

ICHTHYOPLANKTON ENTRAINMENT MONITORING
AT PILGRIM NUCLEAR POWER STATION
JANUARY - JUNE 1990

Submitted to
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Boston, Massachusetts

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October 4, 1990

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*Available upon request.

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SECTION I

SUMMARY

Ichthyoplankton entrainment samples were collected from the Pilgrim Nuclear Power Station (PNPS) discharge canal in triplicate twice per month in January and February, weekly from March through June 1990.

During the first six months of 1990, 34 species were represented in the entrainment samples at PNPS, 16 species by eggs, 29 species by larvae. The winter-early spring spawning period (January-April) was dominated by relatively small numbers of Atlantic cod, fourbeard rockling, American plaice, and yellowtail flounder eggs as well as sand lance, sculpin, and rock gunnel larvae. May and June collections reflected the late spring-summer spawning species, Atlantic mackerel and the labrids being dominant among the eggs and radiated shanny, sand lance, winter flounder, fourbeard rockling, and American plaice being the numerical dominants among the larvae.

Comparison of January-June 1990 egg and larval densities with those observed from 1975-1989 suggested that Atlantic cod eggs were uncommon from February through April, rock gunnel larvae were uncommon in March, and larval winter flounder were uncommon in April and June. Eggs and larvae found to be relatively abundant included rockling eggs in April, mackerel eggs in June, and Atlantic herring larvae in May.

No densities meeting the unusually high criterion established under the contingency sampling plan were noted from January-June 1990.

A larval lobster was taken in the collections for the first time since 1982; a stage I larva, found on June 26.

SECTION II

INTRODUCTION

This progress report briefly summarizes results of ichthyoplankton entrainment sampling conducted at the Pilgrim Nuclear Power Station (PNPS) from January through June 1990 by Marine Research, Inc. (MRI) for Boston Edison Company (BEC) under Purchase Order No. 67253. A more detailed annual report covering all 1990 data will be prepared following the July-December collection periods.

SECTION III

METHODS AND MATERIALS

Entrainment sampling at PNPS was completed twice per month during January and February, weekly during April-June. Although weekly sampling was scheduled for March, only two collections were made due to failure of the net rigging. Samples were collected in triplicate from rigging mounted approximately 30 meters from the headwall of the discharge canal (Figure 1) at low tide during daylight hours. A 0.333-mm mesh, 60-cm diameter plankton net affixed to this rigging was streamed in the canal for 8 to 12 minutes depending on the abundance of plankton and detritus. In each case, a minimum of 100 m³ of water was sampled. Exact filtration volumes were calculated using a General Oceanics Model 2030R digital flowmeter mounted in the mouth of the net.

All samples were preserved in 10% Formalin-seawater solutions and returned to the laboratory for microscopic analysis. A detailed description of the analytical procedures appears in MRI (1988) ¹.

When the Cape Cod Bay ichthyoplankton study was completed in 1976, a contingency sampling plan was added to the entrainment monitoring program. This plan was designed to be implemented if eggs or larvae of any dominant species proved to be "unusually

¹Marine Research, Inc. 1988. Ichthyoplankton Entrainment Monitoring at Pilgrim Nuclear Power Station, January-December 1987. III.C.1-6-10. IN: Marine Ecology Studies Related to Operation of Pilgrim Station. Semi-Annual Report No. 31. Boston Edison Company.

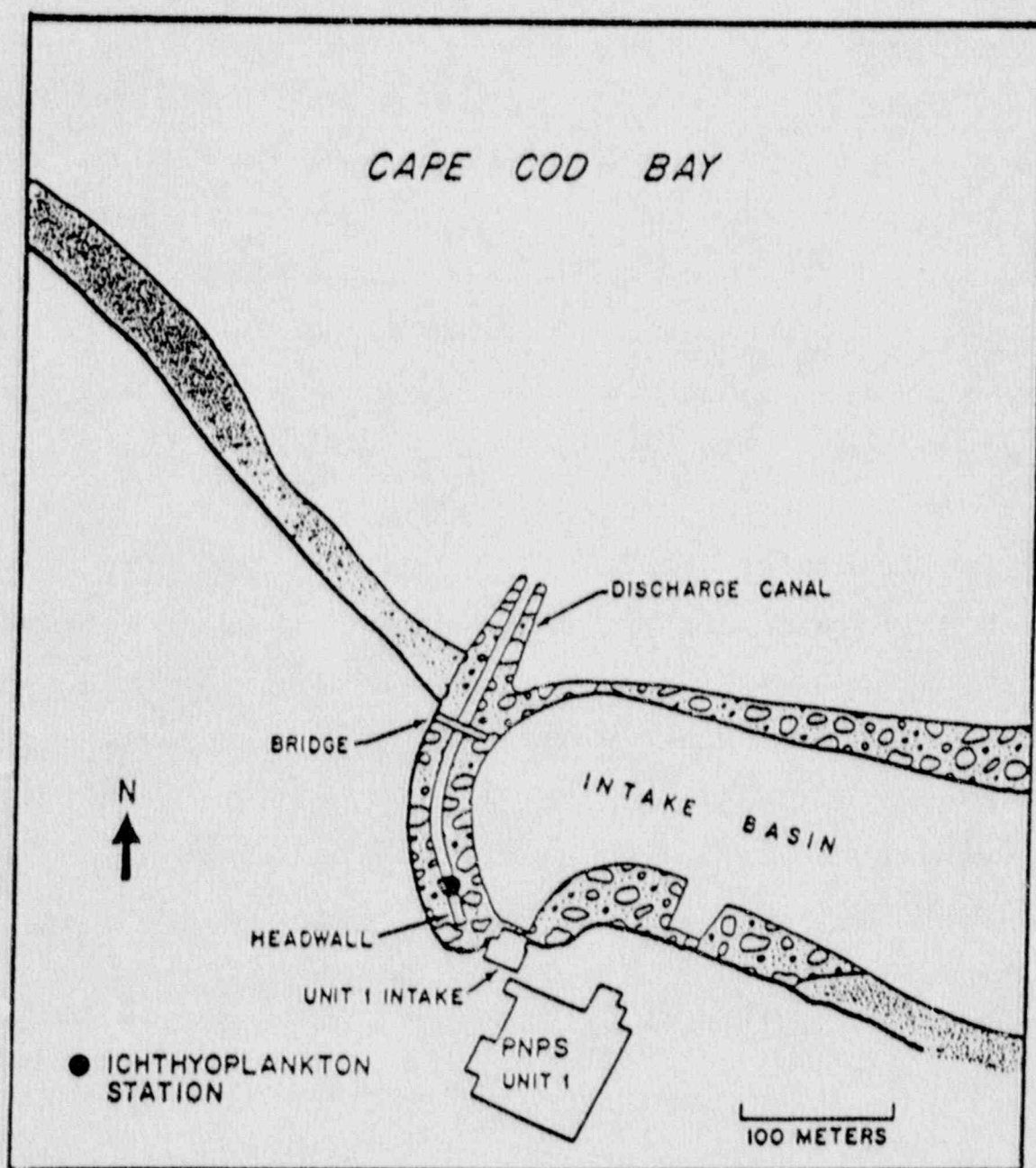


Figure 1. Entrainment sampling station in PNPS discharge canal.

abundant" in the PNPS discharge samples. The goal of this sampling plan was to determine whether circumstances in the vicinity of Rocky Point, attributable to PNPS operation, were causing an abnormally large percentage of ichthyoplankton populations there to be entrained or, alternatively, whether high entrainment levels simply were a reflection of unusually high population levels in Cape Cod Bay. "Unusually abundant" was defined as any mean density, calculated over three replicates, which was found to be 50% greater than the highest mean density observed during the same month from 1975 through 1989.

The contingency sampling plan consists of taking additional sets of triplicates from the PNPS discharge on subsequent dates to monitor the temporal extent of the unusual density. An optional offshore sampling regime was also established to study the spatial distribution of the species in question. The offshore contingency program consists of single, oblique tows at each of 13 stations (Figure 2) on both rising and falling tides for a total of 26 samples. Any contingency sampling requires authorization from Boston Edison Company.

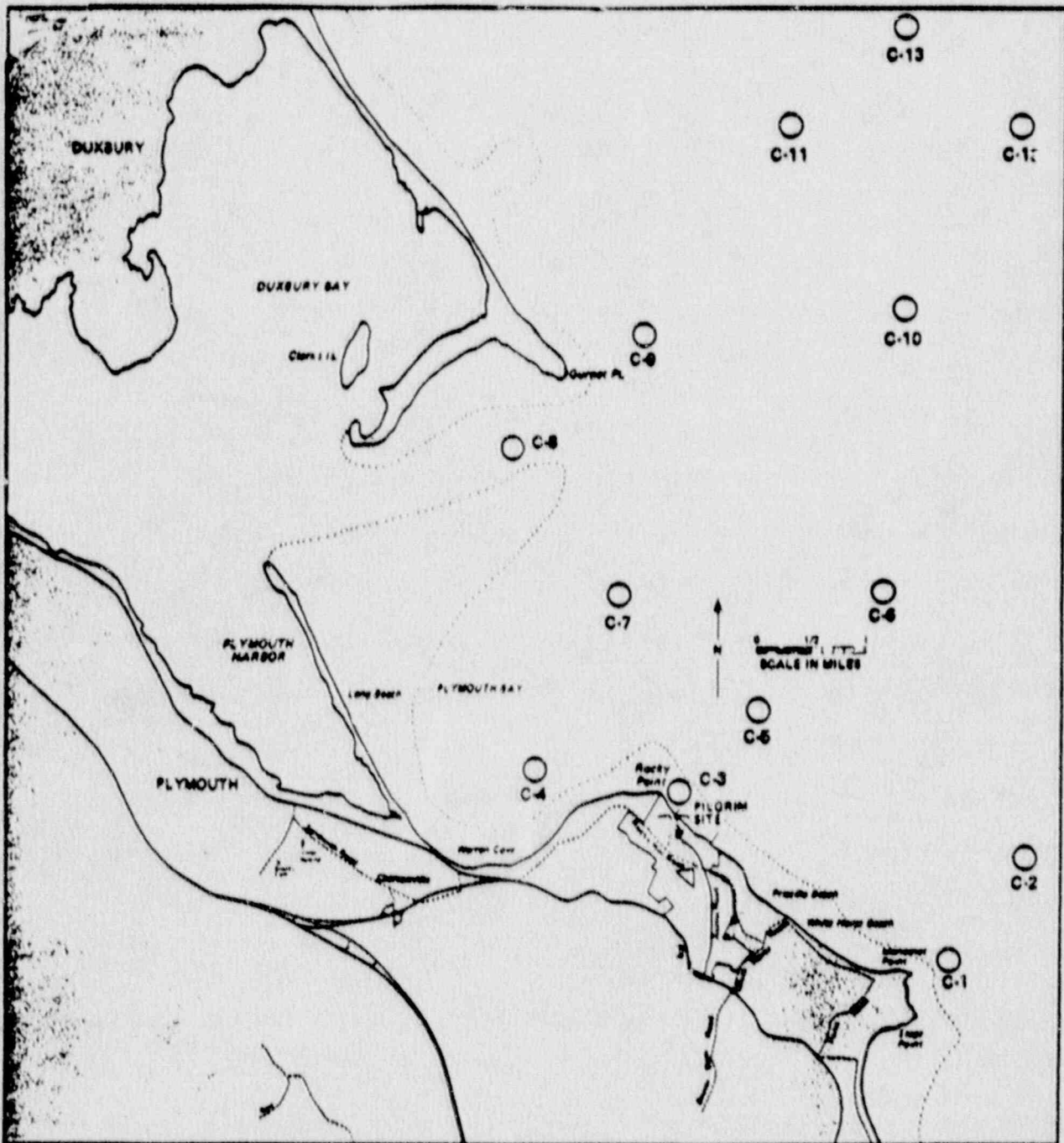


Figure 2. Location of entrainment contingency plan sampling stations, C-1 through C-13.

SECTION IV

RESULTS

Population densities per 100 m³ of water for each species listed by date, station, and replicate are presented for the January-June period of 1990 in Appendix A (available upon request). The occurrence of eggs and larvae of each species by month appears in Table 1.

Ichthyoplankton entrained during January through April generally represent winter-early spring spawning fishes. The number of species represented in the discharge collections was five in January, three in February, 7 in March, and 19 in April. Eggs were relatively uncommon since species contributing most to entrainment during this period spawn demersal, adhesive eggs which are not generally subject to entrainment. Four Atlantic cod (Gadus morhua) eggs were taken in January (monthly mean density = 0.5 per 100 m³); no eggs were found in February or March. Eggs were more common in April with five species being represented in the catch. In descending order of importance they were fourbeard rockling (Enchelyopus cimbrius), American plaice (Hippoglossoides platessoides), yellowtail flounder (Limanda ferruginea), cod, and haddock (Melanogrammus aeglefinus). Monthly mean densities per 100 m³ of water amounted to 4.4, 1.4, 0.7, 0.1, and 0.1, respectively.

The number of species represented by larvae generally increased with time during the winter-early spring period; four species were taken in January, three were taken in February, seven

Table 1. Species of fish eggs (E) and larvae (L) obtained in ichthyoplankton collections from the Pilgrim Nuclear Power Station discharge canal, January-June 1990.

Species		Jan	Feb	Mar	Apr	May	June
American eel	<u>Anguilla rostrata</u>				L		
Atlantic menhaden	<u>Brevoortia tyrannus</u>						E/L
Atlantic herring	<u>Clupea harengus harengus</u>	L			L	L	
Bay anchovy	<u>Anchoa mitchilli</u>						E
Fourbeard rockling	<u>Enchelyopus cimbrius</u>				E/L	E	E/L
Atlantic cod	<u>Gadus morhua</u>	E/L		L	E/L	E	E/L
Haddock	<u>Melanogrammus aeglefinus</u>				E		
Silver hake	<u>Merluccius bilinearis</u>						E
Atlantic tomcod	<u>Microgadus tomcod</u>	L		L	L		
Pollock	<u>Pollachius virens</u>				L		
Hake	<u>Urophycis</u> spp.						E
Silversides	<u>Menidia</u> spp.						L
Northern pipefish	<u>Syngnathus fuscus</u>						L
Scup	<u>Stenotomus chrysops</u>						L
Wrasses	Labridae					E	E
Tautog	<u>Tautoga onitis</u>						L
Cunner	<u>Tautogolabrus adspersus</u>						L
Snakeblenny	<u>Lumpenus lumpretaeformis</u>				L		
Radiated shanny	<u>Ulvaria subbifurcata</u>				L	L	L
Rock gunnel	<u>Pholis gunnellus</u>	L	L	L	L	L	

Table 1 (continued).

Species		Jan	Feb	Mar	Apr	May	June
Sand lance	<u>Ammodytes</u> sp.	L	L	L	L	L	L
Atlantic mackerel	<u>Scomber scombrus</u>					E/L	E/L
Searobins	<u>Prionotus</u> spp.						E
Grubby	<u>Myoxocephalus aeneus</u>		L	L	L	L	L
Longhorn sculpin	<u>M. octodecemspinosus</u>				L		
Shorthorn sculpin	<u>M. scorpius</u>			L	L		
Alligatorfish	<u>Aspidophoroides monopterygius</u>				L		
Lumpfish	<u>Cyclopterus lumpus</u>					E/L	
Seasnail	<u>Liparis atlanticus</u>				L	L	L
Gulf snailfish	<u>L. coheni</u>			L	L		
Windowpane	<u>Scophthalmus aquosus</u>					E	E/L
Witch flounder	<u>Glyptocephalus cynoglossus</u>					E	E/L
American plaice	<u>Hippoglossoides platessoides</u>				E/L	E/L	E/L
Yellowtail flounder	<u>Limanda ferruginea</u>				E	E/L	L
Winter flounder	<u>Pseudopleuronectes americanus</u>				L	E/L	L

in March, and 17 in April. Numerical dominants during the period included sand lance (Ammodytes sp.), sculpin (Myoxocephalus spp.), and rock gunnel (Pholis gunnellus). Sand lance accounted for 17% of the January catch, 35% of the February catch, 7% of the March catch, and 61% of the April catch; monthly mean densities were 0.1, 1.1, 1.2, and 89.7 per 100 m³, respectively. Sculpin were absent in January, steadily increasing after that. They represented 5% of the February catch with a monthly mean of 0.1 per 100 m³, 69% of the March catch with a mean density of 12.1 per 100 m³, and 22% of the April total with a monthly mean of 32.5 per 100 m³. Rock gunnel densities increased steadily as well. Mean densities amounted to 0.2 in January, 1.9 in February, 3.7 in March, and 17.1 per 100 m³ in April; these densities represented 29, 61, 21, and 12% of the respective monthly totals. Among the larval sculpin, over the course of the seasonal period, grubby (Myoxocephalus aeneus) were numerically dominant followed by shorthorn sculpin (M. scorpius) and longhorn sculpin (M. octodecemspinosus); overall a ratio of 114:34:1 was recorded for the three respective species.

May and June collections (along with July) consist of late spring-summer spawning species. May collections contained 16 species, June collections 22 species. Among these, 10 and 12 species were represented by eggs in May and June, respectively. Numerical dominants included Atlantic mackerel (Scomber scombrus) and the labrids. Mackerel eggs accounted for 89% of all eggs taken in May with a monthly mean density of 1477 per 100 m³ and 64% of all eggs taken in June with a mean of 2081 per 100 m³. Labrid eggs

(combined with the labrid-Limanda group which they probably dominated) contributed an additional 6% to the May total and 33% to the June total with respective monthly means of 94 and 1054 eggs per 100 m³ of water.

Larval collections contained 11 species in May and 18 species in June with radiated shanny (Ulvaria subbifurcata), sand lance, winter flounder (Pseudopleuronectes americanus), fourbeard rockling, and American plaice being the numerical dominants. Radiated shanny contributed 33% of the larvae in May with a monthly mean density of 25 larvae per 100 m³ of water, dropping to 5% and 3 larvae per 100 m³ in June. Sand lance accounted for 29% of the May total, declining to 1% of the June total with respective monthly mean densities per 100 m³ of 23 and 0.6. Larval winter flounder contributed 16 and 0.2% in May and June with monthly mean densities of 12 and 0.1 per 100 m³, respectively. Rockling larvae were not present in May, but they accounted for 44% of the June total with a mean density of 29 larvae per 100 m³ of water. Finally American plaice were uncommon in May (1%, mean = 1 per 100 m³) but they represented 11% of the June total with a monthly mean density of 8 per 100 m³.

Appendix B lists mean monthly densities for each of the numerical dominants collected over the January-June period dating back to 1975. A general review of the data through the first six months of 1990 suggests that month by month egg and larval densities were within the range of monthly mean densities observed over the past 15 years with the following exceptions.

1. Atlantic cod eggs were relatively uncommon from February through April. They were absent from the collections in February for the third straight year; prior to 1988 they were always taken in February although not in high numbers. Cod eggs were absent in March for the first time, and April's mean density of 0.1 eggs per 100 m³ was the lowest value yet observed during that month, ranking below 1986 and 1982 both with 0.2 per 100 m³.
2. Fourbeard rockling eggs were relatively common in the April 1990 collections. The observed mean density of 4.4 per 100 m³ of water ranked just ahead of 1986 (4.3 per 100 m³), the previous high year.
3. Atlantic mackerel eggs were abundant in June for the third consecutive year. The 1990 monthly mean of 2081 eggs per 100 m³ of water ranked just below 1988 (2220 per 100 m³), the top-ranked year, and exceeded 1989 (1013 per 100 m³), the second-place year, by a factor of 2.1.
4. Rock gunnel larvae were uncommon in the March collections. The 1990 monthly mean density of 3.7 per 100 m³ ranked just above the 3.4 per 100 m³ observed in 1987, the lowest value on record. Over the remaining 12 years when data were available, rock gunnel densities ranged from 6.4 (1983) to 117.8 per 100 m³ (1988).
5. Larval winter flounder were uncommon in April and June. Monthly mean densities for 1990 were the lowest on record in both cases. April 1990's mean of 1.3 per 100 m³ ranked below

the previous low of 2.1 noted in 1981 and June 1990's mean of 0.1 ranked below the 0.3 recorded in 1987. In the case of April's data set, no larval flounder were in fact collected during that month in 1984; however circulating water system pumps were not in operation then which appears to result in low larval entrainment (see MRI 1990)².

6. Larval Atlantic herring (Clupea harengus harengus) appeared numerous in May 1990 (mean = 3.0 per 100 m³) ranking ahead of 1975 (2.2 per 100 m³), the previous high year.

Although several of the above monthly mean densities exceeded all other monthly means, no densities meeting the unusually high definition of the contingency sampling program were encountered during the first half of 1990.

A larval lobster (Homarus americanus, stage I) was collected on June 26, 1990 (replicate III). This was the first lobster larva taken in an entrainment sample since 1982 and represents the tenth collected since studies began in 1974.

²Marine Research, Inc. 1990. Ichthyoplankton Entrainment Monitoring at Pilgrim Nuclear Power Station, January-December 1989. III.C.2-11-19. IN: Marine Ecology Studies Related to Operation of Pilgrim Station. Semi-Annual Report No. 35. Boston Edison Company.

APPENDIX A*. Densities of fish eggs and larvae per 100 m³
of water recorded in the PNPS discharge canal
by species, date, and replicate, January-June
1990.

*Available upon request.

Appendix B

Mean monthly densities and range per 100 m³ of water for the dominant species of fish eggs and larvae entrained at PNPS, January-June 1975-1990.

Some standardization of data sets was required to adjust for changes in the sampling program which have occurred over the years:

1. Only 0.333-mm mesh net data were used in those cases (1975) when field sampling was carried out using both 0.333 and 0.505 mesh nets.
2. When, as in 1976 and 1977, 24-hour sampling series were conducted, the samples taken nearest the time of daylight low tide were selected for comparison since this conforms to the routine specification for the time of entrainment sampling used in all subsequent years.
3. For the same reason only daylight low tide data were used when, in 1975, samples were also taken at high tide and/or at night.
4. Cod and pollock egg densities were summed to make up the category "gadidae" since these eggs were not distinguished prior to 1976. In January and February when witch flounder do not spawn, all three egg stages are included in this category. During the remaining months early-stage eggs are included with the gadidae-Glyptocephalus group.
5. Beginning in April when the Enchelyopus-Urophycis-Peprilus grouping became necessary, the listing for Enchelyopus

cimbrius includes only late-stage eggs, the two early stages being included with the grouped eggs.

6. Since the Brosme-Scomber grouping was not considered necessary after 1983, grouped eggs were added to S. scombrus eggs in the table for 1975-1983 (B. brosme eggs having always been rare).
7. Sculpin larvae were identified to species beginning in 1979 following Khan (1971).^{**} They are shown by species beginning with that year as well as added together (Myoxocephalus spp.) for comparison with prior years.
8. Similar results are shown for seasnail larvae which were not speciated prior to 1981.
9. Although samples were in fact taken once in April 1976 and once in March and August 1977, comparisons with other years when sampling was weekly are not valid and consequently do not appear in the table. Data collected in 1974 was not included because samples were not collected at low tide in all cases.
10. When extra sampling series were required under the contingency sampling regime, results were included in calculating monthly mean densities.

Table format: Mean
 Range

*Khan, N.Y. 1971. Comparative morphology and ecology of the pelagic larvae of nine cottidae (Pisces) on the northwest Atlantic and St. Lawrence drainage. Ph.D. thesis, University of Ottawa. 234p.

EGGS	January	1975	1976+	1977+	1978	1979	1980	1981	1982	1983
<u>Brevoortia tyrannus</u>		0			0	0	0	0	0	0
Gadidae- <u>Glyptocephalus</u>		-			-	-	-	-	-	-
Gadidae*		<u>0.5</u> 0-1			(0.2) 0-0.7	(2.2) 0-5	(2.9) 0.3-6	(3.4) 1-9	(0.5) 0-1	0
<u>Gadus morhua</u>		-			<u>0.2</u> 0-0.7	<u>2.1</u> 0-5	<u>2.9</u> 0.3-6	<u>3.4</u> 1-9	<u>0.5</u> 0-1	
<u>Pollachius virens</u>		-			0	<u>0.1</u> 0-0.4	0	0	0	0
<u>Enchelyopus-Urophycis-</u> <u>Peprilus</u>		-			-	-	-	-	-	-
<u>Enchelyopus cimbrius</u> **		<u>0.1</u> 0-0.6			0	0	0	0	0	0
<u>Urophycis</u> spp.		0			0	0	0	0	0	0
Labridae- <u>Limanda</u>		0			0	0	0	0	0	0
Labridae		0			0	0	0	0	0	0
<u>Scomber scombrus</u>		0			0	0	0	0	0	0
<u>Prionotus</u> spp.		0			0	0	0	0	0	0
<u>Paralichthys-Scophthalmus</u>		0			0	0	0	0	0	
<u>Hippoglossoides</u> <u>platessoides</u>		0			0	0	0	<u>0.1</u> 0-0.4	0	0
Total		<u>0.6</u> 0-1			<u>0.2</u> 0-0.7	<u>2.7</u> 0-5	<u>2.9</u> 0.3-6	<u>3.5</u> 1-9	<u>0.5</u> 0-1	0

*Represents G. morhua and P. virens eggs in all stages.

**Represents all three egg stages, January through April.

+ No sampling.

EGGS	January						
	1984	1985	1986	1987	1988	1989	1990
<u>Brevoortia tyrannus</u>	0	0	0	0	0	0	0
Gadidae- <u>Glyptocephalus</u>	-	-	-	-	-	-	-
Gadidae*	(0.4) 0-2	0	(0.6) 0.6-2	(0.1) 0-1	0	0	(0.5) 0-2
<u>Gadus morhua</u>	0.4 0-2	0	0.6 0.6-2	0.1 0-1	0	0	0.5 0-2
<u>Pollachius virens</u>	0	0	0	0	0	0	0
<u>Enchelyopus-Urophycis- Peprilus</u>	-	-	-	-	-	-	-
<u>Enchelyopus cimbrius**</u>	0	0	0	0	0	0	0
<u>Urophycis</u> spp.	0	0	0	0	0	0	0
Labridae- <u>Limanda</u>	0	0	0	0	0	0	0
Labridae	0	0	0	0	0	0	0
<u>Scomber scombrus</u>	0	0	0	0	0	0	0
<u>Prionotus</u> spp.	0	0	0	0	0	0	0
<u>Paralichthys-Scophthalmus</u>	0	0	0	0	0	0	0
<u>Hippoglossoides platessoides</u>	0	0	0	0	0	0	0
Total	0.4 0-2	0	0 0.6-2	0.2 0-1	0.1 0-1	0	0.5 0-2

*Represents G. morhua and P. virens eggs in all stages.

**Represents all three egg stages, January through April.

February		1975	1976 +	1977 +	1978	1979	1980	1981	1982	1983
EGGS										
<u>Brevoortia tyrannus</u>		0			0	0	0	0	0	0
Gadidae- <u>Glyptocephalus</u>		-			-	-	-	-	-	-
Gadidae*		<u>0.9</u> 0-3			(2.4) 0-5	(1.6) 0-3	(1.6) 0.4-3	(1.1) 0-2	(0.1) 0-0.6	(0.3) 0-1
<u>Gadus morhua</u>		-			<u>1.4</u> 0-4	<u>1.6</u> 0-3	<u>1.6</u> 0.4-3	<u>1.1</u> 0-2	<u>0.1</u> 0-0.6	<u>0.3</u> 0-1
<u>Pollachius virens</u>		-			<u>0.9</u> 0-5	0	0	0	0	0
<u>Enchelyopus-Urophycis-</u> <u>Peprilus</u>		-			-	-	-	-	-	-
<u>Enchelyopus cimbrius</u> **		0			0	0	0	0	0	0
<u>Urophycis</u> spp.		0			0	0	0	0	0	0
Labridae- <u>Limanda</u>		0			0	0	0	0	0	0
Labridae		0			0	0	0	0	0	0
<u>Scomber scombrus</u>		0			0	0	0	0	0	0
<u>Prionotus</u> spp.		0			0	0	0	0	0	0
<u>Paralichthys-Scophthalmus</u>		0			0	0	0	0	0	0
<u>Hippoglossoides</u> <u>platessoides</u>		0			<u>0.1</u> 0-0.8	<u>0.1</u> 0-0.5	<u>0.2</u> 0-0.6	0	0	<u>0.4</u> 0-1
Total		<u>1.0</u> 0-3			<u>2.5</u> 0-5	<u>1.6</u> 0-3	<u>1.8</u> 0.8-3	<u>3.5</u> 0-13	<u>0.1</u> 0-0.6	<u>0.6</u> 0.5-2

*Represents G. morhua and P. virens eggs in all stages.

**Represents all three egg stages, January through April.

+ No sampling

EGGS	February						
	1984	1985	1986	1987	1988	1989	1990
<u>Brevoortia tyrannus</u>	0	0	0	0	0	0	0
Gadidae- <u>Glyptocephalus</u>	-	-	-	-	-	-	-
Gadidae*	(1.5) 0-3	(0.6) 0-3	(0.4) 0-1	(0.1) 0-1	0	0	0
<u>Gadus morhua</u>	1.5 0-3	0.6 0-3	0.4 0-1	0.1 0-1	0	0	0
<u>Pollachius virens</u>	0	0	0	0	0	0	0
<u>Enchelyopus-Urophycis-</u> <u>Peprilus</u>	-	-	-	-	-	-	-
<u>Enchelyopus cimbrius</u> **	0	0	0	0	0	0	0
<u>Urophycis</u> spp.	0	0	0	0	0	0	0
Labridae- <u>Limanda</u>	0	0	0	0	0	0	0
Labridae	0	0	0	0	0	0	0
<u>Scomber scombrus</u>	0	0	0	0	0	0	0
<u>Prionotus</u> spp.	0	0	0	0	0	0	0
<u>Paralichthys-Scophthalmus</u>	0	0	0	0	0	0	0
<u>Hippoglossoides</u> <u>platessoides</u>	0.4 0-2	0	0	0	0.1 0-1	0	0
Total	2.0 0-4	1.0 0-3	0.4 0-1	0.1 0-1	0.1 0-1	0.1 0-1	0

*Represents G. morhua and P. virens eggs in all stages.

**Represents all three egg stages, January through April.

March		1975	1976 +	1977 + +	1978	1979	1980	1981	1982	1983
EGGS										
<u>Brevoortia tyrannus</u>		0			0	0	0	0	0	0
Gadidae- <u>Glyptocephalus</u>		<u>0.6</u> 0-2			<u>1.5</u> 0-3	<u>2.2</u> 0-32	<u>0.2</u> 0-2	0	0	<u>0.6</u> 0-3
Gadidae*		<u>0.8</u> 0-3			(<u>0.5</u>) 0-1	(<u>0.5</u>) 0-1	(<u>0.3</u>) 0-1	(<u>1.5</u>) 0-9	(<u>0.4</u>) 0-2	(<u>5.2</u>) 0.6-24
<u>Gadus morhua</u>		-			<u>0.5</u> 0-1	<u>0.5</u> 0-1	<u>0.3</u> 0-1	<u>1.5</u> 0-9	<u>0.4</u> 0-2	<u>5.2</u> 0.6-24
<u>Poliachius virens</u>		-			0	0	0	0	0	0
<u>Enchelyopus-Urophycis-</u> <u>Peprilus</u>		-			-	-	-	-	-	-
<u>Enchelyopus cimbrius**</u>		0			0	0	0	0	0	0
<u>U. ophycis</u> spp.		0			0	0	0	0	0	0
Labridae- <u>Limanda</u>		0			0	0	0	0	0	0
Labridae		0			0	0	0	0	0	0
<u>Scorpaenidae</u>		0			0	0	0	0	0	0
<u>Prionotus</u> spp.		0			0	0	0	0	0	0
<u>Paralichthys-Scophthalmus</u>		0			0	0	0	0	0	0
<u>Hippoglossoides</u> <u>platessoides</u>		<u>0.4</u> 0-1			<u>0.9</u> 0-4	<u>2.1</u> 0-7	<u>0.2</u> 0-1	<u>3.7</u> 0-14	0	<u>2.2</u> 0.5-17
Total		<u>0.7</u> 0.8-41			<u>2.8</u> 0-5	<u>12.1</u> 0.4-35	<u>1.9</u> 0-12	<u>6.9</u> 0.5-20	<u>1.3</u> 0-9	<u>14.0</u> 2-50

*Represents late-stage G. morhua and P. virens eggs.

**Represents all three egg stages, January through April.

+ No sampling.

+ + One sampling period only.

EGGS	March						
	1984	1985	1986	1987	1988	1989	1990
<u>Brevoortia tyrannus</u>	0	0	0	0	0	0	0
Gadidae- <u>Glyptocephalus</u>	<u>0.1</u> 0-2	0	0	<u>0.5</u> 0-2	<u>0.2</u> 0-2	<u>0.1</u> 0-1	0
Gadidae*	(<u>2.6</u>) 0-11	(<u>0.3</u>) 0-2	(<u>0.4</u>) 0-2	(<u>0.4</u>) 0-2	(<u>0.2</u>) 0-1	(<u>0.1</u>) 0-1	0
<u>Gadus morhua</u>	<u>2.6</u> 0-11	<u>0.3</u> 0-2	<u>0.4</u> 0-2	<u>0.4</u> 0-2	<u>0.2</u> 0-1	<u>0.1</u> 0-1	0
<u>Pollachius virens</u>	0	0	0	0	0	0	0
<u>Enchelyopus-Urophycis-</u> <u>Peprilus</u>	-	-	-	-	-	-	-
<u>Enchelyopus cimbrius**</u>	0	0	0	0	<u>0.1</u> 0-1	0	0
<u>Urophycis</u> spp.	0	0	0	0	0	0	0
Labridae- <u>Limanda</u>	0	0	0	0	0	0	0
Labridae	0	0	0	0	0	0	0
<u>Scomber scombrus</u>	0	0	0	0	0	0	0
<u>Prionotus</u> spp.	0	0	0	0	0	0	0
<u>Paralichthys-Scophthalmus</u>	0	0	0	0	0	0	0
<u>Hippoglossoides</u> <u>platessoides</u>	<u>4.5</u> 0-22	<u>0.3</u> 0-1	0	0	<u>0.1</u> 0-1	0	0
Total	<u>7.9</u> 0.7-30	<u>2.4</u> 0-9	<u>6.6</u> 0-34	<u>48.9</u> 1-219	<u>9.4</u> 0-81	<u>0.4</u> 0-2	0

*Represents late-stage G. morhua and P. virens eggs.

**Represents all three egg stages, January through April.

EGGS	April	1975	1976 +	1977	1978	1979	1980	1981	1982	1983
<u>Brevoortia tyrannus</u>		0		0	0	0	0	0	0	0
Gadidae- <u>Glyptocephalus</u>		<u>1.7</u> 0-5		<u>0.7</u> 0-2	<u>8.1</u> 2-14	<u>3.5</u> 0.8-12	<u>3.0</u> 0-7	0	0	<u>0.5</u> 0-3
Gadidae*		<u>2.4</u> 0-6		(<u>0.3</u>) 0-3	(<u>8.4</u>) 0.6-14	(<u>1.1</u>) 0-3	(<u>1.5</u>) 0-4	(<u>0.4</u>) 0-3	(<u>0.2</u>) 0-3	(<u>0.4</u>) 0-2
<u>Gadus morhua</u>		-		<u>0.3</u> 0-3	<u>8.4</u> 0.6-14	<u>1.0</u> 0-3	<u>1.5</u> 0-4	<u>0.4</u> 0-3	<u>0.2</u> 0-3	<u>0.4</u> 0-2
<u>Pollachius virens</u>		-		0	0	<u>0.05</u> 0-0.6	0	0	0	0
<u>Enchelyopus-Urophycis-</u> <u>Peprilus</u>		-		-	-	-	-	-	-	-
<u>Enchelyopus cimbrius</u> **		<u>2.9</u> 0-10		<u>0.5</u> 0-1	<u>0.1</u> 0-1	<u>0.3</u> 0-2	<u>0.7</u> 0-4	0	<u>0.1</u> 0-2	<u>0.3</u> 0-2
<u>Urophycis</u> spp.		0		<u>0.1</u> 0-0.8	0	0	0	0	0	0
Labridae- <u>Limanda</u>		<u>4.8</u> 0-18		<u>2.5</u> 0-7	<u>11.1</u> 0-26	<u>8.1</u> 0-28	0	0	0	0
Labridae		0		<u>0.2</u> 0-0.9	<u>0.5</u> 0-3	<u>0.1</u> 0-1	0	0	0	0
<u>Scomber scombrus</u>		0		0	0	0	0	0	0	0
<u>Prionotus</u> spp.		0		0	0	0	0	0	0	0
<u>Paralichthys-Scophthalmus</u>		<u>0.1</u> 0-0.7		0	0	0	0	0	0	0
<u>Hippoglossoides</u> <u>platessoides</u>		<u>14.2</u> 0-41		<u>4.7</u> 0-9	<u>31.8</u> 0.8-79	<u>15.9</u> 0-49	<u>8.3</u> 1-18	<u>1.0</u> 0-5	<u>0.2</u> 0-1	<u>2.0</u> 0-6
Total		<u>33.4</u> 1-84		<u>10.2</u> 1-18	<u>63.1</u> 8-114	<u>73.9</u> 4-546	<u>26.1</u> 0-29	<u>13.5</u> 0-77	<u>5.8</u> 0-42	<u>8.1</u> 0.7-19

*Represents late-stage G. morhua and P. virens eggs.

**Represents all three egg stages, January through April.

+ One sampling period only.

EGGS	April						
	1984	1985	1986	1987+	1988	1989	1990
<u>Brevoortia tyrannus</u>	0	0	0		0	0	0
Gadidae- <u>Glyptocephalus</u>	<u>0.7</u> 0-3	0	0		<u>0.1</u> 0-1	<u>0.1</u> 0-1	0
Gadidae*	(<u>2.0</u>) 0-5	(<u>1.6</u>) 0-4	(<u>0.2</u>) 0-3		(<u>2.2</u>) 0-7	(<u>0.6</u>) 0-3	(<u>0.1</u>) 0-1
<u>Gadus morhua</u>	<u>2.0</u> 0-5	<u>1.5</u> 0-4	<u>0.2</u> 0-3		<u>2.2</u> 0-7	<u>0.6</u> 0-3	<u>0.1</u> 0-1
<u>Pollachius virens</u>	0	<u>0.6</u> 0-0.7	0		0	0	0
<u>Enchelyopus-Urophycis-</u> <u>Peprilus</u>	-	-	-		-	-	-
<u>Enchelyopus cimbrius**</u>	<u>0.2</u> 0-2	<u>1.0</u> 0-6	<u>4.3</u> 0-14		<u>3.3</u> 0-10	<u>0.9</u> 0-6	<u>4.4</u> 0-28
<u>Urophycis</u> spp.	0	0	0		0	0	0
Labridae- <u>Limanda</u>	0	0	0		0	<u>0.8</u> 0-10	0
Labridae	0	0	0		0	0	0
<u>Scomber scombrus</u>	0	0	0		0	0	0
<u>Prionotus</u> spp.	0	0	0		0	0	0
<u>Paralichthys-Scophthalmus</u>	0	0	<u>0.3</u> 0-2		0	0	0
<u>Hippoglossoides</u> <u>platessoides</u>	<u>6.2</u> 1.5-11	<u>1.9</u> 0-12	<u>0.2</u> 0-1		<u>3.7</u> 0-14	<u>1.5</u> 0-9	<u>1.4</u> 0-7
Total	<u>11.0</u> 5-16	<u>10.1</u> 0-25	<u>7.6</u> 0-21		<u>14.1</u> 3-29	<u>6.7</u> 0-27	<u>6.7</u> 1-28

*Represents late-stage G. morhua and P. virens eggs.

**Represents all three egg stages, January through April.

+ Pumps down - no sampling.

EGGS	May								
	1975	1976	1977	1978	1979	1980	1981	1982	1983
<i>Brevortia tyrannus</i>	0	0	0	0	0	<u>0.1</u> 0-1	0	0	0
Gadidae-Glyptocephalus	<u>1.0</u> 0-2	<u>2.3</u> 0-6	<u>3.4</u> 0-11	<u>3.4</u> 0-14	<u>1.4</u> 0-5	<u>2.1</u> 0-6	<u>0.2</u> 0-2	<u>0.4</u> 0-2	<u>4.0</u> 0-18
Gadidae*	<u>1.1</u> 0-3	<u>(1.5)</u> 0-4	<u>(1.2)</u> 0-3	<u>(2.6)</u> 0-61	<u>(1.8)</u> 0-5	<u>(1.2)</u> 0-4	<u>(0.8)</u> 0-3	<u>(0.1)</u> 0-0.8	<u>(0.6)</u> 0-3
<i>Gadus morhua</i>	-	<u>1.5</u> 0-4	<u>1.2</u> 0-3	<u>2.6</u> 0-61	<u>1.8</u> 0-5	<u>1.2</u> 0-4	<u>0.8</u> 0-3	<u>0.1</u> 0-0.8	<u>0.6</u> 0-3
<i>Pollachius virens</i>	-	0	0	0	0	0	0	0	0
<i>Encheiropus-Urophycis-Petrolus</i>	<u>8.3</u> 0-30	<u>13.3</u> 0-72	<u>12.5</u> 5-22	<u>2.8</u> 2-125	<u>2.5</u> 0.6-34	<u>8.5</u> 4-14	<u>7.8</u> 1-19	<u>3.4</u> 1-8	<u>6.7</u> 3-18
<i>Encheiropus cimbrius</i>	<u>28.3</u> 6-70	<u>30.8</u> 0-91	<u>14.0</u> 0-32	<u>10.9</u> 0-37	<u>5.3</u> 0-15	<u>52.0</u> 10-73	<u>15.1</u> 0-55	<u>0.9</u> 0-2	<u>11.8</u> 0-59
<i>Urophycis</i> spp.	0	0	<u>0.4</u> 0-3	0	0	0	<u>0.1</u> 0-1	0	<u>0.1</u> 0-0.5
Labridae-Limanda	<u>145.8</u> 2-1248	<u>12.0</u> 3-23	<u>280.8</u> 3-1240	<u>1843.4</u> 3-11809	<u>1491.9</u> 6-9475	<u>3024.0</u> 5-9331	<u>74.1</u> 2-94	<u>917.8</u> 4-248	<u>30.2</u> 0-209
Labridae	<u>0.3</u> 0-2	0	<u>8.6</u> 0-55	<u>20.5</u> 0-169	<u>4.1</u> 0-19	<u>119.0</u> 0-431	<u>3.6</u> 0-23	<u>5.3</u> 0.5-15	<u>0.2</u> 0-1
<i>Scomber scombrus</i> **	<u>2.5</u> 0-8	<u>3.0</u> 0-11	<u>46.0</u> 0-104	<u>56.8</u> 0-308	<u>82.2</u> 0.2-355	<u>231.6</u> 57-621	<u>47.2</u> 0-195	<u>160.9</u> 2-705	<u>116.4</u> 0-424
<i>Prionotus</i> spp.	<u>0.03</u> 0-0.5	0	0	0	0	0	0	0	0
<i>Paralichthys-Scophthalmus</i>	<u>10.1</u> 0-64	<u>6.3</u> 0-19	<u>12.5</u> 2-32	<u>30.4</u> 0-169	<u>21.0</u> 0-76	<u>34.0</u> 7-67	<u>22.2</u> 0-64	<u>11.7</u> 0-43	<u>2.6</u> 0-27
<i>Hippoglossoides platessoides</i>	<u>2.9</u> 0-9	<u>2.1</u> 0-9	<u>8.0</u> 0-16	<u>11.3</u> 0-79	<u>6.5</u> 0-11	<u>14.7</u> 0-51	<u>5.7</u> 0.5-16	<u>1.5</u> 0-7	<u>2.3</u> 0.5-9
Total	<u>196.5</u> 12-1366	<u>74.7</u> 35-126	<u>396.3</u> 31-1324	<u>2017.8</u> 13-12428	<u>1638.3</u> 45-9925	<u>3489.0</u> 1-10314	<u>151.6</u> 29-368	<u>251.9</u> 40-425	<u>185.9</u> 10-524

*Represents late-stage *G. morhua* and *P. virens* eggs.

**Includes *Brosme-Scomber*. 1975-1983.

EGGS	May						
	1984	1985	1986	1987	1988	1989	1990
<u>Brevoortia tyrannus</u>	0	0	0	0	0	<u>0.1</u> 0-1	0
Gadidae-Glyptocephalus	<u>2.0</u> 0-8	<u>1.0</u> 0-3	<u>0.6</u> 0-5	<u>2.0</u> 0-13	<u>0.2</u> 0-2	<u>0.9</u> 0-4	<u>0.7</u> 0-3
Gadidae*	(<u>1.0</u>) 0-5	(<u>0.5</u>) 0-2	(<u>0.2</u>) 0-2	(<u>0.4</u>) 0-3	(<u>0.004</u>) 0-1	(<u>0.4</u>) 0-2	(<u>0.7</u>) 0-3
<u>Gadus morhua</u>	<u>1.0</u> 0-5	<u>0.5</u> 0-2	<u>0.2</u> 0-2	<u>0.4</u> 0-3	<u>0.004</u> 0-1	<u>0.4</u> 0-2	<u>0.7</u> 0-3
<u>Pollachius virens</u>	0	0	0	0	0	0	0
<u>Enchelyopus-Urophycis-</u> <u>Peprilus</u>	<u>8.5</u> 0-41	<u>14.9</u> 0-98	<u>46.0</u> 3-189	<u>19.8</u> 1-66	<u>27.5</u> 0-131	<u>147.6</u> 2-894	<u>60.4</u> 4-271
<u>Enchelyopus simbrus</u>	<u>8.4</u> 0-44	<u>9.8</u> 1-22	<u>22.5</u> 0-52	<u>17.5</u> 0-57	<u>39.2</u> 1-91	<u>20.7</u> 0-95	<u>13.8</u> 2-27
<u>Urophycis</u> spp.	0	<u>0.9</u> 0-9	<u>0.1</u> 0-1	<u>0.1</u> 0-1	0	<u>1.1</u> 0-12	0
Labridae-Limanda	<u>9.5</u> 0-40	<u>1464.5</u> 0-4622	<u>54.0</u> 2-225	<u>20.2</u> 0-141	<u>108.8</u> 3-424	<u>1289.8</u> 0-11376	<u>92.2</u> 1-426
Labridae	<u>0.4</u> 0-5	<u>2.6</u> 0-16	<u>2.4</u> 0-13	<u>0.8</u> 0-5	<u>7.5</u> 0-23	<u>5.1</u> 0-19	<u>1.7</u> 0-16
<u>Scomber scombrus</u> **	<u>17.9</u> 0-44	<u>2485.5</u> 5-20871	<u>116.1</u> 30-236	<u>36.1</u> 0-125	<u>1723.7</u> 0-11981	<u>5584.1</u> 0-22910	<u>1477.1</u> 1-11023
<u>Prionotus</u> spp.	0	<u>0.3</u> 0-1	0	<u>0.1</u> 0-1	0	0	0
<u>Paralichthys-Scophthalmus</u>	<u>7.5</u> 0-23	<u>25.0</u> 3-85	<u>27.4</u> 2-92	<u>9.9</u> 0-28	<u>74.3</u> 0-392	<u>32.7</u> 0-132	<u>16.4</u> 0-92
<u>Hippoglossoides</u> <u>platessoides</u>	<u>2.4</u> 0-6	<u>1.4</u> 0-7	<u>0.5</u> 0-2	<u>0.8</u> 0-4	<u>0.08</u> 0-1	<u>2.5</u> 0-14	<u>1.7</u> 0-4
Total	<u>59.5</u> 19-123	<u>4051.5</u> 38-21505	<u>275.8</u> 75-513	<u>111.2</u> 21-407	<u>1989.1</u> 17-12625	<u>7492.0</u> 32-35350	<u>1666.5</u> 22-11593

*Represents late-stage G. morhua and P. virens eggs.

**Includes Brosme-Scomber, 1975-1983.

June									
EGGS	1975	1976	1977	1978	1979	1980	1981	1982	1983
<u>Brevoortia tyrannus</u>	<u>0.5</u> 0-2	<u>0.3</u> 0-1	<u>0.3</u> 0-3	<u>1.7</u> 0-9	<u>0.7</u> 0-2	<u>19.1</u> 0-83	<u>1.9</u> 0-10	<u>3.1</u> 0-11	<u>0.7</u> 0-4
Gadidae- <u>Glyptocephalus</u>	<u>1.1</u> 0-4	<u>2.3</u> 0-6	<u>2.6</u> 0-11	<u>2.5</u> 0-7	<u>1.5</u> 0-5	<u>6.4</u> 0-16	<u>3.7</u> 0-9	<u>0.5</u> 0-3	<u>0.4</u> 0-2
Gadidae*	<u>0.8</u> 0-3	<u>(1.5)</u> 0-4	<u>(5.3)</u> 0-27	<u>(2.0)</u> 0-7	<u>(0.4)</u> 0-2	<u>(9.7)</u> 0-25	<u>(3.2)</u> 0-22	<u>(0.2)</u> 0-1	<u>(0.8)</u> 0-5
<u>Gadus morhua</u>	-	<u>1.5</u> 0-4	<u>5.3</u> 0-27	<u>2.0</u> 0-7	<u>0.4</u> 0-2	<u>9.7</u> 0-25	<u>3.2</u> 0-22	<u>0.2</u> 0-1	<u>0.8</u> 0-5
<u>Pollachius virens</u>	-	0	0	0	0	0	0	0	0
<u>Enchelyopus-Urophycis- Peprilus</u>	<u>28.5</u> 16-55	<u>11.3</u> 2-25	<u>24.4</u> 0-96	<u>75.8</u> 0-308	<u>38.0</u> 17-98	<u>14.7</u> 2-26	<u>93.7</u> 4-634	<u>8.8</u> 0-19	<u>39.8</u> 6-160
<u>Enchelyopus cimbrius</u>	<u>20.0</u> 1-76	<u>25.6</u> 9-90	<u>51.5</u> 5-114	<u>14.7</u> 0-33	<u>24.3</u> 2-65	<u>49.8</u> 2-51	<u>18.4</u> 7-38	<u>6.9</u> 0-23	<u>14.0</u> 0-39
<u>Urophycis</u> spp.	<u>1.5</u> 0-6	<u>0.7</u> 0-2	<u>4.7</u> 0-15	<u>4.3</u> 0-14	<u>10.2</u> 0-27	<u>2.2</u> 4-5	<u>9.9</u> 0-56	<u>1.8</u> 0-6	<u>2.7</u> 0-6
Labridae- <u>Limanda</u>	<u>2432.0</u> 809-5501	<u>699.0</u> 147-2258	<u>5739.1</u> 289-19708	<u>1317.7</u> 24-3876	<u>5217.8</u> 1080-10505	<u>631.0</u> 248-1266	<u>3497.7</u> 184-12537	<u>1607.8</u> 276-4588	<u>6978.7</u> 57-17918
Labridae	<u>137.1</u> 0-294	<u>75.4</u> 7-249	<u>185.4</u> 26-1181	<u>90.6</u> 0-262	<u>216.3</u> 50-774	<u>101.6</u> 13-191	<u>199.0</u> 82-1492	<u>155.2</u> 75-238	<u>189.7</u> 14-650
<u>Scomber scombrus</u> **	<u>126.3</u> 4-746	<u>5.0</u> 0.8-19	<u>55.0</u> 6-199	<u>151.8</u> 0-360	<u>18.0</u> 4-41	<u>40.8</u> 0-100	<u>155.9</u> 3-1083	<u>135.2</u> 0-663	<u>144.1</u> 5-202
<u>Prionotus</u> spp.	0	0	<u>0.2</u> 0-3	<u>0.3</u> 0-2	<u>0.5</u> 0-2	<u>1.0</u> 0-4	<u>1.0</u> 0-7	<u>0.5</u> 0-2	<u>1.2</u> 0-5
<u>Paralichthys-Scophthalmus</u>	<u>18.2</u> 2-78	<u>17.2</u> 0-73	<u>38.6</u> 3-129	<u>41.8</u> 0-132	<u>61.2</u> 20-141	<u>27.5</u> 14-26	<u>64.3</u> 0-501	<u>38.7</u> 5-83	<u>45.2</u> 2-76
<u>Hippoglossoides platessoides</u>	<u>0.2</u> 0-1	<u>0.6</u> 0-5	<u>2.7</u> 0-14	<u>0.9</u> 0-4	<u>0.3</u> 0-1	<u>10.8</u> 0-42	<u>1.8</u> 0-5	0	<u>0.8</u> 0-3
Total	<u>2819.8</u> 819-5718	<u>856.2</u> 342-2393	<u>6301.5</u> 609-19425	<u>1934.7</u> 228-5917	<u>5620.2</u> 1401-11522	<u>930.5</u> 414-1652	<u>4158.4</u> 407-22226	<u>1974.2</u> 420-4912	<u>7614.9</u> 309-18628

*Represents late-stage G. morhua and P. virens eggs.

**Includes Brosme-Scomber, 1975-1983.

EGGS	June						
	1984	1985	1986	1987	1988	1989	1990
<i>Brevoortia tyrannus</i>	<u>9.7</u> 0-51	<u>1.0</u> 0-8	<u>2.1</u> 0-9	<u>0.6</u> 0-4	<u>11.0</u> 0-56	<u>23.0</u> 9-36	<u>0.7</u> 0-3
Gadidae-Glyptocephalus	<u>2.4</u> 0-14	<u>0.9</u> 0-3	<u>1.0</u> 0-4	<u>0.4</u> 0-4	<u>1.7</u> 0-5	<u>0.3</u> 0-2	<u>1.2</u> 0-3
Gadidae*	<u>(0.8)</u> 0-3	<u>(0.2)</u> 0-1	<u>(0.1)</u> 0-1	<u>(0.8)</u> 0-5	<u>(0.3)</u> 0-2	0	<u>(0.5)</u> 0-2
<i>Gadus morhua</i>	<u>0.8</u> 0-3	<u>0.2</u> 0-1	<u>0.1</u> 0-1	<u>0.8</u> 0-5	<u>0.3</u> 0-2	0	<u>0.5</u> 0-2
<i>Pollachius virens</i>	0	0	0	0	0	0	0
<i>Enchelyopus-Urophycis-</i> <i>Psiprius</i>	<u>12.3</u> 1-44	<u>19.1</u> 3-50	<u>45.0</u> 0-204	<u>20.2</u> 0-80	<u>39.2</u> 2-137	<u>30.5</u> 15-52	<u>27.2</u> 2-114
<i>Enchelyopus cimbrius</i>	<u>3.1</u> 0-12	<u>8.6</u> 0-19	<u>74.5</u> 1-223	<u>23.3</u> 3-52	<u>51.0</u> 4-196	<u>34.0</u> 11-93	<u>19.3</u> 0-66
<i>Urophycis</i> spp.	<u>1.0</u> 0-6	<u>3.6</u> 0-9	<u>4.8</u> 0-19	<u>6.0</u> 0-24	<u>3.1</u> 0-10	<u>29.1</u> 12-51	<u>6.3</u> 0-32
Labridae-Limanda	<u>1489.9</u> 47-5983	<u>639.9</u> 52-1126	<u>1826.0</u> 332-6515	<u>5166.2</u> 177-14223	<u>1100.8</u> 238-3907	<u>3801.7</u> 968-9011	<u>987.6</u> 205-1973
Labridae	<u>2.0</u> 0-6	<u>94.9</u> 12-241	<u>62.6</u> 0-119	<u>110.7</u> 2-359	<u>163.8</u> 67-338	<u>778.9</u> 239-1516	<u>66.5</u> 0-287
<i>Scomber scombrus</i> **	<u>33.4</u> 1-88	<u>109.8</u> 3-349	<u>276.7</u> 0-990	<u>122.6</u> 12-411	<u>2220.3</u> 27-6243	<u>1012.9</u> 11-4440	<u>2080.7</u> 1-8742
<i>Prionotus</i> spp.	<u>0.5</u> 0-4	<u>5.4</u> 0-15	<u>3.3</u> 1-9	<u>77.0</u> 0-225	<u>2.3</u> 0-20	<u>2.9</u> 0-9	<u>0.3</u> 0-2
<i>Paralichthys-Scophthalmus</i>	<u>9.9</u> 0-31	<u>43.9</u> 2-95	<u>25.9</u> 7-42	<u>51.7</u> 9-119	<u>49.9</u> 3-97	<u>137.3</u> 29-251	<u>37.2</u> 2-75
<i>Hippoglossoides</i> <i>platessoides</i>	<u>0.1</u> 0-1	0	0	<u>1.5</u> 0-13	<u>0.1</u> 0-2	0	<u>1.4</u> 0-8
Total	<u>1581.1</u> 93-6074	<u>936.7</u> 79-1798	<u>2326.7</u> 499-6712	<u>5589.8</u> 313-14910	<u>3654.5</u> 474-7879	<u>5867.2</u> 1330-10308	<u>3729.9</u> 333-10774

*Represents late-stage *G. morhua* and *P. virens* eggs.

**Includes *Brosme-Scombr.* 1975-1983.

January		1975	1976*	1977*	1978	1979	1980	1981	1982	1983
LARVAE										
<i>Clupea harengus</i> h.	<u>0.2</u> 0-0.6				0	0	0	<u>0.1</u> 0-0.5	<u>0.1</u> 0-0.6	<u>1.1</u> 0-3
<i>Enchelyopus cimbrius</i>	0				0	0	0	0	0	0
<i>Tautoga onitis</i>	0				0	0	0	0	0	0
<i>Tautoglabrus adspersus</i>	0				0	0	0	0	0	0
<i>Ulvaxia subbifurcata</i>	0				0	0	0	0	0	0
<i>Pholis gunnellus</i>	<u>0.7</u> 0-3				<u>5.1</u> 2-9	<u>1.0</u> 0-5	<u>0.3</u> 0-1	<u>0.1</u> 0-0.4	<u>0.1</u> 0-0.6	<u>2.3</u> 0-5.5
<i>Ammodytes</i> sp.	<u>6.7</u> 0-18				<u>1.4</u> 0-4	<u>4.8</u> 0-11	<u>15.8</u> 0-38	<u>1.6</u> 0-5	<u>0.6</u> 0-1	<u>0.7</u> 0-1
<i>Scomber scombrus</i>	0				0	0	0	0	0	0
<i>Myoxocephalus</i> spp.	<u>1.4</u> 0-6				<u>0.3</u> 0-1	(<u>0.5</u>) 0-1	(<u>0.3</u>) 0-0.6	0	(<u>0.3</u>) 0-1	(<u>3.8</u>) 0.5-12
<i>M. aeneus</i>	-				-	<u>0.5</u> 0-1	<u>0.2</u> 0-0.6	0	<u>0.1</u> 0-0.6	0
<i>M. octodecemspinosus</i>	-				-		<u>0.1</u> 0-0.5	0	<u>0.2</u> 0-0.6	<u>3.8</u> 0.5-12
<i>M. scorpius</i>	-				-	0	0	0	0	0
<i>Liparis</i> spp.	0				0	0	0	0	0	(<u>0.2</u>) 0-0.5
<i>L. atlanticus</i>	-				-	-	0	0	0	0
<i>L. coheni</i>	-				-	-	0	0	0	<u>0.2</u> 0-0.5
<i>Pseudopleuronectes americanus</i>	0				0	0	0	0	0	0
Total	<u>2.4</u> 0-25				<u>7.4</u> 3-13	<u>8.1</u> 0-12	<u>17.0</u> 0-39	<u>1.8</u> 0-5	<u>1.1</u> 0-2	<u>8.2</u> 4-14

*No sampling.

<u>January</u>							
LARVAE	1984	1985	1986	1987	1988	1989	1990
<u>Clupea harengus</u> h.	0	0	<u>0.1</u> 0-0.6	<u>1.0</u> 0-3	0	0	<u>0.2</u> 0-1
<u>Enchelyopus cimbrius</u>	0	0	0	0	0	0	0
<u>Tautoga onitis</u>	0	0	0	0	0	0	0
<u>Tautoglabrus adspersus</u>	0	0	0	0	0	0	0
<u>Ulvaria subbifurcata</u>	0	0	0	0	0	0	0
<u>Pholis gunnellus</u>	<u>0.3</u> 0-1	<u>0.2</u> 0-0.6	<u>1.1</u> 0-3	<u>0.5</u> 0-1	<u>0.5</u> 0-1	<u>0.1</u> 0-1	<u>0.2</u> 0-1
<u>Ammodytes</u> sp.	0	<u>44.1</u> 0-111	<u>1.3</u> 0-3	0	0	0	<u>0.1</u> 0-1
<u>Scomber scombrus</u>	0	0	0	0	0	0	0
<u>Myoxocephalus</u> spp.	(<u>0.2</u>) 0-0.8	(<u>1.6</u>) 0-4	(<u>0.6</u>) 0-2	(<u>0.3</u>) 0-1	(<u>0.4</u>) 0-1	0	0
<u>M. aeneus</u>	0	<u>0.2</u> 0-1	0	<u>0.1</u> 0-1	<u>0.1</u> 0-1	0	0
<u>M. octodecemspinosus</u>	<u>0.2</u> 0-0.8	<u>1.5</u> 0-4	<u>0.6</u> 0-2	<u>0.2</u> 0-1	<u>0.3</u> 0-1	0	0
<u>M. scorpius</u>	0	0	0	0	0	0	0
<u>Liparis</u> spp.	0	(<u>0.1</u>) 0-0.5	0	(<u>0.1</u>) 0-1	0	0	0
<u>L. atlanticus</u>	0	0	0	0	0	0	0
<u>L. coheni</u>	0	<u>0.1</u> 0-0.5	0	<u>0.1</u> 0-1	0	0	0
<u>Pseudopleuronectes americanus</u>	0	0	0	0	0	0	0
Total	<u>0.8</u> 0-3	<u>46.0</u> 0-113	<u>4.1</u> 0-11	<u>1.9</u> 0-5	<u>1.0</u> 0-2	<u>0.3</u> 0-1	<u>0.6</u> 0-1

LARVAE	February	1975	1976*	1977*	1978	1979	1980	1981	1982	1983
<i>Clupea harengus</i> h.		<u>0.1</u> 0-0.5			<u>0.6</u> 0-2	0	0	0	0	<u>0.3</u> 0-2
<i>Enchelyopus cimbrius</i>		-			0	0	0	0	0	0
<i>Teutoga onitis</i>		0			0	0	0	0	0	0
<i>Tautoglabrus adspersus</i>		0			0	0	0	0	0	0
<i>Ulvaria subbifurcata</i>		0			0	0	0	<u>0.1</u> 0-0.4	0	0
<i>Pholis gunnellus</i>		<u>3.7</u> 0-14			<u>1.2</u> 0-3	<u>2.9</u> 0-10	<u>0.6</u> 0-2	<u>2.1</u> 0-5	<u>0.5</u> 0-3	<u>4.0</u> 0.6-2
<i>Ammodytes</i> sp.		<u>2.1</u> 0-8			<u>8.8</u> 0.6-24	<u>11.1</u> 4-21	<u>3.1</u> 0.4-8	<u>10.2</u> 3-16	<u>2.7</u> 0-9	<u>0.4</u> 0.5-1.4
<i>Scomber scombrus</i>		0			0	0	0	0	0	0
<i>Myoxocephalus</i> spp.		<u>2.2</u> 0-7			<u>0.2</u> 0-1	(<u>6.6</u>) 0-26	(<u>1.2</u>) 0-5	(<u>1.7</u>) 0-4	(<u>0.1</u>) 0-0.6	(<u>1.9</u>) 0.5-3
<i>M. aeneus</i>		-			-	<u>0.6</u> 0-2.5	<u>1.8</u> 0-5	<u>0.2</u> 0-0.5	<u>0.1</u> 0-0.6	<u>1.7</u> 0-3
<i>M. octodecemspinosus</i>		-			-	0	<u>0.2</u> 0-0.6	<u>1.6</u> 0-4	0	<u>0.3</u> 0-0.6
<i>M. scorpius</i>		-			-	0	0	0	0	0
<i>Liparis</i> spp.		0			0	0	0	(<u>0.1</u>) 0-0.5	0	(<u>0.3</u>) 0-0.9
<i>L. atlanticus</i>		-			-	-	-	-	0	0
<i>L. coheni</i>		-			-	-	-	-	0	<u>0.3</u> 0-0.9
<i>Pseudopleuronectes americanus</i>		0			0	0	0	0	0	0
Total		<u>10.8</u> 0-17			<u>11.0</u> 0.8-29	<u>20.9</u> 4-58	<u>5.9</u> 0.7-10	<u>14.8</u> 3-24	<u>3.5</u> 0-12	<u>7.1</u> 2-11

*No sampling.

February							
LARVAE	1984	1985	1986	1987	1988	1989	1990
<i>Clupea harengus</i> h.	0.1 0-1	0.4 0-0.9	0.5 0-1	0.1 0-1	0	0	0
<i>Enchelyopus cimbrius</i>	0	0	0	0	0	0	0
<i>Tautoga onitis</i>	0	0	0	0	0	0	0
<i>Tautoglabrus adspersus</i>	0	0	0	0	0	0	0
<i>Ulvaria subbifurcata</i>	0	0	0	0	0	0	0
<i>Pholis gunnellus</i>	10.3 0-21	24.9 0-51	5.4 3-14	4.7 4-6	8.0 0-16	11.6 4-37	1.9 0-5
<i>Ammodytes</i> sp.	1.0 0-3	35.4 0-132	0.1 0-0.6	0	0.4 0-2	0	1.1 0-5
<i>Scomber scombrus</i>	0	0	0	0	0	0	0
<i>Myoxocephalus</i> spp.	(1.1) 0-3	(14.9) 0-44	(1.3) 0-2	(8.8) 9-16	(41.0) 1-93	(2.0) 0-5	(0.1) 0-1
<i>M. aeneus</i>	0.7 0-2	7.7 0-24	0.9 0-2	8.5 5-10	7.3 0-17	0.4 0-2	0.1 0-1
<i>M. octotelempinosus</i>	0.4 0-1	1.0 0-3	0.5 0-2	0.3 0-1	0.5 0-1	0	0
<i>M. scorpius</i>	0	6.2 0-20	0	3.4 0-7	33.1 1-75	1.6 0-3	0
<i>Liparis</i> spp.	0	(0.5) 0-1	0	0	(0.1) 0-1	(1.2) 0-3	0
<i>L. atlanticus</i>	0	0	0	0	0	0	0
<i>L. coheni</i>	0	0.5 0-1	0	0	0.1 0-1	1.2 0-3	0
<i>Pseudopleuronectes americanus</i>	0	0	0	0	0	0	0
Total	12.8 0-26	77.9 0-223	8.1 5-16	18.4 17-21	50.2 3-109	14.8 5-45	3.1 0-11

March		1975	1976*	1977**	1978	1979	1980	1981	1982	1983
LARVAE										
<i>Clupea harengus</i> h.	<u>0.8</u> 0-2				0	<u>0.4</u> 0-1	<u>0.1</u> 0-2	<u>2.4</u> 0-8	<u>0.3</u> 0-2	<u>4.3</u> 1-10
<i>Enchelyopus cimbrius</i>	0				0	0	0	0	0	0
<i>Tautoga onitis</i>	0				0	0	0	0	0	0
<i>Tautoglabrus adspersus</i>	0				0	0	0	0	0	0
<i>Uluvaria subbifurcata</i>	0				0	0	0	<u>0.1</u> 0-0.5	0	0
<i>Pholis gunnellus</i>	<u>34.0</u> 26-47				<u>11.2</u> 0.7-28	<u>9.3</u> 1-34	<u>22.5</u> 0-81	<u>23.7</u> 1-62	<u>18.7</u> 18-34	<u>6.4</u> 3-25
<i>Ammodytes</i> sp.	<u>29.5</u> 11-60				<u>11.1</u> 0.7-22	<u>54.0</u> 9-228	<u>43.0</u> 1-157	<u>35.4</u> 10-78	<u>190.0</u> 0-613	<u>7.2</u> 0-29
<i>Scomber scombrus</i>	0				0	0	0	0	0	0
<i>Myoxocephalus</i> spp.	<u>61.4</u> 17-137				<u>32.8</u> 11-65	(<u>12.3</u>) 1-35	(<u>63.1</u>) 0-182	(<u>35.3</u>) 5-91	(<u>27.6</u>) 0-67	(<u>6.7</u>) 0-17
<i>M. aeneus</i>	-				-	<u>12.3</u> 1-35	<u>61.0</u> 0-177	<u>33.4</u> 4-86	<u>25.5</u> 4-64	<u>6.6</u> 0-17
<i>M. octodecemspinosus</i>	-				-	0	<u>1.0</u> 0-3	<u>1.7</u> 0-5	<u>1.2</u> 0-1	<u>0.1</u> 0-1
<i>M. scorpius</i>	-				-	0	<u>1.2</u> 0-5	<u>0.1</u> 0-1	<u>1.2</u> 0-4	0
<i>Liparis</i> spp.	<u>0.5</u> 0-1				0	<u>0.4</u> 0-4	<u>3.9</u> 0-18	(<u>0.5</u>) 0-2	(<u>0.1</u>) 0-1	(<u>1.9</u>) 0-8
<i>L. atlanticus</i>	-				-	-	-	<u>0.04</u> 0-0.5	0	<u>1.4</u> 0-8
<i>L. coheni</i>	-				-	-	-	<u>0.5</u> 0-2	<u>0.1</u> 0-1	<u>0.4</u> 0-2
<i>Pseudopleuronectes americanus</i>	0				0	<u>0.03</u> 0-0.5	<u>0.1</u> 0-0.7	<u>0.8</u> 0-5	<u>2.6</u> 0-12	<u>1.3</u> 0-7
Total	<u>127.5</u> 66-236				<u>55.7</u> 26-96	<u>76.8</u> 11-293	<u>129.2</u> 3-385	<u>99.6</u> 43-169	<u>240.6</u> 31-174	<u>28.1</u> 1-83

*No sampling.

**One sampling period only.

March							
LARVAE	1984	1985	1986	1987	1988	1989	1990
<i>Clupea harengus</i> h.	<u>0.5</u> 0-5	<u>1.2</u> 0-4	<u>0.2</u> 0-1	0	<u>1.7</u> 0-18	<u>0.2</u> 0-1	0
<i>Enchelyopus cimbrius</i>	0	0	0	0	0	0	0
<i>Tautoga onitis</i>	0	0	0	0	0	0	0
<i>Tautoglabrus adspersus</i>	0	0	0	0	0	0	0
<i>Ulvaria subbifurcata</i>	<u>0.03</u> 0-0.6	0	<u>0.3</u> 0-2	0	0	0	0
<i>Photis gunnellus</i>	<u>108.9</u> 0-482	<u>45.7</u> 0-96	<u>58.4</u> 2-159	<u>3.4</u> 0-11	<u>117.8</u> 4-375	<u>61.0</u> 0-126	<u>3.7</u> 0-8
<i>Ammodytes</i> sp.	<u>1.0</u> 0-3	<u>10.4</u> 0-47	<u>9.2</u> 0-30	<u>0.1</u> 0-1	<u>2.4</u> 0-9	<u>3.8</u> 0-11	<u>1.2</u> 0-4
<i>Scomber scombrus</i>	0	0	0	0	0	0	0
<i>Myoxocephalus</i> spp.	(<u>37.6</u>) 0-228	(<u>23.3</u>) 0-61	(<u>65.6</u>) 8-218	(<u>4.1</u>) 0-10	(<u>114.6</u>) 32-356	(<u>60.6</u>) 0-183	(<u>12.1</u>) 2-22
<i>M. aeneus</i>	<u>26.3</u> 0-156	<u>21.3</u> 0-58	<u>60.0</u> 5-213	<u>3.7</u> 0-10	<u>102.9</u> 12-347	<u>34.2</u> 0-65	<u>2.5</u> 2-8
<i>M. octodecemspinosus</i>	0	<u>0.7</u> 0-2	<u>1.0</u> 0-3	<u>0.2</u> 0-1	<u>0.3</u> 0-2	<u>1.5</u> 0-6	0
<i>M. scorpius</i>	<u>11.3</u> 0.7-72	<u>1.3</u> 0-3	<u>4.6</u> 0-12	<u>0.2</u> 0-1	<u>11.2</u> 0-26	<u>24.8</u> 0-119	<u>9.6</u> 0-20
<i>Liparis</i> spp.	(<u>0.04</u>) 0-0.8	(<u>0.6</u>) 0-2	(<u>0.8</u>) 0-5	(<u>0.1</u>) 0-1	(<u>0.5</u>) 0-1	(<u>0.8</u>) 0-4	(<u>0.1</u>) 0-1
<i>L. atlanticus</i>	0	<u>0.06</u> 0-0.7	<u>0.4</u> 0-4	0	<u>0.1</u> 0-1	<u>0.1</u> 0-1	0
<i>L. coheni</i>	<u>0.04</u> 0-0.8	<u>0.5</u> 0-2	<u>0.4</u> 0-2	<u>0.1</u> 0-1	<u>0.4</u> 0-2	<u>0.8</u> 0-4	<u>0.1</u> 0-1
<i>Pseudopleuronectes americanus</i>	<u>0.1</u> 0-0.9	<u>0.3</u> 0-3	<u>1.5</u> 0-7	0	0	0	0
Total	<u>148.7</u> 0-172	<u>82.5</u> 2-179	<u>136.5</u> 14-346	<u>8.0</u> 1-19	<u>237.8</u> 19-736	<u>128.4</u> 2-286	<u>17.5</u> 4-30

LARVAE	April	1975	1976*	1977	1978	1979	1980	1981	1982	1983
<i>Clupea harengus</i> h.		<u>1.3</u> 0-12		<u>0.1</u> 0-1	<u>0.3</u> 0-2	<u>0.6</u> 0-3	<u>0.1</u> 0-1	0	<u>1.0</u> 0.4-5	<u>1.9</u> 0-9
<i>Enchelyopus cimbrius</i>		0		0	0	0	0	0	0	<u>0.04</u> 0-0.5
<i>Tautoga onitis</i>		0		0	0	0	0	0	0	0
<i>Tautoglabrus adspersus</i>		0		0	0	0	0	0	0	0
<i>Ulvaria subbifurcata</i>		<u>5.4</u> 0-19		<u>3.9</u> 0-19	<u>0.2</u> 0-2	<u>0.3</u> 0-1	<u>2.5</u> 0-6	<u>0.3</u> 0-2	<u>0.1</u> 0-2	<u>3.9</u> 0-11
<i>Pholis gunnellus</i>		<u>1.8</u> 0-8		<u>4.0</u> 0-19	<u>1.5</u> 0-5	<u>3.7</u> 0-13	<u>0.4</u> 0-1	<u>3.4</u> 0-14	<u>32.8</u> 0-75	<u>3.4</u> 0-21
<i>Ammodytes</i> sp.		<u>6.6</u> 0.8-18		<u>36.8</u> 6-85	<u>388.8</u> 6-1252	<u>92.1</u> 26-196	<u>50.3</u> 0-171	<u>33.0</u> 7-66	<u>8.1</u> 2-261	<u>16.2</u> 0-58
<i>Scomber scombrus</i>		0		0	0	0	0	0	0	0
<i>Myoxocephalus</i> spp.		<u>7.2</u> 3-12		<u>30.7</u> 14-57	<u>21.3</u> 0-57	(<u>16.3</u>) 1-32	(<u>16.4</u>) 0-59	(<u>19.2</u>) 2-53	(<u>88.5</u>) 0-347	(<u>7.0</u>) 0-24
<i>M. aeneus</i>		-	-	-	<u>16.3</u> 1-32	<u>16.4</u> 0-59	<u>18.6</u> 2-53	<u>88.2</u> 0-344	<u>7.0</u> 0-24	
<i>M. octodecemspinosus</i>		-	-	-	0	0	<u>0.4</u> 0-2	<u>0.2</u> 0-1	0	
<i>M. scorpius</i>		-		0-3						
<i>Liparis</i> spp.		<u>3.5</u> 0-11		<u>16.9</u> 0-72	<u>1.8</u> 0-7	<u>2.1</u> 0-8	<u>5.3</u> 0-29	(<u>0.9</u>) 0-3	(<u>0.9</u>) 0-4	(<u>15.3</u>) 1-69
<i>L. atlanticus</i>		-	-	-	-	-	<u>0.9</u> 0-3	0	<u>15.3</u> 1-69	
<i>L. coheni</i>		-	-	-	-	-	0	<u>0.9</u> 0-4	0	
<i>Pseudopleuronectes americanus</i>		<u>3.1</u> 0.8-10		<u>9.5</u> 0-21	<u>35.6</u> 0-127	<u>2.9</u> 0-8	<u>8.9</u> 2-24	<u>2.1</u> 0-3	<u>5.6</u> 0-36	<u>3.6</u> 0-13
Total		<u>29.7</u> 14-43		<u>103.1</u> 55-154	<u>458.2</u> 21-1324	<u>120.5</u> 57-238	<u>86.0</u> 8-266	<u>66.5</u> 29-142	<u>185.4</u> 4-732	<u>51.7</u> 3-135

*One sampling period only.

LARVAE	April	1984	1985	1986	1987*	1988	1989	1990
<i>Clupea harengus</i> h.		0	<u>0.1</u> 0-0.9	<u>0.4</u> 0-2		<u>0.9</u> 0-3	<u>0.3</u> 0-2	<u>0.3</u> 0-2
<i>Enchelyopus cimbrius</i>		0	0	0		<u>0.1</u> 0-1	0	<u>0.1</u> 0-1
<i>Tautoga onitis</i>		0	0	0		0	0	0
<i>Tautoglabrus adspersus</i>		0	0	0		0	0	0
<i>Ulvaria subbifurcata</i>		0	<u>4.8</u> 0-21	<u>2.2</u> 0-8		<u>0.8</u> 0-3	<u>0.4</u> 0-2	<u>0.8</u> 0-3
<i>Photis gunnellus</i>		<u>2.9</u> 0-11	<u>29.1</u> 0-77	<u>8.4</u> 0-27		<u>3.5</u> 0-8	<u>11.1</u> 0-44	<u>17.1</u> 0-41
<i>Ammodytes</i> sp.		0	<u>22.4</u> 1-89	<u>35.7</u> 0-156		<u>11.0</u> 0-64	<u>3.3</u> 0-14	<u>89.7</u> 4-344
<i>Scomber scombrus</i>		0	0	0		0	0	0
<i>Myoxocephalus</i> spp.		(<u>2.9</u>) 0-11	(<u>121.1</u>) 18-442	(<u>72.6</u>) 1-295		(<u>43.0</u>) 3-111	(<u>26.8</u>) 6-73	(<u>32.5</u>) 2-72
<i>M. aeneus</i>		<u>2.9</u> 0-11	<u>121.0</u> 18-442	<u>71.9</u> 1-292		<u>28.9</u> 3-111	<u>26.4</u> 6-71	<u>31.5</u> 2-71
<i>M. octodecemspinosus</i>		0	0	<u>0.5</u> 0-4		0	0	<u>0.3</u> 0-1
<i>M. scorpius</i>		0	<u>0.1</u> 0-0.8	<u>0.3</u> 0-2		<u>0.3</u> 0-2	<u>0.5</u> 0-2	<u>0.7</u> 0-3
<i>Liparis</i> spp.		0	(<u>6.5</u>) 1-26	(<u>8.2</u>) 0-27		(<u>17.4</u>) 0-99	(<u>7.5</u>) 0-33	(<u>3.6</u>) 1-8
<i>L. atlanticus</i>		0	<u>6.1</u> 0-26	<u>8.0</u> 0-27		<u>17.3</u> 0-99	<u>7.5</u> 0-33	<u>3.5</u> 1-8
<i>L. coheni</i>		0	<u>0.4</u> 0-2	<u>0.2</u> 0-1		<u>0.1</u> 0-1	0	<u>0.1</u> 0-1
<i>Pseudopleuronectes americanus</i>		0	<u>4.2</u> 0-11	<u>10.7</u> 0-33		<u>2.9</u> 2-17	<u>3.8</u> 0-20	<u>1.3</u> 0-6
Total		<u>6.7</u> 0-17	<u>189.5</u> 54-524	<u>139.4</u> 12-358		<u>68.3</u> 9-307	<u>53.5</u> 6-120	<u>146.6</u> 30-366

*Pumps down - no sampling.

May									
LARVAE	1975	1976	1977	1978	1979	1980	1981	1982	1983
<i>Clupea harengus</i> h.	<u>2.2</u> 0-24	0	0	<u>0.1</u> 0-1	<u>0.03</u> 0-0.5	0	0	<u>0.2</u> 0-1	<u>0.04</u> 0-0.5
<i>Enchelyopus cimbrius</i>	<u>2.6</u> 0-10	<u>2.9</u> 0-13	<u>0.3</u> 0-1	<u>4.0</u> 0-19	<u>4.5</u> 0-19	<u>5.4</u> 5-11	<u>1.0</u> 0-3	<u>0.04</u> 0-0.6	<u>0.3</u> 0-1
<i>Tautoga onitis</i>	0	0	0	0	<u>0.1</u> 0-1	<u>7.0</u> 0-1	0 0-39	0	0
<i>Tautoglabrus adspersus</i>	0	0	0	0	<u>0.2</u> 0-2	<u>1.3</u> 0-8	<u>0.04</u> 0-0.2	0	0
<i>Ulvaria subdifurcata</i>	<u>65.4</u> 10-235	<u>7.3</u> 1-24	<u>5.7</u> 0-20	<u>43.5</u> 11-141	<u>5.2</u> 0-23	<u>10.2</u> 5-21	<u>10.7</u> 4-27	<u>4.0</u> 0-16	<u>19.5</u> 2-73
<i>Pholis gunnellus</i>	<u>0.1</u> 0-0.5	0	0	<u>0.4</u> 0-4	<u>0.08</u> 0-1	0	0	<u>0.2</u> 0-2	<u>0.2</u> 0-0.6
<i>Ammodytes</i> sp.	<u>4.0</u> 0-22	<u>2.5</u> 0-8	<u>2.2</u> 0-7	<u>79.9</u> 0-265	<u>20.1</u> 0-88	<u>3.8</u> 2-9	<u>1.8</u> 0-4	<u>23.2</u> 0-29	<u>6.4</u> 0.5-17
<i>Scomber scombrus</i>	<u>0.1</u> 0-0.4	0	0	<u>2.6</u> 0-27	<u>6.1</u> 0-29	<u>3.8</u> 0-12	<u>0.9</u> 0.5-5	<u>0.1</u> 0-1	0
<i>Myoxocephalus</i> spp.	<u>3.2</u> 0-11	<u>0.5</u> 0-2	<u>1.2</u> 0-9	<u>0.3</u> 0-37	(<u>5.9</u>) 0-17	(<u>0.5</u>) 0-3	(<u>0.2</u>) 0-1	(<u>1.5</u>) 0-10	(<u>6.3</u>) 0-25
<i>M. aeneus</i>	-	-	-	-	<u>5.9</u> 0-17	<u>0.5</u> 0-3	<u>0.2</u> 0-1	<u>1.5</u> 0-10	<u>6.3</u> 0-25
<i>M. octodecemspinosus</i>	-	-	-	-	0	0	0	0	0
<i>M. scorpius</i>	-	-	-	-	0	0	0	0	0
<i>Liparis</i> spp.	<u>9.2</u> 0-30	<u>13.0</u> 6-31	<u>38.9</u> 0-112	<u>37.0</u> 1-92	<u>20.3</u> 6-40	<u>27.8</u> 16-45	(<u>16.1</u>) 2-69	(<u>2.8</u>) 0-12	(<u>13.5</u>) 0.5-37
<i>L. atlanticus</i>	-	-	-	-	-	-	<u>16.1</u> 2-69	<u>2.7</u> 0-12	<u>13.5</u> 0.5-37
<i>L. coheni</i>	-	-	-	-	-	-	0	<u>0.1</u> 0-2	0
<i>Pseudopleuronectes americanus</i>	<u>13.2</u> 2-36	<u>7.4</u> 2-18	<u>16.3</u> 4-29	<u>38.0</u> 0-129	<u>18.4</u> 13-40	<u>29.1</u> 11-75	<u>11.1</u> 0-98	<u>30.3</u> 1-49	<u>15.8</u> 0.5-7
Total	<u>99.6</u> 28-283	<u>37.9</u> 15-76	<u>81.9</u> 24-185	<u>222.2</u> 33-660	<u>104.1</u> 66-210	<u>104.4</u> 59-167	<u>69.9</u> 12-234	<u>65.4</u> 8-182	<u>62.4</u> 9-192

May							
LARVAE	1984	1985	1986	1987	1988	1989	1990
<i>Clupea harengus</i> h.	<u>2.1</u> 0-1	0	<u>0.1</u> 0-1	0	<u>0.08</u> 0-1	<u>0.3</u> 0-2	<u>3.0</u> 0-10
<i>Enchelyopus cimbrius</i>	0	<u>4.4</u> 0-6	<u>5.5</u> 0-27	<u>1.3</u> 0-3	<u>5.3</u> 0-31	<u>2.2</u> 0-17	0
<i>Tautoga onitis</i>	0	<u>0.04</u> 0-1	0	0	0	0	0
<i>Tautoglabrus adspersus</i>	0	0	<u>0.2</u> 0-1	0	0	<u>0.1</u> 0-1	0
<i>Ulvaria subbifurcata</i>	<u>0.9</u> 0-4	<u>15.6</u> 0-75	<u>5.8</u> 1-16	<u>2.0</u> 0-5	<u>3.3</u> 0-15	<u>20.3</u> 1-88	<u>25.3</u> 0-63
<i>Pholis gunnellus</i>	<u>0.9</u> 0-4	<u>0.1</u> 0-0.6	<u>0.1</u> 0-1	0	<u>0.9</u> 0-3	<u>0.7</u> 0-5	<u>0.5</u> 0-3
<i>Ammodytes</i> sp.	<u>16.6</u> 0-57	<u>0.6</u> 0-3	<u>1.2</u> 0-5	<u>0.2</u> 0-1	<u>2.5</u> 0-14	<u>4.9</u> 0-17	<u>22.8</u> 2-47
<i>Scomber scombrus</i>	0	<u>0.5</u> 0-6	<u>0.2</u> 0-1	<u>0.1</u> 0-1	0	<u>0.5</u> 0-4	<u>0.1</u> 0-1
<i>Myoxocephalus</i> spp.	(<u>1.9</u>) 0-10	(<u>2.1</u>) 0-11	(<u>0.5</u>) 0-2	(<u>0.2</u>) 0-1	(<u>2.0</u>) 0-10	(<u>2.5</u>) 0-11	(<u>4.3</u>) 0-20
<i>M. aeneus</i>	<u>1.9</u> 0-10	<u>2.1</u> 0-11	<u>0.5</u> 0-2	<u>0.2</u> 0-1	<u>2.0</u> 0-10	<u>2.5</u> 0-11	<u>4.3</u> 0-20
<i>M. octodecemspinosus</i>	0	0	0	0	0	0	0
<i>M. scorpius</i>	0	0	0	0	0	0	0
<i>Liparis</i> spp.	(<u>3.3</u>) 0-11	(<u>15.7</u>) 0-30	(<u>2.2</u>) 0-6	(<u>16.0</u>) 0-101	(<u>28.3</u>) 1-146	(<u>13.8</u>) 0-59	(<u>7.3</u>) 1-17
<i>L. atlanticus</i>	<u>3.3</u> 0-11	<u>15.7</u> 0-30	<u>2.2</u> 0-6	<u>16.0</u> 0-101	<u>28.3</u> 1-146	<u>13.8</u> 0-59	<u>7.3</u> 1-17
<i>L. coheni</i>	0	0	0	0	0	0	0
<i>Pseudopleuronectes americanus</i>	<u>2.6</u> 0-27	<u>14.1</u> 0-27	<u>7.4</u> 2-13	<u>10.2</u> 0-52	<u>23.6</u> 0-105	<u>7.5</u> 0-30	<u>12.2</u> 0-47
Total	<u>33.7</u> 0-64	<u>55.4</u> 8-79	<u>24.1</u> 15-41	<u>27.5</u> 0-158	<u>67.6</u> 10-291	<u>54.7</u> 20-108	<u>77.3</u> 26-125

<u>June</u>									
LARVAE	1975	1976	1977	1978	1979	1980	1981	1982	1983
<u>Clupea harengus</u> h.	0	0	0	0	0	0	0	0	0
<u>Enchelyopus cimbrius</u>	<u>50.1</u> 0-137	<u>28.7</u> 0-46	<u>128.8</u> 84-248	<u>40.2</u> 0-145	<u>7.4</u> 1-15	<u>34.5</u> 4-102	<u>36.2</u> 0-149	<u>0.9</u> 0-5	<u>13.6</u> 0-47
<u>Tautoga onitis</u>	<u>0.7</u> 0-1	<u>0.4</u> 0-5	<u>6.7</u> 0-27	<u>6.2</u> 0-37	<u>4.3</u> 0-11	<u>7.0</u> 0-20	<u>12.5</u> 0-162	<u>3.0</u> 0-27	<u>0.5</u> 0-2
<u>Tautoglabrus adspersus</u>	<u>11.3</u> 0-39	<u>2.6</u> 0-13	<u>11.5</u> 0-750	<u>19.5</u> 0-107	<u>38.8</u> 4-78	<u>35.4</u> 0-83	<u>232.3</u> 0-1639	<u>6.5</u> 0-26	<u>12.6</u> 0.5-46
<u>Ulvaria subbifurcata</u>	<u>0.6</u> 0-2	<u>5.1</u> 0-28	0	<u>4.3</u> 0-12	<u>1.3</u> 0-3	<u>2.0</u> 0-12	<u>0.4</u> 0-3	<u>1.4</u> 0-5	<u>0.9</u> 0-5
<u>Pholis gunnellus</u>	0	0	0	<u>0.2</u> 0-2	0	0	0	0	0
<u>Ammodytes</u> sp.	0	<u>0.1</u> 0-2	0	<u>0.2</u> 0-2	<u>0.1</u> 0-1	0	<u>0.1</u> 0-0.6	0	<u>0.1</u> 0-0.6
<u>Scomber scombrus</u>	<u>39.9</u> 0-149	<u>4.2</u> 0-15	<u>14.0</u> 0-55	<u>31.5</u> 0-126	<u>9.9</u> 0-37	<u>35.5</u> 0-109	<u>318.1</u> 0-3662	<u>14.6</u> 0-81	<u>70.4</u> 0-354
<u>Myoxocephalus</u> spp.	0	0	0	0	0	(0.6) 0-7	0	0	0
<u>M. aeneus</u>	-	-	-	-	0	<u>0.6</u> 0-7	0	0	0
<u>M. octodecemspinosus</u>	-	-	-	-	0	0	0	0	0
<u>M. scorpius</u>	-	-	-	-	0	0	0	0	0
<u>Liparis</u> spp.	<u>2.1</u> 0-7	<u>0.7</u> 0-50	<u>6.2</u> 0-28	<u>16.0</u> 2-65	<u>1.3</u> 0-4	<u>6.2</u> 0-21	(1.6) 0-13	(0.5) 0-4	(1.0) 0-8
<u>L. atlanticus</u>	-	-	-	-	-	-	<u>1.6</u> 0-13	<u>0.5</u> 0-4	<u>1.0</u> 0-8
<u>L. coheni</u>	-	-	-	-	-	-	0	0	0
<u>Pseudopleuronectes americanus</u>	<u>5.5</u> 0.5-15	<u>6.6</u> 0-47	<u>4.6</u> 0-16	<u>15.9</u> 0-54	<u>2.7</u> 0-39	<u>5.8</u> 3-19	<u>1.8</u> 0-8	<u>3.8</u> 0-17	<u>0.4</u> 0-2
Total	<u>117.9</u> 14-260	<u>55.1</u> 8-139	<u>297.2</u> 125-641	<u>176.7</u> 51-343	<u>82.5</u> 27-154	<u>145.8</u> 49-377	<u>710.7</u> 5-5423	<u>35.8</u> 0-136	<u>102.5</u> 2-383

<u>June</u>							
LARVAE	1984	1985	1986	1987	1988	1989	1990
<i>Clupea harengus</i> h.	0	<u>0.07</u> 0-1	0	0	0	0	0
<i>Enchelyopus cimbrius</i>	<u>0.1</u> 0-1	<u>28.3</u> 3-73	<u>21.1</u> 2-74	<u>6.4</u> 0-33	<u>1.4</u> 0-4	<u>32.4</u> 3-137	<u>29.3</u> 0-120
<i>Tautoga onitis</i>	0	<u>5.2</u> 0-41	<u>1.1</u> 0-5	<u>2.2</u> 0-12	<u>0.3</u> 0-2	<u>10.2</u> 0-35	<u>2.6</u> 0-10
<i>Tautoglabrus adspersus</i>	0	<u>50.7</u> 0-208	<u>40.4</u> 0-157	<u>0.8</u> 0-6	<u>1.0</u> 0-5	<u>70.2</u> 4-196	<u>7.2</u> 0-30
<i>Ulvaria subbifurcata</i>	<u>1.0</u> 0-4	<u>3.4</u> 1-5	<u>2.4</u> 0-6	<u>0.2</u> 0-2	<u>1.5</u> 0-12	<u>3.6</u> 0-13	<u>3.5</u> 0-9
<i>Pholis gunnellus</i>	<u>0.1</u> 0-1	0	0	0	0	0	0
<i>Ammodytes</i> sp.	<u>0.1</u> 0-1	0	0	0	0	<u>0.2</u> 0-2	<u>0.6</u> 0-2
<i>Scomber scombrus</i>	<u>0.1</u> 0-1	<u>86.5</u> 0-376	<u>113.2</u> 0-323	<u>0.4</u> 0-2	<u>5.6</u> 0-52	<u>137.2</u> 0-434	<u>5.6</u> 0-23
<i>Myoxocephalus</i> spp.	0	0	0	0	0	0	(<u>0.1</u>) 0-2
<i>M. aeneus</i>	0	0	0	0	0	0	<u>0.1</u> 0-2
<i>M. octodecemspinosus</i>	0	0	0	0	0	0	0
<i>M. scorpius</i>	0	0	0	0	0	0	0
<i>Liparis</i> spp.	(<u>4.4</u>) 0-13	(<u>1.6</u>) 0-3	(<u>2.6</u>) 0-11	(<u>1.5</u>) 0-13	(<u>6.9</u>) 1-32	(<u>1.4</u>) 0-7	(<u>3.7</u>) 0-13
<i>L. atlanticus</i>	<u>4.4</u> 0-13	<u>1.6</u> 0-3	<u>2.6</u> 0-11	<u>1.5</u> 0-13	<u>6.9</u> 1-32	<u>1.4</u> 0-7	<u>3.7</u> 0-13
<i>L. coheni</i>	0	0	0	0	0	0	0
<i>Pseudopleuronectes americanus</i>	<u>4.7</u> 0-24	<u>2.2</u> 0-7	<u>1.3</u> 0-6	<u>0.3</u> 0-4	<u>0.6</u> 0-4	<u>0.7</u> 0-2	<u>0.1</u> 0-2
Total	<u>11.3</u> 0-41	<u>201.6</u> 4-681	<u>198.6</u> 17-663	<u>15.2</u> 0-61	<u>19.6</u> 5-69	<u>274.3</u> 57-771	<u>66.9</u> 6-198