

## GROUND FISH MANAGEMENT TEAM REPORT ON SALMON ENDANGERED SPECIES ACT (ESA) CONSULTATION ANALYSIS

The Groundfish Management Team (GMT) received a briefing from Susan Bishop, National Marine Fisheries Service (NMFS), on the analysis for the Chinook salmon Endangered Species Act (ESA) consultation as presented in [Agenda Item I.1.a, NMFS Report 1](#) and [Agenda Item I.1.a, NMFS Report 2](#) and offers the following comments.

### Overview

Under this agenda item, the Council is to consider the scenarios presented in NMFS Report 1, as directed under the Council's September 2015 motion, and provide guidance on the use of the analysis for final action scheduled for April 2017. The intended goal of the scenarios is to describe the future of the groundfish fishery (i.e., effort, location, and management) in relation to potential upcoming changes (e.g., high whiting landings, revitalized midwater rockfish fishery, elimination of the Rockfish Conservation Area (RCA), and removal of certain gear restrictions). By understanding where and how fishing by the individual sectors takes place, the NMFS Protected Resources Division can then better evaluate a level of take for the Incidental Take Statement (ITS) that would not cause jeopardy with respect to ESA-listed Chinook salmon.

The GMT appreciates the efforts of the NMFS analysts to characterize future Chinook salmon bycatch for the alternative threshold scenarios under different expectations of what the future groundfish fishery could resemble. The GMT suggests that the Council consider the impacts reported in the analysis carefully, keeping in mind that it is highly unlikely that the maximum potential landings of Chinook salmon will be observed (described more below).

Even if the groundfish fisheries were to continue to operate as they are currently (e.g., similarly high whiting levels), future bycatch of Chinook salmon may be volatile, and is highly uncertain to pinpoint. To date, there have been no significant variables linking salmon bycatch to groundfish catches or stock abundance levels. The uncertainty caused by the inability to predict salmon bycatch becomes much more amplified when considering potential changes that may occur to the groundfish fisheries. For example, the degree to which the non-whiting midwater trawl fishery will re-emerge due to the rebuilding of canary rockfish and the potential lifting of the trawl RCA is highly speculative (e.g., increased attainment is dependent upon markets, availability of co-occurring species, etc.).

As such, it may be prudent for the Council and NMFS to consider establishing Chinook salmon thresholds that maximize flexibility and incentives to reduce bycatch, given the high degree of uncertainty that exists in bycatch forecasts for both the whiting and especially the non-whiting sectors.

### Synthesis of impacts for the scenarios

Given the complexity of the report, the GMT attempted to summarize the scenarios presented in the report, the underlying assumptions, and synthesize the projected impacts (Table 1).

**Table 1. Potential Chinook salmon bycatches by alternative scenarios for alternative minimum, mean, and maximum levels of bycatch rates (x axis) and landings (y axis). Ranges of both were provided to bracket uncertainty.**

Scenario	Assumptions	Sector	Projected Catch	Estimate Level of Projected Chinook Bycatch		
				Min	Mean	Max
1A	Recent Conditions Continue; similar geographic footprint, similar bycatch rates, more substantial tribal fishery	At-Sea and Shorebased Whiting	Min	2,382	4,760	7,736
			Mean	3,485	6,989	11,354
			Max	4,374	8,861	14,386
1B	Geographic footprint is expanded S. of 42 N. Lat. 10% of the at-sea catch is caught S. of 42 N. Lat, based on the recent five year average	At-Sea and Shorebased Whiting	Mean	3,404	8,145	12,486
2A	Similar conditions to most recent three-years including the geographic footprint, range of groundfish catch, and Chinook bycatch rates. Serves as a baseline reflecting expectations for increased effort on the shelf given higher ACLs for canary, widow, and darkblotched	Non-Whiting (Bottom Trawl, Midwater Rockfish Trawl)	Min	336	1,009	1,777
			Mean	454	1,396	2,442
			Max	570	1,770	3,083
2B (1)	Landings based on pre-RCA, pre-OFS (1995-1999); Bycatch rates based on 2012-2015 bottom trawl and 2014-2015 non-whiting midwater trawl	Non-Whiting (Bottom Trawl, Midwater Rockfish Trawl)	Min	387	1,212	2,178
			Mean	634	1,942	3,444
			Max	841	2,551	4,499
2B (2)	Landings based on pre-RCA, pre- OFS (1995-1999); Bycatch rates based on EDCP data	Non-Whiting (Bottom Trawl, Midwater Rockfish Trawl)	Min	2,989	19,113	35,372
			Mean	3,766	25,297	47,012
			Max	4,483	30,665	57,073
3A	Reserve: Chinook bycatch threshold of 11,000 for whiting; Chinook bycatch threshold of 4,500 for non-whiting, reserve of 5,500 Chinook	Whiting and non-whiting				
3B	20,000 Chinook threshold for whiting and non-whiting sectors combined	Whiting and non-whiting				

## Overview of Scenario Results

Table 1 shows a range of estimated Chinook bycatch levels under each scenario discussed in the analysis. These ranges can vary greatly depending on the scenario, bycatch rate, and landings. Below, the GMT provides a synopsis of what we believe is the most likely scenario for the whiting and non-whiting sectors, as well as the underlying uncertainties within each of those scenarios as they relate to the variability in the projected Chinook salmon bycatch levels.

### Whiting

#### Scenario 1A

For the at-sea and shorebased whiting sectors, it is the GMT's general conclusion that Chinook salmon bycatch will remain similar to that in recent years under current conditions. In that case, annual bycatch will typically be less than the current and proposed 11,000 fish threshold; however, periodic spikes and overages should be expected, as has occurred in the past. Based on previous analysis, these periodic overages are not a function of the whiting allocation, but rather appear to be due to random occurrence (i.e., "lightning strikes"), and can accumulate rapidly over a few hauls (with a lack of time to respond) as shown for the at-sea sector in [Agenda Item F.7.a, WDFW Supplemental Report 2, September 2016](#). **Overall, the GMT believes that catches of Chinook salmon in the whiting sectors would likely be below 11,000 fish under "average" conditions (i.e., attainments and bycatch rates) with overages happening infrequently.**

#### Scenario 1B- Resumption of at-sea processing south of 42° N. lat.

As a reminder, since 1992 at-sea processing has been prohibited south of 42° N. lat. (the Oregon/California border) as part of a suite of measures to limit impacts to salmon. Historically, there had been higher salmon bycatch rates in this area and bycatch accumulated more quickly than in other areas of the coast. Specifically, the NMFS report ([Agenda Item I.1.a. NMFS Report 1](#)) states that in 1992, 50 percent of the Chinook bycatch in the at-sea whiting fishery occurred in eight hauls between 43° N lat and 40° 30' N lat. (Eureka subarea for groundfish). For a salmon reference, the Klamath Management Zone (KMZ) extends from the Humboldt south jetty (40° 45' 53" N. lat.) to the Oregon/California border.

There may be equity issues between the salmon and groundfish fisheries that the Council may wish to consider in expanding the whiting fishery, affecting the choice of scenario in April. For instance, there was a limited directed commercial salmon fishery in the KMZ, with a harvest cap of only 1,000 fish permitted in 2016. At the time of the at-sea processing restriction, the bycatch in the Eureka subarea was approximately 4,800 Chinook salmon.<sup>1</sup> Bycatch taken in the groundfish fishery therefore may be greater than that of the directed salmon fisheries in the area. In addition, there is limited genetic data off the coast of California, as such, impacts to listed salmon stocks south of 42° N lat. may not be fully captured.

The GMT notes that 1992 fishery was vastly different than the one operating today. While the analytical document states that there were differences in the depths that the sectors were able to fish, there have been additional management changes that would affect bycatch and fishing behavior. There were no sector-specific allocations or set asides, leading to a race to fish; there

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<sup>1</sup> <https://www.gpo.gov/fdsys/pkg/FR-1992-04-22/pdf/FR-1992-04-22.pdf>

was no co-op style management (e.g. Chinook bycatch thresholds within the mothership co-op agreements<sup>2</sup>) or individual accountability from the trawl rationalization program, and there were more vessels participating. Concentrations of constraining overfished species may be higher in the northern area, leading vessels to move south. Therefore, if the Council chooses Scenario 1B in April, it may be prudent to consider incorporating area-specific management measures in the analysis while keeping in mind that the fleet is significantly different in their operations and management than in 1992.

## **Non-Whiting**

For non-whiting sectors, it is the GMT's general conclusion that a 1,000 Chinook salmon threshold would not accommodate bycatch given the likely re-emergence of the mid-water rockfish fisheries, due to the rebuilding of canary rockfish, and the potential removal of the RCA. However, even with that fishery expansion, the GMT does not expect bycatches of Chinook salmon to be in the tens of thousands as shown in the NMFS scenario 2B-2 option, or the 2002-2003 West Coast Groundfish Observer Program (WCGOP) estimates (14,000 and 16,000, respectively), for the same reasons as stated by NMFS (e.g., fleet consolidation, greater focus on bycatch reduction, inseason information on catches, etc.). In addition, the WCGOP estimates in 2002 and 2003 had observer coverage rates of only 15 and 14 percent of groundfish landings, respectively. The GMT has learned from WCGOP that there were several high bycatch tows in that data. Therefore, the GMT believes that due to the low observer coverage, this could, and probably did result in the overall estimate being high.<sup>3</sup> The degree of change to the fishery and bycatch levels would have to be considerable to go from current bycatch levels (i.e., less than 1,000 per year since 2006) to the upper threshold of 9,000. In summary, the GMT agrees with the NMFS conclusion that 1,000 would be an underestimate for non-whiting and that 9,000 fish would likely be the upper extent.

**The only resolute conclusion that the GMT is able to make at this time is that non-whiting bycatches of Chinook salmon are likely to be between 1,000 and 9,000.** Although NMFS provided projections that ranged from 387 to 4,449 fish for scenario 2B-1 (i.e., no RCA, no overfished species), these projections are uncertain, since they are based on recent bycatch rate data that may not be reflective of future fishing activities. For bottom trawl, the analysts used bycatch rates based in part on selective flatfish trawls (SFFT), which were designed to reduce bycatch of rockfish, but may have also been effective in reducing bycatch of stronger-swimming salmon. Therefore, the GMT recommends a bycatch rate comparison between SFFT and hooded bottom trawls to evaluate potential bias, which can be done using pre- and post- 2005 WCGOP observer hauls<sup>4</sup> (the year of SFFT adoption). If there is a difference, then SFFT bycatch rates should be replaced with those of hooded nets.

In addition, non-whiting projections should include non-trawl landings in order to assess the full scope of the fishery. While bycatch is typically minor (i.e., < 100 per year prior to 2013), 429 Chinook salmon were landed in the non-trawl sector in 2013.

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<sup>2</sup> [http://www.pcouncil.org/wp-content/uploads/2016/06/IR7\\_CoopRep\\_MS\\_2015\\_WMC\\_JUN2016BB.pdf](http://www.pcouncil.org/wp-content/uploads/2016/06/IR7_CoopRep_MS_2015_WMC_JUN2016BB.pdf)

<sup>3</sup> [https://www.nwfsc.noaa.gov/research/divisions/fram/observation/data\\_products/sector\\_products.cfm](https://www.nwfsc.noaa.gov/research/divisions/fram/observation/data_products/sector_products.cfm)

<sup>4</sup> Pre-2005 will need to be filtered to remove vessels using SFFT under the EFP.

## Conclusions

Overall, while the GMT thinks that the analysis presented is informative for assessing Chinook salmon bycatch in the groundfish fisheries, we believe there are improvements that can be made moving forward. The Council is slated to select a final set of scenarios in April to inform what the future groundfish fisheries may look like for the biological opinion and development of the ITS. The GMT intends to provide recommendations on scenarios at that time, following any guidance by the Council to the analysts at this meeting, and if any of the improvements discussed above can be incorporated.

**After the Council selects their final scenarios in April, the GMT suggests that NMFS consider exploring and improving the methodology used to develop the final projected impacts using the recommendations listed in the SSC Report ([Agenda Item I.1.a, Supplemental SSC Report](#)) and other GMT recommendations that have been or will be sent to the analytical team.** Members of the GMT are more than willing to help assist with further analyses if requested by the Council and NMFS.

Finally, there has been some confusion in discussions regarding the difference of 1,000 fish in thresholds between Scenario 3 (reserve approach) and the remaining scenarios. The previous threshold limit for combined whiting (11,000) and bottom trawl (9,000) sectors was 20,000 Chinook salmon. Under the reserve pool scenario, the combined whiting (11,000), non-whiting (4,500), and buffer (5,500) levels total 21,000 Chinook salmon. **The GMT suggests the Council may wish to clarify if the intent under the reserve pool scenario was in fact to have a total of 21,000 fish, or if the total should be equal to the previous 20,000 fish.** If the latter is the case, the Council should also identify how the values need to be adjusted to equal 20,000 fish.

PFMC  
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