

THE GROUND FISH MANAGEMENT TEAM REPORT ON STOCK ASSESSMENTS AND CATCH REPORTS

The Groundfish Management Team (GMT) thanks Dr. Jim Hastie from the National Marine Fisheries Service (NMFS) Northwest Fisheries Science Center (NWFSC) for providing an informative overview of the stock assessments, updates, and catch reports. The GMT reviewed the documents in the briefing book under this agenda item, and had representatives on the stock assessment review (STAR) panels. We offer the following thoughts.

Data Moderate Assessments

The GMT reviewed the arrowtooth flounder data moderate assessment ([Agenda Item D.8, Attachment 5](#), June 2015) and acknowledges the uncertainty in the scale of the populations, which was demonstrated by the suite of possible base models presented by Dr. Jason Cope (Figure ES-2 in the assessment). The Scientific and Statistical Committee (SSC) addresses this issue in detail in [Agenda Item D.8.a, Supplemental SSC Report](#).

This data moderate assessment led the GMT to discuss the use and applications of data moderate assessments in general. In this case (arrowtooth flounder), one would expect that the data available are quite abundant and rich, relative to data available for other data moderate assessments. Fishery-independent data (e.g., trawl surveys) are very applicable for arrowtooth flounder (for example), but the results shown in this particular assessment are extremely variable. In addition, the GMT understands that one of the models that the SSC believed merited further exploration has not been approved for use with data moderate assessments. This information caused the GMT to ask questions such as: How do we evaluate which models are best for specific data moderate assessments?

We have learned a lot since the 2012 data moderate workshops and 2013 assessments, and will learn more after this round of assessments is complete. The GMT finds benefit in potentially stepping back, and with the knowledge accumulated over the past three years, asking questions that might improve the process and application of data moderate assessments. As such, the GMT thinks that an off-year science exercise, such as a data moderate workshop would be beneficial. **The GMT recommends that the Council consider exploring data moderate assessments and methods and their applications under off-year science.**

Commercial Discard Assumptions in Stock Assessments

Stock assessments scientists have generally relied on four sources of data for providing commercial discard estimates in stock assessments: (1) Pikitch et al. discard database (1985-1987), (2) Pikitch et al. mesh size data base (1988-1990), (3) the Oregon Department of Fish and Wildlife (ODFW) Enhanced Data Collection Project (EDCP; 1996-2000), and (4) the West Coast Groundfish Observer Program (WCGOP) database (2002 – present). The databases used and the method of application vary greatly among assessments and assessment authors. For example, the GMT would like to point out that the EDCP database was used in the 2011 sablefish assessment but not included in the 2015 update ([Agenda Item D.8, Attachment 7](#), June 2015). While this was determined to not have a significant impact, the GMT is concerned about the inconsistent use of databases and potential unforeseen consequences.

The GMT acknowledges that a lot of work has been put forth by all three states, Council staff, Federal employees, and industry to develop the historical landings databases. Furthermore, we understand that a workshop for evaluating these historical landings databases might take place during 2016. The GMT notes that something similar would be beneficial for developing consistent and reasonable discard data streams (for selected species or species groups). We believe that there are numerous individuals that currently participate in this Council process that might be able to assist assessment scientists in developing reasonable historical discard data streams. These individuals would represent the fishing industry, government organizations, and the general public.

One example of a recent attempt at better representing historical discards can be provided by the canary rockfish stock assessment. The assessment authors used the available data (i.e., discard estimates from research projects that occurred during discrete time periods), and applied knowledge from industry, Council staff, and GMT representatives that were in the room, to more realistically develop a historical discard data stream (based on knowledge of fisheries and regulations over time). **The GMT recommends that the Council consider convening a subgroup or a workshop to develop a reasonable historic discard database that could be used by stock assessment scientists in a consistent manner.**

Darkblotched Stock Assessment

Enhanced Data Collection Project (EDCP): The GMT questions why the EDCP discard database was not used in the darkblotched stock assessment. The assessment authors stated that it was not used because “The project had limited spatial coverage (Oregon waters only) and due to time constraints, the observers only recorded discarded catch for darkblotched rockfish. Retained catch of darkblotched rockfish was recorded in the logbooks and fish tickets, but only as part of a mixed-species group of rockfish, which prevented calculation of the species-specific discard ratios for darkblotched rockfish. For this reason, the EDCP data were not included in the assessment.” The GMT notes that this database has been used by other authors, although it does have its limitations, such as it utilized voluntary vessels and recorded data only for slope bottom trawl fisheries. However, darkblotched rockfish was part of the slope complex and therefore, this historical database would be appropriate for that species. In addition, the database used volunteer vessels that fished off both Washington and Oregon. This similar set of circumstances was also experienced by the Pikitch et al. discard data set, which is used in this assessment. Finally, the GMT was perplexed at the statement that the database was not used because only discarded catch was sampled, and retained catch was estimated using landings and logbook data. Yet, this is the method used by WCGOP. Under our current at-sea observer program, retained catch weights are derived from landings (fish tickets), some application of logbook data, and application of port sampling species compositions. Species composition sampling was performed in the 1990s, so estimates of retained darkblotched rockfish are available. **The GMT recommends that the Council task the future STAT teams to explore whether this database could be used to help provide better discard information for the 1990s.**

Other Discard Assumptions: The GMT representative at the darkblotched rockfish STAR panel meeting pointed out that the discard assumptions shown in the darkblotched rockfish assessment may not be historically accurate. For example, even though the Pikitch database showed discard rates higher than 10 percent during the 1985-1987 period (see Figure 99 in the darkblotched rockfish assessment), this assessment assumed only a trace discard rate for this species during that period, as well as through the following decade and the years preceding until the start of the

database timeframe (see Figure 100 in the darkblotched rockfish assessment). Although the stock assessment authors performed a sensitivity analysis at the request of the GMT representative at the STAR panel, and subsequently indicated that changing the discard assumption would result in only a small difference in depletion, the **GMT recommends that future assessments provide more realistic discard estimates over time** – that is, those that are more reflective of economic, social, and regulatory conditions. The GMT also ponders whether including more realistic discard estimates prior to 2002 would have increased or decreased depletion.

Length Frequency Distributions – Combined Shrimp and Shoreside Trawl Comps: The GMT understands that length frequency distributions of darkblotched rockfish were combined from shrimp trawl and bottom trawl and analyzed together (e.g., to develop fleet selectivity, etc.). The SSC discussed this situation, and had concerns but still recommended moving this assessment forward (see [Agenda Item D.8.a, Supplemental SSC Report](#)).

The GMT suggests that combining these two trawl strategies to form a single selectivity for the combined shoreside trawl strategy could be problematic. The trawl design is much different (e.g., small meshes for shrimp trawls and > 4.5” meshes for bottom trawls). The fisheries operate in different areas and different seasons. Some on the GMT pointed out that much of the darkblotched rockfish bycatch in shrimp fisheries occurs outside of the Columbia River (i.e., juvenile darkblotched rockfish and other juvenile species were historically caught by shrimp trawls in this area). Finally, the states implemented regulations that shrimp fishermen use excluder devices that facilitate the escapement of larger rockfish species (and higher percent retention of small rockfish species). Grid spacing within the excluders have been narrowed over time, and therefore darkblotched rockfish selectivity likely changed significantly before and after implementation of excluder regulations. These differences among fisheries are significant, and the GMT is curious how much depletion would have changed had fishery selectivities been applied to shrimp trawl and groundfish bottom trawl separately.

What Next? The GMT identified three topics that should be considered within the darkblotched rockfish stock assessment. We understand that any one item may not make a “large” difference in the stock assessment outcome. However, a combination of improvements could make for a more significant outcome than one would expect. As such, the **GMT recommends that darkblotched rockfish be considered for a full assessment in 2017 and that the issues shown here be explored and implemented in that assessment.**

Sablefish Assessment

Potential High-grading: The GMT discussed the declining trend of the sablefish stock as seen in the assessment and the conservative measures that the Council has put into place over recent years. Even though the Council has become increasingly precautionary in their management of sablefish, the stock status is not increasing as expected. While the assessment notes that environmental variability is a significant source of uncertainty, the GMT has also previously discussed the potential impact of high-grading on unobserved vs. observed trips. Currently, there is very low coverage on non-individual fishing quota (non-IFQ) vessels fishing sablefish. The GMT has done some preliminary analysis on this issue (see Figure 1), but believes that more research is needed to determine the potential impact to the stock and implications for future stock assessment. One idea discussed by the GMT is the future use of electronic monitoring to determine if any high-grading is occurring without WCGOP observers on board.

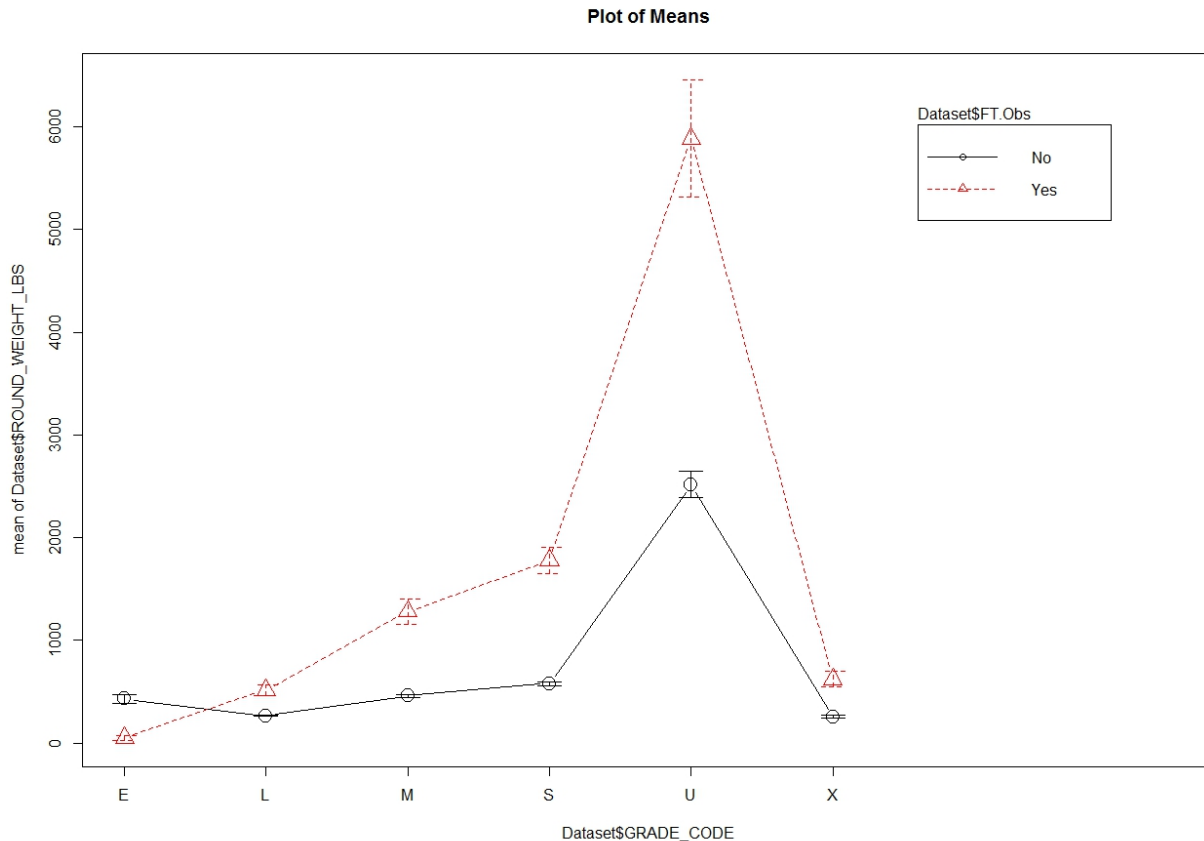


Figure 1. Non-IFQ fixed gear sablefish landings (pounds) for trips that were observed (dashed line) or unobserved (solid line) by grade. Grade represents extra-large (E), large (L), medium (M), small (S), unknown (U) and extra small (x). Data were retrieved from PacFIN.

What Next? Finally, in the 2011 assessment and continuing in the 2015 update, the IFQ sector selectivity of the retained and discarded fish was assumed to be the same for trawl and fixed gear. The GMT suggests that during the next assessment, that the IFQ sector be split into IFQ trawl and IFQ fixed gear as these two fleets differ significantly in their fishing behavior gear selectivity and therefore will have different selectivity and discard rates that should be applied that could have an effect on the overall assessment result.

Documentation in Stock Assessment Updates

The GMT found difficulties understanding certain aspects of some of the assessments and updates, because clear methods were lacking. The GMT suggests that stock assessment reports (including updates) provide explicit documentation of the data used, including all landing and discard sources, rates, and indices sources, potentially in a table format or in an appendix.

Continued Need and Importance of the NMFS Annual Trawl Survey

The GMT emphasizes that the NMFS annual trawl survey is a key source of information for use in stock assessments and should continue to be prioritized. The GMT and the Council process apply data collected from these surveys for other topics besides stock assessments (e.g. the GMT’s analyses regarding stock complex reorganization during the past three years).

Understandings of Steepness (productivity)

The GMT understands that substantial review has occurred among Science Center assessment scientists regarding rockfish metadata analysis that has helped to inform the value of steepness from the Beverton-Holt stock-recruit curves. The GMT has a high degree of confidence in these reviews, and the staff involved in such reviews. Given the strong role that slight differences in understandings of steepness variables (and the steepness variables that are ultimately used in rockfish stock assessments) may have in the outcome of resulting depletion estimates, there would be merit in a public webinar overview by the assessment scientists involved, to help educate the public regarding data, methods, and improved understandings values of steepness currently used for rockfish species. Current understandings of rockfish steepness productivity are likely to carry forward in future rockfish assessments for other overfished species (i.e., yelloweye rockfish). **Therefore, the GMT recommends a public overview of steepness metadata reviews that have occurred to improve transparency of those investigations, and help to inform the general public in their understandings of new rockfish stock status determinations.**

Understandings of Natural Mortality

Natural mortality is another metric that can have a substantial effect on assessment output understandings of depletion. The GMT understands that science center staff continues to focus staff resources to work on improving understandings of natural mortality, and the GMT supports this continued effort by the science centers.

Availability of Historical Catch and Discard Data Streams Used in Assessments

Prior to this assessment cycle, the GMT's first glance at data streams used in assessments occurred only two weeks (or less) prior to STAR panel meetings. As such, GMT, Groundfish Advisory Subpanel (GAP), and state input regarding best available data often occurred at the STAR panel. This has been difficult and problematic, and was discussed in depth at the 2013 Data Moderate Stock Assessment Workshop, the 2015 Nearshore Stock Assessment Workshop, and at the canary rockfish STAR panel ([Agenda Item D.8, Attachment 2](#), June 2015).

The GMT understands that STAR panels are not workshops, and dealing with requested data changes takes precious time away from assessment scientists that is needed to improve and test models at the STAR panel meetings. Nonetheless, use of most appropriate underlying data is an important component of stock assessments' use of the best available science. Indeed, the GMT notes that after this topic was discussed at the canary STAR panel, stock assessment authors have voluntarily provided data streams to the GMT for their input well in advance of the STAR panel meetings. The GMT appreciates these actions and acknowledge that sharing data streams early may prevent (or reduce) data corrections taking place at STAR panel meetings.

The GMT discussed this issue, and **recommends that the Council consider requesting that language is added to the Terms of Reference that allows adequate time for the GMT (and states) to examine data streams intended for use in stock assessments and time to provide recommended corrections to stock assessment scientists, if needed.**

Green Light Process – Darkblotched Rockfish may be Next

The darkblotched rockfish decision table (ES-6) in the assessment document indicates that the stock will be rebuilt in 2017. If darkblotched is reassessed or updated during the next stock assessment cycle (2017) for the next biennium (2019-2020), the Council may be faced with a

similar situation as the current canary rockfish situation. That is, a rebuilt declaration occurring mid-biennium but no established process for easily and efficiently modifying the annual catch limit (ACL) outside of the biennial cycle. As discussed by the Council under Agenda Item D.5 Inseason at this meeting, it is difficult to wait 1.5 years to provide relief to the fleet. The GMT believes there is merit in exploring an approach whereby the 2017-2018 analysis could analyze a broader range of darkblotched rockfish ACLs, impacts, and process for increasing the ACL mid-biennium (i.e., green light process for species that are rebuilt), if rebuilt. **The GMT recommends the Council task the Project Team to further explore this concept for discussion in September and November.**

GMT Recommendations:

- **the Council consider exploring data moderate assessments and methods and their applications under off-year science**
- **the Council consider convening a subgroup or a workshop to develop a reasonable historic discard database that could be used by stock assessment scientists in a consistent manner**
- **the Council task the future STAT teams to explore whether ODFW EDCP database could be used to help provide better discard information for the 1990s**
- **that future assessments provide more realistic discard estimates over time**
- **darkblotched rockfish be considered for a full assessment in 2017 and that the issues shown here be explored and implemented in that assessment**
- **a public overview of steepness metadata reviews that have occurred to improve transparency of those investigations, and help to inform the general public in their understandings of new rockfish stock status determinations**
- **the Council consider requesting that language is added to the Terms of Reference that allows adequate time for the GMT (and states) to examine data streams intended for use in stock assessments and time to provide recommended corrections to stock assessment scientists, if needed**
- **the Council task the Project Team to further explore the concept of exploring a broader range of darkblotched rockfish ACLs, impacts and process for increasing the ACL mid-biennium, if rebuilt, for discussion in September and November**