Table 1: Number of successful random tows in NEFSC clam surveys used for survey trends and efficiency corrected swept area biomass. 'Holes' (unsampled survey strata in some years) were filled by borrowing from adjacent surveys where possible (borrowed totals are negative numbers in gray shaded boxes). Holes that could not be filled are shown by black boxes. Survey strata are grouped by region. Starting in 2012 not all regions were sampled in each survey year. Instead the survey was conducted more often, but over less of the stock area. Areas intentionally not sampled are left blank in those years. For example, 2014 was not intended to be a survey year, but some strata were sampled in order to fill holes left over from 2013. 6Q was surveyed in 2013, but the survey results were borowed to 2012 and not used in 2013. The NEFSC clam survey was restratified in 2018 and strata that were surveyed off cycle (e.g. 7Q in 2014) were surveyed under the previous stratification.

Strata	1982	1983	1984	1986	1989	1992	1994	1997	1999	2002	2005	2008	2011	2012	2013	2014	2015	2016
SVAtoSNE																		
1Q	16	16	5	18	17	18	21	18	19	18	18	4	44	27			23	
2Q	47	50	54	48	52	52	53	65	70	63	53	57	38	24			39	
3Q	24	19	-35	16	20	23	23	23	28	23	24	14	21	18			5	
4Q	24	25	2	24	24	24	28	24	25	24	25	46	25	22			18	
5Q	21	28	23	15	13	17	20	19	16	19	9	18	31	11			19	
6Q	12	14	9	10	12	13	18	14	18	11	17	14	27	-23	23		2	6
GBK																		
7Q	7	-10	3	6	1	8	8	7	2	2	1	4	7		13	5		19
8Q	1	2	-6	4	-8	4	4	4	3	2	-6	4	19		9			14
9Q	1	3	-7	4	5	8	11	8	7	7	-14	7	24		29			25
10Q	2	-2	-2	2	-4	2	4	3	-4	1	-1	-3	3		4			8
11Q	3	-4	1	4	-8	4	4	4	3	4	-7	3	11		4			13
12Q	8	1	-7	6	-13	7	8	8	8	8	-16	8	6		8			20

Table 2: Trends in abundance and biomass for surfclam > 50 mm shell length during 1982-2018 based on NEFSC clam survey data. Survey values are the clams caught in the survey dredge. Stock values are the survey values adjusted to account for the selectivity of the survey dredge. Fishable values are the stock values adjusted to account for the selectivity of a commercial dredge. Figures include original plus borrowed tows. The column "N strata" includes strata sampled by tows borrowed from the previous and subsequent surveys if needed.

	Survey				**Stock**				**Fishable**						
Year	$\frac{N}{m^2}$	CV	$\frac{kg}{m^2}$	CV	$\frac{N}{m^2}$	CV	$\frac{kg}{m^2}$	CV	$\frac{N}{m^2}$	CV	$\frac{kg}{m^2}$	CV	N tows	Pos. tows	N strata
SVAtoSNE															
1982	0.206	0.336	0.019	0.280	0.249	0.342	0.021	0.293	0.206	0.336	0.019	0.280	174	117	6
1983	0.107	0.239	0.012	0.189	0.127	0.219	0.013	0.188	0.107	0.239	0.012	0.189	207	139	6
1984	0.114	0.191	0.012	0.139	0.181	0.252	0.013	0.147	0.114	0.191	0.012	0.139	238	174	6
1986	0.105	0.187	0.012	0.164	0.129	0.179	0.013	0.162	0.105	0.187	0.012	0.164	195	141	6
1989	0.078	0.115	0.010	0.109	0.098	0.123	0.010	0.109	0.078	0.115	0.010	0.109	211	150	6
1992	0.077	0.149	0.009	0.131	0.101	0.137	0.009	0.128	0.077	0.149	0.009	0.131	212	155	6
1994	0.266	0.158	0.026	0.155	0.605	0.349	0.031	0.161	0.266	0.158	0.026	0.155	222	175	6
1997	0.198	0.105	0.024	0.107	0.229	0.100	0.025	0.105	0.198	0.105	0.024	0.107	232	183	6
1999	0.115	0.194	0.015	0.184	0.136	0.176	0.016	0.181	0.115	0.194	0.015	0.184	217	155	6
2002	0.094	0.102	0.012	0.109	0.119	0.104	0.013	0.106	0.094	0.102	0.012	0.109	228	178	6
2005	0.048	0.132	0.006	0.127	0.060	0.127	0.006	0.124	0.048	0.132	0.006	0.127	189	130	6
2008	0.049	0.125	0.005	0.143	0.082	0.115	0.006	0.134	0.049	0.125	0.005	0.143	208	154	6
2011	0.074	0.157	0.007	0.146	0.120	0.153	0.008	0.141	0.074	0.157	0.007	0.146	186	122	6
2012	0.127	0.177	0.015	0.176	0.141	0.173	0.016	0.174	0.127	0.177	0.015	0.176	135	104	6
2013	0.014	0.437	0.003	0.414	0.014	0.437	0.003	0.414	0.014	0.437	0.003	0.414	14	6	1
2015	0.164	0.163	0.014	0.144	0.188	0.161	0.015	0.143	0.164	0.163	0.014	0.144	146	118	6
2016	0.088	0.921	0.014	0.935	0.093	0.919	0.015	0.934	0.088	0.921	0.014	0.935	8	4	1
2018	0.149	0.127	0.013	0.118	0.174	0.125	0.014	0.117	0.149	0.127	0.013	0.118	178	137	6
GBK															
1982	0.022	0.351	0.002	0.325	0.049	0.299	0.002	0.307	0.022	0.351	0.002	0.325	14	11	6
1983	0.018	0.519	0.002	0.562	0.029	0.478	0.002	0.536	0.018	0.519	0.002	0.562	22	13	6
1984	0.068	0.632	0.011	0.812	0.101	0.441	0.012	0.768	0.068	0.632	0.011	0.812	34	18	6
1986	0.103	0.747	0.006	0.569	0.361	0.848	0.011	0.666	0.103	0.747	0.006	0.569	37	17	6
1989	0.073	0.557	0.010	0.585	0.084	0.506	0.010	0.574	0.073	0.557	0.010	0.585	49	24	6
1992	0.123	0.536	0.010	0.471	0.198	0.476	0.012	0.466	0.123	0.536	0.010	0.471	55	39	6

Continued

Table 2: Table 2 Continued

Year	$\frac{N}{m^2}$	CV	$\frac{kg}{m^2}$	CV	$\frac{N}{m^2}$	CV	$\frac{kg}{m^2}$	CV	$\frac{N}{m^2}$	CV	$\frac{kg}{m^2}$	CV	N tows	Pos. tows	N strata
1994	0.241	0.305	0.027	0.343	0.310	0.270	0.029	0.332	0.241	0.305	0.027	0.343	62	45	6
1997	0.246	0.259	0.021	0.259	0.342	0.238	0.024	0.250	0.246	0.259	0.021	0.259	57	42	6
1999	0.173	0.473	0.017	0.459	0.225	0.451	0.019	0.459	0.173	0.473	0.017	0.459	39	26	6
2002	0.067	0.531	0.009	0.640	0.093	0.436	0.010	0.614	0.067	0.531	0.009	0.640	21	12	5
2005	0.097	0.268	0.013	0.285	0.118	0.231	0.013	0.278	0.097	0.268	0.013	0.285	57	37	6
2008	0.108	0.309	0.014	0.326	0.123	0.279	0.015	0.320	0.108	0.309	0.014	0.326	39	28	6
2011	0.118	0.251	0.015	0.272	0.133	0.233	0.016	0.268	0.118	0.251	0.015	0.272	78	47	6
2013	0.060	0.505	0.007	0.487	0.063	0.501	0.007	0.487	0.060	0.505	0.007	0.487	73	26	6
2016	0.062	0.293	0.008	0.292	0.065	0.291	0.009	0.292	0.062	0.293	0.008	0.292	125	78	6

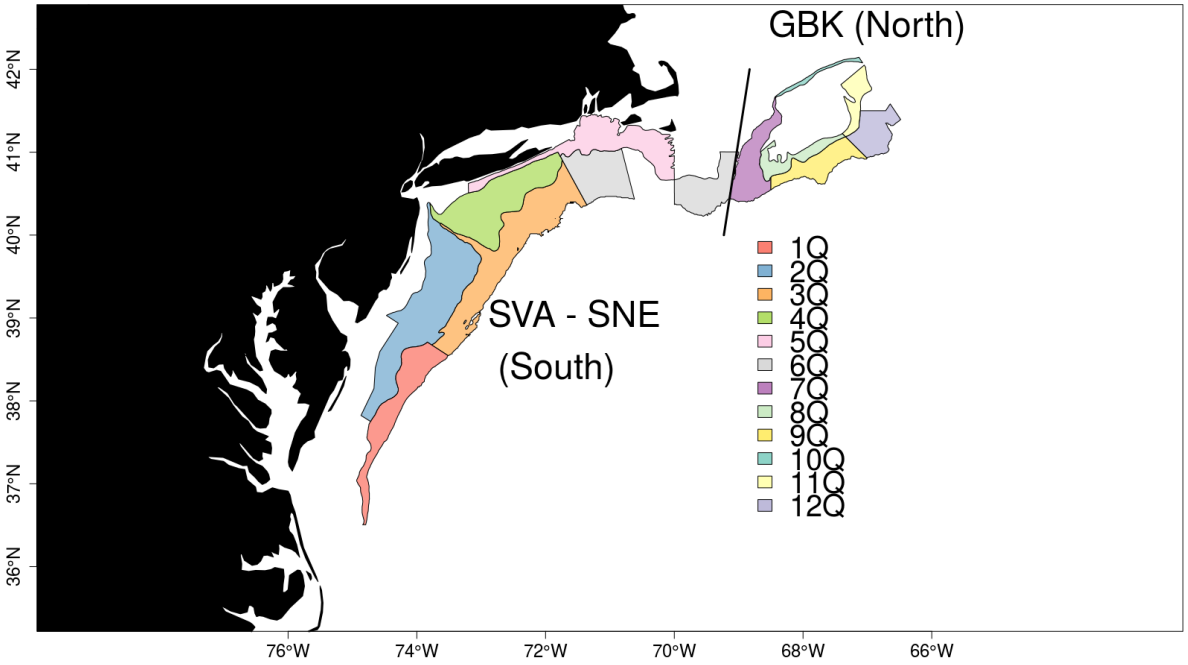


Figure 1: ocean quahog strata developed in 2018.

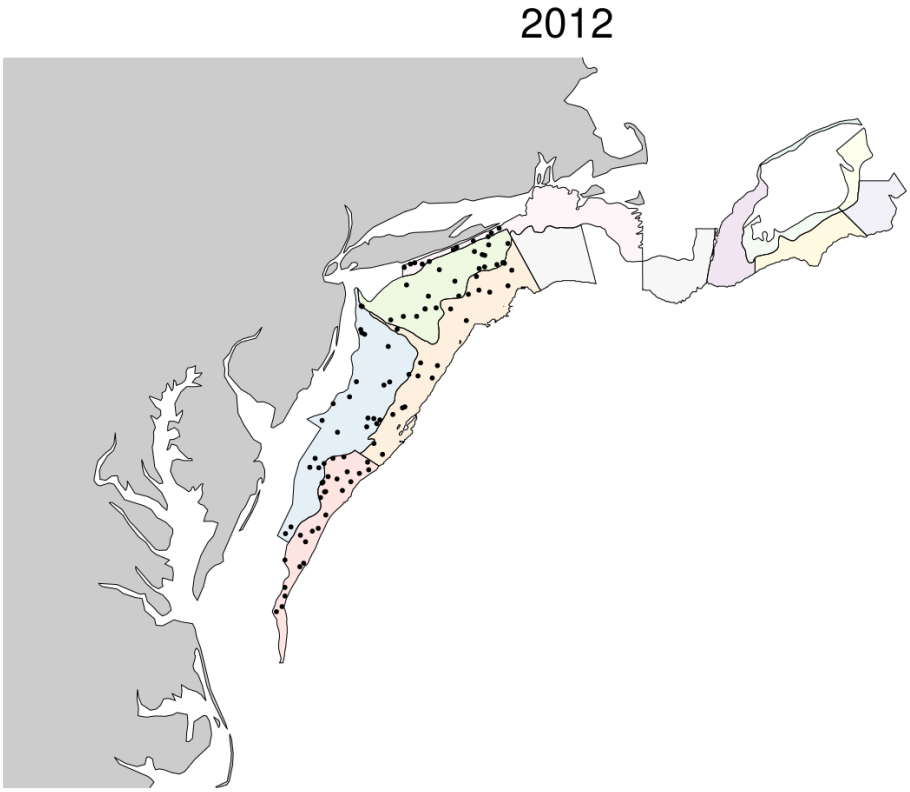


Figure 2: Station locations from the 2012 survey.

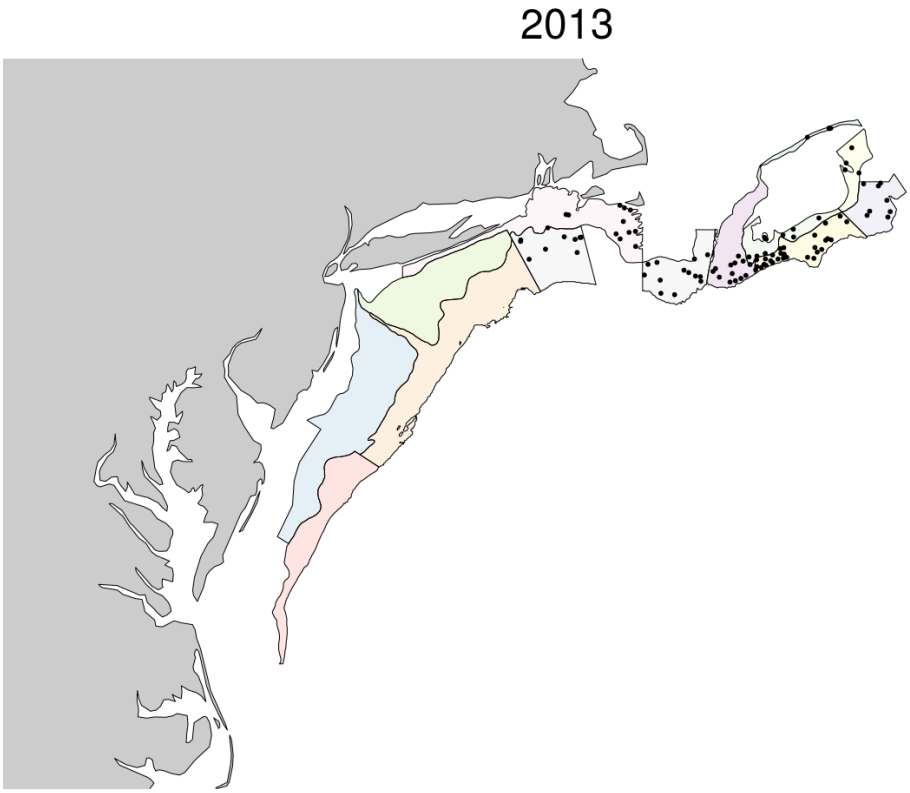


Figure 3: Station locations from the 2013 survey.

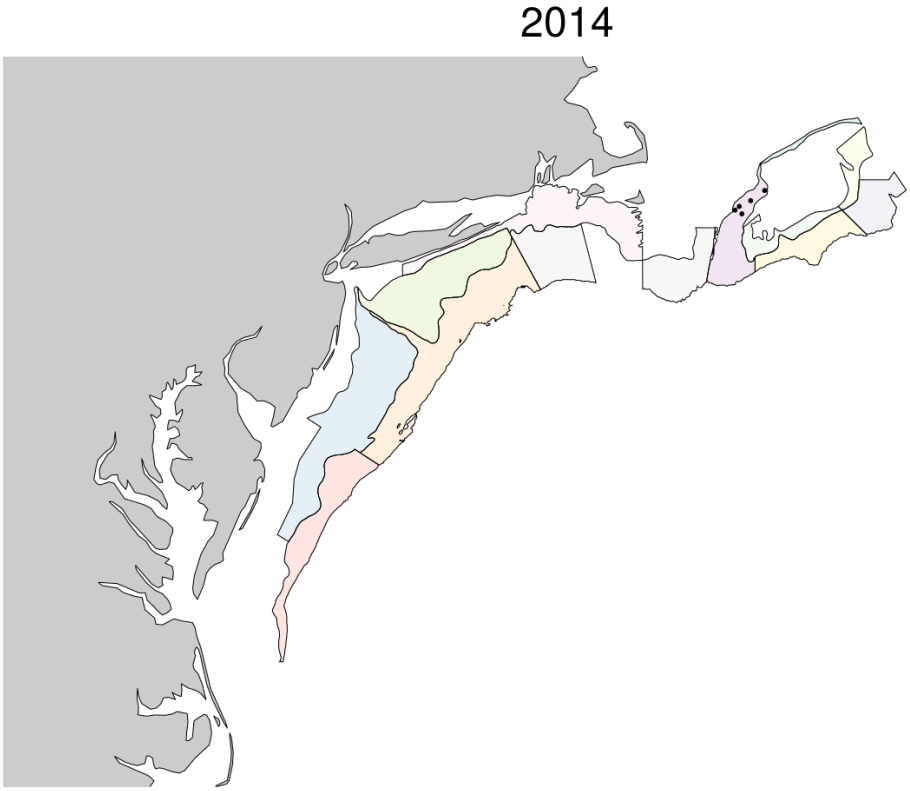


Figure 4: Station locations from the 2014 survey.

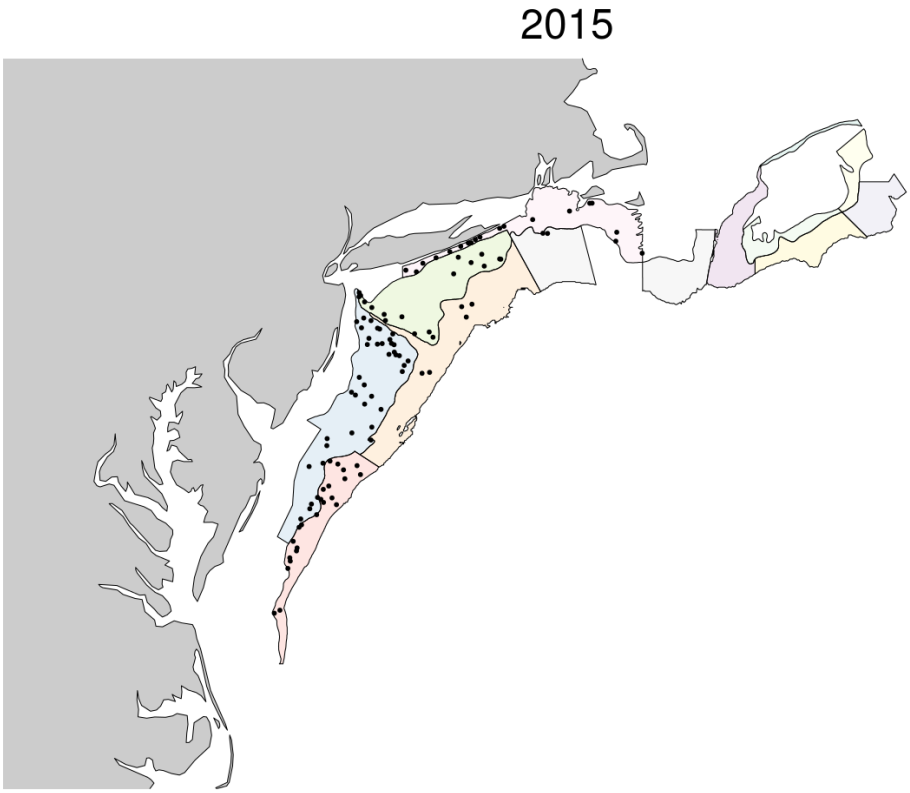


Figure 5: Station locations from the 2015 survey.

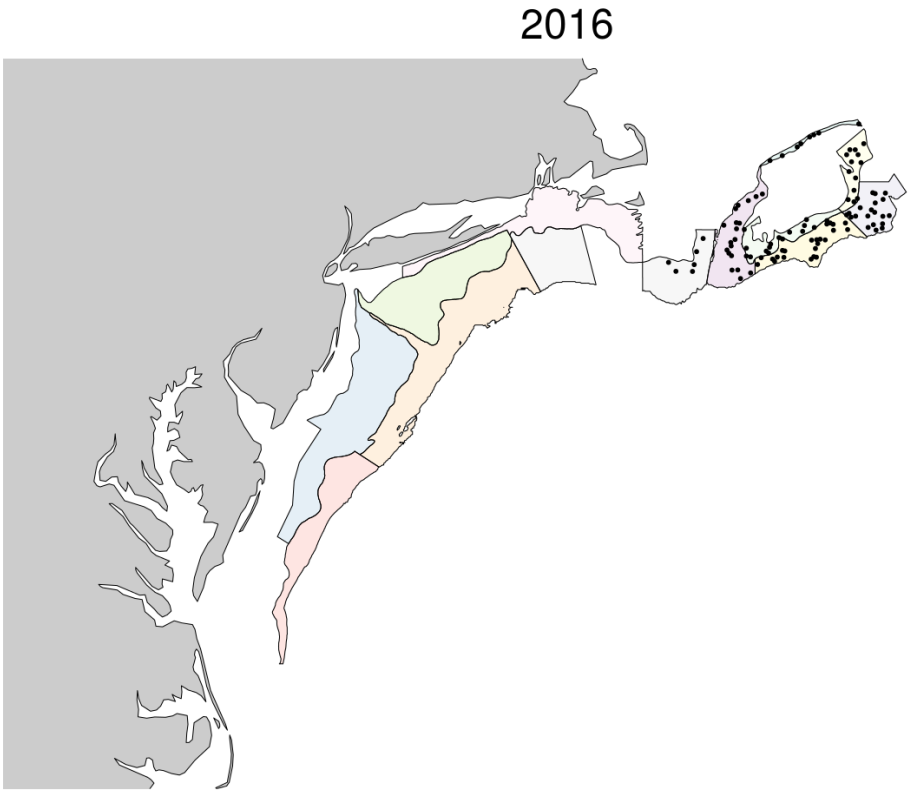


Figure 6: Station locations from the 2016 survey.

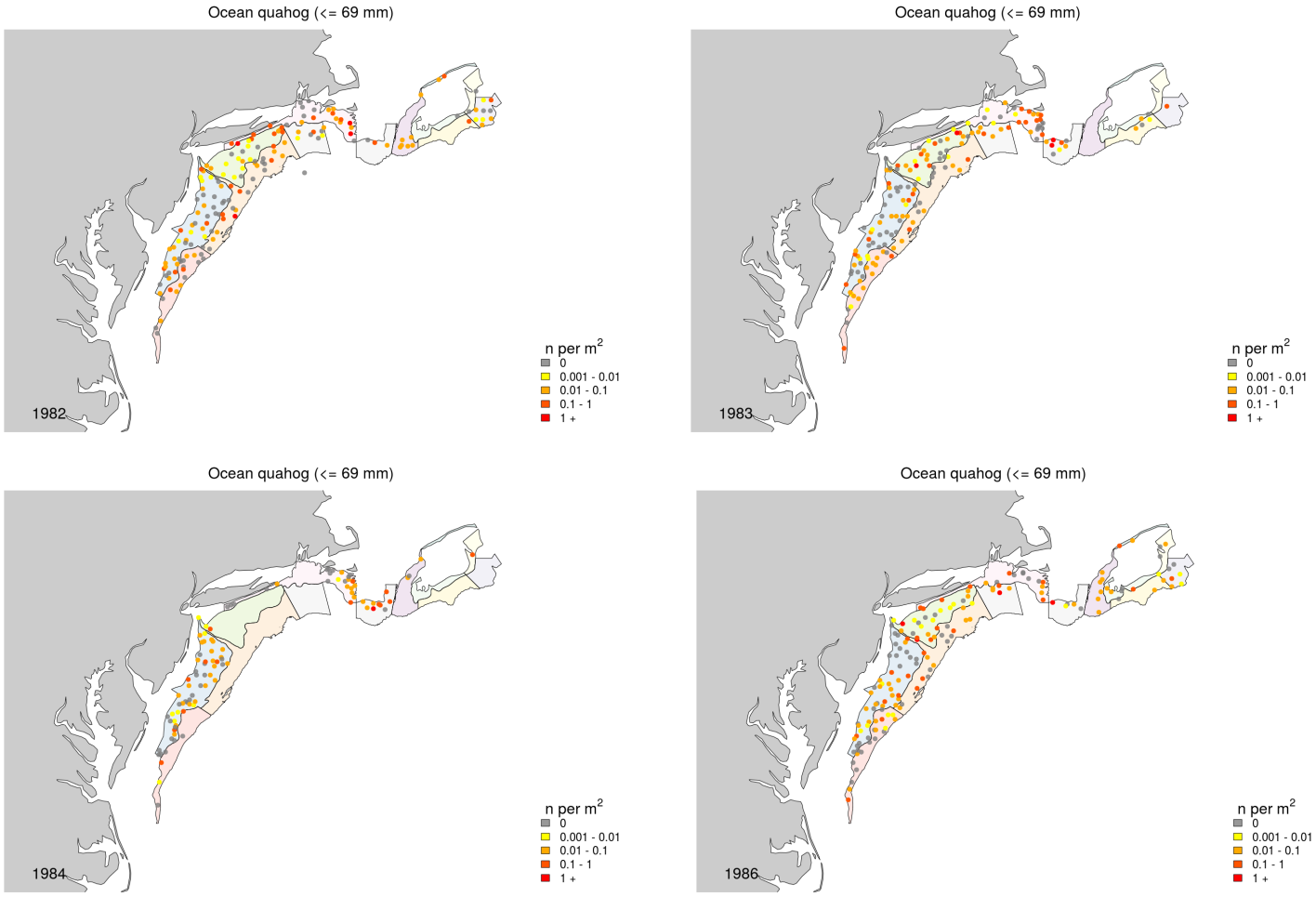


Figure 7: Survey stations where small ($<= 69$ mm) ocean quahog were caught, by year.

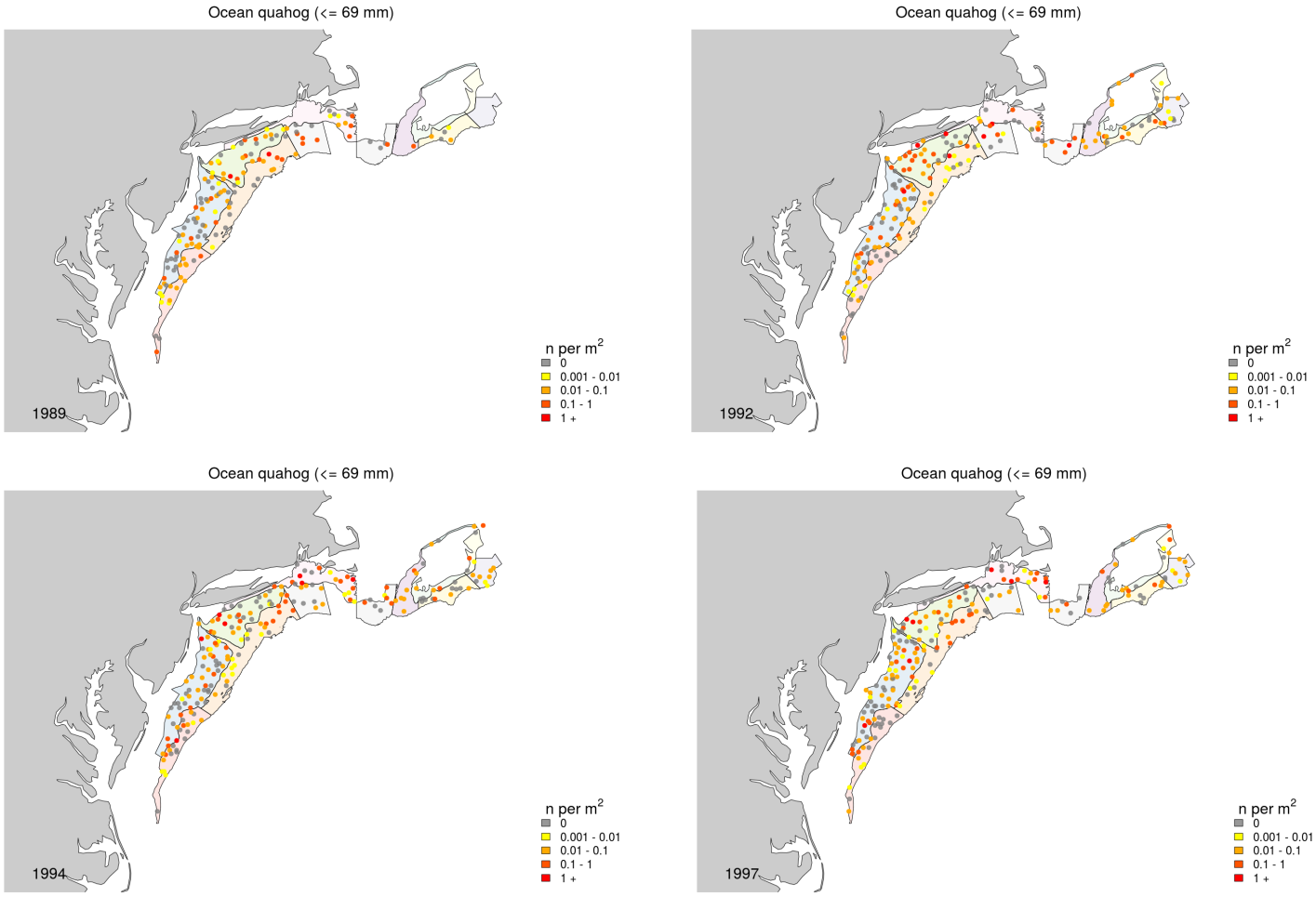


Figure 7 cont.

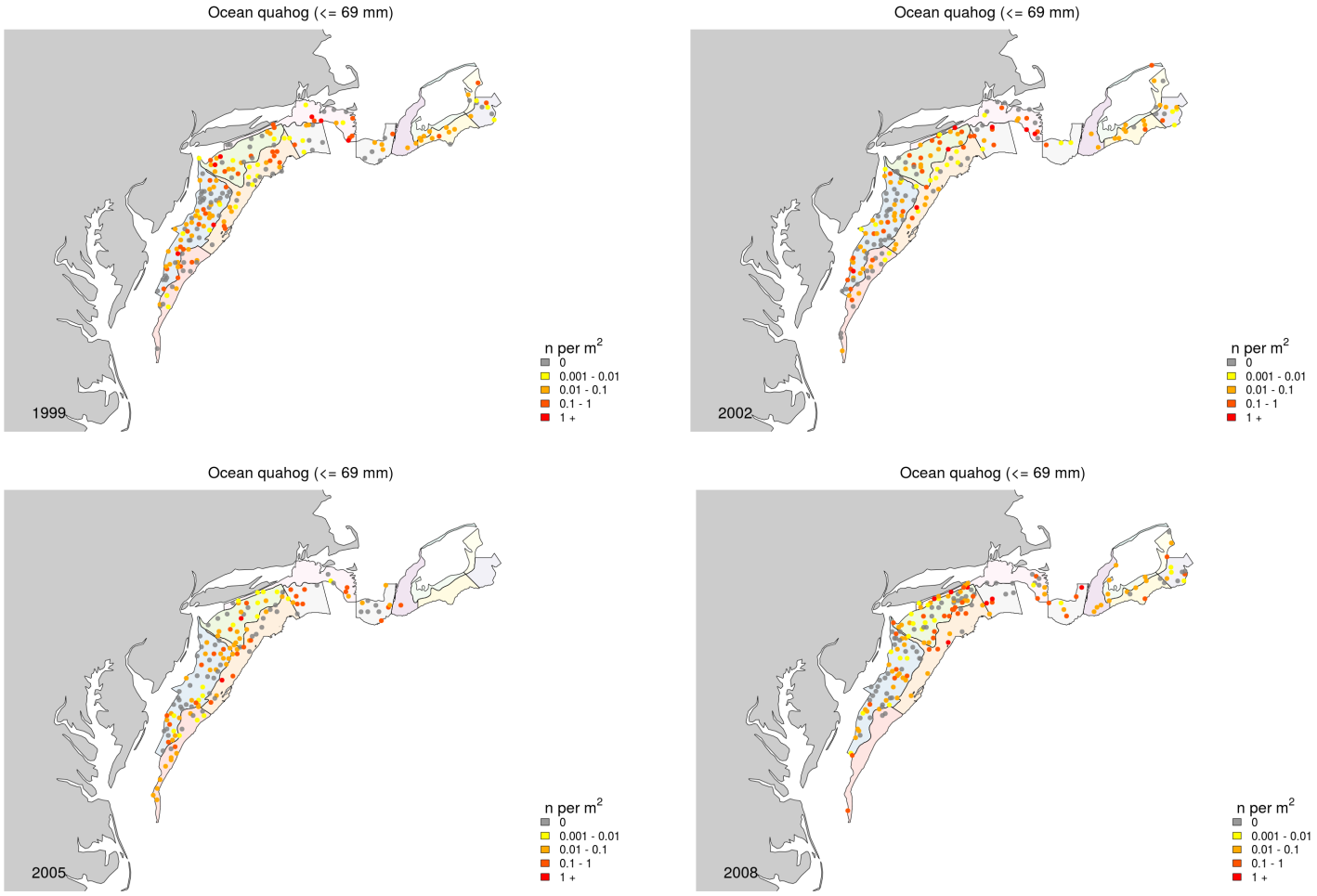
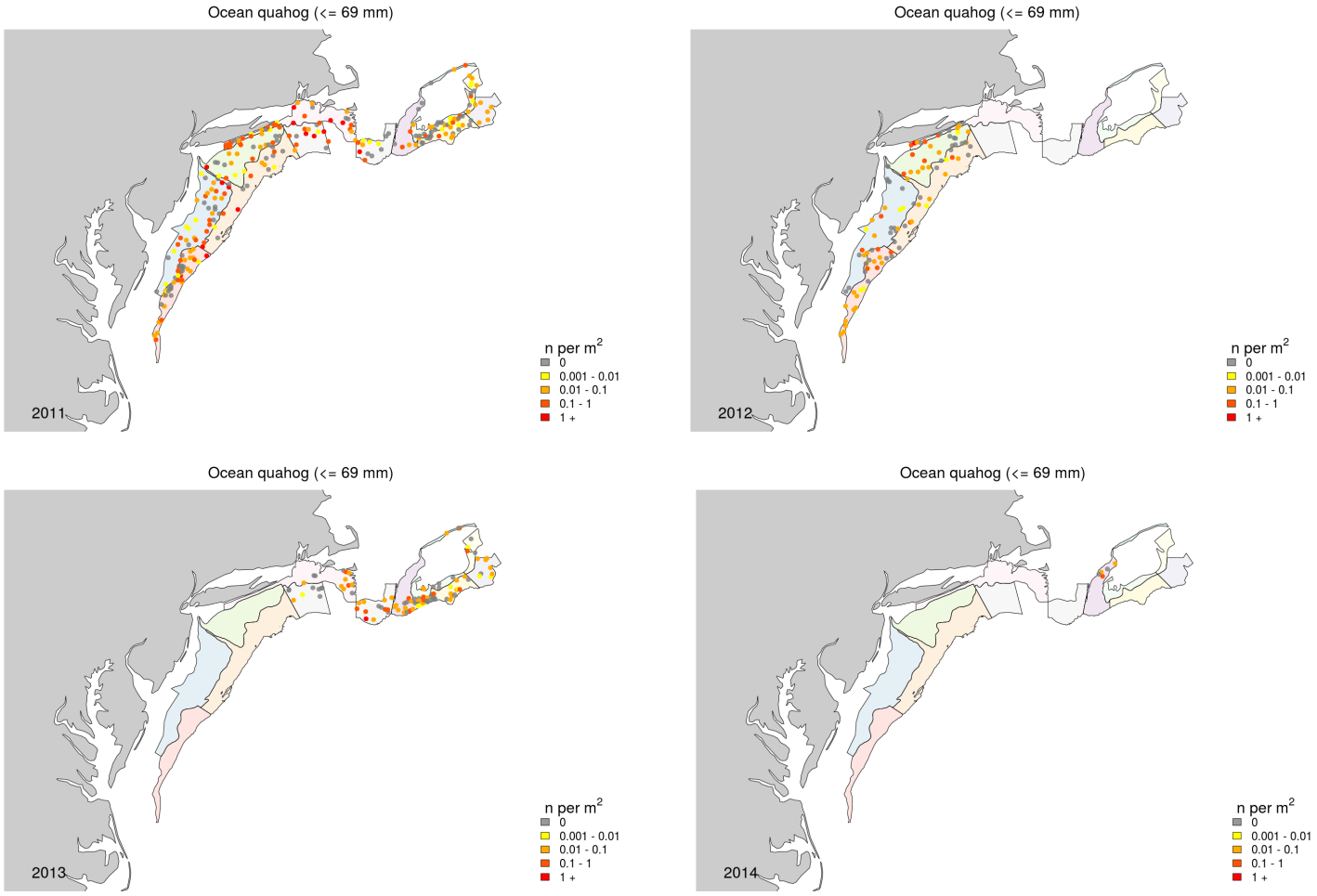


Figure 7 cont.



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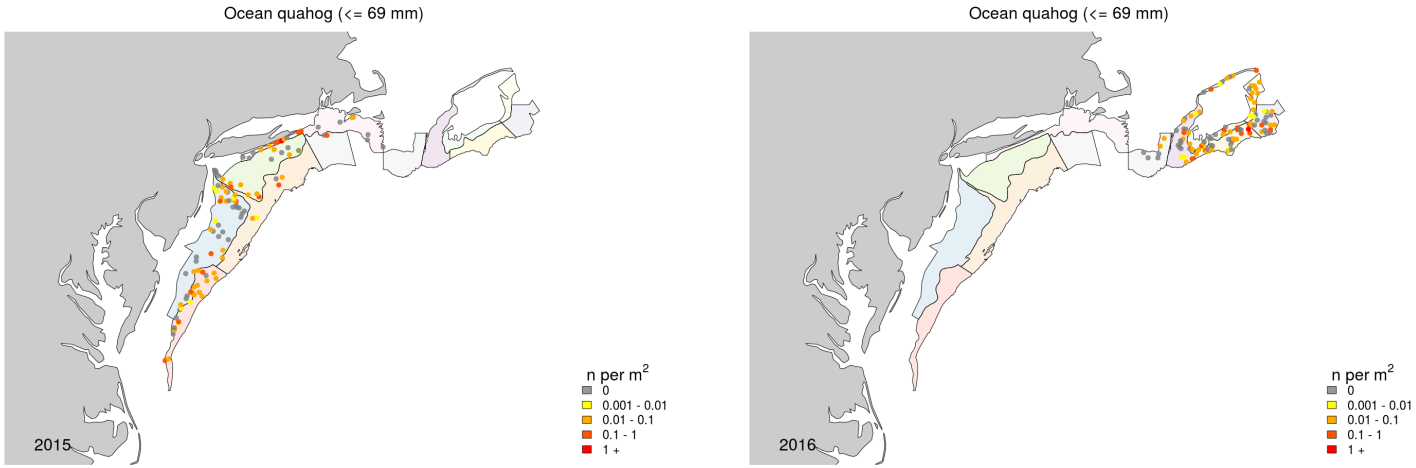


Figure 7 cont.

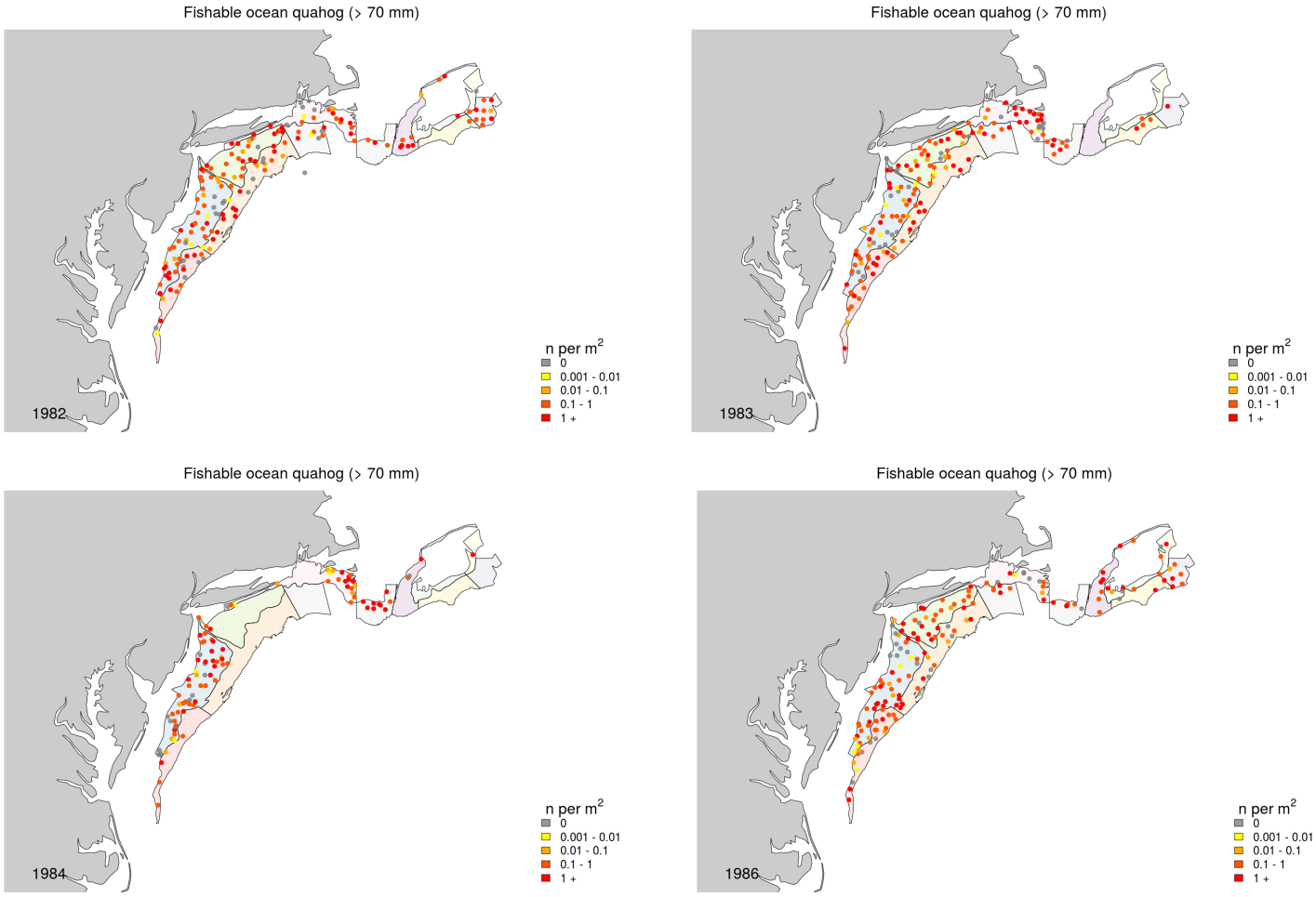
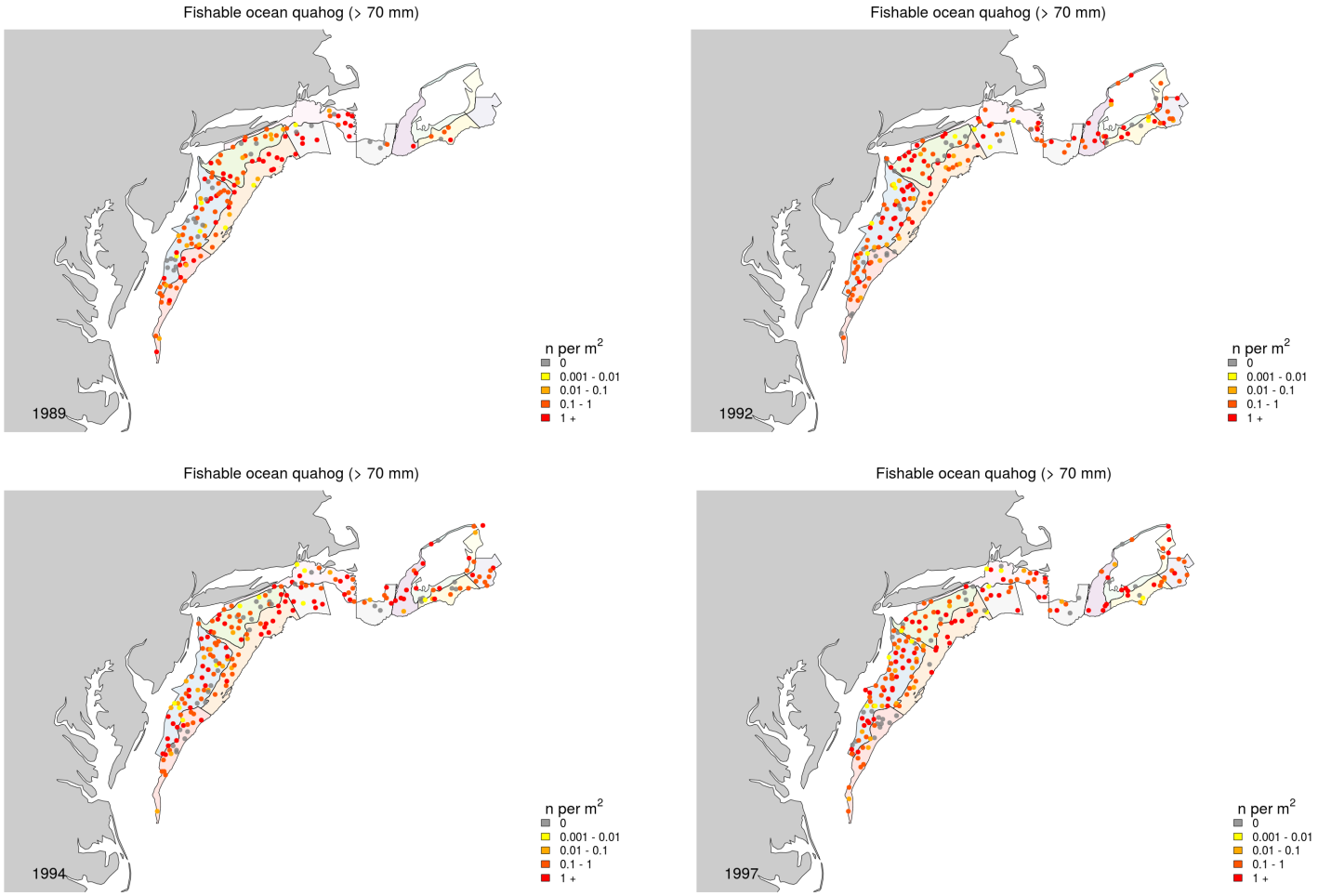


Figure 8: Survey stations where large ($>= 70\ mm$) ocean quahog were caught, by year.



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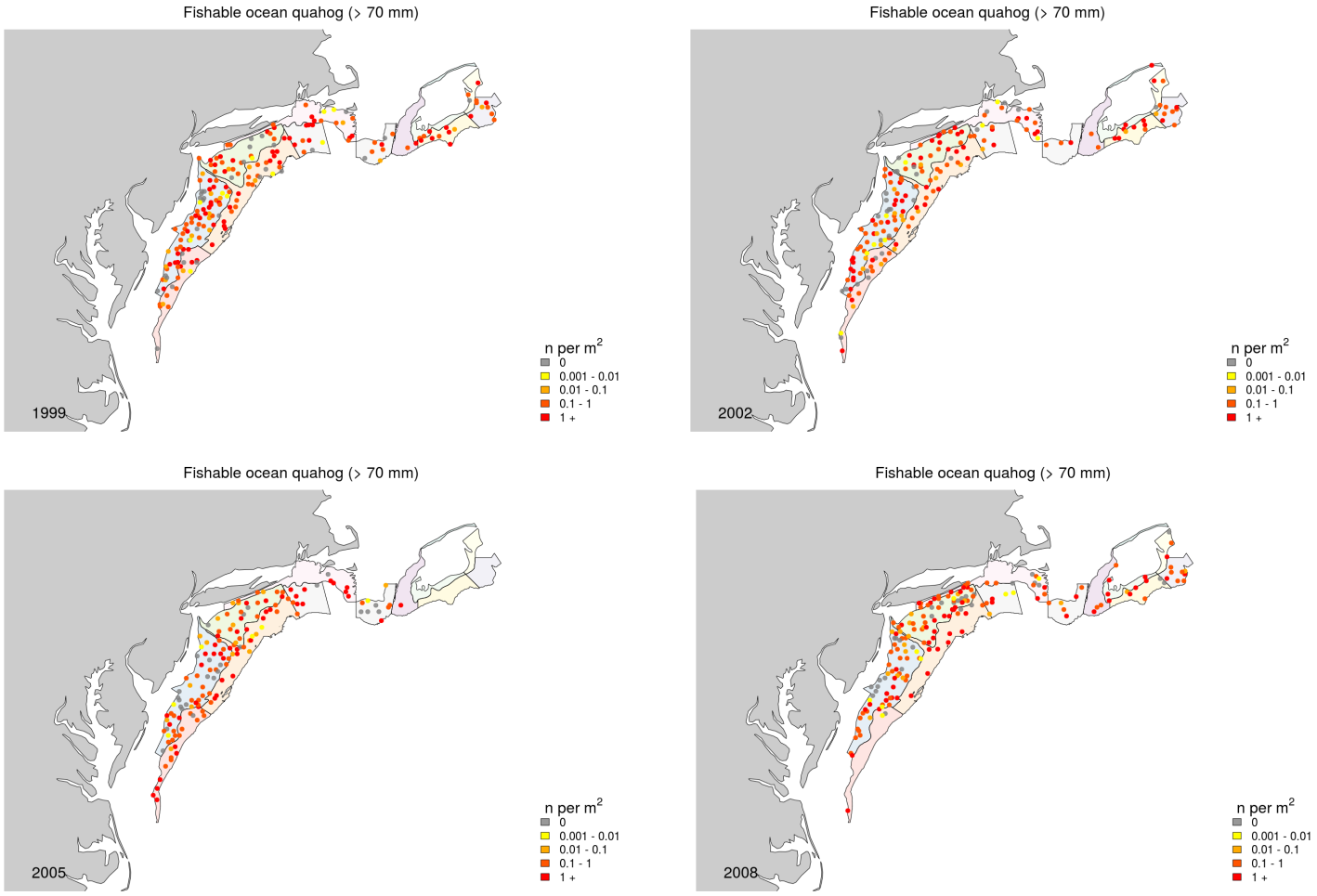
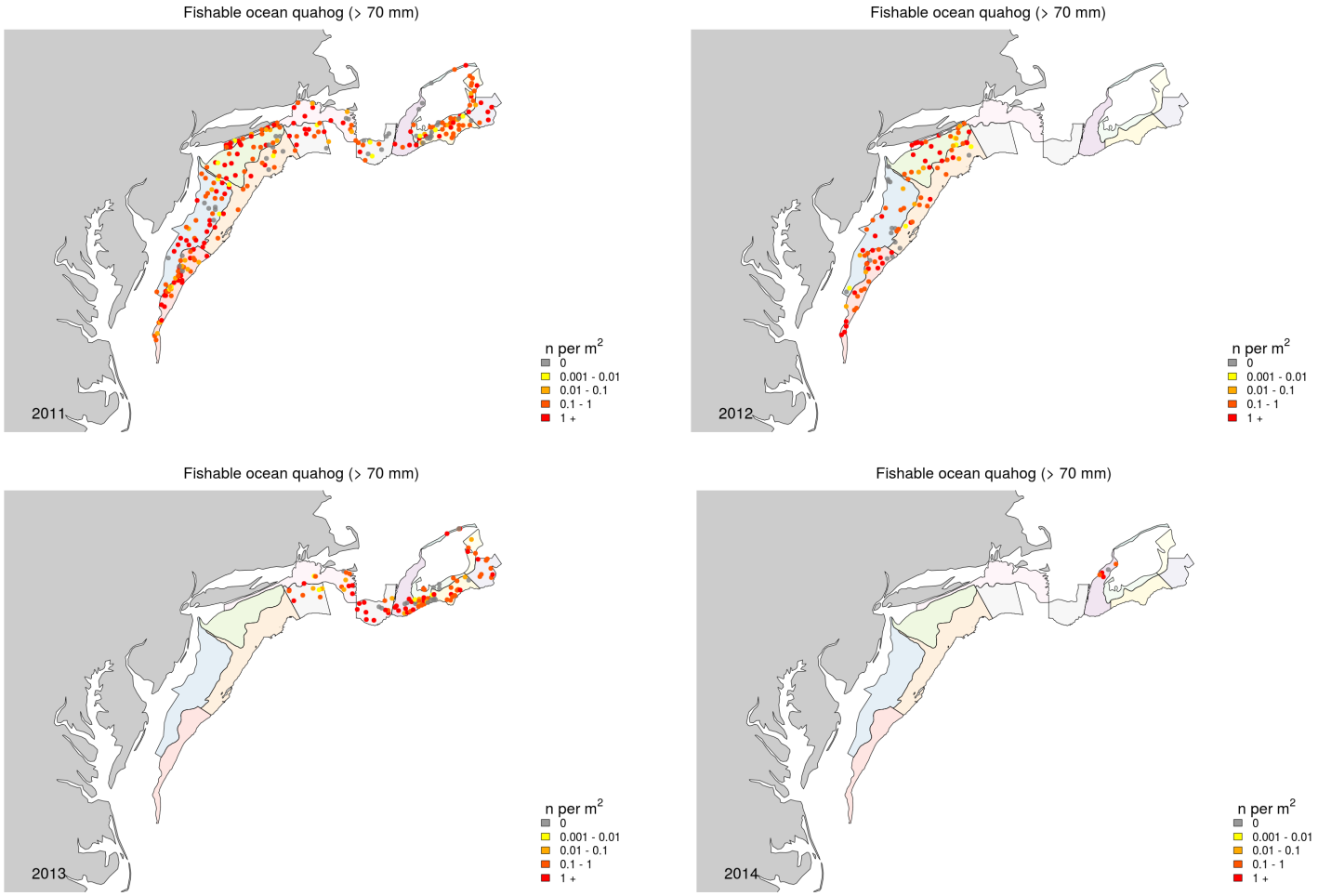


Figure 8 cont.



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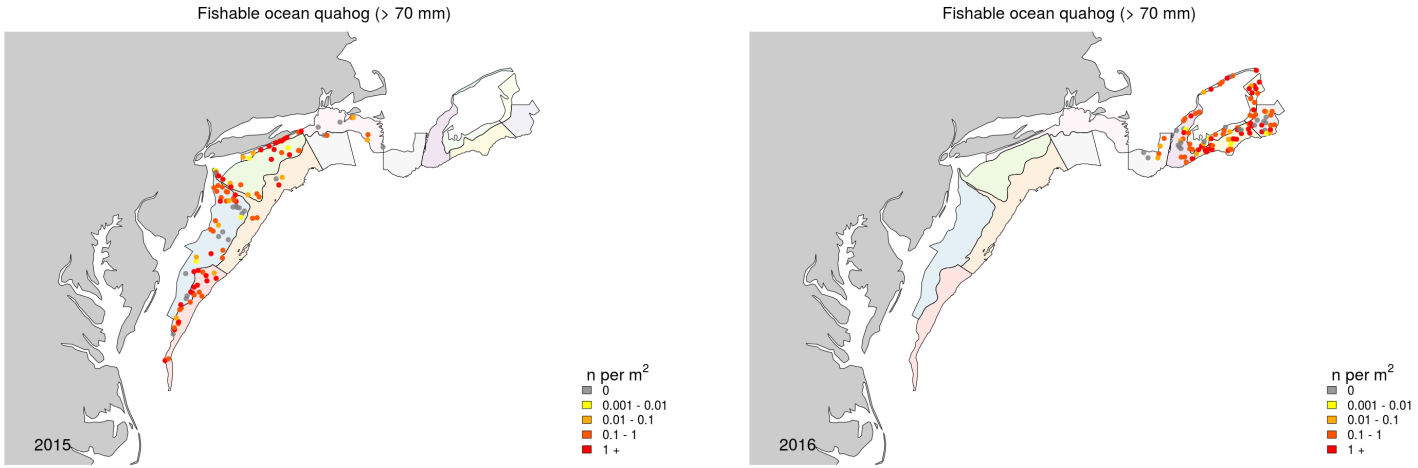

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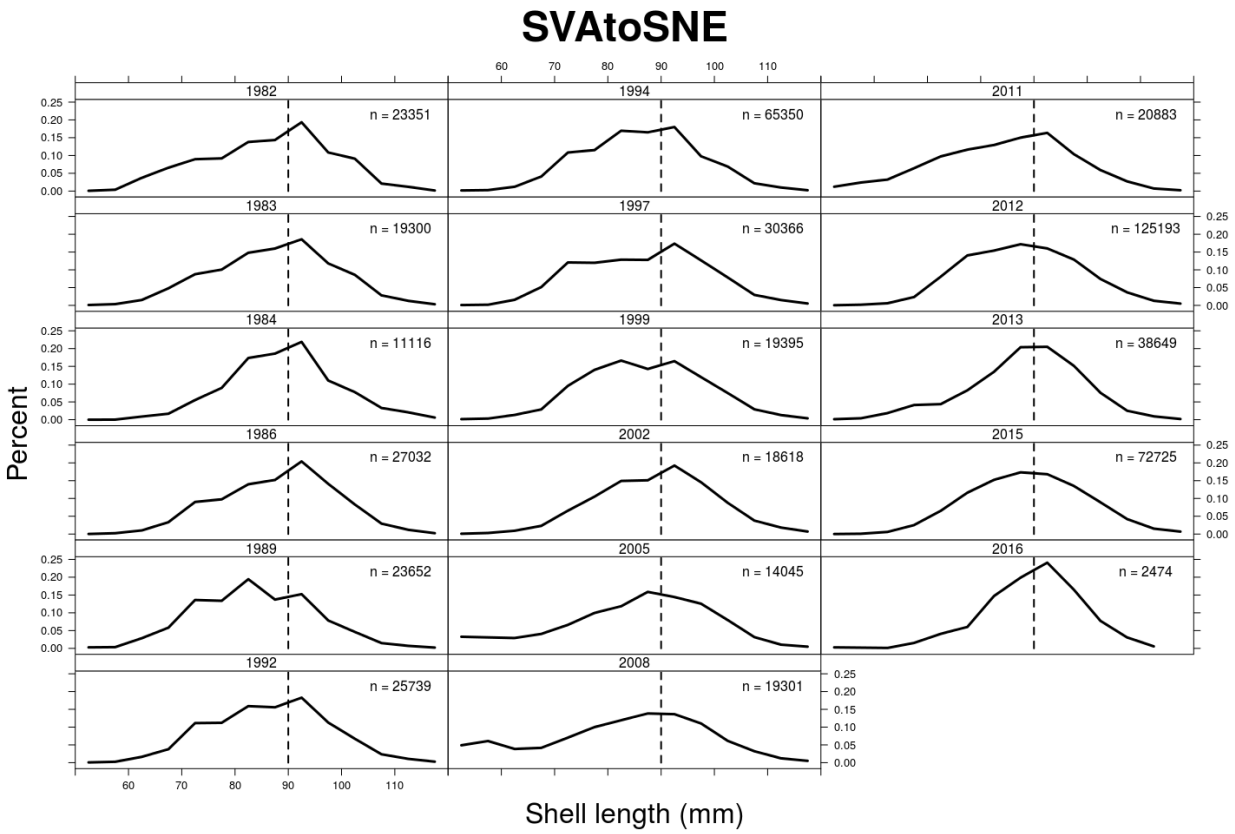

Figure 9: Length composition of NEFSC surveys in SVAtoSNE. The sample sizes shown in each plot are the total number of clams caught in each survey year, not the number actually measured because a subsample of the total catch is taken when the total catch is larger than approximately 400 ocean quahog.

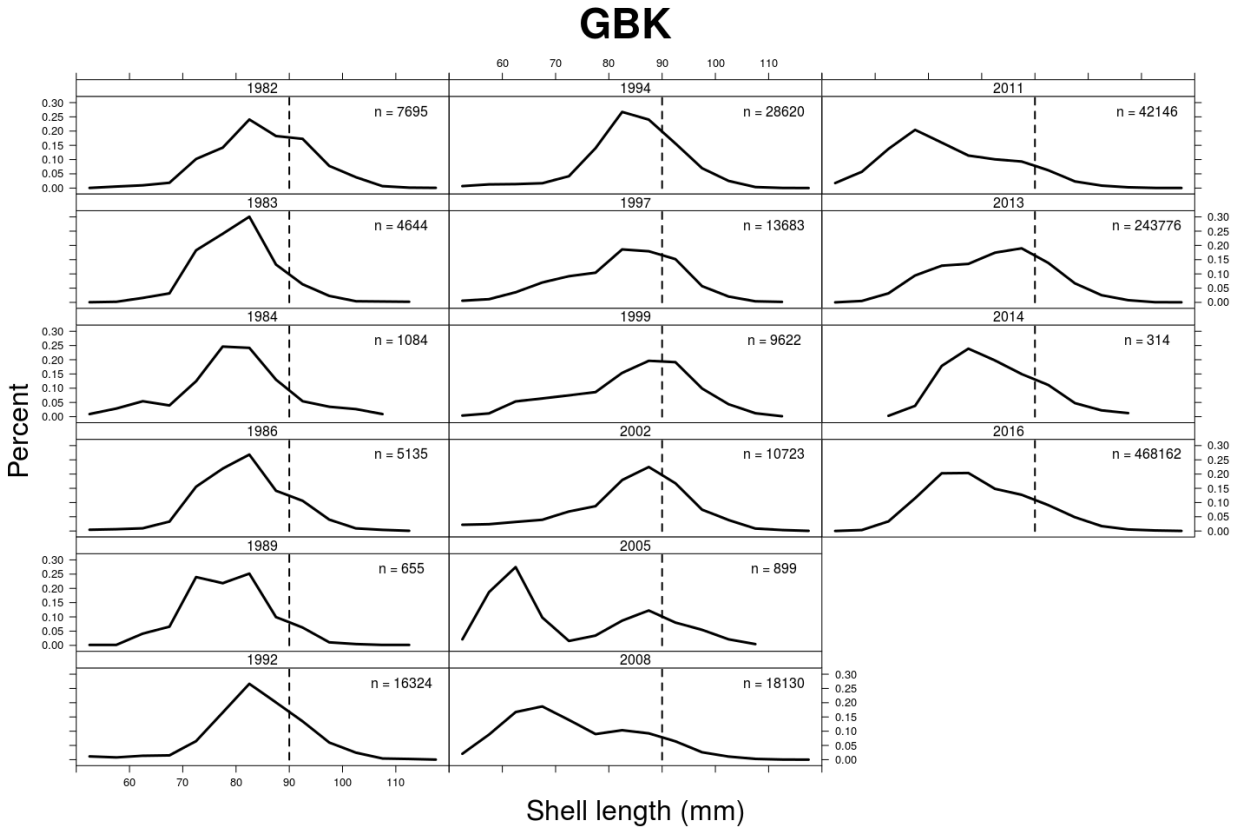

Figure 10: Length composition of NEFSC surveys in GBK. The sample sizes shown in each plot are the total number of clams caught in each survey year, not the number actually measured because a subsample of the total catch is taken when the total catch is larger than approximately 400 ocean quahog.

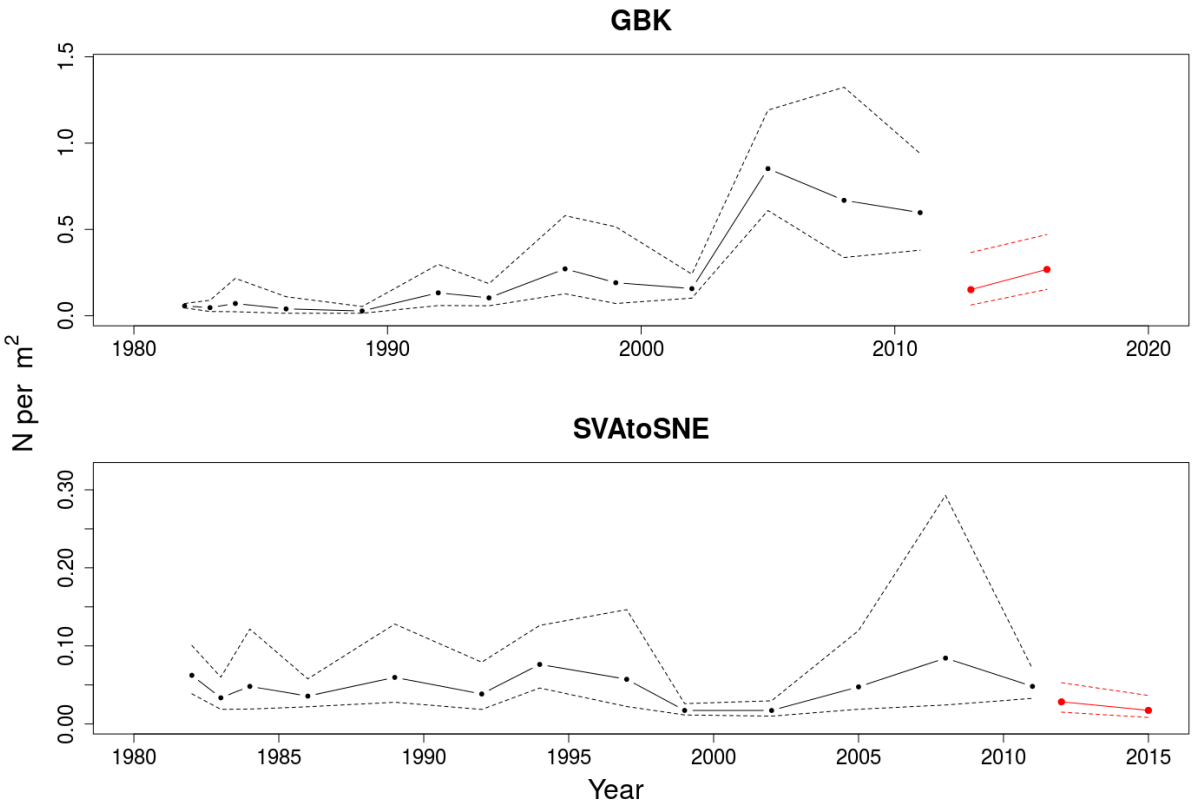

Figure 11: Trends in small ocean quahog abundance < 70 mm SL from NEFSC surveys adjusted for selectivity, but not efficiency changes in 2012, with approximate 95% asymmetric confidence intervals. Beginning in 2012, the survey was conducted from a commercial platform using a dredge with higher capture efficiency. Results from the new survey platform are shown as a separate series in red. GBK and SNE were not sampled in 2012 and SVA, DMV, NJ and LI were not sampled in 2013 or 2014.

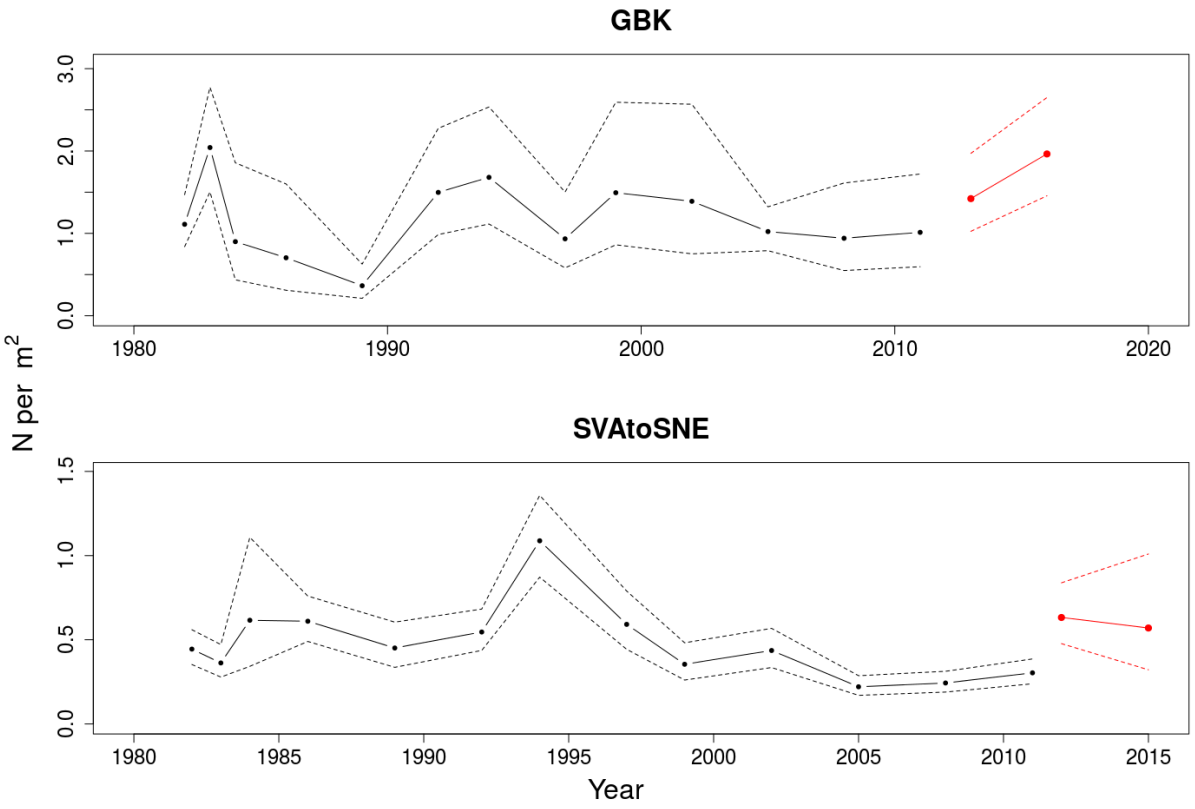

Figure 12: Trends in large Ocean quahog abundance > 69 mm SL from NEFSC surveys adjusted for selectivity, but not efficiency changes in 2012, with approximate 95% asymmetric confidence intervals. Beginning in 2012, the survey was conducted from a commercial platform using a dredge with higher capture efficiency. Results from the new survey platform are shown as a separate series in red. GBK and SNE were not sampled in 2012 and SVA, DMV, NJ and LI were not sampled in 2013 or 2014.

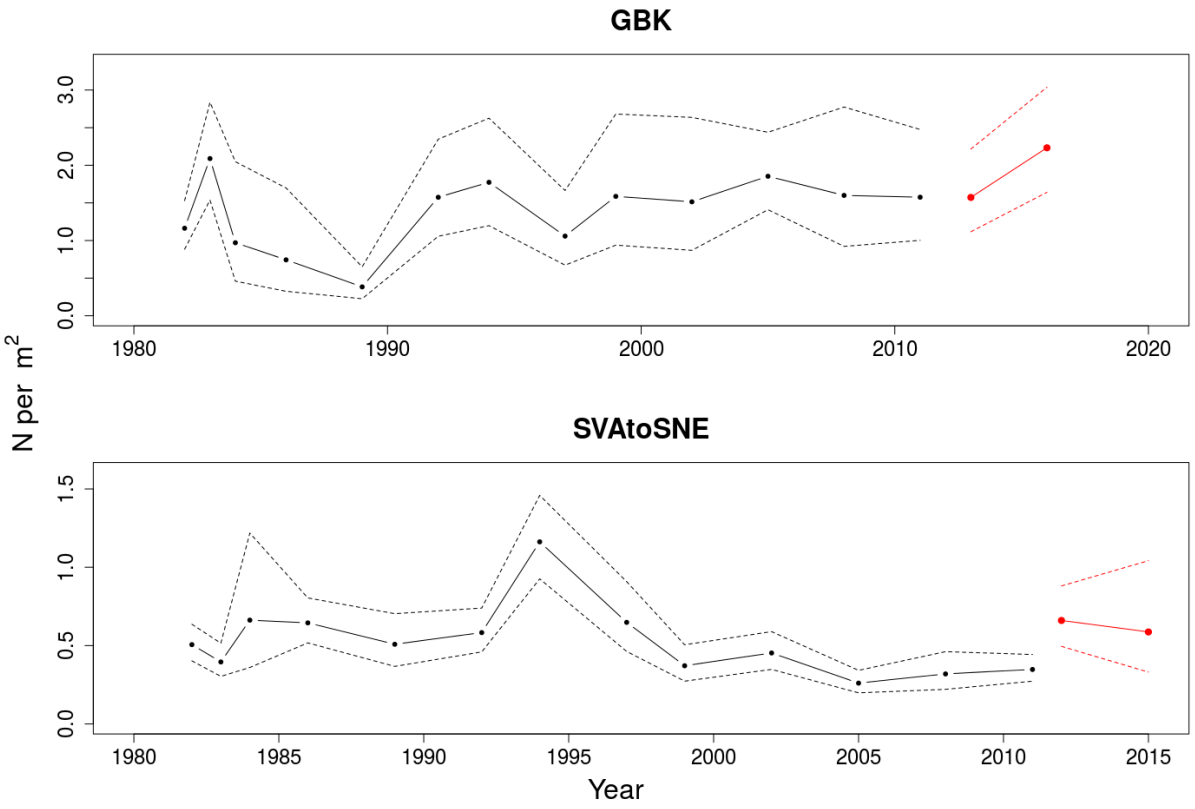

Figure 13: Trends in total Ocean quahog abundance > 50 mm SL from NEFSC surveys adjusted for selectivity, but not efficiency changes in 2012, with approximate 95% asymmetric confidence intervals. Beginning in 2012, the survey was conducted from a commercial platform using a dredge with higher capture efficiency. Results from the new survey platform are shown as a separate series in red. GBK and SNE were not sampled in 2012 and SVA, DMV, NJ and LI were not sampled in 2013 or 2014.

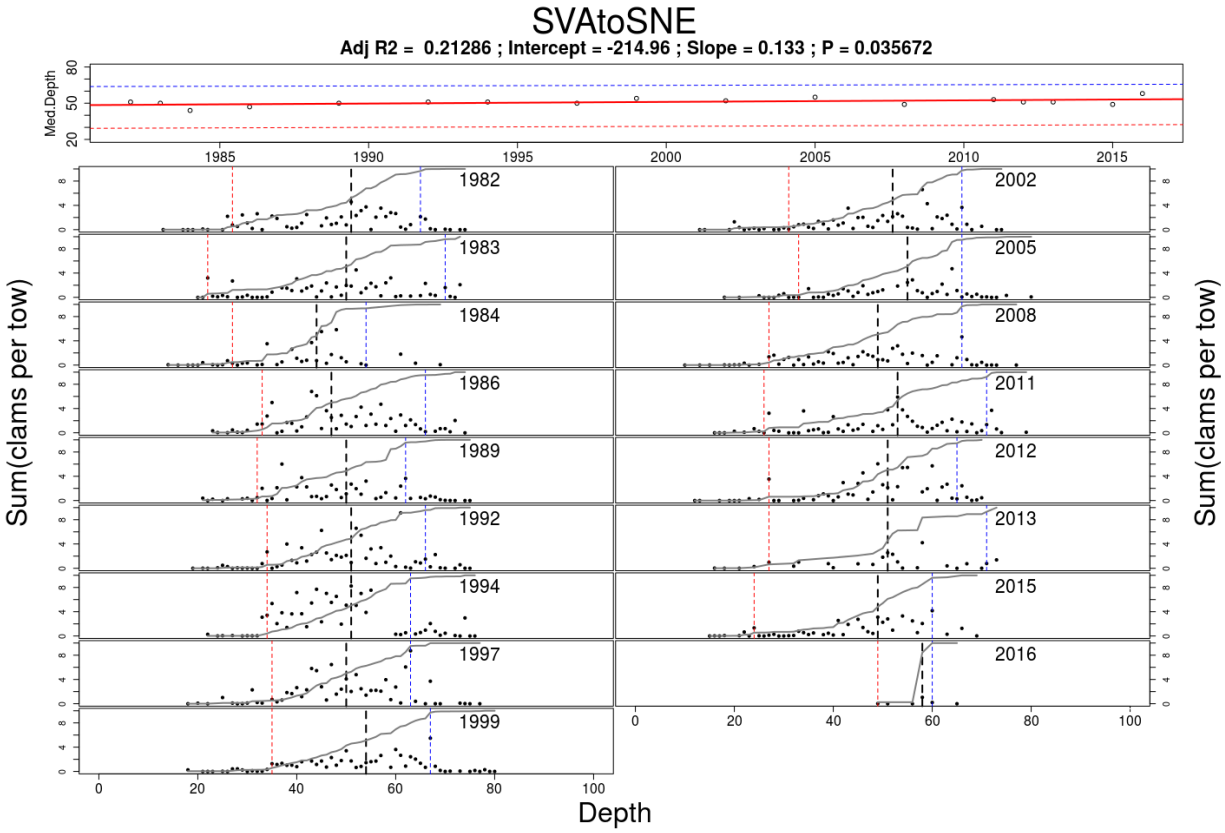

Figure 14: Total ocean quahog caught at depth by year in SVAtoSNE. The points are clams caught aggregated by depth and the gray line is the cummulative sum of clams caught at depth. The dashed vertical line is the depth at which half of the cummulative total clams caught in that survey were taken. If the dashed vertical line is further to the right it indicates that more clams were caught in deeper water in that year. The top panel is a simple linear regression of median depth (the dashed vertical lines in each annual plot) over time. A positive slope indicates that a higher proportion of the total clams in a region were caught in deeper water in recent years.

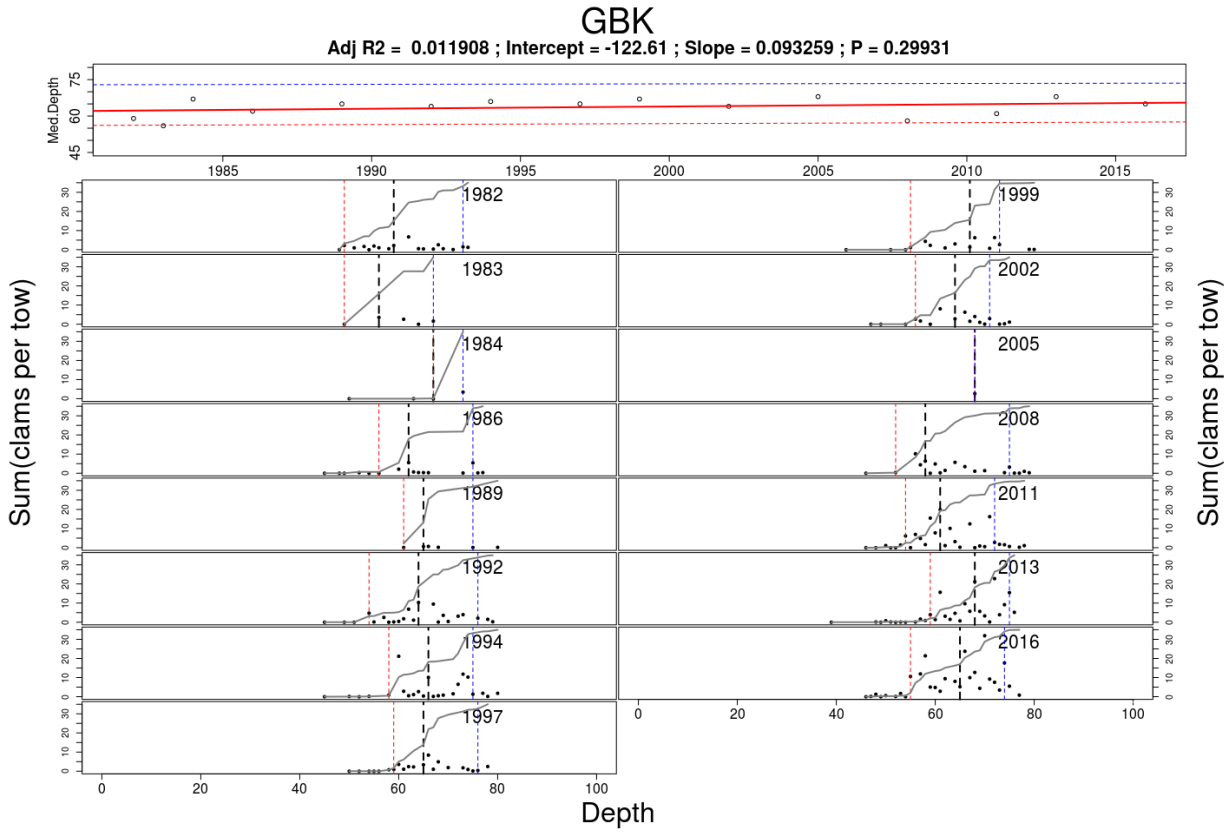

Figure 15: Total ocean quahog caught at depth by year in GBK. The points are clams caught aggregated by depth and the gray line is the cummulative sum of clams caught at depth. The dashed vertical line is the depth at which half of the cummulative total clams caught in that survey were taken. If the dashed vertical line is further to the right it indicates that more clams were caught in deeper water in that year. The top panel is a simple linear regression of median depth (the dashed vertical lines in each annual plot) over time. A positive slope indicates that a higher proportion of the total clams in a region were caught in deeper water in recent years.

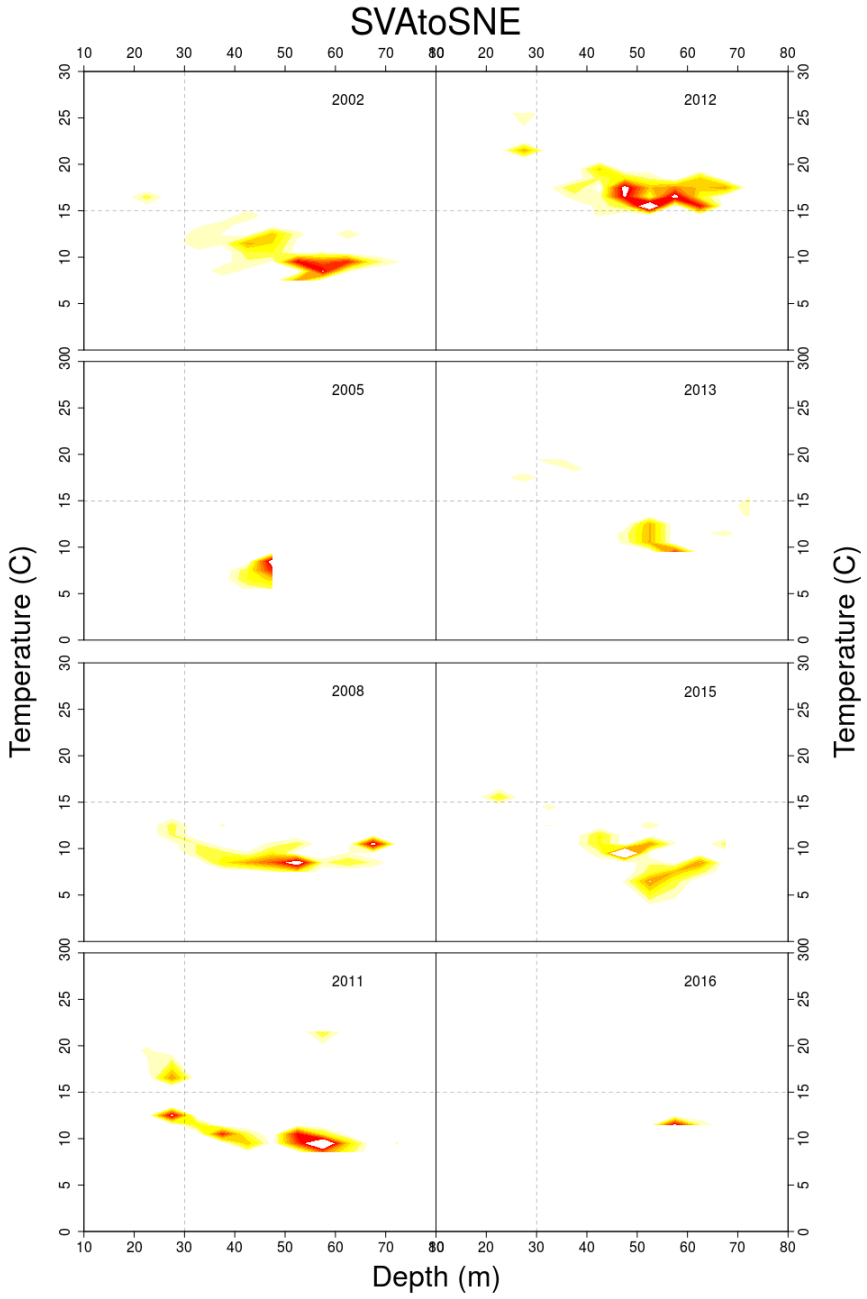

Figure 16: Total ocean quahog caught in the NEFSC clam survey at depth and temperature by year in SVAtoSNE. Warmer colors in the contour represent larger catches. Catches are relative within each year and colors are not compareable across years. The dashed lines are drawn at 15° C and 30 m depth are for reference only.

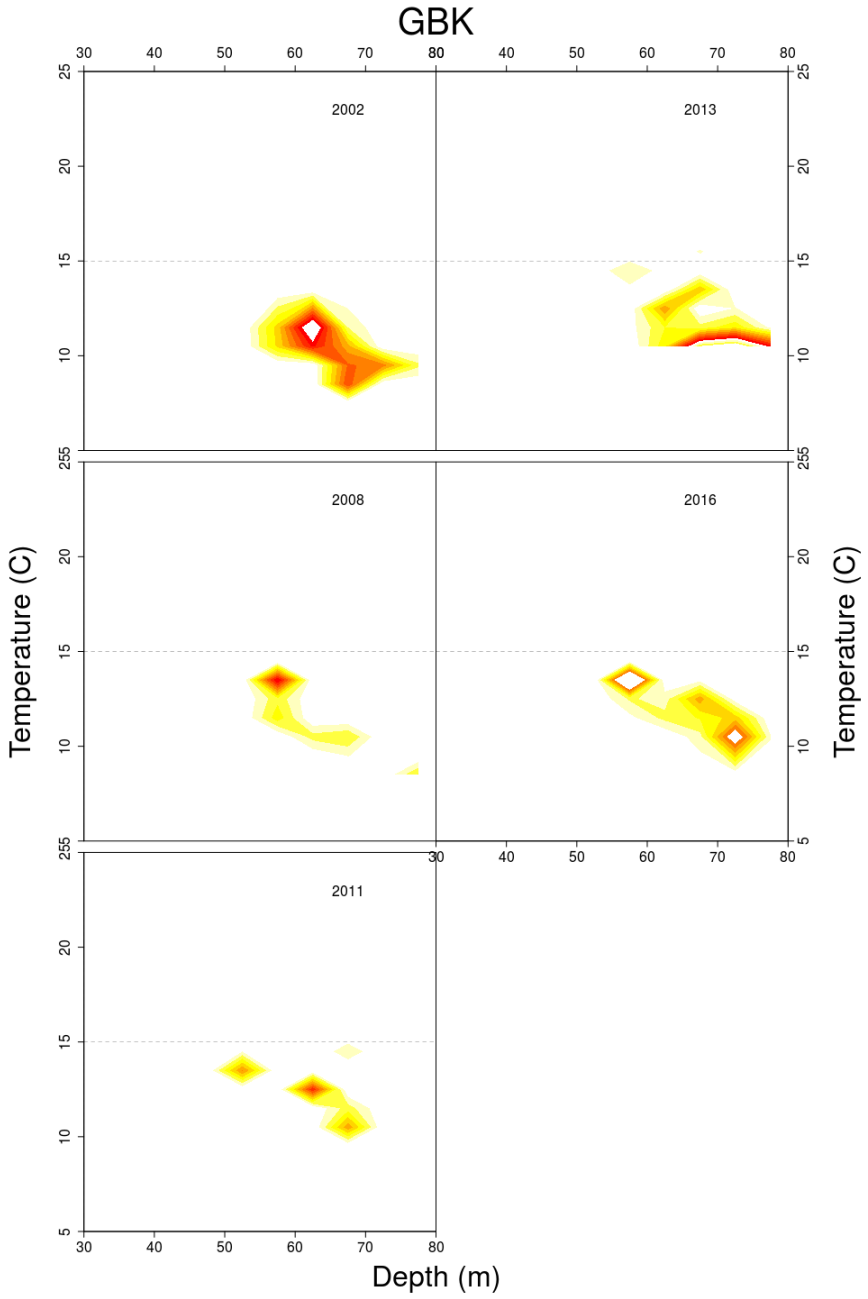

Figure 17: Total ocean quahog caught in the NEFSC clam survey at depth and temperature by year in GBK. Warmer colors in the contour represent larger catches. Catches are relative within each year and colors are not compareable across years. The dashed lines are drawn at 15° C and 30 m depth are for reference only.