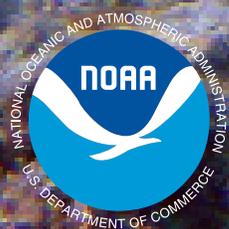


Fish Assessment Report

FY 2015 Quarter 2 Update

2



NOAA
FISHERIES

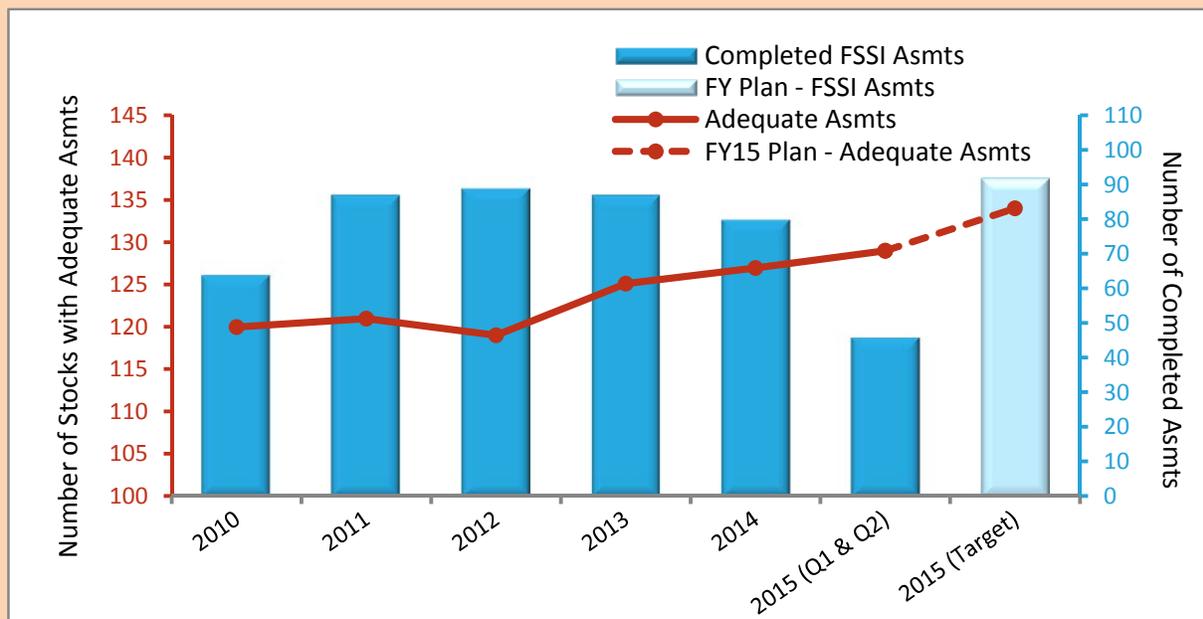
Science and
Technology

Overview

Stock assessments are key to the sustainable management of our Nation's fisheries and provide the best scientific information available to determine the status of fish stocks. They guide the setting of annual catch limits (ACLs) that prevent overfishing and attain optimum yield from our Nation's fisheries. NOAA Fisheries works with its partners in each management area to conduct right-sized assessments for each fish stock or stock complex, selecting assessment level, type, and frequency based on a variety of factors such as fishery importance, ecosystem importance, stock biology, status of the stock, data availability, and assessment capacity. The Fish Assessment Quarterly Report provides an update on the status of NOAA Fisheries assessment activities for Federally-managed fish stocks. In FY2015, NOAA Fisheries will assess over 90 of the 199 stocks included on the Fish Stock Sustainability Index (FSSI), an index used to measure the performance of commercially and recreationally important fisheries. With these added assessments, the cumulative number of FSSI stocks that have assessments considered to be adequate based on their timeliness and modeling approach, will rise to the highest value ever.



NOAA Fisheries Assessment Trends for FSSI Stocks



Recent and projected assessment activity for Federally-managed stocks, through the end of FY2015. The percentage of FSSI stocks with an adequate assessments is used to track performance of the NOAA Fisheries national stock assessment enterprise.

Assessments this Quarter

During Quarter 2, 71 stocks were assessed, including 5 FSSI and 66 non-FSSI stocks.

During Quarter 2, five assessments were completed for FSSI stocks, bringing the number of FSSI assessments completed during the first half of FY2015 to 46. In addition, 66 assessments were completed for non-FSSI stocks and stock complexes, bringing the number of non-FSSI assessments completed during the first half of FY2015 to 92. The total number of FSSI and non-FSSI assessments completed by the end of Quarter 2 is 138 (see Table 1).

Key FSSI assessments completed this quarter were red snapper in the Gulf of Mexico, Norton Sound red king crab, and two California Chinook salmon stocks (Northern California Coast: Klamath River fall run and California Central Valley: Sacramento River fall run).

An assessment for Main Hawaiian Islands deep-7 bottomfish complex was completed but the peer review panel raised concerns that prevent this assessment from updating the advice from the previous assessment used to inform management decisions for the current fishing year. NMFS is planning to provide an update assessment to inform management decisions for the 2015-16 fishing year.

At the end of Quarter 2, the percentage of FSSI stocks with adequate assessments remained stable at 64.8% (129/199). This is anticipated to increase throughout the year to a minimum of 67.3% (134/199) by the end of Quarter 4, as several new and improved stock assessments will be completed over the remaining two quarters.

Table 1. FY15 Completed Assessments

| Science Center(s) | Quarter 1 | | Quarter 2 | | Highlighted Stocks for Quarter 2 |
|--|-----------|----------|-----------|----------|--|
| | FSSI | Non-FSSI | FSSI | Non-FSSI | |
| Northeast | 4 | 0 | 0 | 0 | None planned in Quarter 2 |
| Southeast | 3 | 3 | 1 | 2 | Gulf red snapper & HMS stocks (Atl. smooth dogfish / Gulf smoothhound complex) |
| Northwest and Southwest ¹ | 0 | 0 | 2 | 64 | Pacific coast salmon and Pacific hake |
| Southwest | 0 | 0 | 0 | 0 | None planned in Quarter 2 |
| Alaska | 34 | 23 | 1 | 0 | Red king crab - Norton Sound |
| Pacific Islands | 0 | 0 | 1 | 0 | Main Hawaiian Islands deep-7 bottomfish complex |
| Southwest and Pacific Islands ² | 0 | 0 | 0 | 0 | None planned in Quarter 2 |

Footnotes:

¹The Northwest and Southwest Fisheries Science Centers jointly conduct assessments for Pacific coast groundfish and Pacific coast salmon.

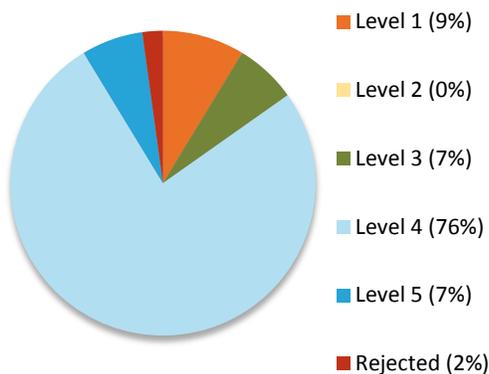
²The Southwest and Pacific Islands Fisheries Science Centers jointly conduct assessments for U.S. West Coast Fisheries for Highly Migratory Species and Pacific Pelagic Fisheries of the Western Pacific Region Ecosystem.

Model Complexity and Assessment Type

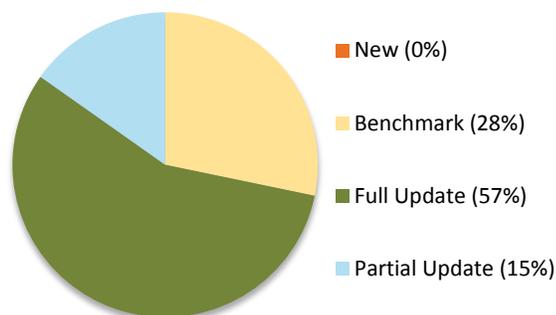
For FSSI stocks, 89% of the assessments conducted during Q1 and Q2 are considered adequate (level 3 or higher) and a majority of these assessments were conducted as updates. For non-FSSI stocks, 72% of the assessments conducted during Q1 and Q2 are considered adequate. Index-based and simple life history approaches (level 1 and 2) were conducted for 29 stocks (21% of completed assessments) providing important science-based advice for the management of data-limited stocks. Ecosystem considerations (level 5) were included in 15 assessments accounting for 11% of all completed assessments during Q1 and Q2. Assessment levels and types for all assessments completed during Q1 and Q2 are shown in the charts below:

FSSI

Assessment Levels

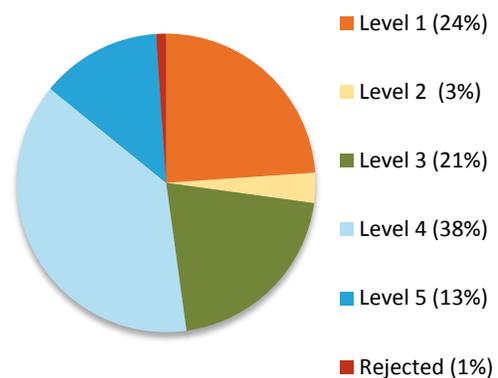


Assessment Types

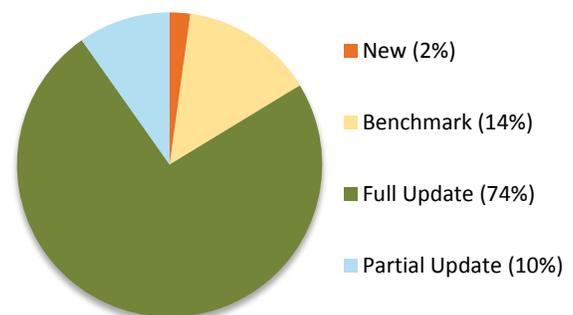


Non-FSSI

Assessment Levels



Assessment Types



Assessment levels are defined as: 1=index only (commercial or research CPUE); 2=simple life history equilibrium models; 3=aggregated production models; 4=size/age/stage-structured models; and 5=models incorporating ecosystem considerations and spatial and seasonal analyses. Assessment types are defined as follows: Benchmarks substantially differ from the previous assessment model structure and may include new data types; Full Updates include most recent year of data and only minor revisions to existing model; and Partial Updates are essentially executive summaries that advance the assessment projections by one year. For details, see the [Marine Fisheries Stock Assessment Improvement Plan](#).

Regional Highlights: Pacific hake

The annual stock assessment for the coastal stock of Pacific hake (also known as Pacific whiting) was completed this quarter under the operation of the U.S. Canada Pacific Hake/Whiting Treaty. The Pacific whiting fishery represents one of the most valuable fisheries on the west coast with average coast-wide catches of 282,500 metric tons over the past ten years and generating an average of \$37 million during this period. The assessment is supported by high quality fishery dependent data including nearly 100% observer coverage and a coastwide integrated acoustic and trawl survey conducted by one of NOAA's newest Fishery Survey Vessels, the Bell Shimada. The stock is currently estimated to be 74% of its unfished biomass level and is experiencing a period of the highest abundance estimated within the past 20 years.

Since 2012, fishery scientists serving on the Joint Technical Committee (JTC) in coordination with stakeholders and fishery managers, have

developed a simulation model in a management strategy evaluation (MSE) framework, in addition to the annual stock assessment. The MSE is used to evaluate the performance of the assessment model and the default harvest policy. Initial MSE research indicated that variability in the catch levels and the risk of low stock status are reduced when a Total Allowable Catch (TAC) ceiling is implemented. Although a specific TAC ceiling has not been formally adopted, the Joint Management Committee (JMC) has followed this practice and quotas have been less than 60% of the default harvest policy for the past 3 years.

Together, the Pacific hake stock assessment and MSE are serving as important tools to provide scientific information and guidance to support fishery management decisions. For more information on the science behind the management, please visit [NOAA Fisheries West Coast Region Pacific Whiting Treaty website](#).

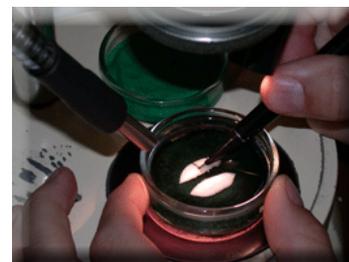
Fishery Independent Survey Data: From Sea to Assessment

Fishery independent surveys are important sources of data used in fish stock assessments. They provide abundance estimates needed to track fluctuations in populations, biological data to inform size and age structure of the population growth rates, maturity and reproduction, and natural mortality, and a range of ecosystem components.

Data go through extensive processing, which can take several months or more, to ensure the highest quality inputs are available for future stock assessments. Biological samples may require laboratory processing such as counting age rings on otoliths (fish ear bones) or determining maturity levels through examination of reproductive tissues. Final data often undergo sophisticated statistical analyses to convert raw data into inputs for stock assessment models. Stock assessments rely on multiple years of information to understand potential changes in stock abundance and biology; thus maintaining existing surveys and using innovative methods to collect fishery-independent data are important for generating the highest quality stock assessments. More information on the use of fishery-independent data in stock assessments can be found at <https://www.st.nmfs.noaa.gov/stock-assessment/data/index>.



NOAA Fishery Survey Vessel Henry B. Bigelow



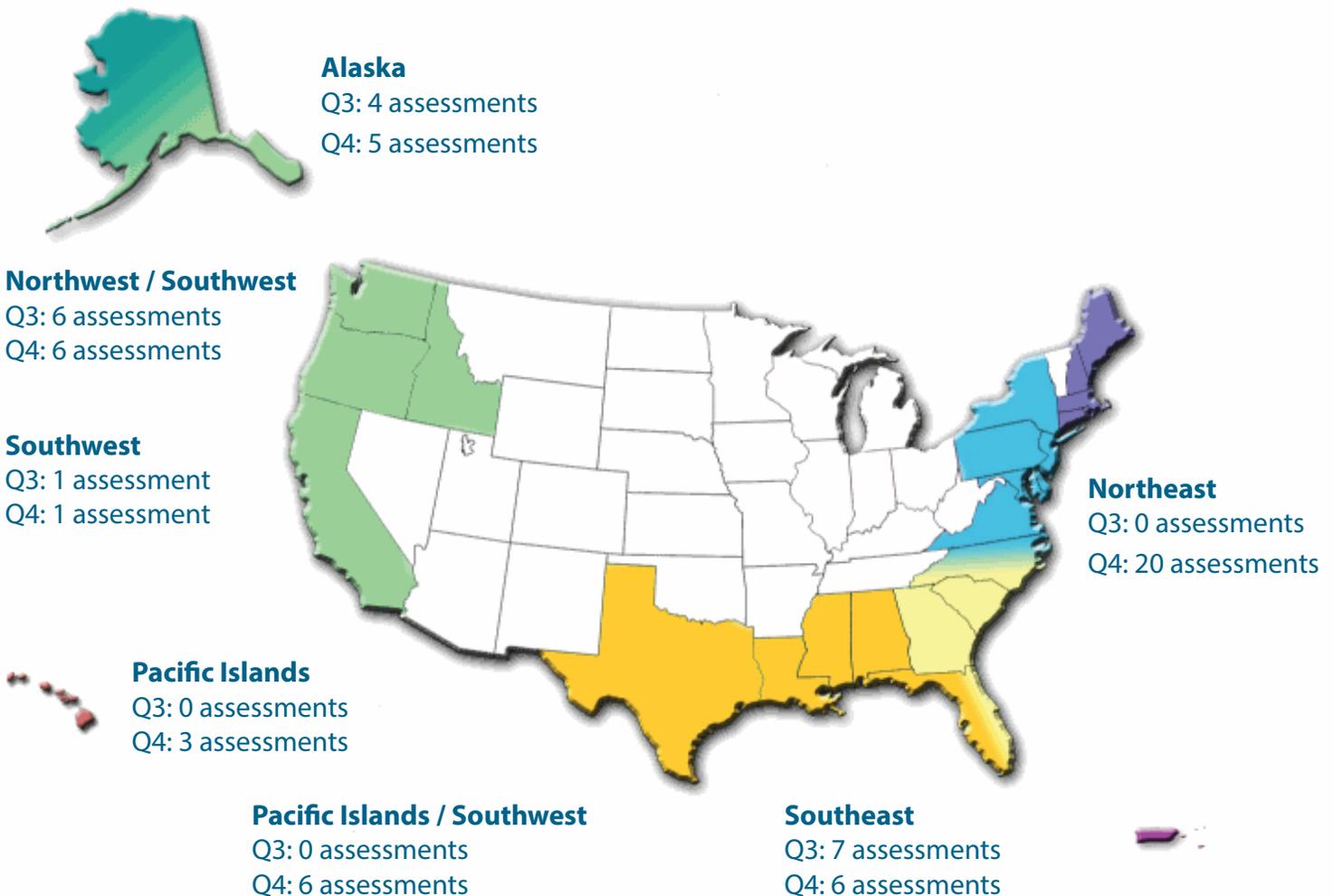
Scientist counting rings on otoliths to determine the age of a fish.

Upcoming Assessments & Survey Activity

NOAA Fisheries plans to complete 15 assessments for FSSI stocks and three assessments for non-FSSI stocks during Q3. Planned assessments for FSSI stocks include Golden king crab in the Aleutian Islands, Pacific sardine, Pacific coast groundfish stocks, and South Atlantic shrimp and grouper stocks. Non-FSSI assessments will include North Pacific scallop and crab stocks.

Activity for NOAA Fisheries fishery-independent surveys will increase during Q3 as well with 14 fishery-independent surveys planned to embark on their sampling season. The abundance and biological data collected during this field season will go through extensive processing and analysis to become important inputs for future stock assessments.

The number of planned assessments for both FSSI and non-FSSI stocks for each quarter is shown below. Detailed information of all completed and planned assessments for FY15 can be found in the supporting appendices of this report. Appendix A includes assessment activity by quarter for FSSI stocks. Appendix B includes the assessment status for all FSSI stocks. Appendix C includes assessment activity by quarter for non-FSSI stocks. The information represents the best available at this time and is subject to change.



Frequently Asked Questions

What is a Stock Assessment?

A stock assessment is the process of collecting, analyzing, and reporting demographic information to determine changes in the abundance of fishery stocks in response to fishing and, to the extent possible, predict future trends of stock abundance.

What Data are Used in Stock Assessments?

Stock assessments are based on models of fish populations that require three primary categories of data inputs: catch, abundance, and biology. Data inputs must be accurate and timely to ensure the highest quality stock assessments and the best information for resource managers.

Why do we Assess Stocks?

NOAA Fisheries' stock assessments provide high-quality science information needed by managers to support sustainable fisheries as components of resilient ecosystems, communities and economies. Assessments provide the scientific basis for determining if a stock is overfished or experiencing overfishing, to calculate a sustainable harvest rate, and to forecast the catch level that would implement that rate.

What is an Adequate Assessment?

Assessments are considered adequate when they use modeling approaches that are able to address long-term population dynamics of the stock (i.e. assessment level of 3 or above according to the 2001 Marine Fisheries Stock Assessment Improvement Plan), have been updated within five years, and are recommended as best scientific information available through respective peer review processes. The definition of an adequate assessment will change as NOAA Fisheries finalizes and implements the new Stock Assessment Improvement Plan (draft expected in mid-FY16).

Why does the Schedule of Planned Assessments Change?

The schedule of planned assessments is provided by each region at the beginning of the fiscal year and updated in this report as new information becomes available. Changes to the schedule may occur as the feasibility and time needed to conduct assessments are refined, particularly for stocks previously unassessed or assessments using innovative methods, and as assessment needs are updated in coordination with our regional and international partners.

Where Can I Find More Information?

<http://www.st.nmfs.noaa.gov/stock-assessment>

<https://www.st.nmfs.noaa.gov/sisPortal/sisPortalMain.jsp>



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