

Report of the Skates Catch Reconstruction Workshop
Pacific Fishery Management Council Office
Large Conference Room
7700 NE Ambassador Place, Suite 101
Portland, OR 97220
503-820-2280

27 March 2019

Introduction

A workshop to review new catch reconstructions for skates was held at the Pacific Fishery Management Council office on 27 March 2019 and was also conducted via webinar. The new reconstructions for the landed catches of skates were prepared by the Washington Department of Fish and Wildlife (WDFW), the Oregon Department of Fish and Wildlife (ODFW), and the Southwest Fisheries Science Center (SWFSC) for use in the 2019 stock assessments for longnose skate and big skate. A separate pre-assessment workshop to review plans for these and other groundfish assessments planned for 2019 was held at the Council office on 25-26 March.

The workshop began with a welcome by the meeting chair, Dr. David Sampson, followed by a round of introductions from the workshop attendees. A list of attendees and the draft meeting agenda are appended to this report. After a brief review of the draft agenda (with some revisions to accommodate travel plans), Dr. Sampson and Mr. John DeVore explained that the workshop is intended to provide a forum for learning about the methods used to develop the skates landings reconstructions and to facilitate open discussion of potential data quality issues. Catch reconstructions for skate species is particularly challenging because of a general lack of species composition samples to apportion landings of unspecified skates to the component species.

Washington Landings of Skates – Recent Years

Ms. Jessi Doerpinghaus presented slides describing the approach taken to reconstruct recent landings of skates into ports in Washington (WA) of skates taken from coastal waters (as opposed to skates caught in Puget Sound or from off Canada or Alaska). Prior to 2009, when the Council implemented a requirement to sort, land, and record longnose skate in its own market category, all non-tribal skates were landed and recorded in the unspecified skate market category. There was also no direct sampling by port biologists to determine species composition of the unspecified category. In 2015, a similar requirement was implemented for big skate. A similar situation exists for landings of skates in Oregon (OR) and California (CA). Available data from WA of non-tribal longnose skate and big skate market categories indicates that both are reasonably pure (uncontaminated by other species). Tribal landings of skates are not subject to the same sorting requirements. Overall, the total number of samples (tribal and non-tribal) is quite limited since 2004.

To develop non-tribal landings of longnose skate and big skate for the time period 2004 to 2018, WDFW applied sample-based species composition proportions by year and gear (trawl versus non-trawl) to the landings of unspecified skate. Non-tribal landings of longnose skate reported for the period 2010 to 2018 were assumed to be pure and were added to the estimated landings of longnose skate derived from the landings of unspecified skates. Non-tribal landings of big skate

reported for the period 2015 to 2018 were similarly assumed to be pure and were added to the estimated landings of big skate derived from the landings of unspecified skates. For tribal landings of skate prior to 2004, the average of 2004-2007 was used for trawl caught unspecified skate and the average of 2004-2009 for non-trawl. If there were no samples, the surrounding year's average was used. This resulted in two time blocks: 2004-2009 and 2010-2018.

Washington Historical Landings of Skates

Dr. Vlada Gertseva presented slides describing the approach taken to reconstruct the WA landings of skates prior to 2004, for which there are no port sample data available with which to estimate the species composition of unspecified skate landings. The approach makes use of the fact that longnose skate tend to occur in deeper waters than big skate and the fact that WA landings of skate are dominated by these two species. The depth distributions of landed catches of skates were derived from trawl logbook data available starting in 1987. The proportions by depth of longnose skate and big skate within combined skate catches were derived from NWFSC bottom trawl survey data (2003-2018), applied to the annual depth distributions of skates from the trawl logbooks, and then summed across depths to derive estimates of annual landed catches of longnose skate and big skate. A final step in the processing expanded the estimates so that the annual landings based on the logbooks (all skates combined) were consistent with the annual overall landings of unspecified skate (to account for reported landings not included in trawl logbooks). A comparison of annual landings estimated using the logbook-based approach versus estimated using port-sample species composition data indicated good correspondence between the two estimation approaches for years with both types of estimates available.

Historical Catches of Longnose Skate

The landings of skates under-represent fishery removals because many skates are discarded dead at sea. Dr. Vlada Gertseva presented slides (presented previously at the pre-assessment workshop) describing the approach she will use for the 2019 stock assessment for longnose skate to estimate the total catches of longnose skate (retained plus discarded). The approach is based on a linear regression model that predicts the catch of longnose skate from the catch of Dover sole, for which historical catch estimates are available. The dependent variable for the linear regression model was the West Coast Groundfish Observer Program (WCGOP) annual estimates of the coastwide total catch (landings plus discards) of longnose skate for the period 2009 to 2017 and the independent variable was the corresponding WCGOP annual estimates of coastwide total catch (landings plus discards) of Dover sole. The regression model has good predictive power ($R^2 = 95.7\%$) over the range of the Dover sole catches (6,500 to 12,500 mt).

There was discussion of whether a similar approach could be used to derive a catch reconstruction for big skate, but this seemed unlikely. WCGOP annual estimates of the total catch of big skate are only available for three recent years (2015-2018), which is too limited for deriving a reliable regression model.

Oregon Landings of Skates

Ms. Alison Whitman presented slides describing the approach taken to reconstruct landings of skates into ports in OR. Species-specific landings of skates from multi-species market categories were reconstructed with methodology specific to gear type. Species composition proportions were derived by Pacific Marine Fisheries Commission (PMFC) statistical area, gear type, and

market category. Species compositions were not sufficient to stratify landings at the level of the port or quarter, and species compositions were applied by aggregating annual data for three time blocks: (1) 1978-2008, when all skates were landed in a single market category; (2) 2009-2014, when longnose skates were landed separately from all other skates; and (3) 2015-2018, when longnose skates and big skates were each landed separately from all other skates. Trawl logbooks were used to partition landings of skate to landings by PMFC area. The reconstruction of skate landings from mid-water trawl and shrimp trawl gears used depth from logbook entries as a delineator to assign species compositions. Due to the scarcity of species composition samples, a single aggregated species composition was applied to skate landings from very minor gear types (e.g., hook-and-line, pot gear). The reconstructed landings by skate species were very similar to the OR commercial catch reconstruction developed in Karnowski et al. (2014), but are considered more accurate for skate species.

California Landings of Skates

Dr. Joe Bizzarro presented slides describing the approach used to reconstruct skate landings by species for California. Port sampling in CA for skate species compositions did not begin until 2009. Skate landings by species for 2009 and more recent years were developed using the standard approach of applying species composition to reported landings. For years prior to 2009 the following approach was used. The approach is very similar to what was described in Miller et al. (2014). Fish ticket data by 10-minute block areas provided spatially resolved landings of skates. Species compositions associated with each of the 10-minute blocks were derived from an analysis of data collected by the NWFSC groundfish bottom trawl survey on the relative catches by skate species. The species compositions by block were applied to the annual landings of skates by block and summed across blocks to derive annual landings by species. The approach captures the changes in annual skate landings by species that arose due to changes in the spatial distribution of fishing.

References

- Karnowski, M., V. Gertseva, and A. Stephens. 2014. Historical reconstruction of Oregon's commercial fisheries landings. Oregon Department of Fish and Wildlife, Info. Rep. No. 2014-02.
- Miller RR, Field JC, Santora JA, Schroeder ID, Huff DD, Key M, et al. (2014) A spatially distinct history of the development of California groundfish fisheries. PLoS ONE 9(6): e99758. <https://doi.org/10.1371/journal.pone.0099758>

Overview of Workshop Findings

- The approach for reconstructing historical longnose skate total catches using the Dover sole total catch history was conceptually endorsed and considered a large improvement over the approach used in the 2007 assessment.
- The approaches used in Washington (logbooks) and in California (block summary data) were improved approaches for estimating species composition in unspecified skate landings when species compositions were not available. Species compositions by depth were derived from available bottom trawl survey data. Oregon used a more traditional approach of aggregating species compositions across years to fill in missing species compositions.

- One potential improvement could be to use a logbook approach for finer spatial resolution of CA skate landings in the 1980-2010 period when species compositions are not available.
- A time series of skate market demand may help interpret historical catch trends. There may be information available from Pacific Marine Fisheries Commission reports on coastwide disposition (e.g., reduction vs. animal feed vs. human consumption by year) of landed skates.
- A number of longer term research efforts and analyses, beyond those that might be possible before the upcoming stock assessment review panel, were identified and are anticipated to be discussed in the research recommendations section of the upcoming stock assessments.

Appendix A. Workshop Attendees

Portland, OR Attendees

Dr. David Sampson, Oregon State University, Newport, OR (Chair)
Dr. Joe Bizzarro, National Marine Fisheries Service Southwest Fisheries Science Center, Santa Cruz, CA
Mr. John DeVore, Pacific Fishery Management Council, Portland, OR
Ms. Jessi Doerpinghaus, Washington Department of Fish and Wildlife, Olympia, WA
Dr. Vladlena Gertseva, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle WA
Dr. John Field, National Marine Fisheries Service Southwest Fisheries Science Center, Santa Cruz, CA
Dr. Owen Hamel, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle WA
Mr. Greg Lippert, Washington Department of Fish and Wildlife, Olympia, WA
Mr. Todd Phillips, Pacific Fishery Management Council, Portland, OR
Mr. Gerry Richter, B&G Seafoods, Inc., Santa Barbara, CA
Dr. Andi Stephens, National Marine Fisheries Service Northwest Fisheries Science Center, Newport, OR
Dr. Ian Taylor, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle WA
Ms. Ali Whitman, Oregon Department of Fish and Wildlife, Newport, OR

Newport, OR Attendees

Mr. Justin Ainsworth, Oregon Department of Fish and Wildlife, Newport, OR
Mr. Christian Heath, Oregon Department of Fish and Wildlife, Newport, OR
Ms. Lynn Mattes, Oregon Department of Fish and Wildlife, Newport, OR
Mr. Cameron Sharpe, Oregon Department of Fish and Wildlife, Newport, OR

Online Attendees

Dr. Aaron Berger, National Marine Fisheries Service Northwest Fisheries Science Center, Newport, OR
Dr. John Budrick, California Department of Fish and Wildlife, Belmont, CA
Mr. Ted Calavan, Oregon Department of Fish and Wildlife, Newport, OR
Ms. Susan Chambers, West Coast Seafood Processors Association, Charleston, OR
Mr. Mike Drexler, Ocean Conservancy, St. Petersburg, FL
Ms. Sheryl Flores, Oregon Department of Fish and Wildlife, Astoria, OR
Mr. Mark Freeman, Oregon Department of Fish and Wildlife, Newport, OR
Dr. Melissa Haltuch, National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA
Mr. Corbin Hilling, Virginia Tech, Blacksburg, VA
Mr. Bill James, Salem, OR

Dr. Kelli Johnson, National Marine Fisheries Service Northwest Fisheries Science Center,
Seattle, WA

Mr. Paul Kjuala, Warrenton, OR

Ms. Melanie Parker, California Department of Fish and Wildlife, Monterey, CA

Ms. Marissa Pauling, Oregon Department of Fish and Wildlife,

Dr. Will Satterthwaite, National Marine Fisheries Service Southwest Fisheries Science Center,
Santa Cruz, CA

Ms. Maggie Sommer, Oregon Department of Fish and Wildlife, Newport, OR

Dr. Cody Szulwalski, National Marine Fisheries Service Alaska Fisheries Science Center,
Seattle, WA

Appendix B. Agenda

PROPOSED AGENDA
Skates Catch Reconstruction Workshop for 2019
Groundfish Stock Assessments

Pacific Fishery Management Council
Large Conference Room
7700 N.E. Ambassador Place, Suite 101
Portland, Oregon 97220
Telephone: 503-820-2280

March 27, 2019

This meeting will also be conducted via webinar. To attend the webinar:

- Use this link: <https://www.gotomeeting.com/webinar> and click “Join a Webinar” in the top right corner of the page;
- Enter the Webinar ID, which is 433-536-835, and your name and email address (required);
- After logging into the webinar, dial this TOLL number 1+ (213) 929-4232 (not a toll-free number);
- Enter the Attendee phone audio access code: 596-914-734;
- Enter your audio phone pin (shown after joining the webinar).

NOTE: We have disabled Mic/Speakers on GoToMeeting as an option and require all participants to use a telephone or cell phone to participate.

You may send an email to Mr. Kris Kleinschmidt at kris.kleinschmidt@noaa.gov or contact him at 503-820-2280, extension 411 for technical assistance.

WEDNESDAY, MARCH 27, 2019 – 8:30 AM

A. Call to Order

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|------------------------------------|------------------------------|
| 1. Call to Order and Introductions | Dave Sampson |
| 2. Webinar Instructions | John DeVore |
| 3. Overview of Workshop Objectives | Dave Sampson and John DeVore |
| 4. Assign Rapporteurs | Dave Sampson |
| 5. Approve Agenda | |
- (8:30 a.m., 0.5 hours)

B. Overview of Oregon’s Historical Catch Reconstruction Ali Whitman
(9 a.m., 1 hour)

C. Overview of Washington’s Historical Catch Reconstruction Vlada Gertseva, Greg Lippert, and Jessi Doerpinghaus
(10 a.m., 1 hour)

D. Overview of California’s Historical Catch Reconstruction Joe Bizzarro and John Field
(11 a.m., 1 hour)

LUNCH (12 – 1 p.m.)

F. Proposed Method for Estimating Historical Discards of Longnose Skate Vlada Gertseva
(1 p.m., 1 hour)

G. Proposed Method for Estimating Historical Discards of Big Skate Ian Taylor
(2 p.m., 1 hour)

H. Discussion of Major Uncertainties in the Historical Catch Reconstructions
(3 p.m., 1 hour)

I. Overview of Workshop Findings
(4 p.m.)

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