

**Annual Report on the
Maine-New Hampshire Inshore Trawl Survey
January 1, 2007-December 31, 2007**

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TABLE OF CONTENTS

Acknowledgements	iii
Executive Summary	iv
Introduction	1
Objective	1
Materials and Methods	2
Results	
Spring 2007 Summary	2
Fall 2007 Summary	5
Highlights	9
Survey Indices	9
White Hake	9
Silver Hake	10
Winter Flounder	11
Atlantic Cod	12
Goosefish	13
Witch Founder	14
Redfish	15
American Plaice	16
Windowpane Flounder	17
Haddock	18
Rainbow Smelt	19
Atlantic Halibut	20
Longhorn Sculpin	21
Atlantic Herring	22
Spiny Dogfish	23
Atlantic Menhaden	23
American Lobster	24
Length Frequency Graphs	25
Partnerships	30
Special Projects	30
References	30
Appendix A: Individual Station Descriptions	A-1
Appendix B: Taxa List	B-1
Appendix C. MENH Inshore Survey Trawl Gear Manual	C-1

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The Maine-New Hampshire Inshore Trawl Survey is a complex project that benefits from the assistance of many people. Without their help the surveys could not be successfully completed.

We would like to thank the Maine DMR and New Hampshire F&G staff that helped with the mailings, car shuttles, and contributed to the data collection and entry. We appreciate the hard work put in by the crew of the F/V Robert Michael, Captain Curt Rice and Captain Robert Tetrault II, and crewmembers Robert Woodward and Jerry Balzano. Jeff Flagg provided invaluable assistance by mending and transporting nets to keep the survey running on schedule, and storing gear during the off-season.

Thanks to science crewmembers, Trisha deGraaf, Tim Bennett, Cullen Wilson, Jessica Fisher, Kevin Sullivan, Rob Royer, Ryan MacDonnell, and Kim Trull. Special thanks to fishermen observers Steve Train, Adam Joy, Linda Lunt and Jason Joyce. We are especially grateful for the support provided by Colonel Joe Fessenden, Lieutenants Jon Cornish and Alan Talbot, and some 20 Marine Patrol Officers who helped both on and off the water, handling gear, helping to communicate with lobstermen, and whose presence added to our security.

We also express many thanks to all of the facilities along the coast that provided dockage for the survey vessels: Wentworth by the Sea (Portsmouth, NH), Journey's End Marina (Rockland, ME), Vinalhaven Public Pier, Billings Marine (Stonington, ME), Great Harbor Marine (Southwest Harbor, ME) and the US Coast Guard (Jonesport, ME).

Once again, we are grateful to NOAA National Weather Service's James Mansfield and Mark Turner for broadcasting our schedule to mariners to avoid gear conflicts and address the communications concerns raised by fixed gear fishermen.

Lastly, we appreciate the support and cooperation of those fixed gear fishermen throughout the survey area that moved gear and suggested alternate sites when necessary. The Lobster Zone Councils, Maine Lobster Advisory Council, Maine Lobstermen's Association, and Downeast Lobstermen's Association also provided many comments and suggestions to help minimize gear conflicts and improve cooperation.

EXECUTIVE SUMMARY

This report summarizes results from the 2007 sampling season of a comprehensive bottom trawl survey of groundfish and invertebrate species along the coast of Maine and New Hampshire. Prior to 2000, fishery-independent data had been absent for nearly 80% of the inshore Gulf of Maine's inshore waters. The Maine-New Hampshire Inshore Trawl Survey was initiated to fill the information gap and collect valuable information on the fish and biological communities in this area and establish a time series for long-term monitoring of inshore stocks. The survey has a stratified random design similar to the National Marine Fisheries Service's Gulf of Maine survey and the Massachusetts Division of Marine Fisheries inshore survey, with an additional fixed station subset. Using a specially designed net and a commercial fishing vessel, the survey has proven to be a successful example of fishermen and scientists working together to benefit fisheries management. Two annual surveys are conducted, fall and spring, to create a rich database on fish and invertebrate species that is accessible to fishery managers, academic researchers, fishing industry members, graduate students, non-governmental organizations, and the general public. With seven complete years and an eighth underway, clear patterns of distribution and abundance have emerged for many species. Information from the survey is used in the assessment and management of several fisheries, and additional requests for and uses of these data have provided new insight into communities and populations in the Gulf of Maine.

INTRODUCTION

Initiated in the fall of 2000, the Maine-New Hampshire Inshore Trawl Survey is a collaborative partnership between commercial fishermen and state researchers to assess inshore fish stocks along the Maine and New Hampshire coasts. The survey has completed seven years of biannual survey work, and the eighth year is now underway. From its inception, the project has been supported by federal funds appropriated to the National Marine Fisheries Service to foster cooperative research using commercial vessels. Collaborative research enables fishermen to contribute their knowledge and experience toward the progress of scientific data collection and ultimately to resource management decisions, and strengthens the trust between fishermen and scientists, increasing the confidence fishermen have in the data.

Fishery-independent trawl surveys help to provide an index of the distribution and abundance of a variety of fish and invertebrate species that is not influenced or biased by fishing effort or outside factors. As they continue on an annual basis, these surveys should reflect changes in abundances of populations more accurately than commercial fisheries catch statistics. Abundance indices derived from research trawl surveys that maintain consistent and standardized efforts can be utilized to enhance catch statistic based assessments and with additional research efforts could eventually provide population abundance estimates.

Surveying the inshore waters of the Maine and New Hampshire coasts has been difficult due to a complex bottom consisting of ledges, canyons, seamounts and boulders, amplified by an abundance of lobster gear. The survey has seen an average success rate of 95% in the spring and 71% in the fall. Dealing with the large quantity of fixed gear, especially in the fall, still limits the number of tows that can be made, but continual and extensive public outreach has maintained a satisfactory level of tow completion. Despite the difficulties, the coverage this survey provides promises to be very valuable to better understanding marine ecosystems in the Gulf of Maine. We are confident that the northern Gulf of Maine can be successfully and consistently sampled via trawl survey indefinitely, with sustained funding.

Project Objectives:

The overall goal of this project is to establish a solid foundation for a long-term fishery-independent monitoring program in Maine and New Hampshire's inshore waters (5-80⁺ fathoms).

Specific objectives are:

- To document the distribution and relative abundance of marine resources in the nearshore Gulf of Maine.
- To improve survey logistics to gain cooperation of the fixed gear fishermen.
- To develop recruitment indices for assessments of target species.
- To involve fishermen in scientific data collection.
- To collect environmental data, including temperature and salinity that can affect fish distribution.
- To gather information on biological parameters (growth rates and reproduction).

MATERIALS AND METHODS

Methods are described under separate cover in “Maine-New Hampshire Inshore Groundfish Trawl Survey Procedures and Protocols (2005),” available on-line at <http://www.maine.gov/dmr/rm/rawl/rawl.htm>. The manual includes detailed descriptions of survey design, station selection, survey vessels, net design, public notification, sample collection and catch handling, and other information on survey methods and operations.

RESULTS

SPRING 2007 SUMMARY

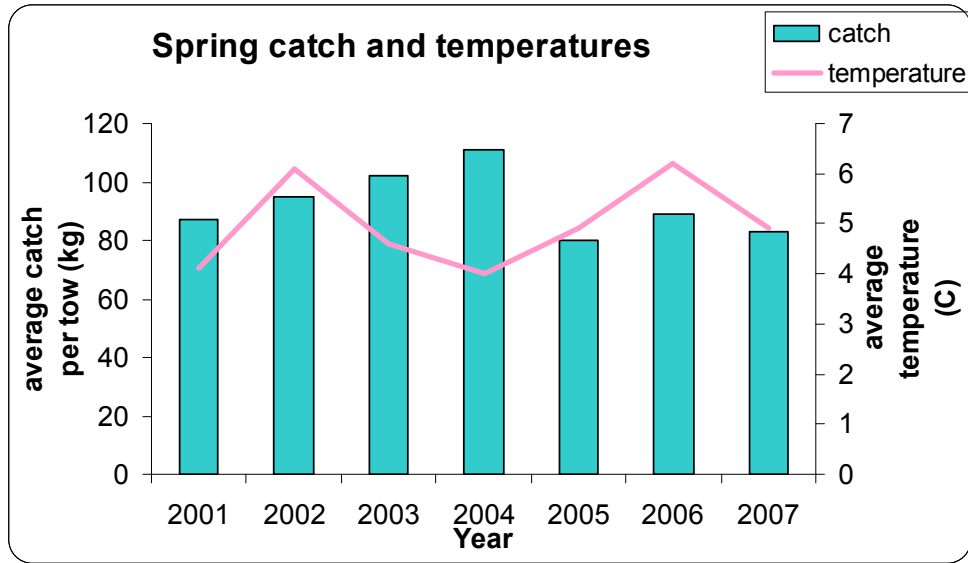
The spring survey began on May 7, 2007 in Portsmouth, New Hampshire and finished on June 9th. Of the 115 targeted tows, 108 total tows were completed for a success rate of 94%. Average bottom temperatures by stratum ranged from 3.7 to 6.6 °C, with an average of 4.9 °C for the whole survey (Table 1).

Table 1. Average Bottom Temperature (°C) for the Spring 2007 Survey

Region						
		1	2	3	4	5
Stratum	1	4.2	5.8	5.2	6.6	6.3
	2	3.8	4.3	5.3	4.9	5.7
	3	3.9	3.9	5.0	4.8	5.4
	4	4.1	3.9	4.4	5.1	6.2

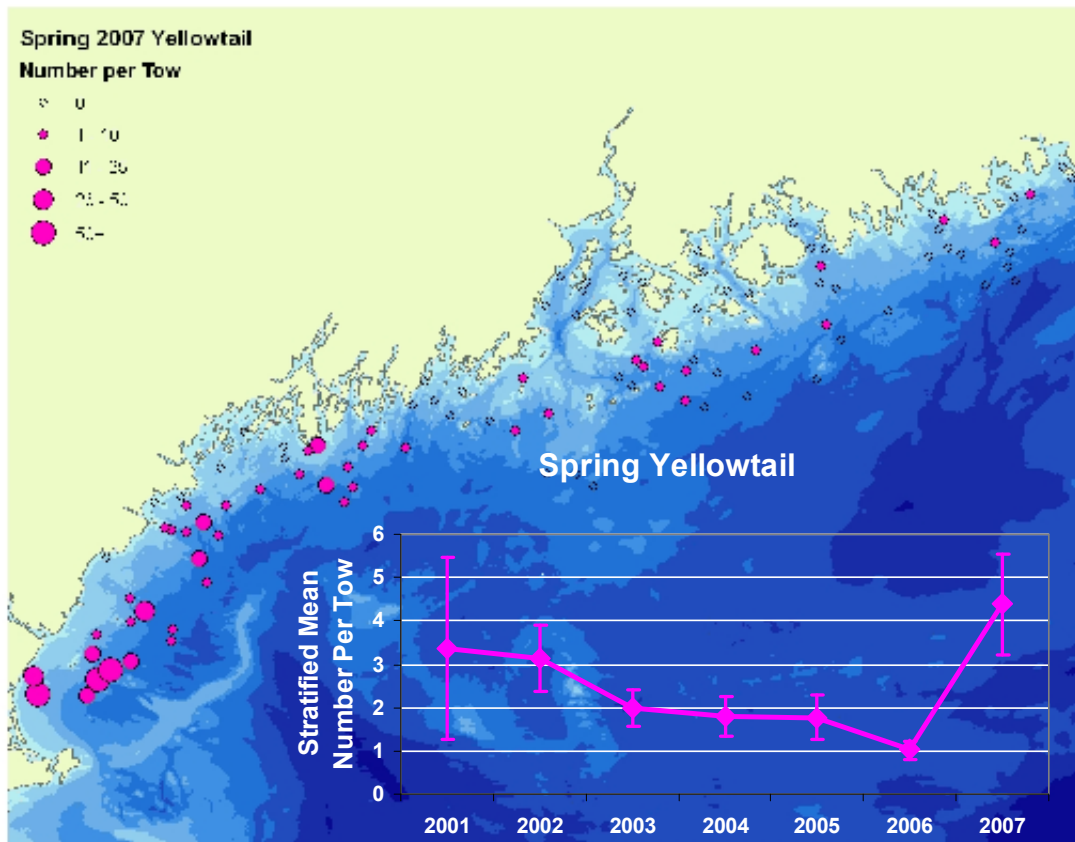
The volume of total mixed catch varied from 8 kg to 843 kg per tow, with an average of 83 kg and a median of 56 kg per tow. The average catch per tow for this survey was similar to that of the past few years, but overall one of the lesser springs catches (Fig. 1). The total number of species caught was 87, with a low of 8 and high of 35 in any particular tow, and an average of 22 species. A complete listing of tow locations, coordinates, dates, times, and depths can be found in Appendix A.

Figure 1. Average catch per tow and average overall temperature for all spring surveys.



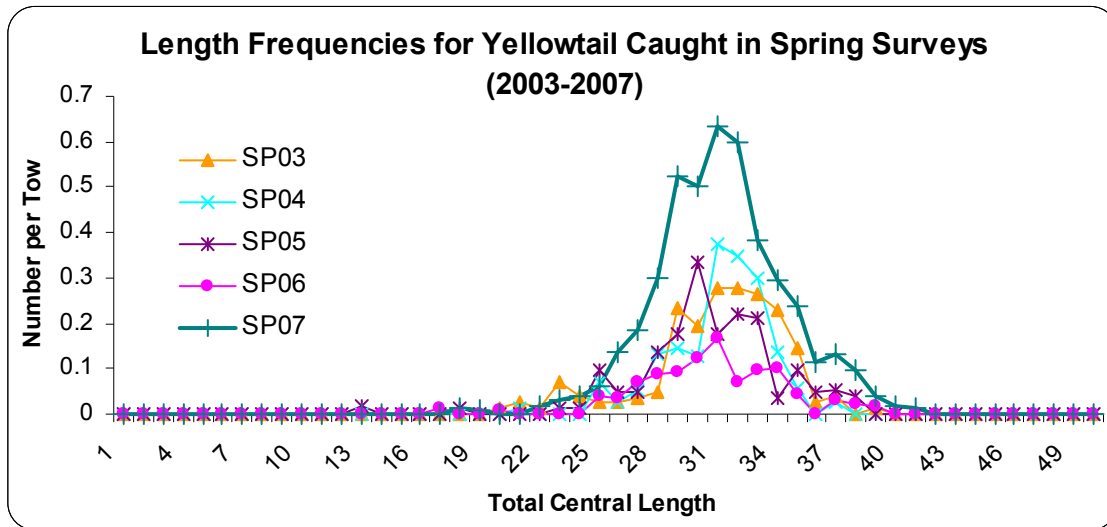
One highlight of the Spring 2007 survey were the catches of yellowtail flounder, which were higher than any previous year across the whole survey area, but especially from New Hampshire to Midcoast Maine (Fig. 2).

Figure 2. Plot of yellowtail flounder (number per tow) caught in the spring 2007 survey, with an overlay of stratified means for yellowtail in all spring surveys.



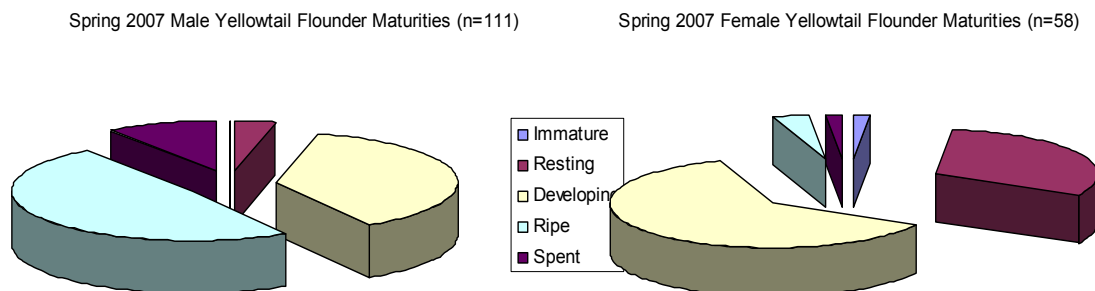
Over 75% of the total yellowtail caught were under the legal commercial size of 33 centimeters (Fig. 3).

Figure 3. Yellowtail flounder length frequencies (stratified number per tow) for the past 5 years of spring surveys (2003-2007).



Biological data was collected on almost one-third of the yellowtail flounder caught. Of the 169 individuals examined, two-thirds were male and one-third were female. Nearly half of the males examined were ripe, while majority of the females were still developing (Fig. 4).

Figure 4. Proportion of yellowtail flounder maturities by sex for 2007 spring survey.



FALL 2007 SUMMARY

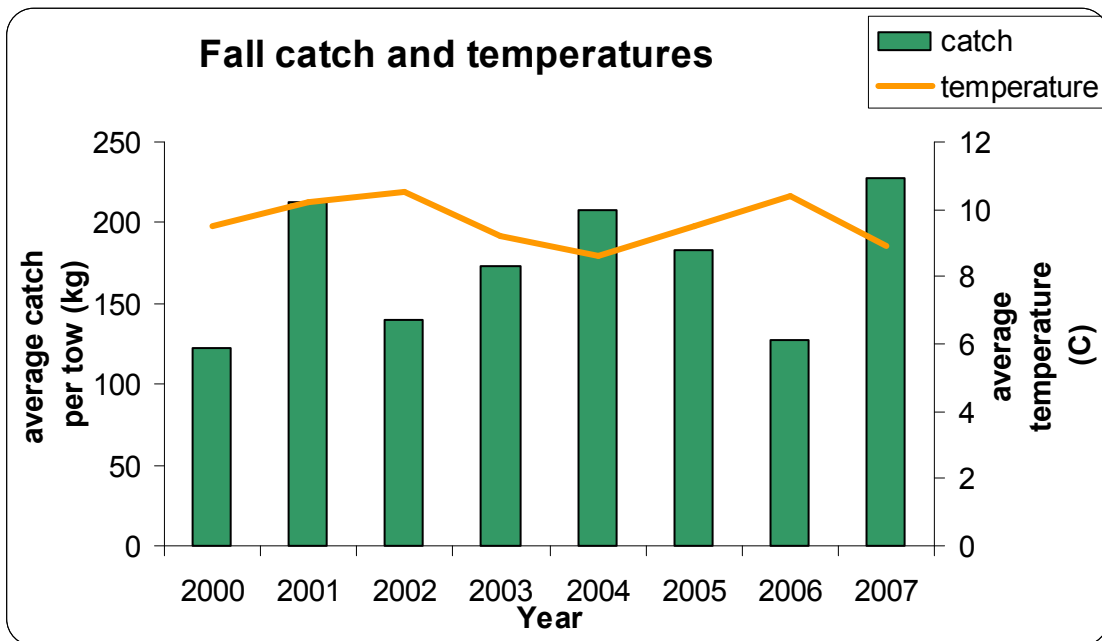
The fall survey began on October 1, 2007 along the coast of New Hampshire. Of the 115 targeted tows, 87 total tows were completed for a success rate of 76%, one of the higher success rates for a fall survey. Average bottom temperatures by stratum ranged from 6.1 to 11.9 °C, with an average of 8.9 °C for the whole survey (Table 2).

Table 2. Average Bottom Temperature (°C) for the Fall 2007 Survey

		Region				
Stratum		1	2	3	4	5
	1	9.7	11.9	11.8	11.4	10.2
	2	8.3	9.0	11.0	10.2	9.6
	3	6.3	8.0	9.7	9.0	9.3
	4	6.1	6.6	8.2	7.9	8.1

The volume of total mixed catch varied from 25 kg to 1493 kg per tow, with an average of 228 kg and a median of 158 kg per tow (Fig. 5). The average catch per tow was one of the higher ones for a fall survey. The total number of species caught was 95, with a low of 16 and high of 37 in any particular tow, and an average of 24 species.

Figure 5. Average catch per tow and average overall temperature for all fall surveys.



Unusual occurrences included Atlantic saury, *Scorpaenopsis scorpaenoides*, which was seen for the first time in the trawl survey. Two individuals, 22 and 23 centimeters in length, were caught at Old Jeffreys. One 9-cm mackerel scad, *Decapterus macarellus*, was caught off of the Goose Islands in Middle Bay. Two bobtail squid, not seen since Spring 2001, were caught in two separate tows, at Inner Schoodic Ridge and Hake Ground. Also of note, 31 juvenile Atlantic halibut, *Hippoglossus hippoglossus*, ranging from 11 to 14 centimeters in length, were caught in a tow off of Cape Elizabeth.

Clupeids were especially abundant during the Fall 2007 survey. Out of the 87 total tows completed in Fall 2007, there were only two tows where clupeids were not present. Figure 6 shows the proportion of clupeids caught in the fall 2007 tows. In addition, catches of American shad and blueback herring were the highest for any fall survey (Figure 7).

Figure 6. Shown are percentages of clupeid species by station for the fall 2007 survey. Data was log-transformed.

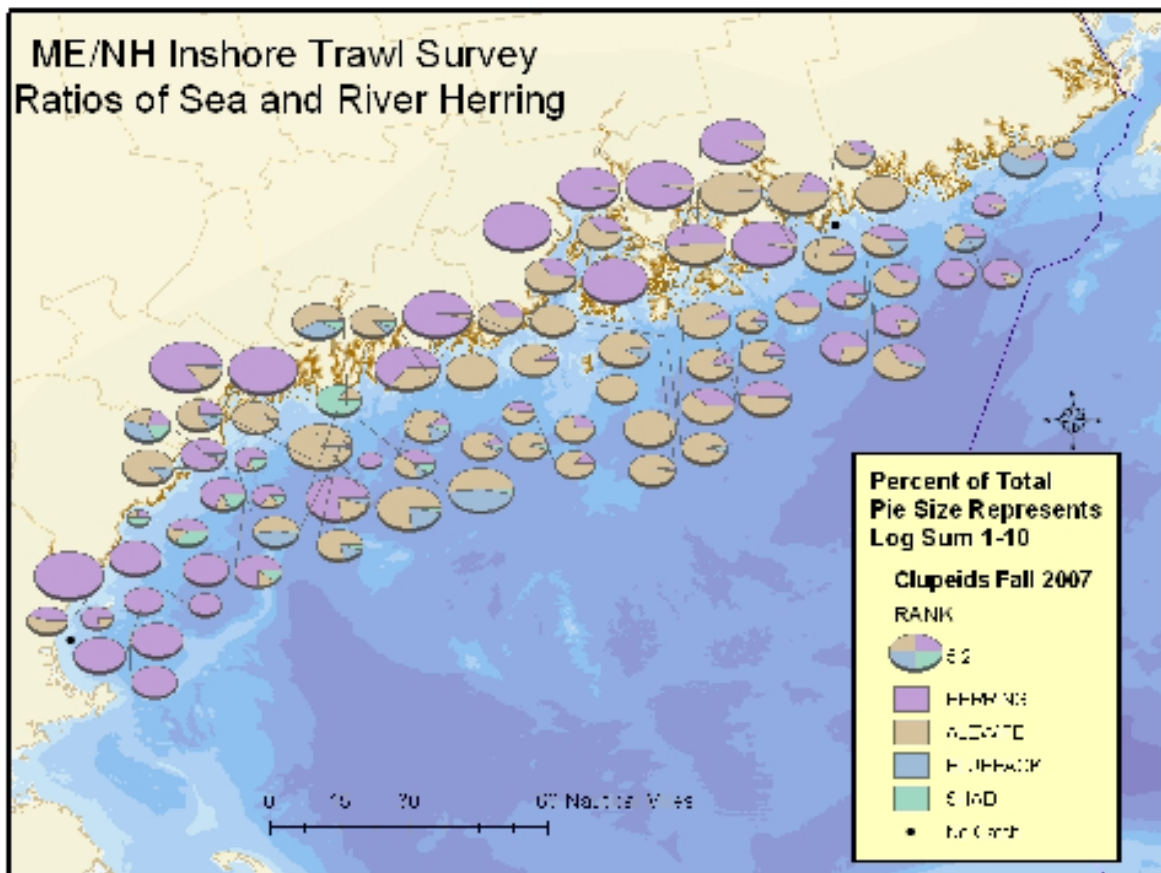
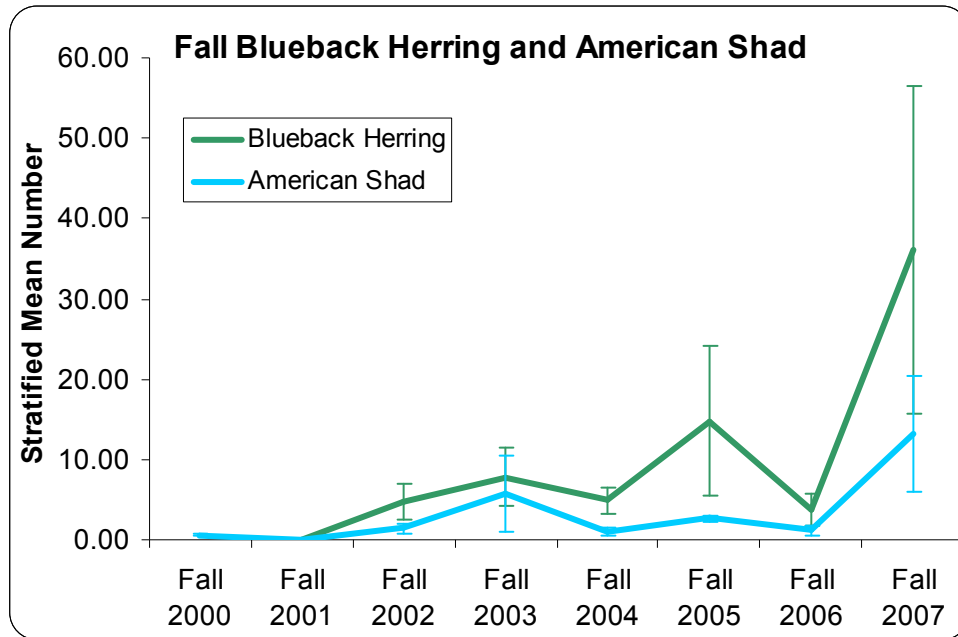


Figure 7. Stratified mean number of blueback herring and American shad in fall surveys.
 No blueback data is available for the Fall 2000 survey as they were not separated from the catch



Atlantic herring numbers were also up in the Fall 2007 survey, and at their highest levels since the Fall 2002 survey (Fig. 8). And while the numbers of alewives caught in the fall have remained fairly consistent over the years (Fig. 8), the weight increased drastically for the fall 2007 survey (Fig. 9) when a significantly greater number of larger fish were caught (Fig. 10).

Figure 8. Stratified mean number of alewife and Atlantic herring in fall surveys.

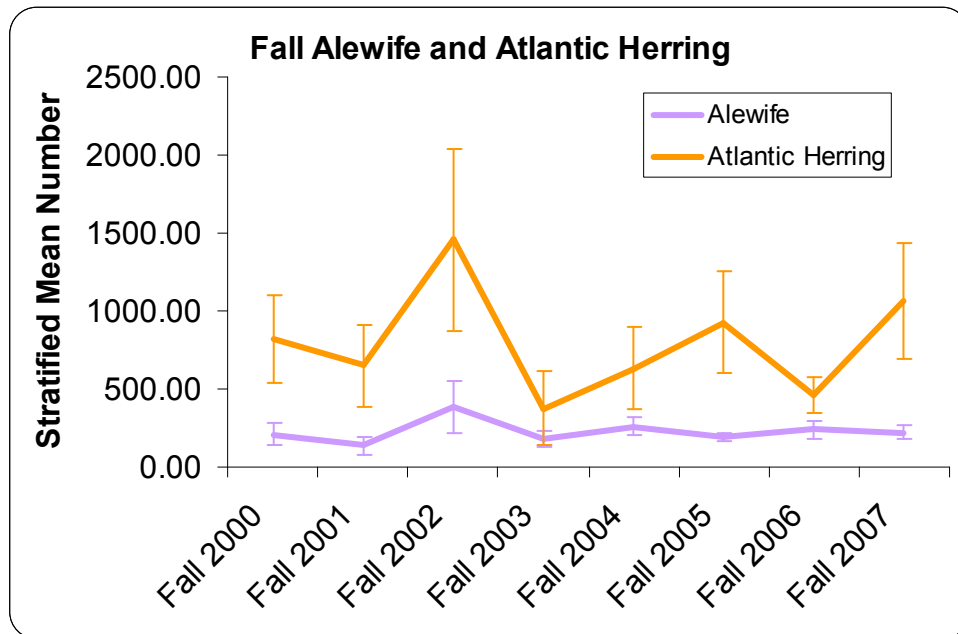


Figure 9. Stratified mean weight for alewives in fall surveys.

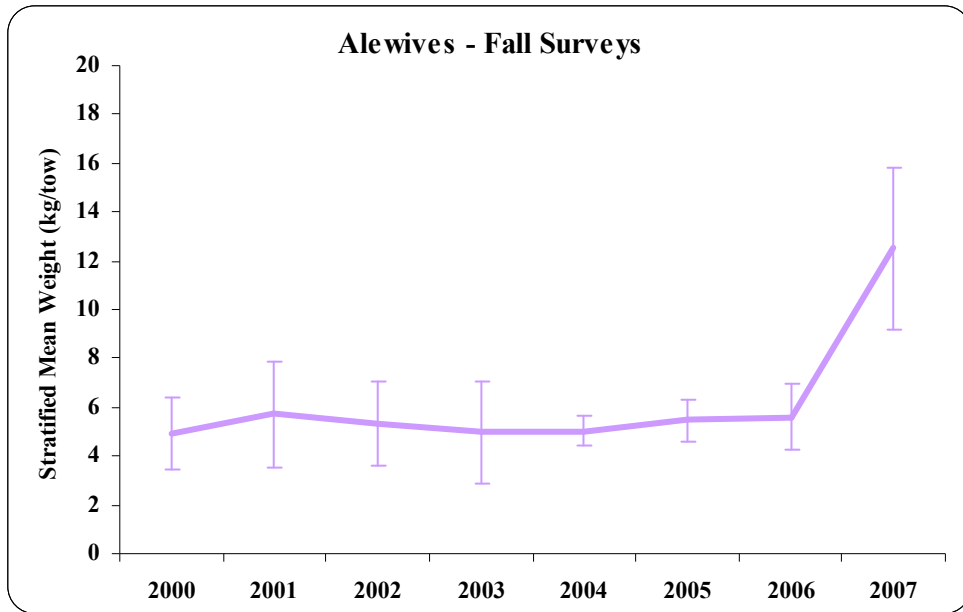
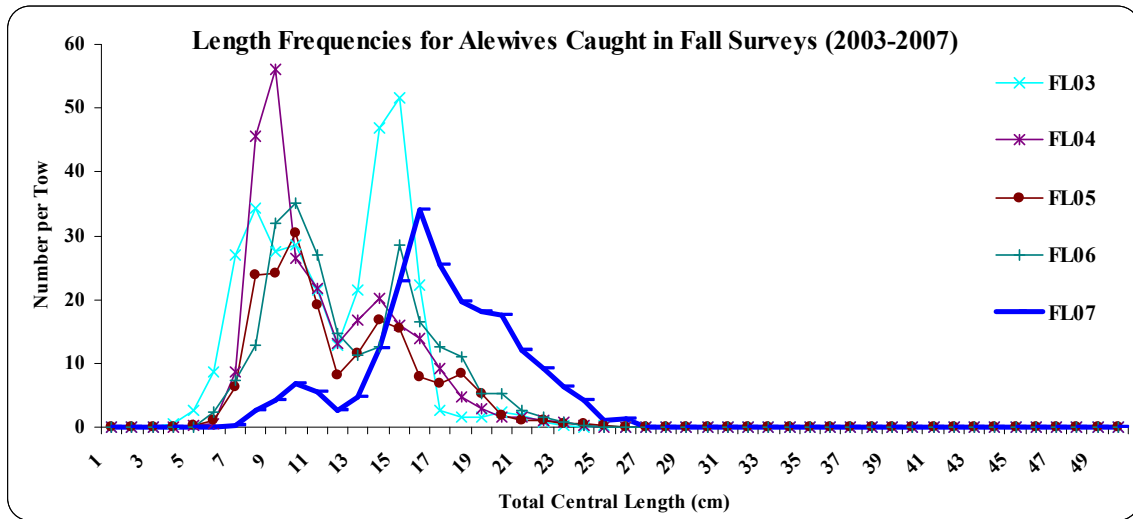


Figure 10. Alewife length frequencies (stratified number per tow) for the past 5 years of fall surveys (2003-2007).



HIGHLIGHTS

The following pages represent highlights for selected species.

Survey Indices

White Hake

fixed stations not included

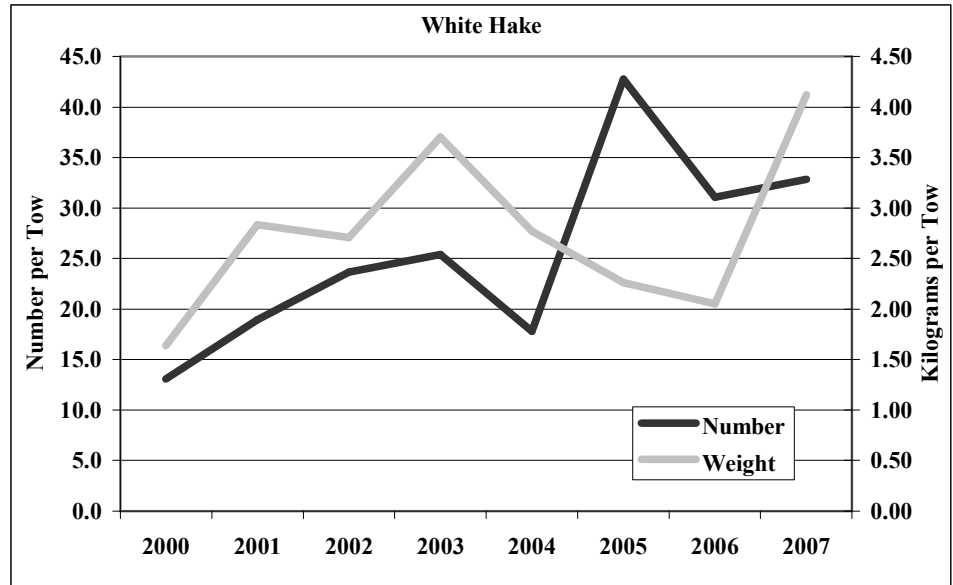
FALL

for white hake, indices calculated for regions 1 through 5

strata 1 through 4

Stratified Mean

	Number		Weight	
	Mean	SE	Mean	SE
2000	13.1	1.2	1.63	0.16
2001	18.9	2.7	2.84	0.33
2002	23.6	1.9	2.71	0.27
2003	25.4	3.0	3.70	0.45
2004	17.8	2.6	2.77	0.35
2005	42.8	3.1	2.26	0.22
2006	31.1	3.7	2.05	0.21
2007	32.9	2.8	4.12	0.51



fixed stations not included

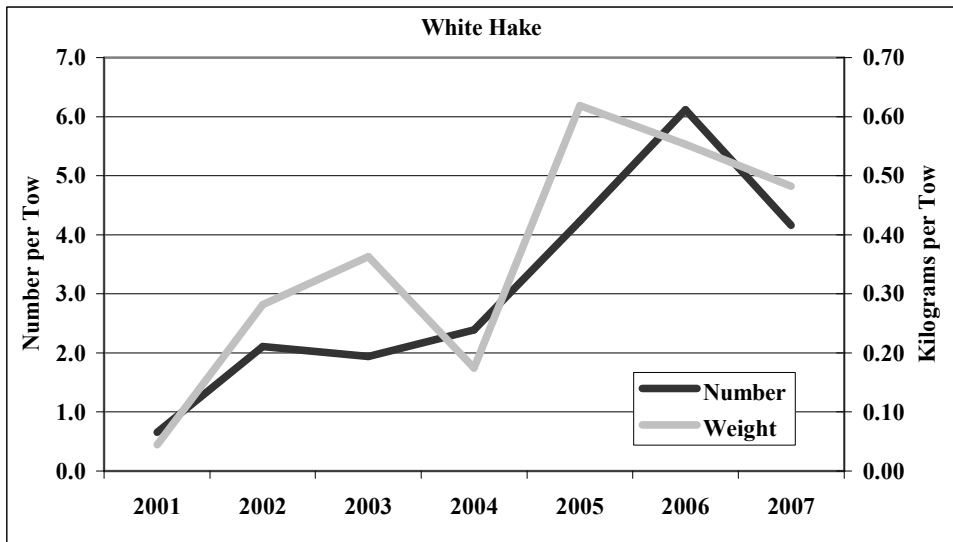
SPRING

for white hake, indices calculated for regions 1 through 5

Stratified Mean

strata 1 through 4

	Number		Weight	
	Mean	SE	Mean	SE
2001	0.7	0.1	0.04	0.01
2002	2.1	0.4	0.28	0.06
2003	1.9	0.5	0.36	0.11
2004	2.4	0.4	0.17	0.03
2005	4.2	0.8	0.62	0.13
2006	6.1	0.7	0.55	0.08
2007	4.2	0.9	0.48	0.17



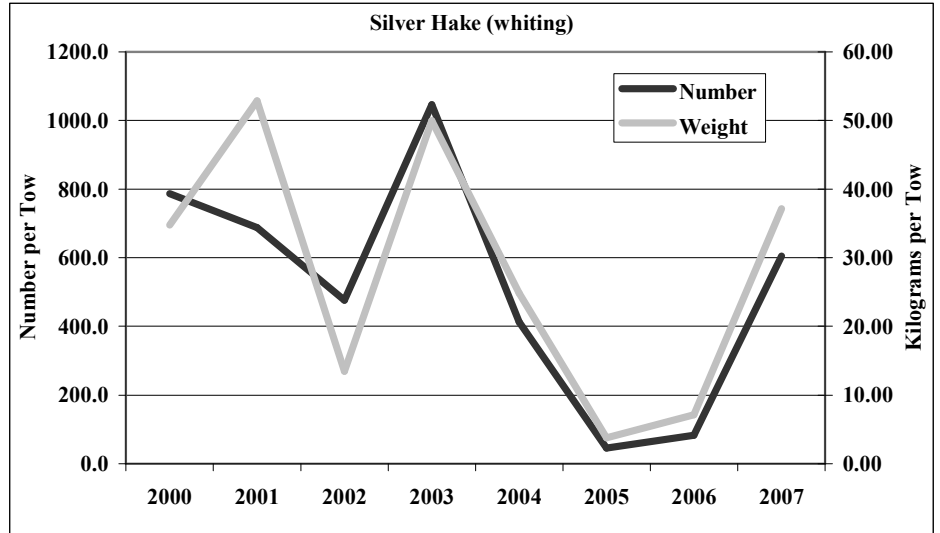
Silver Hake (whiting)

fixed stations not included

FALL

for silver hake, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean		Weight	
	Number Mean	SE	Mean	SE
2000	786.5	70.5	34.77	3.55
2001	687.7	109.5	52.88	7.74
2002	476.3	111.3	13.47	2.15
2003	1046.3	116.7	49.97	5.72
2004	413.7	95.6	24.85	6.03
2005	44.9	9.3	3.77	0.92
2006	82.6	20.1	7.13	2.03
2007	605.6	111.9	37.14	6.75

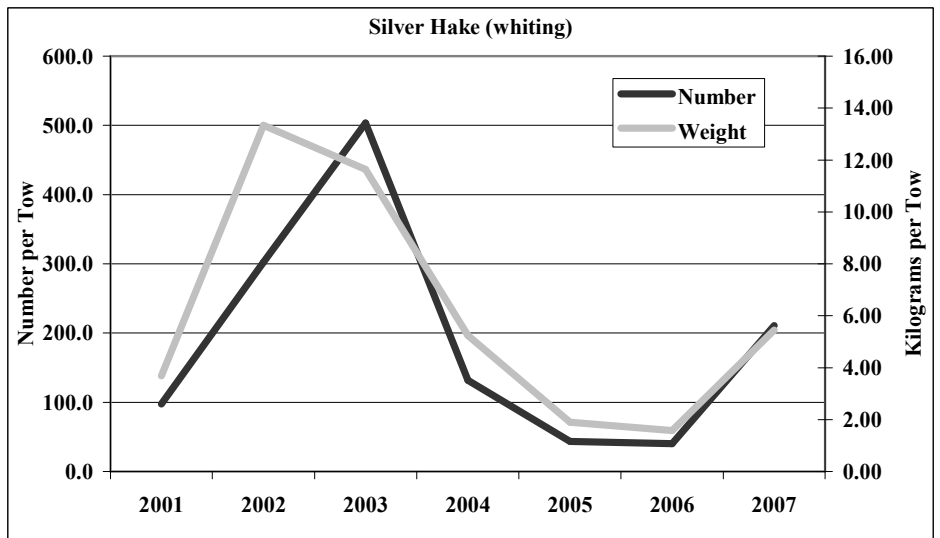


fixed stations not included

SPRING

for silver hake, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean		Weight	
	Number Mean	SE	Mean	SE
2001	97.7	13.6	3.68	0.50
2002	302.4	103.6	13.34	4.69
2003	503.7	79.7	11.63	1.86
2004	131.8	11.7	5.25	0.64
2005	43.3	4.9	1.91	0.21
2006	40.5	7.2	1.58	0.29
2007	211.0	96.5	5.45	2.56



Winter Flounder (blackback)

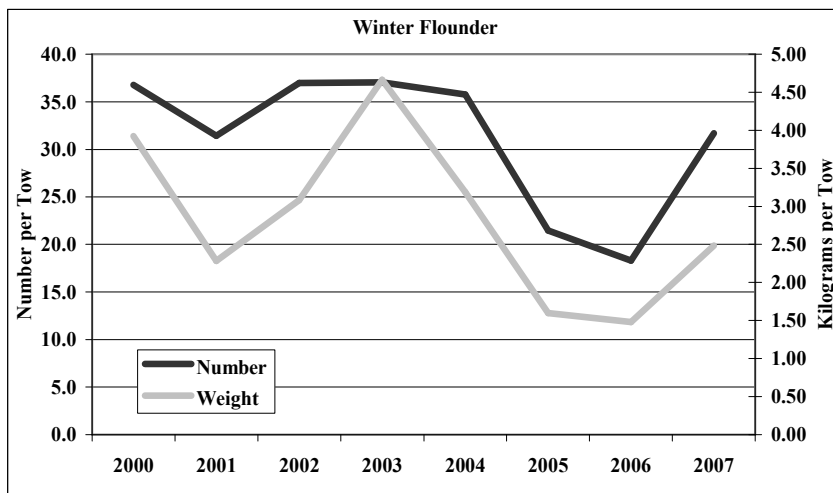
fixed stations not included

FALL

for winter flounder, indices calculated for regions 1 through 5

strata 1 through 4

	Stratified Mean		Weight		
	Number	SE	Mean	SE	
2000	36.8		3.2	3.92	0.41
2001	31.4		6.2	2.28	0.25
2002	37.0		6.8	3.08	0.71
2003	37.0		4.5	4.66	0.17
2004	35.8		6.9	3.19	0.63
2005	21.5		2.0	1.60	0.22
2006	18.3		2.6	1.48	0.19
2007	31.7		6.0	2.49	0.70



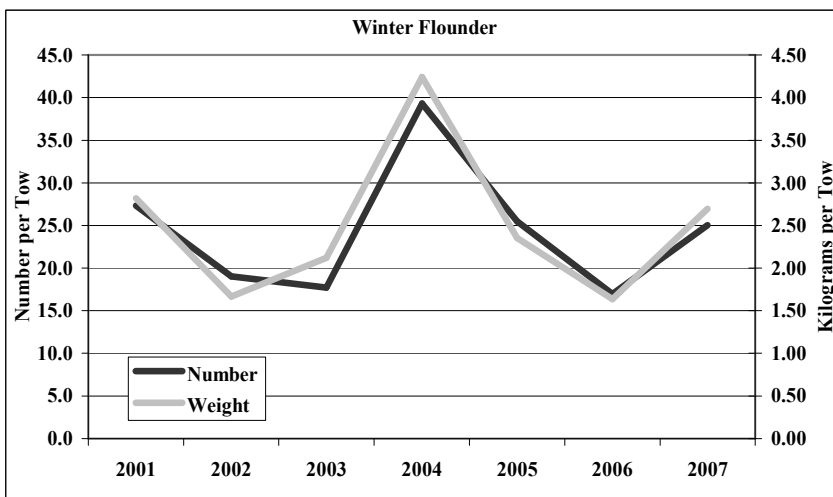
fixed stations not included

SPRING

for winter flounder, indices calculated for regions 1 through 5

strata 1 through 4

	Stratified Mean		Weight		
	Number	SE	Mean	SE	
2001	27.3		4.0	2.82	0.40
2002	19.0		2.8	1.67	0.16
2003	17.7		2.9	2.12	0.28
2004	39.3		4.9	4.24	0.58
2005	25.5		2.9	2.35	0.23
2006	17.0		4.0	1.64	0.41
2007	25.1		2.8	2.70	0.27



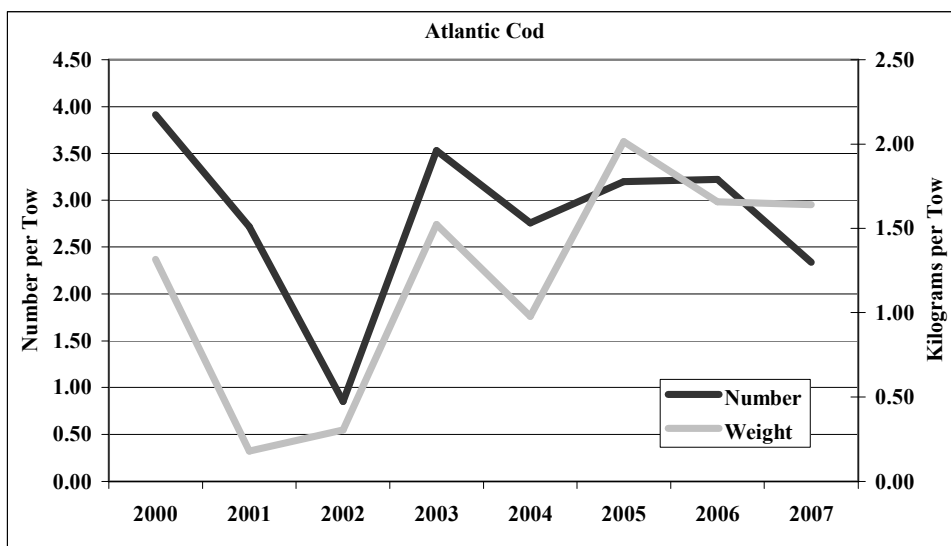
Atlantic Cod

fixed stations not included

FALL

for Atlantic cod, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean			
	Number		Weight	
	Mean	SE	Mean	SE
2000	3.91	1.85	1.32	0.74
2001	2.72	0.72	0.18	0.04
2002	0.85	0.20	0.30	0.09
2003	3.53	0.80	1.52	0.30
2004	2.76	1.11	0.98	0.27
2005	3.20	1.87	2.01	1.37
2006	3.22	1.56	1.66	0.86
2007	2.34	1.21	1.64	0.83

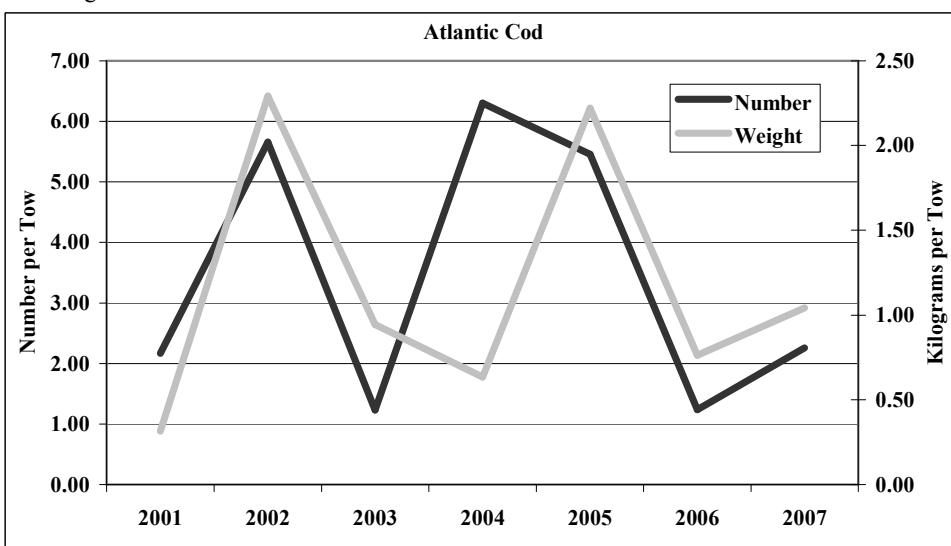


fixed stations not included

SPRING

for Atlantic cod, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean			
	Number		Weight	
	Mean	SE	Mean	SE
2001	2.17	0.52	0.32	0.09
2002	5.66	2.95	2.29	0.92
2003	1.23	0.27	0.94	0.28
2004	6.30	1.60	0.63	0.18
2005	5.46	2.68	2.22	1.45
2006	1.24	0.35	0.76	0.45
2007	2.26	0.61	1.04	0.19



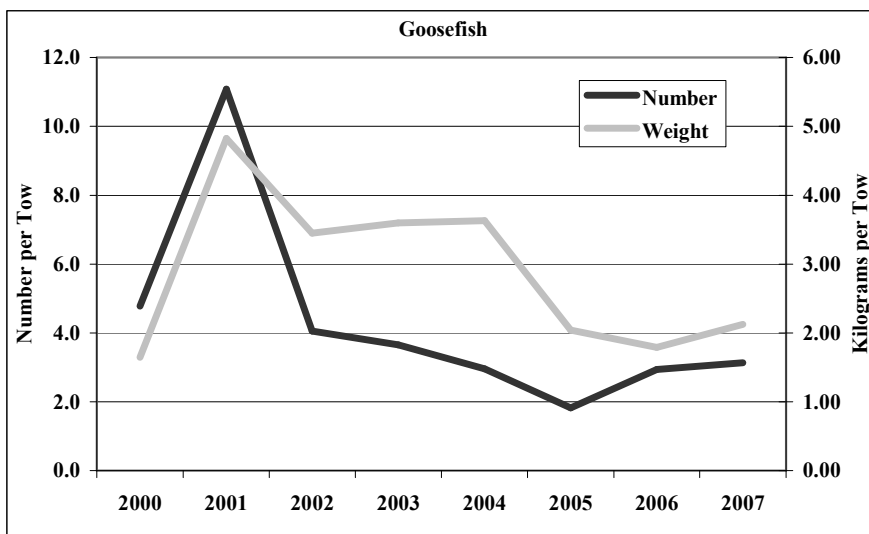
Goosefish (monkfish)

fixed stations not included

FALL

for goosefish, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean Number		Weight		
	Mean	SE	Mean	SE	
2000	4.8	0.61	1.65	0.28	
2001	11.1	1.56	4.83	0.50	
2002	4.1	1.13	3.45	1.14	
2003	3.7	0.64	3.60	0.80	
2004	3.0	0.52	3.63	0.84	
2005	1.8	0.25	2.04	0.47	
2006	2.9	0.31	1.79	0.20	
2007	3.1	0.43	2.13	0.35	

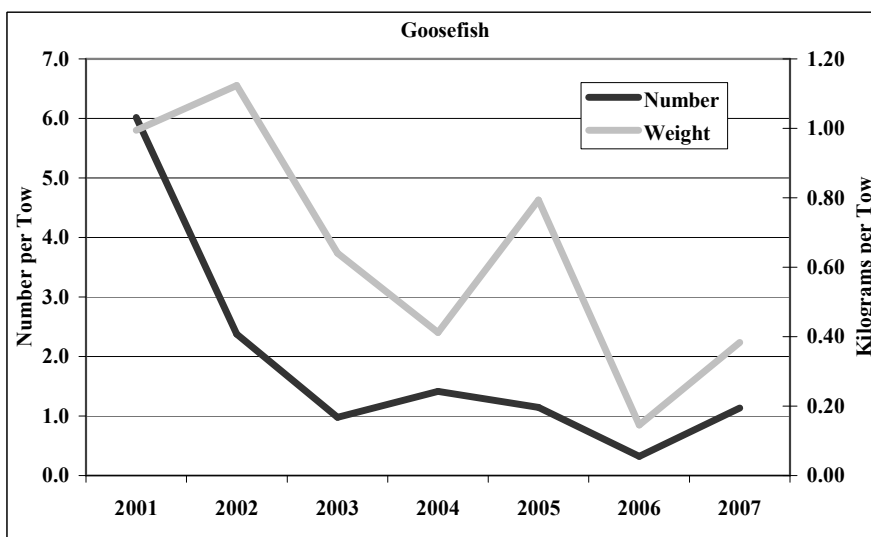


fixed stations not included

SPRING

for goosefish, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean Number		Weight		
	Mean	SE	Mean	SE	
2001	6.0	0.91	0.99	0.15	
2002	2.4	0.33	1.12	0.17	
2003	1.0	0.14	0.64	0.18	
2004	1.4	0.17	0.41	0.12	
2005	1.1	0.16	0.79	0.15	
2006	0.3	0.06	0.15	0.03	
2007	1.1	0.18	0.38	0.10	



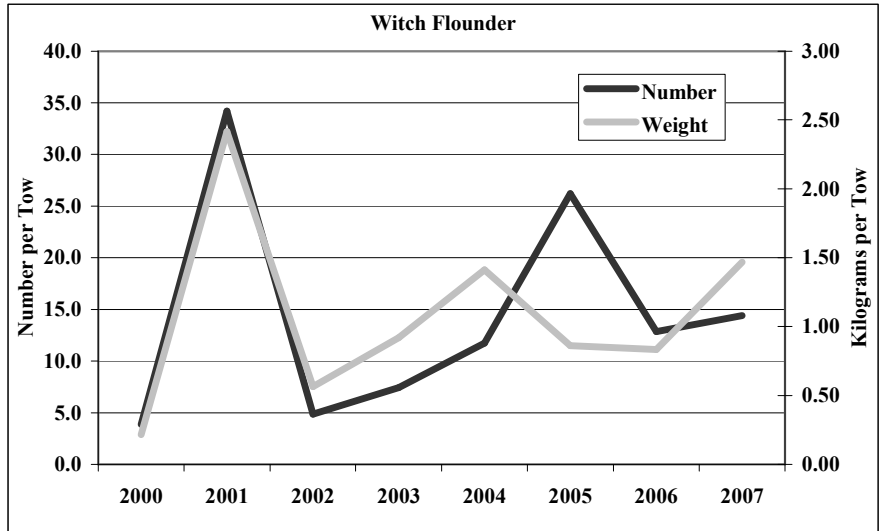
Witch Flounder (gray sole)

fixed stations not included

FALL

for witch flounder, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean Number		Weight		
	Mean	SE	Mean	SE	
2000	3.9		0.71	0.21	0.04
2001	34.2		4.31	2.42	0.46
2002	4.8		1.23	0.56	0.17
2003	7.4		1.16	0.92	0.19
2004	11.7		1.94	1.41	0.20
2005	26.2		3.55	0.86	0.10
2006	12.8		1.37	0.83	0.07
2007	14.4		2.04	1.47	0.30

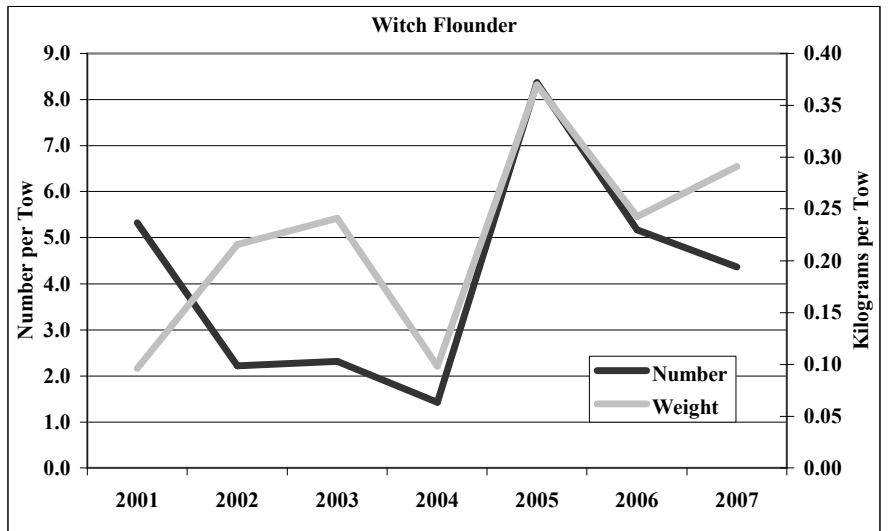


fixed stations not included

SPRING

for witch flounder, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean Number		Weight		
	Mean	SE	Mean	SE	
2001	5.3		1.38	0.10	0.02
2002	2.2		0.91	0.22	0.12
2003	2.3		0.72	0.24	0.07
2004	1.4		0.21	0.10	0.02
2005	8.4		1.33	0.37	0.09
2006	5.2		1.11	0.24	0.06
2007	4.4		0.68	0.29	0.04

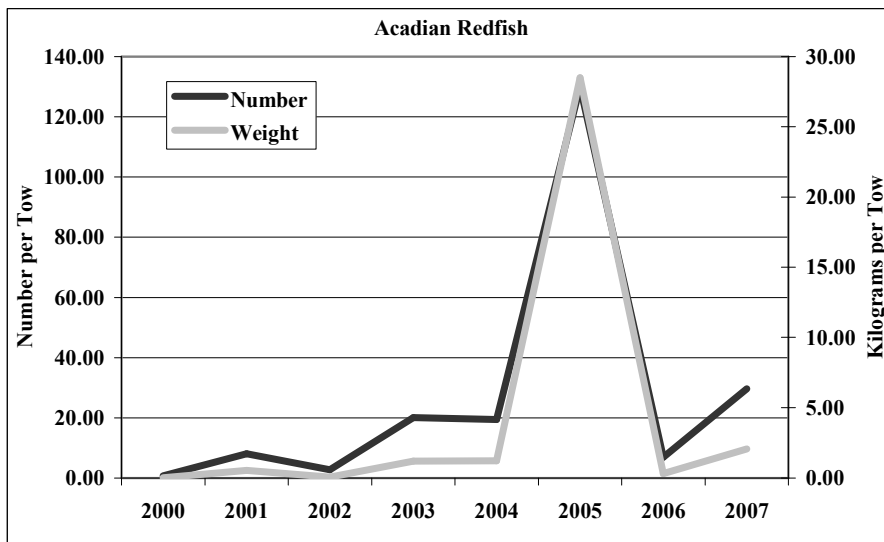


Acadian Redfish

FALL

for redfish, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean		Weight	
	Number	SE	Mean	SE
2000	0.65	0.21	0.03	0.01
2001	7.95	2.74	0.54	0.33
2002	2.70	1.24	0.07	0.05
2003	20.07	17.79	1.19	0.88
2004	19.42	5.58	1.22	0.46
2005	129.96	105.82	28.50	28.05
2006	6.95	2.10	0.32	0.09
2007	29.64	12.15	2.07	0.64

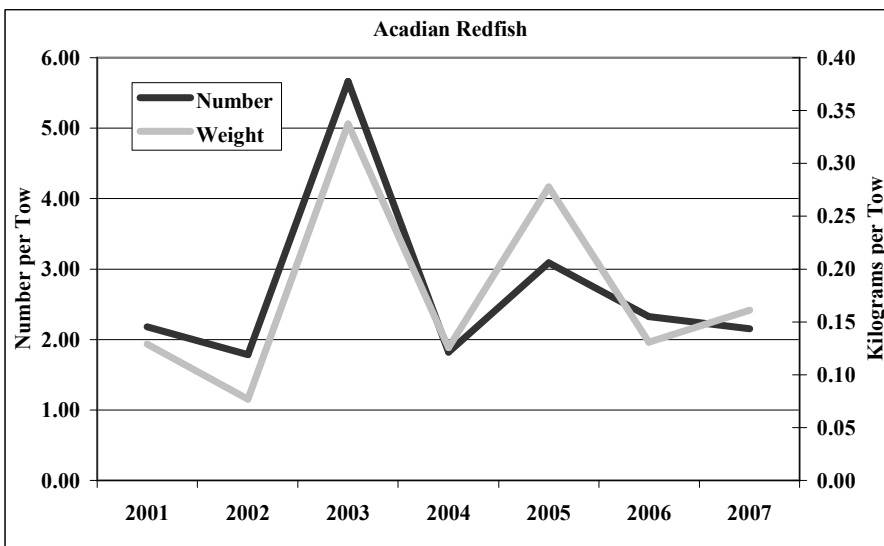


fixed stations not included

SPRING

for redfish, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean		Weight	
	Number	SE	Mean	SE
2001	2.18	0.62	0.13	0.06
2002	1.79	0.41	0.08	0.02
2003	5.66	2.14	0.34	0.14
2004	1.82	0.53	0.13	0.03
2005	3.09	0.76	0.28	0.12
2006	2.33	0.91	0.13	0.05
2007	2.15	0.51	0.16	0.04



American Plaice (dab)

fixed stations not included

FALL

for plaice, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean			
	Number		Weight	
	Mean	SE	Mean	SE
2000	22.7	6.30	1.28	0.28
2001	21.9	2.26	1.85	0.20
2002	12.1	2.83	0.67	0.13
2003	52.8	7.31	3.60	0.38
2004	41.1	4.29	2.89	0.27
2005	70.7	8.89	3.53	0.32
2006	70.7	7.66	3.74	0.30
2007	63.6	7.38	4.38	0.43

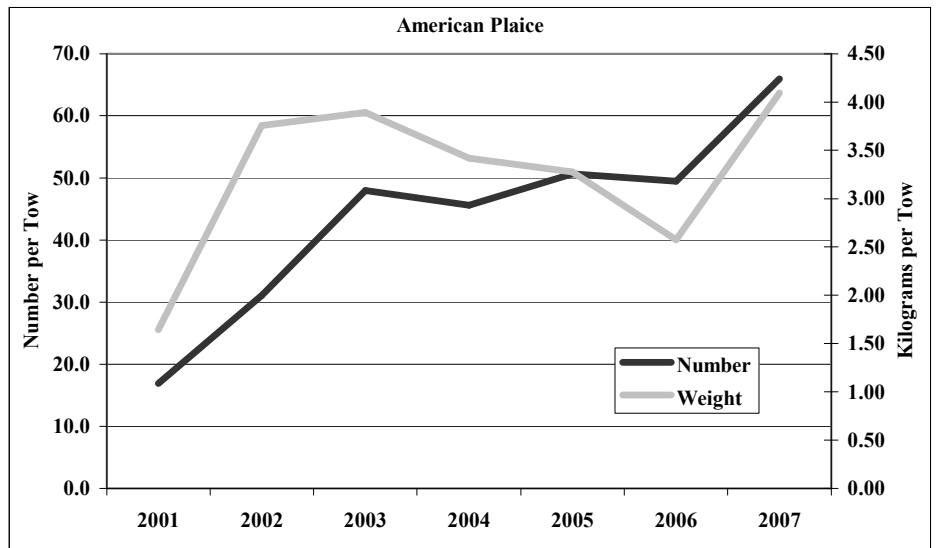


fixed stations not included

SPRING

for plaice, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean			
	Number		Weight	
	Mean	SE	Mean	SE
2001	16.9	3.73	1.64	0.44
2002	31.1	3.80	3.76	0.46
2003	48.0	6.10	3.89	0.46
2004	45.6	7.91	3.42	0.52
2005	50.7	5.85	3.27	0.34
2006	49.5	5.03	2.58	0.20
2007	65.9	6.40	4.09	0.35



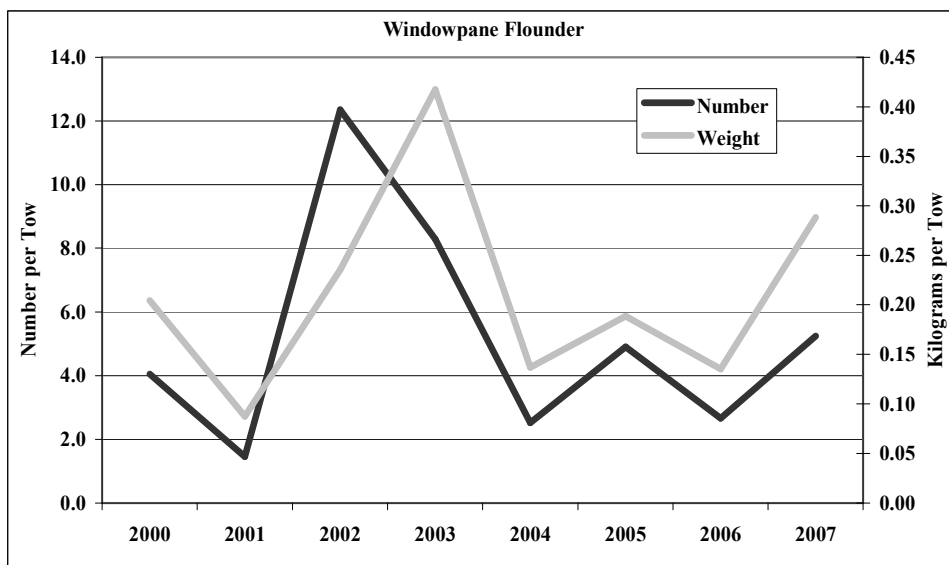
Windowpane Flounder

fixed stations not included

FALL

for windowpane, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean		Weight	
	Number	Weight	Mean	SE
	Mean	SE	Mean	SE
2000	4.1	0.62	0.20	0.034
2001	1.5	0.48	0.09	0.024
2002	12.4	3.64	0.24	0.058
2003	8.3	1.20	0.42	0.054
2004	2.5	0.78	0.14	0.029
2005	4.9	1.60	0.19	0.048
2006	2.7	0.39	0.14	0.031
2007	5.2	1.16	0.29	0.070

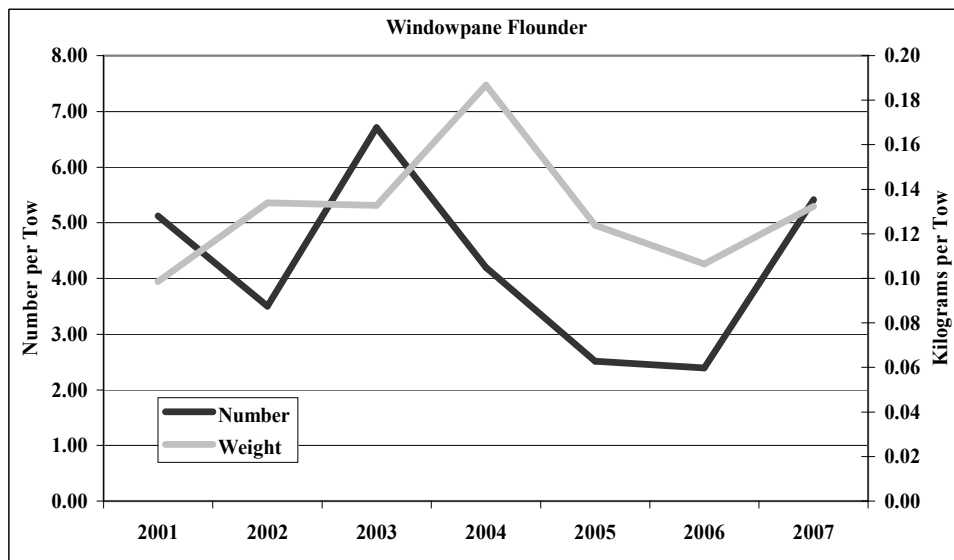


fixed stations not included

SPRING

for windowpane, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean		Weight	
	Number	Weight	Mean	SE
	Mean	SE	Mean	SE
2001	5.12	1.48	0.10	0.018
2002	3.51	0.61	0.13	0.024
2003	6.71	1.15	0.13	0.023
2004	4.20	0.69	0.19	0.026
2005	2.51	0.45	0.12	0.022
2006	2.39	0.52	0.11	0.017
2007	5.41	1.06	0.13	0.018



Haddock

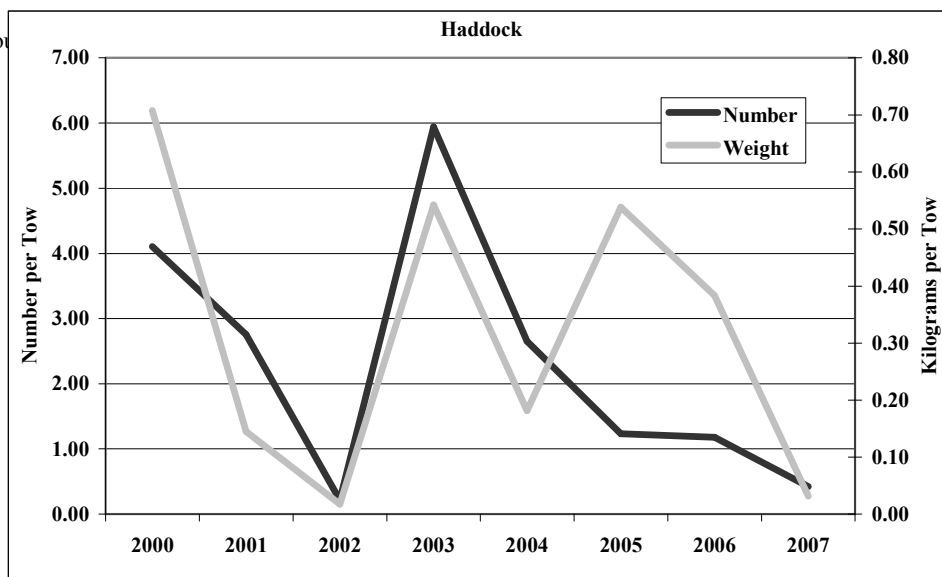
fixed stations not included

for haddock, indices calculated for regions 1 through

Strata 1 through 4 (2003 and up)

FALL

	Stratified Mean				
	Number		Weight		
	Mean	SE	Mean	SE	
2000	4.10	1.27	0.71	0.47	
2001	2.75	1.35	0.15	0.07	
2002	0.22	0.15	0.02	0.02	
2003	5.94	3.90	0.54	0.24	
2004	2.65	1.04	0.18	0.07	
2005	1.23	0.60	0.54	0.52	
2006	1.18	0.62	0.38	0.35	
2007	0.42	0.23	0.03	0.01	



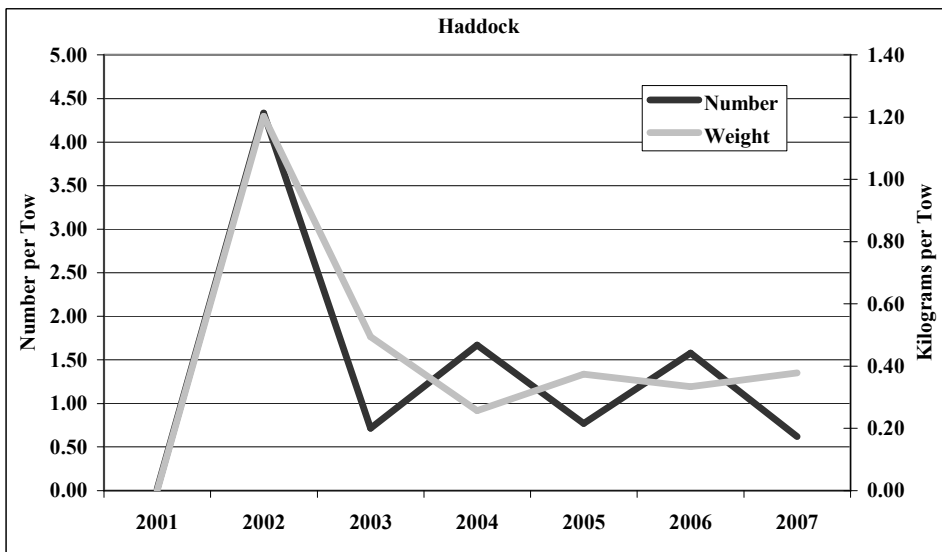
fixed stations not included

for haddock, indices calculated for regions 1 through 5

Strata 1 through 4 (2003 and up)

SPRING

	Stratified Mean				
	Number		Weight		
	Mean	SE	Mean	SE	
2001	0.02	0.02	0.00	0.00	
2002	4.33	1.25	1.20	0.32	
2003	0.71	0.44	0.49	0.34	
2004	1.67	0.66	0.26	0.11	
2005	0.77	0.35	0.37	0.24	
2006	1.58	1.35	0.33	0.15	
2007	0.62	0.20	0.38	0.16	



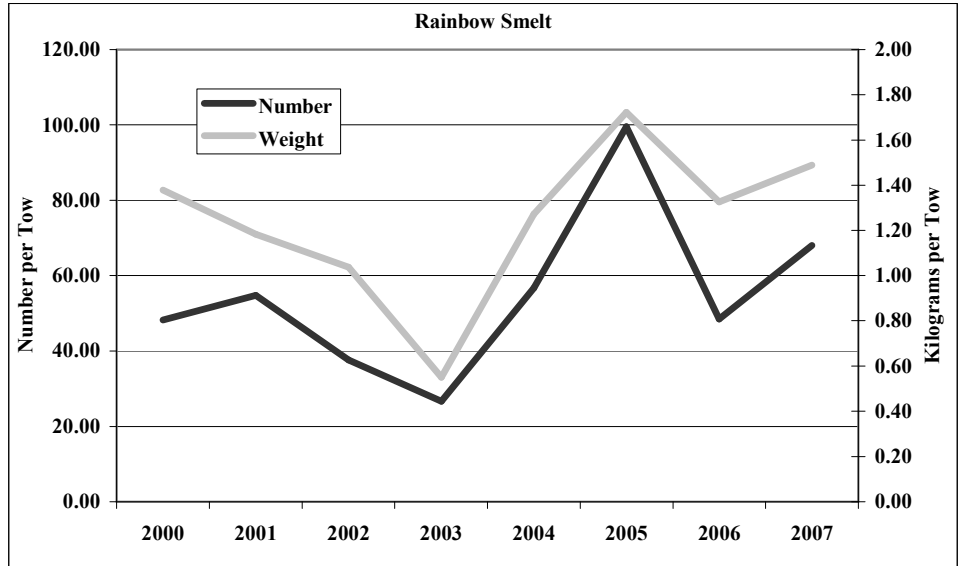
Rainbow Smelt

fixed stations not included

FALL

for smelt, indices calculated for regions 1 through 5
strata 1 through 4 (2003 and up)

	Stratified Mean			
	Number		Weight	
	Mean	SE	Mean	SE
2000	48.25	23.09	1.38	0.76
2001	54.77	10.71	1.18	0.25
2002	37.66	29.48	1.04	0.79
2003	26.65	7.63	0.55	0.16
2004	56.74	19.44	1.27	0.42
2005	99.52	22.31	1.72	0.44
2006	48.50	26.69	1.33	0.64
2007	68.03	38.96	1.49	0.78

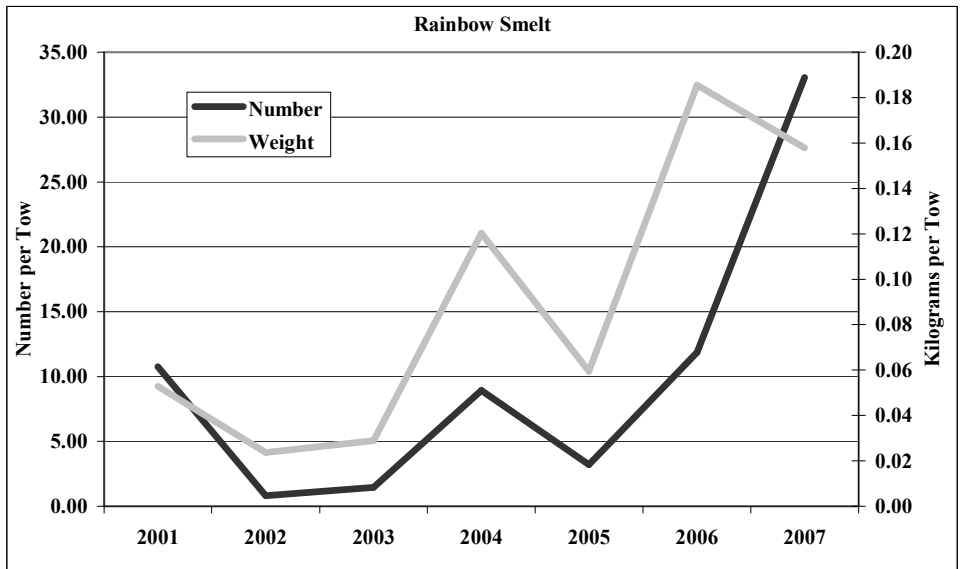


fixed stations not included

SPRING

for smelt, indices calculated for regions 1 through 5
strata 1 through 4 (2003 and up)

	Stratified Mean			
	Number		Weight	
	Mean	SE	Mean	SE
2001	10.76	7.00	0.05	0.03
2002	0.81	0.31	0.02	0.01
2003	1.46	0.53	0.03	0.01
2004	8.93	4.98	0.12	0.05
2005	3.20	0.98	0.06	0.03
2006	11.86	4.22	0.19	0.06
2007	33.07	17.26	0.16	0.07



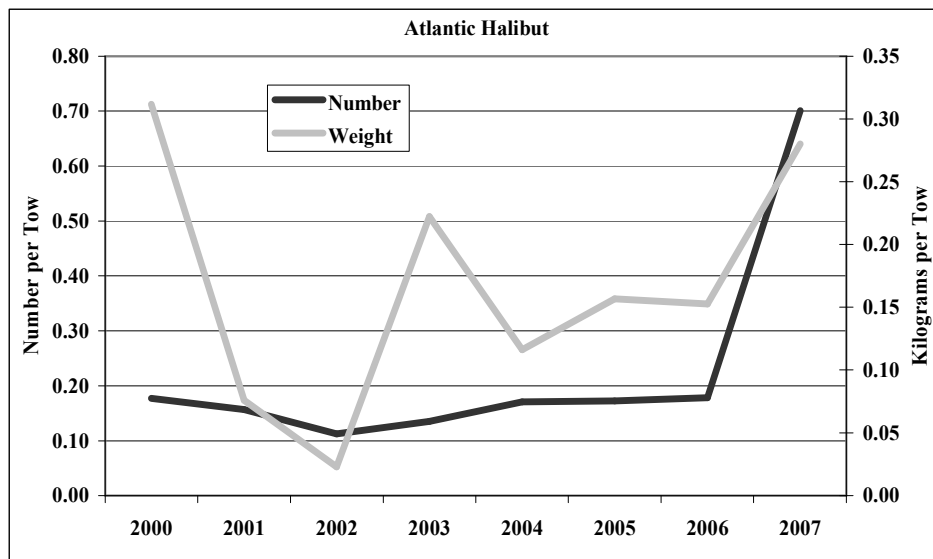
Atlantic Halibut

fixed stations not included

FALL

for halibut, indices calculated for regions 1 through 5
strata 1 through 4 (2003 and up)

	Stratified Mean			
	Number		Weight	
	Mean	SE	Mean	SE
2000	0.177	0.082	0.312	0.165
2001	0.156	0.088	0.076	0.072
2002	0.112	0.051	0.023	0.011
2003	0.135	0.052	0.222	0.118
2004	0.170	0.089	0.116	0.040
2005	0.173	0.056	0.157	0.048
2006	0.178	0.102	0.153	0.086
2007	0.700	0.392	0.280	0.079

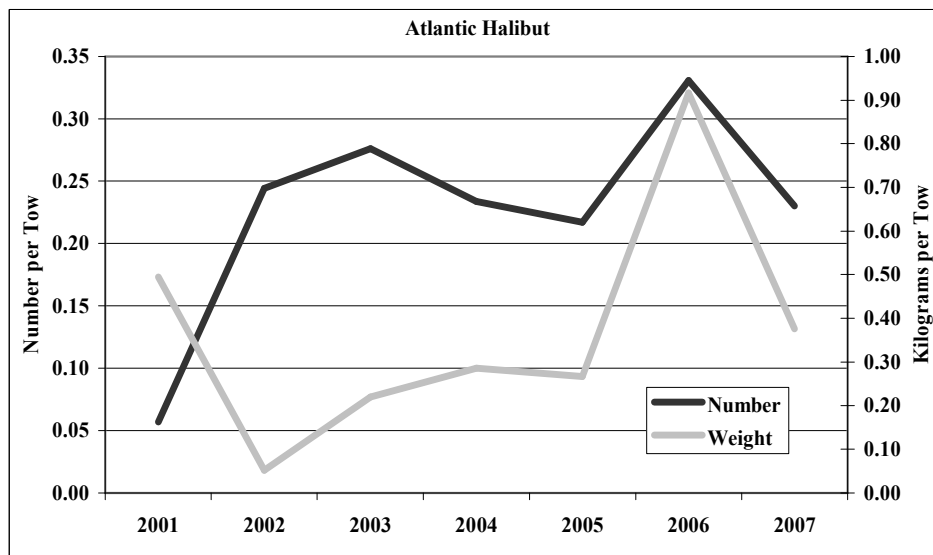


fixed stations not included

SPRING

for halibut, indices calculated for regions 1 through 5
strata 1 through 4 (2003 and up)

	Stratified Mean			
	Number		Weight	
	Mean	SE	Mean	SE
2001	0.057	0.025	0.494	0.412
2002	0.244	0.085	0.052	0.028
2003	0.276	0.065	0.220	0.127
2004	0.234	0.062	0.286	0.184
2005	0.217	0.078	0.267	0.116
2006	0.331	0.077	0.916	0.338
2007	0.230	0.068	0.376	0.161



Longhorn Sculpin

fixed stations not included

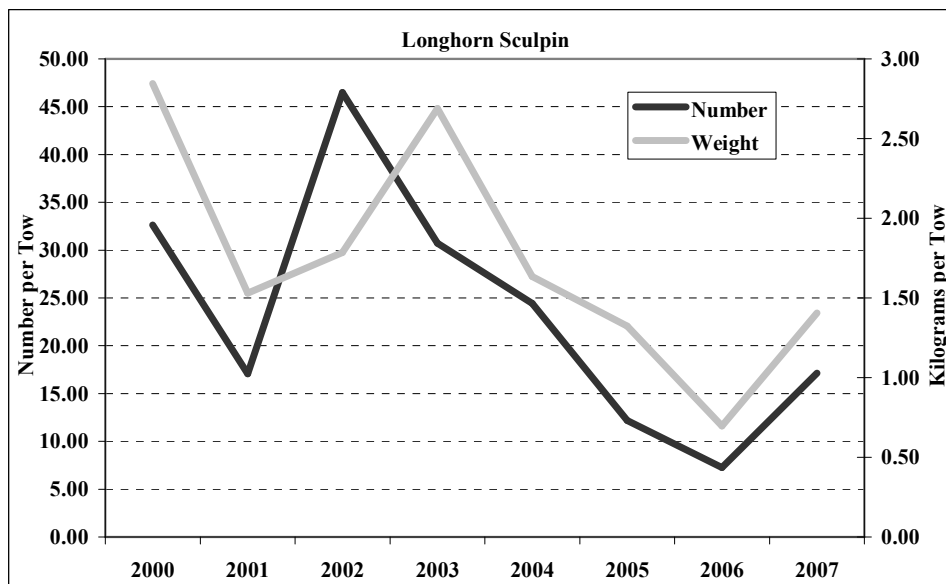
FALL

for LH Sculpin, indices calculated for regions 1 through 5

strata 1 through 4 (2003 and up)

Stratified Mean

	Number		Weight	
	Mean	SE	Mean	SE
2000	32.64	8.18	2.84	0.38
2001	17.05	4.05	1.53	0.32
2002	46.49	8.24	1.79	0.51
2003	30.72	1.73	2.69	0.17
2004	24.45	4.55	1.64	0.29
2005	12.20	2.89	1.32	0.28
2006	7.27	0.97	0.70	0.10
2007	17.16	3.32	1.40	0.28



fixed stations not included

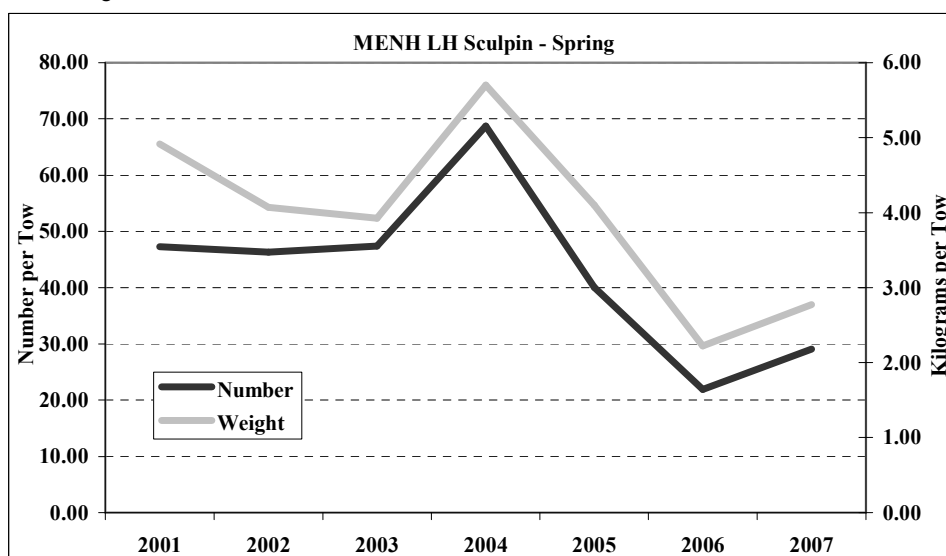
SPRING

for LH Sculpin, indices calculated for regions 1 through 5

strata 1 through 4 (2003 and up)

Stratified Mean

	Number		Weight	
	Mean	SE	Mean	SE
2001	47.28	5.67	4.91	0.53
2002	46.28	7.28	4.07	0.53
2003	47.37	5.25	3.93	0.50
2004	68.73	5.83	5.70	0.50
2005	40.09	3.89	4.10	0.37
2006	21.86	3.79	2.22	0.34
2007	29.06	5.02	2.77	0.46



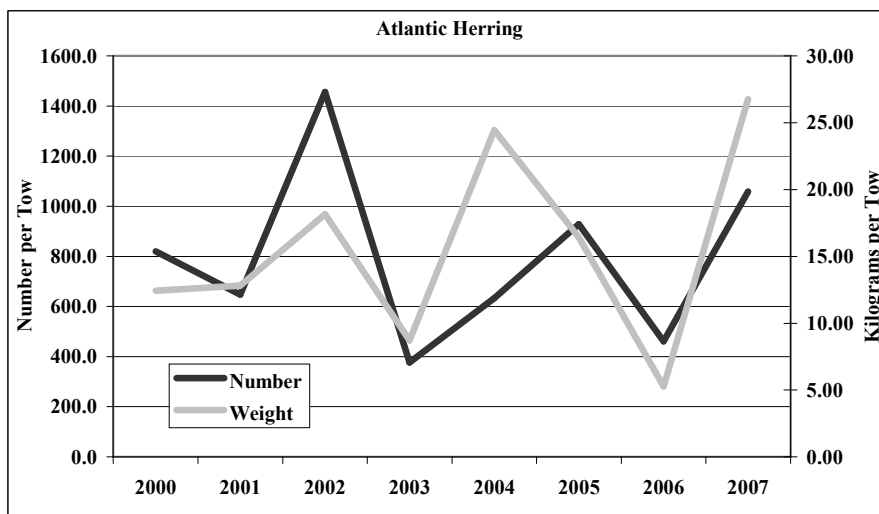
Atlantic Herring

fixed stations not included

FALL

for herring, indices calculated for regions 1 through 5
strata 1 through 4 (2003 and up)

	Stratified Mean			
	Number		Weight	
	Mean	SE	Mean	SE
2000	820.0	280.0	12.42	2.99
2001	647.6	257.1	12.83	5.45
2002	1457.2	583.5	18.15	6.45
2003	376.7	240.0	8.71	5.23
2004	633.4	267.9	24.47	11.50
2005	928.0	322.6	16.44	6.37
2006	461.4	111.8	5.26	1.22
2007	1059.4	370.4	26.78	13.05

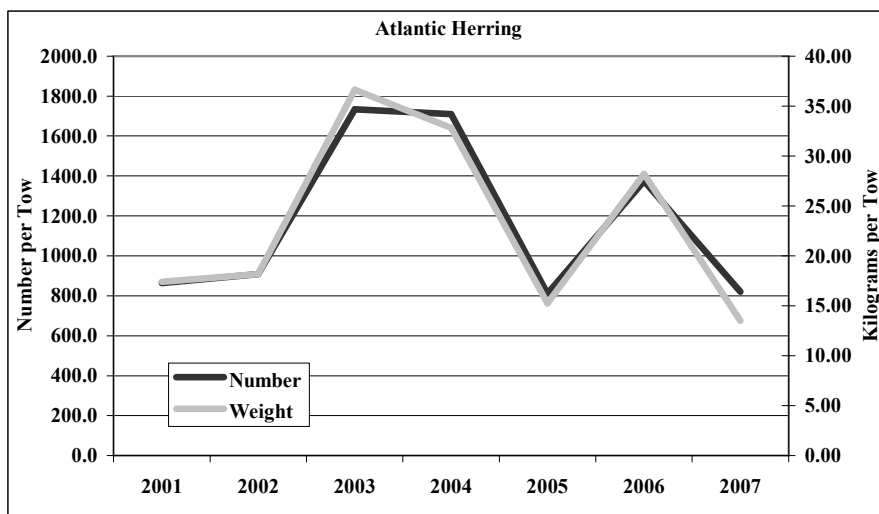


fixed stations not included

SPRING

for herring, indices calculated for regions 1 through 5
strata 1 through 4 (2003 and up)

	Stratified Mean			
	Number		Weight	
	Mean	SE	Mean	SE
2001	863.6	320.16	17.43	6.35
2002	907.8	277.64	18.16	5.12
2003	1734.7	451.80	36.64	9.17
2004	1709.3	394.93	32.81	7.04
2005	810.8	285.45	15.25	4.24
2006	1375.4	320.15	28.22	6.03
2007	821.5	293.07	13.48	4.70



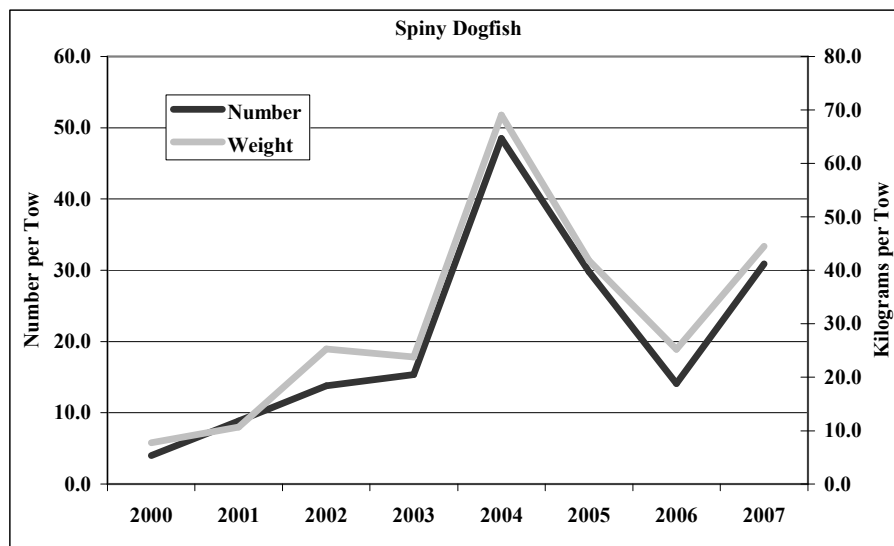
Spiny Dogfish

fixed stations not included

FALL

for dogs, indices calculated for regions 1 through 5
strata 1 through 4 (2003 and up)

	Stratified Mean Number		Stratified Mean Weight	
	Mean	SE	Mean	SE
2000	4.0	0.52	7.7	1.05
2001	8.9	2.70	10.7	3.06
2002	13.8	2.52	25.3	4.95
2003	15.4	3.36	23.8	4.96
2004	48.5	12.02	69.0	17.73
2005	29.7	3.43	41.8	5.54
2006	14.1	2.32	25.2	4.16
2007	30.9	7.64	44.5	11.06



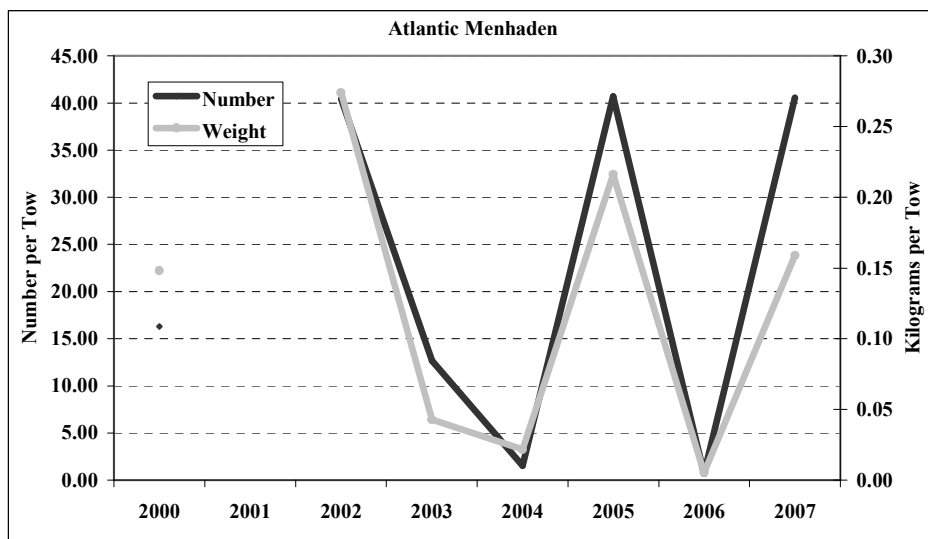
Atlantic Menhaden (pogy)

fixed stations not included

FALL

for pogy, indices calculated for regions 1 through 5
strata 1 through 4 (2003 and up)

	Stratified Mean Number		Stratified Mean Weight	
	Mean	SE	Mean	SE
2000	16.30	6.24	0.15	0.07
2001				
2002	40.42	12.51	0.27	0.07
2003	12.66	3.37	0.04	0.01
2004	1.53	0.67	0.02	0.01
2005	40.69	13.15	0.22	0.08
2006	0.69	0.42	0.01	0.00
2007	40.54	39.28	0.16	0.15



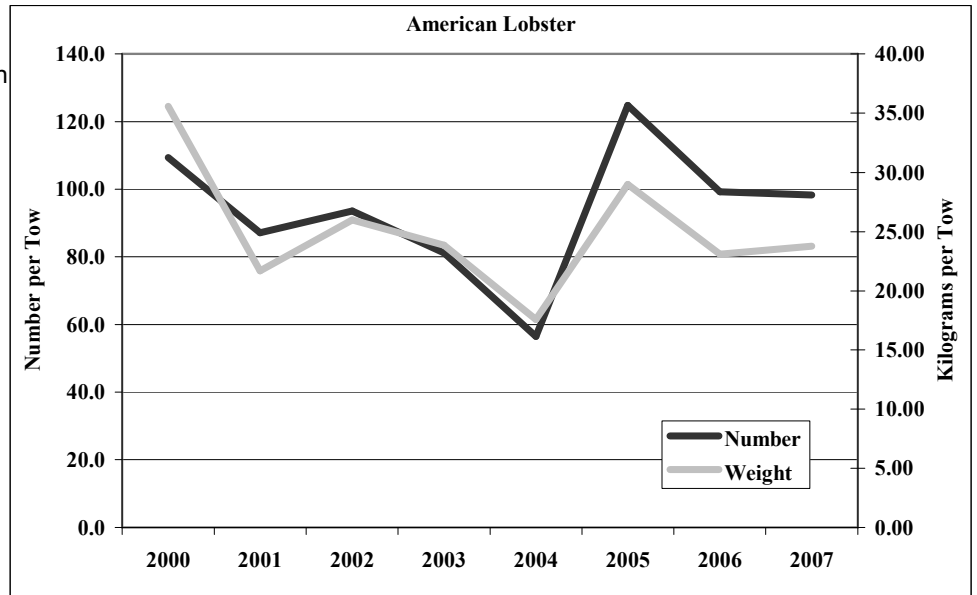
American Lobster

fixed stations not included

FALL

for lobster, indices calculated for regions 1 through 5
strata 1 through 4

	Stratified Mean Number		Stratified Mean Weight	
	Mean	SE	Mean	SE
2000	109.4	19.6	35.60	4.98
2001	87.1	18.7	21.68	3.71
2002	93.6	11.9	25.97	2.77
2003	81.1	7.8	23.84	2.29
2004	56.4	11.2	17.57	2.84
2005	124.8	21.7	28.97	5.25
2006	99.3	15.5	23.09	3.36
2007	98.3	15.8	23.75	3.26

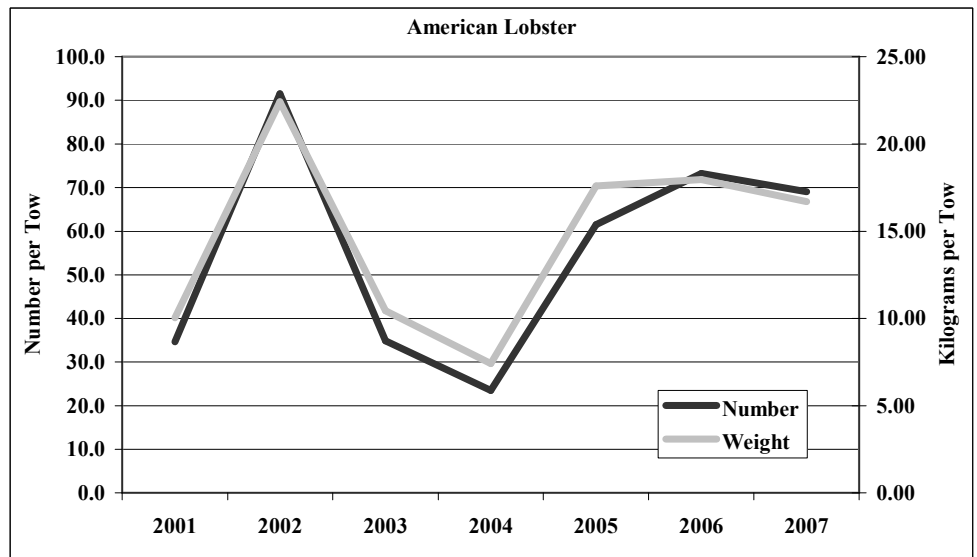


fixed stations not included

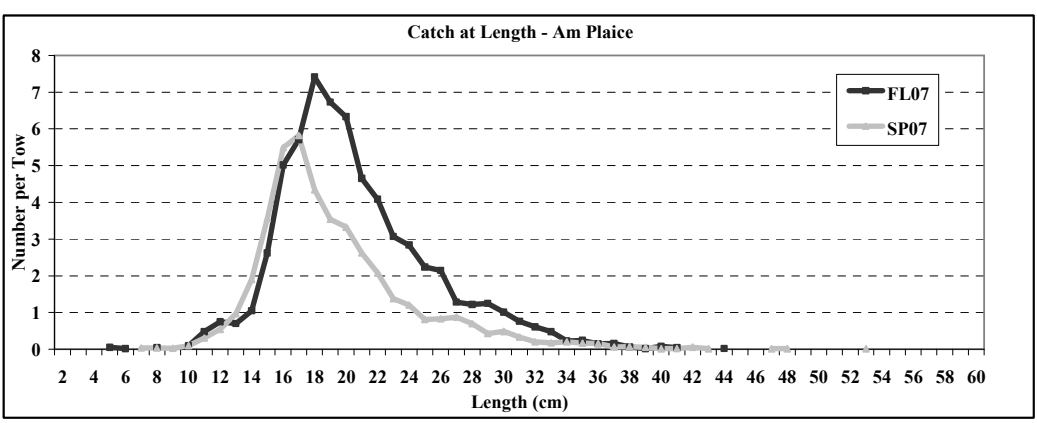
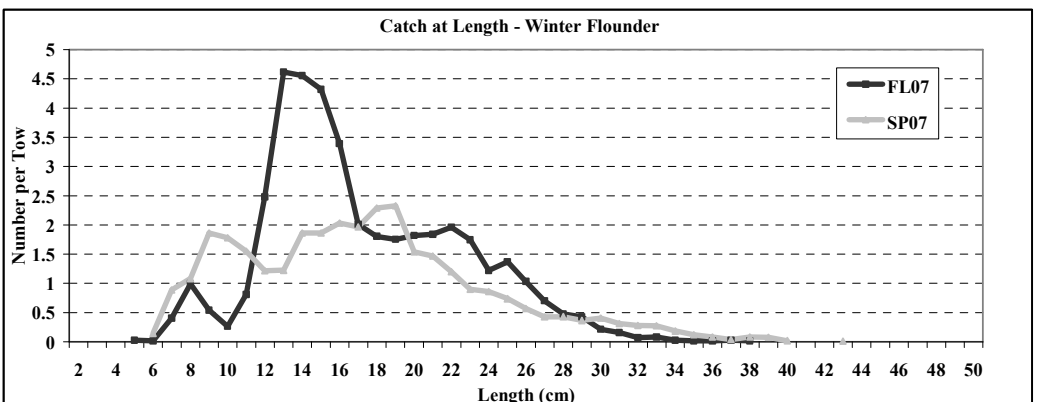
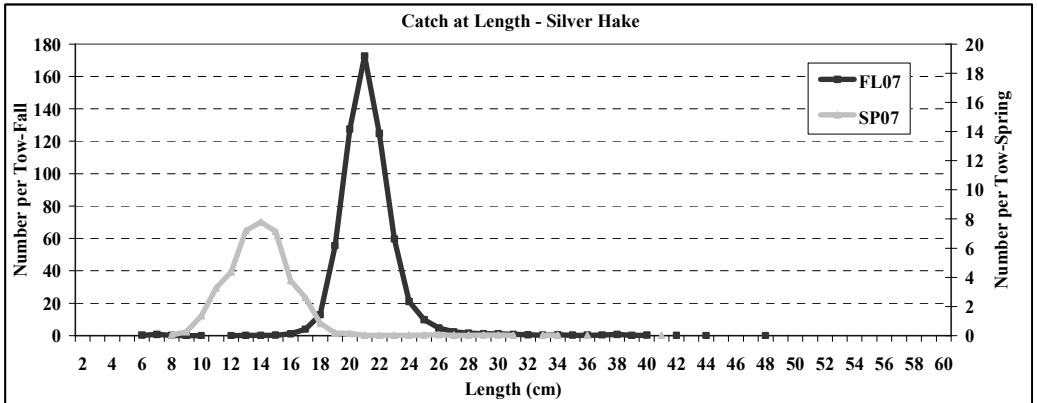
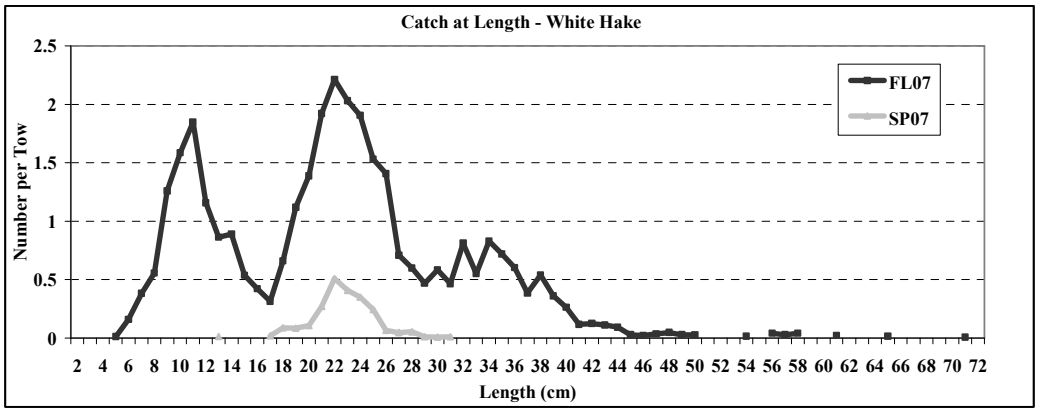
SPRING

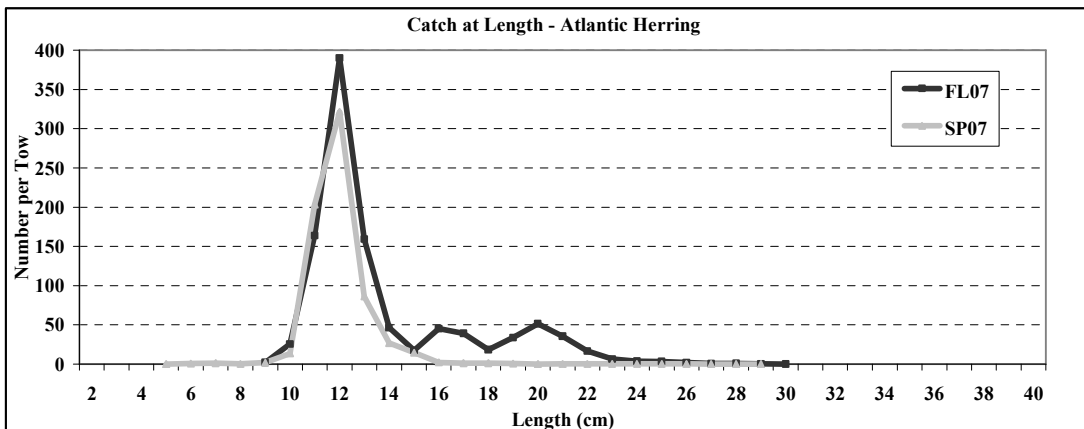
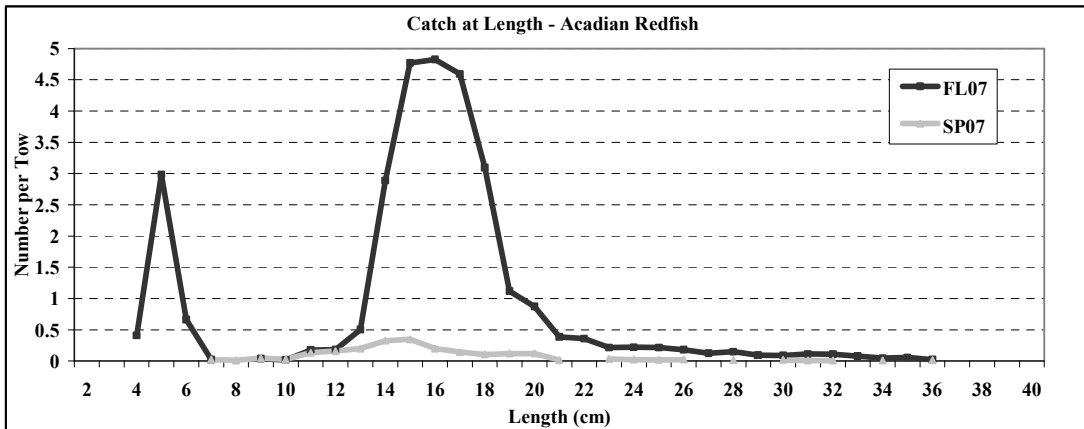
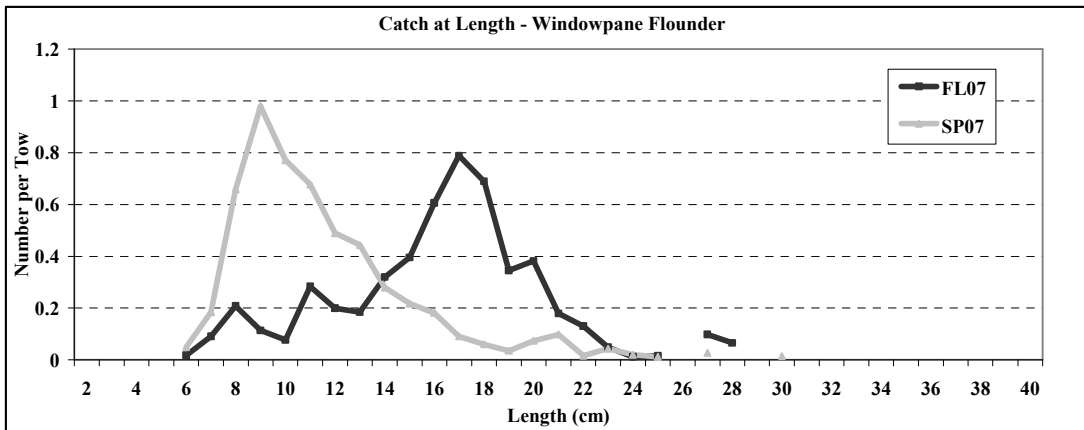
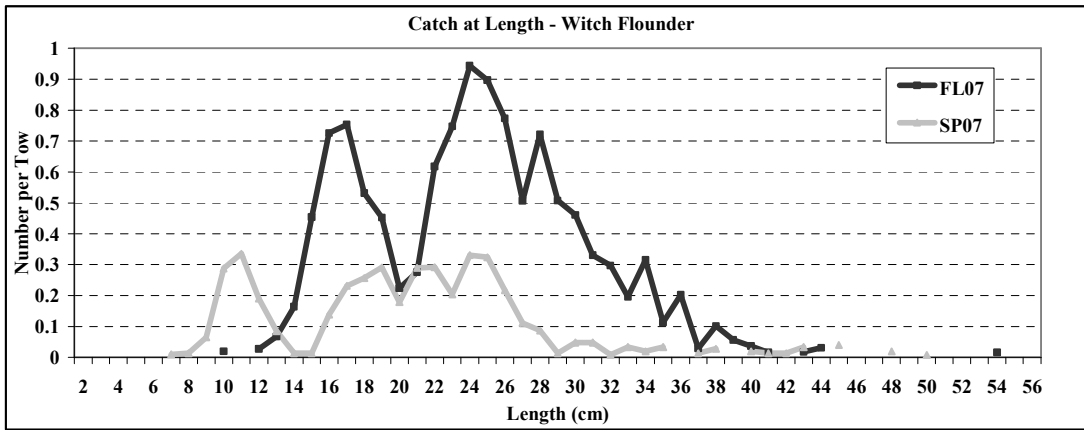
for lobster, indices calculated for regions 1 through 5
strata 1 through 4

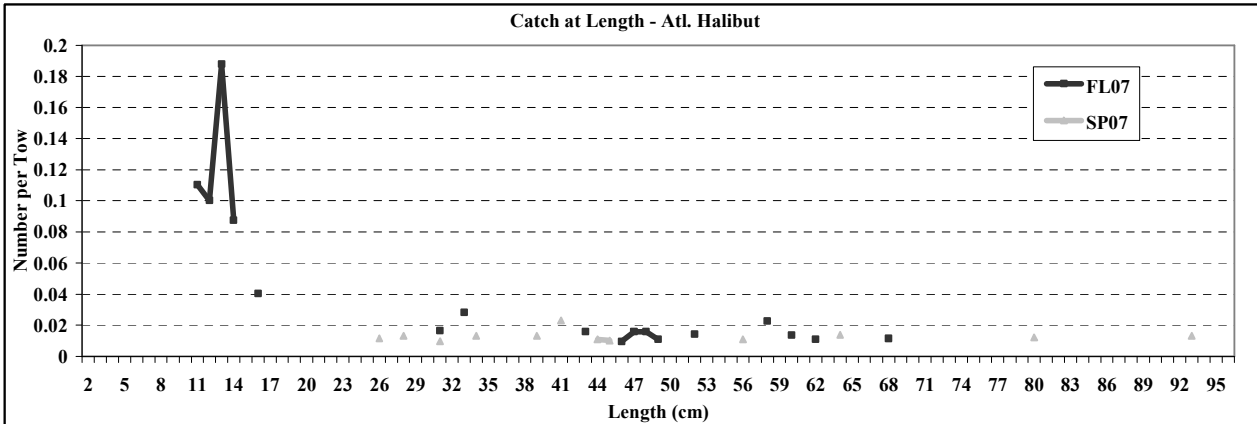
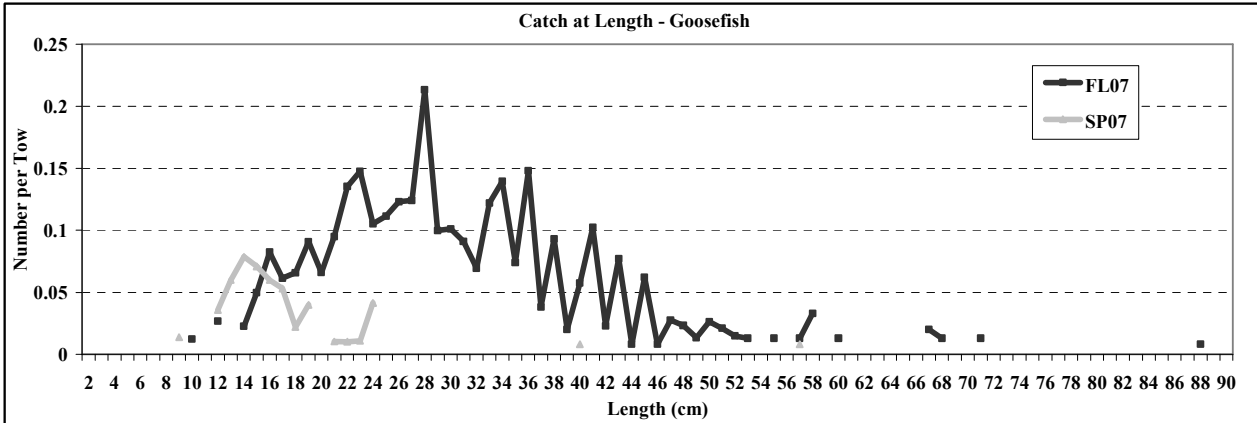
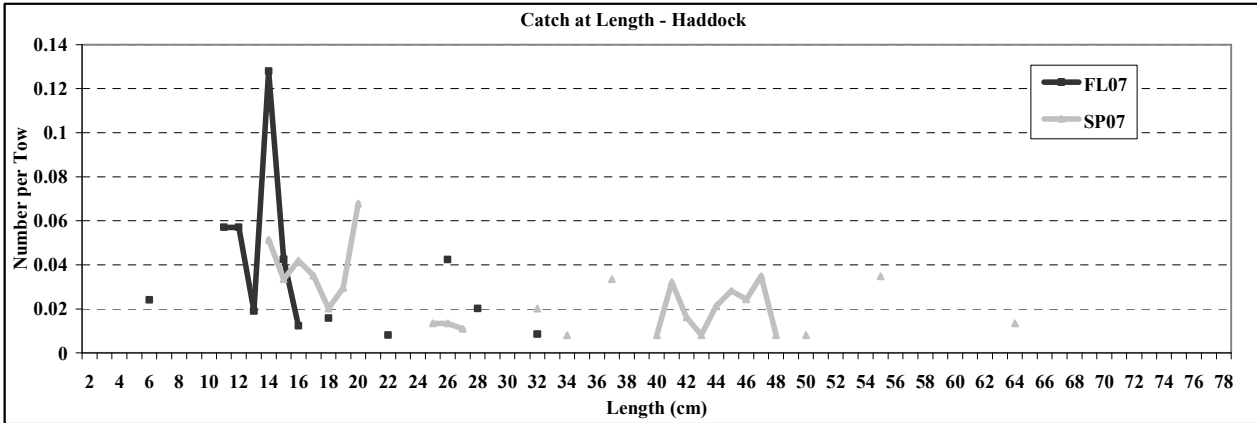
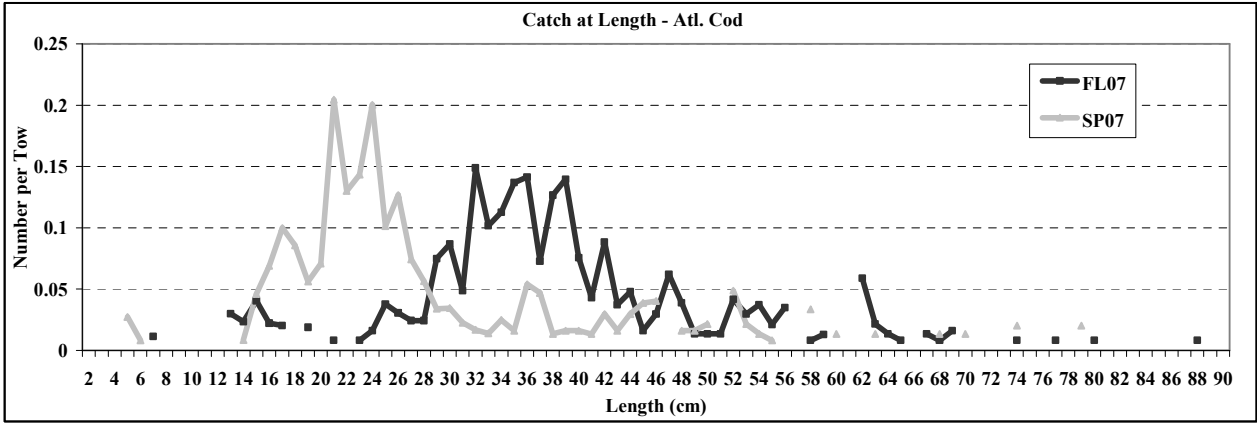
	Stratified Mean Number		Stratified Mean Weight	
	Mean	SE	Mean	SE
2001	34.7	5.5	10.04	1.37
2002	91.5	13.9	22.42	3.09
2003	34.9	7.4	10.45	1.43
2004	23.5	3.8	7.42	0.83
2005	61.4	14.2	17.59	2.89
2006	73.2	22.6	17.96	3.58
2007	69.1	11.7	16.68	1.91

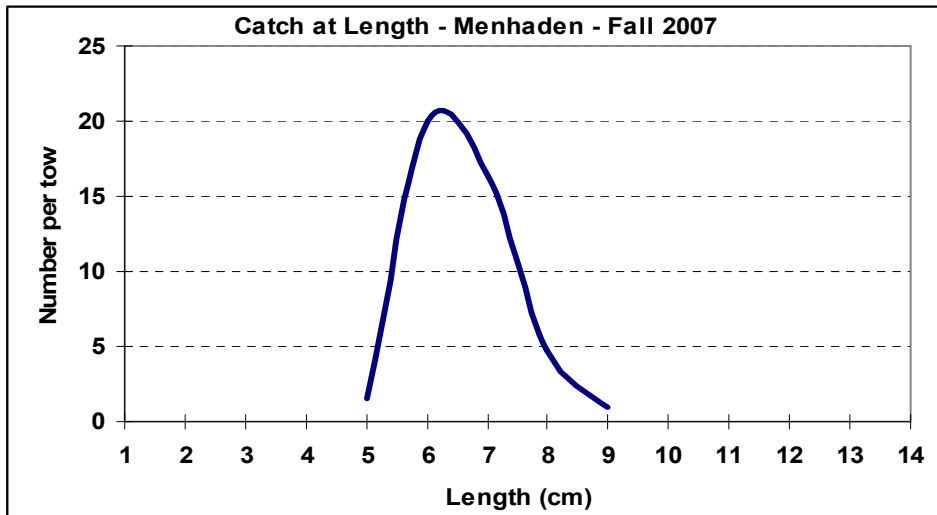
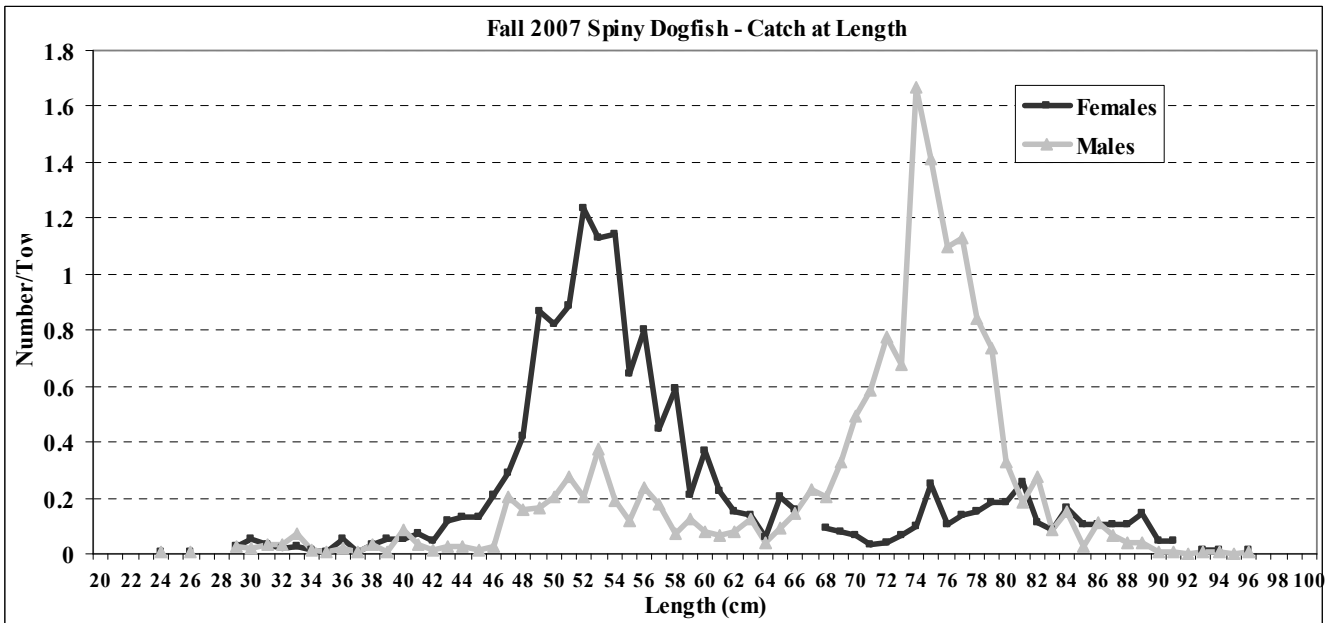
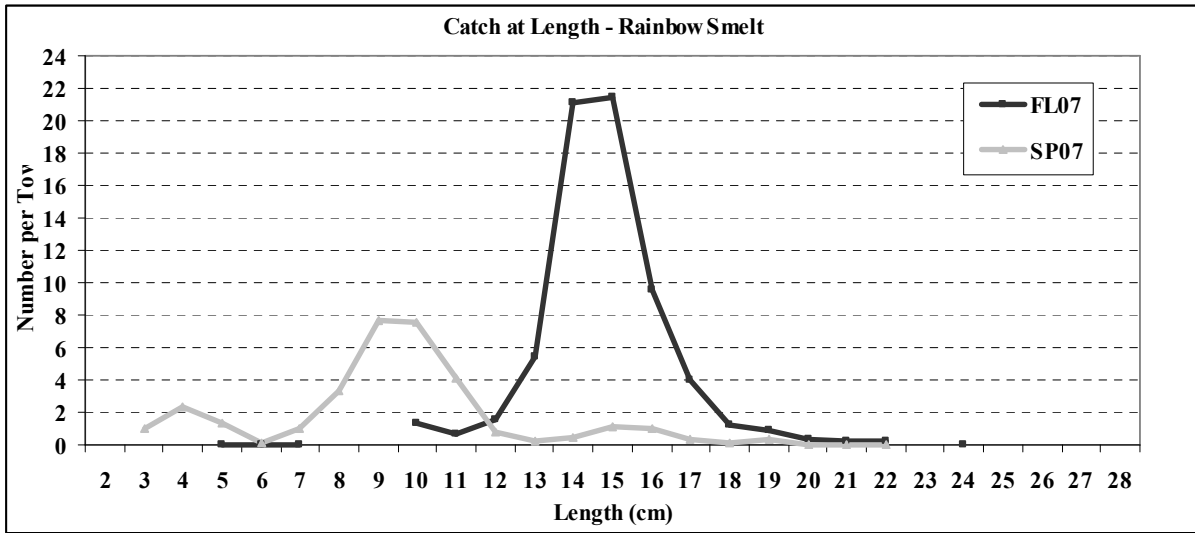


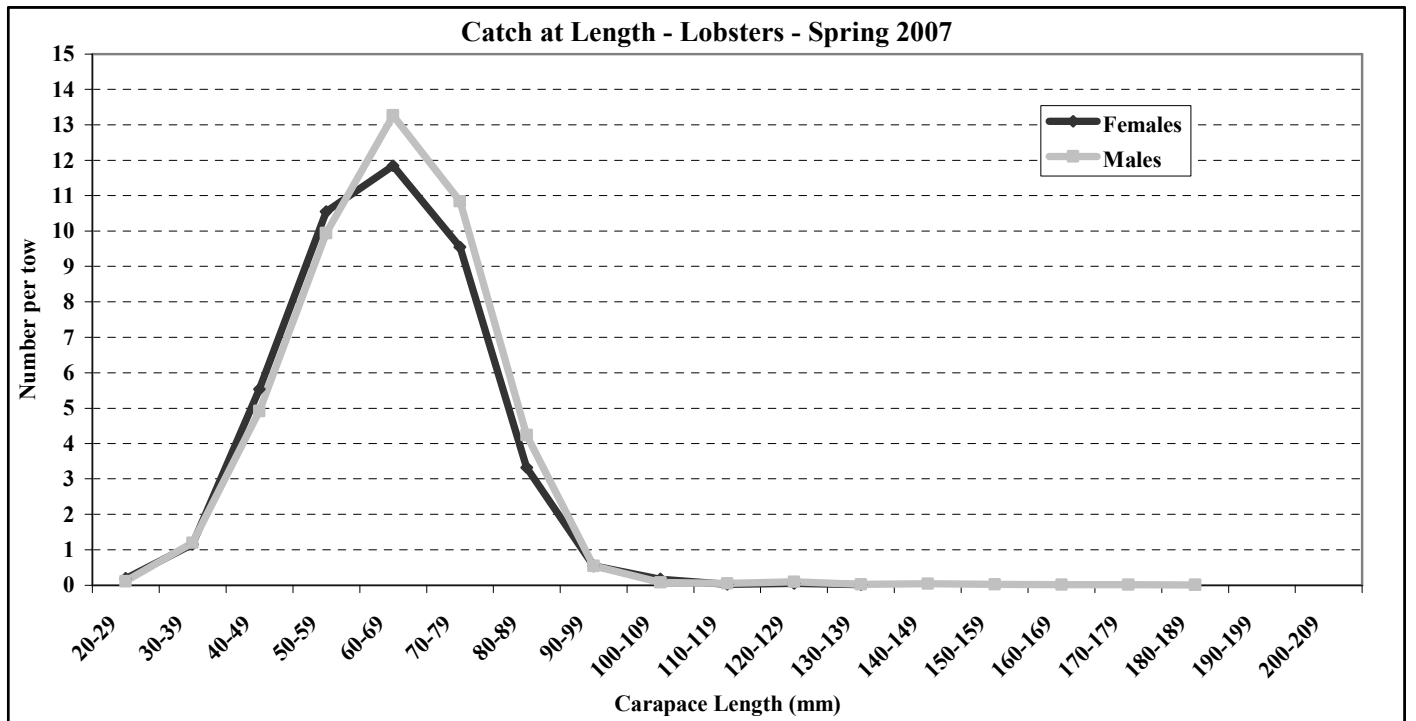
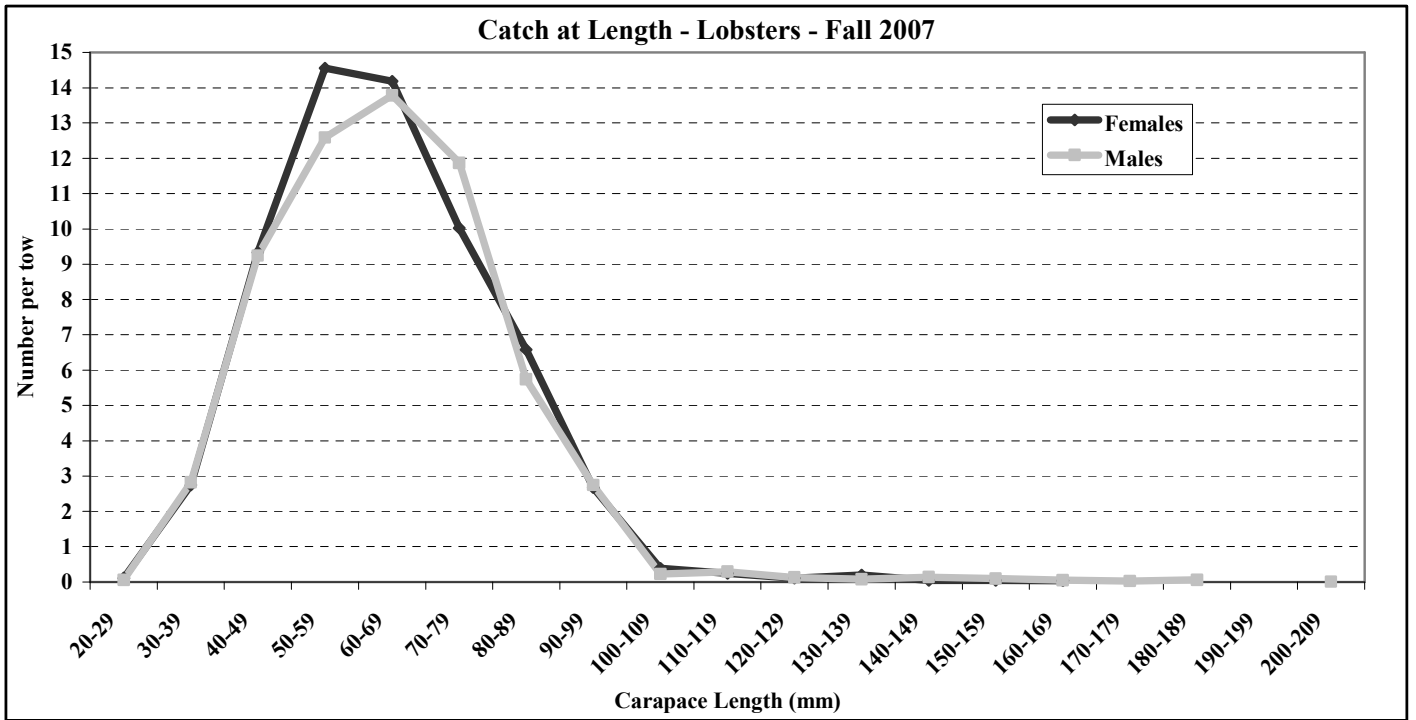
Spring 2007 and Fall 2007 Stratified Catch At Length for Selected Species











PARTNERSHIPS

The fisherman-scientist partnership during this project has been consistently strong. Foremost is the partnership between the scientific staff and commercial boat crews. The commercial crew of the F/V Robert Michael has proven to be completely dedicated to this project. Not only did the crew operate the boat and handle the gear, they have become equal partners in solving problems related to gear conflicts, communications, scheduling and logistics. Their participation involves far more than boat operations and gear handling, including sorting the catch, weighing and measuring samples, and collecting biological specimens including otoliths. Their involvement has resulted in significant improvements to survey efficiency while we adhere to standard protocols.

The fall 2007 survey marked the beginning of a change in captain and crew, as Captain Curt Rice and crewman Jerry Balzano are leaving the survey after this year. Curt has worked with us since the inception of the survey in 2000 and Jerry since 2002. We would like to thank them for all their help and wish them well in the future.

Captain Robert Tetrault II completed the fall 2007 survey with us. Both he and Curt worked together for the full five weeks to insure a smooth transition. We begin in the spring of 2008 with a new captain and crew.

SPECIAL PROJECT: GEAR MANUAL

On June 10, 2008, the trawl survey staff and the net manufacturer met staff from the Marine Institute at the Memorial University in Newfoundland to obtain detailed weights and dimensions of the trawl net and its various components. These measurements were then compiled into a comprehensive gear manual (Appendix C) prepared by the Marine Institute at the Centre for Sustainable Aquatic Resources at Memorial University, St. Johns, Newfoundland.

SPECIAL PROJECT: MICROSCOPE AND DIGITAL CAMERA

Part of the trawl survey grant was apportioned to purchasing an Olympus SZ6145TR Microscope and an Olympus DP71 Digital Camera. This equipment was installed in July of 2008, and will be used in all future age estimations. To date, the trawl survey has a large backlog of otoliths and this equipment will aid in the processing of the archived samples.

REFERENCES

Sherman, S., Stepanek, K. and Sowles, J. 2005. Maine-New Hampshire Inshore Groundfish Trawl Survey Procedures and Protocols. Maine Department of Marine Resources, Research Reference Document 05/01.

Appendix A Individual Station Descriptions

DATE	REGION	TOWID	LAT deg/min	LON deg/min	Stratum	Time	Tow Duration	Depth (FA)	Temp C °	Salinity ppt
Spring 2007										
5/7/2007	1	SP07__1	42 56.213	70 44.718	1	0723	20	15.1	4.19	31.91
5/7/2007	1	SP07__1	42 55.552	70 45.381	1	0743		13.8		
5/7/2007	1	SP07__2	42 52.533	70 43.873	1	0902	20	20.0	3.60	32.25
5/7/2007	1	SP07__2	42 51.783	70 44.391	1	0922		18.6		
5/7/2007	1	SP07__3	42 52.317	70 34.272	3	1057	20	46.7	4.19	32.66
5/7/2007	1	SP07__3	42 52.992	70 33.629	3	1117		46.2		
5/7/2007	1	SP07__4	42 55.415	70 31.985	3	1232	20	46.5	4.12	32.70
5/7/2007	1	SP07__4	42 55.688	70 30.930	3	1252		49.0		
5/7/2007	1	SP07__5	42 57.333	70 29.481	3	1419	20	50.5	4.08	32.69
5/7/2007	1	SP07__5	42 57.777	70 28.517	3	1439		50.8		
5/8/2007	1	SP07__6	43 00.577	70 33.073	2	0657	20	36.4	3.92	32.61
5/8/2007	1	SP07__6	43 01.259	70 32.358	2	0717		38.4		
5/8/2007	1	SP07__7	42 59.076	70 25.341	4	0846	20	57.4	4.20	32.79
5/8/2007	1	SP07__7	42 58.289	70 24.922	4	0906		59.8		
5/8/2007	1	SP07__8	43 03.492	70 17.282	4	1058	20	81.3	4.22	33.07
5/8/2007	1	SP07__8	43 03.056	70 16.395	4	1118		83.4		
5/8/2007	1	SP07__9	43 05.492	70 17.195	4	1229	20	77.1	4.27	33.00
5/8/2007	1	SP07__9	43 06.186	70 17.913	4	1249		71.6		
5/8/2007	1	SP07__10	43 04.389	70 32.175	2	1540	20	32.0	3.88	32.49
5/8/2007	1	SP07__10	43 04.729	70 31.159	2	1600		34.6		
5/9/2007	1	SP07__11	43 06.892	70 25.423	2	0812	20	30.1	3.84	32.55
5/9/2007	1	SP07__11	43 06.508	70 26.438	2	0832		31.7		
5/9/2007	1	SP07__12	43 09.212	70 22.704	3	0941	20	48.5	3.76	32.56
5/9/2007	1	SP07__12	43 08.709	70 23.660	3	1001		46.5		
5/9/2007	1	SP07__13	43 11.694	70 25.693	2	1115	20	27.5	3.74	32.54
5/9/2007	1	SP07__13	43 11.475	70 26.739	2	1135		28.1		
5/9/2007	1	SP07__14	43 19.753	70 30.278	1	1415	20	9.4	3.70	32.11
5/9/2007	1	SP07__14	43 19.262	70 31.154	1	1435		10.3		
5/9/2007	1	SP07__15	43 25.365	70 17.371	2	1640	20	32.5	3.69	32.46
5/9/2007	1	SP07__15	43 26.092	70 16.824	2	1700		28.1		
5/10/2007	1	SP07__16	43 14.983	70 10.368	4	0734	20	69.1	4.12	32.72
5/10/2007	1	SP07__16	43 14.173	70 10.761	4	0754		68.0		
5/10/2007	1	SP07__17	43 19.504	70 11.790	3	0920	20	56.8	3.78	32.05
5/10/2007	1	SP07__17	43 18.895	70 12.633	3	0940		54.1		
5/10/2007	1	SP07__18	43 24.171	70 08.008	4	1108	20	59.1	3.87	32.59
5/10/2007	1	SP07__18	43 23.559	70 07.199	4	1128		58.8		
5/10/2007	1	SP07__19	43 26.885	70 10.968	3	1241	20	47.5	3.73	32.49
5/10/2007	1	SP07__19	43 27.704	70 11.364	3	1301		45.1		
5/10/2007	1	SP07__20	43 24.915	70 14.246	3	1433	20	47.2	3.63	32.47
5/10/2007	1	SP07__20	43 25.658	70 13.665	3	1453		47.1		
5/11/2007	1	SP07__21	43 25.789	70 18.627	1	0747	20	19.0	3.72	32.27
5/11/2007	1	SP07__21	43 26.589	70 18.839	1	0807		19.8		
5/11/2007	1	SP07__22	43 30.848	70 20.703	1	0939	20	6.3	5.80	31.12
5/11/2007	1	SP07__22	43 30.123	70 21.216	1	0959		6.8		

Appendix A Individual Station Descriptions

DATE	REGION	TOWID	LAT deg/min	LON deg/min	Stratum	Time	Tow Duration	Depth (FA)	Temp C °	Salinity ppt
5/11/2007	1	SP07_23	43 31.908	70 15.365	1	1054	20	13.8	4.40	32.26
5/11/2007	1	SP07_23	43 31.834	70 16.504	1	1114		12.6		
5/11/2007	1	SP07_24	43 30.300	70 14.339	2	1218	20	24.7	3.90	32.39
5/11/2007	1	SP07_24	43 31.079	70 14.440	2	1238		21.1		
5/14/2007	2	SP07_25	43 45.001	70 02.900	1	0722	12	18.9	5.69	31.39
5/14/2007	2	SP07_25	43 45.388	70 02.506	1	0734		16.2		
5/14/2007	2	SP07_26	43 39.586	69 54.778	2	0925	20	27.0	4.29	32.31
5/14/2007	2	SP07_26	43 40.423	69 54.502	2	0945		24.5		
5/14/2007	2	SP07_27	43 33.322	69 59.652	3	1258	22	52.6	3.87	32.57
5/14/2007	2	SP07_27	43 32.643	70 00.426	3	1320		53.6		
5/14/2007	2	SP07_28	43 30.128	70 06.534	3	1428	20	48.2	3.86	32.46
5/14/2007	2	SP07_28	43 29.259	70 06.518	3	1448		50.5		
5/14/2007	2	SP07_29	43 37.662	70 07.584	1	1635	15	21.0	5.99	31.34
5/14/2007	2	SP07_29	43 38.112	70 07.663	1	1650		20.4		
5/15/2007	2	SP07_30	43 41.951	69 54.989	1	0843	12	19.1	6.11	31.71
5/15/2007	2	SP07_30	43 42.340	69 55.402	1	0855		17.3		
5/15/2007	2	SP07_31	43 41.015	69 50.007	1	0958	20	12.2	5.31	31.69
5/15/2007	2	SP07_31	43 41.453	69 50.942	1	1018		13.0		
5/15/2007	2	SP07_32	43 37.933	69 42.093	3	1157	20	47.7	3.77	32.50
5/15/2007	2	SP07_32	43 37.379	69 42.996	3	1217		50.0		
5/15/2007	2	SP07_33	43 34.376	69 46.337	4	1357	20	60.1	3.89	32.36
5/15/2007	2	SP07_33	43 33.673	69 46.903	4	1417		60.7		
5/15/2007	2	SP07_34	43 36.482	69 51.831	3	1533	20	45.0	3.87	32.42
5/15/2007	2	SP07_34	43 35.921	69 52.602	3	1553		46.3		
5/16/2007	2	SP07_35	43 30.908	69 42.810	4	0828	20	70.4	4.02	33.12
5/16/2007	2	SP07_35	43 31.615	69 42.232	4	0848		69.1		
5/16/2007	2	SP07_36	43 33.827	69 41.152	4	1048	18	62.4	3.93	33.71
5/16/2007	2	SP07_36	43 34.451	69 40.618	4	1106		60.2		
5/17/2007	2	SP07_37	43 50.353	69 29.085	2	0742	20	33.5	4.01	32.01
5/17/2007	2	SP07_37	43 49.532	69 29.316	2	0802		38.8		
5/17/2007	2	SP07_38	43 54.950	69 26.809	1	0920	20	10.0	5.64	32.20
5/17/2007	2	SP07_38	43 54.251	69 27.317	1	0940		15.2		
5/17/2007	2	SP07_39	43 51.184	69 24.819	2	1105	20	37.8	3.98	32.07
5/17/2007	2	SP07_39	43 50.310	69 24.401	2	1125		31.9		
5/17/2007	2	SP07_40	43 53.074	69 19.440	1	1243	19	14.9	5.25	31.32
5/17/2007	2	SP07_40	43 52.324	69 19.463	1	1302		14.8		
5/17/2007	2	SP07_41	43 48.217	69 21.622	2	1354	20	41.8	4.52	31.79
5/17/2007	2	SP07_41	43 48.834	69 20.919	2	1414		36.7		
5/17/2007	2	SP07_42	43 41.642	69 30.565	4	1627	20	62.9	3.75	32.38
5/17/2007	2	SP07_42	43 40.814	69 30.793	4	1647		67.5		
5/18/2007	2	SP07_43	43 42.243	69 48.219	1	0657	17	10.0	6.54	30.97
5/18/2007	2	SP07_43	43 41.706	69 48.590	1	0714		12.1		
5/18/2007	2	SP07_44	43 41.327	69 39.485	3	0915	20	45.2	3.91	32.09
5/18/2007	2	SP07_44	43 42.075	69 39.076	3	0935		43.2		
5/18/2007	2	SP07_45	43 45.211	69 37.577	2	1055	12	30.0	4.68	31.77
5/18/2007	2	SP07_45	43 45.653	69 37.464	2	1107		24.4		

Appendix A
Individual Station Descriptions

DATE	REGION	TOWID	LAT deg/min	LON deg/min	Stratum	Time	Tow Duration	Depth (FA)	Temp C °	Salinity ppt
5/21/2007	3	SP07_46	43 47.034	69 13.829	3	0848	17	46.1	5.17	31.91
5/21/2007	3	SP07_46	43 46.314	69 13.831	3	0905		46.4		
5/21/2007	3	SP07_47	43 45.193	69 08.704	3	1024	20	53.4	4.89	32.12
5/21/2007	3	SP07_47	43 44.539	69 09.307	3	1044		57.4		
5/21/2007	3	SP07_48	43 48.570	69 02.054	3	1204	20	39.9	5.09	31.98
5/21/2007	3	SP07_48	43 47.878	69 02.615	3	1224		44.5		
5/21/2007	3	SP07_49	43 55.582	69 07.295	1	1508	20	20.2	5.46	31.48
5/21/2007	3	SP07_49	43 55.011	69 08.170	1	1528		21.4		
5/22/2007	3	SP07_50	44 08.148	68 56.479	2	0646	19	34.5	5.02	31.53
5/22/2007	3	SP07_50	44 07.634	68 57.291	2	0705		36.8		
5/22/2007	3	SP07_51	44 14.710	68 54.491	1	1002	23	17.9	4.83	31.34
5/22/2007	3	SP07_51	44 13.772	68 55.194	1	1025		14.1		
5/22/2007	3	SP07_52	44 12.964	68 55.205	2	1057	20	26.8	4.66	31.44
5/22/2007	3	SP07_52	44 13.716	68 54.671	2	1117		26.5		
5/22/2007	3	SP07_53	44 15.941	68 59.665	2	1257	20	25.0	4.71	29.87
5/22/2007	3	SP07_53	44 16.602	68 58.808	2	1317		25.6		
5/22/2007	3	SP07_54	44 10.085	69 02.699	1	1452	18	15.7	4.99	31.10
5/22/2007	3	SP07_54	44 10.691	69 02.040	1	1510		14.7		
5/23/2007	3	SP07_55	43 36.627	69 02.520	4	1019	20	70.0	4.15	32.42
5/23/2007	3	SP07_55	43 36.428	69 03.608	4	1039		76.4		
5/23/2007	3	SP07_56	43 36.451	68 56.572	4	1153	20	70.4	4.34	32.45
5/23/2007	3	SP07_56	43 37.228	68 56.154	4	1213		75.1		
5/23/2007	3	SP07_57	43 34.120	68 53.071	4	1332	20	65.7	4.48	32.70
5/23/2007	3	SP07_57	43 34.536	68 52.154	4	1352		70.7		
5/24/2007	3	SP07_58	43 59.305	68 44.639	2	0632	20	39.8	5.43	31.86
5/24/2007	3	SP07_58	43 59.148	68 45.789	2	0652		36.7		
5/24/2007	3	SP07_59	43 57.894	68 43.090	3	0806	20	43.1	5.06	31.72
5/24/2007	3	SP07_59	43 57.120	68 42.961	3	0826		46.4		
5/24/2007	3	SP07_60	43 55.827	68 47.982	3	0932	20	45.3	5.02	31.99
5/24/2007	3	SP07_60	43 55.336	68 47.101	3	0952		50.0		
5/24/2007	3	SP07_61	43 54.195	68 45.385	3	1123	20	47.3	5.04	31.98
5/24/2007	3	SP07_61	43 55.024	68 45.240	3	1143		52.6		
5/24/2007	3	SP07_62	43 53.948	68 39.882	3	1314	18	52.0	4.63	32.18
5/24/2007	3	SP07_62	43 53.444	68 40.669	3	1332		50.4		
5/24/2007	3	SP07_63	43 51.006	68 34.763	4	1438	19	61.7	4.71	32.59
5/24/2007	3	SP07_63	43 51.382	68 35.663	4	1457		57.4		
5/25/2007	3	SP07_64	44 02.918	68 40.344	1	0739	14	23.9	5.42	31.87
5/25/2007	3	SP07_64	44 02.377	68 40.724	1	0753		24.5		
5/25/2007	3	SP07_65	44 08.818	68 45.658	2	0932	20	27.1	6.26	31.42
5/25/2007	3	SP07_65	44 07.986	68 45.345	2	0952		29.9		
5/25/2007	3	SP07_66	44 14.798	68 43.439	1	1155	17	9.3	5.65	30.97
5/25/2007	3	SP07_66	44 14.135	68 43.823	1	1212		16.0		
5/25/2007	3	SP07_67	44 16.063	68 47.188	1	1350	15	11.1	4.84	31.31
5/25/2007	3	SP07_67	44 16.525	68 46.596	1	1405		16.3		
5/28/2007	4	SP07_68	44 09.528	68 32.511	1	0736	16	13.2	7.22	31.63
5/28/2007	4	SP07_68	44 10.001	68 31.872	1	0752		12.2		

Appendix A Individual Station Descriptions

DATE	REGION	TOWID	LAT deg/min	LON deg/min	Stratum	Time	Tow Duration	Depth (FA)	Temp C °	Salinity ppt
5/28/2007	4	SP07_69	43 59.192	68 33.110	3	1239	20	44.7	4.95	32.08
5/28/2007	4	SP07_69	44 00.027	68 33.236	3	1259		43.4		
5/28/2007	4	SP07_70	43 57.175	68 34.609	3	1441	20	45.9	4.65	32.26
5/28/2007	4	SP07_70	43 56.707	68 35.603	3	1501		47.8		
5/28/2007	4	SP07_71	43 56.685	68 28.461	3	1644	20	52.5	4.49	32.34
5/28/2007	4	SP07_71	43 56.197	68 29.339	3	1704		55.1		
5/29/2007	4	SP07_72	43 49.897	68 31.025	4	0834	20	82.6	4.58	32.56
5/29/2007	4	SP07_72	43 50.477	68 30.286	4	0854		73.5		
5/29/2007	4	SP07_73	43 51.975	68 22.384	4	1028	20	68.8	4.48	32.70
5/29/2007	4	SP07_73	43 52.638	68 21.821	4	1048		68.3		
5/29/2007	4	SP07_74	43 55.365	68 08.588	4	1258	20	81.8	6.14	33.57
5/29/2007	4	SP07_74	43 55.064	68 09.608	4	1318		84.8		
5/29/2007	4	SP07_75	44 01.050	68 20.850	3	1525	20	46.7	4.68	32.14
5/29/2007	4	SP07_75	44 01.515	68 19.898	3	1545		49.0		
5/30/2007	4	SP07_76	44 16.660	68 31.150	1	0803	20	15.0	5.79	31.42
5/30/2007	4	SP07_76	44 17.508	68 31.228	1	0823		15.5		
5/30/2007	4	SP07_77	44 20.878	68 32.302	1	0926	20	19.6	5.37	31.33
5/30/2007	4	SP07_77	44 21.677	68 31.986	1	0946		18.8		
5/30/2007	4	SP07_78	44 12.985	68 26.606	1	1141	20	15.2	7.13	31.58
5/30/2007	4	SP07_78	44 12.234	68 25.946	1	1201		15.5		
5/30/2007	4	SP07_79	44 12.435	68 21.952	1	1301	14	16.7	7.30	31.54
5/30/2007	4	SP07_79	44 12.969	68 21.934	1	1315		15.9		
5/30/2007	4	SP07_80	44 14.538	68 07.938	2	1614	20	35.9	4.80	31.88
5/30/2007	4	SP07_80	44 13.570	68 08.014	2	1634		35.5		
6/3/2007	4	SP07_81	44 06.157	68 06.739	3	0723	20	54.6	4.80	32.20
6/3/2007	4	SP07_81	44 06.792	68 06.073	3	0743		51.1		
6/3/2007	4	SP07_82	44 03.268	68 03.683	4	1016	20	61.6	5.04	32.61
6/3/2007	4	SP07_82	44 03.832	68 02.774	4	1036		62.1		
6/3/2007	4	SP07_83	44 09.120	67 54.248	3	1330	20	54.2	5.04	32.50
6/3/2007	4	SP07_83	44 08.718	67 55.273	3	1350		57.6		
6/3/2007	4	SP07_84	44 13.524	68 04.798	3	1532	20	40.0	4.85	31.93
6/3/2007	4	SP07_84	44 12.958	68 03.984	3	1552		42.5		
6/3/2007	4	SP07_85	44 17.970	68 07.757	2	1709	20	34.2	5.30	31.76
6/3/2007	4	SP07_85	44 17.129	68 07.817	2	1729		35.5		
6/4/2007	4	SP07_86	44 26.492	68 13.334	2	0734	20	24.4	5.54	31.68
6/4/2007	4	SP07_86	44 25.878	68 12.597	2	0754		26.2		
6/4/2007	4	SP07_87	44 21.682	68 09.771	2	0856	20	25.2	3.08	31.68
6/4/2007	4	SP07_87	44 22.495	68 10.198	2	0916		25.4		
6/4/2007	4	SP07_88	44 21.382	68 06.928	2	1021	16	30.0	6.00	31.69
6/4/2007	4	SP07_88	44 22.023	68 07.187	2	1037		26.8		
6/6/2007	5	SP07_89	44 28.380	67 45.576	1	0910	13	17.2	6.68	31.51
6/6/2007	5	SP07_89	44 28.906	67 45.488	1	0923		12.3		
6/6/2007	5	SP07_90	44 27.216	67 43.325	1	1016	20	18.4	6.26	30.94
6/6/2007	5	SP07_90	44 28.050	67 43.505	1	1036		18.6		
6/6/2007	5	SP07_91	44 25.319	67 44.267	2	1149	19	23.9	5.99	31.63
6/6/2007	5	SP07_91	44 25.752	67 43.372	2	1208		24.4		

Appendix A Individual Station Descriptions

DATE	REGION	TOWID	LAT deg/min	LON deg/min	Stratum	Time	Tow Duration	Depth (FA)	Temp C °	Salinity ppt
6/6/2007	5	SP07_92	44 19.819	67 46.291	2	1408	20	35.9	5.51	31.85
6/6/2007	5	SP07_92	44 20.352	67 45.423	2	1428		37.7		
6/6/2007	5	SP07_93	44 21.592	67 42.345	2	1543	20	35.0	5.50	31.92
6/6/2007	5	SP07_93	44 21.967	67 41.358	2	1603		34.5		
6/6/2007	5	SP07_94	44 20.398	67 39.781	3	1700	20	39.9	5.65	32.13
6/6/2007	5	SP07_94	44 19.897	67 40.687	3	1720		40.3		
6/7/2007	5	SP07_95	44 22.732	67 33.038	3	0732	20	48.8	5.67	32.03
6/7/2007	5	SP07_95	44 22.127	67 33.894	3	0752		51.9		
6/7/2007	5	SP07_96	44 14.132	67 34.920	4	1040	20	80.7	6.40	33.65
6/7/2007	5	SP07_96	44 14.782	67 34.176	4	1100		79.1		
6/7/2007	5	SP07_97	44 14.888	67 28.988	4	1216	20	100.0	6.87	34.05
6/7/2007	5	SP07_97	44 15.180	67 27.852	4	1236		100.5		
6/7/2007	5	SP07_98	44 17.740	67 30.529	4	1336	20	59.3	5.57	32.41
6/7/2007	5	SP07_98	44 18.298	67 29.628	4	1356		61.2		
6/7/2007	5	SP07_99	44 20.832	67 30.014	3	1437	14	57.3	5.61	32.28
6/7/2007	5	SP07_99	44 21.232	67 29.379	3	1451		52.5		
6/7/2007	5	SP07100	44 25.132	67 27.758	3	1559	20	45.0	5.45	31.83
6/7/2007	5	SP07100	44 25.848	67 27.188	3	1619		42.7		
6/8/2007	5	SP07101	44 46.338	66 57.845	3	1007	20	47.5	4.85	31.89
6/8/2007	5	SP07101	44 45.904	66 58.873	3	1027		44.6		
6/8/2007	5	SP07102	44 43.486	67 04.551	2	1126	20	33.0	5.69	31.45
6/8/2007	5	SP07102	44 44.094	67 03.695	2	1146		32.6		
6/8/2007	5	SP07103	44 42.789	66 57.465	3	1327	20	55.4	4.91	31.83
6/8/2007	5	SP07103	44 43.686	66 56.762	3	1347		58.0		
6/8/2007	5	SP07104	44 38.144	67 04.029	3	1535	19	43.9	5.44	31.63
6/8/2007	5	SP07104	44 38.964	67 03.445	3	1554		44.7		
6/9/2007	5	SP07105	44 37.878	67 19.502	1	0753	20	10.4	6.01	31.46
6/9/2007	5	SP07105	44 37.162	67 20.013	1	0813		14.0		
6/9/2007	5	SP07106	44 35.389	67 17.734	2	0858	20	28.8	5.64	31.75
6/9/2007	5	SP07106	44 34.967	67 18.818	2	0918		26.9		
6/9/2007	5	SP07107	44 32.195	67 26.073	2	1033	20	26.6	5.90	31.48
6/9/2007	5	SP07107	44 31.715	67 27.063	2	1053		24.4		
6/9/2007	5	SP07108	44 31.536	67 29.170	1	1156	20	20.7	6.20	31.40
6/9/2007	5	SP07108	44 32.016	67 28.226	1	1216		20.9		

Fall 2007

10/1/2007	1	FL07__1	42 57.835	70 43.156	1	0939	13	16.6	9.0	32.2
10/1/2007	1	FL07__1	42 58.286	70 42.811	1	0952		15.5		
10/1/2007	1	FL07__2	42 56.395	70 44.274	1	1054	20	17.1	8.7	32.1
10/1/2007	1	FL07__2	42 55.815	70 45.067	1	1114		14.7		
10/1/2007	1	FL07__3	42 51.149	70 45.291	1	1317	20	17.7	8.5	32.2
10/1/2007	1	FL07__3	42 51.817	70 44.702	1	1337		20.1		
10/1/2007	1	FL07__4	42 56.092	70 39.542	2	1504	16	28.7	7.3	32.3
10/1/2007	1	FL07__4	42 55.616	70 40.108	2	1520		29.3		

Appendix A Individual Station Descriptions

DATE	REGION	TOWID	LAT deg/min	LON deg/min	Stratum	Time	Tow Duration	Depth (FA)	Temp C °	Salinity ppt
10/2/2007	1	FL07__5	42 53.645	70 32.565	3	0830	18	45.9	5.7	32.6
10/2/2007	1	FL07__5	42 53.528	70 33.577	3	0848		42.4		
10/2/2007	1	FL07__6	42 52.655	70 26.600	4	1026	20	70.5	5.2	32.8
10/2/2007	1	FL07__6	42 52.085	70 27.304	4	1046		71.5		
10/2/2007	1	FL07__7	43 02.211	70 24.751	3	1225	20	52.4	5.7	32.7
10/2/2007	1	FL07__7	43 01.656	70 25.523	3	1245		53.7		
10/2/2007	1	FL07__8	42 57.787	70 30.231	3	1541	20	49.1	6.1	32.6
10/2/2007	1	FL07__8	42 57.651	70 31.321	3	1601		47.9		
10/2/2007	1	FL07__9	42 59.906	70 29.518	3	1720	20	49.7	6.1	32.6
10/2/2007	1	FL07__9	42 59.229	70 30.061	3	1740		48.0		
10/3/2007	1	FL07_10	43 09.176	70 22.824	3	0750	20	48.2	6.5	32.7
10/3/2007	1	FL07_10	43 08.707	70 23.720	3	0810		46.4		
10/3/2007	1	FL07_11	43 09.283	70 16.150	4	1019	20	63.9	7.2	32.7
10/3/2007	1	FL07_11	43 09.834	70 15.363	4	1039		68.7		
10/3/2007	1	FL07_12	43 15.251	70 20.015	3	1302	23	47.3	7.1	32.7
10/3/2007	1	FL07_12	43 15.125	70 21.063	3	1325		45.0		
10/3/2007	1	FL07_13	43 17.778	70 30.698	1	1748	16	18.6	8.9	32.4
10/3/2007	1	FL07_13	43 17.165	70 30.882	1	1804		19.9		
10/4/2007	1	FL07_14	43 19.477	70 06.289	4	0826	20	72.0	6.0	33.2
10/4/2007	1	FL07_14	43 18.832	70 06.868	4	0846		74.1		
10/4/2007	1	FL07_15	43 22.484	70 03.729	4	1013	17	76.5	5.8	33.4
10/4/2007	1	FL07_15	43 21.833	70 04.095	4	1030		73.9		
10/4/2007	1	FL07_16	43 23.734	70 07.359	4	1158	20	58.6	6.3	32.9
10/4/2007	1	FL07_16	43 24.339	70 08.047	4	1218		52.7		
10/4/2007	1	FL07_17	43 25.587	70 12.347	3	1339	21	45.6	7.0	32.8
10/4/2007	1	FL07_17	43 26.314	70 11.597	3	1400		48.5		
10/4/2007	1	FL07_18	43 28.377	70 11.770	2	1536	20	33.0	8.6	32.6
10/4/2007	1	FL07_18	43 29.194	70 11.763	2	1556		37.2		
10/5/2007	1	FL07_19	43 25.983	70 16.841	2	0948	20	34.1	8.6	32.5
10/5/2007	1	FL07_19	43 25.249	70 17.489	2	1008		31.7		
10/5/2007	1	FL07_20	43 28.774	70 13.078	2	1206	20	36.4	8.8	32.5
10/5/2007	1	FL07_20	43 27.991	70 13.404	2	1226		34.1		
10/5/2007	1	FL07_21	43 31.495	70 16.379	1	1501	21	14.6	13.4	32.6
10/5/2007	1	FL07_21	43 31.976	70 15.432	1	1522		13.5		
10/8/2007	2	FL07_22	43 46.677	70 03.617	1	0833	20	7.1	13.0	31.1
10/8/2007	2	FL07_22	43 47.44 5	70 03.327	1	0853		8.0		
10/8/2007	2	FL07_23	43 39.408	70 05.314	1	1050	19	21.2	10.9	32.4
10/8/2007	2	FL07_23	43 38.768	70 05.989	1	1109		20.6		
10/8/2007	2	FL07_24	43 34.622	69 57.872	3	1506	19	51.0	7.4	32.8
10/8/2007	2	FL07_24	43 34.128	69 58.617	3	1525		59.0		
10/8/2007	2	FL07_25	43 30.356	69 52.954	4	1721	20	61.0	6.4	33.0
10/8/2007	2	FL07_25	43 30.716	69 52.004	4	1741		60.0		
10/9/2007	2	FL07_26	43 28.223	69 47.362	4	0848	20	73.7	6.1	33.1
10/9/2007	2	FL07_26	43 28.960	69 47.304	4	0908		71.7		
10/9/2007	2	FL07_27	43 33.868	69 47.023	4	1115	20	60.8	6.7	32.9
10/9/2007	2	FL07_27	43 33.050	69 46.910	4	1135		65.6		

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Individual Station Descriptions

DATE	REGION	TOWID	LAT deg/min	LON deg/min	Stratum	Time	Tow Duration	Depth (FA)	Temp C °	Salinity ppt
10/9/2007	2	FL07_28	43 37.175	69 44.782	3	1315	20	48.8	7.9	32.8
10/9/2007	2	FL07_28	43 36.929	69 45.833	3	1335		49.9		
10/9/2007	2	FL07_29	43 38.478	69 42.315	3	1512	20	47.7	8.0	32.8
10/9/2007	2	FL07_29	43 37.746	69 42.844	3	1532		49.8		
10/10/2007	2	FL07_30	43 38.177	69 45.252	3	0816	20	46.1	8.5	32.7
10/10/2007	2	FL07_30	43 38.931	69 44.878	3	0836		38.7		
10/10/2007	2	FL07_31	43 36.051	69 52.171	3	0948	20	46.8	8.3	32.8
10/10/2007	2	FL07_31	43 36.679	69 51.483	3	1008		47.6		
10/10/2007	2	FL07_32	43 38.035	69 51.325	2	1152	20	29.7	8.5	32.7
10/10/2007	2	FL07_32	43 37.276	69 51.694	2	1212		39.4		
10/10/2007	2	FL07_33	43 41.520	69 47.520	1	1459	15	15.7	11.0	32.4
10/10/2007	2	FL07_33	43 40.773	69 48.112	1	1514		17.3		
10/10/2007	2	FL07_34	43 43.301	69 47.372	1	1647	20	6.2	12.6	30.7
10/10/2007	2	FL07_34	43 42.679	69 48.043	1	1707		9.1		
10/11/2007	2	FL07_35	43 41.020	69 30.856	4	0739	20	64.7	6.9	33.0
10/11/2007	2	FL07_35	43 41.849	69 30.650	4	0759		67.1		
10/11/2007	2	FL07_36	43 37.615	69 28.175	4	0931	20	71.8	6.7	33.1
10/11/2007	2	FL07_36	43 38.194	69 29.014	4	0951		54.7		
10/11/2007	2	FL07_37	43 46.796	69 26.672	3	1131	20	41.2	8.1	32.6
10/11/2007	2	FL07_37	43 45.993	69 26.856	3	1151		44.2		
10/11/2007	2	FL07_38	43 50.224	69 29.134	2	1324	20	35.5	9.3	32.4
10/11/2007	2	FL07_38	43 49.418	69 29.409	2	1344		39.5		
10/15/2007	2	FL07_39	43 49.504	69 18.559	2	0918	13	36.2	9.2	32.8
10/15/2007	2	FL07_39	43 50.028	69 18.463	2	0931		38.9		
10/15/2007	3	FL07_40	43 57.798	69 09.226	1	1129	20	16.0	10.8	32.4
10/15/2007	3	FL07_40	43 58.063	69 08.150	1	1149		16.7		
10/15/2007	3	FL07_41	43 51.894	69 04.946	2	1324	20	34.1	9.9	32.9
10/15/2007	3	FL07_41	43 52.690	69 04.923	2	1344		32.6		
10/16/2007	3	FL07_42	43 42.997	69 06.029	3	1026	15	53.2	10.1	33.1
10/16/2007	3	FL07_42	43 43.526	69 05.508	3	1041		48.7		
10/16/2007	3	FL07_43	43 38.374	69 08.375	4	1201	20	76.5	7.6	33.2
10/16/2007	3	FL07_43	43 39.073	69 07.873	4	1221		70.6		
10/16/2007	3	FL07_44	43 36.503	69 08.250	4	1355	20	66.5	8.0	33.3
10/16/2007	3	FL07_44	43 37.170	69 08.852	4	1415		69.1		
10/16/2007	3	FL07_45	43 33.352	69 03.047	4	1548	20	73.5	8.7	33.7
10/16/2007	3	FL07_45	43 32.760	69 02.229	4	1608		67.8		
10/16/2007	3	FL07_46	43 37.120	68 56.236	4	1725	20	73.1	8.7	33.3
10/16/2007	3	FL07_46	43 36.406	68 56.710	4	1745		67.9		
10/17/2007	3	FL07_47	44 05.690	69 00.388	3	0804	16	45.7	11.3	32.5
10/17/2007	3	FL07_47	44 05.026	69 00.470	3	0820		54.7		
10/17/2007	3	FL07_48	44 10.173	69 00.989	2	1721	13	32.2	11.4	30.8
10/17/2007	3	FL07_48	44 09.635	69 01.063	2	1734		30.0		
10/18/2007	3	FL07_49	43 46.228	68 47.029	3	0756	19	53.8	9.2	33.1
10/18/2007	3	FL07_49	43 45.483	68 46.761	3	0815		55.5		
10/18/2007	3	FL07_50	43 51.208	68 37.495	3	1025	20	54.1	8.5	33.4
10/18/2007	3	FL07_50	43 50.417	68 37.725	3	1045		54.4		

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DATE	REGION	TOWID	LAT deg/min	LON deg/min	Stratum	Time	Tow Duration	Depth (FA)	Temp C °	Salinity ppt
10/18/2007	3	FL07_51	43 54.299	68 35.936	3	1156	20	50.1	9.0	33.2
10/18/2007	3	FL07_51	43 54.600	68 34.876	3	1216		51.4		
10/18/2007	3	FL07_52	43 56.824	68 36.103	3	1329	20	49.8	9.5	33.0
10/18/2007	3	FL07_52	43 56.038	68 36.178	3	1349		46.7		
10/18/2007	3	FL07_53	43 54.237	68 45.491	3	1511	20	48.8	10.1	33.0
10/18/2007	3	FL07_53	43 55.012	68 45.199	3	1531		52.3		
10/19/2007	3	FL07_54	44 12.620	68 51.525	1	0823	13	11.3	11.6	32.3
10/19/2007	3	FL07_54	44 12.324	68 52.164	1	0836		18.8		
10/19/2007	3	FL07_55	44 19.558	68 50.717	2	1034	20	23.9	11.7	32.3
10/19/2007	3	FL07_55	44 18.726	68 50.594	2	1054		26.2		
10/19/2007	3	FL07_56	44 14.611	68 43.098	1	1208	20	5.0	12.2	31.8
10/19/2007	3	FL07_56	44 15.224	68 43.739	1	1228		5.9		
10/19/2007	3	FL05_57	44 09.248	68 47.455	1	1400	13	8.0	12.6	31.7
10/19/2007	3	FL07_57	44 09.612	68 47.974	1	1413		2.7		
10/22/2007	4	FL07_58	44 00.980	68 32.633	3	0922	16	40.8	9.6	33.0
10/22/2007	4	FL07_58	44 00.556	68 33.342	3	0938		42.3		
10/22/2007	4	FL07_59	44 00.568	68 24.275	3	1144	18	45.8	9.3	33.0
10/22/2007	4	FL07_59	44 00.353	68 25.211	3	1202		44.8		
10/22/2007	4	FL07_60	43 58.864	68 19.427	3	1320	20	52.1	9.3	33.0
10/22/2007	4	FL07_60	43 58.713	68 20.565	3	1340		48.5		
10/22/2007	4	FL07_61	43 56.301	68 25.612	3	1512	20	54.1	8.8	33.2
10/22/2007	4	FL07_61	43 56.764	68 24.685	3	1532		54.6		
10/23/2007	4	FL07_62	44 18.053	68 29.885	1	1005	20	18.5	11.5	32.5
10/23/2007	4	FL07_62	44 17.476	68 29.044	1	1025		18.2		
10/23/2007	4	FL07_63	44 19.516	68 32.819	2	1117	17	18.2	11.8	32.5
10/23/2007	4	FL07_63	44 19.108	68 32.067	2	1134		21.2		
10/23/2007	4	FL07_64	44 16.971	68 28.052	1	1404	18	25.1	11.5	32.6
10/23/2007	4	FL07_64	44 16.470	68 27.248	1	1422		25.7		
10/24/2007	4	FL07_65	43 50.931	68 23.475	4	1048	20	67.8	7.6	33.6
10/24/2007	4	FL07_65	43 50.289	68 24.292	4	1108		74.4		
10/24/2007	4	FL07_66	43 55.468	68 15.640	4	1412	18	61.7	7.9	32.1
10/24/2007	4	FL07_66	43 54.972	68 16.412	4	1430		74.8		
10/24/2007	4	FL07_67	44 00.355	68 14.497	3	1609	20	53.6	8.4	33.4
10/24/2007	4	FL07_67	44 01.195	68 14.597	3	1629		54.2		
10/25/2007	4	FL07_68	44 13.075	68 04.331	3	0942	18	41.7	9.6	33.0
10/25/2007	4	FL07_68	44 13.674	68 04.811	3	1000		40.2		
10/25/2007	4	FL07_69	44 14.439	68 07.928	2	1058	20	37.0	10.1	32.9
10/25/2007	4	FL07_69	44 13.638	68 08.028	2	1118		36.9		
10/25/2007	4	FL07_70	44 17.998	68 07.867	2	1234	20	34.7	10.3	32.9
10/25/2007	4	FL07_70	44 17.166	68 07.857	2	1254		35.7		
10/25/2007	4	FL07_71	44 17.115	68 12.158	1	1512	18	21.7	10.7	32.8
10/25/2007	4	FL07_71	44 16.493	68 11.639	1	1530		23.7		
10/26/2007	4	FL07_72	44 03.340	68 03.298	4	1235	20	59.8	7.9	33.5
10/26/2007	4	FL07_72	44 02.864	68 04.185	4	1255		64.5		
10/26/2007	4	FL07_73	44 03.774	67 51.237	4	1455	20	59.5	8.2	33.2
10/26/2007	4	FL07_73	44 03.665	67 52.446	4	1515		54.5		

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Individual Station Descriptions

DATE	REGION	TOWID	LAT deg/min	LON deg/min	Stratum	Time	Tow Duration	Depth (FA)	Temp C °	Salinity ppt
10/26/2007	4	FL07_74	44 06.189	67 52.852	3	1612	20	58.5	8.3	33.2
10/26/2007	4	FL07_74	44 05.399	67 52.482	3	1632		55.8		
10/26/2007	4	FL07_75	44 09.768	67 53.429	3	1723	20	52.3	8.5	33.1
10/26/2007	4	FL07_75	44 09.357	67 54.447	3	1743		51.5		
10/29/2007	5	FL07_76	44 14.749	67 55.187	2	0908	20	38.5	9.2	32.8
10/29/2007	5	FL07_76	44 15.338	67 54.307	2	0928		38.2		
10/29/2007	5	FL07_77	44 13.124	67 52.923	3	1042	20	43.7	8.6	33.1
10/29/2007	5	FL07_77	44 13.690	67 52.107	3	1102		42.1		
10/29/2007	5	FL07_78	44 15.328	67 49.182	3	1231	20	44.8	9.3	32.8
10/29/2007	5	FL07_78	44 15.839	67 48.277	3	1251		43.0		
10/29/2007	5	FL07_79	44 20.999	67 59.624	1	1526	12	17.8	10.0	31.9
10/29/2007	5	FL07_79	44 20.616	67 59.217	1	1538		20.2		
10/30/2007	5	FL07_80	44 28.098	67 49.851	1	0944	17	8.8	10.4	31.7
10/30/2007	5	FL07_80	44 28.687	67 50.287	1	1001		6.8		
10/31/2007	5	FL07_81	44 09.159	67 46.677	4	0952	19	80.2	8.0	33.5
10/31/2007	5	FL07_81	44 08.776	67 45.752	4	1011		78.8		
10/31/2007	5	FL07_82	44 11.730	67 33.723	4	1151	20	96.4	7.4	33.9
10/31/2007	5	FL07_82	44 12.075	67 32.670	4	1211		97.8		
10/31/2007	5	FL07_83	44 17.647	67 30.539	4	1330	20	60.8	8.8	33.2
10/31/2007	5	FL07_83	44 18.134	67 29.634	4	1350		60.8		
10/31/2007	5	FL07_84	44 18.977	67 31.791	3	1448	20	55.0	9.0	33.0
10/31/2007	5	FL07_84	44 19.469	67 32.704	3	1508		52.0		
11/5/2007	5	FL07_85	44 25.650	67 26.542	3	0850	14	42.7	9.5	32.9
11/5/2007	5	FL07_85	44 25.128	67 26.870	3	0904		45.7		
11/5/2007	5	FL07_86	44 35.124	67 18.198	2	1359	17	27.8	9.9	32.3
11/5/2007	5	FL06_86	44 35.300	67 17.293	2	1416		30.3		
11/7/2007	5	FL07_87	44 37.527	67 10.334	3	0930	17	49.8	10.0	32.7
11/7/2007	5	FL07_87	44 37.117	67 11.081	3	0947		51.2		

Appendix B Taxa List

The following is a list of taxa we have encountered in all surveys conducted since 2000.

Finfish

Flatfish

American plaice	<i>Hippoglossoides platessoides</i>
Atlantic halibut	<i>Hippoglossus hippoglossus</i>
Four-spot flounder	<i>Paralichthys oblongus</i>
Greenland halibut	<i>Reinhardtius hippoglossoides</i>
Gulf Stream flounder	<i>Citharichthys arctifrons</i>
Summer flounder	<i>Paralichthys dentatus</i>
Windowpane	<i>Scophthalmus aquosus</i>
Winter flounder	<i>Pseudopleuronectes americanus</i>
Witch flounder	<i>Glyptocephalus cynoglossus</i>
Yellowtail flounder	<i>Limanda ferruginea</i>

Gadids

Atlantic cod	<i>Gadus morhua</i>
Cusk	<i>Brosme brosme</i>
Four-beard rockling	<i>Enchelyopus cimbrius</i>
Haddock	<i>Melanogrammus aeglefinus</i>
Pollock	<i>Pollachius virens</i>
Red hake	<i>Urophycis chuss</i>
Silver hake	<i>Merluccius bilinearis</i>
Spotted hake	<i>Urophycis regia</i>
White hake	<i>Urophycis tenuis</i>

Other Benthics

Acadian redfish	<i>Sebastes fasciatus</i>
Alligatorfish	<i>Aspidophoroides monopterygius</i>
American eel	<i>Anguilla rostrata</i>
American sand lance	<i>Ammodytes americanus</i>
Armored Searobin	<i>Peristedion miniatum</i>
Atlantic hagfish	<i>Mxyine glutinosa</i>
Atlantic silverside	<i>Menidia menidia</i>
Atlantic tomcod	<i>Microgadus tomcod</i>
Atlantic torpedo	<i>Torpedo nobiliana</i>
Atlantic wolfish	<i>Anarhicas lupus</i>
Barndoor skate	<i>Raja laevis</i>
Clearnose Skate	<i>Raja eglanteria</i>
Black sea bass	<i>Centropristis striata</i>

Appendix B Taxa List

Cunner	<i>Tautoglabrus adspersus</i>
Daubed shanny	<i>Lumpenus maculatus</i>
Gelatinous seasnail	<i>Liparis fabricii</i>
Goosefish	<i>Lophius americanus</i>
Grubby	<i>Myoxocephalus aeneus</i>
Gulf seasnail	<i>Liparis coheni</i>
Inquiline snailfish	<i>Liparis inquilinus</i>
Little skate	<i>Raja erinacea</i>
Longhorn sculpin	<i>Myoxocephalus octodecemspinosus</i>
Lumpfish	<i>Cyclopterus lumpus</i>
Moustache sculpin	<i>Triglops murrayi</i>
Northern searobin	<i>Prionotus carolinus</i>
Northern pipefish	<i>Syngnathus fuscus</i>
Ocean pout	<i>Macrozoarces americanus</i>
Pearlsides	<i>Maurolicus muelleri</i>
Radiated shanny	<i>Ulvaria subbifurcata</i>
Rock gunnel	<i>Pholis gunnellus</i>
Sea Lamprey	<i>Petromyzon marinus</i>
Sea raven	<i>Hemitripterus americanus</i>
Seasnail	<i>Liparis atlanticus</i>
Shorthorn sculpin	<i>Myoxocephalus scorpius</i>
Slender snipe eel	<i>Nemichthys scolopaceus</i>
Smooth skate	<i>Raja senta</i>
Snakeblenny	<i>Lumpenus lumpretaeformis</i>
Spiny dogfish	<i>Squalus acanthias</i>
Striped seasnail	<i>Liparis liparis</i>
Sturgeon	<i>Acipenser spp.</i>
Thorny skate	<i>Raja radiata</i>
Three-spine stickleback	<i>Gasterosteus aculeatus</i>
Winter skate	<i>Raja ocellata</i>
Wolf eelpout	<i>Lycenchelys verrillii</i>
Wrymouth	<i>Cryptacanthodes maculatus</i>

Pelagics

Alewife	<i>Alosa pseudoharengus</i>
American shad	<i>Alosa sapidissima</i>
Atlantic herring	<i>Clupea harengus</i>
Atlantic mackerel	<i>Scomber scombrus</i>
Atlantic menhaden	<i>Brevoortia tyrannus</i>
Atlantic moonfish	<i>Vomer setapinnis</i>
Barracudina sp.	<i>Paralepididae spp.</i>
Bigeye scad	<i>Selar crumenophthalmus</i>

Appendix B Taxa List

Bluefish	<i>Pomatomus saltatrix</i>
Blueback herring	<i>Alosa aestivalis</i>
Buckler dory	<i>Zenopsis conchifera</i>
Butterfish	<i>Peprilus triacanthus</i>
Capelin	<i>Mallotus villosus</i>
Rainbow smelt	<i>Osmerus mordax</i>
Rough scad	<i>Trachurus lathami</i>
Round scad	<i>Decapterus punctatus</i>
Scup	<i>Stenotomas chrysops</i>
Short Bigeye	<i>Pristigenys alta</i>
Silver anchovy	<i>Engraulis eurystole</i>
Striped anchovy	<i>Anchoa hepsetus</i>
Striped bass	<i>Morone saxatilis</i>

Invertebrates

Crustaceans

Aesop shrimp	<i>Pandalus montagui</i>
American lobster	<i>Homarus americanus</i>
Arctic eualid	<i>Eaulus fabricii</i>
Bristled longbeak	<i>Dichelopandalus leptocerus</i>
Green crab	<i>Carcinus maenus</i>
Hermit crab (unclass.)	<i>Diogenidae/Paguridae spp</i>
Jonah crab	<i>Cancer borealis</i>
Krill	<i>Euphausid spp.</i>
Lobster shrimp	<i>Axius serratus</i>
Mantis shrimp	<i>Stomatopod sp.</i>
Northern shrimp	<i>Pandalus borealis</i>
Northern stone crab	<i>Lithodes sp.</i>
Norwegian shrimp	<i>Pontophilus norvegicus</i>
Parrot shrimp	<i>Spirontocaris spinus</i>
Pink glass shrimp	<i>Pasiphaea multidentata</i>
Polar lebbeid	<i>Lebbeus polaris</i>
Propinquus	<i>Pandalus propinquus</i>
Red crab	<i>Geryon quinquedens</i>
Rock crab	<i>Cancer irroratus</i>
Sevenspine bay shrimp	<i>Crangon septemspinosa</i>
Snow crab	<i>Chionectes opilio</i>
Spider crab (unclass.)	<i>Majidae spp.</i>
Spiny lebbeid	<i>Lebbeus groenlandicus</i>
Toad crab	<i>Hyas araneus</i>

Appendix B Taxa List

Molluscs

Ax head clam	<i>Yoldia thraciaeformis</i>
Blue mussel	<i>Mytilus edulis</i>
False quahog	<i>Pitar morrhuana</i>
Horse mussel	<i>Modiolus modiolus</i>
Iceland scallop	<i>Chlamys islandica</i>
Longfin squid	<i>Loligo pealei</i>
Northern cardita	<i>Venercardia borealis</i>
Ocean quahog	<i>Arctica islandica</i>
Octopus (unclass.)	<i>Cephalopoda spp.</i>
Quahog	<i>Mercenaria mercenaria</i>
Sea scallop	<i>Placopecten magelanicus</i>
Shortfin squid	<i>Illex illecebrosus</i>
Squid (unclass.)	<i>Rossia spp.</i>
Stimpson's whelk	<i>Colus stimpsoni</i>
Ten-Ridged whelk	<i>Neptunea decemcostata</i>
Waved astarte	<i>Astarte undata</i>
Waved whelk	<i>Buccinum undatum</i>

Others

Anemone	various species
Barnacle	various species
Boreal asterias	<i>Asterias vulgaris</i>
Rat-tail cucumber	<i>Caudina arenata</i>
Sand dollar	<i>Echinoidea sp.</i>
Sea cucumber	<i>Cucumaria frondosa</i>
Sea sponges	various species
Sea urchin	<i>Stronglyocentrotus droebachiensis</i>
Starfish (unclass.)	various species