

2021 Sea Scallop Assessment on Stellwagen Bank Short Report

Prepared by:

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August 27, 2021

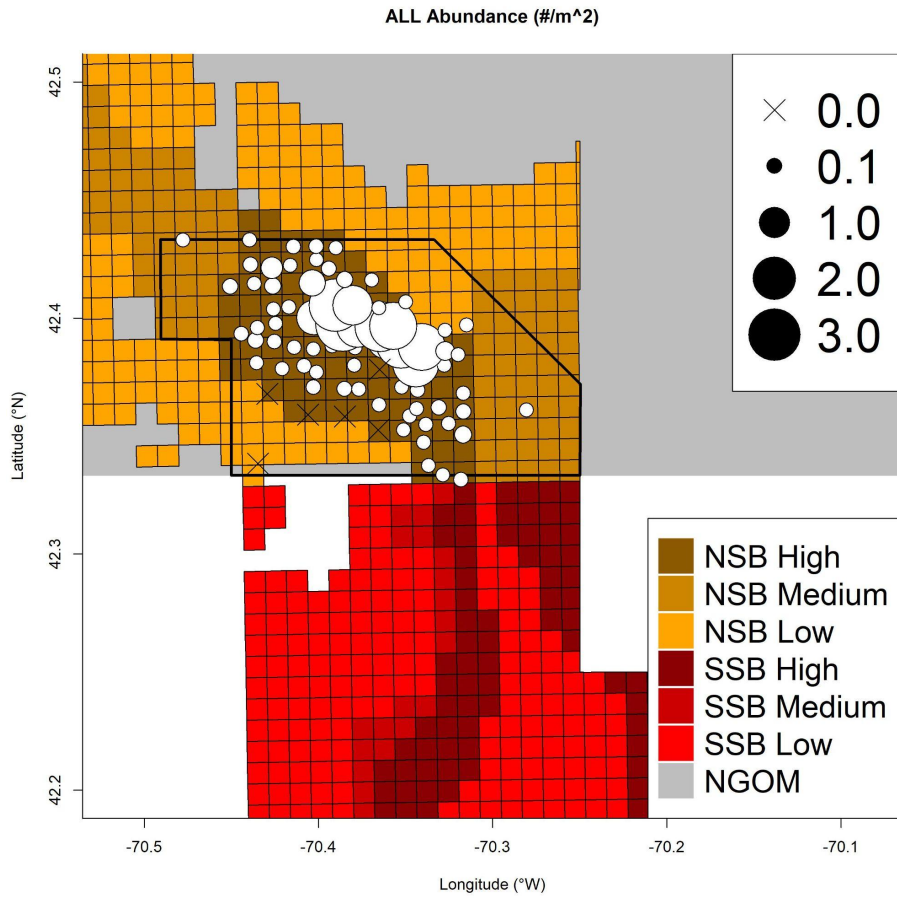
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1.0 2021 SURVEY BIOMASS ESTIMATES

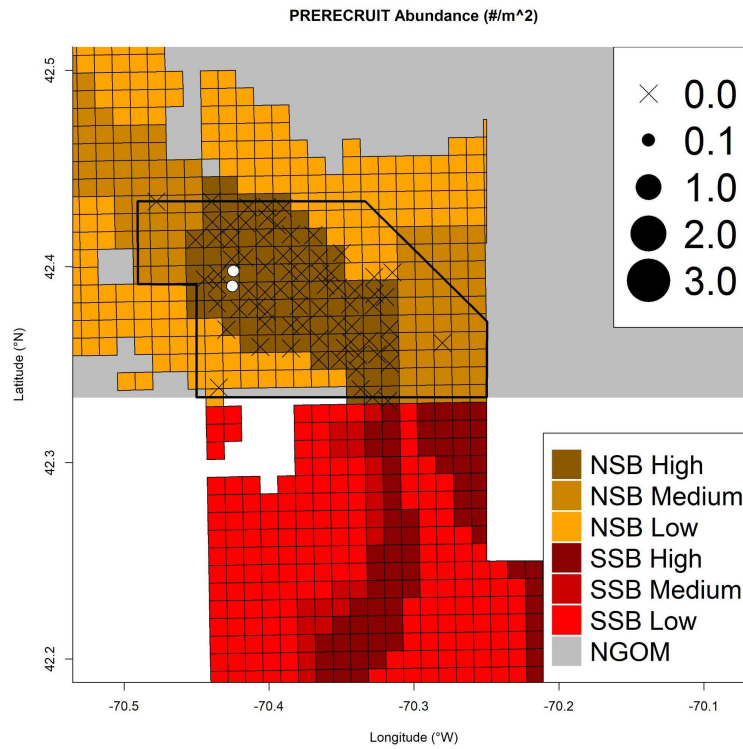
<p style="text-align: center;">Dredge efficiency = 0.4 Size cutoff for estimates is 40mm Hart 2020 SH/MW equation</p>							
GOM	NumMil	BmsMT	SE	MeanWt (g)	Avg. Size (mm)	Scallop density (g/m ²)	# Tows
NGOM Stellwagen Bank	86.02	1426.76	667.81	21.02	100.53	8.15	76
NGOM TOTAL	86.02	1426.76	667.81	21.02	100.53	8.15	76
Non-NGOM Stellwagen Bank (Stellwagen South)	17.76	341.09	85.97	20.38	98.11	0.65	75

2.0 FIGURES OF SURVEY COVERAGE

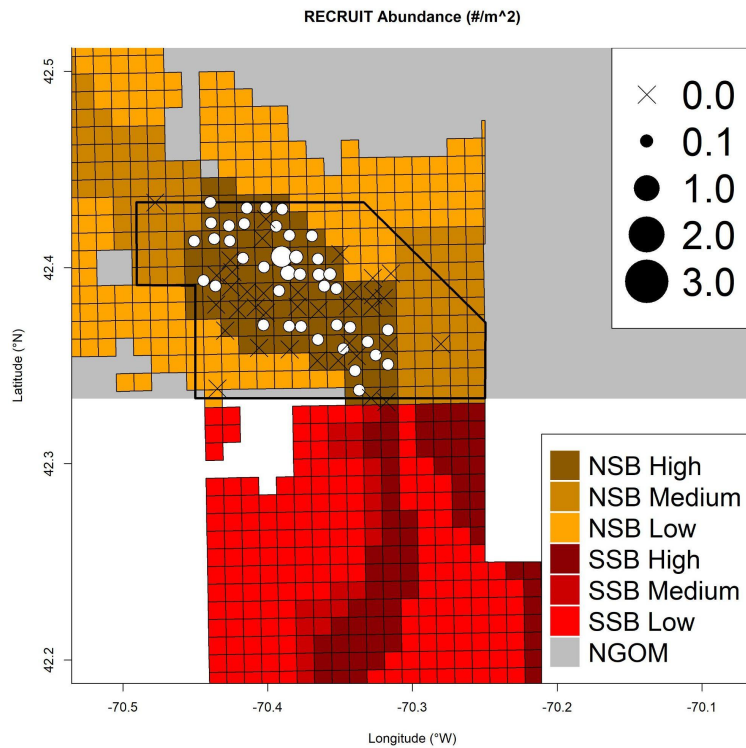
NGOM Area of Interest Total Scallop Abundance:



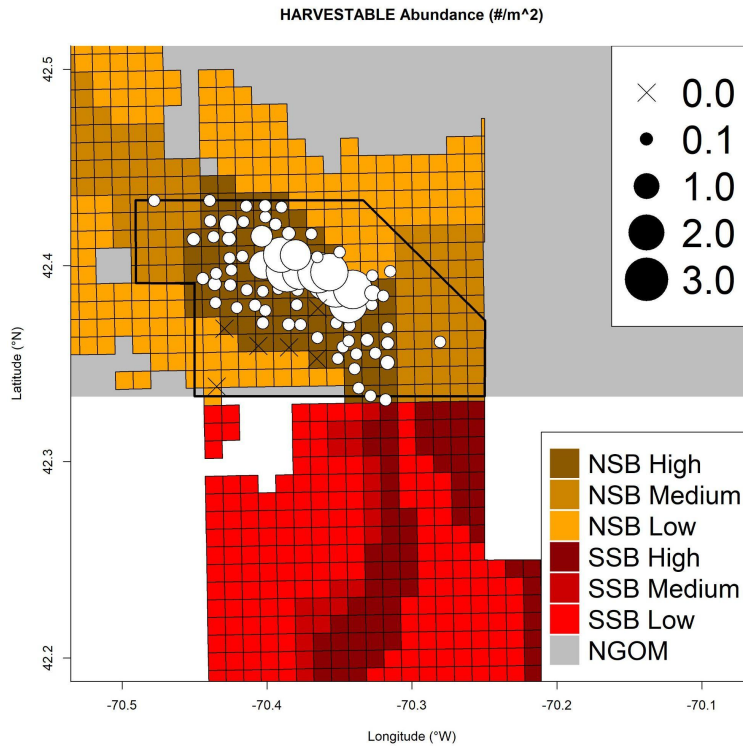
NGOM Area of Interest Pre-recruit (<35mm) Scallop Abundance:



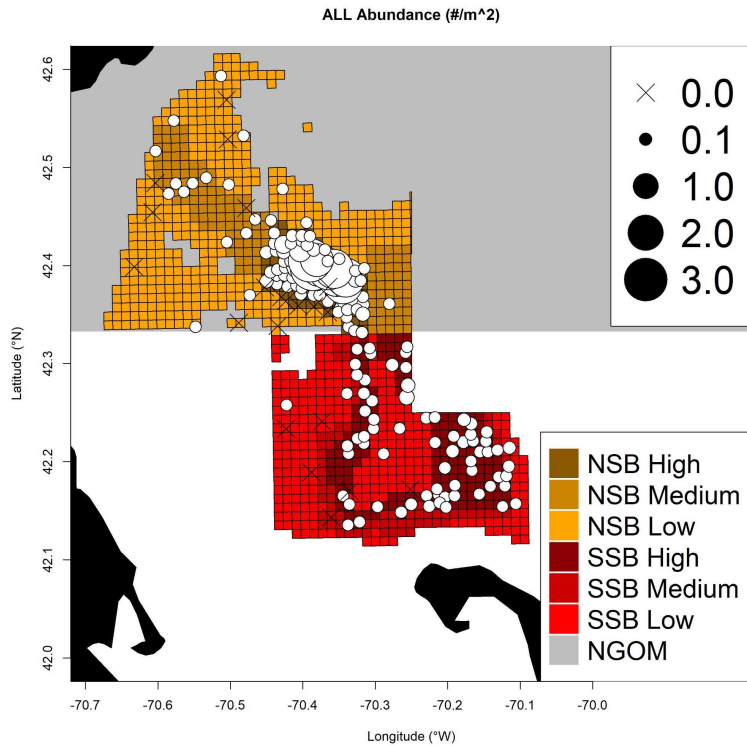
NGOM Area of Interest Recruit (35mm-75mm) Scallop Abundance:



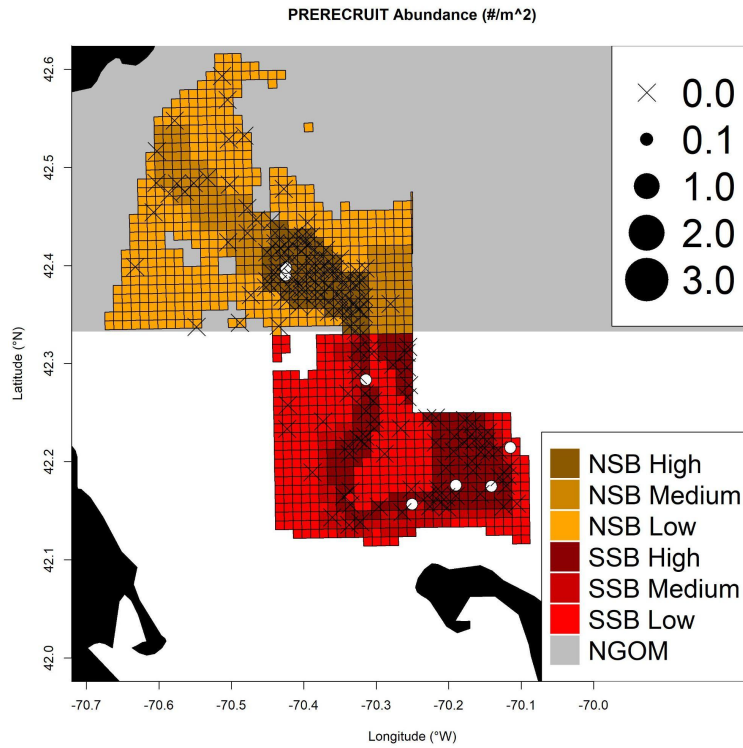
NGOM Area of Interest Scallop Abundance Greater Than 75mm:



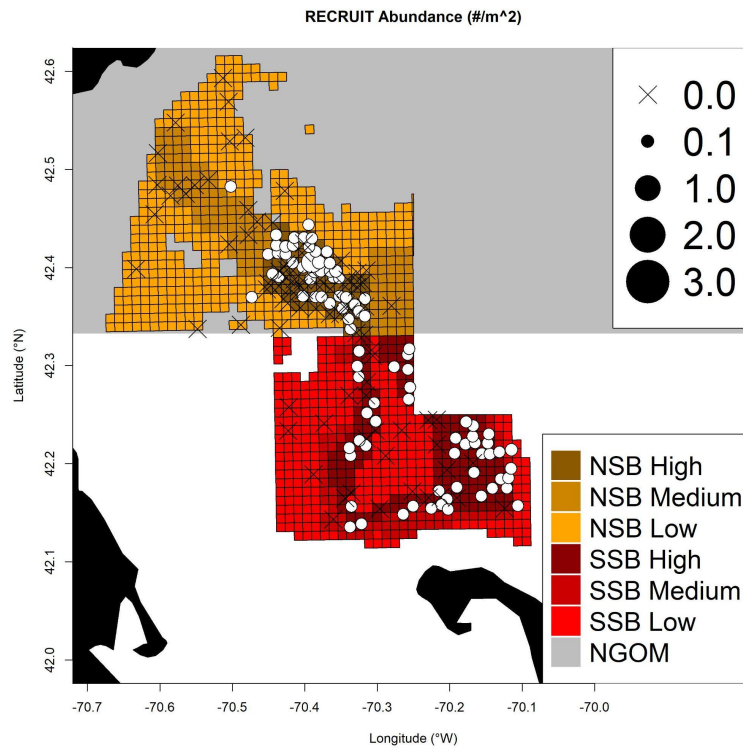
Full Survey Area Total Scallop Abundance 2021:



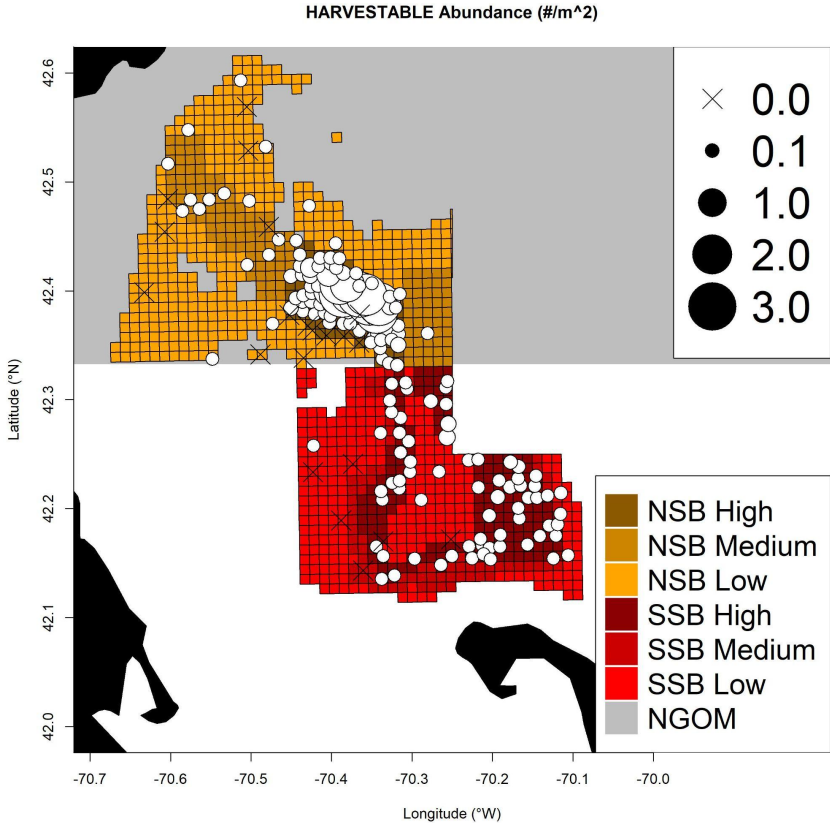
Full Survey Area Pre-recruit (<35mm) Scallop Abundance:



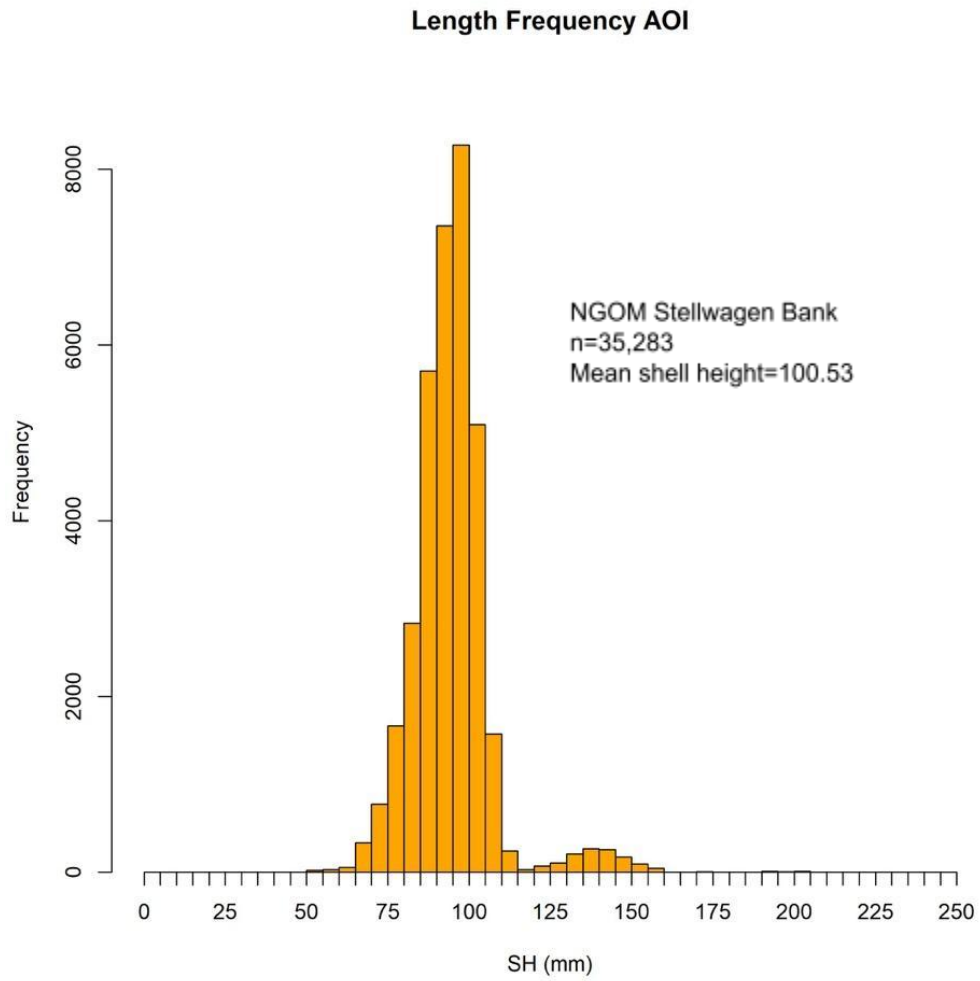
Full Survey Area Recruit (35mm-75mm) Scallop Abundance:



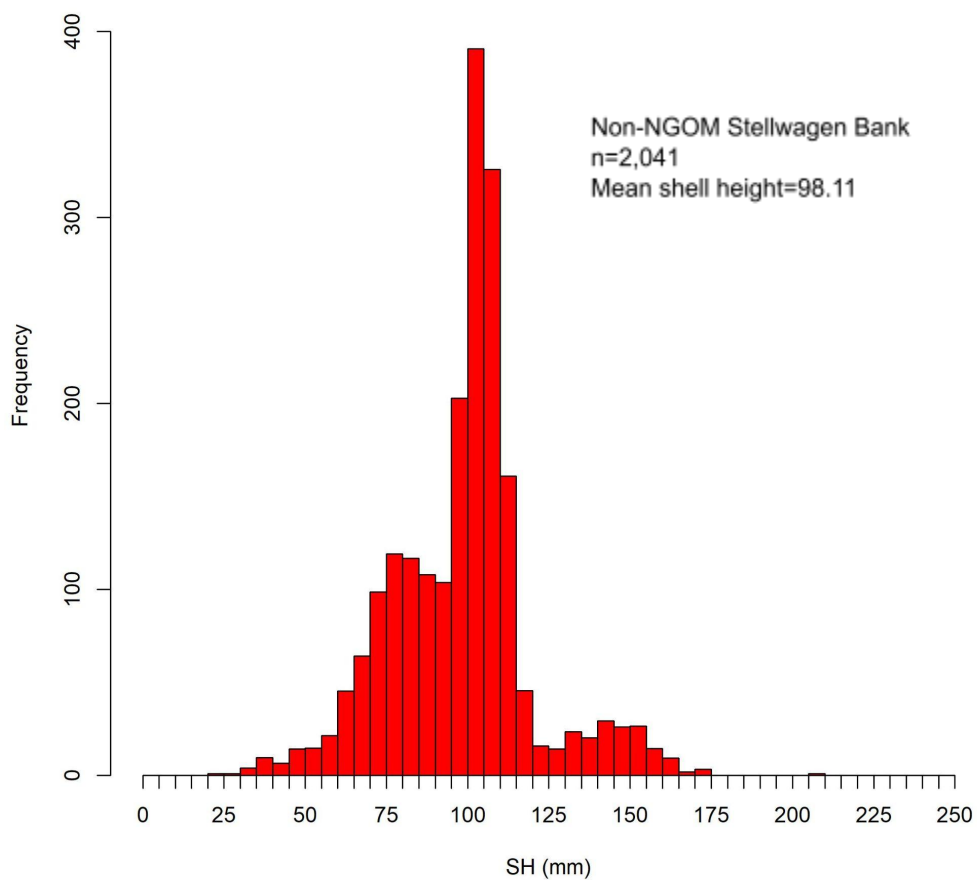
Full Survey Area Scallop Abundance Greater Than 75mm:



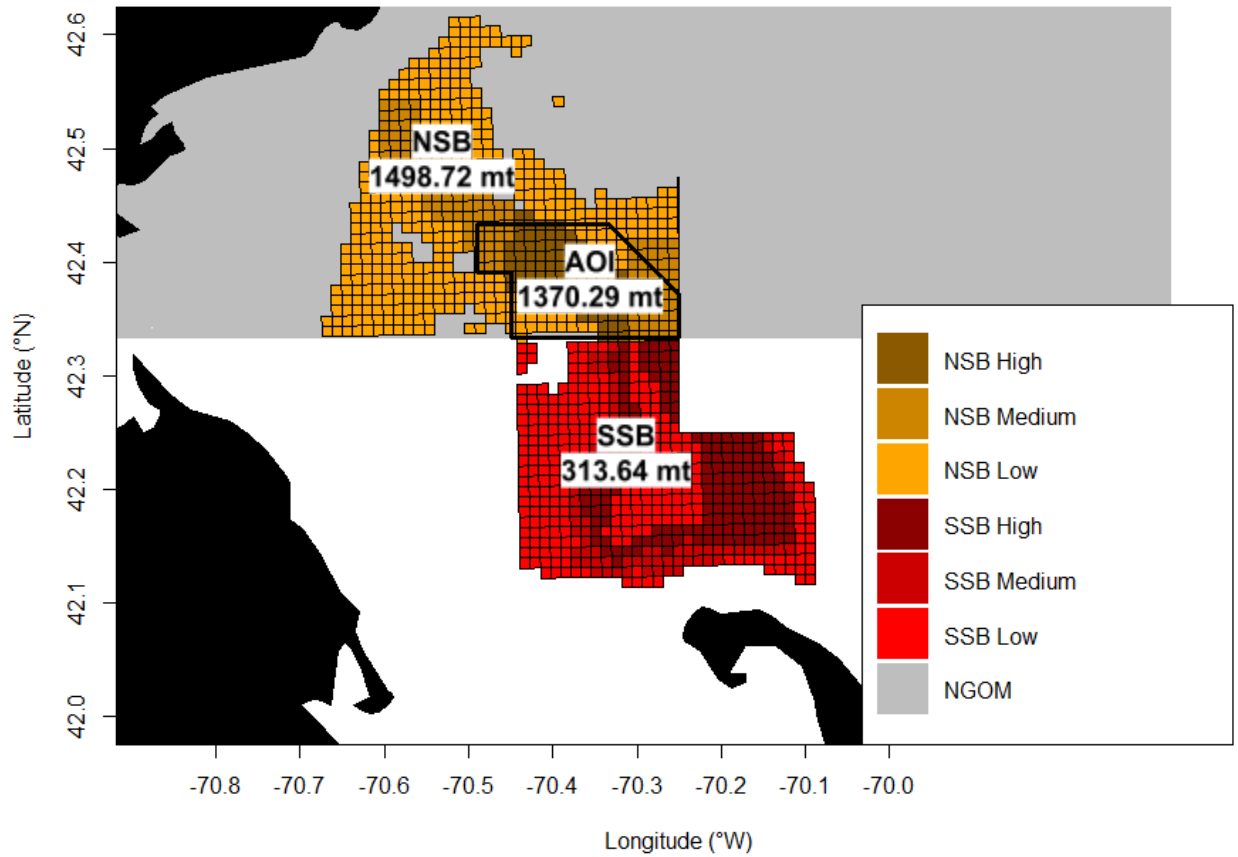
3.0 LENGTH FREQUENCY PLOTS BY SAMS AREA



Length Frequency SSB



Scallop Biomass (>75mm) by survey area at dredge efficiency of 0.4 using the Hart 2020 SH/MTW equation. NSB: Full Northern Stellwagen Bank Survey Area including the area of interest (AOI). AOI: section of NSB outlined in black. SSB: Southern Stellwagen Bank. NSB: Full Northern Stellwagen Bank Survey Area including the area of interest (AOI). AOI: section of NSB outlined in black. SSB: Southern Stellwagen Bank.



4.0 SENSITIVITY ANALYSES – STELLWAGEN BANK

Comparison of biomass estimates: 2020 Hart SH/MTW equation and 2021 ME DMR/UMaine SH/MTW equation. Dredge efficiency = 0.4.

	Biomass estimate (metric tons) using: Hart 2020 SH/MW equation	Hart SE	Biomass estimate (metric tons) using: DMR/UMaine 2021 SH/MW equation	DMR/UMaine SE
NGOM Stellwagen Bank	1426.76	667.81	1474.52	693.17
Non-NGOM Stellwagen Bank (Stellwagen South)	341.09	85.97	355.39	92.02

DMR analysis of dredge efficiency on Stellwagen Bank: Atlantic Sea Scallop abundance (millions) and biomass (metric tons) were estimated at three different dredge efficiencies within the area of interest, as high densities may have impacted gear function. The ME DMR used a dredge efficiency of 0.4 (Kelly, 2006). A dredge efficiency of 0.26 was also considered, as it was considered by the DMR in past surveys. Estimates were also generated at a dredge efficiency of 0.13, as discussed in SARC 65.

	No adjustment 0.4		Reduced efficiency 0.26		Reduced efficiency 0.13	
	NumMill	Biomass MT	NumMill	Biomass MT	NumMill	Biomass MT
NGOM Stellwagen Bank	86.02	1474.52	132.34	2268.49	264.67	4536.99

5.0 SPECIAL COMMENTS

[Bycatch figures in Appendix 3]

6.0 EXPLOITABLE BIOMASS (>75 mm) ESTIMATES FOR 2021 (CURRENT FY)

Dredge; efficiency = 0.4; Hart 2020 SH/MW equation				
GOM	NumMill	Exploitable BmsMT	SE	MeanWt (g)
NGOM Stellwagen Bank	78.38	1370.29	640.69	21.67
NGOM TOTAL	78.38	1370.29	640.69	21.67
Non-NGOM Stellwagen Bank (Stellwagen South)	12.34	313.64	82.09	23.08

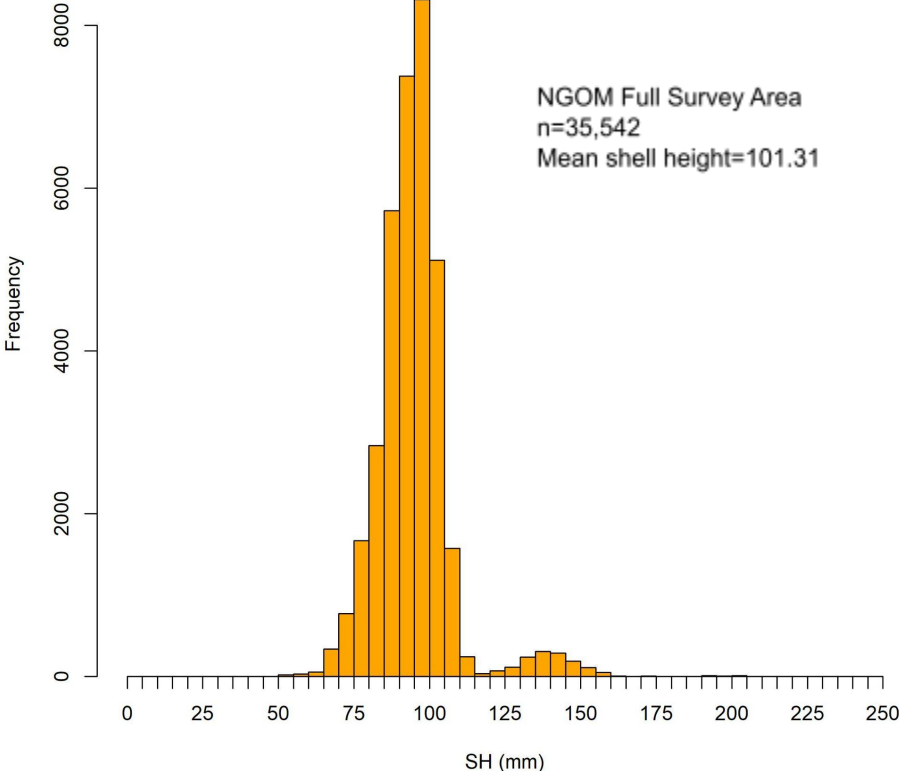
Appendix 1: Biomass estimates for the Northern Gulf of Maine throughout MEDMR/UMaine survey area (including the area of interest).

2021 SURVEY BIOMASS ESTIMATES CONTINUED

<p style="text-align: center;">Full NGOM Survey Area Estimates</p> <p style="text-align: center;">Dredge efficiency = 0.4</p> <p style="text-align: center;">>40mm</p> <p style="text-align: center;">Estimates from the Hart 2020 SH/MW equation</p>							
GOM	NumMil	BmsMT	SE	MeanWt (g)	Avg. Size (mm)	Scallop density (g/m ²)	# Tows
Full NGOM Survey Area	89.65	1555.78	646.33	21.43	101.31	2.49	103

LENGTH FREQUENCY PLOT FULL NGOM SURVEY AREA

Length Frequency NSB

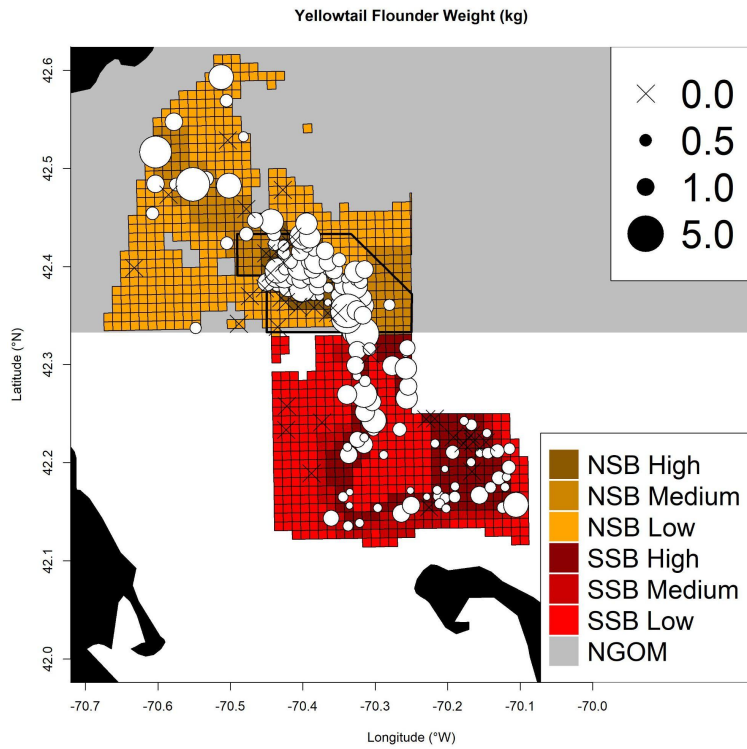
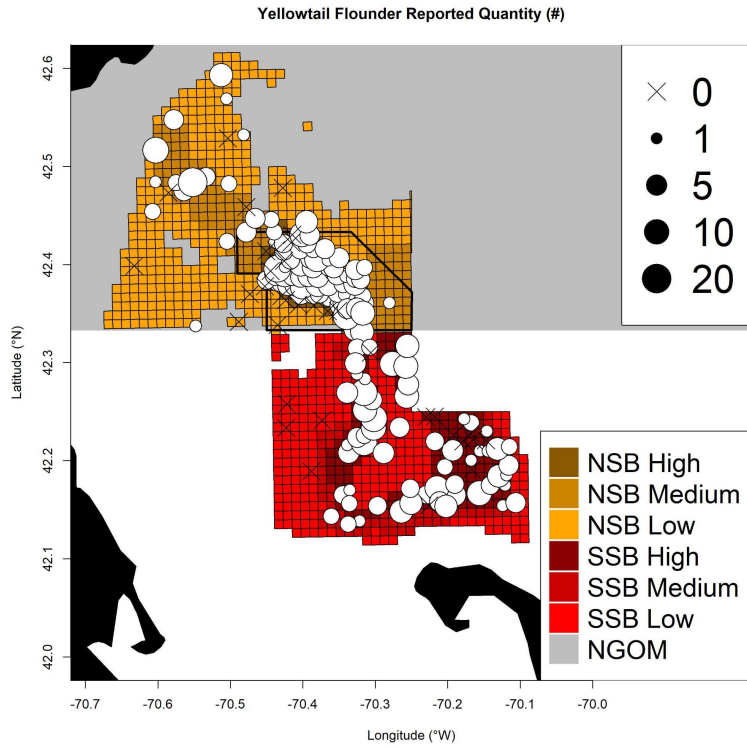


Appendix 2: Sensitivity analysis for 7/14/2021 measurement error.

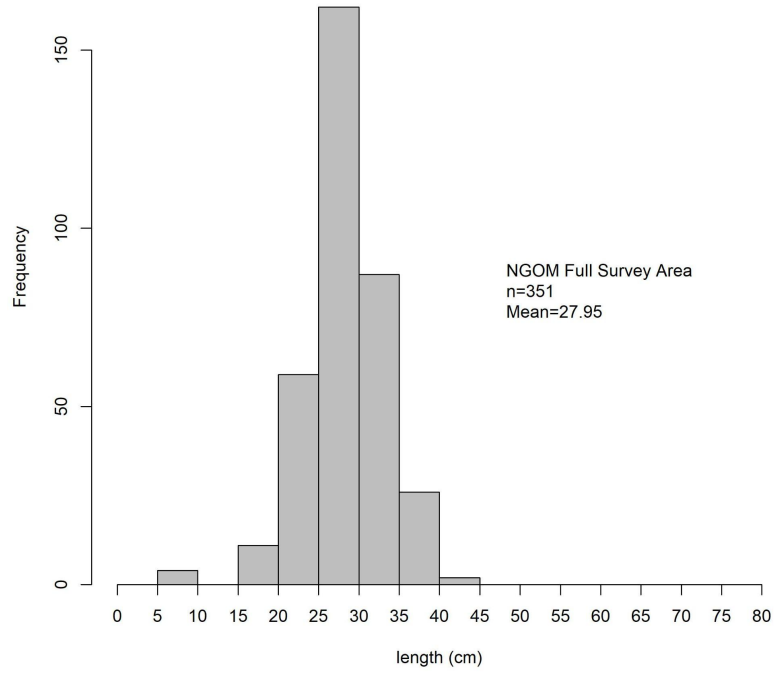
A measurement error was identified in the electronic measuring board used on July 14, 2021. Fifteen (15) stations on Southern Stellwagen Bank were impacted. To address this, a shell height to meat weight relationship based on data excluding 7/14/21 was generated and used to correct shell heights from 7/14 based on 7/14/21 meat weights. Results were compared to the estimates without 7/14/21 data. Both estimates were considered over the same area, with more low stratum stations sampled on the 14th.

<p style="text-align: center;">Dredge; efficiency = 0.4</p> <p style="text-align: center;">>40mm</p> <p style="text-align: center;">Hart 2020 SH/MW equation</p>							
GOM	NumMil	BmsMT	SE	MeanWt (g)	Avg. Size (mm)	Scallop density (g/m²)	# Tows
Non-NGOM Stellwagen Bank (including 7/14/2021)	17.76	341.09	85.97	20.38	98.11	0.65	75
Non-NGOM Stellwagen Bank (excluding 7/14/2021)	16.80	331.77	84.44	20.49	98.13	0.64	60

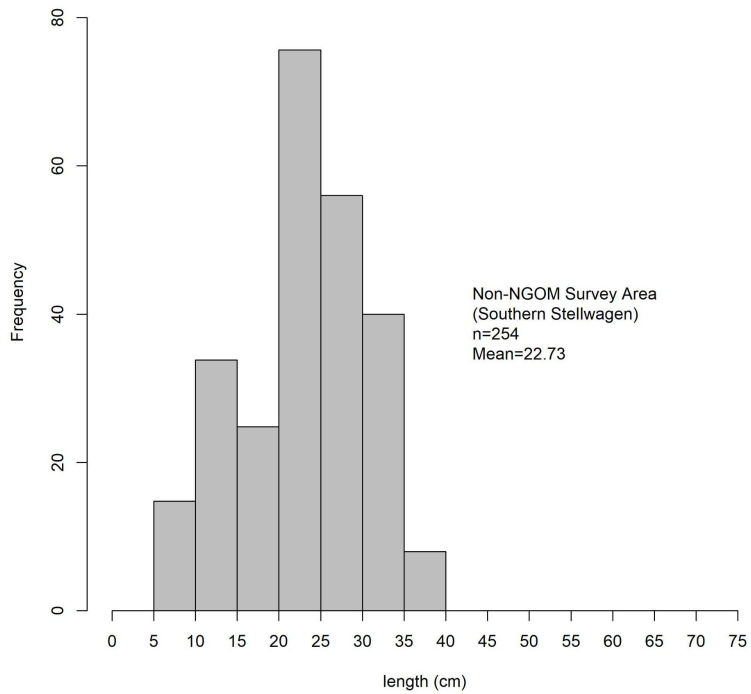
APPENDIX 3: Additional Bycatch Maps and Length Frequencies



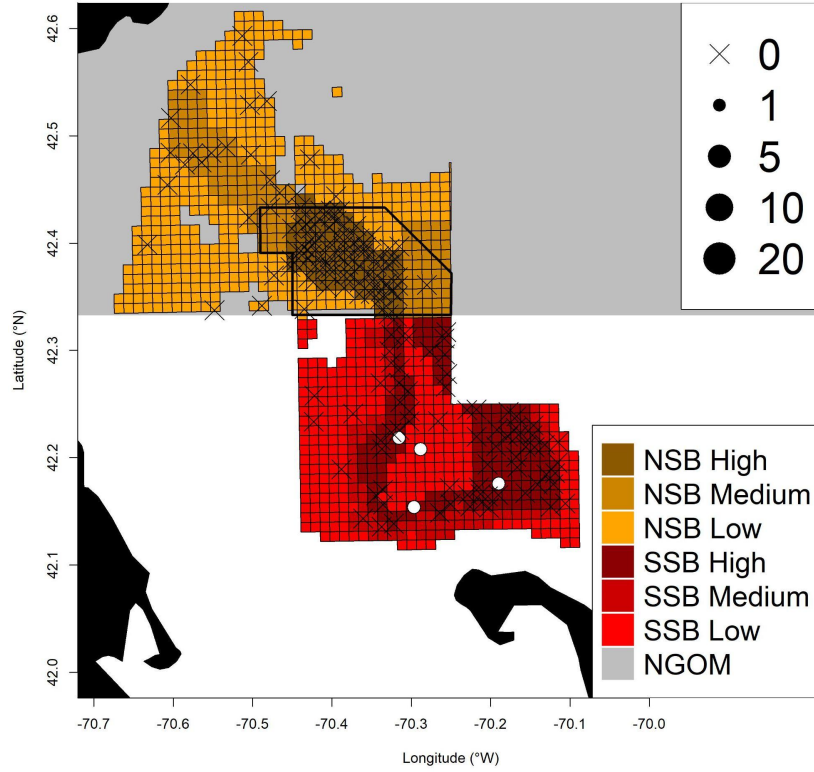
Yellowtail Flounder Length Frequency NSB



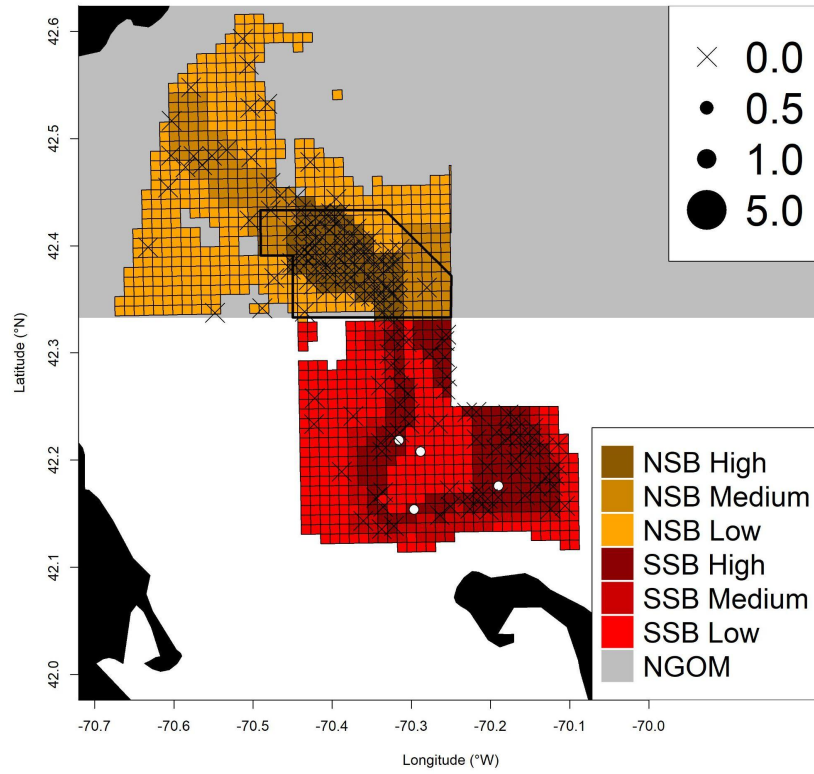
Yellowtail Flounder Length Frequency SSB



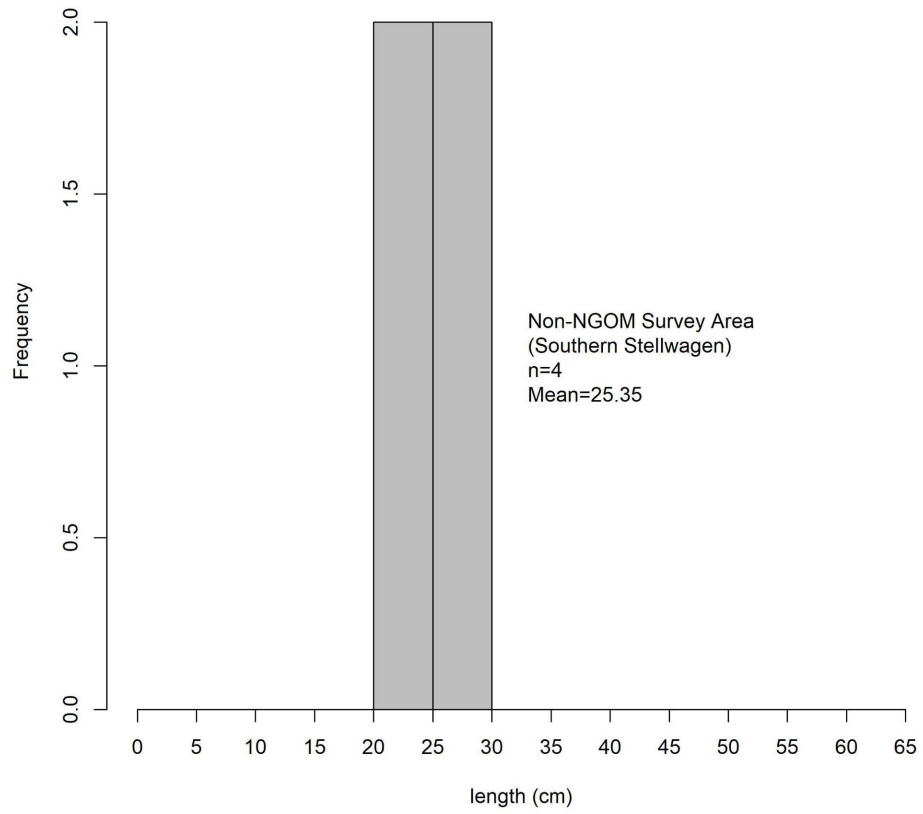
Windowpane Flounder Reported Quantity (#)



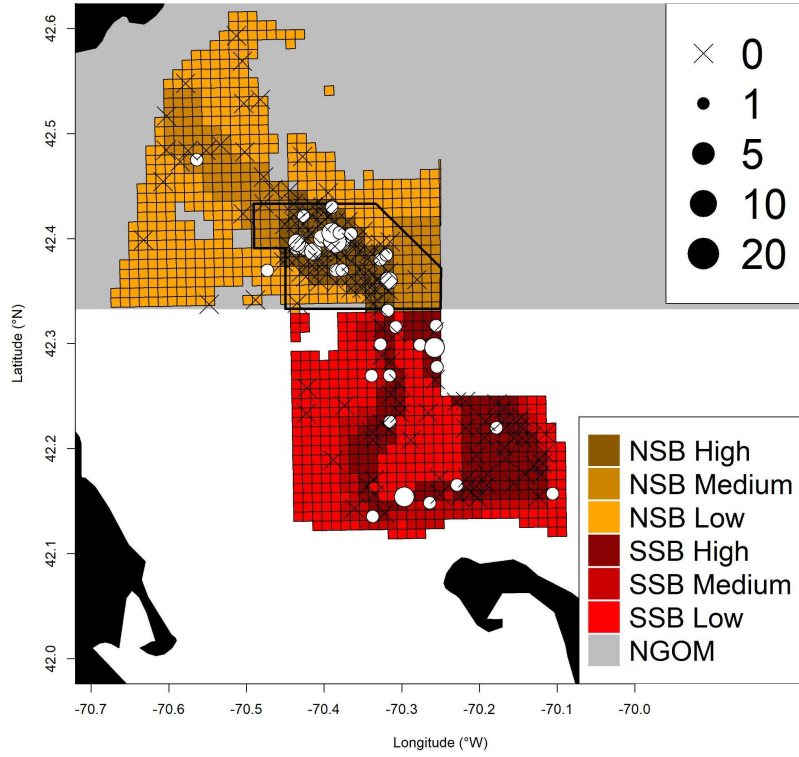
Windowpane Flounder Weight (kg)



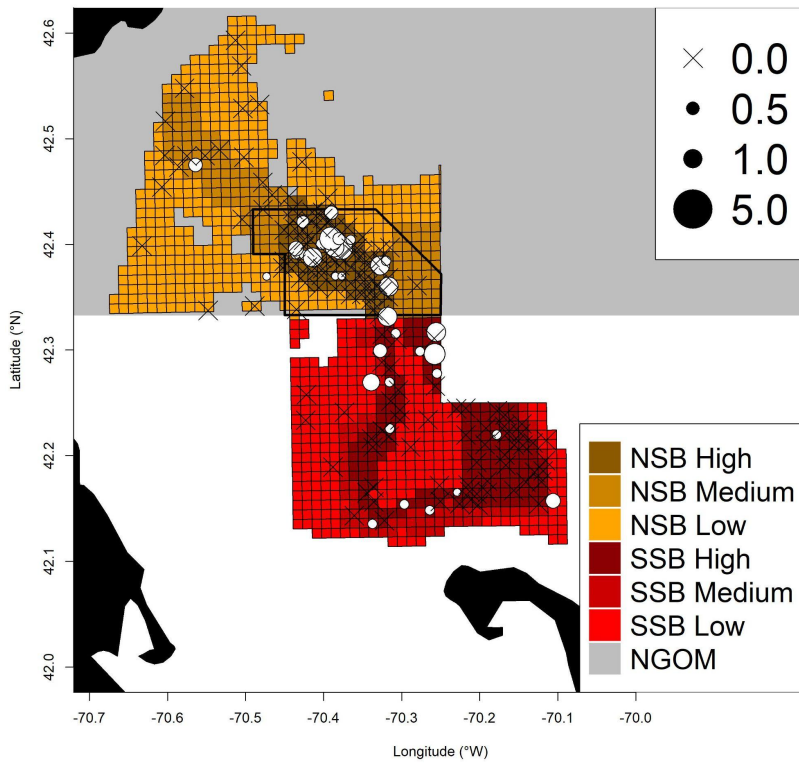
Windowpane Flounder Length Frequency SSB



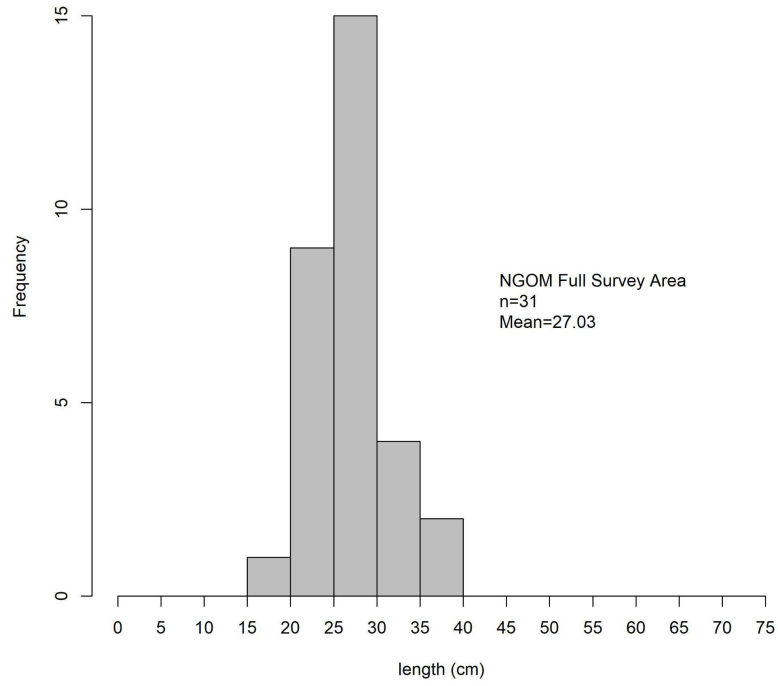
Winter Flounder Reported Quantity (#)



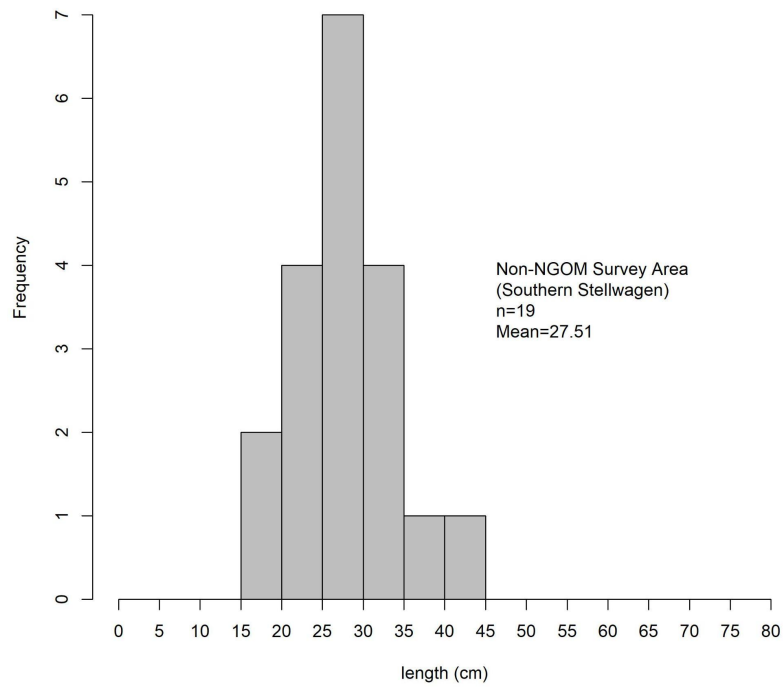
Winter Flounder Weight (kg)



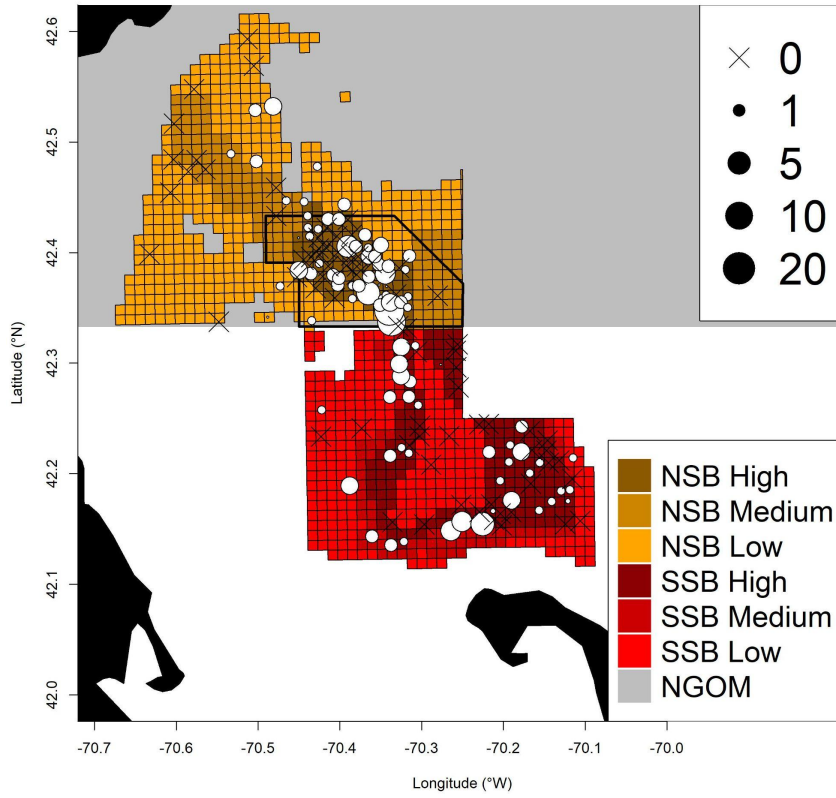
Winter Flounder Length Frequency NSB



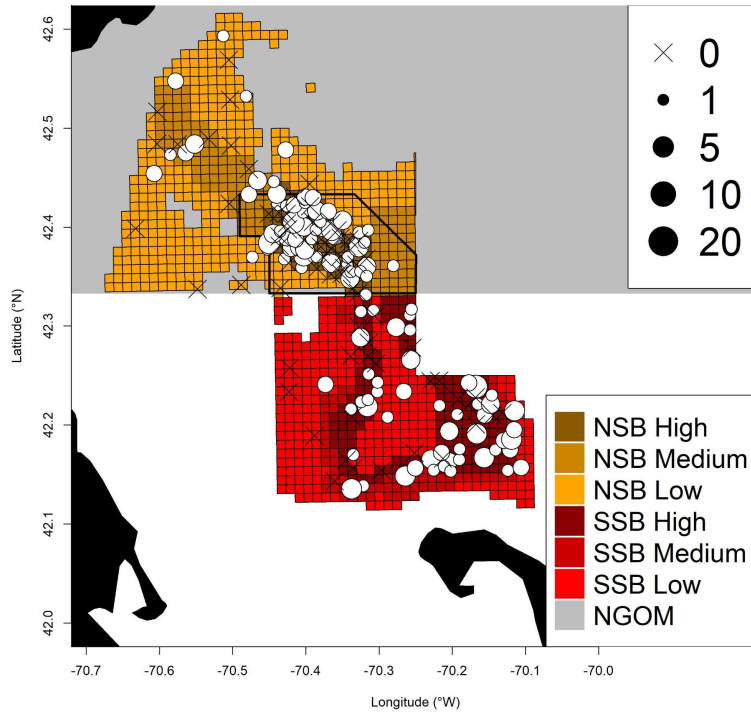
Winter Flounder Length Frequency SSB



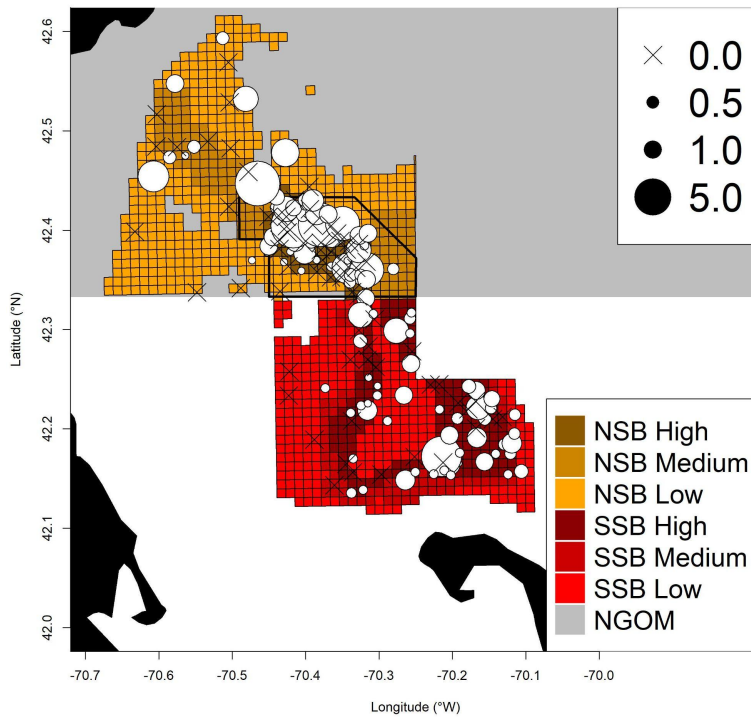
Sea Stars Volume (L)



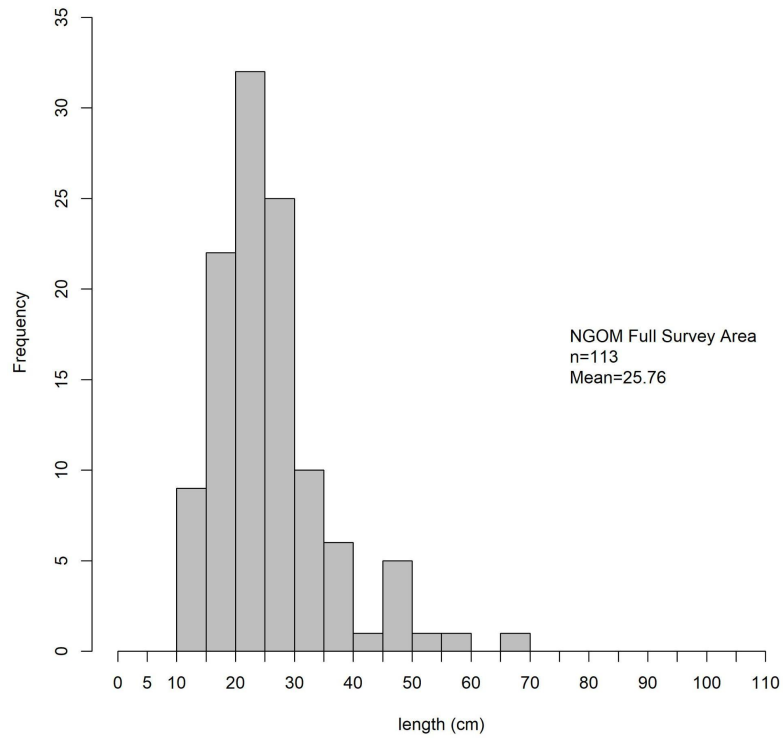
Monkfish Reported Quantity (#)



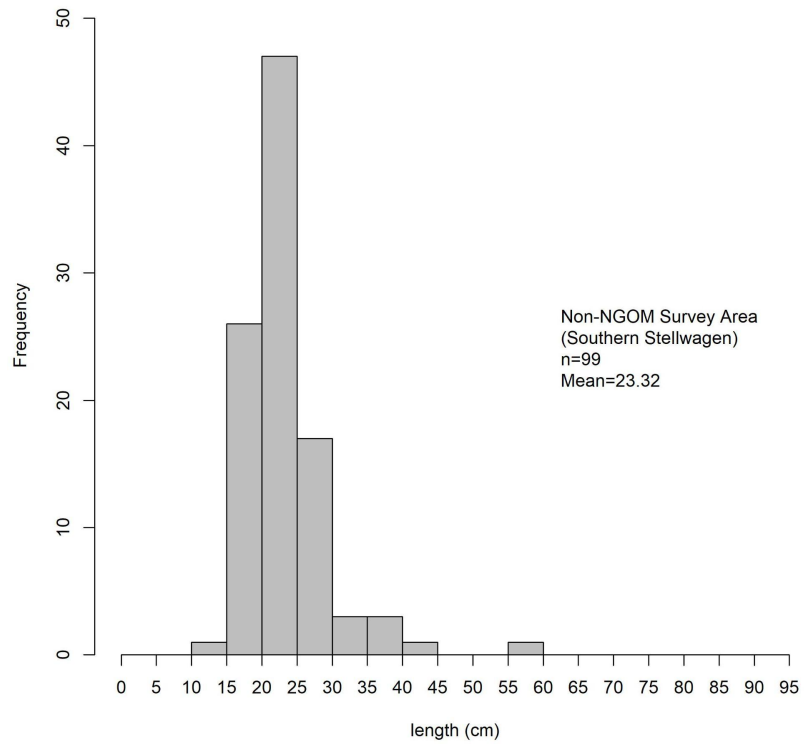
Monkfish Weight (kg)



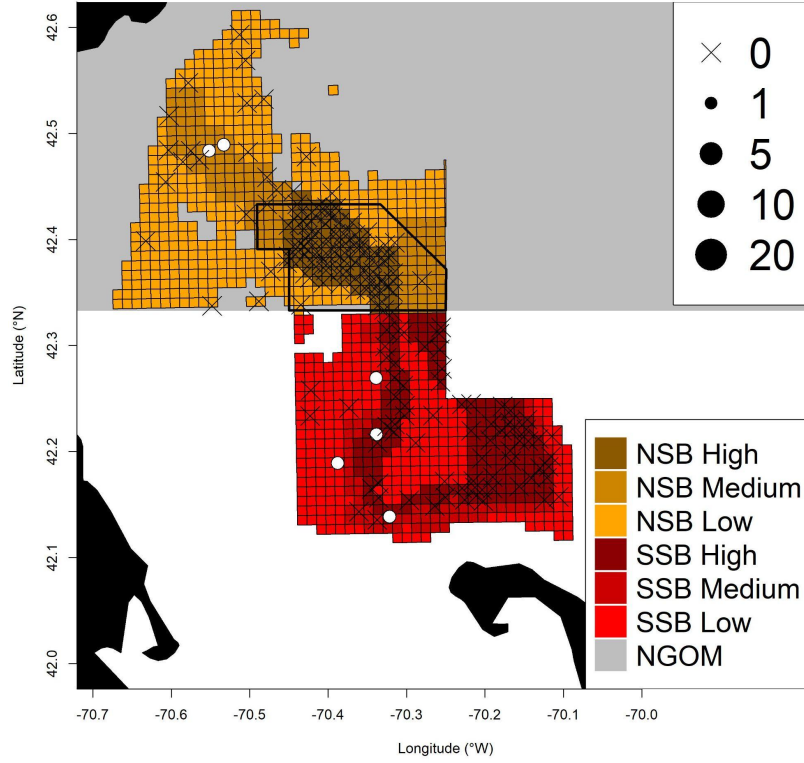
Monkfish Length Frequency NSB



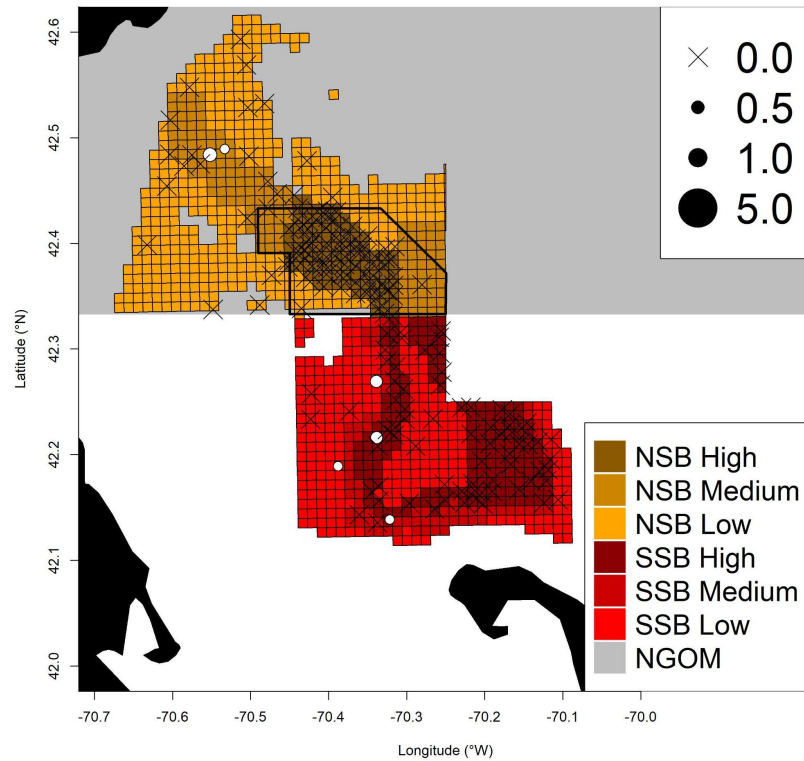
Monkfish Length Frequency SSB



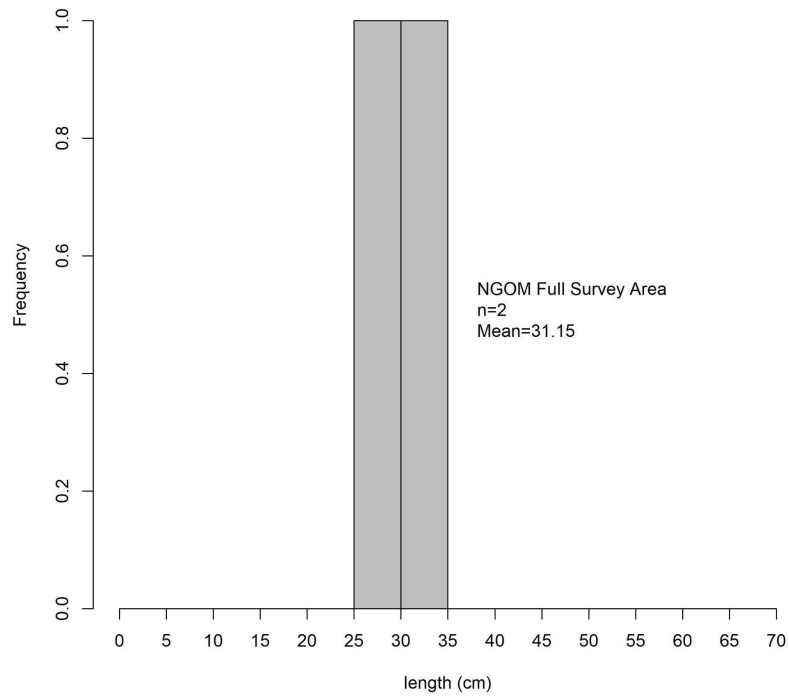
Fourspot Flounder Reported Quantity (#)



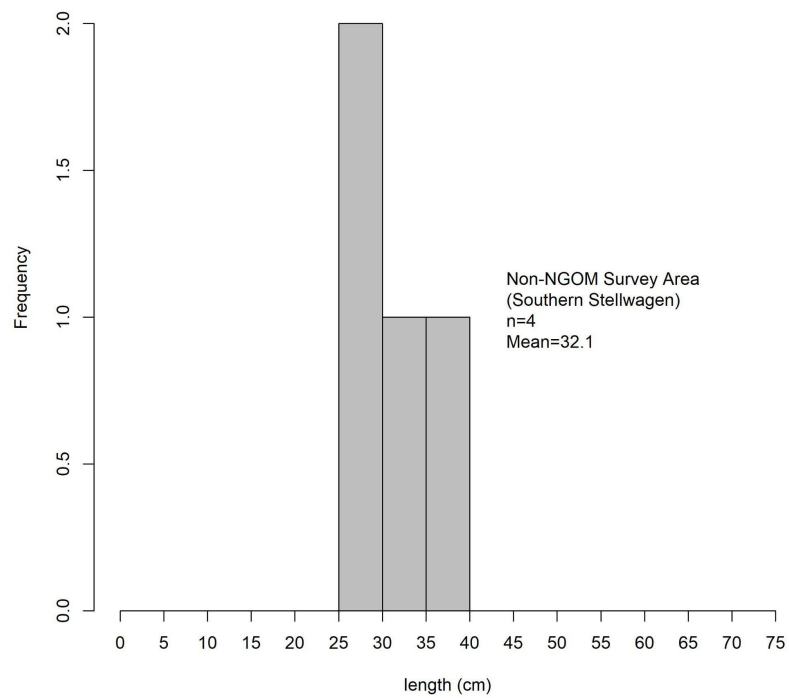
Fourspot Flounder Weight (kg)



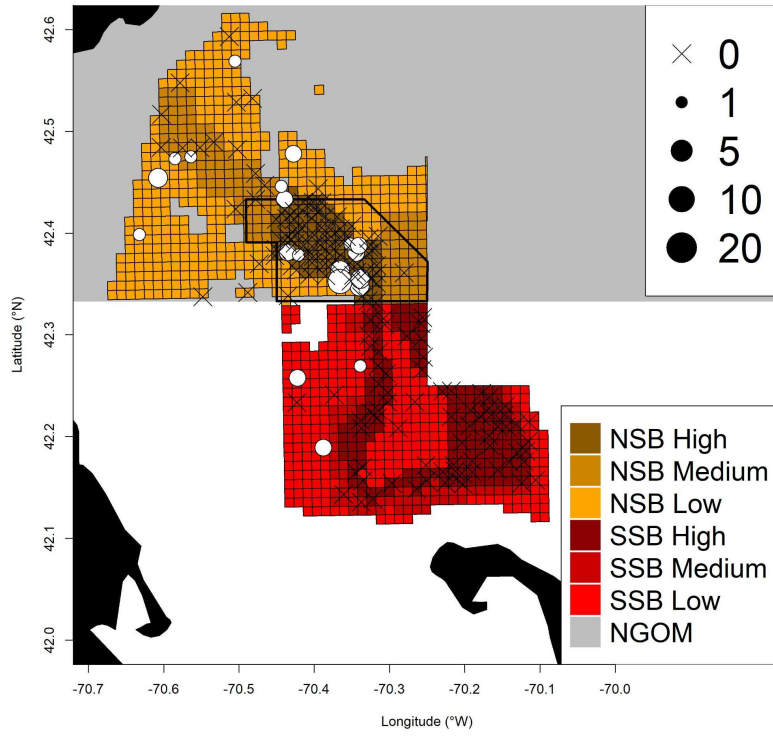
Fourspot Flounder Length Frequency NSB



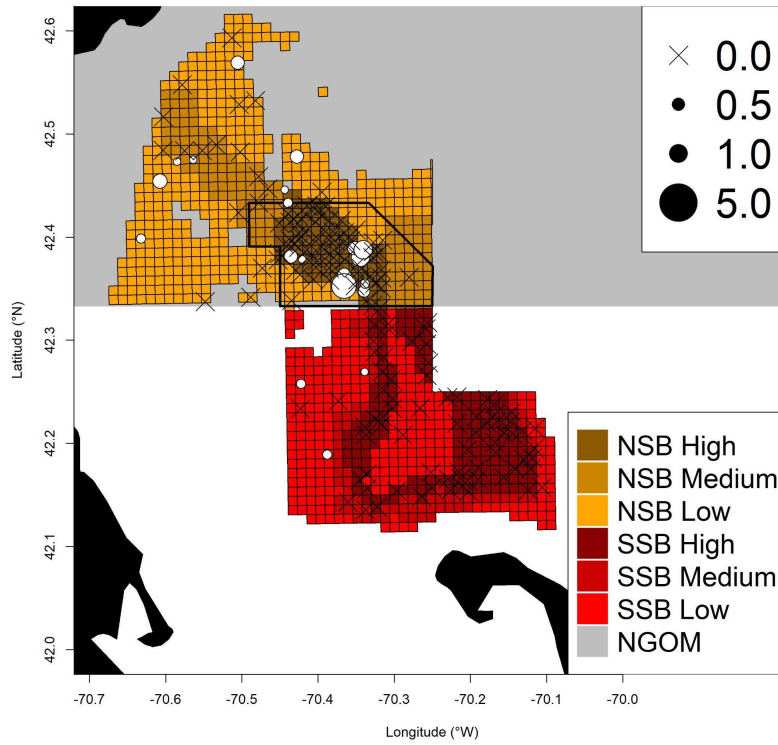
Fourspot Flounder Length Frequency SSB



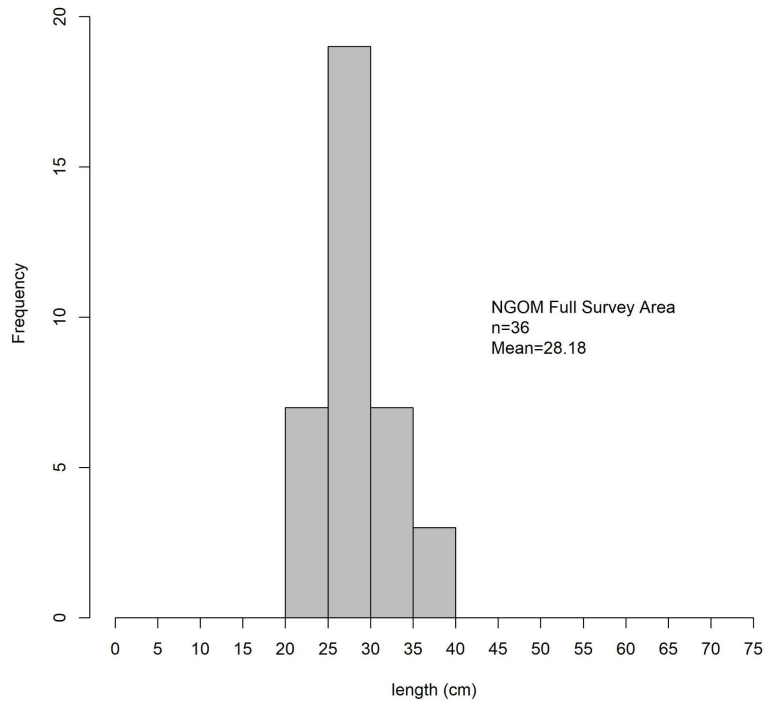
American Plaice Reported Quantity (#)



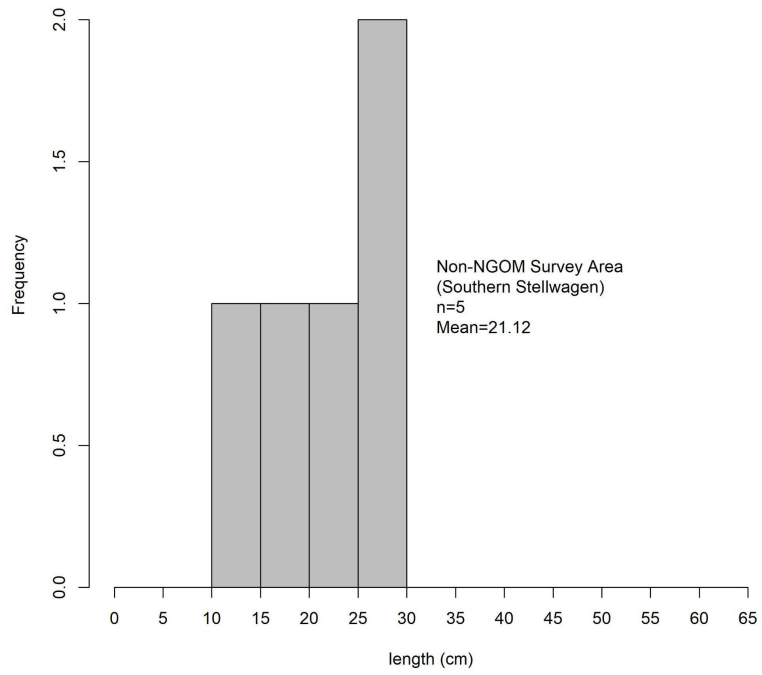
American Plaice Weight (kg)



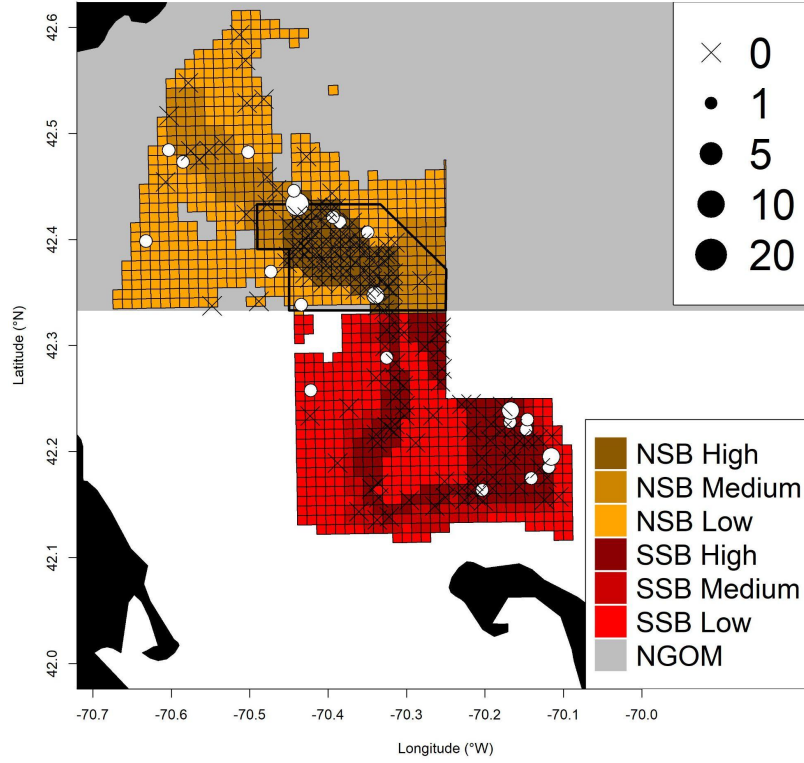
American Plaice Length Frequency NSB



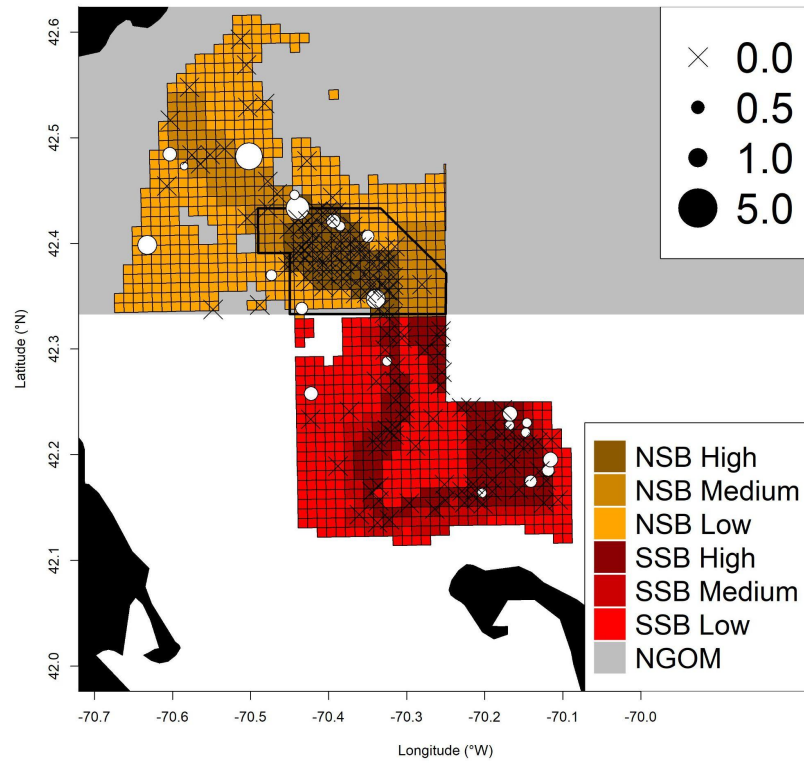
American Plaice Length Frequency SSB



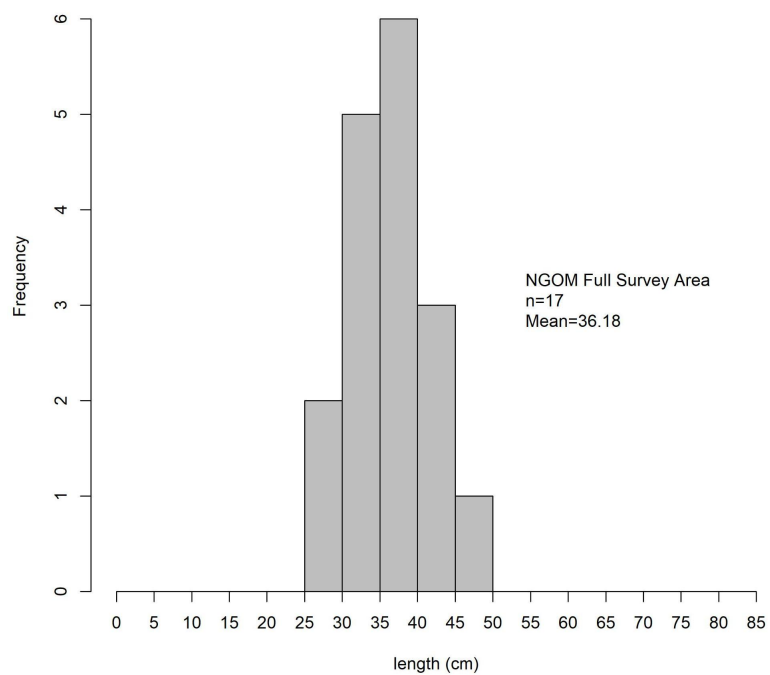
Witch Flounder Reported Quantity (#)



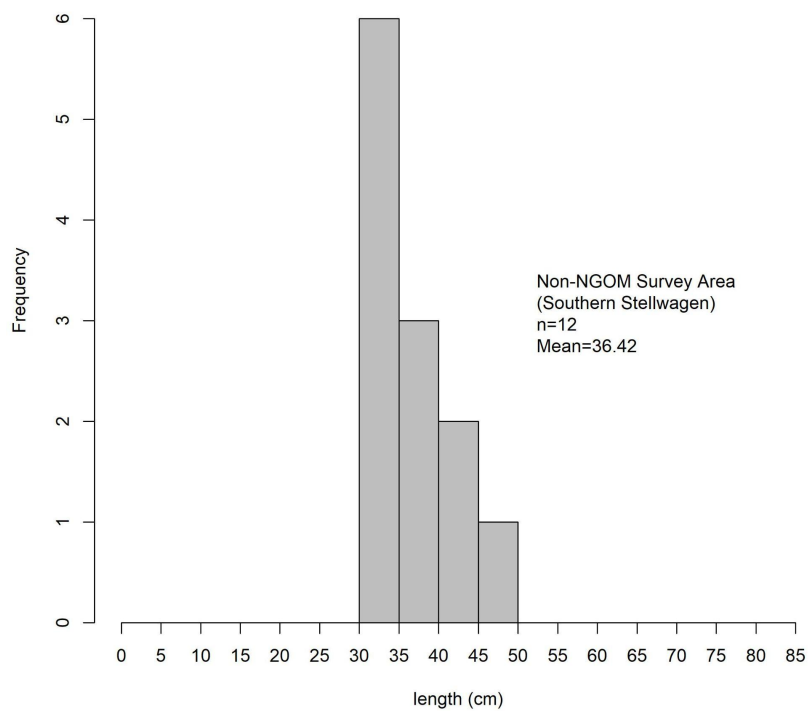
Witch Flounder Weight (kg)



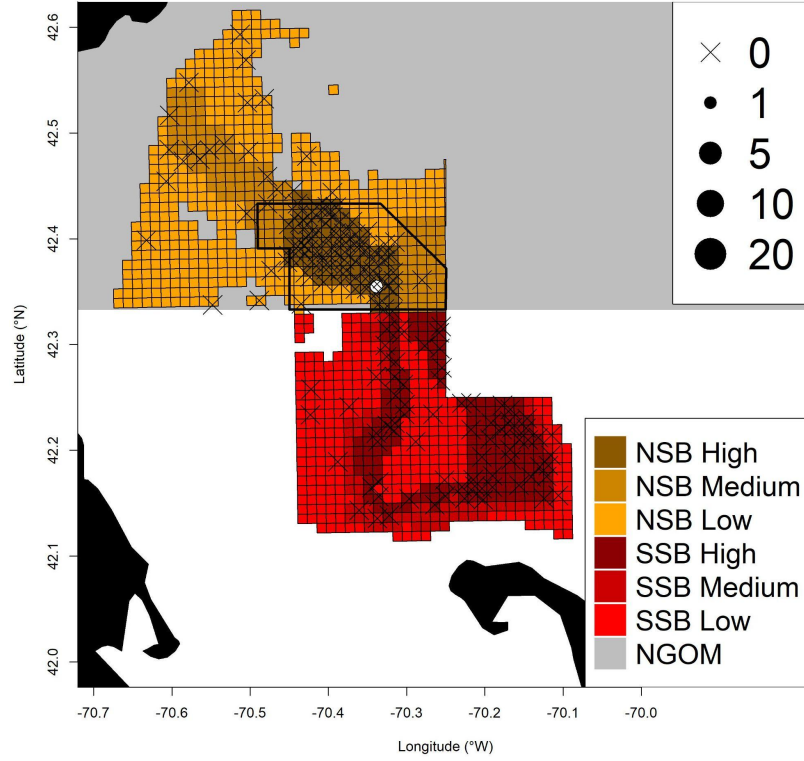
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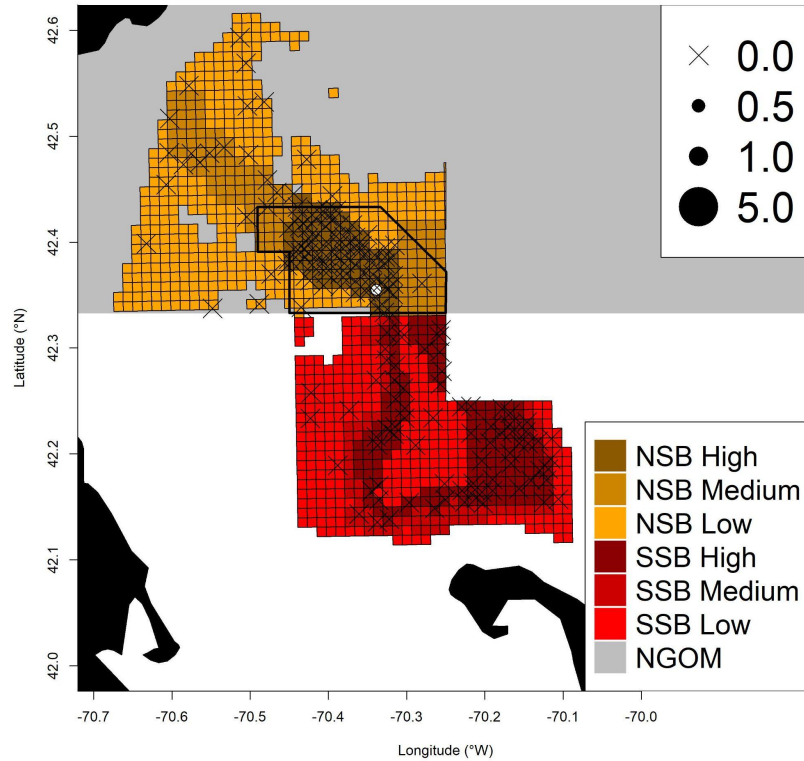
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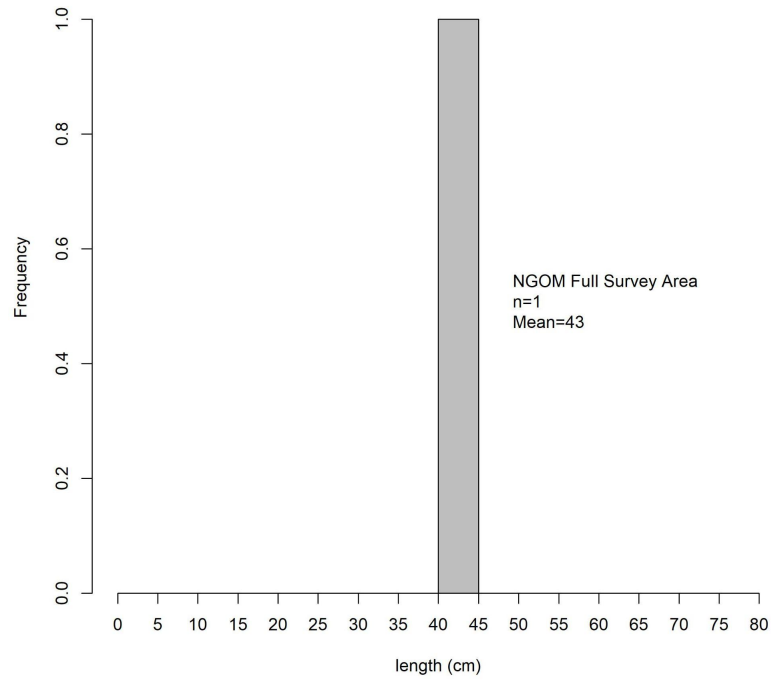
Cod Reported Quantity (#)



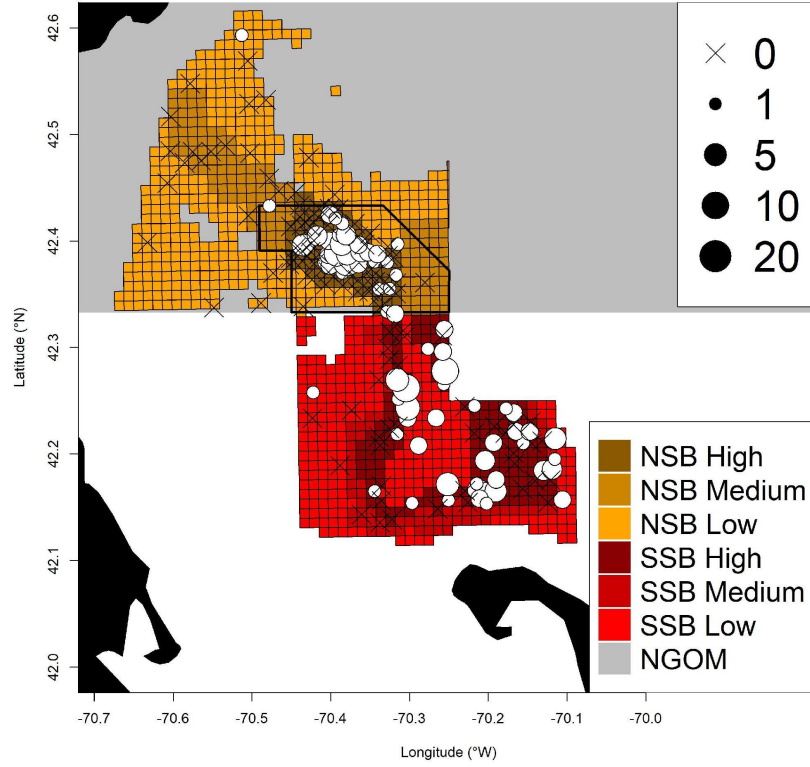
Cod Weight (kg)



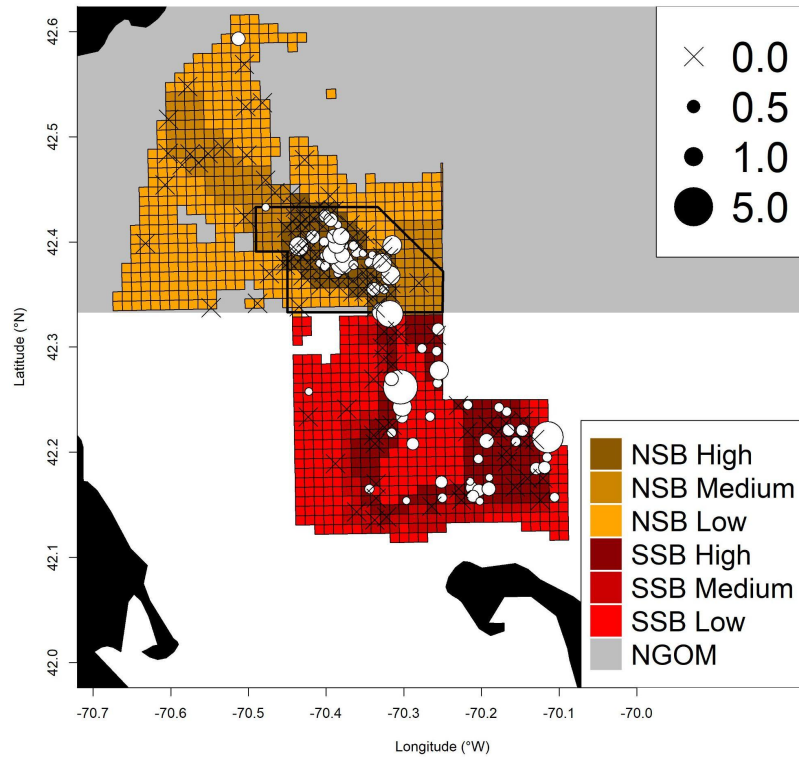
Cod Length Frequency NSB



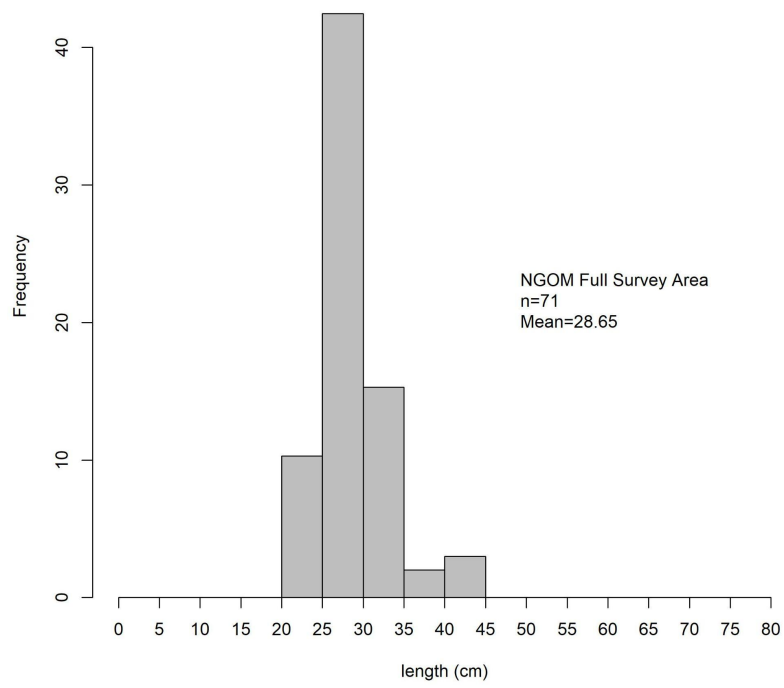
Silver Hake Reported Quantity (#)



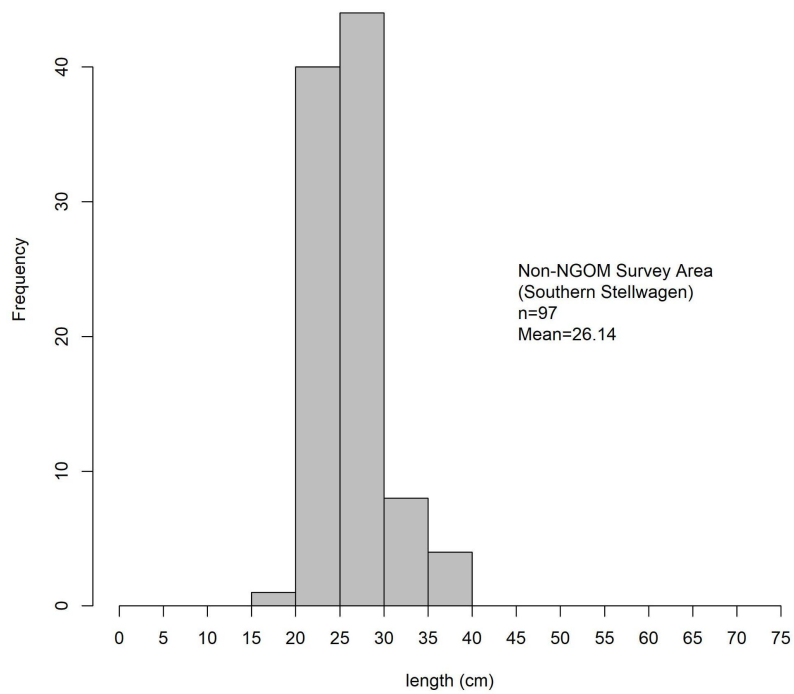
Silver Hake Weight (kg)

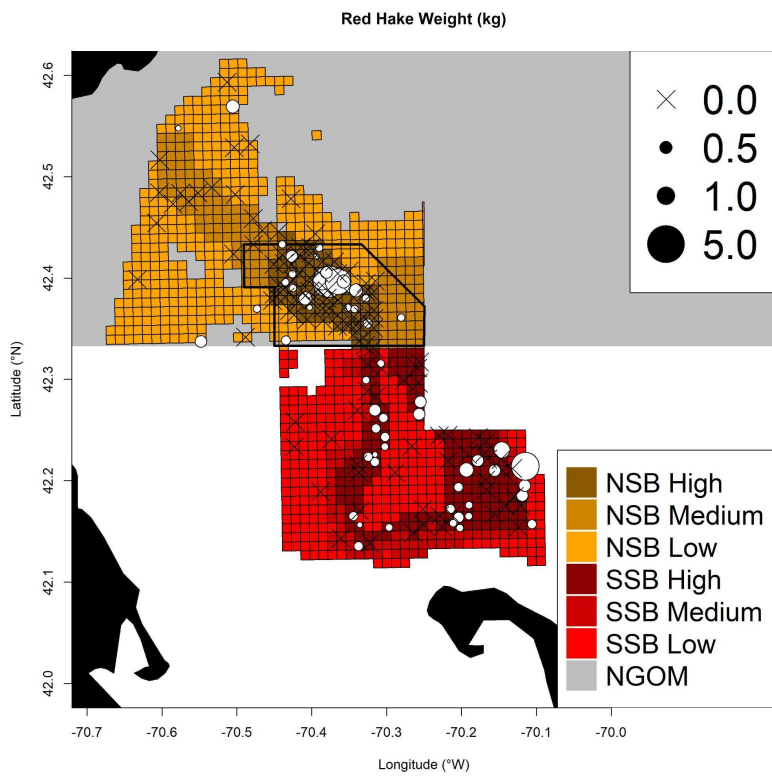
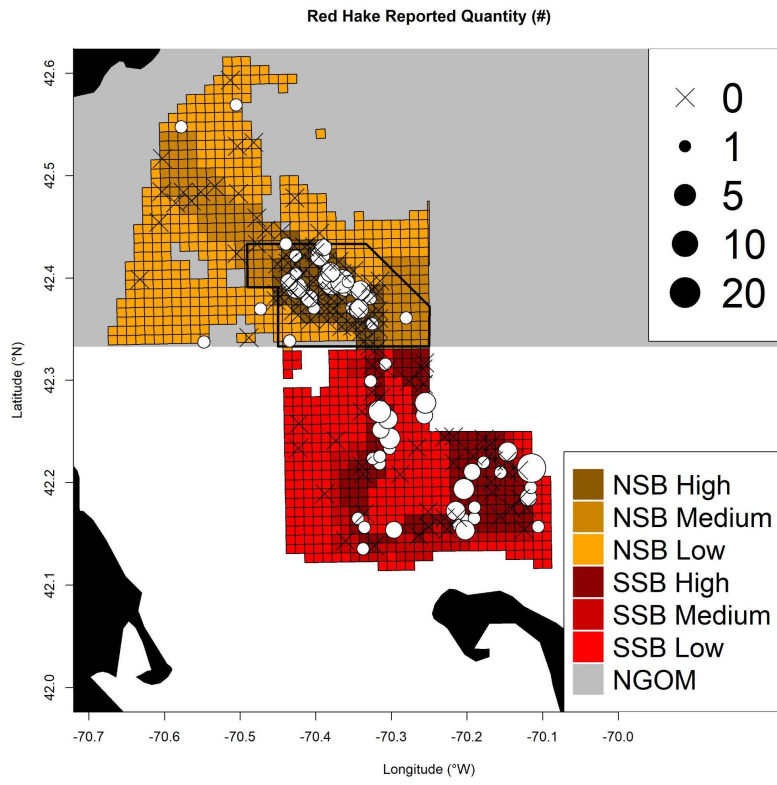


Silver Hake Length Frequency NSB

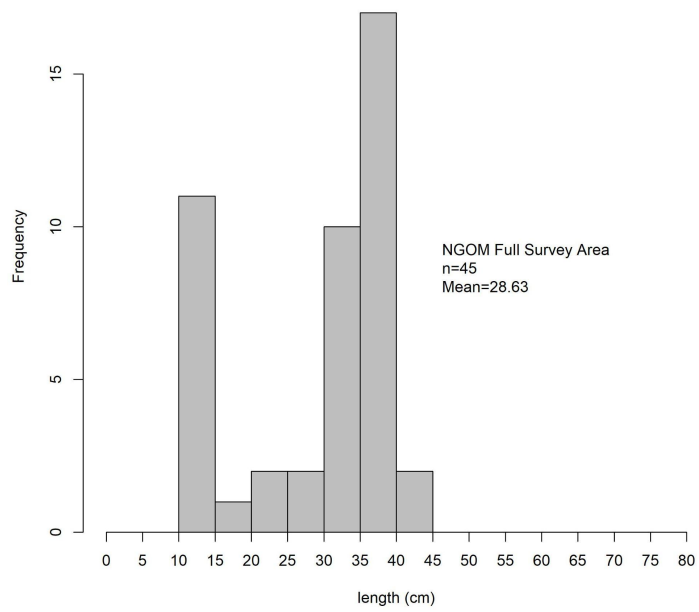


Silver Hake Length Frequency SSB



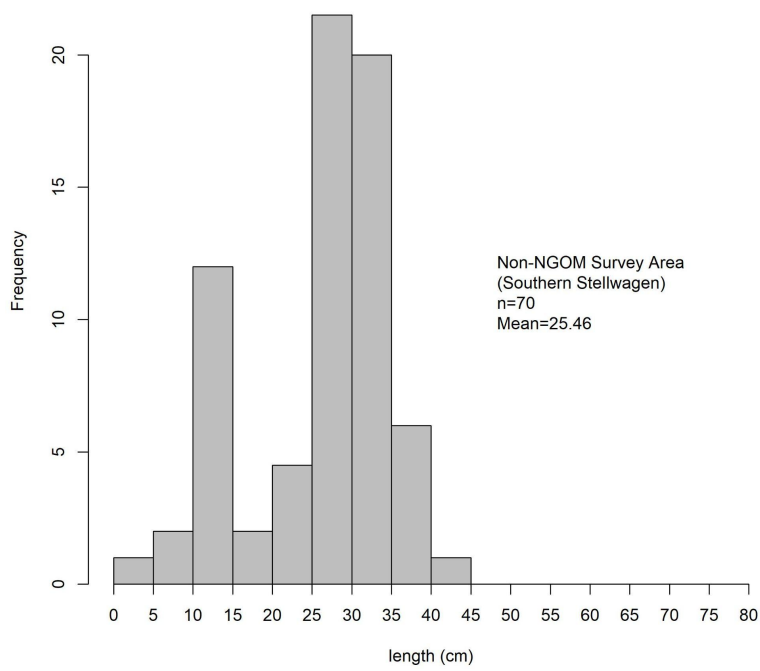


Red Hake Length Frequency NSB



*Red Hake Length Frequency NSB (NGOM Full Survey Area) does not contain length measurements from 7 juveniles found inside of shucked scallop shells.

Red Hake Length Frequency SSB



American Lobster Volume (L)

