GROUNDFISH ENDANGERED SPECIES WORKGROUP REPORT

The Groundfish Endangered Species Workgroup (Workgroup) met February 15-16, 2017 in Seattle, WA. Participation was facilitated with GoToMeeting and teleconference availability. The Workgroup received presentations regarding fishing effort in the groundfish fishery from Dr. Kayleigh Somers (Northwest Fisheries Science Center [NWFSC] Observer Program), and on the bycatch of the listed species from Drs. Brad Hanson (NWFSC), Thomas Good (NWFSC), Rick Gustafson (NWFSC), and Yong-Woo Lee (NWFSC Observer Program). An updated status report on sea turtles was provided by Dr. Tomo Eguchi, Southwest Fisheries Science Center (SWFSC) prior to the meeting. Additional Workgroup members (or alternates) participating included: Corey Niles, Washington Department of Fish and Wildlife (WDFW); Jonathan Scordino (Makah Tribe); Kevin Duffy, National Marine Fisheries Service, Sustainable Fisheries Division (NMFS SFD); Laura Todd, U.S. Fish & Wildlife Service (USFWS); Lynn Mattes, Oregon Department of Fish and Wildlife (ODFW); Caroline McKnight, California Department of Fish and Wildlife (CDFW); and Dr. Jason Jannot (NWFSC Observer Program). Additional participants included: Karen Palmigiano (NMFS SFD); Jon McVeigh (NWFSC Observer Program); Melissa Hooper (NMFS SFD); Penny Ruvelas, (NMFS [Protected Resources Division] PRD); Susan Wang (NMFS PRD); Casey Rey (Environmental Non-Governmental Organization); and Kit Dahl, Pacific Fishery Management Council (Council).

In general, the Workgroup's objectives and duties are to recommend new analyses to improve bycatch estimates, consider whether Incidental Take Statement (ITS) amounts are appropriate, consider whether new information reveals effects not considered in the Biological Opinions (BiOps), and propose for Council consideration conservation and management measures to minimize bycatch of listed species, if needed, in the groundfish fishery. The terms of reference for the Workgroup, approved at the June 2015 Council meeting, are attached to this report (Appendix B).

The Workgroup appreciates the work done by everyone on the bycatch teams in updating reports on fishing effort, marine mammals, sea turtles, eulachon, green sturgeon, and seabirds to include information from 2014 and 2015. In addition, the Workgroup appreciates the presentations by bycatch team leads and discussion that followed.

General Comments

In general, groundfish fisheries have minimal interactions with Endangered Species Act (ESA) listed marine mammals, sea turtles, eulachon, green sturgeon, and seabirds. The rarity of these ESA species in the catch makes projecting and estimating incidental take challenging. Outside of the shoreside individual fishing quota (IFQ) and at-sea hake fishery sectors, and their 100 percent observer coverage, this rarity means when observer coverage in a specific sector is low, it can result in projections and estimates of take being inherently imprecise and variable.

The benefits of logbooks in Federal fixed gear fisheries came up several times during the Workgroup's discussions. The Council previously recommended a mandatory sablefish fixed gear logbook be implemented during the 2009-2010 biennial specifications process for the groundfish

fishery. As noted in a prior Groundfish Management Team (GMT) report (September 2012, Agenda Item H.4.b), a model fixed gear logbook has been developed, but competing priorities and funding constraints have delayed implementation. While the impetus for requiring fixed gear logbooks was specific to the sablefish sector, the Workgroup recognizes the additional benefit this information may lend to estimating bycatch for protected species if broadened to all fixed gear sectors. Although resources for development and implementation would be required, a fixed gear logbook is expected to reduce uncertainty in bycatch estimates for both overfished groundfish species, and protected species, for fixed gear sectors that are not monitored at high observer coverage rates.

The Workgroup also suggested annual meetings on an informal basis (short webinar or conference call) to keep more up-to-date with emerging issues associated with the impacts of the groundfish fishery on threatened and endangered species.

Fishing Effort Report

The Workgroup received an updated report on fishing effort in the 2002-2015 Pacific Coast groundfish bottom trawl and non-nearshore fixed gear sectors by Dr. Kayleigh Somers. This report did not include the at-sea whiting fisheries because the focus of this report was how the shorebased groundfish fishery has changed in recent years, and the largest change was the implementation of the IFQ program. However, information on the at-sea whiting fisheries is included in the written report to the Council. The patterns in fishing effort seen in her analysis are well within the bounds of what was expected from the Workgroup's last look. The workgroup see no changes in fishing patterns that in themselves would warrant a new look at the BiOp.

Workgroup recommendations:

At this time, the Workgroup did not have any significant comments on the fishing effort report provided by Dr. Somers.

Humpback Whales

The Workgroup received a report from Dr. Brad Hanson on humpback whale bycatch in the 2014-2015 groundfish fisheries. The ITS for humpback whales is a five year average of one humpback whale injury or mortality per year, and up to three humpback whale injuries or mortalities in any single year. The take of humpback whales has not exceeded the ITS. For the time period 2011-2015, one humpback whale was observed taken in 2014 in the limited entry sablefish fishery on a vessel fishing with pot gear. Using observer data from the groundfish sector, the bycatch rate calculated for the 2011-2015 period was 0.002 whales/year. Using a Bayesian approach to estimate bycatch, the fleet-wide estimated 5-year annual average for 2011-2015 was 0.20 whales and the total estimated mean bycatch was 1.0 whale. For 2014, the single year with an observed humpback whale entanglement, the estimate was 0.20 whales. If rounded up to a whole animal, the 2014 estimate and observed take would both equal 1 whale.

In 2016, NMFS published a final rule revising the listing status of humpback whales which included 14 distinct population segments (DPS). Nine DPS did not warrant listing under the ESA, one DPS was listed as threatened, and four DPS were listed as endangered. In the North Pacific, there are four DPS identified by breeding location (Hawaii, Central America, Mexico, and Western North Pacific). The Mexico DPS is listed as threatened, the Central American DPS is listed as endangered, and the Hawaii DPS is not at risk of extinction. Humpback whales found in waters

off the Oregon, Washington, and California coast are from the Central America, Mexico, and Hawaii DPS.

Several of the conservation recommendations from the humpback whale report discuss gear issues, including storing of gear at sea, lost fishing gear, and new gear technologies. The Workgroup acknowledged that lost fishing gear, and storing gear at sea, were important issues but members were unsure about the magnitude of occurrence. Further investigation into the extent of these activities could benefit future discussions regarding avoidance measures.

The Workgroup was informed that the number of reported, and confirmed, whale entanglements with fishing gear in 2016 (preliminarily identified as Dungeness crab gear or similar pot/trap gears, gillnets, and some sablefish pot gear) increased over the number in 2015, and further information on these issues will be provided at the next Workgroup meeting.

Workgroup recommendations:

1. Because the ITS was not exceeded, there were no further management recommendations.
2. Consistent with a general comment from above, the Workgroup is supportive should the Council direct the Workgroup to meet annually to discuss emerging issues that may arise during the annual reporting. An example of this is the preliminary information suggesting that whale entanglements with gear has increased in 2016.
3. While the ITS was not exceeded, there are recent entanglements that could result in exceeding it in the near future. In addition, there is some concern among the Workgroup over how aware the groundfish fleet is of the potential for encounters with humpbacks. New research and analyses, such as the acoustic monitoring of humpback movements and predictive distribution modelling, may soon be available to improve understanding and mitigation of encounter risks. The Council may wish to proactively encourage NOAA and partners to conduct such risk analyses and extend outreach to the fleet.

Leatherback Sea Turtles

Dr. Tomo Eguchi provided a written report on the bycatch of leatherback sea turtles in the groundfish fishery. However, he was unable to attend the workgroup meeting.

As with other protected species considered by the Workgroup, the greatest difficulty in estimating leatherback sea turtle bycatch is the rarity of encounters in the groundfish fishery. No leatherback sea turtles were observed as bycatch in the most recent five-year period (2011-2015) and thus, all U.S. west coast groundfish fisheries are 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). Since 2006, there has only been one observed leatherback sea turtle caught in U.S. west coast groundfish fishing gear. This occurred in 2008 by a vessel using pot gear in the open access fishery sector.

The Workgroup was informed that there was a take of a leatherback sea turtle by Dungeness crab gear in 2015. While this fishery is not within the scope of the BiOp, it was noted by a Workgroup member that crab pot gear has a similar exposure profile to groundfish fixed gear, and the entanglement event with groundfish gear in 2008 was probably more than just an odd, one-time occurrence. This perspective on exposure profile is noted, but no conclusions or general consensus

was reached that the gear types were comparable in relation to entanglement risks with leatherback sea turtles.

Workgroup recommendations:

The Workgroup had no management or conservation recommendations for the Council to consider at this time.

Eulachon

The Workgroup received a presentation from Dr. Rick Gustafson on the bycatch of eulachon in the groundfish fishery. The ITS bycatch level or limit for eulachon is 1,004 fish per year. Eulachon were expected to be caught in the bottom trawl and at-sea whiting fisheries. Eulachon bycatch exceeded the ITS in 2011, 2013, and 2014. Bycatch in 2011 was 1,624 fish, with 1,268 fish caught in the catcher-processor sector, and the remaining take occurring in the bottom trawl, midwater trawl, shoreside whiting, and tribal and non-tribal mothership sectors. Bycatch in 2013 was 5,113 fish, with 4,139 fish caught in the shoreside whiting fishery, and the remaining fish caught in the bottom trawl, midwater trawl, non-tribal mothership, and catcher-processor sectors. Bycatch in 2014 was 3,075 fish, with 2,808 caught in the bottom trawl and non-whiting midwater groundfish fisheries, and 267 caught in the non-tribal mothership, and catcher-processor sectors. For 2015, bycatch of eulachon totaled 699 fish, with 643 of the total caught in the shoreside bottom and non-whiting midwater trawl fisheries.

Dr. Gustafson noted a few general points for the Workgroup. The eulachon bycatch ITS level of 1,004 fish was based on bycatch estimates acquired during 2002-2010, a time when eulachon abundance was severely depressed. Several indices of eulachon abundance have shown dramatic increases, beginning in 2011, to levels not seen since 2002. However, indices of abundance began to decline in 2016.

Dr. Gustafson speculated that based on the overall magnitude of bycatch in U.S. west coast groundfish fisheries, either there is limited interaction with eulachon in these fisheries, or most eulachon encounters result in fish escaping or avoiding trawl gear. He pointed out that current Federal regulations in the commercial groundfish fishery mandate minimum trawl mesh sizes in the bottom and midwater trawl fisheries of 11.4 cm (4.5 inches) and 7.6 cm (3.0 inches), respectively.[1] Therefore, it is likely that under the current regulations most eulachon would readily pass through the mesh openings of groundfish trawl nets, and it is difficult to envision how eulachon are retained in groundfish trawl nets unless the cod-end becomes plugged. Another Workgroup member reminded everyone that the mesh size restrictions are being revisited through a new exempted fishing permit that does not require participants to adhere to the current minimum mesh sizes requirements for bottom trawl gear. Additionally, trawl gear modifications, as recommended by the Council in 2016, are under consideration by NMFS.

Given the population increase since this species was listed, it was noted (initially at the Workgroup meeting in May 2015 and again at this meeting) that the amount of take specified in the ITS may

[1] In March 2016, the PFMC took final action to remove the requirement for minimum mesh size on bottom trawl and midwater trawl nets under Agenda Item G.8. NMFS is currently in the process of developing a rulemaking for that action.

no longer be appropriate. In May 2016, NMFS reinitiated the consultation process for eulachon and is working on the biological assessment which forms the basis for developing the BiOp. NMFS anticipates completion of a new BiOp, including a new ITS, during 2017. The Workgroup felt that continued fluctuations in the eulachon populations will increase the variability in the encounter rate in the groundfish fisheries, and recommended a range be included in the new ITS to accommodate this high variability.

The Workgroup did note that the bycatch of eulachon in the pink shrimp fisheries is substantially higher than bycatch levels in the groundfish fisheries. For example, in 2014 almost 69 million eulachon were taken as bycatch in the pink shrimp fishery compared to 3,075 in the groundfish fishery. The Workgroup felt the impacts to the eulachon resource from bycatch in the groundfish fishery were inconsequential and that this should be taken into account in developing the new ITS levels. While not subject to the groundfish BiOp, the report does include a section on the observed bycatch of eulachon in the pink shrimp fishery.

Workgroup Recommendations:

1. The Council to encourage NMFS to complete the biological assessment as an initial step in developing a new BiOp.
2. The Council to encourage NMFS to take into account the relative magnitude of fishery impacts on the eulachon resource when developing the BiOp and associated ITS.
3. The Council to encourage NMFS to consider a range in the ITS to account for considerable fluctuations in abundance while also recognizing recent increases.

Green Sturgeon

The Workgroup received a report from Dr. Yong-Woo Lee on bycatch of green sturgeon in the groundfish fishery. Green sturgeon encounters have only been documented in Limited Entry bottom trawl (prior to 2011), IFQ bottom trawl (2011-present), and at-sea hake sectors based on groundfish observer data. There are two distinct population segments (DPS) for green sturgeon on the West Coast: Southern DPS and Northern DPS. Only the Southern DPS is listed under the ESA. However, DPS cannot be determined morphologically upon bycatch encounter, but only by a genetic stock identification (GSI) technique. Dr. Carlos Garza (SWFSC) analyzed the tissue samples collected from green sturgeon bycatch (2007-2014) and updated the GSI information. The annual take of Southern DPS green sturgeon was estimated based on the combination of individual assignments of GSI and an estimated ratio of Southern to Northern DPS by given catch area (48 percent for Washington and Oregon, and 95 percent for California coast). The estimated annual take of Southern DPS of green sturgeon by the bycatch encounters in the above fishery sectors are: 4 fish in 2010, 20 fish in 2011, 11 fish in 2012, 5 fish in 2013, 15 fish in 2014, and 3 fish in 2015. For the past six years (2010-2015), the estimated bycatch of the southern DPS of green sturgeon has not exceeded the ITS amount of 28 fish per year. The take estimates for 2010-2013 are slightly different from the previously-reported estimates, due to the updated information on GSI assignments and DPS proportions. The report does include a section on the observed bycatch of green sturgeon in the California halibut trawl fishery, but this take is not a subject matter under the groundfish BiOp.

Workgroup Recommendations:

The Workgroup had no management or conservation recommendations for the Council to consider at this time.

Short-tailed albatross

The Workgroup received a report from Dr. Tom Good on the bycatch of short-tailed albatross in the groundfish fishery. NMFS and the USFWS are currently in a consultation on the effects of the groundfish fishery on seabirds (see update on consultation process below). As part of that process, and of particular note, the NWFSC developed a risk assessment that was able to address the impacts to short-tailed albatross directly using a Bayesian approach, rather than using black-footed albatross as a proxy, as in years past. This approach was presented at the meeting and is included in the updated report to the Council. The Bayesian approach models bycatch rate as a constant and infers annual expected mortality, given a specified level of effort, using observer program data and expanding to unobserved effort. In presenting his report on the new Bayesian approach, Dr. Tom Good provided the Workgroup with an Italian Proverb: "Never do that by proxy which you can do yourself." Dr. Good indicated the probability-based method is a sound approach, being useful for data with lots of zeros, reducing bias from rare events, incorporating uncertainty, relying less on assumptions (especially of other proxy species), and reducing volatility in using all information in a time series. The methods described in the report are being used in the development of the new BiOp.

Seabird mitigation efforts were summarized in the report, including:

- Pre-2009 – voluntary streamer lines;
- 2009 – Washington sea grant pilot program with tribal fisheries;
- 2009-2011 – Washington sea grant extended outreach;
- 2013-2016 – free streamer lines; and
- December 2015 – regulations requiring streamer lines for vessels equal to or great than 55 feet.

Update on Consultation Process

For short-tailed albatross, the 2012 BiOp ITS estimated a yearly average take of one short-tailed albatross, with the average not to exceed two birds over a two-year period. The 2012-2013 high estimates of the two-year average, using expanded annual estimates of black-footed albatross as a proxy, exceeded the 2 per 2-year period estimated by the ITS in the BiOp. As a result, NMFS reinitiated informal consultation with USFWS on incidental take of this species in the Pacific Coast groundfish fishery.

In December 2016, NMFS sent a letter to USFWS formally reinitiating consultation and transmitting an updated biological assessment. Laura Todd with the USFWS addressed the Workgroup with a general discussion about the consultation process. The USFWS has been working on the BiOp in earnest, knowing that completion of this process is a priority for NMFS. She described some preliminary ideas regarding what is being considered in the new ITS (reasonable and prudent measures and associated terms and conditions). It was emphasized that no conclusions had been reached as of this date, but USFWS expects to complete the consultation process and have a new BiOp in place by early May 2017. Results from that consultation will

inform the planning process for the 2019-2020 groundfish harvest specifications and management measures process that begins in June of 2017.

Workgroup Recommendations:

1. The Council to encourage USFWS and NMFS to complete the new BiOp on seabirds as soon as possible.
2. The Council consider whether a presentation of the BiOp by USFWS that will include a new ITS might be useful as part of the 2019-2020 groundfish harvest specifications and management measures process. It was noted that the Council will adopt a decision-making and implementation schedule in June 2017, and a preliminary list of management measures will be identified in September 2017. A presentation of the BiOp results would be appropriate at either of these meetings. Members of the Workgroup would like to thank NMFS and USFWS for working to integrate the results of the consultation with the Council process as much as is practicable within the constraints involved with how the ESA is administered.
3. The Council factor in the existing workload already associated with the groundfish harvest specifications and management measures process, and consider those items in the new BiOp ITS which must be completed on a priority basis, with other recommendations to be considered under the Council's omnibus agenda item and future workload planning.

PFMC
03/21/17

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 BiOp, the incidental take allowances, and the estimated catch from the bycatch reports.

Species	Incidental Take Amount or Extent of Take from Groundfish and USFWS BiOps	Estimated Catch
Eulachon	**Lethal bycatch** – 1,004 fish/year.	2010 – 22 2011 – 1,624 2012 – 191 2013 – 5,113 2014 – 3,075 2015 – 699
Green Sturgeon	**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; **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.	2010 – 4 2011 – 20 2012 – 11 2013 – 5 2014 – 15 2015 – 3
Humpback Whales	**Injury or mortality from entanglement** - 5-year average of 1 whale/year and up to 3 whales/year in a single year.	2010-2015 - 1
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.	2006-2015 - 1
Short-tailed albatross	**Yearly average of one short-tailed albatross.** – Average take should not exceed two over a two-year period. The one take in 2011 was in the sablefish hook and line fishery.	2010 – 0 2011 – 1 2012 – 0 2013 – 0 2014 – 0 2015 – 0

Appendix B.

Pacific Coast Groundfish and Endangered Species Work Group
Terms of Reference

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.[2]

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

    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.

[2] 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

d. Propose, for Council [3] consideration, conservation[4] 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.

[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.

[4] 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.