Recent Scallop PDT Meeting Summaries

New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
John F. Quinn, J.D., Ph.D, *Chairman* | Thomas A. Nies, *Executive Director*

DRAFT MEETING SUMMARY

Scallop PDT Meeting

October 1, 2019
Hyatt Hotel, Braintree, MA

The Scallop PDT met in Braintree, MA on October 1, 2019 to: 1) review FY 2020 and FY 2021 (default) OFL & ABC estimates; 2) review progress on Framework 32 alternatives and analyses and prepare for the SSC meeting on October 17, 2019; 3) continue development of Amendment 21 to the Scallop Fishery Management Plan; and, 4) discuss other business.

MEETING ATTENDANCE: Jonathon Peros (PDT Chair), Sam Asci, Dr. Naresh Pradhan, Dr. Rachel Feeney, Dr. David Rudders, Travis Ford, Ben Galuardi, Chad Keith, Michael Kersula, Dr. Dvora Hart, Dr. Cate O'Keefe, and Tim Cardiasmenos. Vincent Balzano, Scallop Committee Chair, was in attendance along with approximately 5 members of the public.

The meeting began at 9:37 am. Following roll call, Council staff briefly reviewed the agenda. Meeting materials are available at this link on the Council's website: https://www.nefmc.org/calendar/oct-1-2019-scallop-plan-development-team-meeting

Framework 32: Discussion & Key Outcomes

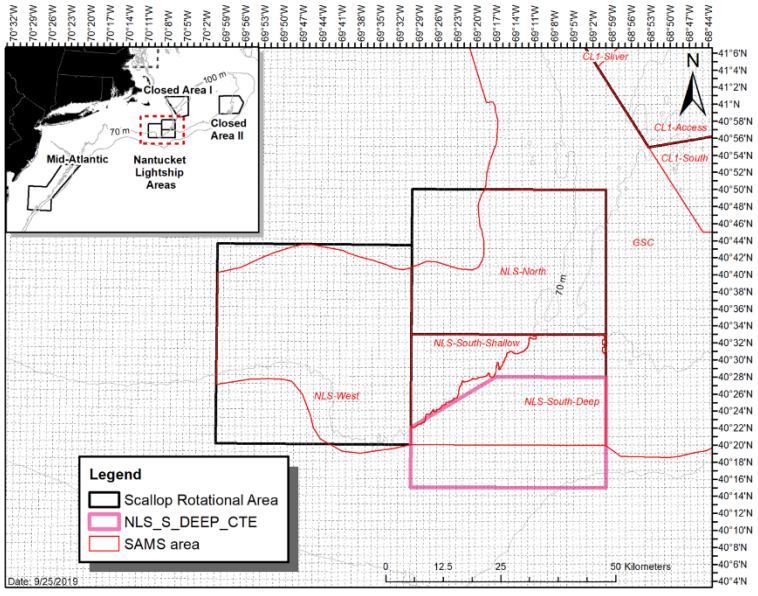
1. The PDT reviewed OFL and ABC estimates for FY 2020 and 2021, and recommended that they be advanced to the SSC for review.

Year	ABC-Land	ABC-Disc	ABC-Tot	OFL-Land	OFL-Disc	OFL-Total
2020	45414	5046	50460	53224	5962	59186
2021	36435	3995	40430	42790	4713	47503

2. The PDT noted that there are several reasons for the decline in OFL and ABC estimates between 2020 and 2021:
    a. Strong 2012 & 2013 year classes are being fished.
    b. Areas that were formally closed (before OHA2) are now being fished.
    c. Substantial mortality event in the NLS-West area.
    d. An extended period of low recruitment.
    e. Follow up: Produce new CASA results, which will include 2018 estimates of recruitment. How does 2018 recruitment compare to other years in the time series?

3. For FW32, the PDT plans to update the current LPUE model that was approved in SARC 65 with another year of data. Dr. Hart has been working on a new LPUE model that uses abundance and area as variables but said that it needed more work, which will likely not be ready for FW32.
4. The PDT discussed the current scallop survey dredge strata and noted that there are currently strata that appear to cover areas of both low and high scallop productivity. Strata should be relatively homogenous with regard to scallop productivity, and the PDT supports updates and modifications to the current dredge survey stratification.
5. The PDT discussed scallop dredge efficiency in high density areas, and noted that work continues to be done on this issue (NEFSC and RSA supported efforts). The PDT supports the development of criteria to determine when an area would be considered high density. SARC 65 reduced dredge efficiency in high density areas by two thirds (from 0.4 to 0.13).
6. The PDT noted that there are elements of the annual specifications process that can be continuously improved, such as the LPUE model that is used to determine LA DAS allocations. The PDT was supportive of utilizing peer-review processes to evaluate model updates in the future.
7. The PDT recommended a new management boundary for the NLS-S-deep area (Figure 1). The PDT also recommended that the existing NLS-S-shallow and NLS-S-deep SAMS areas be used for projection purposes. In summary, there will be a new management boundary in the NLS-S-deep, but no modifications to SAMS areas.
8. The PDT discussed several options for partitioning the existing Closed Area II Access Area to protect small scallops and mitigate impacts on Georges Bank yellowtail flounder. See post meeting analyses.
9. The PDT discussed several options for closures on Stellwagen Bank (inside and outside the NGOM). The group noted that this is a particularly small area, and small-scale closures could be difficult to enforce.

Figure 1 – NLS-S-deep management boundary is shown in pink below. This area extends an additional 5 nmi south of the area the former NLS-S boundary.



PDT Recommended SAMS Run

10. The PDT developed the following SAMS projection run. The group considered 2019 survey information and Committee tasking during its discussion.

	PDT Run
Open area F	**F=0.23**
FT LA trip limit	**18,000**
CL1-Access	1/2 FLEX Trip to MAAA
CL1-Sliver	
CL1-South	CLOSED
CL2-North (HAPC)	CLOSED
CL2-AA-closure	CLOSED
CL2-Access-EAST	1 AA Trip
CL2-Ext	CLOSED
NLS-North	1/2 AA trip
NLS-South-Shallow	
NLS-West	OPEN BOTTOM
NLS-South-Deep	1 AA Trip
NF	OPEN BOTTOM
GSC	OPEN BOTTOM
SF	OPEN BOTTOM
BI	OPEN BOTTOM
LI	OPEN BOTTOM
NYB	OPEN BOTTOM
MAB-Nearshore	OPEN BOTTOM
HCS	2 AA trips
ET Open	
ET Flex	
DMV	OPEN BOTTOM

Amendment 21 Discussion – Key Outcomes:

11. GARFO staff explained that there could be opportunity to streamline access area/management area closures in the General Category fishery by bypassing notice in the FR to close an area. The net result of this kind of change would be to reduce workload.
12. With regard to the allocation split, the PDT discussed Committee tasking and reviewed work that was presented to the Scallop Advisors and Committee.

a. For allocation share alternatives, Council and GARFO staff explained that NGOM management measures established in Amendment 11 would be considered the No Action alternative. Under this scenario, the LA component could fish DAS in the area, the General Category TAC would be set in annual specifications, and the area would close to all scallop vessels once the General Category TAC is reached.
b. The PDT plans to continue to develop the strawman option that was presented at the September 18 & 19, 2019 Scallop AP and Committee meetings.
c. The group noted that there could be legal implications of keeping the NGOM outside of the OFL and ABC since the stock is managed as a single unit throughout its range.
d. It was suggested that there may be value in outlining the full range of goals and objective of Amendment 11.
e. With 347 LA permits in the fishery, the PDT noted that allocating equitably to this component of the fishery could be challenging at a lower level of biomass.
f. The PDT recommends building in flexibility to allow the Council to make management decisions about how allocations are fished in the NGOM management area in Framework actions.

13. Council staff explained that the AP and Committee were seeking additional information about movement between LAGC permit categories. See post meeting analyses.

Other Business:

Mr. Ron Smolowitz spoke to the concept of moving small scallops from the NLS-S-deep to the NLS-S-shallow. He suggested that this would take action from the Council and the agency, and proposed a strawperson of how it might be done. Mr. Smolowitz suggested that the small scallops could be moved a few miles out of the deep water into a shallower portion of the NLS region where they might grow better using trawl nets (vs. dredges). The concept included requiring observers during the transplanting and using the existing observer set-aside to fund the work. There was no PDT discussion on this topic. Council staff stated that if this idea comes forward again at the AP or Committee, it would be useful to have the details of such an effort written up. The meeting concluded at 3:48 PM.

Post-Meeting Analyses

The Scallop PDT identified follow-up work during the October 1, 2019 meeting. The following analyses and information were completed shortly after the meeting:

Recruitment event on Stellwagen Bank – Small scale closures and sand dollars

- In response to Committee tasking, the PDT discussed several options for potential closures on Stellwagen Bank (see Figures below). The PDT felt that a targeted closure on Stellwagen could be difficult to enforce (Figure 6).
- During the meeting Mr. Michael Kersula noted that the ME DMR/UMaine dredge survey encountered sand dollars in an area where recruitment was observed south of the WGOM closure (north of Provincetown). It was hypothesized that the presence of sand dollars may have impacted the catch of scallops in the survey dredge, and therefore recruitment in this area could be underestimated by the dredge survey. Mr. Kersula reviewed survey data and produce the graphic shown in Figure 2.

Figure 2 - Catch of sand dollars in the 2019 ME DMR & UMaine Dredge Survey

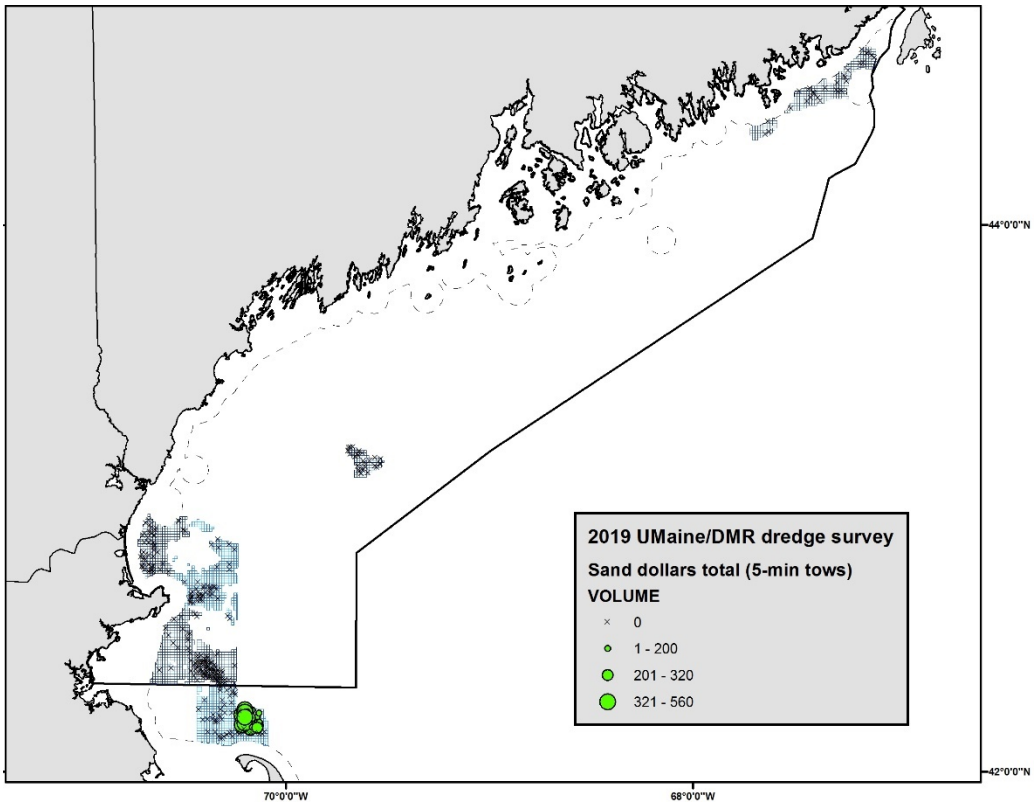


Figure 3 -"Stellwagen North" closure. Covers entirety of Stellwagen north of 42° 20'. Stellwagen south of 42° 20' remains open to LA/LAGC.

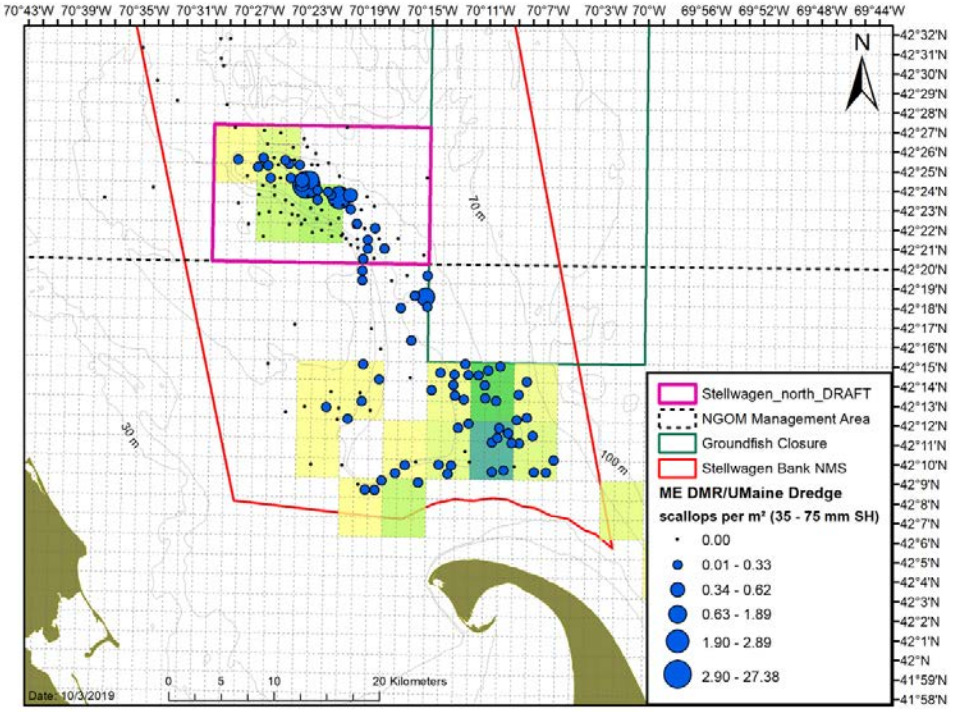


Figure 4 - "Stellwagen North v.2" closure. Covers entirety of Stellwagen north of 42° 15'. Stellwagen south of 42° 15' remains open bottom to LA/LAGC.

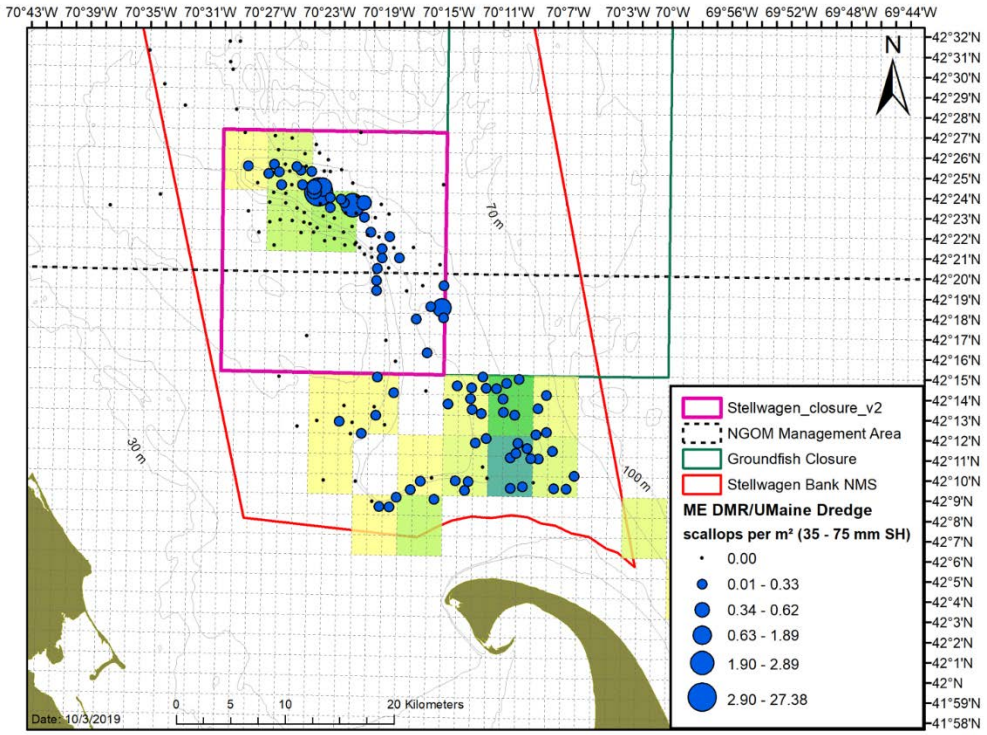


Figure 5 -"Stellwagen North v.3" closure. Covers entirety of Stellwagen north of 42° 15' and includes area directly south of WGOM closure where recruits were observed.

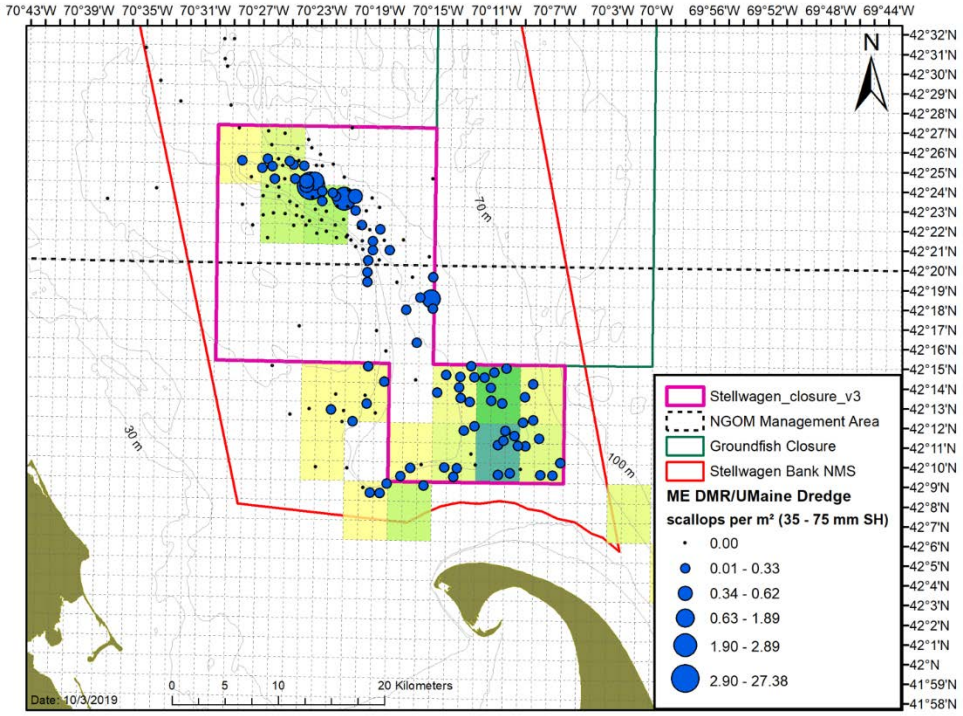


Figure 6 - -"Stellwagen North v.3" closure. Covers entirety of Stellwagen north of 42° 15' and includes area directly south of WGOM closure where recruits were observed (slightly smaller than v.3 – opens up three 3-minute squares).

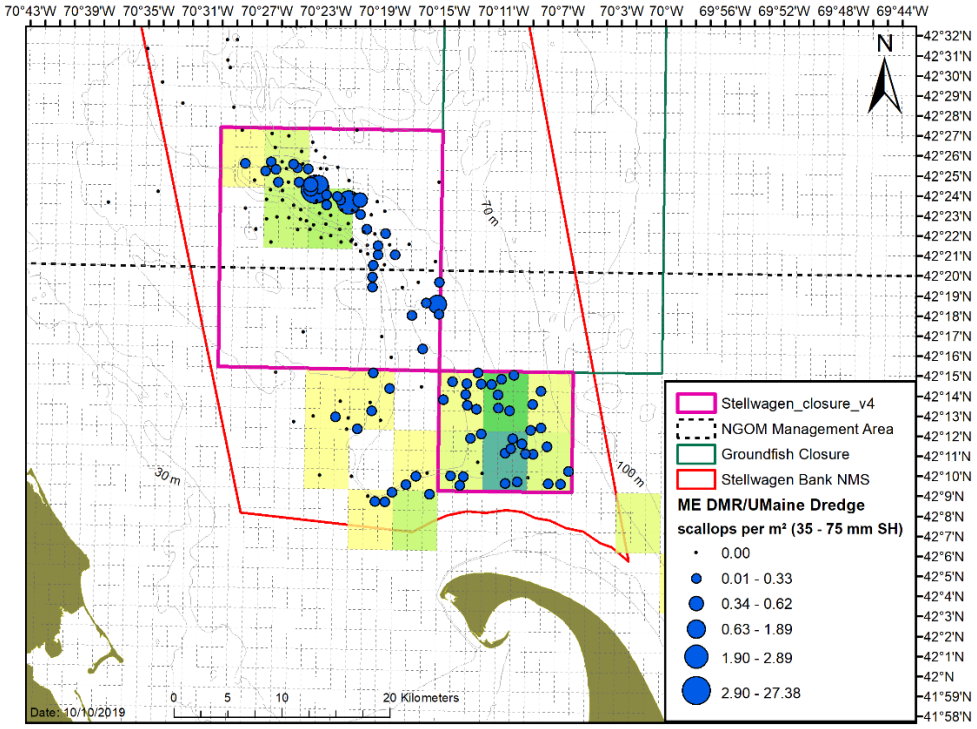
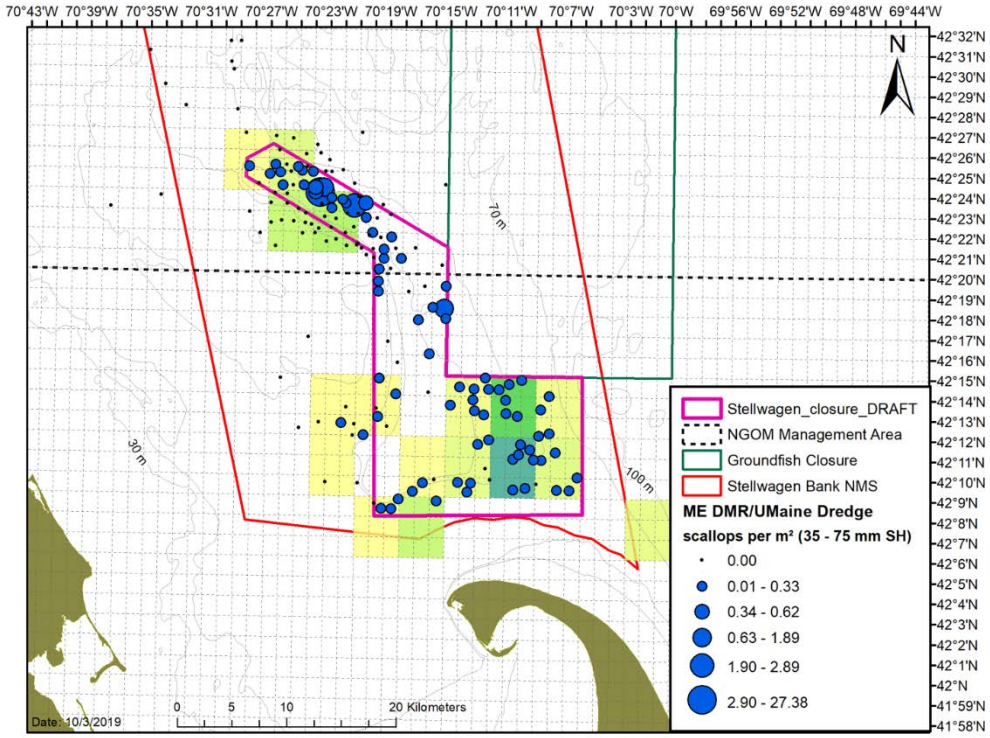


Figure 7 - Stellwagen Recruit - Targeted Closure. Covers areas of Stellwagen where majority of recruits were observed. Leaves western edge north of 42° 20' available to fish.



LAGC Permit Information

The PDT reviewed the following information about movement between LAGC permit categories, focusing on the switching permanently from LAGC A (IFQ) to LAGC B (NGOM), and switching between LAGC B (NGOM) and LAGC C (Incidental) permits at the time of renewal.

As of May 21, 2019 there were 425 incidental/NGOM rights (LAGC Category B/C). There were 107 Category B (NGOM) and 237 Category C (Incidental) active permits (not in CPH) at the end of 2018 (March 31, 2019). Summary of permit switching from 2009-2019 (11 years) is in Table 1:

- 17 permits converted from IFQ (A) to NGOM/Inc (B/C)
- 13 shifts from incidental to NGOM
- 4 shifts from NGOM to incidental

The PDT felt that it was important to understand the number of LAGC IFQ (A) permits that have zero allocation (Table 2).

Table 1 - Summary of LAGC conversions and switches between FY 2008 and FY 2019.

Year	Conversion from A to B/C	From B to C Within a year	From C to B Within a year	From B to C Across Years	From C to B Across Years
2008	-	-	-	-	-
2009	0	0	0	0	3
2010	0	0	0	0	1
2011	1	0	0	0	0
2012	1	0	0	2	2
2013	2	0	0	0	0
2014	6	1	1	1	0
2015	0	0	2	0	0
2016	0	0	0	0	0
2017	3	0	0	0	1
2018	3	0	0	0	1
2019	1	0	1	0	1

Table 2 - Number of Scallop LAGC IFQ (A) MRIs with zero base allocation.

FY	MRI
2011	7
2012	5
2013	28
2014	46
2015	49
2016	66
2017	88
2018	87
2019	94

Potential Closures of Closed Area II Access Area and Surrounds

The Scallop Committee tasked the PDT with developing a targeted closure on Eastern Georges Bank that could be used to protect small scallops. An added benefit could be that such a closure could reduce impacts on Georges Bank yellowtail flounder.

Figure 8 - "CAII-West" closure. Focuses access in eastern peak of CAII and maintains CAII-ext and SF as open bottom.

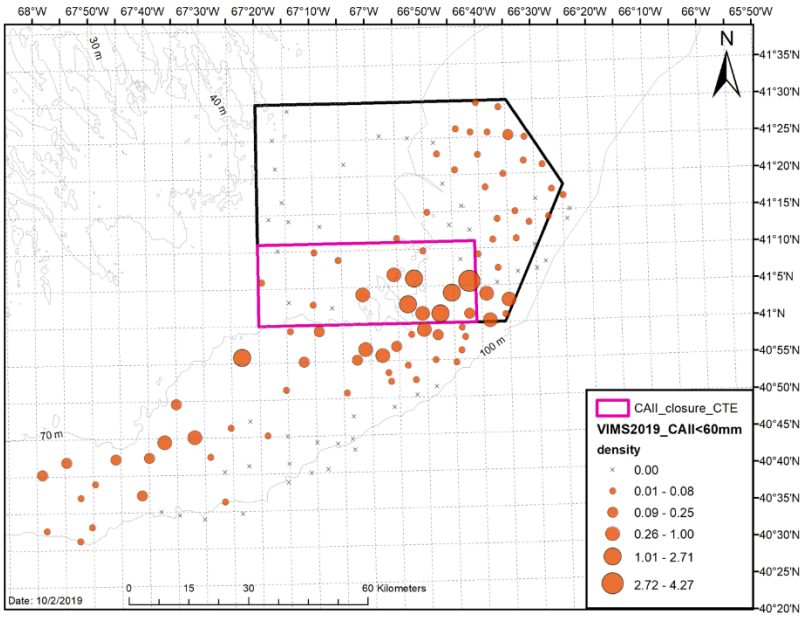


Figure 9 -Plot of the shell heights in CAII-S, inside and outside the proposed closure (Figure 8). Notes: It looks that the CAII-West closure is well designed, with almost all the 2 year olds inside, and most of the adults outside. The scallops in the proposed closure grow a bit faster than those on the outside, likely because of the shallower depth.

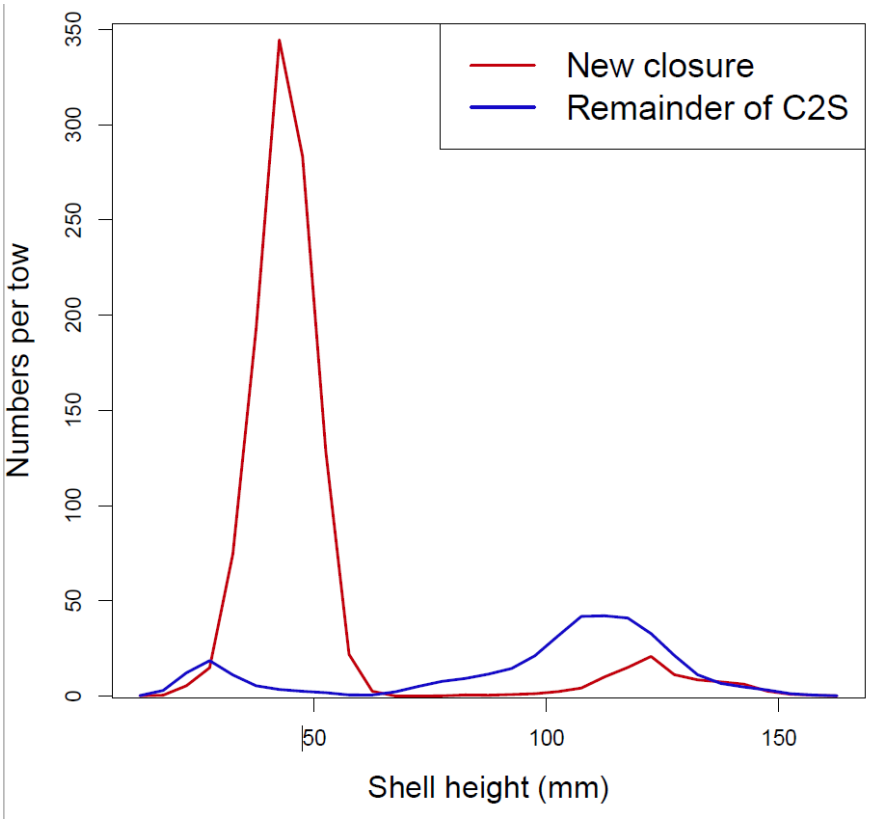


Figure 10 - "CAII-South West" closure. Focuses access in eastern peak of CAII, closes CAII-ext, and maintains SF as open bottom. Eastern part of CAII AA is extended south to include some larger scallops that do not overlap with recruits, and provide more room for vessels that are fishing close to the boundary of the closure.

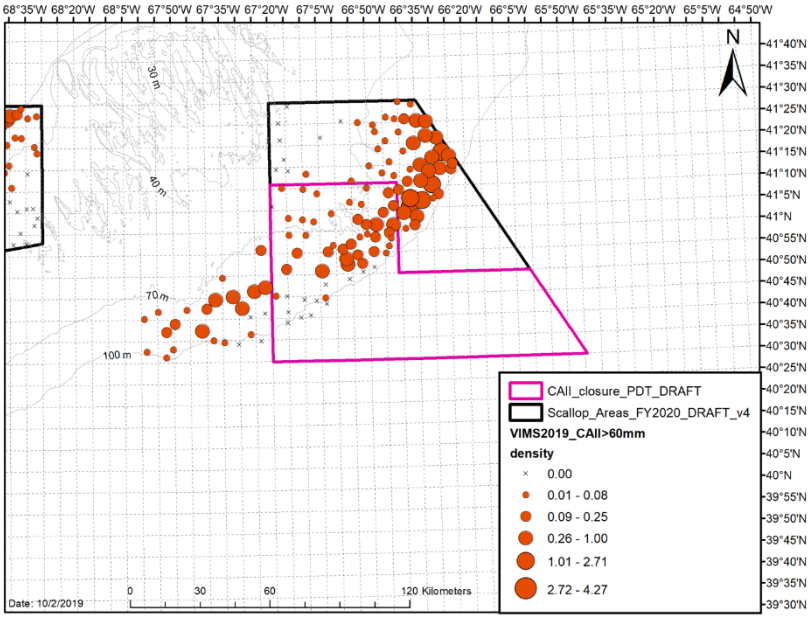
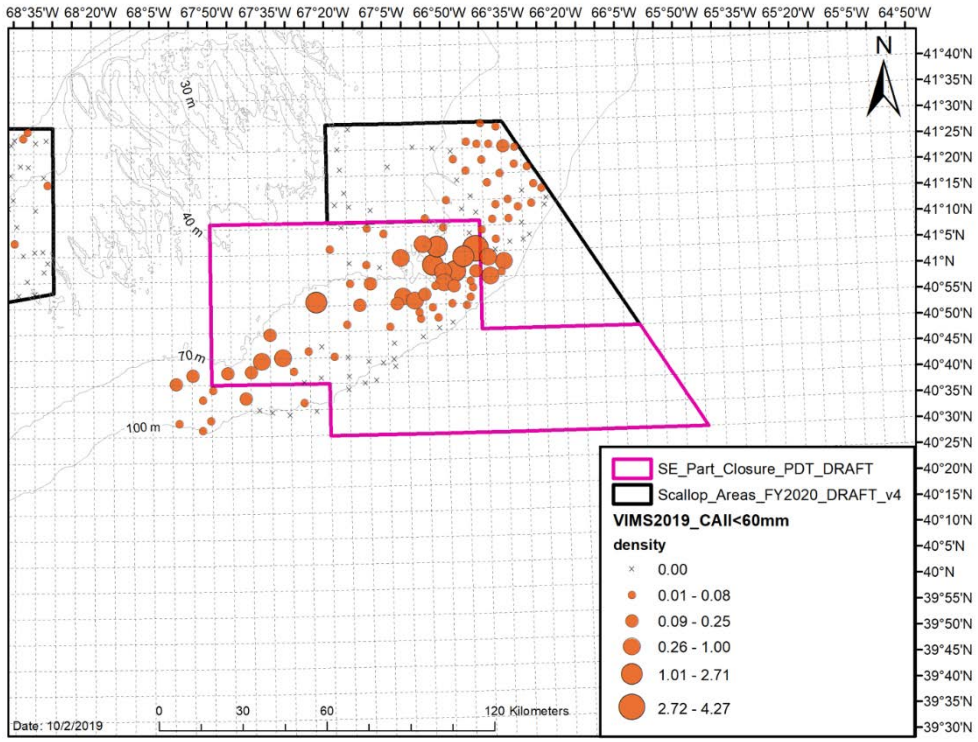


Figure 11 - "SE Parts" closure. Focuses access in eastern peak of CAII, closes CAII-ext, and closes the portion of the SF with the highest concentration of recruits. Eastern part of CAII AA is extended south to include some larger scallops that do not overlap with recruits, and provide more room for vessels that are fishing close to the boundary of the closure. Keeps some open bottom in SF accessible.



New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
John F. Quinn, J.D., Ph.D, *Chairman* | Thomas A. Nies, *Executive Director*

MEETING SUMMARY

Scallop PDT Meeting

September 4, 2019
Waypoint Event Center, New Bedford, MA

The Scallop PDT met in New Bedford, MA on September 4, 2019 to: 1) review biological and fishery information related to the small scallops in the NLS-S-deep; 2) develop options for harvest of small scallops in the NLS-S-deep; 3) review 2019 scallop survey results and decide final data treatments; and, 4) discuss other business.

MEETING ATTENDANCE: Jonathon Peros (PDT Chair), Sam Asci, Dr. Naresh Pradhan, Dr. David Rudders, Dr. Bill DuPaul, Dr. Dave Bethoney, Travis Ford, Ben Galuardi, Dr. Dvora Hart, Dr. Cate O'Keefe, and Tim Cardiasmenos. Vincent Balzano, Scallop Committee Chair, was in attendance along with approximately 25 members of the public.

The meeting began at 9:42 am. Following roll call, Council staff briefly reviewed the agenda and provided the PDT with a list of upcoming meetings. The purpose of the meeting was to discuss options and approaches for harvesting the small, slow-growing scallops in the Nantucket Lightship South-Deep area through Framework 32. These animals have been tracked closely since 2015 through intensive survey efforts as well as surveys focused on their biology and life history. Recent survey information related to the NLS-S-deep was reviewed by the PDT and is summarized in the following sections.

Density Dependent RSA Project in Nantucket Lightship South Area

Sally Roman (VIMS) presented an overview of an on-going survey focusing on the small scallops of the NLS-S-deep area (see Doc.4).

Questions and Discussion Points:

- Meat quality has not appeared to be an issue in the NLS-S-deep. Meats are smaller than expected relative to shell size, but meats are not watery and do not show signs of disease. Also, not many clappers were observed in the NLS-S-deep.
- It was noted that a drop in density was observed between 2017 and 2018, but remained stable between 2018 and 2019. A member of the PDT suggested that this can be typical of very high density areas in that biomass seems to decline from the edges of the aggregation initially.

2019 SMAST Drop Camera Predator Prey Information

Dr. Dave Bethoney presented an overview of recent SMAST drop camera surveys of the NLS-S-deep, including information related to the distribution of scallops and scallop predators in this area (see Doc.5). The SMAST drop camera observed a drop in density between 2017 and 2018 by roughly half, but appeared to stabilize between 2018 and 2019. Between 2018 and 2019, density appeared stable while biomass seemed to increase—this is likely due to meat sizes increasing over time (though meats are smaller than expected for a given shell size).

Very few clappers were observed in the NLS-West and NLS-S-deep in 2019. There was very little overlap between observed sea stars and higher densities of scallops in the NLS-West and NLS-S-deep in 2019. Generally, sea star presence did not seem overwhelming across the NLS survey area.

The SMAST drop camera does not observe crabs in the NLS very often, though 2019 numbers show a large spike in crabs—after reviewing relevant literature Dr. Bethoney hypothesized that this is likely due to the timing of the 2019 NLS survey having overlap with a seasonal migration of crabs. Despite this, no images reviewed suggested that predation events were occurring (i.e. crabs eating scallops).

Questions and Discussion Points:

- Surfclam and quahog shell debris was observed in the deeper water of the NLS-West and NLS-S-deep. The PDT noted that this is typical for deeper water on the southern flank of Georges Bank and that surfclam/quahog shell debris can provide structure for scallop larvae settlement.
- It was noted that aquaculture literature from the 1980's suggested that starfish were effective scallop predators and that crabs were ineffective scallop predators. In the case of the NLS-S-deep, it was suggested that maybe crabs are more effective predators when targeting smaller scallops.

2019 HabCam Survey of the NLS

Jason Claremont (CFF) presented findings from the recent HabCam surveys of the NLS, focusing primarily on the smaller scallops in the NLS-S-deep. In the NLS, there were no observations of high densities of incoming year classes. The majority of recruit-size scallops were observed in the NLS-S-deep SAMS area, though it was acknowledged that these are the slow growing 7-year-old animals that have been tracked, not actually recruits. Larger scallops (> 75 mm SH) were observed across the survey domain, though the highest densities in the NLS-West appear to be retracting over time. Scallops between 75 and 100 mm SH were highly concentrated in the NLS-West and NLS-S-deep, while > 100 mm SH animals were distributed widely across the NLS-N. A comparison of L-F in the NLS-S-deep between 2018 and 2019 suggests that some growth had occurred. Similar to other survey findings, a substantial decrease in biomass was observed between 2018 and 2019 in the NLS-West while an increase was estimated for the NLS-S-deep.

The 2019 survey did not observe a high rate of clappers in either the NLS-S-deep or NLS-West. The clappers that were observed appeared to follow the same length frequency distribution as the live scallops observed.

Related to predator prevalence, a large bump in sea stars was observed in the NLS-North but not in other parts of the NLS. Crab density across the NLS appeared to have increased slightly

between 2018 and 2019, with similar spatial distribution for both years. HabCam does not measure crab size; however, those observed appeared to be roughly the same size as the scallops in the NLS-S-deep. Moonsnails appeared to be fairly dense in the NLS-West.

Questions and Discussion Points:

- An industry member reported making a tow along the 40-fathom contour east of Nantucket Lightship during mid-July that was all crabs—they did the same tow on the next trip and caught almost no crabs. It was suggested that this supports the theory of higher crab observations being driven by a seasonal migration.
- Neither the HabCam or drop camera quantify swimming scallops or their spatial distribution. A member of the PDT felt it was unlikely that scallops swimming be the cause for a change or shift in density in the NLS-West or NLS-S-deep.

General Questions and Discussion Points:

- Staff noted that part of the goal for the meeting is to figure out how data will be combined and used in the SAMS model, including specifying L_∞ for the NLS-S-deep and determining an appropriate selectivity curve if fishing were to occur in this area.
- It was suggested that having a biomass projection for 2020 would be informative for the industry and Scallop Committee when discussing harvest options for this area—for example, should another bump in growth be expected between 2019 and 2020.
- A member of the PDT highlighted the age of the scallops in the NLS-S-deep—currently 7 years old, and will be 8 years old before they might be accessed by the fishery. Once scallops reach 10 or 11 years, a downturn is typically seen as they become more susceptible to mortality. Thus far, data reviewed paint a picture of what is happening in the NLS-S-deep: the area doesn't appear to have much water movement which means the scallops do not get a lot of food. This translates to observations of annual growth or non-growth, in that when food is available a burst of growth may be seen (like between 2018 and 2019), and when food is not available, little to no growth is seen (like between 2017 and 2018). It is difficult to predict whether any growth will occur in the future considering the level of food availability in the future is unknown.
- It was recommended that any harvest of the scallops in the NLS-S-deep be managed as a multiyear opportunity (i.e. not just FY2020).
- The PDT agreed that predation does not seem to be driving mortality in the NLS-West or have the potential to drive higher mortality in the NLS-S-deep in the future.

Discussion on Potential Ways to Harvest in the NLS-S-Deep

Travis Ford (NMFS, GARFO) provided an overview of straight-forward harvest approaches for the NLS-S-deep that could be considered in FW32, as well as those that could potentially delay implementation of FW32 or require an additional action to address (see Doc.3). For the purposes of discussion, a strawman approach of harvest solutions was offered that included: 1) maintaining the current dredge regulations (i.e. 4" ring) because commercial dredges appear capable of catching the small scallops without trouble, 2) increase the crew size limit to 9 people to give extra help with processing at sea while potentially avoiding higher discard mortality, 3) allocate an overall TAC to the area and allow access to all vessels with scallop permits—once the TAC is reached, the area closes to all, and 4) review socio-economic aspects of smaller scallops on the market in 2020 related to ex-vessel price, and assess whether it is economically feasible to continue harvesting the small scallops in 2021.

Questions and Discussion Points:

- A key consideration related to the overall TAC approach is accounting for these scallops in the ACL flow chart. Staff noted that the small scallops are counted towards the OFL and ABC, and that they could be harvested without concerns of hitting the OFL/ABC, but would still need to be accounted in the ACL flow chart if allocated by the Council.
- An industry member noted that handling the small scallops through a normal access area allocation would create little incentive for LAGC IFQ vessels to fish that area—for example, it is unlikely that vessels will elect to use IFQ to fish higher count scallops in the NLS-S-deep when larger scallops can be harvested elsewhere in the resource that fetch a higher ex-vessel price. They felt that there will need to be an incentive for LAGC IFQ vessels to fish this area, such as an exemption from using IFQ allocation.
- The PDT and members of the audience generally felt that increasing crew size to 9 and maintaining 4" rings would be appropriate to consider moving forward. Based on LPUE estimates, an 8 person crew can process between 1400 and 1600 lbs per day of 20-30s.
- There was some discussion on how fishermen may not be interested in taking this trip and how it may be difficult for captains to find crew members that are willing to cut high count scallops.
- There was agreement that the NLS-S-deep should be considered as a multi-year opportunity, not just for FY2020. Consensus at the meeting was that allocating some access in FY2020 at a conservative level will provide managers with a better understanding of how this area might be fished in FY2021 and beyond.
- It was noted that ideas like shell stocking or using shucking machines would require a more involved action, such as an Amendment, which likely would not be completed by the start of FY2020. The PDT was also concerned that over complicating harvest in the NLS-S-deep in FY2020 would delay implementation of FW32, possibly until after April 1st.
- Some industry members in the room supported transplanting deep-water scallops to the shallower portion of NLS-South using nets (i.e. keeping scallops in the net while transiting to avoid damage from being put on deck).

Note that other takeaways from discussion on the NLS-S-deep can be found at: https://s3.amazonaws.com/nefmc.org/Doc.3c-Nantucket-Lightship-South-Discussion-Document.v.3.pdf

FW32 Data Treatment Follow-Up

The PDT reviewed a series of follow-up analyses to address data treatment decisions for FW32. Information presented to the PDT can be accessed at: Doc.9 VIMS Survey Data Treatment Updates, Doc.10 HabCam Data treatment analysis, and Doc.11 CFF Data treatment analysis. There was brief discussion following each of the presentations, and final data treatment decisions were made by the PDT as described in Table 1.

Other Business:

No other business was discussed. The meeting concluded at 4:38 PM.

Table 1. Final PDT decisions related to 2019 survey data treatment.

GB	SHMW equation	Treatment for SAMS run
CL1-Access	SARC 65	Use mean of survey estimates
CL1-Sliver	SARC 65	Use mean of survey estimates
CL1-South	SARC 65	Use mean of survey estimates
CL2-North	SARC 65	Use mean of survey estimates
CL2-Access	SARC 65	Use mean of survey estimates
CL2-Ext	SARC 65	Use mean of survey estimates
NLS-North	VIMS 2016-2019	Use mean of survey estimates
NLS-South-Shallow	VIMS 2016-2019	Use mean of survey estimates • Update SMAST numbers
NLS-South-Deep	VIMS 2016-2019	Decrease dredge efficiency to .13 (.4/3), use mean of survey estimates. Use GB Open selectivity curve and set L∞ to110mm.
NLS-West	VIMS 2016-2019	Decrease dredge efficiency to .13 (.4/3), use mean of survey estimates.
NF	SARC 65	Use mean of survey estimates
GSC	SARC 65	Use mean of survey estimates
SF	SARC 65	Use mean of survey estimates
MidAtlantic		
BI	SARC 65	Use mean of survey estimates
LI	SARC 65	Use mean of survey estimates
NYB	SARC 65	Use mean of survey estimates
MAB-Nearshore	SARC 65	Use mean of survey estimates
HCS	SARC 65	Use mean of survey estimates
ET Open	SARC 65	Use mean of survey estimates
ET Flex	SARC 65	Use mean of survey estimates
DMV	SARC 65	Use mean of survey estimates

New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
John F. Quinn, J.D., Ph. D., *Chairman* | Thomas A. Nies, *Executive Director*

MEETING SUMMARY
Scallop PDT
J. Erik Jonsson Center, Woods Hole, MA
August 27th-28th, 2019

The Scallop PDT met on August 27th and 28th, 2019 in Woods Hole, MA to: *DAY 1*—(1) review 2019 scallop survey results, (2) discuss survey results and data treatment, (3) review relevant data for developing 2020/2021 specifications, (4) discuss next steps for FW32 specifications and timing, (5) discuss modeling decisions and the outlook for 2020/2021; *DAY 2*—(6) review follow-up analyses from Day 1, (7) review and discuss 2019 Gulf of Maine survey results, (8) review Amendment 21 options for Committee to consider, (9) discuss recommendations for 2020 Council priorities for the Scallop FMP, and (10) discuss any other business.

MEETING ATTENDANCE: Jonathon Peros (PDT Chair), Sam Asci, Dr. David Rudders, Dr. Dvora Hart, Dr. Naresh Pradhan, Dr. Bill DuPaul, Danielle Palmer (on webinar), Dr. Rachel Feeney, Dr. Cate O'Keefe, Tim Cardiasmenos, Chad Keith, Mike Kersula, Travis Ford, and Dr. Dave Bethoney. Vincent Balzano, Chair of the Scallop Committee attended day 2 of the meeting, along with representatives of each survey group. There were approximately 26 members of the public present on Day 1 and approximately 20 on Day 2.

MEETING MATERIALS:
Doc.1) Meeting Agenda; *Scallop Survey Results—Short Reports*: Doc.2a) VIMS, Doc.2b) SMAST, Doc.2c) CFF, Doc.2d) NEFSC HabCam, Doc.2d2) NEFSC Dredge, Doc.2e) Maine DMR/UMaine Dredge Survey (GOM); Doc.3) Draft preliminary combined biomass estimates for 2019; *Information on Survey Data Treatment*: Doc.4a) VIMS SH/MW Analysis for NLS survey areas, Doc.4b) Recap of survey group call, August 20, 2019; Doc.5) Amendment 21 Discussion Document; Doc.6) Potential 2020 Scallop Work Priorities.

PRESENTATIONS:
Scallop Survey Presentations: P1.a) VIMS, P1.b) SMAST, P1.c) CFF, P1.d) NEFSC, P1.e) UMaine/ME DMR; P3) VIMS Nematode Update; P4) GMRI/MCFA NGOM EM Presentation; P5) NEFSC Observer Data Presentation; P6) CFF Update on Meat Quality in CAII.

BACKGROUND AND SUPPORTING INFORMATION:
B1) Scallop VMS data by SAMS area; B2) LPUE and landings/price data by market grade; B3) PDT memo to SSC re: FW30 OFL and ABC, October 4, 2018; B4) Projected Exploitable Biomass for FY 2019 and 2020 from FW30; B5) SARC 65 – Appendix 2: Shell Height/Meat

Weight Equations; B6) SARC 65 Assessment Summary Report; and B7) Final PDT Meeting Summary, July 24, 2019.

KEY OUTCOMES:

- The PDT reviewed the results of 2019 scallop surveys and began an initial discussion of potential 2020/2021 specifications.
    - After four years of unremarkable recruitment, the 2019 surveys observed recruitment on eastern Georges Bank, particularly in Closed Area II. Surveys in the Gulf of Maine also detected a strong recruitment event on Stellwagen Bank.
    - Surveys suggest high total mortality in the NLS-W, and much lower biomass than was projected in 2019 (~50 million lbs of meat weight less).

- The PDT recommended using shell-height meat-weight (SHMW) parameter estimates from SARC 65 for all SAMS areas, except the NLS-S-shallow, NLS-S-deep, NLS-W, and NLS-N. In these areas, the PDT recommends using SHMW parameters developed using data from the 2016-2019 VIMS survey to more accurately characterize the biomass in the Nantucket Lightship region.
- The PDT noted divergence in survey estimates in Closed Area II Access Area, the Hudson Canyon area, Elephant Trunk Flex, and the Nantucket Lightship West and Nantucket Lightship South-deep. VIMS, SMAST, CFF, and the NEFSC all agreed to work on subsequent analyses.
- The group discussed ways to approach the development of alternatives in Amendment 21.

The meeting began at 10:14 am. Council staff welcomed the PDT and members of the audience to the meeting and reviewed agenda items for the two-day meeting.

Review of 2019 Scallop Survey Results

VIMS Dredge Survey of the Mid-Atlantic, NLS, CAI, and CAII

Sally Roman presented relevant information and key findings regarding the 2019 VIMS dredge survey of the Mid-Atlantic Bight (MAB), Nantucket Lightship (NLS), Closed Area I (CAI), and Closed Area II (CAII):

- The MAB survey domain has remained consistent since 2015 and a total of 450 dredge stations were completed in the MAB in 2019. 200 dredge stations were completed in the CAI and CAII survey domain and 135 dredge stations were completed in the NLS. The NLS-extension was dropped from the survey domain for 2019 and five additional survey stations were added in the NLS-West.
- Area swept biomass estimates were derived for each SAMS area using Yochum and DuPaul (2008) dredge selectivity parameters and length-weight parameters from SARC 65.
- In the MAB survey domain, smaller scallops (35-75 mm shell height) were observed in open areas around the "Gully" (i.e. rim of the Hudson Canyon) as well as spread out in the LI, HCS, and ET SAMS areas. The majority of larger scallops (> 75 mm shell height) were observed in the SAMS areas of the Mid-Atlantic Access Area, primarily within the ET, ET-Flex, and HCS, and to a lesser extent in the LI SAMS area.

- In the NLS survey domain, the majority of smaller scallops (i.e. 35-75 mm shell height) were observed in the NLS-S-deep SAMS area and consist of the 7-year-old class of animals that have experienced abnormally slow growth and have been tracked closely since 2015. Some larger scallops (i.e. > 75 mm shell height) were observed in the NLS-S-deep SAMS area, though a comparison of shell height to meat weight relationships suggest that these scallops have lower yield than similar sized scallops in other parts of the NLS. The majority of larger scallops have persisted in the NLS-West and the largest scallops were seen in the NLS-North, though densities in the NLS-North were lower than the other parts of the NLS and appeared to have a broader spatial distribution.
- In the CAI and CAII survey domain, substantial recruitment was seen along the southern border of CAII AA/northern border of CAII-extension and to a lesser extent in the eastern portion of CAII AA. The recruitment observed in the CAII survey domain appeared to follow the 50-fathom depth contour. Larger scallops (> 75 mm shell height) were also seen along the 50-fathom contour, but were mostly concentrated in the eastern peak of the CAII AA. There was limited overlap of larger scallops and recruits in CAII AA. In CAI, some smaller (35-75 mm shell height) scallops were seen in the northwest corner of the CL1-sliver SAMS area, and the majority of large scallops in CAI were aggregated along the 50-fathom contour in the CL1-sliver SAMS area.
- At least 15 scallops per station were sampled to inform shell height to meat weight (SHMW) relationships and meat quality observations. SHMW workups were used to estimate expanded length frequencies and included in a mixed effects model that estimates SHMW relationships for each SAMS area:
    - In the MAB, predicted SHMW relationships were similar across SAMS areas and less divergence was seen between SAMS areas compared to 2018. The DMV SAMS area had the smallest meat weight at a given height for the MAB survey domain.
    - For the NLS, predicted SHMW relationships appeared to be similar to 2018, with the NLS-S-deep SAMS area having the lowest SHMW relationship and only SAMS area within the NLS survey domain that was significantly different than the NLS-North.
    - In CAI AA, the SHMW relationship for CL1-Access SAMS area was significantly greater than the CL1-Sliver SAMS area, which is a change from 2018. Brief PDT discussion suggested the difference could be driven by a depth affect considering scallops in the CL1-Sliver SAMS area are mostly found in greater than 50 fathoms.
    - SHMW relationships were relatively consistent in the CAII survey domain, with the SHMW relationship for CL2-Access SAMS area being slightly greater than the CL2-Ext and SF SAMS areas.
- Length frequency (L-F) plots showing size distribution by SAMS area for the commercial dredge and survey dredge can be seen in pp. 11-29 of Doc.2a.
    - In the MAB, L-F plots did not give a strong signal of very small scallops (< 20 mm) in the ET like the CFF HabCam survey reported (see below); however, the VIMS survey did not overlap directly (spatially or temporally) with where the HabCam identified these smaller animals and it is unlikely that the survey dredge would retain these scallops due to them being very small (i.e. roughly thumbnail size). Relative L-F distribution in the DMV SAMS area suggested some

recruitment had occurred, but this is relative to the very low biomass for the DMV SAMS overall. The mean SH in the commercial dredge within the MAB survey domain was greater than 100 mm.
    - In the NLS survey domain, there was a slight bump of smaller scallops observed in the NLS-North which is consistent with recent years.
    - In CAI, L-Fs from both the survey and commercial dredge suggested mean shell height of greater than 100 mm.
    - L-F plots indicated that recruitment had occurred in all three SAMS areas within the CAII survey domain (i.e. CL2-Access, CL2-Ext, SF). Pictures from the VIMS survey in CAII suggested that some one-year-olds were captured in the dredge; however, the L-F distribution suggests that both one- and two-year-old's were present in CAII at the time of the 2019 survey.
- A comparison of biomass estimates between the dredge and optical surveys suggests that reduced dredge efficiency in high density areas (i.e. NLS-West, NLS-S-deep) continues to be an issue. In CAII, it was suggested that survey strata 61 may need to be restratified as the current stratification could be driving the divergence between the dredge and HabCam estimates in CAII AA.
- Biomass estimates using SARC 65 and VIMS 2016-2019 SHMW parameters were compared for SAMS areas in the NLS survey domain. Estimates based on SARC 65 SHMW parameters appeared to be overestimating biomass and the PDT agreed that using predicted SHMW relationships from recent VIMS dredge surveys (i.e. 2016-2019) would provide more accurate biomass estimates for the NLS SAMS areas.
- A significant number of clappers were observed in survey stations in the NLS-West. The percentage of clappers to total scallop catch ranged from 1-26% and the L-F distribution of clappers and live scallops were very similar; it was suggested that this may be an indication of higher than expected discard mortality in the NLS-West, potentially as a result of high grading and(or) deck loading.

Key points from PDT discussion:

- The PDT noted some divergence between the VIMS and SMAST drop camera biomass estimates for CAI and discussed whether the large VIMS tow in the northwest corner of the survey domain was driving an overestimate. Considering the tow in question was in a relatively small survey strata, it is unlikely that it was impactful to the total biomass estimate for the area.
- It was suggested that the high clapper to live scallop ratio observed in the NLS-West could indicate a combination of natural mortality and discard mortality if scallops were brought on deck and discarded without being shucked. The PDT felt this was supported by the similarity in L-Fs of clappers and live scallops in the NLS-West.
- In the CAII survey domain, the largest scallops were observed in the eastern peak of CAII AA and the smaller scallops were aggregated along the southern edge of CAII AA, with some overlap in between. The dredge survey did not detect signs of higher predation in CAII.
- The recruitment seen in the MAB survey domain was far below the magnitude of recruitment seen in CAII but was consistent with the level of recruitment seen in the MAB annually.

- It was noted that the area where recruitment was seen in the MAB overlaps with wind energy planning areas—a member of the audience suggested the survey information be used to describe the importance of this area to the resource and fishery.

2018 SMAST Drop Camera Survey Results

Dr. Dave Bethoney of the University of Massachusetts Dartmouth School for Marine Science and Technology (SMAST) presented methods and key findings from the 2019 SMAST drop camera survey of the NLS, CAI, Great South Channel, Northern Flank, and the Mid-Atlantic Bight:

- SMAST estimates of abundance, biomass, mean meat weight, and mean shell height were based on quadrat still images from the high-resolution digital still camera. SARC 65 SHMW parameter estimates were used in biomass and mean meat weight calculations, except for the NLS SAMS areas which used VIMS 2016-2019 SHMW parameter estimates.
- A review of total biomass by SAMS area in the Georges Bank survey domain suggested a large biomass of older scallops in the CAII North HAPC. A substantial decrease in biomass was seen in CAI AA between the 2018 and 2019 drop camera surveys in this area. For Georges Bank, the bulk of biomass continues to be concentrated in the NLS, primarily in the NLS-S-deep and NLS-West. Higher densities seem to persist in CAI-Sliver as well as in the NLS-West.
- There was a significant decline in biomass between the 2018 and 2019 survey of the NLS-West. Projections for this area for 2019 were around 40,000 mt, but the 2019 drop camera survey estimate was roughly 13,000 mt. Despite this decline in biomass, density estimates from other parts of the NLS- with scallops did not change much between 2018 and 2019. The similarity in density for areas with scallops in 2018 and 2019 could suggest that the decrease in biomass may not be driven by natural mortality, but rather from fishery removals and higher discard mortality.
- An increase in biomass was seen in the NLS-S-deep between 2018 and 2019 which appears to be driven by some growth occurring over the past year (i.e. roughly 15 mm). A large decrease in density in the NLS-S-deep was observed between 2017 and 2018; however, density appeared to be similar between 2018 and 2019.
- A set of smaller scallops were observed in the northwest peak of CAI, and the smaller animals observed in the GSC in 2018 have continued to grow and were estimated to be recruit size at the time of the 2019 survey. The recruits in the GSC do appear to have some overlap with larger scallops and fishing effort does appear to be happening close to the recruits.
- In CAII North HAPC, the majority of scallops appear to be old and encrusted with epifauna. This area has typically been thought of as a refuge for larger seeding scallops; however, the 2019 survey did not indicate another year class coming into the resource meaning a downturn in biomass could be expected there in the future.
- A comparison of CAI AA between 2017 and 2019 suggests a decline in density has occurred over time, though the 2019 estimate suggested that density is still exploitable.
- The 2019 drop camera survey covered the entirety of the MAB and suggested similar findings as the VIMS dredge survey. A spattering of recruitment was observed in the SAMS areas adjacent to the Hudson Canyon which is typical for this area annually. Some pre-

recruits (< 35 mm SH) were observed in the southern part of ET-Open. There were a lot of larger scallops observed in ET-Open despite there being little to no fishery activity there in FY2018.
- Images from recent SMAST drop camera surveys are available to the public at the following link: http://bit.ly/scallopsurvey

Key points from PDT discussion:
- Based on past AUV work done in CL1-Sliver, it was suggested that this area may have poor visibility which could impact optical survey estimates. Dr. Bethoney noted that visibility issues with the drop camera are mostly in silty areas with no water movement, which is not the case for CL1-Sliver. At the request of the PDT, Dr. Bethoney re-examined drop camera images, and reported that less than 1% of the images were affected by poor visibility.
- The densities of recruitment observed in the MAB, specifically the southern part of ET-Open and DMV SAMS areas, were not extraordinarily high. Settlement of pre-recruits can sometimes be an indicator of recruitment the following year. In DMV there have been several recent examples that suggest that the small year class observed in 2019 may or may not sustain in the future.

2019 CFF HabCam Survey of CAII, NLS, and ET

Jason Claremont presented key findings from the Coonamessett Farm Foundation (CFF) HabCam survey of CAII, NLS, and the ET:

- In CAII and the Southern Flank, pre-recruits (35-75 mm scallops) were observed broadly across the survey area. Observations of > 75 mm SH scallops suggested that strong recruitment had occurred in the southern portion of CAII AA, along the northern boundary of CAII-ext, and extending into the SF. Similar to other survey findings, larger animals appeared most prevalent in the eastern peak of CAII AA. A clear spatial break between the recruits and larger animals was not evident in CAII AA; however, larger scallops appear to be distributed farther east than the recruits. Though scallops < 20 mm cannot be accurately quantified, animals in this size range were observed patchily across the survey area.
- In the NLS, there were no observations of high densities of incoming year classes. The majority of recruit-size scallops were observed in the NLS-S-deep SAMS area, though it was acknowledged that these are the slow growing 7-year-old animals that have been tracked, not actually recruits. Larger scallops (> 75 mm SH) were observed across the survey domain, though the highest densities in the NLS-West appear to be retracting over time. Scallops between 75 and 100 mm SH were highly concentrated in the NLS-West and NLS-S-deep, while > 100 mm SH animals were distributed widely across the NLS-N. A comparison of L-F in the NLS-West between 2018 and 2019 suggests that little to no growth occurred over the past year and that some growth was apparent in the NLS-S-deep. Similar to other survey findings, a substantial decrease in biomass was observed between 2018 and 2019 in the NLS-West while an increase was estimated for the NLS-S-deep.
- In the ET survey area, high densities of < 20 mm scallops were concentrated along the northern border of the ET-Flex SAMS area. Densities of pre-recruits (35-75 mm SH)

were generally low across the survey area. Some recruitment was observed in the southern extent of the ET-Open SAMS area, but at lower densities than what the SMAST drop camera observed in this area. Larger scallops (> 75 mm SH) were distributed across the area, with notably higher densities in the ET-Flex SAMS area. It was suggested that the HabCam biomass estimate for the ET (based on combined data from the CFF and NEFSC survey) were being driven mostly by the non-random NEFSC HabCam tow which focused on the high density aggregation in the ET-Flex.

PDT discussion points:

- It was suggested that a spatial management closure be considered to protect some of the recruitment observed in CAII, CAII-ext, and the SF.
- HabCam track spacing is not consistent by survey area or from year to year—track length and spacing is largely dependent on time availability and the spatial extent that needs to be surveyed. Tracks can also shift depending what is on the seafloor (e.g. ship wrecks, sand waves, other obstructions, etc.). Based on track spacing work conducted in the past, the 2019 CFF HabCam tracks are considered "intensive". Dr. Hart noted that more intensive tracks are done in productive areas and less intensive tracks are done in less productive areas—this is done to improve precision in estimates for areas with both higher and lower scallop density. Transects need to be close enough to support multidirectional estimates (i.e. estimating anisotropy).
- It can be difficult to differentiate between a clapper and live scallop using HabCam images; it is also difficult to differentiate between clappers and cut shells in areas where there are lots of cut shells (i.e. NLS-West). The SMAST drop camera is able identify clappers, identifying scallops in areas with a lot of cut shells is more difficult than differentiating between clappers and live scallops.
- Mr. Claremont suggested that it is important to formalize a communication between survey groups before and after the surveys are done to improve workflow across the board and help synthesize data products. Some agreed this is a good idea but also noted that direct collaboration can be difficult due to the competitive nature of the Scallop RSA program. Staff noted that this topic is on the list of potential 2020 Council priorities and will be discussed later in the year.

2019 NEFSC Dredge and HabCam Survey

Dr. Dvora Hart (Northeast Fisheries Science Center) presented key findings from the 2019 NEFSC dredge and HabCam surveys of Georges Bank and the Mid-Atlantic:

- In the Mid-Atlantic, HabCam (i.e. both NEFSC and CFF) surveyed all SAMS areas which represents the best coverage to date for this region. In the ET, one-year-old pre-recruits were observed in the northern part of the area while the adult distribution was consistent with recent years in being highly concentrated in the ET-Flex area. Very low densities were observed in the DMV SAMS area. One concentrated high-density aggregation of larger animals appeared to be driving the biomass estimate in the HC SAMS area. No notable

densities of scallops were observed in the inshore-MAB SAMS areas. As noted in other surveys, some pre-recruits and recruits were observed in open areas around the southern rim of the Hudson Canyon, which is typically a productive area. Overall, very little recruitment was observed in the MAB aside from a small pulse in the HC and ET.

- For Georges Bank, 105 dredge tows were completed and combined HabCam (i.e. NEFSC and CFF) efforts covered the NLS, CAII, CAII-ext, and SF. A moderately strong signal of pre-recruits (35-75 mm SH) were observed along the 50 fathom depth contour throughout the SF SAMS area and into CAII-ext and CAII AA. Two patches of larger scallops (> 75 mm SH) were observed in CAII AA, one that overlapped with the smaller year class and the other which was concentrated in the eastern portion of CAII AA. Similar to findings from other surveys, the majority of adult biomass on Georges Bank was concentrated in the NLS-West and NLS-S-deep, and to a lesser extent in CAII-North HAPC and the eastern portion of CAII AA. The dredge survey detected some pre-recruits around Pollock Rip (i.e. northwest of CAI AA) and also in southern CAII. Some recruitment was observed in the Channel which is typical for this area, while the most prevalent recruitment seen across Georges Bank was in the SF SAMS area.
- A comparison of mean biomass across all surveys by SAMS area suggested that projections for 2019 (i.e. from FW30) were relatively close to what the 2019 surveys observed, with the exception of the NLS-West which saw a substantial decrease in biomass relative to the 2019 projection. Generally, estimates from optical and dredge surveys were relatively consistent in areas without very high density but dredge efficiency appears to still be an issue in the NLS-West and NLS-S-deep. Unlike in 2018, the ET-Flex dredge estimate did not appear to diverge as much from the optical surveys—it was suggested that this could be due to the efficiency issue occurring at only a few stations in the ET-Flex.
- The NEFSC HabCam track in the ET-Flex was focused on the very high density concentration. Dr. Hart explained that geostatistical methods technically do not need to be "random", and felt that the intensive track in the highest density part of ET-Flex was not biasing the overall estimate for that area.

Key points from PDT discussion:

- It was noted that the NEFSC HabCam mean meat weight estimate for the ET-Flex appeared to be higher than other estimates (31 g) and it was suggested that this might be a result of the intensive tracks over larger animals in the ET-Flex, and potentially a cause for the HabCam biomass estimate being much higher than other surveys.
- Continued discussion of the NLS-West pointed towards marginal growth, increased total mortality, and higher discard mortality as potential reasons for the significant drop in biomass observed between 2018 and 2019.

Survey Data Treatment

SHMW Parameter Estimates for the NLS

Sally Roman (VIMS) provided an update on estimated SHMW relationships in the NLS based on VIMS data from 2016 to 2019. The presentation covered the methods used for estimating the

SHMW relationships for NLS SAMS areas and provided a comparison of biomass estimates based on SARC 65 SHMW relationships versus VIMS 2016-2019 SHMW relationships. Overall, the PDT was in support of using VIMS 2016-2019 SHMW relationships for biomass estimates in the NLS SAMS areas because it reflects the most recent and comprehensive information available for this part of the resource and is consistent with the approach used in 2018.

Divergence in CAII AA Estimates

The PDT discussed the divergence between the VIMS dredge survey and HabCam biomass estimates in CAII AA. It was suggested that the dredge estimate may be higher due to how survey stations were allocated within strata 61 (i.e. shellfish survey strata within CAII AA)—this strata includes areas with low productivity and high productivity, with the higher productivity area being in the deeper part of the strata. As a follow up sensitivity, the PDT suggested restratifying strata 61 based on the 40 fathom depth contour to determine if this is the cause for the divergence in dredge vs. HabCam estimates for CAII. It was noted that this highlights the need for restratification of survey strata by the NEFSC.

Another follow-up sensitivity suggested was to redo the HabCam biomass estimate using a weighted average statistical approach and compare it to the geostatistical approach to see if this is driving an under estimate for CAII AA.

Dredge Efficiency

The PDT discussed methods for adjusting dredge efficiency in high density areas. Dredge efficiency is estimated from an experiment under a certain set of circumstances—it is apparent that these same circumstances do not apply for the NLS-West, NLS-S-deep, and other high-density areas. Work is under way to empirically answer how high density might change dredge efficiency. At this point, reducing efficiency of 0.4 by 1/3rd is the approach used as it was developed through SARC 65 and has precedence from data treatment in recent years. The PDT recommends that methods be more formulaic in the future with how dredge efficiency is accounted for, particularly if it deviates from the empirical approach used currently.

Nematode Prevalence in the Mid-Atlantic

Dave Rudders presented VIMS survey findings from 2015 to 2019 relative to nematode prevalence in the Mid-Atlantic. VIMS has tracked nematode prevalence in this area for the last four years, focusing on the range of infected scallops and the intensity of infestation (how many lesions). Takeaway points from the presentation and PDT discussion include:

- Nematode prevalence was initially heaviest in the far southern range of the fishery, specifically in DMV and southern part of the ET. The spatial extent expanded slightly north in 2016 and appeared to be contracted in 2017 relative to 2016. The 2018 survey suggests nematode distribution was very similar to what was observed in 2016, except with some sporadic occurrences being observed farther north (i.e. in NYB and LI SAMS). In 2019, the nematode prevalence appears to have been reduced over the entire sampling range, especially in the southern range of the MAB survey area (i.e. DMV, southern ET). The intensity of the nematode also appeared to be reduced in 2019 compared to 2015-2018.
- The cause of the reduction in nematode prevalence and intensity in 2019 is uncertain. It was suggested that a change in turtle behavior could be a potential driver considering turtles are known intermediate hosts for the nematode parasite.

- Elevated fishing mortality due to high discards and the redistribution of effort are important points to remember when considering fishery specifications in areas with high nematode persistence. Over time, it appears that vessels have largely avoided nematode infected scallops due to the lower ex-vessel price they receive—it was suggested that vessels prefer fishing lower density areas farther to the north that are not subject to nematode infection because of how low the price is for nematode infected scallops that can be caught in higher densities to the south.

Discard and Kept Data Update from Northeast Fisheries Observer Program

Tyler Staples of the Northeast Fisheries Observer Program presented aggregate scallop discard and kept data from observed scallop trips in fishing years 2016-2019 (2019 data updated through June). Key points from the presentation and PDT discussion were:

- There appeared to be signs of discarding in the NLS-W in 2019, but not as high as might be expected based on the significant reduction in biomass in this area observed between 2018 and 2019. Fishing behavior in the NLS-West in 2019 suggested vessels would make two to four tows and then transit away from the high density area to lay up and cut. Observers noted that most vessels would not have clear decks before putting the next tow of scallops on deck.
- Observers did record a lot of clappers in the NLS-West, estimated at roughly 22,000 lbs for observed LA trips in 2019 (compared to roughly 4,000 lbs of clappers observed on open area LA trips in 2019).

Update on Scallop Meat Quality in CAII (CFF)

Dr. Liese Siemann of CFF presented information on meat quality in CAII and surrounds based on data collected through the CFF Seasonal Bycatch dredge survey. Specifics on the meat quality information can be accessed in P6) CFF Update on Meat Quality in CAII. There was limited PDT discussion on this topic, aside from acknowledging that the outlook for CAII and surrounds is very positive with regard to meat quality (i.e. little to no gray meats observed, or other meat quality issues).

Review of Survey Data Treatment Decisions

The PDT continued discussion from Day 1 on how to treat survey data and provided initial input on potential spatial management options in 2020. Discussion points and input are summarized below.

VIMS CL1-Sliver Sensitivity Analyses

The PDT had noted some divergence between the VIMS dredge and SMAST drop camera estimates for the CL1-Sliver SAMS area. It was suggested that a VIMS dredge station that observed very high density was potentially driving the overall estimate for this SAMS area to be high. As a sensitivity, this very high-density station was removed from the estimate, and lead to a marginal reduction in the overall biomass estimate for CL1-Sliver. Excluding the high-density station, the VIMS dredge estimate was still roughly double the SMAST drop camera estimate. The PDT felt that there was no justification for throwing out valid dredge data and felt

comfortable with using the average of the VIMS and SMAST estimates in this area moving forward.

CAII HabCam Estimates by Strata

The PDT revisited discussion on the divergence of VIMS dredge and HabCam estimates in CAII, focusing on the theory that poor stratification in CAII could be driving the VIMS dredge to overestimate. The PDT suggested a follow-up analyses to be reviewed at the next meeting, which would re-estimate strata 61 for "productive" and "unproductive" sub-strata, divided by the 40-fathom depth contour.

SMAST ET Follow-Up

Following up on past discussion regarding how the SMAST estimate in the ET-Flex and ET-Open may change if only scallops > 40 mm SH were included in the calculation. Dr. Bethoney presented this sensitivity and noted that a knife edge estimate for only > 40 mm SH scallops slightly increases mean meat weight in the ET-Open SAMS and did not change the estimate in ET-Flex. The PDT felt that data used in the SMAST estimate was not a problem, and suggested more sensitivity analyses be conducted for the HabCam estimate, specifically re-estimating biomass in ET-Flex using a range of methods (i.e. design-based, model-based, simple mean). It was also suggested that a sensitivity be done using CFF HabCam data in the ET for comparison.

Continued Discussion on the NLS-West

The PDT focused in on the significant decrease in biomass in the NLS-West estimated between 2018 and 2019. Generally, the 2019 survey data and estimation methods did not appear to be causative for the decrease, and the group considered other potential reasons for the drop in biomass. Some thought the decrease could be attributed to fishing practices, specifically deck loading and high grading which caused a spike in discard mortality. Others suggested that the NLS-West could have been subject to higher than normal natural mortality, although information on predators in the area did not compellingly support this theory. It was also suggested that, though unlikely, the 2018 biomass estimate and 2019 projection may have been overestimated, and that it will be important to exclude this as a reason before moving forward. Several industry representatives felt that operational discards (i.e. deck loading, and shoveling scallops back over after dying on deck) were likely to blame and felt strongly that workshops should be held to inform fishermen of more sustainable fishing practices.

Overall, the PDT acknowledged that allocating access to highly concentrated areas such as the NLS-West is a relatively new occurrence, and that the drop in biomass in the NLS-West be used as a lesson when considering similar options in the future.

2019 UMaine/Maine DMR Dredge Survey of the GOM

Cameron Hodgdon (UMaine) presented key findings from the UMaine/Maine DMR dredge survey of the NGOM. Key points from the presentation include:

- Survey coverage was slightly different than the 2016 survey (i.e. next most recent UMaine/ME DMR dredge survey)—survey stations in the area of Mount Desert Island and

on Fippennies Ledge were dropped, and the portion of Stellwagen Bank south of the NGOM was added in 2019.

- A review of the distribution of 35-75 mm scallops indicated that a high level of recruitment had occurred on Stellwagen Bank and to a lesser extent on Southern Jeffreys Ledge. Larger scallops (> 75 mm SH) were distributed across the southern extent of the survey domain and overall catch was lower in the northern extent (i.e. MSI, Platts Bank) relative to the southern extent.
- L-Fs for all survey areas estimated mean shell height to be 63 mm—this size distribution was driven by the extraordinarily high catches of < 55 mm scallops in Stellwagen Bank. Excluding catch from Stellwagen Bank, mean shell height across the survey area was ~110 mm.
- Based on known growth rates for Stellwagen Bank, most of the large year class observed there could be expected to reach approximately 75 mm in March 2020, over 101 mm by February 2021, and fully selective to the 4" ring by June 2021.
- There is direct overlap of the recruit class and larger year class on Stellwagen Bank.
- Outside of Stellwagen Bank, the highest densities and most exploitable biomass were observed on southern Jeffreys Ledge.
- A comparison of estimates between the 2016 and 2019 surveys suggests that total biomass in the NGOM has decreased over time, but abundance has increased.

Key points from PDT discussion:

- It was noted that dredge efficiency is typically reduced for the smaller size class of scallops observed on Stellwagen Bank—based on this, the significant recruitment observed could be underestimated. Regardless, the PDT acknowledged the magnitude of the incoming year class on Stellwagen as some of the strongest recruitment seen in recent history and felt that a spatial closure should be considered to protect it.
- The PDT noted the overlap of larger scallops and recruits on Stellwagen, and how this area has supported almost all of the directed fishing in the NGOM in recent years, as well as consistent fishing by LAGC IFQ vessels on southern Stellwagen (i.e. south of the NGOM boundary).
- Specific to the potential for spatial management for Stellwagen Bank, it was noted that the size distribution observed makes this area a candidate for closure under the rotational management criteria established in Amendment 10. The PDT also suggested that a closure be considered for the entirety of Stellwagen Bank (i.e. not just the portion inside of the NGOM), which spans from roughly 42° 30' N to 42° 10' N. Based on the high densities of exploitable scallops on southern Jeffreys and also in Ipswich Bay, the PDT felt that a closure on Stellwagen Bank would not prohibit a viable NGOM fishing opportunity in 2020.

NGOM Scallop Camera Monitoring Project 2019

Mark Hagar (Gulf of Maine Research Institute) and Mary Hudson (Maine Coast Fishermen's Association) presented information on year 1 of the electronic monitoring (EM) pilot project in the NGOM scallop fishery. The goal for this project is to develop a robust EM program that will

inform the development of camera monitoring in the NGOM, and to test the utility of camera monitoring on scallop vessels in general. Three NGOM vessels were equipped with cameras for the 2019 NGOM season. After receiving input from fishermen and fishery dependent data collectors, the data capture objectives were established as: counts of groundfish, scallop shell height measurements, kept scallops, discarded scallops, presence/absence of starfish and sand dollars, and fishing effort data (i.e. linked to tow length and GPS location information). Information on realized camera coverage and sample intensity can be found in P4) GMRI/MCFA NGOM EM Presentation. Main takeaways from year 1 of the pilot project were: 1) EM can be a useful tool to collect data from scallop vessels including counting groundfish, measuring scallop shells, estimating kept and discarded scallops, collecting effort information, and anecdotal data collection (for example, sand dollars). Key points from PDT discussion following the presentation:

- The current cost of outfitting a small scallop vessel with cameras can range between $7K-$10K. This represents a relatively small portion of an EM budget in that resources needed to review the data are more costly.
- The cameras and processor used in the NGOM project are capable of supporting Artificial Intelligence (AI) learning capabilities and could feasibly be taught to collect all the information of interest (e.g. shell height, scallop counts, flatfish species and length, etc.).
- Data storage can be an expensive part of EM programs when conducted on a large scale. Efficient and inexpensive data transmission and storage will be an important part of making EM economically viable moving forward.
- Related to defining a standard sampling rate, a member of the PDT suggested oversampling to start out, and using an expansive data set to determine what level of sampling is needed for accurate estimates of catch and bycatch.
- It was suggested that a lot of information can be recorded without the use of a camera, but that having cameras on fishing vessels holds people accountable for what is reported and could ultimately improve overall reporting accuracy.

A21: Committee Tasking to Develop Options for Allocation Shares

Council staff presented a range of potential ways that the Council could think about determining an allocation split in the NGOM management unit. The Scallop PDT discussed several options for developing an allocation share for LA, LAGC IFQ, and LAGC NGOM permit holders.

- To support the development of Amendment 21, the PDT has assembled data on the number of active LAGC NGOM permits, the number of trips taken per vessel per year in the NGOM, total trips taken per year, and average landings per trip. The PDT has also gathered data on the seasonality of the NGOM fishery, and the proportion of revenue derived from directed scallop fishing in the NGOM relative to other fisheries.
- If the Council has a particular vision for this component of the fleet, then the Council might consider the number of permits and number of trips (at 200 lbs) that would participate in the fishery in a given year. Multiplying number of vessels (active, or total permits) by number of trips by the trip limit would result in an estimate of total removals in a given year. The PDT

noted that there could be some activation of latent effort in the future (~40 active boats in 2019 of ~100 total NGOM permits). The group also noted that, depending on the relative size of the TAC, LAGC NGOM fishing practices could change in the future. The group also noted the comments received during Amendment 21 scoping suggested the current fishery participants are happy with the way the fishery is currently being administered, and like that the majority of fishing occurs at the start of the fishing year.

- The PDT discussed considering allocation options at different biomass levels within the NGOM management unit – and completing the above exercise to illustrate how the LAGC NGOM component could be impacted at different levels of allocation.
- The PDT noted that the NGOM TAC split decision in Frameworks 29 and 30 was considered temporary, and that an allocation decision in Amendment 21 will be the new allocation standard for this area.
- The PDT noted that harvest from the NGOM management unit has been a relatively small portion of the overall harvest. The LA fleet operated in the NGOM in 2016 and 2017 under DAS when catch rates (LPUE) were higher.

Discuss Recommendations for 2020 Council priorities for Scallop FMP

Council staff reviewed the list of current work priorities (see Doc.6) and solicited input from the PDT related to potential 2020 work priorities for the Council to consider. PDT discussion was brief, but highlighted the importance of addressing issues related to how GB yellowtail is managed between the Groundfish and Scallop FMPs, and also suggested that the "evaluation of rotational management" and "LA performance review report" priorities be combined considering that there would likely be significant overlap between the two.

Other Business

No other business was discussed. The meeting adjourned at 2:42 PM.

New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
John F. Quinn, J.D., Ph.D, *Chairman* | Thomas A. Nies, *Executive Director*

MEETING SUMMARY

Scallop PDT Meeting

July 24, 2019
Mariners House, Boston, MA

The Scallop PDT met in Boston, MA on July 24, 2019 to: 1) GB yellowtail: Develop options for mitigating impacts on GB yellowtail, and discuss a draft memo to the Groundfish PDT; 2) Amendment 21: Develop draft alternatives based on Committee tasking, and consider data needs for affected environment and analysis of valued ecosystem components (VECs); 3) 2019 Surveys: Discuss timelines, standardization, and outputs for FW32; 4) FY2018 & FY2019: Review landings and VMS data, and; 5) discuss other business.

MEETING ATTENDANCE: Jonathon Peros (PDT Chair), Sam Asci, Dr. Naresh Pradhan, Dr. Rachel Feeney, Dr. David Rudders, Dr. Bill DuPaul, Dr. Dave Bethoney, Travis Ford, Ben Galuardi, Dr. Dvora Hart, Chad Keith, Dr. Cate O'Keefe, Tim Cardiasmenos, and Mike Kersula. Approximately 6 members of the public were in attendance.

The meeting began at 10:10 am. Following roll call, Council staff briefly reviewed the agenda and provided the PDT with a list of upcoming meetings.

Mitigating impacts to Georges Bank yellowtail

Biweekly GB yellowtail bycatch analyses: The PDT received a presentation on GB yellowtail bycatch trends in the scallop fishery at two-week increments. The analyses were tasked by the Scallop Committee in May 2019 to inform the potential extension of the current seasonal closure of CAII access area.

Key PDT discussion points and recommendations:

- It was suggested that extending the existing CAII closure (August 15th – November 15th) to include late fall/early winter would likely do more for reducing flatfish bycatch compared to extending the closure earlier in August. It was noted that scallop meat yield tends to be lower during the late fall/early winter in CAII, and there are potential safety concerns to consider related to fishing on eastern GB during that time of year (i.e. there are less favorable weather/fishing conditions during the winter).
- The PDT noted that extending the seasonal closure into late fall/early winter would likely reduce both GB yellowtail and Northern windowpane bycatch.
- Outside of the time window considered in analyses, the PDT noted that the month of April appears to have very high GB yellowtail bycatch in CAII. A PDT member suggested that delaying the opening of CAII for the month of April (i.e. the first month of the scallop

fishing year) would help reduce GB yellowtail and Northern windowpane bycatch and would have a positive impact on the scallop resource in that it would also align fishing effort more closely with higher scallop yield.
- A member of the public felt that if the current CAII seasonal closure were to be extended, the potentially negative impacts of displaced effort on other flatfish stocks should be considered.

Review of extended link gear modification research findings: Farrell Davis of the Coonamessett Farm Foundation (CFF) presented findings from a recent RSA project that assessed a modified gear (i.e. extended link) to reduce bycatch of GB yellowtail and other non-target species. The final report for this study can be accessed at the following link: https://www.nefsc.noaa.gov/coopresearch/pdfs/FR17-0032_Revised.pdf.
Key points from PDT discussion:
- Mr. Davis explained that the CFF seasonal bycatch survey has continued examining flatfish reduction parameters of a modified dredge with a 5-row apron and 1.5:1 hanging ratio relative to a standard 7-row apron dredge. This modified gear was first introduced in a 2012 study and has since been integrated into the Scallop FMP as a reactive accountability measure for Northern/Southern windowpane and SNE/GB yellowtail flounder stocks. More recent comparisons suggest that the bycatch reduction of a 5-row apron relative to a 7-row apron may be less than what was estimated in the 2012 study; it was suggested that this is in part due to GB yellowtail catch in the survey being highly variable and generally dwindling over time as well as variability in scallop catch and length-frequency over the time series. Overall, it appears that shortening the dredge apron (i.e. 5-row) is reducing flatfish bycatch relative to a 7-row apron, but not eliminating it.
- Mr. Davis presented relative bycatch savings that could be expected from using the extended link in different parts of CAII on a seasonal basis. This exercise used preliminary yellowtail and windowpane bycatch rates estimated from the CFF seasonal bycatch survey in CAII at the station level. Yellowtail and windowpane savings appeared to be greatest during late winter/early spring (i.e. February to April), and savings appeared to be most substantial along the shallow depth contour in the central and northeast portion of CAII AA.
- The PDT discussed whether the savings gained from the extended link would substantially reduce overall bycatch across the fishery. Mr. Davis explained that this reduction estimate is based on pooled data from all survey trips conducted, which makes it difficult to see the bycatch savings gained from the extended link due to variability in yellowtail and scallop catch over time. He further suggested that a much greater reduction in yellowtail could be expected if the extended link was used in areas with very high yellowtail catch.
- Mr. Davis noted that some industry members are already using the extended link gear configuration voluntarily because it makes for cleaner tows. A member of the PDT suggested this point be raised to the NEFOP to ensure that the extended link configuration is accounted for in observer records (which it is currently not).

Summary of recent Closed Area II fishery data: The PDT received a presentation on scallop fishery data (i.e. cumulative landings by market grade, average market price, landings and revenue by state landed, total value of scallops landed) related to fishing in Closed Area II in FY2017.

Key points from PDT discussion:

- The PDT highlighted the significant economic value of access to CAII in FY2017 (i.e. approximately $63 million) and agreed that this information should be included in the GB yellowtail memo to the Groundfish PDT.
- Based on interannual trends in price and landings from CAII and CAII-ext, vessels that fish CAII later in the year seem to have better economic gain.
- A member of the PDT suggested comparing the value of a CAII access area trip to the scallop fishery with the overall value of the GB yellowtail stock. They felt that this comparison may better inform reliance of each fishery on GB yellowtail and open the door for future discussions on how the overall GB yellowtail ACL is partitioned. Several PDT members supported this idea, though the PDT did acknowledge that the focus of the memo should be on scallop fishery activity on eastern Georges Bank.
- It was suggested that additional measures to reduce GB yellowtail bycatch being developed in FW32 should not be implemented if scallop fishery bycatch projections for FY2020 are below the scallop fishery sub-ACL.
- Several members of the PDT supported looking at historical annual d/K ratios of GB yellowtail and how they might correlate with scallop survey indices over time.
- A member of the PDT noted how trading CAII trips is common among LA vessels, especially vessels in the southern range of the fishery that may not be able to access CAII as easily as vessels that are homeported in closer proximity to CAII. They felt this may be worth investigating and sharing with the SSC.
- The PDT suggested analyzing vessel dependence on CAII as a way to describe the overall value of this part of the resource to individual scallop vessels.

PDT recommendations related to GB yellowtail:

- Ideas from the PDT for FW32 alternative development include:
    1. Consider a finer spatial scale closure in CAII (i.e. central and northeast part of the access area).
    2. Consider a maximum hanging ratio for the fishery (i.e. in addition to a maximum apron length).
    3. Consider the month of April in time/area closure or gear restricted area analyses moving forward due to the bycatch reduction potential and benefits to the scallop resource.
- Overall, the PDT felt that the GB yellowtail sub-ACL should scale with the scallop fishery's access to CAII

Amendment 21—NGOM Management:

The PDT continued discussion around potential alternatives for consideration in Amendment 21 related to NGOM management issues. The following sections summarize key points and recommendations from PDT discussion around each sub-issue to be addressed in A21.

Hardwire access for LA fishery in NGOM under range of biomass:

The PDT reviewed input from a recent NGOM sub-group discussion on approaches for allocating NGOM access to the LAGC and LA components at a range of biomass. From a biological perspective, the sub-

group recommended examining carrying capacity of the NGOM in terms of scallop biomass as a starting point. The PDT reviewed biomass estimates from recent surveys in the NGOM and focused on total/exploitable biomass estimates from the 2016 ME DMR/UMaine survey which covered the majority of known fishing grounds within the area. The sub-group felt that the 2016 survey could be representative of "high" biomass in the NGOM at around 5 million pounds.

- The on-going 2019 survey conducted by ME DMR/UMaine has similar coverage to the 2016 survey, excluding the eastern Maine area (i.e. surveyed in 2016) and with the addition of southern Stellwagen Bank (i.e. south of the NGOM boundary).
- It was noted that for the rest of the resource, allocations are based on projected exploitable biomass—a member of the PDT recommended that scallops 75 mm or greater detected in the 2019 NGOM survey should be expected to reach exploitable size by FY2020 (i.e. based on typical annual growth rates).
- The PDT agreed that the threshold for allocating NGOM access to the LA component should be based on exploitable biomass.

Minimizing the current derby-style fishery: The PDT reviewed discussion points from a recent NGOM sub-group call relating to measures that would minimize the current derby-style fishery in the NGOM. Staff presented fishery data to help inform discussion on this issue, including the number of trips per week by active vessels in the NGOM in FY2019, the number of occurrences when a vessel sailed two times in one calendar day, and the revenue from NGOM scallops relative to other fisheries by vessels active in the NGOM over the past several years.

- The PDT noted that recent NGOM TACs have been based on biomass and anticipated fishing effort on Stellwagen Bank and Jeffreys Ledge. Considering that vessels tend to fish where catch rates are high (i.e. Stellwagen, Jeffreys), it was suggested that limiting the number of times a vessel can sail in a week may only marginally lengthen the NGOM season and do little to spread effort out across the rest of the NGOM.
- The PDT reviewed two potential solutions to spreading effort out across the fishing year as discussed by the sub-group: 1) limit the number of times a vessel can sail per week (e.g. 4 times per week)—this would lengthen the season, but may encourage boats to fish when conditions are less safe, potentially favoring larger vessels involved in the NGOM fishery; 2) partition allocation into multiple TACs (i.e. 2 seasons, trimesters, or quarters)—this would spread out landings over the course of the year, although it may not necessarily extend a "spring" season.
- The PDT noted that extending the NGOM season—specifically, the effort on Stellwagen seen in the past few years—would likely create gear conflicts with fixed gear that gets fished later in the spring.
- The PDT noted that spreading out effort spatially may be accomplished by partitioning the overall TAC to sub-areas within the NGOM. The PDT was weary of employing fine-scale rotational management due to data limitations and variability in the NGOM resource, but felt

that allocating the overall TAC to two broader areas (i.e. north and south) could provide opportunity to vessels that have not fished on Stellwagen in April the past few years.

- The PDT discussed tradeoffs associated with NGOM management measures and noted that increased complexity (i.e. fine-scale spatial and temporal management) will likely require additional annual PDT resources.
- The PDT noted that most scoping comments received on this topic were in favor of keeping the current timing of the NGOM fishery (i.e. early spring), and that there were very few comments in support of extending it. Considering this, the PDT felt that more clarification was needed from the Committee on what these measures are trying to achieve (i.e. extend timing of the fishery to allow more vessels to participate that are active in other fisheries during the spring, extend the length of the NGOM fishery for the vessels that have fished it recently, spread effort out spatially) before developing alternatives further.

IFQ usage in state water fisheries: The PDT reviewed the Committee motion around removing the requirement for LAGC IFQ/state licensed scallopers to use IFQ when fishing in state waters of the NGOM, and discussed the structure of the state waters exemption program, including how exemptions are established.

- It was suggested that this exemption could negatively impact state fisheries that do not set annual TACs (i.e. Massachusetts) because dually permitted LAGC IFQ/state waters vessels may be incentivized to fish in state waters to avoid using IFQ. This ramping-up of effort could lead to an unintended increase in fishing mortality for the state waters resource.
- The PDT noted that enforcing this exemption would be very difficult; for example, dually permitted vessels fishing in state waters would never cross the demarcation line after declaring out of the federal fishery, making it very difficult to track fishing activity. A member of the PDT suggested that if this exemption is pursued, dually permitted vessels should have to declare out of the federal fishery for the entirety of the state waters season.
- The PDT acknowledged that the overarching issue with this exemption is that both federal and state waters landings were considered in the qualification criteria for the LAGC IFQ program (at that time, it was difficult to distinguish federal vs. state landings during the qualification period). The PDT agreed that exempting the use of IFQ in state waters fisheries would allow for "double dipping" and would create an equity issue for the entire LAGC IFQ component.
- It was noted that the state waters exemption program was established to allow federally permitted vessels access to state water fisheries. Considering that LAGC IFQ vessels already do have access to state water fisheries (i.e. under the condition that they must use IFQ when participating in them), several PDT members agreed that an exemption from this requirement is more about circumventing federal regulations.
- The PDT recommended examining how many LAGC IFQ vessels are using quota to land state scallops.

- The PDT suggested that allowing LAGC IFQ vessels to participate in the state waters fishery does not achieve the NGOM objectives identified by the Council in Amendment 21.

2019 Scallop Survey Data

The PDT briefly discussed survey data deadlines, standardization of survey reports/data, and how SAMS model outputs will be structured for FW32. The "short report" format established in 2018 will be used again this year. The updated SAMS area configuration and area names will also be used for 2019 survey short reports and data visualization. SAMS model outputs of projected bycatch, swept area, and fishing mortality by SAMS area will be referenced in the impacts section of FW32.

Review 2018 Final Scallop Year-End Report

Ben Galuardi (GARFO, APSD) provided a brief presentation of the FY2018 scallop fishery year-end report, which describes realized landings relative to allocated/projected harvest for the year.

- It was noted that there was an overage of the LAGC share of the NGOM TAC in FY2018—this overage will be taken off next year's (i.e. FY2020) TAC.
- The PDT observed that FY2018 realized catch was very close to what was projected for the fishery. The PDT discussed potentially examining fishery performance with what was projected for past years to inform how the SAMS model is performing. Dr. Hart noted that work is underway to compare realized LPUE by SAMS area (i.e. based on VTR and VMS data) with SAMS LPUE projections over the past several years—this is intended to help track performance of projections in the past, and to better understand the connection between LPUE and biomass to inform expected fishing effort by SAMS area based on projected exploitable biomass. Dr. Hart noted that the connection between LPUE and exploitable biomass in open areas will be investigated first.
- Staff noted that state waters landings are accounted for in the ACL flow chart of each specifications action, estimated as the average of the preceding three years. It was noted that 2019 Maine state waters landings are not expected to change (relative to last year). Dr. O'Keefe (MA DMF) acknowledged that the increase in state waters landings may be due to Massachusetts state scallop fishery; although, information is not available on exactly how much landings increased or where the effort was taking place (i.e. due to a lag in data processing). It was noted that 2018 Massachusetts state landings data will be available before finalizing the overall state waters landing estimate in FW32.

Review of FY2018 VMS Activity

Staff updated the PDT on scallop fishery VMS hours fished for the complete 2018 fishing year and first two months of FY2019 (i.e. heat maps of fishing activity and breakdown of effort by SAMS area). The PDT noted that effort within the ET-Flex SAMS area appeared to have the

same spatial footprint in FY2018 as it did in April/May of FY2019. The group also flagged 2018 effort in Delmarva, which was unexpected.

FY2019 Scallop Grades and LPUE

Ben Galuardi (GARFO, APSD) provided the PDT with an update of FY2019 to-date market prices and open area LPUE. A member of the PDT commented that with the increasing size of the open area LPUE time series, a decomposition exercise could be performed to better describe annual, seasonal, and long-term trends in catch rates. Landings in recent years have trended toward larger market grades, which is expected since 1) the fishery is harvesting scallops that were part of the exceptional 2012- and 2013-year classes, and 2) recruitment has been unremarkable for several years.

Other Business:

No other business was discussed. The meeting concluded at 3:53 PM.