

2019 Sea Scallop Report to the NEFMC SSC

Growth in Nantucket Lightship Area

ACL/OFL Recommendations for 2020 and 2021

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Terms of Reference

1. Review changes to meat weights used to develop 2019 survey estimates, and growth and selectivity parameters used in the SAMS model to project biomass in portions of the Nantucket Lightship. Provide the Council with a recommendation as to whether these changes are appropriate.
2. Review the Scallop PDTs updated projections for the scallop resource, and provide the Council with OFL and ABC recommendations for fishing years 2020 and 2021 (default).

Final biomass estimates for 2019, compared to forecasts from 2018

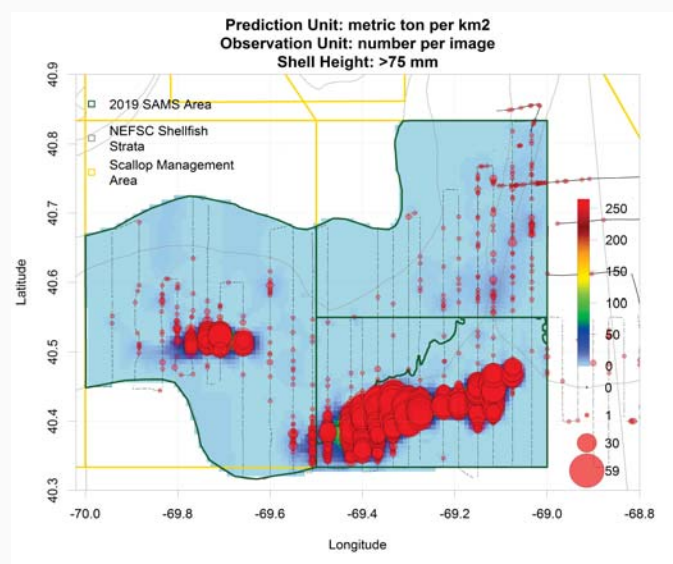
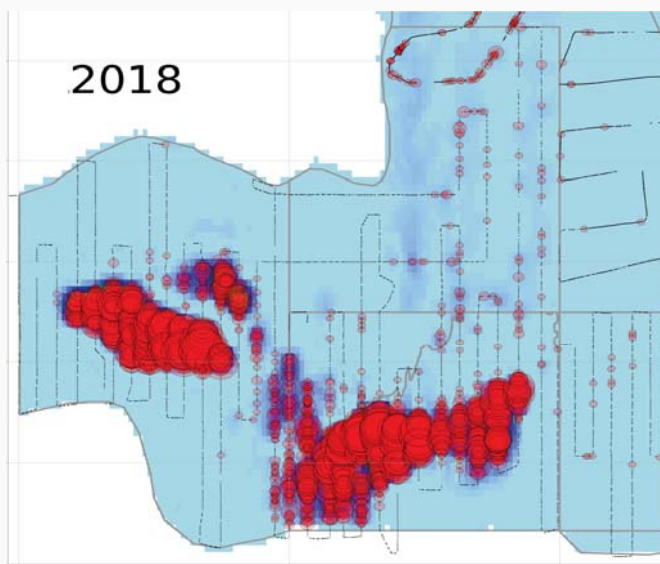
Note the very large decline in NLS-West. On the other hand, biomass in the NLS South Deep Area, which had showed almost no growth between 2017-2018, was slightly higher than expected.

Region	Subarea	Dredge				DropCam				Habcam				Mean				2019 Projections		
		Num	Bmsmt	SE	MeanWt	Num	Bmsmt	SE	MeanWt	Num	Bmsmt	SE	MeanWt	Num	Bmsmt	SE	MeanWt	Bmsmt	%ChangeExp	Bmsmt
GB	CL1ACC	18.4	693	84	35.6	36	1049	203	29					27.1	871	73	32.1	1681	-48.2%	1182
GB	CL1NA	259.0	7857	912	29.5	154	3487	786	23					206.4	5672	401	27.5	7149	-20.7%	6413
GB	CL-2(N)	154.0	5778	2026	37.5	184.1	5,926	1,608	32					169.1	5852	862	34.6	7333	-20.2%	5289
GB	CL-2(S)	1671	20,689	1,129	15.4					1035	11710	356	11.3	1353.0	16200	592	12.0	10129	59.9%	6222
GB	CL2Ext	312.1	5,568	566	17.4					653	6714	117	10.3	482.5	6141	289	12.7	6016	2.1%	4864
GB	NLSAccN	81.5	3368	210	41.3	122	4,690	696	38.35	71	3066	379	42.9	91.6	3708	273	40.5	4096	-9.5%	2995
GB	NLSAccS-Shallow	117.6	1721	426	14.6	305	4655	3398	15.3	219	3420	9	15.6	213.8	3265	1142	15.3	2747	18.9%	1137
GB	NLSAccS-Deep	3619	36609	1182	10.1	4839	49689	8919	10.3	3829	46060	871	12	4095.6	44119	3013	10.8	38036	16.0%	10435
GB	NLS-W	600.8	10080	663	16.7	838	13,438	6,325	16.03	623	12575	3618	20.2	687.4	12031	2439	17.5	41751	-71.2%	31926
GB	NF	91.0	1585	735	17.5	57.2	1,008	372	18					74.1	1297	275	17.5	1260	2.9%	922
GB	GSC	296.0	7302	1354	24.7	439	6135	1000	14.0					367.6	6719	561	18.3	12990	-48.3%	8425
GB	GSC-45	1.7	82.57	29.51	49.5									1.7	83		49.5			
GB	SF	686.8	12216.0	2127	17.8					1074	8514	188	7.9	880.4	10365	1068	11.8	5697	81.9%	4202
GB	TOTAL	7908	113549	3937	14.4									8650.3	116322	4391	13.4	138885	-16.2%	84012
MAB	BI	94.9	1,515	254	17.3	47	1076	305	23	37	850	8	22.7	59.8	1147	132	19.2	3095	-62.9%	1773
MAB	LI	407.3	9,079	350	22.4	501	9417	962	19	570	12282	770	21.6	492.7	10259	427	20.8	13569	-24.4%	9440
MAB	NYB	537.8	7425	523	14.8	464	7032	1288	15	487	7091	330	14.6	496.4	7183	476	14.5	7068	1.6%	4438
MAB	MA inshore	53.4	1265	181	23.7					26	1020	7	39.6	39.7	1143	91	28.8	1120	2.0%	952
MAB	HCSAA	380.4	8544	775	22.6	580	10185	783	18	762	18303	2273	24	574.1	12344	842	21.5	12884	-4.2%	8817
MAB	ET Open	592.0	15,105	897	25.8	888	18051	1187	20	634	17215	229	27.1	704.6	16790	502	23.8	17828	-5.8%	14386
MAB	ET Flex	523.6	13,529	1,174	25.5	771	19654	2711	25	778	24357	457	31.3	690.9	19180	996	27.8	22389	-14.3%	19382
MAB	DMV	20.3	203	43	10.5	89	374	111	4	47.0	599	58	12.8	52.2	392	44	7.5	1627	-75.9%	985
MAB	VIR	4.2	14	1	3.0									4.2	14	1	3.3	301	-95.3%	19
MAB	TOTAL	2614	56679	1811	21.7					3341.0	81717	2477	24.5	3114.6	68452	1546	22.0	79881	-14.3%	60192
TotalOpen		2505	46255	2687	219					2894	37070	224	130	2951	44741	1271	204	52743	17.9%	36020
TOTAL	TOTAL	10522	170228	4333	16.2					3341	81717	2477	24.5	11765	184774	4655	15.7	218766	18.4%	144204

High mortality in the Nantucket Lightship West area

Higher than anticipated mortality in the NLS-West area - about 30 thousand tons of biomass disappeared. Natural, discard and incidental fishing mortality are all possibilities.

2019



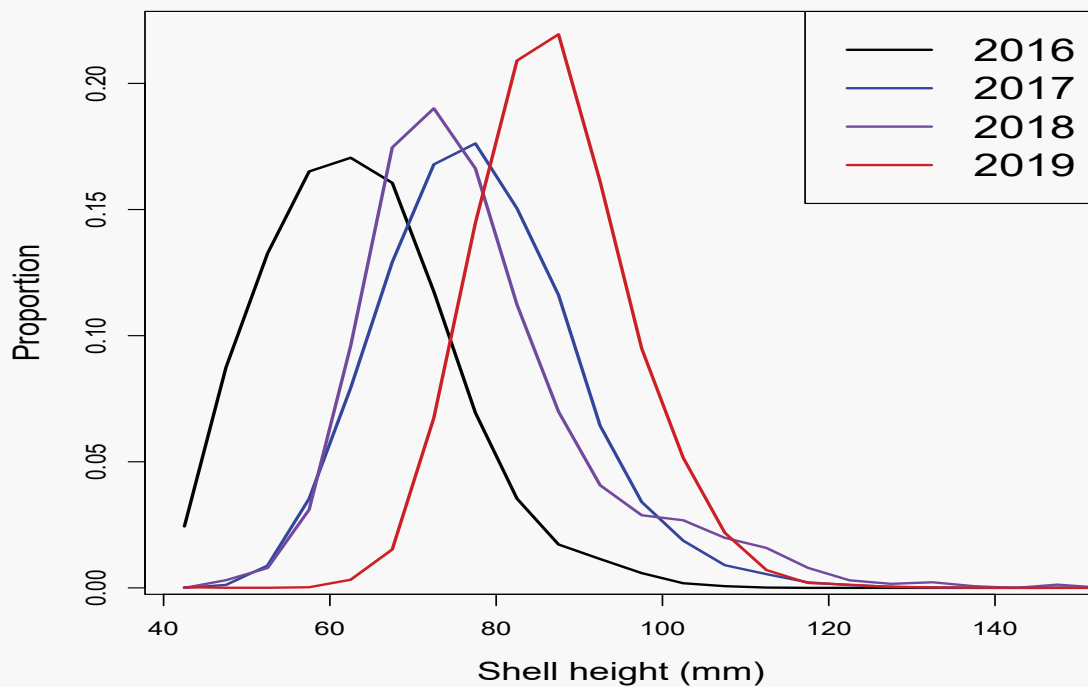
Growth in Nantucket Lightship Area

Analysis of a limited number of shells from the 2012 year class in these areas indicate abnormally slow growth: $L_{\infty} = 119.1$ and $K = 0.487$ for Nantucket Lightship West and $L_{\infty} = 110.3$ and $K = 0.423$ in the deep water southern portion of this area.

This compares with $L_{\infty} = 151.2$ and $K = 0.397$ for the Nantucket Lightship as a whole, so these estimates are well below normal growth. Growth appears to variable from year to year. Projections use these area-specific estimated growth parameters, but these estimates are highly uncertain.

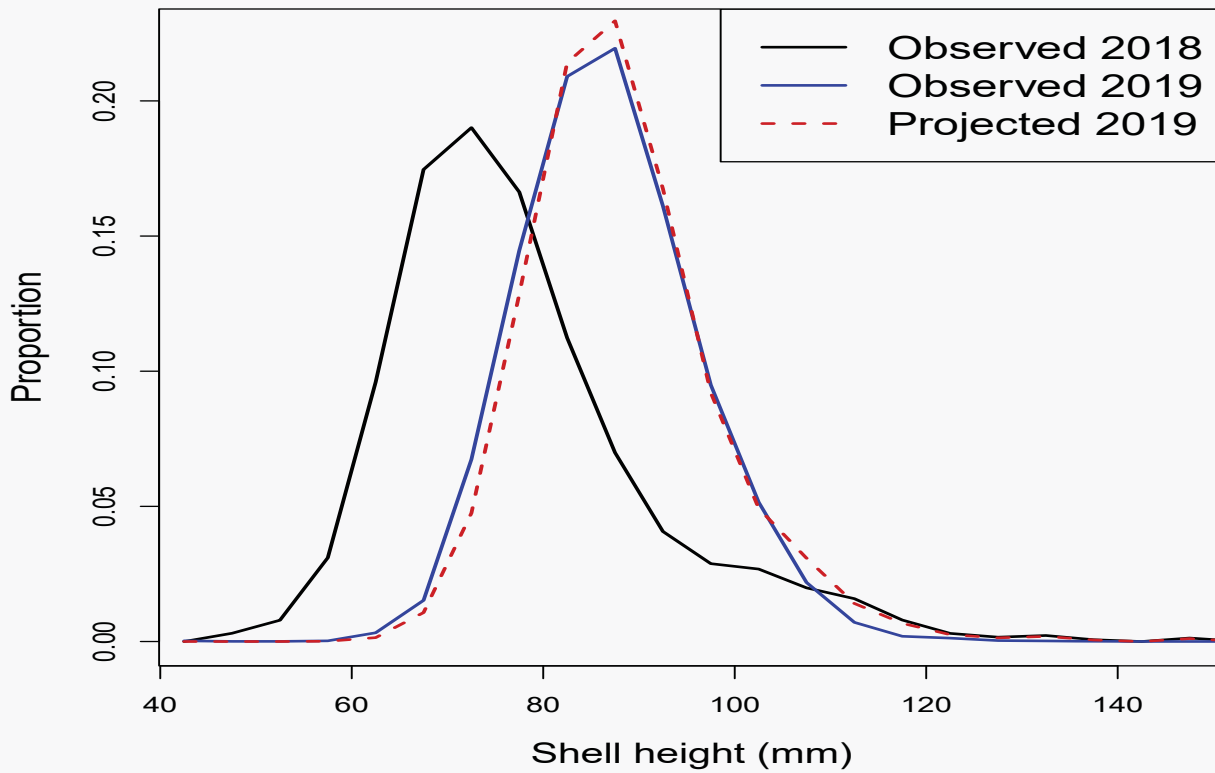
Growth in the Deep Southeast Nantucket Lightship Area

Growth from 2016 to 2017, and also from 2018 to 2019, is consistent with assumed growth parameters, but there was little growth and high mortality between 2017 and 2018. Mortality between 2016-17 and 2018-19 appeared to be very low ($\sim 0.05 - 0.1$).



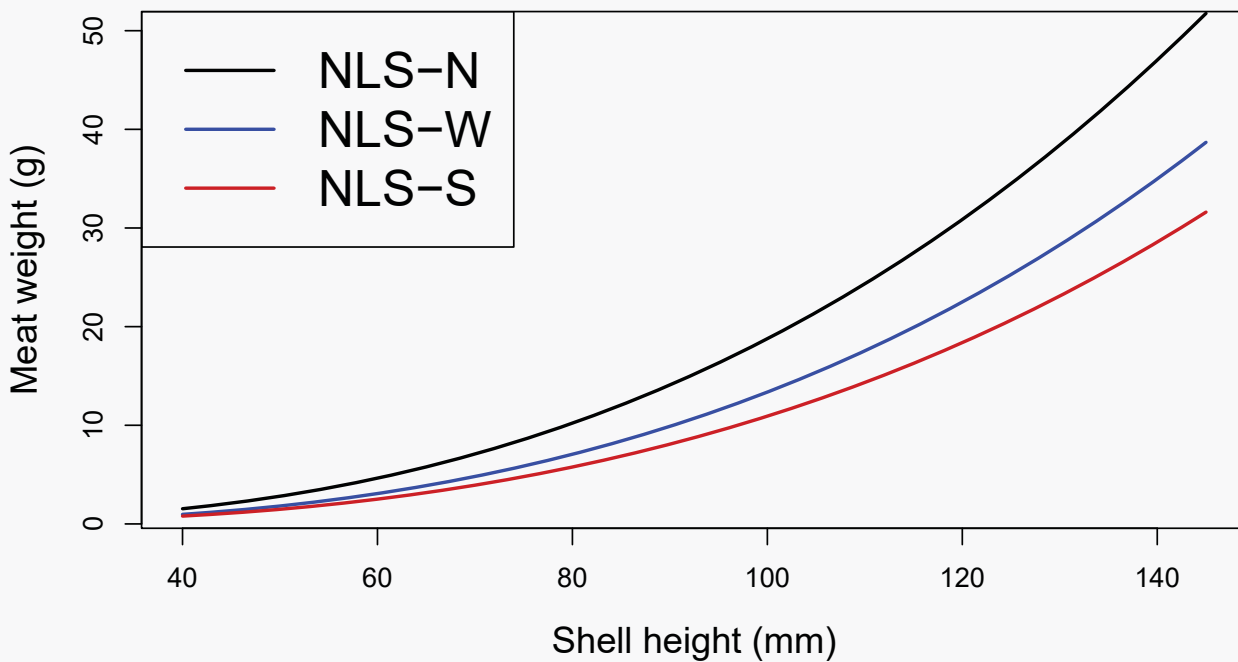
Growth in NLS-South, 2018-2019

Observed growth is in line with projections with assumed growth parameters



Shell height to meat weight relationship in NLS-W/S

Meat weight at shell height in Nantucket Lightship West and South are less than what would be expected in other areas, based on yearclass and area specific data.



PDT Recommendations for Growth and SH/MW in NLS-W/S

Continue to use reduced growth parameters for these two regions as in previous years.

Use special SH/MW relationships based on yearclass and area-specific data from each of these areas.