

Table 1: Annual ocean quahog landings (excluding Maine) and quotas in metric tons of meats. Total landings are from the NEFSC dealer database CFDEERS. CAMS landings are the CAMS equivalent to CFDEERS LANDLB landings converted to mt. EEZ landings for 1965-1982 are from NEFSC (2003) while later years are from a logbook database (SFOQVR). Landings for state waters are approximated as total landings - EEZ landings and may not accurately reflect state landings. Proportion is the EEZ divided by the quota. All calculations use the CAMS LNDLB values for total landings. Summary statistics ignore years without fishing.

Year	Total	CAMS	EEZ	Quota	Proportion
1982	16478	16478	13205	18140	0.73
1983	16200	16200	14586	18140	0.8
1984	17939	17939	17975	18140	0.99
1985	22035	22035	20726	22230	0.93
1986	20585	20585	18902	27220	0.69
1987	22709	22709	21514	27220	0.79
1988	21007	21007	20273	27220	0.74
1989	23147	23147	22359	23590	0.95
1990	21235	21235	20965	24040	0.87
1991	22119	22119	22064	24040	0.92
1992	22871	22871	22477	24040	0.93
1993	24843	24843	21876	24490	0.89
1994	21159	21159	20985	24490	0.86
1995	23253	23253	21108	22230	0.95
1996	21122	21123	20061	20180	0.99
1997	19930	19929	19628	19580	1
1998	18098	18098	17897	18140	0.99
1999	17557	17557	17381	20410	0.85
2000	14899	14899	14723	20410	0.72
2001	17234	17234	17069	20410	0.84
2002	18144	18144	17947	20410	0.88
2003	18997	18997	18815	20410	0.92
2004	17812	17812	17655	22680	0.78
2005	13793	13793	13635	24190	0.56
2006	14461	14461	14273	24190	0.59
2007	15725	15725	15564	24190	0.64
2008	15831	15846	15727	24190	0.65
2009	15797	15781	15710	24190	0.65
2010	16362	16392	16271	24190	0.67
2011	14437	14478	14332	24190	0.59
2012	15980	15979	15873	24190	0.66
2013	14812	14812	14721	24190	0.61
2014	14576	14576	14498	24190	0.6
2015	13704	13704	13709	24190	0.57

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Table 1: Table 1 Continued

Year	Total	CAMS	EEZ	Quota	Proportion
2016	13944	13944	13965	24190	0.58
2017	14274	14274	14417	24190	0.6
2018	14541	14565	14606	24190	0.6
2019	11199	11176	11178	24190	0.46
2020	8430	11509	9101	24190	0.38
2021	10361	10502	10384	24190	0.43
2022	2	11200	11098	24190	0.46
min	2	10502	9101	18140	0.38
max	24843	24843	22477	27220	1
mean	17015	17368	16811	23007	1

Table 2: Annual ocean quahog landings in metric tons of meats by region. Landings from unknown areas in each year were prorated to known areas based on logbook proportions of landings in known areas. Totals are for the EEZ area and do not include Maine (MNE). Summary statistics ignore years without landings.

Year	SVA	DMV	NJ	LI	SNE	GBK	MNE	Total
1980	0	4284	7844	6	0	0		12134
1981	56	3644	8418	3	0	0		12121
1982	6	4627	8572	0	0	0		13205
1983	0	5506	8417	21	642	0		14586
1984	6	7650	9442	0	877	0		17975
1985	177	7951	11789	44	765	0		20726
1986	0	8529	9381	410	582	0		18902
1987	0	10554	9082	1182	697	0		21514
1988	42	11727	7022	641	842	0		20273
1989	0	6444	14112	606	1197	0		22359
1990	14	3686	15592	739	934	0	3	20965
1991	0	4863	14649	1682	869	0	110	22064
1992	0	2386	6965	11979	1147	0	75	22477
1993	0	1958	10231	8664	1023	0	56	21876
1994	0	996	6967	12064	958	0	65	20985
1995	0	703	5386	9578	5441	0	114	21108
1996	0	742	4905	5993	8421	0	142	20061
1997	0	1084	4276	5199	9069	0	218	19628
1998	0	1385	2723	6955	6834	0	218	17897
1999	0	1109	3093	6442	6736	0	279	17381
2000	0	1083	3430	4905	5254	51	357	14723
2001	0	963	4910	6129	5054	14	326	17069
2002	0	1775	2850	9340	3981	0	387	17947
2003	0	917	3770	11900	2228	0	359	18815
2004	0	635	2810	10879	3331	0	307	17655
2005	0	932	685	9948	2070	0	301	13635
2006	0	507	479	11392	1895	0	365	14273
2007	0	102	1597	11507	2357	0	306	15564
2008	0	267	1738	11437	2284	0	201	15727
2009	0	213	2442	8687	4350	17	167	15710
2010	0	432	2339	9978	3508	13	169	16271
2011	0	294	1894	10380	1764	0	196	14332
2012	0	167	1426	11861	2313	106	210	15873
2013	0	2	378	10018	4157	166	176	14721
2014	0	14	541	10448	2814	681	137	14498
2015	0	0	675	10716	2238	81	125	13709
2016	0	75	1733	9238	2643	276	111	13965
2017	0	1	1835	9628	1973	980	103	14417

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Table 2: Table 2 Continued

Year	SVA	DMV	NJ	LI	SNE	GBK	MNE	Total
2018	0	16	1424	9608	3301	258	89	14606
2019	0	0	1641	6531	2775	231	70	11178
2020	0	0	370	4394	4337	0	50	9101
2021	0	20	920	4575	4841	28	52	10384
2022	0	0	70	3588	5944	1496	37	11098
min	0	0	70	0	0	0	3	9101
max	177	11727	15592	12064	9069	1496	387	22477
mean	7	2236	4771	6404	2802	101	137	16593

Table 3: EEZ fishing effort (hours fished by all vessels) for ocean quahog, by stock assessment area and year based on logbook data. The fraction of logbook effort from unknown areas in each year was prorated to known areas based on effort in known areas. Effort data prior to 1981 are less reliable due to restrictions on hours fished per day. Summary statistics ignore years without effort.

Year	SVA	DMV	NJ	LI	SNE	GBK	MNE	Total
1982	7	7137	14603					21747
1983		7149	13971	50	1538			22708
1984	16	11575	16131		2630			30352
1985	224	11039	19634	95	2267			33260
1986		12701	14877	374	1179			29131
1987		15841	14720	807	1342			32710
1988	64	19137	11620	616	1641			33079
1989		12139	24293	798	2330			39560
1990	25	8166	29327	1282	1838		286	40924
1991		12048	30397	1844	1433		17110	62832
1992		5513	15998	13148	1964		13424	50047
1993		4622	25457	12883	1783		5720	50465
1994		2263	20566	19187	2084		5062	49162
1995		1621	13598	16015	8561		5731	45526
1996		1523	9352	10252	11881		8415	41424
1997		2742	9382	8295	13515		11734	45668
1998		3231	6996	10528	10659		11652	43066
1999		2601	7639	9151	12284		10844	42519
2000		2555	8087	7178	10702	64	12400	40986
2001		2240	11192	8063	11770	23	13533	46820
2002		4298	6695	11626	7811		16809	47239
2003		2622	10772	16147	4611		17869	52021
2004		2495	7905	14608	6642		19000	50650
2005		3448	1974	12533	4048		16920	38923
2006		1811	1386	14507	3314		14641	35659
2007		346	3719	15607	4286		13821	37779
2008		934	4710	15232	4167		10749	35792
2009		790	5335	10858	7043	30	9634	33691
2010		1709	6416	12799	5123	20	9426	35493
2011		970	4776	14143	3712		9058	32659
2012		581	3480	16637	4653	154	7543	33049
2013		38	845	16133	7643	190	6306	31155
2014		85	1424	17447	5372	511	5032	29871
2015			2009	17356	4612	92	5706	29775
2016		276	3205	16683	5656	145	4699	30664
2017		16	3740	18759	4701	594	3987	31796
2018		24	3524	18342	7033	241	3736	32900

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Table 3: Table 3 Continued

Year	SVA	DMV	NJ	LI	SNE	GBK	MNE	Total
2019			3537	10028	4718	191	3030	21505
2020			920	7497	4936		2494	15847
2021		50	1848	6685	6635	26	1617	16861
2022			225	6595	6379	1204	833	15236
min	7	16	225	50	1179	20	286	15236
max	224	19137	30397	19187	13515	1204	19000	62832
mean	9	4108	9832	9537	4963	81	6930	36355

Table 4: Nominal landings per unit effort (LPUE, bushels h^{-1}) for ocean quahog fishing (all vessels) in the US EEZ from logbooks. LPUE is total landings in bushels divided by total hours fished. Landings and fishing effort from unknown areas were prorated to area before LPUE was calculated. Summary statistics ignore years without fishing.

Year	SVA	DMV	NJ	LI	SNE	GBK	MNE	Total
1982	85.7	64.8	58.7					60.7
1983		77	60.2	42	41.7			64.2
1984	37.5	66.1	58.5		33.3			59.2
1985	79	72	60	46.3	33.7			62.3
1986		67.2	63.1	109.6	49.4			64.9
1987		66.6	61.7	146.5	51.9			65.8
1988	65.6	61.3	60.4	104.1	51.3			61.3
1989		53.1	58.1	75.9	51.4			56.5
1990	56	45.1	53.2	57.6	50.8		1	51.2
1991		40.4	48.2	91.2	60.6		0.6	35.1
1992		43.3	43.5	91.1	58.4		0.6	44.9
1993		42.4	40.2	67.3	57.4		1	43.3
1994		44	33.9	62.9	46		1.3	42.7
1995		43.4	39.6	59.8	63.6		2	46.4
1996		48.7	52.4	58.5	70.9		1.7	48.4
1997		39.5	45.6	62.7	67.1		1.9	43
1998		42.9	38.9	66.1	64.1		1.9	41.6
1999		42.6	40.5	70.4	54.8		2.6	40.9
2000		42.4	42.4	68.3	49.1	79.7	2.9	35.9
2001		43	43.9	76	42.9	60.9	2.4	36.5
2002		41.3	42.6	80.3	51		2.3	38
2003		35	35	73.7	48.3		2	36.2
2004		25.5	35.5	74.5	50.2		1.6	34.9
2005		27	34.7	79.4	51.1		1.8	35
2006		28	34.6	78.5	57.2		2.5	40
2007		29.5	42.9	73.7	55		2.2	41.2
2008		28.6	36.9	75.1	54.8		1.9	43.9
2009		27	45.8	80	61.8	56.7	1.7	46.6
2010		25.3	36.5	78	68.5	65	1.8	45.8
2011		30.3	39.7	73.4	47.5		2.2	43.9
2012		28.7	41	71.3	49.7	68.8	2.8	48
2013		5.3	44.7	62.1	54.4	87.4	2.8	47.3
2014		16.5	38	59.9	52.4	133.3	2.7	48.5
2015			33.6	61.7	48.5	88	2.2	46
2016		27.2	54.1	55.4	46.7	190.3	2.4	45.5
2017		6.2	49.1	51.3	42	165	2.6	45.3
2018		66.7	40.4	52.4	46.9	107.1	2.4	44.4
2019			46.4	65.1	58.8	120.9	2.3	52

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Table 4: Table 4 Continued

Year	SVA	DMV	NJ	LI	SNE	GBK	MNE	Total
2020			40.2	58.6	87.9		2	57.4
2021		40	49.8	68.4	73	107.7	3.2	61.6
2022			31.1	54.4	93.2	124.3	4.4	72.8
min	37.5	5.3	31.1	42	33.3	56.7	0.6	34.9
max	85.7	77	63.1	146.5	93.2	190.3	4.4	72.8
mean	64.8	41.5	45.3	71.4	54.9	103.9	2.1	48.3

Table 5: Real and nominal exvessel prices and revenues (millions of dollars) for ocean quahog based on dealer data. Average price (dollar per bu) was computed as total revenues divided by total landed meat weight during each year, rather than as annual averages of prices for individual trips, to reduce effects of small deliveries at relatively high prices. The consumer price index (CPI) used to convert nominal dollars to 2009 equivalent dollars is for unprocessed and packaged fish, which includes shellfish and finfish (Eric Thunberg, NEFSC, pers. comm.).

Year	CPI	Nominal_Prices	Real_Prices	Nominal_Revenue	Real_Revenue
1982	0.45	3.06	6.80	11.12	24.72
1983	0.46	3.06	6.58	10.91	23.50
1984	0.48	3.06	6.31	12.10	24.97
1985	0.50	3.07	6.12	14.91	29.73
1986	0.51	3.46	6.78	15.72	30.76
1987	0.53	3.30	6.23	16.51	31.17
1988	0.55	3.22	5.84	14.92	27.05
1989	0.58	3.21	5.56	16.39	28.35
1990	0.61	3.47	5.70	16.25	26.68
1991	0.63	3.67	5.78	17.89	28.17
1992	0.65	3.83	5.85	19.30	29.51
1993	0.67	4.15	6.16	22.71	33.72
1994	0.69	4.02	5.83	18.77	27.17
1995	0.71	4.31	6.07	22.10	31.11
1996	0.73	4.51	6.16	20.98	28.68
1997	0.75	4.54	6.06	19.93	26.63
1998	0.76	4.60	6.05	18.36	24.16
1999	0.78	4.79	6.17	18.54	23.86
2000	0.80	5.17	6.44	16.98	21.15
2001	0.83	6.28	7.61	23.87	28.91
2002	0.84	6.37	7.60	25.49	30.39
2003	0.86	6.22	7.25	26.03	30.34
2004	0.88	6.02	6.84	23.65	26.85
2005	0.91	6.10	6.70	18.56	20.38
2006	0.94	6.09	6.48	19.42	20.66
2007	0.97	5.94	6.15	20.60	21.31
2008	1.00	5.94	5.92	20.74	20.66
2009	1.00	6.29	6.29	21.89	21.89
2010	1.02	6.43	6.32	23.18	22.80
2011	1.05	6.96	6.64	22.16	21.13
2012	1.07	7.37	6.88	25.95	24.24
2013	1.09	7.31	6.73	23.88	21.99
2014	1.10	7.62	6.91	24.48	22.19
2015	1.10	7.89	7.15	23.84	21.61
2016	1.10	8.53	7.73	26.22	23.77

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Table 5: Table 5 Continued

Year	CPI	Nominal_Prices	Real_Prices	Nominal_Revenue	Real_Revenue
2017	1.10	9.44	8.56	29.71	26.93
2018	1.10	9.43	8.55	30.24	27.42
2019	1.10	9.23	8.37	22.80	20.67
2020	1.10	9.33	8.45	17.33	15.71
2021	1.10	9.97	9.04	22.78	20.65
2022	1.10	19.65	17.82	0.01	0.01

Table 6: Numbers of commercial trips sampled and numbers of ocean quahog measured in port samples from landings during 1982-2022, by region.

Year	Lengths Trips		Lengths Trips	
	NORTH		SOUTH	
1996			270	7
1997			2283	74
1998			2088	68
1999			3455	115
2000			2502	83
2001			2381	79
2002			2133	68
2003			2376	66
2004			459	26
2005			1417	79
2006			1764	97
2007			1340	73
2008			2213	116
2009			2096	114
2010			2451	141
2011			3266	172
2012			2684	137
2013	161	8	2186	117
2014	17	1	2326	127
2015	35	2	2569	140
2016	391	21	2111	120
2017	88	6	2281	125
2018	64	4	1445	112
2019	158	10	3124	175
2020			2611	148
2021			1662	104
2022	17	1	2176	132
min	17	1	270	7
max	391	21	3455	175
mean	116	7	2136	104

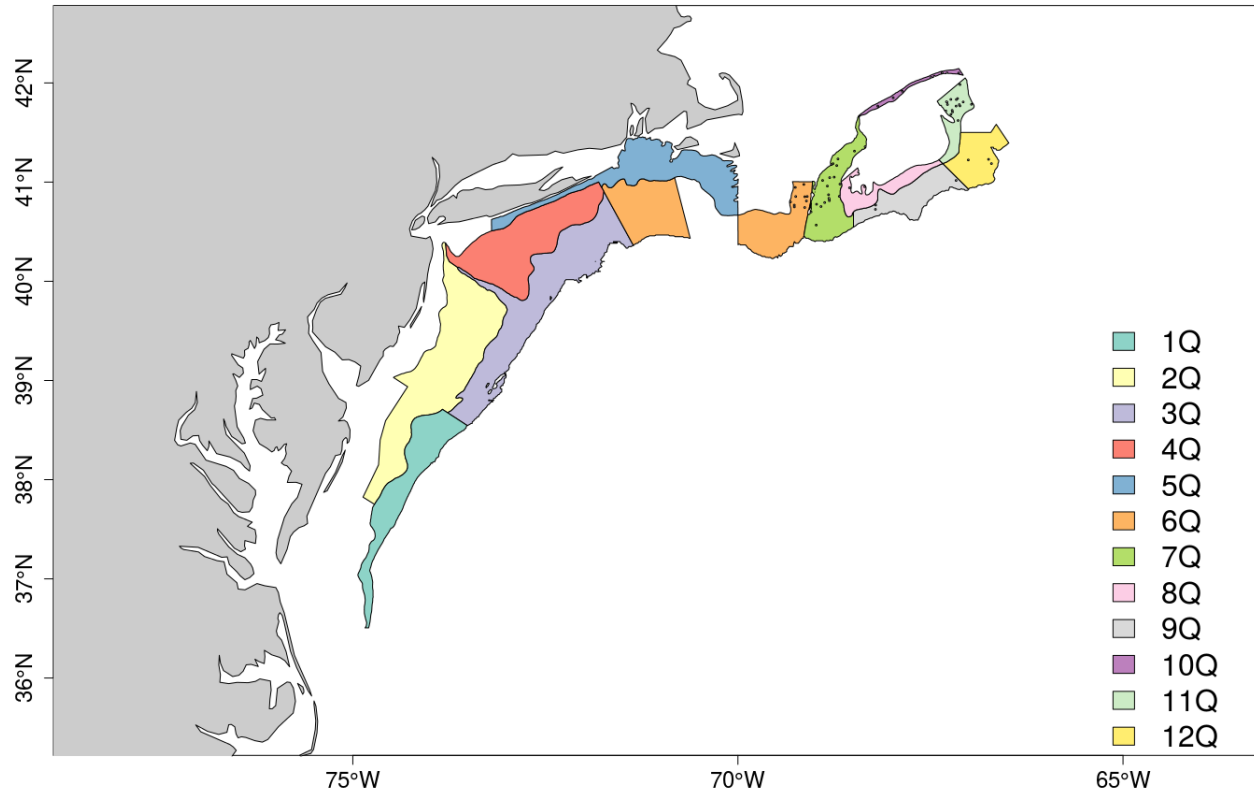


Figure 1: Ocean quahog stock assessment regions and NEFSC shellfish survey strata. The shaded strata are where ocean quahogs have been found and are used to estimate stock abundance in this assessment.

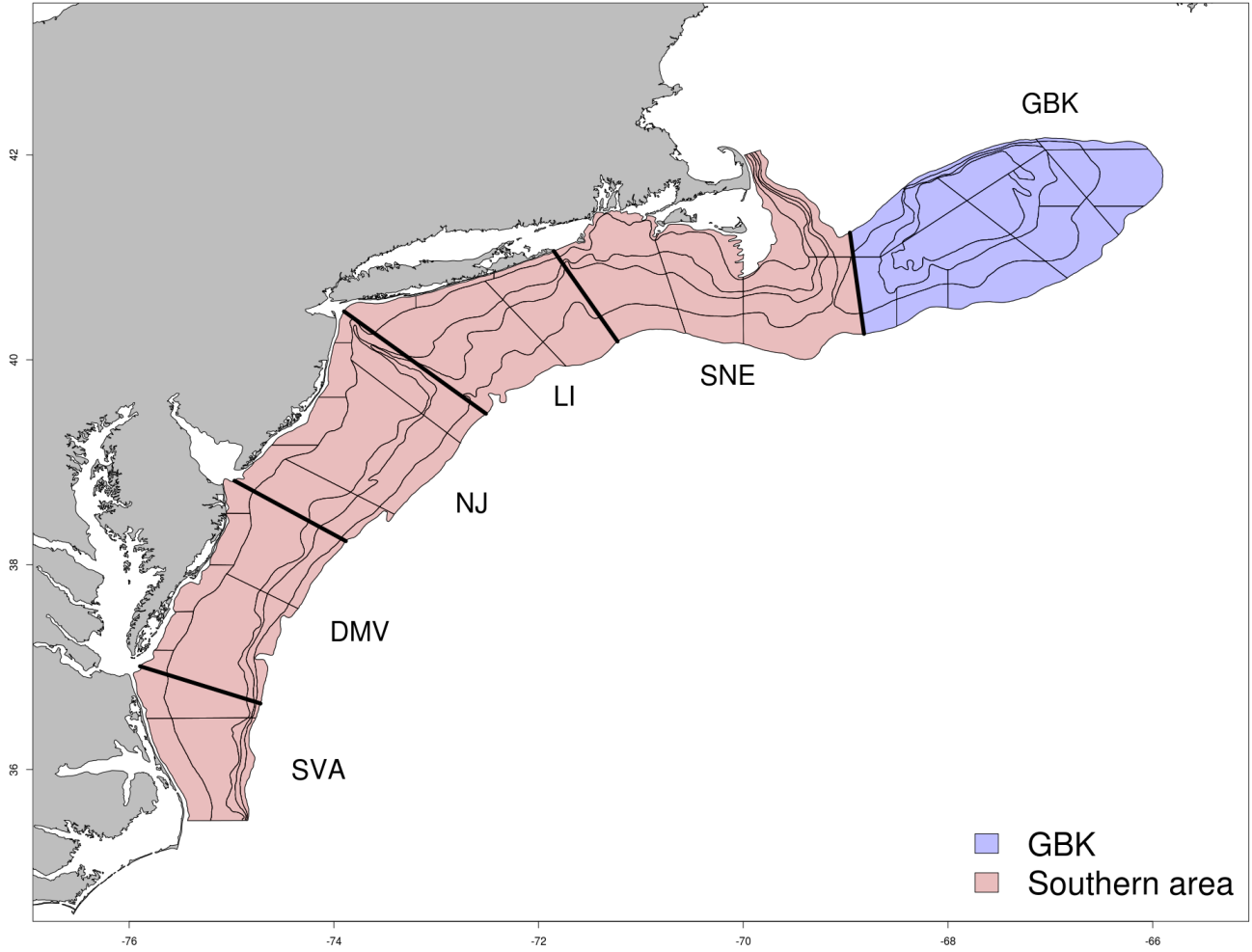


Figure 2: Ocean quahog regions divided into two areas.



Figure 3: Total ocean quahog landings and quotas during 1980-2022.

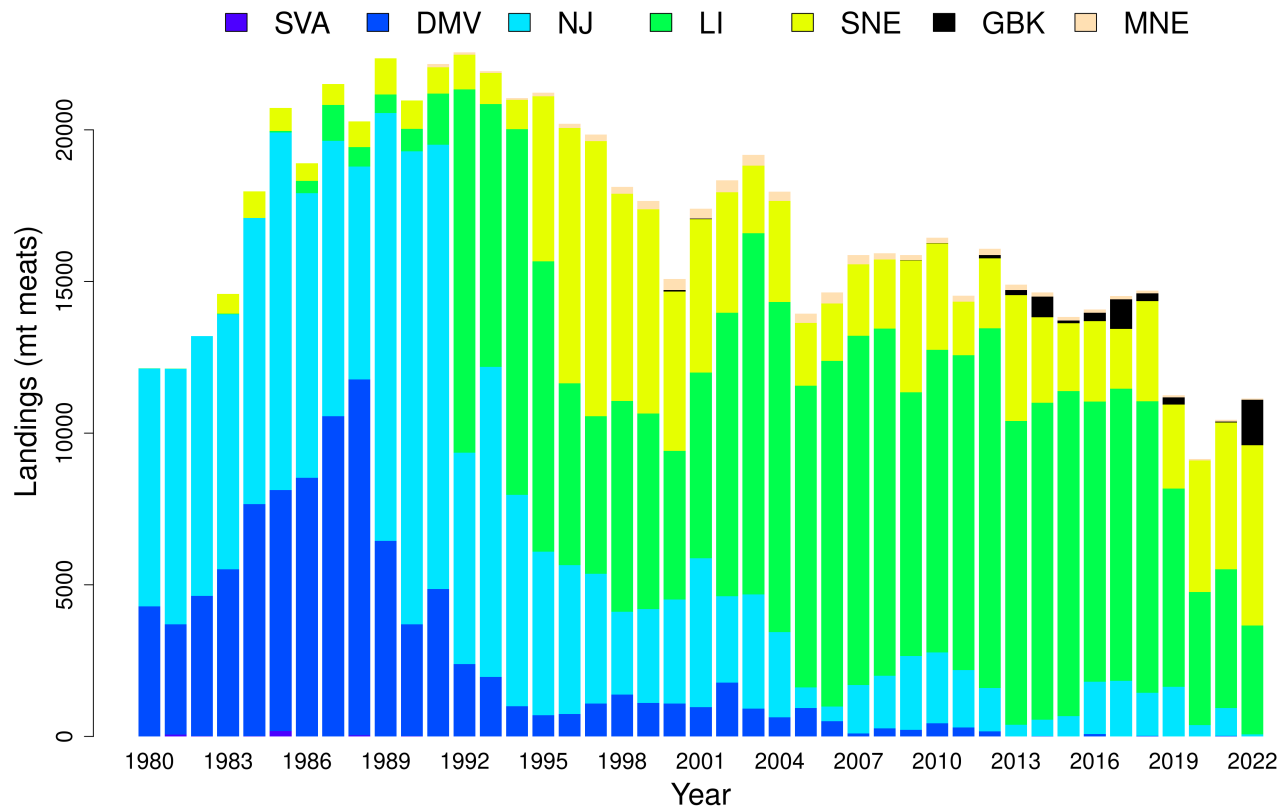


Figure 4: Ocean quahog landings from the US EEZ during 1980-2022, by stock assessment region.

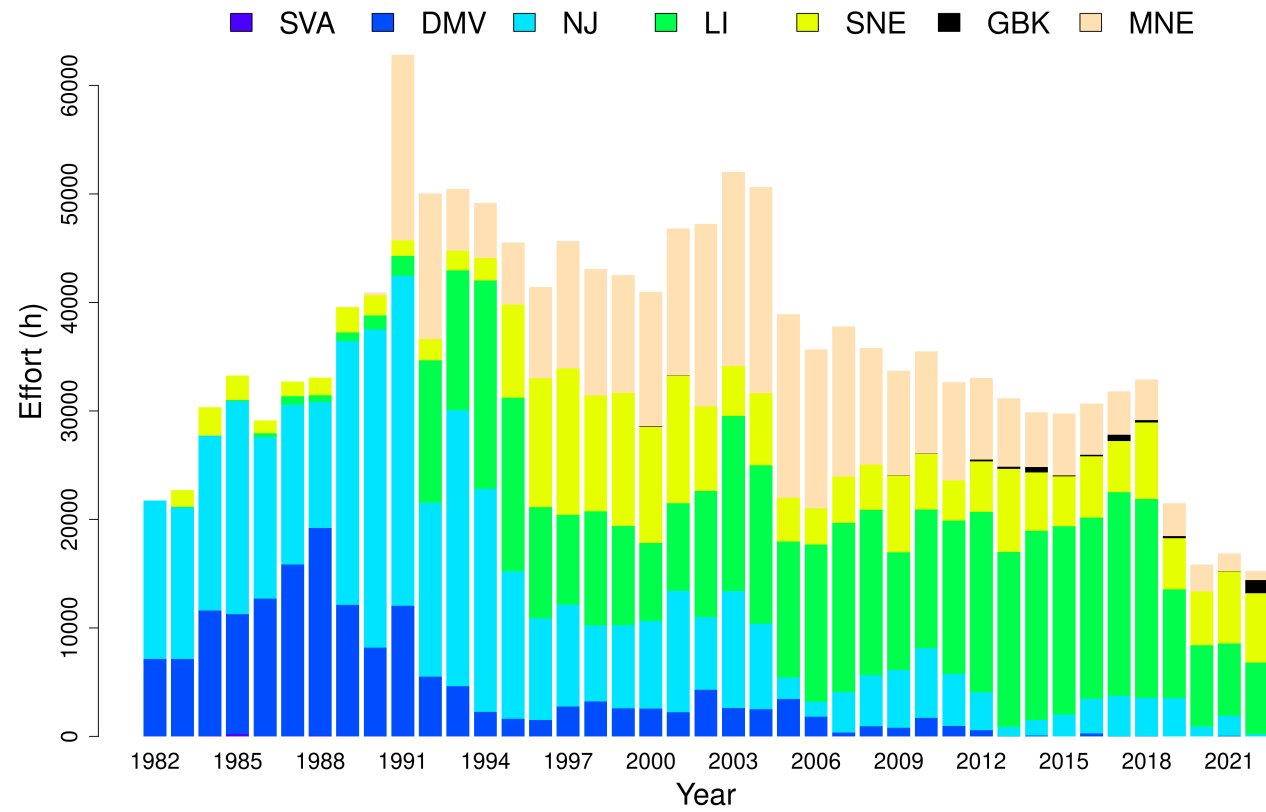


Figure 5: Ocean quahog hours fished from the US EEZ during 1982-2022, by stock assessment region.

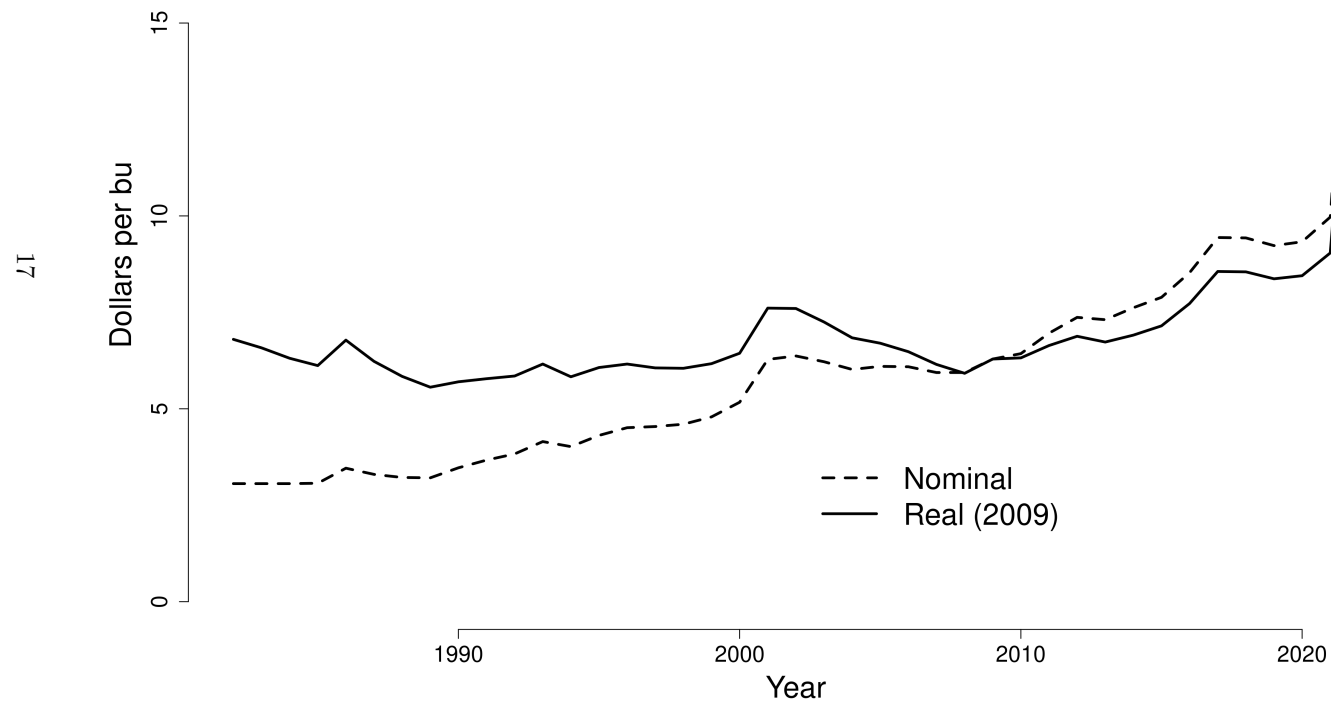


Figure 6: Nominal and real dollar equivalent prices for ocean quahog 1981-2022.

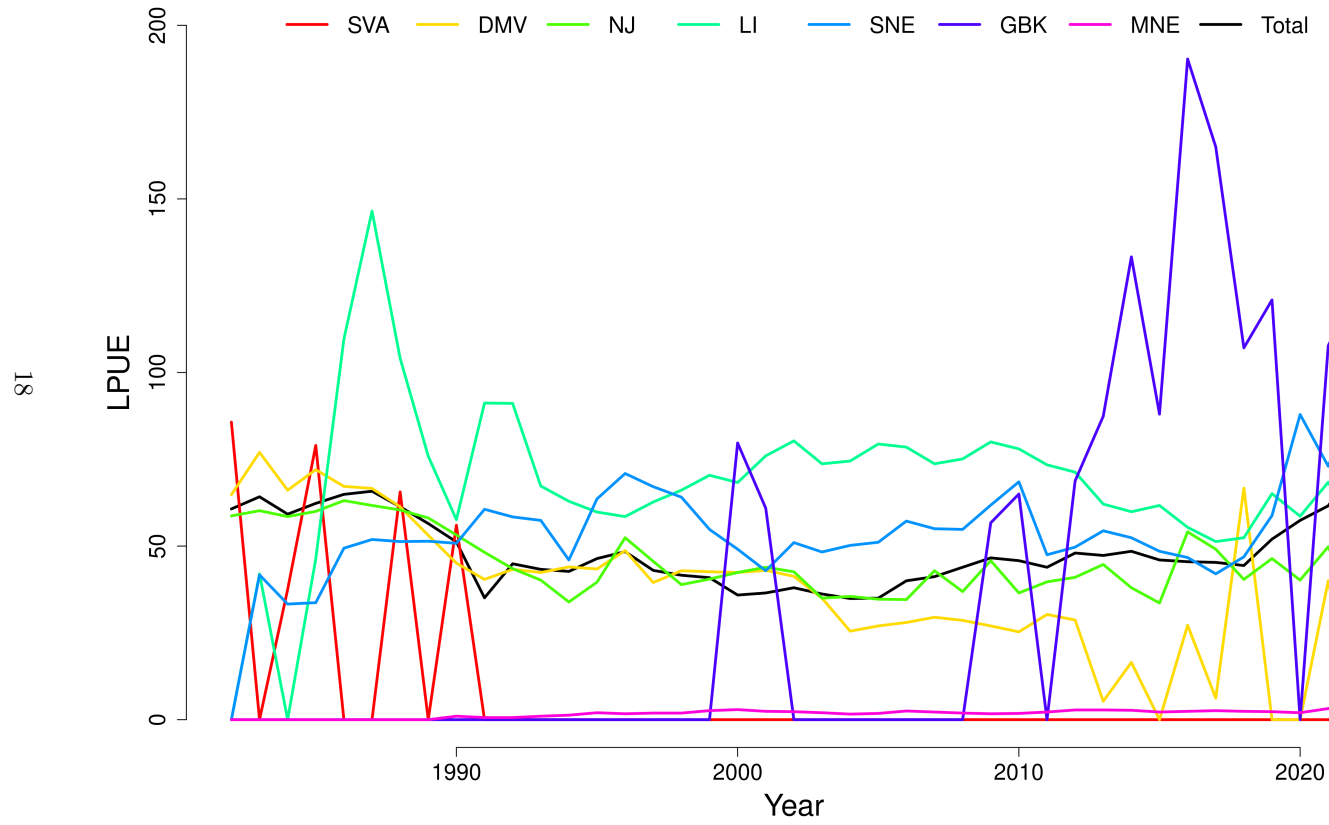


Figure 7: Nominal landings per unit effort (LPUE in bushels landed per hour fished) for ocean quahog, by region, 1981-2022. LPUE is total landings in bushels divided by total fishing effort.

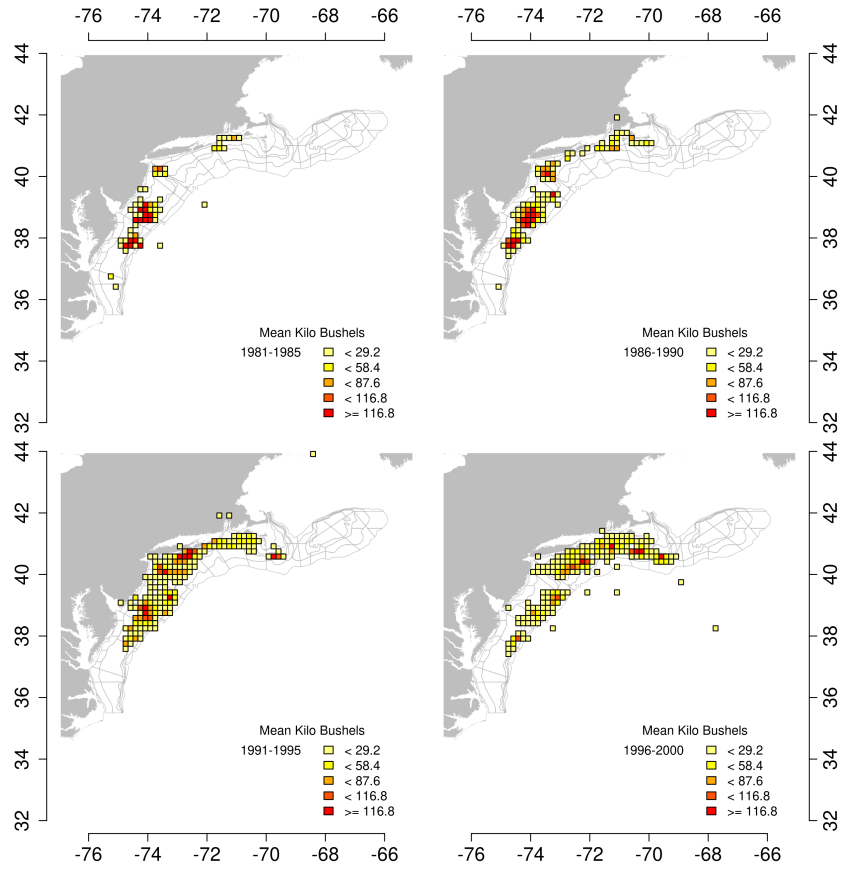


Figure 8: Average ocean quahog landings by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

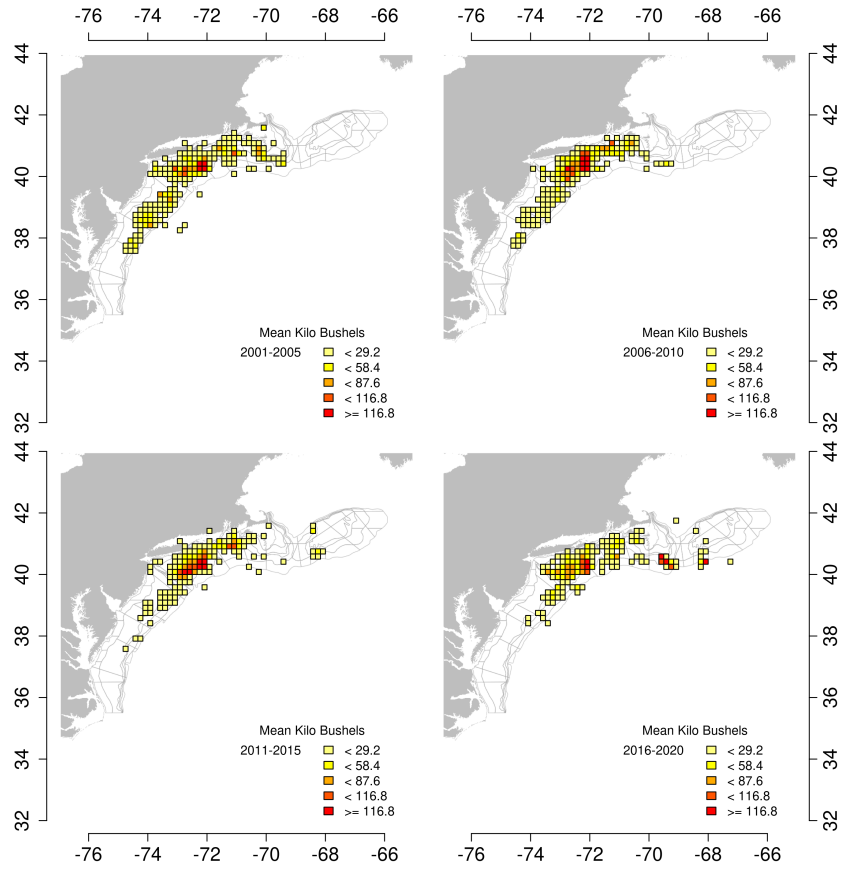


Figure 9: Average ocean quahog landings by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

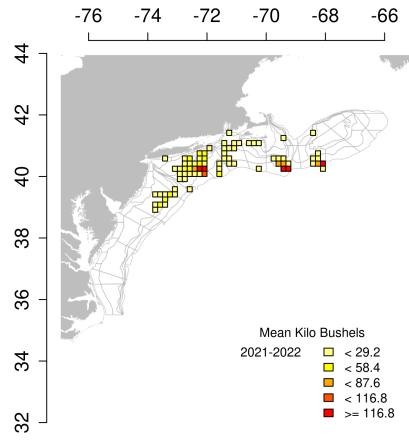


Figure 10: Average ocean quahog landings by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

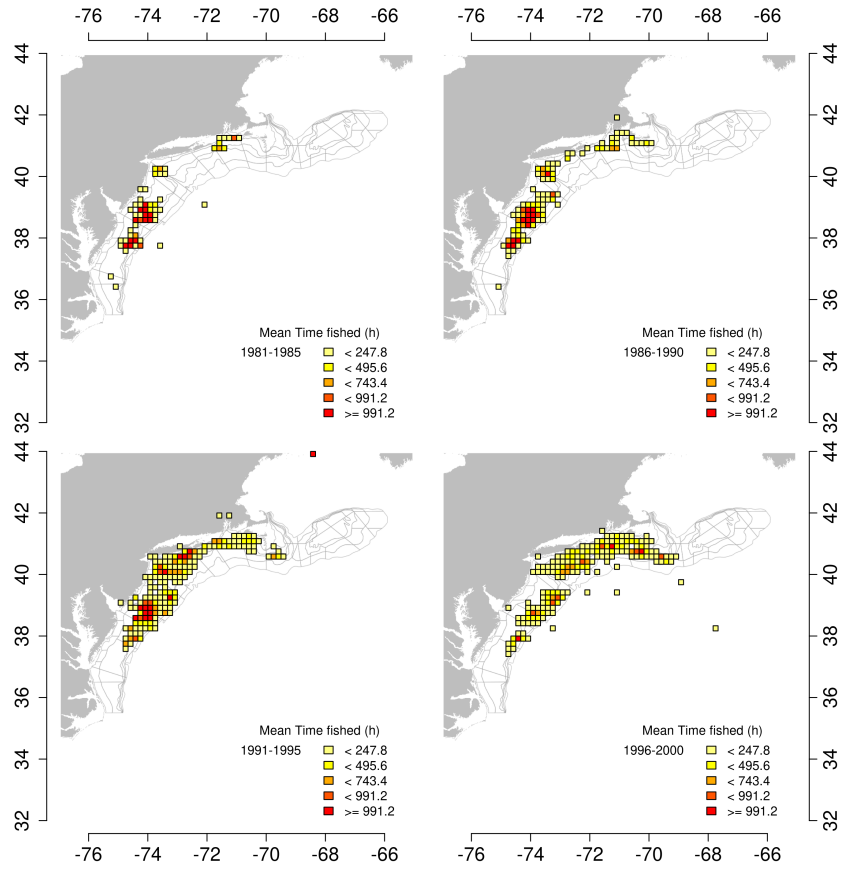


Figure 11: Average ocean quahog effort by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

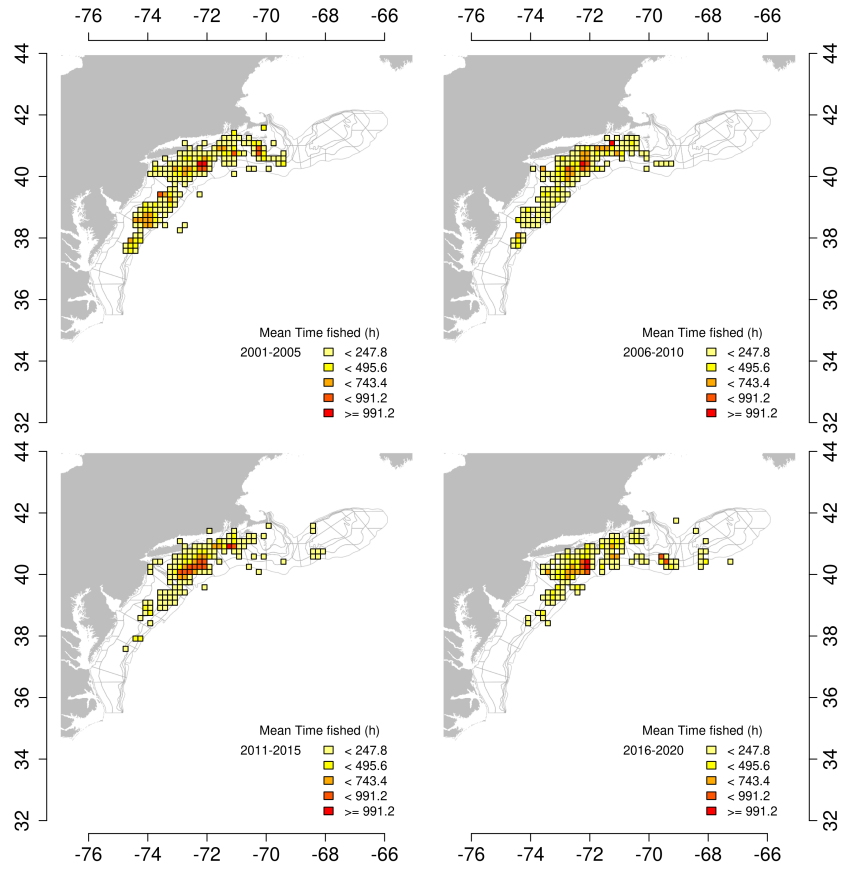


Figure 12: Average ocean quahog effort by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

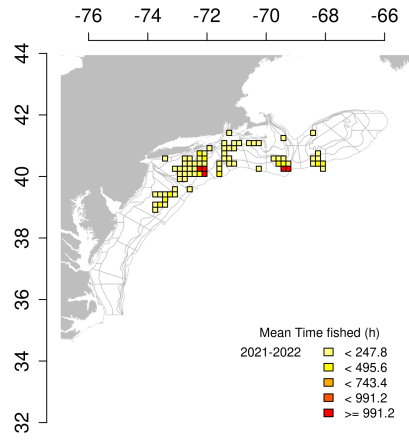


Figure 13: Average ocean quahog effort by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

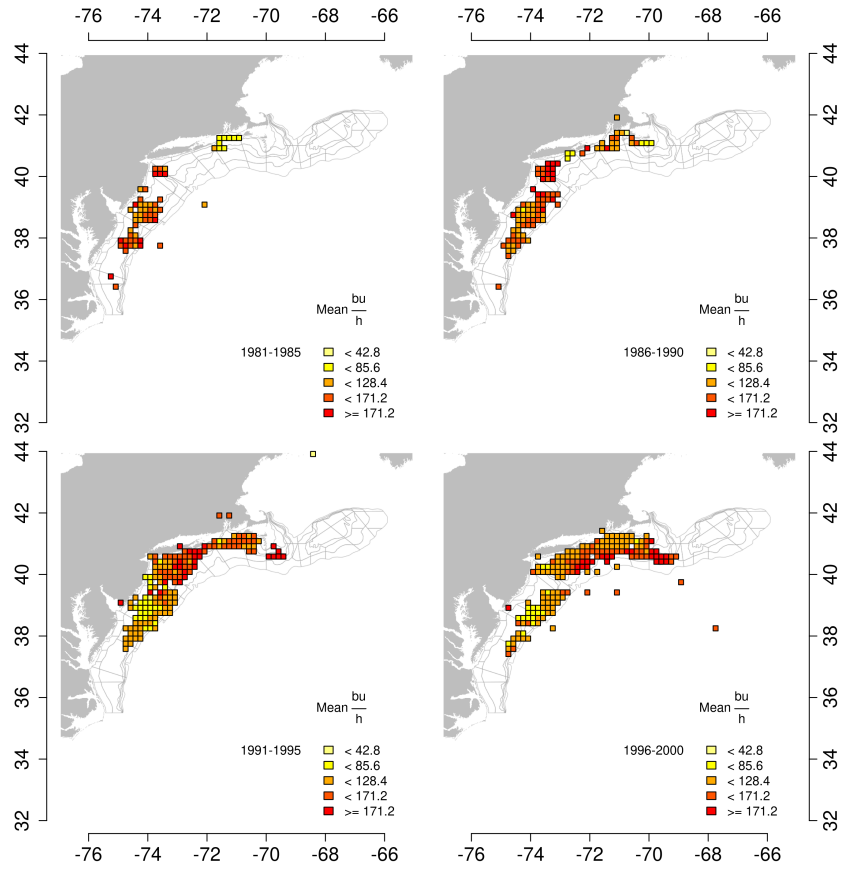


Figure 14: Average ocean quahog LPUE (bu. h^{-1}) by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

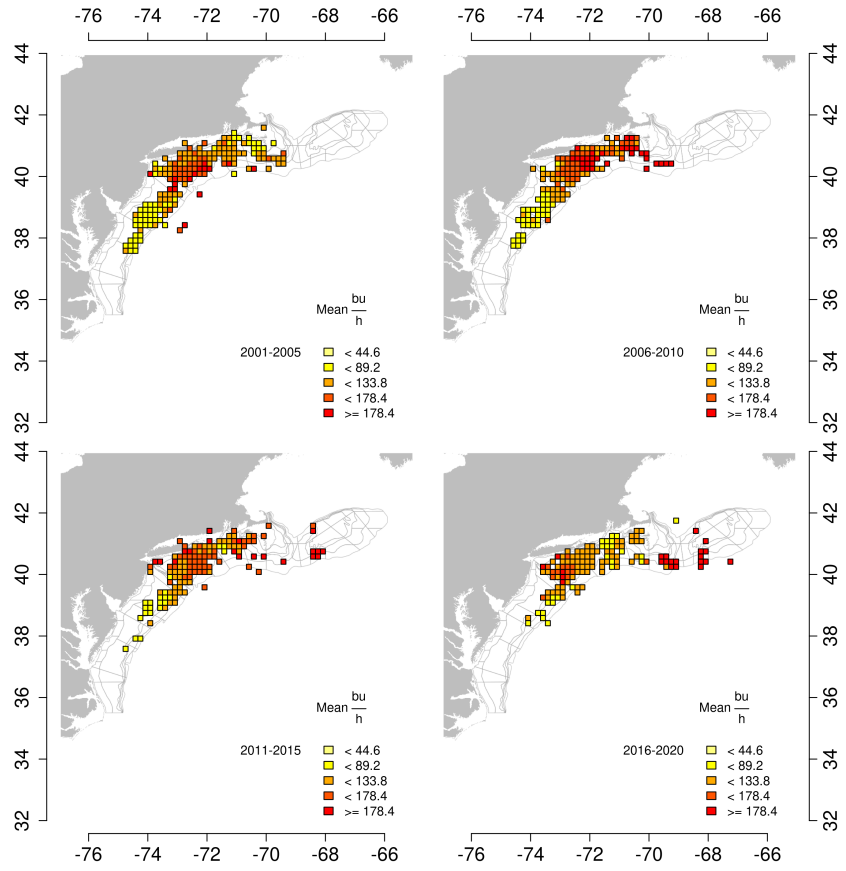


Figure 15: Average ocean quahog LPUE ($\text{bu. } h^{-1}$) by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

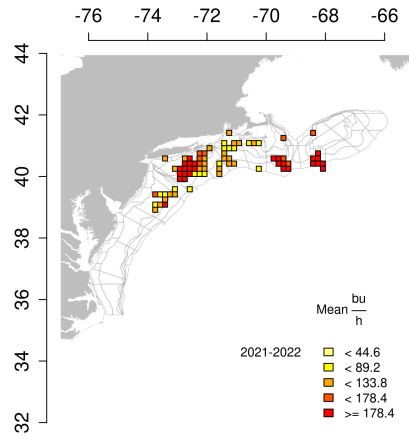


Figure 16: Average ocean quahog LPUE (bu. h^{-1}) by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

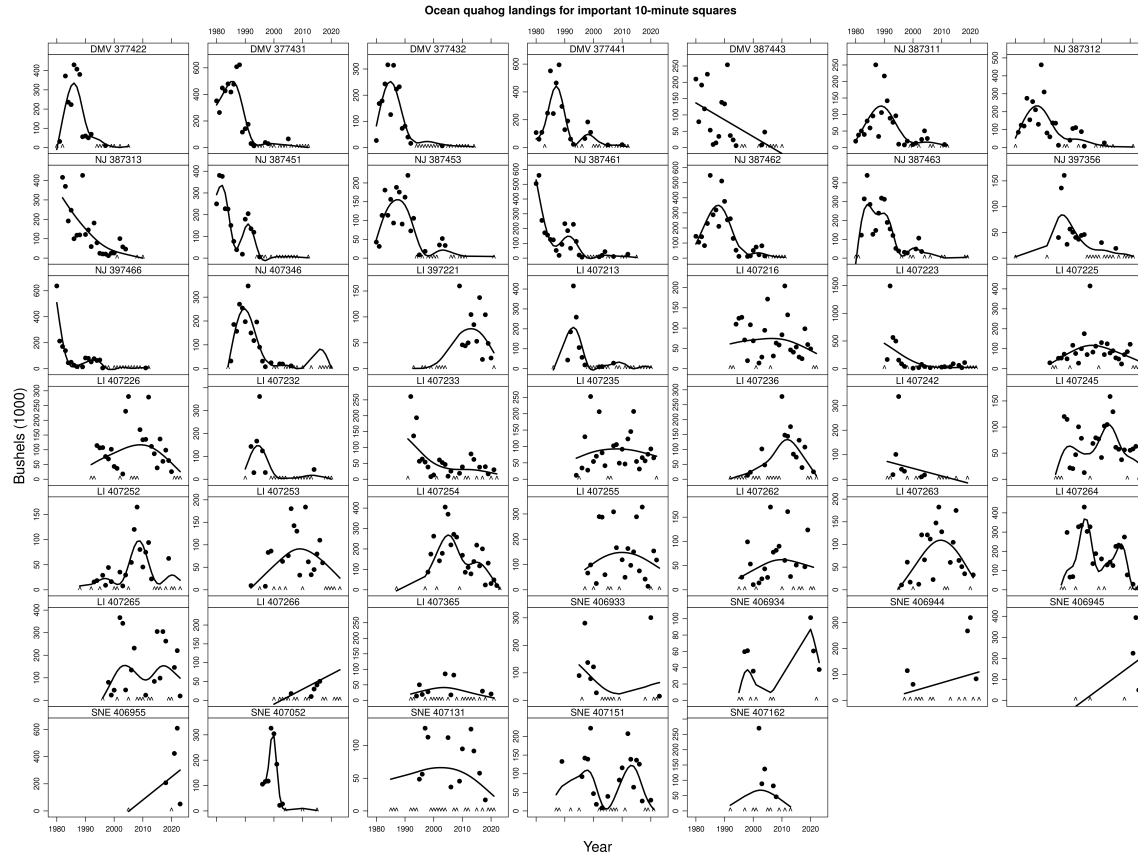


Figure 17: Annual ocean quahog landings in “important” ten minute squares (TNMS) during 1980-2022 based on logbook data. Important means that a square ranked in the top 10 TNMS for total landings during any five-year period (1980-1984, 1985-1989, ...). Data for 2022 are incomplete and preliminary. To protect the privacy of individual firms, data are not plotted if the number of vessels is less than 3. Instead, a “^” is shown on the x-axis to indicate where data are missing. The solid dark line is a spline intended to show trends. The spline was fit too all available data, including data not plotted.

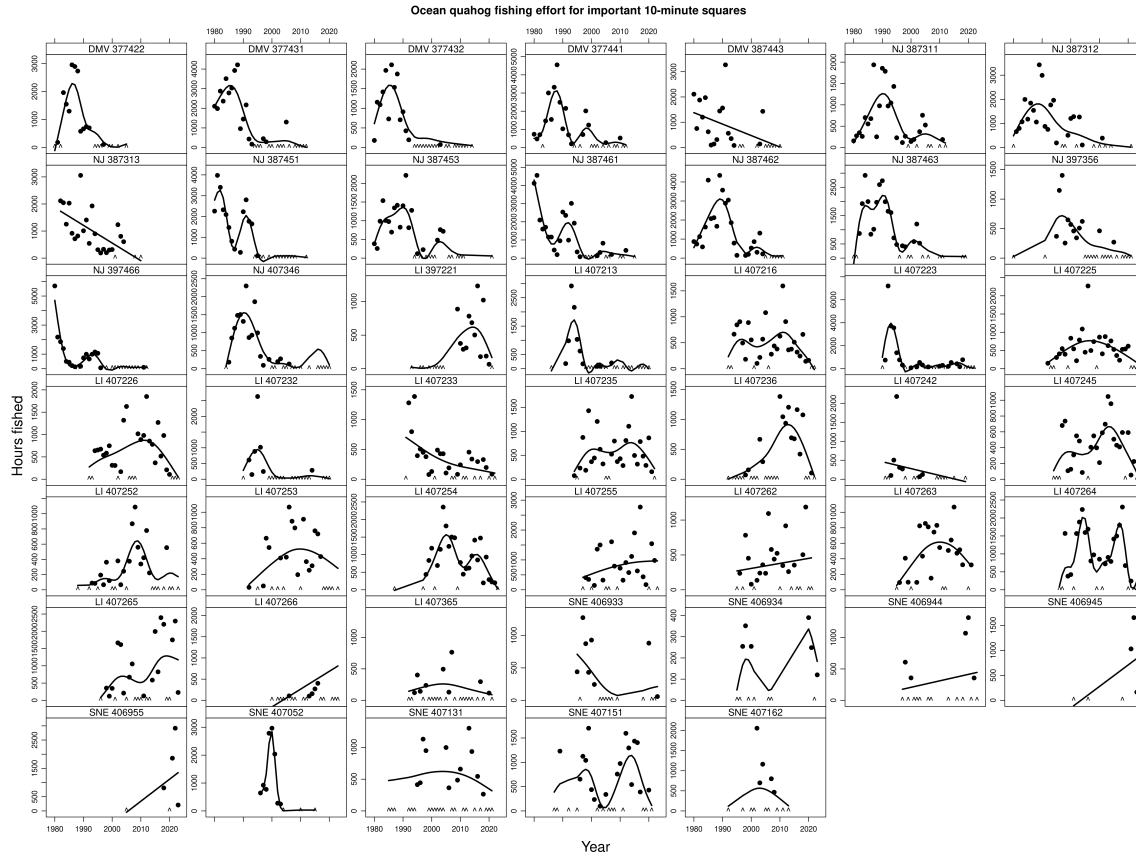


Figure 18: Annual ocean quahog effort (hours y^{-1}) in “important” ten minute squares (TNMS) during 1980-2022 based on logbook data. Important means that a square ranked in the top 10 TNMS for total landings during any five-year period. Data for 2022 are incomplete and preliminary. To protect the privacy of individual firms, data are not plotted if the number of vessels is less than 3. Instead, a “^” is shown on the x-axis to indicate where data are missing. The solid dark line is a spline intended to show trends. The spline was fit too all available data, including data not plotted.

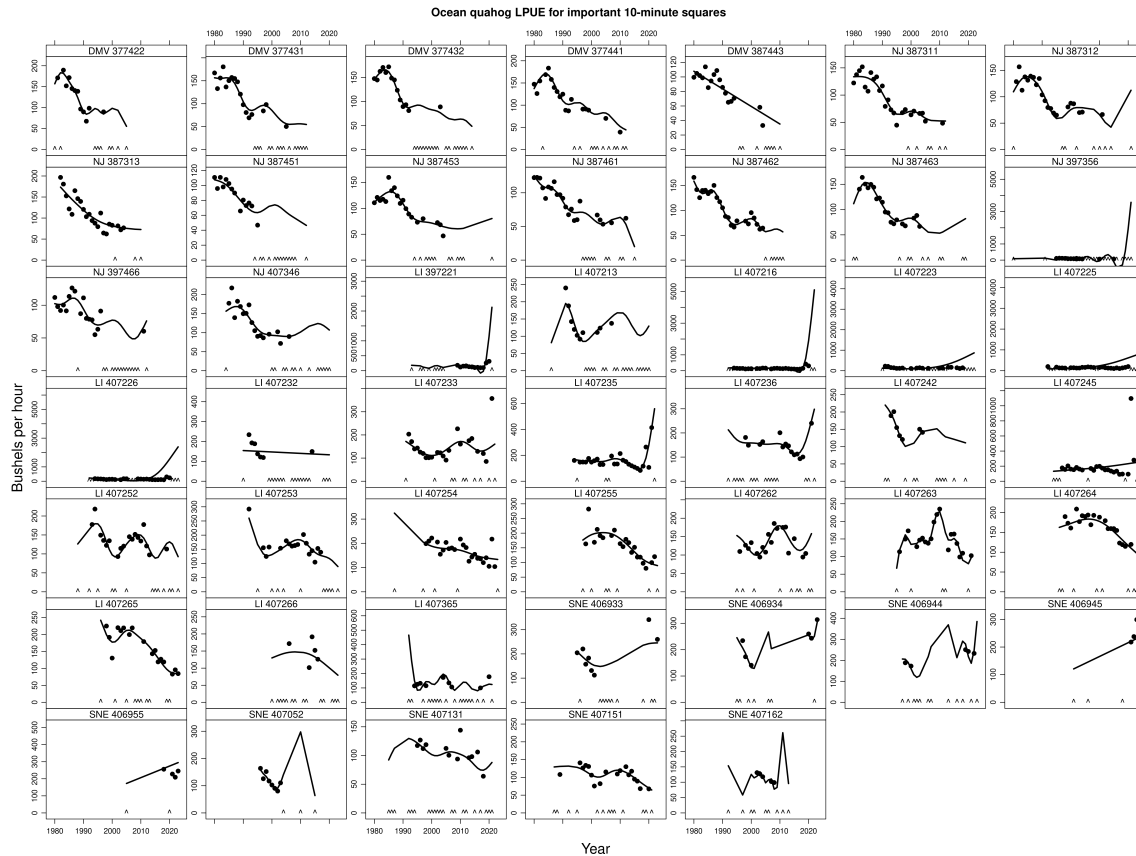


Figure 19: Annual ocean quahog LPUE ($\text{bu } h^{-1}$) in “important” ten minute squares (TNMS) during 1980–2022 based on logbook data. Important means that a square ranked in the top 10 TNMS for total landings during any five-year period . Data for 2022 are incomplete and preliminary. To protect the privacy of individual firms, data are not plotted if the number of vessels is less than 3. Instead, a “^” is shown on the x-axis to indicate where data are missing. The solid dark line is a spline intended to show trends. The spline was fit too all available data, including data not plotted.

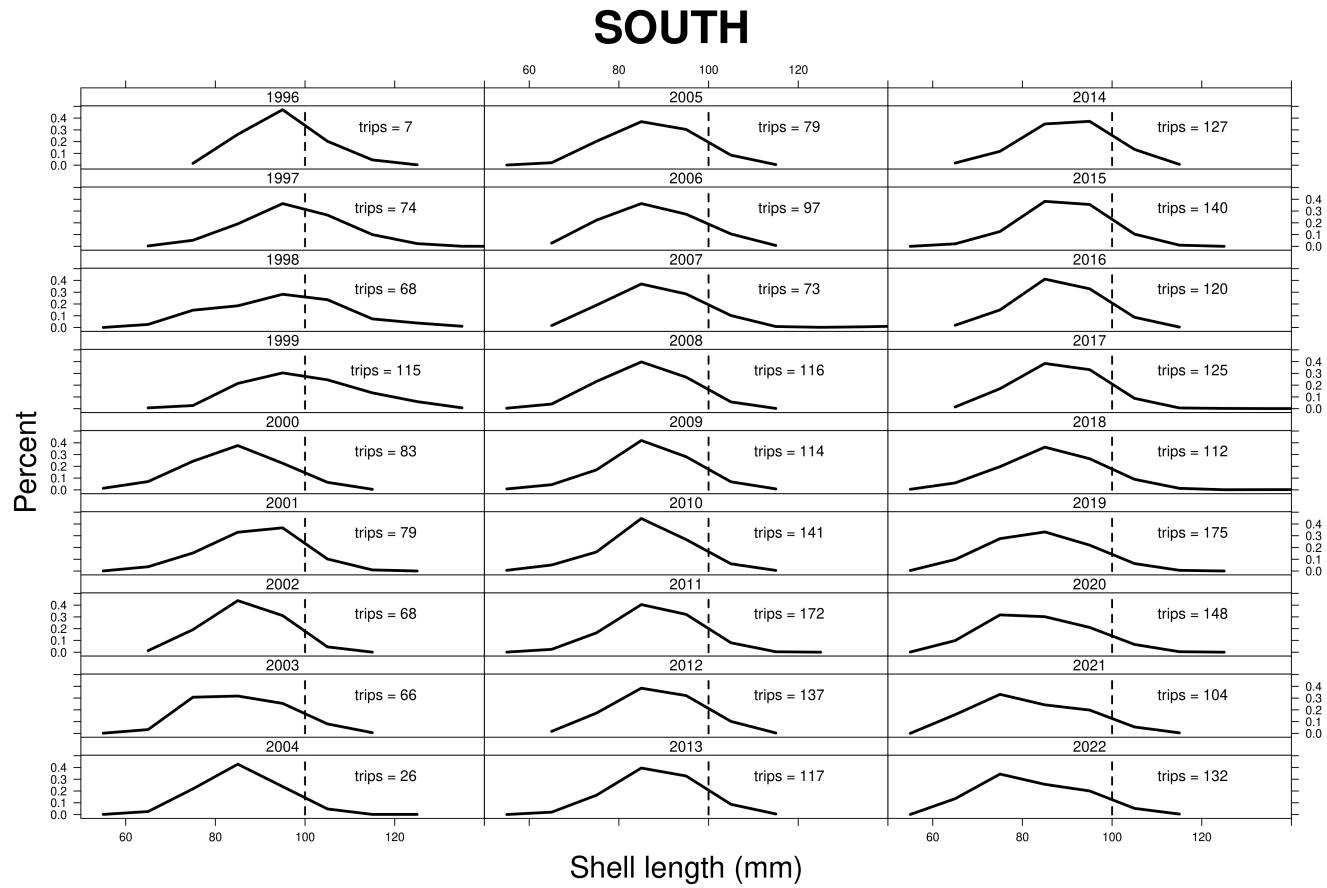


Figure 20: Length compositions of port-sampled landed ocean quahogs from the South (SVA-SNE) region. Sample sizes are the number of trips sampled in each year. Number of trips sampled before 1996 are unknown.

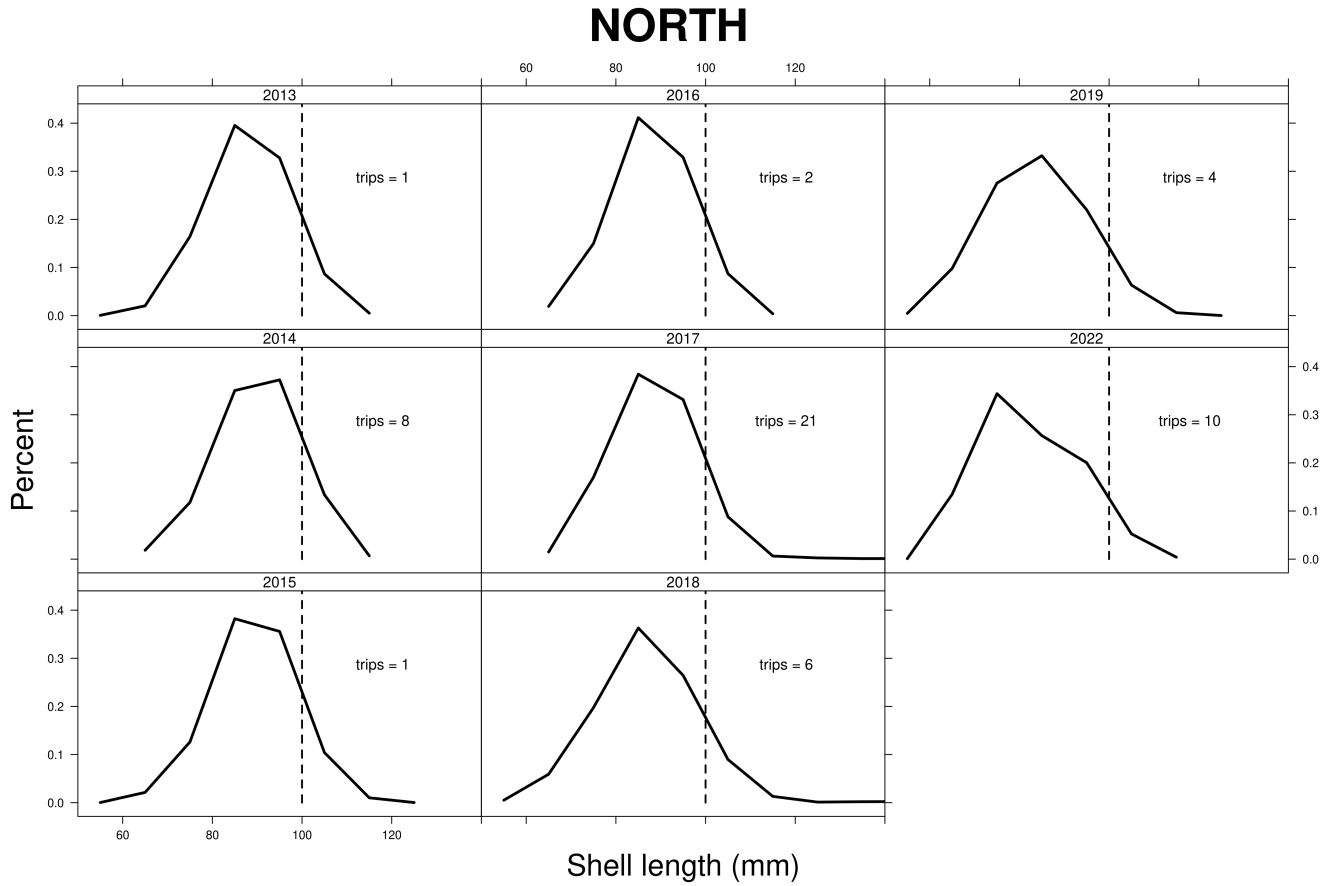


Figure 21: Length compositions of port-sampled landed ocean quahogs from the North (GBK) region. Sample sizes are the number of trips sampled in each year. Number of trips sampled before 1996 are unknown.