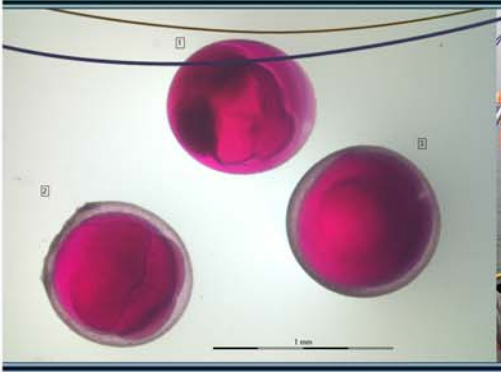
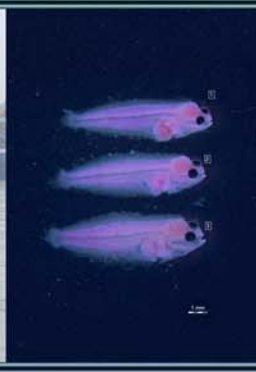
US Army Corps of Engineers®
New York District

NEW YORK AND NEW JERSEY HARBOR DEEPENING PROJECT

Aquatic Biological Survey Report



2011

NEW YORK AND NEW JERSEY HARBOR DEEPENING PROJECT

AQUATIC BIOLOGICAL SURVEY REPORT

2011

FINAL REPORT

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March 2012

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1.0 INTRODUCTION

1.1 BACKGROUND

The 2011 Aquatic Biological Survey (ABS) was conducted as part of the New York and New Jersey Harbor Deepening Project (HDP). The HDP is a United States Army Corps of Engineers – New York District (USACE-NYD) and Port Authority of New York and New Jersey (PANYNJ) sponsored project to deepen navigation channels to 50 feet to accommodate larger commercial vessels. A primary goal of the ABS is to collect data on finfish, shellfish, macroinvertebrates, and water quality, with a focus on fish community structure, distribution and seasonal patterns of habitat use in New York/New Jersey Harbor (Harbor).

The 2011 ABS Program was designed to collect early life stage information on winter flounder and other finfish. Water quality and sediment grain size / classification were also included as part of the data collected during the 2011 Program. Adult and juvenile finfish and macro-invertebrate collections using a bottom trawl were part of the ABS Program from 1998 to 2010 (except for 2000-2001; USACE-NYD 2011). The bottom trawl was not used during the 2011 Program because the focus of the Program has shifted towards winter flounder early life history over the past few years, and sufficient data on adult and juvenile finfish was collected. The 2011 ABS supplements data provided in previous reports: 1998-1999 New York and New Jersey Harbor Navigation Study ("1999 Survey"), 2000-2001 Supplemental Sampling Program ("2001 Survey"), 2001-2002 Aquatic Biological Sampling Program ("2002 Survey"), the 2002-2003 Biological Sampling Program ("2003 Survey"), the yearly Aquatic Biological Survey Reports from 2004 to 2010, and the Chapter 1 Summary Report entitled "Application of winter flounder early life history data to seasonal dredging constraints and Essential Fish Habitat designations".

The finfish assemblage (species occurrence and relative abundance) within the Harbor is a dynamic community consisting of many resident and migratory fish species typical of coastal estuaries and inshore waterways along the Middle Atlantic Bight. The Harbor is part of the Hudson-Raritan estuary that provides spawning habitats, migratory pathways, along with nursery

and foraging areas for many fish species. The multi-year ABS sampling Program has been essential in evaluating the use of channel and non-channel areas within the Harbor from year to year. Program sampling conducted from 1998-2011 has been used to describe annual variability in seasonal movement patterns, usage and relative abundance, and to expand the temporal coverage of the Program database particularly with respect to winter flounder. The ABS Program has provided a valuable long-term data set to evaluate spatial and temporal patterns exhibited by early life stages and spawning adult winter flounder. Since 2002, when Program sampling began in the Lower Bay, the study objectives, survey areas, and sampling gear have remained relatively consistent throughout the sampling years to allow for inter-annual comparisons.

The focus of the 2011 ABS Program, conducted from January to June 2011, was to document spatial and temporal patterns of winter flounder eggs and larval occurrences in the Harbor, as well as that of other finfish including Essential Fish Habitat (EFH) designated species (Table 1-1). These data were used to document finfish distribution, habitat use (spawning and nursery habitat utilization), and trends in relative abundance within the Harbor. The results of the 2011 ABS Program are provided and discussed in this report.

USACE-NYD has further investigated patterns in winter flounder abundance and habitat use based on the 2002 to 2010 data. The first summary report entitled "Application of winter flounder early life history data to seasonal dredging constraints and Essential Fish Habitat designations" summarized the relationships between the occurrence of winter flounder eggs and larvae in the Harbor with relevance to EFH designations and seasonal dredging constraints (environmental windows) utilization in the Harbor (USACE-NYD 2010). A second summary report is currently under development and focuses on adult and juvenile winter flounder. These summary reports provide findings and conclusions regarding inter-annual patterns of winter flounder in the Harbor.

1.2 STUDY OBJECTIVES

The focus of the 2011 ABS Program[1], conducted from January to June 2011, was to collect data on early life stages of finfish in the Harbor with an emphasis on winter flounder. This sampling schedule covered the period when winter flounder spawning and early life stages typically occur in the Harbor. The specific objectives were to determine the spatial and temporal use of selected Harbor areas and relative abundance of early life stage finfish, winter flounder and other EFH designated finfish species. A plankton net mounted on an epibenthic sled was used to sample demersal eggs and larvae to meet the 2011 ABS Program objectives. This gear was selected to effectively sample the target life stages and species, winter flounder.

1.3 REPORT ORGANIZATION

All finfish species are classified into one of three groups: Essential Fish Habitat (EFH) designated species (Table 1-1), important non-EFH species (including finfish identified by the resource agencies as forage, commercial and/or recreationally important species of special concern), and other species. Table 1-1 presents a summary of the EFH designated finfish species by life stage occurring in the Harbor as determined by the National Marine Fisheries Service. Nine (9) species of finfish were categorized as important non-EFH species: Alewife, American eel, American shad, Atlantic menhaden, Atlantic sturgeon, blueback herring, rainbow smelt, shortnose sturgeon and striped bass. This organization has been used since the 2006 report to broaden the study's focus from primarily winter flounder to other important species in the Harbor's finfish community that have become an increasing focus of interest for local and regional resource managers. This report focused on early life stages of finfish using the Harbor during winter and spring 2011.

[1] The previous ABS Program years included a bottom trawl component for sampling juvenile and adult finfish.

2.0 METHODS

2.1 SAMPLING LOCATIONS

Throughout the ABS Program, a standard set of sampling locations has been used, but some adjustments have been made from year to year, as described below. Many of the sampling locations were surveyed each year with a few additions or deletions in some years. In 2011, 29 stations were sampled (Table 2-1, Figure 2-1) using an epibenthic sled with attached ichthyoplankton net and flow meter (Table 2-3).

From 2008 through 2011, additional stations were added in the Lower Bay to better understand the value of shallows located away from or adjacent to navigation channels. Of the 29 stations sampled in 2011, 17 were located in non-channel areas of ranging depths, and 12 were located within channels (typically 40 feet and deeper). As in previous years, to better document the spatial dynamics of the various finfish populations, the Harbor was divided into three geographic regions: Arthur Kill/Newark Bay, Upper New York Bay, and Lower New York Bay (Figure 2-1). During the 2011 ABS Program sampling stations were distributed as follows among the three regions:

- **Arthur Kill and Newark Bay**

  Seven stations were sampled in this region including three channel stations in the Arthur Kill (AK-2, AK-3 and AK-8), two non-channel stations in Newark Bay (NB-4 and NB-7), and two channel stations also in Newark Bay (NB-6 and NB-8). Arthur Kill channel stations AK-2, AK-3, and Newark Bay non-channel stations NB-4 and NB-7 were sampled every year from 2002 to 2011 (except 2006 for NB-7). Sampling at channel station NB-6 resumed in 2010 and was also sampled during 2011. Channel station NB-8 was added in 2010 after completion of dredging in this area, and channel station AK-8 was added in 2011 to provide increased coverage in this contract area.

- **Upper New York Bay ("Upper Bay")**

Six (6) stations were sampled in this region including four stations in South Brooklyn (SB) and two in Port Jersey (PJ). Of the four stations surveyed in South Brooklyn, three were located in channels including Bay Ridge Channel (SB-4) and Anchorage Channel (SB-5 and SB-6). One non-channel station was located on the Bay Ridge Flats (SB-3). Both of the stations surveyed in Port Jersey were located in non-channel areas including the Port Jersey Flats (PJ-1) and the Caven Point Flats (PJ-2). These stations have been sampled consistently since 2002.

- **Lower New York Bay ("Lower Bay")**

Sixteen stations were sampled in the Lower Bay (LB), four (LB-2, 4, 6, and 14) were located in channels and 12 were located in non-channel areas. Of the non-channel stations, three (LB-9, 12, and 20) were located in 6 m or more (≥18 ft) of water and nine (LB-1, 3, 5, 8, 13, 16, 18, 19, and 21) were in shallower waters, generally less than 6 m or 18 ft deep at mean lower low water (MLLW). This depth categorization is based on the EFH depth designation, in which winter flounder EFH is mapped for habitats less than or equal to 6 m.

All of the six stations sampled in the Lower Bay from 2002 to 2010 (LB-1 to 6) were also sampled in 2011. Four (LB-8, 9, 12, and14) of the eight stations added in 2008 and one (LB-16) of the three added in 2010 to provide better spatial coverage of the Lower Bay were also sampled during 2011. Four shallow non-channel stations (LB-18 to LB-21) were added in 2011 to sample additional shallow habitats located further from the actively maintained navigation channels.

The 2011 ABS Program sampled slightly different stations than in 2010. Non-channel deep stations, LB-15 and LB-17, were only sampled in 2010 because they were determined to be in previously dredged areas. Similarly, non-channel station LB-7 was eliminated because this station was in a borrow pit, while non-channel stations LB-10 and LB-11 were dropped due to safety reasons because of bottom obstructions which resulted in frequent hang-downs.

2.2 EPIBENTHIC SLED

Epibenthic sled sampling for ichthyoplankton was scheduled to bracket the period when winter flounder eggs and larvae are historically present in the Harbor. For the 2011 ABS, ichthyoplankton surveys were conducted twice each month (approximately every other week) from mid January to early June at the 29 stations described above.

2.2.1 Field Methodology for Ichthyoplankton Sampling

Ichthyoplankton samples were collected using 0.5-m² plankton net with 0.5-mm mesh mounted on an aluminum epibenthic sled (Table 2-2). The plankton net was fitted with a GO Model 2030R flow meter to measure sample volume. All samples were collected during daylight hours from one hour after sunrise to one hour before sunset. Tows were conducted against the prevailing current at a speed of approximately 3.0 to 3.6 ft/sec (90 to 110 cm/sec) through the water. Boat speed was measured using a GO Model 2031 electronic flow meter coupled to a GO Model 2135 deck readout. GPS coordinates were recorded at the beginning and end of each tow to ensure proper station maintenance. Target tow duration was ten minutes, although tow times were occasionally adjusted as needed to account for obstructions, limited transect distance, commercial traffic, and other safety considerations in the field. A minimum ratio of 3:1 tow cable length to maximum station water depth was maintained to ensure that the sled was in contact with the bottom throughout each tow.

Upon retrieval of the epibenthic sled, the flow meter reading was checked to ensure that enough water volume had been sampled and that the net had not been ripped or filled with mud/debris. If it was determined to be a valid sample, then the net was washed down from the outside concentrating the sample in the cod-end bucket. Each ichthyoplankton sample was then transferred to an appropriately sized container(s) and the remaining volume filled with 10% buffered Formalin containing the vital stain Rose Bengal. Samples were then returned to the laboratory for sorting, identification, enumeration, and measurements.

2.2.2 Laboratory Methodology for Ichthyoplankton Sorting and Identification, and Measurement

All specimens were identified to the lowest taxonomic level practicable, assigned a life stage based on morphometric characteristics (i.e., egg, yolk-sac larvae, post yolk-sac larvae, or juvenile) and except for winter flounder, only viable eggs[2] were enumerated. For some larvae, it was not possible to discern between yolk-sac and post yolk-sac life stages because the specimens were damaged. These were classified as unidentified larval stage. Quality control procedures consisted of a continuous sampling plan to assure an Average Outgoing Quality Limit (AOQL) of < 0.10 ($\geq$ 90% accuracy) during sample sorting, enumeration, life stage designation, and identification.

To further identify and describe the embryonic development of viable winter flounder eggs collected during the ichthyoplankton survey, the following sequential staging methodology was developed based upon the winter flounder egg development described by Martin and Drewry (1978). This methodology was employed by Schultz *et al*. (2007) and is consistent with other authors who have described similar staging systems for other species (Gorodilov 1996; Gadomski and Caddell 1996). In particular, Allen *et al.* (2005) describes a staging system for the developmental progression of lake trout, *Salvelinus namaycush*, which closely follows this study's five-stage methodology for winter flounder growth from fertilization to hatching as further described below. Staging of the eggs enables one to distinguish between eggs that were recently deposited from those that are more developed and may have moved from the site of their deposition (Schultz *et al.* 2007).

After sorting and species identification, all of the viable winter flounder eggs were further identified (beginning in 2008) into one of the following five stages using observed embryonic characteristics (see also Appendix D):

[2] Viable eggs were fertilized eggs showing various stages of development at the time of preservation. Non-viable eggs include those that were unfertilized as well as those fertilized but obviously dead: an egg that has become opaque or murky in nature or has the presence of fungus and/or other types of deterioration.

Egg Stages:

Stage 1 or Early Cleavage Stage: 1-64 cells, age equals < 24 hours.

Stage 2 or Blastula Stage: Final product of cleavage, formation of blastocoel, age equals approximately 24-48 hours.

Stage 3 or Gastrula Stage: Between formation of blastocoel and formation of embryonic axis, age equals approximately 2-3 days.

Stage 4 or Early Embryo Stage: Formation of embryonic axis, age equals approximately 4-15 days.

Stage 5 or Late Embryo Stage: After formation of embryonic axis near hatching, age equals approximately > 15 days.

In 2008, 2009 and 2010, all non-viable winter flounder eggs were counted during the staging process but only viable eggs were applied to the density calculations to allow for direct comparisons between previous years of sampling in which non-viable eggs were not counted. Consistent with previous years, non-viable eggs for other species were not counted.

Since 2007, all winter flounder yolk-sac and post yolk-sac larvae were further classified into four stages of larval development as follows (see also Appendix D):

Larval Stages:

Stage 1: Recently hatched larvae; yolk-sac present and eyes not pigmented.

Stage 2: Eyes pigmented, no loop or coil formed in the gut, no flexion of the notochord, and no yolk-sac present or minimal traces of yolk may remain.

Stage 3: Loop or coil formed in gut and/or flexion of the notochord has begun, but left eye has not migrated past the midline.

Stage 4: Left eye has migrated past the midline, but juvenile characteristics not present.

Up to 25 winter flounder of each larval stage were then randomly selected from each sample and calibrated images were captured for each larval life stage using a Jenoptik camera and ProgRes CapturePro 2.8 software. Images of Stage 1 to 3 larvae were made with larvae lying laterally (on their side); while Stage 4 larvae and juvenile fish were positioned ventrally flat. Total lengths of

each larval image were measured to the nearest 0.01 mm using University of Texas Health Science Center at San Antonio (UTHSCSA) ImageTool software which has a segmented line tool, enabling accurate measurement of larval images even if they were not perfectly aligned.

Juveniles that were larger than the field of view for capturing complete images were measured to the nearest 1.0 mm using a calibrated measuring board. Larvae that exhibited prior damage/decomposition and/or sampling damage that could result in inaccurate lengths were not measured.

Quality control (QC) of the identification, staging, and measurements was undertaken by the senior laboratory taxonomist following the continuous sampling plan (CSP-1) that requires each batch of samples pass the required 90% level of QC before continuing the analysis to the next batch.

2.3 WATER QUALITY MEASUREMENTS

Dissolved oxygen (DO), temperature, conductivity, and salinity were measured during each survey at each station location using a calibrated YSI Model 85 Handheld Oxygen, Conductivity, Salinity and Temperature System meter with a known degree of accuracy (Table 2-3). Measurements were recorded from the bottom strata of the water column at approximately one foot (0.3 m) above the substrate. Field instruments were calibrated each day both prior to and after sampling. Once per sampling day, the accuracy of the YSI Model 85 instrument was verified using an ASTM certified thermometer, a laboratory conductivity/salinity meter, and three water samples collected in the field and analyzed for DO using the Winkler titration method.

2.4 DATA ANALYSIS

Data analysis for this report focused on the current Program year (i.e. 2011). Analyses and discussion of interannual variation is provided in the EFH summary report (USACE-NYD 2010), which includes Program years 2002-2010 when sampling included Lower Bay.

Ichthyoplankton densities in this report are expressed as total number per 1,000 cubic meters (m^3) were computed for each epibenthic sled tow based on the volume of water sampled and using the following formula:

$$Density = \left(\frac{N}{[A\ x\ D]}\right) \times 1{,}000$$

Where:

N equals the total number of organisms collected,

A equals the area of the net mouth (m^2) and

D equals the distance traveled (m) calculated as the total flow meter count multiplied by the flow meter constant (0.026873).

During the 2011 ABS, stations were sampled every two weeks. Occasionally, due to inclement weather, more than one week was needed to sample all stations. To display weekly patterns in catch densities, average weekly density for ichthyoplankton was calculated as a 7-day weekly average. Monthly averages were calculated by averaging samples collected within a calendar month, independent of the weekly grouping. Averages over the full 2011 Program were calculated by averaging all samples collected through the annual monitoring period.

3.0 RESULTS

A total of 288 ichthyoplankton tows were conducted from January 19 through June 8, 2011: 119 at channel stations and 169 at non-channel stations (Tables 3-1). Each station was sampled 10 times during the Program, except for AK-8 and NB-7. Due to inclement weather, AK-8 was not sampled during the first week of the Program. Due to dredging in the area, it was not possible to sample NB-7 during the final sample week of the ABS Program.

Ichthyoplankton collection results are described for both channel and non-channel stations in three Harbor regions (Arthur Kill/Newark Bay, Upper Bay, and Lower Bay). Species composition, number collected, relative abundance, and density [number per unit volume (1,000 m^3)] are described in the sections below. Detailed sampling station data for early life stage

finfish (ichthyoplankton), winter flounder length data, and water quality are provided in Appendices A, B, and C, respectively.

3.1 ALL SPECIES

Finfish eggs, larvae, and juveniles were collected from channel and non-channel stations in all three regions of the Harbor during the 2011 ABS sampling Program. A total of 154,057 early life stage eggs, larvae, and juveniles were collected in the 288 samples completed from mid-January to early June 2011 (Table 3-2). A majority of the ichthyoplankton collected were eggs (n=135,776; 88.1%); 7.9% were yolk-sac larvae (n=12,167), and 3.7% were post yolk-sac larvae (n=5,724). Thirty-four (34) juveniles (0.02%) were also collected. Damaged organisms that could not be assigned to a larval life stage (yolk-sac or post yolk-sac larvae or to winter flounder Stage 1, 2, 3, or 4 larvae) totaled 356 (0.2%). There were no unidentified eggs.

Nearly half of the early life stage specimens were collected from the Lower Bay (n=75,280; 48.9%) which had more than twice the sampling effort (160 samples) compared to either the Upper Bay with 60 samples collected or the Arthur Kill/Newark Bay with 68 samples. Thirty-nine percent of the 2011 collections were from the Arthur Kill/Newark Bay (n=60,094) and the Upper Bay with 12.1% of the catch (n=18,683) followed (Table 3-2).

Bay anchovy eggs dominated the collection in all three Harbor regions during June. Collections of Atlantic menhaden eggs and wrasse eggs also peaked in June which contributed to the high densities of ichthyoplankton collected from channel and non-channel stations in all three Harbor regions.

During the 2011 survey, a total of 30 taxa were identified in the ichthyoplankton samples (excluding unidentified and herrings and anchovies groups), with the Arthur Kill/Newark Bay having the highest taxa richness (25 taxa) compared to 22 taxa in the Lower Bay and 21 in the Upper Bay (Table 3-2). The four EFH species (Atlantic herring, summer flounder, windowpane, and winter flounder) and one important non-EFH species (Atlantic menhaden) were collected from all three Harbor regions (Table 3-2). Egg, yolk-sac larvae, and post yolk-sac larvae life

stages of winter flounder and Atlantic menhaden were collected from all three Harbor regions. Only post yolk-sac larvae of Atlantic herring and summer flounder were collected, and each life stage was collected in all three Harbor regions. Windowpane eggs and post yolk-sac larvae were collected in all three Harbor regions, while windowpane yolk-sac larvae were only collected in the Lower Bay and two juveniles were collected, one each from the Arthur Kill/Newark Bay and the Lower Bay. For other species, dominant species included bay anchovy, representing 74.6% of the total catch (n=114,994, mostly eggs), and American sandlance being the next most abundant at 8.8% of the catch (n=13,576; mostly yolk-sac larvae).

3.1.1 Eggs

A total of 135,776 viable eggs from nine taxa of finfish were collected in the Harbor during the sampling in 2011 (Table 3-2). The majority of eggs collected were bay anchovy (n=114,794, 84.5% of the total egg catch), followed by wrasses (Family Labridae including cunner and tautog) (n=7,147; 5.3%), Atlantic menhaden (n=6,421; 4.7%), windowpane (n=2,949; 2.2%), American sandlance (n=1,844; 1.4%), winter flounder (n=1,553; 1.1%), searobin species (n=513; 0.4%), cod species (n=453; 0.3%), and fourbeard rockling (n=102, 0.1%).

Average weekly egg densities for all species were highest in the Arthur Kill/Newark Bay compared to both the Upper Bay and Lower Bay (Figures 3-1a and 3-1b). In all regions, peak egg densities occurred at channel stations during the week of 6 June. The peak density of approximately 40,000 eggs/1,000m³ occurred at channel stations in Arthur Kill/Newark Bay, and the same week a peak density of approximately 25,000 eggs/1,000m³ occurred at non-channel stations in Arthur Kill/Newark Bay. Peak densities in the Upper Bay and Lower Bay also occurred the week of 6 June and were approximately 5,000 and 15,000 eggs/1,000m³ for channel and non-channel stations, respectively. In the Lower Bay and the Upper Bay, egg densities were generally higher in the non-channels compared to channels. Average weekly egg densities of EFH (winter flounder and windowpane) and important non-EFH (Atlantic menhaden) species were generally higher in the Lower Bay.

The high weekly densities generally resulted from large collections of bay anchovy eggs in both channel and non-channel areas. Maximum monthly average catches of 40,382 and 27,099 bay anchovy eggs/1,000m³ occurred in Arthur Kill/Newark Bay channel and non-channel stations, respectively (Table 3-3a). Bay anchovy monthly densities were also high in the Upper Bay and Lower Bay during June, with just under 8,000 in channels and approximately 13,000 eggs/1,000m^3 in non-channels. In addition, there were relatively large collections of Atlantic menhaden eggs in all regions during June (peak of just over 1,000 eggs/1,000 m³ at Lower Bay non-channel stations).

Wrasse eggs were also collected in large numbers in both channel and non-channel areas of all three Harbor regions, with the mean monthly density peaks of just over 900 eggs/1,000 m³ at Lower Bay and Upper Bay non-channel stations and at 878, 575, and 522 eggs/1,000 m³ at Lower Bay, Upper Bay and Arthur Kill/Newark Bay channel stations, respectively during June. Windowpane collections in the Upper Bay and Lower Bay were high in May and June, with the peak average monthly egg densities occurring in the Lower Bay channel and non-channels during May (420 and 329 eggs/1,000 m³, respectively) and a peak of 263 at Upper Bay non-channel stations during June.

Fewer eggs were collected during the winter and early spring months, American sandlance eggs were collected in high numbers at Lower Bay non-channel stations during January (peak mean monthly density of 687 eggs/1,000 m³), while winter flounder eggs were collected primarily from the Lower Bay non-channel stations in February (peak monthly average of 260 eggs/1,000 m³). At channel stations, winter flounder average monthly egg densities peaked at 51 eggs/1,000 m³ in the Lower Bay during March.

EFH and important non-EFH species comprised 8.0% (n=10,923) of the total egg collection (n=135,776) during the 2011 ichthyoplankton survey (Table 3-2). The collection of eggs from EFH and important non-EFH species was dominated by winter flounder from January to April in the Lower Bay and Upper Bay, while lower densities of winter flounder eggs were collected in the Arthur Kill/Newark Bay in February and March. No winter flounder eggs were collected in the Arthur Kill/Newark Bay during January and very few were collected in April (Table 3-3a and

Figures 3-1a and 3-1b). In April and June, windowpane eggs were common, and dominated the EFH and important non-EFH species grouping in May. Windowpane eggs were most abundant in the Lower Bay followed by the Upper Bay; few were collected in the Arthur Kill/Newark Bay (only from channel stations).

3.1.2 Yolk-sac Larvae

A total of 12,167 yolk-sac larvae from 15 taxa of finfish were collected in the Harbor during 2011 (Table 3-2). The majority of yolk-sac larvae collected were American sandlance (n=11,698 collected, 96.1% of the catch) followed by winter flounder (n=320 collected, 2.6%), rock gunnel (n=36, 0.3%), Atlantic menhaden (n=34, 0.3%), white perch (n=25; 0.2%), grubby (n=23, 0.2%), seasnails and snailfishes (n=14; 0.1%), and windowpane (n=6; 0.05%). The remaining taxa each representing less than 0.05 percent of the total collection (Table 3-2).

Average weekly densities of yolk-sac larvae were generally higher in non-channel and channel stations of the Lower Bay followed by channel stations in the Upper Bay compared to generally low densities in Upper Bay non-channel stations and lower catches at both station types in the Arthur Kill/Newark Bay (Figures 3-2a and 3-2b). Peak weekly yolk-sac larval densities of approximately 4,250 and 3,750 larvae/1,000m^3 at non-channel and channel stations, respectively, occurred in the Lower Bay during the week of 17 January. These high densities were due to large collections of American sandlance yolk-sac larvae (Table 3-3b). American sandlance yolk-sac larvae were also collected in high densities (approximately 1,700 larvae/1,000m^3) at Upper Bay channel stations the week of 17 January. EFH yolk-sac larvae densities were highest in early March at non-channel stations in the Upper Bay (73 larvae/1,000m^3), followed by the Lower Bay non-channel stations and were comprised soley of winter flounder yolk-sac larvae.

EFH and important non-EFH species comprised 3% (n=360 of 12,167) of the total yolk-sac larvae collection during the 2011 ichthyoplankton survey (Table 3-2, Figures 3-2a and 3-2b). The collections of yolk-sac larvae of EFH and important non-EFH species were high in all regions during March and April due to winter flounder catches. No EFH and important non-EFH

species yolk-sac larvae were collected from the Arthur Kill/Newark Bay in January, February, and May and from the Upper Bay in February and May.

3.1.3 Post Yolk-sac Larvae

A total of 5,724 post yolk-sac larvae from 25 taxa of finfish were collected in the Harbor during ABS ichthyoplankton sampling in 2011 (Table 3-2). The majority of post yolk-sac larvae collected were winter flounder (n=3,692 collected, 64.5% of the catch), followed by grubby (n=933, 16.3%), bay anchovy (n=200, 3.5%), Atlantic menhaden (n=157, 2.7%), northern pipefish (n=153; 2.7%), gobies (n=152, 2.6%), rock gunnel (n=113; 2%), and windowpane (n=71; 1.2%). The remaining 17 taxa represent approximately 0.4 percent of the total collection.

Peak average weekly densities of post yolk-sac larvae occurred at non-channel stations in the Lower Bay and Upper Bay during the week of 4 April, with approximately 500 post yolk-sac larvae/1,000m³ collected in each region (Figure 3-3a and 3-3b). The same week, Upper Bay channel stations peaked with an average weekly density of 479 post yolk-sac larvae/1,000m³ (Figure 3-3a). Peak average weekly densities occurred at channel stations in the Lower Bay during the week of 18 April, with 439 post yolk-sac larvae/1,000m³. Arthur Kill/Newark Bay peak densities of 444 larvae/1,000m³ occurred in non-channel stations during the week of 6 June (Figure 3-3b), compared to weekly densities at channel stations that remained at or below 100 larvae/1,000m^3 through the sample period (Figure 3-3a).

The high post yolk-sac larvae densities from late March through April at non-channel stations in the Lower Bay and Upper Bay were due primarily to winter flounder (Table 3-3c). Winter flounder were the most common species of post yolk-sac larvae collected from April to mid May in both channel and non-channel areas in the Harbor. Maximum monthly average catches of 354 post yolk-sac winter flounder larvae/1,000m³ occurred in Lower Bay non-channel stations in April, and were followed by 243 post yolk-sac winter flounder larvae/1,000m³ at Upper Bay channel stations during April (Table 3-3c). Post yolk-sac larval densities were high at channel stations of the Upper Bay and Lower Bay (232 and 221, respectively) during April, and were due primarily to winter flounder densities. The high densities at Lower Bay channel stations continued through May, primarily due to the continued collection of winter flounder post yolk-

sac larval. Grubby post yolk-sac larvae densities were also high during this period and they also contributed to these high densities in March and April at all three Harbor regions.

In the Arthur Kill/Newark Bay, peak densities of about 450 larvae/1,000m^3 occurred in non-channel stations during the week of 6 June and was due primarily to high collections of bay anchovy and northern pipefish with Atlantic menhaden, gobies and herring contributing to the high post yolk-sac larval densities. Channel densities were slightly higher the week of 6 June than in other sample weeks due to the same species, with just over 100 larvae/1,000m^3. High densities of about 280 post yolk-sac larvae/1,000m^3 occurred the week of 4 April at non-channel stations primarily due to collections of winter flounder. Arthur Kill/Newark Bay channel stations had densities of about 100 larvae/1,000m^3 post yolk-sac larvae during the week of 4 April at channel stations primarily due to collections of winter flounder.

EFH and important non-EFH species comprised 69.2% (n=3,960) of the total post yolk-sac larvae collection during 2011 (Table 3-2, Figures 3-3a and 3-3b). EFH and important non-EFH species collected as post yolk-sac larvae included Atlantic herring, summer flounder, windowpane, winter flounder and Atlantic menhaden. Summer flounder was the only EFH and important non-EFH species collected in January and were collected in Upper Bay channels and Lower Bay non-channels; in February they were collected from Arthur Kill/Newark Bay channels and Upper Bay and Lower Bay non-channels. Except for the Arthur Kill/Newark Bay in March, when Atlantic herring were the dominate species collected, the collection of EFH and important non-EFH species post yolk-sac larvae was dominated from March through May by winter flounder in all three regions and both station types. Arthur Kill/Newark Bay channel and non-channel collections of EFH and important non-EFH species in June were dominated by Atlantic menhaden, as were Lower Bay collections and Upper Bay non-channel collections. Upper Bay channels were dominated by windowpane in June. In June, windowpane was also common in Lower Bay channels and was present in Upper Bay and Lower Bay non-channel habitats.

3.1.4 Juveniles

A total of 34 juveniles from six taxa of finfish were collected in the Harbor during ABS ichthyoplankton sampling in 2011 (Table 3-2). The majority of juveniles collected were grubby

(n=17 collected, 50% of the catch), followed by Atlantic tomcod (n=6, 17.6%), rock gunnel (n=5, 14.7%), and two (5.9%) of each of the following: windowpane, smallmouth flounder, and northern pipefish.

Peak average weekly densities for juveniles occurred during the week of 18 April at channel and non-channel stations in the Lower Bay, with just over 15 and 4 juveniles/1,000m^3, respectively (Figures 3-4a and 3-4b and Table 3-3d). These peak densities resulted from catches of grubby and rock gunnel. Atlantic tomcod juveniles were collected the week of 23 May at Arthur Kill/Newark Bay channel stations (3 juveniles/1,000m^3).

EFH and important non-EFH species comprised 5.9% (n=2 of 34) of the total juvenile collection during the 2011 ABS ichthyoplankton survey (Table 3-2). Windowpane was the only EFH and important non-EFH species collected. Windowpane juveniles were collected in channel areas of the Upper Bay and Arthur Kill/Newark Bay in March. (Table 3-3d).

3.2 WINTER FLOUNDER

Winter flounder eggs, yolk-sac and post-yolk sac larvae were collected throughout the Harbor at both channel and non-channel stations during the 2011 ABS Program (Table 3-2). No juvenile winter flounder were collected during the 2011 ABS Program.

3.2.1 Winter Flounder Eggs

A total of 1,553 viable and 15 non-viable winter flounder eggs were collected during 2011 ichthyoplankton sampling in the Harbor. The majority of viable eggs were collected in the 16 Lower Bay stations (n=1,488; 95.8%), followed by the 6 Upper Bay stations (n=58; 3.7%) and the 6 Arthur Kill/Newark Bay stations (n=7; 0.4%) (Table 3-2). Within each region, eggs were collected primarily at non-channel stations (Table 3-3a). Eggs were first collected in mid January at Upper and Lower Bay channel (SB-4, LB-14) and non-channel (PJ-2, LB-1, LB-5, LB-8, LB-16) stations and the last eggs were collected in mid April at Lower Bay channel (LB-2) and non-channel station (LB-1, LB-16, LB-18, LB-19) (Figures 3-5a and 3-5b; Table 3-4a).

Winter flounder eggs were collected predominantly in February at non-channel stations of the Lower Bay (monthly average density = 260 eggs/1,000m³) and densities in March and April were high (89 and 81 eggs/1,000m³, respectively) (Table 3-3a). Peak Lower Bay channel monthly densities during February and March were 40 and 51 eggs/1,000m³, respectively (Table 3-3a). The two highest Upper Bay monthly densities of 28 and 23 eggs/1,000m³ were collected during February and March, respectively, at non-channel stations. No eggs were collected from Upper Bay channel stations in March or April. Arthur Kill/Newark Bay peak monthly density was 9 eggs/1,000m^3, collected at non-channel stations during March.

Figures 3-5a and 3-5b depict weekly winter flounder egg densities by stage. All five egg stages were collected between mid February to early April in Lower Bay non-channel stations and during mid-February to mid-March at Lower Bay channel stations. All five egg stages were collected in the Upper Bay during early March at non-channel stations and all egg stages except Stage 4 were collected the previous sample week, during mid February. Three egg stages (Stage 2 in mid January and Stages 3 and 5 in mid February) were collected at Upper Bay channel stations. Four egg stages (Stage 1 in mid February and Stages 2, 4, and 5 the week of 21 March) were collected at Arthur Kill/Newark Bay non-channel stations, while only egg stage (Stage 4 in early April) was collected at Arthur Kill/Newark Bay channel stations (Figures 3-5a and 3-5b). Within the Arthur Kill/Newark Bay, winter flounder eggs were only collected during one of the 10 weeks of sampling at channel stations (week of 4 April) and two of the 10 weeks at non-channel stations (14 February and 21 March; Figures 3-5a and 3-5b).

Table 3-4a provides greater detail on the densities by egg stage collected at each station, and which stations contributed the greatest to egg density. During 2011, the highest sample densities (721 and 271 eggs/1,000m³) of Stage 1 eggs were collected on 14 February 2011 at LB- 12 and LB-13, respectively and on 7 March 2011 at LB-21 (252 eggs/1,000m³) (Table 3-4a). The highest densities for all egg stages (2,998 and 1,250 eggs/1,000m³) were collected on 14 February 2011 at LB- 12 and LB-13, respectively and on 4 April at LB-21 (1,494 eggs/1,000m³) followed by LB-21 (1,023 eggs/1,000m³) on 7 March 2011. The 15 non-viable eggs were all collected in the Lower Bay on 31 January from non-channel station LB-13 (Table 3-4a).

3.2.2 Winter Flounder Yolk-sac Larvae

A total of 320 winter flounder yolk-sac larvae (Stage 1 larvae) were collected during the 2011 ichthyoplankton sampling in the Harbor. The majority were collected from the 16 Lower Bay stations (n=155; 52.7%) and 6 Upper Bay stations (n=112; 35%) and 53 (16.6%) were collected from the 6 Arthur Kill/Newark Bay stations (Table 3-2). Winter flounder yolk-sac larvae were collected from mid-January to early May with peak occurrence in non-channel stations of the Upper Bay during March (73 larvae/1,000m³) and peak occurrence in the Lower Bay at non-channel areas during March (average monthly density of 22 larvae/1,000m³) (Table 3-3b). Average monthly densities in Upper and Lower Bay channel stations were ≤10 larvae/1,000 m³. Peak average monthly density in the Arthur Kill/Newark Bay occurred in April at channel stations (15 larvae/1,000m³); the high non-channel station density (4 larvae/1,000m³) also occurred in April.

Figures 3-6a and 3-6b depict weekly winter flounder larval densities by stage. Winter flounder yolk-sac larvae (Larval Stage 1) were first collected in very low densities during the week of 17 January in channel areas of the Upper Bay (Table 3-4b). Peak collections of yolk-sac larvae (around 125 larvae/1,000m³) occurred during the week of 7 March at non-channel stations of the Upper Bay. Yolk-sac larvae densities were highest the week of 7 March at Lower Bay non-channel stations and the week of 4 April at Arthur Kill/Newark Bay channel stations (about 40 and 20/1,000m³, respectively). Except for Lower Bay non-channel station LB-12 collection density of 5 larvae/1,000m³ the week of 2 May 2011, no winter flounder yolk-sac larvae were collected after the week of 18 April 2011.

During 2011, the highest sample densities of yolk-sac larvae were all collected on 7 March 2011 at PJ-1 (400 larvae/1,000m³), followed by LB-16 (175 larvae/1,000m³), and LB-5 (171 larvae/1,000m³) (Table 3-4b).

3.2.3 Winter Flounder Post Yolk-sac Larvae

A total of 3,692 winter flounder post yolk-sac larvae (Stages 2 - 4 larvae) were collected during 2011 ichthyoplankton sampling in the Harbor. The majority of which were collected in the 16 Lower Bay stations (n=2,708; 73.3%), followed by the 6 Upper Bay stations (n = 712; 19.3%)

and the 6 Arthur Kill/Newark Bay stations (n=272; 7.4%) (Table 3-2). Winter flounder post yolk-sac larvae were collected primarily from March through May with peak densities occurring in April (Table 3-3c). The highest densities were recorded in April in the Lower Bay and Upper Bay at non-channel stations (354 and 243 larvae/1,000m³, respectively) and during April at Upper Bay and Lower Bay channel stations (232 and 221 larvae/1,000m³, respectively). Relatively high densities were also recorded at Lower Bay channel stations in May (187 larvae/1,000m³). Arthur Kill/Newark Bay densities peaked at non-channel stations in April (116 larvae/1,000m³) and at channel stations (50 larvae/1,000m³) in May.

Figures 3-6a and 3-6b depict weekly winter flounder larval densities by stage. Winter flounder post yolk-sac larvae were first collected in low density during the week of 7 March in channel and non-channel areas of the Harbor. Peak collections occurred the week of 4 April in the Upper Bay (approximately 420 and 460 larvae/1,000m³ at channel and non-channel stations, respectively) and at non-channel areas of the Lower Bay and Arthur Kill/Newark Bay (approximately 400 and 220 larvae/1,000m³ respectively). The peak Lower Bay non-channel density was followed by a density of over 300 larvae/1,000m³ the week of 18 April. Densities in Upper Bay channel and non-channel stations and Arthur Kill/Newark Bay non-channel stations were not preceded or followed by high densities. The peak channel collections occurred in the Lower Bay during the week of 18 April (approximately 380 larvae/1,000m³) and remained high the weeks of 2 and 16 May 2011 (approximately 250 larvae/1,000m³). In the Arthur Kill/Newark Bay the peak channel collection of approximately 65 larvae/1,000m³ occurred the week of 2 May 2011 and was preceded by high densities the weeks of 4 and 18 April 2011 (just over 40 larvae/1,000m³). The majority of the post yolk-sac larvae collected in the Harbor were Stage 3 larvae in both channel and non-channel areas.

Table 3-4b provides greater detail on the winter flounder densities by larval stage collected at each station, and which stations contributed the greatest to post yolk-sac larval density. During 2011, the highest sample densities of Stage 2 post yolk-sac larvae were collected the week of 4 April 2011 at SB-4 (116 larvae/1,000m³), followed by LB-8 (95 larvae/1,000m³), and LB-5 (85 larvae/1,000m³) (Table 3-2b). Most post yolk-sac larvae were Stage 3 with the highest sample densities collected the week of 4 April 2011 at LB-8 (1,403 larvae/1,000m³), followed by SB-3

(1,137 larvae/1,000m³), and SB-4 (1,004 larvae/1,000m³) which was exceeded by LB-12 during the week of 18 April 2011 with 1,016 larvae/1,000m³. Few Stage 4 post yolk-sac larvae were collected, the highest density occurred during the week of 23 May 2011 at AK-4 (61 larvae/1,000m³, followed by LB-4 the week of 16 May (38 larvae/1,000m³) and at SB-5 the week of 23 May 2011 with 32 larvae/1,000m³. Stage 4 larvae were primarily collected at channel stations.

3.2.4 Length Frequency of Winter Flounder Larvae

A total of 1,850 winter flounder larvae were measured during 2011 (Figures 3-7a and 3-7b), and raw length data are available in Appendix B. Non-channel stations had higher collections of smaller larvae, while channels had high frequencies of both large and small larvae. Larval average length was at least 1 mm larger for channel stations compared to non-channel stations. Average larval lengths varied among the regions. For channel and non-channel collections, lengths were smaller in the Upper Bay (6.40 and 5.25 mm, respectively), compared to the larger average lengths for channel and non-channel collections from the Lower Bay (7.33 and 5.74 mm, respectively). The Arthur Kill/Newark Bay mean lengths were intermediate to these at 6.57 and 5.39 mm for channel and non-channel collections, respectively.

As would be expected, Stage 1 larvae generally measured smallest, followed by higher stages regardless of station type or region. However, the larval stages were not exclusive to a size range, and often had some overlap with other stages. Stage 3 larvae exhibited the largest length range of 3 – 10 mm and overlapped the Stage 1 and 2 length ranges of 3 – 4 mm (the smallest range) and the Stage 4 length range of 7 – 10 mm (the second largest length range). In each region, larvae collected at channel stations exhibited a bimodal distribution (i.e., two peaks of relatively similar magnitude) compared to non-channel collections that were predominantly unimodal.

3.3 WATER QUALITY DATA

Mean monthly bottom water temperatures by Harbor region from mid-January through early June ranged from 1.9 to 17.8° C during the 2011 ABS survey (Figure 3-8). Temperatures were low from mid January through February and gradually increased during March and April

followed by rapid temperature increases in May to highs in early June. Both the lowest and highest mean monthly temperatures occurred in the Arthur Kill/Newark Bay region, during February and June, respectively. Bottom water temperatures were similar in all regions during mid January, but in the Arthur Kill/Newark Bay temperatures were slightly lower during February and slightly higher from March through early June than in the other regions of the Harbor. The mean monthly temperatures in the Lower Bay were similar to the Upper Bay during February and March, but consistently lower than the other two regions from April through early June. The Upper Bay was generally intermediate in monthly mean temperature, except during March when Upper Bay temperatures were slightly lower than the other regions.

Mean monthly bottom water salinity recorded in parts per thousand (ppt) during the 2011 ABS Program ranged from 15.1 to 27.6 ppt (Figure 3-8). Salinities were consistently lowest in the Arthur Kill/Newark Bay and highest in the Lower Bay throughout the season. In all three regions, mean monthly salinities were similar during January and February, decreased in March, remaining about the same in April followed by a decrease in May with an increase in salinities in early June. The highest monthly average salinities were in the Lower Bay (approximately 27.6 ppt) recorded in January, and closely followed by February also in Lower Bay. The lowest salinities were collected in the Arthur Kill/Newark Bay (approximately 15 ppt) during March through May (Figure 3-8).

Mean monthly dissolved oxygen in all three regions ranged from 6.35 in Arthur Kill/Newark Bay in June to 13.06 mg/L in Lower Bay during February (Figure 3-8). Trends in bottom water dissolved oxygen levels were similar across the three Harbor regions, gradually decreasing from highs in February to lows in early June 2011 as water temperatures increased (Figure 3-8). Mean monthly dissolved oxygen in all three regions remained between approximately 9 and 13 mg/L from January through April, and then decreased to between 6 and 8 mg/L for the three regions during May and June (Figure 3-8).

Water quality data are available in Appendix C.

4.0 DISCUSSION

The Aquatic Biological Survey provides a valuable source of finfish abundance and distribution data for the NY/NJ Harbor. While the systematic sampling design and the consistent sampling locations allow for comparisons between years, the adaptive nature of the Program has also allowed the Program to evolve to provide pertinent data on depth distributions and habitat characteristics for evaluation by local and regional resource managers.

Prior to 2007, for example, winter flounder larvae were identified into two stages (yolk-sac and post yolk-sac). In 2007 and subsequent years, winter flounder larvae were identified to one of four developmental stages. In 2008, eight new sampling locations were added in the Lower Bay to better define the spatial distribution of winter flounder across a range of water depths. Also in 2008, a new winter flounder egg staging protocol was developed. Together, the egg and larval staging has been useful in providing a more refined indication of the proximity of the sample location to spawning and nursery areas and a clearer indication of where these critical habitats are located within the Harbor. Four new sampling locations were added in 2010, three of which were added in Lower Bay to quantify winter flounder abundance in deep non-channel areas compared to navigation channels. In 2011, shallow water sampling stations further from the channel areas were added in Lower Bay. The ichthyoplankton data collected from non-channel stations added in the last few years resulted in some of the highest egg densities collected over the years of the ABS Program.

Water quality and habitat characteristics throughout the Harbor affect the spatial and temporal distribution of finfish. The three Harbor regions defined in this study exhibit different water quality, currents, depth distributions and sediment conditions. Water temperatures are generally similar in the three regions during the winter months and the warmest water temperatures occur in the Arthur Kill/Newark Bay region during the spring and into early summer (April to July). The Arthur Kill/Newark Bay region also has some of the coolest bottom temperatures in January and the most variable and lowest salinities overall. While the Lower Bay has the highest and least variable salinities, bottom temperatures in this region tend to be less variable. The Arthur Kill/Newark Bay and, to a lesser extent, the Upper Bay salinities and temperatures are influenced by freshwater flows from the Raritan, Passaic, Hackensack and Hudson Rivers. During 2011,

high spring freshwater flows influenced salinities in these regions. Dissolved oxygen concentrations are generally similar throughout the regions over the sampling period.

The bottom substrate in the Arthur Kill/Newark Bay region is dominated by fine-grained sediments consisting of silts, often in association with clay and fine sands, while the Lower Bay is comprised primarily of sand, including gravelly sand in the vicinity of the contract areas in Ambrose Channel. The Upper Bay is transitional with a range from silt by the inshore areas to gravelly sand dominating the central areas of Upper Bay and south of Kill Van Kull to the Narrows. The Arthur Kill/Newark Bay and Upper Bay regions are comprised of a larger percentage of maintained deep channels and berthing areas compared to the Lower Bay, which is dominated by shallows/shoals with a smaller percentage of maintained channel areas.

4.1 ALL SPECIES

Early life stage (ichthyoplankton collections of egg, larval and juvenile life stages) densities during the 2011 ABS Program varied spatially and temporally, and the species composition was typical of estuaries within the Middle Atlantic Bight (Able and Fahay 2010). This includes resident species as well as anadromous, semi-anadromous and transitory species. Many species spawn in the Harbor seasonally, while others spawn offshore on the continental shelf or upstream in the Harbor tributaries. This seasonality and preference for different spawning habitat influences the occurrence and density of the ichthyoplankton species collected during the sampling Program.

Early life stage (ichthyoplankton collections of egg, larval and juvenile life stages) densities vary spatially and temporally, depending on abiotic conditions. In 2011, 135,776 eggs, 18,247 larvae and 34 juveniles (total catch of 154,057) of 30 taxa were collected during the ichthyoplankton sampling program.

Species that spawn in the Harbor, such as bay anchovy, were generally represented by high egg and larval densities during their seasonal spawning period (May and June), while the eggs and larvae of river herring, American shad, and Atlantic tomcod were not collected because these species migrate through the Harbor to primary spawning habitats in the middle reaches of the

Hudson River. Atlantic Herring, Atlantic croaker, and American sandlance spawn in marine waters, and some of their eggs and larvae move into the harbor. Atlantic menhaden have an extended spawning period, and although spawning primarily occurs over the inner continental shelf, some spawning also occurs in the lower portions of bays and estuaries (Able and Fahay 2010). Eggs and larvae of resident species such as windowpane, searobin, goby, grubby, rock gunnel, wrasse (blackfish & cunner) are collected in varying densities, where collections are dependent on spawning period, location, buoyancy of their eggs, and depth selection of their larvae.

The following sections discuss the results of a few of the more commonly collected EFH and important non-EFH species in NY/NJ Harbor. Trends in the collection of winter flounder are discussed in more detail in Section 4.2.

4.1.1 Essential Fish Habitat Species and Important Non-EFH Species (Eggs and Larvae)

Early life stages of winter flounder (eggs and larvae) and windowpane (eggs and larvae) have been consistently collected over the years of the ABS Program, and generally in high numbers due to the bottom-oriented collection gear. Other species, such as Atlantic herring and summer flounder, are represented by few early life stages (primarily post yolk sac larvae) and generally few individuals. Important non-EFH species that are consistently collected in ABS ichthyoplankton samples include Atlantic menhaden (eggs and larvae). Atlantic menhaden and windowpane are discussed in the following.

4.1.1.1 Important Non-EFH Species - Atlantic menhaden

Atlantic menhaden represent an important prey species for many other species of fish and have historically constituted one of the largest commercial fisheries by weight in the United States (Rogers and Van Den Avyle 1989). Atlantic menhaden occur along the Atlantic coast from the Gulf of Maine to Florida. It is a schooling species that spawns primarily offshore over the inner continental shelf (Able and Fahay 2010). Seasonal migrations during the spring and fall reportedly coincide with changes in water temperature with spawning occurring over the inner continental shelf across most months (Able and Fahay 2010). Their pelagic eggs and larvae are

transported into estuaries, which serve as a nursery grounds during the summer, and declining water temperatures in the fall cue juveniles to migrate to offshore to overwinter (Able and Fahay 2010).

Atlantic menhaden eggs and larvae are generally abundant or common in ichthyoplankton collections. In 2011, Atlantic menhaden eggs (total n=6,421) were collected during May and June at both channel and non-channel stations in all three regions of the Harbor. Peak densities occurred in June at non-channel stations in the Lower Bay and to a lesser extent in the Upper Bay non-channel stations followed by channel stations; the lowest densities occurred in the Arthur Kill/Newark Bay region. Yolk-sac larvae (total n=34) and post yolk-sac larvae (total n=157) were collected primarily during June from all three Harbor Regions. ABS sampling ended in early June 2011 and therefore, Atlantic menhaden larvae and juveniles were not sampled during the summer and fall, when peak abundances would be expected.

4.1.1.2 EFH Species - Windowpane

Windowpane flounder occur at most depths in estuaries of the Mid-Atlantic Bight with juveniles and adults seasonally most abundant in deeper channels occurring over mud or fine-grained sand (Chang *et al.* 1999). Spawning occurs February to December, with a spring-spawning event (peak in May) in the polyhaline portion of estuaries and a fall-spawning event (peak in October) in offshore waters of the continental shelf. Eggs and larvae are concentrated in the mid to upper water column, and juveniles and adults prefer bottom habitats of mud or fine-grained sand. Larvae are pelagic, settling to the bottom at approximately 10-20 mm TL, and occur in the brackish portion of the estuary, primarily in spring (Able and Fahay 2010). Juveniles, adults and spawning adults are typically found on bottom habitats with water temperatures below 21°C, salinity between 5-36 ppt and water depths between 1-75 meters.

Windowpane eggs are generally common in ichthyoplankton collections. In 2011, windowpane eggs (total n=2,949) were collected from April through June primarily at Lower Bay channel and non-channel stations, however eggs were found in all three regions of the Harbor, with lower densities in the Arthur Kill/Newark Bay region. Peak egg densities occurred in May at channel and non-channel stations in the Lower Bay and remained high into June, primarily non-channel

stations of the Lower Bay followed by channel stations in the Upper Bay and Lower Bay; the lowest densities occurred in the Arthur Kill/Newark Bay. Yolk-sac larvae (total n=6) and post yolk-sac larvae (total n=71) were also collected primarily during June in the Upper Bay and Lower Bay. ABS sampling ended in early June 2011 before peak densities of windowpane larvae would be expected to occur in the Harbor.

4.2 WINTER FLOUNDER

As a valuable commercial and recreational species, winter flounder has remained a species of importance to local and regional resource managers. Winter flounder are traditionally managed as three separate stocks: The Gulf of Maine, Southern New England/Mid-Atlantic, and Georges Bank, which was once considered a separate species (Able and Fahay 2010). Recent assessments of the Southern New England/Mid-Atlantic stock have noted declines in commercial landings and recreational catches since the mid-1980s (ASMFC 1998, Vonderweidt *et al*. 2006). Other studies in the region, such as the Niantic River Estuary winter flounder surveys, have also shown steady declines in winter flounder abundances since the 1970s (MEL 2008). Northeast Fisheries Science Center (NEFSC) groundfish indices for the southern New England/mid-Atlantic (SNE/MA) stock complex of winter flounder (1964 to 2007) have shown a consistent decline since hitting a near historic peak of 11,176 metric tons in commercial landings in 1981 (NEFSC 2008). Commercial landings of winter flounder were below 2,000 metric tons from 2004 to 2007. As a valuable commercial and recreational species, winter flounder has remained a species of importance to local and regional resource managers. Recent population declines of winter flounder (ASMFC 1998, Vonderweidt et al. 2006, NEFSC 2008) have resulted in greater concerns for protection of winter flounder EFH, particularly of spawning and nursery habitats.

Except for the Georges Bank population, which may spawn at depths up to 45 meters, adult winter flounder have been documented to migrate inshore in the fall and early winter throughout most of its range (Able and Fahey 2010), typically spawning in very shallow water less than five meters (NMFS 1999, Brown *et al*. 2000). A recent study on the New York Bight intercontinental shelf suggests that not all winter flounder move to estuaries to spawn and some spawning may occur in nearshore areas on the intercontinental shelf (Wuenschel *et al.* 2009). DeCelles and

Cadrin (2010) documented a similar pattern of coastal spawning in the southern Gulf of Maine in Plymouth Bay.

Spawning individuals that move to estuarine waters are believed to spawn in shallow waters where conditions, such as low intensity tidal currents, favor limited movements of their demersal, adhesive eggs (Crawford and Carey 1985). Schultz *et al.* (2007) found that water depth (sampling occurred in depths less than six meters), sediment type, and currents were among the determining factors for winter flounder egg deposition. They found early stage eggs concentrated in low current areas. These areas in combination with the adhesive nature of the eggs would tend to maintain eggs where they were spawned. The yolk-sac larvae would then begin development in low current areas which would be beneficial for a life stage with limited mobility (Schultz *et al.* 2007).

Winter flounder eggs are generally common in ABS ichthyoplankton collections. In 2011, winter flounder eggs (total n=1,553) were collected from January through April primarily at Lower Bay channel and non-channel stations, however eggs were collected from all three regions of the Harbor. Peak densities occurred in February at non-channel stations in the Lower Bay and remained high into March in primarily non-channel stations followed by channel stations. The lowest eggs densities occurred in the Arthur Kill/Newark Bay, regardless of station type.

During 2011, spawning began by the middle of January in the Lower Bay and South Brooklyn area of the Upper Bay, and continued in some areas of the Harbor until just prior to the week of 4 April as indicated by high densities of Stage 1 and 2 eggs. However, spawning was essentially over by the end of March in much of the Lower Bay and after the week of 7 March in the Upper Bay. Generally, the most productive spawning locations, as evidenced by the highest densities, occurred in non-channel Lower Bay and were characteristically consistent with the literature (i.e., shallow, low-energy sites). One exception to this was the relatively high densities of early stage eggs collected at channel station LB-4 during the 21 March sampling period (Table 3-4a, Figure 3-5a). This sampling period occurred immediately following a super "perigee moon" (full moon phase at the moon's closest point of its 28-day elliptical orbit around earth), an event that occurs approximately every 18 years (NASA Science News March 16, 2011). The resultant

strong tidal currents in conjunction with spring pulses of snowmelt and rainfall flood waters created very strong non-storm currents (2.2 m/s) in the NY/NJ Harbor (Stevens Institute of Technology, Hoboken, NJ) during this March 21-24 sampling period. Schultz *et al.* (2007) suggest that a minimum bottom current of 1 knot (0.514 m/s) is required to suspend winter flounder eggs in the water column where they have been collected by bongo nets. With the strong tidal currents during late March 2011, it is likely that early stage eggs collected at channel station LB-4 during this sampling period were transported from neighboring non-channel spawning habitat, where early stage eggs were consistently collected (stations LB-12 and LB-13, Table 3-4a).

Winter flounder larvae were collected in high densities during 2011, with peak average weekly densities near 400 and 500 larvae/1,000 m^3 in the Lower Bay and Upper Bay, respectively. Generally larval densities were similar between channel and non-channel station types in these regions, with the exception that early stage larvae (Stage 1 and 2) occurred in higher densities in non-channel stations. This pattern likely results from winter flounder's preference for shallow, non-channel spawning areas, leading to their relatively immobile early stage larvae also being collected in these areas.

In summary, the USACE-NYD Aquatic Biological Survey offers a comprehensive data source on the population structure and yearly habitat use of winter flounder in the NY/NJ Harbor. ABS Program results have been used to not only document winter flounder spawning over broad regional areas of the Harbor, but have also been used to highlight the inter-annual variability in the relative abundance and distribution of winter flounder adults and early life stages for use by local and regional administrators in better defining both seasonal dredging restrictions and winter flounder EFH (USACE 2010).

The occurrence of eggs and the subsequent collections of early stage yolk-sac larvae continues to be used in the ABS Program to identify potential spawning and nursery areas in the Harbor. Additional Program elements developed in recent years (i.e., larval life staging, egg staging, further categorization of station depths) have expanded and refined the assessment of timing and occurrence of early life stages. Findings from this more than decade-long Program combined

with important studies on winter flounder spawning, development, and habitat use provide a scientific foundation for making informed policy decisions to protect winter flounder resources in the NY/NJ Harbor.

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Table 1-1. Summary of federally designated EFH species in NY/NJ Harbor.

SPECIES	EGGS	LARVAE	NEONATE/ EARLY JUVENILES	JUVENILES	ADULTS	SPAWNING ADULTS
Atlantic herring (*Clupea harengus*)		**M.S**		**M.S**	**M.S**	
Atlantic mackerel (*Scomber scombrus*)	**M,S**	**M,S**		**M,S**	**M,S**	
Black sea bass (*Centropristus striata*)	**M,S**	**M,S**		**M,S**	**M,S**	
Bluefish (*Pomatomus saltatrix*)				**M,S**	**M,S**	
Butterfish (*Peprilus triacanthus*)	**M,S**	**M,S**		**M,S**	**M,S**	
Red hake *(Urophycis chuss*)		**M,S**		**M,S**	**M,S**	
Scup (*Stenotomus chrysops*)	**M,S**	**M,S**		**M,S**	**M,S**	
Summer flounder (*Paralicthys dentatus*)		**M,S**		**M,S**	**M,S**	
Windowpane (*Scopthalmus aquosus*)	**S**	**M,S**		**M,S**	**M,S**	**M,S**
Winter flounder (*Pseudopleuronectes americanus*)	**M,S**	**M,S**		**M,S**	**M,S**	**M,S**
Clearnose skate (*Raja eglanteria*)				**X**	**X**	
Little skate (*Leucoraja erinacea*)				**X**	**X**	
Winter skate (*Leucoraja ocellata*)				**X**	**X**	
Cobia (*Rachycentron canadum*)	**X**	**X**		**X**	**X**	
King mackerel (*Scomberomorus cavalla*)	**X**	**X**		**X**	**X**	
Spanish mackerel (*Scomberomorus maculatus*)	**X**	**X**		**X**	**X**	
Dusky shark (*Carcharhinus obscurus*)			**X**	**X**		
Sand tiger shark (*Odontaspis taurus*)			**X**		**X**	
Sandbar shark (*Carcharinus plumbeus*)			**X**		**X**	

Source: National Marine Fisheries Service (2007): Guide to Essential Fish Habitat Designation in the Northeastern United States – the Hudson River/Raritan/Sandy Hook Bays, New York/ New Jersey Harbor Estuary.

Legend: S = Includes the seawater salinity zone (salinity ≥ 25.0%)

M = Includes mixing water / brackish salinity zone (0.5‰ < salinity < 25.0‰)

F = Includes tidal freshwater salinity zone (0.0‰ < salinity < 0.5%)

X = Designated EFH but no salinity zone specified

Table 2-1. Description of stations sampled during the 2002 to 2011 Aquatic Biological Survey and the number of valid samples collected during the 2011 sampling program.

Area	Station Name	Type	Station Location	Published Depth (MLLW)*	Valid Samples Collected Ichthyo.
Arthur Kill	AK-1	Non-channel	Elizabeth Flats South	2	NS
	AK-2	**Channel**	**North of Shooter's Island Reach**	**42**	**10**
(3 Transects	**AK-3**	**Channel**	**Elizabeth Reach**	**43**	**10**
in 2011)	AK-4	Non-channel	Prall's Island	10	NS
	AK-7	Non-channel	Island of Meadows	7	NS
	AK-8	**Channel**	**North of Shooter's Island Reach West**	**43**	**9**
Newark Bay	NB–3	Non-channel	Newark Bay Flats Middle	8	NS
	NB–4	**Non-channel**	**Newark Bay Flats South**	**11**	**10**
(4 Transects in 2011)	NB–5	Channel	Newark Bay Middle Reach	34	NS
	NB–6	**Channel**	**Newark Bay South Reach**	**40**	**10**
	NB–7	**Non-channel**	**Elizabeth Flats North**	**4**	**9**
	NB–8	**Channel**	**Newark Bay North Reach Channel**	**34**	**10**
South Brooklyn	SB–1	Non-channel	Gowanus Bay Interpier South	19	NS
	SB–2	Non-channel	Gowanus Bay Interpier	24	NS
(4 Transects	**SB–3**	**Non-channel**	**Bay Ridge Flats**	**15**	**10**
in 2011)	**SB–4**	**Channel**	**Bay Ridge Channel**	**37**	**10**
	SB–5	**Channel**	**Anchorage Channel Middle**	**45**	**10**
	SB–6	**Channel**	**Anchorage Channel South**	**13**	**10**
	SB-7	Channel	Anchorage Channel Middle	43	NS
Port Jersey	**PJ–1**	**Non-channel**	**Jersey Flats**	**10**	**10**
	PJ–2	**Non-channel**	**Caven Point**	**8**	**10**
(2 Transects	PJ–3	Non-channel	Constable Hook	7	NS
in 2011)	PJ–4	Channel	Port Jersey Channel	42	NS
	PJ–5	Channel	Port Jersey Channel East	45	NS
Kill Van Kull	KVK-1	Channel	Entrance to KVK Channel (Sand)	46	NS
(0 Transects in 2011)	KVK-2	Channel	Entrance to KVK Channel (Silt)	50	NS
Lower	**LB–1**	**Non-channel**	**East Bank**	**14**	**10**
Bay	**LB–2**	**Channel**	**North End Ambrose Channel**	**37**	**10**
	LB–3	**Non-channel**	**Swash Channel Range**	**14**	**10**
(16 Transects	**LB–4**	**Channel**	**Chapel Hill South Channel**	**30**	**10**
in 2011)	**LB–5**	**Non-channel**	**Old Orchard Shoals**	**18**	**10**

Area	Station Name	Type	Station Location	Published Depth (MLLW)*	Valid Samples Collected Ichthyo.
Lower Bay (16 Transects in 2011)	**LB–6**	**Channel**	**Raritan Bay East Reach**	**38**	**10**
	LB-7	Non-channel	South of West Bank	27	NS
	LB-8	**Non-channel**	**West Bank Flat**	**8**	**10**
	LB-9	**Non-channel**	**West of Channel**	**22**	**10**
	LB-10	Non-channel	Anchorage west of Gravesend Bay	25	NS
	LB-11	Non-channel	Gravesend Bay Flats	15	NS
	LB-12	**Non-channel**	**West of Chapel Hill South Channel**	**23**	**10**
	LB-13	**Non-channel**	**East of Chapel Hill South Channel**	**16**	**10**
	LB-14	**Channel**	**Just north of Ambrose Channel**	**44**	**10**
	LBD-15	Non-Channel/Deep	Deep area west of East Bank	43	NS
	LB-16	**Non-Channel**	**South End of East Bank**	**18**	**10**
	LBD-17	Non-Channel/Deep	Deep area southeast of Romer Shoal	46	NS
	LB-18	**Non-channel**	**East end of East Bank**	**10**	**10**
	LB-19	**Non-channel**	**West end of East Bank**	**12**	**10**
	LB-20	**Non-channel**	**Romer Shoal**	**16**	**10**
	LB-21	**Non-channel**	**West end of Old Orchard Shoal**	**11**	**10**

Stations in BOLD represent those sampled during 2011 Sampling Program.
NS = Not Sampled
* Published depths of mean lower low water (MLLW) taken from NOAA Electronic Navigation Chart (ENC) data or the most recent USACE channel condition survey.

Table 2-2. Specifications of the epibenthic sled and plankton net used during the Aquatic Biological Survey.

Part	Specification
Mouth height x width	0.5 x 0.5 m
Overall length	3.0 m
Mesh size	0.5 mm
Cod-end diameter	10.1 cm
Cod-end mesh	0.5 mm (PVC cod-end bucket)
Distance from sled base	Bottom of net is 17.8 cm above the bottom of the sled runners
Epibenthic sled	Constructed of welded aluminum.

Table 2-3. Water quality parameters measured during the Aquatic Biological Survey.

Water Quality Parameter	Units and Accuracy	Sample Depths
Temperature	+/- 0.2˚C	Bottom
Dissolved oxygen	+/- 0.5 mg/L	Bottom
Conductivity	+/- 100 µS/cm	Bottom
Salinity	+/- 0.1 ppt	Bottom

Table 3-1. Number of valid samples collected by gear and by month during the 2011 Aquatic Biological Survey.

Region	Station	1/17	1/24	1/31	2/14	3/7	3/21	4/4	4/18	5/2	5/16	5/23	6/6
Arthur Kill/ Newark Bay	AK-2	I		I*	I	I	I	I	I	I		I	I
	AK-3	I		I*	I	I	I	I	I	I		I	I
	AK-8			I*	I	I	I	I	I	I		I	I
	NB-4	I		I*	I	I	I	I	I	I		I	I
	NB-6	I		I*	I	I	I	I	I	I		I	I
	NB-7	I		I*	I	I	I	I	I	I		I	
	NB-8	I		I*	I	I	I	I	I	I		I	I
Upper Bay	PJ-1	I		I	I	I	I	I	I	I		I	I
	PJ-2	I		I*	I	I	I	I	I	I		I	I
	SB-3	I		I	I	I	I	I	I	I		I	I
	SB-4	I		I	I	I	I	I	I	I		I	I
	SB-5		I	I*	I	I	I	I	I	I		I	I
	SB-6	I		I	I	I	I	I	I	I		I	I
Lower Bay	LB-1	I		I	I	I	I	I	I	I	I		I
	LB-2		I	I	I	I	I	I	I	I		I	I
	LB-3	I		I*	I	I	I	I	I	I		I	I
	LB-4	I		I*	I	I	I	I	I	I	I		I
	LB-5	I		I*	I	I	I	I	I	I	I		I
	LB-6	I		I*	I	I	I	I	I	I	I		I
	LB-8	I		I*	I	I	I	I	I	I		I	I
	LB-9	I		I	I	I	I	I	I	I		I	I
	LB-12		I	I*	I	I	I	I	I	I	I		I
	LB-13	I		I*	I	I	I	I	I	I	I		I
	LB-14	I		I	I	I	I	I	I	I		I	I
	LB-16	I		I	I	I	I	I	I	I	I		I
	LB-18		I	I	I	I	I	I	I	I	I		I
	LB-19		I	I	I	I	I	I	I	I	I		I
	LB-20		I	I*	I	I	I	I	I	I	I		I
	LB-21		I	I*	I	I	I	I	I	I	I		I

***Station sampled February 1 or 4, 2011.**

Table 3-2. Total number of eggs, yolk-sac, post yolk-sac, juveniles and unidentified larval stage collected by region at all stations during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Common Name	Life Stage	Region			Grand Total
		AKNB	UB	LB	
Essential Fish Habitat Species					
Atlantic herring	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	14	4	7	25
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	14	4	7	25
Summer flounder	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	3	2	10	15
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	3	2	10	15
Windowpane	Egg	24	229	2,696	2,949
	Yolk-sac	0	0	6	6
	Post yolk-sac	4	22	45	71
	Juvenile	1	0	1	2
	Unidentified larvae	0	0	0	0
	Total	29	251	2,748	3,028
Winter flounder	Egg	7	58	1,488	1,553
	Yolk-sac	53	112	155	320
	Post yolk-sac	272	712	2,708	3,692
	Juvenile	0	0	0	0
	Unidentified larvae	26	74	122	222
	Total	358	956	4,473	5,787
Sub-Total Essential Fish Habitat Species		404	1,213	7,238	8,855
Important Non-EFH Species					
Atlantic menhaden	Egg	352	899	5,170	6,421
	Yolk-sac	7	3	24	34
	Post yolk-sac	50	31	76	157
	Juvenile	0	0	0	0
	Unidentified larvae	0	6	23	29
	Total	409	939	5,293	6,641
Sub-Total Important Non-EFH Species		409	939	5,293	6,641
Other Species					
American sandlance	Egg	0	2	1,842	1,844
	Yolk-sac	263	1,431	10,004	11,698
	Post yolk-sac	1	3	30	34
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	264	1,436	11,876	13,576

Table 3-2. Total number of eggs, yolk-sac, post yolk-sac, juveniles and unidentified larval stage collected by region at all stations during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Common Name	Life Stage	Region			Grand Total
		AKNB	UB	LB	
Atlantic croaker	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	0	1	0	1
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	0	1	0	1
Atlantic silverside	Egg	0	0	0	0
	Yolk-sac	3	0	0	3
	Post yolk-sac	1	0	0	1
	Juvenile	0	0	0	0
	Unidentified larvae	1	0	0	1
	Total	5	0	0	5
Atlantic tomcod	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	17	2	4	23
	Juvenile	6	0	0	6
	Unidentified larvae	0	0	0	0
	Total	23	2	4	29
Bay anchovy	Egg	57,891	13,726	43,177	114,794
	Yolk-sac	0	0	0	0
	Post yolk-sac	44	27	129	200
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	57,935	13,753	43,306	114,994
Carp	Egg	0	0	0	0
	Yolk-sac	1	0	0	1
	Post yolk-sac	0	0	0	0
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	1	0	0	1
Cods	Egg	0	16	437	453
	Yolk-sac	0	0	0	0
	Post yolk-sac	0	0	0	0
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	0	16	437	453
Conger eel	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	0	0	10	10
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	0	0	10	10

Table 3-2. Total number of eggs, yolk-sac, post yolk-sac, juveniles and unidentified larval stage collected by region at all stations during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Common Name	Life Stage	Region			Grand Total
		AKNB	UB	LB	
Cunner	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	1	0	1	2
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	1	0	1	2
Fourbeard rockling	Egg	22	40	40	102
	Yolk-sac	0	0	0	0
	Post yolk-sac	1	5	10	16
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	23	45	50	118
Gobies	Egg	0	0	0	0
	Yolk-sac	0	0	1	1
	Post yolk-sac	22	0	130	152
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	22	0	131	153
Goosefish	Egg	0	0	0	0
	Yolk-sac	0	0	1	1
	Post yolk-sac	0	0	0	0
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	0	0	1	1
Grubby	Egg	0	0	0	0
	Yolk-sac	2	5	16	23
	Post yolk-sac	119	155	659	933
	Juvenile	0	0	17	17
	Unidentified larvae	0	0	0	0
	Total	121	160	692	973
Herrings	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	44	8	2	54
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	10	10
	Total	44	8	12	64
Herrings and anchovies	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	0	23	23	46
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	5	5
	Total	0	23	28	51

Table 3-2. Total number of eggs, yolk-sac, post yolk-sac, juveniles and unidentified larval stage collected by region at all stations during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Common Name	Life Stage	Region			Grand Total
		AKNB	UB	LB	
Northern pipefish	Egg	0	0	0	0
	Yolk-sac	1	1	0	2
	Post yolk-sac	68	14	71	153
	Juvenile	1	0	1	2
	Unidentified larvae	0	0	0	0
	Total	70	15	72	157
Northern puffer	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	1	0	0	1
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	1	0	0	1
Rock gunnel	Egg	0	0	0	0
	Yolk-sac	5	14	17	36
	Post yolk-sac	8	15	90	113
	Juvenile	0	0	5	5
	Unidentified larvae	1	0	0	1
	Total	14	29	112	155
Searobins	Egg	0	57	456	513
	Yolk-sac	0	0	0	0
	Post yolk-sac	0	0	0	0
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	0	57	456	513
Seasnails and snailfishes	Egg	0	0	0	0
	Yolk-sac	1	2	11	14
	Post yolk-sac	1	0	9	10
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	2	2	20	24
Smallmouth flounder	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	0	0	0	0
	Juvenile	1	1	0	2
	Unidentified larvae	0	0	0	0
	Total	1	1	0	2
Tautog	Egg	0	0	0	0
	Yolk-sac	0	0	2	2
	Post yolk-sac	3	2	6	11
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	3	2	8	13

Table 3-2. Total number of eggs, yolk-sac, post yolk-sac, juveniles and unidentified larval stage collected by region at all stations during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Common Name	Life Stage	Region			Grand Total
		AKNB	UB	LB	
Unidentifiable	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	1	0	0	1
	Juvenile	0	0	0	0
	Unidentified larvae	16	10	62	88
	Total	17	10	62	89
Weakfish	Egg	0	0	0	0
	Yolk-sac	0	0	0	0
	Post yolk-sac	1	0	0	1
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	1	0	0	1
White perch	Egg	0	0	0	0
	Yolk-sac	25	0	0	25
	Post yolk-sac	1	1	0	2
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	26	1	0	27
Wrasses	Egg	706	970	5,471	7,147
	Yolk-sac	0	0	0	0
	Post yolk-sac	0	0	0	0
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	706	970	5,471	7,147
Yellow perch	Egg	0	0	0	0
	Yolk-sac	1	0	0	1
	Post yolk-sac	0	0	0	0
	Juvenile	0	0	0	0
	Unidentified larvae	0	0	0	0
	Total	1	0	0	1
Sub-Total Other Species		59,281	16,531	62,749	138,561
Egg Total		***59,002***	***15,997***	***60,777***	***135,776***
Yolk-sac Total		***362***	***1,568***	***10,237***	***12,167***
Post Yolk-sac Total		***677***	***1,027***	***4,020***	***5,724***
Juvenile Total		***9***	***1***	***24***	***34***
Unidentified Larval Stage Total		***44***	***90***	***222***	***356***
Grand Total		***60,094***	***18,683***	***75,280***	***154,057***

Table 3-3a. Monthly average egg density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Channel Stations								
Species	**Region**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**Average**
Essential Fish Habitat Species								
Windowpane	AKNB				2.70	1.67	12.76	2.19
	UB				2.34	46.17	263.49	36.05
	LB				24.28	420.52	110.38	100.00
Winter flounder	AKNB				0.48			0.10
	UB	0.97	5.65					0.92
	LB	1.00	40.19	51.33	7.30			17.91
Important Non-EFH Species								
Atlantic Menhaden	AKNB						252.64	25.78
	UB					2.58	609.90	61.51
	LB					265.56	359.41	89.05
Other Species								
American sandlance	AKNB							
	UB							
	LB	3.66						0.55
Bay anchovy	AKNB					15.16	40382.33	4123.74
	UB					74.26	7832.64	798.12
	LB					200.62	7718.99	812.02
Cods	AKNB							
	UB			1.36		1.29	16.88	2.22
	LB		3.23		13.47	117.51	102.51	36.93
Fourbeard rockling	AKNB				12.14			2.48
	UB				17.26			3.45
	LB				7.53			1.51
Searobins	AKNB							
	UB					0.64	104.37	10.57
	LB					47.58	48.90	14.41
Wrasses	AKNB					1.01	522.19	53.49
	UB					21.25	575.28	61.78
	LB					555.94	878.45	239.07

Table 3-3a. Monthly average egg density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Non-Channel Stations

Species	Region	Jan	Feb	Mar	Apr	May	June	Average
Essential Fish Habitat Species								
Windowpane	AKNB							
	UB				1.55	2.86	27.00	3.58
	LB				34.30	329.29	168.30	89.55
Winter flounder	AKNB		1.86	8.53				2.19
	UB	3.52	28.04	23.11	0.92			9.95
	LB	7.93	259.97	88.60	80.74			76.15
Important Non-EFH Species								
Atlantic Menhaden	AKNB						163.25	8.59
	UB						878.08	87.81
	LB					414.75	1,045.63	187.51
Other Species								
American sandlance	AKNB							
	UB	3.00						0.40
	LB	686.92						97.31
Bay Anchovy	AKNB					3.30	27,099.01	1,426.96
	UB					15.43	12,935.58	1,296.64
	LB					625.65	13,484.98	1,473.63
Cods	AKNB							
	UB						6.75	0.67
	LB		0.34	0.47	6.03	20.95	23.26	7.87
Fourbeard rockling	AKNB				1.51			0.32
	UB				15.08			3.02
	LB			0.26	3.44	1.58		1.06
Searobins	AKNB							
	UB							
	LB					17.94	108.28	14.41
Wrasses	AKNB						163.25	8.59
	UB					0.69	917.91	91.93
	LB					384.40	929.98	169.88

Table 3-3b. Monthly average yolk-sac larval density (number/1,000 m3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Channel Stations

Species	Region	Jan	Feb	Mar	Apr	May	June	Average
Essential Fish Habitat Species								
Windowpane	AKNB							
	UB							
	LB						0.87	0.09
Winter flounder	AKNB			8.09	15.41			4.80
	UB	1.94		1.36	10.09			2.61
	LB			7.33				1.47
Important Non-EFH Species								
Atlantic menhaden	AKNB						3.85	0.39
	UB							
	LB						8.44	0.84
Other Species								
American sandlance	AKNB	71.86	62.04	3.72	1.47			19.59
	UB	812.04	93.34	5.79	5.40			150.03
	LB	2,125.95	170.81	25.70	3.13			350.28
Atlantic silverside	AKNB					1.20		0.24
	UB							
	LB							
Carp	AKNB					0.44		0.09
	UB							
	LB							
Gobies	AKNB							
	UB							
	LB				0.71			0.14
Goosefish	AKNB							
	UB							
	LB						1.46	0.15
Grubby	AKNB				1.12			0.23
	UB				1.59	0.96		0.51
	LB			2.63				0.53
Northern pipefish	AKNB					0.42		0.09
	UB							
	LB							
Rock gunnel	AKNB		1.35					0.28
	UB	1.61	8.34					1.38
	LB	1.50						0.23

Table 3-3b. Monthly average yolk-sac larval density (number/1,000 m3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Channel Stations								
Species	**Region**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**Average**
Seasnails and snailfishes	AKNB							
	UB				1.14			0.23
	LB				0.71			0.14
Tautog	AKNB							
	UB							
	LB						1.46	0.15
White perch	AKNB							
	UB							
	LB							
Yellow perch	AKNB				0.67			0.14
	UB							
	LB							

Table 3-3b. Monthly average yolk-sac larval density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Non-Channel Stations

Species	Region	Jan	Feb	Mar	Apr	May	June	Average
Essential Fish Habitat Species								
Windowpane	AKNB							
	UB							
	LB					0.40	1.34	0.21
Winter flounder	AKNB			1.40	4.11			1.16
	UB			73.26	7.66			16.19
	LB	0.28	1.58	21.89	9.70	0.22		6.65
Important Non-EFH Species								
Atlantic menhaden	AKNB						10.20	0.54
	UB						5.09	0.51
	LB						6.94	0.69
Other Species								
American sandlance	AKNB	64.54	62.20		2.97			20.51
	UB	281.54	59.28	5.98	6.49			49.91
	LB	2,061.23	290.82	51.24	8.31			349.96
Atlantic silverside	AKNB							
	UB							
	LB							
Carp	AKNB							
	UB							
	LB							
Gobies	AKNB							
	UB							
	LB							
Goosefish	AKNB							
	UB							
	LB							
Grubby	AKNB							
	UB			1.42				0.28
	LB			1.43	1.35			0.56
Northern pipefish	AKNB							
	UB						1.69	0.17
	LB							

Table 3-3b. Monthly average yolk-sac larval density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Rock gunnel	AKNB	2.81	1.86				0.69
	UB		5.81	0.92			1.15
	LB		3.72	0.66			0.72
Seasnails and snailfishes	AKNB				1.51		0.32
	UB						
	LB				2.03		0.41
Tautog	AKNB						
	UB						
	LB					0.37	0.04
White perch	AKNB				29.72		6.26
	UB						
	LB						
Yellow perch	AKNB						
	UB						
	LB						

Table 3-3c. Monthly average post yolk-sac larval density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Channel Stations								
Species	**Region**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**Average**
Essential Fish Habitat Species								
Atlantic herring	AKNB			3.51	2.63			1.25
	UB			1.39				0.28
	LB							
Summer flounder	AKNB		0.44	0.61				0.21
	UB	0.97						0.16
	LB							
Windowpane	AKNB						3.13	0.32
	UB					1.98	24.11	2.81
	LB					5.34	12.21	2.29
Winter flounder	AKNB			2.26	40.54	50.27		18.99
	UB			4.69	231.76	51.34		57.56
	LB			4.64	220.96	187.59		82.64
Important Non-EFH Species								
Atlantic menhaden	AKNB					2.21	25.17	3.02
	UB						12.61	1.26
	LB						51.62	5.16
Other Species								
American sandlance	AKNB			0.44				0.09
	UB							
	LB				3.40			0.68
Atlantic croaker	AKNB							
	UB							
	LB							
Atlantic silverside	AKNB					0.42		0.09
	UB							
	LB							
Atlantic tomcod	AKNB			2.22	2.29			0.92
	UB			0.62				0.12
	LB			1.57	0.71			0.46
Bay anchovy	AKNB						16.57	1.69
	UB						4.71	0.47
	LB						58.39	5.84
Conger eel	AKNB							
	UB							
	LB					6.88		1.38

Table 3-3c. Monthly average post yolk-sac larval density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Channel Stations								
Species	**Region**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**Average**
Cunner	AKNB						0.78	0.08
	UB							
	LB							
Fourbeard rockling	AKNB						0.72	0.07
	UB						8.26	0.83
	LB					0.69	4.07	0.54
Gobies	AKNB						7.10	0.72
	UB							
	LB				80.87		1.46	16.32
Grubby	AKNB		0.42	14.13	28.39	0.60		8.89
	UB		1.47	44.05	29.10	2.68		15.36
	LB			89.76	41.96	9.87		28.32
Herrings	AKNB						23.06	2.35
	UB							
	LB							
Herrings and anchovies	AKNB							
	UB						6.89	0.69
	LB						12.20	1.22
Northern pipefish	AKNB						36.64	3.74
	UB						8.25	0.82
	LB						21.45	2.15
Northern puffer	AKNB						0.78	0.08
	UB							
	LB							
Rock gunnel	AKNB			2.60	0.63			0.66
	UB		2.98	4.56	0.78			1.47
	LB	0.82	7.25	5.25	2.51	1.94		3.15
Seasnails and snailfishes	AKNB							
	UB							
	LB					2.26		0.45
Tautog	AKNB						0.80	0.08
	UB						1.68	0.17
	LB						3.20	0.32
Unidentifiable	AKNB				0.66			0.13
	UB							
	LB							

Table 3-3c. Monthly average post yolk-sac larval density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Channel Stations								
Species	**Region**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**Average**
Weakfish	AKNB						0.78	0.08
	UB							
	LB							
White Perch	AKNB					0.42		0.09
	UB					0.64		0.13
	LB							

Table 3-3c. Monthly average post yolk-sac larval density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Non-Channel Stations

Species	Region	Jan	Feb	Mar	Apr	May	June	Average
Essential Fish Habitat Species								
Atlantic herring	AKNB			2.71				0.57
	UB			0.73	0.87			0.32
	LB		0.90	0.93				0.33
Summer flounder	AKNB			1.71				0.36
	UB		1.54					0.26
	LB	0.71	2.44	0.48	0.22			0.63
Windowpane	AKNB							
	UB					1.38	3.00	0.58
	LB					2.22	6.15	1.06
Winter flounder	AKNB				115.88	8.03		26.09
	UB			38.80	243.23	10.85		58.58
	LB			60.81	353.66	27.13	0.43	88.36
Important Non-EFH Species								
Atlantic menhaden	AKNB						66.32	3.49
	UB						35.10	3.51
	LB						10.98	1.10
Other Species								
American sandlance	AKNB							
	UB			1.73	0.74			0.49
	LB			1.68	3.94			1.12
Atlantic croaker	AKNB							
	UB	1.26						0.17
	LB							
Atlantic silverside	AKNB							
	UB							
	LB							
Atlantic tomcod	AKNB			10.82				2.28
	UB			0.73				0.15
	LB			0.17				0.03
Bay anchovy	AKNB						117.33	6.18
	UB						35.82	3.58
	LB						36.27	3.63
Conger eel	AKNB							
	UB							
	LB							

Table 3-3c. Monthly average post yolk-sac larval density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Non-Channel Stations

Species	Region	Jan	Feb	Mar	Apr	May	June	Average
Cunner	AKNB							
	UB							
	LB						0.39	0.04
Fourbeard rockling	AKNB							
	UB							
	LB					0.43	1.14	0.20
Gobies	AKNB						66.32	3.49
	UB							
	LB			4.75	0.89			1.13
Grubby	AKNB			18.36	30.86			10.36
	UB			22.93	14.22	0.63		7.56
	LB		0.94	30.33	71.36	0.98		20.68
Herrings	AKNB						76.52	4.03
	UB						11.99	1.20
	LB						0.79	0.08
Herrings and anchovies	AKNB							
	UB						30.47	3.05
	LB						3.08	0.31
Northern pipefish	AKNB						107.13	5.64
	UB						11.08	1.11
	LB					0.25	19.19	1.97
Northern puffer	AKNB							
	UB							
	LB							
Rock gunnel	AKNB			1.35				0.28
	UB		1.54	1.59	0.87			0.75
	LB	1.56	15.71	3.71	1.05			3.66
Seasnails and snailfishes	AKNB					1.49		0.31
	UB							
	LB				0.86	0.40		0.25
Tautog	AKNB						10.20	0.54
	UB					0.74		0.15
	LB						1.25	0.12
Unidentifiable	AKNB							
	UB							
	LB							

Table 3-3c. Monthly average post yolk-sac larval density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Non-Channel Stations

Species	Region	Jan	Feb	Mar	Apr	May	June	Average
Weakfish	AKNB							
	UB							
	LB							
White perch	AKNB							
	UB							
	LB							

Table 3-3d. Monthly average juvenile density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Channel Stations

Species	Region	Jan	Feb	Mar	Apr	May	June	Average
Essential Fish Habitat Species								
Windowpane	AKNB			0.69				0.14
	UB							
	LB			0.79				0.16
Other Species								
Atlantic tomcod	AKNB					3.04		0.62
	UB							
	LB							
Grubby	AKNB							
	UB							
	LB				7.25			1.45
Northern pipefish	AKNB				0.55			0.11
	UB							
	LB							
Rock gunnel	AKNB							
	UB							
	LB				0.70			0.14
Smallmouth flounder	AKNB			0.47				0.10
	UB			0.69				0.14
	LB							

Table 3-3d. Monthly average juvenile density (number/1,000 m^3) by species for channel stations and non-channel stations in Arthur Kill/Newark Bay (AKNB), Upper Bay (UB), and Lower Bay (LB) during ichthyoplankton sampling for the 2011 Aquatic Biological Survey.

Non-Channel Stations

Species	Region	Jan	Feb	Mar	Apr	May	June	Average
Essential Fish Habitat Species								
Windowpane	AKNB							
	UB							
	LB							
Other Species								
Atlantic tomcod	AKNB							
	UB							
	LB							
Grubby	AKNB							
	UB							
	LB				1.98			0.40
Northern pipefish	AKNB							
	UB							
	LB				0.21			0.04
Rock gunnel	AKNB							
	UB							
	LB				0.84			0.17
Smallmouth flounder	AKNB							
	UB							
	LB							

Table 3-4a. Viable winter flounder egg (by stage E1 - E5) and non-viable winter flounder egg densities (eggs/1,000 m^3) listed by station and sampling date. Stations with multiple-stage egg collections that are indicative of spawning habitat (i.e., include both early and late stage eggs) are shaded.

Region	Station Type	Station	Date	Densities by Egg Stage (eggs/1,000 m^3)					Sum of Viable Egg Densities	Total Viable Eggs (n)	Non-Viable Egg Densities
				E1	E2	E3	E4	E5			
Arthur Kill/ Newark Bay	Channel	NB-7	14-Feb	7	0	0	0	0	7	1	0
	Non-channel	NB-7	21-Mar	0	14	0	14	7	34	5	0
		AK-8	4-Apr	0	0	0	5	0	5	1	0
Upper Bay	Channel	SB-4	17-Jan	0	0	0	0	5	5	1	0
		SB-4	14-Feb	0	17	6	0	0	23	4	0
	Non-channel	PJ-1	31-Jan	0	9	0	5	0	14	3	0
		PJ-2	14-Feb	23	74	23	0	6	126	22	0
		PJ-2	7-Mar	33	39	6	17	44	139	25	0
		SB-3	17-Jan	0	7	0	7	0	14	2	0
		SB-3	4-Apr	0	0	0	6	0	6	1	0
Lower Bay	Channel	LB-2	14-Feb	6	58	29	47	0	140	24	0
		LB-2	7-Mar	0	0	5	0	0	5	1	0
		LB-2	18-Apr	0	8	0	8	0	17	2	0
		LB-4	31-Jan	0	13	0	0	0	13	2	0
		LB-4	14-Feb	19	25	19	19	6	88	14	0
		LB-4	21-Mar	82	189	50	44	6	371	59	0
		LB-4	4-Apr	0	6	0	17	6	28	5	0
		LB-6	4-Apr	0	0	0	0	14	14	3	0
		LB-14	17-Jan	0	0	0	0	6	6	1	0
		LB-14	21-Mar	0	9	9	18	0	35	4	0
	Non-channel	LB-1	17-Jan	0	6	0	0	0	6	1	0
		LB-1	14-Feb	0	85	23	6	0	113	20	0
		LB-1	7-Mar	0	0	0	9	0	9	2	0
		LB-1	21-Mar	6	0	0	6	6	17	3	0
		LB-1	4-Apr	0	0	0	9	5	14	3	0
		LB-1	18-Apr	0	0	0	5	0	5	1	0
		LB-3	21-Mar	0	4	4	0	0	8	2	0
		LB-3	4-Apr	0	0	0	6	0	6	1	0
		LB-5	17-Jan	0	6	0	0	0	6	1	0
		LB-5	14-Feb	0	24	0	0	0	24	2	0
		LB-5	7-Mar	0	6	0	0	0	6	1	0
		LB-5	21-Mar	0	0	0	5	0	5	1	0
		LB-8	17-Jan	0	0	0	0	5	5	1	0
		LB-8	31-Jan	11	11	0	0	0	21	4	0
		LB-8	14-Feb	0	18	0	6	0	24	4	0
		LB-8	7-Mar	0	0	12	0	0	12	2	0
		LB-8	21-Mar	0	32	20	24	4	80	20	0
		LB-9	31-Jan	0	0	0	6	0	6	1	0
		LB-9	14-Feb	0	10	0	0	5	14	3	0

Table 3-4a. Viable winter flounder egg (by stage E1 - E5) and non-viable winter flounder egg densities (eggs/1,000 m^3) listed by station and sampling date. Stations with multiple-stage egg collections that are indicative of spawning habitat (i.e., include both early and late stage eggs) are shaded.

Region	Station Type	Station	Date	Densities by Egg Stage (eggs/1,000 m^3)					Sum of Viable Egg Densities	Total Viable Eggs (n)	Non-Viable Egg Densities
				E1	E2	E3	E4	E5			
Lower Bay	Non-Channel	LB-9	7-Mar	0	5	0	15	0	21	4	0
		LB-12	24-Jan	17	0	0	0	0	17	3	0
		LB-12	31-Jan	0	0	5	0	0	5	1	0
		LB-12	14-Feb	721	973	343	790	172	2,998	349	0
		LB-12	21-Mar	6	6	0	0	6	19	3	0
		LB-13	31-Jan	15	10	5	15	0	46	9	15
		LB-13	14-Feb	271	462	127	271	119	1,250	157	0
		LB-13	7-Mar	0	7	0	7	0	14	2	0
		LB-13	21-Mar	5	11	0	0	0	16	3	0
		LB-13	4-Apr	0	5	0	19	5	28	6	0
		LB-16	17-Jan	0	0	9	5	14	28	6	0
		LB-16	31-Jan	16	0	0	0	0	16	3	0
		LB-16	7-Mar	17	93	52	245	70	478	82	0
		LB-16	21-Mar	0	27	18	0	5	50	11	0
		LB-16	4-Apr	0	24	5	20	5	54	11	0
		LB-16	18-Apr	0	41	23	14	14	92	20	0
		LB-18	24-Jan	6	0	0	0	0	6	1	0
		LB-18	14-Feb	5	89	42	84	5	225	43	0
		LB-18	7-Mar	11	85	5	128	59	288	54	0
		LB-18	21-Mar	0	10	0	5	5	20	4	0
		LB-18	4-Apr	0	27	16	43	21	107	20	0
		LB-18	18-Apr	0	16	26	32	0	74	14	0
		LB-19	24-Jan	15	10	5	0	0	30	6	0
		LB-19	31-Jan	9	0	0	0	5	14	3	0
		LB-19	14-Feb	6	69	40	23	0	138	24	0
		LB-19	7-Mar	0	0	0	42	0	42	8	0
		LB-19	21-Mar	0	0	11	0	0	11	2	0
		LB-19	18-Apr	0	34	10	10	5	58	12	0
		LB-20	14-Feb	0	25	0	0	0	25	4	0
		LB-20	7-Mar	0	5	0	0	0	5	1	0
		LB-20	4-Apr	0	0	0	6	0	6	1	0
		LB-21	14-Feb	32	24	0	0	0	56	7	0
		LB-21	7-Mar	0	160	65	508	290	1,023	141	0
		LB-21	21-Mar	0	0	0	4	0	4	1	0
		LB-21	4-Apr	252	705	295	189	53	1,494	284	0

Table 3-4b. Winter flounder larval (by stage ST1 - ST4) and unidentified winter flounder larval stages (larvae/1,000 m^3) listed by station and sampling date. Stations with multiple-stage larval collections are shaded.

Region	Station Type	Station	Date	Densities by Larval Stage (larvae/1,000 m^3)				Sum of Larval Densities	Total Larvae (n)	Total Unidentified Larval Stages (n)
				ST1	ST2	ST3	ST4			
Arthur Kill/ Newark Bay	**Channel**	AK-2	4-Apr	59	39	59	0	158	32	0
		AK-2	18-Apr	0	0	27	0	27	4	0
		AK-2	2-May	0	4	4	0	9	2	0
		AK-2	23-May	0	0	4	13	17	4	0
		AK-3	7-Mar	58	13	0	0	71	16	0
		AK-3	21-Mar	23	9	0	0	33	7	0
		AK-3	4-Apr	11	6	57	0	75	13	1
		AK-3	18-Apr	28	34	6	0	67	12	0
		AK-3	2-May	0	0	60	0	60	15	0
		AK-3	23-May	0	0	30	61	91	18	5
		AK-8	4-Apr	29	19	34	0	82	17	9
		AK-8	18-Apr	0	0	6	0	6	1	0
		AK-8	2-May	0	0	167	6	173	29	0
		AK-8	23-May	0	4	0	0	4	1	0
		NB-6	4-Apr	0	0	7	0	7	1	0
		NB-6	18-Apr	27	27	49	0	102	23	0
		NB-6	2-May	0	0	5	0	5	1	0
		NB-6	23-May	0	0	9	28	38	8	1
		NB-8	18-Apr	0	8	28	0	36	9	3
		NB-8	2-May	0	0	87	6	93	15	0
		NB-8	23-May	0	0	13	0	13	3	0
	Non-channel	NB-4	7-Mar	6	0	0	0	6	1	0
		NB-4	4-Apr	16	55	367	0	439	80	0
		NB-4	18-Apr	0	0	5	0	5	1	1
		NB-4	2-May	0	5	5	0	9	2	0
		NB-4	23-May	0	0	5	0	5	1	0
		NB-7	4-Apr	0	0	30	0	30	5	5
		NB-7	18-Apr	0	0	6	0	6	1	1
		NB-7	2-May	0	12	6	0	18	3	0
Upper Bay	**Channel**	SB-4	17-Jan	10	0	0	0	10	2	0
		SB-4	21-Mar	8	12	12	0	33	8	2
		SB-4	4-Apr	51	116	1004	0	1,171	252	6
		SB-4	18-Apr	0	0	51	0	51	11	0

Table 3-4b. Winter flounder larval (by stage ST1 - ST4) and unidentified winter flounder larval stages (larvae/1,000 m^3) listed by station and sampling date. Stations with multiple-stage larval collections are shaded.

Region	Station Type	Station	Date	Densities by Larval Stage (larvae/1,000 m^3)				Sum of Larval Densities	Total Larvae (n)	Total Unidentified Larval Stages (n)
				ST1	ST2	ST3	ST4			
Upper Bay	**Channel**	SB-4	2-May	0	0	149	0	149	26	0
		SB-5	4-Apr	0	0	29	0	29	6	3
		SB-5	18-Apr	0	0	40	0	40	11	6
		SB-5	2-May	0	0	64	5	69	15	0
		SB-5	23-May	0	0	44	32	75	19	0
		SB-6	14-Feb	0	0	0	0	0	0	1
		SB-6	21-Mar	0	0	4	0	4	1	0
		SB-6	4-Apr	9	5	122	0	136	29	6
		SB-6	18-Apr	0	7	17	0	24	7	5
		SB-6	2-May	0	3	0	0	3	1	0
		SB-6	23-May	0	0	12	0	12	3	0
	Non-channel	PJ-1	7-Mar	400	16	0	0	415	80	0
		PJ-1	21-Mar	30	68	145	0	242	57	7
		PJ-1	4-Apr	0	0	85	0	85	19	0
		PJ-1	18-Apr	9	5	60	0	74	16	4
		PJ-1	2-May	0	0	9	0	9	2	0
		PJ-1	23-May	0	0	18	0	18	4	0
		PJ-2	7-Mar	6	0	0	0	6	1	0
		PJ-2	21-Mar	4	0	0	0	4	1	2
		PJ-2	4-Apr	37	21	141	0	199	38	10
		PJ-2	18-Apr	0	0	6	0	6	1	4
		PJ-2	2-May	0	0	30	0	30	5	0
		PJ-2	23-May	0	0	5	0	5	1	0
		SB-3	21-Mar	0	0	5	0	5	1	11
		SB-3	4-Apr	0	0	1137	0	1,137	205	0
		SB-3	18-Apr	0	0	4	0	4	1	7
		SB-3	2-May	0	4	0	0	4	1	0
Lower Bay	**Channel**	LB-14	4-Apr	0	11	159	0	170	48	3
		LB-14	18-Apr	0	7	104	0	111	32	0
		LB-14	2-May	0	0	60	0	60	10	0
		LB-14	23-May	0	0	39	11	51	9	2
		LB-2	21-Mar	0	0	7	0	7	2	2
		LB-2	4-Apr	0	0	22	0	22	6	0
		LB-2	18-Apr	0	0	900	0	900	109	0

Table 3-4b. Winter flounder larval (by stage ST1 - ST4) and unidentified winter flounder larval stages (larvae/1,000 m^3) listed by station and sampling date. Stations with multiple-stage larval collections are shaded.

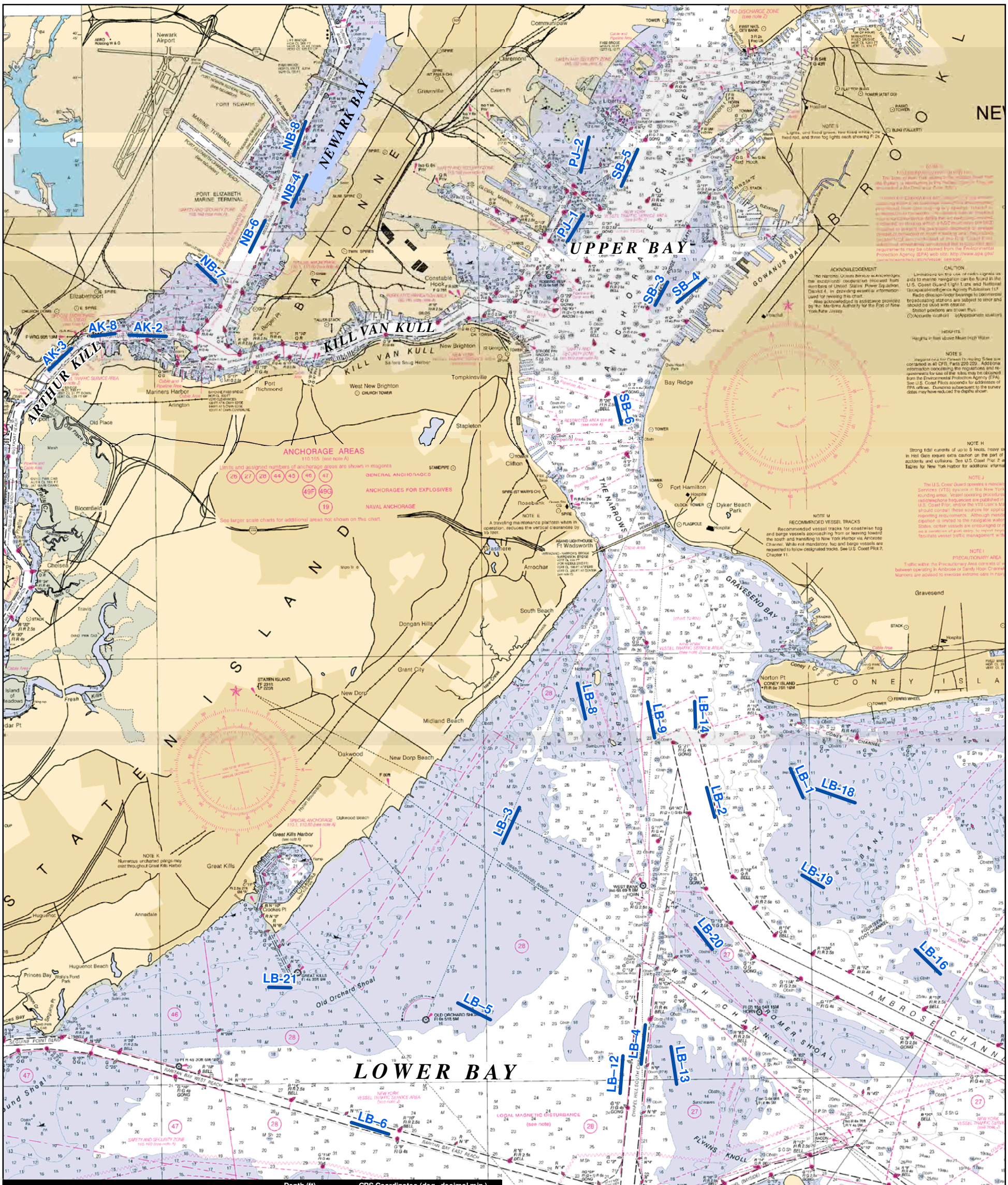
Region	Station Type	Station	Date	Densities by Larval Stage (larvae/1,000 m^3)				Sum of Larval Densities	Total Larvae (n)	Total Unidentified Larval Stages (n)
				ST1	ST2	ST3	ST4			
Lower Bay	Channel	LB-2	2-May	0	6	33	0	39	7	0
		LB-2	23-May	0	0	6	0	6	1	1
		LB-4	7-Mar	36	7	0	0	43	6	0
		LB-4	21-Mar	0	0	6	0	6	1	0
		LB-4	4-Apr	0	0	17	0	17	3	0
		LB-4	18-Apr	0	0	56	0	56	10	0
		LB-4	2-May	0	0	804	0	804	155	0
		LB-4	16-May	0	0	473	38	511	93	1
		LB-6	21-Mar	0	0	8	0	8	2	4
		LB-6	7-Mar	23	9	0	0	32	7	0
		LB-6	4-Apr	0	5	59	0	63	14	0
		LB-6	18-Apr	0	0	429	0	429	107	0
		LB-6	2-May	0	0	31	0	31	9	0
Lower Bay	Non-channel	LB-1	21-Mar	6	34	218	0	257	46	0
		LB-1	4-Apr	56	61	336	0	453	97	0
		LB-1	18-Apr	0	0	187	0	187	38	0
		LB-1	2-May	0	5	44	0	49	10	0
		LB-3	14-Feb	9	0	0	0	9	1	0
		LB-3	7-Mar	11	0	0	0	11	2	0
		LB-3	21-Mar	25	0	50	0	76	18	2
		LB-3	4-Apr	0	0	148	0	148	25	0
		LB-3	18-Apr	14	33	415	0	462	99	0
		LB-3	23-May	0	0	24	0	24	4	0
		LB-5	7-Mar	171	22	0	0	193	35	0
		LB-5	21-Mar	10	25	50	0	86	17	4
		LB-5	4-Apr	57	85	576	0	718	152	0
		LB-5	18-Apr	0	0	176	0	176	41	0
		LB-5	2-May	0	5	64	0	69	13	0
		LB-5	16-May	0	0	24	0	24	5	0
		LB-8	7-Mar	0	6	0	0	6	1	0
		LB-8	4-Apr	22	95	1403	0	1,521	271	4
		LB-8	18-Apr	0	0	249	0	249	54	0
		LB-8	2-May	0	7	21	0	28	8	1
		LB-9	21-Mar	0	8	38	0	46	11	0

Table 3-4b. Winter flounder larval (by stage ST1 - ST4) and unidentified winter flounder larval stages (larvae/1,000 m^3) listed by station and sampling date. Stations with multiple-stage larval collections are shaded.

Region	Station Type	Station	Date	Densities by Larval Stage (larvae/1,000 m^3)				Sum of Larval Densities	Total Larvae (n)	Total Unidentified Larval Stages (n)
				ST1	ST2	ST3	ST4			
Lower Bay	Non-channel	LB-9	4-Apr	0	5	251	0	257	47	26
		LB-9	18-Apr	0	0	560	0	560	89	0
		LB-9	2-May	0	0	10	0	10	3	5
		LB-12	7-Mar	52	0	0	0	52	5	0
		LB-12	21-Mar	0	0	6	0	6	1	0
		LB-12	4-Apr	56	72	414	0	542	106	0
		LB-12	18-Apr	0	0	1016	0	1,016	201	0
		LB-12	2-May	5	5	141	0	151	29	0
		LB-12	16-May	0	0	55	0	55	10	0
		LB-13	14-Feb	8	0	0	0	8	1	0
		LB-13	7-Mar	21	14	0	0	35	5	0
		LB-13	21-Mar	0	0	37	0	37	7	15
		LB-13	4-Apr	0	0	233	0	233	49	8
		LB-13	18-Apr	0	0	239	0	239	54	0
		LB-13	2-May	0	0	41	0	41	10	0
		LB-13	16-May	0	0	15	0	15	3	0
		LB-16	7-Mar	175	12	0	0	187	32	0
		LB-16	21-Mar	0	0	9	0	9	2	1
		LB-16	4-Apr	0	0	215	0	215	44	10
		LB-16	18-Apr	0	0	258	0	258	56	0
		LB-16	2-May	0	0	32	0	32	7	0
		LB-16	16-May	0	0	10	0	10	2	1
		LB-18	21-Mar	0	0	120	0	120	24	0
		LB-18	4-Apr	0	0	75	0	75	14	3
		LB-18	18-Apr	0	0	95	0	95	18	0
		LB-18	2-May	0	0	10	0	10	2	0
		LB-18	16-May	0	0	6	0	6	1	0
		LB-19	31-Jan	5	0	0	0	5	1	0
		LB-19	7-Mar	42	0	0	0	42	8	0
		LB-19	21-Mar	0	11	291	0	303	54	2
		LB-19	4-Apr	22	31	244	0	297	67	0
		LB-19	18-Apr	0	0	126	0	126	26	0
		LB-19	16-May	0	0	18	0	18	3	0
		LB-19	2-May	0	0	25	0	25	5	0

Table 3-4b. Winter flounder larval (by stage ST1 - ST4) and unidentified winter flounder larval stages (larvae/1,000 m^3) listed by station and sampling date. Stations with multiple-stage larval collections are shaded.

Region	Station Type	Station	Date	Densities by Larval Stage (larvae/1,000 m^3)				Sum of Larval Densities	Total Larvae (n)	Total Unidentified Larval Stages (n)
				ST1	ST2	ST3	ST4			
Lower Bay	**Non-channel**	LB-19	6-Jun	0	0	5	0	5	1	0
		LB-20	14-Feb	13	0	0	0	13	2	0
		LB-20	7-Mar	14	28	0	0	41	9	0
		LB-20	21-Mar	0	74	405	0	479	104	6
		LB-20	4-Apr	0	0	197	0	197	31	8
		LB-20	18-Apr	0	0	226	0	226	45	0
		LB-20	16-May	0	0	5	0	5	1	0
		LB-21	21-Mar	0	0	0	0	0	0	2
		LB-21	4-Apr	5	5	237	0	247	47	0
		LB-21	18-Apr	0	0	225	0	225	42	0
		LB-21	2-May	0	0	83	0	83	16	0



Area	Station Name	Type	Station Location	Depth (ft) Average Sampling Depth	Depth (ft) Published Depth* (MLLW)	GPS Coordinates (deg., decimal min.) Flood Start North	Flood Start West	Ebb Start North	Ebb Start West
South Brooklyn (4 Transects in 2011)	SB–1	Non-channel	Gowanus Bay Interpier South	23	19	40 39.45	74 00.86	40 39.56	74 01.05
	SB–2	Non-channel	Gowanus Bay Interpier	28	24	40 39.60	74 00.48	40 39.75	74 00.75
	SB–3	**Non-channel**	**Bay Ridge Flats**	**19**	**15**	**40 39.36**	**74 02.09**	**40 39.09**	**74 02.29**
	SB–4	**Channel**	**Bay Ridge Channel**	**40**	**37**	**40 39.38**	**74 01.51**	**40 39.12**	**74 01.95**
	SB–5	**Channel**	**Anchorage Channel North**	**53**	**45**	**40 40.92**	**74 02.53**	**40 40.49**	**74 02.79**
	SB–6	**Channel**	**Anchorage Channel South**	**48**	**46**	**40 38.01**	**74 02.92**	**40 37.70**	**74 02.83**
	SB-7	Channel	Anchorage Channel Middle	52	43	40 40.33	74 02.39	40 39.90	74 02.64
Port Jersey (2 Transects in 2011)	**PJ–1**	**Non-channel**	**Jersey Flats**	**13**	**10**	**40 40.16**	**74 03.38**	**40 39.85**	**74 03.63**
	PJ–2	**Non-channel**	**Caven Point**	**12**	**8**	**40 41.07**	**74 03.28**	**40 40.66**	**74 03.41**
	PJ–3†	Non-channel	Constable Hook	9	7	40 39.74	74 04.79	40 39.53	74 04.33
	PJ–4	Channel	Port Jersey Channel	43	42	40 40.15	74 04.56	40 39.90	74 04.06
	PJ–5	Channel	Port Jersey Channel East	40	45	40 39.76	74 03.98	40 39.54	74 03.53
Newark Bay (4 Transects in 2011)	NB–3	Non-channel	Newark Bay Flats Middle	8	8	40 41.36	14:07.3	40 40.99	74 07.55
	NB–4	**Non-channel**	**Newark Bay Flats South**	**9**	**11**	**40 40.66**	**74 07.63**	**40 40.29**	**74 07.87**
	NB–5	Channel	Newark Bay Middle Reach	46	34	40 40.77	74 07.88	40 40.38	74 08.09
	NB–6	**Channel**	**Newark Bay South Reach**	**49**	**40**	**40 40.13**	**74 08.28**	**40 39.76**	**74 08.52**
	NB–7†	**Non-channel**	**Elizabeth Flats North**	**10**	**4**	**40 39.62**	**74 09.33**	**40 39.41**	**74 09.05**
	NB–8	**Channel**	**Channel**	**44**	**34**	**40 41.29**	**74 07.64**	**40 40.89**	**74 07.83**
Arthur Kill (3 Transects in 2011)	AK-1	Non-channel	Elizabeth Flats South	24	2	40 38.84	74 10.58	40 38.85	74 10.13
	AK-2	**Channel**	**North of Shooter's Island Reach**	**43**	**42**	**40 38.80**	**74 10.39**	**40 38.78**	**74 09.82**
	AK-3	**Channel**	**Elizabeth Reach**	**44**	**43**	**40 38.65**	**74 11.28**	**40 38.40**	**74 11.63**
	AK-4	Non-channel	Prall's Island	15	10	40 36.83	74 11.91	40 36.24	74 11.82
	AK-7	Non-channel	Island of Meadows	15	9	40 34.59	74 12.49	40 34.70	74 12.47
	AK-8	**Channel**	**North of Shooter's Island Reach (West)**	**48**	**43**	**40 38.79**	**74 10.96**	**40 38.82**	**74 10.61**

Area	Station Name	Type	Station Location	Depth (ft) Average Sampling Depth	Depth (ft) Published Depth* (MLLW)	GPS Coordinates (deg., decimal min.) Flood Start North	Flood Start West	Ebb Start North	Ebb Start West
Kill Van Kull	KVK-1	Channel	Entrance to KVK Channel (Sand)	51	46	40 38.95	74 04.34	40 38.86	74 04.05
	KVK-2	Channel	Entrance to KVK Channel (Silt)	53	50	40 38.96	74 03.91	40 38.80	74 03.61
Lower Bay (16 Transects in 2011)	**LB–1**	**Non-channel**	**East Bank**	**18**	**14**	**40 33.63**	**74 00.29**	**40 33.29**	**74 00.10**
	LB–2	**Channel**	**North End Ambrose Channel**	**49**	**37**	**40 33.42**	**74 01.58**	**40 33.07**	**74 01.46**
	LB–3	**Non-channel**	**Swash Channel Range**	**17**	**14**	**40 33.21**	**74 04.46**	**40 32.79**	**74 04.72**
	LB–4	**Channel**	**Chapel Hill South Channel**	**37**	**30**	**40 30.64**	**74 02.56**	**40 30.18**	**74 02.63**
	LB–5	**Non-channel**	**East end of Old Orchard Shoal**	**20**	**18**	**40 30.92**	**74 05.44**	**40 30.72**	**74 04.94**
	LB–6	**Channel**	**Raritan Bay East Reach**	**43**	**38**	**40 29.39**	**74 06.52**	**40 29.53**	**74 07.09**
	LB-7	Non-channel	South of West Bank	29	27	40 33.65	74 03.27	40 33.19	74 03.37
	LB-8	**Non-channel**	**West Bank Flat**	**13**	**8**	**40 34.66**	**74 03.55**	**40 34.24**	**74 03.43**
	LB-9	**Non-channel**	**West of Channel**	**29**	**22**	**40 34.01**	**74 02.37**	**40 34.43**	**74 02.47**
	LB-10	Non-channel	Anchorage west of Gravesend Bay	30	25	40 35.76	74 01.15	40 35.36	74 00.91
	LB-11	Non-channel	Gravesend Bay Flats	18	15	40 35.30	74 00.61	40 35.68	74 00.76
	LB-12	**Non-channel**	**West of Chapel Hill South Channel**	**26**	**23**	**40 30.28**	**74 02.91**	**40 29.84**	**74 02.96**
	LB-13	**Non-channel**	**East of Chapel Hill South Channel**	**20**	**16**	**40 30.38**	**74 02.17**	**40 29.94**	**74 02.09**
	LB-14	**Channel**	**Just north of Ambrose Channel**	**52**	**44**	**40 34.43**	**74 01.75**	**40 34.13**	**74 01.74**
	LBD-15	Non-channel/Deep	Deep area west of East Bank	47	43	40 32.77	74 00.86	40 33.19	74 00.98
	LB-16	**Non-Channel**	**South end of East Bank**	**21**	**18**	**40 31.20**	**73 58.02**	**40 31.49**	**73 58.40**
	LBD-17	Non-channel/Deep	Deep area southeast of Romer Shoal	50	46	40 28.93	73 54.83	40 29.08	73 55.31
	LB-18	**Non-channel/Shallow**	**East end of East Bank**	**12**	**10**	**40 33.39**	**73 59.91**	**40 33.22**	**73 59.30**
	LB-19	**Non-channel/Shallow**	**West end of East Bank**	**14**	**12**	**40 32.38**	**74 00.13**	**40 32.23**	**73 59.80**
	LB-20	**Non-channel/Shallow**	**Romer Shoal**	**19**	**16**	**40 31.78**	**74 01.78**	**40 31.52**	**74 01.52**
	LB-21	**Non-channel/Shallow**	**West end of Old Orchard Shoal**	**12**	**11**	**40 31.12**	**74 08.00**	**40 31.13**	**74 08.34**

Stations in BOLD represent those sampled during 2011
† Indicates station for which transect always begins at the Flood Start coordinates
* Published depths taken from NOAA Electronic Navigation Chart (ENC) data or the most recent USACE channel condition survey

Figure 2-1: USACE Aquatic Biological Survey
2011 Station Locations

0 2,000 4,000 Meters

\\Prl-srv3\gis_projects\201482_USACE - NEW YORK DISTRICT\0155013_USACE-DD 2011ABS PROGRAM-LAB\GIS\map_docs\mxd\WFReport_2011\2011SamplingStations_11x17_01052011.mxd

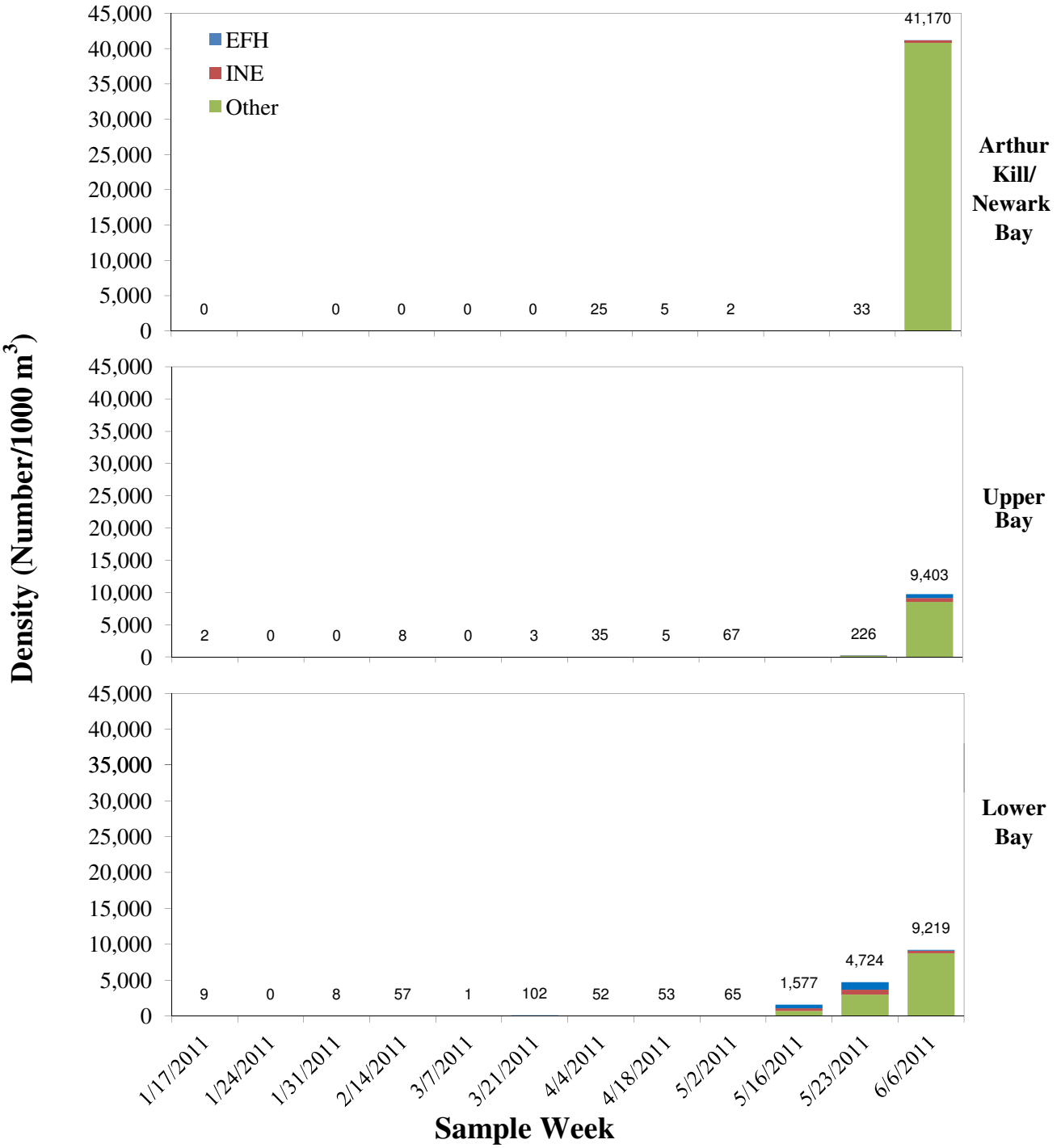


Figure 3-1a **Average weekly egg density at channel stations by Essential Fish Habitat (EFH), Important Non-EFH (INE), and Other species for the 2011 Aquatic Biological Survey**

Note: Weeks begin on Monday. Those weeks that are not shown were not sampled.

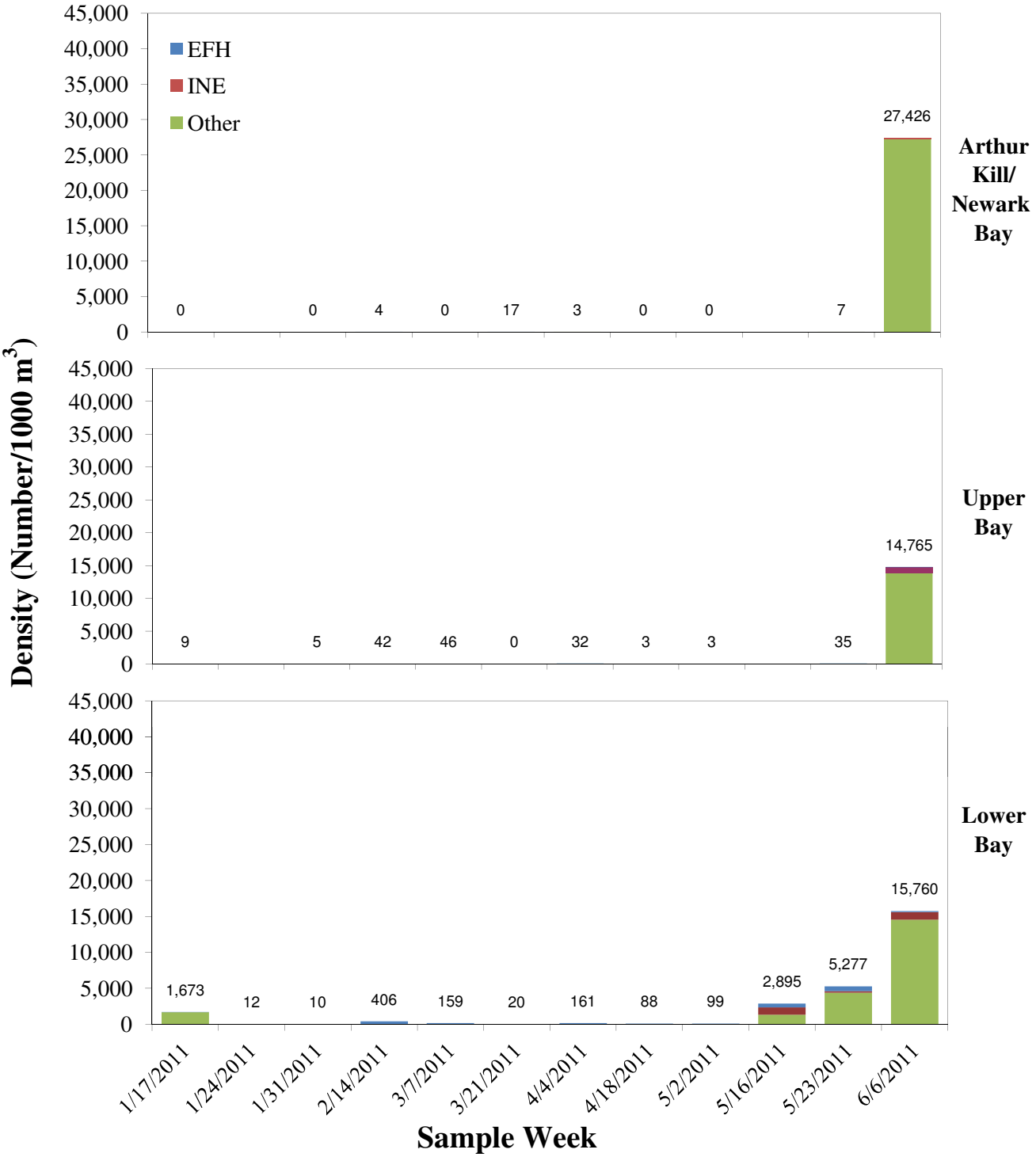


Figure 3-1b **Average weekly egg density at non-channel stations by Essential Fish Habitat (EFH), Important Non-EFH (INE), and Other species for the 2011 Aquatic Biological Survey**

Note: Weeks begin on Monday. Those weeks that are not shown were not sampled.

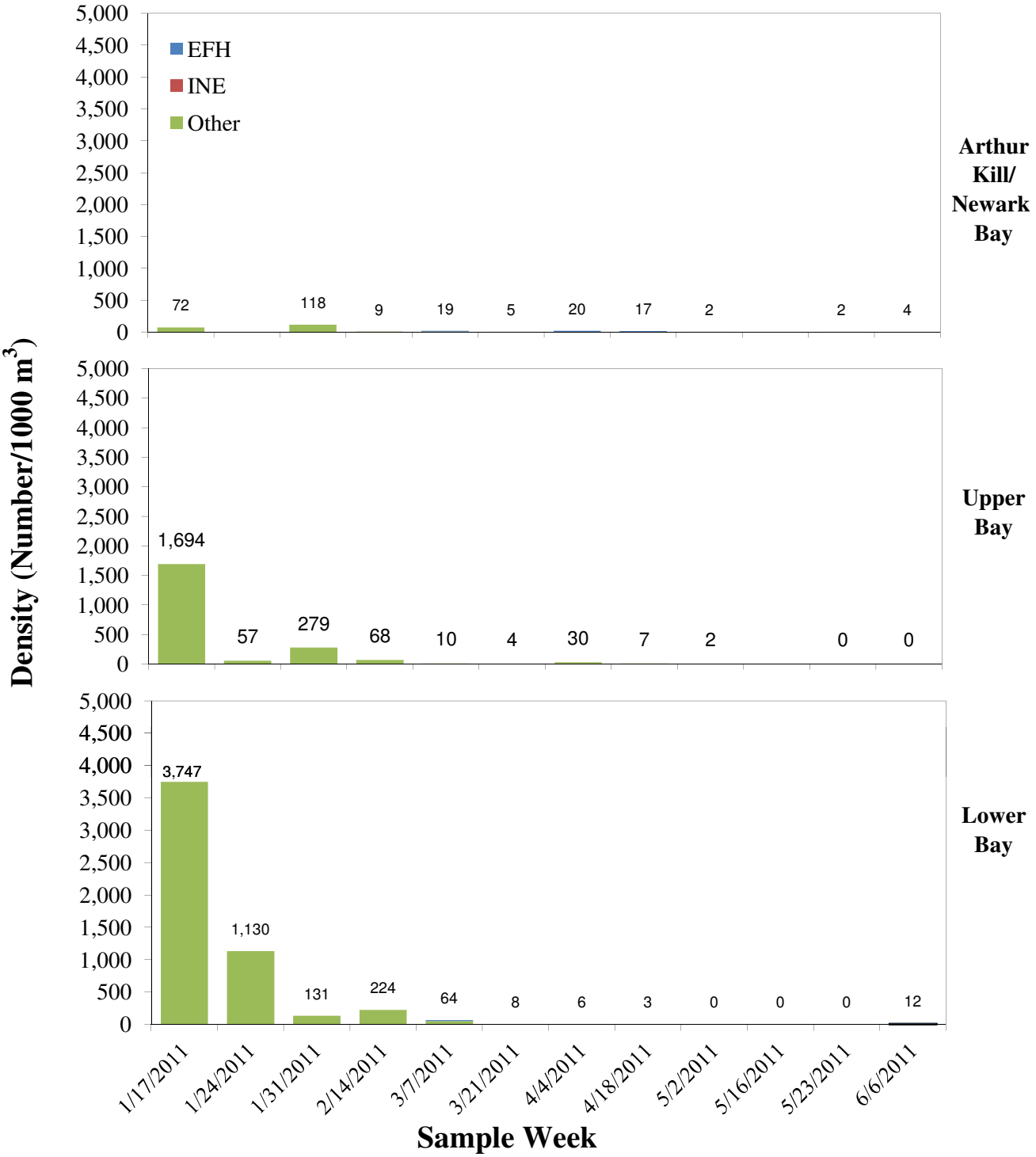


Figure 3-2a **Average weekly yolk-sac larval density at channel stations by Essential Fish Habitat (EFH), Important Non-EFH (INE) species, and Other species for the 2011 Aquatic Biological Survey**

Note: Weeks begin on Monday. Those weeks that are not shown were not sampled.

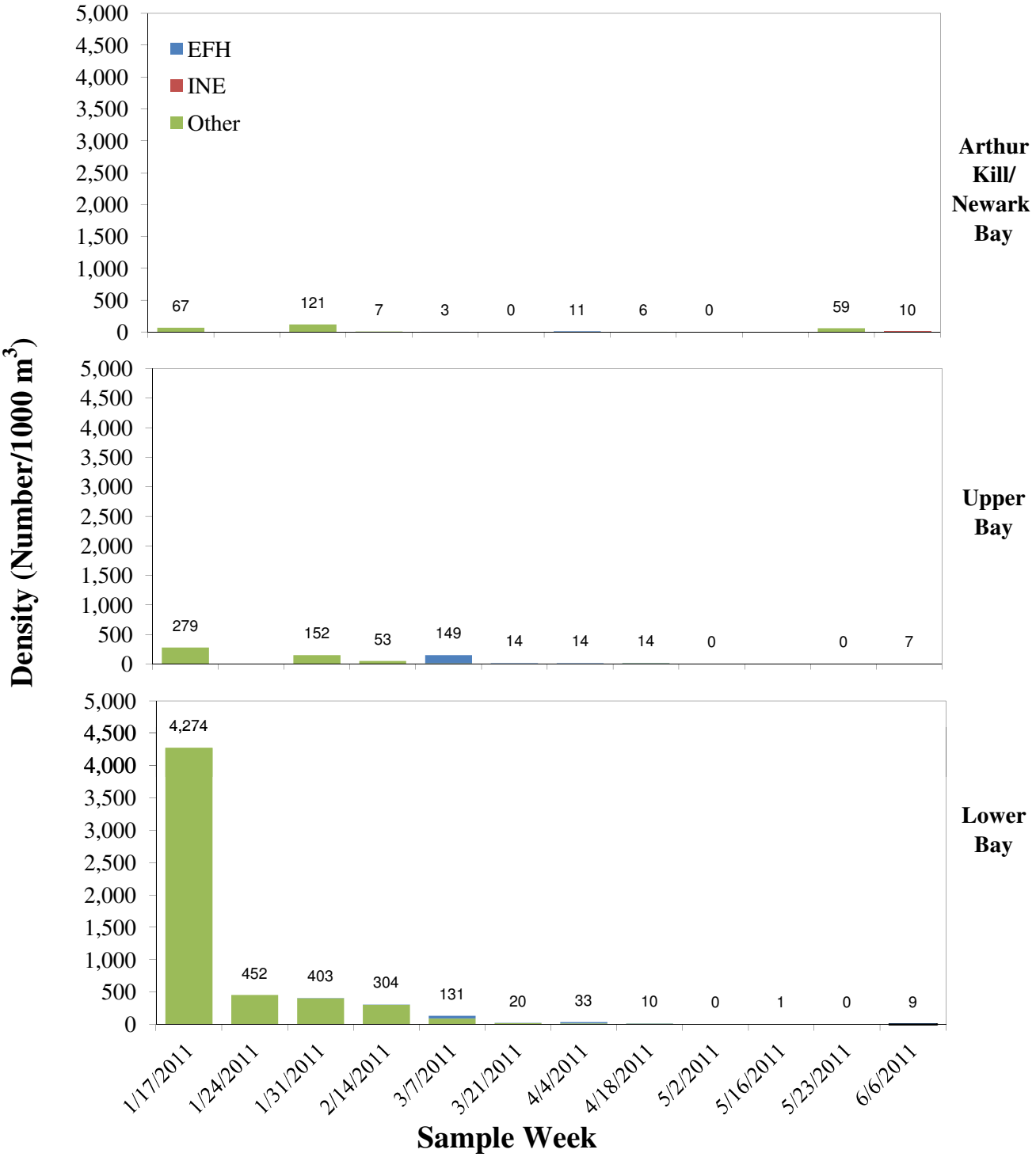


Figure 3-2b **Average weekly yolk-sac larval density at non-channel stations by Essential Fish Habitat (EFH), Important Non-EFH (INE) species, and Other species for the 2011 Aquatic Biological Survey**

Note: Weeks begin on Monday. Those weeks that are not shown were not sampled.

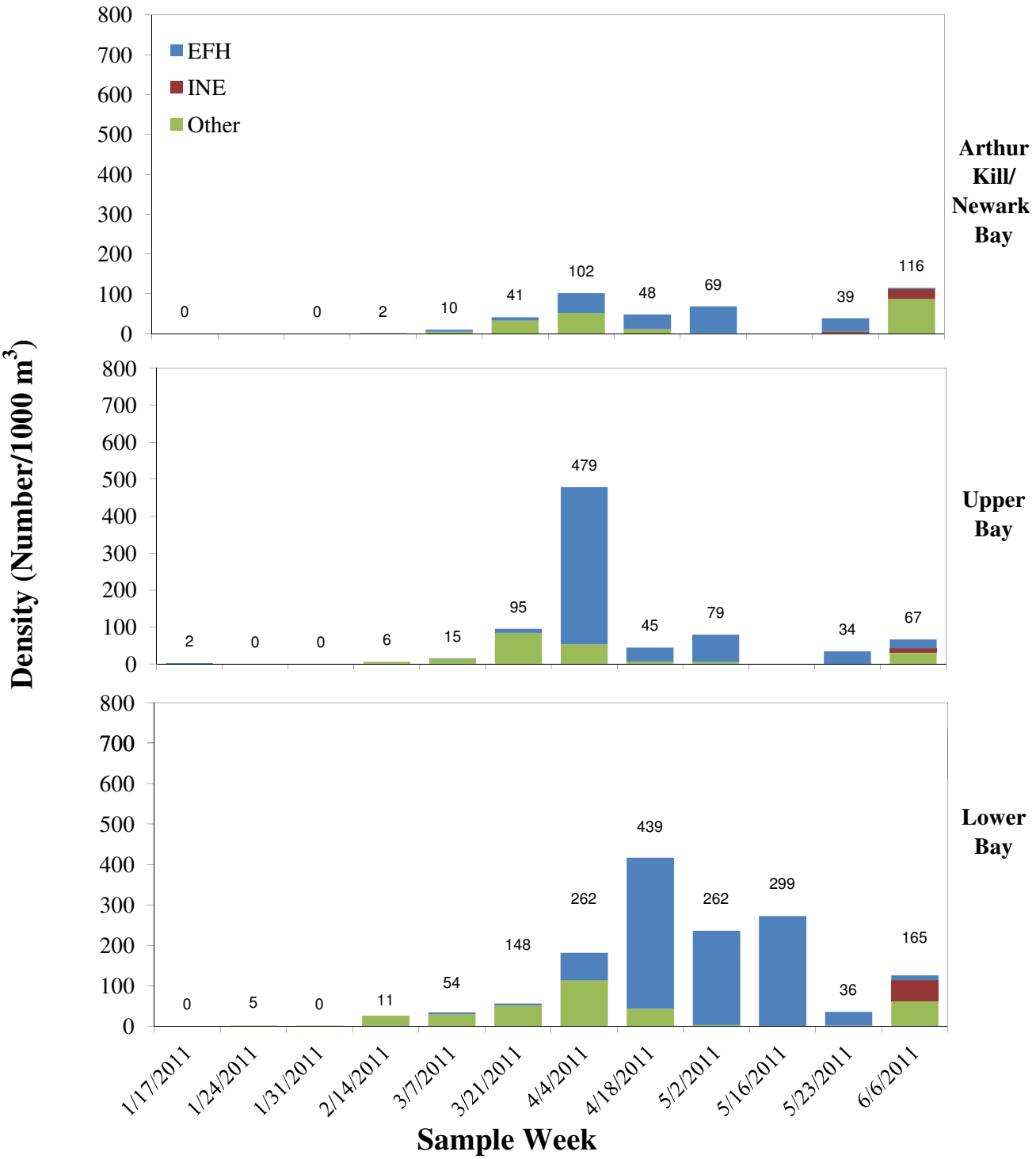


Figure 3-3a **Average weekly post yolk-sac larval density at channel stations by Essential Fish Habitat (EFH), Important Non-EFH (INE), and Other species for the 2011 Aquatic Biological Survey**

Note: Weeks begin on Monday. Those weeks that are not shown were not sampled.

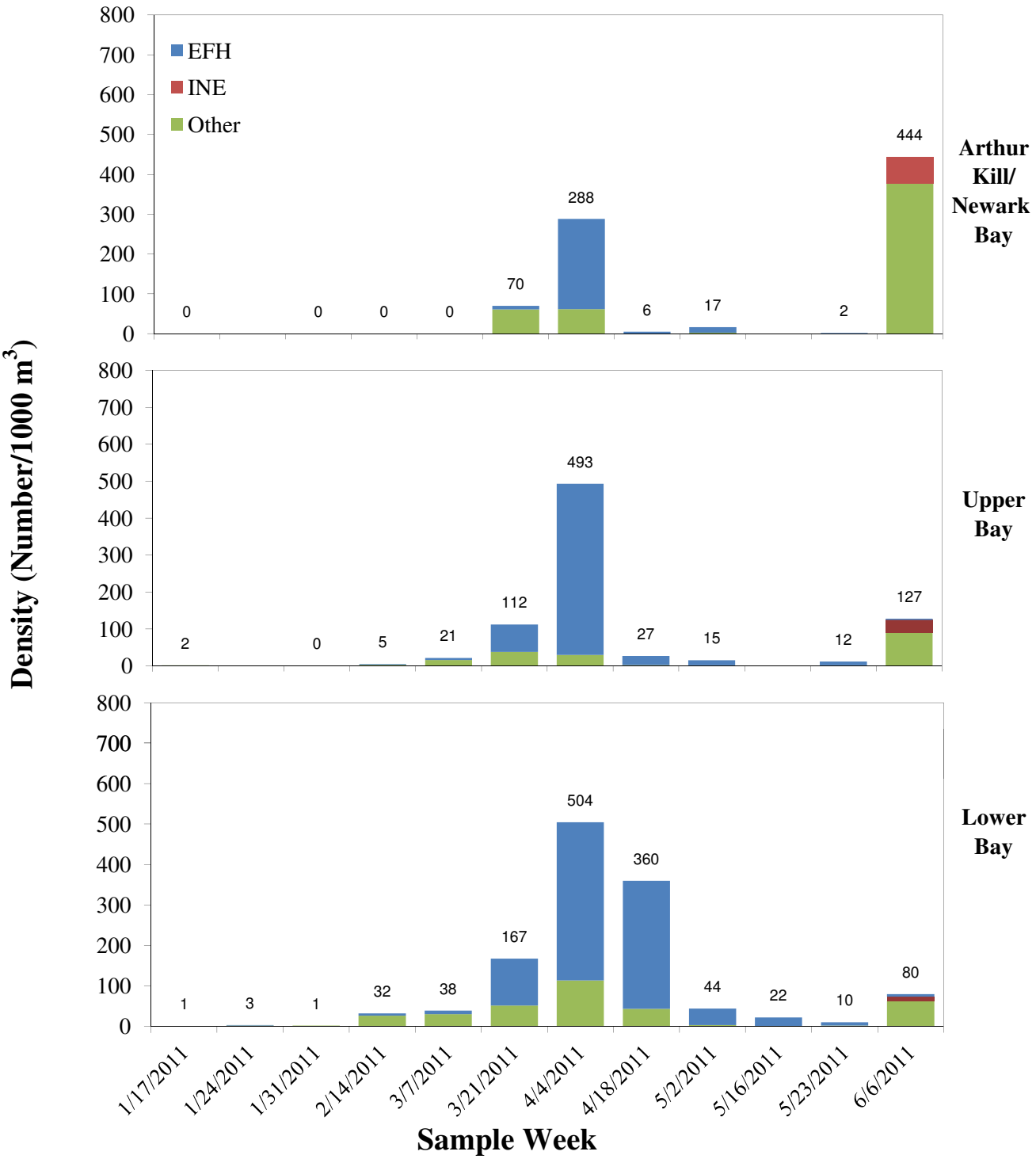


Figure 3-3b **Average weekly post yolk-sac larval density at non-channel stations by Essential Fish Habitat (EFH), Important Non-EFH (INE), and Other species for the 2011 Aquatic Biological Survey**

Note: Weeks begin on Monday. Those weeks that are not shown were not sampled.

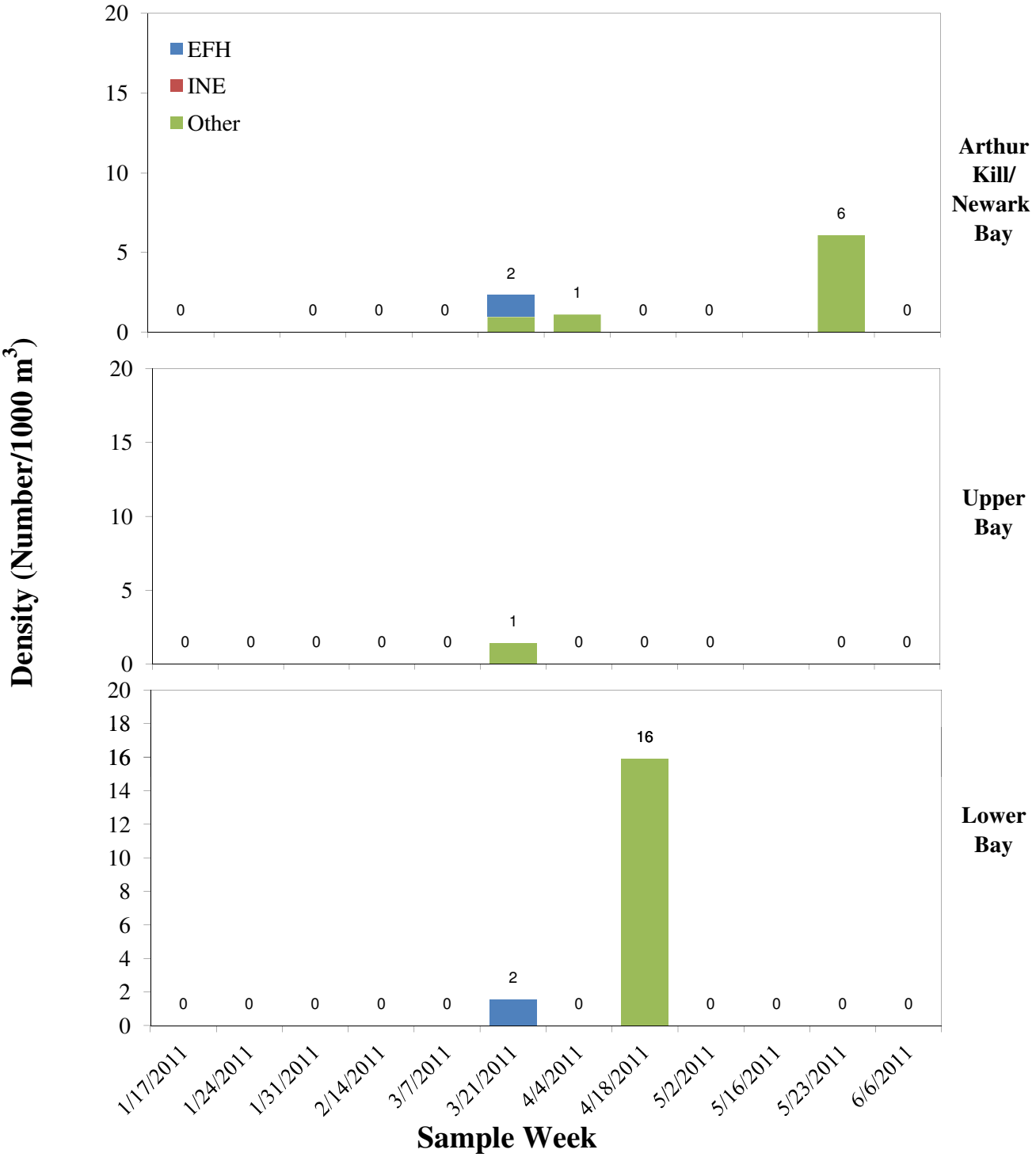


Figure 3-4a **Average weekly juvenile density at channel stations by Essential Fish Habitat (EFH), Important Non-EFH (INE), and Other species for the 2011 Aquatic Biological Survey**

Note: Weeks begin on Monday. Those weeks that are not shown were not sampled.

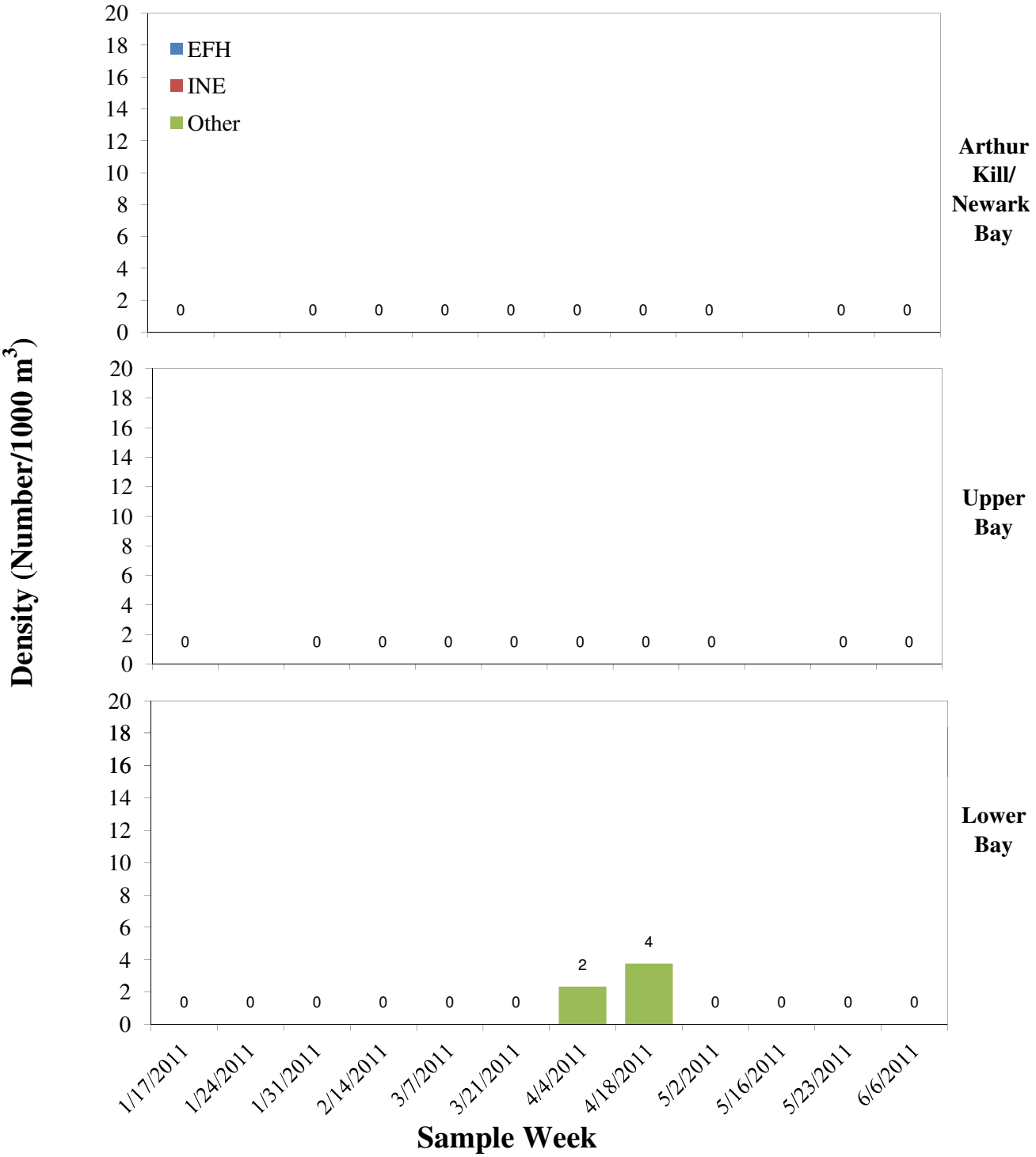


Figure 3-4b **Average weekly juvenile density at non-channel stations by Essential Fish Habitat (EFH), Important Non-EFH (INE) species, and Other species for the 2011 Aquatic Biological Survey**

Note: Weeks begin on Monday. Those weeks that are not shown were not sampled.

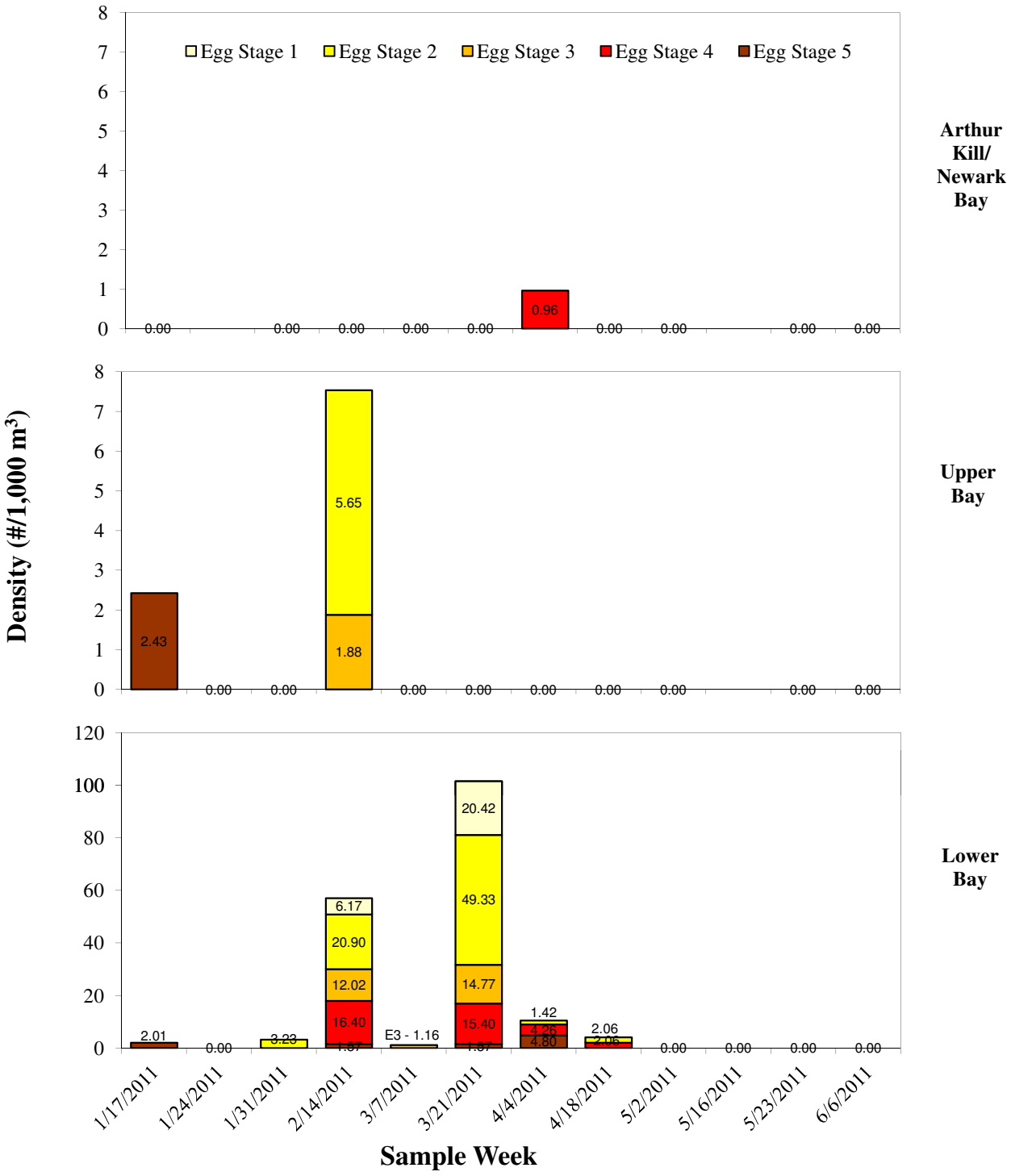


Figure 3-5a **Average weekly winter flounder egg density at channel stations in the Arthur Kill/Newark Bay, Upper Bay, and Lower Bay, during the 2011 Aquatic Biological Survey**

Note: Scale changed for Lower Bay.

Dates listed indicate the Monday of each sample week.

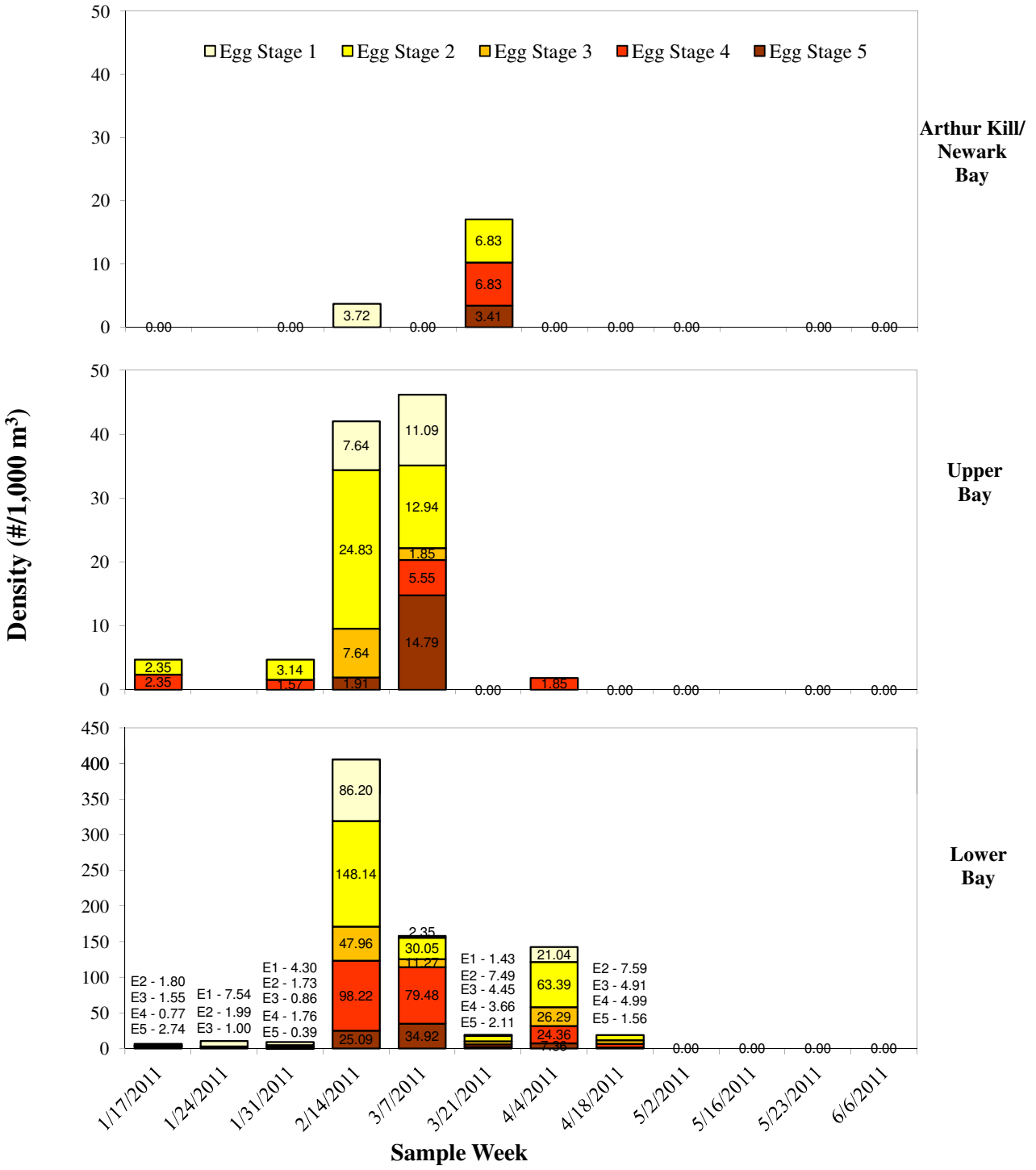


Figure 3-5b **Average weekly winter flounder egg density at non-channel stations in the Arthur Kill/Newark Bay, Upper Bay, and Lower Bay, during the 2011 Aquatic Biological Survey**

Note: Dates listed indicate the Monday of each sample week.

Scale change for Lower Bay

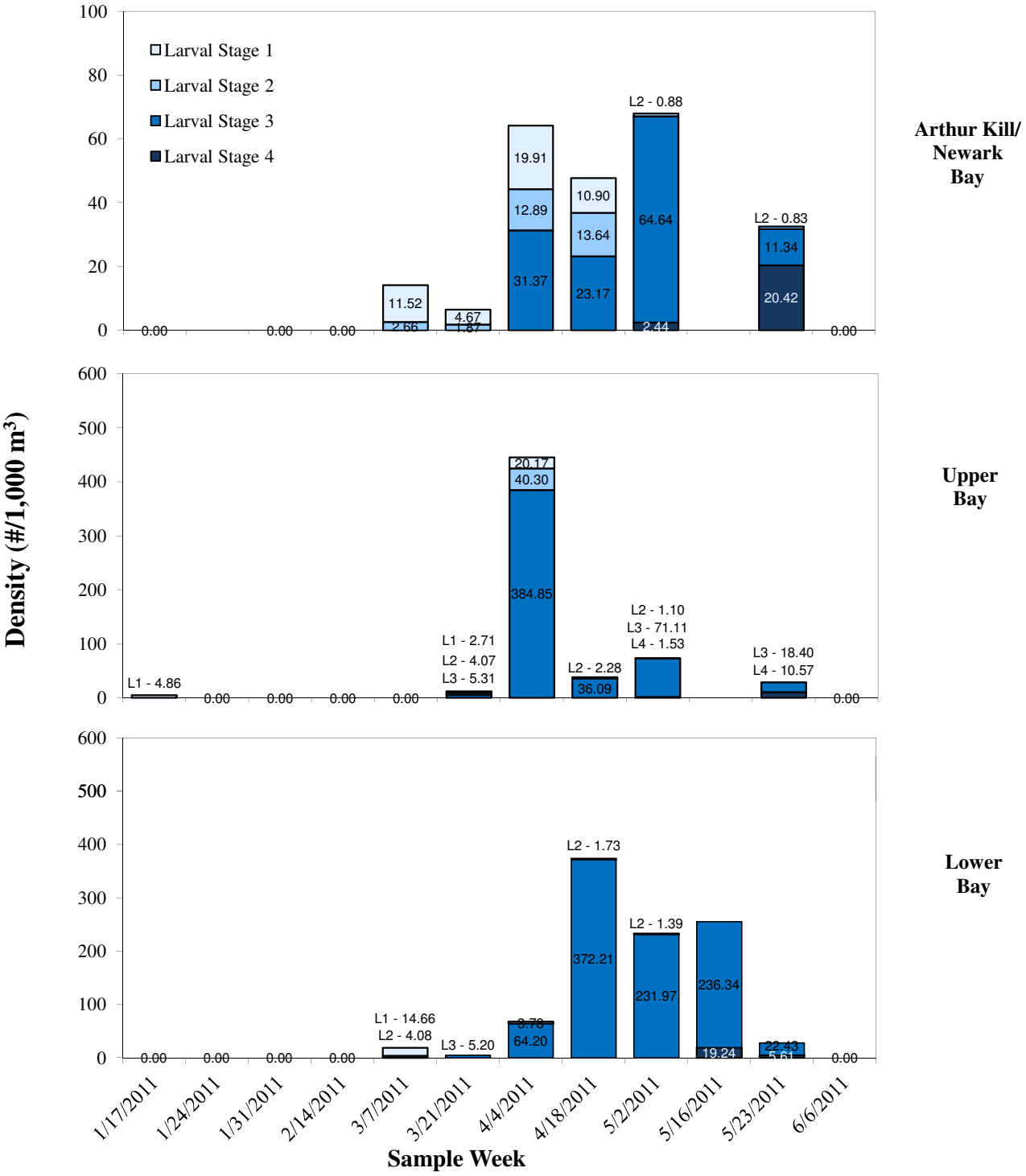


Figure 3-6a **Average weekly winter flounder larval density at channel stations in the Arthur Kill/Newark Bay, Upper Bay, and Lower Bay, during the 2011 Aquatic Biological Survey**

Note: Dates listed indicate the Monday of each sample week.
Scale changed for Arthur Kill/Newark Bay.

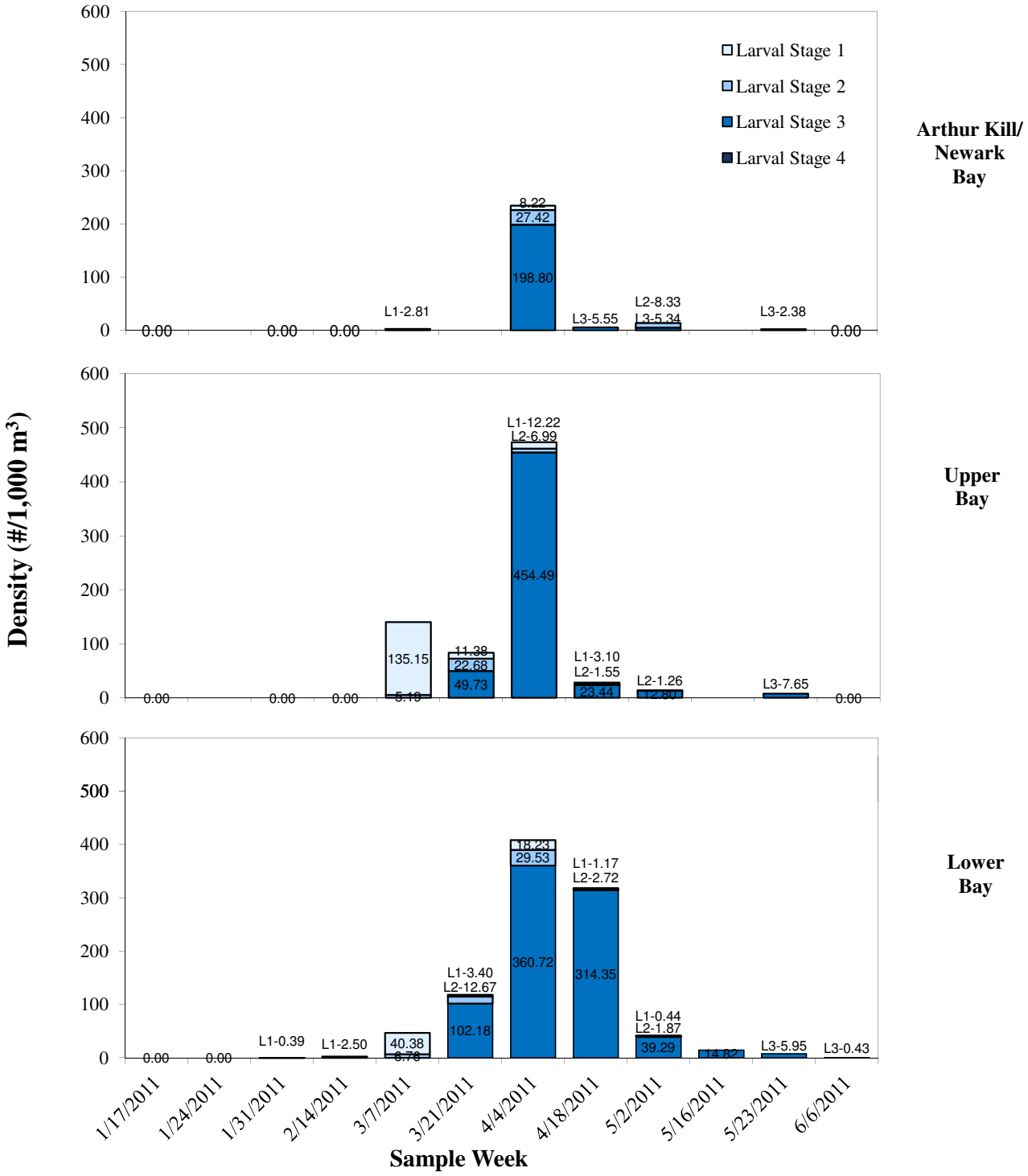


Figure 3-6b **Average weekly winter flounder larval density at non-channel stations in the Arthur Kill/Newark Bay, Upper Bay, and Lower Bay, during the 2011 Aquatic Biological Survey**

Note: Dates listed indicate the Monday of each sample week.

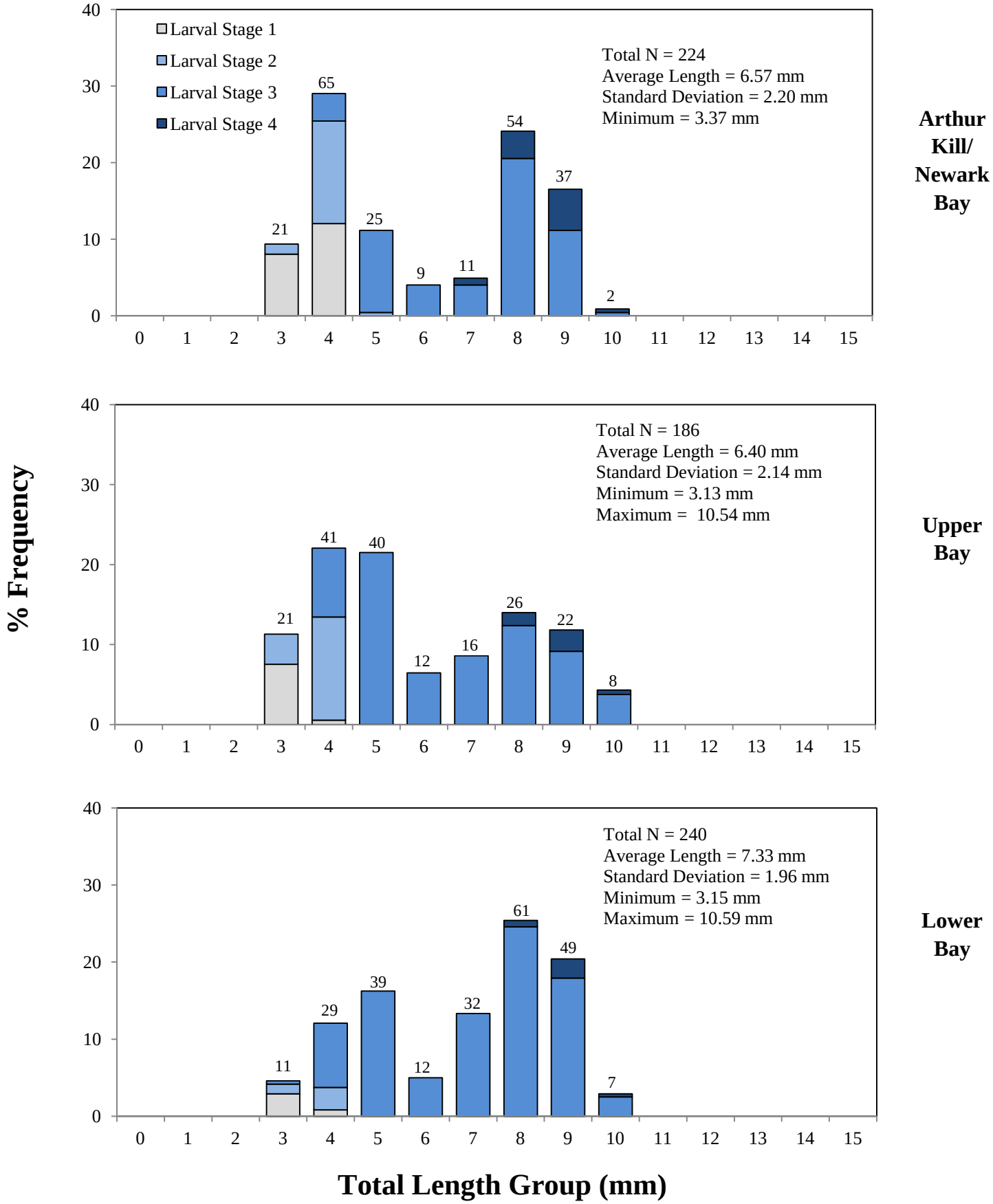


Figure 3-7a **Length frequency distribution of winter flounder larvae by stage collected during ichthyoplankton sampling at Arthur Kill/Newark Bay, Upper Bay, and Lower Bay channel stations, 2011 Aquatic Biological Survey.**

Note: Values above bars represent number of larvae measured in each length group

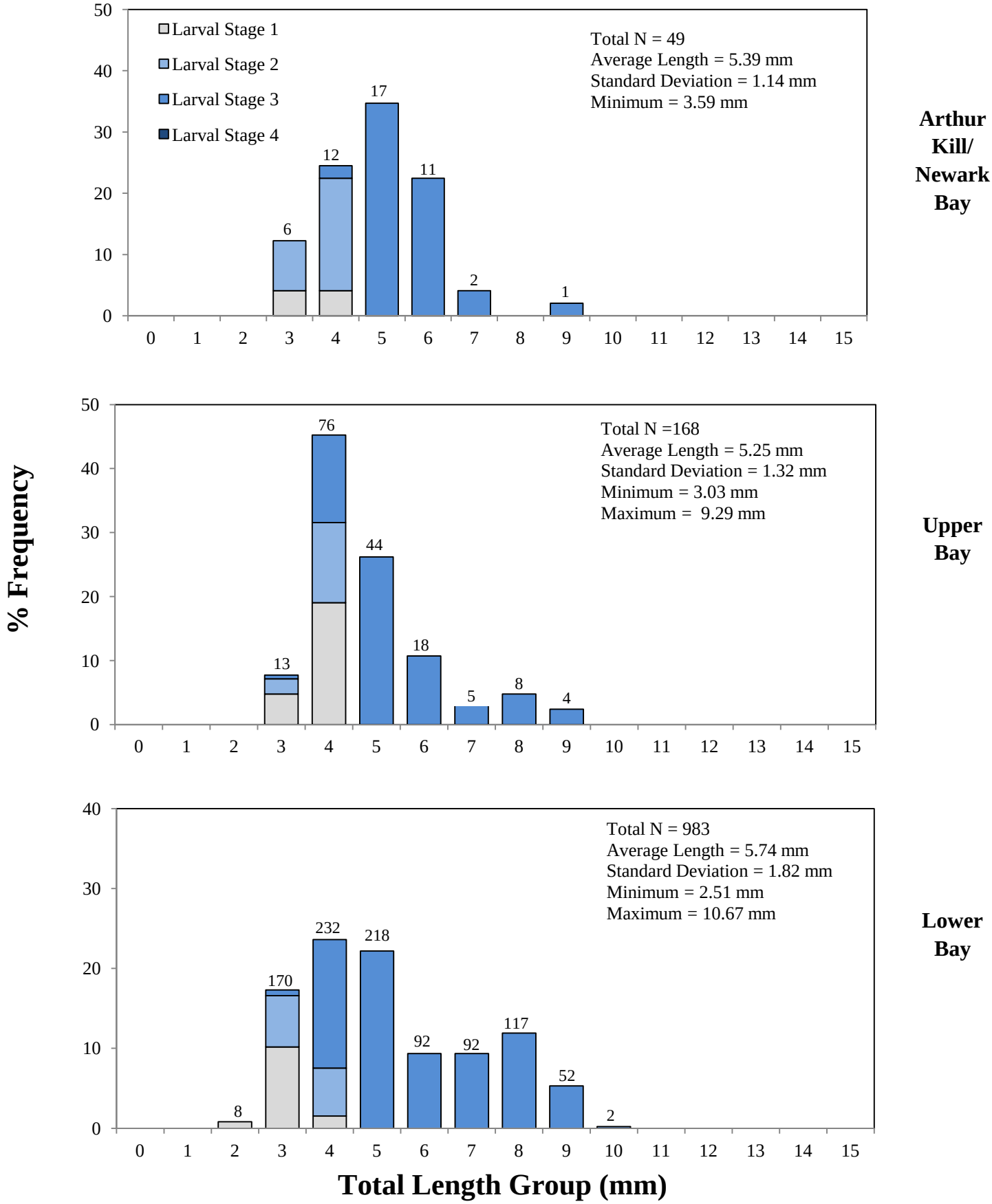


Figure 3-7b **Length frequency distribution of winter flounder larvae by stage collected during ichthyoplankton sampling at Arthur Kill/Newark Bay, Upper Bay, and Lower Bay non-channel stations, 2011 Aquatic Biological Survey.**

Note: Values above bars represent number of larvae measured in each length group

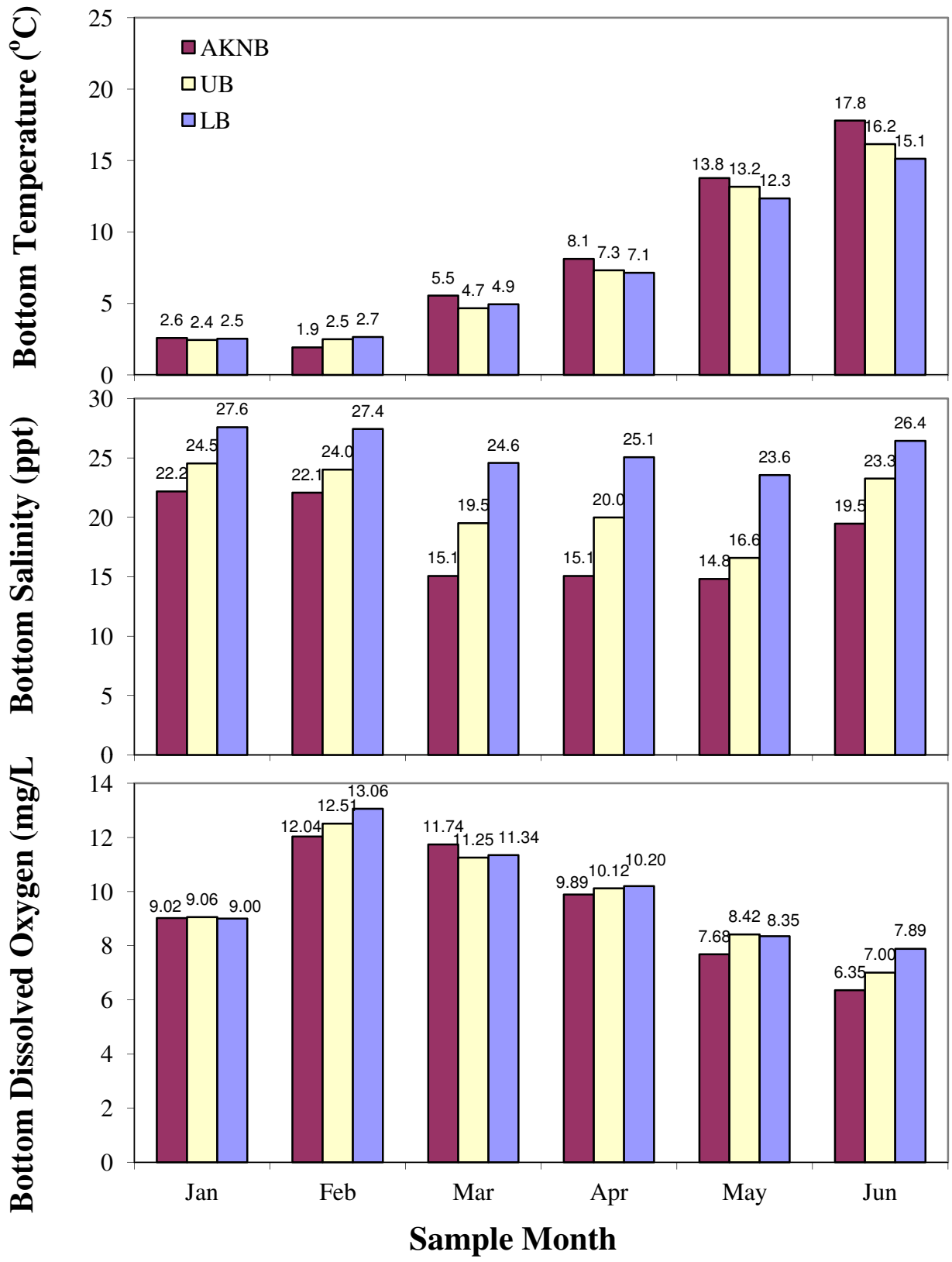


Figure 3-8 **Average monthly water quality measurements by region during the 2011 Aquatic Biological Survey.**

Appendix A

Ichthyoplankton (Epibenthic Sled) life stage densities by date and station collected during the 2011 Aquatic Biological Survey

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
1/19/2011	LB-1	American sandlance	YS	444	2,752.48
1/19/2011	LB-1	Winter flounder	ES2	1	6.20
1/19/2011	LB-16	American sandlance	YS	2283	10,583.92
1/19/2011	LB-16	Winter flounder	ES3	2	9.27
1/19/2011	LB-16	Winter flounder	ES4	1	4.64
1/19/2011	LB-16	Winter flounder	ES5	3	13.91
1/19/2011	LB-13	American sandlance	Egg	1832	11,641.88
1/19/2011	LB-13	American sandlance	YS	1419	9,015.25
1/19/2011	LB-4	American sandlance	Egg	3	21.94
1/19/2011	LB-4	American sandlance	YS	1147	8,384.90
1/19/2011	LB-6	American sandlance	YS	41	229.05
1/19/2011	LB-5	Summer flounder	PYS	1	6.43
1/19/2011	LB-5	Winter flounder	ES2	1	6.43
1/19/2011	LB-3	American sandlance	YS	120	674.03
1/19/2011	LB-8	American sandlance	YS	766	4,023.24
1/19/2011	LB-8	Winter flounder	ES5	1	5.25
1/19/2011	LB-9	American sandlance	Egg	5	24.04
1/19/2011	LB-9	American sandlance	YS	597	2,871.96
1/19/2011	LB-14	American sandlance	YS	436	2,628.22
1/19/2011	LB-14	Winter flounder	ES5	1	6.03
1/20/2011	PJ-2	American sandlance	YS	4	20.22
1/20/2011	PJ-2	Atlantic croaker	PYS	1	5.06
1/20/2011	NB-7	American sandlance	YS	16	90.01
1/20/2011	NB-7	Rock gunnel	YS	1	5.63
1/20/2011	NB-6	American sandlance	YS	10	61.81
1/20/2011	NB-4	American sandlance	YS	7	39.07
1/20/2011	NB-8	American sandlance	YS	18	89.63
1/20/2011	AK-3	American sandlance	YS	11	53.52
1/20/2011	AK-2	American sandlance	YS	15	82.48
1/20/2011	SB-3	American sandlance	Egg	1	7.05
1/20/2011	SB-3	American sandlance	YS	76	535.54
1/20/2011	SB-3	Winter flounder	ES2	1	7.05
1/20/2011	SB-3	Winter flounder	ES4	1	7.05
1/20/2011	SB-4	American sandlance	YS	104	505.17
1/20/2011	SB-4	Summer flounder	PYS	1	4.86
1/20/2011	SB-4	Winter flounder	ST1	2	9.71
1/20/2011	SB-4	Winter flounder	ES5	1	4.86
1/20/2011	SB-6	American sandlance	YS	840	2,873.55
1/20/2011	PJ-1	American sandlance	Egg	1	4.94
1/20/2011	PJ-1	American sandlance	YS	57	281.67
1/24/2011	SB-5	American sandlance	YS	18	57.39

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
1/24/2011	LB-2	American sandlance	YS	231	1,129.89
1/24/2011	LB-2	Rock gunnel	PYS	1	4.89
1/24/2011	LB-18	American sandlance	YS	73	409.22
1/24/2011	LB-18	Winter flounder	ES1	1	5.61
1/24/2011	LB-19	American sandlance	YS	95	473.24
1/24/2011	LB-19	Rock gunnel	PYS	2	9.96
1/24/2011	LB-19	Winter flounder	ES1	3	14.94
1/24/2011	LB-19	Winter flounder	ES2	2	9.96
1/24/2011	LB-19	Winter flounder	ES3	1	4.98
1/24/2011	LB-20	American sandlance	YS	126	668.32
1/24/2011	LB-12	American sandlance	Egg	1	5.72
1/24/2011	LB-12	American sandlance	YS	114	651.76
1/24/2011	LB-12	Summer flounder	PYS	1	5.72
1/24/2011	LB-12	Winter flounder	ES1	3	17.15
1/24/2011	LB-21	American sandlance	YS	8	55.94
1/31/2011	LB-16	American sandlance	YS	107	582.85
1/31/2011	LB-16	Winter flounder	ES1	3	16.34
1/31/2011	LB-19	American sandlance	YS	205	969.27
1/31/2011	LB-19	Rock gunnel	PYS	1	4.73
1/31/2011	LB-19	Winter flounder	ST1	1	4.73
1/31/2011	LB-19	Winter flounder	ES1	2	9.46
1/31/2011	LB-19	Winter flounder	ES5	1	4.73
1/31/2011	LB-18	American sandlance	YS	95	487.37
1/31/2011	LB-1	American sandlance	Egg	1	6.00
1/31/2011	LB-1	American sandlance	YS	84	503.61
1/31/2011	LB-1	Rock gunnel	PYS	1	6.00
1/31/2011	LB-2	American sandlance	YS	12	167.48
1/31/2011	LB-9	American sandlance	YS	54	318.50
1/31/2011	LB-9	Rock gunnel	PYS	1	5.90
1/31/2011	LB-9	Winter flounder	ES4	1	5.90
1/31/2011	LB-14	American sandlance	YS	24	216.13
1/31/2011	LB-14	Rock gunnel	YS	1	9.01
1/31/2011	SB-6	American sandlance	YS	95	487.56
1/31/2011	SB-3	American sandlance	YS	45	288.73
1/31/2011	SB-4	American sandlance	YS	17	136.53
1/31/2011	SB-4	Rock gunnel	YS	1	8.03
2/1/2011	PJ-2	American sandlance	YS	20	106.33
2/1/2011	SB-5	American sandlance	YS	49	191.92
2/1/2011	SB-5	Rock gunnel	YS	3	11.75
2/1/2011	NB-7	American sandlance	YS	27	170.02
2/1/2011	NB-4	American sandlance	YS	15	71.35

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
2/1/2011	NB-8	American sandlance	YS	16	73.55
2/1/2011	NB-6	American sandlance	YS	18	92.04
2/1/2011	AK-3	American sandlance	YS	31	144.73
2/1/2011	AK-8	American sandlance	YS	34	159.54
2/1/2011	AK-2	American sandlance	YS	24	118.94
2/4/2011	LB-20	American sandlance	YS	81	375.25
2/4/2011	LB-20	Rock gunnel	YS	5	23.16
2/4/2011	LB-13	American sandlance	YS	62	315.00
2/4/2011	LB-13	Rock gunnel	YS	1	5.08
2/4/2011	LB-13	Winter flounder	ES1	3	15.24
2/4/2011	LB-13	Winter flounder	ES2	2	10.16
2/4/2011	LB-13	Winter flounder	ES3	1	5.08
2/4/2011	LB-13	Winter flounder	ES4	3	15.24
2/4/2011	LB-13	Winter flounder	WFNVE	3	15.24
2/4/2011	LB-4	American sandlance	YS	5	32.35
2/4/2011	LB-4	Cods	Egg	3	19.41
2/4/2011	LB-4	Winter flounder	ES2	2	12.94
2/4/2011	LB-12	American sandlance	YS	48	251.15
2/4/2011	LB-12	Winter flounder	ES3	1	5.23
2/4/2011	LB-5	American sandlance	YS	48	254.46
2/4/2011	LB-5	Rock gunnel	YS	2	10.60
2/4/2011	LB-6	American sandlance	YS	14	98.52
2/4/2011	LB-21	American sandlance	YS	60	392.82
2/4/2011	LB-21	Cods	Egg	1	6.55
2/4/2011	LB-21	Rock gunnel	YS	1	6.55
2/4/2011	LB-3	American sandlance	YS	36	150.55
2/4/2011	LB-3	Rock gunnel	YS	1	4.18
2/4/2011	LB-8	American sandlance	YS	35	185.06
2/4/2011	LB-8	Winter flounder	ES1	2	10.57
2/4/2011	LB-8	Winter flounder	ES2	2	10.57
2/4/2011	PJ-1	American sandlance	YS	12	56.48
2/4/2011	PJ-1	Rock gunnel	YS	1	4.71
2/4/2011	PJ-1	Winter flounder	ES2	2	9.41
2/4/2011	PJ-1	Winter flounder	ES4	1	4.71
2/14/2011	PJ-2	American sandlance	YS	9	51.57
2/14/2011	PJ-2	Rock gunnel	YS	1	5.73
2/14/2011	PJ-2	Winter flounder	ES1	4	22.92
2/14/2011	PJ-2	Winter flounder	ES2	13	74.49
2/14/2011	PJ-2	Winter flounder	ES3	4	22.92
2/14/2011	PJ-2	Winter flounder	ES5	1	5.73
2/14/2011	NB-7	American sandlance	YS	1	7.44

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
2/14/2011	NB-7	Rock gunnel	YS	1	7.44
2/14/2011	NB-7	Winter flounder	ES1	1	7.44
2/14/2011	AK-3	American sandlance	YS	1	4.43
2/14/2011	AK-3	Rock gunnel	YS	1	4.43
2/14/2011	AK-3	Summer flounder	PYS	1	4.43
2/14/2011	AK-3	Unidentifiable	UID	3	13.30
2/14/2011	AK-8	American sandlance	YS	3	12.75
2/14/2011	AK-8	Grubby	PYS	1	4.25
2/14/2011	AK-8	Rock gunnel	YS	1	4.25
2/14/2011	AK-2	American sandlance	YS	3	14.42
2/14/2011	AK-2	Rock gunnel	YS	1	4.81
2/14/2011	PJ-1	American sandlance	YS	7	43.43
2/14/2011	PJ-1	Rock gunnel	YS	3	18.61
2/14/2011	SB-5	American sandlance	YS	7	41.12
2/14/2011	SB-5	Grubby	PYS	1	5.87
2/14/2011	SB-5	Rock gunnel	YS	3	17.62
2/16/2011	LB-16	American sandlance	YS	323	1,243.33
2/16/2011	LB-16	Rock gunnel	YS	1	5.14
2/16/2011	LB-19	American sandlance	YS	9	51.89
2/16/2011	LB-19	Winter flounder	ES1	1	5.77
2/16/2011	LB-19	Winter flounder	ES2	12	69.19
2/16/2011	LB-19	Winter flounder	ES3	7	40.36
2/16/2011	LB-19	Winter flounder	ES4	4	23.06
2/16/2011	LB-18	American sandlance	YS	32	167.54
2/16/2011	LB-18	Winter flounder	ES1	1	5.24
2/16/2011	LB-18	Winter flounder	ES2	17	89.01
2/16/2011	LB-18	Winter flounder	ES3	8	41.89
2/16/2011	LB-18	Winter flounder	ES4	16	83.77
2/16/2011	LB-18	Winter flounder	ES5	1	5.24
2/16/2011	LB-1	American sandlance	YS	38	214.93
2/16/2011	LB-1	Grubby	PYS	1	5.66
2/16/2011	LB-1	Rock gunnel	PYS	1	5.66
2/16/2011	LB-1	Winter flounder	ES2	15	84.84
2/16/2011	LB-1	Winter flounder	ES3	4	22.62
2/16/2011	LB-1	Winter flounder	ES4	1	5.66
2/16/2011	LB-2	American sandlance	YS	19	111.12
2/16/2011	LB-2	Rock gunnel	PYS	1	5.85
2/16/2011	LB-2	Winter flounder	ES1	1	5.85
2/16/2011	LB-2	Winter flounder	ES2	10	58.49
2/16/2011	LB-2	Winter flounder	ES3	5	29.24
2/16/2011	LB-2	Winter flounder	ES4	8	46.79

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
2/16/2011	LB-14	American sandlance	YS	12	85.64
2/16/2011	LB-9	American sandlance	YS	28	134.08
2/16/2011	LB-9	Rock gunnel	PYS	6	28.73
2/16/2011	LB-9	Winter flounder	ES2	2	9.58
2/16/2011	LB-9	Winter flounder	ES5	1	4.79
2/16/2011	LB-8	American sandlance	YS	37	217.63
2/16/2011	LB-8	Grubby	PYS	1	5.88
2/16/2011	LB-8	Winter flounder	ES2	3	17.65
2/16/2011	LB-8	Winter flounder	ES4	1	5.88
2/16/2011	SB-6	American sandlance	YS	31	123.36
2/16/2011	SB-6	Rock gunnel	YS	1	3.98
2/16/2011	SB-6	Rock gunnel	PYS	3	11.94
2/16/2011	SB-6	Winter flounder	UID	1	3.98
2/16/2011	SB-4	American sandlance	YS	3	16.95
2/16/2011	SB-4	Winter flounder	ES2	3	16.95
2/16/2011	SB-4	Winter flounder	ES3	1	5.65
2/16/2011	SB-3	American sandlance	YS	5	38.60
2/16/2011	SB-3	Rock gunnel	PYS	1	7.72
2/16/2011	SB-3	Summer flounder	PYS	1	7.72
2/17/2011	LB-20	American sandlance	YS	91	576.32
2/17/2011	LB-20	Grubby	PYS	1	6.33
2/17/2011	LB-20	Rock gunnel	PYS	16	101.33
2/17/2011	LB-20	Winter flounder	ST1	2	12.67
2/17/2011	LB-20	Winter flounder	ES2	4	25.33
2/17/2011	LB-13	American sandlance	YS	68	541.47
2/17/2011	LB-13	Rock gunnel	YS	2	15.93
2/17/2011	LB-13	Rock gunnel	PYS	7	55.74
2/17/2011	LB-13	Winter flounder	ST1	1	7.96
2/17/2011	LB-13	Winter flounder	ES1	34	270.73
2/17/2011	LB-13	Winter flounder	ES2	58	461.84
2/17/2011	LB-13	Winter flounder	ES3	16	127.40
2/17/2011	LB-13	Winter flounder	ES4	34	270.73
2/17/2011	LB-13	Winter flounder	ES5	15	119.44
2/17/2011	LB-4	American sandlance	YS	86	539.68
2/17/2011	LB-4	Rock gunnel	PYS	6	37.65
2/17/2011	LB-4	Winter flounder	ES1	3	18.83
2/17/2011	LB-4	Winter flounder	ES2	4	25.10
2/17/2011	LB-4	Winter flounder	ES3	3	18.83
2/17/2011	LB-4	Winter flounder	ES4	3	18.83
2/17/2011	LB-4	Winter flounder	ES5	1	6.28
2/17/2011	LB-12	American sandlance	YS	9	77.24

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
2/17/2011	LB-12	Atlantic herring	PYS	2	17.16
2/17/2011	LB-12	Rock gunnel	PYS	1	8.58
2/17/2011	LB-12	Summer flounder	PYS	4	34.33
2/17/2011	LB-12	Winter flounder	ES1	84	720.87
2/17/2011	LB-12	Winter flounder	ES2	113	972.60
2/17/2011	LB-12	Winter flounder	ES3	40	343.27
2/17/2011	LB-12	Winter flounder	ES4	92	789.52
2/17/2011	LB-12	Winter flounder	ES5	20	171.63
2/17/2011	LB-5	American sandlance	YS	5	59.70
2/17/2011	LB-5	Rock gunnel	PYS	2	23.88
2/17/2011	LB-5	Summer flounder	PYS	1	11.94
2/17/2011	LB-5	Winter flounder	ES2	2	23.88
2/17/2011	LB-6	American sandlance	YS	18	157.57
2/17/2011	LB-21	American sandlance	YS	20	158.71
2/17/2011	LB-21	Winter flounder	ES1	4	31.74
2/17/2011	LB-21	Winter flounder	ES2	3	23.81
2/17/2011	LB-3	American sandlance	YS	17	158.42
2/17/2011	LB-3	Rock gunnel	PYS	8	74.55
2/17/2011	LB-3	Winter flounder	ST1	1	9.32
3/7/2011	PJ-2	American sandlance	YS	3	16.64
3/7/2011	PJ-2	Grubby	PYS	1	5.55
3/7/2011	PJ-2	Rock gunnel	YS	1	5.55
3/7/2011	PJ-2	Winter flounder	ST1	1	5.55
3/7/2011	PJ-2	Winter flounder	ES1	6	33.27
3/7/2011	PJ-2	Winter flounder	ES2	7	38.82
3/7/2011	PJ-2	Winter flounder	ES3	1	5.55
3/7/2011	PJ-2	Winter flounder	ES4	3	16.64
3/7/2011	PJ-2	Winter flounder	ES5	8	44.36
3/7/2011	NB-8	Grubby	PYS	3	18.26
3/7/2011	NB-8	Summer flounder	PYS	1	6.09
3/7/2011	NB-4	Winter flounder	ST1	1	5.61
3/7/2011	NB-7	Unidentifiable	UID	3	18.12
3/7/2011	AK-3	American sandlance	YS	1	4.43
3/7/2011	AK-3	Atlantic herring	PYS	1	4.43
3/7/2011	AK-3	Grubby	PYS	1	4.43
3/7/2011	AK-3	Winter flounder	ST1	13	57.58
3/7/2011	AK-3	Winter flounder	ST2	3	13.29
3/7/2011	AK-8	American sandlance	YS	3	13.16
3/7/2011	AK-8	American sandlance	PYS	1	4.39
3/7/2011	AK-8	Rock gunnel	UID	1	4.39
3/7/2011	AK-2	American sandlance	YS	4	19.63

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
3/7/2011	PJ-1	American sandlance	PYS	2	10.39
3/7/2011	PJ-1	Grubby	PYS	4	20.77
3/7/2011	PJ-1	Rock gunnel	PYS	1	5.19
3/7/2011	PJ-1	Winter flounder	ST1	77	399.89
3/7/2011	PJ-1	Winter flounder	ST2	3	15.58
3/8/2011	LB-1	American sandlance	YS	14	61.31
3/8/2011	LB-1	American sandlance	PYS	1	4.38
3/8/2011	LB-1	Grubby	PYS	2	8.76
3/8/2011	LB-1	Summer flounder	PYS	1	4.38
3/8/2011	LB-1	Winter flounder	ES4	2	8.76
3/8/2011	LB-18	American sandlance	YS	5	26.70
3/8/2011	LB-18	Grubby	PYS	5	26.70
3/8/2011	LB-18	Winter flounder	ES1	2	10.68
3/8/2011	LB-18	Winter flounder	ES2	16	85.45
3/8/2011	LB-18	Winter flounder	ES3	1	5.34
3/8/2011	LB-18	Winter flounder	ES4	24	128.18
3/8/2011	LB-18	Winter flounder	ES5	11	58.75
3/8/2011	LB-19	American sandlance	YS	33	171.20
3/8/2011	LB-19	Grubby	PYS	2	10.38
3/8/2011	LB-19	Rock gunnel	PYS	2	10.38
3/8/2011	LB-19	Winter flounder	ST1	8	41.50
3/8/2011	LB-19	Winter flounder	ES4	8	41.50
3/8/2011	LB-16	American sandlance	YS	31	180.79
3/8/2011	LB-16	Cods	Egg	1	5.83
3/8/2011	LB-16	Grubby	PYS	3	17.50
3/8/2011	LB-16	Rock gunnel	YS	1	5.83
3/8/2011	LB-16	Winter flounder	ST1	30	174.96
3/8/2011	LB-16	Winter flounder	ST2	2	11.66
3/8/2011	LB-16	Winter flounder	ES1	3	17.50
3/8/2011	LB-16	Winter flounder	ES2	16	93.31
3/8/2011	LB-16	Winter flounder	ES3	9	52.49
3/8/2011	LB-16	Winter flounder	ES4	42	244.95
3/8/2011	LB-16	Winter flounder	ES5	12	69.98
3/8/2011	LB-20	American sandlance	YS	86	394.34
3/8/2011	LB-20	American sandlance	PYS	2	9.17
3/8/2011	LB-20	Grubby	PYS	9	41.27
3/8/2011	LB-20	Rock gunnel	YS	1	4.59
3/8/2011	LB-20	Rock gunnel	PYS	2	9.17
3/8/2011	LB-20	Winter flounder	ST1	3	13.76
3/8/2011	LB-20	Winter flounder	ST2	6	27.51
3/8/2011	LB-20	Winter flounder	ES2	1	4.59

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
3/8/2011	LB-13	American sandlance	YS	15	104.48
3/8/2011	LB-13	American sandlance	PYS	2	13.93
3/8/2011	LB-13	Grubby	PYS	2	13.93
3/8/2011	LB-13	Winter flounder	ST1	3	20.90
3/8/2011	LB-13	Winter flounder	ST2	2	13.93
3/8/2011	LB-13	Winter flounder	ES2	1	6.97
3/8/2011	LB-13	Winter flounder	ES4	1	6.97
3/8/2011	LB-4	American sandlance	YS	15	107.30
3/8/2011	LB-4	Grubby	PYS	21	150.22
3/8/2011	LB-4	Winter flounder	ST1	5	35.77
3/8/2011	LB-4	Winter flounder	ST2	1	7.15
3/8/2011	LB-12	American sandlance	YS	5	51.78
3/8/2011	LB-12	Gobies	PYS	11	113.93
3/8/2011	LB-12	Rock gunnel	PYS	1	10.36
3/8/2011	LB-12	Winter flounder	ST1	5	51.78
3/8/2011	LB-5	American sandlance	YS	10	55.02
3/8/2011	LB-5	Cods	Egg	1	5.50
3/8/2011	LB-5	Rock gunnel	YS	1	5.50
3/8/2011	LB-5	Rock gunnel	PYS	2	11.00
3/8/2011	LB-5	Winter flounder	ST1	31	170.58
3/8/2011	LB-5	Winter flounder	ST2	4	22.01
3/8/2011	LB-5	Winter flounder	ES2	1	5.50
3/8/2011	LB-6	American sandlance	YS	5	22.89
3/8/2011	LB-6	Grubby	PYS	5	22.89
3/8/2011	LB-6	Rock gunnel	PYS	1	4.58
3/8/2011	LB-6	Winter flounder	ST1	5	22.89
3/8/2011	LB-6	Winter flounder	ST2	2	9.15
3/8/2011	LB-21	American sandlance	PYS	1	7.26
3/8/2011	LB-21	Summer flounder	PYS	1	7.26
3/8/2011	LB-21	Winter flounder	ES2	22	159.65
3/8/2011	LB-21	Winter flounder	ES3	9	65.31
3/8/2011	LB-21	Winter flounder	ES4	70	507.96
3/8/2011	LB-21	Winter flounder	ES5	40	290.26
3/8/2011	LB-3	American sandlance	YS	1	5.52
3/8/2011	LB-3	Atlantic herring	PYS	1	5.52
3/8/2011	LB-3	Grubby	PYS	3	16.55
3/8/2011	LB-3	Rock gunnel	PYS	1	5.52
3/8/2011	LB-3	Winter flounder	ST1	2	11.03
3/8/2011	LB-3	Unidentifiable	UID	61	336.52
3/9/2011	LB-14	American sandlance	YS	10	37.72
3/9/2011	LB-14	Rock gunnel	PYS	1	3.77

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
3/9/2011	LB-2	American sandlance	YS	5	23.19
3/9/2011	LB-2	Grubby	YS	1	4.64
3/9/2011	LB-2	Grubby	PYS	3	13.91
3/9/2011	LB-2	Rock gunnel	PYS	1	4.64
3/9/2011	LB-2	Winter flounder	ES3	1	4.64
3/9/2011	LB-9	American sandlance	YS	2	10.31
3/9/2011	LB-9	Grubby	PYS	2	10.31
3/9/2011	LB-9	Rock gunnel	PYS	3	15.47
3/9/2011	LB-9	Winter flounder	ES2	1	5.16
3/9/2011	LB-9	Winter flounder	ES4	3	15.47
3/9/2011	LB-8	American sandlance	YS	1	6.04
3/9/2011	LB-8	Grubby	PYS	1	6.04
3/9/2011	LB-8	Winter flounder	ST2	1	6.04
3/9/2011	LB-8	Winter flounder	ES3	2	12.08
3/9/2011	SB-6	American sandlance	YS	6	22.35
3/9/2011	SB-6	Rock gunnel	PYS	1	3.72
3/9/2011	SB-4	Grubby	PYS	5	26.04
3/9/2011	SB-3	American sandlance	YS	3	19.24
3/9/2011	SB-3	Grubby	PYS	1	6.41
3/9/2011	SB-5	American sandlance	YS	2	8.36
3/9/2011	SB-5	Atlantic herring	PYS	1	4.18
3/9/2011	SB-5	Grubby	PYS	2	8.36
3/9/2011	SB-5	Rock gunnel	PYS	1	4.18
3/21/2011	NB-7	Grubby	PYS	6	40.96
3/21/2011	NB-7	Summer flounder	PYS	1	6.83
3/21/2011	NB-7	Winter flounder	ES2	2	13.65
3/21/2011	NB-7	Winter flounder	ES4	2	13.65
3/21/2011	NB-7	Winter flounder	ES5	1	6.83
3/21/2011	NB-4	Atlantic herring	PYS	2	10.82
3/21/2011	NB-4	Atlantic tomcod	PYS	8	43.28
3/21/2011	NB-4	Grubby	PYS	6	32.46
3/21/2011	NB-4	Rock gunnel	PYS	1	5.41
3/21/2011	NB-4	Unidentifiable	UID	3	16.23
3/21/2011	NB-8	Grubby	PYS	9	37.20
3/21/2011	NB-8	Rock gunnel	PYS	1	4.13
3/21/2011	NB-6	Atlantic herring	PYS	7	30.63
3/21/2011	NB-6	Atlantic tomcod	PYS	4	17.50
3/21/2011	NB-6	Grubby	PYS	9	39.38
3/21/2011	NB-6	Rock gunnel	PYS	5	21.88
3/21/2011	AK-2	Windowpane	JUV	1	6.91
3/21/2011	AK-8	Atlantic tomcod	PYS	1	4.68

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
3/21/2011	AK-8	Grubby	PYS	4	18.71
3/21/2011	AK-8	Smallmouth flounder	JUV	1	4.68
3/21/2011	AK-3	Grubby	PYS	5	23.34
3/21/2011	AK-3	Winter flounder	ST1	5	23.34
3/21/2011	AK-3	Winter flounder	ST2	2	9.34
3/21/2011	SB-3	Grubby	PYS	7	32.10
3/21/2011	SB-3	Winter flounder	UID	11	50.44
3/21/2011	SB-3	Winter flounder	ST3	1	4.59
3/21/2011	SB-3	Unidentifiable	UID	9	41.27
3/21/2011	SB-4	American sandlance	YS	1	4.07
3/21/2011	SB-4	Cods	Egg	2	8.13
3/21/2011	SB-4	Grubby	PYS	21	85.40
3/21/2011	SB-4	Rock gunnel	PYS	1	4.07
3/21/2011	SB-4	Winter flounder	UID	2	8.13
3/21/2011	SB-4	Winter flounder	ST1	2	8.13
3/21/2011	SB-4	Winter flounder	ST2	3	12.20
3/21/2011	SB-4	Winter flounder	ST3	3	12.20
3/21/2011	SB-5	Atlantic herring	PYS	1	4.16
3/21/2011	SB-5	Grubby	PYS	6	24.95
3/21/2011	SB-5	Rock gunnel	PYS	1	4.16
3/21/2011	SB-5	Smallmouth flounder	JUV	1	4.16
3/23/2011	LB-14	Grubby	PYS	7	61.71
3/23/2011	LB-14	Winter flounder	ES2	1	8.82
3/23/2011	LB-14	Winter flounder	ES3	1	8.82
3/23/2011	LB-14	Winter flounder	ES4	2	17.63
3/23/2011	LB-2	American sandlance	YS	2	6.79
3/23/2011	LB-2	Grubby	PYS	2	6.79
3/23/2011	LB-2	Winter flounder	UID	2	6.79
3/23/2011	LB-2	Winter flounder	ST3	2	6.79
3/23/2011	LB-1	American sandlance	YS	2	11.19
3/23/2011	LB-1	American sandlance	PYS	1	5.60
3/23/2011	LB-1	Grubby	PYS	7	39.17
3/23/2011	LB-1	Winter flounder	ST1	1	5.60
3/23/2011	LB-1	Winter flounder	ST2	6	33.58
3/23/2011	LB-1	Winter flounder	ST3	39	218.24
3/23/2011	LB-1	Winter flounder	ES1	1	5.60
3/23/2011	LB-1	Winter flounder	ES4	1	5.60
3/23/2011	LB-1	Winter flounder	ES5	1	5.60
3/23/2011	LB-18	American sandlance	YS	2	10.00
3/23/2011	LB-18	Grubby	YS	1	5.00
3/23/2011	LB-18	Grubby	PYS	1	5.00

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
3/23/2011	LB-18	Winter flounder	ST3	24	120.02
3/23/2011	LB-18	Winter flounder	ES2	2	10.00
3/23/2011	LB-18	Winter flounder	ES4	1	5.00
3/23/2011	LB-18	Winter flounder	ES5	1	5.00
3/23/2011	LB-19	American sandlance	YS	4	22.42
3/23/2011	LB-19	Grubby	YS	1	5.61
3/23/2011	LB-19	Grubby	PYS	8	44.84
3/23/2011	LB-19	Rock gunnel	PYS	1	5.61
3/23/2011	LB-19	Winter flounder	UID	2	11.21
3/23/2011	LB-19	Winter flounder	ST2	2	11.21
3/23/2011	LB-19	Winter flounder	ST3	52	291.48
3/23/2011	LB-19	Winter flounder	ES3	2	11.21
3/23/2011	LB-16	American sandlance	YS	2	9.01
3/23/2011	LB-16	Grubby	PYS	4	18.02
3/23/2011	LB-16	Winter flounder	UID	1	4.50
3/23/2011	LB-16	Winter flounder	ST3	2	9.01
3/23/2011	LB-16	Winter flounder	ES2	6	27.03
3/23/2011	LB-16	Winter flounder	ES3	4	18.02
3/23/2011	LB-16	Winter flounder	ES5	1	4.50
3/23/2011	LB-20	American sandlance	YS	12	55.27
3/23/2011	LB-20	Grubby	PYS	5	23.03
3/23/2011	LB-20	Rock gunnel	PYS	2	9.21
3/23/2011	LB-20	Winter flounder	UID	6	27.64
3/23/2011	LB-20	Winter flounder	ST2	16	73.70
3/23/2011	LB-20	Winter flounder	ST3	88	405.33
3/23/2011	LB-13	American sandlance	YS	3	15.96
3/23/2011	LB-13	Grubby	PYS	3	15.96
3/23/2011	LB-13	Winter flounder	UID	15	79.78
3/23/2011	LB-13	Winter flounder	ST3	7	37.23
3/23/2011	LB-13	Winter flounder	ES1	1	5.32
3/23/2011	LB-13	Winter flounder	ES2	2	10.64
3/23/2011	LB-4	Atlantic tomcod	PYS	2	12.57
3/23/2011	LB-4	Grubby	YS	2	12.57
3/23/2011	LB-4	Grubby	PYS	73	458.72
3/23/2011	LB-4	Rock gunnel	PYS	4	25.14
3/23/2011	LB-4	Windowpane	JUV	1	6.28
3/23/2011	LB-4	Winter flounder	ST3	1	6.28
3/23/2011	LB-4	Winter flounder	ES1	13	81.69
3/23/2011	LB-4	Winter flounder	ES2	30	188.52
3/23/2011	LB-4	Winter flounder	ES3	8	50.27
3/23/2011	LB-4	Winter flounder	ES4	7	43.99

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
3/23/2011	LB-4	Winter flounder	ES5	1	6.28
3/23/2011	LB-12	Fourbeard rockling	Egg	1	6.20
3/23/2011	LB-12	Grubby	YS	3	18.59
3/23/2011	LB-12	Grubby	PYS	48	297.42
3/23/2011	LB-12	Winter flounder	ST3	1	6.20
3/23/2011	LB-12	Winter flounder	ES1	1	6.20
3/23/2011	LB-12	Winter flounder	ES2	1	6.20
3/23/2011	LB-12	Winter flounder	ES5	1	6.20
3/23/2011	LB-5	American sandlance	YS	1	5.03
3/23/2011	LB-5	Grubby	YS	1	5.03
3/23/2011	LB-5	Grubby	PYS	9	45.29
3/23/2011	LB-5	Winter flounder	UID	4	20.13
3/23/2011	LB-5	Winter flounder	ST1	2	10.07
3/23/2011	LB-5	Winter flounder	ST2	5	25.16
3/23/2011	LB-5	Winter flounder	ST3	10	50.33
3/23/2011	LB-5	Winter flounder	ES4	1	5.03
3/23/2011	LB-6	American sandlance	YS	2	7.74
3/23/2011	LB-6	Grubby	YS	1	3.87
3/23/2011	LB-6	Grubby	PYS	1	3.87
3/23/2011	LB-6	Rock gunnel	PYS	1	3.87
3/23/2011	LB-6	Winter flounder	UID	4	15.49
3/23/2011	LB-6	Winter flounder	ST3	2	7.74
3/23/2011	LB-21	American sandlance	YS	1	4.43
3/23/2011	LB-21	Grubby	PYS	4	17.72
3/23/2011	LB-21	Winter flounder	UID	2	8.86
3/23/2011	LB-21	Winter flounder	ES4	1	4.43
3/24/2011	LB-8	American sandlance	YS	2	7.97
3/24/2011	LB-8	Grubby	PYS	7	27.88
3/24/2011	LB-8	Rock gunnel	PYS	1	3.98
3/24/2011	LB-8	Winter flounder	ES2	8	31.86
3/24/2011	LB-8	Winter flounder	ES3	5	19.91
3/24/2011	LB-8	Winter flounder	ES4	6	23.90
3/24/2011	LB-8	Winter flounder	ES5	1	3.98
3/24/2011	LB-3	American sandlance	YS	3	12.60
3/24/2011	LB-3	Atlantic tomcod	PYS	1	4.20
3/24/2011	LB-3	Grubby	PYS	6	25.20
3/24/2011	LB-3	Rock gunnel	PYS	2	8.40
3/24/2011	LB-3	Winter flounder	UID	2	8.40
3/24/2011	LB-3	Winter flounder	ST1	6	25.20
3/24/2011	LB-3	Winter flounder	ST3	12	50.40
3/24/2011	LB-3	Winter flounder	ES2	1	4.20

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
3/24/2011	LB-3	Winter flounder	ES3	1	4.20
3/24/2011	LB-9	American sandlance	YS	2	8.44
3/24/2011	LB-9	Atlantic herring	PYS	4	16.88
3/24/2011	LB-9	Grubby	PYS	4	16.88
3/24/2011	LB-9	Winter flounder	ST2	2	8.44
3/24/2011	LB-9	Winter flounder	ST3	9	37.98
3/24/2011	SB-6	Atlantic tomcod	PYS	1	3.74
3/24/2011	SB-6	Grubby	PYS	32	119.56
3/24/2011	SB-6	Rock gunnel	PYS	3	11.21
3/24/2011	SB-6	Winter flounder	ST3	1	3.74
3/24/2011	PJ-1	Grubby	YS	2	8.51
3/24/2011	PJ-1	Grubby	PYS	13	55.29
3/24/2011	PJ-1	Winter flounder	UID	7	29.77
3/24/2011	PJ-1	Winter flounder	ST1	7	29.77
3/24/2011	PJ-1	Winter flounder	ST2	16	68.05
3/24/2011	PJ-1	Winter flounder	ST3	34	144.61
3/24/2011	PJ-2	Atlantic herring	PYS	1	4.37
3/24/2011	PJ-2	Atlantic tomcod	PYS	1	4.37
3/24/2011	PJ-2	Grubby	PYS	4	17.47
3/24/2011	PJ-2	Rock gunnel	PYS	1	4.37
3/24/2011	PJ-2	Winter flounder	UID	2	8.73
3/24/2011	PJ-2	Winter flounder	ST1	1	4.37
4/4/2011	PJ-2	American sandlance	YS	1	5.24
4/4/2011	PJ-2	Atlantic herring	PYS	1	5.24
4/4/2011	PJ-2	Fourbeard rockling	Egg	2	10.48
4/4/2011	PJ-2	Grubby	PYS	6	31.44
4/4/2011	PJ-2	Rock gunnel	PYS	1	5.24
4/4/2011	PJ-2	Winter flounder	UID	10	52.39
4/4/2011	PJ-2	Winter flounder	ST1	7	36.67
4/4/2011	PJ-2	Winter flounder	ST2	4	20.96
4/4/2011	PJ-2	Winter flounder	ST3	27	141.46
4/4/2011	NB-7	Fourbeard rockling	Egg	1	6.04
4/4/2011	NB-7	Grubby	PYS	5	30.22
4/4/2011	NB-7	Winter flounder	UID	5	30.22
4/4/2011	NB-7	Winter flounder	ST3	5	30.22
4/4/2011	NB-7	Seasnails and snailfishes	YS	1	6.04
4/4/2011	NB-6	Atlantic herring	PYS	4	26.25
4/4/2011	NB-6	Fourbeard rockling	Egg	6	39.38
4/4/2011	NB-6	Grubby	PYS	5	32.81
4/4/2011	NB-6	Winter flounder	ST3	1	6.56
4/4/2011	NB-6	Unidentifiable	PYS	1	6.56

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
4/4/2011	NB-4	Grubby	PYS	17	93.22
4/4/2011	NB-4	Winter flounder	ST1	3	16.45
4/4/2011	NB-4	Winter flounder	ST2	10	54.83
4/4/2011	NB-4	Winter flounder	ST3	67	367.38
4/4/2011	NB-8	Atlantic tomcod	PYS	3	16.61
4/4/2011	NB-8	Fourbeard rockling	Egg	12	66.46
4/4/2011	NB-8	Grubby	PYS	19	105.22
4/4/2011	NB-8	Northern pipefish	JUV	1	5.54
4/4/2011	AK-3	Fourbeard rockling	Egg	1	5.74
4/4/2011	AK-3	Grubby	PYS	4	22.96
4/4/2011	AK-3	Winter flounder	UID	1	5.74
4/4/2011	AK-3	Winter flounder	ST1	2	11.48
4/4/2011	AK-3	Winter flounder	ST2	1	5.74
4/4/2011	AK-3	Winter flounder	ST3	10	57.41
4/4/2011	AK-2	Fourbeard rockling	Egg	2	9.87
4/4/2011	AK-2	Grubby	PYS	11	54.26
4/4/2011	AK-2	Winter flounder	ST1	12	59.20
4/4/2011	AK-2	Winter flounder	ST2	8	39.46
4/4/2011	AK-2	Winter flounder	ST3	12	59.20
4/4/2011	AK-8	Grubby	PYS	5	24.05
4/4/2011	AK-8	Winter flounder	UID	9	43.29
4/4/2011	AK-8	Winter flounder	ST1	6	28.86
4/4/2011	AK-8	Winter flounder	ST2	4	19.24
4/4/2011	AK-8	Winter flounder	ST3	7	33.67
4/4/2011	AK-8	Winter flounder	ES4	1	4.81
4/4/2011	SB-4	American sandlance	YS	2	9.30
4/4/2011	SB-4	Fourbeard rockling	Egg	6	27.89
4/4/2011	SB-4	Grubby	PYS	5	23.24
4/4/2011	SB-4	Winter flounder	UID	6	27.89
4/4/2011	SB-4	Winter flounder	ST1	11	51.13
4/4/2011	SB-4	Winter flounder	ST2	25	116.20
4/4/2011	SB-4	Winter flounder	ST3	216	1,003.95
4/4/2011	SB-3	Fourbeard rockling	Egg	8	44.38
4/4/2011	SB-3	Grubby	PYS	3	16.64
4/4/2011	SB-3	Winter flounder	ST3	205	1,137.35
4/4/2011	SB-3	Winter flounder	ES4	1	5.55
4/4/2011	PJ-1	American sandlance	PYS	1	4.46
4/4/2011	PJ-1	Fourbeard rockling	Egg	8	35.64
4/4/2011	PJ-1	Grubby	PYS	7	31.19
4/4/2011	PJ-1	Winter flounder	ST3	19	84.65
4/6/2011	LB-14	American sandlance	PYS	2	7.08

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
4/6/2011	LB-14	Fourbeard rockling	Egg	6	21.25
4/6/2011	LB-14	Grubby	PYS	7	24.79
4/6/2011	LB-14	Rock gunnel	PYS	1	3.54
4/6/2011	LB-14	Winter flounder	UID	3	10.63
4/6/2011	LB-14	Winter flounder	ST2	3	10.63
4/6/2011	LB-14	Winter flounder	ST3	45	159.38
4/6/2011	LB-2	American sandlance	PYS	1	3.63
4/6/2011	LB-2	Fourbeard rockling	Egg	7	25.44
4/6/2011	LB-2	Cods	Egg	5	18.17
4/6/2011	LB-2	Grubby	PYS	12	43.61
4/6/2011	LB-2	Winter flounder	ST3	6	21.80
4/6/2011	LB-5	American sandlance	YS	4	18.88
4/6/2011	LB-5	Fourbeard rockling	Egg	2	9.44
4/6/2011	LB-5	Grubby	PYS	8	37.77
4/6/2011	LB-5	Winter flounder	ST1	12	56.65
4/6/2011	LB-5	Winter flounder	ST2	18	84.98
4/6/2011	LB-5	Winter flounder	ST3	122	575.98
4/6/2011	LB-6	American sandlance	YS	3	13.52
4/6/2011	LB-6	Fourbeard rockling	Egg	3	13.52
4/6/2011	LB-6	Cods	Egg	1	4.51
4/6/2011	LB-6	Grubby	PYS	9	40.55
4/6/2011	LB-6	Winter flounder	ST2	1	4.51
4/6/2011	LB-6	Winter flounder	ST3	13	58.58
4/6/2011	LB-6	Winter flounder	ES5	3	13.52
4/6/2011	LB-21	Fourbeard rockling	Egg	2	10.52
4/6/2011	LB-21	Cods	Egg	10	52.59
4/6/2011	LB-21	Grubby	PYS	11	57.85
4/6/2011	LB-21	Rock gunnel	PYS	1	5.26
4/6/2011	LB-21	Summer flounder	PYS	1	5.26
4/6/2011	LB-21	Winter flounder	ST1	1	5.26
4/6/2011	LB-21	Winter flounder	ST2	1	5.26
4/6/2011	LB-21	Winter flounder	ST3	45	236.66
4/6/2011	LB-21	Winter flounder	ES1	48	252.44
4/6/2011	LB-21	Winter flounder	ES2	134	704.72
4/6/2011	LB-21	Winter flounder	ES3	56	294.51
4/6/2011	LB-21	Winter flounder	ES4	36	189.33
4/6/2011	LB-21	Winter flounder	ES5	10	52.59
4/6/2011	LB-3	Fourbeard rockling	Egg	5	29.60
4/6/2011	LB-3	Grubby	YS	1	5.92
4/6/2011	LB-3	Grubby	PYS	49	290.03
4/6/2011	LB-3	Grubby	JUV	1	5.92

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
4/6/2011	LB-3	Winter flounder	ST3	25	147.98
4/6/2011	LB-3	Winter flounder	ES4	1	5.92
4/6/2011	LB-8	American sandlance	YS	1	5.61
4/6/2011	LB-8	Cods	Egg	2	11.23
4/6/2011	LB-8	Grubby	PYS	19	106.65
4/6/2011	LB-8	Grubby	JUV	3	16.84
4/6/2011	LB-8	Winter flounder	UID	4	22.45
4/6/2011	LB-8	Winter flounder	ST1	4	22.45
4/6/2011	LB-8	Winter flounder	ST2	17	95.42
4/6/2011	LB-8	Winter flounder	ST3	250	1,403.29
4/6/2011	LB-9	American sandlance	YS	2	10.92
4/6/2011	LB-9	Cods	Egg	3	16.38
4/6/2011	LB-9	Grubby	YS	1	5.46
4/6/2011	LB-9	Grubby	PYS	12	65.50
4/6/2011	LB-9	Winter flounder	UID	26	141.92
4/6/2011	LB-9	Winter flounder	ST2	1	5.46
4/6/2011	LB-9	Winter flounder	ST3	46	251.09
4/6/2011	SB-6	American sandlance	YS	1	4.69
4/6/2011	SB-6	Fourbeard rockling	Egg	8	37.53
4/6/2011	SB-6	Grubby	PYS	13	60.99
4/6/2011	SB-6	Winter flounder	UID	6	28.15
4/6/2011	SB-6	Winter flounder	ST1	2	9.38
4/6/2011	SB-6	Winter flounder	ST2	1	4.69
4/6/2011	SB-6	Winter flounder	ST3	26	121.98
4/6/2011	SB-5	American sandlance	YS	1	4.77
4/6/2011	SB-5	Fourbeard rockling	Egg	8	38.16
4/6/2011	SB-5	Grubby	YS	2	9.54
4/6/2011	SB-5	Grubby	PYS	16	76.32
4/6/2011	SB-5	Winter flounder	UID	3	14.31
4/6/2011	SB-5	Winter flounder	ST3	6	28.62
4/7/2011	LB-1	American sandlance	YS	4	18.67
4/7/2011	LB-1	American sandlance	PYS	1	4.67
4/7/2011	LB-1	Grubby	PYS	13	60.67
4/7/2011	LB-1	Winter flounder	ST1	12	56.00
4/7/2011	LB-1	Winter flounder	ST2	13	60.67
4/7/2011	LB-1	Winter flounder	ST3	72	336.01
4/7/2011	LB-1	Winter flounder	ES4	2	9.33
4/7/2011	LB-1	Winter flounder	ES5	1	4.67
4/7/2011	LB-1	Seasnails and snailfishes	YS	1	4.67
4/7/2011	LB-18	Fourbeard rockling	Egg	2	10.70
4/7/2011	LB-18	Gobies	PYS	4	21.40

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
4/7/2011	LB-18	Rock gunnel	PYS	1	5.35
4/7/2011	LB-18	Winter flounder	UID	3	16.05
4/7/2011	LB-18	Winter flounder	ST3	14	74.90
4/7/2011	LB-18	Winter flounder	ES2	5	26.75
4/7/2011	LB-18	Winter flounder	ES3	3	16.05
4/7/2011	LB-18	Winter flounder	ES4	8	42.80
4/7/2011	LB-18	Winter flounder	ES5	4	21.40
4/7/2011	LB-19	American sandlance	YS	2	8.86
4/7/2011	LB-19	Cods	Egg	2	8.86
4/7/2011	LB-19	Grubby	PYS	11	48.75
4/7/2011	LB-19	Winter flounder	ST1	5	22.16
4/7/2011	LB-19	Winter flounder	ST2	7	31.02
4/7/2011	LB-19	Winter flounder	ST3	55	243.73
4/7/2011	LB-19	Seasnails and snailfishes	YS	1	4.43
4/7/2011	LB-16	Fourbeard rockling	Egg	1	4.89
4/7/2011	LB-16	Grubby	PYS	61	298.20
4/7/2011	LB-16	Winter flounder	UID	10	48.89
4/7/2011	LB-16	Winter flounder	ST3	44	215.10
4/7/2011	LB-16	Winter flounder	ES2	5	24.44
4/7/2011	LB-16	Winter flounder	ES3	1	4.89
4/7/2011	LB-16	Winter flounder	ES4	4	19.55
4/7/2011	LB-16	Winter flounder	ES5	1	4.89
4/7/2011	LB-16	Seasnails and snailfishes	YS	1	4.89
4/7/2011	LB-20	Fourbeard rockling	Egg	2	12.73
4/7/2011	LB-20	Cods	Egg	5	31.82
4/7/2011	LB-20	Grubby	PYS	10	63.63
4/7/2011	LB-20	Winter flounder	UID	8	50.91
4/7/2011	LB-20	Winter flounder	ST3	31	197.26
4/7/2011	LB-20	Winter flounder	ES4	1	6.36
4/7/2011	LB-20	Seasnails and snailfishes	PYS	1	6.36
4/7/2011	LB-13	American sandlance	YS	3	14.24
4/7/2011	LB-13	Cods	Egg	5	23.73
4/7/2011	LB-13	Grubby	PYS	8	37.97
4/7/2011	LB-13	Winter flounder	UID	8	37.97
4/7/2011	LB-13	Winter flounder	ST3	49	232.57
4/7/2011	LB-13	Winter flounder	ES2	1	4.75
4/7/2011	LB-13	Winter flounder	ES4	4	18.99
4/7/2011	LB-13	Winter flounder	ES5	1	4.75
4/7/2011	LB-13	Seasnails and snailfishes	YS	2	9.49
4/7/2011	LB-4	Atlantic tomcod	PYS	1	5.67
4/7/2011	LB-4	Cods	Egg	15	85.12

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
4/7/2011	LB-4	Gobies	YS	1	5.67
4/7/2011	LB-4	Gobies	PYS	114	646.93
4/7/2011	LB-4	Winter flounder	ST3	3	17.02
4/7/2011	LB-4	Winter flounder	ES2	1	5.67
4/7/2011	LB-4	Winter flounder	ES4	3	17.02
4/7/2011	LB-4	Winter flounder	ES5	1	5.67
4/7/2011	LB-4	Seasnails and snailfishes	YS	1	5.67
4/7/2011	LB-12	American sandlance	YS	9	46.01
4/7/2011	LB-12	Grubby	YS	1	5.11
4/7/2011	LB-12	Grubby	PYS	47	240.29
4/7/2011	LB-12	Northern pipefish	JUV	1	5.11
4/7/2011	LB-12	Rock gunnel	PYS	2	10.23
4/7/2011	LB-12	Winter flounder	ST1	11	56.24
4/7/2011	LB-12	Winter flounder	ST2	14	71.58
4/7/2011	LB-12	Winter flounder	ST3	81	414.13
4/7/2011	LB-12	Seasnails and snailfishes	YS	2	10.23
4/20/2011	LB-14	American sandlance	YS	1	3.47
4/20/2011	LB-14	Grubby	PYS	3	10.40
4/20/2011	LB-14	Winter flounder	ST2	2	6.93
4/20/2011	LB-14	Winter flounder	ST3	30	103.97
4/20/2011	LB-1	American sandlance	YS	1	4.93
4/20/2011	LB-1	Grubby	YS	1	4.93
4/20/2011	LB-1	Grubby	PYS	12	59.14
4/20/2011	LB-1	Windowpane	Egg	15	73.92
4/20/2011	LB-1	Winter flounder	ST3	38	187.27
4/20/2011	LB-1	Winter flounder	ES4	1	4.93
4/20/2011	LB-18	American sandlance	PYS	15	78.76
4/20/2011	LB-18	Grubby	PYS	6	31.50
4/20/2011	LB-18	Windowpane	Egg	9	47.26
4/20/2011	LB-18	Winter flounder	ST3	18	94.51
4/20/2011	LB-18	Winter flounder	ES2	3	15.75
4/20/2011	LB-18	Winter flounder	ES3	5	26.25
4/20/2011	LB-18	Winter flounder	ES4	6	31.50
4/20/2011	LB-18	Seasnails and snailfishes	YS	2	10.50
4/20/2011	LB-19	American sandlance	PYS	1	4.83
4/20/2011	LB-19	Grubby	PYS	2	9.66
4/20/2011	LB-19	Windowpane	Egg	10	48.32
4/20/2011	LB-19	Winter flounder	ST3	26	125.63
4/20/2011	LB-19	Winter flounder	ES2	7	33.82
4/20/2011	LB-19	Winter flounder	ES3	2	9.66
4/20/2011	LB-19	Winter flounder	ES4	2	9.66

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
4/20/2011	LB-19	Winter flounder	ES5	1	4.83
4/20/2011	LB-16	Grubby	PYS	2	9.22
4/20/2011	LB-16	Grubby	JUV	1	4.61
4/20/2011	LB-16	Windowpane	Egg	10	46.10
4/20/2011	LB-16	Winter flounder	ST3	56	258.16
4/20/2011	LB-16	Winter flounder	ES2	9	41.49
4/20/2011	LB-16	Winter flounder	ES3	5	23.05
4/20/2011	LB-16	Winter flounder	ES4	3	13.83
4/20/2011	LB-16	Winter flounder	ES5	3	13.83
4/20/2011	LB-20	Grubby	PYS	3	15.10
4/20/2011	LB-20	Windowpane	Egg	9	45.30
4/20/2011	LB-20	Winter flounder	ST3	45	226.49
4/20/2011	LB-20	Seasnails and snailfishes	PYS	1	5.03
4/20/2011	LB-13	American sandlance	YS	4	17.72
4/20/2011	LB-13	Grubby	PYS	2	8.86
4/20/2011	LB-13	Windowpane	Egg	3	13.29
4/20/2011	LB-13	Winter flounder	ST3	54	239.27
4/20/2011	LB-13	Seasnails and snailfishes	YS	1	4.43
4/20/2011	LB-4	Grubby	PYS	7	38.95
4/20/2011	LB-4	Grubby	JUV	3	16.69
4/20/2011	LB-4	Rock gunnel	JUV	1	5.56
4/20/2011	LB-4	Windowpane	Egg	26	144.68
4/20/2011	LB-4	Winter flounder	ST3	10	55.65
4/20/2011	LB-12	American sandlance	YS	1	5.05
4/20/2011	LB-12	Grubby	PYS	41	207.21
4/20/2011	LB-12	Grubby	JUV	4	20.22
4/20/2011	LB-12	Rock gunnel	JUV	4	20.22
4/20/2011	LB-12	Windowpane	Egg	6	30.32
4/20/2011	LB-12	Winter flounder	ST3	201	1,015.85
4/20/2011	LB-5	American sandlance	YS	4	17.19
4/20/2011	LB-5	Rock gunnel	PYS	1	4.30
4/20/2011	LB-5	Winter flounder	ST3	41	176.21
4/20/2011	LB-6	American sandlance	YS	2	8.02
4/20/2011	LB-6	Grubby	PYS	1	4.01
4/20/2011	LB-6	Winter flounder	ST3	107	429.21
4/20/2011	LB-21	Grubby	PYS	1	5.36
4/20/2011	LB-21	Windowpane	Egg	88	471.54
4/20/2011	LB-21	Winter flounder	ST3	42	225.05
4/21/2011	AK-2	Grubby	YS	1	6.74
4/21/2011	AK-2	Windowpane	Egg	4	26.97
4/21/2011	AK-2	Winter flounder	ST3	4	26.97

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
4/21/2011	AK-2	Yellow perch	YS	1	6.74
4/21/2011	AK-8	American sandlance	YS	1	6.26
4/21/2011	AK-8	Atlantic tomcod	PYS	1	6.26
4/21/2011	AK-8	Grubby	PYS	2	12.52
4/21/2011	AK-8	Rock gunnel	PYS	1	6.26
4/21/2011	AK-8	Winter flounder	ST3	1	6.26
4/21/2011	AK-3	Grubby	PYS	5	27.97
4/21/2011	AK-3	Winter flounder	ST1	5	27.97
4/21/2011	AK-3	Winter flounder	ST2	6	33.57
4/21/2011	AK-3	Winter flounder	ST3	1	5.59
4/21/2011	NB-6	American sandlance	YS	1	4.42
4/21/2011	NB-6	Grubby	YS	1	4.42
4/21/2011	NB-6	Winter flounder	ST1	6	26.55
4/21/2011	NB-6	Winter flounder	ST2	6	26.55
4/21/2011	NB-6	Winter flounder	ST3	11	48.67
4/21/2011	NB-8	American sandlance	YS	1	4.05
4/21/2011	NB-8	Grubby	PYS	1	4.05
4/21/2011	NB-8	Winter flounder	UID	3	12.16
4/21/2011	NB-8	Winter flounder	ST2	2	8.10
4/21/2011	NB-8	Winter flounder	ST3	7	28.36
4/21/2011	NB-4	Winter flounder	UID	1	5.17
4/21/2011	NB-4	Winter flounder	ST3	1	5.17
4/21/2011	NB-7	American sandlance	YS	2	11.87
4/21/2011	NB-7	Winter flounder	UID	1	5.93
4/21/2011	NB-7	Winter flounder	ST3	1	5.93
4/21/2011	NB-7	Unidentifiable	UID	1	5.93
4/21/2011	PJ-1	American sandlance	YS	4	18.61
4/21/2011	PJ-1	Windowpane	Egg	2	9.31
4/21/2011	PJ-1	Winter flounder	UID	4	18.61
4/21/2011	PJ-1	Winter flounder	ST1	2	9.31
4/21/2011	PJ-1	Winter flounder	ST2	1	4.65
4/21/2011	PJ-1	Winter flounder	ST3	13	60.48
4/21/2011	PJ-2	Grubby	PYS	1	6.06
4/21/2011	PJ-2	Winter flounder	UID	4	24.25
4/21/2011	PJ-2	Winter flounder	ST3	1	6.06
4/22/2011	LB-2	American sandlance	PYS	2	16.51
4/22/2011	LB-2	Grubby	PYS	21	173.40
4/22/2011	LB-2	Grubby	JUV	5	41.29
4/22/2011	LB-2	Rock gunnel	PYS	2	16.51
4/22/2011	LB-2	Windowpane	Egg	6	49.54
4/22/2011	LB-2	Winter flounder	ST3	109	900.01

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
4/22/2011	LB-2	Winter flounder	ES2	1	8.26
4/22/2011	LB-2	Winter flounder	ES4	1	8.26
4/22/2011	LB-9	American sandlance	YS	2	12.59
4/22/2011	LB-9	American sandlance	PYS	1	6.29
4/22/2011	LB-9	Grubby	YS	1	6.29
4/22/2011	LB-9	Grubby	PYS	5	31.46
4/22/2011	LB-9	Windowpane	Egg	6	37.76
4/22/2011	LB-9	Winter flounder	ST3	89	560.04
4/22/2011	LB-8	Grubby	PYS	2	9.21
4/22/2011	LB-8	Winter flounder	ST3	54	248.75
4/22/2011	LB-8	Seasnails and snailfishes	PYS	1	4.61
4/22/2011	LB-3	American sandlance	YS	4	18.65
4/22/2011	LB-3	Fourbeard rockling	Egg	1	4.66
4/22/2011	LB-3	Grubby	YS	1	4.66
4/22/2011	LB-3	Grubby	PYS	4	18.65
4/22/2011	LB-3	Windowpane	Egg	2	9.32
4/22/2011	LB-3	Winter flounder	ST1	3	13.99
4/22/2011	LB-3	Winter flounder	ST2	7	32.63
4/22/2011	LB-3	Winter flounder	ST3	89	414.92
4/22/2011	LB-3	Seasnails and snailfishes	PYS	1	4.66
4/22/2011	SB-6	American sandlance	YS	4	13.67
4/22/2011	SB-6	Winter flounder	UID	5	17.09
4/22/2011	SB-6	Winter flounder	ST2	2	6.83
4/22/2011	SB-6	Winter flounder	ST3	5	17.09
4/22/2011	SB-6	Seasnails and snailfishes	YS	2	6.83
4/22/2011	SB-3	American sandlance	YS	4	15.10
4/22/2011	SB-3	Winter flounder	UID	7	26.43
4/22/2011	SB-3	Winter flounder	ST3	1	3.78
4/22/2011	SB-4	Grubby	PYS	3	14.04
4/22/2011	SB-4	Rock gunnel	PYS	1	4.68
4/22/2011	SB-4	Windowpane	Egg	3	14.04
4/22/2011	SB-4	Winter flounder	ST3	11	51.49
4/22/2011	SB-5	Winter flounder	UID	6	21.66
4/22/2011	SB-5	Winter flounder	ST3	11	39.70
4/22/2011	SB-5	Unidentifiable	UID	1	3.61
5/4/2011	SB-4	Grubby	YS	1	5.74
5/4/2011	SB-4	Grubby	PYS	2	11.48
5/4/2011	SB-4	Windowpane	Egg	26	149.20
5/4/2011	SB-4	Winter flounder	ST3	26	149.20
5/4/2011	SB-3	Grubby	PYS	1	3.78
5/4/2011	SB-3	Winter flounder	ST2	1	3.78

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
5/4/2011	SB-6	Winter flounder	ST2	1	3.29
5/4/2011	NB-6	Winter flounder	ST3	1	4.59
5/4/2011	NB-4	Winter flounder	ST2	1	4.71
5/4/2011	NB-4	Winter flounder	ST3	1	4.71
5/4/2011	NB-8	Winter flounder	ST3	14	87.12
5/4/2011	NB-8	Winter flounder	ST4	1	6.22
5/4/2011	NB-7	Winter flounder	ST2	2	11.96
5/4/2011	NB-7	Winter flounder	ST3	1	5.98
5/4/2011	NB-7	Seasnails and snailfishes	PYS	1	5.98
5/4/2011	AK-2	Winter flounder	ST2	1	4.40
5/4/2011	AK-2	Winter flounder	ST3	1	4.40
5/4/2011	AK-8	Grubby	PYS	1	5.97
5/4/2011	AK-8	Winter flounder	ST3	28	167.05
5/4/2011	AK-8	Winter flounder	ST4	1	5.97
5/4/2011	AK-3	Atlantic silverside	YS	3	12.00
5/4/2011	AK-3	Windowpane	Egg	3	12.00
5/4/2011	AK-3	Winter flounder	ST3	15	60.02
5/4/2011	SB-5	Grubby	PYS	1	4.58
5/4/2011	SB-5	Windowpane	Egg	11	50.38
5/4/2011	SB-5	Winter flounder	ST3	14	64.12
5/4/2011	SB-5	Winter flounder	ST4	1	4.58
5/5/2011	LB-20	Windowpane	Egg	12	42.82
5/5/2011	LB-13	Grubby	PYS	2	8.18
5/5/2011	LB-13	Windowpane	Egg	11	44.98
5/5/2011	LB-13	Winter flounder	ST3	10	40.89
5/5/2011	LB-6	Atlantic menhaden	Egg	4	13.68
5/5/2011	LB-6	Windowpane	Egg	9	30.77
5/5/2011	LB-6	Winter flounder	ST3	9	30.77
5/5/2011	LB-21	Atlantic menhaden	Egg	14	72.88
5/5/2011	LB-21	Grubby	PYS	1	5.21
5/5/2011	LB-21	Windowpane	Egg	38	197.82
5/5/2011	LB-21	Winter flounder	ST3	16	83.29
5/5/2011	LB-5	Atlantic menhaden	Egg	2	10.59
5/5/2011	LB-5	Windowpane	Egg	42	222.33
5/5/2011	LB-5	Winter flounder	ST2	1	5.29
5/5/2011	LB-5	Winter flounder	ST3	12	63.52
5/5/2011	LB-3	Windowpane	Egg	32	138.82
5/5/2011	LB-3	Winter flounder	UID	11	47.72
5/5/2011	LB-3	Seasnails and snailfishes	PYS	1	4.34
5/5/2011	LB-8	Atlantic menhaden	Egg	2	7.07
5/5/2011	LB-8	Windowpane	Egg	11	38.89

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
5/5/2011	LB-8	Winter flounder	UID	1	3.54
5/5/2011	LB-8	Winter flounder	ST2	2	7.07
5/5/2011	LB-8	Winter flounder	ST3	6	21.21
5/5/2011	LB-9	Windowpane	Egg	20	69.53
5/5/2011	LB-9	Winter flounder	UID	5	17.38
5/5/2011	LB-9	Winter flounder	ST3	3	10.43
5/5/2011	LB-2	Atlantic menhaden	Egg	2	11.09
5/5/2011	LB-2	Grubby	PYS	1	5.55
5/5/2011	LB-2	Windowpane	Egg	3	16.64
5/5/2011	LB-2	Winter flounder	ST2	1	5.55
5/5/2011	LB-2	Winter flounder	ST3	6	33.28
5/5/2011	LB-14	Grubby	PYS	1	6.02
5/5/2011	LB-14	Windowpane	Egg	8	48.15
5/5/2011	LB-14	Winter flounder	ST3	10	60.18
5/5/2011	LB-14	Seasnails and snailfishes	PYS	3	18.05
5/5/2011	PJ-1	Windowpane	Egg	2	8.83
5/5/2011	PJ-1	Winter flounder	ST3	2	8.83
5/6/2011	LB-1	Grubby	PYS	1	4.87
5/6/2011	LB-1	Windowpane	Egg	24	116.96
5/6/2011	LB-1	Winter flounder	ST2	1	4.87
5/6/2011	LB-1	Winter flounder	ST3	9	43.86
5/6/2011	LB-1	Wrasses	Egg	4	19.49
5/6/2011	LB-18	Grubby	PYS	1	5.20
5/6/2011	LB-18	Windowpane	Egg	10	52.04
5/6/2011	LB-18	Winter flounder	ST3	2	10.41
5/6/2011	LB-18	Wrasses	Egg	2	10.41
5/6/2011	LB-19	Windowpane	Egg	10	49.09
5/6/2011	LB-19	Winter flounder	ST3	5	24.54
5/6/2011	LB-19	Wrasses	Egg	2	9.82
5/6/2011	LB-16	Windowpane	Egg	3	13.84
5/6/2011	LB-16	Winter flounder	ST3	7	32.29
5/6/2011	LB-16	Unidentifiable	UID	1	4.61
5/6/2011	LB-4	Grubby	PYS	13	67.40
5/6/2011	LB-4	Rock gunnel	PYS	3	15.55
5/6/2011	LB-4	Windowpane	Egg	25	129.62
5/6/2011	LB-4	Winter flounder	ST3	155	803.67
5/6/2011	LB-4	Wrasses	Egg	2	10.37
5/6/2011	LB-12	Windowpane	Egg	13	67.91
5/6/2011	LB-12	Winter flounder	ST1	1	5.22
5/6/2011	LB-12	Winter flounder	ST2	1	5.22
5/6/2011	LB-12	Winter flounder	ST3	27	141.04

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
5/6/2011	LB-12	Seasnails and snailfishes	PYS	1	5.22
5/6/2011	PJ-2	Winter flounder	ST3	5	29.56
5/20/2011	LB-1	Atlantic menhaden	Egg	228	1,108.28
5/20/2011	LB-1	Bay anchovy	Egg	16	77.77
5/20/2011	LB-1	Cods	Egg	34	165.27
5/20/2011	LB-1	Wrasses	Egg	8	38.89
5/20/2011	LB-18	Atlantic menhaden	Egg	516	3,284.36
5/20/2011	LB-18	Bay anchovy	Egg	12	76.38
5/20/2011	LB-18	Cods	Egg	40	254.60
5/20/2011	LB-18	Searobins	Egg	20	127.30
5/20/2011	LB-18	Winter flounder	ST3	1	6.37
5/20/2011	LB-18	Wrasses	Egg	40	254.60
5/20/2011	LB-19	Atlantic menhaden	Egg	360	2,145.14
5/20/2011	LB-19	Bay anchovy	Egg	28	166.84
5/20/2011	LB-19	Searobins	Egg	4	23.83
5/20/2011	LB-19	Windowpane	Egg	24	143.01
5/20/2011	LB-19	Windowpane	PYS	3	17.88
5/20/2011	LB-19	Winter flounder	ST3	3	17.88
5/20/2011	LB-19	Wrasses	Egg	88	524.37
5/20/2011	LB-16	Atlantic menhaden	Egg	368	1,869.04
5/20/2011	LB-16	Bay anchovy	Egg	36	182.84
5/20/2011	LB-16	Fourbeard rockling	PYS	1	5.08
5/20/2011	LB-16	Searobins	Egg	20	101.58
5/20/2011	LB-16	Windowpane	Egg	72	365.68
5/20/2011	LB-16	Winter flounder	UID	1	5.08
5/20/2011	LB-16	Winter flounder	ST3	2	10.16
5/20/2011	LB-16	Wrasses	Egg	144	731.36
5/20/2011	LB-20	Atlantic menhaden	Egg	100	504.70
5/20/2011	LB-20	Bay anchovy	Egg	12	60.56
5/20/2011	LB-20	Searobins	Egg	12	60.56
5/20/2011	LB-20	Windowpane	Egg	200	1,009.39
5/20/2011	LB-20	Windowpane	PYS	3	15.14
5/20/2011	LB-20	Winter flounder	ST3	1	5.05
5/20/2011	LB-20	Wrasses	Egg	92	464.32
5/20/2011	LB-13	Atlantic menhaden	Egg	12	61.85
5/20/2011	LB-13	Bay anchovy	Egg	108	556.67
5/20/2011	LB-13	Searobins	Egg	8	41.23
5/20/2011	LB-13	Windowpane	Egg	252	1,298.89
5/20/2011	LB-13	Windowpane	PYS	2	10.31
5/20/2011	LB-13	Winter flounder	ST3	3	15.46
5/20/2011	LB-13	Wrasses	Egg	128	659.75

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
5/20/2011	LB-4	Atlantic menhaden	Egg	84	461.69
5/20/2011	LB-4	Bay anchovy	Egg	20	109.93
5/20/2011	LB-4	Conger eel	PYS	9	49.47
5/20/2011	LB-4	Fourbeard rockling	PYS	1	5.50
5/20/2011	LB-4	Searobins	Egg	4	21.99
5/20/2011	LB-4	Windowpane	Egg	164	901.40
5/20/2011	LB-4	Windowpane	PYS	5	27.48
5/20/2011	LB-4	Winter flounder	UID	1	5.50
5/20/2011	LB-4	Winter flounder	ST3	86	472.69
5/20/2011	LB-4	Winter flounder	ST4	7	38.47
5/20/2011	LB-4	Wrasses	Egg	88	483.68
5/20/2011	LB-12	Bay anchovy	Egg	144	787.97
5/20/2011	LB-12	Windowpane	Egg	188	1,028.73
5/20/2011	LB-12	Winter flounder	ST3	10	54.72
5/20/2011	LB-12	Wrasses	Egg	120	656.64
5/20/2011	LB-5	Atlantic menhaden	Egg	56	265.84
5/20/2011	LB-5	Atlantic menhaden	UID	2	9.49
5/20/2011	LB-5	Bay anchovy	Egg	224	1,063.35
5/20/2011	LB-5	Fourbeard rockling	Egg	8	37.98
5/20/2011	LB-5	Searobins	Egg	16	75.95
5/20/2011	LB-5	Windowpane	Egg	184	873.47
5/20/2011	LB-5	Windowpane	YS	2	9.49
5/20/2011	LB-5	Windowpane	PYS	1	4.75
5/20/2011	LB-5	Winter flounder	ST3	5	23.74
5/20/2011	LB-5	Wrasses	Egg	400	1,898.84
5/20/2011	LB-6	Atlantic menhaden	Egg	64	261.15
5/20/2011	LB-6	Atlantic menhaden	UID	4	16.32
5/20/2011	LB-6	Bay anchovy	Egg	64	261.15
5/20/2011	LB-6	Windowpane	Egg	32	130.57
5/20/2011	LB-6	Windowpane	PYS	1	4.08
5/20/2011	LB-6	Wrasses	Egg	128	522.29
5/20/2011	LB-21	Bay anchovy	Egg	448	2,321.89
5/20/2011	LB-21	Fourbeard rockling	PYS	1	5.18
5/20/2011	LB-21	Windowpane	Egg	28	145.12
5/20/2011	LB-21	Windowpane	PYS	1	5.18
5/20/2011	LB-21	Wrasses	Egg	104	539.01
5/23/2011	AK-3	Atlantic menhaden	PYS	1	5.07
5/23/2011	AK-3	Atlantic silverside	UID	1	5.07
5/23/2011	AK-3	Atlantic tomcod	JUV	6	30.41
5/23/2011	AK-3	Bay anchovy	Egg	6	30.41
5/23/2011	AK-3	Winter flounder	UID	5	25.34

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
5/23/2011	AK-3	Winter flounder	ST3	6	30.41
5/23/2011	AK-3	Winter flounder	ST4	12	60.81
5/23/2011	AK-3	Wrasses	Egg	2	10.14
5/23/2011	AK-8	Atlantic menhaden	PYS	2	8.33
5/23/2011	AK-8	Bay anchovy	Egg	5	20.83
5/23/2011	AK-8	Winter flounder	ST2	1	4.17
5/23/2011	AK-2	Atlantic menhaden	PYS	2	8.75
5/23/2011	AK-2	Bay anchovy	Egg	9	39.37
5/23/2011	AK-2	Carp	YS	1	4.37
5/23/2011	AK-2	Winter flounder	ST3	1	4.37
5/23/2011	AK-2	Winter flounder	ST4	3	13.12
5/23/2011	NB-6	Bay anchovy	Egg	13	61.03
5/23/2011	NB-6	Windowpane	Egg	1	4.69
5/23/2011	NB-6	Winter flounder	UID	1	4.69
5/23/2011	NB-6	Winter flounder	ST3	2	9.39
5/23/2011	NB-6	Winter flounder	ST4	6	28.17
5/23/2011	NB-8	Atlantic silverside	PYS	1	4.17
5/23/2011	NB-8	Northern pipefish	YS	1	4.17
5/23/2011	NB-8	White perch	PYS	1	4.17
5/23/2011	NB-8	Winter flounder	ST3	3	12.51
5/23/2011	NB-4	White perch	YS	25	118.88
5/23/2011	NB-4	Winter flounder	ST3	1	4.76
5/23/2011	NB-4	Unidentifiable	UID	6	28.53
5/23/2011	NB-7	Bay anchovy	Egg	2	13.21
5/23/2011	PJ-1	Atlantic menhaden	UID	2	8.89
5/23/2011	PJ-1	Bay anchovy	Egg	12	53.37
5/23/2011	PJ-1	Tautog	PYS	1	4.45
5/23/2011	PJ-1	Winter flounder	ST3	4	17.79
5/23/2011	SB-5	Bay anchovy	Egg	51	202.06
5/23/2011	SB-5	Windowpane	Egg	2	7.92
5/23/2011	SB-5	Windowpane	PYS	3	11.89
5/23/2011	SB-5	Winter flounder	ST3	11	43.58
5/23/2011	SB-5	Winter flounder	ST4	8	31.70
5/23/2011	PJ-2	Bay anchovy	Egg	6	30.89
5/23/2011	PJ-2	Winter flounder	ST3	1	5.15
5/24/2011	LB-8	Atlantic menhaden	Egg	8	44.29
5/24/2011	LB-8	Bay anchovy	Egg	1216	6,732.17
5/24/2011	LB-8	Windowpane	Egg	16	88.58
5/24/2011	LB-8	Wrasses	Egg	88	487.20
5/24/2011	LB-3	Bay anchovy	Egg	224	1,331.83
5/24/2011	LB-3	Northern pipefish	PYS	1	5.95

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
5/24/2011	LB-3	Windowpane	Egg	40	237.83
5/24/2011	LB-3	Winter flounder	ST3	4	23.78
5/24/2011	LB-3	Wrasses	Egg	256	1,522.09
5/24/2011	LB-9	Atlantic menhaden	Egg	56	580.07
5/24/2011	LB-9	Bay anchovy	Egg	160	1,657.34
5/24/2011	LB-9	Cods	Egg	8	82.87
5/24/2011	LB-9	Windowpane	Egg	160	1,657.34
5/24/2011	LB-9	Wrasses	Egg	136	1,408.74
5/24/2011	LB-2	Atlantic menhaden	Egg	36	200.91
5/24/2011	LB-2	Bay anchovy	Egg	28	156.26
5/24/2011	LB-2	Conger eel	PYS	1	5.58
5/24/2011	LB-2	Cods	Egg	88	491.11
5/24/2011	LB-2	Searobins	Egg	16	89.29
5/24/2011	LB-2	Windowpane	Egg	104	580.41
5/24/2011	LB-2	Windowpane	PYS	1	5.58
5/24/2011	LB-2	Winter flounder	UID	1	5.58
5/24/2011	LB-2	Winter flounder	ST3	1	5.58
5/24/2011	LB-2	Wrasses	Egg	116	647.38
5/24/2011	LB-14	Atlantic menhaden	Egg	210	1,175.96
5/24/2011	LB-14	Bay anchovy	Egg	192	1,077.60
5/24/2011	LB-14	Cods	Egg	80	449.00
5/24/2011	LB-14	Searobins	Egg	48	269.40
5/24/2011	LB-14	Windowpane	Egg	272	1,526.61
5/24/2011	LB-14	Windowpane	PYS	1	5.61
5/24/2011	LB-14	Winter flounder	UID	2	11.23
5/24/2011	LB-14	Winter flounder	ST3	7	39.29
5/24/2011	LB-14	Winter flounder	ST4	2	11.23
5/24/2011	LB-14	Wrasses	Egg	496	2,783.81
5/24/2011	SB-6	Atlantic menhaden	Egg	3	11.60
5/24/2011	SB-6	Bay anchovy	Egg	19	73.49
5/24/2011	SB-6	White perch	PYS	1	3.87
5/24/2011	SB-6	Winter flounder	ST3	3	11.60
5/24/2011	SB-6	Wrasses	Egg	4	15.47
5/24/2011	SB-4	Atlantic menhaden	Egg	1	3.86
5/24/2011	SB-4	Bay anchovy	Egg	44	170.00
5/24/2011	SB-4	Cods	Egg	2	7.73
5/24/2011	SB-4	Searobins	Egg	1	3.86
5/24/2011	SB-4	Windowpane	Egg	18	69.55
5/24/2011	SB-4	Wrasses	Egg	29	112.05
5/24/2011	SB-3	Bay anchovy	Egg	2	8.30
5/24/2011	SB-3	Windowpane	Egg	2	8.30

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
5/24/2011	SB-3	Windowpane	PYS	2	8.30
5/24/2011	SB-3	Wrasses	Egg	1	4.15
6/6/2011	LB-1	Atlantic menhaden	Egg	200	920.04
6/6/2011	LB-1	Atlantic menhaden	YS	1	4.60
6/6/2011	LB-1	Bay anchovy	Egg	740	3,404.15
6/6/2011	LB-1	Northern pipefish	PYS	8	36.80
6/6/2011	LB-1	Searobins	Egg	20	92.00
6/6/2011	LB-1	Windowpane	Egg	48	220.81
6/6/2011	LB-1	Windowpane	PYS	1	4.60
6/6/2011	LB-1	Wrasses	Egg	84	386.42
6/6/2011	LB-18	Atlantic menhaden	Egg	1280	6,131.88
6/6/2011	LB-18	Atlantic menhaden	YS	4	19.16
6/6/2011	LB-18	Bay anchovy	Egg	8320	39,857.20
6/6/2011	LB-18	Northern pipefish	PYS	13	62.28
6/6/2011	LB-18	Searobins	Egg	64	306.59
6/6/2011	LB-18	Windowpane	Egg	128	613.19
6/6/2011	LB-18	Wrasses	Egg	576	2,759.34
6/6/2011	LB-19	Atlantic menhaden	Egg	192	993.44
6/6/2011	LB-19	Atlantic menhaden	YS	4	20.70
6/6/2011	LB-19	Atlantic menhaden	PYS	1	5.17
6/6/2011	LB-19	Bay anchovy	Egg	1552	8,030.29
6/6/2011	LB-19	Northern pipefish	PYS	2	10.35
6/6/2011	LB-19	Windowpane	Egg	48	248.36
6/6/2011	LB-19	Winter flounder	ST3	1	5.17
6/6/2011	LB-19	Wrasses	Egg	112	579.51
6/6/2011	LB-16	Atlantic menhaden	Egg	544	2,518.74
6/6/2011	LB-16	Atlantic menhaden	YS	5	23.15
6/6/2011	LB-16	Atlantic menhaden	PYS	14	64.82
6/6/2011	LB-16	Bay anchovy	Egg	3584	16,594.04
6/6/2011	LB-16	Bay anchovy	PYS	3	13.89
6/6/2011	LB-16	Cunner	PYS	1	4.63
6/6/2011	LB-16	Northern pipefish	PYS	3	13.89
6/6/2011	LB-16	Searobins	Egg	80	370.40
6/6/2011	LB-16	Tautog	PYS	1	4.63
6/6/2011	LB-16	Windowpane	Egg	128	592.64
6/6/2011	LB-16	Wrasses	Egg	400	1,852.01
6/6/2011	LB-20	Atlantic menhaden	Egg	144	640.04
6/6/2011	LB-20	Atlantic menhaden	PYS	6	26.67
6/6/2011	LB-20	Atlantic menhaden	UID	4	17.78
6/6/2011	LB-20	Bay anchovy	Egg	1112	4,942.53
6/6/2011	LB-20	Bay anchovy	PYS	4	17.78

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
6/6/2011	LB-20	Herrings	UID	5	22.22
6/6/2011	LB-20	Fourbeard rockling	PYS	2	8.89
6/6/2011	LB-20	Cods	Egg	24	106.67
6/6/2011	LB-20	Northern pipefish	PYS	4	17.78
6/6/2011	LB-20	Searobins	Egg	8	35.56
6/6/2011	LB-20	Tautog	YS	1	4.44
6/6/2011	LB-20	Tautog	PYS	1	4.44
6/6/2011	LB-20	Windowpane	Egg	8	35.56
6/6/2011	LB-20	Windowpane	PYS	3	13.33
6/6/2011	LB-20	Wrasses	Egg	160	711.16
6/6/2011	LB-13	Atlantic menhaden	Egg	96	455.52
6/6/2011	LB-13	Atlantic menhaden	PYS	2	9.49
6/6/2011	LB-13	Bay anchovy	Egg	6720	31,886.35
6/6/2011	LB-13	Herrings	PYS	2	9.49
6/6/2011	LB-13	Fourbeard rockling	PYS	1	4.74
6/6/2011	LB-13	Northern pipefish	PYS	1	4.74
6/6/2011	LB-13	Searobins	Egg	32	151.84
6/6/2011	LB-13	Windowpane	Egg	32	151.84
6/6/2011	LB-13	Windowpane	YS	1	4.74
6/6/2011	LB-13	Windowpane	PYS	1	4.74
6/6/2011	LB-13	Wrasses	Egg	448	2,125.76
6/6/2011	LB-4	Atlantic menhaden	Egg	40	233.24
6/6/2011	LB-4	Atlantic menhaden	YS	4	23.32
6/6/2011	LB-4	Atlantic menhaden	PYS	16	93.29
6/6/2011	LB-4	Atlantic menhaden	UID	11	64.14
6/6/2011	LB-4	Bay anchovy	Egg	1184	6,903.79
6/6/2011	LB-4	Bay anchovy	PYS	27	157.43
6/6/2011	LB-4	Fourbeard rockling	PYS	1	5.83
6/6/2011	LB-4	Cods	Egg	56	326.53
6/6/2011	LB-4	Gobies	PYS	1	5.83
6/6/2011	LB-4	Northern pipefish	PYS	1	5.83
6/6/2011	LB-4	Searobins	Egg	24	139.94
6/6/2011	LB-4	Tautog	YS	1	5.83
6/6/2011	LB-4	Tautog	PYS	1	5.83
6/6/2011	LB-4	Windowpane	Egg	64	373.18
6/6/2011	LB-4	Windowpane	PYS	3	17.49
6/6/2011	LB-4	Goosefish	YS	1	5.83
6/6/2011	LB-4	Wrasses	Egg	368	2,145.77
6/6/2011	LB-12	Atlantic menhaden	YS	1	5.88
6/6/2011	LB-12	Atlantic menhaden	PYS	3	17.65
6/6/2011	LB-12	Atlantic menhaden	UID	1	5.88

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
6/6/2011	LB-12	Bay anchovy	Egg	1400	8,236.31
6/6/2011	LB-12	Bay anchovy	PYS	4	23.53
6/6/2011	LB-12	Herrings	UID	1	5.88
6/6/2011	LB-12	Cods	Egg	16	94.13
6/6/2011	LB-12	Northern pipefish	PYS	3	17.65
6/6/2011	LB-12	Tautog	PYS	1	5.88
6/6/2011	LB-12	Windowpane	Egg	8	47.06
6/6/2011	LB-12	Wrasses	Egg	96	564.78
6/6/2011	LB-5	Atlantic menhaden	Egg	16	95.39
6/6/2011	LB-5	Bay anchovy	Egg	693	4,133.52
6/6/2011	LB-5	Bay anchovy	PYS	4	23.85
6/6/2011	LB-5	Herrings	UID	4	23.85
6/6/2011	LB-5	Cods	Egg	5	31.80
6/6/2011	LB-5	Northern pipefish	PYS	2	11.92
6/6/2011	LB-5	Windowpane	Egg	11	63.59
6/6/2011	LB-5	Windowpane	YS	1	5.96
6/6/2011	LB-5	Windowpane	PYS	2	11.92
6/6/2011	LB-5	Wrasses	Egg	123	731.31
6/6/2011	LB-21	Bay anchovy	Egg	4080	21,860.04
6/6/2011	LB-21	Bay anchovy	PYS	58	310.76
6/6/2011	LB-21	Northern pipefish	PYS	2	10.72
6/6/2011	LB-21	Searobins	Egg	64	342.90
6/6/2011	LB-21	Windowpane	YS	1	5.36
6/6/2011	LB-21	Windowpane	PYS	1	5.36
6/6/2011	LB-21	Wrasses	Egg	96	514.35
6/6/2011	LB-6	Atlantic menhaden	PYS	1	5.06
6/6/2011	LB-6	Bay anchovy	Egg	1600	8,100.33
6/6/2011	LB-6	Bay anchovy	PYS	4	20.25
6/6/2011	LB-6	Northern pipefish	PYS	2	10.13
6/6/2011	LB-6	Windowpane	Egg	8	40.50
6/6/2011	LB-6	Wrasses	Egg	88	445.52
6/7/2011	AK-3	Atlantic menhaden	Egg	32	115.98
6/7/2011	AK-3	Atlantic menhaden	YS	1	3.62
6/7/2011	AK-3	Atlantic menhaden	PYS	4	14.50
6/7/2011	AK-3	Bay anchovy	Egg	16416	59,497.08
6/7/2011	AK-3	Bay anchovy	PYS	2	7.25
6/7/2011	AK-3	Fourbeard rockling	PYS	1	3.62
6/7/2011	AK-3	Northern pipefish	PYS	7	25.37
6/7/2011	AK-3	Windowpane	PYS	1	3.62
6/7/2011	AK-3	Wrasses	Egg	160	579.89
6/7/2011	AK-8	Atlantic menhaden	Egg	64	249.70

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
6/7/2011	AK-8	Atlantic menhaden	YS	2	7.80
6/7/2011	AK-8	Atlantic menhaden	PYS	5	19.51
6/7/2011	AK-8	Bay anchovy	Egg	14272	55,682.90
6/7/2011	AK-8	Herrings	PYS	2	7.80
6/7/2011	AK-8	Cunner	PYS	1	3.90
6/7/2011	AK-8	Northern pipefish	PYS	17	66.33
6/7/2011	AK-8	Windowpane	PYS	1	3.90
6/7/2011	AK-8	Wrasses	Egg	64	249.70
6/7/2011	AK-2	Atlantic menhaden	Egg	112	453.76
6/7/2011	AK-2	Atlantic menhaden	PYS	6	24.31
6/7/2011	AK-2	Bay anchovy	Egg	7584	30,725.85
6/7/2011	AK-2	Bay anchovy	PYS	4	16.21
6/7/2011	AK-2	Herrings	PYS	2	8.10
6/7/2011	AK-2	Gobies	PYS	2	8.10
6/7/2011	AK-2	Northern pipefish	PYS	10	40.51
6/7/2011	AK-2	Windowpane	PYS	2	8.10
6/7/2011	AK-2	Wrasses	Egg	96	388.93
6/7/2011	NB-8	Atlantic menhaden	Egg	80	318.91
6/7/2011	NB-8	Atlantic menhaden	PYS	14	55.81
6/7/2011	NB-8	Bay anchovy	Egg	3744	14,924.97
6/7/2011	NB-8	Bay anchovy	PYS	10	39.86
6/7/2011	NB-8	Herrings	PYS	22	87.70
6/7/2011	NB-8	Gobies	PYS	1	3.99
6/7/2011	NB-8	Northern pipefish	PYS	3	11.96
6/7/2011	NB-8	Tautog	PYS	1	3.99
6/7/2011	NB-8	Windowpane	Egg	16	63.78
6/7/2011	NB-8	Wrasses	Egg	224	892.95
6/7/2011	NB-6	Atlantic menhaden	Egg	32	124.87
6/7/2011	NB-6	Atlantic menhaden	YS	2	7.80
6/7/2011	NB-6	Atlantic menhaden	PYS	3	11.71
6/7/2011	NB-6	Bay anchovy	Egg	10528	41,080.87
6/7/2011	NB-6	Bay anchovy	PYS	5	19.51
6/7/2011	NB-6	Herrings	PYS	3	11.71
6/7/2011	NB-6	Gobies	PYS	6	23.41
6/7/2011	NB-6	Northern pipefish	PYS	10	39.02
6/7/2011	NB-6	Northern puffer	PYS	1	3.90
6/7/2011	NB-6	Weakfish	PYS	1	3.90
6/7/2011	NB-6	Wrasses	Egg	128	499.46
6/7/2011	NB-4	Atlantic menhaden	Egg	32	163.25
6/7/2011	NB-4	Atlantic menhaden	YS	2	10.20
6/7/2011	NB-4	Atlantic menhaden	PYS	13	66.32

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
6/7/2011	NB-4	Bay anchovy	Egg	5312	27,099.01
6/7/2011	NB-4	Bay anchovy	PYS	23	117.33
6/7/2011	NB-4	Herrings	PYS	15	76.52
6/7/2011	NB-4	Gobies	PYS	13	66.32
6/7/2011	NB-4	Northern pipefish	PYS	21	107.13
6/7/2011	NB-4	Tautog	PYS	2	10.20
6/7/2011	NB-4	Wrasses	Egg	32	163.25
6/7/2011	PJ-1	Atlantic menhaden	Egg	256	1,150.87
6/7/2011	PJ-1	Atlantic menhaden	PYS	11	49.45
6/7/2011	PJ-1	Bay anchovy	Egg	3872	17,406.94
6/7/2011	PJ-1	Bay anchovy	PYS	16	71.93
6/7/2011	PJ-1	Herrings	PYS	8	35.96
6/7/2011	PJ-1	Northern pipefish	PYS	4	17.98
6/7/2011	PJ-1	Windowpane	PYS	2	8.99
6/7/2011	PJ-1	Wrasses	Egg	160	719.30
6/7/2011	SB-5	Atlantic menhaden	Egg	96	339.29
6/7/2011	SB-5	Atlantic menhaden	PYS	5	17.67
6/7/2011	SB-5	Bay anchovy	Egg	3424	12,101.46
6/7/2011	SB-5	Bay anchovy	PYS	4	14.14
6/7/2011	SB-5	Fourbeard rockling	PYS	2	7.07
6/7/2011	SB-5	Northern pipefish	PYS	7	24.74
6/7/2011	SB-5	Windowpane	PYS	3	10.60
6/7/2011	SB-5	Wrasses	Egg	160	565.49
6/7/2011	SB-5	Herrings and anchovies	PYS	3	10.60
6/7/2011	PJ-2	Atlantic menhaden	Egg	192	977.14
6/7/2011	PJ-2	Atlantic menhaden	YS	3	15.27
6/7/2011	PJ-2	Atlantic menhaden	PYS	6	30.54
6/7/2011	PJ-2	Bay anchovy	Egg	3616	18,402.89
6/7/2011	PJ-2	Bay anchovy	PYS	4	20.36
6/7/2011	PJ-2	Northern pipefish	PYS	3	15.27
6/7/2011	PJ-2	Wrasses	Egg	352	1,791.43
6/7/2011	PJ-2	Herrings and anchovies	PYS	11	55.98
6/8/2011	SB-3	Atlantic menhaden	Egg	100	506.24
6/8/2011	SB-3	Atlantic menhaden	PYS	5	25.31
6/8/2011	SB-3	Atlantic menhaden	UID	3	15.19
6/8/2011	SB-3	Bay anchovy	Egg	592	2,996.92
6/8/2011	SB-3	Bay anchovy	PYS	3	15.19
6/8/2011	SB-3	Cods	Egg	4	20.25
6/8/2011	SB-3	Northern pipefish	YS	1	5.06
6/8/2011	SB-3	Windowpane	Egg	16	81.00
6/8/2011	SB-3	Wrasses	Egg	48	242.99

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
6/8/2011	SB-3	Herrings and anchovies	PYS	7	35.44
6/8/2011	SB-4	Atlantic menhaden	Egg	75	376.04
6/8/2011	SB-4	Atlantic menhaden	PYS	4	20.14
6/8/2011	SB-4	Atlantic menhaden	UID	1	5.04
6/8/2011	SB-4	Bay anchovy	Egg	1408	7,091.01
6/8/2011	SB-4	Fourbeard rockling	PYS	1	5.04
6/8/2011	SB-4	Searobins	Egg	32	161.16
6/8/2011	SB-4	Tautog	PYS	1	5.04
6/8/2011	SB-4	Windowpane	Egg	107	537.20
6/8/2011	SB-4	Windowpane	PYS	11	55.40
6/8/2011	SB-4	Wrasses	Egg	160	805.80
6/8/2011	SB-4	Herrings and anchovies	PYS	2	10.07
6/8/2011	SB-6	Atlantic menhaden	Egg	176	1,114.35
6/8/2011	SB-6	Bay anchovy	Egg	680	4,305.46
6/8/2011	SB-6	Fourbeard rockling	PYS	2	12.66
6/8/2011	SB-6	Cods	Egg	8	50.65
6/8/2011	SB-6	Searobins	Egg	24	151.96
6/8/2011	SB-6	Windowpane	Egg	40	253.26
6/8/2011	SB-6	Windowpane	PYS	1	6.33
6/8/2011	SB-6	Wrasses	Egg	56	354.57
6/8/2011	LB-8	Atlantic menhaden	Egg	16	93.02
6/8/2011	LB-8	Atlantic menhaden	YS	1	5.81
6/8/2011	LB-8	Atlantic menhaden	UID	1	5.81
6/8/2011	LB-8	Bay anchovy	Egg	1896	11,022.67
6/8/2011	LB-8	Bay anchovy	PYS	4	23.25
6/8/2011	LB-8	Cods	Egg	8	46.51
6/8/2011	LB-8	Northern pipefish	PYS	2	11.63
6/8/2011	LB-8	Windowpane	Egg	8	46.51
6/8/2011	LB-8	Windowpane	PYS	2	11.63
6/8/2011	LB-8	Wrasses	Egg	32	186.04
6/8/2011	LB-8	Herrings and anchovies	UID	5	29.07
6/8/2011	LB-3	Bay anchovy	Egg	524	2,695.19
6/8/2011	LB-3	Bay anchovy	PYS	2	10.29
6/8/2011	LB-3	Northern pipefish	PYS	4	20.57
6/8/2011	LB-3	Windowpane	PYS	2	10.29
6/8/2011	LB-3	Wrasses	Egg	22	113.16
6/8/2011	LB-3	Herrings and anchovies	PYS	1	5.14
6/8/2011	LB-9	Atlantic menhaden	Egg	176	699.53
6/8/2011	LB-9	Atlantic menhaden	YS	1	3.97
6/8/2011	LB-9	Atlantic menhaden	PYS	2	7.95
6/8/2011	LB-9	Bay anchovy	Egg	2304	9,157.45

Date	Station	Common Name	Life Stage	Total Number	Density (#/1,000m^3)
6/8/2011	LB-9	Bay anchovy	PYS	3	11.92
6/8/2011	LB-9	Northern pipefish	PYS	3	11.92
6/8/2011	LB-9	Windowpane	PYS	3	11.92
6/8/2011	LB-9	Wrasses	Egg	160	635.93
6/8/2011	LB-9	Herrings and anchovies	PYS	8	31.80
6/8/2011	LB-14	Atlantic menhaden	Egg	272	953.88
6/8/2011	LB-14	Atlantic menhaden	PYS	10	35.07
6/8/2011	LB-14	Bay anchovy	Egg	3248	11,390.42
6/8/2011	LB-14	Bay anchovy	PYS	7	24.55
6/8/2011	LB-14	Fourbeard rockling	PYS	1	3.51
6/8/2011	LB-14	Northern pipefish	PYS	10	35.07
6/8/2011	LB-14	Tautog	PYS	1	3.51
6/8/2011	LB-14	Windowpane	PYS	1	3.51
6/8/2011	LB-14	Wrasses	Egg	144	504.99
6/8/2011	LB-14	Herrings and anchovies	PYS	3	10.52
6/8/2011	LB-2	Atlantic menhaden	Egg	72	250.51
6/8/2011	LB-2	Atlantic menhaden	YS	3	10.44
6/8/2011	LB-2	Atlantic menhaden	PYS	21	73.07
6/8/2011	LB-2	Bay anchovy	Egg	1288	4,481.40
6/8/2011	LB-2	Bay anchovy	PYS	9	31.31
6/8/2011	LB-2	Fourbeard rockling	PYS	2	6.96
6/8/2011	LB-2	Cods	Egg	24	83.50
6/8/2011	LB-2	Northern pipefish	PYS	10	34.79
6/8/2011	LB-2	Searobins	Egg	16	55.67
6/8/2011	LB-2	Tautog	PYS	1	3.48
6/8/2011	LB-2	Windowpane	Egg	8	27.83
6/8/2011	LB-2	Windowpane	YS	1	3.48
6/8/2011	LB-2	Windowpane	PYS	8	27.83
6/8/2011	LB-2	Wrasses	Egg	120	417.52
6/8/2011	LB-2	Herrings and anchovies	PYS	11	38.27

Appendix B

Winter flounder larval fish lengths by date and station analyzed during the 2011 Aquatic Biological Survey

Date	Station	Common Name	Life Stage	Total Length (mm)
1/20/2011	SB-4	Winter flounder	ST1	3.13
1/31/2011	LB-19	Winter flounder	ST1	3.43
2/17/2011	LB-13	Winter flounder	ST1	2.82
2/17/2011	LB-20	Winter flounder	ST1	3.31
2/17/2011	LB-20	Winter flounder	ST1	3.72
2/17/2011	LB-3	Winter flounder	ST1	3.12
3/7/2011	AK-3	Winter flounder	ST1	4.47
3/7/2011	AK-3	Winter flounder	ST2	4.80
3/7/2011	AK-3	Winter flounder	ST2	4.47
3/7/2011	AK-3	Winter flounder	ST2	4.65
3/7/2011	AK-3	Winter flounder	ST1	4.56
3/7/2011	AK-3	Winter flounder	ST1	3.63
3/7/2011	AK-3	Winter flounder	ST1	4.16
3/7/2011	AK-3	Winter flounder	ST1	3.65
3/7/2011	AK-3	Winter flounder	ST1	4.49
3/7/2011	AK-3	Winter flounder	ST1	4.60
3/7/2011	AK-3	Winter flounder	ST1	3.68
3/7/2011	AK-3	Winter flounder	ST1	4.07
3/7/2011	AK-3	Winter flounder	ST1	4.43
3/7/2011	AK-3	Winter flounder	ST1	3.65
3/7/2011	NB-4	Winter flounder	ST1	4.25
3/7/2011	PJ-1	Winter flounder	ST2	4.43
3/7/2011	PJ-1	Winter flounder	ST1	4.20
3/7/2011	PJ-1	Winter flounder	ST1	4.13
3/7/2011	PJ-1	Winter flounder	ST1	4.23
3/7/2011	PJ-1	Winter flounder	ST1	4.34
3/7/2011	PJ-1	Winter flounder	ST1	4.25
3/7/2011	PJ-1	Winter flounder	ST1	4.09
3/7/2011	PJ-1	Winter flounder	ST1	4.10
3/7/2011	PJ-1	Winter flounder	ST1	3.96
3/7/2011	PJ-1	Winter flounder	ST2	4.64
3/7/2011	PJ-1	Winter flounder	ST1	4.12
3/7/2011	PJ-1	Winter flounder	ST1	4.18
3/7/2011	PJ-1	Winter flounder	ST2	4.71
3/7/2011	PJ-1	Winter flounder	ST1	4.43
3/7/2011	PJ-1	Winter flounder	ST1	3.56
3/7/2011	PJ-1	Winter flounder	ST1	4.48
3/7/2011	PJ-1	Winter flounder	ST1	4.01
3/7/2011	PJ-1	Winter flounder	ST1	4.28
3/7/2011	PJ-1	Winter flounder	ST1	3.97
3/7/2011	PJ-1	Winter flounder	ST1	4.55

Date	Station	Common Name	Life Stage	Total Length (mm)
3/7/2011	PJ-1	Winter flounder	ST1	4.34
3/7/2011	PJ-1	Winter flounder	ST1	4.09
3/7/2011	PJ-1	Winter flounder	ST1	4.23
3/7/2011	PJ-1	Winter flounder	ST1	3.80
3/7/2011	PJ-1	Winter flounder	ST1	4.55
3/7/2011	PJ-2	Winter flounder	ST1	4.33
3/8/2011	LB-12	Winter flounder	ST1	3.91
3/8/2011	LB-12	Winter flounder	ST1	4.05
3/8/2011	LB-12	Winter flounder	ST1	3.98
3/8/2011	LB-12	Winter flounder	ST1	3.85
3/8/2011	LB-12	Winter flounder	ST1	3.40
3/8/2011	LB-13	Winter flounder	ST1	3.80
3/8/2011	LB-13	Winter flounder	ST2	3.88
3/8/2011	LB-13	Winter flounder	ST2	4.23
3/8/2011	LB-13	Winter flounder	ST1	3.93
3/8/2011	LB-13	Winter flounder	ST1	4.04
3/8/2011	LB-16	Winter flounder	ST1	4.27
3/8/2011	LB-16	Winter flounder	ST1	2.98
3/8/2011	LB-16	Winter flounder	ST1	3.63
3/8/2011	LB-16	Winter flounder	ST1	3.88
3/8/2011	LB-16	Winter flounder	ST1	3.03
3/8/2011	LB-16	Winter flounder	ST1	2.81
3/8/2011	LB-16	Winter flounder	ST1	3.31
3/8/2011	LB-16	Winter flounder	ST2	4.04
3/8/2011	LB-16	Winter flounder	ST1	3.89
3/8/2011	LB-16	Winter flounder	ST1	3.15
3/8/2011	LB-16	Winter flounder	ST2	4.10
3/8/2011	LB-16	Winter flounder	ST1	3.00
3/8/2011	LB-16	Winter flounder	ST1	3.20
3/8/2011	LB-16	Winter flounder	ST1	3.79
3/8/2011	LB-16	Winter flounder	ST1	4.00
3/8/2011	LB-16	Winter flounder	ST1	3.16
3/8/2011	LB-16	Winter flounder	ST1	3.52
3/8/2011	LB-16	Winter flounder	ST1	2.82
3/8/2011	LB-16	Winter flounder	ST1	3.81
3/8/2011	LB-16	Winter flounder	ST1	3.38
3/8/2011	LB-16	Winter flounder	ST1	4.26
3/8/2011	LB-16	Winter flounder	ST1	3.21
3/8/2011	LB-16	Winter flounder	ST1	3.13
3/8/2011	LB-16	Winter flounder	ST1	4.03
3/8/2011	LB-16	Winter flounder	ST1	2.83

Date	Station	Common Name	Life Stage	Total Length (mm)
3/8/2011	LB-19	Winter flounder	ST1	3.96
3/8/2011	LB-19	Winter flounder	ST1	3.11
3/8/2011	LB-19	Winter flounder	ST1	3.85
3/8/2011	LB-19	Winter flounder	ST1	4.27
3/8/2011	LB-19	Winter flounder	ST1	4.44
3/8/2011	LB-19	Winter flounder	ST1	3.23
3/8/2011	LB-20	Winter flounder	ST2	4.07
3/8/2011	LB-20	Winter flounder	ST2	4.17
3/8/2011	LB-20	Winter flounder	ST2	3.89
3/8/2011	LB-20	Winter flounder	ST2	3.98
3/8/2011	LB-20	Winter flounder	ST2	4.26
3/8/2011	LB-20	Winter flounder	ST1	4.14
3/8/2011	LB-20	Winter flounder	ST1	4.07
3/8/2011	LB-20	Winter flounder	ST1	3.53
3/8/2011	LB-20	Winter flounder	ST2	4.29
3/8/2011	LB-3	Winter flounder	ST1	3.83
3/8/2011	LB-4	Winter flounder	ST1	3.96
3/8/2011	LB-4	Winter flounder	ST1	3.15
3/8/2011	LB-4	Winter flounder	ST1	3.60
3/8/2011	LB-4	Winter flounder	ST1	3.65
3/8/2011	LB-4	Winter flounder	ST2	4.27
3/8/2011	LB-4	Winter flounder	ST1	3.95
3/8/2011	LB-5	Winter flounder	ST2	4.38
3/8/2011	LB-5	Winter flounder	ST1	3.87
3/8/2011	LB-5	Winter flounder	ST1	3.66
3/8/2011	LB-5	Winter flounder	ST1	3.71
3/8/2011	LB-5	Winter flounder	ST1	3.99
3/8/2011	LB-5	Winter flounder	ST1	3.52
3/8/2011	LB-5	Winter flounder	ST1	4.10
3/8/2011	LB-5	Winter flounder	ST1	3.93
3/8/2011	LB-5	Winter flounder	ST1	4.17
3/8/2011	LB-5	Winter flounder	ST2	4.52
3/8/2011	LB-5	Winter flounder	ST1	3.22
3/8/2011	LB-5	Winter flounder	ST1	3.64
3/8/2011	LB-5	Winter flounder	ST1	3.64
3/8/2011	LB-5	Winter flounder	ST1	4.12
3/8/2011	LB-5	Winter flounder	ST1	3.67
3/8/2011	LB-5	Winter flounder	ST1	3.45
3/8/2011	LB-5	Winter flounder	ST1	3.74
3/8/2011	LB-5	Winter flounder	ST1	3.94
3/8/2011	LB-5	Winter flounder	ST1	3.48

Date	Station	Common Name	Life Stage	Total Length (mm)
3/8/2011	LB-5	Winter flounder	ST1	3.74
3/8/2011	LB-5	Winter flounder	ST1	3.63
3/8/2011	LB-5	Winter flounder	ST1	3.58
3/8/2011	LB-5	Winter flounder	ST1	3.70
3/8/2011	LB-5	Winter flounder	ST1	4.09
3/8/2011	LB-5	Winter flounder	ST1	3.96
3/8/2011	LB-5	Winter flounder	ST1	3.64
3/8/2011	LB-5	Winter flounder	ST1	4.18
3/8/2011	LB-6	Winter flounder	ST1	4.22
3/8/2011	LB-6	Winter flounder	ST2	4.16
3/8/2011	LB-6	Winter flounder	ST2	4.36
3/8/2011	LB-6	Winter flounder	ST1	3.71
3/8/2011	LB-6	Winter flounder	ST1	3.92
3/8/2011	LB-6	Winter flounder	ST1	4.13
3/9/2011	LB-8	Winter flounder	ST2	4.15
3/21/2011	AK-3	Winter flounder	ST1	4.23
3/21/2011	AK-3	Winter flounder	ST1	3.72
3/21/2011	AK-3	Winter flounder	ST2	4.28
3/21/2011	AK-3	Winter flounder	ST1	4.09
3/21/2011	AK-3	Winter flounder	ST1	4.56
3/21/2011	AK-3	Winter flounder	ST2	4.50
3/21/2011	AK-3	Winter flounder	ST1	4.10
3/21/2011	SB-3	Winter flounder	ST3	5.98
3/21/2011	SB-4	Winter flounder	ST2	4.46
3/21/2011	SB-4	Winter flounder	ST3	5.14
3/21/2011	SB-4	Winter flounder	ST3	5.03
3/21/2011	SB-4	Winter flounder	ST2	4.34
3/21/2011	SB-4	Winter flounder	ST1	3.65
3/21/2011	SB-4	Winter flounder	ST1	3.91
3/21/2011	SB-4	Winter flounder	ST3	4.88
3/23/2011	LB-1	Winter flounder	ST3	5.03
3/23/2011	LB-1	Winter flounder	ST3	5.39
3/23/2011	LB-1	Winter flounder	ST3	4.63
3/23/2011	LB-1	Winter flounder	ST3	4.42
3/23/2011	LB-1	Winter flounder	ST3	4.31
3/23/2011	LB-1	Winter flounder	ST3	4.26
3/23/2011	LB-1	Winter flounder	ST3	5.31
3/23/2011	LB-1	Winter flounder	ST3	4.94
3/23/2011	LB-1	Winter flounder	ST3	4.85
3/23/2011	LB-1	Winter flounder	ST3	5.78
3/23/2011	LB-1	Winter flounder	ST3	5.17

Date	Station	Common Name	Life Stage	Total Length (mm)
3/23/2011	LB-1	Winter flounder	ST3	4.75
3/23/2011	LB-1	Winter flounder	ST3	4.10
3/23/2011	LB-1	Winter flounder	ST3	4.84
3/23/2011	LB-1	Winter flounder	ST3	4.45
3/23/2011	LB-1	Winter flounder	ST3	5.12
3/23/2011	LB-1	Winter flounder	ST2	3.65
3/23/2011	LB-1	Winter flounder	ST3	4.48
3/23/2011	LB-1	Winter flounder	ST1	2.51
3/23/2011	LB-1	Winter flounder	ST3	5.14
3/23/2011	LB-1	Winter flounder	ST2	4.07
3/23/2011	LB-1	Winter flounder	ST2	3.96
3/23/2011	LB-1	Winter flounder	ST2	3.76
3/23/2011	LB-1	Winter flounder	ST2	3.38
3/23/2011	LB-1	Winter flounder	ST3	4.52
3/23/2011	LB-1	Winter flounder	ST3	5.14
3/23/2011	LB-1	Winter flounder	ST3	4.76
3/23/2011	LB-1	Winter flounder	ST3	5.15
3/23/2011	LB-1	Winter flounder	ST3	4.41
3/23/2011	LB-1	Winter flounder	ST2	3.94
3/23/2011	LB-18	Winter flounder	ST3	4.76
3/23/2011	LB-18	Winter flounder	ST3	3.93
3/23/2011	LB-18	Winter flounder	ST3	4.25
3/23/2011	LB-18	Winter flounder	ST3	5.50
3/23/2011	LB-18	Winter flounder	ST3	4.80
3/23/2011	LB-18	Winter flounder	ST3	4.67
3/23/2011	LB-18	Winter flounder	ST3	5.30
3/23/2011	LB-18	Winter flounder	ST3	4.37
3/23/2011	LB-18	Winter flounder	ST3	5.62
3/23/2011	LB-18	Winter flounder	ST3	3.74
3/23/2011	LB-18	Winter flounder	ST3	4.75
3/23/2011	LB-18	Winter flounder	ST3	4.69
3/23/2011	LB-19	Winter flounder	ST3	4.15
3/23/2011	LB-19	Winter flounder	ST3	4.31
3/23/2011	LB-19	Winter flounder	ST3	5.05
3/23/2011	LB-19	Winter flounder	ST3	4.80
3/23/2011	LB-19	Winter flounder	ST3	5.31
3/23/2011	LB-19	Winter flounder	ST3	4.59
3/23/2011	LB-19	Winter flounder	ST3	4.47
3/23/2011	LB-19	Winter flounder	ST3	4.57
3/23/2011	LB-19	Winter flounder	ST3	4.33
3/23/2011	LB-19	Winter flounder	ST3	4.98

Date	Station	Common Name	Life Stage	Total Length (mm)
3/23/2011	LB-19	Winter flounder	ST3	4.89
3/23/2011	LB-19	Winter flounder	ST3	4.46
3/23/2011	LB-19	Winter flounder	ST3	5.40
3/23/2011	LB-19	Winter flounder	ST3	4.72
3/23/2011	LB-19	Winter flounder	ST2	3.88
3/23/2011	LB-19	Winter flounder	ST3	5.76
3/23/2011	LB-19	Winter flounder	ST2	3.77
3/23/2011	LB-19	Winter flounder	ST3	5.43
3/23/2011	LB-19	Winter flounder	ST3	5.45
3/23/2011	LB-19	Winter flounder	ST3	5.22
3/23/2011	LB-19	Winter flounder	ST3	4.47
3/23/2011	LB-19	Winter flounder	ST3	5.30
3/23/2011	LB-19	Winter flounder	ST3	5.00
3/23/2011	LB-19	Winter flounder	ST3	4.92
3/23/2011	LB-19	Winter flounder	ST3	5.19
3/23/2011	LB-19	Winter flounder	ST3	4.90
3/23/2011	LB-2	Winter flounder	ST3	5.20
3/23/2011	LB-2	Winter flounder	ST3	4.71
3/23/2011	LB-20	Winter flounder	ST3	5.31
3/23/2011	LB-20	Winter flounder	ST3	5.82
3/23/2011	LB-20	Winter flounder	ST3	5.41
3/23/2011	LB-20	Winter flounder	ST3	5.05
3/23/2011	LB-20	Winter flounder	ST3	5.54
3/23/2011	LB-20	Winter flounder	ST3	5.63
3/23/2011	LB-20	Winter flounder	ST3	5.01
3/23/2011	LB-20	Winter flounder	ST3	5.02
3/23/2011	LB-20	Winter flounder	ST3	4.91
3/23/2011	LB-20	Winter flounder	ST3	4.40
3/23/2011	LB-20	Winter flounder	ST3	6.02
3/23/2011	LB-20	Winter flounder	ST3	4.68
3/23/2011	LB-20	Winter flounder	ST3	5.73
3/23/2011	LB-20	Winter flounder	ST3	5.49
3/23/2011	LB-20	Winter flounder	ST3	6.27
3/23/2011	LB-20	Winter flounder	ST3	5.22
3/23/2011	LB-20	Winter flounder	ST3	4.69
3/23/2011	LB-20	Winter flounder	ST3	6.51
3/23/2011	LB-20	Winter flounder	ST3	5.18
3/23/2011	LB-20	Winter flounder	ST3	5.27
3/23/2011	LB-20	Winter flounder	ST2	4.10
3/23/2011	LB-20	Winter flounder	ST2	4.30
3/23/2011	LB-20	Winter flounder	ST2	4.06

Date	Station	Common Name	Life Stage	Total Length (mm)
3/23/2011	LB-20	Winter flounder	ST2	3.96
3/23/2011	LB-20	Winter flounder	ST2	3.99
3/23/2011	LB-20	Winter flounder	ST2	4.28
3/23/2011	LB-20	Winter flounder	ST3	5.04
3/23/2011	LB-20	Winter flounder	ST2	4.03
3/23/2011	LB-20	Winter flounder	ST3	5.14
3/23/2011	LB-20	Winter flounder	ST2	4.12
3/23/2011	LB-20	Winter flounder	ST2	4.13
3/23/2011	LB-20	Winter flounder	ST3	5.48
3/23/2011	LB-20	Winter flounder	ST2	4.21
3/23/2011	LB-20	Winter flounder	ST2	3.94
3/23/2011	LB-20	Winter flounder	ST2	3.86
3/23/2011	LB-20	Winter flounder	ST2	3.97
3/23/2011	LB-20	Winter flounder	ST2	4.00
3/23/2011	LB-20	Winter flounder	ST2	4.42
3/23/2011	LB-20	Winter flounder	ST3	5.50
3/23/2011	LB-20	Winter flounder	ST2	4.30
3/23/2011	LB-4	Winter flounder	ST3	5.13
3/23/2011	LB-5	Winter flounder	ST3	5.10
3/23/2011	LB-5	Winter flounder	ST3	5.34
3/23/2011	LB-5	Winter flounder	ST3	4.36
3/23/2011	LB-5	Winter flounder	ST3	4.87
3/23/2011	LB-5	Winter flounder	ST3	4.38
3/23/2011	LB-5	Winter flounder	ST3	5.85
3/23/2011	LB-5	Winter flounder	ST3	4.36
3/23/2011	LB-5	Winter flounder	ST3	5.07
3/23/2011	LB-5	Winter flounder	ST3	6.26
3/23/2011	LB-5	Winter flounder	ST1	3.71
3/23/2011	LB-5	Winter flounder	ST3	5.19
3/23/2011	LB-5	Winter flounder	ST2	4.01
3/23/2011	LB-5	Winter flounder	ST2	4.29
3/23/2011	LB-5	Winter flounder	ST2	4.23
3/23/2011	LB-5	Winter flounder	ST2	4.01
3/23/2011	LB-5	Winter flounder	ST2	3.60
3/23/2011	LB-5	Winter flounder	ST1	3.69
3/23/2011	LB-6	Winter flounder	ST3	7.47
3/23/2011	LB-6	Winter flounder	ST3	5.53
3/24/2011	LB-3	Winter flounder	ST1	3.14
3/24/2011	LB-3	Winter flounder	ST3	4.18
3/24/2011	LB-3	Winter flounder	ST3	4.50
3/24/2011	LB-3	Winter flounder	ST3	4.29

Date	Station	Common Name	Life Stage	Total Length (mm)
3/24/2011	LB-3	Winter flounder	ST3	4.57
3/24/2011	LB-3	Winter flounder	ST3	4.94
3/24/2011	LB-3	Winter flounder	ST3	5.09
3/24/2011	LB-3	Winter flounder	ST3	4.52
3/24/2011	LB-3	Winter flounder	ST3	4.13
3/24/2011	LB-3	Winter flounder	ST3	4.30
3/24/2011	LB-3	Winter flounder	ST3	4.63
3/24/2011	LB-3	Winter flounder	ST3	4.24
3/24/2011	LB-3	Winter flounder	ST1	3.23
3/24/2011	LB-3	Winter flounder	ST1	2.98
3/24/2011	LB-3	Winter flounder	ST1	3.45
3/24/2011	LB-3	Winter flounder	ST1	3.39
3/24/2011	LB-3	Winter flounder	ST1	3.66
3/24/2011	LB-3	Winter flounder	ST3	4.05
3/24/2011	LB-9	Winter flounder	ST3	4.34
3/24/2011	LB-9	Winter flounder	ST3	5.01
3/24/2011	LB-9	Winter flounder	ST3	5.60
3/24/2011	LB-9	Winter flounder	ST3	4.69
3/24/2011	LB-9	Winter flounder	ST3	4.50
3/24/2011	LB-9	Winter flounder	ST3	4.81
3/24/2011	LB-9	Winter flounder	ST3	5.22
3/24/2011	LB-9	Winter flounder	ST2	3.91
3/24/2011	LB-9	Winter flounder	ST2	4.19
3/24/2011	LB-9	Winter flounder	ST3	5.77
3/24/2011	LB-9	Winter flounder	ST3	5.45
3/24/2011	PJ-1	Winter flounder	ST3	4.72
3/24/2011	PJ-1	Winter flounder	ST3	4.60
3/24/2011	PJ-1	Winter flounder	ST3	5.17
3/24/2011	PJ-1	Winter flounder	ST3	5.98
3/24/2011	PJ-1	Winter flounder	ST3	4.93
3/24/2011	PJ-1	Winter flounder	ST3	5.20
3/24/2011	PJ-1	Winter flounder	ST3	4.71
3/24/2011	PJ-1	Winter flounder	ST3	5.05
3/24/2011	PJ-1	Winter flounder	ST3	4.74
3/24/2011	PJ-1	Winter flounder	ST3	5.29
3/24/2011	PJ-1	Winter flounder	ST3	5.11
3/24/2011	PJ-1	Winter flounder	ST3	5.59
3/24/2011	PJ-1	Winter flounder	ST3	5.95
3/24/2011	PJ-1	Winter flounder	ST3	4.77
3/24/2011	PJ-1	Winter flounder	ST3	5.02
3/24/2011	PJ-1	Winter flounder	ST3	5.78

Date	Station	Common Name	Life Stage	Total Length (mm)
3/24/2011	PJ-1	Winter flounder	ST3	4.78
3/24/2011	PJ-1	Winter flounder	ST3	4.68
3/24/2011	PJ-1	Winter flounder	ST3	4.60
3/24/2011	PJ-1	Winter flounder	ST3	5.73
3/24/2011	PJ-1	Winter flounder	ST3	4.62
3/24/2011	PJ-1	Winter flounder	ST3	6.55
3/24/2011	PJ-1	Winter flounder	ST1	3.58
3/24/2011	PJ-1	Winter flounder	ST3	4.33
3/24/2011	PJ-1	Winter flounder	ST2	4.29
3/24/2011	PJ-1	Winter flounder	ST3	4.73
3/24/2011	PJ-1	Winter flounder	ST1	4.32
3/24/2011	PJ-1	Winter flounder	ST1	3.77
3/24/2011	PJ-1	Winter flounder	ST1	3.23
3/24/2011	PJ-1	Winter flounder	ST1	4.27
3/24/2011	PJ-1	Winter flounder	ST1	4.39
3/24/2011	PJ-1	Winter flounder	ST2	4.05
3/24/2011	PJ-1	Winter flounder	ST2	4.29
3/24/2011	PJ-1	Winter flounder	ST2	4.36
3/24/2011	PJ-1	Winter flounder	ST2	3.97
3/24/2011	PJ-1	Winter flounder	ST2	4.43
3/24/2011	PJ-1	Winter flounder	ST2	4.37
3/24/2011	PJ-1	Winter flounder	ST1	4.23
3/24/2011	PJ-1	Winter flounder	ST2	3.81
3/24/2011	PJ-1	Winter flounder	ST2	4.07
3/24/2011	PJ-1	Winter flounder	ST2	4.48
3/24/2011	PJ-1	Winter flounder	ST2	4.27
3/24/2011	PJ-1	Winter flounder	ST2	4.28
3/24/2011	PJ-1	Winter flounder	ST2	4.12
3/24/2011	PJ-1	Winter flounder	ST2	4.29
3/24/2011	PJ-1	Winter flounder	ST2	3.89
3/24/2011	PJ-1	Winter flounder	ST2	4.15
3/24/2011	PJ-2	Winter flounder	ST1	4.06
4/4/2011	AK-2	Winter flounder	ST2	3.71
4/4/2011	AK-2	Winter flounder	ST2	4.10
4/4/2011	AK-2	Winter flounder	ST2	4.12
4/4/2011	AK-2	Winter flounder	ST2	4.22
4/4/2011	AK-2	Winter flounder	ST2	4.33
4/4/2011	AK-2	Winter flounder	ST2	4.39
4/4/2011	AK-2	Winter flounder	ST2	4.36
4/4/2011	AK-2	Winter flounder	ST3	5.94
4/4/2011	AK-2	Winter flounder	ST1	3.46

Date	Station	Common Name	Life Stage	Total Length (mm)
4/4/2011	AK-2	Winter flounder	ST2	3.74
4/4/2011	AK-2	Winter flounder	ST1	3.40
4/4/2011	AK-2	Winter flounder	ST1	3.82
4/4/2011	AK-2	Winter flounder	ST1	3.77
4/4/2011	AK-2	Winter flounder	ST1	3.85
4/4/2011	AK-2	Winter flounder	ST1	3.37
4/4/2011	AK-2	Winter flounder	ST1	3.65
4/4/2011	AK-2	Winter flounder	ST1	3.83
4/4/2011	AK-2	Winter flounder	ST1	4.01
4/4/2011	AK-2	Winter flounder	ST1	4.16
4/4/2011	AK-2	Winter flounder	ST3	5.94
4/4/2011	AK-2	Winter flounder	ST1	3.68
4/4/2011	AK-2	Winter flounder	ST3	4.72
4/4/2011	AK-2	Winter flounder	ST1	4.01
4/4/2011	AK-2	Winter flounder	ST3	5.96
4/4/2011	AK-2	Winter flounder	ST3	6.37
4/4/2011	AK-2	Winter flounder	ST3	4.84
4/4/2011	AK-2	Winter flounder	ST3	4.97
4/4/2011	AK-2	Winter flounder	ST3	4.60
4/4/2011	AK-2	Winter flounder	ST3	5.53
4/4/2011	AK-2	Winter flounder	ST3	5.34
4/4/2011	AK-2	Winter flounder	ST3	5.53
4/4/2011	AK-2	Winter flounder	ST3	5.14
4/4/2011	AK-3	Winter flounder	ST3	4.95
4/4/2011	AK-3	Winter flounder	ST3	4.60
4/4/2011	AK-3	Winter flounder	ST1	3.48
4/4/2011	AK-3	Winter flounder	ST3	5.93
4/4/2011	AK-3	Winter flounder	ST3	4.41
4/4/2011	AK-3	Winter flounder	ST3	5.13
4/4/2011	AK-3	Winter flounder	ST3	5.89
4/4/2011	AK-3	Winter flounder	ST3	5.41
4/4/2011	AK-3	Winter flounder	ST3	5.03
4/4/2011	AK-3	Winter flounder	ST3	5.12
4/4/2011	AK-3	Winter flounder	ST2	4.27
4/4/2011	AK-3	Winter flounder	ST1	3.64
4/4/2011	AK-3	Winter flounder	ST3	6.23
4/4/2011	AK-8	Winter flounder	ST3	6.00
4/4/2011	AK-8	Winter flounder	ST2	5.22
4/4/2011	AK-8	Winter flounder	ST3	5.58
4/4/2011	AK-8	Winter flounder	ST3	6.52
4/4/2011	AK-8	Winter flounder	ST3	5.37

Date	Station	Common Name	Life Stage	Total Length (mm)
4/4/2011	AK-8	Winter flounder	ST2	4.34
4/4/2011	AK-8	Winter flounder	ST2	4.46
4/4/2011	AK-8	Winter flounder	ST2	4.43
4/4/2011	AK-8	Winter flounder	ST1	4.16
4/4/2011	AK-8	Winter flounder	ST1	3.77
4/4/2011	AK-8	Winter flounder	ST1	3.57
4/4/2011	AK-8	Winter flounder	ST1	4.20
4/4/2011	AK-8	Winter flounder	ST3	5.42
4/4/2011	AK-8	Winter flounder	ST3	5.34
4/4/2011	NB-4	Winter flounder	ST2	4.30
4/4/2011	NB-4	Winter flounder	ST3	5.69
4/4/2011	NB-4	Winter flounder	ST3	5.43
4/4/2011	NB-4	Winter flounder	ST3	6.77
4/4/2011	NB-4	Winter flounder	ST3	5.89
4/4/2011	NB-4	Winter flounder	ST2	4.56
4/4/2011	NB-4	Winter flounder	ST2	4.58
4/4/2011	NB-4	Winter flounder	ST2	4.83
4/4/2011	NB-4	Winter flounder	ST3	7.31
4/4/2011	NB-4	Winter flounder	ST2	4.06
4/4/2011	NB-4	Winter flounder	ST2	3.79
4/4/2011	NB-4	Winter flounder	ST2	4.26
4/4/2011	NB-4	Winter flounder	ST2	3.89
4/4/2011	NB-4	Winter flounder	ST1	3.59
4/4/2011	NB-4	Winter flounder	ST1	4.08
4/4/2011	NB-4	Winter flounder	ST1	3.63
4/4/2011	NB-4	Winter flounder	ST3	6.96
4/4/2011	NB-4	Winter flounder	ST2	4.45
4/4/2011	NB-4	Winter flounder	ST3	6.17
4/4/2011	NB-4	Winter flounder	ST3	5.73
4/4/2011	NB-4	Winter flounder	ST3	6.49
4/4/2011	NB-4	Winter flounder	ST3	5.39
4/4/2011	NB-4	Winter flounder	ST3	5.84
4/4/2011	NB-4	Winter flounder	ST3	5.95
4/4/2011	NB-4	Winter flounder	ST3	7.31
4/4/2011	NB-4	Winter flounder	ST3	5.09
4/4/2011	NB-4	Winter flounder	ST2	4.51
4/4/2011	NB-4	Winter flounder	ST3	5.21
4/4/2011	NB-4	Winter flounder	ST3	6.11
4/4/2011	NB-4	Winter flounder	ST3	5.37
4/4/2011	NB-4	Winter flounder	ST3	5.70
4/4/2011	NB-4	Winter flounder	ST3	4.49

Date	Station	Common Name	Life Stage	Total Length (mm)
4/4/2011	NB-4	Winter flounder	ST3	5.34
4/4/2011	NB-4	Winter flounder	ST3	5.34
4/4/2011	NB-4	Winter flounder	ST3	5.37
4/4/2011	NB-4	Winter flounder	ST3	6.11
4/4/2011	NB-4	Winter flounder	ST3	5.79
4/4/2011	NB-4	Winter flounder	ST3	6.63
4/4/2011	NB-6	Winter flounder	ST3	5.54
4/4/2011	NB-7	Winter flounder	ST3	5.60
4/4/2011	NB-7	Winter flounder	ST3	5.64
4/4/2011	NB-7	Winter flounder	ST3	6.50
4/4/2011	PJ-1	Winter flounder	ST3	5.26
4/4/2011	PJ-1	Winter flounder	ST3	8.30
4/4/2011	PJ-1	Winter flounder	ST3	6.75
4/4/2011	PJ-1	Winter flounder	ST3	5.69
4/4/2011	PJ-2	Winter flounder	ST1	4.32
4/4/2011	PJ-2	Winter flounder	ST3	4.86
4/4/2011	PJ-2	Winter flounder	ST3	5.09
4/4/2011	PJ-2	Winter flounder	ST2	4.33
4/4/2011	PJ-2	Winter flounder	ST2	4.58
4/4/2011	PJ-2	Winter flounder	ST2	4.30
4/4/2011	PJ-2	Winter flounder	ST2	4.52
4/4/2011	PJ-2	Winter flounder	ST1	4.36
4/4/2011	PJ-2	Winter flounder	ST1	3.04
4/4/2011	PJ-2	Winter flounder	ST3	5.67
4/4/2011	PJ-2	Winter flounder	ST1	4.37
4/4/2011	PJ-2	Winter flounder	ST1	4.01
4/4/2011	PJ-2	Winter flounder	ST1	4.15
4/4/2011	PJ-2	Winter flounder	ST3	5.17
4/4/2011	PJ-2	Winter flounder	ST1	4.21
4/4/2011	PJ-2	Winter flounder	ST3	5.00
4/4/2011	PJ-2	Winter flounder	ST3	4.98
4/4/2011	PJ-2	Winter flounder	ST3	4.73
4/4/2011	PJ-2	Winter flounder	ST3	4.84
4/4/2011	PJ-2	Winter flounder	ST3	5.15
4/4/2011	PJ-2	Winter flounder	ST3	4.94
4/4/2011	PJ-2	Winter flounder	ST3	4.95
4/4/2011	PJ-2	Winter flounder	ST3	5.41
4/4/2011	PJ-2	Winter flounder	ST3	5.52
4/4/2011	PJ-2	Winter flounder	ST3	5.44
4/4/2011	PJ-2	Winter flounder	ST3	5.29
4/4/2011	PJ-2	Winter flounder	ST3	5.97

Date	Station	Common Name	Life Stage	Total Length (mm)
4/4/2011	PJ-2	Winter flounder	ST3	5.32
4/4/2011	PJ-2	Winter flounder	ST3	4.79
4/4/2011	PJ-2	Winter flounder	ST3	4.96
4/4/2011	PJ-2	Winter flounder	ST3	5.74
4/4/2011	PJ-2	Winter flounder	ST3	5.25
4/4/2011	PJ-2	Winter flounder	ST3	4.62
4/4/2011	PJ-2	Winter flounder	ST3	5.50
4/4/2011	PJ-2	Winter flounder	ST3	5.70
4/4/2011	PJ-2	Winter flounder	ST3	5.57
4/4/2011	SB-3	Winter flounder	ST3	6.01
4/4/2011	SB-3	Winter flounder	ST3	6.66
4/4/2011	SB-3	Winter flounder	ST3	4.96
4/4/2011	SB-3	Winter flounder	ST3	5.22
4/4/2011	SB-3	Winter flounder	ST3	5.31
4/4/2011	SB-3	Winter flounder	ST3	8.23
4/4/2011	SB-3	Winter flounder	ST3	6.42
4/4/2011	SB-3	Winter flounder	ST3	6.01
4/4/2011	SB-3	Winter flounder	ST3	5.78
4/4/2011	SB-3	Winter flounder	ST3	7.29
4/4/2011	SB-3	Winter flounder	ST3	5.58
4/4/2011	SB-3	Winter flounder	ST3	5.82
4/4/2011	SB-3	Winter flounder	ST3	5.40
4/4/2011	SB-3	Winter flounder	ST3	6.11
4/4/2011	SB-3	Winter flounder	ST3	6.11
4/4/2011	SB-3	Winter flounder	ST3	5.80
4/4/2011	SB-3	Winter flounder	ST3	6.41
4/4/2011	SB-3	Winter flounder	ST3	6.47
4/4/2011	SB-3	Winter flounder	ST3	5.81
4/4/2011	SB-3	Winter flounder	ST3	6.63
4/4/2011	SB-3	Winter flounder	ST3	6.00
4/4/2011	SB-3	Winter flounder	ST3	5.21
4/4/2011	SB-3	Winter flounder	ST3	5.76
4/4/2011	SB-3	Winter flounder	ST3	6.38
4/4/2011	SB-4	Winter flounder	ST3	5.64
4/4/2011	SB-4	Winter flounder	ST3	5.64
4/4/2011	SB-4	Winter flounder	ST3	5.07
4/4/2011	SB-4	Winter flounder	ST3	4.85
4/4/2011	SB-4	Winter flounder	ST3	5.09
4/4/2011	SB-4	Winter flounder	ST3	5.19
4/4/2011	SB-4	Winter flounder	ST3	5.69
4/4/2011	SB-4	Winter flounder	ST3	4.89

Date	Station	Common Name	Life Stage	Total Length (mm)
4/4/2011	SB-4	Winter flounder	ST3	6.01
4/4/2011	SB-4	Winter flounder	ST3	5.16
4/4/2011	SB-4	Winter flounder	ST3	5.65
4/4/2011	SB-4	Winter flounder	ST3	5.14
4/4/2011	SB-4	Winter flounder	ST3	5.55
4/4/2011	SB-4	Winter flounder	ST3	5.81
4/4/2011	SB-4	Winter flounder	ST3	5.28
4/4/2011	SB-4	Winter flounder	ST2	3.78
4/4/2011	SB-4	Winter flounder	ST3	4.72
4/4/2011	SB-4	Winter flounder	ST1	3.65
4/4/2011	SB-4	Winter flounder	ST2	4.03
4/4/2011	SB-4	Winter flounder	ST2	3.84
4/4/2011	SB-4	Winter flounder	ST2	3.90
4/4/2011	SB-4	Winter flounder	ST2	4.42
4/4/2011	SB-4	Winter flounder	ST2	4.24
4/4/2011	SB-4	Winter flounder	ST2	4.30
4/4/2011	SB-4	Winter flounder	ST2	4.23
4/4/2011	SB-4	Winter flounder	ST2	4.20
4/4/2011	SB-4	Winter flounder	ST2	4.07
4/4/2011	SB-4	Winter flounder	ST1	3.66
4/4/2011	SB-4	Winter flounder	ST2	3.49
4/4/2011	SB-4	Winter flounder	ST1	3.41
4/4/2011	SB-4	Winter flounder	ST1	3.80
4/4/2011	SB-4	Winter flounder	ST1	3.59
4/4/2011	SB-4	Winter flounder	ST1	3.36
4/4/2011	SB-4	Winter flounder	ST1	3.46
4/4/2011	SB-4	Winter flounder	ST1	3.45
4/4/2011	SB-4	Winter flounder	ST1	3.61
4/4/2011	SB-4	Winter flounder	ST3	4.51
4/4/2011	SB-4	Winter flounder	ST2	4.27
4/4/2011	SB-4	Winter flounder	ST1	3.72
4/4/2011	SB-4	Winter flounder	ST3	4.61
4/4/2011	SB-4	Winter flounder	ST3	4.83
4/4/2011	SB-4	Winter flounder	ST3	5.29
4/4/2011	SB-4	Winter flounder	ST3	5.42
4/4/2011	SB-4	Winter flounder	ST3	5.25
4/4/2011	SB-4	Winter flounder	ST2	4.30
4/4/2011	SB-4	Winter flounder	ST3	5.19
4/4/2011	SB-4	Winter flounder	ST2	4.31
4/4/2011	SB-4	Winter flounder	ST3	4.99
4/4/2011	SB-4	Winter flounder	ST2	4.28

Date	Station	Common Name	Life Stage	Total Length (mm)
4/4/2011	SB-4	Winter flounder	ST2	4.14
4/4/2011	SB-4	Winter flounder	ST1	3.89
4/4/2011	SB-4	Winter flounder	ST2	4.15
4/4/2011	SB-4	Winter flounder	ST2	4.18
4/4/2011	SB-4	Winter flounder	ST3	5.18
4/4/2011	SB-4	Winter flounder	ST2	3.71
4/4/2011	SB-4	Winter flounder	ST2	4.12
4/4/2011	SB-4	Winter flounder	ST2	3.73
4/4/2011	SB-4	Winter flounder	ST2	4.46
4/4/2011	SB-4	Winter flounder	ST2	4.11
4/4/2011	SB-4	Winter flounder	ST2	4.46
4/4/2011	SB-4	Winter flounder	ST2	4.12
4/6/2011	LB-14	Winter flounder	ST3	5.30
4/6/2011	LB-14	Winter flounder	ST3	5.62
4/6/2011	LB-14	Winter flounder	ST3	5.28
4/6/2011	LB-14	Winter flounder	ST3	4.78
4/6/2011	LB-14	Winter flounder	ST3	5.57
4/6/2011	LB-14	Winter flounder	ST3	4.87
4/6/2011	LB-14	Winter flounder	ST3	5.56
4/6/2011	LB-14	Winter flounder	ST3	5.14
4/6/2011	LB-14	Winter flounder	ST3	5.32
4/6/2011	LB-14	Winter flounder	ST3	5.58
4/6/2011	LB-14	Winter flounder	ST3	4.13
4/6/2011	LB-14	Winter flounder	ST3	4.68
4/6/2011	LB-14	Winter flounder	ST3	5.22
4/6/2011	LB-14	Winter flounder	ST3	5.10
4/6/2011	LB-14	Winter flounder	ST3	5.42
4/6/2011	LB-14	Winter flounder	ST3	4.71
4/6/2011	LB-14	Winter flounder	ST3	5.48
4/6/2011	LB-14	Winter flounder	ST2	4.22
4/6/2011	LB-14	Winter flounder	ST2	3.63
4/6/2011	LB-14	Winter flounder	ST2	3.74
4/6/2011	LB-14	Winter flounder	ST3	5.52
4/6/2011	LB-14	Winter flounder	ST3	5.20
4/6/2011	LB-14	Winter flounder	ST3	4.22
4/6/2011	LB-14	Winter flounder	ST3	5.23
4/6/2011	LB-14	Winter flounder	ST3	5.42
4/6/2011	LB-14	Winter flounder	ST3	5.04
4/6/2011	LB-14	Winter flounder	ST3	5.23
4/6/2011	LB-14	Winter flounder	ST3	4.70
4/6/2011	LB-2	Winter flounder	ST3	7.10

Date	Station	Common Name	Life Stage	Total Length (mm)
4/6/2011	LB-2	Winter flounder	ST3	5.78
4/6/2011	LB-2	Winter flounder	ST3	6.06
4/6/2011	LB-21	Winter flounder	ST3	5.61
4/6/2011	LB-21	Winter flounder	ST3	5.83
4/6/2011	LB-21	Winter flounder	ST3	5.12
4/6/2011	LB-21	Winter flounder	ST3	7.38
4/6/2011	LB-21	Winter flounder	ST3	6.33
4/6/2011	LB-21	Winter flounder	ST3	5.31
4/6/2011	LB-21	Winter flounder	ST3	6.18
4/6/2011	LB-21	Winter flounder	ST3	5.29
4/6/2011	LB-21	Winter flounder	ST3	5.87
4/6/2011	LB-21	Winter flounder	ST3	5.96
4/6/2011	LB-21	Winter flounder	ST3	5.58
4/6/2011	LB-21	Winter flounder	ST2	3.45
4/6/2011	LB-21	Winter flounder	ST3	4.64
4/6/2011	LB-21	Winter flounder	ST3	5.52
4/6/2011	LB-21	Winter flounder	ST3	5.22
4/6/2011	LB-21	Winter flounder	ST3	5.73
4/6/2011	LB-21	Winter flounder	ST3	6.54
4/6/2011	LB-21	Winter flounder	ST3	5.57
4/6/2011	LB-21	Winter flounder	ST3	6.13
4/6/2011	LB-21	Winter flounder	ST3	6.48
4/6/2011	LB-21	Winter flounder	ST3	4.88
4/6/2011	LB-21	Winter flounder	ST3	5.59
4/6/2011	LB-21	Winter flounder	ST3	5.05
4/6/2011	LB-21	Winter flounder	ST1	3.86
4/6/2011	LB-21	Winter flounder	ST3	5.44
4/6/2011	LB-3	Winter flounder	ST3	4.40
4/6/2011	LB-3	Winter flounder	ST3	4.96
4/6/2011	LB-3	Winter flounder	ST3	5.45
4/6/2011	LB-3	Winter flounder	ST3	5.03
4/6/2011	LB-3	Winter flounder	ST3	5.81
4/6/2011	LB-3	Winter flounder	ST3	4.80
4/6/2011	LB-3	Winter flounder	ST3	4.98
4/6/2011	LB-3	Winter flounder	ST3	5.52
4/6/2011	LB-5	Winter flounder	ST2	4.00
4/6/2011	LB-5	Winter flounder	ST2	4.37
4/6/2011	LB-5	Winter flounder	ST1	3.70
4/6/2011	LB-5	Winter flounder	ST1	3.83
4/6/2011	LB-5	Winter flounder	ST1	3.85
4/6/2011	LB-5	Winter flounder	ST2	3.91

Date	Station	Common Name	Life Stage	Total Length (mm)
4/6/2011	LB-5	Winter flounder	ST1	3.61
4/6/2011	LB-5	Winter flounder	ST2	3.80
4/6/2011	LB-5	Winter flounder	ST1	3.72
4/6/2011	LB-5	Winter flounder	ST2	4.31
4/6/2011	LB-5	Winter flounder	ST2	3.88
4/6/2011	LB-5	Winter flounder	ST2	4.28
4/6/2011	LB-5	Winter flounder	ST2	4.17
4/6/2011	LB-5	Winter flounder	ST2	4.00
4/6/2011	LB-5	Winter flounder	ST2	4.08
4/6/2011	LB-5	Winter flounder	ST2	3.90
4/6/2011	LB-5	Winter flounder	ST3	6.04
4/6/2011	LB-5	Winter flounder	ST3	5.35
4/6/2011	LB-5	Winter flounder	ST2	4.18
4/6/2011	LB-5	Winter flounder	ST2	4.06
4/6/2011	LB-5	Winter flounder	ST2	4.22
4/6/2011	LB-5	Winter flounder	ST3	5.42
4/6/2011	LB-5	Winter flounder	ST1	3.31
4/6/2011	LB-5	Winter flounder	ST3	5.18
4/6/2011	LB-5	Winter flounder	ST2	3.94
4/6/2011	LB-5	Winter flounder	ST3	5.80
4/6/2011	LB-5	Winter flounder	ST3	5.20
4/6/2011	LB-5	Winter flounder	ST1	3.65
4/6/2011	LB-5	Winter flounder	ST1	3.70
4/6/2011	LB-5	Winter flounder	ST1	3.17
4/6/2011	LB-5	Winter flounder	ST1	3.67
4/6/2011	LB-5	Winter flounder	ST3	5.14
4/6/2011	LB-5	Winter flounder	ST2	4.08
4/6/2011	LB-5	Winter flounder	ST3	5.33
4/6/2011	LB-5	Winter flounder	ST3	4.83
4/6/2011	LB-5	Winter flounder	ST3	5.60
4/6/2011	LB-5	Winter flounder	ST3	5.25
4/6/2011	LB-5	Winter flounder	ST3	5.56
4/6/2011	LB-5	Winter flounder	ST3	4.84
4/6/2011	LB-5	Winter flounder	ST3	4.63
4/6/2011	LB-5	Winter flounder	ST3	5.76
4/6/2011	LB-5	Winter flounder	ST3	5.02
4/6/2011	LB-5	Winter flounder	ST3	5.06
4/6/2011	LB-5	Winter flounder	ST2	4.39
4/6/2011	LB-5	Winter flounder	ST3	6.18
4/6/2011	LB-5	Winter flounder	ST3	5.88
4/6/2011	LB-5	Winter flounder	ST3	4.86

Date	Station	Common Name	Life Stage	Total Length (mm)
4/6/2011	LB-5	Winter flounder	ST3	4.75
4/6/2011	LB-5	Winter flounder	ST3	5.17
4/6/2011	LB-5	Winter flounder	ST3	4.33
4/6/2011	LB-5	Winter flounder	ST3	6.09
4/6/2011	LB-5	Winter flounder	ST3	5.48
4/6/2011	LB-6	Winter flounder	ST3	4.18
4/6/2011	LB-6	Winter flounder	ST3	4.40
4/6/2011	LB-6	Winter flounder	ST3	4.66
4/6/2011	LB-6	Winter flounder	ST3	4.67
4/6/2011	LB-6	Winter flounder	ST3	5.57
4/6/2011	LB-6	Winter flounder	ST3	4.37
4/6/2011	LB-6	Winter flounder	ST3	4.85
4/6/2011	LB-6	Winter flounder	ST3	5.45
4/6/2011	LB-6	Winter flounder	ST3	5.61
4/6/2011	LB-6	Winter flounder	ST3	5.01
4/6/2011	LB-6	Winter flounder	ST3	5.46
4/6/2011	LB-6	Winter flounder	ST3	4.91
4/6/2011	LB-6	Winter flounder	ST2	3.79
4/6/2011	LB-8	Winter flounder	ST3	5.26
4/6/2011	LB-8	Winter flounder	ST3	5.71
4/6/2011	LB-8	Winter flounder	ST3	4.49
4/6/2011	LB-8	Winter flounder	ST3	6.16
4/6/2011	LB-8	Winter flounder	ST3	5.23
4/6/2011	LB-8	Winter flounder	ST3	5.55
4/6/2011	LB-8	Winter flounder	ST3	4.63
4/6/2011	LB-8	Winter flounder	ST3	5.54
4/6/2011	LB-8	Winter flounder	ST3	5.14
4/6/2011	LB-8	Winter flounder	ST3	5.70
4/6/2011	LB-8	Winter flounder	ST3	5.93
4/6/2011	LB-8	Winter flounder	ST3	5.88
4/6/2011	LB-8	Winter flounder	ST3	5.39
4/6/2011	LB-8	Winter flounder	ST3	5.32
4/6/2011	LB-8	Winter flounder	ST3	6.30
4/6/2011	LB-8	Winter flounder	ST3	5.41
4/6/2011	LB-8	Winter flounder	ST3	6.77
4/6/2011	LB-8	Winter flounder	ST3	5.63
4/6/2011	LB-8	Winter flounder	ST3	5.24
4/6/2011	LB-8	Winter flounder	ST3	5.28
4/6/2011	LB-8	Winter flounder	ST1	3.96
4/6/2011	LB-8	Winter flounder	ST3	6.16
4/6/2011	LB-8	Winter flounder	ST3	5.30

Date	Station	Common Name	Life Stage	Total Length (mm)
4/6/2011	LB-8	Winter flounder	ST2	3.26
4/6/2011	LB-8	Winter flounder	ST2	4.02
4/6/2011	LB-8	Winter flounder	ST3	6.72
4/6/2011	LB-8	Winter flounder	ST1	3.63
4/6/2011	LB-8	Winter flounder	ST2	3.64
4/6/2011	LB-8	Winter flounder	ST2	3.88
4/6/2011	LB-8	Winter flounder	ST2	3.88
4/6/2011	LB-8	Winter flounder	ST2	3.93
4/6/2011	LB-8	Winter flounder	ST2	4.09
4/6/2011	LB-8	Winter flounder	ST2	4.18
4/6/2011	LB-8	Winter flounder	ST2	3.77
4/6/2011	LB-8	Winter flounder	ST2	3.68
4/6/2011	LB-8	Winter flounder	ST3	5.08
4/6/2011	LB-8	Winter flounder	ST1	3.27
4/6/2011	LB-8	Winter flounder	ST2	3.76
4/6/2011	LB-8	Winter flounder	ST2	4.13
4/6/2011	LB-8	Winter flounder	ST3	5.24
4/6/2011	LB-8	Winter flounder	ST2	4.25
4/6/2011	LB-8	Winter flounder	ST2	4.00
4/6/2011	LB-8	Winter flounder	ST2	4.07
4/6/2011	LB-8	Winter flounder	ST2	4.14
4/6/2011	LB-8	Winter flounder	ST2	3.59
4/6/2011	LB-9	Winter flounder	ST3	5.23
4/6/2011	LB-9	Winter flounder	ST3	4.29
4/6/2011	LB-9	Winter flounder	ST3	4.49
4/6/2011	LB-9	Winter flounder	ST3	5.51
4/6/2011	LB-9	Winter flounder	ST3	5.04
4/6/2011	LB-9	Winter flounder	ST3	5.40
4/6/2011	LB-9	Winter flounder	ST3	5.67
4/6/2011	LB-9	Winter flounder	ST3	5.11
4/6/2011	LB-9	Winter flounder	ST3	4.74
4/6/2011	LB-9	Winter flounder	ST3	4.87
4/6/2011	LB-9	Winter flounder	ST3	5.11
4/6/2011	LB-9	Winter flounder	ST3	4.46
4/6/2011	LB-9	Winter flounder	ST3	4.34
4/6/2011	LB-9	Winter flounder	ST3	4.66
4/6/2011	LB-9	Winter flounder	ST3	5.19
4/6/2011	LB-9	Winter flounder	ST3	4.61
4/6/2011	LB-9	Winter flounder	ST3	5.14
4/6/2011	LB-9	Winter flounder	ST3	4.93
4/6/2011	LB-9	Winter flounder	ST3	4.97

Date	Station	Common Name	Life Stage	Total Length (mm)
4/6/2011	LB-9	Winter flounder	ST3	4.84
4/6/2011	LB-9	Winter flounder	ST3	5.33
4/6/2011	LB-9	Winter flounder	ST3	4.94
4/6/2011	LB-9	Winter flounder	ST3	4.38
4/6/2011	LB-9	Winter flounder	ST2	4.00
4/6/2011	LB-9	Winter flounder	ST3	4.50
4/6/2011	SB-5	Winter flounder	ST3	5.86
4/6/2011	SB-5	Winter flounder	ST3	5.92
4/6/2011	SB-6	Winter flounder	ST2	3.87
4/6/2011	SB-6	Winter flounder	ST3	7.09
4/6/2011	SB-6	Winter flounder	ST1	4.13
4/6/2011	SB-6	Winter flounder	ST3	5.44
4/6/2011	SB-6	Winter flounder	ST3	4.99
4/6/2011	SB-6	Winter flounder	ST3	4.36
4/6/2011	SB-6	Winter flounder	ST3	5.70
4/6/2011	SB-6	Winter flounder	ST3	5.81
4/6/2011	SB-6	Winter flounder	ST3	4.94
4/6/2011	SB-6	Winter flounder	ST3	4.77
4/6/2011	SB-6	Winter flounder	ST3	4.90
4/6/2011	SB-6	Winter flounder	ST3	5.50
4/6/2011	SB-6	Winter flounder	ST3	7.11
4/6/2011	SB-6	Winter flounder	ST3	6.07
4/6/2011	SB-6	Winter flounder	ST3	5.34
4/6/2011	SB-6	Winter flounder	ST3	5.73
4/6/2011	SB-6	Winter flounder	ST3	6.07
4/6/2011	SB-6	Winter flounder	ST3	8.05
4/6/2011	SB-6	Winter flounder	ST3	5.57
4/6/2011	SB-6	Winter flounder	ST3	5.50
4/6/2011	SB-6	Winter flounder	ST3	4.43
4/6/2011	SB-6	Winter flounder	ST3	5.09
4/6/2011	SB-6	Winter flounder	ST3	5.56
4/6/2011	SB-6	Winter flounder	ST3	6.52
4/6/2011	SB-6	Winter flounder	ST3	6.00
4/6/2011	SB-6	Winter flounder	ST3	4.22
4/6/2011	SB-6	Winter flounder	ST3	5.30
4/7/2011	LB-1	Winter flounder	ST3	5.20
4/7/2011	LB-1	Winter flounder	ST3	5.96
4/7/2011	LB-1	Winter flounder	ST3	4.90
4/7/2011	LB-1	Winter flounder	ST3	4.87
4/7/2011	LB-1	Winter flounder	ST3	4.76
4/7/2011	LB-1	Winter flounder	ST3	4.68

Date	Station	Common Name	Life Stage	Total Length (mm)
4/7/2011	LB-1	Winter flounder	ST3	5.45
4/7/2011	LB-1	Winter flounder	ST3	5.56
4/7/2011	LB-1	Winter flounder	ST3	5.10
4/7/2011	LB-1	Winter flounder	ST3	6.32
4/7/2011	LB-1	Winter flounder	ST3	5.09
4/7/2011	LB-1	Winter flounder	ST3	5.14
4/7/2011	LB-1	Winter flounder	ST3	5.18
4/7/2011	LB-1	Winter flounder	ST3	6.05
4/7/2011	LB-1	Winter flounder	ST3	5.69
4/7/2011	LB-1	Winter flounder	ST3	4.81
4/7/2011	LB-1	Winter flounder	ST3	5.02
4/7/2011	LB-1	Winter flounder	ST3	5.48
4/7/2011	LB-1	Winter flounder	ST3	5.06
4/7/2011	LB-1	Winter flounder	ST3	5.29
4/7/2011	LB-1	Winter flounder	ST3	5.80
4/7/2011	LB-1	Winter flounder	ST3	6.21
4/7/2011	LB-1	Winter flounder	ST2	3.89
4/7/2011	LB-1	Winter flounder	ST3	4.96
4/7/2011	LB-1	Winter flounder	ST1	3.74
4/7/2011	LB-1	Winter flounder	ST3	5.22
4/7/2011	LB-1	Winter flounder	ST3	6.34
4/7/2011	LB-1	Winter flounder	ST1	3.42
4/7/2011	LB-1	Winter flounder	ST1	3.40
4/7/2011	LB-1	Winter flounder	ST1	3.83
4/7/2011	LB-1	Winter flounder	ST1	3.35
4/7/2011	LB-1	Winter flounder	ST1	3.70
4/7/2011	LB-1	Winter flounder	ST1	3.52
4/7/2011	LB-1	Winter flounder	ST1	3.16
4/7/2011	LB-1	Winter flounder	ST1	3.92
4/7/2011	LB-1	Winter flounder	ST1	3.63
4/7/2011	LB-1	Winter flounder	ST2	4.08
4/7/2011	LB-1	Winter flounder	ST1	3.19
4/7/2011	LB-1	Winter flounder	ST2	3.86
4/7/2011	LB-1	Winter flounder	ST2	4.31
4/7/2011	LB-1	Winter flounder	ST2	3.71
4/7/2011	LB-1	Winter flounder	ST2	4.10
4/7/2011	LB-1	Winter flounder	ST2	3.64
4/7/2011	LB-1	Winter flounder	ST2	3.81
4/7/2011	LB-1	Winter flounder	ST2	3.85
4/7/2011	LB-1	Winter flounder	ST2	4.05
4/7/2011	LB-1	Winter flounder	ST2	3.97

Date	Station	Common Name	Life Stage	Total Length (mm)
4/7/2011	LB-12	Winter flounder	ST2	3.72
4/7/2011	LB-12	Winter flounder	ST2	4.18
4/7/2011	LB-12	Winter flounder	ST2	3.59
4/7/2011	LB-12	Winter flounder	ST2	3.91
4/7/2011	LB-12	Winter flounder	ST2	3.69
4/7/2011	LB-12	Winter flounder	ST2	3.72
4/7/2011	LB-12	Winter flounder	ST2	4.39
4/7/2011	LB-12	Winter flounder	ST3	5.50
4/7/2011	LB-12	Winter flounder	ST1	3.30
4/7/2011	LB-12	Winter flounder	ST2	3.97
4/7/2011	LB-12	Winter flounder	ST3	5.67
4/7/2011	LB-12	Winter flounder	ST2	4.03
4/7/2011	LB-12	Winter flounder	ST2	3.77
4/7/2011	LB-12	Winter flounder	ST2	3.38
4/7/2011	LB-12	Winter flounder	ST2	3.41
4/7/2011	LB-12	Winter flounder	ST1	3.16
4/7/2011	LB-12	Winter flounder	ST1	3.33
4/7/2011	LB-12	Winter flounder	ST1	3.57
4/7/2011	LB-12	Winter flounder	ST1	3.24
4/7/2011	LB-12	Winter flounder	ST1	3.46
4/7/2011	LB-12	Winter flounder	ST1	3.22
4/7/2011	LB-12	Winter flounder	ST1	3.44
4/7/2011	LB-12	Winter flounder	ST3	5.63
4/7/2011	LB-12	Winter flounder	ST1	3.35
4/7/2011	LB-12	Winter flounder	ST3	5.10
4/7/2011	LB-12	Winter flounder	ST3	5.15
4/7/2011	LB-12	Winter flounder	ST3	7.81
4/7/2011	LB-12	Winter flounder	ST3	5.61
4/7/2011	LB-12	Winter flounder	ST3	5.57
4/7/2011	LB-12	Winter flounder	ST3	6.49
4/7/2011	LB-12	Winter flounder	ST3	5.88
4/7/2011	LB-12	Winter flounder	ST3	4.78
4/7/2011	LB-12	Winter flounder	ST3	4.86
4/7/2011	LB-12	Winter flounder	ST3	6.02
4/7/2011	LB-12	Winter flounder	ST3	5.01
4/7/2011	LB-12	Winter flounder	ST3	5.81
4/7/2011	LB-12	Winter flounder	ST3	6.63
4/7/2011	LB-12	Winter flounder	ST3	4.97
4/7/2011	LB-12	Winter flounder	ST3	5.27
4/7/2011	LB-12	Winter flounder	ST3	6.11
4/7/2011	LB-12	Winter flounder	ST3	4.97

Date	Station	Common Name	Life Stage	Total Length (mm)
4/7/2011	LB-12	Winter flounder	ST3	4.94
4/7/2011	LB-12	Winter flounder	ST3	4.91
4/7/2011	LB-12	Winter flounder	ST3	5.34
4/7/2011	LB-12	Winter flounder	ST3	5.39
4/7/2011	LB-12	Winter flounder	ST3	6.22
4/7/2011	LB-13	Winter flounder	ST3	5.88
4/7/2011	LB-13	Winter flounder	ST3	5.84
4/7/2011	LB-13	Winter flounder	ST3	6.37
4/7/2011	LB-13	Winter flounder	ST3	6.26
4/7/2011	LB-13	Winter flounder	ST3	4.70
4/7/2011	LB-13	Winter flounder	ST3	4.94
4/7/2011	LB-13	Winter flounder	ST3	4.53
4/7/2011	LB-13	Winter flounder	ST3	8.00
4/7/2011	LB-13	Winter flounder	ST3	6.17
4/7/2011	LB-13	Winter flounder	ST3	4.68
4/7/2011	LB-13	Winter flounder	ST3	5.12
4/7/2011	LB-13	Winter flounder	ST3	5.28
4/7/2011	LB-13	Winter flounder	ST3	5.53
4/7/2011	LB-13	Winter flounder	ST3	6.68
4/7/2011	LB-16	Winter flounder	ST3	4.71
4/7/2011	LB-16	Winter flounder	ST3	4.67
4/7/2011	LB-16	Winter flounder	ST3	6.52
4/7/2011	LB-16	Winter flounder	ST3	6.04
4/7/2011	LB-16	Winter flounder	ST3	5.05
4/7/2011	LB-16	Winter flounder	ST3	5.59
4/7/2011	LB-16	Winter flounder	ST3	4.26
4/7/2011	LB-16	Winter flounder	ST3	6.39
4/7/2011	LB-16	Winter flounder	ST3	6.03
4/7/2011	LB-16	Winter flounder	ST3	4.41
4/7/2011	LB-16	Winter flounder	ST3	5.61
4/7/2011	LB-16	Winter flounder	ST3	6.77
4/7/2011	LB-16	Winter flounder	ST3	6.18
4/7/2011	LB-16	Winter flounder	ST3	3.99
4/7/2011	LB-16	Winter flounder	ST3	4.91
4/7/2011	LB-16	Winter flounder	ST3	4.01
4/7/2011	LB-16	Winter flounder	ST3	3.99
4/7/2011	LB-16	Winter flounder	ST3	5.68
4/7/2011	LB-16	Winter flounder	ST3	5.65
4/7/2011	LB-16	Winter flounder	ST3	5.79
4/7/2011	LB-16	Winter flounder	ST3	4.09
4/7/2011	LB-16	Winter flounder	ST3	3.90

Date	Station	Common Name	Life Stage	Total Length (mm)
4/7/2011	LB-18	Winter flounder	ST3	5.00
4/7/2011	LB-18	Winter flounder	ST3	5.70
4/7/2011	LB-19	Winter flounder	ST3	5.81
4/7/2011	LB-19	Winter flounder	ST3	5.30
4/7/2011	LB-19	Winter flounder	ST3	4.75
4/7/2011	LB-19	Winter flounder	ST3	5.34
4/7/2011	LB-19	Winter flounder	ST3	6.13
4/7/2011	LB-19	Winter flounder	ST3	4.74
4/7/2011	LB-19	Winter flounder	ST3	5.50
4/7/2011	LB-19	Winter flounder	ST3	4.48
4/7/2011	LB-19	Winter flounder	ST3	5.66
4/7/2011	LB-19	Winter flounder	ST3	5.95
4/7/2011	LB-19	Winter flounder	ST2	3.88
4/7/2011	LB-19	Winter flounder	ST3	5.52
4/7/2011	LB-19	Winter flounder	ST2	3.84
4/7/2011	LB-19	Winter flounder	ST2	3.71
4/7/2011	LB-19	Winter flounder	ST2	3.92
4/7/2011	LB-19	Winter flounder	ST2	3.75
4/7/2011	LB-19	Winter flounder	ST2	3.70
4/7/2011	LB-19	Winter flounder	ST2	4.01
4/7/2011	LB-19	Winter flounder	ST3	4.55
4/7/2011	LB-19	Winter flounder	ST3	5.24
4/7/2011	LB-19	Winter flounder	ST1	3.74
4/7/2011	LB-19	Winter flounder	ST1	3.56
4/7/2011	LB-19	Winter flounder	ST1	3.51
4/7/2011	LB-19	Winter flounder	ST1	3.03
4/7/2011	LB-19	Winter flounder	ST1	2.79
4/7/2011	LB-19	Winter flounder	ST3	4.71
4/7/2011	LB-19	Winter flounder	ST3	4.73
4/7/2011	LB-19	Winter flounder	ST3	4.95
4/7/2011	LB-19	Winter flounder	ST3	4.26
4/7/2011	LB-19	Winter flounder	ST3	5.92
4/7/2011	LB-19	Winter flounder	ST3	4.79
4/7/2011	LB-19	Winter flounder	ST3	4.89
4/7/2011	LB-19	Winter flounder	ST3	5.21
4/7/2011	LB-19	Winter flounder	ST3	5.56
4/7/2011	LB-19	Winter flounder	ST3	5.68
4/7/2011	LB-19	Winter flounder	ST3	4.39
4/7/2011	LB-19	Winter flounder	ST3	5.25
4/7/2011	LB-20	Winter flounder	ST3	4.38
4/7/2011	LB-20	Winter flounder	ST3	4.92

Date	Station	Common Name	Life Stage	Total Length (mm)
4/7/2011	LB-20	Winter flounder	ST3	5.73
4/7/2011	LB-20	Winter flounder	ST3	4.36
4/7/2011	LB-4	Winter flounder	ST3	7.03
4/20/2011	LB-1	Winter flounder	ST3	7.11
4/20/2011	LB-1	Winter flounder	ST3	7.60
4/20/2011	LB-1	Winter flounder	ST3	8.69
4/20/2011	LB-1	Winter flounder	ST3	7.48
4/20/2011	LB-1	Winter flounder	ST3	8.63
4/20/2011	LB-1	Winter flounder	ST3	8.25
4/20/2011	LB-1	Winter flounder	ST3	9.06
4/20/2011	LB-1	Winter flounder	ST3	6.54
4/20/2011	LB-1	Winter flounder	ST3	6.76
4/20/2011	LB-1	Winter flounder	ST3	6.88
4/20/2011	LB-1	Winter flounder	ST3	6.21
4/20/2011	LB-1	Winter flounder	ST3	7.08
4/20/2011	LB-1	Winter flounder	ST3	7.76
4/20/2011	LB-1	Winter flounder	ST3	6.40
4/20/2011	LB-1	Winter flounder	ST3	7.36
4/20/2011	LB-1	Winter flounder	ST3	5.15
4/20/2011	LB-1	Winter flounder	ST3	5.44
4/20/2011	LB-1	Winter flounder	ST3	5.53
4/20/2011	LB-1	Winter flounder	ST3	5.25
4/20/2011	LB-1	Winter flounder	ST3	5.44
4/20/2011	LB-1	Winter flounder	ST3	7.18
4/20/2011	LB-1	Winter flounder	ST3	5.25
4/20/2011	LB-1	Winter flounder	ST3	10.67
4/20/2011	LB-1	Winter flounder	ST3	8.16
4/20/2011	LB-12	Winter flounder	ST3	9.70
4/20/2011	LB-12	Winter flounder	ST3	8.34
4/20/2011	LB-12	Winter flounder	ST3	8.88
4/20/2011	LB-12	Winter flounder	ST3	9.05
4/20/2011	LB-12	Winter flounder	ST3	8.13
4/20/2011	LB-12	Winter flounder	ST3	9.20
4/20/2011	LB-12	Winter flounder	ST3	8.73
4/20/2011	LB-12	Winter flounder	ST3	7.96
4/20/2011	LB-12	Winter flounder	ST3	8.74
4/20/2011	LB-12	Winter flounder	ST3	8.73
4/20/2011	LB-12	Winter flounder	ST3	8.12
4/20/2011	LB-12	Winter flounder	ST3	9.63
4/20/2011	LB-12	Winter flounder	ST3	7.78
4/20/2011	LB-12	Winter flounder	ST3	7.81

Date	Station	Common Name	Life Stage	Total Length (mm)
4/20/2011	LB-12	Winter flounder	ST3	9.35
4/20/2011	LB-12	Winter flounder	ST3	9.34
4/20/2011	LB-12	Winter flounder	ST3	8.67
4/20/2011	LB-12	Winter flounder	ST3	8.58
4/20/2011	LB-12	Winter flounder	ST3	8.52
4/20/2011	LB-12	Winter flounder	ST3	8.51
4/20/2011	LB-12	Winter flounder	ST3	8.15
4/20/2011	LB-12	Winter flounder	ST3	7.84
4/20/2011	LB-12	Winter flounder	ST3	8.78
4/20/2011	LB-12	Winter flounder	ST3	8.55
4/20/2011	LB-12	Winter flounder	ST3	8.23
4/20/2011	LB-13	Winter flounder	ST3	7.54
4/20/2011	LB-13	Winter flounder	ST3	8.80
4/20/2011	LB-13	Winter flounder	ST3	9.14
4/20/2011	LB-13	Winter flounder	ST3	7.97
4/20/2011	LB-13	Winter flounder	ST3	8.23
4/20/2011	LB-13	Winter flounder	ST3	7.85
4/20/2011	LB-13	Winter flounder	ST3	8.60
4/20/2011	LB-13	Winter flounder	ST3	6.82
4/20/2011	LB-13	Winter flounder	ST3	6.54
4/20/2011	LB-13	Winter flounder	ST3	7.02
4/20/2011	LB-13	Winter flounder	ST3	5.87
4/20/2011	LB-13	Winter flounder	ST3	6.80
4/20/2011	LB-13	Winter flounder	ST3	7.85
4/20/2011	LB-13	Winter flounder	ST3	6.18
4/20/2011	LB-13	Winter flounder	ST3	7.11
4/20/2011	LB-13	Winter flounder	ST3	6.50
4/20/2011	LB-13	Winter flounder	ST3	6.64
4/20/2011	LB-13	Winter flounder	ST3	5.53
4/20/2011	LB-13	Winter flounder	ST3	5.82
4/20/2011	LB-13	Winter flounder	ST3	7.26
4/20/2011	LB-13	Winter flounder	ST3	7.39
4/20/2011	LB-13	Winter flounder	ST3	7.37
4/20/2011	LB-13	Winter flounder	ST3	6.51
4/20/2011	LB-13	Winter flounder	ST3	5.66
4/20/2011	LB-13	Winter flounder	ST3	7.08
4/20/2011	LB-14	Winter flounder	ST3	8.38
4/20/2011	LB-14	Winter flounder	ST3	8.88
4/20/2011	LB-14	Winter flounder	ST3	9.65
4/20/2011	LB-14	Winter flounder	ST3	8.45
4/20/2011	LB-14	Winter flounder	ST3	8.26

Date	Station	Common Name	Life Stage	Total Length (mm)
4/20/2011	LB-14	Winter flounder	ST3	8.96
4/20/2011	LB-14	Winter flounder	ST3	9.06
4/20/2011	LB-14	Winter flounder	ST3	6.85
4/20/2011	LB-14	Winter flounder	ST3	9.79
4/20/2011	LB-14	Winter flounder	ST2	4.44
4/20/2011	LB-14	Winter flounder	ST3	5.04
4/20/2011	LB-14	Winter flounder	ST3	8.50
4/20/2011	LB-14	Winter flounder	ST2	4.14
4/20/2011	LB-14	Winter flounder	ST3	7.79
4/20/2011	LB-14	Winter flounder	ST3	5.47
4/20/2011	LB-14	Winter flounder	ST3	5.74
4/20/2011	LB-14	Winter flounder	ST3	7.95
4/20/2011	LB-14	Winter flounder	ST3	9.58
4/20/2011	LB-14	Winter flounder	ST3	5.69
4/20/2011	LB-14	Winter flounder	ST3	7.48
4/20/2011	LB-14	Winter flounder	ST3	5.34
4/20/2011	LB-14	Winter flounder	ST3	5.36
4/20/2011	LB-14	Winter flounder	ST3	5.90
4/20/2011	LB-14	Winter flounder	ST3	8.36
4/20/2011	LB-14	Winter flounder	ST3	9.33
4/20/2011	LB-14	Winter flounder	ST3	7.23
4/20/2011	LB-14	Winter flounder	ST3	5.48
4/20/2011	LB-16	Winter flounder	ST3	6.24
4/20/2011	LB-16	Winter flounder	ST3	8.26
4/20/2011	LB-16	Winter flounder	ST3	7.62
4/20/2011	LB-16	Winter flounder	ST3	7.90
4/20/2011	LB-16	Winter flounder	ST3	7.63
4/20/2011	LB-16	Winter flounder	ST3	7.77
4/20/2011	LB-16	Winter flounder	ST3	6.83
4/20/2011	LB-16	Winter flounder	ST3	7.75
4/20/2011	LB-16	Winter flounder	ST3	7.51
4/20/2011	LB-16	Winter flounder	ST3	8.52
4/20/2011	LB-16	Winter flounder	ST3	7.88
4/20/2011	LB-16	Winter flounder	ST3	8.15
4/20/2011	LB-16	Winter flounder	ST3	7.38
4/20/2011	LB-16	Winter flounder	ST3	8.73
4/20/2011	LB-16	Winter flounder	ST3	8.66
4/20/2011	LB-16	Winter flounder	ST3	8.83
4/20/2011	LB-16	Winter flounder	ST3	8.89
4/20/2011	LB-16	Winter flounder	ST3	8.07
4/20/2011	LB-16	Winter flounder	ST3	8.44

Date	Station	Common Name	Life Stage	Total Length (mm)
4/20/2011	LB-16	Winter flounder	ST3	8.39
4/20/2011	LB-16	Winter flounder	ST3	8.26
4/20/2011	LB-16	Winter flounder	ST3	8.44
4/20/2011	LB-16	Winter flounder	ST3	8.38
4/20/2011	LB-16	Winter flounder	ST3	8.51
4/20/2011	LB-16	Winter flounder	ST3	8.13
4/20/2011	LB-18	Winter flounder	ST3	8.51
4/20/2011	LB-18	Winter flounder	ST3	7.10
4/20/2011	LB-18	Winter flounder	ST3	4.93
4/20/2011	LB-18	Winter flounder	ST3	7.41
4/20/2011	LB-18	Winter flounder	ST3	8.38
4/20/2011	LB-18	Winter flounder	ST3	8.11
4/20/2011	LB-18	Winter flounder	ST3	8.79
4/20/2011	LB-18	Winter flounder	ST3	7.02
4/20/2011	LB-18	Winter flounder	ST3	6.81
4/20/2011	LB-18	Winter flounder	ST3	8.08
4/20/2011	LB-18	Winter flounder	ST3	7.85
4/20/2011	LB-18	Winter flounder	ST3	7.81
4/20/2011	LB-18	Winter flounder	ST3	9.65
4/20/2011	LB-18	Winter flounder	ST3	8.86
4/20/2011	LB-18	Winter flounder	ST3	8.26
4/20/2011	LB-18	Winter flounder	ST3	9.93
4/20/2011	LB-18	Winter flounder	ST3	8.74
4/20/2011	LB-19	Winter flounder	ST3	9.36
4/20/2011	LB-19	Winter flounder	ST3	8.22
4/20/2011	LB-19	Winter flounder	ST3	9.81
4/20/2011	LB-19	Winter flounder	ST3	7.72
4/20/2011	LB-19	Winter flounder	ST3	8.21
4/20/2011	LB-19	Winter flounder	ST3	5.74
4/20/2011	LB-19	Winter flounder	ST3	7.03
4/20/2011	LB-19	Winter flounder	ST3	5.80
4/20/2011	LB-19	Winter flounder	ST3	6.42
4/20/2011	LB-19	Winter flounder	ST3	5.84
4/20/2011	LB-19	Winter flounder	ST3	6.79
4/20/2011	LB-19	Winter flounder	ST3	6.44
4/20/2011	LB-19	Winter flounder	ST3	7.54
4/20/2011	LB-19	Winter flounder	ST3	7.45
4/20/2011	LB-19	Winter flounder	ST3	9.99
4/20/2011	LB-19	Winter flounder	ST3	7.49
4/20/2011	LB-19	Winter flounder	ST3	7.91
4/20/2011	LB-19	Winter flounder	ST3	7.81

Date	Station	Common Name	Life Stage	Total Length (mm)
4/20/2011	LB-19	Winter flounder	ST3	7.70
4/20/2011	LB-19	Winter flounder	ST3	8.69
4/20/2011	LB-19	Winter flounder	ST3	8.40
4/20/2011	LB-19	Winter flounder	ST3	9.64
4/20/2011	LB-19	Winter flounder	ST3	9.45
4/20/2011	LB-19	Winter flounder	ST3	8.63
4/20/2011	LB-19	Winter flounder	ST3	7.14
4/20/2011	LB-20	Winter flounder	ST3	7.45
4/20/2011	LB-20	Winter flounder	ST3	7.56
4/20/2011	LB-20	Winter flounder	ST3	7.21
4/20/2011	LB-20	Winter flounder	ST3	7.31
4/20/2011	LB-20	Winter flounder	ST3	8.13
4/20/2011	LB-20	Winter flounder	ST3	7.52
4/20/2011	LB-20	Winter flounder	ST3	7.44
4/20/2011	LB-20	Winter flounder	ST3	7.99
4/20/2011	LB-20	Winter flounder	ST3	7.38
4/20/2011	LB-20	Winter flounder	ST3	9.28
4/20/2011	LB-20	Winter flounder	ST3	7.41
4/20/2011	LB-20	Winter flounder	ST3	8.74
4/20/2011	LB-20	Winter flounder	ST3	7.48
4/20/2011	LB-20	Winter flounder	ST3	7.78
4/20/2011	LB-20	Winter flounder	ST3	8.39
4/20/2011	LB-20	Winter flounder	ST3	7.95
4/20/2011	LB-20	Winter flounder	ST3	8.81
4/20/2011	LB-20	Winter flounder	ST3	7.91
4/20/2011	LB-20	Winter flounder	ST3	7.49
4/20/2011	LB-20	Winter flounder	ST3	7.84
4/20/2011	LB-20	Winter flounder	ST3	7.74
4/20/2011	LB-20	Winter flounder	ST3	8.05
4/20/2011	LB-20	Winter flounder	ST3	7.03
4/20/2011	LB-20	Winter flounder	ST3	6.59
4/20/2011	LB-20	Winter flounder	ST3	9.36
4/20/2011	LB-21	Winter flounder	ST3	8.86
4/20/2011	LB-21	Winter flounder	ST3	8.55
4/20/2011	LB-21	Winter flounder	ST3	8.27
4/20/2011	LB-21	Winter flounder	ST3	8.96
4/20/2011	LB-21	Winter flounder	ST3	8.56
4/20/2011	LB-21	Winter flounder	ST3	8.70
4/20/2011	LB-21	Winter flounder	ST3	8.89
4/20/2011	LB-21	Winter flounder	ST3	9.24
4/20/2011	LB-21	Winter flounder	ST3	9.17

Date	Station	Common Name	Life Stage	Total Length (mm)
4/20/2011	LB-21	Winter flounder	ST3	8.69
4/20/2011	LB-21	Winter flounder	ST3	8.19
4/20/2011	LB-21	Winter flounder	ST3	8.71
4/20/2011	LB-21	Winter flounder	ST3	8.87
4/20/2011	LB-21	Winter flounder	ST3	9.75
4/20/2011	LB-21	Winter flounder	ST3	8.09
4/20/2011	LB-21	Winter flounder	ST3	9.56
4/20/2011	LB-21	Winter flounder	ST3	7.06
4/20/2011	LB-21	Winter flounder	ST3	8.12
4/20/2011	LB-21	Winter flounder	ST3	6.96
4/20/2011	LB-21	Winter flounder	ST3	8.12
4/20/2011	LB-21	Winter flounder	ST3	8.06
4/20/2011	LB-21	Winter flounder	ST3	9.18
4/20/2011	LB-21	Winter flounder	ST3	9.11
4/20/2011	LB-21	Winter flounder	ST3	7.80
4/20/2011	LB-4	Winter flounder	ST3	7.86
4/20/2011	LB-4	Winter flounder	ST3	9.60
4/20/2011	LB-4	Winter flounder	ST3	9.98
4/20/2011	LB-4	Winter flounder	ST3	10.49
4/20/2011	LB-4	Winter flounder	ST3	10.59
4/20/2011	LB-4	Winter flounder	ST3	8.30
4/20/2011	LB-4	Winter flounder	ST3	7.26
4/20/2011	LB-4	Winter flounder	ST3	9.51
4/20/2011	LB-4	Winter flounder	ST3	8.16
4/20/2011	LB-4	Winter flounder	ST3	10.00
4/20/2011	LB-5	Winter flounder	ST3	7.15
4/20/2011	LB-5	Winter flounder	ST3	8.96
4/20/2011	LB-5	Winter flounder	ST3	8.12
4/20/2011	LB-5	Winter flounder	ST3	6.30
4/20/2011	LB-5	Winter flounder	ST3	8.21
4/20/2011	LB-5	Winter flounder	ST3	7.67
4/20/2011	LB-5	Winter flounder	ST3	8.60
4/20/2011	LB-5	Winter flounder	ST3	9.50
4/20/2011	LB-5	Winter flounder	ST3	9.28
4/20/2011	LB-5	Winter flounder	ST3	8.36
4/20/2011	LB-5	Winter flounder	ST3	9.25
4/20/2011	LB-5	Winter flounder	ST3	7.99
4/20/2011	LB-5	Winter flounder	ST3	9.04
4/20/2011	LB-5	Winter flounder	ST3	8.30
4/20/2011	LB-5	Winter flounder	ST3	9.20
4/20/2011	LB-5	Winter flounder	ST3	8.37

Date	Station	Common Name	Life Stage	Total Length (mm)
4/20/2011	LB-5	Winter flounder	ST3	8.71
4/20/2011	LB-5	Winter flounder	ST3	9.44
4/20/2011	LB-5	Winter flounder	ST3	9.42
4/20/2011	LB-5	Winter flounder	ST3	8.96
4/20/2011	LB-5	Winter flounder	ST3	7.68
4/20/2011	LB-5	Winter flounder	ST3	9.42
4/20/2011	LB-5	Winter flounder	ST3	5.74
4/20/2011	LB-5	Winter flounder	ST3	9.78
4/20/2011	LB-6	Winter flounder	ST3	8.37
4/20/2011	LB-6	Winter flounder	ST3	7.77
4/20/2011	LB-6	Winter flounder	ST3	7.69
4/20/2011	LB-6	Winter flounder	ST3	8.26
4/20/2011	LB-6	Winter flounder	ST3	8.83
4/20/2011	LB-6	Winter flounder	ST3	9.24
4/20/2011	LB-6	Winter flounder	ST3	9.12
4/20/2011	LB-6	Winter flounder	ST3	8.57
4/20/2011	LB-6	Winter flounder	ST3	8.71
4/20/2011	LB-6	Winter flounder	ST3	8.36
4/20/2011	LB-6	Winter flounder	ST3	7.14
4/20/2011	LB-6	Winter flounder	ST3	7.63
4/20/2011	LB-6	Winter flounder	ST3	6.86
4/20/2011	LB-6	Winter flounder	ST3	8.68
4/20/2011	LB-6	Winter flounder	ST3	7.33
4/20/2011	LB-6	Winter flounder	ST3	8.76
4/20/2011	LB-6	Winter flounder	ST3	7.81
4/20/2011	LB-6	Winter flounder	ST3	7.43
4/20/2011	LB-6	Winter flounder	ST3	8.40
4/20/2011	LB-6	Winter flounder	ST3	8.43
4/20/2011	LB-6	Winter flounder	ST3	6.04
4/20/2011	LB-6	Winter flounder	ST3	7.03
4/20/2011	LB-6	Winter flounder	ST3	7.88
4/20/2011	LB-6	Winter flounder	ST3	8.91
4/20/2011	LB-6	Winter flounder	ST3	8.39
4/21/2011	AK-2	Winter flounder	ST3	8.44
4/21/2011	AK-2	Winter flounder	ST3	5.50
4/21/2011	AK-2	Winter flounder	ST3	8.94
4/21/2011	AK-3	Winter flounder	ST1	4.00
4/21/2011	AK-3	Winter flounder	ST3	7.58
4/21/2011	AK-3	Winter flounder	ST2	4.31
4/21/2011	AK-3	Winter flounder	ST2	4.32
4/21/2011	AK-3	Winter flounder	ST2	4.17

Date	Station	Common Name	Life Stage	Total Length (mm)
4/21/2011	AK-3	Winter flounder	ST2	4.50
4/21/2011	AK-3	Winter flounder	ST1	4.10
4/21/2011	AK-3	Winter flounder	ST1	4.34
4/21/2011	AK-3	Winter flounder	ST1	4.11
4/21/2011	AK-3	Winter flounder	ST1	4.32
4/21/2011	AK-3	Winter flounder	ST2	4.17
4/21/2011	AK-3	Winter flounder	ST2	4.08
4/21/2011	AK-8	Winter flounder	ST3	10.33
4/21/2011	NB-4	Winter flounder	ST3	6.40
4/21/2011	NB-6	Winter flounder	ST3	5.41
4/21/2011	NB-6	Winter flounder	ST3	8.36
4/21/2011	NB-6	Winter flounder	ST3	8.82
4/21/2011	NB-6	Winter flounder	ST3	9.68
4/21/2011	NB-6	Winter flounder	ST3	5.32
4/21/2011	NB-6	Winter flounder	ST3	6.28
4/21/2011	NB-6	Winter flounder	ST3	9.41
4/21/2011	NB-6	Winter flounder	ST3	6.31
4/21/2011	NB-6	Winter flounder	ST2	4.22
4/21/2011	NB-6	Winter flounder	ST3	6.90
4/21/2011	NB-6	Winter flounder	ST3	9.99
4/21/2011	NB-6	Winter flounder	ST1	4.41
4/21/2011	NB-6	Winter flounder	ST1	4.21
4/21/2011	NB-6	Winter flounder	ST2	4.57
4/21/2011	NB-6	Winter flounder	ST1	4.49
4/21/2011	NB-6	Winter flounder	ST3	8.12
4/21/2011	NB-6	Winter flounder	ST1	4.06
4/21/2011	NB-6	Winter flounder	ST1	4.01
4/21/2011	NB-6	Winter flounder	ST2	4.56
4/21/2011	NB-6	Winter flounder	ST2	4.36
4/21/2011	NB-6	Winter flounder	ST2	4.33
4/21/2011	NB-6	Winter flounder	ST2	4.28
4/21/2011	NB-6	Winter flounder	ST1	4.15
4/21/2011	NB-7	Winter flounder	ST3	6.25
4/21/2011	NB-8	Winter flounder	ST3	9.19
4/21/2011	NB-8	Winter flounder	ST3	7.07
4/21/2011	NB-8	Winter flounder	ST3	5.47
4/21/2011	NB-8	Winter flounder	ST3	7.53
4/21/2011	NB-8	Winter flounder	ST3	9.21
4/21/2011	NB-8	Winter flounder	ST3	9.78
4/21/2011	NB-8	Winter flounder	ST2	4.76
4/21/2011	NB-8	Winter flounder	ST3	6.53

Date	Station	Common Name	Life Stage	Total Length (mm)
4/21/2011	NB-8	Winter flounder	ST2	4.35
4/21/2011	PJ-1	Winter flounder	ST3	4.73
4/21/2011	PJ-1	Winter flounder	ST3	7.23
4/21/2011	PJ-1	Winter flounder	ST3	6.84
4/21/2011	PJ-1	Winter flounder	ST3	5.60
4/21/2011	PJ-1	Winter flounder	ST3	5.79
4/21/2011	PJ-1	Winter flounder	ST3	5.96
4/21/2011	PJ-1	Winter flounder	ST3	7.68
4/21/2011	PJ-1	Winter flounder	ST2	4.20
4/21/2011	PJ-1	Winter flounder	ST1	4.09
4/21/2011	PJ-1	Winter flounder	ST3	6.27
4/21/2011	PJ-1	Winter flounder	ST3	5.82
4/21/2011	PJ-1	Winter flounder	ST1	4.03
4/21/2011	PJ-1	Winter flounder	ST3	6.37
4/21/2011	PJ-1	Winter flounder	ST3	8.42
4/21/2011	PJ-1	Winter flounder	ST3	9.29
4/21/2011	PJ-1	Winter flounder	ST3	7.15
4/21/2011	PJ-2	Winter flounder	ST3	8.83
4/22/2011	LB-2	Winter flounder	ST3	8.20
4/22/2011	LB-2	Winter flounder	ST3	9.55
4/22/2011	LB-2	Winter flounder	ST3	8.70
4/22/2011	LB-2	Winter flounder	ST3	10.02
4/22/2011	LB-2	Winter flounder	ST3	9.89
4/22/2011	LB-2	Winter flounder	ST3	9.62
4/22/2011	LB-2	Winter flounder	ST3	9.83
4/22/2011	LB-2	Winter flounder	ST3	8.08
4/22/2011	LB-2	Winter flounder	ST3	8.15
4/22/2011	LB-2	Winter flounder	ST3	9.26
4/22/2011	LB-2	Winter flounder	ST3	9.57
4/22/2011	LB-2	Winter flounder	ST3	8.51
4/22/2011	LB-2	Winter flounder	ST3	8.96
4/22/2011	LB-2	Winter flounder	ST3	9.77
4/22/2011	LB-2	Winter flounder	ST3	10.14
4/22/2011	LB-2	Winter flounder	ST3	10.32
4/22/2011	LB-2	Winter flounder	ST3	9.97
4/22/2011	LB-2	Winter flounder	ST3	9.50
4/22/2011	LB-2	Winter flounder	ST3	9.84
4/22/2011	LB-2	Winter flounder	ST3	9.76
4/22/2011	LB-2	Winter flounder	ST3	9.65
4/22/2011	LB-2	Winter flounder	ST3	9.29
4/22/2011	LB-2	Winter flounder	ST3	8.63

Date	Station	Common Name	Life Stage	Total Length (mm)
4/22/2011	LB-2	Winter flounder	ST3	8.91
4/22/2011	LB-2	Winter flounder	ST3	8.44
4/22/2011	LB-3	Winter flounder	ST2	3.58
4/22/2011	LB-3	Winter flounder	ST3	9.49
4/22/2011	LB-3	Winter flounder	ST3	6.70
4/22/2011	LB-3	Winter flounder	ST3	8.90
4/22/2011	LB-3	Winter flounder	ST3	8.45
4/22/2011	LB-3	Winter flounder	ST3	6.48
4/22/2011	LB-3	Winter flounder	ST3	9.67
4/22/2011	LB-3	Winter flounder	ST2	3.86
4/22/2011	LB-3	Winter flounder	ST2	3.63
4/22/2011	LB-3	Winter flounder	ST2	3.49
4/22/2011	LB-3	Winter flounder	ST2	3.89
4/22/2011	LB-3	Winter flounder	ST3	7.06
4/22/2011	LB-3	Winter flounder	ST2	4.20
4/22/2011	LB-3	Winter flounder	ST3	5.18
4/22/2011	LB-3	Winter flounder	ST1	3.66
4/22/2011	LB-3	Winter flounder	ST1	3.72
4/22/2011	LB-3	Winter flounder	ST2	3.81
4/22/2011	LB-3	Winter flounder	ST3	6.73
4/22/2011	LB-3	Winter flounder	ST1	3.45
4/22/2011	LB-3	Winter flounder	ST3	6.24
4/22/2011	LB-3	Winter flounder	ST3	6.91
4/22/2011	LB-3	Winter flounder	ST3	6.83
4/22/2011	LB-3	Winter flounder	ST3	7.07
4/22/2011	LB-3	Winter flounder	ST3	5.56
4/22/2011	LB-3	Winter flounder	ST3	5.60
4/22/2011	LB-3	Winter flounder	ST3	8.23
4/22/2011	LB-3	Winter flounder	ST3	7.75
4/22/2011	LB-3	Winter flounder	ST3	6.20
4/22/2011	LB-3	Winter flounder	ST3	5.87
4/22/2011	LB-3	Winter flounder	ST3	8.85
4/22/2011	LB-3	Winter flounder	ST3	7.74
4/22/2011	LB-3	Winter flounder	ST3	8.10
4/22/2011	LB-3	Winter flounder	ST3	9.18
4/22/2011	LB-3	Winter flounder	ST3	5.31
4/22/2011	LB-3	Winter flounder	ST3	9.05
4/22/2011	LB-8	Winter flounder	ST3	6.29
4/22/2011	LB-8	Winter flounder	ST3	7.08
4/22/2011	LB-8	Winter flounder	ST3	8.54
4/22/2011	LB-8	Winter flounder	ST3	7.76

Date	Station	Common Name	Life Stage	Total Length (mm)
4/22/2011	LB-8	Winter flounder	ST3	7.03
4/22/2011	LB-8	Winter flounder	ST3	5.03
4/22/2011	LB-8	Winter flounder	ST3	7.30
4/22/2011	LB-8	Winter flounder	ST3	7.99
4/22/2011	LB-8	Winter flounder	ST3	7.73
4/22/2011	LB-8	Winter flounder	ST3	8.12
4/22/2011	LB-8	Winter flounder	ST3	7.48
4/22/2011	LB-8	Winter flounder	ST3	5.53
4/22/2011	LB-8	Winter flounder	ST3	5.78
4/22/2011	LB-8	Winter flounder	ST3	6.09
4/22/2011	LB-8	Winter flounder	ST3	5.37
4/22/2011	LB-8	Winter flounder	ST3	6.90
4/22/2011	LB-8	Winter flounder	ST3	5.88
4/22/2011	LB-8	Winter flounder	ST3	5.96
4/22/2011	LB-8	Winter flounder	ST3	6.82
4/22/2011	LB-8	Winter flounder	ST3	5.78
4/22/2011	LB-8	Winter flounder	ST3	6.48
4/22/2011	LB-8	Winter flounder	ST3	5.53
4/22/2011	LB-8	Winter flounder	ST3	6.47
4/22/2011	LB-8	Winter flounder	ST3	5.51
4/22/2011	LB-9	Winter flounder	ST3	9.41
4/22/2011	LB-9	Winter flounder	ST3	8.86
4/22/2011	LB-9	Winter flounder	ST3	8.59
4/22/2011	LB-9	Winter flounder	ST3	8.89
4/22/2011	LB-9	Winter flounder	ST3	10.01
4/22/2011	LB-9	Winter flounder	ST3	9.72
4/22/2011	LB-9	Winter flounder	ST3	9.27
4/22/2011	LB-9	Winter flounder	ST3	9.49
4/22/2011	LB-9	Winter flounder	ST3	8.91
4/22/2011	LB-9	Winter flounder	ST3	9.38
4/22/2011	LB-9	Winter flounder	ST3	6.81
4/22/2011	LB-9	Winter flounder	ST3	9.05
4/22/2011	LB-9	Winter flounder	ST3	7.67
4/22/2011	LB-9	Winter flounder	ST3	5.67
4/22/2011	LB-9	Winter flounder	ST3	7.24
4/22/2011	LB-9	Winter flounder	ST3	6.81
4/22/2011	LB-9	Winter flounder	ST3	8.37
4/22/2011	LB-9	Winter flounder	ST3	7.98
4/22/2011	LB-9	Winter flounder	ST3	8.01
4/22/2011	LB-9	Winter flounder	ST3	7.58
4/22/2011	LB-9	Winter flounder	ST3	8.62

Date	Station	Common Name	Life Stage	Total Length (mm)
4/22/2011	LB-9	Winter flounder	ST3	7.44
4/22/2011	LB-9	Winter flounder	ST3	8.35
4/22/2011	LB-9	Winter flounder	ST3	6.05
4/22/2011	SB-3	Winter flounder	ST3	6.58
4/22/2011	SB-4	Winter flounder	ST3	10.14
4/22/2011	SB-4	Winter flounder	ST3	10.00
4/22/2011	SB-4	Winter flounder	ST3	10.12
4/22/2011	SB-4	Winter flounder	ST3	9.70
4/22/2011	SB-4	Winter flounder	ST3	10.46
4/22/2011	SB-4	Winter flounder	ST3	10.26
4/22/2011	SB-4	Winter flounder	ST3	10.45
4/22/2011	SB-4	Winter flounder	ST3	9.62
4/22/2011	SB-4	Winter flounder	ST3	9.74
4/22/2011	SB-4	Winter flounder	ST3	9.13
4/22/2011	SB-4	Winter flounder	ST3	8.78
4/22/2011	SB-5	Winter flounder	ST3	8.06
4/22/2011	SB-5	Winter flounder	ST3	6.21
4/22/2011	SB-5	Winter flounder	ST3	6.39
4/22/2011	SB-5	Winter flounder	ST3	7.80
4/22/2011	SB-5	Winter flounder	ST3	7.99
4/22/2011	SB-5	Winter flounder	ST3	8.96
4/22/2011	SB-5	Winter flounder	ST3	6.39
4/22/2011	SB-5	Winter flounder	ST3	7.80
4/22/2011	SB-5	Winter flounder	ST3	8.34
4/22/2011	SB-6	Winter flounder	ST3	5.38
4/22/2011	SB-6	Winter flounder	ST3	5.80
4/22/2011	SB-6	Winter flounder	ST2	4.35
4/22/2011	SB-6	Winter flounder	ST3	6.51
4/22/2011	SB-6	Winter flounder	ST3	6.29
4/22/2011	SB-6	Winter flounder	ST2	4.48
4/22/2011	SB-6	Winter flounder	ST3	5.59
5/4/2011	AK-2	Winter flounder	ST3	4.93
5/4/2011	AK-2	Winter flounder	ST2	4.94
5/4/2011	AK-3	Winter flounder	ST3	8.98
5/4/2011	AK-3	Winter flounder	ST3	8.03
5/4/2011	AK-3	Winter flounder	ST3	9.14
5/4/2011	AK-3	Winter flounder	ST3	9.43
5/4/2011	AK-3	Winter flounder	ST3	8.55
5/4/2011	AK-3	Winter flounder	ST3	8.29
5/4/2011	AK-3	Winter flounder	ST3	9.08
5/4/2011	AK-3	Winter flounder	ST3	9.22

Date	Station	Common Name	Life Stage	Total Length (mm)
5/4/2011	AK-3	Winter flounder	ST3	8.85
5/4/2011	AK-3	Winter flounder	ST3	8.85
5/4/2011	AK-3	Winter flounder	ST3	9.10
5/4/2011	AK-3	Winter flounder	ST3	8.42
5/4/2011	AK-3	Winter flounder	ST3	9.74
5/4/2011	AK-3	Winter flounder	ST3	7.91
5/4/2011	AK-3	Winter flounder	ST3	7.99
5/4/2011	AK-8	Winter flounder	ST3	8.85
5/4/2011	AK-8	Winter flounder	ST3	8.64
5/4/2011	AK-8	Winter flounder	ST3	9.18
5/4/2011	AK-8	Winter flounder	ST3	8.08
5/4/2011	AK-8	Winter flounder	ST3	9.42
5/4/2011	AK-8	Winter flounder	ST3	7.64
5/4/2011	AK-8	Winter flounder	ST3	8.70
5/4/2011	AK-8	Winter flounder	ST3	8.43
5/4/2011	AK-8	Winter flounder	ST3	8.88
5/4/2011	AK-8	Winter flounder	ST3	8.54
5/4/2011	AK-8	Winter flounder	ST3	9.31
5/4/2011	AK-8	Winter flounder	ST3	8.63
5/4/2011	AK-8	Winter flounder	ST3	8.25
5/4/2011	AK-8	Winter flounder	ST3	9.40
5/4/2011	AK-8	Winter flounder	ST3	8.17
5/4/2011	AK-8	Winter flounder	ST3	8.26
5/4/2011	AK-8	Winter flounder	ST4	8.05
5/4/2011	AK-8	Winter flounder	ST3	6.52
5/4/2011	AK-8	Winter flounder	ST3	5.34
5/4/2011	AK-8	Winter flounder	ST3	5.66
5/4/2011	AK-8	Winter flounder	ST3	8.82
5/4/2011	AK-8	Winter flounder	ST3	8.35
5/4/2011	AK-8	Winter flounder	ST3	8.64
5/4/2011	AK-8	Winter flounder	ST3	8.17
5/4/2011	AK-8	Winter flounder	ST3	8.66
5/4/2011	AK-8	Winter flounder	ST3	8.44
5/4/2011	NB-4	Winter flounder	ST2	4.78
5/4/2011	NB-6	Winter flounder	ST3	8.48
5/4/2011	NB-6	Winter flounder	ST3	7.59
5/4/2011	NB-6	Winter flounder	ST3	8.49
5/4/2011	NB-6	Winter flounder	ST3	7.92
5/4/2011	NB-7	Winter flounder	ST2	3.84
5/4/2011	NB-7	Winter flounder	ST2	3.97
5/4/2011	NB-7	Winter flounder	ST3	6.08

Date	Station	Common Name	Life Stage	Total Length (mm)
5/4/2011	NB-8	Winter flounder	ST3	9.48
5/4/2011	NB-8	Winter flounder	ST3	9.44
5/4/2011	NB-8	Winter flounder	ST3	8.50
5/4/2011	NB-8	Winter flounder	ST3	9.52
5/4/2011	NB-8	Winter flounder	ST3	9.61
5/4/2011	NB-8	Winter flounder	ST3	8.62
5/4/2011	NB-8	Winter flounder	ST3	8.83
5/4/2011	NB-8	Winter flounder	ST3	8.93
5/4/2011	NB-8	Winter flounder	ST3	9.03
5/4/2011	NB-8	Winter flounder	ST3	8.72
5/4/2011	NB-8	Winter flounder	ST3	8.23
5/4/2011	NB-8	Winter flounder	ST3	7.81
5/4/2011	NB-8	Winter flounder	ST3	9.02
5/4/2011	NB-8	Winter flounder	ST3	8.53
5/4/2011	NB-8	Winter flounder	ST4	8.64
5/4/2011	SB-3	Winter flounder	ST2	3.75
5/4/2011	SB-4	Winter flounder	ST3	7.94
5/4/2011	SB-4	Winter flounder	ST3	8.98
5/4/2011	SB-4	Winter flounder	ST3	8.11
5/4/2011	SB-4	Winter flounder	ST3	9.84
5/4/2011	SB-4	Winter flounder	ST3	9.86
5/4/2011	SB-4	Winter flounder	ST3	9.63
5/4/2011	SB-4	Winter flounder	ST3	7.93
5/4/2011	SB-4	Winter flounder	ST3	8.38
5/4/2011	SB-4	Winter flounder	ST3	7.90
5/4/2011	SB-4	Winter flounder	ST3	8.57
5/4/2011	SB-4	Winter flounder	ST3	8.48
5/4/2011	SB-4	Winter flounder	ST3	6.52
5/4/2011	SB-4	Winter flounder	ST3	9.62
5/4/2011	SB-4	Winter flounder	ST3	7.92
5/4/2011	SB-4	Winter flounder	ST3	5.68
5/4/2011	SB-4	Winter flounder	ST3	5.62
5/4/2011	SB-4	Winter flounder	ST3	7.77
5/4/2011	SB-4	Winter flounder	ST3	8.90
5/4/2011	SB-4	Winter flounder	ST3	6.86
5/4/2011	SB-4	Winter flounder	ST3	7.64
5/4/2011	SB-4	Winter flounder	ST3	5.53
5/4/2011	SB-4	Winter flounder	ST3	8.43
5/4/2011	SB-4	Winter flounder	ST3	9.52
5/4/2011	SB-4	Winter flounder	ST3	9.22
5/4/2011	SB-5	Winter flounder	ST3	8.94

Date	Station	Common Name	Life Stage	Total Length (mm)
5/4/2011	SB-5	Winter flounder	ST3	8.48
5/4/2011	SB-5	Winter flounder	ST3	4.91
5/4/2011	SB-5	Winter flounder	ST3	5.75
5/4/2011	SB-5	Winter flounder	ST4	8.44
5/4/2011	SB-5	Winter flounder	ST3	7.17
5/4/2011	SB-5	Winter flounder	ST3	8.50
5/4/2011	SB-5	Winter flounder	ST3	7.79
5/4/2011	SB-5	Winter flounder	ST3	10.01
5/4/2011	SB-5	Winter flounder	ST3	7.43
5/4/2011	SB-5	Winter flounder	ST3	8.78
5/4/2011	SB-5	Winter flounder	ST3	8.98
5/4/2011	SB-5	Winter flounder	ST3	5.91
5/4/2011	SB-5	Winter flounder	ST3	7.99
5/4/2011	SB-6	Winter flounder	ST2	4.04
5/5/2011	LB-13	Winter flounder	ST3	4.79
5/5/2011	LB-13	Winter flounder	ST3	5.85
5/5/2011	LB-13	Winter flounder	ST3	5.17
5/5/2011	LB-13	Winter flounder	ST3	6.09
5/5/2011	LB-13	Winter flounder	ST3	6.57
5/5/2011	LB-13	Winter flounder	ST3	6.14
5/5/2011	LB-13	Winter flounder	ST3	6.52
5/5/2011	LB-13	Winter flounder	ST3	5.09
5/5/2011	LB-13	Winter flounder	ST3	5.44
5/5/2011	LB-13	Winter flounder	ST3	6.18
5/5/2011	LB-14	Winter flounder	ST3	4.82
5/5/2011	LB-14	Winter flounder	ST3	6.85
5/5/2011	LB-14	Winter flounder	ST3	6.33
5/5/2011	LB-14	Winter flounder	ST3	5.53
5/5/2011	LB-14	Winter flounder	ST3	7.57
5/5/2011	LB-14	Winter flounder	ST3	7.09
5/5/2011	LB-14	Winter flounder	ST3	8.36
5/5/2011	LB-14	Winter flounder	ST3	8.05
5/5/2011	LB-14	Winter flounder	ST3	5.81
5/5/2011	LB-2	Winter flounder	ST3	8.47
5/5/2011	LB-2	Winter flounder	ST2	4.14
5/5/2011	LB-2	Winter flounder	ST3	8.49
5/5/2011	LB-2	Winter flounder	ST3	8.90
5/5/2011	LB-2	Winter flounder	ST3	6.41
5/5/2011	LB-2	Winter flounder	ST3	6.00
5/5/2011	LB-2	Winter flounder	ST3	9.83
5/5/2011	LB-21	Winter flounder	ST3	4.33

Date	Station	Common Name	Life Stage	Total Length (mm)
5/5/2011	LB-21	Winter flounder	ST3	4.93
5/5/2011	LB-21	Winter flounder	ST3	4.59
5/5/2011	LB-21	Winter flounder	ST3	5.04
5/5/2011	LB-21	Winter flounder	ST3	4.22
5/5/2011	LB-21	Winter flounder	ST3	5.09
5/5/2011	LB-21	Winter flounder	ST3	4.83
5/5/2011	LB-21	Winter flounder	ST3	3.94
5/5/2011	LB-21	Winter flounder	ST3	4.56
5/5/2011	LB-21	Winter flounder	ST3	4.53
5/5/2011	LB-21	Winter flounder	ST3	4.38
5/5/2011	LB-21	Winter flounder	ST3	4.26
5/5/2011	LB-21	Winter flounder	ST3	4.28
5/5/2011	LB-21	Winter flounder	ST3	4.77
5/5/2011	LB-21	Winter flounder	ST3	4.57
5/5/2011	LB-21	Winter flounder	ST3	5.03
5/5/2011	LB-5	Winter flounder	ST3	7.80
5/5/2011	LB-5	Winter flounder	ST3	5.36
5/5/2011	LB-5	Winter flounder	ST3	5.49
5/5/2011	LB-5	Winter flounder	ST3	6.55
5/5/2011	LB-5	Winter flounder	ST3	6.60
5/5/2011	LB-5	Winter flounder	ST2	4.15
5/5/2011	LB-5	Winter flounder	ST3	6.35
5/5/2011	LB-5	Winter flounder	ST3	4.69
5/5/2011	LB-5	Winter flounder	ST3	9.32
5/5/2011	LB-5	Winter flounder	ST3	5.77
5/5/2011	LB-5	Winter flounder	ST3	6.40
5/5/2011	LB-5	Winter flounder	ST3	7.31
5/5/2011	LB-5	Winter flounder	ST3	5.36
5/5/2011	LB-6	Winter flounder	ST3	8.67
5/5/2011	LB-6	Winter flounder	ST3	7.00
5/5/2011	LB-6	Winter flounder	ST3	7.89
5/5/2011	LB-6	Winter flounder	ST3	5.16
5/5/2011	LB-6	Winter flounder	ST3	4.86
5/5/2011	LB-6	Winter flounder	ST3	4.33
5/5/2011	LB-6	Winter flounder	ST3	3.99
5/5/2011	LB-6	Winter flounder	ST3	4.26
5/5/2011	LB-6	Winter flounder	ST3	4.80
5/5/2011	LB-8	Winter flounder	ST3	4.97
5/5/2011	LB-8	Winter flounder	ST3	4.75
5/5/2011	LB-8	Winter flounder	ST2	4.23
5/5/2011	LB-8	Winter flounder	ST3	4.66

Date	Station	Common Name	Life Stage	Total Length (mm)
5/5/2011	LB-8	Winter flounder	ST3	5.05
5/5/2011	LB-8	Winter flounder	ST3	4.63
5/5/2011	LB-8	Winter flounder	ST2	3.81
5/5/2011	LB-8	Winter flounder	ST3	4.37
5/5/2011	LB-9	Winter flounder	ST3	6.71
5/5/2011	LB-9	Winter flounder	ST3	4.64
5/5/2011	LB-9	Winter flounder	ST3	4.33
5/5/2011	PJ-1	Winter flounder	ST3	8.25
5/6/2011	LB-1	Winter flounder	ST3	5.37
5/6/2011	LB-1	Winter flounder	ST3	4.76
5/6/2011	LB-1	Winter flounder	ST3	4.20
5/6/2011	LB-1	Winter flounder	ST3	3.55
5/6/2011	LB-1	Winter flounder	ST3	7.17
5/6/2011	LB-1	Winter flounder	ST3	9.39
5/6/2011	LB-1	Winter flounder	ST3	8.92
5/6/2011	LB-1	Winter flounder	ST3	4.38
5/6/2011	LB-1	Winter flounder	ST2	3.73
5/6/2011	LB-12	Winter flounder	ST3	4.59
5/6/2011	LB-12	Winter flounder	ST3	4.66
5/6/2011	LB-12	Winter flounder	ST3	4.73
5/6/2011	LB-12	Winter flounder	ST3	4.55
5/6/2011	LB-12	Winter flounder	ST3	5.42
5/6/2011	LB-12	Winter flounder	ST3	6.11
5/6/2011	LB-12	Winter flounder	ST3	5.23
5/6/2011	LB-12	Winter flounder	ST3	4.48
5/6/2011	LB-12	Winter flounder	ST3	5.02
5/6/2011	LB-12	Winter flounder	ST3	6.90
5/6/2011	LB-12	Winter flounder	ST3	6.39
5/6/2011	LB-12	Winter flounder	ST3	4.90
5/6/2011	LB-12	Winter flounder	ST3	5.91
5/6/2011	LB-12	Winter flounder	ST3	8.76
5/6/2011	LB-12	Winter flounder	ST3	7.78
5/6/2011	LB-12	Winter flounder	ST1	3.08
5/6/2011	LB-12	Winter flounder	ST2	3.80
5/6/2011	LB-12	Winter flounder	ST3	8.19
5/6/2011	LB-12	Winter flounder	ST3	4.94
5/6/2011	LB-12	Winter flounder	ST3	7.78
5/6/2011	LB-12	Winter flounder	ST3	5.07
5/6/2011	LB-12	Winter flounder	ST3	5.40
5/6/2011	LB-12	Winter flounder	ST3	4.68
5/6/2011	LB-12	Winter flounder	ST3	5.58

Date	Station	Common Name	Life Stage	Total Length (mm)
5/6/2011	LB-12	Winter flounder	ST3	6.68
5/6/2011	LB-12	Winter flounder	ST3	4.76
5/6/2011	LB-12	Winter flounder	ST3	4.93
5/6/2011	LB-16	Winter flounder	ST3	9.11
5/6/2011	LB-16	Winter flounder	ST3	8.60
5/6/2011	LB-16	Winter flounder	ST3	9.00
5/6/2011	LB-16	Winter flounder	ST3	7.75
5/6/2011	LB-18	Winter flounder	ST3	9.17
5/6/2011	LB-18	Winter flounder	ST3	8.29
5/6/2011	LB-19	Winter flounder	ST3	8.98
5/6/2011	LB-19	Winter flounder	ST3	8.55
5/6/2011	LB-19	Winter flounder	ST3	8.86
5/6/2011	LB-19	Winter flounder	ST3	9.21
5/6/2011	LB-19	Winter flounder	ST3	7.84
5/6/2011	LB-4	Winter flounder	ST3	6.45
5/6/2011	LB-4	Winter flounder	ST3	8.85
5/6/2011	LB-4	Winter flounder	ST3	8.64
5/6/2011	LB-4	Winter flounder	ST3	8.47
5/6/2011	LB-4	Winter flounder	ST3	7.79
5/6/2011	LB-4	Winter flounder	ST3	7.81
5/6/2011	LB-4	Winter flounder	ST3	8.54
5/6/2011	LB-4	Winter flounder	ST3	9.02
5/6/2011	LB-4	Winter flounder	ST3	8.70
5/6/2011	LB-4	Winter flounder	ST3	8.82
5/6/2011	LB-4	Winter flounder	ST3	9.26
5/6/2011	LB-4	Winter flounder	ST3	8.31
5/6/2011	LB-4	Winter flounder	ST3	8.16
5/6/2011	LB-4	Winter flounder	ST3	8.84
5/6/2011	LB-4	Winter flounder	ST3	8.67
5/6/2011	LB-4	Winter flounder	ST3	8.97
5/6/2011	LB-4	Winter flounder	ST3	6.74
5/6/2011	LB-4	Winter flounder	ST3	7.56
5/6/2011	LB-4	Winter flounder	ST3	7.78
5/6/2011	LB-4	Winter flounder	ST3	8.41
5/6/2011	LB-4	Winter flounder	ST3	7.75
5/6/2011	LB-4	Winter flounder	ST3	6.81
5/6/2011	LB-4	Winter flounder	ST3	7.26
5/6/2011	LB-4	Winter flounder	ST3	9.27
5/6/2011	PJ-2	Winter flounder	ST3	8.83
5/6/2011	PJ-2	Winter flounder	ST3	9.05
5/6/2011	PJ-2	Winter flounder	ST3	3.03

Date	Station	Common Name	Life Stage	Total Length (mm)
5/6/2011	PJ-2	Winter flounder	ST3	6.27
5/20/2011	LB-12	Winter flounder	ST3	8.67
5/20/2011	LB-12	Winter flounder	ST3	8.40
5/20/2011	LB-12	Winter flounder	ST3	8.19
5/20/2011	LB-12	Winter flounder	ST3	9.35
5/20/2011	LB-12	Winter flounder	ST3	8.69
5/20/2011	LB-13	Winter flounder	ST3	8.34
5/20/2011	LB-13	Winter flounder	ST3	6.06
5/20/2011	LB-13	Winter flounder	ST3	8.73
5/20/2011	LB-16	Winter flounder	ST3	8.18
5/20/2011	LB-16	Winter flounder	ST3	7.25
5/20/2011	LB-18	Winter flounder	ST3	9.40
5/20/2011	LB-19	Winter flounder	ST3	5.70
5/20/2011	LB-19	Winter flounder	ST3	6.77
5/20/2011	LB-20	Winter flounder	ST3	6.91
5/20/2011	LB-4	Winter flounder	ST4	9.69
5/20/2011	LB-4	Winter flounder	ST3	8.76
5/20/2011	LB-4	Winter flounder	ST3	7.97
5/20/2011	LB-4	Winter flounder	ST3	7.85
5/20/2011	LB-4	Winter flounder	ST3	5.37
5/20/2011	LB-4	Winter flounder	ST3	6.33
5/20/2011	LB-4	Winter flounder	ST4	9.24
5/20/2011	LB-4	Winter flounder	ST4	8.91
5/20/2011	LB-4	Winter flounder	ST4	10.00
5/20/2011	LB-4	Winter flounder	ST4	9.46
5/20/2011	LB-4	Winter flounder	ST4	8.75
5/20/2011	LB-4	Winter flounder	ST3	8.16
5/20/2011	LB-4	Winter flounder	ST3	9.15
5/20/2011	LB-4	Winter flounder	ST4	9.13
5/20/2011	LB-4	Winter flounder	ST3	9.47
5/20/2011	LB-4	Winter flounder	ST3	8.85
5/20/2011	LB-4	Winter flounder	ST3	7.41
5/20/2011	LB-4	Winter flounder	ST3	9.22
5/20/2011	LB-4	Winter flounder	ST3	9.25
5/20/2011	LB-4	Winter flounder	ST3	8.92
5/20/2011	LB-4	Winter flounder	ST3	8.86
5/20/2011	LB-4	Winter flounder	ST3	9.15
5/20/2011	LB-4	Winter flounder	ST3	9.67
5/20/2011	LB-4	Winter flounder	ST3	9.11
5/20/2011	LB-4	Winter flounder	ST3	9.17
5/20/2011	LB-4	Winter flounder	ST3	9.23

Date	Station	Common Name	Life Stage	Total Length (mm)
5/20/2011	LB-4	Winter flounder	ST3	7.43
5/20/2011	LB-4	Winter flounder	ST3	9.58
5/20/2011	LB-4	Winter flounder	ST3	8.07
5/20/2011	LB-4	Winter flounder	ST3	9.60
5/20/2011	LB-4	Winter flounder	ST3	8.85
5/20/2011	LB-4	Winter flounder	ST3	9.18
5/20/2011	LB-5	Winter flounder	ST3	8.72
5/20/2011	LB-5	Winter flounder	ST3	8.53
5/20/2011	LB-5	Winter flounder	ST3	8.74
5/20/2011	LB-5	Winter flounder	ST3	8.44
5/20/2011	LB-5	Winter flounder	ST3	6.30
5/23/2011	AK-2	Winter flounder	ST4	9.49
5/23/2011	AK-2	Winter flounder	ST4	8.81
5/23/2011	AK-2	Winter flounder	ST4	9.54
5/23/2011	AK-2	Winter flounder	ST3	8.71
5/23/2011	AK-3	Winter flounder	ST4	8.35
5/23/2011	AK-3	Winter flounder	ST3	8.67
5/23/2011	AK-3	Winter flounder	ST4	8.86
5/23/2011	AK-3	Winter flounder	ST4	8.40
5/23/2011	AK-3	Winter flounder	ST4	9.35
5/23/2011	AK-3	Winter flounder	ST4	9.15
5/23/2011	AK-3	Winter flounder	ST4	8.87
5/23/2011	AK-3	Winter flounder	ST4	9.53
5/23/2011	AK-3	Winter flounder	ST4	9.45
5/23/2011	AK-3	Winter flounder	ST4	9.17
5/23/2011	AK-3	Winter flounder	ST4	9.53
5/23/2011	AK-3	Winter flounder	ST4	10.08
5/23/2011	AK-3	Winter flounder	ST4	9.88
5/23/2011	AK-3	Winter flounder	ST3	9.04
5/23/2011	AK-3	Winter flounder	ST3	8.83
5/23/2011	AK-3	Winter flounder	ST3	8.67
5/23/2011	AK-3	Winter flounder	ST3	9.45
5/23/2011	AK-8	Winter flounder	ST2	3.79
5/23/2011	NB-4	Winter flounder	ST3	9.12
5/23/2011	NB-6	Winter flounder	ST4	7.95
5/23/2011	NB-6	Winter flounder	ST4	9.66
5/23/2011	NB-6	Winter flounder	ST4	9.09
5/23/2011	NB-6	Winter flounder	ST4	9.20
5/23/2011	NB-6	Winter flounder	ST3	8.56
5/23/2011	NB-6	Winter flounder	ST3	9.06
5/23/2011	NB-6	Winter flounder	ST4	7.98

Date	Station	Common Name	Life Stage	Total Length (mm)
5/23/2011	NB-6	Winter flounder	ST4	8.98
5/23/2011	NB-8	Winter flounder	ST3	8.47
5/23/2011	NB-8	Winter flounder	ST3	8.64
5/23/2011	NB-8	Winter flounder	ST3	8.80
5/23/2011	PJ-1	Winter flounder	ST3	7.65
5/23/2011	PJ-1	Winter flounder	ST3	8.33
5/23/2011	PJ-1	Winter flounder	ST3	9.18
5/23/2011	PJ-1	Winter flounder	ST3	9.14
5/23/2011	PJ-2	Winter flounder	ST3	8.73
5/23/2011	SB-5	Winter flounder	ST4	10.54
5/23/2011	SB-5	Winter flounder	ST3	9.04
5/23/2011	SB-5	Winter flounder	ST4	8.94
5/23/2011	SB-5	Winter flounder	ST4	9.14
5/23/2011	SB-5	Winter flounder	ST4	9.50
5/23/2011	SB-5	Winter flounder	ST4	9.55
5/23/2011	SB-5	Winter flounder	ST4	9.78
5/23/2011	SB-5	Winter flounder	ST4	9.39
5/23/2011	SB-5	Winter flounder	ST3	9.09
5/23/2011	SB-5	Winter flounder	ST3	8.97
5/23/2011	SB-5	Winter flounder	ST3	9.59
5/23/2011	SB-5	Winter flounder	ST3	8.39
5/23/2011	SB-5	Winter flounder	ST3	8.69
5/23/2011	SB-5	Winter flounder	ST3	8.85
5/23/2011	SB-5	Winter flounder	ST3	9.08
5/23/2011	SB-5	Winter flounder	ST3	9.14
5/23/2011	SB-5	Winter flounder	ST3	8.77
5/23/2011	SB-5	Winter flounder	ST3	7.50
5/23/2011	SB-5	Winter flounder	ST4	8.54
5/24/2011	LB-14	Winter flounder	ST3	8.86
5/24/2011	LB-14	Winter flounder	ST3	9.32
5/24/2011	LB-14	Winter flounder	ST3	8.87
5/24/2011	LB-14	Winter flounder	ST3	8.59
5/24/2011	LB-14	Winter flounder	ST3	9.11
5/24/2011	LB-14	Winter flounder	ST3	9.73
5/24/2011	LB-14	Winter flounder	ST3	8.92
5/24/2011	LB-14	Winter flounder	ST4	9.53
5/24/2011	LB-14	Winter flounder	ST4	9.00
5/24/2011	LB-2	Winter flounder	ST3	9.14
5/24/2011	LB-3	Winter flounder	ST3	8.54
5/24/2011	LB-3	Winter flounder	ST3	9.16
5/24/2011	LB-3	Winter flounder	ST3	9.23

Date	Station	Common Name	Life Stage	Total Length (mm)
5/24/2011	LB-3	Winter flounder	ST3	8.96
5/24/2011	SB-6	Winter flounder	ST3	9.37
5/24/2011	SB-6	Winter flounder	ST3	8.76
5/24/2011	SB-6	Winter flounder	ST3	9.65
6/6/2011	LB-19	Winter flounder	ST3	8.91

Appendix C

Water quality data by date and station collected during the 2011 Aquatic Biological Survey

Date	Station	Temp (°C)	DO (mg/L)	Cond (uS/cm)	Salinity (ppt)	Depth (ft)
1/19/2011	LB-1	3.7	46570	12.4	29.5	18
1/19/2011	LB-13	2.9	43270	10.6	27.2	20
1/19/2011	LB-14	3.3	43330	9.8	27.2	43
1/19/2011	LB-16	3.8	47050	10.7	29.4	22
1/19/2011	LB-3	3.3	43700	10.1	28.3	15
1/19/2011	LB-4	3.3	44860	10.3	28.2	38
1/19/2011	LB-5	2.2	40610	10.9	25.2	19
1/19/2011	LB-6	2.4	41700	10.6	25.9	45
1/19/2011	LB-8	3.2	41410	10.1	26.0	9
1/19/2011	LB-9	3.1	40180	10.2	25.0	24
1/20/2011	AK-2	2.6	36980	8.5	22.7	48
1/20/2011	AK-3	2.7	36050	9.3	22.2	48
1/20/2011	NB-4	2.2	33690	9.1	20.5	12
1/20/2011	NB-6	2.7	37300	9.3	23.0	63
1/20/2011	NB-7	2.7	36120	9.0	21.9	13
1/20/2011	NB-8	2.6	37100	8.9	22.8	43
1/20/2011	PJ-1	2.7	38430	9.1	23.8	10
1/20/2011	PJ-2	3.0	37100	10.9	23.0	13
1/20/2011	SB-3	2.8	40380	8.9	25.1	17
1/20/2011	SB-4	3.0	41020	9.1	25.5	36
1/20/2011	SB-6	3.0	41900	8.9	26.1	47
1/24/2011	LB-12	1.3	42460	7.9	26.4	28
1/24/2011	LB-18	2.0	47770	7.5	30.0	14
1/24/2011	LB-19	1.9	48180	7.8	30.3	19
1/24/2011	LB-2	2.2	44410	8.1	27.7	58
1/24/2011	LB-20	3.2	47870	7.3	30.8	22
1/24/2011	LB-21	0.3		8.6	26.0	15
1/24/2011	SB-5	1.8		9.4	22.6	50
1/31/2011	LB-1	2.2	42780	6.4	26.6	15
1/31/2011	LB-14	2.2	43420	9.5	27.0	45
1/31/2011	LB-16	2.4	44830	6.8	28.0	19
1/31/2011	LB-18	2.3	43720	6.6	27.3	13
1/31/2011	LB-19	2.1	41890	6.6	26.5	15
1/31/2011	LB-2	2.9	47080	10.5	30.3	58
1/31/2011	LB-9	2.0	41130	7.7	25.5	25
1/31/2011	SB-3	1.7	38640	8.1	23.7	17
1/31/2011	SB-4	1.8	39160	7.7	24.1	37
1/31/2011	SB-6	2.2	42990	9.4	26.9	46
2/1/2011	AK-2	1.5	34980	10.9	21.3	44
2/1/2011	AK-3	1.7	36050	11.0	22.0	48
2/1/2011	AK-8	1.6	36450	15.9	22.3	48

Date	Station	Temp (°C)	DO (mg/L)	Cond (uS/cm)	Salinity (ppt)	Depth (ft)
2/1/2011	NB-4	1.2	34100	11.2	20.7	10
2/1/2011	NB-6	1.5	35300	13.6	21.5	58
2/1/2011	NB-7	1.5	34980	11.6	21.4	11
2/1/2011	NB-8	1.4	35100	11.3	21.3	47
2/1/2011	PJ-2	1.6	35500	13.2	21.8	12
2/1/2011	SB-5	2.3	43070	13.3	26.7	51
2/4/2011	LB-12	1.5	42140	13.3	26.2	30
2/4/2011	LB-13	1.8	45480	12.6	27.8	23
2/4/2011	LB-20	3.1	47600	12.3	30.1	23
2/4/2011	LB-21	0.9		15.2	25.0	13
2/4/2011	LB-3	1.9	44000	14.8	27.2	17
2/4/2011	LB-4	1.7	42950	12.0	26.6	41
2/4/2011	LB-5	1.4	41310	14.3	25.5	22
2/4/2011	LB-6	1.6	42400	14.0	26.3	46
2/4/2011	LB-8	2.1	43480	14.7	27.1	11
2/4/2011	PJ-1	1.8	38620	12.5	23.8	13
2/14/2011	AK-2	2.6	38480	11.8	23.8	48
2/14/2011	AK-3	2.4	37700	12.1	23.1	37
2/14/2011	AK-8	2.5	37930	11.9	23.4	45
2/14/2011	NB-4	2.2	28660	12.3	18.8	7
2/14/2011	NB-6	2.5	39410	11.0	24.4	57
2/14/2011	NB-7	2.1	34470	12.6	21.3	6
2/14/2011	NB-8	2.3	38260	11.3	23.6	41
2/14/2011	PJ-1	2.5	35380	12.3	21.7	12
2/14/2011	PJ-2	2.7	36420	12.7	22.4	10
2/14/2011	SB-5	2.9	40900	11.6	25.6	53
2/16/2011	LB-1	2.9	43040	12.5	26.8	15
2/16/2011	LB-14	3.3	45560	12.0	29.0	45
2/16/2011	LB-16	3.7	46520	11.8	29.4	22
2/16/2011	LB-18	3.0	44610	12.6	28.0	12
2/16/2011	LB-19	3.2	46500	12.2	29.4	16
2/16/2011	LB-2	3.4	46880	11.8	29.6	59
2/16/2011	LB-8	3.3	40190	12.9	25.1	9
2/16/2011	LB-9	3.0	41650	12.5	25.6	24
2/16/2011	SB-3	2.9	39380	12.3	24.4	15
2/16/2011	SB-4	2.8	38410	12.4	23.7	37
2/16/2011	SB-6	3.0	41780	12.3	26.0	47
2/17/2011	LB-12	3.1	43120	12.4	27.0	29
2/17/2011	LB-13	3.0	44560	12.8	28.0	22
2/17/2011	LB-20	3.5	46200	11.7	29.8	21
2/17/2011	LB-21	2.9	41480	16.5	25.9	11

Date	Station	Temp (°C)	DO (mg/L)	Cond (uS/cm)	Salinity (ppt)	Depth (ft)
2/17/2011	LB-3	3.4	44680	12.6	28.2	15
2/17/2011	LB-4	3.1	45600	12.4	28.7	38
2/17/2011	LB-5	2.8	41720	14.8	25.8	20
2/17/2011	LB-6	2.7	44380	11.7	27.8	44
3/7/2011	AK-2	4.7	29760	11.9	18.2	50
3/7/2011	AK-3	4.7	30940	11.7	18.9	49
3/7/2011	AK-8	5.1	29810	12.0	17.4	50
3/7/2011	NB-4	5.2	21320	11.6	12.4	12
3/7/2011	NB-6	4.5	31200	11.9	19.1	60
3/7/2011	NB-7	5.2	24680	11.5	14.8	10
3/7/2011	NB-8	4.7	28020	12.0	17.5	48
3/7/2011	PJ-1	4.1	22800	11.8	13.8	13
3/7/2011	PJ-2	4.6	28690	11.4	17.4	11
3/8/2011	LB-1	4.5	42460	11.2	26.7	20
3/8/2011	LB-12	5.0	36340	11.8	22.6	28
3/8/2011	LB-13	4.6	35250	11.7	21.8	21
3/8/2011	LB-16	4.3	46270	10.9	29.2	19
3/8/2011	LB-18	4.5	44710	11.1	28.3	15
3/8/2011	LB-19	4.4	45490	10.8	29.0	18
3/8/2011	LB-20	4.4	45740	10.8	28.7	20
3/8/2011	LB-21	5.0	33880	12.6	21.0	15
3/8/2011	LB-3	5.3	35280	11.5	22.0	16
3/8/2011	LB-4	4.9	39200	11.0	24.5	40
3/8/2011	LB-5	5.2	34960	11.9	21.7	22
3/8/2011	LB-6	5.2	38420	11.3	24.0	46
3/9/2011	LB-14	4.7	37860	11.5	23.5	57
3/9/2011	LB-2	4.4	42480	11.3	30.2	56
3/9/2011	LB-8	4.3	29040	12.8	14.4	16
3/9/2011	LB-9	4.6	35420	11.9	20.4	30
3/9/2011	SB-3	3.7	21920	12.8	11.2	20
3/9/2011	SB-4	4.3	40940	11.0	25.6	42
3/9/2011	SB-5	4.4	41530	10.8	26.0	52
3/9/2011	SB-6	4.3	42150	11.4	26.2	54
3/21/2011	AK-2	5.5	24160	11.0	14.5	54
3/21/2011	AK-3	6.7	21150	10.6	12.6	52
3/21/2011	AK-8	6.6	21060	13.7	12.5	51
3/21/2011	NB-4	6.5	20960	13.5	12.4	12
3/21/2011	NB-6	5.5	24040	11.1	14.4	64
3/21/2011	NB-7	6.8	20230	10.7	12.0	12
3/21/2011	NB-8	5.9	23490	11.2	14.1	45
3/21/2011	SB-3	5.3	33360	10.7	21.2	21

Date	Station	Temp (°C)	DO (mg/L)	Cond (uS/cm)	Salinity (ppt)	Depth (ft)
3/21/2011	SB-4	5.3	36700	10.7	22.8	39
3/21/2011	SB-5	5.3	36880	10.6	22.9	50
3/23/2011	LB-1	5.3	44160	11.2	28.0	20
3/23/2011	LB-12	5.1	39610	11.1	24.8	32
3/23/2011	LB-13	5.3	40050	11.0	25.2	25
3/23/2011	LB-14	5.2	35130	11.5	20.7	60
3/23/2011	LB-16	5.1	47000	11.2	29.9	22
3/23/2011	LB-18	5.2	45940	11.2	29.2	16
3/23/2011	LB-19	5.2	46040	11.1	29.3	20
3/23/2011	LB-2	4.8	45260	11.0	28.6	62
3/23/2011	LB-20	4.7	47750	10.7	30.4	24
3/23/2011	LB-21	5.8	31670	12.5	19.3	17
3/23/2011	LB-4	5.1	39950	11.2	25.0	42
3/23/2011	LB-5	5.6	34630	11.1	22.0	24
3/23/2011	LB-6	5.3	39640	11.0	25.6	48
3/24/2011	LB-3	5.2	31430	11.3	19.2	19
3/24/2011	LB-8	5.2	35410	10.7	22.0	14
3/24/2011	LB-9	4.9	32200	11.1	19.2	29
3/24/2011	PJ-1	5.0	26750	11.2	16.1	21
3/24/2011	PJ-2	4.8	24380	11.3	14.6	13
3/24/2011	SB-6	4.9	28210	11.3	16.2	55
4/4/2011	AK-2	6.0	34000	10.3	21.1	50
4/4/2011	AK-3	7.0	30440	9.9	18.8	49
4/4/2011	AK-8	6.0	33200	10.3	20.5	50
4/4/2011	NB-4	6.2	31370	10.3	19.3	12
4/4/2011	NB-6	6.1	32980	10.3	20.4	62
4/4/2011	NB-7	6.8	28160	10.0	16.9	11
4/4/2011	NB-8	6.2	31720	10.3	19.5	46
4/4/2011	PJ-1	6.0	35250	10.8	21.9	11
4/4/2011	PJ-2	6.0	29430	10.7	18.2	12
4/4/2011	SB-3	6.0	36890	10.6	23.1	19
4/4/2011	SB-4	5.6	40810	10.3	25.5	38
4/6/2011	LB-14	5.7	42300	9.9	26.8	55
4/6/2011	LB-2	5.1	45800	9.8	30.4	61
4/6/2011	LB-21	6.6	36960	11.7	23.0	14
4/6/2011	LB-3	6.1	40200	10.6	25.0	20
4/6/2011	LB-5	6.0	39380	10.6	24.7	22
4/6/2011	LB-6	6.3	38330	10.9	24.0	48
4/6/2011	LB-8	6.0	39970	10.6	25.4	14
4/6/2011	LB-9	5.6	42080	10.2	26.5	27
4/6/2011	SB-5	6.0	40360	9.9	25.4	54

Date	Station	Temp (°C)	DO (mg/L)	Cond (uS/cm)	Salinity (ppt)	Depth (ft)
4/6/2011	SB-6	5.9	41560	9.9	26.0	48
4/7/2011	LB-1	6.2	43280	10.4	27.5	19
4/7/2011	LB-12	6.3	40660	10.8	25.6	31
4/7/2011	LB-13	6.3	40440	11.0	25.5	24
4/7/2011	LB-16	5.6	46080	10.4	29.4	22
4/7/2011	LB-18	5.8	45060	10.3	28.6	14
4/7/2011	LB-19	5.6	46080	10.1	29.4	17
4/7/2011	LB-20	5.4	46250	10.1	29.4	22
4/7/2011	LB-4	5.8	44560	10.0	28.4	40
4/20/2011	LB-1	8.3	41070	9.9	26.1	21
4/20/2011	LB-12	8.3	34510	10.0	21.5	30
4/20/2011	LB-13	8.5	36680	10.0	23.1	25
4/20/2011	LB-14	8.9	34190	9.9	21.7	51
4/20/2011	LB-16	7.7	44530	10.3	28.5	25
4/20/2011	LB-18	7.8	46110	10.0	29.6	16
4/20/2011	LB-19	7.9	44750	10.3	28.6	19
4/20/2011	LB-20	7.4	44920	10.1	28.7	23
4/20/2011	LB-21	9.8	28750	10.4	17.7	15
4/20/2011	LB-4	7.6	42510	9.5	27.0	37
4/20/2011	LB-5	8.7	32500	9.5	20.1	22
4/20/2011	LB-6	8.9	35720	9.2	22.4	46
4/21/2011	AK-2	9.6	22430	9.4	13.5	50
4/21/2011	AK-3	10.1	17290	9.3	10.3	51
4/21/2011	AK-8	9.6	20460	9.3	12.2	49
4/21/2011	NB-4	10.6	12350	9.9	7.1	13
4/21/2011	NB-6	9.5	21370	9.9	12.0	60
4/21/2011	NB-7	10.2	13170	9.4	7.6	9
4/21/2011	NB-8	9.7	18500	9.8	11.7	42
4/21/2011	PJ-1	8.9	27770	9.3	15.4	19
4/21/2011	PJ-2	9.6	20380	10.1	12.2	11
4/22/2011	LB-2	8.3	36410	9.5	22.4	52
4/22/2011	LB-3	8.9	29560	10.4	18.2	19
4/22/2011	LB-8	8.7	32030	10.1	17.5	15
4/22/2011	LB-9	8.5	29160	9.8	19.1	27
4/22/2011	SB-3	8.7	24220	10.0	14.9	20
4/22/2011	SB-4	8.1	35500	9.8	22.3	43
4/22/2011	SB-5	8.5	28030	10.0	17.2	49
4/22/2011	SB-6	8.6	29660	10.0	17.7	54
5/4/2011	AK-2	11.2	29250	8.9	18.3	44
5/4/2011	AK-3	11.3	28440	8.6	17.5	47
5/4/2011	AK-8	11.4	28400	8.7	17.5	48

Date	Station	Temp (°C)	DO (mg/L)	Cond (uS/cm)	Salinity (ppt)	Depth (ft)
5/4/2011	NB-4	13.3	20980	8.3	12.7	11
5/4/2011	NB-6	11.1	29520	8.9	18.3	60
5/4/2011	NB-7	12.2	23290	9.0	14.1	12
5/4/2011	NB-8	11.6	27920	8.1	17.1	44
5/4/2011	SB-3	11.2	25330	9.6	20.5	19
5/4/2011	SB-4	10.5	30400	9.2	18.8	43
5/4/2011	SB-5	10.3	30240	9.1	18.4	45
5/4/2011	SB-6	10.8	36860	10.1	22.5	54
5/5/2011	LB-13	10.0	35300	9.4	22.1	23
5/5/2011	LB-14	10.2	3980	9.0	24.7	54
5/5/2011	LB-2	10.6	33860	9.7	21.1	54
5/5/2011	LB-20	8.6	45530	9.4	29.2	22
5/5/2011	LB-21	11.8	30280	9.9	19.1	16
5/5/2011	LB-3	10.7	33140	9.5	20.5	20
5/5/2011	LB-5	10.7	29950	9.5	18.5	22
5/5/2011	LB-6	10.5	30000	10.1	18.4	47
5/5/2011	LB-8	10.8	33180	9.6	20.7	12
5/5/2011	LB-9	10.9	32340	9.4	18.6	26
5/5/2011	PJ-1	11.3	22470	9.3	13.9	14
5/6/2011	LB-1	9.7	41370	8.8	26.4	19
5/6/2011	LB-12	9.4	39520	8.9	25.0	30
5/6/2011	LB-16	8.1	46990	9.1	30.0	21
5/6/2011	LB-18	8.9	44450	8.7	28.5	14
5/6/2011	LB-19	8.8	45850	8.8	29.5	18
5/6/2011	LB-4	8.3	45190	8.8	29.1	41
5/6/2011	PJ-2	11.9	19100	9.2	12.0	12
5/20/2011	LB-1	15.2	39850	7.3	25.6	19
5/20/2011	LB-12	14.4	35480	7.4	22.4	31
5/20/2011	LB-13	14.3	36340	7.3	23.0	23
5/20/2011	LB-16	14.9	43160	7.5	27.8	22
5/20/2011	LB-18	15.0	41510	7.4	26.6	14
5/20/2011	LB-19	14.9	42360	7.3	27.4	19
5/20/2011	LB-20	14.2	42190	7.6	27.2	22
5/20/2011	LB-21	15.8	32970	8.1	20.7	16
5/20/2011	LB-4	14.1	40730	7.1	26.0	41
5/20/2011	LB-5	14.8	33260	7.5	20.9	23
5/20/2011	LB-6	14.7	36800	7.5	22.1	46
5/23/2011	AK-2	15.2	28780	6.6	17.8	48
5/23/2011	AK-3	16.1	21310	6.9	12.7	46
5/23/2011	AK-8	15.5	25500	6.6	15.6	44
5/23/2011	NB-4	16.4	14020	6.5	8.2	10

Date	Station	Temp (°C)	DO (mg/L)	Cond (uS/cm)	Salinity (ppt)	Depth (ft)
5/23/2011	NB-6	15.8	22140	6.7	13.4	57
5/23/2011	NB-7	16.3	13340	7.2	7.7	12
5/23/2011	NB-8	15.4	26800	6.5	16.4	42
5/23/2011	PJ-1	15.6	19880	7.4	11.8	19
5/23/2011	PJ-2	15.6	15250	7.7	8.9	13
5/23/2011	SB-5	15.1	29450	7.1	18.1	50
5/24/2011	LB-14	15.0	31890	7.7	20.0	51
5/24/2011	LB-2	14.8	36670	7.6	23.1	55
5/24/2011	LB-3	15.0	30610	7.0	19.2	16
5/24/2011	LB-8	15.0	32100	6.9	20.2	11
5/24/2011	LB-9	15.0	32200	7.5	20.5	27
5/24/2011	SB-3	15.4	22220	7.5	14.6	21
5/24/2011	SB-4	14.9	36280	7.3	23.0	41
5/24/2011	SB-6	15.3	27300	7.5	16.5	51
6/6/2011	LB-1	14.8	42480	8.2	27.3	18
6/6/2011	LB-12	14.7	40240	7.4	25.7	31
6/6/2011	LB-13	15.3	38920	7.5	24.8	23
6/6/2011	LB-16	14.9	44000	8.5	28.3	21
6/6/2011	LB-18	14.8	44160	8.5	28.5	13
6/6/2011	LB-19	14.9	43200	8.3	27.9	17
6/6/2011	LB-20	13.7	43210	7.6	27.9	21
6/6/2011	LB-21	17.0	35900	9.0	22.7	15
6/6/2011	LB-4	13.6	43420	7.3	28.0	40
6/6/2011	LB-5	15.6	37870	7.7	24.1	23
6/6/2011	LB-6	14.7	41630	7.7	26.7	46
6/7/2011	AK-2	17.4	321170	6.3	20.1	47
6/7/2011	AK-3	17.7	31430	6.5	19.6	45
6/7/2011	AK-8	17.6	31560	6.4	19.7	46
6/7/2011	NB-4	18.6	29140	6.2	18.1	9
6/7/2011	NB-6	17.8	31730	6.4	19.7	60
6/7/2011	NB-8	17.7	31380	6.3	19.6	40
6/7/2011	PJ-1	16.6	34710	6.6	21.9	14
6/7/2011	PJ-2	16.7	33180	6.5	20.9	13
6/7/2011	SB-5	15.8	37110	7.1	24.2	52
6/8/2011	LB-14	15.8	41670	7.8	26.8	48
6/8/2011	LB-2	14.5	44250	7.8	28.6	61
6/8/2011	LB-3	15.8	39640	7.4	25.2	19
6/8/2011	LB-8	16.0	32220	7.9	25.1	14
6/8/2011	LB-9	15.9	39470	7.6	25.3	28
6/8/2011	SB-3	16.4	35720	7.0	22.6	16
6/8/2011	SB-4	15.9	38200	7.4	24.3	37

Date	Station	Temp (°C)	DO (mg/L)	Cond (uS/cm)	Salinity (ppt)	Depth (ft)
6/8/2011	SB-6	15.5	40110	7.4	25.7	48

Appendix D

Laboratory microscope setup and winter flounder egg and larval staging photographs and illustrations

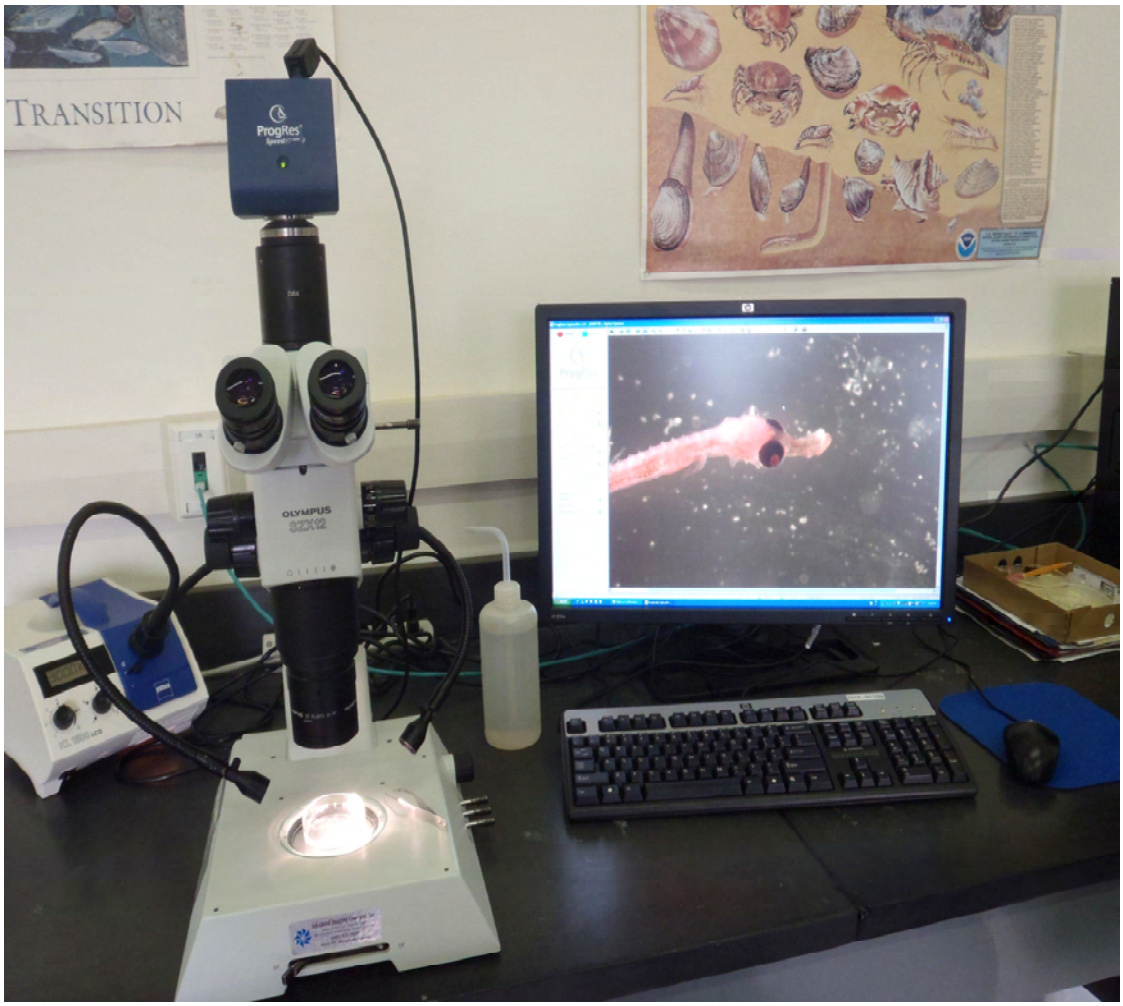


Figure D-1. Laboratory analysis set up showing the Jenoptik ProgRes CapturePro 2.8.0 Camera and Olympus SZX12 Tri-Ocular Stereo Microscope.

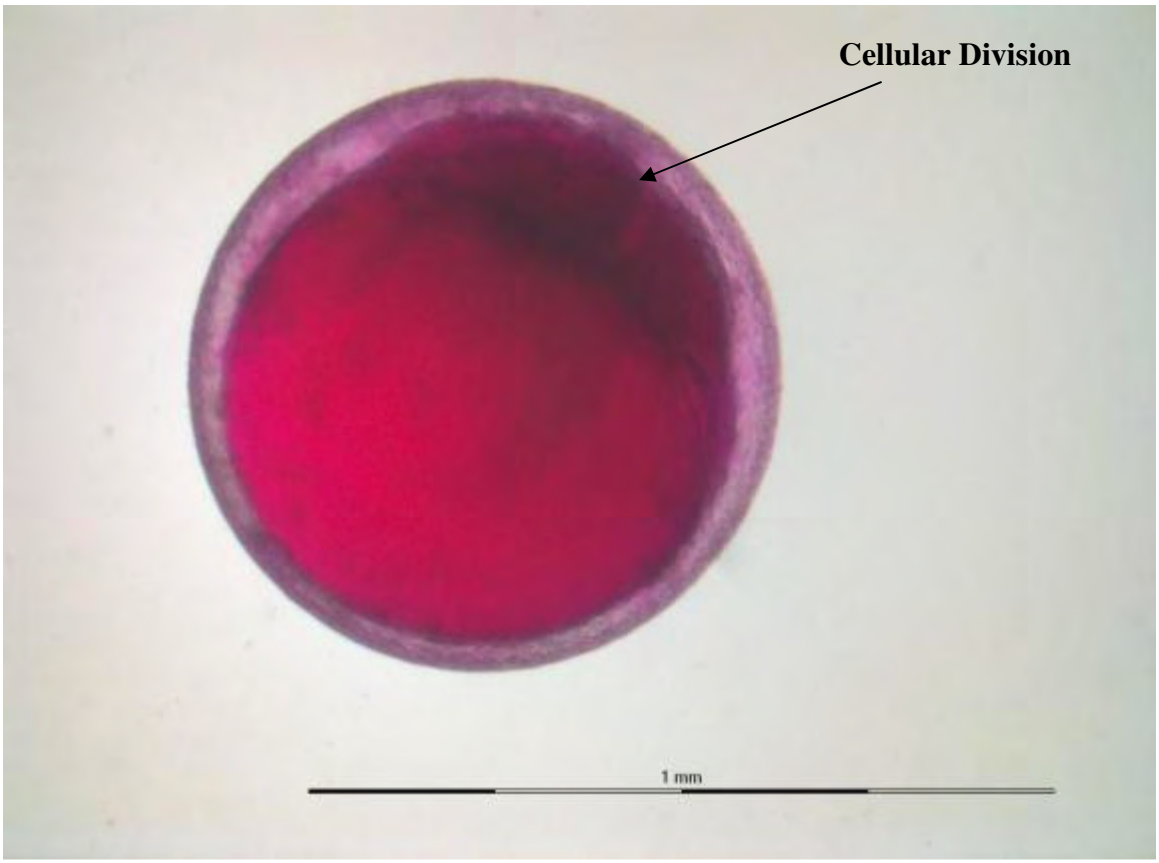


Figure D-2. Winter Flounder - Egg Stage 1 or Early Cleavage Stage.

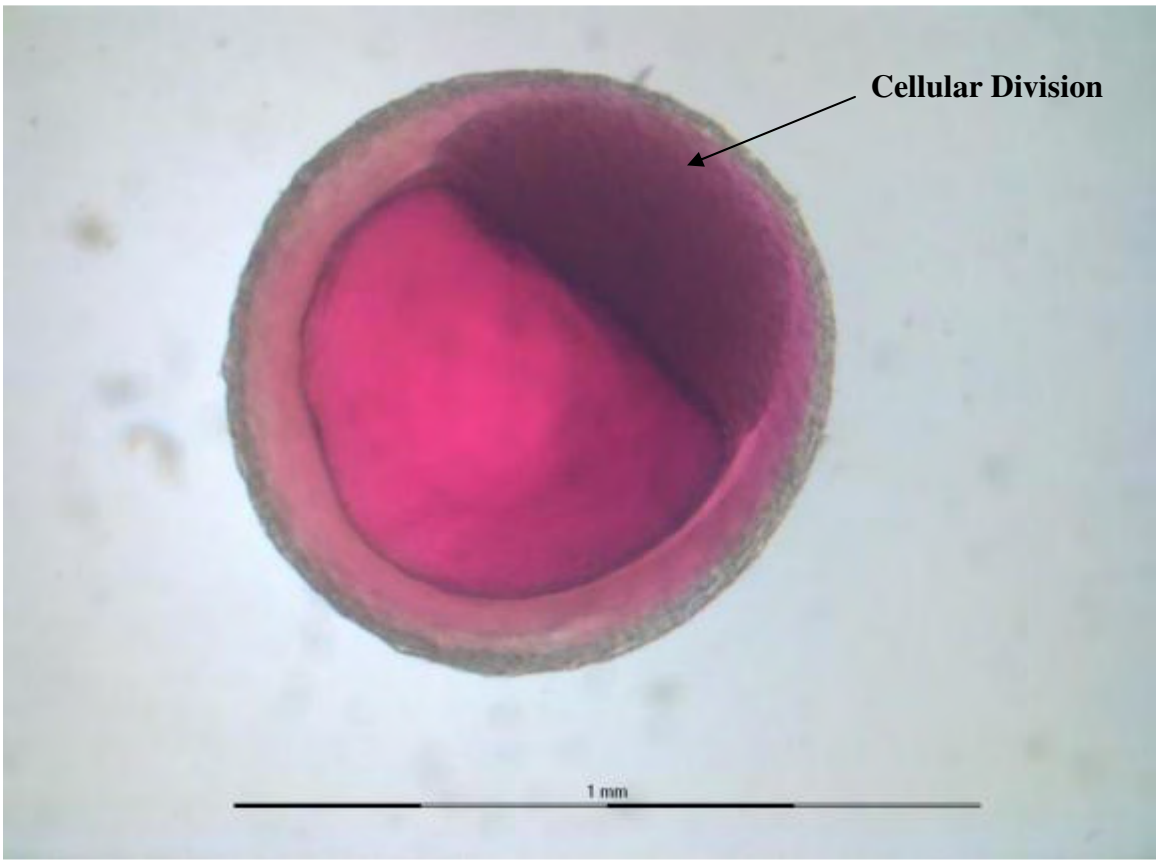
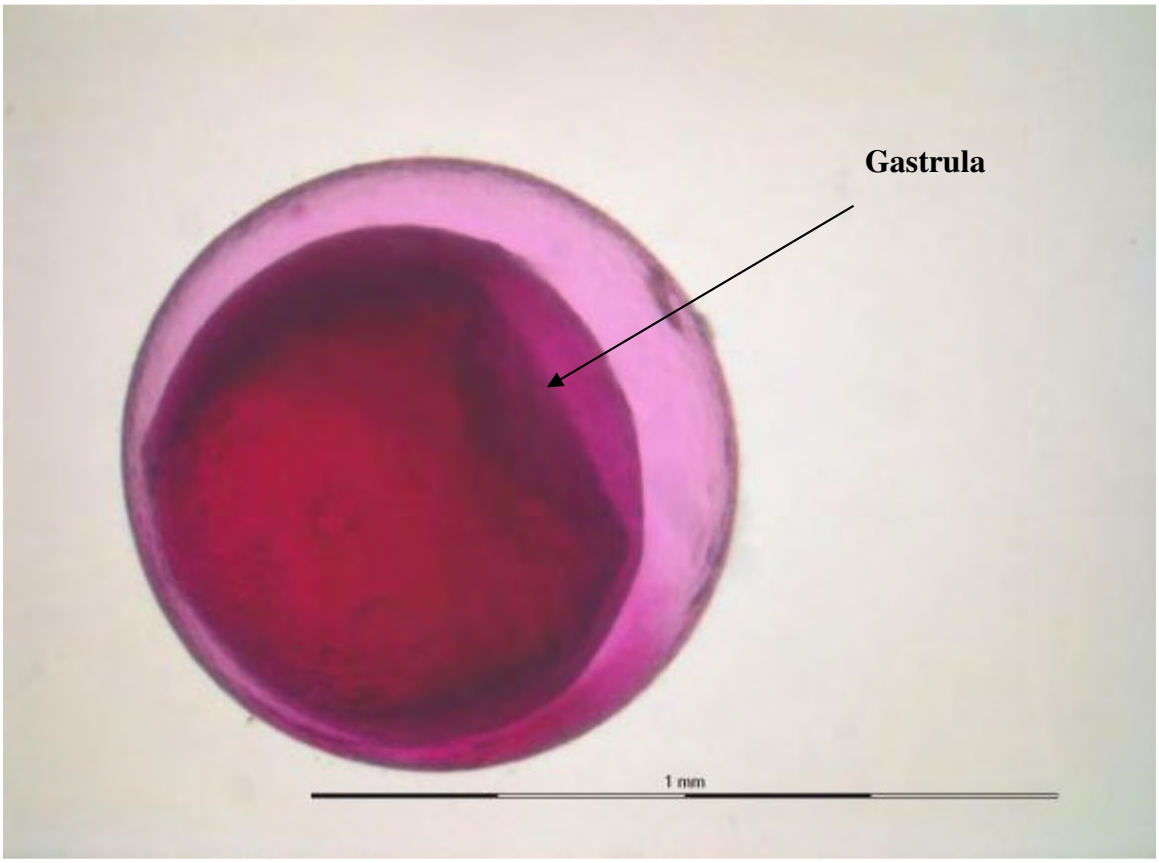


Figure D-3. Winter Flounder - Egg Stage 2 or Blastula Stage.



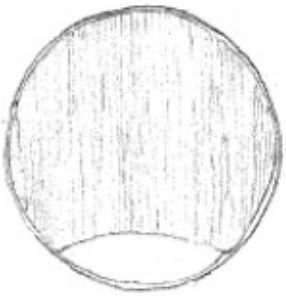


Figure D-4. Winter Flounder - Egg Stage 3 or Gastrula Stage.

Figure D-5. Winter Flounder - Egg Stage 4 or Early Embryo Stage.

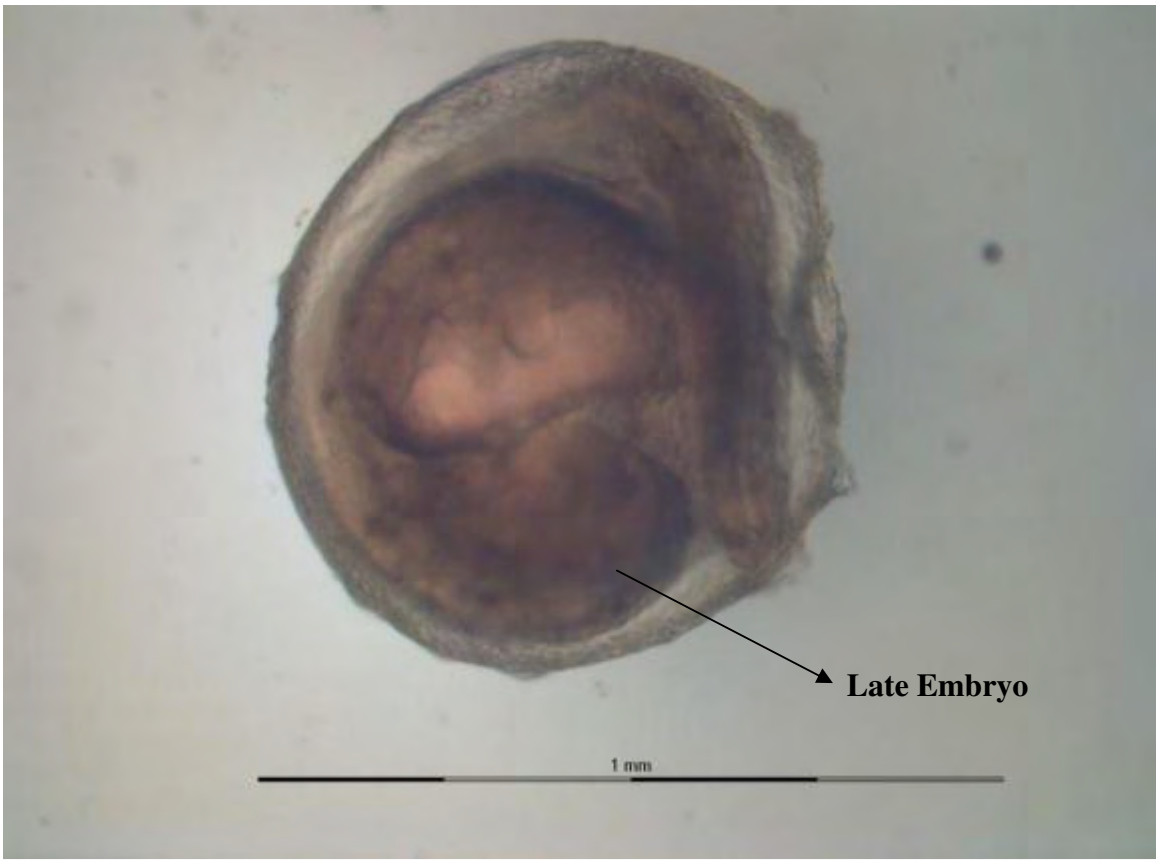


Figure D-6. Winter Flounder - Egg Stage 5 or Late Embryo Stage.

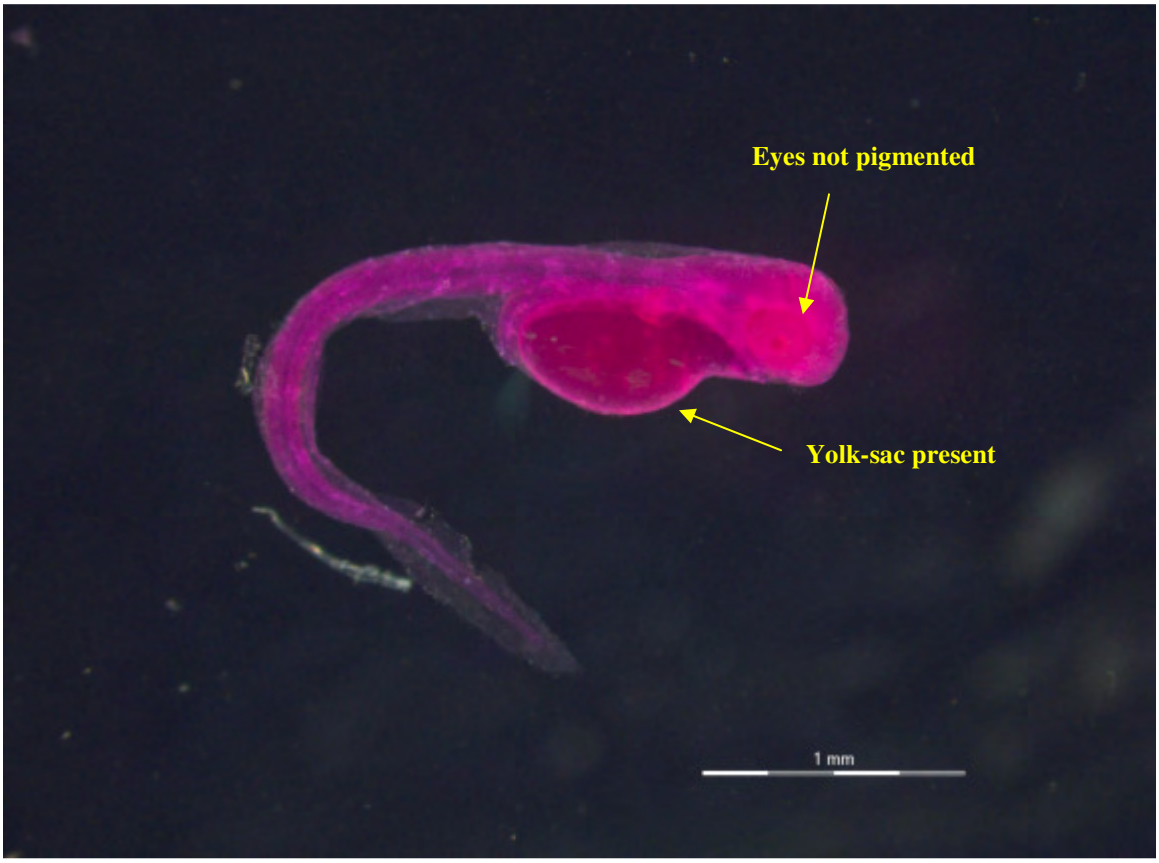


Figure D-7. Winter Flounder - Larval Stage 1 (image top; sketch bottom).

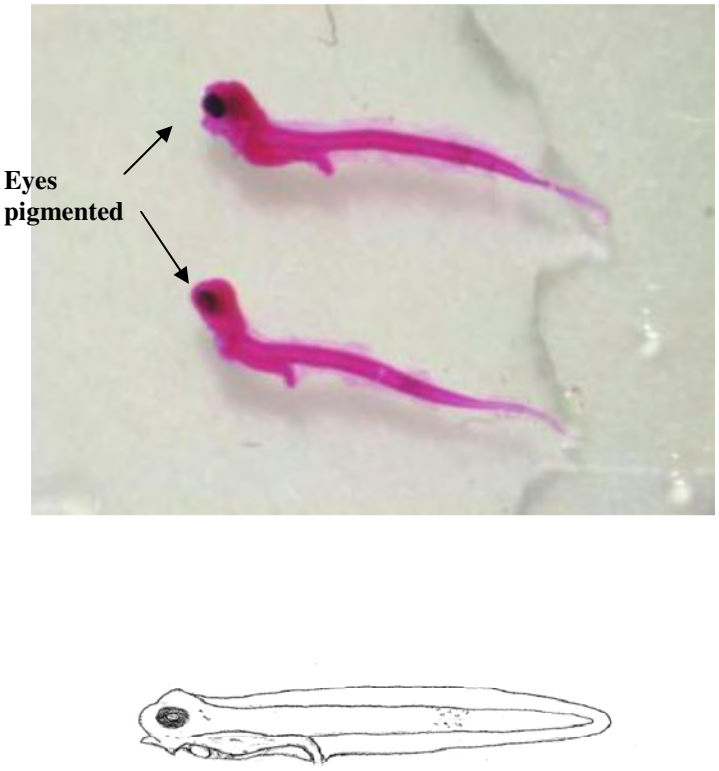
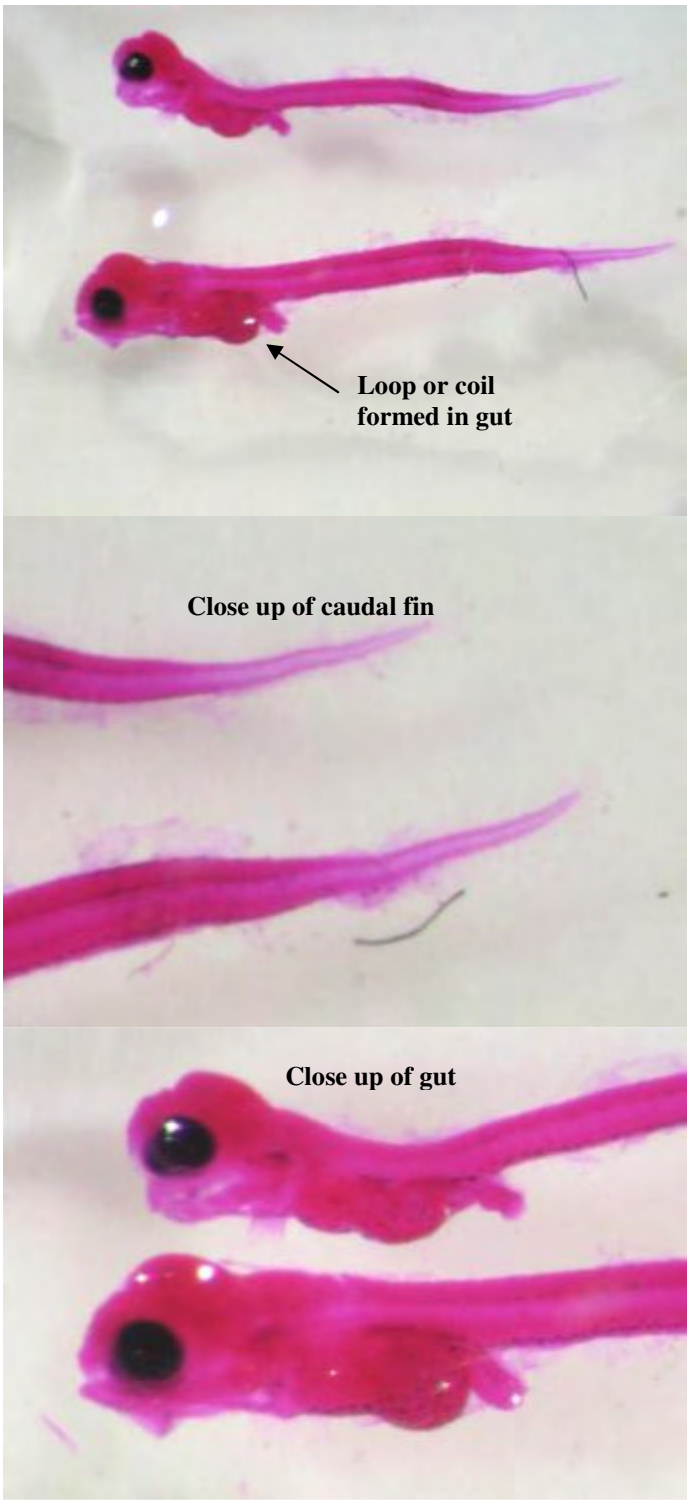


Figure D-8. Winter Flounder - Larval Stage 2 (image top; sketch bottom).



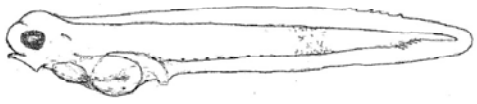
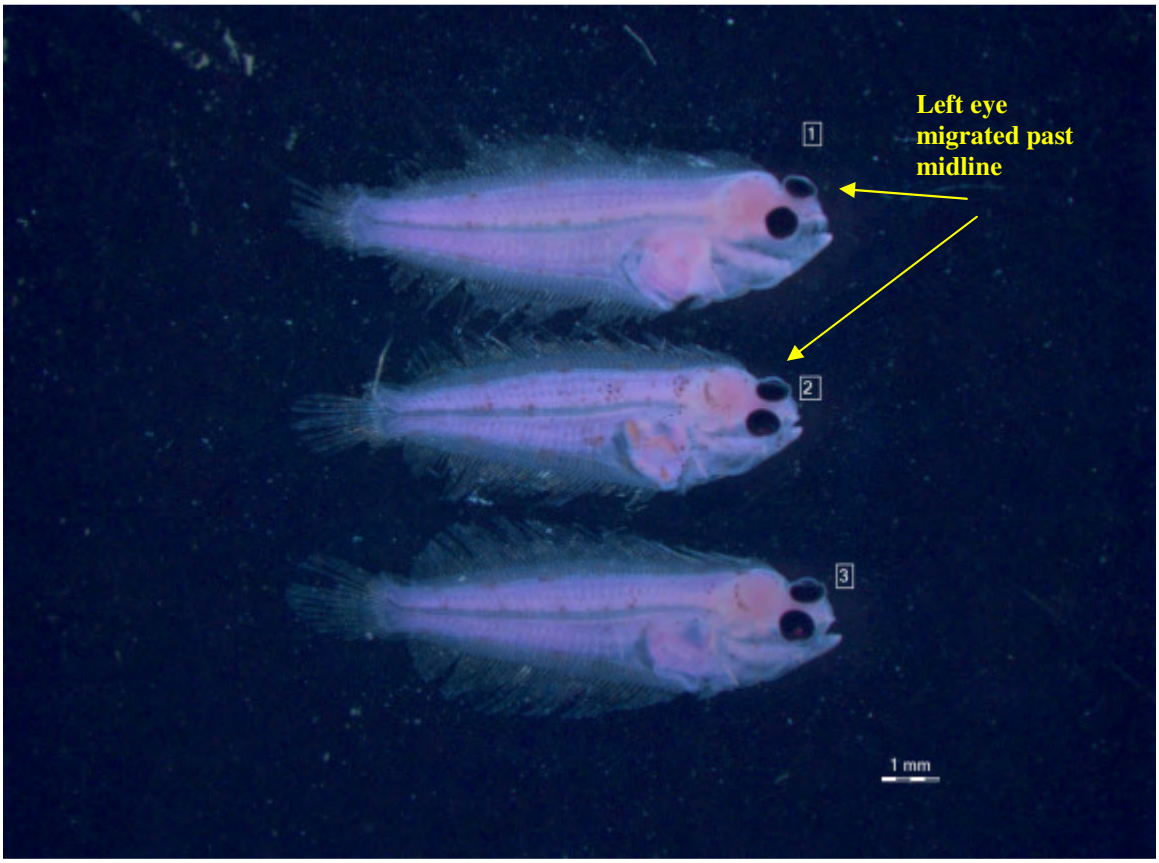


Figure D-9. Winter Flounder – Larval Stage 3.



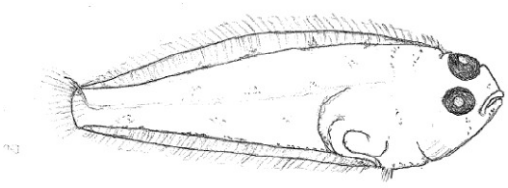


Figure D-10. Winter Flounder - Larval Stage 4.

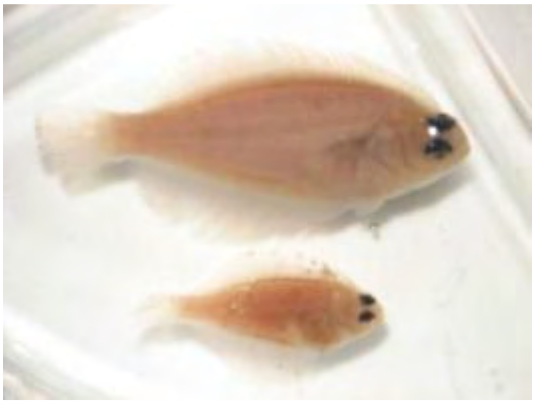


Figure D-11. Winter Flounder – Juvenile.