

AN ECOLOGICAL SURVEY
OF THE DELAWARE RIVER
IN THE VICINITY OF
POINT PLEASANT, PENNSYLVANIA

July 1972 - December 1973

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by

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SUMMARY

1. Ichthyological Associates, Inc. conducted an ecological survey of the Delaware River in the vicinity of Point Pleasant, Pennsylvania from July 1972 through December 1973. This report describes the findings of the survey.
2. The study was initiated because a water intake associated with the proposed Limerick Generating Station will be located at Point Pleasant and will divert water from the Delaware River to the East Branch Perkiomen Creek. A portion of the supplemented Perkiomen Creek flow will be utilized by the nuclear station during periods of low (less than 560 cfs) Schuylkill River flow. This ecological survey was directed at two groups of organisms that will be affected by the Point Pleasant intake: fishes and macroinvertebrates.
3. The study area includes approximately 2.8 mi of the Delaware River near Point Pleasant. Here the river averages about 550 ft in width and ranges to approximately 12 ft in depth.
4. Hurricane Agnes caused a flood in late June 1972, and a second flood occurred in late June 1973. Results obtained in this survey may be indicative of post-flood recovery periods rather than normal conditions.
5. A sampling program for fishes was established in August 1972. Seines, frame trap nets, and fyke nets were used on a regular basis.

6. Invertebrates were sampled qualitatively in June and September 1972. Invertebrate drift studies were carried out in August 1972 and in July through October 1973.
7. In 1972, a total of 6,215 fishes of 37 species was taken by all gear used regularly and electrofishing. All of the 37 species were collected by the combined use of seines and fyke and trap nets; electrofishing yielded no additional species. In 1973, a total of 6,931 specimens of 41 species was collected by all sampling gear.
8. Seining yielded 5,605 specimens of 28 species in 1972, and satinfish shiner (approximately 70% of the catch), swallowtail shiner (10.0%), and spottail shiner (5.3%) were the most abundant species. Seine collections in 1973 yielded 6,475 specimens of 32 species. Satinfish shiner (55.0% of the catch), swallowtail shiner (17.3%), and spottail shiner (5.3%) remained the most abundant species.
9. A total of 529 specimens of 24 species was taken by fyke net and trap net in 1972. The four most numerous species were pumpkinseed (21.0% of the catch), brown bullhead (20.6%), bluegill (14.7%), and redbreast sunfish (11.3%). In 1973, 456 specimens of 22 species were taken in 101 collections; redbreast sunfish (24.6% of the catch), brown bullhead (18.9%), pumpkinseed (14.3%), and white catfish (8.8%) were the most abundant species.
10. The results of the invertebrate sampling indicate the presence of a relatively healthy benthic fauna. All major orders of insects were represented in the benthic samples obtained in 1972. Of the insect

orders, Diptera was represented by the greatest number of families (6) and genera (14). Chironomidae was numerically the most abundant family and comprised 67.3% of the total number of invertebrates taken in September 1972. Collections of 1973 have not yet been analyzed.

11. The invertebrate drift of August 1972 was dominated by surface drifters, most of which were adult chironomids. Chironomidae larvae and pupae were the largest components of the subsurface drift. Baetidae was the second most abundant family in the subsurface drift.

INTRODUCTION

Ichthyological Associates, Inc. conducted an ecological survey of the Delaware River in the vicinity of Point Pleasant, Pennsylvania from July 1972 through December 1973. This study was one facet of the ecological investigations underway in the vicinity of the proposed Limerick Generating Station near Pottstown, Pennsylvania. Philadelphia Electric Company is constructing the nuclear station and is financing the environmental studies.

The two unit nuclear station will utilize wet cooling towers that will evaporate an average 54 cfs of water. Current allocations to downstream users of nearly 500 cfs of Schuylkill River water necessitate an alternative water source during periods of low (less than 560 cfs) flow. Present plans are to withdraw consumptive water from Perkiomen Creek at Graterford, Pennsylvania (Figure 1) during periods of low Schuylkill flow. Perkiomen Creek will be supplemented as necessary by water diverted from the Delaware River at Point Pleasant. The Delaware River Basin Commission (1973) has issued a final environmental statement on the Point Pleasant Diversion Project in which the primary impacts on Delaware River aquatic life were identified as effects due to entrainment and impingement. These impacts are expected to be minimal because of the small volume of water to be withdrawn. In addition, few screenable fishes should be impinged on the intake screens for two reasons: (1) water velocities at the screens should not exceed 0.75 ft/sec; (2) the upriver-downriver escape of fishes will be provided for. The entrainment of surface-drifting macroinvertebrates could be minimized by the installation of a floating log boom.

This ecological survey was directed at two groups of organisms that will be affected by the Point Pleasant intake: fishes and macroinvertebrates. The purpose of this report is to describe the findings of the ecological survey for the period July 1972 through December 1973. Normal conditions may not be indicated due to extensive scouring by the flood waters of June 1972 (Hurricane Agnes) and June 1973.

DESCRIPTION OF STUDY AREA

The Delaware River study area extends upstream approximately 1.25 mi from Tohickon Creek to Prah's Island and downstream approximately 1.5 mi below Tohickon Creek to Bull's Island (Figure 2). The river averages approximately 550 ft in width and has a gradient of approximately 4.5 ft per mile. Water depth ranged to about 12 ft. As measured at Riegelsville, New Jersey (approximately 20 mi upstream), river flow for the interval 1906 to 1962 averaged 11,190 cfs with a maximum of 340,000 cfs on 19 August 1955 and a minimum of 870 cfs on 20 September 1908 (Busch & Shaw 1966). Diurnal fluctuations in flow at low and medium flow conditions were also reported by Busch & Shaw (1966) and were attributed to patterns of water use by power plants on tributary streams. These fluctuations are modified by controlled release of water from several storage lakes and reservoirs.

There is a variety of river habitats, i.e., riffles, rapids, runs, pools, and backeddies in the study area. Substrate in the riffle and run areas is composed largely of bedrocks, boulders, and coarse gravel. Silt was found on the bottom in pools and backeddies. A mixture of rubble, gravel, and sand occurred along the Pennsylvania shore which tended to be

shallower than the New Jersey shore. Tohickon Creek is the only sizable tributary that enters the study area.

Periphytic diatoms and filamentous green algae, mostly *Cladophora*, appeared to be the dominant primary producers. Growths of these organisms, which were judged light to moderate in comparison to algal growth in the nearby East Branch Perkiomen Creek and Schuylkill River, covered the rocks in shallow riffle and run areas. Myriophyllum was the most frequently observed rooted aquatic plants in the study area, being particularly common in the backeddies. The light growths of these plants may have been due to the scouring effects of the June 1972 and June 1973 floods.

Broadfoot, Powell, and Mertz (1969) and Betz Laboratories, Inc. (1970) have studied the physicochemical characteristics of the Delaware River in the vicinity of Tohickon Creek (Table 1). We measured selected water quality parameters, i.e., dissolved oxygen, pH, and temperature during this survey. These three studies indicated that dissolved oxygen was generally close to saturation, pH ranged from 6.5 to 9.5, and temperature ranged from 30 to 84 F. Plant nutrient levels were higher than those found in unpolluted streams but not so high as those found in heavily polluted streams.

MATERIALS AND METHODS

Physicochemical Analyses

Selected physicochemical parameters were measured at the time of fish and macroinvertebrate sampling. Temperature, pH, and dissolved

oxygen determinations were made with standard field thermometers, Hach pH indicator (Model 17-F and 17-N), and by the azide modification of the iodometric method (Winkler method), respectively. These data are not presented separately but are summarized in Table 1 and tabulated with the fish collection results by date in Tables 8 through 33.

Fishes

Field surveys made in July and on 1 August were conducted to locate suitable collection stations and to assess the relative effectiveness of seine, electrofishing gear, trawls, and two types of trap nets. Seines (8 to 10 ft long), fyke nets, and frame trap nets were used with repeated success. A 25-ft bag seine proved too unwieldy in the river current and on the varying substrates; therefore, its use was discontinued. Electro-fishing was used on one occasion and discarded in favor of seining. Sampling in midriver was attempted with a 9-ft semi-balloon trawl. This technique was abandoned because boulders repeatedly hung and ripped the trawl.

Seine stations and net sites were established after 16 August and were sampled approximately twice monthly for fishes (Figure 2). The sample stations are described in Table 2. One seine collection was made at each seine station, and fyke and trap nets were fished for approximately 24 hr during each 2-day sampling period. High water sample stations were established when high flows made sampling at original stations impossible. The high flow stations were seine site T40 which replaced seine sites T20 and T30, and seine site T75 which replaced site T60. Net sites T40 and

T70 were fished at high flows exclusively. Sampling at net site T45 was suspended during high river flows.

Seines were used to collect small fishes in the shallow (to 3 ft deep) habitats. The seines were 8 to 10 and 25 ft long by 4 ft deep and constructed of 1/8- and 1/4-inch square mesh, respectively. Efforts were made by the seine crew to sample all available habitats at each sampling station. The amount of fishing effort or sampling time spent at each site on each date was comparable. Seine hauls were subsampled when large numbers of specimens were captured.

Frame trap nets consisted of two rectangular, 3 by 6-ft metal frames, followed by a series of four, 2.5-ft diameter metal hoops, all enclosed by 0.5-inch mesh netting. A 3 by 50-ft leader extended from the body of the net to the shore. Fyke nets were constructed by the attachment of two, 3 by 25-ft wings and a 3-ft square metal frame mouth to a standard hoop net. The mesh size was 1-inch square and allowed most fishes less than 80 mm to escape. The wings were usually set at a 60 to 90 degree angle depending on the area in which the nets were set. Physicochemical data were obtained at each site when the nets were set as well as approximately 24 hr later when the nets were pulled and the catch removed.

Collected fishes were processed and released whenever possible. Specimens to be retained for laboratory analysis were preserved in 10% formalin immediately upon capture. At the laboratory all specimens were rinsed in water to remove the formalin and stored in 40% isopropanol or discarded. Fishes were identified to species, and fork lengths were measured to within 5 mm intervals from 0 to 100 mm and to within 10 mm intervals for lengths greater than 100 mm.

Macroinvertebrates

A qualitative sampling program was initiated in July 1972 to determine the species composition and relative abundance of benthic invertebrates in the study area. Samples were taken in July and September from shallow riffle areas and along the edges of deep runs and pools. Most of the invertebrates were taken by kicking up the substratum and collecting the dislodged organisms in a dip net. Some of the species not susceptible to dip netting were picked by hand from submerged rocks, logs, and rooted aquatic plants. The specimens were preserved in 95% isopropanol immediately upon capture.

In the laboratory, the animals were removed from the sediment and identified, when possible, to genus or species. The following references were used for identification:

- Brinkhurst, R. O. 1972. Oligochaeta. (Unpublished supplemental key obtained through personal communication). 22 pp.
- Burks, B. D. 1953. The mayflies, or Ephemeroptera, of Illinois. *Bul. Ill. Nat. Hist. Surv.* 26:art 1. 216 pp.
- Harman, W. N. and C. O. Berg. 1971. The freshwater snails of central New York with illustrated keys to the genera and species. *Search* 4: 68 pp.
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- Mason, W. T. 1968. An introduction to the identification of chironomid larvae. *Fed. Wat. Poll. Contr. Admin.* 89 pp.
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- Sinclair, R. M. 1964. Water quality requirements for elmids beetles, with larval and adult keys to the eastern genera. Tenn. Dept. Publ. Hlth. 14 pp.
- Usinger, R. L. 1971. Aquatic insects of California. Univ. Cal. Press; Berkeley. 508 pp.

An additional study was carried out to estimate several drift parameters, including composition, diurnal periodicity, and numbers and biomass per unit volume. On 16 August 1972, two macroinvertebrate drift nets (0.5 mm mesh) were set side by side (2-ft separation) in the riffle located approximately 220-yd upstream of Tohickon Creek. Each net was 35 inches in length and was held open by a 1-ft square aluminum frame. Each frame was fitted with a Plexiglas apron which tapered to a 3 by 12-inch opening. The aluminum frame was attached to two pieces of 1.6-inch aluminum conduit. This arrangement allowed easy placement and removal of the net over steel rods which were hammered into the substrate. The two nets were placed in the river for a 1-hr interval every 2 hr for 24 hr. Each net projected 0.5-inch above the water surface and extended 11.5 inches down the water column. The collection of samples every 2 hr enabled the monitoring of any temporal changes in drift parameters which occurred during the 24-hr period.

The material collected in the nets was washed into jars and preserved in 95% isopropanol. The aquatic component of the drift was identified to family. All organisms were counted, dried in an oven at 60 C for 72 hr, and weighed to the nearest 0.1 mg.

Estimates of the mean numbers and weights of drifting invertebrates per unit volume of water sampled were calculated for the 24-hr drift study. Flow (ft^3/sec) through the samplers was calculated as the product of the cross-sectional area sampled (ft^2) and the velocity of water entering the samplers (ft/sec). Water velocity was measured at the entrance of each sampler with a Gurley Model 625 current meter.

The average number and weight of invertebrates per cubic foot of water sampled was calculated from the generalized formula

$$D = \frac{D_s}{V_s}$$

where D = average number or average weight per cubic foot of water, D_s = number or weight of invertebrates that would have been collected if the net sampled continuously for 24 hr, and V_s = volume of water that would have passed through each sampler in 24 hr. Since the drift samplers sampled 1 hr every 2 hr for 24 hr, it was necessary to estimate D_s by summing the area under the curve relating either numbers or weights per sample to the time the sample was taken.

During July through October 1973, monthly macroinvertebrate drift sampling was carried out. Two nets were placed in the river for 1 hr every 2 hr between 1800 and 0200 hr, the period in which peak drift rates were expected. These samples have not yet been analyzed.

RESULTS

Fishes

A total of 6,215 specimens of 37 species was taken by the various gear in 1972; the 1973 catch was 6,931 specimens of 41 species (Table 3-7). Most species were captured by seine, particularly minnows (Cyprinidae) and young of the year fishes. Larger fishes, primarily game and pan species of the family Centrarchidae, were captured with fyke and frame trap nets. All of the 37 species taken in 1972 were collected by the combined use of seines and fyke and frame trap nets; electrofishing yielded no additional species. The presence of two anadromous species, alewife (Alosa pseudoharengus) and American shad (Alosa sapidissima) is well documented (Miller et al. 1972 and Mihursky 1962), but we took none with our gear until 26 June 1973 when we collected four alewife at site T40. We collected no additional alewife and no American shad.

Seine collections yielded 5,605 specimens of 28 species in 1972 (Table 4) and 6,475 specimens of 32 species in 1973 (Table 5). Satinfish represented nearly 70% of the seine catch in 1972 and 55.0% in 1973; it was consistently the most abundant species taken by seine after 1 August in both years. Swallowtail shiner (10.0% of the 1972 catch and 17.3% of the 1973 catch) and spottail shiner (5.3% in 1972 and 1973) were the only other species that comprised greater than 5.0% of the catch. Other species that commonly entered the seine catch were common shiner, spotfin shiner, redbreast sunfish, blacknose dace, pumpkinseed, bluegill, tessellated darter, banded killifish, and golden shiner. In general, the number of species taken by seine decreased from August to December. This

trend was probably due to the migration of young of the year fishes out of the shallow water along shore as well as the inability of the collectors to sample as efficiently during the higher December flows.

Intersite differences in seine catches occurred and appeared to be due to habitat differences. Seine site T60 was the most productive seine station in terms of the number of species and specimens collected (Tables 8-33). In general, the other seine sites yielded similar, but lower catches. The higher productivity of site T60 seemed to be due to the greater variety of habitats that were present. Also, sizable sheltered areas were available; the site was not as open and exposed to the river current as the other sites.

Forty-eight trap net and fyke net collections in 1972 yielded 529 specimens of 24 species (Table 6). The four most numerous species were pumpkinseed (21.0% of the total catch), brown bullhead (20.6%), bluegill (14.7%), and redbreast sunfish (11.3%). No other species comprised greater than 5.0% of the total 1972 catch. Other pan and sport fishes commonly taken (i.e., comprising over 2.0% of the catch) were white catfish, white perch, rock bass, black crappie, and American eel. Chain pickerel, walleye, and muskellunge were each represented by only a single specimen.

In 1973, a total of 456 specimens of 22 species was taken in 101 collections (Table 7). Redbreast sunfish (24.6% of the catch), brown bullhead (18.9%), pumpkinseed (14.3%), and white catfish (8.8%) were the most abundant species. White perch, bluegill, black crappie, American eel, rock bass, and green sunfish were also common. One specimen each of the walleye and muskellunge were again taken.

During the survey period, no appreciable difference was observed in the fyke net catch versus the trap net catch (Tables 8-33). Fishes were more frequently captured at net sites T25, T35, and T60 than at any of other net sites. These sites were situated in similar habitats, i.e., backeddy or cove areas of moderate (3 to 8 ft) depth.

Benthos

Representative species of all major orders of aquatic insects were found in the benthic samples; oligochaets, molluscs, and crustaceans were also well represented (Table 34). Of the insect orders, Diptera (true flies) was represented by the greatest number of families (6) and genera (14). The most diverse family of Diptera was Chironomidae (midges) which was represented by eight genera. Trichoptera (caddis flies) was the second most diverse order with representatives of six families and 10 genera. Of the Trichipteran genera, Hydropsyche (net caddis flies) was the most diverse with nine species. Ephemeroptera (may flies) and Coleoptera (beetles) were the third and fourth most diverse orders with four families and 11 genera and four families and eight genera, respectively. Only one species of Plecoptera (stone flies) was taken.

Chironomidae was numerically the most abundant family and comprised 67.3% of the total number of invertebrates taken in September 1972 (Table 35). The most numerous genera and their percentage of the total September collection are given in Table 36. Note that Rhagovelia, a small water strider, was included among the 15 most abundant genera. This is probably an incorrect placement since all Rhagovelia were taken on the surface in an isolated backwater area with a single sweep of the dip net.

Our samples were taken less than 3 mo after the major flood of 22-23 June 1972 and, therefore, may be characteristic of a post-flood recovery phase rather than the normal July through September fauna. This present list of taxa probably includes most of the relatively abundant species. However, further samples will have to be taken before a definitive species list can be compiled and seasonal changes in relative abundance can be described.

The results of our sampling to date indicate that the presence of a relatively healthy benthic fauna; one which would be typical of a clean or mildly polluted warm-water stream in this part of the United States.

Invertebrate Drift

The two drift nets collected 28,145 invertebrates during the 24-hr study interval in August 1972. Since the nets sampled for only 12 of the 24 hr, the above value represents approximately 50% of the total number that would have been captured had sampling been continuous. The bulk of the drift was composed of surface drifters (21,212 individuals), most of which were adult chironomids. The subsurface drift consisted of individuals from 21 families (Table 37). Chironomidae larvae and pupae were the largest components of the drift and composed 23.1 and 70.0% of the total number, respectively. Baetidae was the second most abundant family (5.2%) in the subsurface drift; no other family comprised more than 1.0% of the total.

Peak drift rates occurred early in the evening for both surface and subsurface drifters (Figure 3). These peaks appear to have been caused by

an emergence of Chironomidae rather than a behavioral diurnal periodicity in drift. Note that Chironomidae pupae were responsible for most of the diel fluctuation in subsurface drift (Figure 4) and that their drift rate began to increase early in the afternoon. Surface drift followed a similar pattern (Figure 3) with the peak rate occurring 2 hr later in the evening. This pattern would be expected if the pupae were emerging and the new adults were directly influencing the level of surface drift. This hypothesis was supported by our analysis of the surface drift which revealed that over 90% of the surface drifters were adult chironomids.

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Table 1. Summary of selected water quality parameters measured in the Delaware River in the vicinity of Tohickon Creek, Pennsylvania.

	Above Tohickon Creek				Below Tohickon Creek			
	Med	Avg	Max	Min	Med	Avg	Max	Min
Sep 1967 - May 1968 ^a								
Water Temp. (F)	45.5	52.7	78.8	32.9	45.5	52.3	77.0	32.9
D.O. (mg/l)	12.1	12.3	15.0	7.8	12.2	12.1	14.6	7.8
pH	7.3	7.5	8.9	6.5	7.4	7.4	8.8	6.8
Total Alkalinity (mg/l)	35.0	33.0	46.0	15.0	35.3	34.2	47.0	16.8
Nitrate as N (mg/l)	0.41	0.49	0.96	0.25	0.42	0.48	0.93	0.17
Phosphate as PO ₄ (mg/l)	0.27	0.31	0.52	0.21	0.32	0.34	0.58	0.19
May 1968 - Sep 1968 ^b								
Water Temp. (F)					75.2	73.5	81.5	59.0
D.O. (mg/l)					9.8	9.9	11.7	8.3
pH					7.9	8.0	8.9	7.1
Total Alkalinity (mg/l)					39.0	39.8	47.4	29.0
Nitrate as N (mg/l)					1.77	2.08	5.34	0.16
Phosphate as PO ₄ (mg/l)					0.46	0.40	0.49	0.24
Nov 1969 - Feb 1970 ^c								
Water Temp. (F)					36.3	36.5	50.0	31.4
D.O. (mg/l)					11.1	11.1	12.4	9.2
pH					7.1	7.1	8.0	6.0
Total Alkalinity (mg/l)					31.0	36.0	54.0	22.0
Nitrate as N (mg/l)					0.7	0.72	0.75	0.7
Phosphate as PO ₄ (mg/l) ^d					0.8	0.8	0.9	0.7
Jul 1972 - Dec 1973 ^e								
Water Temp. (F)					Above and Below Tohickon Creek			
D.O. (mg/l)					84.0	30.0		
pH					14.0	6.4		
					9.2	6.7		

^aFrom: Tables 33 and 34. Water Quality Monitoring Program, Natural Resources Division, Bucks County Planning Commission. June 1969. (Data compiled from measurements made at approximately 3 week intervals over the period 29 September 1967 - 7 May 1968).

^bFrom: Table 34. Water Quality Monitoring Program, Natural Resources Division, Bucks County Planning Commission. June 1969. (Data compiled from measurements made at approximately 3 week intervals over the period 28 May - 10 September 1968).

^cFrom: Betz Laboratories, Inc. (Data compiled from measurements made at approximately 1 week intervals over the period 25 November 1969 - 16 February 1970).

^dFrom: Betz Laboratories, Inc. (Data compiled from composite samples collected over the period November 1969 - February 1970).

^eFrom: Ichthyological Associates. (Data compiled from approximately semimonthly measurements made over the period 21 July 1972 - 14 December 1973).

Table 2. Descriptions of sampling stations on the Delaware River in the vicinity of Point Pleasant, Pennsylvania.

<u>Seine Station Code</u>	<u>Description</u>
T20	Downstream ends of two small islands near Prah's Island approximately 1.25 mi upstream of the confluence of Tohickon Creek and the Delaware River. Substrate was silt, sand, gravel, and rubble. The islands offered some sheltered areas; riffles and runs predominated.
T30	Pennsylvania shore approximately 0.75 mi upstream of Tohickon Creek. The site was a gently sloping, gravel and rubble shoal. Backwater areas were sometimes present.
T40	High flow station along the Pennsylvania shore approximately 0.5 mi upstream of Tohickon Creek. Substrate was silt and sand. The site was located in a sheltered (backeddy) area in the lee of a large shoal.
T50	Pennsylvania shore approximately 0.25 mi upstream of Tohickon Creek at Point Pleasant Canoe Rental's boat launch. Substrate was gravel and rubble, and the site was directly exposed to the river current. Limited backeddies were present along the shore.
T60	In a cove along the Pennsylvania shore approximately 0.1 mi downstream of Tohickon Creek at the mouth of Hickory Run. The bottom was gravel and rubble at Hickory Run and silt covered boulders in the cove.
T75	Upstream tip of Bull's Island along the New Jersey Shore 1.5 mi downstream of Tohickon Creek. Substrate was gravel, sand, and rubble.
<u>Net Site Code</u>	
T20	Fyke net site at downstream end of a small island near Prah's Island approximately 1.25 mi upstream of Tohickon Creek. Substrate was a silt, sand, and gravel shoal.
T25	New Jersey shore approximately 0.9 mi upstream of Tohickon Creek. Substrate was mud, rubble, and boulders in the primarily backeddy habitat. Fyke and trap nets were fished.
T35	New Jersey shore about 0.5 mi upstream of Tohickon Creek. Substrate in the backeddy was silt over boulders and rubble. Fyke and trap nets set at this site.
T40	Pennsylvania shore approximately 0.5 mi upstream of Tohickon Creek. Substrate was silt and sand. High water trap net site.
T45	Deep run at the New Jersey shore approximately 0.2 mi upstream of Tohickon Creek. Substrate was rubble and boulders at this trap net site.

Table 2. (cont.)

<u>Net Site Code</u>	<u>Description</u>
155	New Jersey shore opposite Tohickon Creek. Substrate was rubble and silt. Trap net set in this deep backeddy.
160	Pennsylvania shore approximately 0.1 mi downstream of Tohickon Creek. Substrate was silt, rubble, and boulders. Fyke and trap nets used in this cove and backeddy.
170	Pennsylvania shore approximately 0.75 mi downstream of Tohickon Creek. Substrate was mud. Trap net set at this site. Deep run habitat.

Table 3. Fish species collected by seines (S), fyke and frame trap nets (N), and electrofishing (E) on the Delaware River in the vicinity of Point Pleasant, Pennsylvania during 1972. Common and scientific nomenclature is in agreement with Bailey et al. (1970).

PETROMYZONTIDAE - LAMPREYS ¹		S N E
<u>Petromyzon marinus</u> Linnaeus	Sea lamprey	+ - -
ANGUILLIDAE - FRESHWATER EELS		
<u>Anguilla rostrata</u> Lesueur	American eel	+++
CLUPEIDAE - HERRINGS ²		
<u>Alosa pseudoharengus</u> (Wilson)	Alewife	+ - -
ESOCIDAE - PIKES		
<u>Esox masquinongy</u> Mitchill	Muskellunge	- + -
<u>E. niger</u> Lesueur ¹	Chain pickerel	- + -
CYPRINIDAE - MINNOWS and CARPS		
<u>Carassius auratus</u> Linnaeus	Goldfish	- + -
<u>Cyprinus carpio</u> Linnaeus	Carp	- + -
<u>Exocoelsum maxillina</u> (Lesueur) ²	Cutlips minnow	+ - -
<u>Hybognathus nuchalis</u> Agassiz	Silvery minnow	+ - -
<u>Notemigonus crysoleucas</u> (Mitchill)	Golden shiner	+ + -
<u>Notropis amoenus</u> (Abbott)	Comely shiner	+ - -
<u>N. anostanus</u> (Girard)	Satinfish shiner	+++
<u>N. cornutus</u> (Mitchill)	Common shiner	+ - -
<u>N. hudsonius</u> (Clinton)	Spottail shiner	+ + -
<u>N. procne</u> (Cope)	Swallowtail shiner	+++
<u>N. spilopterus</u> (Cope)	Spotfin shiner	+ - +
<u>Pimephales notatus</u> (Rafinesque) ²	Bluntnose minnow	+ - -
<u>P. promelas</u> Rafinesque	Fathead minnow	+ - -
<u>Rhinichthys atratulus</u> (Hermann)	Blacknose dace	+ - -
<u>R. cataractae</u> (Valenciennes)	Longnose dace	+ - -
<u>Semotilus atromaculatus</u> (Mitchill)	Creek chub	+ - +
<u>S. corporalis</u> (Mitchill)	Fallfish	+ - +
CATOSTOMIDAE - SUCKERS		
<u>Carpiodes cyprinus</u> (Lesueur)	Quillback	+ - -
<u>Catostomus commersoni</u> (Lacepede)	White sucker	+ + -
<u>Erimyzon oblongus</u> (Mitchill) ²	Creek chubsucker	+ - -
ICTALURIDAE - CATFISHES		
<u>Ictalurus catus</u> (Linnaeus)	White catfish	- + +
<u>I. natalis</u> (Lesueur) ¹	Yellow bullhead	- + -
<u>I. nebulosus</u> (Lesueur)	Brown bullhead	+++
<u>I. punctatus</u> (Rafinesque) ²	Channel catfish	- + -

Table 3. (cont.)

CYPRINODONTIDAE - KILLIFISHES		S N E
<u>Fundulus diaphanus</u> (Lesueur)	Banded killifish	+ - +
PERCICHTHYIDAE - TEMPERATE BASSES		
<u>Morone americana</u> (Gmelin)	White perch	- + -
CENTRARCHIDAE - SUNFISHES		
<u>Ambloplites rupestris</u> (Rafinesque)	Rock bass	++ -
<u>Lepomis auritus</u> (Linnaeus)	Redbreast sunfish	+++
<u>L. cyanellus</u> Rafinesque	Green sunfish	+++
<u>L. gibbosus</u> (Linnaeus)	Pumpkinseed	+++
<u>L. macrochirus</u> Rafinesque	Bluegill	+++
<u>Micropterus dolomieu</u> Lacepede	Smallmouth bass	++ -
<u>M. salmoides</u> (Lacepede)	Largemouth bass	++ -
<u>Pomoxis annularis</u> Rafinesque	White crappie	- + -
<u>P. nigromaculatus</u> (Leseuer)	Black crappie	++ -
PERCIDAE - PERCHES		
<u>Etheostoma olivaceum</u> Storer	Tessellated darter	+ - +
<u>Perca flavescens</u> ¹	Yellow perch	+ - -
<u>Percina peltata</u> (Stauffer) ²	Shield darter	+ - -
<u>Stizostedion vitreum vitreum</u> (Mitchill)	Walleye	- + -

¹1972 only²1973 only

Table 4. Summary of fishes collected by seine from the Delaware River in the vicinity of Point Pleasant, Pennsylvania from July through December 1972.

Date	Jul 21	Aug 1	Aug 16	Sep 13	Sep 28	Oct 10	Oct 26	Nov 7	Dec 6	Dec 21	Total	% Catch
No. of Collections	4	3	3	4	4	4	4	4	3	3	36	
No. of Specimens	141	173	641	793	788	592	923	264	872	418	5605	
No. of Species	13	21	20	18	19	14	14	11	7	5	28	
Sea lamprey	-	-	-	1	-	-	-	-	-	-	1	+
American eel	6	-	-	-	-	-	-	-	-	-	6	0.1
Silvery minnow	-	1	-	-	-	-	-	-	-	-	1	+
Golden shiner	1	14	13	4	6	-	1	4	9	1	53	0.9
Comely shiner	1	-	4	1	1	-	-	-	-	1	8	0.1
Satinfin shiner	13	41	401	481	558	404	771	170	714	365	3918	69.9
Common shiner	-	2	18	2	5	-	2	13	-	-	42	0.7
Spottail shiner	57	31	62	63	47	30	4	3	-	-	297	5.3
Swallowtail shiner	20	-	15	123	96	82	20	62	109	35	562	10.0
Spotfin shiner	34	15	42	53	8	10	65	-	21	-	248	4.4
Fathead minnow	-	1	-	-	-	-	-	-	1	-	2	+
Blacknose dace	-	2	2	-	-	1	1	2	-	-	8	0.1
Longnose dace	1	-	-	11	12	11	13	3	-	-	51	0.9
Creek chub	-	6	8	1	-	-	-	-	-	-	15	0.3
Fallfish	4	9	10	5	3	1	-	-	-	-	32	0.6
Quillback	-	13	15	6	-	-	26	-	-	-	60	1.1
White sucker	-	1	-	-	-	-	-	-	-	-	1	+
Brown bullhead	1	-	1	-	-	-	-	-	-	-	2	+
Banded killifish	-	2	4	5	2	3	13	3	15	16	63	1.1
Rock bass	-	1	-	-	1	-	-	-	-	-	2	+
Redbreast sunfish	1	1	1	10	25	23	3	1	3	-	68	1.2
Green sunfish	-	1	1	-	2	1	1	-	-	-	6	0.1
Pumpkinseed	-	12	9	21	11	13	1	1	-	-	68	1.2
Bluegill	-	8	29	2	6	9	-	-	-	-	54	1.0
Smallmouth bass	1	-	1	-	2	-	-	-	-	-	4	0.1
Largemouth bass	-	2	-	1	1	-	-	-	-	-	4	0.1
Black crappie	-	3	1	-	1	1	-	-	-	-	6	0.1
Tessellated darter	1	7	4	3	1	3	2	2	-	-	23	0.4

Table 5. Summary of fishes collected by seine from the Delaware River in the vicinity of Point Pleasant, Pennsylvania in 1973.

Date	JAN 9	APR 17	MAY 3	MAY 18	JUN 12	JUN 26	JUL 17	JUL 27	AUG 10	AUG 21	SEP 7	SEP 21	OCT 5	OCT 19	NOV 16	DEC 14	Total	% Catch
No. of Collections	1	4	4	4	4	4	4	4	5	5	5	5	5	5	5	2	66	
No. of Specimens	1	355	629	574	320	311	246	500	369	281	454	816	321	779	441	78	6475	
No. of Species	1	7	18	15	15	16	14	21	19	18	15	17	15	11	10	3	32	
American eel	-	-	1	-	1	-	-	-	-	1	-	-	1	-	-	-	4	0.1
Alewife	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	4	0.1
Carp	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	+
Cutlips minnow	-	-	1	-	-	-	-	1	-	1	-	1	-	-	-	-	4	0.1
Silvery minnow	-	-	3	1	-	-	1	-	1	-	-	-	-	-	-	-	6	0.1
Golden shiner	-	-	3	1	-	-	-	7	14	1	-	25	1	-	1	-	53	0.8
Comely shiner	-	1	1	-	1	-	-	14	11	3	1	14	11	-	1	-	58	0.9
Satinfin shiner	-	234	329	365	149	128	62	65	124	99	307	600	191	504	364	38	3559	55.0
Common shiner	-	-	-	-	1	-	-	181	57	40	16	3	1	3	1	-	303	4.7
Spottail shiner	-	19	8	1	10	61	58	59	59	23	21	7	14	2	-	-	342	5.3
Swallowtail shiner	1	61	183	130	100	18	27	38	18	35	51	71	45	243	61	39	1121	17.3
Spotfin shiner	-	32	86	54	9	9	4	6	5	14	14	14	27	4	-	-	278	4.3
Bluntnose minnow	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	2	+
Fathead minnow	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	2	+
Blacknose dace	-	4	3	6	7	3	3	4	1	2	3	1	1	-	-	-	38	0.6
Longnose dace	-	-	-	-	-	3	1	1	-	-	5	11	7	8	-	-	35	0.6
Creek chub	-	-	-	-	-	2	34	36	5	17	2	1	-	-	1	-	98	1.5
Fallfish	-	-	-	1	7	3	11	18	25	5	1	1	-	-	-	-	72	1.1
White sucker	-	-	2	-	19	68	32	3	3	6	-	-	-	-	-	-	133	2.1
Creek chubsucker	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	+
Banded killifish	-	4	-	2	-	-	-	-	-	-	-	3	1	3	1	-	14	0.2
Rock bass	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	+
Redbreast sunfish	-	-	2	4	2	1	-	3	3	-	1	16	9	-	-	-	41	0.6
Green sunfish	-	-	-	-	-	1	-	-	8	13	5	8	-	1	1	-	37	0.6
Pumpkinseed	-	-	2	5	7	-	3	3	2	1	9	-	2	4	4	-	42	0.6
Bluegill	-	-	-	1	4	1	6	44	8	9	13	37	2	1	5	-	131	2.0
Smallmouth bass	-	-	1	-	-	-	2	-	1	-	-	-	-	-	-	-	4	0.1
Largemouth bass	-	-	-	1	2	-	-	3	1	-	-	-	-	-	-	-	7	0.1
Black crappie	-	-	1	-	-	-	-	5	-	-	-	-	-	-	-	-	6	0.1

Table 5. (cont.)

Date	JAN 9	APR 17	MAY 3	MAY 18	JUN 12	JUN 26	JUL 17	JUL 27	AUG 10	AUG 21	SEP 7	SEP 21	OCT 5	OCT 19	NOV 16	DEC 14	Total	% Catch
Tessellated darter	-	-	1	-	-	7	2	7	23	10	5	3	8	6	1	1	74	1.1
Yellow perch	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	+
Shield darter	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	2	+

Table 6. Summary of fishes collected by frame trap net and fyke net in the Delaware River in the vicinity of Point Pleasant, Pennsylvania from August through December 1972.

Date	Aug 16-17	Sep 13-14	Sep 27-28	Oct 9-10	Oct 25-26	Nov 6-7	Dec 5-6	Dec 20-21	Total	Catch
No. of Collections	7	6	7	6	6	6	5	5	48	
No. of Specimens	64	85	55	96	32	55	68	74	529	
No. of Species	11	11	11	14	11	10	13	8	24	
American eel	1	1	-	5	6	1	1	-	15	2.8
Chain pickerel	1	-	-	-	-	-	-	-	1	0.2
Muskellunge	-	-	-	-	-	-	1	-	1	0.2
Goldfish	1	-	-	1	2	-	-	-	4	0.6
Carp	-	-	-	1	-	-	-	-	1	0.2
Golden shiner	-	-	-	-	-	-	7	-	7	1.3
Satinfin shiner	-	-	-	-	-	-	-	4	4	0.6
Spottail shiner	-	-	-	-	1	-	14	11	26	4.9
Swallowtail shiner	-	-	-	-	-	-	-	2	2	0.4
White sucker	-	-	1	2	3	-	2	-	8	1.5
White catfish	2	2	1	6	-	2	3	8	24	4.5
Yellow bullhead	-	-	1	-	-	-	-	-	1	0.2
Brown bullhead	8	3	4	24	4	17	8	41	109	20.6
White perch	6	5	2	6	3	-	-	-	22	4.2
Rock bass	-	1	4	2	-	2	9	-	18	3.4
Redbreast sunfish	7	14	16	9	4	6	4	-	60	11.3
Green sunfish	-	-	-	-	-	3	-	-	3	0.6
Pumpkinseed	11	38	19	27	4	8	3	1	111	21.0
Bluegill	19	18	5	10	2	10	9	5	78	14.7
Smallmouth bass	-	-	-	1	-	-	-	-	1	0.2
Largemouth bass	-	1	1	-	2	-	1	-	5	0.9
White crappie	2	1	-	1	-	3	-	2	9	1.7
Black crappie	6	-	1	1	1	3	6	-	18	3.4
Walleye	-	1	-	-	-	-	-	-	1	0.2

Table 7. Summary of fishes collected by frame trap net and fyke net in the Delaware River in the vicinity of Point Pleasant, Pennsylvania in 1973.

Date	JAN 8-9	APR 16-17	MAY 2-3	MAY 17-18	JUN 11-12	JUN 25-26	JUL 16-17	JUL 26-27	AUG 9-10	AUG 20-21	SEP 6-7	SEP 20-21	OCT 4-5	OCT 18-19	NOV 15-16	DEC 13-14	Total	% Catch
No. of Collections	3	4	4	4	3	4	9	8	9	9	7	8	8	8	8	5	101	
No. of Specimens	3	34	2	5	1	12	131	71	34	30	12	40	32	31	13	5	456	
No. of Species	3	9	2	4	1	5	11	12	12	8	7	11	10	8	7	4	22	
American eel	-	-	-	-	-	-	-	1	-	-	-	12	-	6	-	-	10	4.2
Muskellunge	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	0.2
Goldfish	-	-	-	1	1	-	1	2	2	-	1	2	-	-	-	-	10	2.2
Carp	-	1	-	-	-	-	-	-	1	-	-	1	1	-	1	-	5	1.1
Satinfin shiner	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	0.2
Spottail shiner	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	0.4
Blacknose dace	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	0.2
Quillback	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	0.2
White sucker	1	-	-	1	-	-	-	-	1	-	-	1	-	-	1	1	6	1.3
White catfish	1	4	1	-	-	-	5	1	8	1	1	6	3	6	2	1	40	8.8
Brown bullhead	-	22	-	-	-	-	36	9	5	9	1	2	1	1	-	-	86	18.9
Channel catfish	-	1	-	-	-	-	-	2	1	1	-	-	2	-	-	-	7	1.5
White perch	-	-	-	-	-	6	1	-	1	7	3	4	1	3	1	-	27	5.9
Rock bass	-	-	-	-	-	1	3	2	1	1	3	-	1	1	-	-	13	2.9
Redbreast sunfish	-	1	-	-	-	-	45	26	3	4	2	6	13	10	2	-	112	24.6
Green sunfish	-	1	-	-	-	-	4	3	1	-	-	-	-	-	-	-	9	2.0
Pumpkinseed	-	1	1	2	-	-	21	10	5	6	1	3	7	3	5	-	65	14.3
Bluegill	1	2	-	-	-	-	11	7	-	1	-	-	2	1	-	2	27	5.9
Largemouth bass	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	0.2
White crappie	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	2	0.4
Black crappie	-	-	-	-	-	3	3	7	5	-	-	2	-	-	-	-	20	4.4
Walleye	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	0.2

Table 8. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 21 July 1972.

Station	T20	T60	Upstream trawls*	Upstream Island*	Upstream beach*	Upstream Island #2*	Total	% Catch
Time	1230	1415	1245-1315	1135	1200	1115		
Gear	12' seine	shocker	9' semi- balloon trawl	12' seine	12' seine	12' seine		
Air Temp. (F)	87	85	-	85	85	85		
Water Temp. (F)	79	79	-	79	79	78		
Oxygen Conc. (ppm)	7.0	11.0	-	7.0	7.0	7.8		
pH	-	-	-	-	-	8.4		
No. of Specimens	16	23	-	46	15	64	164	
No. of Species	4	9	-	8	2	9	15	
American eel	-	5	NO FISH TAKEN	3	-	3	11	6.7
Golden shiner	-	-		1	-	-	1	0.6
Comely shiner	-	-		1	-	-	1	0.6
Satinfin shiner	2	4		6	-	5	17	10.4
Spottail shiner	12	-		25	12	8	57	34.7
Swallowtail shiner	-	5		6	3	11	25	15.2
Spotfin shiner	-	2		2	-	32	36	21.9
Longnose dace	-	-		-	-	1	1	0.6
Fallfish	-	-		2	-	2	4	2.4
Brown bullhead	1	1		-	-	-	2	1.2
Redbreast sunfish	-	3		-	-	1	4	2.4
Pumpkinseed	-	1		-	-	-	1	0.6
Bluegill	-	1		-	-	-	1	0.6
Smallmouth bass	-	-		-	-	1	1	0.6
Tessellated darter	1	1		-	-	-	2	1.2

*Experimental stations, vicinity of Prahls Island

Table 9. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 1 August 1972.

Station	160	130	150	150	Total	% Catch
Time	1445	1100	1400	1000		
Gear	12' seine	12' & 25' seines	shocker	12' seine		
Air Temp. (F)	86	74	86	78		
Water Temp. (F)	79	74	79	73		
Oxygen Conc. (ppm)	11.6	10.2	11.4	12.2		
No. of Specimens	109	27	58	37	231	
No. of Species	15	8	11	10	22	
American eel	-	-	1	-	1	0.4
Silvery minnow	1	-	-	-	1	0.4
Golden shiner	12	2	-	-	14	6.1
Satinfin shiner	36	2	6	3	47	20.3
Common shiner	1	-	-	1	2	0.9
Spottail shiner	22	-	-	9	31	13.4
Spotfin shiner	13	-	2	2	17	7.3
Fathead minnow	1	-	-	-	1	0.4
Blacknose dace	-	-	-	2	2	0.9
Creek chub	-	-	8	6	14	6.1
Fallfish	-	-	2	9	11	4.8
Quillback	2	8	-	3	13	5.6
White sucker	-	1	-	-	1	0.4
Banded killifish	-	2	7	-	9	3.9
Rock bass	1	-	-	-	1	0.4
Redbreast sunfish	1	-	4	-	5	2.2
Green sunfish	-	-	20	1	21	9.1
Pumpkinseed	3	9	5	-	17	7.3
Bluegill	6	2	2	-	10	4.3
Largemouth bass	1	1	-	-	2	0.9
Black crappie	3	-	-	-	3	1.3
Tessellated darter	6	-	1	1	8	3.5

Table 10. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 16-17 August 1972.

Station	130	150	160	120	125	135	135	145	155	160	Total	% Catch
Day	16	16	16	16-17	16-17	16-17	16-17	16-17	16-17	16-17		
Time	1520	1430	1330	1120- 1025	1055- 1015	1140- 0950	1045- 0945	1140- 0930	1310- 0920	1320- 0910		
Gear	8', 25' seines	8' seine	8' seine	Fyke net	Trap net	Fyke net	Trap net	Trap net	Trap net	Fyke net		
Air Temp. (F)	80	81	74	63,78	63,78	63,78	63,78	63,78	63,80	63,80		
Water Temp. (F)	78	78	78	70,75	70,75	70,75	70,75	70,75	70,75	75		
Oxygen Conc. (ppm)	11.6	11.6	11.6	7.4, 11.6	7.4, 11.6	7.4, 11.6	7.4, 11.6	7.4, 11.6	7.4, 11.6	7.4, 11.6		
pH	8.5	8.5	8.5	7.4, 8.5	7.4, 8.5	7.4, 8.5	7.4, 8.5	7.4, 8.5	7.4, 8.5	7.4, 8.5		
No. of Specimens	237	74	330	8	12	15	4	-	-	25	705	
No. of Species	9	11	13	5	7	6	3	-	-	6	26	
American eel	-	-	-	1	-	-	-			-	1	0.1
Chain pickerel	-	-	-	-	-	1	-			-	1	0.1
Goldfish	-	-	-	-	1	-	-			-	1	0.1
Golden shiner	-	-	13	-	-	-	-			-	13	1.8
Comely shiner	-	-	4	-	-	-	-			-	4	0.6
Satinfin shiner	194	38	169	-	-	-	-			-	401	56.9
Common shiner	1	-	17	-	-	-	-			-	18	2.5
Spottail shiner	-	6	56	-	-	-	-			-	62	8.8
Swallowtail shiner	9	1	5	-	-	-	-	NO FISH TAKEN	NO FISH TAKEN	-	15	2.1
Spotfin shiner	15	2	25	-	-	-	-			-	42	5.9
Blacknose dace	-	-	2	-	-	-	-			-	2	0.3
Creek chub	-	8	-	-	-	-	-			-	8	1.1
Fallfish	3	7	-	-	-	-	-			-	10	1.4
Quillback	12	-	3	-	-	-	-			-	15	2.1
White catfish	-	-	-	-	-	-	2			-	2	0.3
Brown bullhead	-	1	-	1	6	1	-			-	9	1.3
Banded killifish	1	3	-	-	-	-	-			-	4	0.6
White perch	-	-	-	4	1	-	-			1	6	0.8
Redbreast sunfish	1	-	-	1	-	4	1			1	8	1.1
Green sunfish	-	1	-	-	-	-	-			-	1	0.1
Pumpkinseed	1	6	2	-	1	4	1			5	20	2.8

Table 10. (cont.)

Station	130	150	160	120	125	135	135	145	155	160	Total	% Catch
Bluegill	-	-	29	-	1	4	-	NO FISH TAKEN	NO FISH TAKEN	14	48	6.8
Smallmouth bass	-	1	-	-	-	-	-	NO FISH TAKEN	NO FISH TAKEN	-	1	0.1
White crappie	-	-	-	-	1	-	-	NO FISH TAKEN	NO FISH TAKEN	1	2	0.3
Black crappie	-	-	1	1	1	1	-	NO FISH TAKEN	NO FISH TAKEN	3	7	1.0
Tessellated darter	-	-	4	-	-	-	-	NO FISH TAKEN	NO FISH TAKEN	-	4	0.6

Table 11. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 13-14 September 1972.

Station	120	130	150	160	120	125	135	145	155	160	Total	± Catch
Day	13	13	13	13	13-14	13-14	13-14	13-14	13-14	13-14		
Time	1515	1450	1348	1410	1238- 1225	1222- 1210	1212- 1140	1145- 1120	1129- 1059	1112- 1028		
Gear	8' seine	8' seine	8' seine	8' seine	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net		
Air Temp. (F)	75	74	74	74	68.76	68.76	67.74	67.82	67.81	67.79		
Water Temp. (F)	71	70	69	69	69.74	68.72	68.72	68.71	68.71	68.71		
Oxygen Conc. (ppm)	10.4	12.0	12.0	10.4	8.0,8.8	8.2,8.6	7.8,8.0	8.2,8.6	8.0,8.6	8.0,8.6		
pH	8.1	8.3	7.8	7.5	8.2,8.4	7.8,8.3	7.8,8.1	8.0,8.2	7.8,8.0	7.9,8.1		
No. of Specimens	241	143	144	265	15	1	6	3	2	59	878	
No. of Species	7	10	9	15	8	1	4	3	2	3	25	
Sea lamprey	-	-	1	-	-	-	-	-	-	-	1	0.1
American eel	-	-	-	-	1	-	-	-	-	-	1	0.1
Golden shiner	-	1	-	3	-	-	-	-	-	-	4	0.4
Comely shiner	-	1	-	-	-	-	-	-	-	-	1	0.1
Satinfin shiner	143	79	88	171	-	-	-	-	-	-	481	54.9
Common shiner	-	-	-	2	-	-	-	-	-	-	2	0.2
Spottail shiner	24	25	2	12	-	-	-	-	-	-	63	7.2
Swallowtail shiner	57	29	29	8	-	-	-	-	-	-	123	14.0
Spotfin shiner	-	2	14	37	-	-	-	-	-	-	53	6.0
Longnose dace	10	-	-	1	-	-	-	-	-	-	11	1.2
Creek chub	-	-	-	1	-	-	-	-	-	-	1	0.1
Fallfish	-	3	1	1	-	-	-	-	-	-	5	0.6
Quillback	5	1	-	-	-	-	-	-	-	-	6	0.7
White catfish	-	-	-	-	1	-	-	-	1	-	2	0.2
Brown bullhead	-	-	-	-	1	-	1	1	-	-	3	0.3
Banded killifish	-	-	4	1	-	-	-	-	-	-	5	0.6
White perch	-	-	-	-	5	-	-	-	-	-	5	0.6
Rock bass	-	-	-	-	-	-	-	1	-	-	1	0.1
Redbreast sunfish	-	1	3	6	2	-	-	1	-	11	24	2.7
Pumpkinseed	-	1	2	18	3	1	2	-	1	31	59	6.7
Bluegill	1	-	-	1	-	-	2	-	-	16	20	2.3

Table 11. (cont.)

Station	120	130	150	160	120	125	135	145	155	160	Total	% Catch
Largemouth bass	-	-	-	1	1	-	-	-	-	-	2	0.2
White crappie	-	-	-	-	-	-	1	-	-	-	1	0.1
Tessellated darter	1	-	-	2	-	-	-	-	-	-	3	0.3
Walleye	-	-	-	-	1	-	-	-	-	-	1	0.1

Table 12. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 27-28 September 1972.

Station	120	130	150	160	120	125	135	135	155	160	Total	% Catch
Day	28	28	28	28	27-28	27-28	27-28	27-28	27-28	27-28		
Time	1120	1055	0928	1030	1140- 1135	1135- 1250	1110- 1300	1120- 1305	1050- 1330	1035- 1340		
Gear	8' seine	8' seine	8' seine	8' seine	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net		
Air Temp. (F)	72	71	68	68	72,76	66,77	66,76	66,76	66,76	66,76		
Water Temp. (F)	69	69	68	68	69,71	70,71	70	70	70	70		
Oxygen Conc. (ppm)	9.8	9.4	10.6	10.6	9.8	8.6,9.2	8.0,9.2	8.0,9.2	7.6,9.2	7.8,9.4		
pH	8.5	8.5	8.5	8.5	7.7,8.5	7.7, -	7.7,8.5	7.7,8.5	7.7,8.5	7.7,8.5		
No. of Specimens	157	160	133	338	11	8	11	10	2	13	843	
No. of Species	6	8	6	13	3	7	5	6	2	2	24	
Golden shiner	-	-	-	6	-	-	-	-	-	-	6	0.7
Comely shiner	-	1	-	-	-	-	-	-	-	-	1	0.1
Satinfin shiner	101	118	95	244	-	-	-	-	-	-	558	66.2
Common shiner	-	-	-	5	-	-	-	-	-	-	5	0.6
Spottail shiner	10	7	6	24	-	-	-	-	-	-	47	5.6
Swallowtail shiner	23	30	20	23	-	-	-	-	-	-	96	11.4
Spotfin shiner	-	-	-	8	-	-	-	-	-	-	8	0.9
Longnose dace	12	-	-	-	-	-	-	-	-	-	12	1.4
Fallfish	3	-	-	-	-	-	-	-	-	-	3	0.3
White sucker	-	-	-	-	-	1	-	-	-	-	1	0.1
White catfish	-	-	-	-	-	-	1	-	-	-	1	0.1
Yellow bullhead	-	-	-	-	-	1	-	-	-	-	1	0.1
Brown bullhead	-	-	-	-	3	1	-	-	-	-	4	0.5
Banded killifish	-	-	-	2	-	-	-	-	-	-	2	0.2
White perch	-	-	-	-	-	-	2	-	-	-	2	0.2
Rock bass	-	-	-	1	-	1	2	1	-	-	5	0.6
Redbreast sunfish	8	1	8	8	3	2	5	4	1	1	41	4.9
Green sunfish	-	-	-	2	-	-	-	-	-	-	2	0.2
Pumpkinseed	-	-	3	8	5	1	1	1	1	10	30	3.5
Bluegill	-	-	-	6	-	1	-	2	-	2	11	1.3
Smallmouth bass	-	1	1	-	-	-	-	-	-	-	2	0.2
Largemouth bass	-	1	-	-	-	-	-	1	-	-	2	0.2

Table 12. (cont.)

Station	120	130	140	150	160	120	125	135	135	155	160	Total	% Catch
Black crappie	-	1	-	-	-	-	-	-	1	-	-	2	0.2
Tessellated darter	-	-	-	-	1	-	-	-	-	-	-	1	0.1

Table 13. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 9-10 October 1972.

Station	120	130	150	160	120	125	135	135	155	160	Total	% Catch
Day	10	10	10	10	9-10	9-10	9-10	9-10	9-10	9-10		
Time	1115	1050	1010	1030	1125- 1125	1115- 1315	1100- 1305	1055- 1255	1045- 1245	1030- 1230		
Gear	8' seine	8' seine	8' seine	8' seine	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net		
Air Temp. (F)	50	48	49	49	50,56	53,56	52,58	52,58	52,58	51,58		
Water Temp. (F)	53	53	53	53	53,59	58,59	58,59	58,59	58,59	55,59		
Oxygen Conc. (ppm)	11.0	10.2	11.1	11.6	10.0,11.0	9.0,10.6	8.8,10.6	8.8,10.6	9.0,10.6	9.8,10.5		
pH	8.5	8.0	8.5	8.5	7.9,8.5	7.9,8.5	7.9,8.5	7.9,8.5	7.9,8.0	7.9,8.0		
No. of Specimens	80	107	160	245	5	58	5	2	3	23	688	
No. of Species	6	7	4	13	4	11	4	1	2	7	24	
American eel	-	-	-	-	-	4	-	-	-	1	5	0.7
Goldfish	-	-	-	-	-	-	-	-	-	1	1	0.1
Carp	-	-	-	-	-	1	-	-	-	-	1	0.1
Satinfin shiner	32	83	145	144	-	-	-	-	-	-	404	58.7
Spottail shiner	3	1	2	24	-	-	-	-	-	-	30	4.4
Swallowtail shiner	15	14	11	42	-	-	-	-	-	-	82	11.9
Spotfin shiner	-	1	-	9	-	-	-	-	-	-	10	1.4
Blacknose dace	-	-	-	1	-	-	-	-	-	-	1	0.1
Longnose dace	11	-	-	-	-	-	-	-	-	-	11	1.6
Fallfish	-	-	-	1	-	-	-	-	-	-	1	0.1
White sucker	-	-	-	-	-	2	-	-	-	-	2	0.3
White catfish	-	-	-	-	-	5	-	-	-	1	6	0.9
Brown bullhead	-	-	-	-	1	21	1	-	1	-	24	3.5
Banded killifish	-	1	-	2	-	-	-	-	-	-	3	0.4
White perch	-	-	-	-	-	5	-	-	-	1	6	0.9
Rock bass	-	-	-	-	-	-	2	-	-	-	2	0.3
Redbreast sunfish	17	-	2	4	-	6	-	-	2	1	32	4.7
Green sunfish	-	-	-	1	-	-	-	-	-	-	1	0.1
Pumpkinseed	2	5	-	6	1	10	1	2	-	13	40	5.8
Bluegill	-	-	-	9	2	2	1	-	-	5	19	2.8
Smallmouth bass	-	-	-	-	1	-	-	-	-	-	1	0.1

Table 13. (cont.)

Station	120	130	150	160	120	125	135	135	155	160	Total	% Catch
White crapple	-	-	-	-	-	1	-	-	-	-	1	0.1
Black crapple	-	-	-	1	-	1	-	-	-	-	2	0.3
Tessellated darter	-	2	-	1	-	-	-	-	-	-	3	0.4

Table 14. Fish collections from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 25-26 October 1972.

Station	120	130	150	160	125	135	135	155	160	Total	% Catch
Day	26	26	26	26	25-26	25-26	25-26	25-26	25-26		
Time	1130	1105	1025	1040	1130- 1440	1125- 1315	1115- 1330	1105- 1300	1050- 1250		
Gear	8' seine	8' seine	8' seine	8' seine	Trap net	Fyke net	Trap net	Trap net	Fyke net		
Air Temp. (F)	48	45	50	50	48,51	48,52	47,52	47,52	47,52		
Water Temp. (F)	50	50	50	48	53,54	51,54	51,54	51,54	51,52		
Oxygen Conc. (ppm)	10.0	11.6	11.6	7.0	10.0, 12.0	9.6, 11.6	9.6, 11.4	9.0, 10.4	9.6, 10.0		
pH	8.8	8.8	8.8	8.8	8.0, 8.8	8.0, 8.8	8.0, 8.8	8.0, 8.8	8.0, 8.8		
No. of Specimens	204	406	218	95	18	1	8	2	3	955	
No. of Species	3	5	6	9	9	1	6	2	2	22	
American eel	-	-	-	-	5	-	-	1	-	6	0.6
Goldfish	-	-	-	-	2	-	-	-	-	2	0.2
Golden shiner	-	-	1	-	-	-	-	-	-	1	0.1
Satinfin shiner	193	366	139	73	-	-	-	-	-	771	80.7
Common shiner	-	-	-	2	-	-	-	-	-	2	0.2
Spottail shiner	-	-	-	4	1	-	-	-	-	5	0.5
Swallowtail shiner	-	4	11	5	-	-	-	-	-	20	20.9
Spotfin shiner	1	-	60	4	-	-	-	-	-	65	68.1
Blacknose dace	-	-	-	1	-	-	-	-	-	1	0.1
Longnose dace	10	-	-	3	-	-	-	-	-	13	1.4
Quillback	-	26	-	-	-	-	-	-	-	26	2.7
White sucker	-	-	-	-	2	-	1	-	-	3	0.3
Brown bullhead	-	-	-	-	2	-	2	-	-	4	0.4
Banded killifish	-	9	4	-	-	-	-	-	-	13	1.4
White perch	-	-	-	-	3	-	-	-	-	3	0.3
Redbreast sunfish	-	-	3	-	1	1	2	-	-	7	0.7
Green sunfish	-	-	-	1	-	-	-	-	-	1	0.1
Pumpkinseed	-	1	-	-	1	-	1	-	2	5	0.5
Bluegill	-	-	-	-	-	-	1	-	1	2	0.2

Table 14. (cont.)

Station	120	130	150	160	125	135	155	160	Total	% Catch
Largemouth bass	-	-	-	-	-	-	1	-	2	0.2
Black crapple	-	-	-	-	1	-	-	-	1	0.1
Tessellated darter	-	-	-	2	-	-	-	-	2	0.2

Table 15. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 6-7 November 1972.

Station	120	130	150	160	120	125	135	135	155	160	Total	% Catch
Day	7	7	7	7	6-7	6-7	6-7	6-7	6-7	6-7		
Time	1115	1055	1015	1030	1140- 1120	1135- 1130	1125- 1200	1110- 1145	1100- 1215	1050- 1240		
Gear	8' seine	8' seine	8' seine	8' seine	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net		
Air Temp. (F)	52	50	48	48	54	54	52,54	52,54	54	54		
Water Temp. (F)	49	48	48	48	48	49	48,49	48,49	49	48		
Oxygen Conc. (ppm)	11.0	10.6	10.6	10.8	10.8, 11.0	10.6, 10.8	10.6, 10.8	10.6, 10.8	11.0	8.0		
pH	9.0	8.5	8.5	8.5	-	7.7	7.7	7.7	8.0	-		
No. of Specimens	94	36	53	81	-	31	-	24	-	-	319	
No. of Species	5	4	5	7	-	7	-	9	-	-	19	
American eel	-	-	-	-		-		1			1	0.3
Golden shiner	-	-	-	4		-		-			4	1.2
Satinfin shiner	67	16	33	54		-		-			170	53.3
Common shiner	-	-	-	13		-		-			13	4.1
Spottail shiner	-	2	1	-		-		-			3	0.9
Swallowtail shiner	23	17	16	6		-		-			62	19.4
Blacknose dace	-	-	-	2		-		-			2	0.6
Longnose dace	2	-	-	1	NO FISH TAKEN	-	NO FISH TAKEN	-	NO FISH TAKEN	NO FISH TAKEN	3	0.9
White catfish	-	-	-	-		-		2			2	0.6
Brown bullhead	-	-	-	-		12		5			17	5.3
Banded killifish	1	-	2	-		-		-			3	0.9
Rock bass	-	-	-	-		1		1			2	0.6
Redbreast sunfish	1	-	-	-		1		5			7	2.2
Green sunfish	-	-	-	-		-		3			3	0.9
Pumpkinseed	-	-	1	-		4		4			9	2.8
Bluegill	-	-	-	-		8		2			10	3.1
White crappie	-	-	-	-		2		1			3	0.9
Black crappie	-	-	-	-		3		-			3	0.9
Tessellated darter	-	1	-	1		-		-			2	0.6

Table 16. Fish collections from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 5-6 December 1972.

Station	10	150	175	125	125	140	160	170	Total	% Catch
Day	6	6	6	5-6	5-6	5-6	5-6	5-6		
Time	1050	1035	1110	1040- 1210	1055- 1225	1130- 1155	1200- 1120	1145- 1130		
Gear	8' seine	8' seine	8' seine	Trap net	Fyke net	Trap net	Fyke net	Trap net		
Air Temp. (F)	48	48	46	43,50	43,50	43,46	43,47	43,46		
Water Temp. (F)	40	40	40	40,42	40,42	40	40,42	40		
Oxygen Conc. (ppm)	11.6	10.6	11.6	10.0, 10.6	10.0, 10.6	11.2, 12.2	11.4, 12.4	11.0		
pH	7.0	7.1	7.2	7.0, 7.1	7.0, 7.1	6.9, 7.0	6.9, 7.1	6.8		
No. of Specimens	21	533	318	18	11	14	24	1	940	
No. of Species	3	7	2	7	5	3	6	1	18	
American eel	-	-	-	1	-	-	-	-	1	0.1
Huskellunge	-	-	-	-	1	-	-	-	1	0.1
Golden shiner	-	9	-	-	7	-	-	-	16	1.7
Satinfin shiner	2	402	310	-	-	-	-	-	714	75.9
Spottail shiner	-	-	-	2	-	12	-	-	14	1.5
Swallowtail shiner	13	96	-	-	-	-	-	-	109	11.6
Spotfin shiner	6	7	8	-	-	-	-	-	21	2.2
Fathead minnow	-	1	-	-	-	-	-	-	1	0.1
White sucker	-	-	-	1	-	1	-	-	2	0.2
White catfish	-	-	-	3	-	-	-	-	3	0.3
Brown bullhead	-	-	-	8	-	-	-	-	8	0.8
Banded killifish	-	15	-	-	-	-	-	-	15	1.6
Rock bass	-	-	-	2	1	1	4	1	9	0.9
Redbreast sunfish	-	3	-	1	-	-	3	-	7	0.7
Pumpkinseed	-	-	-	-	1	-	2	-	3	0.3
Bluegill	-	-	-	-	-	-	9	-	9	0.9
Largemouth bass	-	-	-	-	-	-	1	-	1	0.1
Black crappie	-	-	-	-	1	-	5	-	6	0.6

Table 17. Fish collections from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 20-21 December 1972.

Station	T40	T50	T75	T25	T25	T40	T60	T70	Total	% Catch
Day	21	21	21	20-21	20-21	20-21	20-21	20-21		
Time	1035	1015	1055	1305- 1145	1310- 1200	1255- 1135	1320- 1120	1340- 1110		
Gear	8' seine	8' seine	8' seine	Trap net	Fyke net	Trap net	Fyke net	Trap net		
Air Temp. (F)	36	36	36	36.42	36.42	36.42	36.42	36.42		
Water Temp. (F)	36	36	36	36	36	36	36	36		
Oxygen Conc. (ppm)	12.4	11.6	9.6	8.0, 12.2	8.0, 12.2	10.6, 12.0	11.0, 11.4	11.0, 11.6		
pH	6.9	7.1	6.9	6.7, 6.8	6.7, 6.8	6.7, 6.8	6.7, 6.9	6.7, 6.8		
No. of Specimens	7	338	73	57	-	9	6	2	492	
No. of Species	2	5	2	5	-	3	2	2	11	
Golden shiner	-	1	-	-	NO FISH TAKEN	-	-	-	1	0.2
Comely shiner	-	1	-	-		-	-	-	1	0.2
Satinfin shiner	4	289	72	-		3	-	1	369	75.0
Spottail shiner	-	-	-	7		4	-	-	11	2.2
Swallowtail shiner	3	32	-	-		2	-	-	37	7.5
White catfish	-	-	-	8		-	-	-	8	1.6
Brown bullhead	-	-	-	40		-	-	1	41	8.3
Banded killifish	-	15	1	-		-	-	-	16	3.2
Pumpkinseed	-	-	-	1		-	-	-	1	0.2
Bluegill	-	-	-	1		-	4	-	5	1.0
White crappie	-	-	-	-		-	2	-	2	0.4

Table 13. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 8-9 January 1973.

Station	T25	T40	T60	T50	Total	% Catch
Day	8-9	8-9	8-9	9		
Time	1120-1145	1100-1155	1155-1205	1050		
Gear	Trap net	Trap net	Fyke net	8' seine		
Air Temp. (F)	18	18	18,22	18		
Water Temp. (F)	30,31	30,31	30,31	31		
Oxygen Conc. (ppm)	14.0	11.6,14.0	13.4	13.4		
pH	6.9,7.0	6.8,6.9	6.9,7.2	6.9		
No. of Specimens	1	1	1	1	4	
No. of Species	1	1	1	1	4	
Swallowtail shiner	-	-	-	1	1	25.0
White sucker	-	1	-	-	1	25.0
White catfish	1	-	-	-	1	25.0
Bluegill	-	-	1	-	1	25.0

Table 19. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 16-17 April 1973.

Station	T25	T40	T60	T70	T40	T50	T60	T75	Total	% Catch
Day	16-17	16-17	16-17	16-17	17	17	17	17		
Time	1110-1200	1125-1155	1140-1140	1155-1130	1040	1020	1055	1110		
Gear	Trap net	Trap net	Fyke net	Trap net	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	68,70	68,70	68,70	68,70	68	68	68	68		
Water Temp. (F)	50,53	50,52	52,55	50	51	51	50	52		
Oxygen Conc. (ppm)	9.8,10.2	10.4,10.8	9.2,10.4	10.0,10.8	10.4	10.6	10.6	8.0		
pH	8.1	7.8,8.3	8.1,8.6	8.1,8.5	8.1	7.9	9.2	8.7		
No. of Specimens	24	-	2	8	26	136	84	109	389	
No. of Species	3	-	2	6	3	4	5	5	15	
Carp	-		-	1	-	-	-	-	1	0.3
Comely shiner	-		-	-	-	-	1	-	1	0.3
Satinfin shiner	-		-	-	1	102	60	71	234	60.2
Spottail shiner	-		-	1	16	-	-	3	20	5.1
Swallowtail shiner	-		-	-	9	21	5	26	61	15.7
Spotfin shiner	-	NO FISH TAKEN	-	-	-	7	16	7	32	8.2
Blacknose dace	-		-	-	-	4	-	-	4	1.0
White catfish	1		-	3	-	-	-	-	4	1.0
Brown bullhead	22		-	-	-	-	-	-	22	5.7
Channel catfish	-		-	1	-	-	-	-	1	0.3
Banded killifish	-		-	-	-	-	2	2	4	1.0
Redbreast sunfish	-		-	1	-	-	-	-	1	0.3
Green sunfish	-		1	-	-	-	-	-	1	0.3
Pumpkinseed	-		-	1	-	-	-	-	1	0.3
Bluegill	1		1	-	-	-	-	-	2	0.5

Table 20. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 2-3 May 1973.

Station	T25	T40	T60	T70	T40	T50	T60	T75	Total	% Catch
Day	2-3	2-3	2-3	2-3	3	3	3	3		
Time	1035-1040	1050-1050	1100-1150	1115-1240	1050	1125	1200	1255		
Gear	Trap net	Trap net	Fyke net	Trap net	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	67,69	67,68	66,67	66,67	68	67	66	68		
Water Temp. (F)	56,60	56,60	56,60	56,60	60	59	60	60		
Oxygen Conc. (ppm)	9.4,9.8	9.4,10.2	9.8,10.0	10.0,10.6	9.4	10.0	9.8	10.2		
pH	8.0,8.1	7.6,8.2	7.9,8.5	8.0,8.4	7.6	7.8	7.9	8.4		
No. of Specimens	1	-	1	-	271	203	61	04	631	
No. of Species	1	-	1	-	8	5	11	8	19	
American eel	-		-		-	1	-	-	1	0.2
Cutlips minnow	-		-		1	-	-	-	1	0.2
Silvery minnow	-		-		-	-	3	-	3	0.5
Golden shiner	-		-		2	-	1	-	3	0.5
Comely shiner	-		-		1	-	-	-	1	0.2
Satinfin shiner	-		-		88	184	36	21	329	52.1
Spottail shiner	-		-		3	-	4	1	8	1.7
Swallowtail shiner	-		-		145	7	4	27	183	29.0
Spotfin shiner	-		-		30	10	7	39	86	13.6
Bluntnose minnow	-		-		-	-	1	-	1	0.2
Fathead minnow	-		-		-	1	-	-	1	0.2
Blacknose dace	-		-		-	-	-	3	3	0.5
White sucker	-		-		1	-	1	-	2	0.3
White catfish	1		-		-	-	-	-	1	0.2
Redbreast sunfish	-		-		-	-	1	1	2	0.3
Pumpkinseed	-		1		-	-	2	-	3	0.5
Smallmouth bass	-		-		-	-	-	1	1	0.2
Black crappie	-		-		-	-	1	-	1	0.2
Tessellated darter	-		-		-	-	-	1	1	0.2

NO FISH TAKEN

NO FISH TAKEN

Table 21. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 17-18 May 1973.

Station	T25	T40	T60	T70	T40	T50	T60	T75	Total	% Catch
Day	17-18	17-18	17-18	17-18	18	18	18	18		
Time	1150-1130	1200-1045	1220-1125	1240-1205	1050	1110	1145	1215		
Gear	Trap net	Trap net	Fyke net	Trap net	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	52,66	52,73	52,72	50,71	52	52	52	49		
Water Temp. (F)	55,56	55,59	57,60	55,58	55	55	57	55		
Oxygen Conc. (ppm)	9.4,10.2	9.6,9.8	9.6,10.2	9.8,10.2	9.6	9.2	9.6	-		
pH	7.3,7.4	7.3,7.5	7.3,7.5	7.3,7.4	7.5	7.4	7.5	7.3		
No. of Specimens	-	-	5	-	2	275	89	208	579	
No. of Species	-	-	4	-	1	8	9	6	17	
Goldfish			1		-	-	-	-	1	0.2
Silvery minnow			-		-	1	-	-	1	0.2
Golden shiner			-		-	-	-	1	1	0.2
Satinfin shiner			-		2	146	51	166	365	63.2
Spottail shiner			-		-	-	1	-	1	0.2
Swallowtail shiner			-		-	113	9	8	130	22.5
Spotfin shiner	NO FISH TAKEN	NO FISH TAKEN	-	NO FISH TAKEN	-	10	19	25	54	9.4
Fathead minnow			-		-	1	-	-	1	0.2
Blacknose dace			1		-	-	-	6	7	1.2
Fallfish			-		-	1	-	-	1	0.2
White sucker			1		-	-	-	-	1	0.2
Banded killifish			-		-	-	-	2	2	0.3
Redbreast sunfish			-		-	2	2	-	4	0.7
Pumpkinseed			2		-	1	4	-	7	1.2
Bluegill			-		-	-	1	-	1	0.2
Largemouth bass			-		-	-	1	-	1	0.2
Yellow perch			-		-	-	1	-	1	0.2

Table 22. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 11-12 June 1973.

Station	T25	T40	T70	T40	T50	T60	T75	Total	% Catch
Day	11-12	11-12	11-12	12	12	17	12		
Time	1030-1045	1045-1050	1100-1140	1100	1020	1115	1150		
Gear	Trap net	Trap net	Trap net	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	84	85	85	85	80	85	87		
Water Temp. (F)	75.77	74.77	76.79	77	77	81	78		
Oxygen Conc. (ppm)	7.0, 7.6	7.6	7.8	7.6	7.8	7.2	7.8		
pH	7.4, 7.5	7.2, 7.5	7.4, 7.7	7.5	7.3	7.4	7.7		
No. of Specimens	-	1	-	102	62	53	103	321	
No. of Species	-	1	-	7	10	9	10	16	
American eel		-		-	1	-	-	1	0.3
Goldfish		1		-	-	-	-	1	0.3
Comely shiner		-		1	-	-	-	1	0.3
Satinfin shiner		-		56	28	10	55	149	46.0
Common shiner		-		-	-	-	1	1	0.3
Spottail shiner		-		2	1	4	3	10	3.1
Swallowtail shiner	NO FISH TAKEN	-	NO FISH TAKEN	38	11	28	23	100	31.0
Spotfin shiner		-		3	1	1	4	9	2.8
Bluntnose minnow		-		-	-	1	-	1	0.3
Blacknose dace		-		1	2	-	4	7	2.2
Fallfish		-		-	-	-	7	7	2.2
White sucker		-		1	13	2	3	19	6.0
Redbreast sunfish		-		-	-	-	2	2	0.6
Pumpkinseed		-		-	3	4	-	7	2.2
Bluegill		-		-	1	2	1	4	1.2
Largemouth bass		-		-	1	1	-	2	0.6

Table 23. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 25-26 June 1973.

Station	125	140	160	170	140	150	160	175	Total	% Catch
Day	25-26	25-26	25-26	25-26	26	26	26	26		
Time	1010-1040	1020-1055	1030-1130	1100-1200	1100	1015	1140	1220		
Gear	Trap net	Trap net	Fyke net	Trap net	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	69,72	69,72	69,72	70,74	72	72	72	74		
Water Temp. (F)	71,72	71	72	71,73	71	70	72	72		
Oxygen Conc. (ppm)	7.2	6.8,7.2	7.4,7.8	7.6,7.8	7.2	7.0	7.4	8.0		
pH	7.3,7.4	7.3,7.4	7.5,7.6	7.4,7.6	7.3	7.2	7.5	7.5		
No. of Specimens	1	5	2	4	113	54	60	84	323	
No. of Species	1	3	1	2	11	9	7	7	18	
Alewife	-	-	-	-	4	-	-	-	4	1.2
Carp	-	-	-	-	1	-	-	-	1	0.3
Satinfin shiner	-	1	-	-	17	33	13	65	129	39.9
Spottail shiner	-	-	-	-	20	8	28	5	61	18.9
Swallowtail shiner	-	-	-	-	2	1	6	9	18	5.6
Spotfin shiner	-	-	-	-	2	1	6	-	9	2.8
Blacknose dace	-	-	-	-	1	-	-	2	3	0.9
Longnose dace	-	-	-	-	-	2	-	1	3	0.9
Creek chub	-	-	-	-	-	2	-	-	2	0.6
Fallfish	-	-	-	-	1	2	-	-	3	0.9
White sucker	-	-	-	-	63	4	1	-	68	21.0
White perch	-	3	-	3	-	-	-	-	6	1.8
Rock bass	-	-	-	1	-	1	-	-	2	0.6
Redbreast sunfish	-	-	-	-	-	-	-	1	1	0.3
Green sunfish	-	-	-	-	-	-	1	-	1	0.3
Bluegill	-	-	-	-	1	-	-	-	1	0.3
Largemouth bass	-	1	-	-	-	-	-	-	1	0.3
Black crappie	1	-	2	-	-	-	-	-	3	0.9
Tessellated darter	-	-	-	-	1	-	5	1	7	2.1

Table 24. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 16-17 July 1973.

Station	I 0	I25	I25	I35	I35	I55	I60	I60
Day	16-17	16-17	16-17	16-17	16-17	16-17	16-17	16-17
Time	1045-1040	1100-1050	1110-1045	1115-1120	1120-1130	1130-1205	1140-1215	1150-1245
Gear	Fyke net	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net	Trap net
Air Temp. (F)	75,78	75,78	75,78	76,78	76,78	78,80	78	78
Water Temp. (F)	74	73,74	73,74	72,75	72,75	74,76	76	76
Oxygen Conc. (ppm)	8.4,9.4	8.2,8.6	8.2,8.6	8.0,8.6	8.0,8.6	8.8,9.0	10.4,11.6	10.4,11.6
pH	8.4,8.6	8.4,8.7	8.4,8.7	7.6,8.4	7.6,8.4	7.9,8.7	8.5,9.5	8.5,9.5
No. of Specimens	3	2	42	14	39	7	14	4
No. of Species	3	1	7	6	6	3	4	2
Goldfish	-	-	-	-	-	-	-	-
Silvery minnow	-	-	-	-	-	-	-	-
Satfin shiner	-	-	-	-	-	-	-	-
Spottail shiner	-	-	-	-	-	-	-	-
Swallowtail shiner	-	-	-	-	-	-	-	-
Spotfin shiner	-	-	-	-	-	-	-	-
Blacknose dace	-	-	-	-	-	-	-	-
Longnose dace	-	-	-	-	-	-	-	-
Creek chub	-	-	-	-	-	-	-	-
Fallfish	-	-	-	-	-	-	-	-
White sucker	-	-	-	-	-	-	-	-
White catfish	1	-	-	-	3	-	-	-
Brown bullhead	-	-	1	1	24	2	4	-
White perch	-	-	1	-	-	-	-	-
Rock bass	-	-	-	1	2	-	-	-
Redbreast sunfish	1	-	30	3	7	4	-	-
Green sunfish	-	-	2	2	-	-	-	-
Pumpkinseed	-	-	5	6	2	1	5	2
Bluegill	-	2	2	-	1	-	4	2
Smallmouth bass	-	-	-	-	-	-	-	-
White crappie	-	-	-	-	-	-	1	-
Black crappie	1	-	1	1	-	-	-	-
Tessellated darter	-	-	-	-	-	-	-	-

Table 24. (cont.)

Station	170	140	150	160	175	Total	% Catch
Day	16-17	17	17	17	17		
Time	1200-1255	1150	1015	1225	1310		
Gear	Trap net	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	79	78	75	78	79		
Water Temp. (F)	74,76	76	73	76	77		
Oxygen Conc. (ppm)	9.0,10.0	10.8	9.6	11.6	9.2		
pH	7.9,9.5	9.5	8.4	9.5	8.7		
No. of Specimens	6	87	71	12	76	377	
No. of Species	3	7	7	4	9	23	
Goldfish	1	-	-	-	-	1	0.3
Silvery minnow	-	-	-	-	1	1	0.3
Satinfin shiner	-	3	20	-	39	62	16.4
Spottail shiner	-	49	4	1	4	58	15.4
Swallowtail shiner	-	4	1	-	22	27	7.2
Spotfin shiner	-	-	-	4	-	4	1.1
Blacknose dace	-	1	-	-	2	3	0.8
Longnose dace	-	-	1	-	-	1	0.3
Creek chub	-	-	34	-	-	34	9.0
Fallfish	-	3	4	-	4	11	3.0
White sucker	-	25	7	-	-	32	8.5
White catfish	1	-	-	-	-	5	1.3
Brown bullhead	4	-	-	-	-	36	9.5
White perch	-	-	-	-	-	1	0.3
Rock bass	-	-	-	-	-	3	0.8
Redbreast sunfish	-	-	-	-	-	45	12.0
Green sunfish	-	-	-	-	-	4	1.1
Pumpkinseed	-	-	-	2	1	24	6.4
Bluegill	-	-	-	5	1	17	4.5
Smallmouth bass	-	2	-	-	-	2	0.5
White crappie	-	-	-	-	-	1	0.3
Black crappie	-	-	-	-	-	3	0.8
Tessellated darter	-	-	-	-	2	2	0.5

Table 25. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 26-27 July 1973.

Station	I20	I25	I25	I35	I35	I55	I60
Day	26-27	26-27	26-27	26-27	26-27	26-27	26-27
Time	1025-1030	1045-1040	1050-1050	1105-1115	1110-1125	1120-1135	1135-1155
Gear	Fyke net	Fyke net	Trap net	Fyke net	Trap net	Trap net	Trap net
Air Temp. (F)	75,79	75,79	75,79	75,80	75,80	75,80	75,80
Water Temp. (F)	78,79	77,78	77,78	77,78	77,78	77,78	79,80
Oxygen Conc. (ppm)	8.2,8.6	6.4,7.0	6.4,7.0	7.2	7.2	7.8,9.6	7.0,9.2
pH	8.6,8.8	8.2,8.7	8.2,8.7	8.3,8.7	8.3,8.7	8.5,8.8	8.7,9.1
No. of Specimens	-	-	5	8	5	20	33
No. of Species	-	-	3	6	3	4	9
American eel			-	-	-	-	1
Goldfish			-	1	-	-	1
Cutlips minnow			-	-	-	-	-
Golden shiner			-	-	-	-	-
Comely shiner			-	-	-	-	-
Satinfin shiner			-	-	-	-	-
Common shiner			-	-	-	-	-
Spottail shiner			-	-	-	-	-
Swallowtail shiner			-	-	-	-	-
Spotfin shiner			-	-	-	-	-
Blacknose dace			-	-	-	-	-
Longnose dace			-	-	-	-	-
Creek chub			-	-	-	-	-
Fallfish			-	-	-	-	-
White sucker			-	-	-	-	-
Creek chubsucker			-	-	-	-	-
White catfish			-	-	-	1	-
Brown bullhead			1	1	-	1	6
Channel catfish			-	-	2	-	-
Rock bass			-	-	-	-	2
Redbreast sunfish			-	3	1	14	8
Green sunfish			-	-	-	-	3
Pumpkinseed			3	1	-	4	2

NO FISH TAKEN

NO FISH TAKEN

Table 25. (cont.)

Station	T20	T25	T25	T35	T35	T55	T60
Bluegill	NO FISH TAKEN	NO FISH TAKEN	-	1	-	-	6
Largemouth bass			-	-	-	-	-
White crapple			-	1	-	-	-
Black crapple			1	-	2	-	4
Tessellated darter			-	-	-	-	-
Shield darter			-	-	-	-	-

Table 25. (cont.)

Station	170	130	150	160	175	Total	% Catch
Day	26-27	27	27	27	27		
Time	1145-1230	1100	1000	1210	1240		
Gear	trap net	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	75.80	79	79	80	80		
Water Temp. (F)	77.78	77	77	80	78		
Oxygen Conc. (ppm)	8.6	8.0	7.8	9.2	8.2		
pH	8.7	8.5	8.5	9.1	8.7		
No. of Specimens	-	140	66	218	76	571	
No. of Species	-	14	7	12	7	29	
American eel		-	-	-	-	1	0.2
Goldfish		-	-	-	-	2	0.4
Cutlips minnow		1	-	-	-	1	0.2
Golden shiner		-	-	7	-	7	1.2
Comely shiner		11	1	2	-	14	2.5
Satinfin shiner		18	6	7	34	65	11.4
Common shiner		55	18	108	-	181	31.7
Spottail shiner		18	-	38	3	59	10.3
Swallowtail shiner		7	-	-	31	38	6.7
Spotfin shiner		3	-	3	-	6	1.1
Blacknose dace		4	-	-	-	4	0.7
Longnose dace		1	-	-	-	1	0.2
Creek chub		6	30	-	-	36	6.3
Fallfish		7	9	-	2	18	3.2
White sucker		2	1	-	-	3	0.5
Creek chubsucker		-	-	1	-	1	0.2
White catfish		-	-	-	-	1	0.2
Brown bullhead		-	-	-	-	9	1.6
Channel catfish		-	-	-	-	2	0.4
Rock bass		-	-	-	-	2	0.4
Redbreast sunfish		-	-	-	3	29	5.1
Green sunfish		-	-	-	-	3	0.5
Pumpkinseed		-	-	3	-	13	2.3

NO FISH TAKEN

Table 25. (cont.)

Station	170	130	150	160	175	Total	% Catch
Bluegill	NO FISH TAKEN	-	-	42	2	51	8.9
Largemouth bass		-	1	1	1	3	0.5
White crappie		-	-	-	-	1	0.2
Black crappie		-	-	5	-	12	2.1
Tessellated darter		6	-	1	-	7	1.2
Shield darter		1	-	-	-	1	0.2

Table 26. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 9-10 August 1973.

Station	120	125	125	135	135	155	160	160
Day	9-10	9-10	9-10	9-10	9-10	9-10	9-10	9-10
Time	0850-1045	0905-1110	0915-1120	0925-1200	0935-1205	0945-1220	0955-1240	1000-1230
Gear	Fyke net	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net	Trap net
Air Temp. (F)	77,84	77,84	77,84	77,87	77,87	78,86	78,86	78,86
Water Temp. (F)	78,81	78,82	78,82	77,81	77,81	78,82	78,84	78,84
Oxygen Conc. (ppm)	7.4,7.8	7.0,7.6	7.0,7.6	7.0,7.8	7.0,7.8	6.6,8.0	7.8,8.4	7.8,8.4
pH	8.3,8.5	7.5,7.7	7.5,7.7	7.5,7.7	7.5,7.7	7.7,8.0	7.6,8.2	7.6,8.2
No. of Specimens	1	-	6	3	9	1	-	12
No. of Species	1	-	4	2	6	1	-	8
Goldfish	-		-	-	1	-		1
Carp	-		-	-	1	-		-
Silvery minnow	-		-	-	-	-		-
Golden shiner	-		-	-	-	-		-
Comely shiner	-		-	-	-	-		-
Satinfin shiner	-		-	-	-	-		-
Common shiner	-		-	-	-	-		-
Spottail shiner	-		-	-	-	-		-
Swallowtail shiner	-		-	-	-	-		-
Spotfin shiner	-	NO FISH TAKEN	-	-	-	-	NO FISH TAKEN	-
Blacknose dace	-		-	-	-	-		-
Creek chub	-		-	-	-	-		-
Fallfish	-		-	-	-	-		-
White sucker	-		-	-	-	-		-
White catfish	-		1	2	4	-		1
Brown bullhead	-		2	-	-	1		2
Channel catfish	-		-	-	1	-		-
White perch	-		-	-	-	-		1
Rock bass	-		-	-	-	-		-
Redbreast sunfish	1		-	-	1	-		1
Green sunfish	-		-	-	-	-		1
Pumpkinseed	-		1	1	-	-		3
Bluegill	-		-	-	-	-		-

Table 26. (cont.)

Station	120	125	125	135	135	155	160	160
Smallmouth bass	-	-	-	-	-	-	-	-
Largemouth bass	-	-	-	-	-	-	-	-
Black crappie	-	-	2	1	-	-	2	-
Tessellated darter	-	-	-	-	-	-	-	-
		NO FISH TAKEN					NO FISH TAKEN	

Table 26. (cont.)

Station	170	120	130	150	160	175	Total	% Catch
Day	9-10	10	10	10	10	10		
Time	1010-1300	1055	1130	1020	1245	1315		
Gear	Trap net	8' seine	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	78.87	84	84	84	86	88		
Water Temp. (F)	79.83	81	82	82	84	82		
Oxygen Conc. (ppm)	8.0, 8.6	7.8	8.4	8.2	8.4	8.0		
pH	7.7, 8.2	8.5	7.8	7.7	7.6	7.8		
No. of Specimens	2	51	70	74	58	116	403	
No. of Species	2	9	9	12	9	8	27	
Goldfish	-	-	-	-	-	-	2	0.5
Carp	-	-	-	-	-	-	1	0.2
Silvery minnow	-	-	1	-	-	-	1	0.2
Golden shiner	-	-	-	-	14	-	14	3.5
Comely shiner	-	-	6	1	4	-	11	2.7
Satinfin shiner	-	12	12	26	31	43	124	30.8
Common shiner	-	4	-	17	1	35	57	14.1
Spottail shiner	-	22	23	2	-	12	59	14.6
Swallowtail shiner	-	2	2	4	-	10	18	4.5
Spotfin shiner	-	-	2	1	2	-	5	1.2
Blacknose dace	-	1	-	-	-	-	1	0.2
Creek chub	-	1	-	3	-	1	5	1.2
Fallfish	-	4	-	8	-	13	25	6.2
White sucker	1	-	3	-	-	-	4	1.0
White catfish	-	-	-	-	-	-	8	2.0
Brown bullhead	-	-	-	-	-	-	5	1.2
Channel catfish	-	-	-	-	-	-	1	0.2
White perch	-	-	-	-	-	-	1	0.2
Rock bass	1	-	-	-	-	-	1	0.2
Redbreast sunfish	-	-	-	2	-	1	6	1.5
Green sunfish	-	-	-	7	1	-	9	2.2
Pumpkinseed	-	-	-	1	1	-	7	1.7
Bluegill	-	-	2	2	3	1	8	2.0

Table 26. (cont.)

Station	170	120	130	150	160	175	Total	\bar{x} Catch
Smallmouth bass	-	1	-	-	-	-	1	0.2
Largemouth bass	-	-	-	-	1	-	1	0.2
Black crappie	-	-	-	-	-	-	5	1.2
Yessellated darter	-	4	19	-	-	-	23	5.7

Table 27. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 20-21 August 1973.

Station	120	125	125	135	135	155	160	160
Day	20-21	20-21	20-21	20-21	20-21	20-21	20-21	20-21
Time	1130-1045	1145-1110	1150-1120	1205-1155	1210-1200	1245-1215	1305-1230	1315-1255
Gear	Fyke net	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net	Trap net
Air Temp. (F)	73	73	73	73	73	73,75	73,75	73,75
Water Temp. (F)	73,75	72,76	72,76	74	74	73,74	74,75	74,75
Oxygen Conc. (ppm)	8.0	7.6,7.8	7.6,7.8	7.6,8.0	7.6,8.0	7.4,8.0	8.8,9.6	8.8,9.6
pH	7.7,8.0	7.6	7.6	7.6	7.6	7.6,7.7	7.8,9.3	7.8,9.3
No. of Specimens	1	1	5	2	3	10	-	8
No. of Species	1	1	4	2	2	6	-	4
American eel	-	-	-	-	-	-	-	-
Cutlips minnow	-	-	-	-	-	-	-	-
Golden shiner	-	-	-	-	-	-	-	-
Comely shiner	-	-	-	-	-	-	-	-
Satinfin shiner	-	-	-	-	-	-	-	-
Common shiner	-	-	-	-	-	-	-	-
Spottail shiner	-	-	-	-	-	-	-	-
Swallowtail shiner	-	-	-	-	-	-	-	-
Spotfin shiner	-	-	-	-	-	-	-	-
Blacknose dace	-	-	-	-	-	-	-	-
Creek chub	-	-	-	-	-	-	-	-
Fallfish	-	-	-	-	-	-	-	-
White sucker	-	-	-	-	-	-	-	-
White catfish	-	1	-	-	-	-	-	-
Brown bullhead	1	-	2	1	2	1	-	2
Channel catfish	-	-	-	-	-	1	-	-
White perch	-	-	1	-	-	3	-	3
Rock bass	-	-	-	-	-	1	-	-
Redbreast sunfish	-	-	1	1	1	1	-	-
Green sunfish	-	-	-	-	-	-	-	-
Pumpkinseed	-	-	1	-	-	3	-	2
Bluegill	-	-	-	-	-	-	-	1

NO FISH TAKEN

Table 27. (cont.)

Station	119	120	130	150	160	175	Total	% Catch
Day	20-21	21	21	21	21	21		
Time	1320-1305	1055	1130	1025	1240	1320		
Gear	Trap net	8' seine	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	73,75	73	73	73	73	75		
Water Temp. (F)	73,74	73	72	73	74	74		
Oxygen Conc. (ppm)	8.2,8.4	8.0	8.2	8.4	8.8	7.8		
pH	7.6,8.5	8.0	7.6	7.3	7.8	7.8		
No. of Specimens	-	44	46	51	56	84	311	
No. of Species	-	12	10	11	7	7	24	
American eel		1	-	-	-	-	1	0.3
Cutlips minnow		-	-	-	-	1	1	0.3
Golden shiner		-	-	-	1	-	1	0.3
Comely shiner		-	3	-	-	-	3	1.0
Satinfin shiner		12	15	19	32	21	99	32.0
Common shiner		4	3	5	1	27	40	12.9
Spottail shiner		5	4	-	-	14	23	7.4
Swallowtail shiner		3	10	4	-	18	35	11.3
Spotfin shiner		3	1	1	9	-	14	4.5
Blacknose dace		-	2	-	-	-	2	0.6
Creek chub		2	-	13	-	2	17	5.5
Fallfish		3	-	1	-	1	5	1.6
White sucker		2	3	1	-	-	6	1.9
White catfish		-	-	-	-	-	1	0.3
Brown bullhead		-	-	-	-	-	9	2.9
Channel catfish		-	-	-	-	-	1	0.3
White perch		-	-	-	-	-	7	2.2
Rock bass		-	-	-	-	-	1	0.3
Redbreast sunfish		-	-	-	-	-	4	1.3
Green sunfish		5	1	3	4	-	13	4.2
Pumpkinseed		-	-	1	-	-	7	2.2
Bluegill		-	-	1	8	-	10	3.2

NO FISH TAKEN

Table 27. (cont.)

Station	170	120	130	150	160	175	Total	% Catch
Tessellated darter	NO FISH TAKEN	3	4	2	1	-	10	3.2
Shield darter		1	-	-	-	-	1	0.3

Table 28. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 6-7 September 1973.

Station	120	135	135	155	160	160	170
Day	6-7	6-7	6-7	6-7	6-7	6-7	6-7
Time	1050-1055	1115-1145	1130-1150	1220-1210	1155-1225	1210-1240	1240-1250
Gear	Fyke net	Fyke net	Trap net	Trap net	Fyke net	Trap net	Trap net
Air Temp. (F)	75.82	78	78	78.79	78.79	78.79	78.79
Water Temp. (F)	80.82	80	80	80.82	80.82	80.82	80
Oxygen Conc. (ppm)	7.8,8.4	7.2,7.6	7.6,7.7	7.2,7.4	6.9,7.8	6.9,7.8	7.1,8.8
pH	7.4,8.8	7.6,7.9	7.6,7.9	7.8,8.2	7.8,8.2	7.8,8.2	7.8,8.2
No. of Specimens	1	1	5	-	-	-	5
No. of Species	1	1	3	-	-	-	3
Goldfish	-	1	-				-
Comely shiner	-	-	-				-
Satinfin shiner	-	-	-				-
Common shiner	-	-	-				-
Spottail shiner	-	-	-				-
Swallowtail shiner	-	-	-				-
Spotfin shiner	-	-	-				-
Blacknose dace	-	-	-				-
Longnose dace	-	-	-				-
Creek chub	-	-	-				-
Fallfish	-	-	-				-
White catfish	-	-	-				1
Brown bullhead	-	-	-				1
White perch	1	-	-				2
Rock bass	-	-	3				-
Redbreast sunfish	-	-	1				1
Green sunfish	-	-	-				-
Pumpkinseed	-	-	1				-
Bluegill	-	-	-				-
Tessellated darter	-	-	-				-

NO FISH TAKEN

NO FISH TAKEN

NO FISH TAKEN

Table 28. (cont.)

Station	120	130	150	160	175	Total	% Catch
Day	7	7	7	7	7		
Time	1100	1125	1030	1230	1300		
Gear	8' seine	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	75	76	75	78	78		
Water Temp. (F)	82	84	80	82	80		
Oxygen Conc. (ppm)	8.4	8.4	12.4	7.8	7.4		
pH	8.8	8.7	8.8	8.2	8.2		
No. of Specimens	77	51	14	256	56	466	
No. of Species	9	6	3	6	8	20	
Goldfish	-	-	-	-	-	1	0.2
Comely shiner	-	-	-	1	-	1	0.2
Satinfin shiner	20	38	8	224	17	307	65.9
Common shiner	1	1	-	1	13	16	3.4
Spottail shiner	4	-	-	-	17	21	4.5
Swallowtail shiner	43	3	2	-	3	51	10.9
Spotfin shiner	1	-	-	13	-	14	3.0
Blacknose dace	1	2	-	-	-	3	0.6
Longnose dace	5	-	-	-	-	5	1.1
Creek chub	-	-	-	-	2	2	0.4
Fallfish	1	-	-	-	-	1	0.2
White catfish	-	-	-	-	-	1	0.2
Brown bullhead	-	-	-	-	-	1	0.2
White perch	-	-	-	-	-	3	0.6
Rock bass	-	-	-	-	-	3	0.6
Redbreast sunfish	-	-	-	-	1	3	0.6
Green sunfish	-	3	-	-	2	5	1.1
Pumpkinseed	-	-	4	4	1	10	2.1
Bluegill	-	-	-	13	-	13	2.9
Tessellated darter	1	4	-	-	-	5	1.1

Table 29. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 20-21 September 1973.

Station	110	125	125	135	135	155	160	170
Day	20-21	20-21	20-21	20-21	20-21	20-21	20-21	20-21
Time	1000-1020	1010-1035	1015-1040	1020-1100	1025-1105	1035-1120	1040-1130	1045-1150
Gear	Fyke net	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net	Trap net
Air Temp. (F)	54,59	56,59	56,59	56,62	56,62	64,65	65	63,65
Water Temp. (F)	64,66	64,65	64,65	63,65	63,65	64,65	64,65	65
Oxygen Conc. (ppm)	8.4,9.4	8.0,8.4	8.0,8.4	8.0,8.6	8.0,8.6	7.8,8.8	7.8,8.6	8.4,9.2
pH	7.6,7.8	7.3,7.6	7.3,7.6	7.4,7.5	7.4,7.5	7.3,7.8	7.3,7.6	7.3,7.4
No. of Specimens	1	1	7	1	10	10	3	7
No. of Species	1	1	5	1	6	4	1	4
American eel	-	-	-	-	5	5	-	2
Goldfish	-	-	1	-	-	1	-	-
Carp	-	-	-	-	1	-	-	-
Cutlips minnow	-	-	-	-	-	-	-	-
Golden shiner	-	-	-	-	-	-	-	-
Comely shiner	-	-	-	-	-	-	-	-
Satinfin shiner	-	-	-	-	-	-	-	-
Common shiner	-	-	-	-	-	-	-	-
Spottail shiner	-	-	-	-	-	-	-	-
Swallowtail shiner	-	-	-	-	-	-	-	-
Spotfin shiner	-	-	-	-	-	-	-	-
Blacknose dace	-	-	-	-	-	-	-	-
Longnose dace	-	-	-	-	-	-	-	-
Creek chub	-	-	-	-	-	-	-	-
Fallfish	-	-	-	-	-	-	-	-
White sucker	-	-	-	-	1	-	-	-
White catfish	-	-	2	-	-	-	3	1
Brown bullhead	-	-	-	-	-	-	-	2
Banded killifish	-	-	-	-	-	-	-	-
White perch	-	-	1	-	-	3	-	-
Redbreast sunfish	1	-	1	-	1	1	-	2
Green sunfish	-	-	-	-	-	-	-	-
Pumpkinseed	-	1	-	1	1	-	-	-

Table 29. (cont.)

Station	120	125	125	135	135	155	160	170
Bluegill	-	-	-	-	-	-	-	-
Largemouth bass	-	-	-	-	-	-	-	-
Black crappie	-	-	2	-	-	-	-	-
Tessellated darter	-	-	-	-	-	-	-	-
Walleye	-	-	-	1	-	-	-	-

Table 29. (cont.)

Station	120	130	150	160	175	Total	% Catch
Day	21	21	21	21	21		
Time	1025	1050	1000	1135	1205		
Gear	8' seine	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	54	56	54	65	65		
Water Temp. (F)	64	64	64	64	65		
Oxygen Conc. (ppm)	9.4	9.4	8.8	8.6	8.6		
pH	7.8	7.5	7.6	7.6	7.7		
No. of Specimens	117	265	101	252	87	862	
No. of Species	11	6	10	9	6	28	
American eel	-	-	-	-	-	12	1.4
Goldfish	-	-	-	-	-	2	0.2
Carp	-	-	-	-	-	1	0.1
Cutlips minnow	1	-	-	-	-	1	0.1
Golden shiner	1	-	1	23	-	25	2.9
Comely shiner	-	-	1	13	-	14	1.6
Satinfin shiner	72	238	58	159	73	600	69.7
Common shiner	-	1	-	-	2	3	0.3
Spottail shiner	5	1	-	-	1	7	0.8
Swallowtail shiner	21	20	21	-	9	71	8.2
Spotfin shiner	1	-	1	11	1	14	1.6
Blacknose dace	1	-	-	-	-	1	0.1
Longnose dace	11	-	-	-	-	11	1.3
Creek chub	1	-	-	-	-	1	0.1
Fallfish	1	-	-	-	-	1	0.1
White sucker	-	-	-	-	-	1	0.1
White catfish	-	-	-	-	-	6	0.7
Brown bullhead	-	-	-	-	-	2	0.2
Banded killifish	-	2	1	-	-	3	0.3
White perch	-	-	-	-	-	4	0.5
Redbreast sunfish	2	3	7	3	1	22	2.5
Green sunfish	-	-	8	-	-	8	0.9
Pumpkinseed	-	-	-	3	-	6	0.7

Table 29. (cont.)

Station	120	130	150	160	175	Total	% Catch
Bluegill	-	-	1	37	-	38	4.4
Largemouth bass	-	-	-	2	-	2	0.2
Black crapple	-	-	-	-	-	2	0.2
Tessellated darter	-	-	2	1	-	3	0.3
Walleye	-	-	-	-	-	1	0.1

Table 30. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 4-5 October 1973.

Station	120	125	125	135	135	155	160	170
Day	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5
Time	1045-1015	1100-1030	1105-1035	1125-1115	1130-1120	1135-1140	1150-1145	1200-1210
Gear	Fyke net	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net	Trap net
Air Temp. (F)	68.76	68.75	68.75	71.78	71.78	76.82	80.82	80.81
Water Temp. (F)	66.68	68.69	68.69	68	68	68.69	69	69
Oxygen Conc. (ppm)	8.6,9.0	7.8,8.0	7.8,8.0	7.4,8.0	7.4,8.0	8.2,8.6	8.8,9.4	8.8,9.0
pH	7.9	7.5,7.6	7.5,7.6	7.5	7.5	7.6,8.5	7.4,7.6	7.6
No. of Specimens	1	4	1	1	2	22	-	1
No. of Species	1	3	1	1	1	7	-	1
American eel	-	-	-	-	-	-	-	-
Muskellunge	-	-	-	1	-	-	-	-
Carp	-	-	-	-	-	1	-	-
Golden shiner	-	-	-	-	-	-	-	-
Comely shiner	-	-	-	-	-	-	-	-
Satinfin shiner	-	-	-	-	-	-	-	-
Common shiner	-	-	-	-	-	-	-	-
Spottail shiner	-	-	-	-	-	-	-	-
Swallowtail shiner	-	-	-	-	-	-	-	-
Spotfin shiner	-	-	-	-	-	-	-	-
Blacknose dace	-	-	-	-	-	-	-	-
Longnose dace	-	-	-	-	-	-	-	-
White catfish	-	2	-	-	-	-	-	1
Brown bullhead	-	1	-	-	-	-	-	-
Channel catfish	-	-	-	-	-	2	-	-
Banded killifish	-	-	-	-	-	-	-	-
White perch	-	-	-	-	-	1	-	-
Rock bass	-	-	-	-	-	1	-	-
Redbreast sunfish	1	-	-	-	-	12	-	-
Pumpkinseed	-	1	1	-	2	3	-	-
Bluegill	-	-	-	-	-	2	-	-
Tessellated darter	-	-	-	-	-	-	-	-

NO FISH TAKEN

Table 30. (cont.)

Station	120	130	150	160	175	Total	% Catch
Day	5	5	5	5	5		
Time	1025	1055	0955	1150	1215		
Gear	8' seine	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	76	78	75	82	78		
Water Temp. (F)	68	69	68	69	70		
Oxygen Conc. (ppm)	9.0	8.6	8.2	9.4	8.2		
pH	7.9	7.6	7.7	7.4	7.6		
No. of Specimens	45	82	87	87	21	353	
No. of Species	6	8	9	5	4	22	
American eel	-	-	-	-	1	1	0.3
Muskellunge	-	-	-	-	-	1	0.3
Carp	-	-	-	-	-	1	0.3
Golden shiner	-	-	-	1	-	1	0.3
Comely shiner	-	2	4	5	-	11	3.1
Satinfin shiner	16	66	38	54	18	191	54.1
Common shiner	-	-	1	-	-	1	0.3
Spottail shiner	1	1	12	-	-	14	4.0
Swallowtail shiner	13	6	26	-	-	45	12.7
Spotfin shiner	-	2	-	25	-	27	7.6
Blacknose dace	-	1	-	-	-	1	0.3
Longnose dace	7	-	-	-	-	7	2.0
White catfish	-	-	-	-	-	3	0.8
Brown bullhead	-	-	-	-	-	1	0.3
Channel catfish	-	-	-	-	-	2	0.6
Banded killifish	-	-	1	-	-	1	0.3
White perch	-	-	-	-	-	1	0.3
Rock bass	-	-	-	-	-	1	0.3
Redbreast sunfish	4	2	2	-	1	22	6.2
Pumpkinseed	-	-	2	-	-	9	2.5
Bluegill	-	-	-	2	-	4	1.1
Tessellated darter	4	2	1	-	1	8	2.3

Table 31. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 18-19 October 1973.

Station	20	125	125	135	135	155	160	170
Day	18-19	18-19	18-19	18-19	18-19	18-19	18-19	18-19
Time	1021-1040	1035-1100	1045-1110	1050-1135	1100-1140	1110-1200	1115-1215	1155-1240
Gear	Fyke net	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net	Trap net
Air Temp. (F)	50,54	50,54	50,54	50,54	50,54	51,54	51,56	51,56
Water Temp. (F)	55,56	54,56	54,56	54,56	54,56	54,56	54,56	54,56
Oxygen Conc. (ppm)	11.6,13.2	10.2,12.2	10.2,12.2	10.4,11.8	10.4,11.8	10.8,11.8	11.0,12.0	11.2,12.6
pH	8.0,8.5 ⁺	7.5,7.6	7.5,7.6	7.6	7.6	7.6,7.8	7.4,7.5	7.4,8.4
No. of Specimens	-	1	5	5	3	12	-	5
No. of Species	-	1	4	3	2	2	-	3
American eel	NO FISH TAKEN	-	1	-	-	3	NO FISH TAKEN	2
Satinfin shiner		-	-	-	-	-		-
Common shiner		-	-	-	-	-		-
Spottail shiner		-	-	-	-	-		-
Swallowtail shiner		-	-	-	-	-		-
Spotfin shiner		-	-	-	-	-		-
Longnose dace		-	-	-	-	-		-
White catfish		-	1	3	-	-		2
Brown bullhead		-	1	-	-	-		-
Banded killifish		-	-	-	-	-		-
White perch		-	-	-	2	-		1
Rock bass		1	-	-	-	-		-
Redbreast sunfish		-	-	-	1	9		-
Green sunfish		-	-	-	-	-		-
Pumpkinseed		-	2	1	-	-		-
Bluegill		-	-	1	-	-		-
Tessellated darter		-	-	-	-	-		-

Table 31. (cont.)

Station	120	130	150	160	175	Total	% Catch
Day	19	19	19	19	19		
Time	1045	1120	1015	1220	1255		
Gear	8' seine	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	54	54	54	56	56		
Water Temp. (F)	55	55	54	54	55		
Oxygen Conc. (ppm)	11.6	12.2	12.6	11.0	11.8		
pH	8.5 ⁺	8.4	8.0	7.5	7.6		
No. of Specimens	97	117	160	335	70	810	
No. of Species	3	5	5	4	4	17	
American eel	-	-	-	-	-	6	0.7
Satinfin shiner	59	84	62	236	63	504	62.2
Common shiner	-	-	-	-	3	3	0.4
Spottail shiner	-	-	-	-	2	2	0.2
Swallowtail shiner	28	25	92	96	2	243	30.0
Spotfin shiner	-	-	2	2	-	4	0.5
Longnose dace	8	-	-	-	-	8	1.0
White catfish	-	-	-	-	-	6	0.7
Brown bullhead	-	-	-	-	-	1	0.1
Banded killifish	-	1	2	-	-	3	0.4
White perch	-	-	-	-	-	3	0.4
Rock bass	-	-	-	-	-	1	0.1
Redbreast sunfish	-	-	-	-	-	10	1.2
Green sunfish	1	-	-	-	-	1	0.1
Pumpkinseed	-	2	2	-	-	7	0.9
Bluegill	-	-	-	1	-	2	0.2
Tessellated darter	1	5	-	-	-	6	0.7

Table 32. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 15-16 November 1973.

Station	120	125	125	135	135	155	160	170
Day	15-16	15-16	15-16	15-16	15-16	15-16	15-16	15-16
Time	1030-1015	1040-1030	1045-1035	1100-1055	1105-1100	1110-1105	1120-1110	1125-1130
Gear	Fyke net	Fyke net	Trap net	Fyke net	Trap net	Trap net	Fyke net	Trap net
Air Temp. (F)	53.64	51.66	51.66	52.67	52.67	48.67	49.69	49.64
Water Temp. (F)	48	48.51	48.51	46.51	46.51	47.51	48.50	48.50
Oxygen Conc. (ppm)	10.6,11.4	9.8,10.2	9.8,10.2	9.8,10.6	9.8,10.6	9.0,10.2	9.0,10.6	10.6,11.0
pH	7.6,8.3	7.3,7.4	7.3,7.4	7.2,7.3	7.2,7.3	7.4,7.8	7.0,7.4	7.3,7.7
No. of Specimens	-	-	1	-	4	-	6	2
No. of Species	-	-	1	-	4	-	2	2
Carp			-				-	-
Golden shiner			-		-		-	-
Comely shiner			-		-		-	-
Satinfin shiner			-		-		-	-
Common shiner			-		-		-	-
Swallowtail shiner			-		-		-	-
Creek chub	NO FISH TAKEN	NO FISH TAKEN	-	NO FISH TAKEN	-	NO FISH TAKEN	-	-
Quillback			1		-		-	-
White sucker			-		1		-	1
White catfish			-		-		-	-
Banded killifish			-		1		-	-
White perch			-		-		1	1
Redbreast sunfish			-		-		-	-
Green sunfish			-		-		-	-
Pumpkinseed			-		-		5	-
Bluegill			-		-		-	-
Tessellated darter			-		-		-	-

Table 32. (cont.)

Station	120	130	150	160	175	Total	% Catch
Day	16	16	16	16	16		
Time	1020	1045	1000	1115	1135		
Gear	8' seine	8' seine	8' seine	8' seine	8' seine		
Air Temp. (F)	53	52	61	49	49		
Water Temp. (F)	48	51	52	50	50		
Oxygen Conc. (ppm)	10.6	10.4	10.6	9.0	9.6		
pH	7.6	7.4	7.4	7.0	7.3		
No. of Specimens	51	180	25	27	158	454	
No. of Species	3	3	3	6	4	17	
Carp	-	-	-	-	-	1	0.2
Golden shiner	-	-	-	1	-	1	0.2
Comely shiner	-	1	-	-	-	1	0.2
Satinfin shiner	24	160	13	14	153	364	80.2
Common shiner	-	-	1	-	-	1	0.2
Swallowtail shiner	26	19	11	2	3	61	13.4
Creek chub	1	-	-	-	-	1	0.2
Quillback	-	-	-	-	-	1	0.2
White sucker	-	-	-	-	-	2	0.4
White catfish	-	-	-	-	-	1	0.2
Banded killifish	-	-	-	1	-	1	0.2
White perch	-	-	-	-	-	1	0.2
Redbreast sunfish	-	-	-	-	1	1	0.2
Green sunfish	-	-	-	-	-	4	0.9
Pumpkinseed	-	-	-	4	-	4	0.9
Bluegill	-	-	-	5	-	10	2.2
Tessellated darter	-	-	-	-	1	1	0.2

Table 33. Fish collections taken from the Delaware River in the vicinity of Point Pleasant, Pennsylvania on 13-14 December 1973.

Station	125	140	155	160	170	150	175	Total	% Catch
Day	13-14	13-14	13-14	13-14	13-14	14	14		
Time	1340-1300	1355-1330	1405-1200	1415-1150	1425-1130	1050	1115		
Gear	Trap net	Trap net	Trap net	Fyke net	Trap net	8' seine	8' seine		
Air Temp. (F)	38,43	38,42	38,43	38,43	38,42	46	44		
Water Temp. (F)	40	40	40,42	40,41	40,41	40	40		
Oxygen Conc. (ppm)	11.6,12.0	11.6,11.8	11.8,12.2	11.6,12.0	12.0	11.8	11.6		
pH	6.8,6.9	6.8,6.9	6.8,6.9	6.8,6.9	6.8,6.9	6.8	6.8		
No. of Specimens	-	1	-	-	4	69	9	83	
No. of Species	-	1	-	-	4	2	3	7	
Satinfin shiner		-			-	34	4	38	45.8
Spottail shiner	NO FISH TAKEN	-	NO FISH TAKEN	NO FISH TAKEN	1	-	-	1	1.2
Swallowtail shiner		-			-	35	4	39	47.0
White sucker		-			1	-	-	1	1.2
White catfish		-			1	-	-	1	1.2
Bluegill		1			1	-	-	2	2.4
Tessellated darter		-			-	-	1	1	1.2

Table 34. Invertebrate taxa found in qualitative samples taken in July and September 1972 from the Delaware River near Point Pleasant, Pennsylvania.

TAXON

Eryozoa	Heptageniidae	Hydroptilidae (cont.)
Planariidae	<u>Stenonema</u>	<u>Leucotrichia</u>
<u>Ougesia</u>	<u>ares*</u>	<u>pictipes</u>
Lumbricidae	<u>rubrum</u>	Leptoceridae
Tubificidae	<u>frontale*</u>	<u>Athripsodes</u>
<u>Branchiura</u>	<u>rubromaculatum</u>	Lepidostomatidae
<u>sowerbyi</u>	Gomphidae	<u>Lepidostoma*</u>
<u>Pelosciolex</u>	<u>Gomphus</u>	Pyralidae
<u>Aulodrilus</u>	Libellulidae	<u>Paragyrractis</u>
Lumbriculidae	<u>Erythemis*</u>	Dytiscidae
Glossiphoniidae	<u>Didymops*</u>	<u>Laccophilus</u>
<u>Placobdella</u>	<u>transversa</u>	Hydrophilidae
<u>montifera*</u>	Coenagrionidae	<u>Berosus</u>
<u>Batrachobdella</u>	Gerridae	Psephenidae
Erpobdellidae	<u>Metrobates</u>	<u>Psephenus</u>
<u>Erpobdella</u>	<u>Rheumatobates</u>	<u>herricki</u>
<u>punctata</u>	Veliidae	Elmidae
<u>Mooreobdella</u>	<u>Rhaconelia</u>	<u>Ancyronyx</u>
<u>fervida</u>	Sialidae	<u>variegatus</u>
Asellidae	<u>Sialis</u>	<u>Dubiraphia</u>
<u>Asellus</u>	Corydalidae	<u>sp. A</u>
<u>militaris</u>	<u>Corydalus</u>	<u>Macronychus</u>
Gammaridae	<u>cornutus</u>	<u>glabratus</u>
<u>Gammarus</u>	Philopotamidae	<u>Optioservus</u>
Hydracarina	<u>Chimarra</u>	<u>Stenelmis</u>
Isotomidae	<u>obscura</u>	Tipulidae
<u>Isotomurus</u>	<u>aterrima</u>	<u>Antocha</u>
<u>palustris</u>	Psychomyiidae	<u>Eriocera*</u>
Perlidae	<u>Polycentropus</u>	<u>spinosa</u>
<u>Perlesta</u>	<u>Neureclipsis</u>	Psychodidae
<u>placida</u>	Hydropsychidae	<u>Telmatoecopus</u>
Caenidae	<u>Cheumatopsyche</u>	Simuliidae
<u>Caenis</u>	<u>Hydropsyche</u>	<u>Simulium</u>
<u>Iricorythodes</u>	<u>betteni</u>	Chironomidae
Ephemerellidae	<u>slossonae*</u>	<u>Ablatesmyia</u>
<u>Ephemerella</u>	<u>phalerata</u>	<u>Procladius</u>
<u>tuberculata*</u>	<u>sp. A</u>	<u>Tanytarsus</u>
Baetidae	<u>sp. C</u>	<u>Micropsectra</u>
<u>Baetis</u>	<u>sp. D</u>	<u>Chironomus</u>
<u>intercalaris</u>	<u>sp. E</u>	<u>Cardiocladius</u>
<u>Isonychia</u>	<u>sp. H*</u>	<u>Goeldichironomus*</u>
<u>Pseudocloeon</u>	<u>sp. K*</u>	<u>Orthocladius</u>
<u>dubium*</u>	Hydroptilidae	
<u>Heterocloeon</u>	<u>Neotrichia*</u>	
	<u>Hydroptila</u>	
	<u>ajax</u>	
	<u>waubesiana</u>	

Table 34. (cont.)

TAXON

Heleidae

Palpomyia

Empiidae

Hemerodromia

Physidae

Physaintegrasayii*

Planorbidae

Gyraulusparvus

Ancylidae

Ferrissiatarda

Unionidae

AnodontaElliptiocomplanatus

Sphaeriidae

SphaeriumPisidium

* Indicates taxa not recorded in the Perkiomen Creek system by Ichthyological Associates, Inc. as of June 1973.

Table 35. Relative abundance and percentage composition of benthic invertebrates taken in qualitative samples (3 samples combined) from the Delaware River near Point Pleasant, 13 September 1972.

Taxon	Total Number	% Composition
Planariidae		
<u>Dugesia</u>	14	+
Lumbricidae	3	+
Tubificidae		
<u>Branchiura sowerbyi</u>	3	+
<u>Aulodrilus</u>	133	1.3
<u>Pelosciolex</u>	24	+
Lumbriculidae	80	+
Erpobdellidae		
<u>Erpobdella punctata</u>	2	+
Asellidae		
<u>Asellus militaris</u>	1	+
Gammaridae		
<u>Gammarus fasciatus</u>	1027	10.0
Hydracarina	47	+
Caenidae		
<u>Caenis</u>	13	+
Baetidae		
<u>Baetis intercalaris</u>	364	3.6
<u>Pseudocloeon dubium</u>	37	+
<u>Isonychia</u>	4	+
Heptageniidae		
<u>Stenonema rubromaculatum</u>	27	+
<u>S. rubrum</u>	6	+
Libellulidae*	2	+
<u>Erythemis</u>	1	+
Coenagrionidae*	5	+
Gerridae		
<u>Metrobates</u>	11	+
<u>Rheumatobates</u>	1	+
Veliidae		
<u>Rhaquovelia</u>	148	1.4
Sialidae		
<u>Sialis</u>	1	+
Corydalidae		
<u>Corydalus cornutus</u>	1	+

Table 35. (cont.)

Taxon	Total Number	% Composition
Philopotamidae		
<u>Chimarra obscura</u> (total)	52	+
(larvae)	44	+
(pupae)	8	+
Psychomyiidae		
<u>Polycentropus</u>	1	+
Hydropsychidae		
<u>Hydropsyche</u> (total)	124	1.2
(pupae)	1	+
H. sp. "A"	31	+
H. sp. "C"	38	+
H. sp. "D"	5	+
H. sp. "E"	12	+
H. sp. "H"	18	+
H. sp. "K"	19	+
<u>Cheumatopsyche</u> (total)	739	7.2
(larvae)	738	7.2
(pupae)	1	+
Hydroptilidae		
<u>Neotrichia</u>	2	+
<u>Hydroptila</u> (total)	9	+
(pupae)	6	+
H. <u>ajax</u>	2	+
H. <u>waubesiana</u>	1	+
<u>Leucotrichia pictipes</u> (total)	60	+
(larvae)	36	+
(pupae)	24	+
Pyralididae		
<u>Pararoractis</u> (total)	26	+
(larvae)	25	+
(pupae)	1	+
Hydrophilidae		
<u>Psephenus</u> (larvae)	21	+
Psephenidae		
<u>Psephenus herricki</u> (larvae)	25	+
Clmidae		
<u>Ancyronyx variegatus</u> (larvae)	1	+
<u>Stenelmis</u> (larvae)	2	+
<u>Dubiraphia</u> (total)	30	+
(larvae)	29	+
(adult)	1	+
<u>Optioservus</u> (larvae)	1	+

Table 35. (cont.)

Taxon	Total Number	Composition
Tipulidae		
<u>Antocha</u> (larvae)	1	+
Simuliidae		
(larvae)	34	+
<u>Simulium</u> (pupae)	2	+
Chironomidae (total)	6888	67.5
(pupae)	6534	64.0
(larvae, total)	354	3.5
<u>Procladius</u>	45	+
<u>Ablabesmyia</u>	465	4.5
<u>Chironomus</u>	1419	13.9
<u>Goeldichironomus</u>	11	+
<u>Polypedilum</u>	168	1.6
<u>Tanytarsus</u>	2374	23.2
<u>Micropsectra</u>	401	3.9
<u>Cardiocladius</u>	256	2.5
<u>Cricotopus</u>	1074	10.5
<u>Orthocladius</u>	318	3.1
Heleidae		
<u>Palpomyia</u> (larvae)	8	+
Empididae		
<u>Hemerodromia</u> (total)	34	+
(larvae)	14	+
(pupae)	20	+
Physidae		
Physa (total)	98	1.0
<u>P. integra</u>	96	1.0
<u>P. savii</u>	2	+
Planorbidae		
<u>Gyraulus parvus</u>	5	+
Ancylidae		
<u>Ferrissia tarda</u>	82	+
Unionidae		
<u>Anodonta</u> *	32	+
Sphaeriidae		
<u>Sphaerium</u>	9	+

* immature specimens

+ indicates values less than 1%

Table 36. Fifteen most numerous genera and their percentage composition of the total number of benthic invertebrates taken in qualitative samples from the Delaware River near Point Pleasant, Pennsylvania on 13 September 1972.

Genus	% Composition
<u>Ianytarsus</u>	23.2
<u>Chironomus</u>	13.9
<u>Cricotopus</u>	10.5
<u>Gammarus</u>	10.0
<u>Cheumatopsyche</u>	7.2
<u>Ablabesmyia</u>	4.5
<u>Micropsectra</u>	3.9
<u>Baetis</u>	3.6
<u>Orthocladius</u>	3.1
<u>Cardiocladius</u>	2.5
<u>Polypedilum</u>	1.6
<u>Rhagovelia</u>	1.4
<u>Aulodrilus</u>	1.3
<u>Hydropsyche</u>	1.2
<u>Physa</u>	1.0

Table 37. Total numbers and percentage composition of drifting invertebrates taken during the 24-hr interval 16-17 August 1972 from the Delaware River near Point Pleasant, Pennsylvania.

Family	Total	% Comp.
Lumbriculidae	1	+
Gammaridae	16	+
Hydracarina	14	+
Isotomidae	6	+
Caenidae	2	-
Baetidae	366	5.2
Heptageniidae	2	-
Coenagrionidae	1	-
Veliidae	1	-
Hydropsychidae	17	-
Hydroptilidae	9	-
Hydrophilidae	2	-
Pyrallidae	2	-
Elmidae	22	-
Tipulidae	1	-
Psychodidae	1	-
Simuliidae	7	-
Chironomidae		
larvae	1603	23.1
pupae	4856	70.0
Empididae	1	-
Physidae	1	-
Ancylidae	2	-

+ indicates values less than 1%

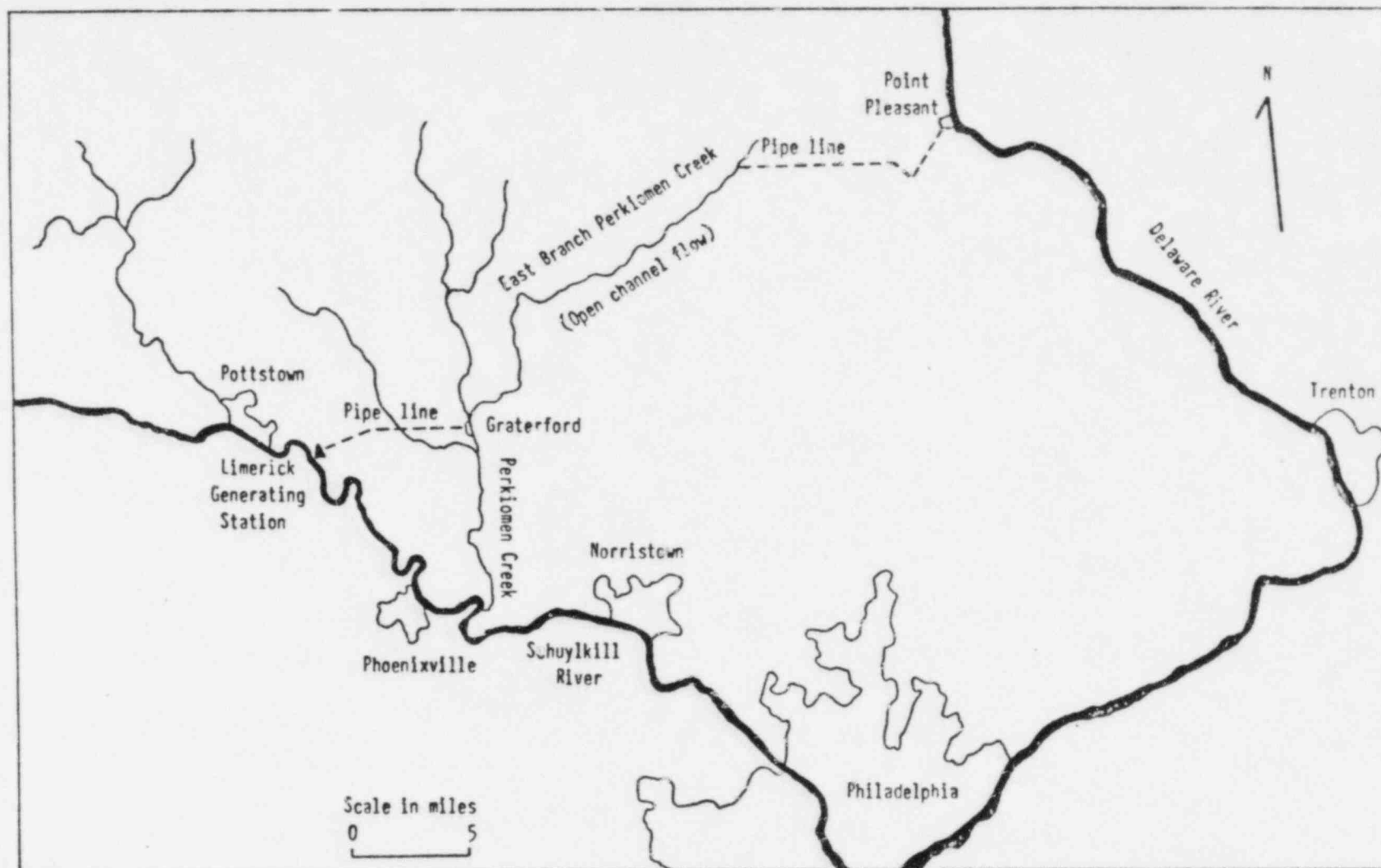


Figure 1. The proposed route of water diversion from the Delaware River to the Limerick Generating Station.

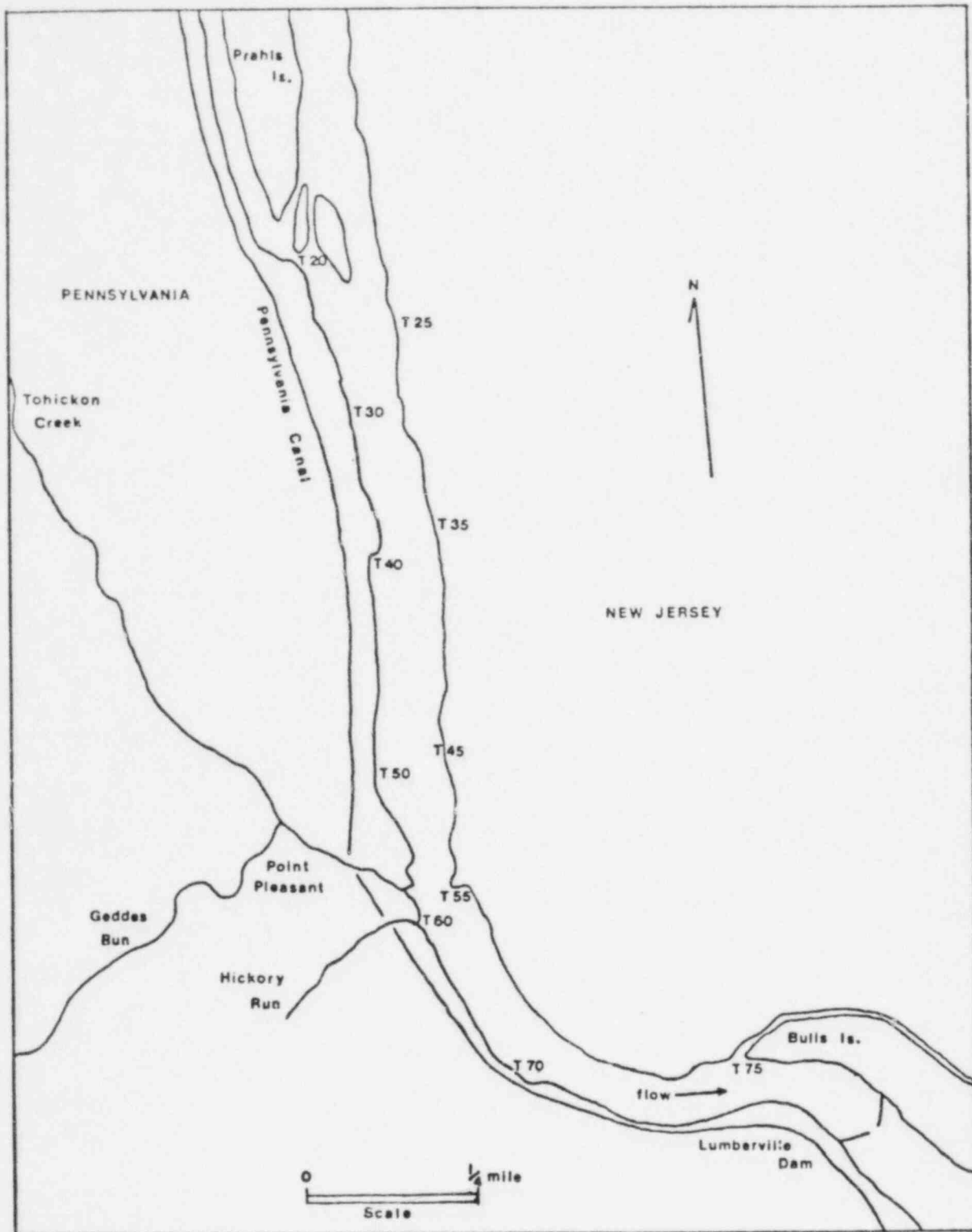


Figure 2. The Delaware River study area in the vicinity of Point Pleasant, Pennsylvania. Sample stations are indicated.

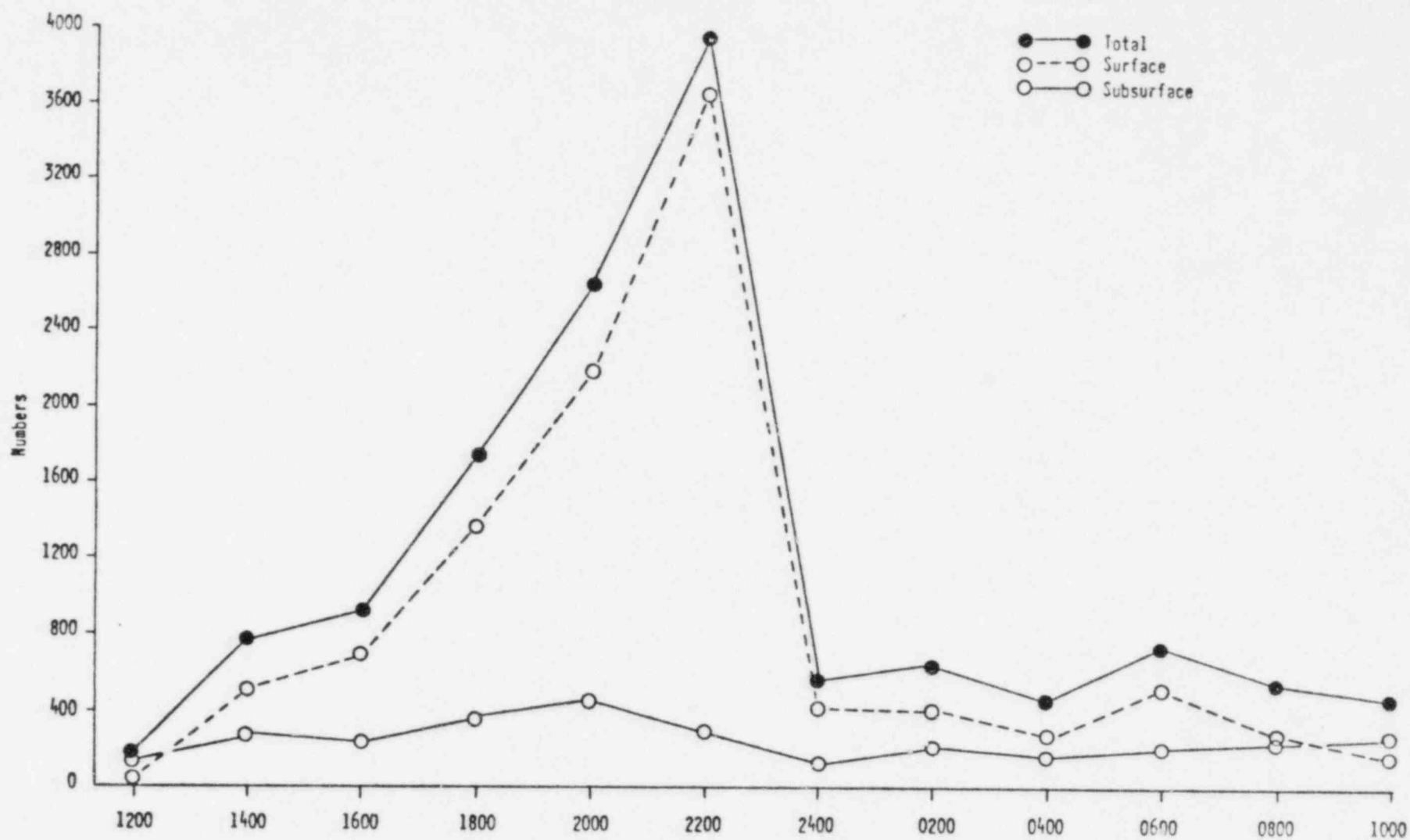


Figure 3. Total, surface and subsurface drift for the 24-hour interval 16-17 August 1972, Point Pleasant, Pennsylvania. Each point represents the mean of two samples.

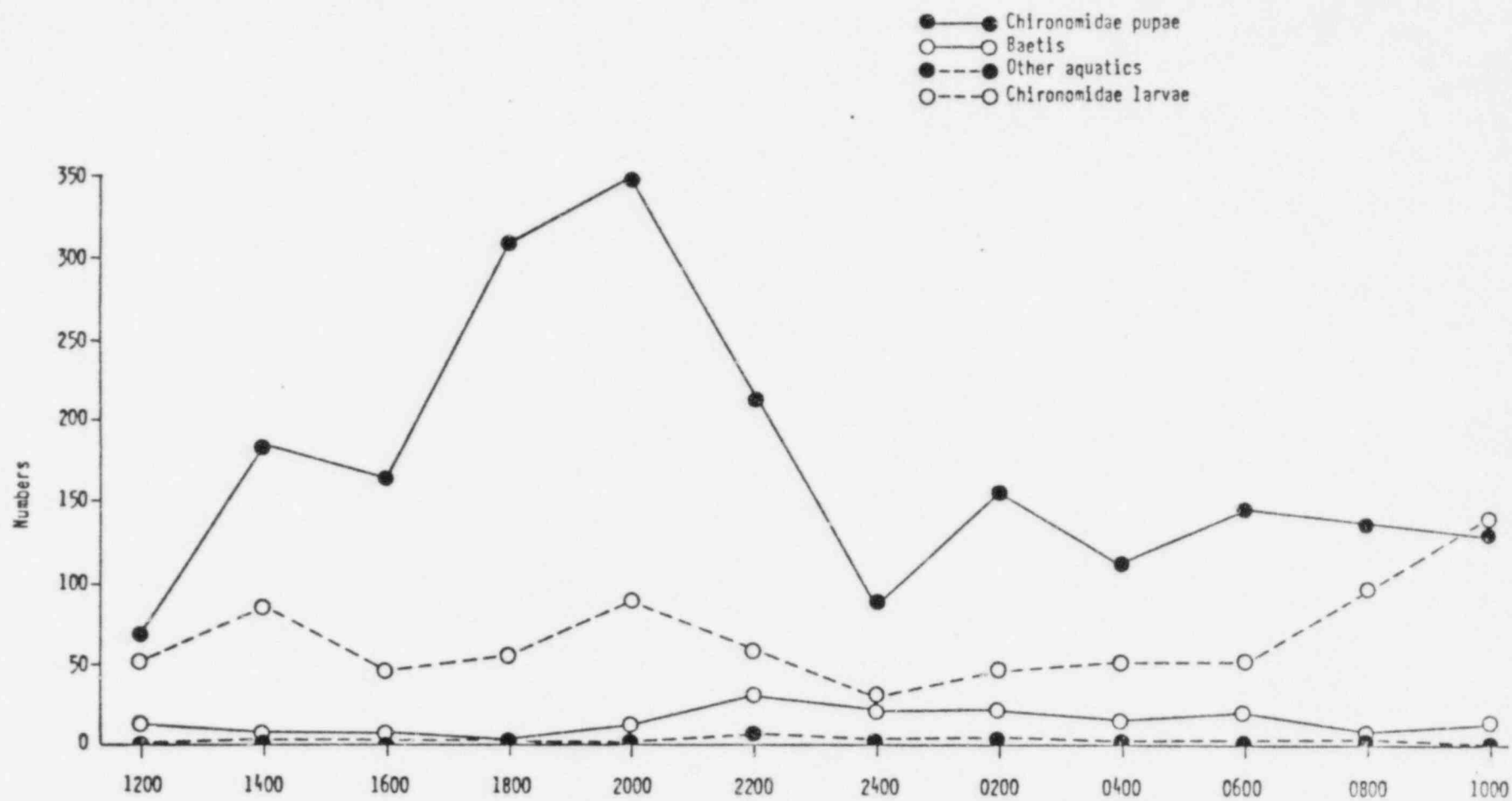


Figure 4. Major components of the subsurface drift for the 24-hour interval 16-17 August 1972, Point Pleasant, Pennsylvania. Each point represents the mean of two samples.