

GROUND FISH ENDANGERED SPECIES WORKGROUP REPORT

The Groundfish Endangered Species Workgroup (GESW; Workgroup) met on April 12-13, 2023 in Seattle, WA and via webinar. The Workgroup received presentations regarding fishing effort in the groundfish fishery from Dr. Kayleigh Somers, Northwest Fisheries Science Center (NWFSC) Fisheries Observation Science Program (FOS), and on the bycatch of the listed species from Drs. Brad Hanson (NWFSC), Rick Gustafson (NWFSC), Kate Richerson (NWFSC), Kayleigh Somers, and Mr. Scott Benson (Southwest Fisheries Science Center). Mr. Brian Hooper, National Marine Fisheries Service Sustainable Fisheries Division (NMFS SFD) chaired the meeting.

Additional Workgroup members (or alternates) participating included: Mr. Jonathan Scordino (Tribal Representative - Makah Tribe); Mr. Dan Lawson, NMFS Protected Resources Division (NMFS PRD); Ms. Michelle St. Martin, U.S. Fish & Wildlife Service (USFWS); Mr. Corey Niles, Washington Department of Fish and Wildlife (WDFW); Ms. Lynn Mattes, Oregon Department of Fish and Wildlife (ODFW); Ms. Caroline McKnight, California Department of Fish and Wildlife (CDFW); and Mr. Harrison Ibach (Fishing Industry Representative). This meeting was open to the public and comment was solicited throughout the meeting.

The terms of reference for the Workgroup, approved at the June 2015 Council meeting, are provided as Appendix B to this report. In general, the Workgroup's objectives and duties are to:

1. Consider whether the amount of incidental take stipulated in the biological opinions (BiOps) was exceeded in the most recent two years of data,
2. Consider whether new information reveals effects not previously considered in the BiOps,
3. Recommend new analyses to improve bycatch estimates, and
4. Propose for Council consideration, conservation and management measures, if needed, to minimize bycatch of listed species in the groundfish fishery.

The Workgroup appreciates the work done by everyone on the bycatch teams in updating reports on fishing effort, humpback whales, short-tailed albatross, eulachon, green sturgeon, and leatherback sea turtles to include information from 2020 and 2021. In addition, the Workgroup appreciates the presentations by the bycatch team leads and the discussion that followed.

General Comments

The Workgroup process for integrating the Endangered Species Act (ESA) consultations with Council management continues to create effective communication between all parties. It brings together experts in the behavior and biology of the listed species with experts on the management and behavior of the fishing fleets. More so, any suggestions for new management measures benefit

from the feedback, openness, and transparency of the Council process. We very much appreciate the protected species professionals for continuing to support these integrative discussions. The Council appointed Mr. Harrison Ibach as a fishing industry representative for this Workgroup meeting. Mr. Ibach's input was very valuable in helping the Workgroup understand how different gears are fished and how vessels operate. The Workgroup supports having continued industry representation on the Workgroup in the future.

Groundfish fisheries generally have minimal interactions with ESA-listed marine mammals, sea turtles, eulachon, green sturgeon, and seabirds. The rarity of these ESA-listed species in the catch data makes projecting and estimating incidental take challenging. Outside of the shoreside individual fishing quota (IFQ) and at-sea hake fishery sectors that have 100 percent monitoring through at-sea human observers and/or electronic monitoring, this rarity combined with low monitoring rates can result in estimates of take being inherently imprecise and variable. Even where 100 percent monitoring exists, variability and rarity of encounters masks their causes and adds uncertainty to future projections.

Workgroup recommendations endorsed by the Council are typically addressed in future biological opinions (BiOps), the next groundfish harvest specifications and management measure process, or a standalone action like the Council's previous action for seabird bycatch minimization measures. The Council has envisioned a similar standalone action to consider humpback whale bycatch minimization measures, such as changes to pot gear marking requirements.

The Workgroup will continue its efforts to improve the feedback loop on the actions taken by the Council, so Workgroup members have an idea on why, or why not, certain recommendations were taken up.

The BiOps for the groundfish fishery, as well as the 2021 Workgroup reports are available on the [NMFS West Coast groundfish website](#).

Fishing Effort Report

The Workgroup received an updated report on fishing effort in the 2002-2021 Pacific Coast groundfish fisheries (PCGF) by Dr. Kayleigh Somers. The patterns seen in fishing effort and catch were well within the bounds of previous years. While the changes in fishing patterns discussed below are notable, the Workgroup agreed that the changes did not constitute new information or effects that were not previously considered in the BiOps.

Landings and effort in the bottom trawl fleet continued to decrease in 2020 and 2021. The spatial and seasonal distribution of landings were similar to previous years. While not substantial, we note that effort in the 0-50 fathom depth bin decreased compared to earlier years, while activity in the 50-100 fathom depth bin increased slightly.

Landings in the midwater rockfish trawl fleet were similar from 2017 to 2021. The spatial distribution of landings from 2019 to 2021 were similar to previous years, although the proportion of landings in 2021 increased near Newport and decreased near Bellingham in 2021. Seasonally, 2019 to 2021 landings were higher in March-April and lower in September-October compared to previous years. The depth distribution was similar, although less effort occurred in the 50-100 fathom depth bin and more effort occurred in the 100-150 fathom depth bin.

Landings and effort in the shoreside hake, at-sea mothership (MS), and at-sea catcher-processors (CP) mostly decreased from 2019 to 2021. Landings by the shoreside fleet were lower near Newport and higher near Astoria compared to 2011 to 2018. The seasonal and depth distributions of shoreside hake landings were similar to previous years. The at-sea catcher-processors fleet landings in 2019 to 2021 were processed more in September-October and less in July-August compared to earlier years. The mothership landings were processed primarily in May-June and September-October in 2019 to 2021, similar to previous years. More than 90 percent of catcher-processors and mothership landings come from hauls in depths of 100–250 fathoms.

Non-catch share pot landings have slowly increased in recent years, while catch shares landings have decreased. Effort in the number of pots has decreased in both sectors from 2019 to 2021. The median number of pots per set in the catch shares fleet reached an all-time high of around 50 pots in 2020 and 2021. Mr. Ibach noted the use of slinky pots could be a reason for the increase in the number of pots per set. Because they're light and compact, more slinky pots may be used per set, but this doesn't necessarily mean there are more vertical lines in the water. For both pot fleets, landings were higher in Newport and lower in Astoria. Catch shares pot landings also continued to occur further south than non-catch share pot landings, specifically in the 35° to 37° N. latitudinal bins. Fishing effort in the non-catch share pot fleet continued to occur primarily in depths 100–300 fathoms, while the majority of catch share pot fleet effort occurred slightly deeper in waters 150–350 fathoms. The non-catch share fleet had greater landings later in the year; specifically, in 2019 to 2020, the proportion of landings were higher in November-December than in previous years. The Workgroup surmised this was likely due to the increases in sablefish allocations, as well as the sablefish primary season extensions.

Groundfish landings by the non-catch share hook-and-line fleet have been decreasing since 2017. Estimated annual fleetwide hooks reached an historic low of 6 million hooks in 2021. No catch share hook-and-line effort occurred in 2020 or 2021. The median number of hooks per set in the non-catch share fleet has been fairly similar over time. Non-catch share landings were fairly evenly distributed along the coast. Seasonal depth and distributions in the non-catch share fleet was similar in 2019 to 2021 compared to previous years.

The Workgroup discussed the impact COVID may have played in the effort data. COVID impacts were likely mitigated in part by the 2020 and 2021 sablefish primary season extensions. The pot and longline season was also delayed in Alaska, impacting vessels that fish both West Coast and

Alaska groundfish. We also noted market changes and crew quarantine challenges. The Workgroup thought the decreases in bottom trawl effort in 2020 and 2021 were likely part of longer term declines.

The Workgroup agreed that the updated approach taken in this report met our needs under the terms of reference. We also recognized the time and effort needed to prepare this report, as well the valuable information the larger report provides for many other purposes. The Workgroup will continue to explore ways to streamline the fishing effort report in the future. We discussed potentially decoupling portions of the report from the Workgroup timeline and finding alternate avenues to meet those other informational needs outside of the Workgroup report.

The Workgroup expects to have Federal non-trawl logbook effort data from 2023 available for our 2025 meeting. We discussed potential analyses of these new fleetwide effort data (i.e., line-days, soak time, number of vertical lines, floating longline gear usage) and their relevance to estimations of humpback whale entanglement risk. Mr. Ibach noted a potential challenge in collecting accurate data on slinky pots, especially if there is mixing of different types of pots on the same string. The Workgroup also thought a comparison of effort metrics across logbook and observer data could help quantify differences between self-reported census data and independently collected partial coverage data.

The Workgroup agreed it would think further about specific requests to FOS related to the fixed gear logbook data and streamlining the fishing effort report. We plan to communicate these requests early enough in the process to feed into the 2025 Workgroup products.

Workgroup recommendations:

The Workgroup did not have any substantial recommendations on the fishing effort report. We again thank Dr. Somers and her colleagues for a great report and recognize the substantial time and effort taken to produce it.

Eulachon

The Workgroup received a presentation from Dr. Rick Gustafson on the bycatch of eulachon in the groundfish fishery. The 2018 BiOp for eulachon includes two incidental take thresholds that are designed to account for the fluctuating abundance of eulachon. The precautionary and reinitiation thresholds are five year geometric means of 0.01 percent and 0.02 percent of minimum Columbia River abundance. These thresholds are meant to be compared to a five year geometric mean bycatch estimate for eulachon, which is based on the mean generation time of the species and is calculated from the most recent year's and the four preceding year's bycatch count estimates in the West Coast groundfish fishery. Thus, for example, the geometric mean for bycatch in 2020 is calculated using data from 2015 to 2019.

Total fleetwide estimated bycatch in U.S. West Coast groundfish fisheries increased from an estimated 792 individuals in 2018 and 2,663 individuals in 2019, to an estimated 8,528 eulachon in 2020 and 23,820 eulachon in 2021. Using these eulachon bycatch estimates, the five-year geometric mean of bycatch in the West Coast groundfish fisheries has been determined to be 345 eulachon in 2020 and 567 eulachon in 2021. In 2020, the five-year geometric mean of eulachon bycatch in U.S. West Coast groundfish fisheries was 42 percent and 21 percent of the precautionary (827) and reinitiation (1,653) thresholds, respectively. In 2021, bycatch was about 61 percent of the precautionary (932) and 30 percent of the reinitiation (1,865) threshold. Therefore, these thresholds were not exceeded in 2020 or 2021. Dr. Gustafson indicated that even these relatively higher levels of eulachon bycatch are likely not a population level concern.

The Workgroup discussed potential reasons for the increase in eulachon bycatch from 2019 through 2021. Eulachon abundance increased during this period. The presence of more eulachon in the marine environment likely accounts for some unknown portion of the increased eulachon bycatch in these fisheries. The eulachon species report notes the bycatch increase also coincides with elimination of minimum trawl mesh sizes in the bottom and midwater trawl fisheries in 2019 ([83 FR 62269, December 3, 2018](#)). The Workgroup discussed this possibility but did not have data to evaluate if changes to mesh size in the fleet were extensive. We also note that increases in eulachon bycatch were seen across whiting and non-whiting sectors during this time period. It was assumed during development that eliminating mesh size, codend, and chafing gear restrictions for midwater and bottom trawl IFQ-fisheries would have little impact on eulachon, since participants in the catch share program would likely continue using codends (and other large sections of the trawl net) with mesh sizes similar to those used prior to January 1, 2019.

Dr. Gustafson's preliminary forecast of 2022 Columbia River abundance indicated that at least the precautionary threshold may be crossed in 2022, when the high bycatch of 2021 will be used in the calculation of the five-year geometric mean. The Workgroup discussed potential changes in abundance calculations and analyses that could be explored in a future BiOp.

We also discussed estimating eulachon counts when only weight data is available. In order to minimize the need for estimations and extrapolations, the Workgroup encourages state port sampling programs and Federal catch monitors to collect eulachon counts in fisheries sectors where only weight of catch is currently measured. The Workgroup recognizes the challenge posed by the low volume of eulachon catch in the trawl fisheries. For perspective, at 11.4 fish per lb., the 20,820 fish estimated to have been caught in 2021 is the equivalent of 0.95 mt. And the five-year geometric mean in 2022 of 1,888 fish is only 165.6 lbs. or 0.08 mt.

Workgroup recommendations:

The Workgroup flags for the Council the anticipated 2022 precautionary threshold exceedance. The Workgroup is not proposing conservation and management measures to minimize bycatch of eulachon at this time. We understand NMFS monitors eulachon bycatch levels every year and will

keep the Workgroup and Council apprised of new data on abundance and bycatch. We will continue to evaluate eulachon bycatch and the need for bycatch minimization measures through our 2025 report, or as directed by the Council.

The Workgroup continues to appreciate that the existing BiOp replaced the fixed 1,004 fish threshold with an approach intended to better account for increases in bycatch when eulachon are abundant. However, we highlight questions about the rationale for the five-year geometric mean based framework, both in terms of how well it characterizes what should be expected for bycatch swings in the fishery and in its biological basis for eulachon. We would recommend evaluation of alternative approaches if consultation is reinitiated in the future.

Green Sturgeon

The Workgroup received a report from Dr. Kate Richerson on the bycatch of green sturgeon in the groundfish fishery. Green sturgeon encounters in the groundfish fishery have been observed in the Limited Entry bottom trawl (prior to 2011), IFQ bottom trawl (2011-present), and at-sea hake sectors (2002-present).

There are two distinct population segments (DPS) for green sturgeon on the West Coast: the Southern DPS and the Northern DPS. Only the Southern DPS is listed under the ESA. Neither DPS can be determined morphologically upon bycatch encounter, so a genetic stock identification (GSI) technique is used. The annual take of Southern DPS green sturgeon was estimated using individual assignments of GSI where available and an estimated ratio of Southern to Northern DPS by given catch area otherwise (48 percent Southern DPS for Washington and Oregon, and 96 percent for California coast). No green sturgeon bycatch was observed in Federal fisheries in 2020 or 2021. We estimate one Southern DPS green sturgeon was caught in the federally-managed sectors for 2017-2021. Therefore, the estimated bycatch of the Southern DPS of green sturgeon has not exceeded the ITS amount of 28 fish per year.

The Workgroup discussed that there has been less bottom trawl effort in shallow locations (where vessels may be more likely to encounter green sturgeon) and this may be one reason for the recent low green sturgeon bycatch. The Workgroup also discussed future genetic sampling. Dr. Richerson was optimistic regarding future funding to expand genetic sampling and processing which will allow for more data on green sturgeon DPS.

Unlike previous reports, the green sturgeon report does not include a section on the observed bycatch of green sturgeon in the California halibut trawl fishery. This fishery is state managed and not part of the Federal groundfish BiOp. Given the workload associated with preparing this information on the Workgroup's time frame, NMFS workgroup members thought it best to focus on the Federal fisheries for the Workgroup report and will look to make information from state fisheries available elsewhere.

Workgroup recommendations:

The Workgroup had no recommendations with respect to green sturgeon.

Humpback Whales

The Workgroup received a presentation from Dr. Brad Hanson on the take of humpback whales in the groundfish fisheries. The BiOp sets take amounts for both the Mexico DPS and the Central America DPS. However, the DPS origin of an individual whale is not commonly known. Therefore, the incidental take of ESA-listed Mexico DPS and/or Central America DPS humpback whales is exceeded if:

- more than 5 humpback whales are observed or estimated to have been taken in the Pacific Coast Groundfish Fishery in any one year, or
- the 5-year running average of estimated humpback whale takes exceeds 2.34 per year.

Pot and trap fisheries generally represent the majority of documented fishery interactions with humpback whales along the U.S. West Coast. There have been two documented takes of a humpback whale in the Pacific Coast groundfish pot fisheries—one in the Limited Entry (LE) sablefish pot fishery sector in 2014 and one in the Open Access Fixed Gear (OAFG) pot fishery sector in 2016.

Estimates of humpback whale entanglements/takes for the LE Sablefish pot sector, the OAFG pot sector, and the sectors combined did not exceed the 2020 BiOp-established thresholds of five individuals observed or estimated in any one year or a 5-year running estimated average of 2.34 individuals per year. Zero entanglements/takes were observed in the catch shares sector which has 100 percent observer coverage and/or electronic monitoring.

In summer 2021, there was an observed take of a humpback whale in the Open Access hook-and-line fishery. This take occurred off California and involved vertical hook-and-line gear in which the gear was attached to the vessel. The vessel was targeting slope rockfish and was not part of an Exempted Fishing Permit (EFP). The interaction was documented as a serious injury, not a mortality. This was the first documented interaction with humpback whales in this sector of the fishery. The model and thresholds used in the 2020 BiOp do not include this gear type. Therefore, it may represent new information related to effects of the fishery that were not previously considered in the BiOp. We understand that NMFS is evaluating this new information for potential BiOp reinitiation. The Workgroup flags this information for fishermen, as it might not be obvious that hook-and-line gear may interact with humpback whales. We discussed voluntary movement by fishermen to a different fishing site when humpback whales are present in the area as a potential way to minimize bycatch. Data confidentiality limited the detail available for discussion at the meeting. The Workgroup found it difficult to discuss the likelihood of additional takes with this and like gear types and what might be done to avoid them. Even with more detail we note that it

would have been difficult to generalize from the single known event. However, we request input from fishermen on potential ways to minimize impacts from this gear.

Dr. Hanson presented updated information and ongoing research related to North Pacific humpback whale stock structure. After evaluating genetics and movement data, NMFS proposed designating five stocks ([88 FR 4162, January 24, 2023](#)) to better align the stocks under the Marine Mammal Protection Act (MMPA) with humpback whale DPS under the ESA. More discussions on population structure, assessment of stocks, and methods for assigning takes to a particular DPS are expected to take place next year in forums such as the [Pacific Scientific Review Group](#). Interested parties may contact Laura McCue (laura.mccue@noaa.gov) to be added to the email distribution list for information on public meetings of the Pacific Scientific Review Group.

The 2020 BiOp assumes that approximately 90 percent of sablefish pot fishing effort is off Oregon/California and approximately 10 percent is off Washington. This distinction informs the take by DPS calculations in the BiOp. The Workgroup checked in on sablefish pot fishing effort distribution. While recent effort (2020-21) in the catch share fishery has shifted some from Oregon/California to Washington, the BiOp assumption is still reasonable.

We also note the sablefish primary tier fishery season was temporarily extended in 2020 and 2021 from October 31 to December 31 ([85 FR 68001, October 27, 2020](#); [86 FR 59873, October 29, 2021](#)). As described in the fishing effort report, this shifted pot effort to later in the year.

The Workgroup did not see effects to humpback whales from the season extension that were different from what was analyzed in the BiOp. We will continue to monitor effects given the increase in sablefish allocations and the permanent season extension implemented with 2023-2024 harvest specifications and management measures ([87 FR 77007, December 16, 2022](#)).

The Workgroup discussed the need to carefully use data from additional opportunistic (non-observer program) entanglement sightings in future bycatch estimates and include these in future reports. We also discussed and would encourage an evaluation of monofilament (and other low breakage strength line entanglements) interactions on whale survivorship.

We encourage the Council to support development of tools that could reduce real-time geographic overlap of humpback whales and the pot fishery (see Workgroup recommendation). While the Workgroup did not discuss these projects in detail, we highlight here for Council awareness the ongoing development of several scientific tools related to Conservation Recommendation 1 from the 2020 BiOp.

- The California Risk Assessment and Mitigation Program (RAMP) was developed through the California Dungeness Crab Fishing Gear Working Group to address whale and leatherback sea turtle entanglements in California Dungeness crab gear. The RAMP monitors entanglement risk throughout the fishing season using a wide

array of biological and ecological data/tools to determine when entanglement risk is elevated, which informs the implementation of management measures in the commercial and recreational crab fisheries to minimize the risks of entanglements (see the [CDFW Whale Safe Fisheries](#) webpage for more information).

- Habitat compression driven by key oceanographic and ecological variables, as represented by a Habitat Compression Index (HCI; Santora et al. 2020), has been associated with increased entanglement risk in California. Recently, Schroeder et al. (2022) completed a coastwide study of habitat compression, and developed regionalized HCIs for the entire U.S. West Coast. The potential utility of the regional HCIs for monitoring entanglement risk is an area of current investigation. More information on HCI and other relevant ecosystem indicators can be found on the [NOAA Integrated Ecosystem Assessment webpage for whale entanglements](#).
- In 2021, Samhuri et al. published a framework to help evaluate potential trade-offs between conservation benefits and impacts to fisheries resulting from different management approaches to reduce entanglements in the California Dungeness crab fishery, using predictive models of coastwide humpback and blue whale distribution that have been/are being developed. Reikkola et al. (2023) used a similar approach to evaluate the performance of recent management actions in the Washington Dungeness crab fishery to reduce entanglement risks. These efforts offer potential avenues for consideration of how to monitor and/or evaluate measures to minimize entanglement risks in West Coast fisheries.

On fixed-gear marking improvements, the Workgroup would first like to acknowledge the success of the Sea Grant workshop held in November 2022. We believe gear marking improvements are on the right path forward with the additional opportunities for industry to provide input through the Council process. The Workgroup highlights the importance of coordination and communication with the Dungeness crab fishery in any groundfish fixed gear marking action. We also support the evaluation of changes to the gear configuration regulations to allow vessels to voluntarily use one buoy line instead of two buoy lines. This could potentially reduce the number of vertical lines in the water and the risk of entanglement.

Workgroup recommendations:

The Workgroup highlights the 2021 documented take of a humpback whale in a new sector, the Open Access hook-and-line fishery. While we have no specific conservation measure recommendations, suggestions and input from industry and the Council on potential ways to minimize impacts from this gear may be beneficial.

The Workgroup discussed the need for the Council to keep apprised of stock structure changes, population estimate of subgroups, new take information, active litigation on the humpback whale

BiOp, and potential BiOp reinitiation. We recommend the Council consider how it would like to receive this information from NMFS.

Finally, the Workgroup encourages the Council to support the development of tools that could reduce real-time geographic overlap of humpback whales and the pot fishery (see Conservation Recommendation 1 from the 2020 BiOp).

Leatherback Sea Turtles

The Workgroup received a presentation from Mr. Scott Benson on the bycatch of leatherback sea turtles in the groundfish fishery. As in past reports, the best available data on this species shows a continued and concerning decline. The Workgroup's understanding of the science is that the main cause of the decline are animals caught or entangled by fishing vessels particularly outside of U.S. jurisdictions, and predation and harvesting at nesting beaches in the Western Pacific. New trend information from California foraging grounds is showing a long term decline similar to the trend at index nesting beaches in Indonesia.

As with other protected species considered by the Workgroup, the greatest difficulty in estimating leatherback sea turtle bycatch in fisheries managed under the Groundfish Fishery Management Plan is the rarity of encounters. Rare bycatch events are known to lead to high uncertainty when estimating total bycatch, especially if observer coverage levels are low, as is the case in the OAFG pot fishery.

No interactions with leatherback sea turtles were observed in the groundfish fisheries during the most recent five-year period (2017-2021). All U.S. West Coast groundfish fisheries are therefore below the BiOp ITS take limit of an average of 0.38 leatherbacks per year for the most recent five-year period (and up to one turtle in a single year). The single take observed in 2008 in the OAFG pot fishery remains the only observed take of leatherback sea turtles in fisheries observed by the NWFSC FOS.

Mr. Benson reported sightings of leatherback sea turtles in the groundfish fishery are rare with the most recent sighting occurring in 2014. Mr. Benson also reported that aerial surveys have seen only one leatherback sea turtle off the coasts of Oregon and Washington in recent years. Mr. Benson noted two male leatherback sea turtles were captured and tagged with satellite-linked transmitters off the central coast of California in September 2022. Both turtles completed trans-Pacific migrations and are currently located adjacent to Bougainville Island (Papua New Guinea) and Isabel Island (Solomon Islands) in the Western Pacific. Bycatch was estimated using a Poisson model which is similar to the humpback whale model but without the Bayesian framework. The Workgroup agreed future BiOps for leatherback sea turtles could explore using Bayesian estimates as a potentially better method to capture the bycatch risk, but recognizes the need to balance the high workload of this task with the value of better estimating zero takes.

Workgroup recommendations:

The Workgroup highlights its concern for the declining trend in the leatherback sea turtle population. As this concern is primarily related to management and monitoring of international fisheries, the Workgroup recommends the Council explore ways for the Council to support leatherback sea turtle recovery through the Regional Fisheries Management Organization (RFMO).

Short-tailed albatross

The Workgroup received a presentation from Dr. Kayleigh Somers on the bycatch of short-tailed albatross (STAL) in the groundfish fishery. Consistent with the 2017 BiOp, the NWFSC used a bycatch estimation that is able to address the impacts to STAL directly using a Bayesian approach.

No STAL takes were documented in the West Coast groundfish fisheries in 2020-2021. Data from 2002-2021 showed one observed STAL take in 2011 off the West Coast in the sablefish fixed gear fishery. Fleet-wide estimates of mean bycatch from the best model ranged from 0.1 to 1.3 STAL/year. Based on the analysis presented in the bycatch report, the groundfish fishery did not exceed the ITS thresholds of an estimated five albatross in a two-year period or one observed albatross in a two-year period. Relative to previous time periods, non-lethal STAL interactions/sightings were average for the 2020-2021 period.

The Workgroup discussed that observer coverage was only impacted by COVID in 2020 and even then remained within the historical range. In addition, the fishing industry used streamer lines throughout 2020 and 2021. Therefore, the Workgroup was not concerned with using 2020-2021 observer data to estimate bycatch.

At its June 2021 meeting, the Council directed the Workgroup to continue to locate and review any new STAL telemetry or observer data south of 36° N. latitude, and provide this review in its report back to the Council, for purposes of possibly reconsidering the exemption from the streamer requirement for longline vessels operating south of 36° N. latitude. The Workgroup reports that there have been no STAL sightings south of 36° N. latitude in U.S. waters since 2011, and there are no new observations or telemetry data south of 36° N. latitude. As a caveat, the Workgroup notes that effort and observer coverage in this area tend to be lower. Unless otherwise directed by the Council, the Workgroup plans to continue to review and summarize STAL telemetry and observer data south of 36° N. latitude in future reports.

The Workgroup continues to keep an eye on morphological research which suggests there may be two cryptic species of STAL: Senkaku Island and Torishima Island. Consistent with our 2021 report, we note that determining distributional differences between the two populations is still not possible and USFWS is not acting on this finding yet in terms of separate species listings.

After a delay due to COVID, research on floating longline gear will begin in 2023 by NMFS, Oregon Sea Grant, and industry collaborators. The research hopes to recommend operationally feasible solutions to protect floated longlines from sea birds. This research is needed before potential bycatch minimization measures could be developed through the Council process.

Workgroup recommendations:

The Workgroup recommends the Council support efforts that explore ways to improve streamer lines or gear configuration for the purpose of minimizing seabird interactions. The Workgroup recommends the Council continues to encourage industry participation in cooperative research to test alternative mitigation measures for floated longline gear that are designed to further reduce bycatch of seabirds.

Citations

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Santora, J.A., Mantua, N.J., Schroeder, I.D. et al. Habitat compression and ecosystem shifts as potential links between marine heatwave and record whale entanglements. *Nat Commun* 11, 536 (2020). <https://doi.org/10.1038/s41467-019-14215-w>

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Appendix A

Listed Species, ITS Amounts, and Estimated Catch

Detailed bycatch reports are presented in the briefing book for this meeting. The table below shows the listed species covered in the NMFS and USFWS BiOps, the incidental take allowances, and the estimated catch from the bycatch reports.

Table 1. Listed Species, ITS Amounts, and Estimated Catch

Species	Incidental Take Amount or Extent of Take from BiOps	Estimated Catch	Incidental Take Amount Potentially Exceeded?
Eulachon	<p>Bycatch/handling or mortality – The precautionary and reinitiation thresholds are five year geometric means of 0.01% and 0.02% of minimum Columbia River abundance</p>	<p>2020 – 8,528*</p> <p>2021– 23,820**</p> <p>* 42% of the precautionary threshold and 21% of the reinitiation threshold.</p> <p>** 61% of the precautionary threshold and 30% of the reinitiation threshold</p>	No

Species	Incidental Take Amount or Extent of Take from BiOps	Estimated Catch	Incidental Take Amount Potentially Exceeded?
Green Sturgeon	<p>Non-lethal bycatch/handling in the fishery - 28 fish/year expected and up to 86 fish/year in no more than 2 years within a period of 9 consecutive years;</p> <p>Lethal bycatch in the fishery - 2 fish/year expected and up to 7 fish/year in no more than 2 years within a period of 9 consecutive years.</p>	<p>Estimate one Southern DPS green sturgeon was caught in 2017-2021</p> <p>Zero observed in 2020 and 2021.</p>	No
Humpback Whales	<p>Entanglements – five individuals observed or estimated in any one year or a 5-year running average of 2.34 individuals per year</p>	<p>Estimate: 5-year average of 0.94 for 2020 (2016-2020) and 0.68 for 2021 (2017-2021) whale/year in the LEFG and OA pot gear sector</p> <p>Observed:</p> <p>2013 – 0</p> <p>2014 – 1 (Limited Entry sablefish pot)</p> <p>2015 – 0</p> <p>2016 – 1 (Open Access pot)</p> <p>2017 to 2020 – 0</p>	<p>No</p> <p>*** Note 2021 take in new sector of fishery, Open Access hook and line</p>

Species	Incidental Take Amount or Extent of Take from BiOps	Estimated Catch	Incidental Take Amount Potentially Exceeded?
		2021 – 0 (pot fisheries), 1 (Open Access hook and line) ***	
Leatherback Sea Turtles	Injury or mortality from entanglement - 5-year average of 0.38 turtle/year and up to 1 turtle/year in a single year. One leatherback sea turtle mortality in 2008 in open access pot fishery.	Observed: 2006-2011 – 1 2012-2021 – 0	No
Short-tailed albatross	Injury or mortality - should not exceed an estimated five albatross in a two-year period or one observed albatross in a two-year period	Estimate: mean bycatch of 0.1 to 1.3 albatross/year Observed: 2020 to 2021– 0	No

Appendix B

Pacific Coast Groundfish and Endangered Species Work Group Terms of Reference (June 2015)

PURPOSE:

The Pacific Coast Groundfish and Endangered Species Work Group is established pursuant to Section 302(g)(2) of the Magnuson-Stevens Act to serve as a multi-party advisory body to the Council for the purpose of supporting Endangered Species Act (ESA) compliance of the Pacific Coast Groundfish Fishery (Fishery) for green sturgeon, eulachon, humpback whales, Steller sea lions, leatherback sea turtles, and short-tailed albatross consistent with the requirements of NMFS and USFWS ESA Section 7(a)(2) biological opinions on the continuing operation of the Fishery.¹

COMPOSITION:

The Work Group shall consist of 11 or more members as specified from each entity or category below. The representatives selected to serve on the Work Group shall have appropriate expertise in conservation of the aforementioned species, groundfish fisheries management, or quantitative analysis.

- Four taxa experts. One each for fish, marine mammals, sea turtles, and seabirds.
- One representative of the West Coast Groundfish Observer Program.
- Two representatives from the NMFS. One from the Protected Resources Division and one from the Sustainable Fisheries Division.
- One representative from the USFWS.
- Three representatives of State management agencies. One each from California, Oregon, and Washington.
- Other representatives as determined by the Council. Representatives in this category may be short-term appointments (e.g., one meeting) to address specific issues.

OBJECTIVES AND DUTIES:

1. The Work Group shall at a minimum convene on a biennial basis or more frequently as directed by the Council.
2. The Work Group shall review NMFS reports on annual tracking of observed take, fleet-wide take reporting, spatial and temporal characteristics of fisheries by gear type, observer coverage analysis and implementation plans, and other reports as outlined in the biological opinions or generated under 3.a, below.
3. Based on review of the NMFS reports, the Work Group shall

¹ The opinions are available here:

- https://alaskafisheries.noaa.gov/protectedresources/seabirds/esa/pcgf_biop1112.pdf
- https://pcts.nmfs.noaa.gov/pcts-web/dispatcher/trackable/NWR-2012-9437?overrideUserGroup=PUBLIC&referer=%2fpcts-web%2fpublicAdvancedQuery.pcts%3fsearchAction%3dSESSION_SEARCH

- a. Recommend new analyses, reports, or changes to sampling protocols to improve bycatch estimates of the aforementioned species.
 - b. Consider whether the amount or extent of incidental take stipulated in the biological opinions is exceeded.
 - c. Consider whether new information reveals effects in a manner or to an extent not previously considered in the biological opinions.
 - d. Propose, for Council ² consideration, conservation³ and management measures to minimize bycatch of the aforementioned species. If directed by the Council, the Work Group will meet jointly with the Groundfish Management Team, Groundfish Advisory Panel, or other Council advisory bodies, to incorporate stakeholder perspectives in the development of management measures.
4. NMFS shall take a lead role in chairing the committee, developing agendas, developing or procuring review materials, and drafting and presenting Work Group reports.
 5. Council staff will notice meetings, coordinate presentations to the Council and its advisory bodies, and provide logistical support.

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² Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggested regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information.

³ Conservation measures are actions to benefit or promote the recovery of listed species that are proactively taken to minimize or compensate for effects on the species under review. These may include actions taken prior to initiation of consultation or actions committed to through the course of a consultation.