The CDFG Director is authorized to conform commercial salmon fishing regulations in state waters to the management plans of the Council.

West Coast ocean salmon fisheries operate on mixed stocks of Chinook and coho from which the river of origin cannot be determined visually, although conservation objectives for the FMU stocks are based on river of origin or finer stratifications (PFMC 2003). To manage ocean fisheries, impacts are projected using models based on stock-specific historical timing and distribution estimated from CWT recoveries. Fisheries are managed on a weak stock basis, where harvest is allowed only to the point that the weakest stock is projected to meet its conservation and allocation objectives (PFMC 2007a); available harvest of other stocks is foregone or transferred to inland fisheries. To meet these conservation and allocation objectives, the fisheries impacting KRFC are managed through specification of time-area-specific fishing seasons (ocean commercial and recreational fisheries), or time-area-specific Chinook harvest quotas (ocean commercial fisheries), and anticipated KRFC harvest levels in river tribal and recreational fisheries (PFMC 2007b).

Ocean fisheries are limited almost every year south of Cape Falcon, Oregon, either because of the FMP KRFC minimum spawner requirement (35,000 natural area adults) or because of the ESA consultation standard for CCC (no more than 16.0 percent age-4 ocean harvest rate on KRFC).

In any one year, the maximum fishery mortality rate allowable under the Council's Pacific Coast Salmon FMP, as amended through Amendment 14, is the maximum rate that would allow the stock in question to meet its conservation objective (PFMC 2003 § 3.1); or zero if the stock could not meet its conservation objective even in the absence of fishing (PFMC 2003 § 3.2.2.2). Conservation objectives may be expressed in terms of escapements, exploitation rates, or both. In the case of KRFC, the maximum allowable fishery mortality rate is implicitly defined by its ocean abundance and the minimum spawner requirement, not to exceed a spawner reduction rate of 2/3. In any one year, *overfishing* is said to have occurred if the realized fishery mortality rate exceeded the maximum allowable rate under the FMP. Thus, if a stock's ocean abundance was sufficient to meet the conservation objective in the absence of fishing, but the objective was in fact not met in the presence of fishing, then overfishing occurred and the fishery management process may generally be faulted. On the other hand, if the stock's ocean abundance was insufficient to meet the conservation objective in the absence of fishing, overfishing, if it occurred, may not have been the sole factor responsible for the stock not meeting its conservation objective. Other factors such as especially poor stock production and/or survival at earlier life stages may have been largely responsible for the stock not meeting its conservation objective.

In years that the CCC consultation standard has not been the limiting factor, the Council has generally set the 35,000 KRFC natural adult spawning escapement floor as its management target. This was the case in 2004 and 2005. In 2006 the preseason projected spawning escapement was 25,400 absent summer ocean fisheries between Cape Falcon and Point Sur, and 21,100 given the Council adopted management measures intended to provide *de minimis* opportunity, which necessitated the Secretary promulgating an emergency rule in approving these management measures.

Non-tribal river recreational salmon fishing takes place throughout the Klamath Basin and is regulated by the CFGC, typically in the form of a quota. The river sport fishery quota has typically been allocated based on sub-area quotas as follows: 1) the river mouth area closes when 15 percent of overall quota is taken below 101 Bridge, 2) Klamath River between the river mouth and Weitchpec (RM 40) closes when 50 percent of overall quota is reached, and 3) Klamath and Trinity rivers above Weitchpec close when 100 percent of the quota is projected to have been met; however, in an effort to utilize excess hatchery produced fish, the upper Klamath and Trinity rivers are frequently reopened to take of adult Chinook once the two hatcheries have reached their adult take goals.

In 1993, the Interior Department Solicitor issued a legal opinion that concluded the Yurok and Hoopa Valley Tribes of the Klamath Basin had a Federally protected reserved right to 50 percent of the available harvest of Klamath Basin salmon. Under the Council annual salmon management process, half of the annual allowable catch of KRFC has been reserved for these tribal fisheries since 1994.

Tribal fisheries with recognized Federal fishing rights occur on the Yurok and Hoopa Valley Indian reservations located on the Lower Klamath and Trinity Rivers, respectively. The Yurok and Hoopa Valley tribal authorities adopt annual tribal fishing regulations for their respective reservations.

The Yurok Tribal Council regulates the fall Chinook fishery via annual Fall Harvest Management Plans, which are based upon the tribal allocation and subsequent regulations regarding sub-area quotas, conservation measures, and potential commercial fisheries. When the Tribal Council allows a portion of the allocation to go to commercial fishing, then most harvest is taken in the estuary where commercial fisheries are implemented. Subsistence fisheries are spread throughout the reservation.

The Hoopa Tribal Fishery is conducted in accordance with the Hoopa Valley Tribe's Fishing Ordinance. Fishing by tribal members occurs within the exterior boundaries of the Hoopa Valley Indian Reservation. The Hoopa Valley Tribal Council is the sole authority responsible for the conduct of the tribe's fishery, enforces the fishing ordinance, and ensures collection of harvest statistics through its Fisheries Department. Summary catch data for spring and fall Chinook harvested in the tribe's fishery are provided annually to co-managers and published by the Council.

The tribal fisheries normally set aside a small (unquantified) number of fish for ceremonial purposes. Subsistence needs are the next highest priority use of KRFC by the Tribes. The subsistence catch has been as high as 32,000 fish since 1987 when separate tribal use accounting was implemented. Generally, commercial fishing has been allowed when the total allowable tribal catch was over 11,000 –16,000 adult KRFC.

Allocations among non-tribal fisheries are based on annual negotiations and preseason Council recommendations. Prior to 2006, the pre-season allocations of the non-tribal catch of KRFC were typically as follows: 15 percent (7.5 percent of total) to the Klamath River recreational fishery and 85 percent (42.5 percent of total) to the combined ocean troll and recreational fisheries. Within the ocean fishery allocation, the KMZ (Humbug Mt., Oregon to Horse Mt., California; KMZ) recreational fishery was typically allocated up to 17 percent of the ocean KRFC catch (7.23 percent of total), and outside of the KMZ was not limited by KRFC impacts. The Oregon and California troll fisheries generally shared the remaining KRFC catch as equally as practical, depending on annual circumstances.

In 2006, some of the preseason fishery allocations did not follow the typical pattern in response to the depressed condition of KRFC. Impacts to KRFC in areas of high concentration were constrained to allow limited access to more abundant stocks elsewhere; the KMZ sport fishery share was 8.8 percent and the Klamath River recreational allocation for directed harvest was 0 percent. In 2007, the Klamath River recreational share was 26 percent and the California/Oregon troll shares were 63 percent/37 percent. The increased river allocation was in response to a relatively high projection of KRFC abundance and constraints on other stocks such as ESA listed CCC and Lower Columbia River natural tule Chinook, which precluded taking a larger share of the allowable KRFC harvest in ocean fisheries.

4.1.4 Fisheries Description

Ocean fisheries affecting KRFC occur primarily between Cape Falcon, Oregon and Point Sur, California. The major management areas include northern Oregon (Cape Falcon to Florence) central Oregon (Florence to Humbug Mt.), the KMZ (Humbug Mt. to Horse Mt.), Fort Bragg (Horse Mt. to Point Arena), San Francisco (Point Arena to Pigeon Point), and Monterey (Pigeon Point to Point Sur). Commercial and recreational fisheries traditionally occur in all areas; however, the season dates are more restrictive for commercial fisheries due to the greater fishing power of the commercial fleet and the high social value placed on the recreational fishery. Fisheries restrictions to limit impacts on KRFC are also more stringent near the Klamath River than in more distant management areas as KRFC are more highly concentrated there. The KRFC contribution rate in the commercial harvest is typically higher than in the recreational harvest in the same management area and time. The Council has also placed a higher value on recreational opportunity than on commercial opportunity. As a result, restrictions on the commercial sector have been proportionally greater during periods of stock depression, including 2005 and 2006.

4.1.4.1 Ocean Commercial

Commercial fisheries in the northern Oregon area are typically open from mid-March/early April through October, with some closures in the summer period to reduce KRFC or other limiting stock impacts. In the central Oregon area fisheries are similar to the northern Oregon area, but may be more restrictive when KRFC impacts are severely limiting, as in 2005 and 2006. The KMZ fisheries in Oregon typically open in mid-March/early April and continue through May without restriction, followed by small monthly quota fisheries run through September. In KRFC restricted years the summer fisheries are eliminated first, then the spring fisheries, with the September fishery usually the last to be eliminated. In the California KMZ, fisheries outside of a September quota fishery are now rare. Fort Bragg area fisheries are typically closed in the spring and summer, with some opportunity provided in September. Fisheries in the San Francisco area are constrained to May through mid-October by Sacramento winter Chinook ESA consultation standards; KRFC restrictions result in periodic closures in the summer months, especially in June when KRFC impacts are highest. Fisheries in the Monterey area are similar in scope to the San Francisco area fisheries, but are usually less constrained by KRFC due to the lower KRFC contact rates in this area.

4.1.4.2 Ocean Recreational

Recreational fisheries occur in the same management areas as commercial fisheries, but the season dates are generally more expansive due to lower impacts on KRFC. Season dates are frequently restricted to reduce impacts on stocks of concern such as Sacramento winter Chinook. The KMZ fishery is generally open from May/June through early September, although some closed periods may be necessary in June, July, or August to reduce KRFC impacts. Seasons outside the KMZ are generally less restrictive because of relatively lower impacts on KRFC.

4.1.4.3 River Recreational

Recreational fisheries for KRFC occur from August through December. Angler effort is highest in the lower Klamath River, peaking in September (50 percent of the total fall Chinook allocation is reserved for the lower Klamath River). From October through early December fishing effort is more dispersed throughout the upper Klamath and Trinity Rivers. During this time angling effort somewhat follows the upstream migration of Chinook as they migrate towards the two

basin hatcheries and natural spawning areas. By mid to late December Chinook fisheries have generally ceased due to quota attainment or by the diminished quality and quantity of the remaining Chinook. All tributary streams, with the exception of the mainstem Trinity River, are closed to the take of Chinook salmon.

Recreational fisheries are managed using a quota system; sub quotas have been established for all open areas of the Klamath system. As mentioned previously, recreational fisheries are managed by the CFGC. Annual regulations are generally responsive to the adult fall Chinook quota allocations for each particular year. In years of low quota allocations, daily and weekly bag limits are reduced so that all sub quota area fisheries can participate. In high abundance years bag limits are increased, however the maximum daily bag for adult Chinook has not been higher than two fish for many years.

4.1.4.4 Tribal Fisheries

The Yurok Tribal fishery occurs within the lower 44 miles of the Klamath River. The Hoopa Tribal fishery occurs in the Trinity River from near the confluence with the Klamath River upstream to the boundary of the Hoopa Valley Indian Reservation, approximately 12 river miles. The primary gear type used is gill nets; however, a small portion of the fall Chinook harvest is taken by dip nets and hook and line. Fall Chinook are typically harvested from early August through November, with peak harvest in the estuary occurring in late August through mid September and in the Trinity River from mid-August through mid-December, with peak harvest typically occurring in late-September to early-October.

4.1.5 Fishery Management Forecast Model

The Council uses the KOHM to forecast whether or not a proposed set of annual fishery management measures are expected to result in a KRFC spawning escapement that meets the FMP conservation objective. A description of the KOHM and an evaluation of its forecast performance during the OAP follows in the next two sections, respectively.

4.1.5.1 Description

The KOHM is an age-specific cohort projection model for KRFC that the Council uses to forecast the number of natural spawning adults that are expected to result from a set of fishery control measures given the current year's forecast KRFC ocean abundance. The projection of the ocean abundance through to river spawning escapement covers a one-year time period from September 1, year *t-1* through August 31, year *t*, and is used to set the fishery control measures for the May 1, year *t* through April 30, year *t+1* period. The KOHM consists of several submodel components: 1) September 1 ocean abundance, 2) ocean fishery and natural mortality, 3) maturation, 4) out-of-basin straying, 5) river fishery mortality, and 6) proportion of spawners in natural areas versus hatcheries. For a detailed specification of the KOHM and its submodel components see Mohr (2006a).

The expected number of naturally spawning age-*a* adults, E_a, is modeled by the KOHM as

$$E_a = N_a o_a m_a (1 - w_a) r_a g_a, \quad (1)$$

where all the quantities on the right-hand-side of the equation are age-*a* specific: N_a is the September 1, year *t-1* ocean abundance, o_a is the ocean survival rate from September 1, year *t-1* through August 31, year *t* (includes fishery-related and natural mortality), m_a is the maturation rate, w_a is the out-of-basin stray rate, r_a is the river survival rate (includes fishery-related mortality), and g_a is the proportion of spawners using natural areas (includes prespawning mortality). The sum, $E = E_3 + E_4 + E_5$, is the expected total number of naturally spawning adults, and may be expressed in the form above as

$$E = N\,\bar{o}\,\bar{m}\,(1-\bar{w})\,\bar{r}\,\bar{g}, \tag{2}$$

where $N = N_3 + N_4 + N_5$, and the "bar" above each of the remaining quantities denotes the average of the respective age-specific rates weighted by the age-specific abundance immediately preceding that stage. The expected number of potential (absent fishing) adult natural spawners, E^0, may be determined from equations (1) and (2) above by assuming no fishery-related mortality. The conservation objective specifies 1) that $E/E^0 \geq 1/3$ or, equivalently, that the SRR due to fishing, *SRR*, not exceed 2/3:

$$SRR = 1-(E/E^0) \leq 2/3, \tag{3}$$

and 2) that $E^o \geq 35{,}000$.

The KOHM is used annually by the Council to develop fishery control measures by substituting into equations (1), (2), and (3) that year's preseason forecast values of the right-hand-side components and determining whether the resulting *E* and *SRR* satisfy the conservation objectives. Mohr (2006a, 2006b) provides a description of the forecasting methods used for the KOHM submodel components.

4.1.5.2 Performance

The performance of the KOHM in 2004, 2005, and 2006, may be directly examined by comparing the preseason forecasts of the equation (1), (2), and (3) quantities with their postseason realized values (Table 4-1). Because of the multiplicative structure of equations (1) and (2), the postseason value of *E* is equal to the preseason value of *E* times the postseason/preseason ratios of the submodel components. Therefore, the degree to which a component postseason/preseason ratio is less than or greater than one has a comparable scaling effect on the postseason value of *E* relative to its preseason forecast value. This allows one to isolate which of these forecast components were primarily responsible for the observed difference between the postseason and preseason value of *E*.

The "absent fishing" postseason value of *E* in 2004 (71,949), 2005 (36,551), and 2006 (44,299), exceeded the FMP conservation objective of 35,000, while the realized (with fishing) postseason value of *E* in 2004 (24,079), 2005 (26,790), and 2006 (30,421) failed to meet this objective (Table 4-1). Thus, overfishing occurred in each of these three years and the fishery management process may generally be faulted (Section 4.1.3) for having not met the KRFC conservation

objective in 2004, 2005, and 2006, but the reasons for this in each of these years differ as described below.

For 2004, the postseason value of *E* (24,079) was less than its preseason forecast (35,011) (Table 4-1). While the preseason age-specific ocean abundance forecasts all differed from their postseason values, the direction of these errors largely compensated each other, such that the preseason and postseason values of E^0 differed by only 388 fish (72,337 versus 71,949, respectively). Thus, in this case, the difference in the preseason and postseason value of E is entirely due to the under-forecast of the fishery SRR (0.516 versus its postseason value of 0.665), which in turn is primarily attributable to the under-forecast of the ocean fishery mortality rate ($\overline{o}$ post/pre ratio of 0.73); more specifically, the ocean commercial fishery mortality rate (Appendix 9-1; PFMC 2006a; Mohr 2006c). The river fishery mortality rate was well forecast ($\overline{r}$ post/pre ratio of 0.99).

For 2005, the preliminary postseason value of *E* (26,790) was less than its preseason forecast (35,023) (Table 4-1). Here, the age-3 and age-5 ocean abundance was well forecast, and the difference between the preseason value of *E* and its postseason value (8,233) is due entirely to forecast error associated with the age-4 cohort (the preseason and postseason value of E_4 differ by 8,194). In this case, the N_4 forecast error (post/pre ratio of 0.79) was compounded by optimistic forecasts of m_4 (post/pre ratio of 0.87) and g_4 (post/pre ratio of 0.75), and further compounded by the under-forecast of the age-4 ocean fishery mortality rate (o_4 post/pre ratio of 0.83); again, primarily the ocean commercial fishery mortality rate ((Appendix 9-1; PFMC 2006a; Mohr 2006c). The age-4 river fishery mortality rate was adequately forecast (r_4 post/pre ratio of 0.96).

For 2006, the postseason value of *E* (30,421) was greater than its preseason forecast of 21,089[2] (Table 4-1). In this year, N_4 was well forecast (63,710 preseason versus 68,913 postseason). The difference between the postseason and preseason value of *E* is accounted for by the N_3 post/pre ratio of 2, and the compounding of the slightly higher than forecast values of $N_4, r_4,$ and g_4. The ocean fishery mortality rate was well forecast ($\overline{o}$ post/pre ratio of 0.99).

[2]The preseason forecast of *E* assuming: (a) the previous fall ocean fishing mortality, (b) an equal harvest allocation for the river tribal fishery, but (c) no additional fishery mortality was 25,400; less than the minimum spawner requirement of 35,000. An emergency rule was issued by the DOC Secretary which allowed for additional fishery mortality subject to a preseason *E* forecast of at least 21,000.

Table 4-1. Klamath Ocean Harvest Model (KOHM) submodel component forecasts compared with postseason estimates. N = preseason ocean abundance, o = ocean survival rate, (including fishery and natural mortality), m = maturation rate; w = out of basin stray rate; r = river survival rate (including tribal and recreational fisheries and prespawning mortality), g = proportion of naturally spawning fish, E = number of naturally spawning fish, and SRR = spawner reduction rate due to fishing mortality.

			With Fishing								Without Fishing					
Year	Age	Type	N	o	m	1-w	r	g	E	SRR	N	o	m	1-w	g	E
2004	3	Pre	72,100	0.54	0.38	0.99	0.76	0.55	6,132	0.302	72,100	0.58	0.38	0.99	0.55	8,780
		Post	160,628	0.45	0.46	1.00	0.78	0.44	11,469	0.401	160,628	0.58	0.46	1.00	0.44	19,162
		Post/Pre	2.23	0.83	1.22	1.00	1.03	0.80	1.87	1.33	2.23	1.00	1.22	1.00	0.80	2.18
	4	Pre	134,500	0.65	0.89	1.00	0.59	0.61	27,683	0.523	134,500	0.80	0.89	1.00	0.61	58,094
		Post	105,227	0.45	0.86	0.99	0.49	0.59	11,567	0.724	105,227	0.80	0.86	0.99	0.59	41,879
		Post/Pre	0.78	0.70	0.96	1.00	0.83	0.96	0.42	1.38	0.78	1.00	0.96	1.00	0.96	0.72
	5	Pre	9,700	0.49	1.00	0.99	0.36	0.71	1,197	0.781	9,700	0.80	1.00	0.99	0.71	5,463
		Post	17,247	0.31	1.00	1.00	0.25	0.79	1,043	0.904	17,247	0.80	1.00	1.00	0.79	10,908
		Post/Pre	1.78	0.63	1.00	1.00	0.69	1.12	0.87	1.16	1.78	1.00	1.00	1.00	1.12	2.00
	3+4+5	Pre	216,300	0.61	0.74	1.00	0.60	0.60	35,011	0.516	216,300	0.73	0.76	1.00	0.61	72,337
		Post	283,102	0.44	0.64	1.00	0.59	0.51	24,079	0.665	283,102	0.68	0.67	1.00	0.56	71,949
		Post/Pre	1.31	0.73	0.86	1.00	0.99	0.85	0.69	1.29	1.31	0.93	0.89	1.00	0.92	0.99
2005	3	Pre	185,653	0.57	0.38	0.99	0.90	0.54	19,278	0.123	185,653	0.58	0.38	0.99	0.54	21,983
		Post	201,518	0.56	0.39	1.00	0.85	0.50	18,778	0.183	201,518	0.58	0.39	1.00	0.50	22,991
		Post/Pre	1.09	0.99	1.03	1.00	0.94	0.93	0.97	1.49	1.09	1.00	1.03	1.00	0.93	1.05
	4	Pre	48,863	0.72	0.88	1.00	0.82	0.55	13,899	0.257	48,863	0.80	0.88	1.00	0.55	18,712
		Post	38,424	0.60	0.77	1.00	0.79	0.41	5,705	0.410	38,424	0.80	0.77	1.00	0.41	9,663
		Post/Pre	0.79	0.83	0.87	1.00	0.96	0.75	0.41	1.59	0.79	1.00	0.87	1.00	0.75	0.52
	5	Pre	5,171	0.69	1.00	0.99	0.72	0.72	1,846	0.372	5,171	0.80	1.00	0.99	0.72	2,942
		Post	6,915	0.57	0.99	1.00	0.83	0.71	2,307	0.408	6,915	0.80	0.99	1.00	0.71	3,896
		Post/Pre	1.34	0.82	0.99	1.01	1.15	0.99	1.25	1.10	1.34	1.00	0.99	1.01	0.99	1.32
	3+4+5	Pre	239,687	0.60	0.52	1.00	0.86	0.55	35,023	0.197	239,687	0.63	0.52	1.00	0.55	43,637
		Post	246,858	0.57	0.47	1.00	0.84	0.49	26,790	0.267	246,858	0.62	0.49	1.00	0.49	36,551
		Post/Pre	1.03	0.94	0.91	1.00	0.97	0.90	0.76	1.35	1.03	0.99	0.93	1.00	0.89	0.84
2006	3	Pre	44,105	0.56	0.38	0.99	0.87	0.67	5,479	0.166	44,105	0.58	0.38	0.99	0.67	6,571
		Post	87,677	0.58	0.37	1.00	0.85	0.57	9,025	0.157	87,677	0.58	0.37	1.00	0.57	10,711
		Post/Pre	1.99	1.03	0.96	1.00	0.98	0.85	1.65	0.95	1.99	1.00	0.96	1.00	0.85	1.63
	4	Pre	63,710	0.68	0.88	1.00	0.74	0.55	15,546	0.370	63,710	0.80	0.88	1.00	0.55	24,678
		Post	68,913	0.69	0.89	1.00	0.79	0.62	20,725	0.319	68,913	0.80	0.89	1.00	0.62	30,445
		Post/Pre	1.08	1.01	1.01	1.00	1.08	1.13	1.33	0.86	1.08	1.00	1.01	1.00	1.13	1.23
	5	Pre	2,228	0.07	1.00	0.99	0.59	0.72	63	0.950	2,228	0.80	1.00	0.99	0.72	1,277
		Post	5,321	0.24	1.00	1.00	0.71	0.74	671	0.787	5,321	0.80	1.00	1.00	0.74	3,143
		Post/Pre	2.39	3.60	1.00	1.01	1.19	1.02	10.57	0.83	2.39	1.00	1.00	1.01	1.02	2.46
	3+4+5	Pre	110,043	0.62	0.70	1.00	0.76	0.58	21,089	0.352	110,043	0.71	0.72	0.99	0.58	32,526
		Post	161,911	0.61	0.62	1.00	0.81	0.61	30,421	0.313	161,911	0.68	0.65	1.00	0.62	44,299
		Post/Pre	1.47	0.99	0.89	1.00	1.06	1.05	1.44	0.89	1.47	0.96	0.90	1.00	1.07	1.36

4.2 Hatchery Strays

The natural spawning population consists of both natural and hatchery origin KRFC. The degree to which hatchery origin fish spawn in the wild affects the compliance with the spawner floor, and can therefore mask the true status of wild populations. Large numbers of hatchery produced

fall Chinook spawners are routinely observed near the two basin hatcheries in the upper mainstem Trinity River, Bogus Creek and to a lesser degree the Shasta River. The average hatchery composition in these areas for the period of record are 30.5 percent, 34.4 percent and 15.4 percent respectively (Table 3-6). These three areas contribute more than half of the adult spawner escapement annually to the basin total. The definition of "natural spawners" for KFRC is "adult fish which spawn outside of the hatchery facilities in natural areas." Therefore, hatchery produced fish constitute a portion of each year's spawner escapement under the current definition and in years where the conservation objective of 35,000 naturally spawning adult KRFC is barely achieved, hatchery strays may be the only reason the floor was met.

Hatchery returns of KRFC averaged 23,401 during the OAP, about the same as the long-term average prior to the OAP of 23,913 (Table 4-2). In contrast, returns of KRFC to natural areas averaged 27,014 during the OAP, about 52 percent of the long term average prior to the OAP of 51,722. Assuming the hatchery stray rate is constant across years, this suggests that hatchery strays may have constituted a significantly larger percentage of the natural area spawners during the OAP than is normally the case. This finding is broadly consistent with the trends exhibited in the (limited) time series of percentages of hatchery-origin strays reported in Table 3-5 for the Trinity River, Bogus Creek, and the Shasta River, and is concerning for the reasons described in Section 3.4.

Table 4-2. Proportion of Hatchery fall Chinook in Klamath Basin returns.

Year	Hatchery	Total	Percent Hatchery
1978	12,979	71,471	18%
1979	3,636	34,273	11%
1980	6,511	27,994	23%
1981	4,425	38,282	12%
1982	10,411	42,362	25%
1983	13,865	44,649	31%
1984	7,496	23,560	32%
1985	22,534	48,211	47%
1986	32,891	146,251	22%
1987	29,123	130,840	22%
1988	33,458	112,844	30%
1989	21,991	65,859	33%
1990	8,067	23,663	34%
1991	6,484	18,133	36%
1992	7,360	19,388	38%
1993	21,643	43,501	50%
1994	17,072	49,405	35%
1995	37,859	199,653	19%
1996	20,033	101,359	20%
1997	18,662	64,806	29%
1998	29,219	71,707	41%
1999	14,327	32,784	44%
2000	**97,611**	**180,339**	**54%**
2001	**55,112**	**132,946**	**41%**
2002	**27,183**	**92,818**	**29%**
2003	**61,782**	**149,424**	**41%**
2004	**22,981**	**46,812**	**49%**
2005	**27,699**	**54,488**	**51%**
2006	**19,522**	**49,944**	**39%**
78-03 avg	23,913	75,635	32%
00-03 avg [1]	**60,422**	**138,882**	**44%**
04-06 avg	**23,401**	**50,415**	**46%**
78-06 avg	23,860	73,026	33%

5.0 CONCLUSIONS

5.1 Factors Affecting Recruitment

1. Low parent stock size was not a limiting factor in the production of the critical 2000—2003 brood years.

2. Over-escapement ($>S_{MAX}$) of parent stock seems unlikely to have contributed to low recruitment of the 2000—2003 broods by itself, but low flows, high temperatures, and other adverse environmental conditions may have exacerbated density dependent effects.

3. Emigration success data for juvenile Chinook salmon were inconclusive for tributary streams in 2001—2004 due to lack of previous years' estimates, but redd scour did not appear to be a problem for incubating eggs of the critical broods.

4. Contemporary hatchery practices have helped to minimize interaction of hatchery and naturally produced Chinook in the juvenile freshwater phase, but have not eliminated it. Sampling continues to show considerable timing overlap of hatchery and natural fingerlings in mainstem migration corridors and the estuary.

5. Steelhead predation and competition impacts possibly increased for the critical 2000—2003 broods due to increased hatchery production and river returns of these fish, particularly in the Trinity River.

6. Drought and low flow conditions throughout the basin during 2001—2004 limited the amount of salmonid rearing area, and caused reduced stream flow velocities and early water temperature warming. 2001 had the lowest annual flows since at least 1979. Such conditions resulted in reduced stream rearing habitat, slowed water velocities, increased competition, and increased predation opportunities for avian and fish predators, and may have exacerbated conditions for disease infection of juvenile KRFC.

7. Temperatures in the Trinity River during 2000—2002 were in the range expected to result in lower than average recruitment.

8. The common occurrence of diseased fish, particularly *C. shasta* infections, is cause for concern and may indicate disease is a factor limiting recruitment of KRFC.

5.2 Factors Affecting Escapement

9. Overfishing of KRFC occurred in 2004, 2005, and 2006. The ocean abundance of KRFC during this period was high enough to have met the FMP conservation objective in each of these three years had the fisheries been sufficiently limited. The primary cause for overfishing in 2004 and 2005 was a substantial under-forecast of the ocean commercial fishery mortality. In 2006 the primary cause was a policy decision to allow fisheries to proceed under emergency rule.

10. The Klamath River tribal fishery, Klamath River recreational fishery, and ocean recreational fishery KRFC harvest impacts were adequately forecast in 2004, 2005, and 2006. The errors in these forecasts did not contribute significantly to the spawning escapement shortfalls in 2004, 2005, or 2006.

11. The KOHM biological components (abundance forecasts) were for the most part adequately forecast in 2004, 2005, and 2006. For a particular year and age, forecast errors in several of these components, particularly when compounded, lead to a significant forecast error in age-specific escapement (e.g., age-4 in 2005 and 2006). This error tended to be compensated for, to some extent, by opposing errors for the other age classes.

12. The principal reasons for the under-forecast of the ocean commercial fishery mortality rate in 2004 and 2005 was (a) unexpectedly high levels of fishing effort per day open in the sub-areas between Cape Falcon and Humbug Mountain, and (b) much higher than expected KRFC contact rates per unit of effort for the area south of Horse Mountain (Appendix 8.1; PFMC 2006a; Mohr 2006c). These factors did not appear to be the results of stochastic variation, but due to a shift in these underlying processes resulting in model bias. In response, the STT (a) modified the KOHM commercial fishery effort per day open submodel to account for effort transfer from closed to open sub-areas between Cape Falcon and Humbug Mountain, and (b) adjusted the KOHM commercial fishery contact rate per unit of effort submodel for the area south of Horse Mountain to reflect the higher rates observed in the 2003—2005 period (Appendix 9.1; PFMC 2006a; Mohr 2006c). Together, these adjustments resulted in an adequate KOHM forecast of the 2006 ocean commercial fishery mortality rate.

13. Small errors in the KOHM component forecasts have the potential to determine whether the KRFC conservation objective is met in a given year, particularly if the adopted fishery control measures target the escapement floor. It is conceivable, for example, that every component could be well forecast with the exception of one, and that error alone could result in the objective not being achieved.

14. If the fishery management forecast model is unbiased with respect to forecasting KRFC natural spawning escapement, and harvest control measures are adopted annually which are expected to result in a KRFC spawning escapement of no more and no less than 35,000 adults, the chances of meeting the conservation objective in any one year are 50:50. This would result in the triggering of an Overfishing Concern (failing to meet the objective in three consecutive years) on average once in every eight years (a probability of 12.5 percent). If, in addition, FMP Amendment 15 or Emergency Rules are used in some years to target spawning escapements lower than 35,000 adults, the average amount of time before an Overfishing Concern was triggered would be something less than eight years. Conversely the likelihood would be less than once in every eight years if the target was more than 35,000, as in 2001. In that year the preseason ocean abundance forecast included 247,000 age-4 KRFC, ocean fisheries were constrained by the CCC ESA consultation standard, and river recreational and tribal allocations targeted the 66 percent SRR, which resulted in an expected natural spawning escapement of 47,000 adults.

15. Ecological factors played a role in determining KRFC ocean abundance (recruitment), and fishery management responded by setting target escapement levels at or below the escapement floor. The policy choice in 2006 to target below the escapement floor and subsequent adoption of FMP 15 illustrate that providing *de minimis* fishing opportunity to sustain a viable fishery has the potential to compromise short-term attainment of conservation objectives.

16. Hatchery-origin strays may have constituted a significantly larger percentage of the natural area spawners during the OAP than is normally the case, increasing the potential for negative interactions between hatchery and naturally produced fish during this period.

5.3 Significance to Achieving MSY on a Continuing Basis

The aggregate natural spawning escapement levels observed during the OAP were below the best estimate of spawning stock size at maximum sustainable yield (S_{MSY}), however they were not unprecedented. Between 1990 and 1994 there were much lower natural spawning escapements, and for a more extended period than in 2004 through 2006, and yet the aggregate population abundance recovered. In fact some of the larger broods on record, including the parent broods of the OAP natural spawners, occurred subsequent to the 1990-1994 period. If the aggregate abundance were all that mattered, there would probably be little concern for the potential of the current shortfall to affect long-term productivity of KRFC. However, the sequential low spawning escapements in the Salmon and Scott rivers during the OAP are unprecedented. The current depression of these key natural sub-stocks does raise concerns regarding the long-term genetic integrity of KRFC that were not present during the 1990 to 1994 period. The loss of genetic integrity raises concerns for the ability of KRFC to produce MSY on a continuing basis.

6.0 RECOMMENDATIONS

6.1 Criteria for Identifying Stock Recovery and the End of the Overfishing Concern

Meeting the spawning escapement floor of 35,000 adult natural spawners in any one of the OAP years could have prevented triggering of an Overfishing Concern, and similarly, the current Overfishing Concern cannot end until the 35,000 floor is achieved. The FMP notes that when an Overfishing Concern is triggered, there may be concern that a downward trend is occurring. Therefore, the recommendations for criteria to determine the end of the current Overfishing Concern include more than just achieving the conservation objective once following the OAP. Therefore the workgroup recommends the following as one necessary criterion for ending the current Overfishing Concern:

Recommendation 1: Consider the Overfishing Concern of KRFC ended when a natural spawning escapement of at least 35,000 adults is achieved in three out of four consecutive years with a natural spawning escapement of 40,700 adult KRFC (S_{MSY}) or more in at least one of those three years.

Achieving 35,000 natural adult spawners in three years will help ensure that recovery represents more than one strong brood.

The current National Standard 1 Guideline requires rebuilding of an overfished stock to S_{MSY}. The 35,000 natural adult spawner floor in combination with the 33 to 34 percent spawner escapement rate limit was accepted as a proxy for S_{MSY} to meet administrative requirements when Amendment 14 to the Salmon FMP was approved. Therefore, a precedent exists for setting one criterion as an escapement of at least 35,000 natural spawners. However, when FMP Amendment 9 was adopted the dual nature of the conservation objective was intended to allow a range of spawning escapements, which would allow an MSY objective to be developed while protecting the stock during prolonged periods of reduced productivity. In 2005, after compiling spawner-escapement data on 22 complete broods, the STT recommended 40,700 as the best estimate of B_{MSY} (S_{MSY}) for the aggregate KRFC stock (STT 2005b). This estimate was based on a stock-recruitment model that accounts for variation in both parental spawners and early life history survival, and the SSC concurred that the estimate of 40,700 represented the best available science. Achieving a natural spawning escapement of 40,700 would satisfy the National Standard 1 Guideline requirement using the best scientific information available to estimate S_{MSY}, as determined by the STT (2005b) and SSC (2005).

Mohr and Fujiwara (2006) in FMP Amendment 15 note that natural spawning escapements of less than 720 adults in mid-Klamath tributary populations substantially increase the risk of loss of genetic diversity, which could negatively affect the ability of the aggregate KRFC stock to produce MSY in the long term. A natural spawning escapement of 40,700 would achieve a probability of less than 20 percent that a spawning escapement in one of the three mid-Klamath tributaries less than 720 adults would occur in any one year, and should provide additional surplus production to benefit fisheries and ecosystem functions.

6.2 Stock Recovery Measures

In order to meet the criterion for ending the Overfishing Concern, a rebuilding strategy should be adopted to facilitate that process.

6.2.1 Management Measures

The probability of certain events, or combination of events, with negative consequences occurring may not change as stock size decreases, but the probability of crossing critical thresholds affecting the long-term productivity of the stock is high at low abundance levels. Therefore, a more precautionary management approach is warranted during periods of stock depression and rebuilding.

Recommendation 2: Target a natural spawning escapement of 40,700 adult KRFC until the Overfishing Concern is ended (the rebuilding period).

If preseason stock abundance projections are sufficient to allow for at least *de minimis* fisheries, targeting for the S_{MSY} level of 40,700 (as opposed to 35,000) will increase the likelihood that the 35,000 spawner floor will be achieved, and that the Overfishing Concern would end. As noted above, it will also decrease the risk to subpopulations and should provide additional surplus production in future years to the benefit of fisheries and ecosystems.

Amendment 15 to the Salmon FMP was intended to provide management flexibility to allow KRFC spawning escapement to fall below 35,000 in order to accommodate *de minimis* harvest levels while preventing collapse of the salmon fishing industry and infrastructure. Amendment 15 was intended to be implemented primarily when temporary depression of KRFC occurred, and did not supersede the Overfishing Concern criteria listed in the FMP. A similar approach could be used to allow KRFC to recover from an Overfishing Concern while accommodating some of the needs of fishing communities. However, if 40,700 becomes the management target as recommended above, the threshold for implementing the Amendment 15 approach would require adjustment to prevent a discontinuity in allowable harvest between the management targets. The implementation threshold for a 10 percent age-4 ocean impact rate resulting in a natural spawning escapement of 35,000 adults is a pre-fishing spawning escapement of about 47,000; for a spawning escapement of 40,700, the implementation threshold would be a pre-fishing spawning escapement of about 54,000.

Recognizing the increased risk associated with an Overfishing Concern as opposed to a Conservation Alert, rebuilding measures should be more conservative, particularly when abundance is on the lower end of the *de minimis* fishing scale. However, the needs of the fishing communities are also heightened during prolonged stock depression. Therefore, recognizing the importance that some opportunity be preserved, the workgroup makes the following recommendation:

Recommendation 3: When implementing *de minimis* fisheries during the rebuilding period, provide for an age-4 ocean impact rate of no more than 10 percent when preseason stock abundance forecasts result in pre-fishing spawning escapement projections of less than about 54,000, plus an additional requirement of introducing a sliding scale, which would reduce the allowable rate linearly from no more than 10 percent at a projected natural spawning level of 30,000 to 0 percent at a projected natural spawning level of 22,000.

The value of 30,000 spawners was chosen to be consistent with the NMFS proposed rule for Amendment 15, noting the need to substantially reduce the impact rate at spawning escapements below that level. The value of 22,000 was chosen to reflect the level at which the Council's preferred option for Amendment 15 required reduction of the impact rate, combined with the increased risk associated with an Overfishing Concern. The sliding scale feature is intended to provide a structured implementation of the rebuilding measure, which allows for a predictable and consistent process in adopting management options for public review and final action.

The implementation threshold of 54,000 is an approximate value, and the specific value in a given year would be determined preseason by the STT, and would be based on year specific age composition, size limits, and fishing strategies.

Recommendation 4: No further modifications in parameterizing the KOHM components are recommended at this time.

One primary cause of the KRFC spawning escapement shortfall in 2004 and 2005 was that the forecast of the commercial fishery mortality during spring/summer fisheries was biased low, and significantly so. The STT observed this bias and responded with appropriate modifications to the KOHM and the data used to parameterize the KOHM in 2006.

The modifications made to the KOHM were effective in 2006; however, the STT will continue to verify model results with postseason information, and react as necessary to ensure the KOHM performs adequately.

Impacts to KRFC in ocean fisheries occurring in the September-November period (fall fisheries) are assessed against escapement in the following calendar year, although there is currently no forecast of impacts available for these fisheries. Fall fisheries provide significant opportunity for some ocean fishery strata, particularly in the KMZ commercial fisheries. However, fall fisheries also pose a risk in that fall impacts may substantially reduce the KRFC impacts available, and hence the opportunity available in spring/summer fisheries the following year. During periods of stock depression, this can result in hardship to fishing communities and pressure to exceed the conservation objective through use of an Emergency Rule, as was the case when fall 2005 fisheries affected spring/summer 2006 fishery planning.

Recommendation 5: During periods of stock rebuilding, fall fishing opportunity in areas impacting KRFC abundance should be restricted.

This will reduce the likelihood of severe restrictions in subsequent spring/summer fisheries, pressure to increase harvest impacts during times of low abundance, future spawning escapement shortfalls, and prolonged rebuilding periods.

Recommendation 6: The practice of reopening the upper Klamath and Trinity rivers to recreational fishing once hatchery egg take goals are met should be suspended during rebuilding periods or when an Overfishing Concern is imminent.

The KOHM assumes that river recreational fisheries stay within the preseason allocation. Fisheries that reopen after quotas are met are not accounted for. Lack of accountability could compromise achieving natural area spawning escapement objectives.

Recommendation 7: All river fishery strata should be sampled at a minimum sampling rate of 20 percent for catch and biological information, including CWTs used to estimate impact on natural area spawners and returns of hatchery fish.

The proportion of hatchery fish in the upper mainstem Klamath natural spawning areas is relatively low, and increased escapement to those areas should benefit stock recovery. In the Trinity River, hatchery fish generally make up the majority of natural spawners, and increased escapement probably has relatively less benefit to stock recovery. In addition, the proportion of hatchery spawners increases with proximity to TRH, so there may be a gradient of benefits to natural spawning populations in the Trinity.

6.2.2 Conservation Objective

The combined objectives for KRFC of a minimum spawning escapement floor and a maximum SRR comport with the basis for salmon conservation objectives identified in the FMP, that is to approximate or approach MSY. Therefore, the workgroup recommends:

Recommendation 8: No change to the current FMP conservation objective for KRFC.

The workgroup does not believe the current analysis reveals any compelling evidence of problems with the current FMP conservation objective for KRFC. However, the natural spawning escapement floor of 35,000 adults is below the best estimate of S_{MSY} (STT 2005b). Unless recruitment is sufficient for the SRR to limit fisheries (rather than the spawner floor), it is unlikely that S_{MSY} will be achieved on a long-term basis. Therefore, as an annual management target, the 35,000 floor may not be appropriate if the objective is to meet the intent of the FMP and achieve S_{MSY} on an average basis.

As noted above, regularly targeting for the minimum escapement acceptable under the conservation objective is also likely to result in occasional triggering of an Overfishing Concern due purely to stochastic variation. In any given year, the probability of an escapement shortfall could be reduced by setting a target that is greater than the minimum acceptable under the conservation objective. This strategy could be particularly useful if previous shortfalls have occurred and an Overfishing Concern is imminent or if rebuilding from an Overfishing Concern is underway.

6.3 Hatchery Practices

Recommendation 9: Encourage implementation of a 25 percent CFM program at IGH.

Currently there is a constant fraction marking program at TRH but not at IGH. The TRH program, which marks 25 percent of all production, provides for substantially increased precision of estimated ocean fishery contact rates and harvest of Trinity River fall Chinook, as well as estimated proportions of TRH-origin fall Chinook in natural spawning areas. Coupling this with a 25 percent constant fractional marking program at IGH would extend these benefits to the entire KRFC stock.

Fingerling tags are desirable as an indicator stock for naturally produced stock because of similar life history characteristics. Unfortunately the low survival rate for fingerlings frequently provides too few recoveries for adequate estimates of exploitation. Increasing the tag rate to 25 percent would reduce reliance on using yearling tag groups for impact assessment and would better meet management needs (CDFG and NMFS 2001).

6.4 Research

Additional research is necessary to identify the relationship between disease occurrence, prevalence, and recruitment success and their effects on the population dynamics of KRFC. This research should consider juvenile fish interactions as well as parent to offspring interactions.

Recommendation 10: Encourage further research on disease issues in the Klamath Basin as they relate to population dynamics and fishery management.

Instream mortality studies of naturally produced juvenile fish need to be conducted on an annual basis. Expanded juvenile fish trapping and efficiency sampling might be considered along with controlled releases of tagged hatchery fish in the estuary for comparison with counterpart tagged hatchery fish releases. If results indicate a significant population effect, additional research should be directed at further assessing the mechanisms and solutions to the problem.

Recommendation 11: Encourage expanded studies of tributary and mainstem production and survival rates of KRFC.

Expanded study areas, including the key tributaries and lower Klamath mainstem, would provide better estimates of stream specific outmigrant population sizes. These data when used in conjunction with river survival estimates could be used in forecasting brood strength and assessing factors related to stock status.

Recommendation 12: Encourage studies of early-life marine survival rates for KRFC.

The current efforts being conducted by NMFS Northwest Fisheries Science Center on ocean ecosystem indicators of salmon marine survival in the northern California current should be extended southward to include areas potentially important to KRFC.

6.5 Restoration and Enhancement Measures

Ongoing and planned habitat restoration and enhancement efforts should increase the capacity and productivity of KRFC in the basin, which will address some of the recruitment issues observed during the OAP. Increased and properly timed water releases from the two mainstem dams in combination with improved water quality conditions in the Klamath River have the potential to increase survival of outmigrant smolts in the Klamath and Trinity mainstems. Habitat restoration efforts currently underway in the Trinity River are also expected to expand spawning area for adult fish and increase the number of natural spawners that can utilize that system. The Federal Energy Regulatory Commission (FERC) relicensing process for the Klamath mainstem dams has the potential to increase available habitat and improve water quality as well. All of these actions are expected to increase basin productivity, resulting in enhanced future fishing opportunities and additional spawning fish to the Klamath/Trinity ecosystem.

A number of recommendations for improving and increasing habitat in the Klamath Basin have been made by the Council through the FERC process. These improvements would enhance productivity in the basin and address recruitment issues. The workgroup recommends:

Recommendation 13: Continued Council involvement in the FERC relicensing process, and consideration of Council recommendations by FERC.

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8.0 APPENDICES

Appendix 8.1 KOHM Adjustments for 2006 Fisheries

The material presented in this Appendix was written in March 2006 (PFMC 2006a) and is reprinted here because of its importance, both in describing the details underlying the under-forecast of the ocean fishery mortality rate in 2004 and 2005, and in demonstrating the responsiveness of the Council's STT to remedy the situation when these facts became clear. No attempt has been made to revise the tense of the reprinted text.

The age-4 ocean harvest rate on KRFC has been significantly under-predicted for three consecutive years. Table 8-1 lists the preseason and postseason estimates for these years, stratified by sector (commercial, recreational) and time period (September-December, January-August).

The recreational sector preseason estimates have not been particularly problematic (Table 8-1). The commercial sector preseason estimates for the previous September-December period have been somewhat more problematic, but it is not yet clear whether the estimator is positively biased versus generally uncertain (September-December 2002 was over-estimated, Table 8-1). The preseason estimates for the September-December period are actually preliminary "postseason" estimates based on CWT recoveries in these fisheries (these fisheries are prosecuted prior to the preseason planning process) coupled with the current ocean abundance forecasts. These preliminary "postseason" estimates for the September-December period are inputs to the KOHM—not outputs. The primary source for the substantial under-prediction of the age-4 ocean harvest rate in 2003, 2004, and 2005 has been the commercial sector preseason prediction for the January-August period (as highlighted in Table 8-1). The preseason predictions for this time period are outputs of the KOHM, and the STT therefore reviewed the KOHM harvest rate predictors for the commercial sector during the January-August period, and adjusted these predictors for the recent observed patterns in the postseason estimates as described below.

The KOHM January-August period age-4 ocean harvest rate predictors are a function of the sector-area-month-specific expected contact rate per unit of effort and the expected level of effort per day open. For the expected contact rate per unit of effort, the KOHM default predictor is a ratio estimator fit to all available data (postseason estimates from 1983–2005). Figure 8-1 displays these area-month-specific postseason estimates and contact rate predictors for the commercial sector. The small dots are 1983–2002 postseason values; the large dots are the postseason values of the last three years (2003–2005). The thin predictor line is the ratio estimator fit to the entire dataset (KOHM default); the thick predictor line is the ratio estimator fit to the 2003–2005 data. For the northern Oregon (NO) and central Oregon (CO) areas in March and April, the high contact rates per unit effort in 2003–2005 were initially unanticipated by the KOHM, but the 2006 predictors have now adapted to the recent accumulation of these data and do not appear in need of any adjustment (Figure 8-1). During the May-August period in the NO and CO areas there are a few outlying points from the last three years, but for the most part the recent data is consistent with the historical data pattern, indicating no adjustment is necessary for these months (Figure 8-1). Adjustment of the Oregon KMZ (KO) and California

KMZ (KC) predictors is also judged to be unnecessary (Figure 9-1). For the Fort Bragg (FB), San Francisco (SF), and Monterey (MO) areas however, there has been a fairly consistent under-prediction of the contact rate per unit of effort across the May-August period (Figure 9-1). The consistency of this recent upward shift in the data across this broad geographic area and time period (years, and months within years) argues for restricting the database for these areas to the 2003–2005 period, and this adjustment was made. In summary, for the commercial sector, the 2006 KOHM contact rate per unit of effort predictors for the NO, CO, KO, and KC areas will be the ratio estimator based on all available data (thin line), and for the FB, SF, MO areas will be the ratio estimator based on the 2003–2005 data (thick line).

For the expected level of effort per day open, the KOHM default predictor for the commercial sector is a ratio estimator fit to all available data since 1991 (postseason estimates from 1991–2005). There are two exceptions to this. First, if there is insufficient pre-existing data for a given area in a particular month (e.g., early season fisheries), the effort predictor for the following month in the same area is used (for early season fisheries this predictor will probably be conservative). Second, in the FB, SF, and MO areas the predictors account for effort shift expected under partial closure of the overall area (effort from the closed areas is assumed to move into the open areas). The FB, SF, and MO effort predictors have worked reasonably well in recent years and do not appear in need of adjustment. The KO and KC effort predictors also appear to be satisfactory. For the NO and CO areas however, there has been relatively high levels of effort in the last few years, particularly in 2005. While the 2005 NO and CO commercial fisheries were substantially restricted in time and area, the observed levels of effort in those areas and months that were open were unexpectedly high (near record highs in several months), with the result that overall effort across these areas within a month and for the season as a whole was not dampened. In other words, there was considerable effort shift within months, and a concentration of effort across months, in the NO and CO areas in 2005. The effort predictors for the NO and CO areas were thus adjusted to account for effort shift between these two areas within a month (as is presently done for the FB, SF, and MO areas): within a particular month, if NO is closed, all of the NO effort is assumed to move into the CO area, and vice-versa. In summary, for the commercial sector, the 2006 KOHM effort per day open predictors for all areas will be the ratio estimator based on the 1991–2005 data. Effort transfer has now been incorporated into the NO and CO area predictors, as it is for the FB, SF, MO area predictors.

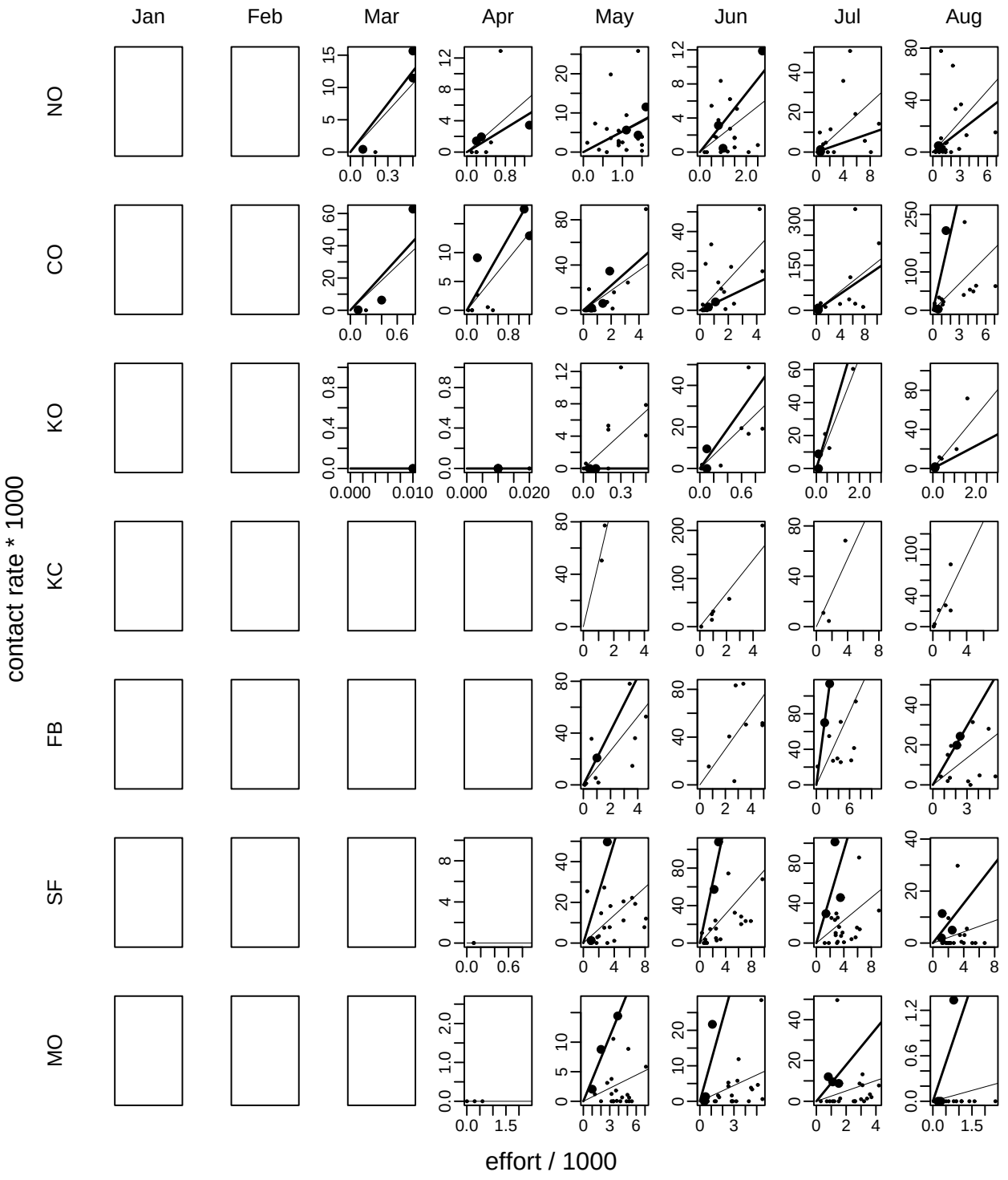
To gauge the net effect of these adjustments on the age-4 ocean harvest rate forecast, Table 8-2 compares the 2005 preseason prediction versus that which would have resulted had the adjusted KOHM been used for preseason prediction in 2005. In this example, the adjusted KOHM forecasts closely track the January-August postseason results, with the largest unaccounted for errors arising from the September-December preliminary "postseason" estimated values (Table 8-2).

Table 8-1. 2003-2005 preseason, postseason estimates of Klamath River fall Chinook age-4 ocean harvest rates (percent).

		Commercial			Recreational			Combined		
	Year (t)	Sep-Dec(t-1)	Jan-Aug(t)	Sep(t-1)-Aug(t)	Sep-Dec(t-1)	Jan-Aug(t)	Sep(t-1)-Aug(t)	Sep-Dec(t-1)	Jan-Aug(t)	Sep(t-1)-Aug(t)
Pre	2003	3.6	9.9	13.6	0.2	2.3	2.5	3.8	12.2	16.0
Post	2003	2.0	19.8	21.8	0.1	1.2	1.3	2.1	20.9	23.0
Post-Pre	2003	-1.6	9.8	8.2	-0.1	-1.1	-1.2	-1.7	8.7	7.0
Pre	2004	3.4	9.0	12.4	0.5	2.1	2.6	3.9	11.1	15.0
Post	2004	7.5	40.8	48.2	1.0	3.2	4.2	8.5	44.0	52.4
Post-Pre	2004	4.1	31.8	35.9	0.5	1.1	1.6	4.6	32.8	37.4
Pre	2005	2.9	3.0	5.9	0.3	1.4	1.7	3.3	4.4	7.7
Post	2005	8.0	13.6	21.6	0.8	1.6	2.3	8.8	15.2	23.9
Post-Pre	2005	5.1	10.5	15.6	0.4	0.2	0.6	5.5	10.7	16.3

Table 8-2. 2005 preseason, adjusted KOHM, and postseason estimates of Klamath River fall Chinook age-4 ocean harvest rates (percent).

		Commercial			Recreational			Combined		
	Year (t)	Sep-Dec(t-1)	Jan-Aug(t)	Sep(t-1)-Aug(t)	Sep-Dec(t-1)	Jan-Aug(t)	Sep(t-1)-Aug(t)	Sep-Dec(t-1)	Jan-Aug(t)	Sep(t-1)-Aug(t)
Pre	2005	2.9	3.0	5.9	0.3	1.4	1.7	3.3	4.4	7.7
Post	2005	8.0	13.6	21.6	0.8	1.6	2.3	8.8	15.2	23.9
Post-Pre	2005	5.1	10.5	15.6	0.4	0.2	0.6	5.5	10.7	16.3
KOHM adj	2005	2.9	13.4	16.3	0.3	1.3	1.6	3.3	14.7	18.0
Post	2005	8.0	13.6	21.6	0.8	1.6	2.3	8.8	15.2	23.9
Post-Pre	2005	5.1	0.1	5.2	0.4	0.3	0.7	5.5	0.4	6.0



Appendix 8-1 Figure 1. Klamath River fall Chinook commercial age-4 contact rate versus effort for KOHM management areas by month, January through August. Large dots are 2003-2005 postseason values; small dots are 1983-2002 postseason values; thick lines are predictors based on the 2003-2005 data; thin lines are the KOHM default predictors based on all data (1983-2005). See Appendix 8.1 text for further details.

Appendix 8.2 Mortality Rate Calculations

Appendix 8-2 Table 1. Data and assumptions used to estimate survival rate from stream migrant stage to age-2 September 1.

	Age 2	Age 3 1/	Age 4	Age 5	Total	Source
Monthly survival rate=	0.944	0.982	0.982	0.982		Goldwasser et al. 2001
Maturity rate=	0.047	0.387	0.879	1.000		CDFG cohort reconstruction
Eggs/spawner=					1,250.00	PFMC A-15 statistic
Sept 1 age 2 pop size (ocean entrants)=					477.00	Computed age 2 Sept 1 ocean pop. for MSY
Potential adults in age 2 pop=					0.25	Computed assuming no ocean fishing (see below)
Combined fishry impact=					0.66	PFMC harvest rate policy
Egg to migrant rate=					0.17	This report: 214 migrants/adult, 1250 eggs/adult
Calculations:						
Potential adults=		119.64				
Harvest=		78.96				
Spawners=		40.68				
Eggs=		50,845.31				
Stream migrants=		8,643.70				
Age 2 stream migrant survival=		**0.055**				

1/ May 1 ocean birthday for rate change

Survival calculations: no fishing scenario

	Age 2			Age 3			Age 4			Age 5		
lonth	**ocean**	**river**	**Oc surv**	**ocean**	**river**	**Oc surv**	**ocean**	**river**	**Oc surv**	**ocean**	**river**	**Oc surv**
9	477.000			227.281			84.754			8.184		
10	450.228			214.524			83.193			8.033		
11	424.959			202.484			81.660			7.885		
12	401.108			191.119			80.155			7.740		
1	378.595			180.393			78.679			7.597		
2	357.346			170.268			77.229			7.457		
3	337.290			160.712			75.806			7.320		
4	318.359			151.692			74.410			7.185		
5	300.491			148.897			73.039			7.052		
6	283.626			146.154			71.693			6.922		
7	267.707			143.461			70.372			6.795		
8	252.682	11.219	0.500	140.818	53.469	0.608	69.076	59.620	0.800	6.670	6.547	0.800
										Adults	**119.636**	

Appendix 8.3 Dams and Water Diversions

Flows

There are several major diversions of water within the Klamath-Trinity Basin. Although estimates vary, there are approximately 500,000 acres of irrigated agricultural land in the Upper Klamath Basin (above Iron Gate Dam). Approximately 190,000 – 220,000 of these acres are within the Klamath Irrigation Project, which is operated by the Bureau of Reclamation (BOR 2001[3]; Gannett et al, 2007[4]); the remaining diversions in the Upper Klamath Basin consist of private water diversions that have been undergoing adjudication for more than 20 years.

There is also substantial irrigation within the Scott and Shasta Rivers, as well as the diversion of more than half the water from the Upper Trinity River to the Central Valley.

Klamath Irrigation Project

The Federal Klamath Irrigation Project (Project), operated by the U.S. Bureau of Reclamation (BOR), supplies irrigation water to over 190,000 acres of farm land in south-central Oregon and north-central California and regulates flows to the Klamath River downstream.

The Project is divided into two delivery areas: the Upper Klamath Lake (UKL) delivery area which provides water from Upper Klamath Lake and the Klamath River to both agriculture and two national wildlife refuges, and the East Side delivery area, which provides water from Clear Lake Reservoir, Gerber Reservoir and the Lost River to lands on the east side of the Project area.

In allocating water the BOR must maintain minimum elevation levels in Upper Klamath Lake in accordance with the USFWS Biological Opinion (May 2002) to manage for ESA listed Klamath Shortnose and Lost River suckers. The NMFS Biological Opinion (May 2002) provided minimum flows at Iron Gate Dam for maintenance of critical habitat for ESA listed SONCC coho salmon. These Biological Opinions (BOs) were challenged in a 2003 lawsuit filed against the BOR and NMFS by the Pacific Coast Federation of Fishermen's Associations. In 2006 a 9th Circuit Court of Appeals judge remanded the NMFS BO, ruling that it was in violation of the ESA, and requested a re-consultation, now in progress. In the interim, the judge ordered immediate implementation of the "long-term" flows which the NMFS BO had prescribed to be implemented during years nine and ten of the 10-year BO and that require flows at Iron Gate Dam be maintained at a minimum of 1,000 cfs during the summer months to protect SONCC coho.

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[3] Bureau of Reclamation, 2001. Biological assessment of the Klamath Projects continuing operations on Southern Oregon/Northern California ESU coho salmon and critical habitat for Southern Oregon/Northern California ESU coho salmon. U.S. Bureau of Reclamation, Mid-Pacific Region, Klamath Area Office, Klamath Falls, Oregon.

[4] Gannett, M.W., Lite, K.E. Jr., La Marche, J.L., Fisher, B.J., and Polette, D.J., 2007, Ground-water hydrology of the upper Klamath Basin, Oregon and California: U.S. Geological Survey Scientific Investigations Report 2007-5050, 84 p.

Shasta River

The Shasta River provides irrigation water to approximately 46,400 acres of irrigated crop area (primarily pasture) in the Shasta River basin. Shasta River water rights have been adjudicated since 1932, with full appropriation from May 1 through October 31 (North Coast Regional Water Quality Control Board [NCRWQB] 2006[5]).

The California Department of Water Resourced (CDWR) data from 1945 to 1994 show a steady increase in consumptive impairment from the Shasta River ranging from 42,500 acre-feet (af) in 1945 to 109,500 af in 1994 (CDWR 1964[6]). During the irrigation season from March through September, flows decline markedly (NRC 2004[7]). Reduced flows, elevated temperatures, and low dissolved oxygen levels were identified as the water quality parameters having the most adverse impacts to cold water fish in the Shasta River (NCRWQCB 2006).

Scott River

Water from the Scott River is used to irrigate approximately 34,000 acres of pasture, alfalfa and grain in the Scott Valley, using about 98,100 af of applied water per year. Water rights were adjudicated in 1980, but do not include adjudication rights for fish upstream of the U.S. Geological Survey gage at Fort Jones. Below the gage, the U.S. Forest Service (a junior appropriator) was allotted a minimum flow for fish of 30 cfs during August and September, 40 cfs during October and 200 cfs from November through March. However, there is no watermaster service on the mainstem, and the U.S. Forest Service adjudication is often not met (National Research Council [NRC] 2004). Irrigation withdrawals are supposed to cease on October 15, however, this is sometimes violated, minimizing migration flows for adult salmonids.

Historically, the Scott River has provided optimum coho salmon spawning and rearing habitat, with beaver dams throughout the valley. The hydrology of the Scott River watershed is not well documented, and a water budget is currently underway (CSWRCB 1995[8]).

Trinity River

The Trinity River is impounded by Trinity and Lewiston Dams which were completed in 1963 as part of the 1955 Central Valley Project Act. An average of 1.1 million af flowed past Lewiston prior to the dam construction. In some years up to 90 percent of this inflow was diverted to the

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[5] NCRWCB (North Coast Regional Water Quality Control Board). 2006. Action plan for the Shasta River watershed temperature and dissolved oxygen total maximum daily loads (online). Available at: http://www.swrcb.ca.gov/rwqcbl/programs/tmdl/Shasta/060707/FinalShastaTMDLActionPlan.pdf

[6] California Department of Water Resources. 1964. Shasta Valley Investigation, Bulletin no. 87.

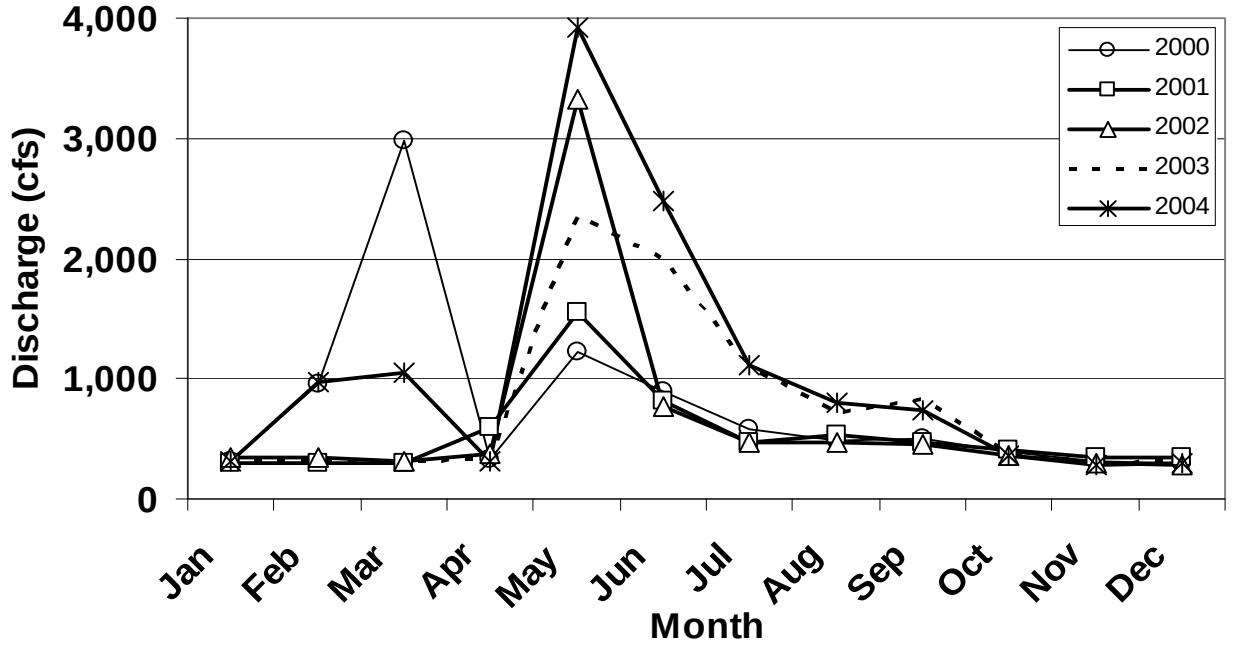
[7] NRC (National Research Council). 2004.Endangered and Threatened Fishes in the Klamath River Basin. Washington, D.C. National Academy Press.

[8] California State Water Resources Control Board. 1995. Proposal for a Water Budget of the Scott River Watershed (online). Available at: http://www.krisweb.com/biblio/scott_xxxx_siskrcd_xxxx_waterbudget/205.htm

Sacramento River as part of the 1955 Act. Subsequent decline of the fisheries led to a series of administrative and congressional actions (1981 Interior Secretarial Decision for the Flow Evaluation Study; 1984 Trinity River Basin Fish and Wildlife Management Act; 1992 Central Valley Project Improvement Act), which culminated in the 2000 Record of Decision (ROD) co-signed by then Interior Secretary Bruce Babbitt and the Chairman of the Hoopa Valley Tribe (USDOI 2000). The ROD specified in-river flows based on five water year types that range from critically dry to extremely wet, with annual volumes of 369,000 af to 815,000 af. The goal of the Trinity River Restoration Program, which implements the ROD, is to restore populations of naturally produced anadromous fish to those levels observed prior to construction of the Trinity Division of the Central Valley Project.

Smaller diversions occur throughout the Trinity River Basin mostly for domestic water use; however, several small scale operations pump water for crop and pasture irrigation on the mainstem Trinity and in the South Fork Trinity Basins. Any potential direct fish losses as a result of pump/diversion entrainment are un-quantified at this time, but are believed to be minor.

Increased river flows, primarily in the spring to promote fluvial process and to provide more favorable thermal regimes for outmigrating juvenile salmonids, have been implemented since the signing of the ROD in 2000 (**Figure A-2**). Additional flows were released in the fall of 2003 and 2004 to assist in preventing unfavorable conditions that contributed to the adult fish die-off in the lower Klamath River in the fall of 2002. While no adult fish die-off occurred in either 2003 or 2004, the effectiveness of these flow releases from the Trinity in preventing this event is uncertain. Some of the possible negative reactions resulting from these atypical (primarily in duration) fall flows were fall Chinook salmon moving into the upper river up to two weeks early, increasing the probability of hybridizing with spring Chinook salmon.



Appendix 8-3 Figure 1. Mean monthly discharge in cubic feet per second (cfs) at Lewiston Dam, 2000-2004.

Another major component of the Trinity ROD is the construction of channel rehabilitation sites where lack of flow variation over four decades has led to channel simplification. As originally envisioned in the ROD, 47 sites were to be completed by 2005. However, as a result of inadequate funding and poor strategic planning, the implementation schedule has been significantly delayed with completion now anticipated by 2012. Efforts are under way to improve overall program efficiency and budget adequacy.

The major change in fish habitat that has been implemented since the signing of the ROD was increased flows during the spring/summer outmigration period (USFWS and HVT 1999). Due to litigation over implementation of the ROD recommendations, full instream release volumes were not available until 2005; however, beginning in 2001, volumes were increased above that previously available (340,000 af), which allowed for meeting some of the flow based objectives recommended in the Trinity River Flow Evaluation (USFWS and HVT 1999) (**Table 3-4**).

Agenda Item D.3.c
Supplemental Tribal Report
March 2008

HOOPA VALLEY TRIBAL COMMENTS ON
Klamath River Fall Chinook (KRFC) Stock Assessment and Management Recommendations

My Name is Michael Orcutt, and I am the Director for the Hoopa Valley Tribe's Fisheries Department.

The Salmon Technical Team (STT) has released its evaluation of the Klamath River Fall Chinook (KRFC) Overfishing Concern stemming from three consecutive years (2004 - 2006) of failing to achieve the conservation standard (35,000 natural adult Fall Chinook). Pursuant this and general stock assessment and management we offer the following recommendations.

(1) We support the implementation of the STT's Recommendation #1 of the "Assessment of Factors Affecting Natural Area Escapement Shortfall of Klamath River Fall Chinook (KRFC) Salmon in 2004-2006). That recommendation states:

> "*Consider the Overfishing Concern of KRFC ended when a natural spawning escapement of at least 35,000 adults is achieved in three out of four consecutive years with a natural spawning escapement of 40,700 adult KRFC (S-MSY) or more in at least one of those three years*."

(2) The overlay of Amendment 15 on the preexisting conservation standard for KRFC of the FMP with the special concern of a rebuilding plan presents the PFMC and dependent fisheries with some ambiguity as we move toward developing management alternatives for Klamath fall Chinook. Our perspective is that in any year, the FMP conservation threshold of no less than 35,000 adult natural spawners be sustained in every year. The Tribe supported this standard in the late 1980s as part of the historic harvest sharing agreement. In 2005, the STT recommended 40,700 as the best estimate of a natural spawner population needed to produce Maximum Sustainable Yield from the aggregate Klamath stock.

(3) Recommend to Co-Managers that a 25% Constant Fractional Marking coded-wire-tagging program be implemented at Iron Gate Hatchery. The facility releases between 5-6 million juvenile chinook annually and marking rates presently vary inter-annually and are typically well below 10% of production. Implementation of a 25% CFM strategy at IGH would improve management precision by improving estimates of contribution of Klamath chinook to fisheries. HVT pioneered CFM at Trinity River Hatchery over ten years ago, and the approach has recently been introduced to Central Valley hatcheries.

Agenda Item D.3.d
Supplemental HC Report
March 2008

HABITAT COMMITTEE REPORT ON KLAMATH RIVER FALL CHINOOK (KRFC) STOCK ASSESSMENT AND MANAGEMENT RECOMMENDATIONS

The Habitat Committee (HC) reviewed and discussed the *Klamath Assessment of Factors Affecting Natural Area Escapement Shortfall of Klamath River Fall Chinook Salmon in 2004-2006* (Agenda Item D.3.b).

The report provides a good overview of the many serious, ongoing habitat problems in the Klamath Basin. The report also identifies co-mingling of hatchery and natural fish as a potential source of competition in the Klamath's limited freshwater and estuarine environments. As with Sacramento Chinook, there appears to be room for additional investigations into interactions between hatchery- and naturally-produced Chinook.

The twelve recommendations in the assessment are appropriately directed toward actions under Council authority. Unfortunately, many of the factors limiting production of Klamath fall Chinook involve freshwater habitat concerns that fall outside Council control.

With respect to the assessment's recommendations (page 62), the HC emphasizes Recommendation 10 (disease studies), and suggests that Recommendation 11 (tributary and mainstem production and survival) should include investigations into the effects of different hatchery production programs and alternative release strategies on natural fish within the system. The HC also notes that Recommendation 12 should be expanded to include input into the Federal Energy Regulatory Commission relicensing process, and to provide essential fish habitat conservation recommendations to the consultation currently underway for the Klamath Irrigation Project.

Also, the HC heard a presentation from Phil Detrich (Klamath Issues Coordinator, USFWS) about the status of the draft settlement agreement, which is now available for public review (www.edsheets.com). Although the plan seems comprehensive, some parties believe it does not go far enough to protect and enhance conditions for salmon. The overarching problem still remains balancing the needs of fishes and other water users in both the upper and lower reaches of the basin.

PFMC
03/11/08

Agenda Item D.3.d
Supplemental REVISED SAS Report
March 2008

SALMON ADVISORY SUBPANEL REPORT ON KLAMATH RIVER FALL CHINOOK (KRFC) STOCK ASSESSMENT AND MANAGEMENT RECOMMENDATIONS

Most members of the Salmon Advisory Subpanel (SAS) expressed concerns regarding a number of recommendations in the Klamath stock assessment document, including:

1. Setting a precedent on ending an Overfishing Concern. Having to meet the 35,000 spawner floor, three out of four years plus the requirement that one of those years has to reach (maximum sustainable yield) 40,700 changes historic Council practices.

2. Targeting maximum sustainable yield could unnecessarily restrict fisheries.

3. The impact of restricting fall fisheries, including loss of management flexibility and marketing considerations.

We also recommend that analysis be continued on the September 1st birthday for Klamath River fall Chinook, and to consider if there is a more appropriate birthday, for the credit card fishery.

It should be recognized that in the preseason process, one of the three years in question was targeted below the floor, and regardless of postseason results, management actions in this process were appropriately delegated.

PFMC
3/11/08

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON KLAMATH RIVER FALL CHINOOK (KRFC) STOCK ASSESSMENT AND MANAGEMENT RECOMMENDATIONS

Dr. Robert Kope presented the "Assessment of factors affecting natural area escapement shortfall of Klamath River fall Chinook salmon in 2004-2006" to the Scientific and Statistical Committee (SSC). This document is improved over the draft we previously reviewed and contains information pertinent to understanding freshwater and harvest factors affecting the current status of the KRFC. Flow, temperature, and disease are among the many environmental factors that may be affecting the productivity of Klamath stocks. In recent years, one or another of these has been unfavorable most of the time. A *priori* one would expect these factors to be important, however, it is difficult to relate any of them quantitatively to the recent low escapements. Ocean survival has also been variable, and relatively low. For escapements to be good, everything needs to be favorable. If even one factor is unfavorable then escapements can be low.

One thing that is clear is that in the three years of Overfishing Concern there have been enough ocean recruits to meet the escapement floor in the absence of harvest. In two of three years in the Overfishing Concern Period fisheries regulations targeted the escapement floor and exploitation rates were higher than modeled. In the third year, the target was below the floor. As a result, there was overfishing in those three years.

In general, the report's recommendations outline a reasonable program for rebuilding Klamath stocks, but the SSC wanted to see more quantitative evaluation of alternative harvest policies.

Of the recommendations, the first three are most germane to Council management:

Recommendation 1, requiring three out of four years of adequate escapements to end the Overfishing Concern, appears to be reasonable, but the report does not provide an adequate justification. The SSC was concerned that this could become a precedent, but it is stock-specific and would not necessarily apply in other rebuilding scenarios.

Recommendation 2, targeting the S_{MSY} escapement of 40,700 instead of the 35,000 escapement floor is prudent, and would increase the rate of rebuilding while decreasing the likelihood of continued overfishing. However, targeting S_{MSY} leads to escapements below the goal half the time.

Recommendation 3, redefining the harvest control rule when in *de minimis* fisheries to be consistent with the S_{MSY} target, is a logical extension of Recommendation 2. However, the costs and benefits of this more risk-averse strategy have not been systematically explored.

For these three recommendations, the SSC agrees that they are risk averse and would likely lead to faster rebuilding, at some short-term cost to the fishery. Additional analysis could help quantify the likely costs and benefits of such actions.

IDENTIFICATION OF MANAGEMENT OBJECTIVES AND PRELIMINARY DEFINITION OF 2008 SALMON MANAGEMENT OPTIONS

Using the Salmon Advisory Subpanel (SAS) management recommendations as a base, the Council should identify the range of management elements in the options for public review (harvest ranges, special restrictions, and basic season structure). The Salmon Technical Team (STT) will attempt to collate the Council's identified management elements into coordinated coastwide options. The collated options will be returned to the Council for review and any further direction on Wednesday, March 12, 2008 followed by STT analysis and final adoption of the options on Friday, March 14, 2008. Agenda Item D.4.a, Attachment 1 provides guidance for developing and assessing the options.

Any option considered for adoption that deviates from Salmon Fishery Management Plan (FMP) objectives will require implementation by emergency rule. If an emergency rule appears to be necessary, the Council must clearly identify and justify the need for such an action consistent with emergency criteria established by the Council (Agenda Item D.4.a, Attachment 2) and the National Marine Fisheries Service (Agenda Item D.4.a, Attachment 3). Amendment 15 to the Salmon FMP has been submitted for approval, but has not yet been approved; therefore, any proposals resulting in a natural spawning escapement of less than 35,000 adult Klamath River fall Chinook should be considered to require emergency action.

Before defining the options, the Council should be briefed on any pertinent management constraints resulting from: actions by the Pacific Salmon Commission (PSC), action by the California Fish and Game Commission to set the allocation of Klamath River fall Chinook for the inside recreational fishery, and National Marine Fisheries Service constraints for stocks listed under the Endangered Species Act. The Council may also want to consider recommendations for inseason action to modify fisheries scheduled to open prior to May 1, 2008, as impacts accrued in these fisheries may be subject to provisions in the FMP regarding Overfishing Criteria and they will affect opportunity in summer fisheries.

Council Task:

1. **Using the SAS proposals and other agency and public input, define basic management elements and alternatives for STT collation into coastwide management options.**
2. **Consider the need for inseason action to address fisheries opening prior to May 1, 2008.**

Reference Materials:

1. Agenda Item D.4.a, Attachment 1: Guidance for Option Development and Assessment.
2. Agenda Item D.4.a, Attachment 2: Emergency Changes to the Salmon FMP.
3. Agenda Item D.4.a, Attachment 3: FR 97-22094: Policy Guidelines for the Use of Emergency Rules.
4. Agenda Item D.4.g, Public Comment.
5. Agenda Item D.4.c, Supplemental NMFS ESA Guidance Letter.
6. Agenda Item D.4.f, Supplemental SAS Report: SAS Proposed Initial Salmon Management Options for 2008 Non-Indian Ocean Fisheries.

Agenda Order:

a.	Agenda Item Overview	Chuck Tracy
b.	Report of the Pacific Salmon Commission	Curt Melcher
c.	NMFS Recommendations	Frank Lockhart
d.	Tribal Recommendations	David Sones
e.	State Recommendations	Phil Anderson/Curt Melcher/Maria Vojkovich
f.	Reports and Comments of Advisory Bodies	
g.	Public Comment	
h.	Council Recommendations for Initial Options for STT Collation and Description	

PFMC
02/11/08

GUIDANCE FOR OPTION DEVELOPMENT AND ASSESSMENT

Developing management options is a complex process which may be assisted by following consistent procedures wherever possible. The recommendations below were developed by the Salmon Technical Team (STT), with input from the Salmon Advisory Subpanel (SAS), and approved by the Council to help guide the option development process. They are suggested guidelines and not inflexible requirements.

1. March Management Options:

    a. To aid option assessment, the Council urges pertinent agency and tribal managers to have the Fishery Regulation Assessment Models (FRAMs) ready to run no later than the first day of the March Council meeting.

    b. On the first day of the March meeting, the Council should provide specific guidance for the allowable level of impacts on Oregon coastal natural coho and priorities for the allocation of impacts on critical stocks (e.g., Klamath River fall Chinook, Columbia River natural tule Chinook, Lower Columbia natural coho, etc.). Council staff can modify the option tables to insure these objectives are clearly identified and addressed. Each time the Council reviews the options, it should confirm or amend its guidance on the objectives and priorities.

    c. Generally, Option I should include the SAS's priority seasons and management measures. Options II and III are used to show seasons in which one group or the other gets more or less of its priorities, to illustrate the effect of other management measures (e.g., variations in bag limits for recreational fisheries), or to allow for different inside/outside allocations (e.g., options north of Cape Falcon). The final adopted options should meet basic conservation requirements.

    d. SAS representatives should clearly identify their fishery priorities (e.g., first two fish, continuous season between Point X and Y, etc.) and engage in negotiations as necessary to resolve conflicts among gear groups and areas to arrive at cohesive and coordinated options.

    e. The SAS requests assessments of impacts off California include tables with data for all harvest cells, not just those below Point Arena.

    f. Avoid adopting more than three options. The Council should attempt to identify all significant or new management measures that might be considered for final adoption. However, it is not necessary or possible to model each potential option. Many variations can simply be noted in the description of the three main options. Additional options or variations may be provided for Council consideration during the public comment period which follows the March Council meeting. This period ends with completion of public comment on the tentative adoption of final management measures during the first day of the April Council meeting (Tuesday, April 8, 2008).

2. April Meeting:

   The Council has indicated that on the last day of the March meeting, it will determine the schedule for final adoption of management measures at the April Council meeting (Thursday afternoon versus Friday).

PFMC
02/12/08

EMERGENCY CHANGES TO THE SALMON FISHERY MANAGEMENT PLAN (FMP)
(Excerpt from Council Operating Procedure 10)

CRITERIA FOR REQUESTING EMERGENCY CHANGES TO THE SALMON FMP

Section 305(c) of the Magnuson-Stevens Fishery Conservation and Management Act allows the Secretary of Commerce to implement emergency regulations independently or in response to a Council recommendation of an emergency if one is found to exist. The Secretary has not published criteria for determining when an emergency exists. A Council FMP may be altered by emergency regulations, which are treated as an amendment to the FMP for a limited period of 180 days and which can be extended for an additional 180 days.

Council FMPs can be changed by the amendment process which takes at least one to two years, or modified temporarily by emergency regulations, which can be implemented in a few weeks. Framework plans, like the Council's Salmon FMP, have been developed to allow flexibility in modifying management measures between seasons and during the season.

Some measures, like most conservation objectives and allocation schemes, are deliberately fixed in the plan and can be changed only by amendment or temporarily modified by emergency regulation. (Certain conservation objectives also may be changed by court order or without an amendment if, in the view of the Salmon Technical Team, Scientific and Statistical Committee, and Council, a comprehensive review justifies a change.) They are fixed because of their importance and because the Council wanted to require a rigorous analysis, including extensive public review, to change them. Such an analysis and review were conducted when these management measures were originally adopted. It is the Council's intent to incorporate any desired flexibility of conservation objectives into the framework plan, making emergency changes prior to the season unnecessary. The Oregon coastal natural coho conservation objective is an example of a flexible objective, which is more conservative when stock abundance is low.

The use of the emergency process essentially "short circuits" the plan amendment process and reduces public participation, thus there needs to be sufficient rationale for using it. Moreover, experience demonstrates that if there is disagreement or controversy over a council's request for emergency regulations, the Secretary is unlikely to approve it. An exception would be an extreme resource emergency.

To avoid protracted, last-minute debates each year over whether or not the Council should request an emergency deviation from the Salmon FMP, criteria have been developed and adopted by the Council to screen proposals for emergency changes. The intent is to limit requests to those which are justified and have a reasonable chance of approval, so that the time spent in developing the case is not wasted and expectations are not unnecessarily raised.

Criteria

The following criteria will be used to evaluate requests for emergency action by the Secretary:

1. The issue was not anticipated or addressed in the salmon plan, or an error was made.

2. Waiting for a plan amendment to be implemented would have substantial adverse biological or economic consequences.

3. In the case of allocation issues, the affected user representatives support the proposed emergency action.

4. The action is necessary to meet FMP objectives.

5. If the action is taken, long-term yield from the stock complex will not be decreased.

Process

The Council will consider proposals for emergency changes at the March meeting and decide whether or not a specific issue appears to meet all the applicable criteria. If the Council decides to pursue any proposal, it will direct the Salmon Technical Team to prepare an impact assessment for review by the Council at the April meeting, prior to final action. Any proposals for emergency change will be presented at the public hearings between the March and April meetings. It is the clear intent of the Council that any proposals for emergency change be considered no later than the March meeting in order that appropriate attention be devoted at the April meeting to developing management recommendations which maximize the social and economic benefits of the harvestable portion of the stocks.

The Council may consider other proposals for emergency change at the April meeting if suggested during the public review process, however, such proposals must clearly satisfy all of the applicable criteria and are subject to the requirements for an impact assessment by the Salmon Technical Team.

PFMC
02/12/08

THEFT RATES OF MODEL YEAR 1995 PASSENGER MOTOR VEHICLES STOLEN IN CALENDAR YEAR 1995—Continued

Manufacturer	Make/model (line)	Thefts 1995	Production (mfgr's) 1995	1995 (per 1,000 vehicles produced) theft rate
205 ROLLS-ROYCE	SIL SPIRIT/SPUR/MULS	0	132	0.0000
206 ROLLS-ROYCE	TURBO R	0	19	0.0000
207 VOLKSWAGEN	EUROVAN	0	1,814	0.0000
208 VOLVO	LIMOUSINE	0	6	0.0000

Issued on: August 18, 1997.

L. Robert Shelton,

Associate Administrator for Safety Performance Standards.

[FR Doc. 97–22263 Filed 8–20–97; 8:45 am]

BILLING CODE 4910–59–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Chapter VI

[Docket No. 970728184–7184–01; I.D. 060997C]

Policy Guidelines for the Use of Emergency Rules

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

ACTION: Policy guidelines for the use of emergency rules.

SUMMARY: NMFS is issuing revised guidelines for the Regional Fishery Management Councils (Councils) in determining whether the use of an emergency rule is justified under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The guidelines were also developed to provide the NMFS Regional Administrators guidance in the development and approval of regulations to address events or problems that require immediate action. These revisions make the guidelines consistent with the requirements of section 305(c) of the Magnuson-Stevens Act, as amended by the Sustainable Fisheries Act.

DATES: Effective August 21, 1997.

FOR FURTHER INFORMATION CONTACT: Paula N. Evans, NMFS, 301/713–2341.

SUPPLEMENTARY INFORMATION:

Background

On February 5, 1992, NMFS issued policy guidelines for the use of emergency rules that were published in the **Federal Register** on January 6, 1992 (57 FR 375). These guidelines were consistent with the requirements of section 305(c) of the Magnuson Fishery Conservation and Management Act. On October 11, 1996, President Clinton signed into law the Sustainable Fisheries Act (Public Law 104–297), which made numerous amendments to the Magnuson-Stevens Act. The amendments significantly changed the process under which fishery management plans (FMPs), FMP amendments, and most regulations are reviewed and implemented. Because of these changes, NMFS is revising the policy guidelines for the preparation and approval of emergency regulations. Another change to section 305(c), concerning interim measures to reduce overfishing, will be addressed in revisions to the national standards guidelines.

Rationale for Emergency Action

Section 305(c) of the Magnuson-Stevens Act provides for taking emergency action with regard to any fishery, but does not define the circumstances that would justify such emergency action. Section 305(c) provides that:

1. The Secretary of Commerce (Secretary) may promulgate emergency regulations to address an emergency if the Secretary finds that an emergency exists, without regard to whether a fishery management plan exists for that fishery;

2. The Secretary shall promulgate emergency regulations to address the emergency if the Council, by a unanimous vote of the voting members, requests the Secretary to take such action;

3. The Secretary may promulgate emergency regulations to address the emergency if the Council, by less than a unanimous vote of its voting members, requests the Secretary to take such action; and

4. The Secretary may promulgate emergency regulations that respond to a public health emergency or an oil spill. Such emergency regulations may remain in effect until the circumstances that created the emergency no longer exist, provided that the public has had an opportunity to comment on the regulation after it has been published, and in the case of a public health emergency, the Secretary of Health and Human Services concurs with the Secretary's action.

Policy

The NOAA Office of General Counsel has defined the phrase ''unanimous vote,'' in paragraphs 2 and 3 above, to mean the unanimous vote of a quorum of the voting members of the Council only. An abstention has no effect on the unanimity of the quorum vote. The only legal prerequisite for use of the Secretary's emergency authority is that an emergency must exist. Congress intended that emergency authority be available to address conservation, biological, economic, social, and health emergencies. In addition, emergency regulations may make direct allocations among user groups, if strong justification and the administrative record demonstrate that, absent emergency regulations, substantial harm will occur to one or more segments of the fishing industry. Controversial actions with serious economic effects, except under extraordinary circumstances, should be done through normal notice-and-comment rulemaking.

The preparation or approval of management actions under the emergency provisions of section 305(c) of the Magnuson-Stevens Act should be limited to extremely urgent, special circumstances where substantial harm to or disruption of the resource, fishery, or community would be caused in the time it would take to follow standard rulemaking procedures. An emergency action may not be based on administrative inaction to solve a long-recognized problem. In order to approve an emergency rule, the Secretary must have an administrative record justifying emergency regulatory action and demonstrating its compliance with the national standards. In addition, the preamble to the emergency rule should indicate what measures could be taken

or what alternative measures will be considered to effect a permanent solution to the problem addressed by the emergency rule.

The process of implementing emergency regulations limits substantially the public participation in rulemaking that Congress intended under the Magnuson-Stevens Act and the Administrative Procedure Act. The Councils and the Secretary must, whenever possible, afford the full scope of public participation in rulemaking. In addition, an emergency rule may delay the review of non-emergency rules, because the emergency rule takes precedence. Clearly, an emergency action should not be a routine event.

Guidelines

NMFS provides the following guidelines for the Councils to use in determining whether an emergency exists:

Emergency Criteria

For the purpose of section 305(c) of the Magnuson-Stevens Act, the phrase ''an emergency exists involving any fishery'' is defined as a situation that:

(1) Results from recent, unforeseen events or recently discovered circumstances; and

(2) Presents serious conservation or management problems in the fishery; and

(3) Can be addressed through emergency regulations for which the immediate benefits outweigh the value of advance notice, public comment, and deliberative consideration of the impacts on participants to the same extent as would be expected under the normal rulemaking process.

Emergency Justification

If the time it would take to complete notice-and-comment rulemaking would result in substantial damage or loss to a living marine resource, habitat, fishery, industry participants or communities, or substantial adverse effect to the public health, emergency action might be justified under one or more of the following situations:

(1) Ecological—(A) to prevent overfishing as defined in an FMP, or as defined by the Secretary in the absence of an FMP, or (B) to prevent other serious damage to the fishery resource or habitat; or

(2) Economic—to prevent significant direct economic loss or to preserve a significant economic opportunity that otherwise might be foregone; or

(3) Social—to prevent significant community impacts or conflict between user groups; or

(4) Public health—to prevent significant adverse effects to health of participants in a fishery or to the consumers of seafood products.

Dated: August 14, 1997.

Gary C. Matlock,

Acting Assistant Administrator for Fisheries, National Marine Fisheries Service.

[FR Doc. 97–22094 Filed 8–20–97; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 285

[Docket No. 970702161–7197–02; I.D. 041097C]

RIN 0648–AJ93

Atlantic Highly Migratory Species Fisheries; Import Restrictions

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

ACTION: Final rule.

SUMMARY: NMFS amends the regulations governing the Atlantic highly migratory species fisheries to prohibit importation of Atlantic bluefin tuna (ABT) and its products in any form harvested by vessels of Panama, Honduras, and Belize. The amendments are necessary to implement International Commission for the Conservation of Atlantic Tunas (ICCAT) recommendations designed to help achieve the conservation and management objectives for ABT fisheries.

DATES: Effective August 20, 1997. Restrictions on Honduras and Belize are applicable August 20, 1997; restrictions on Panama are applicable January 1, 1998.

ADDRESSES: Copies of the supporting documentation are available from Rebecca Lent, Chief, Highly Migratory Species Management Division, Office of Sustainable Fisheries (F/SF1), NMFS, 1315 East-West Highway, Silver Spring, MD 20910–3282.

FOR FURTHER INFORMATION CONTACT: Chris Rogers or Jill Stevenson, 301–713–2347.

SUPPLEMENTARY INFORMATION: The Atlantic tuna fisheries are managed under the authority of the Atlantic Tunas Convention Act (ATCA). Section 971d(c)(1) of the ATCA authorizes the Secretary of Commerce (Secretary) to issue regulations as may be necessary to carry out the recommendations of the ICCAT. The authority to issue regulations has been delegated from the Secretary to the Assistant Administrator for Fisheries, NOAA (AA).

Background information about the need to implement trade restrictions and the related ICCAT recommendation was provided in the preamble to the proposed rule (62 FR 38246, July 17, 1997) and is not repeated here. These regulatory changes will further NMFS' management objectives for the Atlantic tuna fisheries.

Proposed Import Restrictions

In order to conserve and manage North Atlantic bluefin tuna, ICCAT adopted two recommendations at its 1996 meeting requiring its Contracting Parties to take the appropriate measures to prohibit the import of ABT and its products in any form from Belize, Honduras, and Panama. The first recommendation was that its Contracting Parties take appropriate steps to prohibit the import of ABT and its products in any form harvested by vessels of Belize and Honduras as soon as possible following the entry into force of the ICCAT recommendation. Accordingly, the prohibition with respect to these countries is effective August 20, 1997. The second recommendation was that the Contracting Parties take appropriate steps to prohibit such imports harvested by vessels of Panama effective January 1, 1998. This would allow Panama an opportunity to present documentary evidence to ICCAT, at its 1997 meeting or before, that Panama has brought its fishing practices for ABT into consistency with ICCAT conservation and management measures. Accordingly, the prohibition with respect to Panama will become effective January 1, 1998.

Under current regulations, all ABT shipments imported into the United States are required to be accompanied by a Bluefin Statistical Document (BSD). Under this final rule, United States Customs officials, using the BSD, will deny entry into the customs territory of the United States of shipments of ABT harvested by vessels of Panama, Honduras, and Belize and exported after the effective dates of the trade restrictions. Entry will not be denied for any shipment in transit prior to the effective date of trade restrictions.

Upon determination by ICCAT that Panama, Honduras, and/or Belize has brought its fishing practices into consistency with ICCAT conservation and management measures, NMFS will publish a final rule in the **Federal Register** that will remove import restrictions for the relevant party. In

PACIFIC SALMON TREATY
MEETING SUMMARY

The Pacific Salmon Commission's 2007-08 meeting cycle marked the conclusion of the renegotiation process for the chum and coho agreements. Chinook negotiations are on-going and are being conducted at the Commission level. The discussions are scheduled to conclude by June to allow sufficient time for administrative review and adoption for implementation in 2009.

Both the new coho and chum agreements are best described as refinements to the recent management approach utilized for the respective species. For coho, only administrative amendments were made regarding this agreement. It was concluded that the coho agreement was performing well and focus should be directed at completing the outstanding technical tasks. Relative to the chum agreement, greater specificity was included on the harvest limits that would be implemented by the U.S. in response to critical status of the Fraser River chum. In addition, the overage/underage policy was clarified and now a stepped approach based on stock status.

The primary focus of the 2008 renegotiations was on Chinook and the majority of the discussions this meeting cycle were spent on addressing chinook issues. The outstanding issue remains the appropriate harvest levels given the stock conservation issues both Parties have raised. It remains encouraging that both Parties are proposing reductions in response to conservation concerns. The U.S. position remains that the Chinook regime should be adjusted as necessary to ensure that the total exploitation rates on natural stocks and the resulting escapement are consistent with the goals and objectives of the stocks impacted. Finding the balance that achieves this objective to the satisfaction of both Parties is the challenge that the Commissioners continue to struggle with.

Finally, relative to the annual preseason planning discussion with the Canadian Department of Fisheries and Oceans, the 2008 Manager-to-Manager meeting is for March 25. The intent is to exchange preseason expectations of stock status and anticipated fishery structure which can be readily incorporated into model inputs. It is anticipated that the Canadian stock status and fishery structure will be similar to last year. Thompson coho remains in critical status and conservation concerns still exist regarding the lower Georgia Strait and WCVI chinook stocks. Conservation concerns regarding these stocks will shape the 2008 Canadian fisheries.

The co-managers will confer with the Salmon Technical Team regarding the information that is received at the meeting with Canadian representatives. It is anticipated that any new information obtained on the Canadian fishing levels and structure will be incorporated into our domestic pre-season planning efforts as appropriate.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

FEB 26 2008

Mr. Donald K. Hansen, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

Dear Mr. Hansen,

The Pacific Coast Salmon Fishery Management Plan (Salmon FMP) requires that the Pacific Fishery Management Council (Council) manage their fisheries consistent with consultation standards developed by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) regarding actions necessary to protect species listed under the Endangered Species Act (ESA). This letter summarizes NOAA Fisheries' consultation standards and provides guidance regarding the effects of the 2008 season on listed species. Because of the circumstances this year, this letter also provides comments on the status of unlisted Sacramento River fall Chinook and Klamath River fall Chinook and the related effects on fisheries.

CHINOOK SALMON

Sacramento River Fall Chinook

The conservation objective for Sacramento River fall Chinook requires an escapement of 122,000-180,000 spawners to hatcheries and natural areas. The 2007 escapement of approximately 90,400 spawners represented the first time in fifteen years the conservation objective was not met. Preliminary indications based on returns of age-2 fish in 2007 are that the 2008 projected abundance will be much lower than the ocean abundance observed last year. Furthermore, Sacramento River fall Chinook are the primary stock contributing to ocean fisheries off California and Oregon with little else present except Klamath River Chinook and ESA listed stocks that are all depressed and have constrained fisheries in recent years. Available information suggests that impacts to Sacramento River fall Chinook in North of Falcon fisheries are low, but it will be necessary to confirm our understanding of those impacts before any final decisions can be made regarding northern fisheries. These circumstances have already come to the Council's attention and will obviously be key to our preseason planning process. However, rather than presuming some course of action based on preliminary information, it is appropriate to await further information that will be developed through the Council process over the next few weeks.

Klamath River Fall Chinook

The conservation objective for Klamath River fall Chinook (KRFC) requires a long-term average escapement of 33-34% of potential adult natural spawners, but no fewer than 35,000 naturally spawning adults in any one year. Amendment 15 to the Salmon FMP would allow limited harvest of KRFC in ocean salmon fisheries during years that might otherwise be closed due to a projected shortfall in meeting the 35,000 natural spawner conservation objective. The final rule to implement Amendment 15 was published on February 25, 2008. However, preliminary ocean salmon abundance forecasts for 2008 indicate that KRFC will not likely be the limiting factor in crafting 2008 ocean salmon seasons. Still, it is worth noting that the record low return of age-2 KRFC in 2007 indicates that the age-3 year class for 2008 is very weak, and while the stock will be buoyed by a strong age-4 year class in 2008, a very weak age-4 year class should be expected in 2009.

California Coastal Chinook Salmon

California Coastal (CC) Chinook salmon are listed as threatened under the ESA. The 2000 biological opinion on CC Chinook identified KRFC as the best available indicator stock for estimating and limiting ocean harvest impacts on CC Chinook populations. That biological opinion required that the projected age-4 ocean harvest rate for KRFC not exceed 17.0%. In 2002, the Salmon Technical Team (STT) adopted new procedures for calculating the age-4 harvest rate on KRFC. Consistent with the revised definition of age-4 harvest rate, management measures developed under the Salmon FMP must achieve a *projected* age-4 ocean harvest rate on KRFC no greater than 16.0%.

In 2004 the projected age-4 ocean harvest rate on KRFC was substantially less than its postseason estimate, derived from cohort reconstruction. As a result, NOAA Fisheries reinitiated consultation prior to the 2005 season to consider whether modifications to the Reasonable and Prudent Alternative (RPA) of the 2000 opinion were necessary (McInnis 2005). The consultation reinitiated in 2005 did not result in a change of the 2005 preseason maximum allowable harvest rate of 16.0% established to protect CC Chinook. Instead, it acknowledged the under-predictions were likely due to either chronic changes in the distribution and/or vulnerability of KRFC or an unusual event consistent with the inter-annual variability of these estimates and determined an additional year of data was necessary to identify the cause. The STT reviewed the performance of the KOHM from 2003-2005 prior to the 2006 season. The STT evaluation identified the primary source for the under-prediction of the age-4 ocean harvest rate for those years and adjusted the model to more accurately reflect the recent observed patterns in the postseason estimates for that time period (PFMC 2006). The intent of the model modifications was to improve the accuracy of the KOHM with respect to harvest rate prediction; it was not to introduce bias within the KOHM for the purpose of providing some greater probability that target harvest rates are not exceeded, and therefore was consistent with the intended objectives of the 2000 biological opinion.

The KOHM modifications made in 2006 to reflect more recent trends produced an accurate forecast of the age-4 ocean harvest rate for the 2006 fishery (projection 11%, postseason 11%), but for the 2007 fishery the forecast was exceeded (projection 16%, postseason 21%). Again, the biological opinion limits the *projected* rate to no greater than 16% with an expectation that the projection is unbiased, that is, with the expectation that the probability is 0.5 that the forecast will be exceeded. Thus, NOAA Fisheries does not believe the 2007 result warrants reinitiation

of consultation at this time, but will be monitoring this situation annually for any developing trends. The KRFC age-4 ocean harvest rate in 2008 will be forecast using a KOHM which the STT believes most accurately predicts this rate for the 2008 season.

Finally, as alluded to previously, CC Chinook could face abnormally high fishing pressure if there is an attempt to allow fisheries in limited areas off northern California and southern Oregon in order to minimize impacts to Sacramento River fall Chinook.

Sacramento River Winter Chinook Salmon

In 2004, NOAA Fisheries Service issued a biological assessment and biological opinion, in which it proposed to promulgate fishery management measures for the ocean salmon fisheries off Washington, Oregon and California commencing annually on May 1, 2004 and ending April 30, 2010, which include the following conservation objectives for Sacramento River Winter Chinook:

> Recreational Seasons South of Point Arena, CA: The recreational season between Point Arena and Pigeon Point shall open no earlier than the first Saturday in April and close no later than the second Sunday in November; the recreational season between Pigeon Point and the U.S.-Mexico Border shall open no earlier than the first Saturday in April and close no later than the first Sunday in October. The minimum size limit shall be at least 20 inches total length.
>
> Commercial Seasons South of Point Arena, CA: Commercial seasons between Point Arena and the U.S.-Mexico border shall open no earlier than May 1 and close no later than September 30, with the exception of an October season conducted Monday through Friday between Point Reyes and Point San Pedro, which shall end no later than October 15. The minimum size limit shall be at least 26 inches total length.

These measures, which NOAA Fisheries believes will avoid jeopardizing the continued existence of winter Chinook, are in addition to measures specified by the FMP or required by NOAA Fisheries' biological opinions for other listed salmon stocks. Since 1998, the California Department of Fish and Game and the Council have recommended certain terminal gear restrictions, including the use of circle hooks while mooching in the recreational fishery between Horse Mountain and Point Conception, CA, which are designed to reduce hook and release mortality. Those restrictions should continue.

Central Valley Spring Chinook Salmon

The Central Valley spring Chinook Evolutionarily Significant Unit (ESU) was first listed as threatened in 1999. NOAA Fisheries Service's April 18, 2000, biological opinion on the effects of ocean harvest on Central Valley spring Chinook and California Coastal Chinook, concluded that ocean salmon fisheries, as regulated under the Salmon FMP and NOAA Fisheries Service consultation standards for Sacramento River winter-run Chinook, were not likely to jeopardize the continued existence of Central Valley spring Chinook. After the consultation was completed, the abundance of Central Valley spring Chinook increased significantly with the combined spawning escapement to Deer, Mill, and Butte creeks from 2001 to 2005 averaging 19,500 fish. The number of spring Chinook spawners has since tapered off with combined escapements to those same creeks in 2006 and 2007 of approximately 10,700 and 9,000, respectively. Although

these escapements are lower than those observed in the previous five year period, they are still higher than escapements generally observed prior to 1998. The trend is also coincident with a much broader salmon decline observed in California and Oregon, which makes a basin-specific cause appear unlikely at this point. Therefore, although NOAA Fisheries intends to monitor this stock closely in the near future with the aim of avoiding any continued decline, we have determined that no further actions are required to supplement those specified in the 2000 biological opinion.

Lower Columbia River Chinook Salmon

The Lower Columbia River (LCR) Chinook ESU is comprised of a spring component, a far north-migrating bright component, and a component of north-migrating tules. The bright and tule stocks have fall run timing. The four extant spring stocks within the ESU include those on the Cowlitz, Kalama, and Lewis rivers on the Washington side, and the Sandy River on the Oregon side. The historic habitat for the spring Chinook stocks on the Washington side is now largely inaccessible due to impassable dams. The remaining spring stocks are therefore dependent, for the time being, on the associated hatchery production programs. The Lower Columbia Salmon Recovery Plan (LCSRP)[1] specifies actions to be taken to facilitate recovery of spring Chinook populations. The Cowlitz and Lewis hatcheries are being used, for example, for reintroduction of spring Chinook into the upper basin areas above existing dams. A supplementation program is being developed for the Kalama population. Spring Chinook on the Sandy River are also managed with an integrated hatchery supplementation program. Maintaining the hatchery brood stock is therefore essential for implementation of specified recovery actions. The hatcheries have met their escapement objectives in recent years, and are expected to do so again in 2008, thus ensuring that what remains of the genetic legacy is preserved and can be used to advance recovery. NOAA Fisheries expects that the management agencies will continue to manage inriver fisheries to meet hatchery escapement goals, but no additional management constraints in Council fisheries are considered necessary.

Two extant natural-origin bright populations have been identified in the LCR Chinook ESU. The North Lewis River stock is used as a harvest indicator for ocean and in-river fisheries. The escapement goal used for management purposes for the North Lewis River population is 5,700, based on estimates of maximum sustained yield. The escapement was below goal in 2007 and is expected to be below goal again in 2008. Escapements have otherwise exceeded the goal by a wide margin in every year but two since 1980. The escapement shortfall in 2007, and projected shortfall in 2008, is consistent with a pattern of low escapements for other far north migrating stocks in the region and can likely be attributed to poor ocean conditions. Given the long history of healthy returns, and other management constraints that will be in place this year, NOAA Fisheries does not anticipate the need to take specific management actions in the ocean to protect the bright component of the LCR Chinook ESU in 2008. NOAA Fisheries does expect that the

[1]This plan was developed by Washington's Lower Columbia Fish Recovery Board. In February 2006, NMFS approved the plan as an Interim Regional Recovery Plan. Such a plan is intended to lead to an ESA recovery plan but is not yet complete, in this case because it addresses only a portion of the Lower Columbia River ESUs. NMFS endorses use of the plan until a final plan covering the full ESUs is complete. Work is underway to complete a plan for the remaining portions of the Lower Columbia ESUs and a final ESA plan is expected by the end of 2008. For additional information, see http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Willamette-Lower-Columbia/Interim-Recovery.cfm

states of Washington and Oregon will continue to monitor the status of the LCR bright populations and take appropriate actions through their usual authorities to maintain the health of these populations.

The 2004 Lower Columbia River Salmon Recovery Plan identified twenty one separate populations within the tule component of this ESU. Unlike the spring populations or the bright component of the ESU, LCR tule populations are caught in large numbers in Council fisheries, as well as fisheries to the north and in the Columbia River. Beginning in 1999 when LCR Chinook were first listed, the Coweeman population was used as the indicator stock for managing the tule component of the LCR Chinook ESU. From 2002 to 2006 Council fisheries were managed subject to a total exploitation rate on Coweeman fall Chinook from all fisheries of 49%. The 49% standard was based on a calculation of a Rebuilding Exploitation Rate (RER) for the Coweeman population.

Following the 2006 Council process, NOAA Fisheries convened a work group to review the 49% standard. The work group reviewed information available for the Coweeman population and developed similar information for the East Fork Lewis and Grays River populations. The work group focused on these populations because each was designated as a priority population that was essential for recovery, subject to relatively little hatchery influence, and because of the availability of the data necessary for the analysis. The work group considered available information for other populations as well, including the 2004 Recovery Plan, which showed that the status of the Grays River population was at the same or higher level than sixteen of the tule populations (only the Clatskanie, Coweeman, EF Lewis and Clackamas showed a higher status). However, the information for other populations was considered but generally found it insufficient for more detailed analysis.

NOAA Fisheries used results from the first phase of the work group analysis as the basis for its guidance in 2007. Based on calculations of RERs for the three populations, and other information, NOAA Fisheries guidance for 2007 was that Council fisheries be managed subject to a total exploitation rate limit for all fisheries of 42%.

The work group provided a report in October 2007 that summarized information that was available for development of the 2007 Guidance, and further results from their subsequent work. The SSC's Salmon Subcommittee reviewed the report and provided some preliminary comments. The work group has since completed further analysis that is now summarized in an Addendum to the October Report. The Addendum was provided to the Council in early February and will be the subject of further review and comment by the full SSC at the March 2008 Council meeting. The more recent work considered several sources of uncertainty that had been noted in earlier comments to the work group. The work group also developed a composite harvest indicator stock based on a broader set of coded wire tag groups. The goal was to develop an indicator stock that represented the distribution of all tule populations rather than just the Coweeman population, and was more consistent with the composite indicator used in the FRAM model.

Results from the October 2007 report and more recent Addendum indicate that an exploitation rate of 42% is within the range of values derived for the Coweeman and East Fork Lewis populations considered adequately protective using different analytical approaches and a range

of model assumptions. Results for the Grays River population were more pessimistic. With very low or even no harvest, the analysis suggested that the population would continued to be at risk. Estimates for the RER for the Grays population, for example, range from 0% to 20%, with a subset of the preferred models suggesting a range of 0% to 8%. Although no RERs have been calculated for the other populations, it is likely that the Grays River is more representative of at least a subset of other populations in the ESU than the Coweeman or East Fork Lewis populations.

NOAA Fisheries articulated, in its 2007 Guidance letter, increased focus on integrating its harvest rate analysis with other efforts to rebuild and recover tule populations. Recall that last year, with regard to hatchery production, NOAA Fisheries highlighted a choice in the Guidance letter framed by the results of the Hatchery Scientific Review Group (HSRG) report that emphasized the need to reduce the effect of hatchery-origin fish on natural-spawning populations. The two general options for addressing the problem were to either substantially reduce or eliminate existing hatchery programs, or to reprogram existing production to reduce straying, increase the ability of fisheries to differentially harvest hatchery fish, and install a system of weirs in key locations that can be used to manage the interactions between hatchery and natural-origin fish. In either case, it remains clear that hatchery programs and the fisheries they support must change significantly over the next several years.

In response, the states have considered the HSRG recommendations, the LCSRP and other information in order to develop a comprehensive and integrated hatchery and harvest reform program. A framework of that reform plan was provided to NOAA Fisheries in January and includes:

- mass marking hatchery produced tule Chinook to allow for brood stock management, assessment and control of hatchery strays, and implementation of mark selective fisheries;
- developing a system of weirs and hatchery intake improvements to manage returning fish;
- reducing some programs and transferring hatchery releases between programs to maximize production and minimize the adverse effects of hatchery strays on priority populations, and
- developing techniques to enable commercial scale mark selective fisheries.

NOAA Fisheries appreciates the scale and complexity of the reforms proposed by the states and commends them for their undertaking.

To be effective the program obviously must be implemented. The states propose that changes be phased in over time. Much of the program is currently unfunded and there will be complexities related to the design, permitting, and construction of each project. However, NOAA Fisheries is aware that substantive and essential steps already have been taken to implement elements of the program. For example, mass marking of the hatchery production is in place and will continue as required by federal legislation. Construction of the Elochoman weir is complete, and design and permitting work on other facilities is funded and underway. NOAA Fisheries will continue to monitor progress related to the program and support the states' effort to ensure it is implemented.

Notwithstanding the progress on hatchery reform to benefit the breadth of tule populations, current circumstances for the Grays River remain problematic. Analysis of existing data by the work group indicates that the population is small and that productivity is low, although the population has increased in recent years from its low during the decade of the 90s. The HSRG analysis highlighted the need to improve the productivity of the Grays and other populations (as did the LCFRP) in addition to anticipated harvest and hatchery reforms. The analysis also assumed that further harvest reductions would be required until goals for productivity improvements and other elements of the program were achieved. The analysis assumed that these harvest reductions would occur as selective fisheries were implemented.

Just as NOAA Fisheries is keenly interested in steady implementation of hatchery reform for purposes of developing this Guidance, so too is it important to assess in greater detail remedial actions that have been and will be taken to improve productivity of the Grays River and other populations. NOAA Fisheries notes that WDFW, in its recent letter to the Lower Columbia Fish Recovery Board, also highlighted the importance of focusing efforts to improve productivity in the Grays River as part of a comprehensive tule recovery initiative.

Several actions have already been taken to address problems on the Grays River. First, the Chinook hatchery program on the Grays was closed with last releases in 1997 and last returns in 2000 or 2001. The HSRG analysis is based on the assumption that productivity will improve if hatchery interactions with natural-origin fish are reduced or eliminated. Second, the states' program calls for construction of a weir on the lower Grays to further reduce the effects of out of basin hatchery strays, and also assist with associated objectives for coho. The design and permitting phase of the weir project is funded and scheduled for completion in 2008 with construction scheduled for 2009. Third, a suite of habitat improvement projects has been implemented on the Grays with additional projects planned. These are described in more detail in the attachment to this letter. Finally, as mentioned above, WDFW has highlighted the particular importance of the Grays and indicated its intention to work with the LCFRB to direct additional funding to habitat improvement projects in the Grays River. NOAA Fisheries considers these efforts in their entirety to be meaningful, well coordinated, and consistent with its previously approved LCFRP.

Based on work done to date and the considerations described above, NOAA Fisheries offers the following guidance. The 2008 Council fisheries should be managed such that the total aggregate exploitation rate in all fisheries on LCR Chinook tule populations, represented by the Coweeman, East Fork Lewis, and Grays rivers, does not exceed 41%. This change is consistent with the theme of ongoing transition in management. The reduction in exploitation rate is a further step intended to address the needs of the ESU and the weaker populations in the ESU that are represented by the Grays River in particular. NOAA Fisheries will continue its review of harvest and seek to implement changes that are consistent with the evolving information, the expected evolution of the hatchery programs, and the long term goal of recovery articulated in the Lower Columbia Salmon Recovery Plan. NOAA Fisheries expects that further reductions in the harvest on naturally-spawning fish may be required. While we continue to take the actions necessary to insure recovery of the naturally-spawning populations of LCR Chinook, the efforts being taken by the states to allow a mark-selective fishery suggests that it may be possible to secure this recovery while maintaining opportunity for ocean and in-river harvest of hatchery-origin fish from this ESU.

Upper Columbia River Spring Chinook Salmon
Upper Willamette River Chinook Salmon
Snake River Spring/Summer Chinook Salmon
Spring stocks from the Upper Columbia River and Upper Willamette River Basins and spring/summer stocks from the Snake River are rarely caught in Council fisheries. Management actions designed to limit catch from these ESUs beyond what will be provided by harvest constraints for other stocks are therefore not considered necessary.

Snake River Fall Chinook Salmon
NOAA Fisheries Service's guidance with respect to Snake River fall Chinook is unchanged from that of the last several years. NOAA Fisheries Service requires that the Southeast Alaskan, Canadian, and Council fisheries, in combination, achieve a 30.0% reduction in the age-3 and age-4 adult equivalent total exploitation rate relative to the 1988-1993 base period. The Council fisheries therefore must be managed to ensure that the 30.0% base period reduction criterion for the aggregate of all ocean fisheries is achieved.

Puget Sound Chinook Salmon
In March, 2005, NOAA Fisheries Service approved fishing activities conducted in accordance with the harvest component of the Comprehensive Management Plan for Puget Sound Chinook, a Resource Management Plan (RMP) submitted by the Washington Department of Fish and Wildlife and the Puget Sound Treaty tribes under Limit 6 of the ESA 4(d) rule. The terms of the RMP have also been incorporated into the Puget Sound Salmon Recovery Plan adopted by NOAA Fisheries on January 19, 2007. The take limit for fisheries implemented under the terms of the RMP apply to the 2005-2009 fishing years (May 1, 2005 through April 30, 2010). The RMP management approach consists of a two tiered harvest regime (normal and minimum), depending on stock status. The harvest objectives in the RMP are a mixture of total and southern U.S. exploitation rates (termed in the RMP - Rebuilding Exploitation Rates[2] or RERs) and escapement goals. Under conditions of normal abundance, the RERs and escapement goals, listed on the left of Table 1, apply. However, when a particular management unit is 1) not expected to meet its low abundance threshold, or, 2) if the total exploitation rate is projected to exceed its RER under a proposed set of fisheries, the co-managers will constrain their fisheries such that either the RER is not exceeded, or the Critical Exploitation Rate Ceiling (CERC)[3], listed on the right of Table 1, is not exceeded.

Procedurally, the Council and associated North of Falcon processes provide the appropriate forums for doing the necessary management planning. Under the current management structure, Council fisheries are included as part of the suite of fisheries that comprise the fishing regime negotiated each year by the co-managers under U.S. v. Washington to meet management

[2] These are not to be confused with the Rebuilding Exploitation Rates used by NOAA Fisheries Service to assess proposed harvest actions under the ESA since they are derived by different methodologies and used for different purposes. The RERs in Table 1 are those developed by the co-managers in the RMP approved by NOAA Fisheries Service and therefore fisheries conducted consistent with these RERs are not subject to an ESA prohibition on take of listed Puget Sound Chinook.

[3] The ceiling rate used by the co-managers may be below the CERC shown on the right side of Table 1 if the 2003 fisheries modeled with 2005 abundances results in rates less than the CERC.

objectives for Puget Sound and Washington Coastal salmon stocks. The comprehensive nature of the management objectives and the management planning structure strongly connect Council and Puget Sound fisheries. Therefore, in adopting its regulations, the Council must determine that its fisheries, when combined with the suite of other fisheries impacting this ESU, meet the management targets set for stocks within this ESU.

Having established the connection between Council and Puget Sound fisheries, it is also appropriate to acknowledge that impacts on Puget Sound Chinook stocks in Council fisheries are generally quite low. Exploitation rates on Puget Sound spring Chinook and fall Chinook stock aggregates have been less than one percent and four percent on average, respectively, in recent years. Management actions taken to meet exploitation rate targets will therefore occur primarily in the Puget Sound fisheries, but since impacts in all fisheries must be considered, ocean fisheries are potentially subject to constraint to ensure impacts are consistent with the limits defined by the RMP.

NOAA Fisheries Service recognizes that there is also a sequence to the planning process for Puget Sound Chinook: the March Council meeting, the North of Falcon process, and the subsequent April Council meeting where final recommendations for oceans seasons are made. Therefore, the final option adopted at the April Council meeting must, when combined with Puget Sound fisheries negotiated during the North of Falcon process, meet the escapement goals and exploitation rates for each Puget Sound Chinook management unit included in Table 1, after applying the appropriate regime to the status of each management unit anticipated in 2008.

Table 1. Guidance on ESA listed Puget Sound Chinook for the 2008Council ocean salmon fisheries.

Management Unit/Population	Normal Abundance Regime			Minimum Fishing Regime		
	Rebuilding Exploitation Rate		Escapement Goal[1]	Low Abundance Threshold	Critical Exploitation Rate	
	Total	Southern US (PT=Preterminal)			So. US	Preterminal So. US
Nooksack spring NF Nooksack SF Nooksack	Minimum fishing regime applies			1,000[3] 1,000[3]	7.0%/9.0%[2]	
Skagit Summer/Fall Upper Skagit Lower Skagit Lower Sauk	50.0%			4,800 2,200 900 400	15.0%	
Skagit Spring Suiattle Upper Sauk Cascade	38.0%			576 170 130 170	18.0%	
Stillaguamish NF Stillaguamish SF Stillaguamish	25.0%			650[3] 500[3]	15.0%	
Snohomish Skykomish Snoqualmie	21.0%			2,800 1,745 521	15.0%	
Lake Washington[4]		15.0% PT		200[3]		12.0%
Green		15.0% PT	5,800	1,800		12.0%
White River	20.0%			200	15.0%	
Puyallup[5]	50.0%			500		12.0%
Nisqually			1,100	1,100		
Skokomish		15.0% PT	1,200 natural[6] 1,000 hatchery	800 natural[7] 500 hatchery		12.0%
Mid-Hood Canal		15.0% PT		400		12.0%
Dungeness		10.0%		500	6.0%	
Elwha		10.0%		1,000	6.0%	

[1] When escapement is expected to be less than the goal, the co-managers will take additional management measures with the objective of meeting or exceeding the goal.
[2] Expected Southern US rate will not exceed 7.0% in 4 out of 5 years and 9.0% in 1 out of 5 years.
[3] Threshold expressed as natural-origin spawners.
[4] Cedar River.
[5] South Prairie Creek Index.
[6] The aggregate escapement goal is 3,650 hatchery and natural spawners. However, anticipated hatchery or natural escapements below these spawner abundances trigger specific additional management actions.
[7] The aggregate low abundance threshold is 1,300 hatchery and natural spawners. However, anticipated hatchery or natural escapements below these spawner abundances trigger specific additional management actions.

COHO SALMON

Oregon Coast Coho Salmon

The ESA listing status of Oregon Coast (OC) coho has changed over the years. On February 11, 2008 NOAA Fisheries again listed OC coho as threatened under the ESA (73 FR 7816 February 11, 2008). Regardless of their listing status, the Council has managed OC coho consistent with the terms of Amendment 13 of the Salmon FMP as modified by the expert advice of the 2000 ad hoc Work Group. NOAA Fisheries approved the management provisions for OC coho through its section 7 consultation on Amendment 13 in 1999, and has since supported use of the related expert advice. For the 2008 season, the applicable spawner status is in the "high" category, but the marine survival index is in the "critical" category. Under this circumstance, the Work Group report requires that the exploitation rate be limited to no more than 8%.

Lower Columbia River Coho

Lower Columbia River coho are caught, for the most part, in fisheries off the Washington and Oregon coast, and in the Columbia River in the area below Bonneville Dam. Lower Columbia River coho were listed as threatened under the ESA on June 25, 2005. NOAA Fisheries conducted section 7 consultations regarding the effects of Council fisheries and fisheries in the Columbia River in 2006 and 2007. This year NOAA Fisheries' guidance will apply for 2008 and for the foreseeable future. However, we anticipated that we will reconsider our guidance for future years once some of the current uncertainties discussed below are resolved.

The states of Oregon and Washington have focused on use of a harvest matrix for LCR coho developed by Oregon following their listing under Oregon's State ESA. Under the matrix the allowable harvest in a given year depends on indicators of marine survival and brood year escapement. The matrix has both ocean and inriver components which can be combined to define a total exploitation rate limit for all ocean and inriver fisheries. Generally speaking, NOAA Fisheries supports use of management planning tools that allows harvest to vary depending on the year-specific circumstances. Conceptually, we think Oregon's approach is a good one. However, for the last two years, NOAA Fisheries has taken a more conservative approach for LCR coho because of unresolved issues related to application of the matrix. NOAA Fisheries has relied on the matrix, but limited the total harvest impact rate to that allowed for ocean fisheries. Given the particular circumstances regarding marine survival and escapement, the allowable exploitation rates in 2006 and 2007 were 15% and 20%, respectively.

The matrix is currently keyed to the status of Clackamas and Sandy populations. However, it remains unclear whether reliance on these two indicators is adequately protective of other populations in the ESU. The state of Oregon is currently engaged in recovery planning for all listed species in the lower Columbia River, and Washington is updating their interim Recovery Plan to address coho. We hope that the necessary planning can be completed this year. Through recovery planning we expect the states will identify recovery objectives for all populations, and identify those populations that will be prioritized for high viability. Once completed, the information can then be used to refine the matrix to ensure that it addresses the needs of priority populations in particular and all populations in general. We also think that it is appropriate to review the information related to seeding capacity that sets the abundance criteria in the matrix for each population. Until these issues are resolved and we can revisit details of the current

matrix, NOAA Fisheries will continue to apply the matrix as we have in the past. NOAA Fisheries will apply the matrix, but limit the total harvest to that allowed for the ocean fisheries.

Guidance to the Council for 2008 depends on the matrix and the particular circumstances for the indicator populations. In 2008 abundance indicators are mixed. The Clackamas and Sandy are in the low and medium status categories, respectively, based on brood year escapement although the Sandy is at the low end of the range. The marine survival index is in the critical category. Given these circumstances the harvest matrix prescribes an ocean impact rate of 0 to 8%, an impact rate for freshwater fisheries of 0 to 4%, and a combined exploitation rate for all fisheries of 0 to 11.7%. The depressed status of LCR coho is indicated by other ancillary information as well. Jack returns to the Clackamas and Sandy were quite low, with no returns to the Sandy. The marine survival index is down from last year as are the predicted returns. There is a three year cycle of related cohorts that return to the Sandy and Clackamas with the return in 2008 being the weakest of the three. Based on the above described circumstances, NOAA Fisheries offers the following guidance. Ocean salmon fisheries under the Council's jurisdiction in 2008, and commercial and recreational salmon fisheries in the mainstem Columbia River, including select area fisheries (e.g., Youngs Bay), should be managed subject to a total exploitation rate limit on LCR coho not to exceed 8%. NOAA Fisheries is currently working on a definitive biological opinion regarding the effects of proposed fisheries on LCR coho, something we expects to complete prior to May 1.

Southern Oregon/Northern California Coastal Coho Salmon
NOAA Fisheries consultation standards for Southern Oregon/Northern California Coastal coho were developed from a supplemental biological opinion dated April 28, 1999. The Rogue/Klamath hatchery stock is used as an indicator of the effects of fisheries on SONCC coho. NOAA Fisheries Service's 1999 biological opinion requires that management measures developed under the Salmon FMP achieve an ocean exploitation rate on Rogue/Klamath hatchery stocks of no more than 13.0%.

Central California Coastal Coho Salmon
Consultation standards for Central California Coastal coho were also developed from the April 28, 1999 biological opinion. Little information on past harvest rates or current hooking mortality incidental to Chinook fisheries exists for CCC coho. Absent more specific information, the 1999 biological opinion on listed coho requires that coho-directed fisheries and coho retention in Chinook-directed fisheries be prohibited off California.

CHUM SALMON

Hood Canal Summer Chum
Chum salmon are not targeted and rarely are caught in Council salmon fisheries. However, the Pacific Coast Salmon FMP requires fisheries to be managed consistent with NOAA Fisheries' ESA standards for listed species, which includes the Hood Canal summer-run chum salmon ESU. The Summer Chum Salmon Conservation Initiative (PNPTC and WDFW 2000), approved by NOAA Fisheries under Limit 6 of the ESA 4(d) Rule describes the harvest actions that must be taken to protect listed Hood Canal summer-run chum salmon both in Washington fisheries managed under the jurisdiction of the PFMC and Puget Sound fisheries managed by the state and tribal fishery managers.

Under the terms of the Conservation Initiative, chum salmon must be released in non-treaty sport and troll fisheries in Washington catch Area 4 from August 1 through September 30. The Conservation Initiative does not require release of chum salmon in tribal fisheries in catch Area 4 during the same period, but does recommend that release provisions be implemented. As in previous years, tribal managers will discuss implementation of these provisions during the North of Falcon planning process.

SOCKEYE SALMON

Snake River Sockeye Salmon
Ozette Lake Sockeye Salmon

Sockeye salmon are rarely are caught in Council salmon fisheries. In previous biological opinions, NOAA Fisheries determined that PFMC fisheries were not likely to adversely affect Ozette Lake sockeye salmon. Therefore, management constraints in ocean fisheries for the protection of listed sockeye salmon are not considered necessary.

STEELHEAD

NOAA Fisheries Service has listed one Distinct Population Segment (DPS) of steelhead as endangered and ten DPSs as threatened in Washington, Oregon, Idaho, and California. The listing of the Puget Sound steelhead DPS as threatened became effective on June 11, 2007. All ten previously listed DPSs have been considered in biological opinions on the effects of PFMC fisheries. The effects on the Puget Sound steelhead DPS of PFMC fisheries will be considered for the first time this year. On February 7, 2007 NOAA Fisheries proposed for public comment to apply ESA take prohibitions to unmarked steelhead with an intact adipose fin that are part of the Puget Sound steelhead DPS. Unmarked hatchery fish that are surplus to the recovery needs of this DPS and that are otherwise distinguishable from naturally spawned fish in the DPS may also not be subject to take prohibitions under conditions described in the proposed rule. This approach provides an effective means to manage the artificial propagation and directed take of threatened Puget Sound steelhead while providing for the species' conservation and recovery.

Steelhead are rarely caught in ocean fisheries and retention of steelhead in non-treaty tribal fisheries is currently prohibited. This requirement is consistent with the take prohibitions as proposed. Based on the currently available information, NOAA Fisheries believes ocean fishery management actions beyond those already in place that seek to shape fisheries to minimize impacts to steelhead are not considered necessary. The Council and states should continue to prohibit the retention of steelhead with intact adipose fins in ocean non-treaty tribal fisheries to minimize the effect of whatever catch may occur.

We appreciate that this will be a difficult year. We are committed to working with the Council to address the harvest issues.

Sincerely,

D. Robert Lohn
Northwest Regional Administrator

Rodney R. McInnis
Southwest Regional Administrator

Attachment

Grays Subbasin Restoration Activities

References

McInnis, R.R. 2005. Memorandum to the Record re Endangered Species Action Section 7 Consultation on the Effects of Ocean Salmon Fisheries on California Coastal Chinook. June 13, 2005. 14 p.

Attachment

Grays Subbasin Habitat Restoration Activities
1998 to Present

The Grays River is one of the major subbasins in the Washington portion of the Lower Columbia region. The subbasin historically supported thousands of fall Chinook, winter steelhead, chum, and coho salmon. Today, numbers of naturally spawning salmon and steelhead are far below historical numbers. Freshwater and estuary habitat quality has been reduced by agricultural and forestry practices. Key habitats have been isolated or eliminated by channel modifications and by diking, filling, and draining of floodplains and wetlands. Altered habitat conditions have increased predation. Competition and interbreeding with domesticated or nonlocal hatchery fish has reduced productivity.

The Grays is particularly important to regional recovery of salmon and steelhead because it is one of two major basins in the coastal portion of the ESU. All Grays River salmon and steelhead will need to be restored to a high level of viability to meet regional recovery objectives.

Major habitat restoration actions undertaken or funded in the Grays subbasin include:

1. **Comprehensive assessment and restoration planning:**
   - Grays River Watershed and Biological Assessment (Pacific Northwest National Laboratory [PNNL] in cooperation with Washington Department of Fish and Wildlife [WDFW] and Pacific States Marine Fisheries Commission [PSMFC]). Completed in 2006, this Bonneville Power Administration (BPA)-funded project evaluated hydrologic, geomorphic, and sediment transport as well as chum and fall Chinook spawning habitat. For copies of the assessment report, see http://www.efw.bpa.gov/Publications/H00000652-38.pdf

   - Gorley Reach Restoration Project (Columbia River Estuary Study Taskforce [CREST] in cooperation with PNNL). This BPA-funded project will implement the restoration recommendations identified in the PNNL Grays River Watershed and Biological Assessment. Specifically, CREST will lead efforts to evaluate reach conditions and design and implement projects to restore watershed processes in the reach and improve habitat conditions primarily for chum and fall Chinook. The project is being coordinated with the Lower Grays River Strategic Design Project sponsored by the LCFRB.

   - Lower Grays River Strategic Design Project (Lower Columbia Fish Recovery Board [LCFRB]). Begun in 2007, this project funded by the National Fish and Wildlife Foundation (NFWF) and the Washington Salmon Recovery Funding Board (SRFB) will develop a comprehensive salmon habitat restoration strategy, including conceptual project design, for the Lower Grays River. The project involves participation by federal and state agencies, local governments, landowners, interest groups, and interested community members. While the project will focus on the habitat needs of all Grays River salmonid populations, particular emphasis will be placed on chum and fall Chinook given the level of their current

and historic use of the lower river. The project is being coordinated with the CREST Gorley Reach Restoration Project and is scheduled for completion by December 2008.

- Upper Grays Sediment Reduction Study (LCFRB in cooperation with the Grays River Habitat Enhancement District [GRHED]). This SRFB-funded project will assess the feasibility of reducing the extraordinarily heavy sediment loads in the Grays River Basin. As documented in the Grays River Watershed and Biological Assessment and the Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin plan, these sediment loads have adversely affected salmonid rearing and spawning habitat due to increased channel instability, increased width-to-depth ratios, loss of riparian and off-channel habitat, and loss of habitat complexity and quantity. This project will inform the CREST Gorley Reach Restoration Project and the LCFRB Lower Grays River Strategic Design Project

2. Restoration projects in lower reaches of watershed (e.g., breaching of dikes and land acquisitions):

- Lower Columbia Estuary Grays River Seal Slough
  Seal Slough about 1 mile above confluence with Columbia River in the Grays subbasin. The acquisition objective of this project is to reconnect river delta-estuarine habitat to the Grays and Columbia rivers to provide rearing and over-wintering habitat. The restoration portion of this project restored tidal functions by partial levee breaches and removing selected culverts. It provides fish access to and restoration of 112 acres of estuarine wetlands and 2 miles of river and riparian habitat for Chinook, coho, and chum salmon and steelhead and cutthroat trout.

- Grays River Estuary Phase 2 Devils Elbow
  This project has three elements: Acquire 202 acres of wetlands and associated forest uplands in Grays Bay (Secret River); acquire and restore 200 acres of floodplain in Grays River (Devil's Elbow); and acquire 125 acres of floodplain Grays River (Eden Valley). This project preserved over 500 acres and restored tidal function to 200 acres of Grays River estuary. Almost the entire lower river has been channelized and diked and floodplains and wetlands have been largely disconnected from the river, reducing rearing and estuarine habitat for juveniles within the Grays River, as well as, the entire Columbia River system.

- Lower Columbia Estuary Grays River Phase 4
  This project acquired and restored 260 acres of estuarine wetland, riparian areas, forested uplands and the lower portions of 5 creeks in the lower Columbia River. Restoration includes: removal of 2 tide gates and a pump station, reconnecting 150 acre of estuary with the river, restoring 2 miles of creek habitat, and planting 30 acres of riparian and upland habitats. Acquisition, access, and restored of 260 acres of estuarine and associated habitat for adult and juvenile salmonids. Floodplain habitat is disconnected from the Slough and the lower ends of tributaries, reducing rearing and estuary habitat. Opening smolt rearing habitat and reconnecting floodplain habitat is a priority.

- Columbia Estuary: Grays Bay Phase III
  The project conserves and restores 183 acres of intertidal emergent and forested wetlands and floodplain habitat: provides free flowing access of Seal Slough into the entire project area will be restored; 10 levees have been breached; tidegates removed; historic flood channels excavated; drainage ditches filled; large woody debris introduced; and spruce, cedar and other native species planted. This project complements two other SRFB projects in the lower Grays.

- Crazy Johnson Creek
  The first phase of the Grays River – Crazy Johnson project seeks to permanently protect one of the most significant river reaches for chum spawning in the Columbia River basin. It is part of a multi-phase project located within the middle (or Gorley) reach of the Grays River where project partners are working to conserve and restore salmon habitat and river processes. The project property consists of 326 acres along the Grays River and the Crazy Johnson Creek confluence. It includes approximately 6,000 linear feet of the Grays River and approximately 2,300 linear feet of Crazy Johnson Creek. Both Crazy Johnson and Grays River Reach 2D are tier 1 reaches for the subbasin habitat strategy (LCFRB 2007), with the high reach potential for chum. The property itself is known to support thousands of chum salmon (WDFW 2005). The property is an integral portion of a larger conservation strategy for what is referred to as the Gorley or 'response' reach of the Grays River. This project will permanently protect the 326 acre property, provide for conservation stewardship to protect and enhance habitat quality for critical species, and provide opportunity for reach-wide restoration/enhancement actions.

- Grays River LWD Habitat Complexing
  A minimum of 15 pieces of LWD with root-wads installed in the lower West Fork and on the mainstem below the Gorley reach to cause scour (pool habitat) and to capture additional woody debris and other floating organics (complex cover). The location of the structure on the outside of a bend ensures they will receive adequate flows (energy) necessary to scour sediment and to collect additional organic debris.

- Grays River PUD Bar Project
  The PUD Bar project consists of the rehabilitation of approximately 0.2 mi of the lower Grays River in the vicinity of RM. 11.8. The site is in private ownership. The project's goal is to improve habitat complexity and spawning opportunities for 4 listed species by creating a series of eight (8) riffle/pool sequences where only one pool and 2 - 500 foot long riffles now exist. Because of the river's recent migration (1999 to present) in this reach, riparian vegetation, other than grass and blackberries, has been washed away. This results in un-necessary heating of the water through this reach and loss of all possible over-water cover. Water temperature has been identified as an issue in the Grays River Watershed. This has brought the river under a 305b listing. Contributing factors to the higher temperatures are high width/depth ration, increased sediment load and lack of riparian vegetation, all present in the project site. Improving these habitat conditions for listed species in the Grays River is a priority in the 2007 LCFRB Habitat Strategy.

A lack of in-water LWD was also observed through this site. The additional of large woody debris (LWD) proposed in this project would provide hiding refugia and channel stability. Project objectives include the installation of one rock "W" vane, one large woody debris jam, and 6 stone J-hook vanes. The entire area (5 acres) will be re-vegetated with red cedar, red osier dogwood, willow, Douglas fir and hemlock.

- Grays River Chum Spawning Channel

  This project will install and monitor piezometers, and then analyze gathered data, in identified sites on the Grays River between top of summer tide water influence and the Highway 4 bridge (RM 9.2 to RM 12.0). Sites have been selected in cooperation with the Washington Department of Fish and Wildlife and private landowners. The piezometers will be monitored to track water levels, temperatures and dissolved oxygen levels for a calendar year. Data will be collected every two weeks during that period. Each site will have a substrate sediment analysis. Once collected, the data will be analyzed to prioritize identified sites most likely to be successfully developed as ground water fed off-main stem Chum Salmon spawning channels. The sites, by priority, will then be further surveyed and designed for project construction as funding becomes available. All of the piezometer installation, data collection and sediment sampling will be performed by local volunteers on private property. Data analysis and interpretation will be performed by a consultant working with WDFW fish biologists.

  The reaches where this assessment will occur are Tier 1 reaches where the potential change in population performance for chum with restoration and preservation is considered high in Grays 2 and medium for preservation in Grays 1G tidal. A study is already underway in the Grays River above this area that will identify similar opportunities for chum restoration.

- Nikka Tidegate Replacement

  The project will replace the 30 inch tidegate with a 60 inch tidegate. The options for the tide gate are a top hung with a free flow gate a side opening gate. Either option will need to have the entire gate lowered to ensure low tide connectivity and year round fish passage.

  The gate with a free flow gate would be configured to ensure the smaller gate was located low in the larger gate. This type of gate will ensure passage during slack high, low and all incoming tides. We are estimating passage will be available between 67% and 75% of the time with this configuration. At this time lack of fish reported from Ms Hales investigation (Personal communication 2005) suggests access to be completely blocked curing all flow conditions. At this writing the design of the tidegate is under evaluation by WA Department of Fish and Wildlife. Construction is expected by late 2007.

- Zerr Chum Channel Development
  Landowner has withdrawn support for this project.

  The proposed Zerr channel was based on favorable results from a recent piezometer study indicating good subterranean flow in an ephemeral stream entering Grays River, downstream from the Covered Bridge, from the south. This stream serves as a drainage ditch to convey excess surface water from adjacent fields. The current channel configuration has no exposed mineral material in the bottom and the sides are fully vegetated with reed canary grass.

  This channel was to be developed by excavating a channel into existing gravel substrate from 6 to 8 feet below the existing ground surface. The channel will range from 15 to 20 feet in width, run approximately 2 feet deep (providing redd opportunity for up to 700 spawning pair) and have at least 3 foot flats on each side. WDFW fish biologists recommend the banks of the channel and excavated walls will be armored with angular stone (18 inch□ minus). The WDFW biologists report spawning fish will dig into the gravel banks in pursuit of the groundwater flow. Side channel habitat of this type is currently not available in the lower 13 miles of Grays River.

3. Restoration projects in upper reaches of watershed:

- Alder Creek Fish Passage and Off Channel Rearing
  The Landowner performed the work. Funds for this project were transferred to another project.

  The goal of the Alder Creek fish passage project was to restore access to at least one mile of tributary spawning habitat and restore/enhance access to an existing six acre pond for off-channel rearing use by steelhead, coho and cutthroat trout. Habitat restoration objectives include: restoring access to at least one mile of tributary habitat in Alder creek, creating volitional access to a 6-acre pond for juvenile salmonids. There are two outlets from the pond, one of which connects to Alder Creek and the other that connects to Grays River. Both outlets are in the form of a L-shaped culvert forming a "glory hole" structure that maintains the pond water level but blocks migration into the pond. The project also replaced the culverts with a roughened channel that consists of boulder grade controls filled with gravel to form a natural stream bed.

http://www.efw.bpa.gov/Publications/H00000652-38.pdf

WDFW and Tribal 2008 Management Objectives for Puget Sound Chinook and Coho Salmon

Amendment 14 to the Pacific Coast Salmon Plan recognizes and allows for annual management targets to be established for Puget Sound Chinook and coho salmon pursuant to rules and procedures established under U.S. v. Washington. It further recognized that WDFW and the effected tribes were establishing new objectives for coho salmon based on stepped exploitation rates, which would replace the previously defined management objectives. It also recognized that for Puget Sound Chinook salmon, which are listed as a threatened species under the ESA, additional conservation objectives would be provided by NMFS, WDFW and the Tribes.

As provided for in Amendment 14, WDFW and the effected tribes have established, pursuant to their obligations and authorities under U.S. v. Washington, management objectives for Puget Sound Chinook and coho salmon. The attached tables provide the objectives for use during the 2008 regulation setting process. They are based on a similar approach to the objectives provided to the Council the past several years. The management objectives define the maximum impact levels allowed for 2008 fisheries.

For Puget Sound Chinook salmon the management objectives are part of a six-year harvest plan (2004 through 2009) developed by WDFW and the Puget Sound Tribes. Specific details on interpretation and implementation of the objectives are provided in the plan document. NOAA-Fisheries have made a determination that this plan meets the requirements of the ESA, under limit #6 of the 4(d) rule for the Puget Sound Chinook ESU.

2008 Puget Sound Primary Natural Coho Management Unit Exploitation Rate Ceilings

Management Unit	Preseason Forecast Of Abundance (Ocean Age Three)	Management Status	Allowable Exploitation Rate
Strait of Juan de Fuca	**24,100**	**low**	**40%**
Hood Canal	**30,350**	**low**	**45%**
Skagit	**61,450**	**low**	**35%**
Stillaguamish	31,000	normal	50%
Snohomish	**92,000**	**low**	**40%**

2

Table 3. Rebuilding exploitation rates, low abundance thresholds and critical exploitation rate ceilings for Puget Sound chinook management units.

Management Unit	Rebuilding Exploitation Rate	Low Abundance Threshold	Critical Exploitation Rate Ceiling
Nooksack North Fork South Fork	Under development	 1,000 [1] 1,000 [1]	7% / 9% SUS [3]
Skagit summer / fall Upper Skagit summer Sauk summer Lower Skagit fall	50%	4,800 2,200 400 900	15% SUS even-years 17% SUS odd-years
Skagit spring Upper Sauk Upper Cascade Suiattle	38%	576 130 170 170	18% SUS
Stillaguamish North Fork Summer South Fk & MS Fall	25%	650 [1] 500 [1] N/A	15% SUS
Snohomish Skykomish Snoqualmie	21%	2,800 [1] 521 [1] 1,745 [1]	15% SUS
Lake Washington Cedar River	15% PT SUS	 200 [1]	12% PT SUS
Green	15% PT SUS	1,800	12% PT SUS
White River spring	20%	200	15% SUS
Puyallup fall	50%	500	12% PT SUS
Nisqually	Terminal fishery managed to achieve 1,200 natural spawners		
Skokomish	15% PT SUS	1,300 [2]	12% PT SUS
Mid-Hood Canal	15% PT SUS	400	12% PT SUS
Dungeness	10% SUS	500	6% SUS
Elwha	10% SUS	1,000	6% SUS
Western JDF	10% SUS	500	6% SUS

[1] natural-origin spawners.
[2] The threshold is escapement of 800 natural and/or 500 hatchery (see Appendix A).
[3] Expected SUS rate will not exceed 7% in 4 out of 5 years (see Appendix A)

Agenda Item D.4.d
Supplemental Comments of Hoopa Valley Tribe
March 2008

HOOPA VALLEY TRIBAL COMMENTS ON
Identification of Management Objectives and Preliminary Definition of 2008 Salmon Management Options

My Name is Michael Orcutt and I am the director for the Hoopa Valley Tribe's Fisheries Department.

Hoopa Valley Tribe offers some brief remarks as a point of departure for anticipating season management for 2008 salmon fisheries.

(1) Convergence of an overfishing concern, recent adoption of Amendment 15 to the FMP, and historic management and conservation standards for Klamath fall chinook results in considerable ambiguity relative to 2008 management objectives. We strongly urge that PFMC define clear management objectives for 2008 in terms of either 2/3 brood reduction, clearing the 35,000 natural adult spawner floor, reserving an escapement of 40,700 adult natural spawners, or pursuit of De minimis fisheries or some combination of these approaches.

(2) The conservation objective for Klamath fall chinook contributing to 2008 salmon fisheries must include that no less than 35,000 adult fish escape fisheries to spawn in natural areas.

(3) Allocation to tribal fisheries shall be no less than 50% of the harvestable surplus identified under any option.

(4) Non-tribal fisheries have already harvested an estimated 4,500 adult Klamath fall chinook in late season 2007 "credit card" fisheries. This represents the initial stage for allocation to tribal fisheries in 2008.

Agenda item D.4.d
Supplemental Tribal Recommendations
March 2008

Preliminary Definition of 2008 Management Options
to the Pacific Fishery Management Council
March 11, 2008

- The forecasts for coho on the Washington coast and Puget Sound for both wild and hatchery stocks are less then last year. We believe that these forecasts will allow for some limited harvest this year even while taking into consideration the needs of the Lower Columbia River natural coho, Oregon Natural Coho and Canadian Interior Fraser (Thompson).

- For chinook, the tule hatchery stocks should provide some harvest opportunity in the ocean fisheries. We continue to live up to the commitment that we made in 1988 to the Columbia River Tribes to not increase our impacts on Columbia River chinook stocks of concern. However, additional listed chinook stocks will require continued attention to devise fisheries that meet the ESA requirements for these stocks.

- The tribes continue to have concerns about our ability to appropriately analyze and manage selective fisheries. We encourage the states to continue rigorous monitoring and sampling of these fisheries and to continue communication on this issue with the tribes.

- The Washington Tribes, in cooperation with the Washington Department of Fish and Wildlife, are beginning the process of establishing a package of fisheries that will ensure acceptable levels of harvest of natural stocks of concern. In addition, we have joint Tribal/State agreement on specific 2008 management objectives for Puget Sound and Washington coastal chinook and coho salmon.

I offer the following range of preliminary options for the ocean Treaty troll fishery for compilation and analysis by the Salmon Technical Team with the understanding that this is only the first step towards finalizing options this week that will be adopted by the Council to be sent out for public review.

Treaty Troll Options

	Coho	Chinook
Option I	25,000	40,000
Option II	20,000	35,000
Option III	15,000	20,000

For chinook, Option I to be modeled with 22,500 taken in the May/June chinook directed fishery and 17,500 would be taken in the July/August/ September all-species fishery.

Option II 17,500 taken in the May/June chinook directed fishery and 17,500 in the July/August/ September all-species fishery.

Option III 10,000 taken in the May/June chinook directed fishery and 10,000 in the July/August/ September all-species fishery.

TESTIMONY OF
THE COLUMBIA RIVER TREATY TRIBES
BEFORE PACIFIC FISHERIES MANAGEMENT COUNCIL
MARCH 11, 2008
Sacramento, California

Good afternoon Mr. Chairman and members of the Council. My name is Rapheal Bill. I am a member of the Fish and Wildlife Committee of the Confederated Tribes of the Umatilla Indian Reservation. I am here today to provide Testimony on behalf of the four Columbia River treaty tribes: the Yakama, Warm Springs, Umatilla and Nez Perce tribes.

Salmon are of critical cultural importance to the tribes. Our relationship with the fish goes back to time immemorial. Our tribes depend on salmon to meet our ceremonial and subsistence as well as our economic needs. Our ceremonial and subsistence needs take president over other needs. Our rights to these fish are protected by treaties with the United States.

The *U.S. v. Oregon* parties are finalizing a management plan that will govern management of 2008 in-river fisheries. We anticipate that fall season in-river management will be similar to recent years. This eases the pre-season planning process for the states and tribes since we have agreement over the allocation of in-river fisheries.

The fall Chinook forecasts for most Columbia River stocks are expected to be up from the 2007 returns. The upriver bright forecast has improved but is still below the recent years' average. The Spring Creek Hatchery Tule forecast is up from 2007 and much closer to an average return. The tribes are always concerned about impacts to Spring Creek hatchery tules in ocean fisheries, but recognize that other stocks may limit ocean Chinook fisheries this year. Because Spring Creek tules are typically harvested at high rates in Council area fisheries, the tribes urge the Council to continue to take a precautionary approach to proposing fisheries. Spring Creek hatchery tules are important to allow our tribes to access reasonable numbers of bright Chinook in the tribal fishery.

The forecast for Columbia River coho suggests a relatively poor return.

While the 8 percent exploitation rate limit for Lower Columbia and OCN coho is expected to be the primary limit for coho fisheries, the tribes remind the Council that it is also necessary to pass 50 percent of the upriver coho to the treaty fishing area upstream of Bonneville Dam.

The tribes also share the concerns of the Salmon Technical Team that the forecasts could be optimistic this year. Because our tribes fish in terminal areas, we are concerned about impacts occurring to our fish before they return to the treaty fishing area. We want the ocean and lower river fisheries to be planned and implemented carefully so we do not place all the conservation burden on the tribal fishery.

We expect the states to monitor and include **all** sources of non-Indian fishery mortalities in the ocean and the lower river to **ensure** the passage of coho past Bonneville Dam to assist with rebuilding upriver coho populations and so the tribes will have the opportunity to harvest their share of the coho.

We would like to report that in large part due to tribal restoration programs for Snake River Fall Chinook, over 12,000 Snake River fall Chinook reached Lower Granite Dam in 2007. Only about 2,000 of these fish were natural. But given that the Upriver Bright return to the Hanford Reach was significantly less than forecast, the Snake River return was fairly stable. The tribes believe this is further evidence that the long term supplementation of Snake River fall Chinook is working. This program has been successful in providing benefits to both tribal and non-tribal fishers while providing a buffer to get us through periods of low survival. Some groups have been critical of the concept of using hatcheries to support recovery of natural populations. But the Snake River supplementation program clearly shows that progress toward recovery can be made when hatchery programs are used appropriately.

We are also pleased that the Corps of Engineers and BPA were willing to provide a minimal level of spill to benefit the out migration of Spring Creek hatchery tules this year. We believe that this spill was less than what was needed. More spill would provide additional benefits, but given the reluctance of the Bonneville Power Administration to allow water to go over spillways, we were probably fortunate to get this. Spill for these fish provides

definite benefits to both ocean and in-river fisheries.

The tribes are very concerned about expanding mark selective fisheries. Some groups such as the National Marine Fisheries Service and the Washington Department of Fish and Wildlife are continually pushing for expanding mark selective fisheries when clearly they have shown no benefit to natural origin fish stocks. The federal government is requiring that most federally funded hatchery programs mass mark 100% of their hatchery releases. Most state hatchery programs are also mass marking 100% of their fish. Most hatchery coho have been mass marked since the mid 1990's. The only coho populations to make fairly steady increases are the mid and upper Columbia populations which are heavily supplemented with unmarked hatchery fish. Most other coho populations are static or declining. And the Lower Columbia Coho ESU was listed as threatened after the large scale implementation of mark selective coho fisheries. Clearly mass marking coho and implementing mark selective coho fishing has done nothing for wild coho populations. This year's coho forecast is a good case in point that selective fisheries are not doing anything to assist in the recovery of coho populations.

Since nearly all federally funded hatchery Chinook are mass marked, there ever increasing pressure for Chinook selective fisheries. The Pacific Salmon Commission has previously reported on the many problems that Chinook selective fisheries cause for the coast wide Coded Wire Tag Program. The tribes' experience with Chinook selective fisheries has shown that mark selective fisheries has caused problems with the allocation of in-river catches. And mark selective Chinook fisheries have shown absolutely no benefit to natural stocks. Yet every year there is more and more pressure for increased mark selective fisheries. With the anticipated difficulties ahead in planning 2008 ocean fisheries, many people will hope that selective fisheries will solve their problems. This is a false hope. The tribes believe that mark selective fisheries are absolutely the wrong way to work towards recovering salmon stocks and providing healthy fisheries for everyone.

Additionally, the tribes wish to remind the Council that the Federal government has the legal obligation under federal law **to restrict other**

activities that impact listed species **before** restricting the Columbia River treaty Indian fishery any further. This must be done to **comply** with the conservation principles established in *United States versus Oregon*. **Until everyone**, Indian and non-Indian, can resume fishing at their full potential, we can not forget the work that we have to do **together** to recover all salmon and steelhead runs for our future generations.

As the Council considers various fishery options over the next month, it should consider the following management principles.

Harvest rates must account for **all** sources of mortalities including mortalities in groundfish fisheries along with non-harvest mortality. The harvest rates be sustainable and support rebuilding of weak and depressed stocks.

Non-tribal river and ocean fisheries **must** allow sufficient escapement so the tribes can harvest their fair share of the harvestable fish. The allocation between tribal and non-tribal fisheries must include mortalities from all sources, not just fishery mortalities.

Habitat needs continued protection. This includes upstream and tributary habitat as well in the estuaries. The tribes also firmly believe that hatcheries can be used appropriately for stock supplementation in ways that support populations until the root causes of fish declines can be addressed. Habitat restoration as well as appropriate hatchery supplementation must be a part of the long term solution.

This concludes my statement. Thank You.

SALMON ADVISORY SUBPANEL

PROPOSED
INITIAL SALMON MANAGEMENT OPTIONS
FOR 2008 NON-INDIAN OCEAN FISHERIES

March 11, 2008

TABLE 1. Commercial troll management options adopted by the Council for non-Indian ocean salmon fisheries, 2008. (Page 1 of 9) 3/11/2008 2:50 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 45,000 Chinook and 35,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 22,500 Chinook and 5,600 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 35,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 17,500 Chinook and 4,000 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 25,000 Chinook and 15,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 12,500 Chinook and 2,400 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.
U.S./Canada Border to Cape Falcon • May 1 through earlier of June 30 or 15,000 Chinook quota. Thursday through Monday. May 1-5 and 8-12 landing and possession limit of 60 Chinook per vessel for each open period north of Leadbetter Point and 40 Chinook south of Leadbetter Point; beginning May 15, a landing and possession limit of 60 Chinook per vessel for each open period north of Leadbetter Point and 30 Chinook south of Leadbetter Point (C.1). All salmon except coho (C.7). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3).	**U.S./Canada Border to Cape Falcon** • May 1 through earlier of June 30 or 11,667 Chinook quota. Thursday through Monday with a landing and possession limit of 40 Chinook per vessel for each open period north of Leadbetter Point and 40 Chinook south of Leadbetter Point (C.1). All salmon except coho (C.7). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3).	**U.S./Canada Border to Leadbetter Point** • May 1 through earlier of June 30 or 7,083 Chinook quota. Thursday through Monday with a landing and possession limit of 30 Chinook per vessel for each open period (C.1). All salmon except coho (C.7). Cape Flattery and Mandatory Yelloweye Rockfish Conservation Area Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3). **Leadbetter Point to Cape Falcon** • May 1 through earlier of June 30 or 1,875 Chinook quota. Thursday through Monday with a landing and possession limit of 30 Chinook per vessel for each open period. All salmon except coho (C.7). Columbia Control Zone closed (C.5). See gear restrictions and definitions (C.2, C.3).

Oregon State regulations require that fishers south of Cape Falcon, OR intending to fish within this area notify Oregon Department of Fish and Wildlife before transiting the Cape Falcon, OR line (45º46'00" N. lat.) at the following number: 541-867-0300 Ext. 271. Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon must notify ODFW within one hour of delivery or prior to transport away from the port of landing by calling 541-867-0300 Ext. 271. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8).

TABLE 1. Commercial troll management options adopted by the Council for non-Indian ocean salmon fisheries, 2008. (Page 2 of 9) 3/11/2008 2:50 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
U.S./Canada Border to Cape Falcon • July 1 through earlier of September 16 or 7,500 preseason Chinook guideline (C.8) or a 5,600 marked coho quota (C.8.d). Open July 1-2, then Saturday through Tuesday thereafter. Landing and possession limit of 40 Chinook and 25 coho per vessel per open period north of Leadbetter Point and 20 Chinook and 25 coho south of Leadbetter Point (C.1). All Salmon except no chum retention north of Cape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip, except an inseason conference call may occur to consider allowing retention of all legal sized coho, in the area between Leadbetter Point and Cape Falcon, no earlier than September 1 (C.8.d). Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5).	**U.S./Canada Border to Cape Falcon** • July 1 through earlier of Sept. 16 or 5,833 preseason Chinook guideline (C.8) or a 4,000 marked coho quota. Open July 1-2, then Saturday through Tuesday thereafter. Landing and possession limit of 25 Chinook and 30 coho per vessel per open period July 1-2, Landing and possession limit of 30 Chinook and 30 coho per vessel per open period beginning July 5 (C.1). All Salmon except no chum retention north of C ape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones closed (C.5).	**U.S./Canada Border to Leadbetter Point** • July 4 through the earlier of Sept. 15 or 3,542 preseason Chinook guideline (C.8) or a 2,400 marked coho quota shared with the south of Leadbetter Point fishery. Open Friday through Monday. Landing and possession limit of 30 Chinook and 30 coho per vessel per open period (C.1). All Salmon except no chum retention north of Cape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. All Salmon except no chum retention north of C ape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones closed (C.5). **Leadbetter Point to Cape Falcon** • July 4 through the earlier of Sept. 15 or any remaining Chinook quota from the May-June fishery or (C.8) or a 2,400 marked coho quota shared with the north of Leadbetter Point fishery. Open Friday through Monday. Landing and possession limit of 30 Chinook and 30 coho per vessel per open period (C.1). All Salmon (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.5)..

Oregon State regulations require that fishers south of Cape Falcon, OR intending to fish within this area notify Oregon Department of Fish and Wildlife before transiting the Cape Falcon, OR line (45º46'00" N. lat.) at the following number: 541-867-0300 Ext. 271. Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon must notify ODFW within one hour of delivery or prior to transport away from the port of landing by calling 541-867-0300 Ext. 271. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8)..

TABLE 1. Commercial troll management options adopted by the Council for non-Indian ocean salmon fisheries, 2008. (Page 3 of 9)		3/11/2008 2:50 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Klamath River recreational fishery allocation: ___%. 2. KMZ ocean recreational fishery share: ___%. 3. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 4. Klamath tribal allocation: _____. 5. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	1. Klamath River recreational fishery allocation: ___%. 2. KMZ ocean recreational fishery share: ___%. 3. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 4. Klamath tribal allocation: _____. 5. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	1. Klamath River recreational fishery allocation: ___%. 2. KMZ ocean recreational fishery share: ___%. 3. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 4. Klamath tribal allocation: _____. 5. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.
Cape Falcon to Humbug Mt. • April 14-29; May 1 through June 30; July 11-30; August 4-28; September 10-13; October 1-31. Landing and possession limit of 100 Chinook per vessel per calendar week in April; 150 Chinook per vessel per calendar week in September; 75 Chinook per vessel per calendar week in October (C.9). All salmon except coho (C.7). Chinook 28 inch total length minimum size (B). All vessels fishing in the area must land their fish in the State of Oregon. See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay. In 2009, the season will open March 15 for all salmon except coho. This opening could be modified following Council review at its March 2009 meeting.	**Cape Falcon to Humbug Mt.** • July 1 through August 31. All salmon except coho (C.7). Chinook 28 inch minimum size limit in (B). All vessels fishing in the area must land their fish in the State of Oregon. See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay. In 2009, same as Option I	**Cape Falcon to Humbug Mt.** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples. In 2009, same as Option I

TABLE 1. Commercial troll management options adopted by the Council for non-Indian ocean salmon fisheries, 2008. (Page 4 of 9)		3/11/2008 2:50 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Humbug Mt. to OR/CA Border (Oregon KMZ) • April 10-29; May 1-31; • June 1 through earlier of June 30, or a 1,600 Chinook quota; • July 11 through earlier of July 31, or a 1,600 Chinook quota; • Aug. 1 through earlier of Aug. 29, or a 1,800 Chinook quota; • Sept. 6 through earlier of Sept. 30, or a 1,000 Chinook quota; (C.9) All salmon except coho. Chinook 28 inch total length minimum size limit (B). Landing and possession limit of 100 Chinook per vessel per calendar week in April; 30 Chinook per vessel per day and 90 Chinook per vessel per calendar week during June, July, August, and September. See gear restrictions and definitions (C.2, C.3). Prior to June 1, all vessels fishing in the area must land their fish in the State of Oregon. June 1 through September 30, vessels must land their fish in Gold Beach, Port Orford, or Brookings, Oregon, and within 24 hours of closure. State regulations require fishers intending to transport and deliver their catch to other locations after first landing in one of these ports notify ODFW prior to transport away from the port of landing by calling 541-867-0300 Ext. 271, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery.	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • June 1 through earlier of June 30, or a 800 Chinook quota; • July 11 through earlier of July 31, or a 800 Chinook quota; • Aug. 1 through earlier of Aug. 29, or a 900 Chinook quota; • Sept. 6 through earlier of Sept. 30, or a 500 Chinook quota; (C.9) All salmon except coho. Chinook 27 inch total length minimum size limit April through August; 28 inches in September (B). Landing and possession limit of 100 Chinook per vessel per calendar week in April; 30 Chinook per vessel per day and 90 Chinook per vessel per calendar week during June, July, August, and September. See gear restrictions and definitions (C.2, C.3). June 1 through September 30, vessels must land their fish in Gold Beach, Port Orford, or Brookings, Oregon, and within 24 hours of closure. State regulations require fishers intending to transport and deliver their catch to other locations after first landing in one of these ports notify ODFW prior to transport away from the port of landing by calling 541-867-0300 Ext. 271, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery.	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples.
In 2009, the season will open March 15 for all salmon except coho, with a 28 inch Chinook minimum size limit. This opening could be modified following Council review at its March 2009 meeting.	In 2009, same as Option I	In 2009, same as Option I

TABLE 1. Commercial troll management options adopted by the Council for non-Indian ocean salmon fisheries, 2008. (Page 5 of 9)		3/11/2008 2:50 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
OR/CA Border to Humboldt South Jetty (California KMZ) Closed	**OR/CA Border to Humboldt South Jetty (California KMZ)** Closed.	**OR/CA Border to Humboldt South Jetty (California KMZ)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples.
Humboldt South Jetty to Horse Mt. Closed.	**Humboldt South Jetty to Horse Mt.** Closed.	**Humboldt South Jetty to Horse Mt.** Closed.
Horse Mt. to Point Arena (Fort Bragg) • August 1-29; September 1-30 (C.9) All salmon except coho. Chinook minimum size limit of 27 inches total length in April and September; 28 inches total length in August (B). All fish must be offloaded within 24 hours of any closure (C1). See gear restrictions and definitions (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** Closed.	**Horse Mt. to Point Arena (Fort Bragg)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples.

TABLE 1. Commercial troll management options adopted by the Council for non-Indian ocean salmon fisheries, 2008. (Page 6 of 9)		3/11/2008 2:50 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Pt. Arena to Pigeon Pt. (San Francisco) • August 1-31; Sept. 1-39 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length in September; 28 inches total length in August (B). All fish must be offloaded within 24 hours of the any closure (C.1). See gear restrictions and definitions (C.2, C.3). **Pt. Reyes to Pt. San Pedro (Late Fall Area Target Zone)** • October 1-14. Open Monday through Friday. All salmon except coho (C.1). Chinook minimum size limit of 27 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Pt. Arena to Pigeon Pt. (San Francisco)** Closed.	• Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples. **Pt. Reyes to Pt. San Pedro (Late Fall Area Target Zone)** Same as Option I.
Pigeon Pt. to Pt. Sur (Monterey) • August 1-31; Sept. 1-39 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length ~~in September; 28 inches total length in August~~ (B). All fish must be offloaded within 24 hours of the any closure (C.1). See gear restrictions and definitions (C.2, C.3).	**Pigeon Pt. to Pt. Sur (Monterey)** Closed.	**Pigeon Pt. to Pt. Sur (Monterey)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples.
Pt. Sur to U.S./Mexico Border (Morro Bay) • August 1-31; Sept. 1-39 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length ~~in September; 28 inches total length in August~~ (B). See gear restrictions and definitions (C.2, C.3).	**Pt. Sur to U.S./Mexico Border (Morro Bay)** Closed.	**Pt. Sur to U.S./Mexico Border (Morro Bay)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples.

TABLE 2. Recreational management options recommended by the SAS for non-Indian ocean salmon fisheries, 2008. (Page 1 of 8) 3/11/2008 2:52 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 45,000 Chinook and 35,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 22,500 Chinook and 29,400 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. No Area 4B add-on fishery. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 5,500 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 35,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 17,500 Chinook and 21,000 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. Area 4B add-on fishery of 3,000 marked coho. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 5,500 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 25,000 Chinook and 15,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 12,500 Chinook and 12,600 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. Area 4B add-on fishery of 6,000 marked coho. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 5,500 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.
U.S./Canada Border to Cape Falcon • May 25 through earlier of June 15 or a subarea guideline of 4,500 Chinook (C.5). Seven days per week except Sunday through Thursday in the Westport sub area. All salmon except coho, one fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Falcon** • May 25 through earlier of June 7 or a subarea guideline of 3,500 Chinook (C.5). Seven days per week. All salmon except coho, one fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5). .	
U.S./Canada Border to Cape Alava (Neah Bay) • July 1 through earlier of September 13 or 3,056 marked coho subarea quota with a subarea guideline of 1,900 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay)** • July 1 through earlier of September 13 or 1,630 marked coho subarea quota with a subarea guideline of 1,900 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.d) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay)** • July 8 through earlier of September 13 or _____ marked coho subarea quota with a subarea guideline of 1,350 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

TABLE 2. **Recreational** management options recommended by the SAS for non-Indian ocean salmon fisheries, 2008. (Page 2 of 8) 3/11/2008 2:52 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
Cape Alava to Queets River (La Push Subarea) • ·July 1 through earlier of September 13 or 764 marked coho subarea quota with a subarea guideline of 800 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Cape Alava to Queets River (La Push Subarea)** • ·July 1 through earlier of September 13 or 580 marked coho subarea quota with a subarea guideline of 900 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Cape Alava to Queets River (La Push Subarea)** • ·July 8 through earlier of September 13 or ___ marked coho subarea quota with a subarea guideline of 650 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).
Queets River to Leadbetter Point (Westport Subarea) • June 29 through earlier of September 13 or 10,880 marked coho subarea quota with a subarea guideline of 10,450 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • June 15 through earlier of September 13 or 8,290 marked coho subarea quota with a subarea guideline of 10,100 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • May 25 through earlier of September 13 or _____ marked coho subarea quota with a subarea guideline of 7,200 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).
Leadbetter Point to Cape Falcon (Columbia River Subarea) • June 29 through earlier of September 30 or 14,700 marked coho subarea quota with a subarea guideline of 4,750 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.c). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • June 29 through earlier of September 30 or 10,500 marked coho subarea quota with a subarea guideline of 4,600 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit) (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.a). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • July 13 through earlier of September 30 or 6,300 marked coho subarea quota with a subarea guideline of 3,300 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit) (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.a). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

TABLE 2. **Recreational** management options recommended by the SAS for non-Indian ocean salmon fisheries, 2008. (Page 3 of 8) 3/11/2008 2:52 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Klamath River recreational fishery allocation: ___%. 2. KMZ ocean recreational fishery share: ___%. 3. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 4. Klamath tribal allocation: _____. 5. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 6. All retained coho must be marked with a healed adipose fin clip (marked).	1. Klamath River recreational fishery allocation: ___%. 2. KMZ ocean recreational fishery share: ___%. 3. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 4. Klamath tribal allocation: _____. 5. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 6. All retained coho must be marked with a healed adipose fin clip (marked).	1. Klamath River recreational fishery allocation: ___%. 2. KMZ ocean recreational fishery share: ___%. 3. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 4. Klamath tribal allocation: _____. 5. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 6. All retained coho must be marked with a healed adipose fin clip (marked).
Cape Falcon to Humbug Mt. • May 1 through June 15; September 1-30 (C.6). Seven days per week. All salmon except coho; two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Cape Falcon to Humbug Mt.** • May 1 through June 15; September 1-30 (C.6). Seven days per week. All salmon except coho; one fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Cape Falcon to Humbug Mt.** • May 1 through June 15; September 1-30 (C.6). Seven days per week. All salmon except coho; one fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).
Cape Falcon to OR/CA Border • June 22 through earlier of August 31 or a landed catch of 10,000 marked coho. Seven days per week. All salmon, two fish per day (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).	**Cape Falcon to OR/CA Border** • June 22 through earlier of August 31 or a landed catch of 10,000 marked coho. Thursday through Saturday. All salmon, two fish per day (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).	**Cape Falcon to OR/CA Border** • June 22 through earlier of August 31 or a landed catch of 7,500 marked coho, except the area south of Humbug Mt. will close July 7 through August 24 concurrent with the KMZ season listed below. Sunday through Wednesday. All salmon, two fish per day (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).

TABLE 2. **Recreational** management options recommended by the SAS for non-Indian ocean salmon fisheries, 2008. (Page 4 of 8) 3/11/2008 2:52 PM

A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Humbug Mt. to OR/CA Border. (Oregon KMZ) • Except as provided above during the selective fishery, the season will be May 24 through September 1 (C.6). Seven days per week. Two fish per day, no more than six fish in seven consecutive days (C.1). All salmon except coho, except as noted above in the coho mark selective fishery Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Humbug Mt. to OR/CA Border. (Oregon KMZ)** • Except as provided above during the selective fishery, the season will be May 24 through September 1 (C.6). Wednesday through Saturday. Two fish per day, no more than four fish per four-day open period (C.1). All salmon except coho, except as noted above in the coho mark selective fishery Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Humbug Mt. to OR/CA Border. (Oregon KMZ)** • Except as provided above during the selective fishery, the season will be May 24 through July 6 and August 25 through September 1 (C.6). Seven days per week. Two fish per day (C.1). All salmon except coho, except as noted above in the coho mark selective fishery Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).
OR/CA Border to Horse Mt. (California KMZ) • May 24 through September 1 (C.6). Seven days per week. Two fish per day, no more than six fish in seven consecutive days (C.1). All salmon except coho, Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Klamath, and Eel rivers.	**OR/CA Border to Horse Mt. (California KMZ)** • May 24 through September 1 (C.6). Wednesday through Saturday. Two fish per day, no more than four fish per four-day open period (C.1). All salmon except coho, Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Klamath, and Eel rivers.	**OR/CA Border to Horse Mt. (California KMZ)** • May 24 through July 6 and August 25 through September 1 (C.6). Seven days per week. Two fish per day (C.1). All salmon except coho, Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Klamath, and Eel rivers.
Horse Mt. to Point Arena (Fort Bragg) • February 16 through November 9 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, season opens February 14 (nearest Saturday to February 15) for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** • February 16 through August 9 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option 1.	**Horse Mt. to Point Arena (Fort Bragg)** • February 16 through July 12 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option I
Point Arena to Pigeon Point (San Francisco) • April 5 through November 9 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, the season will open April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2007 (C.2, C.3).	**Point Arena to Pigeon Point (San Francisco)** • April 5 through September 21 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option I	**Point Arena to Pigeon Point (San Francisco)** • May 24 through September 1 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option I

TABLE 2. **Recreational** management options recommended by the SAS for non-Indian ocean salmon fisheries, 2008. (Page 5 of 8)		3/11/2008 2:52 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Pigeon Point to U.S./Mexico Border (Monterey South) • April 5 through October 5 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, the season will open April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2007 (C.2, C.3).	**Pigeon Point to U.S./Mexico Border (Monterey)** • April 5 through August 2 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option I	**Pigeon Point to U.S./Mexico Border (Monterey)** • April 5 through June 8 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option I

Agenda Item D.4.f
Supplemental SSC Statement
March 2008

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON IDENTIFICATION OF MANAGEMENT OBJECTIVES AND PRELIMINARY DEFINITION OF 2008 SALMON MANAGEMENT OPTIONS

Dr. Michael Ford presented the original and addendum to *Analyses to support a review of an ESA jeopardy consultation on fisheries impacting Lower Columbia River tule Chinook salmon*. The original document had been reviewed by the SSC salmon subcommittee (SSCSS) in October, 2007; however that document was not provided to the full Scientific and Statistical Committee (SSC) for review before the November 2007 meeting. Upon review, the SSC reiterates the points made in the November SSC(SS) statement. The SSC also requests better documentation of the method used to impute missing age data.

The addendum provides some additional analyses, the most pertinent for management consideration being new recovery exploitation rate (RER) estimates based on alternative treatment of age data and estimates of historical exploitation rates based on a new composite set of hatchery indicator stocks using coded-wire tags (CWT) recoveries. These further investigations have not changed the general conclusions from the original report. However, a number of further analyses are needed, many of which are planned or in progress. The “to do” list includes recommendations from the November SSC statement.

PFMC
3/11/08

Agenda Item D.4.g
Public Comment
March 2008

Subject: Salmon isssues
From: Jan Z <blackorp@hotmail.com>
Date: Tue, 05 Feb 2008 02:48:58 +0000
To: Chuck.Tracy@noaa.gov

Dear Mr. Tracy,

As a recreational angler and former commercial fisherman, I would like to go on record with NOAA about the condition of the salmon and the necessary actions needed to help preserve the remaining stocks here on the west coast.

Provided the scientific evidence is dependable in regards to the overall condition of the west coast salmon population being in such terrible condition I am in favor of a 100% shutdown of all fishing for salmon until the biomass has recovered.

I realize that this is not a popular position to take in regards to fishing but I feel that if we do not take strong action now and stop fishing there will no longer be salmon in our rivers.

We need to stop fishing and start rebuilding, we need to put forth a massive effort to rebuild the habitat that have been lost, concentrate on hatchery production, and ensure that the water is there for the fish (I cite the water problems in California's Delta area as an example).

If proper action is not taken and political pressures are given in to you will be able to place the salmon right there next to the Atlantic Cod and Atlantic Blue fin tuna as they(We) have justified the continued harvest untill there almost isn't a thing left to harvest.

Jan Zeiters
McKinleyville Ca.
707-840-0730

Subject: Salmon season 08
From: Tracy Benetti <tracybenetti@yahoo.com>
Date: Tue, 05 Feb 2008 11:47:02 -0800 (PST)
To: Chuck.Tracy@noaa.gov

Dear Representative,

Please, do not close the 2008 Salmon season to
recreational anglers in the Monterey Bay.

Change the limits from 2 fish to 1 and the size from
20" to 24".

The only reason I live in this over priced / over
crowded State is to Salmon fish.

Just let me get out on the water and fish.

Thank you.
Tracy Benetti

To: Dr. Donald O. McIsaac
Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384

Subject: MBSTP/EFP Proposal
Re: Recreational Catch of Hatchery Sea Pen Acclimated King Salmon
Date: May 23, 2007

Applicants:

Monterey Bay Salmon & Trout Project
Contact: Lawrence Wolf, Director
243 Ranchitos Del Sol, Aptos, CA 95003
(831) 688-4257

Bayside Marine
Contact: Todd Fraser
333-B Lake Ave.
Santa Cruz, CA 95062
(831) 475-2173

Purpose and goal of the experiment: The purpose of this project is to determine if a localized salmon fishery can be opened inside state waters in Monterey Bay in October without impacting Sacramento Winter Run salmon...

History: Since 1991, The Monterey Bay Salmon & Trout Project has been acclimating hatchery raised king salmon from the State hatcheries in harbors located in the Monterey Bay. This includes Monterey Harbor, Moss Landing Harbor and the Santa Cruz Harbor. This acclimation implants the local harbors as the returning point for these hatchery king salmon looking for fresh water to spawn in. By using this acclimation method we have increased the local fall run king salmon population in this area available to harvest by both recreational fishing and by local commercial fishermen. Because these fish do not return to their stream of origin, this leaves more area in the Sacramento River system for returning wild king salmon to spawn without having to compete with returning hatchery salmon for good spawning grounds. Because the smolts are trucked to the release sites directly from the hatcheries, they do not compete for food with wild salmon during the out-migration process.

Estimates from the Fish & Game Pit Tag Program from 1991 through 1997 showed our hatchery sea pen acclimated king salmon, had a harvest rate of over 20%. The remaining one to two percent of our released fish or approximately 4,000 pen acclimated king salmon survive their three or four year cycle at sea and return to the harbor area where they were released. **The problem to be solved** is our local king salmon season closes in September or early October before these fish return in the first two weeks of October. Because the season is already closed, the returning fish are consumed by seals and sea lions in the harbor areas. By opening king salmon season in state waters in the Monterey Bay during October, the general sport fishing public will be able to harvest many of these hatchery acclimated king salmon. This would provide an excellent food source to the general fishing public as well as many fishing opportunities for people fishing from shore or piers and jetties.

Potential Positive Impacts: The harvest of 4,000 additional king salmon each year by the general public. This would open additional recreational fishing opportunities to the land fishing public due to the close proximity to land the returning fish follow. The jetties at Monterey, Moss Landing and Santa Cruz or the piers in Monterey, Santa Cruz and Capitola would also provide additional fishing opportunities for schooling king salmon. With over 2,000 potential fish to be harvested at Santa Cruz harbor and an additional 2,000 fish to be harvested in Moss Landing, a lot of new business to the harbor areas would follow benefiting restaurants, hotels, tackle stores and the harbor districts. This would help alleviate some of the economic hardship befalling many businesses who depend on visiting fishermen for their income including the public harbors.

Potential Negative Impacts: Historically, the salmon season is closed in October inside Monterey Bay in order to protect Sacramento winter Run King Salmon. By limiting our area open to fishing to the area inside state waters we have limited possible Winter Run impacts. Should winter run impacts occur in the study area, in subsequent years the EFP could restrict the open areas to be closer to the actual release sites.

Methods used for the experiment: To use selective recreational fishing gear, hook and line, to access underutilized returning hatchery king salmon for human consumption. The data provided by the harvested DNA samples taken at collection points would provide the data needed to determine if there is any impact of winter run wild king salmon. Fishing would be allowed from boats or the shore during the month of October in State waters only. The area included would be from Pigeon Point to Point Pinos in Monterey. Anglers will donate tissue samples at local harbor areas in return for prizes and awards. Anglers will retain the rights to all fish caught after contributing DNA samples. The EFP would be limited to the general public fishing within State waters. The data collected would be sampled by the National Marine Fishery Service at the Long Marine Lab in Santa Cruz.

Broader Significance: The data collected should prove that a recreational fishery can be conducted on the hatchery salt water acclimated fall run king salmon without impact on the wild winter run king salmon.

Duration of the EFP: One year, followed by two more years(2008-2010). This should show what impact if any on the migrating winter run king salmon that may visit our area. By limiting the area open to fishing we can narrow the areas of any possible conflict.

Description of Target Species: Fall run hatchery king salmon. Zero winter run wild king salmon.

Harvest Control: Anglers will be subjected to slightly modified regulations, requiring them to take the first two Chinook caught, regardless of size: Max of 2 per day. No coho salmon may be taken.

Since we cannot distinguish by looks fall run king salmon and winter run king salmon, only after the DNA samples collected are reviewed, will we be able to determine if any conflict exists. We expect most of the fish caught will be in shallow water near the harbor entrances. This currently leads us to believe these are acclimated king salmon hatchery fish.

To protect the potential over-harvest of Sacramento Winter Run Chinook, the DNA analysis of the fish caught in the EFP will be analyzed in a timely manner by NMFS at the Long Marine Lab in Santa Cruz. NMFS currently has a large data base of Winter Run Chinook Salmon DNA to compare all King Salmon caught during the EFP. NMFS also has the funding to complete this project. If it appears that changing the boundaries will alleviate the Winter Run impacts should they occur, the EFP can be adjusted in future years with new boundaries that are more highly localized..

Proposed Data Collection and Analysis Methodology: This EFP will provide DNA data to existing NMFS data collection and analysis system of fall hatchery run king salmon and wild winter run king salmon. We expect over 200 fish this first year to be turned in for data collection. Bayside Marine in Santa Cruz located in the harbor launch area and Woodard Marine located in Moss Landing harbor area will be local collection points. Other members of The Monterey Bay Salmon & Trout Project will also be on hand for data collection as well as other volunteers from the general public. Currently we are releasing acclimated fish from the Moss Landing harbor and the Santa Cruz harbor.

Participation: The general public will be encouraged to participate. In order to identify those fishermen actually participating in the EFP, they will be required to sign up at one of several registration sites (Bayside Marine, Woodward Marine and other local tackle shops) where they will be issued EFP identification. As a condition of signing up for the EFP, these fishermen will be required to agree to return ALL Chinook salmon caught to

the registration or weigh in site, for collection of DNA sample material, and to submit records of capture location (lat/long). This could be an annual event that would bring the general fishing public to our local harbors to fish from shore and from small boats outside the harbor areas including Kayaks. These salmon are still in excellent shape and a very good food source.

Thank you for your consideration.

Sincerely,

Lawrence Wolf
Director

Agenda Item D.4.g
Supplemental Public Comment
March 2008

Noyo Port District
Noyo Harbor District
19101 S. Harbor Drive
Fort Bragg, CA 95437
707-964-4719 Fax 707-964-4710

November 8, 2007

Fish & Game Commission
Department of Fish and Game
P.O. Box 944209
Sacramento, CA 94244-2090

Re: Ocean Sport Fishing - Fishing Rod Limits

Dear Members:

The Noyo Harbor Commission requests your favorable consideration of our proposed modification to the existing fishing rod limits.

This request was initially made in year 2000. Now due to an even better understanding of the significance of "Global Warming", we are requesting that you consider permitting each boating fisherman the use of two fishing rods per person, except on charter boats. The justification is obvious, the less time spent on the ocean, the less energy used and, in turn, the less impact on global warming. Attached is a copy of information forwarded to us by Don Ballanti, Certified Consulting Meteorologist. The data is provided by the California Environmental Protection Agency, more specifically, it's "Emission Inventory Procedure Manual".

We had requested this change earlier, however, your staff said that due to the possibility of a fisherman needing one fish and accidentally catching two it could endanger the life of the second fish. At that point we reminded the staff of their earlier argument of just how safe barbless hooks are when required to release fish. To justify barbless hooks, the staff indicated the chance of hurting fish when released was minimal.

In any event, since that time your regulation has changed and it now permits a boat of two or more to continue fishing until the boat has reached its limit. See Fish & Game Regulation, Section 1.95(e). For example, if you have two fishermen fishing for salmon and one fish is needed for their limit and they both catch a fish, one has to be released. This change in regulation now counters the staff's earlier argument. Further, to carry this to the extreme, your regulation applies to charter boats as well. Another example; if a charter boat has 35 passengers and they have caught 69 salmon and need one more for it's limit, according to your regulation the 34 people that have their limits could still fish, along with the individual that needs one fish, and in theory 35 additional fish could be caught and 34 would have to be released.

Since sport boats versus party boats make up about 95-97% of the fishermen it seems to be a reasonable and logical request with minimal impact on the fishery, yet significant improvement to the environment. In addition, it is consistent with the second rod permit that you have now approved for many inland fishing areas.

Another thought would be to charge $10.00 for the second rod. Assuming there are 500,000 ocean sports fishermen and 50% purchased a second rod permit, the agency would recognize an annual revenue of $2,500,000.00 for no additional work or impact on the fishery.

Your favorable consideration will be appreciated. Should you have any questions, please contact me at the above letterhead address or I can be reached at 707-961-1952.

Sincerely,

James K. Burns, Commissioner
Noyo Harbor Commission

CC: Pacific Fishery Management Council

COUNCIL RECOMMENDATIONS FOR 2008 MANAGEMENT OPTION ANALYSIS

The Salmon Technical Team (STT) will present the Council with coordinated coastwide management options which embody, to the extent possible, the management elements identified by the Council under Agenda Item D.4 on Tuesday, March 11, 2008. At this time, the Council may need to clarify STT questions and should assure the options presented are those for which the Council desires full STT analysis and consideration for final adoption on Friday.

Council Task:

1. **Clarify STT questions.**
2. **Confirm management options for STT analysis.**

Reference Materials:

1. Agenda Item D.5.b, Supplemental STT Report: Collation of Preliminary Salmon Management Options for 2008 Ocean Fisheries.

Agenda Order:

a.	Agenda Item Overview	Chuck Tracy
b.	Report of the STT	Allen Grover
c.	Reports and Comments of Advisory Bodies	
d.	Public Comment	
e.	Council Direction to the STT and Salmon Advisory Subpanel on Options Development and Analysis	

PFMC
02/12/08

Agenda Item D.5.b
Supplemental STT Report
March 2008

SALMON TECHNICAL TEAM

COLLATION OF PRELIMINARY SALMON MANAGEMENT OPTIONS FOR 2008 OCEAN FISHERIES

March 12, 2008

TABLE 1. Commercial troll management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 1 of 9) 3/12/2008 1:34 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 45,000 Chinook and 35,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 22,500 Chinook and 5,600 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 35,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 17,500 Chinook and 4,000 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 25,000 Chinook and 15,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 12,500 Chinook and 2,400 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.
U.S./Canada Border to Cape Falcon • May 1 through earlier of June 30 or 15,000 Chinook quota. Thursday through Monday. May 1-5 and 8-12 landing and possession limit of 60 Chinook per vessel for each open period north of Leadbetter Point and 40 Chinook south of Leadbetter Point; beginning May 15, a landing and possession limit of 60 Chinook per vessel for each open period north of Leadbetter Point and 30 Chinook south of Leadbetter Point (C.1). All salmon except coho (C.7). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3).	**U.S./Canada Border to Cape Falcon** • May 1 through earlier of June 30 or 11,667 Chinook quota. Thursday through Monday with a landing and possession limit of 40 Chinook per vessel for each open period north of Leadbetter Point and 40 Chinook south of Leadbetter Point (C.1). All salmon except coho (C.7). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3).	**U.S./Canada Border to Leadbetter Point** • May 1 through earlier of June 30 or 7,083 Chinook quota. Friday through Monday with a landing and possession limit of 30 Chinook per vessel for each open period (C.1). All salmon except coho (C.7). Cape Flattery and Mandatory Yelloweye Rockfish Conservation Area Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3). **Leadbetter Point to Cape Falcon** • May 1 through earlier of June 30 or 1,875 Chinook quota. Friday through Monday with a landing and possession limit of 30 Chinook per vessel for each open period. All salmon except coho (C.7). Columbia Control Zone closed (C.5). See gear restrictions and definitions (C.2, C.3).

Oregon State regulations require that fishers south of Cape Falcon, OR intending to fish within this area notify Oregon Department of Fish and Wildlife before transiting the Cape Falcon, OR line (45º46'00" N. lat.) at the following number: 541-867-0300 Ext. 271. Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon must notify ODFW within one hour of delivery or prior to transport away from the port of landing by calling 541-867-0300 Ext. 271. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8).

TABLE 1. Commercial troll management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 2 of 9) 3/12/2008 1:34 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
U.S./Canada Border to Cape Falcon • July 1 through earlier of September 16 or 7,500 preseason Chinook guideline (C.8) or a 5,600 marked coho quota (C.8.d). Open July 1-2, then Saturday through Tuesday thereafter. Landing and possession limit of 40 Chinook and 25 coho per vessel per open period north of Leadbetter Point and 20 Chinook and 25 coho south of Leadbetter Point (C.1). All Salmon except no chum retention north of Cape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip, except an inseason conference call may occur to consider allowing retention of all legal sized coho, in the area between Leadbetter Point and Cape Falcon, no earlier than September 1 (C.8.d). Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5).	**U.S./Canada Border to Cape Falcon** • July 1 through earlier of Sept. 16 or 5,833 preseason Chinook guideline (C.8) or a 4,000 marked coho quota. Open July 1-2, then Saturday through Tuesday thereafter. Landing and possession limit of 25 Chinook and 30 coho per vessel per open period July 1-2,\; Landing and possession limit of 30 Chinook and 30 coho per vessel per open period beginning July 5 (C.1). All Salmon except no chum retention north of C ape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones closed (C.5).	**U.S./Canada Border to Leadbetter Point** • July 4 through the earlier of Sept. 15 or 3,542 preseason Chinook guideline (C.8) or a 2,400 marked coho quota shared with the south of Leadbetter Point fishery. Open Friday through Monday. Landing and possession limit of 30 Chinook and 30 coho per vessel per open period (C.1). All Salmon except no chum retention north of Cape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones closed (C.5). **Leadbetter Point to Cape Falcon** • July 4 through the earlier of Sept. 15 or any remaining Chinook quota from the May-June fishery or (C.8) or a 2,400 marked coho quota shared with the north of Leadbetter Point fishery. Open Friday through Monday. Landing and possession limit of 30 Chinook and 30 coho per vessel per open period (C.1). All Salmon (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.5)..

Oregon State regulations require that fishers south of Cape Falcon, OR intending to fish within this area notify Oregon Department of Fish and Wildlife before transiting the Cape Falcon, OR line (45º46'00" N. lat.) at the following number: 541-867-0300 Ext. 271. Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon must notify ODFW within one hour of delivery or prior to transport away from the port of landing by calling 541-867-0300 Ext. 271. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8)..

TABLE 1. Commercial troll management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 3 of 9)		3/12/2008 1:34 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Klamath River recreational fishery allocation: ___%. 2. KMZ ocean recreational fishery share: ___%. 3. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 4. Klamath tribal allocation: _____. 5. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	1. Klamath River recreational fishery allocation: ___%. 2. KMZ ocean recreational fishery share: ___%. 3. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 4. Klamath tribal allocation: _____. 5. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	1. Klamath River recreational fishery allocation: ___%. 2. KMZ ocean recreational fishery share: ___%. 3. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 4. Klamath tribal allocation: _____. 5. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.
Cape Falcon to Humbug Mt. • May 1 through June 30; July 11-30; August 4-28; September 10-13; October 1-31. Landing and possession limit of 150 Chinook per vessel per calendar week in September; 75 Chinook per vessel per calendar week in October (C.9). All salmon except coho (C.7). Chinook 28 inch total length minimum size (B). See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay. In 2009, the season will open March 15 for all salmon except coho. This opening could be modified following Council review at its March 2009 meeting.	**Cape Falcon to Humbug Mt.** • July 1 through August 31. All salmon except coho (C.7). Chinook 28 inch minimum size limit in (B). See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay. In 2009, same as Option I	**Cape Falcon to Humbug Mt.** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples. In 2009, same as Option I

TABLE 1. Commercial troll management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 4 of 9)		3/12/2008 1:34 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Humbug Mt. to OR/CA Border (Oregon KMZ) • May 1-31; • June 1 through earlier of June 30, or a 1,600 Chinook quota; • July 11 through earlier of July 31, or a 1,600 Chinook quota; • Aug. 1 through earlier of Aug. 29, or a 1,800 Chinook quota; • Sept. 6 through earlier of Sept. 30, or a 1,000 Chinook quota; (C.9) All salmon except coho. Chinook 28 inch total length minimum size limit (B). Landing and possession limit of 30 Chinook per vessel per day and 90 Chinook per vessel per calendar week during June, July, August, and September. See gear restrictions and definitions (C.2, C.3). Prior to June 1, all vessels fishing in the area must land their fish in the State of Oregon. June 1 through September 30, vessels must land their fish in Gold Beach, Port Orford, or Brookings, Oregon, and within 24 hours of closure. State regulations require fishers intending to transport and deliver their catch to other locations after first landing in one of these ports notify ODFW prior to transport away from the port of landing by calling 541-867-0300 Ext. 271, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery. In 2009, the season will open March 15 for all salmon except coho, with a 28 inch Chinook minimum size limit. This opening could be modified following Council review at its March 2009 meeting.	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • June 1 through earlier of June 30, or a 800 Chinook quota; • July 11 through earlier of July 31, or a 800 Chinook quota; • Aug. 1 through earlier of Aug. 29, or a 900 Chinook quota; • Sept. 6 through earlier of Sept. 30, or a 500 Chinook quota; (C.9) All salmon except coho. Chinook 27 inch total length minimum size limit June through August; 28 inches in September (B). Landing and possession limit of 30 Chinook per vessel per day and 90 Chinook per vessel per calendar week during June, July, August, and September. See gear restrictions and definitions (C.2, C.3). June 1 through September 30, vessels must land their fish in Gold Beach, Port Orford, or Brookings, Oregon, and within 24 hours of closure. State regulations require fishers intending to transport and deliver their catch to other locations after first landing in one of these ports notify ODFW prior to transport away from the port of landing by calling 541-867-0300 Ext. 271, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery. In 2009, same as Option I	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples. In 2009, same as Option I

TABLE 1. Commercial troll management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 5 of 9)		3/12/2008 1:34 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
OR/CA Border to Humboldt South Jetty (California KMZ) Closed	**OR/CA Border to Humboldt South Jetty (California KMZ)** Closed.	**OR/CA Border to Humboldt South Jetty (California KMZ)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples.
Humboldt South Jetty to Horse Mt. Closed.	**Humboldt South Jetty to Horse Mt.** Closed.	**Humboldt South Jetty to Horse Mt.** Closed.
Horse Mt. to Point Arena (Fort Bragg) • August 1-29; September 1-30 (C.9) All salmon except coho. Chinook minimum size limit of 27 inches total length in September; 28 inches total length in August (B). All fish must be offloaded within 24 hours of any closure (C1). See gear restrictions and definitions (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** • August 15-29; September 1-15 (C.9) All salmon except coho. Chinook minimum size limit of 27 inches total length in September; 28 inches total length in August (B). All fish must be offloaded within 24 hours of any closure (C1). See gear restrictions and definitions (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples.

TABLE 1. Commercial troll management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 6 of 9)		3/12/2008 1:34 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Pt. Arena to Pigeon Pt. (San Francisco) • August 1-31; Sept. 1-30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length in September; 28 inches total length in August (B). All fish must be offloaded within 24 hours of the any closure (C.1). See gear restrictions and definitions (C.2, C.3). **Pt. Reyes to Pt. San Pedro (Late Fall Area Target Zone)** • October 1-14. Open Monday through Friday. All salmon except coho (C.1). Chinook minimum size limit of 27 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Pt. Arena to Pigeon Pt. (San Francisco)** • August 15 through Sept. 30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length in September; 28 inches total length in August (B). All fish must be offloaded within 24 hours of the any closure (C.1). See gear restrictions and definitions (C.2, C.3).	**Pt. Arena to Pigeon Pt. (San Francisco)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples.
Pigeon Pt. to Pt. Sur (Monterey) • August 1-31; Sept. 1-30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length ~~in September; 28 inches total length in August~~ (B). All fish must be offloaded within 24 hours of the any closure (C.1). See gear restrictions and definitions (C.2, C.3).	**Pigeon Pt. to Pt. Sur (Monterey)** • August 15 through Sept. 30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length ~~in September; 28 inches total length in August~~ (B). All fish must be offloaded within 24 hours of the any closure (C.1). See gear restrictions and definitions (C.2, C.3).	**Pigeon Pt. to Pt. Sur (Monterey)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples.
Pt. Sur to U.S./Mexico Border (Morro Bay) • August 1-31; Sept. 1-30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length ~~in September; 28 inches total length in August~~ (B). See gear restrictions and definitions (C.2, C.3).	**Pt. Sur to U.S./Mexico Border (Morro Bay)** • August 15 through Sept. 30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length ~~in September; 28 inches total length in August~~ (B). See gear restrictions and definitions (C.2, C.3).	**Pt. Sur to U.S./Mexico Border (Morro Bay)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. Retention of Chinook with healed adipose fin clip only, all other salmon must be released in good condition after collection of biological samples.

TABLE 1. Commercial troll management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 7 of 9) 3/12/2008 1:34 PM

B. MINIMUM SIZE (Inches) (See C.1)

	Chinook		Coho		
Area (when open)	Total Length	Head-off	Total Length	Head-off	Pink
North of Cape Falcon	28.0	21.5	16.0	12.0	None
Cape Falcon to OR/CA Border					
Option 1	28.0	21.5	-	-	None
Option 2 prior to Sept. 1	27.0	20.5	-	-	None
Option 2 Sept. 1-30	28.0	21.5	-	-	None
OR/CA Border to Horse Mt.	28.0	21.5	-	-	None
Horse Mt. to U.S./Mexico Border			-	-	
Sept. 1- Oct. 15	27.0	20.5	-	-	None
August	28.0	21.5	-	-	None

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Compliance with Minimum Size or Other Special Restrictions: All salmon on board a vessel must meet the minimum size, landing/possession limit, or other special requirements for the area being fished and the area in which they are landed if the area is open. Salmon may be landed in an area that has been closed more than 96 hours only if they meet the minimum size, landing/possession limit, or other special requirements for the area in which they were caught. Salmon may be landed in an area that has been closed less than 96 hours only if they meet the minimum size, landing/possession limit, or other special requirements for the areas in which they were caught and landed.

States may require fish landing/receiving tickets be kept on board the vessel for 90 days after landing to account for all previous salmon landings.

C.2. Gear Restrictions: Salmon may be taken only by hook and line using barbless hooks.
- a. Single point, single shank, barbless hooks are required in all fisheries.
- b. Cape Falcon, Oregon, to the OR/CA border: No more than 4 spreads are allowed per line.
- c. OR/CA border to U.S./Mexico border: No more than 6 lines are allowed per vessel, and barbless circle hooks are required when fishing with bait by any means other than trolling.

C.3. Gear Definitions:
Trolling defined: Fishing from a boat or floating device that is making way by means of a source of power, other than drifting by means of the prevailing water current or weather conditions.

Troll fishing gear defined: One or more lines that drag hooks behind a moving fishing vessel. In that portion of the fishery management area (FMA) off Oregon and Washington, the line or lines must be affixed to the vessel and must not be intentionally disengaged from the vessel at any time during the fishing operation.

Spread defined: A single leader connected to an individual lure or bait.

Circle hook defined: A hook with a generally circular shape and a point which turns inward, pointing directly to the shank at a 90º angle.

TABLE 1. Commercial troll management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 8 of 9)	3/12/2008 1:34 PM

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)

C.4. Transit Through Closed Areas with Salmon on Board: It is unlawful for a vessel to have troll or recreational gear in the water while transiting any area closed to fishing for a certain species of salmon, while possessing that species of salmon; however, fishing for species other than salmon is not prohibited if the area is open for such species, and no salmon are in possession.

C.5. Control Zone Definitions:

a. *Cape Flattery Control Zone* - The area from Cape Flattery (48º23'00" N. lat.) to the northern boundary of the U.S. EEZ; and the area from Cape Flattery south to Cape Alava (48º10'00" N. lat.) and east of 125º05'00" W. long.

b. *Mandatory Yelloweye Rockfish Conservation Area* – The area 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.

c. *Columbia Control Zone* - An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09' N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat.,124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long.), and then along the north jetty to the point of intersection with the Buoy #10 line; and, on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.

d. *Bandon High Spot Control Zone* - The area west of a line between 43º07'00" N. lat.; 124º37'00" W. long. and 42º40'30" N. lat; 124º 52'0" W. long. extending to the western edge of the exclusive economic zone (EEZ).

e. *Klamath Control Zone* - The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately six nautical miles north of the Klamath River mouth); on the west, by 124°23'00" W. long. (approximately 12 nautical miles off shore); and on the south, by 41°26'48" N. lat. (approximately six nautical miles south of the Klamath River mouth).

C.6. Notification When Unsafe Conditions Prevent Compliance with Regulations: If prevented by unsafe weather conditions or mechanical problems from meeting special management area landing restrictions, vessels must notify the U.S. Coast Guard and receive acknowledgment of such notification prior to leaving the area. This notification shall include the name of the vessel, port where delivery will be made, approximate amount of salmon (by species) on board, and the estimated time of arrival.

C.7. Incidental Halibut Harvest: During authorized periods, the operator of a vessel that has been issued an incidental halibut harvest license may retain Pacific halibut caught incidentally in Area 2A while trolling for salmon. Halibut retained must be no less than 32 inches in total length, measured from the tip of the lower jaw with the mouth closed to the extreme end of the middle of the tail, and must be landed with the head on. License applications for incidental harvest must be obtained from the International Pacific Halibut Commission (phone: 206-634-1838). Applicants must apply prior to April 1 of each year. Incidental harvest is authorized only during May and June troll seasons and after June 30 if quota remains and if announced on the NMFS hotline (phone: 800-662-9825). ODFW and Washington Department of Fish and Wildlife (WDFW) will monitor landings. If the landings are projected to exceed the 37,707 pound preseason allocation or the total Area 2A non-Indian commercial halibut allocation, NMFS will take inseason action to prohibit retention of halibut in the non-Indian salmon troll fishery.

Option I: Beginning May 1, license holders may land no more than one Pacific halibut per each **three** Chinook, except one Pacific halibut may be landed without meeting the ratio requirement, and no more than **35** halibut may be landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).
Options II and III: Beginning May 1, license holders may land no more than one Pacific halibut per each **two** Chinook, except one Pacific halibut may be landed without meeting the ratio requirement, and no more than **30** halibut may be landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).

TABLE 1. Commercial troll management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 9 of 9)	3/12/2008 1:34 PM

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)

A "C-shaped" yelloweye rockfish conservation area is an area to be voluntarily avoided for salmon trolling. NMFS and the Council request salmon trollers voluntarily avoid this area in order to protect yelloweye rockfish. The area is defined in the Pacific Council Halibut Catch Sharing Plan in the North Coast subarea (Washington marine area 3), with the following coordinates in the order listed:

48°18' N. lat.; 125°18' W. long.;
48°18' N. lat.; 124°59' W. long.;
48°11' N. lat.; 124°59' W. long.;
48°11' N. lat.; 125°11' W. long.;
48°04' N. lat.; 125°11' W. long.;
48°04' N. lat.; 124°59' W. long.;
48°00' N. lat.; 124°59' W. long.;
48°00' N. lat.; 125°18' W. long.;

and connecting back to 48°18' N. lat.; 125°18' W. long.

C.8. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a. Chinook remaining from the May through June non-Indian commercial troll harvest guideline north of Cape Falcon may be transferred to the July through September harvest guideline on a fishery impact equivalent basis.
b. NMFS may transfer fish between the recreational and commercial fisheries north of Cape Falcon if there is agreement among the areas' representatives on the SAS.
c. At the March 2009 meeting, the Council will consider inseason recommendations for special regulations for any experimental fisheries (proposals must meet Council protocol and be received in November 2008).
d. If retention of unmarked coho is permitted in the area from the U.S./Canada border to Cape Falcon, Oregon, by inseason action, the allowable coho quota will be adjusted to ensure preseason projected mortality of critical stocks is not exceeded.

C.9. Consistent with Council management objectives:

a. the State of Oregon may establish additional late-season fisheries in state waters.
b. the State of California may establish limited fisheries in selected state waters.

Check state regulations for details.

C.10. For the purposes of California Department of Fish and Game (CDFG) Code, Section 8232.5, the definition of the KMZ for the ocean salmon season shall be that area from Humbug Mt., Oregon, to Horse Mt., California.

TABLE 2. Recreational management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 1 of 8)		3/12/2008 1:39 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 45,000 Chinook and 35,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 22,500 Chinook and 29,400 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. No Area 4B add-on fishery. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 3,500 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 35,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 17,500 Chinook and 21,000 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. Area 4B add-on fishery of 5,000 marked coho. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 4,000 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 25,000 Chinook and 15,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 12,500 Chinook and 12,600 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. No Area 4B add-on fishery. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 4,500 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.
U.S./Canada Border to Cape Falcon • May 25 through earlier of June 15 or a quota of 4,500 Chinook (C.5). Seven days per week except Sunday through Thursday in the Westport sub area. All salmon except coho, one fish per day. Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Falcon** • May 25 through earlier of June 7 or a quota of 3,500 Chinook (C.5). Seven days per week. All salmon except coho, one fish per day. Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5). .	
U.S./Canada Border to Cape Alava (Neah Bay) • July 1 through earlier of September 13 or 3,060 marked coho subarea quota with a subarea guideline of 1,900 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay)** • July 1 through earlier of September 13 or 1,260 marked coho subarea quota with a subarea guideline of 1,500 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.d) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay)** • July 8 through earlier of September 13 or 1,310 marked coho subarea quota with a subarea guideline of 1,350 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

TABLE 2. **Recreational** management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 2 of 8) 3/12/2008 1:39 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
Cape Alava to Queets River (La Push Subarea) • ·July 1 through earlier of September 13 or 710 marked coho subarea quota with a subarea guideline of 800 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Cape Alava to Queets River (La Push Subarea)** • ·July 1 through earlier of September 13 or 560 marked coho subarea quota with a subarea guideline of 600 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Cape Alava to Queets River (La Push Subarea)** • ·July 8 through earlier of September 13 or 290 marked coho subarea quota with a subarea guideline of 550 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).
Queets River to Leadbetter Point (Westport Subarea) • June 29 through earlier of September 13 or 10,880 marked coho subarea quota with a subarea guideline of 10,450 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • June 15 through earlier of September 13 or 8,640 marked coho subarea quota with a subarea guideline of 8,100 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • May 25 through earlier of September 13 or 4,650 marked coho subarea quota with a subarea guideline of 7,200 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).
Leadbetter Point to Cape Falcon (Columbia River Subarea) • June 29 through earlier of September 30 or 14,700 marked coho subarea quota with a subarea guideline of 4,750 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.c). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • June 29 through earlier of September 30 or 10,500 marked coho subarea quota with a subarea guideline of 3,700 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit) (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.a). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • July 13 through earlier of September 30 or 6,300 marked coho subarea quota with a subarea guideline of 3,300 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit) (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.a). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

TABLE 2. **Recreational** management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 3 of 8) 3/12/2008 1:39 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Central Valley recreational fisheries 33% closed. 2. Klamath River recreational fishery allocation: ___%. 3. KMZ ocean recreational fishery share: ___%. 4. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 5. Klamath tribal allocation: _____. 6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 7. All retained coho must be marked with a healed adipose fin clip (marked).	1. Central Valley recreational fisheries 66% closed 2. Klamath River recreational fishery allocation: ___%. 3. KMZ ocean recreational fishery share: ___%. 4. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 5. Klamath tribal allocation: _____. 6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 7. All retained coho must be marked with a healed adipose fin clip (marked).	1. Central Valley recreational fisheries prohibit Chinook retention. 2. Klamath River recreational fishery allocation: ___%. 3. KMZ ocean recreational fishery share: ___%. 4. Non-Indian commercial troll Klamath fall Chinook impact allocation ___% California: ___% Oregon. 5. Klamath tribal allocation: _____. 6. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 7. All retained coho must be marked with a healed adipose fin clip (marked).
Cape Falcon to Humbug Mt. • May 1 through June 15; September 1-30 (C.6). Seven days per week. All salmon except coho; two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Cape Falcon to Humbug Mt.** • May 1 through June 15; September 1-30 (C.6). Seven days per week. All salmon except coho; one fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Cape Falcon to Humbug Mt.** Closed In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).
Cape Falcon to OR/CA Border • June 22 through earlier of August 31 or a landed catch of 10,000 marked coho. Seven days per week. All salmon, two fish per day (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).	**Cape Falcon to OR/CA Border** • June 19 through earlier of August 30 or a landed catch of 7,500 marked coho. Thursday through Saturday. All salmon, two fish per day (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).	**Cape Falcon to OR/CA Border** • June 22 through earlier of August 30 or a landed catch of 5,000 marked coho, except the area south of Humbug Mt. will close July 7 through August 24 concurrent with the KMZ season listed below. Sunday through Thursday. All salmon except Chinook, two fish per day (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).

TABLE 2. **Recreational** management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 4 of 8) 3/12/2008 1:39 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
Humbug Mt. to OR/CA Border. (Oregon KMZ) • Except as provided above during the selective fishery, the season will be May 24 through September 1 (C.6). Seven days per week. Two fish per day, no more than six fish in seven consecutive days (C.1). All salmon except coho, except as noted above in the coho mark selective fishery Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Humbug Mt. to OR/CA Border. (Oregon KMZ)** • Except as provided above during the selective fishery, the season will be May 21 through September 1 (C.6). Wednesday through Saturday through August 30, and August 31-Sept. 1. Two fish per day, no more than four fish per four-day open period (C.1). All salmon except coho, except as noted above in the coho mark selective fishery Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Humbug Mt. to OR/CA Border. (Oregon KMZ)** • Closed
OR/CA Border to Horse Mt. (California KMZ) • May 24 through September 1 (C.6). Seven days per week. Two fish per day, no more than six fish in seven consecutive days (C.1). All salmon except coho, Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Klamath, and Eel rivers.	**OR/CA Border to Horse Mt. (California KMZ)** • May 24-31 • June 4 through August 30; Wednesday through Saturday • August 31 through September 1 (C.6). Two fish per day, no more than four fish per four-day open period (C.1). All salmon except coho, Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Klamath, and Eel rivers.	**OR/CA Border to Horse Mt. (California KMZ)** • Closed.
Horse Mt. to Point Arena (Fort Bragg) • February 16 through March 31 • May 1 through Sept. 7 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, season opens February 14 (nearest Saturday to February 15) for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** • February 16 through March 31 • May 17 through July 12 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option 1.	**Horse Mt. to Point Arena (Fort Bragg)** • Closed. In 2009, same as Option I
Point Arena to Pigeon Point (San Francisco) • May 1 through September 21 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, the season will open April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2007 (C.2, C.3).	**Point Arena to Pigeon Point (San Francisco)** • May 24-26 • May 29 through August 24 Thursday through Sunday (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option I	**Point Arena to Pigeon Point (San Francisco)** • Closed. In 2009, same as Option I

TABLE 2. **Recreational** management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 5 of 8)		3/12/2008 1:39 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Pigeon Point to U.S./Mexico Border (Monterey South) • May 1 through August 2 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, the season will open April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2007 (C.2, C.3).	**Pigeon Point to U.S./Mexico Border (Monterey)** • May 1 through June 8 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option I	**Pigeon Point to U.S./Mexico Border (Monterey)** • Closed. In 2009, same as Option I

TABLE 2. **Recreational** management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 7 of 8) 3/12/2008 1:39 PM

B. MINIMUM SIZE (Inches) (See C.1)

Area (when open)	Chinook	Coho	Pink
North of Cape Falcon	24.0	16.0	None
Cape Falcon to OR/CA Border	24.0	16.0	None
OR/CA Border to Horse Mountain	24.0	-	20.0
Horse Mt. to U.S./Mexico Border	20.0	-	20.0

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Compliance with Minimum Size and Other Special Restrictions: All salmon on board a vessel must meet the minimum size or other special requirements for the area being fished and the area in which they are landed if that area is open. Salmon may be landed in an area that is closed only if they meet the minimum size or other special requirements for the area in which they were caught.

Ocean Boat Limits: Off the coast of Washington, Oregon, and California, each fisher aboard a vessel may continue to use angling gear until the combined daily limits of salmon for all licensed and juvenile anglers aboard has been attained (additional state restrictions may apply).

C.2. Gear Restrictions: Salmon may be taken only by hook and line using barbless hooks. All persons fishing for salmon, and all persons fishing from a boat with salmon on board, must meet the gear restrictions listed below for specific areas or seasons.

a. U.S./Canada Border to Point Conception, California: No more than one rod may be used per angler; and no more than two single point, single shank barbless hooks are required for all fishing gear. [Note: ODFW regulations in the state-water fishery off Tillamook Bay may allow the use of barbed hooks to be consistent with inside regulations.]
b. Cape Falcon, Oregon, to Point Conception, California: Anglers must use no more than two single point, single shank, barbless hooks.
c. Horse Mt., California, to Point Conception, California: Single point, single shank, barbless circle hooks (below) are required when fishing with bait by any means other than trolling, and no more than two such hooks shall be used. When angling with two hooks, the distance between the hooks must not exceed five inches when measured from the top of the eye of the top hook to the inner base of the curve of the lower hook, and both hooks must be permanently tied in place (hard tied). Circle hooks are not required when artificial lures are used without bait.

C.3. Gear Definitions:

a. *Recreational fishing gear defined*: Angling tackle consisting of a line with no more than one artificial lure or natural bait attached. Off Oregon and Washington, the line must be attached to a rod and reel held by hand or closely attended; the rod and reel must be held by hand while playing a hooked fish. No person may use more than one rod and line while fishing off Oregon or Washington. Off California, the line must be attached to a rod and reel held by hand or closely attended. Weights directly attached to a line may not exceed four pounds (1.8 kg). While fishing off California north of Point Conception, no person fishing for salmon, and no person fishing from a boat with salmon on board, may use more than one rod and line. Fishing includes any activity which can reasonably be expected to result in the catching, taking, or harvesting of fish.
b. *Trolling defined*: Angling from a boat or floating device that is making way by means of a source of power, other than drifting by means of the prevailing water current or weather conditions.
c. Circle hook defined: A hook with a generally circular shape and a point which turns inward, pointing directly to the shank at a 90° angle.

TABLE 2. **Recreational** management options collated by the STT for non-Indian ocean salmon fisheries, 2008. (Page 8 of 8)	3/12/2008 1:39 PM
B. MINIMUM SIZE (Inches) (See C.1)	

C.4. Control Zone Definitions:

a. *The Bonilla-Tatoosh Line*: A line running from the western end of Cape Flattery to Tatoosh Island Lighthouse (48°23'30" N. lat., 124°44'12" W. long.) to the buoy adjacent to Duntze Rock (48°28'00" N. lat., 124°45'00" W. long.), then in a straight line to Bonilla Point (48°35'30" N. lat., 124°43'00" W. long.) on Vancouver Island, British Columbia.

b. *Grays Harbor Control Zone* - The area defined by a line drawn from the Westport Lighthouse (46° 53'18" N. lat., 124° 07'01" W. long.) to Buoy #2 (46° 52'42" N. lat., 124°12'42" W. long.) to Buoy #3 (46° 55'00" N. lat., 124°14'48" W. long.) to the Grays Harbor north jetty (46° 36'00" N. lat., 124°10'51" W. long.).

c. *Columbia Control Zone*: An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09' N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat., 124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long. and then along the north jetty to the point of intersection with the Buoy #10 line; and on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.

d. *Stonewall Bank Groundfish Conservation Area*: The area defined by the following coordinates in the order listed:
   44°37.46' N. lat.; 124°24.92' W. long.;
   44°37.46' N. lat.; 124°23.63' W. long.;
   44°28.71' N. lat.; 124°21.80' W. long.;
   44°28.71' N. lat.; 124°24.10' W. long.;
   44°31.42' N. lat.; 124°25.47' W. long.;
   and connecting back to 44°37.46' N. lat.; 124°24.92' W. long.

e. *Klamath Control Zone*: The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately six nautical miles north of the Klamath River mouth); on the west, by 124°23'00" W. long. (approximately 12 nautical miles off shore); and, on the south, by 41°26'48" N. lat. (approximately 6 nautical miles south of the Klamath River mouth).

C.5. Inseason Management: Regulatory modifications may become necessary inseason to meet preseason management objectives such as quotas, harvest guidelines, and season duration. In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a. Actions could include modifications to bag limits, or days open to fishing, and extensions or reductions in areas open to fishing.

b. Coho may be transferred inseason among recreational subareas north of Cape Falcon on an impact neutral basis to help meet the recreational season duration objectives (for each subarea) after conferring with representatives of the affected ports and the Council's SAS recreational representatives north of Cape Falcon.

c. Chinook and coho may be transferred between the recreational and commercial fisheries north of Cape Falcon on an impact neutral basis if there is agreement among the representatives of the SAS.

d. If retention of unmarked coho is permitted in the area from the U.S./Canada border to Cape Falcon, Oregon, by inseason action, the allowable coho quota will be adjusted to ensure preseason projected mortality of critical stocks is not exceeded.

e. Chinook remaining from the May through June recreational quota north of Cape Falcon may be transferred to the July through September harvest guidelinequota on a fishery impact equivalent basis.

C.6. Additional Seasons in State Territorial Waters: Consistent with Council management objectives, the States of Washington and Oregon, and California may establish limited seasons in state waters. Oregon State-water fisheries are limited to Chinook salmon. Check state regulations for details.

TABLE 3. Management Options collated by the STT for 2008 Treaty Indian ocean troll fisheries. (Page 1 of 2)		3/12/2008 1:42 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall Treaty-Indian TAC: 40,000 Chinook and 25,000 coho. 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries	1. Overall Treaty-Indian TAC: 35,000 Chinook and 20,000 coho. 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries	1. Overall Treaty-Indian TAC: 20,000 Chinook and 15,000 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries
•• May 1 through the earlier of June 30 or 22,500 Chinook quota. All salmon except coho. If the Chinook quota for the May-June fishery is not fully utilized, inseason action may be taken to transfer up to 5,714 Chinook from the May-June quota into the July - September all-salmon season at a ratio of 1.0 to 0.35, resulting in a maximum increase of 2,000 Chinook in the July-September quota (C.5). If the May-June Chinook quota is exceeded, the excess will be deducted from the July-September all-salmon season at a ratio of 1.0 to 1.0. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 17,500 preseason Chinook quota, or 25,000 coho quota (C.5). All Salmon. See size limit (B) and other restrictions (C).	• May 1 through the earlier of June 30 or 17,500 Chinook quota. All salmon except coho. If the Chinook quota for the May-June fishery is not fully utilized, the excess fish cannot be transferred into the later all-salmon season. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 17,500 preseason Chinook quota, or 20,000 coho quota. All salmon. See size limit (B) and other restrictions (C).	• May 1 through the earlier of June 30 or 10,000 Chinook quota. All salmon except coho. If the Chinook quota for the May-June fishery is not fully utilized, the excess fish cannot be transferred into the later all-salmon season. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 10,000 preseason Chinook quota, or 15,000 coho quota. All salmon. See size limit (B) and other restrictions (C)

TABLE 3. Management Options collated by the STT for 2008 Treaty Indian ocean troll fisheries. (Page 2 of 2) 3/12/2008 1:42 PM

B. MINIMUM SIZE (Inches)

Area (when open)	Chinook		Coho		Pink
	Total Length	Head-off	Total Length	Head-off	
North of Cape Falcon	24.0 (61.0 cm)	18.0 (45.7 cm)	16.0 (40.6 cm)	12.0 (30.5 cm)	None

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Tribe and Area Boundaries. All boundaries may be changed to include such other areas as may hereafter be authorized by a Federal court for that tribe's treaty fishery.

S'KLALLAM - Washington State Statistical Area 4B (All).

MAKAH - Washington State Statistical Area 4B and that portion of the FMA north of 48°02'15" N. lat. (Norwegian Memorial) and east of 125°44'00" W. long.

QUILEUTE - That portion of the FMA between 48°07'36" N. lat. (Sand Pt.) and 47°31'42" N. lat. (Queets River) and east of 125°44'00" W. long.

HOH - That portion of the FMA between 47°54'18" N. lat. (Quillayute River) and 47°21'00" N. lat. (Quinault River) and east of 125°44'00" W. long.

QUINAULT - That portion of the FMA between 47°40'06" N. lat. (Destruction Island) and 46°53'18"N. lat. (Point Chehalis) and east of 125°44'00" W. long.

C.2. Gear restrictions

a. Single point, single shank, barbless hooks are required in all fisheries.
b. No more than 8 fixed lines per boat.
c. No more than four hand held lines per person in the Makah area fishery (Washington State Statistical Area 4B and that portion of the FMA north of 48°02'15" N. lat. (Norwegian Memorial) and east of 125°44'00" W. long.)

C.3. Quotas

a. The quotas include troll catches by the S'Klallam and Makah tribes in Washington State Statistical Area 4B from May 1 through September 15.
b. The Quileute Tribe will continue a ceremonial and subsistence fishery during the time frame of September 15 through October 15 in the same manner as in 2004, 2005, and 2006. Fish taken during this fishery are to be counted against treaty troll quotas established for the 2007 season (estimated harvest during the October ceremonial and subsistence fishery: 100 Chinook; 200 coho).

C.4. Area Closures

a. The area within a six nautical mile radius of the mouths of the Queets River (47°31'42" N. lat.) and the Hoh River (47°45'12" N. lat.) will be closed to commercial fishing.
b. A closure within two nautical miles of the mouth of the Quinault River (47°21'00" N. lat.) may be enacted by the Quinault Nation and/or the State of Washington and will not adversely affect the Secretary of Commerce's management regime.

C.5. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a. Chinook remaining from the May through June treaty Indian commercial troll harvest guideline north of Cape Falcon may be transferred to the July through September harvest guideline Chinook quota on a fishery impact equivalent basis.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2008 ocean fishery options collated by the STT.[a/] (Page 1 of 3)

Key Stock/Criteria	Projected Ocean Escapement[b/] or other Criteria (Council Area impacts in parens) Option I	Option II	Option III		Spawner Objective or Other Comparative Standard as Noted
CHINOOK					
Columbia Upriver Brights	162.8	163.2		57.3	Minimum ocean escapement to attain 46.0 adults over McNary Dam, with normal distribution and no mainstem harvest.
Mid-Columbia Brights	54.1	54.2		16.6	Minimum ocean escapement to attain 5.75 adults for Bonneville Hatchery and 2.0 for Little White Salmon Hatchery egg-take, assuming average conversion and no mainstem harvest.
Columbia Lower River Hatchery Tules	54.2	55.9		31.1	Minimum ocean escapement to attain 14.1 adults for hatchery egg-take, with average conversion and no lower river mainstem or tributary harvest.
Columbia Lower River Natural Tules[c/] (threatened)	37.1%	35.2%		≤ 41.0%	ESA guidance met by a total adult equivalent fishery exploitation rate on Coweeman tules (NMFS ESA consultation standard).
Columbia Lower River Wild (threatened)	3.8	3.8		5.7	MSY spawner goal for North Lewis River fall chinook (NMFS ESA consultation standard).
Spring Creek Hatchery Tules	85.0	88.3		11.1	Minimum ocean escapement to attain 7.0 adults for Spring Creek Hatchery egg-take, assuming average conversion and no mainstem harvest.
Snake River Fall (threatened) SRFI	55.9%	51.6%		≤ 70.0%	Of 1988-1993 base period exploitation rate for all ocean fisheries (NMFS ESA consultation standard).
Klamath River Fall	40.7	40.7	40.7	40.7	Minimum number of adult spawners to natural spawning areas. 2008 Council guidance.
Federally recognized tribal harvest	50.0%	50.0%	50.0%	50.0%	Equals 28.1, 27.8, and 22.6 (thousand) adult fish for Yurok and Hoopa tribal fisheries.
Spawner Reduction Rate	47.1%	47.1%	38.9%	≤ 66.7%	Equals 38.8, 35.8, and 33.8 (thousand) fewer adult spawners due to fishing.
Adult river mouth return	103.1	106.7	114.3	NA	
Age 4 ocean harvest rate	10.8%	8.4%	3.3%	≤ 16.0%	NMFS ESA consultation standard for threatened California coastal chinook.
KMZ sport fishery share	17.0%	14.9%	9.9%	17.0%	2007 Council guidance.
CA:OR troll fishery share	40:60	39:61	81:19	50:50	2006 KFMC recommendation, no guidance for 2008.
River recreational fishery share	33.1%	47.2%	73.0%	≥ 15%	2008 Council Guidance. Equals 9.3, 13.1, and 16.5 (thousand) adult fish for recreational inriver fisheries.
Sacramento River Winter (endangered)	Met	Met	Met		Recreational season between Point Arena and Pigeon Point shall open no earlier than the first Saturday in April and close no later than the second Sunday in November; the recreational season between Pigeon Point and the U.S./Mexico Border shall open no earlier than the first Saturday in April and close no later than the first Sunday in October. The minimum size limit shall be at least 20 inches total length. Commercial seasons between Point Arena and the U.S./Mexico border shall open no earlier than May 1 and close no later than September 30, with the exception of an October season conducted Monday through Friday between Point Reyes and Point San Pedro, which shall end no later than October 15. The minimum size limit shall be at least 26 inches total length. (NMFS ESA consultation
Sacramento River Fall	**41.0**	**49.8**	**56.3**	122.0-180.0	Sacramento River fall natural and hatchery adult spawners.
River recreational fishery share	4.4	2.5	0.0		2008 Council Guidance. Equals 67%, 33%, and 0% of historical harvest rate.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2008 ocean fishery options collated by the STT.[a/] (Page 2 of 3)

Key Stock/Criteria	Projected Ocean Escapement[b/] or other Criteria (Council Area impacts in parens) Option I	Option II	Option III	Spawner Objective or Other Comparative Standard as Noted
			COHO	
Interior Fraser (Thompson River)	8.6%(3.5%)	8.1%(3.0%)	7.1%(1.9%)	≤ 10.0% Total exploitation rate for all U.S. fisheries south of the U.S./Canada border based on 2002 PSC coho agreement.
Skagit	34.2%(3.1%)	32%(2.7%)	31.2%(1.8%)	≤ 35.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	49.7	49.9	50.5	30.0 MSP level of adult spawners Identified in FMP.
Stillaguamish	39.5%(2.2%)	39.2%(1.8%)	38.8%(1.2%)	≤ 50.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	24.7	24.8	25	17.0 MSP level of adult spawners Identified in FMP.
Snohomish	36.4%(2.2%)	36.2%(1.9%)	35.7%(1.2%)	≤ 40.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	77.1	77.4	78.0	70.0 MSP level of adult spawners Identified in FMP.
Hood Canal	45%(3.2%)	45%(2.8%)	44%(1.8%)	≤ 45.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	19.7	**19.8**	**20.1**	21.5 MSP level of adult spawners Identified in FMP.
Strait of Juan de Fuca	12%(2.6%)	11%(2.1%)	11%(1.4%)	≤ 40.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	21.7	21.8	21.9	12.8 MSP level of adult spawners Identified in FMP.
Quillayute Fall	10.0	10.1	10.2	6.3-15.8 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Hoh	3.9	3.9	4.0	2.0-5.0 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Queets Wild	8.9	9.0	9.3	5.8-14.5 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Grays Harbor	41.2	41.7	42.1	35.4 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Lower Columbia River Natural	**8.7%**	**6.6%**	3.6%	≤ 8.0% Council area marine and mainstem Columbia River fishery exploitation rate (NMFS ESA consultation standard). Value depicted is ocean fishery exploitation rate only.
(threatened)				
Upper Columbia[g/]	≥ 50%	≥ 50%	≥ 50%	≥ 50% Minimum percentage of the run to Bonneville Dam.
Columbia River Hatchery Early	87.3	91.8	97.2	38.7 Minimum ocean escapement to attain hatchery egg-take goal of 16.0 early adult coho, with average conversion and no mainstem or tributary fisheries.
Columbia River Hatchery Late	63.7	67.6	74.1	15.2 Minimum ocean escapement to attain hatchery egg-take goal of 9.7 late adult coho, with average conversion and no mainstem or tributary fisheries.
Oregon Coastal Natural	**13.9%**	**10.1%**	4.7%	≤ 8.0% Marine and freshwater fishery exploitation rate.
Northern California (threatened)	12.1%	7.1%	0.6%	≤ 13.0% Marine fishery exploitation rate for R/K hatchery coho (NMFS ESA consultation standard).

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2008 ocean fishery options collated by the STT. [a/] (Page 3 of 3)

a/ Projections in the table assume a WCVI mortality for coho of the 2007 observed level. Southeast Alaska, North Coast BC, and WCVI troll and outside sport fisheries were assumed to have the same exploitation rates as expected preseason in 2007. Assumptions for these chinook fisheries will be changed prior to the April meeting when allowable catch levels for 2008 under the PST are known.

b/ Ocean escapement is the number of salmon escaping ocean fisheries and entering freshwater with the following clarifications. Ocean escapement for Puget Sound stocks is the estimated number of salmon entering Area 4B that are available to U.S. net fisheries in Puget Sound and spawner escapement after impacts from the Canadian, U.S. ocean, and Puget Sound troll and recreational fisheries have been deducted. Numbers in parentheses represent Council area exploitation rates for Puget sound coho stocks. For Columbia River early and late coho stocks, ocean escapement represents the number of coho after the Buoy 10 fishery. Exploitation rates for LCN coho include all marine impacts prior to the Buoy 10 fishery. Exploitation rates for OCN coho include impacts of freshwater fisheries.

c/ Annual management objectives may be different than FMP goals, and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders. Total exploitation rate includes Alaskan, Canadian, Council area, Puget Sound, and freshwater fisheries and is calculated as total fishing mortality divided by total fishing mortality plus spawning escapement. These total exploitation rates reflect the initial base package for inside fisheries developed by state and tribal comanagers. It is anticipated that total exploitation rates will be adjusted by state and tribal comanagers during the preseason planning process to comply with stock specific exploitation rate constraints.

d/ Includes minor contributions from East Fork Lewis River and Sandy River.

e/ The fisheries in this option will need to be restructured if negotiations in the North of Falcon forum or final preseason catch expectations for Canadian and Alaskan fisheries do not result in an SRFI at or below 0.700 as required by the NMFS ESA consultation standard.

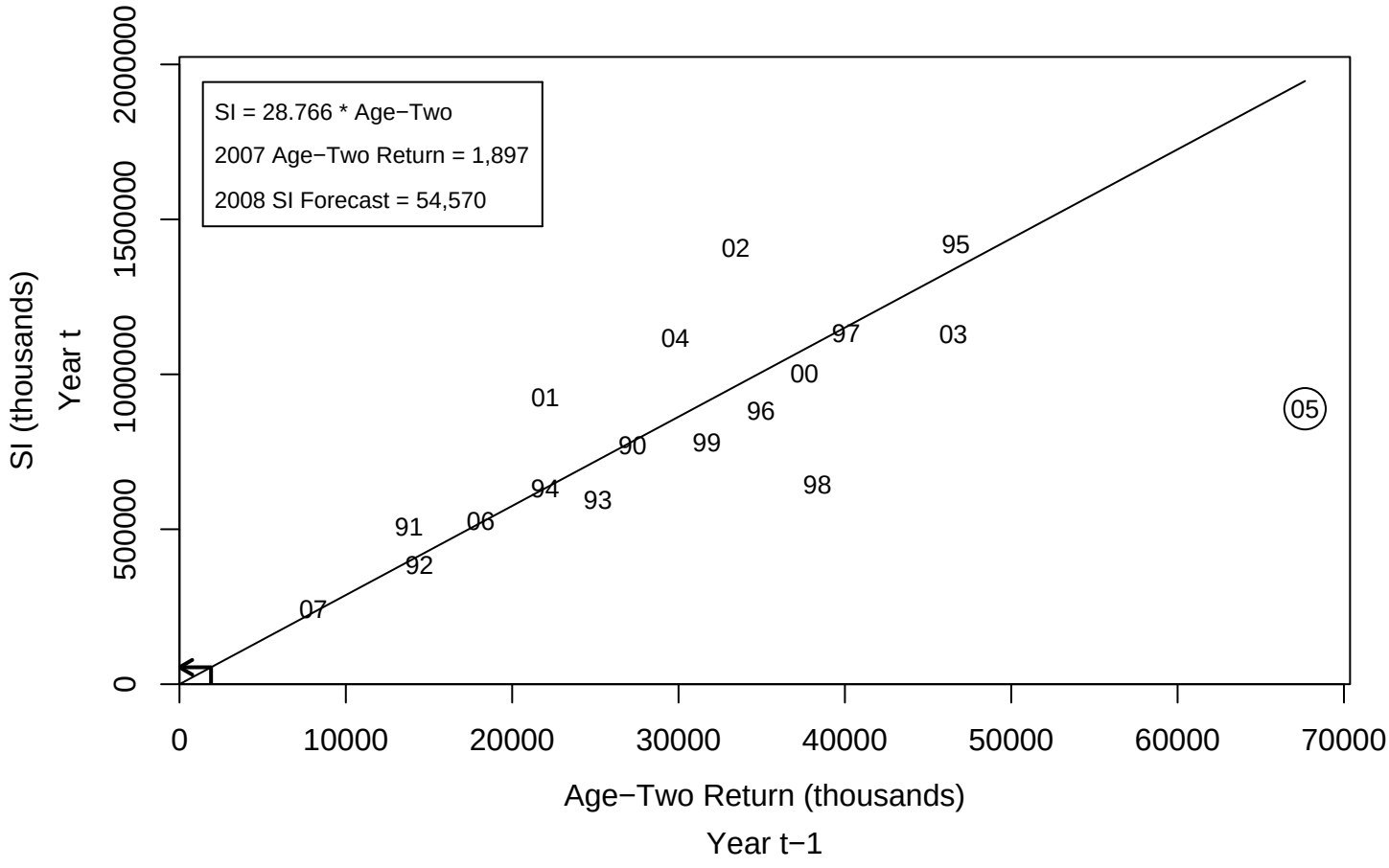
f/ The fisheries in this option will need to be restructured if negotiations in the North of Falcon forum or final preseason catch expectations for Canadian and Alaskan fisheries do not result in a total exploitation rate for all U.S. fisheries south of the U.S./Canada border of no more than 10.0% as required by the 2002 PSC agreement.

g/ Includes projected impacts of inriver fisheries that have not yet been shaped.

TABLE 7. Expected coastwide lower Columbia Natural (LCN) Oregon coastal natural (OCN) and Rogue/Klamath (RK) coho, and Lower Columbia River (LCR) natural tule Chinook exploitation rates by fishery for 2008 ocean fisheries management options collated by the Council (Page 1 of 1)

	Exploitation Rate (Percent)											
	LCN Coho			OCN Coho			RK Coho			LCR Tule		
Fishery	I	II	III	I	II	III	I	II	III	I	II	III
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	3.0%	
BRITISH COLUMBIA	0.1%	0.1%	0.1%	0.4%	0.4%	0.4%	0.2%	0.2%	2.0%	14.3%	14.5%	
PUGET SOUND/STRAIT	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.4%	0.4%	
NORTH OF CAPE FALCON												
Treaty Indian Ocean Troll	1.8%	1.5%	1.1%	1.2%	1.0%	0.7%	0.0%	0.0%	0.0%	4.8%	4.3%	
Recreational	3.3%	2.5%	1.3%	1.0%	0.7%	0.4%	0.0%	0.0%	0.0%	2.7%	2.0%	
Non-Indian Troll	1.2%	0.9%	0.5%	0.6%	0.4%	0.3%	0.0%	0.0%	0.0%	3.4%	2.7%	
SOUTH OF CAPE FALCON												
Recreational:	1.6%	1.2%	0.6%							0.1%	0.0%	
Cape Falcon to Humbug Mt.				3.1%	2.5%	1.4%	0.2%	0.2%	0.1%			
Humbug Mt. OR/CA border (KMZ)				0.4%	0.3%	0.0%	0.7%	0.5%	0.0%			
OR/CA border to Horse Mt. (KMZ)				1.5%	0.9%	0.0%	6.1%	3.6%	0.0%			
Fort Bragg				1.3%	0.7%	0.0%	2.3%	1.1%	0.0%			
South of Pt. Arena				1.2%	0.5%	0.0%	1.4%	0.6%	0.0%			
Troll:	0.8%	0.6%	0.0%							1.5%	1.0%	
Cape Falcon to Humbug Mt.				1.1%	1.0%	0.0%	0.1%	0.1%	0.0%			
Humbug Mt. OR/CA border (KMZ)				0.2%	0.1%	0.0%	0.2%	0.1%	0.0%			
OR/CA border to Horse Mt. (KMZ)				0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
Fort Bragg				0.3%	0.1%	0.0%	0.5%	0.2%	0.0%			
South of Pt. Arena				0.2%	0.1%	0.0%	0.0%	0.0%	0.0%			
BUOY 10	0.6%	0.6%	0.7%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	7.0%	7.2%	
ESTUARY/FRESHWATER	N/A	N/A	N/A	1.1%	1.2%	1.2%	0.2%	0.2%	0.3%			
TOTAL[a/]	8.7%	6.6%	3.6%	13.9%	10.1%	4.7%	12.1%	7.1%	6.0%	37.1%	35.2%	

a/ Total does not include Buoy 10 for LCN coho.



Sacramento River Fall Chinook Index Forecast

Agenda Item D.5.c
Supplemental Comments of Hoopa Valley Tribe
March 2008

HOOPA VALLEY TRIBAL COMMENTS ON
Council Recommendations for 2008 Management Option Analysis

My Name is George Kautsky; I am the deputy-director for the Hoopa Valley Tribe's Fisheries Department.

We offer the following comments regarding recommendations for 2008 Salmon Management Option Analysis.

(1) We have conferred with the Yurok Tribal representative and jointly request that the Council develop an option consistent with the FMP conservation standard of 35,000 Klamath natural adult spawners.

(2) Developing an option with the 35,000 floor escapement level would provide tribal co-managers an opportunity to evaluate the implications of the elevated escapement objective (40,700 natural spawners) as presently reflected in all three options before you today.

(3) Earlier in the week we spoke in support of the STT's recommended criterion for ending the overfishing concern wherein the 35,000 natural escapement floor would need to be exceeded for **three** consecutive years in four. We are concerned with the Council's alternative criterion which potentially would rely on the strength of a single brood (Brood Year 2004) for ending this concern. Evidence shows that the 2003 brood was depressed and the 2005 brood returned record low jacks in 2007.

(4) The Hoopa Valley Tribe has been supportive of the 35,000 floor since its inception in the late 1980s. This standard has been recently confirmed by the STT as a reasonable threshold for conservation to ensure against prolonged periods of low productivity of the Klamath fall Chinook.

(5) The Hoopa Valley Tribe was opposed to Amendment 15 as it threatened to undermine the 35,000 floor in years of low abundance leading to heightened concerns for natural stock productivity.

(6) In conclusion, we urge the Council to provide an option modeling fisheries around observance of the 35,000 natural spawner escapement floor for adult Klamath fall chinook for 2008 management.

COUNCIL DIRECTION FOR 2008 MANAGEMENT OPTIONS *(IF NECESSARY)*

If necessary, the Salmon Technical Team (STT) will request clarification or direction regarding the management elements identified by the Council under Agenda Item D.4 on Tuesday and/or Agenda Item D.5 on Wednesday. The Council should assure the options presented are those for which the Council desires full STT analysis and consideration for final adoption on Friday.

Council Task:

1. **Clarify STT questions.**
2. **Additional direction on management option development and STT analysis, as necessary.**

Reference Materials:

None.

Agenda Order:

a. Agenda Item Overview	Chuck Tracy
b. Report of the STT	Allen Grover
c. Reports and Comments of Advisory Bodies	
d. Public Comment	
e. Council Guidance and Direction	

PFMC
02/12/08

Agenda Item D.6.b
Supplemental STT Report
March 2008

SALMON TECHNICAL TEAM

INITIAL ANALYSIS OF PRELIMINARY SALMON MANAGEMENT OPTIONS FOR 2008 OCEAN FISHERIES

March 13, 2008

TABLE 1. Commercial troll management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 1 of 9) 3/13/2008 4:05 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 45,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 22,500 Chinook and 4,000 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 35,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 17,500 Chinook and 4,000 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 25,000 Chinook and 15,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 12,500 Chinook and 2,400 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.
U.S./Canada Border to Cape Falcon • May 1 through earlier of June 30 or 15,000 Chinook quota. Thursday through Monday. May 1-5 and 8-12 landing and possession limit of 60 Chinook per vessel for each open period north of Leadbetter Point and 40 Chinook south of Leadbetter Point; beginning May 15, a landing and possession limit of 60 Chinook per vessel for each open period north of Leadbetter Point and 30 Chinook south of Leadbetter Point (C.1). All salmon except coho (C.7). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3).	**U.S./Canada Border to Cape Falcon** • May 1 through earlier of June 30 or 8,750 Chinook quota. Thursday through Monday with a landing and possession limit of 50 Chinook per vessel for each open period north of Leadbetter Point and 50 Chinook south of Leadbetter Point (C.1). All salmon except coho (C.7). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3).	**U.S./Canada Border to Leadbetter Point** • May 1 through earlier of June 30 or 7,083 Chinook quota. Friday through Monday with a landing and possession limit of 30 Chinook per vessel for each open period (C.1). All salmon except coho (C.7). Cape Flattery and Mandatory Yelloweye Rockfish Conservation Area Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3). **Leadbetter Point to Cape Falcon** • May 1 through earlier of June 30 or 1,875 Chinook quota. Friday through Monday with a landing and possession limit of 30 Chinook per vessel for each open period. All salmon except coho (C.7). Columbia Control Zone closed (C.5). See gear restrictions and definitions (C.2, C.3).

Oregon State regulations require that fishers south of Cape Falcon, OR intending to fish within this area notify Oregon Department of Fish and Wildlife before transiting the Cape Falcon, OR line (45º46'00" N. lat.) at the following number: 541-867-0300 Ext. 271. Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon must notify ODFW within one hour of delivery or prior to transport away from the port of landing by calling 541-867-0300 Ext. 271. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8).

TABLE 1. Commercial troll management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 2 of 9) 3/13/2008 4:05 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
U.S./Canada Border to Cape Falcon • July 1 through earlier of September 16 or 7,500 preseason Chinook guideline (C.8) or a 4,000 marked coho quota (C.8.d). Open July 1-2, then Saturday through Tuesday thereafter. Landing and possession limit of 40 Chinook and 25 coho per vessel per open period north of Leadbetter Point and 20 Chinook and 25 coho south of Leadbetter Point (C.1). All Salmon except no chum retention north of Cape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip, except an inseason conference call may occur to consider allowing retention of all legal sized coho, in the area between Leadbetter Point and Cape Falcon, no earlier than September 1 (C.8.d). Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5).	**U.S./Canada Border to Cape Falcon** • July 5 through earlier of Sept. 16 or 8,750 preseason Chinook guideline (C.8) or a 4,000 marked coho quota. Saturday through Tuesday. Landing and possession limit of 30 Chinook and 30 coho per vessel per open period (C.1). All Salmon except no chum retention north of C ape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones closed (C.5).	**U.S./Canada Border to Leadbetter Point** • July 4 through the earlier of Sept. 15 or 3,542 preseason Chinook guideline (C.8) or a 2,400 marked coho quota shared with the south of Leadbetter Point fishery. Open Friday through Monday. Landing and possession limit of 30 Chinook and 30 coho per vessel per open period (C.1). All Salmon except no chum retention north of Cape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones closed (C.5). **Leadbetter Point to Cape Falcon** • July 4 through the earlier of Sept. 15 or any remaining Chinook quota from the May-June fishery or (C.8) or a 2,400 marked coho quota shared with the north of Leadbetter Point fishery. Open Friday through Monday. Landing and possession limit of 30 Chinook and 30 coho per vessel per open period (C.1). All Salmon (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.5)..

Oregon State regulations require that fishers south of Cape Falcon, OR intending to fish within this area notify Oregon Department of Fish and Wildlife before transiting the Cape Falcon, OR line (45º46'00" N. lat.) at the following number: 541-867-0300 Ext. 271. Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon must notify ODFW within one hour of delivery or prior to transport away from the port of landing by calling 541-867-0300 Ext. 271. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8)..

TABLE 1. Commercial troll management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 3 of 9)		3/13/2008 4:05 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Klamath River recreational fishery allocation: ___%. 2. Klamath tribal allocation: _____. 3. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	1. Klamath River recreational fishery allocation: ___%. 2. Klamath tribal allocation: _____. 3. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	1. Klamath River recreational fishery allocation: ___%. 2. Klamath tribal allocation: _____. 3. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.
Cape Falcon to Humbug Mt. • April 15 through June 30; July 11-30; August 4-28; September 10-13; October 1-31. Landing and possession limit of 150 Chinook per vessel per calendar week in September; 75 Chinook per vessel per calendar week in October (C.9). All salmon except coho (C.7). Chinook 28 inch total length minimum size (B). See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay. In 2009, the season will open March 15 for all salmon except coho. This opening could be modified following Council review at its March 2009 meeting.	**Cape Falcon to Humbug Mt.** • July 1 through August 31. All salmon except coho (C.7). Chinook 28 inch minimum size limit in (B). See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay. In 2009, same as Option I	**Cape Falcon to Humbug Mt.** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples. In 2009, same as Option I

TABLE 1. Commercial troll management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 4 of 9)		3/13/2008 4:05 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Humbug Mt. to OR/CA Border (Oregon KMZ) • April 15 through May 31; • June 1 through earlier of June 30, or a 1,600 Chinook quota; • July 11 through earlier of July 31, or a 1,600 Chinook quota; • Aug. 1 through earlier of Aug. 29, or a 1,800 Chinook quota; • Sept. 6 through earlier of Sept. 30, or a 1,000 Chinook quota; (C.9) All salmon except coho. Chinook 28 inch total length minimum size limit (B). Landing and possession limit of 30 Chinook per vessel per day and 90 Chinook per vessel per calendar week during June, July, August, and September. See gear restrictions and definitions (C.2, C.3). Prior to June 1, all vessels fishing in the area must land their fish in the State of Oregon. June 1 through September 30, vessels must land their fish in Gold Beach, Port Orford, or Brookings, Oregon, and within 24 hours of closure. State regulations require fishers intending to transport and deliver their catch to other locations after first landing in one of these ports notify ODFW prior to transport away from the port of landing by calling 541-867-0300 Ext. 271, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery.	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • June 1 through earlier of June 30, or a 800 Chinook quota; • July 11 through earlier of July 31, or a 800 Chinook quota; • Aug. 1 through earlier of Aug. 29, or a 900 Chinook quota; • Sept. 6 through earlier of Sept. 30, or a 500 Chinook quota; (C.9) All salmon except coho. Chinook 27 inch total length minimum size limit June through August; 28 inches in September (B). Landing and possession limit of 30 Chinook per vessel per day and 90 Chinook per vessel per calendar week during June, July, August, and September. See gear restrictions and definitions (C.2, C.3). June 1 through September 30, vessels must land their fish in Gold Beach, Port Orford, or Brookings, Oregon, and within 24 hours of closure. State regulations require fishers intending to transport and deliver their catch to other locations after first landing in one of these ports notify ODFW prior to transport away from the port of landing by calling 541-867-0300 Ext. 271, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery.	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.
In 2009, the season will open March 15 for all salmon except coho, with a 28 inch Chinook minimum size limit. This opening could be modified following Council review at its March 2009 meeting.	In 2009, same as Option I	In 2009, same as Option I

TABLE 1. Commercial troll management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 5 of 9)		3/13/2008 4:05 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
OR/CA Border to Humboldt South Jetty (California KMZ) Closed	**OR/CA Border to Humboldt South Jetty (California KMZ)** Closed.	**OR/CA Border to Humboldt South Jetty (California KMZ)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.
Humboldt South Jetty to Horse Mt. Closed.	**Humboldt South Jetty to Horse Mt.** Closed.	**Humboldt South Jetty to Horse Mt.** Closed.
Horse Mt. to Point Arena (Fort Bragg) • August 1-29; September 1-30 (C.9) All salmon except coho. Chinook minimum size limit of 27 inches total length (B). All fish must be offloaded within 24 hours of any closure (C1). See gear restrictions and definitions (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** • August 15-29; September 1-15 (C.9) All salmon except coho. Chinook minimum size limit of 27 inches total length (B). All fish must be offloaded within 24 hours of any closure (C1). See gear restrictions and definitions (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.

TABLE 1. Commercial troll management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 6 of 9) 3/13/2008 4:05 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
Pt. Arena to Pigeon Pt. (San Francisco) • August 1-31; Sept. 1-30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length (B). All fish must be offloaded within 24 hours of the any closure (C.1). See gear restrictions and definitions (C.2, C.3). **Pt. Reyes to Pt. San Pedro (Late Fall Area Target Zone)** • October 1-14. Open Monday through Friday. All salmon except coho (C.1). Chinook minimum size limit of 27 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Pt. Arena to Pigeon Pt. (San Francisco)** • August 15 through Sept. 30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length (B). All fish must be offloaded within 24 hours of the any closure (C.1). See gear restrictions and definitions (C.2, C.3).	**Pt. Arena to Pigeon Pt. (San Francisco)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.
Pigeon Pt. to Pt. Sur (Monterey) • August 1-31; Sept. 1-30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length (B). All fish must be offloaded within 24 hours of the any closure (C.1). See gear restrictions and definitions (C.2, C.3).	**Pigeon Pt. to Pt. Sur (Monterey)** • August 15 through Sept. 30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length (B). All fish must be offloaded within 24 hours of the any closure (C.1). See gear restrictions and definitions (C.2, C.3).	**Pigeon Pt. to Pt. Sur (Monterey)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.
Pt. Sur to U.S./Mexico Border (Morro Bay) • August 1-31; Sept. 1-30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Pt. Sur to U.S./Mexico Border (Morro Bay)** • August 15 through Sept. 30 (C.9) All salmon except coho. Chinook minimum size limit 27 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Pt. Sur to U.S./Mexico Border (Morro Bay)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.

TABLE 1. Commercial troll management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 7 of 9) 3/13/2008 4:05 PM

B. MINIMUM SIZE (Inches) (See C.1)

	Chinook		Coho		
Area (when open)	Total Length	Head-off	Total Length	Head-off	Pink
North of Cape Falcon	28.0	21.5	16.0	12.0	None
Cape Falcon to OR/CA Border					
Option 1	28.0	21.5	-	-	None
Option 2 prior to Sept. 1	27.0	20.5	-	-	None
Option 2 Sept. 1-30	28.0	21.5	-	-	None
OR/CA Border to Horse Mt.	28.0	21.5	-	-	None
Horse Mt. to U.S./Mexico Border	27.0	20.5	-	-	None

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Compliance with Minimum Size or Other Special Restrictions: All salmon on board a vessel must meet the minimum size, landing/possession limit, or other special requirements for the area being fished and the area in which they are landed if the area is open. Salmon may be landed in an area that has been closed more than 96 hours only if they meet the minimum size, landing/possession limit, or other special requirements for the area in which they were caught. Salmon may be landed in an area that has been closed less than 96 hours only if they meet the minimum size, landing/possession limit, or other special requirements for the areas in which they were caught and landed.

States may require fish landing/receiving tickets be kept on board the vessel for 90 days after landing to account for all previous salmon landings.

C.2. Gear Restrictions: Salmon may be taken only by hook and line using barbless hooks.
- a. Single point, single shank, barbless hooks are required in all fisheries.
- b. Cape Falcon, Oregon, to the OR/CA border: No more than 4 spreads are allowed per line.
- c. OR/CA border to U.S./Mexico border: No more than 6 lines are allowed per vessel, and barbless circle hooks are required when fishing with bait by any means other than trolling.

C.3. Gear Definitions:
Trolling defined: Fishing from a boat or floating device that is making way by means of a source of power, other than drifting by means of the prevailing water current or weather conditions.

Troll fishing gear defined: One or more lines that drag hooks behind a moving fishing vessel. In that portion of the fishery management area (FMA) off Oregon and Washington, the line or lines must be affixed to the vessel and must not be intentionally disengaged from the vessel at any time during the fishing operation.

Spread defined: A single leader connected to an individual lure or bait.

Circle hook defined: A hook with a generally circular shape and a point which turns inward, pointing directly to the shank at a 90º angle.

TABLE 1. Commercial troll management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 8 of 9) 3/13/2008 4:05 PM

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)

C.4. Transit Through Closed Areas with Salmon on Board: It is unlawful for a vessel to have troll or recreational gear in the water while transiting any area closed to fishing for a certain species of salmon, while possessing that species of salmon; however, fishing for species other than salmon is not prohibited if the area is open for such species, and no salmon are in possession.

C.5. Control Zone Definitions:

a. *Cape Flattery Control Zone* - The area from Cape Flattery (48º23'00" N. lat.) to the northern boundary of the U.S. EEZ; and the area from Cape Flattery south to Cape Alava (48º10'00" N. lat.) and east of 125º05'00" W. long.

b. *Mandatory Yelloweye Rockfish Conservation Area* – The area 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.

c. *Columbia Control Zone* - An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09' N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat.,124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long.), and then along the north jetty to the point of intersection with the Buoy #10 line; and, on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.

d. *Bandon High Spot Control Zone* - The area west of a line between 43º07'00" N. lat.; 124º37'00" W. long. and 42º40'30" N. lat; 124º 52'0" W. long. extending to the western edge of the exclusive economic zone (EEZ).

e. *Klamath Control Zone* - The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately six nautical miles north of the Klamath River mouth); on the west, by 124°23'00" W. long. (approximately 12 nautical miles off shore); and on the south, by 41°26'48" N. lat. (approximately six nautical miles south of the Klamath River mouth).

C.6. Notification When Unsafe Conditions Prevent Compliance with Regulations: If prevented by unsafe weather conditions or mechanical problems from meeting special management area landing restrictions, vessels must notify the U.S. Coast Guard and receive acknowledgment of such notification prior to leaving the area. This notification shall include the name of the vessel, port where delivery will be made, approximate amount of salmon (by species) on board, and the estimated time of arrival.

C.7. Incidental Halibut Harvest: During authorized periods, the operator of a vessel that has been issued an incidental halibut harvest license may retain Pacific halibut caught incidentally in Area 2A while trolling for salmon. Halibut retained must be no less than 32 inches in total length, measured from the tip of the lower jaw with the mouth closed to the extreme end of the middle of the tail, and must be landed with the head on. License applications for incidental harvest must be obtained from the International Pacific Halibut Commission (phone: 206-634-1838). Applicants must apply prior to April 1 of each year. Incidental harvest is authorized only during May and June troll seasons and after June 30 if quota remains and if announced on the NMFS hotline (phone: 800-662-9825). ODFW and Washington Department of Fish and Wildlife (WDFW) will monitor landings. If the landings are projected to exceed the 37,707 pound preseason allocation or the total Area 2A non-Indian commercial halibut allocation, NMFS will take inseason action to prohibit retention of halibut in the non-Indian salmon troll fishery.

Option I: Beginning May 1, license holders may land no more than one Pacific halibut per each **three** Chinook, except one Pacific halibut may be landed without meeting the ratio requirement, and no more than **35** halibut may be landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).
Options II and III: Beginning May 1, license holders may land no more than one Pacific halibut per each **two** Chinook, except one Pacific halibut may be landed without meeting the ratio requirement, and no more than **35** halibut may be landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).

TABLE 1. Commercial troll management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 9 of 9) 3/13/2008 4:05 PM

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)

A "C-shaped" yelloweye rockfish conservation area is an area to be voluntarily avoided for salmon trolling. NMFS and the Council request salmon trollers voluntarily avoid this area in order to protect yelloweye rockfish. The area is defined in the Pacific Council Halibut Catch Sharing Plan in the North Coast subarea (Washington marine area 3), with the following coordinates in the order listed:

48°18' N. lat.; 125°18' W. long.;
48°18' N. lat.; 124°59' W. long.;
48°11' N. lat.; 124°59' W. long.;
48°11' N. lat.; 125°11' W. long.;
48°04' N. lat.; 125°11' W. long.;
48°04' N. lat.; 124°59' W. long.;
48°00' N. lat.; 124°59' W. long.;
48°00' N. lat.; 125°18' W. long.;

and connecting back to 48°18' N. lat.; 125°18' W. long.

C.8. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a. Chinook remaining from the May through June non-Indian commercial troll harvest guideline north of Cape Falcon may be transferred to the July through September harvest guideline on a fishery impact equivalent basis.
b. NMFS may transfer fish between the recreational and commercial fisheries north of Cape Falcon if there is agreement among the areas' representatives on the SAS.
c. At the March 2009 meeting, the Council will consider inseason recommendations for special regulations for any experimental fisheries (proposals must meet Council protocol and be received in November 2008).
d. If retention of unmarked coho is permitted in the area from the U.S./Canada border to Cape Falcon, Oregon, by inseason action, the allowable coho quota will be adjusted to ensure preseason projected mortality of critical stocks is not exceeded.

C.9. Consistent with Council management objectives:

a. the State of Oregon may establish additional late-season fisheries in state waters.
b. the State of California may establish limited fisheries in selected state waters.

Check state regulations for details.

C.10. For the purposes of California Department of Fish and Game (CDFG) Code, Section 8232.5, the definition of the KMZ for the ocean salmon season shall be that area from Humbug Mt., Oregon, to Horse Mt., California.

TABLE 2. Recreational management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 1 of 8) 3/13/2008 4:05 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 45,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 22,500 Chinook and 21,000 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. No Area 4B add-on fishery. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 3,500 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 35,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 17,500 Chinook and 21,000 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. Area 4B add-on fishery of 5,000 marked coho. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 4,000 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 25,000 Chinook and 15,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 12,500 Chinook and 12,600 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. No Area 4B add-on fishery. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 4,500 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.
U.S./Canada Border to Leadbetter Point • May 24 through earlier of June 30 or a quota of 6,000 Chinook (C.5). Seven days per week except Sunday through Thursday in the Westport subarea. All salmon except coho, one fish per day. Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Falcon** • May 25 through earlier of June 15 or a quota of 3,500 Chinook (C.5). Seven days per week. All salmon except coho, one fish per day. Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5). .	
Leadbetter Point to Cape Falcon (Columbia River Subarea) • May 24 through earlier of June 30 or a subarea guideline of 5,900 Chinook (C.5). Seven days per week. All salmon except coho, one fish per day. Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).		

TABLE 2. **Recreational** management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 2 of 8) 3/13/2008 4:05 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
U.S./Canada Border to Cape Alava (Neah Bay) • July 1 through earlier of September 13 or 2,180 marked coho subarea quota with a subarea guideline of 1,550 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay**) • July 1 through earlier of September 13 or 1,260 marked coho subarea quota with a subarea guideline of 1,500 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.d) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay**) • July 8 through earlier of September 13 or 1,310 marked coho subarea quota with a subarea guideline of 1,350 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).
Cape Alava to Queets River (La Push Subarea) • ·July 1 through earlier of September 13 or 500 marked coho subarea quota with a subarea guideline of 650 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Cape Alava to Queets River (La Push Subarea)** • ·July 1 through earlier of September 13 or 560 marked coho subarea quota with a subarea guideline of 600 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Cape Alava to Queets River (La Push Subarea)** • ·July 8 through earlier of September 13 or 290 marked coho subarea quota with a subarea guideline of 550 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).
Queets River to Leadbetter Point (Westport Subarea) • June 29 through earlier of September 13 or 7,770 marked coho subarea quota with a subarea guideline of 8,300 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • June 15 through earlier of September 13 or 8,640 marked coho subarea quota with a subarea guideline of 8,100 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • May 25 through earlier of September 13 or 4,650 marked coho subarea quota with a subarea guideline of 7,200 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

TABLE 2. **Recreational** management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 2 of 8) 3/13/2008 4:05 PM

A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Leadbetter Point to Cape Falcon (Columbia River Subarea) • June 29 through earlier of September 30 or 10,500 marked coho subarea quota with any remainder of the 5,900 Chinook subarea guideline from the May-June Chinook directed fishery (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.c). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • June 29 through earlier of September 30 or 10,500 marked coho subarea quota with a subarea guideline of 3,700 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit) (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.a). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • July 13 through earlier of September 30 or 6,300 marked coho subarea quota with a subarea guideline of 3,300 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit) (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.a). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

TABLE 2. **Recreational** management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 3 of 8) 3/13/2008 4:05 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Central Valley recreational fisheries 33% closed. 2. Klamath River recreational fishery allocation: ___%. 3. Klamath tribal allocation: _____. 4. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 5. All retained coho must be marked with a healed adipose fin clip (marked).	1. Central Valley recreational fisheries 66% closed 2. Klamath River recreational fishery allocation: ___%. 3. Klamath tribal allocation: _____. 4. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 5. All retained coho must be marked with a healed adipose fin clip (marked).	1. Central Valley recreational fisheries prohibit Chinook retention. 2. Klamath River recreational fishery allocation: ___%. 3. Klamath tribal allocation: _____. 4. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 5. All retained coho must be marked with a healed adipose fin clip (marked).
Cape Falcon to Humbug Mt. • April 15 through June 15; September 1-30 (C.6). Seven days per week. All salmon except coho; two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Cape Falcon to Humbug Mt.** • April 15 through June 15; September 1-30 (C.6). Seven days per week. All salmon except coho; one fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Cape Falcon to Humbug Mt.** Closed In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).
Cape Falcon to Humbug Mt. • June 22 through earlier of August 31 or a landed catch of 10,000 marked coho. Seven days per week. All salmon, two fish per day (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).	**Cape Falcon to Humbug Mt.** • June 19 through earlier of August 30 or a landed catch of 5,000 marked coho. Thursday through Saturday. All salmon, two fish per day (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).	**Cape Falcon to OR/CA Border** • June 22 through earlier of August 28 or a landed catch of 7,500 marked coho, except the area south of Humbug Mt. will close July 7 through August 24 concurrent with the KMZ season listed below. Sunday through Thursday. All salmon except Chinook, two fish per day (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).

TABLE 2. **Recreational** management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 4 of 8) 3/13/2008 4:14 PM

A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Humbug Mt. to OR/CA Border. (Oregon KMZ) • ~~Except as provided above during the selective fishery, the season will be~~ May 21 through September 1 (C.6). Wednesday through Saturday through August 30, and August 31-Sept. 1. Two fish per day, no more than four fish per four-day open period (C.1). All salmon except coho~~, except as noted above in the coho mark selective fishery~~ Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Humbug Mt. to OR/CA Border. (Oregon KMZ)** • ~~Except as provided above during the selective fishery, the season will be~~ May 24 through July 6 • August 24 through September 1 (C.6). Seven days per week. Two fish per day, no more than four fish per four-day open period (C.1). All salmon except coho~~, except as noted above in the coho mark selective fishery~~. Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**Humbug Mt. to OR/CA Border. (Oregon KMZ)** • Except as provided above during the selective fishery, the season will be closed
OR/CA Border to Horse Mt. (California KMZ) • May 24-31 • June 4 through August 30; Wednesday through Saturday • August 31 through September 1 (C.6). Two fish per day, no more than four fish per four-day open period (C.1). All salmon except coho, Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Klamath, and Eel rivers.	**OR/CA Border to Horse Mt. (California KMZ)** • May 24 through July 6 • August 24 through September 1 (C.6). Seven days per week. Two fish per day (C.1). All salmon except coho. Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Klamath Control Zone closed in August (C.4.e). See California State regulations for additional closures adjacent to the Smith, Klamath, and Eel rivers.	**OR/CA Border to Horse Mt. (California KMZ)** • Closed.
Horse Mt. to Point Arena (Fort Bragg) • February 16 through March 31 • May 17 through August 3 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, season opens February 14 (nearest Saturday to February 15) for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** • February 16 through March 31 • May 17 through July 12 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option 1.	**Horse Mt. to Point Arena (Fort Bragg)** • Closed.
Point Arena to Pigeon Point (San Francisco) • May 17 through September 1 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, the season will open April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2007 (C.2, C.3).	**Point Arena to Pigeon Point (San Francisco)** • May 24-26 • May 29 through August 24 Thursday through Sunday (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option I	**Point Arena to Pigeon Point (San Francisco)** • Closed.

TABLE 2. **Recreational** management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 5 of 8)		3/13/2008 4:05 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Pigeon Point to U.S./Mexico Border (Monterey South) • May 1 through July 31 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, the season will open April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2007 (C.2, C.3).	**Pigeon Point to U.S./Mexico Border (Monterey)** • May 1 through June 8 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, same as Option I	**Pigeon Point to U.S./Mexico Border (Monterey)** • Closed. .

TABLE 2. **Recreational** management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 7 of 8) 3/13/2008 4:05 PM

B. MINIMUM SIZE (Inches) (See C.1)

Area (when open)	Chinook	Coho	Pink
North of Cape Falcon	24.0	16.0	None
Cape Falcon to OR/CA Border	24.0	16.0	None
OR/CA Border to Horse Mountain	24.0	-	20.0
Horse Mt. to U.S./Mexico Border	20.0	-	20.0

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Compliance with Minimum Size and Other Special Restrictions: All salmon on board a vessel must meet the minimum size or other special requirements for the area being fished and the area in which they are landed if that area is open. Salmon may be landed in an area that is closed only if they meet the minimum size or other special requirements for the area in which they were caught.

Ocean Boat Limits: Off the coast of Washington, Oregon, and California, each fisher aboard a vessel may continue to use angling gear until the combined daily limits of salmon for all licensed and juvenile anglers aboard has been attained (additional state restrictions may apply).

C.2. Gear Restrictions: Salmon may be taken only by hook and line using barbless hooks. All persons fishing for salmon, and all persons fishing from a boat with salmon on board, must meet the gear restrictions listed below for specific areas or seasons.

a. U.S./Canada Border to Point Conception, California: No more than one rod may be used per angler; and no more than two single point, single shank barbless hooks are required for all fishing gear. [Note: ODFW regulations in the state-water fishery off Tillamook Bay may allow the use of barbed hooks to be consistent with inside regulations.]
b. Cape Falcon, Oregon, to Point Conception, California: Anglers must use no more than two single point, single shank, barbless hooks.
c. Horse Mt., California, to Point Conception, California: Single point, single shank, barbless circle hooks (below) are required when fishing with bait by any means other than trolling, and no more than two such hooks shall be used. When angling with two hooks, the distance between the hooks must not exceed five inches when measured from the top of the eye of the top hook to the inner base of the curve of the lower hook, and both hooks must be permanently tied in place (hard tied). Circle hooks are not required when artificial lures are used without bait.

C.3. Gear Definitions:

a. *Recreational fishing gear defined*: Angling tackle consisting of a line with no more than one artificial lure or natural bait attached. Off Oregon and Washington, the line must be attached to a rod and reel held by hand or closely attended; the rod and reel must be held by hand while playing a hooked fish. No person may use more than one rod and line while fishing off Oregon or Washington. Off California, the line must be attached to a rod and reel held by hand or closely attended. Weights directly attached to a line may not exceed four pounds (1.8 kg). While fishing off California north of Point Conception, no person fishing for salmon, and no person fishing from a boat with salmon on board, may use more than one rod and line. Fishing includes any activity which can reasonably be expected to result in the catching, taking, or harvesting of fish.
b. *Trolling defined*: Angling from a boat or floating device that is making way by means of a source of power, other than drifting by means of the prevailing water current or weather conditions.
c. Circle hook defined: A hook with a generally circular shape and a point which turns inward, pointing directly to the shank at a 90° angle.

TABLE 2. **Recreational** management options initially analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 8 of 8)	3/13/2008 4:05 PM
B. MINIMUM SIZE (Inches) (See C.1)	

C.4. Control Zone Definitions:

a. *The Bonilla-Tatoosh Line*: A line running from the western end of Cape Flattery to Tatoosh Island Lighthouse (48°23'30" N. lat., 124°44'12" W. long.) to the buoy adjacent to Duntze Rock (48°28'00" N. lat., 124°45'00" W. long.), then in a straight line to Bonilla Point (48°35'30" N. lat., 124°43'00" W. long.) on Vancouver Island, British Columbia.

b. *Grays Harbor Control Zone* - The area defined by a line drawn from the Westport Lighthouse (46° 53'18" N. lat., 124° 07'01" W. long.) to Buoy #2 (46° 52'42" N. lat., 124°12'42" W. long.) to Buoy #3 (46° 55'00" N. lat., 124°14'48" W. long.) to the Grays Harbor north jetty (46° 36'00" N. lat., 124°10'51" W. long.).

c. *Columbia Control Zone*: An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09' N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat., 124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long. and then along the north jetty to the point of intersection with the Buoy #10 line; and on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.

d. *Stonewall Bank Groundfish Conservation Area*: The area defined by the following coordinates in the order listed:
   44°37.46' N. lat.; 124°24.92' W. long.;
   44°37.46' N. lat.; 124°23.63' W. long.;
   44°28.71' N. lat.; 124°21.80' W. long.;
   44°28.71' N. lat.; 124°24.10' W. long.;
   44°31.42' N. lat.; 124°25.47' W. long.;
   and connecting back to 44°37.46' N. lat.; 124°24.92' W. long.

e. *Klamath Control Zone*: The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately six nautical miles north of the Klamath River mouth); on the west, by 124°23'00" W. long. (approximately 12 nautical miles off shore); and, on the south, by 41°26'48" N. lat. (approximately 6 nautical miles south of the Klamath River mouth).

C.5. Inseason Management: Regulatory modifications may become necessary inseason to meet preseason management objectives such as quotas, harvest guidelines, and season duration. In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a. Actions could include modifications to bag limits, or days open to fishing, and extensions or reductions in areas open to fishing.

b. Coho may be transferred inseason among recreational subareas north of Cape Falcon on an impact neutral basis to help meet the recreational season duration objectives (for each subarea) after conferring with representatives of the affected ports and the Council's SAS recreational representatives north of Cape Falcon.

c. Chinook and coho may be transferred between the recreational and commercial fisheries north of Cape Falcon on an impact neutral basis if there is agreement among the representatives of the SAS.

d. If retention of unmarked coho is permitted in the area from the U.S./Canada border to Cape Falcon, Oregon, by inseason action, the allowable coho quota will be adjusted to ensure preseason projected mortality of critical stocks is not exceeded.

e. Chinook remaining from the May through June recreational quota north of Leadbetter Point may be transferred to the July through September harvest overall North of Cape Falcon quota on a fishery impact equivalent basis.

C.6. Additional Seasons in State Territorial Waters: Consistent with Council management objectives, the States of Washington and Oregon, and California may establish limited seasons in state waters. Oregon State-water fisheries are limited to Chinook salmon. Check state regulations for details.

TABLE 3. Management Options initially analyzed by the STT for 2008 Treaty Indian ocean troll fisheries. (Page 1 of 2)		3/13/2008 4:06 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall Treaty-Indian TAC: 40,000 Chinook and 25,000 coho. 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries	1. Overall Treaty-Indian TAC: 35,000 Chinook and 20,000 coho. 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries	1. Overall Treaty-Indian TAC: 20,000 Chinook and 15,000 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries
•• May 1 through the earlier of June 30 or 22,500 Chinook quota. All salmon except coho. If the Chinook quota for the May-June fishery is not fully utilized, the excess fish cannot be transferred into the later all-salmon season. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 17,500 preseason Chinook quota, or 25,000 coho quota (C.5). All Salmon. See size limit (B) and other restrictions (C).	• May 1 through the earlier of June 30 or 17,500 Chinook quota. All salmon except coho. If the Chinook quota for the May-June fishery is not fully utilized, the excess fish cannot be transferred into the later all-salmon season. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 17,500 preseason Chinook quota, or 20,000 coho quota. All salmon. See size limit (B) and other restrictions (C).	• May 1 through the earlier of June 30 or 10,000 Chinook quota. All salmon except coho. If the Chinook quota for the May-June fishery is not fully utilized, the excess fish cannot be transferred into the later all-salmon season. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 10,000 preseason Chinook quota, or 15,000 coho quota. All salmon. See size limit (B) and other restrictions (C)

TABLE 3. Management Options initially analyzed by the STT for 2008 Treaty Indian ocean troll fisheries. (Page 2 of 2) 3/13/2008 4:06 PM

B. MINIMUM SIZE (Inches)

Area (when open)	Chinook		Coho		Pink
	Total Length	Head-off	Total Length	Head-off	
North of Cape Falcon	24.0 (61.0 cm)	18.0 (45.7 cm)	16.0 (40.6 cm)	12.0 (30.5 cm)	None

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Tribe and Area Boundaries. All boundaries may be changed to include such other areas as may hereafter be authorized by a Federal court for that tribe's treaty fishery.

S'KLALLAM - Washington State Statistical Area 4B (All).

MAKAH - Washington State Statistical Area 4B and that portion of the FMA north of 48°02'15" N. lat. (Norwegian Memorial) and east of 125°44'00" W. long.

QUILEUTE - That portion of the FMA between 48°07'36" N. lat. (Sand Pt.) and 47°31'42" N. lat. (Queets River) and east of 125°44'00" W. long.

HOH - That portion of the FMA between 47°54'18" N. lat. (Quillayute River) and 47°21'00" N. lat. (Quinault River) and east of 125°44'00" W. long.

QUINAULT - That portion of the FMA between 47°40'06" N. lat. (Destruction Island) and 46°53'18"N. lat. (Point Chehalis) and east of 125°44'00" W. long.

C.2. Gear restrictions

a. Single point, single shank, barbless hooks are required in all fisheries.
b. No more than 8 fixed lines per boat.
c. No more than four hand held lines per person in the Makah area fishery (Washington State Statistical Area 4B and that portion of the FMA north of 48°02'15" N. lat. (Norwegian Memorial) and east of 125°44'00" W. long.)

C.3. Quotas

a. The quotas include troll catches by the S'Klallam and Makah tribes in Washington State Statistical Area 4B from May 1 through September 15.
b. The Quileute Tribe will continue a ceremonial and subsistence fishery during the time frame of September 15 through October 15 in the same manner as in 2004, 2005, and 2006. Fish taken during this fishery are to be counted against treaty troll quotas established for the 2007 season (estimated harvest during the October ceremonial and subsistence fishery: 100 Chinook; 200 coho).

C.4. Area Closures

a. The area within a six nautical mile radius of the mouths of the Queets River (47°31'42" N. lat.) and the Hoh River (47°45'12" N. lat.) will be closed to commercial fishing.
b. A closure within two nautical miles of the mouth of the Quinault River (47°21'00" N. lat.) may be enacted by the Quinault Nation and/or the State of Washington and will not adversely affect the Secretary of Commerce's management regime.

C.5. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2008 ocean fishery options initially analyzed by the STT.[a/] (Page 1 of 3)

Key Stock/Criteria	Projected Ocean Escapement[b/] or other Criteria (Council Area impacts in parens) Option I	Option II	Option III		Spawner Objective or Other Comparative Standard as Noted
			CHINOOK		
Columbia Upriver Brights	185.6	185.8	163.5	57.3	Minimum ocean escapement to attain 46.0 adults over McNary Dam, with normal distribution and no mainstem harvest.
Mid-Columbia Brights	61.6	61.7	54.3	16.6	Minimum ocean escapement to attain 5.75 adults for Bonneville Hatchery and 2.0 for Little White Salmon Hatchery egg-take, assuming average conversion and no mainstem harvest.
Columbia Lower River Hatchery Tules	58.6	60.4	58.9	31.1	Minimum ocean escapement to attain 14.1 adults for hatchery egg-take, with average conversion and no lower river mainstem or tributary harvest.
Columbia Lower River Natural Tules[c/] (threatened)	37.2%	35.3%	32.1%	≤ 41.0%	ESA guidance met by a total adult equivalent fishery exploitation rate on Coweeman tules (NMFS ESA consultation standard).
Columbia Lower River Wild (threatened)	**4.2**	**4.3**	**3.8**	5.7	MSY spawner goal for North Lewis River fall chinook (NMFS ESA consultation standard).
Spring Creek Hatchery Tules	91.3	94.8	94.1	11.1	Minimum ocean escapement to attain 7.0 adults for Spring Creek Hatchery egg-take, assuming average conversion and no mainstem harvest.
Snake River Fall (threatened) SRFI	62.9%	59.0%	51.5%	≤ 70.0%	Of 1988-1993 base period exploitation rate for all ocean fisheries (NMFS ESA consultation standard).
Klamath River Fall	40.7[h/]	40.7	40.7	40.7	Minimum number of adult spawners to natural spawning areas. 2008 Council guidance.
Federally recognized tribal harvest	50.0%	50.0%	50.0%	50.0%	Equals 28.0, 27.7, and 26.4 (thousand) adult fish for Yurok and Hoopa tribal fisheries.
Spawner Reduction Rate	47.1%	47.1%	47.1%	≤ 66.7%	Equals 38.8, 35.8, and 33.8 (thousand) fewer adult spawners due to fishing.
Adult river mouth return	103.7	107.1	114.1	NA	
Age 4 ocean harvest rate	10.4%	8.1%	2.4%	≤ 16.0%	NMFS ESA consultation standard for threatened California coastal chinook.
KMZ sport fishery share	11.9%	11.8%	13.4%	17.0%	2007 Council guidance.
CA:OR troll fishery share	39:61	40:60	88:12	50:50	2006 KFMC recommendation, no guidance for 2008.
River recreational fishery share	35.2%	48.8%	82.9%	≥ 15%	2008 Council Guidance. Equals 9.9, 13.5, and 21.9 (thousand) adult fish for recreational inriver fisheries.
Sacramento River Winter (endangered)	Met	Met	Met		Recreational season between Point Arena and Pigeon Point shall open no earlier than the first Saturday in April and close no later than the second Sunday in November; the recreational season between Pigeon Point and the U.S./Mexico Border shall open no earlier than the first Saturday in April and close no later than the first Sunday in October. The minimum size limit shall be at least 20 inches total length. Commercial seasons between Point Arena and the U.S./Mexico border shall open no earlier than May 1 and close no later than September 30, with the exception of an October season conducted Monday through Friday between Point Reyes and Point San Pedro, which shall end no later than October 15. The minimum size limit shall be at least 26 inches total length. (NMFS ESA consultation
Sacramento River Fall	**41.4**	**49.8**	**56.2**	122.0-180.0	Sacramento River fall natural and hatchery adult spawners.
River recreational fishery harvest	4.4	2.5	0.0		2008 Council Guidance. Equals 67%, 33%, and 0% of historical harvest rate.
Hatchery spawner goal	**Not Met**	**Not Met**	**Not Met**	16,000	Aggregate number of adults to achieve egg take goals at Coleman, Feather River, and Nimbus hatcheries.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2008 ocean fishery options initially analyzed by the STT.[a/] (Page 2 of 3)

Key Stock/Criteria	Projected Ocean Escapement[b/] or other Criteria (Council Area impacts in parens) Option I	Option II	Option III	Spawner Objective or Other Comparative Standard as Noted
			COHO	
Interior Fraser (Thompson River)	8.5%(3.4%)	8.1%(2.9%)	7.1%(1.9%)	≤ 10.0% Total exploitation rate for all U.S. fisheries south of the U.S./Canada border based on 2002 PSC coho agreement.
Skagit	34.3%(3.0%)	32.0%(2.7%)	31.2%(1.8%)	≤ 35.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	49.8	50.0	50.5	30.0 MSP level of adult spawners Identified in FMP.
Stillaguamish	39.4%(2.1%)	39.2%(1.8%)	38.8%(1.2%)	≤ 50.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	24.8	24.8	25.0	17.0 MSP level of adult spawners Identified in FMP.
Snohomish	36.4%(2.1%)	36.2%(1.8%)	35.7%(1.2%)	≤ 40.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	77.2	77.4	78.0	70.0 MSP level of adult spawners Identified in FMP.
Hood Canal	45.1%(3.1%)	44.9%(2.8%)	44.1%(1.8%)	≤ 45.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	19.8	**19.8**	**20.1**	21.5 MSP level of adult spawners Identified in FMP.
Strait of Juan de Fuca	11.8%(2.5%)	11.4%(2.1%)	10.8%(1.5%)	≤ 40.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	21.7	21.8	21.9	12.8 MSP level of adult spawners Identified in FMP.
Quillayute Fall	10.0	10.1	10.2	6.3-15.8 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Hoh	3.9	3.9	4.0	2.0-5.0 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Queets Wild	8.9	9.0	9.2	5.8-14.5 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Grays Harbor	41.4	41.7	42.1	35.4 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Lower Columbia River Natural	**7.7%**	**6.3%**	4.1%	≤ 8.0% Council area marine and mainstem Columbia River fishery exploitation rate (NMFS ESA consultation standard). Value depicted is ocean fishery exploitation rate only.
(threatened)				
Upper Columbia[g/]	≥ 50%	≥ 50%	≥ 50%	≥ 50% Minimum percentage of the run to Bonneville Dam.
Columbia River Hatchery Early	90.3	93.2	95.6	38.7 Minimum ocean escapement to attain hatchery egg-take goal of 16.0 early adult coho, with average conversion and no mainstem or tributary fisheries.
Columbia River Hatchery Late	67.1	68.3	73.4	15.2 Minimum ocean escapement to attain hatchery egg-take goal of 9.7 late adult coho, with average conversion and no mainstem or tributary fisheries.
Oregon Coastal Natural	**12.9%**	**9.4%**	6.3%	≤ 8.0% Marine and freshwater fishery exploitation rate.
Northern California (threatened)	9.6%	5.8%	2.5%	≤ 13.0% Marine fishery exploitation rate for R/K hatchery coho (NMFS ESA consultation standard).

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2008 ocean fishery options initially analyzed by the STT.[a/] (Page 3 of 3)

a/ Projections in the table assume a WCVI mortality for coho of the 2007 observed level. Southeast Alaska, North Coast BC, and WCVI troll and outside sport fisheries were assumed to have the same exploitation rates as expected preseason in 2007. Assumptions for these chinook fisheries will be changed prior to the April meeting when allowable catch levels for 2008 under the PST are known.

b/ Ocean escapement is the number of salmon escaping ocean fisheries and entering freshwater with the following clarifications. Ocean escapement for Puget Sound stocks is the estimated number of salmon entering Area 4B that are available to U.S. net fisheries in Puget Sound and spawner escapement after impacts from the Canadian, U.S. ocean, and Puget Sound troll and recreational fisheries have been deducted. Numbers in parentheses represent Council area exploitation rates for Puget sound coho stocks. For Columbia River early and late coho stocks, ocean escapement represents the number of coho after the Buoy 10 fishery. Exploitation rates for LCN coho include all marine impacts prior to the Buoy 10 fishery. Exploitation rates for OCN coho include impacts of freshwater fisheries.

c/ Annual management objectives may be different than FMP goals, and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders. Total exploitation rate includes Alaskan, Canadian, Council area, Puget Sound, and freshwater fisheries and is calculated as total fishing mortality divided by total fishing mortality plus spawning escapement. These total exploitation rates reflect the initial base package for inside fisheries developed by state and tribal comanagers. It is anticipated that total exploitation rates will be adjusted by state and tribal comanagers during the preseason planning process to comply with stock specific exploitation rate constraints.

d/ Includes minor contributions from East Fork Lewis River and Sandy River.

e/ The fisheries in this option will need to be restructured if negotiations in the North of Falcon forum or final preseason catch expectations for Canadian and Alaskan fisheries do not result in an SRFI at or below 0.700 as required by the NMFS ESA consultation standard.

f/ The fisheries in this option will need to be restructured if negotiations in the North of Falcon forum or final preseason catch expectations for Canadian and Alaskan fisheries do not result in a total exploitation rate for all U.S. fisheries south of the U.S./Canada border of no more than 10.0% as required by the 2002 PSC agreement.

g/ Includes projected impacts of inriver fisheries that have not yet been shaped.

h/ If the management expectation was for 35,000 natural area spawners, the tribal harvest would be 30,581 and river recreational harvest would be 26,060.

TABLE 7. Expected coastwide lower Columbia Natural (LCN) Oregon coastal natural (OCN) and Rogue/Klamath (RK) coho, and Lower Columbia River (LCR) natural tule Chinook exploitation rates by fishery for 2008 ocean fisheries management options initially analyzed by the Council (Page 1 of 1)

	Exploitation Rate (Percent)											
	LCN Coho			OCN Coho			RK Coho			LCR Tule		
Fishery	I	II	III	I	II	III	I	II	III	I	II	III
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	3.0%	3.1%
BRITISH COLUMBIA	0.1%	0.1%	0.1%	0.4%	0.4%	0.4%	0.2%	0.2%	2.0%	14.3%	14.5%	14.9%
PUGET SOUND/STRAIT	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.4%	0.4%	0.4%
NORTH OF CAPE FALCON												
Treaty Indian Ocean Troll	1.8%	1.5%	1.1%	1.2%	1.0%	0.7%	0.0%	0.0%	0.0%	4.8%	4.3%	2.5%
Recreational	2.5%	2.6%	1.4%	0.7%	0.7%	0.4%	0.0%	0.0%	0.0%	2.8%	2.0%	1.4%
Non-Indian Troll	9.0%	0.8%	0.5%	0.5%	0.4%	0.3%	0.0%	0.0%	0.0%	3.4%	2.8%	1.9%
SOUTH OF CAPE FALCON												
Recreational:	1.6%	1.0%	0.9%							0.0%	0.0%	0.0%
Cape Falcon to Humbug Mt.				3.2%	1.8%	2.0%	0.2%	0.2%	0.2%			
Humbug Mt. OR/CA border (KMZ)				0.6%	0.4%	2.0%	1.0%	0.5%	0.4%			
OR/CA border to Horse Mt. (KMZ)				0.8%	0.7%	0.0%	3.4%	2.4%	0.0%			
Fort Bragg				1.2%	0.7%	0.0%	2.0%	1.1%	0.0%			
South of Pt. Arena				1.1%	0.5%	0.0%	1.4%	0.6%	0.0%			
Troll:	0.8%	0.6%	0.2%							1.6%	1.0%	0.3%
Cape Falcon to Humbug Mt.				1.2%	1.0%	0.2%	0.2%	0.2%	0.0%			
Humbug Mt. OR/CA border (KMZ)				0.2%	0.1%	0.1%	0.2%	0.1%	0.1%			
OR/CA border to Horse Mt. (KMZ)				0.0%	0.0%	0.3%	0.0%	0.0%	0.9%			
Fort Bragg				0.3%	0.1%	0.2%	0.5%	0.2%	0.4%			
South of Pt. Arena				0.2%	0.1%	0.1%	0.0%	0.0%	0.0%			
BUOY 10	0.6%	0.6%	0.7%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	7.0%	7.2%	7.5%
ESTUARY/FRESHWATER	N/A	N/A	N/A	1.1%	1.2%	1.1%	0.2%	0.2%	0.3%			
TOTAL[a/]	7.7%	6.3%	4.1%	12.9%	9.4%	6.3%	9.6%	5.8%	2.5%	37.2%	35.3%	32.1%

a/ Total does not include Buoy 10 for LCN coho.

Agenda Item D.7
Situation Summary
March 2008

ADOPTION OF 2008 MANAGEMENT OPTIONS FOR PUBLIC REVIEW

The Council will review the Salmon Technical Team (STT) impact analysis (Agenda Item D.7.b, Supplemental STT Report) and comments from advisory bodies, agencies, tribes, and the public before adopting proposed ocean salmon fishery management options for public review. The adopted options should meet fishery management plan objectives (spawner escapement goals, allocations, etc.) and encompass a realistic range of alternatives from which the final management measures will emerge. Any need for implementation by emergency rule must be clearly noted and consistent with the Council's emergency criteria (see Agenda Item D.4.a, Attachment 2).

Council Task:

1. **Adopt final ocean salmon fishery management options for public review.**
2. **If necessary, identify and justify any option(s) that would require implementation by emergency rule.**

Reference Materials:

1. Agenda Item D.7.b, Supplemental STT Report: Analysis of Preliminary Salmon Management Options for 2008 Ocean Fisheries.

Agenda Order:

a.	Agenda Item Overview	Chuck Tracy
b.	Report of the STT	Allen Grover
c.	Reports and Comments of Advisory Bodies	
d.	Agency and Tribal Comments	
e.	Public Comment	
f.	**Council Action:** Adopt Management Options for Public Review	

PFMC
02/12/08

Agenda Item D.7.b
Supplemental STT Report
March 2008

SALMON TECHNICAL TEAM

ANALYSIS OF PRELIMINARY SALMON MANAGEMENT OPTIONS FOR 2008 OCEAN FISHERIESS

Friday
March 14, 2008

TABLE 1. Commercial troll management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 1 of 7) 3/14/2008 1:45 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 45,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 22,500 Chinook and 4,000 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 35,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 17,500 Chinook and 4,000 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 25,000 Chinook and 15,000 coho marked with a healed adipose fin clip (marked). 2. Non-Indian commercial troll TAC: 12,500 Chinook and 2,400 marked coho. 3. Trade: May be considered at the April Council meeting 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.
U.S./Canada Border to Cape Falcon • May 1 through earlier of June 30 or 15,000 Chinook quota. Thursday through Monday. May 1-5 and 8-12 landing and possession limit of 60 Chinook per vessel for each open period north of Leadbetter Point and 40 Chinook south of Leadbetter Point; beginning May 15, a landing and possession limit of 60 Chinook per vessel for each open period north of Leadbetter Point and 30 Chinook south of Leadbetter Point (C.1). All salmon except coho (C.7). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3).	**U.S./Canada Border to Cape Falcon** • May 1 through earlier of June 30 or 8,750 Chinook quota. Thursday through Monday with a landing and possession limit of 50 Chinook per vessel for each open period north of Leadbetter Point and 50 Chinook south of Leadbetter Point (C.1). All salmon except coho (C.7). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3).	**U.S./Canada Border to Leadbetter Point** • May 1 through earlier of June 30 or 7,083 Chinook quota. Friday through Monday with a landing and possession limit of 30 Chinook per vessel for each open period (C.1). All salmon except coho (C.7). Cape Flattery and Mandatory Yelloweye Rockfish Conservation Area Control Zones closed (C.5). See gear restrictions and definitions (C.2, C.3). **Leadbetter Point to Cape Falcon** • May 1 through earlier of June 30 or 1,875 Chinook quota. Friday through Monday with a landing and possession limit of 30 Chinook per vessel for each open period. All salmon except coho (C.7). Columbia Control Zone closed (C.5). See gear restrictions and definitions (C.2, C.3).

Oregon State regulations require that fishers south of Cape Falcon, OR intending to fish within this area notify Oregon Department of Fish and Wildlife before transiting the Cape Falcon, OR line (45º46'00" N. lat.) at the following number: 541-867-0300 Ext. 271. Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing or in possession of salmon while fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing or in possession of salmon while fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon must notify ODFW within one hour of delivery or prior to transport away from the port of landing by calling 541-867-0300 Ext. 271. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8).

TABLE 1. Commercial troll management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 2 of 7) 3/14/2008 1:45 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
U.S./Canada Border to Cape Falcon • July 1 through earlier of September 16 or 7,500 preseason Chinook guideline (C.8) or a 4,000 marked coho quota (C.8.d). Open July 1-2, then Saturday through Tuesday thereafter. Landing and possession limit of 40 Chinook and 25 coho per vessel per open period north of Leadbetter Point and 20 Chinook and 25 coho south of Leadbetter Point (C.1). All Salmon except no chum retention north of Cape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip, except an inseason conference call may occur to consider allowing retention of all legal sized coho, in the area between Leadbetter Point and Cape Falcon, no earlier than September 1 (C.8.d). Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Cape Flattery, Mandatory Yelloweye Rockfish Conservation Area, and Columbia Control Zones closed (C.5).	**U.S./Canada Border to Cape Falcon** • July 5 through earlier of Sept. 16 or 8,750 preseason Chinook guideline (C.8) or a 4,000 marked coho quota. Saturday through Tuesday. Landing and possession limit of 30 Chinook and 30 coho per vessel per open period (C.1). All Salmon except no chum retention north of Cape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones closed (C.5).	**U.S./Canada Border to Leadbetter Point** • July 4 through the earlier of Sept. 15 or 3,542 preseason Chinook guideline (C.8) or a 2,400 marked coho quota shared with the south of Leadbetter Point fishery. Open Friday through Monday. Landing and possession limit of 30 Chinook and 30 coho per vessel per open period (C.1). All Salmon except no chum retention north of Cape Alava, Washington in August and September (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. Mandatory Yelloweye Rockfish Conservation Area, Cape Flattery and Columbia Control Zones closed (C.5). **Leadbetter Point to Cape Falcon** • July 4 through the earlier of Sept. 15 or any remaining Chinook quota from the May-June fishery or (C.8) or a 2,400 marked coho quota shared with the north of Leadbetter Point fishery. Open Friday through Monday. Landing and possession limit of 30 Chinook and 30 coho per vessel per open period (C.1). All Salmon (C.7). All coho must have a healed adipose fin clip. Gear restricted to plugs six inches or longer. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.5)..

Oregon State regulations require that fishers south of Cape Falcon, OR intending to fish within this area notify Oregon Department of Fish and Wildlife before transiting the Cape Falcon, OR line (45º46'00" N. lat.) at the following number: 541-867-0300 Ext. 271. Vessels must land and deliver their fish within 24 hours of any closure of this fishery. Under state law, vessels must report their catch on a state fish receiving ticket. Vessels fishing or in possession of salmon while fishing north of Leadbetter Point must land and deliver their fish within the area and north of Leadbetter Point. Vessels fishing or in possession of salmon while fishing south of Leadbetter Point must land and deliver their fish within the area and south of Leadbetter Point, except that Oregon permitted vessels may also land their fish in Garibaldi, Oregon. Oregon State regulations require all fishers landing salmon into Oregon from any fishery between Leadbetter Point, Washington and Cape Falcon, Oregon must notify ODFW within one hour of delivery or prior to transport away from the port of landing by calling 541-867-0300 Ext. 271. Notification shall include vessel name and number, number of salmon by species, port of landing and location of delivery, and estimated time of delivery. Inseason actions may modify harvest guidelines in later fisheries to achieve or prevent exceeding the overall allowable troll harvest impacts (C.8)..

TABLE 1. Commercial troll management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 3 of 7)		3/14/2008 3:23 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Central Valley recreational fishery allocation ___. 2. Klamath River recreational fishery allocation: ___%. 3. Klamath tribal allocation: _____. 4. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	1. Central Valley recreational fisheries prohibit Chinook retention. 2. Klamath River recreational fishery allocation: ___%. 3. Klamath tribal allocation: _____. 4. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.	1. Central Valley recreational fisheries prohibit Chinook retention. 2. Klamath River recreational fishery allocation: ___%. 3. Klamath tribal allocation: _____. 4. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission.
Cape Falcon to Humbug Mt. • April 15 through May 31. All salmon except coho (C.7). Chinook 28 inch total length minimum size (B). All vessels fishing in the area must land their fish in the State of Oregon. See gear restrictions and definitions (C.2, C.3) and Oregon State regulations for a description of special regulations at the mouth of Tillamook Bay. In 2009, the season will open March 15 for all salmon except coho. This opening could be modified following Council review at its March 2009 meeting.	**Cape Falcon to Humbug Mt.** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples. In 2009, same as Option I	**Cape Falcon to Humbug Mt.** Closed. In 2009, same as Option I
Humbug Mt. to OR/CA Border (Oregon KMZ) • April 15 through May 31; All salmon except coho (C.7). Chinook 28 inch total length minimum size limit (B). See gear restrictions and definitions (C.2, C.3). All vessels fishing in the area must land their fish in the State of Oregon. ~~State regulations require fishers intending to transport and deliver their catch to other locations after first landing in one of these ports notify ODFW prior to transport away from the port of landing by calling 541-867-0300 Ext. 271, with vessel name and number, number of salmon by species, location of delivery, and estimated time of delivery.~~ In 2009, the season will open March 15 for all salmon except coho, with a 28 inch Chinook minimum size limit. This opening could be modified following Council review at its March 2009 meeting.	**Humbug Mt. to OR/CA Border (Oregon KMZ)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples. In 2009, same as Option I	**Humbug Mt. to OR/CA Border (Oregon KMZ)** Closed. In 2009, same as Option I

TABLE 1. Commercial troll management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 4 of 7)		3/14/2008 1:45 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
OR/CA Border to Humboldt South Jetty (California KMZ) • August 1 through the earlier of August 31 or 3,000 Chinook quota (C.9) All salmon except coho. Chinook minimum size limit of 27 inches total length (B). All vessels fishing in the area must land their fish in the area; all fish must be offloaded within 24 hours of any closure (C1). See gear restrictions and definitions (C.2, C.3).	**OR/CA Border to Humboldt South Jetty (California KMZ)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.	**OR/CA Border to Humboldt South Jetty (California KMZ)** Closed.
Humboldt South Jetty to Horse Mt. Closed.	**Humboldt South Jetty to Horse Mt.** Closed.	**Humboldt South Jetty to Horse Mt.** Closed.
Horse Mt. to Point Arena (Fort Bragg) • August 1 through the earlier of August 31 or 3,000 Chinook quota (C.9) All salmon except coho. Chinook minimum size limit of 27 inches total length (B). All vessels fishing in the area must land their fish in the area; all fish must be offloaded within 24 hours of any closure (C1). See gear restrictions and definitions (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.	**Horse Mt. to Point Arena (Fort Bragg)** Closed.
Pt. Arena to Pigeon Pt. (San Francisco) • August 1 through the earlier of August 31 or 3,000 Chinook quota (C.9) All salmon except coho. Chinook minimum size limit of 27 inches total length (B). All vessels fishing in the area must land their fish in the area; all fish must be offloaded within 24 hours of any closure (C1). See gear restrictions and definitions (C.2, C.3).	**Pt. Arena to Pigeon Pt. (San Francisco)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.	**Pt. Arena to Pigeon Pt. (San Francisco)** • Closed.
Pigeon Pt. to Pt. Sur (Monterey) • Closed.	**Pigeon Pt. to Pt. Sur (Monterey)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.	**Pigeon Pt. to Pt. Sur (Monterey)** • Closed.
Pt. Sur to U.S./Mexico Border (Morro Bay) • Closed.	**Pt. Sur to U.S./Mexico Border (Morro Bay)** • Closed except for sufficient impacts to conduct experimental genetic stock identification study May 1 through August 31. All salmon must be released in good condition after collection of biological samples.	**Pt. Sur to U.S./Mexico Border (Morro Bay)** • Closed.

TABLE 1. Commercial troll management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 5 of 7) 3/14/2008 1:45 PM

B. MINIMUM SIZE (Inches) (See C.1)

	Chinook		Coho		
Area (when open)	Total Length	Head-off	Total Length	Head-off	Pink
North of Cape Falcon	28.0	21.5	16.0	12.0	None
Cape Falcon to OR/CA Border	28.0	21.5	-	-	None
OR/CA Border to U.S./Mexico Border	27.0	20.5	-	-	None

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Compliance with Minimum Size or Other Special Restrictions: All salmon on board a vessel must meet the minimum size, landing/possession limit, or other special requirements for the area being fished and the area in which they are landed if the area is open. Salmon may be landed in an area that has been closed more than 96 hours only if they meet the minimum size, landing/possession limit, or other special requirements for the area in which they were caught. Salmon may be landed in an area that has been closed less than 96 hours only if they meet the minimum size, landing/possession limit, or other special requirements for the areas in which they were caught and landed.

States may require fish landing/receiving tickets be kept on board the vessel for 90 days after landing to account for all previous salmon landings.

C.2. Gear Restrictions: Salmon may be taken only by hook and line using barbless hooks.

a. Single point, single shank, barbless hooks are required in all fisheries.
b. Cape Falcon, Oregon, to the OR/CA border: No more than 4 spreads are allowed per line.
c. OR/CA border to U.S./Mexico border: No more than 6 lines are allowed per vessel, and barbless circle hooks are required when fishing with bait by any means other than trolling.

C.3. Gear Definitions:

Trolling defined: Fishing from a boat or floating device that is making way by means of a source of power, other than drifting by means of the prevailing water current or weather conditions.

Troll fishing gear defined: One or more lines that drag hooks behind a moving fishing vessel. In that portion of the fishery management area (FMA) off Oregon and Washington, the line or lines must be affixed to the vessel and must not be intentionally disengaged from the vessel at any time during the fishing operation.

Spread defined: A single leader connected to an individual lure or bait.

Circle hook defined: A hook with a generally circular shape and a point which turns inward, pointing directly to the shank at a 90º angle.

TABLE 1. Commercial troll management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 6 of 7) 3/14/2008 1:45 PM

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)

C.4. Transit Through Closed Areas with Salmon on Board: It is unlawful for a vessel to have troll or recreational gear in the water while transiting any area closed to fishing for a certain species of salmon, while possessing that species of salmon; however, fishing for species other than salmon is not prohibited if the area is open for such species, and no salmon are in possession.

C.5. Control Zone Definitions:

a. *Cape Flattery Control Zone* - The area from Cape Flattery (48º23'00" N. lat.) to the northern boundary of the U.S. EEZ; and the area from Cape Flattery south to Cape Alava (48º10'00" N. lat.) and east of 125º05'00" W. long.

b. *Mandatory Yelloweye Rockfish Conservation Area* – The area 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.

c. *Columbia Control Zone* - An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09' N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat.,124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long.), and then along the north jetty to the point of intersection with the Buoy #10 line; and, on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.

d. *Bandon High Spot Control Zone* - The area west of a line between 43º07'00" N. lat.; 124º37'00" W. long. and 42º40'30" N. lat; 124º 52'0" W. long. extending to the western edge of the exclusive economic zone (EEZ).

e. *Klamath Control Zone* - The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately six nautical miles north of the Klamath River mouth); on the west, by 124°23'00" W. long. (approximately 12 nautical miles off shore); and on the south, by 41°26'48" N. lat. (approximately six nautical miles south of the Klamath River mouth).

C.6. Notification When Unsafe Conditions Prevent Compliance with Regulations: If prevented by unsafe weather conditions or mechanical problems from meeting special management area landing restrictions, vessels must notify the U.S. Coast Guard and receive acknowledgment of such notification prior to leaving the area. This notification shall include the name of the vessel, port where delivery will be made, approximate amount of salmon (by species) on board, and the estimated time of arrival.

C.7. Incidental Halibut Harvest: During authorized periods, the operator of a vessel that has been issued an incidental halibut harvest license may retain Pacific halibut caught incidentally in Area 2A while trolling for salmon. Halibut retained must be no less than 32 inches in total length, measured from the tip of the lower jaw with the mouth closed to the extreme end of the middle of the tail, and must be landed with the head on. License applications for incidental harvest must be obtained from the International Pacific Halibut Commission (phone: 206-634-1838). Applicants must apply prior to April 1 of each year. Incidental harvest is authorized only during May and June troll seasons and after June 30 if quota remains and if announced on the NMFS hotline (phone: 800-662-9825). ODFW and Washington Department of Fish and Wildlife (WDFW) will monitor landings. If the landings are projected to exceed the 37,707 pound preseason allocation or the total Area 2A non-Indian commercial halibut allocation, NMFS will take inseason action to prohibit retention of halibut in the non-Indian salmon troll fishery.

Option I: Beginning May 1, license holders may land no more than one Pacific halibut per each **three** Chinook, except one Pacific halibut may be landed without meeting the ratio requirement, and no more than **35** halibut may be landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).
Options II and III: Beginning May 1, license holders may land no more than one Pacific halibut per each **two** Chinook, except one Pacific halibut may be landed without meeting the ratio requirement, and no more than **35** halibut may be landed per trip. Pacific halibut retained must be no less than 32 inches in total length (with head on).

TABLE 1. Commercial troll management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 7 of 7) 3/14/2008 1:45 PM

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS (continued)

A "C-shaped" yelloweye rockfish conservation area is an area to be voluntarily avoided for salmon trolling. NMFS and the Council request salmon trollers voluntarily avoid this area in order to protect yelloweye rockfish. The area is defined in the Pacific Council Halibut Catch Sharing Plan in the North Coast subarea (Washington marine area 3), with the following coordinates in the order listed:

48°18' N. lat.; 125°18' W. long.;
48°18' N. lat.; 124°59' W. long.;
48°11' N. lat.; 124°59' W. long.;
48°11' N. lat.; 125°11' W. long.;
48°04' N. lat.; 125°11' W. long.;
48°04' N. lat.; 124°59' W. long.;
48°00' N. lat.; 124°59' W. long.;
48°00' N. lat.; 125°18' W. long.;

and connecting back to 48°18' N. lat.; 125°18' W. long.

C.8. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a. Chinook remaining from the May through June non-Indian commercial troll harvest guideline north of Cape Falcon may be transferred to the July through September harvest guideline on a fishery impact equivalent basis.
b. NMFS may transfer fish between the recreational and commercial fisheries north of Cape Falcon if there is agreement among the areas' representatives on the SAS.
c. At the March 2009 meeting, the Council will consider inseason recommendations for special regulations for any experimental fisheries (proposals must meet Council protocol and be received in November 2008).
d. If retention of unmarked coho is permitted in the area from the U.S./Canada border to Cape Falcon, Oregon, by inseason action, the allowable coho quota will be adjusted to ensure preseason projected mortality of critical stocks is not exceeded.

C.9. Consistent with Council management objectives:

a. the State of Oregon may establish additional late-season fisheries in state waters.
b. the State of California may establish limited fisheries in selected state waters.

Check state regulations for details.

C.10. For the purposes of California Department of Fish and Game (CDFG) Code, Section 8232.5, the definition of the KMZ for the ocean salmon season shall be that area from Humbug Mt., Oregon, to Horse Mt., California.

TABLE 2. Recreational management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 1 of 8) 3/14/2008 1:53 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
North of Cape Falcon	**North of Cape Falcon**	**North of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall non-Indian TAC: 45,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 22,500 Chinook and 21,000 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. No Area 4B add-on fishery. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 3,500 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 35,000 Chinook and 25,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 17,500 Chinook and 21,000 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. Area 4B add-on fishery of 5,000 marked coho. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 4,000 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.	1. Overall non-Indian TAC: 25,000 Chinook and 15,000 coho marked with a healed adipose fin clip (marked). 2. Recreational TAC: 12,500 Chinook and 12,600 marked coho; all retained coho must be marked. 3. Trade: May be considered at the April Council meeting 4. No Area 4B add-on fishery. 5. Buoy 10 fishery opens Aug. 1 with an expected landed catch of 4,500 marked coho in August and September. 6. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries.
U.S./Canada Border to Leadbetter Point • May 24 through earlier of June 30 or a quota of 6,000 Chinook (C.5). Seven days per week except Sunday through Thursday in the Westport subarea. All salmon except coho, one fish per day. Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Falcon** • May 25 through earlier of June 15 or a quota of 3,500 Chinook (C.5). Seven days per week. All salmon except coho, one fish per day. Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5). .	
Leadbetter Point to Cape Falcon (Columbia River Subarea) • May 24 through earlier of June 28 or a subarea guideline of 5,900 Chinook (C.5). Seven days per week. All salmon except coho, one fish per day. Chinook 24-inch total length minimum size limit (B). See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).		

TABLE 2. **Recreational** management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 2 of 8) 3/14/2008 1:53 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
U.S./Canada Border to Cape Alava (Neah Bay) • July 1 through earlier of September 13 or 2,180 marked coho subarea quota with a subarea guideline of 1,550 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay**) • July 1 through earlier of September 13 or 1,260 marked coho subarea quota with a subarea guideline of 1,500 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.d) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**U.S./Canada Border to Cape Alava (Neah Bay**) • July 8 through earlier of September 13 or 1,310 marked coho subarea quota with a subarea guideline of 1,350 Chinook (C.5). Tuesday through Saturday. All salmon, except no chum retention August 1 through Sept. 13; two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Beginning August 1, Chinook non-retention east of the Bonilla-Tatoosh line (C.4.a) during Council managed ocean fishery. Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).
Cape Alava to Queets River (La Push Subarea) • ·July 1 through earlier of September 13 or 500 marked coho subarea quota with a subarea guideline of 650 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Cape Alava to Queets River (La Push Subarea)** • ·July 1 through earlier of September 13 or 560 marked coho subarea quota with a subarea guideline of 600 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Cape Alava to Queets River (La Push Subarea)** • ·July 8 through earlier of September 13 or 290 marked coho subarea quota with a subarea guideline of 550 Chinook (C5). • September 20 through earlier of October 5 or 50 marked coho quota or 100 Chinook quota (C5): In the area north of 47°50'00 N. lat. and south of 48°00'00" N. lat. (C.6). Tuesday through Saturday through September 13. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions (C.2). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).
Queets River to Leadbetter Point (Westport Subarea) • July 1 through earlier of September 13 or 7,770 marked coho subarea quota with a subarea guideline of 8,300 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • June 16 through earlier of September 13 or 8,640 marked coho subarea quota with a subarea guideline of 8,100 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Queets River to Leadbetter Point (Westport Subarea)** • May 25 through earlier of September 13 or 4,650 marked coho subarea quota with a subarea guideline of 7,200 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Grays Harbor Control Zone closed beginning August 1 (C.4.b). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

TABLE 2. **Recreational** management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 2 of 8) 3/14/2008 1:53 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
Leadbetter Point to Cape Falcon (Columbia River Subarea) • June 29 through earlier of September 30 or 10,500 marked coho subarea quota with any remainder of the 5,900 Chinook subarea guideline from the May-June Chinook directed fishery (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.c). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • June 29 through earlier of September 30 or 10,500 marked coho subarea quota with a subarea guideline of 3,700 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit) (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.a). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).	**Leadbetter Point to Cape Falcon (Columbia River Subarea)** • July 13 through earlier of September 30 or 6,300 marked coho subarea quota with a subarea guideline of 3,300 Chinook (C.5). Sunday through Thursday. All salmon, two fish per day. Chinook 24-inch total length minimum size limit) (B). All retained coho must be marked. See gear restrictions and definitions (C.2, C.3). Columbia Control Zone closed (C.4.a). Inseason management may be used to sustain season length and keep harvest within the overall Chinook recreational TAC for north of Cape Falcon (C.5).

TABLE 2. **Recreational** management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 3 of 8) 3/14/2008 3:35 PM

A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
South of Cape Falcon	**South of Cape Falcon**	**South of Cape Falcon**
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Central Valley recreational fishery allocation: ___. 2. Klamath River recreational fishery allocation: ___%. 3. Klamath tribal allocation: _____. 4. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 5. All retained coho must be marked with a healed adipose fin clip (marked).	1. Central Valley recreational fisheries prohibit Chinook retention. 2. Klamath River recreational fishery allocation: ___%. 3. Klamath tribal allocation: _____. 4. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 5. All retained coho must be marked with a healed adipose fin clip (marked).	1. Central Valley recreational fisheries prohibit Chinook retention. 2. Klamath River recreational fishery allocation: ___%. 3. Klamath tribal allocation: _____. 4. Fisheries may need to be adjusted to meet NMFS ESA consultation standards, FMP requirements, other management objectives, or upon receipt of new allocation recommendations from the California Fish and Game Commission. 5. All retained coho must be marked with a healed adipose fin clip (marked).
Cape Falcon to Humbug Mt. • April 15 through June 15 (C.6). Seven days per week. All salmon except coho; one fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Cape Falcon to Humbug Mt.** • Closed. In 2009, same as Option I	**Cape Falcon to Humbug Mt.** • Closed. In 2009, same as Option I.
Cape Falcon to OR/CA Border • June 22 through earlier of August 31 or a landed catch of 10,000 marked coho. Seven days per week. Except as provided below in the Humbug Mt. to OR/CA border fishery for July 4-6 and August 28-31, all salmon except Chinook, two fish per day, (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).	**Cape Falcon to Humbug Mt.** • June 22 through earlier of August 31 or a landed catch of 6,000 marked coho. Four days per week, no more than one weekend day. All salmon except Chinook, two fish per day (C.1). All retained coho must be marked with a healed adipose fin clip. Fishing in the Stonewall Bank groundfish conservation area restricted to trolling only on days the all depth recreational halibut fishery is open (see 70 FR 20304, and call the halibut fishing hotline 1-800-662-9825 for additional dates) (C.3, C.4.d). Open days may be adjusted inseason to utilize the available quota (C.5).	**Cape Falcon to OR/CA Border** • Closed.

TABLE 2. **Recreational** management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 4 of 8) 3/14/2008 1:53 PM

A. SEASON OPTION DESCRIPTIONS

OPTION I	OPTION II	OPTION III
Humbug Mt. to OR/CA Border. (Oregon KMZ) • May 24-26; July 4-6; August 28-31 (C.6). Except as provided above in the selective coho fishery, all salmon except coho. One fish per day in May. Two fish per day, no more than one of which may be a Chinook in July and August (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, the season will open March 15 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Humbug Mt. to OR/CA Border. (Oregon KMZ)** • Closed. In 2009, same as Option I	**Humbug Mt. to OR/CA Border. (Oregon KMZ)** • Closed. In 2009, same as Option I
OR/CA Border to Horse Mt. (California KMZ) • May 24-26; July 4-6; August 28-31 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 24 inches total length (B). See gear restrictions and definitions (C.2, C.3).	**OR/CA Border to Horse Mt. (California KMZ)** • Closed.	**OR/CA Border to Horse Mt. (California KMZ)** • Closed.
Horse Mt. to Point Arena (Fort Bragg) • May 24-26; July 4-6; August 28-31 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, season opens February 14 (nearest Saturday to February 15) for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2008 (C.2, C.3).	**Horse Mt. to Point Arena (Fort Bragg)** • Closed. In 2009, same as Option 1.	**Horse Mt. to Point Arena (Fort Bragg)** • Closed.
Point Arena to Pigeon Point (San Francisco) • May 24-26; July 4-6; August 28-31 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, the season will open April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2007 (C.2, C.3).	**Point Arena to Pigeon Point (San Francisco)** • Closed. In 2009, same as Option I	**Point Arena to Pigeon Point (San Francisco)** • Closed.

TABLE 2. **Recreational** management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 5 of 8)		3/14/2008 1:53 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Pigeon Point to U.S./Mexico Border (Monterey South) • May 18-26 (C.6). All salmon except coho. Two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B). See gear restrictions and definitions (C.2, C.3). In 2009, the season will open April 4 for all salmon except coho, two fish per day (C.1). Chinook minimum size limit of 20 inches total length (B); and the same gear restrictions as in 2007 (C.2, C.3).	**Pigeon Point to U.S./Mexico Border (Monterey)** • Closed. In 2009, same as Option I.	**Pigeon Point to U.S./Mexico Border (Monterey)** • Closed.

TABLE 2. **Recreational** management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 7 of 8) 3/14/2008 1:53 PM

B. MINIMUM SIZE (Inches) (See C.1)

Area (when open)	Chinook	Coho	Pink
North of Cape Falcon	24.0	16.0	None
Cape Falcon to OR/CA Border	24.0	16.0	None
OR/CA Border to Horse Mountain	24.0	-	20.0
Horse Mt. to U.S./Mexico Border	20.0	-	20.0

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Compliance with Minimum Size and Other Special Restrictions: All salmon on board a vessel must meet the minimum size or other special requirements for the area being fished and the area in which they are landed if that area is open. Salmon may be landed in an area that is closed only if they meet the minimum size or other special requirements for the area in which they were caught.

Ocean Boat Limits: Off the coast of Washington, Oregon, and California, each fisher aboard a vessel may continue to use angling gear until the combined daily limits of salmon for all licensed and juvenile anglers aboard has been attained (additional state restrictions may apply).

C.2. Gear Restrictions: Salmon may be taken only by hook and line using barbless hooks. All persons fishing for salmon, and all persons fishing from a boat with salmon on board, must meet the gear restrictions listed below for specific areas or seasons.

a. U.S./Canada Border to Point Conception, California: No more than one rod may be used per angler; and no more than two single point, single shank barbless hooks are required for all fishing gear. [Note: ODFW regulations in the state-water fishery off Tillamook Bay may allow the use of barbed hooks to be consistent with inside regulations.]
b. Cape Falcon, Oregon, to Point Conception, California: Anglers must use no more than two single point, single shank, barbless hooks.
c. Horse Mt., California, to Point Conception, California: Single point, single shank, barbless circle hooks (below) are required when fishing with bait by any means other than trolling, and no more than two such hooks shall be used. When angling with two hooks, the distance between the hooks must not exceed five inches when measured from the top of the eye of the top hook to the inner base of the curve of the lower hook, and both hooks must be permanently tied in place (hard tied). Circle hooks are not required when artificial lures are used without bait.

C.3. Gear Definitions:

a. *Recreational fishing gear defined*: Angling tackle consisting of a line with no more than one artificial lure or natural bait attached. Off Oregon and Washington, the line must be attached to a rod and reel held by hand or closely attended; the rod and reel must be held by hand while playing a hooked fish. No person may use more than one rod and line while fishing off Oregon or Washington. Off California, the line must be attached to a rod and reel held by hand or closely attended. Weights directly attached to a line may not exceed four pounds (1.8 kg). While fishing off California north of Point Conception, no person fishing for salmon, and no person fishing from a boat with salmon on board, may use more than one rod and line. Fishing includes any activity which can reasonably be expected to result in the catching, taking, or harvesting of fish.
b. *Trolling defined*: Angling from a boat or floating device that is making way by means of a source of power, other than drifting by means of the prevailing water current or weather conditions.
c. Circle hook defined: A hook with a generally circular shape and a point which turns inward, pointing directly to the shank at a 90° angle.

TABLE 2. **Recreational** management options analyzed by the STT for non-Indian ocean salmon fisheries, 2008. (Page 8 of 8)	3/14/2008 1:53 PM
B. MINIMUM SIZE (Inches) (See C.1)	

C.4. Control Zone Definitions:

a. *The Bonilla-Tatoosh Line*: A line running from the western end of Cape Flattery to Tatoosh Island Lighthouse (48°23'30" N. lat., 124°44'12" W. long.) to the buoy adjacent to Duntze Rock (48°28'00" N. lat., 124°45'00" W. long.), then in a straight line to Bonilla Point (48°35'30" N. lat., 124°43'00" W. long.) on Vancouver Island, British Columbia.

b. *Grays Harbor Control Zone* - The area defined by a line drawn from the Westport Lighthouse (46° 53'18" N. lat., 124° 07'01" W. long.) to Buoy #2 (46° 52'42" N. lat., 124°12'42" W. long.) to Buoy #3 (46° 55'00" N. lat., 124°14'48" W. long.) to the Grays Harbor north jetty (46° 36'00" N. lat., 124°10'51" W. long.).

c. *Columbia Control Zone*: An area at the Columbia River mouth, bounded on the west by a line running northeast/southwest between the red lighted Buoy #4 (46°13'35" N. lat., 124°06'50" W. long.) and the green lighted Buoy #7 (46°15'09' N. lat., 124°06'16" W. long.); on the east, by the Buoy #10 line which bears north/south at 357° true from the south jetty at 46°14'00" N. lat., 124°03'07" W. long. to its intersection with the north jetty; on the north, by a line running northeast/southwest between the green lighted Buoy #7 to the tip of the north jetty (46°15'48" N. lat., 124°05'20" W. long. and then along the north jetty to the point of intersection with the Buoy #10 line; and on the south, by a line running northeast/southwest between the red lighted Buoy #4 and tip of the south jetty (46°14'03" N. lat., 124°04'05" W. long.), and then along the south jetty to the point of intersection with the Buoy #10 line.

d. *Stonewall Bank Groundfish Conservation Area*: The area defined by the following coordinates in the order listed:
   44°37.46' N. lat.; 124°24.92' W. long.;
   44°37.46' N. lat.; 124°23.63' W. long.;
   44°28.71' N. lat.; 124°21.80' W. long.;
   44°28.71' N. lat.; 124°24.10' W. long.;
   44°31.42' N. lat.; 124°25.47' W. long.;
   and connecting back to 44°37.46' N. lat.; 124°24.92' W. long.

e. *Klamath Control Zone*: The ocean area at the Klamath River mouth bounded on the north by 41°38'48" N. lat. (approximately six nautical miles north of the Klamath River mouth); on the west, by 124°23'00" W. long. (approximately 12 nautical miles off shore); and, on the south, by 41°26'48" N. lat. (approximately 6 nautical miles south of the Klamath River mouth).

C.5. Inseason Management: Regulatory modifications may become necessary inseason to meet preseason management objectives such as quotas, harvest guidelines, and season duration. In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a. Actions could include modifications to bag limits, or days open to fishing, and extensions or reductions in areas open to fishing.

b. Coho may be transferred inseason among recreational subareas north of Cape Falcon on an impact neutral basis to help meet the recreational season duration objectives (for each subarea) after conferring with representatives of the affected ports and the Council's SAS recreational representatives north of Cape Falcon.

c. Chinook and coho may be transferred between the recreational and commercial fisheries north of Cape Falcon on an impact neutral basis if there is agreement among the representatives of the SAS.

d. If retention of unmarked coho is permitted in the area from the U.S./Canada border to Cape Falcon, Oregon, by inseason action, the allowable coho quota will be adjusted to ensure preseason projected mortality of critical stocks is not exceeded.

e. Chinook remaining from the May through June recreational quota north of Leadbetter Point may be transferred to the July through September harvest overall North of Cape Falcon quota on a fishery impact equivalent basis.

C.6. Additional Seasons in State Territorial Waters: Consistent with Council management objectives, the States of Washington and Oregon, and California may establish limited seasons in state waters. Oregon State-water fisheries are limited to Chinook salmon. Check state regulations for details.

TABLE 3. Management Options analyzed by the STT for 2008 Treaty Indian ocean troll fisheries. (Page 1 of 2)		3/14/2008 1:54 PM
A. SEASON OPTION DESCRIPTIONS		
OPTION I	OPTION II	OPTION III
Supplemental Management Information	**Supplemental Management Information**	**Supplemental Management Information**
1. Overall Treaty-Indian TAC: 40,000 Chinook and 25,000 coho. 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries	1. Overall Treaty-Indian TAC: 35,000 Chinook and 20,000 coho. 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries	1. Overall Treaty-Indian TAC: 20,000 Chinook and 15,000 4. Overall Chinook and/or coho TACs may need to be reduced or fisheries adjusted to meet NMFS ESA guidance, FMP requirements, upon conclusion of negotiations in the North of Falcon forum, or upon receipt of preseason catch and abundance expectations for Canadian and Alaskan fisheries
•• May 1 through the earlier of June 30 or 22,500 Chinook quota. All salmon except coho. If the Chinook quota for the May-June fishery is not fully utilized, the excess fish cannot be transferred into the later all-salmon season. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 17,500 preseason Chinook quota, or 25,000 coho quota (C.5). All Salmon. See size limit (B) and other restrictions (C).	• May 1 through the earlier of June 30 or 17,500 Chinook quota. All salmon except coho. If the Chinook quota for the May-June fishery is not fully utilized, the excess fish cannot be transferred into the later all-salmon season. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 17,500 preseason Chinook quota, or 20,000 coho quota. All salmon. See size limit (B) and other restrictions (C).	• May 1 through the earlier of June 30 or 10,000 Chinook quota. All salmon except coho. If the Chinook quota for the May-June fishery is not fully utilized, the excess fish cannot be transferred into the later all-salmon season. If the Chinook quota is exceeded, the excess will be deducted from the later all-salmon season. See size limit (B) and other restrictions (C). • July 1 through the earlier of September 15, or 10,000 preseason Chinook quota, or 15,000 coho quota. All salmon. See size limit (B) and other restrictions (C)

TABLE 3. Management Options analyzed by the STT for 2008 Treaty Indian ocean troll fisheries. (Page 2 of 2) 3/14/2008 1:54 PM

B. MINIMUM SIZE (Inches)

Area (when open)	Chinook		Coho		Pink
	Total Length	Head-off	Total Length	Head-off	
North of Cape Falcon	24.0 (61.0 cm)	18.0 (45.7 cm)	16.0 (40.6 cm)	12.0 (30.5 cm)	None

C. REQUIREMENTS, DEFINITIONS, RESTRICTIONS, OR EXCEPTIONS

C.1. Tribe and Area Boundaries. All boundaries may be changed to include such other areas as may hereafter be authorized by a Federal court for that tribe's treaty fishery.

S'KLALLAM - Washington State Statistical Area 4B (All).

MAKAH - Washington State Statistical Area 4B and that portion of the FMA north of 48°02'15" N. lat. (Norwegian Memorial) and east of 125°44'00" W. long.

QUILEUTE - That portion of the FMA between 48°07'36" N. lat. (Sand Pt.) and 47°31'42" N. lat. (Queets River) and east of 125°44'00" W. long.

HOH - That portion of the FMA between 47°54'18" N. lat. (Quillayute River) and 47°21'00" N. lat. (Quinault River) and east of 125°44'00" W. long.

QUINAULT - That portion of the FMA between 47°40'06" N. lat. (Destruction Island) and 46°53'18"N. lat. (Point Chehalis) and east of 125°44'00" W. long.

C.2. Gear restrictions

a. Single point, single shank, barbless hooks are required in all fisheries.
b. No more than 8 fixed lines per boat.
c. No more than four hand held lines per person in the Makah area fishery (Washington State Statistical Area 4B and that portion of the FMA north of 48°02'15" N. lat. (Norwegian Memorial) and east of 125°44'00" W. long.)

C.3. Quotas

a. The quotas include troll catches by the S'Klallam and Makah tribes in Washington State Statistical Area 4B from May 1 through September 15.
b. The Quileute Tribe will continue a ceremonial and subsistence fishery during the time frame of September 15 through October 15 in the same manner as in 2004, 2005, and 2006. Fish taken during this fishery are to be counted against treaty troll quotas established for the 2007 season (estimated harvest during the October ceremonial and subsistence fishery: 100 Chinook; 200 coho).

C.4. Area Closures

a. The area within a six nautical mile radius of the mouths of the Queets River (47°31'42" N. lat.) and the Hoh River (47°45'12" N. lat.) will be closed to commercial fishing.
b. A closure within two nautical miles of the mouth of the Quinault River (47°21'00" N. lat.) may be enacted by the Quinault Nation and/or the State of Washington and will not adversely affect the Secretary of Commerce's management regime.

C.5. Inseason Management: In addition to standard inseason actions or modifications already noted under the season description, the following inseason guidance is provided to NMFS:

a.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2008 ocean fishery options analyzed by the STT.[a/] (Page 1 of 3)

Key Stock/Criteria	Projected Ocean Escapement[b/] or other Criteria (Council Area impacts in parens) Option I	Option II	Option III	Spawner Objective or Other Comparative Standard as Noted
CHINOOK				
Columbia Upriver Brights	162.9	163.1	163.5	57.3 Minimum ocean escapement to attain 46.0 adults over McNary Dam, with normal distribution and no mainstem harvest.
Mid-Columbia Brights	54.1	54.2	54.3	16.6 Minimum ocean escapement to attain 5.75 adults for Bonneville Hatchery and 2.0 for Little White Salmon Hatchery egg-take, assuming average conversion and no mainstem harvest.
Columbia Lower River Hatchery Tules	55.0	56.4	596.1	31.1 Minimum ocean escapement to attain 14.1 adults for hatchery egg-take, with average conversion and no lower river mainstem or tributary harvest.
Columbia Lower River Natural Tules[c/] (threatened)	36.4%	34.7%	31.9%	≤ 41.0% ESA guidance met by a total adult equivalent fishery exploitation rate on Coweeman tules (NMFS ESA consultation standard).
Columbia Lower River Wild (threatened)	**3.8**	**3.8**	**3.8**	5.7 MSY spawner goal for North Lewis River fall chinook (NMFS ESA consultation standard).
Spring Creek Hatchery Tules	85.0	88.4	94.1	11.1 Minimum ocean escapement to attain 7.0 adults for Spring Creek Hatchery egg-take, assuming average conversion and no mainstem harvest.
Snake River Fall (threatened) SRFI	60.4%	57.4%	50.8%	≤ 70.0% Of 1988-1993 base period exploitation rate for all ocean fisheries (NMFS ESA consultation standard).
Klamath River Fall	40.7	40.7	40.7[h/]	40.7 Minimum number of adult spawners to natural spawning areas. 2008 Council guidance.
Federally recognized tribal harvest	50.0%	50.0%	50.0%	50.0% Equals 27.4, 26.4, and 27.1 (thousand) adult fish for Yurok and Hoopa tribal fisheries.
Spawner Reduction Rate	47.1%	47.1%	47.1%	≤ 66.7% Equals 38.8, 35.8, and 33.8 (thousand) fewer adult spawners due to fishing.
Adult river mouth return	111.2	114.2	115.6	NA
Age 4 ocean harvest rate	5.3%	2.4%	2.4%	≤ 16.0% NMFS ESA consultation standard for threatened California coastal chinook.
KMZ sport fishery share	17.0%	13.4%	13.4%	17.0% 2007 Council guidance.
CA:OR troll fishery share	70:30	88:12	88:12	50:50 2006 KFMC recommendation, no guidance for 2008.
River recreational fishery share	65.5%	82.9%	83.3%	≥ 15% 2008 Council Guidance. Equals 17.9, 21.9, and 22.6 (thousand) adult fish for recreational inriver fisheries.
Sacramento River Winter (endangered)	Met	Met	Met	Recreational season between Point Arena and Pigeon Point shall open no earlier than the first Saturday in April and close no later than the second Sunday in November; the recreational season between Pigeon Point and the U.S./Mexico Border shall open no earlier than the first Saturday in April and close no later than the first Sunday in October. The minimum size limit shall be at least 20 inches total length. Commercial seasons between Point Arena and the U.S./Mexico border shall open no earlier than May 1 and close no later than September 30, with the exception of an October season conducted Monday through Friday between Point Reyes and Point San Pedro, which shall end no later than October 15. The minimum size limit shall be at least 26 inches total length. (NMFS ESA consultation
Sacramento River Fall				122.0-180.0 Sacramento River fall natural and hatchery adult spawners.
River recreational fishery harvest	1.0	0.0	0.0	Landed Catch 2008 Council Guidance.
Hatchery spawner goal	**Not Met**	**Not Met**	**Not Met**	16,000 Aggregate number of adults to achieve egg take goals at Coleman, Feather River, and Nimbus hatcheries.

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2008 ocean fishery options analyzed by the STT.[a/] (Page 2 of 3)

Key Stock/Criteria	Projected Ocean Escapement[b/] or other Criteria (Council Area impacts in parens) Option I	Option II	Option III	Spawner Objective or Other Comparative Standard as Noted
			COHO	
Interior Fraser (Thompson River)	8.5%(3.3%)	8.1%(2.9%)	7.1%(1.9%)	≤ 10.0% Total exploitation rate for all U.S. fisheries south of the U.S./Canada border based on 2002 PSC coho agreement.
Skagit	32.2%(3.0%)	32.0%(2.7%)	31.2%(1.7%)	≤ 35.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	49.8	50.0	50.5	30.0 MSP level of adult spawners Identified in FMP.
Stillaguamish	39.4%(2.1%)	39.2%(1.8%)	38.8%(1.2%)	≤ 50.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	24.8	24.9	25.0	17.0 MSP level of adult spawners Identified in FMP.
Snohomish	36.3%(2.1%)	36.1%(1.8%)	35.7%(1.2%)	≤ 40.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	77.2	77.5	78.0	70.0 MSP level of adult spawners Identified in FMP.
Hood Canal	45.0%(3.1%)	44.9%(2.8%)	44.0%(1.8%)	≤ 45.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	19.8	**19.8**	**20.1**	21.5 MSP level of adult spawners Identified in FMP.
Strait of Juan de Fuca	11.7%(2.4%)	11.4%(2.0%)	10.7%(1.4%)	≤ 40.0% 2008 total exploitation rate ceiling based on 2002 PSC coho agreement[c/]
	21.7	21.8	21.9	12.8 MSP level of adult spawners Identified in FMP.
Quillayute Fall	10.1	10.1	10.2	6.3-15.8 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Hoh	3.9	3.9	4.0	2.0-5.0 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Queets Wild	9.0	9.1	9.3	5.8-14.5 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Grays Harbor	41.5	41.7	42.2	35.4 MSY adult spawner range (not annual target). Annual management objectives may be different and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders.
Lower Columbia River Natural	**6.6%**	**5.6%**	3.0%	≤ 8.0% Council area marine and mainstem Columbia River fishery exploitation rate (NMFS ESA consultation standard). Value depicted is ocean fishery exploitation rate only.
(threatened)				
Upper Columbia[g/]	≥ 50%	≥ 50%	≥ 50%	≥ 50% Minimum percentage of the run to Bonneville Dam.
Columbia River Hatchery Early	91.8	93.7	100.0	38.7 Minimum ocean escapement to attain hatchery egg-take goal of 16.0 early adult coho, with average conversion and no mainstem or tributary fisheries.
Columbia River Hatchery Late	67.6	68.5	75.4	15.2 Minimum ocean escapement to attain hatchery egg-take goal of 9.7 late adult coho, with average conversion and no mainstem or tributary fisheries.
Oregon Coastal Natural	7.9%	6.6%	3.3%	≤ 8.0% Marine and freshwater fishery exploitation rate.
Northern California (threatened)	2.5%	2.4%	0.5%	≤ 13.0% Marine fishery exploitation rate for R/K hatchery coho (NMFS ESA consultation standard).

TABLE 5. Projected key stock escapements (thousands of fish) or management criteria for 2008 ocean fishery options analyzed by the STT.[a/] (Page 3 of 3)

a/ Projections in the table assume a WCVI mortality for coho of the 2007 observed level. Southeast Alaska, North Coast BC, and WCVI troll and outside sport fisheries were assumed to have the same exploitation rates as expected preseason in 2007. Assumptions for these chinook fisheries will be changed prior to the April meeting when allowable catch levels for 2008 under the PST are known.

b/ Ocean escapement is the number of salmon escaping ocean fisheries and entering freshwater with the following clarifications. Ocean escapement for Puget Sound stocks is the estimated number of salmon entering Area 4B that are available to U.S. net fisheries in Puget Sound and spawner escapement after impacts from the Canadian, U.S. ocean, and Puget Sound troll and recreational fisheries have been deducted. Numbers in parentheses represent Council area exploitation rates for Puget sound coho stocks. For Columbia River early and late coho stocks, ocean escapement represents the number of coho after the Buoy 10 fishery. Exploitation rates for LCN coho include all marine impacts prior to the Buoy 10 fishery. Exploitation rates for OCN coho include impacts of freshwater fisheries.

c/ Annual management objectives may be different than FMP goals, and are subject to agreement between WDFW and the treaty tribes under U.S. District Court orders. Total exploitation rate includes Alaskan, Canadian, Council area, Puget Sound, and freshwater fisheries and is calculated as total fishing mortality divided by total fishing mortality plus spawning escapement. These total exploitation rates reflect the initial base package for inside fisheries developed by state and tribal comanagers. It is anticipated that total exploitation rates will be adjusted by state and tribal comanagers during the preseason planning process to comply with stock specific exploitation rate constraints.

d/ Includes minor contributions from East Fork Lewis River and Sandy River.

e/ The fisheries in this option will need to be restructured if negotiations in the North of Falcon forum or final preseason catch expectations for Canadian and Alaskan fisheries do not result in an SRFI at or below 0.700 as required by the NMFS ESA consultation standard.

f/ The fisheries in this option will need to be restructured if negotiations in the North of Falcon forum or final preseason catch expectations for Canadian and Alaskan fisheries do not result in a total exploitation rate for all U.S. fisheries south of the U.S./Canada border of no more than 10.0% as required by the 2002 PSC agreement.

g/ Includes projected impacts of inriver fisheries that have not yet been shaped.

h/ If the management expectation was for 35,000 natural area spawners, the tribal harvest would be _____ and river recreational harvest would be _____.

TABLE 7. Expected coastwide lower Columbia Natural (LCN) Oregon coastal natural (OCN) and Rogue/Klamath (RK) coho, and Lower Columbia River (LCR) natural tule Chinook exploitation rates by fishery for 2008 ocean fisheries management options analyzed by the Council (Page 1 of 1)

	Exploitation Rate (Percent)											
	LCN Coho			OCN Coho			RK Coho			LCR Tule		
Fishery	I	II	III	I	II	III	I	II	III	I	II	III
SOUTHEAST ALASKA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	3.0%	3.1%
BRITISH COLUMBIA	0.1%	0.1%	0.1%	0.4%	0.4%	0.4%	0.2%	0.2%	0.2%	14.4%	14.6%	14.9%
PUGET SOUND/STRAIT	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.4%	0.4%	0.4%
NORTH OF CAPE FALCON												
Treaty Indian Ocean Troll	1.8%	1.5%	1.1%	1.2%	1.0%	0.7%	0.0%	0.0%	0.0%	4.8%	4.3%	2.5%
Recreational	2.5%	2.6%	1.3%	0.7%	0.7%	0.4%	0.0%	0.0%	0.0%	2.8%	2.0%	1.4%
Non-Indian Troll	1.0%	0.8%	0.5%	0.5%	0.4%	0.3%	0.0%	0.0%	0.0%	3.4%	2.8%	1.9%
SOUTH OF CAPE FALCON												
Recreational:	1.2%	0.7%	0.0%							0.0%	0.0%	0.0%
Cape Falcon to Humbug Mt.				2.9%	1.6%	0.0%	0.3%	0.1%	0.0%			
Humbug Mt. OR/CA border (KMZ)				0.1%	0.2%	0.0%	0.1%	0.3%	0.0%			
OR/CA border to Horse Mt. (KMZ)				0.1%	0.0%	0.0%	0.5%	0.0%	0.0%			
Fort Bragg				0.1%	0.0%	0.0%	0.2%	0.0%	0.0%			
South of Pt. Arena				0.1%	0.0%	0.0%	0.1%	0.0%	0.0%			
Troll:	0.1%	0.1%	0.0%							0.5%	0.3%	0.1%
Cape Falcon to Humbug Mt.				0.1%	0.1%	0.0%	0.0%	0.0%	0.0%			
Humbug Mt. OR/CA border (KMZ)				0.0%	0.1%	0.0%	0.0%	0.1%	0.0%			
OR/CA border to Horse Mt. (KMZ)				0.1%	0.3%	0.0%	0.6%	0.9%	0.0%			
Fort Bragg				0.0%	0.2%	0.0%	0.1%	0.4%	0.0%			
South of Pt. Arena				0.0%	0.1%	0.0%	0.0%	0.0%	0.0%			
BUOY 10	0.6%	0.6%	0.7%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	7.1%	7.3%	7.6%
ESTUARY/FRESHWATER	N/A	N/A	N/A	12.0%	1.2%	1.3%	0.3%	0.3%	0.3%			
TOTAL[a/]	6.6%	5.6%	3.0%	7.9%	6.6%	3.3%	2.5%	2.4%	0.5%	36.4%	34.7%	31.9%

a/ Total does not include Southeast Alaska, British Columbia, Puget Sound/Strait of Juna de Fuca, or Buoy 10 fisheries for LCN coho.

TRIBAL REPORT ON ADOPTION OF 2008 MANAGEMENT OPTIONS FOR PUBLIC REVIEW

TESTIMONY OF THE COLUMBIA RIVER TREATY TRIBES BEFORE PACIFIC FISHERIES MANAGEMENT COUNCIL

The four Columbia River treaty tribes, the Yakama, Warm Springs, Umatilla, and Nez Perce tribes, present the following statement regarding the 2008 ocean salmon options. We have treaty fishing rights to many stocks of fish caught in the PFMC fisheries that have been re-affirmed under the *U.S. v. Oregon* court case and we are co-managers of the Columbia River salmon runs.

As the Council considers the options for 2008 ocean salmon fisheries, we have several issues of concern that we wish to remind the Council of.

Currently, we are pleased that all of the ocean options appear to allow us model reasonable in-river fall season tribal fisheries given the expected river mouth escapement of Spring Creek Hatchery tules and upriver bright fall Chinook. We are also pleased that all three options predict that more than 50% of the upriver coho will reach Bonneville Dam. Our concern remains though that the modest increases in Columbia River forecasts are dependant on the large jack returns in 2007. If the expected relationships between jacks and adults do not work this year, Columbia river runs may not be as good as predicted. Given other indications of poor survival of many other Chinook stocks, we believe the Council still needs to be cautious in setting ocean fisheries. Our tribes do not want to be faced with all of the conservation burden for Columbia River stocks.

This years' ocean fisheries are clearly severely constrained. The tribes believe we would not be in this situation with salmon stocks up and down the coast if we had improved management of freshwater and estuarine habitat as well as hydro and irrigation development. Urbanization, agriculture, poor forest practices and pollution have all impacted salmon up and down the coast. Habitat and passage issues need to be addressed coastwide to resolve our salmon problems. If we managed the freshwater and estuary habitats better, salmon would be able to deal with times of low ocean survival better. The Columbia River treaty tribes work actively within our tribal areas to improve the management of the Columbia River hydro system and to protect and restore habitat as well as improve water quality. We support other tribal and non-tribal efforts in other basins to restore salmon as well.

The tribes actively support predator control which needs adequate funding. Because of our severely disrupted ecosystems, many species that prey on salmon have become out of balance. We believe that exotic species that prey on salmon should be eliminated. But we also believe that many natural predators need control. The tribes are actively involved in efforts to reduce predation by sealions below Bonneville dam on spring Chinook. But these sealions and seals are in the Columbia River and other rivers all year long and they impact many stocks of fish. Seal and sealion populations need to be managed. It is not only Salmon that are impacted, but also sturgeon and lamprey.

The tribes also support increased efforts to control predatory bird populations. Caspian terns and cormorants have become very problematic in the Columbia. Increased efforts need to be made to control these birds that can have very high impacts on many stocks of juvenile salmon and steelhead especially around the nesting islands in the lower Columbia.

Climate change is another serious issue that will take a great deal of effort to both understand and to attempt to minimize adverse impacts on fish. The tribes believe we need to devote more resources to addressing this issue.

There are many efforts that we can all make together to increase salmon survival and restore salmon populations. By working together we can help the salmon and all of our fisheries.
This concludes our statement. Thank You.

PFMC
03/14/08

Tribal Motion for the 2008 Treaty Ocean Troll Salmon Season to the Pacific Fishery Management Council March 14, 2008

For the 2008 Treaty Ocean Troll Salmon Season, I move for the establishment of three options for public review.

Option I - quota levels of 40,000 chinook, and 25,000 coho

Option II - quota levels of 35,000 chinook, and 20,000 coho

Option III - quota levels of 20,000 chinook, and 15,000 coho

The salmon season will consist of a May/June chinook directed fishery and a July/August/September all-species fishery. The chinook harvest will be split between the two periods with the following sub-quotes: Option I: 22,500; Option II: 17,500; Option III: 10,000 for the May/June Chinook directed fishery and the remainder in each option for the July/August/September all species fishery.

The basic regulation package is to remain the same as contained in the 2007 Ocean Salmon Management Measures, which includes minimum size limits and gear restrictions.

I would also like to state for the record, that the tribes and state are just **beginning** the North of Falcon planning process in which we will evaluate the total impacts of all proposed fisheries on Puget Sound and Columbia River stocks. At the conclusion of these discussions in April, the tribes will be requesting the Council to adopt a treaty ocean troll quota that best meets the management objectives for these stocks, while also meeting the cultural and economic needs of the tribes.

SALMON HEARINGS OFFICERS

Agenda Item D.8.a, Attachment 1 provides a schedule of public hearings for the Council management options. Three hearings are scheduled as follows: March 31 in Westport, Washington and Coos Bay, Oregon; and April 1 in Eureka, California. The public will also be able to provide their comments and recommendations on the options in Seattle, Washington, during the April Council meeting.

The California Department of Fish and Game, the Oregon Department of Fish and Wildlife, and the Washington Department of Fish and Wildlife also may announce additional state-sponsored hearings.

Council Action:

Confirm hearings officers and other official hearings attendees.

Reference Materials:

1. Agenda Item D.8.a, Attachment 1: Schedule of Salmon Fishery Management Option Hearings.

Agenda Order:

a. Agenda Item Overview — Chuck Tracy
b. **Council Action:** Appoint Hearings Officers — Don Hansen

PFMC
02/06/08

SCHEDULE OF SALMON FISHERY MANAGEMENT OPTION HEARINGS
Pacific Fishery Management Council
March 31-April 1 2008[a/]

Date Day/Time	Location	Council	NMFS	USCG	Staff	Salmon Team	Meeting Facility Contact
March 31 Monday 7 p.m.	Chateau Westport Beach Room 710 West Hancock Westport, WA 98595				Kit Dahl		Kathy or Linda (360) 268-9101 Phone (360) 268-1646 Fax
March 31 Monday 7 p.m.	Red Lion Hotel South Umpqua Room 1313 North Bayshore Drive Coos Bay, OR 97420				Chuck Tracy	Craig Foster	Ms. Qynne McKibben (541) 269-4099 Phone (541) 269-4060 Fax
April 1 Tuesday 7 p.m.	Red Lion Hotel Eureka Evergreen Room 1929 Fourth Street Eureka, CA 95501.				Chuck Tracy	Allen Grover	Ms. Laura Bringhurst (707) 441-4712 Phone (707) 441-4725 Fax

a/ The Council will also receive public comment at the Seattle, Washington meeting during the week of April 7-11, 2008.

PFMC
2/26/2008

Agenda Item D.8.a
Attachment 1
March 2008