



Economic Status of the Groundfish Fisheries off Alaska Data Visualizations

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Abstract

Visualization of selected ex-vessel, first-wholesale, and effort statistics from the Groundfish Economic SAFE report

Introduction

These interactive visual applications present the data from the economic status of groundfish fisheries off Alaska in terms of economic activity and outputs using estimates of catch, prohibited-species catch (PSC), ex-vessel prices and value (i.e., revenue), effort (as measured by the size and level of activity of the groundfish fleet), and the first wholesale production volume and gross value of (i.e., F.O.B. Alaska revenue from) processed products.¹ The catch, ex-vessel value, fleet size and activity data reported here reflect the fishing industry activities that are accounted for in the groundfish landings and production reports, North Pacific groundfish and halibut observer data, and the State of Alaska Commercial Operator's Annual Reports. Catch data in this report are sourced from the NMFS Alaska Regional Office (AKRO) catch-accounting system (CAS), which is used for in-season monitoring groundfish and PSC quotas. The data descriptions, qualifications, and limitations in this methods section and the footnotes to the tables are critical to understanding the information in this report. The data presented in the visualizations are identical to the data found in Economic Status of the Groundfish Fisheries off Alaska report (Fissel *et al.* 2017) and is intended to serve as supplement to the document for those involved in making decisions with respect to conservation, management, and use of Gulf of Alaska (GOA) and Bering Sea and Aleutian Islands (BSAI) groundfish fishery resources.

In addition to catch that is counted against a federal Total Allowable Catch (TAC) quota (i.e., managed under a federal Fishery Management Plan (FMP)), estimates provided in some of the following tables may include catch from other Alaska groundfish fisheries. The distinction between catch managed under a federal FMP and catch managed by the State of Alaska is not merely a geographical distinction between catch occurring in the U.S. Exclusive Economic Zone (EEZ) and catch occurring Alaska state waters (3-mile limit). The State of Alaska maintains authority over some rockfish fisheries in the EEZ of the GOA, for example, and

¹F.O.B. refers to the value (or price) excluding transportation costs. The acronym, F.O.B. stands for "Free On Board".



parallel fisheries occurring within state waters are managed under federal FMPs. It is not always possible, depending on the data source(s) from which a particular estimate is derived, to definitively identify a unit of catch, or associated units of measure, such as revenue or price, as being part of a federal FMP or otherwise. Users are encouraged to consult table footnotes in (Fissel *et al.* 2017) for clarification on coverage in individual tables with respect to federally-managed and state-managed catch. Additionally, unless explicitly indicated, phrases such as “groundfish fisheries off Alaska” or “Alaska groundfish”, as used in this report, should not be construed to precisely include or exclude any category of state or federally managed fishery or to refer to any specific geographic area. These and similar phrases may describe groundfish from both Alaska state waters and the federal EEZ off Alaska, groundfish managed only under federal FMPs, or managed under the authority of both NMFS and the state of Alaska.

Description of the Economic Groundfish Data

Catch Data Description

Catch estimates in the groundfish fisheries off Alaska are generated by NMFS from data collected through an extensive fishery observer program and from information provided through required industry reports of harvest and at-sea discard. The North Pacific Groundfish Observer Program (Observer Program), based at the NMFS Alaska Fisheries Science Center (AFSC), has had a vital role in the management of North Pacific groundfish fisheries since 1989. Observer data are collected by NMFS-certified observers and provide scientific information for managing the groundfish fisheries and minimizing bycatch. Industry-reported data consists of catch and processed product amounts that are electronically recorded and submitted to NMFS through the Interagency Electronic Reporting System, known as eLandings. Observer information and industry reports are integrated into a NMFS application called the Alaska Catch Accounting System (CAS). The primary purpose of the CAS is to provide estimates of total catch for FMP species (including prohibited species) in the groundfish and halibut fisheries and allow the in-season monitoring of catch against the TACs and PSC limits. In the CAS, at-sea sample data collected by observers are used to create discard and PSC rates (a ratio of the estimated discarded catch to the estimated total catch in sampled hauls). Further detail on the estimation procedure is available in Cahalan *et al.* (2014).

The catch presented is retained catch which excludes discarded catch. Catch data are sourced from the NMFS Alaska Region Office Catch Accounting System (CAS). Retained catch for FMP-managed groundfish are provided in [Visualization 1](#) in the ex-vessel tab with the variable ‘catch’ selected. Data are stratified by zone (BSAI, GOA, and AK), gear (trawl, hook and line - which include longlines and jigs - and pot gear), and species (complex). When the zone BSAI is selected data can be stratified by sector (catcher vessels and catcher/processor vessels). The zone AK is the sum of the BSAI and GOA. Beginning in 2011, Kamchatka flounder was broken out from arrowtooth flounder in the BSAI. As such, the “other flatfish” and/or arrowtooth flounder categories may not be directly comparable between 2011 and prior years in the historical catch data available online.



Ex-Vessel Prices and Value Data Description

The ex-vessel market is the transaction of catch delivered by vessels to processors. In general, ex-vessel prices are derived from Commercial Operator Annual Report buying reports. Some catcher-vessels minimally process (e.g., head-and-gut) the catch prior to delivery to the processor. The value of this on-board processing is discounted from the ex-vessel price so that it represents the round-weight (unprocessed) prices of the retained catch. Ex-vessel value is calculated by multiplying ex-vessel prices by retained catch. For the at-sea sector much of catch is both caught and processed for first-wholesale distribution by a single entity and as such a true ex-vessel market does not exist. For national accounting purposes the ex-vessel value of the at-sea sector are calculated by applying COAR buying prices for the corresponding species (group), region, and gear-type of the retained catch. For a subset of fisheries that are prosecuted primarily by the at-sea catcher/processor fleet, and for which COAR buying data are sparse, we impute prices as a percentage (40%) of the estimated wholesale value per round weight. This percentage reflects the long-term average of the ratio ex-vessel prices to head-and-gut (H&G) processed-product prices for species (primarily Pacific cod) that are well represented in COAR buying and production reports. Ex-vessel prices and value include post-season adjustments. Additional details on pricing methodology are available at http://www.afsc.noaa.gov/REFM/Socioeconomics/SAFE/CSV_groundfish/metadata/groundfish_exvessel_value_metadata.pdf.

[Visualization 1](#) under the ex-vessel tab with the variable price selected contains estimated ex-vessel prices that are used with estimates of retained catch to calculate ex-vessel values (gross revenues) for the BSAI and GOA, respectively. Prices are in nominal terms (i.e., not adjusted for inflation). Prices may include data from both federally-managed and state-managed fisheries. Estimates of ex-vessel value presented in [Visualization 1](#) under the ex-vessel tab with the variable value selected. Ex-vessel prices and value are stratified identically to catch using the strata by zone, gear, and species. When the BSAI zone is selected additional sector strata is available. Ex-vessel value are in nominal terms (i.e., not adjusted for inflation).

First Wholesale Production, Prices and Value

The first wholesale market is the first sale onto the wholesale market of fisheries products after initial processing by a commercial processor with a Federal Processor Permit (FPP).² Groundfish first wholesale production data are sourced from at-sea and shoreside groundfish production reports. Product pricing and value reflect COAR product report price data appended to these production data per the AKFIN product pricing index. While groundfish production reports are a federal reporting requirement, there is typically no distinction made in this reporting between product derived from federally-managed catch and product derived from state-managed catch. Likewise, while COAR production reports include the area of processing, these data are insufficient for identifying the fishery inputs for units of finished production. As such, these tables reflect production volume and pricing from federal and some state-managed fisheries. Wholesale value and prices are given as F.O.B. (Free On Board) Alaska, indicating that transportation costs are not included in values and prices.

²An FPP is required for all processors receiving and/or processing groundfish harvested in Federal waters.



Estimates of first wholesale production weight of the processed products are presented by zone, species, and product form can be found in [Visualization 1](#) under the wholesale tab with the variable 'volume' selected. When the zone BSAI is selected the data can additionally be stratified by sector (at-sea and shoreside). First-wholesale value (gross revenue) is presented [Visualization 1](#) under the wholesale tab with the variable 'value' selected. Product price-per-pound estimates are presented in [Visualization 1](#) under the wholesale tab with the variable 'price' selected.

Effort (Fleet Size, Weeks of Fishing, Crew Weeks)

Data on measures of fishing capacity and effort in federally-managed Alaska groundfish fisheries, including fleet size, duration of fishing, and levels of harvesting and processing employment are sourced from catch accounting data, ADF&G groundfish fish tickets, North Pacific groundfish observer data, and at-sea groundfish production reports.

The visualizations for the effort data ([Visualization 2](#)) have three tabs for the Alaska (AK), Bering Sea and Aleutian Islands (BSAI), and Gulf of Alaska (GOA) (note that AK = BSAI + GOA). Each tab contains the variables 'vessel counts' (the numbers of vessels that landed groundfish), 'fishing weeks' (estimates of vessel weeks fishing), and 'crew weeks' (number of licensed crew working aboard vessels). Vessel weeks are apportioned by catch volume in cases where a vessel is identified with activity in multiple gears, areas, and/or targets in a given week. Catcher vessel crew weeks are sourced from ADF&G fish tickets/eLandings, which include data on the number of licensed crew working aboard vessels by month and area. A single crew week represents one crew member aboard one vessel for a week. Crew weeks are apportioned by catch volume in cases where a vessel is identified with activity in multiple areas in a given week. These data do not include employment levels in the shore-side and inshore processing sectors.

When the variable 'vessel counts' is selected under the Alaska tab of [Visualization 2](#) data are stratified by sector (catcher processor, catcher vessel, and total), zone, and species. When the BSAI or GOA tabs are selected with the variable 'vessel counts' then the data can be stratified by month, sector, and gear type. When the variable 'fishing weeks' is selected under any tab the data can be stratified by sector, species, gear, and vessel length. When the variable 'crew weeks' is selected under any tab the data can be stratified by month and sector.

Additional Notes

- Confidential values are excluded from the computation of aggregates (e.g. sums and averages) within a table. This is particularly important to remember for highly stratified tables.
- Within the data tables, numbers that are smaller than the level of precision used within the table are printed as "0". For example, if a table uses the one decimal place level of precision, then an actual value of "0.01" is presented in the table as "0".
- The information provided by the FMA division of the AFSC has had a key role in the monitoring of total allowable catches (TACs), catch of prohibited species. In recent



years, observer data for individual vessel accounting has been important in the management of the CDQ program, AFA pollock, BSAI crab, Amendment 80 fisheries, as well as others. In addition, much of the information that is used to assess the status of groundfish stocks, to monitor the interactions between the groundfish fishery and marine mammals and sea birds, and to analyze fishery management actions is provided by the FMA.

Request for Feedback

The data and estimates presented here are intended both to provide information that can be used to describe the Alaska groundfish fisheries and to provide the industry and others an opportunity to comment on the validity of these estimates. We hope that the industry and others will identify any data or estimates in this report that can be improved and provide the information and methods necessary to improve them for both past and future years. There are two reasons why it is important that such improvements be made. First, with better estimates, the report will be more successful in monitoring the economic performance of the fisheries and in identifying changes in economic performance that may be attributable to regulatory actions. Second, the estimates in this report often will be used as the basis for estimating the effects of proposed fishery management actions. Therefore, improved estimates in this report will allow more informed decisions by those involved in managing and conducting the Alaska groundfish fisheries. The industry and other stakeholders in these fisheries can further improve the usefulness of this report by suggesting other measures of economic performance that should be included in the report, or other ways of summarizing the data that are the basis for this report, and participating in voluntary survey efforts NMFS may undertake in the future to improve existing data shortages. An online survey to facilitate user feedback is available at: http://www.afsc.noaa.gov/REFM/Socioeconomics/SAFE/SAFE_survey.php.

Citations

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