



New England Fishery Management Council

50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116

Eric Reid, Chair | Thomas A. Nies, Executive Director

MEETING SUMMARY
Scallop Survey Working Group
November 17, 2021

The Scallop Survey Working Group (SSWG) met by webinar on November 17, 2021 to 1) develop “guiding principles” for the scallop survey and outline strategies for survey coordination, 2) continue work related to the Terms of Reference, and 3) review the work plan and identify next steps.

MEETING ATTENDANCE:

Scallop Survey Working Group	
Peter Chase, NEFSC, Co-Chair	Bill DuPaul, VIMS Emeritus, Co-Chair
David Bethoney, CFRF	Drew Minkiewicz, FSF
Han Chang, NEFSC	Tasha O'Hara, CFF (not in attendance)
Scott Gallagher, COV	Jonathon Peros, Council Staff
Dvora Hart, NEFSC	Paul Rago, Retired NEFSC Branch Chief
Chad Keith, NEFSC	Dave Rudders, VIMS
Paul Kostovick, NEFSC	Liese Siemann, CFF
Andy Lipsky, NEFSC	Ryan Silva, GARFO
Amber Lisi, ME DMR	Kevin Stokesbury, SMAST (not in attendance)
Roger Mann, VIMS	
SSWG Facilitators	
Cate O'Keefe, Fishery Applications Consulting	Jessica Joyce, Tidal Bay Consulting

NEFMC staff member Sam Asci assisted with meeting logistics; there were five members of the public in attendance, including the Scallop Committee Chair and other Council members.

INTRODUCTIONS:

The meeting began at 9:00am with introductory comments by facilitator Cate O’Keefe. Dr. O’Keefe provided an overview of the agenda, including meeting objectives and deliverables. The major goals of the meeting were to draft ideas for Scallop Survey Guiding Principles and draft an outline of survey coordination strategies, continue work on survey issues related to data topics, wind impacts, and stock assessment needs, and to update the SSWG work plan, tasking, and meeting schedule.

Council staff conducted roll call and provided instructions for use of the GoToTraining software platform. Meeting materials are available on the Council’s website:

<https://www.nefmc.org/calendar/nov-17-2021-scallop-survey-working-group>.

SSWG PROGRESS UPDATE:

Dr. O’Keefe provided an update on the timeline for SSWG efforts, including full group and sub-group efforts to describe the current scallop survey system, identify initial Survey Guiding Principles, characterize strengths and weaknesses of the current system related to potential impacts from offshore wind energy development and data issues. Additionally, updates about the 2021 scallop surveys and Plan Development Team data analyses were provided. Dr. O’Keefe and the Co-Chairs described the objectives and deliverables expected for the meeting.

ToR #2 SCALLOP SURVEY GUIDING PRINCIPLES AND COORDINATION STRATEGIES:

The SSWG reviewed ToR #2, which states:

Describe and assess a coordinated strategy for sea scallop resource assessment surveys and investigate opportunities and methods for implementation. Address each of the following areas:

- **Spatial coverage, including the Northern Gulf of Maine;**
- **Sampling frequency and intensity within and between surveys;**
- **Data standardization, delivery, access, and storage;**
- **Automated scallop detection;**
- **RSA survey priority setting process and long-term planning.**

This TOR will include, but not be limited to, the following items for each identified topic:

- *Assess the strengths and weaknesses of the current scallop survey system, including uncertainties and gaps in data outputs to meet objectives and needs of science and management.*
- *Describe new or alternative approaches for optimizing the survey system.*
- *Investigate opportunities and methods to implement strategies across all survey groups, including the new and alternative approaches.*

Survey Guiding Principles

During the July 2021 meeting, the SSWG recommended developing a set of Scallop Survey Guiding Principles. These principles are intended to include methods to identify priority survey coverage areas, types of samples that are required to support science and management, sampling intensity, frequency, and efficiency metrics, stable funding sources and appropriate survey methods. The SSWG continued discussion of guiding principles at the November meeting and proposed several recommendations for further consideration.

Discussion topics included the need to cover the entire scallop resource and fishery footprint annually with both dredge and optical tools, ways to ensure the Northern Gulf of Maine (NGOM) management area is sampled consistently, types of samples required to support stock assessment and annual management, and “optimal” sampling frequency and intensity. Several SSWG members highlighted the unique approach to combine data products from multiple survey methods and emphasized the importance of independent estimates of various resource areas. These recommendations were compiled after the meeting into a draft “Scallop Survey Guiding Principles” document.

Survey Coordination Strategies

The SSWG received three presentations about the current survey system to initiate discussions about potential coordination strategies. SSWG Co-Chair Peter Chase provided an overview of the current NEFSC scallop survey. Mr. Chase described the current survey system (vessel characteristics, survey timing, sea day targets) and operational budget for the R/V Sharp. NEFSC survey coverage has varied over time due to budget availability with a recent average of ~30-35 days. The NEFSC survey focuses on sampling in areas that are not extensively covered by RSA funded surveys. Sampling locations for the dredge and HabCam components of the NEFSC survey are planned prior to sailing and adjustments are made at sea. SSWG members discussed the timing of budget decisions and when the target sea day coverage is determined. They noted the overlap in timing between NEFSC survey coverage decisions and RSA proposal reviews. Additionally, SSWG members discussed the potential use of an alternative NEFSC survey platform and noted there may be opportunities to consider commercial fishing vessels or the R/V Bigelow.

Mr. Ryan Silva gave an overview presentation about the RSA grant process and survey coverage determination. Steps that inform annual survey coverage include the proposal submission and review processes focused on survey design, methods, location, and relative costs. Funding recommendations are provided to the NEFSC Director, followed by a negotiation process with applicants to possibly modify proposed coverage areas and sampling levels. Mr. Silva noted challenges with the process related to balancing redundancies and gaps in proposed survey areas and the level of administrative burden associated with modifying proposals. Survey coordination by the NEFSC occurs during the pre-award negotiation stage, but there are recurring challenges associated with determining how much survey coverage is needed in various resource areas each year. Longer term awards may improve coordination but determining annual survey coverage will require flexibility.

Finally, Mr. Jonathon Peros provided an overview of the PDT's process for survey data compilation. The survey data process has evolved over time as the number of survey partners and methods have increased. Data delivery is now aligned to facilitate compilation and review by the PDT in late August to support annual fishery management measures. Specific aspects of the data products are standardized prior to delivery, such as updated SAMS area boundaries, shell height to meat weight equations, and length frequency bins for recruits. Recent survey coordination efforts have focused on the impacts of the Covid-19 pandemic and approaches to ensure that priority areas were covered, as well as in-season adjustments to RSA surveys to adapt to observed resource changes. Council staff recently completed a survey data compilation project that includes annual survey information from all survey partners and coverage areas between 2015 to 2021.

The SSWG discussed benefits and challenges of funding surveys through the RSA program, including the flexibility to modify proposals to ensure area coverage and the ability to support innovative survey methods, as well as constraints associated with a federal funding process and lack of ability for long-term planning. SSWG members emphasized the need for increased coordination between the NEFSC and RSA supported surveys, and they proposed ideas for changing the RSA priority setting process to better align with understanding of resource conditions later in the calendar year. The SSWG recommendations were compiled after the

meeting into a draft “Scallop Coordination Strategies” outline, which will be discussed by the SSWG at its next meeting.

Due to technical difficulties, the SSWG did not break into sub-groups during the meeting and instead discussed data topics, wind impacts, and future stock assessment needs as a full group.

DATA TOPICS (TOR #2):

Mr. Peros started the discussion of data topics by posing questions that arose from the July SSWG meeting, including:

1. What data issues should be considered by the SSWG under TOR #2 (coordinated strategy for scallop surveys and opportunities and methods for implementation)?
2. What data issues would be better addressed by a different process (e.g., follow-on process to develop recommendations to NOAA; external contractor for software development; 3rd party data management organization)?
3. How should the SSWG define the terms “data” and “public” under TOR #2?
 - a. For example, what are the data products from scallop surveys that are required to support science and management (“data”) and who can access the data (“public”).
4. Should the SSWG consider recommendations about funding sources to support data storage and management (costs beyond the collection of data)?

The SSWG discussion focused on data standardization, storage, access, and automated detection. Recommendations for a coordinated strategy for data collection and delivery included:

- Data Standardization
 - Identify the essential data products from scallop surveys that need to be standardized (e.g., counts, length measurements, weights, density);
 - Develop a standard format for data delivery that can be easily integrated into a database (i.e., substantially improve the current format that includes multiple spreadsheets that need to be compiled manually);
 - Ensure that all survey groups follow standard data formatting and delivery protocols, possibly a condition of RSA awards;
 - Ensure information sharing among survey groups, specifically calculations and coding for estimates of abundance, biomass, density, etc.;
 - Include the list of identified data products and standardized format for data delivery across surveys in the Survey Guiding Principles document.
- Data Storage and Access
 - Identify an appropriate data storage platform and recommend that adequate funding is available to support long-term storage needs;
 - The SSWG identified this as a high priority recommendation to the NEFSC. Currently, scallop survey data is not housed in a coordinated database and does not have adequate protections to ensure data is not lost.
 - Define data products that need to be included in a long-term, coordinated, accessible database;
 - “Raw” data differ between survey types (e.g., tow level data from dredge surveys, video imagery from optical surveys) and it is important to define the data products that should be stored and accessible.

- Data storage requirements for optical surveys can be very large and expensive depending on what is stored (e.g., all video footage, annotated images, estimates generated from images).
 - Data storage options must ensure that data is accessible to all survey partners;
 - The SSWG noted that survey information is also used by individual survey groups for additional research purposes beyond annual management measures and any storage options must be accessible to all survey partners and the public.
 - Consider the requirements of the Fair Data Act to develop solutions for scallop survey data storage and access
 - Data must be findable, accessible, interoperable, and reusable.
- Automated Detection/Annotation of Optical Survey Data
 - A workshop dedicated to advancing automated detection for optical surveys should be pursued to:
 - Coordinate efforts and information sharing among optical survey groups to standardize an approach for automated detection.
 - Standardization should include annotation approach, classifications, QA/QC methods, data outputs and delivery.
 - This effort requires dedicated funding and tasking to ensure that recommendations can be implemented.
 - Identify methods to ensure that standardized approaches and data products resulting from automated detection are used by optical survey groups and advancements are shared among groups.

The SSWG emphasized that a coordinated, standardized approach for data collection and delivery is a high priority that can be achieved. They underscored the importance of a long-term, reliable, accessible data storage platform for standardized scallop survey data and stressed the need for additional resources to support this effort. The current system is vulnerable to potential data loss, and the total volume of data from the scallop surveys requires a centralized database. The SSWG recommends that data storage and access be a high regional priority. Finally, the SSWG indicated that additional time is needed to discuss this topic through sub-group and future working group meetings.

WIND ENERGY DEVELOPMENT IMPACTS (TOR #3):

Ms. Joyce started the discussion about impacts on the scallop survey from the development of offshore wind energy by posing questions that arose from the July SSWG meeting, including:

1. What are the strengths and weaknesses of current survey tools/methods related to the implementation of wind farms?
 - a. Dredge, HabCam, drop camera
 - b. Random stratified, transect, grid
 - c. Survey platform (vessel type/size), data products, costs
2. What approaches to conduct scallop surveys in/around wind farms are feasible in the immediate future (1-5 years)?
3. What longer-term approaches to survey in/around wind farms should be prioritized for research/development/implementation?

4. Should the SSWG consider making recommendations about an approach to review the scallop resource and survey footprints?

The SSWG discussion focused on short and long-term survey mitigation strategies, coordinating proposals, research, and recommendations with other regional organizations, potential opportunities to integrate wind company monitoring efforts with the current scallop survey system, and innovations for alternative survey methods. The SSWG noted uncertainties about wind farm siting and eventual turbine placement, and they highlighted that scallop distribution overlap with wind farms will be a driving factor in determining the types of survey methods that may be useful. Mr. Andy Lipsky, the NEFSC's Fisheries and Offshore Wind Program Lead, provided an overview of efforts being conducted by the NEFSC to consider impacts from offshore wind on resource surveys and detailed potential impacts to monitoring, including preclusion of vessels, impacts to habitat, and decreased survey efficiency resulting from increased transit time. He noted that the SSWG is currently the only dedicated effort to address impacts to the scallop survey and noted that ad hoc efforts from individual organizations need additional coordination. Dr. Liese Siemann of Coonamessett Farm Foundation informed the SSWG about a project funded by the Department of Energy to evaluate the use of optical surveys in wind farm areas, and Dr. Scott Gallagher from WHOI gave an update about advancements in underwater technology that may serve as survey tools in wind farms in the future. The SSWG expressed interest in continued updates about regional research and survey technology innovations including updates from the Responsible Offshore Science Alliance (ROSA) and emphasized the need for information sharing.

The SSWG discussed the possibility of accessing data collected by wind company monitoring surveys to supplement the scallop survey in areas that traditional survey platforms cannot access. The group expressed concerns about variability in survey design and data accessibility from the privately funded monitoring efforts, but also noted that the current survey system integrates multiple survey designs, tools, and methods very effectively, and that there has been an evolving attitude of wind companies to share information. They highlighted the difficulty in assessing the operability of current survey tools in wind areas due to the unknowns of where wind farms will be sited, how turbines will be configured, how underwater cables will be buried or exposed, and which types of vessels can operate safely around turbines.

The working group posed several overarching questions for follow-up by the wind sub-group and subsequent SSWG meetings, including:

- What is the spatial extent of overlap between wind farms and the scallop resource/fishery?
- What programs need to be implemented to address a new ocean environment that includes offshore wind farms?
- Will it be possible to continue surveys on commercial vessel platforms, possibly smaller vessels?
- How can existing research related to potential impacts from wind farms on larval dispersal be applied to determine priority survey coverage areas in the future?

Members of the working group noted that the current scallop survey system “stitches together” multiple surveys and short-term planning could use the current system as an example of how to incorporate new survey methods. The group recommended that data should be collected from the entirety of the scallop resource range, regardless of where wind turbines are located, and they recommended that standard data collection protocols and required data products from wind company monitoring efforts should be developed and mandated for all monitoring efforts.

FUTURE STOCK ASSESSMENT NEEDS (TOR #4):

The SSWG has been following progress of several parallel efforts related to NEFSC survey re-stratification, development of a geostatistical projection model, and alternative stock assessment methods. Dr. Dave Rudders from the Virginia Institute of Marine Science (VIMS) provided a brief update on efforts to advance an aging protocol for scallops using archived shells that may be applied to develop an age-based stock assessment model. Dr. Paul Rago described progress of the scallop survey re-stratification effort focused on statistical approaches to reduce uncertainty of biomass and abundance estimates by bridging the gap between systematic and random stratified sampling. Dr. Han Chang noted the data products required to support model-based projections using the GeoSAMS model. The SSWG requested additional follow-up on these efforts at subsequent meetings, specifically a report about the December re-stratification group meeting and potential recommendations about survey guiding principles and coordination strategies resulting from new survey sampling designs.

Dr. O’Keefe started the discussion about survey data products to support future stock assessment needs by posing the following questions:

1. Does the current survey system provide all of the required data products to support the scallop stock assessment?
2. What new or different data products would be required to support an alternative stock assessment method?
3. Does the current survey system provide all of the required data products to support the scallop projection model?
4. What new or different data products would be required to support an alternative scallop projection approach?

The SSWG concluded that the current survey system collects the required data products to support the size-based stock assessment model (CASA) and projection model (SAMS). They also concluded that the survey collects needed data products to support an alternative assessment approach (age-based stock synthesis model using SS3) and model-based estimates of abundance and biomass (geostatistical methods). Working group members highlighted that an age-based assessment will require enhanced collection of scallop shell samples for aging and a geostatistical projection model will require minimum threshold image annotation rates. The NGOM management area was highlighted as a region for continued data collection, and the working group noted that assessment and management objectives are based on different spatial scales with different data requirements. The group commented that natural mortality and changes in growth rates continue to be sources of uncertainty in the stock assessment and projection model but noted that the annual survey system has provided information to reduce the level of uncertainty. SSWG members stated that the scallop survey system may be the best fishery-independent data collection system in the world.

SSWG WORK PLAN, TASKING AND MEETING SCHEDULE:

Dr. O’Keefe presented next steps for the SSWG work plan and future meetings. Over the next several months, the SSWG will continue to develop the Scallop Survey Guiding Principles and Survey Coordination Strategies, including recommendations for potential modifications to the RSA program and data standardization, storage and access. Sub-group efforts will continue to address impacts from offshore wind energy and data standardization. The SSWG favored an in-person meeting format in the future but suggested more frequent meetings of shorter duration if meetings must be conducted virtually. The next meeting is tentatively scheduled for March 2022.

ADJOURN

The Co-Chairs and facilitators thanked the SSWG, and the meeting adjourned at approximately 4:00pm.