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## PART ONE

FINFISH, SHELLFISH, AND PLANKTON

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For

JERSEY CENTRAL POWER AND LIGHT COMPANY

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#### INTRODUCTION

The Oyster Creek Generating Station (OCGS) of Jersey Central Power and Light Co. is a 620 MWe boiling water reactor which has been in commerical operation since December 1969. It is located 3.2 km inland from Barnegat Bay in Lacey Township, New Jersey. Oyster Creek and the South Branch of Forked River have been modified as a discharge and intake canal, respectively (Fig. 1). When OCGS is in operation, the flow in the South Branch of Forked River is always upstream toward OCGS, and the flow in Oyster Creek is always downstream toward Barnegat Bay. Tidal range at the mouth of Oyster Creek is 0.15 m (U. S. Atomic Energy Commission, AEC 1974).

Barnegat Bay is a relatively large (surface area 16,714 ha), shallow (average depth 1.5 m) estuary (AEC 1974). The eastern Bay contains extensive shoals (depth 0.2 to 0.9 m); the central and western Bay is deeper and ranges from 1.2 to 3.7 m (National Oceanic and Atmospheric Administration, NOAA 1976). Interchange of water between the Atlantic Ocean and the Bay is limited and occurs through Barnegat Inlet which is narrow (Makai 1973, Carpenter 1963). Normal tidal range in Barnegat Bay is 0.3 m (Makai 1973).

Several studies of Barnegat Bay and OCGS were conducted prior to those undertaken by Ichthyological Associates, Inc. (I.A.). Makai (1973) reported on the physicochemical parameters of upper Barnegat Bay, and Halgren (1973) conducted a study on the recreational usage of the upper Bay. Wurtz (1969), Marcellus (1972), and McClain (1973) reported on the fishes of the Bay. Wurtz (1972) also reported preliminary findings on impingement of fishes and crabs at OCGS. Wurtz (1965, 1971) conducted brief studies of zooplankton and ichthyoplankton in limited portions of the Bay, and Sandine (1973) studied the condition of microzooplankton entrained at OCGS. Rutgers University investigated the benthic invertebrates and benthic algae (Loveland et al. 1966-1972, 1974); this work was reviewed by Vouglitois (1976).

Since 8 September 1975, I.A. has conducted studies to determine and assess the biological impact of OCGS and its discharges and has made general ecological surveys of Barnegat Bay, Oyster Creek, and Forked River. Data collected from September 1975 through August 1978 were reported by Tatham et al. (1977a, b; 1978a, b) and Danila et al. (1979). This report presents data from impingement and entrainment sampling programs and from fin- and shellfish collections made at selected stations in Barnegat Bay from September 1978 through March 1979. Since this document serves primarily as a progress report, the emphasis is on presentation of the data rather than extensive analyses.

Impingement and fisheries studies emphasized fin- and shellfish designated as important by the U. S. Environmental Portection Agency (EPA) and the U. S. Nuclear Regulatory Commission (NRC). These were the Atlantic menhaden, bay anchovy, Atlantic silverside, threespine stickleback, northern pipefish, striped bass, bluefish, weakfish, northern kingfish, summer flounder, winter flounder, northern puffer, sand shrimp, and blue crab. The life history of most of these species were reported by Tatham et al. (1977a, 1978a). The common and scientific

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names of all vertebrates and invertebrates taken by the impingement and fisheries programs are given in Tables 1 through 3.

Emphasis in the plankton program was also placed on forms designated as important by the EPA or NRC. Important macrozooplankton were the ctenophores <u>Mnemiopsis leidyi</u> and <u>Beroe</u> spp., the arrowworms <u>Sagitta</u> <u>elegans</u> and <u>Sagitta</u> spp., the sand shrimp <u>Crangon septemspinosa</u>, grass shrimp <u>Palaemonetes</u> spp., the mysids <u>Neomysis americana</u> and <u>Mysidopsis</u> <u>bigelowi</u>, polychaete epitokes and individuals less than 1 mm, and blue crab zoeae and megalopae. Important ichthyoplankton included the eggs and larvae of the Atlantic menhaden, bay anchovy, threespine stickleback, northern pipefish, striped bass, bluefish, weakfish, northern kingfish, summer flounder, winter flounder, and northern puffer.

## IMPINGEMENT OF FISHES AND MACROINVERTEBRATES ON THE TRAVELING SCREENS

Gerald J. Miller and Donald J. Danila

#### Introduction

Since September 1975, Ichthyological Associates, Inc. has studied the effect of the impingement of organisms on the vertical traveling screens which protect the intake to the OCGS circulating-water system. Impingement data have been reported from 8 September 1975 through 2 September 1978 (Miller 1977, 1978, 1979b). Data presented here are a continuation of those studies and include collections from 3 September 1978 through 31 March 1979. The objectives of these studies were to determine the species composition and abundance of organisms impinged on the OCGS screens and their survival rate when returned to Barnegat Bay. An evaluation of these losses on the populations in Barnegat Bay was discussed by JCP&L (1978).

#### Materials and Methods

Samples of impinged organisms were taken from the sluiceway after the last traveling screen and from the sluiceway pit (Fig. 2). Physicochemical parameters, which included air and water temperature, salinity, dissolved oxygen, and pH, were recorded with each collection. A 45.7 x 50.8 x 61.0-cm wire basket (10.7-mm mesh) was used to collect organisms from the sluiceway (Sta. 8) to determine their condition. A 101.6 x 101.6 x 121.9-cm wire basket (10.7-mm mesh) was used to collect organisms from the sluiceway pit.

Samples were usually taken two nights a week during two periods; period 3 was from sunset to 6 h after sunset and period 4 was from 6 h after sunset to sunrise. After the screens were washed at the beginning of the sampling period, the pit sampler was lowered into place. Subsequently, the screens washed automatically either every hour or when the pressure differential across the screens reached a critical level. Automatic screen washes usually involved about two complete rotations of the screens and lasted for approximately 20 min. Screen washes triggered either manually or by differential pressure lasted from 10 to 11 min.

After the screens had washed for 1 min, the sluiceway sampler was inserted. After 1 min or less, depending on the abundance of organisms, it was removed and the organisms were placed on a  $3.9-m^2$  sorting table. The sluiceway sampler was replaced, and the procedure repeated until a maximum of six, 1-min samples was taken during the screen wash. For 20-min screen washes, the sluiceway sampler was used only during the first 11 min of the wash.

Collections from the sluiceway sampler were rapidly processed on the sorting table. Fishes were placed into water in insulated coolers, and crabs were placed into 10-liter plastic buckets. The condition (live/ dead/damaged) of the organisms was determined 5 to 10 min after the last sluiceway sample was taken. Live denoted a specimen which had no apparent damage and which was swimming normally. Damaged specimens were alive (opercular movement in fishes) but had external damage or abnormal behavior. Dead fishes showed no opercular movement, and dead invertebrates showed no movement of either appendages or mouth parts. Condition samples were taken until the program was terminated on 5 February 1979.

Organisms washed from the screen and not collected in the sluiceway sampler passed into the pit sampler. At the end of the screen wash, the pit sampler was removed and the specimens were processed. Whenever necessary, the number and weight of abundant species were estimated volumetrically in the following manner. After all the less numerous species were removed from the sample, the remaining debris and abundant organisms were thoroughly mixed and a known volume removed. The number and weight of the abundant species in this subsample were determined and were used to estimate their number and weight in the total sample.

When the screens washed frequently or continuously, it was not always possible to collect all impinged organisms because the screen wash would have overflowed the pit sampler. To avoid this, the pit sampler was removed before it overflowed, and some portion of the screen wash was missed. If this occurred, the portion of the screen wash that was sampled was used to estimate the total number and weight of organisms impinged during that period.

For a week, estimated impingement during a period  $(W_a)$  was calculated by the formula:

$$W_a = \frac{P_a \cdot 7}{s}$$

P<sub>a</sub> = actual or extrapolated number or weight of specimens impinged in a period during a week.

s = number of times a period was sampled during the week.

The sum of the estimated weekly impingement at night during each of the two periods was the total weekly impingement estimate at night. A

Hewlett-Packard 9830A programmable calculator was used for data compilation and statistical analysis.

Stratified sampling with optimal allocation (Snedecor and Cochran 1967) was used to estimate the total number of organisms and number of specimens of various species impinged during the 7 months. The mean number impinged during the 7 months ( $Y_{st}$ ) was estimated by the formula:

 $\bar{\bar{\mathbf{Y}}}_{st} = \sum \left[ \left( N_a / N \right) \cdot \bar{\bar{\mathbf{Y}}}_a \right]$ 

N<sub>a</sub> = number of sampling units in stratum a.

N = number of sampling units in all strata sampled.

 $\overline{Y}_a$  = sample mean in stratum a.

The strata were the two time periods sampled during the night. The sampling unit size was 1 h, and each sample mean was expressed as the number of specimens impinged per hour. This sample mean was derived by dividing the number of individuals taken from all samples collected during a time period by the total duration of these samples. This weighted mean of the number impinged per hour was used as a single sample because the duration of individual samples in a time period was unequal.

The total number of individuals impinged at night during the 7 months (Y) was computed by the formula:

 $Y = \overline{Y}_{st} \cdot D \cdot T$ 

T = 13.3 (daily average hours of darkness for the 7 months sampled).

#### Results and Discussion

A total of 228 collections was taken from 3 September 1978 through 31 March 1979 with 105 collections taken in period 3 and 123 collections in period 4 (Appendix Table 1). No collections were taken between 19 September and 21 November because OCGS was shut down.

Physicochemical parameters associated with each collection were summarized weekly (Table 4). Typical seasonal trends in water temperature and dissolved oxygen were apparent. Weekly mean bottom water temperature declined from 23.4 C in early September to 0.3 C in mid-February. The temperature increased rapidly in March and reached 9.6 C during the last week of the month. The dissolved oxygen concentration generally varied inversely with temperature; the greatest mean value (13.9 ppm) was recorded in late February through early March. The mean bottom salinity ranged from 15.5 to 16.0 ppt in September, 17.3 to 20.5 ppt from mid -November through early March, and 9.3 to 12.3 ppt for the remainder of March. The latter decrease probably resulted from the spring snowmelt and increased precipitation. The weekly mean of pH values were 7.5 to 8.1.

An estimated 4,221,475  $\pm$  659,998 fish and macroinvertebrates (90 taxa) that weighed 25,141  $\pm$  6,905 kg were estimated by the stratified sampling method to have been impinged at night (Table 5; Appendix Tables 2 through 4). Most (77%) of the biomass impinged consisted of fish (19,441  $\pm$  6,837 kg); 5,701  $\pm$  977 kg (23% of the biomass) were comprised of invertebrates (Table 5). However, fish (65 taxa; 453,383  $\pm$  93,426 individuals) made up only 11% of all organisms. The invertebrates (25 taxa; 3,768,091  $\pm$ 598,267 individuals) dominated the catch numerically.

The most numerous fishes were the Atlantic silverside (n=135,625; 30% of the total catch of fish), winter flounder (128,883; 28%), and blueback herring (83,849; 18%). The threespine stickleback (4%), American eel (4%), and northern pipefish (4%) were also common. The most important fish by weight was the winter flounder (17,084 kg) which made up 88% of the fish biomass. The Atlantic menhaden (4%), Atlantic silverside (3%), and blueback herring (2%) comprised most of the remaining fish biomass.

Although the sand shrimp was the most numerous macroinvertebrate impinged (n=3,302,364; 88% of the macroinvertebrates), it comprised only 53% of the macroinvertebrate biomass (3,013 kg). Fewer blue crab (45,937; 1%) were impinged, but it was important by weight (2,372 kg; 42% of the macroinvertebrate biomass). The grass shrimp (11% by number, 3% by weight) was the only other abundant macroinvertebrate.

Weekly impingement estimates were determined but these were not used to estimate total impingement for the 7-month period (Tables 6 through 8). Most impingement of a species occurred during a few weeks over a relatively small temperature range as species abundance and impingement were related to water temperature (Table 9). Most (85%) of the impinged fish were collected from 10 December through 10 February which included most of the Atlantic silverside (89%) and winter flounder (84%). Most (92%) of the Atlantic silverside were impinged at a water temperature of 2 to 8 C, and 8% of the winter flounder were taken from -1 to 5 C. Some 80% of the blueback herring were impinged from 10 December through 6 January, and most (95%) of the threespine stickleback were collected from 21 January through 17 March. During 1 week (4 through 10 February) most (97%) American eel were taken. These specimens were glass eels (Hardy 1978) of

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about 50 to 60 mm in length and contributed little (4.8 kg) to the biomass.

Similarly, 86% of the sand shrimp and grass shrimp were taken from 10 December through 17 February. Most (80%) of the sand shrimp were impinged at a water temperature of 0 to 8 C and 95% of the grass shrimp were taken at 0 to 12 C. However, 88% of the blue crab were impinged from 3 through 23 September, most at 18 to 25 C.

From 24 through 30 December, the largest number of specimens (6,050) were impinged per hour of darkness and from 17 through 23 September the least number of specimens (13) were impinged (Table 10). The maximum impingement per 10 million liters of circulating water flow (598 specimens) occurred from 17 through 23 December and the least (5) from 17 through 23 September. However, only two circulating water pumps were on from 17 through 23 September.

Some 3,952 specimens were examined for condition (Table 11; Appendix Table 5). Most (68%) specimens were live, 22% were damaged, and 9% were dead. The bay anchovy (46% dead), Atlantic silverside (13%), and blueback herring (13%) comprised 81% of the dead fish. Less than 1% of the winter flounder were dead, but 41% were damaged. The sand shrimp had a mortality of 14% and the blue crab 3%.

Although OCGS was shut down for about 2 of the 7 months in which sampling was conducted, some comparisons may be made with a similar 7-month period in 1977-78 (Miller 1979a). Only 228 collections were made in 1978-79 that produced 90 taxa as compared to 363 collections in 1977-78 (111 taxa), but an estimated 315,000 additional specimens and about 6,000 kg more biomass were impinged from September 1978 through March 1979. Similar percentages of fish (9% in 1977-78, 11% in 1978-79) and invertebrates (91%, 87%) were taken in both periods. The greatest difference was in the catch of winter flounder. An estimated 128,883 winter flounder (17,084 kg) were impinged in 1978-79 as compared to 22,710 individuals (4,404 kg) in 1977-78. The number of winter flounder impinged has increased each year since 1975-76 and this was probably related to the large year-classes produced from 1976 through 1978 (Danila 1977a, Metzger 1979). However, weather and plant operating conditions also have affected impingement of winter flounder to some degree (Danila 1978b). As for example, Danila (1978b) reported that a smaller mean number of screens and greater number of circulating pumps in operation at OCGS in combination with colder water temperatures probably resulted in greater impingement of winter flounder in 1976-77 than in 1975-76. Thomas and Miller (1976) noted increased impingement at OCGS associated with strong northeast winds and storms.

Large decreases in the number of Atlantic menhaden (72%), bay anchovy (93%), weakfish (96%), and blue crab (78%) also occurred between 1977-78 and 1978-79. Greatest impingement of these species during the September through March period usually occurs in October and November. Consequently, most of the differences in impingement between years was probably due to the OCGS shutdown. The 38% decrease in estimated biomass of blue crab from 1977-78 (3,798 kg) to 1978-79 (2,372) was less than the 78% decrease in number which indicated that mostly larger crabs were impinged in the latter period. The spot also is impinged mostly in the fall, but the number of spot present in the Bay in 1978 was significantly less than in 1977. Fewer than 100 were impinged in 1978-79 as compared to an estimated

58,688 for 1977-78 (Miller 1977a). This species typically demonstrates large yearly variations in abundance in the mid-Atlantic region (Joseph 1972).

Maximum impingement of the blueback herring, Atlantic silverside, sand shrimp, and grass shrimp occurs from mid-November through early February and thus the 1977-78 and 1978-79 periods are largely comparable for these species. Each of these species was impinged in larger numbers in 1978-79 than in 1977-78. These increases may have been due to their greater abundance in 1978-79. However, as with winter flounder, weather and plant operating conditions probably influenced impingement to some degree. A small decrease (277 kg) in estimated biomass of sand shrimp actually occurred between the periods and although 1.7 times as many grass shrimp were taken, only an 11% increase in weight was recorded. Larger numbers of smaller individuals of both species may have been impinged in 1978-79 than in 1977-78.

### IMPINGEMENT OF FISHES AND MACROINVERTEBRATES ON THE PROTOTYPE RISTROPH SCREEN

Gerald J. Miller

#### Introduction

Since September 1975, Ichthyological Associates, Inc. has determined the species composition, abundance, and mortality of organisms impinged on the vertical traveling screens that precede the intake to the circulating water system. In an attempt to mitigate these mortalities, JCP&L has planned the installation of a continuously rotating traveling screen modified with a low pressure spray wash and fish recovery and return system (i.e., Ristroph screen).

A study to determine the efficiency of the Ristroph screen in reducing fish and macroinvertebrate impingement mortality was begun in May 1978 with the installation of a prototype screen at OCGS (Miller 1979c). The main objective of this program was to compare the condition (live, damaged, dead) of organisms impinged on the Ristroph screen to that of organisms impinged on the conventional traveling screens at OCGS. In addition, the effectiveness of the low pressure spray in removing organisms from the Ristroph screen was determined. This report covers data collected from 28 November 1978 through 9 January 1979, when the program was terminated. No data were collected from 15 September through 28 November due to a scheduled OCGS shutdown.

#### Materials and Methods

Samples were taken in the upper (live) and lower (debris) troughs which ran from the rear of the Ristroph screen to the sluiceway in front of the screen (Fig. 3). As many sets of samples as practical were taken once a week from sunset to 6 h after sunset. During the week of 24 December, an additional set of samples was taken because more fish were impinged at that time.

With the Ristroph screen washing continuously, a 100 x 60 x 20-cm metal frame with a 1-m long section of nylon netting (1-cm stretch mesh) was placed in the live trough. Simultaneously, an identical sampler was placed in the debris trough. After 1 min or less, depending on the abundance of organisms, the two samplers were removed, and organisms were processed on a  $0.8-m^2$  sorting table. Most organisms from each trough were placed in water in separate insulated coolers, but crabs were placed in separate 10-liter plastic buckets. The samplers were then replaced, and the procedure repeated usually until a maximum of 10 samples was taken from each trough. Less than 10 samples were taken only if the number of organisms collected reached the holding capacity of the coolers. When few specimens were impinged, an additional sample was taken by placing the samplers simultaneously in the two troughs for a period of 30 min. This was only done once during the present reporting period.

About 5 min after a set of samples were collected, the condition (live, damaged, dead) of the specimens was determined. Live denoted a specimen which had no apparent damage and which was swimming normally.

Damaged specimens were alive (opercular movement in fishes) but showed external damage or abnormal behavior. Dead fish showed no opercular movement, and dead invertebrates showed no movement of either appendages or mouth parts.

The efficiency of the low pressure spray in removing organisms from the screen was expressed as the percentage of the specimens taken in the live trough. Data from collections made to determine condition of organisms were used to examine the effectiveness of the low pressure spray.

#### Results and Discussion

A total of 54 samples (total sampling time of 560 min) was taken from 28 November 1978 through 9 January 1979 (Appendix Tables 6 and 7). Of the 4,479 specimens impinged, most (91%, n=4,058) were invertebrates and 9% (421) were fish. The sand shrimp (94% of the invertebrates) comprised 85% of the specimens collected. The winter flounder (37% of the fish), naked goby (17%), northern pipefish (12%), and Atlantic silverside (10%) made up 76% of the fish impinged (Table 12).

Only 19% of the fish and 31% of the invertebrates were washed into the live trough and this indicated that the spray pressure was too low for proper operation. Previous sampling (18 August to 15 September 1978) showed that about 73% of the specimens impinged were washed into the live trough after a valve that increased the live trough spray pressure was installed (Miller 1979c). Before the valve was installed, 56% of the organisms impinged were washed into the live trough. Of the invertebrates in the present study, 32% of the sand shrimp and 21% of the grass shrimp were washed into the live trough. Some 29% of the northern pipefish, 24% of the Atlantic silverside, 13% of the naked goby, and 13% of the winter flounder were washed into the live trough.

The condition of 3,821 invertebrates and 414 fish was determined (Table 13). The mortality from both troughs combined was higher for fish (21%) than for invertebrates (4%). Representative mortalities from both troughs combined were 13% dead for the Atlantic silverside, 27% for the fourspine stickleback, 4% for the northern pipefish, and 83% for the naked goby. No winter flounder were dead and only 6% of the grass shrimp and 4% of the sand shrimp were dead. The results obtained for specimens washed into the debris trough reflected those for both troughs combined as most specimens were washed into the debris trough and few into the live trough.

Mortalities are higher when more specimens are washed into the debris trough than into the live trough because of the greater spray pressure for the debris trough. However, combined mortalities for both troughs were lower than those found for the conventional traveling screens with the winter flounder (0% for the former, 0.8% for the latter), grass shrimp (6%, 11%), and sand shrimp (4%, 14%). Nevertheless, data presented here and previously (Miller 1979c) indicate a need to adjust for proper spray pressures in both the live and debris troughs to achieve maximum survival of organisms with the Ristroph screen.

# FISHES, THE SAND SHRIMP, AND THE BLUE CRAB TAKEN AT SELECTED STATIONS IN WESTERN BARNEGAT BAY

Donald M. Byrne

#### Introduction

This report covers investigations conducted from September 1978 through March 1979 which are a continuation of studies conducted in western Barnegat Bay since September 1975. The objectives of these studies are to determine the species composition and relative abundance of fishes, the sand shrimp, and the blue crab in western Barnegat Bay and the effect of the OCGS heated discharge on the distribution of these organisms at the mouth of Oyster Creek. Data from these studies may be compared with those of earlier investigations (Marcellus 1972; McClain 1973; Danila 1977, 1978a, 1979) to assess yearly differences in the fish community of western Barnegat Bay.

#### Materials and Methods

Monthly samples were collected by trawl and seines from the mouth of Cedar Creek (Sta. 1), Forked River (4), Oyster Creek (17), and Double Creek (23) from September 1978 through March 1979 (Fig. 1, Table 14). All stations were sampled during the day, and stations at Forked River and Oyster Creek were also sampled at night, between 1 and 4 h after sunset. In January, however, ice prevented seining at Cedar Creek and in February only Oyster Creek was sampled by seine because ice covered all the other stations and dredging activities prevented access by boat for trawling.

Two consecutive 5-min hauls of a 4.9-m semiballoon otter trawl were made at each station. The trawl had a 4.9-m headrope, 5.8-m footrope, and 61.0 x 30.5-cm doors. It had a 3.8-cm nylon stretch mesh body and a 3.2-cm stretch mesh codend fitted with a 1.2 stretch mesh inner liner. It was towed at 1,600 rpm from a 6.4-m MonArk work boat, and an average haul covered 771.75 m<sup>2</sup>. The second haul was made after the first collection was processed on board.

Two hauls of a 45.7 x 2.4-m nylon bag seine (1.3-cm stretch mesh) were made, one before and one after two collections with a 12.2 x 1.5-m (0.6-cm stretch mesh) seine. Each haul was made in an area adjacent to and not overlapping the location previously sampled. The 45.7-m seine was set in a semicircle from a 4.3-m aluminum boat with both net ends at or near shore when the net was fully deployed. The net was then pulled to shore by hand. An average haul covered approximately  $3,300 \text{ m}^2$ . The 12.2-m seine was set by holding one brail stationary at the water's edge and sweeping the fully extended net through the water in a semicircle. The area covered was 223 m<sup>2</sup>.

The fish and invertebrates collected in each sample were counted and released. Fish that could not be identified in the field were returned to the laboratory; uncommon species were preserved in 10% formalin and stored in 40% isopropanol in a voucher collection. Invertebrates other than sand shrimp and blue crab were identified in the field to the lowest practical taxon. These other species of invertebrates were counted or estimated, and their relative abundance categorized as rare (1 to 10 individuals or colonies), occasional (11 to 100), common (101 to 1,000), or abundant (> 1,000).

Results and Discussion

From September 1978 through March 1979, 11,755 fish (30 species) were collected by trawl and seines (Table 15; Appendix Tables 8 through 10). The most numerous species (1% or more of the total catch) were the Atlantic silverside (n = 4,675, 39.8%), bay anchovy (4,404, 37.5%), fourspine stickleback (860, 7.3%), blueback herring (333, 2.8%), winter flounder (313, 2.7%), northern pipefish (250, 2.1%), and mummichog (187, 1.6%). Most fish (n = 10,020, 85.2%) were collected from September through December, and the number taken in each of these months ranged from 1,768 (15.2%) to 3,274 (28.2%). The numbers taken by trawl and 12.2-m seine were similar; each gear accounted for 40.7 (n = 4,788) and 40.3% (4,735) of the total, respectively (Tables 16 and 18). Although it covered 14 times the area of the 12.2-m seine, the 45.7-m seine caught only about half as many fish (n = 2,232, 19.0% of total) because its larger mesh permitted the escape of the smaller, more numerous fishes, especially the Atlantic silverside (Table 17).

The species composition of the catch by each gear was similar. Of those fishes represented by 15 or more individuals, only three were not common to all gears; the striped killifish (n = 25) was not collected by trawl, and the alewife (49) and oyster toadfish (83) were not taken by 12.2-m seine. Although the seven most numerous species were taken by all gears, one gear accounted for 60% or more of the total catch of each. Most bay anchovy (n = 3,837, 87.1%) and winter flounder (219, 70.0%) were collected by trawl, the majority of Atlantic silverside (3,569, 76.3%), fourspine stickleback (525, 61.0%) and mummichog (163, 87.2%) were taken by 12.2-m seine, and most blueback herring (261, 78.4%) and northern pipefish (185, 74.0%) were taken by 45.7-m seine. A rare species, the opossum pipefish (<u>Oostethus lineatus</u>), was collected by 45.7-m seine in September near the mouth of Double Creek. This is the first time it has been taken during ecological sampling for OCGS. Only 87 specimens have previously been recorded from the United States, with McClellanville, South Carolina the previous northernmost location (Gilmore 1977).

Some 37,503 sand shrimp and 474 blue crab were collected during the study period. Most sand shrimp were taken in December (n = 20,516, 54.7%) and most blue crab in September (159, 33.5%) and October (123, 25.9%). About half of all sand shrimp were taken by trawl and each seine accounted for about 25% of the total. Most blue crab were taken by 45.7-m seine (n = 291, 61.4%).

In paired day-night collections made at Oyster Creek and Forked River, the catch at night (all gears combined) was generally larger than during the day (Table 19). For all samples combined, more fish (68.5%), sand shrimp (86.3%), and blue crab (67.3%) were taken at night than during the day. Catches of the seven most numerous fishes were 1.8 (mummichog, northern pipefish) to 5.2 (blueback herring) times greater at night than during the day.

A comparison of the monthly daytime catches at each of the four stations showed that the catch at Oyster Creek was generally smaller than the catches at the other stations until January (Table 20). From September through December, the catch at Oyster Creek accounted for only 2.6 to 17.1% of the monthly totals, but in January and March it represented 54.0 and 43.7%, respectively.

Danila (1978a) reported that when OCGS was in operation, more fish and blue crab were taken in Oyster Creek than in comparable areas of Forked River, and largest differences occurred in spring, fall, and winter. When OCGS was not in operation, however, the catch in both areas was generally similar. The comparatively larger catches in Oyster Creek in January and March during this study, therefore, were probably the direct result of the resumption of the OCGS heated discharge in mid-December. Except for 8 to 13 December, OCGS was shut down from 16 September to 19 December and heated water was not discharged into Oyster Creek. Average water temperature at the Route 9 bridge was 7.2 C (range of 6.1 to 8.3 C) the week of 1 through 7 December, was 10.3 C from 8 to 13 December, and reached a low of 2.2 C on 18 December (mean of 4.7 C from 14 to 18 December). Consequently, the attraction and retention of fishes by the thermal plume during fall, a phenomenon reported in previous studies (Danila 1977, 1978a, 1979), did not occur in 1978 to the extent that it did previously.

Danila (1978a) reported that when heated water was discharged during fall 1976, some warm-water migrants such as Atlantic menhaden, bluefish, weakfish, spot, and jacks were attracted to and remained in Oyster Creek. Some individuals, mainly Atlantic menhaden, bluefish, and spot, successfully overwintered in Oyster Creek. During fall 1978, however, warm-water migrants were not taken after October, except for two stragglers collected in November, one permit (a jack) and one weakfish.

Although the proportion of organisms taken at the mouth of Oyster Creek increased with the resumption of heated discharge, the number of organisms taken remained about the same. The total catch in January and March was similar to that in December and the relative increase was actually due to a decrease in catch at the other three stations. Thus, the discharge of warm water during winter apparently maintained some fishes and invertebrates at Oyster Creek.

Despite the relatively cool water temperatures found in Oyster Creek during mid-December, some Atlantic menhaden evidently were attracted to Oyster Creek and remained there to overwinter. A fish kill which occurred on 15 January 1977 when OCGS shut down accidentally consisted almost entirely of Atlantic menhaden. The condenser discharge temperature decreased from 14.4 to 0.6 C and dead Atlantic menhaden were recovered from the banks of the discharge canal about 1 h 45 min afterwards. Four and one-half hours after the shutdown, an estimated 200 dead Atlantic menhaden were observed in the discharge canal. In all, 682 dead Atlantic menhaden were retrieved from the edges of the discharge canal and five others were recovered by trawl. One hundred Atlantic menhaden were measured which ranged from 165 to 300 mm (mean = 218 mm). Other species were affected minimally and included the American shad (1 dead), sheepshead minnow (1 dead), conger eel (1 dead), fourspine stickleback (several stressed), bay anchovy (1 stressed), and sand shrimp (some stressed and dead; about 20% of all observed). White perch and winter flounder taken by trawl in the discharge canal were in good condition and exhibited no unusual behavior. Killifishes, silversides, and the fourspine stickleback collected by trawl in lagoons adjoining Oyster Creek were relatively common and also appeared to be in good condition.

The discharge of heated water resumed on 19 January and was next halted on 26 March. The condenser discharge temperature decreased from 24.4 to 10.0 C, but no dead or stressed organisms were observed during this shutdown.

# LIFE HISTORY STUDIES

Ferdinand Metzger, Jr.

#### Introduction

Life history studies of 13 species designated as important by the NRC and EPA began in September of 1975. Beginning in November 1977, only lengths were recorded from a representative sample of important species at each of the four stations sampled in the Bay (Fig. 1). The following is a summary of the data collected from September 1978 through March 1979. The total number of each species collected and length data were examined and compared with the distribution, abundance, and length frequencies reported during previous life history studies in Barnegat Bay (Tatham et al. 1977a, 1978a; Metzger 1979).

#### Materials and Methods

All individuals or a representative subsample of at least 50 specimens of the important species taken by seines and trawl were measured during the day at each station and again at night at the mouth of Oyster Creek and Forked River. The length of all fishes (nearest 1 mm) was measured from the snout to the distal portion of the central rays of the caudal fin. The distance between the ends of the anterolateral spines of the carapace of the blue crab and the length from the anterior end of the spine on the antennal scale to the posterior tip of the telson of the sand shrimp were determined to the nearest 1 mm. Sand shrimp taken by 45.7-m seine were not measured as this gear was selective and took only the largest individuals. All data were compiled and analyzed with a Hewlett-Packard 9830A programmable calculator.

#### Results and Discussion

### Atlantic menhaden

The Atlantic menhaden is a seasonal resident of Barnegat Bay that is most common during spring and summer (Kurtz 1978a, Metzger 1979). From September 1978 through March 1979, only two Atlantic menhaden were collected (Table 21). These were taken in Oyster Creek in December and were 175 and 205 mm in length. Although most Atlantic menhaden migrate from the Bay in fall, many individuals are attracted to the OCGS heated discharge and remain in Oyster Creek during winter (Danila 1978a). However, OCGS was shut down September through early December 1978 and fewer Atlantic menhaden were attracted to Oyster Creek during the winter of 1978-79.

#### Bay anchovy

The bay anchovy is a seasonal resident of Barnegat Bay that is most numerous from April to December (Kurtz 1978b). They spawn in the Bay from June through August and most fish larger than 35 mm are mature (Kurtz 1978b).

A total of 926 bay anchovy was measured at the four stations in the Bay from September through March (Table 22). Most (97.3%) bay anchovy were taken from September through November. Only 26 specimens were measured after November, and 19 of these were taken in December at the mouth of Oyster Creek.

The abundance and temporal distribution of the bay anchovy among the four stations was similar to past studies in Barnegat Bay (Kurtz 1978b,

Metzger 1979). Length-frequencies of fish taken at the four stations were similar and monthly mean lengths ranged from 33 to 62 mm.

Atlantic silverside

The Atlantic silverside is a year-round resident of Barnegat Bay that is most common from early spring to late fall. It is rarely taken in January and February (Hoch 1978a). Some 1,150 Atlantic silverside were measured at the four stations from September through March (Table 23). The 430 fish at Oyster Creek ranged in length from 30 to 145 mm and had a mean length of 78 mm. Fish from the other three stations included 344 from Forked River that ranged from 35 to 137 mm (mean length of 76 mm), 210 from Double Creek (41 to 122 mm, mean of 75 mm) and 166 from Cedar Creek (41 to 106 mm, mean of 75 mm). Few Atlantic silverside were collected after December at these three stations, but 166 specimens were taken at Oyster Creek from January through March.

The number and mean length of Atlantic silverside collected by area was similar to that found by Hoch (1977a) during 1976-77 and Metzger (1979) during 1977-78. More specimens were taken at the mouth of Oyster Creek and the distribution of fish among the other three stations was similar. The Atlantic silverside was taken in all months only at Oyster Creek.

#### Threespine stickleback

The threespine stickleback is a seasonal resident of Barnegat Bay that was less common recently than in past years (Boyle 1978a, Metzger 1979). It utilizes the Bay for spawning and as a nursery area. During 1977-78, only six threespine stickleback were collected in Barnegat Bay and all but

one were taken at the mouth of Forked River (Metzger 1979). From September 1978 through March 1979, only nine specimens were taken in the Bay; all were adults collected in March (Table 24). Five of the nine specimens were taken at the mouth of Forked River, two at Oyster Creek, and one each at Cedar Creek and Double Creek. They ranged in length from 57 to 65 mm.

#### Northern pipefish

The northern pipefish is a year-round resident of Barnegat Bay that inhabits areas of eelgrass and other vegetation. A total of 248 specimens was measured from September through March (Table 25). Most were taken from September through November and only 29 were collected thereafter. The 103 northern pipefish taken at the mouth of Forked River ranged in length from 58 to 222 mm with a mean length of 150 mm, 92 at Double Creek ranged from 59 to 198 mm (156 mm), 29 at Oyster Creek were from 103 to 205 mm (157 mm), and 24 at Cedar Creek were from 100 to 210 mm (140 mm). Moore (1978a) reported that during 1976-77 most northern pipefish in Barnegat Bay were taken from April through October with few caught after November. During 1977-78, most were collected from April through August (Metzger 1979). During the colder winter months the northern pipefish leaves shallow areas and thus is less susceptible to capture.

#### Striped bass

Although the striped bass is important to the sport and commercial fishery in New Jersey, few have been taken by fishermen during recent years in Barnegat Bay. On rare occasions, striped bass have been observed in the OCGS heated discharge in spring and fall (Metzger 1979). Boyle (1978b)
examined seven striped bass collected in the Bay during 1976-77; only one specimen was taken in 1977-78. No striped bass were collected from September 1978 through March 1979.

## Bluefish

Young and juvenile bluefish are seasonal residents of Barnegat Bay from spring through early fall and utilize the area as a nursery. Only a total of eight bluefish were taken at the four stations in September and October (Table 26). All fish were probably young (age 0+) and ranged in length from 120 to 201 mm. Some 387 bluefish were taken from the same areas in 1977-78 and all but one specimen were young (Metzger 1978a). Most young bluefish emigrate from the Bay in September and, therefore, few specimens were present during most of the sampling period.

#### Weakfish

Young weakfish are seasonal residents of Barnegat Bay from spring until fall and utilize the Bay as a nursery. Adults are occasionally taken during the same period. From September to November, 90 weakfish were measured (Table 27); none were taken after November. Most (n=68) were taken at Forked River, and they ranged in length from 38 to 139 mm with a mean length of 90 mm. Twenty-two specimens were taken from the other three stations: 17 at Oyster Creek (65 to 220 mm, mean of 136 mm), 4 at Double Creek (71 to 130 mm, mean of 101 mm) and 1 at Cedar Creek (74 mm).

The distribution of weakfish among the four stations during the present study was very similar to that found during 1977-78 in the same areas. Most fish taken during both years were collected at the mouth of Forked River and few were taken at Cedar Creek and Double Creek. The age composition of weakfish was similar to past studies (Hoch 1978b, Metzger 1979) in that most fish were young.

## Northern kingfish

The northern kingfish is primarily a summer resident present from May through October. Only 11 northern kingfish were collected in the Bay, and all were taken in September at Forked River and Oyster Creek (Table 28). Eight specimens taken at Forked River ranged in length from 112 to 136 mm and had a mean length of 125 mm. The three fish at Oyster Creek ranged from 133 to 158 mm (mean of 144 mm). All fish collected were probably young based on growth rates for the species reported by Schaeffer (1965). From September 1977 through August 1978, 16 northern kingfish were collected in the Bay and like the present study, all were young and were taken mostly at the mouth of Forked River (Metzger 1979).

## Summer flounder

The summer flounder enters bays and rivers during late spring and summer and is usually found in Barnegat Bay from April to November (Metzger 1978b). Only two summer flounder were collected in 1978-79, one each in September and October at Cedar Creek (Table 29). They were 240 and 250 mm in length and were probably age 1+. During the previous year only five specimens were collected in the Bay, three at Forked River and two at Oyster Creek. They were ages 0+ and 1+. Western Barnegat Bay has primarily a muddy bottom, which is not a preferred habitat for the summer flounder.

# Winter flounder

The winter flounder is year-round resident of Barnegat Bay. Most adults are taken between November and April and young are common during the summer. A total of 311 winter flounder was measured at the four stations from September through March (Table 30). Most specimens were young. The 150 fish taken at Oyster Creek ranged in length from 64 to 339 mm and had a mean length of 126 mm. Specimens (n=124) taken at Forked River ranged in length from 62 to 393 mm (mean of 134 mm), while the 26 at Double Creek were 66 to 321 mm (148 mm), and the 11 at Cedar Creek were 63 to 315 mm (160 mm).

#### Northern puffer

The northern puffer is found in Barnegat Bay primarily from spring through early fall. Fifteen specimens taken at Forked River in September ranged in length from 89 to 128 mm and had a mean length of 107 mm (Table 31). One northern puffer was taken at Oyster Creek (120 mm) and one at Double Creek (140 mm). These specimens were probably young, based on lengths reported by Moore (1978b).

#### Sand shrimp

The sand shrimp is one of the most common macroinvertebrates found in Barnegat Bay and is present throughout the year. A total of 2,352 sand shrimp was measured from September through March and specimens ranged from 12 to 67 mm (Table 32). The range of lengths and mean lengths for specimens found at the four stations were similar. The temporal and spatial distribution of sand shrimp was similar to previous studies in the Bay (Moore 1978c, Metzger 1979). Blue crab

The blue crab is resident in Barnegat Bay throughout the year but is active usually only from March through early December. Blue crab taken from September through March ranged in length from 5 to 188 mm. Monthly mean lengths were largest at Cedar Creek and Double Creek in the fall (Table 33). The blue crab was taken in all months sampled at Forked River and in all months except January in Oyster Creek, but was not taken after December at Double Creek and Cedar Creek.

Since 1976, blue crab taken in Barnegat Bay were divided into three size categories for comparison of the age-class structure of the population sampled each year. The categories were classified as 1) recruitment ( $\leq$ 59 mm), 2) growth (60-110 mm), and 3) mature ( $\geq$ 120 mm) blue crab (Miller et al. 1975). Fewer recruitment-size blue crab were taken in 1977 than in 1976 and this was attributed to heavy mortality during the severe winter of 1976-77 (Metzger 1978c). Recruitment-size blue crab comprised 57% of the population during 1977-78 and this was indicative of the recovery of the population (Metzger 1979). During the present study, recruitment-size blue crabs have remained common (61%).

#### ENTRAINMENT OF ORGANISMS THROUGH THE COOLING-WATER SYSTEM

#### Felicia C. Miller and Kenneth A. Tighe

## Introduction

Planktonic organisms, because of their relatively small size, pass through the mesh of the traveling-water screens in front of the intake to the OCGS circulating-water pumps and travel through the cooling-water system. During this entrainment, organisms are subjected to mechanical, thermal, hydraulic, and chemical stresses.

The entrainment studies reported here are a continuation of studies conducted from September 1975 through August 1978 (Sandine et al. 1977, 1978; Miller and Tighe 1979) which included the species composition and abundance of macrozooplankton (planktonic invertebrates >500 microns in length), and ichthyoplankton.

#### Materials and Methods

Samples were taken once a week starting 2 h after sunset (Period 3A) because greater densities of plankton are generally collected at night (Bridger 1956; Johnson 1957; Tatham et al. 1977b, 1978; Miller and Tighe 1979). Collections were also taken once a month during four periods over a 24-h interval. Period 1 was from 2 h after sunrise to 6 h before sunset, period 2 was from 6 h before sunset to sunset, period 3A was from 2 to 6 h after sunset, and period 4 was from 6 h before sunrise to sunrise.

Samples were taken with a 36-cm bongo sampler (505-micron mesh) to determine the species composition and abundance of macrozoo- and ichthyoplankton entrained at OCGS. Collections were taken at the intake (Sta. 7) and discharge (11) of the circulating-water system (Fig. 2). The tow at the discharge was made 1 to 5 min after the tow at the intake to sample the same water mass after it circulated through the OCGS cooling-water system. Sampling the same water mass was an attempt to reduce the large sampling variability associated with the patchy distributions typical of plankton populations.

The sampling gear was attached to a wire approximately 30 to 38 cm above a 27-kg weight, and it was deployed and retrieved with a hand winch mounted on a boom. Two consecutive oblique tows were taken at each station and each tow sampled the entire water column at least once. Tow duration was usually from 1 to 5 min, depending upon detrital levels and abundance of organisms. Because of the substantially greater current flow at the discharge, the tow duration at the discharge was approximately half that of the intake in order to sample a comparable volume of water. The volume of water sampled was determined with a digital flowmeter (General Oceanics Model 2030) centered in the mouth of one side of the sampler at the discharge and in the mouth of each side of the sampler used at the intake. Current flow variation (i.e., eddies) at the intake resulted in differences in the volume filtered by the two sides of the sampler at this station. Although both sides of the bongo sampler were metered separately in collections at the intake, samples from the right and left sides were combined to make a single collection. Densities were

then calculated using a average of the two volume-filtered estimates.

When the nets were removed from the water, they were gently rinsed with either low pressure water from a pump or with water poured from buckets. Samples were preserved in the field using a 5% formalin (2% formaldehyde) solution buffered with sodium borate. However, when ctenophores were abundant, they were counted and identified before preservation because ctenophores disintegrated in formalin. All other macrozooplankton and all ichthyoplankton were identified in the laboratory at a later date. Most ichthyoplankton were identified to the species level with the exception of larval gobies, blennies, and silversides; these fishes cannot be identified as bay anchovy since no striped anchovy eggs were found in plankton collections and adult striped anchovy were rarely taken in the Bay. For collections made at the intake, all amphipods, mysids, and mud crab zoeae were grouped into their respective families. All forms were identified to species from collections taken at the discharge.

The number of a form entrained at OCGS was estimated using stratified sampling with optimal allocation (Snedecor and Cochran 1967). The mean number entrained per hour for the year  $(\bar{Y}_{st})$  was estimated by the formula:

$$\bar{\mathbf{Y}}_{st} = \sum_{\underline{(N_p \cdot \bar{\mathbf{Y}}_p)}} N$$

 $N_p$  = number of sampling units in stratum p.  $\overline{Y}_p$  = mean density of a form in stratum p. N = number of sampling units in all strata.

The strata used were day and night. A sample was the mean density of all the individual tows collected in a stratum multiplied by the volume of water pumped through OCGS in 1 h on the sampling date. Each sampling unit was 1 h, and each sample was expressed as the number of a form entrained per hour because the duration of the individual tows was unequal. The total number entrained during the year (E) was estimated by the formula:

 $E = \overline{Y}_{st} \cdot D \cdot 24 h$ 

D = number of days the OCGS circulating-water pumps operated during the year.

Only the density of forms at the discharge was used in calculating E for macrozooplankton (with the exception of ctenophores) and ichthyoplankton collected. Samples from the intake were not used because of the variation in the volume filtered between the two sides of the bongo sampler. However, since ctenophores are easily fragmented during passage through the circulating-water system, the total number of ctenophores entrained during the year was estimated using intake collections.

Immediate mortality determinations were conducted only when selected ichthyoplankton (e.g., winter flounder) were abundant enough to allow examination of a substantial number of individuals. Samples were taken with an expansion cone mortality sampler of original design (Fig. 4). This sampler had a mouth opening of 20-cm expanded to a 36-cm base. It was fitted with a 333-micron mesh cylinder-cone nylon net, and a 500-ml plastic cup with a window of 250-micron netting was attached as a codend. The collection techniques employed for these samples were somewhat different than techniques employed during regular sampling. These differences were intended to reduce various stresses that may have affected mortality estimates. The sampler was deployed similarly to that reported for bongo collections, although the intake and discharge stations were not sampled simultaneously. The net was thoroughly rinsed before each tow to prevent contamination of the sample by the previous tow. To further reduce collection stress and the amount of detritus in the sample, tow duration was reduced to 1 min or less and the codend was not rinsed. The sample was immediately taken to a nearby trailer where the condition of organisms was determined.

For determination of the immediate condition of larval and juvenile fish, the sample was poured into a glass pan placed in a water bath. This maintained the organisms near  $(\pm 1C)$  the collection temperature. Live, dead, and damaged larvae were separately preserved; measurements and enumerations were made at a later date. Specimens were considered live if normal mobility was exhibited, dead if no movement was observed, and damaged if they exhibited abnormal behavioral patterns (e.g., swimming on their sides) but showed other vital functions (e.g., respiration, muscular spasms). A minimum of 25 specimens of each species per station was required in order to use the binomial proportion test (Snedecor and Cochran 1967) to determine significant differences in mortality between individuals collected at the intake and discharge. Collections were taken until at least 25 specimens were examined at each station or until a total of 10 tows was taken at each station.

# Results and Discussion

#### Macrozooplankton

A total of 128 macrozooplantkon collections was taken at the intake

(Sta. 7) and discharge (11) to the OCGS circulating-water system from 1 September 1978 through 31 March 1979 (Appendix Table 11). In comparison with the previous year, fewer collections were taken during the 7-month period because little or no water was circulated by OCGS during a shutdown from 16 September through 4 December. When water is not circulated through OCGS during shutdowns, the dilution discharge is usually sampled instead of the cooling-water intake and discharge. However, no collections were taken at the dilution discharge during this period because the dilution pump at Sta. 13 was shut down for maintenance. In addition, regular entrainment collections were not taken at the intake on 8 and 14 February when extremely cold air and water temperatures caused nets and flowmeters to freeze. Because of the stratification and irregular flow of water in front of the intake, the relative abundance and species composition of most zooplankton reported herein were based primarily on 66 collections taken at the discharge in September and from December through March.

From September through March, an estimated 7.06 x  $10^9 \pm 1.64 \times 10^9$ organisms were entrained (Table 34). This estimate was considerably lower than the number entrained (1.93 x  $10^{10} \pm 1.97 \times 10^9$ ) during the same 7-month period in 1977-78 due to the OCGS shutdown and to lower overall macrozooplankton densities in each month of 1978-79. Mean monthly macrozooplankton densities at the condenser discharge ranged from 16.2/m<sup>3</sup> in September to 35.9/m<sup>3</sup> in March and averaged 21.7/m<sup>3</sup> (Table 35). During the previous year, the mean monthly density for the 5 comparable months of OCGS operation was  $35.0/m^3$  (Smith and Swiecicki 1979). Some 26 taxa represented 95% (by density) of all macrozooplankton (Tables 36 and 37). Among the most numerous organisms were mysids (32.8%), amphipods (19.6%) and hydromedusae (13.3%). These forms are typical of the fall and winter macrozooplankton community in Barnegat Bay (Sandine et al. 1977, 1978; Miller and Tighe 1979).

<u>Neomysis americana</u> comprised most (98.5%) of the mysids collected at the discharge and occurred in almost every sample (95.5%). Densities of <u>N. americana</u> were consistently greater at night than during the day which reflected its diel vertical migration behavior (Table 38). Therefore, most of the estimated 2.31 x  $10^9$  specimens of <u>N. americana</u> were entrained at night. The mean monthly densities of <u>N. americana</u> ranged from  $3.1/m^3$ in September to  $12.7/m^3$  in January and averaged  $7.0/m^3$  for the 5 months sampled. Although this is the lowest mean density recorded for this period since sampling began in 1975, the relative abundance of <u>N. americana</u> (32.3% of all macrozooplankton) was comparable to that found in 1976-77 (35.3%) and 1977-78 (33.4%) for the 5 months (Sandine et al. 1978, Miller and Tighe 1979).

The hydrozoan <u>Sarsia</u> spp. was the second most abundant macrozooplankter and an estimated 8.96 x  $10^8$  medusae were entrained. As in past years, <u>Sarsia</u> was first collected in mid-February when the water temperature was almost 0 C. Substantial numbers, however, were not collected until March; greatest densities were found at water temperatures of 10 and 11 C. <u>Sarsia</u> spp. averaged  $2.9/m^3$  for the study period and accounted for 13.1% of all macrozooplankton. Zoeae of the sand shrimp were collected from December through March and an estimated  $5.57 \times 10^8$  larvae were entrained. They averaged  $1.7/m^3$ , comprised 8.0% of all macrozooplankton, and ranked third in overall abundance. Most of the larval sand shrimp were stage I zoeae (Sandifer 1972). However, when the water temperature reached 9.0 C during the last week of March, densities of larvae increased from less than  $3.0/m^3$  to greater than  $20.0/m^3$  and almost 10% of all larvae taken were stage II zoeae. The abrupt increase in densities indicated that the major spring spawn of sand shrimp had commenced.

An estimated 1.42 x 10<sup>9</sup> amphipods were entrained. Nine taxa were collected frequently and in small numbers during the fall and winter; these were <u>Ampelisca spp., Gammarus spp., Microdeutopus gryllotalpa, Jassa falcata</u>, Stenothoidae, Caprellidea, <u>Melita nitida</u>, <u>Corophium tuberculatum</u>, and <u>Elasmopus levis</u>.

With the exception of <u>Gammarus</u> spp., most of these amphipods have been relatively common in the previous years of study. In February, substantial numbers of large, gravid <u>Gammarus annulatus</u> were collected. This species is usually found in relatively high salinities such as in the surf zone or in open coastal areas (Bousfield 1973). <u>G. annulatus</u> occurred in late February during a period of extreme tidal fluctuation and strong winds which indicated that considerable exchange of water probably took place between Barnegat Bay and the ocean. In subsequent collections many recently released young of <u>Gammarus</u> spp. were collected which were probably G. annulatus.

An estimated 3.04 x  $10^8$  specimens of the arrowworm <u>Sagitta</u> spp. were entrained. They were found from December through March and accounted for

4.9% of all macrozooplankton. Most of the arrowworms consisted of <u>S</u>. <u>elegans</u> which is primarily a cold-water, neritic species and the most common species of <u>Sagitta</u> found along the coast of the eastern North Atlantic (Grant 1963). Mean monthly densities ranged from  $0.05/m^3$  to  $4.77/m^3$  and averaged  $1.1/m^3$  for the study period.

The cumaceans, <u>Leucon americanus</u>, <u>Oxyurostylis smithi</u>, and <u>Cyclaspis</u> <u>varians</u> were collected frequently and in small numbers. The most common cumacean, <u>L</u>. <u>americanus</u>, was found in 72.0% of all collections and an estimated 2.01 x  $10^8$  specimens were entrained. Mean monthly densities ranged from  $0.07/m^3$  to  $1.41/m^3$  and averaged  $0.64/m^3$  (2.9% of all macrozooplankton). <u>O. smithi</u> and <u>C. varians</u> were taken less frequently and in considerably lower densities (mean denstiy of  $0.18/m^3$  and  $0.08/m^3$ , respectively).

An estimated  $1.84 \times 10^8$  polychaete larvae were entrained and they were the ninth most abundant form. Polychaete larvae were scarce in the fall and winter; monthly densities ranged from  $0.01/m^3$  to  $1.02/m^3$  and averaged  $0.53/m^3$ . During the last week in March, however, densities greater than  $40/m^3$  were found at the intake at a water temperature of 9 C. Water • temperatures of 7 to 9 C usually initiate polychaete reproductive activity in Barnegat Bay (Tatham et al. 1978b).

An estimated 5.02 x  $10^8$  specimens of the ctenophore <u>Mnemiopsis leidyi</u> were entrained. In previous years, <u>M. leidyi</u> was usually taken from July to September or October. However, possibly because of warm water temperatures in the fall, <u>M. leidyi</u> was collected until the end of January. Densities were greatest in September  $(7.4/m^3)$  and then decreased as the water temperature decreased.

# Ichthyoplankton

Ichthyoplankton were enumerated from the 128 bongo collections taken at the OCGS intake (Sta. 7) and discharge (Sta. 11) during September 1978 and from December 1978 through March 1979 (Appendix Table 12). Sampling was not conducted during October and November due to the shutdown of OCGS and the inability to sample the dilution discharge. The following account is based solely on the 66 collections taken at the discharge due to possible bias in density estimates at the intake caused by the aforementioned irregular flow of water there.

The species composition and abundance of ichthyoplankton from September 1978 through March 1979 (Tables 39 and 40) were similar to the same period during the previous 3 years (Sandine et al. 1977, 1978; Miller and Tighe 1979). Some 1.66 x  $10^9 \pm 1.29 \times 10^9$  eggs and 1.61 x  $10^9 \pm$ 5.39 x  $10^8$  larvae and juveniles were estimated entrained during the 5 months OCGS was in operation (Table 41).

During September, the ichthyoplankton was dominated by larvae and juveniles of the bay anchovy (Table 40). An estimated  $8.37 \times 10^7$  were entrained during the period (Table 41). Bay anchovy larvae occurred in 22.7% of the samples and comprised 5.0% of the larvae and juveniles collected with a mean density of 231/1000 m<sup>3</sup> for the period (Table 39). Juvenile bay anchovy were less common (0.6% of the larvae and juveniles, 26/1000 m<sup>3</sup>). These and the other forms taken in September were produced during the summer spawning season. The density of juvenile bay anchovy probably would have been greater if sampling had been conducted in October and November since the juveniles are usually dominant during those months (Sandine et al. 1978, Miller and Tighe 1979).

The winter-early spring ichthyoplankton appeared in December and was dominated by larvae of the sand lance (monthly mean density of 4637/1000 m<sup>3</sup>) through January (6323/1000 m<sup>3</sup>) and February (3233/1000 m<sup>3</sup>). By March its densities began to decline (632/1000 m<sup>3</sup>). Larval sand lance dominated during the collection period (64.5% of all larvae and juveniles, mean density of 2965/1000 m<sup>3</sup>) and occurred in 72.7% of the samples. The number of sand lance larvae entrained has increased each year from  $3.42 \times 10^7$  in 1975-76 to  $1.26 \times 10^8$  in 1976-77 (Sandine et al. 1978), and to  $1.53 \times 10^8$  in 1977-78 (Miller and Tighe 1979). The estimated number of sand lance larvae entrained in part to a significant increase in abundance of sand lance along the Atlantic coast since 1975 (Meyer et al. 1979).

Other ichthyoplankton that were dominant during the winter-early spring period of abundance included the eggs and larvae of the winter flounder and unidentified fish eggs. Larval winter flounder were the second most abundant larvae (28.6%, 1315/1000 m<sup>3</sup>) and occurred in 27.3% of the collections. They were first collected in small numbers during February (monthly mean density of 25/1000 m<sup>3</sup>) and were abundant during March (5648/1000 m<sup>3</sup>). The estimated number of winter flounder larvae entrained during this period was  $4.72 \times 10^8$ . This is similar to the 4.13 x  $10^8$  estimated to have been entrained in 1977-78 (Miller and Tighe 1979). Both estimates were less than the 1.22 x  $10^9$  entrained in 1976-77 (Sandine et al. 1978).

Eggs of the winter flounder were the dominant fish egg collected during the entire period (92.8% of the eggs collected, mean density of

3693/1000  $m^3$ ) and they occurred in about half of the samples. Winter flounder eggs were first taken in January (monthly mean density of 1171/1000 m<sup>3</sup>), reached maximum abundance in February (9982/1000 m<sup>3</sup>), and were still present in high densities in March  $(7312/1000 \text{ m}^3)$ . Due to the demersal nature of winter flounder eggs, those eggs entrained probably represented a small portion of the total number spawned in the Bay.

Unidentified eggs were second in abundance during the collection period (6.6%,  $262/1000 \text{ m}^3$ ) and occurred in about a third of the samples. Unidentified eggs were most abundant during January (723/1000 m), and decreased in abundance during February  $(429/1000 \text{ m}^3)$  and March  $(155/1000 \text{ m}^3)$ . Most of the unidentified fish eggs found were probably winter flounder eggs that could not be definitely identified. This could explain the decrease in density of unidentified eggs from month to month because winter flounder eggs in later stages of development can be more easily identified.

The few other eggs collected and identified during the 5 months of sampling included those of the bay anchovy and sand lance. No eggs were collected in December.

Elvers of the American eel were common from January through March and appeared in 28.8% of the collections. They made up 0.7% of the larvae and juveniles taken and had a mean density of  $32/1000 \text{ m}^3$  for the period. An estimated 1.20 x  $10^7$  were entrained.

Other ichthyoplankton collected during the period included a few larval blennies, Atlantic cod, gobies, rock gunnel, and summer flounder, and juvenile northern pipefish and Atlantic menhaden.

Mean densities of the different ichthyoplankton forms were calculated for day and night during each month (Table 42). Comparisons were confounded

by the larger number of night collections, but two patterns of abundance were evident. Most forms exhibited greater densities at night and included winter flounder eggs and larvae, American eel elvers, and bay anchovy juveniles. The greater abundance of eggs at night was probably due to increased nightime spawning activity. Larvae and juveniles were more abundant at night probably because of changes in their vertical distribution or decreased net avoidance. There was no difference between the day and night densities of larval sand lance. These results were similar to those reported for the previous 3 years (Sandine et al. 1977, 1978; Miller and Tighe 1979).

Mortality studies were conducted in March and April (Table 43). Samples taken at the discharge were divided into those taken when the plant was operating and those taken when the plant was shut down. This enabled an examination of the mechanical effects of entrainment separately from the combined mechanical-thermal effects. For winter flounder larvae in March, the mortality at the intake (14%) was significantly lower than at the discharge under either an operating or shutdown condition (55% and 24%, respectively). However, the difference between the intake and discharge when the plant was operating was much greater than the difference between the intake and discharge when the plant was shut down. Also, the immediate mortality rate at the discharge with the plant operating (55%) was significantly greater than at the discharge with the plant shut down (24%). This indicates that mechanical effects alone have much less impact on immediate mortality than combined mechanical and thermal effects. In April, insufficient numbers of larvae were collected and statistical tests could not be run. However, examination of the data shows that the percent mortality for intake (17%) was essentially the same as that for the discharge

(18%) when the plant was shut down. This indicates that mechanical effects probably have little impact on larger winter flounder and most immediate mortality of large larvae can be attributed to the combined effects of mechanical and thermal stresses.

For larvae of the sand lance, statistical comparisons were made for the total number of larvae collected during both March and April since insufficient larvae (<25) were collected during March and during the period in April when the plant was shut down. By combining both months, sufficient larvae for statistical comparisons were taken at the intake and at the discharge under both operating and shutdown conditions. The mortality rate at the intake (12%) was significantly lower than at the discharge under either an operating or shutdown condition (72% and 38%, respectively). Also, the immediate mortality rate at the discharge with OCGS operating (72%) was significantly greater than at the discharge when it was shut down (38%). This was similar to the findings with winter flounder larvae and indicated that mechanical effects alone had less impact on immediate mortality than combined mechanical and thermal effects. It is impossible to determine the impact of thermal effects alone from this data since both mechanical and thermal stresses probably acted to produce the observed mortalities when OCGS was in operation.

#### REFERENCES CITED

- Atomic Energy Commission. 1974. Final environmental statement related to operation of Oyster Creek Nuclear Generating Station. Jersey Central Power and Light Co. Docket No. 50-219.
- Bousfield, E. L. 1973. Shallow-water gammaridean amphipoda of New England. Cornell University Press, Ithaca, N. Y. 312 pp.
- Boyle, M. F. 1978a. Threespine stickleback. Pages 173-175 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.
  - . 1978b. Striped bass. Pages 182-184 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.
- Bridger, J. P. 1956. On day and night catches of fish larvae. J. Cons. int. Explor. Mer. 22(1): 42-57.
- Carpenter, J. H. 1963. Concentration distribution for material discharged into Barnegat Bay. Progress report to Jersey Central Power and Light Co. 13 pp.
- Danila, D. J. 1977. Effects of the thermal plume on fishes in western Barnegat Bay in the vicinity of Oyster Creek. Pages 50-69 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1975-August 1976. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.
- \_\_\_\_\_\_. 1978a. Effects of the OCGS heated discharge on fishes and macroinvertebrates. Pages 86-124 <u>in</u> T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.

\_\_\_\_\_. 1978b. Winter flounder. Pages 215-235 <u>in</u> T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.

- Danila, D. J. 1979. Fishes, the sand shrimp, and the blue crab at selected stations in western Barnegat Bay. Pages 59-68 in D. J. Danila,
  C. B. Milstein, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1977-August 1978. Finfish, shellfish, and plankton. Ichthyological Associates, Inc., Ithaca, N. Y.
- \_\_\_\_\_, C. B. Milstein, and Associates. 1979. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1977-August 1978. Finfish, shellfish, and plankton. Ichthyological Associates, Inc. Ithaca, N. Y. 391 pp.
- Gilmore, R. G. 1977. Notes on the opossum pipefish, <u>Oostethus lineatus</u>, from the Indian River Lagoon and vicinity, Florida. Copeia 1977: 781-783.
- Grant, G. C. 1963. Investigations of inner continental shelf waters off lower Chesapeake Bay. Part IV. Descriptions of the Chaetognatha and a key to their identification. Chesapeake Sci. 4(3): 107-119.
- Halgren, B. A. [1973]. Phase III use studies. Pages 175-224 in Studies of the upper Barnegat System. Misc. Rep. No. 10M (mimeo). N.J. Dept. of Envir. Prot., Div. of Fish, Game, and Shellfish. Bur. Fish., Nacote Creek Res. Sta.
- Hardy, J. D., Jr. 1978. Development of fishes of the Mid-Atlantic Bight. An atlas of egg, larval and juvenile stages. Vol. II. Anguillidae through Syngnathidae. U.S. Dept. Interior, Fish and Wildlife Service. FWS/OBS-78/12. 458 pp.
- Hoch, K. W. 1978a. Atlantic silverside. Pages 166-172 <u>in</u> T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.
- . 1978b. Weakfish. Pages 195-201 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.
- Jersey Central Power and Light Co. 1978. 316(a) and (b) demonstration for the Oyster Creek and Forked River Nuclear Generating Stations. Jersey Central Power and Light Co., Morristown, N. J.
- Johnson, M. W. 1957. Plankton. Pages 443-460 <u>in</u> J. W. Hedgpeth, ed. Treatise on marine ecology and paleoecology. Vol. 1. Ecology. Geol. Soc. America Mem. 67, Vol. 1.

Joseph, E. B. 1972. The status of the sciaenid stocks of the middle Atlantic coast. Chesapeake Sci. 13(2): 87-100.

Kurtz, R. J. 1978a. Atlantic menhaden. Pages 144-156 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.

\_\_\_\_. 1978b. Bay anchovy. Pages 157-165 <u>in</u> T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.

Loveland, R. E., and E. T. Moul. 1966. The qualitative and quantitative analysis of the benthic flora and fauna of Barnegat Bay before and after the onset of thermal addition. An initial progress report to Jersey Central Power and Light Company. Contract #27-4656. 39 pp.

, \_\_\_\_, F. X. Phillips, and J. E. Taylor. 1967. The qualitative and quantitative analysis of the benthic flora and fauna of Barnegat Bay before and after the onset of thermal addition. Second progress report to Jersey Central Power and Light Company. Contract #27-4656. 7 pp.

, \_\_\_\_, J. E. Taylor, F. X. Phillips, and K. Mountford. 1968. Barnegat Bay thermal addition. Progress report No. 3. Jersey Central Power and Light Company. Contract #27-4656. 123 pp.

\_, \_\_\_\_, K. Mountford, and F. X. Phillips. 1968. The qualitative and quantitative analysis of the benthic flora and fauna of Barnegat Bay before and after the onset of thermal addition. Fourth progress report to Jersey Central Power and Light Company. Contract #27-4656. 17 pp.

\_, \_\_\_\_, F. X. Phillips, J. E. Taylor, and K. Mountford. 1969. The qualitative and quantitative analysis of the benthic flora and fauna of Barnegat Bay before and after the onset of thermal addition. Fifth progress report to Jersey Central Power and Light Company. Contract #27-4656. 115 pp.

\_, \_\_\_\_, K. Mountford, P. Sandine, D. Busch, E. Cohen, N. Kirk, M. Moslowitz, and C. Messing. 1970. The qualitative and quantitative analysis of the benthic flora and fauna of Barnegat Bay before and after the onset of thermal addition. Sixth progress report to Jersey Central and Light Company. Contract #27-5646. 30 pp.

, K. Mountford, E. T. Moul, D. A. Busch, P. H. Sandine, and M. Moslowitz. 1971. The qualitative and quantitative analysis of the benthic\_flora and fauna of Barnegat Bay before and after the onset of thermal addition. Seventh progress report to Jersey Central and Light Company. Contract #27-4656. 49 pp.

- Loveland, R. E., E. T. Moul, D. A. Busch, P. H. Sandine, S. A. Shafto, and J. McCarty. 1972. The qualitative and quantitative analysis of the benthic flora and fauna of Barnegat Bay before and after the onset of thermal addition. Eighth progress report to Jersey Central Power and Light Company. Contract #27-4656. 81 pp.
- P. Edwards, J. J. Vouglitois, and D. Palumbo. 1974. The qualitative and quantitative analysis of the benthic flora and fauna of Barnegat Bay before and after the onset of thermal addition. Ninth progress report to Jersey Central Power and Light Company. Contract #27-4656. 78 pp.
- Makai, J. F. [1973]. Phase II-chemical-physical studies. Pages 75-174 <u>in</u> Studies of the upper Barnegat system. Misc. Rep. No. 10M (mimeo). N. J. Dept. of Envir. Prot., Div. of Fish, Game, and Shellfish. Bur. Fish, Nacote Creek Res. Sta.
- Marcellus, K. L. 1972. Fishes of Barnegat Bay, New Jersey with particular reference to seasonal influences and possible effects of thermal discharges. Ph.D. Dissertation. Rutgers University, New Brunswick, N. J. 190 pp.
- McClain, J. F. [1973]. Phase I-fish studies. Pages 1-74 in Studies of the upper Barnegat system. Misc. Rep. No. 10M (mimeo). N. J. Dept. of Envir. Prot., Div. of Fish, Game, and Shellfish. Bur. Fish., Nacote Creek Res. Sta.
- Metzger, F., Jr. 1978a. Bluefish. Pages 185-194 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.
  - \_\_\_\_. 1978b. Summer flounder. Pages 205-214 <u>in</u> T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.

. 1978c. Blue crab. Pages 251-258 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.

. 1979. Life history studies. Pages 69-87 in D. J. Danila, C. B. Milstein, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1977-August 1978. Finfish, shellfish, and plankton. Ichthyological Associates, Inc., Ithaca, N. Y.

- Meyer, T. L., R. A. Cooper, and R. W. Langton. 1979. Relative abundance, behavior, and food habits of the American sand lance, <u>Ammodytes</u> <u>americanus</u>, from the Gulf of Maine. Fish. Bull., U. S. 77(1): 243-254.
- Miller, F. C., and K. A. Tighe. 1979. Entrainment of organisms through the cooling-water system. Pages 93-111 in D. J. Danila, C. B. Milstein, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1977-August 1978. Finfish, shellfish, and plankton. Ichthyological Associates, Inc., Ithaca, N. Y.
- Miller, G. J. 1977. Impingement on the traveling screens. Pages 9-19 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1975-August 1976. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.
  - . 1978. Impingement of fishes and macroinvertebrates on the traveling screens. Pages 16-51 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.
    - \_\_\_\_\_. 1979a. Impingement of fishes and macroinvertebrates on the traveling screens. Pages 4-10 in Ichthyological Associates, Inc. report of data collected for ecological studies for the Oyster Creek Generating Station. September 1977-March 1978. Part One. Finfish, shellfish, and plankton. Ichthyological Associates, Inc., Ithaca, N. Y.

. 1979b. Impingement of fishes and macroinvertebrates on the traveling screens. Pages 10-23 <u>in</u> D. J. Danila, C. B. Milstein, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1977-August 1978. Finfish, shellfish, and plankton. Ichthyological Associates, Inc., Ithaca, N. Y.

\_\_\_\_. 1979c. Impingement of fishes and macroinvertebrates on the prototype Ristroph screen. Pages 24-30 in D. J. Danila, C. B. Milstein, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1977-August 1978. Finfish, shellfish, and plankton. Ichthyological Associates, Inc., Ithaca, N. Y.

- Miller, R. E., S. D. Sulkin, and R. L. Lippson. 1975. Composition and seasonal abundance of the blue crab, <u>Callinectes sapidus</u>, in the Chesapeake and Delaware Canal and adjacent waters. Chesapeake Sci. 16 (1): 27-31.
- Moore, D. W. 1978a. Northern pipefish. Pages 176-181 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.

- Moore, D. W. 1978b. Northern puffer. Pages 236-241 in T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.
  - \_\_\_\_\_. 1978c. Sand shrimp. Pages 242-250 <u>in</u> T. R. Tatham, D. J. Danila, D. L. Thomas, and Associates. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y.
- National Oceanic and Atmospheric Administration. 1976. New Jersey intracoastal waterway, Sandy Hook to Little Egg Harbor. Nautical chart 12324. Edition 14.
- Sandifer, P. A. 1972. Morphology and ecology of Chesapeake Bay decapod crustacean larvae. Ph.D. Dissertation. University of Virginia, Charlottesville, Va. 531 pp.
- Sandine, P. H. 1973. Zooplankton of Barnegat Bay: the effect of the Oyster Creek Nuclear Power Plant. M.S. Thesis. Rutgers University, New Brunswick, N. J. 73 pp.
- , R. P. Smith, and F. A. Swiecicki. 1978. Entrainment of organisms through the OCGS cooling-water system. Pages 4-50 in T. R. Tatham, P. H. Sandine, R. P. Smith, K. A. Tighe, F. A. Swiecicki, and D. L. Thomas. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1987-August 1977. Vol. Two. Plankton. Ichthyological Associates, Inc., Ithaca, N. Y.
- , K. A. Tighe, and H. W. Hoffman. 1977. Entrainment. Pages 3-26 in T. R. Tatham, P. H. Sandine, R. P. Smith, H. W. Hoffman, K. A. Tighe, and D. L. Thomas. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. Two. Plankton. Ichthyological Associates, Inc., Ithaca, N. Y.
- Schaeffer, R. H. 1965. Age and growth of northern kingfish in New York waters. N.Y. Fish Game J. 12(2): 191-216.
- Smith, R. P., and F. A. Swiecicki. 1979. Entrainment of organisms through the cooling-water system. Pages 16-24 in Ichthyological Associates, Inc. Report of data collected for ecological studies for the Oyster Creek Generating Station. September 1977-March 1978. Part One. Finfish, shellfish, and plankton. Ichthyological Associates, Inc., Ithaca, N. Y.
- Snedecor, G. W., and W. C. Cochran. 1967. Statistical methods. The Iowa State University Press, Ames, Ia. 593 pp.

- Tatham, T. R., D. J. Danila, D. L. Thomas, and Associates. 1977a. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1975-August 1976. Vol. One. Fin- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y. 338 pp.
  - \_\_\_\_\_, \_\_\_\_, and \_\_\_\_\_. 1978a. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. One. Fish- and shellfish. Ichthyological Associates, Inc., Ithaca, N. Y. 661 pp.
  - , P. H. Sandine, R. P. Smith, H. W. Hoffman, K. A. Tighe, and D. L. Thomas. 1977b. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1975-August 1976. Vol. Two. Plankton. Ichthyological Associates, Inc., Ithaca, N. Y. 368 pp.
- \_\_\_\_\_, \_\_\_, K. A. Tighe, F. A. Swiecicki, and D. L. Thomas. 1978b. Ecological studies for the Oyster Creek Generating Station. Progress report for the period September 1976-August 1977. Vol. Two. Plankton. Ichthyological Associates, Inc., Ithaca, N. Y. 221 pp.
- Thomas, D. L., and G. J. Miller. 1976. Impingement studies at the Oyster Creek Generating Station, Forked River, New Jersey from September through December 1975. Pages 317-342 in L. D. Jensen, ed. Third national workshop on entrainment and impingement. Section 316(b)research compliance. Communications Division of Ecological Analysts, Inc., Melville, N. Y.
- Vouglitois, J. J. 1976. The benthic flora and fauna of Barnegat Bay before and after the onset of thermal addition-a summary analysis of a ten-year study by Rutgers University. Report to U.S. Nuclear Regulatory Commission. 195 pp.
- Wurtz, C. B. 1965. Plankton distribution of Barnegat Bay. Preliminary report to Jersey Central Power and Light Co. 4 pp.
- \_\_\_\_\_. 1969. Barnegat Bay fish. Report to Jersey Central Power and Light Company. (not seen, cited by Atomic Energy Commission 1974).
- \_\_\_\_\_. 1971. A second progress report on Barnegat Bay fish eggs. A preliminary report to Jersey Central Power and Light Company. 13 pp.

. 1972. Fish and crabs on the screens of the Oyster Creek Plant during 1971. Supplemental report to Jersey Central Power and Light Company. 13 pp.

Table 1. Alphabetical listing by common name of all vertebrates collected by fish and impingementprograms from September 1978 through March 1979.

Alewife - Alosa pseudoharengus American eel - Anguilla rostrata American shad - Alosa sapidissima Atlantic croaker - Micropogon undulatus Atlantic herring - Clupea harengus Atlantic menhaden - Brevoortia tyrannus Atlantic needlefish - Strongylura marina Atlantic silverside - Menidia menidia Banded killifish - Fundulus diaphanus Bay anchovy - Anchoa mitchilli Black drum - Pogonias cromis Black sea bass - Centropristis striata Blueback herring - Alosa aestivalis Bluefish - Pomatomus saltatrix Blunmose stringray - Dasystis sayi Butterfish - Peprilus miacanthus Chain pickerel - Esox niger Conger eel - Conger oceanicus Crevalle jack - Caranx hippos Cunner - Tautogolabrus adspersus Feather blenny - Hypsoblennius hentzi Fourspine stickleback - Apeltes quadracus Golden shiner - Notemigonus crysoleucas Grubby - Myoxocephalus aenaeus. Hogchoker - Trinectes maculatus Inshore lizardfish - Synodus foetens Leopard frog- Rana pipiens Lined seahorse - Hippocampus erectus Longhorn sculpin - Myoxocephalus octodecemspinosus Lookdown - Selene vomer Mud sunfish - Acantharcus pomotis Mummichog - Fundulus heteroclitus Naked goby - Gobiosoma bosci Northern kingfish - Menticirrhus saxatilis Northern pipefish - Syngnathus fuscus

Northern puffer - Sphoeroides maculatus Northern searobin - Prionotus carolinus Northern sennet - Sphyraena borealis Northern stargazer - Astroscopus guttatus Opossum pipefish - Oostethus lineatus Oyster toadfish - Opsanus tau Permit - Trachinotus falcatus Pumpkinseed - Lepomis gibbosus Rainwater killifish - Lucania parva Red hake - Urophycis chuss Sand lance - Ammodytes sp. Scup - Stenotomus chrysops Seaboard goby - Gobiosoma ginsburgi Sheepshead minnow - Cyprinodon variegatus Silver hake - Merluccius bilinearis Silver perch - Bairdiella chrysura Smallmouth flounder - Europus microstomus Spot - Leiostomus xanthurus Spotfin butterflyfish - Chaetodon ocellatus Spotted hake - Urophycis regius Striped anchovy - Anchoa hepsetus Striped blenny - Chasmodes bosquianus Striped cusk-eel - Rissola marginata Striped killifish - Fundus majalis Striped searobin - Prionotus evolans Summer fløunder - Paralichthys dentatus Tautog - Tautoga onitis Threespine stickleback - Gasterosteus aculeatus Tidewater silverside - Menidia beryllina Weakfish - Cynoscion regalis White mullet - Mugil curema White perch - Morone americana Windowpane - Scophthalmus aquosus Winter flounder - Pseudopleuronectes americanus

Table 2. Alphabetical listing by scientific name of all vertebrates collected by fish andimpingement programs from September 1978 through March 1979.

Acantharcus pomotis - Mud sunfish Alosa aestivalis - Blueback herring Alosa pseudoharengus - Alewife Alosa sapidissima - American shad Ammodytes sp. - Sand Iance Anchoa hepsetus - Striped anchovy Anchoa mitchilli - Bay anchovy Anguilla rostrata - American eel Apeltes quadracus - Fourspine stickleback Astroscopus guttatus - Northern stargazer Bairdiella chrysura - Silver perch Brevoortia tyrannus - Atlantic menhaden Caranx hippos - Crevalle jack Centropristis striata - Black sea bass Chaetodon ocellatus - Spotfin butterflyfish Chasmodes bosquianus - Striped blenny Clupea harengus - Atlantic herring Conger oceanicus - Conger eel Cynoscion regalis - Weakfish Cyprinodon variegatus - Sheepshead minnow Dasyatis sayi - Bluntnose stingray Esox niger - Chain pickerel Etropus microstomus - Smallmouth flounder Fundulus diaphanus - Banded killifish Fundulus heteroclitus - Mummichog Fundulus majalis - Striped killifish Gasterosteus aculeatus - Threespine stickleback Gobiosoma bosci - Naked goby Gobiosoma ginsburgi - Seaboard goby Hippocampus erectus - Lined seahorse Hypsoblennius hentzi - Feather blenny Leiostomus xanthurus - Spot Lepomis gibbosus - Pumpkinseed Lucania parva - Rainwater killifish Menidia beryllina - Tidewater silverside

Menidia menidia - Atlantic silverside Menticirrhus saxatilis - Northern kingfish Merluccius bilinearis - Silver hake Micropogon undulatus - Atlantic croaker Morone americana - White perch Mugil curema - White mullet Myoxocephalus aenaeus - Grubby Myoxocephalus octodecemspinosus - Longhorn sculpin Notemigonus crysoleucas - Golden shiner Oostethus líneatus - Opossum pipefish Opsanus tau - Oyster toadfish Paralichthys dentatus - Summer flounder Peprilus triacanthus - Butterfish Pogonias cromis - Black drum Pomatomus saltarix - Bluefish Prionotus carolinus - Northern searobin Prionotus evolans - Striped searobin Pseudopleuronectes americanus - Winter flounder Rana pipiens - Leopard frog Rissola marginata - Striped cusk-eel Scophthalmus aquosus - Windowpane Selene vomer - Lookdown Sphoeroides maculatus - Northern puffer Sphyraena borealis - Northern sennet Stenotomus chrysops - Scup Strongylura marina - Atlantic needlefish Syngnathus fuscus - Northern pipefish Synodus foetens - Inshore lizardfish Tautoga onitis - Tautog Tautogolabrus adspersus - Cunner Trachinotus falcatus - Permit Trinectes maculatus - Hogchoker Urophycis chuss - Red hake Urophycis regius - Spotted hake

Table 3. Alphabetical listing by scientific name of all macroinvertebrate taxa collected by fish and impingement programs from September 1978 through March 1979.

Acquorea spp. - a hydromedusa Asterias forbesi - a starfish Bivalvia (class) - bivalve mollusks Callinectes sapidus - blue crab Callinectes similis - lesser blue crab Cancer irroratus - rock crab Carcinus maenus - green crab Crangon septemspinosa - sand shrimp Echinodermata (phylum) - spiny-skinned animals Holothuroidea (class) - sea cucumbers Libinia dubia - spider crab Limulus polyphemus - horseshoe crab

Mytilus edulis - blue mussel Nemertea (phylum) - ribbon worms <u>Neopanope sayi</u> - a mud crab <u>Ovalipes ocellatus</u> - a lady crab <u>Pagurus spp. - a hermit crab</u> <u>Palaemonetes vulgaris</u> - grass shrimp <u>Panopeus herbstii</u> - a mud crab <u>Penaeus aztecus</u> - brown shrimp <u>Polychaeta (class) - bristle worms</u> <u>Portuntus gibbesi - a portunid crab</u> <u>Procambarus acutus</u> - pond crayfish

Table 4. Weekly minimum, maximum, and mean air and water temperature (C), salinity (ppt), dissolved oxygen (ppm), and pH measurements taken during impingement sampling at the Oyster Greek Generating Station from 3 September 1978 through 31 March 1979.

Week	, <b>1997 (199</b>		9 Septer	nber	10-1	6 Senter							
		Min	Max	Mean	Min	Max	Mean	Min	S Septer	Maam	19~2	5 Novemb	per
Temperature	air	16.4	25.5	20.2	12.0	21.8	18 0	10.2		mean	Min	Max	Mean
	sur face	22.1	24.5	23.3	17.9	24.3	20.4	21 2	21.0	20.1	3.0	7.3	5.2
	bottom	22.1	24.7	23.4	18.5	24.3.	20.4	21.5	21.0	21.5	9.4	10.0	9.6
Salinity	sur face	15.0	16.0	15.2	14 5	17 0	15 0	21.5	21.8	21./	9.2	99	9.6
-	bottom	15.0	16 5	15 5	14.5	17.0	12.9	10.0	16.5	16.1	19.0	25.0	20.3
Oxygen	sur face	6.3	9.1	13.3	14.5	1/.0	12.9	10.0	16.0	16.0	20.0	21.0	20.5
19.000	bottom	6 1	8 8	7 6	7 0	0.3	1.5	9.0	9.5	9.2	9.4	10.0	9.8
ъН	gurface	7 0	0.0	7.0	7.0	0.4	/ • 5	9.0	9.5	9.2	9.7	10.0	9.9
F.,	bottom	1.3	0.3	0.1	_ /.8	8.1	7.9	7.8	8.0	7.9	7.6	7.9	7.8
			0.2	L • 0	7.8	0.8 	7.9	7.9	8.0	8.0	7.8	7.8	7.8
Week	بلأخبرا ليبو البالاين ليبا فببحيث ميرا ميدهي و	26 Novem	ber - 2	December		9 Do gomb			16 0				
		Min	Max	Mean	Min	J Decemb	Maan	T0~	16 Decen	iber	17-	23 Decen	ber
Temperature	air	3.0	9.5	5.9	A 5	10 0	10 2	M1 N	Max	Mean	Min	Max	Mean
•	sur face	5.1	5.8	5.6	7 1	10.0	10.2	~0.0	0.0	-2.9	-4.5	4.0	0.7
	bottom	5.0	6.8	5 9	9 1	9.0	0.5	3.2	6.8	4.5	1.6	4.2	2.9
Salinity	sur face	14.0	19.0	16 9	16 0	19.0	0.5	3.8	0./	5.6	1.5	5.6	3.6
- 4	bottom	19.0	20.0	10.5	16.0	20.0	10.9	20.0	22.0	21.1	17.0	23.0	20.7
Oxvaen	surface	9.4	10.6	10 0	10.0	20.0	1/.0	18.0	21.0	19.8	17.0	23.0	20.3
	bottom	9.4	10.0	10.0	10.1	12.8	11.3	10.9	12.0	11.4	10.4	12.1	11.3
bii	surface	75	7 9	9.9 7 7	10.0	12.0	11.4	11.3	12.2	11.7	10.9	11.9	11.4
F	bottom	7.5	7.0	7.0	7.4	8.1	7.9	8.0	8.1	8.1	7.5	8.0	7.9
			/. 3	/•0	8 . / 	8.1	8.0	8.1	8.1 	8.1	7.5	8.0	7.8
Week	س همه همی ویدیست همه بین می ویدونند مال ه		30 Decer	ber	31 De ce	mber - f	January		13 .72				
		Min	Max	Mean	Min	Max	Mean	Min	May	Mean	Min	-zo Janu Mav	Maan
Temperature	air	~9.0	~2.0	-4.7	-12.5		-9.6	+11.0	0.8	-4 8	-13.0	-50	
• •	sur face	-0.8	4.0	1.9	-0.1	2.6	1.3	-1.0	4.0	1 3	-1.8	-3.0	-0.4
	bottom	1.5	4.6	2.9	~0.2	3.6	2.1	0.6	4.9	3.4	-1.0	2 5	2 1
Salinity	surface	17.0	22.0	20.1	19.0	25.0	20 6	18 0	21 0	10 6	12 0	2.5	10 7
	bottom	18.0	22.0	10 5	19.0	2.3.0	20.0	TO • O	21.0	13.0	17.11	23.0	10.1
Oxvoren	aur face				10 0	21 0	20 3	10 0	21 0	20 0	20.0	22 0	21 0
		11.5	13.4	12.5	19.0	21.0	20.3	19.0	21.0	20.0	20.0	23.0	21.0
	bottom	11.5	13.4	12.5	19.0	21.0 13.5	20.3	19.0 10.6	21.0	20.0 11.6	20.0	23.0 13.1	21.0
nH	bottom	11.5 11.9 7.5	13.4 13.6	12.5	19.0 10.2 10.3	21.0 13.5 13.7	20.3 12.1 11.8	19.0 10.6 10.7	21.0 12.4 12.1	20.0 11.6 11.3	20.0 12.2 12.4	23.0 13.1 12.6	21.0 12.6 12.5
pfl	bottom surface bottom	11.5 11.9 7.5 7.8	13.4 13.6 8.1 8.1	12.5 12.7 7.9 8.0	19.0 10.2 10.3 8.0 8.0	21.0 13.5 13.7 8.2 8.2	20.3 12.1 11.8 8.1 8.1	19.0 10.6 10.7 7.8 7.7	21.0 12.4 12.1 8.2 8.1	20.0 11.6 11.3 8.0 7.9	20.0 12.2 12.4 7.6 7.7	23.0 13.1 12.6 8.2 8.1	21.0 12.6 12.5 7.9 8.0
pH	bottom surface bottom	11.5 11.9 7.5 7.8	13.4 13.6 8.1 8.1	12.5 12.7 7.9 8.0	19.0 10.2 10.3 8.0 8.0	21.0 13.5 13.7 8.2 8.2	20.3 12.1 11.8 8.1 8.1	19.0 10.6 10.7 7.8 7.7	21.0 12.4 12.1 8.2 8.1	20.0 11.6 11.3 8.0 7.9	20.0 12.2 12.4 7.6 7.7	23.0 13.1 12.6 8.2 8.1	21.0 12.6 12.5 7.9 8.0
płi Week	bottom surface bottom	11.5 11.9 7.5 7.8 21	13.4 13.6 8.1 8.1 -27 Jan	12.5 12.7 7.9 8.0	19.0 10.2 10.3 8.0 8.0 28 Janu	21.0 13.5 13.7 8.2 8.2 ary - 3	20.3 12.1 11.8 8.1 8.1 February	19.0 10.6 10.7 7.8 7.7 4-	21.0 12.4 12.1 8.2 8.1	20.0 11.6 11.3 8.0 7.9	20.0 12.2 12.4 7.6 7.7	23.0 13.1 12.6 8.2 8.1	21.0 12.6 12.5 7.9 8.0
pfl  Week	surface surface bottom	11.5 11.9 7.5 7.8 21 Min	13.4 13.6 8.1 8.1 -27 Janu Max	12.5 12.7 7.9 8.0 Jary Mean	19.0 10.2 10.3 8.0 8.0 28 Janu Min	21.0 13.5 13.7 8.2 8.2 ary - 3 Max	20.3 12.1 11.8 8.1 8.1 February Mean	19.0 10.6 10.7 7.8 7.7 4- Min	21.0 12.4 12.1 8.2 8.1 10 Febru Max	20.0 11.6 11.3 8.0 7.9 Wary Mean	20.0 12.2 12.4 7.6 7.7 11- Min	23.0 13.1 12.6 8.2 8.1 17 Febru Max	21.0 12.6 12.5 7.9 8.0
pH Week Temperature	surface bottom surface bottom	11.5 11.9 7.5 7.8 21 Min ~4.0	13.4 13.6 8.1 8.1 -27 Janu Max 2.0	12.5 12.7 7.9 8.0 Jary Mean -0.5	19.0 10.2 10.3 8.0 8.0 28 Janu Min -5.0	21.0 13.5 13.7 8.2 8.2 	20.3 12.1 11.8 8.1 8.1 February Mean -1.1	19.0 10.6 10.7 7.8 7.7 4- Min -11.5	21.0 12.4 12.1 8.2 8.1 10 Febru Max ~6.0	20.0 11.6 11.3 8.0 7.9 Wean -9.1	20.0 12.2 12.4 7.6 7.7 11- Min -15.5	23.0 13.1 12.6 8.2 8.1 17 Febru Max -6.0	21.0 12.6 12.5 7.9 8.0 
pH Week Temperature	air surface	11.5 11.9 7.5 7.8 21 Min -4.0 1.2	13.4 13.6 8.1 8.1 -27 Janu Max 2.0 4.6	12.5 12.7 7.9 8.0 mary Mean -0.5 2.7	19.0 10.2 10.3 8.0 8.0 28 Janu Min ~5.0 ~0.2	21.0 13.5 13.7 8.2 8.2 	20.3 12.1 11.8 8.1 8.1 February Mean ~1.1 1.9	19.0 10.6 10.7 7.8 7.7 4- Min -11.5 -1.3	21.0 12.4 12.1 8.2 8.1 10 Febru Max ~6.0 0.0	20.0 11.6 11.3 8.0 7.9 Jary Mean -9.1 -0.8	20.0 12.2 12.4 7.6 7.7  11- Min -15.5 -0.8	23.0 13.1 12.6 8.2 8.1 17 Febru Max -6.0 1.5	21.0 12.6 12.5 7.9 8.0 
pH Week Temperature	air surface bottom	11.5 11.9 7.5 7.8 21 Min -4.0 1.2 1.8	13.4 13.6 8.1 8.1 -27 Jan Max 2.0 4.6 5.8	12.5 12.7 7.9 8.0 Jary Mean -0.5 2.7 3.4	19.0 10.2 10.3 8.0 8.0 28 Janu Min -5.0 -0.2 1.4	21.0 13.5 13.7 8.2 8.2 	20.3 12.1 11.8 8.1 8.1 February Mean -1.1 1.9 2.7	19.0 10.6 10.7 7.8 7.7 4- Min -11.5 -1.3 -0.2	21.0 12.4 12.1 8.2 8.1 10 Febru Max -6.0 0.0 1.0	20.0 11.6 11.3 8.0 7.9 Hary Mean -9.1 -0.8 0.6	20.0 12.2 12.4 7.6 7.7 11- Min -15.5 -0.8 -0.3	23.0 13.1 12.6 8.2 8.1 17 Febru Max -6.0 1.5 0.7	21.0 12.6 12.5 7.9 8.0 Mean -8.6 -0.0 0.3
pH Week Temperature Salinity	air surface bottom air surface bottom surface	11.5 11.9 7.5 7.8 21 Min -4.0 1.2 1.8 20.0	13.4 13.6 8.1 8.1 -27 Janu Max 2.0 4.6 5.8 22.0	12.5 12.7 7.9 8.0 Jary Mean -0.5 2.7 3.4 20.5	19.0 10.2 10.3 8.0 8.0 28 Janu Min -5.0 -0.2 1.4 16.0	21.0 $13.5$ $13.7$ $8.2$ $8.2$ $ary - 3$ $Max$ $3.5$ $3.5$ $4.0$ $22.0$	20.3 12.1 11.8 8.1 8.1 February Mean ~1.1 1.9 2.7 19.5	19.0 10.6 10.7 7.8 7.7 4- Min -11.5 -1.3 -0.2 1.9	21.0 12.4 12.1 8.2 8.1 10 Febru Max ~6.0 0.0 1.0 24.0	20.0 11.6 11.3 8.0 7.9 Mean -9.1 -0.8 0.6 18.6	20.0 12.2 12.4 7.6 7.7 11- Min -15.5 -0.8 -0.3 17.0	23.0 13.1 12.6 8.2 8.1 17 Febru Max -6.0 1.5 0.7 19.0	21.0 12.6 12.5 7.9 8.0 Mean ~8.6 -0.0 0.3 17.9
pfi Week Temperature Salinity	air surface bottom air surface bottom surface bottom	11.5 11.9 7.5 7.8 21 Min -4.0 1.2 1.8 20.0 20.0	13.4 13.6 8.1 8.1 -27 Janu Max 2.0 4.6 5.8 22.0 22.0	12.5 12.7 7.9 8.0 Mean -0.5 2.7 3.4 20.5 20.5	19.0 10.2 10.3 8.0 8.0 28 Janu Min -5.0 -0.2 1.4 16.0 18.0	21.0 $13.5$ $13.7$ $8.2$ $8.2$ $ary - 3$ $Max$ $3.5$ $3.5$ $4.0$ $22.0$ $22.0$	20.3 12.1 11.8 8.1 8.1 February Mean -1.1 1.9 2.7 19.5 19.8	19.0 10.6 10.7 7.8 7.7 4- Min -11.5 -1.3 -0.2 1.9 18.0	21.0 12.4 12.1 8.2 8.1 10 Febru Max -6.0 0.0 1.0 24.0 24.0	20.0 11.6 11.3 8.0 7.9 Mean -9.1 -0.8 0.6 18.6 20.3	20.0 12.2 12.4 7.6 7.7 	23.0 13.1 12.6 8.2 8.1 17 Febru Max -6.0 1.5 0.7 19.0 18.0	21.0 12.6 12.5 7.9 8.0 Mean ~8.6 ~0.0 0.3 17.9
pfi Week Temperature Salinity Oxygen	air surface bottom air surface bottom surface bottom surface	11.5 11.9 7.5 7.8 21 Min -4.0 1.2 1.8 20.0 20.0 20.0 10.7	13.4 13.6 8.1 8.1 -27 Janu Max 2.0 4.6 5.8 22.0 22.0 12.0	12.5 12.7 7.9 8.0 Mean -0.5 2.7 3.4 20.5 20.5 11.3	19.0 10.2 10.3 8.0 8.0 28 Janu Min -5.0 -0.2 1.4 16.0 18.0 11.9	21.0 $13.5$ $13.7$ $8.2$ $8.2$ $Max$ $3.5$ $3.5$ $4.0$ $22.0$ $14.0$	20.3 12.1 11.8 8.1 8.1 February Mean -1.1 1.9 2.7 19.5 19.8 13.3	19.0 10.6 10.7 7.8 7.7 4- Min -11.5 -1.3 -0.2 1.9 18.0 10.1	21.0 12.4 12.1 8.2 8.1 10 Febru Max -6.0 0.0 1.0 24.0 24.0 24.0	20.0 11.6 11.3 8.0 7.9 Mean -9.1 -0.8 0.6 18.6 20.3 11.9	20.0 12.2 12.4 7.6 7.7 11- Min -15.5 -0.8 -0.3 17.0 16.0	23.0 13.1 12.6 8.2 8.1 17 Febru Max -6.0 1.5 0.7 19.0 18.0 14 4	21.0 12.6 12.5 7.9 8.0 Mean ~8.6 ~0.0 0.3 17.9 17.3
pfi Week Temperature Salinity Oxygen	air surface bottom air surface bottom surface bottom surface bottom	11.5 11.9 7.5 7.8 21 Min -4.0 1.2 1.8 20.0 20.0 10.7 10.7	13.4 13.6 8.1 8.1 -27 Janu Max 2.0 4.6 5.8 22.0 22.0 12.0	12.5 12.7 7.9 8.0 Jary Mean -0.5 2.7 3.4 20.5 20.5 11.3 11.2	19.0 10.2 10.3 8.0 8.0 28 Janu Min -5.0 -0.2 1.4 16.0 18.0 11.9 12.6	21.0 $13.5$ $13.7$ $8.2$ $8.2$ $Max$ $3.5$ $3.5$ $4.0$ $22.0$ $14.0$ $14.0$	20.3 12.1 11.8 8.1 8.1 February Mean -1.1 1.9 2.7 19.5 19.8 13.3 13.4	19.0 10.6 10.7 7.8 7.7 4- Min -11.5 -1.3 -0.2 1.9 18.0 10.1	21.0 12.4 12.1 8.2 8.1 10 Febru Max -6.0 0.0 1.0 24.0 24.0 24.0 14.0 12.3	20.0 11.6 11.3 8.0 7.9 Mean -9.1 -0.8 0.6 18.6 20.3 11.8 11.4	20.0 12.2 12.4 7.6 7.7 11- Min -15.5 -0.8 -0.3 17.0 16.0 11.6	23.0 13.1 12.6 8.2 8.1 17 Febru Max -6.0 1.5 0.7 19.0 18.0 14.4 12.7	21.0 12.6 12.5 7.9 8.0 
pfi Week Temperature Salinity Oxygen pli	air surface bottom air surface bottom surface bottom surface bottom surface	11.5 11.9 7.5 7.8 21 Min -4.0 1.2 1.8 20.0 20.0 20.0 10.7 10.7 7.7	13.4 13.6 8.1 8.1 -27 Janu Max 2.0 4.6 5.8 22.0 22.0 12.0 11.8 8.2	13.5 12.5 12.7 7.9 8.0 	19.0 10.2 10.3 8.0 8.0 28 Janu Min -5.0 -0.2 1.4 16.0 18.0 11.9 12.6 7.8	21.0 13.5 13.7 8.2 8.2 Max 3.5 3.5 4.0 22.0 22.0 14.0 14.0 8.1	20.3 12.1 11.8 8.1 8.1 February Mean -1.1 1.9 2.7 19.5 19.8 13.3 13.4 8.0	19.0 10.6 10.7 7.8 7.7 4- Min -11.5 -1.3 -0.2 1.9 18.0 10.1 10.1 7.6	21.0 12.4 12.1 8.2 8.1 10 Febru Max ~6.0 0.0 1.0 24.0 24.0 24.0 14.0 12.3 8.3	20.0 11.6 11.3 8.0 7.9 Mean -9.1 -0.8 0.6 18.6 20.3 11.8 11.4 8.0	20.0 12.2 12.4 7.6 7.7 11- Min -15.5 -0.8 -0.3 17.0 16.0 11.6 11.8 8.0	23.0 13.1 12.6 8.2 8.1 17 Febru Max -6.0 1.5 0.7 19.0 18.0 14.4 12.7 8.2	21.0 12.6 12.5 7.9 8.0 
pfi Week Temperature Salinity Oxygen pfi	air surface bottom air surface bottom surface bottom surface bottom surface bottom	11.5 11.9 7.5 7.8 21 Min -4.0 1.2 1.8 20.0 20.0 10.7 10.7 7.7 7.8	13.4 13.6 8.1 8.1 -27 Janu Max 2.0 4.6 5.8 22.0 22.0 12.0 11.8 8.2 8.0	12.5 12.7 7.9 8.0 Mean -0.5 2.7 3.4 20.5 20.5 11.3 11.2 8.0 8.0	19.0 10.2 10.3 8.0 8.0 28 Janu Min -5.0 -0.2 1.4 16.0 18.0 11.9 12.6 7.8 7.6	21.0 13.5 13.7 8.2 8.2 Max 3.5 3.5 4.0 22.0 22.0 22.0 14.0 14.0 8.1 8.2	20.3 12.1 11.8 8.1 February Mean ~1.1 1.9 2.7 19.5 19.8 13.3 13.4 8.0 7.9	19.0 10.6 10.7 7.8 7.7 4- Min -11.5 -1.3 -0.2 1.9 18.0 10.1 10.1 7.6 8.0	21.0 12.4 12.1 8.2 8.1 10 Febru Max ~6.0 0.0 1.0 24.0 24.0 24.0 14.0 12.3 8.3 8.1	20.0 11.6 11.3 8.0 7.9 Mean -9.1 -0.8 0.6 18.6 20.3 11.8 11.4 8.0 8.0	20.0 12.2 12.4 7.6 7.7 11- Min -15.5 -0.8 -0.3 17.0 16.0 11.6 11.8 8.0 8.0	23.0 13.1 12.6 8.2 8.1 17 Febru Max -6.0 1.5 0.7 19.0 18.0 14.4 12.7 8.2 8.2	21.0 12.6 12.5 7.9 8.0 Mean ~8.6 ~0.0 0.3 17.9 17.3 12.8 12.3 8.1

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# Table 4. (cont.)

Week			24 Febru	uary	25 Feb	oruary -	3 March		-10 Marc	ch		1-17 Mar	ch
Temperature	air surface	Min ~0.5 0.5	- Max 1.2 1.6	Mean 0.6 1.2	Min -1.0 0.8	Max 3.0 3.8	Mean 1.6 2.0	Min -1.0 6.2	Max 10.5 7.8	Mean 4.8 7.2	Min ~8.2	Max 3.0	Mean -3.4
Salinity	bottom surface bottom	1.8 17.5 18.0	1.8 20.0 20.0	1.8 18.9	2.4 11.0	2.4	2.4 16.7	8.0	12.0	10.3	8.0	10.5	3.9 - 9.3
Oxygen	sur face bottom	12.3 12.3	13.6 13.2	12.8	11.7	13.9	12.8	11.7	12.6	12.2	11.4	12.9	12.2
pti	surface bottom	7.7 7.8	7.8 7.8	7.8 7.8	7.2 7.7	7.7 7.7	7.5 7.7	7.3	8.0	7.9	7.5	8.2	7.9
Week	ا همه چم بدر در پردیم و مرد مرد مرد مرد از در مرد ا		8-24 Mar										
		Min	Max	Mean	Min	Max	Mean						
Temperature	air surface bottom	1.5 5.6	11.0	5.4	-2.0 6.7 8.5	11.0	5.0						
Salinity	sur face	12.0	14.0	12.6	9.0	16.0	12.3						
Oxygen	sur face bottom	10.2	10.9	10.4	9.4	10.8	10.0						
pH	sur face	7.7	8.3	8.1	7.6	8.3	7.8						

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Table 5. Total estimated number and weight (g), with 80% confidence interval, of selected fishes and macroinvertebrates impinged at night on the traveling screens at the Oyster Creek Generating Station from 1 September 1978 through 31 March 1979.

SPECIES	ESTIMATED NUMBER	ESTIMATED WEIGHT
Anguilla rostrata	16,043 + 18,146	110.476 + 46.179
Alosa aestivalis	83, 849 + 28, 060	333,413 + 85,661
Alosa pseudoharengus	6,927 + 2,292	94.218 + 29.100
Brevoortia tyrannus	7,999 + 4.805	704,455 + 389,576
Anchoa mitchilli	3,532 + 1,378	11,283 + 4429
Menidia menidia	135,625 + 43.317	565,740 + 174,154
Gasterosteus aculeatus	19,264 + 5,053	49.046 + 12.839
Syngnathus fuscus	16.009 + 3.764	30,542 + 7,227
Cynoscion regalis	599 + 280	5.610 + 3.222
Pseudopleuronectes americanus	128,883 $\pm$ 32,740	$17,084,441 \pm 6,643,368$
Total of all Vertebrates	453, 383 <u>+</u> 93, 426	19,440,716 <u>+</u> 6,837,382
Polychaeta	11,317 + 3.227	34, 692 + 12, 631
Palaemonetes vulgaris	402,907 + 98,979	182.139 + 40.459
Crangon septemspinosa	3,302,364 + 554,220	3.012.639 + 535.223
Callinectes sapidus	45,937 <u>+</u> 17,599	2,371,670 + 978,178
Total of all Invertebrates	3,768,091 <u>+</u> 598,267	5, 700, 710 <u>+</u> 976, 806
Grand Total of all Species <sup>a</sup>	4,221,475 <u>+</u> 659,998	25,141,457 <u>+</u> 6,904,987

<sup>a</sup>Grand total of all species does not equal the total of all vertebrates and invertebrates because each total was a separate estimate.

Table

 Estimated number of fishes and macroinvertebrates<sup>a</sup> impinged by week on the traveling screens at the Oyster Creek Generating Station from 3 September 1978 through 31 March 1979.

· · · · · · · · · · · · · · · · · · ·	Septem	ber		Novemb	er Deo	cember		ى اللية قبيدة قبية فبين حين حين جيد بين عيد بين ع			annar v
	3-9	10-16	17-23	19-25	26-2	3-9	10-16	17-23	24-30	31-6	7-13
Ver tebra tes								و هم هارها، بارا ها هار هار ها و ارا ها			
Anguilla rostrata	29	. 4	·	-	24	8	18	4.0		60	17
Alosa aestivalis	33	45	14	~ '	14	123	12254	7497	1619	44720	۲۱ ۲۱
Alosa pseudoharengus	11	4	·	-		- 4	22234	11	7440	44720	0904
Alosa sapidissima	-	-	-	-	-	-	6	29	166	404	119
Brevoortia tyrannus	21	19	-	-	14	135	3195	30.96	276	147	3.5
Anchoa mitchilli	213	901	~	, 	107	23	1667	135	214	20	4
Opsanus tau	146	113	7	21		94	25	67	67	21	10
Merluccius bilinearis	-	-	-				91	-	149	56	11
Urophycis chuss	-	~	~	-	~	·	14	54	170	20	10
Cyprinodon variegatus	~	-	-	-	14	4	28	500	450	204	247
Fundulus heter.oclitus	-	-		· _	68	49	11			10	247
Menidia menidia	~	14	-	-	773	1364	52311	218 95	8741	12462	2120
Apeltes quadracus	~	_	-	-	. 7	138	193	817	1277	707	180
Gasterosteus aculeatus		· –	~	· 📻		4	24	17	17	151	20
Syngnathus fuscus	4	167	~	2275	3429	· 2395	2171	1766	1252	1564	124
Cynoscion regalis	187	202	~		5425	2390	97	1/00	222	1004	134
Tautoga onitis		~	-	~	1 75	110	910	740	100	220	150
Ammodytes sp.	-	_	-		1/5	-	540	21	400	330	100
Gobiosoma bosci	-	-	-	-	3.8	711	4886	1697	816	17	104
Myo yocen halus aenaeus	-	_	-	-		. 7	1000	1057	<u>61</u>	109	104
Etropus microstomus	_	-	-	-	801	211	1200	166	64	190	20
Scophthalmus aquosus	-	_	~	_	28	7	1209	100	11	71	23
Pseudopleuronectes americanus		-	-	~	72	115	2861	22713	8814	24594	3201
						·	2001	227IJ		24334	5201
Total of all Vertebrate Species	721	1817	35	2394	6116	5681	82433	61686	29008	86513	14551
Invertebrates						×.					
Class Polychaeta	-	-	~	-	35	359	308	880	614	3 3 9	873
Palaemonetes vulgaris	4	4		7	794	31 32	15911	19265	38306	50516	13723
Crangon septemspinosa	4	-	-	21	85972	92094	326578	491373	552112	338985	136330
Cancer irroratus	-		-	-	9	170	280	68	21	24	42
Ovalipes ocellatus	109	146	21	1470	166	1758	267	7	-	· _	-
Callinectes sapidus	12581	16562	1008	42	7	284	11	-	42	27	-
Total of all Invertebrate Species	12814	16869	1036	1540	86990	97854	343374	511681	591119	389906	150975
Grand "Iotals of all Species	13535	18686	1071	3934	93106	103534	425807	573367	620126	476420	165527

# Table 6. (cont.)

•	January	Y	Fei	bruary			Mar	ch			
	14-20	21-27	28-3	4-10	11-17	18-24	25-3	4-10	11-17	18-24	25-31
Vertebrates									و همه النبار هوي سيد النبار في ويرانيني جيدٍ ويه		
Anguilla rostrata	30	~	28	15159	74	22	· _	76	4	18	28
Alosa aestivalis	1012	2318	3825	476	33	28	97	243	1778	217	70
Alosa pseudoharengus	22	450	2353	138	4	7	57	272	1321	269	56
Alosa sapidissima	57	306	69	23	-	15	-			-	-
Brevoortia tyrannus	-	11	33	-	· <b>-</b>	~	-	-	-	-	-
Anchoa mitchilli	18	-	~	· -	· 🕳	-	·	-	-	·	-
Opsanus tau	48	51	21		47	28	~	4	-	7	4
Merluccius bilinearis	~	33	93	19	~	-		-	-	-	-
Urophycis chuss	-	17	15	~	~		-	5	~	~	~
Cyprinodon variegatus	27	139	163	14	-	-	34	83	55	14	4
Fundulus heteroclitus	33	21	49	73	4	21	12	615	327	304	105
Menidia menidia	1849	6056	10159	2779	112	334	1083	2059	5707	468	441
Apeltes quadracus	286	511	502	1965	241	44	93	602	518	3 38	35
Gasterosteus aculeatus	28	1973	4605	411	17	51	1864	2962	4172	591	203
Syngnathus fuscus	170	193	101	106	-	15	· 7	21	252	1002	1117
Tautoga onitis	446	173	110	26.4	34	~	22	4	104	32	14
Ammodytes sp.	34	131	45	31	58	21	~	. 7	12	11	39
Gobiosoma bosci	46	459	58	151	41	7	-	4	-	-	-
Myoxocephalus aenaeus	~	43	45	- 31	39	14	8	16	26	-	~
Scophthalmus aquosus	17	32	169	20	-	. –	5	9	12	7	4
Pseudopleuronectes americanus	6649	16153	13202	7203	3321	419	1170	1162	10202	170	28
Total of all Vertebrate Species	10835	29193	35803	28992	4058	1049	4467	8187	24566	3493	2156
Inver tebrates											
Class Polychaeta	204	3882	888	143	112	29	46	2158	741	364	14
Palaemonetes vulgaris	9844	20459	21910	18675	129453	6626	8313	12884	10067	7402	4340
Crangon septemspinosa	237619	104006	183009	171337	280203	33357	28947	15634	104293	60583	27563
Cancer irroratus	13	16	9	-	4	35	8	138	36	88	14
Ovalipes ocellatus	-	-	-	-	-	-	-	11	-	155	25
Callinectes sapidus	-	-	-	19	4	-	7	75	-	3428	224
Total of all Invertebrate Species	24 76 90	128363	205816	190278	409821	40047	37324	30976	115228	72074	32200
Grand .Totals of all Species	258525	157556	241619	219270	413880	41096	41792	39163	139794	75566	34356

 Only fishes and invertebrates with more than 100 specimens impinged from 3 September 1978 through 31 March 1979 are reported here. Table

 Estimated weight (g) of fishes and macroinvertebrates<sup>a</sup> impinged by week on the traveling screens at the Oyster Greek Generating Station from 3 September 1978 through 31 March 1979.

	Septer	nber		Novemb	oer De	cember					anuary
	3-9	10-16	17-23	19-25	26-2	3-9	10-16	17-23	24-30	31-6	7-13
Vertebrates					9 840 640 940 840 840 840 940 940 94				~~~~~~~~		
Anguilla rostrata	3018	938	~	-	2927	381	0/5	20012	6404	E4060	46.21
Alosa aestivalis	3462	4231	1442	~	112	326	35031	20012	2424	122051	4021
Alosa pseudoharengus	879	79	~	~	++2	320	595	20819	17000	132321	20401
Alosa sapidissima		-	-	-		- J2 	84	190	1677	2080	207
Brevoortia tyrannus	2615	2831	~		1834	11045	315006	28/217	22970	10520	417
Anchoa mitchilli	615	2617	~	~	322	57	515000	404317	23070	10528	51
Opsanus tau	2493	5472	28	1505	14	308	780	501	660	L 34	21
Merluccius bilinearis	-		~			5,50	843	501	17517	12059	1200
Urophycis chuss	-	) · -	· 🚗	_	-	_	70	98.8	2/6/	12030	1200
Cyprinodon variegatus			-		14	. 4	45	1146	757	242	207
Fundulus heteroclitus	-	-	-	-	453	216	49	223	208	243	357
Menidia menidia	-	63	-		3421	4748	210063	84371	32017	53053	12715
Apeltes quadracus	-		-		7	145	168	838	1152	752	220
Gasterosteus aculeatus	· · _	-	-	· _	-	4	32	23	27	,52	47
Syngnathus fuscus	11	401	-	4543	6194	4700	4353	3022	1815	2093	174
Cynoscion regalis	571	2251	-	-	-	88	- 2344	5022	1013	2095	1/4
Tautoga onitis			-	. –	3966	2203	1598.2	25651	15420	2974	2178
Ammodytes sp.	~	-	~		5500	2205	20202	389	16	2974	2170
Gobiosoma bosci	· · · ·	-	-	~	19	366	5079	1681	789	85	90
Myoxocenhalus aenaeus	-		~	~		77	148	1808	913	2867	1094
Etropus microstomus	_	~	~	~	8371	1523	8790	892	456	171	147
Scophthalmus aquosus	-	~	~	~	4466	291	8402	8584	23	4282	613
Pseudopleuronectes americanus	_ ~	-	~	~	1054	11603	163012	1622103	648256	6157765	193185
	16017		16.03	6643	20007	40200	701677	2001446	007100	CAEAEEA	241262
Total of all vertebrate species	10217	20902	10.03	0043	39097	40308	/910//	2081446		0434334	241302
Invertebrates				i							
Class Polychaeta	-	-	· -	_	49	548	566	1814	967	834	2504
Palaemonetes vulgaris	4	4	-	7	470	1826	10750	10552	16414	19791	6085
Crangon septemspinosa	4	-	-	21	137948	95296	354920	524833	463734	294721	12 34 92
Cancer irroratus	-	-	_		979	12625	14521	3280	784	1717	2578
Ovalines ocellatus	132	229	21	7399	1661	7339	1507	29	-	-	-
Callinectes sapidus	819455	830969	42364	140	7	2359	466	-	185	27	-
Total of all Invertebrate Species	824242	833185	42455	7567	141233	121002	382938	541645	482204	317216	134758
Grand Totals of all Species	840459	862147	44058	14210	180330	161390	1174614	2623091	1289386	6771770	376120

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Table 7. (cont.)

	Janua	ry	Fe	bruary	للماليط فينا جرميط حيديها ويتجهه ويد		 Ma	r ch	و هند بوم کن چر خو هم بدوهم اور .		
	14-20	21-27	28-3	4-10	11-17	18-24	25-3	4-10	11-17	18-24	25-31
Vertebrates			ما کی کے بین کیلیں ورزمین سے ۔ ا		كلا أنبأ النا النادية وباجيا يباريها يباريها			~~~~~~		مداروس هدر هم احد آمد آمه میدود وی ه	
Anguilla rostrata	2708	-	5661	4784	28	22		22	222	1850	1071
Alosa aestivalis	2671	9343	23536	1166	626	84	28.2	2479	37694	5226	14/10
Alosa pseudoharengus	145	3427	29836	947	21	35	346	1863	21510	5001	1449
Alosa sapidissima	461	2183	54.3	307		92		1005	21510	2031	990
Brevoortia tyrannus	-	140	1000	_	~	-	-	-		_	_
Anchoa mitchilli	14			~	-	-	-	-	_	-	-
Opsanus tau	1848	351	41	103	130	308	~	578	-	14	175
Merluccius bilinearis	·	5061	12969	3114	~		-				1/5
Urophycis chuss	-	275	167	. –	~	-	-	202	<b>_</b>	~	-
Cyprinodon variegatus	668	218	204	14	~	-	55	115	97	21	11
Fundulus heteroclitus	74	165	42	154	4	175	74	2129	1536	1112	763
Menidia menidia	6193	24412	50260	9979	349	1294	5373	11191	31267	2622	2562
Apeltes quadracus	1050	595	559	1540	290	67	115	631	565	414	32
Gasterosteus aculeatus	56	4946	11276	902	45	139	4 98 7	8118	10730	1570	560
Syngnathus fuscus	300	329	156	179	~	22	. 18	70	491	2479	2807
Tautoga onitis	69372	5355	1473	5329	421	-	322	40	7778	244	91
Ammodytes sp.	75	188	244	78	222	63	-	18	24	42	273
Gobiosoma bosci	33	537	67	167	45	. 7	· -	7		-	
Myoxocephalus aenaeus	-	517	524	115	242	2 38	97	266	848	-	-
Scophthalmus aguosus	174	1426	5316	40	· –	~	1428	18	1848	1876	1012
Pseudopleuronectes americanus	1296298	2782394	2206549	993489	77477	43177	114163	151648	345815	18392	2979
Total of all Vertebrate Species	1400981	2846200	2358228	1024404	81212	45888	127299	180947	463417	42675	14837
Inver tebrates		~~~~~~~		بستا المدامية المتالية بين مية البية على من م				للمنا جين هين بين من حي جي هي هي وي			
Class Polychaeta	. 304	16338	2874	262	256	71	124	7699	2070	1008	16
Palaemonetes vulgaris	5379	10333	11347	8330	48 924	2490	4070	6049	4337	2003	2002
Crangon septemspinosa	197436	83099	140451	138906	218191	30043	26712	12557	9537	47175	2002
Cancer irroratus	740	1236	668	100,000	200	3094	666	10936	3050	8105	1075
Ovalipes ocellatus	-			-			~	50		745	56
Callinectes sapidus	-	-	-	193	4	~	7	514	-	4700	4029
Total of all Invertebrate Species	203937	111007	155341	148980	268083	35698	31653	38617	106592	65118	34 32 5
Grand Jotals of all Species	1604918	2957207	2513569	1173384	349294	81587	158952	219564	570009	107793	49161
orang motars of all opecies	1004310	2331201	277776	TT10004	J47674	01001	T 20 2 27	219304	210003	T01122	49101

a. Only fishes and invertebrates with more than 100 specimens impinged from 3 September 1978 through 31 March 1979 are reported here.

Table

 Actual and estimated number and weight (g) of fishes and macroinvertebrates impinged on the traveling screens at the Oyster Creek Generating Station from 3 September 1978 through 31 March 1979.

• .	Actu	Estimated				
Species	Number	Weight	Number	Weight		
Ver tebrates		سة الماسية في الماسة ابن المانية في من الله عن	سا هواي کري خيما اسې هي اين دين کي هي هي مي هي هي اين اين اين اين اين اين اين اين اين اي			
Dasyatis sayi	3	1312	10	4590		
Anguilla rostrata	4478	30686	15695	108877		
Longer oceanicus	68	2138	293	9415		
Alosa aestivalis	24659	93537	86333	328198		
losa pseudoharengus	1810	26552	6338	929790		
Nosa sapidissima	317	2858	1117	10051		
Brevoortia tyrannus	2013	186366	7051	653109		
Clupea harengus	4	744	13	2603		
nchoa mitchilli	936	3089	3328	10074		
Sox niger	1	167	3520	10374		
Synodus foetens	1	12	7	101		
Votemigonus crysoleucas	6	22	20			
Dsanus tau	232	4158	842	15490		
erluccius bilinearis	129	15077	153	53770		
trophycis chuss	93	1472	336	52770		
Jrophycis regius	55	1472	320	2123		
Rissola marginata	5	104	20	191		
trongulura marina	J A	704 104	32	T 100		
Vorinodon variagatus	502	30	14	133		
Apprilia an	592	11/2	2078	4109		
Cundulus sp.	1		4	4		
undulus diapnanus	6	14	20	. 50		
undulus heteroclitus	523	2044	1877 .	7468		
undulus majalis	26	256	89	895		
ucania parva	2	2	. 6	6		
fenidia sp.	4	4	14	14		
'enidia beryllina	13	20	45	70		
enidia menidia	37484	155570	131747	546853		
peltes quadracus	2437	2604	8554	9149		
asterosteus aculeatus	4843	12400	16976	43470		
lippocampus erectus	66	90	236	342		
Syngnathus fuscus	4366	8 2 2 2	18141	34156		
forone americana	60	12739	210	44587		
entropristis striata	21	2740	90	9711		
cantharcus pomotis	1	94	4	329		
epomis gibbosus	11	58	37	202		
Pomatomus saltatrix	10	212	40	750		
aranx hippos	30	35	103	122		
elene vomer	6	39	21	137		
airdiella chrysura	13	'30	52	128		
Vnoscion regalis	142	1501	4 96	5253		
eiostomus xanthurus		85	11	200		
licropogon undulatus	48	71	171 .			
Pogonias cromis		1	4	232		
Cautoga onitis	1137	44804	4067	158700		
But ogol abrug adenereus	£1	274	229	2,00,75		
accontantas ansherens	7	72	25	251		
Moil curema			<b>6</b>			
Augil curema Netrosconus guttatus	2	7.4	. 7	250		
	Act	ual	Estimated			
--	---------------------------------------	---------	-----------	----------	--	--
Species	Number	Weight	Number	Weight		
Hypsoblennius hentzi	30	268	115	1043		
Ammodytes sp.	130	532	467	1894		
Gobiosoma sp.	22	13	154	91		
Gobiosoma bosci	2590	2560	9087	8971		
Peprilus triacanthus	· 26	835	90	2922		
Prionotus carolinus	2	2	8	8		
Prionotus evolans	74	1162	343	4537		
Myoxocephalus aenaeus Myoxocephalus	169	2753	598	9756		
octodecemspinosus	16	311	· 55	1088		
Etropus microstomus	629	4619	2646	20351		
Paralichthys dentatus	1	3	4	9		
Scophthalmus aquosus Pseudopleuronectes	135	10736	486	39807		
americanus	34801	4802069	122050	16829356		
Trinectes maculatus	29	720	100	2522		
Sphoeroides maculatus	34	1184	119	4145		
Fish fragments	· · · · · · · · · · · · · · · · · · ·	667		2349		
Ranaptotons	1	17	n	0.0		
Total Vertebrates	125416	5442458	443755	19095218		
Invertebrates				·		
Aeguorea spp	13	350	44	1227		
Class Bivalvia	2	2	6	6		
Mytilus edulis	25	25	87	87		
Class Polychaeta	3416	10962	11987	· 38426		
Limulus polyphemus	1	924	4	3234		
Penaeus aztecus	. 55	668	197.	2373		
Palaemonetes vulgaris	110835	48764	391635	172158		
Crangon septemspinosa	917241	836582	3270020	3012042		
Pagurus sp	1	2	4	7		
Libinia dubia	1	2	4	7		
Cancer irroratus	272	18348	974	66253		
Carcinus maenas	3	18	· 9	62		
Ovalipes ocellatus	945	4179	4136	19168		
Portunus gibbesi	2	. 4	7	14		
Callinectes sapidus	9655	481189	34 32 3	1705418		
Callinectes similis	<b>9</b>	41	32	142		
Panopeus herbstii	1	10	4	35		
Neopanope sayi	1	· 3	4	11		
Phylum Echinodermata	2	82	7	287		
Class Holothuroidea	60	.801	210	2802		
Asterias forbesi	35	420	122	1469		
Invertebrate fragments	· · · · ·	267	~	950		
Phylum Nemertea	37	316	132	1149		
Procambarus acutus	8	133	28	466		
Total Invertebrates	1042619	1404091	3713973	5027794		
Grand .Totals	1168036	6846548	4157728	24123012		

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Table

		F REQ	Alosa aestivalis	Alosa pseudoharengus	Brevoortia tyrannus	Anchoa mitchilli	Menidia menidia	Gasterosteus	Syngnathus	Cynoscion
T	25	1	1	اسا متاخذ فينبين من ما	ین در این این این این در این	4		aculeatus	fuscus	regalis
Ε	24	3	2	ا ها بيا ها بيايا عليه بيا ها بيا عا حال عاليا بيا بيا	1	8		استان و این دارد و این دارد و این و ای ا	کا جار کے کہ ایک ایک ایک کر ایک ک	4
M	23	7	1	الذي ها ذي الذا الذ الله من الله من الله عن ا		7	ال الله المؤسسة منه البراحية فين البراحية. ال		محا وي هذه هذه الله الله الله الله الله وي الله الله الله الله الله الله الله الل	5
P	22	5	1		میں میں دور سے دولو میں دول ہیں ہیں ہیں ہیں میں میں میں میں دول ہیں ہے۔ 	 A	للاحد بين المرحم الله بين مراجع مراجع المرحم ال	ا سرد ویرد این ویو هما دین دین می میشود و بیده بین دین می می می می می می می	منه وهو هوي وينه وينه وينه وينه وينه وينه	3
E	21	3	ي هذه البية مية حيد المامية البية المامية بين المامية بين المامية ا	ماه هما جمل هما جري موضوع معر ومد جرة منه الم				میں جس میں اور میں دینے اور		2
R	20	0		یک میک چیک میک دیدار میں سینا میں ایک میک ویک کی دیدار میں کی میک میں کر ایک میک میں ایک میک میں ایک میک میں ا	ا فری وی این این این این این این این این این ای	1. 	الله الله الله الله خيرة خيرة عليه علية جيرة جيرة ميرا بين و	موجوع وجاوعته والروحة ومراجعة ومراجعة وموجع وتروجه ومراجع ومراجع ومراجع		1
A	19	1	2							
т	18	4	 1	والأحما فيأذينا فتداييا فيادتها فيوافع ليتوقيه فتدوين ويوفين ويوابه	۲ بی میں میں میں میں میں میں میں میں اور	21		ست هنية عنامة المرة المرة وعنه المرة والرة والرة المرة المرة المرة المرة المرة المرة المرة المرة المرة	20	15
U	17	0	وه الدامية سدامية هي فيتابية عند بينا بين بين بين بين	میش همه که از می همی همه می سر می هم می می می می ور می	. در	27	1	ويرد حرق مربع فري وي	3	5
R	16	0	هما جينا هيرا هية جين هيد هيد جين المذهبة بين هي جين جين جين جي	 سال که بین این سال این می این کر سال می می می این می می می می می می می می این این می		وموجعة أحجابها وتجويتها وتتوخله وعوارتها وحوارهم ومراجعه أوتدوهم				
Е	15	0	ینی وی دی	ا میرمند های دفتر میردی های در این در می می بین در این د	و المراجع منه منه ومدينة ويه وموجعة من حار ها، هم منه منه	محرجان عاومان والإحار والإدان ماواها بالاحتر الارتجاع ال				
	14	0	هم حد در هردم در	هايا الدي فيها هيل الله الدية سية ميلاسية جية جيل جيل الله الله العام ال		کے ایک سالی سال سال سال ہوا ہے۔ اور سال ماہ اور اور اور سال سال ہوا ہے۔	و هند همینو هر آن در به به مربقه مارده و در			, dan taun tau
	13			وها البيا على الحار الجاربية الحاربية على البواعي الحاربية على البواعي الحاربية الجاربية الجاربية	من وقع في حدة الله الإسلام ويل فين الله الله الله الله الله الله الله الل	هين هين جي المراجعة المراجعة ويت المراجع بين عن المراجع المراجع المراجع المراجع المراجع المراجع المراجع الم	- 		الأ سالاتية هذا معانية في معانية في معانية عبد المراجع المراجع المراجع المراجع المراجع المراجع الم	, anishin ani anishin guran anishin ani dhi ani
	12			ا الله وحل وحل وحل وحل الله عنه وحل وحل محل وحل وحل وحل وحل محل وحل وحله و	سر هم وبرونو های هایس وی هم هم در هم ویوسی وروسی	والمواهدة البرامية وبراعية وبراغية وبداع والم الما وبراغية وبراغية			ويتحرك المراجع من محمد وم مراجع المراجع	یکے وہ جاری اور ہیں ہے۔ 
	11	2 		 			3	9	40	الله المراجع الله من من خل الله المراجع الله المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع ا
	10	+ 	1 	2	ین اینا این کی در در در این کی در این کی در		10	7	46	and the set product states and the set
	10	14		1	سو ها ها وي		5	3	44	
	9-		1	ا حکمی دی انداز می سه دی سه دی سه دی دی دی دی سه دی دی سه دی			7	2	16	
	ି <del>କ</del>	10	6	4	3		49	39	56	
	7	9	25	5	3	9	98	37	13	
	6	12	22	5	4	6	90	17	39	
	5	4	113	2	32	20	558	2	64	
	4	26	132	7	23	5	345	30		
	3	24	44	5	8	3	132	23		
	2	25	93	5	1		77	7		چینے بیٹر سے بنان میں میں بنیا کی جام ہیں کریا ہے۔ ا
	1	24	73	3		ار به ماه های منابع است و بین ماه و این می و بین می و بین می و بین می و این می و این می و این و این می	33			
	0	20	45	3			26	5	۲ 	چېن ادار چې دې دې دې کې دې د دې دې ور د
	-1	21	8	1	$\sim$		22		ـــــــــــــــــــــــــــــــــــــ	ی دارین در در در می در
	-2	1	5	1			2		2 محمد محمد محمد محمد محمد م	
		228	580	45	77	121	1457	187	270	ب کر اور اور اور اور اور اور اور اور اور او
					the second s			AV /	3/1 <b>0</b>	31

Table 9. (cont.)

		FREQ	Leiostomus xanthurus	Prionotus evolans	Paralichthys dentatus	Pseudopleuronec americanus	Sphoeroides maculatus	Palaemonetes vulgaris	Crangon septemspinosa	Callinectes sapidus
т	25	1	ومروح والع والم والم والم والم والم والم والم والم		··		2	1	1	338
. <b>E</b>	24	3	م الم الله الله الله الله الله الله الله				2	n ang pang pang pang pang pang pang pang	والمكرية ومراجعة المراجع ومراجع المراجع ومراجعها ومراجعه ومراجعه ومراجع	290
M	23	7		1		و الما حمل منها من المراجعة المراجعة المراجعة المراجعة بعن المراجعة المراجعة المراجعة المراجعة المراجعة المراجعة	1	با جانب وندي والي وليل حيث الين وليل وليل حيث الين وليل عن وليل من الي وليل وليل وليل و	والمرجع والذر يحد عام يحم التي حمر محم والمحمر والمحمر فالم المراجع المراجع المراجع المراجع المراجع ا	418
P	22	5				الما جما المادية من الله معادية منامية عنامية معامية ميارية من عن عن	ويتقبينه لتبل فيلافها للبلة هيل البلايين من منها ويتقربه	ه میرا هم بین هوار بین که بین این این می این این بین بین بین این این این این این این این این این ا	مانا کا وراع کا در این پر میں پریم زور ہے ج	160
Е	21	3				الا الا الله الله الله الله الله الله ا	1	ه المراجع الله الله المراجعة المراجع الله الله المراجع الله المراجع الله المراجع الله المراجع ال		151
R	20	0				ويراجع المادية فيترفيه فيدفيه فيدفيه فيدفيه فيدفيه فيدفيه فيدفيه	an a	س خان سو کن و من و بن و بن و بن من من و بن و من و بن و ب		
A	19	1		6		والمتاقبة والشية الما تنت تنت من من اليا ابية اليامية عن الما المارية الم	4		ومراجع البرة جريا المرة فعنا مرة موادية فيناجينا مروديه ويراجع مر	719
т	18	4		1			1	وي الله الله الله الله الله الله الله الل	ی داده وی بال هار در بال هار است کمی بیش این با	215
U	17	0					این هیاهه ها همایی این میکین این میکین بیار میکین	ین کردین دیرا که میردند ریایین میل بین		
R	16	0					الما هذه الله منه بدية الية ليلامية جيدًا عنه اليوانية التي من	ويرجع ويرجع والاعترار والارتبار بالم والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع		ملينا فبيرانية فندا لنبا فند فين تبته من المحافظ من الم
Е	15	0		_ <u>`</u>			هما الباريني هي مراجع اليه بين اين مي مي مراجع اليه بين ا	الم الما الما الما الما الما الما الما		
	14	0					مى جىنىيە ھەر مەرىيە ھەر مەر مەر مەر مەرىيە مەرىيە مەرىيە مەرىيە مەرىيە		الله الله المراقبة على الله الله الله الله على الله الله الله الله الله الله الله ال	
	13	0			، کا کا کا پی جاری ہو کا پی کا کا ہے ۔	ما هم هم اسه مین بین بین مین بین مین هیز مین مین مین مین مین بین مین از این مین از این مین از این مین این مین			من هما <u>هم ا</u> البرغ خربة أحما جري جري عليه أحما كما تحريك الحير خرية جريبة وي الجريبة في المراجعة و	یم سرے میں منہ جر انتہ کر انتہ
	12	2				2		4 98	1110	217
	11	1				4		306	792	129
	10	14				د است های میں میں اور	سر کرداری دری سرمینه می می بیان بیان میشور ورویی	87	555	32
	9	11		ة من 14 مار مار مار مع		1		20	494	3
	8	10		1	ه ها هم ها	16		229	1944	7
	7	9		و هذا اینا هیا هیا هیا هیا می کرد کرد چو پیل چیز ہوتا ہی کے		17		208	1752	2
	6	12	د های ها	1		21		87	2183	
	5	4		1		51		477	4 902	1
	4	26				126	•	285	3342	
	3	24				173		189	2404	
	2	25				89		293	3119	
	1	24			 میں جہتے ہیں جب جب جب جب جب کے جب	42		323	3261	****
	0	20	, <b>~~~~</b> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	****		52		874	2304	
	-1	21		• • • • • • • • • • • • • • • • • • •		41		151	1637	
	~2	1				23		42	308	
		228	0	10	0	658	11	4071	30109	2683

TT had don't be hidden to be

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Number

		Estimated Number	Total Weekly Hours		Number Impired Per	Total Chamberlan Line St		
Date		Impinged	of Darkness	% Datkoca	Hour of Darkson	Lines a 107 rot b	•	Number Impinged Pe
September	3-9	13, 535	78.2	47	173	Liter 1 10. (24 nows)	Liters x 10' (night)	Liters x 107
	10-16	18,686	80.4	48	232	1, 737	826	16
•	17-23	1,071	82.5	49	19	1,620	778	24
November	19-25	3, 934	99.8	59	15	441	216	5
	26-2 Dec.	93, 106	101.1	60		423	2 50	16
December	3-9	103, 534	101.9	A1	1 014	754	4 52	206
	10-16	425, 807	102.5	63	4 154	1,183	722	143
	17-23	573, 367	102.7	61 .	5,105	1,695	1,034	412
	24-30	620, 126	102.5	41	3, 563	1, 572	959	596
	31-6 jan,	476, 420	102 1	81	6.050	1,757	1,072	578
January	7-13	155. 527	101.3	<b>60</b>	4.008	1,757	1,072	444
-	14-20	258. 525	100 1	60	1,634	1,757	1,054	157
	21-27	157.556	98 7	60	2, 583	1,355	813	318
	28-3 Feb.	241, 619	94.9	59	1,596	1,757	1,037	152
February	4-10	219 270	95.9	08	2,493	1,757	1,019	237
	11-17	413 880	02.0	57	2,303	1,676	955	230
	18-24	41.005	93.2	55	4, 441	1,757	966	42.8
	25-1 Mar.	41 700	91.3	54	450	1,757	949	41
Manch	4-10		89.0	53	. 470	1,757	931	**
	11-17	39,183	86,7	52	4.52	1,757	914	10
	11-11	138, 194	84.6	50	1,652	1, 757.	879	4J
	10-24	75, 566	82.2 .	49	919	1.757	861	128
	23-31	34,358	79.8	48	431	1,405	674	85
Total		4 157 398	0050 2					
Mean		188, 988	2002.1	44		33, 208		
					2,026	1, 509	838	200

Table 10. Estimated number of fish and macroinvertebrates impinged on the traveling screens per week, per hour of darkness, and per 10 million liters of circulating water flow at the Oyster Creek Generating Station from 3 September 1978 through 31 March 1979.

Table 11. Total of live, dead, and damaged fishes and macroinvertebrates impinged on the traveling screens at the Oyster Creek Generating Station from 3 September 1978 through 31 March 1979

Species	Number	Live	Dead	Damaged	& Dead
Dasyatis sayi	1		~~~~~		
Anguilla rostrata	3	2	-	1	0.0
Conger oceanicus	· ī	ĩ		· · · · · ·	0.0
Alosa aestivalis	229	60	29	140	12 7
Alosa pseudoharengus	15	2		12	67
Alosa sapidissima	3	-	~		0.0
Brevoortia tyrannus	18	1	- 1	16	5.6
Anchoa mitchilli	37	5	17	15	45.9
Opsanus tau	8	6		2	0.0
Merluccius bilinearis	5	· -	-	. 5	0.0
Urophycis chuss	· 1	1	~	-	0.0
Rissola marginata	1	1	~		0.0
Cyprinodon variegatus	. 8	4	-	4	0.0
Fundulus heteroclitus	2	2	-		ŏ.ŏ
Menidia menidia	. 384	231	50	103	13.0
Apeltes quadracus	22	15	1	6	4.5
Gasterosteus aculeatus	60	53	-	7	0.0
Hippocampus erectus	1	1	-	~	0.0
Syngnathus fuscus	256	235	4	17	1.6
Morone americana	3	-	-	. 3	0.0
Pomatomus saltatrix	1		~	1	0.0
Caranx hippos	2	2	-		0.0
Bairdiella chrysura	1	-		1	0.0
Cynoscion regalis	6	5	~	1	0.0
Tautoga onitis	31	31	-	-	0.0
Tautogolabrus adspersus	3	3	-		0.0
Gobiosoma bosci	10	· <b>-</b>	10	-	100.0
Prionotus evolans	6	3	1	2	16.7
Myoxocephalus aenaeus	2	2	-	-	0.0
Etropus microstomus	16	11	· - ·	5	0.0
Scophthalmus aquosus	5	1	-	4	0.0
Pseudopleuronectes		1			-
americanus	615	360	5	250	0.8
Trinectes maculatus	2	2	· —	-	0.0
Sphoeroides maculatus	4		-	-	0.0
Total Vertebrates	1762	1044	119	599	6.8
Class Polychaeta	49	19	6	24	12.2
Penaeus aztecus	3	2	1	_	33.3
Palaemonetes vulgaris	56	48	6	2	10.7
Crangon septemspinosa	1635	1262	220	153	13.5
Cancer irroratus	1	1	· · -		0.0
Ovalipes ocellatus	71	50	6	15	∞ <b>8 ₀</b> ∕ 5
Callinectes sapidus	370	273	10	87	2.7
Callinectes similis	2	1	-	1	0.0
Neopanope sayi	1	1	-		0.0
Phylum Nemertea	2	-		2	0.0
Total Invertebrates	2190	1657	249	284	11.4
Grand Totals	3,952	2701	368	883	9.3

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Table 12. Total number of fishes and macroinvertebrates impinged on the Ristroph screen and taken in the live and debris troughs at the Oyster Creek Generating Station from 28 November 1978 through 9 January 1979.

	Specimens Collected	Live No.	Trough १	Debris No.	Trough %
Anguilla rostrata					میدید مد من موقع قده
Conger oceanicus	2	2	-	<u>1</u>	-
Alosa aestivalis	20	4	_	16	· -
Brevoortia tyrannus	11	2		10	
Anchoa mitchilli	3	ĩ	· _ ·	3	-
Opsanus tau	ġ	· 2		·	-
Merluccius bilinearis	1	0		1	
Urophycis chuss	ī	õ		1	· _
Cyprinodon variegatus	2	1		î	
Menidia menidia	42	10	24	32	76
Apeltes guadracus	37		24	28	76
Syngnathus fuscus	49	14	29	- 15	70
Micropogon undulatus	1	-0		1	11
Tautoga onitis	- 7	2	_	. 5	
Nysoblennius hentzi	3	õ		3	
Gobiosoma bosci	72	Ğ	13	63	8.9
Myoxocephalus aenaeus	1	ĩ		05	
Etropus microstomus	3	- ō		<b>3</b> .	
Pseudopleuronectes		•		5	
americanus	155	20	13	135	87
Total Fishes	421	78	19	343	81
المتعر ويواعد المترابية والبرانية والمترابة والمترابة والمترابة والمترابة والمترابة والمترابة والمترابة	يروي فيديد والبلغ والبلغ والبري والبري والبري والبلغ والب		ب جرجہ خردہ در کا جرک	ر مرد من من جو الباطة هذه	ورديرة فيدعية البدانية التلا
Urosalpinx cinereus	1	· 1	_	0	
Class Polychaeta	41	6	15	35	85
Palaemonetes vulgaris	185	38	21	147	79
Crangon septemspinosa	.3817	1208	32	2609	68
Cancer irroratus	3	2		ĺ	-
Ovalipes ocellatus	9	3	-	6	
Callinectes sapidus	2	0	-	2	-
Total Invertebrates	4058	1258	31	2800	69

Total sampling time was 560 mins ( 54 samples).

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Table 13. Condition (live, damaged, dead) of fishes and macroinvertebrates impinged on the Ristroph screen at the Oyster Creek Generating Station from 28 November 1978 through 9 January 1979.

			Li	ve Tr	ough	*		يريني الي هي هي جي هن هو النا		Deb	ris 1	roug	h		دين فدي من من من ف	ہ ہے الدخے ال	Bot	h .Tr c	ughs		
	Total	L Li	ve	Dam	aged	De	ad	(Tota)	Li	ve	Dan	naged	De	ad	vlota	1 'L	ive	Dan	aged	De	ad
Anguilla rostrata	1	1	_	0	-	0		1	101	- -			0	- 15	NO. 2	010	• •	NO .	8	NO.	¥
Conger oceanicus	2	2		õ		ŏ	-	Ĵ	_		_	_	-	_	2	. 2		0		0	~
Alosa aestivalis	4	2		2		Ő		15	6		8	_	1	_	10	. 2	-	10	-	1	-
Brevoortia tyrannus	2	ō	<b></b> .	. 2	-	ň		- G	ň	-	0		<u>,</u>	_	19	0		10	-	T	-
Anchoa mitchilli	ī	ŏ	-	ñ	~	1.		2	0	_	, ,	_	U N	-	11	0		11	-	0	-
Opsanus tau	2	ž		ň	-	្តែ	_	7		_	. 0	_	2		3	U A	-	U	-	3	-
Merluccius bilinearis	-	<u> </u>	-	<u> </u>	-	-		1	2	_	. 1	_	5		9,	4	-	0		5	
Urophycis chuss		_	-		-	_	_	วิ	ŏ	_	1	_	0		1	U	-	Ť	-	0	-
Cyprinodon variegatus	1	1	-	0	`	0	_	1	ň	_	1	_	Ň	_	1	1		1	~	0	-
Menidia menidia	8	3		4		ĩ	-	30	17	57	ġ	30	А	12	20	20	= -	12		U F	1.5
Apeltes quadracus	9	4		ī		4	-	28	22	79	ő	0	6	21	37	20	22	13	34	10	13
Syngnathus fuscus	13	11		2		ō	-	35	30	86	. 3	ğ	2	6	48	20	95	1 5	10	10	27.
Micropogon undulatus	· 🕳		-		-	-		ĩ	Õ		õ	-	ĩ	Ľ	10	1		ñ	10	1	4
Tautoga onitis	2	2	-	0		0	-	5	5	·	ō.		õ		7	7	_	ň	-	ō	-
Hypsoblennius hentzi	-	•••	-		-		-	2	· ī	-	ī.		ō		2	í		ĭ	-	ň	
Gobiosoma bosci	9	0		: 0		9		63	3	5	9	14	51	81	72	3	4	ā	13	60	83
Myoxocephalus aenaeus	1	1		0		0		-	-	-		_	<u>ــــــــــــــــــــــــــــــــــــ</u>		1	ĩ		Ō	-	0	-
Etropus microstomus Pseudopleuronectes	· -	-	-	-		-	-	3	2	-	1		0	-	3	2		ĭ	-	ŏ	~
americanus	20	18		2		0		135	116	86	19	14	0	0	155	134	86	21	14	0	0
Total Fishes	75	47	63	13	17	15	20	. 339	205	60	62	18	72	21	414	252	61	75	18	87	21
Urosalpinx cinereus	1	1		0		0	، مرد درد هردهه هه		 			ديرو طناجت ڪت . هنو	19-19-19-19-19-19-19-19-19-19-19-19-19-1		1	1		0	 	0	
Class Polychaeta	6	1	-	4	-	1		35	16	46	· 13	37	· 6	17	41	17	41	17	41	7	17
Palaemonetes vulgaris	37	34	92	1	3	2	5	139	126	91	4	3	9	6	176	160	91	5	3	11	6
Crangon septemspinosa	1189	1107	93	24	2	58	5	2400 2	252	94	60	3	88	4	3589	3359	94	84	2	146	4
Cancer irroratus	2	2		0	-	0	-	. 1	1		0		0	-	3	3		0	-	0	-
Ovalipes ocellatus	3	3	-	0	-	0		6	6		0		0		9	9		0		0	-
Callinectes sapidus			-					2	2	-	0		0		2	2	-	0	-	0	-
Total Invertebrates	12 38	1148	93	29	2	61	5	2583	2403	93	77	3	103	4	38 21	3551	93	106	3	164	4

Total sampling time was 530 mins ( 53 samples).

Table 14. Description of trawl and seine stations regularly sampled during Oyster Creek Generating Station Ecological Studies.

### Station 1: Cedar Creek Mouth

## <u>Trawl</u>

Area Sampled:

Navigation channel in mouth of Cedar Creek, west of Intracoastal Waterway can buoy C "63"; tow is made in mid-channel between flashing light FL "1" and the third black channel marker inside Cedar Creek.

Depth Sampled: 1.5 to 2.1 m.

Current: Very slight, dependent on tide.

Claridty: Clear to tannic brown.

Aquatic Vegetation: <u>Zostera marina</u> attached and detrital, <u>Agardhiella</u>, and <u>Ulva</u> occasional to abundant.

### Seine

Area Sampled:

Off the easternmost peninsula of the north bank of Cedar Creek mouth, area sampled is approximately 100 m of a narrow (5 m) sandy beach on the south side of the peninsular tip.

Beach and Bottom Composition:

Hard-packed sand and gravel; slope very gentle.

Depth Sampled: 0 to 1 m; during extremely high tides entire beach is submerged to vegetation zone.

Slight, dependent on tide.

Current:

Clarity:

Normally clear, turbid with surf.

Aquatic Vegetation: Scattered beds of <u>Zostera</u> <u>marina</u>; occasional <u>Ulva</u> and detritus.

### Station 4: Forked River Mouth

### Trawl

Area Sampled:

Mouth of Forked River, west of Intracoastal Waterway mid-channel marker BW N "Dl"; tow is made in north approach channel between buoys 5 and 6 outside of mouth and buoys 9 and 10 inside of mouth.

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# Table 14. (cont.)

Depth Sampled: 1.5 to 2.1 m.

Slight to moderate, westerly due to influence of OCGS.

Clarity: Clear to turbid.

Aquatic Vegetation: Detritus (Zostera marina) none to abundant: Ulva and Codium none to occasional.

## Seine

patches of mud; slope gentle.

Area Sampled:

Current:

At the easternmost point of the south bank of Forked River mouth; area sampled is approximately 100 m of a narrow (5 m) sandy beach in the cove on the north side of the point.

Soft sand throughout sampling area with frequent

Beach and Bottom Composition:

Depth Sampled:

0 to 1.1 m.

Current:

Slight, westerly due to influence of OCGS.

Clarity: Normally clear.

Aquatic Vegetation:

Occasional patches of <u>Zostera marina</u>; floating <u>Zostera</u>, <u>Ulva</u> and detritus, occasional to common.

### Station 17: Oyster Creek Mouth

### Trawl

Area Sampled:

Mouth of Oyster Creek, due west of Intracoastal Waterway mid-channel marker BW N "El"; tow is made west to east beginning at second black channel stake located just west of bulkhead on north bank and ending in vicinity of first channel marker can and nun.

Depth Sampled: 1.8 to 3.7 m.

Current: Slight to moderate, easterly due to\_influence OCGS.

Clear to turbid.

Clarity:

Aquatic Vegetation:

Detritus rare to common; <u>Zostera</u> and <u>Codium fragile</u> none to occasional; shellhash occasional.

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Table 14. (cont.)

	Seine
Area Sampled:	North bank of Oyster Creek mouth. Area sampled in approximately 100 m of a narrow (5 m) sandy beach immediately east of the bulkhead at the mouth of Oyster Creek.
Beach and Bottom	
Composition:	Hard sand and coarse gravel from shore to a depth of about 0.6 m, becoming soft sand and mud to edge of sampling area; slope steep.
Depth Sampled:	0 to 1.2 m.
Current:	Slight to moderate, easterly due to influence of OCGS.
Clarity:	Normally clear, turbid with surf.
Aqatic Vegetation:	None attached in immediate sampling area; occasional

Station 23: Double Creek Mouth

### Trawl

Area Sampled:

Mouth of Double Creek, southwest of Intracoastal Waterway flashing light FL R "68"; tow is made in mid-channel between the fourth black channel stake inside Double Creek and the flashing light FL R "2".

floating Zostera marina, Ulva, Codium, and detritus.

Depth Sampled:

2.1 to 3.7 m.

Current: Slight, dependent on tide.

Clarity:

Usually clear.

Aquatic Vegetation:

Zostera marina and detritus, occasional to abundant; Ulva and Codium fragile occasional to common.

# <u>Seine</u>

Area Sampled:

North bank of mouth of Double Creek, area sampled is approximately 100 m of a narrow (5 m) sandy beach, located between two groin bulkheads immediately northwest of Double Creek flashing light FL R "2".

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# Table 14. (cont.)

Beach and Bottom	
Composition:	Firm sand throughout with some gravel to edge of sampling area; slope gentle.
Depth Sampled:	0 to 0.8 m.
Current:	None to slight.
Clarity:	Clear to turbid.
Aquatic Vegetation:	Attached and floating <u>Zostera marina</u> occasional to abundant, <u>Codium fragile</u> and detritus occasional to common; beach often completely covered with a layer of dead Zostera up to 30 cm thick.

		101 Keu	10.061	oyster	deek,		ceek		
Species	Sep	Oct	Nov	Dec	Jan	Feb	Mar	.Totals	
Anguilla rostrata	10	12	1	-	2	-	6	31	
Conger oceanicus	-	3	1	-	-	-		4	
Alosa aestivalis	1	-		3	259	-	70	333	
Alosa pseudoharengus	-	1	-	1	15	1	31	49	
Alosa sapidissima	-	· -	-		12	-	1	13	
Brevoortia tyrannus	-	-	-	2		-	-	2	
Anchoa hepsetus	1	-	<del>-</del> .	-	· •••	· •	-	1 .	
Anchoa mitchilli	2025	1398	956	23	1	-	1	4404	
Synodus foetens	1	-	-	-	-	-	-	1	
Opsanus tau	53	19	9	-	2	-	-	83	
Cyprinodon variegatus	· •	2	1	1	-	-	10	14	
Fundulus heteroclitus	16	11	19	43	19	30	49	187	
Fundulus majalis	5	·	-	13	1	-	6	25	
Lucania parva	3	<del></del>	-	-		-	-	3	
Menidia beryllina	1	4	7	6	-	22	15	55	
Menidia menidia	507	361	397	2800	77	42	491	4675	
Apeltes guadracus	79	13	195	228	195	29	121	860	
Gasterosteus aculeatus	-	· -	-	-	•		9	9	
Syngnathus fuscus	66	67	86	26	4	-	ī	<b>2</b> 50	
Morone americana	-	-	1	-	· -	-	3	- 4	
Costethus lineatus	1	-	-	-	-	-	-	i	
Pomatomus saltatrix	3	5	-	-	-	· •	-	8	
Caranx hippos	9	2	-	-	-	· 🗕	-	11	
Selene vomer	-	2	-	-	· •	· •	-	2	
Trachinotus falcatus	48	5	1	-		· 🕳	-	54	
Stenotomus chrysops	1	-	-	🛥	-	-	-	1	
Bairdiella chrysura	5	7	-	-		-	-	12	
Cynoscion regalis	41	48	1	-	-	<b>.</b>	-	90	
Menticirrhus saxatilis	11	-	-	-	-	-	-	11	
Chaetodon ocellatus	-	1	-	-	-	-	-	1	
Tautoga onitis	· 6	16	57	13	8.	1	2	103	
Tautogolabrus adspersus	-	-	2	1	-	1	-	4	
Mugil curema	4	3	-	-	<b></b> .	-	-	7	
Chasmodes bosquianus	1	3	3		-	-	-	7	
Hypsoblennius hentzi	1	-	-		-	-	-	1	
Ammodytes sp.	-	-	-	-	-	. 🛥	1	1	
Gobiosoma bosci	8	33	4	12	1	-	1	59	
Gobiosoma ginsburgi	-	-	1	-	· -	-	-	1	
Peprilus triacanthus	-	1		-	-	-	-	1	
Prionotus evolans	11	3	-	-	-	-	-	14	
Etropus microstomus	<b>—</b>	-	1	3	1	-	-	5	
Paralichthys dentatus	1	1	-	-	-	-	-	2	
Scophthalmus aguosus	-	-	1	1	-	-	-	2	
Pseudopleuronectes									
americanus	2	3	19	97	38	1	153	313	
Trinectes maculatus	2	14	5	1	-	-	2	24	
Sphoeroides maculatus	17	-	-	-	· -	-	-	17	
Crangon septemspinosa	312	635	4699	20516	8926	23	2392	37503	
Callinectes sapidus	159	123	66	88	1	-	37	474	
Callinectes similis	-	-	-	2		-	-	2	
									*******
Total Specimens	3411	2796	6533	23880	9562	- 150	3402	49734	
Total Taxa	33	29	24	21	17	.9	21	49	
Total Collections	36	36	36	36	. 32	8	36	220	

Table 15. Total number of specimens taken by trawl and seine from September 1978 through March 1979 at the mouth of Cedar Creek, Forked River, Oyster Creek, and Double Creek

				010000	aleen ja	n muni	e dreek		
Species	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Totals	
Anguilla rostrata	3	3	-	-	1 .	-	2	9	
Conger oceanicus	-	3	-	-		-	-	3	
Alosa aestivalis	-	-		-	66	-	5	71	
Alosa pseudoharengus	-	-	-	1	14	-	6	21	
Alosa sapidissima	-	-	-	-	12	-	-	12	
Brevoortia tyrannus	-	-	-	2	-	-	+	2	
Anchoa mitchilli	1810	1082	921	23	1 .	-	-	3837	
Opsanus tau	20	3	2	-	2.	-	-	27	
Fundulus heteroclitus	-	-	-	-	-	-	2	2	
Menidia beryllina	· -	-	<b>-</b> '	-	<b>.</b>	-	ĩ	1	
Menidia menidia	2	7	58	95	7	-	2	171	
Apeltes guadracus	-	-	2	118	69	-	รอ	278	
Gasterosteus aculeatus	-	-	· -		-	-	1	1	
Syngnathus fuscus	-	7	2	7	2		1	10	
Morone americana	-	-	ĩ	· _	-	-	-	· 1	*
Carany hinnog	3	-		-	-	-	_	1 2	
Salana Nomer	5	1		·	_	-	-	د ۱	
	- 1	T	-	_	-	-	-	1	
Curoacion recalia	·	40	1	-	-	-	-	1	
Cynoscion regains	21	40	+		<b>-</b> ,	-	-	12	
menticirinus saxatilis	1	-	-	-	-	-	-	1	
Lautoga onitis	2	T	3	6	<b>b</b> .	-		18	
laucogolabrus adspersus		-	· -	T	-	-	.=	1	
chasmodes bosquianus	-	-	1	-	-	-	-	1	
GOD 1 OSOMA DOSC1	L L	18	_ <b>1</b>	1	1	-	1	29	
Prionotus evolans	8	T	-	-	-	• • •	-	9	
Etropus microstomus	-	-	-	2	1		-	3	
Paralichthys dentatus	-	1	-	-	-	-	-	1	
Scophthalmus aquosus	• .	-	1	1	• · · ·	-	-	2	
Pseudopleuronectes									
americanus	-	1	13	90	22	. 🛥	93	219	
Trinectes maculatus	-	12	5	1	-	-	2	20	
Sphoeroides maculatus	3	· 🛥	-	-	-	-	-	3	
Crangon septemspinosa	3	119	1315	9305	6353	-	912	18007	
Callinectes sapidus	18	20	2	49	-	-	12	101	
						******			
Total Specimens	1906	1319	2328	9708	6557	0	1078	22896	
Total Taxa	14	16	15	15	14	0	13	33	
Total Collections	12	12	12	12	12	0	12	72	

Table 16. Total number of specimens taken by 4.9-m trawl from September 1978 through March 1979 at the mouth of Cedar Creek, Forked River, Oyster Creek, and Double Creek

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Table 17. Total number of specimens taken by 45.7-m seine from September 1978 through March 1979 at the mouth of Cedar Creek, Forked River, Oyster Creek, and Double Creek

******************************									
Species	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Thtale	*****
Anguilla rostrata	7	7	-				4	18	
Conger oceanicus	-	-	1	-	-	-	-	1	
Alosa aestivalis	1	-	-	2	193	-	65	261	
Alosa pseudoharengus	-	1	-	-	1	1	25	28	
Alosa sapidissima	-	-	-	· -	-	-	1		
Anchoa mitchilli	88	188	17	-	-	-		293	
Opsanus tau	. 33	16	7		-	-	·	56	
Cyprinodon variegatus	-	-	-	-		· 🕳	1	1	
Fundulus heteroclitus	2	1	5	4	3	4	3	22	•
Fundulus majalis	-	-	-	9	ĩ		2	12	
Menidia beryllina	-		4	ī	· _	15	-	20	
Menidia menidia	126	61	98	504	58	10	78	935	
Apeltes quadracus	30	2	12	31	20	-	12	107	
Gasterosteus aculeatus	-	-	-			-	, 5	5	
Syngnathus fuscus	50	38	78	17	1		1	185	
Morone americana		-	-		-	-	2	2	
Oostethus lineatus	1	-	-	-	-	·	-	1	
Pomatomus saltatrix	2	5	-	-	-	-	-	7	
Caranx hippos	3		. 🕳	-	· _	-	-	3	
Trachinotus falcatus	14	4	-	<b>-</b>	· _ *	-	-	18	
Bairdiella chrysura	4	7	-		-	-	-	· 11	
Cynoscion regalis	9	7	-	-	-	-	-	16	
Menticirrhus saxatilis	10	-	-	-	-	-	-	10	
Chaetodon ocellatus	-	1	-	-	-		-	1	
Tautoga, onitis	4	15	54	6	2	1	2	84	
Tautogolabrus adspersus	. 🕳	-	2	-	-	-	-	2	
Mugil curema	. 3	2	-	-	-	-	-	5	
Chasmodes bosquianus	1	3	2	··· · ·	· -	<b>-</b> '	, . <b></b>	6	
Hypsoblennius hentzi	1	-		-	• – `	-	-	1	
Gobiosoma bosci	4	4	2	3	-	· 🕳	-	13	
Gobiosoma ginsburgi	-		1	-	-	-	·	1	
Peprilus triacanthus	-	1	-		<del>.</del> .	-	-	1	
Prionotus evolans	3	2		-	-	-	-	5	
Etropus microstomus	-	-	1	1	-	-	-	2	
Paralichthys dentatus	1	-	-	-	-	-	-	1	
Pseudopleuronectes									
americanus	1	2	6	7	15	-	52	83	
Trinectes maculatus	1	1	-	-	<b>~</b>	-	-	2	
Sphoeroides maculatus	12		-	-	-	-		12	
Crangon septemspinosa	20	50	1377	7536	934	3	227	10147	
Callinectes sapidus	109	78	48	34	1	-	21	291	
Callinectes similis	-			2		-		2	
Total Specimens	540	496	1715	8157	1229	34	501	12672	
Total Taxa	27	23	17	14	11	6	16	41	
Total Collections	12	12	12	12	10	4	12	74	

Table 18. Total number of specimens taken by 12.2-m seine from September 1978 through March 1979 at the mouth of Cedar Creek, Forked River, Oyster Creek, and Double Creek

								•	
Species	Sep	Oct	Nov	Dec	Jan	Feb	Mar	.Totals	****
Anguilla rostrata	-	2	1.	-	1		-	4	
Alosa aestivalis	-	-	-	1		-	-	· · · · · ·	
Anchoa hepsetus	· 1	-		-	-	-	·	î	
Anchoa mitchilli	127	128	18	-	-	-	1	274	
Synodus foetens	1	-	-	<b>-</b> '	-	-	-		
Cyprinodon variegatus	-	2	1	1	_ '	-	9	- 13	
Fundulus heteroclitus	14	10	14	39	16	26	44	163	
Fundulus majalis	5	-	-	4	- ·		4	13	
Lucania parva	3	-	-	-	<b>.</b> `	-	-		
Menidia beryllina	ĩ	4	3	5	-	7	14	ر ۱۲ ،	
Menidia menidia	379	293	241	2201	12	32	411	2560	
Apeltes guadracus	49	11	181	79	106	20	*11	3309	
Gasterosteus aculeatus			-	-	100	23	10	525	
Syngmathus fuscus	16	22	6	2	1	-	3	3	
Morone americana	-		-	-	1	_	-	4/	
Pomatomus saltatrix	1	-	-	-		-	1	1	
Caranx hippos	3	2	-	-	-	_	_	E T	
Selene vomer	-	ī.	-	_	_	_	-	5	
Trachinotus falcatus	34	· 1	1	-		-	-	36	
Bairdiella chrysura	1	-	-	-	-	-	-	30	
Cynoscion regalis	ī	1		-	-	_	-	1 2	
Tautoga onitis	-	-	-	1	<b>_</b> ·	_	_	. 1	
Tautogolabrus adspersus	-	-	-	-	-	1	-	1	
Mugil curema	1	1	-	-	-	-	-	2	
Ammodytes sp.	-	· _	-	-	_	_	ĩ		
Gobiosoma bosci	3	11	1	2	-	_	1	17	
Pseudonleuronectes	5	**	1	L	_	-	-	17	
americanus	1	-	-	-	· 1	1	9	11	
Trinectes maculatus	ī	T	_	_		-	0	11	
Sphoer oldog magulatur	· 5	-	-	-	-	-	-	2	
Crancon septemoninosa	.280	166	2007	3675	1620		1953	0740	
Callingthe conidua	203	40,0	2007	3075	1023	20	1223	9349	
	32	25	TO	5	-		4	82	
Total Specimens	965	981	2490	6015	1776	116	1822	14166	******
Total Taxa	22	17	12	12	7	7	12	11 T4T00	
Total Collections	12	12	12	12	10	Å	12	31 74	
Sour WIICCLUND	74	16	16	14	TO	7	12	/4	

Table 19. Total number of specimens taken in collections during day and night at the mouth of Oyster Creek and Forked River from September 1978 through March 1979.

	 Cor	tombor		• • • • • • • • • • • • • • • • • • •			*******	*******				*******		
Species	Dav	Nabe		Nicht	NO Date	vember	De	cember	Jai	nuary	Fel	oruary	Ma	rch
Anguilla rostrata	va y	7	Day	NIGHT	Day	. NIGht	Day	Night	Day	Night	Day	Night	Day	Night
Conger oceanicus	2		2	2	-		-	-	1	1	-	-	-	6
Alosa aestivalis	-	1	-	3		. 1	-			-	• •	-	-	-
Aloga Decudobarongue	_	L .	-	-	-	-	-	Ŧ	51	208	-	-	2	68
Alosa gapidiggina	-	-	-	T	-	-	T	-	- 13	2	-	1	4	27
Brevoortia tyrannug	-	-	_	-	-	-	-	. –	11	1	-	-	-	1
Anchos honcotus	-	- 1	-		-	-	2	-	-	-	-	-	-	-
Anchoa mitchilli	84	54	250	242	40	<u> </u>		-	-	-	-	-	-	-
Synodys foeteng	1	54	379	242	40	024	21	-	-	-	-	-	-	1
Openning tou	1		-		-		-	-	-	-	<b>-</b>	-	-	-
Cyprinodon	4	30	3	11		6		-	2	-	-	÷.	-	-
cyprinodon				-		-								
Variega cus Eurodulue	-	-	1	T .	-	T	-	1	· -	-	-	-	6	3
	•	<b>n</b> .			· _	· _								
neter oci i tus	1	2	6	5	7	, <b>5</b> ·	12	16	5	14	2	28	19	25
rundulus majalis	-	-	-		-		2	10	-	<b>-</b> .		-	1	5
Menidia beryllina	-		-	2	-	1	4	2	-	-	21	1	2	i
Menidia menidia	86	47	174	24	80	256	99	150	, 19	47	22	20	19	453
Apeltes quadracus	2	-	4	6	-	• 3	31	78	· 19	125	6	23	25	76
Gasterosteus														
aculeatus	-	-	-	-	-	-	-	-	-	-	· · <b>-</b>	-	1	6
Syngnathus fuscus	8	· 14	15	23	15	40	8	7	2	-	-	-	-	-
Morone americana	-	-	-	-	-	-	-	-	-	-	-	-	-	3 _
Pomatomus saltatrix	·	1		3	-	-	-	-	-	-	-	-	-	- 9
Caranx hippos	5	4	2	-	-	-	-	-	-	-	-	-	-	<b>-</b> .
Selene vomer	-	-	1	-	-	-	` <b>-</b>	-	-	-	-	-	-	-
Trachinotus falcatus	38	10		4	. 1	-	• -	-	-	-	-	-	-	-
Stenotomus chrysops	-	1	-	-	-	· -	÷	-	• •	-	-	-	-	-
Bairdiella chrysura	4	1	2	4	-	-	-	-	-	-	-	-	-	-
Cynoscion regalis	5	- 34	3	42	-	1	-		<b>-</b> .	-	-	-	-	-
Menticirrhus									;					
saxatilis	3	- 8	- ·	-	-	-	-	-	-	-	-	-	-	-
Chaetodon ocellatus	-	-	-	1	-	. 🛥	-	-	-	-	-	-	-	-
Tautoga onitis	5	1	8	7	22	28	5	. 8	1	7	-	1	-	2 /
Tautogolabrus														
adspersus	-	-	-	-		-	· •	1	-	· 🗕	1	. 🗕	-	-
Mugil curema	4		-	3		-	-	-	-	-	-		-	-
Chasmodes bosquianus	-	1	3	-	1	-	-	-	<u></u>	-	-	-	-	-
Hypsoblennius hentzi	1	-	-	-	-		-	-	-		-	-	-	-
Ammodytes sp.	-	-	-	-	-	-	÷ 1	· · ·	-	-	-	-	-	1
Gobiosoma bosci	+	4	2	31	1	· 3	5	• 6	1	-	-	-	-	1 '
Peprilus triacanthus	-	-	-	1	-	• 🗕	-	· •	•	-	-	-	-	-
Prionotus evolans	3	8		3	· 🛥	÷	-	- -		-	-	-	-	-
Etropus microstomus	-	-	*	+	-	1	1	2	-	1	-	-	-	-
Scophthalmus aquosus	-	-	-	-	-	1	-	1	-	-	-	-	-	· -
Pseudopleuronectes													- · ·	
americanus	-	-	- 1	2	2	9	8	83	8	29	1	. +	40	93
Trinectes maculatus	-	1.	÷ .	14	- <b>-</b>	5	-	1	. –	-	-	-	-	2
Sphoeroides														
maculatus	6	10	-	-	-	***	-	-	-	-	-	-	-	-
Crangon														· · · ·
septemspinosa	5	15	62	518	174	2779	1939	14736	1102	7676	18	5	947	1022
Callinectes sapidus	46	51	38	49	21	35.	11	75	1	-	. +	-	2	35
Total Goodmann		211		1007	37.7	3700	21/0	15179	12 26	8111		79	1068	1831
Total opecimens	20	21	19	2007	11	18	15	17	14	11	. 7	, , , , ,	12	20
Total Collections	12	12	12	12	12	12	12	12	12	12	4	. 4	12	12
TOTAL OTTECTORS							, <b></b>					-	n marin a standante	

$\bigcirc$

Table 20. A comparison of the total number of specimens taken by month at the mouth of Cedar Creek, Forked River, Oyster Creek, and Double Creek from September 1978 through March 1979.

	*****			
Location	Cedar Creek	Forked Piver	STUBER 1978	
Temperature: air	15.5 - 25.0	15.0 - 27.0	light the second	Double Creek
Surface	18.5 - 21.5	18.8 - 24.4	18.4 - 27.0	25.0 - 27.5
Bottom	22.7 - 22.7	22.8 - 24.0	25 9 - 27 0	20.7 - 23.3
Salinity: Surface	7.5 - 13.0	15.0 - 18.0	15.0 - 21.0	23.0 - 23.0
Bottom	12.5 - 13.0	15.0 - 17.0	17.0 - 17.0	19.0 - 20.0
Oxygen: Surface	7.8 - 8.1	7.1 - 9.0	7.7 + 8.4	20.0 - 20.0
Bottom	7.8 - 7.8	8.6 - 8.8	7.6 - 7.8	
pH: Surface	7.2 - 7.6	7.5 - 7.8	7.4 - 7.8	7.4 - 9.0
Bottom	7.4 - 7.4	7.5 - 7.5	7.5 - 7.6	7.4 - 7.4
Secchi (cm.)	85.0 - 85.0	120.0 - 120.0	140.0 - 140.0	100.0 - 100.0
Species	No .	No .	No.	No.
Anguilla rostrata	1	8	1	-
Alosa aestivalis	-	1	-	-
Anchoa hepsetus	-	-	. 1	-
Anchoa mitchilli	1224	118	20	663
Synodus foetens	· —	-	1	<b>—</b>
Opsanus tau	9	26	13	5
rundulus neteroclitus	-	2	1	13
rundulus majalis	. —	• •		5
Lucania parva	-	-	, <del>.</del> .	· 3
Menidia beryllina	- -		<b>-</b> ,	1
menidia menidia	171	46	87	203
Apeltes quadracus	2	2		75
Syngnathus fuscus	6	19	3	38
Ostethus lineatus		-		1
Corony binner	2	1	-	-
Trachington falcatur	-	1	8	-
Stanotomus abrusona	<b>-</b>	2	46	. <del>.</del>
Bairdialla chrysups	_	-	1	-
Cynoscion recalis	··· ī	22	-	-
Menticirchug gavatilig	-			1
Tautoga onitis	<b>-</b>	Ă	2	_
Mugil curema	-	3	· 1 ·	-
Chasmodes bosquianus	-	ī	· •	-
Hypsoblennius hentzi	<b>_</b> ·		1	-
Gobiosoma bosci	_	2	2	4
Prionotus evolans	-	8	` <u>3</u>	. –
Paralichthys dentatus	· <b>1</b>		-	-
Pseudopleuronectes			· · ·	
americanus	1	··· -	~	1
Trinectes maculatus	-	1		1
Sphoeroides maculatus	-	15	1	1
Crangon septemspinosa	172	20	-	120
Callinectes sapidus	20	39	58	42
Total Specimens	1610	365	259	1177
Total Collections	6	12	12	6

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			***************************************	
Location	Cedar Creek	Forked River	R 1978 Oveter Crook	Pouble Creek
Temperature: air	18.0 - 20.5	16.0 - 21.0	18.0 - 22.0	21.4 - 21.5
Sur face	16.4 - 17.2	17.2 - 18.0	16.6 - 18.8	37.8 - 19.0
Bottom	16.8 - 16.8	17.0 - 18.0	17.4 - 18.0	17.8 - 17.8
Salinity: Surface	11.5 - 17.5	17.5 - 20.0	15.5 - 17.5	21.0 - 21.5
Bottom	11.5 - 12.0	20.0 - 20.5	17.0 - 18.0	20.5 - 21.0
Oxygen: Surface	8.1 - 8.6	8.5 - 9.6	8.2 - 9.0	8.5 - 9.1
Bottom	8.7 - 8.7	8.7 - 8.9	8.1 - 8.3	8.6 - 8.6
pH: Surface	7.7 - 8.2	7.9 - 8.3	7.8 - 8.2	$8_{-}0 - 8_{-}2$
Bottom	7.8 - 7.8	8.1 - 8.3	8.1 - 8.2	8.2 - 8.3
Secchi (cm.)	130.0 - 130.0	135.0 - 135.0	140.0 - 140.0	130.0 - 130.0
Species	No .	No .	No.	No .
Anguilla rostrata	-	5	4	3
Conger oceanicus		3.	· •	<b>-</b>
Alosa pseudoharengus	-	-	1	
Anchoa mitchilli	450	394	207	347
Cupringdon understore	-	4 ·	10	5
Cyprinodon variegatus	-	1	. 1	-
Monidia hereilia		2	9	-
Monidia monidia	114	105	-	2
Apolton gundrogue	114 D	10	. 93	49
Syncmathyna fysawa	2 ·	21	-	1
Pomatomus galtatriv	. L 1	31	1	28
Carany hinnog	-	2	-	1
Selene vomer	-	-	1	-
Trachinotus falcatus	-	_	. 4	1
Bairdiella chrysura	-	6	-	1
Cynoscion regalis	· –	34	11	3
Chaetodon ocellatus	-	1	-	-
Tautoga onitis	-	15	<b>–</b>	1
Mugil curema	-	3	-	·
Chasmodes bosquianus	-	1	2	-
Gobiosoma bosci	-	25	8	-
Peprilus triacanthus		-	1	-
Prionotus evolans	· -	L	2	-
Paralichthys dentatus	· · 1	-	-	-
rseud op 1 eur onectes	_	2	, I	-
Trinectes magulatur		1	· 13	-
Crangon sentemonings	21	194	386	34
Callinectes sapidus	11	35	52	25
Total Specimens	601	878	815	502
Total Collections	6	12	12	6.

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				ور ای
Location Temperature: air Surface Bottom Salinity: Surface Bottom Oxygen: Surface Bottom	Cedar Creek 10.2 - 13.0 11.7 - 13.1 12.6 - 12.6 18.0 - 18.5 19.5 - 19.5 9.2 - 9.6 9.7 - 9.7	Forked R 10.5 - 10.9 - 11.6 - 20.0 - 21.0 - 8.8 - 8.7 -	NOV EMBER 1978   Iver Oyster Creel   15.0 11.0 - 16.0   13.4 11.8 - 13.1   13.3 12.6 - 13.1   21.0 19.0 - 20.0   21.0 19.0 - 20.0   21.0 9.3 - 12.5   9.8 9.5 - 9.6	Double Creek 10.2 - 15.0 11.6 - 13.1 13.1 - 13.1 21.0 - 23.0 23.0 - 24.0 9.7 - 9.8 9.6 - 9.7
Bottom Secchi (cm.)	8.1 - 8.5 150.0 - 150.0	7.5 - 7.5 - 140.0 - 14	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$7.6 - 8.1 \\ 7.9 - 8.1 \\ 170.0 - 170.0$
Species Anguilla rostrata Conger oceanicus Anchoa mitchilli Opsanus tau Cyprinodon variegatus Fundulus heteroclitus Menidia beryllina Menidia beryllina Menidia menidia Apeltes quadracus Syngnathus fuscus Morone americana Trachinotus falcatus Cynoscion regalis Tautoga onitis Tautogolabrus adspersus Chasmodes bosquianus Gobiosoma bosci Gobiosoma ginsburgi Etropus microstomus Scophthalmus aquosus Pseudopleuronectes americanus Trinectes maculatus Crangon septemspinosa Callinectes sapidus	No. 	No. 	No. 1 20 6 - 7 173 1 11 1 - - - - - - - - - - - - -	No. 1 212 1 7 2 42 191 17 1 7 2 2 42 191 17 1 7 2 2 2 7 1434 7
Total Specimens Total Collections	428 6	2505 12	1666 12	1934 6

				· ··· · · · · · · · · · · · · · · · ·	DECEM	ARER 1978			
Location		Cedar	Creek	For ked	River	Ovster	Creek	Double Creek	
Temperature:	air	8.0 -	8.0	4.0 -	15.0	. 3.5 -	12.0	8.5 - 13.0	
•	Surface	6.5 -	6.7	6.0 -	8.9	6.4 -	9.2	7.4 - 9.5	
•	Bottom	6.8 -	7.0	7.4 -	8.0	6.6 -	7.6	7.4 - 7.5	
Salinity:	Surface	13.0 -	20.0	20.0 -	23.0	18.0 -	20.0	24.0 - 25.0	
	Bottom	20.0 -	22.0	24.0 -	24.0	19.0 -	24.0	24.0 - 25.0	
Oxygen:	Surface	9.8 -	10.8	10.8 -	12.4	10.1 -	11.5	11.0 - 11.3	
	Bottom	10.5 -	10.5	10.5 -	12.0	10.3 -	12.1	11.1 - 11.1	
pH:	Sur face	8.1 -	8.1	8.0 -	8.2	8.0 -	8.2	8.2 - 8.2	
	Bottom	7.9 -	8.2	8.1 -	8.2	8.0 -	8.1	8.1 - 8.2	
Secchi (cm)		120.0 -	120.0	120.0 -	120.0	110.0 -	110.0	180.0 - 180.0	
Species	یپ سے بپ ہو ہو جو جو حو نے خو خو خو جو ح	No .		No .		No.		No .	
Alosa aestiva	alis	-		-		1		2	
Alosa pseudo	harengus	-				1		·	
Brevoortia t	yrannus	-		-		2		-	
Anchoa mitch	illi	-		2		19		2	
Cyprinodon va	ariegatus	-				1		-	
Fundulus het	eroclitus	-		10		18		15	
Fundulus maj	alis			10		2		1	
Menidia bery	llina	~		2		4		-	
Menidia meni	dia	19		187		62		2532	
Apeltes quad	racus	-		51		58		119	
Syngnathus f	uscus	3		7		8		8	
Tautoga onit	is	~		11		2		-	
Tautogolabru	s adspersus	-		-		1	·	-	
Gobiosoma bo	sci	-		2		. 9		1	
Etropus micr	ostomus	-		• 2		1		-	
Scophthalmus	aquosus	-		1	•	~		-	
rseudopieuro	nectes .	4	·	67		24		2	
Trinecton ma	culatue	-		-		1	÷	-	
Crangon gent	emeninosa	2537		7291		9384		1304	
Callinectes	sanidus	2357		12		74	•	1	
Callinectes	similis	2				-	•		
Total Specim	 ens	2566		7655		9672		3 98 7	
Total Collec	tions	6		12	-	12		6	

# Table 20. (cont.)

		******		TANUARY	1979			
Location		Cedar Creek	For ked	River	Ovster	Creek	Double Creek	
Temperature	air :	-4.54.5	-5.0 -	-2.5	-7.0 -	-2.0	-1.51.0	
	Sur face	0.5 - 0.5	0.3 -	1.7	3.3 -	5.0	1.0 - 1.6	-
	Bottom	0.0 - 0.0	0.5 -	0.5	4.5 -	4.5	0.0 - 0.0	
Salinity:	Surface	12.0 - 16.0	15.0 -	21.0	10.0 -	20.0	20.5 - 22.0	
	Bottom	12.0 - 15.5	19.0 -	19.0	20.0 -	20.0	21.0 - 22.0	
Oxygen:	Surface	11.0 - 11.1	10.8 -	12.8	10.8 -	12.1	11.6 - 12.2	
	Bottom	11.1 - 11.1	11.9 -	11.9	11.1 -	11.1	11.7 - 11.7	
pH:	Surface	7.8 - 7.9	7.3 -	8.0	6.8 -	7.8	7.9 - 8.0	
•	Bottom	7.8 - 7.8	7.9 -	7.9	7.9 -	7.9	7.8 - 7.9	
Secchi (cm.)	·	120.0 - 120.0	100.0 -	100.0	80.0 -	80.0	100.0 - 100.0	
Species		No .	No.		No.		No .	
Anguilla ro	strata	· · · · · ·	1		1			
Alosa aesti	valis	-	8		. 251		-	
Alosa pseud	oharengus	-	· · · · ·		15		-	
Alosa sapid	lissima	-	- 1 <b>-</b>		12		· •	
Anchoa mitc	hilli:	1	) · · · · · · · · · · · · · · · · · · ·		-		· •	
Opsanus tau	r i	-	. –		2		· –	
Fundulus he	teroclitus	-	2		17		•	
Fundulus ma	jalis	-	-		· •		1	
Menidia men	nidia	1	8		58		10	
Apeltes qua	dracus	4	61		83		47	
Syngnathus	fuscus		2		· · -		2	
Tautoga oni	tis	-	2		. 6		-	
Gobiosoma b	osci	-	1		_		-	
Etropus mic	rostomus		· •	•	1		<b>_</b>	
Pseudopleur	onectes				-			
americanus	······································	1	. 9		28			
Crangon sen	temspinosa	4	872		7906		144	
Callinectes	sapidus	-	1		-		~	
Total Speci	mens	11	967		8380		204	
Total Colle	ctions	2	12		12		6	

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Location		Ceda	r Cree	Forkad	FEBRUA. River	RY 1979	Grack	Devil 1 . C	•
Temperature	air 👘	-			-		Creek	Double Cr	eek
	Surface	-	~ ~		<b>_</b>	4 2 -			-
	Bottom	-			-	4.2 -	5.4		-
Salinity:	Surface	-		· · • •	-	15.0 -	16.0		-
-	Bottom				-				-
Oxygen:	Sur face			· • •	· •	10.6 -	13 4		
	Bottom	-			-	~ -			-
pH:	Surface	-			_	7.6 -	7.7		_
•	Bottom	-					-		-
Secchi (cm.)		-			-		-		-
			******		_				
species	· ·	No	•	No.		No.		No.	
ALOSa pseud	oharengus		-	-	•	1		-	
rundulus he	teroclitus			-		30		-	
menidia ber	yllina		-	-		22		-	
Menidia men	nidia		-	-		. 42		-	
Apeltes qua	dracus .		-			29		-	
Tautoga oni	tis		-	. <u> </u>		1		. · · · · ·	
Tautogolabr	us adspersus		-	-		1		·	
Pseudopleur	onectes								
americanus	3		-	-		1			
Crangon sep	temspinosa		-	-		23		-	
Total Speci	mens		0			150			
Total Colle	ctions		Ō	Õ				, õ	

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*****					*****			
location	•	Cad		De a la s	MARCH	1 1979	_	· · · · · · · · · · · · · · · · · · ·
Temperature	air	Ced	ar creek	rorked	Raver	Oyster	Creek [	ouble Creek
remperature ;	Surface	0.0	- 4.0	0.5 ~	9.8	2.0 -	7.0	1.0 - 7.0
	Bottom	3.3	- 4.8	4.8 -	11.0	8.4 -	13.0	5.2 - 5.8
Caliniture	Surface	3.3	- 3.5	6.2 -	10.0	8.5 -	12.0	5.2 - 5.2
Salinity	Surface	4.0	- 12.0	11.0 -	16.0	9.0 -	16.0 1	6.0 - 16.0
0	Bottom	9.5	- 10.0	13.5 -	14.0	10.0 -	13.0 1	6.0 - 17.0
ox yge n :	Surface	10.4	- 12.0	10.2 -	12.0	10.0 -	12.4 1	1.0 - 12.3
	Bottom	10.7	- 10.7	10.8 -	11.8	9.7 -	12.3 1	1.1 - 11.4
pH:	Surface	7.9	- 8.1	7.7 -	8.1	7.7 -	8.0	7.9 - 8.2
	Bottom	8.0	- 8.0	7.8 -	8.1	7.7 -	8.1	8.1 - 8.2
Secchi (cm.)	L	87.0	- 87.0	77.0 -	77.0	120.0 -	120.0 10	0.0 - 100.0
Species		N		No.		No.		No
Anguilla ros	trata		-	4		2		
Alosa aestiva	alis		- '	3		67		-
Alosa pseudol	harengus			- ĝ		22		-
Alosa sapidi:	ssima		-	· · · · · · · ·		1		-
Anchoa mitch:	illi		-			1		· _
Cyprinodon va	ariegatus		<b>-</b>	2		·		1
Fundulus hete	eroclitus	÷.	1	9		35		Ā
Fundulus maja	alis		-	6		-		
Menidia berv	llina		Q L	2	•	. 1		-
Menidia menio	dia		17			466		
Apeltes quadu	racus	·	0			100		11
Gasternsteus	aculeatur		í			. JI		1
Syngnathue fi			1	. J		<b> </b>	1	. 1
Morono pmori			1			· · · · · · · · · · · · · · · · · · ·		-
Thutogr onit:	cana ta		_	2		· 1		-
Manodutos en	19		-	2 A A A A A A A A A A A A A A A A A A A				-
Cobioros bo	•		-	1				-
Providentourie	501			. –		1		<b>—</b>
rseucopieuro	necces		۰. ۱	10		~~		• •
americanus			4	40		93		16
Trinectes mad	culatus	,	-	-		2		-
Calldes at	emspinosa		12	677	÷ .	1292		411
callinectes s	sapidus		-	23		14		
Total Specime	ens		54	835		2064		449
Total Collect	tions		6	12		12		6

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Table 21

. Minimum, maximum, and mean length by month and location of a representative sample of Atlantic menhaden taken in Barnegat Bay from September 1978 through March 1979.

	•	Length							
Number		Min.	Max.	Mean	Standard	Deviation			
		Oyst	ter Creek						
2	•	175	205	190	•	-			
	Numbe	Number 2	Number Min. Oyst 2 175	Number Min. Max. Oyster Creek 2 175 205	Number Min. Max. Mean Oyster Creek 2 175 205 190	NumberMin.Max.LengthNumberMin.Max.MeanStandardOyster Creek2175205190			

Table 22. Minimum, maximum, and mean length by month and location of a representative sample of bay anchovy taken in Barnegat Bay from September 1978 through March 1979.

				Length	1
Month	Number	Min.	Max.	Mean	Standard Deviation
		Cec	lar Creek		
September	104	23	76	48	12 5
October	51	38	75	55	11 /
November	51	35	68	43	5 5
December	0		· _	-	
January	1	_	<del>.</del>	33	· . · <b>_</b>
	,	Fork	ed River		
September	113	28	78	50	10.9
October	196	34	79	50	11.0
November	96	25	62	43	6.4
December	2	34	38	36	_
		Oyst	er Creek		
September	16	46	76	62	Q 2
October	92	30	80	47	10.2
November	20	35	56	45	5 2
December	19	32	58	40	77
January	0	-	-	-	7.7
February	0	-	-	-	_
March	1	· <u> </u>		44	. –
,		Doub	le Creek		
		2042			
September	50	28	62	42	5.5
October	50	35	71	53	8.6
November	62	39	73	47	7.1
December	2	38	43	41	
				7*	

Ξ.

23. Minimum, maximum, and mean length by month and location of a representative sample of Atlantic silverside taken in Barnegat Bay from September 1978 through March 1979.

Marth				Lengt	h
Month	Number	Min.	Max.	Mean	Standard Deviation
		Ceo	dar Creek	:	
September	55	46	91	60	0.7
October	55	62	01	02	8./
November	19	61	39	80	8.2
December	19	60	106	/6	18.3
January	1	09	105	91	10.5
February	n n	· · ·	-	79	
March	17	- 50 -	105	-	
	17	J2	105	67	11.7
		Fork	ed River		
September	46	1.2	07	<i>t</i> <b>n</b>	
October	40 67	45	94	63	12.2
November	100	35	91	66	11.6
December	100	54	129	82	14.5
January	120	55	137	81	14.4
February	0	<b>61</b>	100	79	12.5
March	· 0	-			–
narch	0	72	118	96	20.6
		Oyst	er Creek		• • •
Sentember	50		- 4		
October	59	41	76	63	8.4
November	01	52	98	72	12.5
December	0Z	30	107	72	12.7
Jonus	62	52	145	81	20.2 -
Fohmen	57	58	117	83	15.5
March	42	59	110	84	14.7
March	67	62 -	142	94	18.2
		Doub	le Creek		
Sentember	4.8	5 1		<i>(</i> <b>)</b>	
October	40	51	98	68	11.5
November	40	52	93	68	11.4
December	44	41	122	72	15.1
Januar	10	01	113	86	14.1
February	10	57	110	85	13.7
March	2	-	· -	-	· -
LIGH CH	4	89	121	105	-

Table

Table 24. Minimum, maximum, and mean length by month and location of a representative sample of threespine stickleback taken in Barnegat Bay from September 1978 through March 1979.

-		Length				
Month	Number	Min.	Max.	Mean	Standard Deviation	
		Cedar	Creek		•	
March	1	-	<del>_</del> ·	65	-	
		Forked	River			
March	5	57	65	61	2.9	
		Oyster	Creek			
March	2	62	65	64	· · · ·	
-		Doubl	e Creek			
March	1	-	-	59	<b></b>	

Table 25. Mimimum, maximum, and mean length by month and location of a representative sample of northern pipefish taken in Barnegat Bay from September 1978 through March 1979.

	_	Length				
Month	Number	Min.	Max.	Mean	Standard Deviation	
		Cedar	Creek			
-	<b>.</b>	•				
September	6	100	173	135	29.5	
October	1	-	-	135	-	
November	14	106	210	141	29.9	
December	2	119	150	135	<del>-</del>	
January	0	-	-	-	-	
February	0	-	885	. –	<b>—</b>	
March	1	-	-	167	-	
•		Forked	River		•	
Sentember	<sup>1</sup> 10	0.2	100	1/0	04 5	
October	21	75	190	140	26.5	
November	51	75	205	140	32.4	
December	44 7	20	222	163	29.8	
Januaru	2	00	160	126	38.2	
January	Δ.	91.	143	• 11/		
	• •	Oyster	Creek			
September	3	104	124	112	10.4	
October	7	159	184	172	10.2	
November	11	103	188	158	23.9	
December	8	107	205	159	37.7	
	,	Double	Creek			
Sentember	20	4.0	100	1/0	24.0	
October	20	47	101	148	34.U	
November	17	130	102	166	20.3	
December	1/ 7	110	100	100	17.1	
Jecemper	1	152	170	150	31.4	
January	۷	CCT	1/0	100		

Table 26. Minimum, maximum, and mean length by month and location of a representative sample of bluefish taken in Barnegat Bay from September 1978 through March 1979.

			L		
Month	Number	Min.	Max.	Mean	Standard Deviation
		Ced	lar Creek		
September	2	130	141	136	_ ·
October	1	-		123	-
		Fork	ed River		
September	1	-	-	168	-
October	1	-	-	201	_
•		Oyst	er Creek		
October	2	170	178	174	-
		Doub	le Creek	х.	
October	1	• _	<b>-</b>	120	-

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al in the same set	

Table 27. Minimum, maximum, and mean length by month and location of a representative sample of weakfish taken in Barnegat Bay from September 1978 through March 1979.

				Length	
Month	Number	Min.	Max.	Mean	Standard Deviation
		Cedar	Creek		
September	1	-	-	74	· <u>-</u>
	· .	Forked	River	•	
September	33	<sup>.</sup> 38	115	70	18.1
October	34	80	139	109	13.9
November	1		-	54	. —
		Öyster	Creek		
September	6	87	215	152	55.9
October	11	65	220	128	40.2
		Double	Creek		
September	1	· _ ·	-	71	<b>-</b> .
October	3	100	130	111	16.5

Table 28. Minimum, maximum, and mean length by month and location of a representative sample of northern kingfish taken in Barnegat Bay from September 1978 through March 1979.

				Length	l
Month	Number	Min.	Max.	Mean	Standard Deviation
		Fork	ed River		
September	8	112	136	125	8.4
		Oyst	er Creek		
September	3	133	158	144	12.7
		· · · · · · · · · · · · · · · · · · ·			

Table 29. Minimum, maximum, and mean length by month and location of a representative sample of summer flounder taken in Barnegat Bay from September 1978 through March 1979.

		Length				
Month	Number	Min.	Max.	Mean	Standard Deviation	
		Ced	lar Creek			
September	1	1 a 🕳 1	-	240	- -	
October	1	-	<b>—</b> `	250	-	
	•				*	

Table 30. Minimum, maximum, and mean length by month and location of a representative sample of winter flounder taken in Barnegat Bay from September 1978 through March 1979.

ber Min. Ce - - - 90	Max. edar Creek - -	Mean 63	Standard Deviation
Ce - - - 90	edar Creek - -	63	_
- - - 90	-	63	_
- - -	-	63	-
- - 90	-		
- 90			- <b>-</b>
90	-	<b>92</b> .	<b></b>
	315	165	101.8
-	-	110	-
· —	-	-	. —
121	270	209	70.1
For	ked River	•	
103	215	159	- • · · · · · · · · · · · · · · · · · ·
. 91	166	118	26.8
78	326	128	60.8
62	321	169	101.5
· . – ·	· _		_
72	393	138	77.9
_		1 (h) 1	
Oys	ter Creek		
<b>-</b> . *	-	79	<b>—</b> 1
130	295	215	62.1
71	132	99	19.7
64	33 <b>9</b>	128	70.3
_		123	· · ·
83	302	128	40.9
Dou	ble Creek		
	н 1910 г. – С	66	
-	_		-
00	205	110	~ ~
20 70	203	110	27.0
19	110	22	_
	-	-	<del>-</del> .
72	- 321	173	75.1
	For 103 91 78 62 72 Oys 130 71 64 83 Dou - 90 79 - 72	Forked River 103 215 91 166 78 326 62 321 72 393 Oyster Creek 130 295 71 132 64 339 83 302 Double Creek 90 205 79 110  72 321	Forked River 103 215 159 91 166 118 78 326 128 62 321 169 72 393 138 Oyster Creek - 79 130 295 215 71 132 99 64 339 128 - 123 83 302 128 Double Creek - 66 66 66 66 66 66 

Table 31. Minimum, maximum, and mean length by month and location of a representative sample of northern puffer taken in Barnegat Bay from September 1978 through March 1979.

		Length				
Month	Number	Min.	Max.	Mean	Standard Deviation	
		Forked	River		•	
September	15	89	128	107	10.9	
		. Oyster	Creek		•	
September	1	. –	-	120	-	
		Double	Creek			
September	1	-	-	140		

Table 32. Minimum, maximum, and mean length by month and location of a representative sample of sand shrimp taken in Barnegat Bay from September 1978 through March 1979.

				Length	
Month	Number	Min.	Max.	Mean	Standard Deviation
		Ced	ar Creek		
September	51	23	51	32	6.4
October	17	28	40	33	3.4
November	66	30	61	45	7 3
December	66	2.5	57	39	7 7
January	4	30	47	35	8 0
February	Ó	_	-	-	5.5
March	12	21	60	35	12.8
1		Fork	ed River		
September	19	17	34	26	5.4
October	136	14	49	29	6.7
November	171	19	59	40	8.7
December	186	22	64	43	9.0
January	116	18	63	34	9.6
February	0	· ·		<u> </u>	_
March	188	12	60	32	10.7
н Алтария Алтария		Ovet	er Creek		· · · · · · · · · · · · · · · · · · ·
		- Oyacı	er oreek		
September	0	-	-	-	<u> </u>
October	88	17	44	28	5.4
November	140	17	. 65	35	8.7
December	212	21	65	46	9.1
January	200	12	66	38	11.9
February	17	22	51	36	8.1
March	201	19	61	35	9.2
		Doub	le Creek		
Sentember	55	10	.5	21	FO
October	28	17	4J 51	20 . DT	J.0 7 1
November	100	∠0 22	50	57	
December	126	22	ەر 72	44	0.U
January	51	4 L 2 l	0/ 51	. צכ	<b>7.</b> 2
Tehruary	10	2 <b>1</b>	21	31	1.3
March	102	16	58	32	- 7.4
			50		7 • •

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Table 33. Minimum, maximum, and mean length by month and location of a representative sample of blue crab taken in Barnegat Bay from September 1978 through March 1979.

				Length	L
Month	Number	Min.	Max.	Mean	Standard Deviation
		Ced	lar Creek		
September	16	57	1.6.1	96	24.2
October	11	20	141	60	24.2
Novembor	11	20	94	02	21.4
December	. 1	41	120	84	40.1
December	± .	-	-	14	-
		Fork	ed River		
September	35	19	150	63	31.6
October	35	14	150	68	45 3
November	17	10	47.	32	11 7
December	12	14	58	31	15.0
January	1	14		20	17.3
February	0	_	-	20	-
March	23	10	120	- 27	
marcm	23	10	150	. 51	24.2
		Oyst	er Creek		
September	48	9	156	59	32 0
October	52	5	141	38	36 4
November	30	5	184	46	30.7
December	72	5	104	39	55.7 07 E
January	0	5	100	50	27.5
February	0	_	-	<b>—</b> .	-
March	14	17	114		
narcu	14	17	114	00	20.9
		Doub	le Creek		· · · ·
September	42	12	1.30	72	25.9
October	25	43	153%	98	30.9
November	 7	.0	87	57	27.6
December	1	-	_	22	-

Table 34. Seven-month estimate, with 80% confidence interval, of important and common macrozooplankton entrained at the Oyster Creek Generating Station from 1 September 1978 through 31 March 1979.<sup>a</sup>

TAXA (Lifestage)	ENTRAINMENT ESTIMATE ±	CONFIDENCE INTERVAL
· · · · · · · · · · · · · · · · · · ·	. 0	
Total Macrozooplankton	$7.06 \times 10^{9} \pm$	$1.64 \times 10^{9}$
Sarsia spp. (no determination)	$8.96 \times 10^8 \pm$	$1.03 \times 10^9$
Total hydromedusae (no determination)	$9.06 \times 10^8 \pm$	$1.03 \times 10^9$
Mnemiopsis leidyi (no determination)	$5.02 \times 10^8 \pm$	$4.44 \times 10^8$
Total Ctenophora (no determination)	$5.05 \times 10^8 \pm$	$4.45 \times 10^8$
Nereis spp. (no determination and epitokes)	$3.74 \times 10^6 \pm$	$2.04 \times 10^{6}$
Total Polychaeta (larval)	$1.84 \times 10^8 \pm$	$6.18 \times 10^7$
Total Polychaeta (no determination and gravid)	$4.43 \times 10^8 \pm$	$3.20 \times 10^8$
Leucon americanus (no determination and gravid)	$2.01 \times 10^8 \pm$	7.53 x $10^7$
Oxyurostylis smithi (no determination and gravid)	5.21 x $10^7$ ±	$2.58 \times 10^7$
Edotea triloba (no determination and gravid)	$3.77 \times 10^7 \pm$	1.81 x 10 <sup>7</sup>
Ampelisca spp. (no determination and gravid)	$4.37 \times 10^8 \pm$	1.96 x 10 <sup>8</sup>
Microdeutopus gryllotalpa (no determination and gravid)	$1.67 \times 10^8 \pm$	9.85 x $10^7$
Corophium spp. (no determination and gravid)	$6.91 \times 10^7 \pm$	$2.80 \times 10^7$
Caprellidea (no determination and gravid)	$6.57 \times 10^7 \pm$	$3.29 \times 10^7$
Jassa falcata (no determination and gravid)	$1.12 \times 10^8 \pm$	$7.39 \times 10^7$
Total Gammarus spp. (no determination and gravid)	$3.20 \times 10^8$	2.59 x 10 <sup>8</sup>
Total Amphipoda (no determination and gravid)	$1.42 \times 10^9$ ±	$4.42 \times 10^8$
Mysidopsis bigelowi (no determination)	$2.85 \times 10^7$	$1.9.74 \times 10^6$
Mysidopsis bigelowi (gravid)	$2.08 \times 10^6$	± 1.64 x 10 <sup>6</sup>
Neomysis americana (no determination)	$2.31 \times 10^9$ :	± 5.95 x 10 <sup>8</sup>

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# Table 34. (cont.)

ТАХА	ENTRATNMENT	<u>.</u>	CONFIDENCE
(Lifestage)	ESTIMATE	±	INTERVAL
Neomysis americana (gravid)	7.57 x 10 <sup>6</sup>	±	6.61 x 10 <sup>6</sup>
Palaemonetes spp. (zoeal)	3.47 x 10 <sup>6</sup>	±	$3.59 \times 10^6$
Crangon septemspinosa (zoeal)	5.57 x $10^8$	±	$2.00 \times 10^8$
Crangon septemspinosa (no determination and gravid)	$1.43 \times 10^8$	±	$3.40 \times 10^{7}$
Callinectes sapidus (megalopal)	$2.40 \times 10^6$	t	$1.33 \times 10^{6}$
Panopeus herb <b>st</b> ii (zoeal)	$4.78 \times 10^{6}$	±	$4.39 \times 10^{6}$
Neopanope texana (zoeal)	8.66 x $10^6$	±	$8.60 \times 10^{6}$
Total Xanthidae (zoeal)	$1.53 \times 10^{7}$	ŧ	$1.32 \times 10^7$
Total Sagitta spp. (no determination)	$3.04 \times 10^8$	±	$1.88 \times 10^8$

<sup>a</sup> Estimates were based on data obtained from collections taken at the condenser discharge (Sta. 11), except for estimates of <u>B. ovata and M. leidyi</u> which were derived from data from collections at the condenser intake (Sta. 7).
Table 35. Mean monthly densities (n/1000 cubic meters) and frequency of occurrence of macrozooplankton taken in day and night collections at the OCGS discharge (Sta.11) 5 September 1978 through 26 March 1979.

	ب این این می این این این این این این این این این ای					با الله الله الله عند الله الله الله عنه عنه عنه عنه عنه عليه عليه	ید هم هم که هم که که می می هم می می می می		ور کب که کر کر کر کر در در مر بی بی بی بر بر			
Species	Lifestage	Sample Freguency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	Std Dev	Sample Frequency	Density Mean	Std Dev		
Phylum Invertebrata	No Determ.	0	0.00	0.00	1	16.88	33.75	-	0 44	22.00		
Class Hydrozoa	No Determ.	3	148.50	0.00	4	74.13	60.49	7	111 21	40 77		
Order Actiniaria	No Determ.	3	73.75	0.00	2	19.00	22.39	5	16 30 TTT•3T	42.//		
Phylum Ctenophora	No Determ.	0	0.00	0.00	. 1	16.88	33.75	J 1	40.30	13.04		
Class Gastropoda	No Determ.	1	81.00	0.00	2	31.88	41.41	2 T	0.44 56 AA	23.00		
Class Gastropoda	Lar val	3	219.00	0.00	3	1806.13	3520.19	· 5	1012 56	29.20		
Suborder Doridacea	No Determ.	. 0	0.00	0.00	· 3	55.13	59.17		27 56	A1 9A		
Suborder Aeolidacea	No Determ.	2	44.75	0.00	3	45.88	34.96	5	45 31	91.09 28 72		
Class Polychaeta	No Determ.	4	75.50	0.00	2	59.50	75.22	6	67.50	53.10		
Class Polychaeta	Larval	1	11.25	0.00	. 0	0.00	0.00	ĩ	5 63	0 00		
Family Phyllodocidae	No Determ.	. 0	0.00	0.00	3	37.00	42.88	1	18 50	. 30 32		
Family Syllidae	No Determ.	0	0.00	0.00	· 2	29.88	41.05	2	14.94	29.03		
Podarke obscura	No Determ.	1	9.75	0.00	0	0.00	0.00	. ī	1 88	2,000		
Nereis spp	Epitokes	0	0.00	0.00	4	59.00	69.82	<u>,</u>	20 50	40.00		
Nereis spp	No Determ.	Ō	0.00	0.00	i	8,13	16.25	1	29.00	49.37		
Family Spionidae	No Determ.	0	0.00	0.00	ī	58.63	117 25	. 1	20 21	11.43		
Pol vdor a spp	No Determ.	3	73.75	0.00	· · · Â	86.38	109 90	. 7	29.31	02.91		
Sabellaria vulgaris	No Determ.	Ő	0.00	0.00	1	16 88	22.25	1	00.00	70.93		
Scoloplos spp	No Determ.	ů	0.00	0.00	· • •	21 00	33+75	1	8.44	23.86		
Order Sabellida	No Determ.	ň	0.00	0.00	. 1	20 62	41.41	2	15.94	29.28		
Sabella	io becernit	v	0.00	0.00	1	20.03	57.25	L	14.31	40.48		
microphthalma	No Determ.	1	11.25	0.00	1	10.38	20.75	2	10.81	14.67		
Family Serpulidae	No Determ.	0	0.00	0.00	1	19.50	39.00	1	9.75	27.58		
Hydroides dianthus Subphylum	No Determ.	3	64.00	0.00	. 0	0.00	0.00	3	32.00	0.00		
Pycnogonida	No Determ.	2	33.25	0.00	5	153.38	147.95	7	02 23	104 61		
Argulus spp	No Determ.	ō	0.00	0.00	ĩ	17.38	34.75	1	9 60	104.01		
Cyclaspis varians	No Determ.	2	34.00	0.00	7	636.25	554 61	1 0	225 12	24.57		
Leucon americanus	No Determ.	õ	0.00	0.00	,	2788.25	1260 00	. 0	1204 12	392.11		
Leucon americanus	Gravid Fe.	ŏ	0.00	0.00	2	26.38	32.75	2	13 10	22 16		
Oxyurostylis smithi	No Determ.	2	68.50	0.00		1370.00	584.56	10	710 25	A12 25		
Idotea baltica	No Determ.	3	43.75	0.00	7	124.75	47.99	10	84 25	412.22		
Idotea baltica	Gravid Fe.	2	19.75	0.00	. 0	0.00	0.00	2	9 88	0 00		
Edotea triloba	No Determ.	4	128.00	0 00	7	657 00	630.00	11	202 50	452 10		
Order Amphipoda	No Determ.	. 3	97.25	0.00	· 1	395.63	133.07	10	246.44	94.10		
Ampelisca spp.	No Determ.	4	352.25	0.00	8	4146.50	1988.62	12	2249.38	1406.17		
Ampelisca spp.	Gravid Fe.	2	21.00	0.00	7	150.00	129.41	9	85.50	91.50		
Microdeutopus								· · ·	00000	91050		
gr vl lotal pa	No Determ.	4	52.75	0.00	. 2	64.63	90.06	6	58.69	63.68		
Microdeutoous							•••••	•				
gr yllotalpa	Gravid Fe.	0	0.00	0.00	1	8.13	16.25	1	4.06	11.49		
Unciola spo	No Determ.	ĩ	9.75	0.00	3	51.38	39.73	4	30.56	28.09		
Cerapus tubularis	No Determ	· Å	96.75	0.00	3	96.13	149.55	י ד	96 44	105 75		
Corophium			20013		5				JU • 77	103.13		
acherusicum	No Determ.	1	19.50	0.00	0	0.00	0.00	1	9.75	0.00		
Corophium spp	No Determ.	1	10.00	0.00	1	19.50	39.00	2	14.75	27.58		
Family Gammaridae	No Determ.	1	9.75	0.00	1	8.13	16.25	2	8.94	11.49		
Gammarus mucronatus	No Determ.	1	9.75	0.00	1	20.38	40.75	2	15.06	28.81		

Species	Lifestage	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	. Stđ Dev	Sample Frequency	Density Mean	Std Dev	
Jassa falcata	No Determ.	4	1320.00	0.00	. 8	2407.13	1209,90	12	1863.56	855 53	
Jassa falcata	Gravid Fe.	- 3	70.75	0.00	2	99.00	198.00	- <u> </u>	84 88	140 01	
Listriella barnardi	No Determ.	0	0.00	0.00	2	31.88	41.41	2	15.94	29.28	
Elasmopus levis	No Determ.	3	86.00	0.00	7	205.88	149.10	10	145.94	105.43	
Elasmopus levis	Gravid Fe.	0	0.00	0.00	1	10.13	20.25	1	5.06	14.32	
Melita nitida	No Determ.	2	79.25	0.00	6	367.50	349.58	8	223.38	247.19	2
Monoculodes edwardsi	No Determ.	0	0.00	0.00	3	56.75	38.30	3	28.38	27.08	<u>0</u>
Microprotopus raneyi	No Determ.	0	0.00	0.00	2	42.38	84.75	2	21,19	59.93	อิ
Microprotopus raneyi	Gravid Fe.	0	0.00	0.00	1	21.75	43.50	1	10.88	30.76	<
Family Stenothoidae	No Determ.	4	1352.25	0.00	8	1283.13	475.93	12	1317.69	136.53	ត
Family Stenothoidae	Gravid Fe.	0	0.00	0.00	1	16.88	33.75		8.44	23.86	≦.
Parametopella cypris	No Determ.	1	20.00	0.00	. 2	27.25	36.23	3	23.63	25.62	ິດ
Parametopella cypris	Gravid Fe.	1	9.75	0.00	. 0	0.00	0.00	1	4.88	0.00	ů.
Stenothoe minuta	No Determ.	1	173.50	0.00	4	119.25	107.82	5	146.38	76.24	5
Stenothoe minuta	Gravid Fe.	1	11.50	0.00	0	0.00	0.00	· 1	5.75	0.00	≥
Stenothoe											<u>ರ</u>
brevicornis	No Determ.	• 0	0.00	0.00	1	17.38	34.75	1	8.69	24.57	Ť
Suborder Caprellidea	No Determ.	4	304.00	0.00	8	1431.25	838.27	12	867.63	592.75	e d
Suborder Caprellidea	Gravid Fe.	. 2	21.25	0.00	2	38.00	44.20	4	29.63	31.25	
Family Mysidae	No Determ.	1	11.50	0.00	0	0.00	0.00	1	5.75	0.00	. 8
Mysidopsis bigelowi	No Determ.	1	11.50	0.00	7	490.38	64.74	8	250.94	45.78	5
Mysidopsis bigelowi	Gravid Fe.	0	0.00	0.00	4	67.63	63.01	4	33.81	44.55	<u> </u>
Neomysis americana	No Determ.	3	166.75	0.00	. 8	5932.63	2068.48	11	3049.69	1462.64	5
Neomysis americana	Gravid Fe.	. 1	10.00	0.00	.0	0.00	0.00	1	5.00	0.00	В
Palaemonetes pugio	No Determ.	1	10.00	0.00	. 0	0.00	0.00	1	5.00	0.00	5
Palaemonetes spp	No Determ.	1	11.25	0.00	1	20.38	40.75	2	15.81	28.81	Ō
Palaemonetes spp	Zoeal	2	21.25	0.00	. 2	88.38	176.75	4	54.81	124.98	Z
Hippolyte spp.	Zoeal	1	11.50	0.00	· 0	0.00	0.00	1	5.75	0.00	eş
Crangon					•			_			2
septemspinosa	No Determ.	· 0	0.00	0.00	3	41.63	60.62	3	20.81	42.87	ē
Pagurus sp	Zoeal	3	67.25	0.00	. 2	49.63	99.25	5	58.44	70.18	S
Infraorder Brachyura	Megalopal	0	0.00	0.00	5	82.00	95.59	5	41.00	67.59	~
Ovalipes ocellatus	Zoeal	' <b>1</b>	9.75	0.00	0	0.00	0.00	1	4.88	0.00	Ś
Callinectes sapidus	Megalopal	1	11.50	0.00	4	80.88	37.95	5	46.19	26.84	<u>o</u>
Callinectes sapidus	Juvenile	0	0.00	0.00	1	10.88	21.75	1.	5.44	15.38	Ö
Family Xanthidae	Zoeal	0	0.00	0.00	2	42.38	84.75	2	21.19	59.93	
Panopeus herbstii	Zoeal	3	89.25	0.00	2	53.00	82.63	5	71.13	58.43	g
Neopanope sayi	Zoeal	4	184.50	0.00	3	69.63	92.79	7	127.06	65.61	C.
Eurypanopeus				,							<
depressus	Zoeal	0	0.00	0.00	· ' 1	17.38	34.75	1	8.69	24.57	
Family Molgulidae	No Determ.	2	19.75	0.00	0	0.00	0.00	2	9.88	0.00	
Total		-			-	. –		12	16185.06		
Total Number of Form	s = 81										

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				DECEMB	ER 78		سيا كلها عبية قيمة كبية وعيا وي فيها بين عبي جي	والمحاد المرديية فستاهيد فيرد سيا حيد عبد عبد يعيد بين و		میں بردہ میں درمہ وی میں میں میں میں اس	
Species	Lifestage	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	Std Dev	Sample Frequency	Density Mean	Std Dev	
Phylum Invertebrata	No Determ.	1	55.00	0.00	2	78.40	175 31	2	66 70	100.00	
Order Actiniaria	No Determ.	4	1197.75	0.00	5	262.10	342.86	3	720 07	123.96	
Class Bivalvia	No Determ.	. 1	89.25	0.00	ĩ	107.40	124 200	9	/29.93	242.44	
Class Polychaeta	No Determ.	4.	5051.75	0.00	ĥ	1069.30	1172 42	4	98.33	95.25	
Class Polychaeta	Larval	2	151.25	0.00	2	193.40	122.42	10	3060.53	829.03	
Family Phyllodocidae	No Determ.	1	92.50	0.00	0	193.40	4 3 2 • 4 0	4	1/2.33	305.79	
Family Polynoidae	No Determ.	1	23.25	0.00	· 0	0.00	0.00	1	40.25	0.00	
Family Syllidae	Larval	1	55.00	0.00	0	0.00	0.00	1	11.03	0.00	
Autolytus spp	Gravid Fe.	. 0	0.00	0.00	1	16.10	36 00		27.50	0.00	
Nereis spp	No Determ.	0	0.00	0.00	ī	22.00	49.19	1	11 00	25.40	
Family Capitellidae	No Determ.	4	1759.25	0.00	5	393.70	557 50	1	1076 49	34.79	
Family Spionidae	No Determ.	0	0.00	0.00	. 1	109.90	245 74	5	1070.40 E4 OE	394.21	
Polydora spp	No Determ.	3	236.75	0.00	3	159.00	329.62	1	107 00	1/3.//	
Class Hirudinea	No Determ.	0	0.00	0.00		73.40	164 13	0	197.00	233.08	
Subphylum		. <b>.</b>		,	-	/5110	104.13	1	30.70	110.00	
Pycnogonida	No Determ.	1	58.75	0.00	· 0	0.00	0.00	· 1	20.20	0.00	
Cyclaspis varians	No Determ.	1	55.00	0.00	2	56.90	83 10	1 2	29.30 EE OF	0.00	
Leucon americanus	No Determ.	4	1235.75	0.00	8	1040.60	650 02	J 10	33.95	58.83	
Oxyurostylis smithi	No Determ.	0	0.00	0.00	Š	107.10	72.80	12	1130.10	459.63	
Edotea triloba	No Determ.	1	176.50	0.00	7	142.70	123 20	5	33.33	51.48	
Order Amphipoda	No Determ.	1	110.00	0.00	6	237 70	262 60	. 0	133.00	87.12	
Ampelisca spp.	No Determ.	4	4142.00	0.00	10	1373.20	1143.22	14	2757 60	183.73	
Microdeutopus					10	1373420	1173022	14	2/5/.00	808.38	
gryllotalpa Microdeutopus	No Determ.	4	2232.50	0.00	9	559.00	419.55	13	1395.75	296.66	
gr yllotalpa	Gravid Fe.	0	0.00	0.00	· 1	22.50	50.31	1	11 25	35 50	
Unciola spp	No Determ.	1	55.00	0.00	0	0.00	0.00	. 1	27 50	33.30	
Cerapus tubularis Corophium	No Determ.	1	58.75	0.00	i	10.10	22.58	2	34.43	15.97	
acherusicum Corophium	No Determ.	1	55.00	0.00	3	49.30	49.01	4	52.15	34.65	
acherusicum Corophium	Gravid Fe.	0	0.00	0.00	1. <b>1</b>	10.10	22.58	1	5.05	15.97	
tuberculatum	No Determ.	. 1	117.75	0.00	3	125.50	184.67	4	121.63	130, 58	
Corophium spp	No Determ.	2	199.25	0.00	3	97.90	137.44	5	148.58	97.19	
ramily Gammaridae	No Determ.	0	0.00	0.00	5	248.30	170.59	5	124.15	120.63	
Farinogammarus sp	NO Determ.	. 0	0.00	0.00	1	16.10	36.00	1	8.05	25.46	
Llasmopus Levis	No Determ.	2	269.00	0.00	6	252.40	193.47	8	260.70	136.80	
Melita nitida	No Determ.	4	354.50	0.00	.9	356.10	269.12	13	355.30	190.30	
Monoculodes edwardsi	No Determ.	0	0.00	0.00	5.	165.20	219.14	5	82.60	154.95	
Microprotopus raneyi	No Determ.	0	0.00	0.00	1	14.00	31.30	1	7.00	22.14	
Stenothoe minuta	No Determ.	0	0.00	0.00	2	167.10	373.65	2	83.55	264.21	
Suborder Caprellidea	No Determ.	1	89.25	0.00	0	0.00	0.00	1	44.63	0.00	
Mysidopsis bigelowi	No Determ.	0	0.00	0.00	5	173.70	238.83	5	86.85	168.88	
Neomysis americana Palaemonetes	No Determ.	3	696.25	0.00	10	6834.00	6975.48	13	3765.13	4932.41	
vulgaris Crangon	No Determ.	2	239.50	0.00	7	155.70	168.95	9	197.60	119.47	
septemspinosa	Zoeal	4	770.25	0.00	10	1863.10	1579.94	14	1316.68	1117.19	

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Table 35. (cont.)

Species	Lifestage	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	Std Dev	Sample Frequency	Density Mean	· Std Dev
Crangon septemspinosa Sagitta spp. Family Molgulidae Total Total Number of Form	No Determ. No Determ. No Determ. ms = 44	2 1 1	206.50 110.00 14.75	0.00 0.00 0.00	8 5 2	902.70 480.20 30.00	829.67 737.97 43.45	10 6 3 14	554.60 295.10 22.38 18966.95	586.67 521.82 30.72

Species

Class Hydrozoa

Order Actiniaria

Order Oeriantharia

Suborder Aeolidacea

Mnemiopsis leidyi

Class Bivalvia

Class Polychaeta

Class Polychaeta

Family Polynoidae

Class Oligochaeta

Cyclaspis varians

Leucon americanus

Oxyurostylis smithi

Class Hirudinea

Idotea baltica

Ampelisca spp.

Microdeutopus gryllotalpa

acherusicum

Gammarus spp

Melita nitida

Family Gammaridae

Gammarus annulatus

Gammarus annulatus

Marinogammarus sp

Elasmopus levis

Stenothoe minuta

Gammarus mucronatus

Family Stenothoidae

Mysidopsis bigelowi

Neomysis americana

Corophium

Corophium tuberculatum

Order Amphipoda

Family Capitellidae

Mysidobdella oculata No Determ.

Monoculodes edwardsi No Determ.

Microprotopus raneyi No Determ.

Suborder Caprellidea No Determ.

Family Syllidae

Family Syllidae

Polydora spp

Spirorbis spp

Coelia spp

Tomopteris helgolandica

Margelopsis gibbesi

Sample

Frequency

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Lifestage

No Determ.

Gravid Fe.

No Determ.

Larval

Larval

Larval

				ا همه بعد حد حد حد همه معد مد بين معادي من معادي هي مي . 	79	JANU A RY	
	Density	Sample		Density	Sample		Density
Std Dev	Mean	Frequency	Std Dev	Mean/Night	Frequency	Std Dev	Mean/Day
39,60	16,17	1	56.00	32.33	1	0.00	0.00
8.57	3,50	ī ·	12.12	7.00	· 1	0.00	0.00
39.60	16.17	1	56.00	32.33	1	0.00	0.00
17 80	11 67	2	25.17	23.33	2	0.00	0.00
26 21	27 88		51.22	39.00	2	0.00	16.75
30.21	16 17	1	56.00	32.33	1	0.00	0.00
39.00	19 12	1	0.00	0.00	ō	0.00	36.25
24 47	10.13	т Л	48.60	46.00	· 3	0.00	16.75
34.43 131 AF	115 02	יז ק	171.75	178.83	3	0.00	53.00
507.26	1018.25	8	717.37	718.50	4	0.00	1318.00
79,20	32.33	1	112.01	64.67	1	0.00	0.00
8.57	3,50	ĩ	12.12	7.00	1	0.00	0.00
30 60	16.17	1	56.00	32.33	ī	0.00	0.00
39.00	14 20	î	0.00	0.00	·	0.00	28.75
120 02	10 00	2	169.74	98.00	2	0.00	0.00
120.02	21 46	2	11.55	6.67	· ī	0.00	36.25
0.10	2 1 - 10	1	0 00	0 00	0	0.00	16.75
0.00	0.30	1	11 55	6 67	ĩ	0.00	0.00
8.16	3.33	. 1	11.55	271 22	2	0.00	50.00
332.31	100.07	3	409.90	211.33	2	0.00	0.00
32.97	3/.25	3 1	40.03	16 67	· · · · ·	0.00	0.00
20.41	0.33	1 F	20.07	173 67		0.00	0 00
59.65	86.83	5	04.30	1/3.0/	5	0.00	29 75
8.57	17.88	2	12.12	7.00	1	0.00	20.75
8.5/	3.50	1	16.14	1.00	1	0.00	0.00
53.40	42.08	3	12+22	04.1/ 111.50	· 5	0.00	18.50
57+39	02.00	0	01.1/	XXX.00	5	0.00	10000
37.76	30.42	3	53.40	60.83	3	0.00	0.00
20.41	53.83	3	28.87	16.67	1	0.00	91.00
8 57	12.50	2	12.12	7.00	1	0.00	18.00
352 60	172 70	2- A	498.65	298.33		0.00	47.25
332.00	13 50		16 77	27 00	· · · · ·	0:00	0.00
267.81	109.33	5	378.74	218.67	2	ŏ.ŏŏ	ŏ.ŏŏ
100.02	40.83	2	141.45	81.67	· 2	0.00	0.00
16 01	6.92	ĩ	23.96	13.83	· ī	0.00	0.00
37 68	26.08	2	53.28	52,17	2	0.00	0.00
20.41	8,33	1	28,87	16.67	ī	0.00	0.00
50.4T	2.22	1	11.55	6.67	ĩ	0.00	0.00
40 10	70.17	5	56.71	140.33	. 5	0.00	0.00
NIU & I U	10411					~ ~ ~ ~ ~	~ ~ ~ ~ ~

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Species	Lifestage	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	Std Dev	Sample Frequency	Density Mean	Std Dev
Palaemonetes										
vulgaris Crangon	No Determ.	0	0.00	0.00	3	43.50	41.43	3	21.75	29.30
septemspinosa Crangon	Zoeal	4	2258.00	0.00-	6	1931.67	780.13	10	2094.83	551.63
septemspinosa	No Determ.	1	16.75	0.00	6	1279.67	657.58	7	648.21	464 98
Sagitta spp. Total	No Determ.	4	3374.50	0.00	6	6158.83	3834.73	10 10	4766.67	2711.56
TOTAL Number of F	brms = 48									

اها می اینان کا بین مارد می می میکندا این میچاردی این کی می می -				FEBRUAF	XY 79					· · · · · · · · · · · · · · · · · · ·	
Species	Lifestage	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	Std Dev	Sample Frequency	Density Mean	Std Dev	
Phylum Invertebrata	No Determ.	0	0.00	0.00	1	6.25	15.31	1	3.13	10.83	
Margelopsis gibbesi	No Determ.	0	0.00	0.00	1	16.33	40.01	1	8.17	28.29	
Sarsia spp	No Determ.	2	23.50	0.00	6	40.67	40.92	8	32.08	28.93	-
Order Actiniaria	No Determ.	1	21.25	0.00	4	27.58	32.99	5	24.42	23.33	୍ରି
Order Ceriantharia	Larval	0 O	0.00	0.00	1	8.17	20.00	1	4.08	14.15	
Class Nematoda	No Determ.	0	0.00	0.00	1	9.33	22.86	1	4.67	16.17	are
Crepidula spp	No Determ.	0	0.00	0.00	1	3.75	9.19	1	1.88	6.50	0
Suborder Aeolidacea	No Determ.	0	0.00	0.00	2	13.25	32.46	2	6.63	22.95	<u> </u>
Class Bivalvia	No Determ.	3	45.50	0.00	5	45.08	69.95	8	45.29	49.46	Š
Class Polychaeta	No Determ.	Ó	0.00	0.00	6	117.00	181.01	6	58.50	127.99	· 3
Class Polychaeta	Larval	4	398.75	0.00	11	841.50	1153.99	15	620.13	815.99	Q
Paranaitis spp	Lar val	1	11.75	0.00	0	0.00	0.00	1	5.88	0.00	8
Family Polynoidae	No Determ.	ī	10.50	0.00	. 4	27.50	42.48	5	19.00	30.03	>
Family Polynoidae	Larval	. 0	0.00	0.00	' î	12.42	30.41	1	6.21	21.51	- 5
Glycers spp	No Determ.	ĩ	11.75	0.00		0.00	0.00	1	5.88	0.00	<u> </u>
Family Syllidae	No Determ.	4	203.50	0.00	, ž	157.58	206.95	11	180.54	146.33	€
Family Syllidae	Gravid Fe.	0	0.00	0.00	i	8.67	21.23	1	4.33	15.01	ă
Autolytus son	No Determ.	1	11.75	0.00	3	13.92	17.52	4	12.83	12.39	0
Autolytus spp	Gravid Fa	ń	0.00	0.00	1	3,92	9.59	i	1.96	6.78	는 음
Sobaer og ville	Graviu ie.	v	0.00	••••	-	0.02	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-			õ <
orinacous	No Determ.	2	22.25	0.00	5	64.25	84.00	7	43.25	59.39	<u> </u>
Brania clavata	No Determ.	1	21.25	0.00	õ	0.00	0.00	i	10.63	0.00	Ă
Exogone dispar	No Determ.	. 1	11.75	0.00	i	7.50	18.37	2	9.63	12.99	
Cuptic wittata	No Determ.	1	11.75	0.00	, î	11.92	29.19	2	11.83	20.64	he
Family Canitallidan	No Determ.	. 4	78.75	0.00	9	448.00	746.05	13	263.38	527.53	~ 7
Poludora con	No Determ.	2	22.50	0.00.	. i	6.25	15.31	3	14.38	10.83	e
Follocal apider	to becerna.	-	22.000		· -			-			2
viridia	No Determ.	0	0.00	0.00	1	3.08	7.55	1	1.54	5.34	e e
Stauropereis		-									ົ້
ridolphi	No Determ.	0	0.00	0.00	1	3.08	7.55	1	1.54	5.34	୍କ
Family Terebellidae	No Determ.	Õ	0.00	0.00	- 1	6.92	16.94	1	3.46	11.98	,
Mage Hirudines	No Determ.	õ	0.00	0.00	3	19.00	23.55	3	9.50	16.65	ធី
Mieldobdella oculata	No Determ.	2	22.50	0.00	7	131.42	139.14	9	76.96	98.38	ਰਿ
Subphylum	io becchini	-									
Pychogonida	No Determ.	0	0.00	0.00	3	16.92	26.85	3	8.46	18.99	ਰੁੱ
Subclass Cirripedia	Cyprids	4	996.25	0.00	6	467.08	569.94	10	731.67	403.01	<u>. ရ</u>
Cyclaspis varians	No Determ.	0	0.00	0.00	1	8.17	20.00	1	4.08	14.15	~
Leptocuma minor	No Determ.	. 0	0.00	0.00	· 1	15.67	38.38	1	7.83	27.14	
Leucon americanus	No Determ.	1	23.75	0.00	10	119.75	62.33	. 11	71.75	44.08	
Oxvurostylis smithi	No Determ.	0	0.00	0.00	3	13.75	16.95	3	6.88	11.98	
Cvathura spp	No Determ.	0	0.00	0.00	. 1	3.42	8.37	1	1.71	5.92	
Idotea baltica	No Determ.	0	0.00	0.00	2	6.67	10.37	2	3.33	7.33	
Edotea triloba	No Determ.	2	34.00	.0.00	2	10.00	24.49	4	22.00	17.32	
Order Amphinola	No Determ.	. 3	56.25	0.00	. 6	61.75	59.69	9	59.00	42.21	
Ampelisca spp.	No Determ.	4	662.00	0.00	. 9	269.75	208.24	13	465.88	147.25	
Family Aoridae	No Determ.	2	54.00	0.00	1	12.67	31.03	3	33.33	21.94	
Microdeutopus									200 00	150 50	
gr yl lotalpa	No Determ.	- 4	359.50	0.00	10	234.25	225.57	14	290.88	123.20	

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Species	Lifestage	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	Std Dev	Sample Frequency	Density Mean	Std Dev	
Unciola serrata	No Determ.	1	11.75	0.00	1	3 09	7 66	· .			
Lembos websteri	No Determ.	0	0.00	0.00	1	3.08	7.55	2	1.42	5.34	
Ceranus tubularis	No Determ.	1	11 75	0.00	1	1.11	17.55	. 1	3.58	12.41	•
Corophium	to becerm.	. 1	TT• 12	0.00	U	0.00	0.00	· 1	5.88	0.00	
acherusicum	No Determ.	0	0.00	0.00	2	10.00	17 11	2	5 00	12 10	
Corophium insidiosum	No Determ.	. 1	11.75	0.00	- 0	1 00	17.11	2	5.00	12.10	
Corophium		-				0.00	0.00	Ţ	2.88	0.00	2 E
tuberculatum	No Determ.	3	111.75	0.00	8	108.17	112.18	11	100 06	70 22	ត
Corophium spp	No Determ.	0	0.00	0.00	2	15.08	23.49		7 54	15.54	Ö
Erichthonius						10.00	43.43	. 4	7.34	10.01	≤
brasiliensis	No Determ.	1	11.75	0.00	0	0 00	0 00	1	- <b>- - -</b>	0.00	ē
Erichthonius spp	No Determ.	· ī	10.50	0.00	. 0	0.00	0.00	1	2.00	0.00	≧.
Family Gammaridae	No Determ.	ñ	0.00	0.00	5	140 00	10.00		5.25	0.00	OC
Family Gammaridao	Gravid Fo	.0	0.00	0.00		140.03	-228.12	5	74.42	161.30	0
Gammaric appulature	Slaviu ie.	0	0.00	0.00		21.1/	51.85	2	10.58	36.66	5
Commercie ennulatus	Creating The	0	0.00	0.00		201.00	203.78	7	100.50	144.09	≥
Gammarus annuratus	Gravio re.		0.00	0.00	/	113.42	158.28	7,	56.71	111.92	5
Gammarus mucronatus	No Determ.	Ţ	10.75	0.00	8	59.58	34.20	9	35.17	24.18	팢
Gammarus mucronatus	Gravid re.	0	0.00	0.00	1	3.08	7.55	1	1.54	5.34	6
Gammarus spp	No Determ.	1	10.75	0.00	6	532.67	1009.19	7	271.71	713.60	Q
Gammarus spp	Gravid Fe.	0	0.00	0.00	2	19.42	31.23	2	9.71	22.08	0
Jassa falcata	No Determ.	. 0	0.00	0.00	2	10.00	17.11	2	5.00	12.10	는 는 음
Orchomenella penguis	No Determ.	. 0	0.00	0.00	• • 1	16.33	40.01	1	8.17	28.29	<u> </u>
Elasmopus levis	No Determ.	3	44.75	0.00	3	21.92	29.31	6	33.33	20.72	f
Melita nitida	No Determ.	1	10.75	0.00	- 4	40.17	49.96	5	25.46	35.33	¥
Monoculodes edwardsi	No Determ.	1	10.50	0.00	11	224.58	189.33	12	117.54	133.88	
Microprotopus raneyi	No Determ.	0	0.00	0.00	- 2	14.75	22.92	2	7.38	16.20	<u>ک</u>
Family Stenothoidae	No Determ.	1	11.75	0.00	. 0	0.00	0.00	1	5.88	0.00	
Stenothoe minuta	No Determ.	1	10.75	0.00	2	11.42	19.44	3	11.08	13.74	6
Suborder Caprellidea	No Determ.	3	34.25	0.00	3	20.33	22.37	6	27.29	15.82	<pre></pre>
Mysidoosis bigelowi	No Determ.	õ	0.00	0.00	2	60.17	147.38	2	30.08	104.21	ے
Neomysis americana	No Determ.	4	2845.25	0.00	<u> </u>	15930.33	10226.50	16	0387 70	7231 23	<u>e</u>
Neomygig americana	Gravid Fa.	0	0.00	0.00	1	6 25	15 31	10	3307.73	10 83	e e
Order Decanoda		ů N	0.00	0.00	1	8 17	20.00	· 1	3.13	10.03	÷ ۲
Infraorder Caridea	20eal	ň	0.00	0.00	1	9 67	20.00	1	4.00	14.15	လ္
Palaemonetes	wear	U I		0.00	· T	0.07	21.23	1	4.33	12.01	a
vulgaris	No Determ.	0	0.00	0.00	· 8	95.00	90.12	. 8	47.50	63.72	e
Palaemonetes spp	No Determ.	0	0.00	0.00	2	12.58	21.48	2	6.29	15.19	÷
Crangon	to becchint	v	0.00	0.00	. 4	-	22.10	4	0.23	13.13	ŭ
septementnosa	No Determ.	0	0.00	0.00	· 12	584.83	567.58	12	292.42	401.34	3
Grandon	NO DECELINA	v	0.00	0.00	14	201103	501150		236876	101.34	
crangon gentemaninogn	70001		585 50	0 00	10	700 50	193 07	16	602 50	242 22	
septemspinosa Segitte geo	Auear	. 4	363.30	0.00	· 11	270 00	403.9/	10	2072.50	342.22	
oayitta spp.	No Decerm.		33.30	0.00	. 11	212.00	330.20	13	207.25	3/4.95	
Class Holothuroidea	NO Determ.	T	11.12	0.00	· L	<b>6.92</b>	10.94	16	9.55	11.98	
TOTAL	00				•			70	1404/.00		
JULAI NUMBER OF FORM	5 = 50										

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		Sample	Density		Sample	Density	بین جندا هما است بین این این این این این این این 	Comple		
Species	Lifestage	Frequency	Mean/Day	Std Dev	Frequency	Mean/Night	Std Dev	Frequency	Mean	Std Dev
Class Hydrozoa	No Determ.	. 0	0.00	0.00	. 1	9.30	20.80	1	4 65	14 70
Sarsia spp	No Determ.	2	73.50	0.00	7	28355.80	53639.87		14014 65	14.70
Obelia spp	No Determ.	Ó	0.00	0.00	i	8,30	18.56	. 1	4 15	3/929.12
Order Actiniaria	No Determ.	0	0.00	0.00	4	41.50	38.06	1	4.15	13.12
Order Oeriantharia	Larval	0	0.00	0.00	2	34 00	79 04	1	20.75	20.91
Suborder Aeolidacea	No Determ.	Ő	0.00	0.00	ĩ	34.90	78 04	2	17.45	55.18
Class Bivalvia	No Determ.	ī	12.00	0.00	7	443.10	506 90	1	1/.40	22.19
Class Polychaeta	Larval	4	709.50	0.00	8	913 80	900.00		247.55	358.36
Family Phyllodocidae	No Déterm.	i	23.50	0.00	· 1	943.00	20 20	12	820.05	585.16
Eteone heteropoda	No Determ.	ō	0.00	0.00	1	1 10	20.00	2	10.40	14.70
Family Polynoidae	No Determ.	Ō	0.00	0.00	, <u> </u>	0 00	20.12		2.05	0.40
Family Syllidae	No Determ.	Ō	0.00	0.00	3	209 00	575 17	1	4.50	14.23
Autolytus spp	No Determ.	Ö	0.00	0.00	· 1	2 90 • 90 A 10	5/5+1/	3	149.45	405.71
Podarke obscura	No Determ.	2	33, 25	0.00	0		5.17	. 1	2.05	6.48
Gyptis vittata	No Determ.	·	12.00	0.00	0	0.00	0.00	2	10.03	0.00
Nereis spp	No Determ.	ʻ ī	16.75	0.00	2	13.40	20.07	L 2		0.00
Family Capitellidae	No Determ.	ñ	0.00	0.00	2	122 50	20.07		15.08	14.19
Pol vdora spp	No Determ.	ů	0.00	0.00	. 2	691 00	1270 40	2	61.75	162.90
Class Oligochaeta	No Determ.	· 0	0.00	0.00	2	61.00	· 13/9.40	3	340.50	9/5.39
Mysidobdella oculata	No Determ.	ĩ	50 00	0.00	· 5	107 40	4/.30	2	25.75	33.50
Subclass Cirrinedia	Overide	1	850.25	0.00	· 0	1275 00	190.33	12	123.70	140.25
Ovclaspis varians	No Datarm.	·	0 0 0 0	0.00	9	14/2.00	224.24	13	1067.53	392.12
Leucon americanus	No Determ.	ĩ	61 50	0.00	. 2	34.90	70.04	12	1/.45	55.18
Oxvurostylis smithi	No Determ	5	0 00	0.00	9	300.90	021.03	12	515.20	580.91
Chiridotea coaca	No Determ	. 0	0.00	0.00	4	128.10	120.40	4	/9.05	89.38
Idotea baltica	No Determ	0	0.00	0.00	L 2	3.40	9.84	1	2.20	0.96
Order Amphineta	No Determ	· · ·	26.00	0.00	3	39.80	54.80	5	19.90	38.75
	No Determ.	· 1	126 00	0.00	3	91.70	115.12	4	63.85	81.40
Family Aoridan	No Determ	2	56 76	0.00	0 3	1034.30	1091.02	11	880.15	1200.42
Microdeutopus	NO Decerm.	2	50+75	0.00	3	50.70	40.59	. 5	53.73	32.94
gryllotalpa Microdeutopus	No Determ.	4	239.25	0.00	9	835.80	973.69	13	537.53	688.50
gryllotalpa Leptocheris	Gravid Fe.	0	0.00	0.00	2	104.50	233.67	2	52.25	165.23
plumulosus	No Determ.	0	0.00	0.00	4	97.90	110.37	4	48.95	78.04
Cerapus tubularis Corophium	No Determ.	1	47.25	0.00		0.00	0.00	1	23.63	0.00
acherusicum	No Determ.	1	16.75	0.00	2	33.70	46.19	3	25.23	32.66
Corophium bonelli Corophium	No Determ.	0	0.00	0.00	1	9.00	20.12	1	4.50	14.23
tuberculatum Corophium	No Determ.	<b>1</b>	23.50	0.00	5	626.30	926.18	6	324.90	654.91
tuberculatum	Gravid Fe.	0	0.00	0.00	2	32.60	44.81	2	16.30	31.68
Corophium spp	No Determ.	1	16.75	0.00	· 5	169.10	221.63	6	92.93	156.72
Erichthonius	No Determ	î	23.50	0.00	1	8.30	18.56	2	15.90	13.12
Gammarus annulatus	No Determ.	ń	0.00	0.00	7	233.70	198.17	7	116.85	140.13
Gammarus annulatus	Gravid Fe.	õ	0.00	0.00	3	195.50	342.06	3	97.75	241.87
Gammarus mucronatus	No Determ.	ŏ	0.00	0.00	3	43.70	62.97	3	21.85	44.53

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Table 35. (cont.)

Species	Lifestage	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	Std Dev	Sample Frequency	Density Mean	Std Dev
Gammarus spp	No Determ.	0	0.00	0.00	9	7799.50	13126.29	. 0	3899 75	0291 60
Gammarus spp	Gravid Fe.	. 0	0.00	0.00	3	85.60	119.51	2	12 80	9201.09
Jassa falcata	No Determ.	1	23.50	0.00	ĩ	17.40	38 01	2	94.00	04.51
Elasmopus levis	No Determ.	1	12.00	0.00	ī	15.20	33 00		12 60	27.51
Melita nitida	No Determ.	- 2	28.75	0.00		07 80	100 50	2	13.00	24.03
Monoculodes edwardsi	No Determ.	1 -	21.25	0.00	5	147 40	170.00		63.28	76.78
Microprotonus rapevi	No Determ	า๊	16 75	0.00		147.40	1/9.49		84.33	126.92
Family Stepathoidae	No Determ	± 1	22 50	0.00	0	0.00	0.00	- 1	8.38	0.00
Subordor Coprollide	No Determ.	1	23.50	0.00	0	0.00	0.00	1	11.75	0.00
Suborder caprellidea	NO Determ.	2	47.50	0.00	3	50.30	88.79	5	48.90	62.79
ramily mysidae	No Determ.	. 0	0.00	0.00	1	53.00	118.51	1	26.50	83.80
Mysidopsis bigelowi	No Determ.	0	0.00	0.00	- 2	80.10	118.85	2	40.05	84.04
Neomysis americana	No Determ.	4	780.00	0.00	• 9	11112.50	7478.77	13	5946.25	5288.29
Neomysis americana Palaemonetes	Gravid Fe.	0	0.00	0.00	3	312.90	569.78	3	156.45	402.89
vulgaris Crangon	No Determ.	· 1	16.75	- 0.00	7	69.10	56.11	8	42.93	39.67
septemspinosa	Zoeal	4	1290.00	0.00	9	7841.10	8811.27	13	4565.55	6230.51
Crangon										
septemspinosa	No Determ.	1	16.75	0.00	- 8	1301.40	831.16	. 9	659.08	587.72
Sagitta spp. Total	No Determ.	1	16.75	0.00	. 3	87.90	124.54	4	52.33 35857.10	88.06
Total Number of Form	s ≖ 59									

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	Septe	mber	Dece	mber	120	uary						
(lifestage)	n/m <sup>3</sup>	%	n/m <sup>3</sup>	7.	n/m <sup>3</sup>	<u></u>	- /	oruary	N	larch	X	٠.
Neomysis americana	3.05	16, 8	3.77	19.9	12 73	55.0	n/m <sup>-</sup>	70	<u>s/m³</u>	70	n/m <sup>3</sup>	4,
(no determination & gravid)			-				8.38	63.2	6.10	17.0	7.01	32.3
Sarsia spp. (no determination)	0,00	0.0	0,00	0.0	0.00	0.0	0.03	0.2	14.21	39.6	2. 85	13.1
Crangon septempinosa (zoesi)	0.00	0.0	1,32	7.0	2,09	9.2	0.69	4.6	4. 57	12.7	1,73	8.0
Ampelisca spp. (no determination & gravid)	2, 33	14.4	2.76	14, 5	0.07	0.3	0.47	3.2	0. 55	2.5	1,30	6.0
Sagitta spp. (no determination)	0.00	0.0	0.30	1.6	4.77	20, 8	0.21	1,4	0. 05	0,1	1.07	4.9
Gammarus spp. (no determination)	0.00	0.0	0.00	0.0	0,01	< 0.1	0.28	1.9	3.90	10.9	0, 84	3.9
Unidentified Polychaeta (no determination)	0,07	0.4	3,06	16.1	0, 12	0.5	0.06	0.4	0.00	0.0	0.66	3.0
(no determination)	1,41	8.7	1,14	8.0	0.09	0.4	0.07	0.5	0. 52	1.5	0.64	2.9
Unidentified Polychaeta (larval)	0.01	< 0.1	0.17	0,9	1.02	4.5	0.62	4.2	0. 83	2.3	0. 53	2.4
Microdeutopus gryllotalpa (no detarmination & gravid)	0.06	0.4	1.41	7.4	0,03	0.1	0.00	0.0	0, 59	1.6	0, 42	1.9
Crangon septemepinosa (no determination & gravid)	0.02	0.1	0.55	2.9	0.65	2.9	0.29	2.0	0.66	1.6	0,43	2.0
Jassa falcata (no determination & gravid)	1.95	12.0	0.00	0.0	0.00	0.0	0. 01	0.1	0,02	0.1	0.40	1.8
Cirripolia (cyprid)	0.00	0.0	0,00	0.0	0.00	0.0						
Capitellidae	0.00	0.0	1.08	57	0.05	0.0	0,73	4.9	1,07	3.0	0,36	1.7
(no determination)					0.00	0.2	0.26	1,8	0.06	0,2	0.29	1.3
Stenothoidae (no determination & gravid)	1.33	8,2	0.00	0.0	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.27	1.2
Caprallidea (no determination & gravid)	0.90	5,6	0,04	0.2	0.02	0.1	0.03	0,2	0.05	0.1	0.21	1.0
Gastropoda (larval)	1,01	6.2	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	9.20	0.9

Table 36. Mean monthly densities (n/m) and percent composition of numerous<sup>a</sup> and important macrozooplankton taxa collacted at the Oyster Creek Generating Station discharge (Sta. 11) and <u>Mnemiopsis leklyi</u>collacted at the OCGS intake (Sta. 7) from 1 September 1978 through 31 March 1979.

Table 36, (cont.)

ТАХА	Septe	mber	Dece	mber								
(lifestage)	n/m <sup>3</sup>	7.	$n/m^3$	1	-/J		Fe	bruary		March	x	3
Oxyurostylis smithi	0,72	4.4	0.05	0.3	0.02	0.1	<u></u>	~ 7	<u>n/m³</u>	<i></i>	n/m <sup>0</sup>	7,
(no determination & gravid)						<b>U.</b> 4	0.01	0.1	0.08	0.2	0.18	0, 8
Actiniaria (no determination)	0.05	0.3	0.73	3.8	0.01	< 0.1	0.02	0,1	0,02	0, 1	0,17	0.8
Melita nitida (no determination)	0.22	1.4	0,38	1.9	<b>¢0.01</b>	< 0.1	0.03	0.2	0.06	0.2	0.13	0.8
Polydors spp. (no determination)	0.08	0,5	0,20	1.1	0.02	0,1	0.01	0.1	0,34	0.9	0,13	9.4
Unidentified Amphipode (no determination)	0.25	1.5	0,17	0,9	0,04	0.2	0.05	0.4	0.06	0,2	0,12	0.6
Corophium suberculatum (no determination & gravid)	0.00	0,0	0,12	0,6	0,01	< 0.1	0, 11	0.7	0,34	0.9	0,12	0,6
Edotes trilobs (no determination)	0.39	2.4	0.16	0.8	0.00	0.0	0.02	0,1	0.00	0.0	0.11	0.5
Mysidopsis bigelowi (no determination & gravid)	0.28	1.7	0,09	0, 5	0.07	0,3	0.03	0.2	0.04	0.1	0.10	0. 5
Elasmopus levis (no determination & gravid)	0.15	0,9	0,25	- 1,4	0.01	< 0.1	0.03	0,2	0.01	<0.1	0.09	0.4
Cyclaspis varians (no determination)	0, 34	2,1	0.08	0.3	0, 01	< 0.1	< 0.01	< 0.1	0.02	0.1	0.08	0.4
Bivalvia (no determination)	0,00	0.0	0.10	0.5	0.03	0,1	0.05	0, 3	0,23	0.8	0.08	0.4
Total macroscoplankton	16,19	-	18, 97	•	22,78		14.88	•	36.84	•		
OTHER IMPORTANT SPECIES												-
Mnemiopris leidyi (no determination)	7.44	-	1,78	-	0.05	-	0.00	•	0.00	-	•	-

a Organisms which comprised 95% (by density) of all macrozooplankton collected.

Table 37. Mean yearly densities (n/1000 cubic meters), frequency of collection and percent composition of macrozooplankton collected at the Oyster Creek Generating Station discharge (Sta. 11) from 1 September 1978 through 31 March 1979. -----

Yearly Mean Density At Location 11 From SEPTEMBER 78 Thru MARCH 79

Species	Lifestage	Frequency	Yearly Mean	Std Dev i	Composition
Total		65	21727.87		
Neomysis americana	No Determ.	63	6976.36	9042.88	32,11
Sarsia spp	No Determ.	· 17	2849.34	16962.30	13.11
Crangon	•				
septemspinosa	Zoeal	53	1733.91	2845.65	7, 98
Ampelisca spp.	No Determ.	56	1283.59	905.18	5,91
Sagitta spp.	No Determ.	33	1064.26	1246.85	4,90
Gammarus spp	No Determ.	17	835.67	4163.15	3.85
Class Polychaeta	No Determ.	27	660.49	379.80	3.04
Leucon americanus	No Determ.	48	641.21	521.64	2,95
Class Polychaeta	Lar val	40	528.59	521.36	2,43
Microdeutopus			•		
gr vl lotalpa	No Determ.	49	463.85	344.37	2, 13
Crangon		· · · ·			2010
septemspinosa	No Determ.	41	435.02	462.32	2.00
Jassa falcata	No Determ.	16	377.80	382.84	1.74
Subclass Cirripedia	Cyprids	23	359.84	251.46	1.66
Family Capitellidae	No Determ.	26	290.12	308.10	1.34
Family Stenothoidae	No Determ.	15	268.73	150.50	1.24
Class Gastropoda	Larval		202.51	1113.18	0.93
Suborder Caprellidea	No Determ.	26	202.41	266.66	0.93
Oxvurostylis smithi	No Determ.	24	175.32	190.63	0.81
Order Actiniaria	No Determ.	25	166.63	110.10	0.77
Melita nitida	No Determ.	34	134.15	144.59	0.62
Polydora spp	No Determ.	21	130.85	449.84	0.60
Order Amphipoda	No Determ.	33	117.04	104.51	0.54
Edotea triloba	No Determ.	23	114.82	206.09	0.53
Corophium					
tuberculatum	No Determ.	23	113.80	300.77	0.52
Mysidopsis bigelowi	No Determ.	21	95.67	104.83	0.44
Elasmopus levis	No Determ.	27	92.38	79.06	0.43
Cyclaspis varians	No Determ.	16	84.19	179.40	0.39
Class Bivalvia	No Determ.	24	80.51	168.00	0.37
Monoculodes edwardsi	No Determ.	31	• 76.60	109.89	0.35
Family Gammaridae	No Determ.	16	76.06	181.67	0.35
Family Syllidae	No Determ.	17	71.86	193.73	0.33
The Above Organisms	Comprised 95%	of the Asse	mblage	,	
Gammarus annulatus	No Determ.	16	65.34	149.75	0.30
Palaemonetes					
vul gar is	No Determ.	28	61.96	64.44	0.29
Corophium spp	No Determ.	15	52.76	83.71	0.24
Stenothoe minuta	No Determ.	11	50.00	123.13	0.23
Mysidobdella oculata	No Determ.	19	47.58	78.02	0.22
Class Hirudinea	No Determ.	7	41.37	157.59	0.19
Gammarus annulatus	Gravid Fe.	12	33.59	120.10	0.15

Gammarus annulatus

Gravid Fe.

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Table 37. (cont.)

Species	Lifestage	Frequency	Yearly Mean	Std Dev	% Composition	
Neomysis americana	Gravid Fe.	5	32.92	180.24	0.15	
Cerapus tubularis	No Determ.	11	32.07	47.83	0.15	
corophium acharustaum	No Dotorm	. 10	20.10	22 20	0.10	
Class Budrozoa	No Determ	13	29.19	23.19	0.13	
Subphylum	NO Decerma	3	20.45	20.00	0.12	,
Pychogonida	No Determ.	11	26 23	47 55	0 12	
Neopanope savi	Zoeal		25.41	29.34	0.12	
Gammarus mucronatus	No Determ.	16	22.58	51 77	0.12	
Idotea baltica	No Determ.	16	22.20	23.58	0.10	
Suborder Aeolidacea	No Determin	_0 _0	17.50	28.92	0.08	
Family Apridae	No Determ.	á	17.41	17.70	0.08	
Ampelisca spp.	Gravid Fe.	9	17.10	40.92	0.08	
Jassa falcata	Gravid Fe.	5	16.98	62.61	0.08	
Family Spionidae	No Determ.	2	16.85	86.10	0.08	
Family Phyllodocidae	No Determ.	6	16.23	15.07	0.07	
Phylum Invertebrata	No Determ.	5	15.65	56.66	0.07	
Panopeus herbstii	Zoeal	5	14.23	26.13	0.07	
Microdeutopus						Ĩ.
gr yl lotalpa	Gravid Fe.	4	13.51	75.76	0.06	
Pagurus sp	Zoeal	5	11.69	31.39	0.05	
Microprotopus raneyi	No Determ.	7	11.66	29.47	0.05	
Unciola spp	No Determ.	5	11.61	12.56	0.05	
Class Gastropoda	No Determ.	3	11.29	13.10	0.05	
Palaemonetes spp	Zoeal	4	10.96	55.89	0.05	
Gammarus spp	Gravid Fe.	5	10.50	39.06	0.05	
Order Ceriantharia Leptocheris	Iarval	6	9.88	30.19	0.05	
plumulosus	No Determ.	4	9.79	34.90	0.05	
Callinectes sapidus	Megalopal	5	9.24	12.00	0.04	
Family Syllidae	Larval	2	8.73	17.71	0.04	
Sphaerosyllis						
erinaceus	No Determ.	7	8.65	26.56	0.04	
Infraorder Brachyura	Megalopal	. 5	8.20	30.23	0.04	
Family Polynoidae	No Determ.	8	7.73	15.35	0.04	•
Marinogammarus sp	No Determ.		5.83	20.33	0.03	
Mysidopsis bigelowi .Tomopteris	Gravid Pe.	4	0./0	19.92	0.03	
helgolandica	No Determ.	1	6.47	35.42	0.03	
Family Mysidae	No Determ.	2	6.45	37.48	0.03	
Family Molgulidae	No Determ.	5	6.45	13.74	0.03	
Hydroides dianthus	No Determ.	3	6.40	0.00	0.03	
Nereis spp	No Determ.	5	6.03	17.57	0.03	
Suborder Caprellidea	Gravid Fe.	4	5.93	13.98	0.03	
Nereis spp	Epitokes	4	5.90	22.08	0.03	
Class Oligochaeta	NO Determ.	4	5.82	15.42	. 0.03	· .
Suborder Doridacea	No Determ.	3	5.51	18.71	0.03	
Parametopella cypris	No Determ.	3	4.73	11.46	0.02	
Palaemonetes spp	No Determ.	4	4.42	14.5/	0.02	
Podarke obscura	NO Determ.	3	4.30	0.00	0.02	
Family Xanthidae	zoeal	2	4.24	20.0U E 07	0.02	
Erichthonius spp	to receim.	3	4 • 2 3	10.01	0.02	

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Table	37.	(cont.)	
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Species	Lifestage	Frequency	Yearly Mean	Std Dev	% Composition
Coelia spp	No Determ.	2	4,06	18.66	0.02
Gyptis vittata	No Determ.	3	3.57	9.23	0.02
Corophium				J•25	0.02
tuberculatum	Gravid Fe.	2	3.26	14.17	0.02
Mnemiopsis leidyi	No Determ.	1	3.23	17.71	0.01
Listriella barnardi	No Determ.	. 2	3.19	13.10	0.01
Scoloplos spp	No Determ.	2	3.19	13.10	0.01
Autolytus spp	No Determ.	5	2.98	6.25	0.01
Order Sabellida	No Determ.	1	2.86	18.10	0,01
Leucon americanus	Gravid Fe.	2	2.64	10.36	0.01
Margelopsis gibbesi	No Determ.	2	2.33	13.22	0.01
Microprotopus raneyi Sabella	Gravid Fe.	1	2.18	13.76	0.01
microphthalma	No Determ.	. 2	2.16	6.56	0.01
Brania clavata	No Determ.	1	2.13	0.00	0.01
Family Gammaridae	Gravid Fe.	2	2.12	16.40	0.01
Autolytus spp	Gravid Fe.	2	2.00	11.78	0.01
Idotea baltica	Gravid Fe.	2	1.98	0.00	0.01
Family Serpulidae	No Determ.	1	1.95	12.33	0.01
Exogone dispar	No Determ.	2	1.93	5.81	0.01
Class Holothuroidea Stenothoe	No Determ.	2	1.87	5.36	0.01
brevicornis	No Determ.	1	1.74	10.99	0.01
Eurypanopeus	·	•			
depressus	Zoeal	1	1.74	10.99	0.01
Argulus spp	No Determ.	1	1.74	10.99	0.01
Phylum Ctenophora	No Determ.	1	1.69	10.67	0.01
Sabellaria vulgaris	No Determ.	1	1.69	10.67	0.01
ramily Stenotholdae	Gravid Fe.	Ţ	1.69	10.67	0.01
Orchononalla nanguia	No Determ.	1	1.68	0.00	0.01
Instoruma minor	No beterm.	1	1.03	12.65	0.01
	No Determ.	1	1.57	12.14	0.01
Family Polynoidan	NO Decerm.	2	1.48	2.39	0.01
Corophium ingidiogum	No Dotorm	1	1 10	9.02	0.01
Erichthonius	NO Deceria.	L	1.10	0.00	0.01
Drasiliensis	No Determ.	1	1.18	0.00	0.01
Paranaitis spp	Larval	1	1.18	0.00	0.01
Hippolyte spp	NO Decerm.	1	1.18	0.00	0.01
Stanothes struke	Logal	1	1.15	0.00	0.01
	Gravid re.		1.15	0.00	10.0
Flacmonus louis	Gravid Do	1	1.09	0.88	0.01
Corophium	Graviu re.		1.01	0.40	0.00
acher usicum	Gravid Fe.	Ţ	1.01	7.14	0.00
ralaemonetes pugio	NO Determ.	1	1.00	0.00	0.00
ralametopeila Cypris	Gravid Pe.	1	0.98	0.00	0.00
Class Nomatoda	ZOeal	Ļ	U. 98	0.00	0.00
Corophium bonelli	NO Decerm.	Ļ	0.93	1.23	0.00
Family Syllidan	Gravid Fa	1	0.90	0.30 6 71	0.00
Infraorder Caridea	Zoeal	1	0.87	6.71	0.00

Table 37. (cont.)

Species	Lifestage	Frequency	Yearly Mean	Std Dev % Co	mposition
Order Decapoda	Zoeal	. 1	0.82	6.33	0 00
Lembos websteri	No Determ.	ī	0.72	5.55	0.00
Family Terebellidae	No Determ.	1	0.69	5.36	0.00
Chiridotea coeca	No Determ.	ī	0.44	3.11	0.00
Eteone heteropoda	No Determ.	1	0.41	2,90	0.00
Crepidula spp	No Determ.	1	0.38	2,90	0.00
Cyathura spp	No Determ.	1	0.34	2.65	0.00
rudolphi	No Determ.	1	0.31	2.39	0.00
viridis	No Determ.	1	0.31	2,39	0.00
Gammarus mucronatus Total Number of Form	Gravid Fe.	1	0.31	2.39	0.00

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Table	38.	Day and night densities $(n/m^3)$ of numerous <sup>a</sup> and important macrozooplankton calculated
		from monthly 24-h collections at the Oyster Creek Generating Station discharge (Sta 11)
		from 1 September 1978 through 31 March 1979.

TAXA (lifestage)		September n/m <sup>3</sup>	December n/m <sup>3</sup>	January n/m <sup>3</sup>	February n/m <sup>3</sup>	March n/m <sup>3</sup>
Neomysis americana	ъ	0.10				
(no determination and around a)	ע	0.18	0.70	7.40	2.85	0.78
(no determination and gravid)	N	5.56	9.71	10.16	20.70	14.02
Sarsia spp. (no determination)	D	0.00	0.00	0.00	0.02	0 07
•	N	0.00	0.00	0.00	0.04	0.12
Crangon septemspinosa (zoeal)	ם	0.00	. 0.77	2.00	0 50	
	N	0.00	0.77	2.20	0.59	1.29
<u>.</u>	IN	0.00	1.11	2.00	0.59	1.67
Ampelisca spp.	D	0.37	4.14	0.02	0.66	0 13
(no determination and gravid)	N	3.75	2.61	0.08	0.50	3.41
Sagitta spp. (no determination)	D	0.00	0 11	3 37	0.04	0 00
	N	0.00	0.00	3.03	0.04	0.02
						0.00
Gammarus spp.	D	0.00	0.00	0.00	0.01	0.00
(no determination and gravid)	N	0.00	0.00	0.02	0.04	1.16
Unidentified Polychaeta	ם	<b>n</b> n8	5 05	0.05	0.00	• • • •
(no determination)	N	0.00	2.00	0.05	0.00	0.00
	Ц	0.12	2.32	0.02	0.00	0.00
Leucon americanus	D	0.00	1.24	0.00	0.02	0.06
(no determination and gravid)	N	3.13	0.95	0.09	0.15	0.72
Unidentified Polychaeta (larval)	D	0.08	0.15	1 22	0 40	0 71
( <u></u> ,	N	0.00		1.52	0.40	0./1
ана стана стана Стана стана стан	11	0.00	0.00	0.81	0.49	0.62
Microdeutopus gryllotalpa	D	0.05	2.23	0.00	0.36	0.24
(no determination and gravid)	N	0.10	0.06	0.04	0.26	0.28

TAXA (lifestage)		Sep	tember n/m <sup>3</sup>	December n/m <sup>3</sup>	January n/m <sup>3</sup>	February n/m3	March n/m <sup>3</sup>
Crangon sentemsnings	n		0 00	0.21	0.00		
(no determination and gravid)	N		0.00	0.00	0.02	0.00	0.02
(no determination and gravid)	н		0.02	0.00	0.45	0.21	1.65
Jassa falcata	D		1.32	0.00	0.00	0.00	0 02
(no determination and gravid)	N		2.59	0.00	0.00	0.03	0.00
Cirripedia (cyprid)	D		0.00	0.00	0.00	1.00	0,86
	N		0.00	0.00	0.00	0.69	0.72
Capitellidae (no determination)	D		0.00	1.76	0.00	0.08	0.00
•	N		0.00	0.88	0.00	0.10	0.00
Stenothoidae	D		1.35	0.00	0.02	0.01	0.02
(no determination and gravid)	N		1.60	0.00	0.00	0.00	0.00
Caprellidea	D	,	0.33	0.09	0.05	0.03	0.05
(no determination and gravid)	N		1.45	0.00	0.02	0.04	0.15
Gastropoda (larval)	D	:	0.22	0.00	0.00	0.00	0.00
	N	х.	0.07	0.00	0.00	0.00	0.00
Oxyurostylis smithi	D	1	0.07	0.00	0.03	0.00	0.00
(no determination and gravid)	N		1.65	0.10	0.01	0.03	0.11
Actiniara (no determination)	D	. 1	0.07	1.20	0.00	0.02	0.00
	N	1	0.00	0.62	0.01	0.02	0.02
Melita nitida (no determination)	D		0.08	0.35	0.00	0.01	0.03
	N	. ·	0.32	0.63	0.06	0.02	0.06
Polydora spp. (no determination)	D		0.07	0.24	0.04	0.02	0.00
	N		0.17	0.37	0.01	0.00	0.00

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TAXA (lifestage)		September n/m <sup>3</sup>	December n/m <sup>3</sup>	January n/m3	February n/m <sup>3</sup>	March n/m <sup>3</sup>
Unidentified Amphipoda	D	0.10	0.11	0.00	0.06	0.04
(no determination)	N	0.35	0.33	0.00	0.09	0.02
Corophium tuberculatum	D	0.00	0.12	0.02	0.11	0.02
(no determination and gravid)	N	0.00	0.22	0.01	0.13	0.04
Edotea triloba (no determination)	D	0.13	0.18	0.00	0.03	0.00
	N	0.52	0.26	0.00	0.00	0.00
Mysidopsis bigelowi	D	0.01	0.00	0.08	0.00	0.00
(no determination and gravid)	N	0.59	0.05	0.18	0.00	0.07
Elasmopus levis	D	0.09	0.27	0.00	0.04	0.01
(no determination and gravid)	N	0.16	0.49	0.00	0.03	0.00
Cyclaspis varians	D	0.03	0.06	0.00	0.00	0.00
(no determination)	N	0.46	0.00	0.00	0.00	0.00
Bivalvia (no determination)	D	0.00	0.09	0.02	0.05	0.01
	N	0.00	0.22	0.02	0.00	0.23

a Organisms which comprised 95% (by density) of all macrozooplankton collected.

Table 39. Mean density (n/1000m<sup>3</sup>) of ichthyoplankton collected at the discharge (Sta. 11) of the Oyster Creek Generating Station from September 1978 through March 1979.

Mean Density At Loca	tion 11 From	SEPTEMBE	ER 78	Thru MARCH	79	
Species	Lifestage	Freque	endy	Yearly Mean	Std Dev	<pre>% Composition</pre>
Total Eggs			66	3979.64		
americanus	Eaa		31	3693.10	17579.90	92.80
Unidentified fish	Egg	•	20	261.50	554.24	6.57
The Above Organisms	Comprised 95	of the	Eggs			
Ammodytes sp.	Eqq		5	13.55	15.62	0.34
Anchoa mitchilli	Egg		,5	11.49	40.56	0.29
Total Larvae and Juv	veniles	-	66	4595.25		
Ammodytes sp.	Larval		48	2965.16	6268.63	64.53
americanus	Larval		18	1314.50	3574.86	28.61
Anchoa mitchilli	Larval		11	230.79	250.75	5.02
The Above Organisms	Comprised 95	of the	Lar va	e and Juveniles		
Anguilla rostrata	Larval		19	32.48	68.81	0.71
Anchoa mitchilli	Juvenile		15	25.78	36.23	0.56
Family Blenniidae	Larval		- 4	11.11	5.14	0.24
Syngnathus fuscus	Juvenile		3	6.55	0.00	0.14
Gadus morhua	Larval		2	3.55	0.00	0.08
Family Gobiidae	Larval	. *	2	2.08	6.01	0.05
Unidentified fish	Larval		1	T•TA	9.23	0.03
Pholis gunnellus	Larval		1.	Τ•ΤΩ		0.03
Brevoortia tyrannus	Juvenile		Т	0.51	3.01	0.01
Paralichthys	Larval		1	0.38	2.69	0.01
uentalus						

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	· · ·				
	Monthly Mean	Density During	SEPTEMBER 78		يسير هذه المن المن المن عند المن منه. ومن المن عند المن
Species	Lifestage	Frequency	Mean	Std Dev %	Composition
Total Eggs Anchoa mitchilli Total Number of For	Egg ms = 1	12 5	57.44 57.44	90.69	100.00
Total Larvae and Ju Anchoa mitchilli Anchoa mitchilli Family Blenniidae	veniles Larval Juvenile Larval	12 ]] 10 4	1362.43 1153.93 109.81 55.56	560.69 76.47 11.49	84.70 8.06 4.08
The Above Organisms	Comprised 958	of the Larvae	and Juveniles		
Syngnathus fuscus Family Gobiidae Total Number of For	Juvenile Larval ms = 5	3 2	32.75 10.38	0.00 13.44	2.40 0.76

Table 40. Monthly mean densities (n/1000m<sup>3</sup>) of ichthyoplankton collected at the discharge (Sta. 11) of the Oyster Creek Generating Station from September 1978 through March 1979.

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Table 40. (cont.)						•	
	Monthly Mean	Density	During	DECEMBER	78	*	
Species	Lifestage	Freque	ency	Mean	Std	Dev	& Composition
Total Larvae and Juv Ammodytes sp.	veniles Larval	•	14 9	4658,30 4636.65	13563	3.70	99.54
The Above Organisms	Comprised 95%	of the	Larvae	and Juvenil	es		·
Anchoa mitchilli Brevoortia tyrannus Total Number of Form	Juvenile Juvenile ns = 3		5 1	19.10 2.55	26 8	.72 .06	0.41 0.05

	Monthly Mean	Density During	JAN(1ARY 79	س کس بست کمن است کمن است است بست دهن همه زمین سر	
Spacias					
2060162	Lifestage	Frequency	Mean	Std Dev %	Composition
Total Eggs Pseudopleuronectes		10	1949.87		ч. — — — — — — — — — — — — — — — — — — —
americanus Unidentified fish	Egg Egg	5 8	1171.37 723.33	317.82 147.66	60.07 37.10
The Above Organisms	Comprised 95%	of the Eggs			
Anmodytes sp. Total Number of Form	Egg ms = 3	2	55.17	24.29	2.83
Total Larvae and Ju Ammodytes sp.	veniles Larval	10 10	6376.87	3431 02	
The Above Organisms	Comprised 95%	of the Larvae	and Juvenile:	5	99.10
Anguilla rostrata Gadus morhua Total Number of Form	Larval Larval	3 2	35.67 17.75	65.93 0.00	0.56 0.28

Table 40. 100 <u>، ب</u>

Table 40. (cont.)	•				
	Monthly Mean	Density During	JANUARY 79		
Species	Lifestage	Freguency	Mean	Std Dev	<pre>% Composition</pre>
Total Eggs Pseudopleuronectes		10	1949.87		
americanus Unidentified fish	Eg g Eg g	5 . 8	1171.37 723.33	317.82 147.66	60.07 37.10
The Above Organisms	Comprised 95%	of the Eggs			
Anmodytes sp. Total Number of For	Egg ms = 3	2	55.17	24.29	2.83
Total Larvae and Ju Ammodytes sp.	veniles Larval	10 10	6376.87 6323.45	3431.92	99.16
The Above Organisms	Comprised 95%	of the Larvae	and Juveniles		
Anguilla rostrata Gadus morhua Total Number of Form	Larval Larval ns = 3	3 2	35.67 17.75	65.93 0.00	0.56 0.28

Table 40. (cont.)				•	
	Monthly Mean	Density During	FEBRUARY 79	المرد ال	
Species	Lifestage	Frequency	Mean	Std Dev	& Composition
Total Eggs Pseudooleuropectes		16	10418.16		
americanus	Egg	15	9982.41	33045.70	95.82
The Above Organisms	Comprised 95	% of the Eggs			•
Unidentified fish Anmodytes sp. Total Number of Form	Egg Egg ns = 3	8 2	429.25 6.50	1176.09 16.04	4.12 0.06
Total Larvae and Juv Ammodytes sp. The Above Organisms	veniles Larval Comprised 95	16 16 % Of the Larvae	3307.07 3233.45	804.57	97.77
Anguilla rostrata Pseudopleuronectes	Lar va l	7	36.79	63.48	1.11
americanus Unidentified fish Pholis gunnellus Total Number of Form	Larval Larval Larval Is = 5	4 1 1	25.00 5.96 5.88	20.33 20.64 0.00	0.76 0.18 0.18

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Table 40. (cont.)

	Monthly I	Mean	Density	During	MARCH	79	
Species	Lifesta	age	Frequ	ency	Mean	Std Dev	& Composition
Total Eggs Pseudopleuronectes				14	7472.87		
americanus	Egg			11	7311.87	21287.60	97.85
The Above Organisms	Comprised	95 9	of the	Eggs			
Unidentified fish Ammodytes sp. Total Number of Form	Egg Egg ns = 3			4 1	154.90 6.10	361.76 19.29	2.07 0.08
Total Larvae and Juv Pseudopleuronectes	veniles		•	14	7271.70	•	•
americanus Ammodytes spi.	Larval Larval			14 13	6547.52 632.33	7993.61 280.84	90.04 8.70
The Above Organisms	Comprised	1 95 %	of the	Larvae	and Juvenil	es	
Anguilla rostrata Paralichthys	Larval			9	89.95	123.68	1.24
dentatus Total Number of Form	Larval			1	1.90	6.01	0.03

Table 41. Estimated entrainment, with 80% confidence interval, of important and common ichthyoplankton at the Oyster Creek Generating Station from September 1978 through March 1979.

SPECIES	LIFE STAGE	ENTRAINMENT CONFIDENCE ESTIMATE ± INTERVAL
Anchoa mitchilli	larvae and juveniles	$8.37 \times 10^7 \pm 5.93 \times 10^7$
Anmodytes sp.	larvae	$1.03 \times 10^9 \pm 5.05 \times 10^8$
Pseudopleuronectes americanus	eggs	$1.56 \times 10^9 \pm 1.28 \times 10^9$
Pseudopleuronectes americanus	larvae	$4.72 \times 10^8 \pm 3.07 \times 10^8$
Auguilla rostrata	larvae	$1.20 \times 10^7 \pm 5.37 \times 10^6$
Total	eggs	1.66 x $10^9 \pm 1.29 \times 10^9$
Total	larvae and juveniles	$1.61 \times 10^9 \pm 5.39 \times 10^8$

Table	42.	ithly day and night densities (n/1000 cubic meters) of ichthyoplankton collected at the disc	hardo
		a. 11) of the Oyster Creek Generating Station from September 1978 through March 1979.	narge

و هم او به اس من بین جو می در این این این این می دود. این				SEPTEME	BER 78					
Species	Lifestage	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	Stđ Dev	Sample Frequency	Density Mean	Std Dev
Anchoa mitchilli	Juvenile	2	19.75	0.00	. 8	199.88	108.15	10	109.81	76.47
Anchoa mitchilli	Larval	4	1121.25	0.00	7	1186.63	792,94	11	1153.94	560.69
Anchoa mitchilli	Egg	3	50.75	0.00	2	64.13	128.25		57.44	90.69
Syngnathus fuscus	Juvenile	3	65.50	0.00	0	0.00	0.00	3	32.75	0.00
Family Blenniidae	Larval	.3	103.00	0.00	נ	8.13	16.25	4	55,56	11.49
Family Gobiidae	Larval	.1	11.25	0.00	1	9.50	19.00	2	10.38	13.44
Total Total Number of Form	ms = 6							12	1419.88	

DECEMBER 78										
Species	Lifestage	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	Std Dev	Sample Frequency	Density Nean	Std Dev
Brevoortia tyrannus	Juvenile	0	0.00	. 0.00	1	5.10	11.40	1	2.55	8.06
Amenda mitchilli Ammodytes sp.	Juvenile Larval	· U 3	329.50	0.00	. 5	38.20		5	19.10	26.72
Total Total Number of Form	us = 3	5	525150		Ū	0943.00	19102.10	14	4658.30	13203.13

		والم الأب الجار الله الكارين المالية المارية المارية الم		JANUARY	79					
Species	Li fes ta ge	Sample Frequency	Density Mean/Day	Std Dev-	Sample Frequency	Density Mean/Night	Std Dev	Sample Frequency	Density Mean	Std Dev
Anguilla rostrata	Larval	1	17.50	0.00	2	53,83	93.24	з	35 67	65 07
Gadus morhua	Larval	2	35.50	0.00	ō	0.00	0.00		17.75	0 0 0 0
Ammodytes sp.	Larval	4	6374.75	0.00	6	6272.17	4853.49	10	6323 46	3431 04
Ammodytes sp. Pseudopleuronectes	Egg	1	90.50	0.00	1	19.83	34.35	2	55.17	24.29
americanus	Egg	3	2083.25	0.00	2	259.50	119 17	5	1171 20	217 02
Unidentified fish Total	Egg	4	1123.50	0.00	. 4	323.17	208.82	8 10	723.33	147.66
Total Number of Form	ms = 6									

	· · ·			FEBRUAF	RY 79			ر الله جبر الله عبر عبر عبر عبر کد کر بند بيد هي		هي اين ڪر ڪر جي جي جي جي جي جي جي جي ج
Species	Lifestage	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean/Night	Std Dev	Sample Frequency	Density Mean	Std Dev
Anguilla rostrata Pholis gunnellus Ammodytes sp. Ammodytes sp. Pseudopleuronectes americanus Pseudopleuronectes americanus Unidentified fish Unidentified fish	Iar val Lar val Lar val Egg Lar val Egg Iar val Egg	0 1 4 0 2 4 0 1	0.00 11.75 3360.25 0.00 34.50 318.00 0.00 11.75	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	7 0 12 2 2 11 1 7	73.58 0.00 3106.67 13.00 15.50 19646.83 11.92 846.75	89.77 0.00 1137.83 22.68 28.75 46733.74 29.19 1663.26	7 1 16 2 4 15 1 8	36.79 5.88 3233.46 6.50 25.00 9982.42 5.96 429.25	63.48 0.00 804.57 16.04 20.33 33045.74 20.64 1176.10
Total Total Number of Form	ns = 8				•			16	13725.25	

				MARCH	79			بينو هيرين مكمل وترينة من مكمل ول		
Species	Li fes ta ge	Sample Frequency	Density Mean/Day	Std Dev	Sample Frequency	Density Mean//Night	Std Dev	Sample Frequency	Density Mean	Std Dev
Anguilla rostrata	Larval	0	0.00	0.00	. 9	179 90	174 01			
Ammodytes sp	Larval	4	571.25	0.00		607 40	1/4.91		89.95	123.68
Ammodytes sp	Eaa	. 0	0.00	0.00		12 20	397.10	13	632.33	280.84
Paralichthys	- , ,			0.00	1	12.20	27.28	1	6.10	19.29
dentabus Pseudopleuronectes	Larval	0	0.00	0.00	1	3.80	8.50	1	1.90	6.01
americanus Pseudopleuronectes	Lar val	4	647.75	0.00	10	12447.30	11304.69	14	6547.53	7993.62
americanus	Egg	. 4	807.75	0.00	· 7	12016 00	30305 34			
Unidentified fish	Faa	2	81 00	0.00	,	13010.00	30105.24	11	7311.88	21287.62
Total	-73	-	01.00	0.00	2	228.80	511.61	4	154.90	361.76
Total Number of Porm	~ ~ 7							14	14744.58	

Date Location Air Temp. (C) Water Temp. (C) surface bottom Salinity (ppt) surface bottom Oxygen (ppm) surface bottom pli surface bottom		March 7 4.6-15.0 9.2-12.5 12.0-14.0 9.6-10.6 7.5-8.0	1979 11(Operating) 15.0-15.0 19.3-19.3 15.5-15.5 10.8-10.8 7.7-7.7	11(Shutdown) 4.6- 4.6 8.3- 8.3 16.5- 16.5 11.3- 11.3 7.8- 7.8
LADUAR	Alive	Dead Damaged	Alive Dead Damaged	Alive Dead Damaged
Ammodytes sp. Pseudopleuronectes americanus	8 62 62 71	4 31 1 8 12 14 13 15	0 0 1 100 0 0 14 37 21 55 3 8	4 31 6 46 3 23 48 61 19 24 12 15
Date Location Air Temp. (C) Mater Temp. (C) surface bottom Salinity (ppt) surface bottom Dxygen (ppm) surface bottom pH surface bottom		April 7 6.5-14.0 9.5-10.6 9.7-11.3 8.0-16.0 12.0-16.5 9.8-10.3 9.8-10.1 7.7-7.8 7.6-7.8	1979 11(Operating) 12.5-12.5 20.8-20.8 17.0-17.0 11.3-11.3 7.3-7.3 	11 (Shutdown.) 6.5- 8.5 11.0- 12.0 11.0- 15.0 10.0- 10.2 7.4- 7.6
	Alive	Dead Damaged	Alive Dead Damaged	Alive Dead Damaged
LARVAE Inguilla rostrata Wmmcdytes sp. tyoxocephalus sp. 2seudopleuronectes americanus	2 100 47 84  22 73	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	B 19 30 71 4 10   O 0 1 100 0 0   3 33 5 56 1 11	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
IUVENILES Paralichthys dentatus				1 100 0 0 0 0

Table 43. Monthly totals of live, dead, and damaged ichthyoplankton collected at the intake (Sta. 7) and discharge (Sta. 11) of the Oyster Creek Generating Station during March and April 1979.



Fig. 1. Sampling locations for biological collections taken for the OCGS ecological study.





Diagram of the intake and discharge of the circulating water system and the dilution pumps at the Oyster Creek Generating Station.



Fig. 3. Sampling locations () for biological collections from the Ristroph screen at the Oyster Creek Generating Station.

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## Figure 4.

The ichthyoplankton mortality sampler with velocity reduction cone and modified cylinder-cone net used to collect ichthyoplankton for condition determinations.

(cont.) ÷ Appendix Table

17123 21 82 43 1216 9638 70.0 30060 TP 4 4.9 5 Weight 28 1274 20405 2394 i 238 51527 56 26054 TP 3 35.35 84 35 15266 3112 21 14 173 132 TP 4 æ l ω 22 15 14 ω 23 Number Ì TP 3 287 3514 21693 25830 ł 28 161 21 28 t 1111 14 14 4 İ Fundulus heterociitus Menidia menidia Apeltes guadracus Gasterosteus aculeatus Crangon septemspinosa Goblosoma bosci Myoxocephalus aenaeus Pseudopleuronectes Palaemonetes vulgaris Micropogon undulatus Alosa pseudoharengus Chasmodes bosquianus Fish fragments Rana pipiens Class Polychaeta Alosa sapidissima Anguilla rostrata Syngnathus fuscus Cancer irroratus Alosa aestivalis 18-24 February Ammodytes sp. americanus Opsanus tau Species To tals

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Appendix_Table 4. (cont.)				
25 February - 3 March	Num	Jer	Wei	ght
Species	TP 3	TP 4	TP 3	Å.
Alosa aestivalis	57	40	164	118
Alosa pseudoharengus	34	73 73	34	57
Cyprinodon variegatus Fundulus heteroclitus	5	L	32	4.
Fundulus majalis	10	<b>₽ 1</b>	18 1	
Menidia menidia	72.2	361	3385	1986 1
Apeltes quadracus Groterosteus aculeatus	47 939	925	40 2561	2420
Syngna thus fuscus	1	~ '		
Tautoga onitis Trutorolahrus adspersus	י ו ד	א- ע	<b>e i</b> H	Ĩ
Myoxocephalus aenaeus	80	t	197	
Scophthalmus aquosus	S	t	14 Z B	
Pseudopleuronectes americanus	494	676	35592	7857
Class Polychaeta	1701	28 611	3803	26 2
Palaemonetes vulgaris Crannon sentemspinosa	20831	8115	18170	854
Cancer irroratus	∞ ◄	[4	666 4	
Callinectes sapidus Procambarus acutus	ŀΩ	. 1	74	
Totals	30920	10871	66518	9243

5376       5376       5376       5376         5376       5376       5813         5376       5813       3031         5376       5813       3031         5376       5316       531         329       531       531         329       531       16         3391       11646       733         440       555       565         53391       11646       733         53391       11646       733         53391       11646       733         53391       11646       733         53391       11646       733         53393       5338       1164         53393       5338       1164         53393       5338       1164         53393       5338       1164         53393       5338       5338         53393       5338       1164         53393       5338       5338         53393       5338       5338         53393       5338       5338         53393       5338       5338         53393       5338       5338         53393
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LI-17 March	WIL N	ber	Wei	ght
Species	TP 3	TP 4	TP 3	ΤP
bouills rostrata	4		333	
Alosa aestivalis	948	831	19559	1813
Alosa pseudoharengus	519	802	9046	1246
Notemigonus crysoleucas	ľ	12	ſ	-
Cvprinodon variegatus	29	25	23	4
Fundulus heteroclitus	133	195	545	66
Fundulus majalis	ŋ	-	142	6
Menidia beryllina		E In		
Menidia menidia	2550	315/	0285T	4 C C
<b>Peltes</b> -guadracus	224	294	234	
Gasterosteus aculeatus	2 2 3 5	1938	5686	504
Syngnathus fuscus	124	128	285	
Morone americana	۲	7	1556 1	Ω Γ
Lepomis gibbosus	12	1	m m	,
Tautoga onitis	47	26	6339	143
Muqil curema	t		t	ייכ
Ammodytes sp.	<b>1</b> .	12	1	7.
Mvoxocephalus aenaeus	19		729	
Scophthalmus aquosus	S	-	630	121
Pseudopleuronectes				
americanus	2814	4 388	ALFC BL	7 0 0 0 T 0 0 0
Fish fragments	35.7	085	929	114
Class Polycnaeta	ADRA	5983	1947	239
ralaemonetes vurgatits	31764	72529	24647	7084
Cangon septemspinos	11	25	548	250
Cancer intotatus Ciace Holothuroidea	61	25	1167	28
Procambarus acutus	ŝ	L	194	•
Totals	48951	90843	273840	29616
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Appendix Table 4. (con	t.)			
18-24 March	EUN	ber	Wei	qht
Species	TP 3	TP 4	TP 3	TP 4
			10 10 10	1755
Anguilla rostrata		011	2006	
Alosa aestivalis	201	141	1141	1875
Alosa pseudoharengus	60T	TOT	+ <b>!</b> + <del>!</del> +	
Clupea harengus	<b>t</b> r	; 7	V L	
Opsanus tau	<b>~</b> •	';	* T -	
Cyprinodon variegatus	4	-		
Fundulus heteroclitus	210	94	121	195
Menidia beryllina	1	5		
Menidia menidia	203	265	2611	
Apeltes guadracus	224	114	298	
Gasterosteus aculeatus	291	301	18/	06/
Syngna thus fuscus	588	414	1411	TUUZ
Morone americana		£ 1	00/	
Lepomis gibbosus	-			* [ * (
Tautoga onitis	18	15	137	
Chasmodes bosquianus	t	4	1	
Ammodytes sp.	-	« •	87	4 F 7 F 7
Scophthalmus aquosus	4	4	1777	ν. 1.
Pseudopleuronectes	ļ	L C		2222
americanus	<b>7</b>	Ð	001 00/17	
Trinectes maculatus		1 'L T P		521
<b>Class Polychaeta</b>	68T			
Palaemonetes vulgaris	54.92	1161	1007	20010
Crangon septemspinosa	31420	POT67	4T7C7	
Pagurus sp	4 -	t	- ۲	
Libinia dubia	4		2004	29.08
Cancer irroratus	42	0 C	× C C	2020
Ovalipes ocellatus	/ 9	01	1000	22160
Callinectes sapidus	1974	1454 2	4007	0107
Class Holothuroidea	1	ע	₽ 1 ⊣	ο α ο Γ
Invertebrate fragments	1 -		C 12	
Phylum Nemer tea	,	1	2 I	
Procambarus acutus	l	<b>7</b>		
	41083	34483	57834	49959
STEJQI.				

Appendix Table 4. (con	t.)		. 1
25-31 March	um)	ber	
Species	TP 3	TP 4	
Anguilla rostrata	14	14	£ 1
Alosa aestivalis	35	35	
Alosa pseudoharengus	32	25	· .
Opsanus tau	4	: 1	
Cyprinodon variegatus	4	t	÷.
Fundulus heteroclitus	53	23	
Fundulus majalis	<b>I</b> .	4	
Mariala maniala	186	256	

TP 4 140

TP 3 931

.Weight

.

Alosa aestivalis	32 .	35	812	637
Nosa pseudoharengus	32	25	553	44
Dosanus tau	4	i T	175	
Vorinodon variedatus	4	1	11	•
Fundulus heteroclitus	53	53	287	476
Fundulus majalis		4	1. 1.	4
tenidia menidia	186	256	10 5 0	1512
Moeltes quadracus	32	4	28	
asterosteus aculeatus	147	26	399	161
Syngnathus fuscus	879	238	2153	65
Lepomis gibbosus	4	4	11	
Tautoga onitis	4		21	ž
Ammodytes sp.	6 C	1	273	
Scophthalmus aquosus	l	4	ł	101
Pseudopleuronectes				
americanus	18	11	1526	1453
Class Polychaeta	4	11	18	<b>~</b>
Palaemonetes vulgaris	3434	907	1593	41(
Crangon septemspinosa	11666	15897	11333	1567
Cancer irroratus	11	4	830	24
Ovalipes ocellatus	14	11	28	7
Callinectes sapidus	144	81	2349	<b>I6</b> 81
Invertebrate fragments	I	Ł	1	
Phylum Nemer tea	11	[]	46	0
	16727	17630	24423	2473
				l
a. Time period 3 is from	sunset to	6 h after	sunset and	

time period 4 is from 6 h after sunset to sunrise. Species number and weight are rounded to the nearest integer, but totals are the sums of actual values.

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		.
-	impinged on the traveling	1978 through 5 February 1979.
	and damaged fishes and macroinvertebrates	Creek Generating Station from 3 September
	, dead,	Oys ter
	Number of live	screens at the
	5	•
	alda Table	

	screens	ສເ ເທຍ	Ma cer		Suer a LII	וא הרפרי										
Date (mo day) Hour Hour Duration (hr min) Tide Temp deg C) air sfc sfc salinity(ppt) sfc oxygen sfc pH sfc ph sfc ph sottom				ep 2020 2020 2030 2031 2031 2031 2031 2031				ep 2225 2225 2225 233 233 233 233 233 233			<b>W</b>	ep 20 3 3 20 6 6 1 1 2 2 0 3 3 3 2 0 2 0 3 3 3 3 3 3 3 3 3 3			Ω E	ep 1927 1927 1927 1927 1927 1927 1927 1927
gpecies	Number	Live	Dead	Damag	Number	Live	Dead	Damag	Number	Live	Dead	Damag	Number	Live	Dead	Damag
Anguilla rostrata Anchoa mitchilli Opsanus tau Pomatomus saltatrix Cynoscion regalis Aphoeroides maculatus Penaeus aztecus Ovalipes ocellatus Callinectes sapidus	484 (4 4 (4 <b>8</b>	-i-i:-i					1 I I I I I I I I I I I I I I I I I I I	11141 1110	ιι⊣ιι ιιι <mark>⊳</mark>	ti⊣it tilœ		11111 1116	11418 116	tι≓ι∾ ιtτ∞	1111	
Totals	25	Гð		Ŋ	49	43	0	v	68	49	0	19	62	41	ŋ	81

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ppendix Table 5. (c	ont.)															
ate (mo day) bur			S	ep 7 2120			S	ep 7 2320			S S	ep 11 2015	• • •		Ŵ	ep 11 2115
eriod Nuration (hr min) Mde			F1	ood o 3			FIC					1 0 Ebb I 21.8			Ш	2 0 bb II 21.3
emp (deg C) air sfc bottom				53.6				23.4				24.3				22.8
Salinity (ppt) sfc bottom				15.0			۔ ، ، یک آخ	0 I W				17.0	· ·			1.3
bxygen sfc bottom				0 4 1 0								7.5		•		7.9
8fc bottom				D 1 1 8 1								8.0				
Spectes	lumber	Live	Dead	Damag	Number	Li ve	Dead	Damag	Number	Live	Dead	Damag	Number	Live	Dead	Батад
Alosa aestivalis Anchoa mitchilli	<b>I I</b> 1	111		1.1.1	<b>I I I</b>		111	t t t	m I	i I I	H M 1		I ↔ ⊢		I 🕶 I	L L
Caranx hippos Sphoeroides maculatus		F I	<b>t</b> 1	ľ		1			1 T	11	11	L L	- I	<b>н і</b>	11	<b>E E</b>
Peraeus aztecus Ovalipes ocellatus	<b>H I</b>	<b>;                                    </b>	<b>⊣ :</b> 1	11	<b></b>	in n P≕ <b>X</b> i i N	<b>1</b> 1	11	48	31,	14	12	4 4	32 L	i	• <b>न</b>
Callinectes sapidus Callinectes similis	t t			1	2			1								
Totals	2	1	Г	0	3	-	•	H	23	31	Ŷ	16	<u>0</u>	Ϋ́ Ϋ́	n	n T



Appendix Table 5. (	cont.)															
Date (mo day) Hour			со I	ep 18 1920				Sep 18 2120		· · · ·	2	tov 21 1620 3		e e e 11. egi	Ž	ov 21 1820 3
Period Duration (hr min) This		•	L F	ood I boo			FIC	od II	•		Ч	2 0 3bb_II			ធ	2 0 2 11
Temp (deg C) air sfc			23. 1	21.0	• • •			20.5				10.0				- 0 - 0
bottom Salinity(ppt) sfc			•	21.8		• • •	- - -	16.5			•	19.0 21.0		· · · · ·	•	21.0
bottom Oxygen sfc	*		· .	5 10 1 5 0 1				9.2	•	• •		10.0				10.0
pH sfc bottom bottom	•		•••	000 000		•		7.8	•			7.67.8				7.8
Species	Number	Live	Dead	Damag	Number	Litve	Dead	Damag	Number	Live	Dead	Damag	Number	Li ve	Dead	Damag
Alosa aestivalis						E L 1 E L L 1 L 1			11	1 1	i i	1 1		1	с <b>т</b> . т.	
Opsanus tau Syngnathus fuscus	1 F 1	111			t t t		<b>.</b>	: 4: <b>t</b>	23	- <mark>5</mark> 0	<b>н і</b> 	2014	រ <u>ា</u> រ	4		
Prionotus evolans Ovalipes ocellatus	11-	L L -	. 1 1 -	110	110	110		I I I	101	1 - 1	1 T L	1 - 1	181	121	l <del></del> l	101
Callinectes sapidus	4 1 2			1 0	2	5	0	D	26	21		4	35	28	4	
			- '	-			•									



Appendix Table 5. (	cont.)															
Date (mo day) Hour				Nov 21 2020			-	Nov 27 1744				Nov 27 1920			ш Т	ec 4 2025
Period Duration (hr min) Mac			, fa	2 0 J				1 36 Ebb I				2 0 Ebb II			E	ood I
Temp (deg C) air sfc				6.0				0 0 0				0°0				11.5 9.6
bottom			•	1	•	•		6.7	•			10			•	1 4
Salinity(ppt) sfc		s.,		20.2	•			13, 0 13, 0							• • •••••	
Oxygen sfc				9.4		- • -		4.00				10.6		- 1		10.9
bottom pH sfc bottom				1.8.1				* 80 G				7.8				7.9
Species	Numb er	Li ve	Dead	Damag	Number	Li ve	Dead	Damag	Number	Li ve	Dead	Damag	Number	Live	Dead	Damag
Brevoortia tyrannus Anchoa mitchilli	11	t t	t t 	11	11	t t	с с	1 1. 	- 0 -	1	1	I			i i I	111
Menidia menidia Hippocampus erectus	11	11	1 1	1 1	1 1		t t	E E .	* -1 (	4 I 1	4 E (	<b>↓ ↓</b> ]	t	t	t	. <b>.</b> .
Syngma thus fuscus	=	4-	11		6 <b>1</b>	<mark>۾ ا</mark>	1 1	н I	B T	0 I M	N H	1 1	<b>.</b> .	<b>I I</b>	1	1.1
Prionotus evolans Etropus microstomus	- 1	+ <b>(</b>	ł	1	2	2	ł	1	ß	Ŋ	1	•	1	t	1	i <sup>s</sup>
Palaemonetes vulgaris	ŀ	<b>.</b>	t	t	2	7	<b>t</b> .		l.	<b>I</b>	ł		н	н	I	t
Crangon contementnosa	٦	-	• <b>•</b>	l	79	70	Ŋ	4	I.	t.	i i i		1	ſ	ť	
Ovalipes ocellatus Calinectes sanidus	а с Г	п Г	τι	41	1.1	8 1	8. E	<b>L L</b>		11	1 1	<b>f f</b>	r. I	11		1
Calification out to a second s	31	27		4	122	112	5	5	52	44	0	2	1		0	



ppendix Table 5. (con	E . )														i	
ate (mo day)			De	C 2			С А	ec 7	•			ec 7. 2030				Jec 11 1655
bour				1700				3 79 70		• • •		202				
buration (hr min)			G	1 30 hh T				2 0 Ebb I			μ	bb II			FLC	n N N N N N N N N N N N N N N N N N N N
Nde Namp (deg C) air			3	1 0 1 1 0 1				нч 8 г				50 C				ц Ц
sfc				8.2				•								9
Salinity (ppt) sfc		• • •		16-0 16-0				16.0				0.1 91				18.
bottom				12.8				11.5			•	11.1				1:
Dxygen src bottom		- - -		11.8				1				م ۱ د				18
sfc hottom				~ ~ 8 8				2 I 2								8
Species	ber Li	e D	ead	Damag	Number	Li ve	Dead	Damag	Number	Li ve	Dead	Damag	Number	Live		
Conger oceanicus		L L	1	ŧ	H	н	1	1	יי	1 1	11	10	10	<b>t 1</b>	। न	
Alosa aestivalis	1	1	1	3 -	<b>i</b> 1		ı ı	1	<b>-</b>	1 1 1	ł	1	) <b>eel</b>	ı	1	
Brevoortia tyrannus	-4 I			- 1	i i	, T	t	t		ł	t	1	2	ł	1	
Anchoa mitchilli Desanus tau	ł	L	1.	t	L.	1	1	t		•	F 1	- 1	1 1	5 E		
Rissola marginata	1	1	1	1	T	- -	1	•								
Fundulus		4. 	I	1	1	ł	L	t	t	1		L	1	t	1	
heteroclitus	17	4 0	-	7	6	0	1	1	4	~.		-	38	31 31	-	
Apeltes quadracus	i m	ŝ	t	L	7	8	ł	L	-	- <b>-</b> -	8	•				
Gaster os teus				. i	1	i	1	ł	I	1	ł	<b>.</b>	٦	L	۲.	
aculeatus	ı ۲	1 26	1	7	10	6	•	н	30	29	-	<b>.</b>	ίΩ (	ι C	<b>≇</b> _1	
Syngnathus tuscus	٥ <b>٢</b>	ç	ł	i <b>t</b>	2	2	1.	1	7	7		6	2	7	1	
Lauroga onicis Tautoqolabrus	•					1	1	I		7	I	1	न	-1	ł	
adspersus	- 1-7 7-7	1	t	l e	<b>i</b> 1	L	i	ł		1	ł	. <b>I</b> .	-	T	t	
Etropus microstomus	m	7	l	-			• 					2		1	i	
rseudopieur onecres americanus		-	ł	1	н ,	ч.	t	<b>I</b>	. 1	r i	ι ι	i i	•	L I	•	
Trinectes maculatus			1	1 -		-1	1		-	4	¢	e	•	8	1	
Class Polychaeta	- <b>-</b> -	t	1	•												
Palaemonetes vui naria	-1	1	<b>ب</b>	1	t	t	8	1	ł	t	•	l	t	I		
Crangon	1	. [	•		4.3	30	10	ñ	l	•	t	L	94	56	29	
septemspinosa	58	λ υ	Ŧ.	1 1	2 -	, ,				t	ľ	1	1	1 -	I I	•
Cancer irroratus	• •	m	2	8	121	12	t	•	æ •	<b>ب</b> س	<b>8</b> (1	m	V 1	41	r ∎ Vi	
Callinectes sapidus	ſ	e	t	ľ	<b>7</b>	- 1	- 1	1 . 1 - :	Ŧ 1	r t	•		ł	ł	t	ر برد بر در الروليد
Neopanope sayi Phylum Nemertea	rr <b>1</b>	I	1 1	L I	-	1	•									
Totals	135	12	8	15	8.7	71	11	ŋ	62	49	8	1	149	97	31	~

Appendix Table 5. (c	ont.)							-								
bate (mo day) Hour			Ω	ec 11 1925			ы	ec 14 1630			1	)ec 14 1930 3	· · · · ·			ec 18 1700 3
Period Duration (hr min) Tide				2 5 Ebb I			1 1	2 0 ood I			Fl	2 0 bod II			E	0 30 bb II
Temp (deg C) air sfc hottom			•	یں . 1 م ا	•		· · ·	4 10 1 00 10				4	· · ·			
Salinity (ppt) sfc				22.0				20.0				20.0				20.0
oxygen sfc				11.1			، ، ، آھي ، آھ				- - -	12.0	, , , , , , , , , , , , , , , , , , ,			10.7
pH sfc bottom				 ∞				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				8.1				7.5
Species	umber	Live	Dead	Damag	Nimber	Li ve	Dead	Ватад	Number	Live	Dead	Damag	Number	Live	Dead	Damag
Alosa aestivalis Brevoortia tvrannus	-1 0		11	N F	<b>-</b> -1	- I			<b>-</b> - 1	+ 1	1	ה (	T	ł	ł	н
Anchoa mitchilli Moridio moridio	년 영	1 80	14		2 2	38 T	i m	1 4	11	L I	ן ד, ד ביי אונ	1.1	1 -	1 I	<b>г</b> н	1 1
Syngna thus fuscus	វិទ	, <b>თ</b>	• •	• <b>н</b>	; <b>1</b> '	0	•	2	1 -	-1 r	1	1			11	
Tautoga onitis Prionofus evolans	1	r ,	r. 1	1 –	N 1	N I	1	i I		- 1		I H	4 1	+ B	1 - 1 - 1 - 1	l.
Etropus microstonus	8	L	t	2	-1	ł	I	н		L	1	ł	1	1	L	l
Pseudopleuronectes	7	1	1	7	11	6	ţ	2	18	14	1	4	18	16	ł	7
Palaemonetes									1	ļ		•	•	1	•	1
vulgar is	•	L	<b>i</b> .:	1	-	4		I		1.						
urangon septemspinosa	L	t	1	1	190	166	1-7	7		i.	t	L	129	68	m I	
Ovalipes ocellatus Phylum Nemertea	<b>4</b> m	ΨL	11		11	t . t		11								
Totals	67	47	4	16	292	227	21	44	28	17	0	П	151	107	34	10

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Appendix Table 5. (	cont.)															
Date (mo day) Hour			1	0ec 18 1930			<b>Ц</b>	ec 21 1630				Dec 21 1900			Ā	2140 2140
Period Duration (hr min) Thee			<b>.</b>	L Ood I				1 10 Ebb I				0 50 Bb II			ឆ	0 50 b II
Temp deg C) air sfc			•	3.1				4 ° 0	•			3.8 3.5				0°20
calification bottom				19.0				5.6 23.0				23.0				23.0
bottom bottom								23.0								1.9
Oxygen sfc hottom		•		10.9				11.9		 						6 - T T
pH sfc			•	0 I 80				00. 88				8				8 .0
Species	Number	Live	Dead	Батад	Number	Live	Dead	Damag	Number	Live	Dead	Damag	Number	Live	Dead	Damag
Alosa aestivalis	9	5							m		2					
Brevoortia tyrannus	e	I.	1	m	7	l		<b>1</b> ,	Ľ		ł	1 % 2	L,	L	1	•
Anchoa mitchilli	<b>н</b>	t	-	1	2	<b>.</b>	-	-	1	1	<b>.</b>		<b>I</b>	I	ı	<b>i</b> .
variegatus	H	-	1	1	1 •	1			1.	1 •	1 .	t i	1	11	1 -	1
Menidia menidia	N.	۲. ۲.		7	-1 c	i I	<b>-</b> 4		0 1	- 1	n i		- 1	. 1	- 1	
Apeltes quadracus Syncmathing finering			1.1	1. 1. 	א ו	l 1	L L	1 /	1	1997 1997 <b>1</b> 997 1997 - 1997	I.	<b>.</b>	t	I	1	ſ
Tautoga onitis	I <b>I</b>	• •	l	1	H	4	I	L	~ ~	2		l		• <b>-</b> 1	<b>I</b> 1	.1
Gob losoma bosci	B	l		1 () 	<b>I</b> 1	1	1 1		4 -	I	æ 1			I I		1   1  -  :
Etropus microstomus	1	8	l.	•				i.	4	-						
Pseudopieuronecres americanus	63	44	ŀ	19	ŝ	T	I	4	н	<b>н</b>	t	1	6	9	1	m
Class Polychaeta	7		l	N	-	i.		t		ł	8		1	ſ		ł
Palaemonetes vul qar is	1	ţ	ł	t. ₽	8	7	1	1	7	ч	н	а <b>н</b> .	1	L	ł	ł
Crangon septemspinosa	<b>L</b>	ł	1	•	32	28	8	7	105	101	m	п	. <b>L</b>			
Totals	82	51	5	26	48	32	9	10	124	107	15	7	13	۲	7	m

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Appendix Table 5. (	cont.)															
Date (mo day) Hour				Dec 27 1650			· .	Dec 27 1845			Д	ec 27 2130			Ľ.	ec 28 1725
Period Duration (hr min) was			<b>[</b> 1.	1 100d I			F.1.	0 50 ood II				0 35 Ebb I			Flo	0 4 0 0 4 0
Temp theg C) air sfc	•• ••	•	• •	- 1 10 1 		•	   .	2°8				۱ m m				4-
bottom Salinity(ppt) sfc hottom				22.0 22.0	· . • ·	· · · · ·		22.0				22.0				10.01
Oxygen sfc bottom			•• • • • •	11.9		•		11.7		· ·		11.5				12.8
pfl sfc				88				8.0				8.1				88
Species	Number	Live	Dead	Damag	Number	Li ve	Dead	Damag	Number	Li ve	Dead	Damag N	umber	Live	Dead	Damao
Alosa aestivalis	5			3					4	e N			4	l	1	
Alosa pseudoharengus Brevoortia tyrannus	- 0 -	t t	1 1 -	4 2	t	11	T T		<b>i</b> t 1	11	<b>t t</b> 1	111	1 1 1	1 1 1	L L I	
Anchoa mitchilli Morluccius	-	<b>t</b>	-1	l	-		<b>i</b>	4	;   · · ·							
bllinearis		L		I	Г	t	1	<b>н</b> )	1 -	1 -	<b>I</b> (	1 (	<b>н</b> (	11	11	- 1 
Urcphycis chuss Cyprinodon	•	۲. <sub></sub>		<b>L</b>		le i		<b>;</b>	-	<b>.</b>	ļ					
variegatus Menidia menidia	40	1 m	1 -		18 18	44	1 7	1 7	:1	l vo		۱IJ	-1	I - I -	an E E S S	
Apeltes quadracus	•	1	L	11	20	20	11	11	~ ~	- 7	- I	11	11	<b>н і</b>	11	• ¬
Syngnathus ruscus Tautoga onitis	L Í	<b></b>	i i t		• 1	2 B	ł	1	I eer -	141		1	<b>N</b> -	NI	t	•••
Cobiosoma bosci	i +-		ι ι	1 -	t t	1 1	<b>в с</b>	1 1	<b>- 1</b> 1	11	- I - I	L	i t.	ſ	• <u>.</u>	
scophthalmus aguosus	- I	•	. 1	l II	I	•		ł	T	ł	I.	1	-1	1	I	
Pseudopleuronectes	4	4	L	ţ.	œ	9		7	30	17	1	13	on (	8	ı	
Class Polychaeta		<b>1</b> 1	L,			L		<b>.</b>	:		I.		۷	1 1 1	1 1 1 1	
Palaemonetes vulgaris	4	4	L L	•	1	I	<b>t</b> <sup>1</sup>	ł	i	t	1	1	1	ſ	t 1	•
Crangon septemspinosa	53	<b>4</b> 5	2	-	1	1	1	l	t			1	51	32	14	
The state and the state of the	78	54	6.	15	36	25	4		55	34	7	19	75	43	15	Ч

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ppendix Table 5. (	cont.)															
ate (mo day)				bec 28 1930			Α	ec 28 2130			'n	an 3 1730				an 3 2015 3
bour beriod				т П	•••	· · · ·	· . ·	0 M 1		·	. (	0 55 25			ß	0 30 1 0
Mration (nr min) Nde	: 		Fle	II poc				I qqa			<u>ъ</u>				Ī	1
Emp (deg C) air afr				т м	•		- - -	0.5		•	н 1 10	5°6				60 I
bottom		•		1 0	•			20.0	•	.:		21.0				20.0
Salinity (ppt) sfc bottom					· · · ·		···	1	-		•	21.0				13.3
Dxygen sfc				13.4				12.6	•			13.7				
bottom off sfc				1 80 I F				7.8				88				
															1	
Species	Number	Live	Dead	Damag	Number	Live	Dead	Damag	Number	Live	Dead	Damag	Aumber 	Live	nead	heuren heuren
							L	-	ı	ľ	ŧ	t	<b>1</b> 1 2	t	•	•
Anguilla rostrata Mice sectivalis	រ រា	1 4	5	0	11	m	H	ц.	ц П	11	<b>1</b> 1	ທ I	i i	1.1	11	
Alosa pseudoharengus	m	1	- 1	N 1	<b>~</b> –	ı –		n 1	ł	t	Т <b>İ</b>	1	ł	1		t t
Brevoortia tyrannus Anchoa mitchilli	i, i	1	1	i.	-	1	H	t	к <sup>- с</sup>	<b>I</b>	<b>t</b> -	1		ſ		
Merluccius	-	<b>.</b>	t	<b></b>	<b>.</b> 	ł	i i	I	t	t,	1	ł	t		t	•
DILINEALIS Conrinodon			•		•	: 1	(	-	1	1	•	<b>1</b>	t	I.	L	•
variegatus		I.	1	. <		14	. 4	- <b>ס</b>	t	•	ł	. <b>4</b>	1.	. 1	ł	1
Menidia menidia	~ -	Υ <b>-</b>		r 1	Ĩ	• ~	1	-	•	ł	•	1	1 1	t 1	1 1	1
Apeltes quadracus	4 m	4 0	<b>L</b> 	ľ	'n	ŝ	<b>t</b>	t	m I			ก ไเ เ		1	1	l
Morone americana		<b>1</b> 14	1	-	•	<b>t</b>	1	t			•					1
Myoxocephalus	-	-		•		t		<b>1</b> .,	1 <sup>2</sup>	E.	Ľ	<b>L</b>	L.	<b>t</b> -	t	
aenaeus	4	- I			•		· . ·						2 4	- 	1	43
Pseud op leur onectes	28	20		~	22	19	ı -	m t	- <del>-</del>	NI		<b>у</b> —	н <b>с</b>	L 	t	L.
Class Polychaeta	-	ŀ		1	-		-									(
Palaemonetes	1	ļ	t	1	1	ł	t	1	m	m	<b>I</b>	L	•			
Vul gat is							ĺ	1	5	47	Ś	m		i	t	1
septemspinosa	48	25	16									17	54	11	0	43
	100		21	31	72	34	7	31	96	70	n '	ł	• •			

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Appendix Table 5.	(cont.)															
Date (mo day) Hour				an 4 1710				Jan 4 2045				Jan 8 1655				an 8 1930 1
Perion (hr min) This				1 20 Ebb I				0 55 8bb II			F1.	1 35 od 11				
Temp (deg C) air sfc	· · ·		•	1 00 V 			*.	181 -								0 <b>4</b>
Salinity (ppt) sfc bottom				21.0	· · · ·			22.0		•		20.0				20.0
Oxygen sfc				10.9			•	10.5				11.3			•	11.0
pH sfc				88				8.0			•	8.0 8.1				7.8
Species	Number	Live	Dead	Damag	Number	Live	Dead	Damag	Number	Li ve	Dead	Damag	Number	Live	Dead	Damag
Alosa aestivalis	9	4		2	62	6	16	37	40	11	2	21	12	7	T	ŝ
Cypr inodon	1	1	1	I	-	-	. (	i I	1	t	ः ।	•		٦	t	<b>1</b>
Valiteya cus Fundulus			•		•	ł										
heterociitus	12	1 -	1 "	10	78 T	- <u>6</u>		1 10	1 0	1 14	t t	11	17	101	l M	1 4
Apeltes guadracus		• •	t	E T	m	Ч	t	7	ł	1	L	•	<b>н</b> ,	1 -	1	Т
Syngnathus fuscus	~ 1	~ I	1 - 1		1 1	iı	<b>1</b> 1	11	1 1	11	i i	11	- N	- N	( <b>)</b>	
Gobiosoma bosci	н	<b>t</b> .	-1	l ·	ſ	ł	•	l	7	ł	7	1	<b>1</b> .	1	t	1
Myoxocephalus	1		I	t		- <b>- -</b>	1	ł	1		ł	1		-		1
senseus Scophthalmus aquosus		L	T	-	2	Ч	t	Ч	ſ		t	1	1	l	<b>F</b>	
Pseudopleur onectes	۲	~	1	4	بر س	7	t t	ŝ	ŝ	4	t	н	2	Ъ.	1	
americanus Class Polychaeta	- 1	) <b>I</b>	l	I	• <b>1</b>	ı	t	t	2	2	. L	t	16	ទ	t	9.
Palaemonetes vulgaris	m	m	<b>t</b>	<b>L</b>	t	•	. <b>L</b>	- <b>L</b> -	8	7	t	-		t	4	
Crangon septemspinosa	67	96	н	. <b>!</b> .	t	t	1		49	29	m	17	L	I	1	•
Totals	129	115		6	102	30	23	49	108	61	7	40	58	38	n	17

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Appendix Table 5. (	cont.)														
Date (mo day)		4 	Jan 1 202	чv			Jan 15 1832			.,	an 15 2132		•	'n	an 18 1740
Per lod				i u i			۳ c	• •	• • •		ς α				0 50
Duration (hr min)			L Flood	νIJ	•		lood I			FIC	pol II			ដ	l do
Temp (deg C) air sfr				1 1 1			0.5				0.8		•		0°8
bottom	:	•	00	1 <			19.0	•			15.0				23.0
Salinity(ppt) sfc bottom	•		5 (	2 1 (	· · · ·		20.0				1.9				23.0 13.1
Oxygen sfc			12	<b>0</b> 1		•	12.4			•				•	12.6
pH sfc bottom			ω	01			88 8.1 9	. •			1.6				80.0
	Number Liv	e Dea	d Dami	ag Number	r Live	Dead	Damag	Number	Live	Dead	Damag	Number	Live	Dead	Damag
the crea													t	t	t
Alosa aestivalis	Ľ (	t.		1.0	1 T	11		4 (4	4 1	Ч	1	L	ŧ	l	t
Menidia menidia	ז מ	L L		n t	1	L	E C	г	H,	t i	1		t t	8 8	<b>t</b> , <b>t</b>
Syngna thus fuscus		r T	t		1 I ~ (		0,0	i i	L - L	1 1	1 <b>1</b>	:, <b>i</b>		t L	<b>ו</b>
Morone americana	1	1. 1		; i	• •	t .	. –		ł	1		1	t	ł	L
Scophthalmus aquosus Pseudooleuronectes	<b>I</b>	•	•					V	A	l		25		Т	15
americanus	t I	<b>1</b>			יי ע כי ד	1 1	- L	r <b>t</b>	• 1	- 1	Ľ	<b>T</b>	•	-1	t
Class Polychaeta	L.	, ; ;					· · ·			.				5	l
vul qaris	<b>.</b>	-	1	1	н		<b>I</b> .	t	1	Ľ	<b>i</b> .	4	•	1	. (
Crangon septemspinosa	102	55	17	20 5	6 54	<b>t</b>	3	L					51	13	77
Totals	107		17	24 7	3 64	0	6	<b>6</b>	Q	<b>H</b> ,	7	114	60	11	31

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Appendix Table 5.	(cont.)															
Date (mo day) Hour				an 18 2030 3				Jan 22 1720 3				Jan 22 1955 3				an 25 1720 3
Duration (hr min) Tide	•		- <b>1</b>	0 40 00d I		•		1 35 Ebb I	· ·		-	Ebb II			Flo	0 25 od II
Temp (deg C) air sfc				i t t				8 8 C				1 0 n  				44
Salinity (ppt) sfc bottom				22.0	· .		•	20.0				21.0				22.0
Oxygen sfc bottom				12.8	· .		•	11.5 11.8				11.2	· · ·			10.7
pH sfc bottom	· · · · ·		· ·	8°.1				00 88				7.7				88.0 8.0
		1 + 1			Nimber Noter	1 tro	Dead		Nimber	Li ve	Dead	раша о	Number	Live	Dead	Damaq
ope cles																
Alosa aestivalis	•	t	t	1	1 -	1	<b>, t</b> )	<b>1</b> .е		1	11	<b>ו ה</b> י :	I	11	L L	-1 1
Opsanus tau Menidia menidia	1 - 1 	н <b>1 Г</b>	1 1	t t		1		- <b>t</b>	l n	L IN	1 <b>1</b>	t t	i.	ł	t	1
Gasterosteus	1	I	- <b>t</b>		Ч	٦	t	<b>L</b>	7	7		ľ	1	1	3 <b>4</b> 2 2	т, Т
acureatus Tautoga onitis		. <b>.</b>	t :	• •	( <b>-1</b> )	•	<b>t</b> .,	<b>I</b> ,	<b>t</b> 1	<b>1</b> (	<b>1</b> .1	t	1.1	11	11	11
Coblosoma bosci	ł	ł	i.			ľ	-		<b>t</b> `	<b>t</b> "	1	<b>.</b> 				
rseud op Leuronectes americanus	21	4	t	11	10	4	<b>F</b>	<b>.</b>	10	2		mi	38	51	<b>ω</b> -	41
Class Polychaeta	.*	<b>L</b>	8	L	ł	<b>1</b>	L	t			<b>1</b>		-		•	
ralaemonetes vul dar is	•	1	t.	t	1	ľ	<b>t</b>		•			L	9	4	~	
Crangon septemspinosa	•	<b>, 1</b>	î.	T	52	47	ł	ິທີ.	1	L	•	1	23	с П	4	9
The a la	22		0	17	99	53		12	18	14	0	4	69	38	6	22



Appendix Table 5. (c	:ont.)															
Date (mo day)				lan 25 1930				lan 29 1750			2	Jan 29 1930		•		an 29 2130
Period Period Purchan fre min				0 m 1			•	0 40.3	· · · · ·		- - -	т о Т			1	ло¦ П
Tide				Ebb I			E .	i poo		•	ίτ.	lood	•		FLC	10°E
Temp (deg C) air			•	0 8 H M				າ ເກ • ຕ				9.0 				3.0
bottom				1				4.0	-	1	•	22.0				20.0
Salinity (ppt) sfc				<b>N I</b>				22.0	•							1
Oxygen sfc				10.7		 	•	14.0	•			6.L1.				
pH sfc bottom				8.7		•		88				<b>7.9</b>			•••• •• •	0 I 8
Species	Number	Li ve	Dead	Damag	Number	Li ve	Dead	Damag	Number	Li ve	Dead	Damag	Number	Live	Dead	Damag
								1	9	F	Ľ	<b>.</b>	9	Ч	L	IJ,
Alosa aestivalis	. 1		i t		1 14	t	1		ŝ	7	• <b>1</b> .	m	r-i i	1		-1, -
ALOSA PSEUDUIALEIIYUS Alosa sapidissima	ł	1	l	ł	ł	1	L	t	1	1	:	<b>I</b> .	-	1	ľ	-
Merluccius Etitoperio	1	ŀ	ł	ł	•	•		t	t	ŀ	t	1	-	t		-
Cypr inodon	•				١	1	1	ł	-	ı	I		ł	ľ	r	l
variegatus Monidia monidia	1 H	L L		i i	22	14	H	۲	25	13	-	1	14	10	1	4
Gasteros teus	ſ	•	ł		25	22	ł	m	13	11	T	6	10	10	t	<b>I</b> .
Pacut ca cus Pacud op leur onectes					ſ	Ц	1	1 1	24	18		9	25	15	ł	10
americanus	- 24	50	t t	а ( <b>1</b>		D 1		31 1	۲ ۲	-		9	7	L		5
LIASE FOLYCRAFLA Palaemonetes		•	•	1	Ú T	15		•	l	t	<b>t</b>	<b>.</b>	1	t	L	1
vul gar is Crancon	Ţ	N	4		1	1			•			•	1	1	l	
septemspinosa	13	10	m	1	64	48	8	80     								
Totals	41	32	л		147	104	6	34	81	46	-	34	60	36	2	54

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Appendix Table 5.	cont.)															
Date (mo day)				eb 1 1740				eb 1 1950	•	• . •	-	eb 5 1830			ш.	eb 5 2030
Period Puration (hr min)				0 25	•			0 55 615 7	•			3 0 25 Ebh 1				0 25 Ebb I
Tide Temn Hen C) air			ан 1 1 ж	т <b>і</b> ада					.e		•	4 L 2 2		•	•	L 1
sfor tog of sfor				2.2	•			5 -			÷		•			
Salinity (ppt) sfc				21.0				20.0		•		18.0 18.0	•••			
oxygen sfc				12.6		•		12.8				11.9		•		12.3
bottom				12.6 8.0				7.8			. •	7.9				7.9
pri sic bottom	•			7.8				1				8.0				
Soe cies	Number	Li ve	Dead	Damag	Number	Li ve	Dead	Damag	Number	Li ve	Dead	Damag	Number	Live	Dead	Damag
													ł	1	1	t
Anguilla rostrata	1 1	11	it	11	1. <del> </del> -	( H	11	<b>I I</b>	- L	- <b>-</b>	ſ	ł	t	<b>t</b>	i i	1
ALOSA RESCIVALIS ALOSA BAPIdissima	-	1	L	н	ст Г	l	1	ч	£	t	r Set	L	1	•		
Merluccius		. <b>I</b>	t	н	L	1	1	ł		ł	t •	Ļ	1 "		۰.	1
Bilineatis Menidia menidia	I <del>~7</del>	m	t	F	m	m	1	L.	2	ł	<b>-</b> 1	<b>-</b> 1'	-		4	•
Gaster os teus	•	ſ	I	٦	ł	1	. <b>1</b>	т <b>н</b> 21	2	3	. <b>t</b> .	T T	2	7	1	ł
acuteatus Deerdonjeuronectes	•	•						•	r -	-	1	Y	14	13	L	
americanus	21	51	L	9	ទ	41	t t	0 L			•	> <b>1</b>	1	1	ł	L.
Class Polychaeta		-								•			•	•		1
Palaemonetes vulgaris	1	1		t	ł	t	t,	נ נ	<b>I</b>	<b>t</b>	t	<b>t</b> - 1 - 1 - 1	-	H		
Crangon	AR AR	37	'n	9	•	ł	t	ŀ	48	32	80	œ	59	37	13	6
septemspinosa										y y y					14	10
	86	65	ŋ	16	15	×	ວົ	-	2	2			• ,			

135 Number of fishes and macroinvertebrates impinged on the Ristroph screen and taken in the live and debris troughs at the Oyster Creek Generating Station on 9 January 1979 an 56 1955 1955 Debris Numbr 209 22.0 101 221 2.6 11.3 æ 3 0 30 Ebb I -\$ 8.1 Jan ļ 19 Numbr 23 } 2 e d 1 H Live Alosa aestivalis Menidia menidia Syngnathus fuscus Hypsoblennius hentzi Palaemonetes vulgaris ů, Temp (beg C) Air Surface Bottom Salinity (ppt) Sfc Bottom Oxygen Surface PH Surface PH Surface Duration (Hr Min.) septemspinosa Station Date (Mo Day) Appendix Table Tide Temp (Deg Species Crangon Totals Period liour ł

7. Condition (live, damaged, dead) of fishes and macroinvertebrates impinged on the Ristroph screen and taken in the live and debris troughs at the Oyster Creek Generating Station from 28 November 1978 through 9 January 1979. Appendix Table

	Trough Dead			
	Debris Live	i un i	56	
	Numbr	Int	69	
56 1741 1741 0 10 3 0 10 3.8 6.3 6.3 11.2 11.2 11.2	Damag	1.1.1		•
	trough Dead	111		-
	Live Live	<b></b> 1	47	49
	Numbr	I	48	20
	Damag	111		1
	Trough Dead	111		<b>H</b>
	Debris Live	۱ ú H	29	35
	Numbr	lωΗ	30	<b>3</b> 6
Nov 28 1647 1647 1643 6.3 6.3 6.3 6.3 22.0 22.0 22.0 22.0 11.3 7.9 7.9	Damag		2	'n
	r ough Dead		-	<b>н</b>
	Live J Live		11	11
	Numbr	1 - 1   	14	15
tom tom tom tom tom tom		cus cus stomus		
<pre>&gt; Day.) &gt; Day.) = (Hr M = Surf. Bot Bot Bot Surf Surf Bot Bot</pre>		oceanic hus fus micros	ı sp i nose	
 Station Bate (M Hour Feriod Duration Tide Tamp(De' Salinit Oxygen PH	Species	Conger Syngnat Etropus	Crangor septem	Totals

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	Dead	1 1	<b>T</b>
	ebris Live	29	53
	Numbr	I H	H E
7.9 1935 1935 1935 10 3.1 3.1 3.1 11.3 7.9	6 I I	<b>.</b>	
O N I L	Dead	() <b>1 1</b>	
	ive Tro	1 0	6
	umbr	1 1 0	Ð
	am a g	i i न	-
	ough De ad	• • •	4
	or is Tr Live	1 125 1	126
	mbr Del		111
7.88 28 10 10 10 2.5 2.5 7.8 7.8 7.8 7.8	n n n n n n n n n n n n n n n n n n n	1 1 7	-
Nov 1 1 1 1 2 2 2	gh ead De	<b>1 1 -</b>	, <b>,</b> , , , , , , , , , , , , , , , , ,
	re Trou Ve D	1 1 5	86
	br Li	- <b>-</b> 1 1	0
	NUM		
Min) Min) Air Sottom Sottom Bottom Bottom Bottom Bottom		n i cus s	los a
(Mo Day Beg C) Su (Pri E ty (Ppri E Su Su	ι Δ	r ocea monete aris on	em spin
Static Bate ( Hour Period Durati Durati Cating Salinj PH	Specie	Conge Palae vulg Crang	sept Total

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7. (cont.) Appendix Table

	•	•				•										
Station Date (Mo Day) Hour Feriod Duration (Hr Min) Tide Timp (Deg C) Air Surface Bottom Salinity (ppt) Sfc Bottom Oxygen Surface Bottom PH Surface Bottom				56 2020 2020 3 0 10 22.0 22.0 22.0 22.0 11.7 11.7 11.7							2	Context 10 10 10 10 10 10 10 10 10 10 10 10 10				
Species	Numbr	Live Tr Live	Dead	Damag	D Numbr	ebris T Live	trough Dead	Damag	Numbr	Live Tr Live	ough De ad	Damag	Numbr	Debris J Live	r ough Dead	Damag
Syngnathus fuscus Palaemonetes vulgaris Ctangon septemspinosa		1 - 1		1 1 न	1 21	- 1 20	1 1 न		1 1 1	1. 1. 1.	1 1 <b>-</b>	- 1 -	I	<b>-</b>		
Totals	18	17		J	22	21	-	1	18	15	н	8	æ	-		1
	•															

7. (cont.) Appendix Table

Station Date (Mo Day) Hour			Z	56 0v 28 2210							Ω	56 ec 12 1710			
Period Duration (Hr Min) Tide				3 0 10 Ebb 1							г 5	0 10 00d 1			•
Temp (Deg C) Air Surface				0 ° 0						یں ۲۰۱۶ ۲۰۱۹ ۲۰۱۹ ۲۰۱۹		າ ທີ່ຫຼື ທີ່ຫຼື			
Salinity (ppt) Sfc Bottom				22.0								20.0			
Oxygen Surface Bottom				п.3								111 			
PH Surface Bottom		•		7.9	•							6.1			
Species	Numbr	Live Tr Live	ough De ad	Damag	Numbr	)ebris Live	Trough Dead	Damag	Numbr	Live Tr Live	ough De ad	Damag	D Numbr	ebris Trough Live Deac	Damag
Brevoortia tyrannus Menidia menidia			111 1 1 1						<b>-</b>   m	10			-1 4	4	न । ।
Syngnathus fuscus Gobiosoma bosci	1 F.	11	11	1 1 1 1	<b>1</b> N	<b>1</b> 1	<b>+ 4</b>	- 1	1 1	N 1	1	1 1	। ल		
Palaemonetes vulgaris	r	•	1	•	•	1	•		S	4		. <b>.</b> .	7	1	
Crangon septemspinosa Cancer irroratus	<b>: : !</b> !	9 I		<b>ल 1</b>	5 7 7	57	1 17	11	27 1	73 73	1.1	41	<b>4</b> 1 1	29 1	11 '
Totals	11	10		T	31	28	2		39	32	-	9	5.5	41	17
						-									

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Appendix Table 7. (cont.)

	Troug Dea		
	Debris Live	1 I I 8 8	5.5
	Numbr	62 4 1 11	68
56 62 12 1900 4.9 4.9 20.0 11.7 11.7 8.0	Damag		I
L L L L L L L L L L L L L L L L L L L	ough Dead	11 m 1 1 <del>4</del>	ۍ.
	Live Tr Live	26 2 I I I	29
	Num br	30 7 I I I I	34
	Damag	<b>1 1 1 1 0</b>	12
	rough Dead		5
	ebris T Live	<b>1 1 1 1 2</b> 65	66
	Numbr	1 1 1 1	80
56 1805 1805 56 55 55 55 111 111 111	Damag	mii i i m	4
Ē. L	ough Dead		2
	Live Tr Live	2 3 3	33
	Numbr	35 m H 77	6 E
Min) AIr AIr AIr AIr AIr AIr Sottom Sottom Irface Bottom Irface Sottom		valits osci s s osa	
tion (Mo Day (Mo Day (Oeg C) (Deg C) (Peg C) Su gen Su Su Su	cies	sea aestivatura iosoma bu vocephalt vocephalt aemonete ilgaris ngon	als

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Damag  $\mathbf{1}$ 2 Im 1 Ч Debris Trough Live Dead ï 8 0 111-I 1.1.1.1 1 1 1 01 32 35 4.2 47 Numbr --1 ł NH Damag 56 Dec 12 2101 1 **O** 1 80 1 ł 0 T0 M Ebb. I 4.5 21.0 11.4 4 1 1 1 1 ţ 1 1 Im Dead 1 1 N ш Live Trough Live ະ ຄ 10 1 ŝ 3 1 Numbr 31 38 1 1 1 20 m Damag I. 2 1. 4. ---1.1 . g Dead ŝ 1 1 1 1 N ÷-4 Debris Trough Live Dead ŝ 57 62 1 1 1 1 1 73 ļ 9 62 Numbr Ĩ. 1 Damag 2 56 Dec 12 1957 0 10 4.8 20.0 11.3 0 **;** Ŧ, ∎;‡ 1 1 1 0 Flood II 1 ł Dead œ ø 5 1 1 1 1 1 Live Trough Q 31 41 -N Live 1 1 1 37 Numbr HNHNI so. 49 1 7. (cont.) -Salinity (ppt) Sfc Bottom Detom Oxygen Surface PH Surface PH Surface Brevoortia tyrannus Apeltes quadracus Syngnathus fuscus Gobiosoma bosci Palaemonetes C) Air Surface Duration (Hr Min!) Tide Menidia menidia Appendix Table septemspinosa Day) Cyprinodon variegatus wılgaris Crangon Temp (Deg Date (Mo Species Station Totals Period Hour 1

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142 Damag 1 1 1 1 11 Debris Trough Live Dead ee († 1 11 4 ŝ 1 \$ 156 N 1 1 1 1 165 1 ł 1 . 1 r Numbr 161 i 173 6 .1 1 m 1:1 1 1 800 10 800 10 7.55 7.55 7.55 7.68 110 111.3 8.0 8.0 56 Dec 13 1640 ратад 1 1 ı۵ ø 1 1 1 1 1 1 1 1 -Dead 1 E 111 1.1 1 2 N Live Trough Live 1111-11 -77 80 1 1 Numbr 84 88 J, 11 1 1 1 . Damag 1.0 4 m Trough Dead ł 1 .1 1 1 1 ŝ σ ł 1 m 1 ----Debris Live ŝ -1 1 1 37 2 38 49 NUBDE 1 -101 I S 1 8.0 56 Dec 12 2210 Ebb · I а. 6.5 20.5 11.5 0 10 Damag N ł ļ I 1 1 1 1 1 1 į Dead 1111ŧ m 1 N Live Trough Live 32 1 1.1 1 1 1.1 32 1 7. (cont.) 1.1.1.1. 1 37 Numbr ÷ 34 ł Brevoortia tyrannus Menidia menidia Apeltes quadracus Syngnathus fuscus Pseudopleuronectes Surface Bottom Surface C) Air Surface Bottom Salinity(ppt) Sfc Bottom Bottom Duration (Hr Min) Alosa aestivalis Class Polychaeta Tautoga onitis Gobiosoma bosci Appendix Table septemspinosa Day) Palaemonetes americanus vulgaris Crangon Station Date (Mo Temp (Deg Species Period Oxygen Totals Tide Hour Ηd

ppendix Table 7. (	cont.)																
station Station Day) bour Period Duration (Hr Min.) Fide Duration (Hr Min.) Fide Surface Bottom Divgen Surface Bottom PH Surface PH Surface				56 1805 1805 0 10 5.7 7.7 7.7 20.0 11.0 11.0								56 1940 1940 0 10 0 00 111 6.8 11.4 8.1 8.1					
Species	Numbr	Live T Live	r ough Dead	Damag	Numbr	Debris Live	Trough Dead	Damag	Numbr	Live Live	Ir ough De ad	Damag	Numbr	Debris	Trough	Damag	
Anguilla rostrata Brevoortia tyrannus Opsanus tau Menidia menidia Apeltes guadracus Syngnathus fuscus Gobiosoma bosci Pseudopleuronectes americanus Palaemonetes vulgaris Crangon septemspinosa Ovalipes ocellatus Callinectes sapidus	1110010 1 <del>4</del> 911 9 7	111 H H I I 4 80 11 111 H H 10 4 80 11	1,1 I H N I N N I I ∞ I I		1411141   1 444 1 1					нынын 1 <u>6</u> м1	1 1 1 1 1 1 1 1 00 1 1 2 1 1 1 1 1 1 1 1 00 1 1 2		1141110 1 N 811	1               0 <del> </del>	1 1 H 1 1 N 1 1 M 1 1	111111111111	· · · · · · · · · · · · · · · · · · ·
Totals	276	263	13		138	135	7	-	73	64	8	<b>-</b>	88	19	9	m	e M

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tation ate (Mo Day) our				56 Dec 13 2045							ĕ	56 2140 2140				
eriod uration (Hr Min) ide			ĒŢ	0 10 00d II							Flo	0 10 0 10				
emp(Deg C) Air Surface				7.2								л. 2.0 6.6 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0				
alinity(ppt)Sfc Bottom			•	20.0		· •:			•			20.0 19.0				inte Strange
xygen Surface Bottom				11.1								11.5 11.5 11.5				
H Surface Bottom		•	· · ·	<b>2</b> ]		•	•					8				
ipecies	Numbr	Live J	Ir ough De ad	Damag	Numbr	Debris Live	Trough De ad	Damag	Num b r	Live Tro Live	ugh De ad	Damag	Numbr	Debris T Live	Dead	Damag
psanus tau					110					1 1 1 1 1	11	11	- 1	-	1.)	1.1
enidia menidia Apeltes quadracus Fautoga onitis	<b> </b>	<b></b>			( <b>) )</b>		110	110	11-	111	11-	111	110	11-	110	111
sobiosoma bosci Palaemonetes	- I	1 1	- 1	1	4 ju	1 <u>n</u>	N 1	V 1	+ m	M	1	200 10 10 10	) m	I N	H H	
Cangon Septemspinosa Cancer irroratus	45 1	41		11	<b>1</b> 9	51	M 1	I	40	8 T	01	11	4 V 1	42	<b>Μ</b> Ι	1.1
lotals	48	42	9		72	64	S	m	45	42	m N	1	5.2	46	v	<b>1</b>

7. (cont.) Appendix .Table

Appendix Table 7. (cont.)

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	ough Dead	() () () () () () () () () () () () () (
	Live Tr Live	1 11∾11 <b>▼1</b> 1 80 1
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tation bur bur bur lication (Hr Min) lde mp(Deg C) Air Surface Bottom Bottom sygen Surface Bottom H Surface Bottom	pecies	ulosa aestivalis Syprinodon variegatus peltes guadracus Syngnathus fuscus Tautoga onitis Sobiosoma bosci Seudopleuronectes americanus americanus americanus americanus americanus americanus americanus americanus seudopleuronectes americanus am

		Debris Trough Live Dead Dead Dead Dead Damag B B B B B B B B B B B B B B B B B B B	101 <b>3</b>
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		Dam ag Num br	3
( ) <i>r</i>		Debris         Trough           1         1           1         -           1         -           1         -           1         -           1         -           1         -           1         -           1         -           1         -           1         -           1         -           1         -           1         -           1         -           1         -           37         31	57 47 5
	Dec 18 2115 2115 2115 0 10 3.0 3.1 3.1 3.1 20.0 10.8 10.8		<b>I</b>
		Live Trough Live Dea	27
7. (cont.)		Nus Se Sa Sa Sa Sa Sa Sa Sa Sa Sa Sa Sa Sa Sa	53
Appendix .Table	Station Bate (Mo Day) Hour Period Tide Temp (Deg C) Air Surface Bottom Oxygen Sufface Dettom PH Surface PH Surface Bottom PH Surface	Species Alosa aestivalis Brevoortia tyrann Apeltes guadracus Gobiosoma bosci americanus class Polychaeta Palaemonetes vulgaris Crangon septemspinosa	Totals

7. (cont.) Appendix .Table

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Bottom				7.8												
Species	Numbr	Live Tr Live	ough De ad	Ватад	Numbr	ebris ' Live	lrough Dead	Damag	Num b r	Live T Live	r ough De ad	Гатад	Numbr	Debris J Live	lrough Dead	Батад
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Appendix Table 7. (cont.)

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		ough Dead	<b>8 8 8 9</b>	1 1	•	1
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	tation ate (Mo Day) our eriod uration (Hr Min) ide Bottom Bottom Mottom Mottom Bottom Bottom Bottom Bottom Bottom Bottom Bottom	pectes	peltes guadracus bicropogon undulatus obiosoma bosci seudopleuronectes	lass Polychaeta alaemonetes vulgaris	kangon septemspinosa	Ctala

Appendix Table 7. (cont.)

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od (Hr Mun) Lion (Hr Mun) (Deg C) Air Surface Bottom Bottom Bottom Bottom Bottom Bottom				bc 56 1715 1715 1715 1715 24 10 1224 10 11 11 30 11 31 31 11 31 31 11 31 31 11 31 31 11 31 3								Dec 26 1830 0 10 4.1 24.1 24.1 8.2 8.2			
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aestivalis ortia tyrannus ia menidia es quadracus ga onitis	111101	11101				<b></b>					11111	11111	1 1 កា 🛪 រ ហ	1 1 1 m 1 1	11
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emspinosa	25	24 26	1 1		140 2005	UCC ATE	15						12	4	1

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Numbr l Damag 56 Dec 26 2020 0 10 Ebb I 0.5 4.4 22.0 1 <del>.</del> . 11.3 1 4 .1 1 111 1 ł ŧ Live Trough Live Dead 1 1 1 1 1 İ 1 1 1 1 1 Numbr 1.1 1.1.1 Damag ÷ 1 - 1 1 1 1 1 Trough De ad 1 1 - 1 - 10 1 Debr is Live INNIH 1 Numbr - n n n -Damag Dec 56 1930 0 10 Ebb 1 4.3 22.0 11.3 4 (1.1.1.1.1.1 ł 8.1 1 i Dead 1 1 1111 -1 Live Trough Live Dead 1111 ۰, .1.1.1.1.1 Numbr 1 1 7. (cont.) Etropus microstomus Anchoa mitchilli Opsanus tau Menidia menidia Apeltes quadracus Syngnathus fuscus Gobiosoma bosci Temp(Deg C) Air Surface Bottom Salinity(ppt)Sfc Bottom Oxygen Surface PH Surface PH Surface Pseudopleur onectes Station Date (Mo Day) Hour Period Duration (Hr Min) Tide Temp(Deg C) Air Appendix Table Species 1

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Appendix Table 7. (cont.)

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	Station Date (M Hour (M Period Duration Tride Temp (De Salinit PH	Species	Apeltes Tautoga Pseudop americ	Palaemo vulgar Crangon septem Ovalipe	Totals

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Alosa aestivalis Class Polychaeta Ovalipes ocellatus	11-	11-	3 1 3	111	<b>7 - 1</b>	1 11 10	1 1 1			1 1 1	5 5 5	1 1 1			111		8
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7. (cont.) Appendix Table

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Species	Numbr	Live Tr Live	ough Dead	Damag	Numbr	ebris 1 Live	lrough Dead	Damag	Num b.r	Live Tr Live	ough De ad	Damag	Numbr	Jebris J Live	r ough Dead	Damag
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americanus Palaemonetes	1	3	1	•	2	8	1 .	1	1	•	1	1	m	m	1	<b>)</b>
vulgaris rangon	1	<b>)</b>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1	<b>H</b>	<b>)</b>	- <b>-</b> -	1	1	1	3	1	•	1	1	<b>)</b>
septemspinosa	T	1	. 1	1.	33	33	1	1		T	1	1	29	28	1	
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americanus Palaemonetes Wulgaris	3	1	1		<b>1</b>	1	•	1	•		1	1	8	8	•	1
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162 Damag .1 1 1 1 1 Debris Trough Live Dead 1 1 1 28 31 Numbr Ч 28 222.0 88.1 88.1 88.1 Jan 56 2200 Damag 1 0 10 Ebb I 1 Live Trough Live Dead 1 1 m ŝ Numbr 'n 1 į 1 'n 7. (cont.) , Station Date (Mo Day) Hour Feriod Duration (Hr Min) Tide C Air Temp (Deg C) Air Salinity (ppt) Sfc Bottom Cxygen Bottom PH Surface PH Surface Apeltes quadracus Syngnathus fuscus Palaemonetes vulgaris Crangon septemspinosa Totals Appendix Table Species 1 I

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Por la		Sep	10	Flood	120	22	5	5	JU U	<i>.</i> г		120		<b>~</b>										
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e k (St		Sep	01 T	Flood	27	22	5 	15	8	80 5		120		2										
	Ч	9	0	24	0,		0	0	8	ά, c	1 -	. 0	1 			- 76	-	1 -		1	I.		2	80
Ceda		Sep	6.6	El ood	25.	212	æ	13.	-	r- r		- U1 - 00		ž		7			•		5.			~
ths of		- - -	0	ън	0	היה	ເມ	2	8	ω.		7 C				18	1	1 1	ŀ	4	ł	1	2	30
e mou		Sep	16 	l ood	25.	21.		12.	-	<b>~</b> 1		- u u		ž		٣					 			~
Numbe in th								E	•	E		E				•		• •				•.		
× x					air	sfc	bocca e fr	botto	sfc	Botto	sfc	botta				ata		8	1118	ans	•••		ap idus	SU
lable		dav)	•		ົວ		100	11					11			r os tr	Ea U	nenidi	n rega onitis	s evol	us		tes s	ecime
ndirx	ton	icate (mo		8	Deg				len				chi (cn			uilla m	anus 1	idia n	os ciol toga	onotu	culat	ngon	linec	al Sp
ppe	Stat	Rep1	Hour	Per	Temp		5.52	5	Š Š		Hd	C	ũ X			Angl	0.0	Мел		2	r or e	Cra	เร	Ę,

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ppendix Table 8. (C	ont•1				•					
								212	23	23
tation	17	17		-1 C	<b>;</b>	<b>r</b> ~		2	,	2
eplicate	<b>1</b> -	7	 - (	ې د 1 د	10	, " 	۳ چ	0c+ 3	Oct 3	Oct 3
bate (mo day)	Sep 5	Sep 5	COL				1136	1150	0101	1225
	2135	2220	950	500T	TUSU	C # 0 T				v eU
	Nicht	Night	Dav	Day	Day	Ua y	γau	Чау	1	
er 100	Flood I	Flood I	Flood II	Flood II	Flood II	Flood II	Flood II	1 Q3		-
		0 20	18.0	18.0	19.0	19.0	21.0	21.0	21.5	C.12
emp (Deg C) air	0.02			15.4	17.5	17.5	18.8	18.8	17.8	17.8
sfc	27.0	7.07	5 ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °				T LL	17.4	17.8	17.8
bottom	26.9	27.0	9.91	0 • 0 T				1.4	21.5	21.5
alister(ant) afr	17.0	17.0	11.5	11.5	20.02	20.0				
The state of the second st	17.0	17.0	11.5	12.0	20.5	20.5	17.0	0.11	<b>n</b> 1 <b>2</b> 7	
			8-6	8.6	80	8.8	8.2	8 • 2	2	0
Dxygen sic	5 c			ς	8.9	6 8	°.8	8.3	9	0 20
Bottom	8.7		- 0	- r - r		6.7	8.1	8.1	8.2	8.2
oH sfc	· · ·		• • • •	- 1			8.2	8.2	8.2	8°.3
bottom	7.6	0./	0.7			125 0	140.0	140.0	130.0	130.0
Secchi (cm.)		1	130.0	130.U	T-23.0	0.001				
								•		
			- M	<b>N</b>	NO	CN.	No.	NO.	No.	No.
Species	- ON	• 02	• •	• • • • • • • • • • • • • • • • • • • •						
						1		1	•	•
<b>Nnguilla rostrata</b>		-		đ	99	24	134	31	301	46
Anchoa mitchilli	-	•					•	1	•	
Opsanus tau	•	n		-	1		•		7	4
Menidia menidia	•	•		• •	1	1	•	1	F	2
Syngnathus fuscus	•	1 •			•	ļ	•	1	•	1
Caranx hippos	7	T			1			•	1	
Selene vomer	•	•		1	1	1	1	1	•	
Stenotomus chrysops		1	1		•	•	T	•	1	
Cynoscion regalis	•			•	-	•				
Menticirrhus		•			•	1		•	•	
saxatilis	1	-		1		ľ	<b>.</b>	1		
Gobiosoma bosci	•	-	1							
Paral ichthys				-			t	•	1	•
denta tus	•	•		ł						
Crangon					1		•	•	m	
septemspinosa			•	1	~	2		-	8	2
Callinectes sapidus	7	7								
					10	27	136	32	309	5
Total Specimens	<b>₽</b> ₹	14	324 22	b m	e M	n	e	7	ŋ	'n
Та ха	-									
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Appendix Table 8. (con	<b>t.)</b>	•	•							1
								4	17	17
Station	8	d. (	<b>-</b>	 -	4	10	• •	7	Ч	2
Rep1icate		1 C	7 F	4 <sup>(7</sup>	NOW 1	Nov 7	Nov 7	Nov 7	Nov 7	Nov 7
Date (mo day)			2058	2118	1018	1045	1112	1130	1206	1225
Hour	7 C 7 T	2002 11-1-1	N1 2 1 2	Ni ch+	V EU	Dav	Dav	Day	Day	Day
Period	NIGHT	TUGIN		FLOOT II	Flood I	Flood I	Flood I	Flood I	Flood I	Flood 'I
Tide	T DOOT J			18 0	13.0	13.0	15.0	15.0	16.0	16.0
Temp (Deg C) air				2.61	13.1	12.8	12.8	12.8	13.1	13.1
sfc	1.9	0.81				12.6	11.6	11.6	12.6	12.6
bottom	18.0	D-81					20.02	20.0	19.0	19.0
Salinity(ppt) sfc	20.0	20.0	11.5					21.0	19.0	19.0
bottom	20.0	20.0	18.0	ς•2Τ	14.0		0.17	- - - - -		6
	8°2	8.6	8.4	8°2	9.9	ч. Т	0			
	æ	8.7	8.2	8.1	9.7	9.7	8.7	8.7	۰ م • م	
			8.2	8.1	8.2	8.2	с. 8	m B	8.0	7.0
pH BIC	50	ο ο ο		8.2	8.5	8.1	8.2	8.2	8 <b>.</b> 1	T•2
DOLLOW		•	•		150.0	150.0	140.0	140.0	130.0	130.0
Secchi (cm.)		1	•							
				-	N.	N CN	NO	No.	No.	. ov
Species	No.	• 00	ÔZ	• 02						
							1	•	•	
Anguilla rostrata	<b>m</b>	• •	•	•					1	
Conder Oreani rits	'n		1	1	1		ŗ	11	ſ	1
Anchos mitchilli	53	-	18	Ś	99	n	- T C	11	1	
	•	<b>.</b>		2	1	•				
upsanus tau			•	•	8	1	'n	1	•	
Menidia menidia		•	. 1	-	-	1	•	1		1
Syngnathus fuscus	7	-1 1		-1 C	•	1	•	1		4
Cynoscion regalis	23	4		4		1	•	1	•	<b>-</b>
Tairtoca onitis	•		1	•	ļ''	l	1		1	-
Character hor mitanus	1		1		1	1			1	
Contracting broch	14	•	m	-	•			1		•
Dr (ono bug evo) ans		1	•	•	1					
	•					1	1			1
rseulouteur olievice	1	•	1	1	-				1	•
		•	S	7	1	•				
IT INECTES MACULALUS		•					r	4	1	
crangon	80	σ	ŋ	4	5	4	<b>-</b> .	• 1	•	
septemspluosa		, <del>-</del>	1	•	7	•	1			
Callinectes sapidus	ר									
		18	38	22	8.2	Ō	4		<b>،</b> -	10
Total Specimens	20	~ <b>-</b>	'n	<b>L</b>	'n	7	ŋ	<b>n</b>	•	•
		•					•			

Appendix Table 8. (cont	••									
Station	23	23	4	4	17	17			4.	~7 (
Replicate	- L	NOW 7	Nov 7	Nov 7	1 Nov 7	Nov 7	DeC V	Dec 5	Dec 5	Dec 5
Late (mo day) Hour	1308	1340	1805	1840	1906	1931	1025	1042	1108	1130
Period	Da y	Дау	Night	Night	Night	Night	Ъау	Day	Day	Day
Tide	ood II	Flood II			FLOOD L	T poor a	T DOOLY	L DOOL 1	0 0 0	11 DOOTJ
Temp (beg c) alr			10.0						0.7	2.0
BIC bottom	1.01	13.1	13.3	13.3	13.1	13.1	7.0	6.8	7.4	7.4
Salinity(nnt) sfc	23.0	23.0	21.0	21.0	20.0	20.0	20.0	19.0	23.0	23.0
bot tom	23.0	24.0	21.0	21.0	19.5	20.0	22.0	20.0	24.0	24.0
Oxvaen sfc	9.7	9.7	9.7	6.7	С С	9.4	10 J	10.8	10.8	10.8
Bottom	9.6	9.7	9°8	8°.	ۍ ۲	9.0	10.5	10.5	10-2	10.5
płi sfc	8.1		۰. ۲	9 <b>-</b> 2		5.1		 2	9. 1 1	0 0 0 0
bottom	6.1	8.1	7.6	<b>··</b>	••	n.	7.0			
Secch1 (cm.)	170.0	170.0	•	1			120.0	1.12U.U	0°07T	0 • 0 7 T
										· · · · · · · · · · · · · · · · · · ·
Species	No	No.	No.	No.	. oN	No.	No.	No.	. on	.ov
Anchoa mitchilli	83	142	299	307	1 -	1 -	11	<b>i 1</b>	<b>-</b> 1	- 1
Opsanus tau	•	<b>(</b> )	1 (	1.	-	-1 1		- 	27	47
Menidia menidia	÷.	-	۲ ۲		1		<b>]</b>	f I	1	-
Apeltes quadracus	<b>V</b>	, i	1 -	1	T			•	1	•
syngna thus ruscus		-			1	1	1	1	1	1
rorone americana Concerion regalis	•	1		3		<b>I</b> .		•	•	•
Tautoda onitis	T		1	1	1	-			1 1 1	
Gob losoma bosci	j,	•		1	<b>-1</b>	•	<b>i</b> 1			-
Etropus microstomus	•	•		1	• -			1		
Scophthalmus aguosus	•	1		•	-					·. · ·
Pseud op 1 e ur onectes	,		•			m	2		4	4
amer i canus	۲	N (	n I		1 4	<b>,</b> -	•	1	1	
Trinectes maculatus										
Lrangon	81	20	429	236	365	II0	6	4	H	15
Callinectes sapidus		•	F	•			1	1		
									<u> </u>	69
Total Specimens	148 6	222 5	749 7	550	374	o S T T	л M H	o m	r <b></b> -	9
1a xa	<b>&gt;</b>	<b>)</b>								

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Appendix Table 8. (c	cont.)									
Station	17	17	23	23	4	4	17	17		
Replicate Data (mo dav)	L C C C	ner Der	DeC 5	L nab'	Jan 9					
Hour the tary	1156	1217	1325	1358	1740	1810	1850	2012	1040	1105
Period	Day El 200 II	Day Eloca II	Day Eloca II	Day FICCT II	Night Ebb II	Night Phh II	Night Prb II	Night Phh II	Day Thh II	Day Ehh 11
Themp (Dec C) air		0°6	8.5	8.5	7.0	7.0	5.0	5.0	-4.5	-4-5
	7.7	7.7	7.4	7.4	7.3	7.3	6.9	6.9	0.5	0.5
bottom	7.6	1.6	7.5	7.4	8.0	7.9	9.9	9.9	0.0	0.0
Salinity(ppt) sfc	18.0	18.0	24.0	25.0	22.0	22.0	20.0	20.0	12.0	0 I 19 1
bottom	19.0	19.0	24.0	25.0	24.0	24.0	24.0	24.0	0.11 12.0	0 0 1 1
Oxygen sfc	10.3	10.3	11.0	7.1.2	12.4	12.4	5 · 7 7	4 · T T	) • • • • • •	
Bottom	10.3	10.3	 	11.1	12.0	12.0	1.21	T - 7T		
pH sfc	8	0.0	2.0	7 - V 0 C	- - x c	-1 - 2 0	7 - 0 0	7 - 0 a	n a - r	•
bottom	2.0		7.0		-† 1 •	- 1 •	- I 5	- I	0.001	120.0
Secch1 (cm.)	0.011	0.011	0.08L	n•noT						
	8 6 7 7 7 7 7 7 7 7 7 7 7 7 7	                 								
Species	NO.	. oN	No.	No.	No	No.	No .	NO.	No.	No
Alosa pseudoharengus	•		•	1	1	1	•	•	ł	J
Brevoortia tyrannus	•	6	•	1 (	1	•	8	1	1 -	
Anchoa mitchilli		-16 1		7	1 5	ľ	ţ		- 1	<b>- ا</b>
Menidia menidia	1	- <b>i</b> •		I Į	1 6	N 0			-	1 ~
Apeltes guadracus	1		54	6		01	۳ <u>ا</u>		<b>4</b> ( <b>)</b> 1 ( ) 1 ( ) 1 ( ) 1 ( )	<b>i 1</b>
Syngna thus fuscus	• •	<b>-1</b> ,			<b>،</b> (	) (	ר ו ו	1	1	•
Tautoga onitis	1	-	•	•	ÿ	n				
Tautogol abr us				•		I	-	1	•	1
adspersus	1	<b>i</b> (		l –	i (1	2 - 2 		•	1	
Gobiosoma bosci		۷		-	- <b>1</b> 	• 1		1	1	•
Etropus microstomus	1	•			<b>-</b>			 	1	
Scophthalmus aquosus	•	1	•		-					
Pseud op Leur onectes		1		1	21	37	19	~		•
amer icanus		1	•	1	1	1		1	1	
LINECTES MACULATURS						1	1	1	•	
sentemspinosa	42	520	33	165	1852	0011	1042	2015	<b>t</b>	
Callinectes sapidus	•	7	7	1	9	9	/ 7			
	CV	0 5 5 0	58	236	1891	1167	2461	3165	7	4
Total opecimens	<b>}</b> ←1	10	'n	Ϋ́.	7	7	7	S	4	7
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tation	4	4	17	17	23	23		-41 (	17	17
eplicate mito (mo dav) []a	~1 o	Jan 9	Jan 9	Jan 9	Jan 9	Jan 9	Jan 9	van 9	Jan 9	Jan 9
are viilo days	1120	1135	1200	1235	1320	1335	1823	1855	1931	2 0 0 0
er i od	Day	Da y	_ Day	Day	Day	Day	Night	Night	Night	Night
lde		II qqa	II qqa			11 QQ		FLOOD LL	F1000 11	
emp (Deg C) air	ас • с	- - - -								4
51C bottom			л <b>с</b> п	. 4. 	0.0	0.0				
alinity(pot) afc	21.0	21.0	18.0	18.0	22.0	21.0	17.0	17.0	15.0	15.0
bottom	19.0	19.0	20.0	20.0	21.0	22.0	•	•		
xyden sfc	12.0	12.0	11.3	11.3	11.6	11.6	12.2	12.3	12.1	12.1
Bottom	11.9	11.9	11.1	11.1	11.7	11.7	1	1	1	1-т т
al sfc	7.9	7.9		 	6.1	0 0 8 1	0°8	D 8	7.6	
bottom	7.9	7.9	7.9	1.9	7.8	6./		r	•	1
ecchi (cm.)	L00.0	100.0	80.0	80.0	100.0	100.0				
becies	No.	No.	No.	. ON	No.	No.	No.	No	NO.	No
inguilla rostrata	I	•		1	•	<b>1</b>		1. (		
Uosa aestivalis	ı	i		51	Í 	1	'n	7	4	đ" -
<b>Mosa</b> pseudoharengus	1	•	m	9:	<b>I</b> (	• 1	• •	1 1	1 1	-4
Alosa sapidissima	1	•	1 -	1-					1	•••
psanus tau	•	:	-1 6	<b>-</b> -	•	•	1		•	2
enidia menidia	•	2	• •	• •	6	10	17	8	10	7
ther tes guadracus	<b>.</b>		1	•		-	ţ.	1	•	
ynyna unus Luscus Tritoge on teta	• •	. 1	•	Г	ì		7			0
sobiosoma bosci		•	•	•	•	•		•	1	1
Stropus microstomus	1	•	1	•	•	1		1	1	-1
Paeud op 1 e ur one ctes		•	•				•	•	[	2
amer icanus	1	-	đ	-			<b>4</b> ,	4	1	
Crangon septemspinosa	•	•	534	3.97	•	•	139	187	2652	2440
			544	473	6	11	164	199	2679	2460
Cotal Specimens	<b>۳</b> ۳	) ( <b>)</b>	5	8	. <b>-</b>	2	Ю	'n	9	6

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tation					17	17	23	23	4	
eplicate		Mar 13	M.r 13	Mar 13	Mar 13	Mar ]2	Mar 12	Mar 13	Mar 13	Mar 13
bur	902	926	953	1014	1035	1136	1219	1250	1932	2006
eriod	Рау	Day	Day	Day	Da Y	Day	Ъау	Ъау	Night	Night
ide men of	Flood II	Flood II	Flood II	ା ଦ ସ୍ ସ୍	1 ପ୍ର ସ୍ଥ	- 0 9 0 9	1 0 1 0 0		11 000 11 3.0	11 000 11
emp weg v/ air	2 U	ы с т т		s ur F ve			u U	с. С	11.0	11.0
sic		יחי היי היי	5 C	9		5 	2.5	2.2	10.0	10.0
alinity(pot) afc	4.0	4 2	13.0	13.0	13.5	13.5	16.0	16.0	11.0	11.0
botte	an 9.5	10.0	13°5	13.5	13.0	13.0	17.0	16.0	14.0	14.0
brvgen sfc	10.4	10.6	10.8	10.8	10.4	10.4	11.0	11.3	12.0	12.0
Botte	om 10.7	10.7	10.8	10.8	9.7	9.7	11.1	11.4	11-8 1-8	11-8 1-1
H sfc	7.9	8.0	8.9	8.1	1.9	6.7	8.2	8	8.1	
bott	0.8 0.0	8.0	8.1	8.1	8.1	8.1	8.1	8.2	P	Q•1
ecchi (cm.)	87.0	87.0	77.0	77.0	120.0	120.0	100.0	100.0	1	
							• • • • • • • • • •			
pecies	No	No.	No.	. oN	No.	• on	No.	No.	.ov	. ON
Nosa aestivalis	0 1 1 1 1 1 1 1 1 1 1 1 1 1			1	T	٦	1		2	1
Mosa pseudohareng	1 SD	•		•	7	7	1	1	-	<b>-</b>
und ul us						I	• • •	I		
heteroclitus		) I - I		I <b>I</b>		1	·	1	•	l
condia peryuuna Condia menidia		-	•		•		•	1.	1	1 c
peltes quadracus	-	1	-	-	-	-4			٥	λ.
saster os teus						l	-	1		
aculeatus		1	•	1			•			
rseud op leut one cres amer i canus	2			5	4	13	9	M.	9	Ŋ
Crangon contonen ince		-	20	16	66	153	76	<b>4</b> 5	117	23
Callinectes sapidu	0	15	1	1	1				E .	
Total Specimens			21	28	75	171 6	80	49	135	ο n ω
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Aod			<b>5   P.#</b>

umber n the	of fishes, is mouths of Cec 1	and shr dar Cre	imp, and b ek (Sta. 1	lue crab t ), Forked 4	aken by 45. River (4), ( 17	/-m seine fi lyster Creel	rom Septemb k (17), and 23	er 1978 thro Double Cree	ough March 1 k (23)	1979 4	
( 		100	ר ר 		 - - -	- <b>^</b>	; H ;	3 ~ S	; ا + י	* 77 9	
907 Sep		<b>1</b> 4 58	J031	3ep 14	36P 14 1225	26P 14 1310	sep 22 905	sep 22 1010	56P 12 2015	Sep 12 2100	· .
Day Da bb I Bbb	പ്പ	УЦ	Day Ebb I	Day Enb I	Day Enh II	Day Enh II	Day Fhh TT	Plond I	Night Frb I	Night Ebh I	
15.5 15. 18.5 18.	·····	ហេហ	15.0 18.8	15.0 18.8	17.5	17.5 22.0	25.0	25.0	24.0	24.0	
- 13.0 13.		10		- 16.0		15.0	19.0	19.0	18.0	- 18.0	
8.1 8.	·	i i ent	9 9 8	88	80 - 47	8	I M 8	1 M 80	7.1	7.2	
7.6 7.		i uo	7.6	7.6		7.7	1 C 8	10.80	7.8	7.8	
1	•		1	1	<b>j</b>	1		1	1		•
	Ϋ́!										
No .	္နင္ဆုိ	•	No.	No .	No .	No.	. No	. on	No.	. on	
1				2	1				4		
1			<b>                                     </b>	11		•	1 <b>1 1</b>	1.1	1 ი	~	17
0 47	-1		<b></b>	10	1		I		11	۱m	'1
1	1				I	1			-	1	
4			9		<b> </b>		102	•••	łm	6	
			•	t r	•	i e	21	7	1 Г	ļμ	
	- 1		1 1	n 1	1 1	- 1	T T	<b>1</b> -	<b>~ 1</b>	n I	
•	<b>.</b>		1		1	1.	1	1	7	1	
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			7	ד ד י	•		1	ı	IV		- - -
1			1	•	1	1	1	1	<b>D</b>	-	• · ·
•	•		7	1		-	•	1	e	m -	
1			~ ~		1	I		11	••	<b>⊣ 1</b>	
•		•1	I	<b>(1</b> )	I	1	•	1	1	T	
		.t	•	1.	11	н I	1.1		11		•
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1		, T	Г. 1	1	•	•	1	•	1	•	
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			1	•	1	•	1	•	-	•	
t	•		2	° N	н	r	٦	1	4	٦	
F					<b>,</b> 1	1	đ	Ē	•		
3	<b>.</b> .		9	Q	18	ũ	14	16	10	4	
92 21 9	51		30	Г8 Г	21 3	19 8	166	40	53	34	

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5. Common and 2007 2 10		
a la la la la la la la la la la la la la		
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- E		
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ppendix lable 9. Icc	טחנין									
Station	17	17			4	4	17	17	23	2.3
Peplicate	н	2	н	7	-	2	<b>н</b>	2		7
Date (mo day)	Sep 13	Sep 13	0ct 5	Oct 5	Oct 5	Oct 5	Oct 12	0ct 12	Oct 5	Set Set
Hour	2025	2040	853	935	1020	1058	1415	1456	1410	1449
Period	Night	Night	Day	γDay	Day	Day	Ъ. В.	л Ч Ч	Ъч	ua y
Ilde	HIGH	1 001	- 1000 L	T 000T	11 00011	TT DOOT J			1 1	
Temp (Deg C) air	1 -	1 •	20.07	0.07	0.12	0.14 11	0.22	0 11	0 01	0.01
	4 - 1	₽ I 9 0 T	v 1 	v•/1	4 I •	N				
2-11-1+()	0 LC	20.5	17.5	17 U	17.5	17.5	15.5	15.5	21.0	21.0
PATINICY (PPU) SIC	> 1 + +	)   								1
Jrvan sfc	7.7	7.8	8.1	8.1	9.6	9.6	8.9	8.9	9.1	9.1
Porton Bottom				•	•		•	1	•	•
oli sfa	7.8	7.8	8.2	8.2	8.2	8.2	7.8	7.8	8°0	8.1
bottom	•	1	•	1	•	1	1	1	•	1
Secchi (cm.)	1									
Species	No.	No.	No.	S. S.	No.	No.	No.	No.	No.	No.
										. e
Anchoa mitchilli	2	٦	29	17	47	49	S	1	1	
Dosanus tau	7		1	1	H	-			m	7
Menidia menidia	-	1	•	2	32	6	m	4		•••
Apeltes quadracus	1	1	8		1		1	•	; c	ju
Syngna thus fuscus	1	r,	•	-	+	<b>7</b>	<b>n</b> 1	- 1	2 1 T	Ç-
Pomatomus saltatrix	•	1				1. ji	. 1			• •
Trachinotus falcatus	7	1	•	1	<b>1</b>	l (		F. 1	1	-
Bairdiella chrysura		1				<b>4</b> 1			1	10
Cynoscion regalls		4	•							
rencicif fuus awya 4 11 fa	1	Г	•	•	1	1	•	1		1
Tautoga onitis	•	1		•	-	<b>1</b>	1 -	1 -	8 1	- 1
Chasmodes bosquianus		ł	•	•	- 1		<b>H</b> 1	-		1
Goblosoma bosci		•	1	•						
Pseudop I eur onectes	•	ſ	1	•	• •		T			•
Crandon										
septemspinosa	1	1	en (	- (	<b>-</b> 1 •		•	4 0	7 4	<b>.</b>
Callinectes sapidus	4	12	7							
March Coordaona	27 5	18	41	27	83	72	17	22	22	43
TOLAT SPECIMENS	9	9	e	S	8	7	9	7	4	10

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Appendix Table 9. (cc	ont.)									
Station		-sr. (	17	17	r-4 r			4.0	17	17
Heplicate Date (mo dav)	Oct 2 Oct	Oct 5	Oct 12	Oct 12	Nov 8	Nov 8	Nov B	Nov 8	Nov 8	Nov 8
Hour	1935	2102	1930	2010	1032	1059	1120	1225	920	926
Per lod	Night	Night	Night Bab II	Night Flood T	Day Err II	Day Ech II	Day Bubit	Day Thh IT	Day	Day Bah
Temp (Deq C) air	16.0	16.0	20.0	20.0	10.2	10.2	10.5	10.5	11.0	11.0
SEC	17.4	17.4	16.6	16.6	11.7	11.7	10.9	10.9	12.1	12.1
bottom	1 (	1 <	) •	) ( (	1 9	1 4	1	) ( ;	1 4	ی 1 د د
Salinity (ppt) stc	0.81	- -	۰. ۱	0 I 0	n • 1	0.1	0.12		n.n 7	D - N - N - N - N - N - N - N - N - N -
охидер з бс	- <b>5</b>	6	<b>0.</b> 0	9.0	9.2	9.2	9.7	9.7	ມ ອ	9.5
Bottom	•			•	4			1		
pH	8 <b>.</b> 1	8.1	7.8	7.8	7.6	7.6	7.6	9-1	7.7	7.7
Secchi (cm)	1 1	•••	•	•		<b>I I</b>	1	•••		
Species	No.	°.	No.	No.	No.	No.	No.	No.	• ov	No
Anguilla rostrata				<b>E</b>					1	
Alosa pseudoharengus		•								
Anchoa mitchilli	37	e	-1	1	-	1	7	Z		•
Opsanus tau	П	1	1	<b>.</b>	•	7	•		•	
Fundulus		1			1	1				
Meridia hervilina		1	41	•	•	67	l		1	
Menidia menidia	2	•		4		•	R	17	7	2
Apeltes guadracus		1		1 (	~4 6	1 u	1 0	1 (	10	•
Syngna thus fuscus	~ -	1.1	1.0	1 1	71	n d	N 1	1		
Pomatomus saltatix	41	1. <b>1</b>	4		1		1		t	
ITACNINOTUS IALCATUS Bairdielle chrysura	2	7				1	1			
Cynoscion regalis	8	8		•				1	•	
Chaetodon ocellatus	-	1			•		- v. i			
Tautoga onitis	- <b>1</b> °	ΛI	1					•		
Augit curema Gobiosoma bosci	4	-	-	2		1				
Peprilus triacanthus		1		-	a	2	J	•	1	
Prionotus evolans		١	7		•	•	1	<b>I</b>		
Pseudopleuronectes	-	ſ	•	•	•		H	1	-	
Trinectes maculatus		1	Ч	•					1	•
Crangon					i	0	<b>c</b> -	01	-	<b>7</b> 6
septemspinosa Callinectes sapidus	20	1 ជ	31	₽ ® -	<b>7</b> 7	51	1	24	2	
									32	
Total Specimens Taxa	67 13	26 6	10 10	4	ຸ ຈຸ ກ	2 <b>4</b>	<b>ç</b> 9	1	1 IS 2	

Appendix Table 9. (co	ont.)									
Station	23	23			17	17		-1 ~	4	4.0
Replicate Date (mo day)	Nov 8	Nov 8	Nov 8	Nov 8	Nov 8	Nov 8 1955		Dec 6	Dec 6 1305	Dec 6 1352
llour Per lod	Day	рау	Night	Night	Night	Night	A Pa	Day	Day	Day
Tide	Flood I	Flood I		ED I 11_0	Ebb I 11.0	11.0 11.0	11 9 4 4 4 9 • 0	FLOOd 1 8.0	F100d 11	F1000 11.
Temp (veg v) air sfc	11.6	11.6	12.0	11.9	11.8	11.8	9°	9°2	8•9 -	8.9 1
bottom Salinity(ppt) sfc	21.5	21.0	21.0	21.0	19.5	19.5	13.0	14.0	22.0	22.0
bottom	1 0	1 œ 7	12.0	12.0	12.5	12.5	1 8.6	- 6 - 6	11.1	11.1
uxygen suc Bottom			<b>8</b> 1	1 u	1 u	u r	1	11	11	
pH sfc bottom	9   I /	₽ I I -	0 I I ~	<b>.</b>		• • • •		11		1.1
Seccn1 (cm /										
Species	N	No.	No.	No	NO .	No .	No	No	No.	NO .
Conger oceanicus	1.00	Iυ		•	чю	1-	•		11	
opsanus tau		Ч		•	H	m	•	<b>1</b> ** 	1	<b>I</b>
Fundul us beternel i tus	1	H	đ	1		•		1	1.	
Fundulus majalis		1		•	1.		<b>a</b> . 1	1	- 1	
Menidia beryllina	1 -	9 9	1 04	11	11	1.1	ĥ	1		1 -
Moeltes quadracus	- -	.4			1.	1.	1.0	1 -	~ ~	44
Syngna thus fuscus	N N	<b>6</b> 13	2 I I	1/ 21	- 1	<b>71</b>	1	<b>* *</b> .	<b>.</b> .	m
Taut ogolabrus	⊫	~	•	1		•		•	1	
adspersus Chasmodes bosquianus	7	<b>1</b>		<b>a</b> 1	1 -	•••	1 1		i r	1
Gobiosoma bosci Cobiosoma ginshurdi	<b>F 1</b>	I –	11		4 (	1	1	•	1	
Etropus microstomus	<b>1</b>			ľ	•			•	•	
Pseudopleuronectes	•	m		-	<b>i</b> .			н ,	•	•
Crangon	102	477	179	133	165	91	737	1537	304	347
Callinectes sapidus Callinectes sapidus	1 5		N I	υI	m ł	19		1 -	8 1	1
Calline cesses and the					201		744	1540	309	359
Total Specimens Taxa	120 8	523	240 6	L	8 9 1		р С	4	ŝ	<b>ນ</b>

Section 1917 characteristic

Annendiv Tahle 9. (cont.	~									
							17	17	4	
Station	17	- ^ ^	C 4	2	n{	' N		7		1
Replicate	-1 u		Dec 6	Dec	Dec 6	Dec 6	Dec 6	Dec 6	Jan 10	Jan Jan
Date (mo day/	1103	1150	1441	1550	1750	1844	1930	2044	958	170T
HOUL			Dav	Dav	Night	Night	Night	Night		
Per Lod		I pool	Flood II	I qqa	Ebb II	II qqa	II qqa			ຊີ່ເ
		12.0	13.0	13.0	4.0	4.0				
Temp (veg v) air		9.2	9•5	9.5	6.0	6.0	. 6.4	6.4	0.1	-
BLC Letter	4   1 		1	.1	1	t	•	<b>1</b>		
DOLTON		0 00	24.0	24.0	22.0	20.0	20.0	20.0	20 ° 07	• 0 •
Salinity (ppt) sic	0.02	2   • • •			<b>I</b> .	I	•	1		
bottom	1 -	- - -	6 11	11.3	12.0	12.0	11.5	11.5	10.9	• n •
Oxygen sfc	TOT	1.01	4   • •			l		l	1	1
Bottom	1	₽ ₽			8.0	8.0	8.2	8.2	7.3	
pH sfc	1	<b>1</b>		1		1	1	1	1	•
bottom		1	•				1	•		
Serchi (cm.)	ţ	1	1	1						
			•				~N	Ŋ	NO.	NO
	No.	No.	No.	No.	- ON	• OZ	• Du			
cathade								-	 	
Alors sectivelia	с. с.	•	1		•	•		4		
H USA ACSULVATIO					•					
Fundulus	ſ	1	•	. 1	1			, .		
heter oclitus	7	ļ	-	1		Ś		8		
Fundulus majalis	1		•	•	1	•	•	•	1	
Manidia hervilina	1	1				<b>,</b>	1	e	m	
Monidia menidia	10	**	260	007	ļ	11		.,	7	
Anoltes madracus	ŝ	•	<b>x</b> 0 1		a (		1		1	z
		<del>ب</del> ط ا	m	đ .			•	1	•	
Thistoca conitia	•	1	•	•	-	1	•	14 1	•	
Contorna horri	7	.1	•	•	1  -	-		1	1	
	•	1	1	•	i	-				
ELLODUS MICLOSCOMUS									-	
Pseud op leur onectes	1	1		-	•			<b>)</b>	r	
amer i canus			•	••••				673	6	
Crangon	24	127	363	518	1350	1218	222			•
septemspinosa	τ U D			. 1	1	•	<b>n</b>	F 7		
Callinectes sapidus								707	6	
	68	133	636	139	1368	677T	רו אין ס ר	ۍ. م	S	
Total apecuacies	7	4	<b>9</b>	Ø	>	•		•		
BX PT		•								

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Appendix Table 9. (cor	nt.)									
Station	17	17	23	23	4	4	17	17	ĹT.	17
Replicate	i c  - -	2	1	1	10 10	1.0 10		2 10 12	Ech 27	Feh 27
Late (mo day) Hour	1130 Jan	1155	1350	1425	1810	1900	1945	2030	1400	1455
Period	Day	Day	Day	ра у	Night	Night	Night	Night	Ъау	Да у
Tide	Ebb II	Ebb II	II qqa	Eob II	Flood II	Flood II	Flood II	Flood II	II qqa	II qqa
Temp (Deg C) air	-2.0	-2.0	-1-0	-1-0	0°. -	0.0 	- 2 - 2	- 1 - 1 - 1	- <b>4</b> -	4.0
BfC	5.0	2•0	1.6	1.6	1.7	1.5	Э•Э	₩. 1	5.4	γ   Λ
bottom		•				1		;		
Salinity(ppt) sfc	20.0	20.0	20.5	20.5	I5•0	17.0	10.0	L4 0	0•9T	0.01
bottom	1 9	1 0	1 C	1 C	1 a c [	1 0 1	ι α 	0	10.6	10.8
Oxygen sic	9 • NT	0.01	7 • 7 T	7 • 7 7					2 I 2 I	
Bottom	i a			0	2.8	7.8	7.8	7.8	7.7	7.6
pri sic			• •	<b>;</b>	1				1	
Seach 1 (cm.)	1			1	•	•		j.	B	1
2001	- CN	- CN	No.	No	No	No .	No.	No.	No.	. on
Alosa aestivalis	1	1	1. 	1			80	112	•	
Alosa pseudoharengus	J	• •			1		1	-	•	1
Fundulus							ſ		I	
heteroclitus	1	•	ľ	1 -			<b>V</b>	- 1	i <b>i</b>	.1
Fundulus majalis	1	1	• • •	-	•				ч Г	1
Menidia beryllina	1	i e	1	•	•	1			۲ ۲	•
Menidia menidia	7	80 9	TO	1	-•	] (	ן ו	Ĩ	<b>)</b>	• •
<b>Meltes</b> guadracus	•	7	m	o -	•	<b>v</b> 1		5 1	•	
Syngna thus fuscus	•	• ()	•	- 1			2	1	ſ	•
Tautoga onitis	•		1 1					· · · ·		
Pseudopleur onectes	••••		1		-	m	4	S	1	1
americanus	1				•	•				
crangon seotemspinosa	9	9	44	31	69	118	377	278	T	
Total Specimens	œ	16	57	6E	72	123	480	419	77	
Taxa	2	, m	<b>n</b>	d <b>r</b> .	<b>*</b>	<b>)</b>	<b>,</b>	•	•	1. 

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	Ņ		1
14			
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ppendix Table 9. (co	ont.)									
Station	17	17	1	1	4	4	17	17	23	23
eplicate Date (mo day)	Feb 27	2 Feb 27	Mar 15	2 Mar 15	Mar 15	Mar 15	Mar 15	2 Mar 15	Mar 15	2 Mar 15
bur Period	1920 Night	2015 Night	850 Day	930 Da y	1015 Day	Day Day	1410 Day	1555 Day	1145 Da y	1225 Da y
nde	Flood I	Flood II	Flood II	Flood II	Flood II	Flood II	I qqa	II qqa	I qog	I qqa
lemp (Deg C) air afc	-1-0	-1.0	0.4	D 4	∪ 4 ∪ ∞		2•0 8•4	2.6	- 8 - C	 
bottom	1	1				1			1	
Salinity(ppt) sfc	15.0	15.0	12.0	11.0	16.0	16.0	16.0	16.0	16.0	16.0
bottom Daygen sfc	11.2	11.4	12.0	12.0	11.8	11.8	12.4	12.4	12.3	12.3
Bottom		•			1	1			1	1
od sfc	7.7	7.7	7.9	<b>.</b> 1	1.9	6 I	1.9	<b>.</b>	6 • / •	6.1
Secchi (cm.)		. •	1	•	1		1	1	1	
Species	No.	• ON	No .	No.	No.	No.	No	No.	No.	No.
states around the reading	) 			; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;						
Cyprinodon				•			•			
variegatus	•	1	1		8	i	8		-	•
Fundul us	ſ	ſ	•	•	•		2	•		1
neterociitus Menidia menidia	4 <del>**</del>	1 M		•	1	2	<u>7</u>	6	J	
peltes quadracus			T	•	•	2	•		1	m
Gasterosteus aculeatus	ł		1	h	•		•	T		
Syngna thus fuscus	•	1 -	. 1	<b>H</b> 1			•	E - P	11	<b>) )</b>
Lautoga onitis Paendonieuronectes	<b>!</b> 									•
amer i canus	•	•	-	•	8	•	9	'n	Ŋ	-
crangon septemspinosa	T	-			•	3	10	24	S	9
Total Specimens	4	60	2	2	2		25	39	0	2
Ta xa	m	Ð	2	2	-	J	đ	<b>.</b>	<b>?</b>	•

endix Table 9. (cont.)			17
1 1	4 2	- - -	17
e (mo day) Mar 14 1930	Mar 14 2015	Mar 14 2110	Mar 14 2200
Night Flod	Night Flood II	Night Flood II	Flood II
o (Deg C) air 9.8	9 8 0	6.0 12.6	6.0 12.6
sic 3.3			1 <
inity (ppt) sfc 13.0	13.0	0.0	יי קי
bottom 10.2	10.4	10.0	10.2
Bottom	1 C T	1 r	<b>-</b> 7.8
sfc /-/ bottom -		- 1	
chi (cm)			
		× .	
cies	. ON	No .	No
uilla rostrata sa aestivalis sa pseudoharengus		1 - 1 - 1	57 18 18
sa sapidissima dulus			T
teroclitus dulus majalis daia menidia	 	-	
ltes quadracus	•	1	
s cer os ceus cul ea tus			•••
come americana roga onitis	121		
eudopleuronectes	2		17
ner Icanus Angon	1 37	•	95
eptemspinosa Llinectes sapidus	6		Ω.
tal Specimens	7 74	14	244 8

	. 1
	1
100	Ì

Appendix Table 10. Nu	umber of fish n the mouths	es, sand s of Cedar C	hrimp, and teek (Sta.	blue crab t 1), Forked	aken by 12. River (4), (	2-m seine f Oyster Cree	com Septemb k (17), and	er 1978 thro Double Cree	ugh March 1 k (23)	979
Station		1	4	4.0	17	17	23	23 2		- - - - - - - - - - - - - - - - - - -
Meplicate Date (mo day)	Sep 14	Sep 14	Sep 14	Sep 14	Sep 14	Sep 14	Sep 22	Sep 22	Sep_12	Sep 12
Hour	928 Vev	943 Dav	1055 Dav	1115 Dav	1239 Da v	1256 Dav	919 Dav	950 Da v	2040 Night	204/ Night
Tide	Ebb I	I qqa	Ebb I	Ebb I	II don	II qog	Flood	Flood I	I qqa	I qqa
Temp (Deg C) air	15.5	15.5	15.0	15.0	17.5	17.5	25.0	25.0	24.0	24.0
a f C	18•5 -	2•8T	8.8 T	1 0 • 0 1	<b>1</b> •77	) - I 777		1.02	7   7	
Balinity(pot) sfc	13.0	13.0	16.0	16.0	15.0	15.0	19.0	19.0	18.0	18.0
bottom	1	1	1	1	1		1 (		1	1 (
Oxygen sfc	8 <b>.</b> 1	8.1	8.6	8	8.4	8.4	m   œ			7.1
Bottom	7.6	<b>- 9 . (</b>	7.6	7.6	7.7	7.7	8.0	0.8	7.8	7.8
bottom	1			1	1		•	1	•	
Secchi (cm.)										
		75		MA.	N)	C	Ņ	ČN	- CX	- ON
Species	• 01	ON	• 02		• ON					
Anchoa mitchilli	99	25	41	13 1	4	1	11	• •	<b>۲</b> ا	~ 1
Synouus Loelens Fundulus							•	G	•	
heter oclitus	I	•	•	•			4° U	× I	<b>⊣ 1</b>	
Fundulus majalis	<b>i</b> 1	1 1		11		I. I	) –I	2		1
wucanta parva Menidia bervilina		ł		1	1	1	Ч		1	.1 <
Menidia menidia	21	115	9	1	46	28	06	10		ות
Apeltes guadracus	1	1	- <b>-</b> -	-1,-		• •	-	0 <b>4</b>	•	
Syngnathus fuscus	Υ.		n 1	<b>- 1</b>	•		1	• •	1	
romarcomus sarrarrax Caranx hippos	11	.1	1	Ĭ	8	1	•	1	1.	1 -
Trachinotus falcatus	•	1	1	1 -	29	N	1	, • •	- 1	-+ 1
Bairdiella chrysura	•		1	- 1		1	<b>↓</b> 	I	I	
Lynoscion regalis Midil curema				-	1		1	1.	1	• •
Gobiosoma bosci		1	1	•	•	•	71	-1	1	
Pseud op leur onectes	-		1	1			1	1	•	•
americanus Trinertes marulatus	4 1	•	•	•	1	•	-	•		
Sphoer oldes			I	ſ	1	1	•		1	3
maculatus								l		0
septemspinosa C-11 knowton and due	104	90	r-11	4 0	11	। <del>ल</del>	10 10	27 1	e I	9 <b>9</b> 1
										30
Total Specimens	226 7	201	9 10	23	60 80 80	л т	11	n œ	<b>9 19</b>	
EX ET	• .	•			•					

•

$\frown$

Appendix Table 10. (con	t.)									
Station	17	17	T		7,	4.	17	17	23	23
Pep1 i ca te		74 C	0 - 4 - 0 - 4	22 + 7 2 7 2 7 2 2 2 2 2 2 2 2 2 2 2 2 2	ur t C	0ct 5	0ct 12	0ct 12	Oct 5	Oct 5
Date (mo day)	Sep LJ 2058	560 13 2108	000 J	917	1034	1048	1425	1437	1425	1434
Hour Dor i col	Night	Night	Day	Day	Day	Day	Da у	Гау	– Da Y	рау
Thde	Eb b I	I qqa	Flood I	Flood I	Flood II	Flood II	I QQI			21.4
Temp (Deq C) air	•	1	20.5	20.5	21.0	0.12	0.22	0.22	1001	19.0
sfc	18.4	18.4	17.2	17.2	7.17	1.1.2	ר א ר	 -		
bottom	•	1	1	1	1 u	) U	ע ע ר	U U C	21.0	21.0
Salinity (ppt) sfc	21.0	20.5	17.0	17.5	n • • •					
bottom				t -	c	9	а а	8.9	9.1	9.1
Oxygen sfc	7.7	7.8	ч.		D   N	<b>)</b>				1
Bottom	• •	1 (	; c		α α	8-2	7.8	7.8	8.1	8.1
pH sfc	8.	o I :	• I •	ł I.			1		<b>1</b> .	•
Continuity Contour	•	1		•	•	•	1		1	
Sheries.	No.	No .	No.	No	No.	No	No.	No.	No.	No.
									1	•
Anguilla rostrata	t	•	•	1				1		Ť
Anchoa hensetus	•	-		•	1	<b>i</b>			1	1
Anchoa mitchilli	4	6		1	4		•			
Conr Inodon						l		1	1	•
variedatus	1	•	•	1						
Findulus					<b>,</b>		4			1
heteroclitus	1	1	•	•	<b>v</b> 1			1	2	•
Menidia bervilina	•	ŧ		•			с д	28	32	10
Menidia menidia	9	9	то3	-	<b>-</b>				1	ed.
Apeltes quadracus		1	•		1 °	i <b>u</b>			1	1
Syngnathus fuscus	1	•			4	<b>,</b> –	1			
Caranx hippos	-1	•			••				-	•
Selene vomer	1					•	•	1	•	
Trachinotus falcatus	-				-	-	1			•
Gobiosoma bosci	1									
Crangon		1	•	17	S	23	27	2	۲ <mark>7</mark>	
septemspinosa	1	<b>r</b>	•	. ~	•		6	7	-	1
Callinectes sapidus	<b>,</b>	7								
	20	11	104	20	ഗ്	лг M	47 U	n M	Ч С	٩m
tocal opecimens Taxa	9	4	8	m	Ø					

Appendix Table 10. (c	sont.)									
Station	4	4	17	17	4	-	<b>. 4</b>	14 14	17	1
Replicate	ल्न । (	1 • -		25		0 57 M	-1 0 	Mo 2	0 I-1 20 20	CN
Late (mo day)	0CT 2 1058	1935	1944	1955	1037	1045	1132	1154	935	94
Per ind	Nicht	Night	Night	Night	Day	Day	Day	Day	Day	Da
Tide	Flood I	EbbIII	Ebb II	Flood I	II don	Ebb II	Ebb. II	Ebb LI	II qqa	I qqa
Temp (Deg C) air	16.0	16.0	20.0	20.0	10.2	10.2	10.5	10.5	11.0	11.1
SfC	17.4	17.4	16.6	16.6	11.7	11.7	10.9	10.9	12.1	12.
bottom	•	ł	•		1		1	•	•	
Salinity(ppt) sfc	18.0	18.0	17.5	17.5	18.0	18.0	21.0	21.0	20.0	20.0
bottom			1	1 (	1 0	•	l t	11	1 u	
Oxygen sfc	9.2	9•2	<b>0°6</b>	0°6	<b>7</b> •6	۶•۲	9.1	۰ <b>۰</b>	ר י י	
Bottom	1.	1 -	) C	1 0 T	I 4	1 ú	1 4	1 V F	F	•
pH sfc	 2	 x	» I	• •	• •	<b>P</b>	• •		- 1	
Secchi (cm.)		1				l		<b>1</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Species	No.	No.	. on	No.	o N	No.	No.	No.	No.	NO
Andrilla rochraha		)		)   						
Anchoa mitchilli	27	37		12	•		•	•	1	
Opsanus tau		T				•	1			
Pundulus					1		•	1	۲	
heter oclitus	•	•		<b>t</b> 1		, ,	-	1	•	
Menidia beryllina	1	1 6		4	) <b>(</b>	4 00	m		29	
Menidia menidia	י ר	1			•		1	•		
Summer this fuerie	11	2	•	•	•		•	•	•	
Pomatomus saltatrix			1	•		•	•	<b>i</b>	• -	
Trachinotus falcatus			•	•		9     9	• 1	• •	- <b>- -</b>	
Bairdiella chrysura		() (	₽ i	•				•		
Cynoscion regalis						ł	1		•	
Chaetodon ocellatus		<b>+</b>			1	•		•	1	
Tautoga onitis Mirii cureme	)	10		1				•	1	
Gobiosoma bosci	Ī	•	-			Í		1	•	
Pseudopleur onectes									1	
amer I canus	••	-1		<b>i</b> 1		P P		,	1	
Trinectes maculatus	-	•						•		
Crangon sentemen inosa	20	TO	217	102	61	122	33	28	o r	7
Callinectes sapidus	3	3	-	1						
Total Soorimons	78		220	123	22	132	37	28	41	<b>E</b>
	7	13	4	2	8	m	m	<b>-1</b> 	n	



Appendix Table 10. (c	ont.)				- - -					
Station	23	23	4	4	17	17		c	4	4.0
Replicate Date (mo day)	Nov 8	Nov 2 8	Nov 8	Nov 8	Nov 8	Nov 8	Dec 6	Dec 6	Dec 6 1325	Dec 6 1340
Hour Period	1425 Dav	1439 Day	1820 Night	L835 Night	Night	Night	Day	Da V Da V	Day	Day
Tide	Flood I	Flood I			11-0 11-0	11 0 11 0	FLOOd I 8.0	Flood I 8.0	F1000 11 15.0	r1000 11 15.0
Temp (Deg C) air sfc	11.6	11.6	12.0	11.9	11.8	11.8	9.5	υ Υ	8 8	8 8
Salinity(nut) of	21.0	21.0	21.0	21.0	19.5	19.5	13.0	14.0	22.0	22.0
bottom	1 a	1 8	12.0	12.0	12.5	12.5	<b>-</b> 8.6	• 6 • 6	11.1	11.1
uxygen sıc Bottom	5 f u 5 r			1	7.5	7.5	••	₽Ŧ	11	
pH stc bottom	0 1	• •				ľ	i. Sector			1
Secchi (cm.)		•••• • •								
	No.	No	No.	No .	No.	. on	No.	No.	No	No.
obectes										
Anguilla rostrata	-1 w	11	<b>i</b> 1	11	' P	4				•
Cyprinodon			-		1					
variegatus Fundulus						ſ	1	1	4	T
heteroclitus	υI	- 1	r-1	<b>1</b>		<b>v 1</b>			•	
rundulus majalis Menidia beryllina		i		1	I V F	1		•••	1 🕶	<b>ا</b> بر ا
Menidia menidia	σ, r	T2	3 79 7	4 1	°, L	<b>-</b> 1	•		- 47	4
Apeltes quadracus	1 8/1	<b>, -</b> 4	<b>،</b> ا	T	11	-		•		
Cob losoma bosci		1			-	•	*	•		
Crangon septemspinosa	433	271	76	412	240	343	83	175	134	135 -
Callinectes sapidus										
Total Specimens	632 8	289 5	108	444	329 6	397	82 1	175	146	142
			•••		•		•			

cont/ 17 1	17 2	23 1	23	14	40,	11	17	4 - C	14 10
Dec 114		Dec 6 1508	2 Dec 6 1530	Dec 6 1805	Dec 6 1828	Dec 6 1949	Dec 6 2031	Jan 10 1005	Jan 101
Day Flood I 12.0		Day Flood II 13.0	Day Ebb I 13.0	Night Ebb II 4.0	Night Ebb II 4.0	Night Ebb II 3.5	Night Bbb II 3.5	ED Lay 12.5	ED D 12.
8 8 1 8		9.5	ທູງ ເ ດີ ເ	6.0 20.0	6.0 - -	6.4 20.0	6.4 20.0	1.0 20.0	ч. 20.
0 0 7		74•N	24•C		2 I C	• • • • • •	, 11 1 2 1	10.9	10.
- I - N - T		7.11	• • •	2 I C			8	7.3	7.
			<b>F F T</b>	<b>P 1 1</b>	<b>)    </b>	• <b>• •</b>			
No	1	No	No	No.	NO.	No	0 N	No.	Ň
1 7 7 7 7 7 7 7 7									
						H	1	•	
N 1		<b>F F</b>	<b>15</b>	77	~~~	мч	~ 1	<b>.</b>	
1 I H	· ·	1223 8	8 <b>4 -</b> 8	1 <u>7</u> 1	52 H	50.0	28 21 21	j	
<b>₩ 1 1 1</b>	· ·		• • •	<b>1 1 1</b>	N I I	• • •	911	<b>F 1 1</b>	
- - -		102	12.3	347	477	1176 2	685	6	
100		133	98 98 9	387	544	1212	743 5	Ч	N

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Appendix Table 10. (co	ont.)																			
	17	17	-4	1	4	4	17	17	23	5 7										
Pool / Cato		2	. <b></b> 1	3	r-4	5		~ -		7 7 7										
Date (mo day)	Feb 27	Feb 27	Mar 15	Mar 15	Mar 15	Mar 15	Mar I5	Mar IJ	1205	Tar 1210										
Bour	1935	1950	910	026	050T	T040	14 C D													
Period	Night	Night	Day	Day	Day F1024 II	Pland II	Lay Phh II	27 11 11	Ebb I											
Tide	Flood I	FLOOD L	TT DOOT J		LICOULT	17 mor 1	2.0	2.0	1.0	1.0										
Temp (Deg C) air			α • ₹	8		4.8	8.4	8.4	5.8	5.8										
SIC .	4 • 5	4   •		1		•	•		•	<b>)</b> .										
DOLTOM	1 C	15.0	12.0	11.0	16.0	16.0	16.0	16.0	16.0	16.0										
salinity (ppt) sic				1	1	. •	1	1	1											
	c 11	11.4	12.0	12.0	11.8	11.8	12.4	12.4	12.3	12.3										
UX ygen sic					•	,	•	1	•	1										
	7-7	7.7	7.9	8.1	7.9	7.9	7.9	7.9	1.9	7.9										
par such bottom	•		1	•		1	1	•	• •	<b>i</b> 1										
Secchi (cm.)	1	•	•	•	1	•	1	•												
•	C N	C N	NO	. oN	No .	No.	No.	No.	. No	No.										
species	• • •																			
Cypr i nodon		· · ·			•		•	v		•										
var iegatus	 	<b>1</b> - 1					•		1											
Fund ul us botorori i tue	18	9	7	ł	•	<b>، ہ</b>	4		I	<b>v</b>										
Pundulus majalis	•	1	1	•	•	C			•	2										
Menidia hervilina	1		7	(N V	•	<b>v</b> 1		• •	2											
Menidia menidia	4	12	6	0 -	). İ	~		Ś	m	4										
Meltes guadracus	15 15	89	5	7	r . 	•			•											
Pseudopleur onectes					-	\$	•	•	m	1										
amer i canus	1	<b>1</b> * 2	l 			•														
Crangon	•	•	٢	•	23	201	98	346	213	69										
septemspinosa		n 1	• •	<b>1</b> .	1		<b>ا</b> . د.	•	1	1										
Callinectes saplaus		******								L L										
Total Specimens	37	30	28	77 17	24	214	ດ ຕ ຈ	44	ν Ω											
Ta xa	<b>°</b>	<b>)</b>	<b>)</b>	•																
									L86											
----------------------	-------------------------	-------------------------	-------------------------------	--------	-------------------------	----------	------	--------------	---------------------	-----------------------------------	---	--------------------	---------------------------	---	--------------	---	--------	---	-------------	---
17 2	Mar 14 2140 Night	Flood II 6.0 12.6	0.0	10.2	• <b>8</b> • <b>1</b>		NO.				108 19			85 1	218 6					
17	Mar 14 2120 Night	Flood II 6.0 12.6	0.6	10.01	7.7		No •	<b>1</b>		12	284 14		- <b>4 8</b>	1 39	350 8			•		•
4	Mar 14 1955 Night	Flood I 9.8 9.0	13.0	10.4	7.8		No			91	- Ω		1 -1	154 1	168	•	• •		• • •	
 (conc/ 4 1	Mar 14 1945 Night	Flood I 9.8	13.0	10.2	1.1		No		2	мЪ	1 <b>1</b> 70	2		33 1	47					
11X Japate 10.	cate (mo day) u	(Deg C) air	sic bottom htv(ppt) sfc	en sfc	Bottom sfc bottom	hi (cm )	les	oa mitchilli	i nodon lega tus	utus eroclítus ulus majalis	dia beryllina dia menidia too cuodracue	erosteus Leatus	ne americana dytes sp.	ngon otemspinosa Minertes sapidus	al Specimens					

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Densities (n/1000 cubic meters) of macrozooplankton collected with a 36-cm bongo sampler (505-micron mesh) during the day and night at the intake (Sta. 7) and discharge (Sta. 11) Appendix table 11.

01	the Oyster	Creek Ger	nerating SI	cation from	5 Septemb	er 1978 th	rough 26 Ma	arch 19/9.			
					11	L .	7	11	11	7	2
bolicate		•1	8	٦	2	г	3		5	, , ,	7
ate (mo day)		Sep 5	Sep 5	Sep 5	Sep 5	Sep 12	Sep 12	Sep 12	Sep 12	Sep 12	Sep 14
bour		2131	2149	2133	2151	918	928	920	930	14.50	
eriod		Night	Night	Night	Night	, Чал	Lay Lar	γ a γ	231	244	3 25
Now duration (min sec)		7 ( M	ר ר ר	07 T	T 27	ר א ד ד ד ד			- 44 - 44	Flood 1	Flood 1
ride		L DOOD L	T DOOT I	JU E	9 UC			29-0	29.0	33.0	33.0
Temperature (C) all		20.02	0.07 8	20.8	29.8	23.4	23.4	28.9	28.9	25.0	25.0
surtact		0 • C C				23.3	23.3	۱.	t	25.0	25.0
botto:	-	4 ° C 7 • 4	- C7	16.0	16.0	17.5	17.5	16.0	16.0	17.0	17.0
Salinity (ppt) surract	•		16.01		t	18.0	18.0	I	1	17.5	17.5
DOLLO	e .			2	7.8	7.0	7.0	7.0	7.0	7.4	7.4
Oxygen (ppm) surfact		ο α				6.9	6.9		1	7.4	7.4
			8.2	8.2	8.2	7.9	7.9	7.9	7.9	1.9	6.7
			8-2	1	ł	7.9	7.9	l	1	6.7.	7.9
Boach! (am)	=	1	1	1	t	70.0	70.0	80.0	80.0	0.07	0.0/ 0.0/
volseamoled (cubic mete	rs)	15.5	13.1	12.0	12.1	7.7	11.5	22.0	22.1	5 <b>5</b>	7 <b>4</b> 9
		4	4	4	4	<b>ተ</b> י	đ r	đ <sup>.</sup> r	4 +	<b>r</b> +-	<b>r</b>
Type of tow		г		Ч	-	-1					
		Doneitu	Denatty	Density	Density	Density	Density	Density	Density	Density	Density
species											
niage Hvdrozoa	No determ.	ł	- 16	ı.	<b>t</b> .	519	783	8/7	901		
Order Actiniaria	No determ.	1	1	87	<b>t</b> .		[ u r v	i (		6061	15610
Mnemionais leidvi	No determ.	L	1	•	1	TCOO	107 70 70	1	367		
Class Gastropoda	Larval	1		1	t .		5 1	274	1 <b>1</b> ) - 1 ) - 1		i
· · · · · · · · · · · · · · · · · · ·	No determ.	839	1756	1.14 0.7	<b>r</b> ,	n 1			ł	1	•
Suborder Doridacea	No determ.	1 ::	<b>t</b>	/ 0 0			1	139	t	Ĩ	1
Suborder Aeolidacea	No determ.	t		<b>;  ;</b>			. <b>t</b>		ţ	i	.t
Class Bivalvia	No determ.	t i	2,70	1 <b>1</b>	1	ł	87	r	45	l	1
Class Polychaeta	Larval			ł	L			139	45	ł	1
	No determ.		2.29	1.74	l	1	ť	•	t	1 1	•
Family Sylidae	Folder .	1	76	87	t	l	<b>I</b>	•	1	<b>(</b>	<b>I</b> .
Nereis spp	No deferm.	- 1	<b>t</b>	<b>1</b>	t	t	I	46	90	1	₽, 11 
FOLYOUR SPP	No determ	t	- <b>1</b> 	174	<b>.</b>	1	t	l	1.		r 1
scolopios spp	No determ.	ł	153	Ľ	<b>1</b>	ł	1	t	1		
	Nh determ.	l	1	1	83	î.	1	10	0 L 1	. t	
Hudroidee dianthus	No determ.	t		1					) - U	l	t
Subphylum Pycnodonida	No determ.		153	348	331	, I	1	<b>n</b> ( <b>l</b>	1	101	1
Calique spp	No determ.	•	L - 1	1		t 1	. 1	46	06	i	1
Cvrlashts varians	No determ.	774	229	1391	T 400			5 <b>t</b>		<b>.</b>	•
Tencon americanus	Gravid	65	1			( <b>)</b>		t	t	1	1
	No determ.	2387	3053	3304	4403		. <b>(</b>	0	181		• • •
Orvuroatvlis smithi	No determ.	1161	992	85/T	1011		1	96	06	t	1.
Idotea baltica	No determ.	<b>!</b>	153	+ / <del>+</del>		•	1	ľ	ł	1	1
Edotea triloba	Gravid			2121	1818	t	1	139	136	1	1.0
· · ·	No determ.	040	6718	522	165	519	870	231		505	- 777
Order Amphipoda	No determ.		1	522	165	I.	.1		4 <b>4</b>		
Ampelisca spp.	Vo determ.	. <b>.</b>	•	6 08 7	6942	<b>t</b>	ŧ.	2 / 8	440		
Mi cr odent on us				••••	•			46	45	t	1
dryllotalpa	No determ.	t			t "t	; <b>t</b>	1	) <b>t</b>	t	i	•
	No determ.	I	1	5/ T			•				



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Appendix Table 11. (cont.)			•							
	L	L	11	11	7	7	Ξ'	ï	~ -	
Peplicate 	Sen 1- 5	Sep 5	Sep 5	Sep 5	I Sep 12	2 Sep 12	Sep 12	Sep_12	Sep.12	Sep 12
Lace (mo day) Hour Production	2131 Night	2149 Night	2133 Night	2151 Night	918 Day	928 Da Y	920 Day	Day	тау Day	ла Град
							951	06		
Cerapus tubularis No determ.	t	<b>i</b> (	1	1 •1	1		46		. 1	1
Jassa falcata Gravid	<b>t t</b>	t t	870	661	1	ľ	1435	1086	l	1
ristriolla harnardi No determ.	t	t	174	<b>I</b> .	ji P	1	t :		t. 1	t 1
El asmonis levis No determo	L	ł	174	661	Ľ,	<b>t</b> (	r 1	977	11	
Melita nitida No determ.	t	1	522	-	<b>1</b>	) 		t,	ł	1
Microprotopus raneyl Gravid	1		174 174	165	I	I	ł	1	1	t
No determ.	2 ( 2	1 1	870	992 992	ľ	ł	324	1176	Ţ	1
Family Stenothoidae No determ.	11		> 1		1	Ť.	46	1	1 	<b>i</b> )
Stenothoe minuta cravia No deferm	ł	ł	348	165	i.	i	694	<b>i</b> , <u>i</u>	<b>t</b>	
c.t. ardar Carrell Adas Gravid	ł	l	t	165	t j			4 C 4 C		t - t
suborder capiteritica diaria	58.0	916	1565	3306	l	797	324	1 L 1	ł	1
Family Mysidae No determ.	4323	7023	<b>t</b>	1 L 	E 1		<b>, (</b>	-1	•	ŀ
Mvsidopsis bigelowi Gravid	t	1	1 5		<b> </b>	•	46	ł	l	1
No determ.	1	1	990 B C	5124	1	<b>.</b> 	185	362	1	
Neomysis americana No determ.	<b>I</b>	76			1	ľ	t	1	1	1
Palaemonetes vulgaris No determ.	د د ا	2 ا	1	ſ	1	l	1	45	1	ľ
Palaemonetes spp No determ.	( (	76	. 1	ł	l	174	Ì.	45	TOT	<b>r</b>
20eal		16	t	1		t	46		L 1	1
Hippolyte spp. 40eai	ł	1	174	83	t e	l	1	1351		122
Lrangon septementilosa in decomo	12.4 • <b>1</b> • •	1	l	t	130	<b>t</b> 1	ດ <b>ເ</b>		1	
ragurus sp Infraorder Brachvura Zoeal	t	76	1	i i		į			1	1
Callinectes sapidus Juvenile	t į	1 4	101	E_ <b>1</b>	l	t	46	t	1	1
Megalopal	65 • 5	000	174 174	165	130	957	. <b>I</b>	l	505	244
Family Xanthidae Zoeal	Т а <del>т</del>	ן ג ת ת	348		1	L	278			i t
Panopeus herbstil Zoeal	ł	ł	ľ	165 1	ł	1	185	115	1	•
Neopanope sayl wordt	1	T	L	I,	130			1. T	1	
Pinnixa Chaetopterana weat saritta snn. No determ.	ł		•	<b>C</b> )	11	2 C 8	1	1	<b>.</b>	l
Family Molgulidae No determ.		1								171 96
Totals	18323	24731	26437	30082	11038	118.28	5924	7955	6101	

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Appendix Table 11.	(cont.)										
				7	4	11	11	7	7	11	11
ocation Deniirate	•		2		7	м	2		7		
Date (mo day)		Sep 12	Sep 12	Sep 12	Sep 12	Sep 12	Sep 12	Sep 13	Sep 130 130	560 13 117	56P 132
Hour	•	143/ Dav	144 / Da V	2133 Night	Night	Night	Night	Night	Night	Night	Night
reriod Thw duration (min sec		2 55	2 43	3 22	3 19	1 37	1_35	331	3 6	1 37	1 44 555 1 44
Tide		Flood I	Flood I	I qq	I qq				11 202	5 21	17.5
Temperature (C) a	lr	0.0	0°00	19.0 73.0	0.61	19. U	19.0 28.8	22.9	22.9	27.0	27.0
surfa	e B	5 N 5		23.4	23.4			23.2	23.2	1	<b>1</b>
DOTI Solistic (not) surfa		16.5	16.5	17.0	17.0	17.0	17.0	17.0	17.0	16.0	16.0
adiinicy (ppc) adrie bott	5	1	ł	17.0	17.0	1		16.0	16.0	1 C	- U - L
Oxygen (ppm) surfa	Ce	8.0	8°0	6 C	6 ° C	9 <b>1</b>		0.0 2.5	7.5		> 1 :
bott	5	1 0		~ a		8.0	8.0	8.0	8.0	8.0	8.0
pH surfa	e e			.1.	8.1		t.	8.0	8.0	ł	1
Carchi (ra)		80.0	80.0	ł	t		t	: •	1 9	1 0 	1 4 1
Vol sampled (cubic me	ters)	25.0	25.5	15.0	11.2	13.1	12 - 3 4	14.0	13.U	- <b>7</b>	r 47 • •
Gear maintennesser		8	đ	<b>- -</b> +	* ~	r —i	• •••	• <b></b>	-	٦	1
Type or row											
Species	Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Density	rens I c y
والمراجع فالمراجع والمراجع					đ	1	163	143	52	156	139
Class Hydrozoa	No determ.		06T	5 1		÷ t	1	<b>T</b>	L	ł	1 0
Order Actiniaria	No determ.	279	235	1	l	l		1	1	1	7 /8
cTass cast chona	No determ.		. <b>t</b>	Ľ		t <sub>i</sub>	81	17	10		2.78
C.hordor Dr.idarea	No determ.	. 1	t	ł	1	16	t	L.		156	) <b>t</b>
Suborder Aon idacea	No determ.	40	t	t	t	46	<b>(</b> )				, i
Class Polychaeta	Lar val	1	i ç r	67		11	163	1	t	313	ł
<b>t</b>	No determ.	4 0	۲ ۱	2	ł	76	81	I	t	1	139
Family Phyllodocidae	No determ.	[		1	•	1	I	1		• • •	l 
Podarke obscura	No determ.	, 1	n 1 7	67	ł	91	244	l	1		!
Nereis spp	EDITOKES No Johorn	t	1	t		1	1	1		469	1 20
Family Spionidae	No determ.	159	T	ı		16	163	l	<b>L</b>	стс	
Folyaora spp	ND determ.	Ľ		1	1	1	۳A	i 1			
Order Sahellida	No determ.	t	L	t	1	677				156	t.
Family Servulidae	No determ.	l	1	<b>I</b> <sup>2</sup>	€ 1 •	1 1 1	ť	I	1	1	t
Hydroides dianthus	No determ.	1	977	<b>t</b> 1		229	163	.1		156	ł
Subphylum Pychogonid	a No determ.	⊃ I ₹	E L 		l		t I	t	61 19	1 1	021
Limulus polyphemus	No deferm.		1	67		ł	<b>t</b>	t	1 r 	i i	
Argutus spp	No determ.		ľ	67	<b>1</b>	1		: -		- 1 -	417
Urder Lumacea	No determ.		1	133	268	687	401	- T7			
CYCLASPIS VALIAUS	Gravid	I.		L	1	0/ 10/10	1 2 2 1	2 2 8 2 2 2	2047	2500	2778
Te nooil and town	No determ.	1	I	7.33	596T	1900	2195	643	64	1090	1250
Oxvurostylis smithi	No determ.	t	1	5 5 7 7 7 7 7 7	0 0 0			11	236	ſ	t
Lironeca ovalis	No determ.	1	07	; I			t	נ גי גי	1	l	
Idotea baltica	Gravid	)   7	1 O	1	۱	16	244	1		1 r 1 r	278
	NO GELEEIN.	159	78	200	893	163	732	5 T 7	9121	101	1
Edotea trilooa Caara merhinda	No determ.	80	78	1667	1875	458	400	> 1 > 7	1   7 1	156	ł
Order Ampnipoda Amneliera enni	Gravid	l	39	l	1	0	T D	•			

 (cont.)	
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Table	
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Station Benilcate				2	~	11	11			11	
tepiloace Date (modav)		4 L L L L L L L L L L L L L L L L L L L	. 7 		, 7 , ,	1 	8		7	1-1	10
Bour		J4 37	Jep 12	56P 12 2135	Sep 12 2200	Sep 12 2137	Sep 12 2202	Sep 13	Sep 13	Sep 13	Sep 13
rer 10d		рау	Da y	Night	Night	Night	Night	Night	Night	Night	Ni ght
Mupelisca spp.	No determ.	398	235			5954	4146			2656	1944
	No determ	ç	ć					•			
ytriocarpa Unciola snn	No determ		υ c	t .	i	382	i i	1	1 1	1	, <b>i</b>
Cerapus tubularis	No determ.	4.0	e c l	<b>t</b> 1	€,   	1 1	181	1	I	156	I
Cor cohium acher us i cum	No determ.	<b>)</b>	247		<b>t</b> 1	ς Ω Σ	577	ļ	I	ł	139
Corophium spp	No determ.	40	21	1	1 1 1		I., 1	I 1	I		1
Family Gammaridae	No determ.	ł	6.6	l	•			r 1	Ë I	901	4 
Gammarus mucronatus	No determ.	I	6 E	1	1	. <b>t</b>	163	1 1  		<b>t</b> 1	
Jassa falcata	Gravid	80	157	ł	ł	1	<b>)</b>	ł	L I		L   I
· · · · · · · · · · · · · · · · · · ·	No determ.	916	1843	ł	1	3588	1707	ł	I	1875	3194
bistriella barnardi	No determ.	•	t	.ť	T	1	81		1 1 1 1 1	t	
STA AT SN COMSETT	Gravid Nh dotorm		l c		1		81	ı	ľ	ľ	1
Malita aitida	No determ.	) ( + (	0	t 	ţ	229	163	•	1	156	1
Monoculodes edwardet	No determ	Г. <b>Г</b>	077 7	<b>i</b> 1	<b>I</b> . 1	305	244		1	156	556
Family Stendthoidae	No determ.	1713	2106	<b>I</b> 1	t j	1 1	101	t.	l	156	<b>t</b> . 
Parametroella cvorie	Gravid		000	1 1		1 70 J	TGAT	1	i	1094	1389
	No determ.	80		1	L L	15,1		t i	<b>i</b>	ł	1
Stenothoe minuta	No determ.	ľ	I	ı	I		163	1 1 1 2	L I	<b>L</b>	
Stenothoe brevicornis	No determ.	. <b>I</b>	I	I	2	- 1				 L 	0/7
Suborder Caprellidea	Gravid	40	ł	ł	t	 <b>.</b> 	<b>I I</b>		1	11	57 F
	No determ.	319	3.92	1667	2589	1069	2033	1786	1102	1719	017 077
Family Mysidae	No determ.	. 1	ł	267	714	1	1	2214	1024		
Mysidopsis bigelowi	Gravid	t. E	L	ł	t	I	81	t	I.	156	139
•	No determ.	1	1	ł	ł	534	569	1	I	469	417
Neomysis americana	Gravid	40	L	l	1	1 (	1	t	t, .	1	•
Dalaemoneter nurio	No determ.		1	1	1	4 T 7 0	1/05	1		9063	5417
rataemonetes pugio Palaemonetes ann	No determ.	> 1 7	(* <b>1</b>	. 1		1 1	1 4 1		8	<b>.</b> i	<b>i</b>
	Zoeal	40.	t	67	ł	382	325	286	315	t it	<b>t I</b>
Crangon septemspinosa	No determ.	1	t	t	ł	76	ł	1	)     		1
Pagurus sp	Zoeal	40	t	133	68	153	244	214		t	, r
Infraorder Brachyura	Megalopal	I	I	1	L	76	81	143	1	1.56	2.78
Ovalipes ocellatus	Zoeal	1	39	1	ł	1	t	l		1	1
Callinectes sapidus	Megalopal	<b>1</b> -		200	t	76	1	t	157	1	139
Family Xanthidae	Zoeal	•	1	333	179	t	L	857	630		1
Panopeus herbstil	Zoeal	<b>4</b>	6 M		1	76	l	1		ı	t
Neopanope sayi	ZOEAL	40	196	I	1	2 2 9	163	t		ł	t
denresans	70691	ł	t	ł	l	1	. 1	ł	1		1 20
Tentosmanta sno	Nn determ	, t	ł	1	99	1				I	
Family Molgulidae	No determ.	40	39	t	; :	. d T	1. <b>T</b>	1	I. T	l e	
Totals		5423	6701	6402	9731	27400	26343	8713	7874	24528	21253

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Table	
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1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		-	-		11	•	2	-	=	2	7
eplicate		• <b>-1</b>	2		5		• 7		5	- <b>-</b> -1	2
ate (mo day)	•	Sep 19	Sep 19	Sep 19	Sep 19	Dec 5	Dec 5	Dec 5	Dec 5	Dec 12	Dec 12
our eriod		2140 Night	Night	Night	Night	Night	Night	Night	Night	Night	Night
bw duration (min sec)		3 45	4 52	1 55	3_4	4 43	4 37	ີ ຕູ	m m	4 51	4 44
lde		Flood I	Flood I	Flood I	Flood I	II qqa	II qqa	II qqa	II qqa	Flood II	Flood II
emperature (C) a1		0 0 7 0 1		13.0		ο ν • α	ο ν •	* C			4-6
botto	n e	20.0	20.0			7.5	7.5				1
alinity (ppt) surfact		16.0	16.0	16.0	16.0	20.0	20.0	20.0	20.0	20.0	20.0
botta		14.5	14.5	1 - 1 	i (	21-0	21.0	1 0	1 0	7 J	
)xygen (ppm) surfact	<b>0</b> , 1	1	t t	t t	t t	2 · 11	11.2		0.1		
DOCTO BUTER		7.7	7.7	7.6	7.6	1.1	1.1	7.5	7.5	8.1	8.1
botto		7.5	7.5	t	L	8.0	8.0	1	t	1	1
ecchi (cm)		t			1	<b>t</b>	t	t	ľ	•1	t
ol sampled (cubic met	ers)	0 • 0	13.7	7.4	15.5	28.3 A	37-6	19.8 4	21.1	28 • 6 4	29.9
ear Voe of toe		r1	P1	r1	•1	• • •	• •••	• न	•	• -4	-
pecies	Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Densicy	Densicy
the second second second second second second second second second second second second second second second se	No determ.			135	1	ł		1	ť	l	ľ
lass Hvdrozoa	No determ.	l	ť	135	ł	ł	t	. 1 '	1	1	1
rder Actiniaria	No determ.	1	t	ľ	65	L	ı	101	t.		<b>!</b>
hylum Ctenophora	No determ.	•	1	135	t	707		t	L	140	
inemiopsis leidyi	No determ.	1	20584	1	1	12367	7128		t I	4406	77 75
llass Gastropoda	Lar val	I	365	13784	387	<b>t</b>	t i	t i	t î	1 1	1 1
Suborder Aeolidacea	No determ.	1	<b>t</b> 1	с?Т -	t		1	r it s, s	0.61	- <b>t</b>	l
lass Bivalvia	No determ.	<b>E</b>     			: 1		1	1		210	67
Lass Polycnaeta	Larvai No determ			ł		t	t	303	<b>.</b> 	l	67
Samily Svilidae	No determ.	1	I	l	6.5	ľ	ľ	l	1	1	•
Vereis son	No determ.	. <b>(t</b>	t	t	65	<b>t</b> 	i.	1	1		1
	Ep i tokes	•	1	i.	65	t.	ł	l	1	1	∎ I
Polydora spp	No determ.	1	t		l	t .	Ż.	2 1	ע 1		
Sabellaria vulgaris	No determ.		1	1.51	t t 		1 - 1 - 1		t :	ļ	l L
Subphylum Pycnogonida	No determ.		C 22	: : : <b>t</b> 	387		1	202			67
Lyclaspis valians Lencon americanus	Gravid			135				ן ר ר ר			
	No determ.	t	511	1001	250T	777	n of	CTCT	101		29
Oxyurostylis smithi	No determ.	<b>I</b>	3	780T	185	7 8 T	r I		ן <b>ו</b>	2 1	<b>,</b> 1
Idotea baltica	No determ.	ł	l f	0.01			: <b>t</b>	t	5 6	10	67
Edotea triloba	No determ.	t 1	6/ 1114	676 676	387	495	372	t	56	350	6 0 2
Order Amphipoda	Crevid			135	65		ſ	1	ł		t
• dds szartaduw	No determ.	ľ	I	3378	2065	t	•	502	284	t	
Microdeutopus	:		•		29	1	; I	- <b>I</b>	ľ	ł	ť
gryllotalpa	Gravid	1 .	1 1	135	<b>.</b>			303	379	t	ı
formund tubularia	No determ.	t	. 1	t.	t	t	ť	101	L		t
Corophium acherusicum	Gravid		1	•	t I	11	! !		11	<b>t t</b>	ι.
	No determ.	ť	1	•	ı	<b>t</b> _	I	1 > 1			

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Appendix Table 11.	(cont.)								· ·		• •
Station				11	11		L	11	11		1
Date (mo day) Hour		Sep 19 2148	Sep 19 2215	Sep 19 2150	Sep 19 2217	L Dec 5 1913	2 Dec 5 1935	L Dec 5 1917	2 Dec 5 1940	1 Dec 12 1942	2 Dec 12 2005
Per lod		Night	Night	Night	NI ght	Night	Night	Night	Night	Night	Night
Cor ophium											
tuberculatum	No determ.	t	, <b>t</b> -	I.	t	1	t	1	95	. 1	•
Corophium spp	No determ.	t	1	ť	ľ	t	ľ		10	•	1
Family Gammaridae	No determ.	t	ł	1	. 65	1	t,	303	95	1	1
Jassa falcata	Gravid	t	ı	405	387			t		נ	•
	No determ.	l	1	4459	2903		•	l	ľ	, t	1
Elasmopus levis	No determ.	ı	ι	135	129	ť	ľ	202	379	1	1
Melita nitida	No determ.	1	t	1		ł	. 1	101	95	1	í
Monoculodes edwardsi	No determ.	L	ľ	135	1	t	1	101	ы Б	1	1
Family Stenothoidae	Gravid		. <b>T</b>	135	L	l	1		Ĩ	I	1
	No determ.		t	1081	903	- 1 -	1	t	I	1	1
Parametopella cypris	No determ.		1	t	6.5	ı	<b>, t</b>	t	t	1	ľ
Suborder Caprellidea	No determ.		292	2.70	516	ť	i.	t	ł	1	ł
Family Mysidae	No determ.	ł	1606	t	t	616	479	ł	1	679	3010
Mysidopsis bigelowi	No determ.	t	ľ	1081		1		202	190	1	) <b>1</b> () ) ) ) )
Neomysis americana	No determ.	ı	ł	8514	7742	i T	ŗ	4747	7014	1	1
Infraorder Penaeidea	No determ.		73	t	l	t	ſ	<b>t</b>	1	t	ł
Palaemonetes vulgaris	No determ.	L	t	ł	t	t	.1	51	ł	140	67
Crangon septemspinosa	No determ.	t		1	<b>1</b>	35	27	1	1	559	569
	Zoeal	1		ľ	ł	l,	372	505	853	2028	1137
Infraorder Brachyura	Megalopal	1	l	L	65	t	, <b>i</b>	•	I	t	1
Callinectes sapidus	Juvenile	L	<b>L</b>	ľ	t	1	27	Ϊt	1	1	1
	Megalopal	t	146	t	258	1	I	t	ſ	1	l
Sagitta spp.	No determ.	1	1	•	t	212	319	505	474	350	334
Family Molgulidae	No determ.	L	ł	I	1	t	t	t	190	t	•
Totals		0	25183	37565	18133	15088	8884	10050	12799	10141	10803

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Appendix Table 11.	(cont .)										
Station						TT	11		2	11	11
Date (mo day)	•	Dec 12	Dec 12	Dec 19	Dec 19	Dec 19	Dec 19	Dec 19	Dec 19	Dec 19	Dec 19
Period		Night	2008 Night	Λ eq	Day	Day Day	LU4U Day	1343 Day	Day Day	C PL I Da y	L400 Day
Tow duration (min sec	•	3 0	3 3 3 1 1 1 1 1	4 26 E1007 I	2 42	3 10		3 27	ы 1 4	TTO	1 10
Temperature (C) a	İr	-1.5	-1.5	-1.5	-1-5	-1.5	-1.5	2.0	2.0	2.0	2.0
surfa	e	14.3	14 - 3	, T		7.2	7.2	2°0	2.0	5 ° 6	ۍ ا 10
salinity (ppt) surfa	5 9	20.0	20.0	20.5	20.5	20.0	20.0	20.5	20.5	20.0	20.0
bott	5	ľ	t	t		L	l	20.5	20.5	1	t :
Oxygen (ppm) surfa	e E	11.2	11.2	10.5	10.5	10.6	10.6	10.5	10.5	11.1	11.1
pH surfa	Ce	8.0	8.0	7.7	7.7	7.9	7.9	1.1	1.1	7.9	7.9
bott	Б	t.		<b>i</b> 1	E 1	1 <b>1</b> - 1	<b>I</b> , 1	1.9	7.9	<b>t</b>	t   t
Vol samoled (cubic me	ters)	24.9	28.5	21.7	15.0	17.0	6.1	16.3	14.7	11.2	10.8
Gear		4	4	4	4	4	4	4	4	4	4
Type of tow		1	1	-	1		1				
Species	Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density
bhulum Javor tohrata	No determ.			737			220	L 1 L L L L L L L			
Order Actiniaria	No determ.	1	1			1647	1319	736	272	714	1111
Mnemiopsis leidyi	No determ.	<b>L</b> *	I	369	267	i i		245	952		t -1
Class Bivalvia	No determ.	( I	t t	4 L	267	235	<b>t t</b>	164	1088		370
CLASS FOL YCHAELA	No determ.	<b>1</b>	1	6636	3733	4941	3956	3926	2993	4643	6667
Family Phyllodocidae	No determ.	<b>Ì</b>	1	ł		1 1		t, I		1	370
Family Polynoidae	No determ.	1				1 1	220	245	272	1	ן ר ח י
Autolvtus soo	Gravid	161		ł	t	L	I	t	•	1	1
Nereis spp	No determ.	l	1	369	1			1961			
Family Capitellidae	No determ.	Ĺ		1843		0/11	000	r of I		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	370
Polydora spp Diopatra cuprea	No determ.			L	I	I		l.	68	<b>1</b>	•
Hydroides dianthus	No determ.		I	1	•		:	<b>L</b>	98	<b>t</b> 4	1
Subphylum Pycnogonida	No determ.	t t		11	• • •	n 1 7	220	1 1 1		1 1	<b>1</b>
Cyclaspis vatians Leucon americanus	No determ.	2249	1404	1659	800	1647	2198	1718	1361	357	741
Oxyurostylis smithi	No determ.		281	<b>t</b>		101	t t	C # 7	2/2	(	1
Edotea triloba	No determ.	TOT	- I	3687	3467		440	3681	2993	t	
brochter Amprilpud	No deferm.	643	702	t	1	2824	3956	L	l	5714	4074
Microdeutoous				1			. (	•			Ţ
gr yl lotalpa	No determ.	191	140	. <b>i</b> .		2118	2857	t i	t 1	5 2 2 4	1 <del>4</del> 1 1
Unciola spp	No determ.					235				t	
Correction acharustant	No determ.	ľ	l	it	•	t	220	ŧ	t	t	ł
tuberculatum	No determ.	t	281	•	L	471					<b>1</b>
Corophium spp	No determ.		<b>t</b> 1	<b>t t</b>	t T		ン ( す ず	; <b>t</b>		- I 7	I
Family Gammaridae	No determ.	8U3 161	<b>t t</b>	<b> </b>     	•• <b>•</b> t	- <b>t</b>	: t	<b>t</b>	l	l	t
Maiinogammatus er Kiasmopus levis	No determ.	<b>R</b> 	t	t	ł	206	<b>t</b>	ł	Ļ		3 70

and the second se	
- <b>-</b>	

Appendix Table 11. (cont.)

Station	11	11	L	L	11	11			11	
Replicate		7		2		2		7	-1	
Date (mo day) Hour	Dec 12 1945	Dec 12 2008	Dec 19 1000	Dec 19 1038	Dec 19 1002	Dec 19 1040	Dec 19 1343	Dec 19 1358	Dec 19 1345	Dec 1
Perlod	Night	Night	Day	Да У	Day	Da у	Day	Day	ра у	đ
Melita nitida No determ.	321	140			471	220			357	37
Monoculodes edwardsi No determ.	161	t		t	t.	ł	t	ŧ	•	•
Microprotopus raneyi No determ.	L.	140	1	•	1	1	1	1	•	
Suborder Caprellidea No determ.		I.	<b>t</b>	1	I.	ł	1	1 1 1	357	•
Family Mysidae No determ.	t	t	369	800	1	1	491	1		,
Neomysis americana No determ.	3213	4772	. <b>t</b> .	Ľ	1412	623	<b>1</b> 121 12	ł	714	
Palaemonetes vulgaris No determ.	t	105	1	t	588	L	184	204		37
Palaemonetes spp No determ.	<b>I</b> .	t	92	267	• ( • •.	ł	1	ı	I	2
Crangon septemspinosa No determ.	402	175	ł	t	647	1	Ľ	68	179	
Zoeal	2088	1544	92.2	1867	47L	440	245	<b>F</b> 	1429	74
Saditta spp. No determ.	321	ł	184	533	t	440	245	272		
Family Molgulidae No determ.	ł	1	t	1	59	L	1	-	t	
	10845	9824	17051	13868	20589	19344	14721	14148	20178	1972

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onendix Table 11. ((	cont.)										
						7	2	11	11	2	- (
tation			- ~	;	5	-	7	н <sup>°</sup>	6	;;	7 6
eplicate		Dec 19	Dec 19	Dec 19	Dec 19	Dec 20	Dec 20	Dec 20	Dec 20	Dec 2/	1909
ate (mo day)	•	1850	1900	1852	1902	115	130	777	133 Ni	140 IN	Night
bur		Night	Night	Night	Night	Night	2 A	NI GIL 2	1 3 1 3	2 17	2 13
ow duration (min sec)		5 7 7	2 11	95 U 11 448	- 11 - 44	Flood II	Flood II	Flood II	Flood II	Flood II	Flood II
lde	•	EDD 11				-2.2	-2.2	-2.2	-2.2	-2.0	-2-0
emperature (C) ai	<b>T</b>			າມ 1 ແ	່ ເ	0.8	0.8	8.0	8.0	5°2	5 ° C
surfac			2.1	t	1	1.1	1.1	<b>1</b> -1		c c	30 F
	EQ	20.0	20.0	18.0	18.0	20.0	20.0	18.5	C•8T	0 1 2	21.0
alinity (ppt) surrated	νε	20.0	20.0	ł	L	19.0	13 C	: 4		11.9	11.9
butto button (nnm) surfac		12.8	12.8	11.8	11.8	13.2	12.6			12.1	12.1
xygen (ppm) surray botto		12.9	12.9	[ C T	ło	C • 7 T		7.9	7.9	7.9	6.7
H surfac	Q	6.2	6 ° r	» '		0	6.2	1	1	8.0	8
bottc	E	A•/*		t	L	I	ľ			t e	
Secchi (cm)			11.3	8.9	10.3	10.6	8.9	1.6	10.1	1.3.0	0.CT
Vol sampled (cubic met	ers)	4	4	4	4	4	4	4,	<b>d</b> i	<b>,</b>	• •
Jear 		•	T	T	-	н , н	-		-		
lype of tow								Panet + v	Density	Density	Density
Species	Lifestage	Density	Density	Density	Density	Density	Dens try				
					t	1	•	l	•	1 00	ם <b>י</b>
Class Hydrozoa	No determ.	I. I	1	l	<b>t</b> 1	1	t	1	200		. 1
Margelopsis gibbesi	No determ.	l	. <b>1</b>	1124	583	•	1	<b>t</b> (		•	t
Order Actiniaria	No determ.	1453	1681	t	1	189	155	539		t	
Mnemiopsis leidyi	No determ.	1	•	225	<b>t</b> 		I .4		ſ	1	1278
Class BIVALVIA	[arva]	171	1	1	1 0			3516	1584	1045	• <b>t</b> •
CLASS POLYCRACA	No determ.	1111	620	2247	1942	n #A	•		1	75	t
Phylindoce maculata	No determ.	<b>F</b>	1		l	189		<b>t</b> .		597	<b>1</b>
Family Svllidae	No determ.	80.0	C 97		. 1	1	l'	- <b>.</b>	<b>.</b>	<b>I</b>	
Autolytus spp	No determ.	ŝ		I	t	. 1	ł	t	Ì,	<b>t</b> 1	100
Brania clavata	No determ.	L   1	t	1	1		t	220			1
Nereis spp	NO GECELIII.	245	531	449	388	2075	1573	660T	+ OCT		
Family Capitellidae	NO determ.	ř <b>t</b>		t	1	•	<b>t</b> - (		396		<b>1</b>
Family aplonude	No determ.	Ľ	ł	t	t	L .	112		ť	<b>I</b> .	1
roiyuura sep Doctionatis couldii	No determ.		1	I			1 1 1	. <b>. 1</b>	<b>I</b> 	149	1
Subclass Ciribedia	Cypr id s			t i	1165	189	1124	629	792	1940	301
Leucon americanus	No determ.	1. I 		1	194	ł	225	1	1 1	149	2 1 )
Oxyurostylis smith1	No determ.		I	1	1	1	<b>I</b> 1	000	198	149	•
Idotea baltica	No deferme	342	88	225	38.8	757		9 0 9 1 9 1 9 1 9 1 9	198	2537	2030
Edotea triloba	No determ.	1709	2212	225		2942	4 1 1 2	2857	1980	. t	1
Order Amphipoda	No determ	E	•	2697	5162			2			
Wince are with the second seco				375	L	I,		<b>t</b>	L		1 1
dr vl lotalpa	Gravid			674	1748	1	1	629	792		
i i	No determ.		t	ſ	194	l 	1		0 A T		
Corophium acherusicu	n No determ.			•				879	. 1		<u>I</u>
Corophium	No determ.	t	t					629	1	ι	1
tuber culatum	No determ.	<b>t</b> *		225	[ ]	1		. <b>1</b> .	1		<b>t</b> (
COLOPALLII SPP	No determ.	•	i ,			. <b>1</b> 	1	819	198	l	<b>I</b>
Family vanuation Flasmopus levis	No determ.		С. 22 24 24	7 7							

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Appendix Table ll.	(cont.)		•								
Station				11	11 2	<b>~</b> –	r 0	44	11	<b>r</b>	- 61
Replicate Date (mo day)		Dec 19 1850	Dec 19	Dec 19 1852	Dec 19 1902	Dec 20 115	Dec 20 130	Dec 20 117	Dec 20 133	Dec 27 1854	1909 1909
Hour Period	•	Night	Night	Night	Night	Night	Night	Night	Night	Night	Night
Melita nitida	No determ.			668	583		1 1	659	396	11	11
Monoculodes edwardsi Stenothoe minuta	No determ. No determ.			<b>1</b>		1040	5843	879	792	e716	5038
Family Mysidae Mysidoosis bigelowi	No determ. No determ.			11	194		2 <b>t</b> 1	-	13861	1 (	11
Neomysis americana Delemonetes vulgaris	No determ.	t t	265	44 9	194 194	ι, ι, ·		2.20	66	373 75	301
Palaemonetes puglo Palaemonetes puglo Crancon contempo (nOga	No determ.	L L	11	11	110		112	1 I O 4	1 [68	1791	1729
	No determ. Zoeal	769 769	354 1327	1348	1748 777	1132		1538	792	4030	3233 3308
Sagitta spp. Leptosynapta spp	No determ. No determ.	111	t & t &	<b>t t t</b>		I I I.	t t	110	11	1.1	<b>t</b> . <b>t</b> .
Family Molgulidae							13260	42854	25345	23060	18 04 5
Totals		7947	8846	13258	7965T	10 A 04	202.34				

Appendix Table 11. (c	cont • )											
			11	7	۲.	11	11	7	7	II.	11	. 1
Benlicate	-		2		3		2		2 5	••• • •	2 2	
Date (mo dav)		Dec 27	Dec 27	Jan 5	Jan 5	Jan 5	Jan 5	Jan 22	Jan 22	Jan 22	Jan 22	•
Bour		1856	1161	1940	1955	1942	1957	1920	1938 W1-66	776T	N: 454	
Per 1 od		Night	Night	Night	Night	Night	Night	NIGNT	JUBTN	U 50		
Tow duration (min sec)	•	0 58	0   	77.7	2 23			2 H 1 H 1 H 1 H	8 년 - 년 - 년	L L L L	- 44	÷
Tide		Ilood II	FLOOD II					1 c 2 c				
Temperature (C) ai								2.8	2.8	12.0	12.0	÷
surfac	Ð	13.U	0.1 T			ì		2.8	2.8	<b>,</b>	l	
botto	6	- C C C	0 1 0	18.0	18.0	18.0	18.0	20.0	20.0	23.0	23.0	
Salinity (ppt) surface	<b>ع</b> ا			18.0	18.0	L	1	21.0	21.0	I	1	. 11
botto	E	10.7	10.7	12.4	12.4	12.7	12.7	11.5	11.5	10.4	10.4	
Oxygen (ppm) surrac	ש:נ	1	1	12.5	12.5		t	11.6	11.6	1 1	t ș	
	= 0	8.0	8.0	8.1	8.1	8.0	8.0	<b>.</b>	0.8	۹•/		
print potto	νε	t	ł	8.1	8.1	<b>I</b> .	t i	8.0	2	I- 1 1 1	1	4.
Corchi (rm)		ļ	ł	•	1. 1	1	1	1 -	1 0 	0	10.3	1.
Vol sampled (cubic met	ers)	10.0	11.0	10.0	14.4	10.4	0.01	7 • 7 7 7	0 • 0 • 0	r 47	) <b>4</b>	
Gear		4.1	<b>d.</b> 1	<b>7</b> -	<b>* -</b>	r -		• •••	F	-	Ţ	•
Type of tow		-	4	4	+ -							•
	T. fectade	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density	•
apecies												
nt	Nh determ.	417	367	1			ſ	t <sup>1</sup>	t 1	1	104	19
	No determ.	t	1	1	t	ł	ţ	l				97
	No determ.	ł	. 1	1	t	ſ		ł				
COLLA SPP	No determ.	417	1	ſ	t	t	100		t (	L 1	194	
order Actinitatia Order Orfentheria	larval		t	<b>,</b> 12 12	•	t	t:	n AT	r 4		194	
With the set of the se	Nn determ.	t	l	•	556	t	1			. 1	701	•
MIEMIOPSIS TELUTI	No determ.	t	I	104		1	1 [2-	08T	20101	A 76	2524	
Class bivaryia	Larval	833	1101	1771	1597	96		0 4 0 0			388	
TABS LOT ACHAGE	No determ.	t	1101	t		385	005		1		• t	
Family Phyllodocidae	No determ.	1			99	•		•		•		1
Tomonter 18							l	180	1	1	388	
heloolandica	No determ.	1	•	ł				1081	t	<b>T</b>		
Family Polynoidae	No determ.	1	•	t	<b>I</b> 1		t		1	<b>t</b>	194	
Family Svlidae	Larval	<b>t</b> 	<b>t</b>		<b>L</b>		<b>1</b>	180	185	1	, <b>1</b>	
	No determ.	l		807			l			1		
Branta clavata	No determ.	1			C C C	288	006	180	ľ	t	, L	
Family Capitellidae	No determ.	417	r	00.4					185	1	11	
Class Oligochaeta	No determ.		PEL		•			t	1 1 1	108		
Class Hirudinea	No determ.		; <b>1</b>	. 1	t	192	1	ľ	t .	512	1	
Mysidobdella oculata	No decermo		L		139	Ľ		t 	L		<b>I</b> :	
Subclass Cirripedia	Cypr 105		167	t	1	t	100	1		t	1 0	
Cyclaspis varians	No determ.	8.33	; I	313	208	192	300	360		<b>1</b> .	0 I	
Leucon americanus	No decerm.		1	1	•	1	. 1	1	0/ 8	1 .	. 1	
Oxyurostylis smithi	No determ.		36.7	1146	278	192	100	1622	T667	612	104	
Order Amphipoda	No determ	417	734	i	l	Ĺ	100	t .	1	CT7		
Ampelisca spp.	NO RECEIVE			•				. 11	. 1		: •	
Microdeutopus	No determ.	t	734	. <b>I</b>	• <b>t</b>	1	200		1 <b>1</b>		t	
gr yi lotalpa	No determ.	i :	т.	<b>i</b> .				t	ł	. 1	1748	
Dentoput un actier werken Femilie Gammaridae	No determ.	833	I.	t		t <b>t</b>	100		1	213	1	
Martin Commartis SD	No determ.	t	l	<b>t</b> 1		- <b></b> 	100	•		ł	t	
FIARMOUS LEVIS	No determ.	417			ł i		1	<b>נ</b> בי"	Ì		1	
Malita nitida	No determ.	1	367	ľ	l							



ppenalx laberation	(CONE • )	•			•		N				
:tation		11	11	L	L	11	11		7	11	11
bolicate		Ч	2		7		~		7		7
Date (mo dav)		Dec 27	Dec 27	Jan 5	Jan 5	Jan 5	Jan 5	Jan 22	Jan 22	Jan 22	Jan 22
		1856	1911	1940	1955	1942	1957	1920	1938	1922	1940
eriod		Night	Night	Night	Night	Night	Night	Night	Night	Night	Night
나는 눈도 눈 가 가 다 다 가 다 다 다 다 다 다 다 다 다 다 다 다 다 다											
onoculodes edwardsi	No determ.	1	IULL	t	1	192	100		t	ľ	388
amilv Mvsidae	No determ.	l	•	3333	1944	Ţ	L	17658	ł	ł	1
turidoneje biooloui	No determ.	417	734	1	1	192	200	•	556	ł	•
iyatuopata biyotoni. Anaveje americana	No determ.	5000	4771			2404	2800	1	19259	35745	57087
Salaemonetes vulgaris	No determ.	521	367	208	69	96	1	06	t	- <b>I</b> - 1	1
randon den temen i Dos	Gravid	I		1	1		1	ι.	<b>С</b> 6	, <b>l</b> 	t
רו מוואסנו מבה רבוומה דווסממ	No deferm.	2813	1101	1979	1806	1442	2300	1261	1019	851	1942
•	706a1	6250	2936	3229	2014	2019	2100	106	12.96	638	1553
Saditta sop.	No determ.	1667	1835	5104	4167	2885	3700	16396	15000	9574	11456
lotal s		22085	18717	18437	13403	10575	13000	46755	20000	48937	19997
						-			-		

	(cont.)
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Appendix Table 11.	(cont . )										
Station		2	2	11	11	7	L .	11	11	7	7
Replicate	•	-	3		2	<b>-</b>	7	н	2	Ļ	2
Date (mo day)		Jan 31	Jan 31	Jan 31	Jan 31	Jan 31	Jan 31	Jan 31	Jan 31	Jan 31	Jan 31
Hour	•••	106	C 4 9	חדה	747	0777	077T	7777	777T	0 #AT	14-14
Period		Vay	Ua y a r	Lay Lay	Vay Vay	ν γ ε γ ε γ	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Day 1 30	La Y	A A 7	A 74
Tow duration (min sec		FIOOD T	Flood I	FICOD	Flood II	Flood II	Flood II	Flood II	Flood II	Flood I	Flood I
Themoreture (C) a	<u> </u>	2.2	2.2	2.2	2.2	4.2	4.2	4.2	4.2	1.0	1.0
		2.2	2.2	12.0	12.0	3.1	3.1	14.0	14.0	3.8	3.8
bott	3.5	2.8	2.8	1	1	4.7	4.7	j,	t	4.0	4.0
Salinity (ppt) surface	e e	14.5	14.5	14.0	14.0	17.0	17.0	17.5	17.5	18.0	18.0
bott	5	14.5	14.5	1	ł	16.5	16.5	ł .	1	16.0	16.0
Oxygen (ppm) surfa	e	12.5	12.5	11.0	11.0	13.3	13.3	11.8	11.8	12.9	12.9
bott	5	12.3	12.3	t	•	12.9	12.9	1	1 <sup>2</sup>	12.9	12.9
oil surfa	e	7.9	7.9	7.8	7.8	7.9	7.9	8.0	8.0	6.2	6°-2
bott		7.9	7.9	I	1	7.9	7.9			0°8	n • R
Secchi (cm)		60.0	60.0	60.0	60.0	50.0	20.0	50.0	50.0	1	
Vol sampled (cubic me	ters)	14.5	14.6	8.7	15.0	14.4	14.8	13•8 13	13.6	24• F	л. ч.
Gear		<b>4</b> 7 1	<b>5</b> 7 1	4	4,	4	4 -	đ <sup>4</sup> -	đ", r	<b>t</b> -	<b>*</b> -
Type of tow		-	M	H			-				
	T.f foctano	Density	Density	Density	Densitv	Density	Density	Density	Density	Density	Density
Phylum Invertebrata	No determ.	l	1	ľ.		69		<b>t</b>	1	1	i
Margelonais dibbesi	No determ.	69	1	t	ł	t	<b>.</b>	1	l	83	26
Order Artiniaria	No determ.	ľ		1	,t	ť	•		I	41	
Order Orientharia	Larval	• <b>t</b>	I	1	67	t ,	1	<b>L</b> .	L	I	1
	No determ.	69	68	•	t	139		<b>t</b>	ť		391 
Mnemicosis leidvi	No determ.	ſ	t	t	•	t,	I		1	41	26
Suborder Apolidacea	No determ.		t	1	t	:	L	145	.1	t.	
Class Blvalvia	No determ.	138	L	1	67		1	1	1		
Class Polychaeta	Larval	3655	3836	1724	1133	2431	4257	161	RTAT	C/ AC	- 10671
	No determ.	1	t		9	<b>t</b> - 1				r <b>1</b>	
Family Polynoidae	Larval	Б. 9	t		<b>I</b> :		1 - 1 .'		I	ł	ł
Family Syllidae	No determ.					ר כא ד		I. <b>ļ</b>	ť		26
Family Capitellidae	No determ.	130	1 1	1 <b>1</b>			ţ	145			1
Pol ydor a spp	No decerm.		ł	l	1	. 69	t,	ł	Ľ		i t
ramily sabellidate	No determ.		ł		67		<b>t</b>	1		t	•
spirorois spp.	No determ.		1	ľ	1			ŧ		83	1
myarotaes utantinas	No determ.		. <b>I</b>	ľ	200	1	L	t	ł	t	<b>t</b> 
Musidobdella oculata	No determ.	1	- <b>L</b> -	l	1	L	68	l		<b>L</b>	<b>t</b> <u>1</u>
Subphylum Pycnogonida	No determ.	1	68	<b>t</b> .	1	l	Ľ	t .	t 1		
Subclass Cirripedia	Cypr ids	<b>t</b> 	ł		l	t.	2		i 1		5 <b>I</b>
Order Oumacea	No determ.	t	•	1	l	t	L i			ם <b>נ</b>	5.6
Lep tocuma minor	No determ.	ļ	1	<b>t</b> - 		<b>1</b>	la			83	112
Leucon amer icanus	No determ.	1	t				р <b>I</b>	. <b>t</b>	. 1	) <b>1</b> ):	1
Oxyurostylis smithi	No determ.	Ľ	1 4					ł	1	t	t
Idotea baltica	No determ.				ľ	ľ	68	t	t	t	503
Order Amphipoda	No determ.	1.38			. <b>t</b>		<b>.</b>	1	74	1	1
Ampelisca spp.	No decerm.				t	ł	t	217	147	ı	1
Corophium acherusicum	N חברבדווי								-	Ċ	
	No determ.	1			. t	t	l	. 12		19 19 19	t (
Family Gammaridae	No determ.	ſ,	•	115	t	1.	t		*	4 40	!
		• •									

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Appendix Table 11.	(cont.)										
Station		. L	L	11				11	11	~	~ ~
Peplicate Date (mo day)		Jan 31	Jan 31	Jan 31	Jan 31	Jan 31	Jan 31	Jan 31	z Jan 31 1222	Jan 31	Jan 31
Hour Per lod		907 Day	945 Day	Daγ Daγ	Day	Day	Day	YED	Day	Night	Night
Or chome nella penquis	No determ.						1	ſ	1	60	1 1
Elasmopus levis	No determ. No determ.	<b>I I</b>	1.1	1 1	<b>t t</b>	<b>1 1</b>	<b>(</b> 1	t t		ວ ຕ ອີ	. •
MONOCULOGES EUWAIUSI Microprotopus raneyi	No determ.	1	t	115	t r	î l	1	1 1	11	11	t t
Family Stenothoidae	No determ.	tt	t t	t t	21	E E	L <b>L</b>	72	t	l	ł
Suborder Caprellidea	No determ.	1	1	115	<b>t</b> .		1 000	1.1	4 -	t d	1844
Family Mysidae	No determ.	ı	1 0	1000	1	8/7	o t n	72	1	1	
Mysidopsis bigelowi Noomusis americana	No determ. No determ.	1862	1849	15862	6666	T	1	2319	1471	1992	11
Palaemonetes vulgaris	No determ.	L	1	11	1	1	ρ I 9		р <b>а</b> 124 2	41	
Palaemonetes spp	No determ.		L ( <b>)</b>	: -	67	1	68	ľ,	1	498	223
Crangon septemspinose	Zoeal	1793	1438	3678	2067	1250	878	1522	1765	4066	4581
Sagitta spp.	No determ.	2483	1781	3333	2800	2500	2770	4203	3162	TO 8/	0000
Totals		10414	9381	25402	16535	6875	8583	6026	8385	21617	29331

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		7.1	1	
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bbendix mante tr (	cont • /										
		11	11	7	2	11	11	11	11	11	11
Policate	:			-1	5	-	2		7	-	. 2
ate (mo day)		Jan 31	Jan 31	Feb 1	Feb 1	Feb 1	Feb 1	Feb 8	Feb 8	Feb 14	Feb 14
bur		1948	2007	150	208 Mi - h h	153 Ni 264	0177 N	CC41	zuuz Hantu	1421N	Nicht
eriod		algur 7	3 8	A 5.4	4 53	2 50	2 37	2 43	2 40	2 42	2 46
tow duration (min sec)		Flood I	Flood I	Iqqa	Ebb I	I qq	Iqq	FLOOD II	Flood II	Flood I	Flood I
hemperature (C) ai	ч	1.0	1.0	-2.0	-2.0	-2.0	-2.0	-6.0	-6.0	-10.0	-10.0
surfac	ð	12.0	12.0	8 7 8	5°8	11.0	11.0	13.0	13•0	••	
botta	E	1 0	1 C 4	5 Y 7 Y	0 ° ° '		15.5	24.0	24.0	17.0	17.0
Salinity (ppt) surface	e 1			16.5	16.5			<b>.</b>		t	•
Durren (nnm) enrfac	Ξa	12.2	12.2	12.6	12.6	11.5	11.5	10.8	10.8	<b>6</b> •8	<b>6</b> .8
A YYEN NPEW SULLO			t	13.3	13.3	1			1	l r	1 r
oli surfac	Ð	8-0	8.0	0 0 0 1	00	7.9	7.9 	8.2	<b>₽</b>	- 1	- 1
botto	Ē	1	i i	α Ι -	• 1	1	1	ŀ		I	t
Secchi (cm) whitemolog (cubic met	era)	24.0	25.3	21.0	21.0	23.1	21.3	20.4	19.2	22.2	26.8
Sear		4	4	₹.	4,	4.	4	4 e	đ .	4 -	<b>7</b> -
Type of tow		-1	<b>-1</b>	-		-		-	+		
Sherles	Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density
											75
Phylum Invertebrata	No determ.	1	ł				1	196	ł	1	•
Margelopsis gibbesi	No determ.	4 2			1		•	) 1 	1	45	75
Sarsia spp	No determ.			50	50	l	ł	1	ľ	T	1
Obelia spp	No determ.		97	) <b>1</b>		i	1	86	1	45	112
Order Actiniaria	No deleta.		40	1	143	ł		98		•	1
Urder Lerlantnaria	Nh deferm.	I	•	•	84	t	1	I	1	i	1 0
riyum ccenconora Ciare Newstoda	No determ.	ľ	•	ł	I.	l	1		F	[ u	
Crepidula spp	No determ.	t	1				t I			с п 4	11
Class Bivalvia	No determ.	42	40	1 000	48 6286	260	469	3627	2708	766	149
Class Polychaeta	Lar val		C 077			87		294	625		37
	NO GETERM.	1	•	ł	t	ł	•	l	l.		149
Family Moloace	No determ.	42	•	286	95	t	ł			0 I 8 I	<b>n</b> 1
Family Syllidae	Gravid	1	l	I		1	i (	l - 1	104	541	522
	No determ.	l		1	I	ľ	47		•	I	<b>I</b>
Autolytus spp	Gravid	<b>8</b>	1		1	87	1	Ţ		1	37
C-transmitle	NO DECELM.									UO	355
erinacrosyttes erinaceus	No determ.	t	•	•	1	<b>t</b> .			1 <b>1</b>	06	
Exogone dispar	No determ.	•	ł	1	<b>i</b>			1560	2925	631	336
Family Capitellidae	No determ.	1	1	<b>7</b> 6	1					1	ł
Polydora spp	No determ.	t				t	1	ľ	l	t	1
Class Oligochaeta	No determ.	1	<b>)</b>		1	87	l		104		37
Class Hirudinea	No determ.	42		•	l		1			06	ľ
Mysidoodella ocutata	No dotorm	į	ł		I.	•			L	0.4	C/ 2
Suppry Lum Pychogo ind	Conride		1	190	429	1	1		<b>r</b> : 1	TC D	1
CVC]ARDIE VALIANS	No determ.	• •	•	ł		<b>t</b> 1	1 0 0 1	o <b>(</b>	t	1	t
Lep tocuma minor	No determ.	1	t ç		48	1	201 194	1	104	270	75
Leucon americanus	No determ.	5 A 5 A	<u>ז</u> ו ז	ה <b>ו</b>	2 <b>4</b>		ŗ	•	1	45	I
Oxyurostylis smithi	No determ.	4 T				•					



858 709 261 Feb 14 1950 Night 149 149 75 3361 1194 75 37 75 149 373 i, i, t I. 3.73 8321 Feb 14 1935 Night 315 270 405 135 90 811 1757 1532 811 135 4.5 766 90 l 18.0 t 10901 П 11114 Feb 8 2005 Night 104 156 104 23333 104 1615 1458 625 34790 11 t t 208 104 Ł L Ц 104 Teb 8 1955 Night 98 98 294 196 196 294 26275 98 1225 1275 490 490 196 Ł 1 1 1 1 L .t 37303 Feb 235 1315 1033 Night 376 12582 210 469 188 Ł ા t 47 17231 46 H Feb Night 563 346 17662 433 1385 1732 153 116 43 L L L 1 1 43 11112 t 87 t, 22989 t Feb 48 476 1333 1667 eb 1 208 Night 3810 381 14955 L t 1 1 1 Feb Feb I 150 Night 4 1 1 1 1 1 2 2 4 429 1524 2333 762 . . . . . . . . 19047 Jan 31 2007 Night 79 395 198 5217 435 2530 5296 40 L 40 I 15972 116 40 . L · 1.1 Ŀ ŧ 125 708 2750 4042 Jan 31 1948 Night 125 42 917 83 83 5167 1100 83 4 t 14877 42 42 τţ 1.1.1 Ł F No determ. No determ. Gravid No determ. No determ. No determ. Gravid No determ. No determ. No determ. No determ. No determ. No determ. No determ. determ. determ. determ. determ. determ. Zoeal No determ. No determ. No determ. Zoeal determ. determ. determ. determ. determ. determ. determ. No determ Gravid Zoeal 2 2 2 2 2 ł 22 Palaemonetes vulgaris Palaemonetes spp Crangon septemspinosa Microprotopus raneyi Stenothoe minuta Suborder Caprellidea chomenella penguis Monoculodes edwards1 Mysidopsis bigelowi Gammarus mucronatus Infraorder Caridea Gammarus annulatus Neomysis americana Corophium spp Family Gammaridae Order Amphipoda Family Mysidae Order Decapoda Ampelisca spp. Edotea triloba Idotea baltica Orchomenella Melita nitida Microdeutopus tuberculatum Date (mo day) gryllotalpa Gammarus spp ggg Replicate Corophium Sagitta Totals Station Period Hour

Appendix Table 11. (cont.)

Appendix Table 11. (con

Station		<b>L</b>	-	11	TT	7	7	11	11	2	7
Rep1icate		Н	7		2	Ч	2	1	2	н ,	2
Date (mo day)	•	Feb 22	Feb 22	Feb 22	Feb 22	Feb 23	Feb 23	Feb 23	Feb 23	Feb 23	Feb 23
Bour		2120	2133	2122	2135	45	26	50	100	902	923
Perlod Tracelon (min cost)		NIGNT A R	NIGNT	ang in	ang n	A 11	NI GDC	NI GNT	Night 7 50	γau 1	Υ Ε Π
Tide		Ebb I	I qq	ч Ч С Ц С Ц	I qa		II qqa	Ebb II	E da		E P P
Temperature (C) air		-1.0	-1.0	-1.0	-1.0	-1.5	-1. 5	-1.5	-1.5	4.5	4.5
surface		1.0	1.0	10.8	10.8	1.0	1.0	10.7	10.7	1.0	1.0
bottom		- -	1.5	1	L	1.6	1.6	1	1	2.2	2.2
Salinity (ppt) surface	•	17.5	17.5	17.5	17.5	17.0	17.0	17.0	17.0	0.61	19.0
bottom				t r F		1. 1.		1	1 c	0. 5. T	0.6T
Oxygen (ppm) surface		7.21	7.71	۲.1. ۲۰۱	LL.J	C.71	C • 2T	8 • T T	8-11	7.21 7.21	2.21
		T 4. 4	7 0 7 7 7	ι α Γ	ια Γ	7 - 4 7 - 4	4 - r 7 - 7		[ r		
pu suitace bottom			7.7			7.7	1.1	: 1		7.6	7.6
Secchi (cm)	• •	1	t	ł	1		l	<b>!</b>	t	220.0	220.0
Vol sampled (cubic meter	s )	18.5	13.0	23.2	27.0	17.1	18.5	24.2	26.4	22.7	22.I
Gear		<b>4</b> r	4.	<b>4</b> r	<b>√</b> -	4.	<b>∀</b>	<b>v</b> r	4 -	4.	4 -
Type of tow		4	-	-	-	-	-	-	-	-	-
Species	festage	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density
Sarsia spp No	determ.	i N	ł	ł	74	L	t t	ť	16	44	45
Order Actiniaria No	determ.		1	l	l	l	t	1	9	l	1
Order Ceriantharia No	determ.	1	11	•	i,	1	1	1	1	1 1	•
Suborder Aeolidacea No	determ.	•	1	•	•	I	t	ŝ	٩	•	<b>1</b>
Class Bivalvia No	determ.	1		1	1 1					01.01	ACAA
Class Polychaeta La	rval	3135	4538	302	407	6286	6/03	100	909	87 / 8	4744
Family Polynoidae La	rval	1	11	<b>L</b>	1 1	<b>C</b> (	8 NT	8 1	4 Y F		1
<b>9</b>	determ.				- (		175	6		ä	1
Family Syllidae NO	determ.	701		∩ (° * ≺	: I	2 I	r I 3	ן <b>נ</b>		5 <b>t</b>	I
Autolytus spp	decerm.	1		7					•		
Spnaerosy1118				۲ ۷			l	1	76	1	.i
erinaceus No	determ.		F	5.5	74	1	I	к я	76	44	1
Family Capitellidae No	determ.	on T	2	<u>र्</u> । न	<u> </u>		108	3 1	2 1		1
ramity apionidate no	• MITATAD /	· .		- - -	•		· ·	•	•		•
	determ		t	ł	37	l	ľ	t	ľ	1	1
VILLUIS Stairconcreis ridolohi No	Jeters.	ľ	1	1	37	ľ	ł	l		t	1
Staut Onet eis tuu Oipur . Familin Throballidae Nh	determ.	ł	1	1	1	l	ľ	. 83	1	l	Ì :
Ciass Olidochaeta No	determ.	54	1	t	ł	1	108	ł	1	88	45
Mysidobdella oculata No	determ.	162	I	172	148	58	I	5.79	16	t	1
Subphylum Pycnogonida No	determ.	Į,	1	ł	•	1	1				
Subclass Cirripedia	Cypr ids	811	1538	1		1287	4 32	5/1	1617	T0/4	/ 071
Leucon americanus No	o determ.	54	308	172	37	/11		0 0 T		<b>i</b> I 	r <b>r</b>
Oxyurostylis smithi No	o determ.	1		<b>i</b> (	- I		108	, <b>t</b>			45
Order Isopoda	determ.	r (	1		ł	1		41	t		1
cyathura spp	o determo	10 10	973	172	37	1345	757	83	1	220	317
		r <b>I</b>		302	667	ľ	t	620	417	ľ	•
Family Aoridae No	determ.	l	1	t	<b>I</b> .	ſ	t	t	152	i.	I
Mi cr od eut op us							- (	112	15.7	1	1
gryllotalpa Nc	o determ.	1		רי לי לי	111	l - 1			4 <b>I</b>	.1	ł
Unciola serrata No	o determ.	1 <b>1</b>	1) <b>1</b> - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	ß6	, 1 , 1	- <b>t</b>	<b>!</b>	t	1		t
Lembos webster1	o determ.	ı i	e t R	31	37	'	1	83	.1	t	ł
COLODILUM ACRETUSICUM N	ם מערענווי										

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Appendix Table 11. (cont.)

Station		1	7	11	11	7	7	11	11	۲	2
Replicate			8		2		2		-	י ה י י	2 2
Date (mo day)	Feb	25 25	eb 22	Feb 22	Feb 22	Feb 23	Feb 23	Feb 23	Feb 23	FeD 23 907	re0 23 973
Hour		140 144	Ni abt	Ni aht	Nicht	Night	Night	Night	Night	Pa v	, e
Corcohium											• • •
tuberculatum No dete	rm.	i t	I	1	148	L	l	83	152	i.	1
Corcohium spp No dete	. ET	1	1	L	t	L	1	83	[	ı	ł
Family Gammaridae No dete	.c.m.	i.	1	43	1	L.	ł		ľ	l	l
Gammarus annulatus Gravid		t	ł	t	74	l	t	41	8 C	I	t."
No dete	. E7	I	1	t	407	I.	t	8	707	•	l
Gammarus mucronatus Gravid	•	1	1	I	37	ł	ſ	1	: -		•
No dete	• E13	1	I	86	t t	1	•	Υ. 20 4	114	•	₹   . :
Gammarus spp No dete	erm.	L	Ę	1	11	<b>t</b> .		124 127	ŝ	<b>i</b> 1	r i
Jassa falcata No dete	. m.	1	t I	Ľ	37		i	5	l		
Elasmopus levis No dete	erm.	ı	ł	L	37	I	ł	Ω Ω			r ( 2
Melita nitida No dete		, . , . , .	: 1	t y	t ;	1	t	1 U 1 U		1 1	
Monoculodes edwardsi No dete	• H I	ι.	1	302	/4	I		C 0 T	701	1	
Microprotopus raneyi No dete		L	ł	1	ł	1		0	i i		T
Stenothoe minuta No dete		ĩ	i.	43	1 - T		I- 11 	2		ł	•
Suborder Caprellidea No dete	. m.				₫ <sup>.</sup>	00001	7007	31	1	1057	860
Family Mysidae No dete	erm. 7	135	7692			14330		34876	25455		
Neomysis americana No dete		1	1	12414	4/00T				200		Ţ
Palaemonetes vulgaris No dete	• E19		1 5	777	148 148	117	108	- 7	379	44	<b>,</b>
Crangon septemspinosa No dete	• E10	70T	407 107			175	432	579	833	705	860
Zoeal		4.02					1	41	94	1	06
Sagitta spp. No dete	• E.u.	BOT	-	າ 1 ສ			t	0 0		1 I	
Class Holothuroidea No dete	erm .										
Totals	12	972	16308	15472	13331	25614	17080	40708	32241	8942	5961
										•	•

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ppendix Table II. (c	cont.)										
station		ГТ	11	2	7	11	11	7	7	TT	11
tep1icate			7	н	7		7		2	н	5
Mate (mo day)		Feb 23	Feb 23	Feb 23	Feb 23	Feb 23	Feb. 23	Feb 26	Feb 26	Feb 26	Feb. 26
iour		506 206	628 11 EU	2 4 1 1 V = U	Ven Ven	C B T T	1200 David	7707	4 4 2 0 2 0	CTU2	2028 Ni aht
reriod Dw duration (min ser)		2 32	2 44	10 7 0	5 30	2 23	245	2 45	2 40	1 10	1 36
ride		Eb b I	I qqa	II qqa	Ebb II	II qqa	Ebb II	Flood II	Flood II	Flood II	Flood II
Temperature : (C) a i		4.5	4.5	0 0	ហំ	5°2	ហ	2.5	2.5	2.5	2.5
surfac		10.2	10.2	6	6	13.5	13.5	1.7 1	I. 2	11.5	
Balinity (ppt) surface	= 0	17.0	17.0	19.0	19.0	17.0	17.0	11.0	11.0	11.0	11.0
botto		l		19.0	19.0	l	t.	1		1	1
Dxygen (ppm) surface		11.6	11.6	11.9	11.9	11.0	11.0	13.0	13.0	11.8	11.8
botta	-	V 	1 4	11.4	11.4 7.7	7.6	7.6	7.3	7.3	7.3	7.3
botto			> I -	7.7	7.7	2		1			1
Secchi (cm)		ľ	I	200.0	200.0		t .	1	1	1	19
Vol sampled (cubic met	ers)	21.5	23.6	27.0	33.0 A	21.1	23.2	11.7	8.2	7.0	13.3
Gear Throon of the		4 -1	<b>* -</b> ,	7	r	r	r -1	• •••	• न्न	• •••	- T
iye ur tom											
Species	Lifestage	Density	Dens1ty	Density	Density	Density	Density	Density	Density	Density	Density
								121		143	75
Sarsia spp	No determ.	4 4	. 1			- 1 7		1			
Coella spp	No determ.	i 1	ŭ		> 1	ſ	ł		122	. 1	
Order Actiniaria	NO GETELIII.		, <b>I</b>	ľ		i i	l		122		ľ
Order Verlantnaria Mare Bivelvie	No determ.	93	42	t	ł	47	I.	t.	1	286	. 15
Class blvarvia Class Dolychaeta	[arva]	512	212	1610	2152	569	302	1197	2317	143	
	No determ.		ł	t	I	1	I	L	<b>t</b>	286	75
Paranaitis spp	Larval	47	L	t	ł	t	t		<b>t</b> (	<b>1</b>	1 <b>1</b>
Family Polynoidae	No determ.	1	42	l	L	נ י		<b>e (</b>	1. <b>1</b>	1* <b>1</b>	
Glycera spp	No determ.	1	[ 1			1 <del>4</del> / 4 /	010	t <b>t</b>		143	
Family Syllidae	No determ.	0 2 T		707		r. 1 2		1	• <b>E</b>	1	.1
Autolytus spp	No determ.	4 /	1	1							·
Sphaerosyl 115	No determ.	47	42	ł	ı	l 	t	ľ	1	ļ	226
erinaceus Brania riavata	No determ.	t	85	I.	30	•	<b>I</b> • •		I,		<b>I</b>
Fronte distant	No determ.	47	ľ	L	1	ŗ	<b>t</b>	L	<b>I</b> '	1. 4	<b>ا</b>
GVD tis vittata	No determ.	47			L	1				5 4 4 7 4 4	<b>1</b> 1
Family Capitellidae	No determ.	140	42		1	47	0	907	I L	∩ <b>!</b>	75
Polydôra spp	No determ.	t	I	L			) •	•			
scolecolep 1des	No dotorm	1		i		t	ľ	85	ł	•	t
VILIDIS	No dotorm	ľ	1	1	0.6	1	ł	t		1	1
LLABS ULIGOCHAELA	No determ.	I	1	. <b>1</b> .	•	47	43.	85	122	286	226
Mysiucoueria ocurate Subriage Cirrinedia	Cvpr ids	2186	127	899	8 79	853	819	Ľ	244	1000	975
Leucon americanus	No determ.	1	1	37	1 1 1	5 5	יי ר נ	<b>!</b> 1			
Edotea triloba	No determ.	6				<b>i</b> 1	1 m	760	1721	ł	ı
Order Amphipoda	No determ.	140	767	C77	701	664	506	1		143	
Ampelisca spp.	No determ.	869 7 A	107		- <b>1</b>			t	1 	1	•
Family Aoridae	· III Jajab ON		) ) 1								75
microveucopus grvilotalpa	No determ.	326	254	t		427	4 31	t 1	t 1	14.5 1	51
Unciola serrata	No determ.	£ -	1	т <b>н</b>	įţ	47	: 1		1	1	•
Cerapus tubularis	No determ.		t t	<b>1</b> 	. I	• •	t	I	ï	. 1	L
manufactor mitanord	No determ.	~ *		• • •							

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Appendix Table 11.	(cont.)										
Station		7	7	11	11	7	2	11	ท	7	۲.
Replicate		ע ו- גי ע	Mar 2	ארי ע רין ע	Mar 10	Mar L	Mar 2	Mar L	Mar 5	Mar 5	Mar 5
Hour (mo day)		950	1005	952	1007	1300	1315	1302	1317	2030	2048
Period		Day	Day	Day	Day	Day	Day	Day	Day	Night A 20	Night 4 27
Tow duration (min sec		Ebb II	4 JUW	Ebb II	Flood I	Flood II	Flood II	Flood II	Flood II	ED D II	Ebb II
Temperature : K) a	lr .	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.5	10.5
surfa	0		6.0 6	16.5 _	16.5	- a 9 4	9.1 9.9	16.5	16.5	<b>6.</b> 7	- I 0
bott Salfaity (not) surfa	5 ٩	12.0	12.0	11.0	11.0	11.0	11.0	11.0	11.0	12.0	12.0
adiintry (pp.c/ surta hott		10.0	10.0	1	<b>I</b>	10.0	10.0	1	1	1	1
Oxygen (ppm) surfa	e e	11.6	11.6	14.8	14.8	12,2	12.2	12.2	12.2	12.1	12.1
bott	5	11.4	11.4	1 V F	 	1-8 7-7	12.2 7.8	7.5	7.5	7.7	7.7
pii surta hott	e F		1.1	•	5.8 5 1	7.7	7.7		1		ł
Secchi (cm)	5	0.06	0.06	t	t	100.0	100.0	1		l c	ן ר ק ר
Vol sampled (cubic me	ters)	21.7	19.0	10.6	15.0	24•3	27.5	17. / 4	20. 4 4		7 • • 7
Gear men of torr	•	đ –	<b>9</b>	ri	F	r ee	•	·1	-	-	1
Type of tow											
Species	Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density
	No dotoen						1	1	I		83
Margelopsis globesi	No determ.	138	158	94	200	41		ł	<b>1</b> 	158	331
Chella spp	No determ.	46			i		1	t	t (	1	•
Order Cerlantharia	Lar val	ł	ł	1	t	1	36		1 0		248
Class Bivalvia	No determ.	138	105			4	7,00		40 157	28.34	5041
Class Polychaeta	Lar val	6083	6263	1132	559	214 C		v 1 7			( ) 5 5
Family Phyllodocidae	No determ.		1 r 5	4 I	ı t		L	l	1	ı	i
Family Polynoidae	No determ.	<b>P</b> 1	105	t	1		1	t	1	198	
FORMLLY SYLLUGE Podarke obscura	No determ.	- <b>t</b> .		ł	. 1	1	t <sup>°</sup>	85	47 <b>4</b>	1	
Gyptis vittata	No determ.	1	t	l	1	t		2 1	o 1 ₹		1
Nereis spp	No determ.	t	1	L	67	l	<b>1</b>				
Scolecolepides	NO 40 6 01	t	•	l	i	t	• t •	1	l	.1	83
Viridis Misse Olissohasha	No deferm.	1	ł	t	- <b>1</b>		•	<b>t</b>	t	19	L
LIASS ULIGOCHAELA Musidohdalla ochjafa	No determ.	1	1	ł	200	l		L (	•		
Subclass Ciribedia	Cypr ids	415	526	1226	1267	165	73	513	4 3 L	316	41 V
Leucon americanus	No determ.	92	<b>r</b> (	94	19	6 8 			1	5 <u>7</u>	
Oxyurostylis smithi	No determ.	1	E S		ľ	ł	ľ	ł		62	t
Urder Isopoda	No determ.	92	ſ	1	ł	41	ľ	1	1		
Laorea Dal Lica	No determ.	92	211	ł		41	36	<b>1</b> .	144	5174	
Amoeliara son.	No determ.	1	1	189	267	•	T		4	i	T
Family Aoridae	No determ.	ł	•	94	133	•	t .	<b>r</b>			
Microdeutopus		1	ļ	472	133	I	1	256	96	I	1
gryllotalpa	No determ.	Ľ	t	189		1	1 	t . 	I	•	t I
Cerapus cuoutatis Corconhisme enheritaticu	No determ.	1	1	•	67.	t		1	1	<b>t</b>	
Cor co h i um				YO	<b>1</b>	l			Ì	•	i L
tuberculatum	No determ.	1	ţ.1	<del>,</del> 1	67		•	I	i.	ı	<b>I</b>
Corophium spp	No decera.	1 1	1	94	, <b>.</b> , . , .	t	:	<b>I</b>	ŧ	ľ	L A
Erichthonius spp Teace feirata	No determ.	1		94	<b>t</b>		1	<b>e</b>	I	t 1	11
UBBER LALCALA Elasmodus levis	No determ.	, t	t	•	•	<b>!</b>	•	•	5	t	



Appendix Table 11. (cont.)

Appendix Table 11. (cont.	•		•	•							
Station Benlicate			7 7		11 2	L L	2 2		11		
Date (mo day)		Mar 5	Mar 5 1005	Mar 5 052	Mar 5 1007	Mar 5	Mar 5	Mar 5	Mar 5	Mar 5	Mar 5
Period		Рау	Day	Da Y	Day	Day	рау	Day	L BU	Night	Night
Melita nitida No de	eterm.	L			67				48		
Monoculodes edwardsi No de	eterm.	1	.1	t 	ľ	1	t	85	t		t
Microprotopus raneyi No de	eterm.	I	I	1	67	I	1	1		l	1
Family Stenothoidae No de	eterm.	•	1	94	I		<u>.</u>	1	i	1	1
Suborder Caprellidea No de	eterm.	t t	l	94	t		36	1	96	1	1
Family Mysidae No de	eterm.	553	474	1	t	1	1	1	1	5534	6860
Neomysis americana No de	eterm.	1	j.	1132	10 00	t	t	940	48	L	1
Palaemonetes vulgaris No de	eterm.	. 1	1	l	67	t	L	ł	t.	1	
Crangon septemspinosa No de	eterm.	ı	ł	.1	67	J	ľ	1	1	12T	702
Zoeal		737	1632	1604	1867	823	1127	684	1005	1186	1818
Sagitta spp. No de	eterm.	t	I	1	67	L	l		1	L	207
Totals		8432	9580	6790	6603	3292	3344	2990	2539	15416	19752



Appendix Table 11. (cont.)

Station		11	T	7	2	11	11	4	2	11	11
Replicate		I 	N "	، ا :	N 1	 	5	<b>-</b>	5	-	5
Date (mo day)	•	Mar 5 2032	Mar 5	Mar 6 30	Mar 6 55	Mar 6	Mar 6	Mar 15	Mar 15	Mar 15	Mar 15
bor ind		Nicht	Ni nht	Ni ch t		1 42 IN		1 4 2 1N	1012	1 202	4017
Tow duration (min sec)		2 51	2 54	4 33	4 35	2 44	2 50	3 43	3 4 4 3 4 4	I 54	1 52 1 52
Tide		Ebb II	II qqa	Flood I	Flood I	Flood I	Flood I	Flood II	Flood II	Flood II	Flood II
Temperature (C) ai	r	10.5	10.5	10.0	10.0	5°0	5 5 1	-2.0	-2.0	-1.0	-1.0
Surfac hotto	O f	L/.3	L/.3	7		L7.3	17.3	5°6	ה ה ה	15.5	15.5
Salinity (pot) surfac	a	12.0	12.0	12.0	12.0	12.0	12.0	13-0	13.0	13.0	13.0
botto					1						2 1
Oxygen (ppm) surfac	Ð	11.8	11.8	11.4	11.4	12.9	12.9	11.8	11.8	10.0	10.0
bottc	E		1	1			<b>t</b> (	1	<b>f</b> :	1	
pil surfac	e I	7.4	7.4	7.6	- <b>7.</b> 6	1.1	7.1	7.5	7.5	7.8	7.8
Serchi (rm)						: <b>: :</b>	i <b>t</b>			t	
vol sampled (cubic met	ers)	24.5	24.2	23.3	24.8	22.1	21.4	24.7	24.2	15.1	15.1
Gear Type of tow		4	ч -	4 4	4 -4	4	<del>د</del> ب	чт  	4 -1	4 4	<del>с</del> ,
Species	Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density
Tage Wdrozoa	No determ.				ľ		69		1		Ţ
Sarsia ann	No determ.	327	165	172	ť	l	l	9069	6280	15629	I
Obelia spp	No determ.	i.	83	172	1	<b>t</b>	L	648	<b>I</b>	1	1
Order Actiniaria	No determ.	41	L	1	1	i.	47	I	1	<b>L</b> .,	•
Phylum Nemertea	No determ.	<b>t</b>		1	1	1	1	162			<b>1</b> -
Class Bivalvia	No determ.	163	413	601	81	181	1	324	266	1325	• • •
Class Polychaeta	Larval	086	496	4120	2581	543	467	2429	1157	2384	11
Family Phyllodocidae	No determ.	<b>t</b>	ן נ			L :	<b>י ו</b> ה		1	<b>ا</b> ا	
Eteone heteropoda	No determ.	<b>C</b> - (	ः न ( म र	- 72	141			! <b>!</b>	165		
Family Polynoidae	No determ. No determ.		165	0 <b>1</b> 0	161	<b>)  </b>		ł		1325	ľ
Autol vene and	No determ.	Ľ	41	I		1	ľ	162	ł		1
Naraja app	No determ.	<b>t</b>			1	06	1	t.	t	ł	
Family Capitellidae	No determ.	l	E .		1	1	t ·	1	165	530	1.
Polydora spp	No determ.		t		t,	E <u>-</u> .	1	t .	• .	265	•
Class Oligochaeta	No determ.	1		86	L		181				
Mysidobdella oculata	No determ.	100				202	181	810	331	1854	•
Subclass Cirripedia	WD determ	130b	רי קר סע	1202	403	1267	654	324	11	2384	T.
oxvirostvijs smithi	No determ.	163	1	258	565	<b>t</b>	280	1	331	265	
Order Isopoda	No determ.	ł	1	258	<b>I</b> .	I	1	•	<b>1</b>		
Idotea baltica	No determ.	ï	ť	t		6	I	t	<b>t</b>	132	ſ
Edotea triloba	No determ.	ľ		L	81	t	1			1 1	t
Order Amphipoda	No determ.	1	88	2403	2500			145/	150	C 0 7	
Ampelisca spp.	No determ.	2918	1736	<b>e</b> 1		181	01/2	r 1			1
Family Aoridae	NO DECELM.	<b>1</b>				1 2 4				•	
Microdeutopus	Nn determ	4 90	248		t	271	69	1	l	795	•
gryttocatpa Tentocheris										1	
plumulosus	No determ.	I	ł	l	Ľ	181	6	<b>I</b> .	<b>I</b>	265	, ,
Corophium acherusicum	No determ.	163	•	•	t		5	8 1	t _ 1		
Corophium bonelli Coromhium	No determ.	ť	•	1	1	י הי הי ארט . י ארט אין אין אין אין אין אין אין אין אין אין	15	1 · ·	;		
tuber culatum	No determ.	163	1	t	1	1	t	t	1	195	ł

•			
¢	. 6	4	ì
٠.			

Appendix Table 11.	(cont.)										
Station Replicate		11	11	17	r 0		11 2	<b>~</b> H	777		; 7 FI
Date (mo day) Hour		Mar 5 2032	Mar 5 2050	Mar 6 30	Mar 6 55	Mar 6 32	Mar 6 58	Mar 15 2045	Mar 15 2101	Mar 15 2047	Mar 15
Per i od		Night	Night	Night	Night	Night	Night	NI ght	Night	Night	Night
Corophium spp	No determ.	327	165	1	l	<b>I</b> .	ľ	T	ł	ł	1
Erichthonius spp	No determ.		83	1		1	1	₽	L - 1		1
Gammarus annulatus	Gravid No determ.	521	L L.		11	181	6.9		I T	530	1
Gammarus mucronatus	No determ.	163	I	1	1	181	6	1	1	ł	•
Gammarus spp	Gravid	1163	331	<b>t</b> (	1.1	362	1 2 2 2	11	11	- 3444	
1111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	No determ	- I - I	970 175	ŧ	1		1 M	I	I	ł	I
Mennenlodes edwardsi	No determ.	163	331	1	r	452	374	1		1	ł
Suborder Caprellidea	No determ.	327	83	•	1	I	93		1		1
Family Mysidae	No determ.	1	l	7 296	7742	1	I	4696	4628	7 9 7 7 7	
Mysidopsis bigelowi	No determ.	1	t	1		271			<b>i</b> i	202	. 1
Neomysis americana	Gravid No determ.	327 12082	13058	1 1 	ľ I	15113	15514	ι ι	• •	20132	1
Palaemonetes vulgari	s No determ.	82	83	L		06	t	162			r
Crangon septemspinos	a No determ.	2122	1281	944	726	1900	1308	07	8	2185	1
	Zoeal	1306	606	2489	2500	2986	1495	0440	74 CT	11391	r 1
Sagitta spp.	No determ.	ſ	1					925	107		
Thtals		29715	22027	21288	17824	30130	24621	27409	24297	69340	0

oppendix Table II.	(cont .)							•	
Station		L .	7	11	11	7			-
Replicate		1	7	<b>ה</b>	7		. 11		
Date (mo day)		Mar 19	Mar 19	Mar 19	Mar 19	Mar 26	Mar 26	Mar 26	Mar 2(
Hour		442 N	1777	145 IN	ATT7	4774	2038	707 / M	204 (
Tow duration (min sec)		2.0	5 12	ч М М	3.5	4 31	5 15	3 9 9	3 I(
ride		Flood I	Flood I	Flood I	Flood I	Flood II	Flood II	Flood II	Flood I
Temperature (C) al	L.	0 • •	0 M	0	2.0	2.0	2.0	0.0	0
surfac	ĝ	7.5	7.5	17.3	17.3	<b>4</b>	4 i	8.4	8
botte	5	( .	( u		: -		n .	4     	,
salinity (ppt) surfac	9	C • 7 T	C•7T	1-4-1 1-4-1		0 - L L	0 • 0 T	T3•2	- F T
	5,5	1 0 L	0	- U - L I	0.11			0.01	
hot tac	v, F				> I •	10.2	10.2		
surfac		7.9	7.9	8.1	8.1	7.6	7.6	7.8	7.6
botto	5	1	•			7.6	7.6		•
Secchi (cm)		ł	t	1	t	ł	t	t,	•
Vol sampled (cubic met	cers)	30.2	30.7	26.0	26.3	13.1	16.2	23.0	22.
Jear		4	4	4	4	▼ 1	4	4	
Type of tow			<b>-</b>		-		-	H	
Soecies	Lifestage	Density	Density	Density	Density	Density	Density	Density	Densit
Sarsia spp	No determ.	2583	2410	2000	2586	66011	161235	106087	14113
Coelia spp	No determ.	33	1	1	1	153	494		
Class Scyphozoa	Ephyra	L	33	1		t	1	ł	ì
Order Actiniaria	No determ.	ł	1	l	152		<b>t</b>	' ;	17
Order Ceriantharia	Lar val	ı	1	l	I	1374	1	174	
Suborder Aeolidacea	No determ.	ł		1	10	<b>۲</b>	l		4.0
<b>Class Bivalvia</b>	No determ.	232	554	154	608				
<b>Class</b> Polychaeta	Larval	1159	1466	619	L	76087	ZCATC	040	0
	No determ.	יי איי איי				<b>i (</b>	1	: <b>,</b>	
Family Sylidae	Larval No determ		1		1 <b>1</b>	. <b>t</b>	ſ	1.74	•
	No determ.		1		ł	153	. 1	1	ľ
Aurolycus spp	No determ.		ł	1	1		Υ.	1	4
Family Capitellidae	No determ.	33	33	1	1	t	1	1	17:
Pol vdora spo	No determ.	1	1	t		1		1739	.454
Class Oligochaeta	No determ.	E.C.	I	154	t	1	•	174	•
Mysidobdella oculata	No determ.	66	ľ	154	152		1	1. 1	
Subclass Cirripedia	Cypr ids	230	749	2462	91 <u>3</u>	763	741	1217	
Cyclaspis varians	No determ.	196		15.7	6 OB	153	1	174	5.5
Leucon americanus	No determ.	1000 000	C 3 F	N 1 P			747		
Ox yur os tylis smithi	No determ.	n. n	<b>F</b> 07				- 1	• 1	Υ. Υ.
Chiridotea coeca	No determ.	1 2	<b>I</b> _1		ļ			1 <b>1</b>	4
Idotea baltica	NO DECELT					t		ł	
Edotea triloba	No determ.		2117	1	304	20611	7654	й <b>т</b> ,	•
braci face con	No deferm.			154	304	1	ł	1739	52
Family Anridae	No determ.			1	152	.1	.1	174	•
Micr odeut op us									
gryllotalpa	Gravid	. 1	t			t t	I, I	2261	11
	No determ.	t 	l.	# 7	2 7 7	•		] } ]	i .
Leptocher 15	No determ.	ľ	ſ		•	t	ł	ł	17



Appendix Table 11. (cont.)

bur (mo day)		~ ~	r (		ส	7	Ĺ	11	11
Period		Mar 19 2058 Night	Mar 19 2117 Night	Mar 19 2100 Night	Mar 19 2119 Night	Mar 26 2014 Night	2 Mar 26 2038 Night	Mar 26 2017 Night	2 Mar 26 2040 Night
Drophium acherusicum No dete								174	
tuberculatum Gravid		ł	t	E	152		ł	1 74	1
No dete	erm.	11	1		152	<b>t</b> 1	1	1913	2445
Semmarus annulatus Gravid	• 111 7 2	i i	<b>.</b>	1 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1 <b>1</b>		<b>I I</b>		0 T
No dete	erm.	ł	L	154	152	1	I	I	44
Jammarus spp No dete	erm.	1	1	2.92.3	1977	t	1	28522	33886
Jassa falcata No dete	erm.	1	4		1	ì	<b>t</b> ,	174	t
Elasmopus levis No dete	erm.	1	ï	L	152		,t ,	t	1
delita nitida No dete	erm.	L	ľ	154	l	ł	I	348	218
fonoculodes edwardsi No dete	erm.	1		154	ł	1	•	1	1
Notal mysids No dete	erm.	1424	1	1	1	1	t	t	•
Pamily Mysidae No dete	erm.	t	1466	ł	L	611	ł	I	1
bomysis americana Gravid		I	l	t	152	t	t	l	1
No dete	erm.	I	ł	6615	6388	1	1	1043	1048
Palaemonetes vulgaris No dete	erm.	99	86	154	152	ť	t	43	87
Crangon septemspinosa No dete	erm.	397	228	962	1027		I	•	44
Zoeal		1954	1661	2615	2738	24733	36049	20174	23406
Sagitta spp. No dete	erm.	L	ł	t	t	153		174	175
lotal s		10132	11434	20232	19885	153895	258272	169262	215285

Q

ongo sampler (505-(sta. 11) of the pongo arge E Densities (n/1000 cubic meters) of ichthyoplankton collected with a 3 micron mesh) during the day and night at the intake (sta. 7) and disc Oyster Creek Generating station from 5 September through 26 March 197 4 Appendix table 12.

Station	7	2	1	11		7		11	7	7
Ben i frate		~		12	. –	• •		10		2
Date (modav)	Sep 5	Sep 5	Sep 5	Sep 5	Sep 12	Sep 12	Sep. 12	Sep 12	Sep 12	Sep 12
Hour	2131	2149	2133	2151	918	928	920	930	1435	1445
Period	Night	Night	Night	Night	V BO	Day	Day	Day	Day	βaγ
Tow Duration (min sec)	З2	2 53	1 26	1 37	4 49	4 35	2 45	2 3I	3 44	3 25
Tide	Flood I	Flood I	Flood I	Flood I	Ebb.I	I qqa	I qqa	I qqa	Flood I	Flood I
Temperature (C) air	20.6	20.6	20.6	20.6	29.0	29.0	29.0	29.0	33.0	33.0
surface	23.8	23.8	29.8	29.8	23.4	23.4	28.9	28.9	25.0	25.0
bottom	23.4	23.4	t	t	23.3	23.3	t	1	25.0	25.0
Salinity (ppt) surface	16.0	16.0	16.0	16.0	17.5	17.5	16.0	16.0	17.0	17.0
bottom	. I6.5	16.5		1	18.0	18.0	ł	ł	17.5	17.5
Oxvgen (pom) surface	8° 0	8.0	7.8	7.8	7.0	7.0	7.0	1.0	7.4	7.4
bottom	8.4	8.4	1	l	6.9	6.9	I	t	7.4	7.4
bli surface	8.2	8.2	8.2	8.2	2.9	7.9	7.9	7.9	7.9	7.9
bottom	8.2	8.2	t	1	7.9	7.9	1	ł	7.9	7.9
Secchi (cm)		1	1	1	70.0	70.0	80.0	80.0	70.0	70.0
Vol sampled (cubic meters)	15.5	13.1	12.0	12.1	7.7	11.5	22.0	22.1	6.6	8.2
(joar	~	4	4	4	4	4	4	4	4	4
Type of tow	<b>-</b>	F	T	-	<b>–</b>	<b>.</b>	-	H	7	7
Species Lifestage	Density	Density	Dens1ty	Density	Density	Density	Density	Density	Density	Density
Anchoa mitchilli Juvenile	258	382	87	165	1					
Larval	1548	2137	1217	1322	260	957	1435	1312	1515	1463 
5 <b>6</b> 2	194	נקי	348	C QT	l ç					  - 
Syngnathus fuscus Juvenile	<b>i</b>	· 76	1	1		4/1 4/1	40	45T	101	1, 55
Family Blenniidae Larval		L	<b>L</b>	<b>t</b> 1	0°T	770		007 7 U	7 N N	9 1 9 1
Family Cobiidae Larval	•	{		1				ך <b>ו</b>	1	1
Unidentified fish Bgg		07								
Totals-Eggs	194	229	348	165	0.0	0	0	45	101	1 5 0 5
Totals-Larvae & Juveniles	1806	2595	1304 1652	1487 1652	520	1653	1481	1674 1674	1919	1585
IDEALS	>>>>					•				



Sep 13 132 Night 144 Ebb 11 17.5 27.0 16.0 16.0 8.0 1806 1806 278 1528 Density 14. 12.8 Density 391 1484 Sep 13 117 Night 137 Ebb 11 17.5 27.0 1875 16.0 10101 10101 Sep 13 8 130 Night Bb 3 6 17.5 17.0 17.0 17.0 8.0 8.0 1 Density 394 1024 236 1654 13.0 214 1499 71 1214 Density 14.0 12.3 Density 2335 2439 2764 Sep 12 2137 Night 1 37 1 37 1 37 1 37 28.8 28.8 7.6 7.6 8.0 1110 Density 153 1374 1603 1603 13.1 Density 268 3393 268 268 4018 Density 67 2600 2867 2867 201 15.0 Density 39 941 78 196 196 Sep 12 1447 Day 2 43 2 43 100d 1 33.0 33.0 33.0 16.5 8.0 8.0 78 1176 1254 80.0 25.5 Density 797 80 80 80 997 1077 700101 2208 5308 8.0 Sep 12 1437 Day Day 255 255 100d 1 33.0 16. Lifestage. Juvenile Juvenile Lar val Lar val Egg Larval Larval (cont.) Secchi (cm) Vol sampled (cubic meters) Totals-Eggs Totals-Larvae & Juveniles Totals surface bottom surface bottom air surface bottom surface bottom Tow Duration (min sec) Family Atherinidae Syngnathus fuscus Family Blennidae Family Obbidae 12. Anchoa mitchilli Appendix Table Tide Temperature : C) Salinity (ppt) Station Replicate Date (mo day) Nour į Oxygen (ppm) Type of tow Species Per lod Gear Ì

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(cont.)	
12.	
Table	
Appendix	

					•					
Station	7	7	ГГ	11	2					
Replicate	4	2	-	7		. 0	{ {		- <b>-</b>	
Date (mo day)	Sep 19	Sep 19	Sep 19	Sep 19	Dec 5	Dec 5	Dec	Dec 5	Dec 12	Dec 12
	8677	5772	2150	2217	1913	1935	1917	1940	1942	2.005
Per 10d	Night	Night	Night	NI ght	Night	Night	Night	Night	Night	Night
Tow Duration (min sec)		4 52	1 55	34	443	4 37	m m	с С	4 51	4 44
ulde	L DOOL 1	1 00011	FLOOD I	Flood I	II qqa	II qqa	II qqa	II qqa	Flood II	Flood II
Temperature : K) air	T3.0	I3.0	13.0	13.0	4.0	4.0	4.0	4.0	-1.5	-1.5
surface	19.0	19.0	20.0	20.0	8.6	8.6	7.2	7.2	4.6	4-6
bottom	20.0	20.0	ť	Ľ	7.5	7.5	. 1			• •
Salinity (ppt) surface	16.0	16.0	16.0	16.0	20.0	20.0	20.0	20.0	20.0	20.0
bottom	14.5	14.5	• 1		21.0	21.0	ł	1	i	
Oxygen (ppm) surface				<b>t</b> .	11.2	11.2	11.8	11.8	10.7	10.7
bottom	1		l	. <b>1</b> - 1,	11.2	11.2	ł	1		
pH surface	7.7	7.7	7.6	7.6	7.7	7.7	7.5	7.5	8.1	8.1
bottom	7.5	7.5	t	ł	8.0	8.0		t		
Secch1 (cm)		t		t	1	Ĩ	. 1	ľ	1	_ <b>t</b>
Vol sampled (cubic meters)	5.0	13.7	7.4	15.5	28.3	37.6	19.8	21.1	28.6	29.9
Gear	4	4	4	4	4	4	4	4	4	
Type of tow	-	1	-4	н Т	н Н	-	-	H	Ч	7
Species	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density
Bre voor tia tyrannus Juvenile Anchoa mitchilli Juvenile		219	135	1 I 9		27	21	47		- E
Lar val	1	292	1	129	1		•	1	ł	1
Apeltes quadracus Juvenile Familv Blenniidae Iarval	11	i 1		1 29	t t	11	.TT	11	ί,	е Г
Ammodytes sp. Larval	1		1	l		53	1	ł		•
Totals-Eggs	00	0 -	0		00	00	0	0		
IOCAIS-LAFVAE & JUVENILES Totals		511 511	135 135	259	00	202	21	474	∍ 0	999
								•		•



Appendix Table 12. (cont.)		•								
Station	11	11	4	1	11	11		1	11	11
Pep11 cate	•••	5		2	-	7	-	7		2
Date (mo day)	Dec 12	Dec 12	Dec 19	Dec 19	Dec 19	Dec 19	Dec 19	Dec 19	Dec 19	Dec 19
Hour	1945	8002	1000	1038	1002	1040	1343	<b>I358</b>	I345	1400
Period	Night	Night	Гау	рау	ра у	Ъаγ	Day	Day	Day	Ρaγ
Tow Duration (min sec)	0 M	თ ო	4 26	2 42	3 10	.0 .1	3 27	ъ.	T 10	1 T0
Tide	Flood II	Flood II	Flood I	Flood II	Flood I	Flood II	ED D I	I qqa	I qqa	Ebb I
Temperature (C) air	-1.5	-1.5	-1.5	ິ	-1.5	-1.5	2.0	2.0	2.0	2.0
surface	14.3	14.3	<b>1.</b> <b>1</b>	1.1	7.2	7.2	2.0	2.0	9.5	9.5
bottom		•	1		1		ຕ. ຕ	5 m	1	1
Salinity (ppt) surface	20.0	20.0	20.5	20.5	20.0	20.0	20.5	20.5	20.0	20.0
bottom	<b>1</b> .	l	1	t	1		20.5	20.5	1	i
Oxygen (ppm) surface	11.2	11.2	10.5	10.5	10.6	10.6	10.5	10.5	11.1	11.1
bottom	t	1	I	t	1	ı	10.9	10.9	1	1
pH surface	8°0	8.0	7.7	7.7	7.9	7.9	7.7	7.7	7.9	7.9
bottom	1	1	1	<b>t</b>	1	<b>t</b>	1.9	1.9	ł	1
Secchi (cm)	1		Ĩ	t	.1		ŗ	t	ĩ	1
Vol sampled (cubic meters)	24.9	28.5	21.7	15.0	17.0	9.1	16.3	14.7	11.2	10.8
Géar	4	4	4	4	4	4	4	4	<	4
Type of tow	T	-	H	-	1	-	7	7	1	-
Sheries Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density
Brevoortia tyrannus Juvenile	I q	l	l	LT		T I	1	89	11	1
Anchoa mitchilli Juvenile	0 <b> </b>	<b>i</b> 1	i i	267		220	245	g 1	357	741
Totals-Eggs	O	0	0	0	0	0	01	0;		
Totals-Larvae & Juveniles	40 40	<b></b>		1) (L) 2) (L) 2) (L)	- 0	220	245	136	357	741



(cont.)

Appendix Table 12. (cont.)										
Station Benitzte	<b>7</b> 1	7	11 1	11 2	~-	10	11	11		
Date (mo day)	Dec 19 1850	Dec 19	Dec 19 1852	Dec 19	Dec 20	Dec 20	Dec 20	Dec 20	Dec 27	Dec 27
Period	Night	Night	Night	Night	Night	Night	Night	Night	1004 Night	Night
Tow Duration (min sec)	2 9 Ehh II	2 11 Ehb 11	0 59 Bhh 11	н Вър. 1 1	2 7 Flood 11	2 4 Flood II	1 2 F100d 11	L 3 FLOOD II	2 17 Flood 11	2 13 F1 00d 11
Temperature : C) air	-1.5	-1.5	1.5	-1.5	-2.2	-2.2	-2.2	-2.2	-2.0	-2.0
surface hottom		1.4	ۍ <b>،</b>	ທີ່ ເ	0.8	0.8	0 I 8	с I 8	2°2	2.5
Salinity (ppt) surface	20.0	20.0	18.0	18.0	20.0	20.0	18.5	18.5	22.0	22.0
bottom Oxvden (ppm) surface	12.8	12.8	11.8	11.8	13.2	13.2 13.2	11.5	11.5	21.0	21.0
bottom	12.9	12.9	I	t	. 12.5	12.5	ſ	ł	12.1	12.1
pii surface hottom	7.9 8.7	7.9 8.7	∞ t ►	8 I L	0°0	0°0	7.9	7.9	6 C	7.9 8.0
Secch1 (cm)	1		1	ı			ł			
Vol sampled (cubic meters)	11.7	11.3	8°-0	10.3	10.6	6 <b>.</b>	9•1	10.1	13.0	13.0
Type of tow	<b>71</b>	<b>۱</b> ۳	<b>-</b> -	<b>7 -4</b>	<b>7</b> -4	t in	<b>3</b> . emi	<b>* r-i</b>	* -1	₹ ET
Species	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density
Anguilla rostrata Larval Anchoa mitchilli Juvenile Ammodytes sp. Larval Unidentified fish Bgg	111	231 × 1	225	(   m ( 85 5		449	1538	5 9 4 1 4	75 - 61194 299	65263
Totals-Eggs Totals-Larvae & Juveniles Totals	0 171 171	0 531 531	0 225 225	0 M M 8 8 9 N 9 N 9 N 9 N 9 N 9 N 9 N 9 N 9 N 9 N	000	0 449 449	1538 1538 1538	0 63 69 9	299 61269 61568	0 65263 65263

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		diam'r.

Appendix Table 12. (cont.)										
والإحداد المراقبة وتبعيه معرف والمراقب بالمراجب المراجب										
Station	II	11	7	7	11	11	L	2		
<b>Peplicate</b>	Ч	7	Ч	<b>7</b>	1	~			1	1
Date (mo day)	Dec 27	-Dec 27	Jan 5	Jan 5	Jan 5	Jan 5	Jan 22	Jan 22	Jan 22	Jan J
-liour	1856	1191	1940	1955	1942	1957	1920	1938	1922	194
Period	Night	Night	Night	Night	Night	Night	Night	Night	Night	Nigh
Tow Duration (min sec)	0 58	0 T	2 21	2 23	1_13	С	2,9	2.6	0.59	
Tide	Flood II	Flood II	II qqa	II qqa	Ebb II	II qqa	I qqa	I qq	E qqa	- qqg
Temperature : C) air	-2.0	-2.0	-4.0	-4.0	-4.0	-4.0	1.0	л•0	1.0	Γ.
surface	13.0	13.0	1.6	<b>1.</b> 6	<b>9</b> •8	9.8	2.8	2.8	12.0	12.
bottom	t 	i	1.3	1.3	t	1	2.8	2.8	ţ	
Salinity (ppt) surface	21.0	21.0	18.0	18.0	18.0	18.0	20.0	20.0	23.0	23.
bottom	1		18.0	18.0	ł	t	21.0	21.0	i	
Oxygen (ppm) surface	10.7	10.7	12.4	12.4	12.7	12.7	11.5	11.5	10.4	10.
bottom	<b>I</b> .	ł	12.5	12.5	1	1	11.6	11.6		•
pH surface	8.0	8.0	8.1	8.1	8.0	8.0	8.0	8.0	7.6	.7.
bottom	1	t,	8.1	8.1	l	ļ	8.0	8.0		
Secch1 (cm)	1 1 1 1 1	t	1	l	l L		1	1	<b>1</b>	
Vol sampled (cubic meters)	10.0	11.0	10.0	14.4	10.4	10.0	11.1	10.8	9.4	10.
Gear	4	4	4	4	4	4	4	4	4	•
Type of tow	н ,	-		-	<b>T</b>	F	H	T	-	
Species Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Density	Densit
Angello soctests meaningeness Angello soctests										
Anchoa mitchilli Juvenile	L	92	L 1		1.4	<b>I I</b>	1	<b>1</b> 7	I I	
Ammodytes sp. Larval	48333	38165		10486	6346	7700	1081	2130	426	174
									4 2 0	
Totals-Eggs	0		0	0	385	0 0	0	0	426	, I
rocats~barvae & Juveniles Totals	48333	38257		10486	6731	00/1	1001	2223	852	174
									• •	



Appendix Table 12. (cont.)

Station	L .		11		-	<b>.</b> .				
<b>Pplicate</b>	<b>1</b>	7	T	2			4 -			- (
bite (mo day)	Jan 31	Jan 31	Tan 31	[L'nel.	יים בי ריים בי	2 1 C T T T			-4 ; ;	7 - 
bur	206	945	016	947	1210	1220	1212 Udi	UEU JI	12. UBU	Jan Ji
eriod	Day	Dav	Da v	V eQ	Da V		1121	222T	1 3 4 U	0047
Dw Duration (min sec)	3 13	3, 18	1 48	134	1 2 2 2 2 2 2 2	207	202	Y DU Y	ULGUT	IN GUE
lde	Flood I	Flood I	Flood I	Flood II	Flood 11			51004 11	24 4 14 2 1 2 2 2 1 2 1	47 6 LU
Emperature (C) air	2.2	2.2	2.2	2.2	4.2				T DOOT J	
surface	2.2	2.2	12.0	12.0	4 	4 - • ~		V C V C		
bottom	2.8	2.8				- r 		74.0	200	5 7
alinity (not) surface	5 7 1		14.0				1	8 1 1	4	4.0
			D • FT	0 • # T		0 · / T	17.5	17.5	18.0	18.0
			1 ×	1		16.5		ı	16.0	16.0
vygen (ppm) sutrace		C • 7 T	<b>111.</b>	0.11	I3.3	13.3	11.8	11.8	12.9	12.9
	1. 2. J	12.3		ı	12.9	12.9	+	1	12.9	12.9
surface	<b>1</b> .9	1.9	7.8	7.8	7.9	. 7.9	8.0	8.0	7.9	7.9
bottom	2.9	7.9	<b>ا</b>	t	7.9	7.9	1	1	8.0	8
ecchi (cm)	60.0	60.0	60.0	60.0	50.0	50.0	50.0	50.0	<b>}</b>	> 1
'ol sampled (cubic meters)	14.5	14.6	8.7	15.0	14.4	14.8	13.8	13.6	24.1	17.9
ear	4	4	4	4	4	4	4	4	4	4
Ype of tow			T		н Н	H	-	•	•	•
pecies Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Density	Dancity
وبرميد والمراجع المراجع										In tenna
nguilla rostrata Larval	<b>t</b>	1 	1	10	ł	ł	° н 		332	195
adus morhua Larval	t	l		20	T S	•	72		1	
mmodytes sp. Larval	5448	. <b>!</b>	5402	2800	13264	11149	8768	8529	19502	28380
56 <u>3</u>	l	1	ł.	I	l	1	362	i		. 1
'seudopleuronectes					•					•
americanus Egg	759	ı	1149	1	3403	405	1522	5662	1	335
hidentified fish Byg	ţ	l	802	3470	208	68	72	147	1	
btals-Eggs	759	0	1954	3470	3611	473	1956	5809	Ģ	335
otals-Larvae & Juveniles <b>btal</b> s	5448		5402 7356	2940	13264	11149	8840 10796	8529	19834	28771
							0) ) ) ) ) ) ( ) ) ) ( ) ) ) ( )	00011		00767
		•								

Appendix Table 12. (cont.)						- - -			•	
Station	Ţ		7	Ĺ	11	11		11	11	11
Pepilicate	-1	7 1		7 - 7 - 4	• - -	• <b>•</b>	4 ( 	<b>6</b> 1	-	5
totate (moudy) Hour	1948	2007	rev 150	ren 1	reo 1.	red 1	red 8 1955	reb 8 2005	Feb 14	Feb 14
Period	Night	Night	Night	Night	Night	Night	Night	Night	Night	Night
Tow Duration (min sec)	3 7	3	4 54	4 53	2 50	2 37	2 43	2 40	2 42	2 46
Tide	Flood I	Flood I	I qqa	I qqa	I qqa	I qqa	Flood II	Flood II	Flood I	Flood I
Temperature (C) air	- -	1.0	-2.0	-2.0	-2.0	-2.0	-6.0	-6.0	-10.0	-10.0
surface	12.0	12.0	5 8 8	2.8	11.0	11.0	13.0	13.0	7.6	7.6
bottom	<b>1</b>	È (	0 ° C	0°C	l	1.	<b>ł</b>		1 	1
Salinity (ppt) surface	16.0	16.0	16.5	16.5	15.5	15.5	24.0	24.0	17.0	17.0
Dottom (mar) dirface		1 ° -			1. u	1	1 0	ţ	1 c	
ovygen (ppm) outrace		•	13.3	7 2 4 C			0 I	0 I	ט ו איי	ת א
di surface	0.8	8.0	8.0		7.9	7.9	8.2	8. 2	L . L	
bottom	1	ł	7.8	7.8	1			<b>t</b> 5 - 1		
Secchi (cm)		1	1	• •	l	1 -	Å.			1
Vol sampled (cubic meters)	24.0	25.3	21.0	21.0	23.1	21.3	20.4	19.2	22.2	26.8
Gear	4,	4	<b>ታ</b> ነ	4.		4	4	4		4
Type of tow					<b>-</b>				-	1
Species Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density
Anguilla rostrata Larval	125	1	190	381	87	235	49	52	270	149
Alosa aestivalis Juvenile	<b>.</b> 	1		48	<b>I</b> .	1	1		. <b>t</b>	1
Brevoortia tyrannus Juvenile		<b>i</b> , 1	48	- VICL			1			L   L   
miniouyces sp. Latval. Eag		. 1					-     # 		24 00 2 4 5	
Pseudopleuronectes		•		• .					• •	
americanus Larval			95		100101	1 2 1 2 2 1	1 0	<b>t</b>		1011
In Lantified fich Pro	417	1		48	1039	293 263	90 6176	2188		ה <b>ו</b> דו
Totals-Eggs Totals-Larvae & Juveniles	7625	000	4190	2477 13572	122944 6581	108732 4273	6274 1520 7704	2188 2552	631 3738 4760	2724 2724
lotals	63.34	>	TO/CT	CHOOT .	C7C67T	CONCTT	FC		n D T	C 1 0 7



Appendix Table 12. (cont.)

brattvii Ban 1 frata	<b>`</b>	<b>~ c</b>			~	~	11	11	. 7	7
Date (mo dav)	Feb 22	Feb 22	Peh 22	2 20 - 22	L Fab 33	2 2		2 ° °		5
Hour	2120	2133	2122	2135	27 D23	r en 23	7 CD 73	rep- 23	Feb 23	Feb 23
Period	Night	Night	Night	Ni ch t	Ninht	200 142 M	77 - 70		202	923
Tow Duration (min sec)	4			2 2 2 4		A L A	night	Night	Υ <sup>B</sup>	, Da y
Tìde	Ebb I	I qqa	Iqqa	E PP -	Ehh 11	11 11 11	с. 11 11	20 2 1 1 1		י כ י ר
Temperature (C) air	-1.0	-1.0	-1-						 9	
surface	1.0	1.0	10.8	α. 					<b>•</b> ••	4. •
bottom	1.2	1.5			- -		/ • nT	/•nT		
Salinity (pot) surface	17.5	17.5	17 5	2 2 2			1	•	7.7	7.7
bottom	17.5	17.5					л•/т	0•/T	19.0	19.0
Oxygen (ppm) surface	12.2	12.2	11.3	11.3	10.1	 		1 a F	ר ה ר	0.61
bottom	12.4	12.4	1		12.4	12.4	- <b> </b> -	0   	7.71	7 • 7 T
oil surface	7.8	7.8	7.8	7.8	7.7	1.1	7.7	7.7		
bottom	7.7	7.7	t	Ţ	7.7	7.7	1		7.6	
Secchi (cm)	ł	1	1	l	<b>t</b>	t			220.0	0.000
Vol sampled (cubic meters)	18.5	13.0	23.2	27.0	17.1	18.5	24.2	26.4	22.7	22.1
ear -	4	4	4	\$	4	4	4	4	4	
lype of tow	1	-	-	<b>н</b>	<b>-</b>	T	<b>H</b>	<b>1</b>	rri	Г
Species Lifestage	Density	Density	Density	Density	Density	Density	Density	Density	Density	Density
mguilla tostrata Larval mmodytes sp. Larval	3243	4154	3147	2222	48 5 8 48 5 4	4108	41			1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
56 <u>3</u>	i t	• t	1		r. <b>r</b>				1	H-P-C-7 -
Pseud op leur onectes										•
americanus Larval	1	1	43	1	1	54	1	I	1	
bilacontetoa elan	1 5	1	474	222	585	108	2397	606	44	45
	90T		1	31	1	54	E B	I		1
lotals-Eggs	108	0	474	370	585	162	2480	606	44	45
Notals-Larvae & Juveniles Notals	3243	4154	3664	2222 2592	4912	4162	4504 6084	1894	3392	2534
	1			1		r 1 7				6107
		•						•		


Appendix Table 12. (cont.)

Station							· . ·		•	
Peril (cate	<b>1</b> 1	F	7	7						
Date (mo dav)	יין ר ר נ נ	<b>7</b>	H	2	<b>-</b>	1,	-	~ '	11	Ч
Hour	rep 23	reb 23	Feb 23	Feb 23	Feb 23	Feb 23	Feh 26	2 4 9 2 7		1
Period	Dav			1157	1145	1200	2012	2026	7015	reb 2
Tow Duration (min sec)	2 32	2 44	2 2 2 2 2 2 2	Lay 20	Day	ра у	Night	Night	Night	140 IN
Themarting Pi	Ebb. I	I qqa	Ebb II	Ebb II	2 23 Fhh 11	2 45	2 45	2 40	1 10	1 36
	<b>4</b> .5	4.5	5°.5	1 .			II poola	Flood II	Flood II	Flood I
SULIACE	10.2	10.2	1.9	) 6 	י ה ה ה	0 L	5.2	2.5	2.5	2
Salinity (mut) surface	•	1	2.1	2.1		0 I 1	7•7	1.2	11.5	11.5
botton	n•/T	17.0	19.0	19.0	17.0	17.0		1	1	
Oxygen (ppm) surface	r s	1	19.0	19.0	1	> 1 1		0.11	11.0	11.0
bottom	0.1	0 	11 9 11	11.9	11.0	11.0	13.0		1 ;	
pli surface	7 6	1 u r		11.4	t	1		2 I	8.11	1T-8
bottom	? I	0.,	/ • / 	7.7	7.6	7.6	7.3	Г Г	t r r	
Secchi (cm)			1.1.	7.7	ł			<b>;</b>	د.,	7.3
Vol sampled (cubic metera)	21 C	1	200.0	200.0	ł	1	1			1
Gear	0.1.2	23.0 7	27.0	33.0	21.1	23.2	11.7	ç	C	1
Type of tow	•	* <del>-</del> 1	<b>6</b> - <b>1</b>	4.	7	4	4	14		2.11 2.4
				+	-	-	7	7	H	H
urectes billestage	Density	Density	Density	Density	Density	Density	Panai t.			
Pholis gunnelius [arva]								Density	Density	Density
mmodytes sp. Larval	3349	2839	- 222	t	47	1	l			
rseud op leur onectes				ľ	3400	3793	3846	3537	2000	1
americanus		ł	r		и 0					
Jnidentified fish tarnal	372	254	75	T	474	172	ດ <b>ເ</b>	106463		1
		₿ (	I	t	1	1			541	
					47		t.	1	5.1 (	P <b>P</b>
Dtals-Eggs Dtale-Larvac f Turnellar	372	254	75	0	521	172		106 46 2		
lotals at yac a of children	3349 3721	2839	6667	00	3602 4 123	3836	3931 3931	3537	2286	001
				•		) ) )	1	000011	5415	<b>D</b>



Appendix Table 12. (cont.)							•	
Station		r- c	11	11	~			11
Neplicate Nate (modav)	Mar 19	Mar 19	Mar 19	Mar 19	Mar 26	Mar 26	Mar 26	Aar 26
Hour	2058	2117	2100	2119	2014	2038	2017	2040
Period -	Night	Night	Night	Night	Night	Night	Night	Night
Tow Duration (min sec)	2 8	5 12	י די ה ו	• ۲ س		5 15	6 ° '	3 10
Tide	Flood I	FLOOD I	FLOOD I	Flood I	Flood II	Flood	Flood II	Flood II
Temperature (C) alf surface	2.0	2 IU	17.3	17.3	2 4 2 4	2 <b>4</b>	0.4 0.4	80.4 8
bottom		6	ŀ	1	9.5	9.5	. 1	ľ
Salinity (ppt) surface	12.5	12.5	14.0	14.0	16.0	16.0	13.5	13.5
bottom	•	1	1 4	1 9	17.0	17.0	1 0	1 4
Oxygen (ppm) surface	10.9	F.0.1	n-11	0.11.U	0.01		0 • 0 • 0	- Л П П Т
bottom	1 °	- 1 -	α		9.C	9 L	7.8	1.8
pri surtace bottom		: I	<b>1</b>	† 1	7.6	7.6	) <b>1</b>	
Secchi (cm)		ł		1	<b>!</b>	1. 	1.	1
Vol sampled (cubic meters)	30.2	30.7	26.0	26.3	13.1	16.2	23.0	22.9
Gear must of the	4	4	* -	*	<b>*</b>	<b>*</b> 1	<b>†</b>   e−4	+ -1
Type of tow	+							
Species Lifestage	Density	Density	Density	Density	Density	Density	Density	Density
Anguilla rostrata Larval Ammodytes sp. Larval	66 530	163 456	77 462	ω I M	- 1374	62 741	87	218
Pseudopleuronectes americanus	16556	15440	615		41374	34321	•	1
6 <b>6</b> 3	132	1	1	1		1	•	1
Unidentified fish Egg		65						
Totals-Eggs Totals-Larvae & Juveniles Totals	132 17152 17284	65 16059 16124	0 12231 12231	C & & &	0 42748 42748	35124 35124 35124	0 7 8 7 8 7 8	0 218 218
					• • • •			