

Nantucket Lightship South “Deep” Discussion Document

What we know, PDT input to date

- **What:** Stochastic recruitment event produced the 2012-year-class in the NLS South. There is one year class in this area, the highest densities of which settled 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).
- **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.
- **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 recently compared to 2018 when the average meat size was 50-60 count.
- **Selectivity:** Survey dredge efficiency reduced in high density areas of NLS-S-Deep likely as a function of dredge filling. Fishery selectivity: 2019 surveys estimated the average shell-height was approximately 90 mm, meaning that all scallops in this area are not fully recruited to the 4” ring.
- **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.
- **Increased natural mortality:** A decline in density 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 (see in-progress VIMS project addressing these questions). Density appeared to be stable between the 2018 and 2019 surveys.
- **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). 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.
- **Fishing:** These scallops were available to the fishery in 2018 as part of FW29, but the fishery did not target them.



