



## Fishery Independent and Fishery Dependent Data Collection Program Review

*Alaska Fisheries Science Center Summary and Response  
December 2013*

### Introduction

On August 26-28, 2013, the Alaska Fisheries Science Center (AFSC) hosted a panel of experts to conduct a peer review of the collection, management, and quality of data used for stock assessments conducted under the auspices of the Magnuson-Stevens Act.

This review was the first in a series of annual reviews, conducted on a different theme each year over a five-year cycle, designed to maximize the transparency and effectiveness of major science programs located at the six Science Centers as well as those located in or coordinated through NOAA Fisheries' Office of Science and Technology.

The results from this year's review, along with those being conducted at each of the other five fishery science centers and the Office of Science and Technology, will be used to prepare a national summary, to highlight best practices and to inform decisions on opportunities for improving data collection and data management programs across NOAA Fisheries. Further, the results from this review will directly inform the 2014 peer review, which focuses on stock assessment methods and issues such as uncertainty in results, use by managers, and explicit consideration of environmental factors.

More information regarding the AFSC review may be found at:

[http://www.afsc.noaa.gov/program\\_reviews/2013/default.htm](http://www.afsc.noaa.gov/program_reviews/2013/default.htm)

### Acknowledgements

To conduct the reviews, we selected experts in the topic area who were not associated with the AFSC. The panel was provided with presentations from AFSC and Alaska Regional Office (AKR) staff covering the state of AFSC's data collection programs. Panelists were also provided with background material for more in-depth information and had time to discuss the state of data collection programs – and their utility – with AFSC management and staff.

We would like to thank the review panelists who devoted a significant amount of time to prepare for, and participate, in this review. Their observations and recommendations provide critical feedback on how our data collection programs are performing relative to our stated goals and objectives. Their insights will help the AFSC improve these programs during a period of ever-increasing demands in an environment of increased fiscal constraint.

The panelists for this review were:

- Rich Ferrero (Chair) – U.S. Geological Survey
- George Hunt – University of Washington
- Terry Quinn – University of Alaska
- John Stein – NOAA Fisheries Northwest Fisheries Science Center
- Jim Nance – NOAA Fisheries Southeast Fisheries Science Center
- Amy Holman – NOAA Alaska Regional Collaboration Team Coordinator



Finally, we would like to express our appreciation to the AFSC and AKR staff for their contributions, insights, and candor during this week-long review. Several comments in the panelist reports reflect the additional effort staff are putting forth to maintain and advance the state of the AFSC's data collection programs and resulting stock assessments, and the information developed for this review is an excellent example of this commitment.

## Remarks

Overall, the reviewers provided overwhelmingly positive comments on the data collection programs supporting stock assessments and our staff that work so hard to enable these programs. The panel's summary and individual reports provide timely positive reinforcement and validation during a period of declining budgets. The results of this review will encourage and motivate staff to continue to pursue excellence in all aspects of fish stock assessment.

Maintaining our world-class reputation for providing excellent assessments while pushing the science forward is the AFSC's biggest challenge – made more difficult by the convergence of increasing demands, decreasing budgets, and an aging workforce. The review panel elaborated on this challenge by identifying three component pieces: (1) planning for constrained federal budgets; (2) considering statistical basis for sampling designs; and (3) identifying and maintaining core capabilities.

To fully address the reviewer's recommendations, the AFSC will incorporate improvements into our strategic planning process and redirect staff and resources, when necessary. This will take time – and we want to ensure that our next steps to improve data collection programs align with recommendations resulting from the 2014 stock assessment processes review. Here, we provide our initial response to the substantive points identified in the summary report. A number of additional issues were included within the individual reports, and although these are not addressed here, they will be taken into consideration as we respond to the larger issues.

- 1. Maintain core capability to complete assessments with the existing data sources. Emphasize strategic consideration of decision making to allow for the “core mission” to evolve over the long term.**

The AFSC has utilized a strategic science planning process for the past several years which has helped us maintain our core assessments while supporting applied research. In the Science Plan that was developed in 2010, the AFSC identified our “core activities” under the MSA<sup>1</sup> as maintaining the current assessment tier for fish and crab stocks and supporting NOAA Fisheries and North Pacific Fishery Management Council (NPFMC) analyses and international obligations. The Science Plan was intended to be a guiding document for the subsequent 3 to 5 years, so the AFSC is positioned to update this plan between 2014 and 2015 and maintaining these core capabilities will continue to be our highest priority. The panelists' additional comments about balancing these highest priority capabilities with innovations, advancements, and scrutiny of data quality and quantity will prove particularly useful when revisiting the vision for the AFSC. However, it should be recognized that the current criteria used to rank activity plans at the AFSC includes elements specifically designed to promote strategic planning regarding its science portfolio.

- 2. While maintaining a focus on the priority noted above, the Center is encouraged to do so with a more explicit understanding of exactly what data inputs and how much, are required. Panelists provided examples across the spectrum of our data collections, from the temporal and spatial scale of fishery independent surveys to the statistical power considerations of individual aging requests.**

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<sup>1</sup> AFSC's core research foci include “maintaining the current assessment tier of fish, crab, and marine mammal stocks,” but we are limiting it to MSA-species here because of the scope of the 2013 Program Review.



Evaluating and documenting the rationale for our current sampling is a priority for the AFSC in the next several years. As more demands are placed on a reduced number of staff, we recognize that the over collection of data can be as counter-productive to our mission as under collection. Even if this endeavor does not provide opportunities for reductions in sampling or sample processing, a more comprehensive explanation of what data are needed and why will strengthen the AFSC's ability to advocate for the necessary resources to maintain and improve these data collections. Therefore, we commit to undertaking additional statistical analyses to evaluate whether cost savings could be derived from reduced sampling effort without a commensurate loss in management value. To date several of these analyses have been completed (e.g. Bering Sea bottom trawl survey and acoustic transect spacing), but not for all of the surveys conducted by the AFSC, and not for sampling protocols implemented by observers on commercial vessels (e.g. otoliths used for ageing, stomachs used for prey and dietary studies).

As operating principles, AFSC is committed to constraining the costs of stock assessments by application of statistical power analysis when feasible, as well as to maintaining and enhancing the credibility of stock assessments by application of understandings of how life history processes of single species and their predators and prey are responding to short- and long-term changes in the environment. Maintaining observations essential to age-structured analyses for single species, while central to the AFSC mission, are not to be pursued to the exclusion of hypothesis driven interdisciplinary research to determine ecosystem-scale mechanisms and smaller scale ecological processes that ultimately determine the annual biomasses described in the single species stock assessment models. This is both an AFSC and national NOAA Fisheries objective. In the implementation process AFSC seeks to strike a balance among the projects for collection and analysis of the different kinds of data that contribute to fish stock assessments and help us to apply an ecosystem-based approach to fisheries and protected species management?

3. **Establish an environment that encourages innovation, particularly for those advancements that could lead to significant improvements and efficiencies.**

The AFSC is committed to improving our capabilities through innovation and is in agreement that staff time and resources need to be carved out and protected to ensure that new approaches can be developed. While this is difficult in the current fiscal and staffing environment, the AFSC very actively pursues partnerships with other agencies to advance our scientific mission. Moreover, the AFSC has a successful track record of using extramural funding sources to strategically advance its scientific capabilities, particularly those that improve its core assessment activities. While a few recent innovations were highlighted during this review (e.g. Cam-Trawl and electronic monitoring pilot projects), many more were not showcased because they have yet to be incorporated into data collections programs used to support stock assessment.

The panelists' comments point out the need for AFSC leadership to more clearly and consistently emphasize the importance of providing space for innovation and creativity. Our staff has a proven track record of pushing beyond routine data collection to better inform fishery management decisions, and it is imperative that we do not contract to the point where we lose this capability. On the other hand the current time series of assessments coupled with a standardized survey protocol provides a very strong base for future assessments and our ability to distinguish between natural and anthropogenic change. It was recognized during the review that changing the existing protocols will likely increase short-term costs because of the need to carry out intercalibration studies to avoid losing the value in the existing time series of survey data.

4. **Manage expectations of constituents, particularly those of the North Pacific Fishery Management Council in relation to fishery dependent data collections and the capabilities of electronic monitoring.**



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This is a particular concern for the AFSC's observer program which has had increased workloads each year. In 2013, a sizable number of new requirements accompanied the modification to randomize observer coverage and include the small-boat sector. These came in addition to a steady rise in fishery management enhancements requiring increased observer data in recent years, and data demands have outstripped capabilities. This is another area in which the AFSC will look harder to ensure that data collection efforts are warranted and documented so as to avoid the risk of over-sampling and further stressing this program.

The AFSC sees real promise in electronic monitoring and electronic reporting (EM/ER) capabilities to provide supplemental information to observer sampling and will continue to work to improve upon its existing capabilities. Additionally, the AFSC will need to clearly communicate what capabilities EM/ER can offer, what data will be lost without onboard observers, and what the impacts will be to stock assessments and fisheries management should technology supplant observers on a portion of the fleet.

## **5. Establish more focused attention on succession planning and staffing.**

In recent years, the AFSC has lost dozens of employees to retirement and attrition. This reduction in staffing was in part planned and implemented in anticipation of fiscal constraints imposed by Congress. This was necessary to preserve the AFSC's ability to carry out expensive surveys which are currently dependent on days-at-sea on chartered vessels and NOAA ships. Part of the reduction was caused by NOAA's imposition of a wide-scale hiring freeze. While reductions in staffing frees up more resources for applied research activities, the AFSC is precariously close to no longer having adequate staff numbers to carry out our mission – some research programs may be past that point in that staff are working under unsustainable demands. Concurrent with the loss of employees and tight fiscal constraints was an expansion of the NOAA and AFSC missions to include Arctic ecosystems. These ecosystems are important to the Nation, however no new NOAA resources have become available to execute our mission there. As a first step to succession and staff planning, AFSC leadership is beginning the process of identifying key capabilities which need to be maintained and developed. The AFSC agrees that a combination of the current staffing level, anticipated retirements and the continuation of NOAA's hiring freeze will compromise the AFSC's science mission. This issue will have to be addressed immediately and is on the agenda for an AFSC leadership meeting in January 2014.

## **6. Address factors affecting bottom surveys, particularly non-trawlable habitat and catchability/selectivity, and how these factors are prioritized in the AFSC science planning process.**

Factors affecting bottom trawl surveys are of particular concern not only for the AFSC, but throughout NOAA Fisheries. To address this, the NOAA Fisheries' Office of Science and Technology recently established a national strategic initiative to address catchability/gear selectivity in NOAA Fisheries surveys, especially where there is untrawlable habitat. The AFSC is fully committed to supporting this applied research. Dave Somerton, the AFSC Program Manager for bottom trawl surveys was selected this past year to chair the working group for this initiative. In a recent internal AFSC workshop to help identify top survey-related stock assessment needs, untrawlable habitat was repeatedly given as a top priority to improve or maintain the quality of stock assessments. Results of this workshop are being connected to the AFSC science planning process and incorporated into its prioritization criteria.

## **7. Clarify how existing planning processes incorporate a longer view and an understanding of the consequences of incremental decisions may have on future Center capabilities.**

The AFSC's Science Plan is accompanied by a comprehensive implementation process that is designed to ensure adequate resources are provided to those activities that support our core functions. However, our



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rating criteria are wider reaching so as to ensure a more balanced research portfolio; one which contains explicit support for stock assessments and data collection, and supports data collection and analyses that increase our understanding of environmental drivers and ecological processes that will inform these in the future. As we embark on a renewal of the AFSC Science Plan, the panelists' comments about ensuring a longer term view is considered will prove to be a helpful reminder.

The AFSC is committed to continuing to communicate to the public how the results of its research are essential to the social and economic well being of the region and the nation. AFSC must communicate how its research provides substantial value to the public, how it is essential to the functioning of regional fishery management institutions, how it contributes to regional and national economies, and how it enables the cultural and institutional integrity of the marine resource dependent communities of the region and the nation.

We are keenly interested in the outcomes of the reviews of the other Science Centers and the Office of Science and Technology, and hope to glean additional improvements from these panels' recommendations. We look forward to the national synthesis of findings and recommendations as we move forward in developing guidance to improve the data collections supporting stock assessments in Alaska.