Nantucket Lightship South "Deep" Discussion Document

PDT Input & Recommendations:

- The outlook for these scallops has changed some since the Council voted in June to prioritize work to modify the FMP to accommodate harvest of these scallops through a separate TAC, outside of the 94.5% and 5.5% allocation split. At that time, while meat counts had improved slightly, the outlook was that the majority of animals would be 40-50 count and 8 years old in 2020, and may be more susceptible to large scale mortality as they get older in age. The 2019 survey information in this area suggests that these scallops grew between 2018 and 2019, and that meat counts have improved enough to make the NLS-S-deep a more viable candidate for fishery access in the future.
- The PDT recommends that the Council consider the next two years of spatial management as it develops options for the scallops NLS-S-deep. Overall recruitment in the scallop fishery was below average for several years following extraordinary recruitment events in 2012 and 2013. The majority of scallop harvest in recent fishing years has come from access areas, though this is likely to change as areas are fished in 2020. The NLS-West and CAI Access Areas that became available through the partial approval in OHA2 may support some harvest in 2020, but are not likely to support access area fishing in 2021. The 2019 surveys suggest that the NLS-North area can support limited removals (less than a trip) in 2020. There are two strong cohorts in Closed Area II and Closed Area II extension – the older year class can support access area fishing in 2020; however, the outlook for 2021 is uncertain. The younger year class seen in the 2019 surveys of CAII and surrounds represents the strongest recruitment event observed in several years on GB. The Mid-Atlantic access area can support access area fishing in 2020, but biomass has declined in the area, and the outlook for 2021 is uncertain.
- The PDT recommends using a simple approach for 2020. Simple options for 2020 include:
    1. Do nothing, and reconsider harvest for FY 2021 during the 2020 calendar year. There is an ongoing RSA project that is tracking the condition of these scallops every three months.
    2. Allocate as a standard access area trip (part of spatial management). The Council could consider modifying trip limits or crew sizes, and could consider ways to limit discard mortality.
        - Sub-Option 1: Allocate to the entire NLS-S (combine the shallow and deep SAMS areas), with the expectation that vessels will fish around the edges on larger scallops.
        - Sub-Option 2: Define a smaller boundary around the high densities of scallops in the NLS-S-deep. This would focus effort on the small scallops and avoid higher than intended fishing mortality in shallower water of the NLS-S.
    3. Create a separate TAC as a special access program (SAP) that would effectively be "bonus" scallops, and handled separately from the spatial management allocation. These scallops would be accounted for in the ACL flow-chart before the 94.5% and 5.5% allocation split. There are some additional administrative considerations with regard to how the LAGC IFQ component could participate in this SAP, such as a separate allocation outside of the IFQ.
        - The PDT discussed a strawman approach for these scallops that would include maintaining the 4" ring, and increasing the maximum crew size regulation.
- The PDT reviewed a list of changes that could be made to the FMP to utilize these scallops, and binned them into short term (FW32) and longer term actions. Changes that could require an amendment to the FMP include large scale shell stocking and the use of shucking machines at sea.

What we know

- **What:** Stochastic recruitment event produced the exceptional 2012-year-class in the NLS South. There is one year class in this area. The highest densities are in deeper water, with marginal habitat.
- **Where:** Two high-density patches in the NLS-S-deep SAMS area (i.e. depths of 70 m or more). This management area is approximately 22nm east to west, and 13 nm north to south.
- **How many scallops are in the area?** 2019 surveys estimated biomass of over 35,000 mt (over 3 billion animals) with an average meat weight of 10 g.
- **Growth:** These deep-water scallops are not growing normally. They have grown abnormally slow—the animals are 7 years old, but are approximately the size of 3-to-4-year-old scallops. The 2019 surveys suggest that these scallops experienced some growth between 2018 and 2019, but are still considerably smaller than normal for their age. These scallops showed virtually no growth between 2017 and 2018.
- **Meat Size, Yield:** Recent survey data suggests that the average meat size was ~40 count as of August 2019. The yield of these animals has improved compared to 2018 when the average meat size was 50-60 count.
- **Selectivity:** Survey dredge efficiency appears to be reduced in high density areas of NLS-S-Deep as a function of dredge filling. Fishery selectivity: the 2019 surveys estimated the average shell-height to be approximately 90 mm, meaning that all scallops in this area are not fully recruited to the 4" ring; however, due to the incredibly high densities, it seems that a standard commercial dredge with 4" rings is effective at retaining these scallops.
- **Reproduction:** Relative spawning capability of animals in high densities appears to be lower than animals in other habitat/lesser densities. While the collected samples are pending analysis, the literature suggests that for resource limited animals, gamete viability is not compromised, but more a question of how many gametes are being released.
- **Mortality:** Density appeared to be stable between the 2018 and 2019 surveys, though a decline in density was observed between the 2017 and 2018 surveys suggesting some mortality was occurring in the absence of fishing. The PDT suggested that some density dependence and(or) environmental factors may be driving mortality. Cancer crabs and sea stars are present in this area, but do not appear to be substantially increasing mortality. Given the slight difference in meat weight, high grading could be expected.
- **Management considerations from NLS-West:** The PDT has also expressed concern about high total mortality observed in the NLS-West between the 2018 surveys and 2019 surveys. The Council allocated 2 trips to this area in 2018 (roughly 12 million pounds of total removals) and 3 trips in 2019 (roughly 18 million pounds of total removals). In addition to fishing mortality, biomass in this area declined by an additional 25,000 mt (over 50 million pounds of meat weight) between 2018 and 2019. This is likely caused by a mix of discard, incidental, and natural mortality. Since the NLS-West is a high-density area in close proximity to the NLS-S-deep with somewhat similar bottom conditions, there may be lessons from the 2019 fishing year in the NLS-West that can inform harvest in the NLS-S-deep in 2020.
- **Production (LPUE):** At the September 4, 2019 PDT meeting, the PDT discussed potential LPUE with members of industry. A captain suggested that an 8 man crew could cut ~2,000 pounds of 20/30 count per day with an 8 man crew. At higher counts (30-40), Dr. Hart calculated that an 8 man crew may be able to cut 1,600 pounds per day, and a 9 man crew could cut around 1,800 pound per day (200 pounds per person).

Changes that could be made in a Framework or a Specs Package

- Possession limits
- Changes to the minimum ring-size
    - The PDT does not recommend modifying the 4" minimum ring size.
- Gear obstruction
- Increase Crew limits
- Develop an area TAC that is not part of the LA and LAGC IFQ allocation.
- Modify the access area boundary.
- Distribute effort (access) to the area over the FY to reduce congestion, improve safety

More Complicated Changes to the FMP that would take more time to develop, potentially an amendment.

- Use of shucking machines at sea
- Large scale shell stocking
- Transferring shell stock at sea

Other ideas and input generated at the September 4, 2019 PDT meeting:

Public input:

- Members of industry felt that if a standard access area trip is allocated to the area, it should be made very clear that this trip could not be carried over into a subsequent FY (use or lose concept).
- Delineate an area to remain closed, and move some of these scallops north to shallower areas using nets.
- Concern about proximity of these fishing grounds with shipping lanes.
- The high total mortality in the NLS-West suggests that there could be improvements to fishing practices in high density areas. In these high density areas, deck loading contributes to mortality. Scallops can die in the pile as a result of exposure, heat, or freezing. High grading can be expected.
- There is some nuance to how the LAGC IFQ could participate in a special access program outside of the 5.5% IFQ allocation.
- Will these scallops grow better at lower densities, after some fishing?
- Under a special access program TAC, the fishery could be chaotic without some limits, particularly if vessels are turning profits.
- It could be tough to field a crew to cut these small scallops, unemployment may pay more than a share from a trip to this area.

Figure 1 - Heat map of 2019 biomass estimates from CFF HabCam survey, overlaid on interpolated meat counts from the 2019 VIMS dredge survey in the NLS.

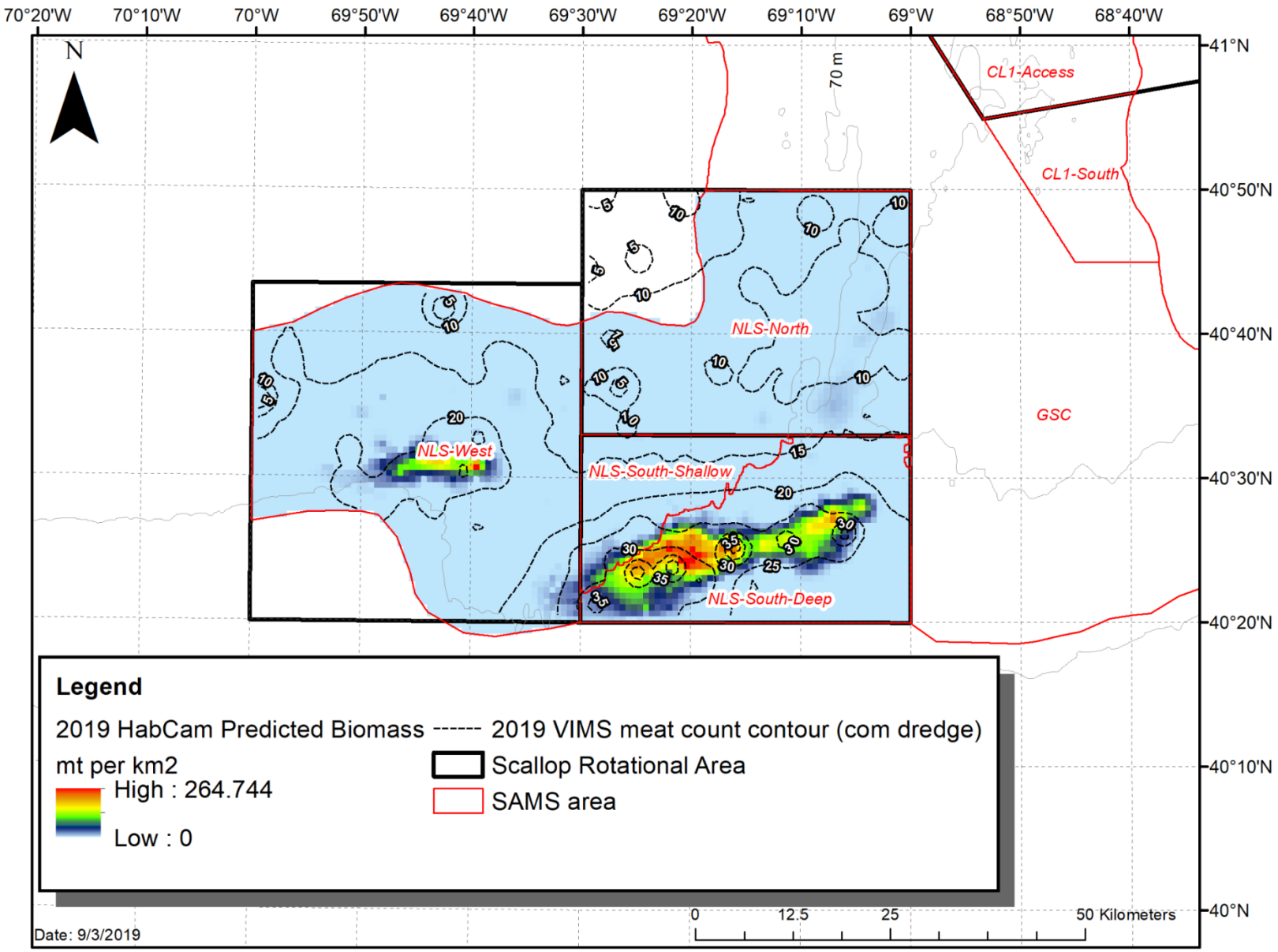

Figure 2 - Length frequency plot of the commercial dredge for the NLS-S-deep from the VIMS dredge survey, 2016 - 2019.

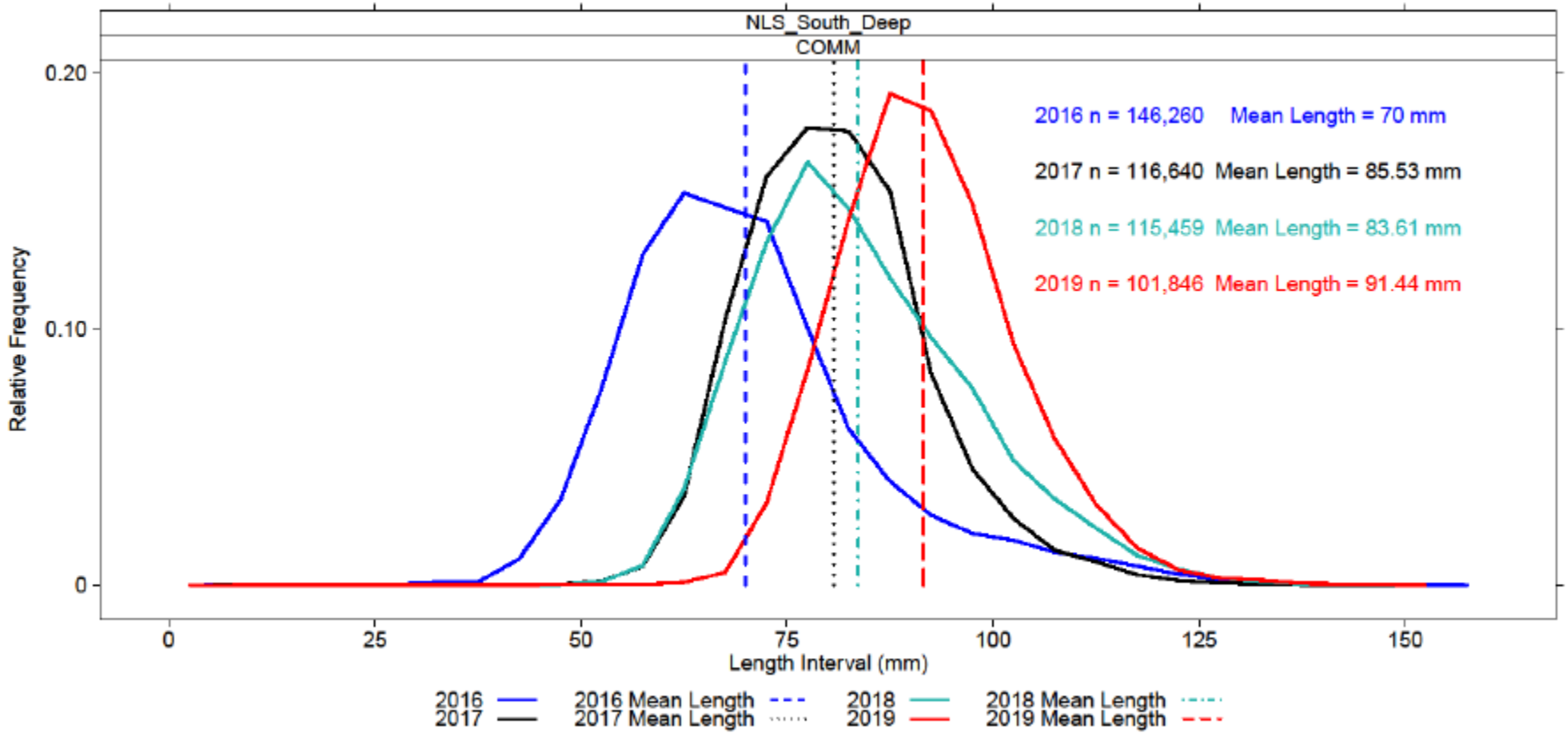

Figure 3 - Modified ACL flow chart with special access program for NLS-S-deep scallops (not allocated as part of 94.5%/5.5% split).