SSC Review of OFL/ABC for Framework 34

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Dr. Dvora Hart, NEFSC

SSC Meeting
October 13, 2021

New England
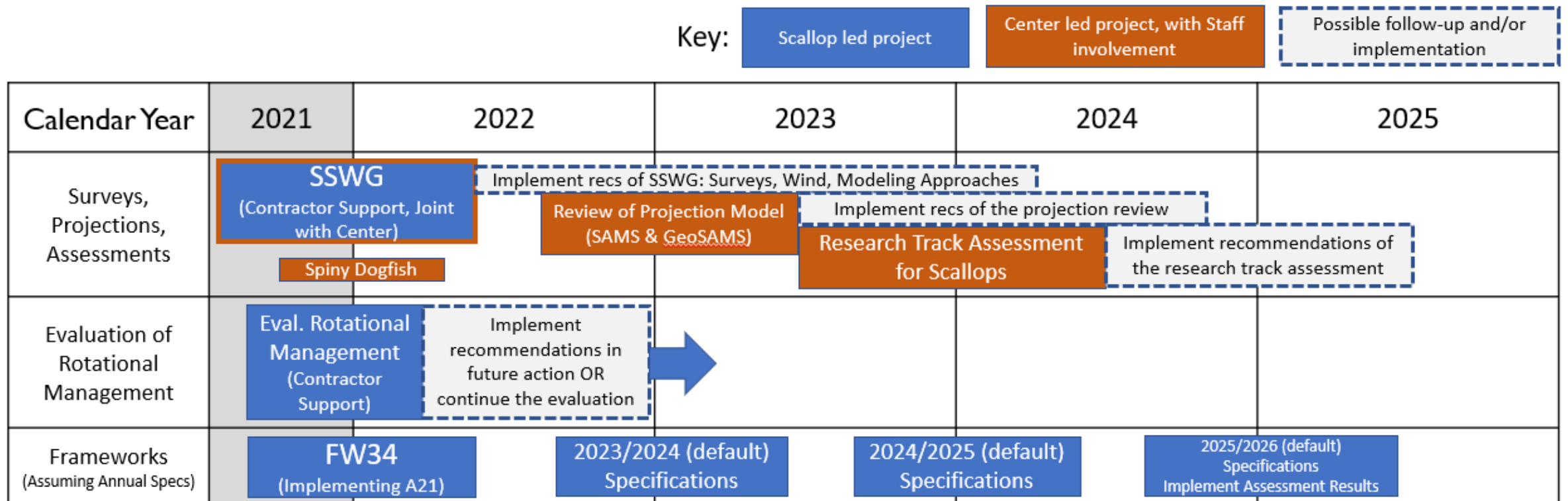Fishery Management Council

Presentation Plan

- Jonathon - Outlook for Assessment Related Work, Framework 34 Overview, Management Background, TOR introduction

- Dr. Dvora Hart – Projection analyses, OFL/ABC methods, 2022 & 2023 OFL/ABC. (slides 13-20)

Outlook for Scallop Assessment Related Work

Several projects planned for the next few years that are likely to directly address issues that have emerged in recent years.

Planned Work and Multi-year Scallop FMP outlook

Key:
- Scallop led project
- Center led project, with Staff involvement
- Possible follow-up and/or implementation

Calendar Year	2021	2022	2023	2024	2025
Surveys, Projections, Assessments	SSWG (Contractor Support, Joint with Center)	Implement recs of SSWG: Surveys, Wind, Modeling Approaches — Review of Projection Model (SAMS & GeoSAMS) — Spiny Dogfish	Implement recs of the projection review — Research Track Assessment for Scallops	Implement recommendations of the research track assessment	
Evaluation of Rotational Management	Eval. Rotational Management (Contractor Support)	Implement recommendations in future action OR continue the evaluation			
Frameworks (Assuming Annual Specs)	FW34 (Implementing A21)	2023/2024 (default) Specifications	2024/2025 (default) Specifications		2025/2026 (default) Specifications Implement Assessment Results

Framework 34 (FW34)

OFL and ABC – The same control rules developed in A15 and used for FW21-33, with updated survey and fishery data

- OFL - equivalent to the catch associated with Fmsy (F=0.61)
- ABC control rule – catch set at 75% probability of remaining below the F associated the OFL (F=0.45). Risk is evaluated in terms the probability of overfishing compared to the fraction loss of yield.

The fishery has not exceeded ABC/ACL since A15

Stock status: Not overfished and overfishing not occurring

Fishery Specifications for 2022

- No Action – 18 DAS, 1 access area trip in Mid-Atlantic Access Area, ~1.5 mil lbs for LAGC IFQ.

- Considering access in rotational areas:
  - Closed Area II & Nantucket Lightship South

- Likely implementation April 1, 2022.

Proposed FY 2022 ACL (F=0.45) ~63.2 million lbs

"Spatial Management" FY 2022 Possible Landings (TBD < ACL)
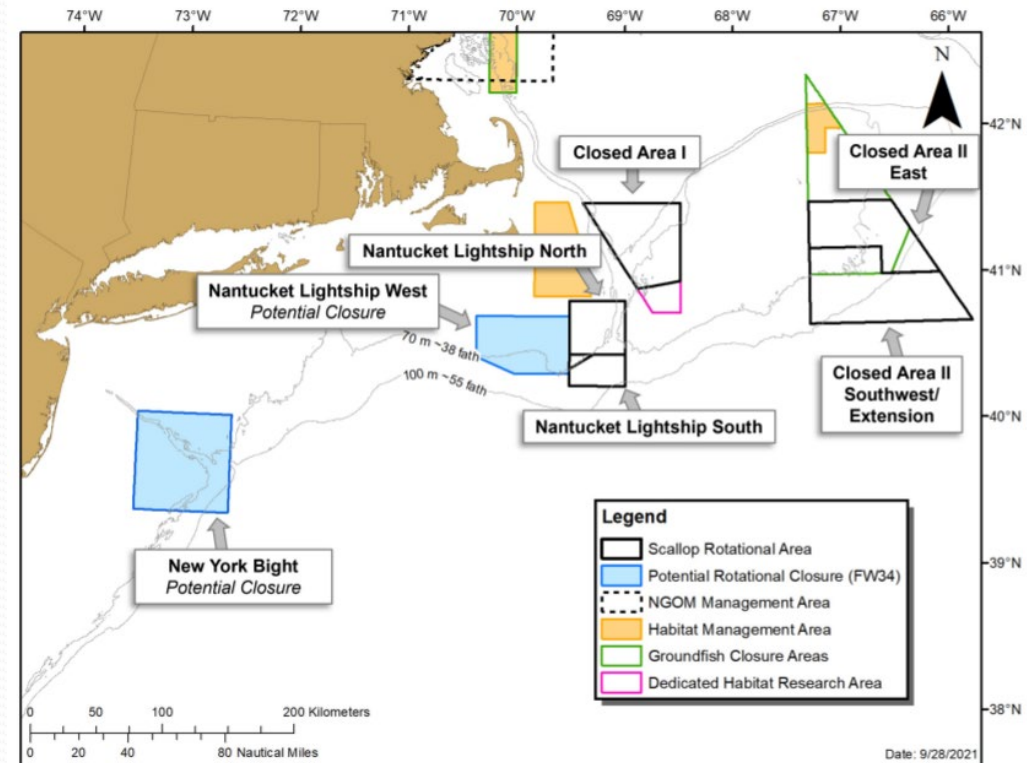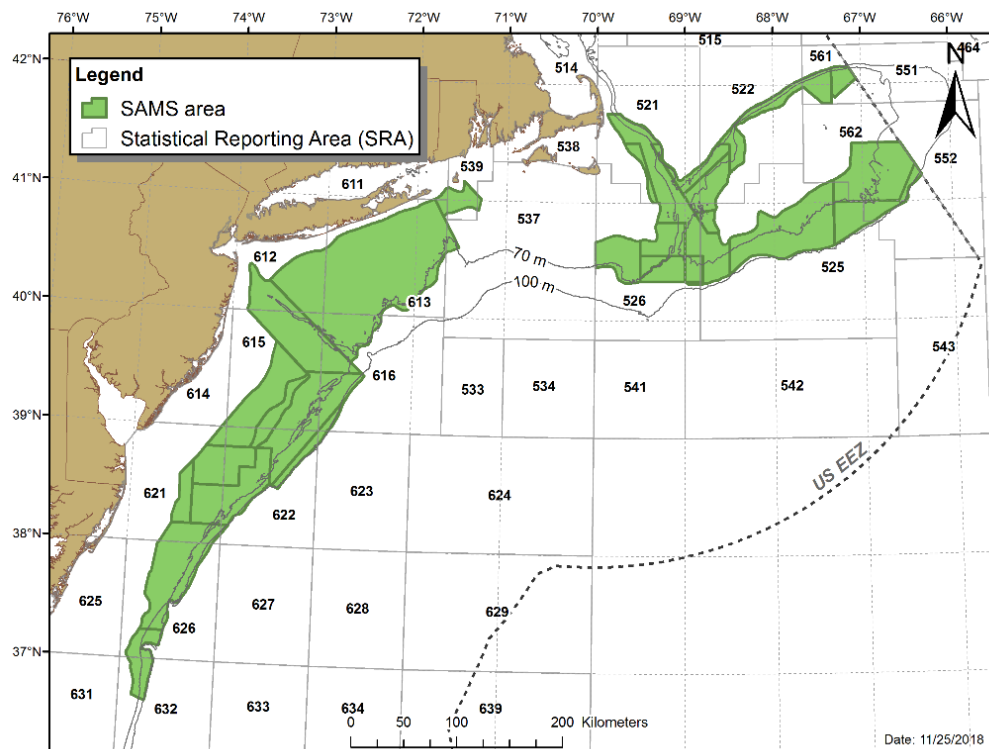
Recent OFL & ABC (GB & MA)
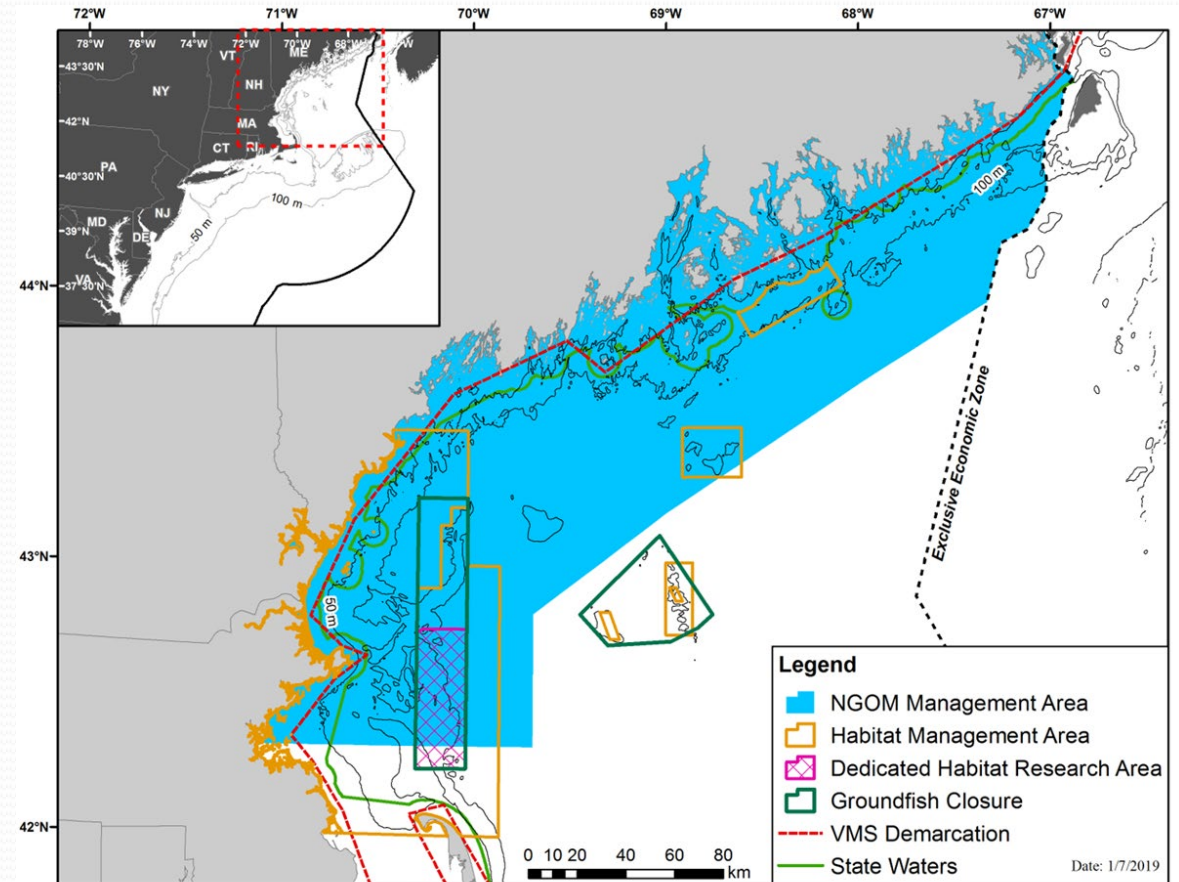
OFL & ABC (2011-2022) in pounds
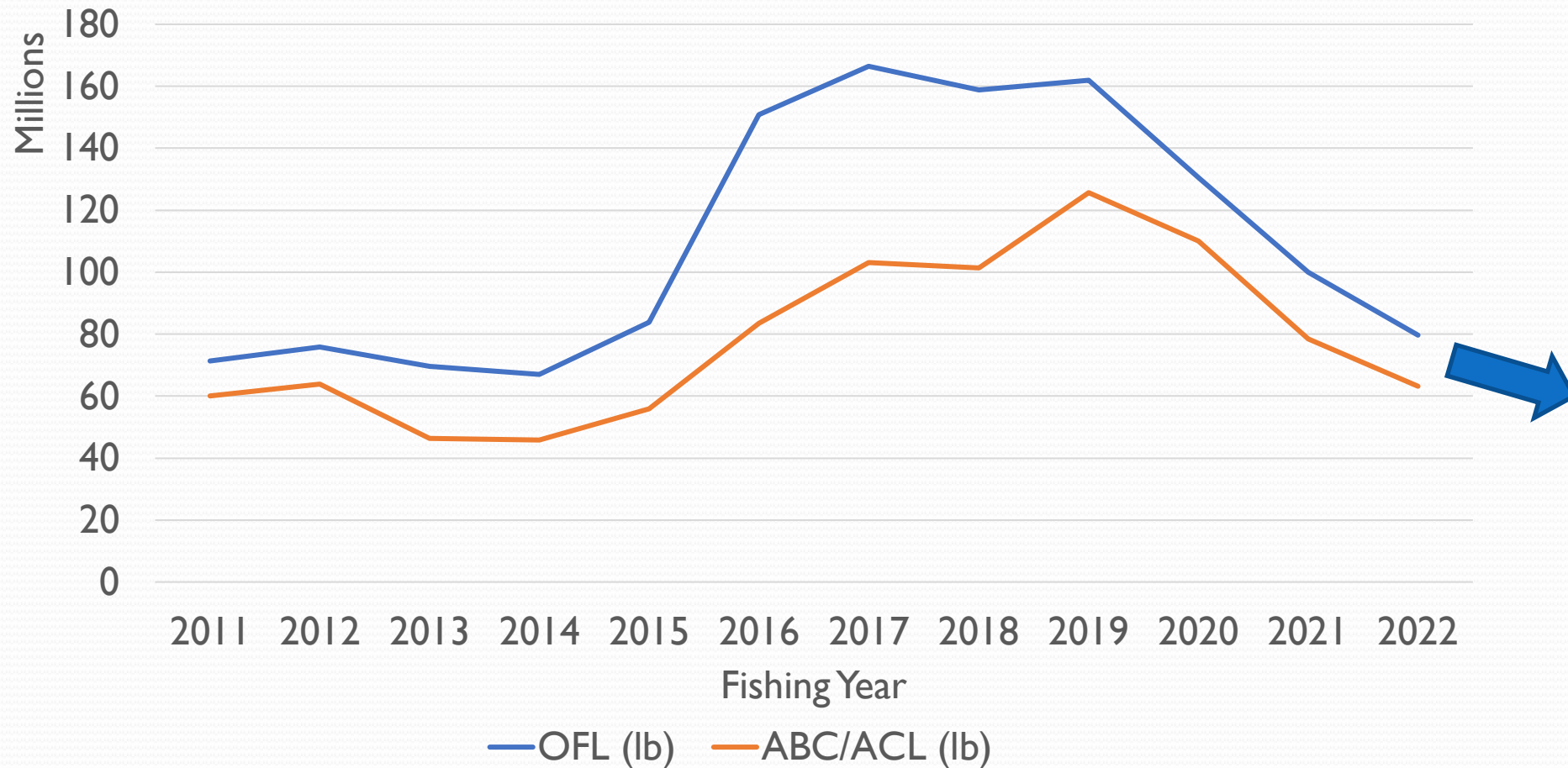
SSC Action on FW34 - TORS

1. Review information provided by the Scallop PDT on **changes to scallop meat weights** and **dredge efficiency** used to develop 2021 survey estimates and **growth and selectivity parameters** used in the Scallop Area Management Simulator (SAMS) model to project biomass. Provide the Council with a recommendation as to whether these changes are appropriate.

2. Consider if the biomass estimates developed by PDT for areas of the **Gulf of Maine** that have been surveyed but are outside of the NGOM and the current Georges Bank scallop survey strata are appropriate to include in the biomass estimates for the resource as a whole in developing 2022 and 2023 OFL and ABC estimates.

3. Using reference points updated by the 2020 management track assessment, and considering the Council's Risk Policy Statement, review the Scallop PDT's updated projections for the scallop resource, including estimates from the Gulf of Maine and Northern Gulf of Maine management unit, and **provide the Council with OFL and ABC recommendations using the Council's ABC control rule for fishing years 2022 and 2023 (default).**
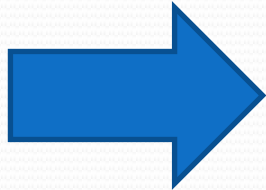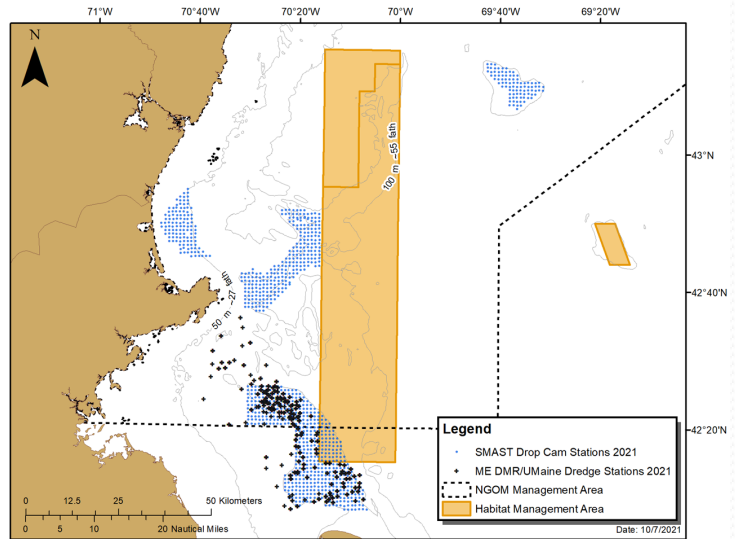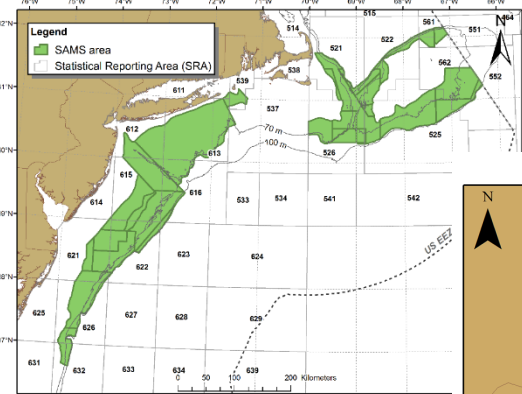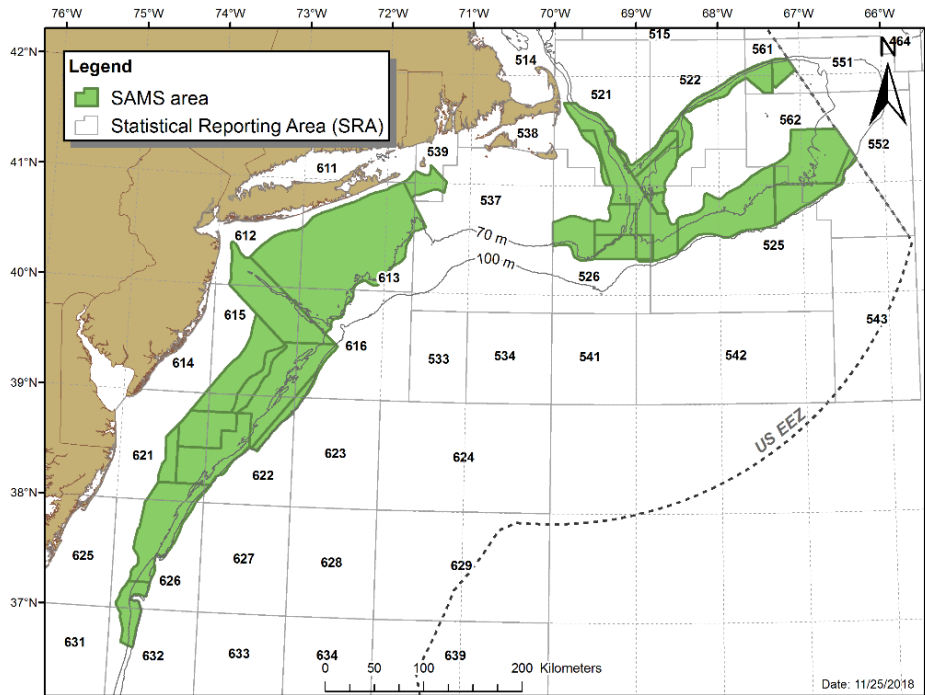
FW34 – Transition in Calculating OFL & ABC

- NEW: Council Action, more areas contributing to OFL + ABC

- Amendment 21 (2020) modified management of the scallop resource in the Northern Gulf of Maine Management Area (NGOM), shown in blue on the map.

  - Biomass from NGOM management unit now included in the OFL and ABC.

- WHY THIS YEAR? Framework 34 is the management action that is implementing measures from Amendment 21.

Legend
- NGOM Management Area
- Habitat Management Area
- Dedicated Habitat Research Area
- Groundfish Closure
- VMS Demarcation
- State Waters

Date: 1/7/2019

Old way:
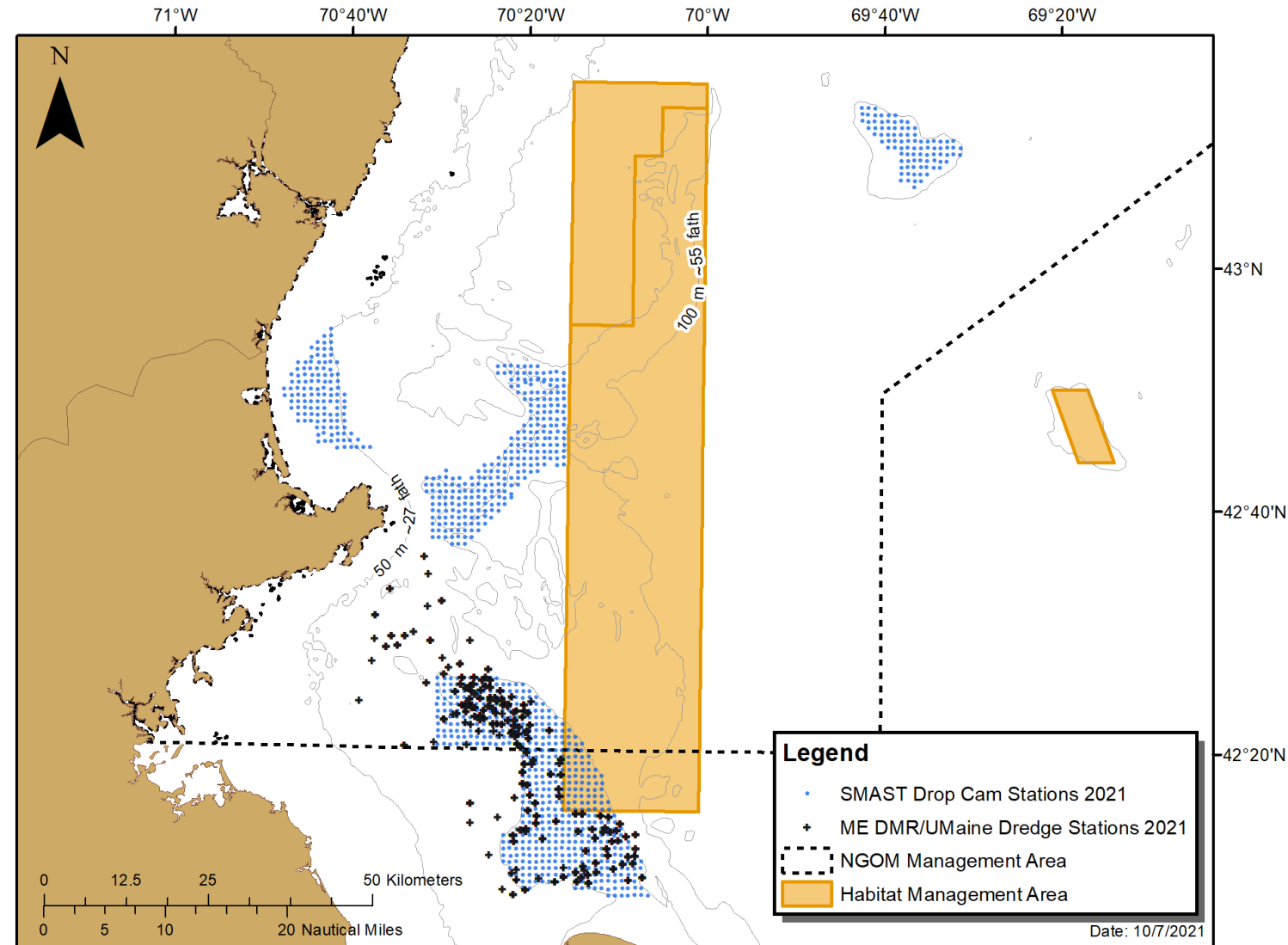**OFL & ABC from Georges Bank and Mid-Atlantic Only**

FW34:
GB & MA + New areas from the GOM

Gulf of Maine

- Gulf of Maine is considered data poor for scallops. No reference points.

- Survey time series is growing, supported through the RSA.

- No survey strata for the area, dredge and drop camera coverage in 2021

- Surveys inside NGOM management unit, surveys in GOM outside of NGOM

- Scallop population increased in recent years, Stellwagen Bank area. Growing fishery.


2021 Scallop Survey Coverage in GOM

Legend
- SMAST Drop Cam Stations 2021
- ME DMR/UMaine Dredge Stations 2021
- NGOM Management Area
- Habitat Management Area

Date: 10/7/2021

Contribution to 2022 OFL + ABC
(values in mt)

	OFL	ABC
NGOM Stellwagen	741	560
NGOM Other Platts, Jeffreys, Ipswich	166	124
TOTAL NGOM	907	684

	OFL	ABC
Stellwagen South	239	180
WGOM	990	739
TOTAL GOM	1,229	919

	OFL	ABC
GB & MA	36,135	28,702
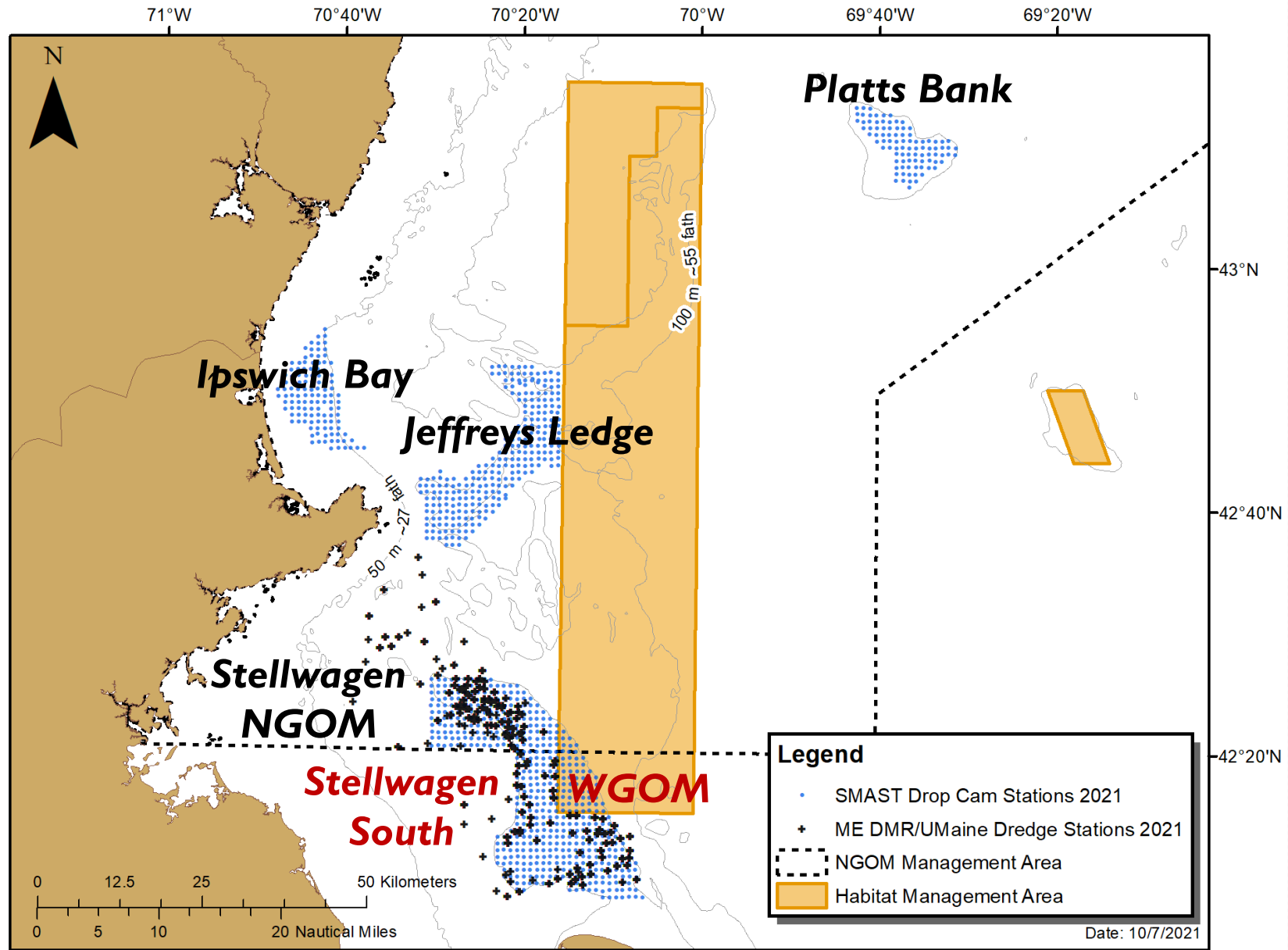
Adding GOM would have a small impact on fishery allocations for 2022.

TOR#1

PDT is recommending four data adjustments that impact the OFL/ABC estimates:

- Adjustments to **SH-MW parameters** and **dredge efficiency** in the **NLS-South Area**.

- Applying **fishery selectivity in the NLS-South** that better reflects the size distribution of scallops that will be in the fishery.

- Reducing **growth** expectations in most areas to account for slower than expected growth/overly optimistic projections.
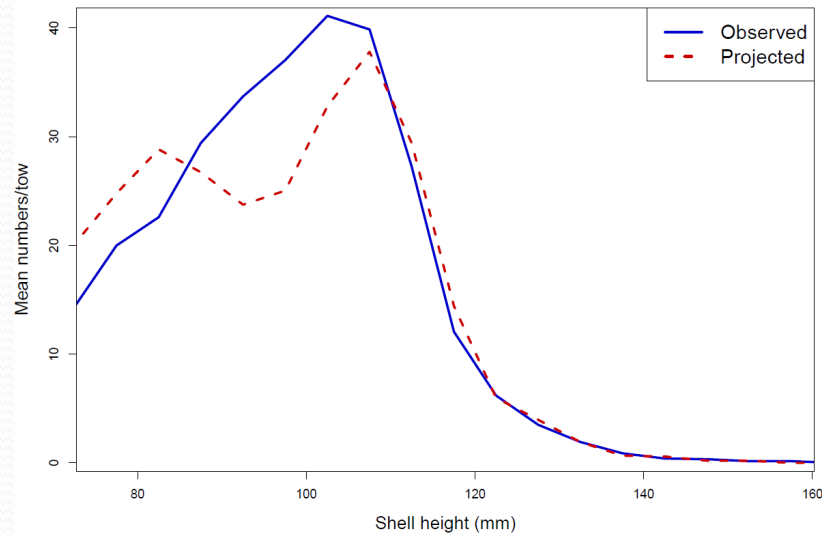

NLCA3   Temperature: 7.47°C   40.414807N 69.243668W
Station: 309   Quadrat: 1   Depth: 36.75 Fathom   11:16:15.000 AM 7/10/2019
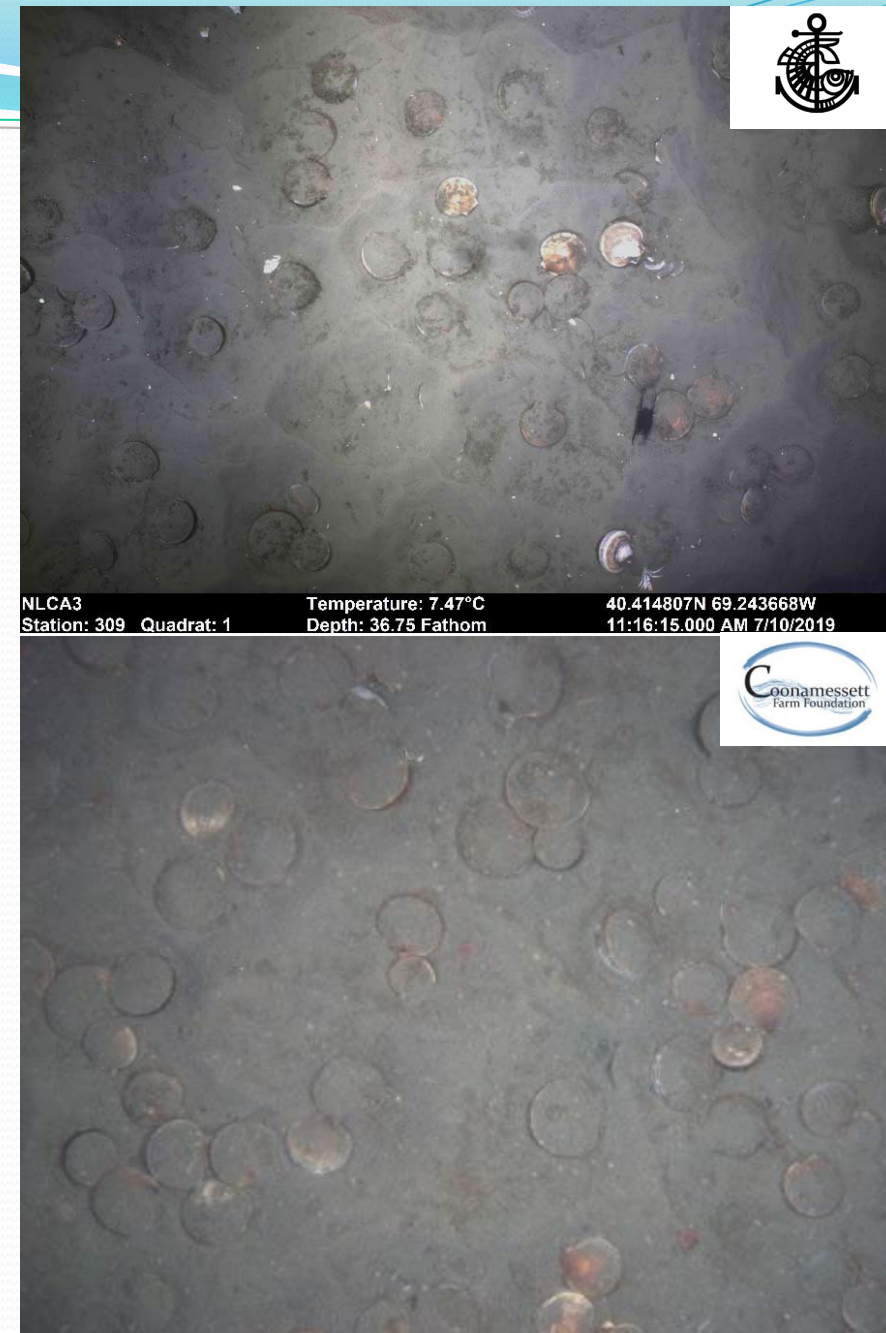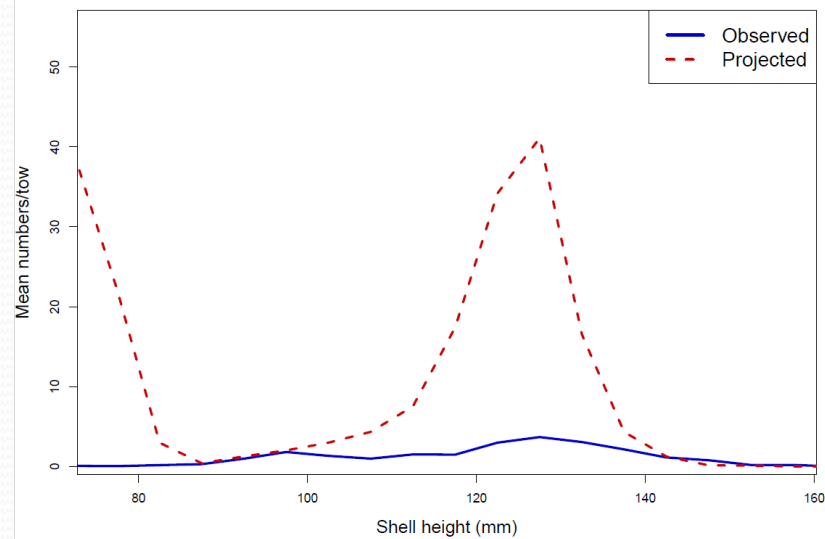
Dr. Dvora Hart

Comparison of Projections and Survey Estimates

2021 Survey Results compared to 2021 projections from 2020 data. Growth parameters were reduced in the 2020 and 2021 projections, consistent with 2020 management track assessment.
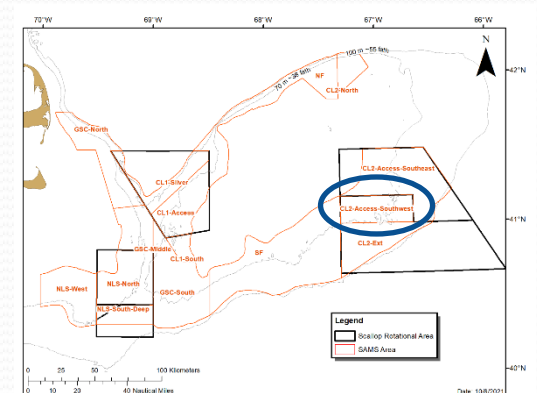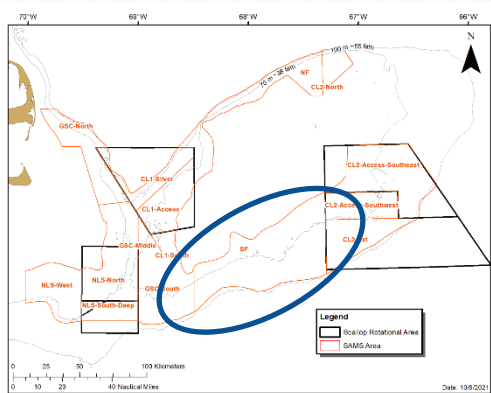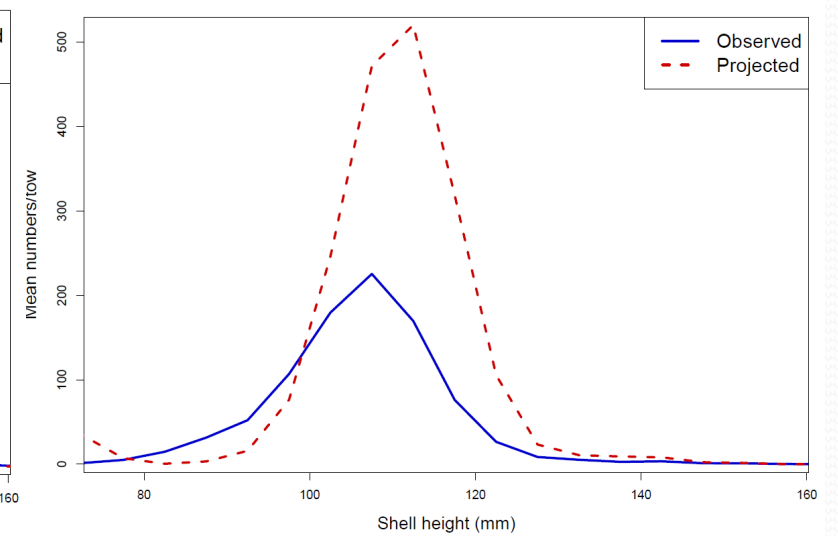
Comparison of Projections and Survey Estimates

The % error is calculated as 100*(predicted - observed) /predicted. Positive errors mean the projection was an overestimate, and negative is an underestimate.
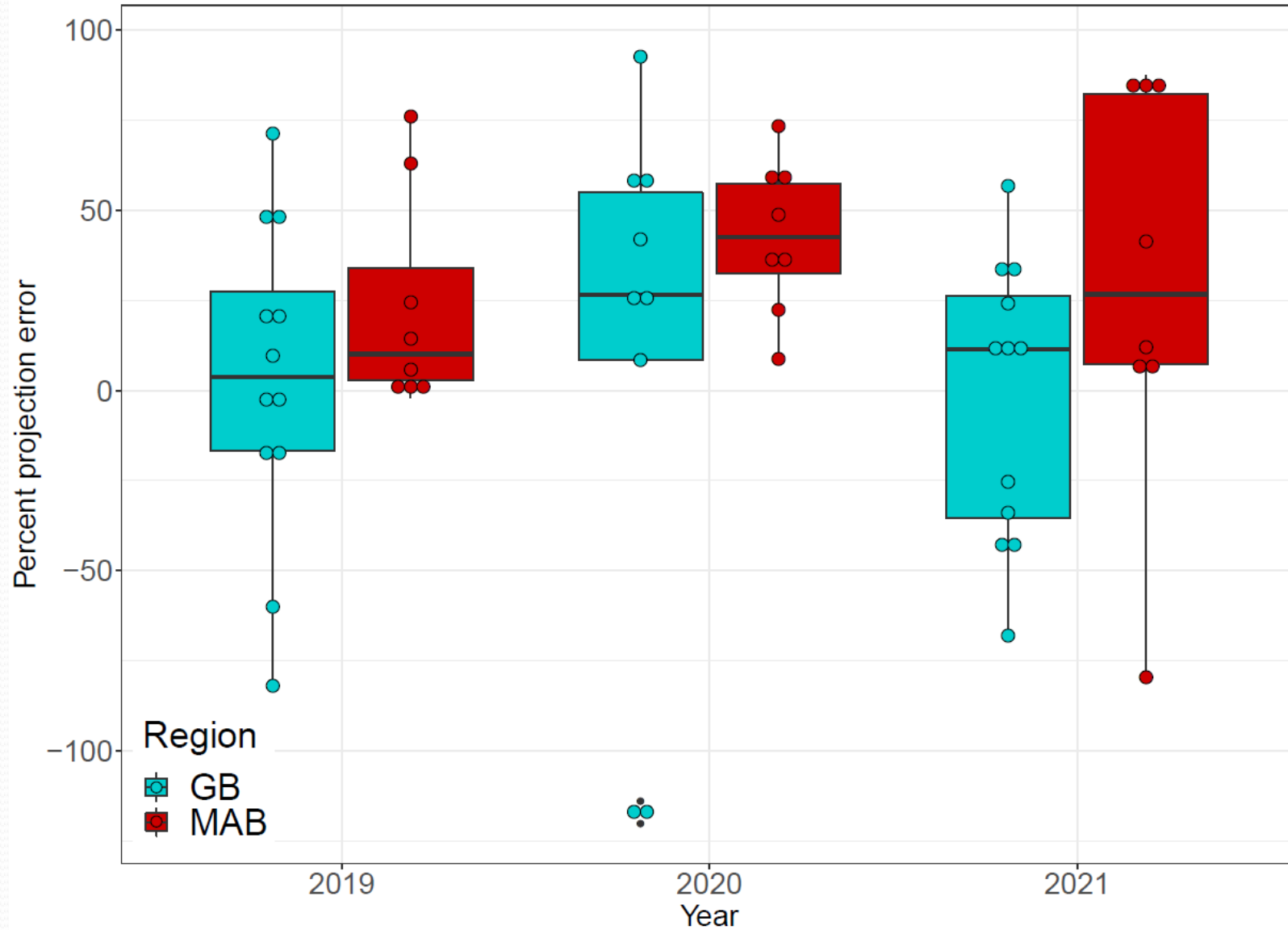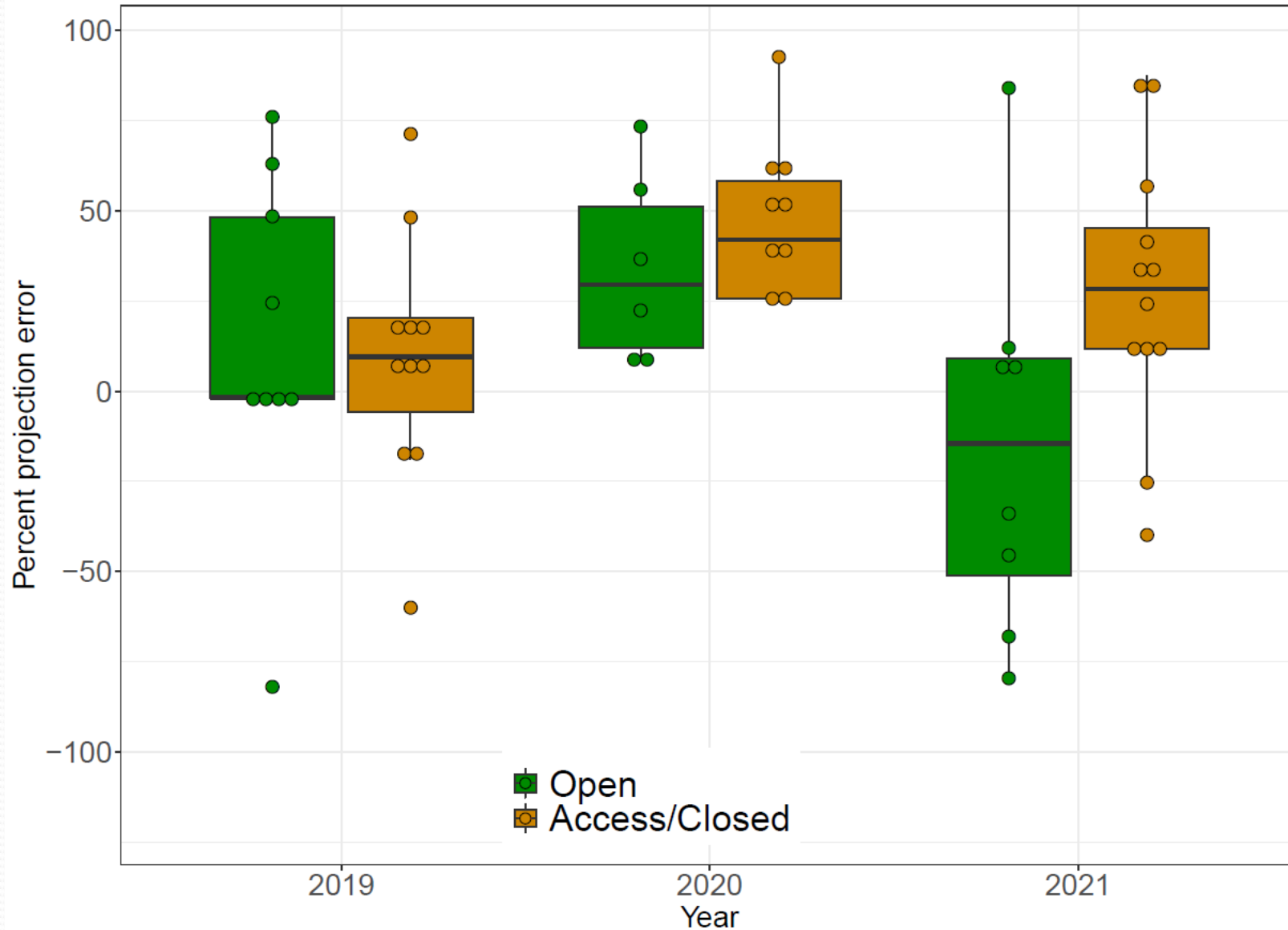
# Comparison of Projections and Survey Estimates

The % error is calculated as 100*(predicted - observed) /predicted. Comparison of AA and Open Areas.

Combined Mid-Atlantic/Georges Bank F_{MSY} for Sea Scallops

The F_{MSY} for the Mid-Atlantic and Georges Bank is a compromise between the higher F_{MSY} in the Mid-Atlantic and the estimate of $F_{MSY} = 0.46$ in Georges Bank. The higher F_{MSY} in the Mid-Atlantic is due to sea scallops there having higher K and M, but lower L_∞.
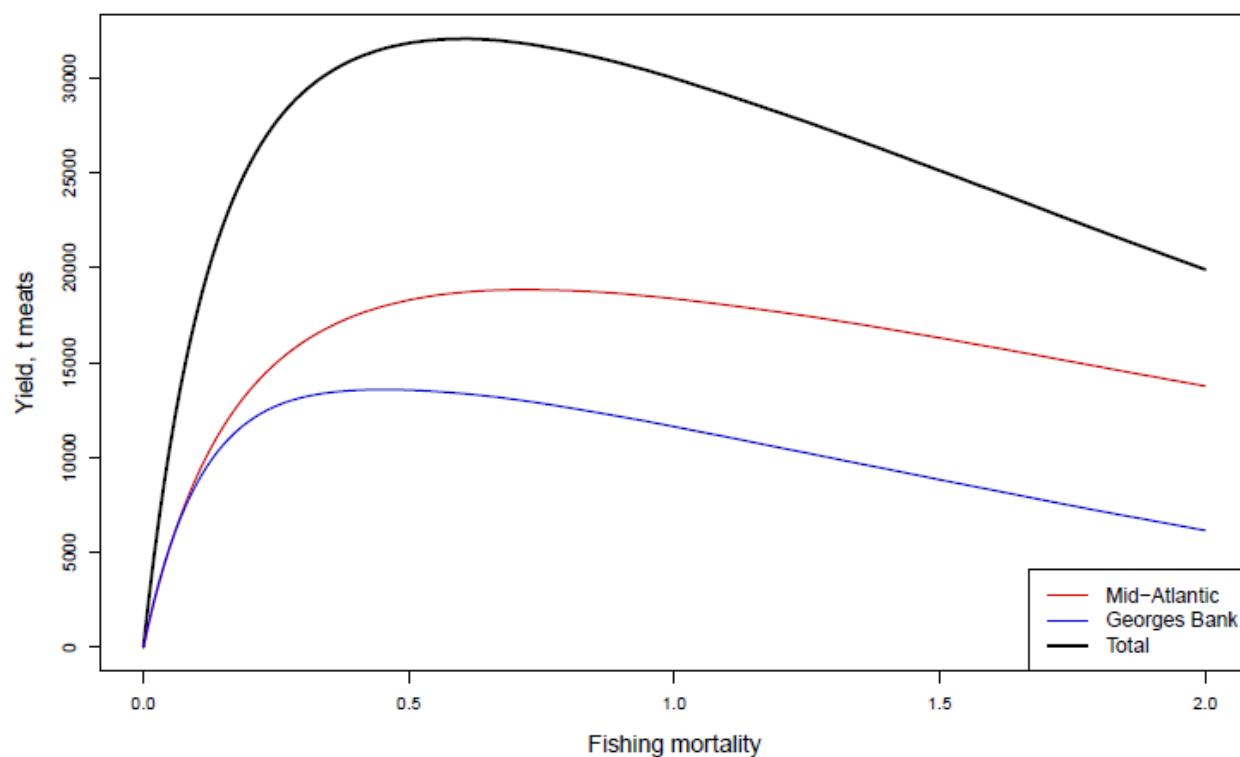
ACL/OFL methods for Mid-Atlantic and Georges Bank Sea Scallops

- The SAMS model was initialized to 2021 survey data and projected to 2022 based on 2021 management measures.

- ACL landings were calculated by assuming $F = 0.45$ in all areas in 2021 and 2022. Discards/incidental mortality were estimated as $0.05FB$ in the Mid-Atlantic, and $0.1FB$ on Georges Bank, based on estimates from the 2018 benchmark assessment.

- OFL landings in 2022 were calculated by assuming $F = 0.61$ in all areas. Discards were calculated similarly to the ACL. ACL/OFL landings in 2023 were calculated by assuming $F = 0.45$ in 2022, and then $F = 0.45$ or 0.61 in 2023.

Developing ACL/OFL methods for GOM Sea Scallops

GOM scallops were not considered in the calculation of F_{MSY}, nor are there accepted reference points for the GOM. Recent estimates of growth parameters in the GOM (Hodgdon et al. 2020) indicate that L_∞ there is higher than on GB, which is in turn higher than MA, and K is lower in GOM than on GB which is lower than MA.

This suggests that F_{MSY} in GOM is no higher than that on GB, and perhaps lower. Until the next benchmark assessment, we propose to use the estimate of F_{MSY} on GB (0.46) as a proxy for that in GOM, and the F rate corresponding to the ACL target on GB (0.32) for use in the GOM. Shell height to meat weight parameters were estimated from 2021 dredge data for the Stellwagen area, and from 2019 dredge data for the other areas.

Based on these ideas, ACLs and OFLs were calculated for the GOM in a similar manner as in other areas, except using F targets of 0.32 for the ACL and 0.46 for the OFL.

OFL & ABC for 2022 & 2023

	2022 Values	ABC	%increase	OFL	%increase
PDT recommendation	NGOM + GB & MA	29,386		37,042	
TOR2 question	Adding GOM	30,305	3.0%	38,271	3.2%
	2023 Values	ABC	%increase	OFL	%increase
PDT recommendation	NGOM + GB & MA	26,906		34,007	
TOR2 question	Adding GOM	27,606	2.5%	34,941	2.7%