

Terms of Reference for Scallop Survey Methods Review, March 17-19, 2015

(These ToRs are to be carried out by the scientists involved with scallop survey methods and analyses. The Peer Review Panel will then address the strengths and weaknesses of the various survey approaches and survey methodologies, with a focus on these ToRs.)

1. Review the statistical design and data collection procedures for each survey system
 - a. Dredge surveys conducted on research vessels
 - b. Dredge surveys conducted on commercial vessels
 - c. SMAST video drop camera system
 - d. HabCam camera and sensor sled
2. For each survey, evaluate measurement error of observations including shell height measurement, detection of scallops, determination of live vs. dead scallops, selectivity of gear, and influence of confounding factors (*e.g.*, light, turbidity, sea state, tide etc.)
3. Review the biological sampling aspects of the surveys, including sub-sampling procedures and the ability to sample all size classes. For each survey, evaluate the utility of data to detect incoming recruitment, assess the potential ability to assess fine scale ecology (*e.g.*, Allee effect, predator-prey interactions, disturbance from fishing gear, etc.).
4. Review methods for using survey data to estimate abundance indices. Evaluate accuracy (measures of bias) of indices as estimates of absolute abundance.
5. Evaluate any proposed methods for integrating and using surveys outside of a stock assessment model for management purposes.
6. Comment on potential contribution of each survey to assessments for non-scallop species and use of data apart from assessment purposes such as characterizing species habitat, understanding sea scallop ecology, and ecosystem studies.
7. Comment on the current and/or any proposals for optimal frequency and combination of survey methods.
8. Identify future research and areas of collaboration among investigators and institutions.

Guidance to Presenters

In their presentations and reports for the peer review, presenters (as opposed to the peer reviewers) will cover a broad range of topics, such as:

1. Summaries of historical scallop survey indices, and their components (*e.g.*, frequency, spatial extent, data collected), from the NEFSC sea scallop survey, the SMAST video survey, relevant VIMS cooperative industry surveys, and HabCam surveys from WHOI and Arnie's Fisheries. For each of these surveys, additional topics include survey design, objectives, methods, and any relevant changes over time.
2. Summaries of current approaches for using abundance indices in stock assessment and management models. (Stock assessment models describe the dynamics of populations over time and estimate total stock size and mortality rates. Management models are used to evaluate the short-term effects of alternative harvesting scenarios at varying degrees of spatial resolution.)
3. Summaries of procedures for data acquisition, post processing, archiving, availability to outside investigators, publication of derived products in primary literature, and use for stock assessments.