New England Fishery Management Council
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MEETING SUMMARY
Scallop PDT

Coonamessett Inn, Falmouth, MA

August 29th-30th, 2017

The Scallop PDT met on August 29th and 30th, 2017 in Falmouth, MA to: (1) review 2017 scallop survey results, (2) discuss how to address slow growth of scallops in some areas of the Nantucket Lightship, (3) review combined 2017 biomass estimates, (4) review FY2016/FY2017 fishery data and other relevant data for developing specifications, (5) review kept and discard data from NEFOP, (6) discuss data decisions for modeling and possible specifications and management scenarios for Framework 29, (7) review 2017 NGOM scallop survey results (SMAST/CFF) and discuss preliminary modeling approaches (NEFSC), (8) review Framework 29 management measures, (9) review updated price model for Framework 29, (10) discuss estimated scallop fishery catch of winter flounder on Georges Bank, (11) discuss recommendations for 2018 Council priorities for the Scallop FMP and potential research tracks for the Scallop RSA, and (12) discuss any other business.

MEETING ATTENDANCE: Jonathon Peros (PDT Chair), Dr. David Rudders, Dr. Dvora Hart, Dr. Demet Haksever, Dr. Bill DuPaul, Danielle Palmer (via teleconference), Dr. Cate O'Keefe, Tim Cardiasmenos, Chad Keith, Kevin Kelly, Carl Wilson, Travis Ford, Benjamin Galuardi, Dr. Dave Bethoney, and Sam Asci. Mark Alexander, Chair of the Scallop Committee was present in the audience, along with representatives of each survey group. There were approximately 38 members of the public present in the audience each day.

SUPPORTING DOCUMENTATION: Discussions were aided by the following documents and presentations:
(1) Scallop survey presentations – Day 1 (VIMS, SMAST, WHOI, CFF, NEFSC), (2) Draft combined biomass estimates for 2017, (3) Northern Gulf of Maine survey presentations and biomass estimates – Day 2 (SMAST/CFF/NEFSC), (4) Final PDT Meeting Summary, July 18, 2017, (5) FY2016 and FY2017 scallop VMS fishery data, (6) LPUE and landings/price data by market grade, (7) Kept and discard information from NEFOP observer program, (8) Draft FW29 Action Plan, (9) Flatfish Accountability Measures, (10) Northern Gulf of Maine Management Measures, (11) Draft 2017 Price Model, (12) Draft 2018 Scallop Work Priorities and potential research priorities, (13) Draft winter flounder memo to groundfish PDT, (14) Hennen and Hart paper on SHMW relationships, Journal of Shellfish Research, 2012, (15) Scallop PDT memo to SSC, dated October 12, 2016, and (16) SSC memo to Mr. Tom Nies, dated November 10, 2016.

KEY OUTCOMES:

- The PDT reviewed the results of 2017 scallop surveys, and began an initial discussion of potential 2018/2019 specifications. While the overall biomass estimate increased from 2016 to 2017, the 2017 surveys did not detect strong signs of incoming recruitment.
- The PDT recommended using shell-height meat-weight (SH:MW) parameters from Hennen and Hart (2012, also SARC 50) for all SAMS areas, except the NLS-AC-S and NLS-NA. In these areas, the PDT recommends using SH:MW parameters developed using data from the 2016 and 2017 VIMS survey without the interaction variable, to more accurately characterize the anomalous slow growth of animals in high densities in these two SAMS areas. The PDT will discuss growth assumptions at its next meeting.
- The PDT did not recommend any changes to the current SAMS areas based on the data presented at this meeting.
- The PDT discussed survey dredge efficiency in high density areas. After reviewing survey results and analyses presented by Dr. Hart, the PDT recommends that this issue be discussed at the upcoming benchmark assessment. By consensus, the PDT did not recommend any changes to how the dredge data is treated in FW29.
- By consensus, the PDT recommended using the mean of the three surveys (dredge, drop cam and HabCam) to combine biomass estimates. If time allows, Dr. Hart may bring forward a sensitivity analysis that combines data from the three surveys using geostatistical methods ('Grand Model').
- The PDT further refined its recommended approach to setting a TAC for the Northern Gulf of Maine Management Area by including the biomass estimates from the 2016 UMaine/DMR survey of areas that were not fished in 2017. Given the results of 2017 surveys in the NGOM, the PDT anticipates that the vast majority of fishing effort in 2018 will be in areas of the highest scallop density (i.e. Stellwagen Bank).
- The PDT recommends that the Council consider setting a TAC for the Northern Gulf of Maine management area for 2018 and 2019 (default TAC in 2020), with the option of revisiting the 2019 and 2020 values if new information becomes available next year.
- Given biological considerations, particularly in the CAI "sliver", the PDT recommends that follow-up to any changes made through OHA2 be a top priority for 2018.

The meeting began at 10:10 am. Council staff welcomed the PDT and members of the audience to the meeting.

2017 Scallop Survey Presentations

The 2017 SAMS areas are shown by region in Figure 8 (Mid-Atlantic Bight) and Figure 9 (Georges Bank).

An Assessment of Sea Scallop Abundance and Distribution in the Mid-Atlantic Bight, Nantucket Lightship Closed Area and Closed Area II—Sally Roman, Virginia Institute of Marine Science

The primary objective of the VIMS cooperative dredge survey was to assess the abundance and distribution of scallops in the Mid-Atlantic Bight, Nantucket Lightship Area, and Closed Area II. Between late May and early August of 2017, VIMS completed 440 stations in the Mid-Atlantic

Bight (MAB), 100 stations in Closed Area II (CAII), and 115 stations in the Nantucket Lightship Area (NLS). For each SAMS area, area swept biomass estimates were calculated using dredge efficiency parameters and shell height to meat weight (SH:MW) parameter estimates from SARC 59 (2014).

Fifteen SH:MW samples were taken at each station, equating to approximately 5,500 samples in the MAB, 1,000 samples in the NLS, and 1,000 samples in CAII. SH:MW samples were used to construct a model to predict meat weight based on a suite of potential covariates (i.e. shell height, depth, SAMS area, sex, disease, etc.). SH:MW relationships for some SAMS areas within each survey region were found to be significantly different.

Length frequency information suggested some recruitment had occurred in the Long Island (LI), Elephant Trunk open (ET-open), and the Mid-Atlantic Inshore (MAB-Inshore) SAMS areas. Length frequency information from the NLS suggested that 5-year-old scallops in NLS-South (NLS-AC-S) have continued to grow uncharacteristically slow (mean shell height of 77 mm in survey dredge). Larger scallops were observed in NLS-North (NLS-AC-N) and a slight increase in the size of smaller scallops was seen in the NLS-Extension (NLS-Ext). Survey effort in CAII showed an increase of smaller scallops in CAII-Extension (CL2-S-Ext) and a broader size range of scallops in both CL2-S-Ext and CAII-South (CL2-S-AC) compared to 2016.

The VIMS survey suggests that the majority of scallop biomass in the Mid-Atlantic Access Areas continues to be in the Hudson Canyon area, ET-open, and ET-closed SAMS areas. The majority of pre-recruits (scallops <= 75 mm) were observed along the western portion of ET-closed. An overall patchy distribution of scallops was seen across the NLS, with the majority of biomass being held in NLS-AC-N. Both the adult and pre-recruit scallops observed in CAII were distributed to the east of CL2-S-AC and in the adjacent shallower portions of CL2-S-Ext.

Total biomass, exploitable biomass, and average meat weight estimates by SAMS area were presented to the PDT. Based on PDT discussion, values in this table will be updated, and an updated version will be provided using shell-height meat-weight parameters from Hennen and Hart (SARC 50), and VIMS dredge data from 2016/2017.

Discussion:
It was noted that findings from the 2017 VIMS dredge survey have been relatively consistent with findings from the last three survey years, with notably less recruitment. A member of the PDT noted that the 2-3 year old scallops seen in CL2-S-AC and CL2-S-Ext would likely recruit to the fishery in 2018. The PDT also inquired about the difference in average meat weight seen in northern Mid-Atlantic compared to southern Mid-Atlantic, noting that the difference could be a result of spawning cycle and the timing of VIMS surveys. VIMS has correlated spawning condition with SH:MW regressions in the past, however, this analysis had not yet been performed for 2017.

Another member of the PDT suggested that the recruitment observed in Delmarva (DMV) was not at the same magnitude of the recruitment observed in ET. To this point, Dr. David Rudders (VIMS) noted that the resource in DMV has seemed to shrink over time despite very little fishing

occurring there. Similar recruitment had been detected in DMV in the past, however, these smaller scallops have rarely grown out and recruited into the fishery.

2017 SMAST Drop Camera Survey Results—Dave Bethoney, School for Marine Science and Technology

The SMAST drop camera completed a broad scale survey of Georges Bank and the Mid-Atlantic, and high-resolution surveys in the ET, Closed Area I Access Area (CAI AA), and CAII AA and extension. These surveys were conducted in 9 survey legs between late April to mid-July. Prior to 2017, the SMAST drop camera survey employed the use of a Kongsberg digital still camera (DSC); the camera system was overhauled prior to the 2017 survey season to include an updated Imperex DSC. The Imperex DSC delivers similar resolution as the Kongsberg system but with an increased quadrat frame (Imperex = 2.3 m^2, Kongsberg = 1.7 m^2). The majority of the broad scale and high-resolution surveys used the Imperex system (see July 18th PDT discussion for details).

Survey findings suggest some recruitment had occurred in CL2-AC-S and CL2-S-Ext. The larger scallops (>= 100 mm) seen in the 'sliver' (northern portion of Closed Area I Access Area (CL1-AC) and adjacent Closed Area I No Access North (CL1-NA-N)) in 2016 were observed again in the 2017 survey.

Total biomass and exploitable biomass estimates were calculated using SH:MW parameter estimates from SARC 50 (see Hennen and Hart 2012), however, it was noted that biomass estimates could be recalculated if the PDT preferred using different SH:MW parameter estimates (i.e. SARC 59, VIMS 2016/2017 combined).

Scallop density across the NLS was approximately 1.34 m^{-2}, with higher densities of scallops in NLS-AC-S (~ 9 scallops m^{-2}). This high density aggregation of scallops seen in NLS-AC-S in 2017 was comparable to density seen in 2016, with a slight increase in growth. A notable increase in scallop density was seen in NLS-Ext in 2017 compared to the 2016 survey (2016 = 0.70 scallops m^{-2}, 2017 = 2.24 scallops m^{-2}); however, very few stations were surveyed in NLS-Ext in 2017, which increased uncertainty and lead to a potential overestimate of density in this SAMS area. It was also noted that one survey station in NLS-Ext observed approximately 300 scallops, and that this station was likely driving the density estimate for the area. The 2017 survey of NLS-AC-N showed scallop density of 0.42 m^{-2} and mean shell height of 121.1 mm, which was approximately the same as findings from the 2016 survey. The 2017 survey of NLS-NA showed scallop density was 2.76 m^{-2} and mean shell height was 96.6 mm; compared to the 2016 survey, these findings suggest a decrease in density (4.02 scallops m^{-2} in 2016) and an increase in mean shell height (83.3 mm in 2016) had occurred.

Findings from the high-resolution survey of CL2-S-AC and CL2-S-Ext suggested that recruitment had occurred in the shallower portion of CL2-S-Ext, and that larger scallops (>= 100 mm) observed in previous surveys have continued to grow. It was also noted that the majority of harvestable scallops were observed within CL2-S-AC.

The 2017 survey of CL1-NA-N showed that the 'sliver' continues to hold high densities of larger scallops (>= 100 mm), and that little to no recruits were observed in the area. It was noted that deeper water scallops in CL1-NA-N seem to be untouched and covered with benthic organisms. When compared to the 2016 survey footprint, no real difference was seen in scallop density (0.44 scallops m^{-2} in 2016, 0.67 scallops m^{-2} in 2017) or mean shell height (113.7 mm in 2016, 114.1 in 2017); however, exploitable biomass did seem to increase between 2016 (4,000 mt) and 2017 (6,400 mt). Dr. Dave Bethoney noted that it will be important to assign effort to this area once OHA2 is implemented, and asked how this may be done as part of Framework 29.

Surveying efforts in the Mid-Atlantic showed that some recruitment had occurred in the inshore region of ET, primarily the southwest portion of ET-closed. Larger scallops have persisted in ET-closed and ET-open; however, these larger scallops were generally farther east and away from the recruits. Recruitment was also seen in DMV, LI, and Block Island (BI), but to a much lesser extent than what was observed in ET.

The PDT was notified that SMAST is currently working to make quadrat images available to the public through an online data sharing portal. Council staff acknowledged the SMAST group for taking on more survey work than originally proposed, and thanked them for providing estimates by the August 1st deadline.

Discussion:
A member of the public made an inquiry about the year class of scallops observed in the CAI 'sliver', and asked if any meat quality work had been done by surveys groups. Dr. Dvora Hart noted that most of the scallops in this area are 7 years old, and that NEFSC dredge tows from the 2017 survey suggested meat quality was good. Dr. Dave Rudders suggested that a mix of year classes are in CAI and that meat quality of the older year classes seemed to be reduced as a result of aging.

With respect to the ongoing review of the OHA2, Travis Ford (GARFO) noted that a proposed rule has not been published for OHA2. Once a proposed rule is published, NMFS will have no longer than 95 days to determine if all, or a portion of the Amendment will be approved. He further noted that undetermined timing of a proposed rule and the timing of Framework 29 development make allocating access to CAI less than ideal for FY2018; however, he also noted the possibility of making said allocation contingent on whether or not a final rule for OHA2 is published. Council staff noted that adjusting CAI boundaries to be consistent with OHA2 was done as part of last year's priority list, and that this work could potentially be incorporated into FW29 as a 'contingency plan'.

GARFO staff further explained the potential scenario where parts of OHA2 (i.e. Georges Bank, Southern New England/Mid-Atlantic) are approved while some parts are not. This could have implications on post-OHA2 scallop management because management areas span different regions of OHA2; for example, if the Georges Bank portion of OHA2 was not approved but the Southern New England/Mid-Atlantic portion was, the Council would not be able to recommend access to CAI, but would be able to recommend access to newly opened areas in the NLS. Under this potential scenario, it was suggested that the growth potential of the current 5 year-old scallops in the NLS habitat closure could support access area trips in the following year.

Impact of Disturbance on Habitat Recovery in Habitat Management Areas on the Northern Edge of Georges Bank, Ecosystem Perturbation Experiment—Scott Gallager, Woods Hole Oceanographic Institution (WHOI)

HabCam v5 was used to complete a high-resolution survey of scallop abundance in the habitat management areas (HMAs) of CAII to provide information to the Council as to where targeted scallop fishing might be allowed on a limited basis while concurrently mitigating impact on habitat. Researchers from WHOI worked collaboratively with Lund's fisheries to complete optical surveys of Closed Area II North and the northern flank of Georges Bank. It was noted that these survey areas were based on the proposed HMAs from OHA2, and that the eastern portion of the survey area was open to fishing during the survey period.

A total of 852,145 image pairs were taken over the two-year survey period, of which 17,105 images were annotated (1:50 annotation rate), resulting in an imaged area of approximately 851,000 m^2. The size frequency of scallops across the survey area were partitioned into three categories: small (< 30 mm), medium (30 to 90 mm), and exploitable (> 90 mm). Exploitable shell heights were based on parameter estimates from DuPaul (2008). Biomass estimates for each survey area were derived by gridding the observed along-track abundance from HabCam tows to a 30 m^2 grid, and interpolating via Ordinary Kriging with depth as a co-variate.

Within an area proposed by the Council as a reduced impact habitat management area, the density and biomass of exploitable scallops was concentrated primarily in the northern portion of the survey area, medium scallops were observed slightly south, and smaller scallops were minimal and sporadically distributed suggesting that very little recruitment had occurred. The density and biomass of exploitable, medium, and small scallops was far less outside of this area.

In addition to biomass estimates, WHOI investigated the correlation between habitat characteristics and scallop abundance, including the interaction of depth contours, substrate contours (i.e. sand, shell hash, gravel, mixed sand and gravel), and epifaunal contours (i.e. lacy tube worms, mussels, bryozoans). Epifauna were found concentrated in areas of the proposed reduced habitat impact area between 60-70 m isobaths and showed little to no overlap with scallop aggregations.

WHOI also used sonar logs to identify dredge tracks from past experimental dredge surveys (i.e. VIMS, NEFSC) and performed HabCam tows along said tracks. Images from HabCam tows over known experimental dredge survey tracks provided insight on the impact of dredging on epifaunal communities.

Discussion:
A member of the PDT noted that though the WHOI HabCam survey area did not entirely cover the CL2-N-NA SAMS area, survey findings could potentially be paired down to provide a biomass estimate in the portion of CL2-N-NA that was surveyed. It was also suggested that experimental tow locations could be used to provide an area swept biomass estimate.
Another member of the PDT recalled that previous surveys in the Northern Edge HAPC observed scallops that were completely encrusted with growth, and inquired if this had any effect

on detecting scallops when HabCam images were being annotated. Dr. Scott Gallager acknowledged that this may contribute to the detection of smaller organisms; however, larger scallops must be able to filter so they are typically exposed on top of the seafloor and detectable by HabCam.

2017 RSA HabCam v3 Survey, Nantucket Lightship—Jason Clermont, Coonamessett Farm Foundation (CFF)

The Coonamessett Farm Foundation surveyed the NLS using HabCam v3 between July 15th and July 22nd, 2017. CFF HabCam tracks were spaced east to west by 1.5 nmi, resulting in a total survey area of approximately 875 nmi^2. A portion of the survey track was shifted from the initial proposed survey track in order to avoid areas with difficult bathymetric features (i.e. high current, sand waves) which made sampling near impossible. Of the ~3.7 million HabCam images collected, 10,745 were annotated (1:400 annotation rate).

The majority of the biomass in the NLS continues to be in NLS-AC-S, followed by the NLS-NA SAMS areas. Very few scallops < 25 mm were seen across all NLS SAMS areas. A pulse of pre-recruits (25-50 mm) were observed in NLS-AC-S. Scallops 50-75mm were most dense in NLS-AC-S and in a small portion of NLS-NA. Thick aggregations of 75-100 mm scallops were observed across NLS-AC-S, some were observed NLS-NA, and in a very concentrated area in NLS-Ext. It was noted that CFF HabCam findings were consistent with SMAST in that a very dense aggregation of scallops in a small portion of NLS-Ext seemed to be driving biomass estimates in this SAMS area. Larger size classes of scallops (i.e. 100-125 mm, 125-150 mm, 150-190 mm) seemed to be prevalent in shallower water located farther north in the NLS, suggesting scallops in the same year-class have been growing faster at shallow depths. CFF HabCam findings were generally consistent with SMAST and VIMS in that NLS-AC-S was holding the majority of biomass in the Nantucket Lightship (Table 1).

The CFF HabCam survey identified a sizeable aggregation of sea stars (*Astropecten americanus*) in deep water south of the southern boundary of NLS-AC-S. This area of dense sea stars was devoid of scallops.

Table 1. CFF HabCam v3 biomass estimates for the Nantucket Lightship by SAMS area. Biomass estimates were calculated with both SARC 50 (Hennen and Hart 2012) and combined VIMS 2016/2017 SH:MW parameter estimates.

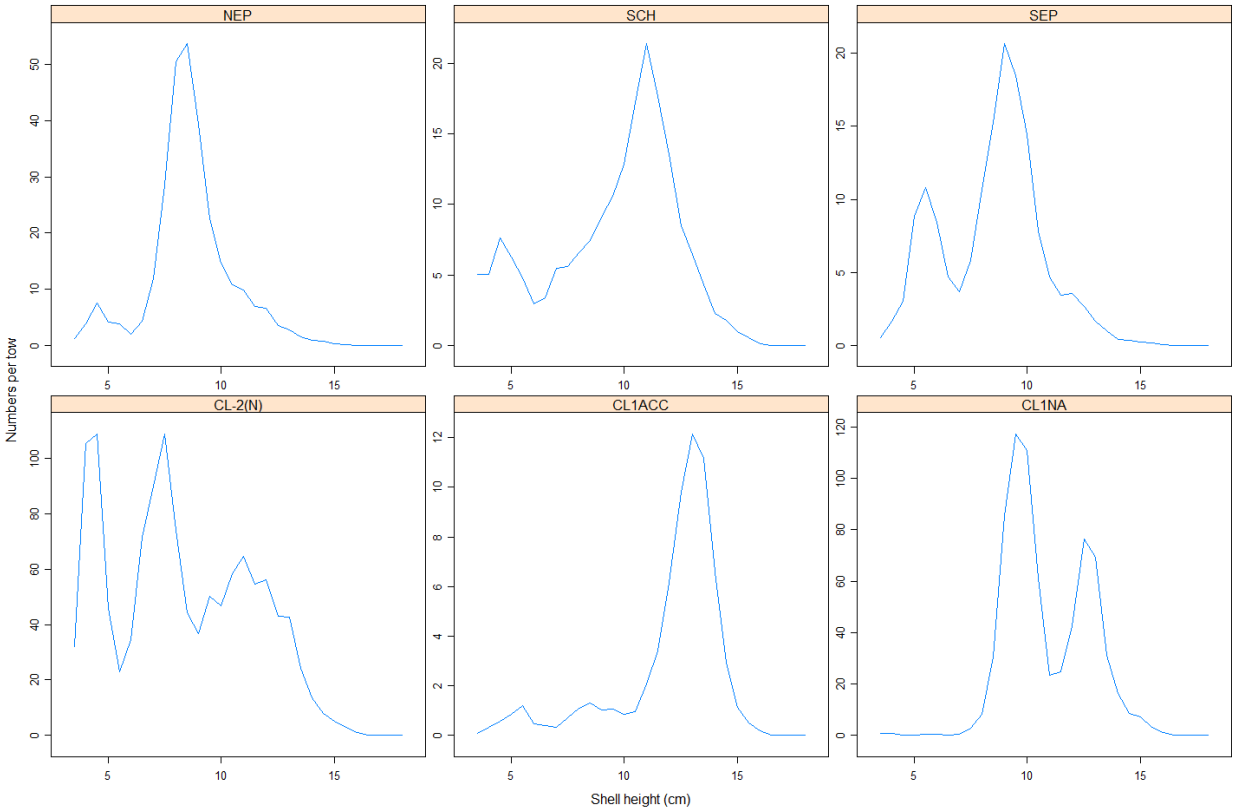
	SARC 50		VIMS 2016+2017		
Area	**EST**	**SE**	**EST**	**SE**	**# Images Annotated**
NLS-AC-N	6005.07	95.56	10082.8	299.7	1566
NLS-AC-S	96722.34	4388.87	77826.7	3174.0	2375
NLS-NA	66465.09	2010.81	56066.0	1831.0	2278
NLS-EXT	9215.95	1448.47	7164.0	1176.0	2135

Discussion:
A member of the PDT noted that the sea stars observed south of NLS-AC-S (*Astropecten americanus*) typically are less aggressive than other sea star species and normally target ~10 mm scallops. It was clarified that HabCam v3 uses the same camera system as HabCam v4 (NEFSC).

2017 NEFSC Sea Scallop Survey—Dvora Hart, Northeast Fisheries Science Center
The 2017 NEFSC sea scallop survey used HabCam v4 and a survey dredge to assess the sea scallop resource. The dredge component was focused specifically to Georges Bank, outside of areas that were surveyed in the VIMS dredge survey. The NEFSC dredge survey completed a total of 128 valid stations. The HabCam component of the survey covered both Georges Bank and the Mid-Atlantic and collected approximately 8 million image pairs, of which approximately 160,000 were manually annotated.

Highlights of the 2017 survey included the identification of high densities of 5 year-old scallops in the NLS and NLS-Ext, and 5 year-old scallops in the Hudson Canyon (HCS) SAMS area. As noted by other survey groups, scallops in deeper water of NLS-AC-S appeared to be growing very slowly. The ET seemed to be holding considerable biomass, with particularly high density aggregations of scallops observed in ET-closed. Patches of high-density 7 year-old scallops were observed in the northern portion of CAI by both HabCam and the survey dredge; additionally, some clappers and large sea stars (*Asterias* spp.) were observed in the northern portion of CAI. Densities of scallops observed in CL2-S-AC suggest that this area may hold sufficient biomass to support an access area trip in FY2018. It was noted that scallops in CL2-S-Ext should mostly be ≥ 102 mm in the coming year. Except for moderate recruitment seen along the northern edge, little recruitment was evident across the resource (Figure 1). Overall, HabCam and survey dredge findings suggested open-area exploitable biomass to be moderate at best.

Figure 1. Shell height frequency distributions from the 2017 NEFSC dredge survey by survey area.



Another component of the 2017 NEFSC survey performed paired HabCam and VIMS dredge tows in order to investigate dredge efficiency in high density areas. Survey logs and side scan sonar were used to identify HabCam images that were within 1.5 nmi of 2017 VIMS dredge tows. A Bland-Altman plot was presented which displayed densities from paired HabCam and VIMS dredge tows (Figure 2). The x-axis showed the log mean density of scallops and the y-axis showed dredge catch/dredge swept area/HabCam density. Dredge efficiency was accounted for in the x-axis by averaging HabCam densities (number of scallops/area of image) with extrapolated dredge densities using the standard estimates of dredge efficiency (0.40 on soft-bottom, 0.27 on hard-bottom). The y-axis did not account for any effect of dredge efficiency. A GAMM smoother was applied using soft-bottom tows to determine what efficiency could be expected at a given density.

The paired tow analysis suggested that dredge efficiency is reduced in areas with high scallop density.

The same methods were used to compare paired HabCam and survey dredge tows from 2008-2009 (Figure 3); however, this analysis indicated that dredge efficiency was not affected by scallop density, except possibly at very high densities. It was suggested that the high abundance of smaller scallops in 2008-2009 could have meant that fewer scallops were caught in the dredge survey. It was also possible that a vessel effect was driving these different trends because high density tows of larger scallops (as seen in the 2017 VIMS survey) could potentially cause the vessel to be bogged down, consequently reducing fishing power.

Dvora Hart further noted that, excluding high density areas of the NLS and ET, HabCam and dredge survey biomass estimates in 2016-2017 were relatively the same. However, in 2016-2017, HabCam biomass estimates in high density areas were roughly three times greater than VIMS dredge estimates.

Figure 2. Brand-Altman plot highlighting the effect of dredge efficiency in high density areas by comparing scallop density estimates from 2017 HabCam tows vs.2017 VIMS dredge tows.

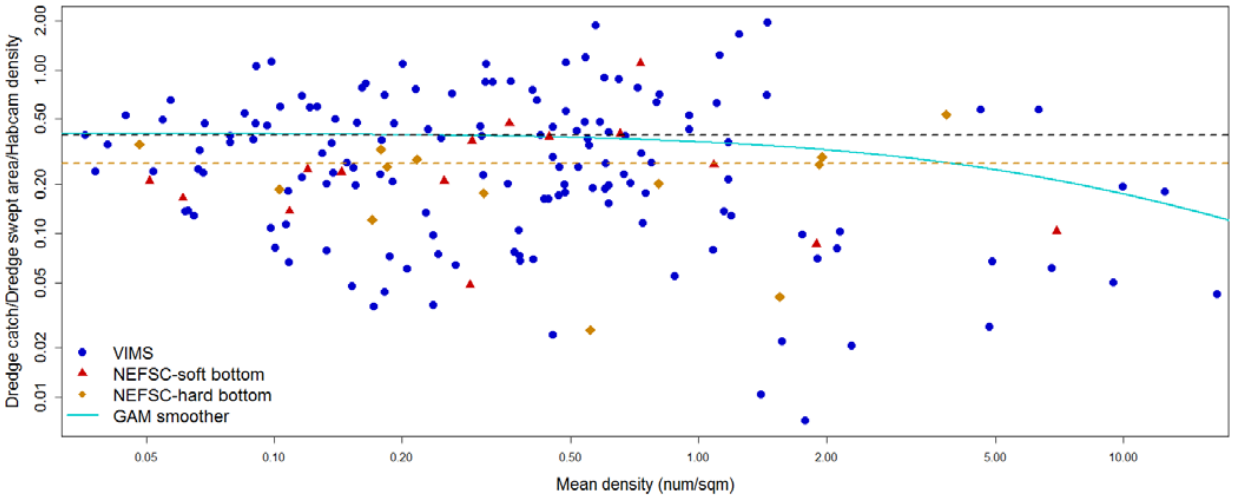
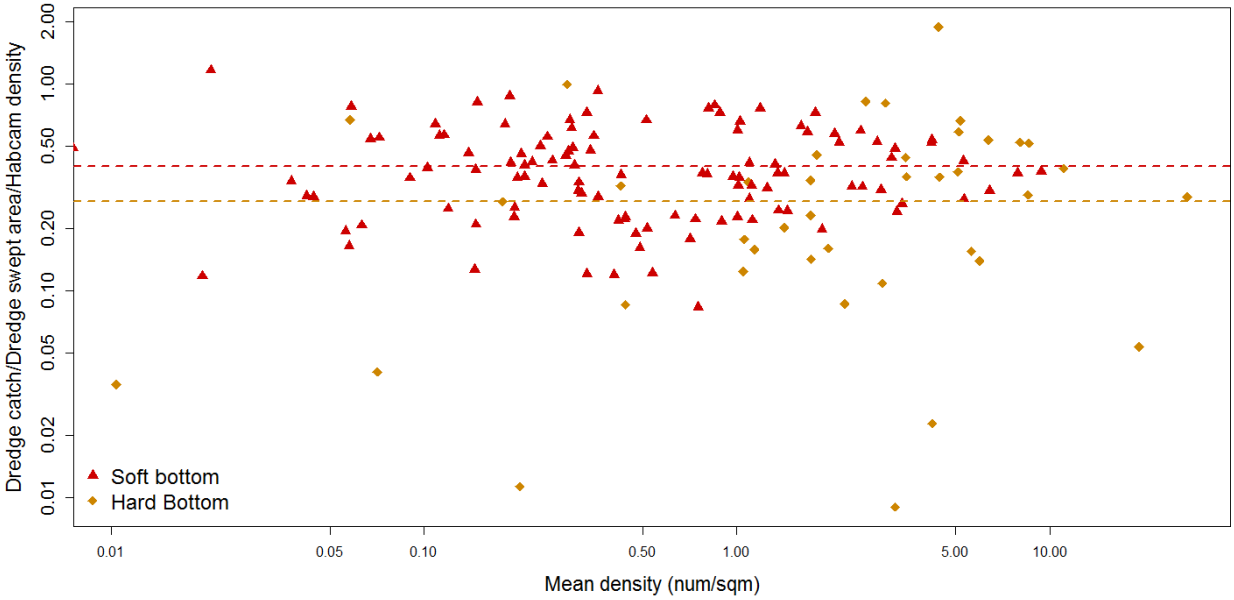


Figure 3. Brand-Altman plot highlighting the effect of dredge efficiency in high density areas by comparing scallop density estimates from 2008-2009 HabCam tows vs.2008-2009 NEFSC dredge tows.



Discussion:
The PDT discussed potential ways to approach reduced dredge efficiency in high density areas. A member of the PDT suggested fitting a GAMM curve for expected efficiency in high density areas, and then back-calculating the efficiency of VIMS survey dredge catch when high density tows were observed. This would allow dredge efficiency to be adjusted based on the density of scallops caught in a given tow. A previous VIMS study compared the vessel effect on dredge efficiency between commercial vessels and R/V Sharp; a member of the PDT suggested this work may be worth revisiting to see if density was a contributing factor to differences in efficiency. Public commentary advised performing the above HabCam vs. VIMS dredge analysis with VIMS commercial dredge biomass estimates instead of survey dredge estimates. It was also noted that comparing biomass estimates from the VIMS survey dredge vs. VIMS commercial dredge could also be an informative exercise.

A PDT member expressed concern that scallop biomass may have consistently been underestimated due to reduced dredge efficiency, and inquired if this point will be addressed in the upcoming 2018 benchmark assessment. Based on the similarity of biomass estimates between optical surveys over time and because the high densities observed recently were rarely observed in the past, the PDT noted that reduced dredge efficiency likely had minimal impact on biomass estimates over the time series of dredge surveys. The PDT suggested that this issue be addressed at the 2018 benchmark assessment.

Council staff highlighted NLS-AC-S, NLS-NA, and ET-Closed as the three areas where this issue needs to be addressed for FY2018 specifications. PDT members provided the following avenues to address this issue: 1) Use the efficiency curve developed by Dr. Dvora Hart (see NEFSC presentation summary above) to adjust dredge efficiency for high density areas; 2) exclude VIMS survey dredge abundance estimates from the overall biomass estimate in areas with high density (i.e. use size frequency from VIMS survey and abundance estimate from optical surveys to calculate biomass); 3) examine how dredge efficiency changes before/after harvesting; and 4) no change to how dredge data is treated, follow-up at the benchmark assessment.

Dr. Dave Rudders notified the PDT that reduced dredge efficiency in high density areas is currently being investigated and will be ready in time for the 2018 benchmark assessment. He suggested that no substantial changes be made to how biomass estimates are calculated (i.e. removing dredge abundance data, adjusting efficiency in high density areas) until this work is reviewed at the benchmark. The PDT acknowledged this point, and further expressed how either leaving in or removing VIMS data from the overall estimate will likely not impact how these areas are managed in FY2018.

By consensus, the PDT recommended that there be no change to how the dredge biomass estimates are treated in the 2018 specifications process, and that efficiency issues be investigated as part of the 2018 benchmark assessment.

Nantucket Lightship Shell Height-Meat Weight Parameter Estimates
Council staff reminded the PDT that the baseline SH:MW parameter estimate used to estimate total and exploitable biomass was produced at the most recent benchmark assessment (SARC 59,

2014), and that the Council recommended deviating from this baseline last year in specific SAMS areas to account for the slow growth of animals in the Nantucket Lightship. The PDT discussed which SH:MW parameters to consider using in the upcoming Framework action. With respect to the baseline SH:MW parameters, Dvora Hart explained that a recent review of the SARC 59 parameters revealed that 2-5% of data used were invalid due to entry mistakes made at sea (i.e. error in meat weight measurements). She further explained that using SARC 50 SH:MW parameters (see Hennen and Hart, 2012) could provide more accurate estimates of biomass. Based on this information, the PDT agreed by consensus to recommend that the peer-reviewed SH:MW parameters from Hennen and Hart (used at SARC 50) be used to generate biomass estimates.

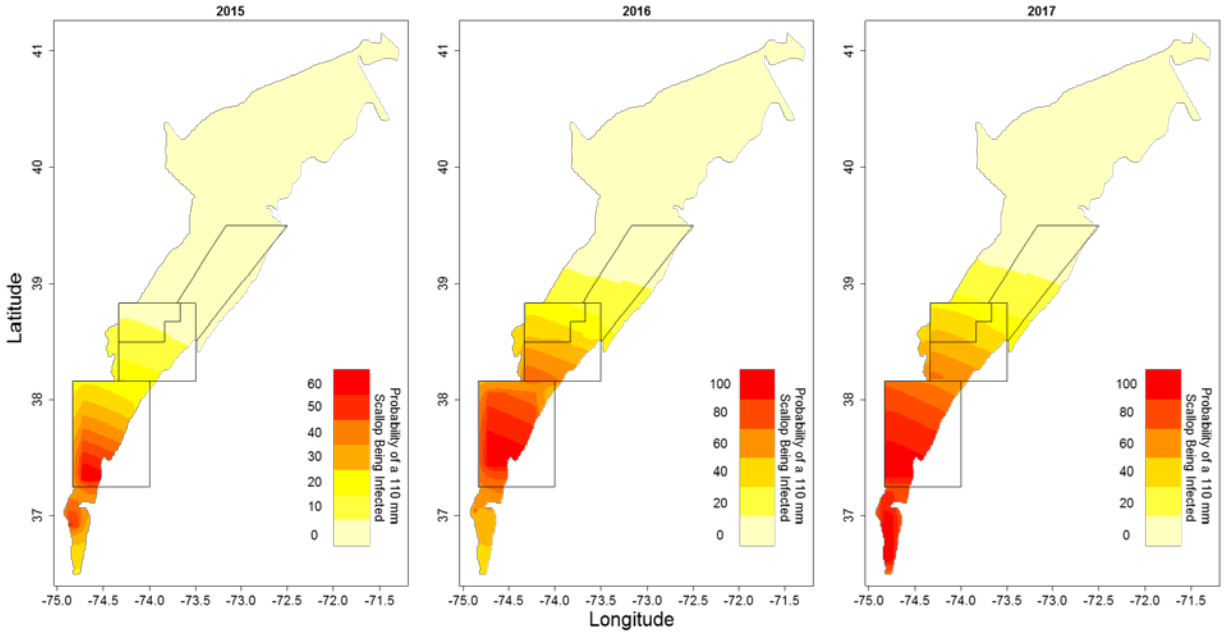
Next, the PDT discussed whether or not to deviate from the Hennen and Hart estimates in areas of the Nantucket Lightship due to the anomalously slow growth of scallops observed there in 2016 and 2017. The PDT reviewed SH:MW parameter data from 2016, 2017, and 2016/2017 combined. It was also noted that the SARC 50 parameter estimates did not include measurement data from this area of the NLS, and that using VIMS 2016/2017 estimates may be more appropriate. Several iterations of recalculating the combined VIMS 2016/2017 parameter estimates were discussed (i.e. with/without interaction, with/without year effect, with/without depth effect); ultimately the PDT agreed on recalculating parameter estimates with no interaction. After reviewing the updated estimates on the morning of Day 2, the PDT agreed by consensus to recommend that combined VIMS 2016/2017 parameters with no interaction variable be used for NLS-AC-S and NLS-NA, and that SARC 50 parameters be used for NLS-AC-N and NLS-Ext.

2017 VIMS-Industry Cooperative Surveys Nematode Observations—Sally Roman, VIMS

As part of their 2017 survey work, VIMS continued an expanded biological sampling protocol to capture the spatial extent of the nematode parasite as well as the prevalence and intensity of infected scallops. This protocol included sampling 15 scallops at each survey station that had scallops. These scallops were used to obtain histological and genetic samples, for gross observation of the number of nematodes present in an infected scallop, and for a gross observation of the number of infected animals encountered by the dredge.

Preliminary analysis indicated that no infected scallops were observed in the NLS or CAII. Infected scallops were observed primarily in the southern range of the Mid-Atlantic, with the most concentrated frequencies seen in DMV and along the boundary of ET-open and ET-closed. The spatial extent of infected scallops >=110 mm was contracted slightly in 2017 compared to observations from the 2016 survey. The probability of a scallop being infected was directly correlated with shell height (i.e. the larger the scallop, the greater the chance of infection). Though the spatial extent of infected scallops was relatively the same in 2017 compared to 2016, a predictor model (variables included year, tensor product of latitude and longitude, SAMS area, and shell height) indicated that scallops >=110 mm in the southern range of the Mid-Atlantic had the highest probability of being infected in 2017 compared to 2015-2016 (Figure 4).

Figure 4. Heat maps of the predicted probability of a 110 mm scallop being infected by year.



VMS summary, Scallop Grades, and LPUE for scallop fishing years 2016 and 2017—Ben Galuardi, GARFO

Following the presentation on nematodes, the PDT reviewed 2016 and 2017 fishing effort data. VMS data were used as a proxy of fishing effort for LA and LAGC vessels in FY2016 and FY2017 (2017 data included March-July). A speed filter of 2-5 kts was applied to remove vessel activity that was likely a result of transiting to and from fishing grounds.
Across fishery components, the effort seen in the ET, MAAA, and NLS AA in 2016 (Figure 5) seemed to become more concentrated and shifted slightly north in 2017 (Figure 6). Very little open-area fishing had occurred on Georges Bank between March and July 2017 (note: industry members present at meeting reported that open-area fishing on GB has increased since July 2017). The 2016 and 2017 VMS data suggests that there has been minimal fishing in DMV over the last two years. The PDT also noted that effort in ET-closed and ET-open has been concentrated in the northern portion of these areas; the PDT noted that this shift in Mid-Atlantic effort was likely a result of fishermen avoiding areas where nematodes were prevalent. This notion was corroborated by industry members who were present at the meeting, noting that typically fishermen will move away from areas with high nematode presence.

Figure 5. Scallop fishery effort in FY2016 displayed in VMS hours fished.

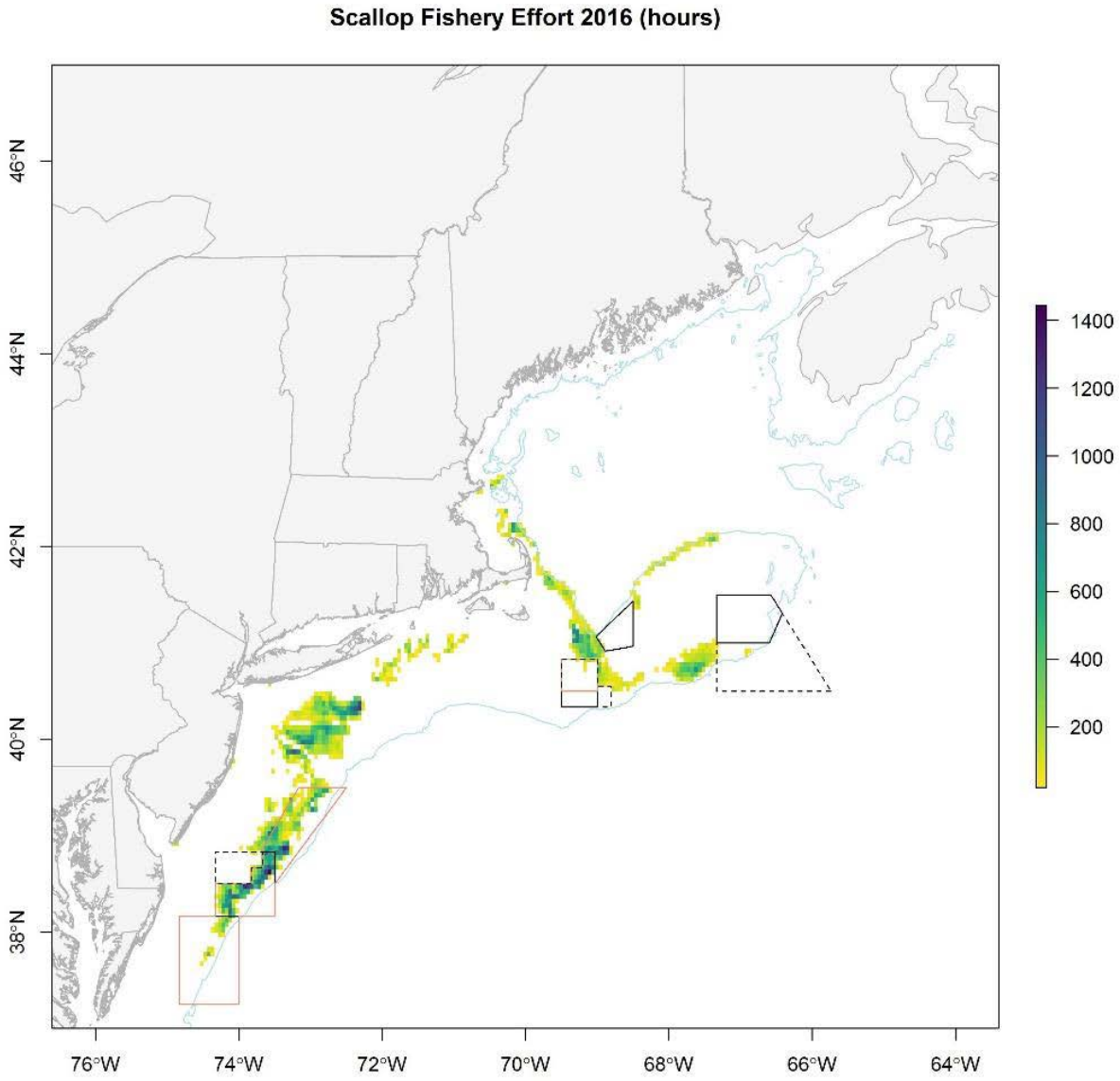
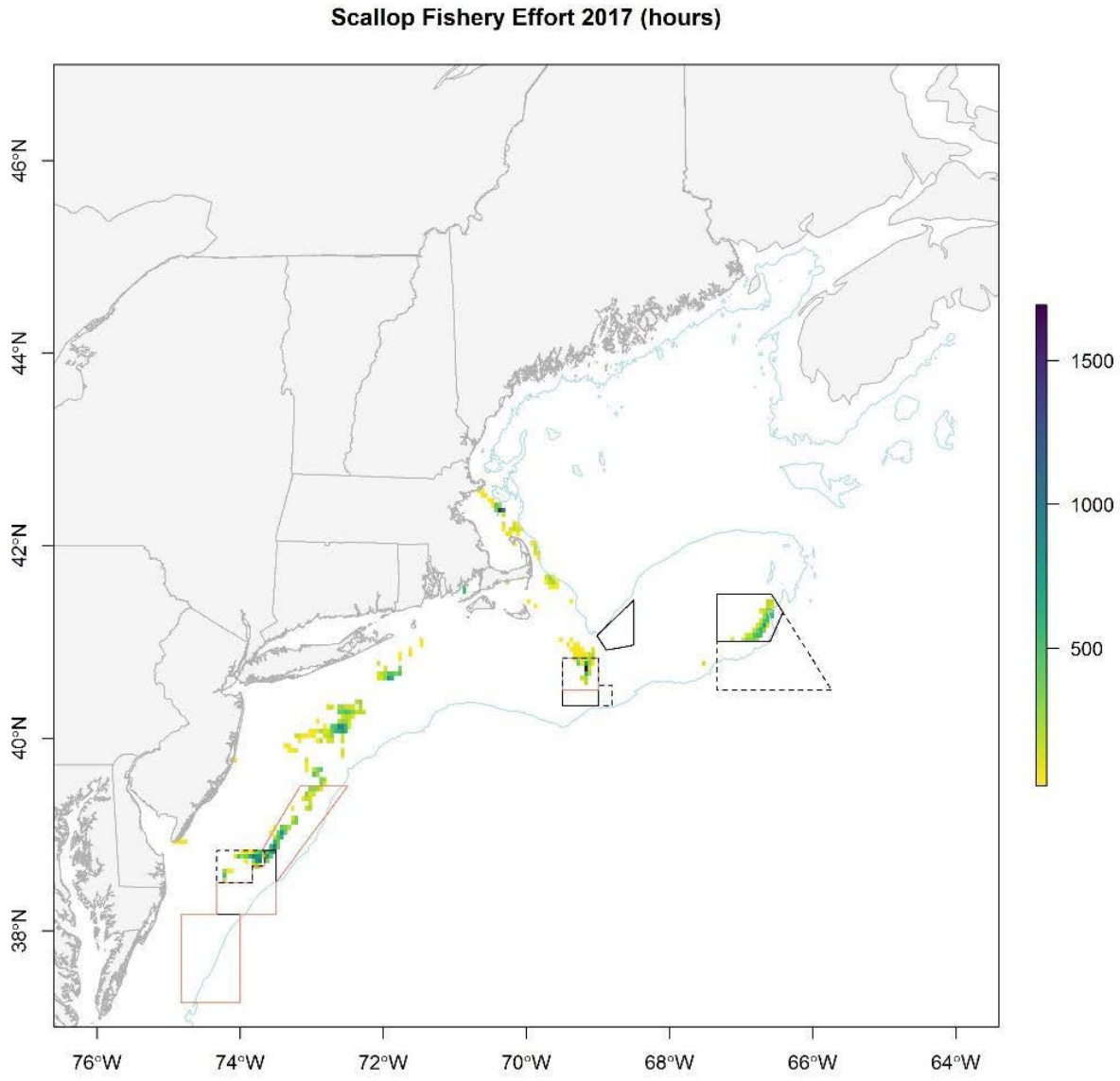


Figure 6. Scallop fishery effort in FY2017 displayed in VMS hours fished.

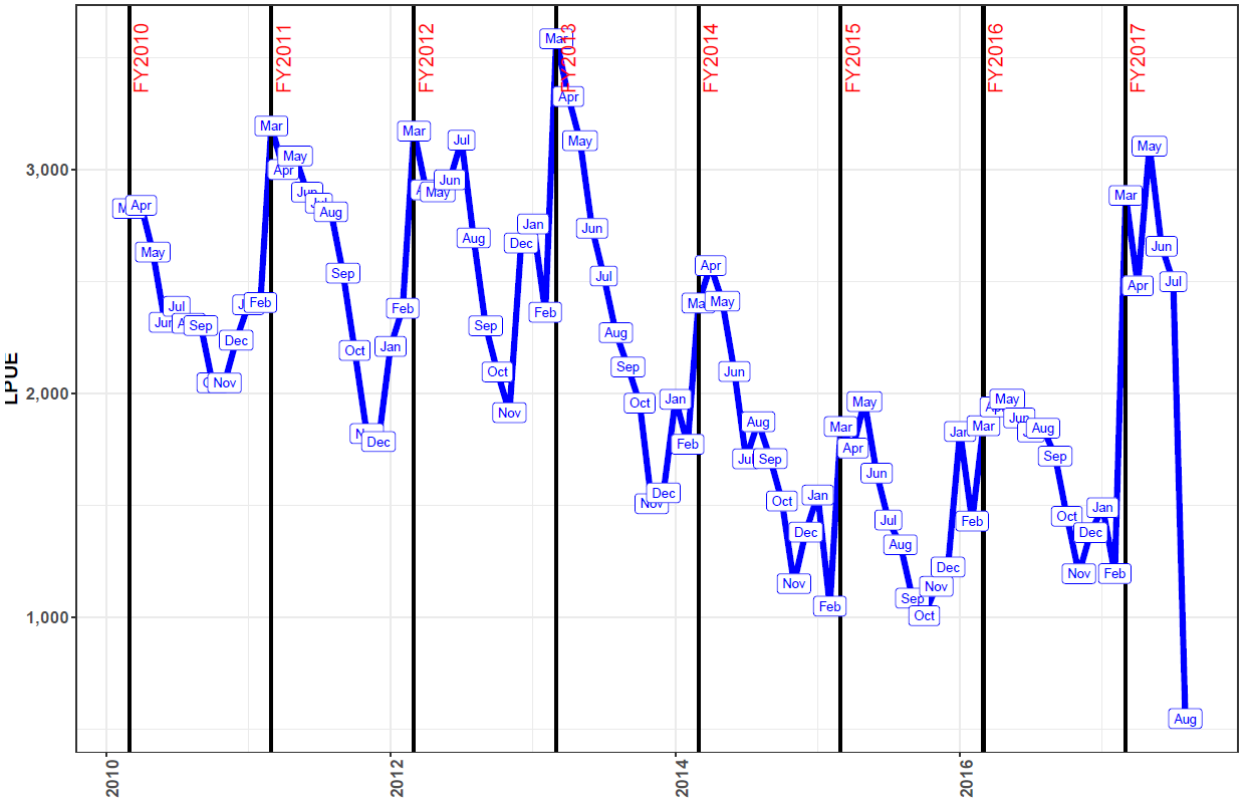


Fishery data were then presented to the PDT, which included scallop landings and prices by market grade and fishing mode (i.e. open-area, access area) for FY2015-2017. A large increase was seen in 20-30 count scallops from the MAAA in 2017 compared to 2015-2016. Weekly cumulative landings data showed the 20-30 count scallops landed from open-area trips in 2016 had grown to 10-20 count scallops in 2017.

Limited Access open-area LPUE data by month (Figure 7) indicated LPUE in FY2017 was notably higher than what was seen in FY2015 and FY2016. The open-area LPUE in March 2017 could be attributed almost entirely to LA vessels fishing in the NGOM. While monthly LPUE

had remained steadily high in FY2017, the average price per lb. steadily decreased during this time for all open and access area fishing.

Figure 7. Monthly limited access LPUE (open-area landings/DAS charged), FY2010-July 2017August 2017 data is incomplete and data point does not reflect actual LPUE value.



Observer kept and discard data FY 2016 and 2017—Tyler Staples, Northeast Fisheries Observer Program (NEFOP)

The NEFOP provided kept and discard data from observed LA and LAGC IFQ trips from FY2016 through July 2017. At-sea monitors observe a minimum of 50% of hauls on LA scallops trips and aim to observe 100% of hauls on LAGC IFQ trips. A minimum of 25% of hauls on an observed trip should have shell height data. On the first haul of every watch the observer measures one basket of kept scallops, and a crew member is asked to shuck those scallops so a meat weight and volume can be obtained.

The PDT noted that the highest discard to kept ratios in 2016 and 2017 were in the Mid-Atlantic Access Areas. In 2016, the MAAA d/K was 26.08, and in 2017 the ET Flex AA d/K was 22.49 for Limited Access vessels. The top reported reason for discarding these animals was “no market, too small.” The PDT noted that there are multiple year classes present in these areas, and the vessels fishing in access areas are not limited by DAS. In general, the observer data did not show any strong signals of incoming recruitment in observed fishery catches, which is consistent with results of the 2017 surveys.

Combined Survey Estimates

Council staff directed discussion to how the PDT will combine biomass estimates from the different surveys. In the past biomass estimates were combined by taking the overall mean; Council staff proposed that the PDT continue to use this approach and to address potential changes on how estimates are combined at the 2018 benchmark assessment. Some PDT members thought this approach would be sufficient, while others were not convinced that including VIMS dredge estimates from high density areas was a good idea. Other PDT members pointed out that the discrepancy between optical and dredge estimates in high density areas has not been conclusively attributed to efficiency, and that removing dredge data from the overall estimate would be premature. Dr. Dave Rudders reminded the group that projects are currently underway which investigate this issue, and suggested the PDT use the 2018 benchmark assessment as an opportunity to thoroughly address concerns of dredge efficiency in high density areas. By consensus, the PDT recommended continuing to combine biomass estimates using the mean of all three surveys. The group also offered that it is important to communicate this uncertainty to the Council and SSC, and to note work on this topic completed by Dr. Hart in 2016 and 2017. Finally, the group noted that the NEFSC may present a grand model as a potential sensitivity analysis.

2018 Outlook

Recruitment

Discussion moved to the observed recruitment in the 2017 surveys. One PDT member commented that the recruitment seen in 2017 was generally unremarkable and that it was not worth closing areas for. Another member suggested modifying DMV to become open bottom, citing that very little fishing has occurred there in recent years and any recruitment that does occur in the area does not persist to harvestable size. On the other hand, this could prove to be unfavorable because fishing would not likely occur there, yet the biomass in DMV would still be driving DAS allocation for FY2018. Dr. Hart explained that the expectation of low fishing effort could be handled in the SAMS model.

Mid-Atlantic Access Area, including Elephant Trunk Flex

In an earlier discussion, a PDT member had suggested that the MAAA could potentially support up to 4 trips in FY2018. To this point, some PDT members saw potential in removing the line between ET-open and ET-closed, making the ET part of the MAAA again. Others argued that being able to control effort in ET-closed vs. the rest of the MAAA could be helpful, especially if 4 trips are recommended to the MAAA. Another member suggested moving the boundary between ET-closed and ET-open farther west to protect the recruitment observed there; this suggestion was considered, but VMS data from FY2017 showed little to no effort being directed in the area of recruitment, therefore closing this area was not a major concern.

Closed Area II

Next the PDT discussed potential harvest in CAII and the extension. It was suggested that incorporating CL2-S-Ext into CL2-S-AC would potentially allow for a trip in FY2018. In this scenario, the ~20 count scallops expected to be in CL2-S-Ext in FY2018 could be fished as part of Closed Area II access area trips, and then the Closed Area II extension could be turned back

into open-area in FY2019. Also, industry could be given the option to trade MAAA trips for access to CAII.

A member of the public suggested using observer data to look at how seasonal yellowtail bycatch interactions may differ in CAII access area and CAII extension; if seasonal bycatch trends are different in CAII access area and CAII extension, there is potential to adapt rotational management to allow for longer periods of access outside of the current seasonal closure (i.e. CAII extension could be fished during CAII access area seasonal closure).

Nantucket Lightship
The PDT acknowledged that additional work may be needed to inform management options in the Nantucket Lightship. The majority of fishing in the area in 2017 has occurred in the northern portion. Without seeing the projected 2018 exploitable biomass for this area, it is difficult to know how much fishing effort this area could support. The PDT discussed a range of potential options, from closure in FY2018 to access that year. A member of the PDT noted that the NLS-Ext could be turned back into open area and that keeping the NLS closed could be the best decision for FY2018. Jim Gutowski (AP Chair) commented that by allocating trips to CL2-S-Ext and not allocating trips to the NLS, industry members will be fishing on 20-count instead of fishing on the ~8-count scallops that are in the NLS; it was further noted that forgoing greater yield would only compound the current price disparity faced by the industry.

Closed Area I
With no incoming recruitment to the Closed Area I access area, total biomass estimates remained relatively consistent between 2016 and 2017, and catch per tow remains low. The closed area to the north of CAI continues to hold high densities of older scallops, and this area could support the activation of CAI carryover trips from 2012 and 2013 if it opens through OHA2.

A member of the public conveyed the frustration shared by industry members, in that the aged scallops in CL1-NA-N ("sliver") could potentially be wasted if access is not granted to this area soon. Travis Ford reiterated that access to CAI is contingent on OHA2 approval, and that the PDT could consider different management scenarios based on how OHA2 plays out (i.e. if Georges Bank does/doesn't get approved, if Southern New England does/doesn't get approved).

DAY 2

The meeting reconvened at 9:08 am. Council staff provided a recap of the previous days meeting and welcomed Carl Wilson (Maine DMR) as the newest edition to the Scallop PDT.

2017 SMAST Stellwagen Bank Drop Camera Survey Results—Dave Bethoney, SMAST

The SMAST drop camera was used to survey the portion of Stellwagen Bank that was targeted heavily by LA, LAGC IFQ, and LAGC NGOM vessels in FY2017. The survey stations were fixed on a high-resolution (1.5 km^2) grid and were sampled between July 7th and July 13th, 2017.

Survey findings suggest very few smaller scallops (< 75 mm) were in the area and that the majority of scallops observed were approximately 100 mm. Density was estimated to be roughly

0.1 scallops m^{-2}, which translates to a harvestable density similar to what would be seen on Georges Bank. Total biomass was estimated at 356 mt and exploitable biomass was estimated at 228 mt. It was noted that SARC 50 SH:MW parameter estimates were used when calculating total and exploitable biomass.

2017 RSA HabCam v3 Survey, Northern Gulf of Maine—Jason Clermont, CFF

Between July 8th and July 9th, 2017, CFF surveyed portions of the NGOM that were fished in FY2016 (southern Jeffreys Ledge) and FY2017 (Stellwagen Bank) using HabCam v3 and a survey dredge. HabCam tracks covered approximately 67 nmi on Stellwagen Bank and 22 nmi on southern Jeffreys Ledge. 6 dredge tows were conducted on Stellwagen to collect biological samples and length frequency data. Due to the high density of fixed gear on Jeffreys Ledge, it was not possible to complete dredge tows in this area.

Both HabCam and dredge data indicated very few recruits (<= 75 mm) on Stellwagen Bank. Scallops > 75 mm appeared to be spread out across the top of Stellwagen. There was some evidence of recruits in the southwest part of Jeffreys Ledge, and scallops > 75 mm seemed to be distributed across the survey area. The smaller scallops on Jeffreys Ledge were observed with notable densities of sea stars. Total biomass on Stellwagen Bank was estimated to be roughly 459 mt and biomass on southern Jeffreys Ledge was estimated to be roughly 152 mt.

Discussion:
Some discussion developed around how to address the difference in NGOM survey coverage by SMAST and CFF and what SH:MW parameter estimates should be used for estimating exploitable biomass. Some PDT members were concerned that the difference in survey area on Stellwagen Bank between SMAST and CFF meant that biomass estimates could not be compared/combined. Further discussion noted that adjusting SMAST and CFF data to the same survey area did very little in terms of changing the biomass estimates; therefore, the PDT agreed by consensus that the current biomass estimates from SMAST and CFF would not be modified. Both SMAST and CFF used the same SH:MW parameter estimates (SARC 50 for Georges Bank) when biomass was calculated. It was noted that shell height data from the 2016 Maine DMR/UMaine dredge survey had been used to calculate a log-log regression SH:MW for scallops on both Jeffreys Ledge and Stellwagen Bank, and that these parameter estimates could be used when estimating biomass instead of SARC 50 parameter estimates. A member of the PDT suggested SH:MW parameter estimates may be improved by using a mixed effects GLMM with a log link with survey station as the random effect. Using this approach would reduce the bias associated with back transforming a log-log regression. Kevin Kelly and Mike Torre agreed to provide Dr. Dvora Hart with NGOM growth data from the 2016 Maine DMR/UMaine dredge survey to inform the projected exploitable biomass estimate for Stellwagen and Jeffreys Ledge in FY2018. Specific methods for projecting FY2018 exploitable biomass in the NGOM were developed at the July 18, 2017 PDT meeting (Doc. 4).

FY2018 NGOM TAC considerations
Members of the PDT noted that, even though the NGOM is much larger than what was surveyed in 2017, LA and LAGC vessels are most likely to target Stellwagen Bank in FY2018. For this

reason, the FY2018 TAC should consider fishery removals only from areas where fishing is expected to occur.

Based on survey findings from the SMAST and CFF surveys, one PDT member offered a preliminary biomass estimate of ~500 mt, and suggested that F = 0.3 be used as the upper limit, meaning that the overall NGOM TAC would be approximately 150 mt. The PDT agreed to use this preliminary estimate as a place holder for upcoming PDT and AP/Committee discussion. The PDT discussed updating the NGOM management measures document to include a wider range of percentages that may inform a TAC split.

The PDT then discussed potentially setting two year specifications for the NGOM TAC (FY2018-2019) with default measures for FY2020. It was noted that the FY2018/19 RSA priorities were adjusted to include surveying effort in the NGOM; in light of this, the PDT suggested being able to revisit NGOM TAC specs during this time as more survey information becomes available.

Part of the NGOM problem statement described by the Council at their April meeting specified capping removals from this area in FY2018. A member of the PDT recommended harvest controls that require any vessel fishing in the NGOM to fish exclusively within the management area (i.e. using VMS declaration), and to limit removals on a given trip (i.e. trip limit). It was also suggested that observer coverage be extended to LAGC NGOM vessels in the future.

Flatfish AM Development—Bycatch Savings

A Council motion from their June 2016 meeting tasked the PDT with developing an AM for Northern windowpane and modifying AMs for Georges Bank yellowtail and SNE/MA yellowtail to be consistent with the current AM for Southern windowpane (monthly GRA, 5-row apron with 1.5:1 hanging ratio). Council staff presented progress made on estimating the flatfish bycatch savings gained by using a monthly GRA for open-area fishing on Georges Bank (Table 2) and for a monthly closure of CAII AA (Table 3). The approach used to calculate bycatch savings is detailed in Doc. 9.

The PDT discussed several different aspects of requiring a GRA in open-areas on Georges Bank, including the redirection of effort, cumulative effects on scallop catch, and potential impacts on optimizing yield. Overall, the PDT agreed that these topics should be discussed at the upcoming AP and Committee meetings.

A member of the PDT noted that the CFF study which the 5-row apron GRA was based on, considered reduction in numbers of fish caught as opposed to reduction in weight of fish caught. Because bycatch savings analysis translated GRA reduction to the weight of fish caught, it was suggested that savings values may not be accurate. Another member of the PDT suggested this difference likely does not have a major impact on bycatch reduction assumptions because previous analysis showed length was not a significant predictor.

Table 2. GB yellowtail and N. windowpane bycatch savings gained by using a 5-row apron in a month for GB open-area fishing. The percentage of landings from GB open-area fishing in each month is given in the first column. Fishery data used were from 2012-2016.

Month	% landings	GB YT bycatch savings	NWP bycatch savings
April	5.8%	1.5%	9.0%
May	20.4%	9.1%	11.8%
June	29.3%	12.9%	2.8%
July	17.9%	7.0%	3.5%
August	14.5%	1.2%	4.7%
September	7.0%	1.0%	1.7%
October	1.6%	0.3%	0.3%
November	0.4%	0.0%	1.5%
December	0.4%	0.0%	0.0%
January	0.4%	0.0%	0.0%
February	0.3%	0.1%	4.5%
March	2.0%	0.3%	6.2%

Table 3. GB yellowtail and N. windowpane bycatch savings gained from a delayed opening of CAII AA, and the monthly proportion of reported landings. Fishery data included are from 2012-2015. Note that the current CAII AA seasonal closure (Aug. 15th – Nov. 15th) was implemented in FY2013.

Month	% landings	GB YT bycatch savings	NWP bycatch savings
April	0.6%	0.8%	8.0%
May	0.8%	0.2%	0.0%
June	21.3%	9.5%	3.5%
July	28.7%	14.5%	10.5%
August	18.5%	18.2%	3.3%
September	7.4%	29.0%	0.0%
October	6.1%	9.3%	0.8%
November	6.9%	6.0%	6.7%
December	6.8%	6.6%	34.8%
January	2.2%	5.7%	29.4%
February	0.5%	0.0%	0.0%
March	0.3%	0.1%	2.9%

Council staff amended the original meeting agenda to postpone Demet Haksever's presentation "**Review updated price model for Framework 29**" until later in September.

Georges Bank Winter Flounder Catch by the Scallop Fishery

Council staff briefly updated the group on a draft memo that will be sent from the Scallop PDT to the Groundfish PDT which describes GB winter flounder bycatch interactions by the scallop fleet. The Groundfish PDT has estimated flatfish catch by the scallop fishery in preparation for upcoming stock assessments, and flagged the projected GB winter flounder catch by the scallop fleet to be a significant proportion of the overall ACL. This draft memo describes trends in GB winter flounder catch by the scallop industry and provides rationale for why projected 2017 GB winter flounder catch by the scallop fleet is likely overestimated. Council staff noted that the PDT should provide feedback through correspondence by the close of business on September 1st.

2018 Council Work Priority Discussion

Council staff directed a brief discussion of potential work priorities for 2018 (Doc. 12), noting that changes had been made to the list since last year including a proposed Amendment to create harvest associations. At its July 18, 2017 meeting, the PDT recommended that monitoring and

catch accounting provisions be added to the 2018 priority list. In light of a proposal to form scallop associations, the PDT identified investigating the performance of the fleet LPUE relative to projected LPUE and how LPUE may vary at the vessel level. The group also discussed the genesis of the priority: Gear modifications (i.e. extended link study underway by CFF) to protect small scallops. The group had a brief discussion about this, and noted that this could address discarding in access area fishing. The PDT recommends prioritizing work on OHA2 when the final rule is published. Scallops in CAI and NLS are ready to be fished, and surveys of the Northern Edge HAPC (particularly the northwest corner), have seen increased mortality in older scallops. The PDT also recommended additional discussion and work around how product/market quality issues could be addressed by management, given the impact meat quality has had on where fishing appears to be occurring in the Mid-Atlantic.

A member of the public noted that the current RSA research priorities should be expanded to broader issues (i.e. ocean acidification, larval recruitment) which are already being investigated by other academic institutions. Expanding RSA priorities would allow research groups to work collaboratively with larger scientific institutions and address subcomponents of these issues relevant to the scallop resource.

Other Business

No other business was discussed.

Figure 8. The 2017 Mid-Atlantic Bight SAMS areas.

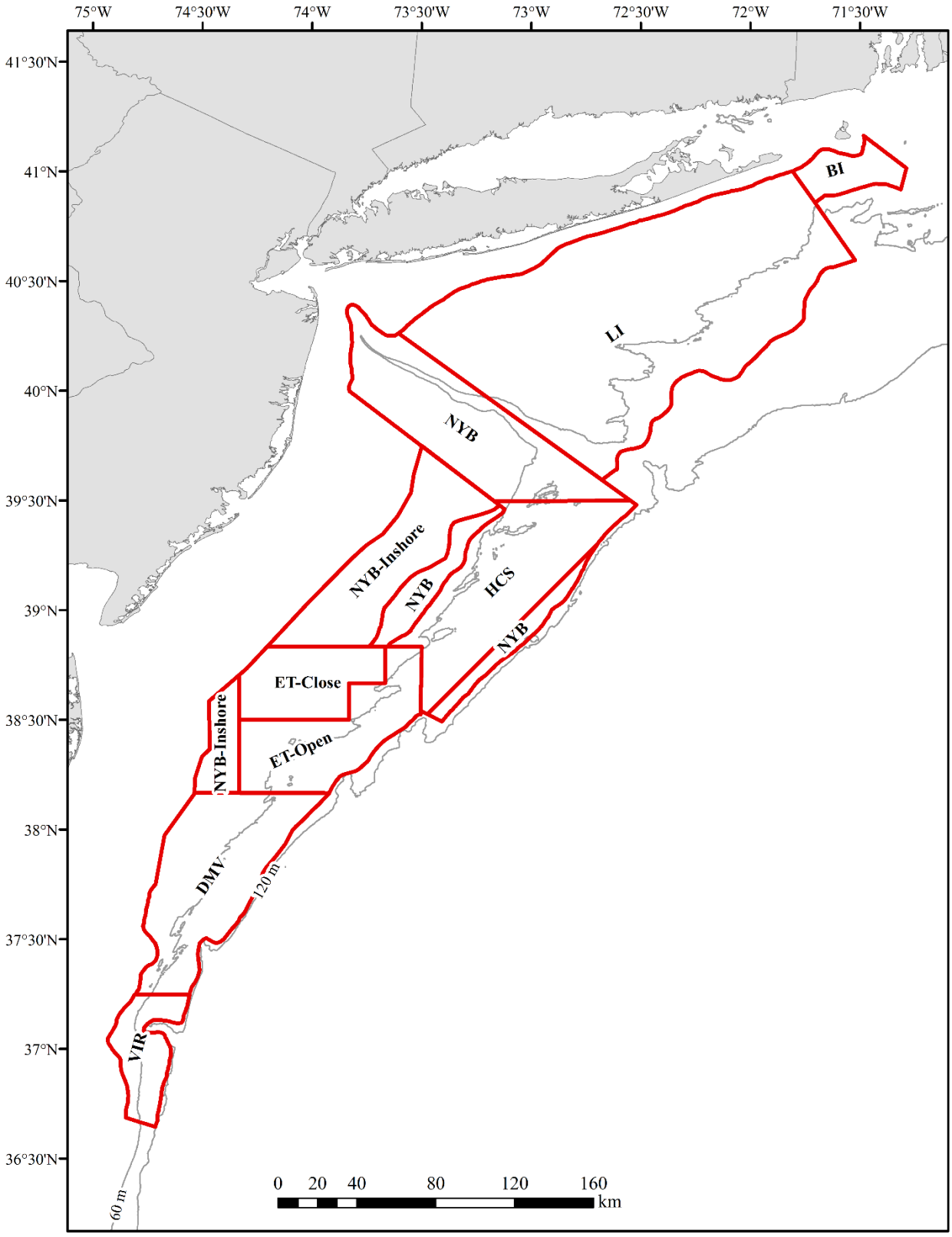


Figure 9. The 2017 Georges Bank SAMS areas.

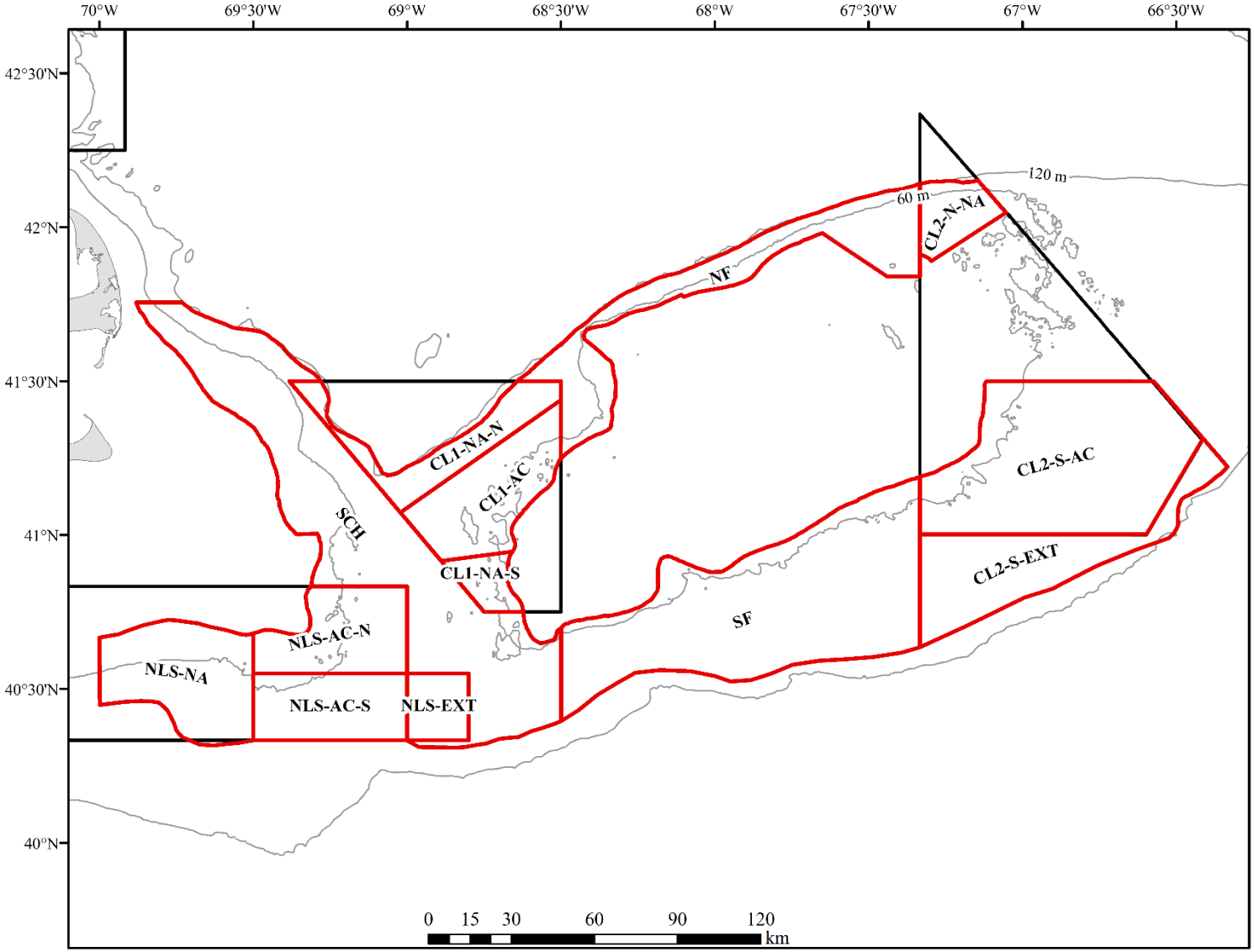


Table 4 - Follow-up work items from PDT meeting

	Topic	Group	Lead	Task	Status
a	SHMW	VIMS	Sally Roman	Update biomass estimates using Hennen and Hart for SHMW parameters	
b	NLS SHMW	VIMS	Sally Roman	Update NLS estimates using the VIMS 2016/2017 w/ no interaction variable	Complete
c	NLS SHMW	SMAST	Dave Bethoney	Update NLS estimates using the VIMS 2016/2017 w/ no interaction variable	Complete, send Dvora
d	NLS SHMW	CFF	Han, Jason	Update NLS estimates using the VIMS 2016/2017 w/ no interaction variable	
e	Growth NLS	NEFSC	Dvora	Compare 2017 realized growth with 2016 assumptions in NLS areas (South, extension, NA)	
f	Growth ET	NEFSC	Dvora, Toni Chute	Work up shell data in ET. PDT is interested in whether or not animals in the high density area are growing as expected.	
g	Growth ET	VIMS	Dave Rudders	Work up shell data in ET. PDT is interested in whether or not animals in the high density area are growing as expected.	
h	NGOM	NEFSC	Dvora	Develop 2018/2019 biomass projections for NGOM using 2017 survey data and growth parameters	
i	NGOM	DMR/UMaine	Kevin Kelly, Mike Torre	Send Dvora growth data for Stellwagen and Jeffreys Ledge for use in growth matrix	
j	NGOM	DMR/UMaine	Kevin Kelly, Mike Torre	Provide PDT with biomass estimate for areas that were surveyed in 2016, but not 2017, assuming growth.	
k	NGOM	Council Staff	Jonathon	Update Tables 5 and 6 to reflect full range of 0% to 100%	
l	Bycatch	APSD	Ben Galuardi	Update Kall for areas in SNE west of 71W	
m	Bycatch	Council Staff	Sam Asci	Flatfish AM development for SNE/MA yellowtail	
n	Bycatch	Council Staff	Sam Asci	Review seasonality of bycatch data in CAII ext, if combined, timing of a seasonal closure may be different in this area	
o	ET Flex Closure	Council Staff	Jonathon	Identify temperature data for Mid-Atlantic. Seasonal closure?	
p	CAI Carryover	Council/GARFO	Jonathon and Travis	How can we get CAI carryover trips fishing post OHA2? What are the mechanics?	
q	Flatfish AMs	Council Staff	Jonathon/Sam	Circle back on weight data from CFF study using 5 row apron 1.5:1 hanging ratio	
r	PTNS 2.0	NEFOP	Chad Keith	Come to the AP and Committee to explain PTNS 2.0	
s	Research Tracks	Council Staff	Jonathon	Update ongoing research priorities list	
t	GB Winter	PDT	PDT	Review draft memo to groundfish PDT	