

RESOURCE SURVEY REPORT Catch Summary
NOAA Fisheries Service Northeast Fisheries Science Center
Atlantic Surfclam - Ocean Quahog Survey
Delmarva Peninsula - Georges Bank
June 30 – August 7, 2008

Submitted to: NOAA, NEFSC

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Date: 2008

Resource Survey Report

Surfclam/Ocean Quahog

Delmarva Peninsula – Georges Bank

June 30 – August 07, 2008

R/V Delaware II



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



Top: (Left) Scientists measure and weigh surf clams.

Top: (Right) Scientists dump and sort catch.

Bottom: Full view of clam dredge setup.

RESOURCE SURVEY REPORT

Catch Summary

NOAA Fisheries Service
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Atlantic Surfclam - Ocean Quahog Survey

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The 2008 region-wide survey for Atlantic surfclam, *Spisula solidissima*; and ocean quahog, *Arctica islandica*, operated in continental shelf waters, from Delmarva Peninsula to Georges Bank aboard the NOAA FRV *Delaware II*. This survey is currently conducted once every three years and was last completed in 2005. The Northeast Fisheries Science Center survey provides indices of abundance and recruitment for both species. This year, an additional 100 non-random tows were made during the survey to support on-going scientific studies.

The following charts and station data describe the distribution of surf clams and ocean quahogs during the survey. Five-minute tows were made at the speed of 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 inches, 4.76 to 5.00 inches, 5.01 to 5.50 inches, and greater than 5.50 inches. Distribution plots indicate relative numbers of surf clams 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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<http://www.nefsc.noaa.gov/esb> and choose:

- Resource Survey Reports
 - Available RSR
 - Year of interest

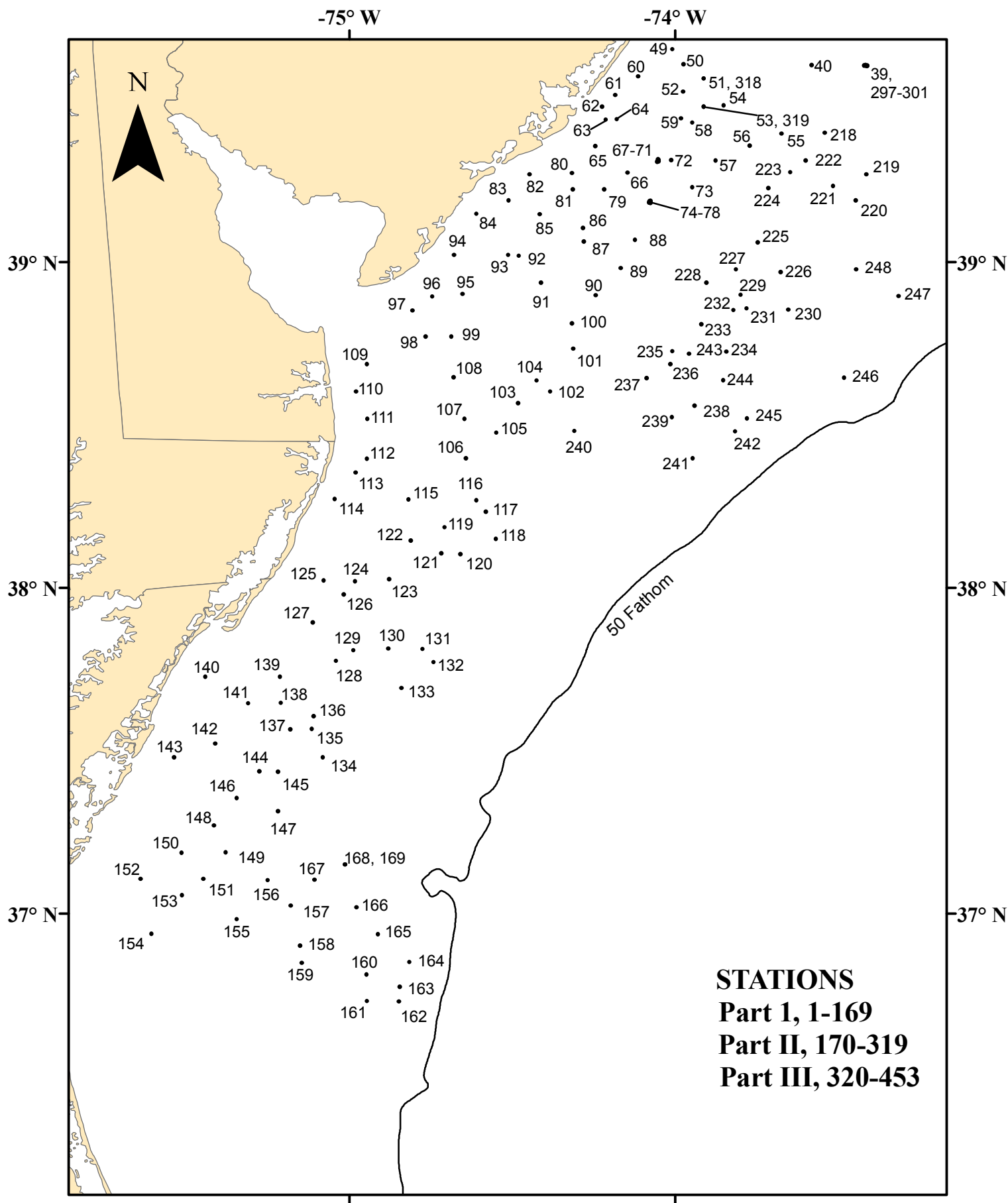


Figure 1. Dredge hauls made from NOAA R/V Delaware II (08-07), during NOAA Fisheries Service, Northeast Fisheries Science Center surfclam/ocean quahog survey July 1 - August 6, 2008.

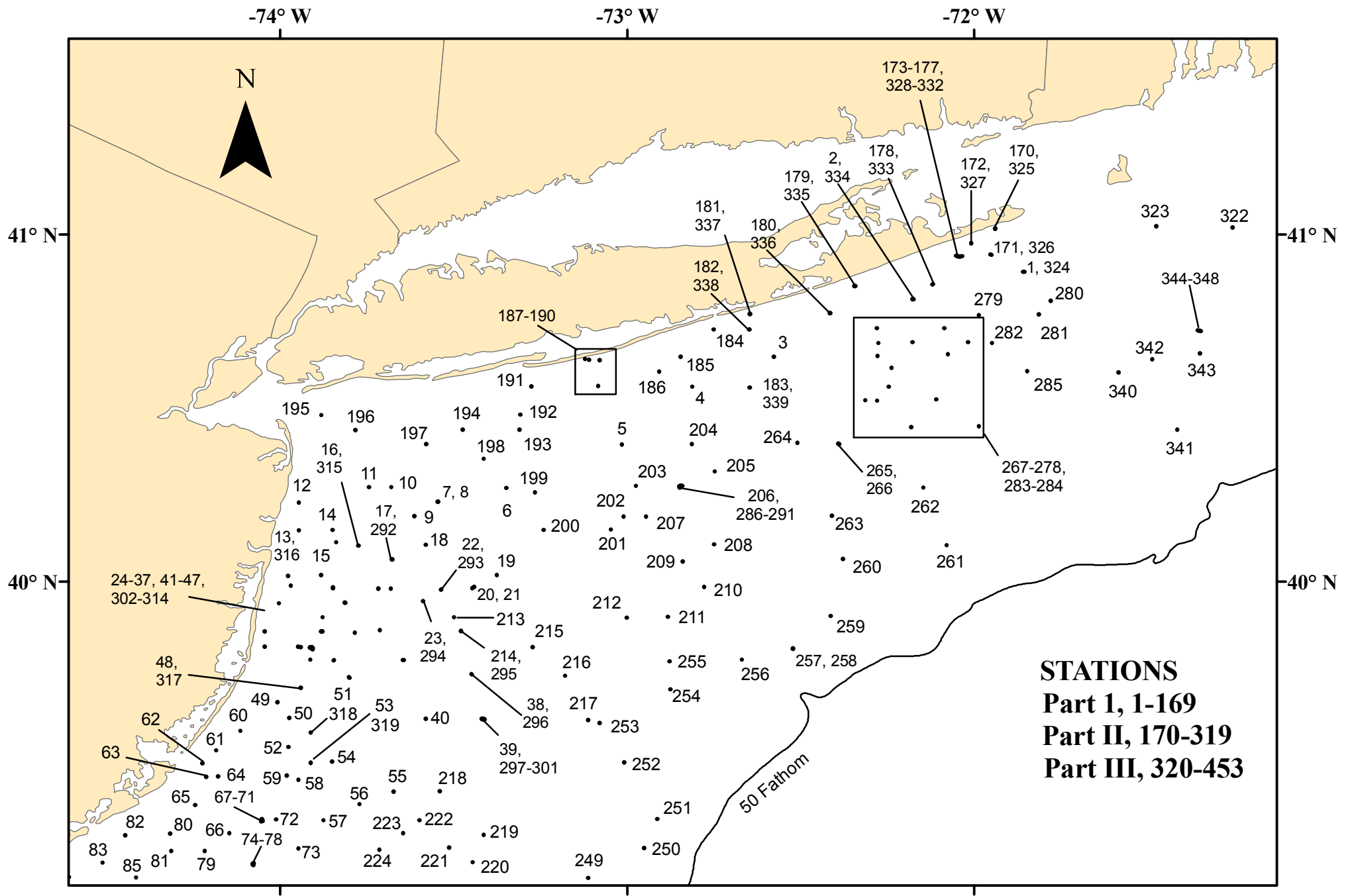


Figure 2. Dredge hauls made from NOAA R/V Delaware II (08-07), during NOAA Fisheries Service, Northeast Fisheries Science Center surfclam/ocean quahog survey July 1 - August 6, 2008.

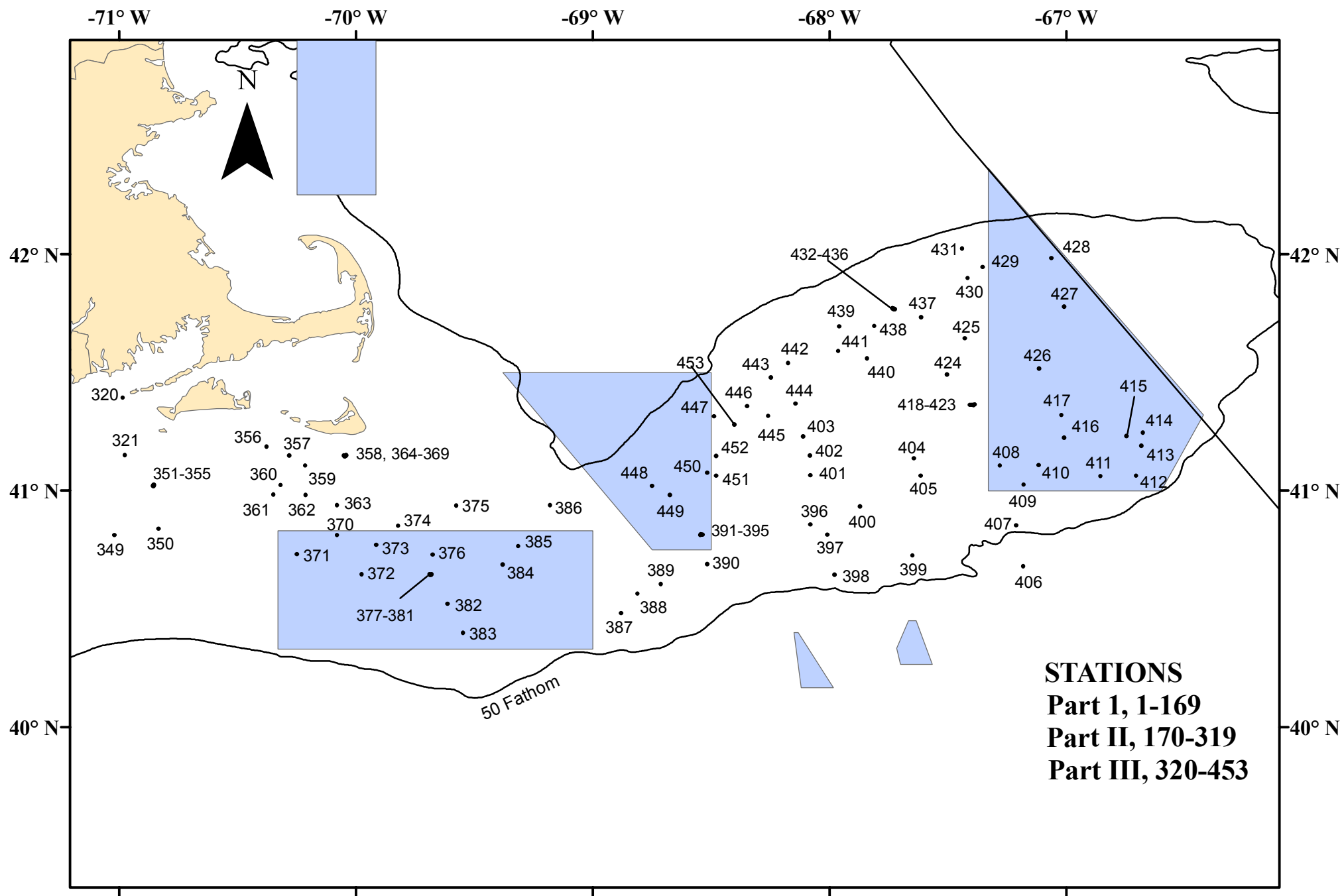


Figure 3. Dredge hauls made from NOAA R/V Delaware II (08-07), during NOAA Fisheries Service, Northeast Fisheries Science Center surfclam/ocean quahog survey July 1 - August 6, 2008.

Field Notes

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

Pump problems:

The clam cruise experienced a pump malfunction about 100 tows into the first part of the survey and was replaced with a backup. The pump had to be recoiled and was ready for use for leg III.

Depletion studies with Industry:

Four sites were identified and intensely sampled in preparation for a later depletion study to be conducted by an industry vessel. These studies are important in terms of estimating the relative efficiency of the survey gear

Power cord problems:

The NEFSC's clam dredge uses a pump to shoot pressurized water in front of the blade assembly. This pump is powered from the surface using a three phase 460V power cord. Due to damage and other circumstances, the power cable became too short to tow in the deeper parts of the mid-Atlantic bight strata. A spare (1,100 ft) power cord was on board and we were able to completely replace the power cord while at sea thus allowing us to continue sampling without returning to the dock.

***Delaware* to the rescue:**

During Leg II, the *Delaware II* briefly broke operations to respond to a distress call since it was one of a few vessels operating in the area that had diving capabilities. Unfortunately, the F/V *Sea Breeze* sank before the *Delaware* could arrive. We learned later that Captain Phil Ruhle, who had worked closely with us to improve survey gear and standardization, was lost.

Blade assembly damage:

Major damage was done to the face plate of the pump, so we decided to remove the face plate of the back-up pump and install it on the pump while it was still on the dredge. This had never been done before in previous surveys. We started the cruise with nine blade assemblies. We damaged two before we reached the Great South Channel and in about ten successive tows, we broke six of the remaining seven blade assemblies on the rocks.

Food and Drug Administration (FDA) Paralytic Shellfish Poison (PSP) Testing:

Surfclam and ocean quahog meats collected during legs II and III were examined by the FDA for PSP toxin. Field test results indicate that PSP is present from Nantucket and east to Georges Bank, an area that is currently closed to commercial fishing due to PSP concerns.

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2008 NOAA Fisheries Service Surfclam -- Ocean Quahog Survey
R/V DELAWARE II June 30 - August 07

Station Data								Surfclams				Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Heading	Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number
		Latitude	Longitude	Time	Delays				0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"	
09	0128	3746.5	7502.4	X27012.3	Y41946.5	73	16.4	0	0.0	0.0	0.0	0.0	0
09	0129	3748.4	7459.1	X26999.6	Y41972.3	84	16.4	0	0.0	0.0	0.0	0.0	0
09	0130	3748.7	7452.8	X26969.3	Y41984.3	88	15.9	23	34.8	0.0	34.8	30.4	0
09	0133	3741.4	7450.4	X26945.8	Y41907.5	228	19.7	100	86.0	1.0	4.0	9.0	0
09	0134	3728.7	7504.8	X26993.8	Y41745.2	235	16.4	5	100.0	0.0	0.0	0.0	0
09	0135	3734.0	7506.8	X27011.9	Y41800.8	13	15.3	3	100.0	0.0	0.0	0.0	0
09	0136	3736.3	7506.5	X27014.4	Y41826.8	120	16.4	0	0.0	0.0	0.0	0.0	0
09	0137	3733.9	7510.8	X27030.4	Y41793.4	11	18.0	0	0.0	0.0	0.0	0.0	1
09	0138	3738.7	7512.6	X27047.2	Y41844.4	182	16.4	0	0.0	0.0	0.0	0.0	7
09	0141	3738.7	7518.6	X27075.3	Y41835.4	139	12.0	1	100.0	0.0	0.0	0.0	0
09	0144	3726.1	7516.5	X27043.3	Y41696.9	117	16.4	0	0.0	0.0	0.0	0.0	0
09	0145	3726.0	7513.1	X27027.6	Y41701.4	254	15.9	0	0.0	0.0	0.0	0.0	0
09	0146	3721.2	7520.6	X27053.5	Y41635.1	107	14.2	2	100.0	0.0	0.0	0.0	0
09	0147	3718.8	7513.0	X27015.4	Y41621.5	326	15.3	0	0.0	0.0	0.0	0.0	0
09	0148	3716.2	7524.8	X27063.7	Y41571.6	295	13.1	0	0.0	0.0	0.0	0.0	0
09	0149	3711.2	7522.7	X27046.1	Y41519.4	85	14.8	0	0.0	0.0	0.0	0.0	0
09	0150	3711.2	7530.8	X27081.5	Y41504.5	315	13.1	0	0.0	0.0	0.0	0.0	0
09	0151	3706.3	7526.8	X27055.9	Y41457.0	334	14.8	0	0.0	0.0	0.0	0.0	0
09	0153	3703.3	7530.7	X27067.8	Y41415.9	127	13.1	0	0.0	0.0	0.0	0.0	0
09	0154	3656.3	7536.4	X27080.4	Y41326.2	143	11.5	3	100.0	0.0	0.0	0.0	0
09	0155	3658.9	7520.7	X27018.0	Y41386.7	50	15.9	1	100.0	0.0	0.0	0.0	0
09	0156	3706.1	7515.0	X27004.3	Y41477.4	47	18.6	0	0.0	0.0	0.0	0.0	0
09	0157	3701.4	7510.7	X26978.5	Y41434.3	180	20.2	0	0.0	0.0	0.0	0.0	0
09	0158	3654.0	7509.0	X26960.6	Y41357.4	184	16.4	1	100.0	0.0	0.0	0.0	0
09	0159	3650.9	7508.7	X26955.0	Y41324.5	189	18.0	1	100.0	0.0	0.0	0.0	0
09	0160	3648.7	7456.7	X26900.7	Y41327.2	79	18.6	38	100.0	0.0	0.0	0.0	0
09	0161	3643.8	7456.7	X26894.6	Y41275.6	115	19.1	7	100.0	0.0	0.0	0.0	0
09	0163	3646.4	7450.7	X26872.1	Y41316.4	55	25.2	4	100.0	0.0	0.0	0.0	0
09	0165	3656.2	7454.6	X26901.1	Y41411.3	354	23.5	45	95.6	2.2	2.2	0.0	0
09	0166	3701.0	7458.6	X26924.9	Y41454.3	354	24.1	0	0.0	0.0	0.0	0.0	0
09	0167	3706.2	7506.3	X26966.2	Y41495.3	12	18.6	33	100.0	0.0	0.0	0.0	0
09	0168	3708.9	7500.7	X26945.2	Y41535.5	53	20.2	30	100.0	0.0	0.0	0.0	0
09	0169	3713.7	7454.8	X26925.4	Y41598.6	48	23.0	0	0.0	0.0	0.0	0.0	0
10	0162	3643.7	7450.8	X26869.3	Y41288.0	75	25.7	15	100.0	0.0	0.0	0.0	0
10	0164	3651.0	7448.8	X26869.3	Y41368.8	42	27.9	1	100.0	0.0	0.0	0.0	2
13	0105	3828.5	7432.8	X26933.8	Y42444.4	226	19.1	1	0.0	0.0	0.0	100.0	0
13	0106	3823.8	7438.5	X26956.5	Y42387.8	224	19.7	0	0.0	0.0	0.0	0.0	0
13	0107	3831.1	7438.7	X26971.2	Y42468.0	40	10.9	1	0.0	0.0	0.0	100.0	0
13	0108	3838.7	7440.7	X26997.2	Y42550.5	35	13.1	3	100.0	0.0	0.0	0.0	0
13	0115	3816.2	7449.0	X26998.5	Y42293.6	100	12.6	2	100.0	0.0	0.0	0.0	0
13	0116	3816.1	7436.5	X26932.1	Y42305.2	142	20.8	22	18.2	0.0	27.3	54.5	1
13	0117	3814.0	7434.8	X26919.5	Y42284.0	150	21.3	53	73.6	0.0	3.8	22.6	1
13	0118	3800.9	7432.9	X26888.5	Y42143.6	293	18.6	132	66.7	3.0	9.1	21.2	2
13	0119	3811.1	7442.4	X26954.6	Y42244.1	308	17.0	0	0.0	0.0	0.0	0.0	0
13	0120	3806.2	7439.4	X26930.6	Y42193.7	306	19.7	46	39.1	0.0	13.0	47.8	0
13	0121	3806.3	7443.0	X26949.4	Y42190.6	354	18.6	19	26.3	0.0	5.3	68.4	0
13	0122	3808.7	7448.6	X26982.6	Y42210.8	328	17.0	3	100.0	0.0	0.0	0.0	0

2008 NOAA Fisheries Service Surfclam -- Ocean Quahog Survey
R/V DELAWARE II June 30 - August 07

Station Data								Surfclams					Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Heading	Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time	Delays				0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"		
	13	0123	3801.5	7452.6	X26990.2	Y42126.3	315	13.1	1	100.0	0.0	0.0	0.0	0
	13	0131	3748.6	7446.4	X26937.5	Y41992.1	134	21.9	0	0.0	0.0	0.0	0.0	13
	13	0132	3746.3	7444.4	X26924.1	Y41969.7	93	23.5	0	0.0	0.0	0.0	0.0	60
	17	0090	3853.8	7414.5	X26874.2	Y42730.7	242	21.9	0	0.0	0.0	0.0	0.0	70
	17	0091	3856.1	7424.6	X26939.0	Y42750.9	160	14.2	2	50.0	0.0	0.0	50.0	0
	17	0092	3901.1	7428.7	X26973.8	Y42803.8	344	12.0	15	20.0	0.0	0.0	80.0	1
	17	0099	3846.3	7441.1	X27015.2	Y42634.4	118	13.7	0	0.0	0.0	0.0	0.0	0
	17	0100	3848.7	7418.9	X26891.1	Y42673.6	185	22.4	11	100.0	0.0	0.0	0.0	23
	17	0101	3843.9	7418.7	X26881.3	Y42621.9	181	20.8	3	66.7	0.0	33.3	0.0	11
	17	0102	3836.1	7422.9	X26891.8	Y42534.8	262	22.4	0	0.0	0.0	0.0	0.0	59
	17	0103	3834.0	7428.9	X26922.0	Y42507.6	329	19.7	21	42.9	0.0	14.3	42.9	22
	17	0104	3838.1	7425.4	X26909.6	Y42554.8	70	19.1	0	0.0	0.0	0.0	0.0	18
	17	0235	3843.5	7400.4	X26773.4	Y42628.4	116	26.2	0	0.0	0.0	0.0	0.0	91
	17	0236	3841.2	7400.8	X26772.3	Y42603.9	118	29.0	0	0.0	0.0	0.0	0.0	79
	17	0240	3828.8	7418.5	X26854.8	Y42459.4	342	22.4	49	79.6	4.1	6.1	10.2	57
*	17	0243	3843.1	7357.3	X26754.5	Y42626.0	13	25.7	0	0.0	0.0	0.0	0.0	0
	18	0237	3838.6	7405.1	X26793.6	Y42573.8	304	26.8	0	0.0	0.0	0.0	0.0	60
	18	0238	3833.5	7356.3	X26735.5	Y42526.1	120	28.4	1	100.0	0.0	0.0	0.0	157
	18	0239	3831.4	7400.5	X26756.8	Y42501.1	291	25.7	15	100.0	0.0	0.0	0.0	6
*	18	0244	3838.2	7351.0	X26710.8	Y42578.6	121	29.5	0	0.0	0.0	0.0	0.0	0
	19	0241	3823.8	7356.7	X26725.4	Y42424.5	41	33.9	0	0.0	0.0	0.0	0.0	58
	19	0242	3828.7	7348.8	X26686.5	Y42481.7	56	32.8	0	0.0	0.0	0.0	0.0	57
	19	0245	3831.2	7346.6	X26676.8	Y42509.1	123	33.9	0	0.0	0.0	0.0	0.0	62
	21	0036	3951.5	7342.7	X26774.7	Y43334.3	179	17.0	14	21.4	0.0	7.1	71.4	6
	21	0037	3946.3	7338.7	X26736.0	Y43280.1	107	17.0	44	4.5	4.5	18.2	72.7	0
	21	0039	3936.1	7324.6	X26619.9	Y43173.3	193	20.8	99	20.2	9.1	31.3	39.4	0
	21	0040	3936.2	7334.8	X26691.0	Y43177.0	320	19.7	28	25.0	7.1	25.0	42.9	0
	21	0041	3943.4	7348.1	X26796.8	Y43254.0	346	12.0	66	66.7	0.0	1.5	31.8	0
	21	0054	3928.8	7351.0	X26788.8	Y43104.3	118	16.4	11	45.5	18.2	0.0	36.4	0
	21	0055	3923.6	7340.3	X26708.2	Y43050.0	113	19.1	4	25.0	25.0	0.0	50.0	0
	21	0056	3921.4	7346.2	X26743.8	Y43027.7	271	19.1	28	3.6	7.1	35.7	53.6	65
	21	0057	3918.7	7352.4	X26780.0	Y42999.6	241	20.8	1	0.0	0.0	100.0	0.0	22
	21	0073	3913.8	7356.7	X26799.3	Y42948.1	151	15.3	21	28.6	0.0	9.5	61.9	0
	21	0074	3911.2	7404.5	X26844.4	Y42919.5	264	10.4	141	24.1	3.5	7.8	64.5	0
*	21	0075	3911.1	7404.7	X26845.5	Y42918.4	109	10.4	188	18.1	4.8	5.9	71.3	0
*	21	0076	3911.0	7404.5	X26844.0	Y42917.4	277	10.9	250	18.0	1.6	7.6	72.8	0
*	21	0077	3910.9	7404.7	X26845.1	Y42916.3	87	11.5	80	26.2	2.5	7.5	63.8	0
*	21	0078	3910.8	7404.5	X26843.7	Y42915.2	292	13.1	47	42.6	2.1	2.1	53.2	0
	21	0087	3903.7	7416.7	X26906.2	Y42836.3	107	13.7	58	36.2	0.0	1.7	62.1	0
	21	0088	3904.1	7407.3	X26848.9	Y42843.5	139	15.9	22	27.3	0.0	13.6	59.1	14
	21	0089	3858.8	7401.0	X26800.8	Y42789.4	227	17.0	51	33.3	2.0	7.8	56.9	35
	21	0218	3923.7	7332.4	X26655.5	Y43050.6	129	24.6	0	0.0	0.0	0.0	0.0	82
	21	0219	3916.1	7324.7	X26594.3	Y42974.1	188	23.5	4	100.0	0.0	0.0	0.0	34
	21	0221	3913.9	7330.8	X26631.6	Y42951.7	95	25.2	0	0.0	0.0	0.0	0.0	9
	21	0222	3918.6	7335.9	X26671.4	Y42999.1	62	24.6	1	100.0	0.0	0.0	0.0	11
	21	0223	3916.4	7338.7	X26686.7	Y42976.6	358	24.6	0	0.0	0.0	0.0	0.0	109
	21	0224	3913.6	7342.7	X26708.6	Y42947.6	168	24.1	18	11.1	11.1	44.4	33.3	6

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R/V DELAWARE II June 30 - August 07

Station Data								Surfclams					Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Heading	Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time	Delays				0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"		
	21	0225	3903.5	7344.7	X26706.6	Y42843.3	166	25.2	21	47.6	14.3	14.3	23.8	73
	21	0227	3858.6	7348.7	X26724.6	Y42791.5	253	23.0	1	100.0	0.0	0.0	0.0	27
	21	0228	3856.2	7354.2	X26755.0	Y42764.6	136	20.8	5	100.0	0.0	0.0	0.0	47
	21	0229	3853.9	7347.8	X26712.4	Y42743.1	219	25.2	5	40.0	20.0	40.0	0.0	136
	21	0231	3851.4	7346.7	X26702.3	Y42717.7	300	25.7	11	90.9	9.1	0.0	0.0	192
	21	0232	3851.1	7349.2	X26717.1	Y42713.5	204	23.5	14	78.6	14.3	0.0	7.1	59
	21	0233	3848.5	7355.1	X26749.1	Y42683.7	237	23.5	13	46.2	23.1	23.1	7.7	118
	21	0234	3843.4	7350.5	X26714.6	Y42632.9	162	26.2	2	50.0	50.0	0.0	0.0	70
*	21	0297	3936.1	7324.6	X26619.9	Y43173.3	223	20.8	139	20.1	10.8	25.2	43.9	0
*	21	0298	3936.1	7324.7	X26620.6	Y43173.3	354	20.2	20	70.0	0.0	10.0	20.0	5
*	21	0299	3936.2	7324.9	X26622.1	Y43174.4	218	20.2	6	66.7	16.7	16.7	0.0	2
*	21	0300	3936.1	7325.0	X26622.7	Y43173.4	5	20.2	17	64.7	5.9	17.6	11.8	5
*	21	0301	3936.2	7325.1	X26623.5	Y43174.4	234	20.2	18	55.6	11.1	11.1	22.2	4
*	21	0302	3946.3	7338.5	X26734.6	Y43280.0	99	17.5	36	44.4	2.8	11.1	41.7	0
*	21	0303	3943.2	7348.0	X26795.7	Y43252.0	6	12.0	80	81.2	1.2	1.2	16.2	0
	22	0220	3911.3	7326.6	X26601.0	Y42925.9	3	29.0	0	0.0	0.0	0.0	0.0	229
	22	0226	3858.1	7340.5	X26673.0	Y42789.0	162	26.2	3	100.0	0.0	0.0	0.0	16
	22	0230	3851.2	7339.1	X26655.8	Y42718.9	310	24.1	10	90.0	10.0	0.0	0.0	26
	23	0246	3838.6	7328.7	X26580.0	Y42596.2	93	39.9	0	0.0	0.0	0.0	0.0	123
	23	0247	3853.6	7318.8	X26533.6	Y42750.9	61	37.2	0	0.0	0.0	0.0	0.0	24
	23	0248	3858.6	7326.6	X26586.9	Y42798.4	333	30.6	0	0.0	0.0	0.0	0.0	65
	23	0249	3908.6	7306.7	X26469.4	Y42901.3	84	38.8	0	0.0	0.0	0.0	0.0	14
	23	0250	3913.8	7257.0	X26410.0	Y42952.3	360	39.9	0	0.0	0.0	0.0	0.0	37
	25	0009	4011.3	7336.7	X26771.9	Y43528.2	326	19.1	0	0.0	0.0	0.0	0.0	81
	25	0011	4016.2	7344.6	X26843.5	Y43583.3	330	18.0	0	0.0	0.0	0.0	0.0	347
	25	0016	4006.1	7346.4	X26833.2	Y43483.7	10	15.9	62	6.5	3.2	25.8	64.5	7
	25	0017	4003.8	7340.6	X26784.9	Y43456.7	118	18.0	191	20.4	10.5	33.0	36.1	2
	25	0022	3958.5	7332.1	X26711.2	Y43398.6	225	20.8	128	67.2	14.8	13.3	4.7	26
	25	0023	3956.5	7335.2	X26730.1	Y43380.6	321	17.0	114	25.4	9.6	20.2	44.7	4
	25	0024	3958.7	7340.7	X26774.9	Y43405.7	305	18.6	9	66.7	0.0	11.1	22.2	17
	25	0025	3958.7	7342.9	X26791.0	Y43407.0	294	17.5	65	16.9	6.2	20.0	56.9	1
	25	0038	3943.9	7326.8	X26647.2	Y43251.4	162	18.0	69	88.4	2.9	1.4	7.2	1
*	25	0213	3953.7	7329.8	X26685.4	Y43349.8	349	21.3	103	60.2	26.2	10.7	2.9	41
	25	0214	3951.4	7328.6	X26672.6	Y43326.4	146	20.8	127	43.3	24.4	22.0	10.2	33
	25	0215	3948.6	7316.3	X26578.9	Y43293.0	270	23.0	44	88.6	9.1	2.3	0.0	15
	25	0216	3943.6	7310.6	X26531.1	Y43242.1	138	23.0	20	85.0	5.0	10.0	0.0	15
	25	0217	3936.0	7306.7	X26494.6	Y43167.3	166	23.0	16	43.8	31.2	18.8	6.2	26
*	25	0292	4003.8	7340.5	X26784.2	Y43456.6	112	18.6	82	26.8	1.2	32.9	39.0	2
*	25	0293	3958.5	7332.0	X26710.4	Y43398.6	241	20.2	155	59.4	19.4	18.7	2.6	25
*	25	0294	3956.5	7335.2	X26730.1	Y43380.6	313	16.4	96	25.0	10.4	16.7	47.9	0
*	25	0295	3951.4	7328.7	X26673.3	Y43326.5	177	20.2	112	32.1	24.1	29.5	14.3	22
*	25	0296	3943.9	7326.8	X26647.2	Y43251.4	175	18.0	110	55.5	5.5	15.5	23.6	0
*	25	0313	3958.7	7342.9	X26791.0	Y43407.0	293	17.0	79	21.5	1.3	12.7	64.6	0
*	25	0315	4006.1	7346.4	X26833.2	Y43483.7	39	15.9	50	8.0	4.0	22.0	66.0	3
	26	0019	4001.1	7322.4	X26643.9	Y43418.0	111	30.6	0	0.0	0.0	0.0	0.0	217
	26	0020	3958.7	7326.9	X26673.1	Y43397.4	0	24.1	0	0.0	0.0	0.0	0.0	0
	26	0021	3959.0	7326.4	X26669.9	Y43400.1	140	25.7	0	0.0	0.0	0.0	0.0	20

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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	0253	3935.5	7304.7	X26480.0	Y43161.9	12	25.2	0	0.0	0.0	0.0	0.0	42
	27	0018	4006.3	7334.7	X26746.1	Y43477.4	314	37.7	1	100.0	0.0	0.0	0.0	0
	27	0251	3918.9	7254.7	X26398.0	Y43001.1	352	38.3	0	0.0	0.0	0.0	0.0	187
	27	0252	3928.6	7300.5	X26444.4	Y43094.6	9	32.3	0	0.0	0.0	0.0	0.0	59
	27	0254	3941.3	7252.5	X26399.3	Y43213.0	76	37.2	0	0.0	0.0	0.0	0.0	10
	29	0003	4038.8	7234.6	X26326.4	Y43718.0	298	19.1	0	0.0	0.0	0.0	0.0	51
	29	0004	4033.6	7248.7	X26434.8	Y43689.4	224	18.6	0	0.0	0.0	0.0	0.0	21
	29	0005	4023.7	7300.8	X26516.0	Y43613.4	243	21.3	0	0.0	0.0	0.0	0.0	269
	29	0006	4016.1	7320.9	X26660.5	Y43561.5	242	19.7	0	0.0	0.0	0.0	0.0	43
	29	0007	4013.8	7332.7	X26746.9	Y43549.5	170	16.4	0	0.0	0.0	0.0	0.0	0
	29	0008	4013.7	7332.7	X26746.6	Y43548.5	249	16.4	0	0.0	0.0	0.0	0.0	178
	29	0182	4043.5	7238.8	X26369.6	Y43763.6	241	15.3	2	50.0	50.0	0.0	0.0	394
	29	0183	4033.4	7238.8	X26352.9	Y43676.3	337	21.9	0	0.0	0.0	0.0	0.0	290
	29	0185	4038.8	7250.7	X26460.7	Y43737.8	268	15.3	0	0.0	0.0	0.0	0.0	68
	29	0186	4036.3	7254.4	X26486.7	Y43720.1	277	17.0	0	0.0	0.0	0.0	0.0	63
	29	0193	4026.2	7318.6	X26663.1	Y43655.0	352	16.4	3	33.3	0.0	0.0	66.7	1
	29	0198	4021.2	7324.7	X26700.7	Y43613.8	148	17.0	0	0.0	0.0	0.0	0.0	69
	29	0199	4015.4	7315.9	X26620.2	Y43550.4	206	20.2	0	0.0	0.0	0.0	0.0	20
	29	0200	4008.8	7314.4	X26596.7	Y43486.4	107	23.0	4	100.0	0.0	0.0	0.0	68
	29	0201	4008.9	7302.8	X26507.8	Y43478.2	30	24.6	1	100.0	0.0	0.0	0.0	134
	29	0203	4016.4	7258.4	X26485.0	Y43544.1	75	23.5	4	100.0	0.0	0.0	0.0	69
	29	0204	4023.7	7248.7	X26418.9	Y43601.2	161	24.6	0	0.0	0.0	0.0	0.0	31
*	29	0338	4043.5	7238.9	X26370.5	Y43763.7	266	15.3	0	0.0	0.0	0.0	0.0	211
*	29	0339	4033.4	7238.8	X26352.9	Y43676.3	52	21.9	0	0.0	0.0	0.0	0.0	103
	30	0202	4011.1	7300.5	X26493.3	Y43496.9	59	25.2	0	0.0	0.0	0.0	0.0	65
	30	0205	4018.9	7244.8	X26381.0	Y43554.3	264	27.9	0	0.0	0.0	0.0	0.0	219
	30	0206	4016.1	7250.9	X26425.5	Y43534.6	252	26.2	0	0.0	0.0	0.0	0.0	471
	30	0207	4011.2	7256.7	X26464.0	Y43494.6	224	25.2	0	0.0	0.0	0.0	0.0	85
	30	0208	4006.3	7244.9	X26366.8	Y43440.4	114	28.4	0	0.0	0.0	0.0	0.0	70
	30	0209	4003.4	7250.3	X26404.8	Y43417.8	153	29.5	0	0.0	0.0	0.0	0.0	275
	30	0210	3959.0	7246.6	X26372.2	Y43374.7	166	30.6	0	0.0	0.0	0.0	0.0	218
	30	0211	3953.8	7252.9	X26413.9	Y43330.4	287	30.1	0	0.0	0.0	0.0	0.0	127
	30	0212	3953.7	7300.0	X26466.3	Y43333.5	296	29.5	0	0.0	0.0	0.0	0.0	114
	30	0264	4023.9	7230.5	X26272.6	Y43584.6	7	26.2	0	0.0	0.0	0.0	0.0	174
	30	0265	4023.8	7223.4	X26215.3	Y43576.7	11	28.4	0	0.0	0.0	0.0	0.0	5
	30	0266	4023.7	7223.3	X26214.4	Y43575.7	8	28.4	0	0.0	0.0	0.0	0.0	164
	30	0273	4031.3	7218.8	X26185.4	Y43635.9	22	28.4	0	0.0	0.0	0.0	0.0	378
*	30	0286	4016.2	7250.8	X26424.8	Y43535.4	240	25.7	0	0.0	0.0	0.0	0.0	0
*	30	0287	4016.2	7250.9	X26425.6	Y43535.5	307	26.2	0	0.0	0.0	0.0	0.0	492
*	30	0288	4016.4	7250.9	X26425.9	Y43537.3	143	26.2	0	0.0	0.0	0.0	0.0	167
*	30	0289	4016.3	7250.6	X26423.4	Y43536.1	347	26.2	0	0.0	0.0	0.0	0.0	288
*	30	0290	4016.5	7250.7	X26424.5	Y43538.0	154	26.8	0	0.0	0.0	0.0	0.0	335
*	30	0291	4016.5	7250.4	X26422.1	Y43537.8	8	29.5	0	0.0	0.0	0.0	0.0	66
	31	0255	3946.1	7252.6	X26404.2	Y43258.2	119	38.3	0	0.0	0.0	0.0	0.0	0
	31	0256	3946.4	7240.1	X26314.1	Y43255.2	76	32.8	0	0.0	0.0	0.0	0.0	208
	31	0257	3948.3	7231.3	X26251.5	Y43268.3	67	34.4	0	0.0	0.0	0.0	0.0	74
*	31	0258	3948.4	7231.3	X26251.5	Y43269.2	73	34.4	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		Heading	Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time	Delays				0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"		
	31	0259	3905.4	7224.8	X26200.8	Y42875.7	46	42.1	0	0.0	0.0	0.0	0.0	3
	31	0260	4003.9	7222.6	X26194.5	Y43402.5	43	35.5	0	0.0	0.0	0.0	0.0	393
	31	0261	4006.2	7204.7	X26059.5	Y43409.5	65	38.8	0	0.0	0.0	0.0	0.0	0
	31	0262	4016.2	7208.7	X26093.0	Y43497.9	90	33.9	0	0.0	0.0	0.0	0.0	152
	31	0263	4011.3	7224.5	X26213.6	Y43469.0	86	35.0	0	0.0	0.0	0.0	0.0	54
	33	0001	4053.5	7151.3	X25978.0	Y43783.2	251	20.2	1	100.0	0.0	0.0	0.0	232
	33	0002	4048.7	7210.6	X26138.0	Y43770.4	271	21.3	0	0.0	0.0	0.0	0.0	99
*	33	0171	4056.4	7156.9	X26030.8	Y43813.4	331	15.9	1	100.0	0.0	0.0	0.0	26
	33	0174	4056.2	7202.7	X26081.1	Y43819.8	8	14.2	0	0.0	0.0	0.0	0.0	87
	33	0178	4051.3	7207.0	X26110.9	Y43786.6	275	19.1	2	100.0	0.0	0.0	0.0	243
	33	0180	4046.3	7224.9	X26256.6	Y43769.3	278	17.0	1	0.0	0.0	100.0	0.0	333
	33	0275	4041.2	7216.5	X26177.9	Y43716.3	26	25.2	0	0.0	0.0	0.0	0.0	89
	33	0276	4043.7	7216.8	X26183.8	Y43737.3	18	23.0	0	0.0	0.0	0.0	0.0	58
	33	0277	4041.3	7210.6	X26128.3	Y43709.9	77	25.2	0	0.0	0.0	0.0	0.0	442
	33	0278	4043.7	7205.1	X26084.6	Y43722.8	347	24.6	0	0.0	0.0	0.0	0.0	206
	33	0279	4046.0	7159.1	X26036.1	Y43733.9	234	23.5	0	0.0	0.0	0.0	0.0	136
*	33	0324	4053.4	7151.5	X25979.6	Y43782.7	276	20.8	0	0.0	0.0	0.0	0.0	64
*	33	0326	4056.5	7157.1	X26032.7	Y43814.5	304	15.3	0	0.0	0.0	0.0	0.0	6
*	33	0333	4051.3	7207.2	X26112.6	Y43786.9	279	19.7	0	0.0	0.0	0.0	0.0	311
*	33	0334	4048.8	7210.5	X26137.3	Y43771.0	252	21.3	0	0.0	0.0	0.0	0.0	224
*	33	0336	4046.3	7224.9	X26256.6	Y43769.3	259	17.0	0	0.0	0.0	0.0	0.0	118
*	34	0267	4031.2	7216.7	X26168.0	Y43632.8	52	29.5	0	0.0	0.0	0.0	0.0	579
	34	0271	4036.9	7214.2	X26153.4	Y43677.8	19	27.3	0	0.0	0.0	0.0	0.0	0
	34	0272	4033.6	7214.7	X26154.0	Y43650.8	10	29.0	0	0.0	0.0	0.0	0.0	494
	34	0274	4039.0	7216.6	X26175.9	Y43698.1	38	26.8	0	0.0	0.0	0.0	0.0	41
	34	0280	4048.4	7146.7	X25932.6	Y43737.5	188	29.5	0	0.0	0.0	0.0	0.0	32
	34	0281	4046.2	7148.7	X25947.6	Y43722.7	265	29.5	0	0.0	0.0	0.0	0.0	111
	34	0282	4041.1	7156.8	X26011.7	Y43691.8	290	26.8	0	0.0	0.0	0.0	0.0	282
	34	0283	4041.3	7201.0	X26047.3	Y43698.4	224	27.3	0	0.0	0.0	0.0	0.0	253
	34	0284	4039.2	7204.5	X26074.7	Y43685.5	209	27.3	0	0.0	0.0	0.0	0.0	194
	35	0268	4026.6	7210.9	X26116.6	Y43588.0	4	31.7	0	0.0	0.0	0.0	0.0	538
	35	0269	4026.8	7159.1	X26021.2	Y43577.7	20	35.5	0	0.0	0.0	0.0	0.0	52
	35	0270	4031.4	7206.5	X26084.4	Y43623.5	349	30.6	0	0.0	0.0	0.0	0.0	429
	35	0285	4036.3	7150.8	X25958.1	Y43646.4	98	33.4	0	0.0	0.0	0.0	0.0	37
	35	0340	4036.1	7135.0	X25827.5	Y43627.5	147	39.9	0	0.0	0.0	0.0	0.0	0
	35	0341	4026.2	7124.8	X25748.0	Y43539.7	129	39.4	0	0.0	0.0	0.0	0.0	8
	37	0321	4108.9	7058.5	X25531.4	Y43826.8	210	15.9	0	0.0	0.0	0.0	0.0	15
	38	0322	4101.1	7115.3	X25671.7	Y43793.2	184	26.2	0	0.0	0.0	0.0	0.0	182
	38	0323	4101.3	7128.5	X25788.3	Y43812.2	350	26.2	0	0.0	0.0	0.0	0.0	39
	38	0351	4101.0	7051.3	X25460.9	Y43762.1	270	25.7	0	0.0	0.0	0.0	0.0	388
*	38	0352	4101.1	7051.4	X25461.8	Y43762.9	92	25.2	0	0.0	0.0	0.0	0.0	238
*	38	0353	4101.2	7051.2	X25460.1	Y43763.3	286	25.2	0	0.0	0.0	0.0	0.0	284
*	38	0354	4101.3	7051.3	X25461.0	Y43764.2	100	25.2	0	0.0	0.0	0.0	0.0	378
*	38	0355	4101.4	7051.2	X25460.2	Y43764.7	290	25.7	0	0.0	0.0	0.0	0.0	234
	39	0342	4038.4	7129.1	X25779.2	Y43639.1	328	35.0	0	0.0	0.0	0.0	0.0	30
	39	0343	4039.4	7120.9	X25711.7	Y43637.9	336	33.4	0	0.0	0.0	0.0	0.0	134
	39	0344	4043.2	7120.7	X25709.7	Y43666.6	5	33.4	0	0.0	0.0	0.0	0.0	455

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Station Data								Surfclams					Ocean Quahogs
Survey Stratum	Station Number	Position		Loran		Heading	Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number
		Latitude	Longitude	Time	Delays				0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"	
* 39	0345	4043.3	7120.9	X25711.4	Y43667.6	354	33.4	0	0.0	0.0	0.0	0.0	170
* 39	0346	4043.3	7121.0	X25712.2	Y43667.7	192	32.8	0	0.0	0.0	0.0	0.0	140
* 39	0347	4043.2	7121.2	X25713.9	Y43667.2	0	32.8	0	0.0	0.0	0.0	0.0	131
* 39	0348	4043.3	7121.3	X25714.7	Y43668.0	175	32.8	0	0.0	0.0	0.0	0.0	91
39	0349	4048.6	7101.2	X25546.4	Y43684.8	63	30.6	0	0.0	0.0	0.0	0.0	67
39	0350	4050.2	7050.0	X25452.9	Y43683.7	61	30.1	0	0.0	0.0	0.0	0.0	2
41	0356	4111.1	7022.6	X25212.0	Y43795.6	176	17.0	1	0.0	0.0	0.0	100.0	80
41	0357	4108.8	7016.9	X25161.5	Y43773.4	174	15.9	3	0.0	0.0	0.0	100.0	18
41	0360	4101.3	7019.0	X25188.5	Y43725.7	99	21.3	0	0.0	0.0	0.0	0.0	279
41	0361	4058.9	7020.9	X25208.0	Y43711.6	165	21.9	0	0.0	0.0	0.0	0.0	84
41	0362	4058.8	7012.7	X25148.1	Y43701.8	239	15.3	0	0.0	0.0	0.0	0.0	88
41	0371	4043.8	7014.9	X25209.3	Y43602.0	308	25.2	0	0.0	0.0	0.0	0.0	292
45	0373	4046.1	6954.8	W14049.8	Y43598.3	50	21.3	75	2.7	6.7	4.0	86.7	4
45	0374	4050.9	6949.2	W14002.1	Y43624.8	248	18.6	4	100.0	0.0	0.0	0.0	0
45	0376	4043.7	6940.5	W13982.7	Y43569.3	223	24.1	0	0.0	0.0	0.0	0.0	4
45	0384	4041.2	6922.8	W13900.3	Y43537.8	16	22.4	0	0.0	0.0	0.0	0.0	0
46	0372	4038.7	6958.5	W14095.9	Y43551.8	117	29.0	0	0.0	0.0	0.0	0.0	270
46	0377	4038.7	6940.8	W14002.4	Y43536.5	218	28.4	0	0.0	0.0	0.0	0.0	258
* 46	0378	4038.6	6940.9	W14003.3	Y43535.9	3	28.4	0	0.0	0.0	0.0	0.0	248
* 46	0379	4038.7	6941.0	W14003.5	Y43536.7	219	28.4	0	0.0	0.0	0.0	0.0	259
* 46	0380	4038.6	6941.1	W14004.4	Y43536.1	7	28.4	0	0.0	0.0	0.0	0.0	232
* 46	0381	4038.7	6941.3	W14005.1	Y43536.9	245	28.4	0	0.0	0.0	0.0	0.0	315
46	0385	4045.8	6918.8	W13862.5	Y43563.9	159	24.6	0	0.0	0.0	0.0	0.0	0
47	0382	4031.2	6936.7	W14007.9	Y43483.3	101	36.1	0	0.0	0.0	0.0	0.0	2686
47	0383	4023.9	6932.8	W14013.4	Y43431.7	28	36.6	0	0.0	0.0	0.0	0.0	354
47	0386	4056.2	6910.8	W13780.9	Y43622.4	63	32.3	1	100.0	0.0	0.0	0.0	0
47	0387	4028.8	6852.8	W13797.6	Y43436.4	27	41.0	0	0.0	0.0	0.0	0.0	645
54	0446	4121.3	6820.8	W13426.4	Y43723.4	25	31.7	1	100.0	0.0	0.0	0.0	4
54	0447	4118.7	6829.2	W13478.3	Y43716.8	170	33.4	0	0.0	0.0	0.0	0.0	0
54	0448	4101.1	6844.9	W13631.4	Y43628.7	255	36.1	0	0.0	0.0	0.0	0.0	2
55	0388	4033.7	6848.5	W13758.5	Y43464.2	250	37.2	0	0.0	0.0	0.0	0.0	482
55	0389	4036.2	6842.7	W13721.1	Y43475.6	316	33.4	0	0.0	0.0	0.0	0.0	94
55	0449	4058.8	6840.4	W13619.1	Y43611.0	351	35.5	0	0.0	0.0	0.0	0.0	15
57	0396	4051.3	6804.8	W13483.7	Y43538.4	80	33.9	0	0.0	0.0	0.0	0.0	592
57	0397	4048.7	6800.5	W13475.2	Y43520.3	88	36.1	0	0.0	0.0	0.0	0.0	892
59	0400	4055.9	6752.2	W13407.7	Y43555.4	167	31.7	9	44.4	0.0	11.1	44.4	1466
59	0405	4103.7	6736.9	W13306.9	Y43587.4	302	31.7	79	15.2	5.1	31.6	48.1	1120
59	0408	4106.2	6716.7	W13210.6	Y43585.9	32	32.8	0	0.0	0.0	0.0	0.0	1755
59	0409	4101.4	6710.6	W13206.9	Y43555.8	57	38.3	0	0.0	0.0	0.0	0.0	618
60	0398	4038.6	6758.7	W13508.6	Y43460.6	181	45.9	0	0.0	0.0	0.0	0.0	44
60	0399	4043.5	6738.8	W13401.6	Y43476.0	47	40.5	0	0.0	0.0	0.0	0.0	98
60	0406	4040.8	6710.8	W13295.9	Y43444.2	51	56.9	0	0.0	0.0	0.0	0.0	4
60	0407	4051.1	6712.6	W13259.8	Y43501.6	258	49.2	0	0.0	0.0	0.0	0.0	164
61	0410	4106.3	6706.9	W13170.1	Y43579.3	347	35.0	0	0.0	0.0	0.0	0.0	386
61	0411	4103.6	6651.2	W13119.7	Y43554.2	277	42.7	0	0.0	0.0	0.0	0.0	322
61	0415	4113.7	6644.7	W13049.0	Y43602.0	75	40.5	0	0.0	0.0	0.0	0.0	14
61	0416	4113.4	6700.4	W13111.9	Y43611.9	124	36.1	0	0.0	0.0	0.0	0.0	169

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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"	
	61	0417	4119.1	6701.1	W13088.4	Y43642.1	345	35.0	1	100.0	0.0	0.0	0.0	2253
	62	0412	4103.7	6642.2	W13084.5	Y43548.8	308	42.1	0	0.0	0.0	0.0	0.0	33
	62	0413	4111.3	6640.9	W13045.4	Y43587.1	345	43.2	0	0.0	0.0	0.0	0.0	91
	62	0414	4114.7	6640.5	W13028.4	Y43604.2	44	41.6	0	0.0	0.0	0.0	0.0	28
	67	0452	4108.8	6828.6	W13519.4	Y43659.3	3	28.4	1	100.0	0.0	0.0	0.0	0
	67	0453	4116.7	6824.0	W13462.4	Y43700.4	202	30.6	0	0.0	0.0	0.0	0.0	29
	68	0440	4133.4	6750.4	W13229.3	Y43760.2	293	17.5	6	66.7	0.0	16.7	16.7	0
	68	0441	4135.3	6757.6	W13252.6	Y43777.4	333	17.5	149	6.7	15.4	57.7	20.1	0
	68	0442	4132.3	6810.4	W13326.0	Y43774.1	356	20.8	130	7.7	1.5	6.9	83.8	0
	68	0443	4128.6	6814.8	W13364.1	Y43758.2	12	26.2	0	0.0	0.0	0.0	0.0	0
	68	0444	4121.9	6808.6	W13366.4	Y43715.0	94	21.9	2	50.0	0.0	50.0	0.0	0
	68	0445	4118.9	6815.4	W13411.8	Y43704.7	156	27.9	0	0.0	0.0	0.0	0.0	47
	69	0401	4103.8	6804.8	W13430.2	Y43610.0	320	24.6	2	100.0	0.0	0.0	0.0	1
	69	0402	4108.8	6804.9	W13408.6	Y43638.4	342	25.7	0	0.0	0.0	0.0	0.0	0
	69	0403	4113.7	6806.6	W13394.5	Y43667.4	352	22.4	2	50.0	0.0	0.0	50.0	0
	69	0451	4103.7	6828.7	W13542.0	Y43629.7	347	26.2	1	100.0	0.0	0.0	0.0	0
	70	0390	4041.3	6830.9	W13645.1	Y43498.3	341	32.8	2	100.0	0.0	0.0	0.0	386
	70	0391	4048.6	6832.7	W13624.2	Y43543.6	9	30.6	1	100.0	0.0	0.0	0.0	3863
*	70	0392	4048.8	6832.6	W13623.0	Y43544.7	172	30.6	1	100.0	0.0	0.0	0.0	2397
*	70	0393	4048.7	6832.4	W13622.4	Y43544.0	25	30.6	0	0.0	0.0	0.0	0.0	2439
*	70	0394	4048.8	6832.2	W13621.1	Y43544.4	278	30.6	1	100.0	0.0	0.0	0.0	1945
*	70	0395	4048.8	6832.1	W13620.6	Y43544.3	337	31.2	0	0.0	0.0	0.0	0.0	2043
	70	0404	4108.1	6738.5	W13294.3	Y43612.8	274	28.4	2	100.0	0.0	0.0	0.0	125
	70	0450	4104.4	6830.9	W13549.5	Y43635.7	354	25.2	0	0.0	0.0	0.0	0.0	0
	71	0429	4156.6	6721.1	W12986.8	Y43850.8	341	28.4	94	4.3	14.9	53.2	27.7	0
	72	0430	4153.8	6724.8	W13016.7	Y43840.5	13	30.1	216	14.8	32.4	42.6	10.2	0
	72	0431	4201.3	6726.2	W12983.9	Y43879.4	49	25.7	180	72.8	20.6	6.7	0.0	0
	72	0432	4145.9	6743.6	W13137.8	Y43819.3	352	21.3	290	11.4	8.3	50.0	30.3	0
*	72	0433	4145.9	6743.4	W13136.9	Y43819.1	270	21.3	23	56.5	8.7	26.1	8.7	0
*	72	0434	4146.1	6743.5	W13136.4	Y43820.2	238	20.8	46	41.3	10.9	32.6	15.2	0
*	72	0435	4146.1	6744.0	W13138.6	Y43820.7	303	19.1	334	23.7	23.4	46.1	6.9	0
*	72	0436	4146.1	6743.9	W13138.1	Y43820.6	186	19.7	170	14.7	24.1	48.8	12.4	0
	72	0437	4143.9	6736.7	W13117.6	Y43802.0	353	21.3	247	5.7	15.0	55.1	24.3	0
	72	0438	4141.6	6748.6	W13181.3	Y43801.9	151	18.0	39	20.5	20.5	53.8	5.1	0
	72	0439	4141.6	6757.4	W13221.0	Y43810.9	205	17.5	135	3.0	13.3	60.7	23.0	0
	73	0418	4121.7	6723.9	W13169.8	Y43674.1	29	21.3	41	34.1	2.4	4.9	58.5	0
*	73	0419	4121.7	6724.4	W13171.9	Y43674.5	282	24.6	0	0.0	0.0	0.0	0.0	0
*	73	0420	4121.6	6723.5	W13168.6	Y43673.2	1	24.1	3	33.3	0.0	0.0	66.7	0
*	73	0421	4121.7	6723.4	W13167.7	Y43673.6	290	24.6	14	7.1	0.0	0.0	92.9	0
*	73	0422	4121.6	6723.3	W13167.7	Y43673.0	357	24.6	45	11.1	0.0	0.0	88.9	0
*	73	0423	4121.7	6723.1	W13166.4	Y43673.4	205	24.1	9	66.7	0.0	0.0	33.3	0
	73	0424	4129.3	6730.1	W13160.2	Y43719.5	36	22.4	3	0.0	0.0	0.0	100.0	0
	73	0425	4138.6	6725.6	W13096.1	Y43763.9	74	40.5	68	14.7	26.5	45.6	13.2	0
	74	0426	4130.8	6706.8	W13056.2	Y43707.0	339	31.2	11	100.0	0.0	0.0	0.0	1894
	74	0427	4146.5	6700.4	W12953.7	Y43780.6	30	25.2	12	100.0	0.0	0.0	0.0	0
	74	0428	4158.8	6703.7	W12904.4	Y43844.3	290	32.3	9	100.0	0.0	0.0	0.0	0
	82	0152	3706.3	7538.3	X27105.3	Y41435.3	97	8.7	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		Heading	Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number
		Latitude	Longitude	Time	Delays				0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"	
83	0142	3731.3	7524.6	X27089.4	Y41742.4	189	12.0	1	100.0	0.0	0.0	0.0	0
83	0143	3728.7	7532.2	X27119.0	Y41700.7	106	8.2	0	0.0	0.0	0.0	0.0	0
84	0126	3758.8	7500.9	X27027.0	Y42085.9	76	8.2	48	97.9	2.1	0.0	0.0	0
84	0127	3753.6	7506.7	X27046.0	Y42020.1	120	10.9	0	0.0	0.0	0.0	0.0	0
84	0139	3743.6	7512.7	X27056.5	Y41899.3	32	12.0	4	100.0	0.0	0.0	0.0	0
84	0140	3743.6	7526.4	X27121.0	Y41879.6	122	8.2	0	0.0	0.0	0.0	0.0	0
85	0112	3823.7	7456.7	X27053.9	Y42369.8	179	11.5	0	0.0	0.0	0.0	0.0	1
85	0113	3821.2	7458.7	X27059.3	Y42339.8	214	10.9	0	0.0	0.0	0.0	0.0	0
85	0114	3816.3	7502.6	X27069.6	Y42280.6	231	7.7	1	100.0	0.0	0.0	0.0	0
85	0124	3801.2	7458.8	X27020.9	Y42115.3	320	9.8	5	100.0	0.0	0.0	0.0	0
85	0125	3801.3	7504.6	X27050.1	Y42109.4	34	6.6	16	100.0	0.0	0.0	0.0	0
86	0109	3841.1	7456.7	X27091.4	Y42565.7	185	8.7	0	0.0	0.0	0.0	0.0	0
86	0110	3836.1	7458.7	X27091.1	Y42507.8	200	8.2	21	100.0	0.0	0.0	0.0	0
86	0111	3831.1	7456.6	X27068.8	Y42453.1	175	9.3	32	100.0	0.0	0.0	0.0	0
87	0084	3908.8	7436.5	X27038.1	Y42885.6	272	6.0	10	100.0	0.0	0.0	0.0	0
87	0085	3908.7	7424.9	X26966.9	Y42887.9	112	12.0	3	33.3	0.0	0.0	66.7	0
87	0086	3906.2	7416.9	X26912.4	Y42863.1	111	13.1	52	23.1	9.6	9.6	57.7	0
87	0093	3901.2	7430.6	X26985.4	Y42804.1	83	8.2	8	100.0	0.0	0.0	0.0	0
87	0094	3901.2	7440.7	X27045.7	Y42799.9	299	6.6	4	100.0	0.0	0.0	0.0	0
87	0095	3854.1	7439.1	X27020.4	Y42722.0	145	5.5	0	0.0	0.0	0.0	0.0	0
87	0096	3853.5	7444.6	X27051.0	Y42712.4	250	7.1	1	100.0	0.0	0.0	0.0	1
87	0097	3851.0	7448.3	X27066.6	Y42682.4	304	5.5	2	100.0	0.0	0.0	0.0	0
87	0098	3846.2	7445.9	X27042.3	Y42630.3	118	9.3	0	0.0	0.0	0.0	0.0	0
88	0050	3936.4	7358.4	X26853.8	Y43184.5	114	13.7	19	10.5	0.0	5.3	84.2	0
88	0051	3933.8	7354.6	X26822.6	Y43156.7	141	14.2	37	8.1	2.7	10.8	78.4	0
88	0052	3931.3	7358.5	X26844.0	Y43131.2	249	12.0	9	66.7	0.0	0.0	33.3	0
88	0053	3928.6	7354.7	X26813.2	Y43102.6	123	13.7	63	12.7	1.6	4.8	81.0	0
88	0058	3925.6	7356.7	X26820.8	Y43071.5	177	14.2	4	25.0	0.0	25.0	50.0	0
88	0059	3926.4	7358.8	X26836.3	Y43080.0	340	13.1	30	36.7	3.3	0.0	60.0	0
88	0060	3934.1	7406.8	X26905.7	Y43161.8	284	9.8	66	83.3	0.0	0.0	16.7	0
88	0061	3930.7	7410.9	X26925.5	Y43126.2	229	9.8	57	93.0	1.8	0.0	5.3	0
88	0062	3928.5	7413.4	X26937.1	Y43102.9	186	8.7	3	100.0	0.0	0.0	0.0	0
88	0063	3926.2	7412.7	X26927.5	Y43078.3	1	9.3	1	0.0	0.0	100.0	0.0	0
88	0064	3926.3	7410.6	X26913.9	Y43079.3	217	8.7	14	7.1	7.1	0.0	85.7	0
88	0065	3921.3	7414.6	X26929.1	Y43025.8	223	10.9	5	100.0	0.0	0.0	0.0	0
88	0066	3916.4	7408.7	X26881.1	Y42974.0	71	13.7	38	13.2	0.0	10.5	76.3	0
88	0067	3918.4	7403.2	X26849.7	Y42995.8	110	14.8	104	5.8	0.0	6.7	87.5	0
* 88	0068	3918.5	7403.0	X26848.6	Y42996.9	279	14.2	111	18.9	0.9	7.2	73.0	0
* 88	0069	3918.6	7403.1	X26849.4	Y42997.9	91	14.8	37	18.9	2.7	5.4	73.0	0
* 88	0070	3918.7	7403.0	X26848.9	Y42999.0	290	14.8	27	25.9	0.0	3.7	70.4	0
* 88	0071	3918.9	7403.1	X26850.0	Y43001.1	87	14.2	17	23.5	0.0	5.9	70.6	0
88	0072	3918.8	7400.7	X26834.2	Y43000.2	160	14.2	36	19.4	2.8	11.1	66.7	0
88	0079	3913.3	7401.3	X26827.9	Y42942.2	118	13.7	8	25.0	0.0	0.0	75.0	0
88	0080	3916.3	7418.9	X26945.8	Y42971.6	327	8.7	4	75.0	0.0	0.0	25.0	0
88	0081	3913.4	7418.8	X26939.0	Y42940.3	312	9.3	8	25.0	0.0	12.5	62.5	0
88	0082	3916.1	7426.7	X26994.5	Y42968.1	222	8.2	18	0.0	0.0	22.2	77.8	0
88	0083	3911.3	7430.6	X27007.8	Y42914.8	261	9.3	20	0.0	0.0	0.0	100.0	0

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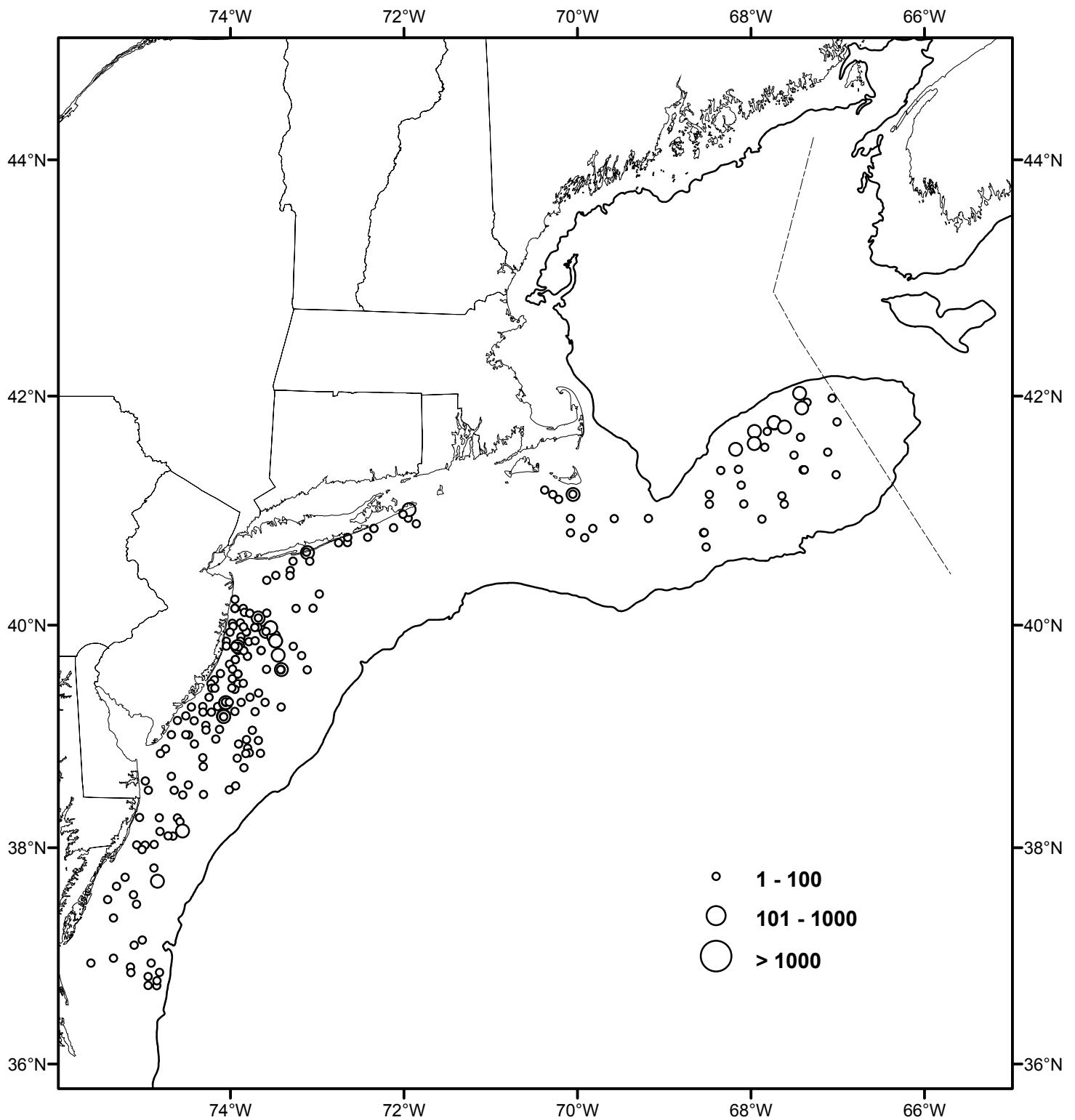
Station Data								Surfclams				Ocean Quahogs	
Survey Stratum	Station Number	Position		Loran		Heading	Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number
		Latitude	Longitude	Time	Delays				0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"	
* 88	0318	3933.8	7354.6	X26822.6	Y43156.7	133	14.2	8	25.0	0.0	12.5	62.5	0
* 88	0319	3928.6	7354.6	X26812.6	Y43102.6	77	14.2	0	0.0	0.0	0.0	0.0	0
89	0013	4008.7	7356.7	X26915.9	Y43517.3	185	10.9	62	17.7	11.3	0.0	71.0	0
89	0014	4008.8	7350.9	X26873.1	Y43514.1	117	15.9	27	29.6	0.0	7.4	63.0	3
* 89	0015	4006.7	7350.2	X26862.8	Y43492.4	314	15.3	2	100.0	0.0	0.0	0.0	0
89	0026	3958.8	7350.8	X26848.9	Y43412.6	332	14.2	51	27.5	5.9	9.8	56.9	0
89	0027	4001.1	7352.9	X26869.5	Y43437.3	279	12.0	33	42.4	9.1	6.1	42.4	0
89	0028	4000.9	7358.6	X26910.5	Y43438.6	186	11.5	19	73.7	10.5	5.3	10.5	0
* 89	0029	3959.2	7358.0	X26902.0	Y43420.8	124	11.5	43	88.4	0.0	0.0	11.6	0
89	0030	3956.2	7348.7	X26827.8	Y43385.0	293	14.8	62	29.0	3.2	6.5	61.3	0
89	0031	3956.1	7400.1	X26909.7	Y43389.9	7	10.9	20	55.0	10.0	5.0	30.0	0
89	0032	3953.7	7352.6	X26850.4	Y43361.4	228	13.1	38	34.2	0.0	2.6	63.2	0
89	0033	3951.3	7352.6	X26845.1	Y43336.8	83	13.7	0	0.0	0.0	0.0	0.0	0
89	0034	3951.3	7352.9	X26847.3	Y43336.9	62	13.1	30	70.0	0.0	3.3	26.7	0
89	0035	3951.1	7347.0	X26804.7	Y43332.2	157	15.9	8	12.5	0.0	12.5	75.0	0
89	0042	3946.3	7350.6	X26820.3	Y43284.7	226	13.1	40	65.0	0.0	2.5	32.5	0
89	0043	3946.4	7354.7	X26849.3	Y43287.2	178	12.6	28	35.7	0.0	14.3	50.0	0
89	0044	3948.5	7354.7	X26853.9	Y43308.9	36	12.0	105	70.5	1.0	1.0	27.6	0
89	0045	3948.6	7356.4	X26866.1	Y43310.6	319	11.5	76	78.9	0.0	1.3	19.7	0
89	0046	3951.3	7402.6	X26916.0	Y43341.2	180	9.8	3	100.0	0.0	0.0	0.0	0
89	0047	3948.7	7402.6	X26909.9	Y43314.0	107	9.3	1	100.0	0.0	0.0	0.0	0
89	0048	3941.5	7356.4	X26850.7	Y43237.0	215	13.7	41	58.5	0.0	0.0	41.5	0
89	0049	3939.1	7400.4	X26873.1	Y43213.1	211	12.0	12	50.0	0.0	8.3	41.7	0
* 89	0304	3946.3	7350.6	X26820.3	Y43284.7	265	13.7	41	26.8	2.4	7.3	63.4	0
* 89	0305	3948.5	7354.7	X26853.9	Y43308.9	48	12.0	50	44.0	0.0	4.0	52.0	0
* 89	0306	3948.6	7354.5	X26852.7	Y43309.8	236	12.6	53	71.7	0.0	5.7	22.6	0
* 89	0307	3948.4	7354.5	X26852.3	Y43307.8	52	12.6	51	64.7	0.0	0.0	35.3	0
* 89	0308	3948.5	7354.3	X26851.1	Y43308.7	258	13.1	47	55.3	2.1	2.1	40.4	0
* 89	0309	3948.2	7354.3	X26850.4	Y43305.6	43	13.1	38	55.3	0.0	10.5	34.2	0
* 89	0310	3948.7	7356.8	X26869.1	Y43311.8	75	12.0	37	70.3	0.0	2.7	27.0	0
* 89	0311	3956.2	7348.8	X26828.6	Y43385.0	332	15.3	0	0.0	0.0	0.0	0.0	0
* 89	0312	3956.3	7348.8	X26828.8	Y43386.0	330	14.8	29	10.3	0.0	13.8	75.9	0
* 89	0314	3958.9	7350.8	X26849.1	Y43413.6	41	13.7	24	50.0	0.0	12.5	37.5	0
* 89	0316	4008.7	7356.7	X26915.9	Y43517.3	212	9.8	37	35.1	5.4	8.1	51.4	0
* 89	0317	3941.5	7356.4	X26850.7	Y43237.0	252	13.1	33	51.5	0.0	6.1	42.4	0
90	0010	4016.2	7340.7	X26813.6	Y43579.9	4	14.2	0	0.0	0.0	0.0	0.0	24
90	0012	4013.6	7356.7	X26928.5	Y43567.2	192	10.9	26	0.0	3.8	15.4	80.8	3
91	0191	4033.7	7316.5	X26662.5	Y43722.7	287	12.6	19	21.1	0.0	0.0	78.9	3
91	0192	4028.8	7318.4	X26667.1	Y43679.2	235	14.8	7	28.6	0.0	14.3	57.1	1
91	0194	4026.2	7328.4	X26741.0	Y43665.3	307	12.6	26	38.5	11.5	11.5	38.5	0
91	0195	4028.7	7352.8	X26939.3	Y43715.3	162	7.7	0	0.0	0.0	0.0	0.0	0
91	0196	4026.1	7346.9	X26886.2	Y43683.4	132	16.4	0	0.0	0.0	0.0	0.0	0
91	0197	4023.7	7334.7	X26784.8	Y43647.7	132	12.6	27	29.6	0.0	3.7	66.7	0
92	0181	4046.2	7238.8	X26374.6	Y43786.7	212	9.8	14	35.7	0.0	28.6	35.7	14
92	0184	4043.5	7245.0	X26421.9	Y43771.6	296	12.0	14	42.9	0.0	14.3	42.9	122
92	0187	4038.2	7304.7	X26575.6	Y43749.7	308	7.1	2	100.0	0.0	0.0	0.0	1
92	0188	4038.3	7306.5	X26590.6	Y43752.8	161	7.1	251	19.1	38.2	39.8	2.8	0

2008 NOAA Fisheries Service Surfclam -- Ocean Quahog Survey
R/V DELAWARE II June 30 - August 07

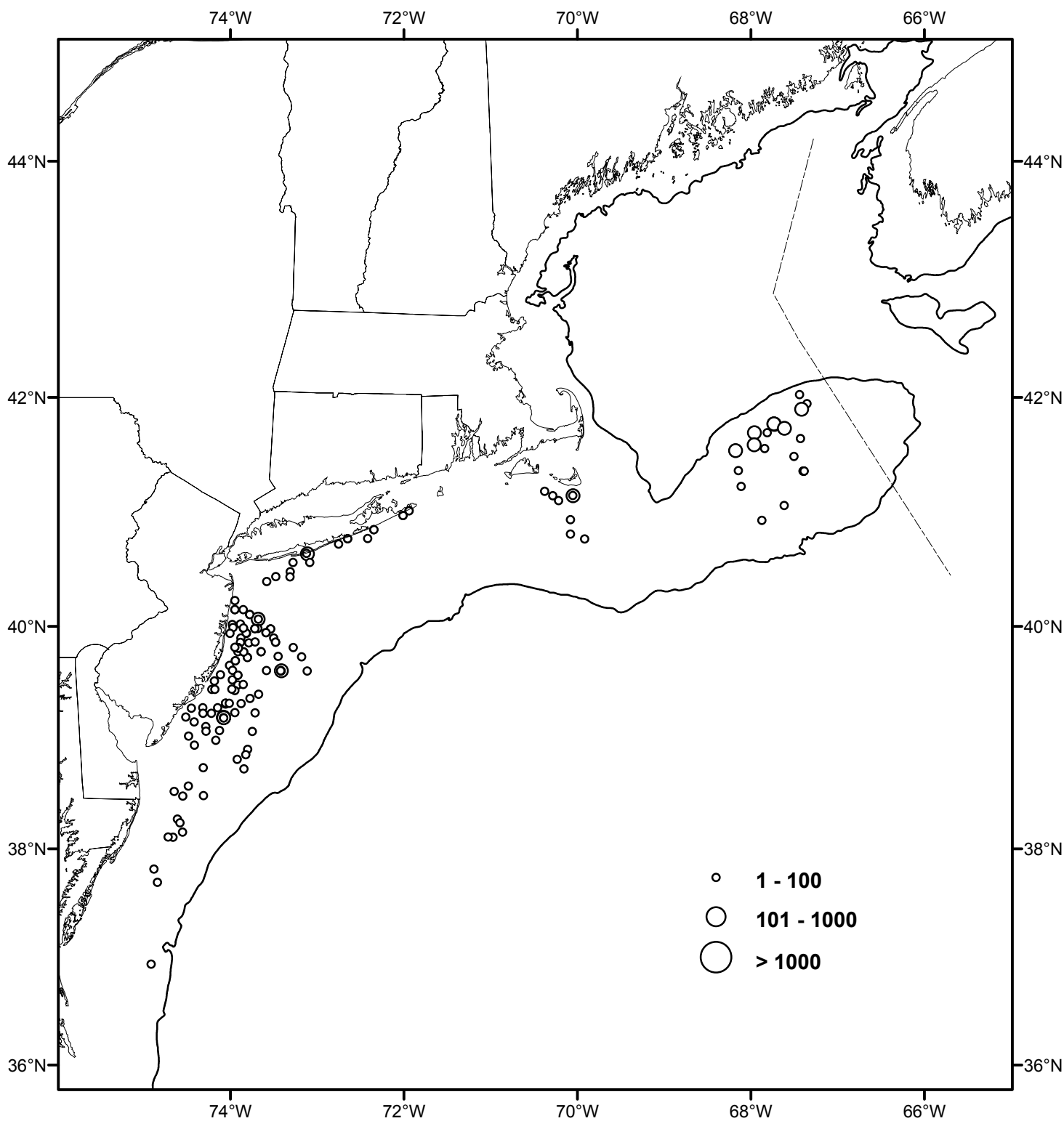
Station Data								Surfclams				Ocean Quahogs		
Survey Stratum	Station Number	Position		Loran		Heading	Depth (FM)	Catch Number	Percent of Survey Catch				Catch Number	
		Latitude	Longitude	Time	Delays				0-4.74"	4.76-5.00"	5.01-5.50"	>5.50"		
	92	0189	4038.5	7307.2	X26596.8	Y43755.5	162	5.5	35	11.4	48.6	34.3	5.7	0
*	92	0190	4033.7	7304.9	X26567.9	Y43709.2	277	13.7	24	20.8	12.5	12.5	54.2	6
	92	0337	4046.2	7238.7	X26373.7	Y43786.5	203	9.8	9	11.1	0.0	33.3	55.6	7
	93	0170	4101.0	7156.3	X26033.0	Y43848.4	170	8.2	80	30.0	3.8	5.0	61.2	3
	93	0172	4058.5	7200.4	X26064.8	Y43834.7	258	10.9	6	16.7	0.0	33.3	50.0	20
	93	0173	4056.1	7202.5	X26079.2	Y43818.7	292	14.8	0	0.0	0.0	0.0	0.0	497
*	93	0175	4056.1	7202.8	X26081.8	Y43819.1	216	14.2	0	0.0	0.0	0.0	0.0	168
*	93	0176	4056.2	7203.0	X26083.7	Y43820.2	342	13.7	0	0.0	0.0	0.0	0.0	279
*	93	0177	4056.3	7203.0	X26083.9	Y43821.0	223	13.7	0	0.0	0.0	0.0	0.0	93
	93	0179	4051.0	7220.7	X26228.4	Y43802.6	237	11.5	53	30.2	7.5	17.0	45.3	19
*	93	0325	4100.9	7156.3	X26032.8	Y43847.6	137	8.7	104	23.1	2.9	13.5	60.6	2
*	93	0327	4058.5	7200.4	X26064.8	Y43834.7	281	10.9	3	33.3	0.0	66.7	0.0	6
*	93	0328	4056.1	7202.6	X26080.1	Y43818.9	301	14.8	0	0.0	0.0	0.0	0.0	341
*	93	0329	4056.1	7202.5	X26079.2	Y43818.7	240	14.8	0	0.0	0.0	0.0	0.0	301
*	93	0330	4056.1	7202.4	X26078.3	Y43818.6	334	14.8	0	0.0	0.0	0.0	0.0	350
*	93	0331	4056.1	7202.3	X26077.5	Y43818.5	245	14.8	0	0.0	0.0	0.0	0.0	308
*	93	0332	4056.2	7202.1	X26075.9	Y43819.0	1	13.7	0	0.0	0.0	0.0	0.0	247
*	93	0335	4051.0	7220.5	X26226.7	Y43802.3	282	12.0	77	22.1	6.5	11.7	59.7	14
	94	0320	4123.5	7059.1	X25569.5	Y43928.4	244	9.3	0	0.0	0.0	0.0	0.0	0
	95	0358	4108.7	7002.8	X25050.0	Y43756.0	274	13.1	59	6.8	1.7	3.4	88.1	3
	95	0359	4106.3	7012.8	X25130.2	Y43751.9	30	13.7	1	0.0	0.0	0.0	100.0	44
	95	0363	4056.2	7004.7	X25107.3	Y43675.7	125	12.6	8	25.0	12.5	0.0	62.5	0
*	95	0364	4108.8	7002.4	X25047.1	Y43756.2	79	12.6	3	33.3	0.0	0.0	66.7	0
*	95	0365	4108.9	7002.4	X25046.7	Y43756.8	273	13.1	16	56.2	0.0	0.0	43.8	0
*	95	0366	4108.6	7002.8	X25050.3	Y43755.4	278	12.6	5	0.0	0.0	0.0	100.0	0
*	95	0367	4108.5	7002.8	X25050.7	Y43754.7	117	10.4	86	11.6	0.0	3.5	84.9	0
*	95	0368	4108.8	7002.8	X25049.6	Y43756.7	261	12.6	109	4.6	1.8	0.0	93.6	0
*	95	0369	4108.9	7003.0	X25050.6	Y43757.5	161	13.1	7	42.9	0.0	0.0	57.1	0
	95	0370	4048.6	7004.7	X25135.5	Y43624.7	260	14.8	27	0.0	0.0	0.0	100.0	43
	96	0375	4056.1	6934.5	W13904.1	Y43644.3	276	19.7	10	100.0	0.0	0.0	0.0	0

* non-random station

NEFSC SURFCLAM AND OCEAN QUAHOG SURVEY 2008
NOAA Fisheries Service
SURFCLAMS - Number/Tow
Total Number



NEFSC SURFCLAM AND OCEAN QUAHOG SURVEY 2008
NOAA Fisheries Service
SURFCLAMS - Number/Tow
Greater Than 5 inches



NEFSC SURFCLAM AND OCEAN QUAHOG SURVEY 2008
NOAA Fisheries Service
OCEAN QUAHOGS - Number/Tow
Total Number

