

2022 Scallop Survey Short Report

Prepared by:

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1.0 2022 SURVEY BIOMASS ESTIMATES

Table 1. Total biomass estimates from the 2022 SMAST drop camera survey by Scallop Area Management Simulator (SAMS) zones. Stations were 5.6 km apart for most of Georges Bank SAMS zones except for CL2-North, CL2-Ext, CL2-Southwest, NLS-South and some of CL2-Southeast. These exceptions were surveyed on a 2.8 km grid. Meat weights were estimated following the 65th SARC shell height-meat weight equations, apart from NLS-South where the SARC equation specific to this area was used. A second set of estimates for NLS-South were made using the VIMS equation and are provided in the additional analyses section.

| SMAST Drop Camera Survey | | | | | | | |
|--|-------------------------|--------------|-----------|-------------------|-----------------------|--|--|
| <u>Size cutoff for estimates is 40mm, all estimates should use SARC 65 equation</u> | | | | | | | |
| <u>Note: NLS-South = NLS-South-Deep (same area)</u> | | | | | | | |
| GB | NumMil | BmsMT | SE | MeanWt (g) | Avg. Size (mm) | Scallop density (per m²) | # Stations (four drops are conducted per station) |
| CL1-Access | 37 | 524 | 235 | 14.3 | 77.4 | 0.03 | 40 |
| CL1-Sliver | 929 | 4,818 | 2,525 | 5.2 | 53.7 | 1.04 | 29 |
| CL1-South | 3 | 58 | 58 | 19.5 | 96.9 | 0.01 | 8 |
| CL2-North | 429 | 9,209 | 2,040 | 21.5 | 74.8 | 0.70 | 79 |
| CL2-Southeast | 6 | 54 | 38 | 8.7 | 66.1 | 0.01 | 35 at 5.6 km resolution |
| | 460 | 8,077 | 1,046 | 17.6 | 86.2 | 0.31 | 195 at 2.8 km |
| CL2-Southwest | 99 | 2,892 | 483 | 29.1 | 102.6 | 0.10 | 134 |
| CL2-Ext | 575 | 9,223 | 1,405 | 16.1 | 87.2 | 0.42 | 178 |
| NLS-North | 71 | 923 | 606 | 12.9 | 66.6 | 0.05 | 43 |
| NLS-South | 226 | 3,451 | 1,304 | 15.3 | 97.2 | 0.33 | 90 |
| NLS-West | 36 | 784 | 356 | 22.0 | 89.1 | 0.02 | 50 |
| GSC | See additional analyses | | | | | | |
| NF | 93 | 2,264 | 1,081 | 24.5 | 97.6 | 0.06 | 54 |
| SF | 537 | 6,377 | 1,479 | 11.9 | 76.8 | 0.13 | 129 |
| MidAtlantic | Not funded | | | | | | |

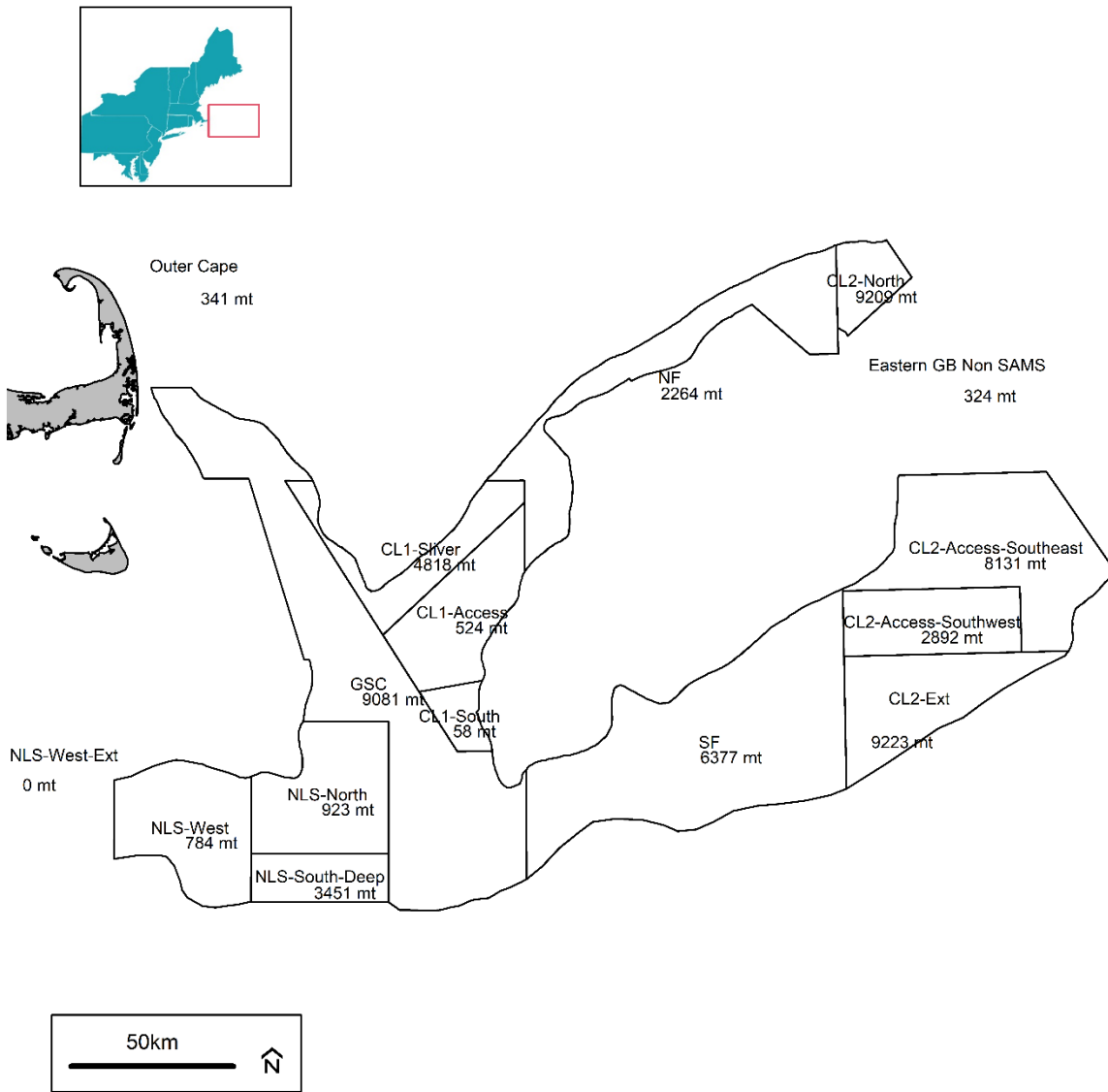


Figure 1. 2022 SMAST Drop Camera survey biomass estimates for scallops ≥ 40 mm shell height, in metric tons, on Georges Bank by Scallop Area Management Simulator (SAMS) zones.

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2.0 FIGURES OF SURVEY COVERAGE

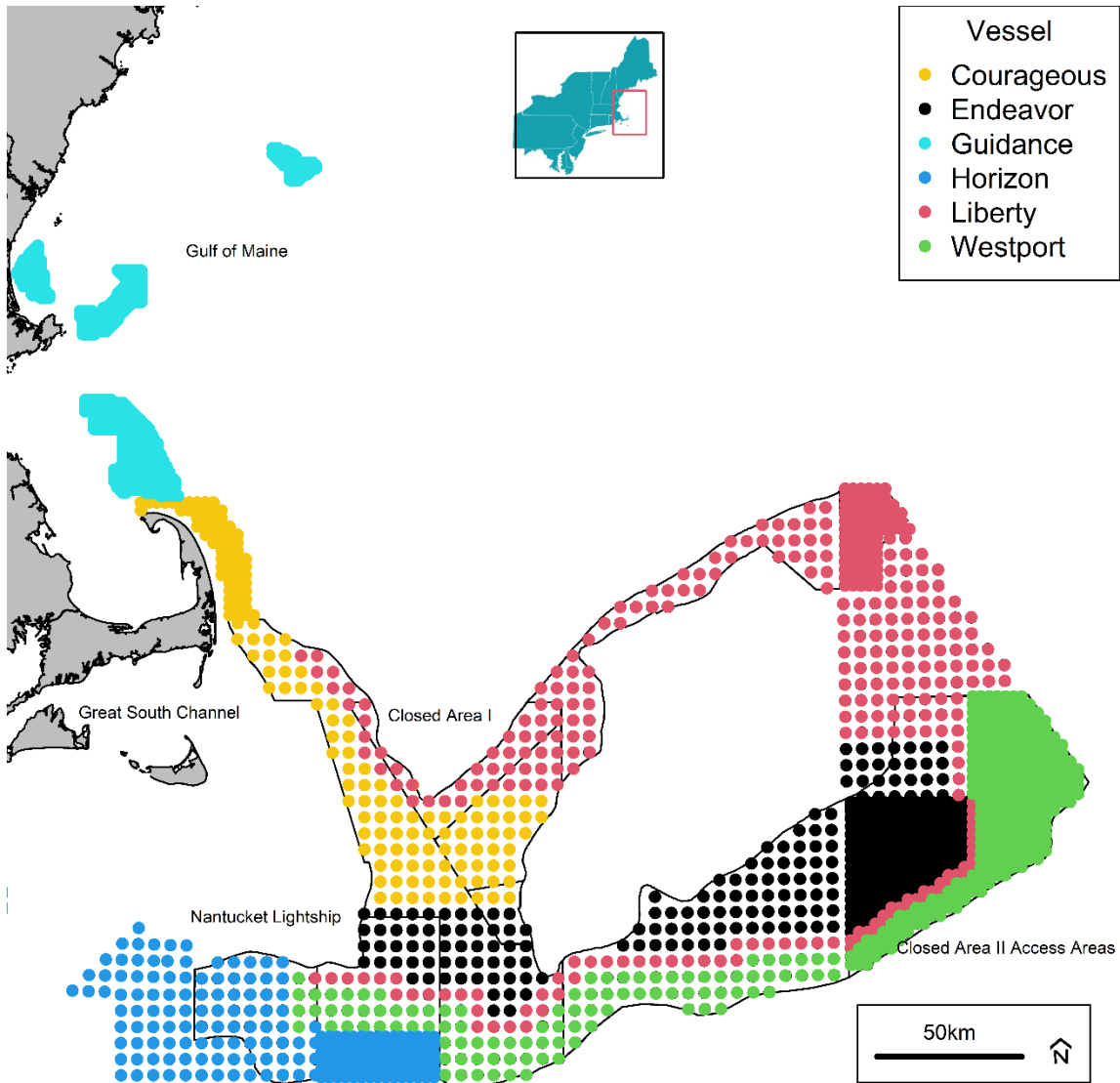


Figure 2. 2022 SMAST Drop Camera survey locations by vessel. Stations were 5.6 km apart with the exceptions of CL2- Southwest, CL2-Extension, CL2-North, NLS-South, part of CL2-Southeast and the Outer Cape Cod area, which were 2.8 km apart. Stations in the Gulf of Maine (cyan points) were 1 km apart.

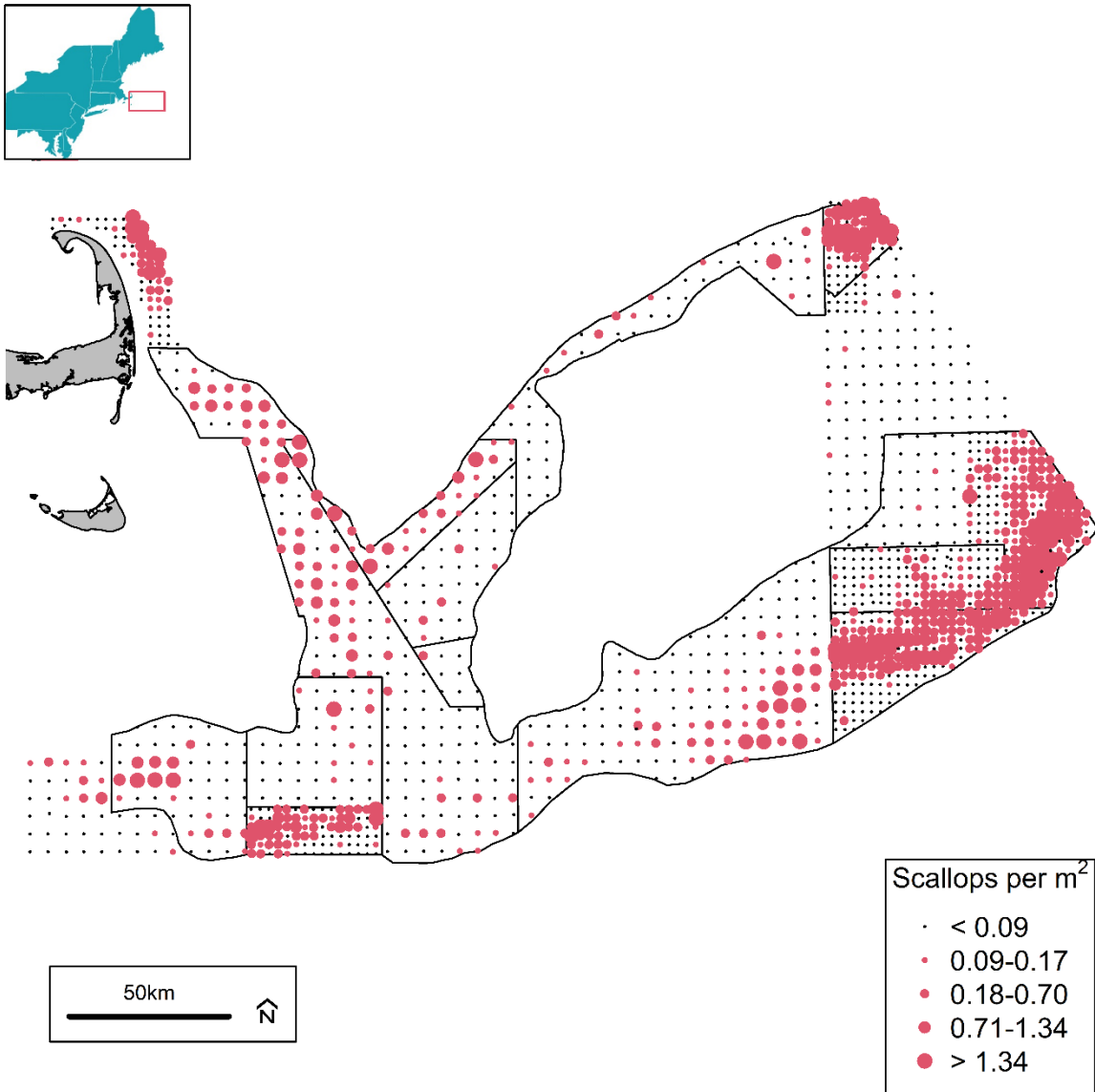


Figure 3. Mean scallop density (all sizes, including less than 40 mm shell height) at each station from the 2022 SMAST Drop Camera survey.

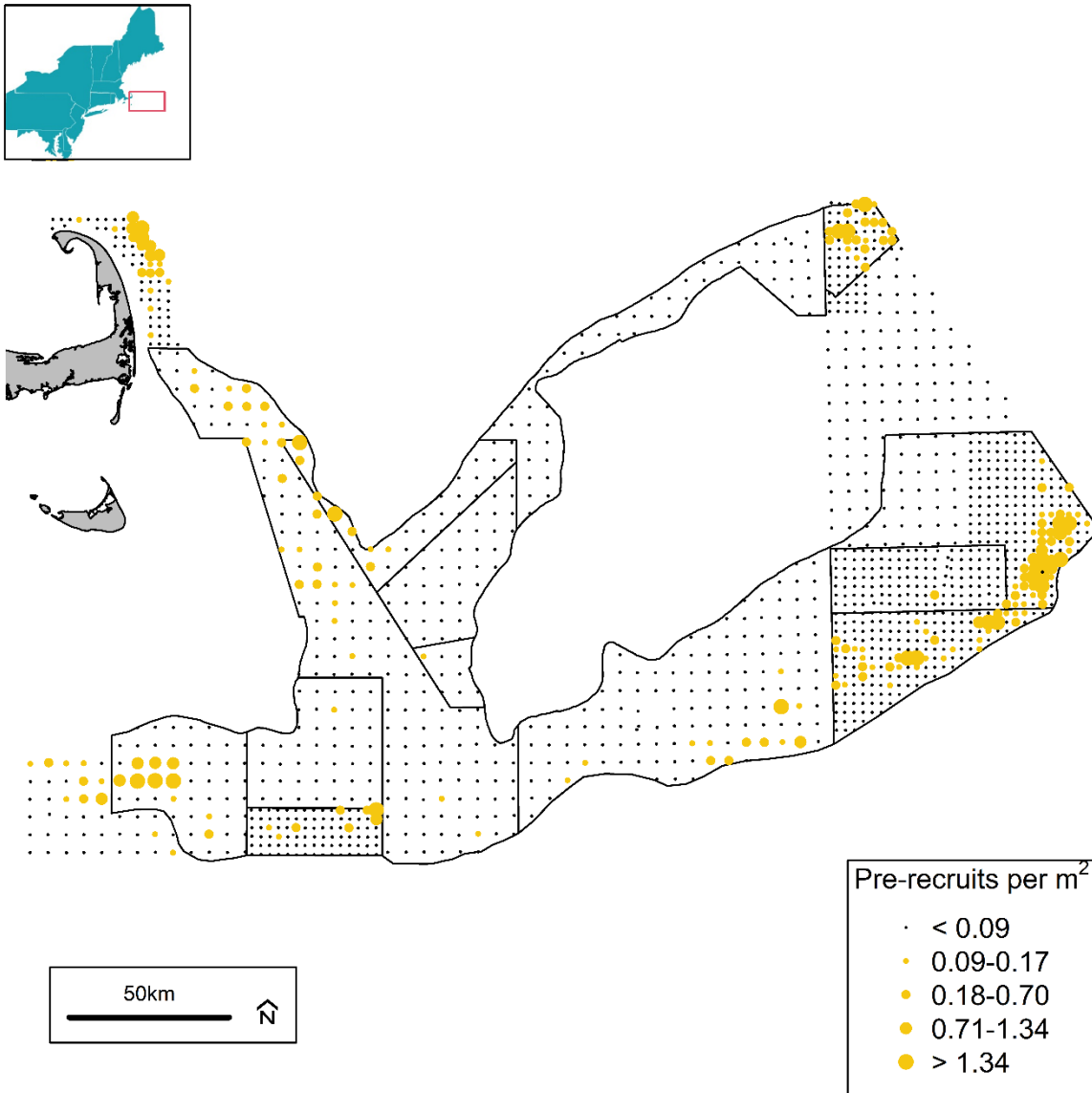


Figure 4. Average pre-recruit (< 35 mm shell height) scallop density at stations from the 2022 SMAST Drop Camera survey.

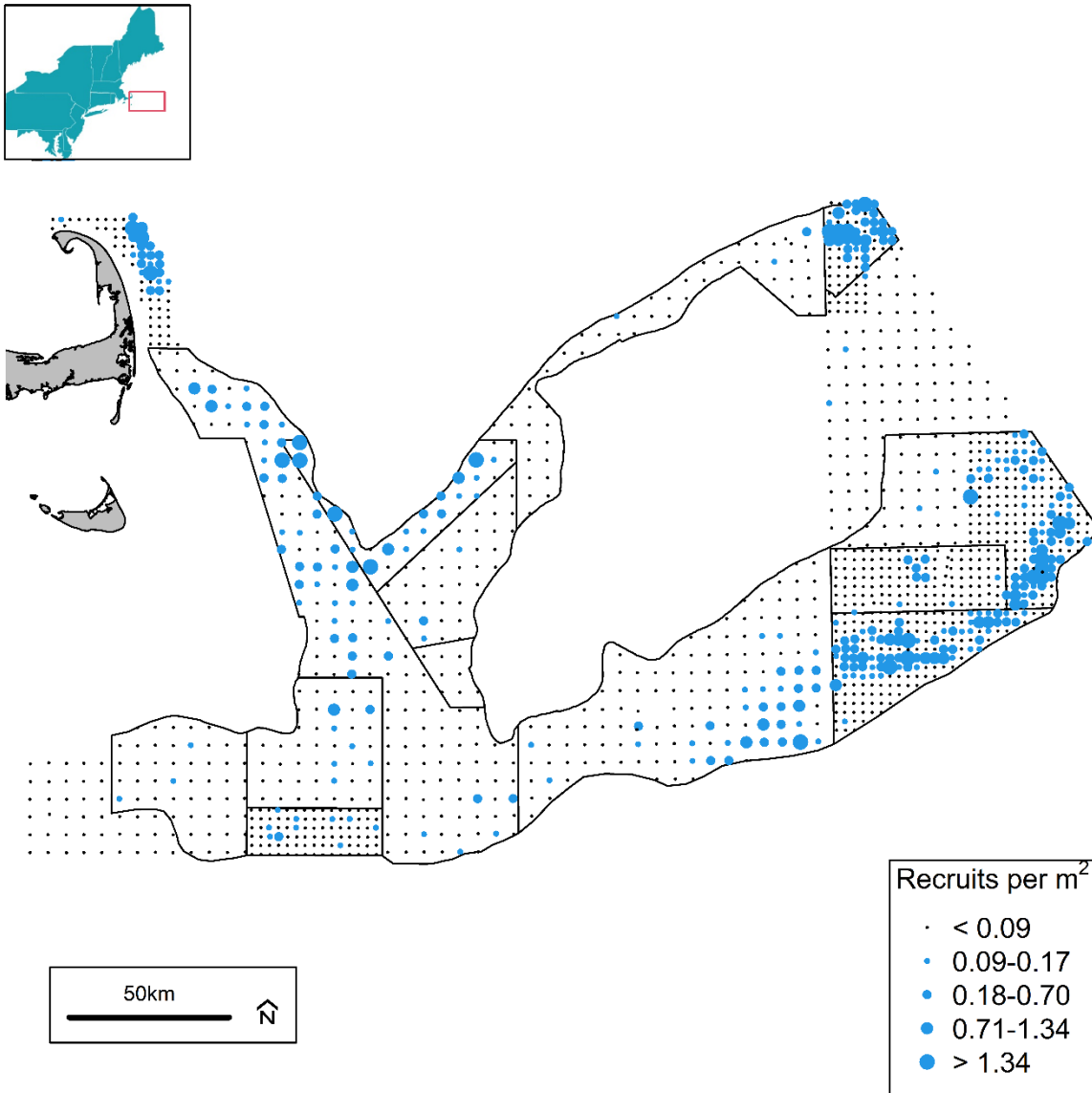


Figure 5. Average recruit (35 to 75 mm shell height) scallop density at stations from the 2022 SMAST Drop Camera survey.

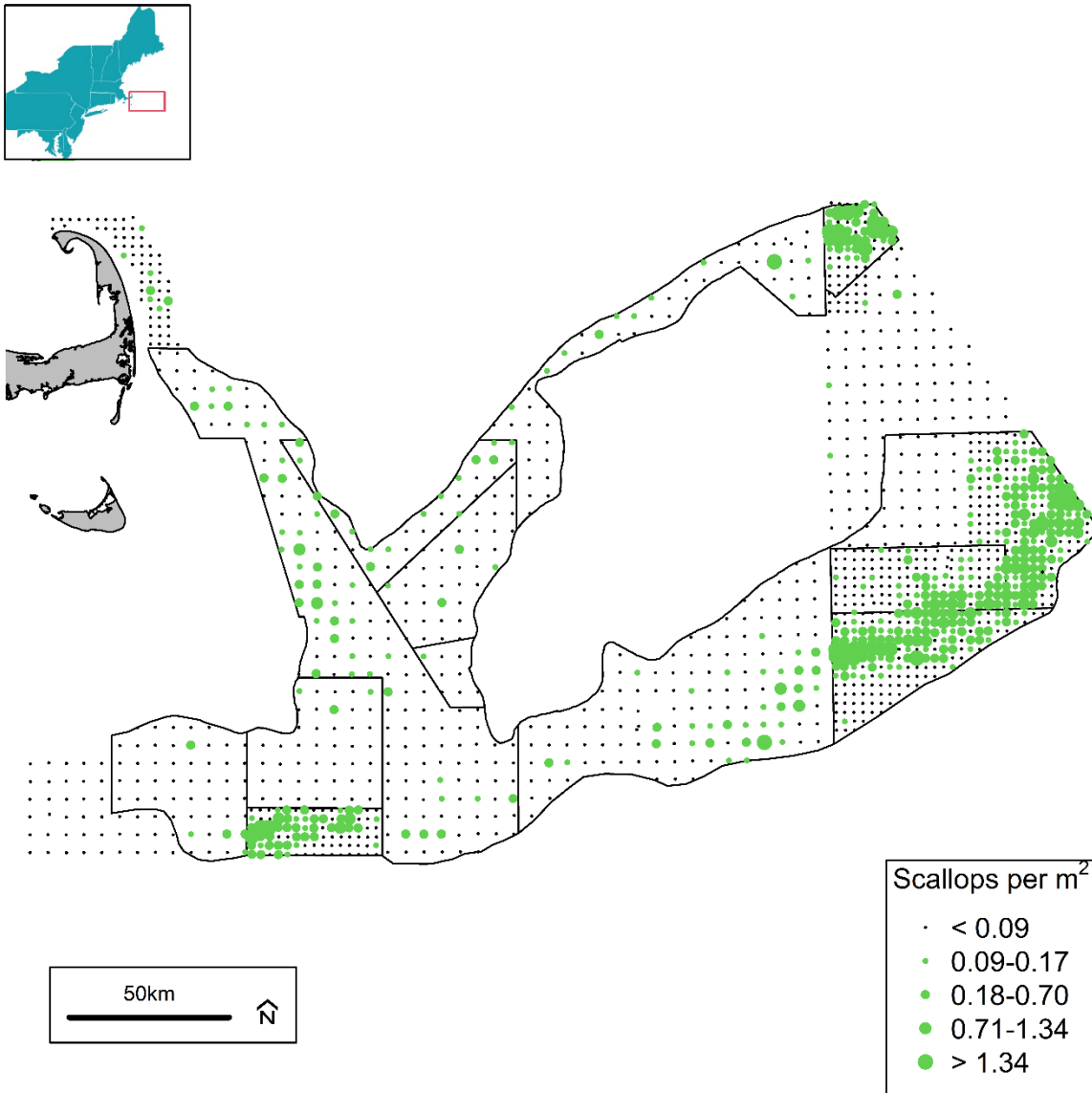


Figure 6. Average recruited scallop (> 75 mm shell height) density at stations from the 2022 SMAST Drop Camera survey.

3.0 LENGTH FREQUENCY PLOTS BY SAMS AREA

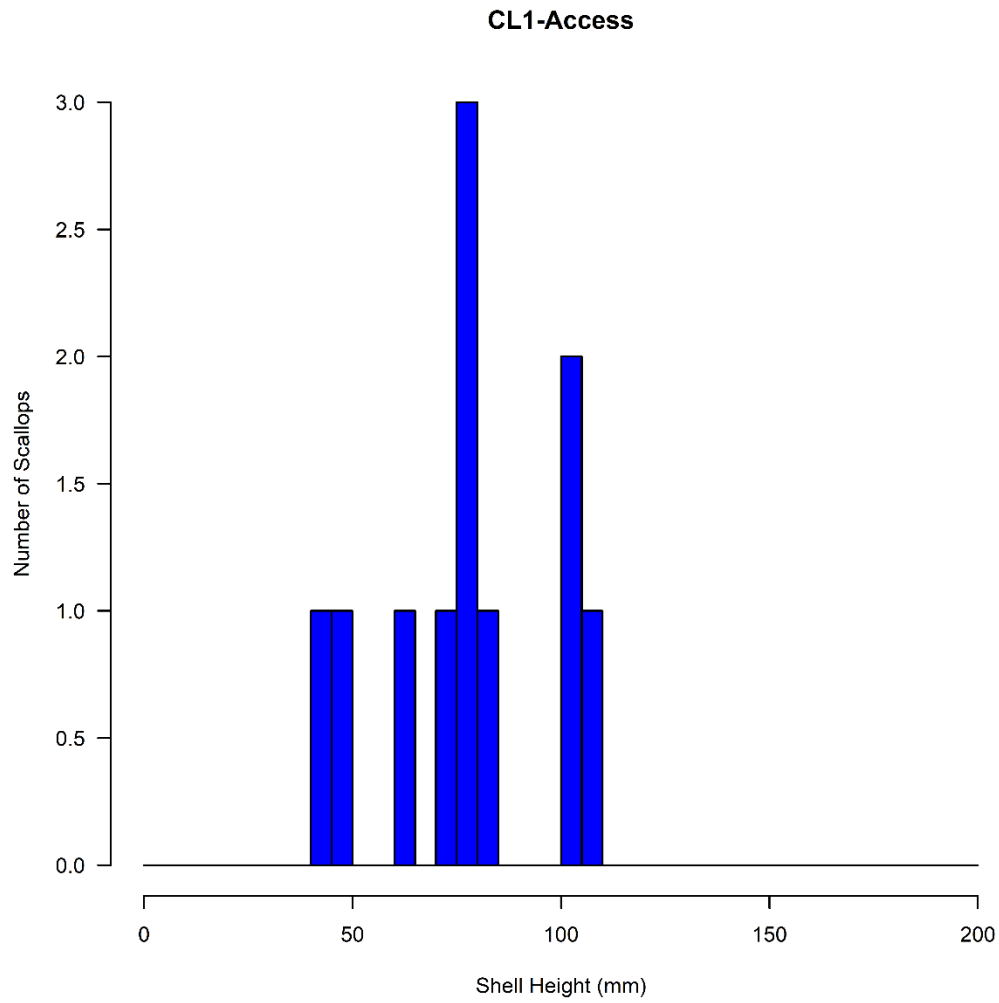


Figure 7. Shell height distribution of scallops in the CL1 Access SAMS zone from the S Mast Drop Camera survey. The overall average shell height was 77.4 mm with 11 scallops measured.

CL1-Sliver

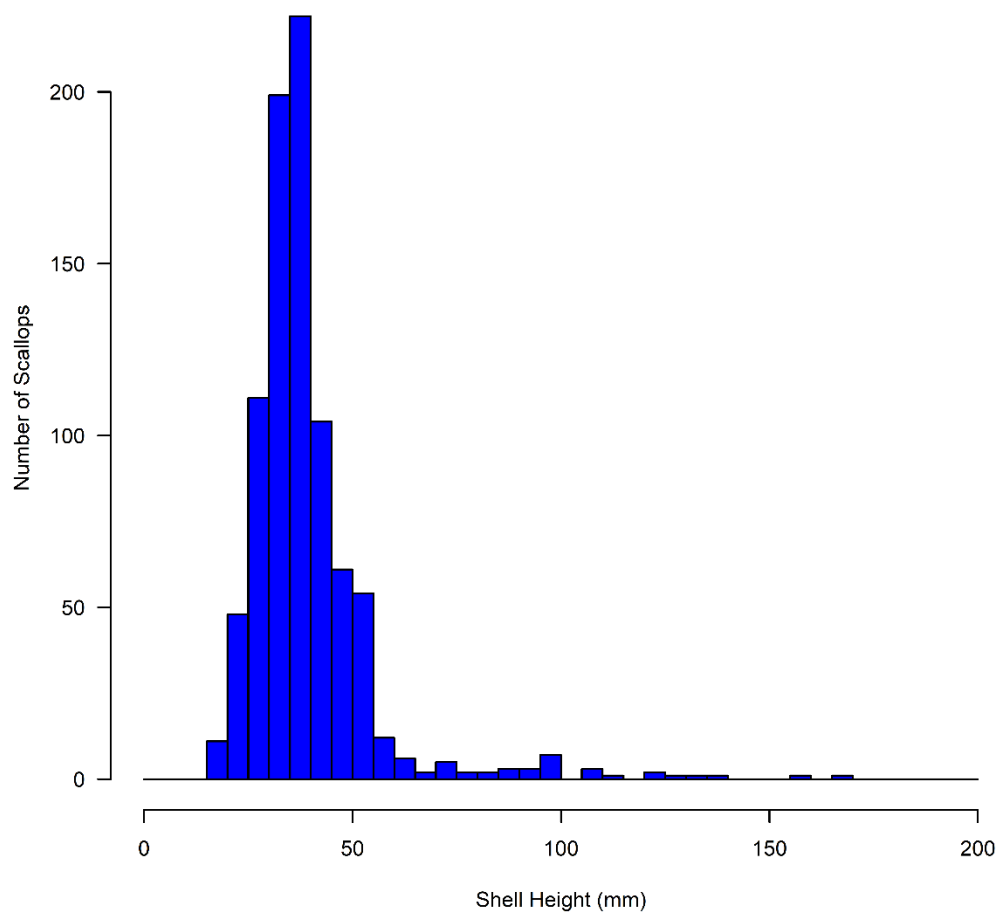


Figure 8. Shell height distribution of scallops in the CL1 Sliver SAMS zone from the S Mast Drop Camera survey. The overall average shell height was 39.1 mm with 863 scallops measured.

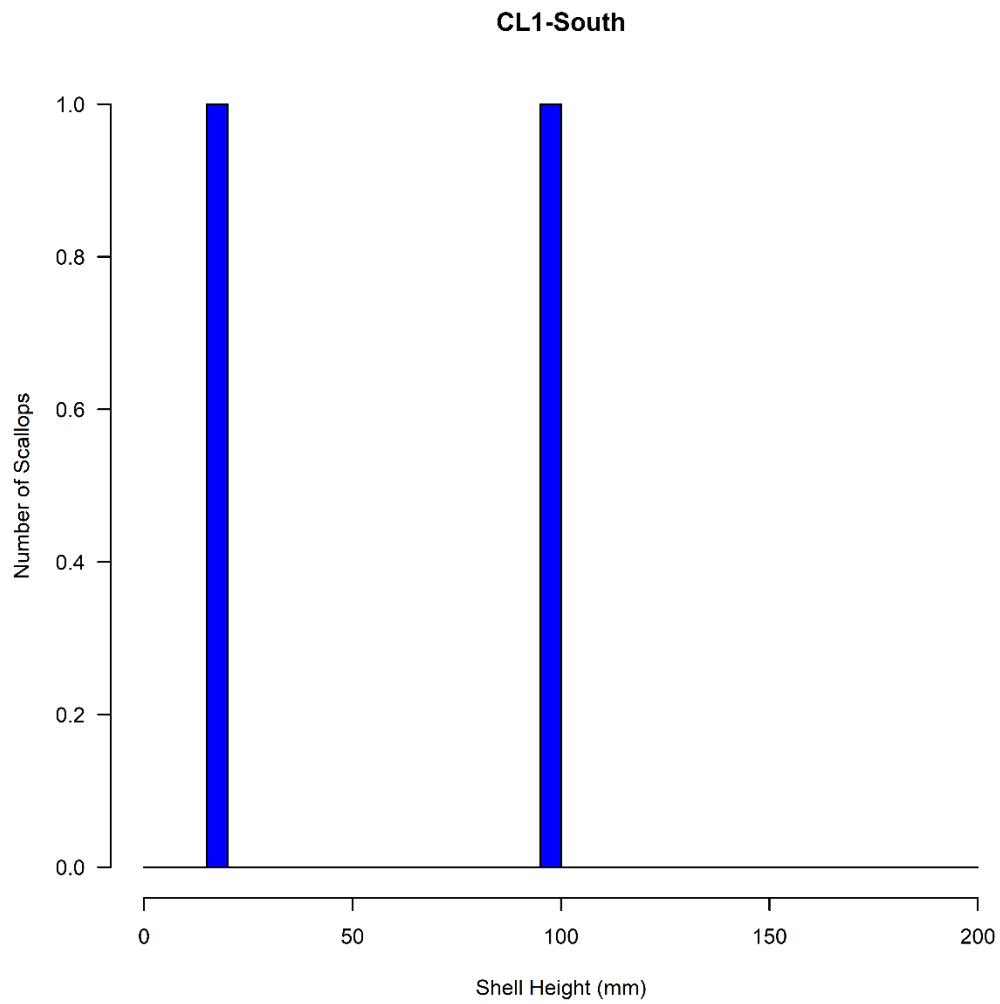


Figure 9. Shell height distribution of scallops in the CL1 South SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 56.5 mm with 2 scallops measured.

CL2-Southeast

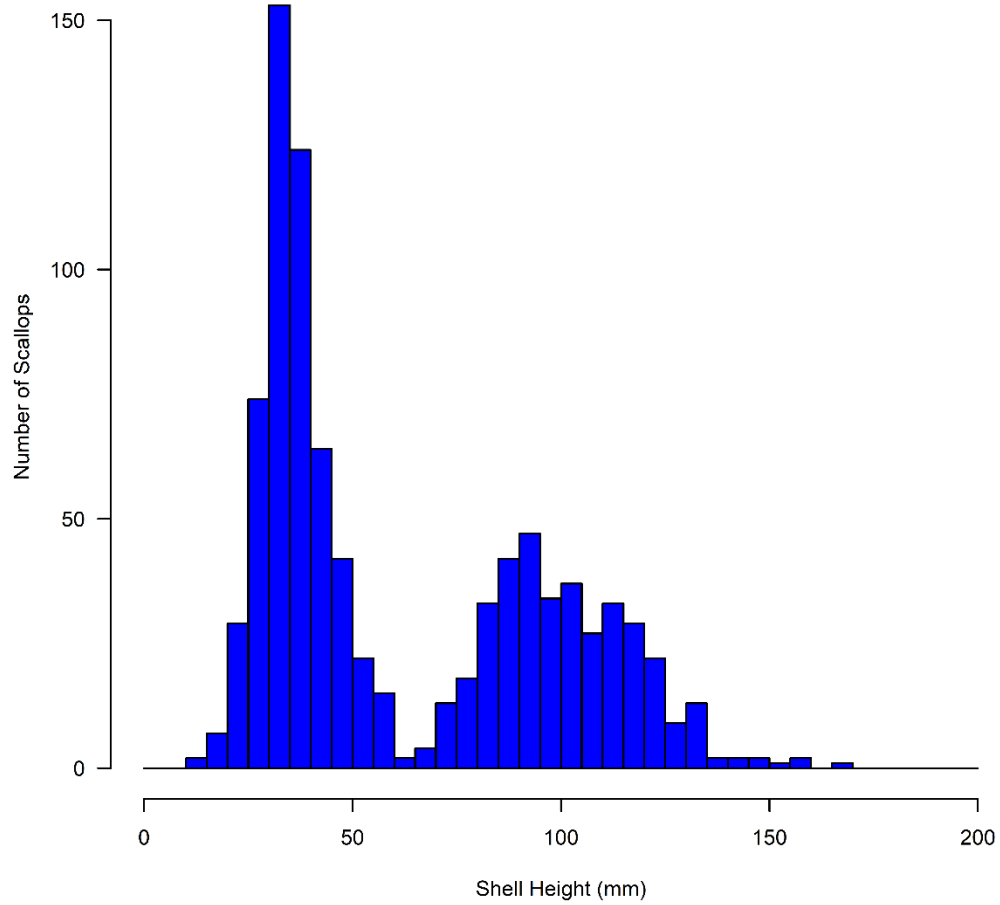


Figure 10. Shell height distribution of scallops in the CL2 Southeast SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 62.9 mm with 905 scallops measured.

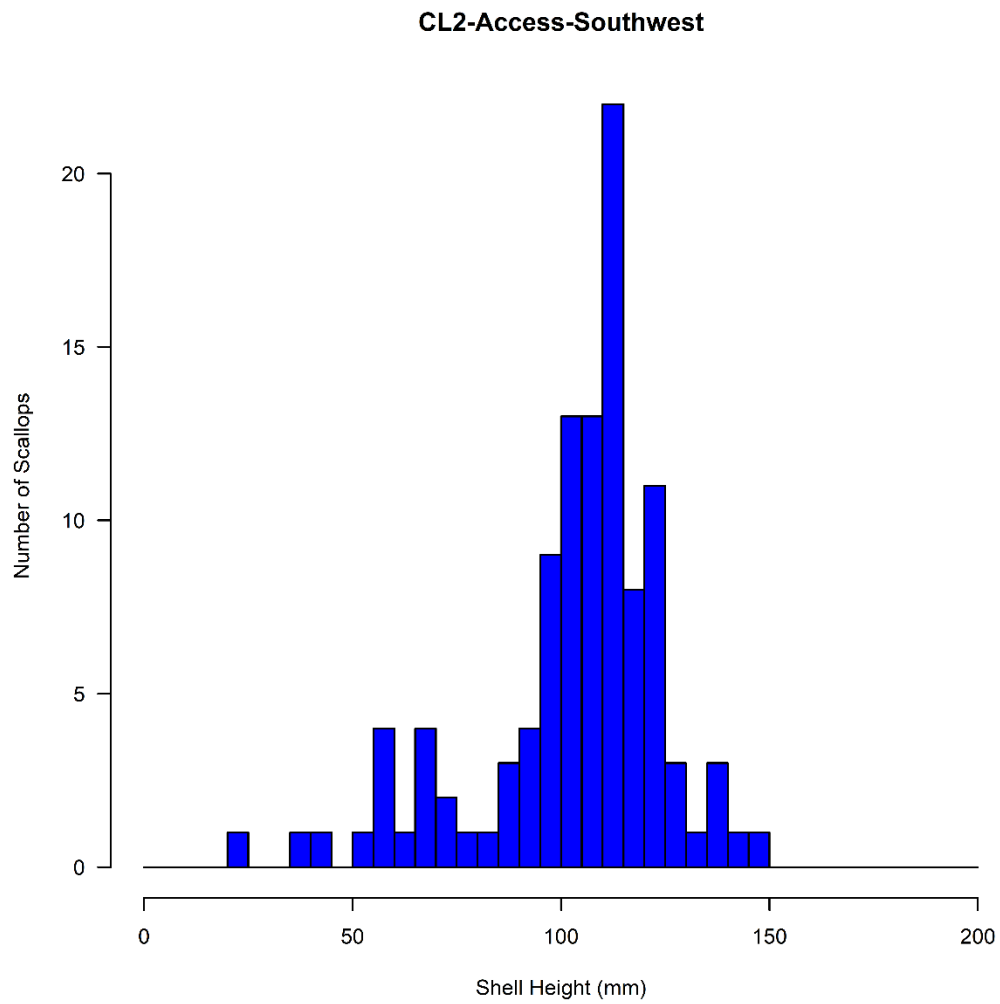


Figure 11. Shell height distribution of scallops in the CL2 Southwest SAMS zone from the S Mast Drop Camera survey. The overall average shell height was 102.6 mm with 111 scallops measured.

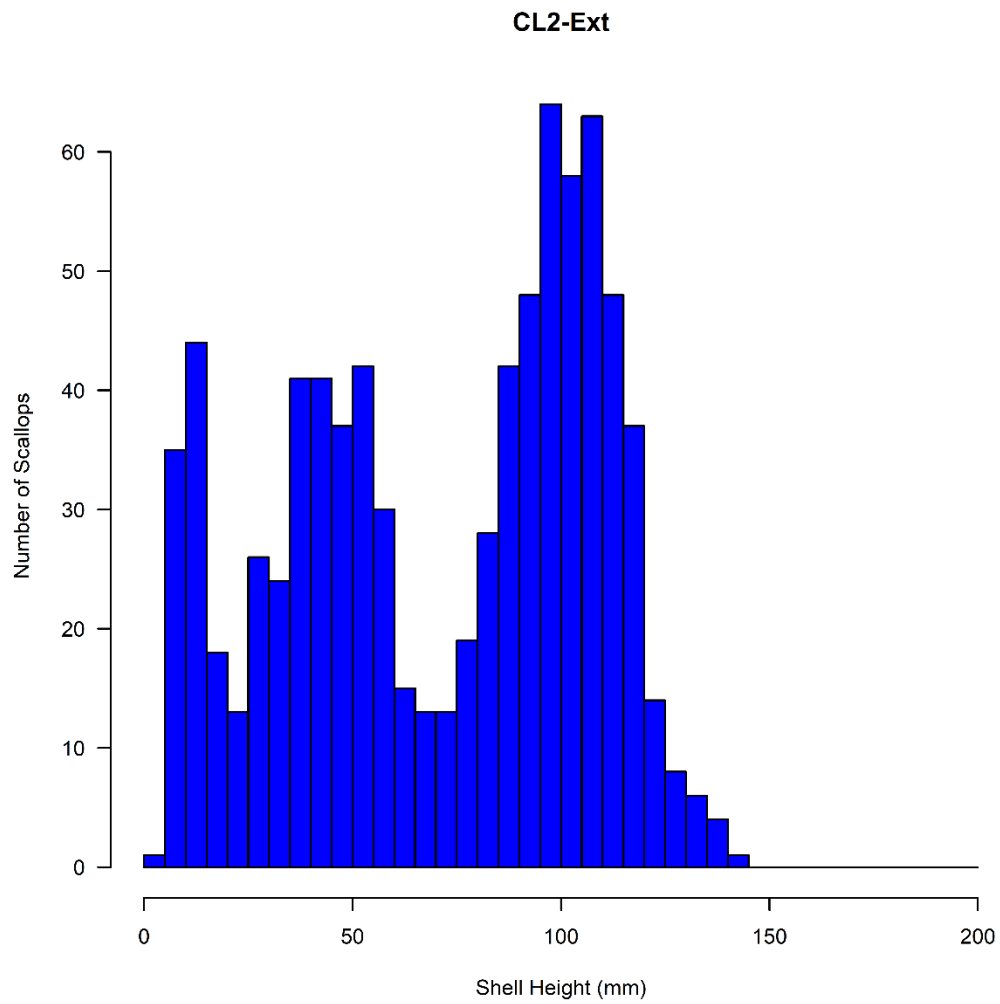


Figure 12. Shell height distribution of scallops in the CL2 Extension SAMS zone from the S Mast Drop Camera survey. The overall average shell height was 71.4 mm with 833 scallops measured.

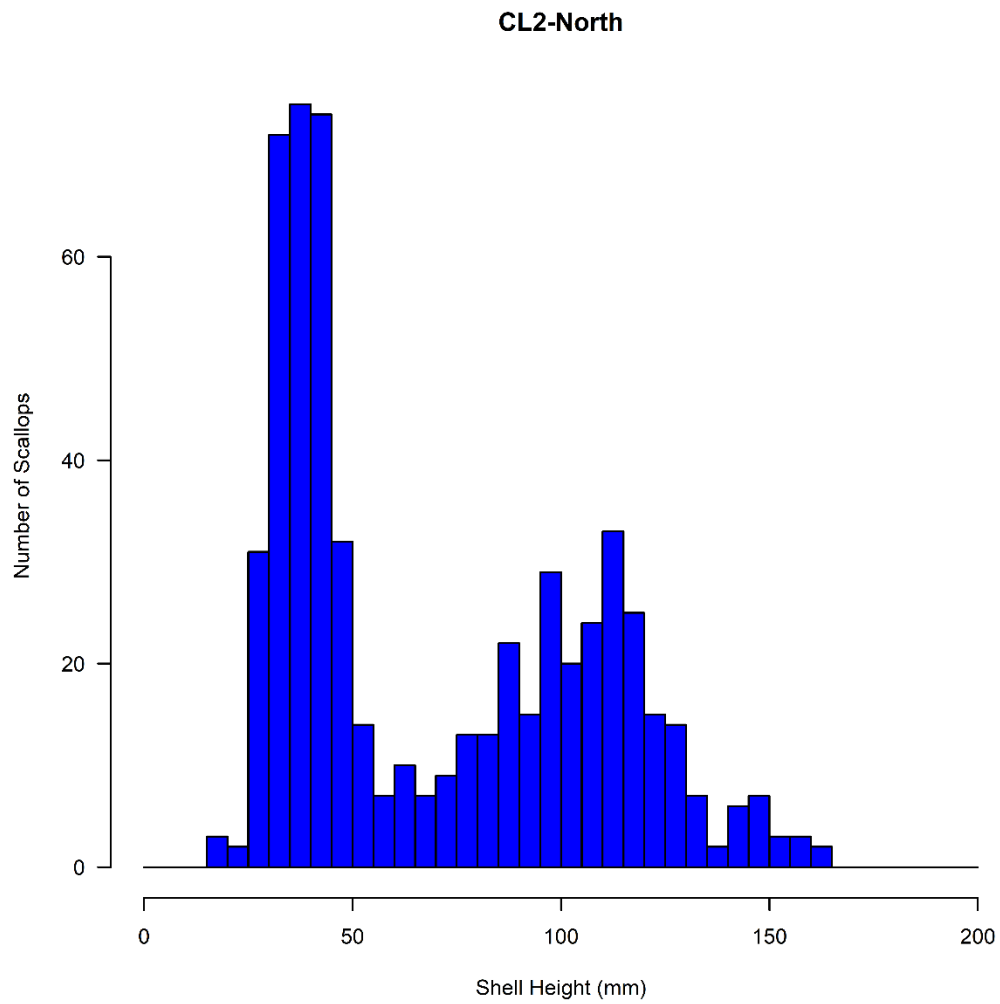


Figure 13. Shell height distribution of scallops in the CL2 North SAMS zone from the S Mast Drop Camera survey. The overall average shell height was 72.8 mm with 673 scallops measured.

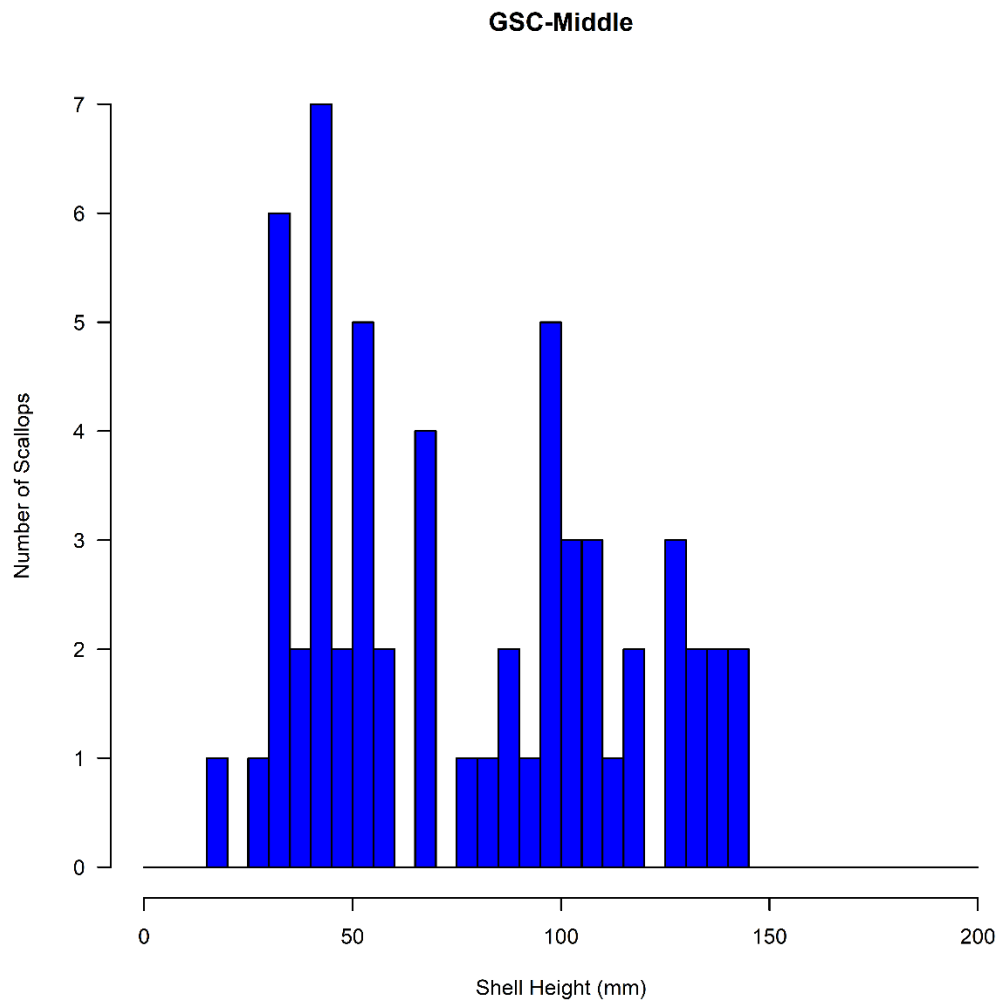


Figure 14. Shell height distribution of scallops in the Great South Channel Middle SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 76.6 mm with 58 scallops measured.

GSC-North

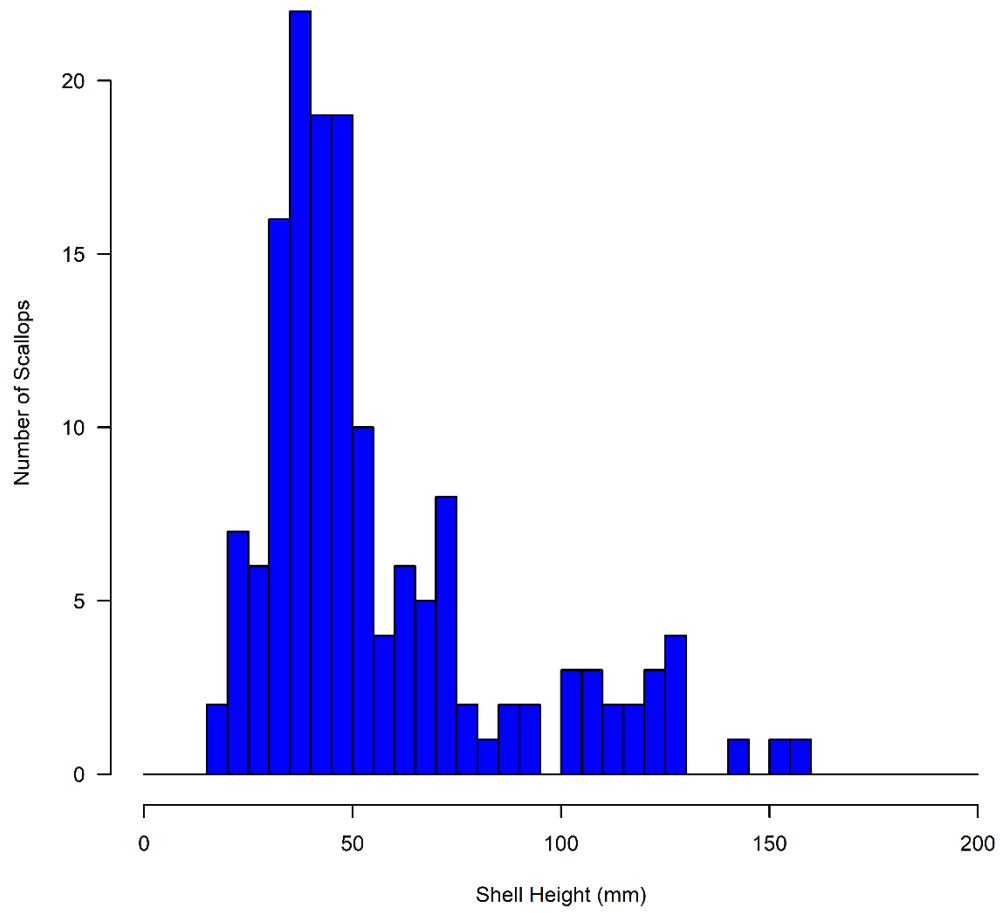


Figure 15. Shell height distribution of scallops in the Great South Channel North SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 56.0 mm with 151 scallops measured.

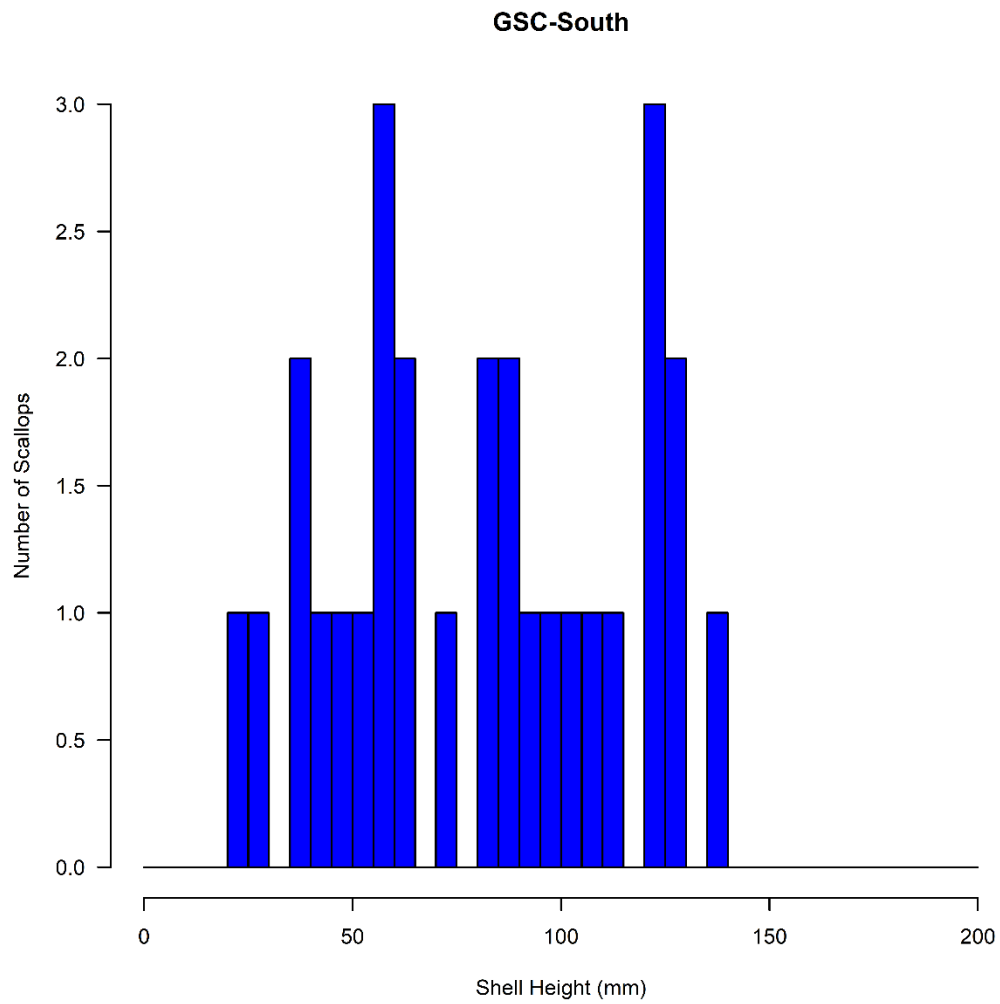


Figure 16. Shell height distribution of scallops in the Great South Channel South SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 80.4 mm with 28 scallops measured.

GSC-all

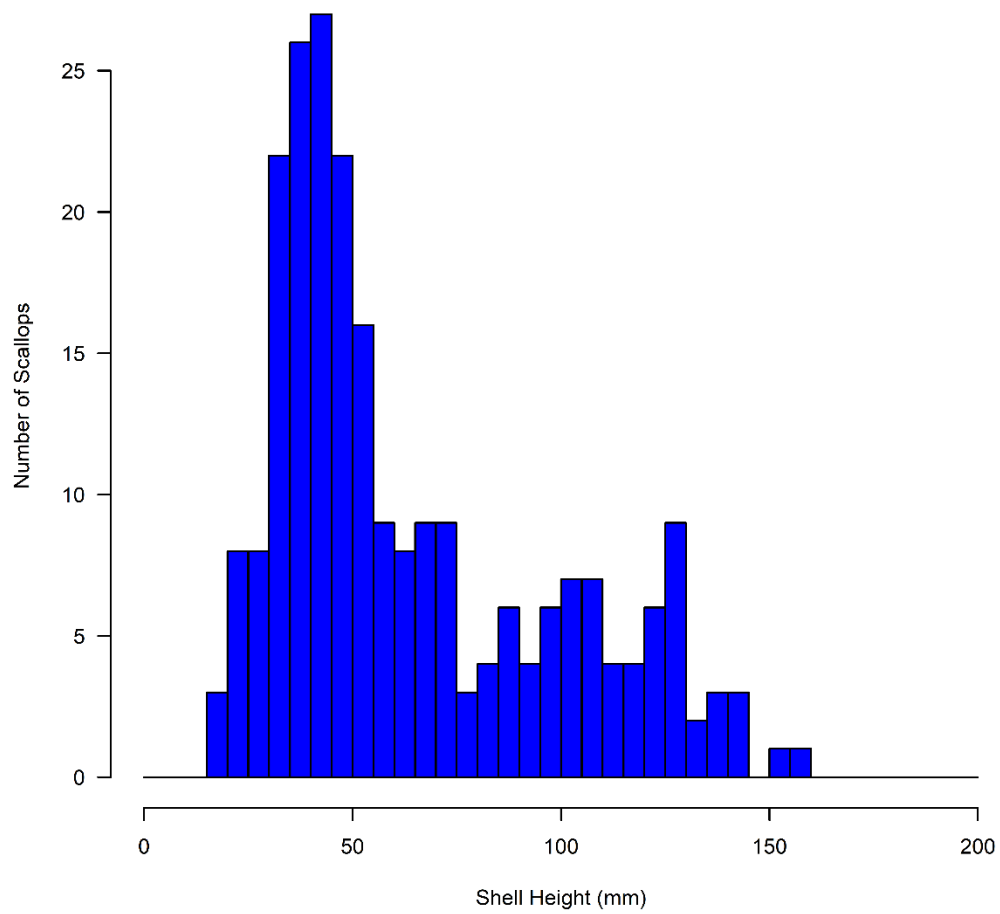


Figure 17. Shell height distribution of scallops in all Great South Channel SAMS zones from the SMAST Drop Camera survey. The overall average shell height was 63.9 mm with 237 scallops measured.

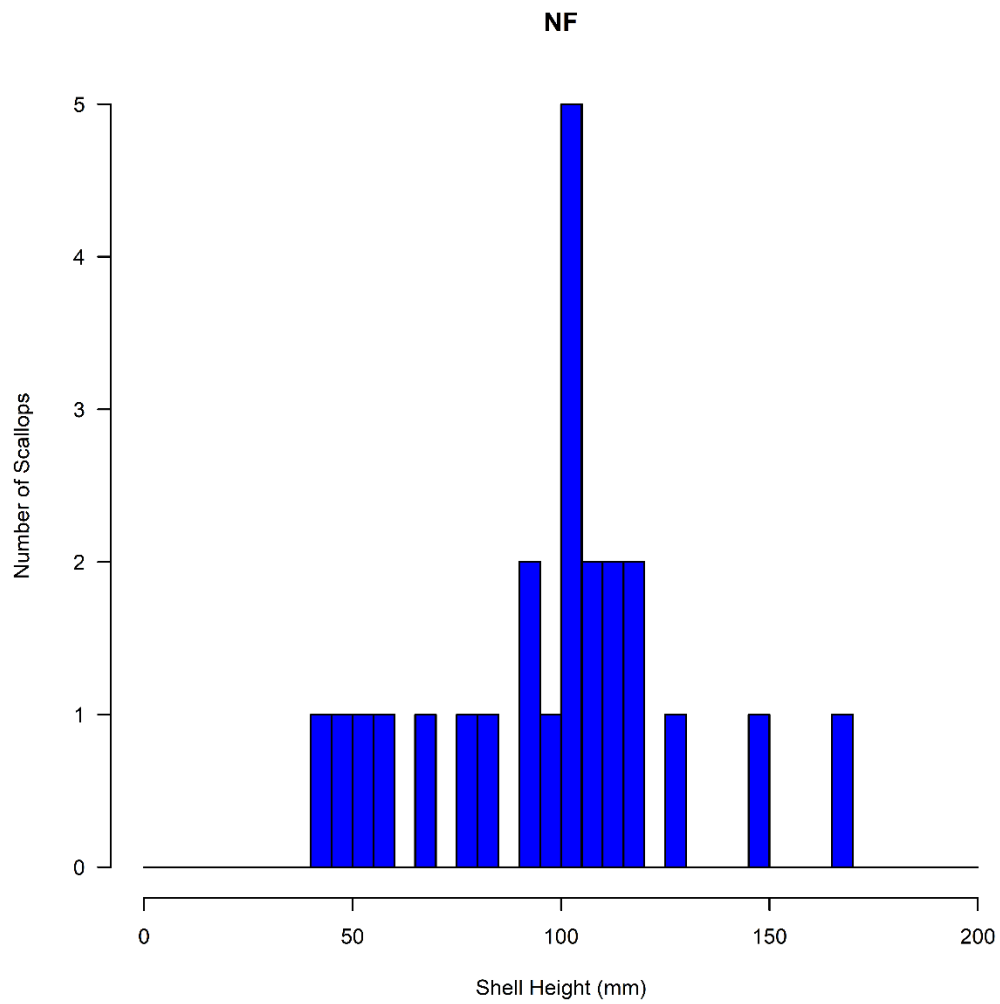


Figure 18. Shell height distribution of scallops in the Northern Flank SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 97.6 mm with 24 scallops measured.

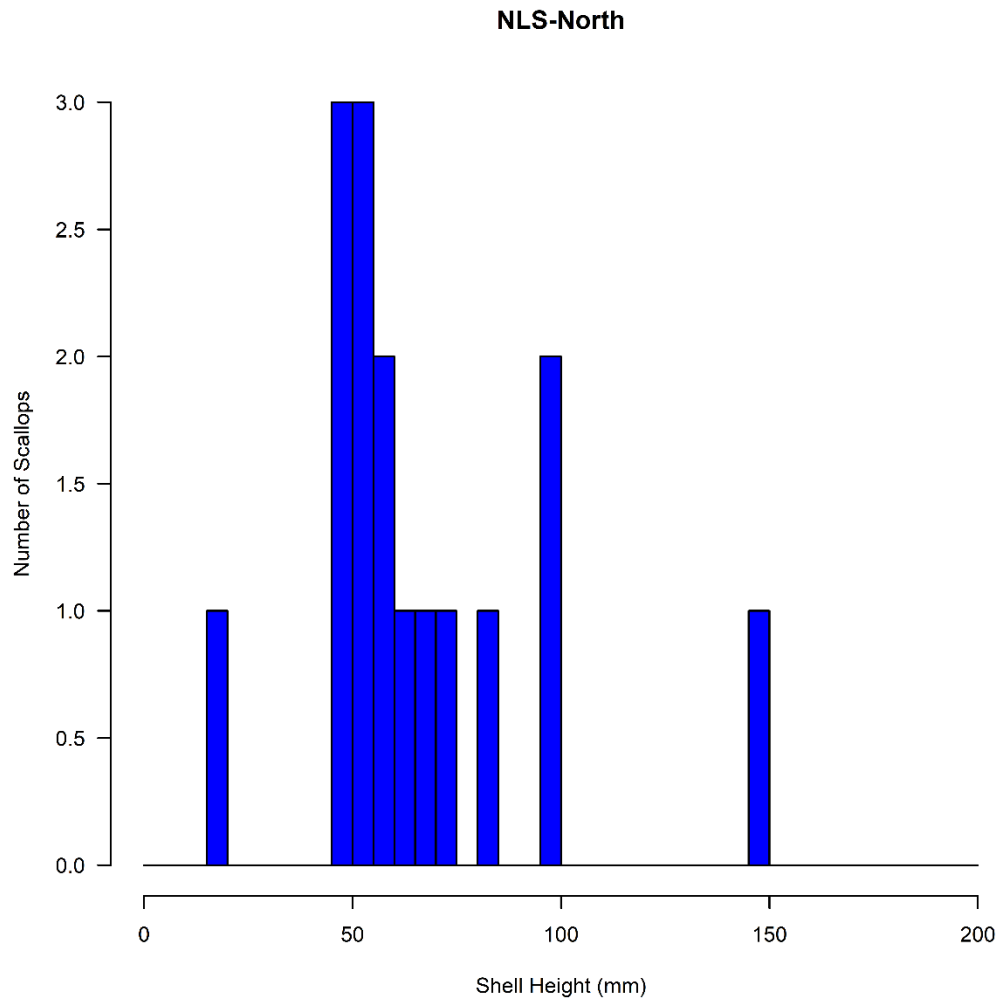


Figure 19. Shell height distribution of scallops in the Nantucket Lightship North SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 66.6 mm with 16 scallops measured.

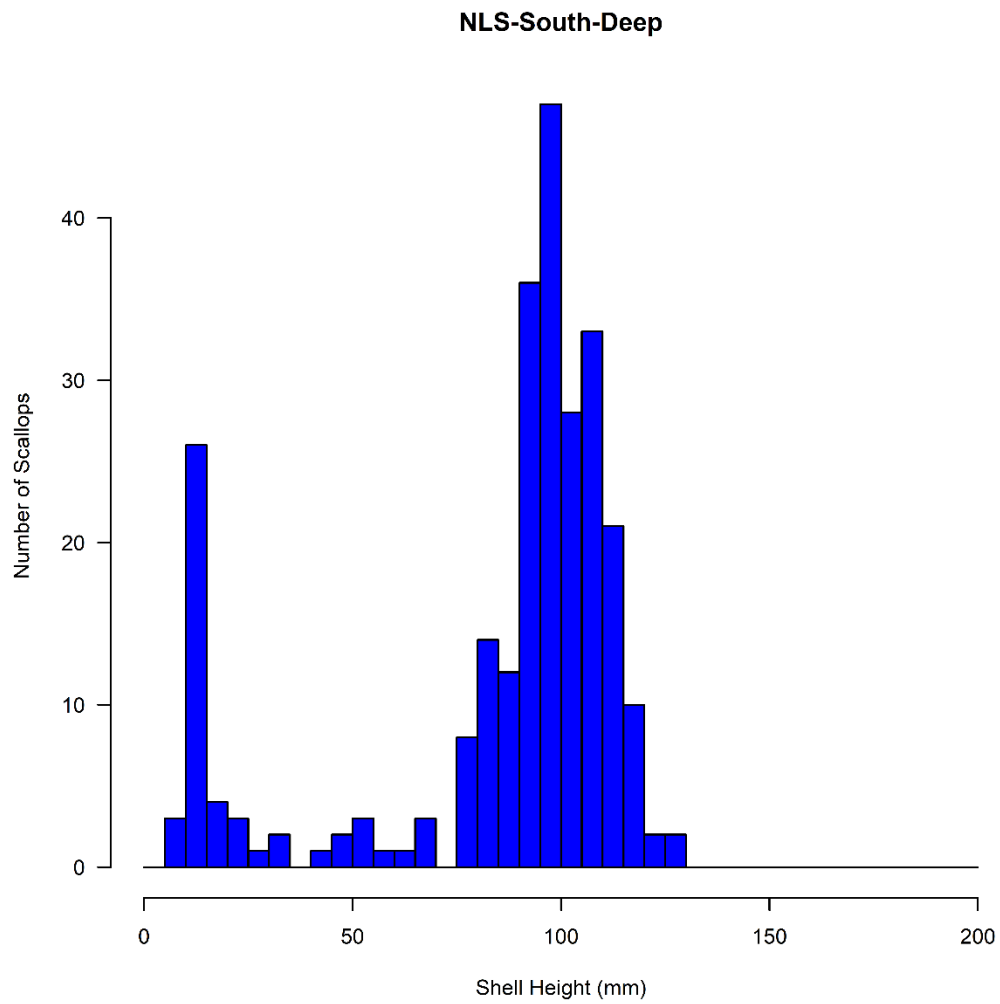


Figure 20. Shell height distribution of scallops in the Nantucket Lightship South SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 85.0 mm with 263 scallops measured.

NLS-West

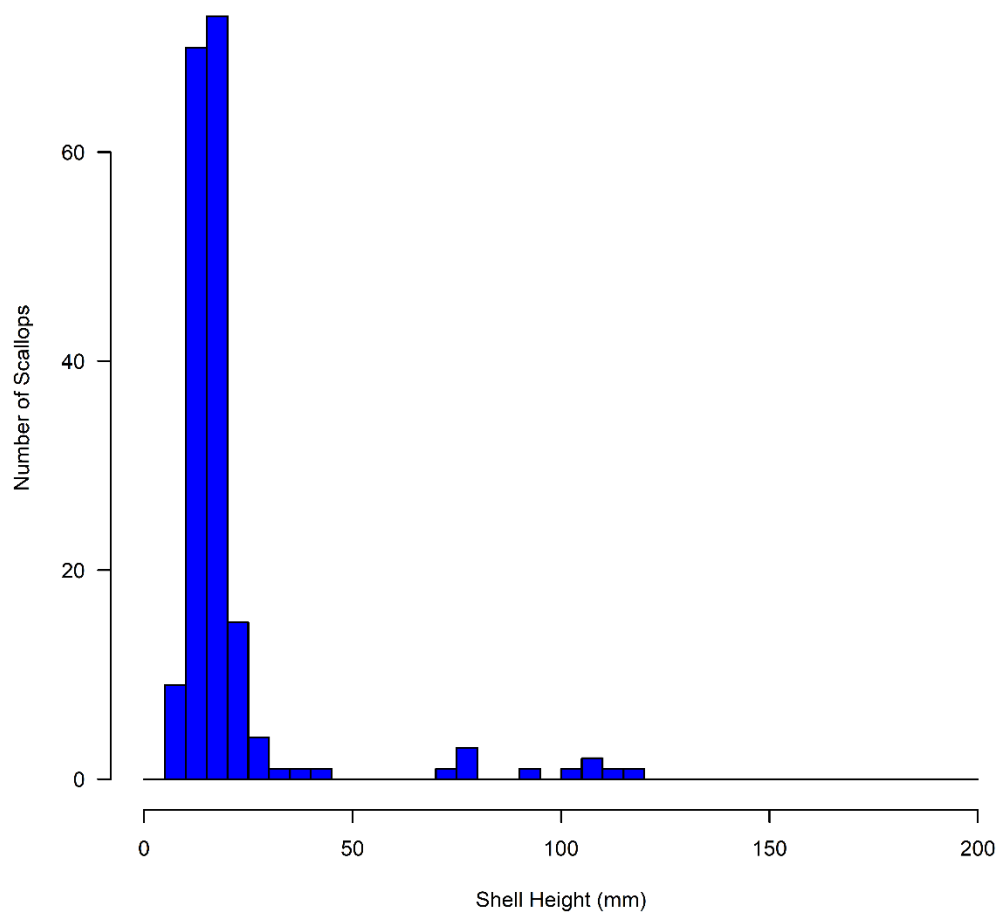


Figure 21. Shell height distribution of scallops in the Nantucket Lightship West SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 20.3 mm with 184 scallops measured.

SF

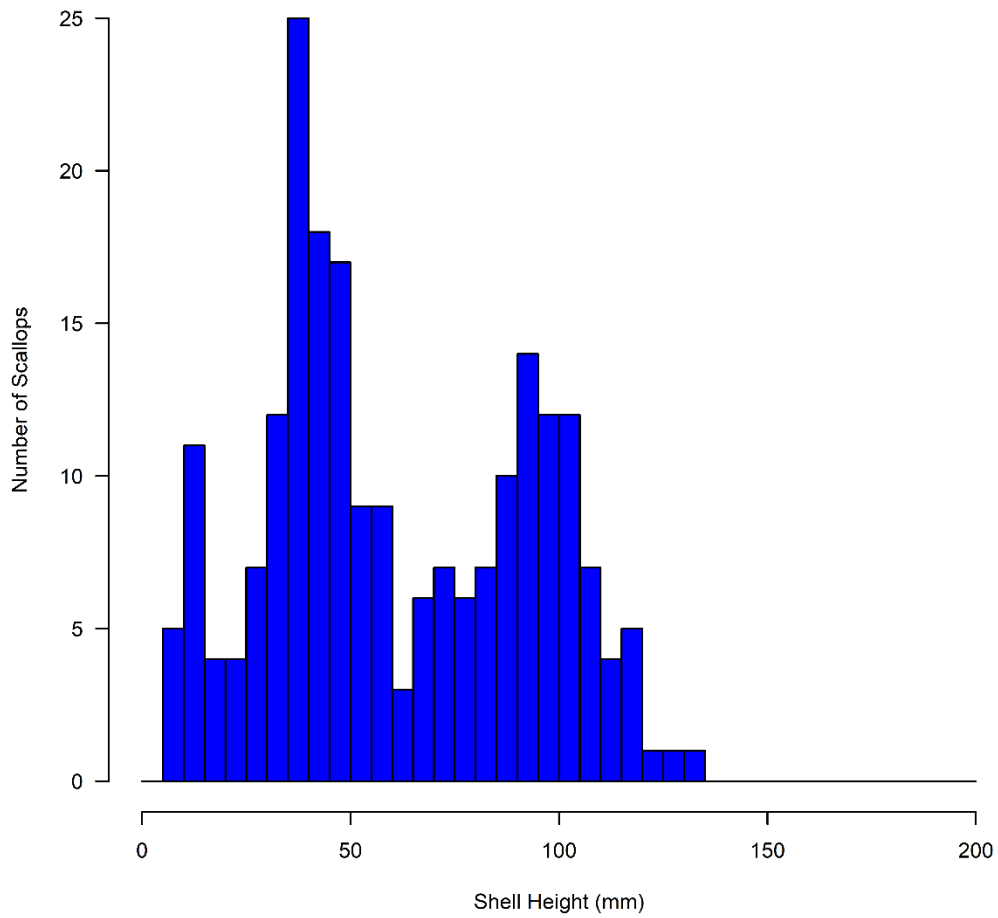


Figure 22. Shell height distribution of scallops in the Southern Flank SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 61.3 mm with 217 scallops measured.

NLS-West-Ext

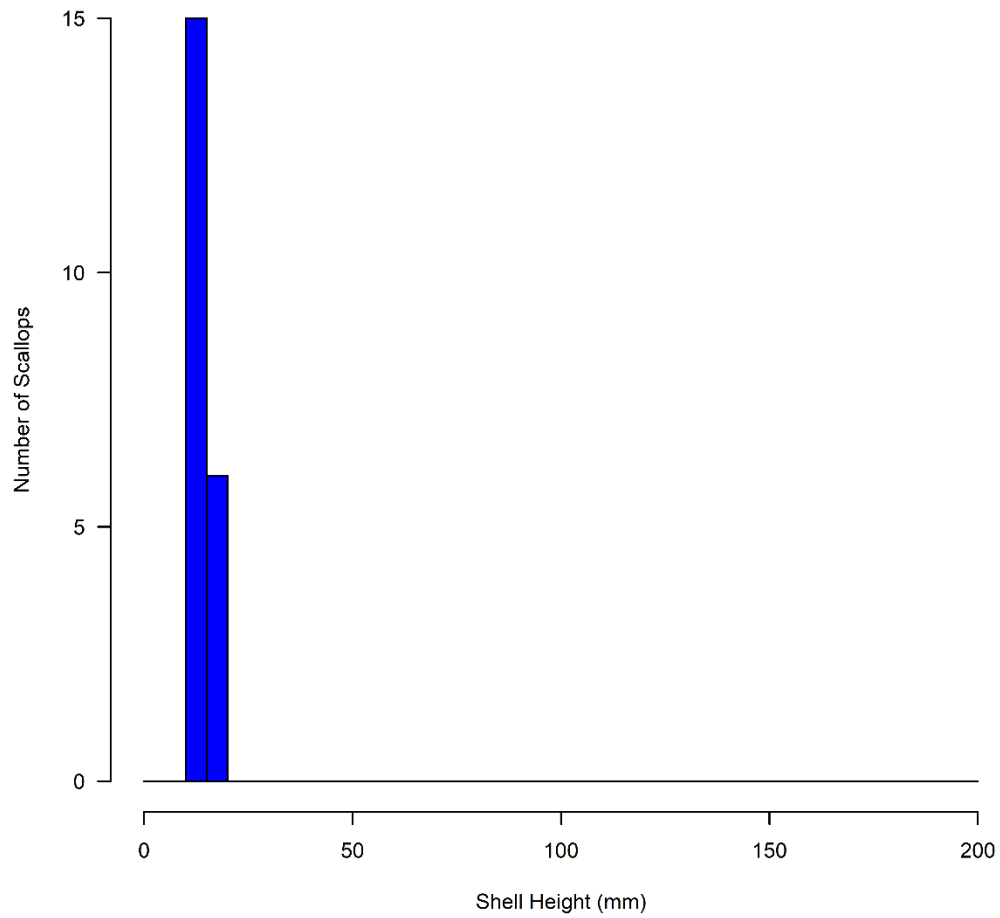


Figure 23. Shell height distribution of scallops in the Nantucket Lightship West Extension zone from the SMAST Drop Camera survey. The overall average shell height was 14.4 mm with 21 scallops measured.

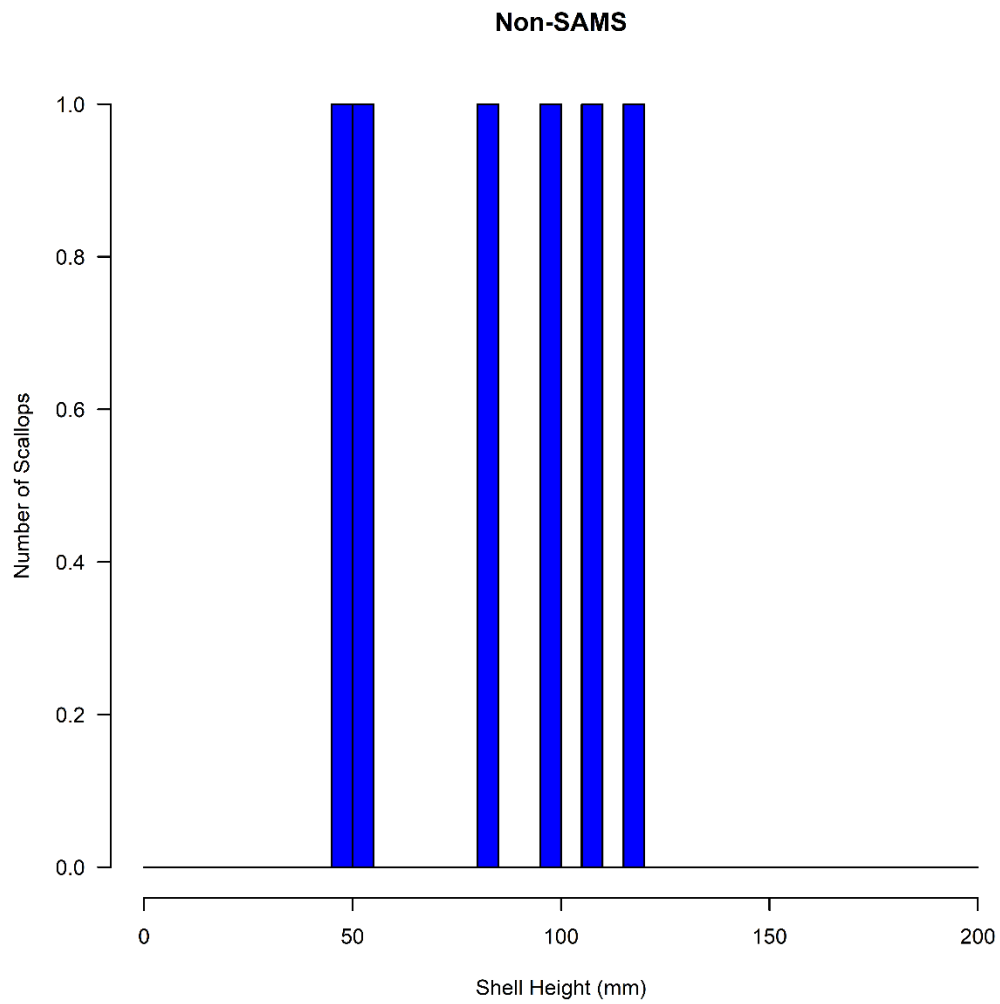


Figure 24. Shell height distribution of scallops in the Eastern Georges Bank Non-SAMS zone from the SMAST Drop Camera survey. The overall average shell height was 83.2 mm with 6 scallops measured.

OCC

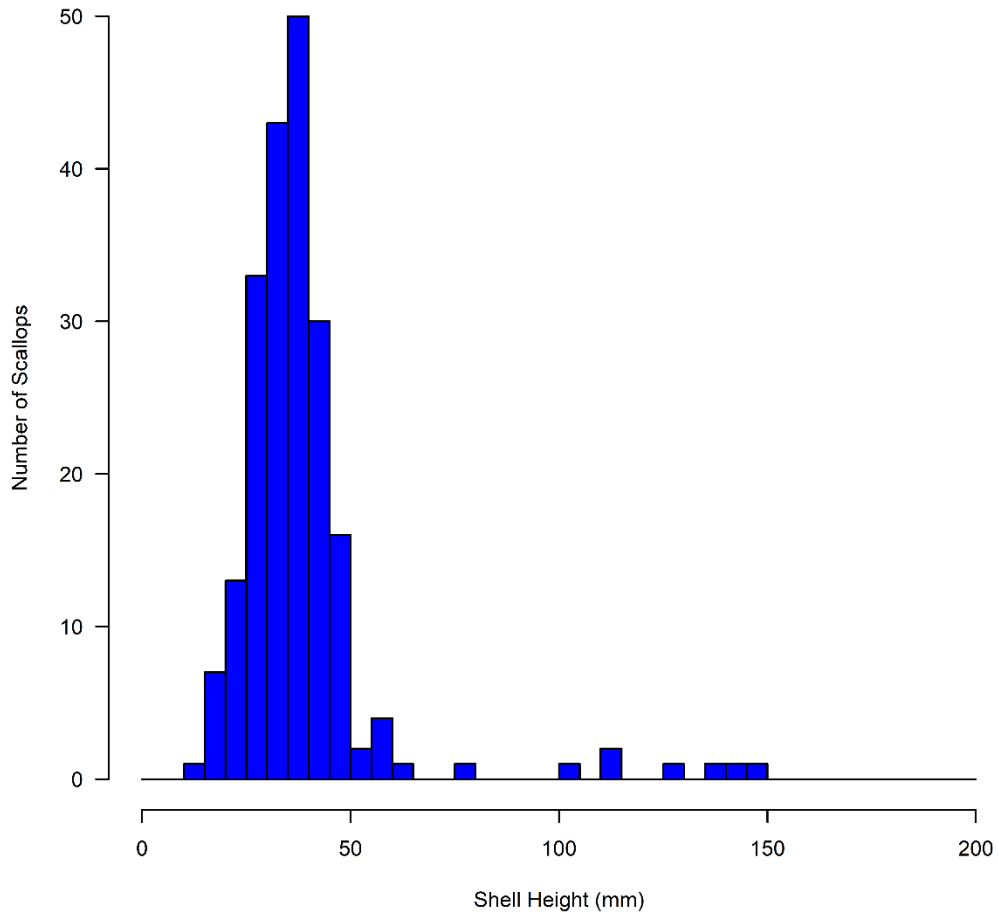


Figure 25. Shell height distribution of scallops in the Outer Cape Cod zone from the S Mast Drop Camera survey. The overall average shell height was 38.6 mm with 208 scallops measured.

4.0 ADDITIONAL ANALYSES

Table 2. Total biomass estimates from the 2022 SMAST drop camera survey in the Outer Cape Cod, Eastern Georges Bank, and Nantucket Lightship West Extension non-SAMS zones. Stations were 5.6 km apart for EGB and NLS-W Extension zones, and 2.8 km apart for OCC. Meat weights were estimated following the 65th SARC shell height-meat weight equations. All values correspond to scallops ≥ 40 mm shell height only.

| GB | NumMil | BmsMT | SE | MeanWt (g) | Avg. Size (mm) | Scallop density (per m ²) | # Stations |
|----------------|--------|-------|-----|------------|----------------|---------------------------------------|------------|
| Outer Cape Cod | 56 | 341 | 95 | 6.1 | 55.4 | 0.11 | 67 |
| EGB Non-SAMS | 18 | 324 | 150 | 17.8 | 83.2 | 0.01 | 91 |
| West of NLS-W | 0 | 0 | 0 | NA | NA | 0 | 41 |

Table 3. Total biomass estimates from the 2022 SMAST drop camera survey in three areas within the Great South Channel SAMS zone. Stations were 5.6 km apart. Meat weights were estimated following the 65th SARC shell height-meat weight equations. All values correspond to scallops ≥ 40 mm shell height only.

| GB | NumMil | BmsMT | SE | MeanWt (g) | Avg. Size (mm) | Scallop density (per m ²) | # Stations |
|------------|--------|-------|-----|------------|----------------|---------------------------------------|------------|
| GSC North | 339 | 4,003 | 817 | 11.8 | 69.0 | 0.23 | 47 |
| GSC Middle | 183 | 3,691 | 859 | 20.2 | 86.1 | 0.22 | 27 |
| GSC South | 75 | 1,387 | 414 | 18.5 | 88.4 | 0.03 | 76 |

Table 4. Comparison of biomass estimates made using the (specific) SARC 65 and VIMS equations for Nantucket Lightship South SAMS zone. Values correspond to scallops ≥ 40 mm shell height only.

| NLS-South | SARC 65 SH/MW | VIMS SH/MW 2016-2022 |
|----------------------|---------------|----------------------|
| Mean meat weight (g) | 15.3 | 13.1 |
| Biomass (mt) | 3,451 | 2,973 |
| Standard error | 1,304 | 1,123 |

| | | |
|----------------------------------|-------|-------|
| Exploitable mean meat weight (g) | 18.1 | 15.4 |
| Exploitable biomass (mt) | 1,833 | 1,560 |
| Exploitable standard error | 693 | 589 |

5.0 SPECIAL COMMENTS

We observed high densities of pre-recruits (those with shell height less than 35 mm) in CL2-Southwest, CL2-Extension, CL2 North, GSC-North, NLS-West and the non-SAMS areas Outer Cape Cod and NLS-West Extension.

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6.0 EXPLOITABLE BIOMASS ESTIMATES FOR 2022 (CURRENT FY)

Table 5. Exploitable biomass estimates from the 2022 SMAST drop camera survey by Scallop Area Management Simulator (SAMS) zones. Stations were 5.6 km apart for most of Georges Bank SAMS zones except for CL2-North, CL2-Ext, CL2-Southwest, NLS-South and some of CL2-Southeast. These exceptions were surveyed on a 2.8 km grid. Meat weights were estimated following the 65th SARC shell height-meat weight equations, apart from NLS-South where the SARC equation specific to this area was used. A second set of estimates for NLS-South were made using the VIMS equation and are provided in the additional analyses section.

| SMAST drop camera | | | | |
|--------------------------|-----------------|--------------------------|-----------|-------------------|
| Georges Bank | NumMill | Exploitable BmsMT | SE | MeanWt (g) |
| CL1-Access | 7.7 | 180 | 81 | 23.4 |
| CL1-Sliver | 57.7 | 1,619 | 849 | 28.1 |
| CL1-South | 1.3 | 25 | 25 | 19.5 |
| CL2-North | 164.5 | 6,137 | 1,360 | 37.8 |
| CL2-Southeast 5.6 km | 0.3 | 3 | 2 | 8.7 |
| CL2-Southeast 2.8 km | 156.1 | 4,730 | 613 | 28.9 |
| CL2-Southwest | 58.2 | 2,017 | 336 | 34.8 |
| CL2-Ext | 208.0 | 5,160 | 786 | 24.8 |
| NLS-North | 10.4 | 439 | 288 | 41.3 |
| NLS-South | 101.5 | 1,833 | 693 | 18.1 |
| NLS-West | 13.2 | 408 | 185 | 30.9 |
| GSC | See below table | | | |
| NF | 43.8 | 1,583 | 756 | 36.2 |
| SF | 127.9 | 2,827 | 656 | 22.1 |
| MidAtlantic | Not funded | | | |

Table 6. Exploitable biomass estimates from the 2022 SMAST drop camera survey in the Outer Cape Cod, Eastern Georges Bank, and Nantucket Lightship West Extension non-SAMS zones. Stations were 5.6 km apart for EGB and NLS-W Extension zones, and 2.8 km apart for OCC. Meat weights were estimated following the 65th SARC shell height-meat weight equations.

| GB | NumMil | Exploitable BmsMT | SE | MeanWt (g) |
|----------------|---------------|--------------------------|-----------|-------------------|
| Outer Cape Cod | 5.9 | 211 | 59 | 36.1 |
| EGB Non-SAMS | 6.2 | 181 | 84 | 29.0 |
| West of NLS-W | 0 | 0 | NA | NA |

Table 7. Exploitable biomass estimates from the 2022 SMAST drop camera survey in three areas within the Great South Channel SAMS zone. Stations were 5.6 km apart. Meat weights were estimated following the 65th SARC shell height-meat weight equations.

| GB | NumMil | Exploitable BmsMT | SE | MeanWt (g) |
|------------|---------------|--------------------------|-----------|-------------------|
| GSC-North | 65.0 | 2,402 | 490 | 37.0 |
| GSC-Middle | 68.1 | 2,569 | 598 | 37.7 |
| GSC-South | 28.3 | 918 | 274 | 32.5 |

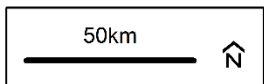
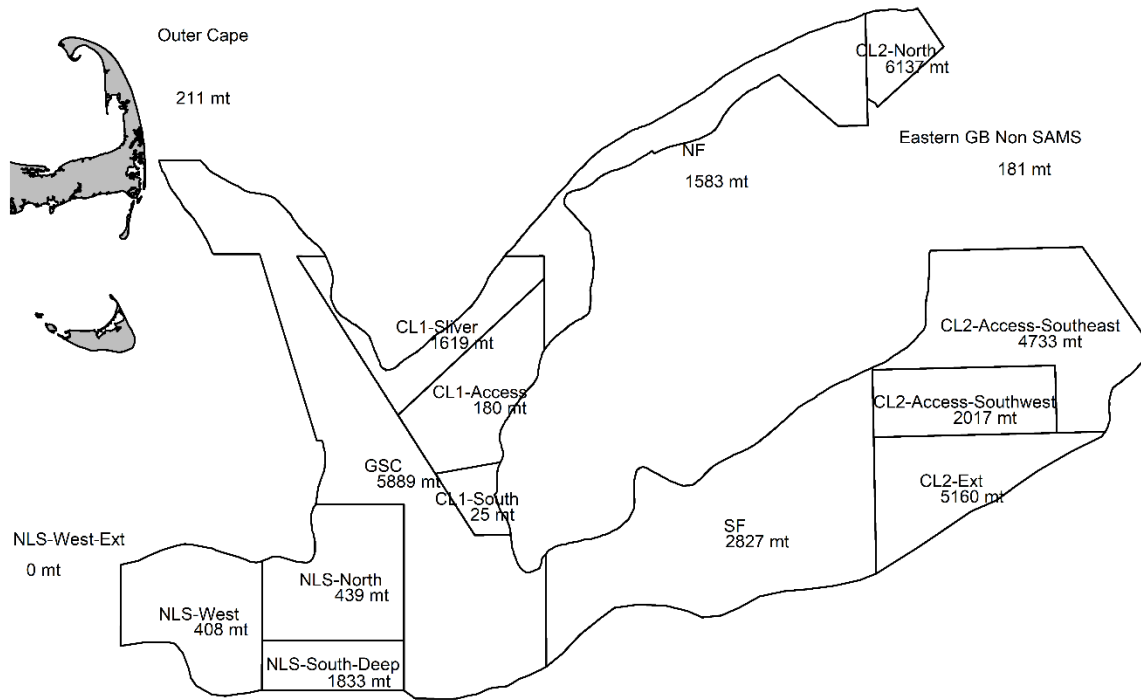


Figure 26. 2022 SMAST Drop Camera survey exploitable biomass estimates in metric tons on Georges Bank by Scallop Area Management Simulator (SAMS) zones.

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