

RESOURCE SURVEY REPORT
Catch Summary
NOAA Fisheries Service
Northeast Fisheries Science Center
Atlantic Surfclam -Ocean Quahog Survey
Delmarva Peninsula -Georges Bank
11 July – 17 August 2011

Submitted to: NOAA, NEFSC

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Date: 2011

Resource Survey Report

Atlantic Surfclam/Ocean Quahog



Delmarva Peninsula – Georges Bank

July 11 – August 17, 2011

NOAA FSV *Delaware II*

NOAA Fisheries Service
Northeast Fisheries Science Center
Woods Hole, MA 02543



The *Delaware II* preparing to set the clam dredge

RESOURCE SURVEY REPORT

Catch Summary

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Atlantic Surfclam - Ocean Quahog Survey

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The 2011 region-wide survey for Atlantic surfclam, *Spisula solidissima*; and ocean quahog, *Arctica islandica*, was conducted in continental shelf waters, from Delmarva Peninsula to Georges Bank aboard the NOAA FSV *Delaware II*. The survey, conducted by the Northeast Fisheries Science Center, provides indices of abundance and recruitment for both species. In addition, five setup sights for each species were selected across the mid-Atlantic. Later in August, depletion tows were conducted by the F/V *E.S.S. Pursuit* at each setup sight. A depletion study is a way to compare efficiencies between the NEFSC dredge and a commercial dredge of a different size and then calibrates the data to make the catches comparable.

The following charts and station data describe the distribution of surfclams and ocean quahogs during the survey. Five-minute tows were made at 1.5 knots with a hydraulic jet dredge equipped with a 5-foot wide blade and submersible pump positioned on the dredge. Survey stations were randomly selected to provide unbiased abundance measurements. Therefore, these stations were not always on or near known locations of clam concentrations.

In this report, catch quantity is recorded in numbers of clams, and depth in fathoms. Percent estimates of surf clams are also given by four categories of shell height: between 0 to 4.75", 4.76 to 5.00", 5.01 to 5.50", and greater than 5.50". Distribution plots indicate relative numbers of surfclams and ocean quahogs caught on each tow.

The data are now summarized from audited catch files generated from the Fisheries Scientific Computer System (FSCS).

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- Resource Survey Reports
 - Available RSR
 - Select season and year of interest

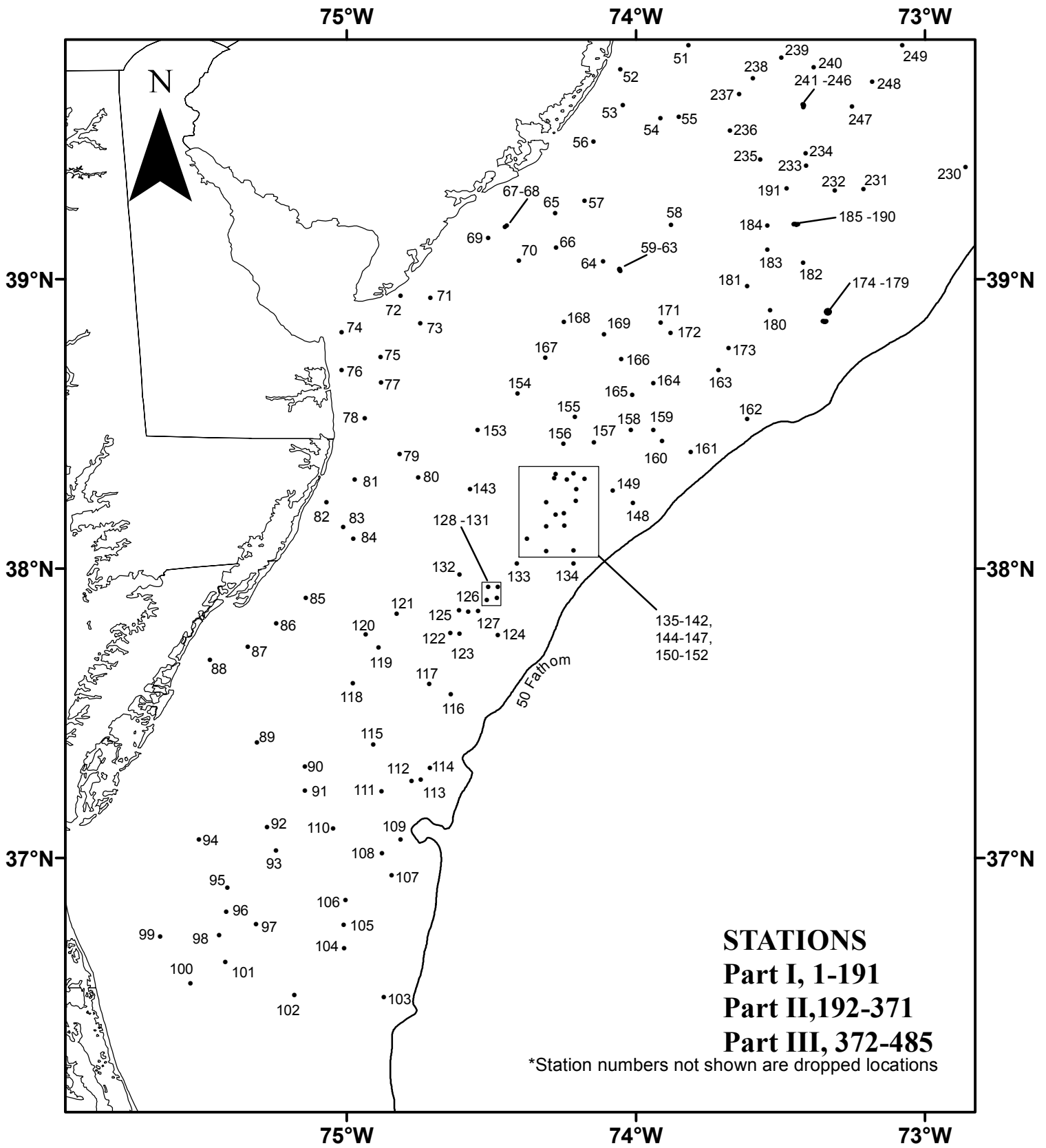


Figure 1. Dredge hauls made from NOAA FSV *Delaware II* (11-06), during NOAA Fisheries Service, Northeast Fisheries Science Center Surfclam/Ocean Quahog survey, July 11 - August 17, 2011.

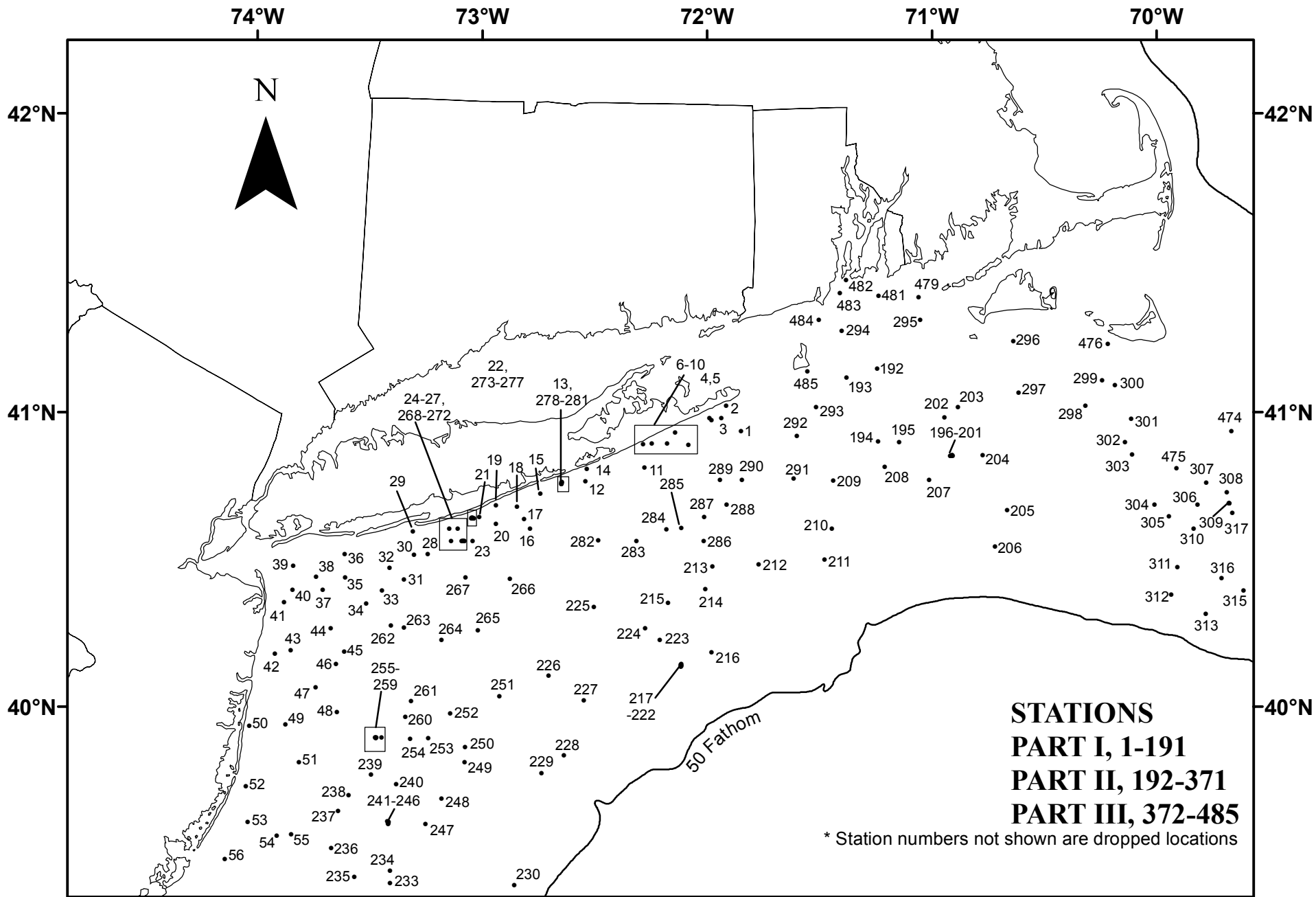


Figure 2. Dredge hauls made from NOAA FSV *Delaware II* (11-06), during NOAA Fisheries Service, Northeast Fisheries Science Center Surfclam/Ocean Quahog survey, July 11- August 17, 2011.

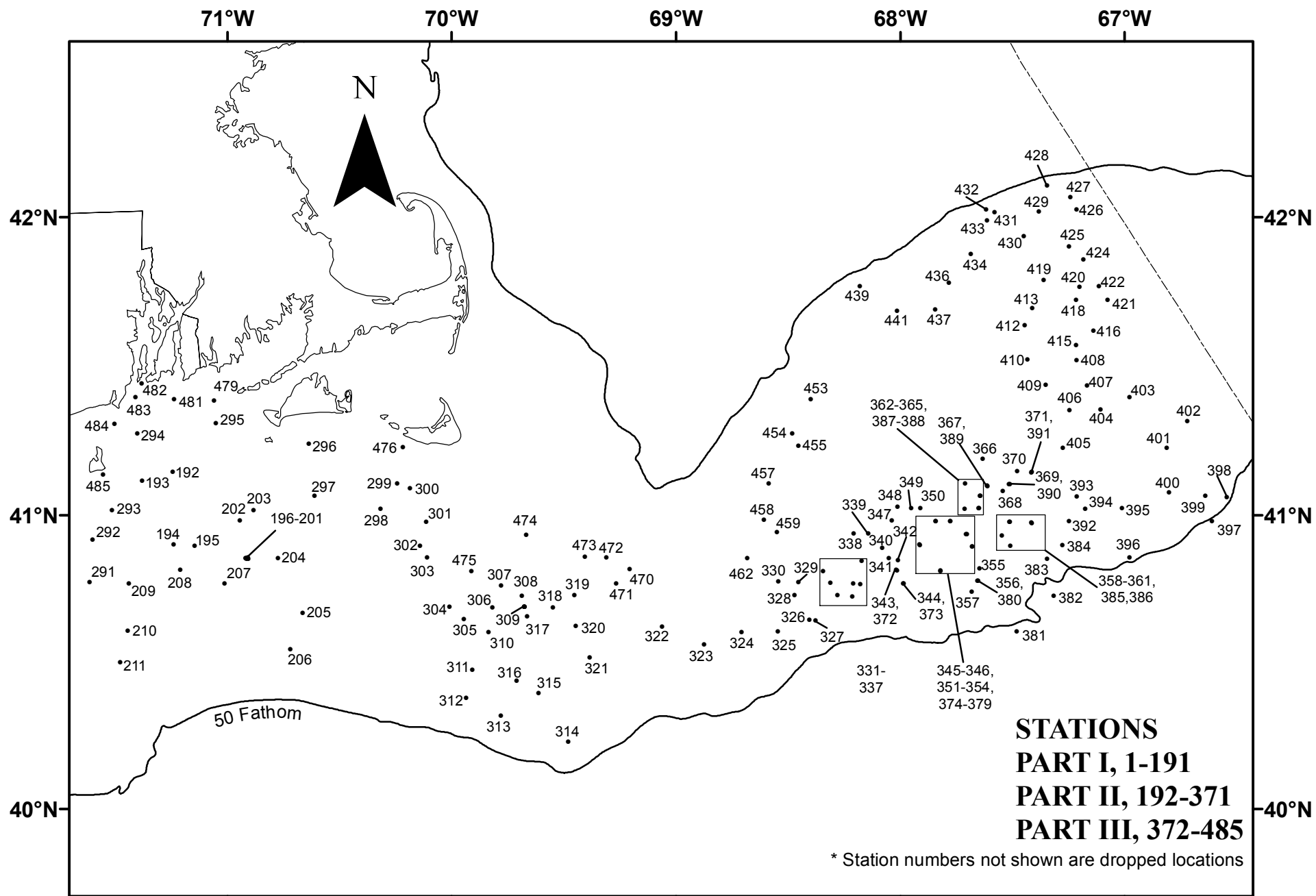


Figure 3. Dredge hauls made from FSV *Delaware II* (11-06), during NOAA Fisheries Service, Northeast Fisheries Science Center Surfclam/Ocean Quahog survey, July 11- August 17, 2011.

Field Notes

In an effort to share some of the field observations made during the clam survey, the Chief Scientists on each part of the survey have commented on some of the more interesting catches/events that occurred aboard the NOAA FRV *Delaware II*.

Low Surfclam Catches:

Surfclam catches in the mid-Atlantic, particularly inshore along the New Jersey coast, were very low. Historically, these areas were high producers of surfclams. There were a very low catches of juvenile surfclams over the entire geographic range from Block Island southward. There were a few tows off the Delmarva area in the 30 fathom depth range where we saw some recruitment.

Higher Ocean Quahog Catches:

Ocean quahog catches averaged several bushels higher in the offshore waters south of Long Island where traditionally catches of quahogs have been lower. We had very little gear damage during the first leg.

Set up Sites:

During legs I and II, a number of set up sites for ocean quahogs and surfclams were completed. These sites were re-occupied by an industry vessel, F/V *E.S.S. Pursuit*, in August. The resulting data will be used to compare the efficiencies between the NMFS survey dredge and the commercial dredge to develop a calibration between the two gear types.

Record Catch:

Leg II covered grounds from south of Hudson-Canyon all the way to the always-foggy southeastern regions of Georges Bank. The latter area saw consistently large catches of small quahogs, with a record catch of 4,207 in a five-minute tow.

Cut Cable:

Near the end of the cruise, about 300 feet of cable was cut before it was re-terminated; this cable removal limited our ability to dredge in the deeper strata.

Finding Good Bottom:

Considerable time was spent scouting for towable bottom on Georges Bank. It is just the nature of clam dredging on Georges. We went through all of our blade assemblies and blades, parted the hawser a few times and parted the steel tow cable. Over all, it was a very productive third leg. Catches of surfclams were light and slightly higher on the Western side of Georges in and around Cultivator Shoals.

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2011 NOAA Fisheries Service Surfclam -- Ocean Quahog Survey
 NOAA FSV DELAWARE II July 11 - August 17

Station Data								Surfclams					Ocean Quahogs
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time Delays	Heading			0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"		
05	0096	3648.8	7525.0	X27020.9	Y41266.5	219	13.7	33	100.0	0.0	0.0	0.0	0
05	0097	3646.2	7518.8	X26991.2	Y41251.6	277	13.7	17	100.0	0.0	0.0	0.0	0
05	0098	3643.9	7526.5	X27019.9	Y41209.5	303	12.6	10	100.0	0.0	0.0	0.0	0
05	0099	3643.7	7538.7	X27069.7	Y41180.5	244	12.0	33	100.0	0.0	0.0	0.0	0
05	0100	3633.9	7532.4	X27029.4	Y41086.6	176	14.2	0	0.0	0.0	0.0	0.0	0
05	0101	3638.4	7525.2	X27006.6	Y41152.4	25	13.1	14	100.0	0.0	0.0	0.0	0
05	0102	3631.4	7510.9	X26938.5	Y41111.3	86	22.4	7	100.0	0.0	0.0	0.0	0
05	0103	3631.1	7452.3	X26861.3	Y41154.0	107	22.4	3	100.0	0.0	0.0	0.0	0
05	0104	3641.2	7500.6	X26907.9	Y41239.2	19	14.8	10	100.0	0.0	0.0	0.0	0
09	0089	3724.0	7518.6	X27049.3	Y41669.9	224	17.0	11	100.0	0.0	0.0	0.0	0
09	0090	3718.9	7508.7	X26996.1	Y41630.2	207	19.1	0	0.0	0.0	0.0	0.0	0
09	0091	3713.9	7508.6	X26987.9	Y41575.3	203	18.0	47	95.7	2.1	2.1	0.0	0
09	0092	3706.3	7516.5	X27011.2	Y41476.7	205	19.7	0	0.0	0.0	0.0	0.0	0
09	0093	3701.5	7514.7	X26996.0	Y41427.4	161	18.6	44	100.0	0.0	0.0	0.0	0
09	0094	3703.8	7530.7	X27068.6	Y41421.5	318	14.2	0	0.0	0.0	0.0	0.0	0
09	0095	3653.8	7524.8	X27027.6	Y41322.0	180	14.8	11	100.0	0.0	0.0	0.0	0
09	0105	3646.1	7500.6	X26914.1	Y41291.0	57	17.0	73	100.0	0.0	0.0	0.0	0
09	0106	3651.2	7500.3	X26919.4	Y41345.9	116	19.1	132	100.0	0.0	0.0	0.0	0
09	0110	3706.0	7502.8	X26950.4	Y41500.0	48	20.8	67	100.0	0.0	0.0	0.0	3
09	0111	3713.7	7452.8	X26916.3	Y41602.3	25	28.4	1	100.0	0.0	0.0	0.0	0
09	0115	3723.6	7454.5	X26938.2	Y41706.5	323	25.7	5	100.0	0.0	0.0	0.0	0
09	0118	3736.2	7458.7	X26977.3	Y41837.8	22	13.7	268	87.3	6.3	5.2	1.1	0
09	0119	3743.7	7453.4	X26964.0	Y41928.4	339	20.2	108	96.3	0.0	2.8	0.9	0
09	0120	3746.4	7456.1	X26981.6	Y41954.3	56	17.0	87	97.7	1.1	1.1	0.0	0
10	0107	3656.3	7450.7	X26884.1	Y41420.6	19	31.7	1	100.0	0.0	0.0	0.0	0
10	0108	3700.9	7452.7	X26898.7	Y41465.3	350	29.0	0	0.0	0.0	0.0	0.0	1
10	0112	3716.0	7446.6	X26891.0	Y41638.4	165	28.4	22	100.0	0.0	0.0	0.0	1
10	0117	3736.1	7442.8	X26901.0	Y41861.3	10	31.2	0	0.0	0.0	0.0	0.0	80
11	0109	3703.8	7448.8	X26885.1	Y41504.0	354	33.4	0	0.0	0.0	0.0	0.0	5
11	0113	3716.2	7444.6	X26882.1	Y41644.2	52	34.4	0	0.0	0.0	0.0	0.0	12
11	0114	3718.6	7442.7	X26876.5	Y41673.2	76	33.4	3	100.0	0.0	0.0	0.0	9
11	0116	3734.0	7438.4	X26876.9	Y41845.5	47	33.4	0	0.0	0.0	0.0	0.0	71
13	0080	3818.9	7445.1	X26982.9	Y42327.4	292	14.2	9	66.7	22.2	11.1	0.0	0
13	0121	3750.6	7449.6	X26956.6	Y42009.7	81	18.0	174	59.8	12.6	7.5	20.1	0
13	0132	3758.9	7436.6	X26904.4	Y42117.3	197	22.4	34	79.4	11.8	8.8	0.0	0
13	0137	3806.1	7422.6	X26842.5	Y42211.7	341	24.1	105	81.0	10.5	8.6	0.0	2
13	0138	3808.8	7418.5	X26824.7	Y42245.1	89	23.5	276	79.0	12.3	8.0	0.7	90
13	0143	3816.4	7434.3	X26920.9	Y42310.7	53	23.0	3	100.0	0.0	0.0	0.0	2
13	0153	3828.8	7432.8	X26934.4	Y42447.7	52	21.3	2	0.0	0.0	0.0	100.0	0
14	0122	3746.5	7438.5	X26895.2	Y41980.2	78	29.5	4	50.0	25.0	0.0	25.0	93
14	0123	3746.5	7436.6	X26885.7	Y41982.9	216	29.5	0	0.0	0.0	0.0	0.0	4
14	0125	3751.3	7436.7	X26893.3	Y42034.7	72	27.9	0	0.0	0.0	0.0	0.0	165
14	0126	3751.1	7434.7	X26883.0	Y42035.2	69	29.0	0	0.0	0.0	0.0	0.0	104
14	0127	3751.1	7432.7	X26872.9	Y42037.9	72	30.1	0	0.0	0.0	0.0	0.0	33
14	0128	3753.5	7430.9	X26867.3	Y42066.2	68	30.1	0	0.0	0.0	0.0	0.0	68
14	0129	3753.8	7428.8	X26857.0	Y42072.1	222	31.2	0	0.0	0.0	0.0	0.0	49
14	0130	3756.2	7428.6	X26859.4	Y42098.2	210	30.1	0	0.0	0.0	0.0	0.0	39

2011 NOAA Fisheries Service Surfclam -- Ocean Quahog Survey
 NOAA FSV DELAWARE II July 11 - August 17

Station Data								Surfclams					Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number		
		Latitude	Longitude	Time	Delays			Heading	0-4.74"	4.76-5.00"	5.01-5.50"		>5.50"	
14	0131	3756.2	7430.6	X26869.7	Y42095.6	230	29.5	0	0.0	0.0	0.0	0.0	97	
14	0133	3801.1	7424.7	X26846.3	Y42155.6	105	29.0	2	100.0	0.0	0.0	0.0	105	
14	0136	3803.6	7418.5	X26817.4	Y42189.6	320	31.2	5	100.0	0.0	0.0	0.0	96	
14	0139	3808.8	7414.8	X26805.0	Y42249.1	344	23.0	164	90.9	3.0	5.5	0.6	1	
14	0140	3811.4	7414.9	X26809.1	Y42276.6	288	24.1	192	94.3	3.6	2.1	0.0	0	
14	0141	3811.2	7416.7	X26818.5	Y42272.6	24	24.1	204	88.2	5.9	4.4	1.5	14	
14	0142	3813.8	7418.6	X26832.4	Y42298.4	11	26.2	228	87.3	8.3	3.5	0.9	5	
14	0144	3818.7	7416.9	X26830.4	Y42352.5	74	30.1	2	100.0	0.0	0.0	0.0	246	
14	0145	3818.4	7414.3	X26815.7	Y42351.8	88	29.5	4	100.0	0.0	0.0	0.0	3	
14	0146	3816.5	7412.4	X26802.7	Y42333.4	96	31.2	0	0.0	0.0	0.0	0.0	33	
14	0147	3813.9	7412.4	X26799.1	Y42305.8	95	33.9	0	0.0	0.0	0.0	0.0	79	
14	0150	3818.6	7410.6	X26795.7	Y42357.4	120	32.3	0	0.0	0.0	0.0	0.0	36	
14	0151	3819.7	7412.9	X26809.9	Y42366.9	239	30.6	2	100.0	0.0	0.0	0.0	1	
14	0152	3819.7	7416.6	X26830.2	Y42363.5	163	30.6	0	0.0	0.0	0.0	0.0	147	
14	0156	3825.9	7415.0	X26830.7	Y42431.2	200	26.8	65	87.7	4.6	6.2	1.5	14	
15	0124	3746.2	7428.6	X26845.5	Y41990.9	121	34.4	1	100.0	0.0	0.0	0.0	89	
15	0134	3801.1	7412.9	X26784.7	Y42169.6	84	38.3	0	0.0	0.0	0.0	0.0	39	
15	0135	3803.7	7412.9	X26788.1	Y42197.1	331	36.6	0	0.0	0.0	0.0	0.0	33	
15	0148	3813.6	7400.5	X26734.0	Y42314.5	101	39.9	0	0.0	0.0	0.0	0.0	9	
15	0149	3816.1	7404.8	X26760.6	Y42336.5	332	36.6	0	0.0	0.0	0.0	0.0	4	
17	0154	3836.3	7424.5	X26901.3	Y42535.8	69	23.0	0	0.0	0.0	0.0	0.0	13	
17	0166	3843.5	7403.1	X26789.3	Y42626.8	276	26.8	0	0.0	0.0	0.0	0.0	79	
17	0167	3843.8	7418.7	X26881.2	Y42620.8	9	21.3	21	57.1	14.3	14.3	14.3	2	
17	0168	3851.2	7414.9	X26871.9	Y42702.6	57	24.6	0	0.0	0.0	0.0	0.0	31	
17	0169	3848.6	7406.6	X26818.0	Y42679.0	149	25.2	8	100.0	0.0	0.0	0.0	23	
18	0155	3831.4	7412.6	X26825.7	Y42491.9	191	29.0	0	0.0	0.0	0.0	0.0	122	
18	0157	3826.2	7408.7	X26795.9	Y42439.7	236	31.2	0	0.0	0.0	0.0	0.0	79	
18	0158	3828.7	7401.0	X26756.0	Y42472.3	143	30.6	0	0.0	0.0	0.0	0.0	58	
18	0164	3838.5	7356.4	X26742.8	Y42578.3	246	27.3	0	0.0	0.0	0.0	0.0	44	
18	0165	3836.0	7400.8	X26764.9	Y42549.2	20	29.5	0	0.0	0.0	0.0	0.0	136	
19	0159	3828.8	7356.4	X26730.0	Y42476.9	212	30.6	0	0.0	0.0	0.0	0.0	31	
19	0160	3826.5	7354.5	X26716.3	Y42454.4	120	32.8	0	0.0	0.0	0.0	0.0	83	
19	0161	3824.1	7348.6	X26680.2	Y42434.3	85	38.8	0	0.0	0.0	0.0	0.0	26	
19	0162	3831.0	7336.9	X26620.7	Y42514.0	41	40.5	0	0.0	0.0	0.0	0.0	15	
21	0055	3933.7	7351.0	X26798.0	Y43155.0	221	15.3	17	35.3	0.0	17.6	47.1	0	
21	0058	3911.3	7352.7	X26769.4	Y42922.5	128	23.5	1	0.0	0.0	100.0	0.0	146	
21	0059	3902.0	7403.3	X26820.4	Y42822.4	294	21.9	3	100.0	0.0	0.0	0.0	254	
*	21	0060	3902.2	7403.4	X26821.4	Y42824.5	281	20.8	14	57.1	7.1	21.4	14.3	288
*	21	0061	3902.1	7403.4	X26821.2	Y42823.4	278	21.3	9	33.3	11.1	0.0	55.6	280
*	21	0062	3901.9	7403.3	X26820.3	Y42821.3	279	21.9	0	0.0	0.0	0.0	0.0	109
*	21	0063	3901.8	7403.3	X26820.1	Y42820.3	279	21.9	0	0.0	0.0	0.0	0.0	125
	21	0064	3903.7	7406.7	X26844.5	Y42839.4	14	20.2	2	0.0	0.0	0.0	100.0	92
**	21	0170	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0	0
	21	0171	3851.1	7354.8	X26751.1	Y42711.0	39	24.6	2	100.0	0.0	0.0	0.0	73
	21	0172	3848.9	7352.7	X26735.2	Y42689.0	169	26.8	0	0.0	0.0	0.0	0.0	39
	21	0184	3911.2	7332.7	X26640.4	Y42924.2	48	22.4	47	97.9	0.0	2.1	0.0	7
	21	0191	3918.8	7328.7	X26624.1	Y43001.1	40	29.0	2	100.0	0.0	0.0	0.0	69

2011 NOAA Fisheries Service Surfclam -- Ocean Quahog Survey
 NOAA FSV DELAWARE II July 11 - August 17

Station Data								Surfclams					Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number		
		Latitude	Longitude	Time	Delays			Heading	0-4.74"	4.76-5.00"	5.01-5.50"		>5.50"	
	21	0233	3923.5	7324.7	X26603.4	Y43048.0	330	24.1	29	89.7	6.9	0.0	3.4	83
	21	0234	3926.2	7324.7	X26607.0	Y43074.9	302	19.1	30	80.0	10.0	6.7	3.3	1
	21	0235	3924.8	7334.2	X26669.1	Y43061.8	239	24.1	0	0.0	0.0	0.0	0.0	43
	21	0236	3930.9	7340.4	X26720.7	Y43124.5	352	17.0	19	52.6	0.0	31.6	15.8	0
	21	0237	3938.4	7338.6	X26721.1	Y43200.2	99	19.7	11	54.5	0.0	18.2	27.3	0
	21	0238	3941.7	7335.7	X26706.6	Y43232.6	82	20.2	17	52.9	17.6	23.5	5.9	20
	21	0241	3936.2	7325.1	X26623.5	Y43174.4	244	20.8	109	53.2	8.3	19.3	19.3	8
*	21	0242	3935.8	7325.2	X26623.6	Y43170.5	103	20.8	61	0.0	0.0	0.0	0.0	7
*	21	0243	3936.3	7325.2	X26624.4	Y43175.5	103	20.8	37	89.2	2.7	2.7	5.4	10
*	21	0244	3936.0	7325.2	X26623.9	Y43172.5	100	20.8	26	65.4	15.4	3.8	15.4	11
*	21	0245	3936.4	7325.3	X26625.2	Y43176.5	86	20.2	13	76.9	7.7	7.7	7.7	3
*	21	0246	3935.9	7325.1	X26623.1	Y43171.5	85	21.3	31	58.1	3.2	19.4	19.4	7
	22	0173	3845.8	7340.7	X26659.0	Y42662.9	128	29.0	2	100.0	0.0	0.0	0.0	11
	22	0181	3858.6	7336.9	X26651.2	Y42795.3	8	29.0	4	100.0	0.0	0.0	0.0	31
	22	0183	3906.1	7332.7	X26634.0	Y42872.6	317	27.9	9	100.0	0.0	0.0	0.0	58
	22	0185	3911.4	7326.9	X26603.1	Y42926.9	213	29.5	0	0.0	0.0	0.0	0.0	229
*	22	0186	3911.5	7326.3	X26599.3	Y42927.9	217	29.5	0	0.0	0.0	0.0	0.0	74
*	22	0187	3911.4	7326.7	X26601.8	Y42926.9	190	30.1	0	0.0	0.0	0.0	0.0	210
*	22	0188	3911.4	7326.8	X26602.4	Y42926.9	189	29.5	0	0.0	0.0	0.0	0.0	277
*	22	0189	3911.5	7327.1	X26604.5	Y42927.9	179	29.5	0	0.0	0.0	0.0	0.0	198
*	22	0190	3911.4	7327.2	X26605.0	Y42926.8	176	29.0	0	0.0	0.0	0.0	0.0	167
	22	0232	3918.5	7318.7	X26557.4	Y42998.0	336	29.0	2	100.0	0.0	0.0	0.0	216
	23	0163	3841.1	7342.8	X26666.1	Y42613.5	272	31.7	0	0.0	0.0	0.0	0.0	61
	23	0174	3851.2	7320.9	X26544.4	Y42726.2	311	38.3	0	0.0	0.0	0.0	0.0	79
*	23	0175	3851.3	7320.5	X26542.0	Y42727.4	213	39.4	0	0.0	0.0	0.0	0.0	49
*	23	0176	3851.2	7320.6	X26542.6	Y42726.4	163	39.4	0	0.0	0.0	0.0	0.0	26
*	23	0177	3851.3	7320.8	X26543.9	Y42727.3	174	38.3	0	0.0	0.0	0.0	0.0	22
*	23	0178	3851.3	7321.0	X26545.1	Y42727.2	180	37.2	0	0.0	0.0	0.0	0.0	27
*	23	0179	3851.3	7321.2	X26546.3	Y42727.1	178	37.2	0	0.0	0.0	0.0	0.0	40
	23	0180	3853.6	7332.1	X26615.6	Y42746.1	310	30.1	0	0.0	0.0	0.0	0.0	30
	23	0182	3903.4	7325.3	X26583.8	Y42846.9	148	31.7	0	0.0	0.0	0.0	0.0	92
	23	0231	3918.7	7312.8	X26518.3	Y42999.9	282	35.0	0	0.0	0.0	0.0	0.0	111
	25	0045	4011.2	7336.8	X26772.5	Y43527.3	193	20.2	0	0.0	0.0	0.0	0.0	68
	25	0047	4003.8	7344.5	X26813.9	Y43459.3	201	18.6	63	12.7	6.3	12.7	68.3	2
	25	0048	3958.9	7338.9	X26762.0	Y43406.7	164	21.3	46	26.1	10.9	13.0	50.0	27
	25	0239	3946.0	7329.8	X26672.0	Y43273.4	64	20.2	69	53.6	17.4	8.7	20.3	6
	25	0240	3944.0	7323.1	X26621.0	Y43250.9	152	20.2	57	82.5	8.8	1.8	7.0	3
	25	0247	3935.9	7315.2	X26554.0	Y43168.8	29	23.0	34	41.2	14.7	20.6	23.5	12
	25	0248	3941.1	7311.0	X26530.8	Y43218.0	27	25.2	13	100.0	0.0	0.0	0.0	6
	25	0255	3953.5	7326.9	X26663.9	Y43346.3	335	23.5	107	79.4	12.1	8.4	0.0	51
*	25	0256	3953.5	7328.5	X26675.5	Y43347.2	16	22.4	59	81.4	10.2	8.5	0.0	19
*	25	0257	3953.6	7328.7	X26677.2	Y43348.2	188	22.4	72	69.4	20.8	8.3	1.4	59
*	25	0258	3953.6	7328.6	X26676.4	Y43348.2	188	22.4	114	72.8	12.3	13.2	1.8	32
*	25	0259	3953.6	7328.3	X26674.3	Y43348.0	207	22.4	218	72.0	17.4	10.6	0.0	60
	26	0046	4008.7	7339.1	X26784.4	Y43504.4	244	35.0	1	0.0	0.0	0.0	100.0	1
	26	0253	3953.5	7314.5	X26572.9	Y43339.6	280	27.9	0	0.0	0.0	0.0	0.0	0
	26	0254	3953.3	7319.2	X26607.1	Y43340.2	300	26.2	0	0.0	0.0	0.0	0.0	0

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Station Data								Surfclams				Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time	Delays			Heading	0-4.74"	4.76-5.00"	5.01-5.50"		>5.50"
26	0261	4001.2	7319.1	X26619.3	Y43416.8	92	27.3	4	100.0	0.0	0.0	0.0	75
27	0230	3923.2	7251.5	X26379.2	Y43041.7	237	39.9	0	0.0	0.0	0.0	0.0	197
27	0249	3948.5	7304.7	X26494.5	Y43286.5	356	33.9	0	0.0	0.0	0.0	0.0	440
27	0250	3951.5	7304.6	X26497.5	Y43315.1	161	38.8	0	0.0	0.0	0.0	0.0	394
27	0260	3957.8	7320.6	X26624.8	Y43384.8	125	39.4	0	0.0	0.0	0.0	0.0	0
29	0016	4036.2	7247.3	X26427.8	Y43710.7	338	19.7	0	0.0	0.0	0.0	0.0	84
29	0017	4038.2	7248.9	X26444.7	Y43730.3	346	18.6	0	0.0	0.0	0.0	0.0	95
29	0031	4026.0	7320.9	X26681.0	Y43655.5	52	18.0	1	100.0	0.0	0.0	0.0	25
29	0262	4016.5	7324.5	X26689.3	Y43568.5	105	17.5	7	100.0	0.0	0.0	0.0	2
29	0263	4016.2	7320.9	X26660.7	Y43562.4	148	19.7	5	100.0	0.0	0.0	0.0	24
29	0264	4013.7	7310.9	X26578.3	Y43530.0	155	23.0	1	100.0	0.0	0.0	0.0	56
29	0265	4015.6	7301.3	X26506.5	Y43539.3	122	24.6	14	100.0	0.0	0.0	0.0	60
29	0266	4026.1	7252.7	X26454.9	Y43626.9	54	25.2	1	100.0	0.0	0.0	0.0	257
29	0267	4026.3	7304.5	X26550.3	Y43641.1	76	21.9	0	0.0	0.0	0.0	0.0	486
29	0282	4033.9	7229.0	X26272.7	Y43669.4	137	23.5	1	0.0	100.0	0.0	0.0	115
30	0225	4020.4	7230.2	X26266.4	Y43553.8	114	29.5	0	0.0	0.0	0.0	0.0	236
30	0226	4006.3	7242.3	X26346.8	Y43438.4	273	30.6	0	0.0	0.0	0.0	0.0	339
30	0251	4002.0	7255.5	X26442.6	Y43408.4	15	29.0	0	0.0	0.0	0.0	0.0	147
30	0252	3958.7	7308.6	X26536.8	Y43386.0	270	27.9	11	100.0	0.0	0.0	0.0	109
31	0215	4021.2	7210.4	X26109.0	Y43541.9	273	35.0	0	0.0	0.0	0.0	0.0	441
31	0216	4011.1	7158.9	X26015.7	Y43446.6	196	37.7	0	0.0	0.0	0.0	0.0	7
31	0217	4008.4	7207.0	X26077.3	Y43430.0	294	36.1	0	0.0	0.0	0.0	0.0	606
* 31	0218	4008.1	7207.0	X26077.2	Y43427.4	288	37.2	0	0.0	0.0	0.0	0.0	40
* 31	0219	4008.2	7207.0	X26077.3	Y43428.3	288	36.6	0	0.0	0.0	0.0	0.0	580
* 31	0220	4008.3	7207.0	X26077.3	Y43429.2	287	36.1	0	0.0	0.0	0.0	0.0	468
* 31	0221	4008.5	7207.1	X26078.1	Y43430.9	270	35.5	0	0.0	0.0	0.0	0.0	76
* 31	0222	4008.7	7207.0	X26077.4	Y43432.6	275	35.5	0	0.0	0.0	0.0	0.0	251
31	0223	4013.6	7212.6	X26122.3	Y43479.1	346	35.0	0	0.0	0.0	0.0	0.0	89
31	0224	4016.0	7216.5	X26154.2	Y43503.0	326	33.4	0	0.0	0.0	0.0	0.0	329
31	0227	4001.2	7232.9	X26270.9	Y43385.6	157	36.6	0	0.0	0.0	0.0	0.0	21
31	0228	3950.0	7238.2	X26302.6	Y43287.3	230	32.8	3	100.0	0.0	0.0	0.0	141
31	0229	3946.3	7244.2	X26343.7	Y43256.2	290	33.9	0	0.0	0.0	0.0	0.0	89
33	0001	4056.2	7151.0	X25979.0	Y43803.8	280	19.7	13	100.0	0.0	0.0	0.0	60
33	0006	4053.4	7205.0	X26096.7	Y43800.7	269	18.6	0	0.0	0.0	0.0	0.0	1198
33	0011	4048.7	7216.8	X26191.2	Y43778.5	189	19.1	5	100.0	0.0	0.0	0.0	121
33	0289	4046.1	7156.6	X26014.9	Y43731.6	62	23.5	1	100.0	0.0	0.0	0.0	62
34	0283	4033.8	7218.8	X26188.1	Y43657.1	118	27.9	0	0.0	0.0	0.0	0.0	236
34	0284	4036.2	7211.0	X26126.0	Y43668.3	107	29.0	0	0.0	0.0	0.0	0.0	235
34	0285	4036.4	7207.0	X26092.8	Y43665.4	30	29.0	0	0.0	0.0	0.0	0.0	160
34	0287	4038.7	7200.8	X26043.2	Y43677.1	26	28.4	0	0.0	0.0	0.0	0.0	377
34	0288	4041.2	7154.9	X25995.8	Y43690.4	70	27.9	1	100.0	0.0	0.0	0.0	51
34	0290	4046.1	7150.7	X25964.6	Y43724.3	66	27.9	0	0.0	0.0	0.0	0.0	655
35	0211	4030.0	7128.7	X25777.1	Y43573.2	273	39.9	0	0.0	0.0	0.0	0.0	0
35	0212	4029.1	7146.3	X25918.5	Y43583.6	289	38.3	0	0.0	0.0	0.0	0.0	1
35	0213	4028.5	7158.6	X26018.0	Y43591.2	338	35.5	0	0.0	0.0	0.0	0.0	18
35	0214	4024.0	7200.4	X26030.4	Y43555.8	268	37.2	0	0.0	0.0	0.0	0.0	7
35	0286	4033.8	7200.9	X26040.1	Y43637.2	161	31.2	0	0.0	0.0	0.0	0.0	33

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Station Data								Surfclams					Ocean Quahogs
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time Delays	Heading			0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"		
37	0192	4108.8	7114.6	X25675.6	Y43848.0	258	21.9	1	100.0	0.0	0.0	0.0	171
37	0193	4107.0	7122.9	X25746.8	Y43846.5	250	20.8	0	0.0	0.0	0.0	0.0	5
37	0294	4116.4	7124.1	X25776.0	Y43916.0	105	21.3	0	0.0	0.0	0.0	0.0	1
37	0295	4118.6	7103.1	X25591.9	Y43900.7	339	19.7	0	0.0	0.0	0.0	0.0	2
38	0194	4054.0	7114.4	X25658.6	Y43740.0	141	30.6	0	0.0	0.0	0.0	0.0	35
38	0195	4053.8	7108.8	X25610.4	Y43731.7	77	29.0	0	0.0	0.0	0.0	0.0	362
38	0202	4058.9	7056.7	X25507.3	Y43753.8	46	27.3	0	0.0	0.0	0.0	0.0	22
38	0203	4101.0	7053.0	X25475.8	Y43764.2	86	26.2	0	0.0	0.0	0.0	0.0	81
38	0204	4051.2	7046.5	X25423.4	Y43686.9	347	30.1	0	0.0	0.0	0.0	0.0	56
38	0292	4055.1	7136.1	X25847.7	Y43775.7	176	30.1	0	0.0	0.0	0.0	0.0	26
38	0293	4100.9	7130.9	X25809.0	Y43812.5	62	26.8	2	100.0	0.0	0.0	0.0	219
39	0196	4051.1	7054.9	X25492.9	Y43695.7	26	30.1	0	0.0	0.0	0.0	0.0	662
*	39	0197	4051.2	7054.5	X25489.5	Y43696.0	225	30.1	0	0.0	0.0	0.0	15
*	39	0198	4051.2	7054.7	X25491.2	Y43696.2	207	30.1	0	0.0	0.0	0.0	23
*	39	0199	4051.2	7055.0	X25493.7	Y43696.6	203	30.6	0	0.0	0.0	0.0	34
*	39	0200	4051.3	7054.6	X25490.3	Y43696.8	180	30.6	0	0.0	0.0	0.0	22
*	39	0201	4051.2	7055.2	X25495.3	Y43696.8	209	30.6	0	0.0	0.0	0.0	33
39	0205	4040.1	7040.0	X25388.9	Y43600.6	92	33.9	0	0.0	0.0	0.0	0.0	0
39	0206	4032.7	7043.2	X25426.7	Y43550.1	244	39.4	0	0.0	0.0	0.0	0.0	0
39	0207	4046.2	7100.7	X25543.4	Y43666.6	310	32.8	0	0.0	0.0	0.0	0.0	0
39	0208	4048.9	7112.6	X25642.0	Y43700.1	332	33.4	0	0.0	0.0	0.0	0.0	1
39	0209	4046.0	7126.4	X25758.0	Y43694.4	205	35.5	0	0.0	0.0	0.0	0.0	46
39	0210	4036.4	7126.7	X25759.6	Y43621.0	181	36.6	0	0.0	0.0	0.0	0.0	14
39	0291	4046.4	7136.9	X25847.2	Y43709.9	96	37.2	0	0.0	0.0	0.0	0.0	3
41	0297	4103.9	7036.8	X25335.1	Y43764.4	126	24.6	0	0.0	0.0	0.0	0.0	46
41	0298	4101.2	7019.0	X25188.7	Y43725.0	42	22.4	0	0.0	0.0	0.0	0.0	266
41	0299	4106.4	7014.6	X25144.6	Y43754.7	129	15.9	0	0.0	0.0	0.0	0.0	72
41	0304	4041.3	7000.6	X25142.8	Y43571.4	186	25.2	0	0.0	0.0	0.0	0.0	165
45	0307	4045.7	6946.8	W14008.6	Y43588.2	257	21.9	1	100.0	0.0	0.0	0.0	7
45	0308	4043.6	6941.3	W13987.2	Y43569.3	101	25.2	1	100.0	0.0	0.0	0.0	2
45	0318	4041.1	6933.0	W13953.1	Y43545.7	296	27.3	0	0.0	0.0	0.0	0.0	16
45	0319	4043.6	6927.1	W13913.4	Y43556.9	108	24.6	0	0.0	0.0	0.0	0.0	0
45	0472	4051.4	6918.6	W13839.8	Y43599.4	230	26.2	0	0.0	0.0	0.0	0.0	1
45	0473	4051.6	6924.3	W13868.4	Y43605.8	207	25.7	0	0.0	0.0	0.0	0.0	0
45	0474	4056.0	6940.1	W13934.2	Y43649.1	335	19.1	4	75.0	25.0	0.0	0.0	0
45	0475	4048.6	6954.7	W14040.1	Y43614.9	35	17.0	5	0.0	0.0	0.0	100.0	0
46	0305	4038.9	6956.8	W14086.1	Y43551.7	136	29.5	0	0.0	0.0	0.0	0.0	417
46	0306	4041.2	6949.1	W14037.1	Y43560.3	120	29.0	0	0.0	0.0	0.0	0.0	284
46	0309	4041.4	6940.9	W13993.2	Y43554.5	241	26.8	0	0.0	0.0	0.0	0.0	28
46	0317	4039.5	6939.8	W13994.3	Y43540.9	283	28.4	0	0.0	0.0	0.0	0.0	52
46	0320	4037.4	6926.9	W13935.3	Y43516.5	309	29.0	0	0.0	0.0	0.0	0.0	96
**	46	0469	4056.7	6915.2	W13801.4	Y43629.6	242	33.4	0	0.0	0.0	0.0	0
46	0471	4046.0	6916.0	W13847.5	Y43562.8	192	31.7	0	0.0	0.0	0.0	0.0	2
47	0310	4036.3	6950.2	W14060.3	Y43528.4	312	33.4	0	0.0	0.0	0.0	0.0	0
47	0311	4028.5	6954.6	W14110.3	Y43479.0	242	40.5	0	0.0	0.0	0.0	0.0	0
47	0315	4023.7	6936.8	W14034.4	Y43433.2	69	37.2	0	0.0	0.0	0.0	0.0	435
47	0316	4026.2	6942.6	W14055.7	Y43454.2	335	39.4	0	0.0	0.0	0.0	0.0	1327

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Station Data								Surfclams					Ocean Quahogs
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time	Delays			Heading	0-4.74"	4.76-5.00"	5.01-5.50"		>5.50"
47	0321	4031.1	6923.1	W13938.9	Y43472.4	124	31.7	0	0.0	0.0	0.0	0.0	153
47	0322	4037.3	6903.7	W13819.0	Y43497.8	111	39.9	2	100.0	0.0	0.0	0.0	68
47	0323	4033.8	6852.5	W13777.4	Y43467.6	210	38.8	0	0.0	0.0	0.0	0.0	478
**	47	0466	4045.2	6855.3	W13747.1	Y43540.7	348	39.4	0	0.0	0.0	0.0	0
**	47	0467	4051.2	6906.0	W13776.6	Y43586.9	307	36.6	0	0.0	0.0	0.0	0
**	47	0468	4051.1	6907.8	W13786.1	Y43587.9	320	40.5	0	0.0	0.0	0.0	0
47	0470	4049.1	6912.4	W13817.2	Y43579.3	182	36.6	0	0.0	0.0	0.0	0.0	5
48	0312	4022.8	6956.1	W14137.1	Y43440.9	129	44.3	0	0.0	0.0	0.0	0.0	2
48	0313	4019.0	6946.9	W14101.9	Y43408.2	137	43.2	0	0.0	0.0	0.0	0.0	29
48	0314	4013.8	6928.8	W14027.5	Y43361.4	141	44.8	0	0.0	0.0	0.0	0.0	8
54	0453	4123.4	6824.0	W13432.0	Y43738.4	157	36.6	9	33.3	0.0	33.3	33.3	221
54	0454	4116.6	6828.9	W13486.3	Y43704.5	268	32.8	0	0.0	0.0	0.0	0.0	0
**	54	0456	4110.6	6847.0	W13601.1	Y43687.1	221	44.3	0	0.0	0.0	0.0	0
55	0324	4036.2	6842.5	W13720.1	Y43475.5	173	34.4	0	0.0	0.0	0.0	0.0	145
55	0325	4036.3	6832.8	W13673.7	Y43469.4	4	36.6	0	0.0	0.0	0.0	0.0	1340
55	0462	4051.4	6840.9	W13652.1	Y43567.0	290	37.7	0	0.0	0.0	0.0	0.0	321
**	55	0463	4057.5	6850.2	W13672.4	Y43611.7	181	47.0	0	0.0	0.0	0.0	0
**	55	0464	4049.6	6848.8	W13697.7	Y43562.5	173	39.4	0	0.0	0.0	0.0	0
**	55	0465	4045.1	6855.2	W13747.0	Y43540.0	338	38.8	0	0.0	0.0	0.0	0
57	0326	4038.7	6824.3	W13624.5	Y43478.1	84	39.4	0	0.0	0.0	0.0	0.0	900
57	0327	4038.6	6822.7	W13617.5	Y43476.4	45	40.5	0	0.0	0.0	0.0	0.0	507
57	0333	4043.8	6816.8	W13569.4	Y43503.2	176	35.0	1	100.0	0.0	0.0	0.0	390
57	0334	4043.5	6812.8	W13552.3	Y43498.6	164	38.8	0	0.0	0.0	0.0	0.0	4207
57	0335	4046.1	6812.6	W13540.7	Y43513.8	175	33.4	2	100.0	0.0	0.0	0.0	496
57	0336	4046.0	6810.7	W13532.5	Y43511.8	174	34.4	0	0.0	0.0	0.0	0.0	1044
57	0337	4050.7	6810.4	W13511.6	Y43539.1	60	33.4	0	0.0	0.0	0.0	0.0	0
57	0340	4053.4	6804.9	W13475.3	Y43550.6	71	33.4	45	22.2	2.2	26.7	48.9	3113
57	0341	4051.2	6803.1	W13476.4	Y43536.6	124	35.0	4	25.0	25.0	50.0	0.0	1447
57	0342	4050.9	6800.7	W13466.8	Y43533.1	330	35.5	0	0.0	0.0	0.0	0.0	559
57	0343	4048.8	6800.9	W13476.5	Y43521.1	344	38.3	0	0.0	0.0	0.0	0.0	1041
*	57	0372	4048.8	6801.1	W13477.4	Y43521.3	33	37.7	0	0.0	0.0	0.0	656
59	0344	4046.2	6759.2	W13479.7	Y43504.9	116	39.9	0	0.0	0.0	0.0	0.0	292
59	0345	4048.7	6749.3	W13425.5	Y43512.5	318	38.8	0	0.0	0.0	0.0	0.0	207
59	0346	4053.9	6754.7	W13427.4	Y43545.9	334	33.9	11	18.2	9.1	27.3	45.5	474
59	0353	4056.1	6742.4	W13363.9	Y43549.3	35	35.0	21	28.6	52.4	19.0	0.0	733
59	0354	4053.7	6740.9	W13367.7	Y43534.8	205	37.7	0	0.0	0.0	0.0	0.0	283
59	0355	4049.0	6738.9	W13379.0	Y43507.1	344	41.0	0	0.0	0.0	0.0	0.0	72
59	0356	4046.6	6739.2	W13390.4	Y43493.8	349	42.7	0	0.0	0.0	0.0	0.0	213
59	0358	4053.8	6730.6	W13323.1	Y43528.2	320	42.1	0	0.0	0.0	0.0	0.0	58
59	0359	4058.4	6724.8	W13278.7	Y43549.5	22	39.9	0	0.0	0.0	0.0	0.0	221
59	0360	4058.6	6730.7	W13302.8	Y43554.8	50	38.3	0	0.0	0.0	0.0	0.0	209
59	0361	4055.8	6732.9	W13324.3	Y43540.9	25	39.4	0	0.0	0.0	0.0	0.0	175
59	0362	4101.4	6739.0	W13326.1	Y43576.3	129	34.4	2	0.0	0.0	0.0	100.0	1609
59	0368	4104.9	6732.7	W13283.6	Y43590.8	350	32.8	10	0.0	20.0	40.0	40.0	2833
59	0369	4106.3	6730.8	W13269.3	Y43597.0	247	32.3	171	14.0	5.3	27.5	53.2	1328
59	0371	4108.6	6725.0	W13234.4	Y43605.0	297	31.7	125	4.0	8.8	44.8	42.4	472
*	59	0373	4046.2	6759.1	W13479.3	Y43504.9	108	39.9	0	0.0	0.0	0.0	281

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Station Data								Surfclams				Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time	Delays			Heading	0-4.74"	4.76-5.00"	5.01-5.50"		>5.50"
* 59	0374	4048.7	6749.3	W13425.5	Y43512.5	170	38.8	0	0.0	0.0	0.0	0.0	188
* 59	0375	4054.0	6754.8	W13427.4	Y43546.5	219	33.9	9	11.1	22.2	22.2	44.4	617
* 59	0378	4056.1	6742.2	W13363.0	Y43549.2	42	35.5	1	0.0	0.0	100.0	0.0	665
* 59	0379	4053.6	6740.9	W13368.1	Y43534.3	64	37.7	0	0.0	0.0	0.0	0.0	131
* 59	0380	4046.6	6739.4	W13391.2	Y43493.9	140	42.7	0	0.0	0.0	0.0	0.0	56
* 59	0385	4058.4	6725.0	W13279.6	Y43549.6	133	39.9	1	100.0	0.0	0.0	0.0	213
* 59	0386	4058.6	6730.8	W13303.2	Y43554.8	129	38.3	0	0.0	0.0	0.0	0.0	495
* 59	0387	4101.4	6739.0	W13326.1	Y43576.3	27	34.4	6	16.7	0.0	50.0	33.3	503
* 59	0390	4106.2	6731.0	W13270.6	Y43596.6	302	32.3	115	4.3	7.8	23.5	64.3	4426
* 59	0391	4108.7	6724.9	W13233.6	Y43605.5	76	31.7	136	15.4	2.9	39.0	42.6	846
59	0392	4058.8	6714.9	W13235.9	Y43544.8	147	42.7	0	0.0	0.0	0.0	0.0	160
59	0393	4103.7	6712.8	W13205.7	Y43569.7	165	36.6	0	0.0	0.0	0.0	0.0	2098
59	0394	4101.3	6710.6	W13207.3	Y43555.3	177	39.9	0	0.0	0.0	0.0	0.0	541
60	0357	4044.4	6741.0	W13407.3	Y43482.5	4	41.0	0	0.0	0.0	0.0	0.0	89
60	0381	4036.3	6728.8	W13388.7	Y43429.4	163	53.0	0	0.0	0.0	0.0	0.0	7
60	0382	4043.7	6719.1	W13317.8	Y43465.0	308	53.6	0	0.0	0.0	0.0	0.0	17
60	0383	4051.1	6720.8	W13293.6	Y43506.8	10	48.1	0	0.0	0.0	0.0	0.0	98
60	0384	4053.9	6716.7	W13264.6	Y43519.4	69	46.5	0	0.0	0.0	0.0	0.0	65
60	0396	4051.4	6658.7	W13202.6	Y43494.5	18	50.9	0	0.0	0.0	0.0	0.0	1
61	0395	4101.4	6700.7	W13167.0	Y43549.0	261	39.4	0	0.0	0.0	0.0	0.0	109
61	0400	4104.5	6648.1	W13103.6	Y43556.9	129	41.0	0	0.0	0.0	0.0	0.0	30
61	0401	4113.6	6648.7	W13064.9	Y43604.4	155	41.0	0	0.0	0.0	0.0	0.0	31
61	0403	4123.9	6658.7	W13056.5	Y43664.9	206	36.6	0	0.0	0.0	0.0	0.0	799
61	0404	4121.4	6706.5	W13099.4	Y43658.2	306	33.4	31	29.0	19.4	16.1	35.5	2813
62	0397	4058.8	6636.6	W13084.8	Y43519.9	51	50.9	0	0.0	0.0	0.0	0.0	82
62	0398	4103.7	6632.7	W13048.5	Y43542.7	50	50.9	0	0.0	0.0	0.0	0.0	44
62	0399	4103.8	6638.4	W13069.6	Y43546.9	77	45.9	0	0.0	0.0	0.0	0.0	45
62	0402	4118.9	6643.3	W13019.7	Y43627.6	337	42.1	0	0.0	0.0	0.0	0.0	11
65	0428	4206.2	6720.7	W12935.1	Y43897.8	319	37.2	2	50.0	0.0	50.0	0.0	2
65	0432	4201.4	6737.1	W13030.1	Y43891.5	166	34.4	2	0.0	50.0	50.0	0.0	0
65	0439	4146.2	6810.8	W13260.2	Y43849.6	177	35.5	1	0.0	0.0	0.0	100.0	76
** 67	0445	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
** 67	0452	4119.3	6822.8	W13445.0	Y43714.0	349	31.7	0	0.0	0.0	0.0	0.0	0
67	0455	4114.0	6827.3	W13490.3	Y43688.1	285	31.2	0	0.0	0.0	0.0	0.0	0
67	0457	4106.3	6835.2	W13562.0	Y43650.7	11	27.3	0	0.0	0.0	0.0	0.0	0
** 68	0440	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
68	0441	4141.2	6800.8	W13238.5	Y43812.2	251	16.4	0	0.0	0.0	0.0	0.0	0
** 68	0442	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
** 68	0443	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
** 68	0444	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
** 68	0446	4131.0	6810.8	W13334.1	Y43767.4	211	0.0	0	0.0	0.0	0.0	0.0	0
** 68	0447	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
** 68	0448	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
** 68	0449	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
** 68	0450	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
69	0366	4111.3	6738.0	W13277.7	Y43629.9	335	27.3	18	0.0	5.6	5.6	88.9	0
** 69	0451	4114.1	6814.7	W13430.3	Y43677.0	354	25.7	0	0.0	0.0	0.0	0.0	0

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Station Data								Surfclams					Ocean Quahogs
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time Delays	Heading			0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"		
70	0328	4043.7	6828.3	W13623.3	Y43510.9	79	33.4	1	100.0	0.0	0.0	0.0	179
70	0329	4046.5	6832.6	W13632.3	Y43530.9	116	32.3	2	100.0	0.0	0.0	0.0	822
70	0330	4046.4	6827.3	W13607.7	Y43526.3	128	30.6	1	100.0	0.0	0.0	0.0	2
70	0331	4048.5	6820.7	W13568.2	Y43533.9	145	30.1	0	0.0	0.0	0.0	0.0	13
70	0332	4046.2	6818.7	W13568.4	Y43518.8	148	34.4	0	0.0	0.0	0.0	0.0	569
70	0338	4056.3	6812.5	W13497.7	Y43573.2	307	30.6	0	0.0	0.0	0.0	0.0	75
70	0339	4056.3	6808.6	W13479.8	Y43570.1	34	31.7	0	0.0	0.0	0.0	0.0	2
70	0347	4058.9	6802.3	W13440.1	Y43580.1	342	27.3	0	0.0	0.0	0.0	0.0	59
70	0348	4101.7	6800.7	W13420.7	Y43594.8	356	28.4	0	0.0	0.0	0.0	0.0	3
70	0349	4101.4	6757.1	W13405.8	Y43590.2	1	30.6	7	28.6	0.0	42.9	28.6	770
70	0350	4101.4	6754.7	W13395.1	Y43588.3	44	25.2	0	0.0	0.0	0.0	0.0	0
70	0351	4058.7	6750.6	W13388.6	Y43570.0	120	29.0	92	6.5	3.3	3.3	87.0	423
70	0352	4058.8	6746.7	W13371.0	Y43567.6	172	31.2	26	15.4	3.8	15.4	65.4	1047
70	0363	4101.3	6742.9	W13343.5	Y43578.7	307	32.3	24	12.5	12.5	41.7	33.3	1956
70	0364	4103.9	6738.6	W13313.4	Y43589.8	218	32.3	51	7.8	3.9	19.6	68.6	1096
70	0365	4106.4	6742.7	W13320.1	Y43606.7	228	25.2	1	100.0	0.0	0.0	0.0	1
70	0367	4105.9	6736.7	W13296.3	Y43599.3	330	30.6	24	16.7	8.3	29.2	45.8	1543
70	0370	4108.9	6728.8	W13249.1	Y43609.5	280	31.2	38	0.0	7.9	26.3	65.8	295
* 70	0376	4058.7	6750.5	W13388.2	Y43569.9	254	29.0	140	9.3	4.3	2.9	83.6	875
* 70	0377	4058.8	6746.6	W13370.5	Y43567.5	295	31.2	12	16.7	8.3	16.7	58.3	2353
* 70	0388	4103.9	6738.7	W13313.8	Y43589.9	55	32.3	23	17.4	4.3	4.3	73.9	657
* 70	0389	4105.9	6736.8	W13296.8	Y43599.4	115	30.6	19	10.5	10.5	15.8	63.2	1061
70	0458	4058.9	6836.6	W13600.3	Y43608.3	48	26.2	1	100.0	0.0	0.0	0.0	0
70	0459	4056.5	6832.9	W13592.6	Y43590.9	204	31.2	0	0.0	0.0	0.0	0.0	0
** 70	0460	4057.1	6821.2	W13534.7	Y43584.8	218	30.1	0	0.0	0.0	0.0	0.0	0
** 70	0461	4051.3	6841.1	W13653.5	Y43566.5	107	37.2	0	0.0	0.0	0.0	0.0	0
71	0426	4201.4	6712.9	W12928.1	Y43866.2	182	29.5	5	40.0	20.0	20.0	20.0	0
71	0427	4203.9	6714.5	W12921.6	Y43880.1	194	25.7	0	0.0	0.0	0.0	0.0	0
71	0429	4201.0	6723.0	W12972.0	Y43874.6	350	27.3	32	59.4	28.1	12.5	0.0	0
71	0431	4201.0	6734.9	W13022.7	Y43887.2	231	27.3	0	0.0	0.0	0.0	0.0	0
** 71	0435	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
72	0430	4156.0	6727.0	W13014.7	Y43853.8	7	29.5	122	45.9	23.8	26.2	4.1	0
72	0433	4159.2	6736.8	W13040.3	Y43880.2	173	25.7	5	40.0	40.0	0.0	20.0	0
72	0434	4152.6	6741.2	W13093.4	Y43851.3	320	21.3	26	19.2	7.7	23.1	50.0	0
72	0436	4146.8	6747.1	W13148.8	Y43827.5	357	19.1	34	14.7	5.9	29.4	50.0	0
72	0437	4141.5	6750.7	W13191.2	Y43803.5	59	15.9	40	12.5	22.5	52.5	12.5	0
** 72	0438	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
73	0409	4126.3	6721.2	W13136.8	Y43696.0	161	25.7	0	0.0	0.0	0.0	0.0	0
73	0410	4131.4	6726.1	W13133.2	Y43727.0	229	17.5	0	0.0	0.0	0.0	0.0	0
** 73	0411	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
73	0412	4138.3	6726.7	W13102.3	Y43763.4	284	31.7	16	18.8	0.0	12.5	68.8	0
73	0413	4141.7	6724.8	W13077.5	Y43779.1	67	25.2	311	8.7	2.6	30.9	57.9	0
** 73	0417	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
73	0420	4146.0	6712.1	W13003.4	Y43788.9	296	27.9	1	100.0	0.0	0.0	0.0	0
74	0405	4113.6	6716.5	W13176.3	Y43625.2	31	29.5	128	20.3	10.2	18.8	50.8	2028
74	0406	4121.1	6714.8	W13134.7	Y43663.4	354	27.3	11	9.1	9.1	0.0	81.8	344
74	0407	4126.2	6710.1	W13091.5	Y43686.1	124	29.0	1	100.0	0.0	0.0	0.0	2

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Station Data								Surfclams				Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time Delays	Heading			0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"		
74	0408	4131.2	6712.9	W13079.1	Y43714.3	175	29.5	1	100.0	0.0	0.0	0.0	0
** 74	0414	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
74	0415	4134.3	6713.1	W13065.0	Y43730.4	85	29.0	3	0.0	0.0	0.0	100.0	2
74	0416	4137.2	6708.4	W13031.7	Y43741.0	157	32.3	0	0.0	0.0	0.0	0.0	47
74	0418	4143.4	6713.0	W13020.0	Y43776.6	221	31.2	41	2.4	0.0	9.8	87.8	0
74	0419	4147.4	6721.7	W13036.1	Y43805.2	277	27.9	15	0.0	6.7	13.3	80.0	1
74	0421	4143.4	6704.5	W12985.5	Y43768.8	314	32.3	0	0.0	0.0	0.0	0.0	0
74	0422	4146.1	6707.0	W12982.1	Y43784.6	18	32.8	0	0.0	0.0	0.0	0.0	0
** 74	0423	000.0	000.0	W11830.7	Y42101.7	0	0.0	0	0.0	0.0	0.0	0.0	0
74	0424	4151.5	6711.1	W12971.6	Y43815.5	145	33.4	119	4.2	1.7	8.4	85.7	0
74	0425	4154.2	6714.9	W12973.4	Y43832.6	158	29.5	54	9.3	7.4	51.9	31.5	0
84	0085	3753.9	7508.5	X27055.4	Y42021.1	238	11.5	0	0.0	0.0	0.0	0.0	18
84	0086	3748.6	7514.6	X27074.9	Y41953.1	248	10.9	0	0.0	0.0	0.0	0.0	6
84	0087	3743.8	7520.5	X27093.7	Y41890.4	231	9.8	2	100.0	0.0	0.0	0.0	3
84	0088	3741.1	7528.4	X27125.3	Y41848.2	180	9.8	0	0.0	0.0	0.0	0.0	1
85	0079	3823.7	7449.0	X27012.9	Y42377.0	175	12.6	0	0.0	0.0	0.0	0.0	0
85	0081	3818.5	7458.3	X27051.7	Y42309.8	202	12.0	0	0.0	0.0	0.0	0.0	0
85	0082	3813.7	7504.2	X27072.5	Y42249.6	281	7.7	1	100.0	0.0	0.0	0.0	0
85	0083	3808.7	7500.7	X27044.7	Y42197.1	157	9.8	1	100.0	0.0	0.0	0.0	0
85	0084	3806.3	7458.6	X27029.4	Y42172.6	206	11.5	0	0.0	0.0	0.0	0.0	0
86	0074	3849.1	7501.1	X27134.4	Y42653.2	332	10.4	0	0.0	0.0	0.0	0.0	0
86	0075	3843.9	7452.9	X27076.6	Y42599.9	117	10.4	5	100.0	0.0	0.0	0.0	0
86	0076	3841.1	7501.0	X27115.0	Y42562.6	223	8.7	0	0.0	0.0	0.0	0.0	0
86	0077	3838.7	7452.9	X27065.1	Y42541.5	214	12.6	0	0.0	0.0	0.0	0.0	0
86	0078	3831.2	7456.2	X27066.9	Y42454.6	119	10.9	0	0.0	0.0	0.0	0.0	0
87	0066	3906.5	7416.5	X26910.5	Y42866.5	147	14.2	44	11.4	4.5	15.9	68.2	2
87	0069	3908.7	7430.6	X27001.9	Y42886.3	249	8.7	0	0.0	0.0	0.0	0.0	0
87	0070	3903.9	7424.2	X26952.4	Y42835.9	35	14.8	0	0.0	0.0	0.0	0.0	0
87	0071	3856.2	7442.6	X27045.5	Y42743.5	243	8.2	0	0.0	0.0	0.0	0.0	0
87	0072	3856.6	7448.8	X27082.4	Y42744.9	270	7.7	0	0.0	0.0	0.0	0.0	0
87	0073	3850.9	7444.7	X27045.8	Y42683.4	213	8.7	1	100.0	0.0	0.0	0.0	0
88	0053	3936.2	7402.7	X26882.6	Y43183.2	210	12.6	51	27.5	0.0	11.8	60.8	0
88	0054	3933.4	7354.9	X26823.9	Y43152.6	210	14.8	9	33.3	0.0	22.2	44.4	0
88	0056	3928.5	7408.8	X26906.8	Y43102.7	241	9.8	61	8.2	1.6	8.2	82.0	0
88	0057	3916.3	7410.6	X26893.1	Y42972.7	118	16.4	26	7.7	0.0	3.8	88.5	0
88	0065	3913.8	7416.8	X26927.3	Y42945.0	345	12.6	17	0.0	5.9	17.6	76.5	1
88	0067	3910.8	7427.2	X26985.7	Y42910.2	234	10.9	0	0.0	0.0	0.0	0.0	0
88	0068	3911.2	7426.8	X26984.1	Y42914.7	53	10.9	12	25.0	8.3	16.7	50.0	1
89	0049	3956.4	7352.7	X26857.2	Y43389.1	53	14.8	87	12.6	2.3	14.9	70.1	0
89	0050	3956.0	7402.2	X26924.5	Y43389.9	27	12.0	24	33.3	4.2	12.5	50.0	0
89	0051	3948.6	7349.0	X26813.8	Y43307.6	336	14.8	61	19.7	11.5	24.6	44.3	0
89	0052	3943.6	7403.2	X26902.3	Y43260.9	29	8.7	12	41.7	8.3	8.3	41.7	0
90	0040	4023.9	7350.7	X26909.9	Y43665.4	187	12.0	0	0.0	0.0	0.0	0.0	1
90	0041	4021.3	7352.9	X26920.0	Y43641.6	54	12.6	0	0.0	0.0	0.0	0.0	0
90	0042	4010.8	7355.4	X26911.6	Y43537.7	235	12.6	45	35.6	4.4	4.4	55.6	0
90	0043	4011.5	7351.2	X26881.9	Y43541.6	109	13.7	37	35.1	0.0	8.1	56.8	3
90	0044	4016.0	7340.5	X26811.6	Y43577.8	193	15.3	0	0.0	0.0	0.0	0.0	29

2011 NOAA Fisheries Service Surfclam -- Ocean Quahog Survey
 NOAA FSV DELAWARE II July 11 - August 17

Station Data								Surfclams				Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time Delays	Heading			0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"		
91	0028	4031.1	7314.6	X26641.4	Y43696.4	248	14.2	79	8.9	3.8	8.9	78.5	44
91	0029	4035.7	7318.6	X26684.1	Y43743.8	198	9.8	6	0.0	0.0	50.0	50.0	0
91	0030	4031.0	7318.2	X26670.2	Y43699.5	211	14.2	33	21.2	3.0	6.1	69.7	8
91	0032	4028.3	7324.8	X26717.2	Y43681.4	275	15.9	0	0.0	0.0	0.0	0.0	10
91	0033	4023.7	7326.8	X26722.7	Y43639.7	232	15.9	0	0.0	0.0	0.0	0.0	0
91	0034	4021.1	7331.0	X26749.8	Y43618.9	252	14.2	43	7.0	2.3	30.2	60.5	3
91	0035	4026.4	7336.7	X26807.0	Y43675.9	55	13.1	117	8.5	6.8	29.9	54.7	0
91	0036	4031.2	7336.8	X26819.8	Y43722.3	263	11.5	7	14.3	14.3	42.9	28.6	0
91	0037	4023.8	7342.6	X26846.8	Y43656.5	216	13.7	0	0.0	0.0	0.0	0.0	9
91	0038	4026.6	7344.4	X26868.0	Y43685.8	358	16.4	0	0.0	0.0	0.0	0.0	0
91	0039	4028.8	7350.4	X26920.8	Y43713.7	290	12.0	0	0.0	0.0	0.0	0.0	3
92	0012	4048.5	7232.2	X26322.6	Y43797.3	286	8.7	51	13.7	9.8	21.6	54.9	0
92	0013	4045.9	7232.5	X26320.5	Y43775.8	290	15.9	18	44.4	0.0	22.2	33.3	1
92	0014	4045.7	7238.9	X26374.5	Y43782.5	246	12.6	80	38.8	8.8	13.8	38.8	15
92	0015	4043.5	7244.5	X26417.7	Y43770.9	200	13.7	32	31.2	6.2	18.8	43.8	84
92	0018	4040.8	7250.8	X26465.4	Y43755.5	12	14.8	0	0.0	0.0	0.0	0.0	223
92	0019	4041.1	7256.4	X26512.7	Y43765.2	190	9.8	0	0.0	0.0	0.0	0.0	1
92	0020	4037.2	7256.4	X26505.0	Y43730.6	214	15.9	0	0.0	0.0	0.0	0.0	6
92	0021	4038.7	7300.8	X26544.4	Y43749.4	290	9.8	53	7.5	3.8	22.6	66.0	0
92	0022	4038.5	7302.6	X26558.8	Y43749.8	175	9.3	150	2.7	2.0	12.0	83.3	1
92	0023	4033.9	7302.6	X26549.5	Y43708.3	274	15.3	40	22.5	10.0	10.0	57.5	2
92	0024	4033.8	7305.1	X26569.8	Y43710.3	23	14.2	137	11.7	5.1	19.7	63.5	9
92	0025	4036.3	7306.6	X26587.2	Y43734.8	348	10.9	219	9.1	6.4	15.1	69.4	0
92	0026	4036.3	7308.8	X26605.3	Y43737.5	204	12.0	113	8.0	5.3	9.7	77.0	0
92	0027	4033.8	7308.4	X26596.7	Y43714.2	151	14.2	65	13.8	6.2	10.8	69.2	4
* 92	0268	4033.7	7305.5	X26572.8	Y43709.9	27	14.2	31	0.0	0.0	0.0	0.0	24
* 92	0269	4033.8	7305.4	X26572.2	Y43710.7	12	14.8	14	14.3	0.0	7.1	78.6	5
* 92	0270	4033.8	7305.3	X26571.4	Y43710.5	6	14.2	34	14.7	8.8	20.6	55.9	7
* 92	0271	4033.8	7304.9	X26568.1	Y43710.1	359	14.8	46	6.5	8.7	21.7	63.0	2
* 92	0272	4033.8	7304.8	X26567.3	Y43710.0	27	14.2	101	6.9	5.0	18.8	69.3	1
* 92	0273	4038.4	7303.0	X26561.9	Y43749.4	51	9.3	42	0.0	0.0	0.0	0.0	0
* 92	0274	4038.4	7302.4	X26557.0	Y43748.6	356	9.3	105	9.5	2.9	12.4	75.2	0
* 92	0275	4038.4	7302.7	X26559.5	Y43749.0	7	9.3	169	2.4	4.1	11.2	82.2	0
* 92	0276	4038.4	7302.3	X26556.2	Y43748.5	351	9.3	83	6.0	1.2	9.6	83.1	0
* 92	0277	4038.5	7302.8	X26560.5	Y43750.0	14	9.8	178	3.4	2.8	14.6	79.2	0
* 92	0278	4045.3	7239.0	X26374.6	Y43779.2	289	13.7	0	0.0	0.0	0.0	0.0	22
* 92	0279	4045.5	7238.9	X26374.1	Y43780.8	274	13.1	10	40.0	0.0	60.0	0.0	32
* 92	0280	4045.6	7238.9	X26374.3	Y43781.7	278	12.6	37	29.7	13.5	27.0	29.7	9
* 92	0281	4045.8	7238.9	X26374.7	Y43783.4	292	12.6	12	8.3	8.3	33.3	50.0	7
93	0002	4101.2	7155.0	X26021.9	Y43848.1	288	9.3	336	20.2	4.8	18.5	56.5	0
93	0003	4058.7	7156.3	X26029.2	Y43830.5	281	13.1	23	78.3	4.3	4.3	13.0	190
93	0004	4058.3	7158.9	X26051.3	Y43831.0	160	13.7	7	85.7	0.0	0.0	14.3	61
93	0005	4058.8	7159.5	X26057.4	Y43835.8	352	12.0	51	76.5	7.8	9.8	5.9	31
93	0007	4055.9	7208.5	X26131.1	Y43825.4	295	10.9	85	8.2	5.9	21.2	64.7	87
93	0008	4053.6	7210.7	X26146.4	Y43810.1	272	14.8	1	0.0	0.0	0.0	100.0	555
93	0009	4053.7	7214.7	X26181.2	Y43816.4	248	11.5	59	8.5	3.4	5.1	83.1	32
93	0010	4053.5	7217.2	X26202.5	Y43818.2	268	8.7	36	16.7	5.6	11.1	66.7	1

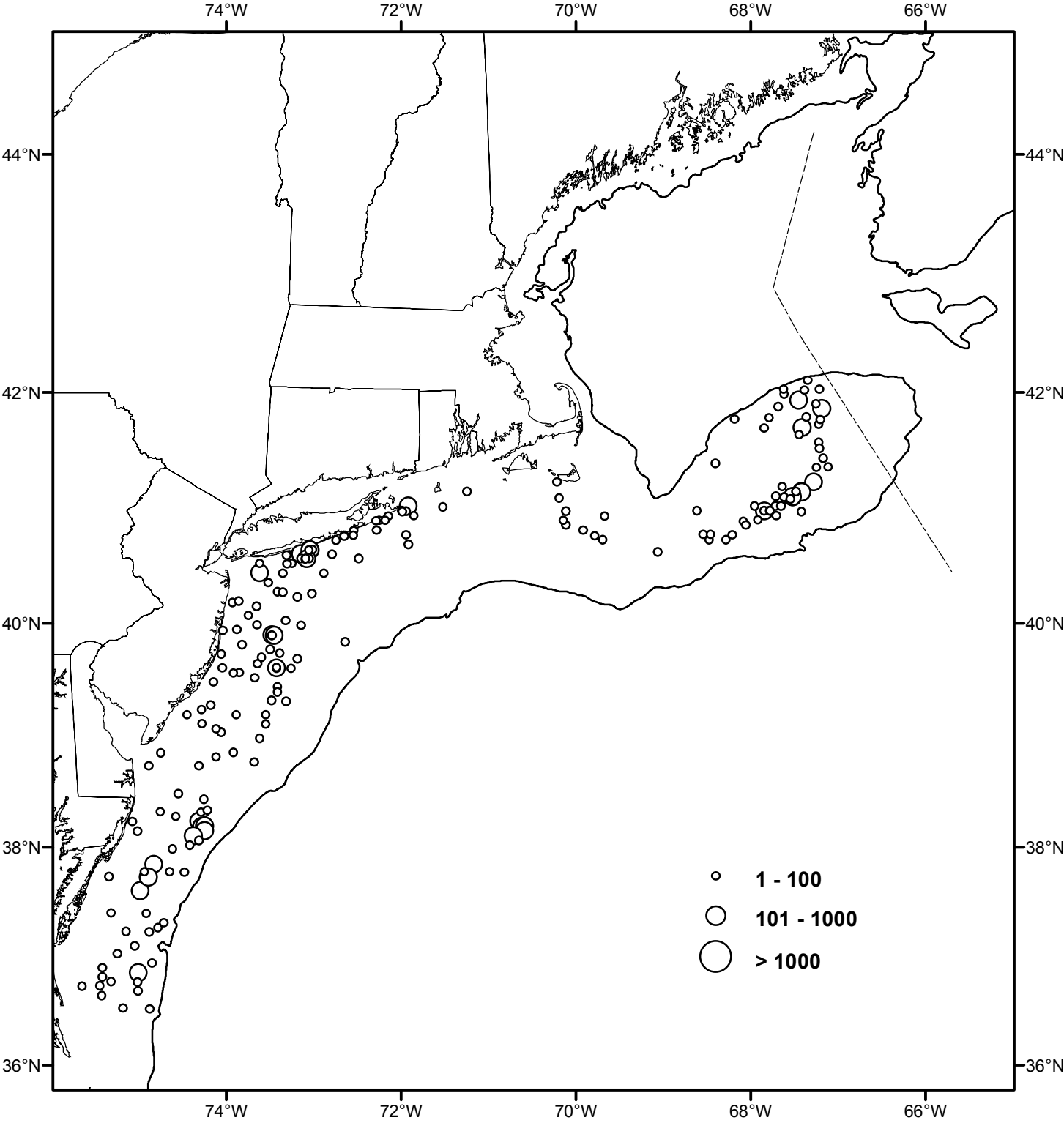
2011 NOAA Fisheries Service Surfclam -- Ocean Quahog Survey
 NOAA FSV DELAWARE II July 11 - August 17

Station Data								Surfclams				Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time	Delays			Heading	0-4.74"	4.76-5.00"	5.01-5.50"		>5.50"
** 94	0477	4111.5	7052.8	X25484.1	Y43837.3	329	12.0	0	0.0	0.0	0.0	0.0	0
** 94	0478	4111.7	7053.1	X25487.2	Y43839.1	328	12.6	0	0.0	0.0	0.0	0.0	0
94	0479	4123.1	7103.6	X25608.8	Y43932.4	136	13.1	0	0.0	0.0	0.0	0.0	46
** 94	0480	4123.6	7114.6	X25709.2	Y43952.3	119	15.3	0	0.0	0.0	0.0	0.0	0
94	0481	4123.4	7114.2	X25705.0	Y43950.4	307	15.3	0	0.0	0.0	0.0	0.0	69
94	0482	4126.6	7122.9	X25792.8	Y43986.1	344	14.8	0	0.0	0.0	0.0	0.0	112
94	0483	4123.9	7124.6	X25800.0	Y43969.9	34	17.5	0	0.0	0.0	0.0	0.0	5
94	0484	4118.5	7130.3	X25836.9	Y43940.4	130	14.8	0	0.0	0.0	0.0	0.0	218
94	0485	4108.2	7133.2	X25840.8	Y43869.8	58	10.4	0	0.0	0.0	0.0	0.0	0
95	0296	4114.4	7038.2	X25357.3	Y43837.7	69	15.3	0	0.0	0.0	0.0	0.0	0
95	0300	4105.5	7011.2	X25119.4	Y43744.8	97	14.2	12	0.0	0.0	0.0	100.0	3
95	0301	4058.6	7006.8	X25110.5	Y43694.0	264	13.7	24	0.0	0.0	4.2	95.8	3
95	0302	4053.8	7008.5	X25137.6	Y43663.6	132	15.3	9	0.0	0.0	0.0	100.0	76
95	0303	4051.3	7006.6	X25135.7	Y43644.8	172	14.8	21	0.0	0.0	0.0	100.0	29
95	0476	4113.8	7013.0	X25128.2	Y43801.5	160	10.9	4	0.0	0.0	25.0	75.0	0

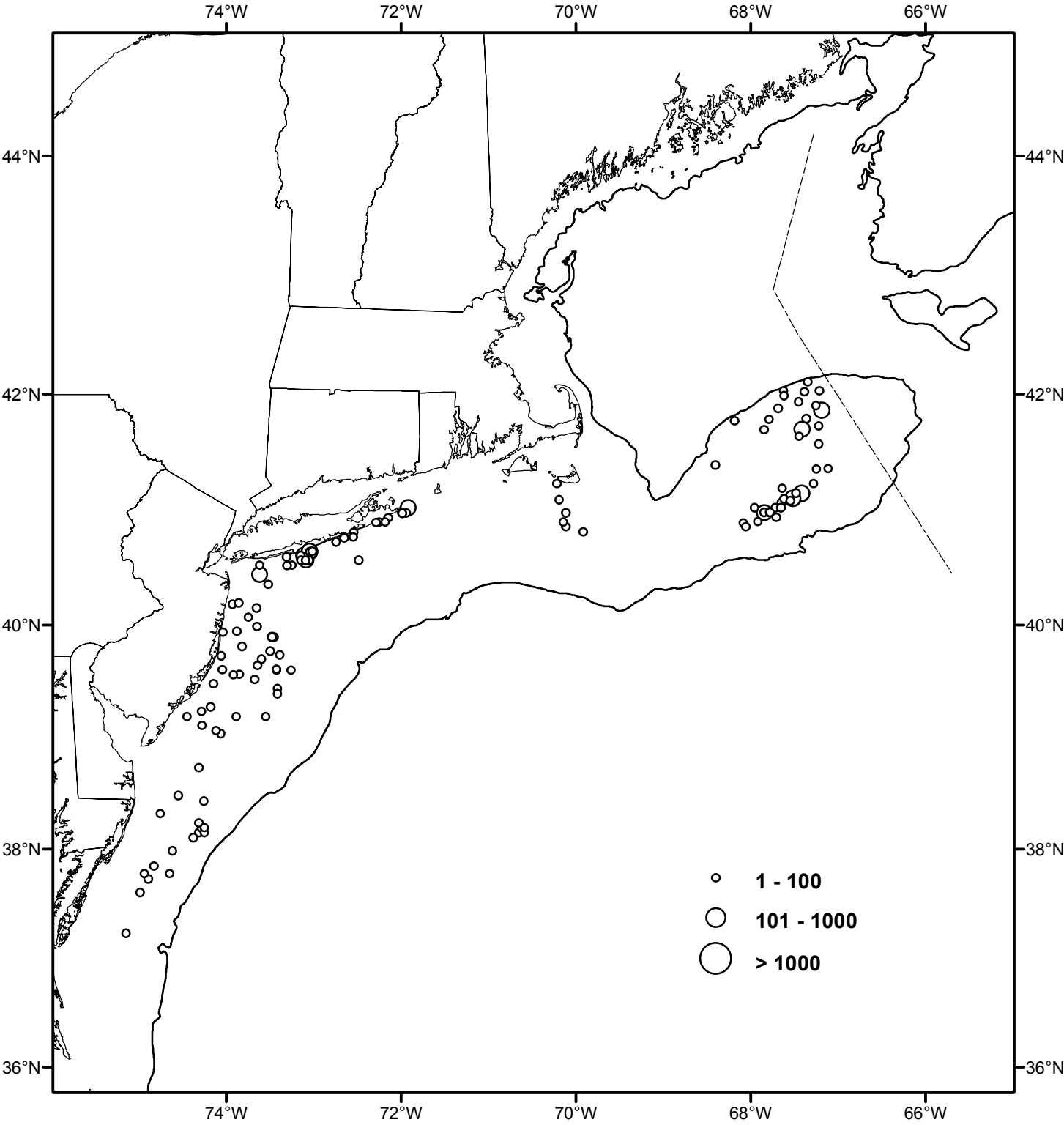
* non-random station

** Indicates randomly selected locations that were not towed due to bad bottom or fixed gear.

NEFSC SURFCLAM AND OCEAN QUAHOG SURVEY 2011
NOAA Fisheries Service
SURFCLAMS - Number/Tow
Total Number



NEFSC SURFCLAM AND OCEAN QUAHOG SURVEY 2011
NOAA Fisheries Service
SURFCLAMS - Number/Tow
Greater Than 5 inches



NEFSC SURFCLAM AND OCEAN QUAHOG SURVEY 2011
NOAA Fisheries Service
OCEAN QUAHOGS - Number/Tow
Total Numbers

