Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

M E M O R A N D U M

Date: November 25, 2024

To: Wes Townsend, Chairman, MAFMC

From: Paul J. Rago, Ph.D., Chair, MAFMC Scientific and Statistical Committee (SSC)

Subject: Report of the November 20, 2024 SSC Meeting

The SSC met via webinar on the 20th of November to address the Council's directive for a revised Acceptable Biological Catch (ABC) in 2025 for Spiny Dogfish. The agenda for the meeting and the list of participants are provided in Attachments 1 and 2, respectively.

I thank all the members of the SSC for their thoughtful contributions. Yan Jiao is thanked for serving as rapporteur for Spiny Dogfish and the participation by Dvora Hart, NEFSC, is especially appreciated. I also thank Sarah Gaichas, Geret DePiper, and Brandon Muffley for contributing their comprehensive notes from the meeting and various SSC members for edits of this report.

All documents referenced in this report can be accessed via the SSC's meeting website https://www.mafmc.org/ssc-meetings/november-2024. A comprehensive guide to the acronyms in this and earlier reports may be found in Attachment 3.

Spiny Dogfish

The meeting began with a presentation by Jason Didden, MAFMC, who summarized the recent Council actions and the basis for the directive to the SSC to revise its previous ABC recommendations from 7,031 mt (varying approach) and 7,230 mt (constant/average approach) to 7,626 mt in 2025, increases of 595 and 396 mt, respectively. The change is based on the Council's decision to suspend the direct application of the risk policy and allow the risk of overfishing to increase from 46% to 50%, such that the ABC is equal to the OFL for 2025. This relaxation of the Council's risk policy was in response to expected economic and social consequences of the lower ABCs of 7,031 mt and 7,230 mt recommended by the SSC for the 2025 fishing season. More specifically, industry expressed concerns about loss of jobs and secondary economic impacts (e.g., other businesses that rely on Spiny Dogfish product) if the sole remaining Spiny Dogfish processor were to stop handling dogfish.

Questions of clarification following Jason's presentation included:

A need for more information on Spawning Stock Biomass (SSB) trends from the survey data to confirm model projections. The model trends for the ratio of current stock biomass to reference

point biomasses are distorted by changes in the reference points over time. The current stock is much less productive than during the late 1990s. Growth rates have declined and maturation is occurring at younger ages. Early maturation of females generally results in slower somatic growth owing to the energetic costs of pup production. Ongoing aging/growth studies supported by the Council are expected to refine the magnitude of productivity declines since the late 1990s.

The size and sex composition of discards can differ considerably from landings. Incidental bycatches on non-targeted trips will include mixtures of males and females across the full range of sizes. On targeted trips, landings consist mostly of larger females. The catch accounting used to derive annual quotas and potential accountability measures presently do not take these differences into account.

Further discussions on this topic revealed that newly proposed gill net regulations designed to reduce Atlantic Sturgeon bycatch (i.e., 5-inch minimum mesh) are likely to reduce catch rates of larger female dogfish as well. This will reduce the selectivity of large dogfish in the model and lead to increased survival of larger fish. The model estimates of size-based selectivity will not change quickly given the current stanza of selectivity (1994 to 2022). The magnitude of change will also depend on the fraction of catch coming from gill nets vs less selective trawls. It was also noted that the selectivity of the survey trawls has not changed, so that the selectivity differences could be monitored apart from changes in parameter estimates within the assessment model. Selectivity changes in the model parameterization for landings, possibly leading to a dome-shaped pattern, are not expected to change in the short run (e.g., the next three years). In contrast, discards are currently modeled with a dome-shaped selectivity pattern.

The presentation sparked considerable discussion by the SSC because the Council request represented a departure from its standard application of the risk policy. Salient elements of the discussion are included in the specific TORs listed below. The SSC felt it was also important to summarize the discussions prior to and during the TOR response.

- Economic considerations were not part of the TORs, but were the primary reason the Council agreed to suspend its risk policy for the 2025 Spiny Dogfish ABC determination. Economic considerations included potential losses of jobs if the last remaining processor stopped handling dogfish. Job losses would occur not only in New Bedford, but also in coastal communities and in industries dependent on byproducts from the Spiny Dogfish fishery (fertilizer). Information on the dependency of the processor's operations on Spiny Dogfish was not available. Without such information the SSC noted that it could not balance the economic and stock risks. An ecological concern raised by industry was the potential predation effect of an increasing, unfished Spiny Dogfish population on other fish stocks. However, the SSC notes that the current OFL catch of spiny dogfish is 1% of the stock biomass, and thus the ecosystem consequences of a fishery closure are uncertain.
- The SSC expressed strong reservations about the absence of a scientific buffer between the OFL and ABC and a management buffer between the ABC and ACL. The precedent of such changes could have major implications for management of other stocks, reduce the likelihood of fisheries receiving MSC Certification, and impair the reputation of the MAFMC as a leader in use of a defined risk policy. There are no current guidelines on

when it is advisable to abandon the risk policy and no testing of this has been done. A more formal consideration of this process, perhaps via management strategy evaluation (MSE), would be advisable.

- The substantial work the Council invested in developing the risk policy and in entering it into federal regulation (CFR §648.20-21), as opposed to maintaining it as an internal Council procedure, suggest the Council believed this policy should not lightly be overturned or suspended.
- The assignment of a 50% risk of overfishing is the legal threshold determined by the Summer Flounder Case (Natural Resources Defense Council v. Daley, 209 F.3d 747 (D.C. Cir. 2000)). No other intermediate alternatives between 46 and 49% were considered that could allow for some buffer, thereby fitting within the current risk policy framework. Simulation experiments have consistently shown that fishing at the ABC=OFL leads to lower long-term yields and greater interannual variability.
- The SSC noted the ToRs provided to it in support of this directive did not include a requirement to certify that the decision represents the best scientific information available. Some SSC members indicated they did not believe such a certification would have been possible.

Following these presentations and general discussion, the SSC addressed the Terms of Reference (in *italics*) for Spiny Dogfish. Responses by the SSC (in standard font) to the Terms of Reference provided by the MAFMC are as follows:

Terms of Reference

For Spiny Dogfish, the SSC will provide a written report that identifies the following:

1. *Using the updated short-term projections provided to the SSC in September and a suspension of the Council's application of the risk policy, provide a revised Acceptable Biological Catch (ABC) recommendation that is associated with a 50 percent probability of overfishing (i.e., ABC=Overfishing Limit, OFL) for the 2025 fishing season.*

The SSC revised its previously provided 2025 Acceptable Biological Catch (ABC) limit for Spiny Dogfish based on the following motion from the Council:

> I move that the Council suspend the risk policy used to set the 2025 Spiny Dogfish specifications and task the SSC to calculate the ABC=OFL using a 50% probability of overfishing. (Motion carried by unanimous consent.)

Based on the updated assessment and projection, the 2025 OFL and revised ABC with 50% risk of overfishing are shown below.

Specifications	2025 (pounds)	2025 (mt)	Basis
OFL (from SSC)	16,812,432	7,626	SS3 Assessment/Projection
ABC (from SSC)	16,812,432	7,626	50% risk, OFL mean used here

The SSC expressed concern regarding the Council's decision to suspend the risk policy for setting the 2025 ABC for Spiny Dogfish. SSC members worried about the potential implications for other managed species given the precedent-setting nature of this directive, and questioned both the inconsistency of applying the risk policy and the scientific basis for suspending the risk policy. Although the ABC for Spiny Dogfish was calculated above at the Council's directive, the SSC emphasized the importance of maintaining the risk policy.

2. *Provide feedback on any potential stock/biological risks and uncertainties associated with the revised 2025 ABC.*

The previously provided ABCs (**7,031 mt and 7,446 mt, for 2025 and 2026, or a constant ABC of 7,230 mt for both years)** were based on the Council's risk policy and represent the best scientific information available. Setting ABC=OFL on a one-year application has not been evaluated through a MSE process under the current risk policy. The best scientific information available includes simulation studies (Wilberg et al. 2015) that demonstrate that fishing at the OFL with no buffer for scientific uncertainty performs poorly with respect to risk of overfishing and is likely inconsistent with National Standard 1. The SSC highlights its concerns over National Standard 1 given the recent pattern of exceedance of ACLs in this fishery that suggests setting ABC=OFL is likely to lead to catches that exceed the OFL catch:

- Lack of aging data and updated growth curves, along with high uncertainty in bycatch estimates contributed to the uncertainty of OFL and ABC estimation.
- Observations of varied life history traits, such as growth and maturity, indicate the stock has become less productive.
- Changes in gillnet gear selectivity will take additional years to be detected or be reflected in stock assessment models and population projections.
- The following is the list of uncertainties from the Sept SSC report (pp. 2-4):
    - Updated spring survey data for 2024 suggest a slight increase in biomass from 2022, but the mean length of mature female dogfish remained low (<80 cm). Relative abundance and average sizes of pups were very low in 2024.
    - Decreases in the average size of mature females and the average size of pups, along with low pup abundance, are consistent with hypotheses of maternal effects on recruitment success.
    - Increase in the mature male to female ratio is also consistent with higher rates of mortality on mature female dogfish.
    - During discussion the SSC noted that the life history of Spiny Dogfish does not allow for rapid recovery from a depleted condition.

Other Business

The Council passed the following motion at its October 2024 meeting:

> *Move to task the SSC to evaluate the performance of short-term projections used to set catch recommendations for Mid-Atlantic stocks where available. The evaluation should consider projection assumptions and identify any common patterns, trends, and potential areas of uncertainty. Coordination of this activity with the 2027 research track*

assessment will be essential. (Motion by Duval/Grist. Motion carries by consent)

Brandon Muffley prepared a memo to the SSC that clarified the rationale and scope of the request. It was agreed that the SSC would need to align its effort with the pending development of a Research Track Working Group (RTWG) on Projection Methods. This might include direct participation of an SSC member on this Working Group. The SSC noted that a focus on Mid-Atlantic species and their performance would be advantageous to both the Council and the RTWG. After discussion it was agreed that responsibility to address this task would be assigned to the existing OFL CV working group of the SSC. Further details will be discussed between now and the next meeting of the full SSC in March of 2025.

Attachment 1. Agenda

Mid-Atlantic Fishery Management Council

Scientific and Statistical Committee Meeting

November 20, 2024 via Webinar

Webinar Information

Link: **Click here to join the November 20, 2024 SSC meeting**
Call-in Number: 1-415-655-0001
Access Code: 2347 554 7703; Password: E82ypshmME2

AGENDA

10:00 Welcome/Overview of meeting agenda (P. Rago)

10:05 Revised 2025 Acceptable Biological Catch (ABC) Recommendation for Spiny Dogfish

- Review background and Council request (J. Didden)
- Public comment
- SSC ABC recommendation and discussion

11:45 Other Business

- SSC Sub-group to address Council motion on short-term projections

12:00 Adjourn

Note: agenda topic times are approximate and subject to change

Attachment 2. Attendance

MAFMC Scientific and Statistical Committee

November 20, 2024

Meeting Attendance

Name	Affiliation
SSC Members in Attendance:	
Paul Rago (SSC Chair)	NOAA Fisheries (retired)
Tom Miller	University of Maryland – CBL
Ed Houde	University of Maryland – CBL (emeritus)
John Boreman	NOAA Fisheries (retired)
Jorge Holzer	University of Maryland
Yan Jiao	Virginia Tech University
Olaf Jensen	U. of Wisconsin-Madison
Sarah Gaichas	NOAA Fisheries NEFSC
Cynthia Jones	Old Dominion University
Mark Holliday	NOAA Fisheries (retired)
Mike Wilberg (SSC Vice-Chair)	University of Maryland - CBL
Michael Frisk	Stony Brook University
Wendy Gabriel	NOAA Fisheries (retired)
Gavin Fay	UMass-Dartmouth
Alexei Sharov	Maryland Dept. of Natural Resources
Geret DePiper	NOAA Fisheries NEFSC
Others in attendance (only includes presenters and members of public who spoke):	
Jason Didden	MAFMC staff
Brandon Muffley	MAFMC staff
Dvora Hart	NEFSC
John Whiteside	Sustainable Fisheries Assoc.

Attachment 3. Glossary

ABC—Acceptable Biological Catch
ACL—Annual Catch Limit
ALK – Age-Length Key
AOP—Assessment Oversight Panel
ASAP—Age Structured Assessment Program
B_{msy}—Biomass at maximum sustainable yield
BRP—Biological Reference Points
CAA = Catch at Age
CAMS – Catch Accounting and Monitoring System
CPUE – Catch Per Unit Effort
CV—Coefficient of Variation
DFO—Department of Fisheries and Oceans, Canada
ESP—Ecosystem and Socio-economic Profiles
EAFM—Ecosystem Approach to Fisheries Management
F—Instantaneous rate of fishing mortality
FMAT—Fishery Management Action Team
FSV—Fishery Survey Vessel
GARFO—Greater Atlantic Region Fisheries Office
GLM – Generalized Linear Model
HCR—Harvest Control Rule
LIME—Length-based Integrated Mixed Effects
LPUE—Landings per Unit Effort
M—Instantaneous rate of natural mortality
MRIP—Marine Recreational Information Program
MTA—Management Track Assessment
MSE—Management Strategy Evaluation
NEFSC—Northeast Fisheries Science Center
OFL—Overfishing Limit
P*—Probability of overfishing
PDT—Plan Development Team
q – catchability coefficient
RE—Random Effects
RHL—Recreational Harvest Limit
RMSP—Recreational Measures Setting Process
RSA—Research Set Aside
RSC—Research Steering Committee
RTA—Research Track Assessment
RTWG—Research Track Working Group
R/V—Research Vessel
SADL – South Atlantic Deepwater Longline Survey
SCS—Scientific Coordination Subcommittee
SEDAR—Southeast Data, Assessment, and Review
SOE—State of the Ecosystem
SSB_{msy}—Spawning stock biomass at maximum sustainable yield

SSC—Scientific and Statistical Committee
TMB—Template Model Builder
TOR—Terms of Reference
VAST—Vector Autoregressive Spatio-Temporal Model
WEA—Wind Energy Area
WHAM—Woods Hole Assessment Model