

RESOURCE SURVEY REPORT  
Catch Summary  
NOAA Fisheries Service Northeast  
Fisheries Science Center  
Autumn Bottom Trawl Survey  
Cape Hatteras - Gulf of Maine 8  
September – 3 December 2010

**Submitted to:** NOAA, NEFSC

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Woods Hole, MA 02543

**Date:** 2010

# Resource Survey Report

## Bottom Trawl Survey

Cape Hatteras - Gulf of Maine

8 September - 3 December 2010

NOAA FSV *Henry B. Bigelow*



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



Rare catch of a sharptail mola (*Masturus lanceolatus*) off of Cape Hatteras.



Large Tarpon (*Megalops atlanticus*) over 57 inches long and weighing-in at 80 lb caught off southern Delmarva Peninsula.



Various decapod crabs caught throughout the Fall Survey.



A paper nautilus (*Argonautidae*).

## Significant Changes to the NEFSC Bottom Trawl Survey

Many significant changes in survey methodology were implemented beginning with the 2009 Spring Multispecies Bottom Trawl Survey that have significant implications for the use of these data. Prior to 2009, multispecies bottom trawl surveys were conducted primarily on the NOAA FSV *Albatross IV* and occasionally on the NOAA FSV *Delaware II*. The 2009 survey was conducted using the NOAA FSV *Henry B. Bigelow* which is equipped with an autotrawl system that balances warp tensions throughout the duration of survey tows.

The bottom trawl system used for sampling has also been changed. Prior to 2009, the survey was conducted with a Yankee 36 bottom trawl and 450-kg euronet polyvalent trawl doors. Beginning in 2009, the survey is being conducted using a 400 x 12, 4-seam bottom trawl designed and extensively tested with the fishing industry, fishery management, and academic stakeholders in conjunction with the Northeast Fisheries Science Center scientists through the mid-Atlantic and New England Trawl Survey Advisory Panel. The net was extensively tested on the FSV *Delaware II* and the FSV *Henry B. Bigelow* prior to being adopted as the standard survey gear. The bottom trawl is fished with 550-kg, 2.2-m Polyice oval trawl doors.

The survey towing speed was decreased from 3.8 knots prior to 2009 to 3.0 knots beginning in 2009. The new towing speed was selected after extensive scope and tow speed trials conducted on both the FSV *Delaware II* and the FSV *Henry B. Bigelow* and consideration of the range of species to be sampled. The tow duration was also changed from 30 minutes (timed from when the winches were locked until they were reengaged) to 20 minutes of actual bottom time (as determined by net monitoring systems). The adjustments to both tow speed and tow duration have resulted in a decrease of average tow distance from 1.9 nautical miles prior to 2009 to an average tow distance of 1.0 nautical miles beginning in 2009. The shorter tow distance allows us to conduct additional tows in areas that are constrained by fixed fishing gear, untrawlable bottom and steep contours along the edge of the continental shelf. While some commercial fishery stakeholders are likely to express concern about the reduction in tow duration, a preliminary analysis of the length frequency data from paired FSV *Albatross IV* and the FSV *Henry B. Bigelow* tows shows few differences in the largest sized fish of each species caught by the vessels.

Station allocation also changed significantly due to an increase in total available vessel time from 48 to 60 sea days and a reduction in inshore sampling by the FSV *Henry B. Bigelow*. At the time that inshore strata in the mid-Atlantic were historically sampled (September to early October), survey results indicate low densities of commercially and recreational species. These areas will continue to be sampled by the Northeast Area Monitoring and Assessment Program (NEAMAP) bottom trawl survey, although later in the year (late September through early October). As a result of station reallocation, station density was increased significantly in offshore strata that have historically

demonstrated higher densities of fish particularly in the mid-Atlantic and southern New England regions.

The Northeast Fisheries Science Center conducted an extensive comparison of the catchability of the FSV *Albatross IV* sampling with the Yankee 36 bottom trawl using historical protocols and the FSV *Henry B. Bigelow* sampling with the 400 x 12, 4 seam bottom trawl with revised protocols. The resulting dataset is one of the most comprehensive ever produced to study the catchability characteristics of a fisheries bottom trawl survey. A preliminary overall result is that the survey conducted by the FSV *Henry B. Bigelow* has significantly higher catch rates for nearly all species except those with very small total body size (e.g. anchovy species). The results of this study were peer reviewed in August 2009 and analytic approaches will be subsequently used to appropriately interpret pre-2009 survey results with 2009 and later results.

**Given the changes in vessel, trawling gear, tow speed, tow duration, sample allocation and towing procedures, straight-forward comparisons of catches in this report with Fall bottom trawl survey catches in previous Resource Survey Reports are not appropriate without employing statistical approaches that are reviewed and endorsed for stock assessment applications through peer review processes.**

Russell W. Brown, Chief  
Ecosystem Surveys Branch

# RESOURCE SURVEY REPORT

## Catch Summary

NOAA Fisheries Service  
Northeast Fisheries Science Center

**Autumn Bottom Trawl Survey**  
Cape Hatteras - Gulf of Maine  
8 September – 3 December 2010

Attached are 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 2010 autumn bottom trawl survey aboard the NOAA FSV *Henry B. Bigelow*. Tows were made with a 400 x 12, 3-bridle bottom trawl rigged with a rockhopper sweep, 550 kg (1200lbs) 2.2 m Polyice oval doors, and 36.6 m (20 fathom) bridles. The cod end was lined with one-inch mesh to retain juvenile fish.

Because of the 20-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).

A new tow evaluation system was implemented beginning in 2009 to validate all standard survey tows. These codes are exclusively used with the 400 x 12, 3-bridle bottom trawl rigged with the rockhopper sweep, towed by the FSV *Henry B. Bigelow*. Each standard survey tow is now validated based on four codes: Type, Operational, Gear and Acquisition (T.O.G.A.). T.O.G.A. provides a detailed analysis of survey trawl and vessel performance during each tow, utilizing available data from acoustic trawl mensuration equipment and vessel sensors not previously analyzed by the pre-2009 tow evaluation coding system.

These new NEFSC bottom trawl survey station validation codes serve as a guideline for qualifying a survey tow in a standardized manner and aid in the decision process for determining if a survey tow meets strict tolerance limits and optimal values that were originally calculated from data collected during the NEFSC calibration experiments. These tolerance limits are intended to promote consistency of trawl geometry and towing procedures to validate comparison of the collected trawl survey data with results from the calibration experiments.

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 a PDF of this report, go the Ecosystems Surveys Branch website at:

<http://www.nefsc.noaa.gov/esb/rsr.html> and select under the Related Links tab, the

- survey and season of interest
- year of interest

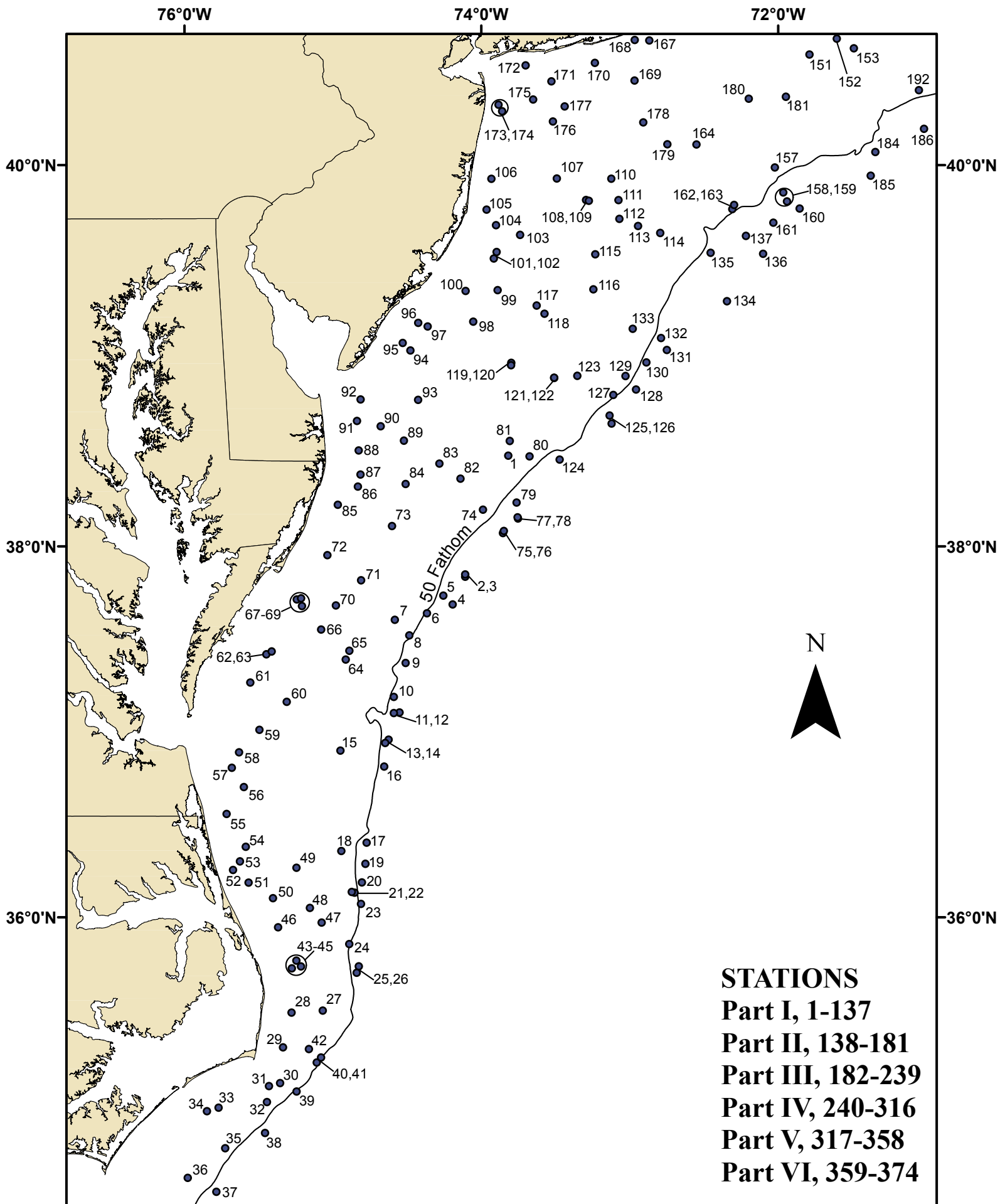


Figure 1. Trawl hauls made from NOAA FSV Henry B. Bigelow (10-05), during NOAA Fisheries Service, Northeast Fisheries Science Center autumn bottom trawl survey, 8 September - 3 December 2010.  
 Map 1 of 2

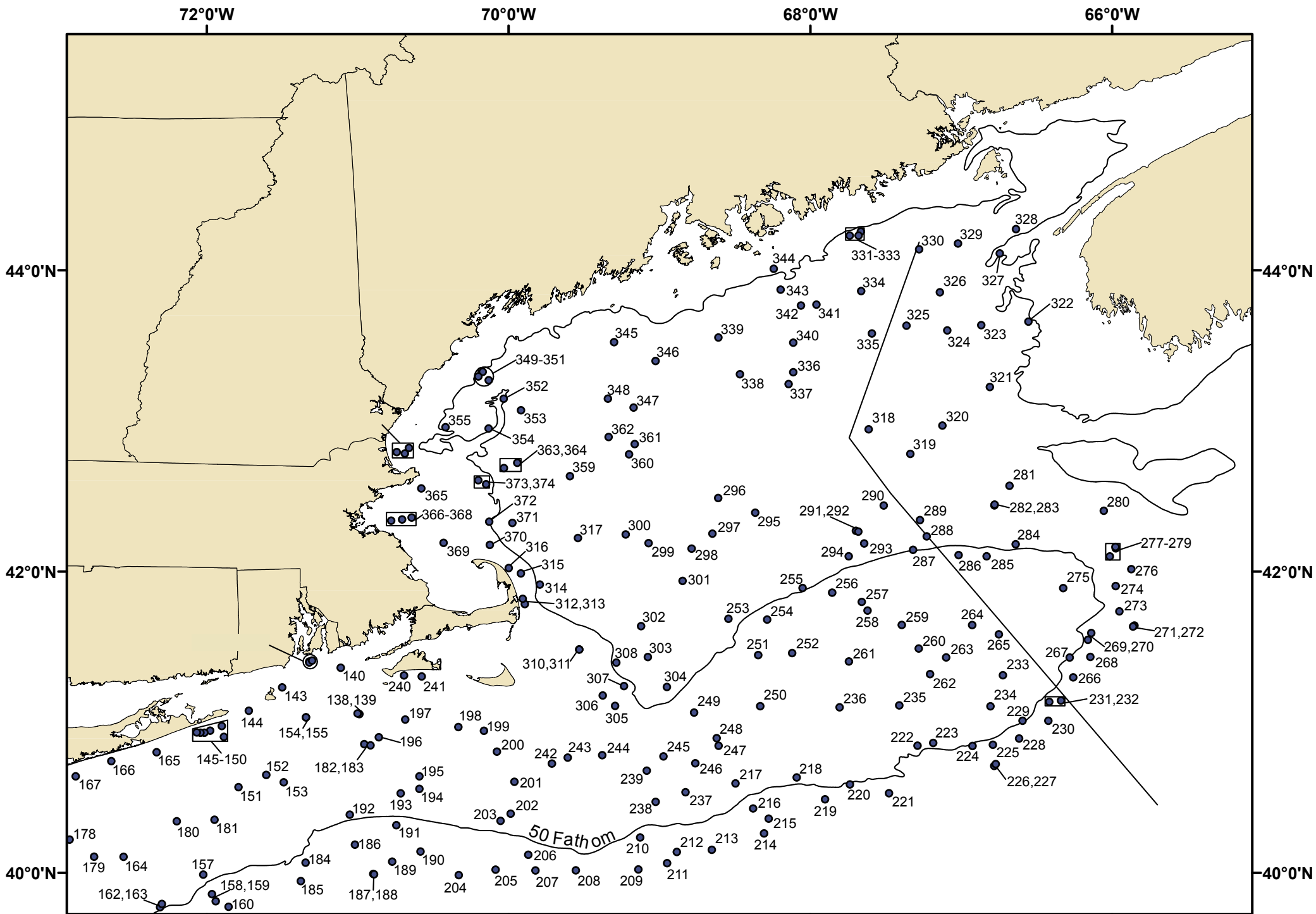


Figure 2. Trawl hauls made from NOAA FSV Henry B. Bigelow (10-05), during NOAA Fisheries Service, Northeast Fisheries Science Center autumn bottom trawl survey, 8 September - 3 December 2010.

## 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 NOAA FSV *Henry B. Bigelow*.

### First ever catches

The first leg of the autumn survey saw some interesting catches. Topping the list was a sharptail sunfish, *Masturus lanceolatus*, a similar species as the ocean sunfish, *Mola mola*, which can reach the same enormous sizes. This particular specimen was small, less than three feet in length (see report cover photo). On the morning of September 15, we captured an eighty pound tarpon *Megalops atlanticus*, - this is the first time I can remember a tarpon ever being captured in the survey. The specimen was roughly five feet long (see report cover photo).

### Unexpected Catches

On September 14, we caught a blacknose shark, *Carcharhinus acronotus*, which was unusual only because we were closer to Chesapeake Bay; most of the blacknose sharks we have captured are south of Cape Hatteras.

At station 148, approximately four nautical miles off the eastern end of Long Island, we caught a 21 inch Little Tunny/False Albacore (*Euthynnus alletteratus*). We do not expect to catch this fast swimming sport fish. Our time series only contains one other – in 2004, with a note that the fish was wounded and missing one eye.

### Record Striper Catch

Two hundred twelve striped bass, *Morone saxatilis*, were caught at Station 168 – approximately 2.5 nautical miles off Fire Island, Long Island. Weighing in at 2,088 pounds, this was our heaviest striped bass catch to date. Individual lengths ranged from 22 to 41 inches, with a mean of 28 inches. Six striped bass were caught at three other stations this season, making this large catch clearly unique. The record for the largest number of individuals of this species caught at one time occurred in 2000, when 275 striped bass with a mean length of 17 inches were captured in a single tow. When large catches of striped bass are taken, we strive to quickly live release fish that are not needed for biological sampling.





### **Georges Bank Flounder**

Due to several weather delays during legs II and III, we were not able to sample the Canadian side of Georges Bank as we typically do during Leg III. Sampling on the U.S. side of Georges, we saw good amounts of winter flounder, *Pseudopleuronectes americanus*, and yellowtail flounder, *Limanda ferruginea*.

### **Chance Encounter**

During Leg IV, we literally crossed paths with the University of Rhode Island's R/V *Endavour*. One of our tows intersected her survey tracklines on the Northern edge of Georges Bank. A team from the Woods Hole Oceanographic Institution was on board doing acoustic work on the interactions between Atlantic herring, *Clupea harengus*, and krill. We relayed our herring catch data and information on the herrings' stomach contents to the team for that particular tow and several other tows in the vicinity.

### **Surprise Catch from the South**

Working all the way from Cape Hatteras to the Scotian Shelf, we are always interested when we have a rare catch of a species in Northern waters that we regularly catch down south. This time it was a spotted tinseltail, *Xenolepidichthys dalgleishi*, caught in the Northeast channel, just south of Browns Bank.

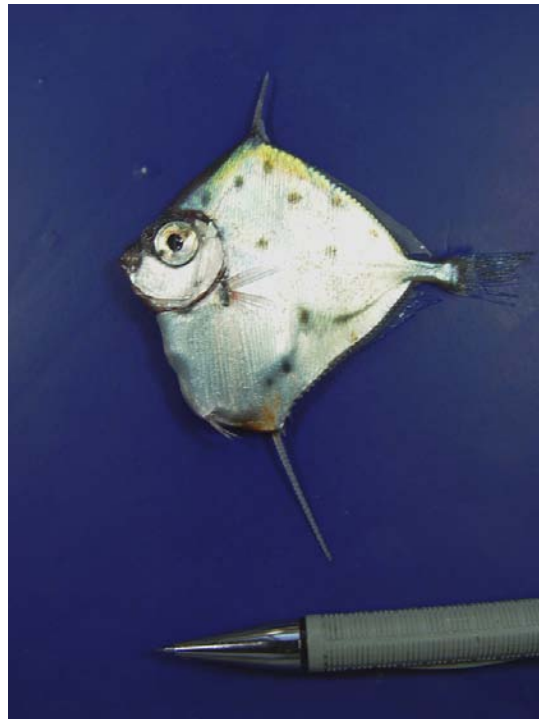


Photo credit: SEFSC Pascagoula Laboratory; Collection of Brandi Noble, NOAA/NMFS/SEFSC

### **Uncommon Hitchhiker**

Leg V experienced the typical onset of colder weather that signals the start of winter. During this time of year, many of the late migrating birds that travel south in the autumn get blown offshore during storms. The vessel is the only safe place to land when they are tired and far out to sea, so we typically get a surprising assortment of terrestrial birds. One uncommon visitor this year was an American crow, which was certainly a surprise, as these birds are usually year-round

residents not migrants (at least to the best of my knowledge). In any case, they are rarely seen offshore. This particular crow stayed on the vessel for our entire voyage, eating scraps from the net as well as exhausted songbirds, as evidenced from the frequent leftover piles of feathers that we would find on the deck. The bird eventually disembarked in Newport when the ship returned to port. Many of the crew wondered if the crow was with us from the beginning of the trip.



### **More Small Halibut**

In terms of fish life, the most exciting thing to see on Leg V was a number of small Atlantic halibut, *Hippoglossus hippoglossus*, in the northern Gulf of Maine. We certainly hope that these numbers increase, along with the size of the fish. It would be exciting to see halibut increase the way we have seen barndoor skate, *Dipturus laevis*, numbers increase over the last decade.

### **Playing Catchup**

Again due to bad weather and mechanical problems during earlier legs of the autumn survey, Leg VI was added. Fifteen stations were completed under less than ideal conditions.

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NOAA Fisheries Service FALL BOTTOM TRAWL SURVEY  
2010 STATION INFORMATION

Station	Date	Time	Lat	Lon	Loran TD's		Course	Bottom Depth (FM)	Temp (F)
0001	Sep-09	1218	3828.8	7349.1	X26688.4	Y42482.7	202	33.1	
0002	Sep-09	1704	3750.2	7406.5	X26738.4	Y42063.7	358	132.3	
0003	Sep-09	1828	3751.0	7406.5	X26739.3	Y42071.6	179	136.4	53.7
0004	Sep-09	2213	3741.4	7411.6	X26754.3	Y41964.7	041	165.7	48.9
0005	Sep-10	0056	3744.2	7415.3	X26776.5	Y41988.9	014	61.5	55.8
0006	Sep-10	0249	3738.6	7421.9	X26802.5	Y41919.4	214	51.7	58.2
0007	Sep-10	0440	3736.5	7435.0	X26863.6	Y41877.4	199	34.7	53.0
0008	Sep-10	0649	3731.5	7429.1	X26828.5	Y41833.3	203	42.4	58.5
0009	Sep-10	0859	3722.6	7430.6	X26824.7	Y41736.9	020	62.1	53.5
0010	Sep-10	1120	3711.6	7435.4	X26833.9	Y41613.0	175	55.5	56.2
0011	Sep-10	1334	3706.6	7433.1	X26817.6	Y41564.7	014	152.0	50.8
0012	Sep-10	1535	3706.4	7435.4	X26827.9	Y41558.3	185	59.9	56.8
0013	Sep-10	1753	3657.8	7437.5	X26827.4	Y41464.3	358	153.1	50.3
0014	Sep-10	2100	3656.8	7438.8	X26832.4	Y41450.4	186	55.8	56.4
0015	Sep-10	2330	3654.3	7457.0	X26908.9	Y41386.0	203	23.0	52.3
0016	Sep-11	0316	3649.1	7439.3	X26825.7	Y41370.1	189	130.4	52.7
0016	Sep-11	0316	3649.1	7439.3	X26825.7	Y41370.1	189	130.4	54.2
0017	Sep-11	0741	3624.4	7446.4	X26829.6	Y41100.2	349	112.1	51.8
0018	Sep-11	1010	3621.6	7456.6	X26868.4	Y41046.2	211	23.2	55.6
0019	Sep-11	1211	3617.5	7446.8	X26824.5	Y41030.2	342	110.5	53.0
0020	Sep-11	1458	3611.4	7448.2	X26824.2	Y40965.8	357	62.3	56.6
0021	Sep-11	1707	3608.1	7451.2	X26832.8	Y40924.3	006	50.6	57.3
0022	Sep-11	1834	3608.3	7452.3	X26837.5	Y40923.2	005	45.9	57.3
0023	Sep-11	2048	3604.4	7448.6	X26819.0	Y40895.6	004	68.1	55.3
0024	Sep-11	2319	3551.2	7453.4	X26825.1	Y40754.1	019	47.8	57.5
0025	Sep-12	0138	3543.9	7449.5	X26803.7	Y40696.7	008	127.7	52.2
0026	Sep-12	0406	3541.7	7450.4	X26805.2	Y40674.1	006	63.4	56.8
0027	Sep-12	0651	3529.3	7504.1	X26845.1	Y40512.9	190	20.0	70.9
0028	Sep-12	0859	3528.6	7516.7	X26890.4	Y40463.2	260	15.0	72.0
0029	Sep-12	1108	3517.1	7520.1	X26891.4	Y40344.4	172	14.5	81.0
0030	Sep-12	1341	3505.3	7521.3	X26884.4	Y40234.5	246	19.7	81.3
0031	Sep-12	1504	3504.3	7525.8	X26899.0	Y40208.2	267	14.8	82.7
0032	Sep-12	1646	3459.0	7526.6	X26896.9	Y40158.8	234	32.8	78.0
0033	Sep-12	1912	3457.2	7546.2	X26961.4	Y40064.1	223	14.8	79.5
0034	Sep-12	2042	3456.0	7550.9	X26976.0	Y40034.5	149	14.2	81.0
0035	Sep-12	2334	3443.7	7543.5	X26939.0	Y39960.1	330	23.5	76.7
0036	Sep-13	0152	3433.8	7558.6	X26978.5	Y39813.8	344	23.2	79.1
0037	Sep-13	0420	3429.1	7547.0	X26936.7	Y39830.1	040	90.5	57.8
0038	Sep-13	0830	3448.7	7527.4	X26890.0	Y40069.3	029	121.4	55.7
0039	Sep-13	1144	3502.5	7514.6	X26858.7	Y40236.3	015	74.1	65.8
0040	Sep-13	1351	3512.1	7506.5	X26838.5	Y40350.2	068	53.3	73.6
0041	Sep-13	1443	3513.8	7504.8	X26833.8	Y40371.3	062	57.1	
0042	Sep-13	1646	3516.6	7509.7	X26853.7	Y40377.8	061	16.7	81.3
0043	Sep-13	2000	3543.8	7512.9	X26891.8	Y40621.2	354	19.7	66.8
0044	Sep-13	2133	3543.2	7516.6	X26904.9	Y40603.3	027	18.3	71.5
0045	Sep-13	2247	3545.8	7514.7	X26900.7	Y40634.0	350	17.8	67.4
0046	Sep-14	0032	3556.7	7522.1	X26940.8	Y40720.5	006	16.1	71.9
0047	Sep-14	0303	3558.2	7504.5	X26875.0	Y40788.3	024	20.0	62.7

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0048	Sep-14	0447	3603.0	7509.2	X26898.4	Y40822.7	000	17.0	61.0
0049	Sep-14	0654	3616.2	7514.7	X26935.0	Y40942.1	217	16.4	63.4
0050	Sep-14	0845	3606.2	7524.2	X26960.1	Y40812.5	313	15.9	
0051	Sep-14	1023	3611.3	7534.0	X27004.6	Y40838.9	300	14.8	
0052	Sep-14	1153	3615.5	7540.3	X27034.5	Y40866.6	023	13.4	73.7
0053	Sep-14	1255	3618.3	7537.5	X27027.5	Y40904.1	006	13.7	72.6
0054	Sep-14	1405	3623.0	7535.2	X27025.0	Y40961.4	340	14.8	71.4
0055	Sep-14	1549	3633.7	7542.9	X27071.4	Y41060.1	034	12.3	73.7
0056	Sep-14	1741	3642.5	7535.9	X27056.5	Y41172.6	341	13.1	73.6
0057	Sep-14	1917	3648.7	7540.8	X27086.3	Y41232.2	096	11.2	74.2
0058	Sep-14	2049	3653.7	7537.9	X27082.4	Y41294.5	355	12.3	71.4
0059	Sep-14	2234	3701.0	7529.7	X27059.7	Y41392.7	036	15.0	68.9
0060	Sep-15	0027	3710.1	7518.6	X27026.5	Y41514.2	005	17.5	66.1
0061	Sep-15	0259	3716.3	7533.3	X27101.4	Y41557.5	075	11.2	73.3
0062	Sep-15	0448	3725.4	7526.9	X27088.9	Y41671.5	076	12.8	71.9
0063	Sep-15	0543	3726.3	7524.7	X27080.8	Y41685.3	044	14.2	72.1
0064	Sep-15	0844	3723.7	7454.8	X26939.6	Y41707.0	097	23.2	53.7
0065	Sep-15	1005	3726.5	7453.3	X26937.0	Y41740.3	029	25.4	50.7
0066	Sep-15	1236	3733.3	7504.7	X27001.0	Y41796.7	035	17.0	57.2
0067	Sep-15	1419	3740.9	7512.5	X27050.6	Y41868.8	027	15.6	69.3
0068	Sep-15	1524	3743.0	7514.6	X27064.3	Y41889.8	060	12.3	72.1
0069	Sep-15	1659	3743.3	7512.8	X27056.6	Y41896.3	068	14.2	72.0
0070	Sep-15	1854	3741.1	7458.8	X26985.7	Y41891.5	051	18.6	63.3
0071	Sep-15	2103	3749.1	7448.6	X26949.1	Y41994.8	045	21.6	55.7
0072	Sep-15	2326	3757.2	7502.2	X27030.5	Y42065.9	020	12.3	70.7
0073	Sep-16	0210	3806.5	7436.1	X26913.9	Y42200.4	056	18.9	53.2
0074	Sep-16	0530	3811.6	7359.3	X26725.2	Y42295.2	031	40.2	50.7
0075	Sep-16	0741	3804.2	7351.2	X26673.6	Y42226.9	359	104.7	
0076	Sep-16	0928	3804.9	7350.9	X26672.4	Y42234.3	167	143.3	48.5
0077	Sep-16	1242	3808.9	7345.2	X26645.5	Y42281.1	229	118.4	51.8
0078	Sep-16	1513	3809.2	7345.3	X26646.8	Y42284.7	234	80.7	54.4
0079	Sep-16	1718	3813.9	7345.7	X26653.5	Y42332.3	191	64.8	57.0
0080	Sep-16	2024	3828.6	7340.5	X26639.1	Y42486.9	239	39.1	50.8
0081	Sep-17	0924	3833.5	7348.5	X26690.3	Y42531.5	276	31.4	
0082	Sep-17	1223	3821.5	7408.4	X26787.7	Y42390.3	239	29.5	47.1
0083	Sep-17	1419	3826.3	7416.9	X26842.1	Y42433.8	199	23.0	47.2
0084	Sep-17	1649	3819.8	7430.6	X26906.6	Y42351.5	196	24.9	50.1
0085	Sep-17	1948	3813.2	7458.0	X27039.6	Y42250.9	039	11.2	70.0
0086	Sep-17	2150	3819.0	7449.9	X27008.5	Y42323.7	060	12.8	63.8
0087	Sep-17	2314	3822.8	7448.8	X27010.2	Y42367.6	347	13.1	56.9
0088	Sep-18	0042	3830.5	7449.5	X27029.4	Y42452.1	328	13.9	55.9
0089	Sep-18	0300	3833.6	7431.3	X26934.5	Y42501.1	014	17.8	50.3
0090	Sep-18	0434	3838.1	7440.7	X26995.9	Y42544.2	005	15.0	58.1
0091	Sep-18	0648	3839.8	7450.2	X27052.8	Y42556.0	325	13.9	59.1
0092	Sep-18	0822	3846.6	7448.8	X27059.6	Y42633.1	063	10.1	68.5
0093	Sep-18	1104	3846.5	7425.5	X26925.6	Y42645.7	052	17.8	61.3
0094	Sep-18	1320	3902.0	7428.6	X26975.5	Y42814.2	052	11.2	67.3
0095	Sep-18	1453	3904.4	7431.8	X26999.4	Y42838.8	058	11.5	68.8

NOAA Fisheries Service FALL BOTTOM TRAWL SURVEY  
2010 STATION INFORMATION

Station	Date	Time	Lat	Lon	Loran TD's		Course	Bottom Depth (FM)	Temp (F)
0096	Sep-18	1640	3910.7	7425.5	X26974.8	Y42909.7	102	11.8	68.2
0097	Sep-18	1744	3909.6	7421.7	X26948.8	Y42898.3	112	12.8	66.9
0098	Sep-18	1950	3911.1	7403.2	X26836.2	Y42918.5	066	14.5	65.7
0099	Sep-18	2147	3921.0	7353.4	X26790.6	Y43023.1	020	17.5	57.4
0100	Sep-18	2342	3920.7	7406.3	X26874.5	Y43020.0	033	14.5	67.0
0101	Sep-19	0131	3930.9	7355.0	X26819.3	Y43126.2	029	13.9	65.4
0102	Sep-19	0232	3932.9	7353.8	X26815.4	Y43147.5	006	15.0	65.8
0103	Sep-19	0404	3938.2	7344.3	X26760.5	Y43200.1	025	13.9	63.5
0104	Sep-19	0539	3941.3	7354.0	X26833.9	Y43233.9	324	15.3	68.1
0105	Sep-19	0709	3946.1	7357.8	X26870.8	Y43285.2	005	12.8	68.8
0106	Sep-19	0848	3955.7	7355.9	X26878.6	Y43383.5	024	12.8	66.9
0107	Sep-19	1149	3955.8	7329.5	X26686.7	Y43370.5	104	22.1	53.9
0108	Sep-19	1341	3949.1	7317.7	X26589.5	Y43298.7	128	24.3	50.2
0109	Sep-19	1434	3948.9	7316.5	X26581.1	Y43295.7	314	24.3	
0110	Sep-19	1700	3955.7	7307.4	X26524.0	Y43356.9	114	38.3	49.4
0111	Sep-19	1841	3949.1	7304.5	X26494.1	Y43292.1	143	34.7	49.5
0112	Sep-19	2015	3943.2	7304.2	X26484.5	Y43235.8	152	29.8	49.1
0113	Sep-19	2155	3941.0	7256.6	X26428.3	Y43211.6	121	35.5	49.1
0114	Sep-19	2327	3938.8	7247.7	X26363.0	Y43188.2	143	37.7	49.3
0115	Sep-20	0219	3932.2	7313.9	X26540.8	Y43132.3	136	22.1	50.7
0116	Sep-20	0408	3921.2	7314.7	X26533.8	Y43024.8	238	31.4	48.5
0117	Sep-20	0708	3916.1	7337.6	X26679.1	Y42974.1	238	26.8	53.2
0118	Sep-20	0846	3913.6	7334.4	X26654.9	Y42948.4	092	24.1	50.7
0119	Sep-20	1135	3858.2	7347.9	X26719.0	Y42787.1	020	23.0	51.3
0120	Sep-20	1255	3857.4	7348.0	X26718.3	Y42779.1	003	23.0	
0121	Sep-20	1656	3853.4	7330.5	X26605.6	Y42744.6	056	33.9	48.6
0122	Sep-20	1818	3853.5	7330.5	X26605.9	Y42745.5	034	33.6	
0123	Sep-20	2047	3854.0	7321.2	X26548.8	Y42754.5	107	36.1	48.3
0124	Sep-21	0058	3827.6	7328.3	X26568.3	Y42485.5	333	60.7	57.6
0125	Sep-21	0412	3839.0	7307.3	X26454.0	Y42611.9	049	141.9	50.8
0126	Sep-21	0659	3841.5	7308.2	X26460.3	Y42636.4	046	79.3	55.6
0127	Sep-21	0842	3848.0	7306.7	X26455.1	Y42700.6	039	48.7	57.0
0128	Sep-21	1116	3849.8	7257.4	X26399.8	Y42720.9	037	111.0	54.1
0129	Sep-21	1344	3854.0	7301.7	X26428.1	Y42760.5	228	45.1	57.6
0130	Sep-21	1550	3858.3	7253.2	X26377.8	Y42803.9	010	64.0	58.5
0131	Sep-21	1817	3902.2	7245.0	X26327.5	Y42842.9	084	154.5	46.7
0132	Sep-21	2124	3906.0	7247.3	X26343.5	Y42878.3	224	67.3	58.0
0133	Sep-21	2331	3908.9	7258.8	X26418.5	Y42904.7	202	43.7	54.7
0134	Sep-22	0324	3917.5	7220.7	X26173.5	Y42986.2	210	120.3	49.9
0135	Sep-22	0752	3932.7	7227.3	X26218.2	Y43124.7	191	62.3	58.9
0136	Sep-22	1217	3932.3	7206.1	X26073.8	Y43116.3	211	154.7	48.5
0137	Sep-22	1539	3937.9	7213.0	X26120.1	Y43167.6	198	68.4	56.3
0138	Sep-28	0141	4103.2	7059.3	X25532.5	Y43787.7	268	21.6	59.2
0139	Sep-28	0231	4103.4	7100.1	X25539.2	Y43790.3	049	20.2	
0140	Sep-28	0646	4121.6	7106.7	X25632.8	Y43927.0	026	13.4	63.0
0141	Sep-28	1457	4124.1	7119.2	X25752.5	Y43963.0	204	17.8	63.8
0142	Sep-28	1650	4123.7	7119.3	X25751.5	Y43960.4	230	17.8	
0143	Sep-28	2026	4113.8	7130.0	X25823.5	Y43906.2	202	20.5	59.9

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0144	Sep-29	0028	4104.5	7143.3	X25924.1	Y43856.9	173	21.6	57.7
0145	Sep-29	0344	4054.1	7153.2	X25995.0	Y43790.7	210	19.4	59.4
0146	Sep-29	0539	4058.4	7154.0	X26008.6	Y43825.3	227	15.3	65.4
0147	Sep-29	0716	4056.6	7158.6	X26046.3	Y43817.1	236	14.8	65.5
0148	Sep-29	0853	4055.8	7201.0	X26065.3	Y43814.2	194	16.7	65.5
0149	Sep-29	1111	4055.8	7202.5	X26078.9	Y43816.2	287	16.1	63.6
0150	Sep-29	1218	4055.9	7204.0	X26091.5	Y43819.2	059	16.1	64.9
0151	Sep-29	1551	4034.1	7147.4	X25928.8	Y43624.9	149	36.6	49.8
0152	Sep-29	1755	4039.0	7136.3	X25838.9	Y43651.6	169	39.4	51.3
0153	Sep-29	2000	4036.0	7129.4	X25781.7	Y43621.0	182	37.5	51.8
0154	Sep-29	2332	4101.9	7120.5	X25718.9	Y43806.2	004	26.0	55.9
0155	Sep-30	0025	4101.9	7120.5	X25718.8	Y43806.1	193	26.0	
0156	Sep-30	0342	4124.5	7118.1	X25743.2	Y43964.0	190	16.1	64.4
0157	Oct-02	2206	3959.2	7201.4	X26034.6	Y43347.7	155	47.8	55.4
0158	Oct-03	0001	3951.5	7157.9	X26011.2	Y43279.0	214	66.2	57.4
0159	Oct-03	0131	3948.7	7156.4	X26001.5	Y43254.4	050	80.9	56.0
0160	Oct-03	0305	3946.4	7151.3	X25966.8	Y43232.9	026	123.6	50.8
0161	Oct-03	0551	3942.0	7202.0	X26042.5	Y43199.5	223	85.8	55.6
0162	Oct-03	0823	3946.3	7218.5	X26158.9	Y43244.1	047	50.3	55.8
0163	Oct-03	0957	3947.6	7217.8	X26153.9	Y43255.4	149	49.5	55.8
0164	Oct-03	1459	4006.3	7233.0	X26275.9	Y43431.9	074	32.8	
0165	Oct-05	1112	4048.0	7219.9	X26216.8	Y43777.0	077	17.5	63.4
0166	Oct-05	1327	4044.5	7237.9	X26363.9	Y43770.6	261	15.6	65.2
0167	Oct-05	1515	4038.4	7252.1	X26471.7	Y43736.2	221	17.2	64.2
0168	Oct-05	1645	4038.6	7258.0	X26520.6	Y43744.9	250	13.1	65.9
0169	Oct-05	1907	4026.1	7258.1	X26498.1	Y43632.5	234	21.3	63.3
0170	Oct-05	2132	4031.5	7314.1	X26638.4	Y43699.9	269	12.3	65.8
0171	Oct-05	2340	4025.9	7331.6	X26765.9	Y43665.3	281	13.7	66.6
0172	Oct-06	0123	4030.8	7342.1	X26860.7	Y43724.0	163	11.8	65.7
0173	Oct-06	0358	4018.7	7353.0	X26913.9	Y43615.2	140	13.4	66.5
0174	Oct-06	0503	4016.6	7351.6	X26897.7	Y43593.7	204	15.0	66.4
0175	Oct-06	0706	4020.3	7339.0	X26810.4	Y43618.3	322	14.8	66.1
0176	Oct-06	0908	4013.5	7331.1	X26733.5	Y43544.8	081	18.6	66.1
0177	Oct-06	1031	4018.1	7326.3	X26706.6	Y43585.7	087	17.2	66.0
0178	Oct-06	1323	4013.2	7254.5	X26449.9	Y43511.1	116	26.8	58.7
0179	Oct-06	1504	4006.4	7244.8	X26366.0	Y43441.1	100	29.8	51.5
0180	Oct-06	1818	4020.5	7211.9	X26120.5	Y43537.4	043	34.4	51.2
0181	Oct-06	2016	4021.1	7156.9	X26001.7	Y43528.4	080	35.8	51.1
0182	Oct-13	0245	4051.2	7057.4	X25513.4	Y43699.5	081	30.3	54.1
0183	Oct-13	0529	4050.7	7054.9	X25492.8	Y43693.1	315	30.1	54.4
0184	Oct-13	1545	4004.0	7120.7	X25737.8	Y43360.6	047	59.9	58.1
0185	Oct-13	1733	3956.7	7122.6	X25759.4	Y43302.9	067	152.6	49.1
0186	Oct-13	2107	4011.2	7101.1	X25591.3	Y43403.4	087	73.8	56.6
0187	Oct-13	2334	3959.6	7053.8	X25565.6	Y43309.1	267	170.3	53.6
0187	Oct-13	2334	3959.6	7053.8	X25565.6	Y43309.1	267	170.3	46.4
0188	Oct-14	0204	3959.4	7053.5	X25563.9	Y43307.5	093	175.5	47.0
0189	Oct-14	0454	4004.4	7046.3	X25508.4	Y43341.9	315	77.1	55.6
0190	Oct-14	0712	4008.4	7035.0	X25430.9	Y43364.9	332	67.8	58.1

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0191	Oct-14	0917	4018.9	7044.6	X25465.6	Y43449.7	276	59.1	56.8
0192	Oct-14	1137	4023.1	7103.1	X25586.9	Y43496.4	104	48.7	56.5
0193	Oct-14	1443	4031.6	7042.9	X25426.6	Y43542.0	114	39.9	55.5
0194	Oct-14	1652	4033.4	7035.5	X25371.2	Y43548.3	103	37.2	55.4
0195	Oct-14	1826	4038.4	7035.5	X25359.6	Y43584.2	107	33.9	55.9
0196	Oct-14	2134	4054.0	7051.6	X25463.8	Y43712.6	067	29.8	55.6
0197	Oct-17	1227	4101.0	7041.1	X25372.2	Y43749.7	292	26.0	56.8
0198	Oct-17	1506	4058.0	7019.9	X25202.5	Y43704.7	284	24.1	59.3
0199	Oct-17	1655	4056.5	7009.8	X25135.9	Y43683.4	193	14.8	59.9
0200	Oct-17	1839	4048.2	7004.6	X25136.5	Y43622.2	344	16.4	59.1
0201	Oct-17	2115	4036.3	6957.7	W14100.0	Y43534.5	212	31.4	56.8
0202	Oct-17	2326	4023.5	6959.2	W14150.7	Y43448.0	272	43.2	55.1
0203	Oct-18	0051	4020.7	7003.2	X25226.7	Y43431.2	234	46.5	54.5
0204	Oct-18	0451	3959.1	7019.8	X25373.5	Y43286.7	065	178.5	52.9
0204	Oct-18	0451	3959.1	7019.8	X25373.5	Y43286.7	065	178.5	47.0
0205	Oct-18	0745	4001.2	7005.2	X25297.8	Y43294.6	318	93.0	54.7
0206	Oct-18	1002	4007.2	6952.1	W14166.5	Y43329.6	113	59.3	56.4
0207	Oct-18	1218	4000.9	6949.3	W14171.2	Y43284.4	118	76.3	55.1
0208	Oct-18	1426	4000.9	6933.3	W14091.2	Y43276.6	122	65.3	56.7
0209	Oct-18	1659	4001.3	6908.4	W13969.0	Y43267.5	272	111.8	52.1
0210	Oct-18	1955	4014.1	6907.7	W13922.6	Y43350.9	043	57.1	56.0
0211	Oct-18	2226	4003.8	6857.0	W13906.0	Y43278.8	257	104.4	52.4
0212	Oct-19	0048	4008.3	6853.1	W13872.4	Y43305.9	047	88.3	54.4
0213	Oct-19	0258	4009.1	6839.2	W13804.3	Y43304.6	074	92.1	54.1
0214	Oct-19	0534	4015.6	6818.4	W13685.6	Y43334.8	037	111.8	49.7
0215	Oct-19	0725	4021.5	6816.6	W13655.5	Y43369.8	246	75.2	55.3
0216	Oct-19	0919	4025.6	6822.8	W13668.2	Y43398.0	047	57.1	54.6
0217	Oct-19	1130	4035.6	6829.8	W13662.2	Y43463.0	047	39.6	53.9
0218	Oct-19	1359	4038.0	6805.4	W13541.1	Y43461.3	074	48.4	53.4
0219	Oct-19	1616	4029.3	6754.1	W13525.6	Y43403.4	067	63.2	54.4
0220	Oct-19	1801	4035.2	6744.3	W13459.1	Y43432.0	080	50.9	54.5
0221	Oct-19	2007	4031.7	6728.7	W13407.0	Y43403.5	067	68.9	53.9
0222	Oct-20	0030	4050.6	6717.4	W13281.5	Y43502.1	089	49.2	53.1
0223	Oct-20	0150	4051.7	6711.1	W13251.2	Y43504.0	087	49.5	52.4
0224	Oct-20	0355	4050.5	6655.5	W13193.7	Y43487.9	097	52.8	53.3
0225	Oct-20	0536	4051.0	6647.4	W13160.2	Y43485.5	216	56.9	54.7
0226	Oct-20	0810	4042.6	6646.9	W13193.8	Y43440.7	033	173.9	
0227	Oct-20	0924	4043.3	6646.3	W13188.4	Y43444.2	201	174.7	45.5
0227	Oct-20	0924	4043.3	6646.3	W13188.4	Y43444.2	201	174.7	54.3
0228	Oct-20	1249	4053.5	6637.0	W13109.5	Y43492.6	061	87.5	54.7
0229	Oct-20	1429	4100.6	6635.6	W13073.4	Y43528.4	066	48.4	51.0
0230	Oct-20	1706	4100.5	6625.4	W13035.4	Y43522.0	016	184.0	44.0
0230	Oct-20	1706	4100.5	6625.4	W13035.4	Y43522.0	016	184.0	49.4
0231	Oct-20	2118	4108.6	6620.3	W12981.1	Y43559.7	195	134.2	47.2
0232	Oct-20	2347	4108.1	6625.0	W13000.6	Y43560.0	044	62.3	55.7
0233	Oct-21	0224	4118.6	6643.4	W13021.4	Y43626.4	149	42.7	54.8
0234	Oct-21	0443	4106.3	6648.4	W13096.7	Y43566.5	066	41.8	52.0
0235	Oct-21	0758	4106.7	6724.6	W13241.5	Y43594.4	250	33.4	56.8

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0236	Oct-21	1025	4105.9	6748.4	W13347.3	Y43608.4	311	27.9	59.6
0237	Oct-21	1550	4032.1	6849.6	W13770.0	Y43454.9	200	38.8	56.3
0238	Oct-21	1739	4028.3	6901.5	W13841.8	Y43438.8	341	42.7	54.8
0239	Oct-21	1918	4040.7	6905.0	W13812.9	Y43520.0	027	47.6	
0240	Oct-26	1349	4118.6	7041.5	X25396.9	Y43870.2	070	12.3	57.8
0241	Oct-26	1508	4118.2	7034.5	X25332.6	Y43858.2	074	12.0	57.7
0242	Oct-26	2143	4043.5	6942.8	W13995.3	Y43569.9	130	26.0	57.6
0243	Oct-26	2350	4045.9	6936.5	W13953.5	Y43579.8	313	23.8	57.4
0244	Oct-27	0141	4046.8	6922.8	W13878.7	Y43574.1	237	18.3	56.7
0245	Oct-27	0541	4046.3	6858.4	W13757.8	Y43550.3	038	39.9	56.6
0246	Oct-27	0804	4043.6	6845.8	W13706.8	Y43523.6	115	36.6	57.3
0247	Oct-27	1048	4050.6	6836.5	W13634.1	Y43558.5	143	31.4	58.6
0248	Oct-27	1243	4053.6	6837.3	W13625.5	Y43577.3	078	34.7	58.6
0249	Oct-27	1510	4103.8	6846.2	W13626.6	Y43646.0	170	37.2	56.4
0250	Oct-27	1822	4106.3	6819.9	W13489.0	Y43637.3	015	25.7	58.8
0251	Oct-27	2252	4126.7	6820.7	W13401.1	Y43753.6	176	29.8	55.9
0252	Oct-28	0118	4127.5	6807.2	W13334.1	Y43744.5	132	25.4	58.2
0253	Oct-28	0557	4141.2	6832.6	W13389.6	Y43846.4	119	97.1	47.2
0254	Oct-28	0814	4140.8	6817.2	W13316.8	Y43827.7	032	21.9	55.5
0255	Oct-28	1052	4153.4	6803.1	W13187.8	Y43879.2	064	61.8	46.3
0256	Oct-28	1301	4151.6	6751.3	W13143.6	Y43856.7	211	23.5	55.4
0257	Oct-28	1512	4147.9	6739.6	W13110.2	Y43825.4	315	21.3	56.0
0258	Oct-28	1700	4144.4	6737.2	W13117.5	Y43805.1	038	22.1	56.4
0259	Oct-28	1921	4138.7	6723.6	W13087.5	Y43762.5	301	24.3	56.4
0260	Oct-28	2219	4129.3	6716.9	W13104.6	Y43707.9	074	25.2	57.7
0261	Oct-29	0200	4124.1	6744.7	W13247.8	Y43705.2	079	20.8	59.2
0262	Oct-29	0500	4119.1	6712.4	W13134.2	Y43651.0	296	26.0	58.2
0263	Oct-29	0725	4125.8	6706.0	W13076.9	Y43680.4	011	32.3	58.8
0264	Oct-29	1017	4138.7	6655.7	W12973.6	Y43737.3	094	35.5	58.2
0265	Oct-29	1228	4134.9	6645.0	W12950.5	Y43709.7	135	40.5	55.9
0266	Oct-29	1644	4117.8	6615.5	W12921.6	Y43602.5	066	73.8	54.9
0267	Oct-29	1838	4125.7	6616.9	W12890.2	Y43642.3	349	52.2	50.1
0268	Oct-29	2056	4126.0	6608.7	W12859.9	Y43637.8	197	69.7	51.6
0269	Oct-29	2334	4132.8	6609.6	W12831.1	Y43671.4	029	52.8	48.7
0270	Oct-30	0053	4135.5	6608.3	W12813.8	Y43683.4	046	54.1	48.9
0271	Oct-30	0331	4138.5	6551.1	W12741.1	Y43684.8	213	112.6	
0272	Oct-30	0439	4138.0	6551.7	W12745.0	Y43683.3	067	101.7	53.9
0273	Oct-30	0750	4144.1	6557.2	W12734.2	Y43715.8	050	58.8	48.5
0274	Oct-30	1105	4154.2	6558.6	W12689.3	Y43764.2	324	53.3	48.3
0275	Oct-30	1457	4153.4	6619.5	W12765.3	Y43777.8	343	45.1	51.8
0276	Oct-30	1833	4200.9	6552.4	W12635.3	Y43790.0	289	107.2	45.5
0277	Oct-30	2153	4206.0	6600.9	W12637.9	Y43820.3	111	109.1	46.1
0278	Oct-31	0007	4209.2	6558.5	W12613.5	Y43832.9	321	122.8	45.5
0279	Oct-31	0113	4209.8	6558.7	W12611.2	Y43835.5	108	123.0	
0280	Oct-31	0418	4224.2	6603.3	W12551.4	Y43904.1	320	137.5	49.2
0281	Oct-31	0856	4234.1	6640.8	W12627.0	Y43986.2	268	121.4	47.1
0282	Oct-31	1154	4226.3	6646.8	W12692.4	Y43957.2	278	187.0	
0283	Oct-31	1312	4226.6	6646.8	W12690.3	Y43958.6	000	182.9	46.0



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Station	Date	Time	Lat	Lon	Loran TD's		Course	Bottom Depth (FM)	Temp (F)
0283	Oct-31	1312	4226.6	6646.8	W12690.3	Y43958.6	000	182.9	47.1
0284	Oct-31	1743	4210.8	6638.4	W12744.3	Y43877.0	261	109.6	47.8
0285	Oct-31	2003	4206.1	6649.9	W12812.9	Y43865.7	258	37.7	52.5
0286	Oct-31	2206	4206.5	6701.0	W12853.5	Y43879.1	028	35.0	52.1
0287	Nov-01	0121	4208.6	6719.2	W12915.8	Y43908.1	137	70.5	45.8
0288	Nov-01	0418	4214.0	6713.8	W12864.9	Y43928.1	117	118.4	47.6
0289	Nov-01	0721	4220.5	6716.5	W12840.7	Y43962.0	126	164.9	46.9
0290	Nov-01	1121	4226.3	6730.8	W12868.6	Y44005.9	213	162.7	47.2
0291	Nov-01	1437	4216.2	6741.9	W12972.1	Y43970.2	100	126.0	
0292	Nov-01	1546	4215.9	6740.9	W12969.7	Y43967.5	256	126.6	47.6
0293	Nov-01	1816	4211.2	6738.6	W12984.8	Y43941.7	124	109.1	47.9
0294	Nov-01	2103	4206.1	6744.7	W13039.2	Y43923.3	160	102.8	47.6
0295	Nov-02	0144	4223.4	6821.9	W13117.9	Y44055.1	046	113.7	47.9
0296	Nov-02	0536	4229.3	6836.6	W13158.4	Y44104.1	211	106.4	47.8
0297	Nov-02	0830	4215.1	6839.0	W13248.0	Y44035.3	162	107.4	45.7
0298	Nov-02	1126	4209.1	6847.2	W13321.8	Y44015.2	306	100.9	45.3
0299	Nov-02	1421	4211.3	6904.3	W13399.9	Y44050.0	242	86.9	45.7
0300	Nov-02	1644	4214.7	6913.4	W13430.8	Y44081.1	160	112.4	46.5
0301	Nov-02	2051	4156.3	6850.8	W13406.4	Y43951.1	309	74.6	43.9
0302	Nov-03	0006	4138.2	6907.3	W13579.9	Y43870.4	013	89.4	45.0
0303	Nov-03	0259	4125.9	6904.6	W13622.4	Y43795.8	069	82.8	44.6
0304	Nov-03	0542	4114.0	6857.0	W13636.7	Y43717.1	229	59.9	45.5
0305	Nov-03	0857	4106.5	6917.6	W13774.1	Y43692.6	010	30.6	52.2
0306	Nov-03	1045	4110.6	6922.5	W13782.4	Y43723.3	353	27.6	52.2
0307	Nov-03	1249	4114.4	6914.1	W13722.6	Y43737.3	332	45.1	47.3
0308	Nov-03	1543	4123.7	6917.1	W13697.8	Y43797.0	199	60.1	
0309*	Nov-03	1916							51.8
0310	Nov-03	2053	4128.9	6931.9	W13753.5	Y43845.7	185	20.5	
0311	Nov-03	2139	4128.9	6931.9	W13753.7	Y43845.6	019	20.8	
0312	Nov-04	0059	4147.0	6953.5	W13792.2	Y43982.3	171	13.4	52.4
0313	Nov-04	0245	4149.1	6954.3	W13787.0	Y43996.3	159	12.8	52.5
0314	Nov-04	0521	4154.8	6947.6	W13721.4	Y44019.8	319	58.2	45.6
0315	Nov-04	0709	4159.3	6955.1	W13743.2	Y44056.6	154	28.7	50.9
0316	Nov-04	0845	4201.4	6959.9	W13761.1	Y44076.1	159	17.8	51.5
0317	Nov-12	2219	4213.3	6932.4	W13543.1	Y44101.5	058	125.5	46.3
0317	Nov-12	2219	4213.3	6932.4	W13543.1	Y44101.5	058	125.5	46.8
0318	Nov-13	0916	4256.6	6736.8	W12718.0	Y44152.9	266	117.6	48.1
0319	Nov-13	1306	4246.8	6720.2	W12706.8	Y44088.2	216	105.5	48.5
0320	Nov-13	1631	4258.1	6707.5	W12589.1	Y44122.6	326	119.8	49.1
0321	Nov-13	2126	4313.5	6648.6	W12425.5	Y44165.2	053	80.7	52.2
0322	Nov-14	0053	4339.5	6633.3	W12211.7	Y44250.7	316	55.5	50.1
0323	Nov-14	0427	4338.1	6652.0	W12283.3	Y44268.6	148	67.3	52.3
0324	Nov-14	0700	4336.0	6705.5	W12345.4	Y44277.5	062	108.3	49.5
0325	Nov-14	0929	4337.9	6721.8	W12394.7	Y44306.7	072	117.0	49.9
0326	Nov-14	1241	4351.2	6708.5	W12255.9	Y44340.5	082	84.5	52.1
0327	Nov-14	1542	4406.7	6644.7	W12071.0	Y44366.8	208	49.5	51.7
0328	Nov-14	1818	4416.3	6638.2	W11986.7	Y44392.9	241	106.9	51.6
0329	Nov-14	2145	4410.6	6701.3	W12098.3	Y44402.8	067	86.1	51.7

NOAA Fisheries Service FALL BOTTOM TRAWL SURVEY  
2010 STATION INFORMATION

Station	Date	Time	Lat	Lon	Loran TD's		Course	Bottom Depth (FM)	Temp (F)
0330	Nov-15	0029	4408.3	6716.8	W12168.9	Y44415.5	016	75.2	51.7
0331	Nov-15	0436	4415.4	6739.9	W12208.2	Y44473.5	061	57.1	51.2
0332	Nov-15	0623	4413.8	6740.8	W12223.6	Y44469.0	062	61.8	51.2
0333	Nov-15	0837	4413.8	6744.3	W12238.3	Y44474.1	336	60.7	50.9
0334	Nov-15	1159	4351.7	6739.8	W12374.9	Y44385.3	032	111.5	49.0
0335	Nov-15	1514	4334.8	6735.5	W12470.8	Y44313.0	234	129.6	48.1
0336	Nov-15	1857	4319.4	6806.8	W12710.1	Y44293.0	213	117.0	47.7
0337	Nov-15	2152	4314.6	6808.6	W12749.1	Y44275.4	027	114.6	47.7
0338	Nov-16	0055	4318.6	6828.0	W12817.6	Y44320.8	308	98.7	47.4
0339	Nov-16	0452	4333.2	6836.6	W12765.4	Y44395.8	312	74.9	50.8
0340	Nov-16	0903	4331.1	6806.8	W12633.1	Y44342.5	018	105.3	47.7
0341	Nov-16	1203	4346.3	6757.6	W12488.8	Y44390.0	194	85.8	49.5
0342	Nov-16	1404	4345.9	6803.7	W12519.4	Y44397.5	166	93.8	50.5
0343	Nov-16	1719	4352.2	6811.8	W12513.4	Y44434.3	038	97.6	50.0
0344	Nov-16	2038	4400.5	6814.6	W12468.0	Y44470.3	311	54.7	51.0
0345	Nov-17	0527	4331.4	6918.0	W13002.1	Y44455.4	009	76.3	50.8
0346	Nov-17	0852	4323.9	6901.6	W12959.1	Y44396.1	092	81.2	49.9
0347	Nov-17	1403	4305.3	6910.3	W13124.5	Y44327.4	234	96.0	46.7
0348	Nov-17	1642	4308.8	6920.5	W13160.0	Y44360.2	220	109.6	46.6
0349	Nov-17	2300	4319.5	7010.3	X25915.5	Y44496.6	174	61.8	49.9
0350	Nov-18	0122	4317.7	7012.0	X25913.4	Y44491.5	237	58.0	50.0
0351	Nov-18	0404	4316.2	7007.9	X25885.0	Y44477.0	245	72.5	47.1
0352	Nov-18	0603	4308.8	7001.9	X25814.2	Y44432.1	294	31.7	50.2
0353	Nov-18	1019	4304.2	6955.0	W13391.5	Y44398.1	267	106.6	46.0
0354	Nov-18	1336	4256.9	7007.9	X25771.3	Y44386.3	249	70.8	48.1
0355	Nov-18	1609	4257.4	7025.0	X25862.3	Y44420.3	247	59.6	48.1
0356	Nov-18	1817	4249.2	7039.6	X25895.8	Y44406.5	179	38.3	49.0
0357	Nov-18	2037	4247.0	7041.2	X25892.2	Y44398.2	180	23.2	
0358	Nov-18	2158	4247.5	7044.4	X25915.3	Y44407.3	153	18.6	
0359	Dec-01	0002	4238.0	6935.6	W13428.5	Y44236.1	144	153.4	
0360	Dec-01	0321	4246.7	6912.1	W13246.0	Y44242.0	152	83.1	47.0
0361	Dec-01	0531	4250.7	6909.8	W13209.7	Y44258.2	144	93.2	47.1
0362	Dec-01	0755	4253.6	6920.2	W13250.7	Y44288.4	129	81.5	47.0
0363	Dec-01	1141	4243.3	6956.5	W13522.1	Y44298.0	118	112.6	46.4
0364	Dec-01	1422	4241.2	7001.9	X25643.1	Y44296.5	160	66.2	48.1
0365	Dec-02	0351	4233.1	7034.7	X25767.5	Y44312.3	226	29.5	48.6
0366	Dec-02	0939	4220.2	7046.7	X25764.5	Y44262.9	341	16.7	47.2
0367	Dec-02	1212	4221.5	7038.5	X25718.3	Y44255.3	127	36.6	48.3
0368	Dec-02	1431	4220.7	7042.3	X25738.2	Y44257.7	145	23.2	48.2
0369	Dec-02	1646	4211.4	7025.8	X25572.5	Y44175.6	115	35.3	48.3
0370	Dec-02	1854	4210.6	7007.5	X25463.9	Y44140.8	013	27.3	48.5
0371	Dec-02	2134	4219.3	6958.5	W13662.6	Y44174.8	354	114.3	48.9
0372	Dec-03	0040	4219.8	7007.7	X25529.2	Y44192.7	353	43.2	49.1
0373	Dec-03	0326	4236.3	7012.1	X25661.7	Y44289.1	165	46.5	
0374	Dec-03	0520	4234.8	7008.9	X25635.7	Y44275.4	313	41.8	

\* No haul.



















NOAA FISHERIES SERVICE-NEFSC FALL BOTTOM TRAWL SURVEY SEPTEMBER 8 - DECEMBER 3, 2010  
CATCH WEIGHTS (POUNDS) OF IMPORTANT SPECIES BY HAUL

	ATLANTIC COD	HADDOCK	POLLOCK	WHITE HAKE	SILVER HAKE	REDFISH	GOOSEFISH	SPINY DOGFISH	YELLOWTAIL FLOUNDER	WINTER FLOUNDER	AMERICAN PLAICE	WITCH FLOUNDER	WINDOWPANE FLDR	SUMMER FLOUNDER	BLUEFISH	WEAKFISH	SCUP	BLACK SEA BASS	SPOT	CROAKER	BUTTERFISH	AMERICAN LOBSTER	LOLIGO	ILLEX	TOTAL * OTHER	TOTAL ALL		
352 **	138	126	62	0	1	5	3	14123	0	0	0	0	0	0	0	0	0	0	0	0	0	8	2	1	31	14500		
353	0	0	25	47	29	379	0	471	0	0	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	130	1091	
354	210	0	46	28	55	106	114	422	0	0	43	1	0	0	0	0	0	0	0	0	0	0	0	1	98	1124		
355	0	0	0	10	111	0	25	289	0	0	56	1	0	0	0	0	0	0	0	0	7	93	1	1	155	749		
356	170	0	0	2	128	0	3	1184	28	13	11	0	4	0	0	0	0	0	0	0	0	48	0	0	0	99	1690	
357	0	14	0	1	39	0	0	28	108	46	0	0	5	0	0	0	1	1	0	0	0	64	1	0	220	528		
358	8	0	0	0	9	0	0	0	34	15	0	0	1	0	0	0	0	0	0	0	0	7	2	0	79	155		
359	0	0	0	63	95	0	15	64	0	0	21	0	0	0	0	0	0	0	0	0	0	2	0	1	159	420		
360	0	0	8	21	51	119	46	7	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	98	356	
361	0	0	0	20	58	104	23	7	0	0	2	8	0	0	0	0	0	0	0	0	0	0	0	0	0	68	290	
362	54	0	288	29	33	294	29	21	0	0	3	1	0	0	0	0	0	0	0	0	0	2	0	0	0	56	810	
363	0	0	127	245	229	2388	10	27	0	0	27	4	0	0	0	0	0	0	0	0	0	0	0	0	0	47	3104	
364	9	65	10	37	6	12	14	110	0	0	2	1	0	0	0	0	0	0	0	0	0	2	10	0	0	30	308	
365 **	43	2	3	0	9	23	0	0	18	14	0	0	1	0	0	0	0	0	0	0	0	51	4	0	0	69	237	
366	72	1	1	0	0	0	0	0	4	17	0	0	0	0	0	0	0	0	0	0	0	111	0	0	0	330	536	
367	192	12	0	0	99	1	2	875	56	389	42	0	9	0	0	0	0	0	0	0	1	19	1	0	0	128	1826	
368	835	2	0	0	5	2	0	15	33	73	0	0	0	0	0	0	0	0	0	0	0	85	1	0	0	301	1352	
369	15	0	0	1	34	0	1	2294	6	28	1	0	7	0	0	0	0	0	0	0	13	10	3	0	0	533	2946	
370	43	11	0	9	45	0	0	59	101	60	0	0	5	0	0	0	0	0	0	0	0	19	10	1	0	1316	1679	
371	1	14	0	17	57	177	14	4	0	2	20	7	0	0	0	0	0	0	0	0	0	3	0	0	0	56	372	
372 **	17	116	0	1	19	3	0	635	0	12	0	0	0	0	0	0	0	1	0	0	0	5	2	1	0	152	964	
373 **	64	29	0	0	2	0	2	51	1	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	11	166	
374 **	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3071	7426	710	2680	16847	11825	2252	50627	1957	2679	700	288	527	1020	871	508	5193	486	2065	3263	7329	2999	7016	1388	70425	204152		

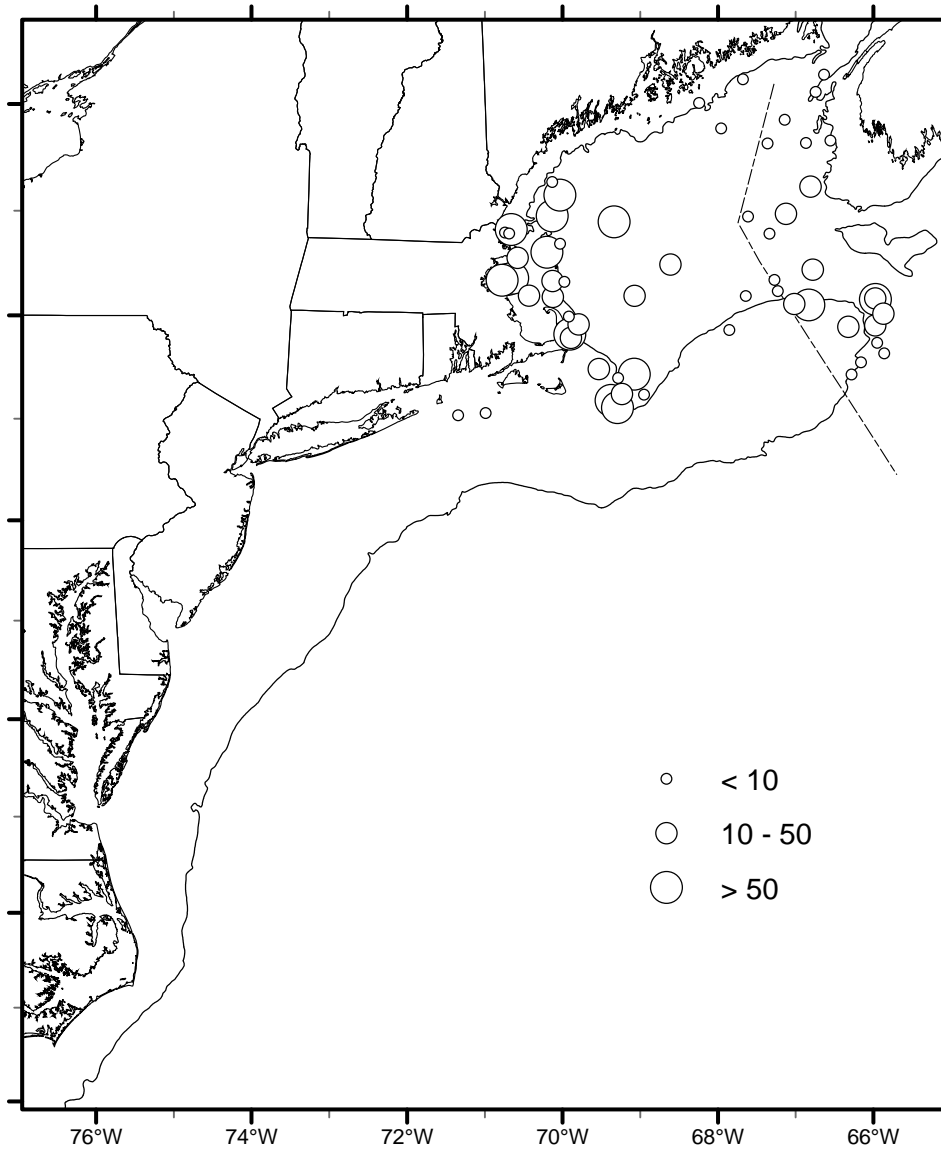
\* "Total other" in southern areas are comprised primarily of rays, large sharks and spotted hake.

\*\* Excluded from stock assessment due to unacceptable tow evaluation code. See Catch Summary page for tow evaluation code explanation.

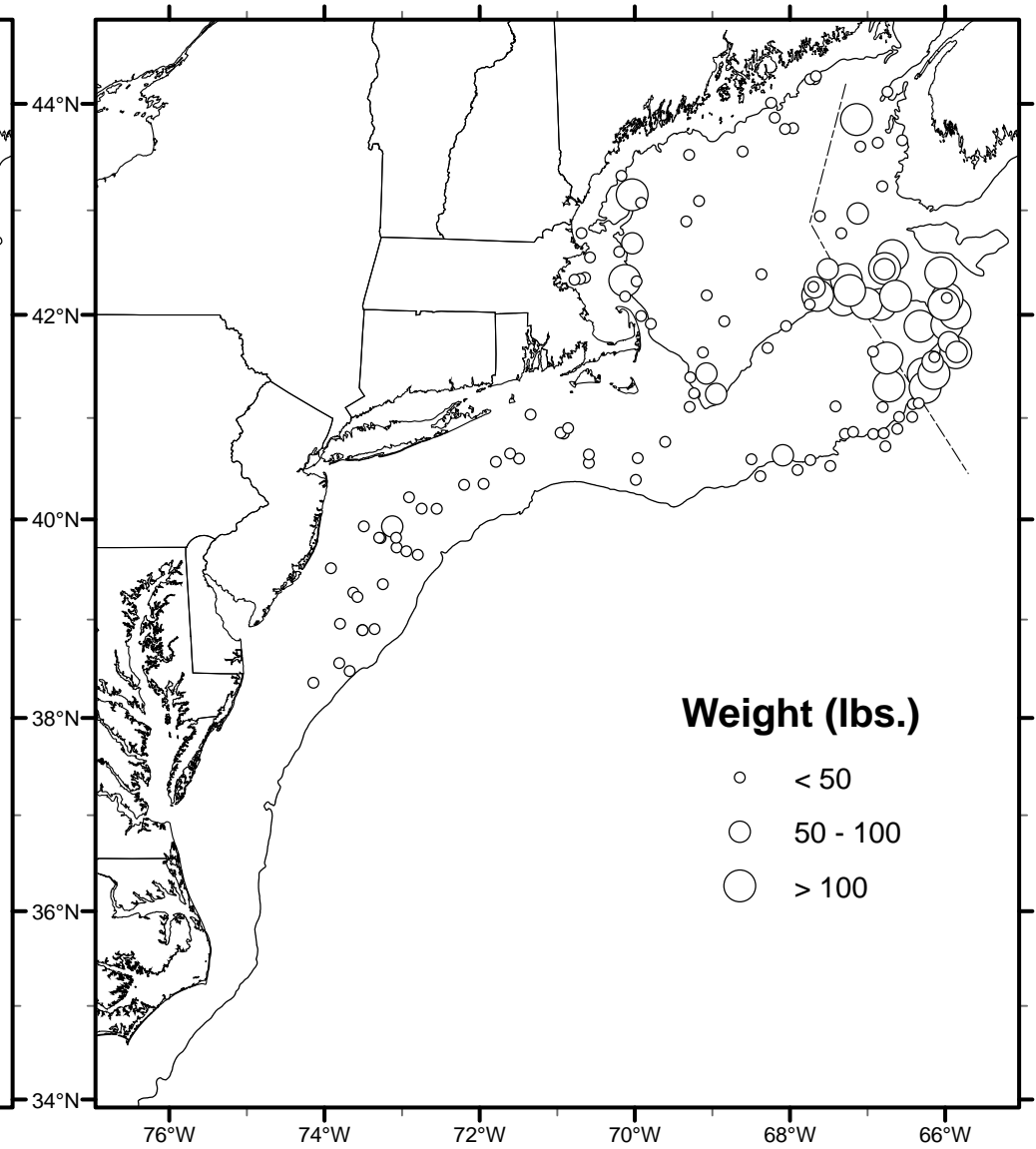
\*\*\* CTD only station or no haul.

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8 September to 3 December 2010

ATLANTIC COD

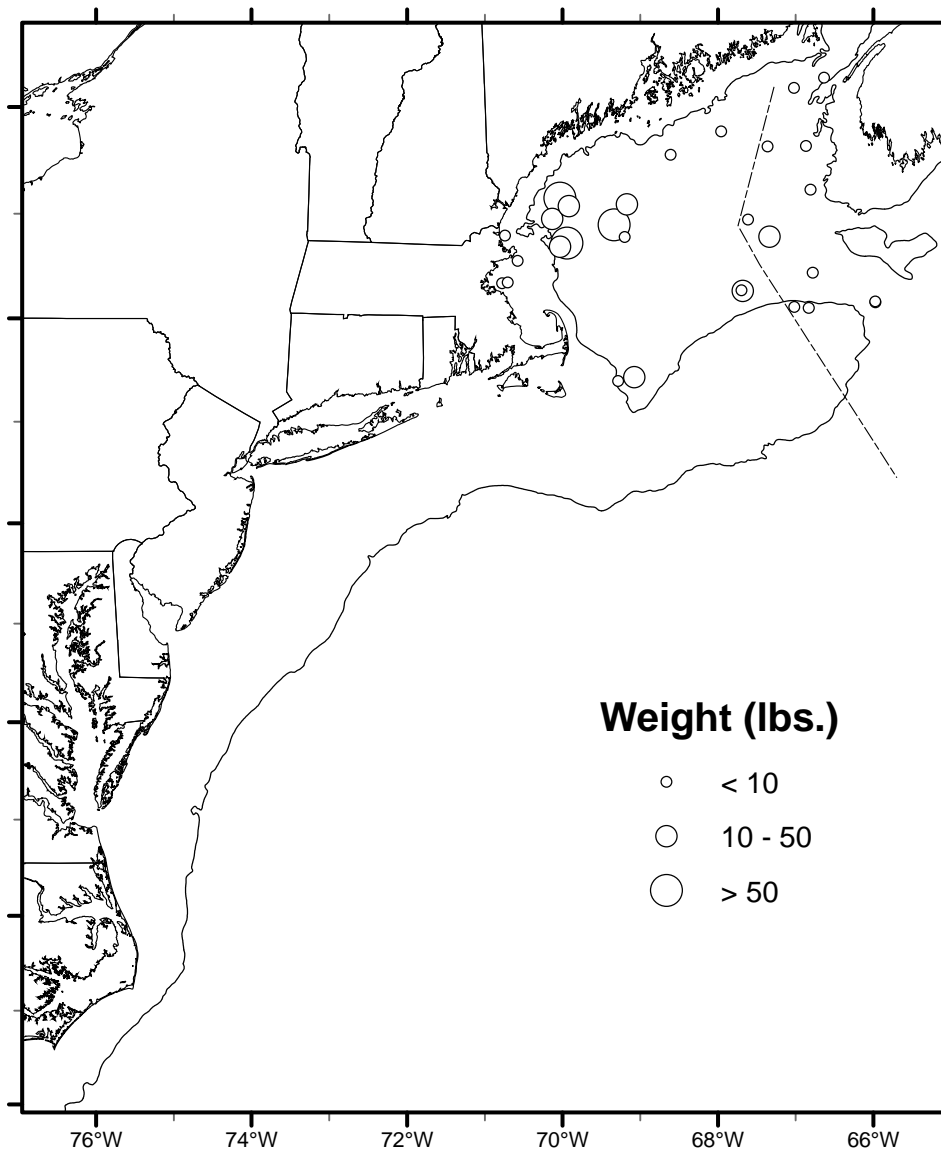


HADDOCK

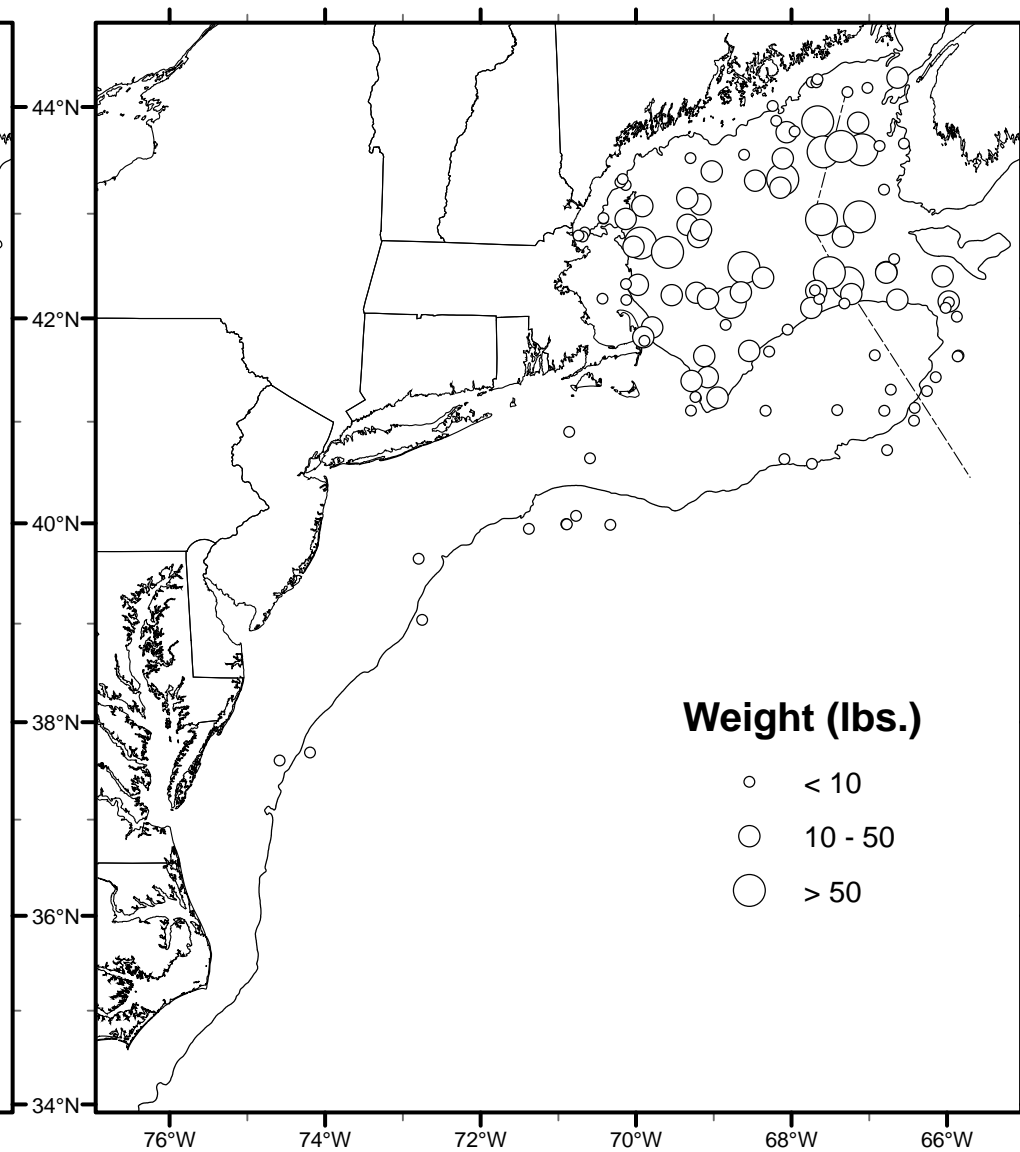


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**POLLOCK**

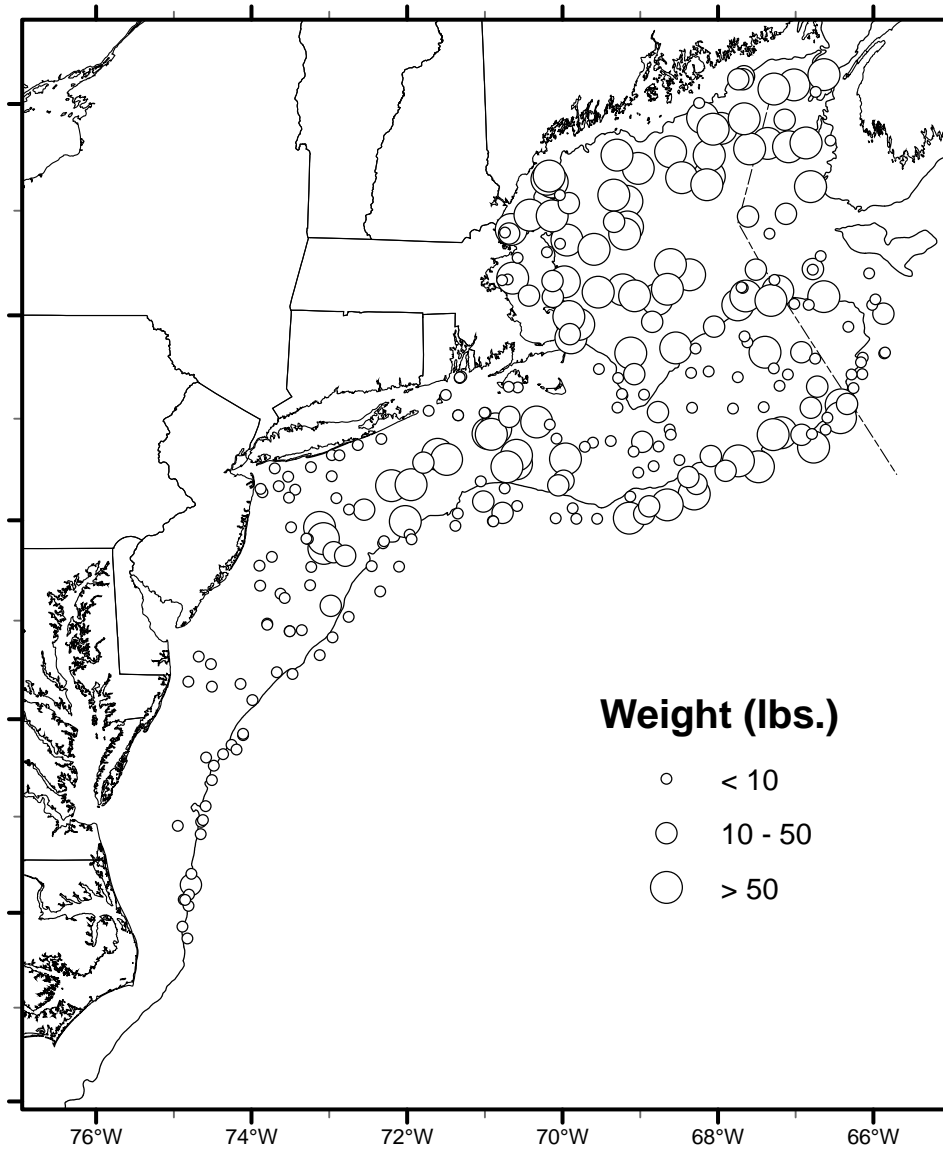


**WHITE HAKE**

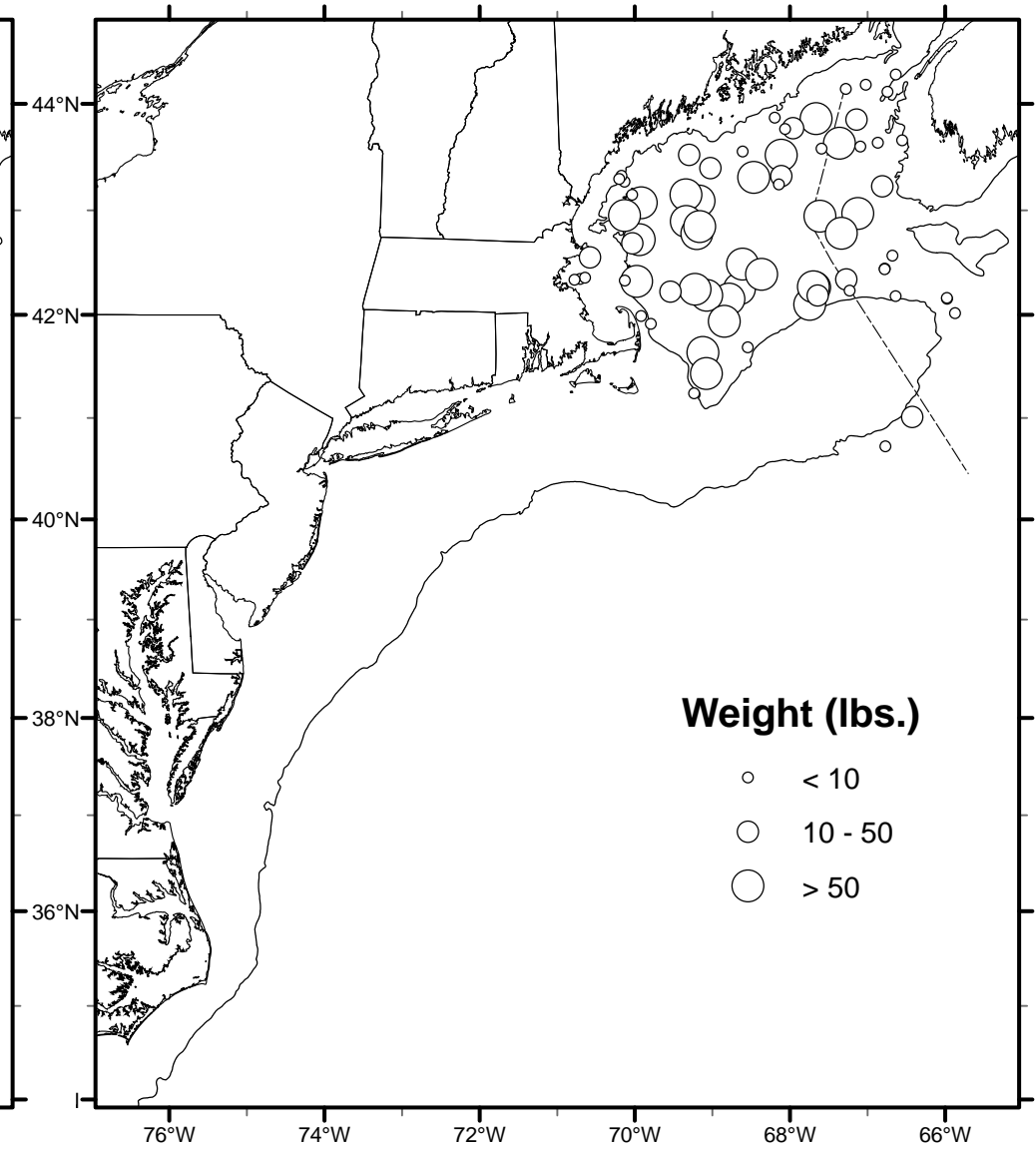


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NEFSC Bottom Trawl Survey  
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**SILVER HAKE**

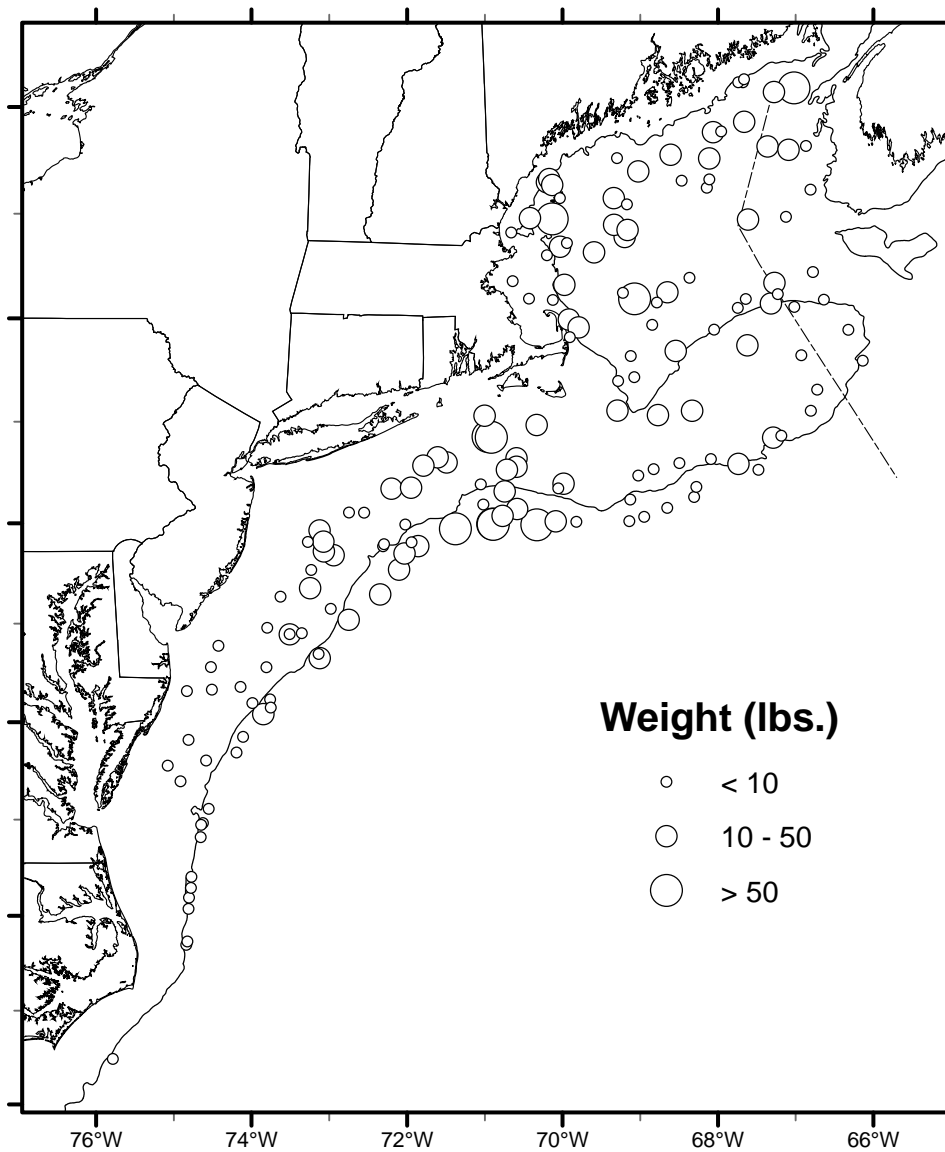


**ACADIAN REDFISH**

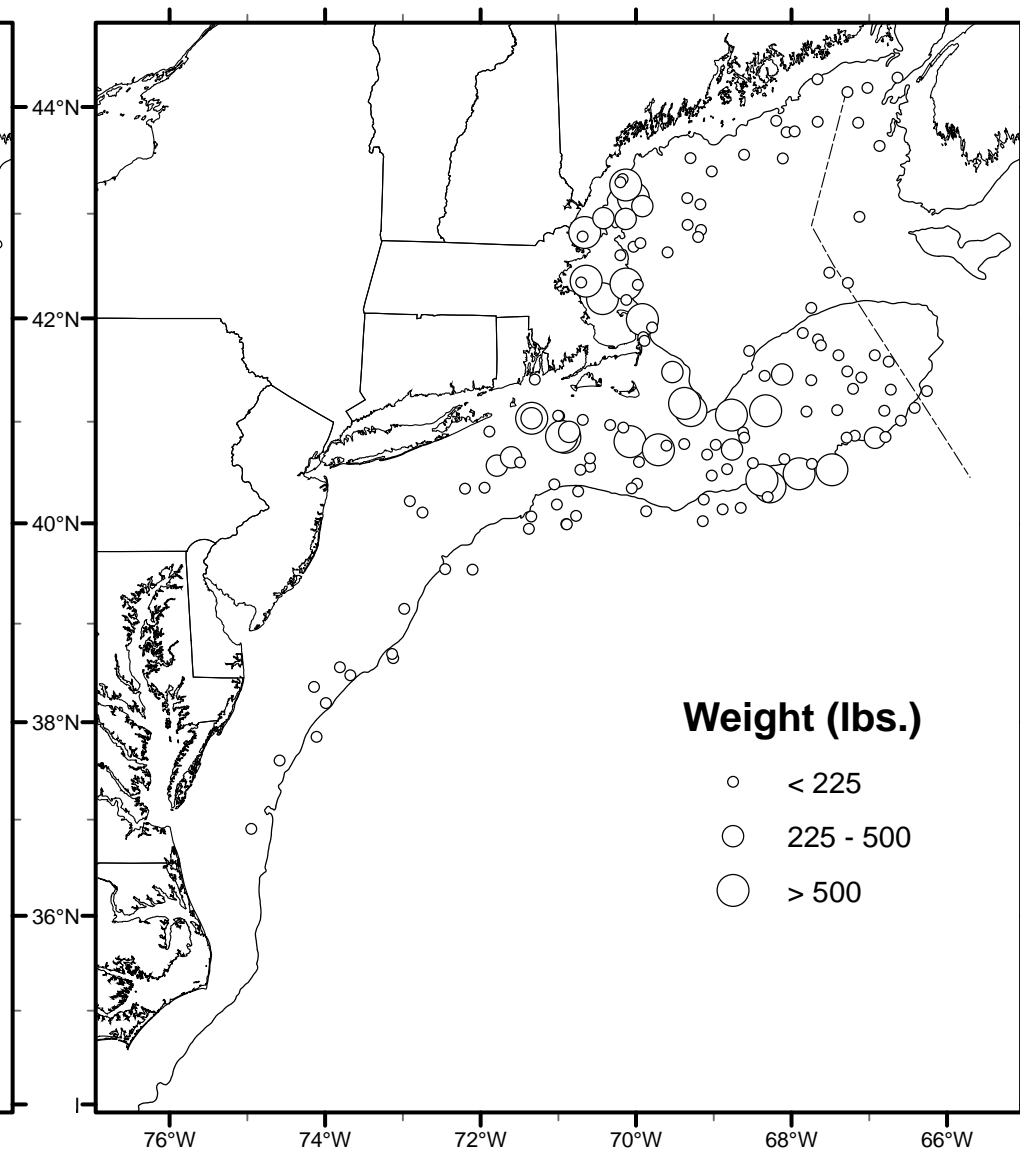


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GOOSEFISH

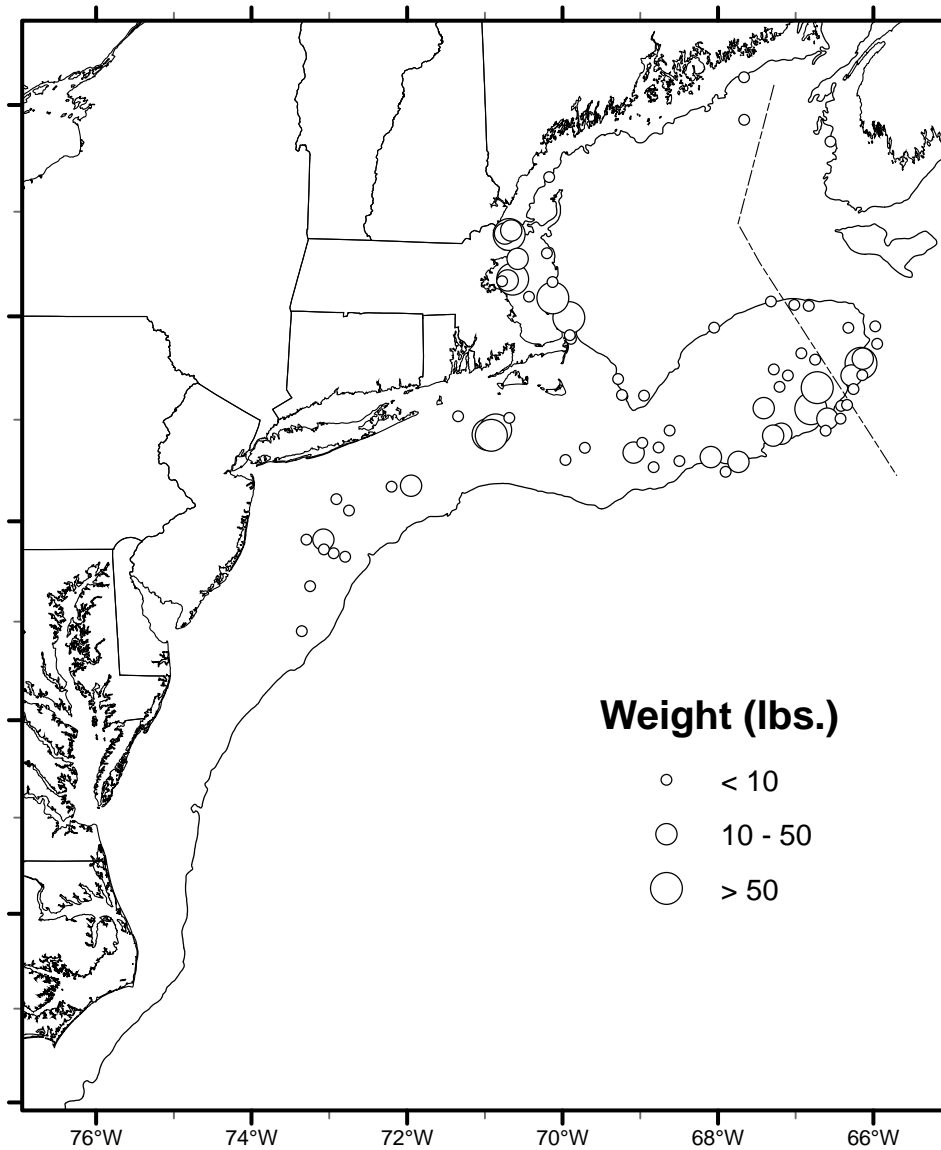


SPINY DOGFISH

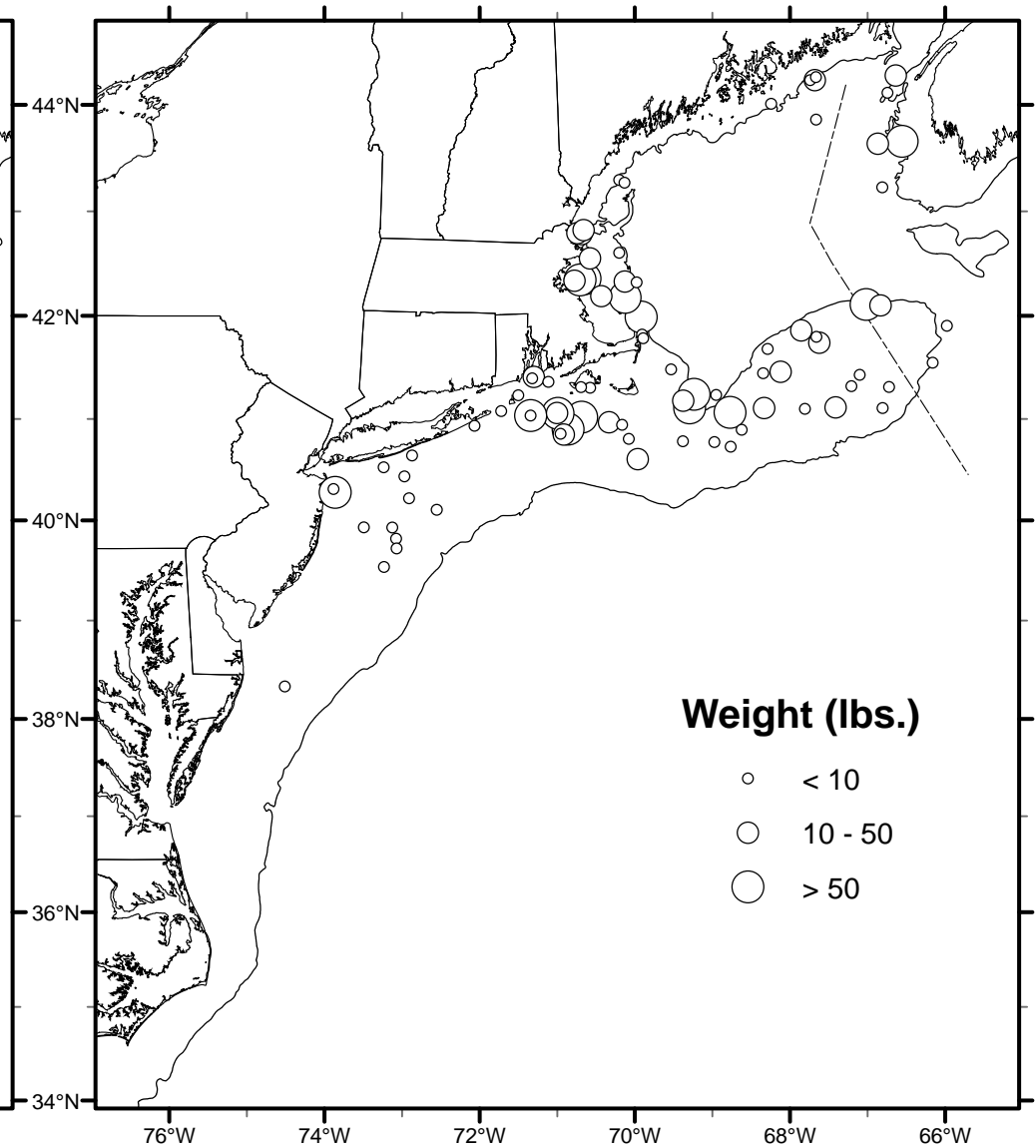


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**YELLOWTAIL FLOUNDER**



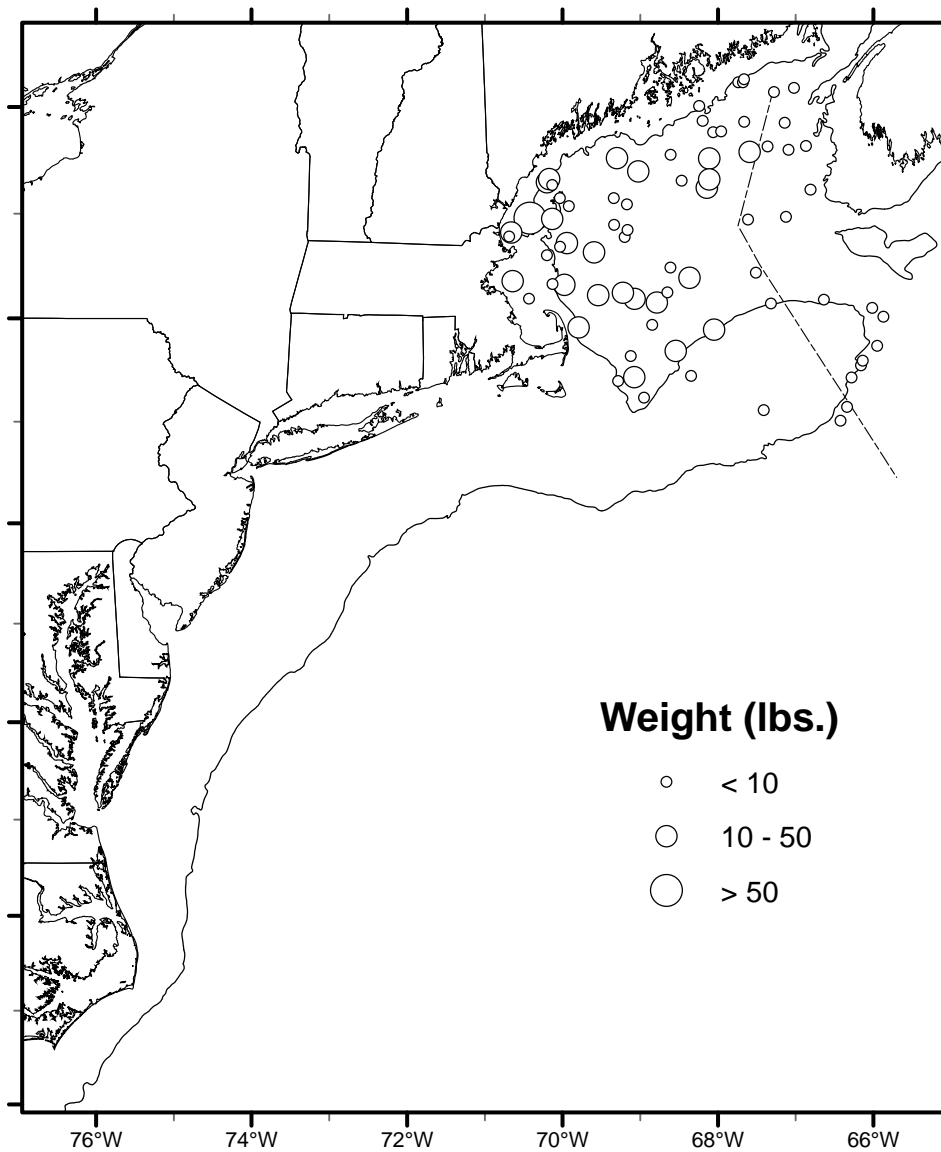
**WINTER FLOUNDER**



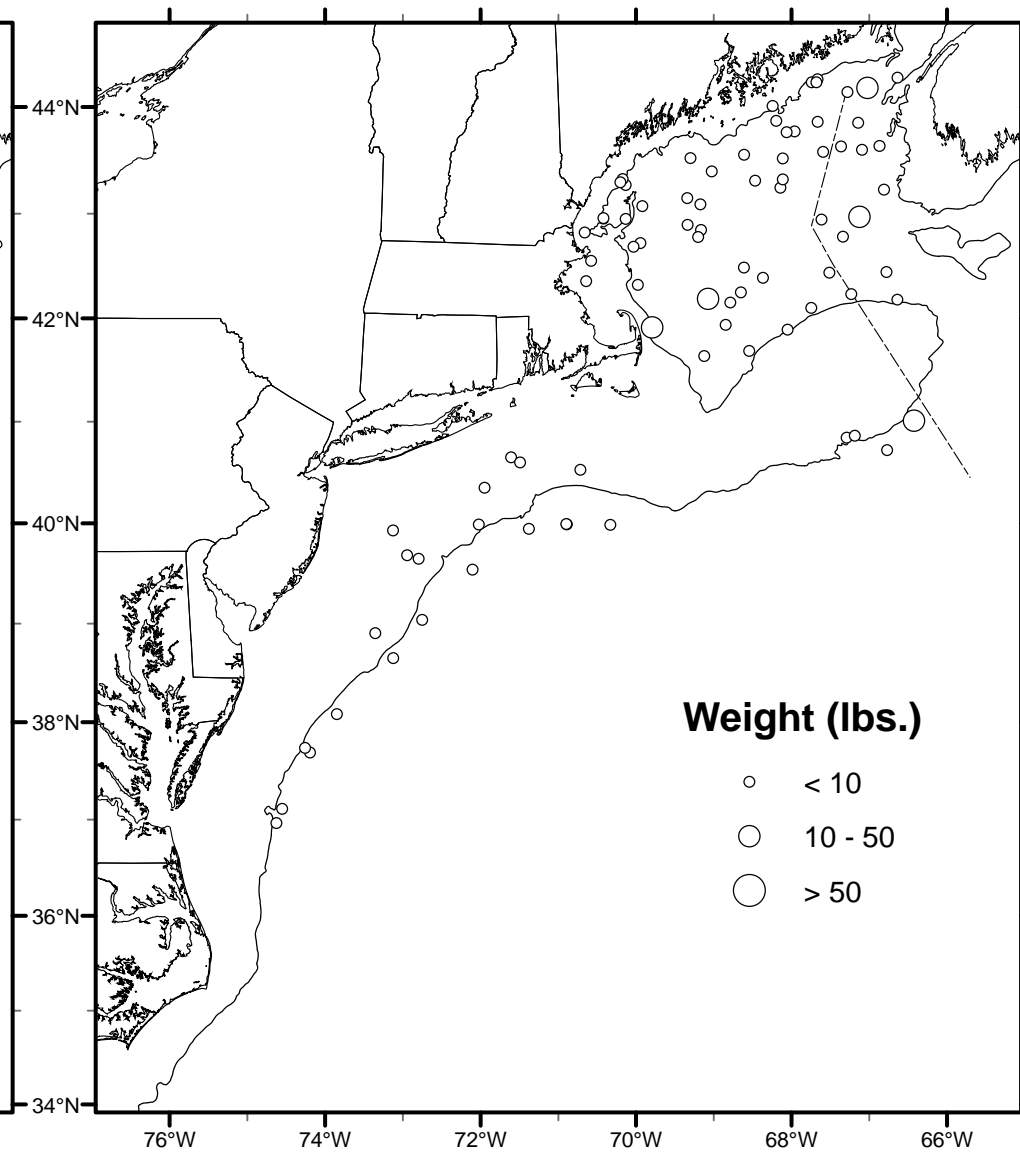


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AMERICAN PLAICE

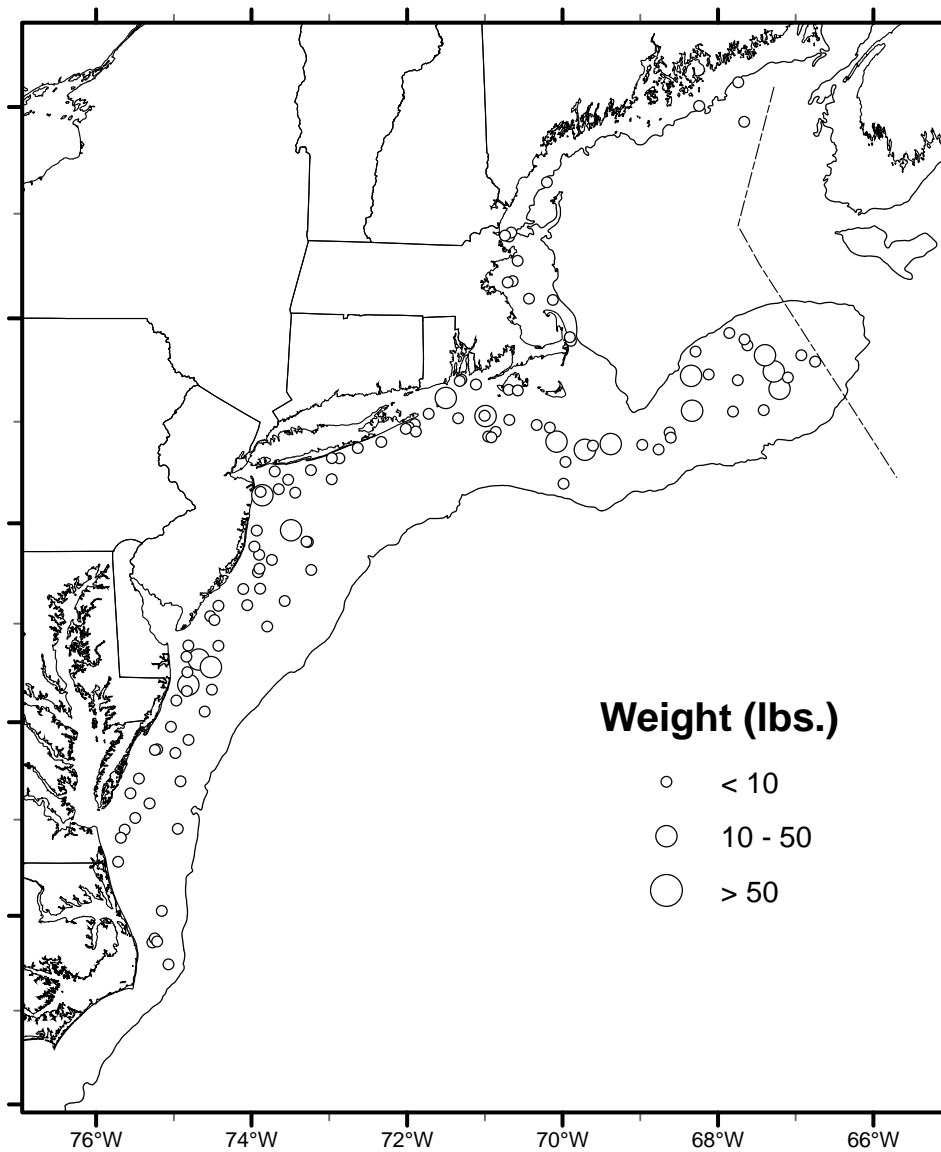


WITCH FLOUNDER

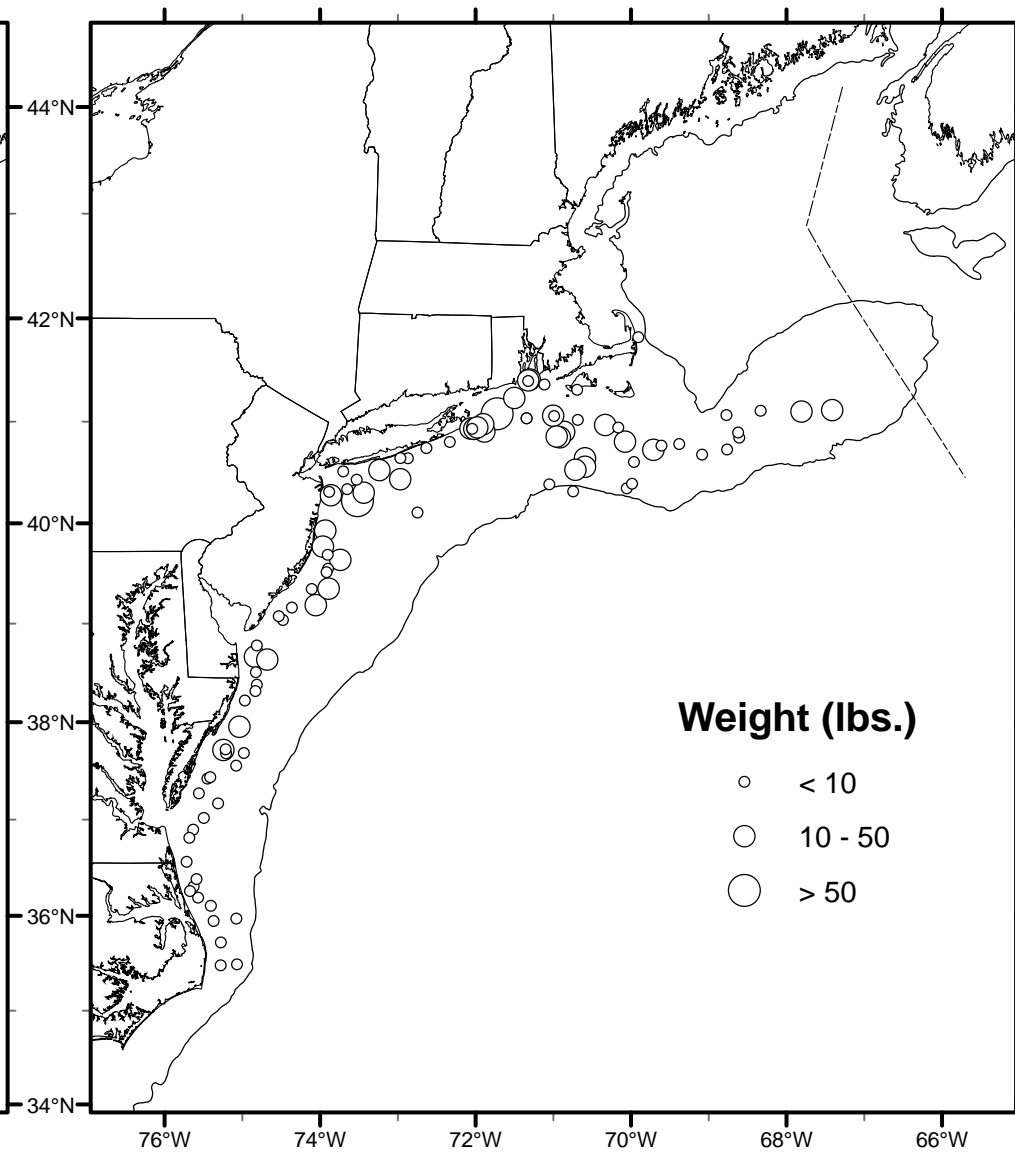


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WINDOWPANE

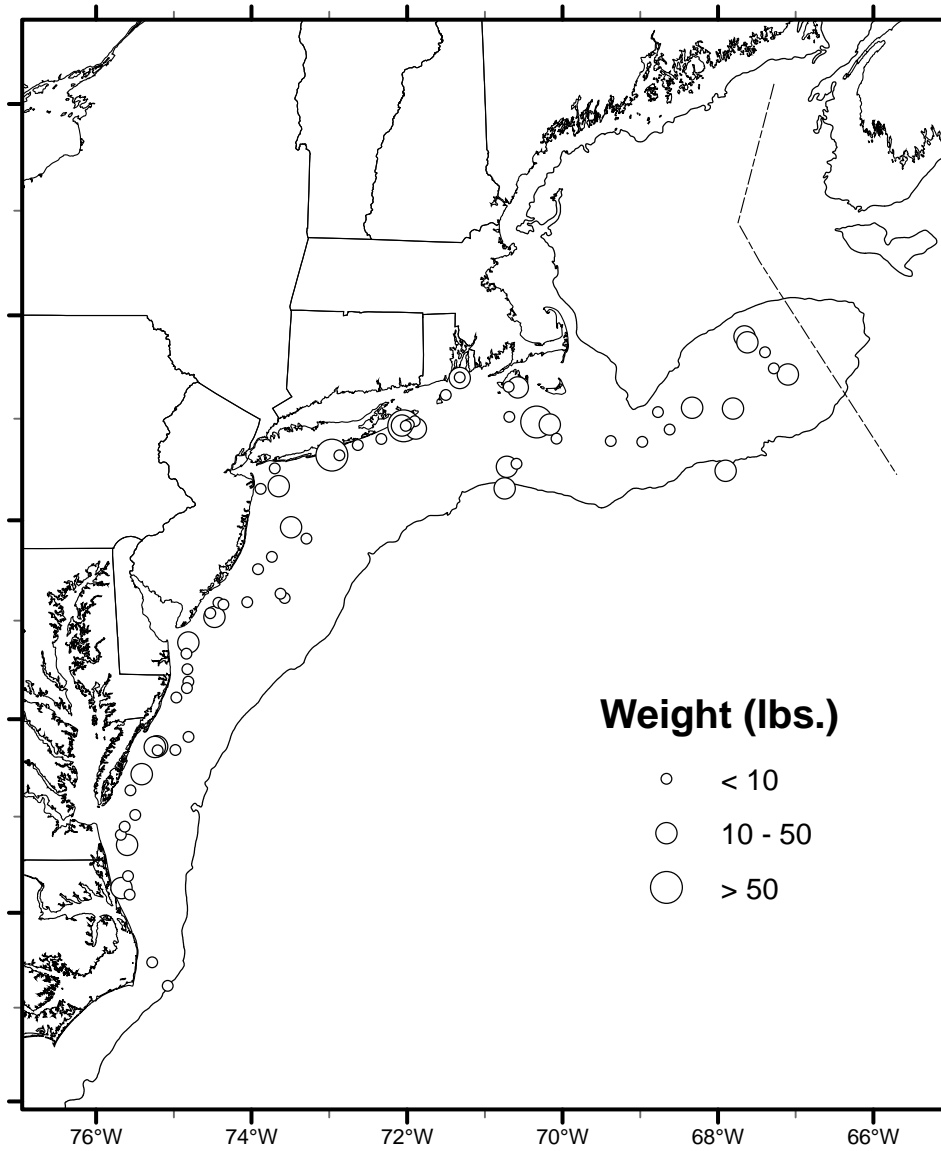


SUMMER FLOUNDER

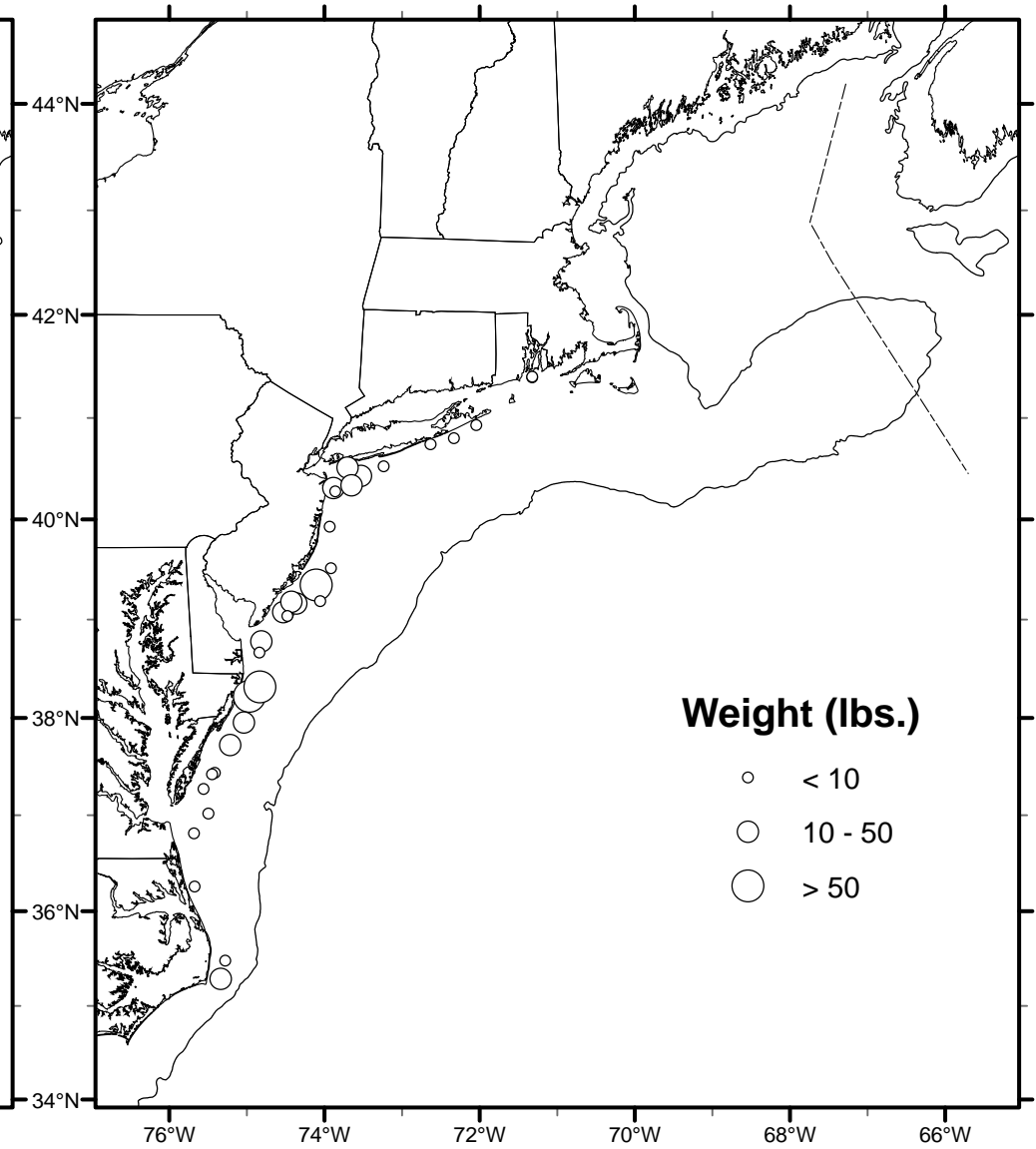


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**BLUEFISH**

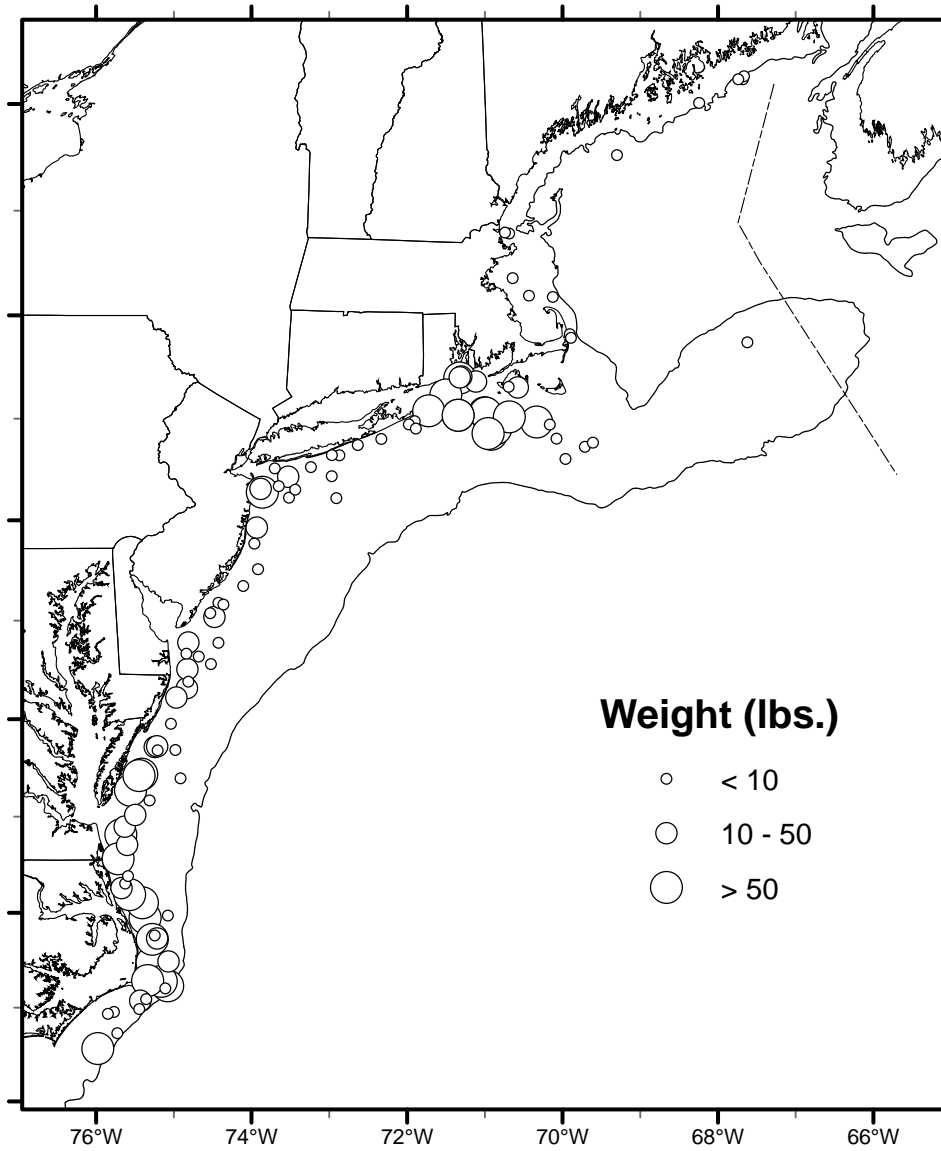


**WEAKFISH**

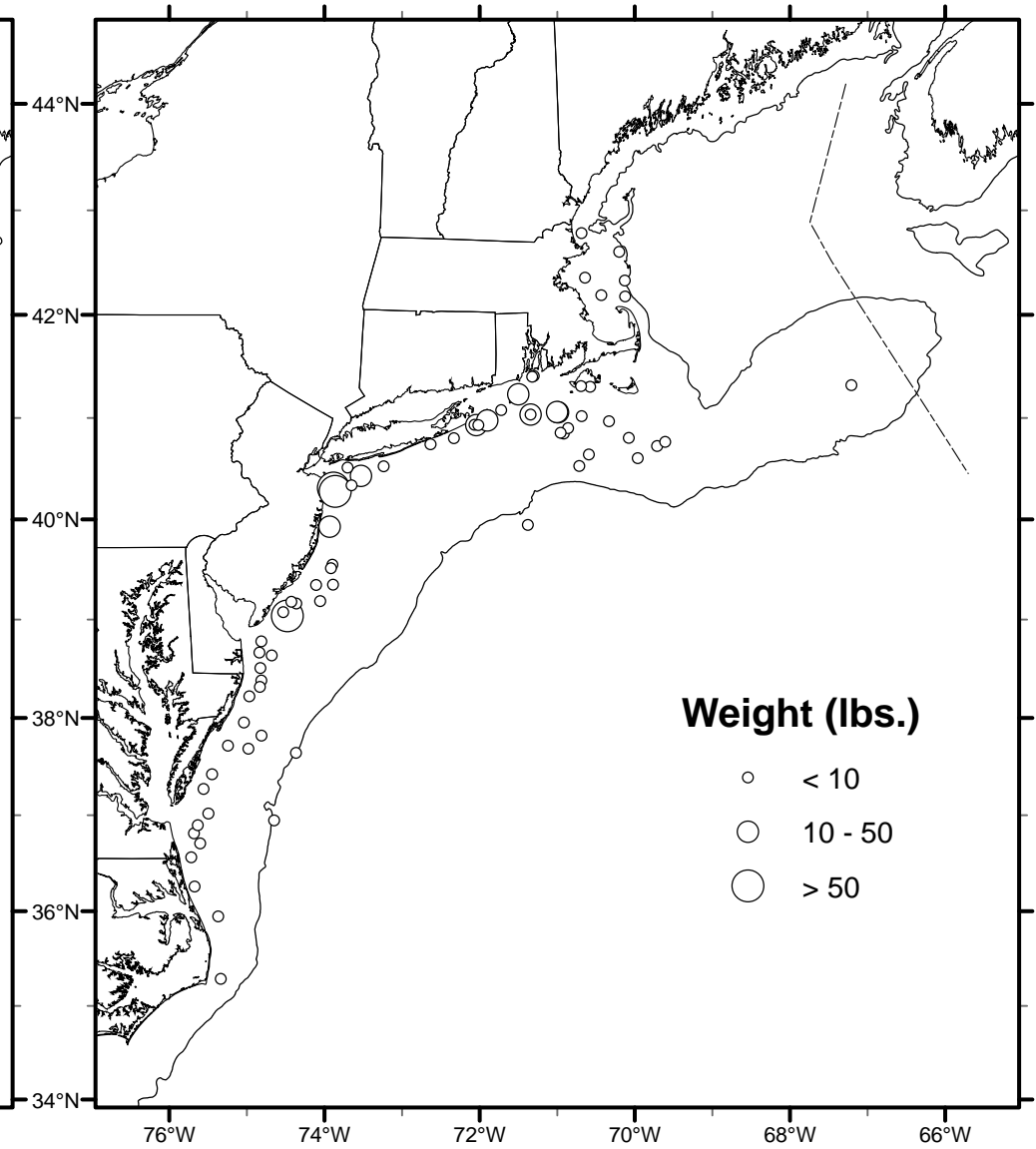


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SCUP

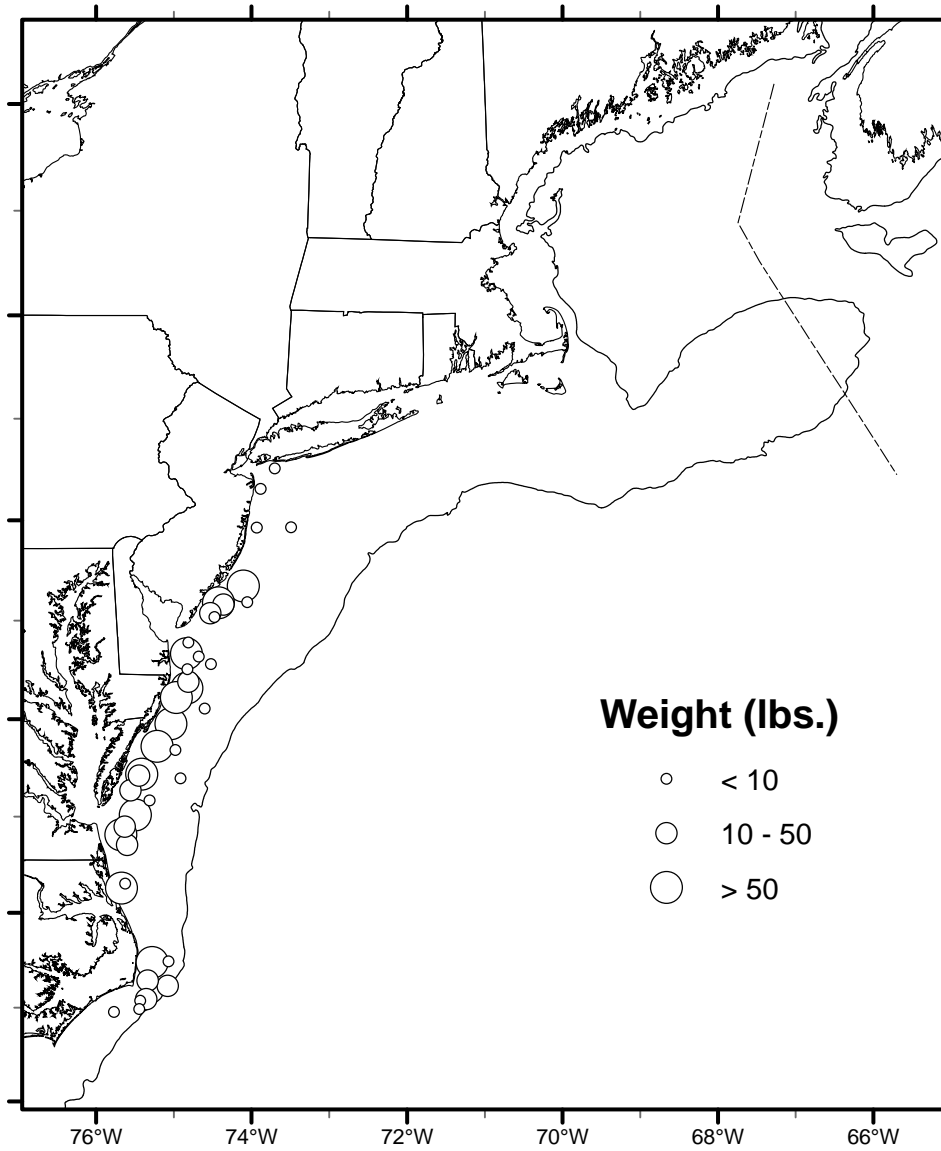


BLACK SEA BASS

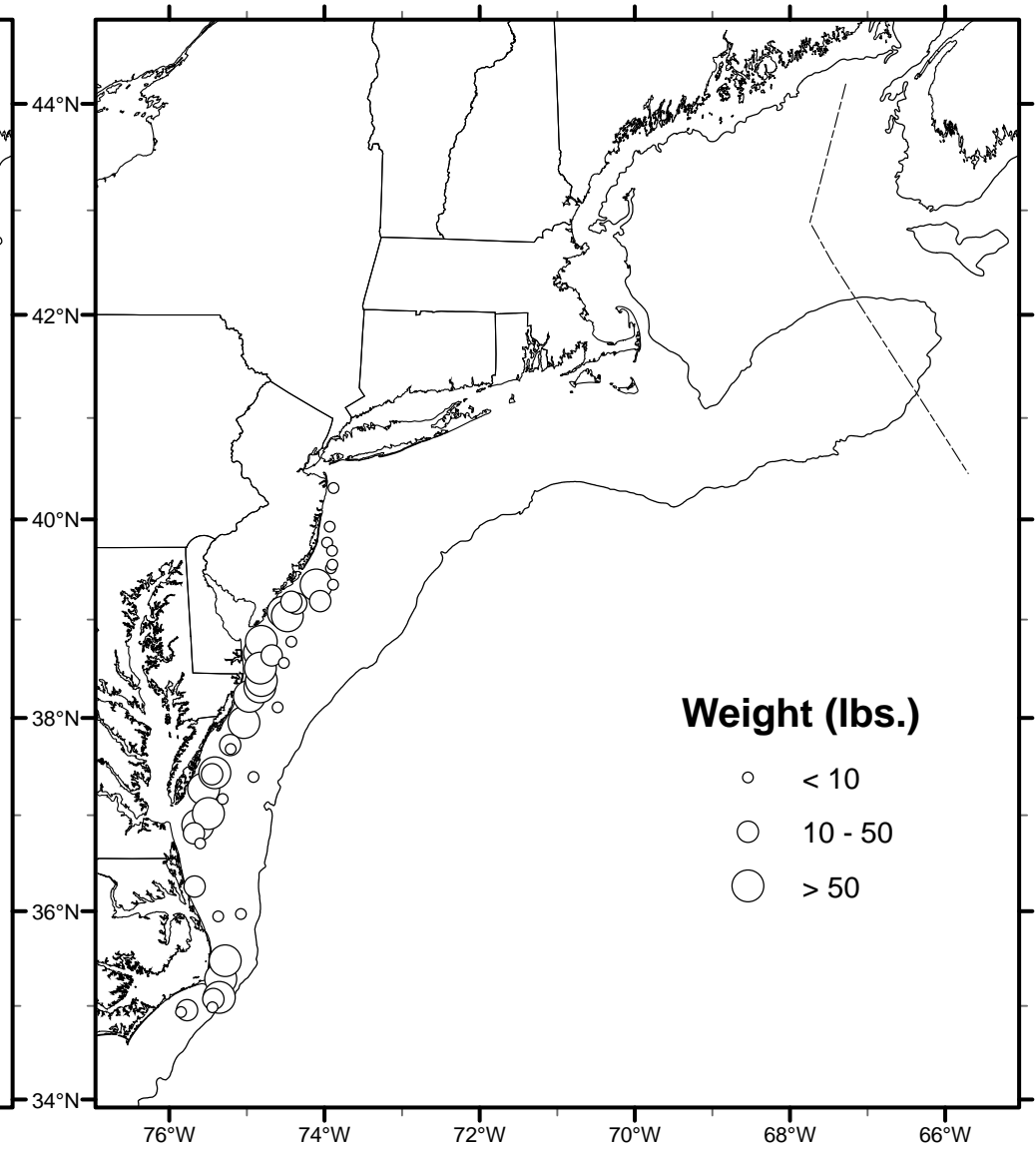


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**SPOT**

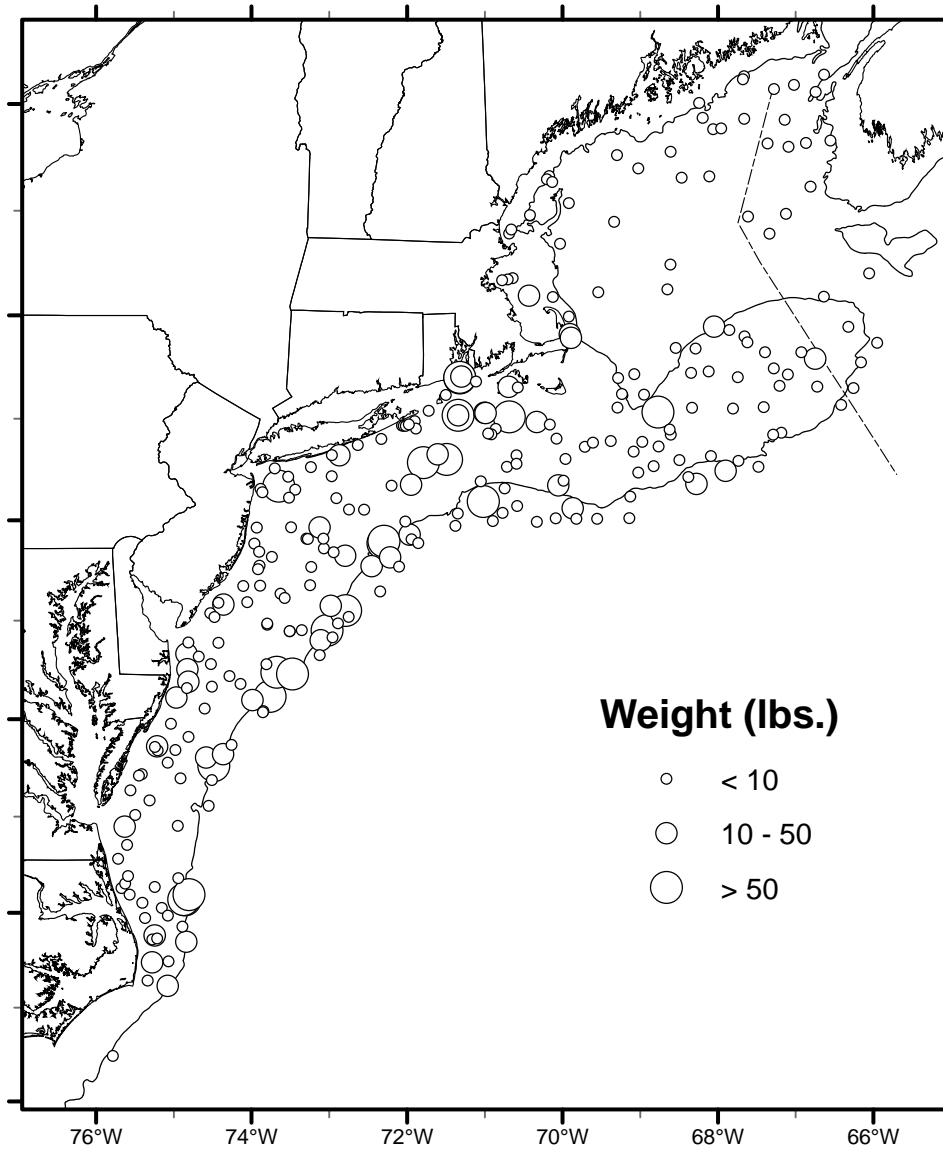


**ATLANTIC CROAKER**

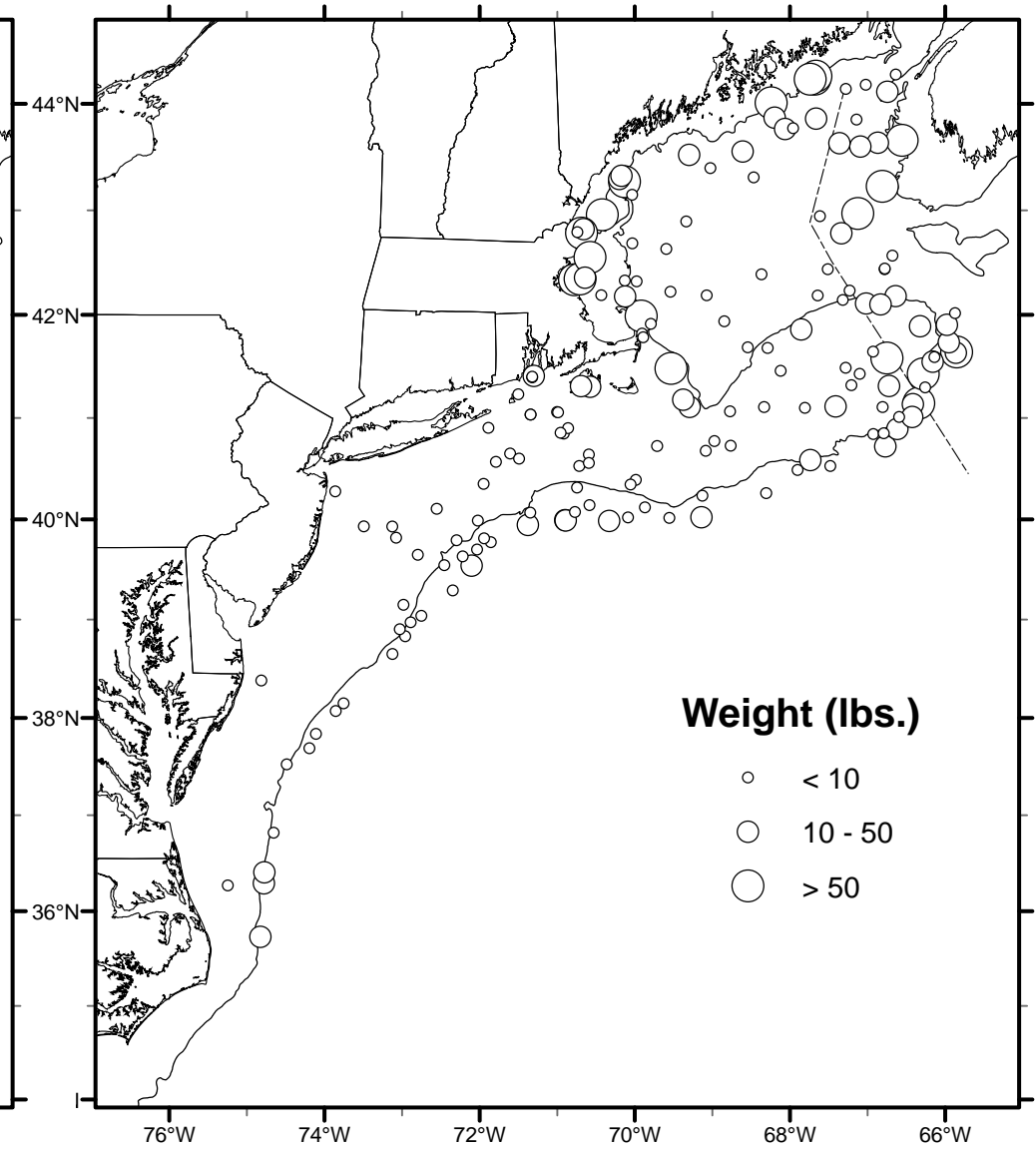


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**BUTTERFISH**

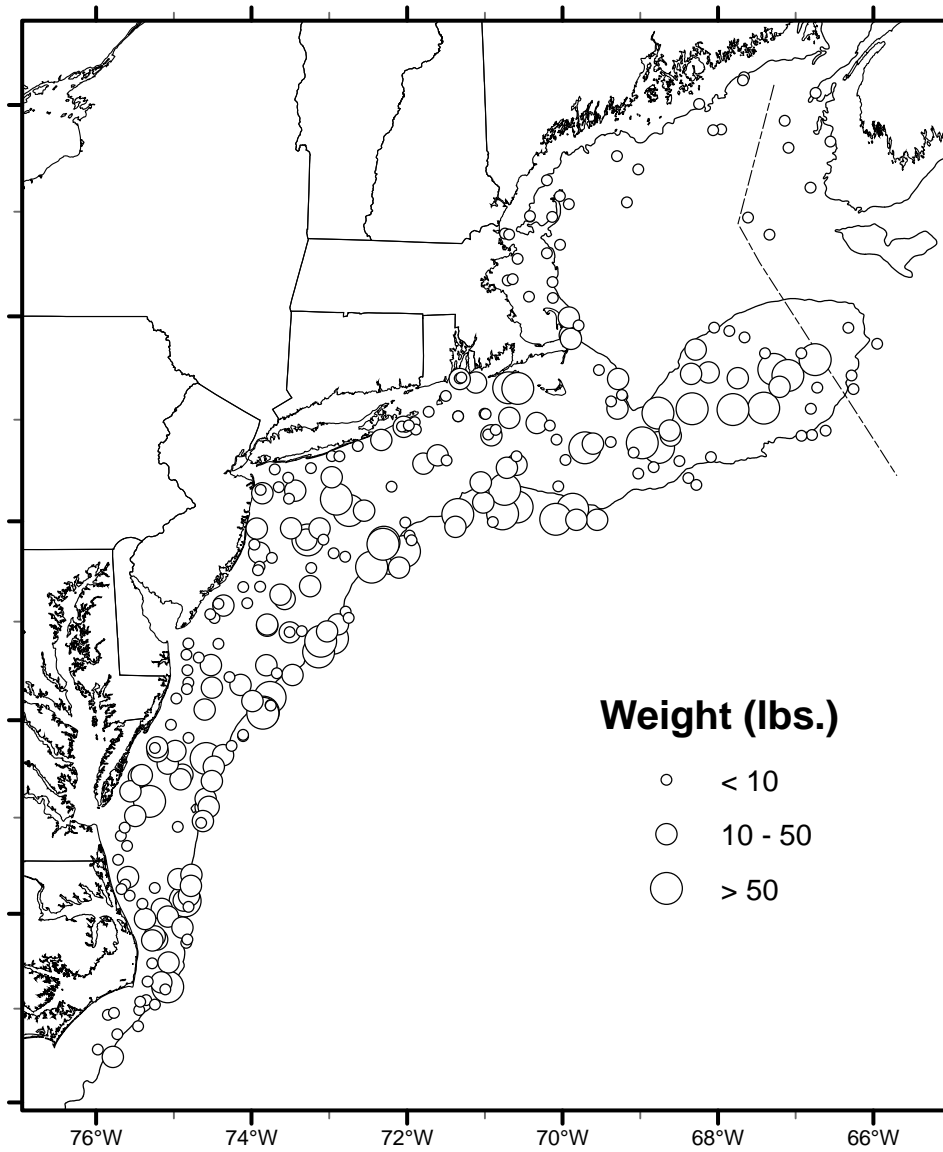


**AMERICAN LOBSTER**



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NEFSC Bottom Trawl Survey  
8 September to 3 December 2010

**LOLIGO**



**ILLEX**

