

RESOURCE SURVEY REPORT
Catch Summary
NOAA Fisheries Service
Northeast Fisheries Science Center
Sea Scallop Survey
Cape Hatteras - Georges Bank
11 May – 1 July 2011

Submitted to: NOAA, NEFSC

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Date: 2011

Resource Survey Report

Sea Scallop Survey

Cape Hatteras – Georges Bank

11 May – 1 July 2011

UNOLS R/V *Hugh R. Sharp*

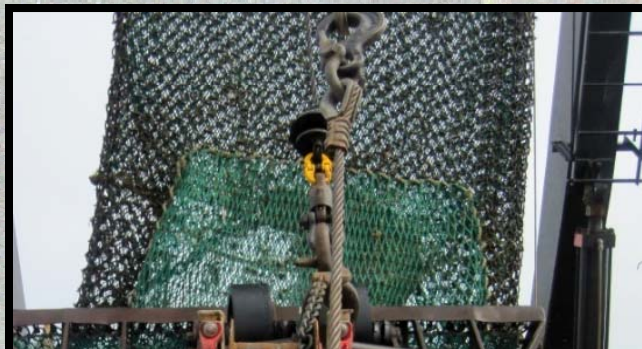
NOAA Fisheries Service

Northeast Fisheries Science Center

Woods Hole, MA 02543



A large catch of scallops from the Northern Edge of Georges Bank.



Survey scientists inspecting the scallop dredge for damage.

An image of a scallop bed from leg III of the Sea Scallop Survey using the Woods Hole Oceanographic Institution's Habitat Camera (HabCam).



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The following field notes, charts, and station data indicate the distribution of sea scallops during the 2011 sea scallop survey conducted aboard the UNOLS R/V *Hugh R. Sharp*. Fifteen-minute tows were made at a speed of 3.8 knots using a modified 8-foot New Bedford type scallop dredge. The dredge was equipped with a 5/8 inch case hardened sweep chain 69 links long, and a 2-inch ring chain bag lined with 1-1/2 inch mesh webbing to retain small scallops. The dredge frame was outfitted with a set of roller wheels on the neck. In six key rocky strata on Georges Bank, a set of rock chains was added to the dredge. For statistical purposes, stations were randomly selected and therefore were not always on or near scallop concentrations.

In this report, scallop catch is reported in numbers and by-catch is recorded in liters, depth in fathoms and bottom temperature in degrees Fahrenheit. Bottom temperature is included at selected stations because it is an environmental factor which influences sea scallop growth rates and spawning time. Catches are reported in three categories of shell height: less than or equal to 90mm (greater than 40 count), greater than 90mm (less than 40 count), and greater than or equal to 100mm (less than 30 count). The percent composition of by-catch is also given.

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

For further information contact Russell Brown (508-495-2380), NOAA Fisheries Service, Northeast Fisheries Science Center, 166 Water Street, Woods Hole, MA 02543. To view this report, go to the Ecosystems Surveys Branch website at: <http://www.nefsc.noaa.gov/esb> and choose:

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

Field Notes

In an effort to share some of the natural history observations made during the sea scallop survey and describe collaborative activities with our scientific partners, we have requested that the Chief Scientists on each part of the cruise comment on some of the more interesting catches and activities aboard the UNOLS R/V *Hugh R Sharp*.

Light Catches

During Leg 1, we completed 155 standardized scallop dredge hauls across much of the sampling area south of Hudson Canyon. Live scallop catches south of Hudson Canyon closed area were unusually light in volume as compared to several years ago when the dredge would have been filled with scallops. There were some medium bag tows in the northeast section of the Elephant Trunk closed area. Dredge damage was minimal and we used the same dredge for all of leg I.

It was our intention to survey one half of the resource this year during leg I so that leg II could cover Georges Bank. We did this in order preserve enough vessel time to re-survey Georges Bank with the HabCam towed camera array.

A new source of data recorded during leg I was the trawl tension, winch speed and wire out from the *Sharp's* winch system. These data were incorporated into the trawl event for each station and time stamped.

What a difference a year makes!

On leg II, 152 dredge tows were occupied from the Nantucket Lightship Closed Area to the Hague Line. Overall, there was a decrease in the number of scallops caught during the survey. This was especially evident in stations in and around the Great South Channel. Last year, we recorded our 3rd largest haul of scallops (in terms of overall numbers) caught at one station (35,018 individuals) just north of the channel. This year, we had three stations plotted within 1-2 miles of this historical site. The total number of scallops caught at these stations are as follows:

Station 280 (2 nm west of historical site) – 46 scallops

Station 281 (1 nm east of historical site) – 275 scallops

Station 282 (1 nm north of historical site) – 3594 scallops

A different type of survey!

The third and final portion of the Scallop Survey was very different this year. Instead of towing a dredge, a camera system was towed that took images of the benthos. Woods Hole Oceanographic Institution's Habitat Camera (HabCam) was attached to the vessel by a fiber-optic tow cable and "flown" approximately six feet from the bottom. HabCam takes images at a rate of 3-5 pictures per second. It also has side-scan sonar and is able to transmit this data up the

fiber optic cable so it can be viewed on the vessel in real time. By using HabCam, we made the first ever complete circumnavigation of Georges Bank using a towed camera system. It was in the water and taking pictures for almost the entire 10 day trip.

We were able to observe scallop beds, lobsters, sea stars, a wide variety of fish as well as many other benthic organisms. As a scientist who is accustomed to bringing organisms up to the surface and on to the vessel to study them, it was fascinating to be able to see all of these organisms in their natural habitat.

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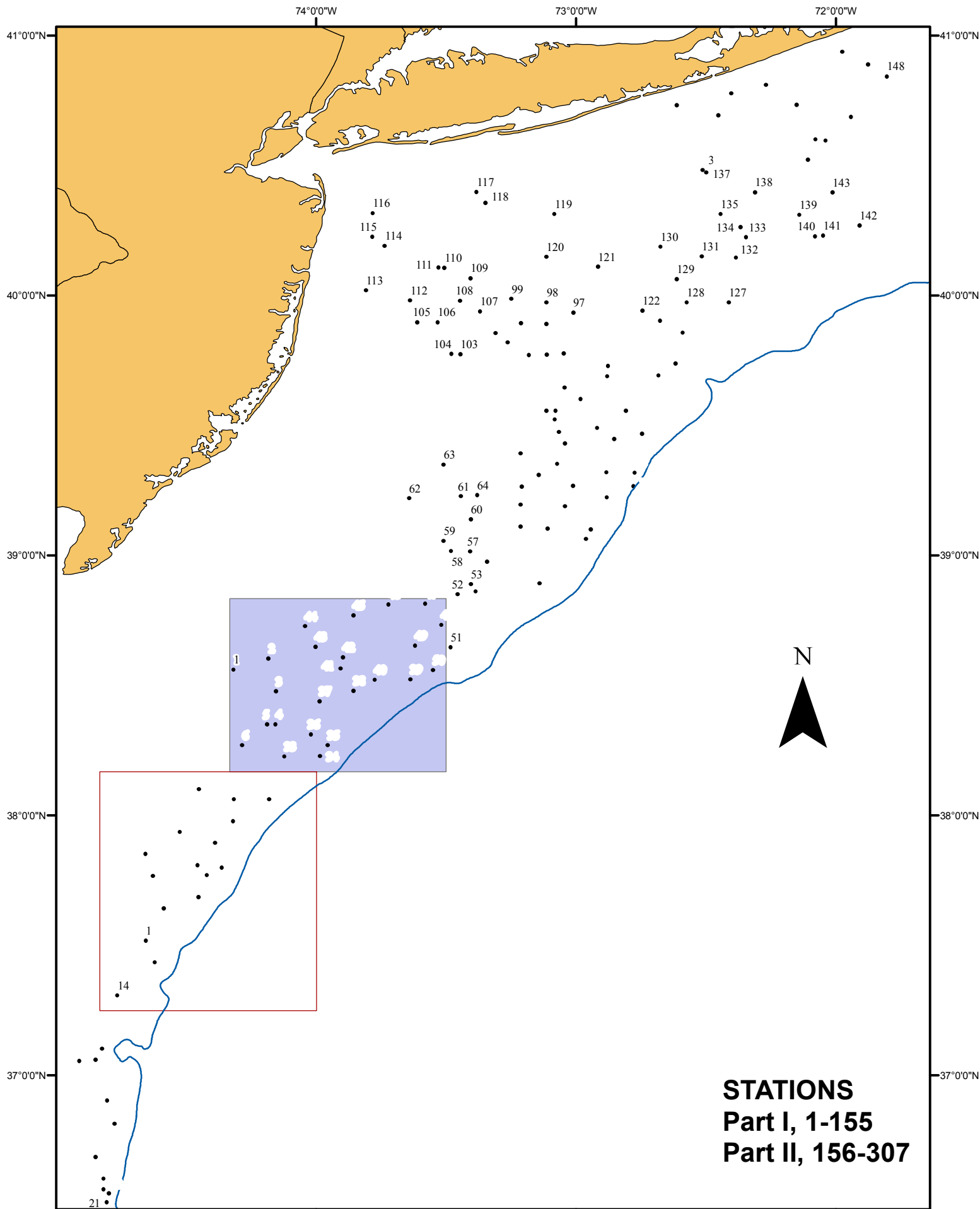


Figure 1. Dredge tows made from UNOLS R/V *Hugh R Sharp* (11-1), during NOAA Fisheries Service, Northeast Fisheries Science Center sea scallop survey, May 11 - July 1, 2011.

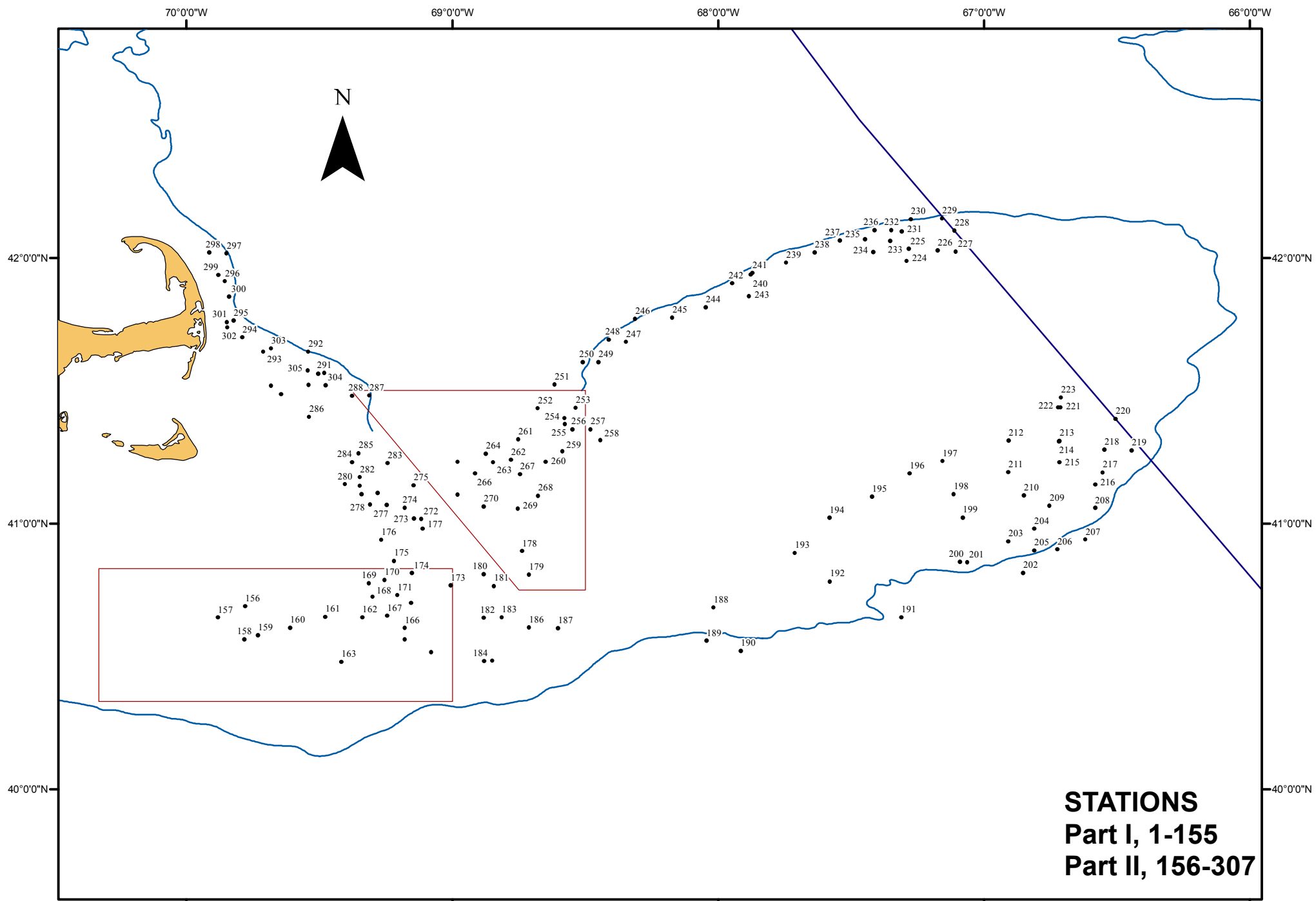


Figure 2. Dredge tows made from UNOLS R/V *Hugh R Sharp* (11-1), during NOAA Fisheries Service, Northeast Fisheries Science Center sea scallop survey, May 11 - July 1, 2011.

HUGH R SHARP 2011 SEA SCALLOP SURVEY
May 11 - July 1

Station	Station Data					Bottom Temp (F)	Number of Scallops				By-Catch			
	Position		Loran TD's	heading	Depth (FM)		Total No.	<90mm >40ct	>90mm <40ct	>100mm <30ct	Shell	Stone (Percentage)	Inverts	Total Vol.(lt)
	Lat.	Long.												
0001	3833.5	7419.0	X26865.3	Y42509.6	67	25.2	7	1	6	6	25	0	75	161
0002	3836.1	7410.9	X26823.3	Y42543.3	64	28.4	28	8	20	7	25	0	75	115
0003	3828.5	7409.2	X26802.1	Y42463.7	54	28.4	126	43	83	15	60	5	35	299
0004	3820.9	7409.3	X26791.8	Y42383.0	58	29.5	259	137	122	35	55	5	40	161
0005	3820.9	7411.2	X26802.3	Y42381.3	50	30.6	350	199	151	43	65	5	30	184
0006	3816.0	7417.0	X26827.0	Y42323.6	52	29.0	185	131	54	22	30	55	15	437
0007	3805.9	7426.9	X26864.9	Y42204.7	76	24.6	61	21	40	39	50	10	40	414
0008	3803.5	7418.9	X26819.4	Y42188.1	71	30.6	90	10	80	77	65	5	30	299
0009	3758.5	7419.1	X26813.7	Y42134.6	67	35.0	36	0	36	35	10	5	85	345
0010	3756.0	7431.4	X26873.5	Y42092.5	71	28.4	86	10	76	66	65	5	30	161
0011	3750.9	7439.3	X26905.8	Y42026.9	58	26.2	25	23	2	2	85	0	15	92
0012	3745.8	7437.6	X26889.7	Y41973.9	61	30.1	47	21	26	24	75	0	25	127
0013	3731.0	7439.2	X26876.6	Y41812.0	65	32.3	298	182	116	111	50	5	45	196
0014	3718.3	7445.8	X26890.4	Y41664.5	55	30.6	326	185	141	115	20	65	15	242
0015	3703.2	7454.5	X26909.7	Y41486.2	48	26.8	491	491	0	0	25	0	75	265
0016	3703.5	7450.8	X26893.7	Y41496.8	41	31.7	133	130	3	0	20	60	20	472
0017	3654.1	7448.1	X26870.0	Y41402.9	245	30.1	165	165	0	0	15	75	10	230
0018	3641.1	7450.8	X26866.3	Y41260.9	42	27.3	12	12	0	0	85	5	10	92
0019	3636.0	7448.9	X26852.5	Y41212.7	54	29.0	5	5	0	0	80	5	15	184
0020	3633.6	7448.9	X26849.9	Y41188.0	44	27.3	19	19	0	0	80	5	15	81
0021	3630.6	7448.2	X26843.7	Y41159.0	28	42.1	0	0	0	0	5	10	85	322
0022	3632.6	7447.8	X26844.2	Y41180.4	32	40.5	4	4	0	0	10	5	85	253
0023	3648.7	7446.5	X26856.7	Y41349.8	65	39.9	4	4	0	0	10	5	85	150
0024	3706.0	7449.4	X26890.6	Y41526.2	65	33.4	3	3	0	0	10	5	85	265
0025	3725.9	7437.2	X26860.3	Y41760.7	51	34.4	210	70	140	127	20	5	75	127
0026	3738.4	7435.1	X26866.9	Y41897.9	45	33.9	237	53	184	161	35	10	55	173
0027	3741.0	7427.1	X26831.1	Y41937.6	74	37.2	184	91	93	91	40	5	55	138
0028	3746.0	7425.1	X26827.7	Y41993.7	61	37.2	499	253	246	239	40	25	35	253
0029	3748.4	7427.3	X26841.9	Y42016.2	63	33.9	318	234	84	79	25	0	75	92
0030	3747.8	7421.7	X26812.9	Y42017.6	16	38.3	267	98	169	155	75	5	20	115
0031	3753.5	7423.2	X26828.1	Y42076.2	56	35.0	29	7	22	20	15	0	85	230
0032	3803.5	7410.8	X26776.7	Y42197.4	42	40.5	87	7	80	77	10	80	10	483
0033	3813.5	7407.2	X26770.3	Y42306.8	60	37.7	137	104	33	15	60	10	30	81
0034	3813.6	7359.1	X26726.3	Y42315.9	66	41.0	24	19	5	4	25	10	65	184
0035	3816.0	7357.2	X26718.8	Y42342.7	73	37.2	106	79	27	21	5	90	5	552
0036	3818.6	7401.1	X26743.4	Y42366.2	68	38.3	7	4	3	3	10	5	85	276
0037	3826.2	7359.2	X26742.5	Y42447.5	98	31.7	37	11	26	10	5	20	75	150
0038	3828.6	7351.3	X26700.7	Y42478.8	78	33.4	234	155	79	39	15	10	75	207
0039	3831.2	7338.1	X26627.8	Y42515.2	270	38.3	4	3	1	0	30	5	65	115
0040	3831.1	7346.4	X26675.5	Y42508.2	277	35.0	306	236	70	27	30	10	60	69

HUGH R SHARP 2011 SEA SCALLOP SURVEY
May 11 - July 1

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	Position		Loran TD's	heading	Depth (FM)	Total No.		<90mm	>90mm	>100mm	Shell	Stone (Percentage)	Inverts	Total Vol. (lt)	
	Lat.	Long.						>40ct	<40ct	<30ct					
0041	3833.7	7354.3	X26724.2	Y42529.6	281	30.1	163	59	104	26	15	75	10	276	
0042	3836.4	7353.7	X26724.2	Y42558.1	264	29.5	22	1	21	15	15	5	80	242	
0043	3838.8	7400.1	X26764.8	Y42579.1	268	28.4	28	1	27	22	10	5	85	242	
0044	3843.5	7402.5	X26785.7	Y42627.2	325	26.8	6	1	5	4	30	40	30	230	
0045	3846.0	7351.3	X26722.8	Y42659.5	77	25.7	38	25	13	10	50	0	50	196	
0046	3848.6	7343.2	X26677.5	Y42690.4	78	29.5	43	22	21	10	50	0	50	276	
0047	3848.7	7334.7	X26626.1	Y42695.3	235	31.2	181	88	93	20	10	50	40	506	
0048	3843.8	7331.0	X26598.7	Y42647.4	82	38.3	138	89	49	38	25	0	75	173	
0049	3839.0	7337.0	X26629.4	Y42595.4	153	34.4	174	114	60	33	50	0	50	81	
0050	3833.4	7332.9	X26599.8	Y42541.1	43	39.9	11	7	4	4	15	50	35	345	
0051	3838.7	7328.9	X26581.3	Y42597.1	28	40.5	1286	8	1278	1250	45	5	50	138	
0052	3850.8	7327.3	X26583.2	Y42719.7	56	32.8	2060	648	1412	1136	50	0	50	58	
0053	3853.2	7324.2	X26566.5	Y42745.0	319	33.9	872	246	626	562	20	10	70	92	
0054	3851.6	7323.0	X26557.6	Y42729.4	147	37.2	1116	716	400	368	20	10	70	104	
0055	3853.4	7308.3	X26468.6	Y42752.5	326	42.7	4	3	1	1	15	5	80	104	
0056	3858.5	7320.5	X26548.6	Y42799.1	318	38.3	466	272	194	176	10	5	85	115	
0057	3900.8	7324.4	X26575.3	Y42821.0	322	32.8	1257	369	888	696	10	5	85	483	
0058	3900.8	7328.7	X26602.4	Y42819.9	333	31.2	534	10	524	486	10	5	85	552	
0059	3903.2	7330.5	X26616.5	Y42843.7	332	30.6	521	22	499	493	5	5	90	1369	
0060	3908.2	7324.2	X26582.0	Y42895.2	331	32.3	326	4	322	304	5	10	85	1127	
0061	3913.5	7326.5	X26603.0	Y42948.0	341	24.1	105	43	62	59	10	5	85	288	
0062	3913.0	7338.5	X26680.5	Y42941.9	352	25.2	11	8	3	3	15	10	75	161	
0063	3920.8	7330.5	X26638.7	Y43021.2	339	27.3	18	6	12	6	50	0	50	161	
0064	3913.8	7322.7	X26578.5	Y42951.2	183	27.3	277	21	256	246	4	1	95	759	
0065	3915.7	7312.4	X26512.8	Y42970.4	334	37.2	88	11	77	71	50	0	50	92	
0066	3911.5	7312.7	X26510.8	Y42929.2	160	36.1	422	157	265	221	50	0	50	207	
0067	3906.5	7312.8	X26507.0	Y42880.0	169	37.2	416	42	374	360	50	0	50	92	
0068	3906.1	7306.5	X26466.3	Y42877.0	336	41.6	85	11	74	65	50	5	45	161	
0069	3911.2	7302.5	X26444.1	Y42927.0	324	41.6	94	4	90	84	15	25	60	138	
0070	3903.6	7257.6	X26407.8	Y42854.2	160	47.0	0	0	0	0	5	75	20	299	
0071	3905.9	7256.5	X26402.1	Y42876.5	339	48.7	0	0	0	0	5	30	65	138	
0072	3913.3	7252.8	X26382.2	Y42947.6	10	45.9	2	0	2	2	5	20	75	150	
0073	3915.8	7246.7	X26343.4	Y42971.4	9	50.3	0	0	0	0	3	15	82	81	
0074	3918.9	7246.3	X26342.2	Y43000.6	324	47.6	0	0	0	0	5	15	80	81	
0075	3919.0	7252.9	X26386.1	Y43001.9	24	41.6	4	0	4	1	5	15	80	196	
0076	3915.9	7300.6	X26435.1	Y42972.4	350	40.5	180	61	119	90	5	10	85	69	
0077	3918.5	7308.5	X26489.5	Y42997.8	334	36.6	193	27	166	159	15	10	75	138	
0078	3920.9	7304.2	X26462.9	Y43020.9	338	30.6	285	35	250	236	10	10	80	161	
0079	3923.4	7312.7	X26522.5	Y43045.9	350	32.3	132	27	105	102	3	10	87	2058	
0080	3925.8	7302.4	X26455.0	Y43068.0	345	36.6	513	92	421	393	5	10	85	598	

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May 11 - July 1

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	Position Lat. Long.	Loran TD's	heading	Depth (FM)		Total No.	<90mm >40ct	>90mm <40ct	>100mm >30ct	Shell (Percentage)	Stone (Percentage)	Inverts	Total Vol. (lt)
0081	3928.3 7303.9	X26467.5 Y43092.3	316	37.2		465	41	424	406	20	5	75	322
0082	3929.2 7255.1	X26407.8 Y43099.3	139	32.8		484	169	315	226	20	5	75	242
0083	3926.7 7251.1	X26378.7 Y43074.8	156	37.2		336	109	227	198	25	0	75	115
0084	3928.0 7244.7	X26335.8 Y43085.9	3	41.6		111	34	77	51	25	0	75	138
0085	3933.3 7248.4	X26364.4 Y43136.4	341	37.7		613	55	558	535	50	0	50	138
0086	3936.0 7258.9	X26439.9 Y43165.0	3	36.1		706	244	462	410	10	0	90	690
0087	3931.2 7304.8	X26476.4 Y43120.5	183	35.5		264	32	232	195	5	0	95	874
0088	3933.3 7304.6	X26477.1 Y43140.7	3	28.4		17	3	14	11	3	2	95	782
0089	3933.2 7306.7	X26491.6 Y43140.3	2	25.2		319	47	272	220	15	0	85	437
0090	3938.6 7302.6	X26468.4 Y43191.0	3	31.2		59	1	58	50	10	5	85	414
0091	3941.2 7252.7	X26400.6 Y43212.2	179	37.2		498	90	408	389	35	10	55	151
0092	3943.6 7252.5	X26401.3 Y43234.6	134	39.9		3	1	2	2	5	10	85	192
0093	3946.5 7302.8	X26478.4 Y43266.6	175	31.2		582	33	549	426	35	10	55	196
0094	3946.2 7306.7	X26506.2 Y43265.5	335	27.3		387	28	359	335	20	10	70	483
0095	3946.1 7310.8	X26535.7 Y43266.3	177	25.2		245	52	193	157	3	7	90	1323
0096	3953.3 7306.7	X26515.2 Y43333.4	354	41.6		0	0	0	0	10	5	85	69
0097	3955.9 7300.6	X26473.4 Y43354.6	332	29.0		99	14	85	62	10	5	85	506
0098	3958.3 7306.7	X26522.0 Y43381.0	360	27.9		265	75	190	130	10	5	85	334
0099	3959.0 7314.8	X26583.6 Y43392.8	176	33.9		23	8	15	6	30	10	60	161
0100	3953.5 7312.7	X26559.7 Y43338.6	178	30.1		827	116	711	589	10	85	5	311
0101	3949.0 7315.7	X26575.1 Y43296.6	116	24.1		271	33	238	146	25	0	75	391
0102	3951.2 7318.5	X26598.8 Y43319.4	122	25.7		746	210	536	438	30	40	30	391
0103	3946.3 7326.6	X26649.6 Y43275.1	324	18.6		26	0	26	26	10	0	90	460
0104	3946.4 7328.6	X26664.1 Y43276.9	324	19.1		48	2	46	42	5	0	95	1173
0105	3953.7 7336.6	X26734.9 Y43353.4	120	17.5		31	1	30	30	5	0	95	828
0106	3953.7 7331.8	X26700.0 Y43350.9	288	21.3		104	21	83	70	10	0	90	460
0107	3956.2 7322.1	X26633.2 Y43370.1	288	27.9		341	60	281	234	25	25	50	161
0108	3958.6 7326.7	X26671.4 Y43396.3	268	25.7		176	45	131	101	45	5	50	207
0109	4003.8 7324.3	X26663.0 Y43445.6	284	27.9		30	1	29	24	50	0	50	69
0110	4006.2 7330.3	X26712.8 Y43473.3	94	25.7		29	4	25	23	10	30	60	58
0111	4006.3 7331.6	X26722.8 Y43475.2	263	26.2		0	0	0	0	0	0	0	0
0112	3958.7 7338.2	X26756.5 Y43404.2	274	21.3		50	7	43	35	15	5	80	644
0113	4001.0 7348.4	X26836.3 Y43433.5	316	15.9		13	13	0	0	15	5	80	299
0114	4011.3 7344.1	X26828.0 Y43534.1	323	33.9		2	0	2	1	5	8	87	58
0115	4013.5 7346.9	X26854.4 Y43558.3	325	19.7		163	159	4	3	5	85	10	276
0116	4018.8 7346.9	X26867.5 Y43611.1	1	20.8		10	5	5	5	45	10	45	92
0117	4023.7 7322.9	X26691.9 Y43635.8	292	17.0		97	34	63	46	5	0	95	495
0118	4021.3 7320.8	X26670.2 Y43610.9	317	17.5		21	1	20	19	2	3	95	874
0119	4018.6 7304.9	X26539.8 Y43570.4	118	23.0		207	40	167	73	5	0	95	1150
0120	4008.8 7306.8	X26538.4 Y43480.4	327	26.2		238	15	223	199	5	0	95	966

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	Position Lat. Long.	Loran TD's	heading	Depth (FM)	Bottom Temp (F)	Total No.	<90mm >40ct	>90mm <40ct	>100mm <30ct	Shell	Stone (Percentage)	Inverts	Total Vol. (lt)
0121	4006.5 7254.8	X26443.0	Y43449.7	126	27.3	102	20	82	68	1	0	99	2231
0122	3956.4 7244.6	X26354.8	Y43349.6	308	31.2	118	14	104	100	6	8	86	1782
0123	3954.1 7240.5	X26322.4	Y43326.1	331	31.2	127	18	109	104	5	20	75	644
0124	3941.4 7240.9	X26316.7	Y43209.4	340	39.4	24	20	4	2	15	10	75	58
0125	3944.1 7237.0	X26290.4	Y43232.7	342	38.8	53	31	22	11	15	5	80	150
0126	3951.2 7235.3	X26282.2	Y43296.7	337	33.9	2057	197	1860	1500	25	15	60	115
0127	3958.2 7224.7	X26207.5	Y43353.5	334	38.3	8	1	7	6	15	10	75	150
0128	3958.3 7234.4	X26280.1	Y43360.5	334	35.0	700	185	515	478	40	10	50	69
0129	4003.7 7236.6	X26300.8	Y43410.7	322	33.4	76	16	60	56	15	5	80	150
0130	4011.1 7240.4	X26337.1	Y43480.3	334	32.3	251	13	238	160	10	0	90	644
0131	4008.9 7230.9	X26261.4	Y43453.0	336	33.4	184	57	127	88	25	0	75	437
0132	4008.6 7223.0	X26200.2	Y43444.1	321	37.7	2	0	2	2	5	20	75	150
0133	4013.3 7220.6	X26184.6	Y43483.2	341	33.4	34	5	29	29	15	0	85	242
0134	4015.6 7222.0	X26197.2	Y43504.4	318	32.3	35	11	24	22	5	0	95	874
0135	4018.6 7226.5	X26235.2	Y43534.6	311	29.0	347	115	232	165	5	5	90	667
*0136	4028.8 7230.7	X26280.1	Y43627.4	141	26.2	0	0	0	0	0	0	0	0
0137	4028.2 7229.9	X26272.8	Y43621.3	314	25.7	230	95	135	110	5	5	90	667
0138	4023.7 7218.6	X26176.5	Y43571.1	319	32.8	31	4	27	23	25	0	75	472
0139	4018.5 7208.4	X26091.7	Y43517.2	320	35.0	132	41	91	73	50	0	50	127
0140	4013.5 7204.7	X26060.8	Y43471.6	313	36.1	468	191	277	165	15	5	80	92
0141	4013.7 7202.8	X26046.1	Y43471.7	325	35.0	593	377	216	182	20	7	73	92
0142	4016.0 7154.5	X25982.0	Y43484.0	354	38.3	5	4	1	1	8	2	90	46
0143	4023.6 7200.7	X26032.7	Y43552.8	319	36.6	20	6	14	10	6	3	91	138
0144	4031.2 7206.4	X26083.4	Y43621.7	338	31.2	11	9	2	2	5	15	80	874
0145	4035.9 7204.6	X26072.4	Y43658.5	318	29.0	17	9	8	7	7	5	88	345
0146	4035.6 7202.3	X26053.0	Y43653.5	322	29.5	54	22	32	26	10	5	85	437
0147	4041.0 7156.5	X26009.1	Y43690.7	320	27.3	236	151	85	41	10	5	85	150
0148	4050.4 7148.1	X25946.6	Y43754.9	170	26.8	506	269	237	172	5	5	90	184
0149	4053.2 7152.5	X25988.0	Y43782.5	329	20.8	100	20	80	78	25	0	75	276
0150	4056.1 7158.5	X26044.3	Y43813.2	115	16.4	2	2	0	0	25	0	75	173
0151	4043.9 7209.0	X26117.9	Y43729.3	344	24.6	19	1	18	18	1	5	94	2944
0152	4048.5 7216.1	X26184.9	Y43775.9	12	19.1	23	1	22	19	5	0	95	1104
0153	4046.5 7224.1	X26250.1	Y43769.9	225	18.0	4	1	3	3	5	0	95	1104
0154	4041.5 7227.1	X26267.7	Y43731.8	326	21.3	84	2	82	81	4	1	95	1472
0155	4043.8 7236.7	X26352.4	Y43763.4	177	15.9	0	0	0	0	5	0	95	1426
0156	4041.2 6946.6	W14023.9	Y43558.1	6	27.9	4	0	4	4	1	0	99	1840
0157	4038.6 6952.8	W14065.9	Y43546.1	33	30.6	1	0	1	1	0	75	25	184
0158	4033.7 6946.8	W14051.5	Y43508.1	67	36.1	2	0	2	2	10	50	40	81
0159	4034.7 6943.8	W14032.4	Y43512.3	139	35.0	310	0	310	310	25	25	50	230
0160	4036.4 6936.5	W13988.4	Y43517.7	234	33.9	1	0	1	0	15	0	85	46

HUGH R SHARP 2011 SEA SCALLOP SURVEY
May 11 - July 1

Station	Station Data					Number of Scallops				By-Catch			
	Position Lat. Long.	Loran TD's	heading	Depth (FM)	Bottom Temp (F)	Total No.	<90mm >40ct	>90mm <40ct	>100mm <30ct	Shell (Percentage)	Stone (Percentage)	Inverts	Total Vol. (lt)
0161	4038.8 6928.6	W13938.9 Y43527.0	263	30.1		1	0	1	1	5	0	95	1702
0162	4038.7 6920.2	W13896.4 Y43519.5	284	22.4		3	0	3	3	50	0	50	23
0163	4028.6 6925.0	W13957.4 Y43457.4	305	36.6		277	33	244	238	85	5	10	828
0164	4030.8 6904.6	W13847.7 Y43457.1	232	42.7		30	3	27	27	75	5	20	368
0165	4033.8 6910.6	W13866.3 Y43480.6	70	42.1		192	7	185	152	1	0	99	966
0166	4036.3 6910.6	W13857.1 Y43496.6	84	42.7		115	23	92	59	1	1	98	506
0167	4039.1 6914.6	W13866.6 Y43517.7	182	33.9		61	3	58	51	20	10	70	368
0168	4043.3 6917.9	W13867.4 Y43547.2	220	31.2		405	199	206	141	80	0	20	230
0169	4046.4 6918.7	W13859.7 Y43567.7	203	32.8		157	7	150	137	95	1	4	522
0170	4047.1 6915.2	W13839.2 Y43569.1	211	31.7		722	94	628	560	20	75	5	782
0171	4043.7 6912.3	W13837.6 Y43545.1	264	35.5		469	174	295	260	30	60	10	207
0172	4041.9 6909.2	W13828.9 Y43531.2	286	39.9		384	116	268	224	30	60	10	161
0173	4045.9 6900.3	W13769.0 Y43549.1	318	39.9		572	132	440	400	30	50	20	966
0174	4048.8 6909.1	W13801.7 Y43574.6	81	39.4		1452	684	768	604	55	15	30	368
0175	4051.4 6913.0	W13811.2 Y43594.3	131	33.4		188	24	164	155	25	50	25	368
0176	4056.2 6915.9	W13807.0 Y43627.1	189	31.2		144	6	138	131	20	75	5	644
0177	4058.7 6906.6	W13749.4 Y43633.9	168	42.7		610	162	448	418	40	40	20	368
0178	4053.6 6844.2	W13659.1 Y43583.0	292	37.7		3	1	2	2	5	45	50	460
0179	4048.4 6842.6	W13672.5 Y43550.2	355	35.5		19	0	19	19	15	0	85	575
0180	4048.4 6852.8	W13722.1 Y43558.4	356	37.7		108	34	74	67	50	0	50	138
0181	4045.8 6850.5	W13721.2 Y43540.6	346	37.7		36	10	26	24	15	25	60	483
0182	4038.5 6852.9	W13761.4 Y43497.2	33	36.1		118	53	65	60	0	1	99	437
0183	4038.7 6848.7	W13740.3 Y43495.4	87	36.1		5	0	5	5	0	1	99	529
0184	4028.8 6852.7	W13797.2 Y43436.3	193	42.1		0	0	0	0	90	0	10	69
0185	4028.9 6850.9	W13788.1 Y43435.7	159	41.0		1	0	1	1	98	1	1	58
0186	4036.4 6842.6	W13719.8 Y43476.8	204	34.4		109	10	99	72	1	0	99	322
0187	4036.3 6836.1	W13689.3 Y43471.6	268	36.6		9	5	4	2	0	1	99	782
0188	4040.9 6801.0	W13509.5 Y43475.4	49	46.5		92	3	89	88	75	20	5	920
0189	4033.4 6802.6	W13546.7 Y43432.6	340	54.7		143	141	2	2	70	25	5	1242
0190	4031.1 6754.8	W13521.3 Y43414.5	102	58.5		2	2	0	0	10	0	90	127
0191	4038.7 6718.6	W13336.5 Y43437.1	114	55.2		1	1	0	0	85	5	10	828
0192	4046.8 6734.7	W13370.3 Y43492.0	165	44.3		72	7	65	64	25	0	75	115
0193	4053.2 6742.6	W13377.2 Y43533.2	358	37.7		26	0	26	25	35	0	65	368
0194	4101.2 6734.8	W13308.9 Y43572.0	26	35.5		18	1	17	17	10	0	90	920
0195	4106.0 6725.2	W13246.9 Y43591.1	185	33.4		3	0	3	2	1	0	99	736
0196	4111.2 6716.7	W13188.1 Y43612.6	94	32.8		1	0	1	1	0	0	100	1288
0197	4113.9 6709.2	W13145.0 Y43621.1	193	32.8		3	0	3	3	1	0	99	138
0198	4106.5 6706.8	W13168.8 Y43580.3	167	36.6		82	4	78	64	1	0	99	192
0199	4101.2 6704.7	W13183.9 Y43550.7	168	38.8		163	4	159	156	1	0	99	345
0200	4051.3 6705.3	W13229.3 Y43498.1	99	50.9		105	4	101	77	95	0	5	391

HUGH R SHARP 2011 SEA SCALLOP SURVEY
May 11 - July 1

Station	Station Data						Number of Scallops				By-Catch			
	Position		Loran TD's	heading	Depth (FM)	Bottom Temp (F)	Total No.	<90mm	>90mm	>100mm	Shell	Stone	Inverts	Total Vol. (lt)
	Lat.	Long.						>40ct	<40ct	<30ct				
0201	4051.2	6703.7	W13223.4	Y43496.5	91	49.8	138	0	138	128	99	0	1	690
0202	4048.7	6651.1	W13184.2	Y43475.6	102	57.4	1	1	0	0	100	0	0	644
0203	4055.8	6654.4	W13166.6	Y43515.3	44	47.0	58	1	57	51	85	0	15	207
0204	4058.7	6648.6	W13131.2	Y43526.9	27	41.6	175	2	173	118	85	0	15	92
0205	4053.8	6648.6	W13152.6	Y43501.1	58	52.5	13	5	8	7	85	10	5	1334
0206	4054.0	6643.4	W13131.6	Y43499.0	55	55.8	25	25	0	0	90	9	1	1702
0207	4056.2	6637.1	W13098.1	Y43506.7	66	59.1	4	3	1	1	90	5	5	1380
0208	4103.4	6634.8	W13057.7	Y43542.5	118	49.2	299	173	126	10	95	0	5	92
0209	4103.9	6645.2	W13095.1	Y43551.8	134	42.7	533	8	525	470	75	0	25	138
0210	4106.2	6650.9	W13106.9	Y43567.6	225	40.5	201	15	186	181	85	0	15	322
0211	4111.4	6654.4	W13097.2	Y43597.1	233	39.4	141	10	131	111	35	0	65	184
0212	4118.6	6654.4	W13064.2	Y43634.3	201	38.3	67	1	66	54	5	0	95	184
*0213	4118.5	6642.9	W13020.1	Y43625.3	228	43.2	0	0	0	0	0	0	0	0
0214	4118.5	6643.0	W13020.4	Y43625.3	225	43.7	101	2	99	93	90	0	10	58
0215	4113.7	6642.9	W13042.1	Y43600.8	254	41.6	293	56	237	217	1	0	99	460
0216	4108.6	6634.8	W13034.5	Y43569.1	159	51.4	2628	403	2225	1028	80	0	20	127
0217	4111.3	6633.1	W13015.9	Y43581.7	114	50.3	922	242	680	506	75	0	25	196
0218	4116.5	6632.8	W12991.1	Y43607.9	159	49.2	4270	1485	2785	640	75	0	25	69
0219	4116.4	6626.6	W12968.6	Y43603.0	280	53.0	1082	484	598	522	75	5	20	92
0220	4123.5	6630.3	W12949.4	Y43641.2	324	49.8	434	10	424	380	99	0	1	368
*0221	4126.1	6642.6	W12983.4	Y43663.5	293	44.8	0	0	0	0	0	0	0	0
*0222	4126.1	6643.1	W12985.3	Y43663.9	314	43.7	0	0	0	0	0	0	0	0
0223	4128.3	6642.5	W12972.6	Y43674.4	353	43.7	43	2	41	37	75	5	20	138
0224	4159.1	6717.3	W12958.1	Y43859.3	146	25.2	19	0	19	19	95	0	5	230
0225	4201.9	6716.9	W12941.9	Y43872.7	168	25.2	1842	126	1716	1580	80	15	5	1104
0226	4201.6	6710.4	W12916.8	Y43864.6	190	29.5	1852	187	1665	1458	80	10	10	1242
0227	4201.3	6706.3	W12901.9	Y43859.0	252	25.7	5	1	4	3	15	10	75	253
0228	4206.0	6706.6	W12878.5	Y43882.2	310	30.6	1884	402	1482	1338	75	0	25	598
0229	4208.7	6709.3	W12875.1	Y43898.0	291	49.2	2984	672	2312	812	90	0	10	184
0230	4208.6	6716.4	W12904.6	Y43904.9	313	60.1	35	24	11	6	1	0	99	138
0231	4205.8	6718.5	W12928.1	Y43893.5	343	29.5	3174	12	3162	3084	45	30	25	375
0232	4206.1	6720.8	W12936.0	Y43897.4	0	37.2	1960	308	1652	1136	95	2	3	69
0233	4203.7	6721.1	W12949.9	Y43885.9	93	28.4	1756	312	1444	1168	45	45	10	230
0234	4201.2	6724.9	W12978.9	Y43877.6	109	26.8	3716	1306	2410	1910	25	60	15	522
0235	4204.0	6726.7	W12971.9	Y43893.3	177	31.2	744	32	712	678	15	80	5	276
0236	4206.2	6724.6	W12951.4	Y43901.9	227	45.4	1383	75	1308	1161	95	0	5	58
0237	4203.8	6732.5	W12997.7	Y43898.5	266	47.0	281	1	280	278	1	0	99	506
0238	4201.1	6738.1	W13036.1	Y43891.1	303	33.9	30	0	30	28	25	0	75	138
0239	4158.8	6744.6	W13076.6	Y43886.5	0	33.4	23	8	15	15	25	0	75	322
*0240	4156.1	6752.6	W13126.3	Y43881.5	346	44.8	0	0	0	0	0	0	0	0

HUGH R SHARP 2011 SEA SCALLOP SURVEY
May 11 - July 1

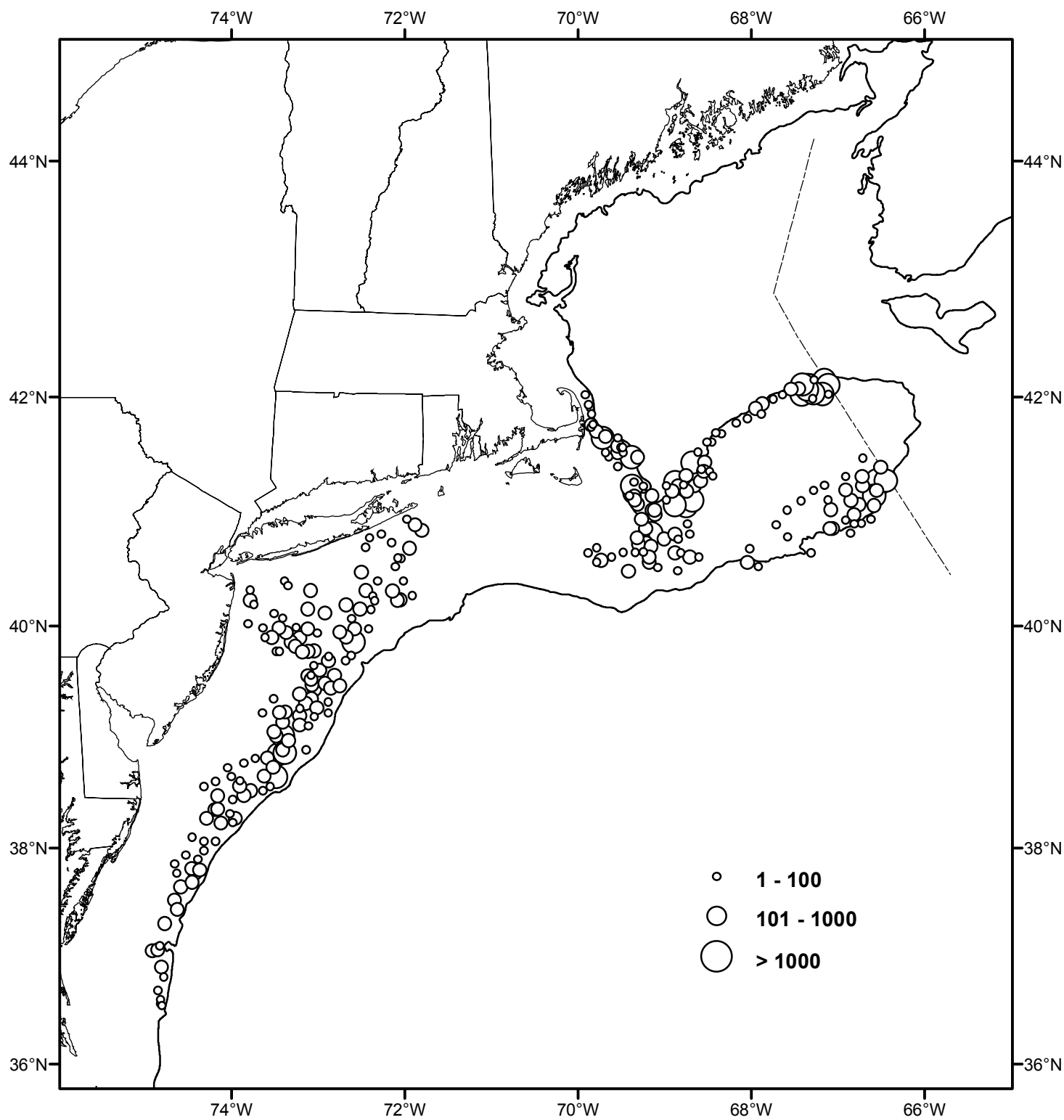
Station	Station Data						Number of Scallops				By-Catch			
	Position		Loran TD's	heading	Depth (FM)	Bottom Temp (F)	Total No.	<90mm >40ct	>90mm <40ct	>100mm <30ct	Shell	Stone (Percentage)	Inverts	Total Vol.(lt)
	Lat.	Long.												
0241	4156.5	6752.2	W13122.4	Y43883.1	354	45.9	320	50	270	258	20	5	75	207
0242	4154.2	6756.7	W13154.7	Y43876.2	354	46.5	245	56	189	182	40	10	50	138
0243	4151.2	6752.9	W13152.7	Y43856.5	151	25.7	47	0	47	45	90	0	10	138
0244	4148.7	6802.7	W13210.0	Y43854.0	142	31.7	8	2	6	6	5	0	95	1380
0245	4146.4	6810.3	W13256.9	Y43850.1	242	35.5	1	0	1	1	5	0	95	943
0246	4146.1	6818.6	W13297.7	Y43857.6	348	55.2	0	0	0	0	0	0	100	322
0247	4140.9	6820.7	W13333.3	Y43831.8	355	31.7	48	0	48	46	0	0	100	506
0248	4141.4	6824.6	W13349.6	Y43838.8	9	50.3	2	0	2	2	1	0	99	46
0249	4136.4	6826.9	W13384.9	Y43813.9	175	40.5	7	0	7	7	0	0	100	391
0250	4136.4	6830.5	W13402.4	Y43817.8	195	68.9	7	2	5	5	0	0	100	161
0251	4131.3	6836.8	W13457.4	Y43796.1	155	65.1	5	0	5	5	1	0	99	414
0252	4125.9	6840.6	W13501.2	Y43769.6	152	55.2	2778	1980	798	408	1	0	99	184
0253	4126.0	6832.0	W13458.6	Y43761.1	115	49.8	482	60	422	408	50	0	50	184
*0254	4123.6	6834.5	W13481.8	Y43750.1	189	48.7	0	0	0	0	0	0	0	0
0255	4122.4	6834.5	W13487.2	Y43743.2	331	45.4	67	25	42	40	20	5	75	276
0256	4121.1	6832.8	W13484.9	Y43734.1	4	41.6	117	37	80	77	25	0	75	138
0257	4121.1	6828.7	W13465.0	Y43730.0	349	41.0	93	40	53	51	75	5	20	391
0258	4118.7	6826.5	W13465.4	Y43714.2	26	33.9	74	64	10	10	20	5	75	368
0259	4116.2	6835.1	W13518.1	Y43708.2	85	35.0	176	7	169	169	25	10	65	276
0260	4113.7	6838.8	W13547.2	Y43697.3	125	35.0	538	8	530	526	85	0	15	81
0261	4118.9	6845.0	W13554.7	Y43733.8	133	51.9	122	41	81	49	25	0	75	508
0262	4114.2	6846.7	W13583.9	Y43708.0	188	41.6	5	0	5	5	3	0	97	1392
0263	4113.7	6850.7	W13606.0	Y43709.1	0	54.7	378	56	322	275	5	0	95	460
0264	4115.6	6852.3	W13605.7	Y43721.9	174	55.8	8070	5870	2200	450	0	0	100	69
0265	4113.8	6858.7	W13645.8	Y43717.8	7	72.2	29	23	6	2	60	0	40	58
0266	4111.2	6854.8	W13637.4	Y43698.3	7	56.3	134	24	110	99	1	0	99	598
0267	4111.0	6844.6	W13587.5	Y43687.2	44	37.7	307	3	304	302	0	0	100	414
0268	4106.2	6840.6	W13588.7	Y43655.1	30	36.1	1215	9	1206	1203	95	0	5	690
0269	4103.3	6845.1	W13623.1	Y43642.0	29	36.1	1825	60	1765	1720	60	35	5	575
0270	4103.7	6852.8	W13659.4	Y43651.5	170	39.9	1104	0	1104	1104	25	65	10	368
0271	4106.4	6858.7	W13677.5	Y43673.4	202	53.6	18	3	15	13	0	0	100	598
0272	4101.0	6906.9	W13741.5	Y43648.4	186	40.5	414	146	268	210	10	75	15	414
0273	4101.0	6908.6	W13750.2	Y43650.0	353	38.3	690	194	496	362	20	75	5	621
0274	4103.4	6910.6	W13750.5	Y43666.7	6	30.1	0	0	0	0	0	0	0	0
0275	4108.5	6908.6	W13719.0	Y43695.9	8	54.1	958	146	812	630	10	5	85	299
0276	4106.8	6916.8	W13768.4	Y43693.8	184	30.6	5024	2263	2761	2046	50	10	40	432
0277	4104.1	6914.7	W13768.7	Y43675.1	203	31.2	2220	789	1431	834	45	15	40	690
0278	4104.2	6918.5	W13788.0	Y43679.5	197	29.5	704	112	592	506	25	50	25	828
0279	4106.5	6920.4	W13788.4	Y43695.6	217	27.3	150	26	124	95	50	45	5	1380
0280	4108.7	6924.1	W13798.7	Y43713.1	246	23.0	46	2	44	43	30	35	35	1035

HUGH R SHARP 2011 SEA SCALLOP SURVEY
May 11 - July 1

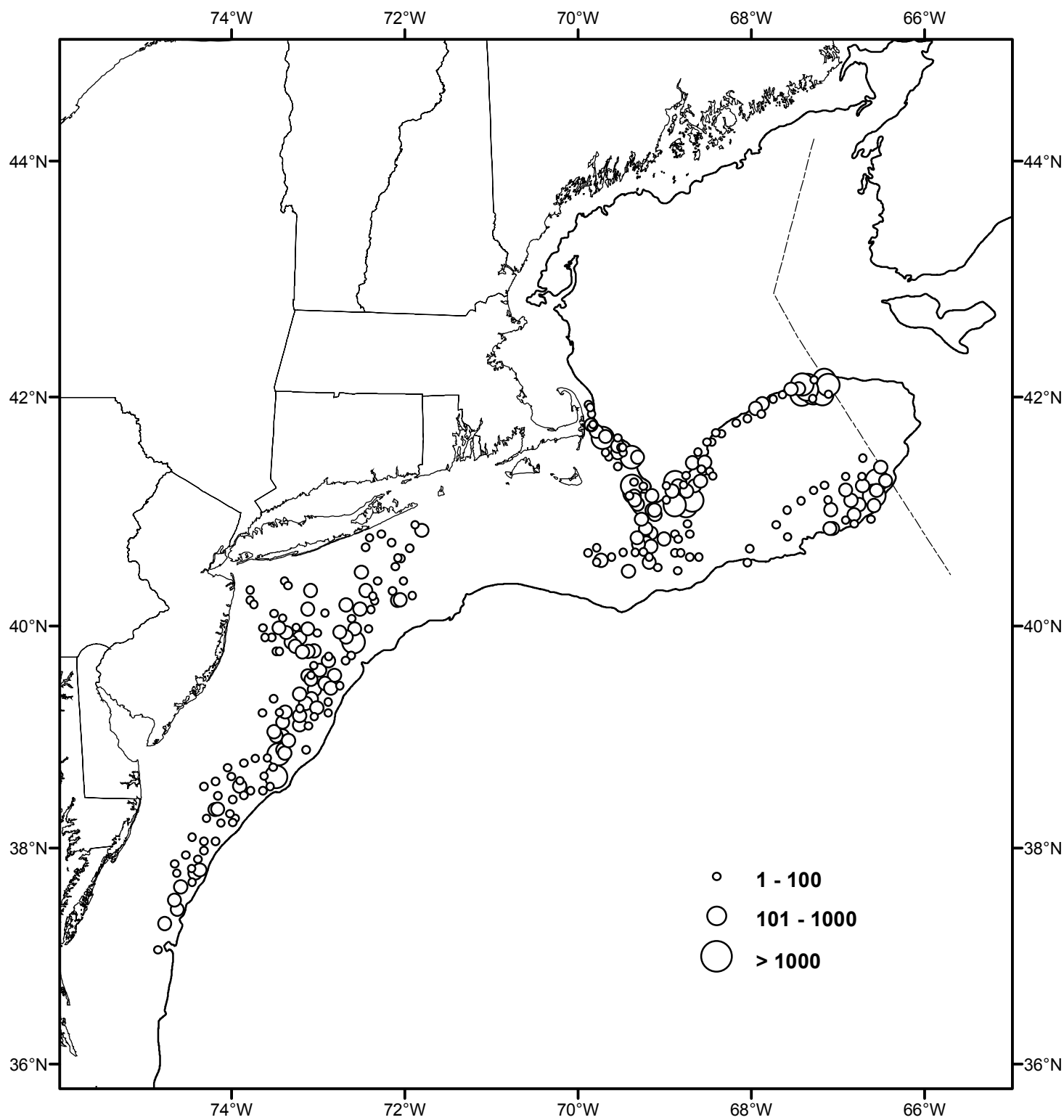
Station	Station Data						Bottom Temp (F)	Number of Scallops				By-Catch			
	Position		Loran TD's	heading	Depth (FM)	Total No.		<90mm >40ct	>90mm <40ct	>100mm <30ct	Shell	Stone (Percentage)	Inverts	Total Vol. (lt)	
	Lat.	Long.													
0281	4108.4	6920.8	W13782.6	Y43707.8	341	26.8	275	4	271	255	30	60	10	644	
0282	4110.3	6920.8	W13774.7	Y43719.5	16	28.4	3594	222	3372	2616	25	50	25	414	
0283	4113.5	6914.5	W13728.2	Y43732.4	7	41.6	17	10	7	4	0	10	90	322	
0284	4113.7	6922.5	W13769.3	Y43742.2	26	27.3	1311	84	1227	1212	15	65	20	644	
0285	4115.8	6921.0	W13752.5	Y43753.5	34	32.3	50	5	45	45	15	70	15	460	
0286	4124.0	6932.3	W13777.4	Y43816.4	213	17.5	41	3	38	34	15	75	10	322	
0287	4128.8	6918.6	W13682.8	Y43829.0	193	49.8	164	6	158	156	10	80	10	161	
0288	4128.7	6922.6	W13704.5	Y43833.1	292	38.3	1944	714	1230	390	75	0	25	207	
0289	4131.1	6928.5	W13725.5	Y43854.6	338	30.1	98	1	97	95	35	10	55	782	
0290	4131.2	6932.3	W13745.7	Y43859.9	331	24.1	782	50	732	724	25	50	25	920	
0291	4133.7	6930.2	W13723.0	Y43872.2	327	31.7	24	2	22	12	50	25	25	598	
0292	4138.6	6932.4	W13712.7	Y43904.1	358	49.8	10	7	3	3	30	45	25	138	
0293	4138.6	6942.5	W13768.5	Y43917.3	171	29.5	4148	2984	1164	900	5	90	5	322	
0294	4141.9	6947.3	W13780.3	Y43943.5	156	27.3	312	29	283	263	10	85	5	828	
0295	4145.7	6949.3	W13774.2	Y43968.9	48	39.4	14	6	8	8	25	50	25	92	
0296	4154.6	6951.2	W13743.2	Y44023.9	157	35.0	94	84	10	9	95	1	4	92	
0297	4200.9	6950.8	W13710.5	Y44059.6	190	53.0	0	0	0	0	30	70	0	690	
0298	4201.1	6954.8	W13732.6	Y44066.8	12	37.7	2	2	0	0	0	75	25	415	
0299	4156.0	6952.7	W13745.1	Y44034.2	355	30.1	32	9	23	23	10	75	15	92	
0300	4151.2	6950.3	W13754.2	Y44002.7	6	37.7	30	6	24	23	20	60	20	138	
0301	4145.3	6950.8	W13784.5	Y43968.6	5	24.1	368	168	200	143	10	70	20	125	
0302	4144.2	6950.7	W13789.0	Y43961.9	194	19.7	60	5	55	33	1	0	99	518	
0303	4139.4	6940.8	W13755.4	Y43919.9	184	37.2	139	25	114	108	75	15	10	69	
0304	4133.9	6928.8	W13714.5	Y43871.7	179	35.0	21	1	20	19	20	60	20	1058	
0305	4134.4	6932.5	W13732.4	Y43879.3	194	32.8	315	28	287	228	15	70	15	522	
0306	4129.1	6938.6	W13789.4	Y43855.1	201	17.0	87	2	85	80	15	75	10	69	
0307	4131.0	6940.8	W13793.1	Y43869.4	7	16.4	2	0	2	2	20	75	5	161	
Total							115773	35085	79096	60797					

* Dredge flip

NEFSC SEA SCALLOP SURVEY 2011
NOAA Fisheries Service
SEA SCALLOPS - Number/Tow
Total Number



NEFSC SEA SCALLOP SURVEY 2011
NOAA Fisheries Service
SEA SCALLOPS - Number/Tow
Greater Than or Equal To 90mm



NEFSC SEA SCALLOP SURVEY 2011
NOAA Fisheries Service
SEA SCALLOPS - Number/Tow
Less Than 90mm

