

2022 Scallop Survey Short Report

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1.0 2022 SURVEY BIOMASS ESTIMATES

Table 1: Table of total biomass densities and associated information in all SAMS areas surveyed.

HABCAM V3

SIZE CUTOFF FOR ESTIMATES IS 40MM, ALL ESTIMATES USE SARC 65 EQUATION

GB	NumMil	BmsMT	SE	MeanWt	Avg. Size	Scallop density	# images annotated
CL2- SOUTHEAST	1684.48	18060.41	6929.52	13.20	77.2	0.65	4579
CL2- SOUTHWEST	59.76	1918.27	470.02	31.48	110.1	0.09	2438
CL2-EXT	727.17	14264.52	3976.99	18.94	90.8	0.50	3579
NLS-SOUTH	173.13	3625.21	1572.60	22.09	110.2	0.26	2504
SF	517.21	6753.39	1421.96	12.43	79.2	0.14	7707
MIDATLANTIC							
BI	16.47	455.87	167.93	27.68	108.9	0.02	1857
LI	265.66	6271.98	1229.97	24.72	104.9	0.02	16202
NYB							
NYB-CLOSURE	401.61	7575.66	1704.80	18.88	98.1	0.08	9741

2.0 FIGURES OF SURVEY COVERAGE

2.1 Georges Bank- Leg 1

Coonamessett Farm Foundation (CFF), in collaboration with Arnie's Fisheries, completed two RSA-funded HabCam survey trips during the 2022 annual sea scallop assessment survey season. These trips utilized a systematic zig-zag track and covered areas within:

- Leg 1: Closed Area 2 (CA2) Southeast (SE), CA2-Southwest (SW), CA2-Extension (EXT), Southern Flank (SF), and Nantucket Lightship South (NLS-S or NLS-S-D) scallop management areas
- Leg 2: part of New York Bight (NYB), the new NYB-Closure area, Long Island (LI), and the Block Island (BI) SAMS areas

Leg 1 of CFF's RSA HabCam survey took place between June 19th through June 26th and covered ~602 nm in NLS-S, SF, and CA2. Approximately 5 million paired images were taken and nearly 21,000 images were annotated within these SAMS areas. Quality control was performed on a minimum of 50% of annotated images.

The track was started in the western portion of the NLS-S, and continued in the SF moving east. Due to severe weather, the track was halted temporarily in CA2-SW, and the vessel began surveying again several hours later. The track was then restarted in the most northeasterly point of CA2-SE moving westerly.

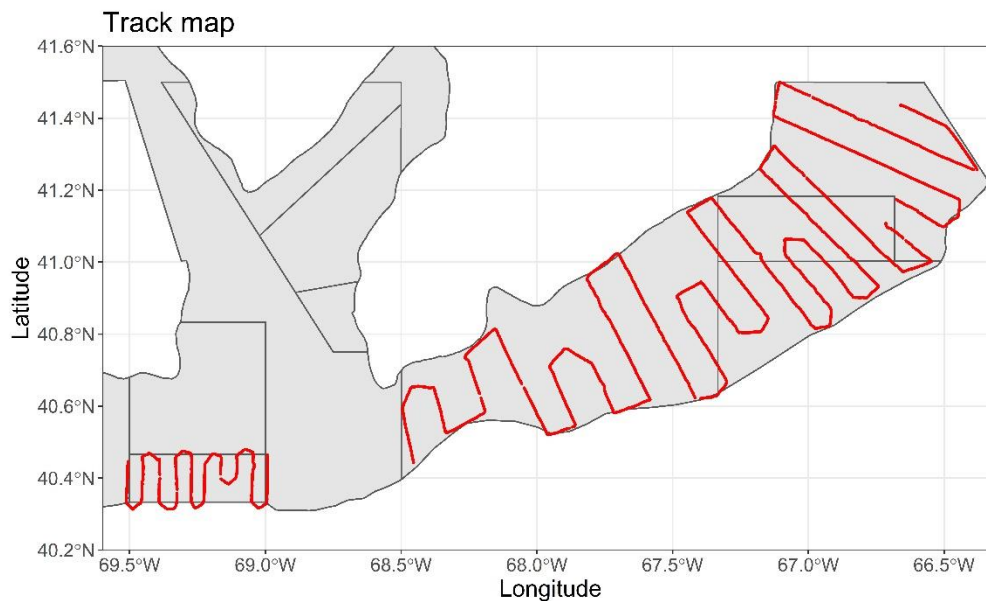


Figure 1: Map of CFF v3 survey track in Georges Bank (red line). Breaks or shifts in track lines typically due to gear, weather, or obstacle avoidance.

Scallops of various size classes were found throughout the track. The most significant amount of pre-recruit scallops < 35 mm was found in the NLS-S, while other large patches were found in CA2-SE, CA2-EXT, and the SF. The CA2-SE also had notable patches of recruit scallops that were found in the upper extent of the SAMS area. These recruit scallops are in the same area as pre-recruits found last year in dense bryozoan mats, and it is likely a positive sign of growth in the area.

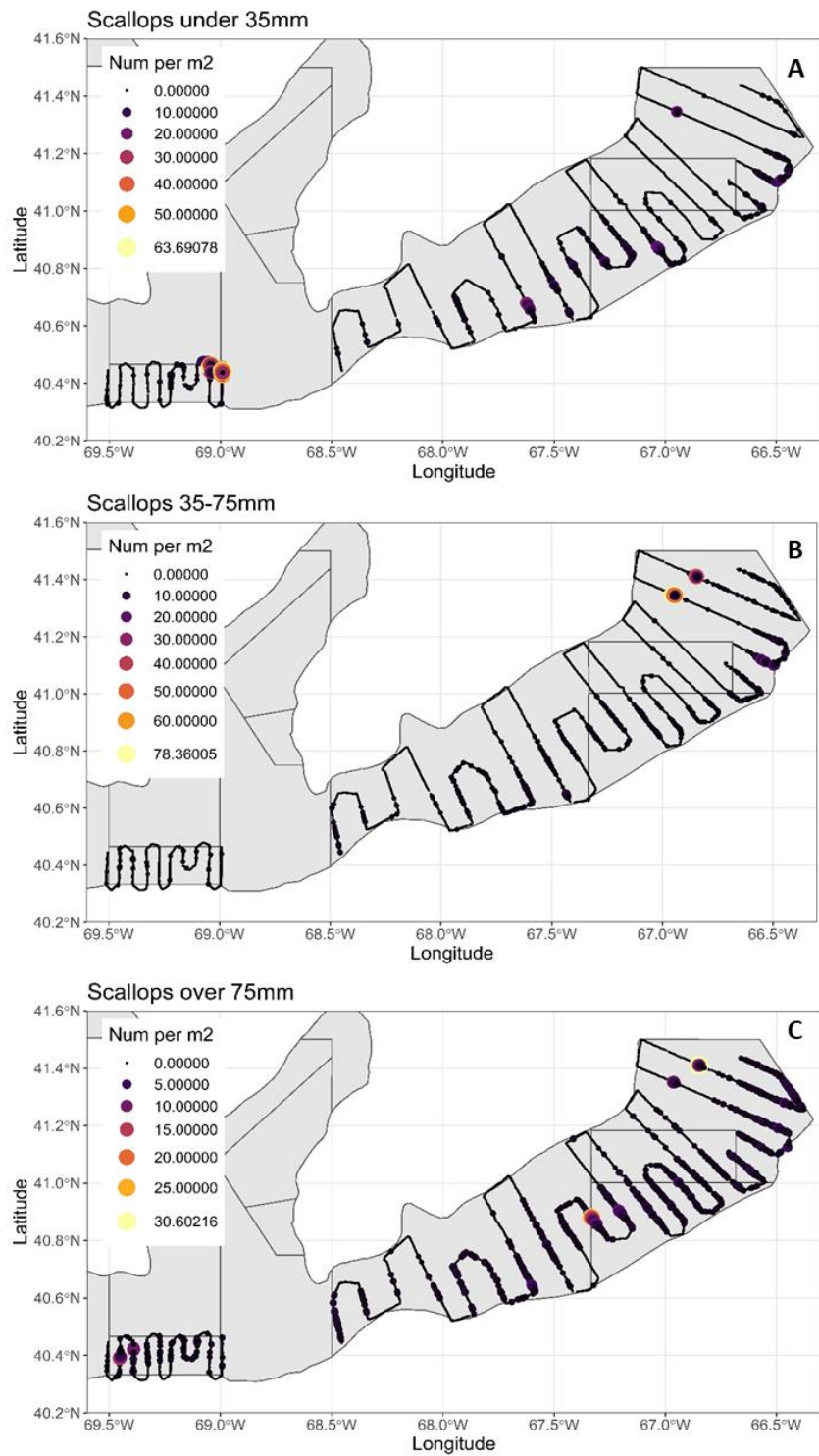


Figure 2: Figures showing scallop distribution and density for scallops with shell heights A under 35 mm, B. from 35-75 mm, and C. greater than 75 mm along tracks on Leg 1. Note that density legends vary between figures.

2.2 Mid-Atlantic- Leg 2

Leg 2 of CFF's RSA survey took place from June 29th through July 6th and covered 651 nm from the NYB-Closure through the BI SAMS areas. Approximately 5.6 million paired images were taken and just over 28,000 images were annotated during this survey leg. Quality control was performed on ~50% of all annotated images. Some tracks were modified slightly to account for gear or other obstructions. A small mini track is included in the numbers and maps, as a v3survey overlapped part of the BI SAMS area within the same month for a different project. The scallop length, distribution, and abundance data for this portion of track were shared with the NEFSC to further aid in the assessment.

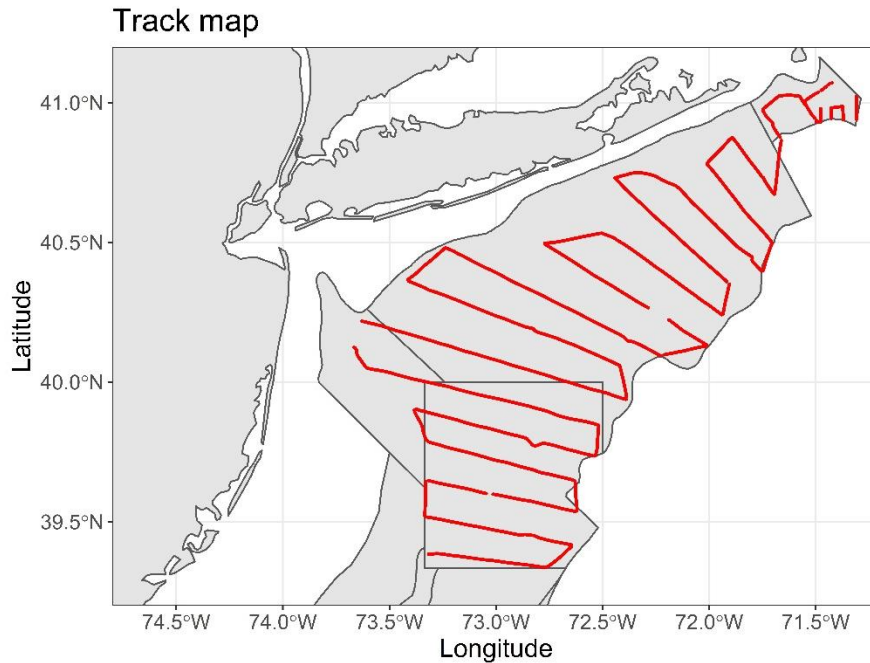


Figure 3: Map of CFF v3 survey track in the Mid-Atlantic. Breaks or shifts in track lines typically due to gear, weather, or obstacle avoidance.

Scallops of various size classes were found throughout the track, though large adult scallops (> 75 mm) were more abundant in all SAMS areas surveyed. Pre-recruits (< 35 mm) were found in patches throughout the track, and were far more prevalent in the NYB-Closure than any other SAMS are surveyed in the Mid-Atlantic. Similarly, recruit scallops (35mm – 75 mm) were found in patches throughout the track in all SAMS areas surveyed in the Mid-Atlantic, but were more abundant in the lower half of the track.

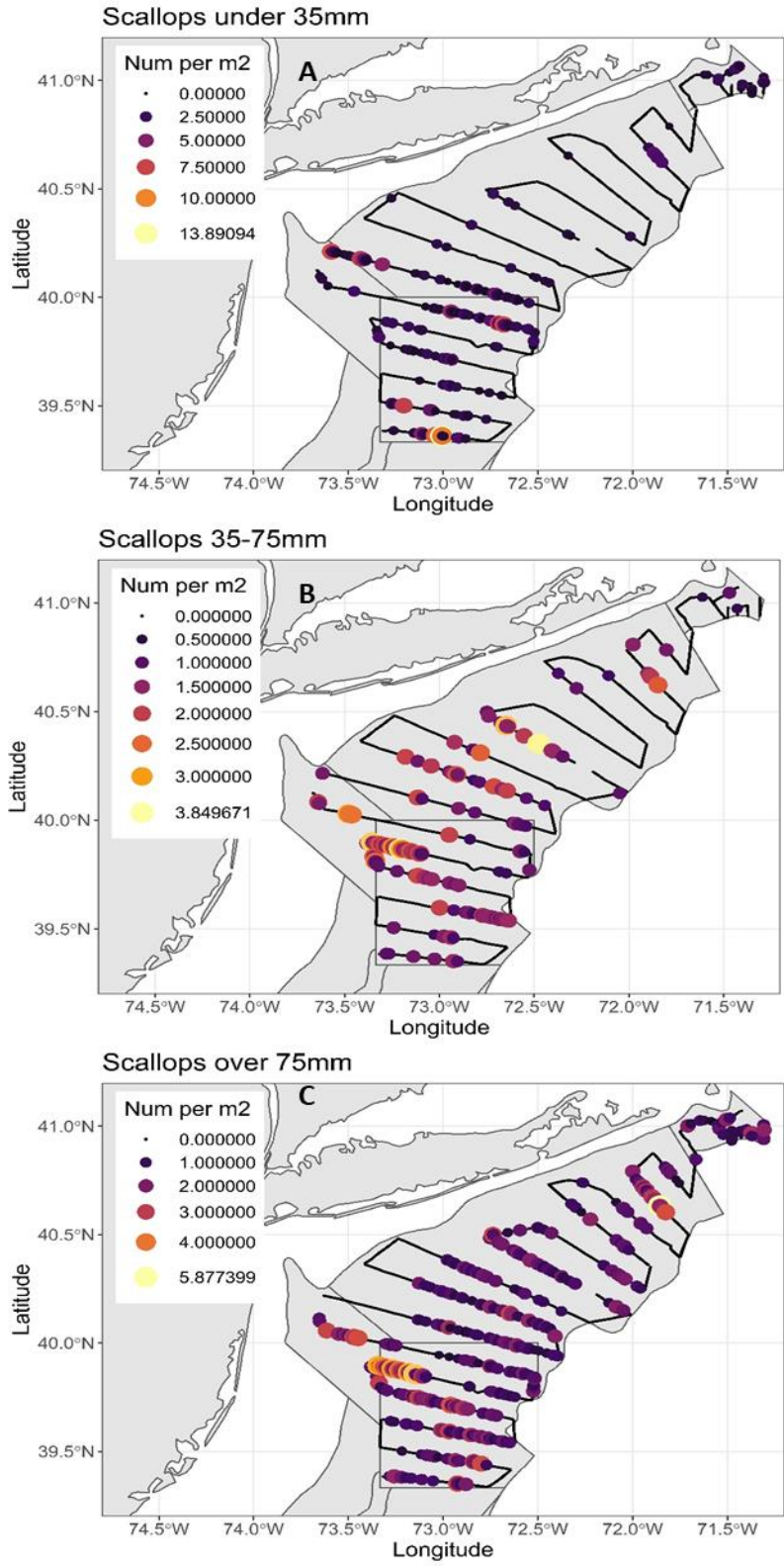


Figure 4: Figures showing scallop distribution and density for scallops with shell heights A. under 35 mm, B. from 35-75 mm, and C. greater than 75 mm along tracks on Leg 2. Note that density legends vary between figures.

3.0 LENGTH FREQUENCY PLOTS BY SAMS AREA

3.1 Georges Bank

A strong number of adult scallops > 75 mm were found in all areas surveyed in Leg 1 (Figure 5). The CA2-SE had the highest numbers and proportion of recruit (35 mm – 75 mm) scallops, and was generally dominated by small scallops < 75 mm (Figures 4 A and B, Figure 5C).

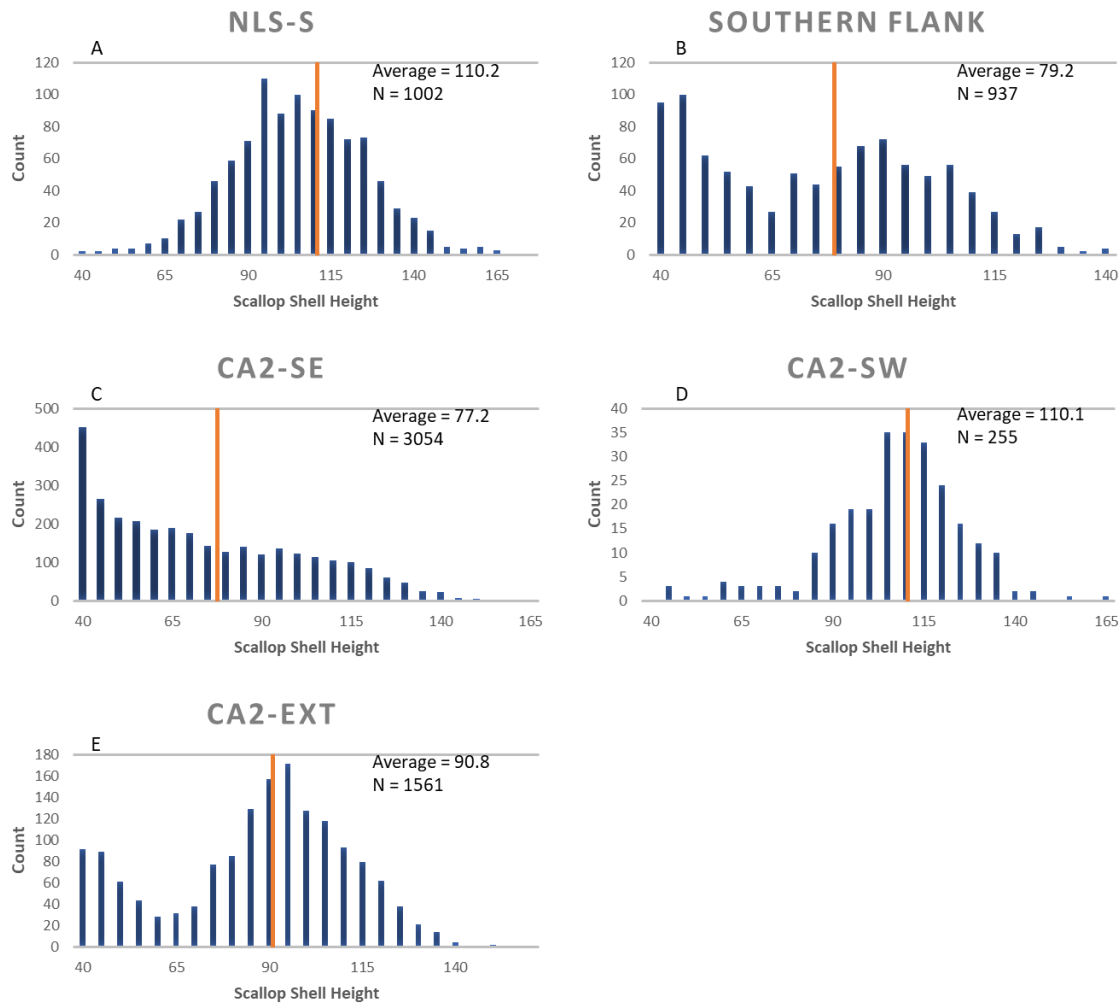


Figure 5: Length frequency graphs for surveyed SAMS areas on Georges Bank during Leg 1. Only scallops 40 mm or larger are shown since only scallops above the 40 mm cutoff are used in the assessment of scallop biomass, though some areas had notable numbers of smaller scallops. Information for smaller scallops can be found in Figure 2A. The orange line is the average for scallops 40 mm and larger.

3.2 Mid-Atlantic

The Mid-Atlantic SAMS all had a large proportion of scallops > 75 mm, with the majority of scallops between 90 – 130 mm in all areas fully surveyed (Figures 6A, 6B, and 6C). The NYB-Closure had the

greatest number of scallops of all surveyed SAMS areas (Figure 5C), with a notable portion of both recruit and large adult scallops as well as pre-recruit scallops (Figures 5C and 4C).

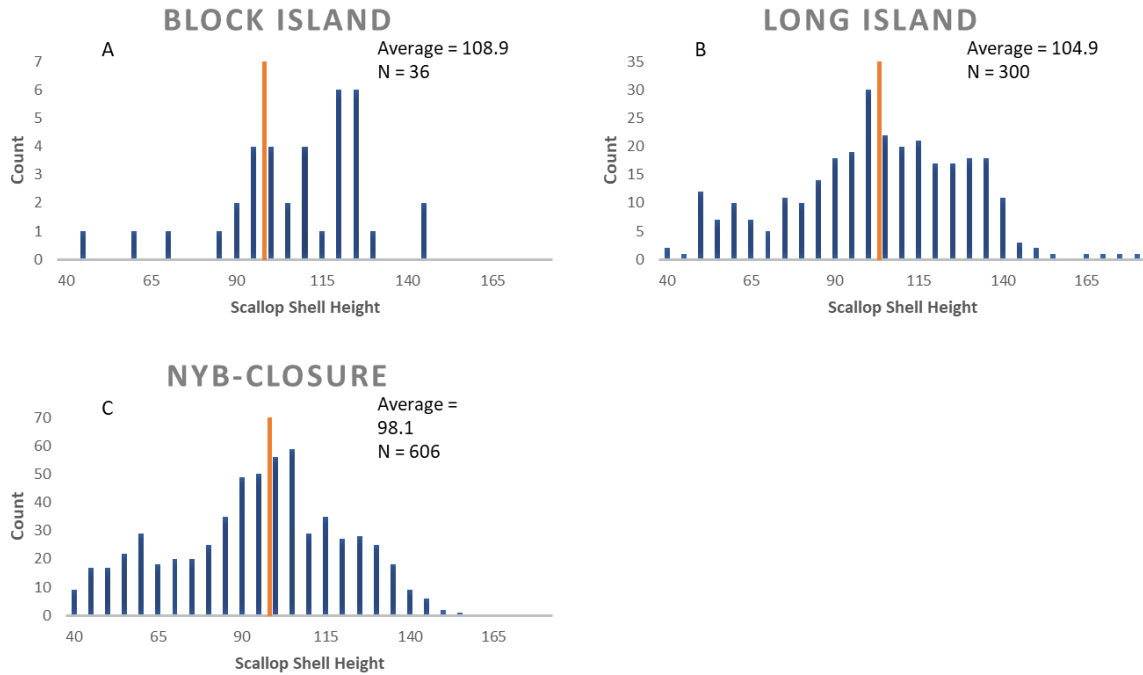


Figure 6: Length frequency graphs for surveyed SAMS areas in the Mid-Atlantic during Leg 2. Only scallops 40 mm or larger are shown since only scallops above the 40 mm cutoff are used in the assessment of scallop biomass, though some areas had notable numbers of smaller scallops. Information for smaller scallops can be found in Figure 4A. The orange line is the average for scallops 40 mm and larger.

4.0 ADDITIONAL ANALYSES

Table 2: Additional sensitivity analysis for NLS-S

	SARC 65 SH/MW	VIMS SH/MW 2016-2022
NLS-SOUTH	3625.21	3010.79

5.0 SPECIAL COMMENTS

A small area in CA2-SE was documented by CFF in 2021 to have a notable amount of small seed scallops. Much of this area was covered in thick mats of bryozoans during the 2021 survey season. In 2022, this area showed growth in the scallop cohort found in 2021 within these same areas (Figure 7).

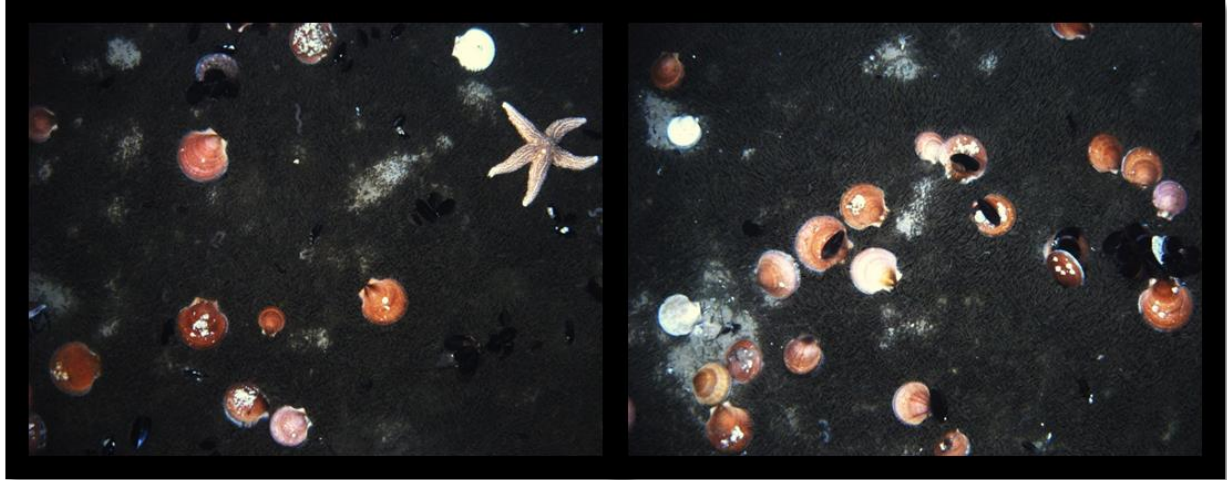


Figure 7: Large patch of scallops found in CA2-SE in 2021. Some areas had notable mussel densities, and many were found in areas characterized by dense bryozoan substrate.

A large aggregation of seed scallops were found in small portion of the northeast corner of the NLS-S during the 2021 survey season. In 2022, a dense patch of seed scallops was again noted in a similar area. This could be a new seeding event or could be related to the same one observed last year, but with minimal growth.

6.0 EXPLOITABLE BIOMASS ESTIMATES FOR 2021 (CURRENT FY)

Table 3: Table of exploitable biomass and associated data by SAMS area.

CFF HABCAM V3

GEORGES BANK	NumMill	Exploitable BmsMT	SE	MeanWt
CL2-SOUTHEAST	310.39	7695.59	1828.58	27.02
CL2-SOUTHWEST	41.36	1606.49	416.70	35.48
CL2-EXT	339.31	9402.98	2693.53	27.36
NLS-SOUTH	114.67	2895.89	1283.01	26.56
SF	165.58	3921.23	852.53	23.39
MIDATLANTIC				
BLOCK ISLAND	11.70	375.73	146.65	31.68
LONG ISLAND	162.33	5006.20	1069.48	31.80
NYB				
NYB CLOSURE	214.46	5556.53	1297.33	25.92

As in previous years, the highest total and exploitable biomass was found in the SAMS areas of Georges Bank (Tables 1 and 3, Figures 8 and 9). In 2022, the highest exploitable biomass was found in CA2-EXT, followed by CA2-SE (Table 2 and Figure 8). This is a significant change from previous years, where the highest biomass had been found in NLS-S, primarily originating from the 2012-year class of “Peter Pan” scallops. Since the NLS-S was opened to fishing in 2019, the biomass has decreased notably each year, due largely to heavy fishing pressure.

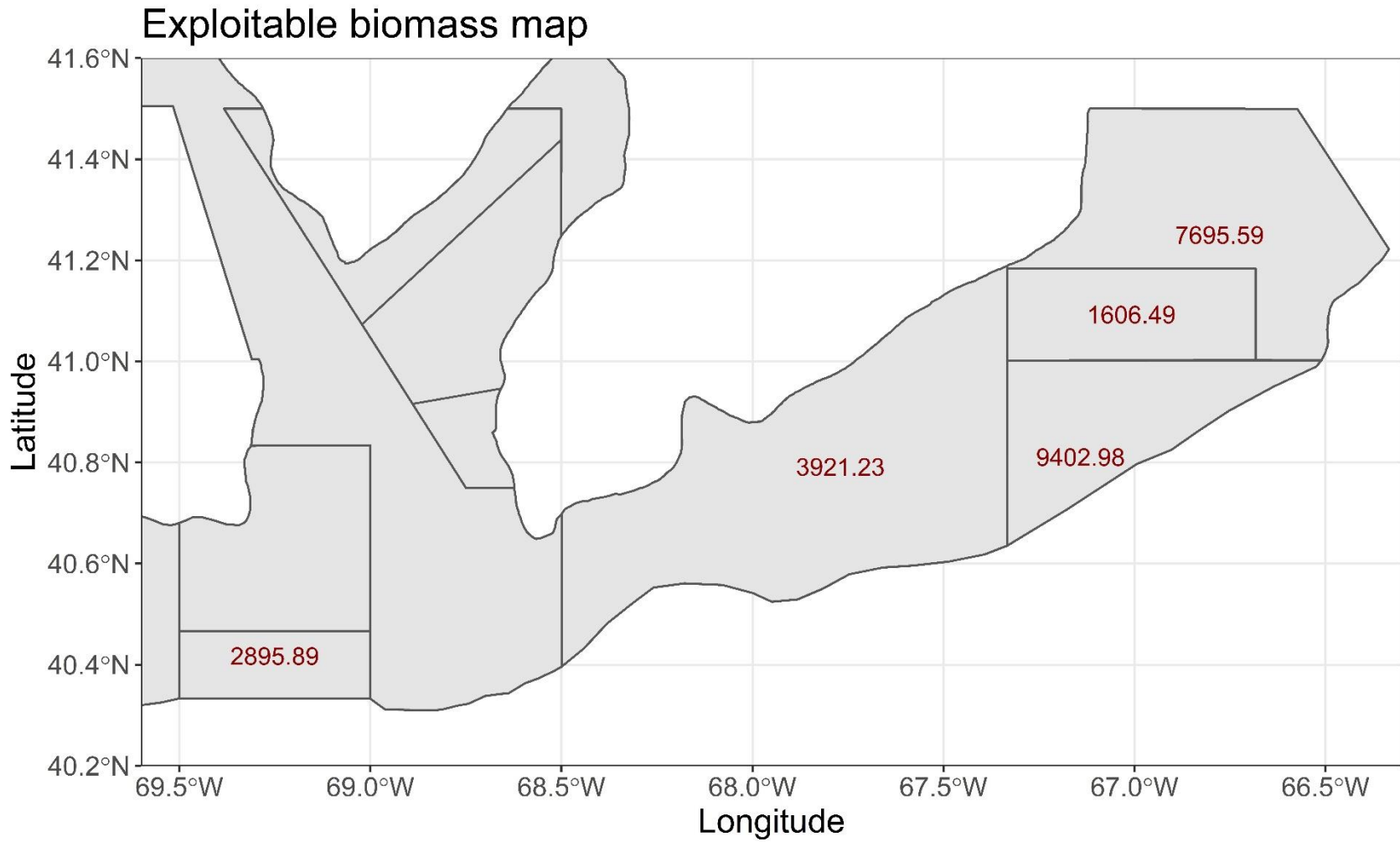


Figure 8: Exploitable biomass by SAMS area surveyed during Leg 1 of the CFF HabCam v3 survey on Georges Bank.

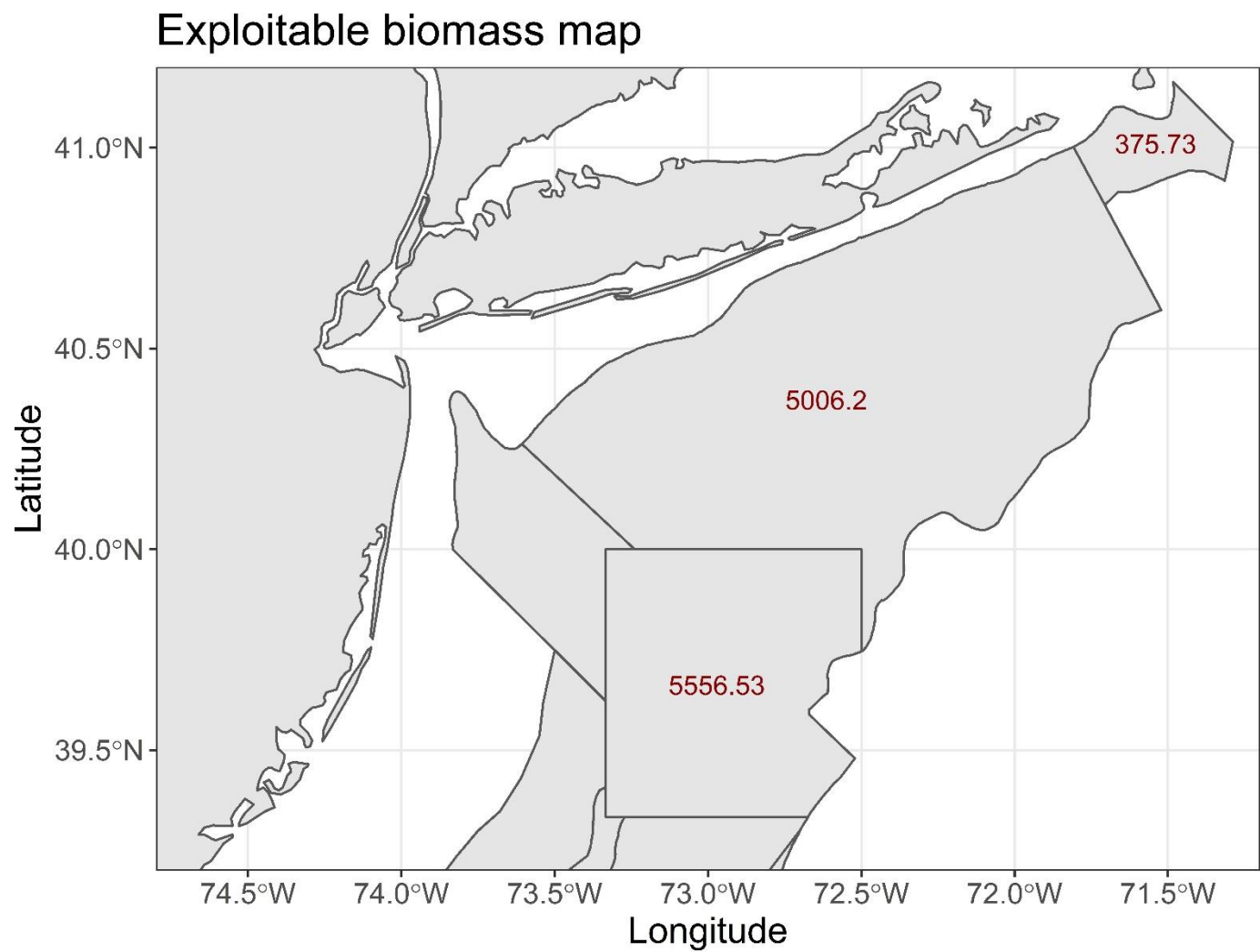


Figure 9:: Exploitable biomass by SAMS area surveyed during Leg 2 of the CFF HabCam v3 survey in the Mid-Atlantic.