

Resource Survey Report

Bottom Trawl Survey

Cape Hatteras – Gulf of Maine
September 4 – October 31 2007
NOAA FRV *Albatross IV*



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



NOAA FRV *Albatross IV* at the dock in Woods Hole, MA preparing for sea.



Scientists and fishermen sort 4,920 pounds of haddock into baskets aboard NOAA FRV *Albatross IV*.



Scientists aboard NOAA FSV *Henry B. Bigelow* process a catch.



NOAA FSV *Henry B. Bigelow* underway.

RESOURCE SURVEY REPORT

Catch Summary

NOAA Fisheries Service
Northeast Fisheries Science Center

Fall Bottom Trawl Survey

Cape Hatteras - Gulf of Maine
September 4 – October 31, 2007

This report consists of field notes, station and catch summaries and a series of geographical plots of commercially and recreationally important species caught during the Northeast Fisheries Science Center's 2007 fall bottom trawl survey conducted by the NOAA FRV *Albatross IV*. Tows were made with a #36 Yankee otter trawl rigged with rollers, 5 fathom legs and 1000 pound polyvalent doors. The cod end and upper belly were lined with 1/2-inch mesh to retain young-of-the-year fish.

Because of the 30-minute tow duration, and random selection of station locations, catches can be light compared with commercial tows. Also, vessel operations are on a 24-hour basis and catches have not been adjusted for day/night differences. Nevertheless, these data can provide fishermen with useful information about the distribution and relative abundance of species inhabiting the survey area (Cape Hatteras to the Gulf of Maine).

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

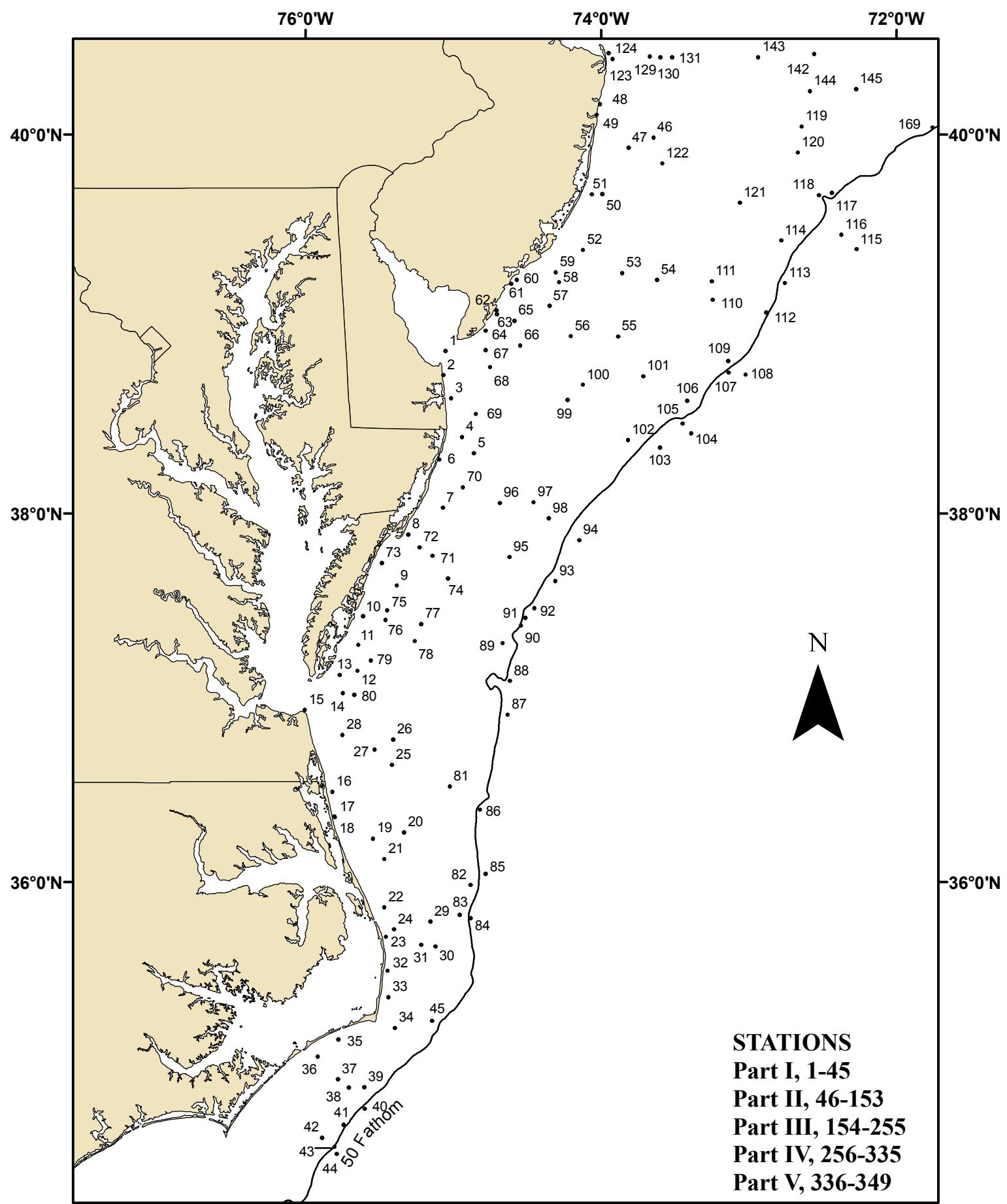


Figure 1. Trawl hauls made from NOAA FRV *Albatross IV* (07-07), during NOAA Fisheries Service, Northeast Fisheries Science Center fall bottom trawl survey, September 4 - October 31 2007.

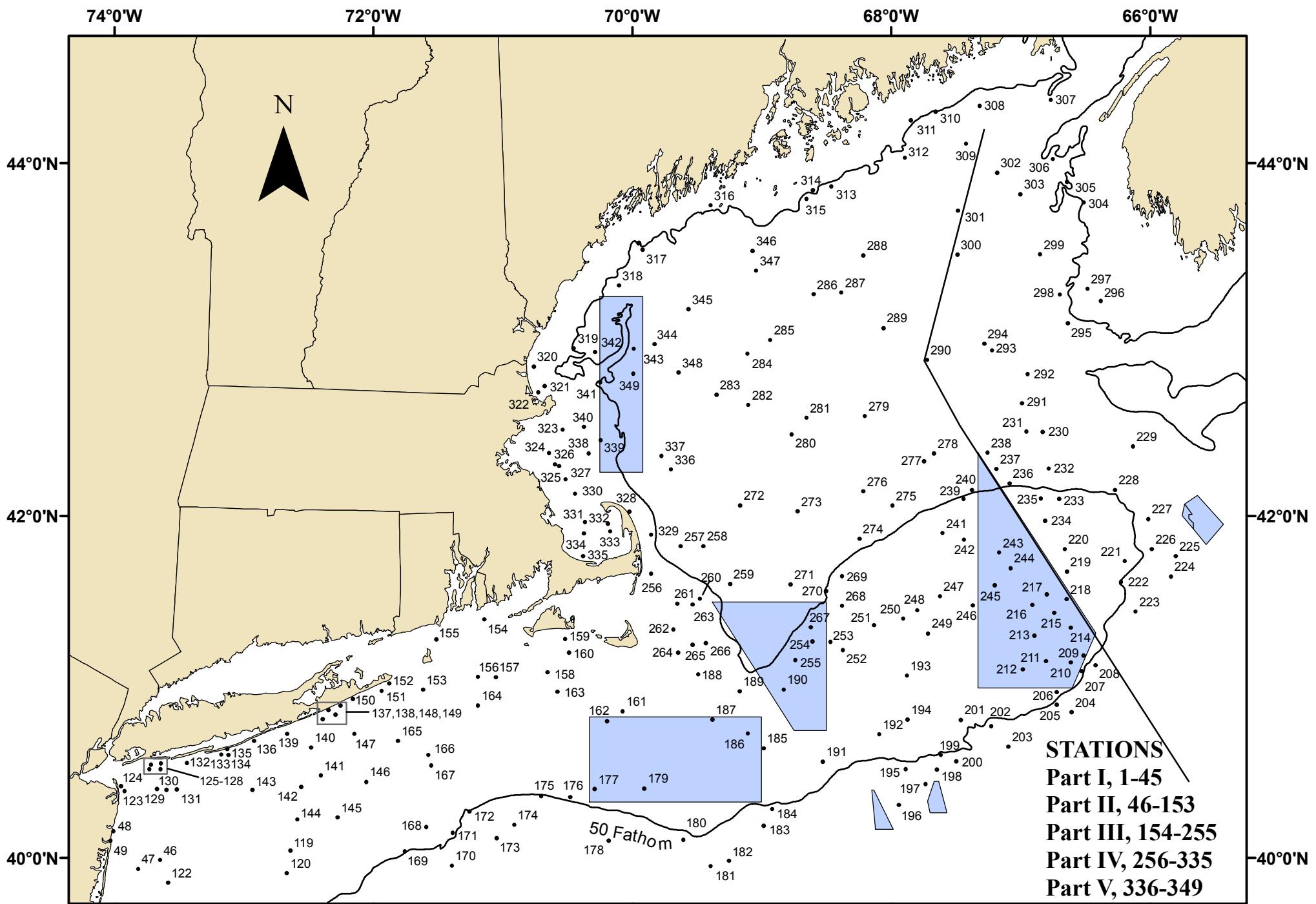


Figure 2. Trawl hauls made from NOAA FRV *Albatross IV* (07-07), during NOAA Fisheries Service, Northeast Fisheries Science Center fall bottom trawl survey, September 4 - October 31 2007.

Field Notes

In an effort to share some of the natural history observations made during the bottom trawl survey, we have requested that the Chief Scientists on each part of the cruise comment on some of the more interesting catches that were brought aboard the NOAA FRV Albatross IV.

Lionfish Captures

Leg I of the Autumn Bottom Trawl Survey brought surprise and dismay as we captured four adults of the invasive species of the scorpionfish family commonly called the lionfish. These individuals were captured off Cape Hatteras in deeper water. Although not the first capture for our survey (a single individual was captured the previous spring), these individuals represent the second through fifth occurrence in our time series. As more and more stories of encounters with this non-native species increase, we also see this reflected in our catch.

A Beautiful Shark

On a brighter note, on leg I we also captured a blacknose shark, which although common south of the survey area, is an unusual catch for the survey. They are small and very beautiful sharks, with a brilliant, slightly golden hue to the body and as the name suggests a black tipped nose. The black tip on the nose is actually small and easy to miss if you are not deliberately looking for it. It is the body color that stands out prominently against the other local shark species, such as the Atlantic sharpnose, sandbars and smooth dogfish.

Inshore vs Offshore Catches

Leg II occupied 48 inshore and 59 offshore stations that covered an area from Long Island to Cape Hatteras. There were noticeable differences in our near and off-shore stations. An average of sixteen species and 358 pounds/tow were caught in our inshore stations with smooth dogfish, bay anchovies, Atlantic croaker, scup, weakfish and various species of rays predominating the catches. Eleven species and 106 pounds/tow were taken in our offshore stations. *Illex* and *Loligo* squid, and sea scallops were caught more often at these stations. It was readily apparent to all when we had moved either inshore or offshore just by looking at the size and composition of the catch.

Surprising Drum

Right under the shadow of the New Jersey Highlands, two beautiful black drum were taken at adjacent stations (123 and 124). They were 52 and 62 pounds respectively but were the same length...45 inches. Otoliths were removed from the first fish; they resemble large macadamia nuts.

Haddock! Haddock!

Two impressive tows of haddock were brought onboard the NOAA FRV *Albatross IV* along the northern edge of Georges Bank, near the Hague line. Station 236 captured 2,822 individuals weighing 4,920 lbs and station 239 had 3,356 individuals weighing

6,293 lbs. The majority of these haddock were in the 17 to 19 inch range and likely were representatives of the very strong 2003 year class.

An Interesting Yellowtail Observation

Tows in the southern portion of Closed Area II captured more yellowtail flounder than previous fall surveys. The two largest tows occurred at stations 211 and 210, which yielded 491 and 250 individuals respectively. It will be interesting to see how this year's catch compares statistically with previous years.

Big Catches of Little Windowpane

Small windowpane flounder (1,393 individuals measuring two inches or less) were noticeably abundant at several stations during the third leg. Most of these were on the southern side of the Georges Bank shoals. This is the largest number of small windowpane flounder on a fall bottom trawl survey to date. The second largest number occurred on the 1985 fall bottom trawl survey when 884 individuals measuring two inches or less were encountered; the majority of these were also on the southern side of Georges Bank shoals.

Spiny Dogfish Record Tow

After the standard bottom trawl survey work was completed on October 31, 2007 (during leg V), additional trawls were deployed where the vessel repeated a series of three twenty minute tows along the same track line in as short a time frame as possible to see what effect these tows would have on the total catch (did each tow's successive catch become smaller?). While towing just north of Provincetown, MA, one day after hurricane Noel passed through, we brought aboard the largest catch of spiny dogs that I had ever seen. With great effort, the net was brought aboard and 90 minutes later, over 26,000 pounds of dogfish (7,261 individuals) had been processed. We left the area without completing the two other planned tows!

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NOAA Fisheries Service FALL BOTTOM TRAWL SURVEY
2007 STATION INFORMATION

Station	Date	Time	Lat	Lon	Loran			Course	Bottom Depth (FM)	Temp (F)
					TD's					
0001	Sep-05	1824	3851.8	7503.1	X27152.1	Y42682.6	356		7.1	75.6
0002	Sep-05	2104	3844.1	7503.9	X27138.1	Y42594.2	175		5.2	76.5
0003	Sep-06	0027	3836.8	7500.7	X27103.4	Y42514.1	189		6.8	76.1
0004	Sep-06	0328	3824.4	7456.3	X27053.1	Y42378.5	220		10.4	75.6
0005	Sep-06	0647	3819.2	7451.5	X27017.3	Y42325.1	234		8.7	74.1
0006	Sep-06	0849	3817.2	7505.5	X27086.4	Y42287.7	204		5.7	77.0
0007	Sep-06	1156	3801.7	7504.1	X27048.6	Y42114.3	208		6.6	75.9
0008	Sep-06	2358	3753.2	7518.2	X27101.0	Y42000.4	046		5.5	77.4
0009	Sep-07	0233	3736.7	7522.8	X27091.1	Y41805.9	193		9.0	76.8
0010	Sep-07	0501	3726.8	7536.5	X27134.6	Y41671.8	195		5.7	78.3
0011	Sep-07	0810	3717.5	7538.5	X27125.8	Y41562.5	188		7.9	78.1
0012	Sep-07	1046	3709.1	7538.7	X27111.9	Y41466.7	264		7.4	77.7
0013	Sep-07	1159	3707.8	7546.1	X27141.0	Y41437.6	166		6.0	78.1
0014	Sep-07	1359	3701.8	7544.6	X27124.1	Y41372.2	200		7.7	77.2
0015	Sep-07	1608	3656.4	7600.2	X27178.6	Y41280.6	129		7.7	78.8
0016	Sep-07	1955	3629.7	7548.9	X27088.7	Y41001.2	181		7.1	76.3
0017	Sep-07	2204	3621.5	7548.0	X27072.9	Y40912.7	169		5.5	77.7
0018	Sep-07	2313	3621.2	7547.9	X27072.3	Y40909.9	159		5.5	*
0019	Sep-08	0156	3614.3	7532.4	X27002.2	Y40874.5	171		14.5	*
0020	Sep-08	0419	3616.3	7519.9	X26955.5	Y40929.4	232		18.0	*
0021	Sep-08	0620	3607.5	7527.8	X26975.7	Y40815.5	195		14.5	*
0022	Sep-08	0854	3551.6	7527.9	X26956.4	Y40650.9	221		11.5	*
0023	Sep-08	1104	3541.8	7527.2	X26942.7	Y40555.1	182		10.1	*
0024	Sep-08	1251	3544.2	7524.0	X26933.5	Y40589.4	182		12.3	*
0025	Sep-08	1857	3638.3	7524.8	X27004.7	Y41152.4	071		10.4	*
0026	Sep-08	2047	3646.7	7524.2	X27014.6	Y41244.7	261		12.6	*
0027	Sep-08	2230	3643.5	7531.9	X27041.3	Y41192.9	294		10.7	*
0028	Sep-09	0044	3648.2	7544.8	X27101.8	Y41218.1	044		9.8	*
0029	Sep-10	1921	3546.8	7509.2	X26881.2	Y40662.1	168		18.3	*
0030	Sep-10	2113	3538.7	7507.2	X26865.3	Y40590.1	276		18.6	*
0031	Sep-10	2259	3539.1	7512.9	X26887.1	Y40575.1	233		17.0	*
0032	Sep-11	0103	3530.6	7526.5	X26928.1	Y40447.6	209		6.0	78.4
0033	Sep-11	0237	3521.7	7526.1	X26917.3	Y40365.0	170		7.7	80.1
0034	Sep-11	0411	3511.5	7523.7	X26898.5	Y40280.4	177		9.3	*
0035	Sep-11	0806	3507.7	7546.5	X26973.9	Y40158.5	253		9.6	*
0036	Sep-11	1107	3502.0	7554.8	X26995.8	Y40072.6	150		11.5	81.9
0037	Sep-11	1248	3454.4	7546.7	X26960.3	Y40037.6	214		13.1	79.3
0038	Sep-11	1420	3451.6	7542.3	X26942.9	Y40031.1	215		19.7	81.3
0039	Sep-11	1605	3451.8	7535.9	X26921.6	Y40059.3	219		24.9	80.8
0040	Sep-11	1743	3444.5	7535.9	X26914.7	Y39998.9	204		49.5	74.8
0041	Sep-11	1931	3439.1	7544.4	X26937.5	Y39919.5	216		32.5	77.4
0042	Sep-11	2201	3434.8	7553.2	X26962.1	Y39845.7	219		26.8	76.1
0043	Sep-11	2349	3431.7	7548.1	X26942.4	Y39844.9	220		58.5	69.1
0044	Sep-12	0115	3429.4	7547.2	X26937.3	Y39831.0	234		80.1	64.2
0045	Sep-12	0657	3513.9	7508.6	X26847.4	Y40358.1	024		14.2	79.9
0046	Sep-18	0645	3959.0	7338.6	X26760.0	Y43407.6	070		18.9	67.6
0047	Sep-18	0913	3955.8	7348.8	X26827.6	Y43381.4	000		14.8	69.8
0048	Sep-18	1141	4009.4	7400.2	X26943.4	Y43526.7	190		8.2	

*CTD Cast deployed from NOAA FSV *Henry B. Bigelow*

NOAA Fisheries Service FALL BOTTOM TRAWL SURVEY
2007 STATION INFORMATION

Station	Date	Time	Lat	Lon	Loran			Bottom Depth (FM)	Temp (F)
					TD's	Course	-----		
0049	Sep-18	1309	4006.0	7401.7	X26945.7	Y43492.9	233	5.5	66.7
0050	Sep-18	1607	3941.3	7359.4	X26871.4	Y43236.1	265	10.9	68.7
0051	Sep-18	1719	3941.2	7403.7	X26900.2	Y43235.7	177	7.7	69.6
0052	Sep-18	1953	3923.7	7407.2	X26886.2	Y43051.8	197	11.2	66.2
0053	Sep-18	2214	3916.5	7351.2	X26768.3	Y42976.7	148	19.7	52.5
0054	Sep-19	0012	3914.4	7337.1	X26673.3	Y42955.8	134	23.5	49.5
0055	Sep-19	0308	3856.4	7353.0	X26748.0	Y42767.1	217	20.0	50.2
0056	Sep-19	0531	3856.5	7412.1	X26864.8	Y42760.3	300	18.3	53.1
0057	Sep-19	0816	3906.1	7420.9	X26936.6	Y42861.2	009	12.6	65.1
0058	Sep-19	0943	3913.6	7416.9	X26927.2	Y42942.9	010	12.0	70.2
0059	Sep-19	1057	3916.7	7418.3	X26942.9	Y42976.2	249	8.5	69.8
0060	Sep-19	1244	3914.3	7434.0	X27035.5	Y42947.4	217	6.8	68.2
0061	Sep-19	1406	3913.1	7436.4	X27047.3	Y42933.0	204	6.0	68.0
0062	Sep-19	1556	3904.7	7442.4	X27063.6	Y42837.7	212	5.5	69.3
0063	Sep-19	1738	3903.5	7442.1	X27059.6	Y42825.1	229	6.8	69.8
0064	Sep-19	1903	3858.3	7446.8	X27074.9	Y42764.5	055	7.1	69.4
0065	Sep-19	2046	3901.4	7435.1	X27012.7	Y42804.7	156	7.7	70.2
0066	Sep-19	2212	3853.5	7432.7	X26981.4	Y42719.1	248	12.0	69.8
0067	Sep-20	0000	3852.0	7446.8	X27060.1	Y42695.1	209	7.7	70.0
0068	Sep-20	0120	3846.7	7444.9	X27037.8	Y42636.7	213	8.5	70.3
0069	Sep-20	0324	3831.7	7450.7	X27038.0	Y42464.8	187	10.9	70.7
0070	Sep-20	0619	3808.3	7400.6	X26728.0	Y42259.4	244	11.5	71.1
0071	Sep-20	0906	3746.3	7508.4	X27040.8	Y41935.5	226	13.9	71.4
0072	Sep-20	1126	3749.0	7513.6	X27070.5	Y41958.6	232	11.2	72.0
0073	Sep-20	1316	3744.0	7528.9	X27133.2	Y41880.8	109	8.5	72.5
0074	Sep-20	1603	3738.9	7502.1	X26998.1	Y41862.9	243	16.4	68.9
0075	Sep-20	1849	3728.7	7526.7	X27094.4	Y41709.9	256	9.3	72.9
0076	Sep-20	2010	3725.6	7527.3	X27091.5	Y41673.8	071	10.9	72.9
0077	Sep-20	2211	3724.3	7512.9	X27023.8	Y41682.8	201	12.8	69.6
0078	Sep-20	2341	3718.7	7515.4	X27026.1	Y41615.7	248	15.3	69.1
0079	Sep-21	0154	3712.4	7533.4	X27094.8	Y41514.0	185	11.5	73.6
0080	Sep-21	0336	3701.3	7540.1	X27104.4	Y41375.4	185	10.7	73.8
0081	Sep-21	0829	3631.4	7501.3	X26898.9	Y41134.8	109	18.3	66.6
0082	Sep-21	1231	3558.9	7452.9	X26830.4	Y40830.2	203	49.2	48.7
0083	Sep-21	1412	3549.1	7457.3	X26838.1	Y40721.4	125	35.3	50.2
0084	Sep-21	1532	3548.0	7452.9	X26820.4	Y40724.8	020	53.3	49.6
0085	Sep-21	1807	3602.7	7446.8	X26810.4	Y40884.0	183	165.7	48.0
0086	Sep-21	2127	3623.6	7449.0	X26839.8	Y41086.3	039	47.3	48.4
0087	Sep-22	0151	3654.7	7437.8	X26825.6	Y41430.9	186	112.6	48.9
0088	Sep-22	0415	3705.8	7436.8	X26833.8	Y41548.6	039	57.4	57.4
0089	Sep-22	0632	3718.1	7439.8	X26862.2	Y41672.7	049	45.1	47.1
0090	Sep-22	0805	3723.7	7432.4	X26834.8	Y41745.2	038	51.9	53.2
0091	Sep-22	0929	3726.2	7430.7	X26829.7	Y41775.1	165	62.1	52.5
0092	Sep-22	1139	3729.4	7427.0	X26815.7	Y41814.5	057	54.4	53.8
0093	Sep-22	1332	3738.2	7418.4	X26784.7	Y41920.9	027	57.7	54.7
0094	Sep-22	1610	3751.3	7408.7	X26750.9	Y42072.2	229	70.0	54.3
0095	Sep-22	1905	3745.8	7437.2	X26887.5	Y41974.8	346	28.7	48.2
0096	Sep-22	2128	3803.3	7441.0	X26934.3	Y42160.0	009	16.1	55.4

NOAA Fisheries Service FALL BOTTOM TRAWL SURVEY
2007 STATION INFORMATION

Station	Date	Time	Lat	Lon	Loran			Course	Bottom Depth (FM)	Temp (F)
					TD's					
0097	Sep-22	2334	3803.5	7427.3	X26863.4	Y42178.2	147		23.8	49.6
0098	Sep-23	0105	3758.3	7421.1	X26823.6	Y42130.6	027		31.7	46.4
0099	Sep-23	0516	3836.2	7413.5	X26838.5	Y42542.9	059		26.0	47.7
0100	Sep-23	0633	3841.0	7407.2	X26809.5	Y42598.4	080		26.5	48.0
0101	Sep-23	0909	3843.8	7342.7	X26668.7	Y42640.8	103		30.1	46.4
0102	Sep-23	1200	3823.4	7348.9	X26680.9	Y42427.2	105		40.7	45.0
0103	Sep-23	1351	3821.1	7336.0	X26606.4	Y42413.8	024		71.1	55.0
0104	Sep-23	1741	3825.5	7323.2	X26537.4	Y42469.1	226		146.5	45.3
0105	Sep-23	1917	3828.7	7326.8	X26560.3	Y42497.7	352		56.9	54.7
0106	Sep-23	2042	3836.0	7325.0	X26555.9	Y42572.8	060		44.0	47.5
0107	Sep-23	2310	3845.0	7308.1	X26462.3	Y42670.2	051		61.8	57.0
0108	Sep-24	0148	3844.3	7301.1	X26419.9	Y42667.0	360		182.1	43.2
0109	Sep-24	0326	3848.7	7308.2	X26465.1	Y42706.4	329		43.7	57.2
0110	Sep-24	0607	3908.1	7314.5	X26519.3	Y42895.1	297		33.9	45.7
0111	Sep-24	0745	3913.8	7314.9	X26527.7	Y42952.1	133		33.1	47.1
0112	Sep-24	1033	3904.0	7252.9	X26378.0	Y42858.7	034		48.4	48.4
0113	Sep-24	1229	3913.3	7245.2	X26332.9	Y42947.5	009		60.4	49.5
0114	Sep-24	1434	3926.7	7246.8	X26349.4	Y43074.1	110		40.5	47.1
0115	Sep-24	1755	3924.0	7216.2	X26142.9	Y43043.8	015		108.0	48.0
0116	Sep-24	1932	3928.6	7222.2	X26183.3	Y43086.4	291		71.1	54.7
0117	Sep-24	2147	3941.7	7226.2	X26212.4	Y43206.5	259		48.4	49.3
0118	Sep-24	2304	3941.0	7231.4	X26248.7	Y43201.8	358		42.7	48.4
0119	Sep-25	0159	4002.4	7238.4	X26313.1	Y43400.6	179		32.5	47.3
0120	Sep-25	0332	3954.2	7239.9	X26318.2	Y43327.1	295		31.2	46.9
0121	Sep-25	0644	3938.5	7303.6	X26475.2	Y43190.6	019		25.4	48.4
0122	Sep-25	1039	3950.8	7335.0	X26717.9	Y43324.1	344		17.8	62.2
0123	Sep-25	1439	4023.5	7355.1	X26942.7	Y43666.2	005		10.9	67.6
0124	Sep-25	1604	4025.3	7356.9	X26961.5	Y43685.3	007		6.8	69.8
0125	Sep-25	1800	4031.4	7343.6	X26874.2	Y43731.4	160		11.8	68.0
0126	Sep-25	1919	4033.0	7342.8	X26871.7	Y43746.0	115		8.5	69.6
0127	Sep-25	2036	4033.3	7338.2	X26836.0	Y43743.9	095		5.2	69.4
0128	Sep-25	2203	4031.3	7338.5	X26833.3	Y43725.5	114		9.8	70.3
0129	Sep-25	2345	4024.3	7340.1	X26828.3	Y43658.8	297		12.6	66.4
0130	Sep-26	0106	4024.0	7335.7	X26793.5	Y43651.7	132		12.0	70.3
0131	Sep-26	0212	4024.1	7331.0	X26756.8	Y43647.5	100		13.7	68.5
0132	Sep-26	0410	4033.5	7326.2	X26740.1	Y43731.6	091		9.0	65.7
0133	Sep-26	0559	4036.5	7310.4	X26618.4	Y43741.1	106		10.9	66.4
0134	Sep-26	0716	4036.2	7307.1	X26590.9	Y43734.7	086		11.8	66.4
0135	Sep-26	0850	4038.3	7307.6	X26599.5	Y43754.2	076		6.8	66.6
0136	Sep-26	1031	4041.3	7255.1	X26502.3	Y43765.2	064		9.6	64.2
0137	Sep-26	1620	4052.1	7220.7	X26230.6	Y43811.5	244		7.9	64.9
0138	Sep-26	1739	4048.9	7223.2	X26246.7	Y43789.0	246		15.0	61.2
0139	Sep-26	1950	4043.7	7239.8	X26378.2	Y43766.4	248		15.3	58.5
0140	Sep-26	2150	4038.9	7228.7	X26277.0	Y43711.9	175		21.6	51.8
0141	Sep-26	2330	4029.1	7224.2	X26226.9	Y43622.9	249		25.7	50.9
0142	Sep-27	0058	4025.0	7233.3	X26296.4	Y43596.9	207		25.4	50.0
0143	Sep-27	0342	4024.0	7256.0	X26477.8	Y43611.0	090		21.6	50.2
0144	Sep-27	0618	4013.4	7235.1	X26297.9	Y43496.8	097		30.9	48.0

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Station	Date	Time	Lat	Lon	Loran			Bottom Depth (FM)	Temp (F)
					TD's	Course	-----		
0145	Sep-27	0816	4014.1	7216.4	X26151.9	Y43487.0	052	33.6	47.8
0146	Sep-27	1028	4026.8	7203.0	X26053.1	Y43581.9	330	32.5	48.2
0147	Sep-27	1250	4043.7	7208.6	X26114.6	Y43727.0	320	23.8	51.6
0148	Sep-27	1428	4050.5	7217.3	X26198.5	Y43794.2	014	13.1	54.0
0149	Sep-27	1539	4053.7	7215.1	X26184.9	Y43816.9	074	10.1	66.0
0150	Sep-27	1649	4056.1	7209.4	X26139.0	Y43828.5	068	8.7	61.5
0151	Sep-27	1828	4058.9	7155.9	X26025.8	Y43831.3	063	12.3	64.8
0152	Sep-27	1936	4101.5	7152.4	X25999.4	Y43846.7	079	12.6	64.9
0153	Sep-27	2130	4059.2	7136.9	X25859.3	Y43807.8	086	24.6	52.9
0154	Oct-02	1038	4123.9	7108.5	X25655.1	Y43945.1	269	12.3	63.1
0155	Oct-02	1310	4117.0	7130.6	X25835.5	Y43929.7	132	23.2	58.6
0156	Oct-02	1550	4103.7	7111.2	X25638.4	Y43806.8	097	18.9	56.8
0157	Oct-02	1704	4103.6	7103.1	X25566.3	Y43795.7	087	17.8	58.5
0158	Oct-02	1922	4105.4	7039.1	X25355.6	Y43777.7	042	23.5	56.8
0159	Oct-02	2124	4117.1	7030.9	X25297.4	Y43846.2	143	12.8	64.8
0160	Oct-02	2252	4112.4	7029.2	X25273.1	Y43812.4	147	18.9	59.0
0161	Oct-03	0217	4051.7	7004.2	X25121.6	Y43644.9	248	13.4	62.2
0162	Oct-03	0338	4048.2	7011.6	X25175.0	Y43628.6	306	22.1	57.9
0163	Oct-03	0609	4058.6	7034.6	X25318.7	Y43725.2	285	25.7	53.6
0164	Oct-03	0934	4053.8	7111.2	X25631.3	Y43734.7	264	28.7	51.6
0165	Oct-03	1326	4041.3	7148.4	X25941.2	Y43683.4	099	30.6	51.4
0166	Oct-03	1531	4036.3	7134.2	X25821.0	Y43628.3	163	39.6	49.1
0167	Oct-03	1634	4032.7	7133.0	X25811.3	Y43598.4	063	39.1	
0168	Oct-03	1937	4010.8	7135.3	X25837.3	Y43425.9	294	46.2	49.1
0169	Oct-03	2134	4002.1	7145.2	X25914.7	Y43361.0	135	50.6	49.3
0170	Oct-04	0109	3957.0	7123.4	X25764.8	Y43305.9	095	132.3	49.5
0171	Oct-04	0314	4008.8	7123.0	X25749.1	Y43400.5	043	49.2	48.7
0172	Oct-04	0455	4016.1	7115.4	X25685.6	Y43452.8	114	50.6	48.6
0173	Oct-04	0703	4006.8	7102.7	X25609.7	Y43370.9	087	84.8	53.2
0174	Oct-04	0839	4011.5	7054.5	X25546.3	Y43400.9	054	70.8	53.1
0175	Oct-04	1046	4021.6	7042.1	X25442.9	Y43467.8	081	51.1	47.7
0176	Oct-04	1229	4021.3	7028.6	X25359.1	Y43454.7	101	47.8	47.8
0177	Oct-04	1410	4024.2	7017.3	X25285.2	Y43466.9	105	42.9	48.2
0178	Oct-04	1649	4006.0	7010.8	X25309.2	Y43332.0	081	83.9	52.5
0179	Oct-04	1944	4024.5	6954.2	W14121.9	Y43451.0	087	41.8	48.6
0180	Oct-04	2248	4006.2	6936.1	W14088.7	Y43313.9	113	54.4	48.4
0181	Oct-05	0137	3956.8	6923.5	W14056.4	Y43243.6	031	114.8	50.0
0182	Oct-05	0415	3958.8	6915.1	W14009.3	Y43253.6	075	136.4	48.4
0183	Oct-05	0638	4011.3	6859.0	W13890.4	Y43328.0	024	70.5	48.9
0184	Oct-05	0812	4017.0	6855.0	W13851.0	Y43363.0	009	52.5	48.6
0185	Oct-05	1106	4038.6	6859.0	W13790.6	Y43502.6	355	36.1	51.8
0186	Oct-05	1234	4043.9	6906.2	W13806.0	Y43541.5	279	36.9	54.1
0187	Oct-05	1429	4048.9	6922.8	W13871.1	Y43587.0	329	24.6	56.3
0188	Oct-05	1640	4104.7	6929.2	W13842.0	Y43693.4	199	17.0	55.6
0189	Oct-05	1916	4058.8	6910.0	W13766.4	Y43637.5	170	33.1	55.6
0190	Oct-05	2149	4059.3	6849.6	W13662.1	Y43622.2	107	36.9	60.1
0191	Oct-06	0119	4033.9	6831.5	W13677.0	Y43453.7	068	41.3	52.3
0192	Oct-06	0407	4043.5	6805.4	W13518.3	Y43493.8	020	39.9	51.4

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					TD's	Course	-----		
0193	Oct-06	0653	4104.3	6752.5	W13373.0	Y43602.7	158	26.0	60.6
0194	Oct-06	0909	4048.9	6752.2	W13437.6	Y43515.4	179	36.6	58.1
0195	Oct-06	1130	4031.4	6753.1	W13512.8	Y43415.0	199	58.5	47.5
0196	Oct-06	1641	4018.5	6756.3	W13576.6	Y43341.3	107	137.0	49.6
0197	Oct-06	1848	4026.1	6743.8	W13493.2	Y43379.2	359	75.7	49.3
0198	Oct-06	2031	4031.2	6738.7	W13451.5	Y43405.9	008	69.7	47.8
0199	Oct-06	2200	4036.2	6736.8	W13422.9	Y43433.6	128	53.6	46.9
0200	Oct-06	2335	4034.1	6729.7	W13401.5	Y43417.3	088	59.6	45.7
0201	Oct-07	0205	4048.7	6727.5	W13332.0	Y43497.8	095	47.0	47.1
0202	Oct-07	0351	4046.4	6713.4	W13283.0	Y43476.5	134	52.8	45.7
0203	Oct-07	0535	4039.2	6705.5	W13280.9	Y43432.8	078	78.5	46.4
0204	Oct-07	0913	4051.4	6636.2	W13115.5	Y43481.3	207	169.2	44.4
0205	Oct-07	1141	4054.0	6643.2	W13130.8	Y43498.8	053	54.7	46.4
0206	Oct-07	1310	4058.4	6643.2	W13111.6	Y43522.0	340	42.7	47.8
0207	Oct-07	1527	4105.8	6631.6	W13035.2	Y43552.9	021	50.0	46.2
0208	Oct-07	1701	4107.8	6625.1	W13001.8	Y43558.8	034	62.6	46.0
0209	Oct-07	1836	4111.4	6630.6	W13006.5	Y43580.3	234	51.4	47.1
0210	Oct-07	2010	4108.9	6636.5	W13039.7	Y43571.8	245	48.1	46.6
0211	Oct-07	2211	4109.3	6648.1	W13082.1	Y43581.7	211	39.9	52.3
0212	Oct-08	0043	4106.4	6658.8	W13137.1	Y43574.2	034	36.9	50.0
0213	Oct-08	0303	4118.3	6653.4	W13061.9	Y43631.9	016	38.5	53.6
0214	Oct-08	0520	4121.0	6636.7	W12984.9	Y43633.4	285	46.8	49.6
0215	Oct-08	0648	4126.2	6644.2	W12989.0	Y43665.4	286	43.2	50.7
0216	Oct-08	0827	4128.9	6654.3	W13015.5	Y43687.0	066	37.5	57.7
0217	Oct-08	1002	4132.6	6647.8	W12972.3	Y43700.2	154	38.5	55.4
0218	Oct-08	1133	4130.9	6638.5	W12945.0	Y43684.3	355	42.7	52.3
0219	Oct-08	1321	4140.5	6638.4	W12898.4	Y43731.7	358	35.0	55.4
0220	Oct-08	1457	4148.4	6639.3	W12863.0	Y43770.9	064	37.7	57.0
0221	Oct-08	1811	4144.1	6611.6	W12783.3	Y43727.3	160	50.0	46.0
0222	Oct-08	1958	4137.0	6613.3	W12823.9	Y43694.5	139	52.2	45.7
0223	Oct-08	2209	4126.6	6606.5	W12849.5	Y43639.2	034	70.3	46.2
0224	Oct-09	0239	4138.9	6550.1	W12735.6	Y43686.3	219	135.9	45.3
0225	Oct-09	0443	4145.9	6547.9	W12695.1	Y43717.1	286	72.5	47.5
0226	Oct-09	0622	4148.3	6559.0	W12720.0	Y43736.8	356	52.8	45.0
0227	Oct-09	0806	4158.8	6600.7	W12673.4	Y43787.2	320	52.2	44.4
0228	Oct-09	1030	4208.8	6616.0	W12674.8	Y43846.6	072	92.4	44.8
0229	Oct-09	1312	4223.8	6607.8	W12568.1	Y43906.7	273	136.4	46.8
0230	Oct-09	1727	4228.8	6649.6	W12689.4	Y43971.4	274	172.2	45.3
0231	Oct-09	1939	4229.0	6657.0	W12716.6	Y43980.3	144	184.3	45.3
0232	Oct-09	2207	4216.1	6646.7	W12747.0	Y43910.1	138	145.2	45.5
0233	Oct-09	2355	4205.8	6642.0	W12784.0	Y43856.9	205	41.0	49.1
0234	Oct-10	0245	4158.1	6648.4	W12848.1	Y43826.3	346	35.3	53.6
0235	Oct-10	0420	4205.8	6650.4	W12815.7	Y43865.2	294	35.8	44.6
0236	Oct-10	0605	4211.1	6705.0	W12845.2	Y43904.8	280	93.8	44.1
0237	Oct-10	0820	4216.0	6711.1	W12843.1	Y43934.8	345	147.9	45.3
0238	Oct-10	1008	4221.7	6715.2	W12829.0	Y43966.2	244	172.0	45.3
0239	Oct-10	1230	4208.8	6722.4	W12928.5	Y43912.3	256	86.9	43.5
0240	Oct-10	1449	4205.8	6726.2	W12960.1	Y43901.6	265	47.3	42.8

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Station	Date	Time	Lat	Lon	Loran			Course	Bottom Depth (FM)	Temp (F)
					TD's					
0241	Oct-10	1703	4153.9	6735.9	W13063.9	Y43852.3	089		18.3	59.4
0242	Oct-10	1837	4151.6	6726.1	W13033.1	Y43830.9	066		31.2	59.4
0243	Oct-10	2046	4147.1	6709.7	W12987.8	Y43792.4	085		29.8	59.2
0244	Oct-10	2220	4141.7	6704.4	W12993.5	Y43760.3	209		31.7	58.3
0245	Oct-11	0003	4135.8	6711.9	W13053.0	Y43737.0	226		28.4	60.4
0246	Oct-11	0149	4128.8	6721.9	W13128.0	Y43709.7	293		23.8	61.9
0247	Oct-11	0353	4131.9	6737.2	W13178.1	Y43739.9	234		20.0	61.7
0248	Oct-11	0532	4127.0	6747.7	W13247.9	Y43723.2	158		17.5	62.1
0249	Oct-11	0718	4119.0	6742.6	W13262.9	Y43675.4	299		22.1	62.6
0250	Oct-11	0858	4124.1	6754.3	W13290.6	Y43713.9	274		22.7	63.1
0251	Oct-11	1051	4121.9	6807.9	W13363.1	Y43714.3	219		14.8	63.0
0252	Oct-11	1256	4113.1	6822.2	W13470.0	Y43678.4	289		29.3	62.2
0253	Oct-11	1427	4116.1	6827.9	W13483.4	Y43700.9	233		30.9	58.3
0254	Oct-11	1556	4116.3	6836.3	W13523.7	Y43709.8	231		34.4	51.6
0255	Oct-11	1731	4109.7	6844.1	W13591.0	Y43678.8	232		39.4	53.6
0256	Oct-15	2138	4139.9	6951.0	W13810.7	Y43936.5	356		12.8	55.2
0257	Oct-15	2357	4149.3	6937.4	W13690.5	Y43973.3	097		97.3	42.8
0258	Oct-16	0146	4149.4	6926.9	W13632.0	Y43959.6	190		102.0	42.4
0259	Oct-16	0419	4136.3	6914.5	W13627.0	Y43867.9	220		85.3	42.3
0260	Oct-16	0614	4131.0	6928.5	W13725.8	Y43854.2	249		27.6	46.4
0261	Oct-16	0720	4129.0	6931.9	W13753.2	Y43846.3	055		20.8	
0262	Oct-16	1219	4129.4	6938.9	W13789.8	Y43856.9	157		15.9	55.4
0263	Oct-16	1357	4120.4	6940.8	W13838.8	Y43804.6	180		13.4	55.2
0264	Oct-16	2039	4112.4	6938.6	W13860.8	Y43751.9	340		12.3	55.0
0265	Oct-16	2327	4115.1	6931.9	W13813.3	Y43761.0	192		12.6	54.3
0266	Oct-17	0057	4115.6	6925.8	W13778.8	Y43757.5	345		23.0	54.7
0267	Oct-17	0511	4121.1	6837.1	W13505.8	Y43738.5	047		44.3	45.3
0268	Oct-17	0712	4128.6	6822.6	W13400.9	Y43766.2	322		29.0	53.6
0269	Oct-17	0900	4139.0	6822.5	W13351.1	Y43823.7	217		11.8	52.3
0270	Oct-17	1031	4133.7	6830.0	W13412.5	Y43802.5	254		58.2	43.2
0271	Oct-17	1234	4136.1	6846.4	W13482.7	Y43833.7	326		84.5	41.9
0272	Oct-17	1643	4203.5	6909.8	W13469.3	Y44015.7	088		103.9	42.8
0273	Oct-17	1939	4201.4	6843.2	W13341.4	Y43969.1	112		87.8	42.1
0274	Oct-17	2245	4151.9	6814.6	W13249.6	Y43883.9	037		111.0	44.2
0275	Oct-18	0122	4203.5	6759.2	W13118.2	Y43926.5	043		108.8	44.1
0276	Oct-18	0357	4208.2	6812.7	W13155.9	Y43967.0	055		105.8	45.5
0277	Oct-18	0701	4218.8	6744.5	W12969.9	Y43985.8	050		124.1	45.5
0278	Oct-18	0840	4221.4	6739.9	W12935.4	Y43993.0	291		127.7	45.5
0279	Oct-18	1158	4234.2	6812.0	W13009.6	Y44094.7	245		105.5	44.4
0280	Oct-18	1522	4228.0	6845.8	W13212.3	Y44110.6	098		107.7	44.1
0281	Oct-18	1717	4233.6	6839.0	W13146.1	Y44128.8	286		107.7	44.6
0282	Oct-18	2028	4238.0	6906.0	W13262.7	Y44190.0	302		100.1	43.3
0283	Oct-18	2221	4241.5	6920.9	W13324.6	Y44230.4	303		117.0	43.9
0284	Oct-19	0109	4255.5	6906.4	W13162.2	Y44275.8	006		94.6	43.0
0285	Oct-19	0257	4300.2	6855.8	W13077.2	Y44281.0	359		79.3	44.1
0286	Oct-19	0555	4315.7	6835.8	W12875.6	Y44320.1	001		97.3	43.5
0287	Oct-19	0807	4316.2	6822.8	W12807.2	Y44303.0	053		92.7	44.8
0288	Oct-19	1023	4328.8	6812.8	W12676.5	Y44341.7	071		96.5	43.9

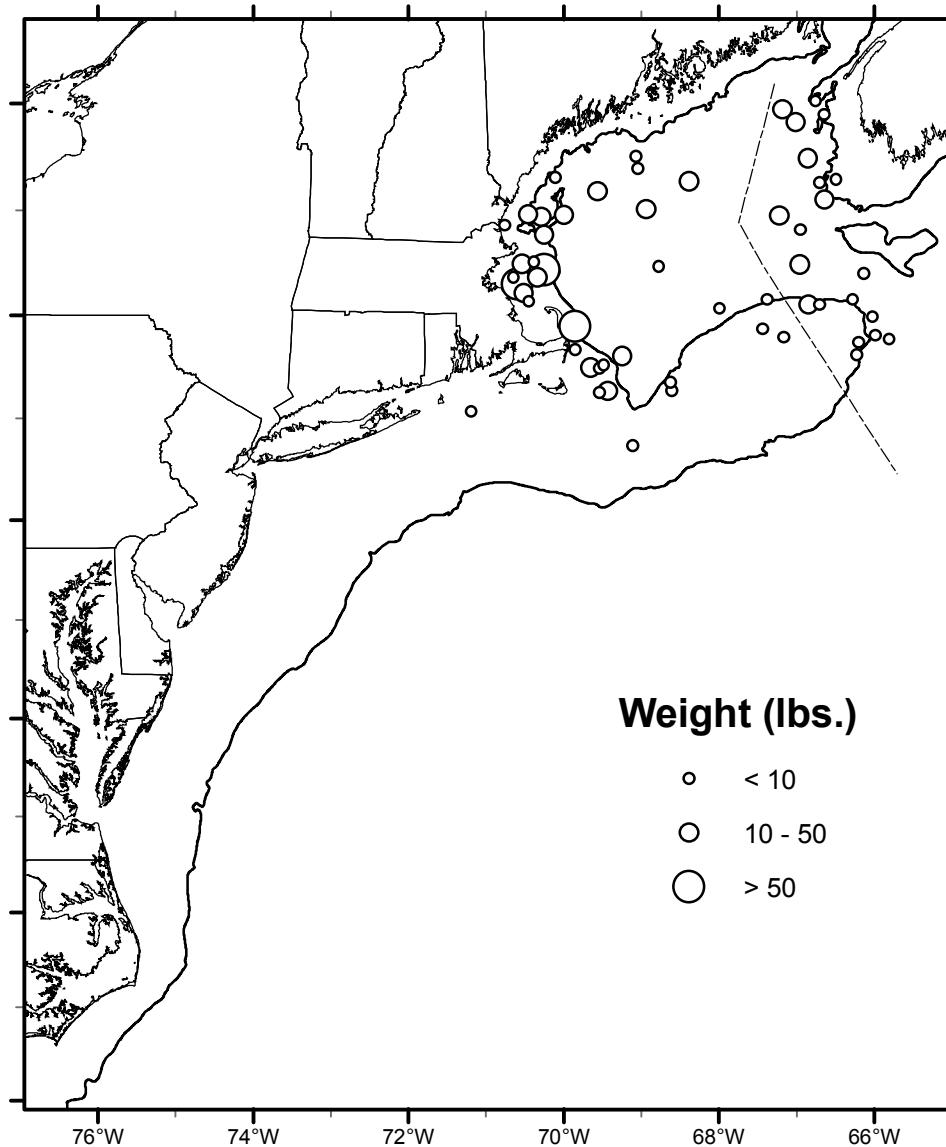
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Station	Date	Time	Lat	Lon	Loran		Course	Depth (FM)	Temp (F)
					TD's				
0289	Oct-19	1400	4304.3	6803.5	W12790.1	Y44222.6	140	102.3	43.9
0290	Oct-19	1644	4253.3	6743.1	W12765.0	Y44146.1	099	123.3	45.5
0291	Oct-19	2128	4238.6	6659.2	W12670.7	Y44026.4	100	146.3	46.2
0292	Oct-19	2357	4248.6	6656.5	W12603.0	Y44067.9	312	108.3	46.4
0293	Oct-20	0207	4256.6	6712.9	W12619.7	Y44122.6	308	139.7	45.7
0294	Oct-20	0357	4258.9	6716.7	W12621.1	Y44137.3	008	140.5	45.9
0295	Oct-20	0943	4305.9	6638.0	W12433.9	Y44120.8	211	62.9	45.9
0296	Oct-20	1445	4313.5	6622.7	W12337.1	Y44134.9	073	39.4	47.1
0297	Oct-20	1819	4317.5	6628.8	W12333.2	Y44157.8	232	37.5	48.0
0298	Oct-20	2133	4315.6	6641.6	W12387.9	Y44165.5	205	62.3	45.5
0299	Oct-21	0021	4329.2	6650.8	W12335.3	Y44231.9	297	91.9	44.8
0300	Oct-21	0433	4329.2	6729.1	W12481.5	Y44281.3	007	122.8	44.4
0301	Oct-21	0656	4343.8	6728.9	W12383.7	Y44339.6	014	126.9	45.3
0302	Oct-21	0947	4356.6	6710.8	W12227.5	Y44364.1	115	77.1	44.8
0303	Oct-21	1300	4349.5	6659.9	W12236.6	Y44322.6	094	100.1	44.8
0304	Oct-21	1747	4346.7	6630.5	W12157.7	Y44274.8	185	55.5	46.9
0305	Oct-21	2047	4353.6	6638.4	W12137.6	Y44310.6	198	51.4	46.0
0306	Oct-21	2323	4401.2	6644.8	W12107.9	Y44347.1	250	64.0	45.5
0307	Oct-22	0228	4420.9	6645.8	W11978.0	Y44419.0	255	104.2	45.7
0308	Oct-22	0556	4419.0	6718.8	W12100.9	Y44456.6	158	94.1	44.8
0309	Oct-22	0830	4406.3	6725.0	W12214.2	Y44419.5	197	107.2	44.8
0310	Oct-22	1226	4417.0	6739.3	W12193.7	Y44478.6	322	48.9	47.1
0311	Oct-22	1422	4414.2	6750.7	W12261.7	Y44484.9	197	47.0	48.9
0312	Oct-22	1719	4401.5	6753.5	W12364.6	Y44442.6	256	65.6	46.2
0313	Oct-22	2159	4352.0	6827.5	W12590.9	Y44457.5	165	68.1	46.8
0314	Oct-23	0107	4350.8	6836.1	W12643.0	Y44466.2	191	57.4	47.5
0315	Oct-23	0348	4348.0	6839.0	W12677.7	Y44459.6	252	58.0	46.9
0316	Oct-23	1037	4345.6	6923.5	W12938.5	Y44523.8	199	48.1	47.8
0317	Oct-23	1710	4330.8	6955.0	W13225.9	Y44518.0	175	64.5	45.7
0318	Oct-23	2042	4318.6	7006.1	X25890.2	Y44484.6	254	74.6	42.4
0319	Oct-24	0103	4257.3	7026.8	X25871.1	Y44422.9	032	57.1	42.8
0320	Oct-24	0338	4251.2	7045.4	X25942.9	Y44428.0	168	16.7	46.9
0321	Oct-24	0511	4244.5	7040.5	X25873.3	Y44383.9	124	20.8	46.8
0322	Oct-24	0728	4242.4	7043.3	X25877.4	Y44378.1	119	11.5	50.5
0323	Oct-24	1043	4229.5	7032.1	X25728.8	Y44287.9	246	35.3	44.6
0324	Oct-24	1445	4221.6	7038.4	X25718.6	Y44255.8	155	35.8	45.1
0325	Oct-24	1628	4217.0	7033.8	X25659.1	Y44221.3	287	31.4	45.3
0326	Oct-24	1743	4217.6	7035.7	X25675.0	Y44228.0	112	32.8	
0327	Oct-24	1933	4212.4	7030.6	X25609.7	Y44189.9	337	31.7	45.7
0328	Oct-24	2306	4201.4	7001.2	X25367.2	Y44078.2	162	10.1	55.8
0329	Oct-25	0058	4153.3	6951.1	W13748.9	Y44015.9	340	33.1	45.9
0330	Oct-25	0627	4207.5	7026.3	X25549.9	Y44154.2	191	31.7	45.3
0331	Oct-25	0844	4157.8	7021.8	X25454.9	Y44089.4	042	25.7	46.4
0332	Oct-25	1028	4157.1	7011.1	X25387.2	Y44068.7	314	18.9	47.7
0333	Oct-25	1236	4154.4	7010.0	X25361.1	Y44050.8	205	12.0	53.6
0334	Oct-25	1450	4153.7	7022.3	X25430.0	Y44065.8	240	16.7	50.2
0335	Oct-25	1635	4145.8	7022.7	X25378.8	Y44018.3	280	9.0	57.9
0336	Oct-30	0057	4215.9	6941.8	W13583.3	Y44129.4	094	133.7	43.9

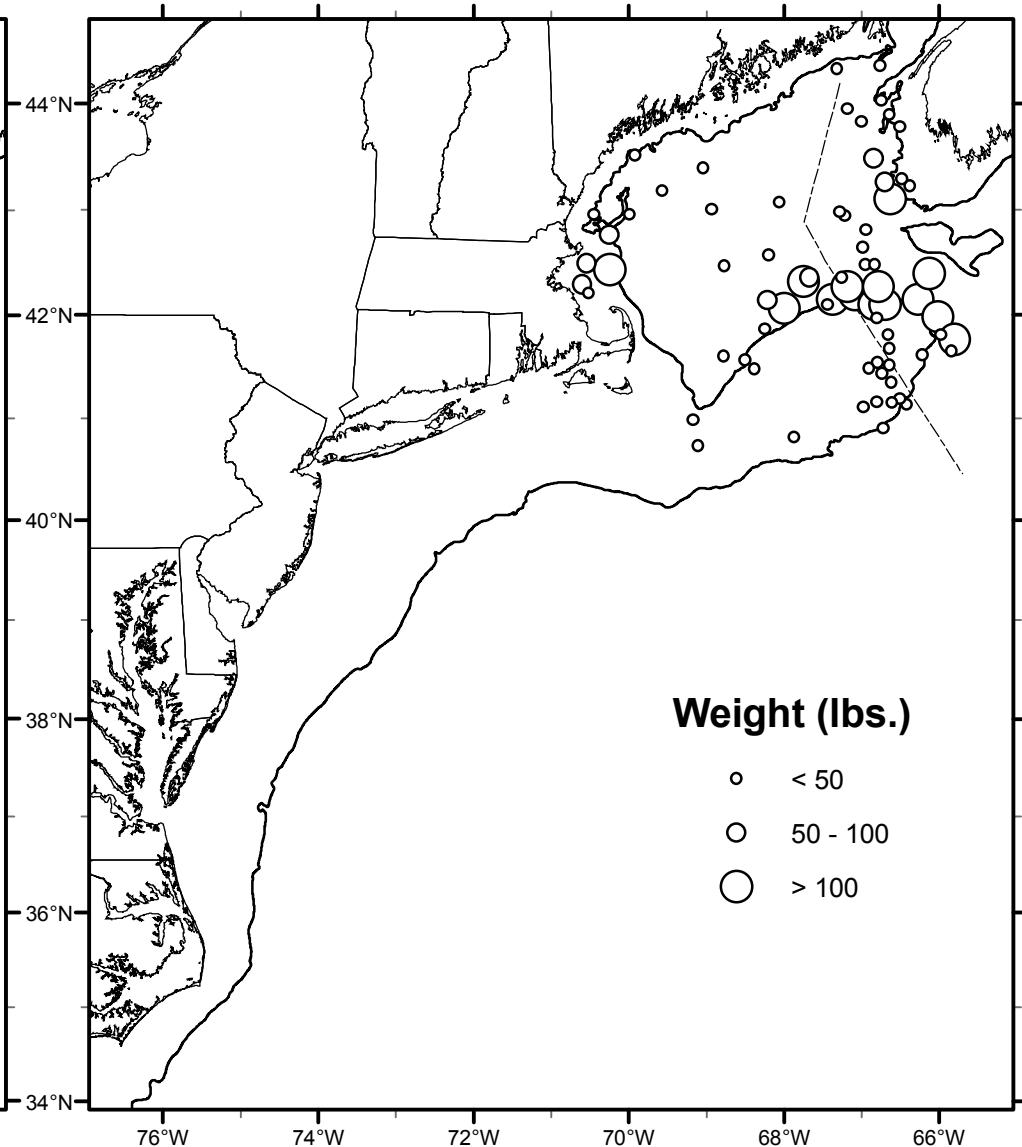
NOAA Fisheries Service FALL BOTTOM TRAWL SURVEY
2007 STATION INFORMATION

Station	Date	Time	Lat	Lon	Loran			Course	Bottom Depth (FM)	Temp (F)
					TD's					
0337	Oct-30	0334	4220.5	6946.3	W13584.7	Y44161.8	276		140.3	44.1
0338	Oct-30	0646	4221.5	7019.9	X25605.6	Y44222.4	305		14.8	52.7
0339	Oct-30	1049	4226.0	7014.4	X25605.9	Y44238.0	310		38.8	45.1
0340	Oct-30	1245	4230.5	7022.3	X25678.8	Y44276.1	359		76.8	44.8
0341	Oct-30	1538	4245.8	7014.7	X25735.7	Y44342.7	062		57.4	45.9
0342	Oct-30	1809	4256.0	7017.0	X25811.3	Y44398.4	133		79.6	42.1
0343	Oct-30	2059	4257.2	6959.1	W13457.6	Y44371.6	174		92.1	42.4
0344	Oct-30	2314	4258.7	6949.5	W13390.5	Y44362.3	318		114.8	43.7
0345	Oct-31	0200	4310.6	6933.7	W13225.2	Y44390.9	256		50.3	43.2
0346	Oct-31	0845	4330.4	6904.0	W12930.0	Y44428.0	294		70.3	45.5
0347	Oct-31	1132	4323.6	6902.3	W12964.6	Y44396.4	357		87.5	44.4
0348	Oct-31	1714	4249.1	6938.4	W13381.0	Y44296.5	330		98.7	43.3
0349	Oct-31	2017	4248.7	6959.3	W13508.0	Y44330.2	160		101.7	43.7

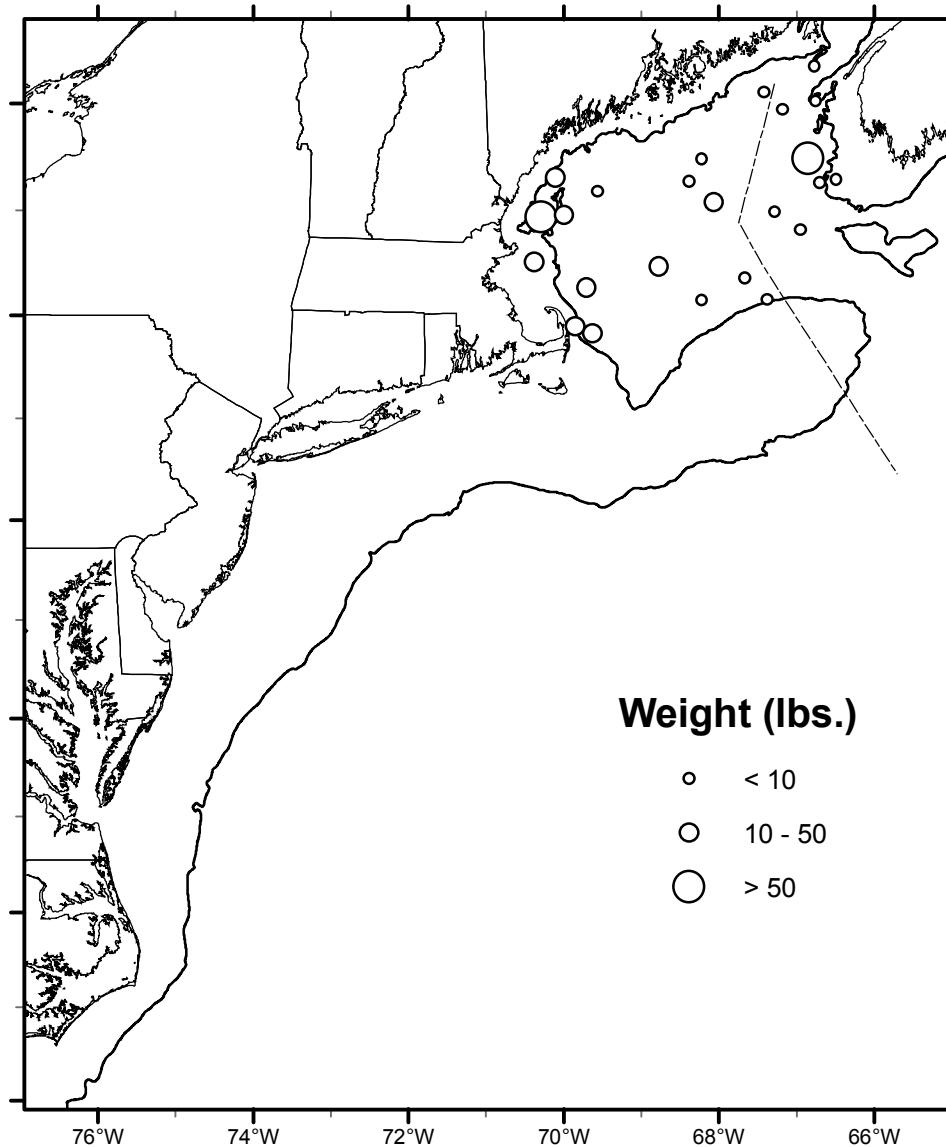
ATLANTIC COD
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



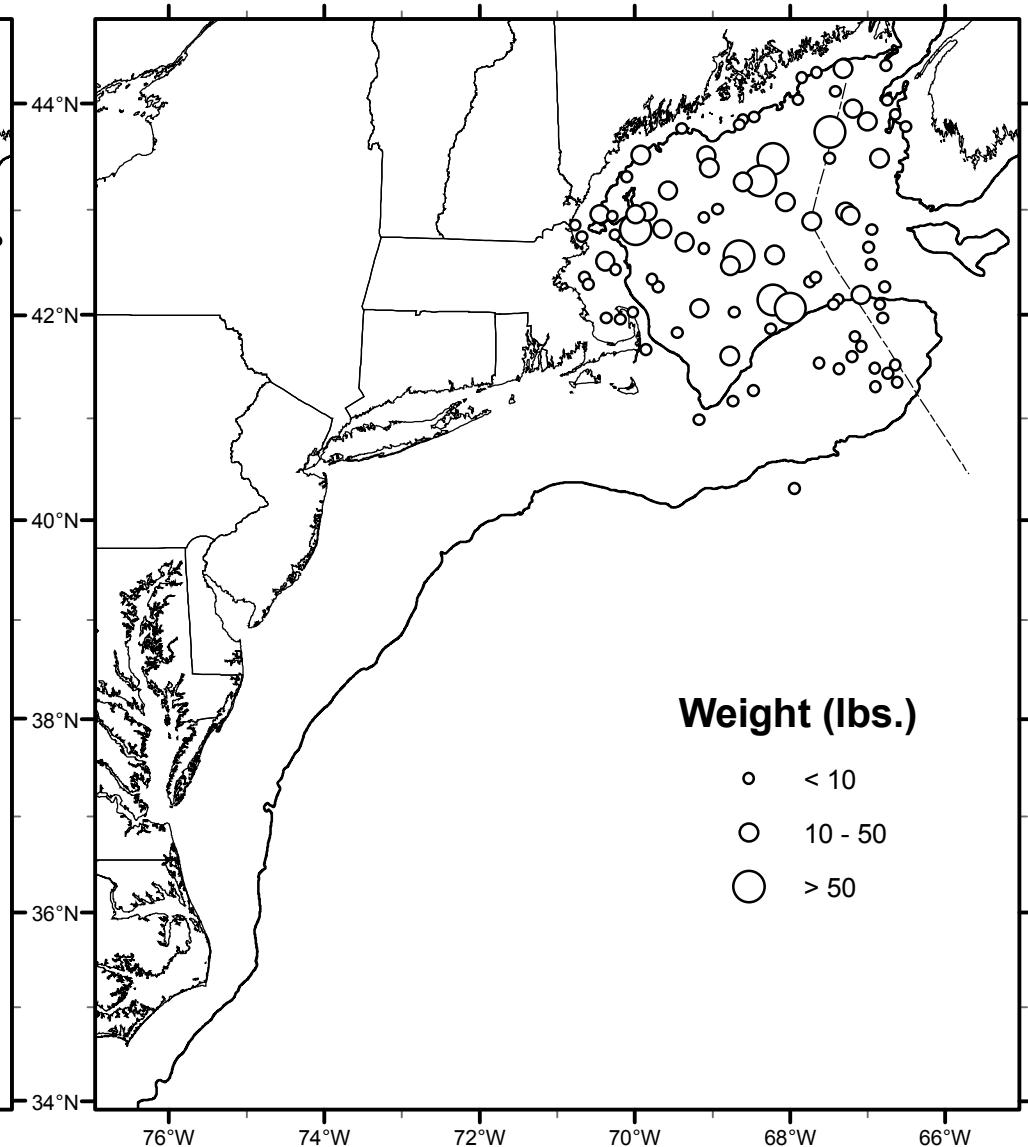
HADDOCK
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



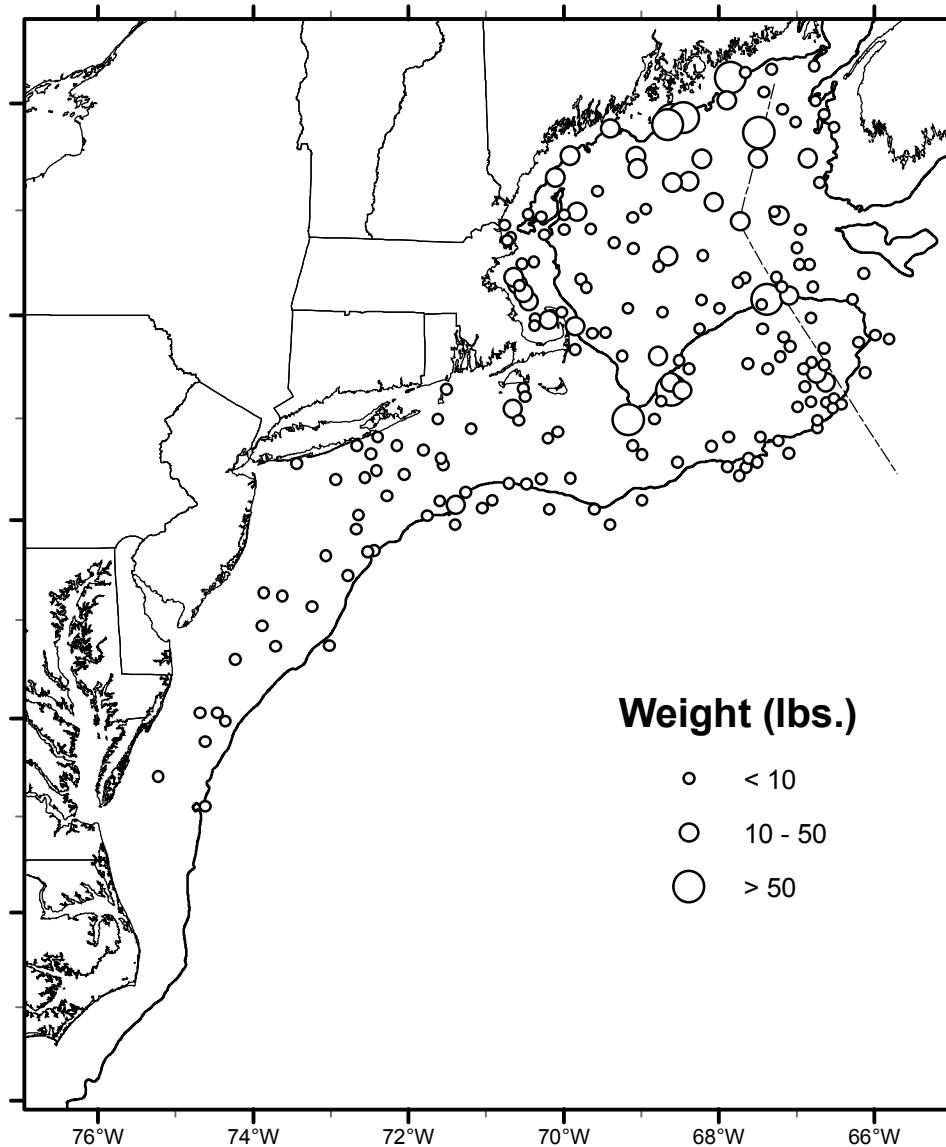
POLLOCK
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



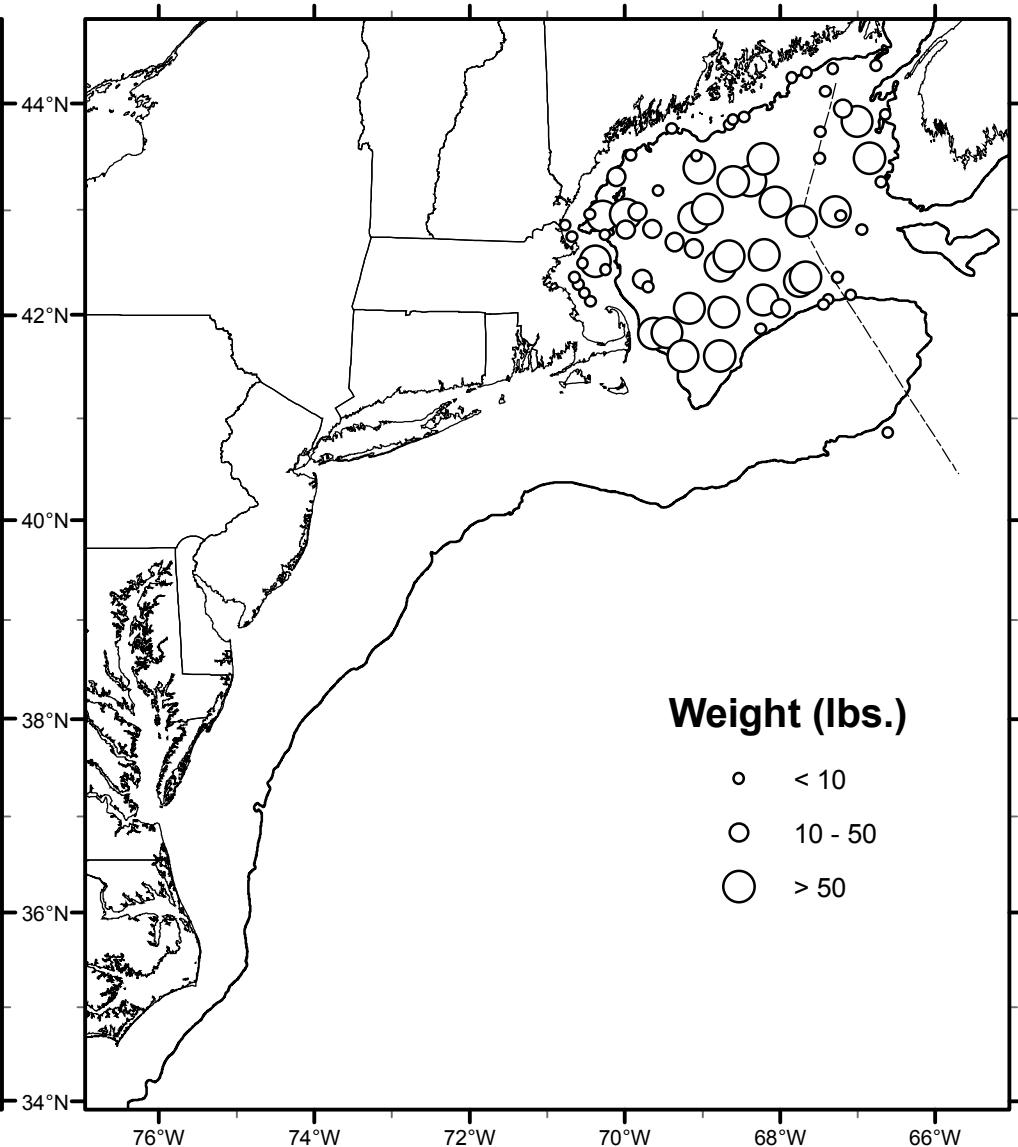
WHITE HAKE
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



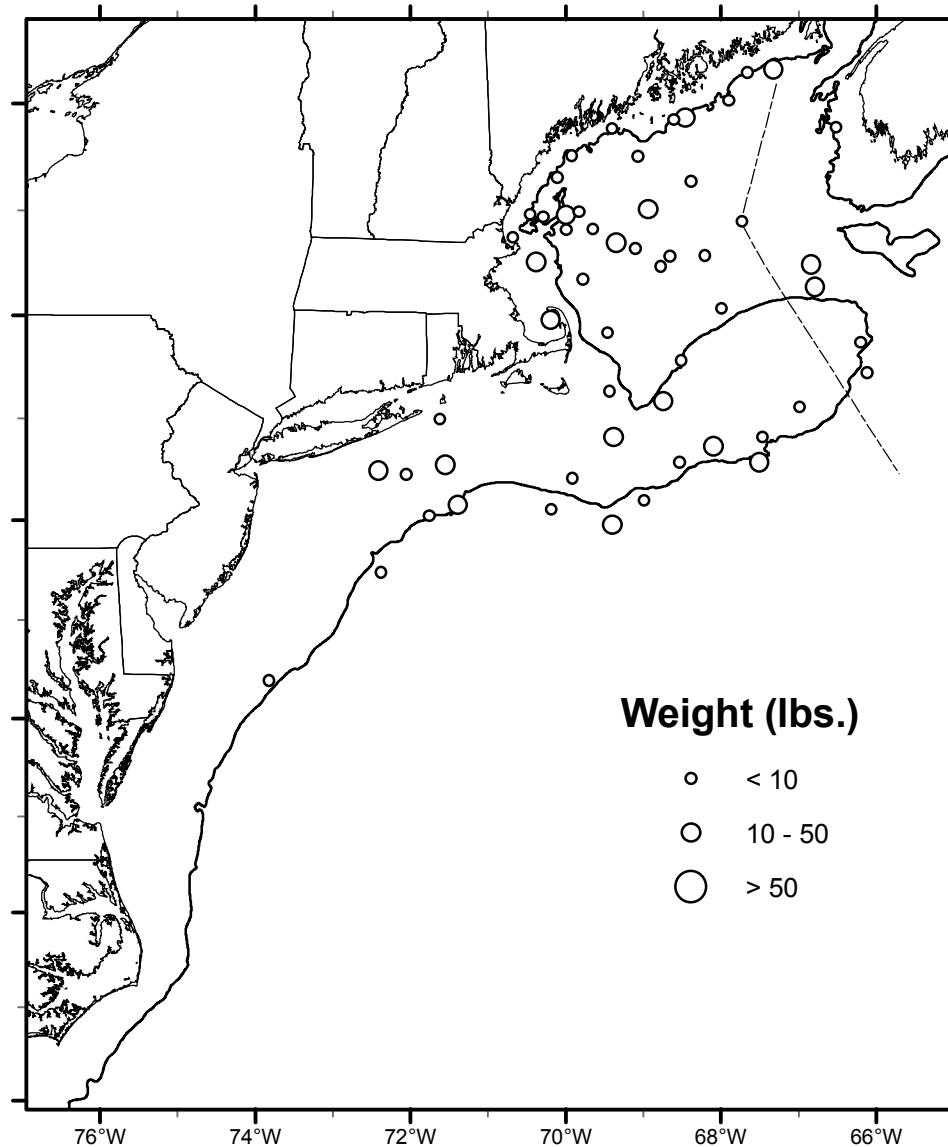
SILVER HAKE
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



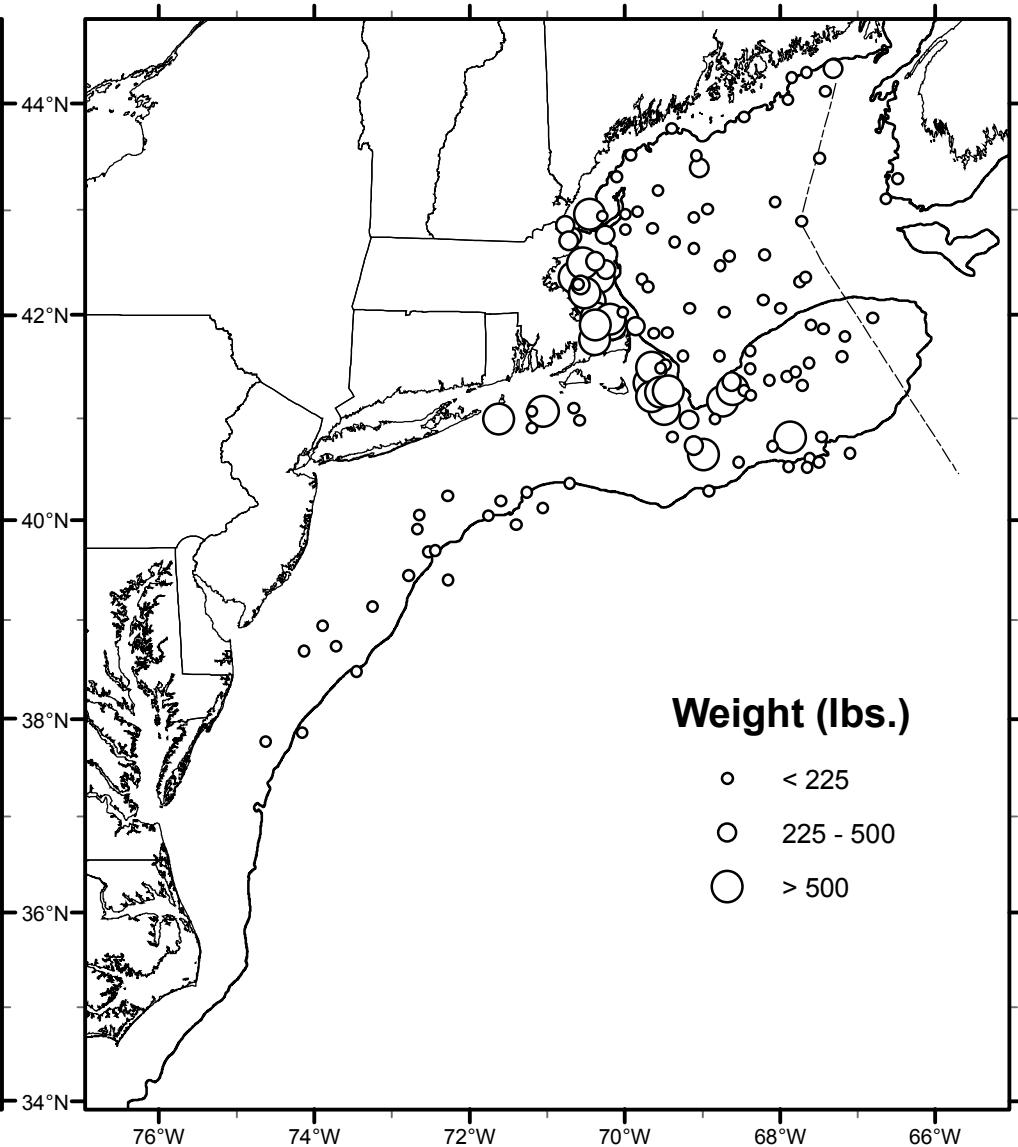
ACADIAN REDFISH
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



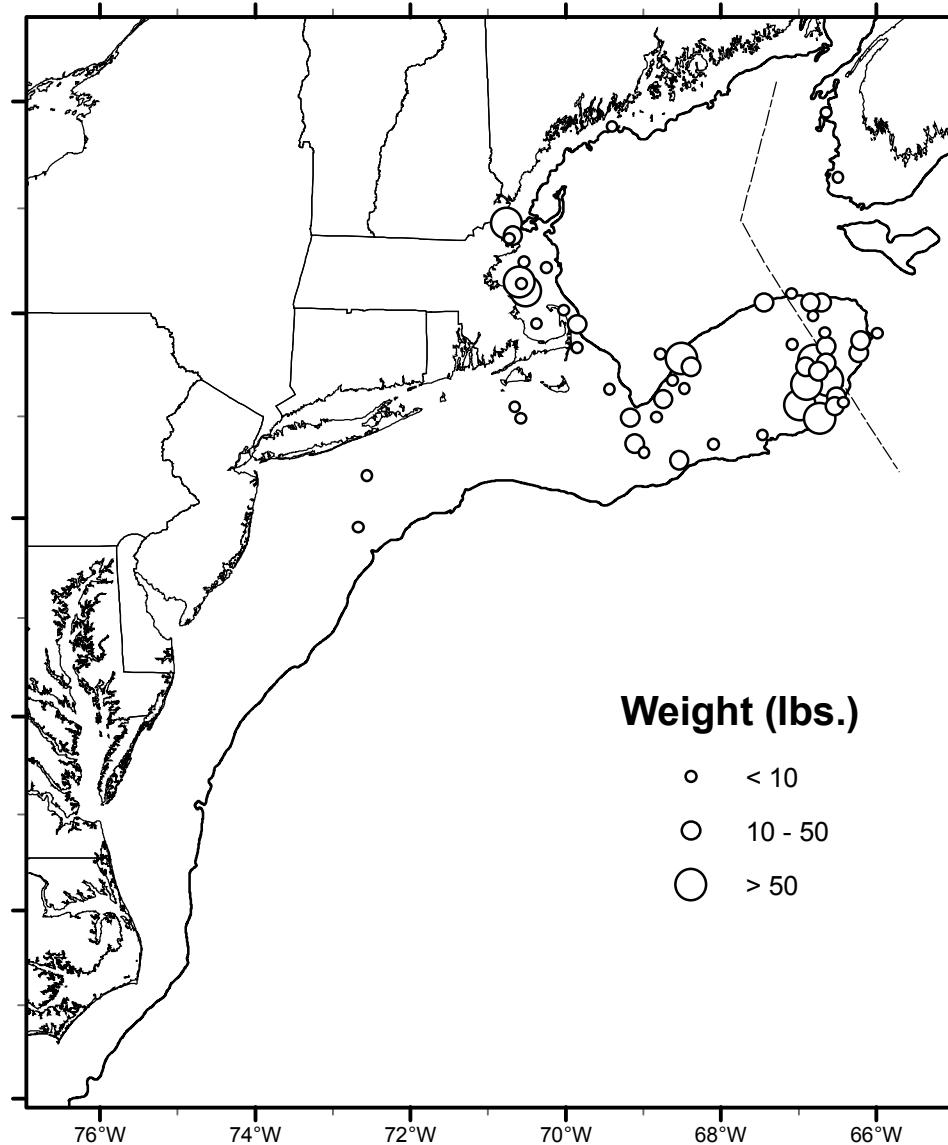
GOOSEFISH
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



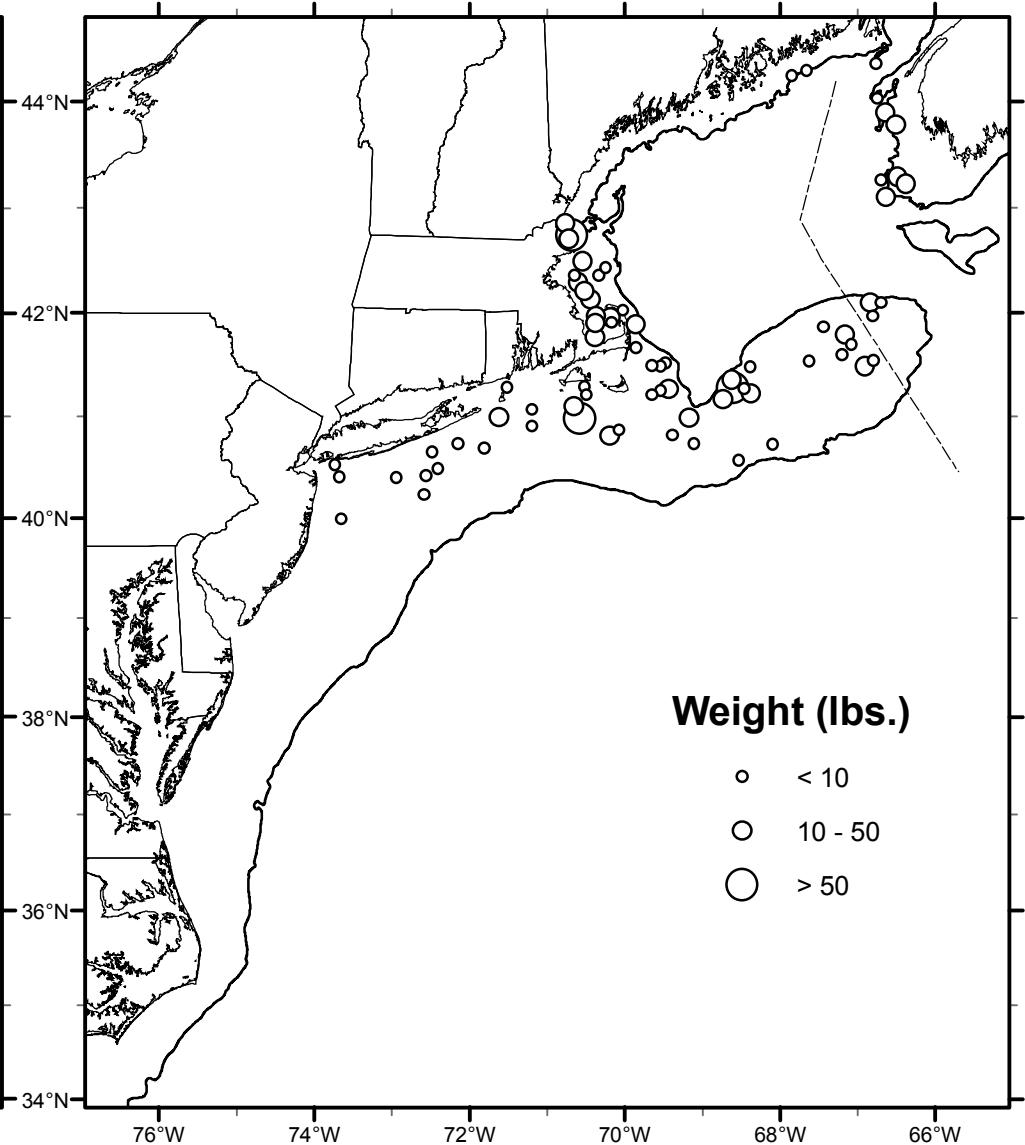
SPINY DOGFISH
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



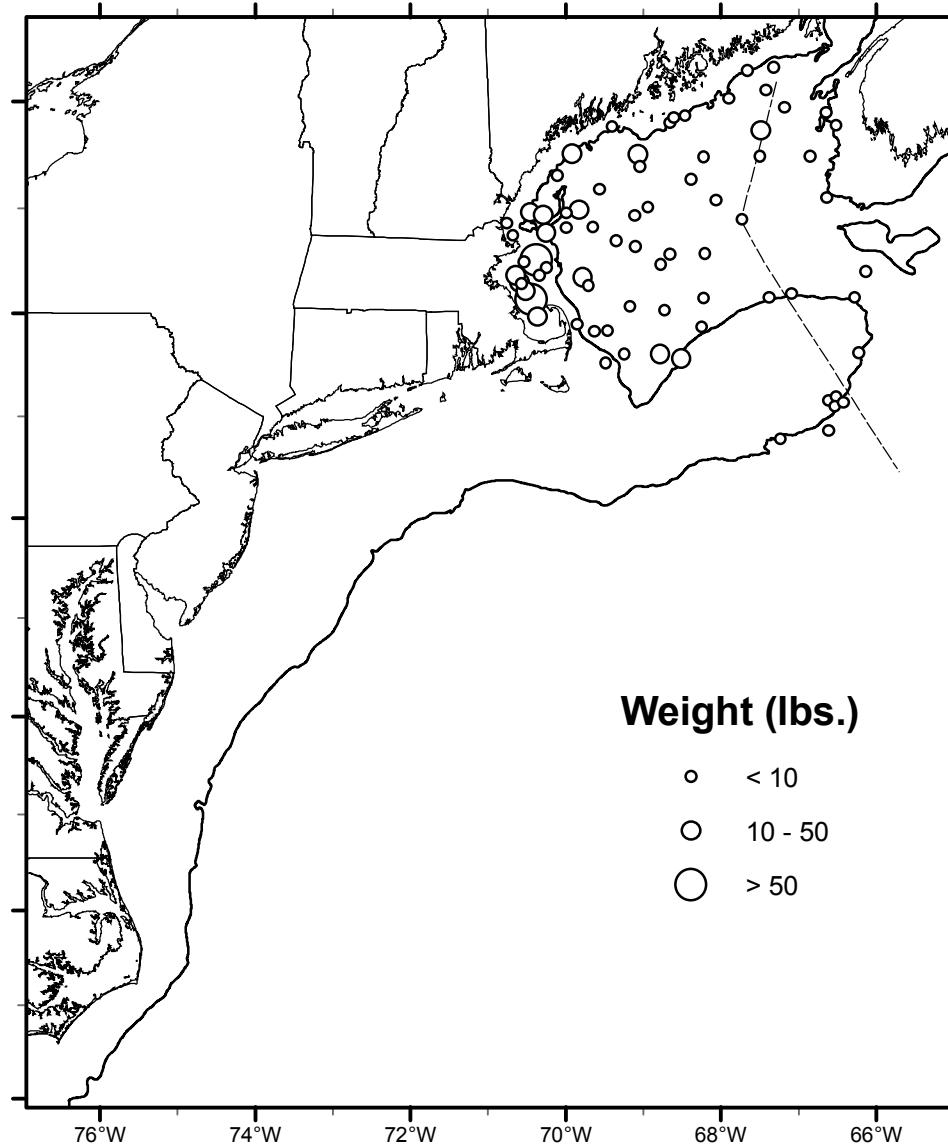
YELLOWTAIL FLOUNDER
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



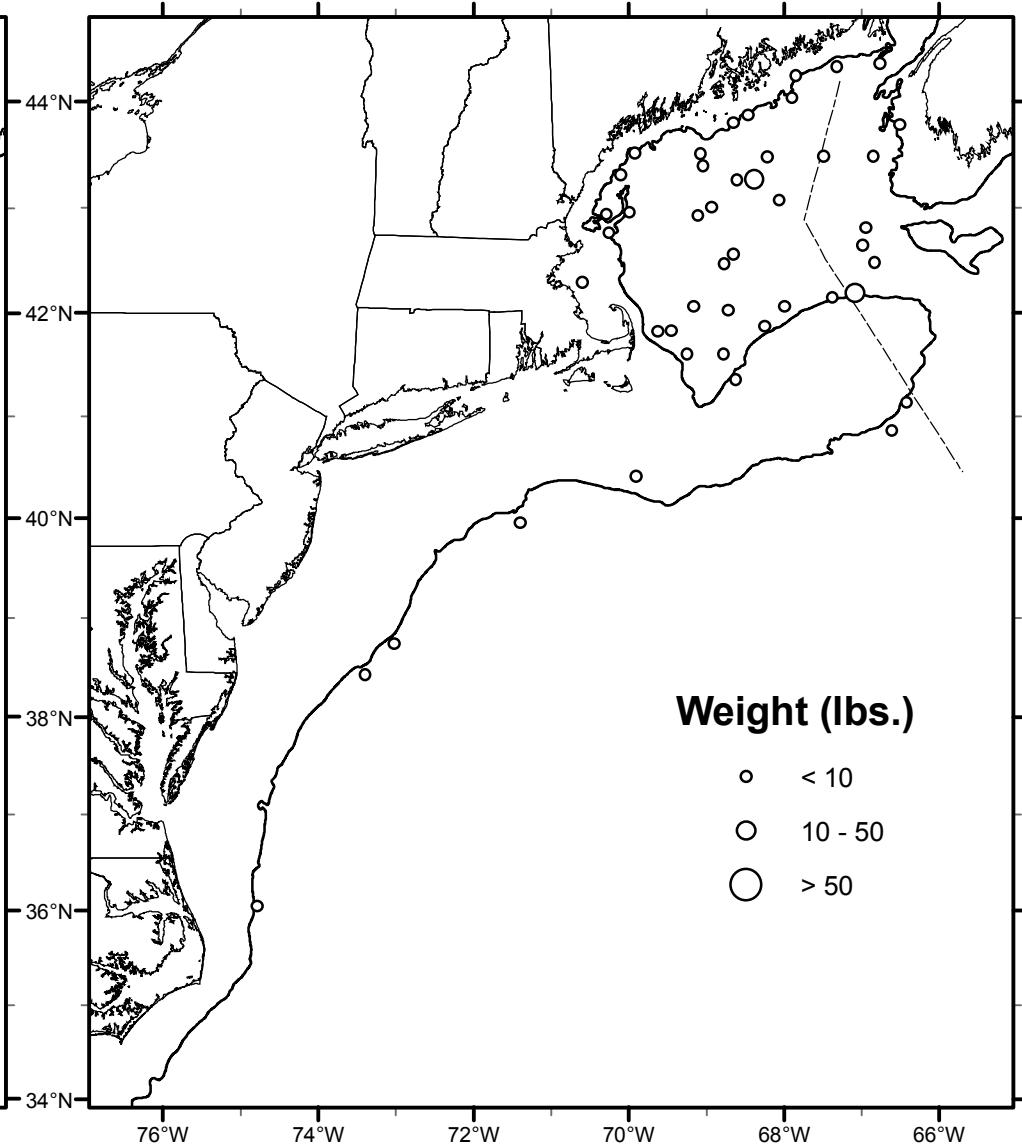
WINTER FLOUNDER
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



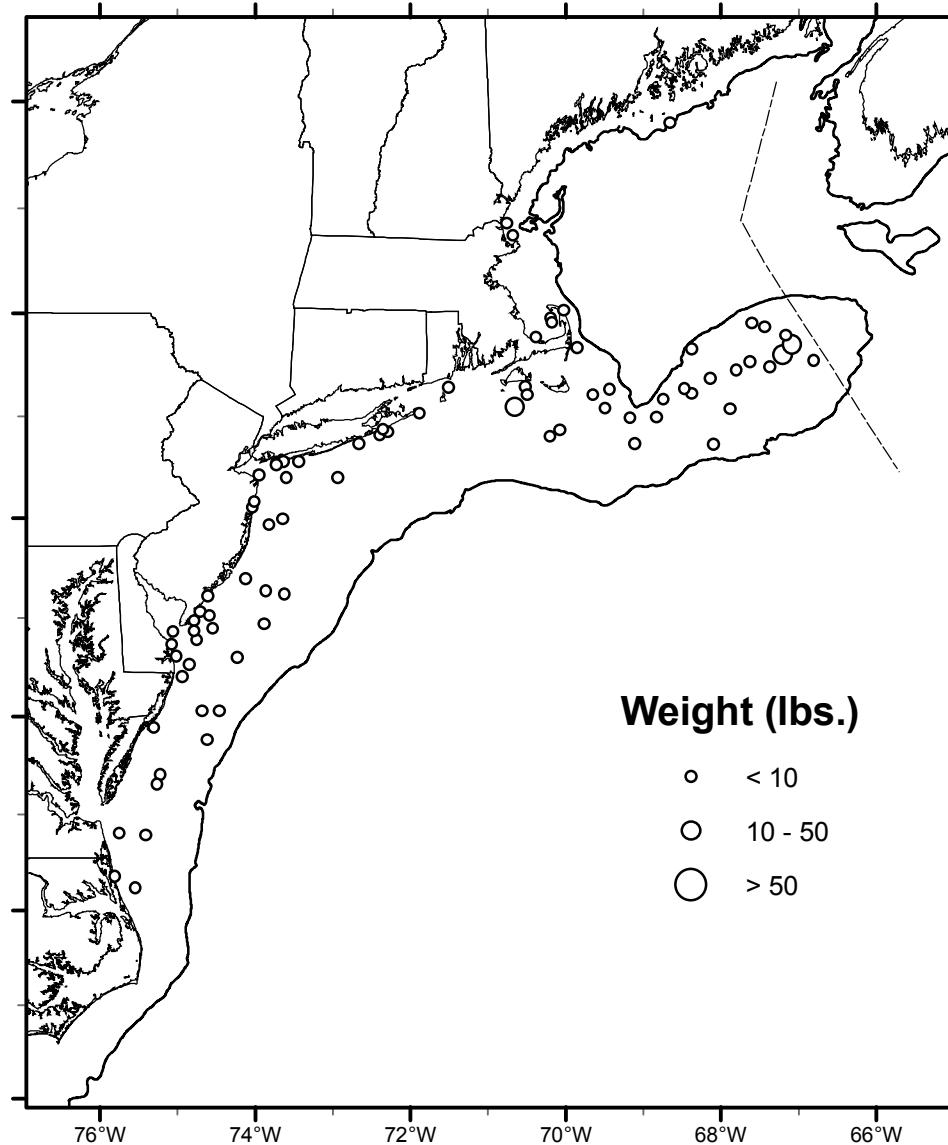
AMERICAN PLAICE
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



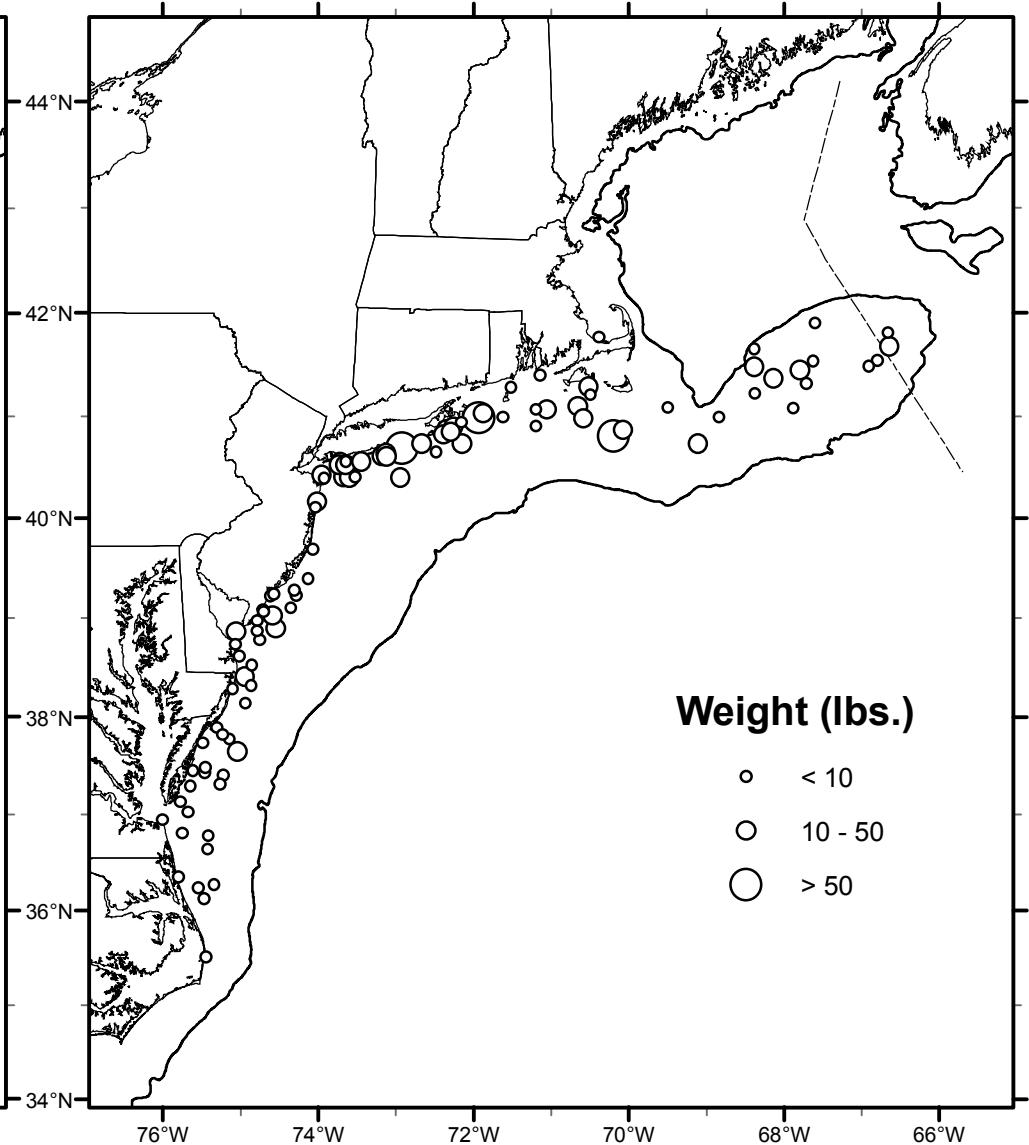
WITCH FLOUNDER
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



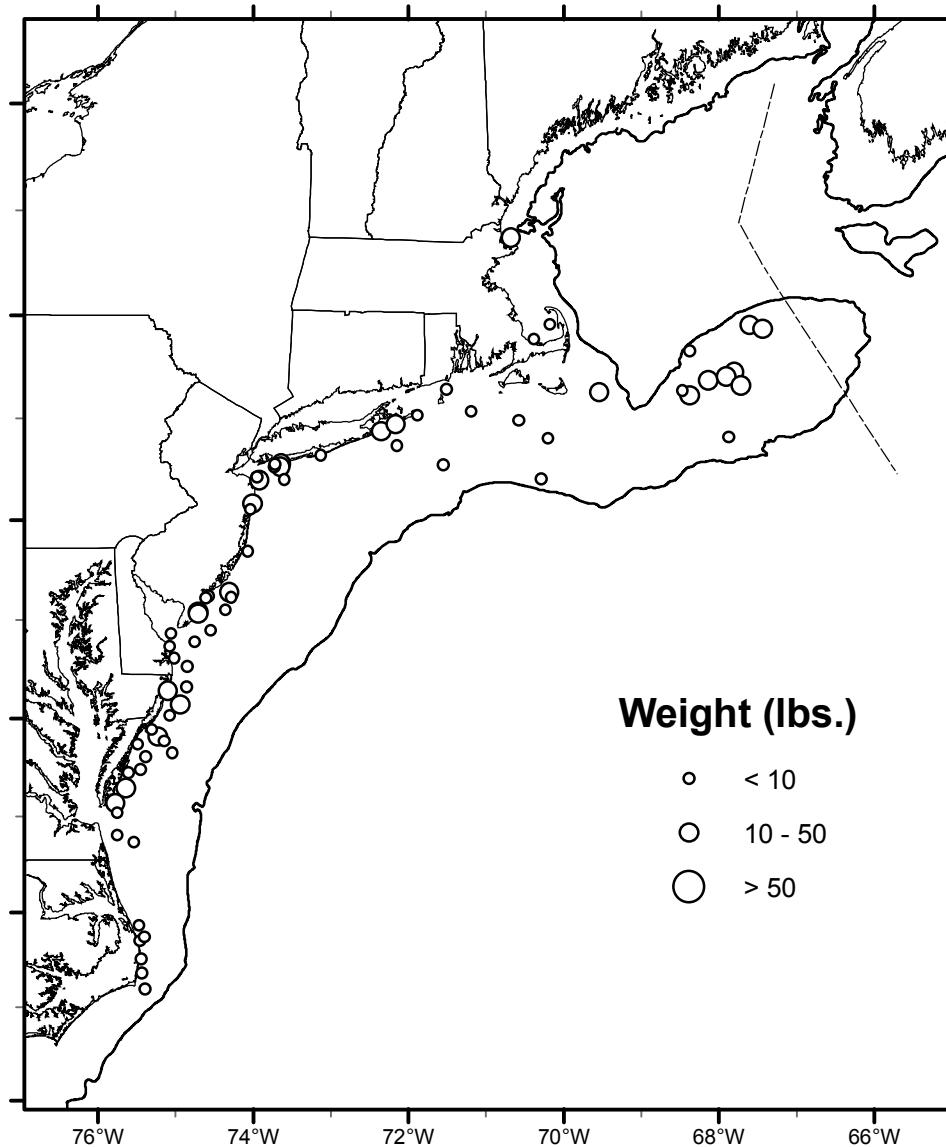
WINDOWPANE FLOUNDER
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



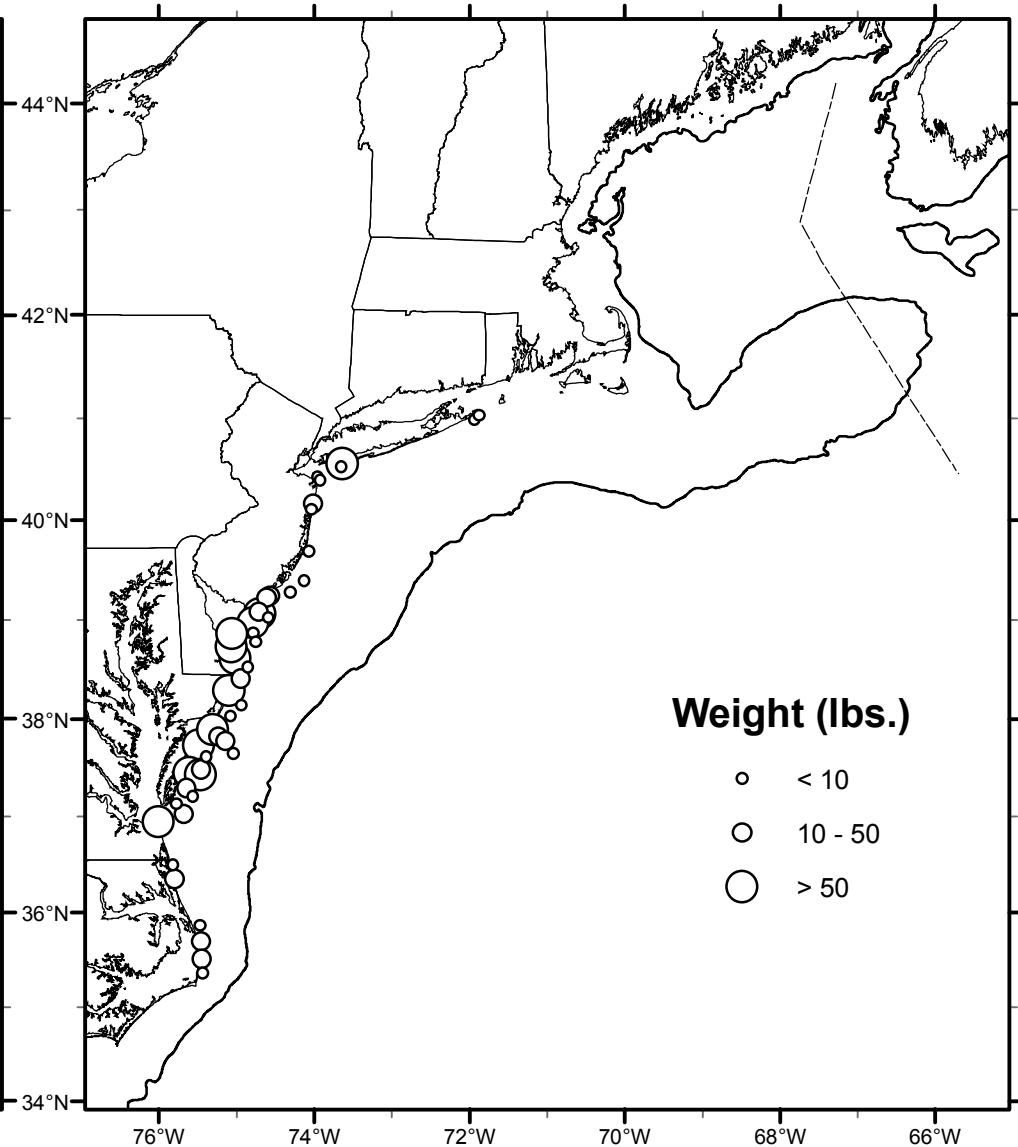
SUMMER FLOUNDER
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



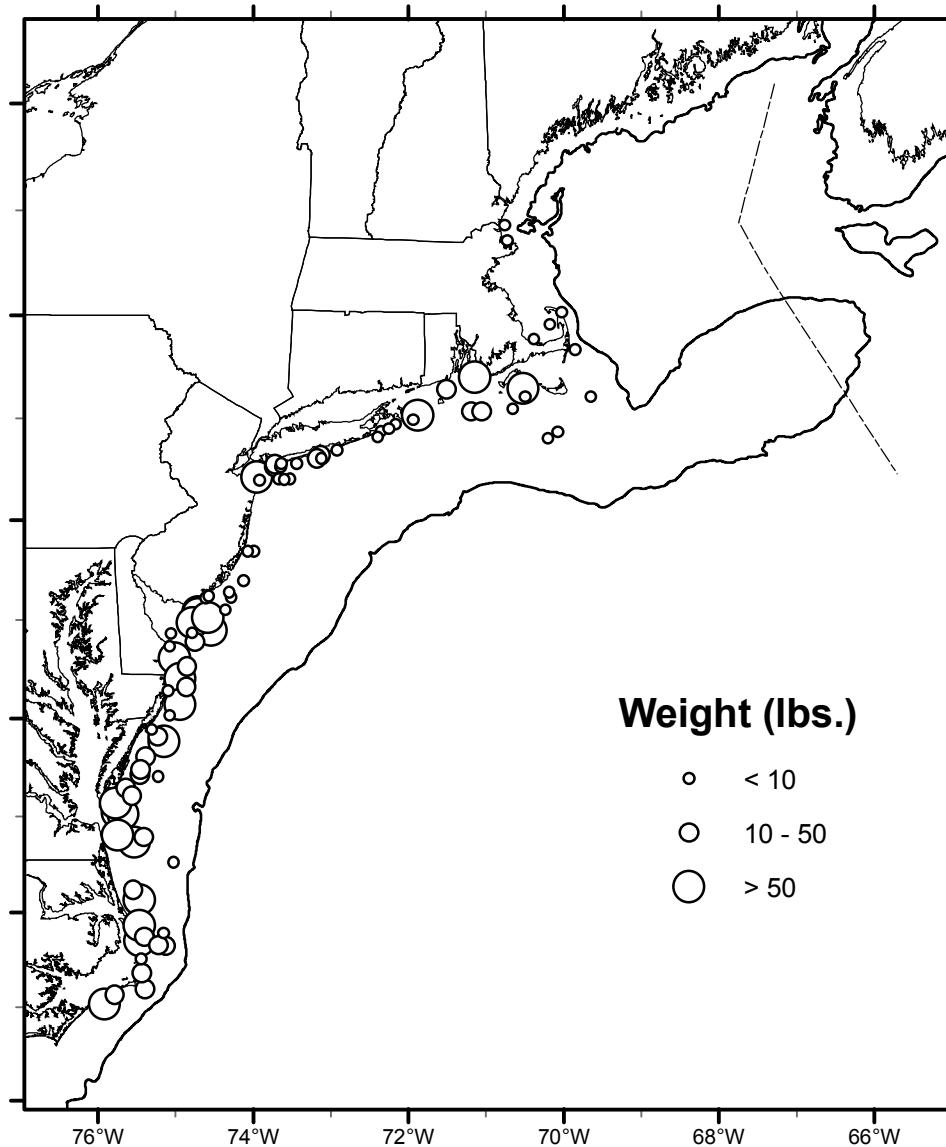
BLUEFISH
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



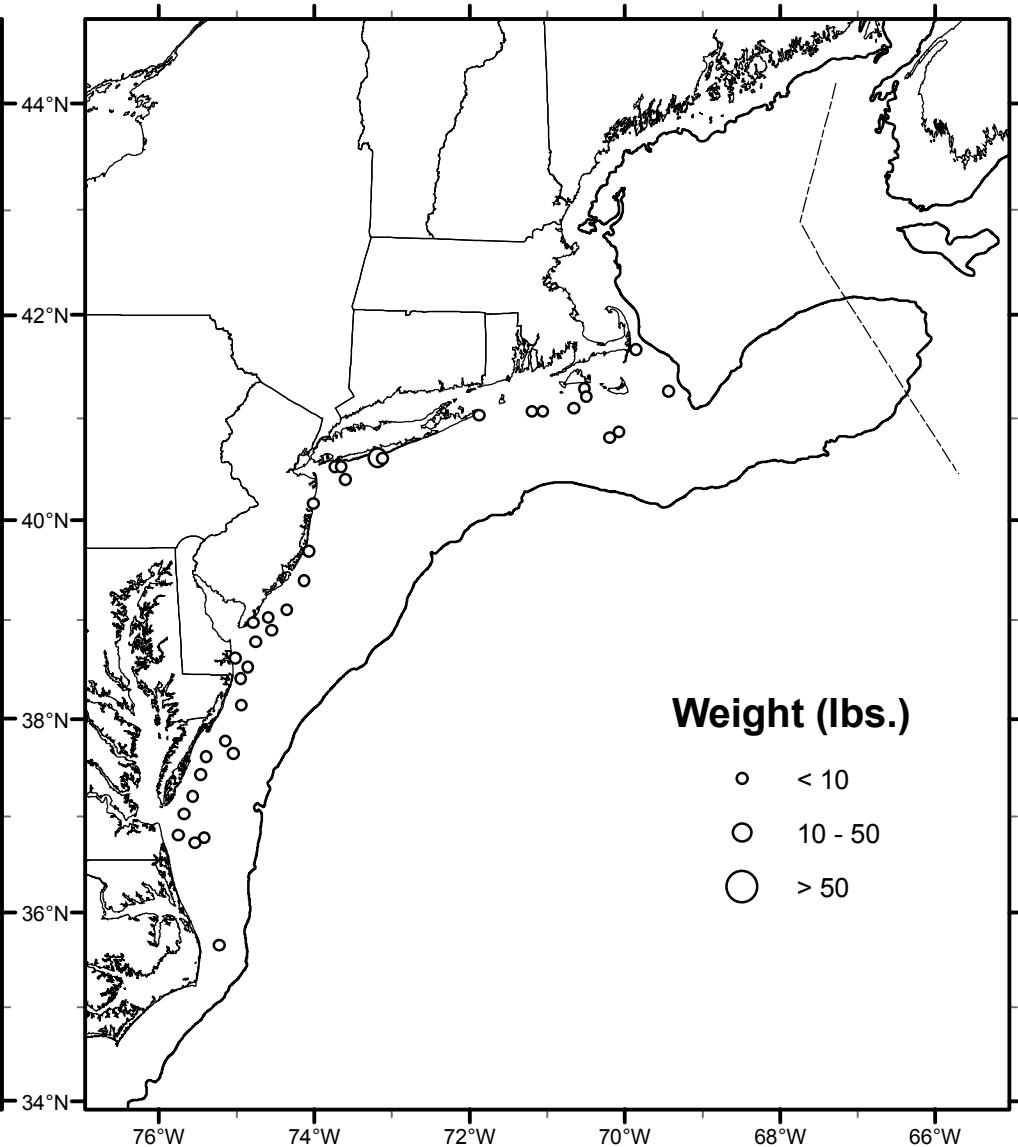
WEAKFISH
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



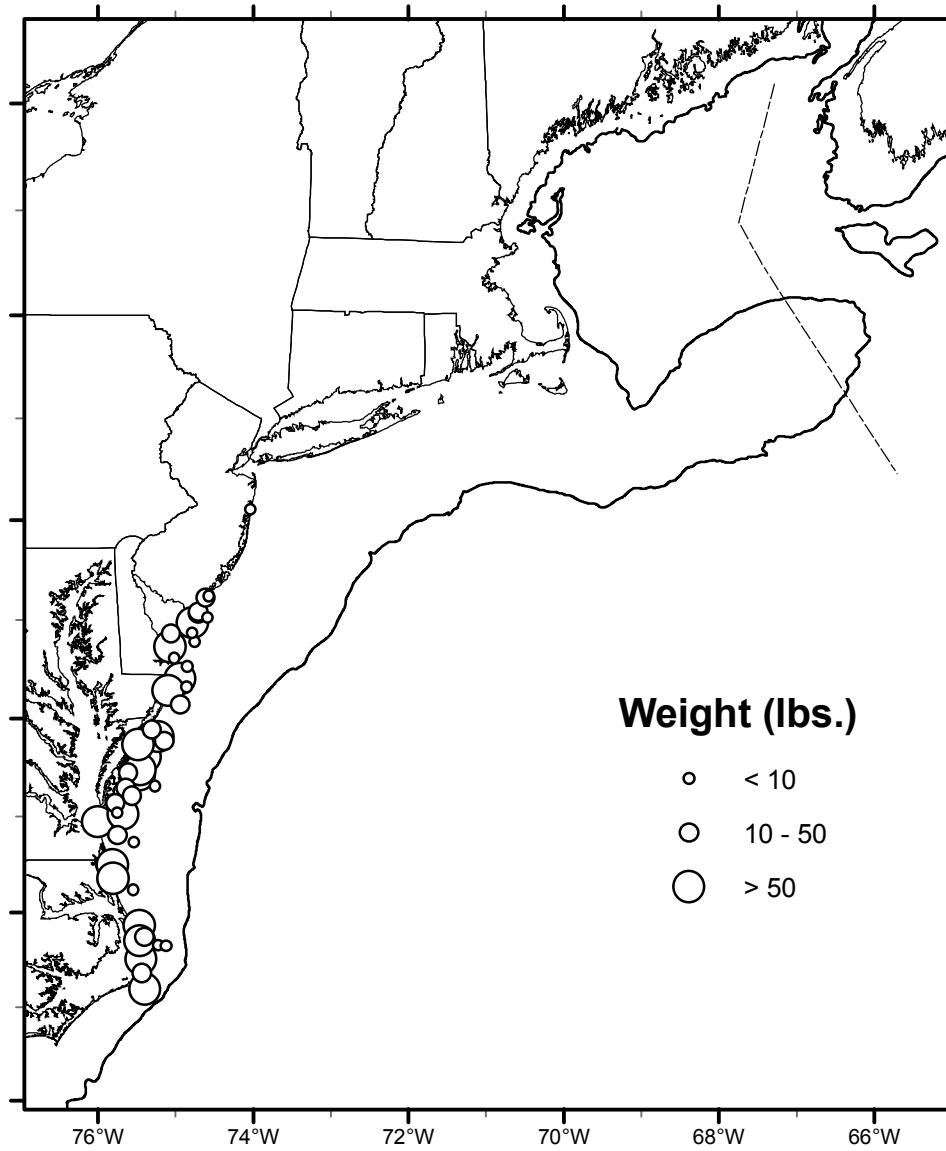
SCUP
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



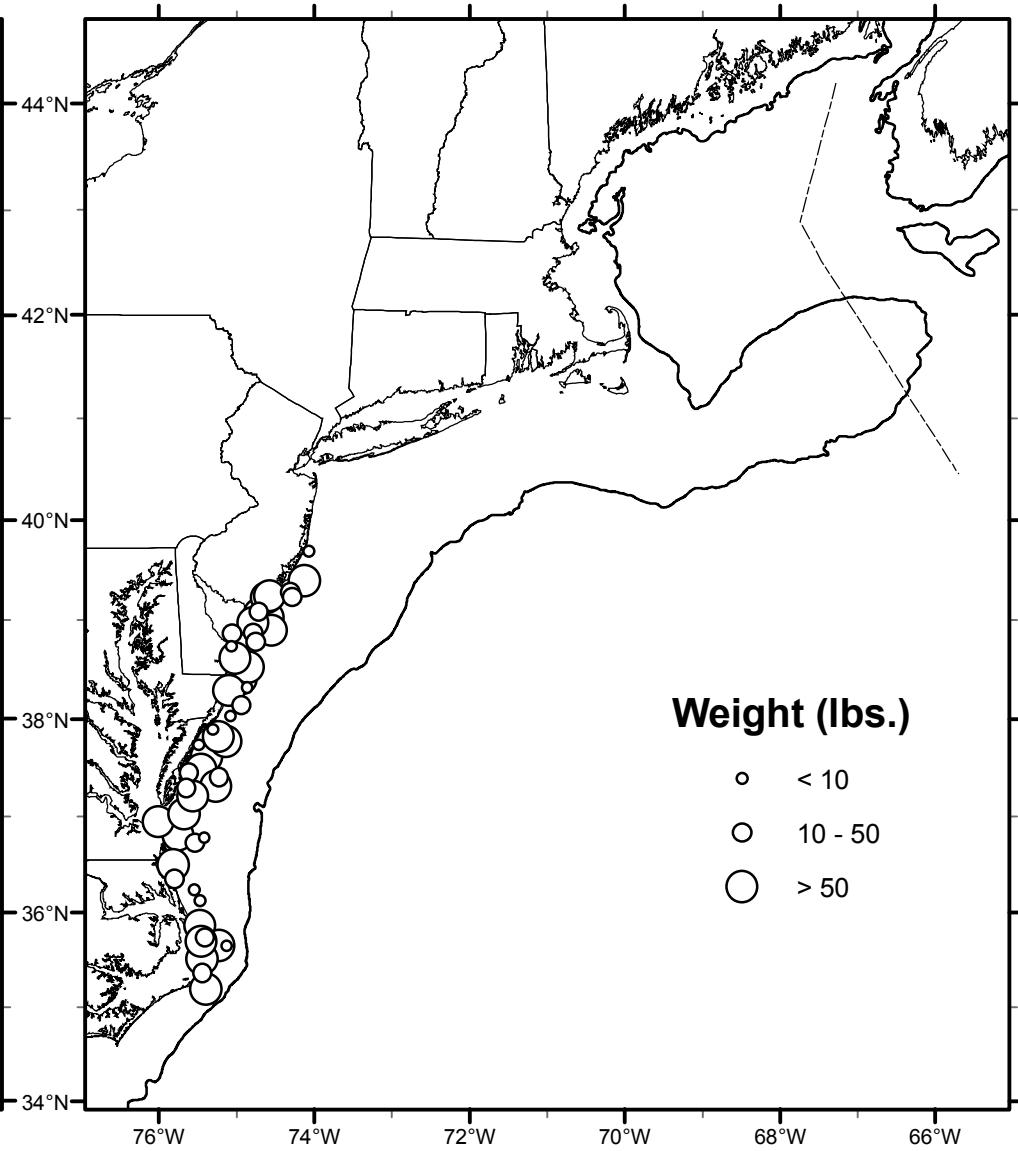
BLACK SEA BASS
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



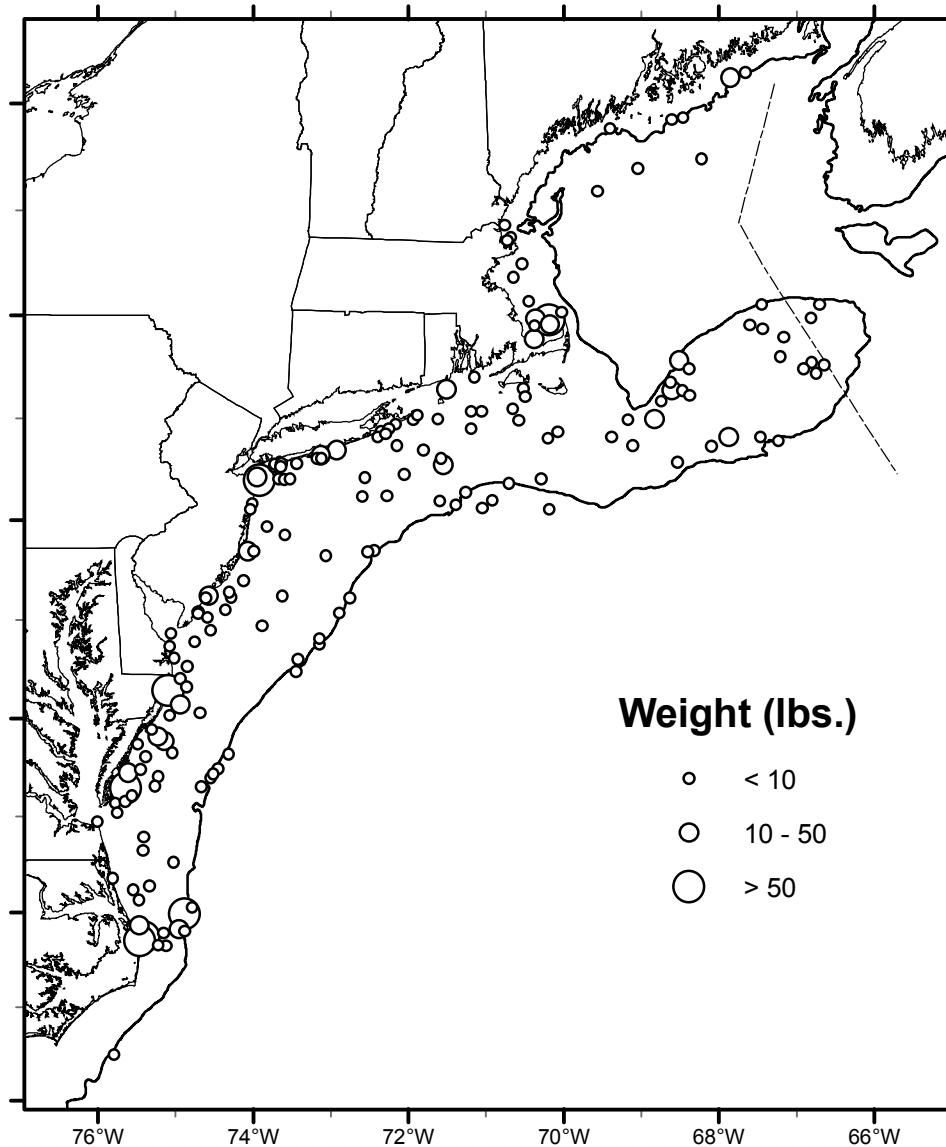
SPOT
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



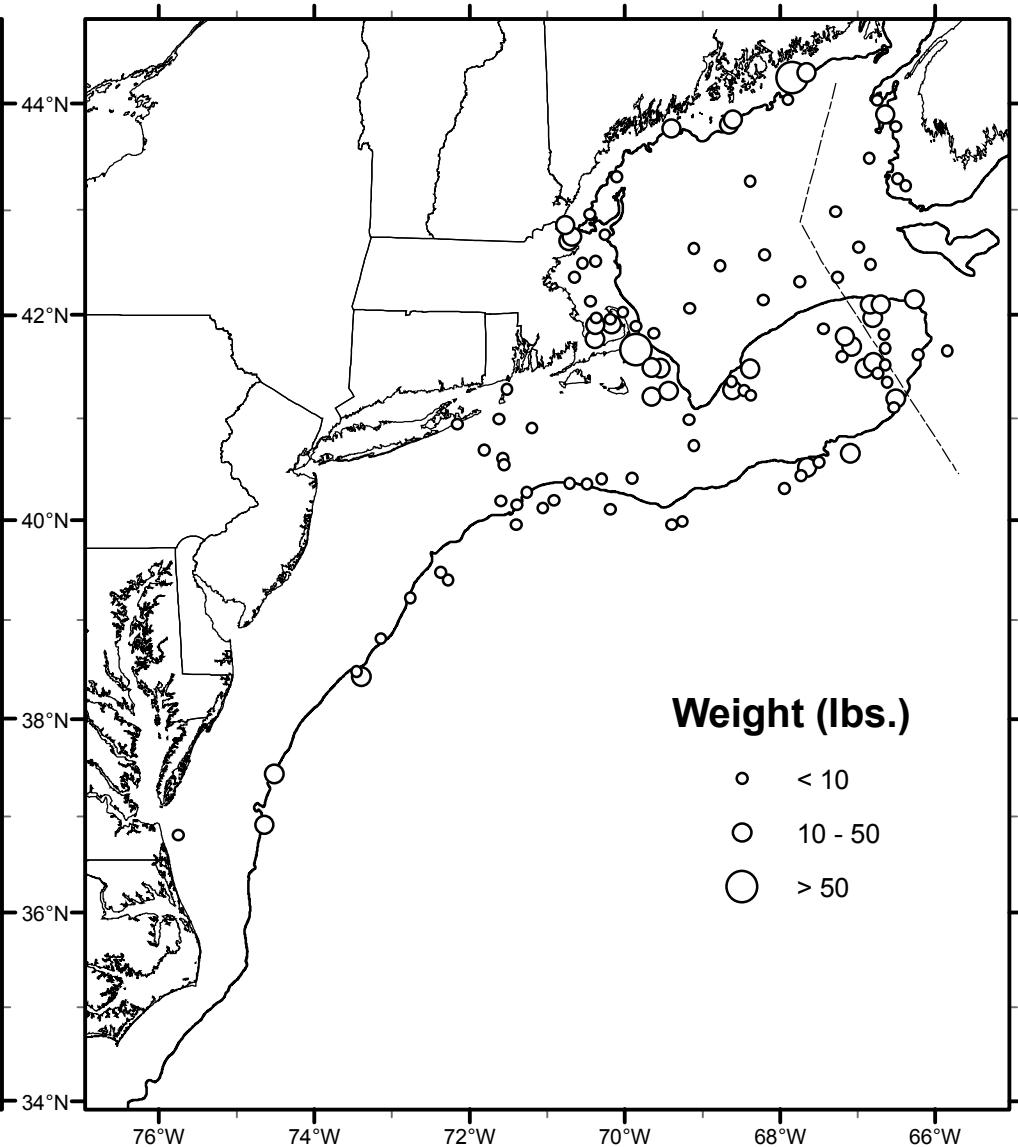
ATLANTIC CROAKER
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



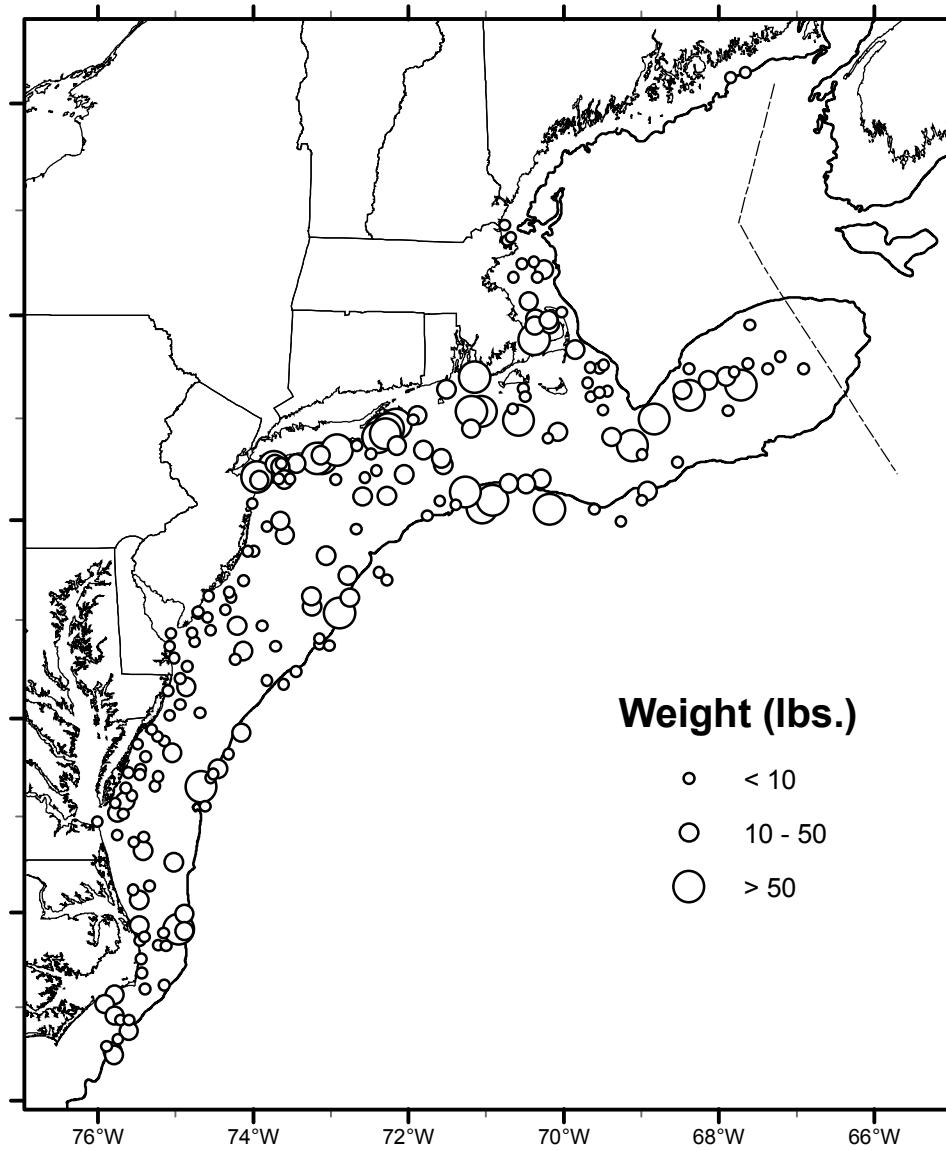
BUTTERFISH
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



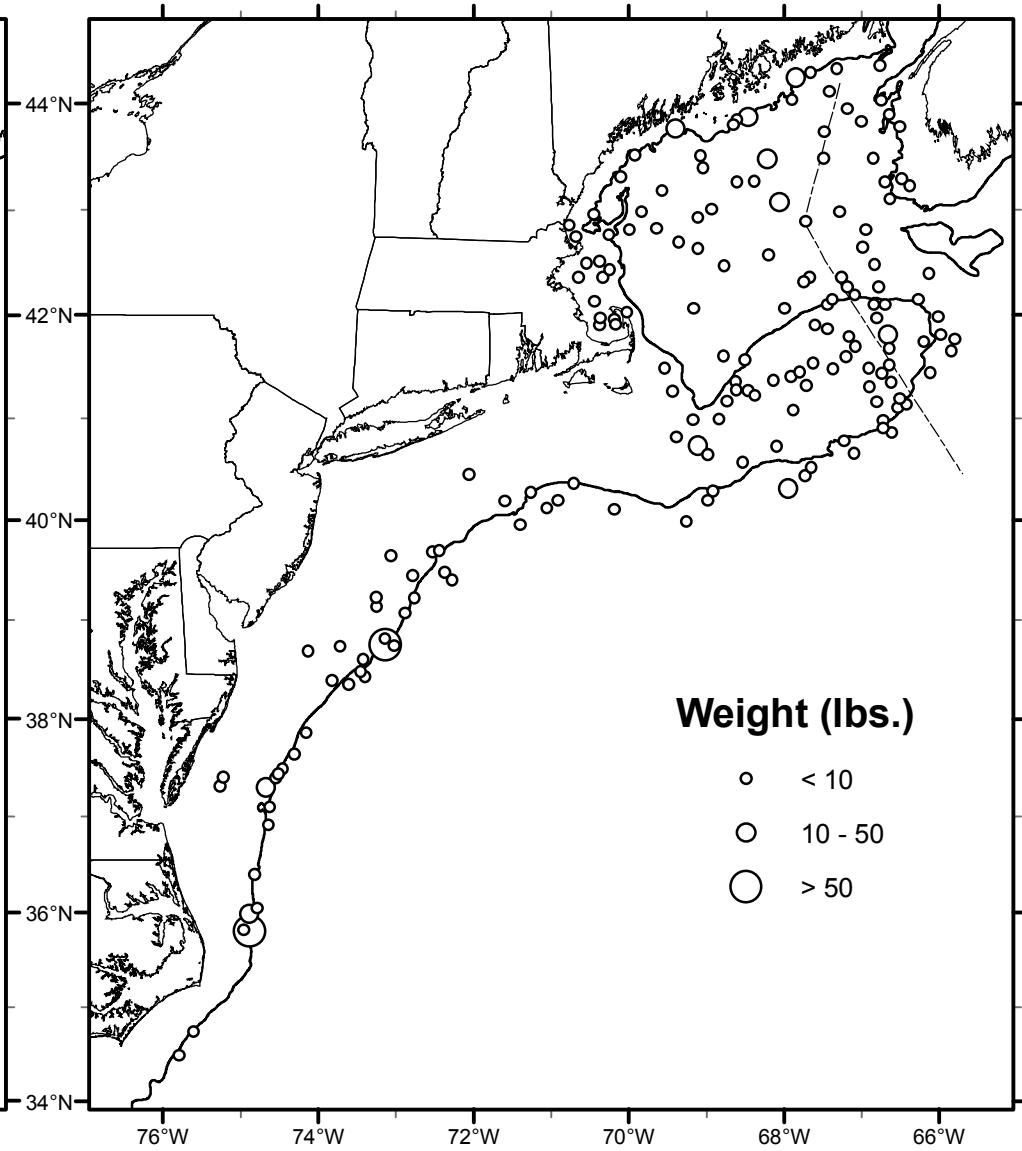
AMERICAN LOBSTER
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



LOLIGO
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



ILLEX
NOAA Fisheries Service
Bottom Trawl Survey
September 4 to October 31 2007



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