HUDSON RIVER ECOLOGICAL STUDY IN THE AREA OF INDIAN POINT
1981 ANNUAL REPORT

Consolidated Edison Company of New York, Inc.
New York Power Authority

February 1984

HUDSON RIVER ECOLOGICAL STUDY IN THE AREA OF INDIAN POINT
1981 ANNUAL REPORT

Consolidated Edison Company of New York, Inc.
New York Power Authority

February 1984

Acknowledgments

This report was prepared by Consolidated Edison's Office of Environmental Affairs and was jointly financed by Con Edison, New York Power Authority (NYPA), Central Hudson Gas & Electric Corporation, Orange and Rockland Utilities, Inc. and Niagara Mohawk Power Corporation.

TABLE OF CONTENTS

Section	Title	Page
1.0	Summary	1-1
2.0	Introduction	2-1
2.1	The Indian Point Generating Station	2-3
3.0	Impingement at the Indian Point Station	3-1
3.1	Sampling Design	3-1
3.2	Collection Efficiency	3-5
3.3	Estimated Number of Fish Impinged During 1981	3-6
3.4	Estimated Numbers of Individual Fish Species Impinged During 1981	3-8
3.5	Species Composition and Relative Abundance	3-11
3.6	Seasonal and Yearly Impingement Patterns	3-13
4.0	Ichthyoplankton Sampling at the Indian Point Station	4-1
4.1	Water Quality Parameters	4-1
4.2	Entrainment Densities	4-2
4.2.1	Total Ichthyoplankton	4-2
4.2.2	Striped Bass	4-3
4.2.3	White Perch	4-3
4.2.4	Atlantic Tomcod	4-3
4.2.5	Bay Anchovy	4-4
4.2.6	*Alosa* spp. combined	4-4

Literature Cited

Appendix

A Impingement Studies, Field and Laboratory Procedures and Data Summaries

B Ichthyoplankton Studies, Field and Laboratory Procedures and Data Summaries

1.0 SUMMARY

There were two major programs conducted at the Indian Point Station during 1981. The impingement program represents a continuation of efforts which began in 1972. The ichthyoplankton entrainment abundance program was representative of studies which have been annually performed at the Station since 1971. Nearfield studies of fish populations in the Indian Point area, tasks that were traditionally associated with the impingement program, were discontinued in 1981.

As in all previous years since impingement sampling began at the Station, collections were made everyday on which circulator pumps operated from January 1 through June 30. However, on July 1 a stratified random sampling design was introduced and continued for the remainder of the year. On an annual basis, the reduced sampling design consisted of 110 randomly selected days, or about 30% of the effort previously required.

Approximately 1.10 million fish were collected from the intake screen washes at both Units 2 and 3 during 1981. This represents the results of daily collections made from January through June and less than daily collections made thereafter. Some impinged fish are not collected and either escape or are lost between screen washing and collection due to factors such as tidal currents, scavenging by predators and decomposition. Using the best estimates of collection efficiencies at each Unit and scaling up the impingement estimates to account for impingement on days when no collections were made it is estimated that approximately 4.57 million fish were impinged at the Indian Point Station during 1981. Virtually all of the fish impinged (more that 99%) were less than six inches in total length and the total weight of the fish impinged was approximately 52,200 pounds.

Impingement patterns noted in previous years recurred in 1981. Impingement was generally greatest during the autumn and winter months and the number of fish impinged at Unit 2 exceeded that at Unit 3 (approximately 3.57 million vs. 1.00 million). As in previous years, white perch, Atlantic tomcod, bay anchovy and blueback herring accounted for most of the fish impinged at the

Indian Point Station in 1981, collectively comprising approximately 88% of the total.

Ichthyoplankton sampling in the discharge canal at the Indian Point Station from early May through August provided information on the seasonal and diel abundance patterns of entrained species. Representatives of 21 ichthyoplankton taxa were collected. Most of the ichthyoplankton collected were bay anchovy (79%), with striped bass (5%), white perch (4%) and clupeids (2%) less well represented. All of the remaining taxa were found in extremely small numbers. The seasonal and diel trends exhibited during 1981 were similar to those of 1980; however, densities were generally higher, particularly for bay anchovy eggs and post yolk-sac larvae and for all early life stages of Alosa spp., white perch and striped bass.

2.0 INTRODUCTION

This report is a continuation in the series of annual reports entitled "Hudson River Ecological Study in the Area of Indian Point." These documents have provided the results of various studies conducted throughout each calendar year since 1972. Texas Instruments Incorporated (TI) prepared these reports through 1979 (TI 1973, 1974, 1975, 1976, 1977, 1979, 1980a, 1980b), while the 1980 Annual Report was prepared by Con Edison (Con Edison 1982).

Two study programs, impingement and nearfield fisheries surveys, have been the major focus of these Annual Reports. The numbers and temporal patterns of fish species impinged at the Indian Point Station and the results of beach seine and trawl surveys in the nearfield area have traditionally comprised the main elements of the Annual Report. Summaries of mitigation studies such as the fine mesh traveling screen project and the striped bass hatchery program have also appeared. In the 1980 Annual Report, the results of an ichthyoplankton entrainment sampling program were included for the first time. These data were previously reported separately.

There were major changes in the impingement and nearfield study programs during 1981. Impingement collections had always been made daily at the Indian Point Station. On July 1, 1981, a less intensive collection program was initiated. The nearfield sampling program was discontinued in 1981. To understand why these changes were made, it is necessary to briefly trace how these programs evolved.

Both the daily impingement collections and the nearfield fisheries surveys were requirements of the Environmental Technical Specification Requirements (ETSR) associated with the Station's operating licenses (USNRC 1975). In the first few years following the start of commercial operations at Units 2 and 3 (1973 and 1976, respectively), emphasis in the Annual Reports was placed on describing the results of these impingement and nearfield collections. By comparison to the other impact assessment investigations that were being performed at that time, these activities seemed relatively routine. As the impingement data base expanded, the scope of the impingement program broadened to examine areas such as collection efficiency and the influence of environmental factors on impingement

rate. There was no practical opportunity to alter the nearfield fisheries program in response to changing concerns since the details of its structure were strictly defined in the ETSR.

The analysis of several years of impingement data indicated a fairly consistent recurrence of certain impingement patterns from year to year. It also showed that environmental variables such as water temperature and conductivity generally had a greater influence on the establishment of impingement trends (TI 1980a) than did inherently less predictable plant operating variables. This suggested that daily impingement collections might no longer be necessary to maintain high levels of accuracy and precision. Similarly, examination of the nearfield fisheries data represented by years of collections at fixed stations in the Indian Point area raised the possibility that the type of information being accumulated could be more effectively and efficiently gathered as part of some other study program.

Accordingly, in 1980 Con Edison requested that TI include in the 1979 Annual Report an assessment of the usefulness of the impingement and nearfield survey data and of the reliability that could be associated with making impingement collections on a less than daily basis. It was found that the nearfield fisheries program, which consisted of seven standard beach seine and 14 standard trawl sites in a five mile region around the Station, provided a less accurate representation of the fish community in the area at any time than did concurrent riverwide beach seine sampling. It was also found that impingement data, from the Indian Point Station as well as the other Hudson River power plants, were not useful as indicators of year class strength for striped bass or Atlantic tomcod and were only of limited use for white perch (TI 1980b). Analyses of several potential impingement sampling designs showed that the accuracy and precision that would be sacrificed in shifting from a daily to less frequent collections was in most instances quite small.

When the non-radiological monitoring requirements were eliminated from the ETSR on May 12, 1981, the New York State Department of Environmental Conservation (NYSDEC) assumed responsibility for overseeing the biological monitoring programs at the Indian Point Station. The nearfield fisheries program was discon-

tinued and a reduced frequency impingement monitoring program was approved by NYSDEC in June 1981 and was implemented on July 1, 1981.

The approach towards analysis of impingement collections contained in this report is similar, but not identical to that which has been followed in prior Annual Reports. Estimates of the total number of fish impinged at each Unit are made, as are impingement estimates for all individual species, but the procedures employed are different because of the sampling design modification. As in previous Annual Reports, a description of impingement trends is included.

The 1981 ichthyoplankton sampling program was designed to examine the seasonal and diel abundance of early life stages of Hudson River fish that may be entrained at the Indian Point Station. Entrainment abundance studies have been performed at the Indian Point Station since 1971. Until 1978, samples were collected at intake and discharge locations using only 0.5 m diameter plankton nets (NYU 1973, 1974, 1976, 1977, 1978; EA 1980a, 1980b, 1981a). In 1978 and 1979, samples were also collected using pumps (EA 1979, 1981b). The purpose of these additional studies was to assess the feasibility and effectiveness of sampling with pumps to examine entrainment of Hudson River ichthyoplankton at the Indian Point Station. In 1980, sampling was conducted only with a pump and only in the discharge canal (Con Edison 1982). Samples were collected continuously over 24 hour intervals, a procedure which permitted a more thorough examination of diel entrainment patterns. In 1981, sampling methodologies were very similar to those employed in 1980; however, the sampling location was moved in the discharge canal and sampling started and ended later in the season. A separate study, conducted during the summer of 1981, has addressed the comparability of net and pump gear for entrainment sampling of juvenile fish at the Indian Point Station (Normandeau Associates, Inc. and Con Edison 1982).

2.1 The Indian Point Generating Station

The Indian Point Generating Station is located on the east bank of the Hudson River, approximately 43 miles above the Battery (Figure 2-1). The Station began operation with the completion of Unit 1 in 1962. Unit 2, which is owned and operated by Con Edison, and Unit 3, which is owned and operated by PASNY, began commercial operation in 1973 and 1976, respectively. Each Unit of this nuclear

plant utilizes a once-through cooling system which results in the entrainment of the early life stages of various fish species and the impingement of juvenile and older fish.

The combined pumping capacity of the three Units for cooling purposes is 7790 m^3/min (2,058,000 gal/min). Unit No. 1, which has two (530 m^3/min or 140,000 gal/min) circulator pumps, was retired from commercial operation in October 1974. The two Units currently operating each have six (530 m^3/min) circulator pumps. Six service water pumps with much lower total capacities are located at each Unit (144 m^3/min or 38,000 gal/min at Unit 1; 114 m^3/min or 30,000 gal/min at Units 2 and 3).

Units 1 and 2 each have fixed intake screens at the river's edge and traveling screens within each intake forebay (Figure 2-2). Unit 3 has traveling screens at the river's edge but no fixed screens (Figure 2-3). Details of the plant and associated intake structures have been presented previously (TI 1975b; Con Edison 1977). In past years, when water temperatures fell below about 4°C (generally during the months of January, February, March and December), the amount of water drawn through the intake screen associated with each circulator pump was reduced to 60% of the normal pumping capacity to reduce fish impingement. This same pumping schedule was in effect from January through April 1981. After May 1, the pumping schedule specified in the Hudson River Cooling Tower Settlement Agreement executed in December 1980 and which became effective on May 14, 1982. (hereafter referred to as "the Settlement Agreement") was generally followed (Table 2-1). Unit 2 returned from a six month refueling outage on May 24, 1981 with all circulators pumping at 100% capacity. At Unit 3, circulators were changed from 60% to 100% flow beginning on May 8 with the last circulator changing to 100% on June 7. In the fall of 1981, Unit 2 changed to 60% flow between October 27 and 30. The change at Unit 3 occurred during an outage in October and November. When that Unit returned to service on November 15, five circulators were operating at 60% flow. THe sixth circulator was out of service for repairs.

Table 2-1. Flow Rate Schedule for Indian Point Units 2 and 3 in the Settlement Agreement.

Circulator Water Flow
(GPM/Unit)

Time Period	Flow
1 Nov - 30 Apr	504,000*
1 May - 31 May	Change from 60% to 100%
1 Jun - 30 Sep	840,000**
1 Oct - 31 Oct	Change from 100% to 60%

* Corresponds to 60% flow

** Corresponds to 100% flow

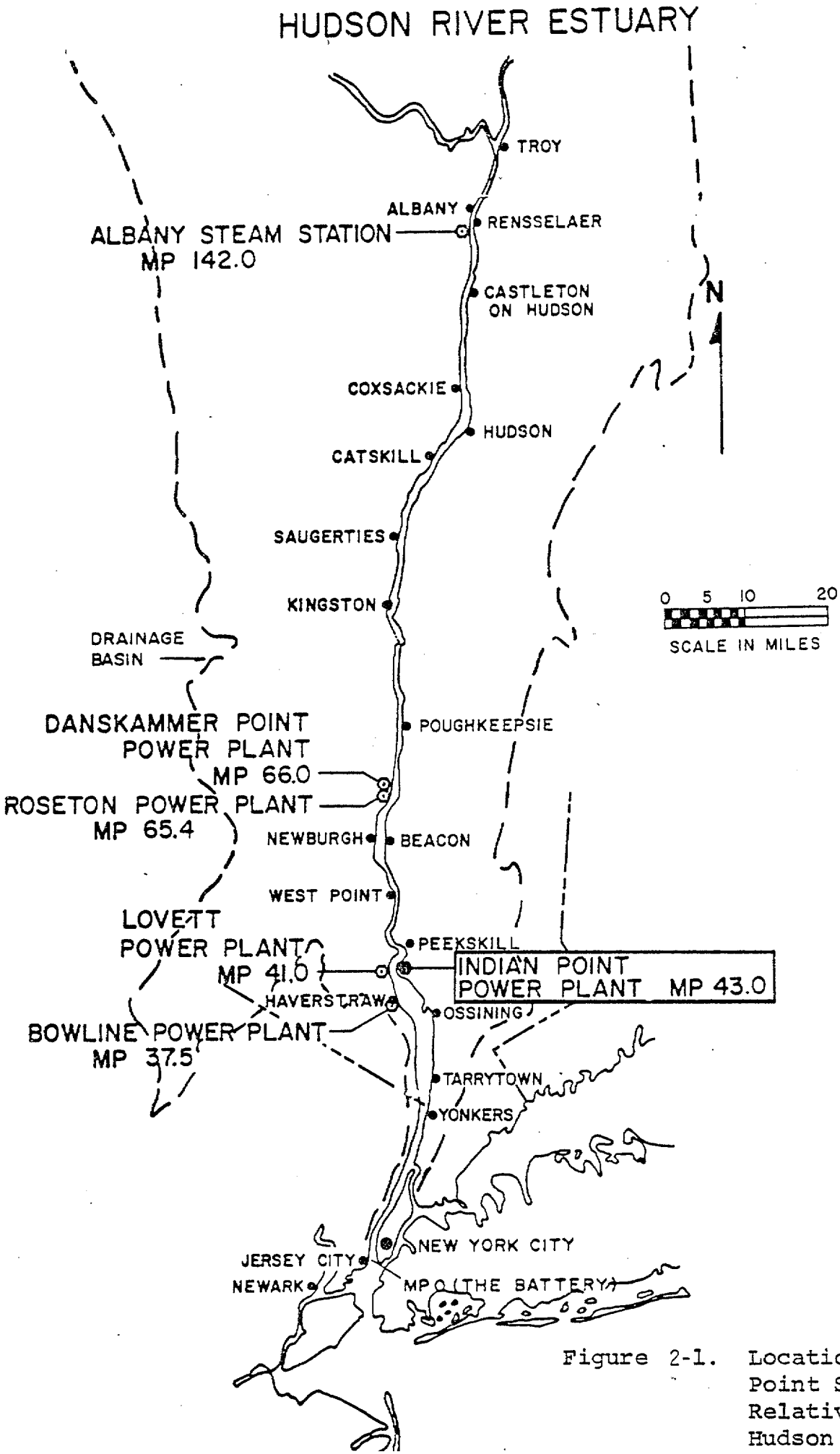


Figure 2-1. Location of Indian Point Station Relative to other Hudson River Stations

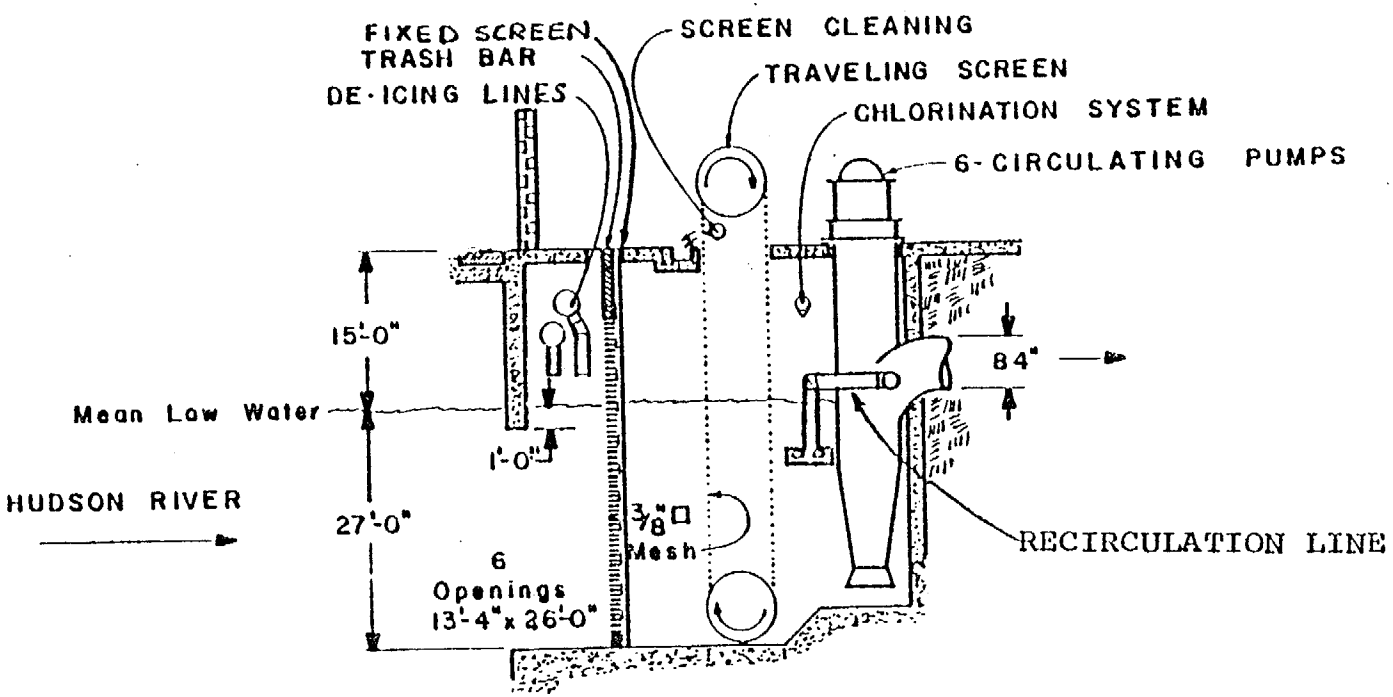
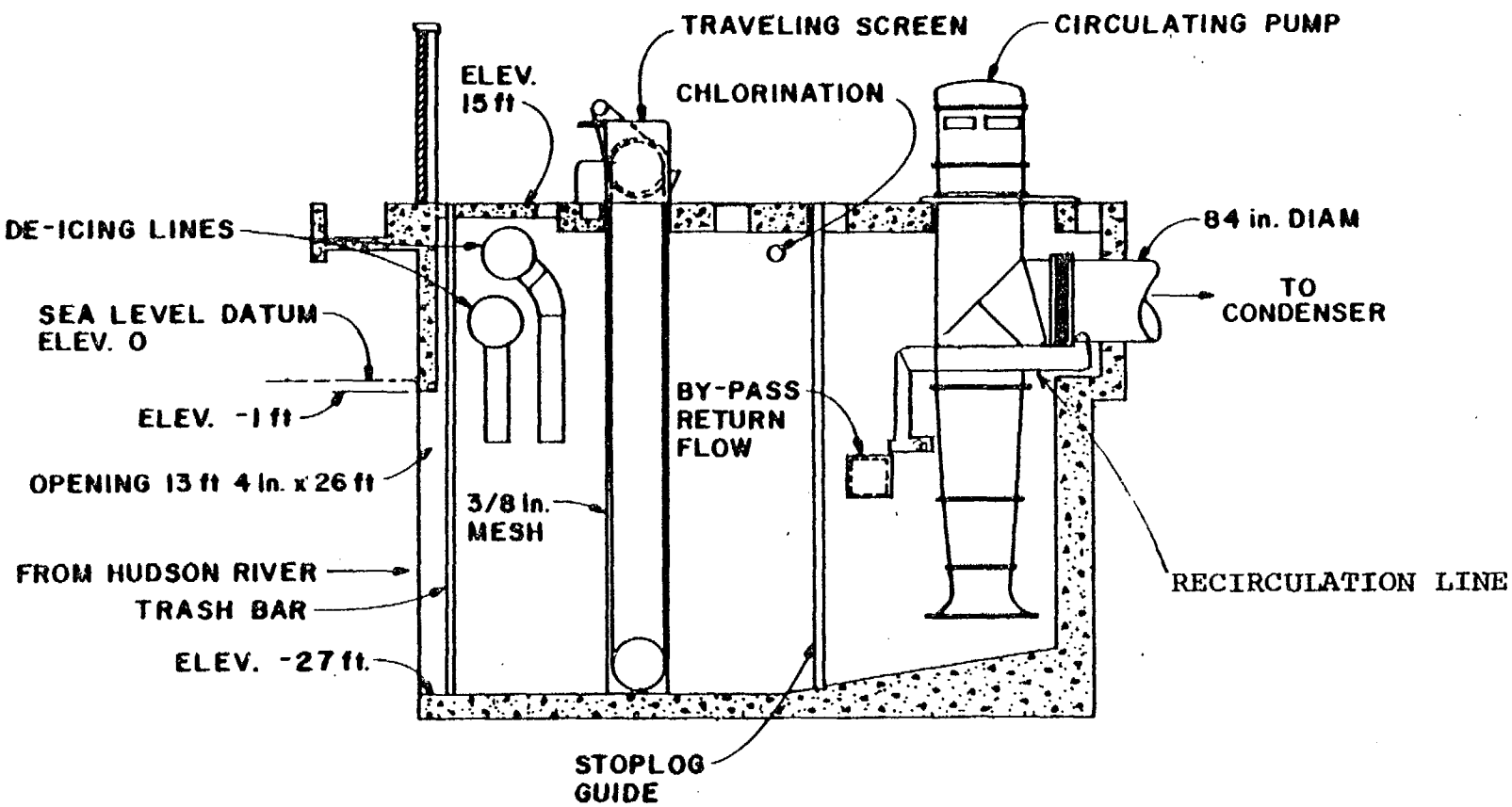


Figure 2-2. Schematic Intake Bay Cross-Section of Indian Point Unit No. 2.



Schematic
Figure 2-3. Intake Bay Cross-Section
of Indian Point Unit No. 3.

3.0 IMPINGEMENT AT THE INDIAN POINT STATION

Daily collections were made at Units 2 and 3 from January 1 through June 30, 1981. For the remainder of the year, collections were made on a less frequent basis according to a sampling design described in the following section. During the last six months of 1981, when this new collection schedule was followed, the traveling screens were still washed daily to remove debris and fish. The field and laboratory procedures used in the collection and processing of impinged fish are included in Appendix A.

3.1 Sampling Design

Analyses of the accuracy and precision of potential impingement sampling designs presented in the 1979 Annual Report (TI 1980b) served as the basis for the selection of the collection schedule followed from July through December 1981. The analyses were made because it was realized that the very extensive daily impingement data base could be used to test the reliability of various designs which involved less frequent collections. The view that a less than daily sampling schedule can provide reliable estimates of impingement at power plants is well supported (Johnston 1976; Kumar and Griffith 1977; Murarka and Bodeau 1977; Murarka et al. 1977; El-Shamy 1979).

The first step taken in developing an appropriate "reduced" sampling design was to select and refine the existing data which would be used for subsequent analyses (TI 1980b). Daily counts from impingement collections at both Units from 1976 through 1979 formed the data base. To minimize the effects of volume circulated as a source of variation in examining the fluctuations in the number of fish impinged, the actual ("raw") counts for selected days were scaled up on the basis of the maximum volume at which the Unit would be permitted to operate in accordance with the pumping schedule specified in the Settlement Agreement (Table 2-1). These scaled up counts are termed the Estimated Mean Daily (EMD) counts. The days during the four year period that were selected for this analysis were those for which the volume of water associated with the counts obtained from the screens during a period of approximately 24 hours could be accurately determined. Days on which unusual operating conditions existed at any screen at a Unit (e.g. unscheduled washes, outages, screen operating problems, etc.) were

excluded from consideration. In the pooled four year period (1976-1979) used for the analysis of daily impingement variation, 625 days at Unit 2 and 835 days at Unit 3, from a total of 1,454 possible sampling days at each unit, met the selection criteria. Since the days excluded were not concentrated within any particular time over the four year period, the data were adjudged sufficiently representative to serve as the basis for evaluating potential sampling designs (TI 1980b).

The accuracy and precision of three different designs were evaluated (TI 1980b). One design consisted of a random allocation of sampling effort throughout the year. The other two designs were both stratified, one on a seasonal basis and the other, termed the "empirical" design, contained strata of unequal sizes. In the "seasonal" design each stratum consisted of three months and roughly corresponded to winter, spring, summer and fall (January 1 - March 31, April 1 - June 30, July 1- September 30 and October 1 - December 31). The strata in the empirical design were selected to correspond to distinct periods of high and low impingement variation at each Unit (TI 1980b). Both of the stratified designs relied upon an allocation of sampling effort which is basically dependent upon the observed impingement variation within the particular stratum; i.e., the larger the impingement variation, the greater the number of samples allocated.*

As would be expected, the precision in each of the three sampling designs increased as the level of sampling effort increased. The precisions of the stratified designs were considerably higher than that for the simple random design. The empirical design was the most precise at both Units 2 and 3, but the differences between it and the seasonal design were slight (TI 1980b). Precision was evaluated by calculating the standard error of the scaled up EMD counts for various levels of sampling intensity ranging from 10 to 90 percent of the year.

---

* This would always be true in determining the sampling allocation for equally sized strata, but in the empirical design, the size of the stratum would also influence the amount of sampling effort to be allocated. This is referred to as a Neyman allocation (Cochran 1977).

Since impingement collection data at both Units 2 and 3 were not normally distributed, simulated sampling was used to measure accuracy. The simulation involved repeated application of each of the two stratified designs for each sampling fraction to determine the number of times the 95% CI about the EMD count enclosed the actual daily count, which in this analysis was the true mean of all EMD counts for each Unit in the 1976 through 1979 period. For the case of the 30% sampling fraction using the seasonal stratification, the design that was ultimately selected, the simulation proceeded in the following manner. At Unit 2, this particular design specified that 30 days should be allocated for the winter stratum, from January 1 through March 30. These 30 days were then randomly selected from the 1976 through 1979 data base of EMD counts for the January through March period. The same procedure was applied for the other strata. When all the strata were sampled in this manner, the EMD count, with 95% CI, was computed. This CI was then compared to the actual daily count. This entire procedure was repeated 1000 times for each sampling fraction at each Unit (TI 1980b). It was found that at sampling intensities of approximately 20 to 30%, the confidence intervals about the estimated mean generally encompassed the true mean greater than 92% of the time. Increasing the sampling intensity beyond 30% only resulted in marginal improvements in accuracy (TI 1980b).

After reviewing the results of these analyses, Con Edison and PASNY proposed to NYSDEC that an impingement sampling design which consisted of sampling each Unit 110 days per year, corresponding to the 30% level of sampling intensity, and utilizing allocations based upon seasonal strata would be the most appropriate choice to replace the daily collection program. The selection of the seasonal rather than the empirically determined strata was primarily a reflection of the greater ease and flexibility associated with the implementation of a quarterly plan rather than one which was based upon six and seven (for Units 2 and 3, respectively) unequally sized strata. Further, the differences in precision and accuracy between the two stratified designs were small and the seasonal allocation would be sensitive to certain major impingement patterns linked to movements of fish species. The 30% level of sampling intensity provided the best accuracy and precision for the level of effort expended (Tables 3-1, 3-2) and represented a design which could reliably replace the one which already existed.

Although the numbers of sampling days allocated to each Unit under the seasonal stratification design were different (Table 3-3), sampling dates in the period from July 1 through December 31 were randomly chosen within each of the two strata such that, wherever possible, collections were made on the same dates at both Units. This was done to make sample processing more efficient and did not have an effect on the sampling design. There was also the added advantage of being able to compare counts at both Units on a daily basis which would not have been assured had dates been chosen at each Unit separately.

During 1981, NYSDEC required the reporting of collections at both Units when total counts were greater than 10,000 fish per day at one or both Units. Sampling was to continue at both Units until counts fell below 10,000 fish per day. These collections, which occurred on six days at Unit 2 and three days at Unit 3 for the two strata from July through December, were included in the data used to estimate the total number of fish impinged. The inclusion of these high impingement days would tend to bias (i.e. result in an overestimate of) the number of fish projected to be impinged at the Station during 1981 because in most cases these days were not originally allocated in the sampling design. Yet outages, certain plant operating conditions and unavoidable sampling-related circumstances prevented the number of collection days in the summer and fall strata from reaching that level specified in the selected monitoring design. At Unit 3, there were to have been 65 collection days from July 1 through December 31 (Table 3-4) but scheduled collections occurred on only 48 days during this period, primarily because of outages in October and November (Table 3-5). These 48 days represented not only days on which sampling was originally allocated according to the design, but also make-up days (randomly selected within each stratum) to replace days lost due to outages, etc. The three 10,000+ days were added to help bring the total number of days sampled (now 51) closer to the originally allocated level (of 65). At Unit 2 the problem was less apparent because of fewer outages. Adding the high impingement days brought the total number of collections days at Unit 2 from July through December to 69 of the 70 originally allocated (Table 3-4).

If it were known that an outage (defined as lack of circulator pump operation rather than solely a decline or cessation of power generation) were to occur basically within a single sampling stratum, then no effort would be made to re-

place the collection days in that stratum that would be lost . The outages during the last six months of 1981 were not that extensive, however, so efforts were made to reach the number of collection days specified in the design. The shortfall represented by the difference between the number of days actually sampled and the number originally allocated was too small to result in any substantial decline in the accuracy of the estimated total number of fish impinged at each Unit; i.e., it would still be between 92-93 percent (Tables 3-1, 3-2).

3.2 Collection Efficiency

Collections from the Indian Point Station intake screens provide an indication of impingement patterns but do not reflect the actual number of fish impinged. Although screen washes were generally made on a daily basis during 1981, impinged fish could have been lost due to scavenging fish and birds and water currents. In addition, disintegration and decomposition may have occurred prior to collection.

The need to adjust the actual number of fish collected to better reflect impingement magnitude has long been recognized (TI 1973; Barnthouse et al. 1980). Several different adjustment factors for Units 2 and 3 were proposed based on collection efficiency tests conducted at the Station from 1974 through 1979 (McFadden et al. 1978; TI 1979, 1980a, 1980b). In an attempt to improve upon the accuracy of the most recent set of adjustment factors that had been developed by TI (TI 1980b), several years of data were examined to determine whether a definitive relationship between collection efficiency and water temperature might exist (Con Edison 1982).

It was found that the relationship between the two variables at each Unit could be properly modeled as a linear regression. The relationships were:

$$\text{Unit 2 Efficiency} = -0.00945 \cdot \text{Temperature } (^\circ\text{C}) + 0.54708$$

$$\text{Unit 3 Efficiency} = -0.00792 \cdot \text{Temperature } (^\circ\text{C}) + 0.71640$$

The collection efficiency at Unit 3 was significantly higher than that at Unit 2, but the slopes of the two regression equations were not significantly different from each other (Con Edison 1982)

Since there were no collection efficiency tests performed during 1981, the relationships described above were used to adjust the numbers of fish collected on sampling days throughout 1981. The collection efficiencies at each Unit were obtained by using mean daily intake temperatures at the Station (Table A-7). The number of fish collected on a sampling day was multiplied by an adjustment factor (the inverse of the collection efficiency) to estimate the number of fish actually impinged. At both Units, the adjustment factors were greatest during the summer and smallest during the winter (Con Edison 1982). At Unit 2, the adjustment factors during 1981 ranged from 1.80 to 3.72 and at Unit 3 the corresponding range was from 1.38 to 2.07. There represented mean daily intake temperatures which ranged from -1°C to 29.5°.

3.3 Estimated Number of Fish Impinged During 1981

An estimate of the total number of fish impinged and the associated standard errors for both Units 2 and 3 were obtained from the actual counts of the fish collected in each daily sample. Once corrected for collection efficiency, these counts become estimates of the daily number of fish impinged. In the winter and spring strata, the estimated number of fish impinged was calculated by summing these daily counts that were corrected for collection efficiency. In the summer and fall strata, collections took place on a randomized selection of days according to the reduced frequency impingement sampling design (Section 3.1). To estimate the number of fish impinged during one stratum, the mean daily number of fish impinged in a stratum is multiplied by the number of days of plant operation in that stratum (Equation 1). A plant was considered to be operating as long as circulating water was being pumped. The precision (standard error) of the estimated number of fish impinged during the year was determined through consideration of the variance within each of the four strata (Equation 2).

$$T = \sum_{h=1}^{L} N_h \cdot \bar{Y}_h \qquad \text{(Equation 1)}$$

$$S.E. = \sqrt{\sum_{h=1}^{L} \frac{N_h (N_h - n_h) S^2_h}{n_h}} \qquad \text{(Equation 2)}$$

where:

T = Estimated number of fish impinged during the year

L = Number of strata (4)

N_{hY} = Number of days of plant operation in the hth stratum

$\bar{Y}_h$ = Mean daily number of fish impinged in the hth stratum

S.E. = Standard error of the estimated number of fish impinged during the year

n_h = Number of days of impingement collections in the hth stratum

S^2_h = Variance of the hth stratum

These stratified random sampling formulae (Cochran 1977) were used to estimate the number of fish impinged at each Unit with the levels of accuracy and precision specified in the selected reduced frequency sampling design (Tables 3-1, 3-2). However, the precision during 1981 would be expected to be somewhat better than during a year when all four strata were sampled less than daily because the collections in the first two strata (made daily) do not contribute to the standard error of the annual total; i.e., when equation (2) is used, the expression $(N_h - n_n) = 0$. Using these equations and the parameter values from Tables 3-4 and 3-6, the estimated total number of fish impinged during 1981 and the associated standard error at Unit 2 was 3,573,103 fish ± 568,282 and at Unit 3 was 995,163 fish ± 69,657. The levels of precision for these estimates (coefficients of variation) for Units 2 and 3 were 15.9% and 7.0% respectively, based upon 276 and 297 days of plant operation (Table 3-4) and mean daily numbers of fish impinged of approximately 12,946 and 3,351 (Table 3-6). The level of precision at Unit 3 was very close to that projected by the sampling design (8.2%) based upon 1976 through 1979 data (Table

3-2). The level of precision at Unit 2, however, was less precise than the level projected, 9.5% (Table 3-1), but was not so imprecise as to cause concern. The higher variation at Unit 2 was primarily due to a greater variability during the infrequently sampled summer stratum than had been historically observed; i.e. based on the 1976-1979 data.

3.4 Estimated Numbers of Individual Fish Species Impinged During 1981

Since collections were made daily for the first half of the year, exact counts for each species were simply adjusted for collection efficiency to provide an estimate of the number impinged. The impingement sampling design in effect from July through December 1981 did not involve daily sampling, and the estimated number of fish that were impinged must therefore be determined by some other method.

One method of estimating the number of fish from each species that was impinged during the year is to use the same procedure described for estimating the total number of fish (all species) impinged (Section 3.3). Instead of multiplying the days of plant operation in a stratum by the mean daily number of all species impinged in that stratum, the mean daily number impinged of each species is used (in both cases, the daily number impinged is the product of the actual count of collected fish and the appropriate collection efficiency adjustment factor). These "stratified estimates" were calculated for all species identified in impingement collections at Units 2 and 3 during 1981 (Tables 3-7 and 3-8).

The levels of precision for most individual species were not as good as those for all the species combined. The species with relatively high coefficients of variation (compared to the 15.9% and 7.0% for species combined at Units 2 and 3, respectively) were, with the the exception of those for which the standard errors were inflated due to the small number collected, species which had relatively high and variable impingement in a stratum with relatively few sampling dates. At Unit 2, for example, species with relatively high coefficients of variation, such as alewife, American shad, bay anchovy and weakfish were all impinged in the greatest numbers during the summer (Table 3-7), when there were much fewer collection days than during the fall stratum

(Table 3-4). Since the temporal pattern of impingement for these individual species is different from that observed when all species are combined (i.e., they peak during the summer rather than during the fall), the precision of their estimates is generally lower. At Unit 3, which had more collection days during the summer than Unit 2, and had essentially an equal number of collection days in the summer and fall strata, the precision of the estimates for the four species discussed above were better (Table 3-8). The coefficients of variation at Unit 3 would be even lower if the annual impingement for these species were not so heavily concentrated in a single stratum. At Unit 3, the level of precision for white perch, which clearly was the most dominant species impinged at that unit during 1981 (approximately 68% of the total) was very close to that observed for all species combined. In contrast, the annual estimate of impingement for white perch at Unit 2 was less precise than the estimate for all species combined. Unit 2 impingement was, for the most part, equally dominated by both white perch and bay anchovy (approximately 37% and 34% of the total, respectively). It seems likely that the highly variable impingement of bay anchovy that occurred during the summer, when there were relatively few collection days, lowered the overall precision of the annual impingement estimate for all species at Unit 2 more than if that Unit's collections had been dominated only by white perch, as was the case at Unit 3.

Another method that can be used to estimate the number of fish annually impinged for each individual species is based upon the water volume circulated. In this method, the total (or mean daily) number of fish impinged on the sampling days within a stratum are scaled up to reflect the total volume circulated on all days of plant operation within that stratum. This type of method is used to provide estimates of annual impingement at other Hudson River power plants (Lawler, Matusky and Skelly Engineers, 1980, 1981). It assumes that impingement magnitude is directly proportional to the volume of water circulated.

Two different estimates using a volume-extrapolated method were generated. For the first, termed the "proportion estimate," the number of fish of each species impinged (collected number, or count, adjusted for collection efficiency) in a stratum was multiplied by the inverse of the proportion the

collection days' volume represented compared to the total volume circulated through that Unit during the period. The resulting number represents an estimate of the number of that species impinged during the stratum. In the other volume-extrapolated method, a rate of impingement (numbers per unit volume) was calculated for each of the collection days. The mean of these daily rates was calculated for each stratum and multiplied by the total volume circulated through that Unit during the period, as in the proportion estimate. This "mean daily rate" estimate would theoretically be less influenced by the day to day variation in water volume pumped than would the proportion estimate.

To evaluate which of the three possible estimates is most appropriate for determining the numbers of individual species impinged, each one was individually applied for the first six months of 1981. Since collections were made daily during this period, it is possible to compare the accuracy of each method. A number of days were randomly selected for the winter (January through March) and spring (April through June) strata according to the allocations specified in the selected reduced frequency impingement sampling design (Table 3-3). Five species which have historically comprised most of the impinged fish at the Station were selected for this comparison; white perch, bay anchovy, striped bass, Atlantic tomcod and blueback herring.

The results did not demonstrate that any one method provided an estimate consistently closest to the actual collections (Table 3-9). The volume-extrapolated proportion estimate and the stratified mean estimate were in several cases quite similar to the estimate based upon daily collections. Examination of the proportions of total days and total circulating water volume in each stratum represented by the selected collection days (Table 3-10) revealed that good correspondence between these two estimates might be expected.

The stratified mean estimate was the best technique for the winter stratum, January through March. During the spring stratum, when collections on only 10 of 71 days at Unit 2 and 18 of 91 days at Unit 3 were selected, all three estimates were, in general, less accurate (Table 3-9). The lack of accuracy

was occasionally quite pronounced (e.g. mean daily rate estimate for white perch at Unit 2).

Both the stratified mean and the volume-extrapolated methods can provide reasonable estimates of the numbers of each species impinged in a particular stratum. Both should give better estimates when they are based upon a larger number of collection days within the stratum. When there are few days allocated, however, the potential for the mean daily rate estimate to provide a grossly distorted assessment of impingement magnitude for a particular species is probably greater than for either of the other two estimates. The effect of one or two very high or very low impingement days on a mean daily rate can be extreme when there are relatively few days in a stratum on which collections occur. Since the volume-extrapolated proportion estimate and the stratified estimate can be predicted to correspond quite closely during the summer and fall strata (Table 3-11) as well as during the winter and spring strata (Table 3-10), either of these two estimates is preferred over the mean daily rate estimate. All subsequent discussions related to estimated numbers impinged for individual species are based upon the stratified mean estimates previously presented (Tables 3-7, 3-8). The decision to use the stratified mean estimate rather than the proportion estimate is primarily attributable to a desire to keep the methodology used for estimating impingement of individual species consistent with that used for all species and to the uncertainties associated with the relationship between impingement magnitude and volume circulated (TI 1980a).

3.5 Species Composition and Relative Abundance

There were 72 species (Table 3-12) represented among the 1,100,357 fish collected at the Indian Point Station during 1981 (Table A-3). When adjusted for collection efficiency and extrapolated to account for subsampling during the summer and fall strata, it was estimated that there were 4,568,266 fish impinged at the Station during the year (Section 3.3). The total weight of these impinged fish is estimated to be 23,675 kg, or approximately 52,200 lbs. (Table A-6).

The total number of fish impinged during 1981 was the second highest since both Units 2 and 3 began to regularly operate simultaneously in 1977. The total circulating water volume pumped during 1981, however, was lower than in any prior year since 1977 (Table 3-13). No significant correlation between the annual number of fish impinged and yearly circulating volume was found based on 1976 through 1981 data ($r = 0.78$ $p \leq 0.07$, Table 3-13). Such a correlation was noted however, when 1982 data was included in the analysis ($r = 0.84$ $p \leq 0.01$) in the 1982 Indian Point Annual (Con Edison 1983). The relationship between numbers of each species that were impinged and circulating water volume is uncertain since environmental variables such as conductivity and water temperature have also been shown to influence the daily impingement rate for each species at the Station (TI 1980a).

The number of species identified in collections in 1981 was similar to that found in each of the four previous years when from 72 to 76 species were annually collected (Table 3-13). Four of the species collected in 1981, big eye scad, black bullhead, cunner and striped burrfish, were not collected in any previous impingement sampling effort. Of these four, only black bullhead was found in one prior year's Indian Point nearfield sampling program (TI 1979).

Of the nine species collected in 1980 that had not been collected prior to that time (Con Edison 1982), only fathead minnow and spotted hade were collected again in 1981. All species, with the exception of shortnose sturgeon, that were collected in every year since 1975 were also collected in 1981. Consequently, it appears that the reduced sampling schedule introduced during the latter half of 1981 did not have any substantial effect on the species composition of impingement collections relative to earlier years.

As in previous years, four species dominated the impingement collections during 1981. White perch, bay anchovy, Atlantic tomcod and blueback herring were estimated to represent approximately 88% of the total number of fish impinged with white perch alone representing more than 43% of the total (Table 3-14). There were approximately 1.4 million more fish estimated to be impinged in 1981 than during 1980 (Table 3-13; Con Edison 1982). Most of this

difference is attributable to the increased collections of bay anchovy, and to a lesser extent, white perch and blueback herring.

3.6 Seasonal and Yearly Impingement Patterns

Seasonal trends were examined using mean monthly impingement rates (number of fish collected per day adjusted for collection efficiency ÷ circulating volume associated with that day's collection, averaged over the entire month).

Ideally, each impingement collection should correspond to a specific volume of water circulated through the pumps. In some cases, a volume could not be precisely associated with a particular collection because of some aberrant condition in plant operation (e.g. during unscheduled screenwashes when it was not always feasible to conduct impingement sampling or during periods of interrupted circulator flow when fish were likely to be temporarily lost due to backwash of the screens). Seasonal patterns of impingement, however, can be better defined by the most complete set of data rather than by the limited amount of data which have precisely matched collections and circulating water volumes (TI 1980b). Thus, an estimate of the volume circulated was calculated, whenever possible, from Indian Point plant performance records and included in the calculation of impingement rates.

In the past, except during years (e.g. 1980) where there were extended Unit outages during autumn and winter, impingement rates have generally been highest from October through March (Con Edison 1982). This pattern was basically observed in 1981 (Figure 3-1), even though the circulator flows at each Unit for several months during this time period were relatively small (Table 3-15). Since the overall impingement each year has been consistently dominated by four species (Section 3.5), the seasonal pattern can generally be explained on the basis of the individual impingement rates of white perch, bay anchovy, Atlantic tomcod and blueback herring. Most 44% of the fish impinged at the Indian Point Station during 1981 were white perch (Table 3-14), and these fish were impinged almost exclusively from October through March (Figure 3-2). Seasonal peaks in white perch impingement during the fall and winter are well documented and are associated with the downriver and offshore movement of juveniles of this species into channel areas of the river to

overwinter (TI 1979b, 1980a). This movement takes the fish past the Indian Point intake screens, thereby increasing the likelihood of impingement. As water temperatures begin to increase during the spring, these fish move into shallower areas away from the intakes where they are less vulnerable to impingement (TI 1980a).

In contrast, blueback herring, which comprised approximately 5% of the fish impinged at the Station during 1981 (Table 3-14), were primarily collected only during a brief period in October and November (Figure 3-3). Fall peaks in blueback herring impingement are characteristic of the species' seasonal distribution. During the summer months, young-of-the-year fish are primarily concentrated in nursery areas upriver of the Indian Point Station (TI 1980a). During the fall, these fish migrate downriver, past the plant, to more saline overwintering areas (TI 1981).

Atlantic tomcod and bay anchovy are both impinged primarily during the late spring and/or summer months (Figures 3-4 and 3-5). During the summer, young-of-the-year Atlantic tomcod migrate downstream from middle estuary spawning areas to deeper cooler waters (TI 1979b, 1980a) near Indian Point. Their preference for deep water concentrates the fish in the channel area adjacent to the plant's intakes and increases their potential for impingement (TI 1980a). Nearfield abundance and impingement of these fish decrease in late summer, probably due to increasing temperatures. During the fall and winter impingement of Atlantic tomcod declines considerably as they move upriver towards the spawning grounds (TI 1980a).

Bay anchovy enter the Hudson River during the spring and utilize the estuary as a spawning and nursery area (McFadden et. al. 1978). Both young-of-theyear and adult fish are subject to impingement at Indian Point throughout the summer (TI 1980a). As temperatures decrease and the salt front recedes from the area in late summer and early fall, these fish migrate to a lower portion of the estuary or migrate to the ocean (Bigelow and Schroeder 1953). Atlantic tomcod and bay anchovy collectively comprised about 38% of the total number of fish impinged in 1981 and accounted for most of the summer peak observed in the overall pattern of impingement (Figure 3-1).

The other species included for the individual rate analysis were primarily selected because they were relatively abundant in impingement collections, but those fish that are designated as representative important species in the Hudson River by the United States Environmental Protection Agency, and/or are of commercial or recreational importance were also included.

Selected species are as follow:

Striped bass*	Spottail shiner*	Blueback herring
White perch*	White catfish*	American shad
Atlantic tomcod*	Bay anchovy*	Hogchoker
Shortnose sturgeon*	Weakfish*	Bluefish
Atlantic sturgeon*	Alewife*	Rainbow smelt

Striped bass (Figure 3-6), spottail shiner (Figure 3-7) and rainbow smelt (Figure 3-8) basically showed the same temporal pattern exhibited by white perch, that is increasing impingement in the fall with peak collections occurring during the winter and continuing to a lesser extent through spring. Young-of-the-year striped bass are primarily concentrated in shore zones and

shoals during the summer and fall (TI 1980a). As water temperatures decrease with the onset of winter, they move into deep water areas (TI 1980a), but move back to shoreline regions in spring when temperatures increase (TI 1978). Impingement occurs as these fish move into and to and from the channel portion of the river (TI 1980b).

Young-of-the-year spottail shiner move into deep water areas by late fall to overwinter with the older fish (TI 1976b). Spottail shiner (all ages) are not very susceptible to impingement during the rest of the year. Their preference

---

* USEPA - designated representative important species in the Hudson River (TI 1980b)

for sheltered beach areas (shore zone) away from the plant's intake screens apparently limits their impingement (TI 1980a).

Adult rainbow smelt migrate to freshwater areas to spawn in early spring (Scott and Crossman 1973, TI 1976b). Early spring peaks in impingement reflect this spawning run. Most adults leave the estuary soon after spawning and young-of-the-year fish move into deep water areas in early summer. Their preference for deeper water increases their exposure to impingement. A seasonal peak in rainbow smelt impingement during the summer was not evident in 1981, however, some indication of a fall increase in impingement associated with the downriver movement of young-of-the-year fish was seen.

White catfish, which are normally impinged in highest numbers during the winter when young-of-the-year fish are thought to aggregate in the channel areas of the middle estuary (TI 1980a) were impinged virtually throughout the year, although in small numbers (Figure 3-9).

Hogchoker were collected at all times except during the winter (Figure 3-10). Bimodal peaks in impingement seen in previous years (TI 1980a; Con Edison 1982) were repeated in 1981. The spring peak reflects increased activity associated with increased water temperatures (TI 1980a) and coincides with the occurrence of peak catches of yearling and older hogchoker in the Indian Point region (TI 1976b). The fall peak, which is generally more prominent, coincides with peak seasonal abundance of juvenile hogchoker at Indian Point (TI 1980a).

Impingement rates of bluefish (Figure 3-11), weakfish (Figure 3-12) alewife (Figure 3-13) and American shad (Figure 3-14) peaked during the summer, when young-of-the-year of these species migrate into the estuary. With the exception of bluefish, impingement of these species continued through late fall.

Bluefish presence in the Indian Point vicinity is limited to those times when conductivity is elevated, so they are generally impinged primarily during the summer months (TI 1980a). Immature weakfish remain in the area until fall and are subject to a slightly longer period of impingement (TI 1980a).

In contrast to blueback herring, riverwide distribution of youngof-the-year alewife and American shad is centered closer to Indian Point, consequently, a greater proportion of the young of these clupeids is subject to impingement during the summer months (TI 1980a). Similar to blueback herring, increases in impingement of alewife and American shad during the fall are associated with the fall emigration of young-of-the-year fish to sea.

Atlantic sturgeon (Figure 3-15) was too seldom collected (8 individuals) to discern any meaningful seasonal patterns. Their demersal nature and the fact that they rapidly attain a size which enables them to avoid the intake screens make Atlantic sturgeon less vulnerable to impingement than many species (TI 1980a). None of the individual species selected for impingement rate analyses showed trends in 1981 that were markedly different from what had been generally observed for them in past years. The same was true for all other species (Figure 3-16).

Table 3-1. Precision and Accuracy of a Stratified Sampling Design Using Seasonal Strata at Indian Point Unit 2.

	Precision		Accuracy+
Percent of Year Sampled	Standard Error of EMD	Coefficient* of Variation (Percent)	
10	1233.4	20.1	90.6
20	798.4	13.0	92.1
30	583.6	9.5	92.6
40	437.5	7.1	93.5
50	319.0	5.2	94.8
60	210.7	3.4	95.6
70	135.8	2.2	94.1
80	82.1	1.3	95.6
90	47.7	0.8	95.6

*Coefficient of Variation = Standard error of the estimated mean daily (EMD) count ÷ EMD count x 100.

+Accuracy expressed as percent of times the EMD count (all species) with 95% confidence limits enclosed the actual daily count.

Table 3-2. Precision and Accuracy of a Stratified Sampling Design Using Seasonal Strata at Indian Point Unit 3.

	Precision		Accuracy+
Percent of Year Sampled	Standard Error of EMD	Coefficient* of Variation (Percent)	
10	474.6	16.3	90.2
20	316.2	10.9	92.5
30	240.0	8.2	93.9
40	190.9	6.6	94.3
50	154.6	5.3	93.5
60	124.5	4.3	95.3
70	97.2	3.3	94.8
80	70.4	2.4	93.6
90	41.6	1.4	93.3

*Coefficient of Variation = Standard error of the estimated mean daily (EMD) count ÷ EMD count x 100.

+Accuracy expressed as percent of times the EMD count (all species) with 95% confidence limits enclosed the actual daily count.

Table 3-3. Sample Allocation for the Seasonally Stratified Sampling Design at Indian Point Units 2 and 3*.

Stratum	Number of Randomly Selected Days in Stratum Unit 2	Unit 3
1 January - 31 March	30	27
1 April - 30 June	10	18
1 July - 30 September	11	31
1 October - 31 December	59	34
1 January - 31 December	110	110

*Number of randomly selected days of impingement collection in each seasonal stratum when 30% of the year is sampled

Table 3-4. Numbers of Impingement Collection Days and Days of Plant Operation at Indian Point Units 2 and 3 during 1981.

Stratum	Number of Days of Plant Operation*	Number of Impingement Collection Days	Number of Days Allocated in Stratified Design
Unit 2			
winter (Jan-Mar)	51	51	--**
spring (Apr-Jun)	71	71	--**
summer (Jul-Sep)	70	10	11
fall (Oct-Nov)	84	59	59
TOTAL	276	191	
Unit 3			
winter (Jan-Mar)	77	77	--**
spring (Apr-Jun)	91	91	--**
summer (Jul-Sep)	84	25	31
fall (Oct-Dec)	45	26	34
TOTAL	297	219	

* A plant was considered operating if circulating water was pumped

** The reduced frequency impingement sampling design went into effect on July 1, 1981

Table 3-5. Total Unit Discharge* ($10^6 m^3$) at Indian Point Units 2 and 3 during 1981.

Month	Unit 2	Unit 3	Units 2 and 3
Jan	1.8	85.0	86.8
Feb	10.4	21.5	31.9
Mar	15.9	37.0	52.9
Apr	9.6	70.1	79.7
May	51.6	94.6	146.2
Jun	117.0	134.6	251.6
Jul	138.7	133.1	271.8
Aug	100.2	139.4	239.6
Sep	69.4	37.5	106.9
Oct	100.2	0.8	101.0
Nov	57.7	23.7	81.4
Dec	87.5	79.4	166.9
Totals	760.0	856.7	1,616.7

* Including service water

Table 3-6. Mean Daily Number of Fish Impinged in Each Seasonal Stratum at Indian Point Units 2 and 3 during 1981.

Unit 2

Stratum	Mean Daily Number of Fish Impinged	Standard Deviation
winter (Jan-Mar)	3775.8	3604.9
spring (Apr-Jun)	4780.3	5764.9
summer (Jul-Sep)	25375.2	27417.9
fall (Oct-Nov)	15058.0	14235.0
Year	12946.0	

Unit 3

winter (Jan-Mar)	1561.4	2433.9
spring (Apr-Jun)	1893.6	2208.1
summer (Jul-Sep)	2596.2	2441.7
fall (Oct-Nov)	10767.5	10564.5
Year	3350.7	

TABLE 3-7. ESTIMATED NUMBER OF FISH IMPINGED BY STRATUM FOR EACH SPECIES COLLECTED AT INDIAN POINT UNIT 2 DURING 1981 (WINTER AND SPRING ESTIMATES BASED UPON ACTUAL COUNTS FROM DAILY COLLECTIONS; SUMMER AND FALL VALUES CALCULATED FROM STRATIFIED MEAN ESTIMATES).

TAXON	WINTER	SPRING	SUMMER	FALL	YEARLY TOTAL	STANDARD ERROR	COEFFICIENT OF VARIATION
ALEWIFE	4	458	51098	1804	53365	23419	43.9
AMERICAN EEL	68	717	551	621	1957	158	8.1
AMERICAN SANDLANCE	2	0	0	0	2	0	0.0
AMERICAN SHAD	0	4317	195311	7971	207598	48678	23.4
ATLANTIC MACKEREL	0	2	0	0	2	0	0.0
ATLANTIC MENHADEN	0	150	3020	15	3185	2342	73.5
ATLANTIC NEEDLEFISH	0	0	24	0	24	22	92.6
ATLANTIC SILVERSIDE	2	0	0	19	21	4	19.4
ATLANTIC STURGEON	0	0	0	11	11	3	31.0
ATLANTIC TOMCOD	294	216340	130330	3643	350606	45411	13.0
BANDED KILLIFISH	148	61	23	525	757	62	8.1
BAY ANCHOVY	2	27476	1174284	16982	1218744	472818	38.8
BLACK BULLHEAD	0	0	0	18	18	7	37.3
BLACK CRAPPIE	8	3	0	0	10	0	0.0
BLACK SEA BASS	0	0	0	4	4	2	54.6
BLUEBACK HERRING	2	688	26023	206519	233232	34267	14.7
BLUEFISH	0	1133	8781	0	9914	1904	19.2
BLUEGILL	37	35	0	75	148	13	8.8
BROWN BULLHEAD	33	39	518	19	609	275	45.2
CARP	2	2	0	0	4	0	0.0
CENTRARCHID UNIDENTIFIED	70	0	0	22	92	10	11.1
CLUPEID UNIDENTIFIED	0	1072	14238	4	15313	13182	86.1
CREVALLE JACK	0	0	41	328	368	61	16.5
CUNNER	0	0	0	3	3	2	54.6
FATHEAD MINNOW	0	2	0	0	2	0	0.0
FOUR-SPINE STICKLEBACK	14	14	0	6	34	2	6.7
GIZZARD SHAD	0	0	0	650	650	78	12.0
GOLDEN SHINER	52	14	0	6	72	2	3.2
GOLDFISH	248	26	0	18	291	4	1.5
HOGCHOKER	37	5578	6555	11152	23322	1392	6.0
LARGEMOUTH BASS	23	2	0	15	40	3	8.6
LOOKDOWN	0	0	20	0	20	19	92.6

STANDARD ERROR----------STANDARD ERROR OF YEARLY TOTAL
COEFFICIENT OF VARIATION---STANDARD ERROR OF MEAN DAILY ESTIMATE / MEAN DAILY ESTIMATE

TABLE 3-7. (CONTINUED)

TAXON	WINTER	SPRING	SUMMER	FALL	YEARLY TOTAL	STANDARD ERROR	COEFFICIENT OF VARIATION
MUMMICHOG	8	6	0	9	22	4	15.9
NORTHERN PIPEFISH	2	204	391	793	1390	260	18.7
NORTHERN PUFFER	0	0	0	4	4	2	54.6
PUMPKINSEED	849	692	189	8729	10459	968	9.3
RAINBOW SMELT	193	176	122	177	668	55	8.3
REDBREAST SUNFSH	6	10	0	11	27	3	12.2
ROCK BASS	4	0	0	0	4	0	0.0
SATINFIN SHINER	0	2	0	17	19	9	48.3
SEA HORSE	0	0	0	4	4	2	54.6
SEA LAMPREY	6	3	0	0	8	0	0.0
SILVER HAKE	0	5	0	0	5	0	0.0
SMALLMOUTH BASS	0	0	0	3	3	2	54.6
SMALLMOUTH FLOUNDER	0	5	0	0	5	0	0.0
SPOT	0	0	0	3	3	2	54.6
SPOTTAIL SHINER	564	128	24	331	1047	54	5.2
SPOTTED HAKE	0	3	0	0	3	0	0.0
SQUIRREL OR RED HAKE	0	2	0	9	11	3	24.3
STRIPED BASS	9235	1990	20120	23909	55255	7761	14.0
STRIPED SEAROBIN	0	0	0	4449	4449	954	21.4
SUMMER FLOUNDER	2	12	20	4	38	19	50.2
TAUTOG	0	7	0	3	10	2	15.2
TESSELLATED DARTER	10	49	0	133	192	16	8.5
THREE-SPINE STICKLEBACK	48	0	0	6	54	3	6.2
TIDEWATER SILVERSIDE	0	0	0	10	10	3	31.0
WEAKFISH	0	3	37879	12156	50037	21860	43.7
WHITE CATFISH	19	118	149	648	935	86	9.2
WHITE CRAPPIE	8	0	0	0	8	0	0.0
WHITE PERCH	180263	77697	106507	962869	1327335	84899	6.4
WHITE SUCKER	0	11	0	0	11	0	0.0
WINTER FLOUNDER	10	0	47	13	69	29	42.0
YELLOW PERCH	299	144	0	154	597	20	3.3
ALL TAXA	192568	339398	1776267	1264870	3573103	568282	15.9

STANDARD ERROR----------STANDARD ERROR OF YEARLY TOTAL
COEFFICIENT OF VARIATION---STANDARD ERROR OF MEAN DAILY ESTIMATE / MEAN DAILY ESTIMATE

TABLE 3-8. ESTIMATED NUMBER OF FISH IMPINGED BY STRATUM FOR EACH SPECIES COLLECTED AT INDIAN POINT UNIT 3 DURING 1981 (WINTER AND SPRING ESTIMATES BASED UPON ACTUAL COUNTS FROM DAILY COLLECTIONS; SUMMER AND FALL VALUES CALCULATED FROM STRATIFIED MEAN ESTIMATES).

TAXON	WINTER	SPRING	SUMMER	FALL	YEARLY TOTAL	STANDARD ERROR	COEFFICIENT OF VARIATION
ALEWIFE	20	1057	7718	19	8814	1807	20.5
AMERICAN EEL	170	834	402	239	1646	59	3.6
AMERICAN SHAD	4	562	20972	171	21709	3725	17.2
ATLANTIC MENHADEN	0	487	1423	0	1910	295	15.4
ATLANTIC NEEDLEFISH	0	2	0	0	2	0	0.0
ATLANTIC SILVERSIDE	7	3	0	8	18	3	15.7
ATLANTIC STURGEON	4	0	0	5	9	2	24.9
ATLANTIC TOMCOD	136	31355	43615	787	75892	10056	13.3
BANDED KILLIFISH	165	100	7	223	494	55	11.1
BAY ANCHOVY	7	38765	75062	44	113878	17220	15.1
BIG EYE SCAD	0	0	7	0	7	6	83.8
BLACK BULLHEAD	0	0	7	8	15	7	46.8
BLACK CRAPPIE	7	35	0	3	45	2	3.8
BLUEBACK HERRING	63	1368	11117	2728	15276	2814	18.4
BLUEFISH	0	1729	6313	0	8041	1483	18.4
BLUEGILL	53	154	41	47	295	16	5.3
BROWN BULLHEAD	81	35	114	13	243	29	12.1
BUTTERFISH	0	0	80	0	80	33	41.6
CARP	25	3	0	5	34	2	6.8
CENTRARCHID UNIDENTIFIED	57	0	0	0	57	0	0.0
CHAIN PICKEREL	1	0	0	0	1	0	0.0
CLUPEID UNIDENTIFIED	0	308	1086	0	1393	813	58.3
CREVALLE JACK	0	0	28	0	28	18	65.7
EMERALD SHINER	0	2	0	0	2	0	0.0
FATHEAD MINNOW	0	2	0	0	2	0	0.0
FOUR-BEARDED ROCKLING	3	0	0	0	3	0	0.0
FOUR-SPINE STICKLEBACK	4	14	0	3	21	2	8.0
GIZZARD SHAD	1738	0	0	725	2463	86	3.5
GOLDEN SHINER	19	15	0	5	39	2	6.1
GOLDFISH	205	60	0	5	271	2	0.9
GRUBBY	14	0	0	0	14	0	0.0
HOGCHOKER	7	13170	8397	1051	22625	3424	15.1
LARGEMOUTH BASS	46	9	0	8	63	3	4.5
LONGHORN SCULPIN	0	0	0	3	3	2	65.0
MINNOW UNIDENTIFIED	0	0	0	13	13	8	65.0
MUMMICHOG	6	8	0	8	22	3	12.9
NORTHERN PIPEFISH	3	235	80	8	326	25	7.5
NORTHERN PUFFER	0	0	7	0	7	6	83.8
NORTHERN SEAROBIN	0	0	13	0	13	11	83.8
PUMPKINSEED	953	1223	428	2836	5438	830	15.3
RAINBOW SMELT	577	281	7	62	927	13	1.4

STANDARD ERROR----------STANDARD ERROR OF YEARLY TOTAL
COEFFICIENT OF VARIATION---STANDARD ERROR OF MEAN DAILY ESTIMATE / MEAN DAILY ESTIMATE

TABLE 3-8. (CONTINUED)

TAXON	WINTER	SPRING	SUMMER	FALL	YEARLY TOTAL	STANDARD ERROR	COEFFICIENT OF VARIATION
REDBREAST SUNFSH	6	33	34	3	75	18	24.3
ROCK BASS	1	0	0	0	1	0	0.0
ROUGH SILVERSIDE	0	0	20	0	20	9	46.3
SEA HORSE	0	5	0	0	5	0	0.0
SILVER HAKE	0	7	0	0	7	0	0.0
SMALLMOUTH BASS	1	0	0	0	1	0	0.0
SMALLMOUTH FLOUNDER	0	7	0	0	7	0	0.0
SPOTTAIL SHINER	239	99	14	145	497	31	6.2
SQUIRREL OR RED HAKE	23	2	0	10	34	5	15.3
STRIPED BASS	5198	3312	3623	13807	25939	2262	8.7
STRIPED BURRFISH	0	0	7	0	7	6	83.8
STRIPED SEAROBIN	0	2	0	3	4	2	40.6
SUMMER FLOUNDER	1	4	67	0	72	18	25.0
TAUTOG	0	3	0	0	3	0	0.0
TESSELLATED DARTER	1	48	13	24	87	9	10.2
THREE-SPINE STICKLEBACK	54	3	0	3	60	2	2.8
TIDEWATER SILVERSIDE	1	0	0	0	1	0	0.0
WEAKFISH	0	0	11647	43	11691	3022	25.8
WHITE CATFISH	214	153	148	419	935	63	6.8
WHITE CRAPPIE	9	0	0	0	9	0	0.0
WHITE PERCH	110065	76697	25571	460892	673225	59030	8.8
WHITE SUCKER	0	18	0	0	18	0	0.0
WINDOWPANE	0	8	7	0	15	6	37.3
WINTER FLOUNDER	3	3	0	3	9	2	19.6
YELLOW PERCH	36	95	7	166	303	34	11.2
ALL TAXA	120231	172313	218079	484540	995163	69657	7.0

STANDARD ERROR----------STANDARD ERROR OF YEARLY TOTAL
COEFFICIENT OF VARIATION---STANDARD ERROR OF MEAN DAILY ESTIMATE / MEAN DAILY ESTIMATE

Table 3-9. Comparison of Stratified Mean and Volume-Extrapolated (Mean Daily Rate and Proportion) Estimates in Estimating the Numbers of Five Fish Species Impinged at the Indian Point Station from January through June, 1981.

			Estimated Number Impinged			
Unit	Season	Taxon	Mean Daily Rate Estimate	Proportion Estimate	Stratified Mean Estimate	Daily Collections
2	spring	Bay anchovy	14,511	29,190	29,190	27,477
		Blueback herring	634	680	491	688
		Striped bass	6,976	2,562	1,852	1,990
		Atlantic tomcod	102,945	178,288	128,824	216,340
		White perch	214,961	97,050	70,124	77,696
2	winter	Bay anchovy	4	4	3	2
		Blueback herring	0	0	0	2
		Striped bass	13,110	13,487	10,759	9,235
		Atlantic tomcod	305	317	253	294
		White perch	251,878	260,563	270,866	180,263
3	spring	Bay anchovy	42,206	60,974	58,524	38,765
		Blueback herring	1,195	1,365	1,310	1,368
		Striped bass	878	943	905	3,312
		Atlantic tomcod	8,683	10,396	9,979	31,355
		White perch	48,318	44,454	42,668	76,698
3	winter	Bay anchovy	3	5	4	7
		Blueback herring	11	19	16	63
		Striped bass	5,231	5,343	4,479	5,198
		Atlantic tomcod	121	140	117	135
		White perch	121,835	134,801	113,005	110,065

Table 3-10. Number of Selected Collection Days and Associated Circulating Water Volumes as Proportions of Total Number of Collection Days and Total Water Volume Circulated in Winter and Spring Strata, 1981 (used in evaluation of techniques to estimate the numbers for each fish species impinged during 1981).

Unit	Stratum	Number Days Selected* ÷ Number Days Stratum**	Cir. Vol. Selected Days ÷ Cir. Vol. Stratum***
2	winter	.588	.535
2	spring	.141	.114
3	winter	.351	.357
3	spring	.198	.197

* See Table 3-3

** See Table 3-4

*** Calculated from Indian Point 401 Certification Data

Table 3-11. Number of Selected Collection Days and Associated Circulating Water Volumes as Proportions of Total Number of Collection Days and Total Water Volume Circulated in Summer and Fall Strata, 1981.

Unit	Stratum	Number Days Sampled* ÷ Number Days Stratum*	Cir. Vol. Sampled Days ÷ Cir. Vol Stratum**
2	summer	.143	.137
2	fall	.702	.649
3	summer	.298	.325
3	fall	.578	.508

* See Table 3-4

** Calculated from Indian Point 401 Certification Data

Table 3-12. Species Collected in Impingement Sampling (Indian Point Units No. 2 and 3) Hudson River Estuary, 1981.

Common Name	Scientific Name	Salinity Preference*
Alewife	(Alosa pseudoharengus)	e
American eel	(Anguilla rostrata)	e
American sand Lance	(Ammodytes americanus)	m
American shad	(Alsoa sapidissima)	e
Atlantic mackerel	(Scomber scombrus)	m
Atlantic menhaden	(Brevoortia tyrannus)	m
Altantic needlefish	(Strongylura marina)	m
Atlantic silverside	(Menidia menidia)	m
Atlantic aturgeon	(Acipenser oxyrhynchus)	e
Atlantic tomcod	(Microgadus tomcod)	e
Banded killifish	(Fundulus diaphanus)	f
Bay anchovy	(Anchoa mitchilli)	e
Big eye scad**	(Selar crumenophthalmus)	m
Black bullhead**	(Ictalurus melas)	f
Black crappie	(Pomoxis nigromaculatus)	f
Black sea bass	(Centropristis striata)	m
Blueback herring	(Alosa aestivalis)	e
Bluefish	(Pomatomus saltatrix)	m
Bluegill	(Lepomis macrochirus)	f
Brown bullhead	(Ictalurus nebulosus)	f
Butterfish	(Peprilus triacanthus)	m
Carp	(Cyprinus carpio)	f
Chain pickerel	(Esox niger)	f
Crevalle jack	(Caranx hippos)	m
Cunner**	(Tautogolabrus adspersus)	m
Emerald shiner	(Notropis atherinoides)	f
Fathead minnow	(Pimephales promelas)	e
Fourbeard rockling	(Enchelyopus cimbrius)	m
Fourspine stickleback	(Apeltes quadracus)	e
Gizzard shad	(Dorosoma cepedianum)	f
Golden shiner	(Notemigonus crysoleucas)	f
Goldfish	(Carassius auratus)	f
Grubby	(Myoxocephalus aenaeus)	m
Hogchoker	(Trinectes maculatus)	e
Largemouth bass	(Micropterus salmoides)	f
Longhorn sculpin	(Myoxocephalus octodecemspinosus)	m
Lookdown	(Selene vomer)	m
Mummichog	(Fundulus heteroclitus)	e
Northern pipefish	(Syngnathus fuscus)	m
Northern puffer	(Sphoeroides maculatus)	m
Northern searobin	(Prionotus carolinus)	m
Pumpkinseed	(Lepomis gibbosus)	f

* m = marine, e = euryhaline, f = freshwater

Table 3-12 (Cont'd)

Common Name	Scientific Name	Salinity Preference*
Rainbow smelt	(Osmerus mordax)	e
Redbreast sunfish	(Lepomis auritus)	f
Rock bass	(Ambloplites rupestris)	f
Rough silverside	(Membras martinica)	m
Satinfin shiner	(Notropis analostanus)	f
Sea horse	(Hippocampus hudsonius)	m
Sea lamprey	(Petromyzon marinus)	m
Silver hake	(Merluccius bilinearis)	m
Smallmouth bass	(Micropterus dolomieui)	f
Smallmouth flounder	(Etropus microstomus)	m
Spot	(Leiostomus xanthurus)	m
Spottail shiner	(Notropis hudsonius)	f
Spotted hake	(Urophycis regia)	m
Squirrel or red hake	(Urophycis chuss)	m
Striped bass	(Morone saxatilis)	e
Striped burrfish**	(Chilomycterus schoepfi)	m
Striped searobin	(Prionotus evolans)	m
Summer flounder	(Paralichthys dentatus)	m
Tautog	(Tautoga onitis)	m
Tesselated darter	(Etheostoma olmstedi)	f
Threespine stickleback	(Gasterosteus aculeatus)	e
Tidewater silverside	(Menidia peninsulae)	e
Weakfish	(Cynoscion regalis)	m
White catfish	(Ictalurus catus)	f
White crappie	(Pomoxis annularis)	f
White perch	(Morone americana)	e
White sucker	(Catostomus commersoni)	f
Windowpane	(Scophthalmus aquosus)	m
Winter flounder	(Pseudopleuronectes americanus)	m
Yellow perch	(Perca flavescens)	f

Totals	m - 33
	e - 16
	f - 23
Total for year	72

Source: (AFS 1980)

* m = marine, e = euryhaline, f = freshwater
** species not previously collected in impingement sampling

Table 3-13. Total Volume Circulated* ($10^6 m^3$) at Indian Point Units 2 and 3 Combined, Estimated Number of Fish Impinged, and Number of Species Collected in Impingement Sampling, and Correlation Between Volume and Number Impinged 1976 through 1981.

Year	Volume	Estimated No. Impinged**	No. Species Collected
1976	1329.1	1,580,352	58
1977	2158.6	6,270,152	72
1978	2030.4	3,801,211	72
1979	1934.9	4,318,722	74
1980	1822.4	3,121,797	76
1981	1616.7	4,568,266	72

Correlation Coefficient Between
Volume and Estimated Number Impinged $r = 0.78$ $p \leq 0.07$

* Including service water

** Adjusted for collection efficiency using linear regression equations (Section 3.2)

Table 3-14. Estimated Number Impinged and Percent of Total Number Impinged of Nine Most Abundant Species and All Species Combined at the Indian Point Generating Station During 1981.

	Unit 2		Unit 3		Unit 2 and 3 Combined	
Species	Number	Percent	Number	Percent	Number	Percent
White perch	1,327,335	37.1	673,225	67.6	2,000,560	43.8
Bay anchovy	1,218,744	34.1	113,878	11.4	1,332,622	29.2
Atlantic tomcod	350,606	9.8	75,892	7.6	426,498	9.3
Blueback herring	233,232	6.5	15,276	1.5	248,508	5.4
American shad	207,598	5.8	21,709	2.2	229,307	5.0
Striped bass	55,255	1.5	25,939	2.6	81,194	1.8
Alewife	53,365	1.5	8,814	0.9	62,179	1.4
Weakfish	50,037	1.4	11,691	1.2	61,728	1.3
Hogchoker	23,322	0.6	22,625	2.3	45,947	1.0
All species combined	3,573,103		995,163		4,568,266	

Table 3-15. Circulating Water Volume Pumped ($10^6 m^3$) in Association with Impingement Sampling at Indian Point Units 2 and 3 during 1981.

Month	Unit 2	Unit 3	Units 2 and 3
Jan	0.0	65.6	65.6
Feb	7.6	18.6	26.2
Mar	14.2	34.7	48.9
Apr	5.8	64.2	70.0
May	43.8	90.0	133.8
Jun	112.8	128.7	241.5
Jul	34.4	43.5	77.9
Aug	4.6	51.7	56.3
Sep	3.2	5.5	8.7
Oct	63.7	0.0	63.7
Nov	33.5	9.7	43.2
Dec	62.1	43.1	105.2
Totals	385.7	555.3	941.0

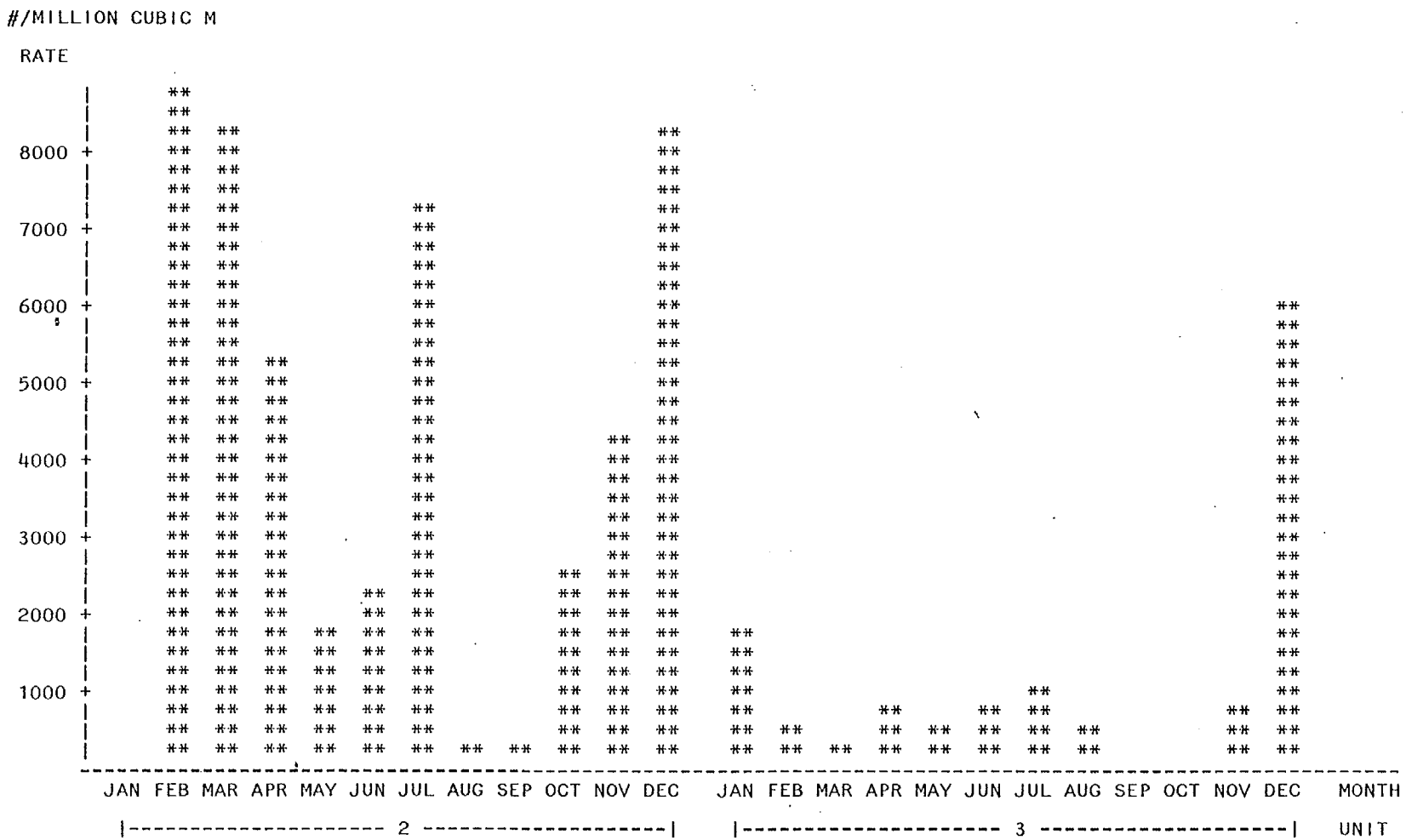


Figure 3-1. Monthly Adjusted Impingement Rates for All Taxa Combined at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates

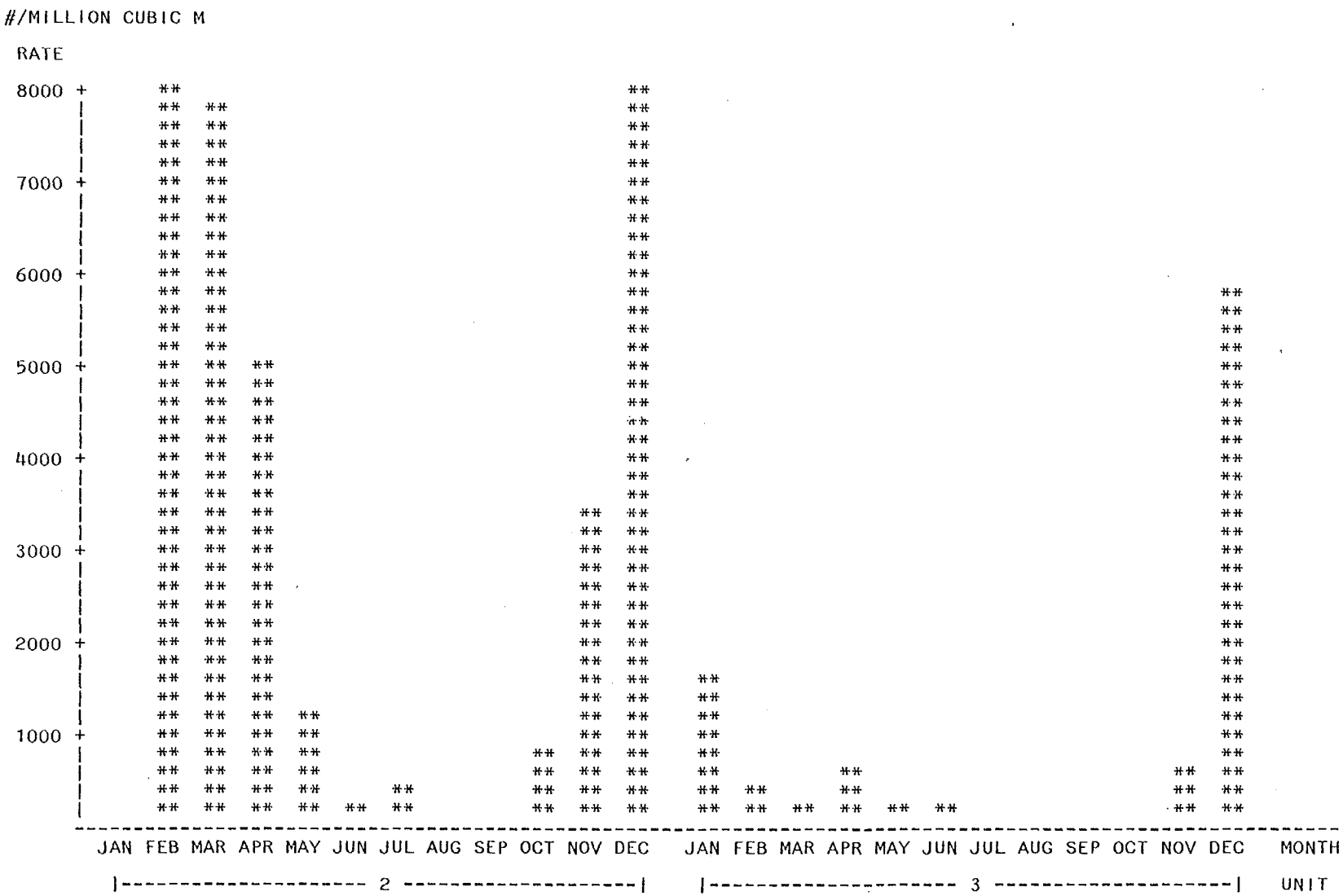


Figure 3-2. Monthly Adjusted Impingement Rates for White Perch at Indian Point Units 2 and 3 during 1981
(Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

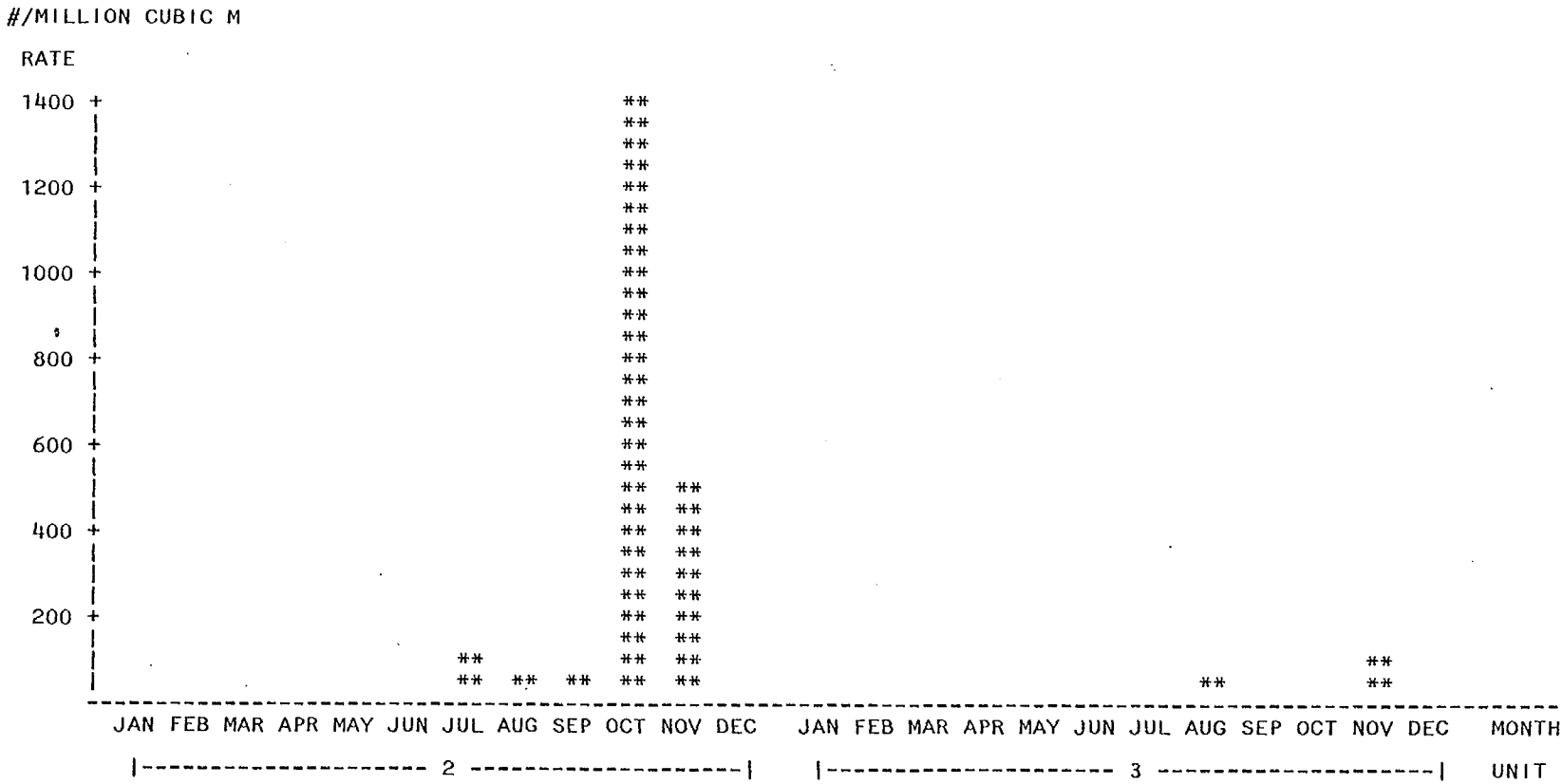


Figure 3-3. Monthly Adjusted Impingement Rates for Blueback Herring at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

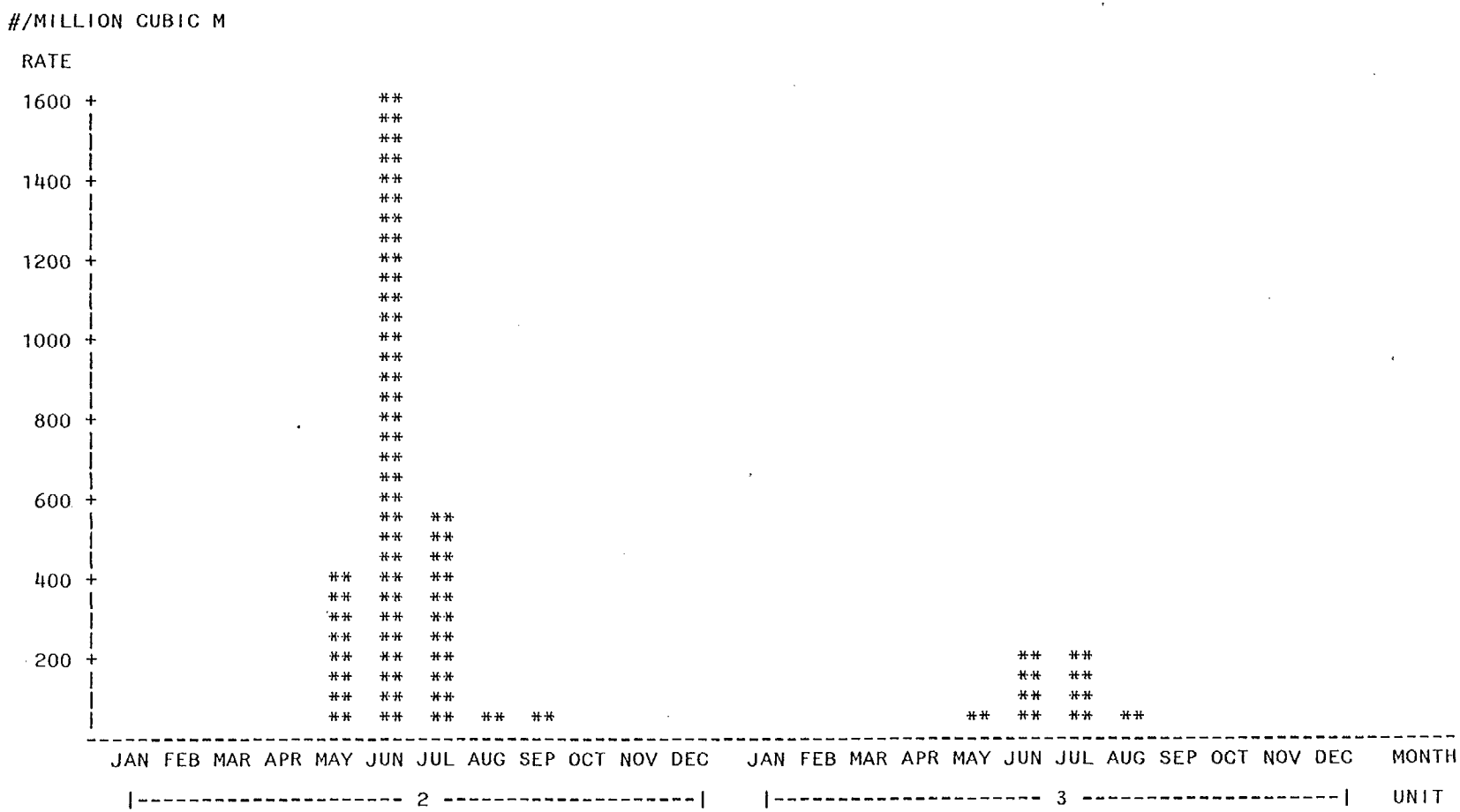


Figure 3-4. Monthly Adjusted Impingement Rates for Atlantic Tomcod at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

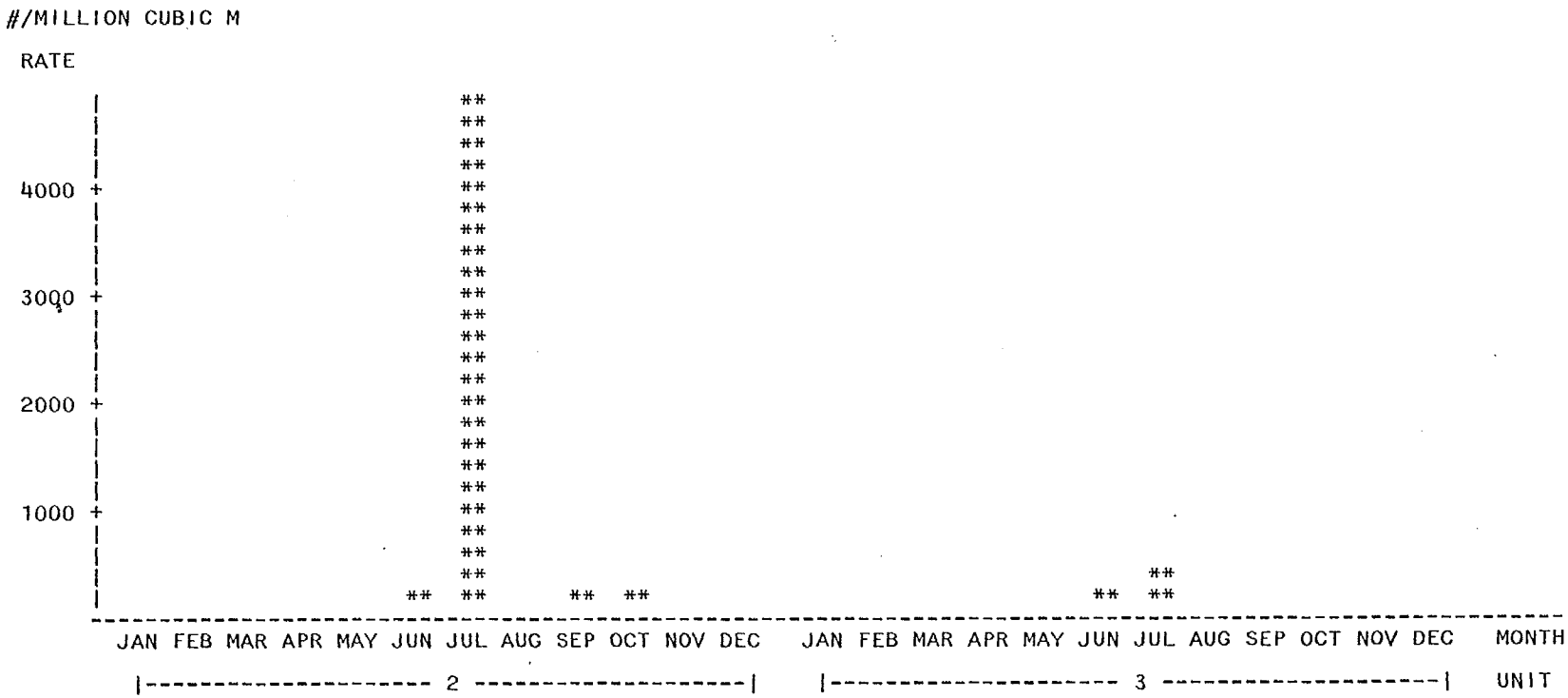


Figure 3-5. Monthly Adjusted Impingement Rates for Bay Anchovy at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

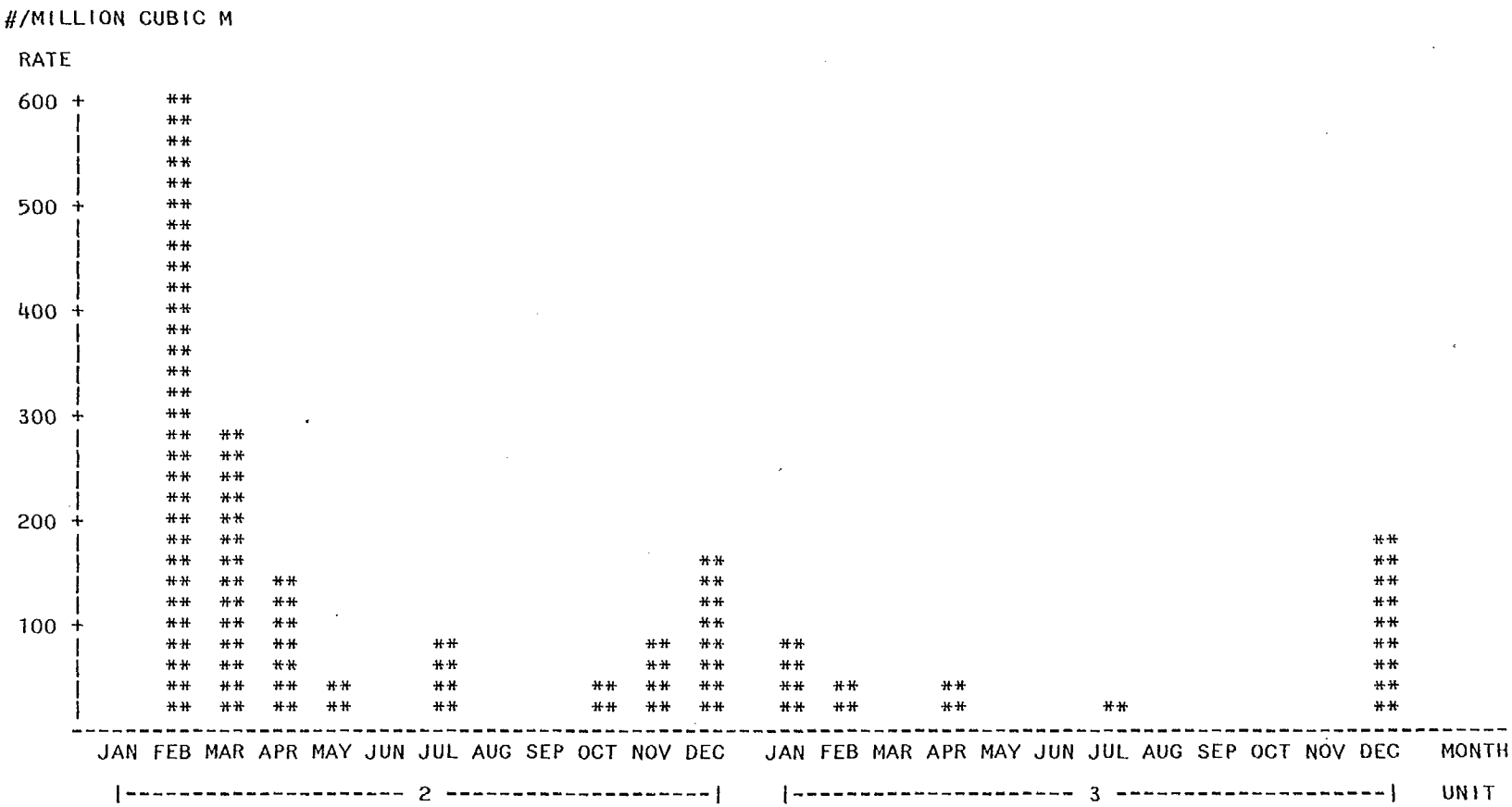


Figure 3-6. Monthly Adjusted Impingement Rates for Striped Bass at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

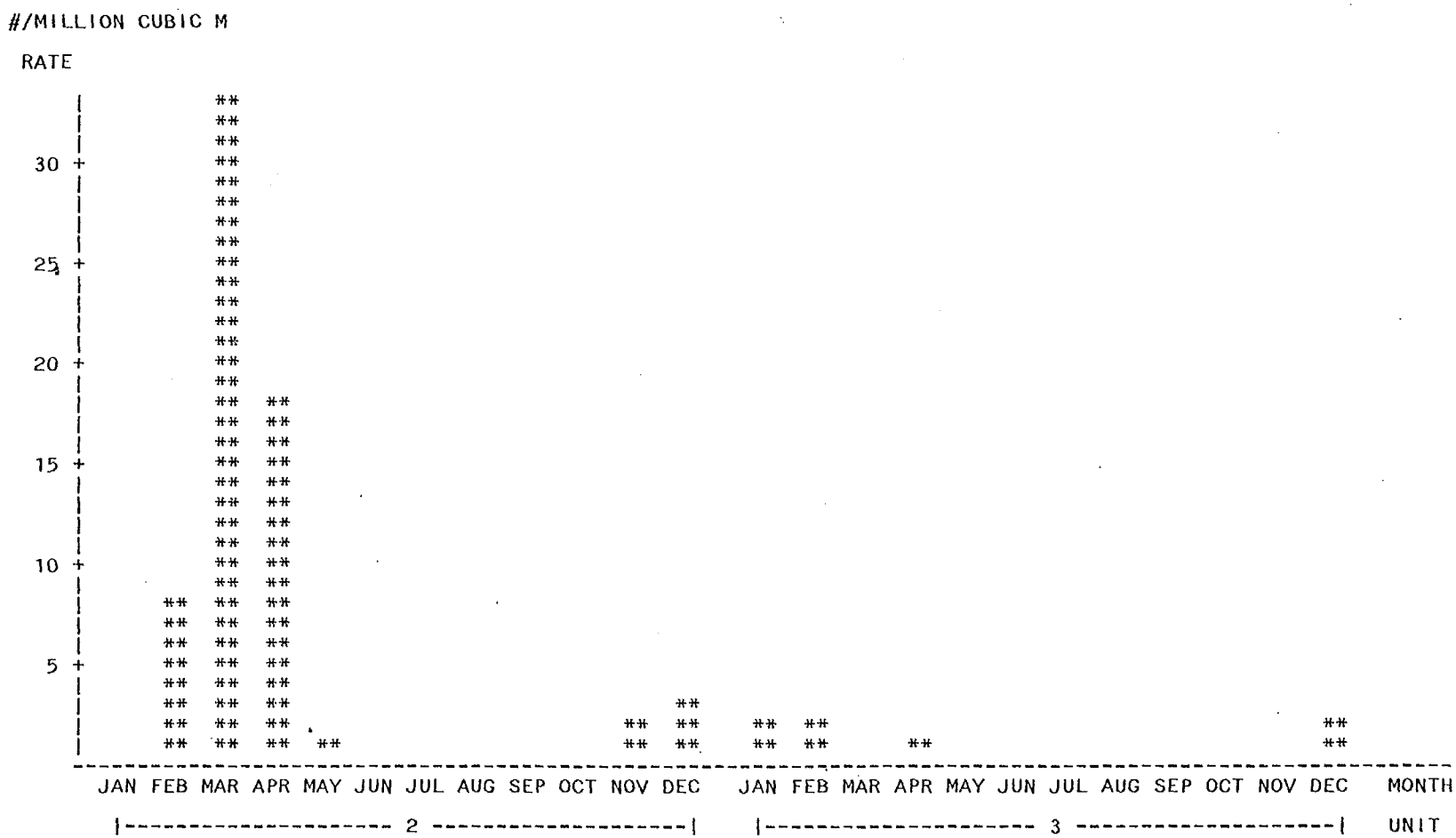


Figure 3-7. Monthly Adjusted Impingement Rates for Spottail Shiner at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

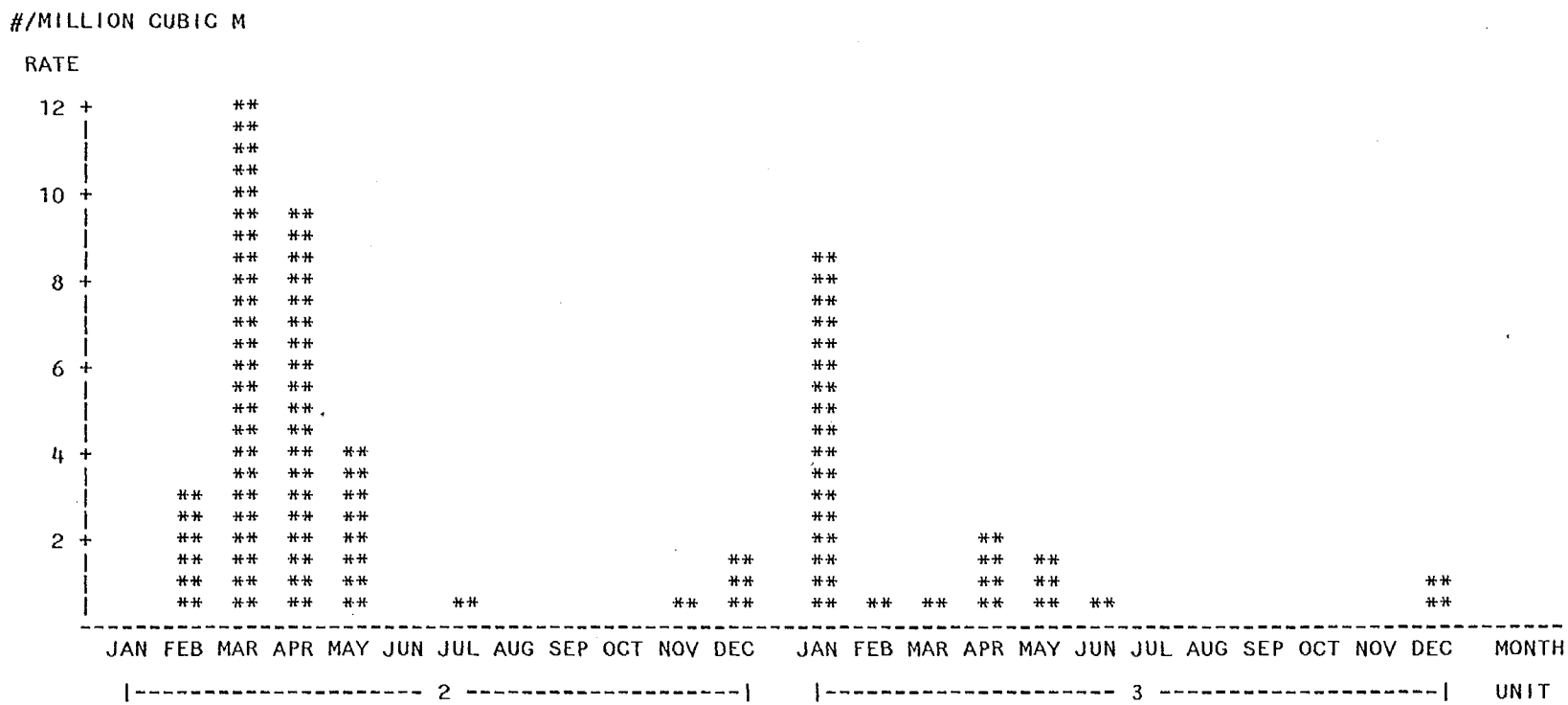


Figure 3-8. Monthly Adjusted Impingement Rates for Rainbow Smelt at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

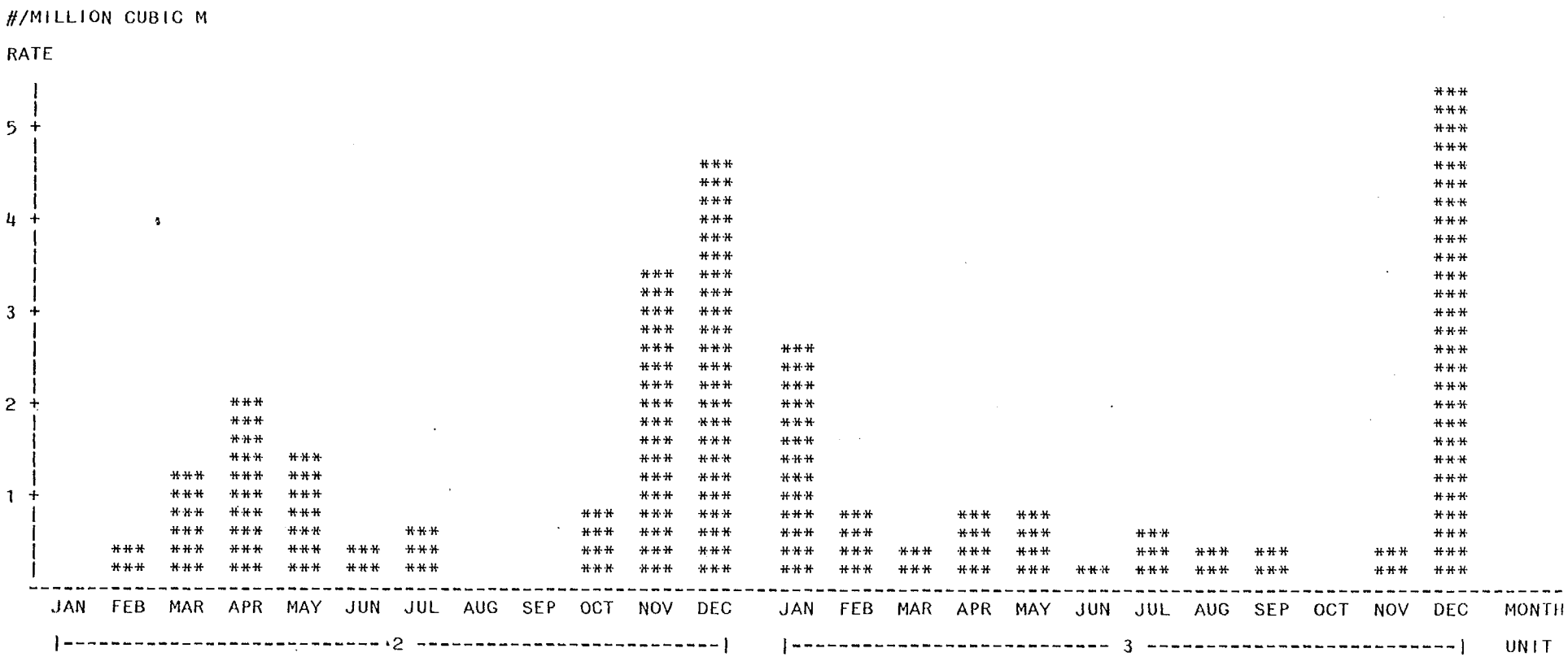


Figure 3-9. Monthly Adjusted Impingement Rates for White Catfish at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

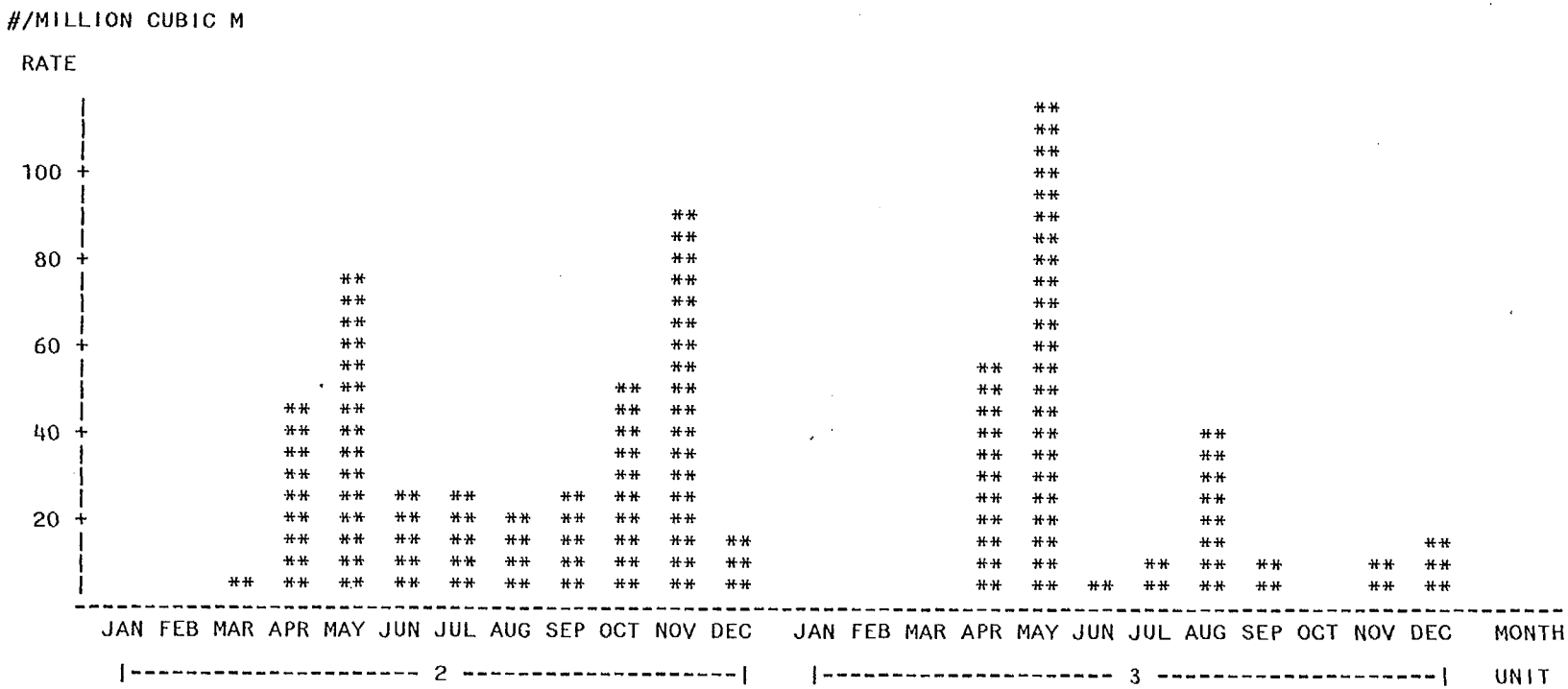


Figure 3-10. Monthly Adjusted Impingement Rates for Hogchoker at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

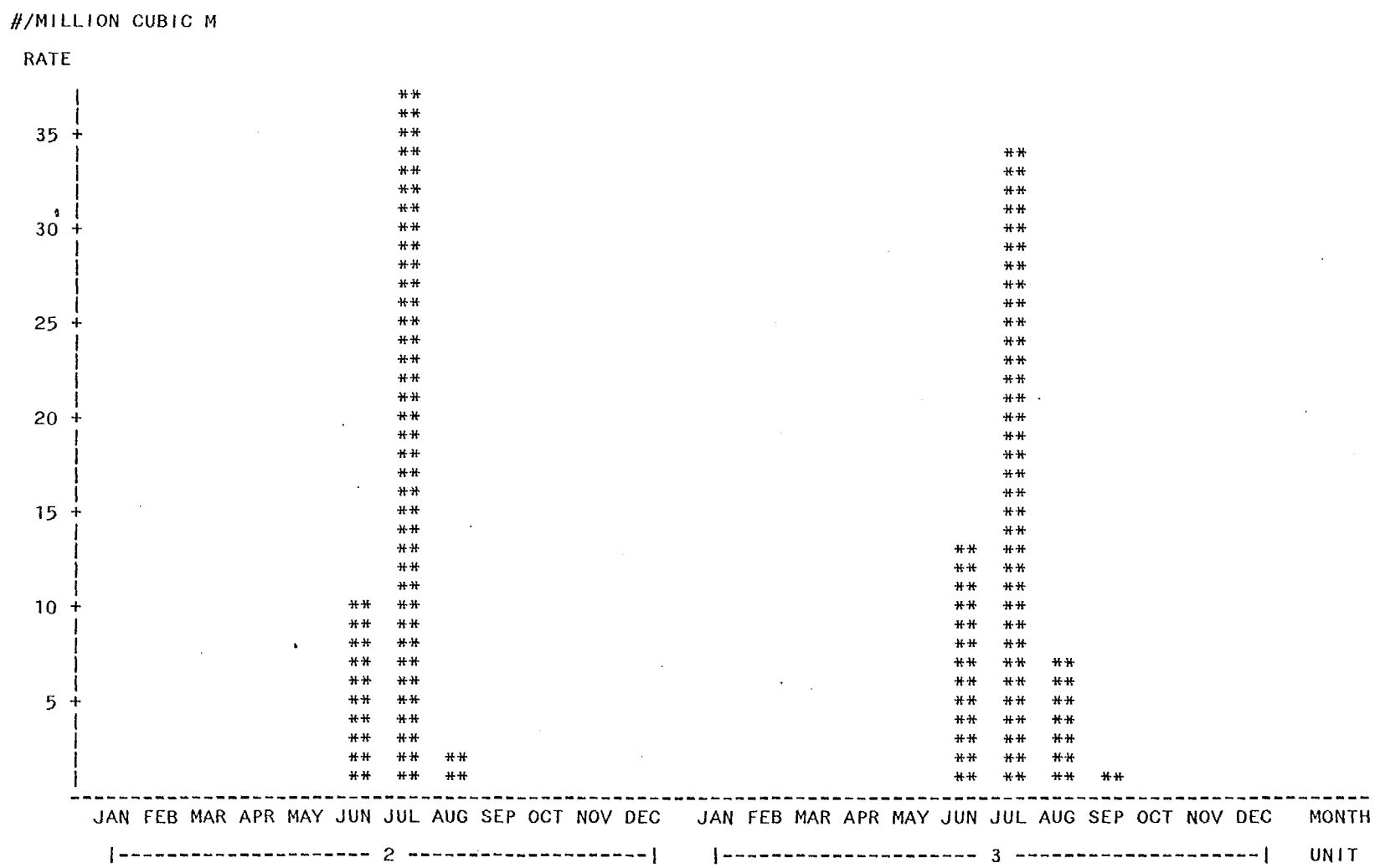


Figure 3-11. Monthly Adjusted Impingement Rates for Bluefish at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

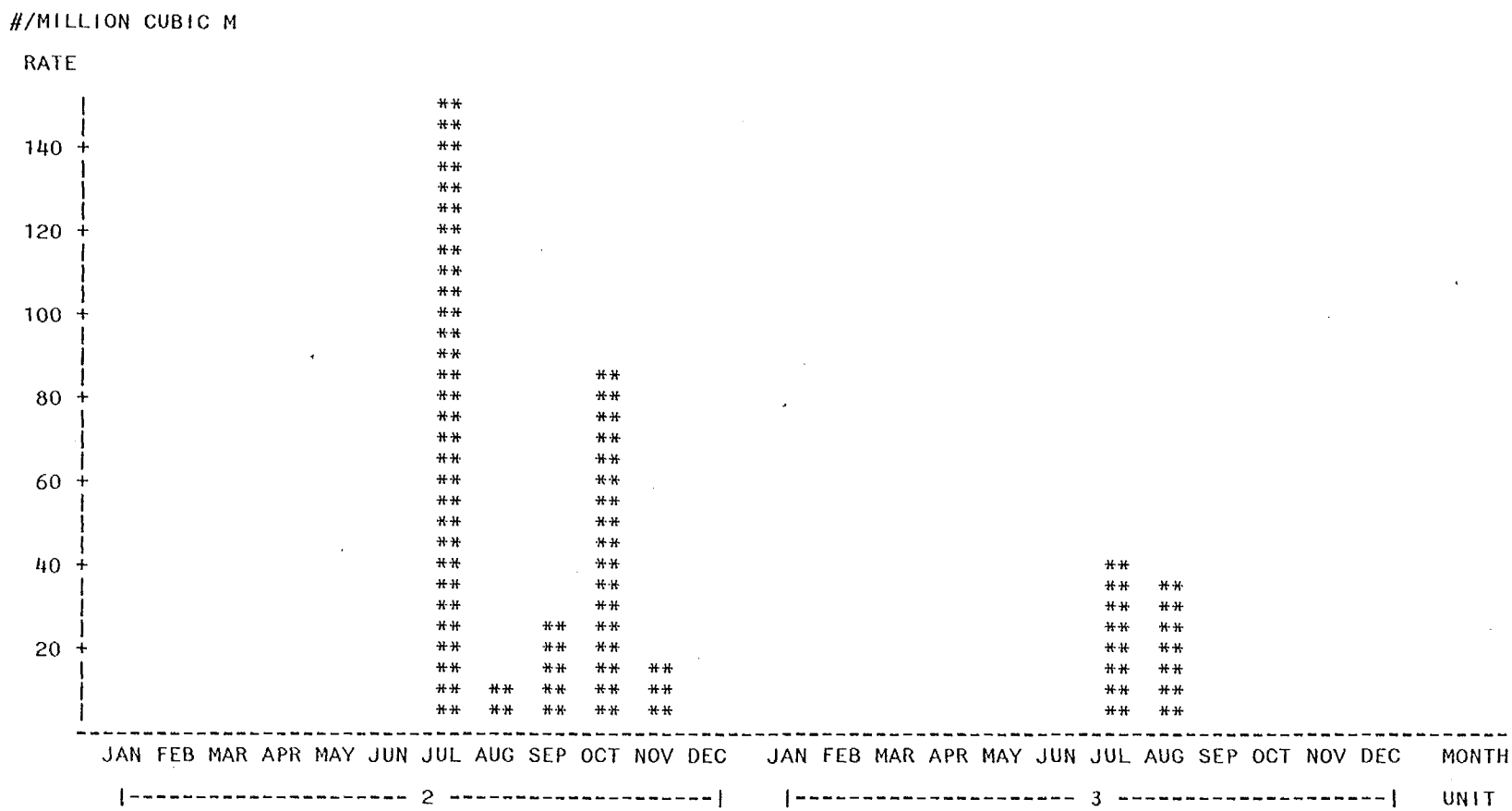


Figure 3-12. Monthly Adjusted Impingement Rates for Weakfish at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

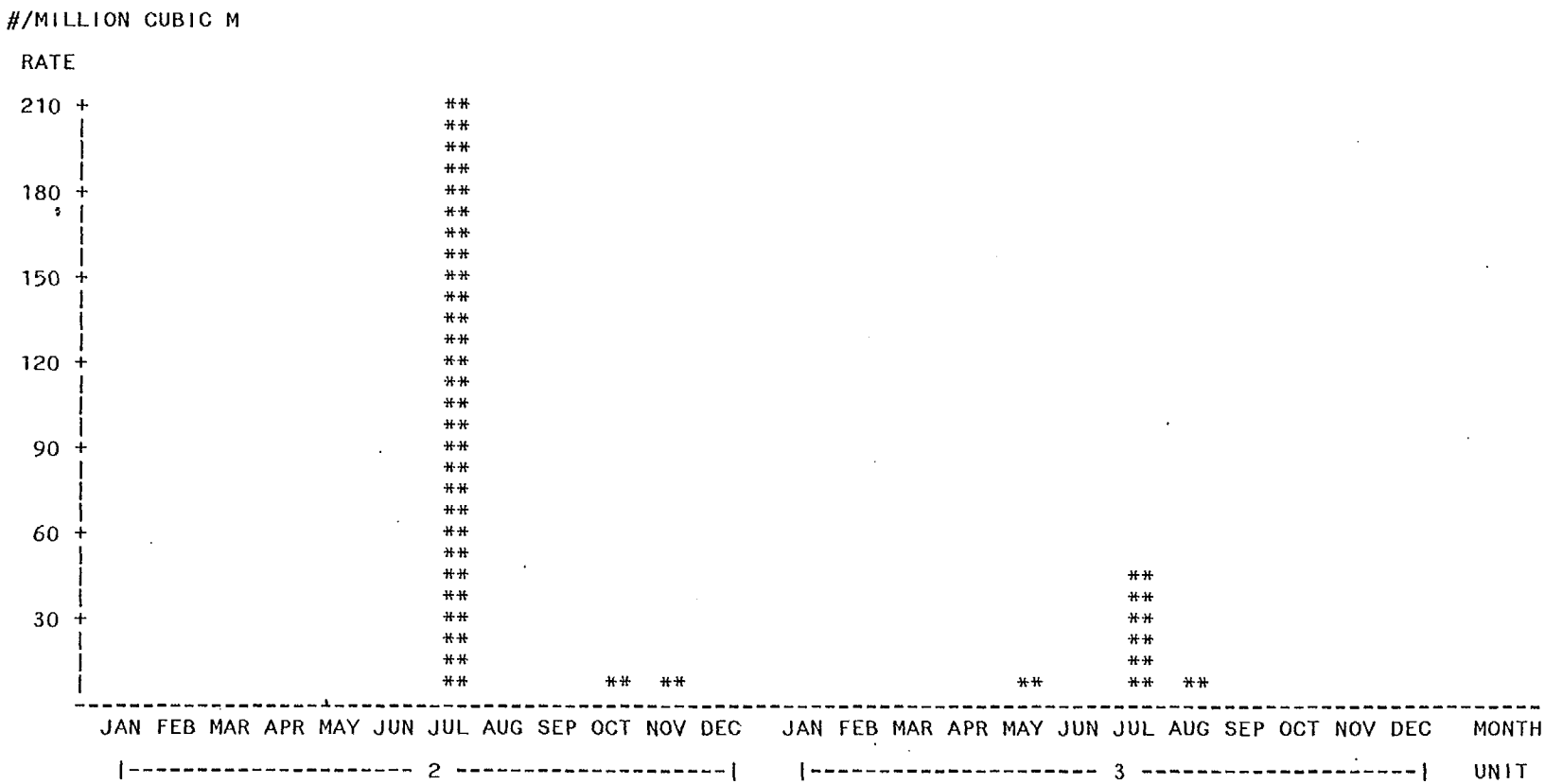


Figure 3-13. Monthly Adjusted Impingement Rates for Alewife at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

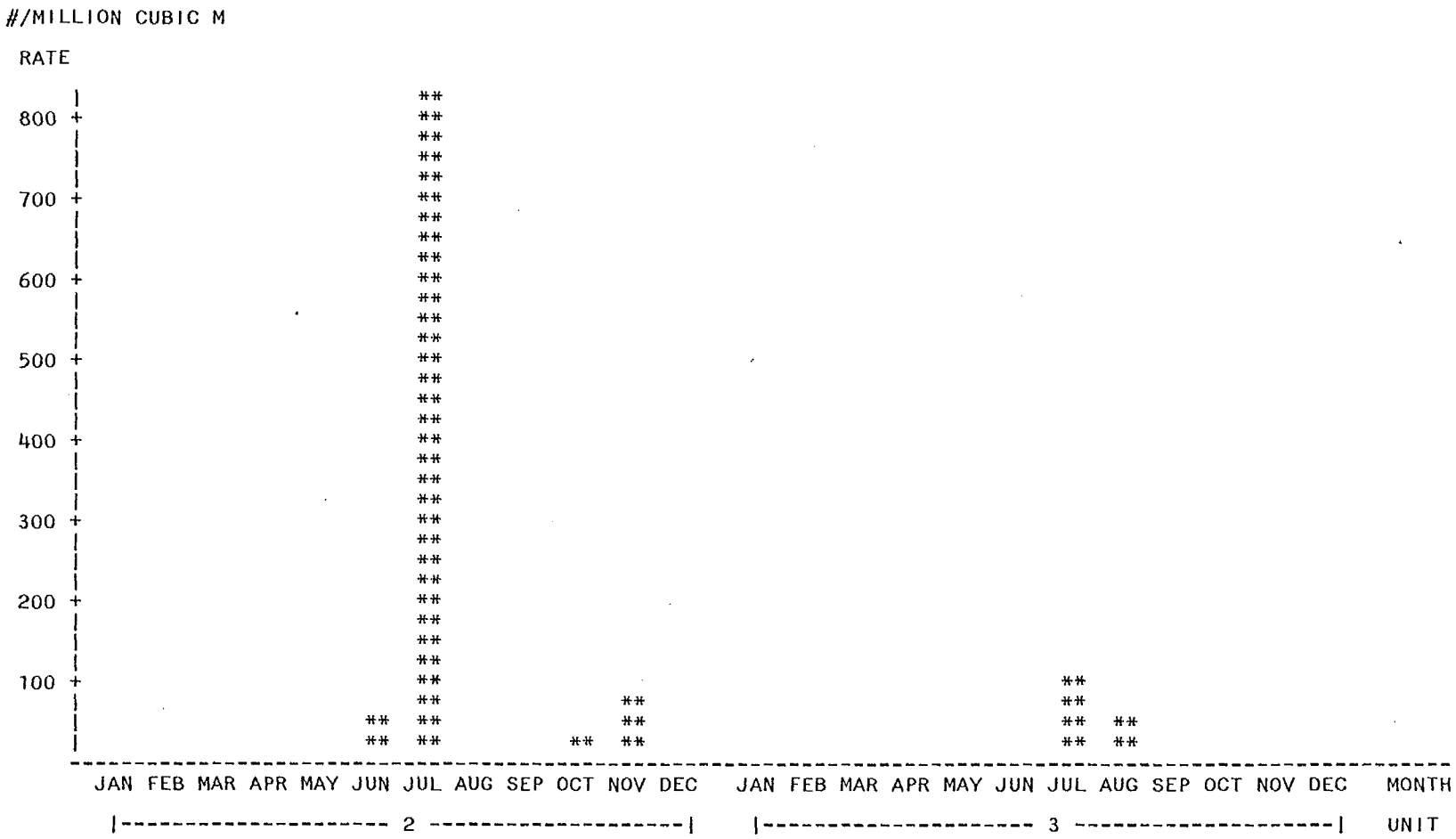


Figure 3-14. Monthly Impingement Rates for American Shad at Indian Point Units 2 and 3 during 1981
(Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

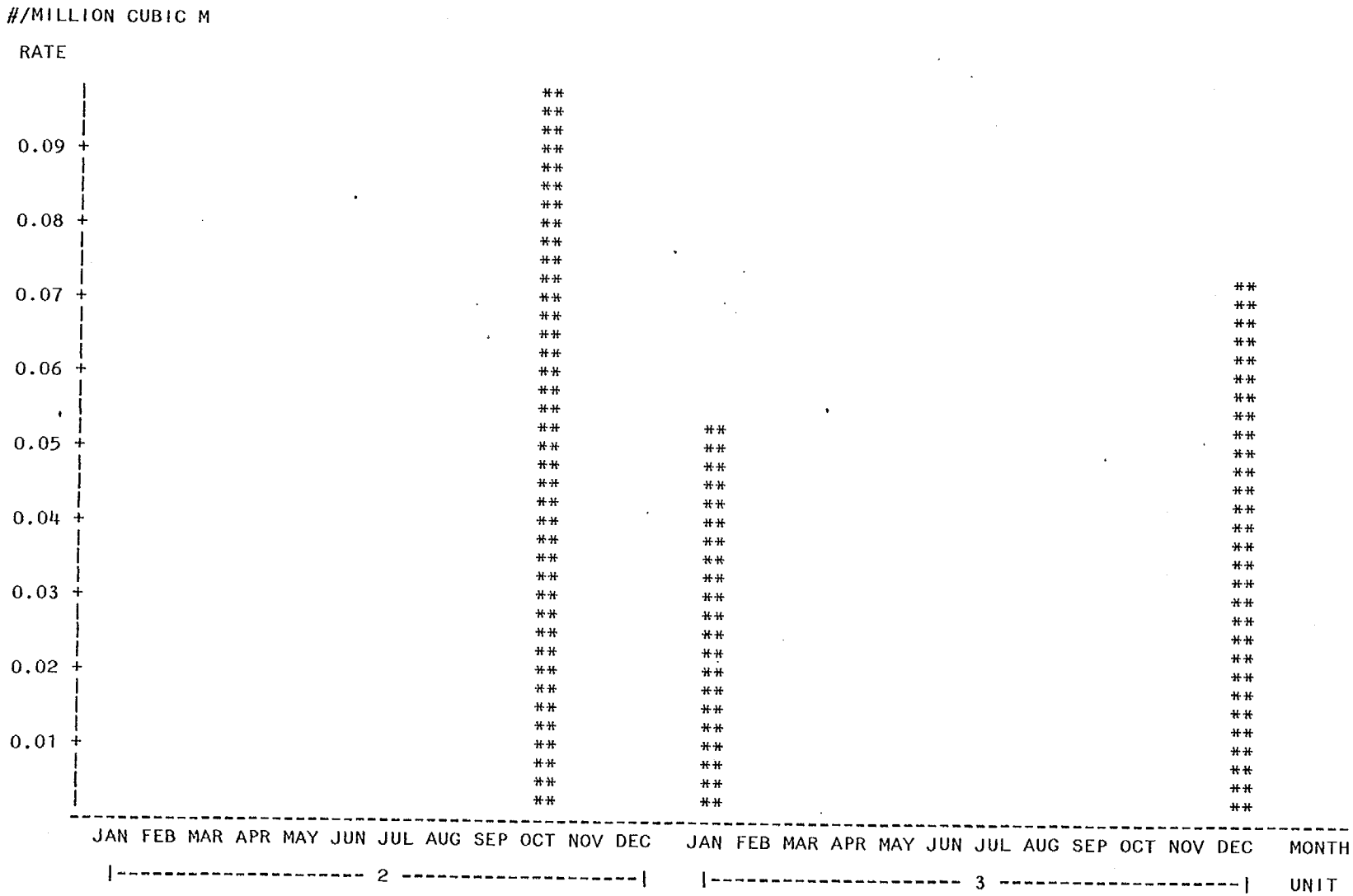


Figure 3-15. Monthly Adjusted Impingement Rates for Atlantic Sturgeon at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

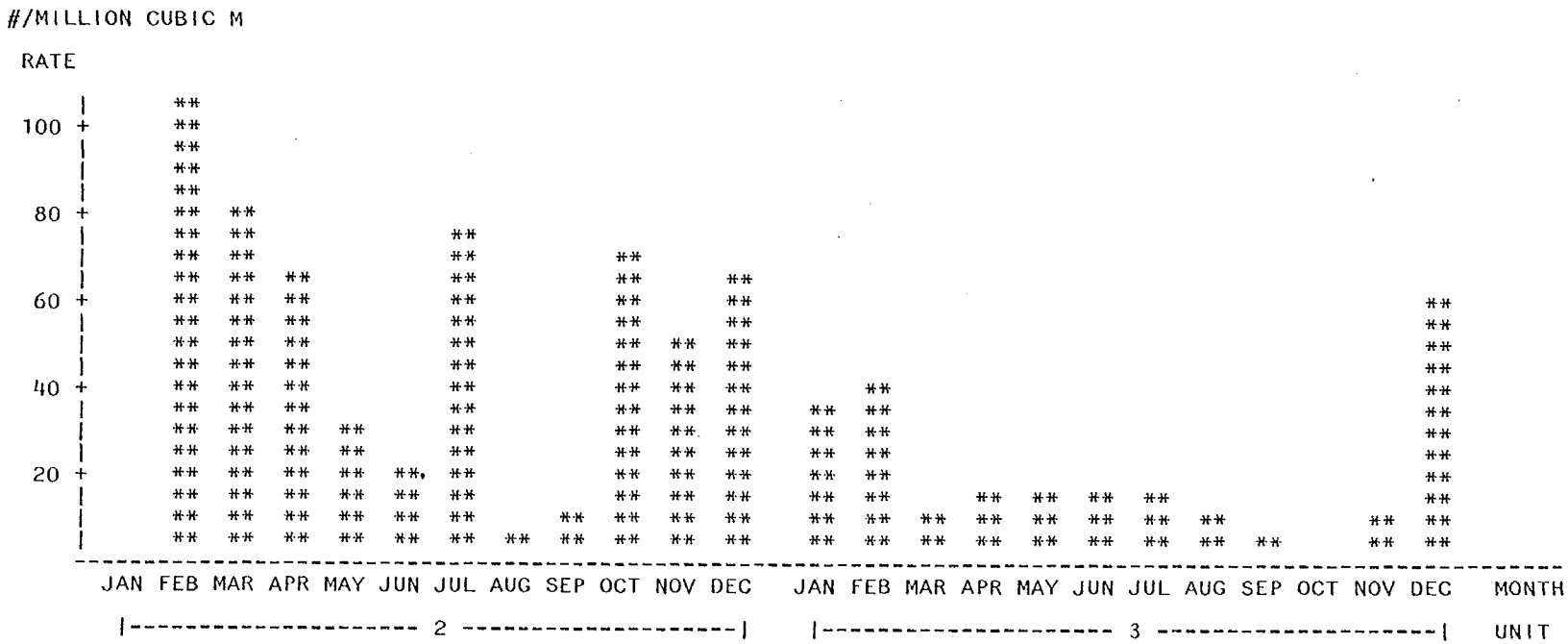


Figure 3-16. Monthly Adjusted Impingement Rates for Other Less Dominant Taxa at Indian Point Units 2 and 3 during 1981 (Refer to Table 3-15 for actual circulator volumes used in calculating impingement rates)

4.0 ICHTHYOPLANKTON SAMPLING AT THE INDIAN POINT STATION

The 1981 sampling program, like the 1980 program, was designed to examine the seasonal and diel abundance of commonly occurring ichthyoplankton at the Station. In 1981, sampling methodologies were very similar to those employed in 1980; however, the sampling location was moved from discharge canal station D1 to D2 (Figure 4-1) and sampling started and ended later in the season than in 1980. In 1980, sampling occurred from March 6 to July 31 while in 1981 sampling occurred from May 6 through August 30.

Emphasis in the ichthyoplankton sampling program was placed on describing the seasonal and diel density patterns of the early life stages (eggs, yolk-sac larvae, post yolk-sac larvae and juveniles) of striped bass, white perch, Atlantic tomcod, bay anchovy and *Alosa* spp. These five taxa were selected because of their relatively high abundance in entrainment collections (EA 1979, 1980a, 1980b, 1981a, 1981b; Con Edison 1982). Rainbow smelt, which were treated in a prior Annual Report (Con Edison 1982) were not collected in 1981, possibly because of the later starting date of the sampling program. The weekly length distributions for the five selected taxa are included in Tables B-1 through B-5, while the number and density per sample for these five taxa and all ichthyoplankton combined are included in Appendix Tables B-6 through B-11. Mean weekly densities for the non-selected taxa are presented in Table B-12. Total estimated weekly volume sampled is presented in Table B-13. Ichthyoplankton sampling and analytical methods are presented in Appendix B.

4.1 Water Quality Parameters

The mean weekly ambient water temperature gradually increased from 14°C to 30°C from the start of the study to mid-July (Figure 4-2), stabilized around 28 to 31 °C from mid-July to mid-August and then gradually declined to approximately 27°C in late August. Mean weekly salinity was generally low throughout May and early June (less than 2 ppt), after which it gradually increased to slightly higher than 5 ppt in mid-August (Figure 4-3). Dissolved oxygen gradually declined throughout the season from a mean weekly high of 9 mg/l in mid-May to approximately 4 to 5 mg/l from late July to late August (Figure 4-4). The mean weekly pH values were stable at approximately 7.2 throughout the season (Figure 4-5).

4.2 Entrainment Densities

4.2.1 Total Ichthyoplankton

Representatives of 21 ichthyoplankton taxa were identified in collections from May 6 through August 30 (Table 4-1). Eggs were collected in 16 of the 17 weeks during which sampling was performed (Figure 4-6). The highest mean weekly densities of eggs occurred in mid-June (2368/1000m^3) and mid-July (7873/1000m^3) and consisted primarily of bay anchovy. Most eggs were collected during the afternoon, evening and at night (Figure 4-7).

Yolk-sac larvae were collected in 10 of the 17 weeks, (Figure 4-8) primarily during the day (Figure 4-9). The highest mean weekly densities occurred from mid to late May (reaching 85/1000m^3) and consisted mostly of striped bass and white perch. Alosa spp., bay anchovy, and hogchoker yolk-sac larvae were collected only during the weeks of May 10, June 14 and July 12, respectively, at densities of less than 5/1000m^3 (Figure 4-43, Figure 4-35 and Table B-12).

Post yolk-sac larvae were collected in all weeks (Figure 4-10) primarily during the day (Figure 4-11). The highest mean weekly density occurred in late July (4193/1000m^3) and consisted primarily of bay anchovy. Mean weekly densities of post yolk-sac larvae were also relatively high in late May (reaching a weekly maximum of 856/1000m^3) and late June (reaching a weekly maximum of 972/1000m^3). The relatively high densities in late May consisted primarily of striped bass, white perch and Alosa spp. larvae while the relatively high densities in late June consisted primarily of striped bass, white perch and bay anchovy. The diel pattern throughout the period of post yolk-sac larval occurrence was most strongly influenced by bay anchovy, white perch and Alosa spp.

Juveniles were collected in 15 of the 17 weeks sampled (Figure 4-12), more frequently at night than during the day (Figure 4-13). The highest mean weekly density occurred in late June (45/1000m^3) and consisted primarily of white perch and striped bass. The relatively high mean weekly densities in early May (15 to 31/1000m^3) consisted entirely of Atlantic tomcod while the high densities (18 to

29/1000m^3) in late July primarily consisted of hogchoker and weakfish (Table B-12).

4.2.2 Striped Bass

Eggs were found during the first three weeks in May (mean weekly densities of 0.7 to 2.3/1000m^3) primarily in the day collections (Figures 4-14 and 4-15). The highest mean weekly densities of yolk-sac larvae occurred from mid-May through late May (10 to 76/1000m^3) (Figure 4-16), with higher densities occurring during the day (Figure 4-17). Post yolk-sac larvae were primarily collected from late May through late June (mean weekly densities 120 to 501/1000m^3) (Figure 4-18) with slightly higher densities during the evening and at night (Figures 4-19). Juveniles were collected almost exclusively in late June (mean weekly densities 11 to 15/1000m^3) with the highest densities occurring at night (Figures 4-20 and 4-21).

4.2.3 White Perch

All life stages of white perch were collected in at least six weeks except for yolk-sac larvae which were collected in only three weeks (Figures 4-22 through 4-25). High mean weekly densities occurred in early June for eggs (3 to 5/1000m^3), in mid to late May for yolk-sac larvae (4 to 13/1000m^3), in mid to late May for post yolk-sac larvae (165 to 403/1000m^3) and in late June and early July for juveniles (5 to 26/1000m^3). Higher densities of juveniles were collected at night while the other early life stages were collected in slightly higher densities during the day (Figures 4-26 through 4-29).

4.2.4 Atlantic tomcod

No eggs or yolk-sac larvae of Atlantic tomcod were collected. This species spawns in December and January in the Hudson River and few if any eggs or yolk-sac larvae would be expected in early May (TI 1981) when sampling commenced. The highest mean weekly densities of post yolk-sac larvae (2 to 3/1000m^3) and juveniles (15 to 30/1000m^3) occurred in early May (Figures 4-30 and 4-31). Most post yolk-sac larvae and juveniles were collected in the afternoon and evening (Figures 4-32 and 4-33).

4.2.5 Bay Anchovy

Eggs were collected intermittently from early June through early August sometimes at relatively high mean weekly densities (1582 to 7871/ $1000m^3$) (Figure 4-34). Yolk-sac larvae were only collected during one week in mid-June (mean weekly density less than $2/1000m^3$) (Figure 4-35). Post yolk-sac larvae were collected from early June through late August, with highest densities occurring in mid to late July (mean weekly densities of 771 to $3528/1000m^3$) (Figure 4-36). The period of high mean weekly densities for juveniles extended from mid-July through early August (2 to $4/1000m^3$) (Figure 4-37). Most eggs, yolk-sac larvae and juveniles were collected in the late afternoon or at night, (Figures 4- 38 through 4-40), while most post yolk-sac larvae were collected during the day (Figure 4-41).

4.2.6 *Alosa* spp. Combined

Alosa spp. eggs were collected only during two weeks in mid-May (mean weekly densities of 0.7 to $2.2/1000m^3$), while yolk-sac larvae were collected in only one week in mid-May (mean weekly density of $4.7/1000m^3$) (Figures 4-42 and 4-43). No discernible diel density pattern was evident for either life stage (Figures 4-44 and 4-45). In the Hudson River, the *Alosa* spp. group (alewife, blueback herring, and American shad) primarily spawn in freshwater regions and few of the eggs or yolk-sac larvae are generally transported to the Indian Point region (TI 1981). Post yolk-sac larvae were collected at high mean weekly densities from mid-May through early June (48 to $238/1000m^3$) with slightly higher densities occurring during the day (Figure 4-46 and 4-47). Juveniles were collected later in the season, primarily at night, from late June through mid-August at mean weekly densities ranging from 0.7 to $2.8/1000m^3$ (Figures 4-48 and 4-49).

TABLE 4-1

Taxa Collected in Entrainment Sampling at the Indian Point Station
May through August, 1981

TAXON	COMMON NAME	TOTAL NUMBER COLLECTED
Clupeidae	Herrings	178
Alosa aestivalis	Blueback herring	4
Alosa sapidissima	American shad	8
Alosa spp.	Alosa	631
Engraulidae	Anchovies	2039
Anchoa mitchilli	Bay anchovy	26889
Cyprinidae	Minnows and Carps	15
Microgadus tomcod	Atlantic tomcod	54
Fundulus diaphanus	Banded killifish	2
Fundulus spp.	Killifish	4
Menidia spp.	Silversides	9
Syngnathus fuscus	Northern pipefish	13
Morone americana	White perch	1264
Morone saxatilis	Striped bass	1848
Morone spp.	Morone	569
Centrarchidae	Sunfishes	4
Etheostoma olmstedi	Tessellated darter	25
Perca flavescens	Yellow perch	15
Cynoscion regalis	Weakfish	70
Paralichthys oblongus	Fourspot Flounder	1
Trinectes maculatus	Hogchoker	75
Mutilated and unidentified		238
Total		33955

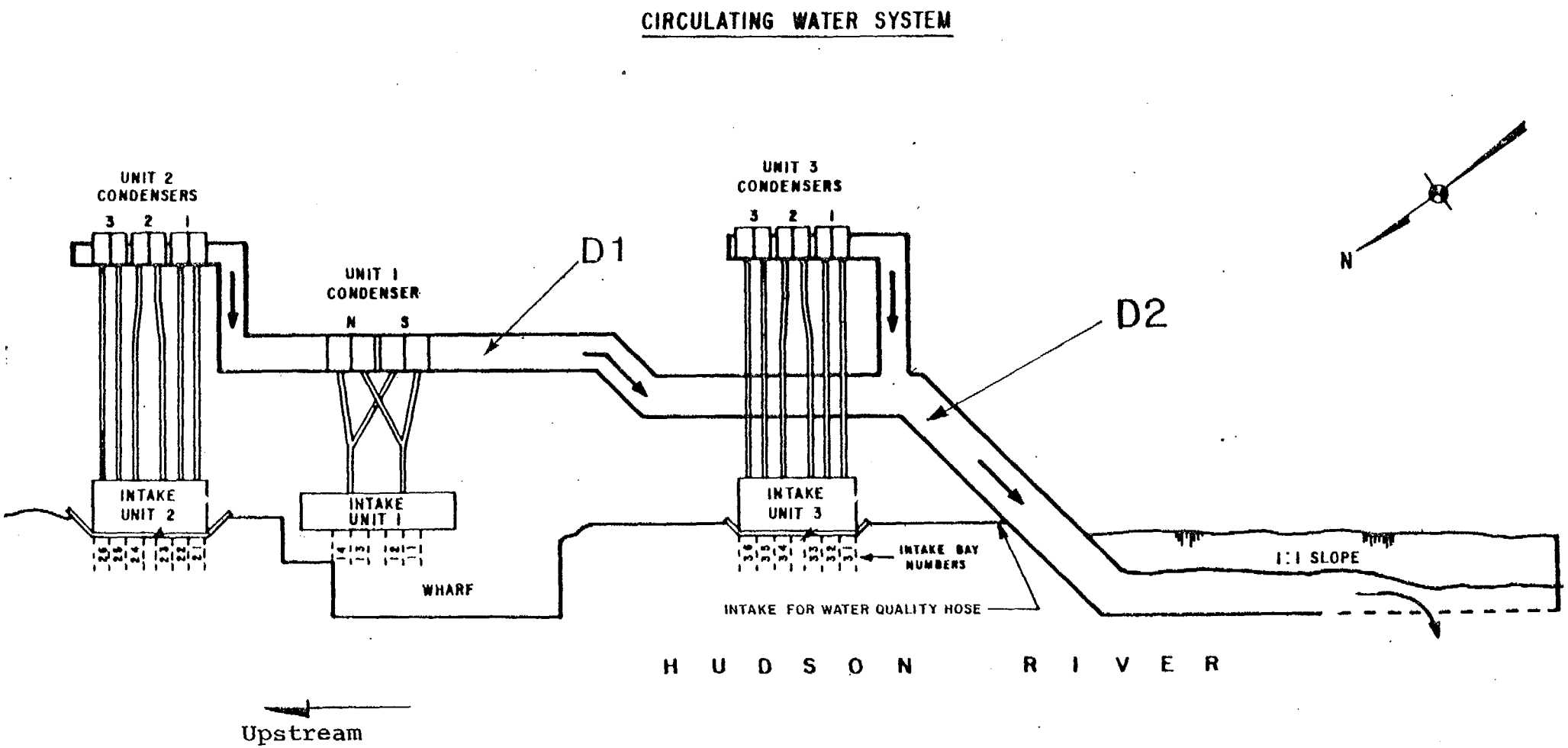


Figure 4-1. Location of Station D2 Used to Sample Ichthyoplankton Abundance at the Indian Point Station during 1981.

FIGURE 4-2. MEAN WEEKLY TEMPERATURES OF HUDSON RIVER WATER COLLECTED AT THE INDIAN POINT STATION IN 1981

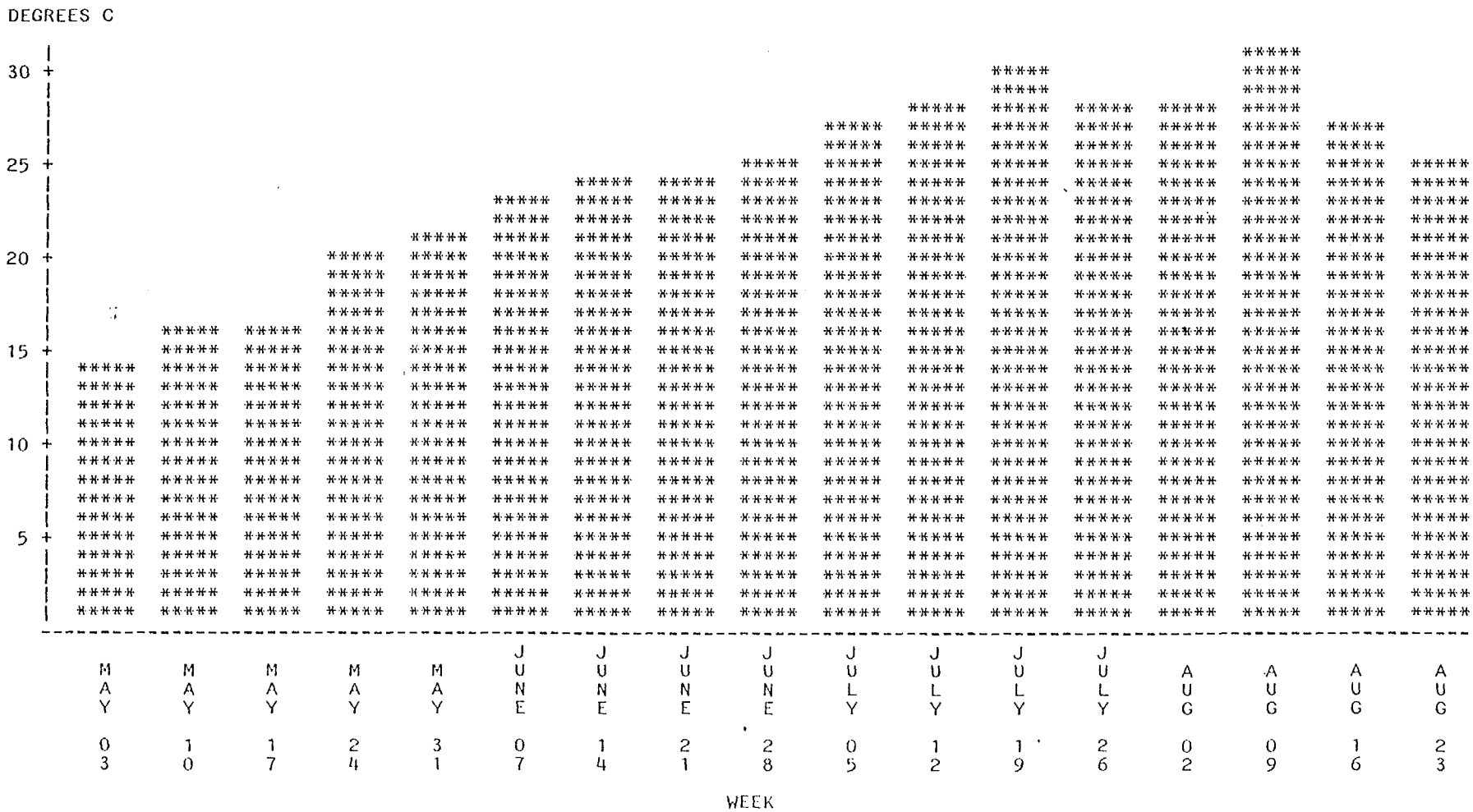
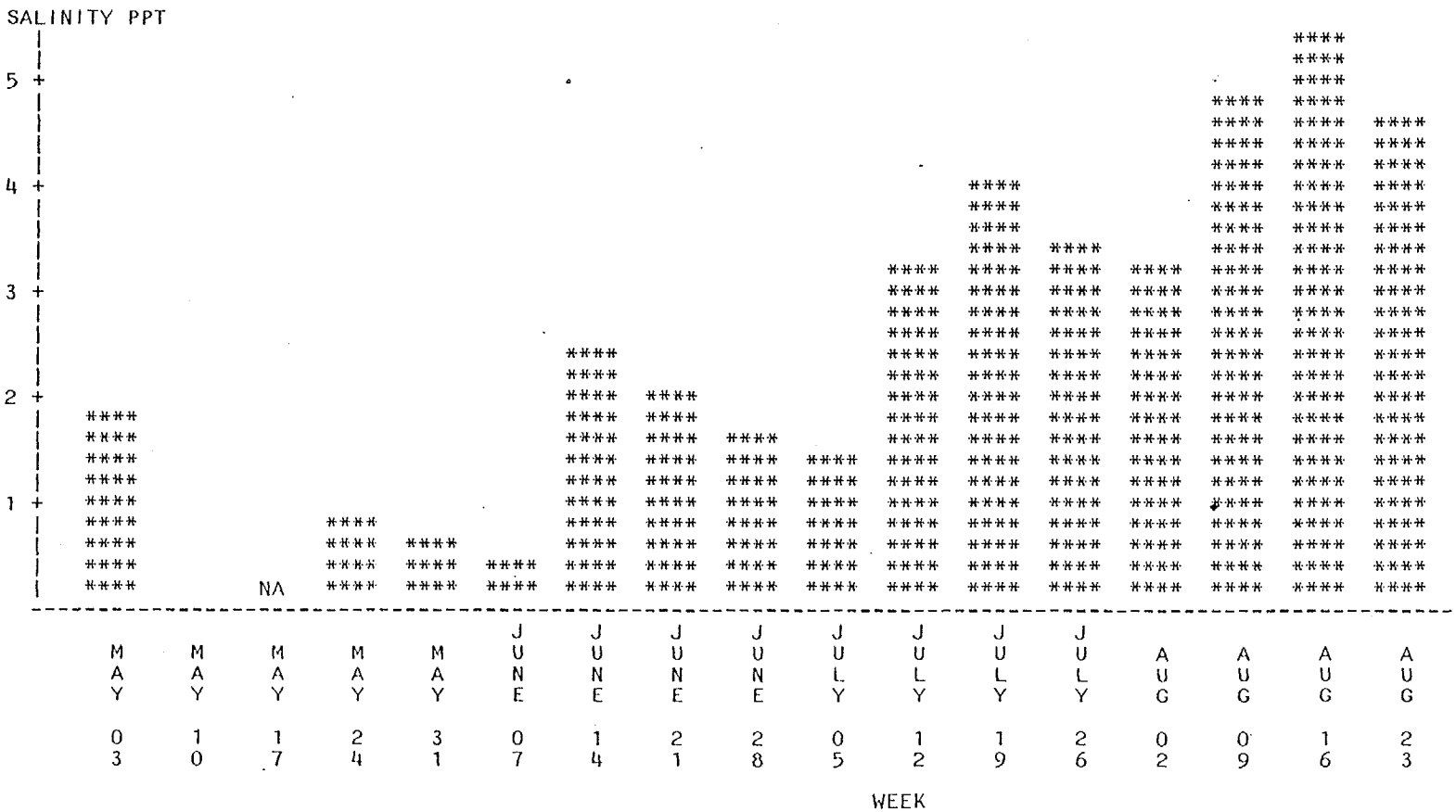
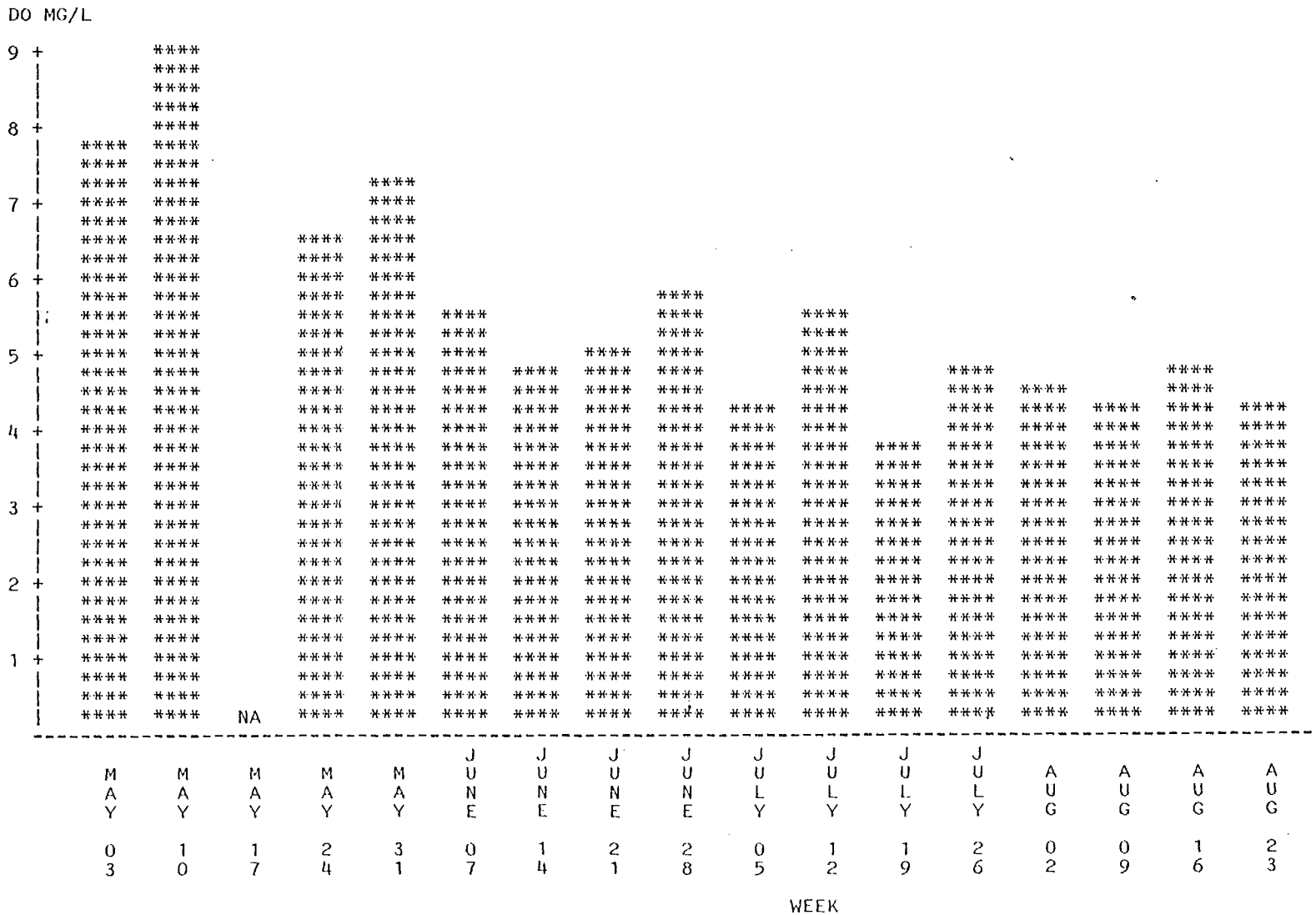


FIGURE 4-3. MEAN WEEKLY SALINITY CONCENTRATIONS OF HUDSON RIVER WATER COLLECTED AT THE INDIAN POINT STATION IN 1981



NA--NO DATA COLLECTED

FIGURE 4-4. MEAN WEEKLY DISSOLVED OXYGEN CONCENTRATIONS OF HUDSON RIVER WATER COLLECTED AT THE INDIAN POINT STATION IN 1981



NA--NO DATA COLLECTED

FIGURE 4-5. MEAN WEEKLY PH VALUES OF HUDSON RIVER WATER COLLECTED AT THE INDIAN POINT STATION IN 1981

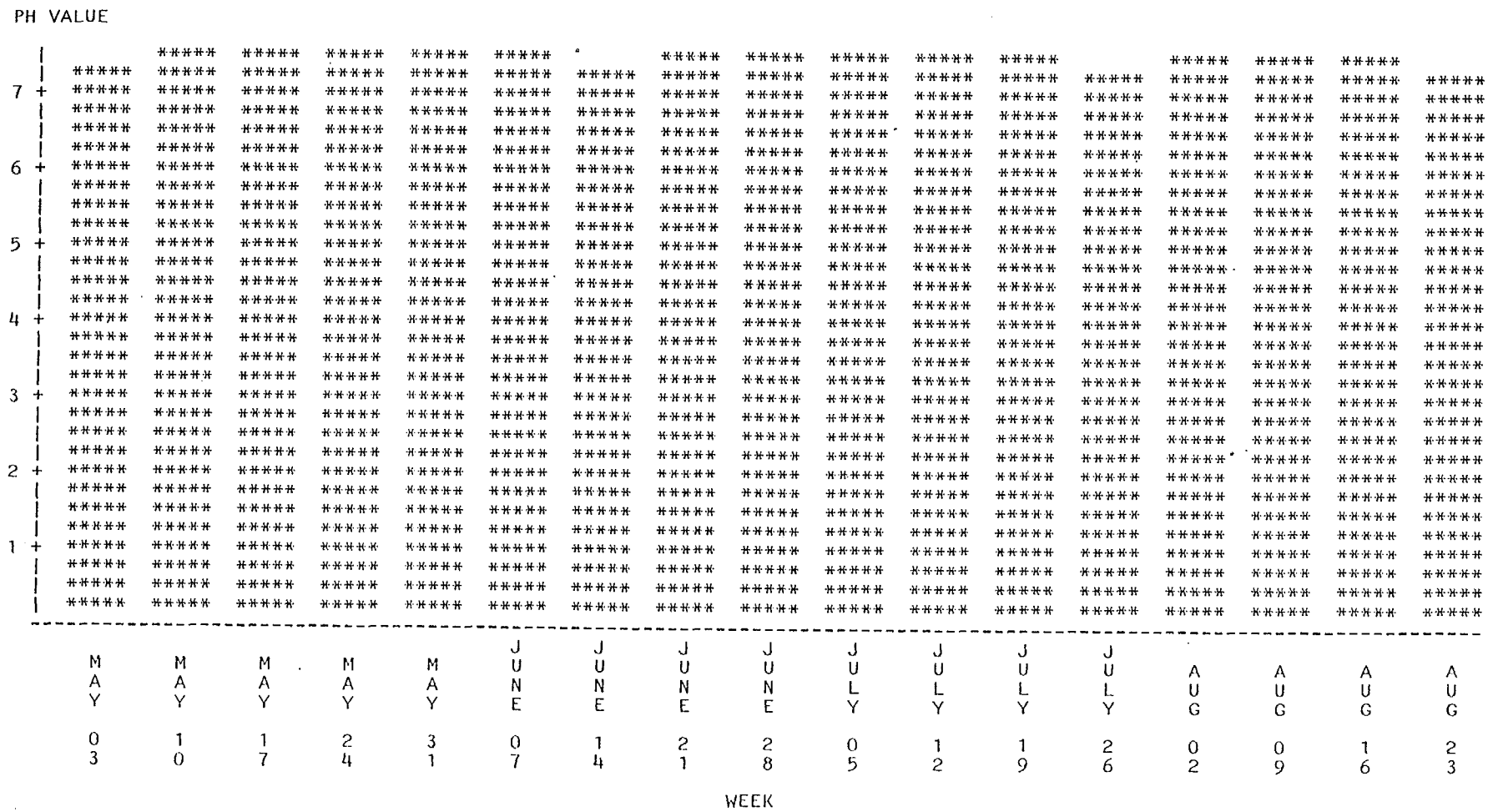


FIGURE 4-6. MEAN WEEKLY DENSITIES OF ALL ICHTHYOPLANKTON COLLECTED AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--EGG

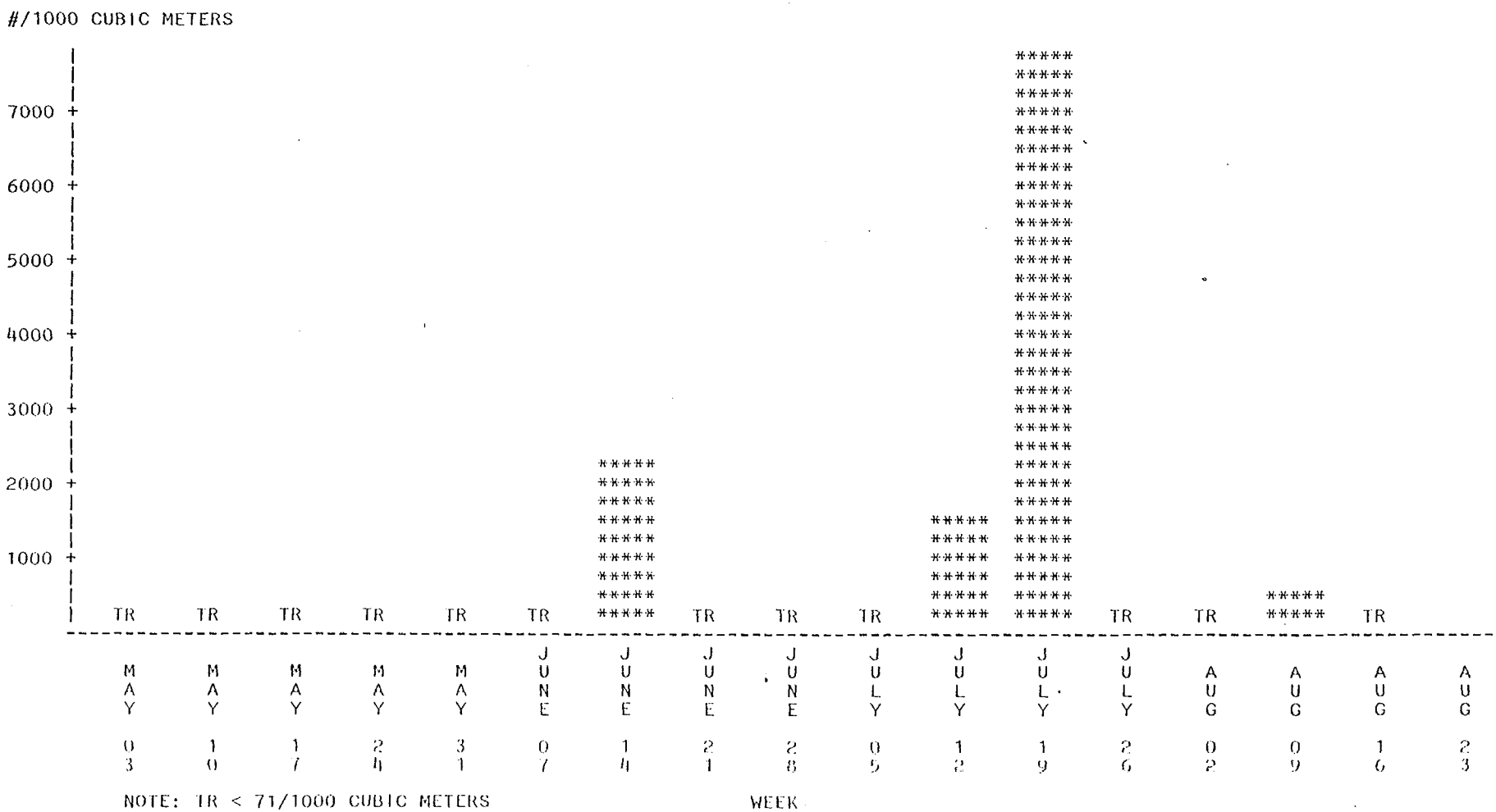


FIGURE 4-7. MEAN DIEL DENSITIES OF ALL ICHTHYOPLANKTON COLLECTED AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--EGG

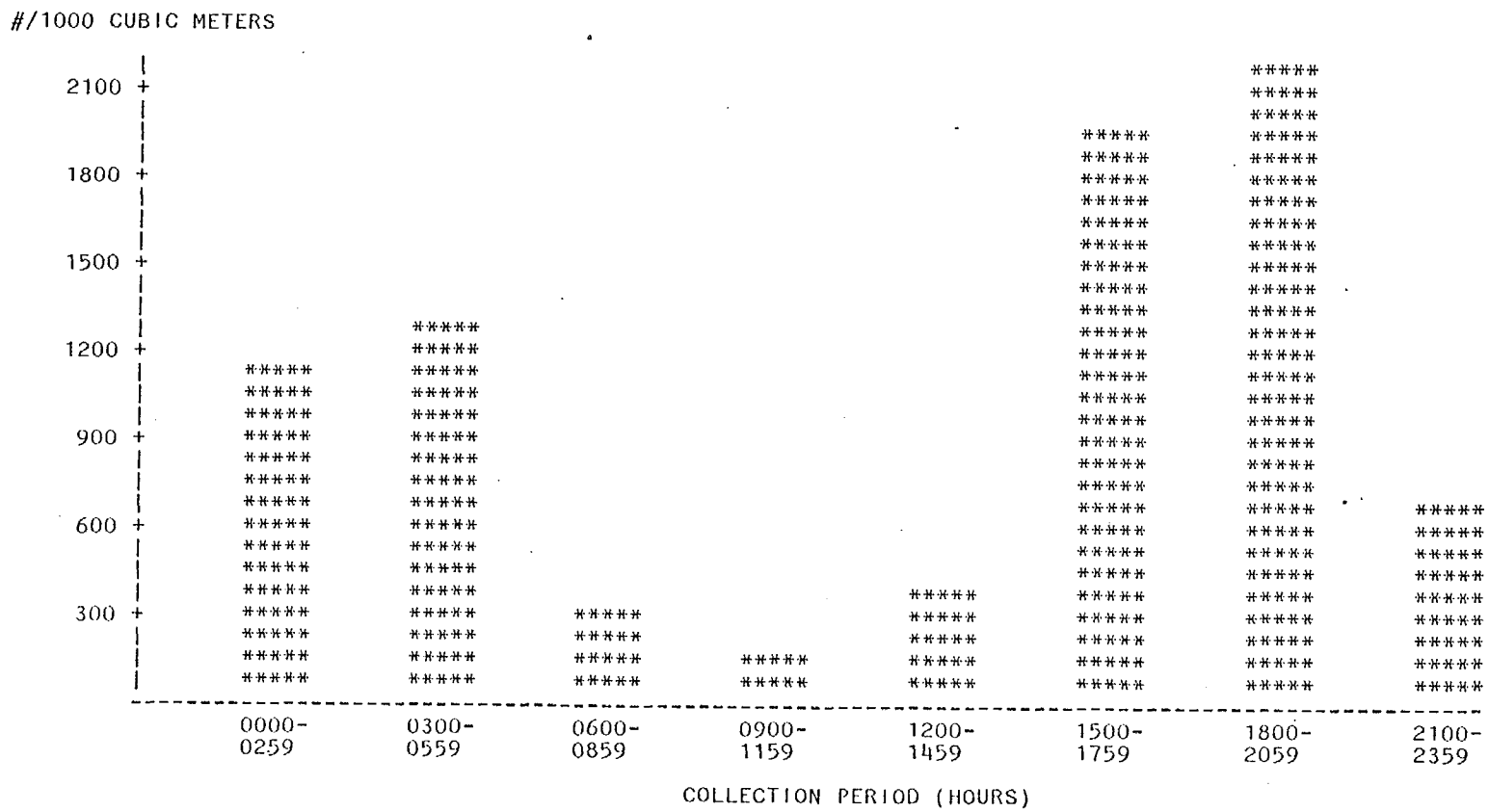


FIGURE 4-8. MEAN WEEKLY DENSITIES OF ALL ICHTHYOPLANKTON COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--YOLK-SAC LARVAE

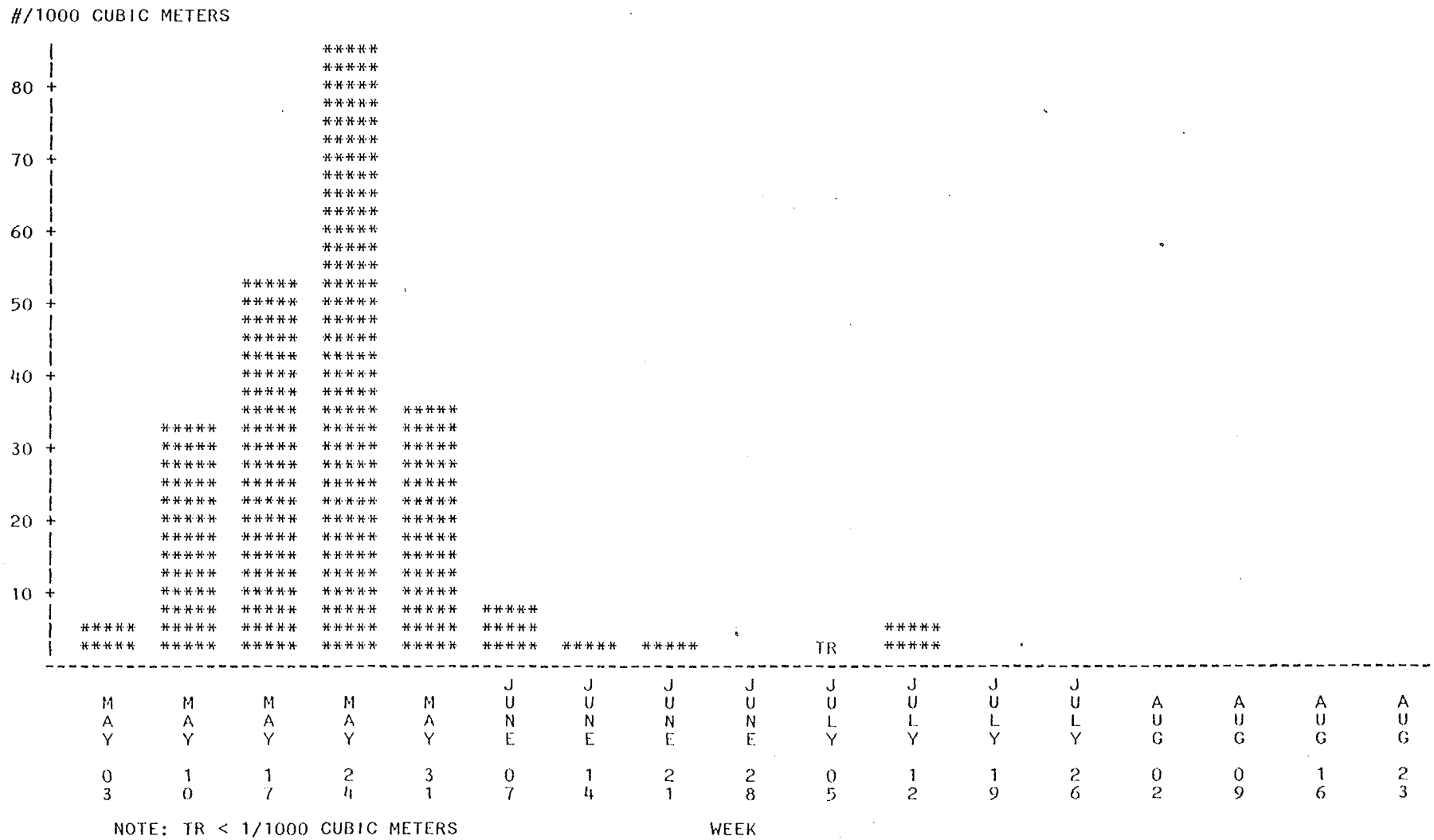


FIGURE 4-9. MEAN DIEL DENSITIES OF ALL ICHTHYOPLANKTON COLLECTED AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER LIFE STAGE--YOLK-SAC LARVAE

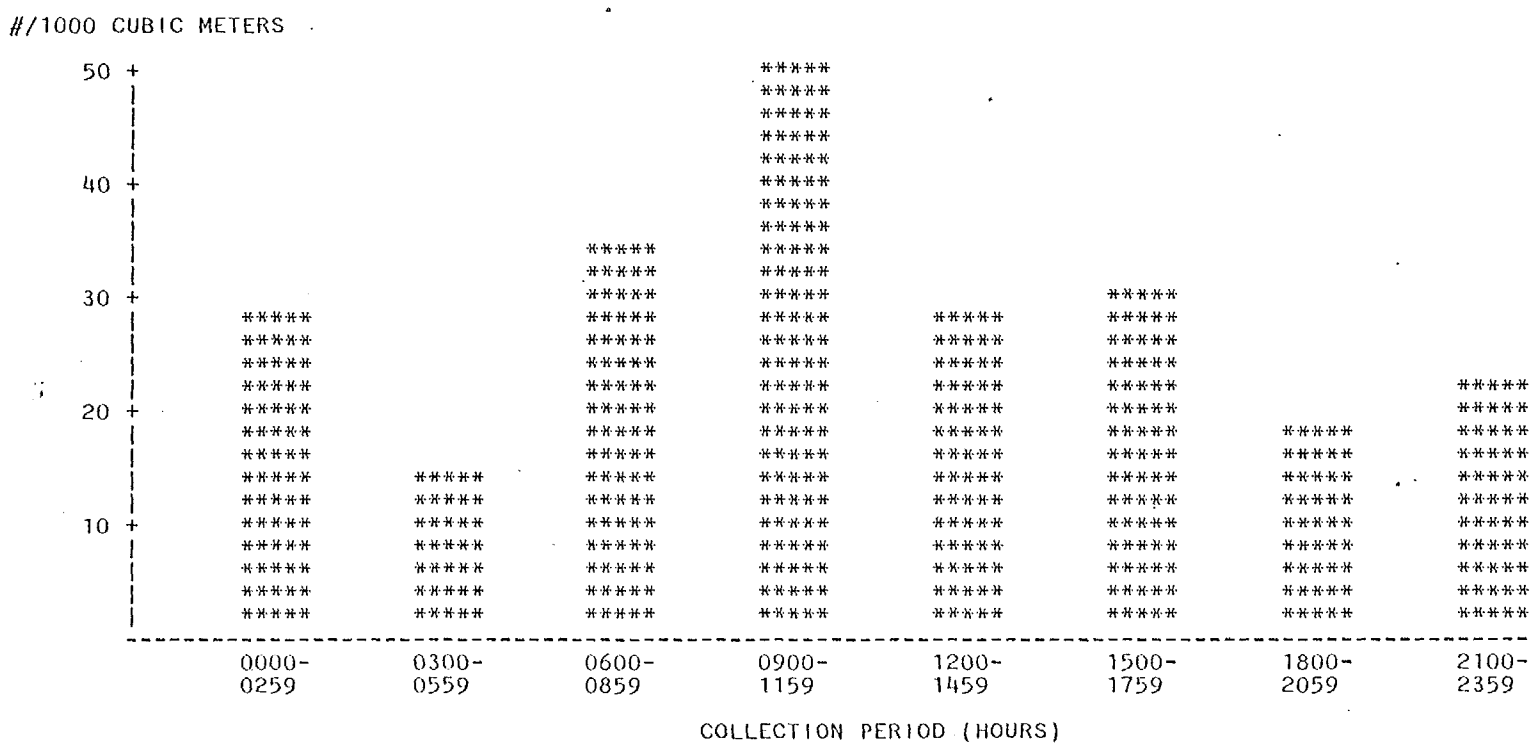
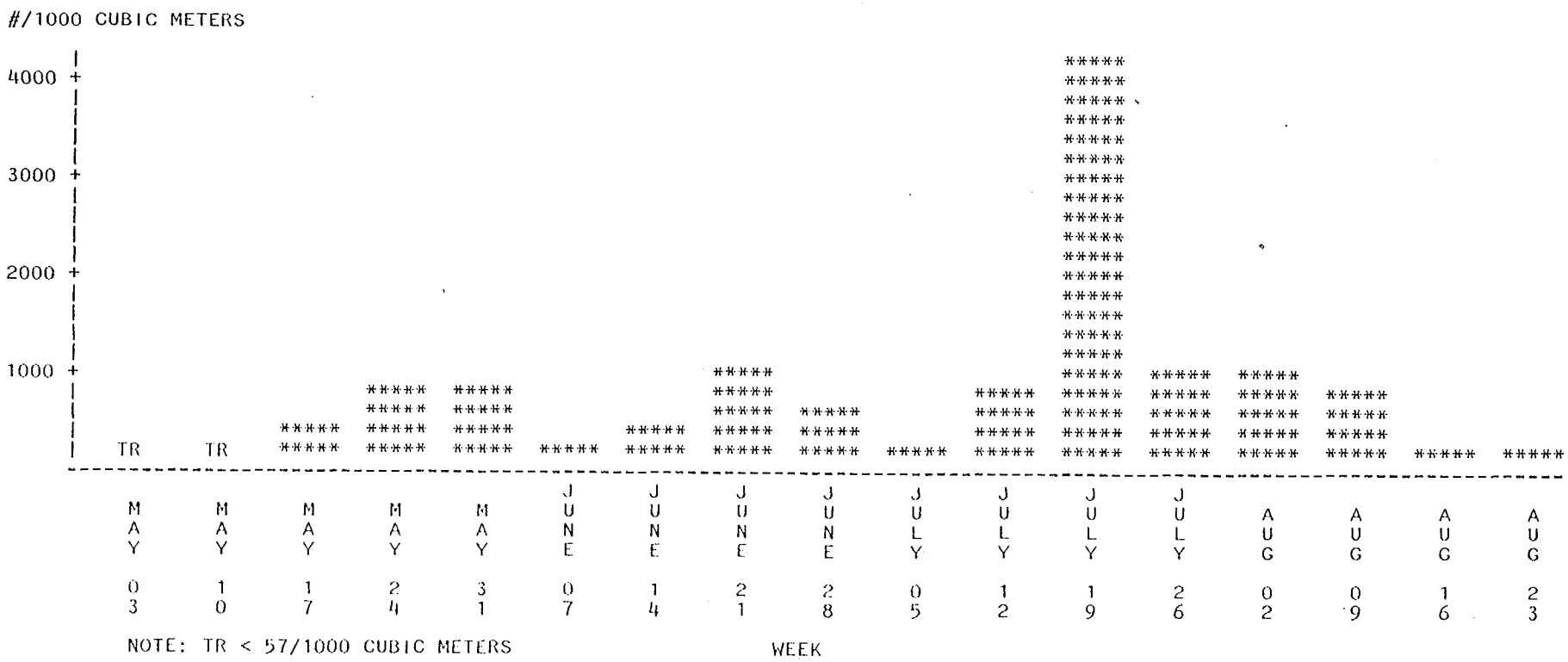


FIGURE 4-10. MEAN WEEKLY DENSITIES OF ALL ICHTHYOPLANKTON COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE



NOTE: TR < 57/1000 CUBIC METERS

FIGURE 4-11. MEAN DIEL DENSITIES OF ALL ICHTHYOPLANKTON TAXA COLLECTED AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE

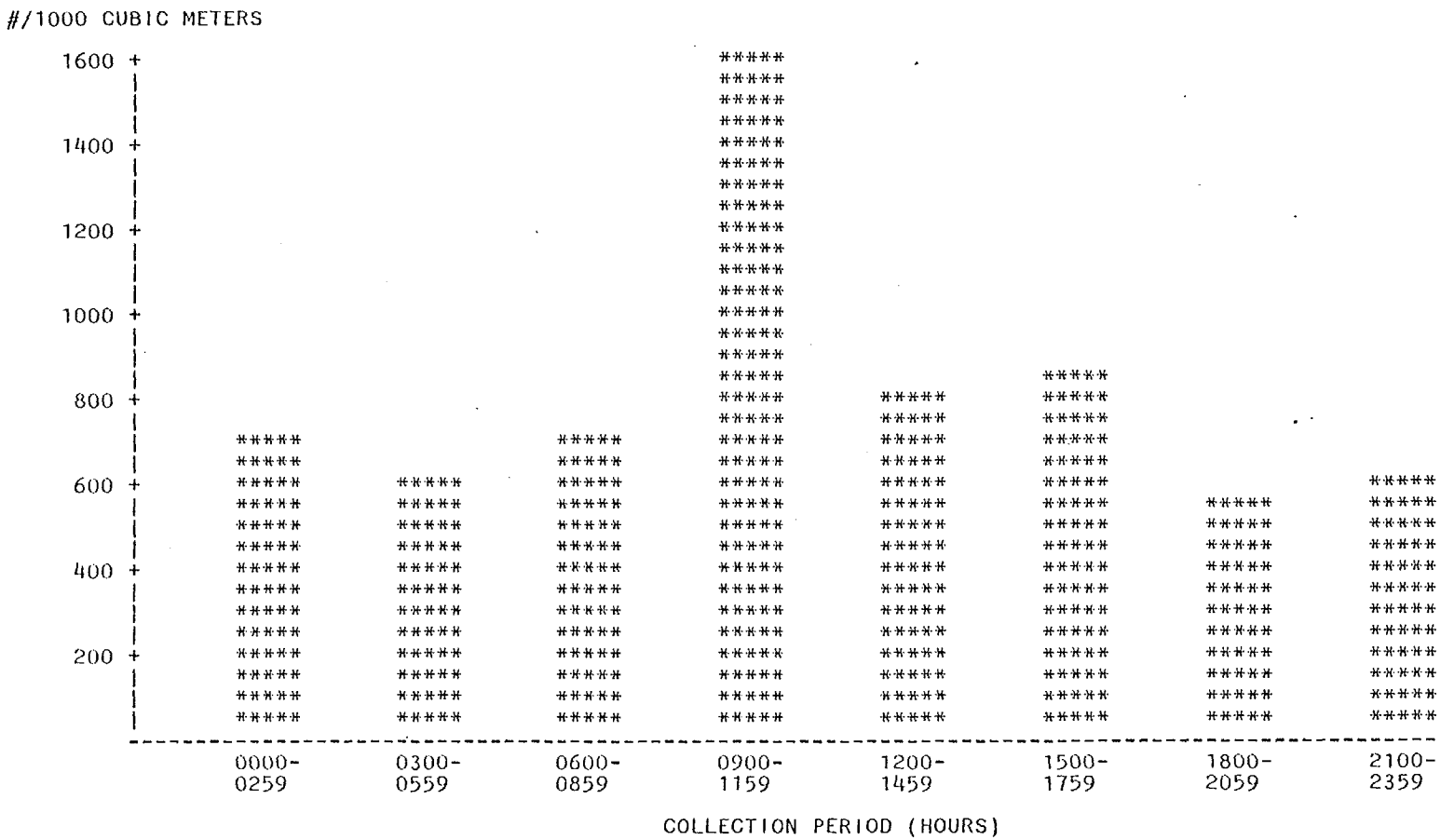
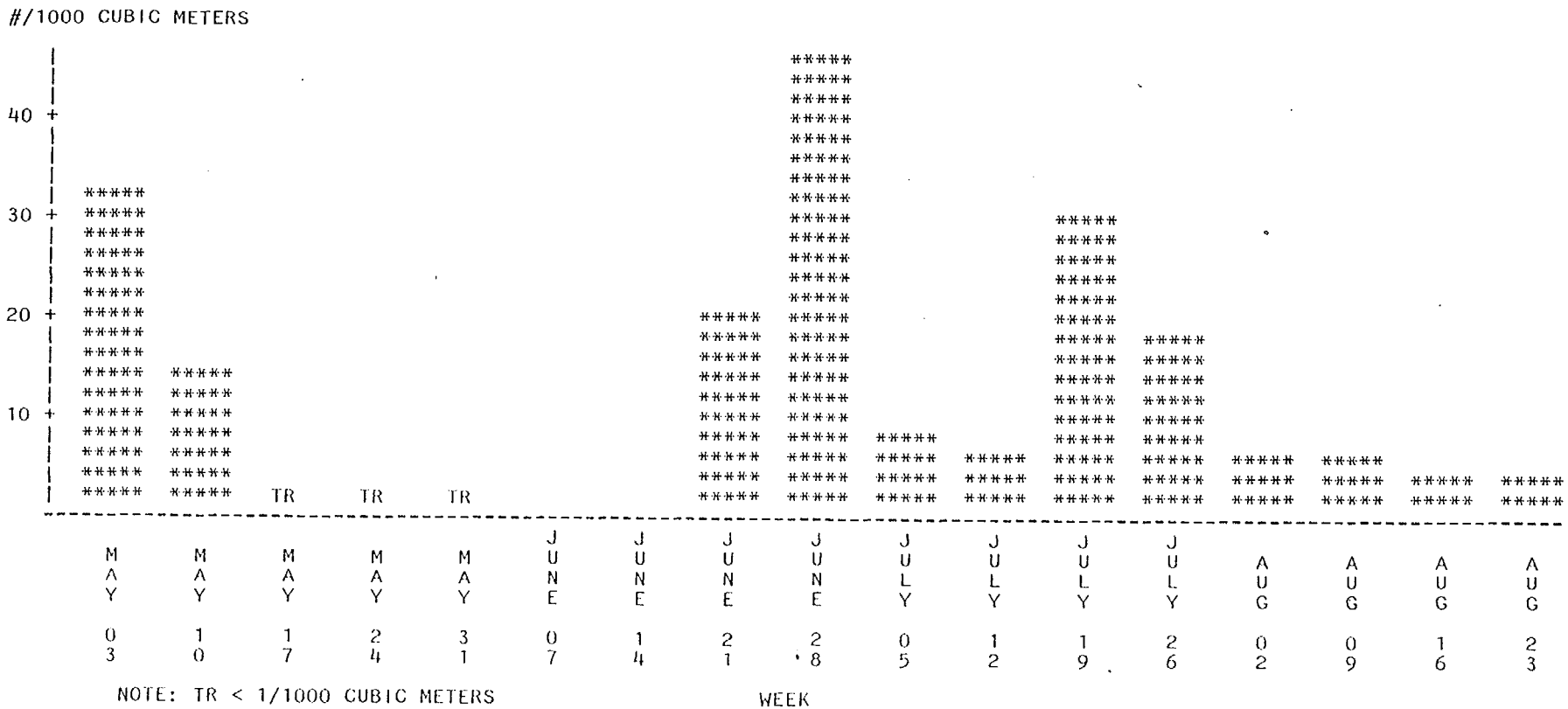


FIGURE 4-12. MEAN WEEKLY DENSITIES OF ALL ICHTHYOPLANKTON COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILES



NOTE: TR < 1/1000 CUBIC METERS

FIGURE 4-13. MEAN DIEL DENSITIES OF ALL ICHTHYOPLANKTON TAXA COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILE

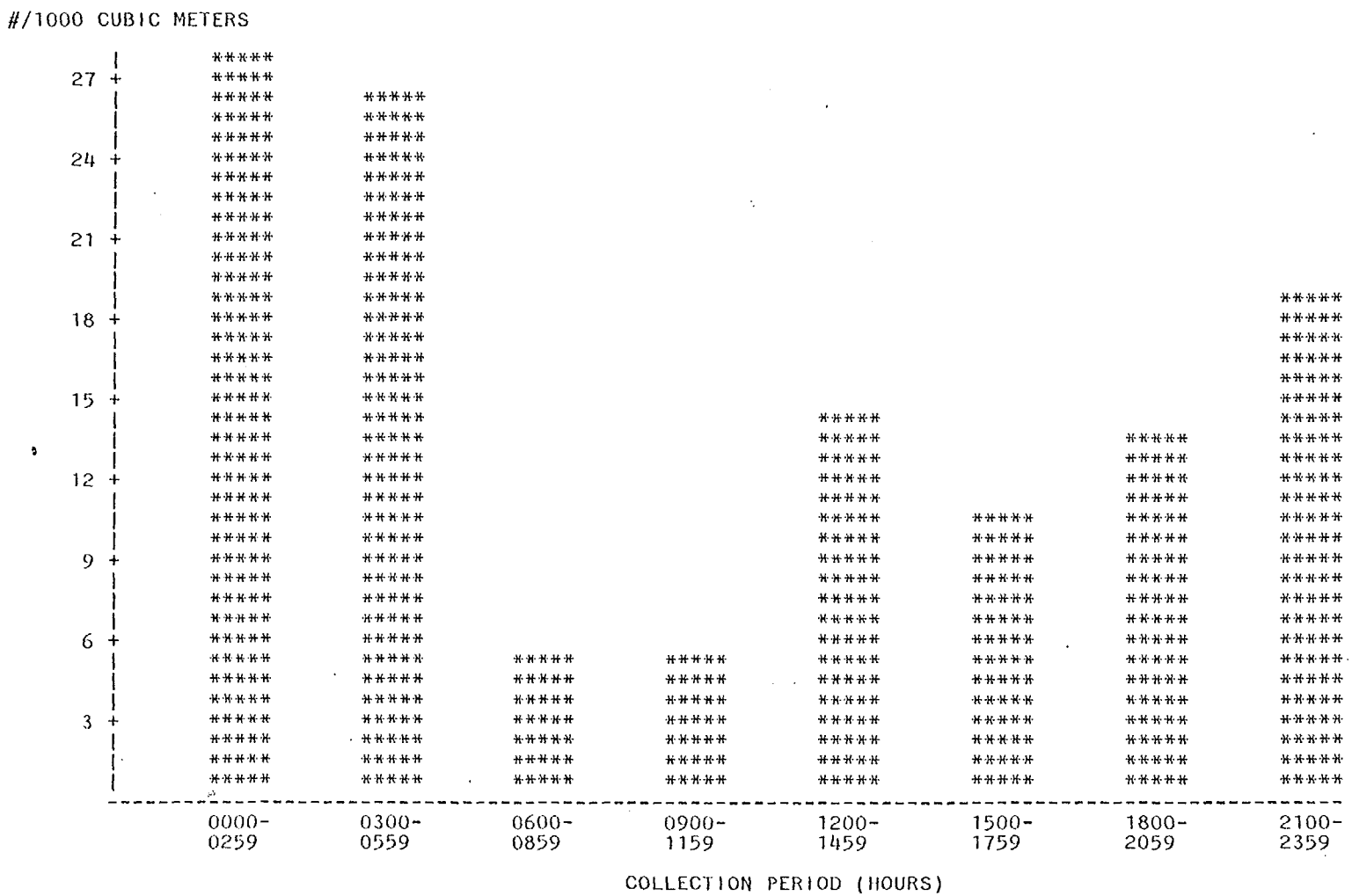


FIGURE 4-14. MEAN WEEKLY DENSITIES OF STRIPED BASS COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--EGG

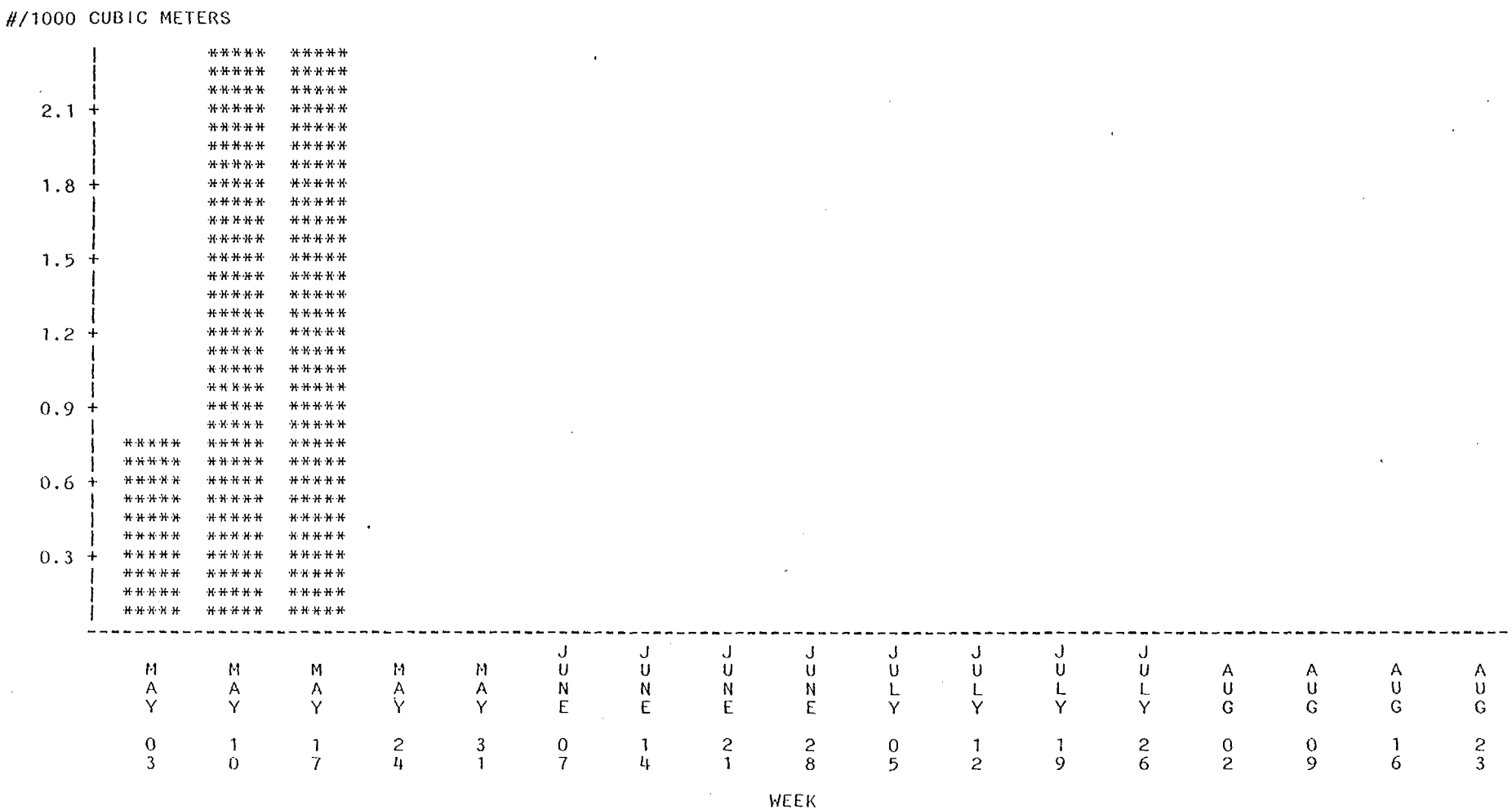


FIGURE 4-15. MEAN DIEL DENSITIES OF STRIPED BASS COLLECTED AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--EGG

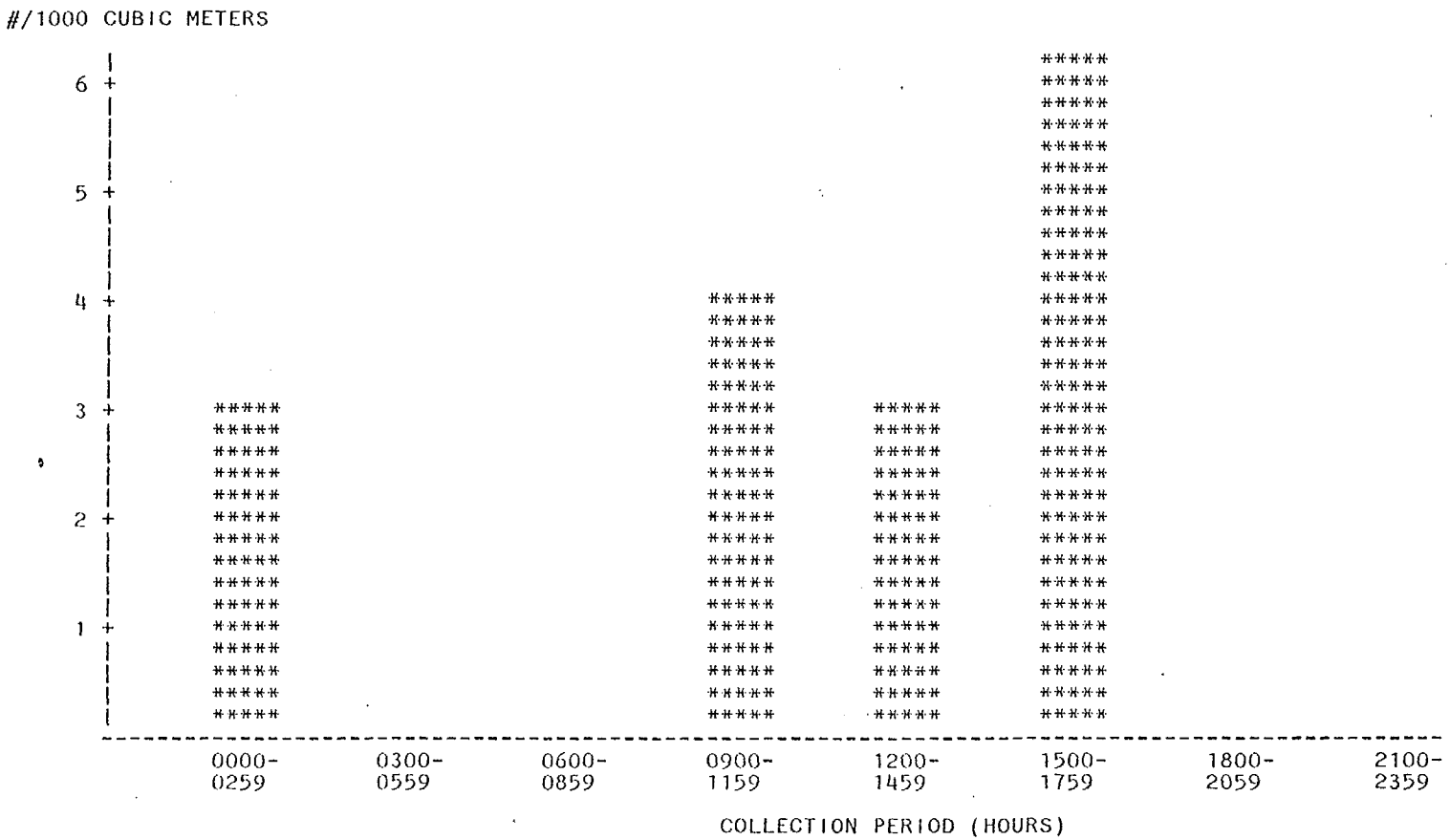
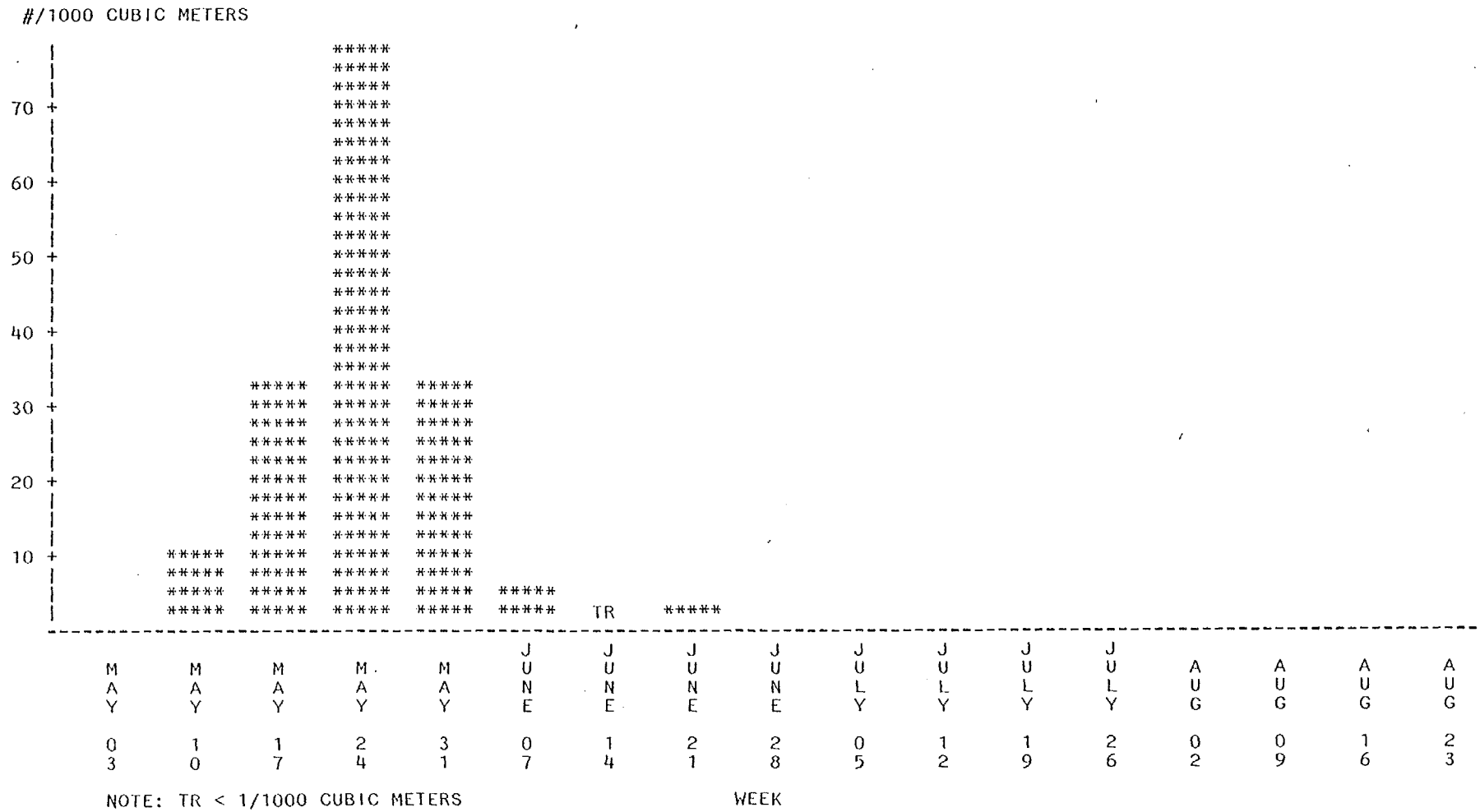


FIGURE 4-16. MEAN WEEKLY DENSITIES OF STRIPED BASS COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--YOLK-SAC LARVAE



NOTE: TR < 1/1000 CUBIC METERS

FIGURE 4-17. MEAN DIEL DENSITIES OF STRIPED BASS COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--YOLK-SAC LARVAE

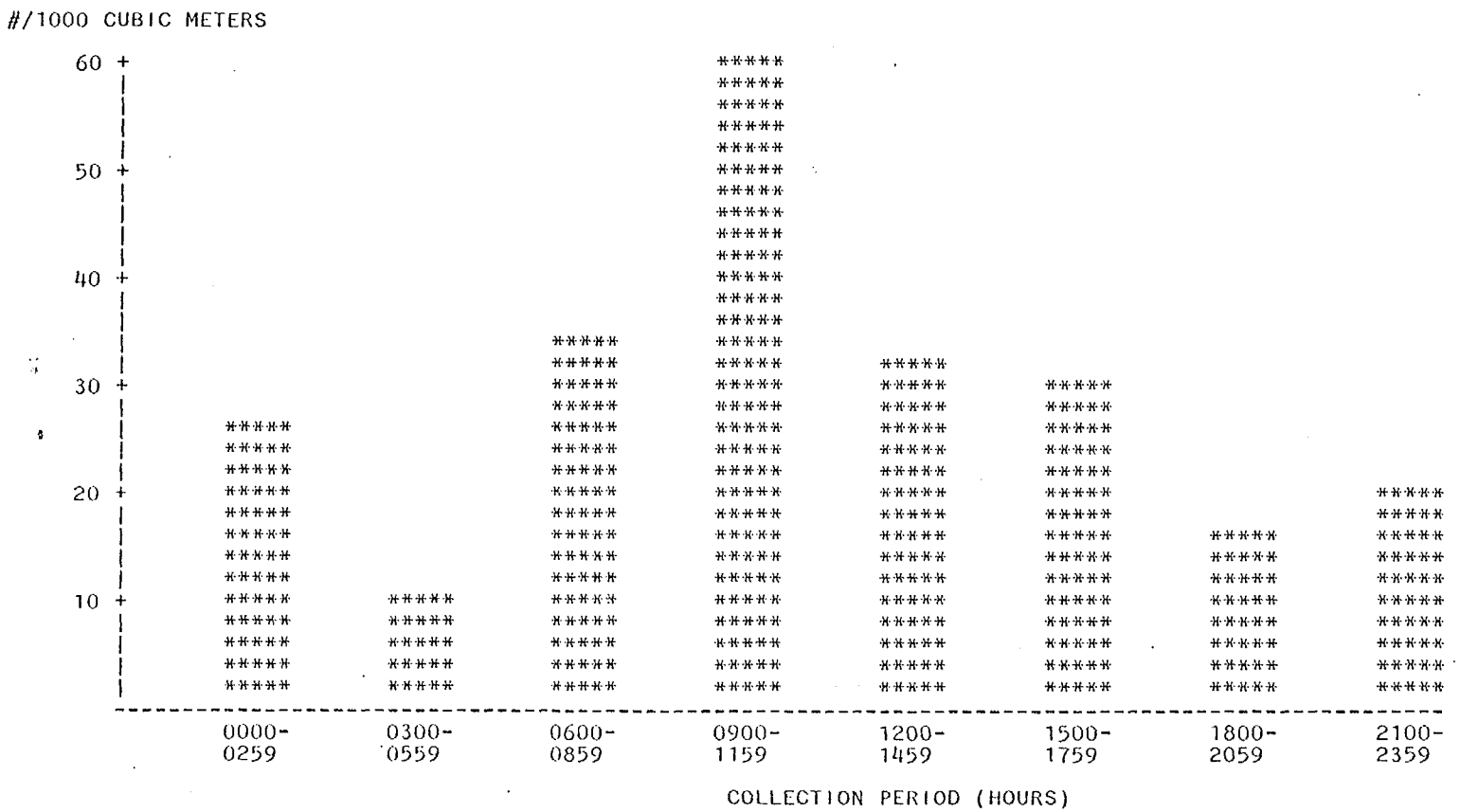
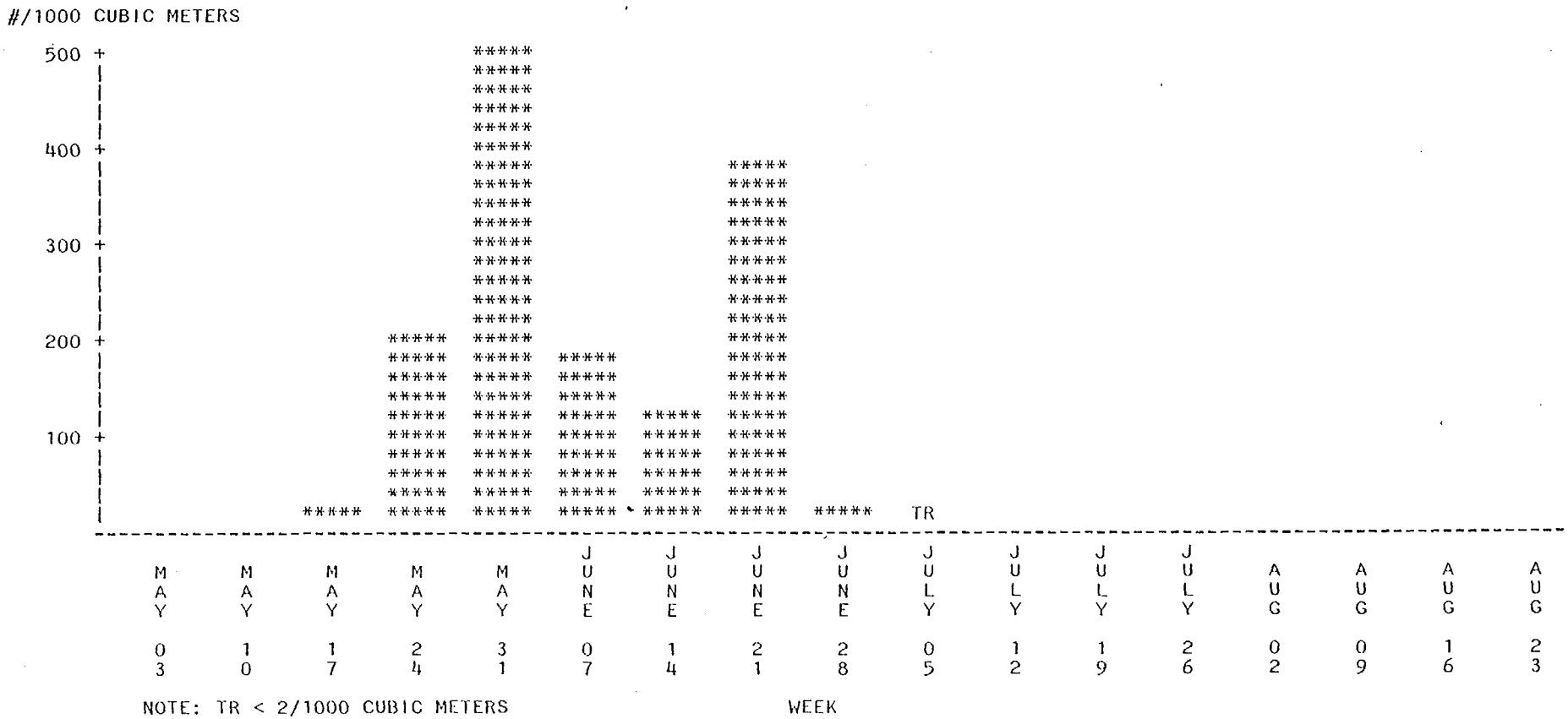


FIGURE 4-18. MEAN WEEKLY DENSITIES OF STRIPED BASS COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE



NOTE: TR < 2/1000 CUBIC METERS

FIGURE 4-19. MEAN DIEL DENSITIES OF STRIPED BASS COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE

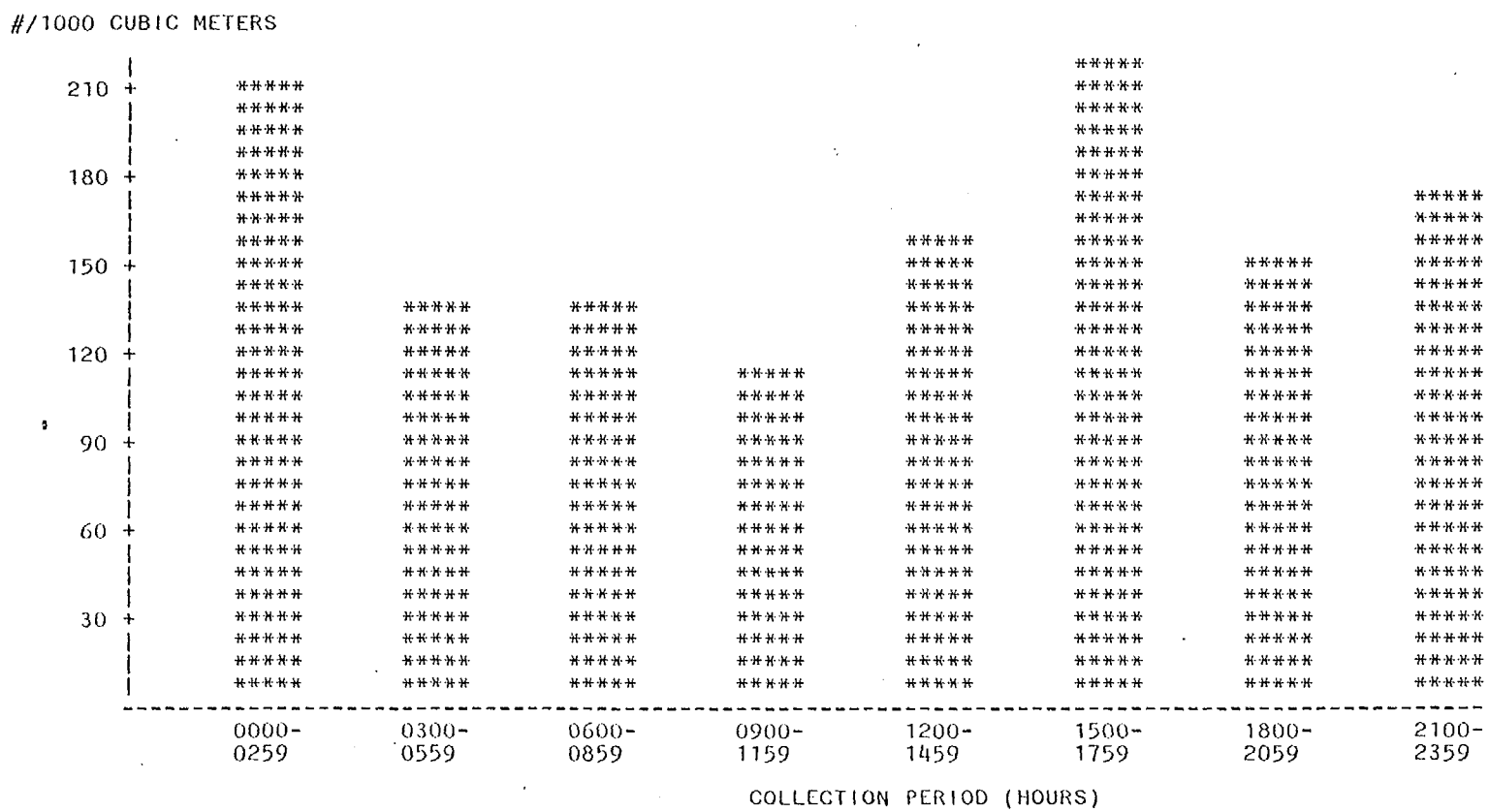


FIGURE 4-20. MEAN WEEKLY DENSITIES OF STRIPED BASS COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILE

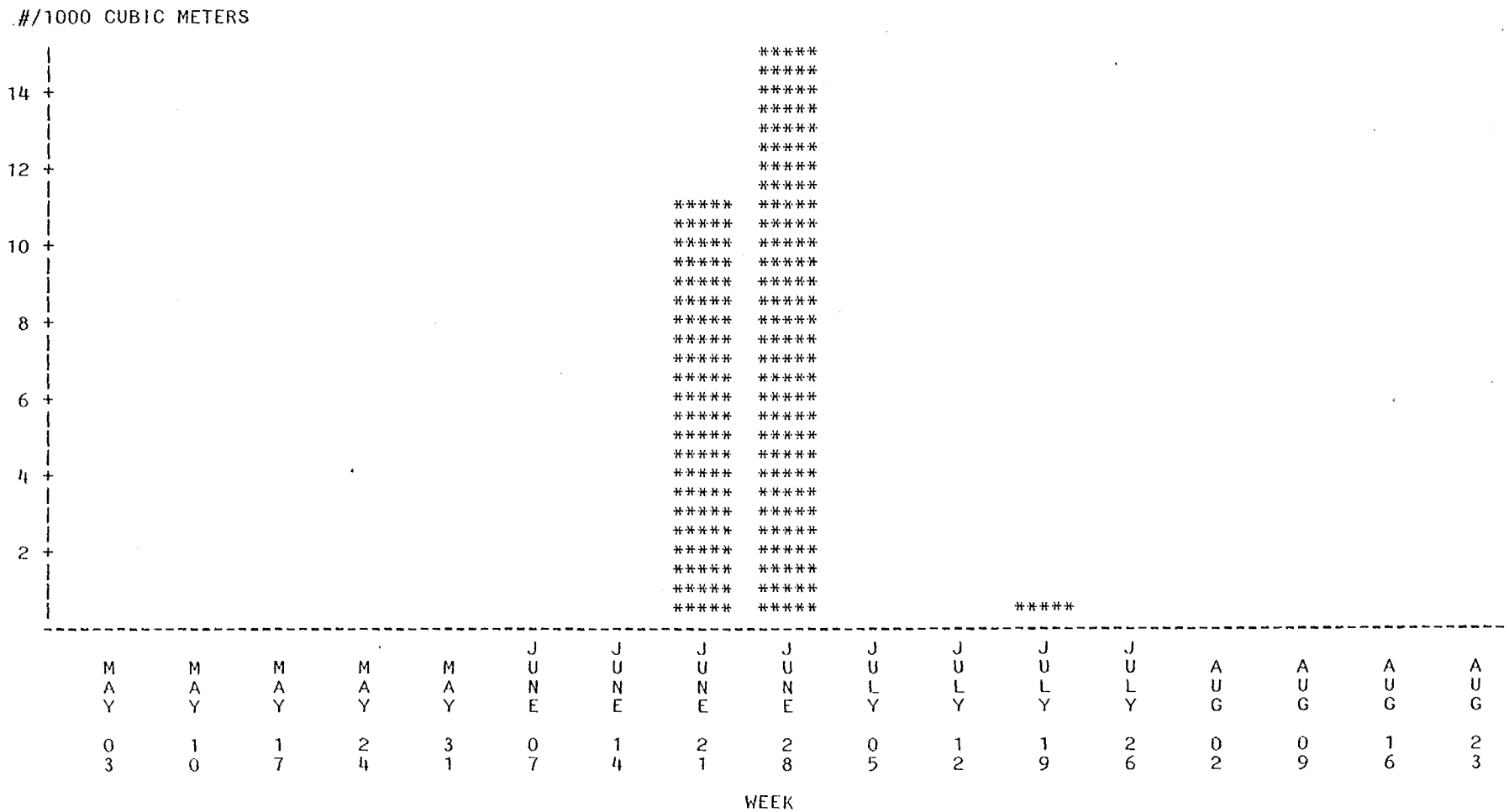


FIGURE 4-21. MEAN DIEL DENSITIES OF STRIPED BASS COLLECTED AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER LIFE STAGE--JUVENILES

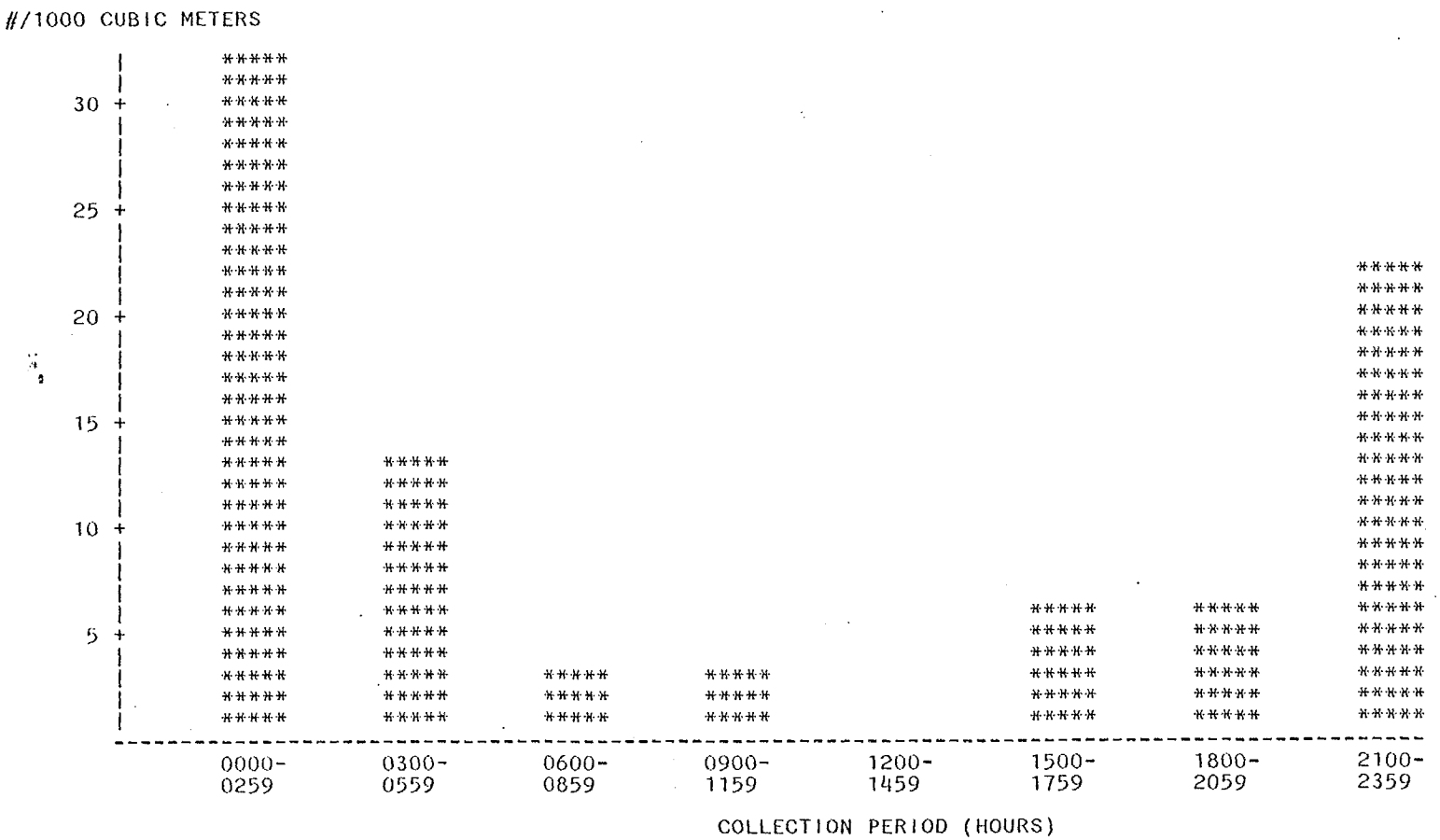


FIGURE 4-22. MEAN WEEKLY DENSITIES OF WHITE PERCH COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--EGG

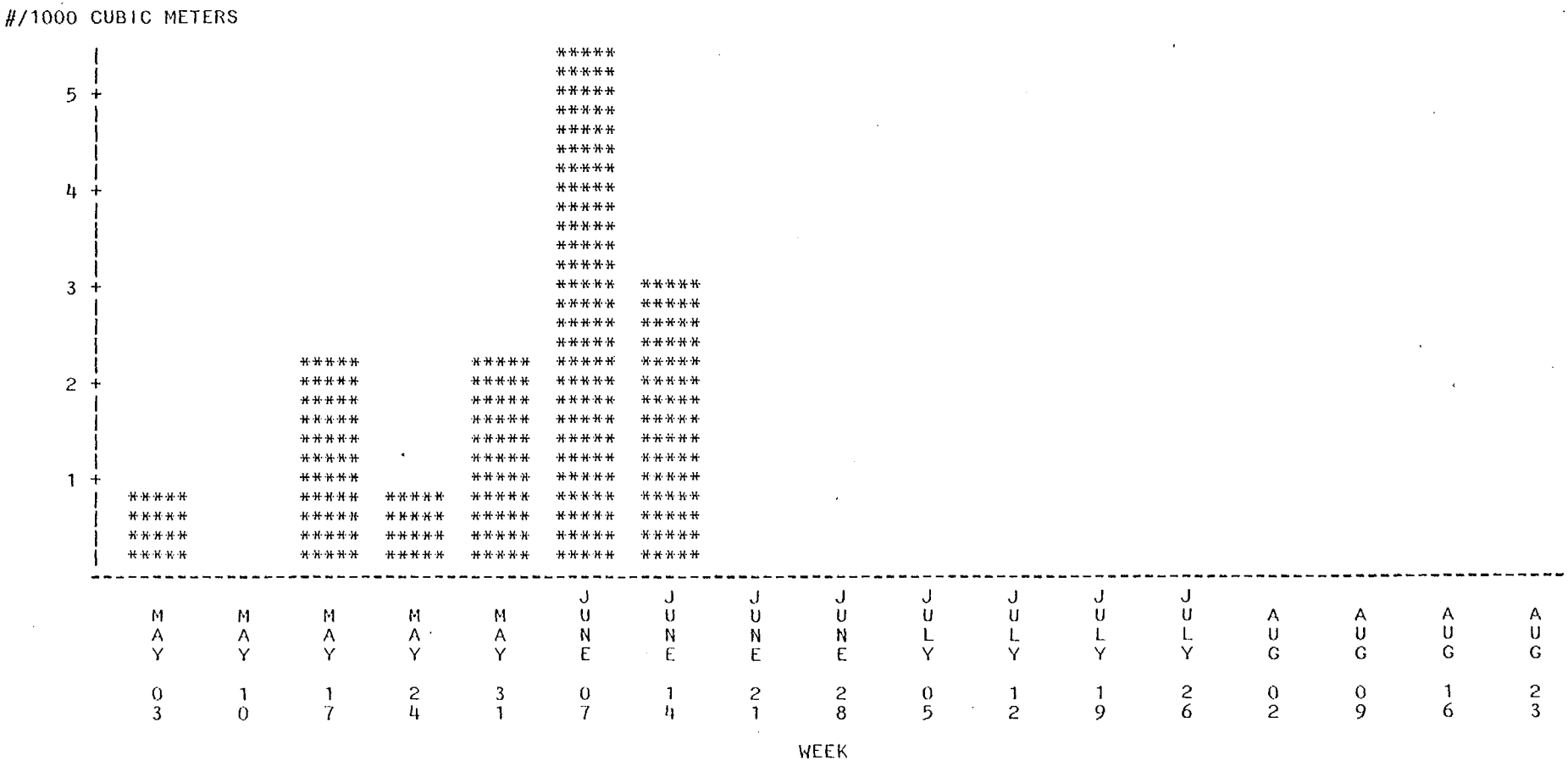


FIGURE 4-23. MEAN WEEKLY DENSITIES OF WHITE PERCH COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--YOLK-SAC LARVAE

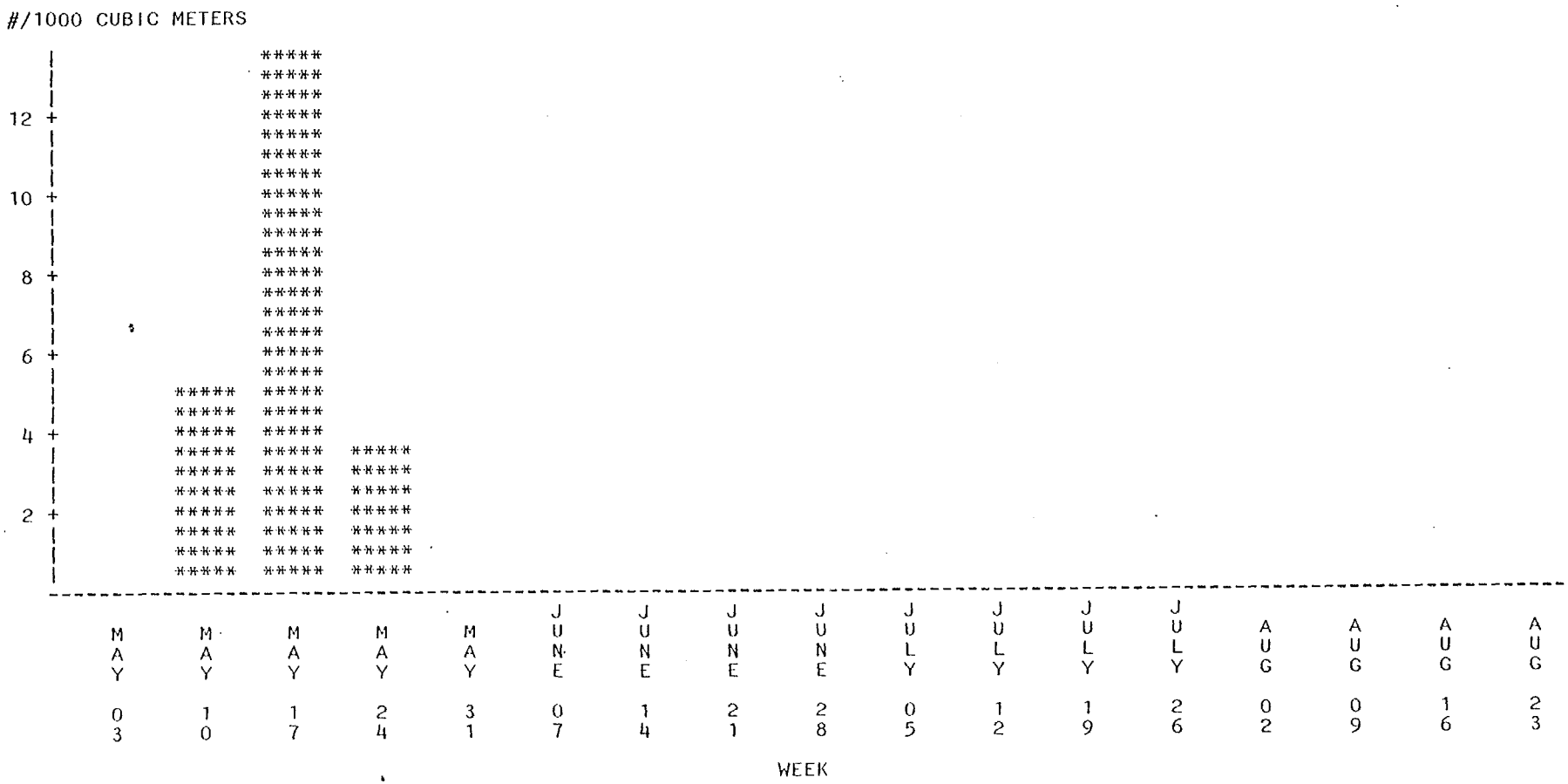


FIGURE 4-24. MEAN WEEKLY DENSITIES OF WHITE PERCH COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE

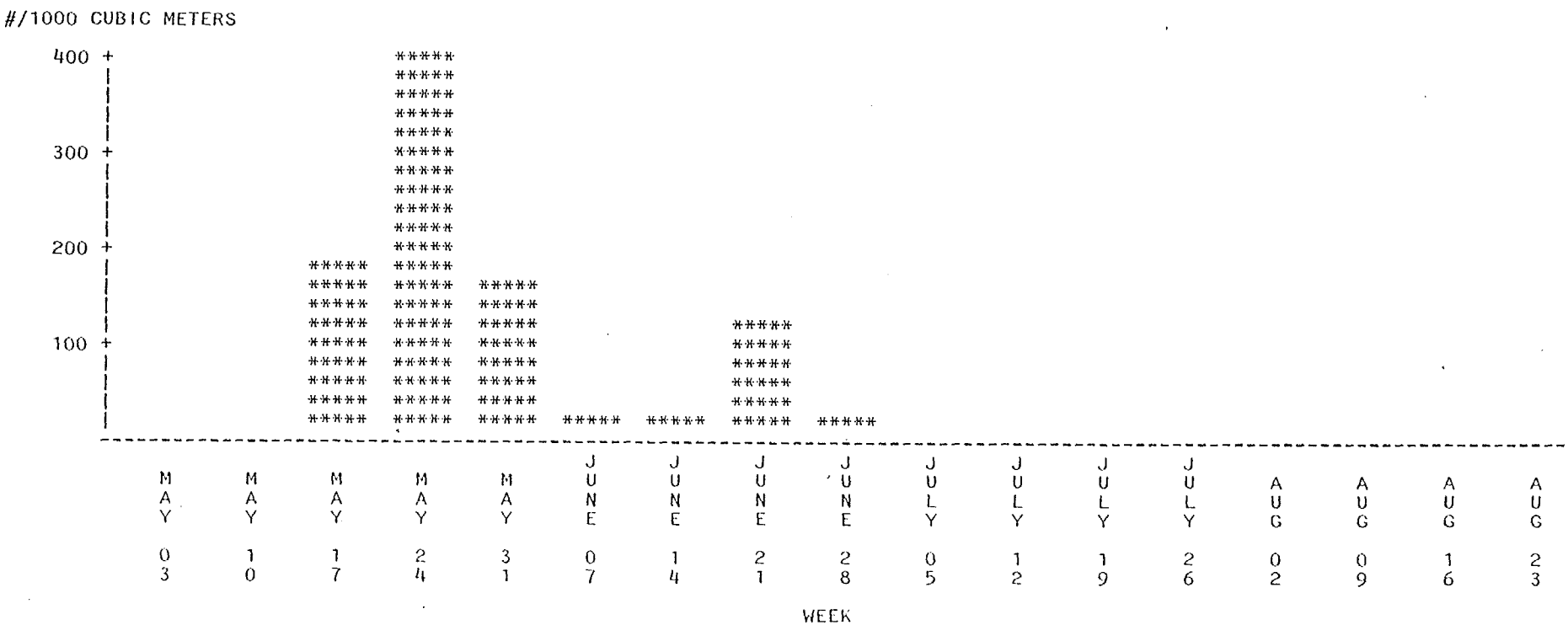


FIGURE 4-25. MEAN WEEKLY DENSITIES OF WHITE PERCH COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILES

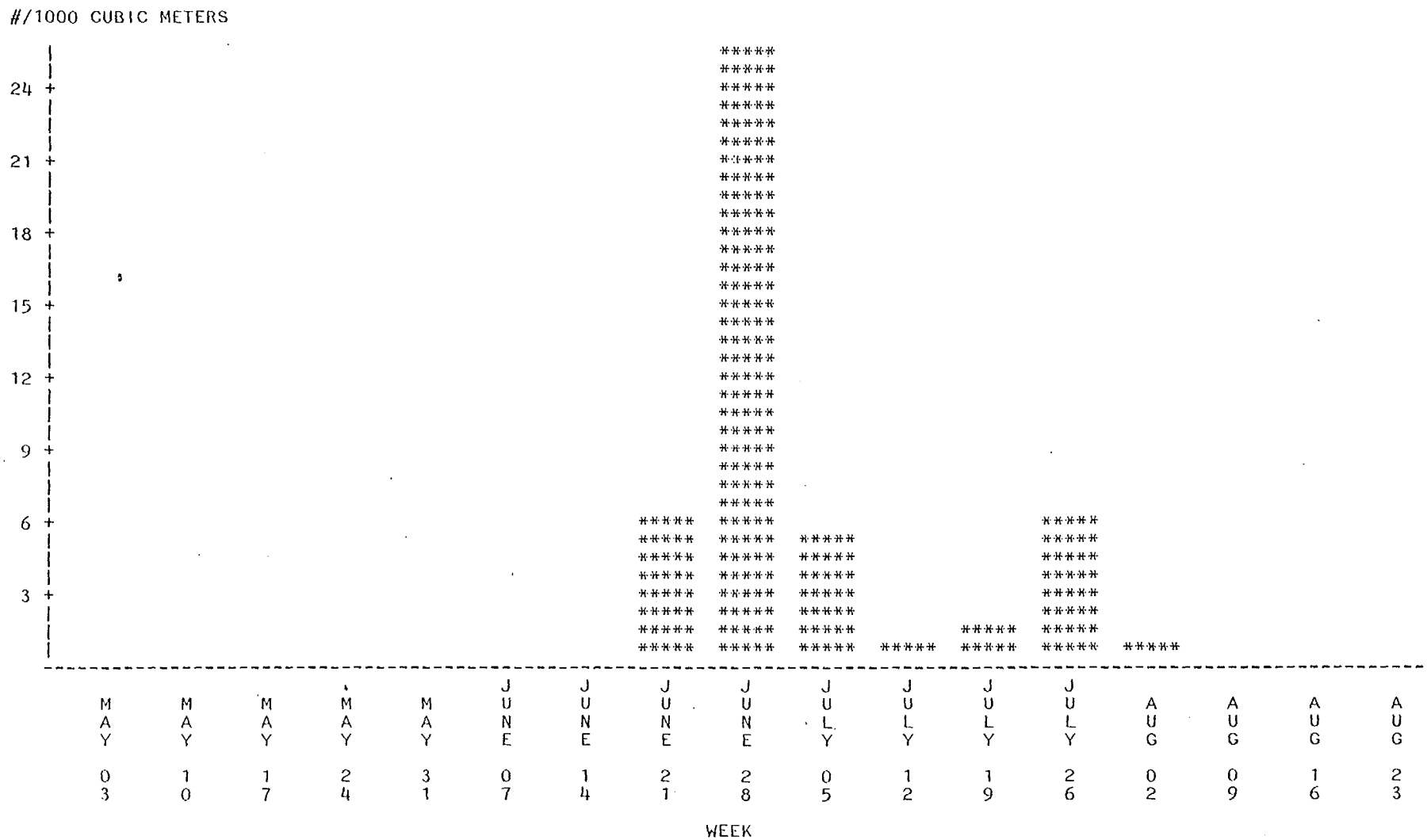


FIGURE 4-26. MEAN DIEL DENSITIES OF WHITE PERCH COLLECTED AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--EGG

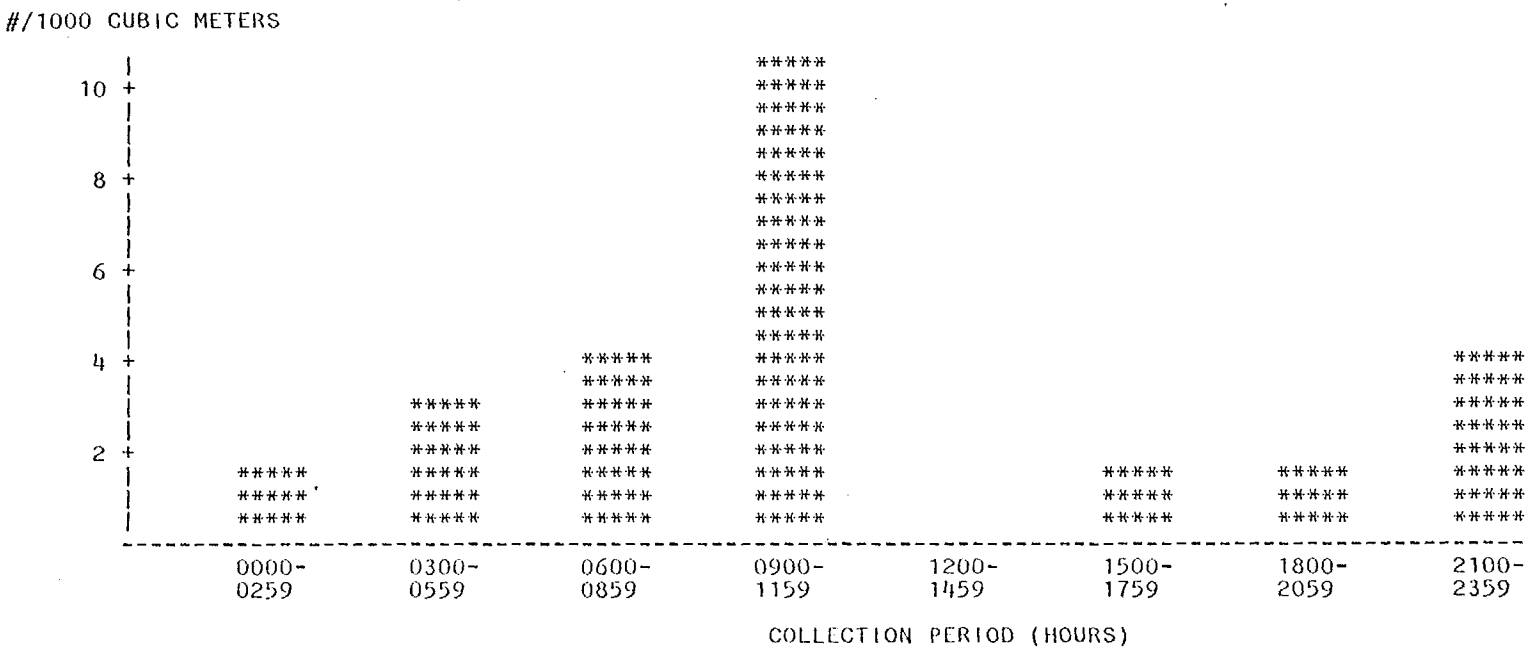


FIGURE 4-27. MEAN DIEL DENSITIES OF WHITE PERCH COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--YOLK-SAC LARVAE

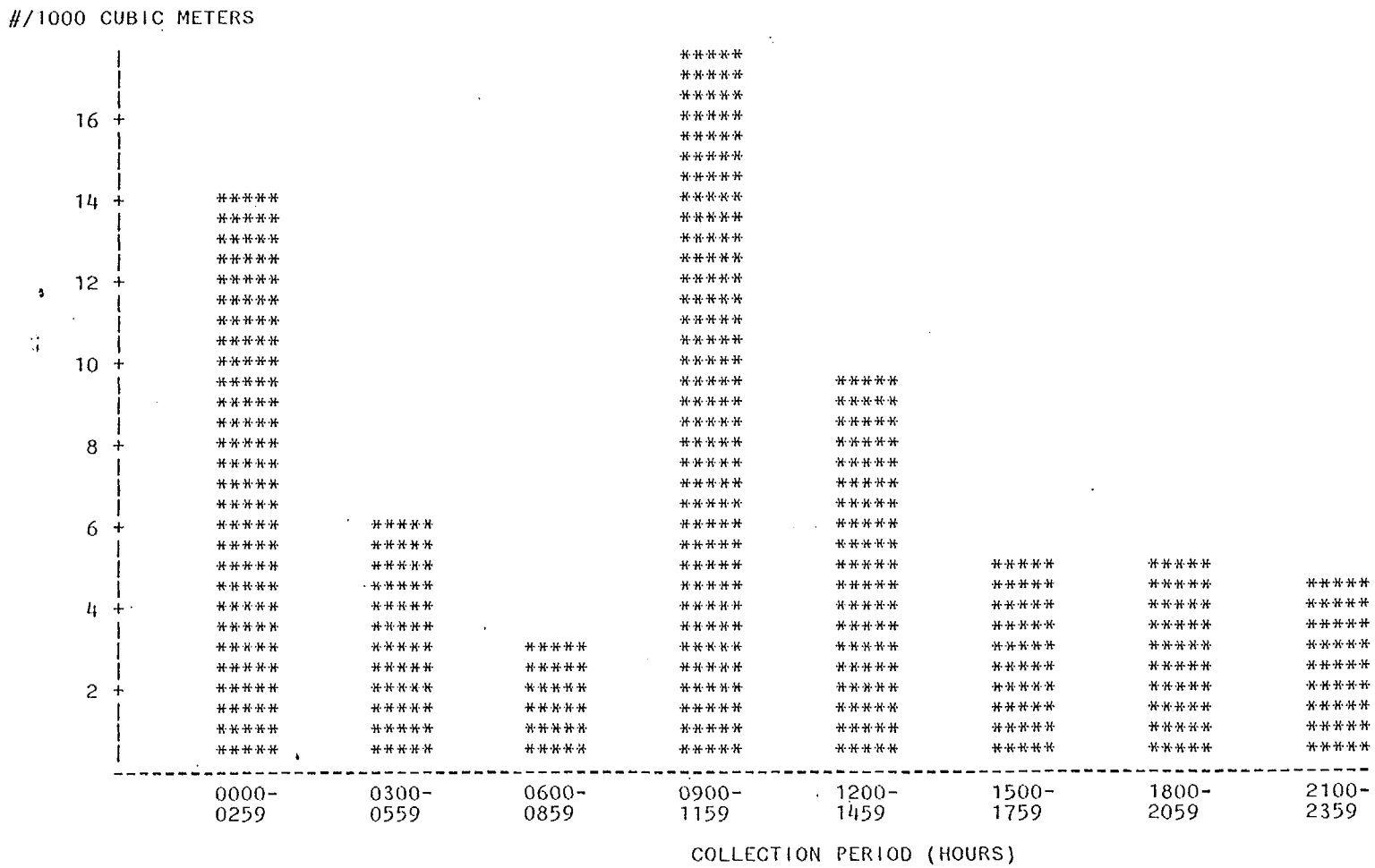


FIGURE 4-28. MEAN DIEL DENSITIES OF WHITE PERCH COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE

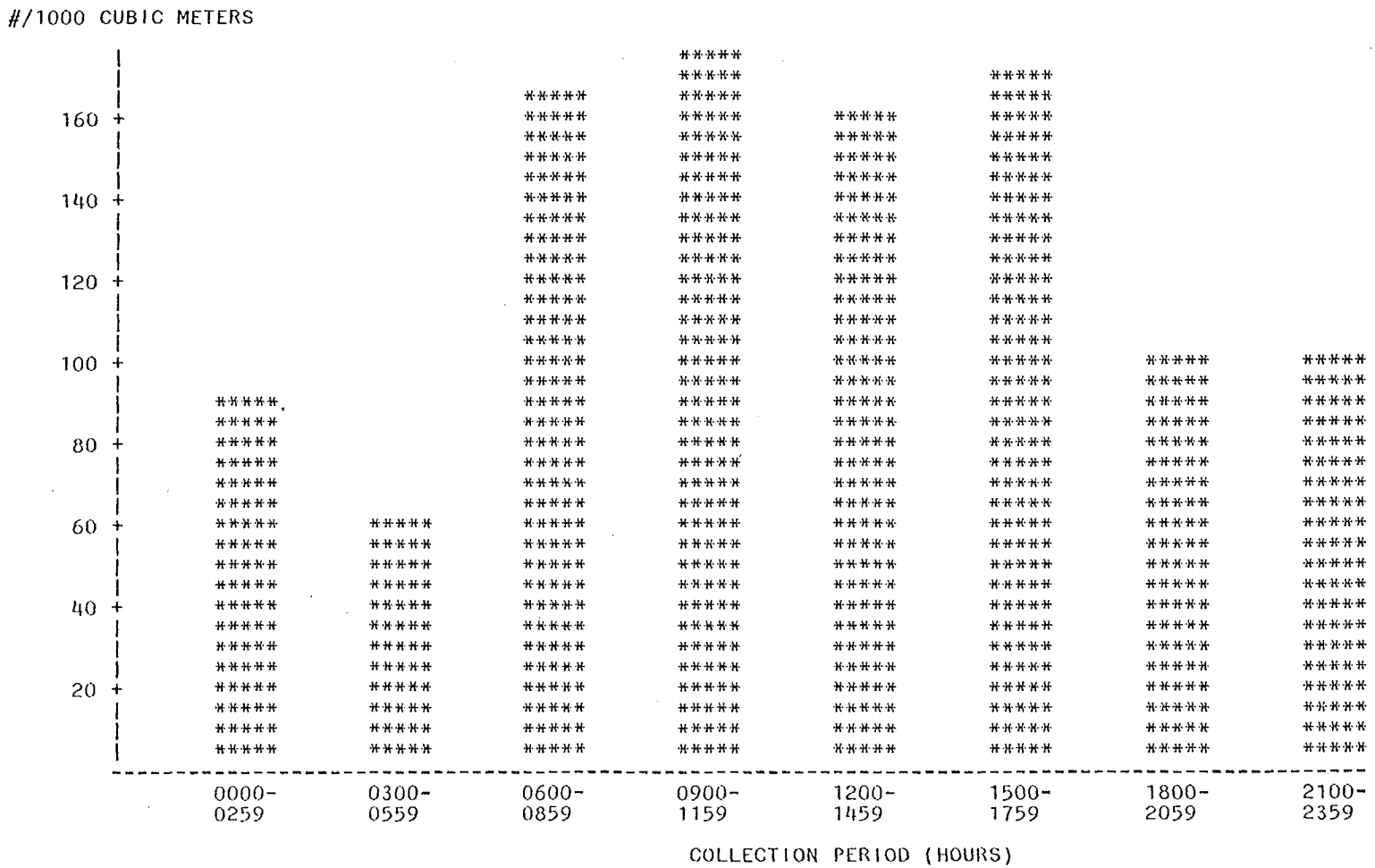


FIGURE 4-29. MEAN DIEL DENSITIES OF WHITE PERCH COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILE

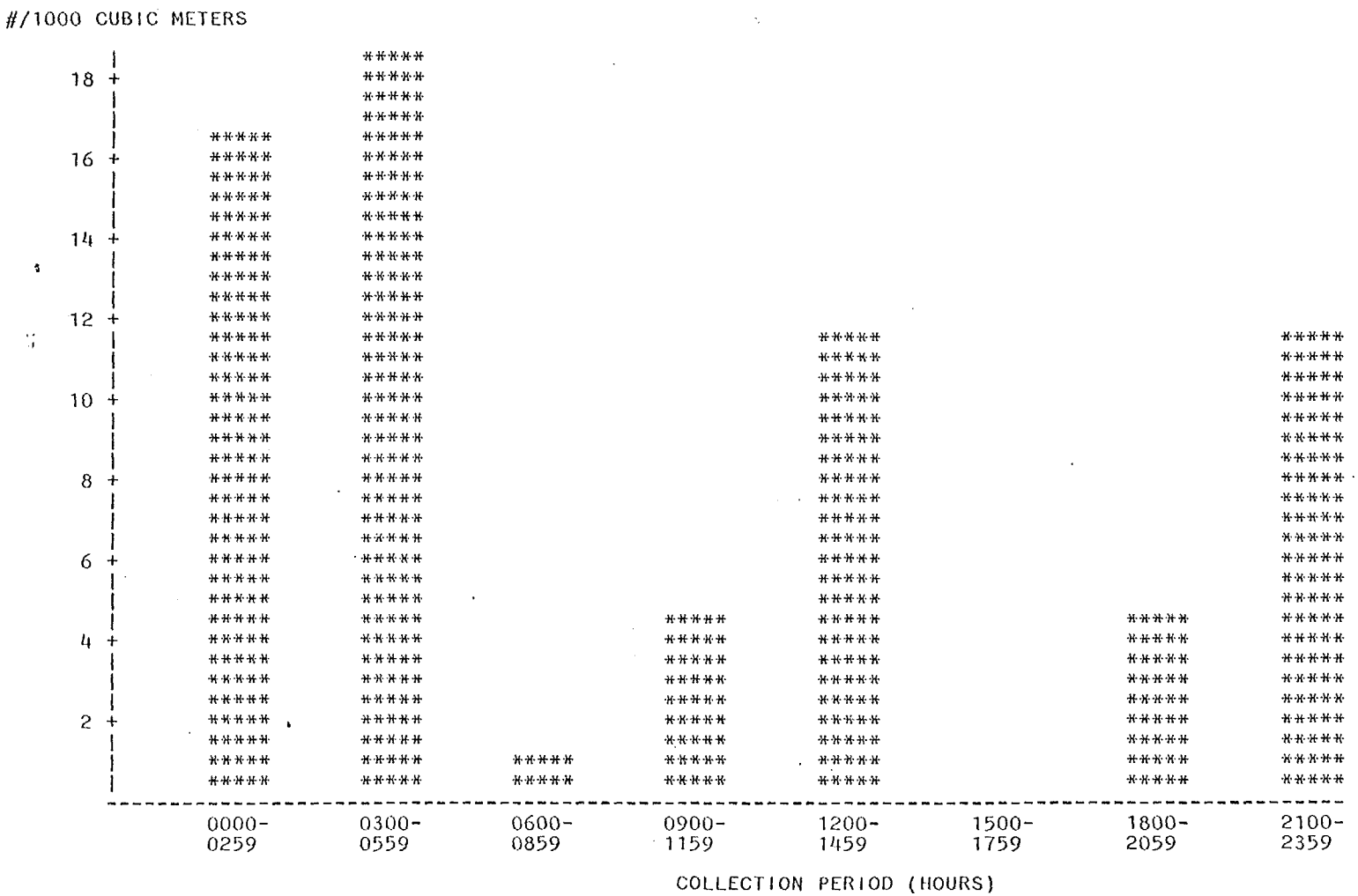


FIGURE 4-30. MEAN WEEKLY DENSITIES OF ATLANCTIC TOMCOD COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE

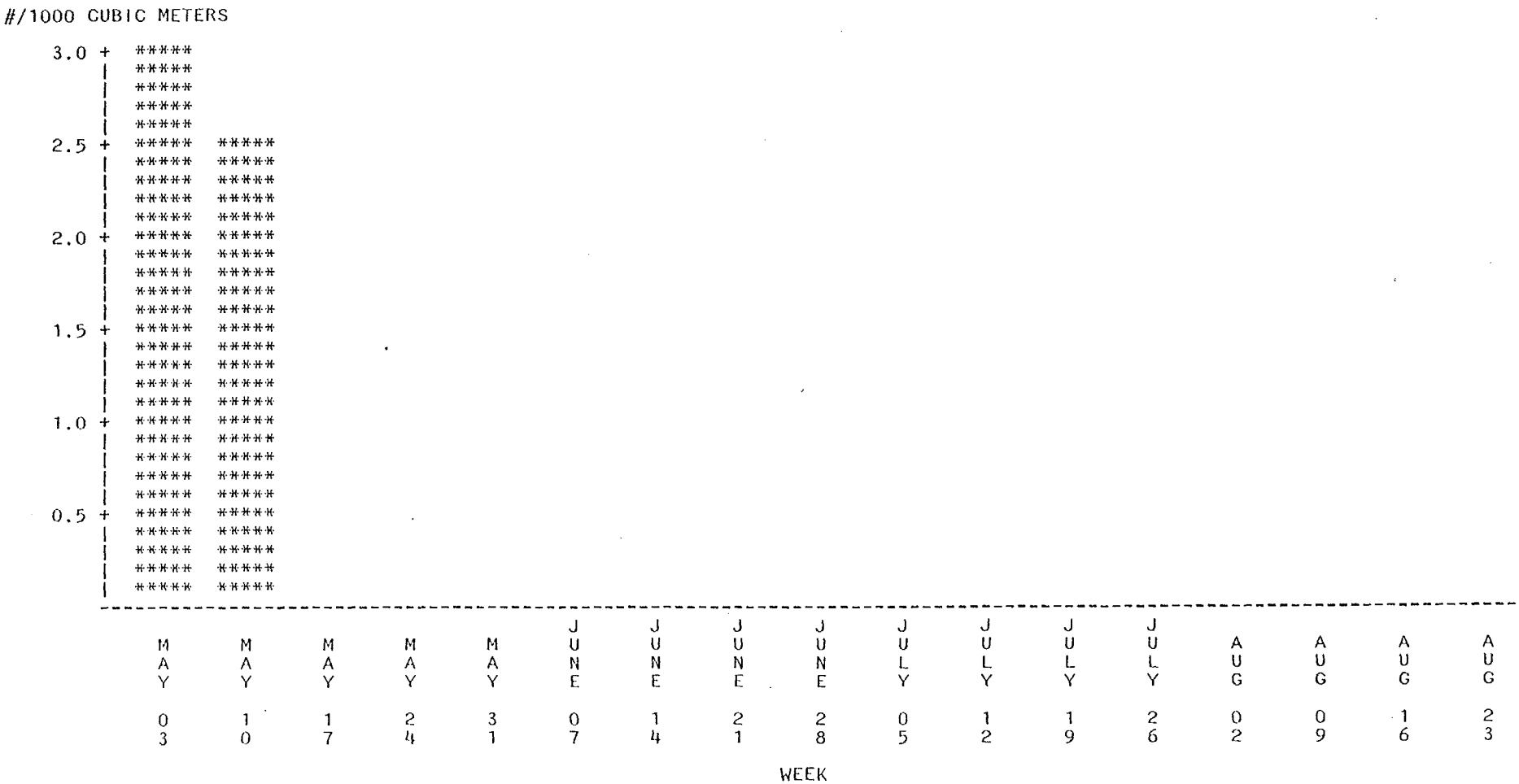


FIGURE 4-31. MEAN WEEKLY DENSITIES OF ATLANTIC TOMCOD COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILES

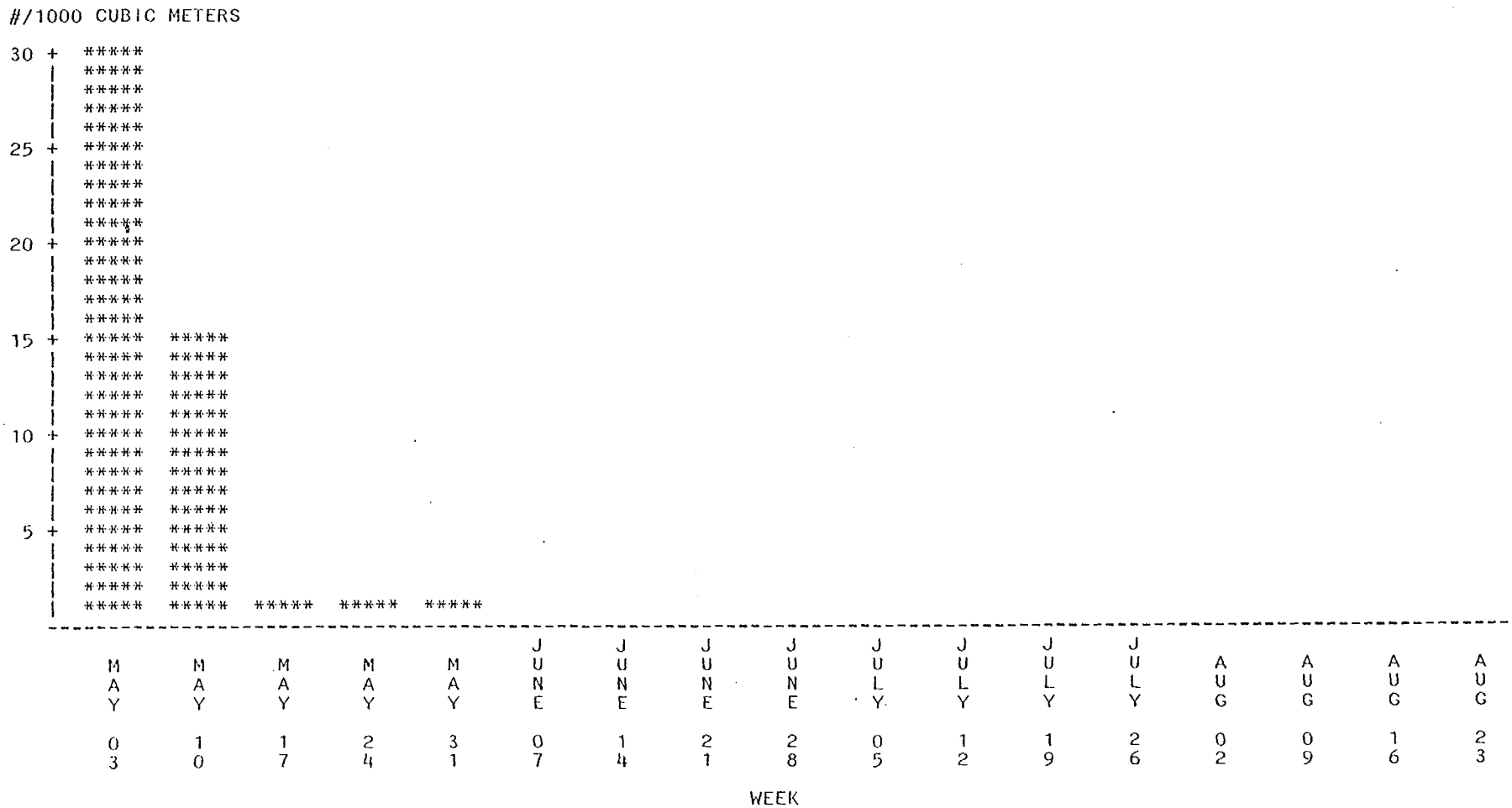


FIGURE 4-32. MEAN DIEL DENSITIES OF ATLANTIC TOMCOD COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE

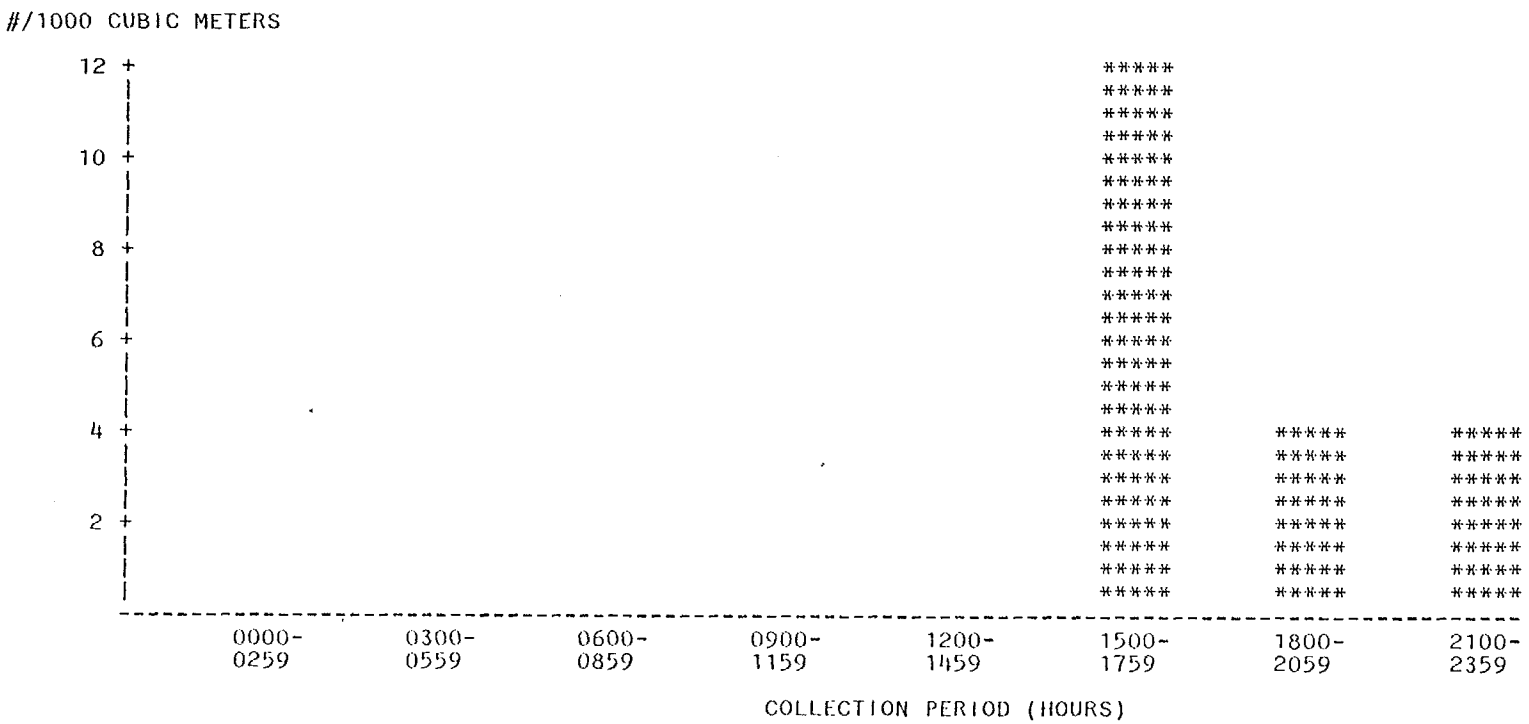


FIGURE 4-33. MEAN DIEL DENSITIES OF ATLANTIC TOMCOD COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILE

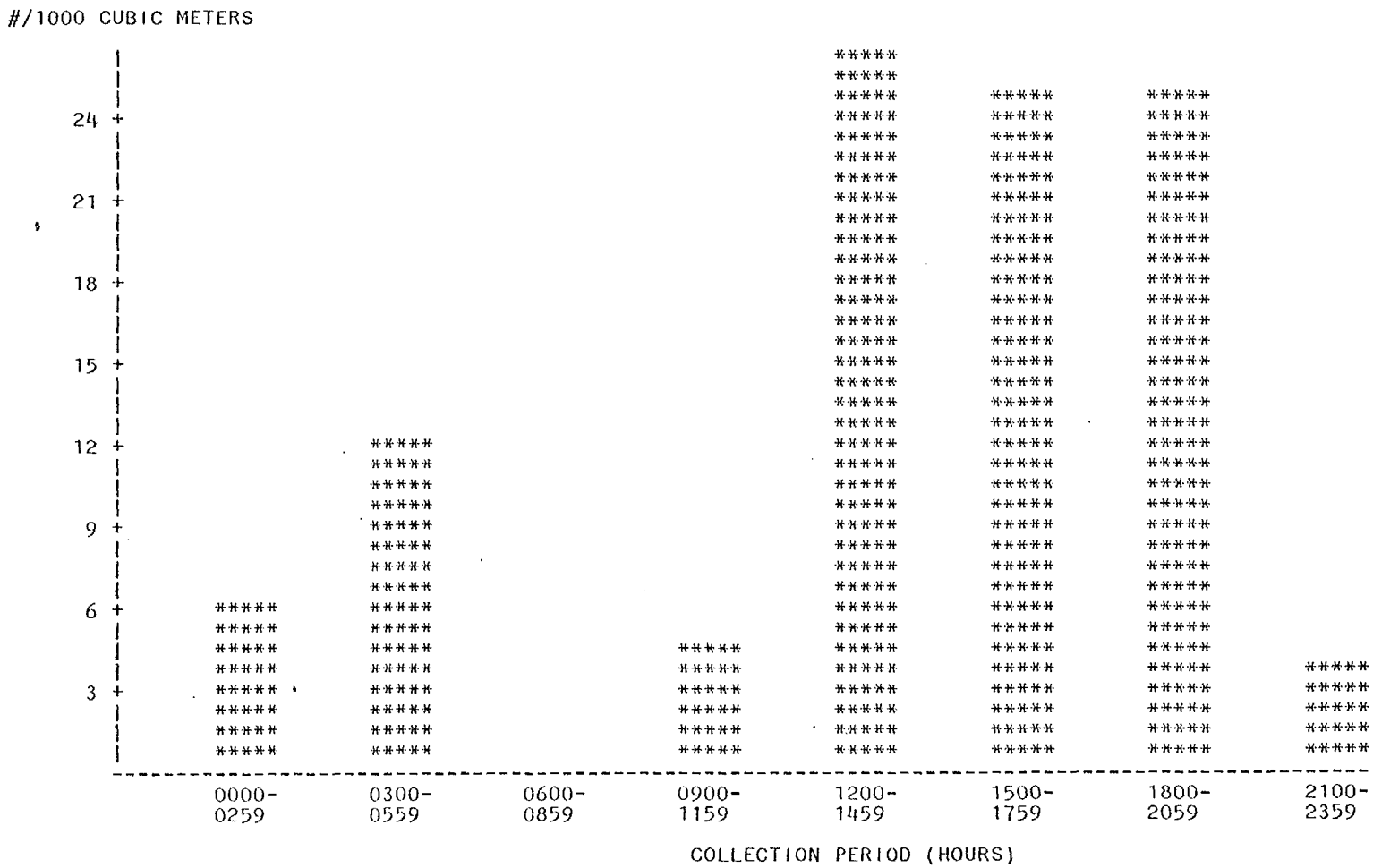
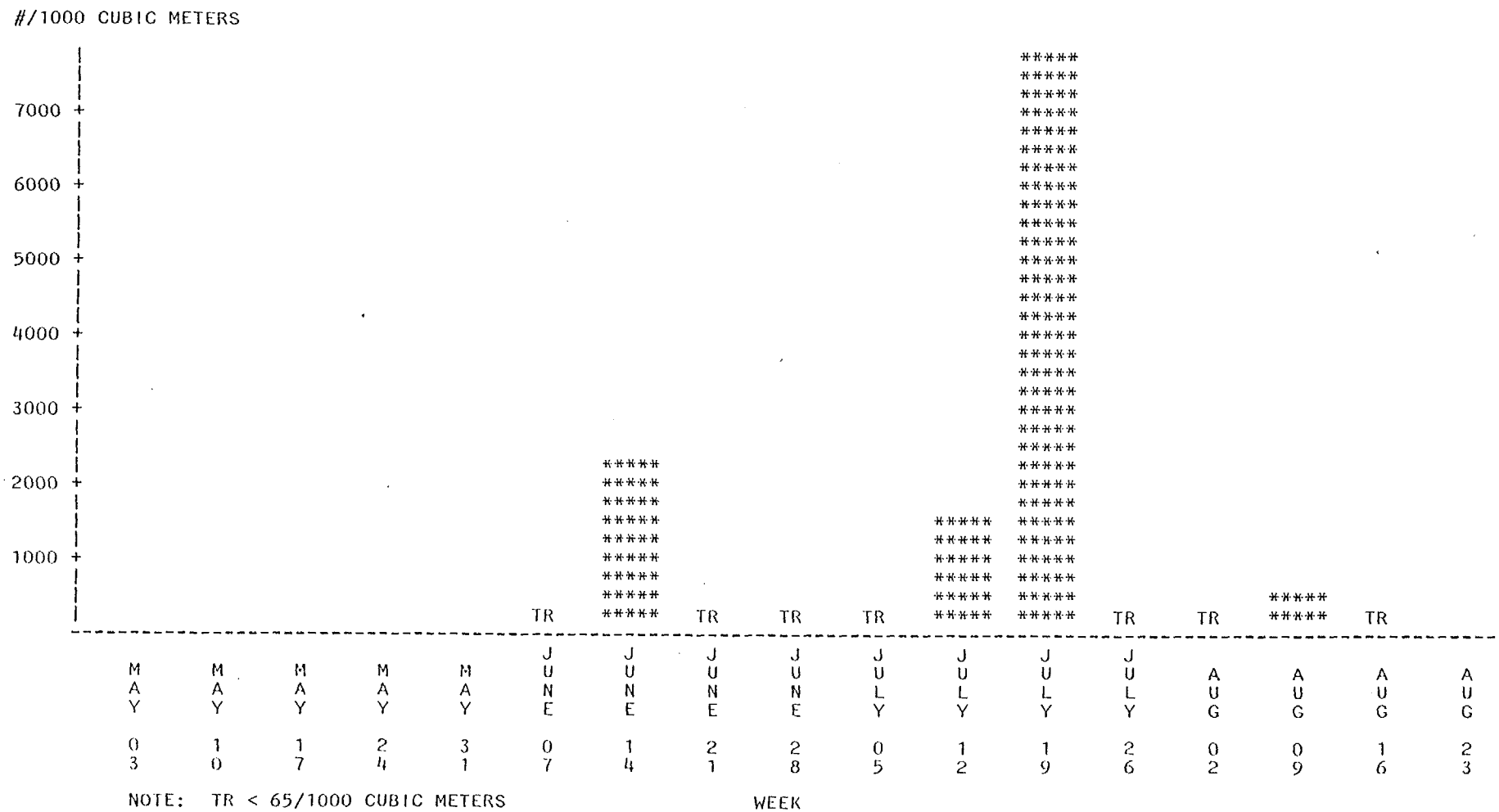


FIGURE 4-34. MEAN WEEKLY DENSITIES OF BAY ANCHOVY COLLECTED AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--EGG



NOTE: TR < 65/1000 CUBIC METERS

FIGURE 4-35. MEAN WEEKLY DENSITIES OF BAY ANCHOVY COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--YOLK-SAC LARVAE

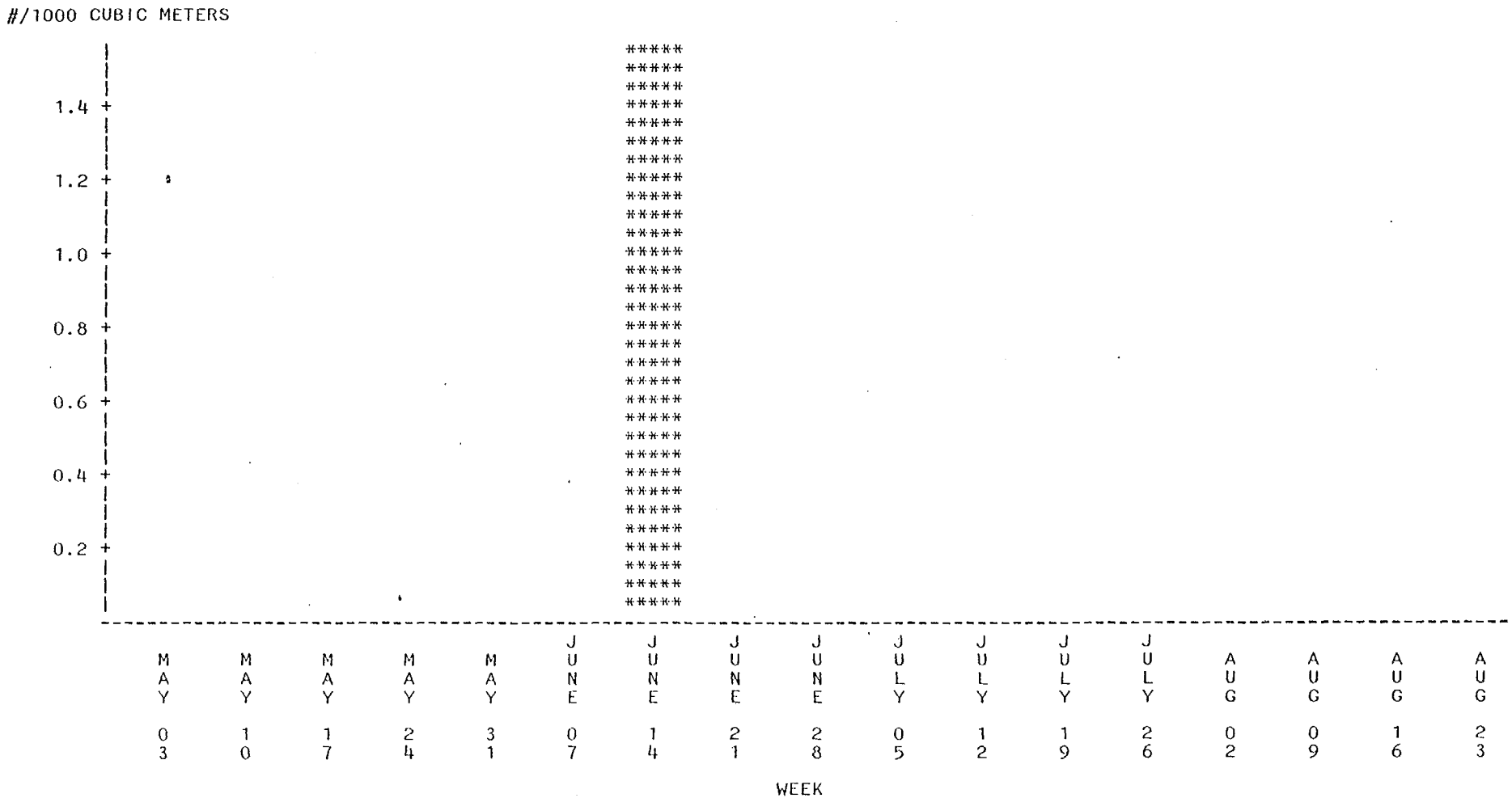
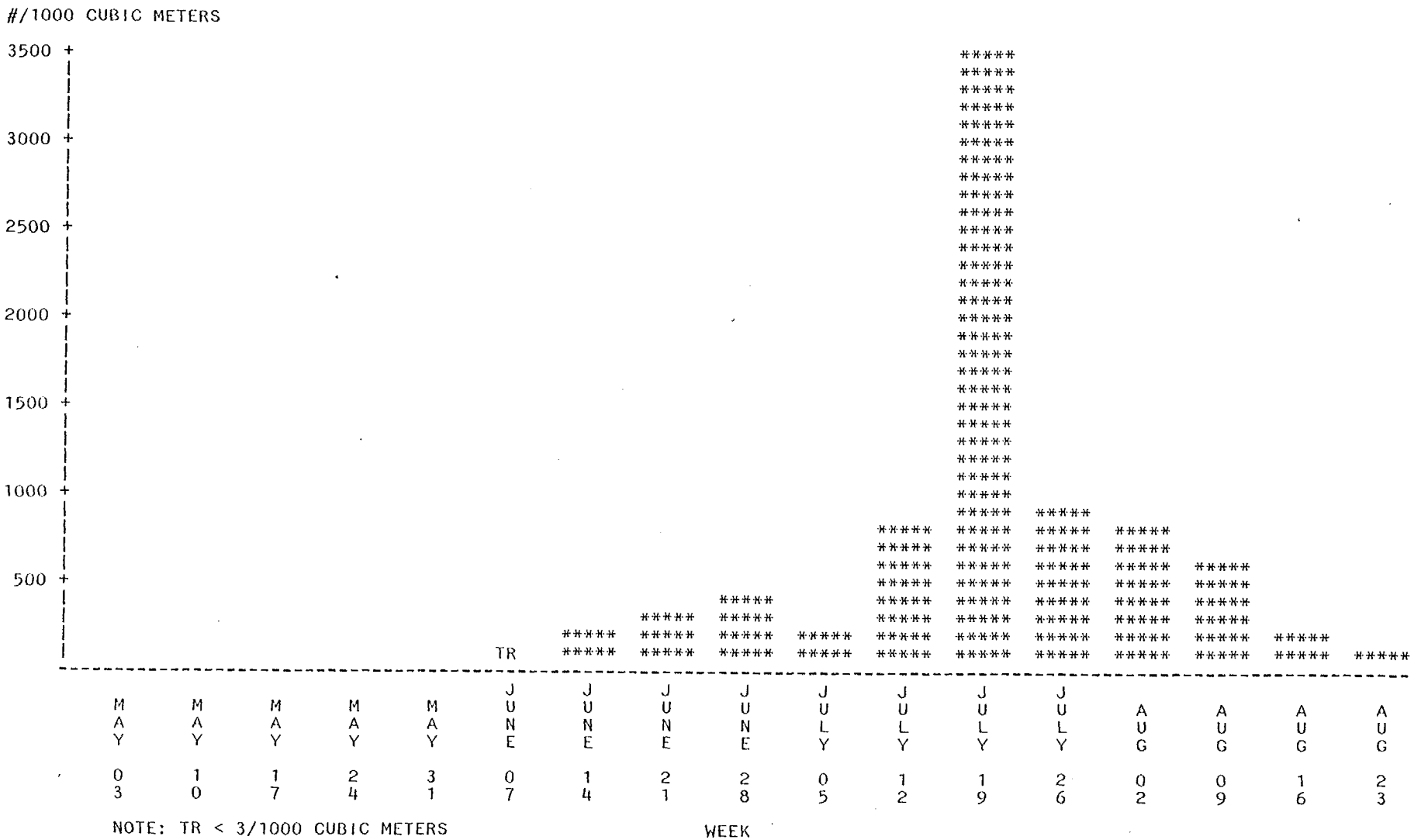


FIGURE 4-36. MEAN WEEKLY DENSITIES OF BAY ANCHOVY COLLECTED AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER LIFE STAGE--POST YOLK-SAC LARVAE



NOTE: TR < 3/1000 CUBIC METERS

FIGURE 4-37. MEAN WEEKLY DENSITIES OF BAY ANCHOVY COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILE

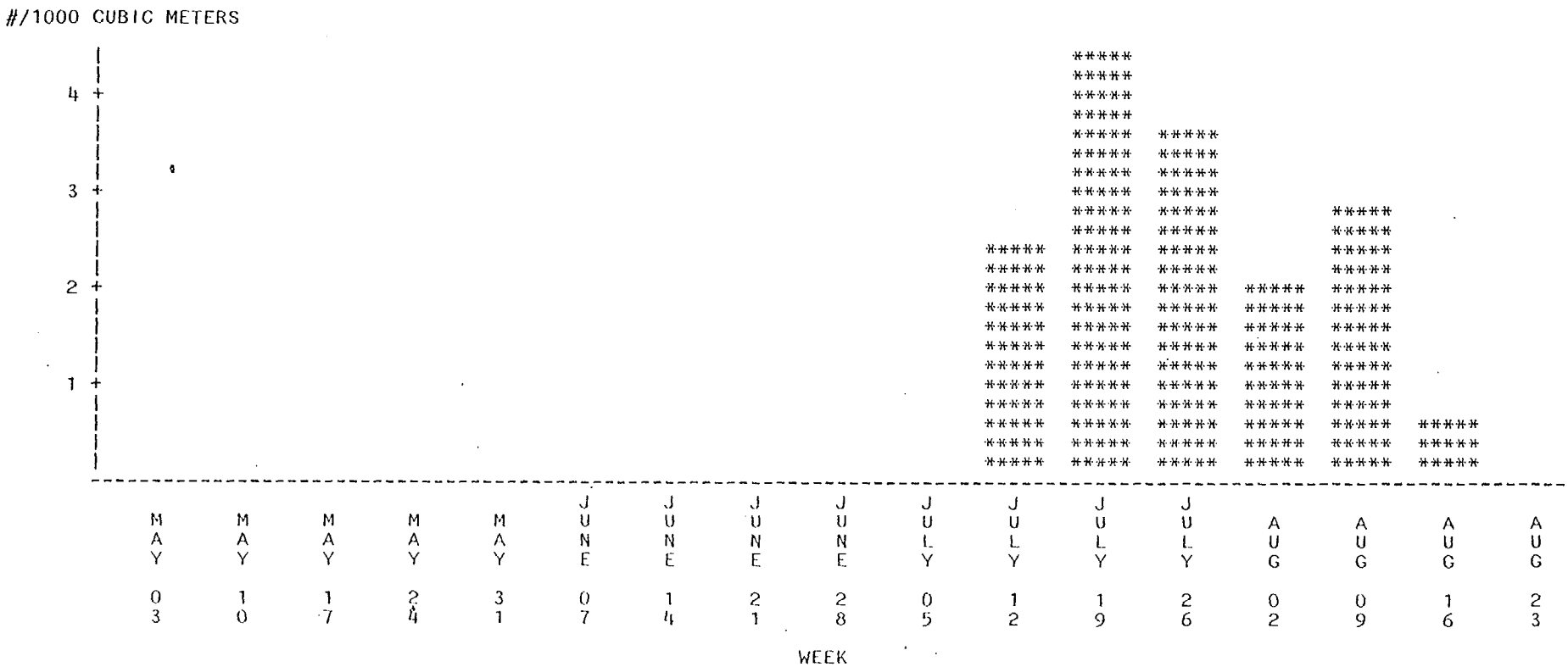


FIGURE 4-38. MEAN DIEL DENSITIES OF BAY ANCHOVY COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--EGG

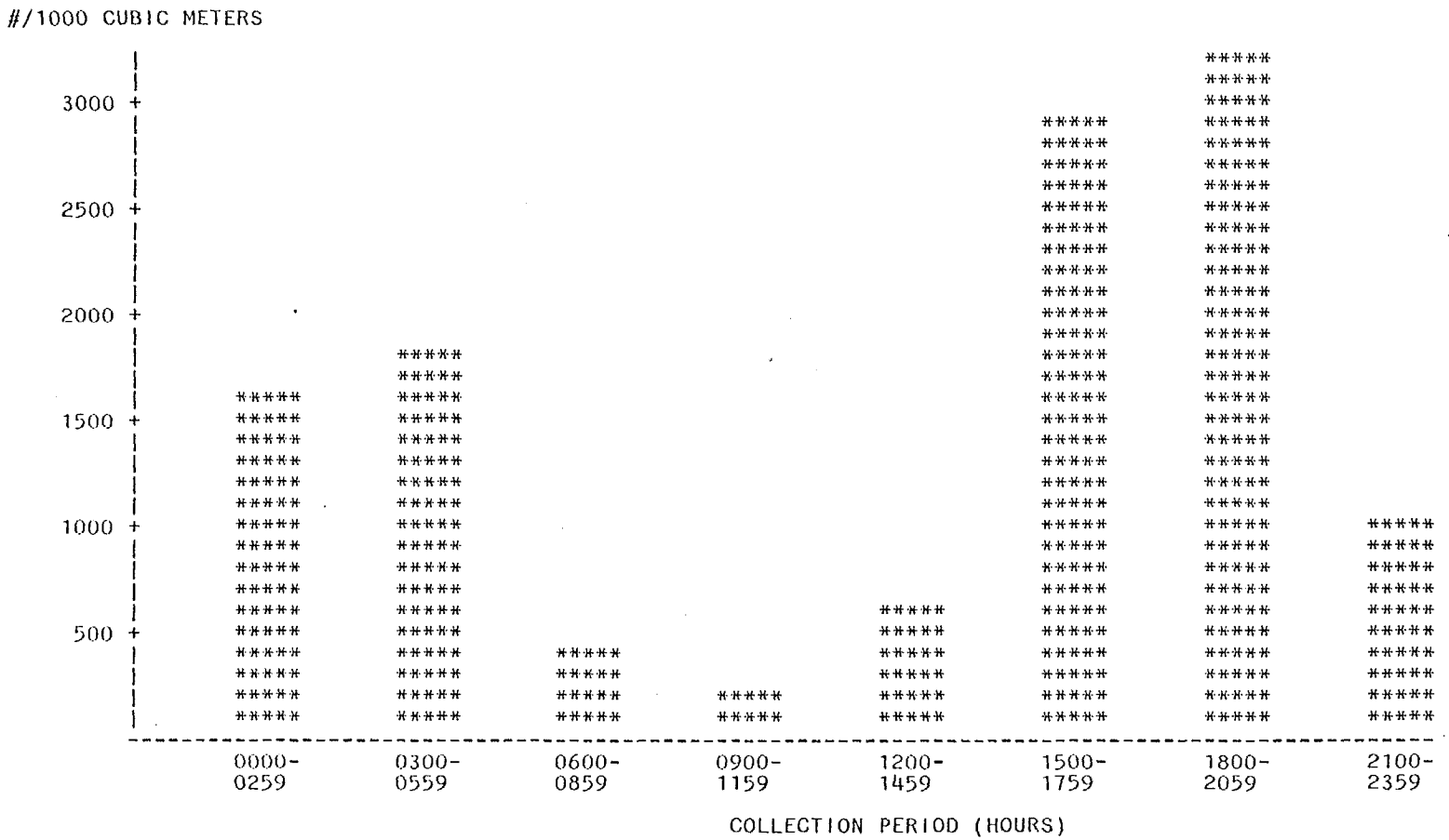


FIGURE 4-39. MEAN DIEL DENSITIES OF BAY ANCHOVY COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--YOLK-SAC LARVAE

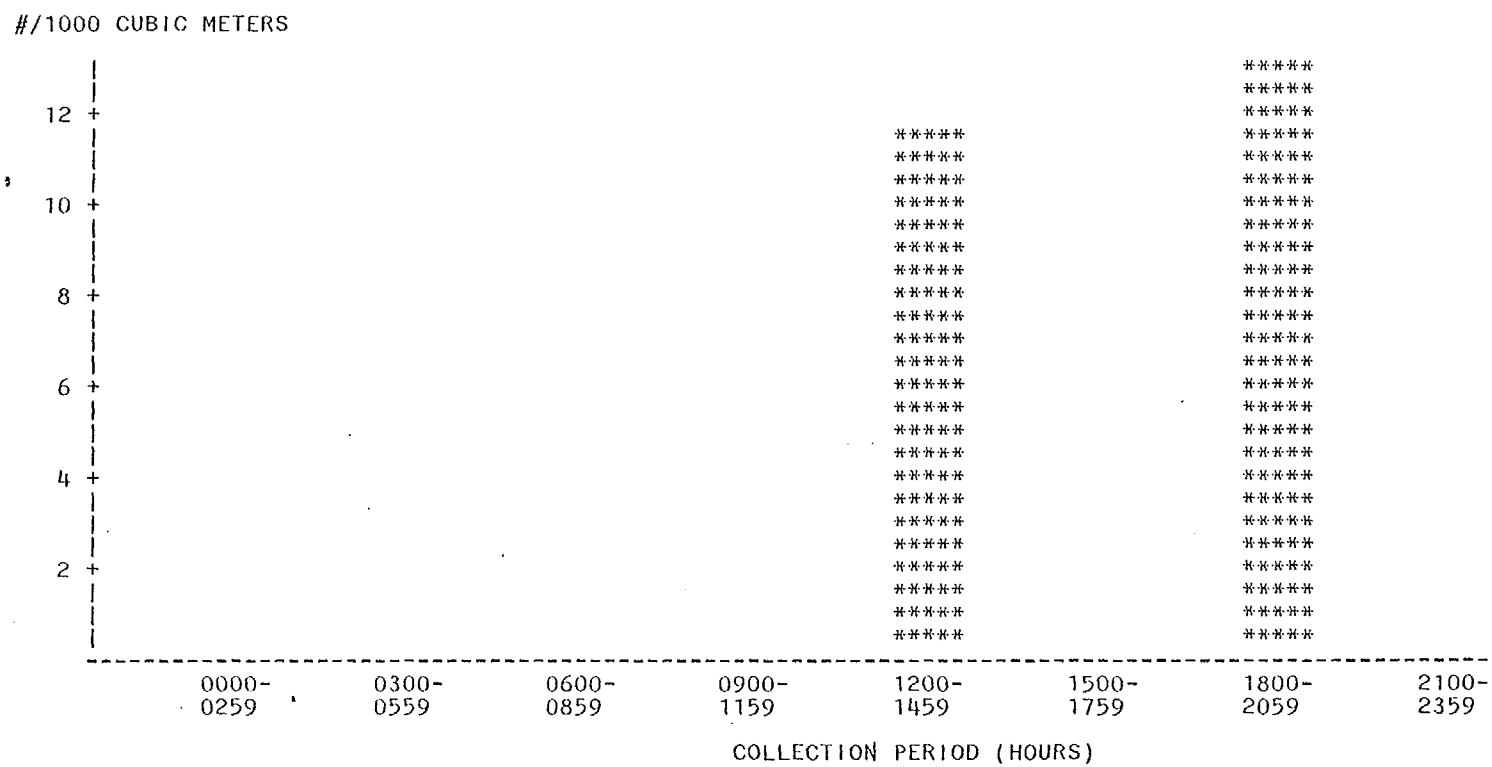


FIGURE 4-40. MEAN DIEL DENSITIES OF BAY ANCHOVY COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILES

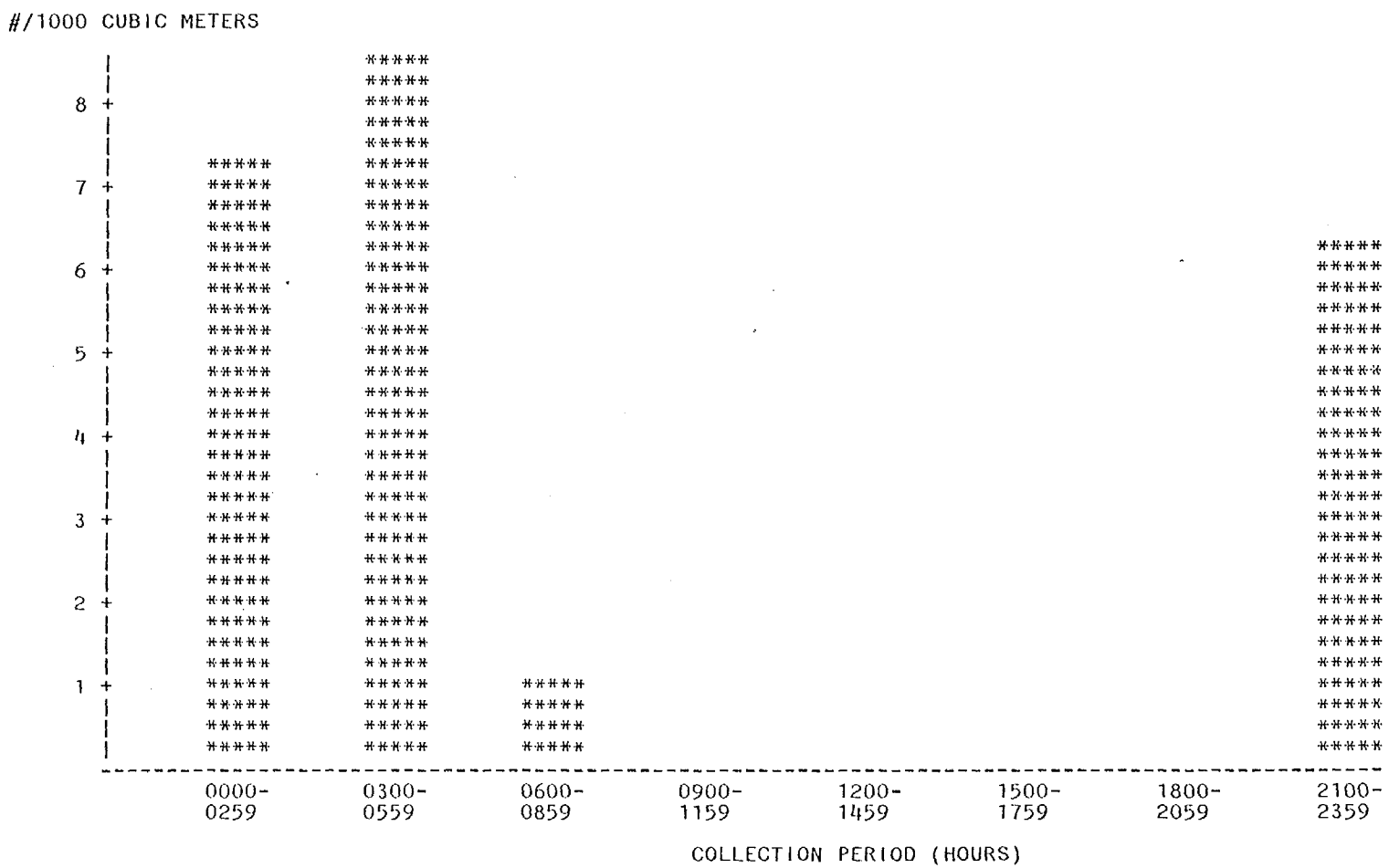


FIGURE 4-41. MEAN DIEL DENSITIES OF BAY ANCHOVY COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE

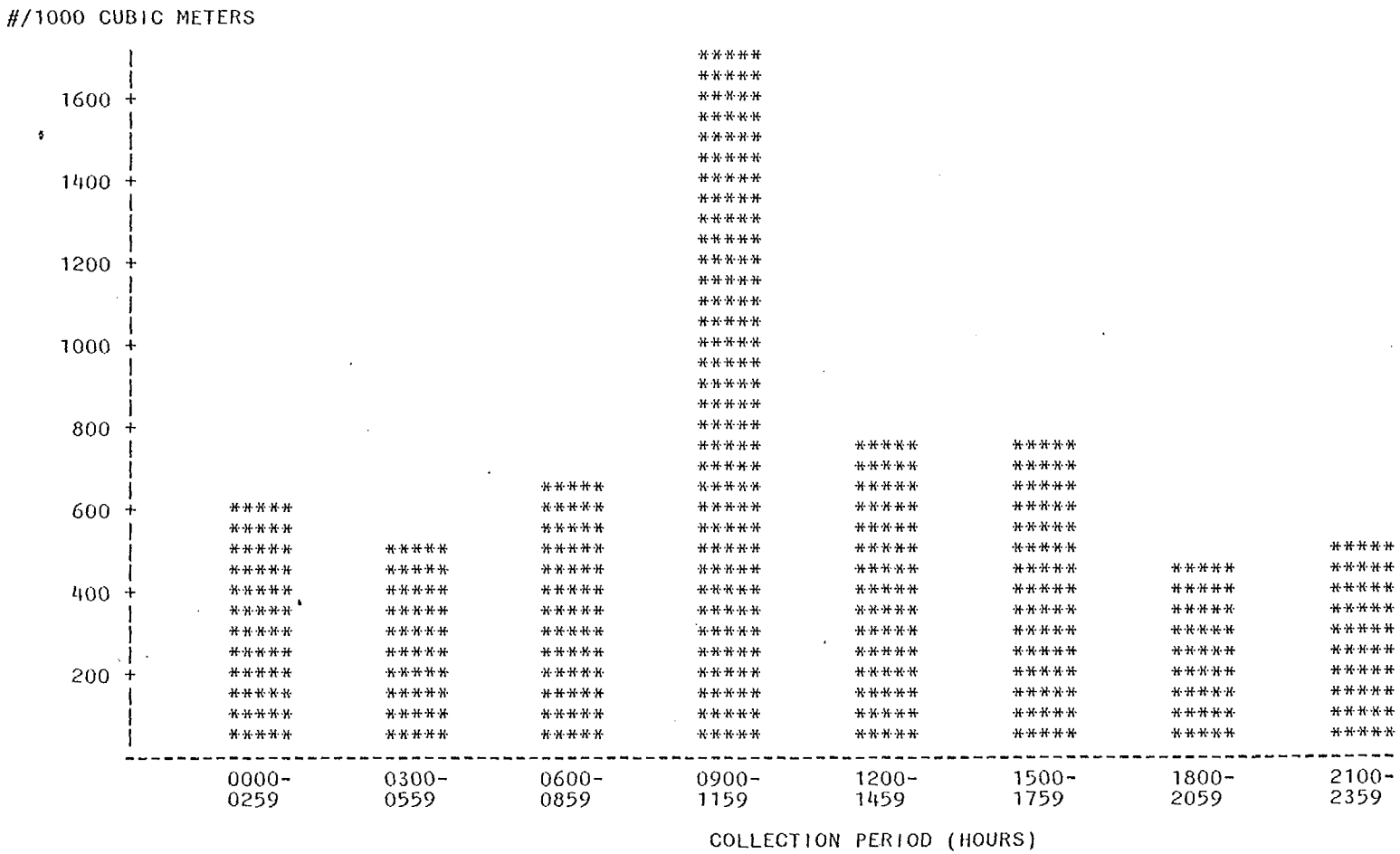


FIGURE 4-42. MEAN WEEKLY DENSITIES OF ALOSA SPP. COMBINED COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--EGG

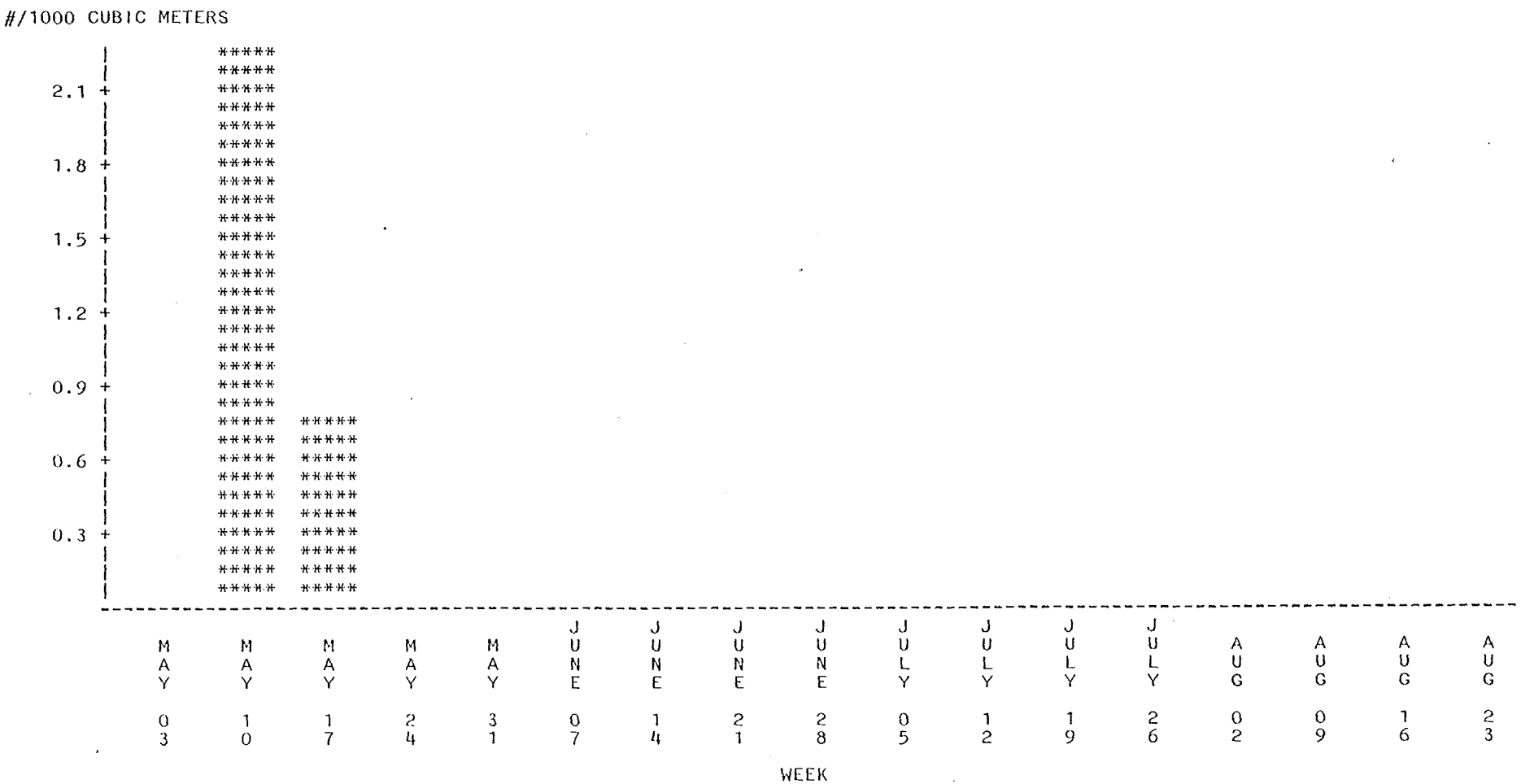


FIGURE 4-43. MEAN WEEKLY DENSITIES OF ALOSA SPP. COMBINED COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--YOLK-SAC LARVAE

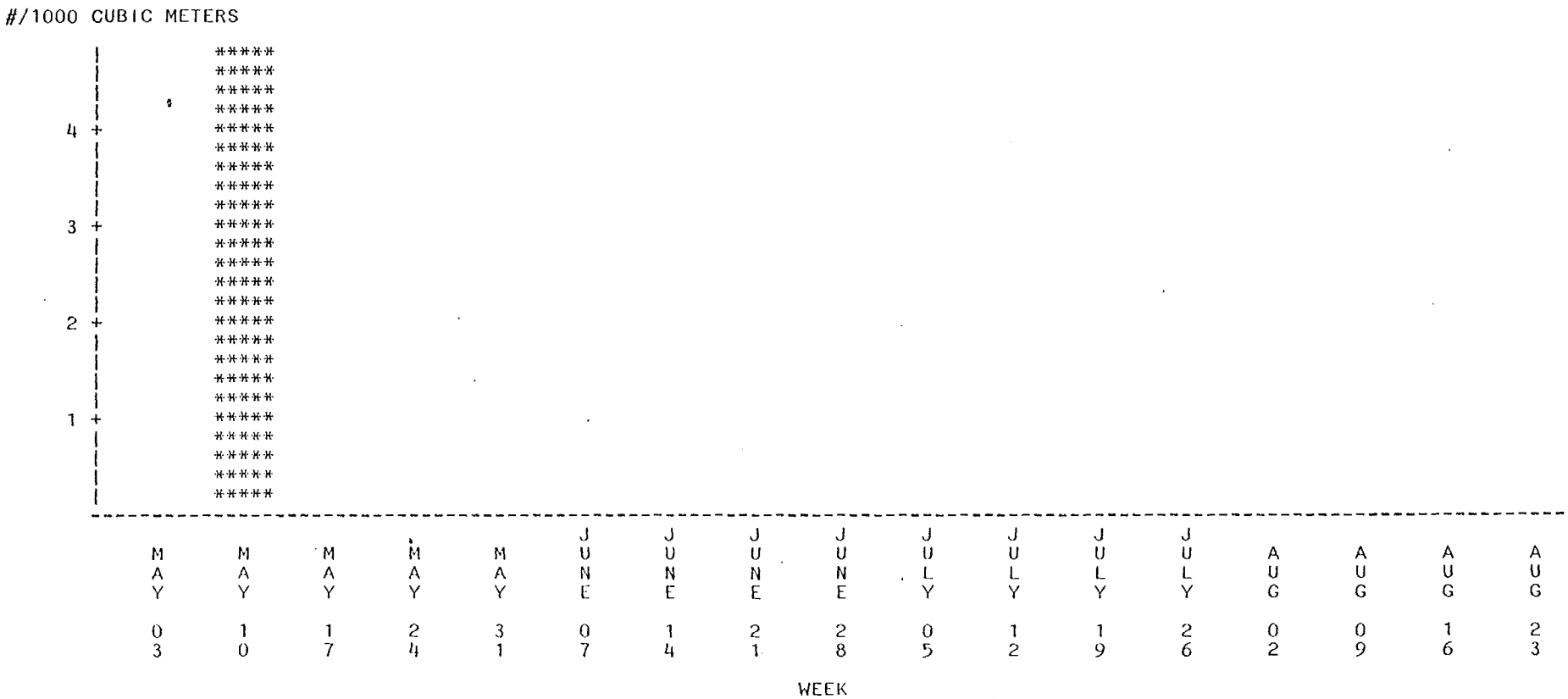


FIGURE 4-44. MEAN DIEL DENSITIES OF ALOSA SPP. COMBINED COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--EGG

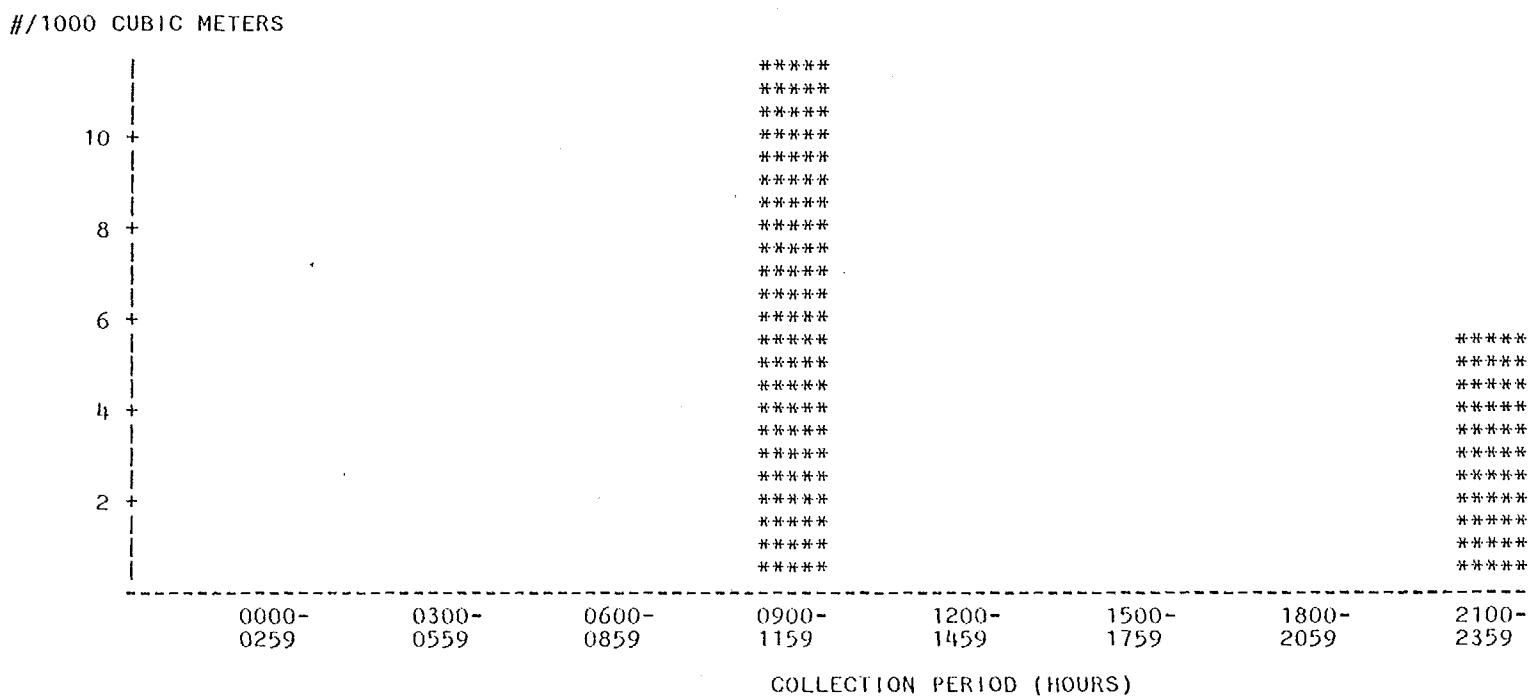


FIGURE 4-45. MEAN DIEL DENSITIES OF ALOSA SPP. COMBINED COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--YOLK-SAC LARVAE

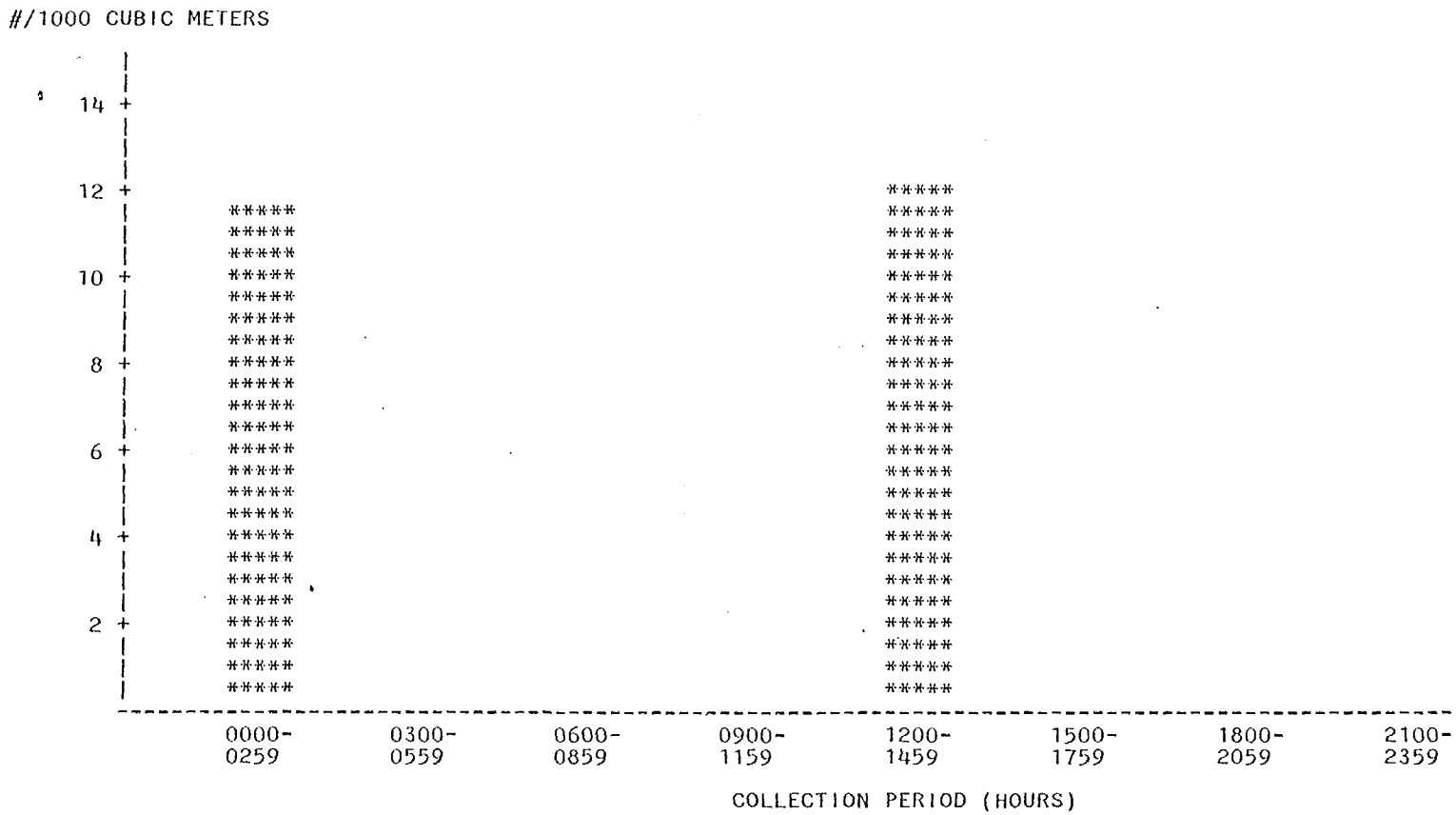
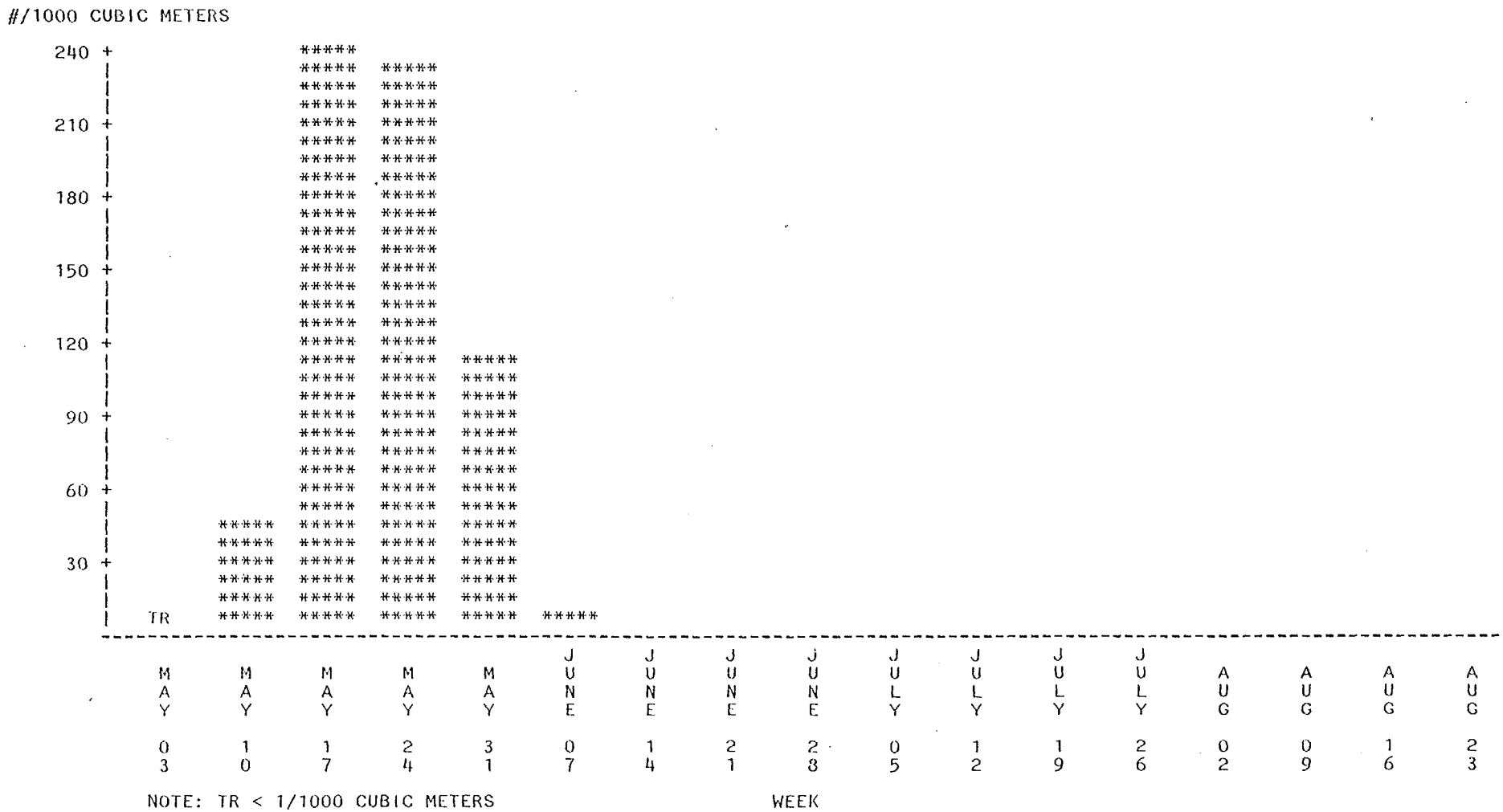


FIGURE 4-46. MEAN WEEKLY DENSITIES OF ALOSA SPP. COMBINED COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE



NOTE: TR < 1/1000 CUBIC METERS

FIGURE 4-47. MEAN DIEL DENSITIES OF ALOSA SPP. COMBINED COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--POST YOLK-SAC LARVAE

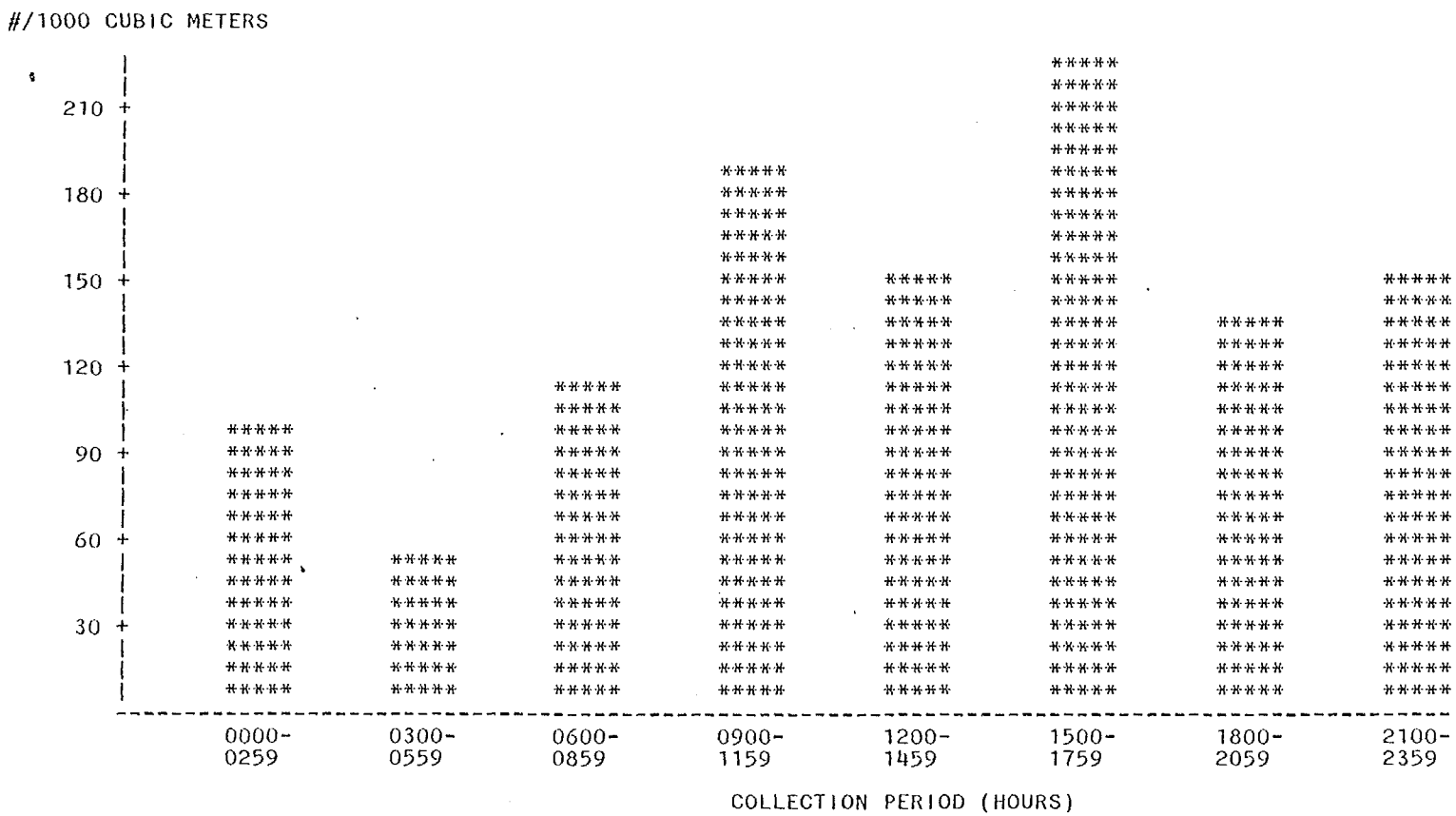


FIGURE 4-48. MEAN WEEKLY DENSITIES OF ALOSA SPP. COMBINED COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILE

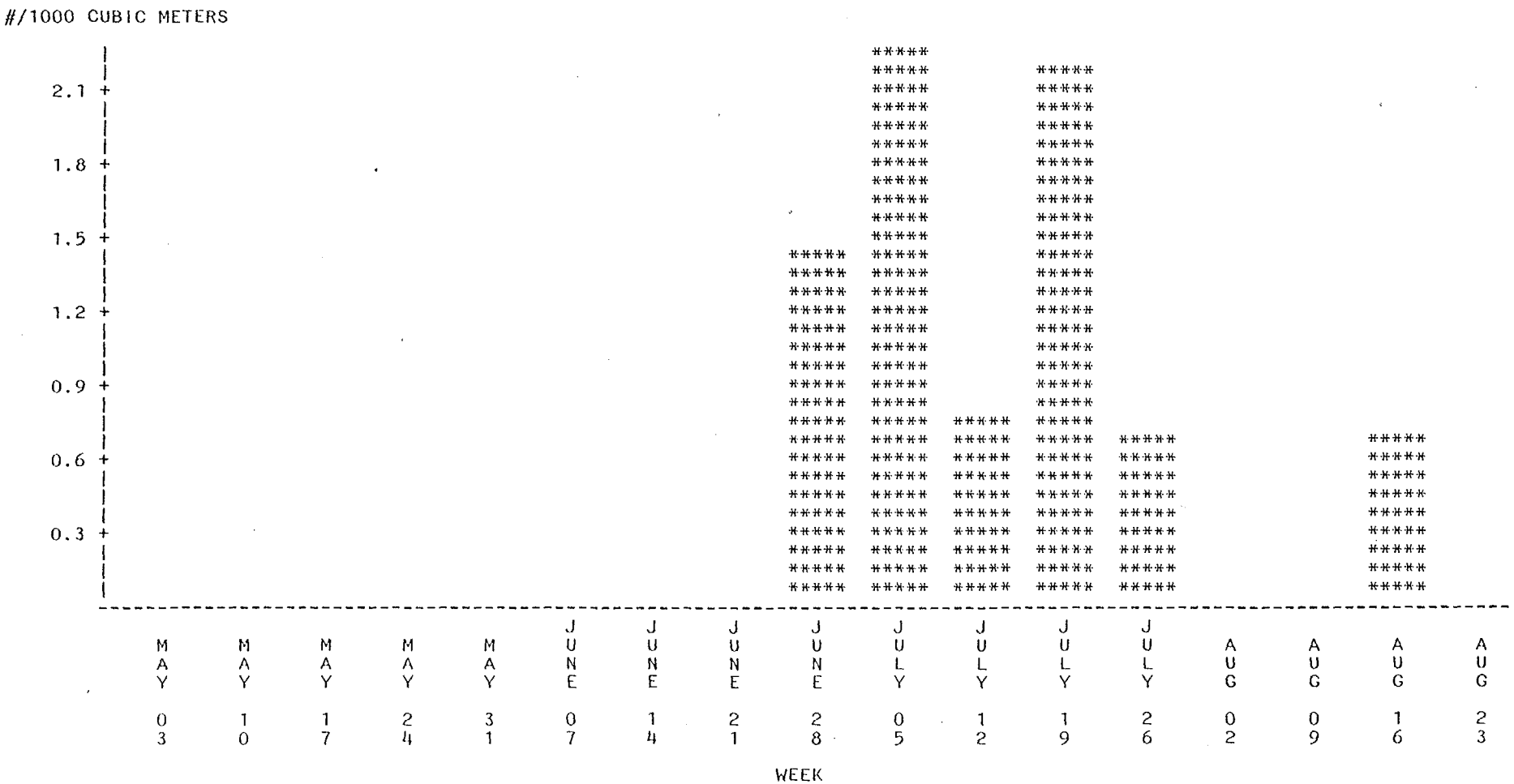
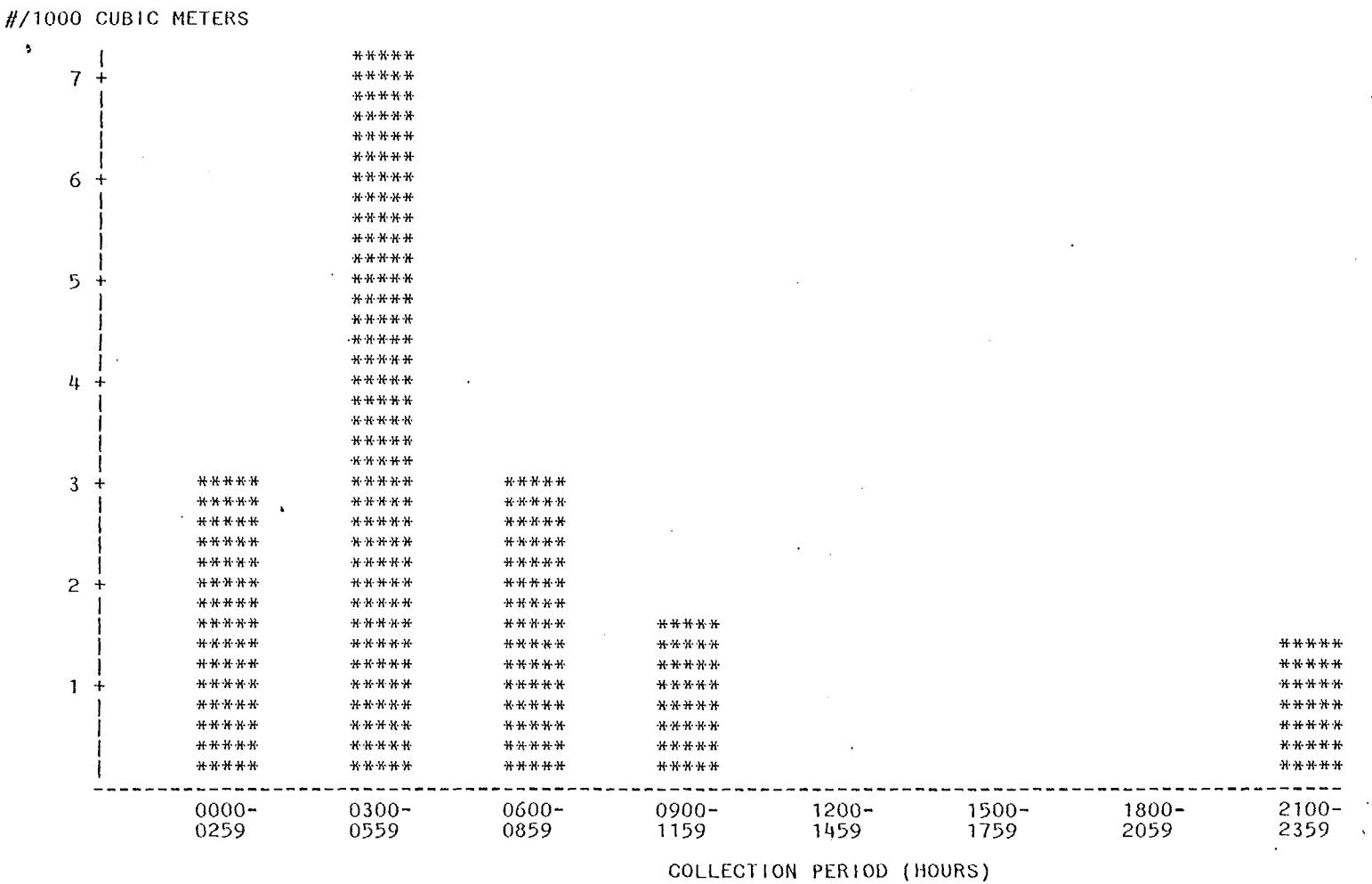


FIGURE 4-49. MEAN DIEL DENSITIES OF ALOSA SPP. COMBINED COLLECTED AT INDIAN POINT
IN 1981 AT STATION D2 USING A PUMP SAMPLER
LIFE STAGE--JUVENILES



LITERATURE CITED

American Fisheries Society. 1980. List of common and scientific names of fishes from the United States and Canada. Fourth edition. Special publication No. 12.

Barnthouse, L.W., W. Van Winkle, J. Golumbek, G. F. Cada, C.P. Goodyear, S. W. Christensen, J. B. Cannon, and D. W. Lee. 1982: The impact of entrainment and impingement on fish populations in the Hudson River estuary. Volume II. Impingement impact analyses, evaluations of alternative screening devices, and critiques of utility testimony relating to density - dependent growth, and age composition of the striped bass spawning stock, and the LMS real-time life cycle model. NUREG/CR-2220. ORNL-/NUREG/TM-385/V2.

Bigelow H. B. and W. C. Schroeder. 1953. Fishes of the Gulf of Maine. Fish. Bull. Fish Wild l. Serv. 74(53): 577.

Cochran, W. G. 1977. Sampling Techniques. John Wiley & Sons, Inc., N.Y. 3rd edition. 428 p.

Consolidated Edison Company of New York, Inc. 1977. Nearfield effects of once-through cooling system operation on Hudson River biota. Indian Point Units No. 2 and No. 3.

Consolidated Edison Company of New York, Inc. 1982. Hudson River ecological study in the area of Indian Point. 1980 Annual Report. Consolidated Edison Company of New York, Inc., and New York Power Authority.

Consolidated Edison Company of New York, Inc. 1983. Hudson River ecological study in the area of Indian Point. 1982 Annual Report. Consolidated Edison Company of New York, Inc., and New York Power Authority.

Ecological Analysts, Inc. (EA). 1979. Indian Point generating station entrainment survival and related studies. 1978 Annual Report. Prepared for Consolidated Edison Company of New York, Inc., and Power Authority of the State of New York.

Ecological Analysts, Inc. (EA). 1980a. Indian Point generating station entrainment and nearfield river studies. 1978 Annual Report. Prepared for Consolidated Edison Company of New York, Inc., and Power Authority of the State of New York.

Ecological Analysts, Inc. (EA). 1980b. Indian Point generating station entrainment and nearfield river studies. 1977 Annual Report. Prepared for Consolidated Edison Company of New York, Inc., and Power Authority of the State of New York.

Ecological Analysts, Inc. (EA). 1981a. Indian Point generating station entrainment and nearfield studies. 1979 Annual Report. Prepared for Consolidated Edison Company of New York, Inc., and Power Authority of the State of New York.

Ecological Analysts, Inc. (EA). 1981b. Indian Point generating station entrainment survival and related studies. 1979 Annual Report. Prepared for Consolidated Edison Company of New York, Inc., and Power Authority of the State of New York.

El-Shamy, F.M. 1979. Impingement sampling frequency. A multiple population approach. Environ. Sci. & Tech. 13(3):315-320.

Green, R. H. 1979. Sampling design and statistical methods for environmental biologists. John Wiley & Sons, Inc., N.Y. 257 p.

Johnston, E. M. 1976. On the choice of a sampling frequency for fish impingement at the Cook Plant. Preliminary report to the American Electric Power Corporation. 20 p.

Kumar, K. D. and J. S. Griffith. 1977. Temporally stratified sampling programs for estimation of fish impingement. 281-289. In: Fourth national workshop on entrainment and impingement. L. D. Jenser (ed.). Ecological Analysts, Inc., Melville, N.Y. 424 p.

Lawler, Matusky and Skelly Engineers (LMS). 1980. 1979 Annual Progress Report. Prepared for Gentral Hudson Gas and Electric Corporation.

Lawler, Matusky and Skelly Engineers (LMS). 1981. 1979 Hudson River aquatic ecology studies at the Bowline Point generating station. Prepared for Orange and Rockland Utilities, Inc.

McFadden, J. T., Texas Instruments Incorporated, and Lawler, Matusky and Skelly Engineers. 1978. Influence of the proposed Cornwall pumped storage project and steam electric generating plants on the Hudson River estuary with emphasis on striped bass and other fish populations, revised. Prepared for Consolidated Edison Company of New York, Inc.

Murarka, I. P. and D. J. Bodeau. 1977. Sampling designs and methods for estimating fish impingement losses at cooling water intakes. Argonne National Laboratory. Argonne, IL. 277 p.

Murarka, I. P. and Spigarelli, and D. J. Bodeau. 1977. Statistical comparison and choices of sampling designs for estimating fish impingement at cooling water intakes. 267-280. In: Fourth national workshop on entrainment and impingement. L. D. Jensen (ed.). Ecological Analysts, Inc., Melville, N.Y. 424 p.

New York University Medical Center (NYU). 1973. Hudson River ecosystem studies. Effects of entrainment by the Indian Point power plant on Hudson River biota. Progress Report for 1971 and 1972. Prepared for Consolidated Edison Co. of New York, Inc., by NYU Medical Center, Institute of Environmental Medicine, Laboratory for Environmental Studies.

New York University Medical Center (NYU). 1974. Hudson River ecosystem studies. Effects of entrainment by the Indian Point power plant on Hudson River biota. Progress Report for 1973. Prepared for Consolidated Edison Co. of New York, Inc., by NYU Medical Center, Institute of Environmental Medicine, Laboratory for Environmental Studies.

New York University Medical Center (NYU). 1976. Hudson River ecosystem studies. Effects of entrainment by the Indian Point power plant on Hudson River biota. Progress Report for 1974. Prepared for Consolidated Edison Co. of New York, Inc., by NYU Medical Center, Institute of Environmental Medicine, Laboratory for Environmental Studies.

New York University Medical Center (NYU). 1977. Hudson River ecosystem studies. Effects of entrainment by the Indian Point power plant on Hudson River biota. Progress Report for 1975. Prepared for Consolidated Edison Co. of New York, Inc., by NYU Medical Center, Institute of Environmental Medicine, Laboratory for Environmental Studies.

New York University Medical Center (NYU). 1978. Hudson River ecosystem studies. Effects of entrainment by the Indian Point power plant on Hudson River biota. Progress Report for 1976. Prepared for Consolidated Edison Co. of New York, Inc., by NYU Medical Center, Institute of Environmental Medicine, Laboratory for Environmental Studies.

Normandeau Associates, Inc. and Consolidated Edison Company of New York, Inc. 1982. Gear comparability study for entrainment sampling of juvenile fish at the Indian Point Station, 1981.

Stupka, R. C. and R. K. Sharma. 1977. Survey of fish impingement at power plants in the United States. Vol. III. Estuaries and coastal waters. Argonne National Laboratory. Argonne, Ill. 310 p.

Scott, W. B. and E. J. Crossman. 1973. Freshwater fishes of Canada. Fish. Res. Bd. Can. Bull. 184.

Texas Instruments Incorporated. 1973. Hudson River ecological study in the area of Indian Point. First Annual Report. Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1974. Indian Point impingement study report for the period 15 June 1972 through 31 December 1973. Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1975. Hudson River ecological study in the area of Indian Point. 1974 Annual Report. Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1976a. Hudson River ecological study in the area of Indian Point. 1975 Annual Report. Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1976b. Fisheries survey of the Hudson River March - December 1973. Vol. IV revised edition; Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1977. Hudson River ecological study in the area of Indian Point. 1976 Annual Report. Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1978. Catch efficiency of 100-ft. (30m) beach seines for estimating density of young-ofthe-year striped bass and white perch in the shore zone of the Hudson River estuary. Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1979a. Hudson River ecological study in the area of Indian Point. 1977 Annual Report. Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1979b. 1976 Year-class report for the multiplant impact study of the Hudson River estuary. Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1980a. Hudson River ecological study in the area of Indian Point. 1978 Annual Report. Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1980b. Hudson River ecological study in the area of Indian Point. 1979 Annual Report. Prepared for Consolidated Edison Company of New York, Inc.

Texas Instruments Incorporated. 1981. 1979 Year-class report for the multiplant impact study of the Hudson River estuary. Prepared for Consolidated Edison Company of New York, Inc.

U. S. Nuclear Regulatory Commission (US NRC). 1975. Appendix B to facility operating license for Indian Point nuclear generating Units 1, 2, and 3. Environmental technical specification requirements for once through cooling, December 1975.

Appendix A

Impingement Field and Laboratory Procedures

Study design for impingement monitoring and water quality data collections in 1981 changed considerably from previous years. From January 1, 1981 through June 30, 1981, the sampling program remained unchanged from prior years and has been described in detail previously (TI 1980b). However, from July 1, 1981 to December 31, 1981 the sampling program was modified so that collections took place only on a certain specified number of days.

Quality control procedures were maintained in all sampling programs to ensure an average accuracy rate of 90% or better for the identification and enumeration of striped bass, white perch, Atlantic tomcod and the combined total of all the other species.

1. Impingement Monitoring at the Indian Point Generating Station

a. Collection and Processing

Fish from the intake screens of Units 2 and 3 of the Indian Point Station were collected daily from January 1, 1981 to June 30, 1981 and on randomly selected days within the two strata from July 1, 1981 to December 31, 1981 (Tables A-1, A-2, A-3). Collections generally occurred when the intake screens were routinely washed once daily between 0630 and 1200 hrs. to remove accumulated fish and debris. Occasionally, heavy trash loading or fixed screen malfunction required more frequent or even continuous screen washing. Whenever possible, on those occasions fish were collected and counted using the same basic procedures as in routine sampling. Intake screens at Unit 1, which was not operational, were not routinely washed. When occasional washing occurred, the impinged fish were collected and processed following standard operating procedures as for the other Units.

For each collection of fish (all screen washes per Unit), individuals were identified to species and enumerated. All species were separated into four length classes (LC):

- o LC1 = 0mm - Div_1
- o LC2 = Div_1 +1 - Div_2
- o LC3 = Div_2 +1 - 250mm
- o LC4 = 251+mm

The division values defined the upper total length limit for each age group [i.e., LC1 contained young-of-the-year (YOY) fish, while LC2 contained primarily yearling fish] and were determined by examining size distributions of previous years' data, spot checking age by scale analysis, and using reference literature. The division values were updated periodically to allow for growth.

Total weight of each species was determined for LC1, LC2 and all length class groups combined (Tables A-4, A-5, and A-6). Total count by length class was determined for each species. All striped bass and white perch as well as Atlantic tomcod during the winter marking season (January through March and December 1981) in each sample were individually counted and tallied by length class. For all other species including Atlantic tomcod from April through November, if 100 or more fish were present in either LC1 and LC2, a subsample of 100 randomly selected whole fish was taken from that LC. The total number was then estimated by extrapolation using the total weight of the subsampled LC and the weight of the 100 fish subsample.

All yearling and older striped bass, white perch and Atlantic tomcod and YOY Atlantic tomcod (from approximately 1 December - 30 December) were examined for previous marks. All suspected recaptures were retained for laboratory verification.

b. Station Operation and Environmental Variables

To provide a basis for computing impingement rates and for analyzing the factors affecting impingement rates at Units 2 and 3, cooling water circulator flow rates and the duration of circulator pump operation were monitored along with fish collections from the intake screens. Mean daily water temperature based upon recordings made at the Station's intakes on collection days (Table A-7) and conductivity measurements (Table A-8) were also made.

TABLE A-1

TOTAL NUMBERS OF EACH TAXON ACTUALLY COLLECTED AT INDIAN POINT UNIT 2 DURING 1981
(UNADJUSTED FOR COLLECTION EFFICIENCY)

TAXON	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ALEWIFE	0	2	0	2	52	104	2023	5	1	376	134	7	2706
AMERICAN EEL	0	8	27	13	68	168	22	0	1	45	30	125	507
AMERICAN SANDLANCE	0	0	1	0	0	0	0	0	0	0	0	0	1
AMERICAN SHAD	0	0	0	0	0	1316	8026	14	3	1139	1202	7	11707
ATLANTIC MACKEREL	0	0	0	0	1	0	0	0	0	0	0	0	1
ATLANTIC MENHADEN	0	0	0	0	2	46	124	0	0	4	0	0	176
ATLANTIC NEEDLEFISH	0	0	0	0	0	0	1	0	0	0	0	0	1
ATLANTIC SILVERSIDE	0	0	1	0	0	0	0	0	0	1	2	3	7
ATLANTIC STURGEON	0	0	0	0	0	0	0	0	0	3	0	0	3
ATLANTIC TOMCOD	0	18	133	14	13089	60075	5324	47	37	513	49	559	79858
BANDED KILLIFISH	0	36	41	5	7	11	0	1	0	26	35	110	272
BAY ANCHOVY	0	1	0	0	248	8553	46881	21	155	4629	20	22	60530
BLACK BULLHEAD	0	0	0	0	0	0	0	0	0	0	2	4	6
BLACK CRAPPIE	0	0	4	0	1	0	0	0	0	0	0	0	5
BLACK SEA BASS	0	0	0	0	0	0	0	0	0	1	0	0	1
BLUEBACK HERRING	0	1	0	0	80	158	966	57	32	51132	7012	189	59627
BLUEFISH	0	0	0	0	0	356	361	2	0	0	0	0	719
BLUEGILL	0	6	13	1	6	6	0	0	0	7	6	11	56
BROWN BULLHEAD	0	4	13	3	1	10	21	0	0	1	2	3	58
CARP	0	1	0	1	0	0	0	0	0	0	0	0	2
CENTRARCHID UNIDENTIFIED	0	4	32	0	0	0	0	0	0	6	0	0	42
CLUPEID UNIDENTIFIED	0	0	0	0	0	323	613	0	0	1	0	0	937
CREVALLE JACK	0	0	0	0	0	0	0	0	2	20	71	8	101
CUNNER	0	0	0	0	0	0	0	0	0	0	0	1	1
FATHEAD MINNOW	0	0	0	1	0	0	0	0	0	0	0	0	1
FOUR-SPINE STICKLEBACK	0	1	6	3	1	2	0	0	0	0	0	2	15
GIZZARD SHAD	0	0	0	0	0	0	0	0	0	1	58	159	218
GOLDEN SHINER	0	13	14	4	0	2	0	0	0	0	2	0	35
GOLDFISH	0	38	90	7	2	2	0	0	0	0	1	5	145
HOGCHOKER	0	0	19	130	936	950	222	27	25	1539	1333	451	5632
LARGEMOUTH BASS	0	2	10	1	0	0	0	0	0	0	1	4	18
LOOKDOWN	0	0	0	0	0	0	0	0	1	0	0	0	1
MUMMICHOG	0	4	0	0	0	2	0	0	0	0	1	2	9
NORTHERN PIPEFISH	0	0	1	17	24	36	8	2	7	206	5	3	309
NORTHERN PUFFER	0	0	0	0	0	0	0	0	0	1	0	0	1
PUMPKINSEED	0	273	171	55	176	44	6	1	1	861	496	1395	3479
RAINBOW SMELT	0	12	87	28	38	8	5	0	0	4	9	46	237
REDBREAST SUNFSH	0	0	3	1	2	1	0	0	0	2	1	0	10
ROCK BASS	0	1	1	0	0	0	0	0	0	0	0	0	2
SATINFIN SHINER	0	0	0	1	0	0	0	0	0	0	0	6	7
SEA HORSE	0	0	0	0	0	0	0	0	0	1	0	0	1
SEA LAMPREY	0	3	0	0	0	1	0	0	0	0	0	0	4
SILVER HAKE	0	0	0	0	2	0	0	0	0	0	0	0	2
SMALLMOUTH BASS	0	0	0	0	0	0	0	0	0	0	0	1	1
SMALLMOUTH FLOUNDER	0	0	0	0	2	0	0	0	0	0	0	0	2

TABLE A-1 (CONTINUED)

TOTAL NUMBERS OF EACH TAXON ACTUALLY COLLECTED AT INDIAN POINT UNIT 2 DURING 1981
(UNADJUSTED FOR COLLECTION EFFICIENCY)

TAXON	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
SPOT	0	0	0	0	0	0	0	0	0	0	0	1	1
SPOTTAIL SHINER	0	48	242	52	6	2	1	0	0	1	32	78	462
SPOTTED HAKE	0	0	0	0	0	1	0	0	0	0	0	0	1
SQUIRREL OR RED HAKE	0	0	0	0	1	0	0	0	0	0	0	3	4
STRIPED BASS	0	2755	2063	382	291	158	808	8	6	1597	1200	4938	14206
STRIPED SEAROBIN	0	0	0	0	0	0	0	0	0	1175	60	0	1235
SUMMER FLOUNDER	0	0	1	0	1	3	0	0	1	1	0	0	7
TAUTOG	0	0	0	1	1	1	0	0	0	0	0	1	4
TESSELLATED DARTER	0	2	3	17	2	3	0	0	0	0	11	34	72
THREE-SPINE STICKLEBACK	0	15	10	0	0	0	0	0	0	0	0	2	27
TIDEWATER SILVERSIDE	0	0	0	0	0	0	0	0	0	1	2	0	3
WEAKFISH	0	0	0	0	0	1	1511	13	28	3171	217	3	4944
WHITE CATFISH	0	2	8	6	26	12	6	0	0	19	53	139	271
WHITE CRAPPIE	0	3	1	0	0	0	0	0	0	0	0	0	4
WHITE PERCH	0	36894	56564	12593	11639	7400	4189	78	57	24901	53122	241547	448984
WHITE SUCKER	0	0	0	0	3	1	0	0	0	0	0	0	4
WINTER FLOUNDER	0	1	4	0	0	0	2	0	0	1	1	2	11
YELLOW PERCH	0	24	130	48	14	2	0	0	0	2	7	43	270
ALL TAXA COMBINED	0	40172	59693	13386	26722	79758	71120	276	357	91388	65177	249914	697963

TABLE A-2

TOTAL NUMBERS OF EACH TAXON ACTUALLY COLLECTED AT INDIAN POINT UNIT 3 DURING 1981
(UNADJUSTED FOR COLLECTION EFFICIENCY)

TAXON	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ALEWIFE	12	2	0	28	335	233	934	199	5	0	5	2	1755
AMERICAN EEL	86	26	8	116	120	235	30	29	1	0	8	84	743
AMERICAN SHAD	3	0	0	0	27	265	1962	1139	4	0	62	1	3463
ATLANTIC MENHADEN	0	0	0	2	30	226	71	136	2	0	0	0	467
ATLANTIC NEEDLEFISH	0	0	0	0	0	1	0	0	0	0	0	0	1
ATLANTIC SILVERSIDE	5	0	0	2	0	0	0	0	0	0	0	3	10
ATLANTIC STURGEON	3	0	0	0	0	0	0	0	0	0	0	2	5
ATLANTIC TOMCOD	85	10	1	15	2280	14240	4607	1920	1	0	6	297	23462
BANDED KILLIFISH	59	39	18	40	13	9	0	0	1	0	4	82	265
BAY ANCHOVY	5	0	0	9	884	19468	9184	1788	135	0	2	15	31490
BIG EYE SCAD	0	0	0	0	0	0	1	0	0	0	0	0	1
BLACK BULLHEAD	0	0	0	0	0	0	0	1	0	0	0	3	4
BLACK CRAPPIE	2	0	3	4	17	0	0	0	0	0	0	1	27
BLUEBACK HERRING	44	0	1	17	329	410	400	1223	33	0	950	54	3461
BLUEFISH	0	0	0	0	0	896	767	177	2	0	0	0	1842
BLUEGILL	7	13	17	6	54	28	2	4	0	0	0	18	149
BROWN BULLHEAD	46	4	7	5	7	8	9	8	0	0	0	5	99
BUTTERFISH	0	0	0	0	0	0	1	9	2	0	0	0	12
CARP	17	1	0	1	0	1	0	0	0	0	0	2	22
CENTRARCHID UNIDENTIFIED	19	2	19	0	0	0	0	0	0	0	0	0	40
CHAIN PICKEREL	1	0	0	0	0	0	0	0	0	0	0	0	1
CLUPEID UNIDENTIFIED	0	0	0	0	0	157	164	0	0	0	0	0	321
CREVALLE JACK	0	0	0	0	0	0	4	0	0	0	0	0	4
EMERALD SHINER	0	0	0	1	0	0	0	0	0	0	0	0	1
FATHEAD MINNOW	0	0	0	1	0	0	0	0	0	0	0	0	1
FOUR-BEARDED ROCKLING	2	0	0	0	0	0	0	0	0	0	0	0	2
FOUR-SPINE STICKLEBACK	2	0	1	9	0	0	0	0	0	0	0	1	13
GIZZARD SHAD	1230	4	0	0	0	0	0	0	0	0	13	266	1513
GOLDEN SHINER	0	9	4	5	3	1	0	0	0	0	0	2	24
GOLDFISH	35	66	42	24	11	2	0	0	0	0	1	1	182
GRUBBY	10	0	0	0	0	0	0	0	0	0	0	0	10
HOGCHOKER	1	0	4	2239	5421	333	211	1011	31	0	50	351	9652
LARGEMOUTH BASS	12	10	10	6	0	0	0	0	0	0	0	3	41
LONGHORN SCULPIN	0	0	0	0	0	0	0	0	0	0	0	1	1
MINNOW UNIDENTIFIED	0	0	0	0	0	0	0	0	0	0	0	5	5
MUMMICHOG	1	2	1	3	0	2	0	0	0	0	1	2	12
NORTHERN PIPEFISH	0	0	2	81	64	1	0	10	2	0	0	3	163
NORTHERN PUFFER	0	0	0	0	0	0	0	1	0	0	0	0	1
NORTHERN SEAROBIN	0	0	0	0	0	0	0	2	0	0	0	0	2
PUMPKINSEED	257	324	87	247	310	165	41	20	3	0	47	1047	2548
RAINBOW SMELT	383	7	17	75	71	23	0	1	0	0	0	24	601
REDBREAST SUNFSH	1	1	2	2	11	6	4	1	0	0	0	1	29
ROCK BASS	0	0	1	0	0	0	0	0	0	0	0	0	1
ROUGH SILVERSIDE	0	0	0	0	0	0	1	2	0	0	0	0	3
SEA HORSE	0	0	0	0	3	0	0	0	0	0	0	0	3

TABLE A-2 (CONTINUED)

TOTAL NUMBERS OF EACH TAXON ACTUALLY COLLECTED AT INDIAN POINT UNIT 3 DURING 1981
(UNADJUSTED FOR COLLECTION EFFICIENCY)

TAXON	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
SILVER HAKE	0	0	0	0	4	0	0	0	0	0	0	0	4
SMALLMOUTH BASS	0	0	1	0	0	0	0	0	0	0	0	0	1
SMALLMOUTH FLOUNDER	0	0	0	1	3	0	0	0	0	0	0	0	4
SPOTTAIL SHINER	131	27	11	45	13	4	0	2	0	0	0	56	289
SQUIRREL OR RED HAKE	16	0	0	1	0	0	0	0	0	0	0	4	21
STRIPED BASS	2957	451	236	1518	196	358	325	206	4	0	81	5253	11585
STRIPED BURRFISH	0	0	0	0	0	0	0	0	1	0	0	0	1
STRIPED SEAROBIN	0	0	0	0	1	0	0	0	0	0	1	0	2
SUMMER FLOUNDER	1	0	0	0	0	2	5	5	0	0	0	0	13
TAUTOG	0	0	0	0	2	0	0	0	0	0	0	0	2
TESSELLATED DARTER	0	0	1	30	0	1	2	0	0	0	1	8	43
THREE-SPINE STICKLEBACK	20	12	6	2	0	0	0	0	0	0	0	1	41
TIDEWATER SILVERSIDE	1	0	0	0	0	0	0	0	0	0	0	0	1
WEAKFISH	0	0	0	0	0	0	782	940	7	0	14	2	1745
WHITE CATFISH	126	15	10	30	42	18	12	9	1	0	3	159	425
WHITE CRAPPIE	0	5	1	0	0	0	0	0	0	0	0	0	6
WHITE PERCH	66839	5506	4981	24315	15262	7261	1638	2125	33	0	4188	173441	305589
WHITE SUCKER	0	0	0	0	6	4	0	0	0	0	0	0	10
WINDOWPANE	0	0	0	3	2	0	1	0	0	0	0	0	6
WINTER FLOUNDER	2	0	0	1	1	0	0	0	0	0	0	1	5
YELLOW PERCH	16	6	3	44	9	6	1	0	0	0	2	62	149
ALL TAXA COMBINED	72437	6542	5495	28928	25531	44364	21159	10968	268	0	5439	181263	402394

TABLE A-3

TOTAL NUMBERS OF EACH TAXON ACTUALLY COLLECTED AT INDIAN POINT UNITS 2 AND 3 COMBINED DURING 1981 (UNADJUSTED FOR COLLECTION EFFICIENCY)

TAXON	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ALEWIFE	12	4	0	30	387	337	2957	204	6	376	139	9	4461
AMERICAN EEL	86	34	35	129	188	403	52	29	2	45	38	209	1250
AMERICAN SANDLANCE	0	0	1	0	0	0	0	0	0	0	0	0	1
AMERICAN SHAD	3	0	0	0	27	1581	9988	1153	7	1139	1264	8	15170
ATLANTIC MACKEREL	0	0	0	0	1	0	0	0	0	0	0	0	1
ATLANTIC MENHADEN	0	0	0	2	32	272	195	136	2	4	0	0	643
ATLANTIC NEEDLEFISH	0	0	0	0	0	1	1	0	0	0	0	0	2
ATLANTIC SILVERSIDE	5	0	1	2	0	0	0	0	0	1	2	6	17
ATLANTIC STURGEON	3	0	0	0	0	0	0	0	0	3	0	2	8
ATLANTIC TOMCOD	85	28	134	29	15369	74315	9931	1967	38	513	55	856	103320
BANDED KILLIFISH	59	75	59	45	20	20	0	1	1	26	39	192	537
BAY ANCHOVY	5	1	0	9	1132	28021	56065	1809	290	4629	22	37	92020
BIG EYE SCAD	0	0	0	0	0	0	1	0	0	0	0	0	1
BLACK BULLHEAD	0	0	0	0	0	0	0	1	0	0	2	7	10
BLACK CRAPPIE	2	0	7	4	18	0	0	0	0	0	0	1	32
BLACK SEA BASS	0	0	0	0	0	0	0	0	0	1	0	0	1
BLUEBACK HERRING	44	1	1	17	409	568	1366	1280	65	51132	7962	243	63088
BLUEFISH	0	0	0	0	0	1252	1128	179	2	0	0	0	2561
BLUEGILL	7	19	30	7	60	34	2	4	0	7	6	29	205
BROWN BULLHEAD	46	8	20	8	8	18	30	8	0	1	2	8	157
BUTTERFISH	0	0	0	0	0	0	1	9	2	0	0	0	12
CARP	17	2	0	2	0	1	0	0	0	0	0	2	24
CENTRARCHID UNIDENTIFIED	19	6	51	0	0	0	0	0	0	6	0	0	82
CHAIN PICKEREL	1	0	0	0	0	0	0	0	0	0	0	0	1
CLUPEID UNIDENTIFIED	0	0	0	0	0	480	777	0	0	1	0	0	1258
CREVALLE JACK	0	0	0	0	0	0	4	0	2	20	71	8	105
CUNNER	0	0	0	0	0	0	0	0	0	0	0	1	1
EMERALD SHINER	0	0	0	1	0	0	0	0	0	0	0	0	1
FATHEAD MINNOW	0	0	0	2	0	0	0	0	0	0	0	0	2
FOUR-BEARDED ROCKLING	2	0	0	0	0	0	0	0	0	0	0	0	2
FOUR-SPINE STICKLEBACK	2	1	7	12	1	2	0	0	0	0	0	3	28
GIZZARD SHAD	1230	4	0	0	0	0	0	0	0	1	71	425	1731
GOLDEN SHINER	0	22	18	9	3	3	0	0	0	0	2	2	59
GOLDFISH	35	104	132	31	13	4	0	0	0	0	2	6	327
GRUBBY	10	0	0	0	0	0	0	0	0	0	0	0	10
HOGCHOKER	1	0	23	2369	6357	1283	433	1038	56	1539	1383	802	15284
LARGEMOUTH BASS	12	12	20	7	0	0	0	0	0	0	1	7	59
LONGHORN SCULPIN	0	0	0	0	0	0	0	0	0	0	0	1	1
LOOKDOWN	0	0	0	0	0	0	0	0	1	0	0	0	1
MINNOW UNIDENTIFIED	0	0	0	0	0	0	0	0	0	0	0	5	5
MUMMICHOG	1	6	1	3	0	4	0	0	0	0	2	4	21
NORTHERN PIPEFISH	0	0	3	98	88	37	8	12	9	206	5	6	472
NORTHERN PUFFER	0	0	0	0	0	0	0	1	0	1	0	0	2
NORTHERN SEAROBIN	0	0	0	0	0	0	0	2	0	0	0	0	2
PUMPKINSEED	257	597	258	302	486	209	47	21	4	861	543	2442	6027

TABLE A-3 (CONTINUED)

TOTAL NUMBERS OF EACH TAXON ACTUALLY COLLECTED AT INDIAN POINT UNITS 2 AND 3 COMBINED DURING 1981 (UNADJUSTED FOR COLLECTION EFFICIENCY)

TAXON	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
RAINBOW SMELT	383	19	104	103	109	31	5	1	0	4	9	70	838
REDBREAST SUNFSH	1	1	5	3	13	7	4	1	0	2	1	1	39
ROCK BASS	0	1	2	0	0	0	0	0	0	0	0	0	3
ROUGH SILVERSIDE	0	0	0	0	0	0	1	2	0	0	0	0	3
SATINFIN SHINER	0	0	0	1	0	0	0	0	0	0	0	6	7
SEA HORSE	0	0	0	0	3	0	0	0	0	1	0	0	4
SEA LAMPREY	0	3	0	0	0	1	0	0	0	0	0	0	4
SILVER HAKE	0	0	0	0	6	0	0	0	0	0	0	0	6
SMALLMOUTH BASS	0	0	1	0	0	0	0	0	0	0	0	1	2
SMALLMOUTH FLOUNDER	0	0	0	1	5	0	0	0	0	0	0	0	6
SPOT	0	0	0	0	0	0	0	0	0	0	0	1	1
SPOTTAIL SHINER	131	75	253	97	19	6	1	2	0	1	32	134	751
SPOTTED HAKE	0	0	0	0	0	1	0	0	0	0	0	0	1
SQUIRREL OR RED HAKE	16	0	0	1	1	0	0	0	0	0	0	7	25
STRIPED BASS	2957	3206	2299	1900	487	516	1133	214	10	1597	1281	10191	25791
STRIPED BURRFISH	0	0	0	0	0	0	0	0	1	0	0	0	1
STRIPED SEAROBIN	0	0	0	0	1	0	0	0	0	1175	61	0	1237
SUMMER FLOUNDER	1	0	1	0	1	5	5	5	1	1	0	0	20
TAUTOG	0	0	0	1	3	1	0	0	0	0	0	1	6
TESSELLATED DARTER	0	2	4	47	2	4	2	0	0	0	12	42	115
THREE-SPINE STICKLEBACK	20	27	16	2	0	0	0	0	0	0	0	3	68
TIDEWATER SILVERSIDE	1	0	0	0	0	0	0	0	0	1	2	0	4
WEAKFISH	0	0	0	0	0	1	2293	953	35	3171	231	5	6689
WHITE CATFISH	126	17	18	36	68	30	18	9	1	19	56	298	696
WHITE CRAPPIE	0	8	2	0	0	0	0	0	0	0	0	0	10
WHITE PERCH	66839	42400	61545	36908	26901	14661	5827	2203	90	24901	57310	414988	754573
WHITE SUCKER	0	0	0	0	9	5	0	0	0	0	0	0	14
WINDOWPANE	0	0	0	3	2	0	1	0	0	0	0	0	6
WINTER FLOUNDER	2	1	4	1	1	0	2	0	0	1	1	3	16
YELLOW PERCH	16	30	133	92	23	8	1	0	0	2	9	105	419
ALL TAXA COMBINED	72437	46714	65188	42314	52253	124122	92279	11244	625	91388	70616	431177	1100357

TABLE A-4

TOTAL ESTIMATED WEIGHT (GRAMS) OF EACH TAXON IMPINGED
AT INDIAN POINT UNIT 2 DURING 1981
(ADJUSTED FOR COLLECTION EFFICIENCY)

TAXON	WINTER	SPRING	SUMMER	FALL	YEAR TOTAL
ALEWIFE	20	53458	140486	8997	202961
AMERICAN EEL	7415	90684	53014	94786	245899
AMERICAN SANDLANCE	4	0	0	0	4
AMERICAN SHAD	0	11090	313599	50826	375515
ATLANTIC MACKEREL	0	214	0	0	214
ATLANTIC MENHADEN	0	21344	42461	2214	66019
ATLANTIC NEEDLEFISH	0	0	24	0	24
ATLANTIC SILVERSIDE	8	0	0	22	30
ATLANTIC STURGEON	0	0	0	4033	4033
ATLANTIC TOMCOD	8136	605709	692122	55449	1361417
BANDED KILLIFISH	841	244	23	1961	3070
BAY ANCHOVY	4	81342	3315479	36544	3433369
BIG EYE SCAD	0	0	0	0	0
BLACK BULLHEAD	0	0	0	2103	2103
BLACK CRAPPIE	50	6	0	0	56
BLACK SEA BASS	0	0	0	200	200
BLUEBACK HERRING	4	90417	82097	344879	517396
BLUEFISH	0	2712	62283	0	64995
BLUEGILL	1126	995	0	1226	3348
BROWN BULLHEAD	6133	4676	3749	1522	16081
BUTTERFISH	0	0	0	0	0
CARP	50	70	0	0	120
CENTRARCHID UNIDENTIFIED	118	0	0	33	152
CHAIN PICKEREL	0	0	0	0	0
CLUPEID UNIDENTIFIED	0	1105	16514	12	17631
CREVALLE JACK	0	0	41	15292	15333
CUNNER	0	0	0	21	21
EMERALD SHINER	0	0	0	0	0
FATHEAD MINNOW	0	12	0	0	12
FOUR-BEARDED ROCKLING	0	0	0	0	0
FOUR-SPINE STICKLEBACK	14	11	0	6	31
GIZZARD SHAD	0	0	0	5414	5414
GOLDEN SHINER	2277	787	0	117	3181
GOLDFISH	11438	5695	0	1970	19103
GRUBBY	0	0	0	0	0
HOGCHOKER	784	38551	46574	161960	247870
LARGEMOUTH BASS	1223	28	0	316	1568
LONGHORN SCULPIN	0	0	0	0	0
LOOKDOWN	0	0	300	0	300
MINNOW UNIDENTIFIED	0	0	0	0	0
MUMMICHOG	30	37	0	74	142

NOTE: FOR EACH SEASON, THE AVERAGE WEIGHT PER FISH FOR EACH TAXON WAS MULTIPLIED BY THE TOTAL NUMBER OF THAT TAXON IMPINGED IN THE SEASON (SECTION 3.4).

TABLE A-4 (CONTINUED)

TAXON	WINTER	SPRING	SUMMER	FALL	YEAR TOTAL
NORTHERN PIPEFISH	8	420	560	1179	2167
NORTHERN PUFFER	0	0	0	64	64
NORTHERN SEAROBIN	0	0	0	0	0
PUMPKINSEED	27684	29413	9938	32756	99791
RAINBOW SMELT	886	1042	389	575	2891
REDBREAST SUNFSH	528	497	0	30	1055
ROCK BASS	8	0	0	0	8
ROUGH SILVERSIDE	0	0	0	0	0
SATINFIN SHINER	0	1242	0	385	1627
SEA HORSE	0	0	0	16	16
SEA LAMPREY	34	147	0	0	181
SILVER HAKE	0	50	0	0	50
SMALLMOUTH BASS	0	0	0	30	30
SMALLMOUTH FLOUNDER	0	18	0	0	18
SPOT	0	0	0	231	231
SPOTTAIL SHINER	5436	993	48	1350	7828
SPOTTED HAKE	0	24	0	0	24
SQUIRREL OR RED HAKE	0	16	0	570	586
STRIPED BASS	119019	29147	107879	181541	437586
STRIPED BURRFISH	0	0	0	0	0
STRIPED SEAROBIN	0	0	0	82527	82527
SUMMER FLOUNDER	50	21	40	1220	1331
TAUTOG	0	3655	0	264	3919
TESSELLATED DARTER	64	260	0	516	840
THREE-SPINE STICKLEBACK	87	0	0	6	93
TIDEWATER SILVERSIDE	0	0	0	10	10
WEAKFISH	0	45	47491	85191	132727
WHITE CATFISH	2894	15395	95845	34084	148218
WHITE CRAPPIE	98	0	0	0	98
WHITE PERCH	1501687	1297722	661734	5246184	8707327
WHITE SUCKER	0	3880	0	0	3880
WINDOWPANE	0	0	0	0	0
WINTER FLOUNDER	149	0	47	138	334
YELLOW PERCH	33373	13218	0	2631	49222
ALL TAXA	1731702	2406649	5692999	6461241	16292590

NOTE: FOR EACH SEASON, THE AVERAGE WEIGHT PER FISH FOR EACH TAXON WAS MULTIPLIED BY THE TOTAL NUMBER OF THAT TAXON IMPINGED IN THE SEASON (SECTION 3.4).

TABLE A-5

TOTAL ESTIMATED WEIGHT (GRAMS) OF EACH TAXON IMPINGED
AT INDIAN POINT UNIT 3 DURING 1981
(ADJUSTED FOR COLLECTION EFFICIENCY)

TAXON	WINTER	SPRING	SUMMER	FALL	YEAR TOTAL
ALEWIFE	273	140863	40935	76	182147
AMERICAN EEL	25899	110820	57885	33100	227704
AMERICAN SANDLANCE	0	0	0	0	0
AMERICAN SHAD	13	8474	50964	925	60376
ATLANTIC MACKEREL	0	0	0	0	0
ATLANTIC MENHADEN	0	78070	42763	0	120833
ATLANTIC NEEDLEFISH	0	204	0	0	204
ATLANTIC SILVERSIDE	28	20	0	24	71
ATLANTIC STURGEON	390	0	0	2103	2493
ATLANTIC TOMCOD	4478	114673	225020	16603	360774
BANDED KILLIFISH	1093	687	7	1177	2964
BAY ANCHOVY	7	142224	242487	81	384799
BIG EYE SCAD	0	0	238	0	238
BLACK BULLHEAD	0	0	34	661	695
BLACK CRAPPIE	483	1777	0	9	2269
BLACK SEA BASS	0	0	0	0	0
BLUEBACK HERRING	147	198023	56411	5733	260314
BLUEFISH	0	5799	68308	0	74106
BLUEGILL	2374	7721	1581	1459	13135
BROWN BULLHEAD	13036	4555	2388	1917	21896
BUTTERFISH	0	0	1579	0	1579
CARP	2820	470	0	318	3608
CENTRARCHID UNIDENTIFIED	125	0	0	0	125
CHAIN PICKEREL	810	0	0	0	810
CLUPEID UNIDENTIFIED	0	367	1958	0	2325
CREVALLE JACK	0	0	41	0	41
CUNNER	0	0	0	0	0
EMERALD SHINER	0	6	0	0	6
FATHEAD MINNOW	0	6	0	0	6
FOUR-BEARDED ROCKLING	47	0	0	0	47
FOUR-SPINE STICKLEBACK	4	12	0	3	19
GIZZARD SHAD	42007	0	0	5146	47152
GOLDEN SHINER	505	909	0	200	1614
GOLDFISH	15026	9573	0	466	25065
GRUBBY	106	0	0	0	106
HOGCHOKER	193	184248	146325	14064	344830
LARGEMOUTH BASS	4880	1116	0	123	6119
LONGHORN SCULPIN	0	0	0	921	921
LOOKDOWN	0	0	0	0	0
MINNOW UNIDENTIFIED	0	0	0	34	34
MUMMICHOG	27	52	0	69	148

NOTE: FOR EACH SEASON, THE AVERAGE WEIGHT PER FISH FOR EACH TAXON WAS MULTIPLIED BY THE TOTAL NUMBER OF THAT TAXON IMPINGED IN THE SEASON (SECTION 3.4).

TABLE A-5 (CONTINUED)

TAXON	WINTER	SPRING	SUMMER	FALL	YEAR TOTAL
NORTHERN PIPEFISH	11	513	160	13	697
NORTHERN PUFFER	0	0	47	0	47
NORTHERN SEAROBIN	0	0	52	0	52
PUMPKINSEED	37263	57439	25250	18074	138026
RAINBOW SMELT	2139	1717	54	171	4081
REDBREAST SUNFSH	380	2332	1785	9	4506
ROCK BASS	9	0	0	0	9
ROUGH SILVERSIDE	0	0	86	0	86
SATINFIN SHINER	0	0	0	0	0
SEA HORSE	0	10	0	0	10
SEA LAMPREY	0	0	0	0	0
SILVER HAKE	0	44	0	0	44
SMALLMOUTH BASS	13	0	0	0	13
SMALLMOUTH FLOUNDER	0	17	0	0	17
SPOT	0	0	0	0	0
SPOTTAIL SHINER	2068	675	156	691	3590
SPOTTED HAKE	0	0	0	0	0
SQUIRREL OR RED HAKE	571	38	0	555	1164
STRIPED BASS	118256	34631	38443	90584	281914
STRIPED BURRFISH	0	0	42	0	42
STRIPED SEAROBIN	0	1588	0	66	1654
SUMMER FLOUNDER	4	327	5597	0	5928
TAUTOG	0	906	0	0	906
TESSELLATED DARTER	4	241	53	117	416
THREE-SPINE STICKLEBACK	115	7	0	6	128
TIDEWATER SILVERSIDE	9	0	0	0	9
WEAKFISH	0	0	21291	255	21547
WHITE CATFISH	62870	26755	62365	18498	170488
WHITE CRAPPIE	72	0	0	0	72
WHITE PERCH	1028062	992080	525279	2030120	4575541
WHITE SUCKER	0	7818	0	0	7818
WINDOWPANE	0	214	35	0	249
WINTER FLOUNDER	52	79	0	102	234
YELLOW PERCH	3166	7286	436	3003	13891
ALL TAXA	1370902	2144273	1620075	2247490	7382739

NOTE: FOR EACH SEASON, THE AVERAGE WEIGHT PER FISH FOR EACH TAXON WAS MULTIPLIED BY THE TOTAL NUMBER OF THAT TAXON IMPINGED IN THE SEASON (SECTION 3.4).

TABLE A-6

TOTAL ESTIMATED WEIGHT (GRAMS) OF EACH TAXON IMPINGED
AT INDIAN POINT UNITS 2 AND 3 DURING 1981
(ADJUSTED FOR COLLECTION EFFICIENCY)

TAXON	WINTER	SPRING	SUMMER	FALL	YEAR TOTAL
ALEWIFE	293	194321	181421	9073	385108
AMERICAN EEL	33314	201504	110898	127886	473603
AMERICAN SANDLANCE	4	0	0	0	4
AMERICAN SHAD	13	19564	364563	51751	435891
ATLANTIC MACKEREL	0	214	0	0	214
ATLANTIC MENHADEN	0	99414	85223	2214	186852
ATLANTIC NEEDLEFISH	0	204	24	0	228
ATLANTIC SILVERSIDE	36	20	0	46	102
ATLANTIC STURGEON	390	0	0	6136	6526
ATLANTIC TOMCOD	12614	720383	917142	72052	1722191
BANDED KILLIFISH	1934	931	30	3139	6034
BAY ANCHOVY	11	223566	3557967	36624	3818168
BIG EYE SCAD	0	0	238	0	238
BLACK BULLHEAD	0	0	34	2764	2798
BLACK CRAPPIE	533	1783	0	9	2325
BLACK SEA BASS	0	0	0	200	200
BLUEBACK HERRING	151	288440	138507	350612	777710
BLUEFISH	0	8511	130591	0	139102
BLUEGILL	3500	8716	1581	2685	16483
BROWN BULLHEAD	19168	9232	6137	3440	37977
BUTTERFISH	0	0	1579	0	1579
CARP	2870	540	0	318	3728
CENTRARCHID UNIDENTIFIED	244	0	0	33	277
CHAIN PICKEREL	810	0	0	0	810
CLUPEID UNIDENTIFIED	0	1472	18473	12	19957
CREVALLE JACK	0	0	82	15292	15375
CUNNER	0	0	0	21	21
EMERALD SHINER	0	6	0	0	6
FATHEAD MINNOW	0	18	0	0	18
FOUR-BEARDED ROCKLING	47	0	0	0	47
FOUR-SPINE STICKLEBACK	18	24	0	9	51
GIZZARD SHAD	42007	0	0	10559	52566
GOLDEN SHINER	2782	1695	0	317	4794
GOLDFISH	26464	15268	0	2437	44168
GRUBBY	106	0	0	0	106
HOGCHOKER	977	222800	192899	176024	592700
LARGEMOUTH BASS	6103	1144	0	440	7686
LONGHORN SCULPIN	0	0	0	921	921
LOOKDOWN	0	0	300	0	300
MINNOW UNIDENTIFIED	0	0	0	34	34
MUMMICHOG	57	89	0	144	290

NOTE: FOR EACH SEASON, THE AVERAGE WEIGHT PER FISH FOR EACH TAXON WAS MULTIPLIED BY THE TOTAL NUMBER OF THAT TAXON IMPINGED IN THE SEASON (SECTION 3.4).

TABLE A-6 (CONTINUED)

TAXON	WINTER	SPRING	SUMMER	FALL	YEAR TOTAL
NORTHERN PIPEFISH	19	933	720	1192	2864
NORTHERN PUFFER	0	0	47	64	111
NORTHERN SEAROBIN	0	0	52	0	52
PUMPKINSEED	64947	86853	35188	50830	237817
RAINBOW SMELT	3025	2758	444	745	6972
REDBREAST SUNFSH	908	2829	1785	39	5561
ROCK BASS	17	0	0	0	17
ROUGH SILVERSIDE	0	0	86	0	86
SATINFIN SHINER	0	1242	0	385	1627
SEA HORSE	0	10	0	16	26
SEA LAMPREY	34	147	0	0	181
SILVER HAKE	0	94	0	0	94
SMALLMOUTH BASS	13	0	0	30	43
SMALLMOUTH FLOUNDER	0	35	0	0	35
SPOT	0	0	0	231	231
SPOTTAIL SHINER	7504	1667	204	2041	11417
SPOTTED HAKE	0	24	0	0	24
SQUIRREL OR RED HAKE	571	54	0	1125	1750
STRIPED BASS	237275	63778	146322	272125	719500
STRIPED BURRFISH	0	0	42	0	42
STRIPED SEAROBIN	0	1588	0	82593	84181
SUMMER FLOUNDER	54	347	5637	1220	7259
TAUTOG	0	4561	0	264	4825
TESSELLATED DARTER	68	501	53	634	1256
THREE-SPINE STICKLEBACK	201	7	0	12	221
TIDEWATER SILVERSIDE	9	0	0	10	19
WEAKFISH	0	45	68782	85446	154273
WHITE CATFISH	65764	42150	158211	52582	318706
WHITE CRAPPIE	170	0	0	0	170
WHITE PERCH	2529749	2289802	1187013	7276304	13282868
WHITE SUCKER	0	11698	0	0	11698
WINDOWPANE	0	214	35	0	249
WINTER FLOUNDER	201	79	47	240	568
YELLOW PERCH	36538	20505	436	5634	63113
ALL TAXA	3102603	4550922	7313074	8708730	23675330

NOTE: FOR EACH SEASON, THE AVERAGE WEIGHT PER FISH FOR EACH TAXON WAS MULTIPLIED BY THE TOTAL NUMBER OF THAT TAXON IMPINGED IN THE SEASON (SECTION 3.4).

TABLE A-7

MEAN DAILY INTAKE TEMPERATURES AT THE INDIAN POINT GENERATING STATION DURING 1981

DATE	TEMP	DATE	TEMP	DATE	TEMP	DATE	TEMP	DATE	TEMP	DATE	TEMP
01/01/81	0.6	02/15/81	1.5	04/01/81	5.3	05/16/81	15.0	06/30/81	25.7	10/29/81	14.3
01/02/81	-0.2	02/16/81	1.3	04/02/81	5.8	05/17/81	16.0	07/01/81	26.0	10/30/81	14.7
01/03/81	0.7	02/17/81	1.8	04/03/81	6.5	05/18/81	16.2	07/04/81	25.0	10/31/81	12.5
01/04/81	-1.0	02/18/81	3.0	04/04/81	6.5	05/19/81	16.7	07/06/81	26.0	11/03/81	14.0
01/05/81	1.0	02/19/81	1.5	04/05/81	6.7	05/20/81	16.7	07/12/81	28.0	11/04/81	12.2
01/06/81	1.2	02/20/81	2.8	04/06/81	7.5	05/21/81	17.3	07/20/81	28.0	11/05/81	12.7
01/07/81	1.0	02/21/81	3.3	04/07/81	6.8	05/22/81	17.3	07/21/81	29.3	11/07/81	12.9
01/08/81	0.7	02/22/81	2.7	04/08/81	7.0	05/23/81	18.0	07/22/81	27.7	11/09/81	12.6
01/09/81	0.0	02/23/81	1.3	04/09/81	7.2	05/24/81	18.0	07/23/81	27.3	11/10/81	10.7
01/10/81	0.2	02/24/81	1.2	04/10/81	7.5	05/25/81	16.7	07/24/81	27.7	11/11/81	11.1
01/11/81	0.7	02/25/81	1.0	04/11/81	9.0	05/26/81	19.3	07/27/81	25.7	11/13/81	9.9
01/12/81	1.0	02/26/81	3.2	04/12/81	9.1	05/27/81	19.0	07/30/81	27.3	11/14/81	9.5
01/13/81	1.5	02/27/81	3.5	04/13/81	9.0	05/28/81	20.3	08/04/81	28.7	11/15/81	9.5
01/14/81	1.0	02/28/81	3.0	04/14/81	10.2	05/29/81	19.3	08/05/81	29.5	11/16/81	11.9
01/15/81	0.0	03/01/81	4.0	04/15/81	10.0	05/30/81	20.0	08/07/81	28.3	11/20/81	10.1
01/16/81	1.0	03/02/81	3.7	04/16/81	10.5	05/31/81	20.1	08/13/81	28.3	11/22/81	10.2
01/17/81	0.3	03/03/81	3.3	04/17/81	10.3	06/01/81	20.3	08/15/81	28.5	11/23/81	8.6
01/18/81	-0.5	03/04/81	3.7	04/18/81	11.3	06/02/81	20.2	08/19/81	27.0	11/25/81	9.4
01/19/81	1.8	03/05/81	3.0	04/19/81	11.2	06/03/81	20.7	08/22/81	26.2	11/26/81	8.5
01/20/81	2.0	03/06/81	3.0	04/20/81	11.8	06/04/81	21.3	08/24/81	26.8	11/27/81	9.6
01/21/81	1.8	03/07/81	3.0	04/21/81	11.3	06/05/81	20.0	08/25/81	25.3	11/29/81	9.7
01/22/81	3.3	03/08/81	3.3	04/22/81	11.2	06/06/81	22.3	08/27/81	26.5	11/30/81	8.3
01/23/81	2.8	03/09/81	3.5	04/23/81	11.3	06/07/81	21.7	08/29/81	26.8	12/01/81	7.0
01/24/81	1.5	03/10/81	3.7	04/24/81	11.8	06/08/81	22.8	08/31/81	26.5	12/02/81	7.3
01/25/81	2.7	03/11/81	3.8	04/25/81	11.5	06/09/81	22.3	09/04/81	26.2	12/03/81	8.6
01/26/81	4.2	03/12/81	4.0	04/26/81	14.3	06/10/81	23.3	09/05/81	23.0	12/04/81	8.8
01/27/81	4.0	03/13/81	4.2	04/27/81	14.2	06/11/81	22.5	09/16/81	21.7	12/05/81	6.1
01/28/81	5.0	03/14/81	3.7	04/28/81	14.2	06/12/81	23.7	10/01/81	19.6	12/06/81	5.4
01/29/81	1.0	03/15/81	4.5	04/29/81	14.2	06/13/81	23.0	10/05/81	18.1	12/07/81	5.9
01/30/81	1.0	03/16/81	4.5	04/30/81	13.7	06/14/81	23.7	10/06/81	18.7	12/08/81	7.4
01/31/81	1.8	03/17/81	3.5	05/01/81	13.3	06/15/81	24.3	10/07/81	18.3	12/09/81	7.7
02/01/81	-0.3	03/18/81	2.5	05/02/81	13.4	06/16/81	25.0	10/09/81	17.0	12/10/81	5.7
02/02/81	1.2	03/19/81	3.7	05/03/81	12.2	06/17/81	23.2	10/10/81	16.5	12/11/81	6.0
02/03/81	0.3	03/20/81	3.3	05/04/81	13.0	06/18/81	25.7	10/11/81	16.2	12/14/81	5.8
02/04/81	0.7	03/21/81	3.5	05/05/81	13.8	06/19/81	24.2	10/12/81	16.0	12/15/81	5.9
02/05/81	-0.5	03/22/81	4.0	05/06/81	13.7	06/20/81	24.7	10/13/81	16.0	12/16/81	5.9
02/06/81	0.5	03/23/81	3.5	05/07/81	14.7	06/21/81	25.2	10/19/81	17.3	12/17/81	5.4
02/07/81	0.8	03/24/81	4.3	05/08/81	14.7	06/22/81	25.7	10/20/81	17.3	12/19/81	3.9
02/08/81	1.3	03/25/81	4.5	05/09/81	14.0	06/23/81	24.8	10/21/81	15.2	12/21/81	3.3
02/09/81	0.5	03/26/81	4.5	05/10/81	14.3	06/24/81	23.8	10/22/81	16.2	12/22/81	3.9
02/10/81	1.5	03/27/81	4.7	05/11/81	15.3	06/25/81	23.8	10/23/81	16.1	12/24/81	5.5
02/11/81	2.0	03/28/81	5.3	05/12/81	15.7	06/26/81	23.5	10/24/81	14.0	12/25/81	5.3
02/12/81	0.5	03/29/81	4.5	05/13/81	15.2	06/27/81	24.0	10/25/81	14.8	12/27/81	4.5
02/13/81	1.2	03/30/81	5.0	05/14/81	15.2	06/28/81	25.0	10/26/81	15.0	12/28/81	6.6
02/14/81	1.0	03/31/81	5.0	05/15/81	15.2	06/29/81	26.0	10/27/81	15.5	12/30/81	4.8

NOTE: TEMP = TEMPERATURE IN DEGREES CENTIGRADE

TABLE A-8

MEAN DAILY CONDUCTIVTY AT THE INDIAN POINT GENERATING STATION DURING 1981

DATE	COND	DATE	COND	DATE	COND	DATE	COND	DATE	COND	DATE	COND
01/01/81	5866.7	02/15/81	726.67	04/01/81	.	05/16/81	205.00	06/30/81	.	10/29/81	733.33
01/02/81	8650.0	02/16/81	526.67	04/02/81	.	05/17/81	213.33	07/01/81	.	10/30/81	286.67
01/03/81	6900.0	02/17/81	393.33	04/03/81	.	05/18/81	203.33	07/04/81	.	10/31/81	235.00
01/04/81	9025.0	02/18/81	305.00	04/04/81	.	05/19/81	200.00	07/06/81	.	11/03/81	216.67
01/05/81	8525.0	02/19/81	343.33	04/05/81	246.67	05/20/81	200.00	07/12/81	.	11/04/81	226.67
01/06/81	10433.3	02/20/81	298.33	04/06/81	236.67	05/21/81	200.00	07/20/81	9266.7	11/05/81	293.33
01/07/81	9866.7	02/21/81	220.00	04/07/81	233.33	05/22/81	200.00	07/21/81	8900.0	11/07/81	1766.67
01/08/81	9766.7	02/22/81	211.67	04/08/81	236.67	05/23/81	.	07/22/81	6466.7	11/09/81	3533.33
01/09/81	9816.7	02/23/81	211.67	04/09/81	238.33	05/24/81	200.00	07/23/81	6833.3	11/10/81	4400.00
01/10/81	8900.0	02/24/81	195.00	04/10/81	246.67	05/25/81	200.00	07/24/81	6933.3	11/11/81	.
01/11/81	8250.0	02/25/81	178.33	04/11/81	216.67	05/26/81	233.33	07/27/81	7666.7	11/13/81	2100.00
01/12/81	8133.3	02/26/81	180.00	04/12/81	203.33	05/27/81	320.00	07/30/81	7066.7	11/14/81	1266.67
01/13/81	8933.3	02/27/81	186.67	04/13/81	226.67	05/28/81	1960.00	08/04/81	6800.0	11/15/81	1050.00
01/14/81	9183.3	02/28/81	175.00	04/14/81	273.33	05/29/81	1700.00	08/05/81	6450.0	11/16/81	1250.00
01/15/81	8583.3	03/01/81	171.67	04/15/81	196.67	05/30/81	1300.00	08/07/81	5933.3	11/20/81	1483.33
01/16/81	9116.7	03/02/81	378.33	04/16/81	216.67	05/31/81	1063.33	08/13/81	10000.0	11/22/81	.
01/17/81	8750.0	03/03/81	746.67	04/17/81	246.67	06/01/81	686.67	08/15/81	10000.0	11/23/81	556.67
01/18/81	8675.0	03/04/81	1666.67	04/18/81	.	06/02/81	1283.33	08/19/81	9666.7	11/25/81	481.67
01/19/81	8850.0	03/05/81	3050.00	04/19/81	270.00	06/03/81	933.33	08/22/81	7533.3	11/26/81	691.67
01/20/81	.	03/06/81	2650.00	04/20/81	223.33	06/04/81	590.00	08/24/81	9000.0	11/27/81	1183.33
01/21/81	8666.7	03/07/81	1105.00	04/21/81	220.00	06/05/81	540.00	08/25/81	9000.0	11/29/81	268.33
01/22/81	8750.0	03/08/81	1700.00	04/22/81	236.67	06/06/81	.	08/27/81	9800.0	11/30/81	363.33
01/23/81	8550.0	03/09/81	756.67	04/23/81	253.33	06/07/81	.	08/29/81	8766.7	12/01/81	651.67
01/24/81	8616.7	03/10/81	511.67	04/24/81	260.00	06/08/81	.	08/31/81	8633.3	12/02/81	676.67
01/25/81	8266.7	03/11/81	483.33	04/25/81	270.00	06/09/81	.	09/04/81	8250.0	12/03/81	1130.00
01/26/81	8233.3	03/12/81	365.00	04/26/81	2283.33	06/10/81	.	09/05/81	7466.7	12/04/81	1575.00
01/27/81	8133.3	03/13/81	306.67	04/27/81	3340.00	06/11/81	.	09/16/81	8133.3	12/05/81	1483.33
01/28/81	7950.0	03/14/81	170.00	04/28/81	4483.33	06/12/81	.	10/01/81	1683.3	12/06/81	863.33
01/29/81	7200.0	03/15/81	188.33	04/29/81	5666.67	06/13/81	.	10/05/81	2000.0	12/07/81	2700.00
01/30/81	7666.7	03/16/81	268.33	04/30/81	5816.67	06/14/81	.	10/06/81	2400.0	12/08/81	3833.33
01/31/81	8900.0	03/17/81	235.00	05/01/81	5800.00	06/15/81	.	10/07/81	2416.7	12/09/81	2750.00
02/01/81	8233.3	03/18/81	231.67	05/02/81	5966.67	06/16/81	.	10/09/81	5066.7	12/10/81	2416.67
02/02/81	10666.7	03/19/81	1026.67	05/03/81	5233.33	06/17/81	.	10/10/81	6433.3	12/11/81	2816.67
02/03/81	9283.3	03/20/81	896.67	05/04/81	5516.67	06/18/81	.	10/11/81	6933.3	12/14/81	2166.67
02/04/81	.	03/21/81	655.00	05/05/81	5066.67	06/19/81	.	10/12/81	7350.0	12/15/81	2000.00
02/05/81	.	03/22/81	498.33	05/06/81	4650.00	06/20/81	.	10/13/81	7233.3	12/16/81	860.00
02/06/81	.	03/23/81	578.33	05/07/81	3666.67	06/21/81	.	10/19/81	4650.0	12/17/81	556.67
02/07/81	.	03/24/81	1130.00	05/08/81	3266.67	06/22/81	.	10/20/81	4083.3	12/19/81	530.00
02/08/81	.	03/25/81	810.00	05/09/81	4016.67	06/23/81	.	10/21/81	3133.3	12/21/81	533.33
02/09/81	5183.3	03/26/81	783.33	05/10/81	3116.67	06/24/81	.	10/22/81	3116.7	12/22/81	1266.67
02/10/81	5900.0	03/27/81	868.33	05/11/81	2833.33	06/25/81	.	10/23/81	4333.3	12/24/81	1250.00
02/11/81	7133.3	03/28/81	1216.67	05/12/81	1450.00	06/26/81	.	10/24/81	3400.0	12/25/81	1050.00
02/12/81	2100.0	03/29/81	1683.33	05/13/81	563.33	06/27/81	.	10/25/81	3766.7	12/27/81	1733.33
02/13/81	910.0	03/30/81	2500.00	05/14/81	273.33	06/28/81	.	10/26/81	3750.0	12/28/81	1966.67
02/14/81	1550.0	03/31/81	2350.00	05/15/81	220.00	06/29/81	.	10/27/81	2566.7	12/30/81	1495.00

NOTE: COND = CONDUCTIVITY IN MICRO SIEMANS
'.' = NO DATA

Appendix B

1. Ichthyoplankton Sampling at the Indian Point Station

a. Collection and Processing

Samples were collected by Ecological Analysts, Inc. in the discharge canal at Station D-2 (Figure 4-1), using an automated pump sampling device (Figures B-1 and B-2). Sampling occurred twice each week from May through August.

Each sampling day consisted of eight consecutive three hour periods. During each three hour period, the pump was operated intermittently for 30 minute periods (i.e., 30 minutes on, 30 minutes off) to provide a 90 minute composite "sample". Initiation and termination of the 30 minute sampling periods were controlled by a programmed computer module.

The intake for the four inch sampling hose was located at mid-depth in the discharge canal (approximately 3m below the surface) and was oriented so that the water flow was directed into the hose mouth. The water was pumped into a 505 μm mesh net suspended in a collection tank. Sample washdown and preservation in 10% buffered formalin were controlled automatically and samples were deposited into eight collection containers. The volumes sampled (Table B-6) were measured by a Signet inline flowmeter and ranged from 67.4 to 97.9 m^3 (mean of 83.4 m^3) for each 90 minute sample.

Preserved samples were sorted for all fish eggs, larvae and juveniles by Ecological Analysts, Inc. These organisms were identified to the lowest practical taxon and life stage. Length measurements (up to 25 randomly selected individuals per taxon and life stage in each sample) were taken for all unmutilated larvae and juveniles.

b. Analytical Procedures

Mean densities for each collection period and each week were calculated for the early life stages of all ichthyoplankton and the following selected taxa: striped bass, white perch, Atlantic tomcod, bay anchovy, and Alosa spp.* The three hour collection periods were numbered from 1 through 8 so that "collection period 1" began at midnight and continued to 0259 hrs. (2:59 AM), "collection period 2" began at 0300 hrs., etc. A sample was assigned to one of these eight periods based upon the hour when sampling started.

The mean density for each of the eight collection periods was calculated as follows:

$$\bar{Y}_p = \frac{\sum_{s=1}^{m} Y_{ps}}{m}$$

where,

$\bar{Y}_p$ = mean density in collection period p
Y_{ps} = density of sample s in collection period p
m = number of samples in collection period p

A sampling week was defined as Sunday through Saturday, with the date of the Sunday used as the label for each week. The mean density for each week was calculated as follows:

* Alosa spp. was defined as all organisms identified to any Alosa species (in 1981, this consisted of Alosa aestivalis, Alosa sapidissima, those identified as Alosa spp., and those identified as Clupeidae.

$$\bar{Y}_w = \frac{\sum_{s=1}^{n} Y_{ws}}{n}$$

where,

$\bar{Y}_w$ = mean weekly density
Y_{ws} = density of sample s collected in week w
n = number of samples in week w

For the purposes of these analyses, each sample was assigned to a "work date", which was defined as the date on which the majority of samples were collected for each 24 hour sampling effort. For example, all samples which were collected during the sampling effort that began at 0800 hrs on May 6 and ended at 0500 hrs on May 7, were assigned to the work date of May 6 since 75 percent of the sampling occurred on that date (Tables B-6 through B-11). The only "work dates" included in the diel analyses were those for which at least one organism of the taxon life stage being analyzed was collected.

For the length analyses (Tables B-1 through B-5) larvae of the five selected taxa were placed in one of nine length intervals from <4mm to ≥18mm. The seven intervals from 4 to 18mm were each 2mm. The weekly mean length, standard deviation and the minimum, maximum and median length for each taxon were calculated.

c. Water Quality Tasks

Water quality values were recorded once during each three hour collection period. A Martek IV water quality analyzer, located in the pump trailer, was used to measure water temperature, dissolved oxygen, conductivity, and pH (Figures 4-2 through 4-5). River water was pumped to the water quality analyzer via a hose, with its intake located 20 meters south of intake forebay 36 (indicated on Figure 4-1). This design al-

lowed for measurement of water quality parameters before the water had entered the plant, although recirculated water from the station may have affected the measurements.

Definition of Variables Listed in Table B-1 through B-11

Tables B-1 through B-5

NUM-FISH	-	Number of yolk-sac larvae, post yolk-sac larvae, and juveniles
MN-LGTH	-	Mean length
STD-DEV	-	Standard deviation
MIN	-	Minimum length
MED	-	Median length
MAX	-	Maximum length

Table B-6 through B-11

ACT-DATE	-	Actual date when sample was collected
HOUR	-	Hour and minute when sample was collected
WRK-DATE	-	Work Date
WEEK-OF	-	Week to which sample was assigned
COL-PRD	-	Collection period
TIDE	-	Tidal stage
FLD	-	Flood tide
EBB	-	EBB Tide
H-SK	-	High slack
L-SK	-	Low slack
INTK-TMP	-	Intake temperature
SAL	-	Salinity in parts per thousand
DO	-	Dissolved oxygen in parts per million
VOLUME	-	Volume of sample in cubic meters
EGG-DEN	-	Density of eggs in #/1000 cubic meters
YS-DEN	-	Density of yolk-sac larvae in #/1000 cubic meters
PYS-DEN	-	Density of post yolk-sac larvae in #/1000 cubic meter
JUV-DEN	-	Density of juveniles in #/1000 cubic meters
EGG-CT	-	Number of eggs collected in sample
YS-CT	-	Number of yolk-sac larvae collected in sample
PYS-CT	-	Number of post yolk-sac larvae collected in sample
JUV-CT	-	Number of juveniles collected in sample
.	-	No data collected

TABLE B-1
ICTHYOPLANKTON LENGTH DATA (MM)
COLLECTED IN 1981 AT THE INDIAN POINT STATION

TAXON---STRIPED BASS

WEEK	0-3.9	4-5.9	6-7.9	8-9.9	10-11.9	12-13.9	14-15.9	16-17.9	> 18	NUM_FISH	MN_LGTH	STD_DEV	MIN	MED	MAX
MAY 03	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
MAY 10	0	2	1	0	0	0	0	0	0	3	5.7	0.3	5.5	5.5	6.1
MAY 17	4	16	33	0	0	0	0	0	0	53	5.8	1.1	3.6	6.1	7.4
MAY 24	0	37	223	40	2	0	0	0	0	302	6.9	0.9	5.0	6.7	10.0
MAY 31	1	34	190	119	72	9	0	0	0	425	8.1	1.7	3.2	7.8	13.9
JUNE 07	0	37	72	51	29	4	1	0	0	194	7.8	2.0	4.7	7.3	14.0
JUNE 14	0	18	28	34	47	9	1	0	0	137	9.0	2.2	4.8	9.4	14.0
JUNE 21	0	3	5	21	70	62	9	3	2	175	11.6	2.3	4.2	11.7	21.4
JUNE 28	0	0	1	1	11	13	6	2	13	47	15.7	5.6	7.8	13.7	32.0
JULY 05	0	0	0	0	1	0	0	0	0	1	11.7	0.0	11.7	11.7	11.7
JULY 12	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JULY 19	0	0	0	0	0	0	0	0	1	1	44.0	0.0	44.0	44.0	44.0
JULY 26	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 02	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 09	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 16	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 23	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0

TABLE B-2
ICTHYOPLANKTON LENGTH DATA (MM)
COLLECTED IN 1981 AT THE INDIAN POINT STATION

TAXON---WHITE PERCH

WEEK	0-3.9	4-5.9	6-7.9	8-9.9	10-11.9	12-13.9	14-15.9	16-17.9	> 18	NUM_FISH	MN_LGTH	STD_DEV	MIN	MED	MAX
MAY 03	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
MAY 10	0	2	0	0	0	0	0	0	0	2	4.3	0.4	4.0	4.3	4.5
MAY 17	26	185	5	0	0	0	0	0	0	216	4.4	0.5	3.5	4.4	6.7
MAY 24	14	196	119	9	0	0	0	0	0	338	5.6	1.1	3.2	5.5	8.5
MAY 31	18	65	57	37	6	0	0	0	0	183	6.3	1.9	3.3	6.2	11.7
JUNE 07	3	12	4	1	0	1	0	0	0	21	5.4	2.1	3.4	4.7	12.5
JUNE 14	4	7	0	3	0	0	1	0	0	15	6.0	3.2	3.0	5.0	14.4
JUNE 21	1	4	0	5	41	23	7	0	0	81	11.3	2.3	3.8	11.2	15.2
JUNE 28	3	8	1	0	3	17	16	5	10	63	13.3	5.2	3.3	13.5	24.7
JULY 05	0	0	0	0	0	1	3	0	3	7	20.3	8.3	12.7	15.3	35.0
JULY 12	0	0	0	0	0	0	0	0	1	1	30.0	0.0	30.0	30.0	30.0
JULY 19	0	0	0	0	0	0	0	0	2	2	40.0	4.2	37.0	40.0	43.0
JULY 26	0	0	0	0	0	0	0	0	8	8	37.1	8.3	23.3	40.5	46.0
AUG 02	0	0	0	0	0	0	0	0	1	1	25.3	0.0	25.3	25.3	25.3
AUG 09	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 16	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 23	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0

TABLE B-3
ICTHYOPLANKTON LENGTH DATA (MM)
COLLECTED IN 1981 AT THE INDIAN POINT STATION

TAXON---ATLANTIC TOMCOD

WEEK	0-3.9	4-5.9	6-7.9	8-9.9	10-11.9	12-13.9	14-15.9	16-17.9	> 18	NUM_FISH	MN_LGTH	STD_DEV	MIN	MED	MAX
MAY 03	0	0	0	0	0	0	2	1	39	42	30.3	7.0	14.7	30.8	46.0
MAY 10	0	0	0	0	0	0	0	0	6	6	33.3	3.7	26.0	34.5	36.0
MAY 17	0	0	0	0	0	0	0	0	1	1	35.0	0.0	35.0	35.0	35.0
MAY 24	0	0	0	0	0	0	0	0	1	1	43.0	0.0	43.0	43.0	43.0
MAY 31	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JUNE 07	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JUNE 14	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JUNE 21	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JUNE 28	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JULY 05	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JULY 12	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JULY 19	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JULY 26	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 02	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 09	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 16	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 23	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0

TABLE B-4
ICTHYOPLANKTON LENGTH DATA (MM)
COLLECTED IN 1981 AT THE INDIAN POINT STATION

TAXON---BAY ANCHOVY

WEEK	0-3.9	4-5.9	6-7.9	8-9.9	10-11.9	12-13.9	14-15.9	16-17.9	> 18	NUM_FISH	MN_LGTH	STD_DEV	MIN	MED	MAX
MAY 03	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
MAY 10	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
MAY 17	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
MAY 24	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
MAY 31	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JUNE 07	0	1	0	2	0	0	0	0	0	3	7.6	1.6	5.8	8.2	8.9
JUNE 14	36	65	33	10	4	2	1	0	0	151	5.5	2.1	2.4	5.0	14.4
JUNE 21	4	44	47	3	3	0	0	0	0	101	6.0	1.5	3.2	6.0	11.3
JUNE 28	1	30	37	34	58	58	47	50	30	345	12.2	4.2	3.7	12.3	22.0
JULY 05	0	1	3	8	7	5	8	21	60	113	17.1	4.5	5.7	18.2	25.3
JULY 12	67	55	29	23	40	27	37	27	107	412	12.2	7.2	2.4	11.0	29.0
JULY 19	33	153	123	35	13	15	10	23	14	419	7.7	4.6	2.5	6.2	32.0
JULY 26	10	32	63	56	66	59	53	27	26	392	11.3	5.4	2.7	10.8	66.0
AUG 02	2	18	37	49	62	63	63	45	27	366	12.3	4.3	3.2	12.2	34.0
AUG 09	4	35	49	46	84	57	39	29	62	405	12.2	5.3	3.1	11.4	40.0
AUG 16	2	7	30	36	37	18	20	10	20	180	11.5	4.5	3.0	10.4	33.0
AUG 23	0	0	0	0	2	0	4	2	5	13	16.7	4.1	10.0	16.0	24.5

TABLE B-5
ICTHYOPLANKTON LENGTH DATA (MM)
COLLECTED IN 1981 AT THE INDIAN POINT STATION

TAXON---ALOSA SPP. COMBINED

WEEK	0-3.9	4-5.9	6-7.9	8-9.9	10-11.9	12-13.9	14-15.9	16-17.9	> 18	NUM_FISH	MN_LGTH	STD_DEV	MIN	MED	MAX
MAY 03	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
MAY 10	0	0	4	0	0	0	0	0	2	6	11.4	7.8	6.5	6.5	24.3
MAY 17	0	1	0	0	1	0	0	1	13	16	109	83.1	5.5	118	236
MAY 24	0	0	0	0	1	0	1	0	14	16	93.2	93.3	10.0	57.8	275
MAY 31	0	0	0	0	0	0	0	0	15	15	74.1	55.2	20.3	58.6	220
JUNE 07	0	1	0	0	0	2	0	0	2	5	15.2	7.4	5.8	12.6	22.8
JUNE 14	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JUNE 21	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
JUNE 28	0	0	0	0	0	0	0	0	2	2	45.3	15.2	34.5	45.3	56.0
JULY 05	0	0	0	0	0	0	0	0	2	2	69.5	19.1	56.0	69.5	83.0
JULY 12	0	0	0	0	0	0	0	0	1	1	54.0	0.0	54.0	54.0	54.0
JULY 19	0	0	0	0	0	0	0	0	2	2	82.0	45.3	50.0	82.0	114
JULY 26	0	0	0	0	0	0	0	0	1	1	52.0	0.0	52.0	52.0	52.0
AUG 02	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 09	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
AUG 16	0	0	0	0	0	0	0	0	1	1	59.0	0.0	59.0	59.0	59.0
AUG 23	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0

TABLE B-6
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---TOTAL ORGANISMS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/06/81	8:00	05/06/81	MAY 03	3	FLD	13.9	2.2	8.1	79.8	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	11:00	05/06/81	MAY 03	4	FLD	13.7	2.3	8.0	82.3	0.0	0.0	0.0	12.2	0	0	0	1
05/06/81	14:00	05/06/81	MAY 03	5	EBB	13.5	2.6	8.0	81.1	0.0	0.0	12.3	111.0	0	0	1	9
05/06/81	17:00	05/06/81	MAY 03	6	EBB	13.6	2.4	8.6	79.2	0.0	0.0	0.0	12.6	0	0	0	1
05/06/81	20:00	05/06/81	MAY 03	7	EBB	13.3	1.7	8.5	80.2	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	23:00	05/06/81	MAY 03	8	FLD	14.8	1.7	8.2	85.2	0.0	35.2	11.7	11.7	0	3	1	1
05/07/81	2:00	05/06/81	MAY 03	1	FLD	13.7	2.3	8.4	84.3	0.0	0.0	0.0	11.9	0	0	0	1
05/07/81	5:00	05/06/81	MAY 03	2	EBB	13.1	2.2	8.3	80.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	8:00	05/09/81	MAY 03	3	EBB	13.7	1.7	7.6	79.8	12.5	25.1	0.0	12.5	1	2	0	1
05/09/81	11:00	05/09/81	MAY 03	4	FLD	14.0	1.3	7.1	81.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	14:00	05/09/81	MAY 03	5	FLD	15.1	1.4	7.4	83.9	11.9	0.0	0.0	47.7	1	0	0	4
05/09/81	17:00	05/09/81	MAY 03	6	EBB	14.8	2.0	7.5	83.1	0.0	0.0	24.1	60.2	0	0	2	5
05/09/81	20:00	05/09/81	MAY 03	7	EBB	14.2	2.0	7.4	80.1	0.0	0.0	25.0	149.8	0	0	2	12
05/09/81	23:00	05/09/81	MAY 03	8	L_SK	14.1	1.3	7.3	81.4	0.0	0.0	0.0	0.0	0	0	0	0
05/10/81	2:00	05/09/81	MAY 03	1	FLD	14.7	1.3	7.3	85.3	0.0	0.0	0.0	11.7	0	0	0	1
05/10/81	5:00	05/09/81	MAY 03	2	EBB	14.5	1.6	7.5	84.5	11.8	23.7	0.0	59.2	1	2	0	5
05/15/81	12:00	05/15/81	MAY 10	5	EBB	15.4	0.1	8.8	83.2	0.0	72.1	24.0	0.0	0	6	2	0
05/15/81	15:00	05/15/81	MAY 10	6	EBB	15.8	0.1	8.9	81.4	0.0	49.1	159.7	73.7	0	4	13	6
05/15/81	18:00	05/15/81	MAY 10	7	FLD	15.3	0.1	9.2	86.0	0.0	11.6	23.3	0.0	0	1	2	0
05/15/81	21:00	05/15/81	MAY 10	8	FLD	16.1	0.1	9.1	87.5	11.4	11.4	57.1	0.0	1	1	5	0
05/16/81	0:01	05/15/81	MAY 10	1	EBB	15.7	0.1	9.0	85.4	11.7	23.4	23.4	0.0	1	2	2	0
05/18/81	12:00	05/18/81	MAY 17	5	EBB	16.5	.	.	84.6	0.0	59.1	82.7	0.0	0	5	7	0
05/18/81	15:00	05/18/81	MAY 17	6	EBB	16.6	.	.	80.2	24.9	62.3	224.4	0.0	2	5	18	0
05/18/81	18:00	05/18/81	MAY 17	7	FLD	16.2	.	.	81.3	0.0	0.0	356.7	0.0	0	0	29	0
05/18/81	21:00	05/18/81	MAY 17	8	FLD	16.8	.	.	86.7	11.5	57.7	426.8	0.0	1	5	37	0

TABLE B-6 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---TOTAL ORGANISMS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/19/81	0:01	05/18/81	MAY 17	1	EBB	16.1	.	.	85.9	0.0	23.3	326.0	11.6	0	2	28	1
05/19/81	3:00	05/18/81	MAY 17	2	EBB	15.6	.	.	81.4	0.0	12.3	73.7	0.0	0	1	6	0
05/19/81	6:00	05/18/81	MAY 17	3	EBB	15.5	.	.	79.0	0.0	25.3	101.3	0.0	0	2	8	0
05/19/81	9:00	05/18/81	MAY 17	4	FLD	15.9	.	.	85.2	35.2	82.2	363.8	0.0	3	7	31	0
05/21/81	12:00	05/21/81	MAY 17	5	FLD	.	.	.	85.5	0.0	70.2	584.8	0.0	0	6	50	0
05/21/81	15:00	05/21/81	MAY 17	6	EBB	.	.	.	82.6	12.1	60.5	326.9	0.0	1	5	27	0
05/21/81	18:00	05/21/81	MAY 17	7	EBB	.	.	.	79.6	0.0	37.7	691.0	0.0	0	3	55	0
05/21/81	21:00	05/21/81	MAY 17	8	FLD	.	.	.	84.8	0.0	59.0	707.5	0.0	0	5	60	0
05/22/81	0:01	05/21/81	MAY 17	1	FLD	.	.	.	88.0	0.0	215.9	443.2	0.0	0	19	39	0
05/22/81	3:00	05/21/81	MAY 17	2	EBB	.	.	.	85.5	11.7	0.0	175.4	0.0	1	0	15	0
05/22/81	6:00	05/21/81	MAY 17	3	EBB	.	.	.	81.3	0.0	0.0	651.9	0.0	0	0	53	0
05/22/81	9:00	05/21/81	MAY 17	4	FLD	.	.	.	82.6	12.1	60.5	1549.6	0.0	1	5	128	0
05/27/81	12:00	05/27/81	MAY 24	5	FLD	19.1	0.3	7.4	81.2	0.0	12.3	972.9	0.0	0	1	79	0
05/27/81	15:00	05/27/81	MAY 24	6	FLD	19.2	0.2	7.1	85.6	0.0	58.4	1530.4	0.0	0	5	131	0
05/27/81	18:00	05/27/81	MAY 24	7	FLD	19.7	1.0	6.9	86.5	0.0	46.2	554.9	0.0	0	4	48	0
05/27/81	21:00	05/27/81	MAY 24	8	EBB	19.3	1.7	6.9	84.0	23.8	47.6	928.6	0.0	2	4	78	0
05/28/81	0:01	05/27/81	MAY 24	1	EBB	19.5	1.0	7.1	82.8	0.0	72.5	881.6	0.0	0	6	73	0
05/28/81	3:00	05/27/81	MAY 24	2	FLD	18.8	0.4	6.5	86.5	0.0	57.8	867.1	0.0	0	5	75	0
05/28/81	6:00	05/27/81	MAY 24	3	FLD	19.8	1.0	6.6	87.1	0.0	218.1	1389.2	0.0	0	19	121	0
05/28/81	9:00	05/27/81	MAY 24	4	EBB	19.6	1.6	7.1	83.6	0.0	287.1	956.9	0.0	0	24	80	0
05/29/81	12:00	05/29/81	MAY 24	5	EBB	19.6	1.1	6.7	81.5	0.0	73.6	1460.1	0.0	0	6	119	0
05/29/81	15:00	05/29/81	MAY 24	6	FLD	19.2	0.5	5.9	83.4	0.0	83.9	1390.9	0.0	0	7	116	0
05/29/81	18:00	05/29/81	MAY 24	7	FLD	19.8	0.7	6.4	87.6	0.0	34.2	593.6	0.0	0	3	52	0
05/29/81	21:00	05/29/81	MAY 24	8	FLD	20.0	1.3	6.8	86.1	0.0	23.2	302.0	11.6	0	2	26	1
05/30/81	0:01	05/29/81	MAY 24	1	EBB	19.8	1.3	6.4	82.7	0.0	36.3	447.4	0.0	0	3	37	0

TABLE B-6 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---TOTAL ORGANISMS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/30/81	3:00	05/29/81	MAY 24	2	EBB	19.4	0.6	5.7	82.7	0.0	24.2	157.2	0.0	0	2	13	0
05/30/81	6:00	05/29/81	MAY 24	3	FLD	19.6	0.4	5.6	87.6	0.0	102.7	296.8	0.0	0	9	26	0
05/30/81	9:00	05/29/81	MAY 24	4	EBB	20.4	0.9	5.9	86.0	0.0	174.4	965.1	0.0	0	15	83	0
06/01/81	12:00	06/01/81	MAY 31	5	EBB	21.1	0.9	8.9	83.2	0.0	84.1	1346.2	0.0	0	7	112	0
06/01/81	15:00	06/01/81	MAY 31	6	EBB	20.6	0.8	8.6	79.5	0.0	88.1	1333.3	0.0	0	7	106	0
06/01/81	18:00	06/01/81	MAY 31	7	FLD	20.3	0.4	8.6	83.5	0.0	71.9	718.6	0.0	0	6	60	0
06/01/81	21:00	06/01/81	MAY 31	8	FLD	20.7	0.6	8.2	87.7	0.0	91.2	661.3	0.0	0	8	58	0
06/02/81	0:01	06/01/81	MAY 31	1	EBB	20.7	1.4	8.6	85.6	0.0	23.4	911.2	0.0	0	2	78	0
06/02/81	3:00	06/01/81	MAY 31	2	EBB	20.5	1.1	8.2	81.7	0.0	24.5	624.2	0.0	0	2	51	0
06/02/81	6:00	06/01/81	MAY 31	3	L_SK	20.2	0.5	7.6	81.8	24.4	0.0	476.8	0.0	2	0	39	0
06/02/81	9:00	06/01/81	MAY 31	4	FLD	20.8	0.4	7.5	86.9	0.0	23.0	713.5	0.0	0	2	62	0
06/03/81	12:00	06/03/81	MAY 31	5	FLD	20.8	0.6	6.8	86.5	0.0	23.1	716.8	0.0	0	2	62	0
06/03/81	15:00	06/03/81	MAY 31	6	EBB	20.7	1.0	6.5	81.7	0.0	49.0	1933.9	0.0	0	4	158	0
06/03/81	18:00	06/03/81	MAY 31	7	EBB	20.5	0.4	6.0	80.4	0.0	24.9	1007.5	0.0	0	2	81	0
06/03/81	21:00	06/03/81	MAY 31	8	FLD	20.9	0.3	6.0	86.9	0.0	11.5	529.3	0.0	0	1	46	0
06/04/81	0:01	06/03/81	MAY 31	1	FLD	20.8	0.7	6.3	88.7	0.0	0.0	992.1	0.0	0	0	88	0
06/04/81	3:00	06/03/81	MAY 31	2	EBB	20.8	1.2	6.2	84.3	0.0	0.0	533.8	0.0	0	0	45	0
06/04/81	6:00	06/03/81	MAY 31	3	EBB	20.6	0.6	6.3	80.2	0.0	24.9	586.0	0.0	0	2	47	0
06/04/81	9:00	06/03/81	MAY 31	4	FLD	20.5	0.3	6.0	84.3	11.9	35.6	569.4	11.9	1	3	48	1
06/09/81	6:00	06/09/81	JUNE 07	3	EBB	23.0	0.3	6.6	81.6	0.0	0.0	110.3	0.0	0	0	9	0
06/09/81	9:00	06/09/81	JUNE 07	4	EBB	22.8	0.4	6.6	86.1	0.0	11.6	139.4	0.0	0	1	12	0
06/09/81	12:00	06/09/81	JUNE 07	5	EBB	22.7	0.3	6.3	85.3	0.0	0.0	11.7	0.0	0	0	1	0
06/09/81	15:00	06/09/81	JUNE 07	6	FLD	22.4	0.2	6.6	80.8	0.0	0.0	148.5	0.0	0	0	12	0
06/09/81	18:00	06/09/81	JUNE 07	7	EBB	23.1	0.3	6.8	79.3	12.6	0.0	655.7	0.0	1	0	52	0
06/09/81	21:00	06/09/81	JUNE 07	8	EBB	23.2	0.3	6.8	84.6	0.0	0.0	638.3	0.0	0	0	54	0

TABLE B-6 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---TOTAL ORGANISMS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/10/81	0:01	06/09/81	JUNE 07	1	EBB	22.7	0.3	6.6	83.9	0.0	0.0	154.9	0.0	0	0	13	0
06/10/81	3:00	06/09/81	JUNE 07	2	FLD	21.9	0.2	6.0	77.1	0.0	13.0	272.4	0.0	0	1	21	0
06/13/81	6:00	06/13/81	JUNE 07	3	FLD	22.0	0.4	4.6	69.6	0.0	14.4	445.4	0.0	0	1	31	0
06/13/81	9:00	06/13/81	JUNE 07	4	EBB	23.1	0.6	4.5	82.3	48.6	12.2	279.5	0.0	4	1	23	0
06/13/81	12:00	06/13/81	JUNE 07	5	EBB	23.5	0.6	4.5	76.6	0.0	26.1	404.7	0.0	0	2	31	0
06/13/81	15:00	06/13/81	JUNE 07	6	EBB	23.4	0.6	4.5	74.1	0.0	0.0	121.5	0.0	0	0	9	0
06/13/81	18:00	06/13/81	JUNE 07	7	FLD	22.7	0.6	4.4	84.4	154.0	11.8	225.1	0.0	13	1	19	0
06/13/81	21:00	06/13/81	JUNE 07	8	FLD	24.2	0.8	4.2	85.4	152.2	0.0	128.8	0.0	13	0	11	0
06/14/81	0:01	06/13/81	JUNE 07	1	EBB	23.1	0.9	4.2	79.6	125.6	0.0	213.6	0.0	10	0	17	0
06/14/81	3:00	06/13/81	JUNE 07	2	EBB	22.9	1.0	4.2	74.8	628.3	26.7	187.2	0.0	47	2	14	0
06/18/81	12:00	06/18/81	JUNE 14	5	FLD	24.0	1.6	3.8	72.4	2845.3	0.0	151.9	0.0	206	0	11	0
06/18/81	15:00	06/18/81	JUNE 14	6	EBB	24.3	1.9	3.7	75.9	1528.3	0.0	263.5	0.0	116	0	20	0
06/18/81	18:00	06/18/81	JUNE 14	7	EBB	24.1	1.9	4.1	71.3	1220.2	0.0	70.1	0.0	87	0	5	0
06/18/81	21:00	06/18/81	JUNE 14	8	FLD	23.6	1.7	3.9	85.5	1087.7	0.0	257.3	0.0	93	0	22	0
06/19/81	0:01	06/18/81	JUNE 14	1	FLD	24.9	1.9	4.7	88.5	7819.2	0.0	259.9	0.0	692	0	23	0
06/19/81	3:00	06/18/81	JUNE 14	2	EBB	24.7	2.0	4.9	83.0	4662.7	0.0	144.6	0.0	387	0	12	0
06/19/81	6:00	06/18/81	JUNE 14	3	EBB	23.9	2.1	5.1	77.2	544.0	0.0	297.9	0.0	42	0	23	0
06/19/81	9:00	06/18/81	JUNE 14	4	FLD	23.3	1.9	4.6	83.6	801.4	0.0	406.7	0.0	67	0	34	0
06/19/81	12:00	06/19/81	JUNE 14	5	FLD	23.6	2.8	6.2	86.5	1583.8	11.6	289.0	0.0	137	1	25	0
06/19/81	15:00	06/19/81	JUNE 14	6	EBB	24.0	2.9	4.8	81.4	1388.2	0.0	565.1	0.0	113	0	46	0
06/19/81	18:00	06/19/81	JUNE 14	7	EBB	23.3	3.1	5.2	76.6	339.4	26.1	274.2	0.0	26	2	21	0
06/19/81	21:00	06/19/81	JUNE 14	8	FLD	22.7	2.1	5.0	86.0	872.1	0.0	151.2	0.0	75	0	13	0
06/20/81	0:01	06/19/81	JUNE 14	1	FLD	23.6	2.6	5.0	88.9	4566.9	0.0	270.0	0.0	406	0	24	0
06/20/81	3:00	06/19/81	JUNE 14	2	EBB	24.4	3.3	5.3	84.3	7817.3	0.0	379.6	0.0	659	0	32	0
06/20/81	6:00	06/19/81	JUNE 14	3	EBB	23.2	3.2	5.4	77.3	724.5	0.0	802.1	0.0	56	0	62	0

TABLE B-6 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---TOTAL ORGANISMS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/20/81	9:00	06/19/81	JUNE 14	4	FLD	22.8	2.5	4.7	82.3	85.1	0.0	1190.8	0.0	7	0	98	0
06/23/81	12:00	06/23/81	JUNE 21	5	FLD	22.9	1.6	5.0	83.5	0.0	0.0	622.8	0.0	0	0	52	0
06/23/81	15:00	06/23/81	JUNE 21	6	FLD	24.5	2.1	4.8	86.5	0.0	0.0	358.4	0.0	0	0	31	0
06/23/81	18:00	06/23/81	JUNE 21	7	EBB	24.7	2.2	5.0	81.1	0.0	0.0	875.5	0.0	0	0	71	0
06/23/81	21:00	06/23/81	JUNE 21	8	EBB	23.3	1.9	5.0	76.4	0.0	0.0	1138.7	104.7	0	0	87	8
06/24/81	0:01	06/23/81	JUNE 21	1	FLD	22.9	1.5	5.0	84.6	11.8	0.0	1170.2	47.3	1	0	99	4
06/24/81	3:00	06/23/81	JUNE 21	2	FLD	23.7	2.1	5.2	87.9	45.5	0.0	762.2	0.0	4	0	67	0
06/24/81	6:00	06/23/81	JUNE 21	3	EBB	24.7	2.5	4.9	83.9	83.4	23.8	1084.6	11.9	7	2	91	1
06/24/81	9:00	06/23/81	JUNE 21	4	EBB	23.6	2.2	4.9	76.7	0.0	0.0	1760.1	0.0	0	0	135	0
06/29/81	12:00	06/29/81	JUNE 28	5	EBB	24.7	1.6	5.4	78.5	0.0	0.0	343.9	89.2	0	0	27	7
06/29/81	15:00	06/29/81	JUNE 28	6	EBB	25.1	1.5	5.4	74.6	0.0	0.0	321.7	0.0	0	0	24	0
06/29/81	18:00	06/29/81	JUNE 28	7	FLD	24.3	1.0	5.4	86.5	0.0	0.0	289.0	57.8	0	0	25	5
06/29/81	21:00	06/29/81	JUNE 28	8	FLD	24.8	1.5	5.5	88.0	0.0	0.0	534.1	0.0	0	0	47	0
06/30/81	0:01	06/29/81	JUNE 28	1	EBB	24.9	2.3	5.9	84.2	0.0	0.0	320.7	95.0	0	0	27	8
06/30/81	3:00	06/29/81	JUNE 28	2	EBB	24.6	2.0	5.7	78.1	0.0	0.0	909.1	102.4	0	0	71	8
06/30/81	6:00	06/29/81	JUNE 28	3	FLD	24.1	1.3	5.4	85.0	0.0	0.0	200.0	11.8	0	0	17	1
06/30/81	9:00	06/29/81	JUNE 28	4	FLD	24.6	1.4	5.3	88.1	0.0	0.0	703.7	22.7	0	0	62	2
07/01/81	12:00	07/01/81	JUNE 28	5	EBB	25.2	1.8	6.2	83.8	0.0	0.0	441.5	11.9	0	0	37	1
07/01/81	15:00	07/01/81	JUNE 28	6	EBB	25.4	2.4	5.9	77.8	0.0	0.0	1105.4	25.7	0	0	86	2
07/01/81	18:00	07/01/81	JUNE 28	7	FLD	25.1	1.4	6.1	85.7	0.0	0.0	385.1	0.0	0	0	33	0
07/01/81	21:00	07/01/81	JUNE 28	8	FLD	25.4	1.1	6.0	88.0	0.0	0.0	647.7	68.2	0	0	57	6
07/02/81	0:01	07/01/81	JUNE 28	1	EBB	25.7	2.1	6.2	85.9	11.6	0.0	710.1	151.3	1	0	61	13
07/02/81	3:00	07/01/81	JUNE 28	2	EBB	25.5	2.6	6.2	80.8	0.0	0.0	730.2	61.9	0	0	59	5
07/02/81	6:00	07/01/81	JUNE 28	3	EBB	25.3	1.7	5.7	80.7	0.0	0.0	359.4	12.4	0	0	29	1
07/02/81	9:00	07/01/81	JUNE 28	4	FLD	25.2	1.1	5.5	85.6	0.0	0.0	525.7	11.7	0	0	45	1

TABLE B-6 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---TOTAL ORGANISMS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/08/81	12:00	07/08/81	JULY 05	5	FLD	27.2	0.8	3.0	67.4	0.0	0.0	14.8	14.8	0	0	1	1
07/08/81	15:00	07/08/81	JULY 05	6	FLD	26.7	5.3	3.1	85.4	0.0	0.0	23.4	0.0	0	0	2	0
07/08/81	18:00	07/08/81	JULY 05	7	EBB	27.5	1.1	3.0	84.2	0.0	0.0	59.4	0.0	0	0	5	0
07/08/81	21:00	07/08/81	JULY 05	8	EBB	26.8	1.1	2.8	79.0	0.0	0.0	202.5	0.0	0	0	16	0
07/09/81	0:01	07/08/81	JULY 05	1	EBB	26.8	1.0	2.9	81.4	0.0	0.0	24.6	0.0	0	0	2	0
07/09/81	3:00	07/08/81	JULY 05	2	FLD	26.1	0.6	2.7	86.2	0.0	0.0	23.2	34.8	0	0	2	3
07/09/81	6:00	07/08/81	JULY 05	3	EBB	27.4	1.2	2.6	84.5	0.0	0.0	47.3	0.0	0	0	4	0
07/09/81	9:00	07/08/81	JULY 05	4	EBB	26.8	0.9	2.9	77.2	0.0	0.0	90.7	0.0	0	0	7	0
07/10/81	12:00	07/10/81	JULY 05	5	EBB	27.0	1.0	6.5	76.5	0.0	0.0	39.2	0.0	0	0	3	0
07/10/81	15:00	07/10/81	JULY 05	6	FLD	26.6	0.6	6.2	84.0	0.0	0.0	23.8	0.0	0	0	2	0
07/10/81	18:00	07/10/81	JULY 05	7	FLD	27.3	1.3	5.7	87.0	0.0	0.0	114.9	0.0	0	0	10	0
07/10/81	21:00	07/10/81	JULY 05	8	EBB	28.6	1.8	5.9	84.6	0.0	0.0	1052.0	23.6	0	0	89	2
07/11/81	0:01	07/10/81	JULY 05	1	EBB	26.9	1.6	5.7	79.3	0.0	12.6	1134.9	37.8	0	1	90	3
07/11/81	3:00	07/10/81	JULY 05	2	FLD	26.4	1.1	5.8	83.2	0.0	0.0	120.2	24.0	0	0	10	2
07/13/81	6:00	07/10/81	JULY 05	3	FLD	26.7	1.8	5.2	85.1	0.0	0.0	376.0	0.0	0	0	32	0
07/13/81	9:00	07/10/81	JULY 05	4	EBB	27.1	1.6	5.3	80.0	12.5	0.0	225.0	0.0	1	0	18	0
07/13/81	12:00	07/13/81	JULY 12	5	EBB	32.3	3.0	5.2	80.0	0.0	0.0	975.0	0.0	0	0	78	0
07/13/81	15:00	07/13/81	JULY 12	6	FLD	29.3	2.2	6.2	79.3	0.0	0.0	744.0	12.6	0	0	59	1
07/13/81	18:00	07/13/81	JULY 12	7	FLD	27.2	1.8	6.2	88.5	2497.2	0.0	350.3	0.0	221	0	31	0
07/13/81	21:00	07/13/81	JULY 12	8	FLD	28.3	2.7	5.6	88.6	1489.8	0.0	485.3	0.0	132	0	43	0
07/14/81	0:01	07/13/81	JULY 12	1	EBB	27.9	2.8	6.3	82.2	194.6	0.0	583.9	0.0	16	0	48	0
07/14/81	3:00	07/13/81	JULY 12	2	EBB	27.4	2.6	6.4	76.8	2070.3	0.0	481.8	13.0	159	0	37	1
07/14/81	6:00	07/13/81	JULY 12	3	FLD	26.9	2.5	5.4	83.9	500.6	0.0	464.8	23.8	42	0	39	2
07/14/81	9:00	07/13/81	JULY 12	4	FLD	28.4	3.6	5.1	85.1	117.5	0.0	458.3	0.0	10	0	39	0
07/15/81	12:00	07/15/81	JULY 12	5	EBB	27.3	3.4	5.2	82.4	169.9	0.0	339.8	0.0	14	0	28	0

TABLE B-6 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---TOTAL ORGANISMS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/15/81	15:00	07/15/81	JULY 12	6	EBB	27.9	3.2	5.9	78.2	882.4	0.0	626.6	0.0	69	0	49	0
07/15/81	18:00	07/15/81	JULY 12	7	FLD	29.0	3.1	5.4	83.9	917.8	11.9	1084.6	0.0	77	1	91	0
07/15/81	21:00	07/15/81	JULY 12	8	FLD	27.6	3.9	4.7	88.8	7747.7	0.0	574.3	11.3	688	0	51	1
07/16/81	0:01	07/15/81	JULY 12	1	EBB	27.3	4.1	5.0	85.6	3726.6	0.0	1261.7	0.0	319	0	108	0
07/16/81	3:00	07/15/81	JULY 12	2	EBB	26.5	4.3	4.7	78.2	1841.4	12.8	1700.8	12.8	144	1	133	1
07/16/81	6:00	07/15/81	JULY 12	3	FLD	26.1	3.6	4.7	79.4	1146.1	37.8	2783.4	0.0	91	3	221	0
07/16/81	9:00	07/15/81	JULY 12	4	FLD	26.3	3.4	4.4	85.9	2014.0	23.3	1478.5	11.6	173	2	127	1
07/20/81	12:00	07/20/81	JULY 19	5	FLD	30.3	3.7	3.6	76.9	3719.1	0.0	5656.7	13.0	286	0	435	1
07/20/81	15:00	07/20/81	JULY 19	6	EBB	30.4	4.4	3.5	86.1	41870	0.0	6759.6	46.5	3605	0	582	4
07/20/81	18:00	07/20/81	JULY 19	7	EBB	29.9	4.7	3.0	80.8	21114	0.0	1745.0	37.1	1706	0	141	3
07/20/81	21:00	07/20/81	JULY 19	8	FLD	29.8	4.1	3.1	84.6	1950.4	0.0	3818.0	35.5	165	0	323	3
07/21/81	0:01	07/20/81	JULY 19	1	FLD	30.3	4.2	3.1	88.9	8245.2	0.0	4038.2	78.7	733	0	359	7
07/21/81	3:00	07/20/81	JULY 19	2	EBB	30.4	4.7	3.1	87.3	12623	0.0	4123.7	80.2	1102	0	360	7
07/21/81	6:00	07/20/81	JULY 19	3	EBB	29.8	5.1	2.8	81.8	1784.8	0.0	4107.6	24.4	146	0	336	2
07/21/81	9:00	07/20/81	JULY 19	4	EBB	29.9	4.4	2.6	81.5	159.5	0.0	22883	36.8	13	0	1865	3
07/22/81	12:00	07/22/81	JULY 19	5	FLD	29.8	3.3	4.6	84.6	212.8	0.0	2801.4	11.8	18	0	237	1
07/22/81	15:00	07/22/81	JULY 19	6	FLD	31.2	4.0	4.5	87.2	1892.2	0.0	2821.1	0.0	165	0	246	0
07/22/81	18:00	07/22/81	JULY 19	7	EBB	30.9	4.1	.	82.3	27011	0.0	850.5	24.3	2223	0	70	2
07/22/81	21:00	07/22/81	JULY 19	8	EBB	29.9	3.9	4.2	78.9	1178.7	0.0	430.9	0.0	93	0	34	0
07/23/81	0:01	07/22/81	JULY 19	1	FLD	29.4	3.2	4.3	85.6	1250.0	0.0	1612.1	35.0	107	0	138	3
07/23/81	3:00	07/22/81	JULY 19	2	FLD	30.1	3.8	4.4	88.2	1439.9	0.0	600.9	45.4	127	0	53	4
07/23/81	6:00	07/22/81	JULY 19	3	EBB	30.4	4.1	4.3	84.0	1500.0	0.0	547.6	0.0	126	0	46	0
07/23/81	9:00	07/22/81	JULY 19	4	EBB	29.3	3.7	4.2	80.5	12.4	0.0	4298.1	0.0	1	0	346	0
07/28/81	12:00	07/28/81	JULY 26	5	EBB	30.6	0.4	3.6	74.3	0.0	0.0	1292.1	0.0	0	0	96	0
07/28/81	15:00	07/28/81	JULY 26	6	EBB	28.8	4.5	3.6	79.9	0.0	0.0	1814.8	0.0	0	0	145	0

TABLE B-6 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---TOTAL ORGANISMS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/28/81	18:00	07/28/81	JULY 26	7	FLD	31.1	3.8	3.4	88.1	0.0	0.0	1078.3	22.7	0	0	95	2
07/28/81	21:00	07/28/81	JULY 26	8	FLD	.	.	.	89.4	179.0	0.0	794.2	89.5	16	0	71	8
07/29/81	0:01	07/28/81	JULY 26	1	EBB	.	.	.	85.2	0.0	0.0	1349.8	82.2	0	0	115	7
07/29/81	3:00	07/28/81	JULY 26	2	EBB	.	.	.	81.3	0.0	0.0	910.2	12.3	0	0	74	1
07/29/81	6:00	07/28/81	JULY 26	3	FLD	.	.	.	84.9	0.0	0.0	435.8	0.0	0	0	37	0
07/29/81	9:00	07/28/81	JULY 26	4	FLD	30.5	5.4	3.3	88.1	0.0	0.0	2326.9	11.4	0	0	205	1
07/31/81	12:00	07/31/81	JULY 26	5	EBB	28.2	3.3	5.0	77.0	0.0	0.0	1220.8	13.0	0	0	94	1
07/31/81	15:00	07/31/81	JULY 26	6	EBB	27.5	3.9	5.2	80.5	0.0	0.0	1341.6	0.0	0	0	108	0
07/31/81	18:00	07/31/81	JULY 26	7	EBB	27.7	3.3	5.4	80.1	0.0	0.0	1635.5	0.0	0	0	131	0
07/31/81	21:00	07/31/81	JULY 26	8	FLD	27.0	2.8	5.3	89.1	0.0	0.0	392.8	22.4	0	0	35	2
08/01/81	0:01	07/31/81	JULY 26	1	FLD	27.5	3.6	5.4	88.9	0.0	0.0	551.2	22.5	0	0	49	2
08/01/81	3:00	07/31/81	JULY 26	2	EBB	27.1	3.7	5.2	83.9	0.0	0.0	417.2	11.9	0	0	35	1
08/01/81	6:00	07/31/81	JULY 26	3	EBB	26.9	3.5	5.3	78.8	0.0	0.0	812.2	0.0	0	0	64	0
08/01/81	9:00	07/31/81	JULY 26	4	FLD	26.7	2.8	7.3	86.7	0.0	0.0	1130.3	0.0	0	0	98	0
08/02/81	12:00	08/02/81	AUG 02	5	FLD	27.9	3.5	4.9	78.2	0.0	0.0	895.1	12.8	0	0	70	1
08/02/81	15:00	08/02/81	AUG 02	6	EBB	28.1	3.7	4.6	82.6	24.2	0.0	690.1	0.0	2	0	57	0
08/02/81	18:00	08/02/81	AUG 02	7	EBB	27.5	3.5	5.2	76.9	13.0	0.0	1417.4	0.0	1	0	109	0
08/02/81	21:00	08/02/81	AUG 02	8	FLD	27.2	2.9	4.6	85.1	0.0	0.0	517.0	0.0	0	0	44	0
08/03/81	0:01	08/02/81	AUG 02	1	FLD	27.8	3.5	4.8	89.5	0.0	0.0	413.4	11.2	0	0	37	1
08/03/81	3:00	08/02/81	AUG 02	2	EBB	28.3	4.0	4.6	86.2	11.6	0.0	556.8	46.4	1	0	48	4
08/03/81	6:00	08/02/81	AUG 02	3	EBB	27.2	3.6	4.6	78.7	0.0	0.0	1918.7	0.0	0	0	151	0
08/03/81	9:00	08/02/81	AUG 02	4	FLD	27.3	3.2	4.4	82.2	0.0	0.0	1837.0	0.0	0	0	151	0
08/07/81	12:00	08/07/81	AUG 02	5	FLD	27.0	2.6	4.2	76.5	0.0	0.0	575.2	0.0	0	0	44	0
08/07/81	15:00	08/07/81	AUG 02	6	FLD	27.8	3.3	4.1	89.8	11.1	0.0	634.7	0.0	1	0	57	0
08/07/81	18:00	08/07/81	AUG 02	7	EBB	29.6	3.5	4.3	88.9	0.0	0.0	832.4	0.0	0	0	74	0

TABLE B-6 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---TOTAL ORGANISMS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/07/81	21:00	08/07/81	AUG 02	8	EBB	27.5	0.4	4.3	84.3	0.0	0.0	1637.0	0.0	0	0	138	0
08/08/81	0:01	08/07/81	AUG 02	1	FLD	27.4	3.2	4.2	85.2	0.0	0.0	551.6	0.0	0	0	47	0
08/08/81	3:00	08/07/81	AUG 02	2	FLD	27.2	3.0	3.9	89.8	0.0	0.0	690.4	22.3	0	0	62	2
08/08/81	6:00	08/07/81	AUG 02	3	EBB	27.6	3.7	4.1	88.8	0.0	0.0	1024.8	0.0	0	0	91	0
08/08/81	9:00	08/07/81	AUG 02	4	EBB	27.8	3.5	4.0	84.0	0.0	0.0	797.6	0.0	0	0	67	0
08/10/81	12:00	08/10/81	AUG 09	5	EBB	26.1	.	.	80.8	0.0	0.0	1175.7	0.0	0	0	95	0
08/10/81	15:00	08/10/81	AUG 09	6	FLD	30.7	3.3	4.5	85.5	0.0	0.0	619.9	0.0	0	0	53	0
08/10/81	18:00	08/10/81	AUG 09	7	FLD	33.5	2.9	4.3	90.2	299.3	0.0	432.4	0.0	27	0	39	0
08/10/81	21:00	08/10/81	AUG 09	8	EBB	37.5	3.3	4.5	87.6	11.4	0.0	1404.1	34.2	1	0	123	3
08/11/81	0:01	08/10/81	AUG 09	1	EBB	34.2	4.1	4.3	81.1	0.0	0.0	1541.3	0.0	0	0	125	0
08/11/81	3:00	08/10/81	AUG 09	2	FLD	32.9	3.4	4.7	82.9	84.4	0.0	361.9	12.1	7	0	30	1
08/11/81	6:00	08/10/81	AUG 09	3	FLD	31.1	3.7	4.3	88.0	22.7	0.0	363.6	0.0	2	0	32	0
08/11/81	9:00	08/10/81	AUG 09	4	EBB	34.6	4.4	3.8	87.2	0.0	0.0	206.4	0.0	0	0	18	0
08/14/81	12:00	08/14/81	AUG 09	5	EBB	37.5	6.3	4.2	86.4	1006.9	0.0	821.8	0.0	87	0	71	0
08/14/81	15:00	08/14/81	AUG 09	6	EBB	.	.	.	79.2	757.6	0.0	580.8	0.0	60	0	46	0
08/14/81	18:00	08/14/81	AUG 09	7	FLD	29.1	5.0	4.6	85.9	395.8	0.0	570.4	0.0	34	0	49	0
08/14/81	21:00	08/14/81	AUG 09	8	FLD	28.9	5.9	4.1	91.0	2186.8	0.0	384.6	0.0	199	0	35	0
08/15/81	0:01	08/14/81	AUG 09	1	EBB	30.0	7.1	4.2	89.0	1202.2	0.0	820.2	33.7	107	0	73	3
08/15/81	3:00	08/14/81	AUG 09	2	EBB	28.5	6.8	3.8	82.5	48.5	0.0	1236.4	12.1	4	0	102	1
08/15/81	6:00	08/14/81	AUG 09	3	FLD	28.3	5.7	4.2	82.9	0.0	0.0	422.2	0.0	0	0	35	0
08/15/81	9:00	08/14/81	AUG 09	4	FLD	28.8	5.5	4.1	89.7	44.6	0.0	1103.7	0.0	4	0	99	0
08/17/81	12:00	08/17/81	AUG 16	5	EBB	28.2	5.6	4.4	89.5	0.0	0.0	514.0	0.0	0	0	46	0
08/17/81	15:00	08/17/81	AUG 16	6	EBB	27.5	5.9	4.5	84.9	200.2	0.0	200.2	0.0	17	0	17	0
08/17/81	18:00	08/17/81	AUG 16	7	FLD	26.8	5.6	4.9	70.1	28.5	0.0	199.7	0.0	2	0	14	0
08/17/81	21:00	08/17/81	AUG 16	8	FLD	26.3	4.7	4.3	88.3	0.0	0.0	113.3	0.0	0	0	10	0

TABLE B-6 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---TOTAL ORGANISMS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/18/81	0:01	08/17/81	AUG 16	1	EBB	27.7	5.3	4.2	90.6	154.5	0.0	165.6	0.0	14	0	15	0
08/18/81	3:00	08/17/81	AUG 16	2	EBB	26.4	6.2	4.4	85.3	11.7	0.0	187.6	0.0	1	0	16	0
08/18/81	6:00	08/17/81	AUG 16	3	EBB	26.1	5.8	4.5	78.4	0.0	0.0	369.9	0.0	0	0	29	0
08/18/81	9:00	08/17/81	AUG 16	4	FLD	26.3	5.1	4.1	85.5	0.0	0.0	491.2	0.0	0	0	42	0
08/20/81	12:00	08/20/81	AUG 16	5	FLD	26.1	4.4	5.4	90.0	0.0	0.0	344.4	0.0	0	0	31	0
08/20/81	15:00	08/20/81	AUG 16	6	EBB	27.4	5.3	5.1	91.4	10.9	0.0	218.8	0.0	1	0	20	0
08/20/81	18:00	08/20/81	AUG 16	7	EBB	27.1	6.2	5.5	88.7	0.0	0.0	33.8	0.0	0	0	3	0
08/20/81	21:00	08/20/81	AUG 16	8	FLD	26.3	5.7	5.4	87.1	0.0	0.0	126.3	11.5	0	0	11	1
08/21/81	0:01	08/20/81	AUG 16	1	FLD	26.3	5.0	4.9	91.9	0.0	0.0	206.7	10.9	0	0	19	1
08/21/81	3:00	08/20/81	AUG 16	2	EBB	27.1	5.6	4.9	91.8	0.0	0.0	141.6	32.7	0	0	13	3
08/21/81	6:00	08/20/81	AUG 16	3	EBB	27.1	6.0	5.1	88.0	0.0	0.0	170.5	11.4	0	0	15	1
08/21/81	9:00	08/20/81	AUG 16	4	FLD	25.9	5.5	4.7	85.7	0.0	0.0	595.1	0.0	0	0	51	0
08/29/81	12:00	08/29/81	AUG 23	5	EBB	25.3	4.6	4.4	78.9	0.0	0.0	12.7	0.0	0	0	1	0
08/29/81	15:00	08/29/81	AUG 23	6	EBB	25.3	5.2	4.5	82.2	0.0	0.0	121.7	12.2	0	0	10	1
08/29/81	18:00	08/29/81	AUG 23	7	FLD	25.2	4.4	4.5	83.6	0.0	0.0	191.4	12.0	0	0	16	1
08/29/81	21:00	08/29/81	AUG 23	8	FLD	25.2	4.0	4.1	89.5	0.0	0.0	178.8	0.0	0	0	16	0
08/30/81	0:01	08/29/81	AUG 23	1	EBB	26.1	4.7	4.2	88.7	0.0	0.0	157.8	0.0	0	0	14	0
08/30/81	3:00	08/29/81	AUG 23	2	EBB	24.9	5.4	4.4	83.7	0.0	0.0	119.5	0.0	0	0	10	0
08/30/81	6:00	08/29/81	AUG 23	3	FLD	25.0	4.6	4.3	81.9	0.0	0.0	207.6	12.2	0	0	17	1
08/30/81	9:00	08/29/81	AUG 23	4	FLD	25.0	4.0	4.2	88.2	0.0	0.0	396.8	0.0	0	0	35	0

TABLE B-7
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---STRIPED BASS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/06/81	8:00	05/06/81	MAY 03	3	FLD	13.9	2.2	8.1	79.8	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	11:00	05/06/81	MAY 03	4	FLD	13.7	2.3	8.0	82.3	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	14:00	05/06/81	MAY 03	5	EBB	13.5	2.6	8.0	81.1	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	17:00	05/06/81	MAY 03	6	EBB	13.6	2.4	8.6	79.2	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	20:00	05/06/81	MAY 03	7	EBB	13.3	1.7	8.5	80.2	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	23:00	05/06/81	MAY 03	8	FLD	14.8	1.7	8.2	85.2	0.0	0.0	0.0	0.0	0	0	0	0
05/07/81	2:00	05/06/81	MAY 03	1	FLD	13.7	2.3	8.4	84.3	0.0	0.0	0.0	0.0	0	0	0	0
05/07/81	5:00	05/06/81	MAY 03	2	EBB	13.1	2.2	8.3	80.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	8:00	05/09/81	MAY 03	3	EBB	13.7	1.7	7.6	79.8	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	11:00	05/09/81	MAY 03	4	FLD	14.0	1.3	7.1	81.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	14:00	05/09/81	MAY 03	5	FLD	15.1	1.4	7.4	83.9	11.9	0.0	0.0	0.0	1	0	0	0
05/09/81	17:00	05/09/81	MAY 03	6	EBB	14.8	2.0	7.5	83.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	20:00	05/09/81	MAY 03	7	EBB	14.2	2.0	7.4	80.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	23:00	05/09/81	MAY 03	8	L_SK	14.1	1.3	7.3	81.4	0.0	0.0	0.0	0.0	0	0	0	0
05/10/81	2:00	05/09/81	MAY 03	1	FLD	14.7	1.3	7.3	85.3	0.0	0.0	0.0	0.0	0	0	0	0
05/10/81	5:00	05/09/81	MAY 03	2	EBB	14.5	1.6	7.5	84.5	0.0	0.0	0.0	0.0	0	0	0	0
05/15/81	12:00	05/15/81	MAY 10	5	EBB	15.4	0.1	8.8	83.2	0.0	48.1	0.0	0.0	0	4	0	0
05/15/81	15:00	05/15/81	MAY 10	6	EBB	15.8	0.1	8.9	81.4	0.0	0.0	0.0	0.0	0	0	0	0
05/15/81	18:00	05/15/81	MAY 10	7	FLD	15.3	0.1	9.2	86.0	0.0	0.0	0.0	0.0	0	0	0	0
05/15/81	21:00	05/15/81	MAY 10	8	FLD	16.1	0.1	9.1	87.5	0.0	0.0	0.0	0.0	0	0	0	0
05/16/81	0:01	05/15/81	MAY 10	1	EBB	15.7	0.1	9.0	85.4	11.7	0.0	0.0	0.0	1	0	0	0
05/18/81	12:00	05/18/81	MAY 17	5	EBB	16.5	.	.	84.6	0.0	35.5	0.0	0.0	0	3	0	0
05/18/81	15:00	05/18/81	MAY 17	6	EBB	16.6	.	.	80.2	24.9	24.9	0.0	0.0	2	2	0	0
05/18/81	18:00	05/18/81	MAY 17	7	FLD	16.2	.	.	81.3	0.0	0.0	0.0	0.0	0	0	0	0
05/18/81	21:00	05/18/81	MAY 17	8	FLD	16.8	.	.	86.7	0.0	34.6	11.5	0.0	0	3	1	0

TABLE B-7 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---STRIPED BASS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/19/81	0:01	05/18/81	MAY 17	1	EBB	16.1	.	.	85.9	0.0	0.0	46.6	0.0	0	0	4	0
05/19/81	3:00	05/18/81	MAY 17	2	EBB	15.6	.	.	81.4	0.0	12.3	0.0	0.0	0	1	0	0
05/19/81	6:00	05/18/81	MAY 17	3	EBB	15.5	.	.	79.0	0.0	0.0	12.7	0.0	0	0	1	0
05/19/81	9:00	05/18/81	MAY 17	4	FLD	15.9	.	.	85.2	0.0	23.5	0.0	0.0	0	2	0	0
05/21/81	12:00	05/21/81	MAY 17	5	FLD	.	.	.	85.5	0.0	58.5	23.4	0.0	0	5	2	0
05/21/81	15:00	05/21/81	MAY 17	6	EBB	.	.	.	82.6	0.0	60.5	0.0	0.0	0	5	0	0
05/21/81	18:00	05/21/81	MAY 17	7	EBB	.	.	.	79.6	0.0	12.6	0.0	0.0	0	1	0	0
05/21/81	21:00	05/21/81	MAY 17	8	FLD	.	.	.	84.8	0.0	23.6	0.0	0.0	0	2	0	0
05/22/81	0:01	05/21/81	MAY 17	1	FLD	.	.	.	88.0	0.0	170.5	68.2	0.0	0	15	6	0
05/22/81	3:00	05/21/81	MAY 17	2	EBB	.	.	.	85.5	0.0	0.0	11.7	0.0	0	0	1	0
05/22/81	6:00	05/21/81	MAY 17	3	EBB	.	.	.	81.3	0.0	0.0	0.0	0.0	0	0	0	0
05/22/81	9:00	05/21/81	MAY 17	4	FLD	.	.	.	82.6	12.1	60.5	0.0	0.0	1	5	0	0
05/27/81	12:00	05/27/81	MAY 24	5	FLD	19.1	0.3	7.4	81.2	0.0	12.3	36.9	0.0	0	1	3	0
05/27/81	15:00	05/27/81	MAY 24	6	FLD	19.2	0.2	7.1	85.6	0.0	58.4	257.0	0.0	0	5	22	0
05/27/81	18:00	05/27/81	MAY 24	7	FLD	19.7	1.0	6.9	86.5	0.0	46.2	115.6	0.0	0	4	10	0
05/27/81	21:00	05/27/81	MAY 24	8	EBB	19.3	1.7	6.9	84.0	0.0	47.6	261.9	0.0	0	4	22	0
05/28/81	0:01	05/27/81	MAY 24	1	EBB	19.5	1.0	7.1	82.8	0.0	48.3	169.1	0.0	0	4	14	0
05/28/81	3:00	05/27/81	MAY 24	2	FLD	18.8	0.4	6.5	86.5	0.0	34.7	300.6	0.0	0	3	26	0
05/28/81	6:00	05/27/81	MAY 24	3	FLD	19.8	1.0	6.6	87.1	0.0	206.7	424.8	0.0	0	18	37	0
05/28/81	9:00	05/27/81	MAY 24	4	EBB	19.6	1.6	7.1	83.6	0.0	275.1	346.9	0.0	0	23	29	0
05/29/81	12:00	05/29/81	MAY 24	5	EBB	19.6	1.1	6.7	81.5	0.0	61.3	196.3	0.0	0	5	16	0
05/29/81	15:00	05/29/81	MAY 24	6	FLD	19.2	0.5	5.9	83.4	0.0	83.9	95.9	0.0	0	7	8	0
05/29/81	18:00	05/29/81	MAY 24	7	FLD	19.8	0.7	6.4	87.6	0.0	22.8	102.7	0.0	0	2	9	0
05/29/81	21:00	05/29/81	MAY 24	8	FLD	20.0	1.3	6.8	86.1	0.0	23.2	81.3	0.0	0	2	7	0
05/30/81	0:01	05/29/81	MAY 24	1	EBB	19.8	1.3	6.4	82.7	0.0	36.3	120.9	0.0	0	3	10	0

TABLE B-7 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---STRIPED BASS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/30/81	3:00	05/29/81	MAY 24	2	EBB	19.4	0.6	5.7	82.7	0.0	24.2	48.4	0.0	0	2	4	0
05/30/81	6:00	05/29/81	MAY 24	3	FLD	19.6	0.4	5.6	87.6	0.0	79.9	22.8	0.0	0	7	2	0
05/30/81	9:00	05/29/81	MAY 24	4	EBB	20.4	0.9	5.9	86.0	0.0	162.8	523.3	0.0	0	14	45	0
06/01/81	12:00	06/01/81	MAY 31	5	EBB	21.1	0.9	8.9	83.2	0.0	84.1	817.3	0.0	0	7	68	0
06/01/81	15:00	06/01/81	MAY 31	6	EBB	20.6	0.8	8.6	79.5	0.0	62.9	440.3	0.0	0	5	35	0
06/01/81	18:00	06/01/81	MAY 31	7	FLD	20.3	0.4	8.6	83.5	0.0	71.9	287.4	0.0	0	6	24	0
06/01/81	21:00	06/01/81	MAY 31	8	FLD	20.7	0.6	8.2	87.7	0.0	91.2	364.9	0.0	0	8	32	0
06/02/81	0:01	06/01/81	MAY 31	1	EBB	20.7	1.4	8.6	85.6	0.0	23.4	665.9	0.0	0	2	57	0
06/02/81	3:00	06/01/81	MAY 31	2	EBB	20.5	1.1	8.2	81.7	0.0	12.2	440.6	0.0	0	1	36	0
06/02/81	6:00	06/01/81	MAY 31	3	L_SK	20.2	0.5	7.6	81.8	0.0	0.0	158.9	0.0	0	0	13	0
06/02/81	9:00	06/01/81	MAY 31	4	FLD	20.8	0.4	7.5	86.9	0.0	23.0	368.2	0.0	0	2	32	0
06/03/81	12:00	06/03/81	MAY 31	5	FLD	20.8	0.6	6.8	86.5	0.0	23.1	589.6	0.0	0	2	51	0
06/03/81	15:00	06/03/81	MAY 31	6	EBB	20.7	1.0	6.5	81.7	0.0	36.7	1468.8	0.0	0	3	120	0
06/03/81	18:00	06/03/81	MAY 31	7	EBB	20.5	0.4	6.0	80.4	0.0	12.4	709.0	0.0	0	1	57	0
06/03/81	21:00	06/03/81	MAY 31	8	FLD	20.9	0.3	6.0	86.9	0.0	0.0	264.7	0.0	0	0	23	0
06/04/81	0:01	06/03/81	MAY 31	1	FLD	20.8	0.7	6.3	88.7	0.0	0.0	744.1	0.0	0	0	66	0
06/04/81	3:00	06/03/81	MAY 31	2	EBB	20.8	1.2	6.2	84.3	0.0	0.0	332.1	0.0	0	0	28	0
06/04/81	6:00	06/03/81	MAY 31	3	EBB	20.6	0.6	6.3	80.2	0.0	24.9	249.4	0.0	0	2	20	0
06/04/81	9:00	06/03/81	MAY 31	4	FLD	20.5	0.3	6.0	84.3	0.0	35.6	118.6	0.0	0	3	10	0
06/09/81	6:00	06/09/81	JUNE 07	3	EBB	23.0	0.3	6.6	81.6	0.0	0.0	24.5	0.0	0	0	2	0
06/09/81	9:00	06/09/81	JUNE 07	4	EBB	22.8	0.4	6.6	86.1	0.0	11.6	81.3	0.0	0	1	7	0
06/09/81	12:00	06/09/81	JUNE 07	5	EBB	22.7	0.3	6.3	85.3	0.0	0.0	11.7	0.0	0	0	1	0
06/09/81	15:00	06/09/81	JUNE 07	6	FLD	22.4	0.2	6.6	80.8	0.0	0.0	86.6	0.0	0	0	7	0
06/09/81	18:00	06/09/81	JUNE 07	7	EBB	23.1	0.3	6.8	79.3	0.0	0.0	416.1	0.0	0	0	33	0
06/09/81	21:00	06/09/81	JUNE 07	8	EBB	23.2	0.3	6.8	84.6	0.0	0.0	449.2	0.0	0	0	38	0

TABLE B-7 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---STRIPED BASS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/10/81	0:01	06/09/81	JUNE 07	1	EBB	22.7	0.3	6.6	83.9	0.0	0.0	154.9	0.0	0	0	13	0
06/10/81	3:00	06/09/81	JUNE 07	2	FLD	21.9	0.2	6.0	77.1	0.0	13.0	155.6	0.0	0	1	12	0
06/13/81	6:00	06/13/81	JUNE 07	3	FLD	22.0	0.4	4.6	69.6	0.0	14.4	316.1	0.0	0	1	22	0
06/13/81	9:00	06/13/81	JUNE 07	4	EBB	23.1	0.6	4.5	82.3	0.0	12.2	133.7	0.0	0	1	11	0
06/13/81	12:00	06/13/81	JUNE 07	5	EBB	23.5	0.6	4.5	76.6	0.0	26.1	352.5	0.0	0	2	27	0
06/13/81	15:00	06/13/81	JUNE 07	6	EBB	23.4	0.6	4.5	74.1	0.0	0.0	81.0	0.0	0	0	6	0
06/13/81	18:00	06/13/81	JUNE 07	7	FLD	22.7	0.6	4.4	84.4	0.0	0.0	130.3	0.0	0	0	11	0
06/13/81	21:00	06/13/81	JUNE 07	8	FLD	24.2	0.8	4.2	85.4	0.0	0.0	93.7	0.0	0	0	8	0
06/14/81	0:01	06/13/81	JUNE 07	1	EBB	23.1	0.9	4.2	79.6	0.0	0.0	125.6	0.0	0	0	10	0
06/14/81	3:00	06/13/81	JUNE 07	2	EBB	22.9	1.0	4.2	74.8	0.0	0.0	160.4	0.0	0	0	12	0
06/18/81	12:00	06/18/81	JUNE 14	5	FLD	24.0	1.6	3.8	72.4	0.0	0.0	96.7	0.0	0	0	7	0
06/18/81	15:00	06/18/81	JUNE 14	6	EBB	24.3	1.9	3.7	75.9	0.0	0.0	184.5	0.0	0	0	14	0
06/18/81	18:00	06/18/81	JUNE 14	7	EBB	24.1	1.9	4.1	71.3	0.0	0.0	0.0	0.0	0	0	0	0
06/18/81	21:00	06/18/81	JUNE 14	8	FLD	23.6	1.7	3.9	85.5	0.0	0.0	210.5	0.0	0	0	18	0
06/19/81	0:01	06/18/81	JUNE 14	1	FLD	24.9	1.9	4.7	88.5	0.0	0.0	169.5	0.0	0	0	15	0
06/19/81	3:00	06/18/81	JUNE 14	2	EBB	24.7	2.0	4.9	83.0	0.0	0.0	48.2	0.0	0	0	4	0
06/19/81	6:00	06/18/81	JUNE 14	3	EBB	23.9	2.1	5.1	77.2	0.0	0.0	51.8	0.0	0	0	4	0
06/19/81	9:00	06/18/81	JUNE 14	4	FLD	23.3	1.9	4.6	83.6	0.0	0.0	12.0	0.0	0	0	1	0
06/19/81	12:00	06/19/81	JUNE 14	5	FLD	23.6	2.8	6.2	86.5	0.0	0.0	161.8	0.0	0	0	14	0
06/19/81	15:00	06/19/81	JUNE 14	6	EBB	24.0	2.9	4.8	81.4	0.0	0.0	503.7	0.0	0	0	41	0
06/19/81	18:00	06/19/81	JUNE 14	7	EBB	23.3	3.1	5.2	76.6	0.0	13.1	52.2	0.0	0	1	4	0
06/19/81	21:00	06/19/81	JUNE 14	8	FLD	22.7	2.1	5.0	86.0	0.0	0.0	81.4	0.0	0	0	7	0
06/20/81	0:01	06/19/81	JUNE 14	1	FLD	23.6	2.6	5.0	88.9	0.0	0.0	135.0	0.0	0	0	12	0
06/20/81	3:00	06/19/81	JUNE 14	2	EBB	24.4	3.3	5.3	84.3	0.0	0.0	166.1	0.0	0	0	14	0
06/20/81	6:00	06/19/81	JUNE 14	3	EBB	23.2	3.2	5.4	77.3	0.0	0.0	38.8	0.0	0	0	3	0

TABLE B-7 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---STRIPED BASS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/20/81	9:00	06/19/81	JUNE 14	4	FLD	22.8	2.5	4.7	82.3	0.0	0.0	12.2	0.0	0	0	1	0
06/23/81	12:00	06/23/81	JUNE 21	5	FLD	22.9	1.6	5.0	83.5	0.0	0.0	59.9	0.0	0	0	5	0
06/23/81	15:00	06/23/81	JUNE 21	6	FLD	24.5	2.1	4.8	86.5	0.0	0.0	138.7	0.0	0	0	12	0
06/23/81	18:00	06/23/81	JUNE 21	7	EBB	24.7	2.2	5.0	81.1	0.0	0.0	468.6	0.0	0	0	38	0
06/23/81	21:00	06/23/81	JUNE 21	8	EBB	23.3	1.9	5.0	76.4	0.0	0.0	654.5	52.4	0	0	50	4
06/24/81	0:01	06/23/81	JUNE 21	1	FLD	22.9	1.5	5.0	84.6	0.0	0.0	638.3	35.5	0	0	54	3
06/24/81	3:00	06/23/81	JUNE 21	2	FLD	23.7	2.1	5.2	87.9	0.0	0.0	352.7	0.0	0	0	31	0
06/24/81	6:00	06/23/81	JUNE 21	3	EBB	24.7	2.5	4.9	83.9	0.0	11.9	667.5	0.0	0	1	56	0
06/24/81	9:00	06/23/81	JUNE 21	4	EBB	23.6	2.2	4.9	76.7	0.0	0.0	65.2	0.0	0	0	5	0
06/29/81	12:00	06/29/81	JUNE 28	5	EBB	24.7	1.6	5.4	78.5	0.0	0.0	25.5	0.0	0	0	2	0
06/29/81	15:00	06/29/81	JUNE 28	6	EBB	25.1	1.5	5.4	74.6	0.0	0.0	0.0	0.0	0	0	0	0
06/29/81	18:00	06/29/81	JUNE 28	7	FLD	24.3	1.0	5.4	86.5	0.0	0.0	0.0	23.1	0	0	0	2
06/29/81	21:00	06/29/81	JUNE 28	8	FLD	24.8	1.5	5.5	88.0	0.0	0.0	56.8	0.0	0	0	5	0
06/30/81	0:01	06/29/81	JUNE 28	1	EBB	24.9	2.3	5.9	84.2	0.0	0.0	35.6	47.5	0	0	3	4
06/30/81	3:00	06/29/81	JUNE 28	2	EBB	24.6	2.0	5.7	78.1	0.0	0.0	12.8	38.4	0	0	1	3
06/30/81	6:00	06/29/81	JUNE 28	3	FLD	24.1	1.3	5.4	85.0	0.0	0.0	11.8	0.0	0	0	1	0
06/30/81	9:00	06/29/81	JUNE 28	4	FLD	24.6	1.4	5.3	88.1	0.0	0.0	34.1	11.4	0	0	3	1
07/01/81	12:00	07/01/81	JUNE 28	5	EBB	25.2	1.8	6.2	83.8	0.0	0.0	23.9	0.0	0	0	2	0
07/01/81	15:00	07/01/81	JUNE 28	6	EBB	25.4	2.4	5.9	77.8	0.0	0.0	0.0	12.9	0	0	0	1
07/01/81	18:00	07/01/81	JUNE 28	7	FLD	25.1	1.4	6.1	85.7	0.0	0.0	0.0	0.0	0	0	0	0
07/01/81	21:00	07/01/81	JUNE 28	8	FLD	25.4	1.1	6.0	88.0	0.0	0.0	22.7	34.1	0	0	2	3
07/02/81	0:01	07/01/81	JUNE 28	1	EBB	25.7	2.1	6.2	85.9	0.0	0.0	104.8	46.6	0	0	9	4
07/02/81	3:00	07/01/81	JUNE 28	2	EBB	25.5	2.6	6.2	80.8	0.0	0.0	12.4	12.4	0	0	1	1
07/02/81	6:00	07/01/81	JUNE 28	3	EBB	25.3	1.7	5.7	80.7	0.0	0.0	0.0	12.4	0	0	0	1
07/02/81	9:00	07/01/81	JUNE 28	4	FLD	25.2	1.1	5.5	85.6	0.0	0.0	11.7	0.0	0	0	1	0

TABLE B-7 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---STRIPED BASS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/08/81	12:00	07/08/81	JULY 05	5	FLD	27.2	0.8	3.0	67.4	0.0	0.0	0.0	0.0	0	0	0	0
07/08/81	15:00	07/08/81	JULY 05	6	FLD	26.7	5.3	3.1	85.4	0.0	0.0	0.0	0.0	0	0	0	0
07/08/81	18:00	07/08/81	JULY 05	7	EBB	27.5	1.1	3.0	84.2	0.0	0.0	0.0	0.0	0	0	0	0
07/08/81	21:00	07/08/81	JULY 05	8	EBB	26.8	1.1	2.8	79.0	0.0	0.0	0.0	0.0	0	0	0	0
07/09/81	0:01	07/08/81	JULY 05	1	EBB	26.8	1.0	2.9	81.4	0.0	0.0	12.3	0.0	0	0	1	0
07/09/81	3:00	07/08/81	JULY 05	2	FLD	26.1	0.6	2.7	86.2	0.0	0.0	0.0	0.0	0	0	0	0
07/09/81	6:00	07/08/81	JULY 05	3	EBB	27.4	1.2	2.6	84.5	0.0	0.0	0.0	0.0	0	0	0	0
07/09/81	9:00	07/08/81	JULY 05	4	EBB	26.8	0.9	2.9	77.2	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	12:00	07/10/81	JULY 05	5	EBB	27.0	1.0	6.5	76.5	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	15:00	07/10/81	JULY 05	6	FLD	26.6	0.6	6.2	84.0	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	18:00	07/10/81	JULY 05	7	FLD	27.3	1.3	5.7	87.0	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	21:00	07/10/81	JULY 05	8	EBB	28.6	1.8	5.9	84.6	0.0	0.0	0.0	0.0	0	0	0	0
07/11/81	0:01	07/10/81	JULY 05	1	EBB	26.9	1.6	5.7	79.3	0.0	0.0	0.0	0.0	0	0	0	0
07/11/81	3:00	07/10/81	JULY 05	2	FLD	26.4	1.1	5.8	83.2	0.0	0.0	12.0	0.0	0	0	1	0
07/13/81	6:00	07/10/81	JULY 05	3	FLD	26.7	1.8	5.2	85.1	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	9:00	07/10/81	JULY 05	4	EBB	27.1	1.6	5.3	80.0	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	12:00	07/13/81	JULY 12	5	EBB	32.3	3.0	5.2	80.0	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	15:00	07/13/81	JULY 12	6	FLD	29.3	2.2	6.2	79.3	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	18:00	07/13/81	JULY 12	7	FLD	27.2	1.8	6.2	88.5	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	21:00	07/13/81	JULY 12	8	FLD	28.3	2.7	5.6	88.6	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	0:01	07/13/81	JULY 12	1	EBB	27.9	2.8	6.3	82.2	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	3:00	07/13/81	JULY 12	2	EBB	27.4	2.6	6.4	76.8	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	6:00	07/13/81	JULY 12	3	FLD	26.9	2.5	5.4	83.9	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	9:00	07/13/81	JULY 12	4	FLD	28.4	3.6	5.1	85.1	0.0	0.0	0.0	0.0	0	0	0	0
07/15/81	12:00	07/15/81	JULY 12	5	EBB	27.3	3.4	5.2	82.4	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-7 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---STRIPED BASS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/15/81	15:00	07/15/81	JULY 12	6	EBB	27.9	3.2	5.9	78.2	0.0	0.0	0.0	0.0	0	0	0	0
07/15/81	18:00	07/15/81	JULY 12	7	FLD	29.0	3.1	5.4	83.9	0.0	0.0	0.0	0.0	0	0	0	0
07/15/81	21:00	07/15/81	JULY 12	8	FLD	27.6	3.9	4.7	88.8	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	0:01	07/15/81	JULY 12	1	EBB	27.3	4.1	5.0	85.6	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	3:00	07/15/81	JULY 12	2	EBB	26.5	4.3	4.7	78.2	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	6:00	07/15/81	JULY 12	3	FLD	26.1	3.6	4.7	79.4	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	9:00	07/15/81	JULY 12	4	FLD	26.3	3.4	4.4	85.9	0.0	0.0	0.0	0.0	0	0	0	0
07/20/81	12:00	07/20/81	JULY 19	5	FLD	30.3	3.7	3.6	76.9	0.0	0.0	0.0	0.0	0	0	0	0
07/20/81	15:00	07/20/81	JULY 19	6	EBB	30.4	4.4	3.5	86.1	0.0	0.0	0.0	11.6	0	0	0	1
07/20/81	18:00	07/20/81	JULY 19	7	EBB	29.9	4.7	3.0	80.8	0.0	0.0	0.0	0.0	0	0	0	0
07/20/81	21:00	07/20/81	JULY 19	8	FLD	29.8	4.1	3.1	84.6	0.0	0.0	0.0	0.0	0	0	0	0
07/21/81	0:01	07/20/81	JULY 19	1	FLD	30.3	4.2	3.1	88.9	0.0	0.0	0.0	0.0	0	0	0	0
07/21/81	3:00	07/20/81	JULY 19	2	EBB	30.4	4.7	3.1	87.3	0.0	0.0	0.0	0.0	0	0	0	0
07/21/81	6:00	07/20/81	JULY 19	3	EBB	29.8	5.1	2.8	81.8	0.0	0.0	0.0	0.0	0	0	0	0
07/21/81	9:00	07/20/81	JULY 19	4	EBB	29.9	4.4	2.6	81.5	0.0	0.0	0.0	0.0	0	0	0	0
07/22/81	12:00	07/22/81	JULY 19	5	FLD	29.8	3.3	4.6	84.6	0.0	0.0	0.0	0.0	0	0	0	0
07/22/81	15:00	07/22/81	JULY 19	6	FLD	31.2	4.0	4.5	87.2	0.0	0.0	0.0	0.0	0	0	0	0
07/22/81	18:00	07/22/81	JULY 19	7	EBB	30.9	4.1	.	82.3	0.0	0.0	0.0	0.0	0	0	0	0
07/22/81	21:00	07/22/81	JULY 19	8	EBB	29.9	3.9	4.2	78.9	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	0:01	07/22/81	JULY 19	1	FLD	29.4	3.2	4.3	85.6	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	3:00	07/22/81	JULY 19	2	FLD	30.1	3.8	4.4	88.2	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	6:00	07/22/81	JULY 19	3	EBB	30.4	4.1	4.3	84.0	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	9:00	07/22/81	JULY 19	4	EBB	29.3	3.7	4.2	80.5	0.0	0.0	0.0	0.0	0	0	0	0
07/28/81	12:00	07/28/81	JULY 26	5	EBB	30.6	0.4	3.6	74.3	0.0	0.0	0.0	0.0	0	0	0	0
07/28/81	15:00	07/28/81	JULY 26	6	EBB	28.8	4.5	3.6	79.9	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-7 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---STRIPED BASS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/28/81	18:00	07/28/81	JULY 26	7	FLD	31.1	3.8	3.4	88.1	0.0	0.0	0.0	0.0	0	0	0	0
07/28/81	21:00	07/28/81	JULY 26	8	FLD	.	.	.	89.4	0.0	0.0	0.0	0.0	0	0	0	0
07/29/81	0:01	07/28/81	JULY 26	1	EBB	.	.	.	85.2	0.0	0.0	0.0	0.0	0	0	0	0
07/29/81	3:00	07/28/81	JULY 26	2	EBB	.	.	.	81.3	0.0	0.0	0.0	0.0	0	0	0	0
07/29/81	6:00	07/28/81	JULY 26	3	FLD	.	.	.	84.9	0.0	0.0	0.0	0.0	0	0	0	0
07/29/81	9:00	07/28/81	JULY 26	4	FLD	30.5	5.4	3.3	88.1	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	12:00	07/31/81	JULY 26	5	EBB	28.2	3.3	5.0	77.0	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	15:00	07/31/81	JULY 26	6	EBB	27.5	3.9	5.2	80.5	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	18:00	07/31/81	JULY 26	7	EBB	27.7	3.3	5.4	80.1	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	21:00	07/31/81	JULY 26	8	FLD	27.0	2.8	5.3	89.1	0.0	0.0	0.0	0.0	0	0	0	0
08/01/81	0:01	07/31/81	JULY 26	1	FLD	27.5	3.6	5.4	88.9	0.0	0.0	0.0	0.0	0	0	0	0
08/01/81	3:00	07/31/81	JULY 26	2	EBB	27.1	3.7	5.2	83.9	0.0	0.0	0.0	0.0	0	0	0	0
08/01/81	6:00	07/31/81	JULY 26	3	EBB	26.9	3.5	5.3	78.8	0.0	0.0	0.0	0.0	0	0	0	0
08/01/81	9:00	07/31/81	JULY 26	4	FLD	26.7	2.8	7.3	86.7	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	12:00	08/02/81	AUG 02	5	FLD	27.9	3.5	4.9	78.2	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	15:00	08/02/81	AUG 02	6	EBB	28.1	3.7	4.6	82.6	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	18:00	08/02/81	AUG 02	7	EBB	27.5	3.5	5.2	76.9	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	21:00	08/02/81	AUG 02	8	FLD	27.2	2.9	4.6	85.1	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	0:01	08/02/81	AUG 02	1	FLD	27.8	3.5	4.8	89.5	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	3:00	08/02/81	AUG 02	2	EBB	28.3	4.0	4.6	86.2	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	6:00	08/02/81	AUG 02	3	EBB	27.2	3.6	4.6	78.7	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	9:00	08/02/81	AUG 02	4	FLD	27.3	3.2	4.4	82.2	0.0	0.0	0.0	0.0	0	0	0	0
08/07/81	12:00	08/07/81	AUG 02	5	FLD	27.0	2.6	4.2	76.5	0.0	0.0	0.0	0.0	0	0	0	0
08/07/81	15:00	08/07/81	AUG 02	6	FLD	27.8	3.3	4.1	89.8	0.0	0.0	0.0	0.0	0	0	0	0
08/07/81	18:00	08/07/81	AUG 02	7	EBB	29.6	3.5	4.3	88.9	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-7 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---STRIPED BASS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/07/81	21:00	08/07/81	AUG 02	8	EBB	27.5	0.4	4.3	84.3	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	0:01	08/07/81	AUG 02	1	FLD	27.4	3.2	4.2	85.2	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	3:00	08/07/81	AUG 02	2	FLD	27.2	3.0	3.9	89.8	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	6:00	08/07/81	AUG 02	3	EBB	27.6	3.7	4.1	88.8	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	9:00	08/07/81	AUG 02	4	EBB	27.8	3.5	4.0	84.0	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	12:00	08/10/81	AUG 09	5	EBB	26.1	.	.	80.8	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	15:00	08/10/81	AUG 09	6	FLD	30.7	3.3	4.5	85.5	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	18:00	08/10/81	AUG 09	7	FLD	33.5	2.9	4.3	90.2	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	21:00	08/10/81	AUG 09	8	EBB	37.5	3.3	4.5	87.6	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	0:01	08/10/81	AUG 09	1	EBB	34.2	4.1	4.3	81.1	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	3:00	08/10/81	AUG 09	2	FLD	32.9	3.4	4.7	82.9	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	6:00	08/10/81	AUG 09	3	FLD	31.1	3.7	4.3	88.0	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	9:00	08/10/81	AUG 09	4	EBB	34.6	4.4	3.8	87.2	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	12:00	08/14/81	AUG 09	5	EBB	37.5	6.3	4.2	86.4	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	15:00	08/14/81	AUG 09	6	EBB	.	.	.	79.2	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	18:00	08/14/81	AUG 09	7	FLD	29.1	5.0	4.6	85.9	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	21:00	08/14/81	AUG 09	8	FLD	28.9	5.9	4.1	91.0	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	0:01	08/14/81	AUG 09	1	EBB	30.0	7.1	4.2	89.0	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	3:00	08/14/81	AUG 09	2	EBB	28.5	6.8	3.8	82.5	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	6:00	08/14/81	AUG 09	3	FLD	28.3	5.7	4.2	82.9	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	9:00	08/14/81	AUG 09	4	FLD	28.8	5.5	4.1	89.7	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	12:00	08/17/81	AUG 16	5	EBB	28.2	5.6	4.4	89.5	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	15:00	08/17/81	AUG 16	6	EBB	27.5	5.9	4.5	84.9	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	18:00	08/17/81	AUG 16	7	FLD	26.8	5.6	4.9	70.1	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	21:00	08/17/81	AUG 16	8	FLD	26.3	4.7	4.3	88.3	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-7 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---STRIPED BASS

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/18/81	0:01	08/17/81	AUG 16	1	EBB	27.7	5.3	4.2	90.6	0.0	0.0	0.0	0.0	0	0	0	0
08/18/81	3:00	08/17/81	AUG 16	2	EBB	26.4	6.2	4.4	85.3	0.0	0.0	0.0	0.0	0	0	0	0
08/18/81	6:00	08/17/81	AUG 16	3	EBB	26.1	5.8	4.5	78.4	0.0	0.0	0.0	0.0	0	0	0	0
08/18/81	9:00	08/17/81	AUG 16	4	FLD	26.3	5.1	4.1	85.5	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	12:00	08/20/81	AUG 16	5	FLD	26.1	4.4	5.4	90.0	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	15:00	08/20/81	AUG 16	6	EBB	27.4	5.3	5.1	91.4	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	18:00	08/20/81	AUG 16	7	EBB	27.1	6.2	5.5	88.7	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	21:00	08/20/81	AUG 16	8	FLD	26.3	5.7	5.4	87.1	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	0:01	08/20/81	AUG 16	1	FLD	26.3	5.0	4.9	91.9	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	3:00	08/20/81	AUG 16	2	EBB	27.1	5.6	4.9	91.8	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	6:00	08/20/81	AUG 16	3	EBB	27.1	6.0	5.1	88.0	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	9:00	08/20/81	AUG 16	4	FLD	25.9	5.5	4.7	85.7	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	12:00	08/29/81	AUG 23	5	EBB	25.3	4.6	4.4	78.9	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	15:00	08/29/81	AUG 23	6	EBB	25.3	5.2	4.5	82.2	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	18:00	08/29/81	AUG 23	7	FLD	25.2	4.4	4.5	83.6	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	21:00	08/29/81	AUG 23	8	FLD	25.2	4.0	4.1	89.5	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	0:01	08/29/81	AUG 23	1	EBB	26.1	4.7	4.2	88.7	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	3:00	08/29/81	AUG 23	2	EBB	24.9	5.4	4.4	83.7	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	6:00	08/29/81	AUG 23	3	FLD	25.0	4.6	4.3	81.9	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	9:00	08/29/81	AUG 23	4	FLD	25.0	4.0	4.2	88.2	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-8
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---WHITE PERCH

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/06/81	8:00	05/06/81	MAY 03	3	FLD	13.9	2.2	8.1	79.8	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	11:00	05/06/81	MAY 03	4	FLD	13.7	2.3	8.0	82.3	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	14:00	05/06/81	MAY 03	5	EBB	13.5	2.6	8.0	81.1	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	17:00	05/06/81	MAY 03	6	EBB	13.6	2.4	8.6	79.2	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	20:00	05/06/81	MAY 03	7	EBB	13.3	1.7	8.5	80.2	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	23:00	05/06/81	MAY 03	8	FLD	14.8	1.7	8.2	85.2	0.0	0.0	0.0	0.0	0	0	0	0
05/07/81	2:00	05/06/81	MAY 03	1	FLD	13.7	2.3	8.4	84.3	0.0	0.0	0.0	0.0	0	0	0	0
05/07/81	5:00	05/06/81	MAY 03	2	EBB	13.1	2.2	8.3	80.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	8:00	05/09/81	MAY 03	3	EBB	13.7	1.7	7.6	79.8	12.5	0.0	0.0	0.0	1	0	0	0
05/09/81	11:00	05/09/81	MAY 03	4	FLD	14.0	1.3	7.1	81.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	14:00	05/09/81	MAY 03	5	FLD	15.1	1.4	7.4	83.9	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	17:00	05/09/81	MAY 03	6	EBB	14.8	2.0	7.5	83.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	20:00	05/09/81	MAY 03	7	EBB	14.2	2.0	7.4	80.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	23:00	05/09/81	MAY 03	8	L_SK	14.1	1.3	7.3	81.4	0.0	0.0	0.0	0.0	0	0	0	0
05/10/81	2:00	05/09/81	MAY 03	1	FLD	14.7	1.3	7.3	85.3	0.0	0.0	0.0	0.0	0	0	0	0
05/10/81	5:00	05/09/81	MAY 03	2	EBB	14.5	1.6	7.5	84.5	0.0	0.0	0.0	0.0	0	0	0	0
05/15/81	12:00	05/15/81	MAY 10	5	EBB	15.4	0.1	8.8	83.2	0.0	0.0	12.0	0.0	0	0	1	0
05/15/81	15:00	05/15/81	MAY 10	6	EBB	15.8	0.1	8.9	81.4	0.0	12.3	0.0	0.0	0	1	0	0
05/15/81	18:00	05/15/81	MAY 10	7	FLD	15.3	0.1	9.2	86.0	0.0	0.0	0.0	0.0	0	0	0	0
05/15/81	21:00	05/15/81	MAY 10	8	FLD	16.1	0.1	9.1	87.5	0.0	0.0	0.0	0.0	0	0	0	0
05/16/81	0:01	05/15/81	MAY 10	1	EBB	15.7	0.1	9.0	85.4	0.0	11.7	0.0	0.0	0	1	0	0
05/18/81	12:00	05/18/81	MAY 17	5	EBB	16.5	.	.	84.6	0.0	23.6	0.0	0.0	0	2	0	0
05/18/81	15:00	05/18/81	MAY 17	6	EBB	16.6	.	.	80.2	0.0	12.5	12.5	0.0	0	1	1	0
05/18/81	18:00	05/18/81	MAY 17	7	FLD	16.2	.	.	81.3	0.0	0.0	86.1	0.0	0	0	7	0
05/18/81	21:00	05/18/81	MAY 17	8	FLD	16.8	.	.	86.7	11.5	11.5	46.1	0.0	1	1	4	0

TABLE B-8 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---WHITE PERCH

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/19/81	0:01	05/18/81	MAY 17	1	EBB	16.1	.	.	85.9	0.0	23.3	0.0	0.0	0	2	0	0
05/19/81	3:00	05/18/81	MAY 17	2	EBB	15.6	.	.	81.4	0.0	0.0	36.9	0.0	0	0	3	0
05/19/81	6:00	05/18/81	MAY 17	3	EBB	15.5	.	.	79.0	0.0	12.7	38.0	0.0	0	1	3	0
05/19/81	9:00	05/18/81	MAY 17	4	FLD	15.9	.	.	85.2	0.0	58.7	140.8	0.0	0	5	12	0
05/21/81	12:00	05/21/81	MAY 17	5	FLD	.	.	.	85.5	0.0	11.7	409.4	0.0	0	1	35	0
05/21/81	15:00	05/21/81	MAY 17	6	EBB	.	.	.	82.6	12.1	0.0	242.1	0.0	1	0	20	0
05/21/81	18:00	05/21/81	MAY 17	7	EBB	.	.	.	79.6	0.0	12.6	314.1	0.0	0	1	25	0
05/21/81	21:00	05/21/81	MAY 17	8	FLD	.	.	.	84.8	0.0	11.8	247.6	0.0	0	1	21	0
05/22/81	0:01	05/21/81	MAY 17	1	FLD	.	.	.	88.0	0.0	34.1	204.5	0.0	0	3	18	0
05/22/81	3:00	05/21/81	MAY 17	2	EBB	.	.	.	85.5	11.7	0.0	93.6	0.0	1	0	8	0
05/22/81	6:00	05/21/81	MAY 17	3	EBB	.	.	.	81.3	0.0	0.0	233.7	0.0	0	0	19	0
05/22/81	9:00	05/21/81	MAY 17	4	FLD	.	.	.	82.6	0.0	0.0	847.5	0.0	0	0	70	0
05/27/81	12:00	05/27/81	MAY 24	5	FLD	19.1	0.3	7.4	81.2	0.0	0.0	160.1	0.0	0	0	13	0
05/27/81	15:00	05/27/81	MAY 24	6	FLD	19.2	0.2	7.1	85.6	0.0	0.0	689.3	0.0	0	0	59	0
05/27/81	18:00	05/27/81	MAY 24	7	FLD	19.7	1.0	6.9	86.5	0.0	0.0	219.7	0.0	0	0	19	0
05/27/81	21:00	05/27/81	MAY 24	8	EBB	19.3	1.7	6.9	84.0	11.9	0.0	404.8	0.0	1	0	34	0
05/28/81	0:01	05/27/81	MAY 24	1	EBB	19.5	1.0	7.1	82.8	0.0	0.0	555.6	0.0	0	0	46	0
05/28/81	3:00	05/27/81	MAY 24	2	FLD	18.8	0.4	6.5	86.5	0.0	23.1	346.8	0.0	0	2	30	0
05/28/81	6:00	05/27/81	MAY 24	3	FLD	19.8	1.0	6.6	87.1	0.0	0.0	941.4	0.0	0	0	82	0
05/28/81	9:00	05/27/81	MAY 24	4	EBB	19.6	1.6	7.1	83.6	0.0	0.0	526.3	0.0	0	0	44	0
05/29/81	12:00	05/29/81	MAY 24	5	EBB	19.6	1.1	6.7	81.5	0.0	12.3	1092.0	0.0	0	1	89	0
05/29/81	15:00	05/29/81	MAY 24	6	FLD	19.2	0.5	5.9	83.4	0.0	0.0	443.6	0.0	0	0	37	0
05/29/81	18:00	05/29/81	MAY 24	7	FLD	19.8	0.7	6.4	87.6	0.0	11.4	251.1	0.0	0	1	22	0
05/29/81	21:00	05/29/81	MAY 24	8	FLD	20.0	1.3	6.8	86.1	0.0	0.0	127.8	0.0	0	0	11	0
05/30/81	0:01	05/29/81	MAY 24	1	EBB	19.8	1.3	6.4	82.7	0.0	0.0	108.8	0.0	0	0	9	0

TABLE B-8 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---WHITE PERCH

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/30/81	3:00	05/29/81	MAY 24	2	EBB	19.4	0.6	5.7	82.7	0.0	0.0	24.2	0.0	0	0	2	0
05/30/81	6:00	05/29/81	MAY 24	3	FLD	19.6	0.4	5.6	87.6	0.0	0.0	171.2	0.0	0	0	15	0
05/30/81	9:00	05/29/81	MAY 24	4	EBB	20.4	0.9	5.9	86.0	0.0	11.6	383.7	0.0	0	1	33	0
06/01/81	12:00	06/01/81	MAY 31	5	EBB	21.1	0.9	8.9	83.2	0.0	0.0	348.6	0.0	0	0	29	0
06/01/81	15:00	06/01/81	MAY 31	6	EBB	20.6	0.8	8.6	79.5	0.0	0.0	691.8	0.0	0	0	55	0
06/01/81	18:00	06/01/81	MAY 31	7	FLD	20.3	0.4	8.6	83.5	0.0	0.0	251.5	0.0	0	0	21	0
06/01/81	21:00	06/01/81	MAY 31	8	FLD	20.7	0.6	8.2	87.7	0.0	0.0	228.1	0.0	0	0	20	0
06/02/81	0:01	06/01/81	MAY 31	1	EBB	20.7	1.4	8.6	85.6	0.0	0.0	35.0	0.0	0	0	3	0
06/02/81	3:00	06/01/81	MAY 31	2	EBB	20.5	1.1	8.2	81.7	0.0	0.0	24.5	0.0	0	0	2	0
06/02/81	6:00	06/01/81	MAY 31	3	L_SK	20.2	0.5	7.6	81.8	24.4	0.0	97.8	0.0	2	0	8	0
06/02/81	9:00	06/01/81	MAY 31	4	FLD	20.8	0.4	7.5	86.9	0.0	0.0	103.6	0.0	0	0	9	0
06/03/81	12:00	06/03/81	MAY 31	5	FLD	20.8	0.6	6.8	86.5	0.0	0.0	46.2	0.0	0	0	4	0
06/03/81	15:00	06/03/81	MAY 31	6	EBB	20.7	1.0	6.5	81.7	0.0	0.0	208.1	0.0	0	0	17	0
06/03/81	18:00	06/03/81	MAY 31	7	EBB	20.5	0.4	6.0	80.4	0.0	0.0	49.8	0.0	0	0	4	0
06/03/81	21:00	06/03/81	MAY 31	8	FLD	20.9	0.3	6.0	86.9	0.0	0.0	11.5	0.0	0	0	1	0
06/04/81	0:01	06/03/81	MAY 31	1	FLD	20.8	0.7	6.3	88.7	0.0	0.0	90.2	0.0	0	0	8	0
06/04/81	3:00	06/03/81	MAY 31	2	EBB	20.8	1.2	6.2	84.3	0.0	0.0	35.6	0.0	0	0	3	0
06/04/81	6:00	06/03/81	MAY 31	3	EBB	20.6	0.6	6.3	80.2	0.0	0.0	249.4	0.0	0	0	20	0
06/04/81	9:00	06/03/81	MAY 31	4	FLD	20.5	0.3	6.0	84.3	11.9	0.0	166.1	0.0	1	0	14	0
06/09/81	6:00	06/09/81	JUNE 07	3	EBB	23.0	0.3	6.6	81.6	0.0	0.0	73.5	0.0	0	0	6	0
06/09/81	9:00	06/09/81	JUNE 07	4	EBB	22.8	0.4	6.6	86.1	0.0	0.0	11.6	0.0	0	0	1	0
06/09/81	12:00	06/09/81	JUNE 07	5	EBB	22.7	0.3	6.3	85.3	0.0	0.0	0.0	0.0	0	0	0	0
06/09/81	15:00	06/09/81	JUNE 07	6	FLD	22.4	0.2	6.6	80.8	0.0	0.0	24.8	0.0	0	0	2	0
06/09/81	18:00	06/09/81	JUNE 07	7	EBB	23.1	0.3	6.8	79.3	12.6	0.0	25.2	0.0	1	0	2	0
06/09/81	21:00	06/09/81	JUNE 07	8	EBB	23.2	0.3	6.8	84.6	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-8 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---WHITE PERCH

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/10/81	0:01	06/09/81	JUNE 07	1	EBB	22.7	0.3	6.6	83.9	0.0	0.0	0.0	0.0	0	0	0	0
06/10/81	3:00	06/09/81	JUNE 07	2	FLD	21.9	0.2	6.0	77.1	0.0	0.0	25.9	0.0	0	0	2	0
06/13/81	6:00	06/13/81	JUNE 07	3	FLD	22.0	0.4	4.6	69.6	0.0	0.0	28.7	0.0	0	0	2	0
06/13/81	9:00	06/13/81	JUNE 07	4	EBB	23.1	0.6	4.5	82.3	48.6	0.0	48.6	0.0	4	0	4	0
06/13/81	12:00	06/13/81	JUNE 07	5	EBB	23.5	0.6	4.5	76.6	0.0	0.0	39.2	0.0	0	0	3	0
06/13/81	15:00	06/13/81	JUNE 07	6	EBB	23.4	0.6	4.5	74.1	0.0	0.0	0.0	0.0	0	0	0	0
06/13/81	18:00	06/13/81	JUNE 07	7	FLD	22.7	0.6	4.4	84.4	0.0	0.0	23.7	0.0	0	0	2	0
06/13/81	21:00	06/13/81	JUNE 07	8	FLD	24.2	0.8	4.2	85.4	0.0	0.0	0.0	0.0	0	0	0	0
06/14/81	0:01	06/13/81	JUNE 07	1	EBB	23.1	0.9	4.2	79.6	12.6	0.0	0.0	0.0	1	0	0	0
06/14/81	3:00	06/13/81	JUNE 07	2	EBB	22.9	1.0	4.2	74.8	13.4	0.0	0.0	0.0	1	0	0	0
06/18/81	12:00	06/18/81	JUNE 14	5	FLD	24.0	1.6	3.8	72.4	0.0	0.0	13.8	0.0	0	0	1	0
06/18/81	15:00	06/18/81	JUNE 14	6	EBB	24.3	1.9	3.7	75.9	0.0	0.0	0.0	0.0	0	0	0	0
06/18/81	18:00	06/18/81	JUNE 14	7	EBB	24.1	1.9	4.1	71.3	0.0	0.0	0.0	0.0	0	0	0	0
06/18/81	21:00	06/18/81	JUNE 14	8	FLD	23.6	1.7	3.9	85.5	11.7	0.0	11.7	0.0	1	0	1	0
06/19/81	0:01	06/18/81	JUNE 14	1	FLD	24.9	1.9	4.7	88.5	0.0	0.0	33.9	0.0	0	0	3	0
06/19/81	3:00	06/18/81	JUNE 14	2	EBB	24.7	2.0	4.9	83.0	0.0	0.0	12.0	0.0	0	0	1	0
06/19/81	6:00	06/18/81	JUNE 14	3	EBB	23.9	2.1	5.1	77.2	0.0	0.0	13.0	0.0	0	0	1	0
06/19/81	9:00	06/18/81	JUNE 14	4	FLD	23.3	1.9	4.6	83.6	35.9	0.0	23.9	0.0	3	0	2	0
06/19/81	12:00	06/19/81	JUNE 14	5	FLD	23.6	2.8	6.2	86.5	0.0	0.0	11.6	0.0	0	0	1	0
06/19/81	15:00	06/19/81	JUNE 14	6	EBB	24.0	2.9	4.8	81.4	0.0	0.0	36.9	0.0	0	0	3	0
06/19/81	18:00	06/19/81	JUNE 14	7	EBB	23.3	3.1	5.2	76.6	0.0	0.0	0.0	0.0	0	0	0	0
06/19/81	21:00	06/19/81	JUNE 14	8	FLD	22.7	2.1	5.0	86.0	0.0	0.0	0.0	0.0	0	0	0	0
06/20/81	0:01	06/19/81	JUNE 14	1	FLD	23.6	2.6	5.0	88.9	0.0	0.0	11.2	0.0	0	0	1	0
06/20/81	3:00	06/19/81	JUNE 14	2	EBB	24.4	3.3	5.3	84.3	0.0	0.0	11.9	0.0	0	0	1	0
06/20/81	6:00	06/19/81	JUNE 14	3	EBB	23.2	3.2	5.4	77.3	0.0	0.0	12.9	0.0	0	0	1	0

TABLE B-8 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---WHITE PERCH

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/20/81	9:00	06/19/81	JUNE 14	4	FLD	22.8	2.5	4.7	82.3	0.0	0.0	12.2	0.0	0	0	1	0
06/23/81	12:00	06/23/81	JUNE 21	5	FLD	22.9	1.6	5.0	83.5	0.0	0.0	35.9	0.0	0	0	3	0
06/23/81	15:00	06/23/81	JUNE 21	6	FLD	24.5	2.1	4.8	86.5	0.0	0.0	34.7	0.0	0	0	3	0
06/23/81	18:00	06/23/81	JUNE 21	7	EBB	24.7	2.2	5.0	81.1	0.0	0.0	135.6	0.0	0	0	11	0
06/23/81	21:00	06/23/81	JUNE 21	8	EBB	23.3	1.9	5.0	76.4	0.0	0.0	235.6	26.2	0	0	18	2
06/24/81	0:01	06/23/81	JUNE 21	1	FLD	22.9	1.5	5.0	84.6	0.0	0.0	177.3	11.8	0	0	15	1
06/24/81	3:00	06/23/81	JUNE 21	2	FLD	23.7	2.1	5.2	87.9	0.0	0.0	113.8	0.0	0	0	10	0
06/24/81	6:00	06/23/81	JUNE 21	3	EBB	24.7	2.5	4.9	83.9	0.0	0.0	238.4	11.9	0	0	20	1
06/24/81	9:00	06/23/81	JUNE 21	4	EBB	23.6	2.2	4.9	76.7	0.0	0.0	26.1	0.0	0	0	2	0
06/29/81	12:00	06/29/81	JUNE 28	5	EBB	24.7	1.6	5.4	78.5	0.0	0.0	25.5	89.2	0	0	2	7
06/29/81	15:00	06/29/81	JUNE 28	6	EBB	25.1	1.5	5.4	74.6	0.0	0.0	0.0	0.0	0	0	0	0
06/29/81	18:00	06/29/81	JUNE 28	7	FLD	24.3	1.0	5.4	86.5	0.0	0.0	23.1	34.7	0	0	2	3
06/29/81	21:00	06/29/81	JUNE 28	8	FLD	24.8	1.5	5.5	88.0	0.0	0.0	22.7	0.0	0	0	2	0
06/30/81	0:01	06/29/81	JUNE 28	1	EBB	24.9	2.3	5.9	84.2	0.0	0.0	23.8	35.6	0	0	2	3
06/30/81	3:00	06/29/81	JUNE 28	2	EBB	24.6	2.0	5.7	78.1	0.0	0.0	25.6	64.0	0	0	2	5
06/30/81	6:00	06/29/81	JUNE 28	3	FLD	24.1	1.3	5.4	85.0	0.0	0.0	47.1	0.0	0	0	4	0
06/30/81	9:00	06/29/81	JUNE 28	4	FLD	24.6	1.4	5.3	88.1	0.0	0.0	11.4	0.0	0	0	1	0
07/01/81	12:00	07/01/81	JUNE 28	5	EBB	25.2	1.8	6.2	83.8	0.0	0.0	23.9	11.9	0	0	2	1
07/01/81	15:00	07/01/81	JUNE 28	6	EBB	25.4	2.4	5.9	77.8	0.0	0.0	12.9	0.0	0	0	1	0
07/01/81	18:00	07/01/81	JUNE 28	7	FLD	25.1	1.4	6.1	85.7	0.0	0.0	46.7	0.0	0	0	4	0
07/01/81	21:00	07/01/81	JUNE 28	8	FLD	25.4	1.1	6.0	88.0	0.0	0.0	56.8	22.7	0	0	5	2
07/02/81	0:01	07/01/81	JUNE 28	1	EBB	25.7	2.1	6.2	85.9	0.0	0.0	23.3	93.1	0	0	2	8
07/02/81	3:00	07/01/81	JUNE 28	2	EBB	25.5	2.6	6.2	80.8	0.0	0.0	0.0	49.5	0	0	0	4
07/02/81	6:00	07/01/81	JUNE 28	3	EBB	25.3	1.7	5.7	80.7	0.0	0.0	12.4	0.0	0	0	1	0
07/02/81	9:00	07/01/81	JUNE 28	4	FLD	25.2	1.1	5.5	85.6	0.0	0.0	0.0	11.7	0	0	0	1

TABLE B-8 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---WHITE PERCH

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/08/81	12:00	07/08/81	JULY 05	5	FLD	27.2	0.8	3.0	67.4	0.0	0.0	0.0	14.8	0	0	0	1
07/08/81	15:00	07/08/81	JULY 05	6	FLD	26.7	5.3	3.1	85.4	0.0	0.0	0.0	0.0	0	0	0	0
07/08/81	18:00	07/08/81	JULY 05	7	EBB	27.5	1.1	3.0	84.2	0.0	0.0	0.0	0.0	0	0	0	0
07/08/81	21:00	07/08/81	JULY 05	8	EBB	26.8	1.1	2.8	79.0	0.0	0.0	0.0	0.0	0	0	0	0
07/09/81	0:01	07/08/81	JULY 05	1	EBB	26.8	1.0	2.9	81.4	0.0	0.0	0.0	0.0	0	0	0	0
07/09/81	3:00	07/08/81	JULY 05	2	FLD	26.1	0.6	2.7	86.2	0.0	0.0	0.0	11.6	0	0	0	1
07/09/81	6:00	07/08/81	JULY 05	3	EBB	27.4	1.2	2.6	84.5	0.0	0.0	0.0	0.0	0	0	0	0
07/09/81	9:00	07/08/81	JULY 05	4	EBB	26.8	0.9	2.9	77.2	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	12:00	07/10/81	JULY 05	5	EBB	27.0	1.0	6.5	76.5	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	15:00	07/10/81	JULY 05	6	FLD	26.6	0.6	6.2	84.0	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	18:00	07/10/81	JULY 05	7	FLD	27.3	1.3	5.7	87.0	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	21:00	07/10/81	JULY 05	8	EBB	28.6	1.8	5.9	84.6	0.0	0.0	0.0	23.6	0	0	0	2
07/11/81	0:01	07/10/81	JULY 05	1	EBB	26.9	1.6	5.7	79.3	0.0	0.0	0.0	12.6	0	0	0	1
07/11/81	3:00	07/10/81	JULY 05	2	FLD	26.4	1.1	5.8	83.2	0.0	0.0	0.0	24.0	0	0	0	2
07/13/81	6:00	07/10/81	JULY 05	3	FLD	26.7	1.8	5.2	85.1	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	9:00	07/10/81	JULY 05	4	EBB	27.1	1.6	5.3	80.0	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	12:00	07/13/81	JULY 12	5	EBB	32.3	3.0	5.2	80.0	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	15:00	07/13/81	JULY 12	6	FLD	29.3	2.2	6.2	79.3	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	18:00	07/13/81	JULY 12	7	FLD	27.2	1.8	6.2	88.5	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	21:00	07/13/81	JULY 12	8	FLD	28.3	2.7	5.6	88.6	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	0:01	07/13/81	JULY 12	1	EBB	27.9	2.8	6.3	82.2	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	3:00	07/13/81	JULY 12	2	EBB	27.4	2.6	6.4	76.8	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	6:00	07/13/81	JULY 12	3	FLD	26.9	2.5	5.4	83.9	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	9:00	07/13/81	JULY 12	4	FLD	28.4	3.6	5.1	85.1	0.0	0.0	0.0	0.0	0	0	0	0
07/15/81	12:00	07/15/81	JULY 12	5	EBB	27.3	3.4	5.2	82.4	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-8 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---WHITE PERCH

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/15/81	15:00	07/15/81	JULY 12	6	EBB	27.9	3.2	5.9	78.2	0.0	0.0	0.0	0.0	0	0	0	0
07/15/81	18:00	07/15/81	JULY 12	7	FLD	29.0	3.1	5.4	83.9	0.0	0.0	0.0	0.0	0	0	0	0
07/15/81	21:00	07/15/81	JULY 12	8	FLD	27.6	3.9	4.7	88.8	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	0:01	07/15/81	JULY 12	1	EBB	27.3	4.1	5.0	85.6	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	3:00	07/15/81	JULY 12	2	EBB	26.5	4.3	4.7	78.2	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	6:00	07/15/81	JULY 12	3	FLD	26.1	3.6	4.7	79.4	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	9:00	07/15/81	JULY 12	4	FLD	26.3	3.4	4.4	85.9	0.0	0.0	0.0	11.6	0	0	0	1
07/20/81	12:00	07/20/81	JULY 19	5	FLD	30.3	3.7	3.6	76.9	0.0	0.0	0.0	0.0	0	0	0	0
07/20/81	15:00	07/20/81	JULY 19	6	EBB	30.4	4.4	3.5	86.1	0.0	0.0	0.0	0.0	0	0	0	0
07/20/81	18:00	07/20/81	JULY 19	7	EBB	29.9	4.7	3.0	80.8	0.0	0.0	0.0	0.0	0	0	0	0
07/20/81	21:00	07/20/81	JULY 19	8	FLD	29.8	4.1	3.1	84.6	0.0	0.0	0.0	0.0	0	0	0	0
07/21/81	0:01	07/20/81	JULY 19	1	FLD	30.3	4.2	3.1	88.9	0.0	0.0	0.0	0.0	0	0	0	0
07/21/81	3:00	07/20/81	JULY 19	2	EBB	30.4	4.7	3.1	87.3	0.0	0.0	0.0	11.5	0	0	0	1
07/21/81	6:00	07/20/81	JULY 19	3	EBB	29.8	5.1	2.8	81.8	0.0	0.0	0.0	0.0	0	0	0	0
07/21/81	9:00	07/20/81	JULY 19	4	EBB	29.9	4.4	2.6	81.5	0.0	0.0	0.0	12.3	0	0	0	1
07/22/81	12:00	07/22/81	JULY 19	5	FLD	29.8	3.3	4.6	84.6	0.0	0.0	0.0	0.0	0	0	0	0
07/22/81	15:00	07/22/81	JULY 19	6	FLD	31.2	4.0	4.5	87.2	0.0	0.0	0.0	0.0	0	0	0	0
07/22/81	18:00	07/22/81	JULY 19	7	EBB	30.9	4.1	.	82.3	0.0	0.0	0.0	0.0	0	0	0	0
07/22/81	21:00	07/22/81	JULY 19	8	EBB	29.9	3.9	4.2	78.9	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	0:01	07/22/81	JULY 19	1	FLD	29.4	3.2	4.3	85.6	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	3:00	07/22/81	JULY 19	2	FLD	30.1	3.8	4.4	88.2	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	6:00	07/22/81	JULY 19	3	EBB	30.4	4.1	4.3	84.0	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	9:00	07/22/81	JULY 19	4	EBB	29.3	3.7	4.2	80.5	0.0	0.0	0.0	0.0	0	0	0	0
07/28/81	12:00	07/28/81	JULY 26	5	EBB	30.6	0.4	3.6	74.3	0.0	0.0	0.0	0.0	0	0	0	0
07/28/81	15:00	07/28/81	JULY 26	6	EBB	28.8	4.5	3.6	79.9	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-8 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---WHITE PERCH

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/28/81	18:00	07/28/81	JULY 26	7	FLD	31.1	3.8	3.4	88.1	0.0	0.0	0.0	11.4	0	0	0	1
07/28/81	21:00	07/28/81	JULY 26	8	FLD	.	.	.	89.4	0.0	0.0	0.0	33.6	0	0	0	3
07/29/81	0:01	07/28/81	JULY 26	1	EBB	.	.	.	85.2	0.0	0.0	0.0	11.7	0	0	0	1
07/29/81	3:00	07/28/81	JULY 26	2	EBB	.	.	.	81.3	0.0	0.0	0.0	0.0	0	0	0	0
07/29/81	6:00	07/28/81	JULY 26	3	FLD	.	.	.	84.9	0.0	0.0	0.0	0.0	0	0	0	0
07/29/81	9:00	07/28/81	JULY 26	4	FLD	30.5	5.4	3.3	88.1	0.0	0.0	0.0	11.4	0	0	0	1
07/31/81	12:00	07/31/81	JULY 26	5	EBB	28.2	3.3	5.0	77.0	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	15:00	07/31/81	JULY 26	6	EBB	27.5	3.9	5.2	80.5	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	18:00	07/31/81	JULY 26	7	EBB	27.7	3.3	5.4	80.1	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	21:00	07/31/81	JULY 26	8	FLD	27.0	2.8	5.3	89.1	0.0	0.0	0.0	11.2	0	0	0	1
08/01/81	0:01	07/31/81	JULY 26	1	FLD	27.5	3.6	5.4	88.9	0.0	0.0	0.0	0.0	0	0	0	0
08/01/81	3:00	07/31/81	JULY 26	2	EBB	27.1	3.7	5.2	83.9	0.0	0.0	0.0	11.9	0	0	0	1
08/01/81	6:00	07/31/81	JULY 26	3	EBB	26.9	3.5	5.3	78.8	0.0	0.0	0.0	0.0	0	0	0	0
08/01/81	9:00	07/31/81	JULY 26	4	FLD	26.7	2.8	7.3	86.7	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	12:00	08/02/81	AUG 02	5	FLD	27.9	3.5	4.9	78.2	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	15:00	08/02/81	AUG 02	6	EBB	28.1	3.7	4.6	82.6	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	18:00	08/02/81	AUG 02	7	EBB	27.5	3.5	5.2	76.9	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	21:00	08/02/81	AUG 02	8	FLD	27.2	2.9	4.6	85.1	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	0:01	08/02/81	AUG 02	1	FLD	27.8	3.5	4.8	89.5	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	3:00	08/02/81	AUG 02	2	EBB	28.3	4.0	4.6	86.2	0.0	0.0	0.0	11.6	0	0	0	1
08/03/81	6:00	08/02/81	AUG 02	3	EBB	27.2	3.6	4.6	78.7	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	9:00	08/02/81	AUG 02	4	FLD	27.3	3.2	4.4	82.2	0.0	0.0	0.0	0.0	0	0	0	0
08/07/81	12:00	08/07/81	AUG 02	5	FLD	27.0	2.6	4.2	76.5	0.0	0.0	0.0	0.0	0	0	0	0
08/07/81	15:00	08/07/81	AUG 02	6	FLD	27.8	3.3	4.1	89.8	0.0	0.0	0.0	0.0	0	0	0	0
08/07/81	18:00	08/07/81	AUG 02	7	EBB	29.6	3.5	4.3	88.9	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-8 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---WHITE PERCH

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/07/81	21:00	08/07/81	AUG 02	8	EBB	27.5	0.4	4.3	84.3	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	0:01	08/07/81	AUG 02	1	FLD	27.4	3.2	4.2	85.2	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	3:00	08/07/81	AUG 02	2	FLD	27.2	3.0	3.9	89.8	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	6:00	08/07/81	AUG 02	3	EBB	27.6	3.7	4.1	88.8	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	9:00	08/07/81	AUG 02	4	EBB	27.8	3.5	4.0	84.0	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	12:00	08/10/81	AUG 09	5	EBB	26.1	.	.	80.8	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	15:00	08/10/81	AUG 09	6	FLD	30.7	3.3	4.5	85.5	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	18:00	08/10/81	AUG 09	7	FLD	33.5	2.9	4.3	90.2	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	21:00	08/10/81	AUG 09	8	EBB	37.5	3.3	4.5	87.6	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	0:01	08/10/81	AUG 09	1	EBB	34.2	4.1	4.3	81.1	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	3:00	08/10/81	AUG 09	2	FLD	32.9	3.4	4.7	82.9	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	6:00	08/10/81	AUG 09	3	FLD	31.1	3.7	4.3	88.0	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	9:00	08/10/81	AUG 09	4	EBB	34.6	4.4	3.8	87.2	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	12:00	08/14/81	AUG 09	5	EBB	37.5	6.3	4.2	86.4	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	15:00	08/14/81	AUG 09	6	EBB	.	.	.	79.2	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	18:00	08/14/81	AUG 09	7	FLD	29.1	5.0	4.6	85.9	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	21:00	08/14/81	AUG 09	8	FLD	28.9	5.9	4.1	91.0	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	0:01	08/14/81	AUG 09	1	EBB	30.0	7.1	4.2	89.0	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	3:00	08/14/81	AUG 09	2	EBB	28.5	6.8	3.8	82.5	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	6:00	08/14/81	AUG 09	3	FLD	28.3	5.7	4.2	82.9	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	9:00	08/14/81	AUG 09	4	FLD	28.8	5.5	4.1	89.7	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	12:00	08/17/81	AUG 16	5	EBB	28.2	5.6	4.4	89.5	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	15:00	08/17/81	AUG 16	6	EBB	27.5	5.9	4.5	84.9	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	18:00	08/17/81	AUG 16	7	FLD	26.8	5.6	4.9	70.1	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	21:00	08/17/81	AUG 16	8	FLD	26.3	4.7	4.3	88.3	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-8 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---WHITE PERCH

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/18/81	0:01	08/17/81	AUG 16	1	EBB	27.7	5.3	4.2	90.6	0.0	0.0	0.0	0.0	0	0	0	0
08/18/81	3:00	08/17/81	AUG 16	2	EBB	26.4	6.2	4.4	85.3	0.0	0.0	0.0	0.0	0	0	0	0
08/18/81	6:00	08/17/81	AUG 16	3	EBB	26.1	5.8	4.5	78.4	0.0	0.0	0.0	0.0	0	0	0	0
08/18/81	9:00	08/17/81	AUG 16	4	FLD	26.3	5.1	4.1	85.5	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	12:00	08/20/81	AUG 16	5	FLD	26.1	4.4	5.4	90.0	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	15:00	08/20/81	AUG 16	6	EBB	27.4	5.3	5.1	91.4	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	18:00	08/20/81	AUG 16	7	EBB	27.1	6.2	5.5	88.7	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	21:00	08/20/81	AUG 16	8	FLD	26.3	5.7	5.4	87.1	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	0:01	08/20/81	AUG 16	1	FLD	26.3	5.0	4.9	91.9	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	3:00	08/20/81	AUG 16	2	EBB	27.1	5.6	4.9	91.8	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	6:00	08/20/81	AUG 16	3	EBB	27.1	6.0	5.1	88.0	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	9:00	08/20/81	AUG 16	4	FLD	25.9	5.5	4.7	85.7	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	12:00	08/29/81	AUG 23	5	EBB	25.3	4.6	4.4	78.9	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	15:00	08/29/81	AUG 23	6	EBB	25.3	5.2	4.5	82.2	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	18:00	08/29/81	AUG 23	7	FLD	25.2	4.4	4.5	83.6	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	21:00	08/29/81	AUG 23	8	FLD	25.2	4.0	4.1	89.5	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	0:01	08/29/81	AUG 23	1	EBB	26.1	4.7	4.2	88.7	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	3:00	08/29/81	AUG 23	2	EBB	24.9	5.4	4.4	83.7	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	6:00	08/29/81	AUG 23	3	FLD	25.0	4.6	4.3	81.9	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	9:00	08/29/81	AUG 23	4	FLD	25.0	4.0	4.2	88.2	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-9
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ATLANTIC TOMCOD

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/06/81	8:00	05/06/81	MAY 03	3	FLD	13.9	2.2	8.1	79.8	0.0	.	0.0	0.0	0	0	0	0
05/06/81	11:00	05/06/81	MAY 03	4	FLD	13.7	2.3	8.0	82.3	0.0	.	0.0	12.2	0	0	0	1
05/06/81	14:00	05/06/81	MAY 03	5	EBB	13.5	2.6	8.0	81.1	0.0	.	0.0	111.0	0	0	0	9
05/06/81	17:00	05/06/81	MAY 03	6	EBB	13.6	2.4	8.6	79.2	0.0	.	0.0	12.6	0	0	0	1
05/06/81	20:00	05/06/81	MAY 03	7	EBB	13.3	1.7	8.5	80.2	0.0	.	0.0	0.0	0	0	0	0
05/06/81	23:00	05/06/81	MAY 03	8	FLD	14.8	1.7	8.2	85.2	0.0	.	11.7	11.7	0	0	1	1
05/07/81	2:00	05/06/81	MAY 03	1	FLD	13.7	2.3	8.4	84.3	0.0	.	0.0	11.9	0	0	0	1
05/07/81	5:00	05/06/81	MAY 03	2	EBB	13.1	2.2	8.3	80.1	0.0	.	0.0	0.0	0	0	0	0
05/09/81	8:00	05/09/81	MAY 03	3	EBB	13.7	1.7	7.6	79.8	0.0	.	0.0	0.0	0	0	0	0
05/09/81	11:00	05/09/81	MAY 03	4	FLD	14.0	1.3	7.1	81.1	0.0	.	0.0	0.0	0	0	0	0
05/09/81	14:00	05/09/81	MAY 03	5	FLD	15.1	1.4	7.4	83.9	0.0	.	0.0	47.7	0	0	0	4
05/09/81	17:00	05/09/81	MAY 03	6	EBB	14.8	2.0	7.5	83.1	0.0	.	24.1	60.2	0	0	2	5
05/09/81	20:00	05/09/81	MAY 03	7	EBB	14.2	2.0	7.4	80.1	0.0	.	12.5	149.8	0	0	1	12
05/09/81	23:00	05/09/81	MAY 03	8	L_SK	14.1	1.3	7.3	81.4	0.0	.	0.0	0.0	0	0	0	0
05/10/81	2:00	05/09/81	MAY 03	1	FLD	14.7	1.3	7.3	85.3	0.0	.	0.0	11.7	0	0	0	1
05/10/81	5:00	05/09/81	MAY 03	2	EBB	14.5	1.6	7.5	84.5	0.0	.	0.0	59.2	0	0	0	5
05/15/81	12:00	05/15/81	MAY 10	5	EBB	15.4	0.1	8.8	83.2	0.0	.	0.0	0.0	0	0	0	0
05/15/81	15:00	05/15/81	MAY 10	6	EBB	15.8	0.1	8.9	81.4	0.0	.	12.3	73.7	0	0	1	6
05/15/81	18:00	05/15/81	MAY 10	7	FLD	15.3	0.1	9.2	86.0	0.0	.	0.0	0.0	0	0	0	0
05/15/81	21:00	05/15/81	MAY 10	8	FLD	16.1	0.1	9.1	87.5	0.0	.	0.0	0.0	0	0	0	0
05/16/81	0:01	05/15/81	MAY 10	1	EBB	15.7	0.1	9.0	85.4	0.0	.	0.0	0.0	0	0	0	0
05/18/81	12:00	05/18/81	MAY 17	5	EBB	16.5	.	.	84.6	0.0	.	0.0	0.0	0	0	0	0
05/18/81	15:00	05/18/81	MAY 17	6	EBB	16.6	.	.	80.2	0.0	.	0.0	0.0	0	0	0	0
05/18/81	18:00	05/18/81	MAY 17	7	FLD	16.2	.	.	81.3	0.0	.	0.0	0.0	0	0	0	0
05/18/81	21:00	05/18/81	MAY 17	8	FLD	16.8	.	.	86.7	0.0	.	0.0	0.0	0	0	0	0

TABLE B-9 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ATLANTIC TOMCOD

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/19/81	0:01	05/18/81	MAY 17	1	EBB	16.1	.	.	85.9	0.0	.	0.0	11.6	0	0	0	1
05/19/81	3:00	05/18/81	MAY 17	2	EBB	15.6	.	.	81.4	0.0	.	0.0	0.0	0	0	0	0
05/19/81	6:00	05/18/81	MAY 17	3	EBB	15.5	.	.	79.0	0.0	.	0.0	0.0	0	0	0	0
05/19/81	9:00	05/18/81	MAY 17	4	FLD	15.9	.	.	85.2	0.0	.	0.0	0.0	0	0	0	0
05/21/81	12:00	05/21/81	MAY 17	5	FLD	.	.	.	85.5	0.0	.	0.0	0.0	0	0	0	0
05/21/81	15:00	05/21/81	MAY 17	6	EBB	.	.	.	82.6	0.0	.	0.0	0.0	0	0	0	0
05/21/81	18:00	05/21/81	MAY 17	7	EBB	.	.	.	79.6	0.0	.	0.0	0.0	0	0	0	0
05/21/81	21:00	05/21/81	MAY 17	8	FLD	.	.	.	84.8	0.0	.	0.0	0.0	0	0	0	0
05/22/81	0:01	05/21/81	MAY 17	1	FLD	.	.	.	88.0	0.0	.	0.0	0.0	0	0	0	0
05/22/81	3:00	05/21/81	MAY 17	2	EBB	.	.	.	85.5	0.0	.	0.0	0.0	0	0	0	0
05/22/81	6:00	05/21/81	MAY 17	3	EBB	.	.	.	81.3	0.0	.	0.0	0.0	0	0	0	0
05/22/81	9:00	05/21/81	MAY 17	4	FLD	.	.	.	82.6	0.0	.	0.0	0.0	0	0	0	0
05/27/81	12:00	05/27/81	MAY 24	5	FLD	19.1	0.3	7.4	81.2	0.0	.	0.0	0.0	0	0	0	0
05/27/81	15:00	05/27/81	MAY 24	6	FLD	19.2	0.2	7.1	85.6	0.0	.	0.0	0.0	0	0	0	0
05/27/81	18:00	05/27/81	MAY 24	7	FLD	19.7	1.0	6.9	86.5	0.0	.	0.0	0.0	0	0	0	0
05/27/81	21:00	05/27/81	MAY 24	8	EBB	19.3	1.7	6.9	84.0	0.0	.	0.0	0.0	0	0	0	0
05/28/81	0:01	05/27/81	MAY 24	1	EBB	19.5	1.0	7.1	82.8	0.0	.	0.0	0.0	0	0	0	0
05/28/81	3:00	05/27/81	MAY 24	2	FLD	18.8	0.4	6.5	86.5	0.0	.	0.0	0.0	0	0	0	0
05/28/81	6:00	05/27/81	MAY 24	3	FLD	19.8	1.0	6.6	87.1	0.0	.	0.0	0.0	0	0	0	0
05/28/81	9:00	05/27/81	MAY 24	4	EBB	19.6	1.6	7.1	83.6	0.0	.	0.0	0.0	0	0	0	0
05/29/81	12:00	05/29/81	MAY 24	5	EBB	19.6	1.1	6.7	81.5	0.0	.	0.0	0.0	0	0	0	0
05/29/81	15:00	05/29/81	MAY 24	6	FLD	19.2	0.5	5.9	83.4	0.0	.	0.0	0.0	0	0	0	0
05/29/81	18:00	05/29/81	MAY 24	7	FLD	19.8	0.7	6.4	87.6	0.0	.	0.0	0.0	0	0	0	0
05/29/81	21:00	05/29/81	MAY 24	8	FLD	20.0	1.3	6.8	86.1	0.0	.	0.0	11.6	0	0	0	1
05/30/81	0:01	05/29/81	MAY 24	1	EBB	19.8	1.3	6.4	82.7	0.0	.	0.0	0.0	0	0	0	0

TABLE B-9 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ATLANTIC TOMCOD

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/30/81	3:00	05/29/81	MAY 24	2	EBB	19.4	0.6	5.7	82.7	0.0	.	0.0	0.0	0	0	0	0
05/30/81	6:00	05/29/81	MAY 24	3	FLD	19.6	0.4	5.6	87.6	0.0	.	0.0	0.0	0	0	0	0
05/30/81	9:00	05/29/81	MAY 24	4	EBB	20.4	0.9	5.9	86.0	0.0	.	0.0	0.0	0	0	0	0
06/01/81	12:00	06/01/81	MAY 31	5	EBB	21.1	0.9	8.9	83.2	0.0	.	0.0	0.0	0	0	0	0
06/01/81	15:00	06/01/81	MAY 31	6	EBB	20.6	0.8	8.6	79.5	0.0	.	0.0	0.0	0	0	0	0
06/01/81	18:00	06/01/81	MAY 31	7	FLD	20.3	0.4	8.6	83.5	0.0	.	0.0	0.0	0	0	0	0
06/01/81	21:00	06/01/81	MAY 31	8	FLD	20.7	0.6	8.2	87.7	0.0	.	0.0	0.0	0	0	0	0
06/02/81	0:01	06/01/81	MAY 31	1	EBB	20.7	1.4	8.6	85.6	0.0	.	0.0	0.0	0	0	0	0
06/02/81	3:00	06/01/81	MAY 31	2	EBB	20.5	1.1	8.2	81.7	0.0	.	0.0	0.0	0	0	0	0
06/02/81	6:00	06/01/81	MAY 31	3	L_SK	20.2	0.5	7.6	81.8	0.0	.	0.0	0.0	0	0	0	0
06/02/81	9:00	06/01/81	MAY 31	4	FLD	20.8	0.4	7.5	86.9	0.0	.	0.0	0.0	0	0	0	0
06/03/81	12:00	06/03/81	MAY 31	5	FLD	20.8	0.6	6.8	86.5	0.0	.	0.0	0.0	0	0	0	0
06/03/81	15:00	06/03/81	MAY 31	6	EBB	20.7	1.0	6.5	81.7	0.0	.	0.0	0.0	0	0	0	0
06/03/81	18:00	06/03/81	MAY 31	7	EBB	20.5	0.4	6.0	80.4	0.0	.	0.0	0.0	0	0	0	0
06/03/81	21:00	06/03/81	MAY 31	8	FLD	20.9	0.3	6.0	86.9	0.0	.	0.0	0.0	0	0	0	0
06/04/81	0:01	06/03/81	MAY 31	1	FLD	20.8	0.7	6.3	88.7	0.0	.	0.0	0.0	0	0	0	0
06/04/81	3:00	06/03/81	MAY 31	2	EBB	20.8	1.2	6.2	84.3	0.0	.	0.0	0.0	0	0	0	0
06/04/81	6:00	06/03/81	MAY 31	3	EBB	20.6	0.6	6.3	80.2	0.0	.	0.0	0.0	0	0	0	0
06/04/81	9:00	06/03/81	MAY 31	4	FLD	20.5	0.3	6.0	84.3	0.0	.	0.0	11.9	0	0	0	1
06/09/81	6:00	06/09/81	JUNE 07	3	EBB	23.0	0.3	6.6	81.6	0.0	.	0.0	0.0	0	0	0	0
06/09/81	9:00	06/09/81	JUNE 07	4	EBB	22.8	0.4	6.6	86.1	0.0	.	0.0	0.0	0	0	0	0
06/09/81	12:00	06/09/81	JUNE 07	5	EBB	22.7	0.3	6.3	85.3	0.0	.	0.0	0.0	0	0	0	0
06/09/81	15:00	06/09/81	JUNE 07	6	FLD	22.4	0.2	6.6	80.8	0.0	.	0.0	0.0	0	0	0	0
06/09/81	18:00	06/09/81	JUNE 07	7	EBB	23.1	0.3	6.8	79.3	0.0	.	0.0	0.0	0	0	0	0
06/09/81	21:00	06/09/81	JUNE 07	8	EBB	23.2	0.3	6.8	84.6	0.0	.	0.0	0.0	0	0	0	0

TABLE B-9 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ATLANTIC TOMCOD

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/10/81	0:01	06/09/81	JUNE 07	1	EBB	22.7	0.3	6.6	83.9	0.0	.	0.0	0.0	0	0	0	0
06/10/81	3:00	06/09/81	JUNE 07	2	FLD	21.9	0.2	6.0	77.1	0.0	.	0.0	0.0	0	0	0	0
06/13/81	6:00	06/13/81	JUNE 07	3	FLD	22.0	0.4	4.6	69.6	0.0	.	0.0	0.0	0	0	0	0
06/13/81	9:00	06/13/81	JUNE 07	4	EBB	23.1	0.6	4.5	82.3	0.0	.	0.0	0.0	0	0	0	0
06/13/81	12:00	06/13/81	JUNE 07	5	EBB	23.5	0.6	4.5	76.6	0.0	.	0.0	0.0	0	0	0	0
06/13/81	15:00	06/13/81	JUNE 07	6	EBB	23.4	0.6	4.5	74.1	0.0	.	0.0	0.0	0	0	0	0
06/13/81	18:00	06/13/81	JUNE 07	7	FLD	22.7	0.6	4.4	84.4	0.0	.	0.0	0.0	0	0	0	0
06/13/81	21:00	06/13/81	JUNE 07	8	FLD	24.2	0.8	4.2	85.4	0.0	.	0.0	0.0	0	0	0	0
06/14/81	0:01	06/13/81	JUNE 07	1	EBB	23.1	0.9	4.2	79.6	0.0	.	0.0	0.0	0	0	0	0
06/14/81	3:00	06/13/81	JUNE 07	2	EBB	22.9	1.0	4.2	74.8	0.0	.	0.0	0.0	0	0	0	0
06/18/81	12:00	06/18/81	JUNE 14	5	FLD	24.0	1.6	3.8	72.4	0.0	.	0.0	0.0	0	0	0	0
06/18/81	15:00	06/18/81	JUNE 14	6	EBB	24.3	1.9	3.7	75.9	0.0	.	0.0	0.0	0	0	0	0
06/18/81	18:00	06/18/81	JUNE 14	7	EBB	24.1	1.9	4.1	71.3	0.0	.	0.0	0.0	0	0	0	0
06/18/81	21:00	06/18/81	JUNE 14	8	FLD	23.6	1.7	3.9	85.5	0.0	.	0.0	0.0	0	0	0	0
06/19/81	0:01	06/18/81	JUNE 14	1	FLD	24.9	1.9	4.7	88.5	0.0	.	0.0	0.0	0	0	0	0
06/19/81	3:00	06/18/81	JUNE 14	2	EBB	24.7	2.0	4.9	83.0	0.0	.	0.0	0.0	0	0	0	0
06/19/81	6:00	06/18/81	JUNE 14	3	EBB	23.9	2.1	5.1	77.2	0.0	.	0.0	0.0	0	0	0	0
06/19/81	9:00	06/18/81	JUNE 14	4	FLD	23.3	1.9	4.6	83.6	0.0	.	0.0	0.0	0	0	0	0
06/19/81	12:00	06/19/81	JUNE 14	5	FLD	23.6	2.8	6.2	86.5	0.0	.	0.0	0.0	0	0	0	0
06/19/81	15:00	06/19/81	JUNE 14	6	EBB	24.0	2.9	4.8	81.4	0.0	.	0.0	0.0	0	0	0	0
06/19/81	18:00	06/19/81	JUNE 14	7	EBB	23.3	3.1	5.2	76.6	0.0	.	0.0	0.0	0	0	0	0
06/19/81	21:00	06/19/81	JUNE 14	8	FLD	22.7	2.1	5.0	86.0	0.0	.	0.0	0.0	0	0	0	0
06/20/81	0:01	06/19/81	JUNE 14	1	FLD	23.6	2.6	5.0	88.9	0.0	.	0.0	0.0	0	0	0	0
06/20/81	3:00	06/19/81	JUNE 14	2	EBB	24.4	3.3	5.3	84.3	0.0	.	0.0	0.0	0	0	0	0
06/20/81	6:00	06/19/81	JUNE 14	3	EBB	23.2	3.2	5.4	77.3	0.0	.	0.0	0.0	0	0	0	0

TABLE B-9 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ATLANTIC TOMCOD

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/20/81	9:00	06/19/81	JUNE 14	4	FLD	22.8	2.5	4.7	82.3	0.0	.	0.0	0.0	0	0	0	0
06/23/81	12:00	06/23/81	JUNE 21	5	FLD	22.9	1.6	5.0	83.5	0.0	.	0.0	0.0	0	0	0	0
06/23/81	15:00	06/23/81	JUNE 21	6	FLD	24.5	2.1	4.8	86.5	0.0	.	0.0	0.0	0	0	0	0
06/23/81	18:00	06/23/81	JUNE 21	7	EBB	24.7	2.2	5.0	81.1	0.0	.	0.0	0.0	0	0	0	0
06/23/81	21:00	06/23/81	JUNE 21	8	EBB	23.3	1.9	5.0	76.4	0.0	.	0.0	0.0	0	0	0	0
06/24/81	0:01	06/23/81	JUNE 21	1	FLD	22.9	1.5	5.0	84.6	0.0	.	0.0	0.0	0	0	0	0
06/24/81	3:00	06/23/81	JUNE 21	2	FLD	23.7	2.1	5.2	87.9	0.0	.	0.0	0.0	0	0	0	0
06/24/81	6:00	06/23/81	JUNE 21	3	EBB	24.7	2.5	4.9	83.9	0.0	.	0.0	0.0	0	0	0	0
06/24/81	9:00	06/23/81	JUNE 21	4	EBB	23.6	2.2	4.9	76.7	0.0	.	0.0	0.0	0	0	0	0
06/29/81	12:00	06/29/81	JUNE 28	5	EBB	24.7	1.6	5.4	78.5	0.0	.	0.0	0.0	0	0	0	0
06/29/81	15:00	06/29/81	JUNE 28	6	EBB	25.1	1.5	5.4	74.6	0.0	.	0.0	0.0	0	0	0	0
06/29/81	18:00	06/29/81	JUNE 28	7	FLD	24.3	1.0	5.4	86.5	0.0	.	0.0	0.0	0	0	0	0
06/29/81	21:00	06/29/81	JUNE 28	8	FLD	24.8	1.5	5.5	88.0	0.0	.	0.0	0.0	0	0	0	0
06/30/81	0:01	06/29/81	JUNE 28	1	EBB	24.9	2.3	5.9	84.2	0.0	.	0.0	0.0	0	0	0	0
06/30/81	3:00	06/29/81	JUNE 28	2	EBB	24.6	2.0	5.7	78.1	0.0	.	0.0	0.0	0	0	0	0
06/30/81	6:00	06/29/81	JUNE 28	3	FLD	24.1	1.3	5.4	85.0	0.0	.	0.0	0.0	0	0	0	0
06/30/81	9:00	06/29/81	JUNE 28	4	FLD	24.6	1.4	5.3	88.1	0.0	.	0.0	0.0	0	0	0	0
07/01/81	12:00	07/01/81	JUNE 28	5	EBB	25.2	1.8	6.2	83.8	0.0	.	0.0	0.0	0	0	0	0
07/01/81	15:00	07/01/81	JUNE 28	6	EBB	25.4	2.4	5.9	77.8	0.0	.	0.0	0.0	0	0	0	0
07/01/81	18:00	07/01/81	JUNE 28	7	FLD	25.1	1.4	6.1	85.7	0.0	.	0.0	0.0	0	0	0	0
07/01/81	21:00	07/01/81	JUNE 28	8	FLD	25.4	1.1	6.0	88.0	0.0	.	0.0	0.0	0	0	0	0
07/02/81	0:01	07/01/81	JUNE 28	1	EBB	25.7	2.1	6.2	85.9	0.0	.	0.0	0.0	0	0	0	0
07/02/81	3:00	07/01/81	JUNE 28	2	EBB	25.5	2.6	6.2	80.8	0.0	.	0.0	0.0	0	0	0	0
07/02/81	6:00	07/01/81	JUNE 28	3	EBB	25.3	1.7	5.7	80.7	0.0	.	0.0	0.0	0	0	0	0
07/02/81	9:00	07/01/81	JUNE 28	4	FLD	25.2	1.1	5.5	85.6	0.0	.	0.0	0.0	0	0	0	0

TABLE B-9 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ATLANTIC TOMCOD

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/08/81	12:00	07/08/81	JULY 05	5	FLD	27.2	0.8	3.0	67.4	0.0	.	0.0	0.0	0	0	0	0
07/08/81	15:00	07/08/81	JULY 05	6	FLD	26.7	5.3	3.1	85.4	0.0	.	0.0	0.0	0	0	0	0
07/08/81	18:00	07/08/81	JULY 05	7	EBB	27.5	1.1	3.0	84.2	0.0	.	0.0	0.0	0	0	0	0
07/08/81	21:00	07/08/81	JULY 05	8	EBB	26.8	1.1	2.8	79.0	0.0	.	0.0	0.0	0	0	0	0
07/09/81	0:01	07/08/81	JULY 05	1	EBB	26.8	1.0	2.9	81.4	0.0	.	0.0	0.0	0	0	0	0
07/09/81	3:00	07/08/81	JULY 05	2	FLD	26.1	0.6	2.7	86.2	0.0	.	0.0	0.0	0	0	0	0
07/09/81	6:00	07/08/81	JULY 05	3	EBB	27.4	1.2	2.6	84.5	0.0	.	0.0	0.0	0	0	0	0
07/09/81	9:00	07/08/81	JULY 05	4	EBB	26.8	0.9	2.9	77.2	0.0	.	0.0	0.0	0	0	0	0
07/10/81	12:00	07/10/81	JULY 05	5	EBB	27.0	1.0	6.5	76.5	0.0	.	0.0	0.0	0	0	0	0
07/10/81	15:00	07/10/81	JULY 05	6	FLD	26.6	0.6	6.2	84.0	0.0	.	0.0	0.0	0	0	0	0
07/10/81	18:00	07/10/81	JULY 05	7	FLD	27.3	1.3	5.7	87.0	0.0	.	0.0	0.0	0	0	0	0
07/10/81	21:00	07/10/81	JULY 05	8	EBB	28.6	1.8	5.9	84.6	0.0	.	0.0	0.0	0	0	0	0
07/11/81	0:01	07/10/81	JULY 05	1	EBB	26.9	1.6	5.7	79.3	0.0	.	0.0	0.0	0	0	0	0
07/11/81	3:00	07/10/81	JULY 05	2	FLD	26.4	1.1	5.8	83.2	0.0	.	0.0	0.0	0	0	0	0
07/13/81	6:00	07/10/81	JULY 05	3	FLD	26.7	1.8	5.2	85.1	0.0	.	0.0	0.0	0	0	0	0
07/13/81	9:00	07/10/81	JULY 05	4	EBB	27.1	1.6	5.3	80.0	0.0	.	0.0	0.0	0	0	0	0
07/13/81	12:00	07/13/81	JULY 12	5	EBB	32.3	3.0	5.2	80.0	0.0	.	0.0	0.0	0	0	0	0
07/13/81	15:00	07/13/81	JULY 12	6	FLD	29.3	2.2	6.2	79.3	0.0	.	0.0	0.0	0	0	0	0
07/13/81	18:00	07/13/81	JULY 12	7	FLD	27.2	1.8	6.2	88.5	0.0	.	0.0	0.0	0	0	0	0
07/13/81	21:00	07/13/81	JULY 12	8	FLD	28.3	2.7	5.6	88.6	0.0	.	0.0	0.0	0	0	0	0
07/14/81	0:01	07/13/81	JULY 12	1	EBB	27.9	2.8	6.3	82.2	0.0	.	0.0	0.0	0	0	0	0
07/14/81	3:00	07/13/81	JULY 12	2	EBB	27.4	2.6	6.4	76.8	0.0	.	0.0	0.0	0	0	0	0
07/14/81	6:00	07/13/81	JULY 12	3	FLD	26.9	2.5	5.4	83.9	0.0	.	0.0	0.0	0	0	0	0
07/14/81	9:00	07/13/81	JULY 12	4	FLD	28.4	3.6	5.1	85.1	0.0	.	0.0	0.0	0	0	0	0
07/15/81	12:00	07/15/81	JULY 12	5	EBB	27.3	3.4	5.2	82.4	0.0	.	0.0	0.0	0	0	0	0

TABLE B-9 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ATLANTIC TOMCOD

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/15/81	15:00	07/15/81	JULY 12	6	EBB	27.9	3.2	5.9	78.2	0.0	.	0.0	0.0	0	0	0	0
07/15/81	18:00	07/15/81	JULY 12	7	FLD	29.0	3.1	5.4	83.9	0.0	.	0.0	0.0	0	0	0	0
07/15/81	21:00	07/15/81	JULY 12	8	FLD	27.6	3.9	4.7	88.8	0.0	.	0.0	0.0	0	0	0	0
07/16/81	0:01	07/15/81	JULY 12	1	EBB	27.3	4.1	5.0	85.6	0.0	.	0.0	0.0	0	0	0	0
07/16/81	3:00	07/15/81	JULY 12	2	EBB	26.5	4.3	4.7	78.2	0.0	.	0.0	0.0	0	0	0	0
07/16/81	6:00	07/15/81	JULY 12	3	FLD	26.1	3.6	4.7	79.4	0.0	.	0.0	0.0	0	0	0	0
07/16/81	9:00	07/15/81	JULY 12	4	FLD	26.3	3.4	4.4	85.9	0.0	.	0.0	0.0	0	0	0	0
07/20/81	12:00	07/20/81	JULY 19	5	FLD	30.3	3.7	3.6	76.9	0.0	.	0.0	0.0	0	0	0	0
07/20/81	15:00	07/20/81	JULY 19	6	EBB	30.4	4.4	3.5	86.1	0.0	.	0.0	0.0	0	0	0	0
07/20/81	18:00	07/20/81	JULY 19	7	EBB	29.9	4.7	3.0	80.8	0.0	.	0.0	0.0	0	0	0	0
07/20/81	21:00	07/20/81	JULY 19	8	FLD	29.8	4.1	3.1	84.6	0.0	.	0.0	0.0	0	0	0	0
07/21/81	0:01	07/20/81	JULY 19	1	FLD	30.3	4.2	3.1	88.9	0.0	.	0.0	0.0	0	0	0	0
07/21/81	3:00	07/20/81	JULY 19	2	EBB	30.4	4.7	3.1	87.3	0.0	.	0.0	0.0	0	0	0	0
07/21/81	6:00	07/20/81	JULY 19	3	EBB	29.8	5.1	2.8	81.8	0.0	.	0.0	0.0	0	0	0	0
07/21/81	9:00	07/20/81	JULY 19	4	EBB	29.9	4.4	2.6	81.5	0.0	.	0.0	0.0	0	0	0	0
07/22/81	12:00	07/22/81	JULY 19	5	FLD	29.8	3.3	4.6	84.6	0.0	.	0.0	0.0	0	0	0	0
07/22/81	15:00	07/22/81	JULY 19	6	FLD	31.2	4.0	4.5	87.2	0.0	.	0.0	0.0	0	0	0	0
07/22/81	18:00	07/22/81	JULY 19	7	EBB	30.9	4.1	.	82.3	0.0	.	0.0	0.0	0	0	0	0
07/22/81	21:00	07/22/81	JULY 19	8	EBB	29.9	3.9	4.2	78.9	0.0	.	0.0	0.0	0	0	0	0
07/23/81	0:01	07/22/81	JULY 19	1	FLD	29.4	3.2	4.3	85.6	0.0	.	0.0	0.0	0	0	0	0
07/23/81	3:00	07/22/81	JULY 19	2	FLD	30.1	3.8	4.4	88.2	0.0	.	0.0	0.0	0	0	0	0
07/23/81	6:00	07/22/81	JULY 19	3	EBB	30.4	4.1	4.3	84.0	0.0	.	0.0	0.0	0	0	0	0
07/23/81	9:00	07/22/81	JULY 19	4	EBB	29.3	3.7	4.2	80.5	0.0	.	0.0	0.0	0	0	0	0
07/28/81	12:00	07/28/81	JULY 26	5	EBB	30.6	0.4	3.6	74.3	0.0	.	0.0	0.0	0	0	0	0
07/28/81	15:00	07/28/81	JULY 26	6	EBB	28.8	4.5	3.6	79.9	0.0	.	0.0	0.0	0	0	0	0

TABLE B-9 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ATLANTIC TOMCOD

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/28/81	18:00	07/28/81	JULY 26	7	FLD	31.1	3.8	3.4	88.1	0.0	.	0.0	0.0	0	0	0	0
07/28/81	21:00	07/28/81	JULY 26	8	FLD	.	.	.	89.4	0.0	.	0.0	0.0	0	0	0	0
07/29/81	0:01	07/28/81	JULY 26	1	EBB	.	.	.	85.2	0.0	.	0.0	0.0	0	0	0	0
07/29/81	3:00	07/28/81	JULY 26	2	EBB	.	.	.	81.3	0.0	.	0.0	0.0	0	0	0	0
07/29/81	6:00	07/28/81	JULY 26	3	FLD	.	.	.	84.9	0.0	.	0.0	0.0	0	0	0	0
07/29/81	9:00	07/28/81	JULY 26	4	FLD	30.5	5.4	3.3	88.1	0.0	.	0.0	0.0	0	0	0	0
07/31/81	12:00	07/31/81	JULY 26	5	EBB	28.2	3.3	5.0	77.0	0.0	.	0.0	0.0	0	0	0	0
07/31/81	15:00	07/31/81	JULY 26	6	EBB	27.5	3.9	5.2	80.5	0.0	.	0.0	0.0	0	0	0	0
07/31/81	18:00	07/31/81	JULY 26	7	EBB	27.7	3.3	5.4	80.1	0.0	.	0.0	0.0	0	0	0	0
07/31/81	21:00	07/31/81	JULY 26	8	FLD	27.0	2.8	5.3	89.1	0.0	.	0.0	0.0	0	0	0	0
08/01/81	0:01	07/31/81	JULY 26	1	FLD	27.5	3.6	5.4	88.9	0.0	.	0.0	0.0	0	0	0	0
08/01/81	3:00	07/31/81	JULY 26	2	EBB	27.1	3.7	5.2	83.9	0.0	.	0.0	0.0	0	0	0	0
08/01/81	6:00	07/31/81	JULY 26	3	EBB	26.9	3.5	5.3	78.8	0.0	.	0.0	0.0	0	0	0	0
08/01/81	9:00	07/31/81	JULY 26	4	FLD	26.7	2.8	7.3	86.7	0.0	.	0.0	0.0	0	0	0	0
08/02/81	12:00	08/02/81	AUG 02	5	FLD	27.9	3.5	4.9	78.2	0.0	.	0.0	0.0	0	0	0	0
08/02/81	15:00	08/02/81	AUG 02	6	EBB	28.1	3.7	4.6	82.6	0.0	.	0.0	0.0	0	0	0	0
08/02/81	18:00	08/02/81	AUG 02	7	EBB	27.5	3.5	5.2	76.9	0.0	.	0.0	0.0	0	0	0	0
08/02/81	21:00	08/02/81	AUG 02	8	FLD	27.2	2.9	4.6	85.1	0.0	.	0.0	0.0	0	0	0	0
08/03/81	0:01	08/02/81	AUG 02	1	FLD	27.8	3.5	4.8	89.5	0.0	.	0.0	0.0	0	0	0	0
08/03/81	3:00	08/02/81	AUG 02	2	EBB	28.3	4.0	4.6	86.2	0.0	.	0.0	0.0	0	0	0	0
08/03/81	6:00	08/02/81	AUG 02	3	EBB	27.2	3.6	4.6	78.7	0.0	.	0.0	0.0	0	0	0	0
08/03/81	9:00	08/02/81	AUG 02	4	FLD	27.3	3.2	4.4	82.2	0.0	.	0.0	0.0	0	0	0	0
08/07/81	12:00	08/07/81	AUG 02	5	FLD	27.0	2.6	4.2	76.5	0.0	.	0.0	0.0	0	0	0	0
08/07/81	15:00	08/07/81	AUG 02	6	FLD	27.8	3.3	4.1	89.8	0.0	.	0.0	0.0	0	0	0	0
08/07/81	18:00	08/07/81	AUG 02	7	EBB	29.6	3.5	4.3	88.9	0.0	.	0.0	0.0	0	0	0	0

TABLE B-9 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ATLANTIC TOMCOD

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/07/81	21:00	08/07/81	AUG 02	8	EBB	27.5	0.4	4.3	84.3	0.0	.	0.0	0.0	0	0	0	0
08/08/81	0:01	08/07/81	AUG 02	1	FLD	27.4	3.2	4.2	85.2	0.0	.	0.0	0.0	0	0	0	0
08/08/81	3:00	08/07/81	AUG 02	2	FLD	27.2	3.0	3.9	89.8	0.0	.	0.0	0.0	0	0	0	0
08/08/81	6:00	08/07/81	AUG 02	3	EBB	27.6	3.7	4.1	88.8	0.0	.	0.0	0.0	0	0	0	0
08/08/81	9:00	08/07/81	AUG 02	4	EBB	27.8	3.5	4.0	84.0	0.0	.	0.0	0.0	0	0	0	0
08/10/81	12:00	08/10/81	AUG 09	5	EBB	26.1	.	.	80.8	0.0	.	0.0	0.0	0	0	0	0
08/10/81	15:00	08/10/81	AUG 09	6	FLD	30.7	3.3	4.5	85.5	0.0	.	0.0	0.0	0	0	0	0
08/10/81	18:00	08/10/81	AUG 09	7	FLD	33.5	2.9	4.3	90.2	0.0	.	0.0	0.0	0	0	0	0
08/10/81	21:00	08/10/81	AUG 09	8	EBB	37.5	3.3	4.5	87.6	0.0	.	0.0	0.0	0	0	0	0
08/11/81	0:01	08/10/81	AUG 09	1	EBB	34.2	4.1	4.3	81.1	0.0	.	0.0	0.0	0	0	0	0
08/11/81	3:00	08/10/81	AUG 09	2	FLD	32.9	3.4	4.7	82.9	0.0	.	0.0	0.0	0	0	0	0
08/11/81	6:00	08/10/81	AUG 09	3	FLD	31.1	3.7	4.3	88.0	0.0	.	0.0	0.0	0	0	0	0
08/11/81	9:00	08/10/81	AUG 09	4	EBB	34.6	4.4	3.8	87.2	0.0	.	0.0	0.0	0	0	0	0
08/14/81	12:00	08/14/81	AUG 09	5	EBB	37.5	6.3	4.2	86.4	0.0	.	0.0	0.0	0	0	0	0
08/14/81	15:00	08/14/81	AUG 09	6	EBB	.	.	.	79.2	0.0	.	0.0	0.0	0	0	0	0
08/14/81	18:00	08/14/81	AUG 09	7	FLD	29.1	5.0	4.6	85.9	0.0	.	0.0	0.0	0	0	0	0
08/14/81	21:00	08/14/81	AUG 09	8	FLD	28.9	5.9	4.1	91.0	0.0	.	0.0	0.0	0	0	0	0
08/15/81	0:01	08/14/81	AUG 09	1	EBB	30.0	7.1	4.2	89.0	0.0	.	0.0	0.0	0	0	0	0
08/15/81	3:00	08/14/81	AUG 09	2	EBB	28.5	6.8	3.8	82.5	0.0	.	0.0	0.0	0	0	0	0
08/15/81	6:00	08/14/81	AUG 09	3	FLD	28.3	5.7	4.2	82.9	0.0	.	0.0	0.0	0	0	0	0
08/15/81	9:00	08/14/81	AUG 09	4	FLD	28.8	5.5	4.1	89.7	0.0	.	0.0	0.0	0	0	0	0
08/17/81	12:00	08/17/81	AUG 16	5	EBB	28.2	5.6	4.4	89.5	0.0	.	0.0	0.0	0	0	0	0
08/17/81	15:00	08/17/81	AUG 16	6	EBB	27.5	5.9	4.5	84.9	0.0	.	0.0	0.0	0	0	0	0
08/17/81	18:00	08/17/81	AUG 16	7	FLD	26.8	5.6	4.9	70.1	0.0	.	0.0	0.0	0	0	0	0
08/17/81	21:00	08/17/81	AUG 16	8	FLD	26.3	4.7	4.3	88.3	0.0	.	0.0	0.0	0	0	0	0

TABLE B-9 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ATLANTIC TOMCOD

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/18/81	0:01	08/17/81	AUG 16	1	EBB	27.7	5.3	4.2	90.6	0.0	.	0.0	0.0	0	0	0	0
08/18/81	3:00	08/17/81	AUG 16	2	EBB	26.4	6.2	4.4	85.3	0.0	.	0.0	0.0	0	0	0	0
08/18/81	6:00	08/17/81	AUG 16	3	EBB	26.1	5.8	4.5	78.4	0.0	.	0.0	0.0	0	0	0	0
08/18/81	9:00	08/17/81	AUG 16	4	FLD	26.3	5.1	4.1	85.5	0.0	.	0.0	0.0	0	0	0	0
08/20/81	12:00	08/20/81	AUG 16	5	FLD	26.1	4.4	5.4	90.0	0.0	.	0.0	0.0	0	0	0	0
08/20/81	15:00	08/20/81	AUG 16	6	EBB	27.4	5.3	5.1	91.4	0.0	.	0.0	0.0	0	0	0	0
08/20/81	18:00	08/20/81	AUG 16	7	EBB	27.1	6.2	5.5	88.7	0.0	.	0.0	0.0	0	0	0	0
08/20/81	21:00	08/20/81	AUG 16	8	FLD	26.3	5.7	5.4	87.1	0.0	.	0.0	0.0	0	0	0	0
08/21/81	0:01	08/20/81	AUG 16	1	FLD	26.3	5.0	4.9	91.9	0.0	.	0.0	0.0	0	0	0	0
08/21/81	3:00	08/20/81	AUG 16	2	EBB	27.1	5.6	4.9	91.8	0.0	.	0.0	0.0	0	0	0	0
08/21/81	6:00	08/20/81	AUG 16	3	EBB	27.1	6.0	5.1	88.0	0.0	.	0.0	0.0	0	0	0	0
08/21/81	9:00	08/20/81	AUG 16	4	FLD	25.9	5.5	4.7	85.7	0.0	.	0.0	0.0	0	0	0	0
08/29/81	12:00	08/29/81	AUG 23	5	EBB	25.3	4.6	4.4	78.9	0.0	.	0.0	0.0	0	0	0	0
08/29/81	15:00	08/29/81	AUG 23	6	EBB	25.3	5.2	4.5	82.2	0.0	.	0.0	0.0	0	0	0	0
08/29/81	18:00	08/29/81	AUG 23	7	FLD	25.2	4.4	4.5	83.6	0.0	.	0.0	0.0	0	0	0	0
08/29/81	21:00	08/29/81	AUG 23	8	FLD	25.2	4.0	4.1	89.5	0.0	.	0.0	0.0	0	0	0	0
08/30/81	0:01	08/29/81	AUG 23	1	EBB	26.1	4.7	4.2	88.7	0.0	.	0.0	0.0	0	0	0	0
08/30/81	3:00	08/29/81	AUG 23	2	EBB	24.9	5.4	4.4	83.7	0.0	.	0.0	0.0	0	0	0	0
08/30/81	6:00	08/29/81	AUG 23	3	FLD	25.0	4.6	4.3	81.9	0.0	.	0.0	0.0	0	0	0	0
08/30/81	9:00	08/29/81	AUG 23	4	FLD	25.0	4.0	4.2	88.2	0.0	.	0.0	0.0	0	0	0	0

TABLE B-10
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---BAY ANCHOVY

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/06/81	8:00	05/06/81	MAY 03	3	FLD	13.9	2.2	8.1	79.8	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	11:00	05/06/81	MAY 03	4	FLD	13.7	2.3	8.0	82.3	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	14:00	05/06/81	MAY 03	5	EBB	13.5	2.6	8.0	81.1	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	17:00	05/06/81	MAY 03	6	EBB	13.6	2.4	8.6	79.2	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	20:00	05/06/81	MAY 03	7	EBB	13.3	1.7	8.5	80.2	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	23:00	05/06/81	MAY 03	8	FLD	14.8	1.7	8.2	85.2	0.0	0.0	0.0	0.0	0	0	0	0
05/07/81	2:00	05/06/81	MAY 03	1	FLD	13.7	2.3	8.4	84.3	0.0	0.0	0.0	0.0	0	0	0	0
05/07/81	5:00	05/06/81	MAY 03	2	EBB	13.1	2.2	8.3	80.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	8:00	05/09/81	MAY 03	3	EBB	13.7	1.7	7.6	79.8	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	11:00	05/09/81	MAY 03	4	FLD	14.0	1.3	7.1	81.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	14:00	05/09/81	MAY 03	5	FLD	15.1	1.4	7.4	83.9	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	17:00	05/09/81	MAY 03	6	EBB	14.8	2.0	7.5	83.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	20:00	05/09/81	MAY 03	7	EBB	14.2	2.0	7.4	80.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	23:00	05/09/81	MAY 03	8	L_SK	14.1	1.3	7.3	81.4	0.0	0.0	0.0	0.0	0	0	0	0
05/10/81	2:00	05/09/81	MAY 03	1	FLD	14.7	1.3	7.3	85.3	0.0	0.0	0.0	0.0	0	0	0	0
05/10/81	5:00	05/09/81	MAY 03	2	EBB	14.5	1.6	7.5	84.5	0.0	0.0	0.0	0.0	0	0	0	0
05/15/81	12:00	05/15/81	MAY 10	5	EBB	15.4	0.1	8.8	83.2	0.0	0.0	0.0	0.0	0	0	0	0
05/15/81	15:00	05/15/81	MAY 10	6	EBB	15.8	0.1	8.9	81.4	0.0	0.0	0.0	0.0	0	0	0	0
05/15/81	18:00	05/15/81	MAY 10	7	FLD	15.3	0.1	9.2	86.0	0.0	0.0	0.0	0.0	0	0	0	0
05/15/81	21:00	05/15/81	MAY 10	8	FLD	16.1	0.1	9.1	87.5	0.0	0.0	0.0	0.0	0	0	0	0
05/16/81	0:01	05/15/81	MAY 10	1	EBB	15.7	0.1	9.0	85.4	0.0	0.0	0.0	0.0	0	0	0	0
05/18/81	12:00	05/18/81	MAY 17	5	EBB	16.5	.	.	84.6	0.0	0.0	0.0	0.0	0	0	0	0
05/18/81	15:00	05/18/81	MAY 17	6	EBB	16.6	.	.	80.2	0.0	0.0	0.0	0.0	0	0	0	0
05/18/81	18:00	05/18/81	MAY 17	7	FLD	16.2	.	.	81.3	0.0	0.0	0.0	0.0	0	0	0	0
05/18/81	21:00	05/18/81	MAY 17	8	FLD	16.8	.	.	86.7	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-10 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---BAY ANCHOVY

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/19/81	0:01	05/18/81	MAY 17	1	EBB	16.1	.	.	85.9	0.0	0.0	0.0	0.0	0	0	0	0
05/19/81	3:00	05/18/81	MAY 17	2	EBB	15.6	.	.	81.4	0.0	0.0	0.0	0.0	0	0	0	0
05/19/81	6:00	05/18/81	MAY 17	3	EBB	15.5	.	.	79.0	0.0	0.0	0.0	0.0	0	0	0	0
05/19/81	9:00	05/18/81	MAY 17	4	FLD	15.9	.	.	85.2	0.0	0.0	0.0	0.0	0	0	0	0
05/21/81	12:00	05/21/81	MAY 17	5	FLD	.	.	.	85.5	0.0	0.0	0.0	0.0	0	0	0	0
05/21/81	15:00	05/21/81	MAY 17	6	EBB	.	.	.	82.6	0.0	0.0	0.0	0.0	0	0	0	0
05/21/81	18:00	05/21/81	MAY 17	7	EBB	.	.	.	79.6	0.0	0.0	0.0	0.0	0	0	0	0
05/21/81	21:00	05/21/81	MAY 17	8	FLD	.	.	.	84.8	0.0	0.0	0.0	0.0	0	0	0	0
05/22/81	0:01	05/21/81	MAY 17	1	FLD	.	.	.	88.0	0.0	0.0	0.0	0.0	0	0	0	0
05/22/81	3:00	05/21/81	MAY 17	2	EBB	.	.	.	85.5	0.0	0.0	0.0	0.0	0	0	0	0
05/22/81	6:00	05/21/81	MAY 17	3	EBB	.	.	.	81.3	0.0	0.0	0.0	0.0	0	0	0	0
05/22/81	9:00	05/21/81	MAY 17	4	FLD	.	.	.	82.6	0.0	0.0	0.0	0.0	0	0	0	0
05/27/81	12:00	05/27/81	MAY 24	5	FLD	19.1	0.3	7.4	81.2	0.0	0.0	0.0	0.0	0	0	0	0
05/27/81	15:00	05/27/81	MAY 24	6	FLD	19.2	0.2	7.1	85.6	0.0	0.0	0.0	0.0	0	0	0	0
05/27/81	18:00	05/27/81	MAY 24	7	FLD	19.7	1.0	6.9	86.5	0.0	0.0	0.0	0.0	0	0	0	0
05/27/81	21:00	05/27/81	MAY 24	8	EBB	19.3	1.7	6.9	84.0	0.0	0.0	0.0	0.0	0	0	0	0
05/28/81	0:01	05/27/81	MAY 24	1	EBB	19.5	1.0	7.1	82.8	0.0	0.0	0.0	0.0	0	0	0	0
05/28/81	3:00	05/27/81	MAY 24	2	FLD	18.8	0.4	6.5	86.5	0.0	0.0	0.0	0.0	0	0	0	0
05/28/81	6:00	05/27/81	MAY 24	3	FLD	19.8	1.0	6.6	87.1	0.0	0.0	0.0	0.0	0	0	0	0
05/28/81	9:00	05/27/81	MAY 24	4	EBB	19.6	1.6	7.1	83.6	0.0	0.0	0.0	0.0	0	0	0	0
05/29/81	12:00	05/29/81	MAY 24	5	EBB	19.6	1.1	6.7	81.5	0.0	0.0	0.0	0.0	0	0	0	0
05/29/81	15:00	05/29/81	MAY 24	6	FLD	19.2	0.5	5.9	83.4	0.0	0.0	0.0	0.0	0	0	0	0
05/29/81	18:00	05/29/81	MAY 24	7	FLD	19.8	0.7	6.4	87.6	0.0	0.0	0.0	0.0	0	0	0	0
05/29/81	21:00	05/29/81	MAY 24	8	FLD	20.0	1.3	6.8	86.1	0.0	0.0	0.0	0.0	0	0	0	0
05/30/81	0:01	05/29/81	MAY 24	1	EBB	19.8	1.3	6.4	82.7	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-10 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---BAY ANCHOVY

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/30/81	3:00	05/29/81	MAY 24	2	EBB	19.4	0.6	5.7	82.7	0.0	0.0	0.0	0.0	0	0	0	0
05/30/81	6:00	05/29/81	MAY 24	3	FLD	19.6	0.4	5.6	87.6	0.0	0.0	0.0	0.0	0	0	0	0
05/30/81	9:00	05/29/81	MAY 24	4	EBB	20.4	0.9	5.9	86.0	0.0	0.0	0.0	0.0	0	0	0	0
06/01/81	12:00	06/01/81	MAY 31	5	EBB	21.1	0.9	8.9	83.2	0.0	0.0	0.0	0.0	0	0	0	0
06/01/81	15:00	06/01/81	MAY 31	6	EBB	20.6	0.8	8.6	79.5	0.0	0.0	0.0	0.0	0	0	0	0
06/01/81	18:00	06/01/81	MAY 31	7	FLD	20.3	0.4	8.6	83.5	0.0	0.0	0.0	0.0	0	0	0	0
06/01/81	21:00	06/01/81	MAY 31	8	FLD	20.7	0.6	8.2	87.7	0.0	0.0	0.0	0.0	0	0	0	0
06/02/81	0:01	06/01/81	MAY 31	1	EBB	20.7	1.4	8.6	85.6	0.0	0.0	0.0	0.0	0	0	0	0
06/02/81	3:00	06/01/81	MAY 31	2	EBB	20.5	1.1	8.2	81.7	0.0	0.0	0.0	0.0	0	0	0	0
06/02/81	6:00	06/01/81	MAY 31	3	L_SK	20.2	0.5	7.6	81.8	0.0	0.0	0.0	0.0	0	0	0	0
06/02/81	9:00	06/01/81	MAY 31	4	FLD	20.8	0.4	7.5	86.9	0.0	0.0	0.0	0.0	0	0	0	0
06/03/81	12:00	06/03/81	MAY 31	5	FLD	20.8	0.6	6.8	86.5	0.0	0.0	0.0	0.0	0	0	0	0
06/03/81	15:00	06/03/81	MAY 31	6	EBB	20.7	1.0	6.5	81.7	0.0	0.0	0.0	0.0	0	0	0	0
06/03/81	18:00	06/03/81	MAY 31	7	EBB	20.5	0.4	6.0	80.4	0.0	0.0	0.0	0.0	0	0	0	0
06/03/81	21:00	06/03/81	MAY 31	8	FLD	20.9	0.3	6.0	86.9	0.0	0.0	0.0	0.0	0	0	0	0
06/04/81	0:01	06/03/81	MAY 31	1	FLD	20.8	0.7	6.3	88.7	0.0	0.0	0.0	0.0	0	0	0	0
06/04/81	3:00	06/03/81	MAY 31	2	EBB	20.8	1.2	6.2	84.3	0.0	0.0	0.0	0.0	0	0	0	0
06/04/81	6:00	06/03/81	MAY 31	3	EBB	20.6	0.6	6.3	80.2	0.0	0.0	0.0	0.0	0	0	0	0
06/04/81	9:00	06/03/81	MAY 31	4	FLD	20.5	0.3	6.0	84.3	0.0	0.0	0.0	0.0	0	0	0	0
06/09/81	6:00	06/09/81	JUNE 07	3	EBB	23.0	0.3	6.6	81.6	0.0	0.0	0.0	0.0	0	0	0	0
06/09/81	9:00	06/09/81	JUNE 07	4	EBB	22.8	0.4	6.6	86.1	0.0	0.0	0.0	0.0	0	0	0	0
06/09/81	12:00	06/09/81	JUNE 07	5	EBB	22.7	0.3	6.3	85.3	0.0	0.0	0.0	0.0	0	0	0	0
06/09/81	15:00	06/09/81	JUNE 07	6	FLD	22.4	0.2	6.6	80.8	0.0	0.0	0.0	0.0	0	0	0	0
06/09/81	18:00	06/09/81	JUNE 07	7	EBB	23.1	0.3	6.8	79.3	0.0	0.0	0.0	0.0	0	0	0	0
06/09/81	21:00	06/09/81	JUNE 07	8	EBB	23.2	0.3	6.8	84.6	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-10 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---BAY ANCHOVY

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/10/81	0:01	06/09/81	JUNE 07	1	EBB	22.7	0.3	6.6	83.9	0.0	0.0	0.0	0.0	0	0	0	0
06/10/81	3:00	06/09/81	JUNE 07	2	FLD	21.9	0.2	6.0	77.1	0.0	0.0	0.0	0.0	0	0	0	0
06/13/81	6:00	06/13/81	JUNE 07	3	FLD	22.0	0.4	4.6	69.6	0.0	0.0	0.0	0.0	0	0	0	0
06/13/81	9:00	06/13/81	JUNE 07	4	EBB	23.1	0.6	4.5	82.3	0.0	0.0	0.0	0.0	0	0	0	0
06/13/81	12:00	06/13/81	JUNE 07	5	EBB	23.5	0.6	4.5	76.6	0.0	0.0	13.1	0.0	0	0	1	0
06/13/81	15:00	06/13/81	JUNE 07	6	EBB	23.4	0.6	4.5	74.1	0.0	0.0	0.0	0.0	0	0	0	0
06/13/81	18:00	06/13/81	JUNE 07	7	FLD	22.7	0.6	4.4	84.4	154.0	0.0	0.0	0.0	13	0	0	0
06/13/81	21:00	06/13/81	JUNE 07	8	FLD	24.2	0.8	4.2	85.4	152.2	0.0	0.0	0.0	13	0	0	0
06/14/81	0:01	06/13/81	JUNE 07	1	EBB	23.1	0.9	4.2	79.6	113.1	0.0	25.1	0.0	9	0	2	0
06/14/81	3:00	06/13/81	JUNE 07	2	EBB	22.9	1.0	4.2	74.8	615.0	0.0	0.0	0.0	46	0	0	0
06/18/81	12:00	06/18/81	JUNE 14	5	FLD	24.0	1.6	3.8	72.4	2845.3	0.0	41.4	0.0	206	0	3	0
06/18/81	15:00	06/18/81	JUNE 14	6	EBB	24.3	1.9	3.7	75.9	1528.3	0.0	52.7	0.0	116	0	4	0
06/18/81	18:00	06/18/81	JUNE 14	7	EBB	24.1	1.9	4.1	71.3	1220.2	0.0	28.1	0.0	87	0	2	0
06/18/81	21:00	06/18/81	JUNE 14	8	FLD	23.6	1.7	3.9	85.5	1076.0	0.0	0.0	0.0	92	0	0	0
06/19/81	0:01	06/18/81	JUNE 14	1	FLD	24.9	1.9	4.7	88.5	7819.2	0.0	45.2	0.0	692	0	4	0
06/19/81	3:00	06/18/81	JUNE 14	2	EBB	24.7	2.0	4.9	83.0	4662.7	0.0	84.3	0.0	387	0	7	0
06/19/81	6:00	06/18/81	JUNE 14	3	EBB	23.9	2.1	5.1	77.2	544.0	0.0	233.2	0.0	42	0	18	0
06/19/81	9:00	06/18/81	JUNE 14	4	FLD	23.3	1.9	4.6	83.6	765.6	0.0	263.2	0.0	64	0	22	0
06/19/81	12:00	06/19/81	JUNE 14	5	FLD	23.6	2.8	6.2	86.5	1583.8	11.6	69.4	0.0	137	1	6	0
06/19/81	15:00	06/19/81	JUNE 14	6	EBB	24.0	2.9	4.8	81.4	1388.2	0.0	12.3	0.0	113	0	1	0
06/19/81	18:00	06/19/81	JUNE 14	7	EBB	23.3	3.1	5.2	76.6	339.4	13.1	143.6	0.0	26	1	11	0
06/19/81	21:00	06/19/81	JUNE 14	8	FLD	22.7	2.1	5.0	86.0	872.1	0.0	46.5	0.0	75	0	4	0
06/20/81	0:01	06/19/81	JUNE 14	1	FLD	23.6	2.6	5.0	88.9	4555.7	0.0	33.7	0.0	405	0	3	0
06/20/81	3:00	06/19/81	JUNE 14	2	EBB	24.4	3.3	5.3	84.3	7817.3	0.0	142.3	0.0	659	0	12	0
06/20/81	6:00	06/19/81	JUNE 14	3	EBB	23.2	3.2	5.4	77.3	724.5	0.0	595.1	0.0	56	0	46	0

TABLE B-10 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---BAY ANCHOVY

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/20/81	9:00	06/19/81	JUNE 14	4	FLD	22.8	2.5	4.7	82.3	85.1	0.0	801.9	0.0	7	0	66	0
06/23/81	12:00	06/23/81	JUNE 21	5	FLD	22.9	1.6	5.0	83.5	0.0	0.0	443.1	0.0	0	0	37	0
06/23/81	15:00	06/23/81	JUNE 21	6	FLD	24.5	2.1	4.8	86.5	0.0	0.0	138.7	0.0	0	0	12	0
06/23/81	18:00	06/23/81	JUNE 21	7	EBB	24.7	2.2	5.0	81.1	0.0	0.0	98.6	0.0	0	0	8	0
06/23/81	21:00	06/23/81	JUNE 21	8	EBB	23.3	1.9	5.0	76.4	0.0	0.0	13.1	0.0	0	0	1	0
06/24/81	0:01	06/23/81	JUNE 21	1	FLD	22.9	1.5	5.0	84.6	11.8	0.0	130.0	0.0	1	0	11	0
06/24/81	3:00	06/23/81	JUNE 21	2	FLD	23.7	2.1	5.2	87.9	45.5	0.0	125.1	0.0	4	0	11	0
06/24/81	6:00	06/23/81	JUNE 21	3	EBB	24.7	2.5	4.9	83.9	83.4	0.0	35.8	0.0	7	0	3	0
06/24/81	9:00	06/23/81	JUNE 21	4'	EBB	23.6	2.2	4.9	76.7	0.0	0.0	1434.2	0.0	0	0	110	0
06/29/81	12:00	06/29/81	JUNE 28	5	EBB	24.7	1.6	5.4	78.5	0.0	0.0	254.8	0.0	0	0	20	0
06/29/81	15:00	06/29/81	JUNE 28	6	EBB	25.1	1.5	5.4	74.6	0.0	0.0	281.5	0.0	0	0	21	0
06/29/81	18:00	06/29/81	JUNE 28	7	FLD	24.3	1.0	5.4	86.5	0.0	0.0	185.0	0.0	0	0	16	0
06/29/81	21:00	06/29/81	JUNE 28	8	FLD	24.8	1.5	5.5	88.0	0.0	0.0	340.9	0.0	0	0	30	0
06/30/81	0:01	06/29/81	JUNE 28	1	EBB	24.9	2.3	5.9	84.2	0.0	0.0	237.5	0.0	0	0	20	0
06/30/81	3:00	06/29/81	JUNE 28	2	EBB	24.6	2.0	5.7	78.1	0.0	0.0	678.6	0.0	0	0	53	0
06/30/81	6:00	06/29/81	JUNE 28	3	FLD	24.1	1.3	5.4	85.0	0.0	0.0	129.4	0.0	0	0	11	0
06/30/81	9:00	06/29/81	JUNE 28	4	FLD	24.6	1.4	5.3	88.1	0.0	0.0	567.5	0.0	0	0	50	0
07/01/81	12:00	07/01/81	JUNE 28	5	EBB	25.2	1.8	6.2	83.8	0.0	0.0	322.2	0.0	0	0	27	0
07/01/81	15:00	07/01/81	JUNE 28	6	EBB	25.4	2.4	5.9	77.8	0.0	0.0	976.9	0.0	0	0	76	0
07/01/81	18:00	07/01/81	JUNE 28	7	FLD	25.1	1.4	6.1	85.7	0.0	0.0	315.1	0.0	0	0	27	0
07/01/81	21:00	07/01/81	JUNE 28	8	FLD	25.4	1.1	6.0	88.0	0.0	0.0	420.5	0.0	0	0	37	0
07/02/81	0:01	07/01/81	JUNE 28	1	EBB	25.7	2.1	6.2	85.9	11.6	0.0	430.7	0.0	1	0	37	0
07/02/81	3:00	07/01/81	JUNE 28	2	EBB	25.5	2.6	6.2	80.8	0.0	0.0	420.8	0.0	0	0	34	0
07/02/81	6:00	07/01/81	JUNE 28	3	EBB	25.3	1.7	5.7	80.7	0.0	0.0	285.0	0.0	0	0	23	0
07/02/81	9:00	07/01/81	JUNE 28	4	FLD	25.2	1.1	5.5	85.6	0.0	0.0	373.8	0.0	0	0	32	0

TABLE B-10 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---BAY ANCHOVY

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/08/81	12:00	07/08/81	JULY 05	5	FLD	27.2	0.8	3.0	67.4	0.0	0.0	14.8	0.0	0	0	1	0
07/08/81	15:00	07/08/81	JULY 05	6	FLD	26.7	5.3	3.1	85.4	0.0	0.0	11.7	0.0	0	0	1	0
07/08/81	18:00	07/08/81	JULY 05	7	EBB	27.5	1.1	3.0	84.2	0.0	0.0	59.4	0.0	0	0	5	0
07/08/81	21:00	07/08/81	JULY 05	8	EBB	26.8	1.1	2.8	79.0	0.0	0.0	139.2	0.0	0	0	11	0
07/09/81	0:01	07/08/81	JULY 05	1	EBB	26.8	1.0	2.9	81.4	0.0	0.0	12.3	0.0	0	0	1	0
07/09/81	3:00	07/08/81	JULY 05	2	FLD	26.1	0.6	2.7	86.2	0.0	0.0	23.2	0.0	0	0	2	0
07/09/81	6:00	07/08/81	JULY 05	3	EBB	27.4	1.2	2.6	84.5	0.0	0.0	23.7	0.0	0	0	2	0
07/09/81	9:00	07/08/81	JULY 05	4	EBB	26.8	0.9	2.9	77.2	0.0	0.0	77.7	0.0	0	0	6	0
07/10/81	12:00	07/10/81	JULY 05	5	EBB	27.0	1.0	6.5	76.5	0.0	0.0	39.2	0.0	0	0	3	0
07/10/81	15:00	07/10/81	JULY 05	6	FLD	26.6	0.6	6.2	84.0	0.0	0.0	11.9	0.0	0	0	1	0
07/10/81	18:00	07/10/81	JULY 05	7	FLD	27.3	1.3	5.7	87.0	0.0	0.0	103.4	0.0	0	0	9	0
07/10/81	21:00	07/10/81	JULY 05	8	EBB	28.6	1.8	5.9	84.6	0.0	0.0	886.5	0.0	0	0	75	0
07/11/81	0:01	07/10/81	JULY 05	1	EBB	26.9	1.6	5.7	79.3	0.0	0.0	996.2	0.0	0	0	79	0
07/11/81	3:00	07/10/81	JULY 05	2	FLD	26.4	1.1	5.8	83.2	0.0	0.0	12.0	0.0	0	0	1	0
07/13/81	6:00	07/10/81	JULY 05	3	FLD	26.7	1.8	5.2	85.1	0.0	0.0	329.0	0.0	0	0	28	0
07/13/81	9:00	07/10/81	JULY 05	4	EBB	27.1	1.6	5.3	80.0	12.5	0.0	200.0	0.0	1	0	16	0
07/13/81	12:00	07/13/81	JULY 12	5	EBB	32.3	3.0	5.2	80.0	0.0	0.0	912.5	0.0	0	0	73	0
07/13/81	15:00	07/13/81	JULY 12	6	FLD	29.3	2.2	6.2	79.3	0.0	0.0	605.3	0.0	0	0	48	0
07/13/81	18:00	07/13/81	JULY 12	7	FLD	27.2	1.8	6.2	88.5	2497.2	0.0	305.1	0.0	221	0	27	0
07/13/81	21:00	07/13/81	JULY 12	8	FLD	28.3	2.7	5.6	88.6	1489.8	0.0	417.6	0.0	132	0	37	0
07/14/81	0:01	07/13/81	JULY 12	1	EBB	27.9	2.8	6.3	82.2	194.6	0.0	413.6	0.0	16	0	34	0
07/14/81	3:00	07/13/81	JULY 12	2	EBB	27.4	2.6	6.4	76.8	2070.3	0.0	416.7	13.0	159	0	32	1
07/14/81	6:00	07/13/81	JULY 12	3	FLD	26.9	2.5	5.4	83.9	500.6	0.0	429.1	0.0	42	0	36	0
07/14/81	9:00	07/13/81	JULY 12	4	FLD	28.4	3.6	5.1	85.1	117.5	0.0	376.0	0.0	10	0	32	0
07/15/81	12:00	07/15/81	JULY 12	5	EBB	27.3	3.4	5.2	82.4	169.9	0.0	339.8	0.0	14	0	28	0

TABLE B-10 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---BAY ANCHOVY

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/15/81	15:00	07/15/81	JULY 12	6	EBB	27.9	3.2	5.9	78.2	882.4	0.0	537.1	0.0	69	0	42	0
07/15/81	18:00	07/15/81	JULY 12	7	FLD	29.0	3.1	5.4	83.9	917.8	0.0	941.6	0.0	77	0	79	0
07/15/81	21:00	07/15/81	JULY 12	8	FLD	27.6	3.9	4.7	88.8	7747.7	0.0	495.5	11.3	688	0	44	1
07/16/81	0:01	07/15/81	JULY 12	1	EBB	27.3	4.1	5.0	85.6	3726.6	0.0	1086.4	0.0	319	0	93	0
07/16/81	3:00	07/15/81	JULY 12	2	EBB	26.5	4.3	4.7	78.2	1841.4	0.0	1509.0	12.8	144	0	118	1
07/16/81	6:00	07/15/81	JULY 12	3	FLD	26.1	3.6	4.7	79.4	1146.1	0.0	2392.9	0.0	91	0	190	0
07/16/81	9:00	07/15/81	JULY 12	4	FLD	26.3	3.4	4.4	85.9	2014.0	0.0	1152.5	0.0	173	0	99	0
07/20/81	12:00	07/20/81	JULY 19	5	FLD	30.3	3.7	3.6	76.9	3719.1	0.0	5006.5	0.0	286	0	385	0
07/20/81	15:00	07/20/81	JULY 19	6	EBB	30.4	4.4	3.5	86.1	41870	0.0	5633.0	0.0	3605	0	485	0
07/20/81	18:00	07/20/81	JULY 19	7	EBB	29.9	4.7	3.0	80.8	21114	0.0	1448.0	0.0	1706	0	117	0
07/20/81	21:00	07/20/81	JULY 19	8	FLD	29.8	4.1	3.1	84.6	1950.4	0.0	3404.3	0.0	165	0	288	0
07/21/81	0:01	07/20/81	JULY 19	1	FLD	30.3	4.2	3.1	88.9	8245.2	0.0	3172.1	22.5	733	0	282	2
07/21/81	3:00	07/20/81	JULY 19	2	EBB	30.4	4.7	3.1	87.3	12623	0.0	3436.4	22.9	1102	0	300	2
07/21/81	6:00	07/20/81	JULY 19	3	EBB	29.8	5.1	2.8	81.8	1784.8	0.0	3594.1	12.2	146	0	294	1
07/21/81	9:00	07/20/81	JULY 19	4	EBB	29.9	4.4	2.6	81.5	147.2	0.0	19313	0.0	12	0	1574	0
07/22/81	12:00	07/22/81	JULY 19	5	FLD	29.8	3.3	4.6	84.6	212.8	0.0	2269.5	0.0	18	0	192	0
07/22/81	15:00	07/22/81	JULY 19	6	FLD	31.2	4.0	4.5	87.2	1892.2	0.0	2133.0	0.0	165	0	186	0
07/22/81	18:00	07/22/81	JULY 19	7	EBB	30.9	4.1	.	82.3	26999	0.0	765.5	0.0	2222	0	63	0
07/22/81	21:00	07/22/81	JULY 19	8	EBB	29.9	3.9	4.2	78.9	1178.7	0.0	342.2	0.0	93	0	27	0
07/23/81	0:01	07/22/81	JULY 19	1	FLD	29.4	3.2	4.3	85.6	1250.0	0.0	1320.1	0.0	107	0	113	0
07/23/81	3:00	07/22/81	JULY 19	2	FLD	30.1	3.8	4.4	88.2	1439.9	0.0	408.2	11.3	127	0	36	1
07/23/81	6:00	07/22/81	JULY 19	3	EBB	30.4	4.1	4.3	84.0	1500.0	0.0	428.6	0.0	126	0	36	0
07/23/81	9:00	07/22/81	JULY 19	4	EBB	29.3	3.7	4.2	80.5	12.4	0.0	3776.4	0.0	1	0	304	0
07/28/81	12:00	07/28/81	JULY 26	5	EBB	30.6	0.4	3.6	74.3	0.0	0.0	1224.8	0.0	0	0	91	0
07/28/81	15:00	07/28/81	JULY 26	6	EBB	28.8	4.5	3.6	79.9	0.0	0.0	1639.5	0.0	0	0	131	0

TABLE B-10 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---BAY ANCHOVY

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/28/81	18:00	07/28/81	JULY 26	7	FLD	31.1	3.8	3.4	88.1	0.0	0.0	919.4	0.0	0	0	81	0
07/28/81	21:00	07/28/81	JULY 26	8	FLD	.	.	.	89.4	179.0	0.0	548.1	11.2	16	0	49	1
07/29/81	0:01	07/28/81	JULY 26	1	EBB	.	.	.	85.2	0.0	0.0	1197.2	35.2	0	0	102	3
07/29/81	3:00	07/28/81	JULY 26	2	EBB	.	.	.	81.3	0.0	0.0	516.6	0.0	0	0	42	0
07/29/81	6:00	07/28/81	JULY 26	3	FLD	.	.	.	84.9	0.0	0.0	353.4	0.0	0	0	30	0
07/29/81	9:00	07/28/81	JULY 26	4	FLD	30.5	5.4	3.3	88.1	0.0	0.0	2168.0	0.0	0	0	191	0
07/31/81	12:00	07/31/81	JULY 26	5	EBB	28.2	3.3	5.0	77.0	0.0	0.0	1039.0	0.0	0	0	80	0
07/31/81	15:00	07/31/81	JULY 26	6	EBB	27.5	3.9	5.2	80.5	0.0	0.0	1267.1	0.0	0	0	102	0
07/31/81	18:00	07/31/81	JULY 26	7	EBB	27.7	3.3	5.4	80.1	0.0	0.0	886.4	0.0	0	0	71	0
07/31/81	21:00	07/31/81	JULY 26	8	FLD	27.0	2.8	5.3	89.1	0.0	0.0	280.6	11.2	0	0	25	1
08/01/81	0:01	07/31/81	JULY 26	1	FLD	27.5	3.6	5.4	88.9	0.0	0.0	472.4	0.0	0	0	42	0
08/01/81	3:00	07/31/81	JULY 26	2	EBB	27.1	3.7	5.2	83.9	0.0	0.0	333.7	0.0	0	0	28	0
08/01/81	6:00	07/31/81	JULY 26	3	EBB	26.9	3.5	5.3	78.8	0.0	0.0	723.4	0.0	0	0	57	0
08/01/81	9:00	07/31/81	JULY 26	4	FLD	26.7	2.8	7.3	86.7	0.0	0.0	980.4	0.0	0	0	85	0
08/02/81	12:00	08/02/81	AUG 02	5	FLD	27.9	3.5	4.9	78.2	0.0	0.0	844.0	0.0	0	0	66	0
08/02/81	15:00	08/02/81	AUG 02	6	EBB	28.1	3.7	4.6	82.6	24.2	0.0	472.2	0.0	2	0	39	0
08/02/81	18:00	08/02/81	AUG 02	7	EBB	27.5	3.5	5.2	76.9	13.0	0.0	1287.4	0.0	1	0	99	0
08/02/81	21:00	08/02/81	AUG 02	8	FLD	27.2	2.9	4.6	85.1	0.0	0.0	376.0	0.0	0	0	32	0
08/03/81	0:01	08/02/81	AUG 02	1	FLD	27.8	3.5	4.8	89.5	0.0	0.0	201.1	11.2	0	0	18	1
08/03/81	3:00	08/02/81	AUG 02	2	EBB	28.3	4.0	4.6	86.2	11.6	0.0	440.8	0.0	1	0	38	0
08/03/81	6:00	08/02/81	AUG 02	3	EBB	27.2	3.6	4.6	78.7	0.0	0.0	1524.8	0.0	0	0	120	0
08/03/81	9:00	08/02/81	AUG 02	4	FLD	27.3	3.2	4.4	82.2	0.0	0.0	1678.8	0.0	0	0	138	0
08/07/81	12:00	08/07/81	AUG 02	5	FLD	27.0	2.6	4.2	76.5	0.0	0.0	496.7	0.0	0	0	38	0
08/07/81	15:00	08/07/81	AUG 02	6	FLD	27.8	3.3	4.1	89.8	11.1	0.0	322.9	0.0	1	0	29	0
08/07/81	18:00	08/07/81	AUG 02	7	EBB	29.6	3.5	4.3	88.9	0.0	0.0	809.9	0.0	0	0	72	0

TABLE B-10 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---BAY ANCHOVY

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/07/81	21:00	08/07/81	AUG 02	8	EBB	27.5	0.4	4.3	84.3	0.0	0.0	1340.5	0.0	0	0	113	0
08/08/81	0:01	08/07/81	AUG 02	1	FLD	27.4	3.2	4.2	85.2	0.0	0.0	457.7	0.0	0	0	39	0
08/08/81	3:00	08/07/81	AUG 02	2	FLD	27.2	3.0	3.9	89.8	0.0	0.0	356.3	22.3	0	0	32	2
08/08/81	6:00	08/07/81	AUG 02	3	EBB	27.6	3.7	4.1	88.8	0.0	0.0	934.7	0.0	0	0	83	0
08/08/81	9:00	08/07/81	AUG 02	4	EBB	27.8	3.5	4.0	84.0	0.0	0.0	714.3	0.0	0	0	60	0
08/10/81	12:00	08/10/81	AUG 09	5	EBB	26.1	.	.	80.8	0.0	0.0	1126.2	0.0	0	0	91	0
08/10/81	15:00	08/10/81	AUG 09	6	FLD	30.7	3.3	4.5	85.5	0.0	0.0	584.8	0.0	0	0	50	0
08/10/81	18:00	08/10/81	AUG 09	7	FLD	33.5	2.9	4.3	90.2	299.3	0.0	376.9	0.0	27	0	34	0
08/10/81	21:00	08/10/81	AUG 09	8	EBB	37.5	3.3	4.5	87.6	11.4	0.0	1187.2	34.2	1	0	104	3
08/11/81	0:01	08/10/81	AUG 09	1	EBB	34.2	4.1	4.3	81.1	0.0	0.0	1122.1	0.0	0	0	91	0
08/11/81	3:00	08/10/81	AUG 09	2	FLD	32.9	3.4	4.7	82.9	84.4	0.0	265.4	0.0	7	0	22	0
08/11/81	6:00	08/10/81	AUG 09	3	FLD	31.1	3.7	4.3	88.0	22.7	0.0	306.8	0.0	2	0	27	0
08/11/81	9:00	08/10/81	AUG 09	4	EBB	34.6	4.4	3.8	87.2	0.0	0.0	206.4	0.0	0	0	18	0
08/14/81	12:00	08/14/81	AUG 09	5	EBB	37.5	6.3	4.2	86.4	1006.9	0.0	544.0	0.0	87	0	47	0
08/14/81	15:00	08/14/81	AUG 09	6	EBB	.	.	.	79.2	757.6	0.0	530.3	0.0	60	0	42	0
08/14/81	18:00	08/14/81	AUG 09	7	FLD	29.1	5.0	4.6	85.9	395.8	0.0	547.1	0.0	34	0	47	0
08/14/81	21:00	08/14/81	AUG 09	8	FLD	28.9	5.9	4.1	91.0	2186.8	0.0	340.7	0.0	199	0	31	0
08/15/81	0:01	08/14/81	AUG 09	1	EBB	30.0	7.1	4.2	89.0	1202.2	0.0	719.1	11.2	107	0	64	1
08/15/81	3:00	08/14/81	AUG 09	2	EBB	28.5	6.8	3.8	82.5	48.5	0.0	715.2	0.0	4	0	59	0
08/15/81	6:00	08/14/81	AUG 09	3	FLD	28.3	5.7	4.2	82.9	0.0	0.0	398.1	0.0	0	0	33	0
08/15/81	9:00	08/14/81	AUG 09	4	FLD	28.8	5.5	4.1	89.7	44.6	0.0	903.0	0.0	4	0	81	0
08/17/81	12:00	08/17/81	AUG 16	5	EBB	28.2	5.6	4.4	89.5	0.0	0.0	458.1	0.0	0	0	41	0
08/17/81	15:00	08/17/81	AUG 16	6	EBB	27.5	5.9	4.5	84.9	200.2	0.0	117.8	0.0	17	0	10	0
08/17/81	18:00	08/17/81	AUG 16	7	FLD	26.8	5.6	4.9	70.1	28.5	0.0	171.2	0.0	2	0	12	0
08/17/81	21:00	08/17/81	AUG 16	8	FLD	26.3	4.7	4.3	88.3	0.0	0.0	79.3	0.0	0	0	7	0

TABLE B-10 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---→BAY ANCHOVY

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/18/81	0:01	08/17/81	AUG 16	1	EBB	27.7	5.3	4.2	90.6	154.5	0.0	165.6	0.0	14	0	15	0
08/18/81	3:00	08/17/81	AUG 16	2	EBB	26.4	6.2	4.4	85.3	11.7	0.0	164.1	0.0	1	0	14	0
08/18/81	6:00	08/17/81	AUG 16	3	EBB	26.1	5.8	4.5	78.4	0.0	0.0	318.9	0.0	0	0	25	0
08/18/81	9:00	08/17/81	AUG 16	4	FLD	26.3	5.1	4.1	85.5	0.0	0.0	304.1	0.0	0	0	26	0
08/20/81	12:00	08/20/81	AUG 16	5	FLD	26.1	4.4	5.4	90.0	0.0	0.0	333.3	0.0	0	0	30	0
08/20/81	15:00	08/20/81	AUG 16	6	EBB	27.4	5.3	5.1	91.4	10.9	0.0	207.9	0.0	1	0	19	0
08/20/81	18:00	08/20/81	AUG 16	7	EBB	27.1	6.2	5.5	88.7	0.0	0.0	33.8	0.0	0	0	3	0
08/20/81	21:00	08/20/81	AUG 16	8	FLD	26.3	5.7	5.4	87.1	0.0	0.0	34.4	0.0	0	0	3	0
08/21/81	0:01	08/20/81	AUG 16	1	FLD	26.3	5.0	4.9	91.9	0.0	0.0	206.7	0.0	0	0	19	0
08/21/81	3:00	08/20/81	AUG 16	2	EBB	27.1	5.6	4.9	91.8	0.0	0.0	130.7	10.9	0	0	12	1
08/21/81	6:00	08/20/81	AUG 16	3	EBB	27.1	6.0	5.1	88.0	0.0	0.0	102.3	0.0	0	0	9	0
08/21/81	9:00	08/20/81	AUG 16	4	FLD	25.9	5.5	4.7	85.7	0.0	0.0	571.8	0.0	0	0	49	0
08/29/81	12:00	08/29/81	AUG 23	5	EBB	25.3	4.6	4.4	78.9	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	15:00	08/29/81	AUG 23	6	EBB	25.3	5.2	4.5	82.2	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	18:00	08/29/81	AUG 23	7	FLD	25.2	4.4	4.5	83.6	0.0	0.0	12.0	0.0	0	0	1	0
08/29/81	21:00	08/29/81	AUG 23	8	FLD	25.2	4.0	4.1	89.5	0.0	0.0	11.2	0.0	0	0	1	0
08/30/81	0:01	08/29/81	AUG 23	1	EBB	26.1	4.7	4.2	88.7	0.0	0.0	33.8	0.0	0	0	3	0
08/30/81	3:00	08/29/81	AUG 23	2	EBB	24.9	5.4	4.4	83.7	0.0	0.0	35.8	0.0	0	0	3	0
08/30/81	6:00	08/29/81	AUG 23	3	FLD	25.0	4.6	4.3	81.9	0.0	0.0	36.6	0.0	0	0	3	0
08/30/81	9:00	08/29/81	AUG 23	4	FLD	25.0	4.0	4.2	88.2	0.0	0.0	294.8	0.0	0	0	26	0

TABLE B-11
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ALOSA SPP. COMBINED

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/06/81	8:00	05/06/81	MAY 03	3	FLD	13.9	2.2	8.1	79.8	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	11:00	05/06/81	MAY 03	4	FLD	13.7	2.3	8.0	82.3	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	14:00	05/06/81	MAY 03	5	EBB	13.5	2.6	8.0	81.1	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	17:00	05/06/81	MAY 03	6	EBB	13.6	2.4	8.6	79.2	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	20:00	05/06/81	MAY 03	7	EBB	13.3	1.7	8.5	80.2	0.0	0.0	0.0	0.0	0	0	0	0
05/06/81	23:00	05/06/81	MAY 03	8	FLD	14.8	1.7	8.2	85.2	0.0	0.0	0.0	0.0	0	0	0	0
05/07/81	2:00	05/06/81	MAY 03	1	FLD	13.7	2.3	8.4	84.3	0.0	0.0	0.0	0.0	0	0	0	0
05/07/81	5:00	05/06/81	MAY 03	2	EBB	13.1	2.2	8.3	80.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	8:00	05/09/81	MAY 03	3	EBB	13.7	1.7	7.6	79.8	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	11:00	05/09/81	MAY 03	4	FLD	14.0	1.3	7.1	81.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	14:00	05/09/81	MAY 03	5	FLD	15.1	1.4	7.4	83.9	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	17:00	05/09/81	MAY 03	6	EBB	14.8	2.0	7.5	83.1	0.0	0.0	0.0	0.0	0	0	0	0
05/09/81	20:00	05/09/81	MAY 03	7	EBB	14.2	2.0	7.4	80.1	0.0	0.0	12.5	0.0	0	0	1	0
05/09/81	23:00	05/09/81	MAY 03	8	L_SK	14.1	1.3	7.3	81.4	0.0	0.0	0.0	0.0	0	0	0	0
05/10/81	2:00	05/09/81	MAY 03	1	FLD	14.7	1.3	7.3	85.3	0.0	0.0	0.0	0.0	0	0	0	0
05/10/81	5:00	05/09/81	MAY 03	2	EBB	14.5	1.6	7.5	84.5	0.0	0.0	0.0	0.0	0	0	0	0
05/15/81	12:00	05/15/81	MAY 10	5	EBB	15.4	0.1	8.8	83.2	0.0	12.0	12.0	0.0	0	1	1	0
05/15/81	15:00	05/15/81	MAY 10	6	EBB	15.8	0.1	8.9	81.4	0.0	0.0	147.4	0.0	0	0	12	0
05/15/81	18:00	05/15/81	MAY 10	7	FLD	15.3	0.1	9.2	86.0	0.0	0.0	11.6	0.0	0	0	1	0
05/15/81	21:00	05/15/81	MAY 10	8	FLD	16.1	0.1	9.1	87.5	11.4	0.0	57.1	0.0	1	0	5	0
05/16/81	0:01	05/15/81	MAY 10	1	EBB	15.7	0.1	9.0	85.4	0.0	11.7	11.7	0.0	0	1	1	0
05/18/81	12:00	05/18/81	MAY 17	5	EBB	16.5	.	.	84.6	0.0	0.0	59.1	0.0	0	0	5	0
05/18/81	15:00	05/18/81	MAY 17	6	EBB	16.6	.	.	80.2	0.0	0.0	187.0	0.0	0	0	15	0
05/18/81	18:00	05/18/81	MAY 17	7	FLD	16.2	.	.	81.3	0.0	0.0	258.3	0.0	0	0	21	0
05/18/81	21:00	05/18/81	MAY 17	8	FLD	16.8	.	.	86.7	0.0	0.0	369.1	0.0	0	0	32	0

TABLE B-11 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ALOSA SPP. COMBINED

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/19/81	0:01	05/18/81	MAY 17	1	EBB	16.1	.	.	85.9	0.0	0.0	267.8	0.0	0	0	23	0
05/19/81	3:00	05/18/81	MAY 17	2	EBB	15.6	.	.	81.4	0.0	0.0	24.6	0.0	0	0	2	0
05/19/81	6:00	05/18/81	MAY 17	3	EBB	15.5	.	.	79.0	0.0	0.0	38.0	0.0	0	0	3	0
05/19/81	9:00	05/18/81	MAY 17	4	FLD	15.9	.	.	85.2	11.7	0.0	211.3	0.0	1	0	18	0
05/21/81	12:00	05/21/81	MAY 17	5	FLD	.	.	.	85.5	0.0	0.0	152.0	0.0	0	0	13	0
05/21/81	15:00	05/21/81	MAY 17	6	EBB	.	.	.	82.6	0.0	0.0	84.7	0.0	0	0	7	0
05/21/81	18:00	05/21/81	MAY 17	7	EBB	.	.	.	79.6	0.0	0.0	364.3	0.0	0	0	29	0
05/21/81	21:00	05/21/81	MAY 17	8	FLD	.	.	.	84.8	0.0	0.0	436.3	0.0	0	0	37	0
05/22/81	0:01	05/21/81	MAY 17	1	FLD	.	.	.	88.0	0.0	0.0	159.1	0.0	0	0	14	0
05/22/81	3:00	05/21/81	MAY 17	2	EBB	.	.	.	85.5	0.0	0.0	70.2	0.0	0	0	6	0
05/22/81	6:00	05/21/81	MAY 17	3	EBB	.	.	.	81.3	0.0	0.0	418.2	0.0	0	0	34	0
05/22/81	9:00	05/21/81	MAY 17	4	FLD	.	.	.	82.6	0.0	0.0	702.2	0.0	0	0	58	0
05/27/81	12:00	05/27/81	MAY 24	5	FLD	19.1	0.3	7.4	81.2	0.0	0.0	775.9	0.0	0	0	63	0
05/27/81	15:00	05/27/81	MAY 24	6	FLD	19.2	0.2	7.1	85.6	0.0	0.0	584.1	0.0	0	0	50	0
05/27/81	18:00	05/27/81	MAY 24	7	FLD	19.7	1.0	6.9	86.5	0.0	0.0	104.0	0.0	0	0	9	0
05/27/81	21:00	05/27/81	MAY 24	8	EBB	19.3	1.7	6.9	84.0	0.0	0.0	238.1	0.0	0	0	20	0
05/28/81	0:01	05/27/81	MAY 24	1	EBB	19.5	1.0	7.1	82.8	0.0	0.0	157.0	0.0	0	0	13	0
05/28/81	3:00	05/27/81	MAY 24	2	FLD	18.8	0.4	6.5	86.5	0.0	0.0	69.4	0.0	0	0	6	0
05/28/81	6:00	05/27/81	MAY 24	3	FLD	19.8	1.0	6.6	87.1	0.0	0.0	23.0	0.0	0	0	2	0
05/28/81	9:00	05/27/81	MAY 24	4	EBB	19.6	1.6	7.1	83.6	0.0	0.0	35.9	0.0	0	0	3	0
05/29/81	12:00	05/29/81	MAY 24	5	EBB	19.6	1.1	6.7	81.5	0.0	0.0	171.8	0.0	0	0	14	0
05/29/81	15:00	05/29/81	MAY 24	6	FLD	19.2	0.5	5.9	83.4	0.0	0.0	851.3	0.0	0	0	71	0
05/29/81	18:00	05/29/81	MAY 24	7	FLD	19.8	0.7	6.4	87.6	0.0	0.0	205.5	0.0	0	0	18	0
05/29/81	21:00	05/29/81	MAY 24	8	FLD	20.0	1.3	6.8	86.1	0.0	0.0	69.7	0.0	0	0	6	0
05/30/81	0:01	05/29/81	MAY 24	1	EBB	19.8	1.3	6.4	82.7	0.0	0.0	205.6	0.0	0	0	17	0

TABLE B-11 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ALOSA SPP. COMBINED

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
05/30/81	3:00	05/29/81	MAY 24	2	EBB	19.4	0.6	5.7	82.7	0.0	0.0	84.6	0.0	0	0	7	0
05/30/81	6:00	05/29/81	MAY 24	3	FLD	19.6	0.4	5.6	87.6	0.0	0.0	102.7	0.0	0	0	9	0
05/30/81	9:00	05/29/81	MAY 24	4	EBB	20.4	0.9	5.9	86.0	0.0	0.0	46.5	0.0	0	0	4	0
06/01/81	12:00	06/01/81	MAY 31	5	EBB	21.1	0.9	8.9	83.2	0.0	0.0	132.2	0.0	0	0	11	0
06/01/81	15:00	06/01/81	MAY 31	6	EBB	20.6	0.8	8.6	79.5	0.0	0.0	150.9	0.0	0	0	12	0
06/01/81	18:00	06/01/81	MAY 31	7	FLD	20.3	0.4	8.6	83.5	0.0	0.0	179.6	0.0	0	0	15	0
06/01/81	21:00	06/01/81	MAY 31	8	FLD	20.7	0.6	8.2	87.7	0.0	0.0	57.0	0.0	0	0	5	0
06/02/81	0:01	06/01/81	MAY 31	1	EBB	20.7	1.4	8.6	85.6	0.0	0.0	11.7	0.0	0	0	1	0
06/02/81	3:00	06/01/81	MAY 31	2	EBB	20.5	1.1	8.2	81.7	0.0	0.0	110.2	0.0	0	0	9	0
06/02/81	6:00	06/01/81	MAY 31	3	L_SK	20.2	0.5	7.6	81.8	0.0	0.0	220.0	0.0	0	0	18	0
06/02/81	9:00	06/01/81	MAY 31	4	FLD	20.8	0.4	7.5	86.9	0.0	0.0	172.6	0.0	0	0	15	0
06/03/81	12:00	06/03/81	MAY 31	5	FLD	20.8	0.6	6.8	86.5	0.0	0.0	57.8	0.0	0	0	5	0
06/03/81	15:00	06/03/81	MAY 31	6	EBB	20.7	1.0	6.5	81.7	0.0	0.0	36.7	0.0	0	0	3	0
06/03/81	18:00	06/03/81	MAY 31	7	EBB	20.5	0.4	6.0	80.4	0.0	0.0	99.5	0.0	0	0	8	0
06/03/81	21:00	06/03/81	MAY 31	8	FLD	20.9	0.3	6.0	86.9	0.0	0.0	92.1	0.0	0	0	8	0
06/04/81	0:01	06/03/81	MAY 31	1	FLD	20.8	0.7	6.3	88.7	0.0	0.0	33.8	0.0	0	0	3	0
06/04/81	3:00	06/03/81	MAY 31	2	EBB	20.8	1.2	6.2	84.3	0.0	0.0	59.3	0.0	0	0	5	0
06/04/81	6:00	06/03/81	MAY 31	3	EBB	20.6	0.6	6.3	80.2	0.0	0.0	87.3	0.0	0	0	7	0
06/04/81	9:00	06/03/81	MAY 31	4	FLD	20.5	0.3	6.0	84.3	0.0	0.0	284.7	0.0	0	0	24	0
06/09/81	6:00	06/09/81	JUNE 07	3	EBB	23.0	0.3	6.6	81.6	0.0	0.0	12.3	0.0	0	0	1	0
06/09/81	9:00	06/09/81	JUNE 07	4	EBB	22.8	0.4	6.6	86.1	0.0	0.0	23.2	0.0	0	0	2	0
06/09/81	12:00	06/09/81	JUNE 07	5	EBB	22.7	0.3	6.3	85.3	0.0	0.0	0.0	0.0	0	0	0	0
06/09/81	15:00	06/09/81	JUNE 07	6	FLD	22.4	0.2	6.6	80.8	0.0	0.0	12.4	0.0	0	0	1	0
06/09/81	18:00	06/09/81	JUNE 07	7	EBB	23.1	0.3	6.8	79.3	0.0	0.0	0.0	0.0	0	0	0	0
06/09/81	21:00	06/09/81	JUNE 07	8	EBB	23.2	0.3	6.8	84.6	0.0	0.0	11.8	0.0	0	0	1	0

TABLE B-11 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ALOSA SPP. COMBINED

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/10/81	0:01	06/09/81	JUNE 07	1	EBB	22.7	0.3	6.6	83.9	0.0	0.0	0.0	0.0	0	0	0	0
06/10/81	3:00	06/09/81	JUNE 07	2	FLD	21.9	0.2	6.0	77.1	0.0	0.0	13.0	0.0	0	0	1	0
06/13/81	6:00	06/13/81	JUNE 07	3	FLD	22.0	0.4	4.6	69.6	0.0	0.0	0.0	0.0	0	0	0	0
06/13/81	9:00	06/13/81	JUNE 07	4	EBB	23.1	0.6	4.5	82.3	0.0	0.0	0.0	0.0	0	0	0	0
06/13/81	12:00	06/13/81	JUNE 07	5	EBB	23.5	0.6	4.5	76.6	0.0	0.0	0.0	0.0	0	0	0	0
06/13/81	15:00	06/13/81	JUNE 07	6	EBB	23.4	0.6	4.5	74.1	0.0	0.0	0.0	0.0	0	0	0	0
06/13/81	18:00	06/13/81	JUNE 07	7	FLD	22.7	0.6	4.4	84.4	0.0	0.0	0.0	0.0	0	0	0	0
06/13/81	21:00	06/13/81	JUNE 07	8	FLD	24.2	0.8	4.2	85.4	0.0	0.0	0.0	0.0	0	0	0	0
06/14/81	0:01	06/13/81	JUNE 07	1	EBB	23.1	0.9	4.2	79.6	0.0	0.0	0.0	0.0	0	0	0	0
06/14/81	3:00	06/13/81	JUNE 07	2	EBB	22.9	1.0	4.2	74.8	0.0	0.0	0.0	0.0	0	0	0	0
06/18/81	12:00	06/18/81	JUNE 14	5	FLD	24.0	1.6	3.8	72.4	0.0	0.0	0.0	0.0	0	0	0	0
06/18/81	15:00	06/18/81	JUNE 14	6	EBB	24.3	1.9	3.7	75.9	0.0	0.0	0.0	0.0	0	0	0	0
06/18/81	18:00	06/18/81	JUNE 14	7	EBB	24.1	1.9	4.1	71.3	0.0	0.0	0.0	0.0	0	0	0	0
06/18/81	21:00	06/18/81	JUNE 14	8	FLD	23.6	1.7	3.9	85.5	0.0	0.0	0.0	0.0	0	0	0	0
06/19/81	0:01	06/18/81	JUNE 14	1	FLD	24.9	1.9	4.7	88.5	0.0	0.0	0.0	0.0	0	0	0	0
06/19/81	3:00	06/18/81	JUNE 14	2	EBB	24.7	2.0	4.9	83.0	0.0	0.0	0.0	0.0	0	0	0	0
06/19/81	6:00	06/18/81	JUNE 14	3	EBB	23.9	2.1	5.1	77.2	0.0	0.0	0.0	0.0	0	0	0	0
06/19/81	9:00	06/18/81	JUNE 14	4	FLD	23.3	1.9	4.6	83.6	0.0	0.0	0.0	0.0	0	0	0	0
06/19/81	12:00	06/19/81	JUNE 14	5	FLD	23.6	2.8	6.2	86.5	0.0	0.0	0.0	0.0	0	0	0	0
06/19/81	15:00	06/19/81	JUNE 14	6	EBB	24.0	2.9	4.8	81.4	0.0	0.0	0.0	0.0	0	0	0	0
06/19/81	18:00	06/19/81	JUNE 14	7	EBB	23.3	3.1	5.2	76.6	0.0	0.0	0.0	0.0	0	0	0	0
06/19/81	21:00	06/19/81	JUNE 14	8	FLD	22.7	2.1	5.0	86.0	0.0	0.0	0.0	0.0	0	0	0	0
06/20/81	0:01	06/19/81	JUNE 14	1	FLD	23.6	2.6	5.0	88.9	0.0	0.0	0.0	0.0	0	0	0	0
06/20/81	3:00	06/19/81	JUNE 14	2	EBB	24.4	3.3	5.3	84.3	0.0	0.0	0.0	0.0	0	0	0	0
06/20/81	6:00	06/19/81	JUNE 14	3	EBB	23.2	3.2	5.4	77.3	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-11 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ALOSA SPP. COMBINED

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
06/20/81	9:00	06/19/81	JUNE 14	4	FLD	22.8	2.5	4.7	82.3	0.0	0.0	0.0	0.0	0	0	0	0
06/23/81	12:00	06/23/81	JUNE 21	5	FLD	22.9	1.6	5.0	83.5	0.0	0.0	0.0	0.0	0	0	0	0
06/23/81	15:00	06/23/81	JUNE 21	6	FLD	24.5	2.1	4.8	86.5	0.0	0.0	0.0	0.0	0	0	0	0
06/23/81	18:00	06/23/81	JUNE 21	7	EBB	24.7	2.2	5.0	81.1	0.0	0.0	0.0	0.0	0	0	0	0
06/23/81	21:00	06/23/81	JUNE 21	8	EBB	23.3	1.9	5.0	76.4	0.0	0.0	0.0	0.0	0	0	0	0
06/24/81	0:01	06/23/81	JUNE 21	1	FLD	22.9	1.5	5.0	84.6	0.0	0.0	0.0	0.0	0	0	0	0
06/24/81	3:00	06/23/81	JUNE 21	2	FLD	23.7	2.1	5.2	87.9	0.0	0.0	0.0	0.0	0	0	0	0
06/24/81	6:00	06/23/81	JUNE 21	3	EBB	24.7	2.5	4.9	83.9	0.0	0.0	0.0	0.0	0	0	0	0
06/24/81	9:00	06/23/81	JUNE 21	4	EBB	23.6	2.2	4.9	76.7	0.0	0.0	0.0	0.0	0	0	0	0
06/29/81	12:00	06/29/81	JUNE 28	5	EBB	24.7	1.6	5.4	78.5	0.0	0.0	0.0	0.0	0	0	0	0
06/29/81	15:00	06/29/81	JUNE 28	6	EBB	25.1	1.5	5.4	74.6	0.0	0.0	0.0	0.0	0	0	0	0
06/29/81	18:00	06/29/81	JUNE 28	7	FLD	24.3	1.0	5.4	86.5	0.0	0.0	0.0	0.0	0	0	0	0
06/29/81	21:00	06/29/81	JUNE 28	8	FLD	24.8	1.5	5.5	88.0	0.0	0.0	0.0	0.0	0	0	0	0
06/30/81	0:01	06/29/81	JUNE 28	1	EBB	24.9	2.3	5.9	84.2	0.0	0.0	0.0	0.0	0	0	0	0
06/30/81	3:00	06/29/81	JUNE 28	2	EBB	24.6	2.0	5.7	78.1	0.0	0.0	0.0	0.0	0	0	0	0
06/30/81	6:00	06/29/81	JUNE 28	3	FLD	24.1	1.3	5.4	85.0	0.0	0.0	0.0	11.8	0	0	0	1
06/30/81	9:00	06/29/81	JUNE 28	4	FLD	24.6	1.4	5.3	88.1	0.0	0.0	0.0	0.0	0	0	0	0
07/01/81	12:00	07/01/81	JUNE 28	5	EBB	25.2	1.8	6.2	83.8	0.0	0.0	0.0	0.0	0	0	0	0
07/01/81	15:00	07/01/81	JUNE 28	6	EBB	25.4	2.4	5.9	77.8	0.0	0.0	0.0	0.0	0	0	0	0
07/01/81	18:00	07/01/81	JUNE 28	7	FLD	25.1	1.4	6.1	85.7	0.0	0.0	0.0	0.0	0	0	0	0
07/01/81	21:00	07/01/81	JUNE 28	8	FLD	25.4	1.1	6.0	88.0	0.0	0.0	0.0	11.4	0	0	0	1
07/02/81	0:01	07/01/81	JUNE 28	1	EBB	25.7	2.1	6.2	85.9	0.0	0.0	0.0	0.0	0	0	0	0
07/02/81	3:00	07/01/81	JUNE 28	2	EBB	25.5	2.6	6.2	80.8	0.0	0.0	0.0	0.0	0	0	0	0
07/02/81	6:00	07/01/81	JUNE 28	3	EBB	25.3	1.7	5.7	80.7	0.0	0.0	0.0	0.0	0	0	0	0
07/02/81	9:00	07/01/81	JUNE 28	4	FLD	25.2	1.1	5.5	85.6	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-11 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ALOSA SPP. COMBINED

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/08/81	12:00	07/08/81	JULY 05	5	FLD	27.2	0.8	3.0	67.4	0.0	0.0	0.0	0.0	0	0	0	0
07/08/81	15:00	07/08/81	JULY 05	6	FLD	26.7	5.3	3.1	85.4	0.0	0.0	0.0	0.0	0	0	0	0
07/08/81	18:00	07/08/81	JULY 05	7	EBB	27.5	1.1	3.0	84.2	0.0	0.0	0.0	0.0	0	0	0	0
07/08/81	21:00	07/08/81	JULY 05	8	EBB	26.8	1.1	2.8	79.0	0.0	0.0	0.0	0.0	0	0	0	0
07/09/81	0:01	07/08/81	JULY 05	1	EBB	26.8	1.0	2.9	81.4	0.0	0.0	0.0	0.0	0	0	0	0
07/09/81	3:00	07/08/81	JULY 05	2	FLD	26.1	0.6	2.7	86.2	0.0	0.0	0.0	23.2	0	0	0	2
07/09/81	6:00	07/08/81	JULY 05	3	EBB	27.4	1.2	2.6	84.5	0.0	0.0	0.0	0.0	0	0	0	0
07/09/81	9:00	07/08/81	JULY 05	4	EBB	26.8	0.9	2.9	77.2	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	12:00	07/10/81	JULY 05	5	EBB	27.0	1.0	6.5	76.5	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	15:00	07/10/81	JULY 05	6	FLD	26.6	0.6	6.2	84.0	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	18:00	07/10/81	JULY 05	7	FLD	27.3	1.3	5.7	87.0	0.0	0.0	0.0	0.0	0	0	0	0
07/10/81	21:00	07/10/81	JULY 05	8	EBB	28.6	1.8	5.9	84.6	0.0	0.0	0.0	0.0	0	0	0	0
07/11/81	0:01	07/10/81	JULY 05	1	EBB	26.9	1.6	5.7	79.3	0.0	0.0	0.0	12.6	0	0	0	1
07/11/81	3:00	07/10/81	JULY 05	2	FLD	26.4	1.1	5.8	83.2	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	6:00	07/10/81	JULY 05	3	FLD	26.7	1.8	5.2	85.1	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	9:00	07/10/81	JULY 05	4	EBB	27.1	1.6	5.3	80.0	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	12:00	07/13/81	JULY 12	5	EBB	32.3	3.0	5.2	80.0	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	15:00	07/13/81	JULY 12	6	FLD	29.3	2.2	6.2	79.3	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	18:00	07/13/81	JULY 12	7	FLD	27.2	1.8	6.2	88.5	0.0	0.0	0.0	0.0	0	0	0	0
07/13/81	21:00	07/13/81	JULY 12	8	FLD	28.3	2.7	5.6	88.6	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	0:01	07/13/81	JULY 12	1	EBB	27.9	2.8	6.3	82.2	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	3:00	07/13/81	JULY 12	2	EBB	27.4	2.6	6.4	76.8	0.0	0.0	0.0	0.0	0	0	0	0
07/14/81	6:00	07/13/81	JULY 12	3	FLD	26.9	2.5	5.4	83.9	0.0	0.0	0.0	11.9	0	0	0	1
07/14/81	9:00	07/13/81	JULY 12	4	FLD	28.4	3.6	5.1	85.1	0.0	0.0	0.0	0.0	0	0	0	0
07/15/81	12:00	07/15/81	JULY 12	5	EBB	27.3	3.4	5.2	82.4	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-11 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ALOSA SPP. COMBINED

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/15/81	15:00	07/15/81	JULY 12	6	EBB	27.9	3.2	5.9	78.2	0.0	0.0	0.0	0.0	0	0	0	0
07/15/81	18:00	07/15/81	JULY 12	7	FLD	29.0	3.1	5.4	83.9	0.0	0.0	0.0	0.0	0	0	0	0
07/15/81	21:00	07/15/81	JULY 12	8	FLD	27.6	3.9	4.7	88.8	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	0:01	07/15/81	JULY 12	1	EBB	27.3	4.1	5.0	85.6	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	3:00	07/15/81	JULY 12	2	EBB	26.5	4.3	4.7	78.2	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	6:00	07/15/81	JULY 12	3	FLD	26.1	3.6	4.7	79.4	0.0	0.0	0.0	0.0	0	0	0	0
07/16/81	9:00	07/15/81	JULY 12	4	FLD	26.3	3.4	4.4	85.9	0.0	0.0	0.0	0.0	0	0	0	0
07/20/81	12:00	07/20/81	JULY 19	5	FLD	30.3	3.7	3.6	76.9	0.0	0.0	0.0	0.0	0	0	0	0
07/20/81	15:00	07/20/81	JULY 19	6	EBB	30.4	4.4	3.5	86.1	0.0	0.0	0.0	0.0	0	0	0	0
07/20/81	18:00	07/20/81	JULY 19	7	EBB	29.9	4.7	3.0	80.8	0.0	0.0	0.0	0.0	0	0	0	0
07/20/81	21:00	07/20/81	JULY 19	8	FLD	29.8	4.1	3.1	84.6	0.0	0.0	0.0	0.0	0	0	0	0
07/21/81	0:01	07/20/81	JULY 19	1	FLD	30.3	4.2	3.1	88.9	0.0	0.0	0.0	0.0	0	0	0	0
07/21/81	3:00	07/20/81	JULY 19	2	EBB	30.4	4.7	3.1	87.3	0.0	0.0	0.0	22.9	0	0	0	2
07/21/81	6:00	07/20/81	JULY 19	3	EBB	29.8	5.1	2.8	81.8	0.0	0.0	0.0	0.0	0	0	0	0
07/21/81	9:00	07/20/81	JULY 19	4	EBB	29.9	4.4	2.6	81.5	0.0	0.0	0.0	12.3	0	0	0	1
07/22/81	12:00	07/22/81	JULY 19	5	FLD	29.8	3.3	4.6	84.6	0.0	0.0	0.0	0.0	0	0	0	0
07/22/81	15:00	07/22/81	JULY 19	6	FLD	31.2	4.0	4.5	87.2	0.0	0.0	0.0	0.0	0	0	0	0
07/22/81	18:00	07/22/81	JULY 19	7	EBB	30.9	4.1	.	82.3	0.0	0.0	0.0	0.0	0	0	0	0
07/22/81	21:00	07/22/81	JULY 19	8	EBB	29.9	3.9	4.2	78.9	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	0:01	07/22/81	JULY 19	1	FLD	29.4	3.2	4.3	85.6	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	3:00	07/22/81	JULY 19	2	FLD	30.1	3.8	4.4	88.2	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	6:00	07/22/81	JULY 19	3	EBB	30.4	4.1	4.3	84.0	0.0	0.0	0.0	0.0	0	0	0	0
07/23/81	9:00	07/22/81	JULY 19	4	EBB	29.3	3.7	4.2	80.5	0.0	0.0	0.0	0.0	0	0	0	0
07/28/81	12:00	07/28/81	JULY 26	5	EBB	30.6	0.4	3.6	74.3	0.0	0.0	0.0	0.0	0	0	0	0
07/28/81	15:00	07/28/81	JULY 26	6	EBB	28.8	4.5	3.6	79.9	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-11 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ALOSA SPP. COMBINED

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
07/28/81	18:00	07/28/81	JULY 26	7	FLD	31.1	3.8	3.4	88.1	0.0	0.0	0.0	0.0	0	0	0	0
07/28/81	21:00	07/28/81	JULY 26	8	FLD	.	.	.	89.4	0.0	0.0	0.0	0.0	0	0	0	0
07/29/81	0:01	07/28/81	JULY 26	1	EBB	.	.	.	85.2	0.0	0.0	0.0	0.0	0	0	0	0
07/29/81	3:00	07/28/81	JULY 26	2	EBB	.	.	.	81.3	0.0	0.0	0.0	0.0	0	0	0	0
07/29/81	6:00	07/28/81	JULY 26	3	FLD	.	.	.	84.9	0.0	0.0	0.0	0.0	0	0	0	0
07/29/81	9:00	07/28/81	JULY 26	4	FLD	30.5	5.4	3.3	88.1	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	12:00	07/31/81	JULY 26	5	EBB	28.2	3.3	5.0	77.0	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	15:00	07/31/81	JULY 26	6	EBB	27.5	3.9	5.2	80.5	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	18:00	07/31/81	JULY 26	7	EBB	27.7	3.3	5.4	80.1	0.0	0.0	0.0	0.0	0	0	0	0
07/31/81	21:00	07/31/81	JULY 26	8	FLD	27.0	2.8	5.3	89.1	0.0	0.0	0.0	0.0	0	0	0	0
08/01/81	0:01	07/31/81	JULY 26	1	FLD	27.5	3.6	5.4	88.9	0.0	0.0	0.0	11.2	0	0	0	1
08/01/81	3:00	07/31/81	JULY 26	2	EBB	27.1	3.7	5.2	83.9	0.0	0.0	0.0	0.0	0	0	0	0
08/01/81	6:00	07/31/81	JULY 26	3	EBB	26.9	3.5	5.3	78.8	0.0	0.0	0.0	0.0	0	0	0	0
08/01/81	9:00	07/31/81	JULY 26	4	FLD	26.7	2.8	7.3	86.7	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	12:00	08/02/81	AUG 02	5	FLD	27.9	3.5	4.9	78.2	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	15:00	08/02/81	AUG 02	6	EBB	28.1	3.7	4.6	82.6	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	18:00	08/02/81	AUG 02	7	EBB	27.5	3.5	5.2	76.9	0.0	0.0	0.0	0.0	0	0	0	0
08/02/81	21:00	08/02/81	AUG 02	8	FLD	27.2	2.9	4.6	85.1	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	0:01	08/02/81	AUG 02	1	FLD	27.8	3.5	4.8	89.5	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	3:00	08/02/81	AUG 02	2	EBB	28.3	4.0	4.6	86.2	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	6:00	08/02/81	AUG 02	3	EBB	27.2	3.6	4.6	78.7	0.0	0.0	0.0	0.0	0	0	0	0
08/03/81	9:00	08/02/81	AUG 02	4	FLD	27.3	3.2	4.4	82.2	0.0	0.0	0.0	0.0	0	0	0	0
08/07/81	12:00	08/07/81	AUG 02	5	FLD	27.0	2.6	4.2	76.5	0.0	0.0	0.0	0.0	0	0	0	0
08/07/81	15:00	08/07/81	AUG 02	6	FLD	27.8	3.3	4.1	89.8	0.0	0.0	0.0	0.0	0	0	0	0
08/07/81	18:00	08/07/81	AUG 02	7	EBB	29.6	3.5	4.3	88.9	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-11 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ALOSA SPP. COMBINED

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/07/81	21:00	08/07/81	AUG 02	8	EBB	27.5	0.4	4.3	84.3	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	0:01	08/07/81	AUG 02	1	FLD	27.4	3.2	4.2	85.2	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	3:00	08/07/81	AUG 02	2	FLD	27.2	3.0	3.9	89.8	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	6:00	08/07/81	AUG 02	3	EBB	27.6	3.7	4.1	88.8	0.0	0.0	0.0	0.0	0	0	0	0
08/08/81	9:00	08/07/81	AUG 02	4	EBB	27.8	3.5	4.0	84.0	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	12:00	08/10/81	AUG 09	5	EBB	26.1	.	.	80.8	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	15:00	08/10/81	AUG 09	6	FLD	30.7	3.3	4.5	85.5	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	18:00	08/10/81	AUG 09	7	FLD	33.5	2.9	4.3	90.2	0.0	0.0	0.0	0.0	0	0	0	0
08/10/81	21:00	08/10/81	AUG 09	8	EBB	37.5	3.3	4.5	87.6	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	0:01	08/10/81	AUG 09	1	EBB	34.2	4.1	4.3	81.1	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	3:00	08/10/81	AUG 09	2	FLD	32.9	3.4	4.7	82.9	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	6:00	08/10/81	AUG 09	3	FLD	31.1	3.7	4.3	88.0	0.0	0.0	0.0	0.0	0	0	0	0
08/11/81	9:00	08/10/81	AUG 09	4	EBB	34.6	4.4	3.8	87.2	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	12:00	08/14/81	AUG 09	5	EBB	37.5	6.3	4.2	86.4	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	15:00	08/14/81	AUG 09	6	EBB	.	.	.	79.2	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	18:00	08/14/81	AUG 09	7	FLD	29.1	5.0	4.6	85.9	0.0	0.0	0.0	0.0	0	0	0	0
08/14/81	21:00	08/14/81	AUG 09	8	FLD	28.9	5.9	4.1	91.0	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	0:01	08/14/81	AUG 09	1	EBB	30.0	7.1	4.2	89.0	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	3:00	08/14/81	AUG 09	2	EBB	28.5	6.8	3.8	82.5	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	6:00	08/14/81	AUG 09	3	FLD	28.3	5.7	4.2	82.9	0.0	0.0	0.0	0.0	0	0	0	0
08/15/81	9:00	08/14/81	AUG 09	4	FLD	28.8	5.5	4.1	89.7	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	12:00	08/17/81	AUG 16	5	EBB	28.2	5.6	4.4	89.5	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	15:00	08/17/81	AUG 16	6	EBB	27.5	5.9	4.5	84.9	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	18:00	08/17/81	AUG 16	7	FLD	26.8	5.6	4.9	70.1	0.0	0.0	0.0	0.0	0	0	0	0
08/17/81	21:00	08/17/81	AUG 16	8	FLD	26.3	4.7	4.3	88.3	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-11 (CONTINUED)
NUMBER AND DENSITY (#/1000 CU M) AT THE INDIAN POINT STATION IN 1981

TAXON---ALOSA SPP. COMBINED

ACT_DATE	HOUR	WRK_DATE	WEEK_OF	COL_PRD	TIDE	INTK_TMP	SAL	DO	VOLUME	EGG_DEN	YS_DEN	PYS_DEN	JUV_DEN	EGG_CT	YS_CT	PYS_CT	JUV_CT
08/18/81	0:01	08/17/81	AUG 16	1	EBB	27.7	5.3	4.2	90.6	0.0	0.0	0.0	0.0	0	0	0	0
08/18/81	3:00	08/17/81	AUG 16	2	EBB	26.4	6.2	4.4	85.3	0.0	0.0	0.0	0.0	0	0	0	0
08/18/81	6:00	08/17/81	AUG 16	3	EBB	26.1	5.8	4.5	78.4	0.0	0.0	0.0	0.0	0	0	0	0
08/18/81	9:00	08/17/81	AUG 16	4	FLD	26.3	5.1	4.1	85.5	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	12:00	08/20/81	AUG 16	5	FLD	26.1	4.4	5.4	90.0	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	15:00	08/20/81	AUG 16	6	EBB	27.4	5.3	5.1	91.4	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	18:00	08/20/81	AUG 16	7	EBB	27.1	6.2	5.5	88.7	0.0	0.0	0.0	0.0	0	0	0	0
08/20/81	21:00	08/20/81	AUG 16	8	FLD	26.3	5.7	5.4	87.1	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	0:01	08/20/81	AUG 16	1	FLD	26.3	5.0	4.9	91.9	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	3:00	08/20/81	AUG 16	2	EBB	27.1	5.6	4.9	91.8	0.0	0.0	0.0	10.9	0	0	0	1
08/21/81	6:00	08/20/81	AUG 16	3	EBB	27.1	6.0	5.1	88.0	0.0	0.0	0.0	0.0	0	0	0	0
08/21/81	9:00	08/20/81	AUG 16	4	FLD	25.9	5.5	4.7	85.7	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	12:00	08/29/81	AUG 23	5	EBB	25.3	4.6	4.4	78.9	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	15:00	08/29/81	AUG 23	6	EBB	25.3	5.2	4.5	82.2	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	18:00	08/29/81	AUG 23	7	FLD	25.2	4.4	4.5	83.6	0.0	0.0	0.0	0.0	0	0	0	0
08/29/81	21:00	08/29/81	AUG 23	8	FLD	25.2	4.0	4.1	89.5	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	0:01	08/29/81	AUG 23	1	EBB	26.1	4.7	4.2	88.7	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	3:00	08/29/81	AUG 23	2	EBB	24.9	5.4	4.4	83.7	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	6:00	08/29/81	AUG 23	3	FLD	25.0	4.6	4.3	81.9	0.0	0.0	0.0	0.0	0	0	0	0
08/30/81	9:00	08/29/81	AUG 23	4	FLD	25.0	4.0	4.2	88.2	0.0	0.0	0.0	0.0	0	0	0	0

TABLE B-12
MEAN WEEKLY DENSITIES OF THE NON-SELECTED ICHTHYOPLANKTON COLLECTED
AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER
(#/1000 CUBIC METERS)

TAXON	LIFE STAGE	MAY 03	MAY 10	MAY 17	MAY 24	MAY 31	JUNE 07	JUNE 14	JUNE 21	JUNE 28
CLUPEIDAE	PYS	0.0	26.7	48.0	53.3	21.5	0.0	0.0	0.0	0.0
CLUPEIDAE	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALOSA AESTIVALIS	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALOSA SAPIDISSIMA	YSL	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALOSA SAPIDISSIMA	PYS	0.0	0.0	0.0	0.7	1.6	0.7	0.0	0.0	0.0
ALOSA SAPIDISSIMA	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
ALOSA SPP.	MUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALOSA SPP.	EGG	0.0	2.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0
ALOSA SPP.	PYS	0.8	21.3	189.6	178.8	88.5	3.8	0.0	0.0	0.0
ALOSA SPP.	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
ENGRAULIDAE	MUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGRAULIDAE	PYS	0.0	0.0	0.0	0.0	0.0	2.3	55.7	56.0	92.5
ENGRAULIDAE	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
CYPRINIDAE	YSL	0.0	2.3	3.0	1.5	1.5	1.6	0.0	1.5	0.0
CYPRINIDAE	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0
FUNDULUS DIAPHANUS	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUNDULUS SPP.	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUNDULUS SPP.	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MENIDIA SPP.	YSL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MENIDIA SPP.	PYS	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	1.4
SYNGNATHUS FUSCUS	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SYNGNATHUS FUSCUS	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MORONE SPP.	MUT	0.0	4.7	30.2	88.1	54.1	24.1	1.5	4.5	0.0
MORONE SPP.	PYS	0.0	0.0	2.9	23.9	74.9	57.2	7.8	106.3	3.0
MORONE SPP.	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.7
CENTRACHIDAE	YSL	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0
CENTRACHIDAE	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHEOSTOMA OLMSTEDI	YSL	0.0	7.2	3.1	2.9	3.1	0.0	0.0	0.0	0.0
ETHEOSTOMA OLMSTEDI	PYS	0.0	2.3	4.6	0.7	0.7	0.0	0.0	0.0	0.0
ETHEOSTOMA OLMSTEDI	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0
PERCA FLAVESCENS	YSL	5.2	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PERCA FLAVESCENS	PYS	0.8	2.3	2.3	0.7	0.0	0.0	0.0	0.0	0.0
CYNOSCION REGALIS	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CYNOSCION REGALIS	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PARALICHTHYS OBLONGUS	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRINECTES MACULATUS	YSL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRINECTES MACULATUS	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRINECTES MACULATUS	JUV	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MUTILATED	MUT	2.3	48.1	59.3	58.1	19.2	0.0	1.5	3.1	4.5
MUTILATED	EGG	0.7	0.0	1.5	0.7	0.0	0.0	0.0	0.0	0.0
MUTILATED	PYS	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	3.0
MUTILATED	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
UNIDENTIFIED	EGG	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0

NOTE: YSL--YOLK-SAC LARVAE PYS--POST YOLK-SAC LARVAE JUV--JUVENILE MUT--MUTILATED

TABLE B-12(CONTINUED)
MEAN WEEKLY DENSITIES OF THE NON-SELECTED ICHTHYOPLANKTON COLLECTED
AT INDIAN POINT IN 1981 AT STATION D2 USING A PUMP SAMPLER
(#/1000 CUBIC METERS)

TAXON	LIFE STAGE	JULY 04	JULY 12	JULY 19	JULY 26	AUGUST 02	AUGUST 09	AUGUST 16	AUGUST 23
CLUPEIDAE	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLUPEIDAE	JUV	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
ALOSA AESTIVALIS	JUV	0.0	0.0	1.4	0.7	0.0	0.0	0.7	0.0
ALOSA SAPIDISSIMA	YSL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALOSA SAPIDISSIMA	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALOSA SAPIDISSIMA	JUV	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALOSA SPP.	MUT	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0
ALOSA SPP.	EGG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALOSA SPP.	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALOSA SPP.	JUV	1.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0
ENGRAULIDAE	MUT	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0
ENGRAULIDAE	PYS	26.7	115.9	625.2	176.6	164.8	132.2	39.2	118.8
ENGRAULIDAE	JUV	0.0	0.0	0.7	1.5	0.0	0.7	0.7	0.0
CYPRINIDAE	YSL	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CYPRINIDAE	PYS	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
FUNDULUS DIAPHANUS	JUV	0.0	0.0	0.0	0.7	0.8	0.0	0.0	0.0
FUNDULUS SPP.	PYS	0.0	0.0	0.0	0.0	0.8	0.8	0.7	0.0
FUNDULUS SPP.	JUV	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
MENIDIA SPP.	YSL	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
MENIDIA SPP.	PYS	0.0	0.0	0.7	0.8	0.0	0.0	0.9	0.0
SYNGNATHUS FUSCUS	PYS	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
SYNGNATHUS FUSCUS	JUV	0.8	0.8	1.5	0.0	0.0	1.5	2.1	4.5
MORONE SPP.	MUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MORONE SPP.	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MORONE SPP.	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CENTRACHIDAE	YSL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CENTRACHIDAE	PYS	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0
ETHEOSTOMA OLMSTEDI	YSL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHEOSTOMA OLMSTEDI	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ETHEOSTOMA OLMSTEDI	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PERCA FLAVESCENS	YSL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PERCA FLAVESCENS	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CYNOSCION REGALIS	PYS	11.3	1.5	5.8	3.6	2.2	0.0	0.8	0.0
CYNOSCION REGALIS	JUV	0.0	0.7	17.6	5.8	2.2	0.0	0.0	0.0
PARALICHTHYS OBLONGUS	JUV	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
TRINECTES MACULATUS	YSL	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0
TRINECTES MACULATUS	PYS	0.0	8.3	33.6	2.9	2.9	2.8	0.8	0.0
TRINECTES MACULATUS	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MUTILATED	MUT	0.8	0.8	0.0	0.0	2.2	0.0	0.0	0.0
MUTILATED	EGG	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
MUTILATED	PYS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
MUTILATED	JUV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UNIDENTIFIED	EGG	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0

NOTE: YSL--YOLK-SAC LARVAE PYS--POST YOLK-SAC LARVAE JUV--JUVENILE MUT--MUTILATED

Table B-13. 1981 Indian Point Entrainment Abundance Study Total Weekly Volume (Cubic Meters) Sampled by Pump Sampler

Week	Volume
May 03	1311.4
May 10	423.5
May 17	1334.2
May 24	1354.9
May 31	1342.9
June 07	1285.5
June 14	1300.7
June 21	660.6
June 28	1331.3
July 05	1305.0
July 12	1326.8
July 19	1339.2
July 26	1336.2
Aug 02	1346.7
Aug 09	1369.9
Aug 16	1387.2
Aug 23	676.7

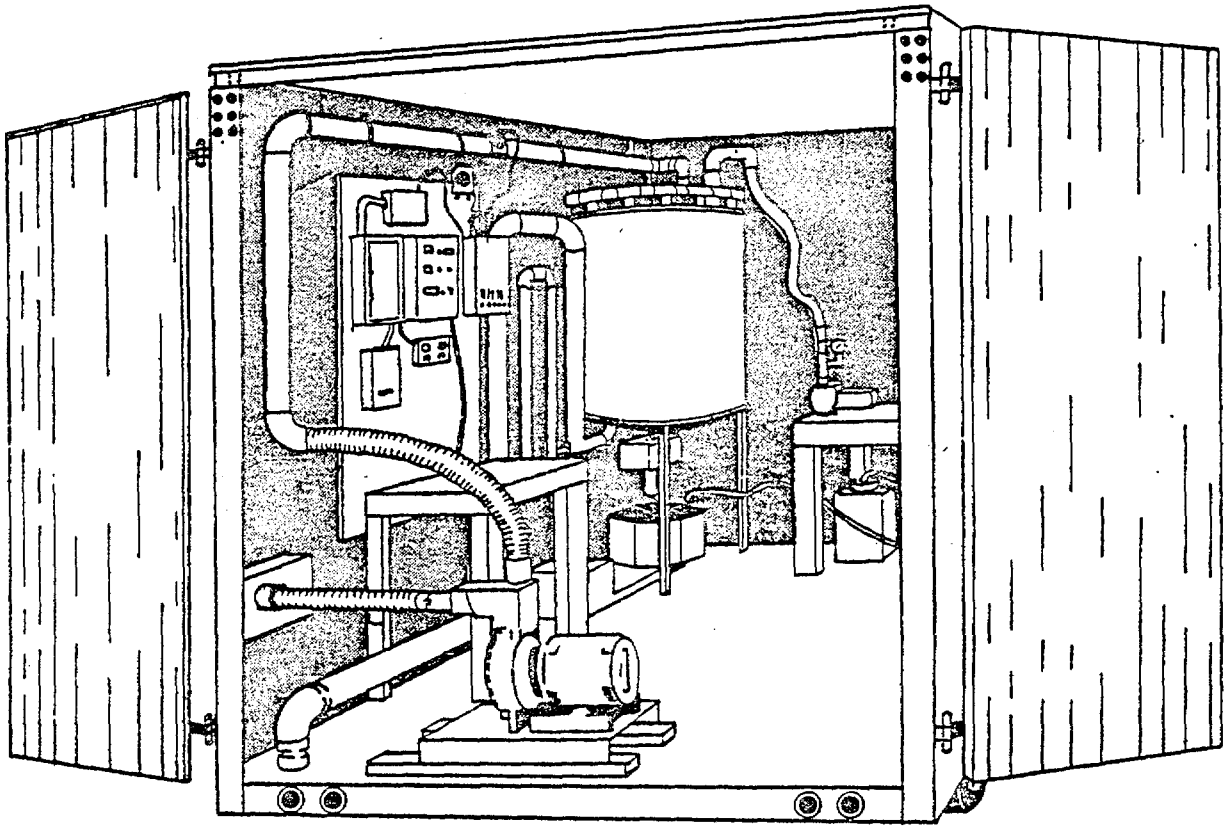


Figure B-1. Orientation of Components Within Trailer Housing of Pump Sampling Device (Ecological Analysts AUTOSAM - U.S. Patent No. 4,145,928).

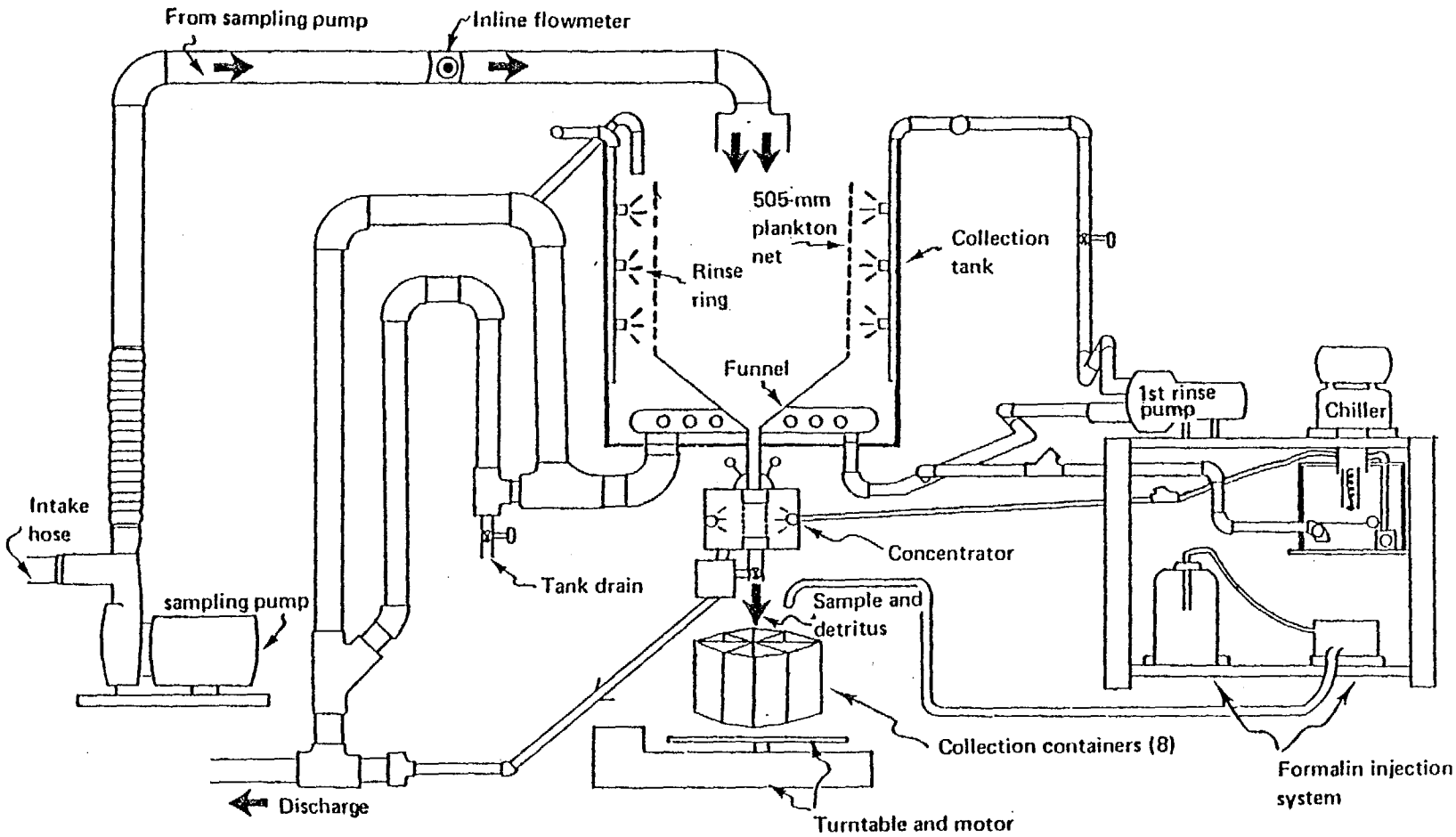


Figure B-2. Schematic Diagram of Sampling Components of Pump Sampling Device (Ecological Analysts AUTOSAM - U.S. Patent No. 4, 145, 928).