

Table 1: Annual ocean quahog landings (excluding Maine) and quotas in metric tons of meats.

Year	EEZ	Quota	Proportion
1980	12134	15880	0.76
1981	12121	18140	0.67
1982	13205	18140	0.73
1983	14586	18140	0.8
1984	17975	18140	0.99
1985	20726	22230	0.93
1986	18902	27220	0.69
1987	21514	27220	0.79
1988	20273	27220	0.74
1989	22359	23590	0.95
1990	20965	24040	0.87
1991	22064	24040	0.92
1992	22477	24040	0.93
1993	21876	24490	0.89
1994	20985	24490	0.86
1995	21108	22230	0.95
1996	20061	20180	0.99
1997	19628	19580	1
1998	17897	18140	0.99
1999	17381	20410	0.85
2000	14723	20410	0.72
2001	17069	20410	0.84
2002	17947	20410	0.88
2003	18815	20410	0.92
2004	17655	22680	0.78
2005	13635	24190	0.56
2006	14273	24190	0.59
2007	15564	24190	0.64
2008	15727	24190	0.65
2009	15710	24190	0.65
2010	16271	24190	0.67
2011	14332	24190	0.59
2012	15873	24190	0.66
2013	14721	24190	0.61
2014	14498	24190	0.6
2015	13709	24190	0.57
2016	13965	24190	0.58
2017	14386	24190	0.59
2018	14587	24190	0.6
2019	11178	24190	0.46
2020	8939	24190	0.37

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Table 1: Table 1 Continued

Year	EEZ	Quota	Proportion
min	8939	15880	0.37
max	22477	27220	1
mean	16874	22657	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	9597	1973	980	103	14386

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Table 2: Table 2 Continued

Year	SVA	DMV	NJ	LI	SNE	GBK	MNE	Total
2018	0	16	1424	9589	3301	258	89	14587
2019	0	0	1641	6531	2775	231	70	11178
2020	0	0	370	4236	4333	0	48	8939
min	0	0	370	0	0	0	3	8939
max	177	11727	15592	12064	9069	980	387	22477
mean	7	2345	4980	6513	2678	69	141	16874

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	14598	6642		19000	50640
2005		3448	1974	12533	4048		16920	38923
2006		1811	1386	14507	3314		14641	35659
2007		346	3719	15592	4286		13821	37764
2008		934	4710	15242	4182		10749	35817
2009		790	5335	10868	7038	30	9630	33692
2010		1709	6416	12802	5123	20	9423	35493
2011		970	4776	14152	3712		9048	32658
2012		581	3480	16609	4646	154	7543	33014
2013		38	845	16125	7643	190	6306	31147
2014		85	1424	17447	5372	511	5032	29871
2015			2009	17357	4612	92	5706	29776
2016		276	3205	16683	5656	145	4699	30664
2017		16	3773	18709	4701	594	3987	31779
2018		24	3524	18313	7055	241	3734	32891

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Table 3: Table 3 Continued

Year	SVA	DMV	NJ	LI	SNE	GBK	MNE	Total
2019			3537	10028	4707	191	3030	21494
2020			921	7323	4929		2374	15546
min	7	16	845	50	1179	20	286	15546
max	224	19137	30397	19187	13515	594	19000	62832
mean	9	4307	10262	9672	4889	55	7205	37387

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	73.8	55		2.2	41.2
2008		28.6	36.9	75	54.6		1.9	43.9
2009		27	45.8	79.9	61.8	56.7	1.7	46.6
2010		25.3	36.5	77.9	68.5	65	1.8	45.8
2011		30.3	39.7	73.3	47.5		2.2	43.9
2012		28.7	41	71.4	49.8	68.8	2.8	48.1
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	48.6	51.3	42	165	2.6	45.3
2018		66.7	40.4	52.4	46.8	107.1	2.4	44.3
2019			46.4	65.1	59	120.9	2.3	52

*Continued*

Table 4: Table 4 Continued

Year	SVA	DMV	NJ	LI	SNE	GBK	MNE	Total
2020			40.2	57.8	87.9		2	57.5
min	37.5	5.3	33.6	42	33.3	56.7	0.6	34.9
max	85.7	77	63.1	146.5	87.9	190.3	2.9	65.8
mean	64.8	41.5	45.5	71.9	53.5	101.9	2	47.3



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	8.46	17.33	15.71

Table 6: Numbers of commercial trips sampled and numbers of ocean quahog measured in port samples from landings during 1982-2020, by region.

Year	DMV		NJ		LI		SNE		GBK	
	Lengths	Trips	Lengths	Trips	Lengths	Trips	Lengths	Trips	Lengths	Trips
1982										
1983										
1984										
1985										
1986										
1987										
1988										
1989										
1990										
1991										
1992					240	13				
1993										
1994	180	6	30	1	1845	100				
1995	570	19								
1996	390	13	420	14	1496	77	540	31		
1997	960	32	420	14	1145	64	839	46		
1998	690	23	600	20	1713	100	582	33		
1999	660	22	780	26	2983	155	820	47		
2000	120	4	510	17	2187	110	1584	84		
2001	390	13	390	13	1862	97	1813	96		
2002	360	21	15	1	1705	92	2041	111		
2003	368	20	77	4	2091	113	1197	67		
2004			53	3	1703	97	781	43		
2005	75	4	188	10	1838	100	812	46		
2006	40	2	181	10	1405	102	595	33	18	1
2007	164	9	384	21	2357	128	541	30		
2008	107	6	477	26	1678	90	754	43		
2009	144	7	394	20			501	28		
2010	23	1	391	19			327	26	53	3
2011	26	1	117	6	30	1	1090	64	391	21
2012			162	9	1012	32	1088	67		
2013			168	9	480	16			84	5
2014			65	4	1440	48			93	6
2015			95	5	390	13			10	1
2016			49	4	180	6			21	1
2017			145	8	150	5			18	1
2018					990	33			33	2
2019					240	13	30	1	161	8
2020					1166	64	310	10	17	1
min	23	1	15	1	30	1	30	1	10	1
max	960	32	780	26	2983	155	2041	111	391	21
mean	310	12	266	11	1293	67	784	41	82	5

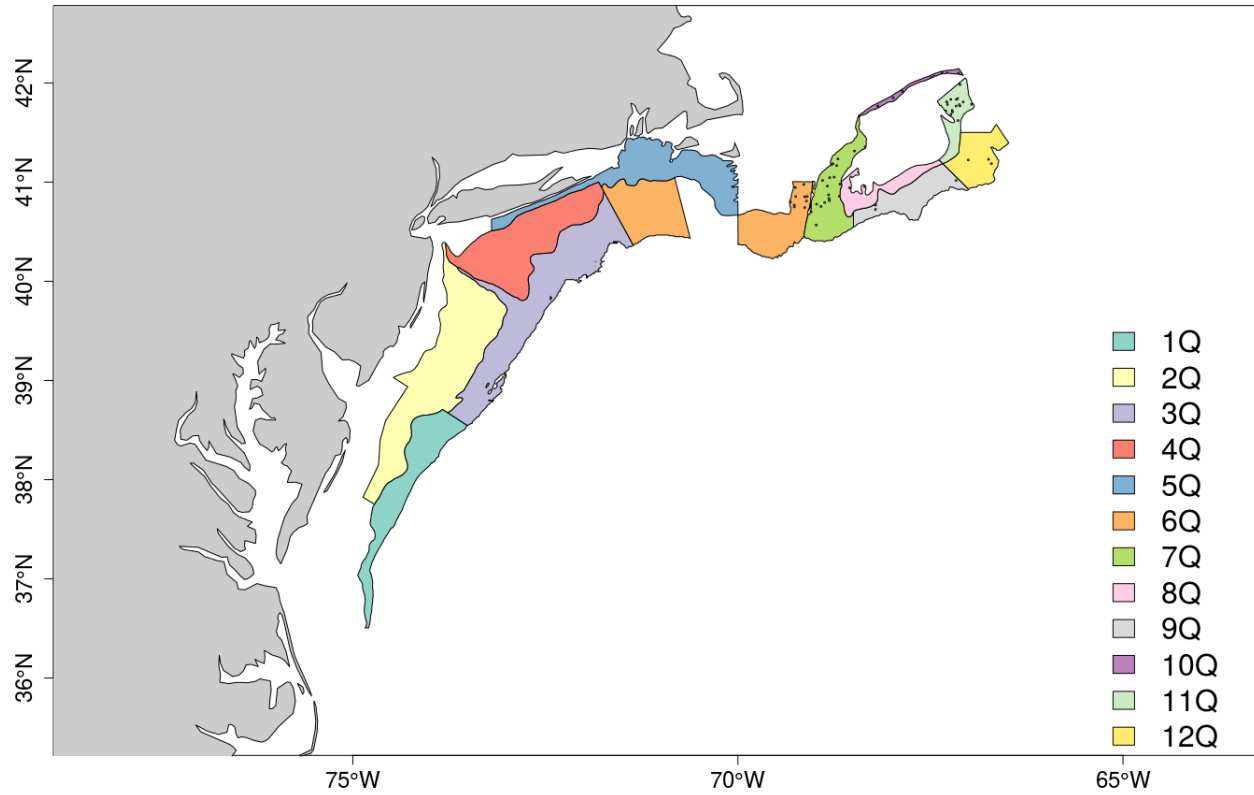


Figure 1: Ocean quahog stock assessment regions and NEFSC shellfish survey strata. The shaded strata are where ocean quahogs have been found and are used to estimate stock abundance in this assessment.

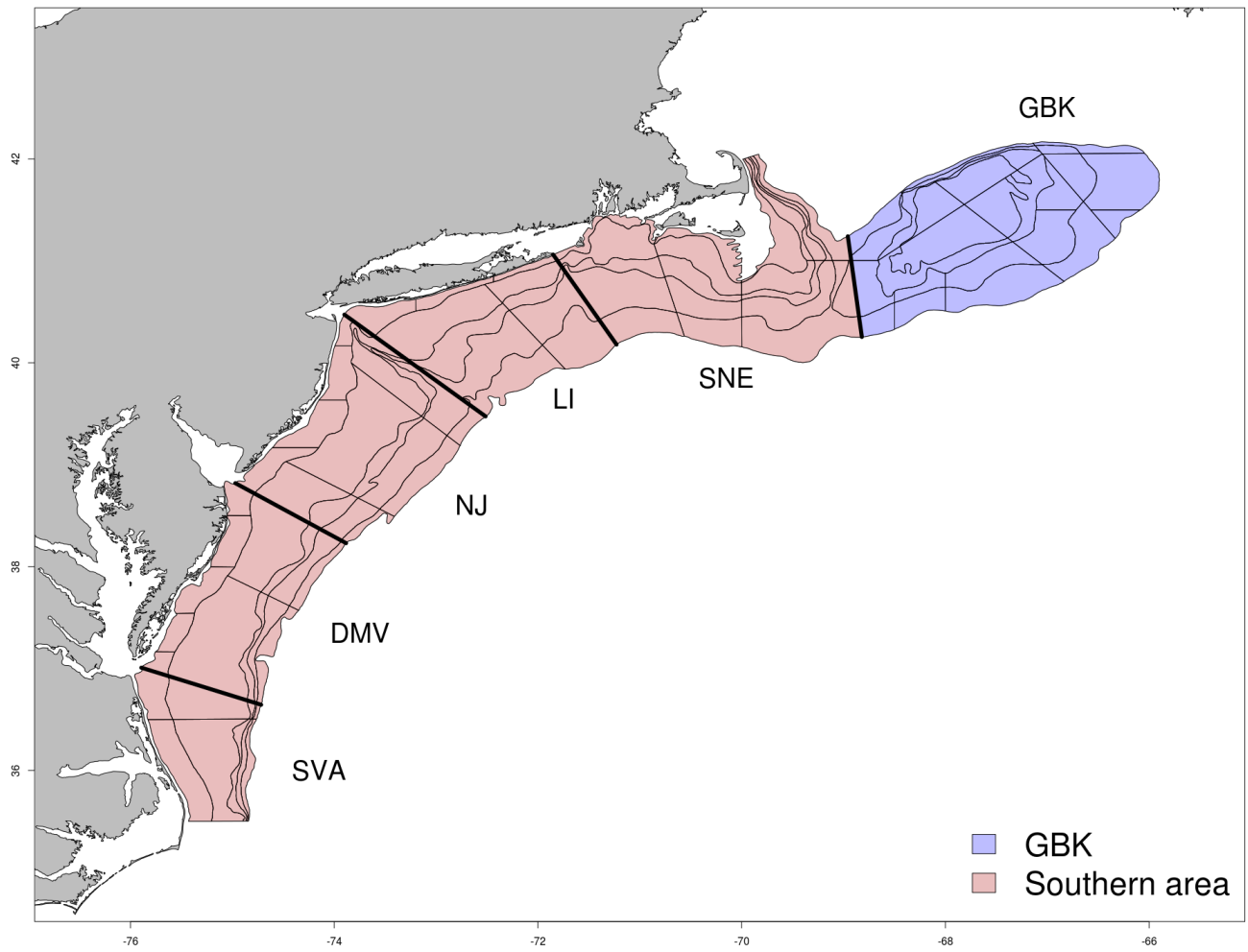


Figure 2: Ocean quahog regions divided into two areas.

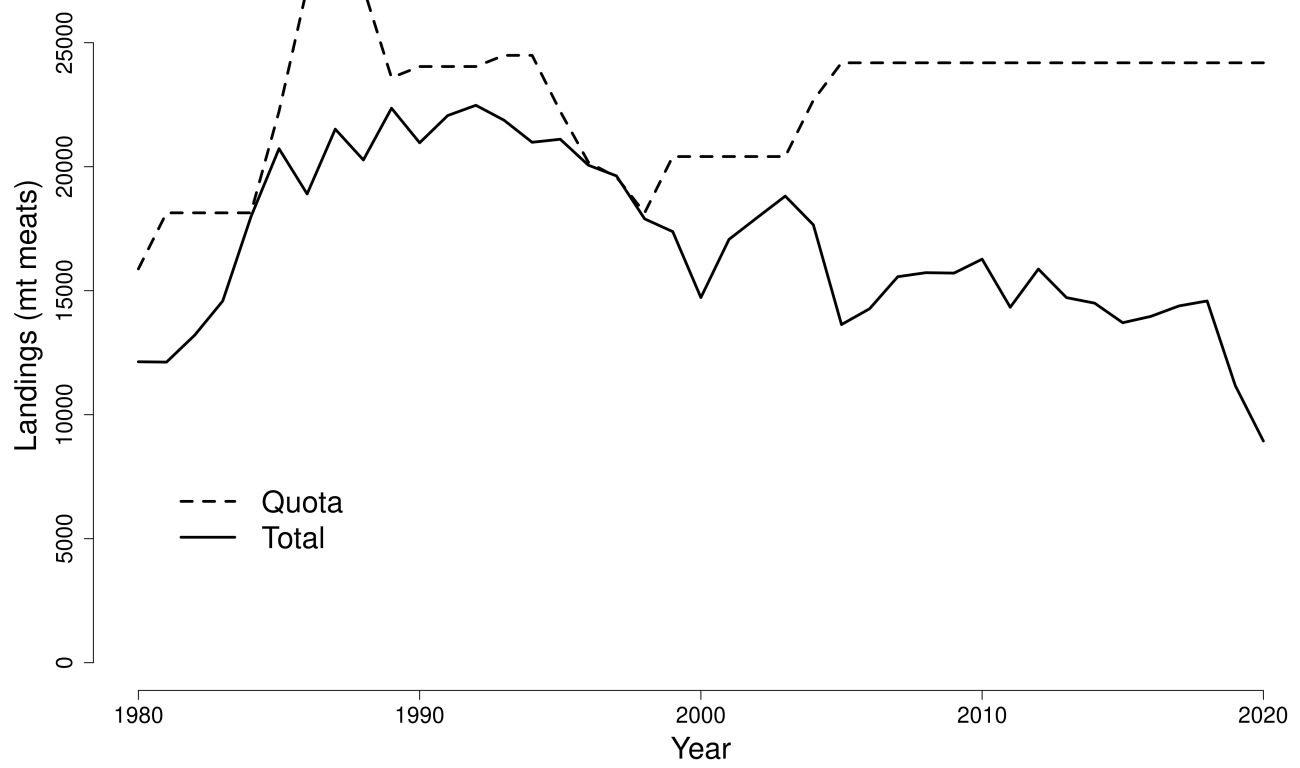


Figure 3: Total ocean quahog landings and quotas during 1980-2020.

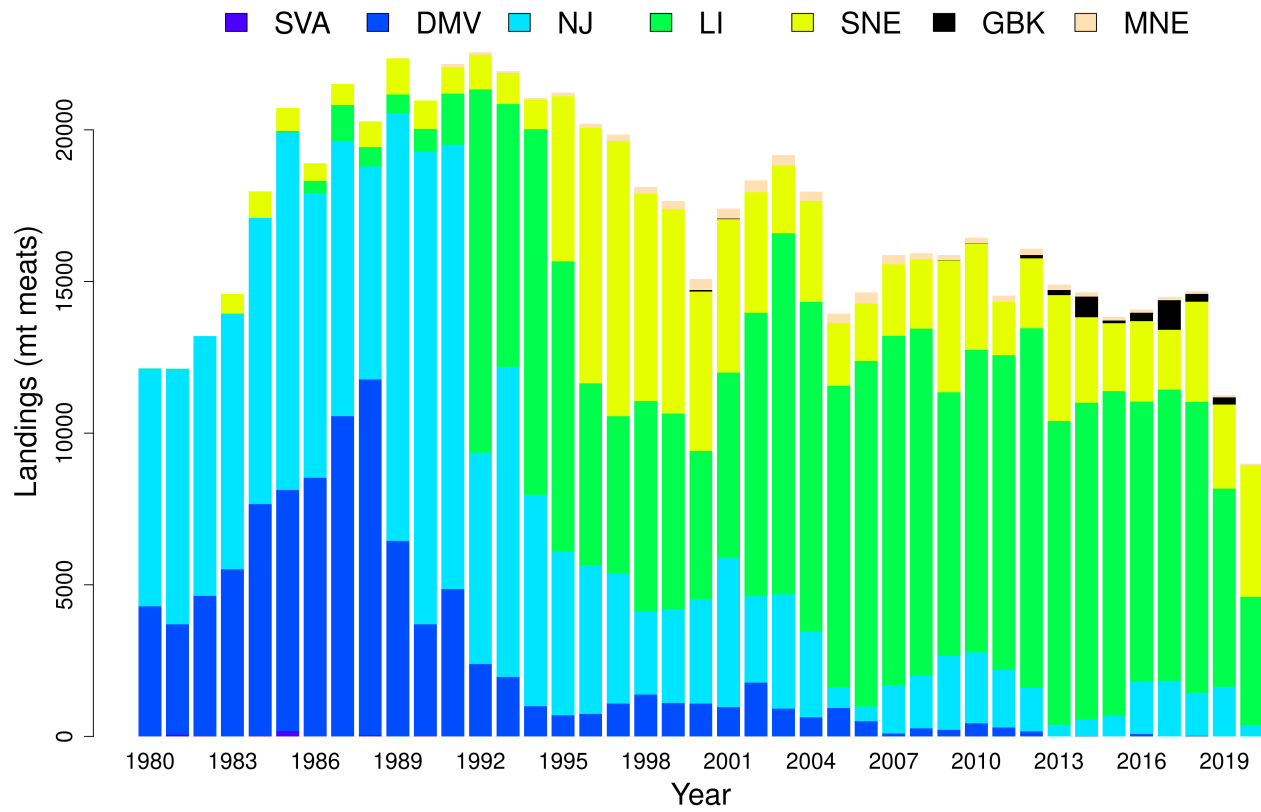


Figure 4: Ocean quahog landings from the US EEZ during 1980-2020, by stock assessment region.

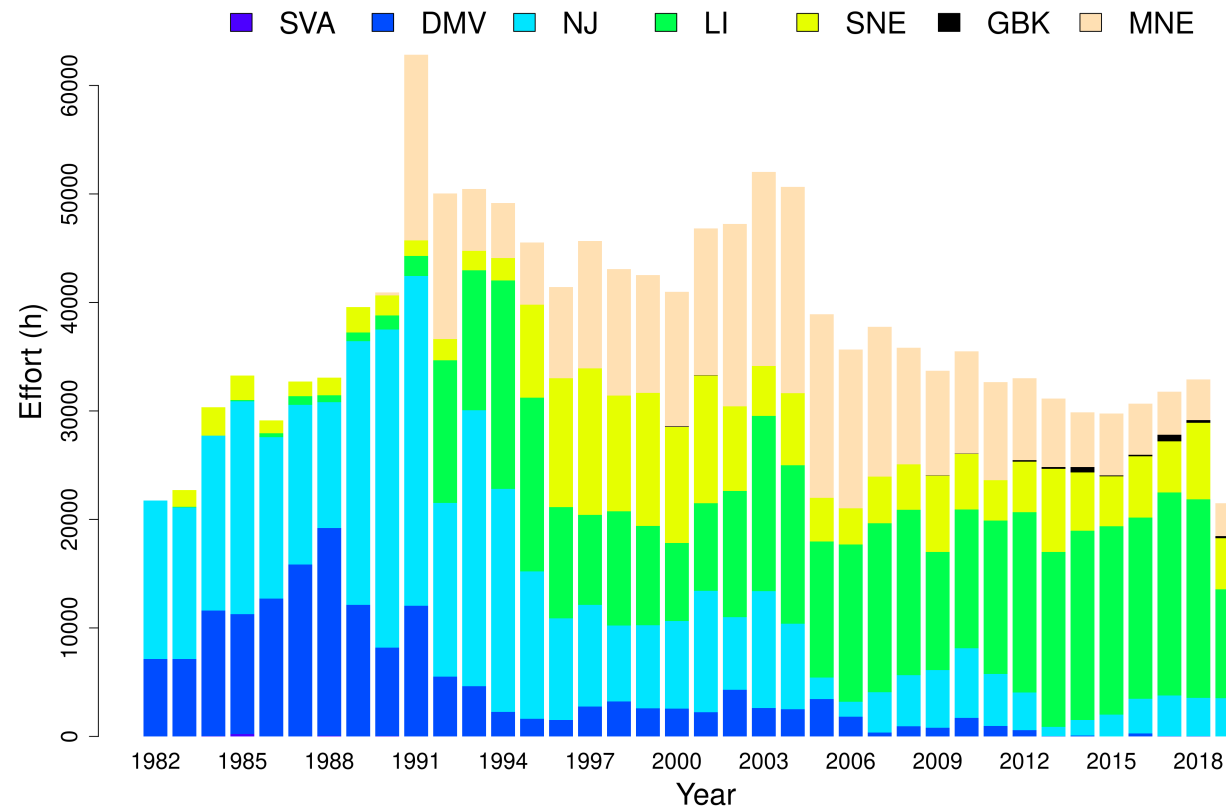


Figure 5: Ocean quahog hours fished from the US EEZ during 1982-2020, by stock assessment region.



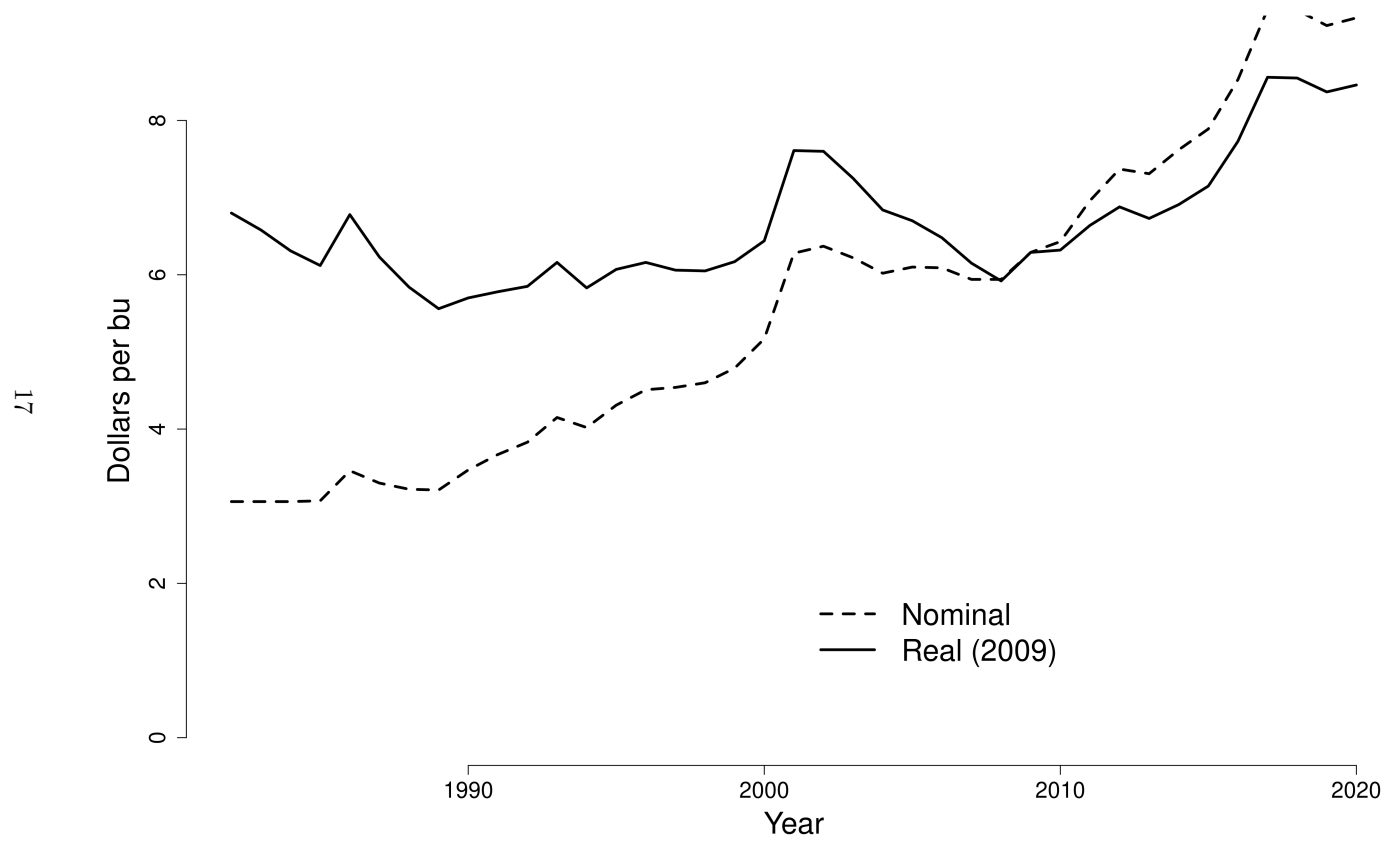


Figure 6: Nominal and real dollar equivalent prices for ocean quahog 1981-2020.

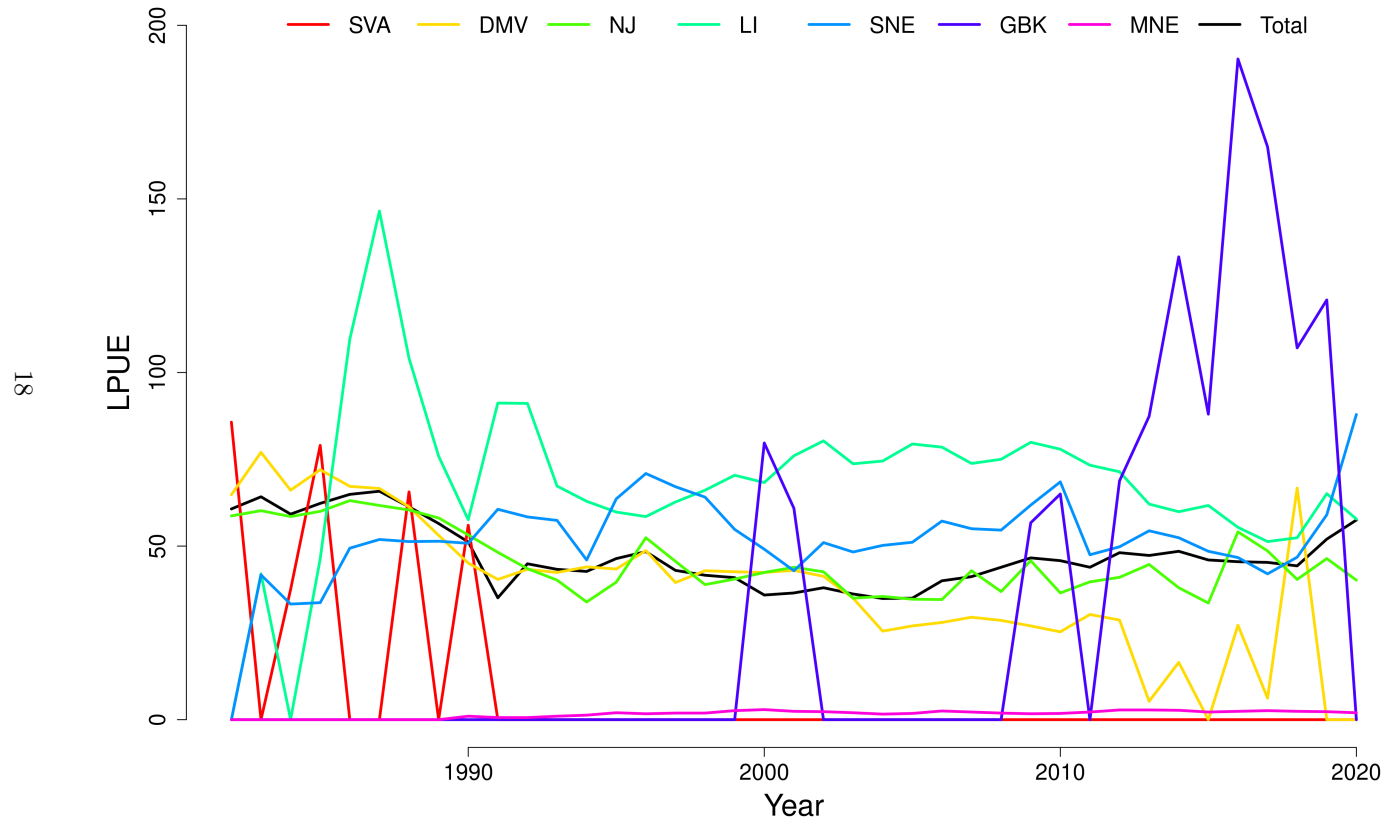


Figure 7: Nominal landings per unit effort (LPUE in bushels landed per hour fished) for ocean quahog, by region, 1981-2020. LPUE is total landings in bushels divided by total fishing effort.

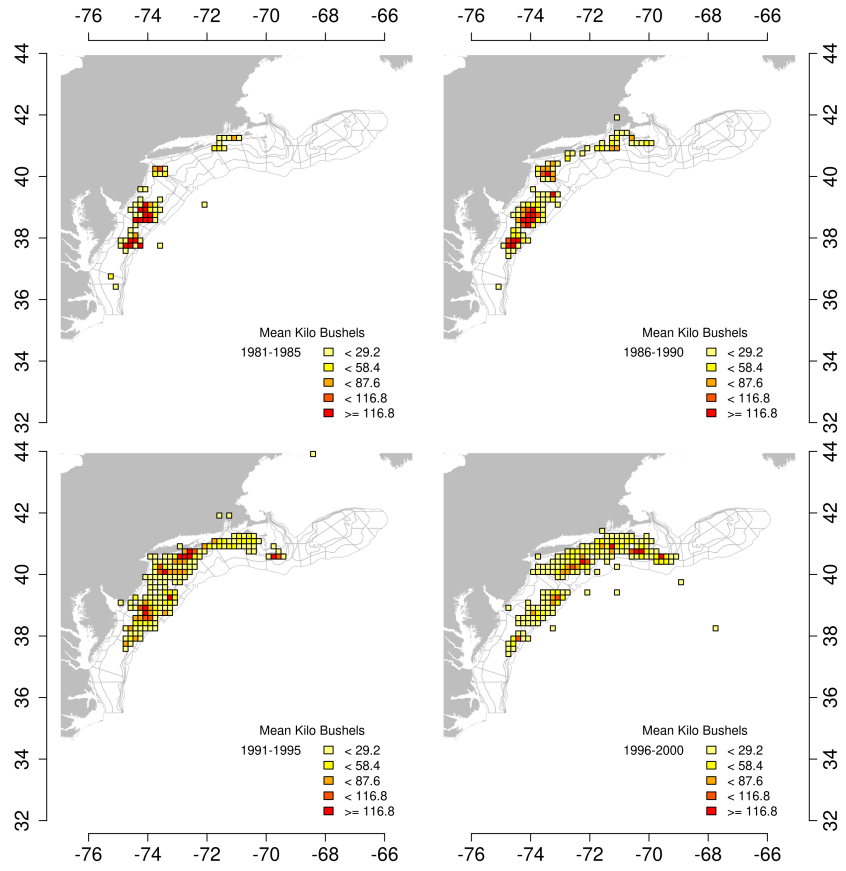


Figure 8: Average ocean quahog landings by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

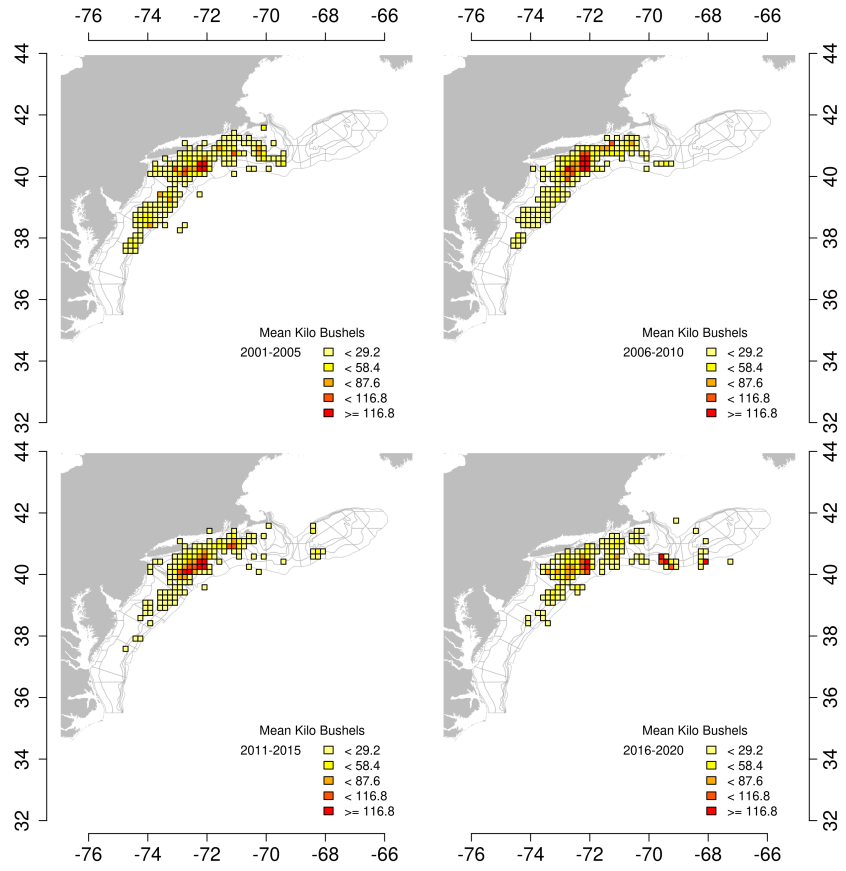


Figure 9: Average ocean quahog landings by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

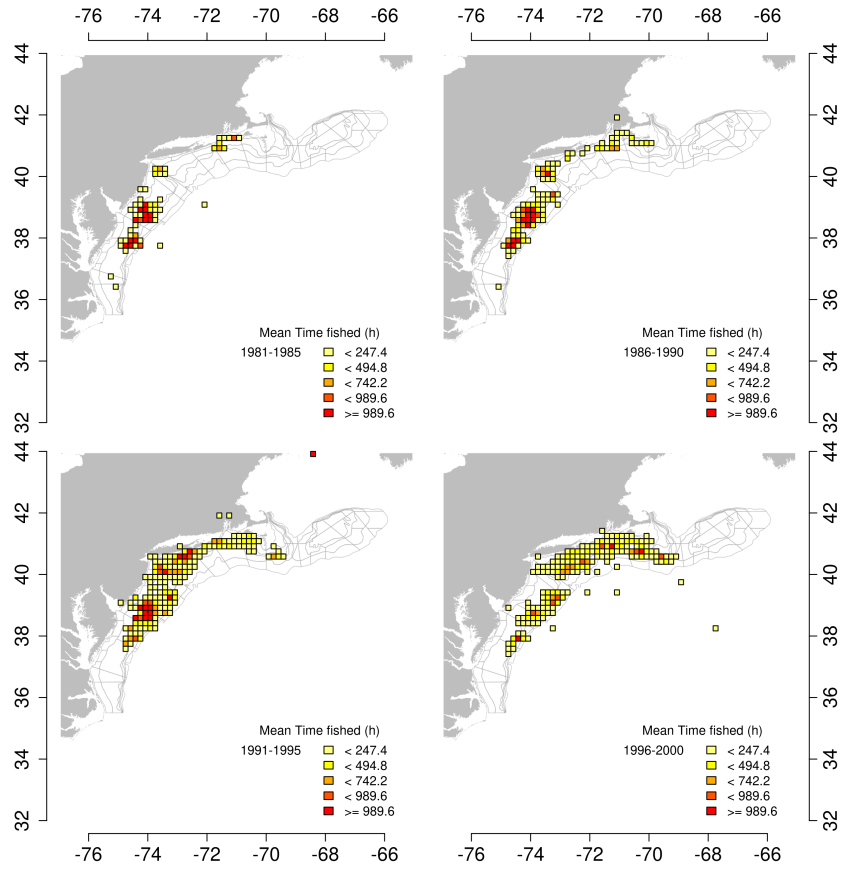


Figure 10: Average ocean quahog effort by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

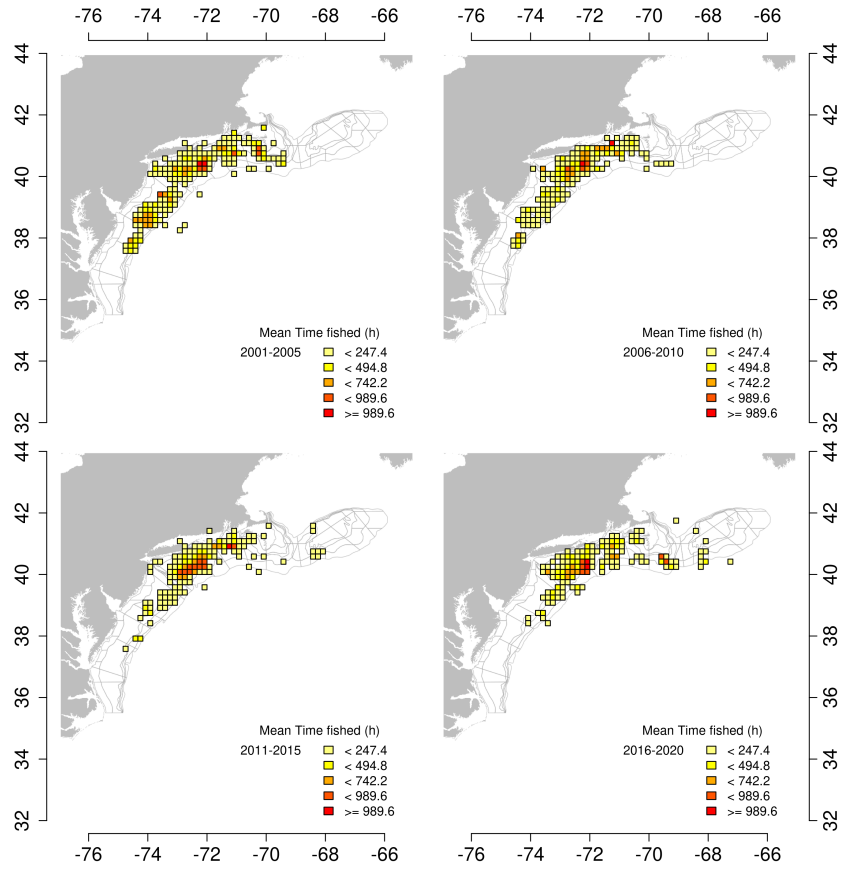


Figure 11: Average ocean quahog effort by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

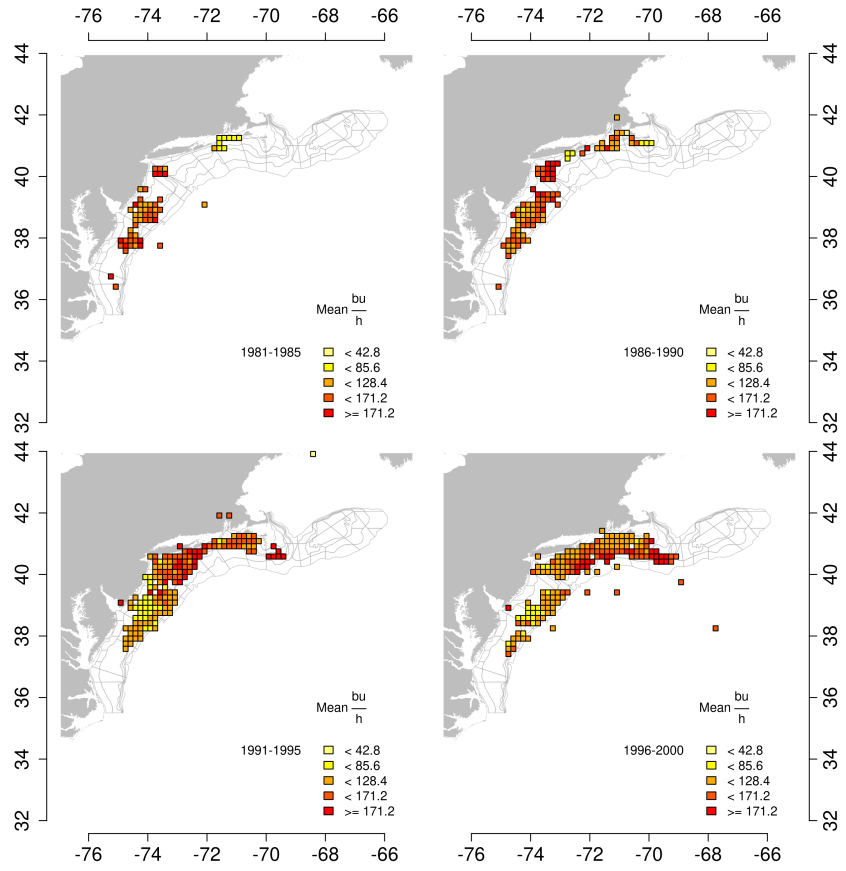


Figure 12: Average ocean quahog LPUE (bu.  $h^{-1}$ ) by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.

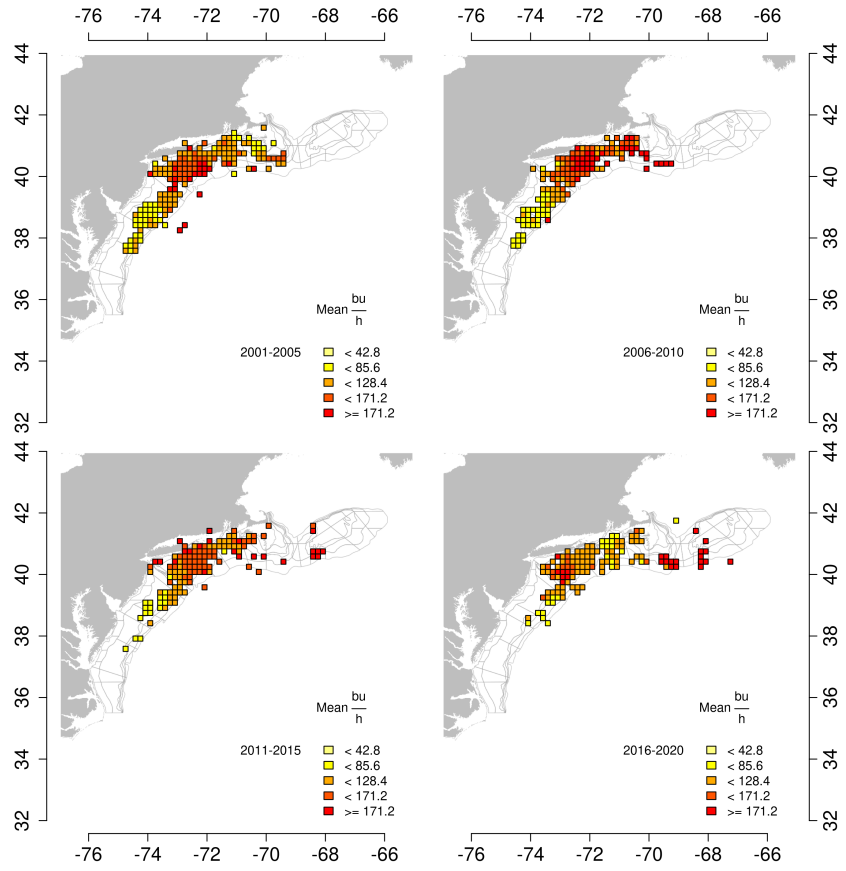


Figure 13: Average ocean quahog LPUE ( $\text{bu. } h^{-1}$ ) by ten-minute squares over time. Only squares where more the 5 kilo bushels were caught are shown.



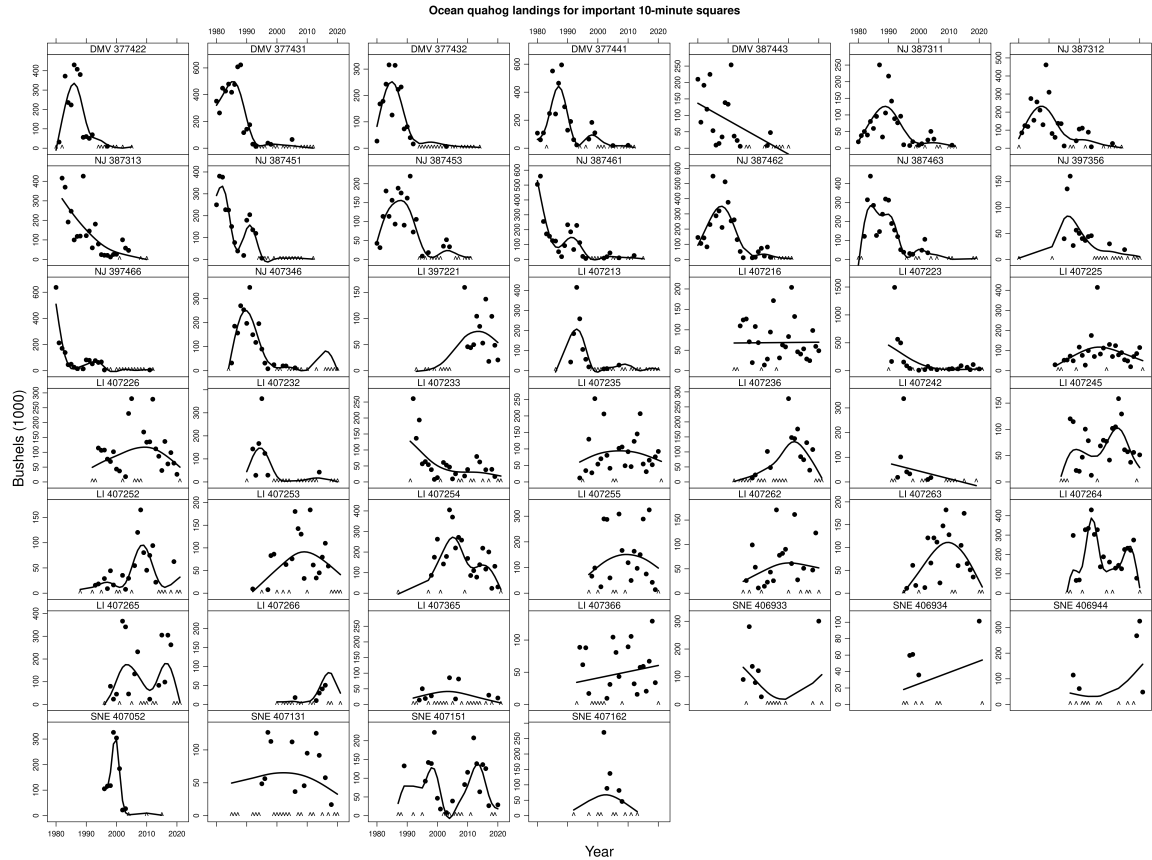


Figure 14: Annual ocean quahog landings in “important” ten minute squares (TNMS) during 1980-2020 based on logbook data. Important means that a square ranked in the top 10 TNMS for total landings during any five-year period (1980-1984, 1985-1989, ...). Data for 2020 are incomplete and preliminary. To 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.

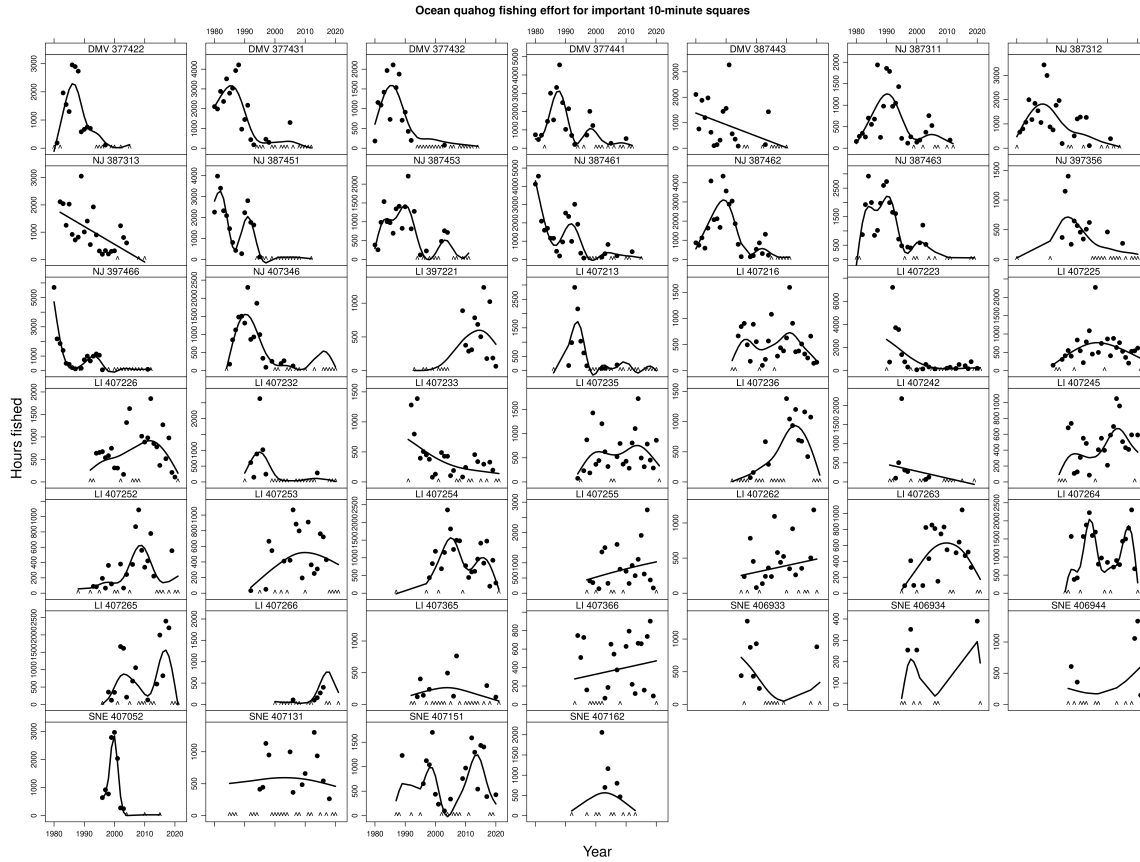


Figure 15: Annual ocean quahog effort (hours  $y^{-1}$ ) in “important” ten minute squares (TNMS) during 1980-2020 based on logbook data. Important means that a square ranked in the top 10 TNMS for total landings during any five-year period. Data for 2020 are incomplete and preliminary. To protect the 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.

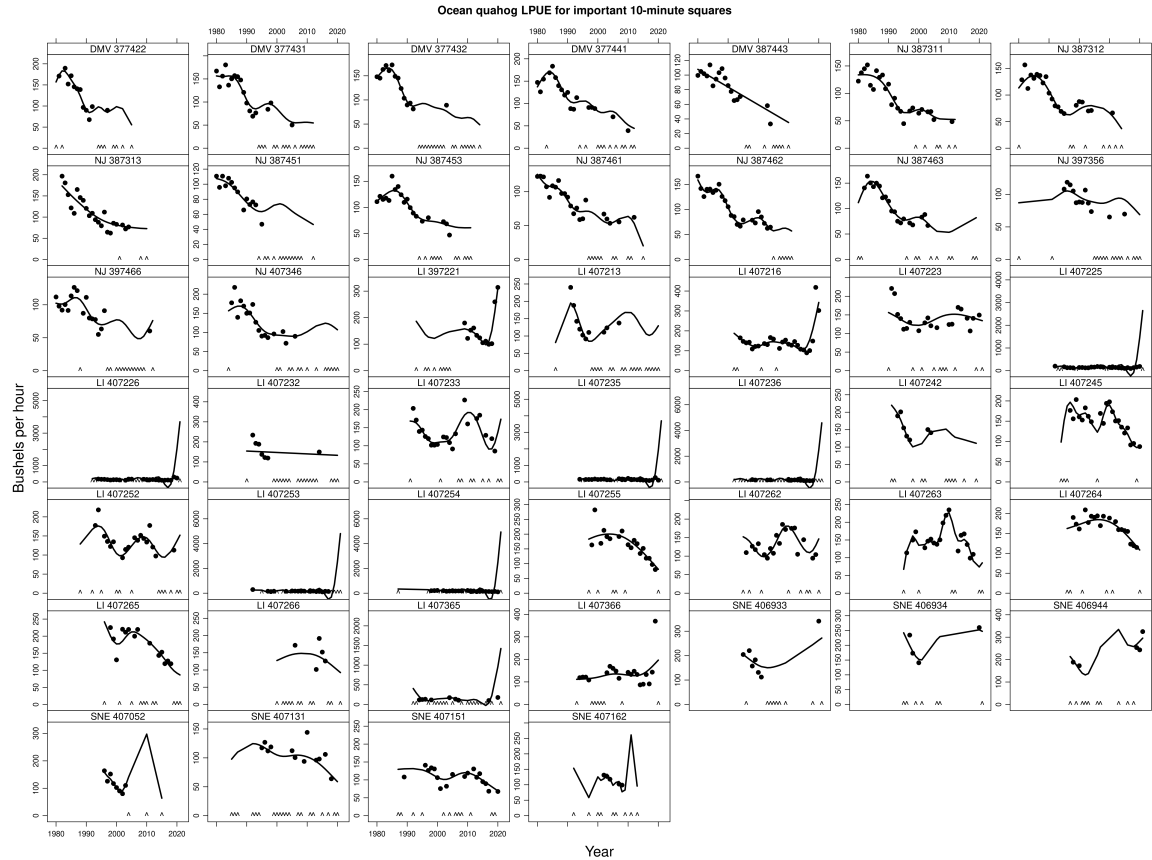


Figure 16: Annual ocean quahog LPUE ( $bu\ h^{-1}$ ) in “important” ten minute squares (TNMS) during 1980-2020 based on logbook data. Important means that a square ranked in the top 10 TNMS for total landings during any five-year period . Data for 2020 are incomplete and preliminary. To protect the privacy 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.

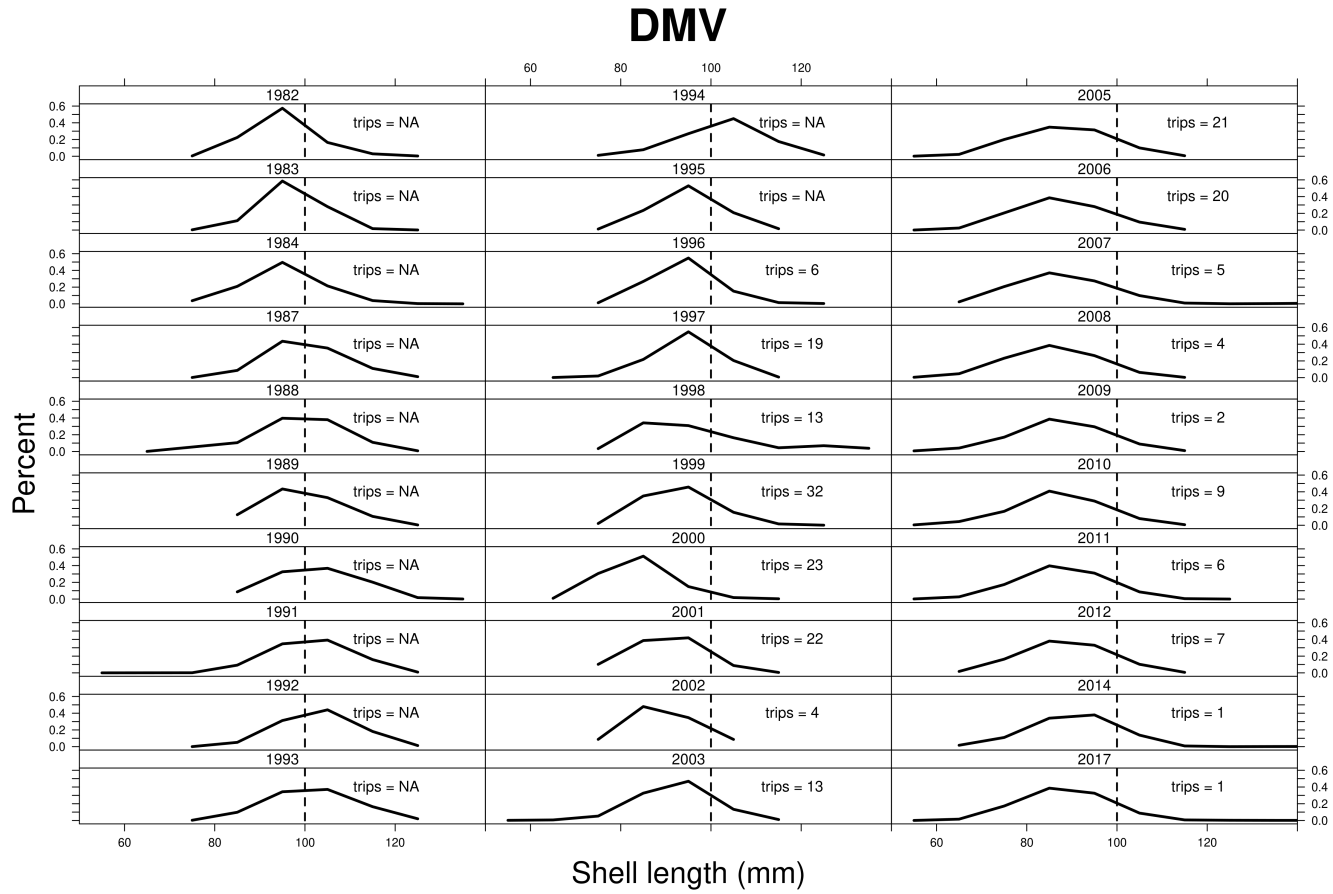


Figure 17: Length compositions of port-sampled landed ocean quahogs from the DMV region. Sample sizes are the number of trips sampled in each year. Number of trips sampled before 1996 are unknown.

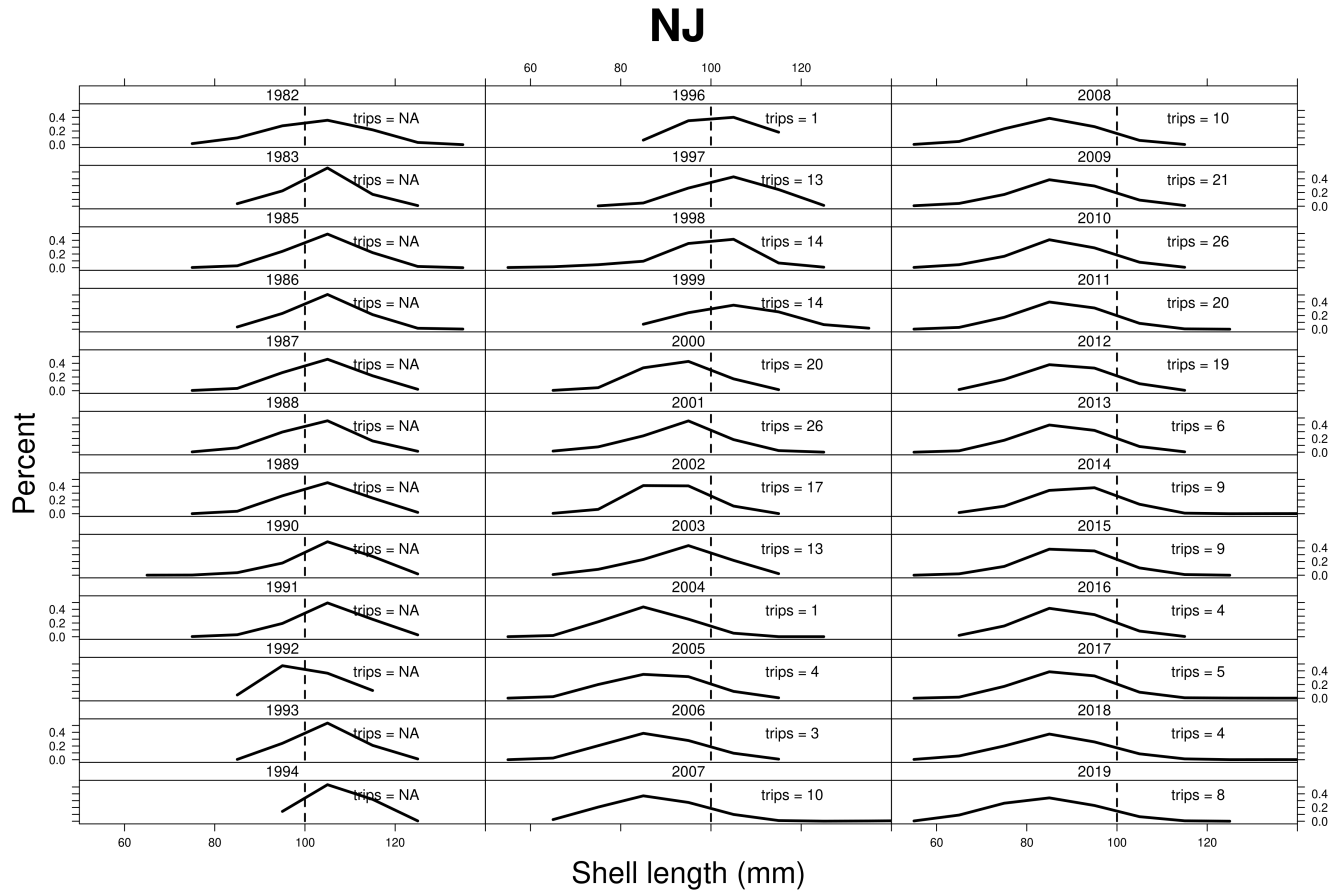


Figure 18: Length compositions of port-sampled landed ocean quahogs from the NJ region. Sample sizes are the number of trips sampled in each year. Number of trips sampled before 1996 are unknown.

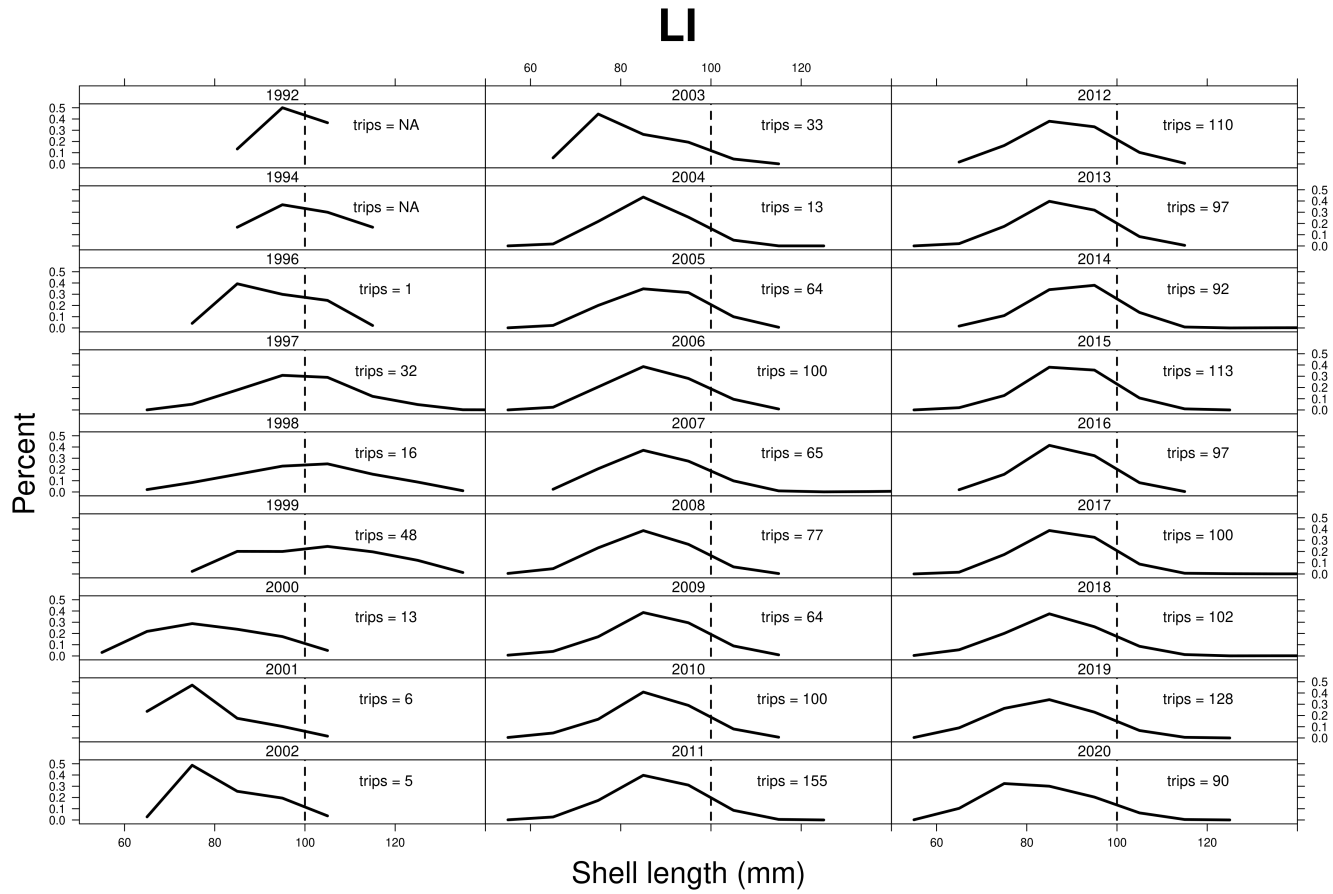


Figure 19: Length compositions of port-sampled landed ocean quahogs from the LI region. Sample sizes are the number of trips sampled in each year. Number of trips sampled before 1996 are unknown.

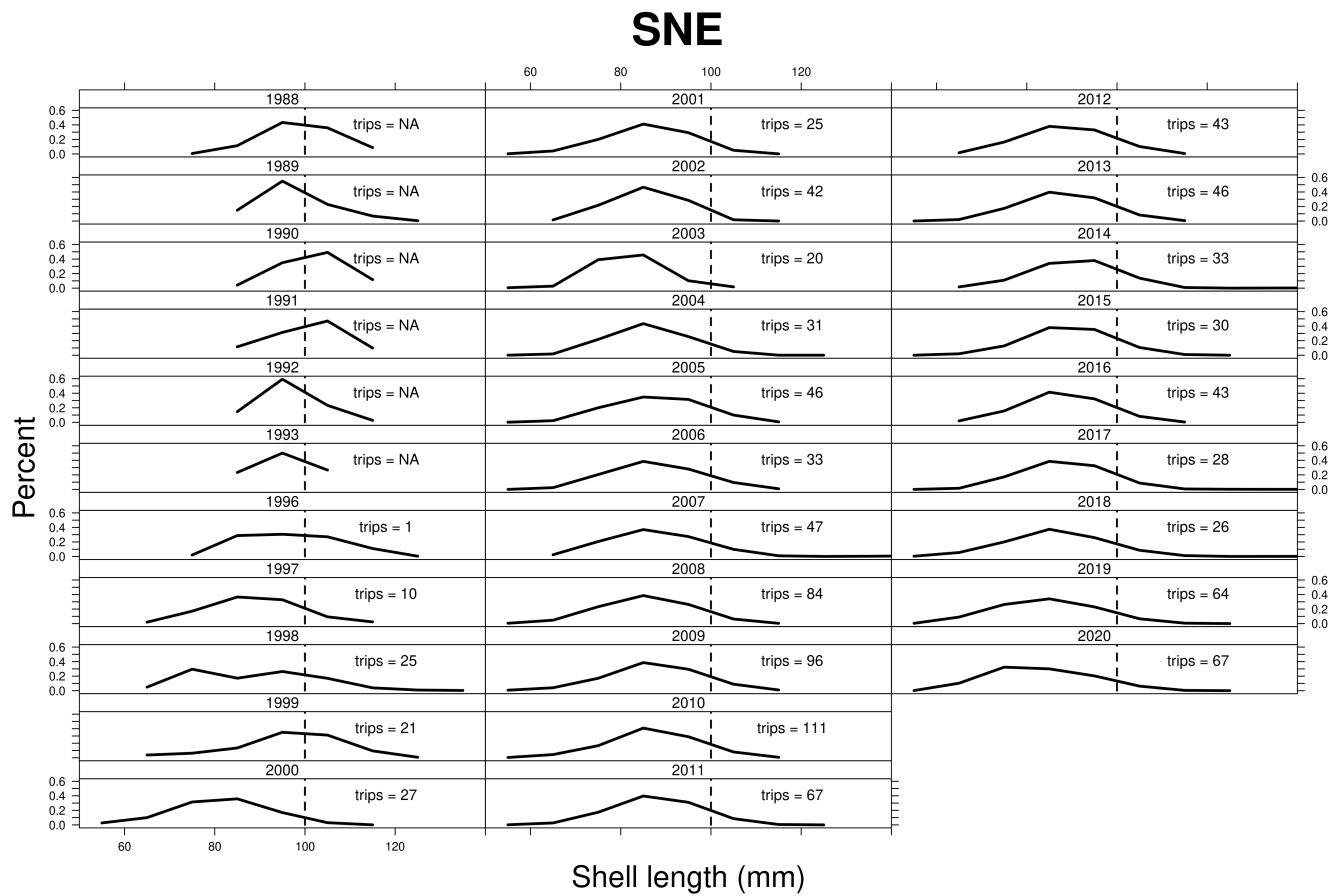


Figure 20: Length compositions of port-sampled landed ocean quahogs from the SNE region. Sample sizes are the number of trips sampled in each year. Number of trips sampled before 1996 are unknown.

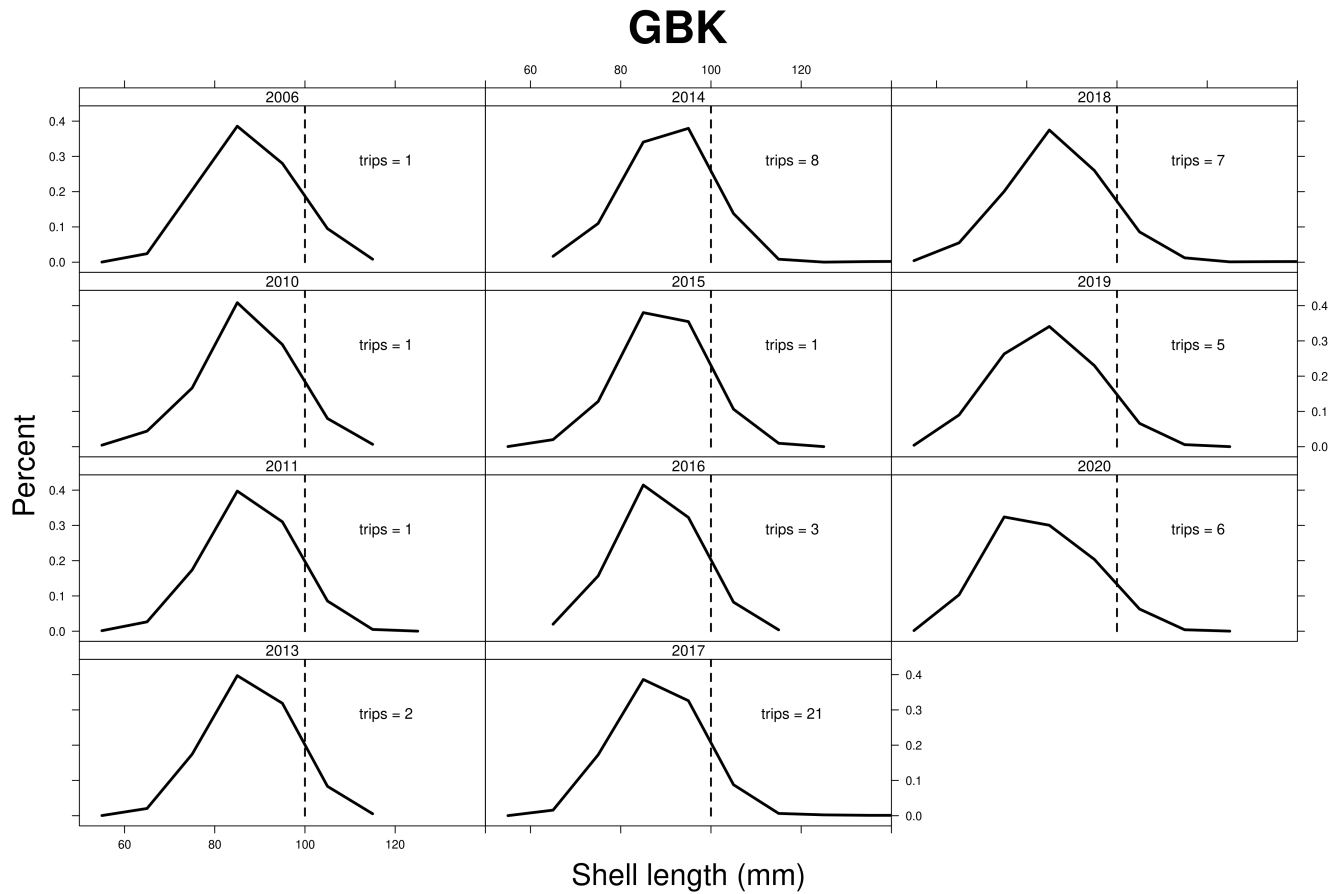


Figure 21: Length compositions of port-sampled landed ocean quahogs from the GBK region. Sample sizes are the number of trips sampled in each year. Number of trips sampled before 1996 are unknown.



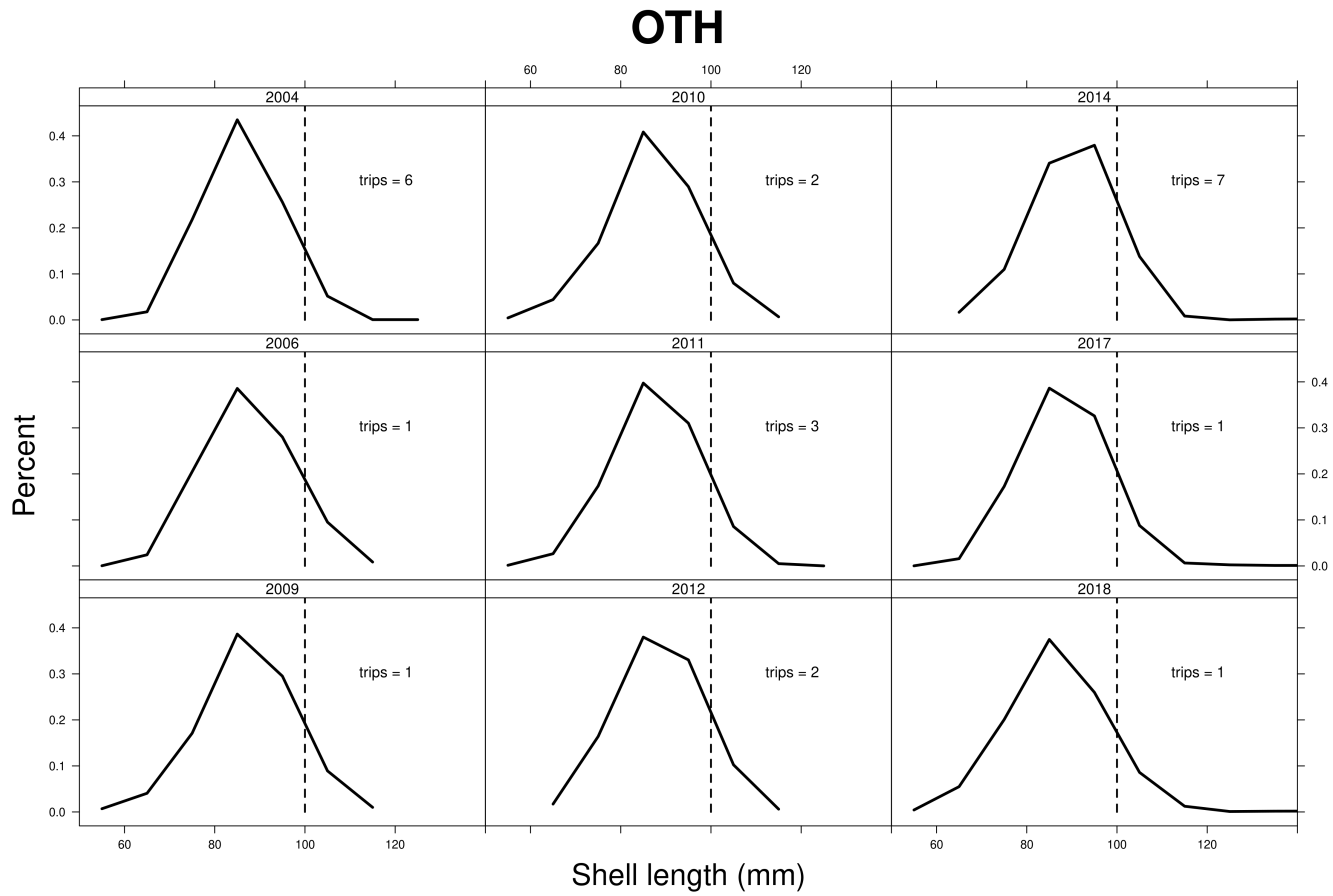


Figure 22: Length compositions of port-sampled landed ocean quahogs for which no area was recorded. Sample sizes are the number of trips sampled in each year. Number of trips sampled before 1996 are unknown.