A COMPARISON OF OCEANIC PARAMETERS DURING THE OCEANIC PERIOD OFF THE CENTRAL COAST OF CALIFORNIA

ELROY ANTHONY SOLURI

United States
Naval Postgraduate School

THESIS

A COMPARISON OF OCEANIC PARAMETERS
DURING THE OCEANIC PERIOD OFF THE
CENTRAL COAST OF CALIFORNIA

by

Elroy Anthony Soluri

Thesis Advisor: S. P. Tucker

MAR 1971

A Comparison of Oceanic Parameters During the Oceanic Period Off the Central Coast of California

by

Elroy Anthony Soluri
Lieutenant Commander, United States Navy
B.S., New York State Maritime College, 1962

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN OCEANOGRAPHY

from the

NAVAL POSTGRADUATE SCHOOL
March 1971

ABSTRACT

A detailed examination of the coastal region between Monterey Bay and San Francisco Bay was conducted from 1 to 6 November 1970. Measurements of temperature, salinity, sound velocity, beam transmittance, Coulter particle size distributions, chlorophyll a, phosphate, and oxygen were obtained at 86 stations from the surface to 100 meters. The data collected are presented in the form of contours in horizontal and vertical sections and depth profiles which indicate:

1. a distinctive off-shore region, which exhibited high values of oxygen, chlorophyll a, and particle count and low values of temperature and beam transmittance was present;

2. the areas with the highest standing crop are inshore, within five miles of the coast;

3. a peak in the size distribution of particles did not always occur in the surface layer within the observable range of diameters of from 1.59μ to 32.0μ;

4. a plot of oxygen versus phosphate yielded a slope of

$$-2.4 \ \frac{\mu g\text{-at/l } PO_4}{ml/l \ O_2}.$$

5. there appears to be no simple correlation in the scatter of points plotted for chlorophyll a as a function of oxygen; and

6. a plot of chlorophyll a versus beam transmittance indicates similarly that no simple relationship between these parameters exists.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Figure

ACKNOWLEDGEMENTS

I wish to extend my sincere gratitude to the many people who helped put this thesis together. First, I wish to thank Stevens P. Tucker, under whose direct supervision I worked, who willingly gave of his time and technical knowledge in enabling me to overcome the difficulties confronted while writing this report. Secondly, I wish to thank Professor Eugene Traganza for his help and understanding. Sincere thanks go out to all the members of OP94 and several of OP02. Without their assistance in collecting and analyzing samples during the at-sea period it would have been virtually impossible to complete our planned schedule. I wish also to thank the officers and crew of the USNS DE STEIGUER (T-AGOR-12) and Mr. Jerry Norton of the Oceanography Department who offered invaluable assistance both during and after the cruise. Lastly, to my wife, Alice, profound gratitude for her endless encouragement and assistance and for the cheerful manner in which she accepted my neglect during the preparation of this report.

I. INTRODUCTION

A. PURPOSE

The purpose of this investigation was to examine the coastal waters off Central California during the oceanic period and to compare the oceanographic parameters measured with those observed previously by Baker during this period and by Labyak and Shepard during the spring upwelling period. In particular it was desired to obtain further knowledge of the spatial and temporal variability of beam transmittance and its relation to other oceanographic parameters in the region.

To achieve these ends some 86 oceanographic stations were occupied during the period 1-6 November 1970 and 2749 water samples were collected and analyzed.

B. MARINE CLIMATOLOGY

Skogsberg [5] was the first to describe the annual thermal rhythm of the Monterey Bay area in terms of three major seasonal features, namely, the "cold water" phase, the "warm water" phase, and the "low thermal gradient" phase. Bolin [4] later described these features and labeled them as the "upwelling," the "oceanic," and the "Davidson Current" periods.

The upwelling period is the most persistent of the three periods. It is usually initiated in the latter part of January by a change in the wind direction from the south

to north-northwest. This change gives rise to a transport of water away from the coast and its subsequent replacement by colder, subsurface layers from depths which depend on a number of factors but do not exceed about 200 m at most.

The major properties of this period are a normal sea surface temperature of 10 to 11°C, the lowest of the annual cycle, and the absence of clearly defined isotherms.

In September there is a transition period during which the calm of the oceanic period becomes pronounced. As the strong north-northwest wind dies out, the upwelling becomes intermittent and breaks into irregular eddies. The cold, dense, surface water causes the formation of a very sharp thermocline at depths of only a few meters. During this period, sea surface temperatures greater than 13°C are observed, the highest of the year. Bolin and Abbot [3] have described the effect of this intermittent upwelling on the plankton volumes observed in the Central California coastal region.

In November the upwelling ceases with the onset of southerly winds. In the surface layers a countercurrent called the Davidson Current is developed. This current normally lasts until late January and serves to reinforce the wind driven circulation. Sea surface temperatures decrease slightly during this period, which is characterized by a weak thermocline depressed to 50 to 100 m.

C. PREVIOUS INVESTIGATIONS

Skogsberg (1936) was the first to carry out an intensive investigation of the hydrography of Monterey Bay. His five-year study revealed that the thermal properties of this region are remarkably consistent from year to year.

Bolin (1964) also conducted a five-year study but localized his area of interest to that of the Monterey Submarine Canyon. His results confirm the three-phase annual cycle of the marine climate described by Skogsberg and indicate the variations of parameters such as salinity, oxygen, and plant nutrients during the annual cycle. He found that each of the variables he studied also undergoes an annual cyclic alteration, but that the changes during the oceanic period were less pronounced than those of the upwelling and Davidson periods.

From the mid-1960's observations of the effects of various oceanic variables on the waters of the Central California coast have been made by the Naval Postgraduate School.

The first of a series of studies was conducted in 1964 by Bassett and Fuminger [8]. They examined the vertical variation of light attenuation within Monterey Bay and its relation to phosphate content, salinity, temperature and light scattering. They did not, however, find clear-cut relationships between relative volume scattering coefficients, density, and phosphate for the stations they occupied.

Yeske and Waer [7] in 1968 examined in some detail the temporal variation of oceanic parameters on light attenuation at two stations within Monterey Bay during a complete lunar cycle. Their measurements indicated among other things that approximately 96% of the suspended particles contributing to this attenuation were less than 8.5μ in diameter.

Labyak [6] in 1969 was the first to investigate in detail the beam transmittance of the coastal waters between Monterey Bay and San Francisco Bay during the upwelling period. In general he found fairly good correlation between beam transmittance, temperature, and particle count. He found poor or no correlation between these, however, in the near-shore and upwelling areas. He observed that approximately 90% of the particles were less than 12μ.

Baker [2] in November 1969 made further observations of the optical properties of these coastal waters during the oceanic period. He also found a fairly good correlation between beam transmittance and particulate count but found no strong relationship between beam transmittance and temperature. He concluded that approximately 74% of all the particulate matter observed was less than 6.2μ in diameter.

Shepard [1] in May 1970 was the first to conduct a comprehensive survey of the variation of oceanic parameters during the upwelling period. He dealt not only with the effects of temperature and particle count on light

attenuation, but also considered the effects of oxygen, phosphate, and chlorophyll _a_ on beam transmittance. His work contains a review of these parameters and their observed variations along the California coast.
He concluded that upwelling during May 1970 was taking place on a larger scale than that observed the previous year by Labyak. He found a fairly good relationship between beam transmittance and particulate matter.

II. OBSERVATIONAL PROCEDURES

A. STATION LOCATIONS

During the period 1-6 November 1970, station data were collected aboard the USNS DE STEIGUER (T-AGOR-12). The study area, the coastal area between Monterey Bay and San Francisco Bay, is depicted in Figure 1 along with the approximate locations of the eighty-six stations occupied. The exact position, time, and weather conditions for each station are presented in Table II. These stations were selected to cover approximately the same areas and stations occupied by Shepard [1], Baker [2] and Labyak [6]. Stations were occupied in reverse alphabetical and numerical order, starting with station M-6 at the entrance to San Francisco Bay and ending with station A-1 in Monterey Bay. Station positions were determined every 15 minutes by loran A, radar, or visual bearings.

B. DATA COLLECTION

At least two hydrographic casts were made at each station. However, at 57 of the stations occupied, near bottom samples were also obtained by means of a third cast. On the first cast the sound velocity/temperature/depth probe and the beam transmissometer were arranged so as to allow the beam transmissometer to pass through undisturbed water. Figure 2 is a sketch of this arrangement. During the lowering readings of depth, temperature, sound velocity, and

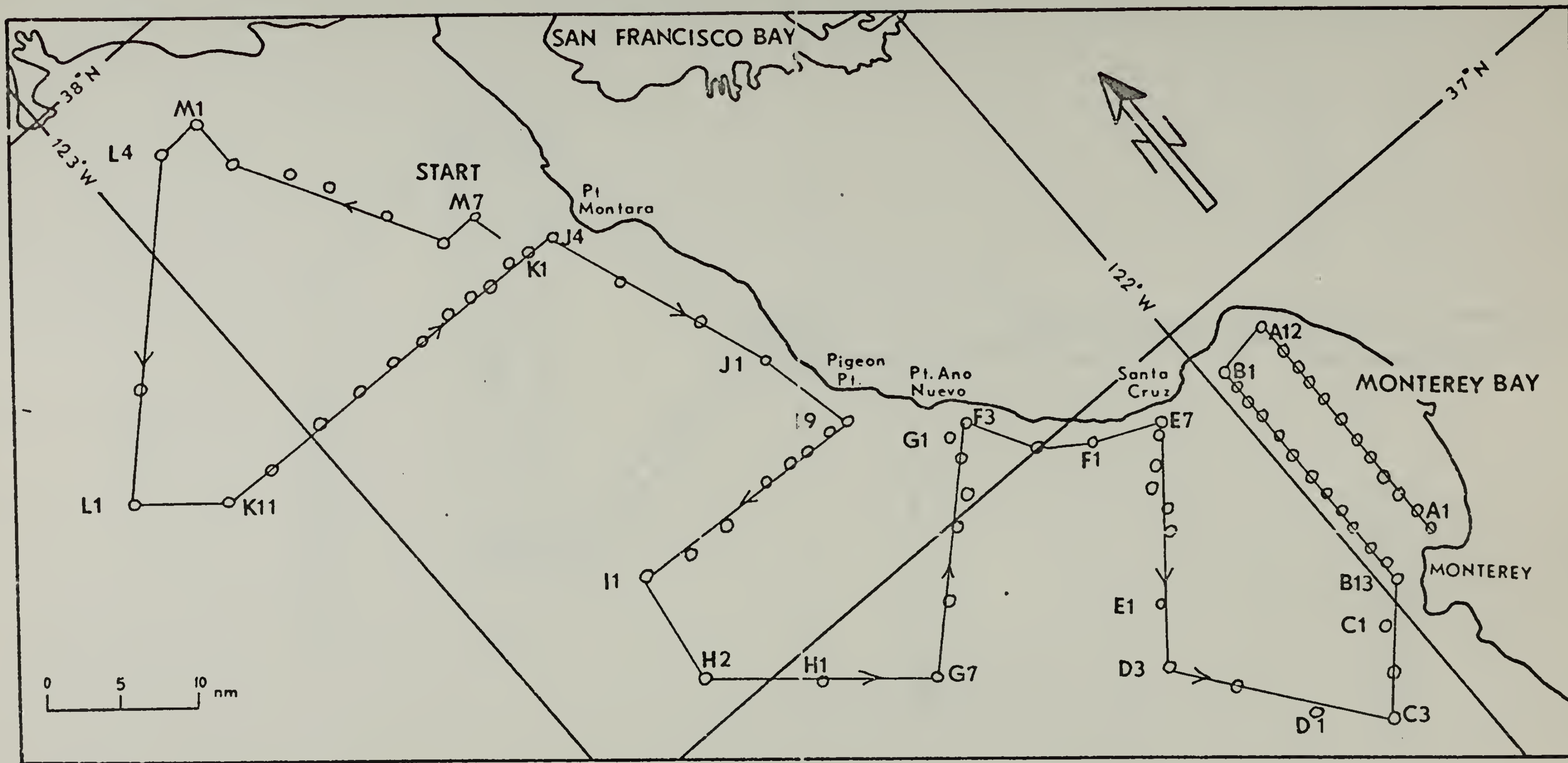


Figure 1. NAVAL POSTGRADUATE SCHOOL USNS DE STEIGUER CRUISE, 1 November to 6 November 1970. Track chart showing approximate locations of stations.

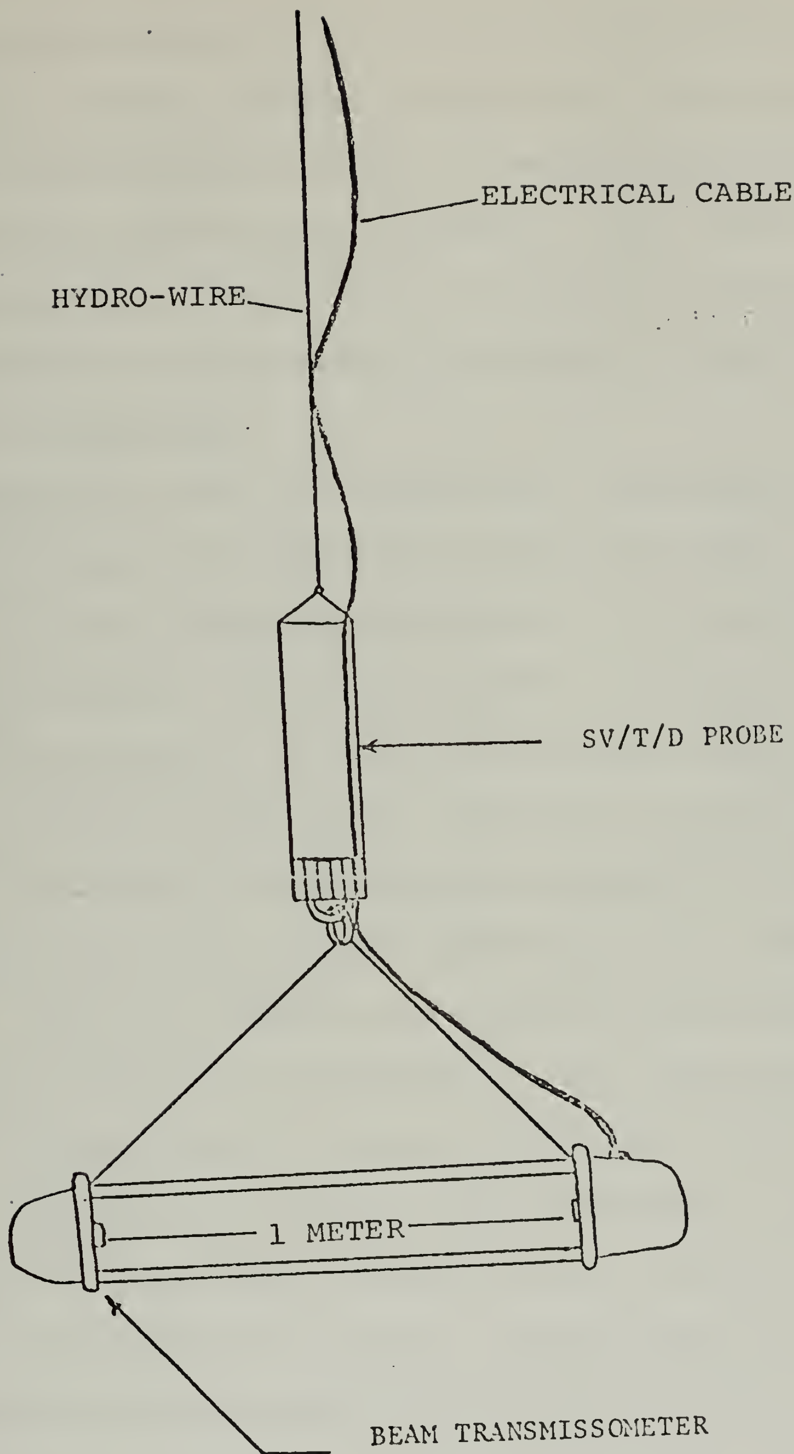

ELECTRICAL CABLE
HYDRO-WIRE
SV/T/D PROBE
1 METER
BEAM TRANSMISSOMETER

Figure 2

beam transmittance were recorded for selected depths down to 100 m. These observed values, along with station weather data, are presented in Table II, which begins on page 223. Continuous readings were recorded as the cast was returned to the surface. Expendable or mechanical bathythermographs were taken at many stations to provide an additional measure of the temperature.

Graphical plots of temperature, sound velocity, and beam transmittance as functions of depth were made, and, on the basis of these, optimum positions for the Nansen bottles were determined. The water samples collected were divided into five groups: (1) 250 ml for oxygen analysis, (2) 100 ml for phosphate analysis, (3) 320 ml for salinity determination, (4) 120 ml for particulate analysis, and (5) the remainder for chlorophyll a determination. All samples taken, with the exception of those for chlorophyll a, were analyzed aboard the DE STEIGUER. The chlorophyll a samples were filtered through Whatman GF/C glass filters with a small amount of magnesium carbonate added to prevent acidity. The filters were then folded in half, sealed in plastic bags, and immediately frozen. These samples were kept frozen until the analysis was carried out about four weeks later.

The third cast was made using a bottom sampler [6] to collect samples for phosphate, oxygen, salinity, and particulate determinations.

C. INSTRUMENTATION

1. Sound Velocity/Temperature/Depth Probe

A Ramsey Engineering Company MK-1 Sound Velocity/Temperature/Depth (SV/T/D) probe was utilized at nearly all stations during the cruise. This instrument is similar to the one described by Labyak [6].

2. Beam Transmissometer

A Marine Advisors model C-2 beam transmissometer ("Alpha-meter" or "C-meter") was used throughout the entire cruise.[1] This instrument is similar to that described by Yeske and Waer [7] and is the one used by Labyak [6], Baker [2] and Shepard [1]. A tungsten lamp was used as the light source, and the optical pass-band was determined by a combination of Wratten 61 and Schott BG-18 filters, giving a dominant wavelength of approximately 538.8 nm.

The instrument was zeroed prior to each cast and never lowered below 5 meters from the bottom.

3. Particle Counter

A Model T Coulter counter was used to carry out the analysis for particulate matter in the seawater sample. It

---

[1] The total beam attenuation coefficient $c = (a+b)$ is given by $c = -(1/I)dI/dx$, where I is the radiant flux incident on a thin layer of thickness dx normal to the beam, and dI is the radiant flux lost to the beam due to the effects of scattering and absorption. If this equation is integrated, $I(x) = I(0)e^{-cx}$, where I(x) is the radiant flux of the beam at a distance x in the direction of propagation from a point where the flux has the value I(0). Normally x is taken to be 1 m, so that $I(1) = I(0)e^{-c}$. The transmittance per meter, T, is then defined as the ratio $T = I(1)/I(0) = e^{-c}$. Sometimes the term "beam attenuation," A, is used. It is related to the transmittance: $T + A = 1$. It is to be emphasized that c is wavelength-dependent, i.e. $c = c(\lambda)$.

is the same instrument used and described by Shepard [1]. Electrical noise prevented the use of Channel 14 at the small-size end of the range. With the 100μ diameter orifice used the range of sizes detected was from 1.5μ to 32.0μ.

4. Fluorometer

A Turner Model 111 Fluorometer was utilized in the determination of chlorophyll a. This instrument is the one described and used by Shepard [1].

D. DATA REDUCTION

A Fortran IV program for the Naval Postgraduate School's IBM 360 computer, the core of which was drafted by LCDR Miller and LT Garcia in 1970 was modified somewhat to calculate values of salinity, oxygen and phosphate. A copy of the program is presented as Table I. It is capable of processing 9 stations per run with a maximum of 40 cards per station. Statement cards are located throughout the program to provide an indication of what each section does. The program contains seven subroutines, four of which are used to calculate salinity, oxygen, phosphate and density; a fifth one prints the station heading, and the last two interpolate the Nansen cast data and SV/T/D - transmission data to standard depths. SV/T/D, transmission, particle, and chlorophyll a data are read directly into the program and no calculations other than the interpolations are carried out on this information. The computer output is presented in Tables I, II, III.

A draw subroutine was utilized to plot depth profiles for individual stations for the following parameters: density, oxygen, phosphate, chlorophyll a, cumulative particle volume, and alpha = [-ln(transmittance)]. Since the values of cumulative particle volume covered a large range, it was difficult to choose a common scaling function and at the same time avoid the loss of detail by the crowding of points along one axis. Therefore, a common scale was used only for individual station lines, e.g. I-1 to I-9 rather than for all 86 stations.

The scales used in each case are depicted in the heading format of the individual station depth profiles.

The amount of chlorophyll a present was determined from a procedure outlined by Holm-Hansen, et al, [14] using fluorometeric techniques. One can also determine the amount of phaeo-pigments present from this procedure; I did not, however, make the actual calculation.[2] In the analysis of chlorophyll a carried out by Shepard [1] it was assumed that no phaeo-pigments were present; I did not make this assumption.

A program for a WANG Model 360K desk calculator was used to solve the following equation for each sample:

$$\text{mg chlorophyll } \underline{a}/m^3 = F_D \frac{\tau}{\tau-1} (R_B - R_A)$$

---

[2] $$\text{mg phaeophytin}/m^3 = F_D \frac{\tau}{\tau-1} (\tau R_A - R_B)$$

where F_D = door factor

R_B = fluormetric reading before acidification

R_A = fluormetric reading after acidification

τ = the ratio of R_B/R_A

An attempt was also made to determine chlorophyll a concentration by means of a continuous flow analysis at several stations while at sea. These attempts were unsuccessful in producing any results that compared with those obtained by individual analysis. The presence of air bubbles in the system was a constant problem, and this was believed to be the cause of our inaccuracies.

In summary, the use of the computer is an ideal, quick and efficient method of processing large amounts of station data. Although the equation for chlorophyll a is not presently in the program, it could easily be added as an additional subroutine.

III. DATA ANALYSIS

A. INTRODUCTION

To depict the distributions of temperature, phosphate, oxygen, chlorophyll a, beam transmittance, and suspended particle matter during the oceanic period in some detail, horizontal and vertical contours were drawn. In addition, depth profiles of density, phosphate, chlorophyll a, cumulative particle volume, oxygen, and beam attenuation coefficient (alpha) were plotted to facilitate comparisons between these parameters.

The computer outputs of station data, including weather, position, time, date, and observed values are listed in Table II.

Table III contains a listing by oceanographic station of the particulate count data observed for each Coulter counter channel for each depth sampled.

Graphical comparisons were also made between various pairs of parameters to determine what quantitative relationships, if any, exist between them.

B. DESCRIPTIVE TECHNIQUES

1. Horizontal Contours

Horizontal contours at depths of 0, 10, 20, 40, and 75 m were drawn. The depths were chosen for ease of comparison with Shepard's analysis. These contours will be discussed in order from the surface to 75 m, according to

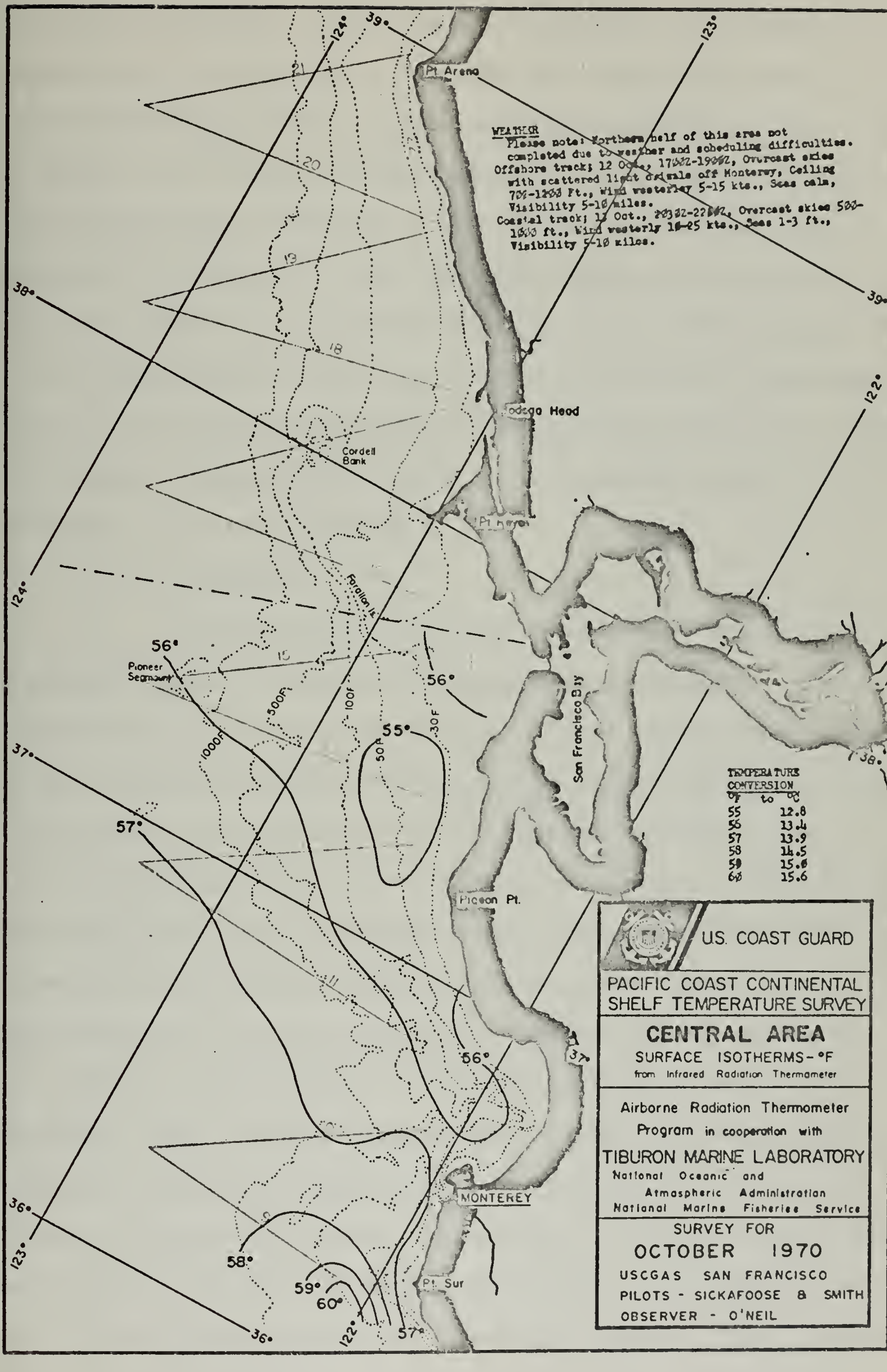
the following list: temperature, phosphate, oxygen, chlorophyll a, beam transmittance, and total particles.

The extreme horizontal isopleths for all parameters did not always occur at the surface, but they were generally within the upper 20 meters. Some predominant features were observed at the northern end of Monterey Bay near Santa Cruz (Station B-1), in an area approximately 15 nmi off Point Montara (Station K-9), in an area approximately 10 nmi off Point Año Nuevo (Station G-7), and to the west of the entrance to San Francisco Bay.

These features generally persisted down to a depth of nearly 40 meters.

a. Temperature

The surface temperature contours (Figure 16) depict a uniform temperature structure with very weak thermal gradients. The most dominant aspect of this figure is the presence of a cool patch of water off Point Montara. This pool is also shown on the U.S. Coast Guard Airborne Radiation Thermometer chart for October 1970 (Figure 3). The average sea surface temperature during this period was 13.45°C, which is in agreement with Bolin's [4] description of the oceanic period. However, the surface was approximately 1°C colder than observed by Baker [2] for a similar period in 1969. The CALCOFI temperature contours for the first half of November 1970 show that the onset of the Davidson Current period had not yet taken place. That is, the surface water was being influenced largely by the cold



Pt. Arena
WEATHER
Please note: Northern half of this area not completed due to weather and scheduling difficulties.
Offshore track; 12 Oct., 1700Z-1900Z, Overcast skies with scattered light drizzle off Monterey, Ceiling 700-1200 Ft., Wind westerly 5-15 kts., Seas calm, Visibility 5-10 miles.
Coastal track; 12 Oct., 2030Z-2200Z, Overcast skies 500-1000 ft., Wind westerly 10-25 kts., Seas 1-3 ft., Visibility 5-10 miles.
Bodega Head
Cordell Bank
Pt. Reyes
Farallon Is.
Pioneer Seamount
San Francisco Bay
Pigeon Pt.
MONTEREY
Pt. Sur
56°
55°
57°
58°
59°
60°
TEMPERATURE CONVERSION
°F to °C
55 12.8
56 13.4
57 13.9
58 14.5
59 15.0
60 15.6
U.S. COAST GUARD
PACIFIC COAST CONTINENTAL SHELF TEMPERATURE SURVEY
CENTRAL AREA
SURFACE ISOTHERMS - °F
from Infrared Radiation Thermometer
Airborne Radiation Thermometer Program in cooperation with
TIBURON MARINE LABORATORY
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
SURVEY FOR
OCTOBER 1970
USCGAS SAN FRANCISCO
PILOTS - SICKAFOOSE & SMITH
OBSERVER - O'NEIL

Figure 3

California Current, resulting in a lowered sea surface temperature. There was a decrease in temperature with increasing depth and a general increase seaward. The strongest horizontal gradient appeared at a depth of 75 m off the Monterey Peninsula. The nearly isothermal water observed by Shepard in the northern, inshore portion of Monterey Bay was also observed during this investigation. It is interesting to note that, whereas Baker [2] observed only 6 of 25 Bay stations with temperatures less than 14.0°C, the warmest temperature during my investigation was 13.9°C at Station A-1 off Monterey.

b. Phosphate

The phosphate contours (Figures 21 to 25) show a general seaward decrease of phosphate-rich water. Two exceptions to this were noted: the first was a patch of phosphate rich water located some 15 nmi off Point Año Nuevo; and the second, not indicated by the surface contours, was located approximately 15 nmi off Point Montara at Station K-9 within the pool of colder water previously mentioned. Riley and Skirrow [16] observed that autumn blooms are very unpredictable and can arise when a period of autumn winds and cooling surface waters allow phosphates to mix into the euphotic zone. Such mixing may be followed by sufficient stability for rapid plant growth to recommence. The phosphates decrease with depth. Generally, values of phosphate were fairly uniform throughout the region of interest and much lower than those of the upwelling period. The highest

values of phosphate, 2 µg-at/l, first appeared at 75 m. Shepard observed a high of 2.5 µg-at/l at 40 m.

c. Oxygen

The oxygen contours (Figures 26-30) show four distinct regions, namely the area in the vicinity of K-9 previously described, the region just offshore of Point Año Nuevo (Station I-8), the Monterey Canyon (Station B-9) and southwest of the Monterey Peninsula (Station C-3). These regions are "anomalous" in that they are either highly saturated (Station K-9) or under-saturated (Stations I-8, B-9, C-3) for a given salinity and temperature. All but Station K-9 have a relatively high sea surface temperature. The large concentrations of chlorophyll _a_ and phosphate observed at K-9 may be due to the entrapment of water photosynthetically enriched in oxygen. The best agreement between temperature and oxygen, i.e. low temperature and low oxygen content, was found in the regions between Pigeon Point and Point Año Nuevo and along the axis of the Monterey Canyon approximately seven nautical miles from shore. The expected decrease of oxygen with depth was generally not observed above about 20 m. At most stations conditions remained fairly constant above about 75 m. The only "anomalous" increase in dissolved oxygen occurred at Station K-9 at depths of from about 10 to 30 m.

d. Salinity

Observed salinity values were compared with the ten year mean values of the California Cooperative Oceanic

Fisheries Investigations (CALCOFI) and generally good agreement was noted. Using our observed salinities and corresponding temperatures, the saturation percentage of oxygen for the four distinct regions mentioned were calculated. 100% saturation of oxygen was assumed to occur at 6.1 ml/l, which is approximately correct for the study area. The maximum observed value of 7.5 ml/l at Station K-9 gave a saturation value of 117%. At station C-3 southwest of the Monterey Peninsula the value was 69% of saturation, while at B-9 in the Monterey Canyon it was 82%. In the area off Point Año Nuevo the cruise minimum of 3.72 ml/l was observed, which corresponds to 64% saturation.

The dissolved oxygen and phosphate values obtained at Station B-8 were compared with data secured on a concurrent, independent, CALCOFI cruise of the Hopkins Marine Station. These values were in excellent agreement. In Figure 4 Station 3 denotes the location of the Hopkins CALCOFI cruise station which corresponds most nearly to the time frame of this report. The cross marks the position of NPS Station B-8. The corresponding values of oxygen and phosphate are shown in the figure within parentheses.

e. Chlorophyll a

Concentration of chlorophyll a at the surface (Figure 31) was fairly constant from Point Montara south to Monterey Bay and somewhat variable off the entrance to San Francisco Bay. The highest values were observed at Stations M-3 and M-5 outside the entrance to San Francisco Bay, and

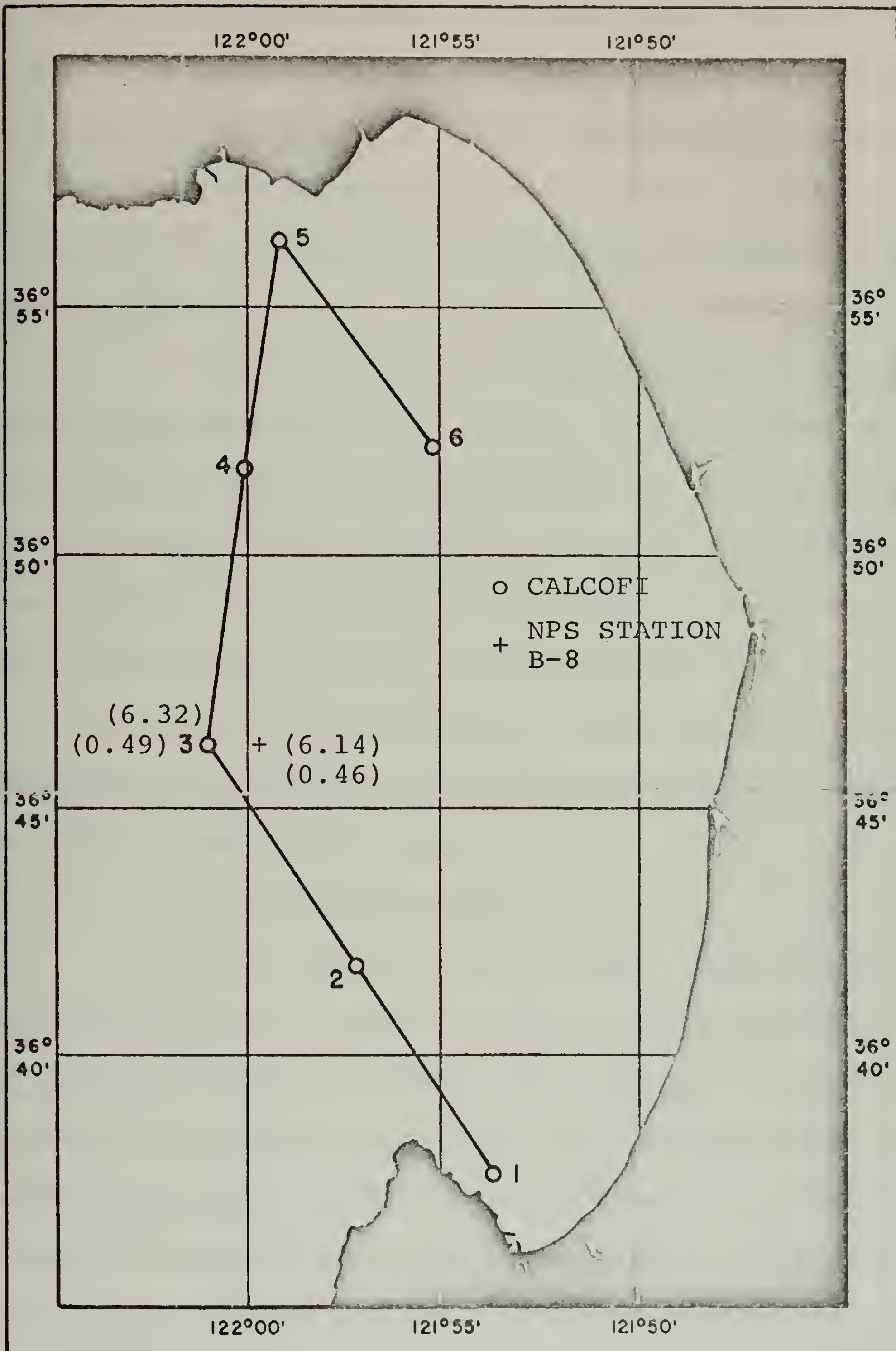


Figure 4. Location of CALCOFI and NPS Stations in Monterey Bay.

at station B-1 in northern Monterey Bay, just off Santa Cruz. The maximum values of chlorophyll a were generally confined to the upper 10 m, but there were scattered pockets of high concentrations below this level. A patch of unusually high values was observed near Station K-9 at a depth of 40 m.

The high surface value observed at Station B-1 still persisted near the bottom. In both cases low light transmission and fairly high values of total particle count are observed. This process may best be explained by a cessation or slackening of upwelling in these areas with the onset of the Davidson Current Period.

Offshore numerical values agree well with Shepard's observations, but the inshore values are generally an order of magnitude lower.

f. Beam Transmittance

Beam Transmittance (Trans) contours from the surface to 75 m (Figures 36-40) did not display the effects of coastal turbidity (Trans < 50 %/m) except near the entrance to San Francisco Bay. The northern and southern ends of Monterey Bay were clear (Trans = 80 %/m) areas with a patch of relatively clear water (Trans = 60 %/m) in the vicinity of Monterey Canyon. This is contrasted with the extremely low values of beam transmittance observed for these regions by both Labyak and Shepard during the upwelling period. During the November 1970 cruise the surface transmittance values ranged from 50-80 %/m; these are slightly

higher than those observed by Baker for a similar period in 1969. The surface contours show two areas where the transmission is slightly less than 50 %/m. One of these occurs at station M-5 off the entrance to San Francisco Bay. Station M-5 occupied at 1545 on 1 November 1970. A maximum flood tide of 2.2 kts. occurred at 1100 on 1 November 1970; thus, at the time this station was sampled, slack water conditions existed. The difference existing between the low values on the May 1970 cruise and the relatively higher values on the November 1970 cruise may be attributed to the transport of coastal water into the Bay by the flood tide.[3]

The second region where transmission was lower than 50 %/m was located at Station K-9. Considering the high values of oxygen, phosphate and chlorophyll _a_ which occur in that region, one may conclude that the low values of light transmission are the result of the relatively large standing crop. Looking at the successive depths one finds that this condition is confined to the upper 20 m, beneath which the water becomes clearer. A study of the 20 and 40 m contours reveals the effects of shallowness along the inshore portion of the study area. Generally there was a decrease of light transmission with depth along the entire region from Point Montara to Santa Cruz, and even into the northern part of Monterey Bay. The K-station line is unique

---

[3]Further discussion of this tidal effect is to be found in Shepard (1970), p. 30.

in that high values of transmission (Trans = 90 %/m) are found in the upper 20 m nearshore and below this level offshore.

g. Particulates

It was found that the November 1970 maximum particle counts were less than those observed by Shepard but generally greater than those for the November 1969 cruise.

At the surface an extremely strong horizontal gradient is evident near the entrance to San Francisco Bay (Figure 41).

Two additional areas of high particulate count occurred off Santa Cruz Harbor at Station B-1 and off Point Año Nuevo (Station G-7). Both of these regions had corresponding relatively high values for dissolved oxygen and chlorophyll a. Outside these three regions lower counts were observed. Below the surface layer an increase of total particle count with depth was observed between Point Montara and Pigeon Point. There was also a decrease in counts as the distance from shore increased. This is in agreement with the rapid decrease of beam transmittance exhibited in this area. Monterey Bay, except as noted above, was an area of rather low particle count down to 75 m. The 75 m contour depicts the first pocket of high particle count on the wall of the Monterey Bay Canyon at Station A-4. This can be attributed perhaps to the transport of bottom sediments down the canyon.

2. Vertical Contours

Vertical sections were drawn for station lines A, B, E, G, I, K, and M (Figures 46 to 87). These station lines were contoured in a fashion identical to that described by Shepard. The contours were drawn to the data at each station in a given line from the surface to 100 m, except where interrupted by the bottom. Contour intervals were modified in regions of strong gradients to avoid crowding the isopleths.

a. Sections A and B

The influence of the Monterey Submarine Canyon on these parameters is indicated by the upward bulge below 20 m in the contours over the Canyon region and the north and southward spreading at the surface (Figures 46 to 49). Bolin and Abbot [3] noted that the Canyon causes a funneling of deep water into the Bay and a subsequent fanning out at the surface. Two contrasting features are displayed at the northern end of Monterey Bay. At Station A-1 the water is oxygen-rich, phosphate-poor with a small standing crop, clear, and of a low particle count. At Station B-1, which is located approximately 3 nmi west-southwest of A-1, the water is oxygen-rich, phosphate-poor, and has a large standing crop (i.e. it has chlorophyll a contents between 0.7 and 1.7 mg/m^3) and has a transmission of about 80 %/m and a high particle count. A similar situation was observed by Shepard for the entire northern end of the Bay.

Values of beam transmittance between 70 and 90 %/m and relatively low particle count (i.e. about 10×10^{-3}/2ml) may be observed throughout most of the Bay, and even over the Monterey Submarine Canyon, except as noted above and within a few meters of the bottom of the Canyon. The rapid change in particle content near the bottom is characterized by a strong gradient in which conditions deteriorate rapidly; e.g. particle counts increased at Station A-3 from 5K particles per 2ml to 94K particles per 2ml in a distance of but 10 m. The area at the southern end of the Bay, where transmission is about 80 %/m, may be seen along both the A and B station lines, and the profiles show that this water is being transported northward and is gradually moving toward the northern edge of the Monterey Canyon, where the influence of the bottom on transmissivity begins. This is very probably due to the influence of the Davidson Current. The isotherms below approximately 12.5°C extend across the entire Bay. This is in agreement with both Labyak's and Shepard's observations. The water of relatively large standing crop (chlorophyll a ≃ 1.0 mg/m^3) observed near the surface at Station B-1, spreads out and sinks to a depth of 40 m at Station B-4. A possible cause for this is the circular eddy pattern described for northern Monterey Bay during the oceanic period in the Bay-Delta Study prepared for the California State Water Quality Control Board [15, Fig. VI-10]. The eddy would tend to isolate this feature within the area.

b. Section E

The surface waters along the E station line depict high values of beam transmittance and low particle count. These conditions remain unchanged with depth seaward of Station E-3. Shoreward of this station, however, at depths below about 15 m, low values of transmittance and high particle counts are found. Sediment disturbance by near bottom currents apparently sharply increases the amount of suspended particulate matter. Bolin [4] observed that, as the Davidson Current starts its northward flow in November, the Coriolis force causes the surface waters to move shoreward, where they sink. The increase in turbidity may result from this downwelling. Generally, the profiles are fairly uniform along the E-station line. A contrasting feature is the humping of two oxygen isopleths at Station E-3 (Figure 60). This possibly may be the result of an error in analysis, since no verification for its existence can be found in the other profiles. A relatively large standing crop (e.g. chlorophyll a) is apparent in the inshore region from the surface to 30 m. Shepard found this to be the region most productive in terms of chlorophyll a during the May 1970 cruise, whereas the levels were fairly constant during the November cruise. There is, however, good agreement with the observations of beam transmission obtained by Baker for this region during November 1969.

c. Section G

Station G-7 provides a striking contrast between total particle count and beam transmittance. Extremely high counts are observed with corresponding high values of beam transmittance. Because the other parameters do not indicate upwelling or a plankton bloom, the high particle counts could possibly be a result of ship's electrical interference not noted during the measurements at sea. The apparent sinking of surface water at Stations G-3, G-4, and G-5 (Figures 65 to 67) is a phenomenon also noted by Shepard. Again, the inshore region appears to have a somewhat higher standing crop in the upper 20 m. This is evidenced by a decrease in transmissivity and increased Coulter counts along the sloping bottom. Inshore values of transmission agree well with those of Baker, but the offshore water was generally "clearer" during the November 1970 cruise. There was very little agreement in magnitude with the observations of Shepard.

d. Section I

The profile of oxygen along the I-station line shows an increase of dissolved oxygen content from the coast seaward. This is similar to the profile observed by Baker, which he suggests indicates the presence of the eastward edge of the southward flowing California Current. A tongue of water having high transmittance and low particle content may be observed (Figures 74 and 75) extending shoreward from Station I-1 to I-6, the axis of which is located

at about 55 m. The cold temperature of this "clear" water thus gives some verification to the suggestion of Baker that this region is influenced by the California Current. The upward bulge below 20 m in the isopleths of oxygen, chlorophyll _a_, phosphate, and particle count at Station I-8 may indicate that some weak, localized upwelling is taking place. The water in the inshore region has low oxygen content, low particulate counts, a high phosphate level and is relatively cold at the surface.

e. Section K

As was also the case during the November 1969 and May 1970 cruises, the highest values of dissolved oxygen for the entire cruise were found off Point Montara along the K-station line (Figures 76 to 81). The high values of oxygen, chlorophyll _a_, and particle count, along with low values of transmission and phosphate, delimit the region where the standing crop was largest for the entire cruise, i.e. between Stations K-8 and K-9. The K-station line is also characterized by the strongest gradients for oxygen, chlorophyll _a_, total particulate count, and transmissivity. Below the upper 10 m the beam transmittance increases rapidly to a value of 80 %/m at 30 m (Figure 80). At Station K-9 a pocket of water of relatively high chlorophyll _a_ content and high Coulter count is to be noted at a depth of 45 m. Station K-9 was occupied at 0900 hours, and the effect could be due to diurnal phytoplankton sinking. There is some indication of upwelling provided by the sharp rise of the

various isopleths in the vicinity of Stations K-7 and K-8.

f. Section M

The "time axis" method used by Shepard to describe the profiles along the M-station lines will be utilized here. Station M-6 was occupied one hour before slack water. The tide was at a maximum ebb when Station M-3 was occupied at 1745 on 1 November 1970. The tidal currents in this region are directed toward the Bay for approximately 3 hours at decreasing velocities until a slack water condition is reached. A similar period is to observed for the onset of the ebb tide until maximum ebb is reached. Thus, stations M-5 and M-4 were occupied during periods of increasing current velocities.

Figures 82 to 87 depict the converse of the observations of Shepard, which were for a slack to maximum flood time period. High values of temperature, oxygen, chlorophyll a, and particulate counts coupled with low transmission were observed at Stations M-3 to M-7. The stations occupied after the maximum ebb show a complete reversal in the levels of the above parameters, except at the bottom, where the strong gradients of high particles and low transmissivity were maintained.

3. Depth Profiles

Depth profiles of density, chlorophyll a, phosphate, oxygen, cumulative particle volume, and beam attenuation coefficient are presented in Figures 88 to 171. With few

exceptions an increase in cumulative particle volume is associated with a corresponding decrease in transmittance and vice versa. Most of the profiles depict an increase of dissolved oxygen in the upper 20 m followed by a decrease. Phosphate, to the contrary, decreases slightly in the upper 20 m and then increases rapidly below this depth.

4. Graphical Comparisons

To establish numerical relationships between the data observed on the November 1970 cruise and those of Shepard, our data are presented in the same way his are. Simple scatter diagrams were drawn to depict what relationships, if any, exist between various pairs of parameters. It should be noted here that, because of the disparity in ranges of data between the May and November 1970 cruises (e.g. chlorophyll a ranged from 0.2 to 10 mg/m^3, while in November 1970 it ranged from 0.1 to 1.2 mg/m^3), November-May comparisons cannot be made over the entire ranges observed.

While working with the Coulter counter, Bader [11] observed that many natural collections of small particles, such as mineral and organic particles suspended in seawater and fine sediments, have hyberbolic cumulative population distributions of the form $N = kv^{-m}$, where k and m are constants and v is particle volume. He observed further that if $\log_{10}N$ is plotted as a function of $\log_{10}D$, where D is spherical particle diameter, the result is linear with slopes of -3m, which range from 0.88 to 1.45 counts/μ for

seawater samples from Abaco Bight, Bahamas. For a comparison with our November 1970 data a log differential population plot was made for the clearest water observed on the cruise, i.e. 92.4 %/m for Station E-2 at a depth of 100 m (Figure 5). This plot indicates a slope of -2.52 for our data. For purposes of comparison Bader's number distribution curve for "wave-agitated seawater masses" [11, Fig. 4] is plotted as a dashed line in Figure 5.

To examine the natural truncation of the large diameter particles plots similar to those of Figure 6 were drawn. Shepard observed a rather abrupt change and dip at approximately 15μ for Station A-6 within Monterey Bay. This station was again plotted to see if such a change was present for the November data. No abrupt changes for this station or for Stations B-1, B-6 and K-9 were noted (Figures 6 to 9). A decrease in particle count with an increase in diameter was the trend in all cases. The largest count plotted occurs at Station K-9 at a depth of 30 m for particles with a diameter of 1.59μ. Points where crossovers occurred were compared with the vertical profiles in an attempt to explain how this feature fits into the general station trend. For Station A-6 (Figure 6) this crossover occurs at 1.5K counts/2 ml and a diameter of 7.5μ for the 20, 35, 80 m curves. The depth profile for this station shows the area to have high values of transmissivity (70 %/m to 80 %/m), low particle count, relatively low values of chlorophyll a, and increasing values of phosphate. The plot

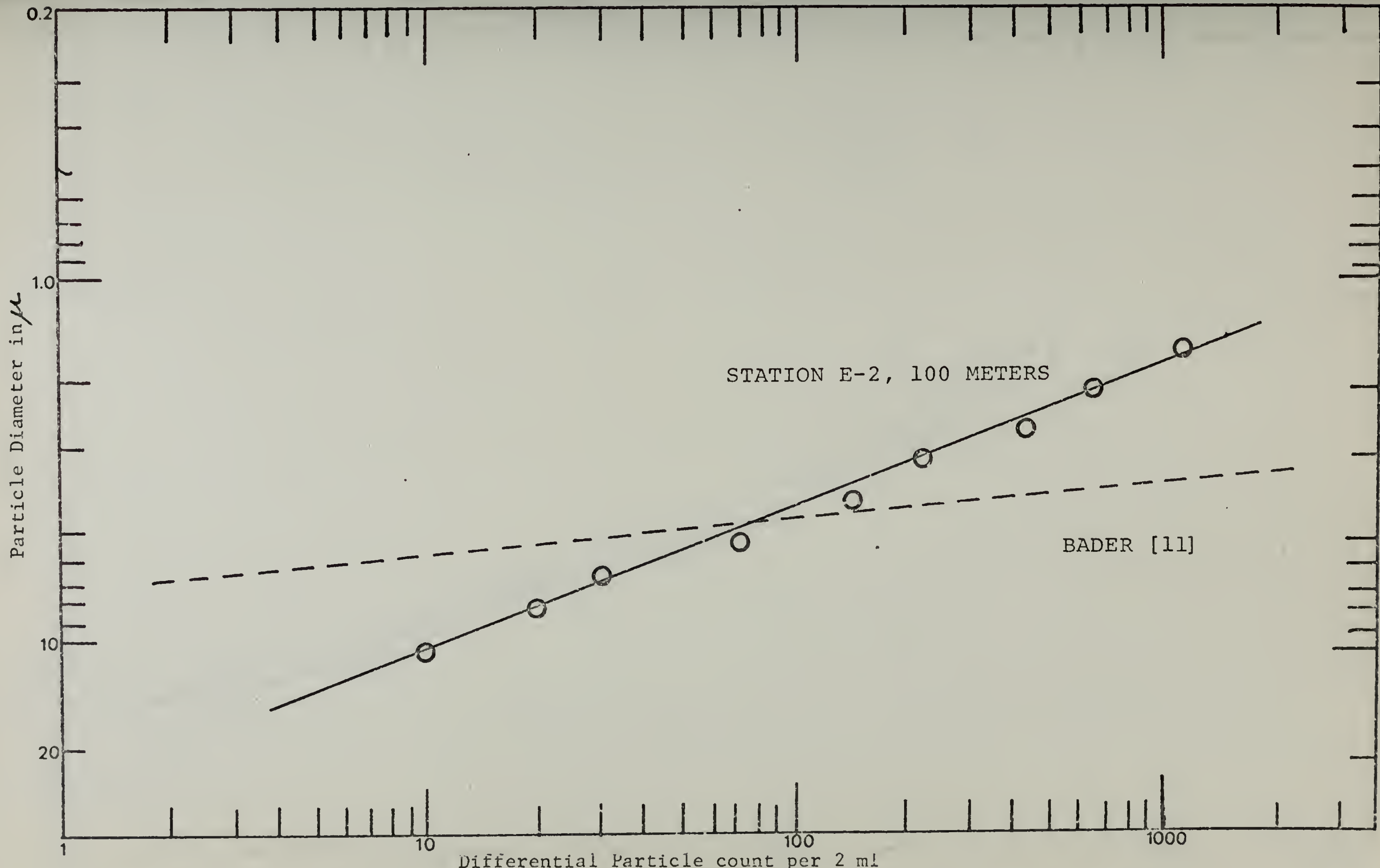


Figure 5. Differential Particle Count Versus Particle Diameter.

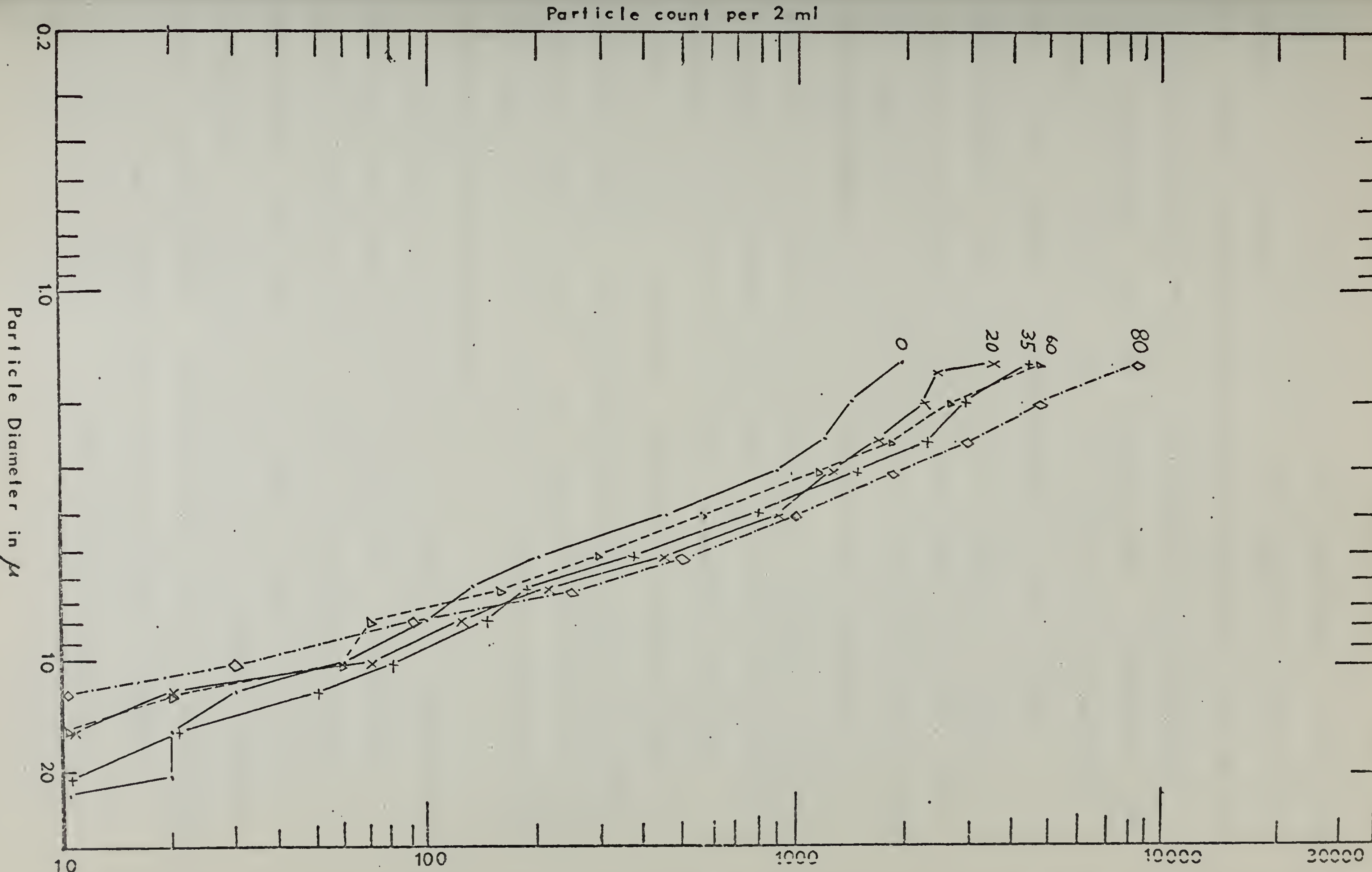


Figure 6. Particle Size Distributions Observed at Station A-6 in Monterey Bay, from 0-80 m.

for Station B-1 (Figure 7) shows two crossovers. The first occurs at 4K counts/2 ml and 5μ; the second, at 200 counts/2 ml and 13μ. The vertical contours show this to be an area of relatively high values of chlorophyll a and phosphate, low transmittance, and high Coulter count. Station B-1 was occupied at 2200 hours; thus, the first point is possibly due to the presence of phytoplankton at the surface, and the second the result of bottom sediment. Figure 8 reveals a slight peak in the surface curve at 2.52μ. All the curves from 0 to 75 m cross at approximately 200 counts/2ml and a diameter of 6.4μ. The profiles indicate that generally the values of chlorophyll a, phosphate, and beam transmittance increase with depth. The particle size distribution for Station K-9 (Figure 9) depicts irregular curves for 0, 10, 30 m and a smoothing to 80 m. These possibly indicate two phytoplankton populations of characteristic sizes 3μ and 8μ. The vertical profiles reveal that the upper 30 m of this station is an area of high particle count and low transmissivity.

Chlorophyll a was plotted as a function of oxygen for more than two hundred points (Figure 10). These points consist of data from both inshore and offshore stations and include the high and low values of oxygen previously mentioned. No clear-cut relationship is apparent between these two parameters. Relatively high values of chlorophyll a can be seen for both high and low values of oxygen. Margalef [13] suggests that high concentrations of

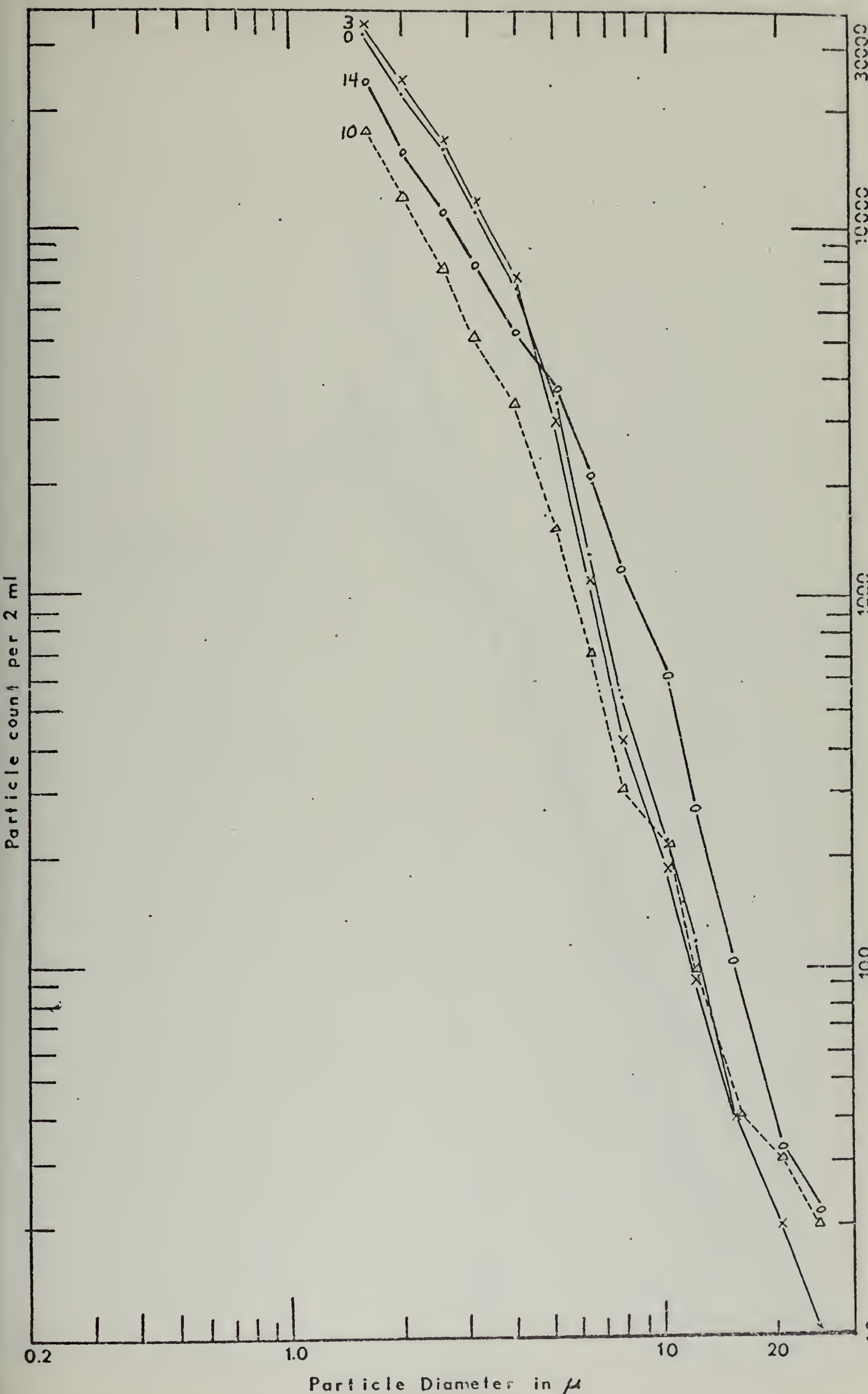


Figure 7. Particle Size Distributions Observed at Station B-1 in Northern Monterey Bay, from 0-14m.

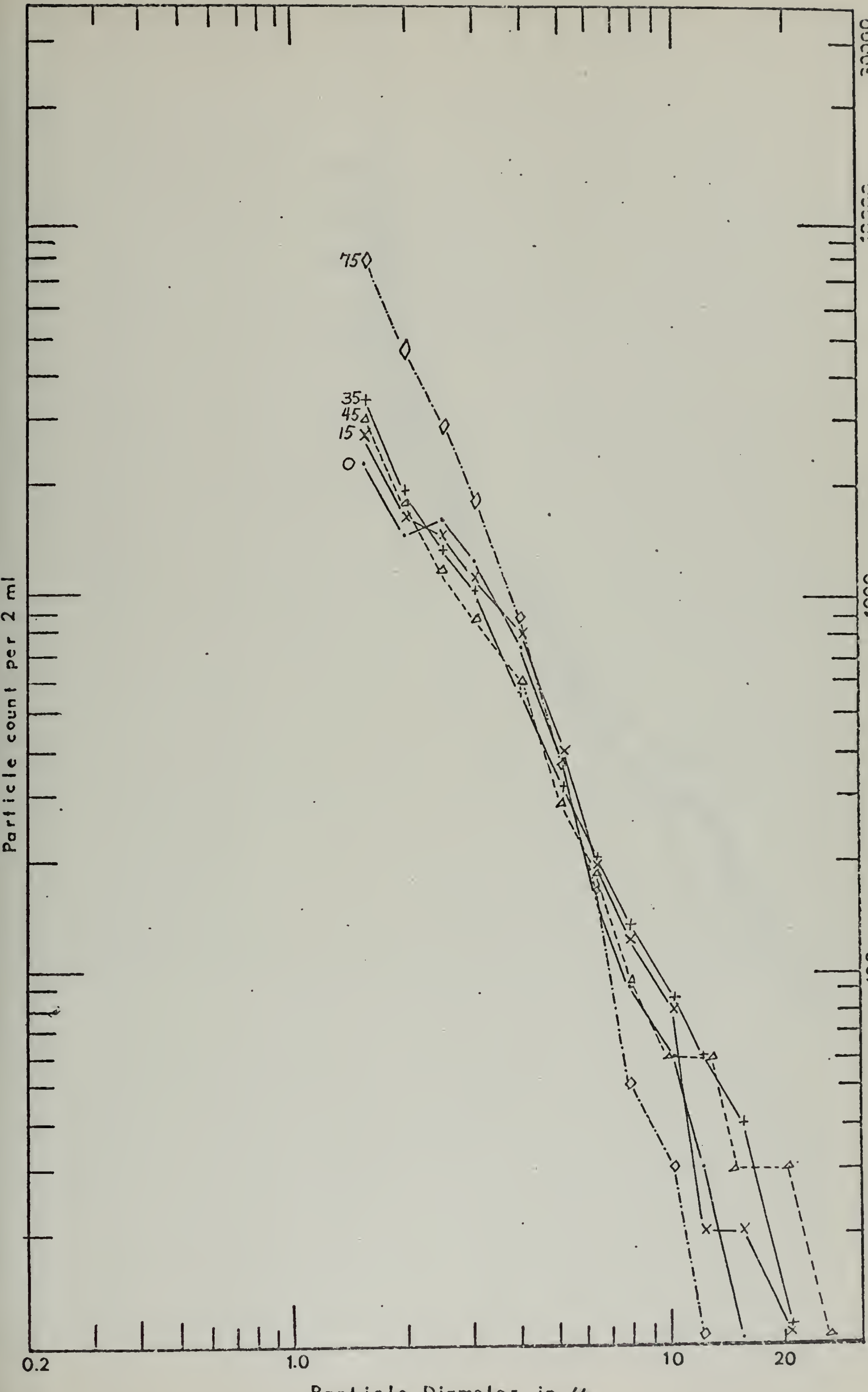


Figure 8. Particle Size Distribution Observed at Station B-6 in Monterey Bay, from 0-75 m.

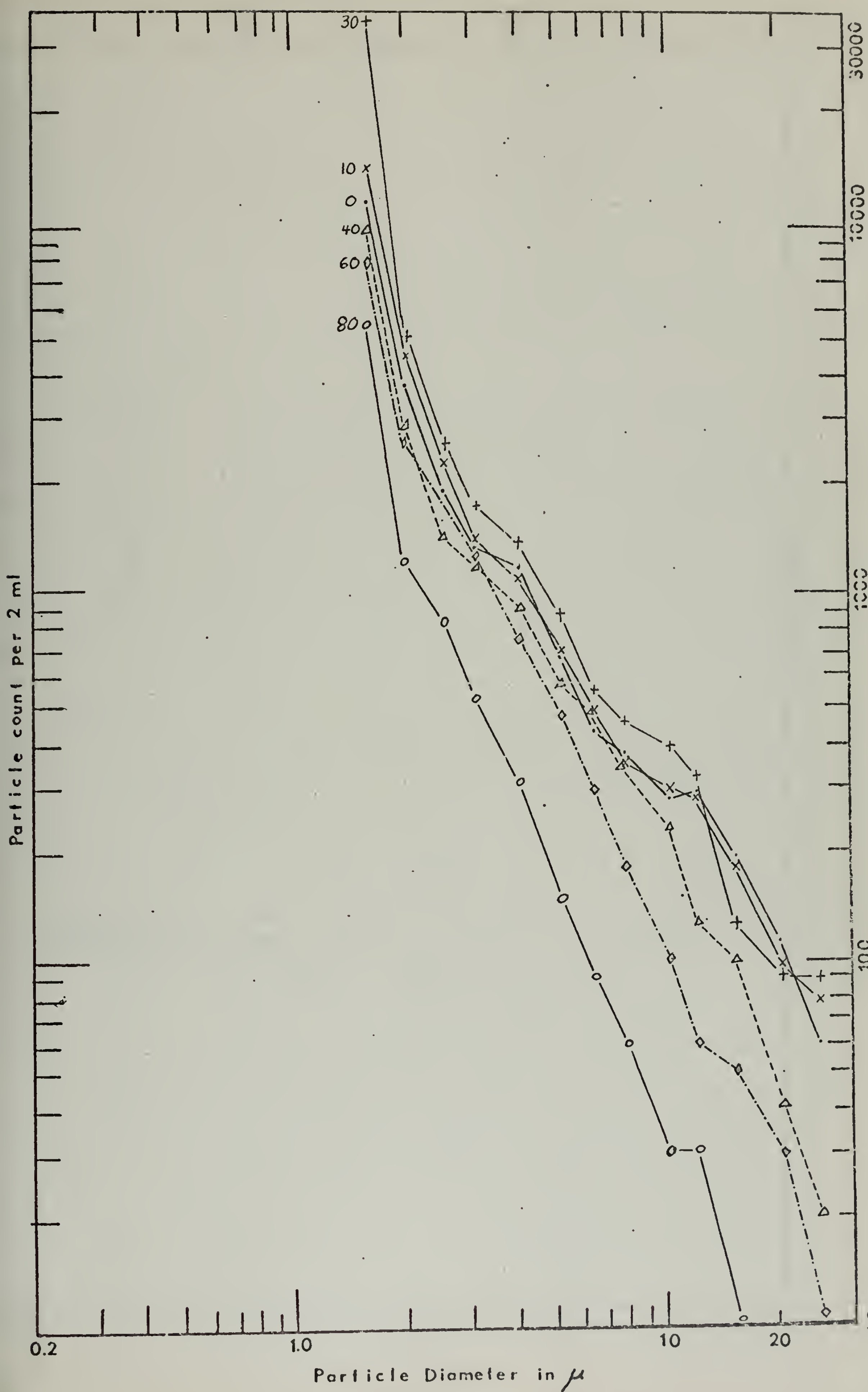
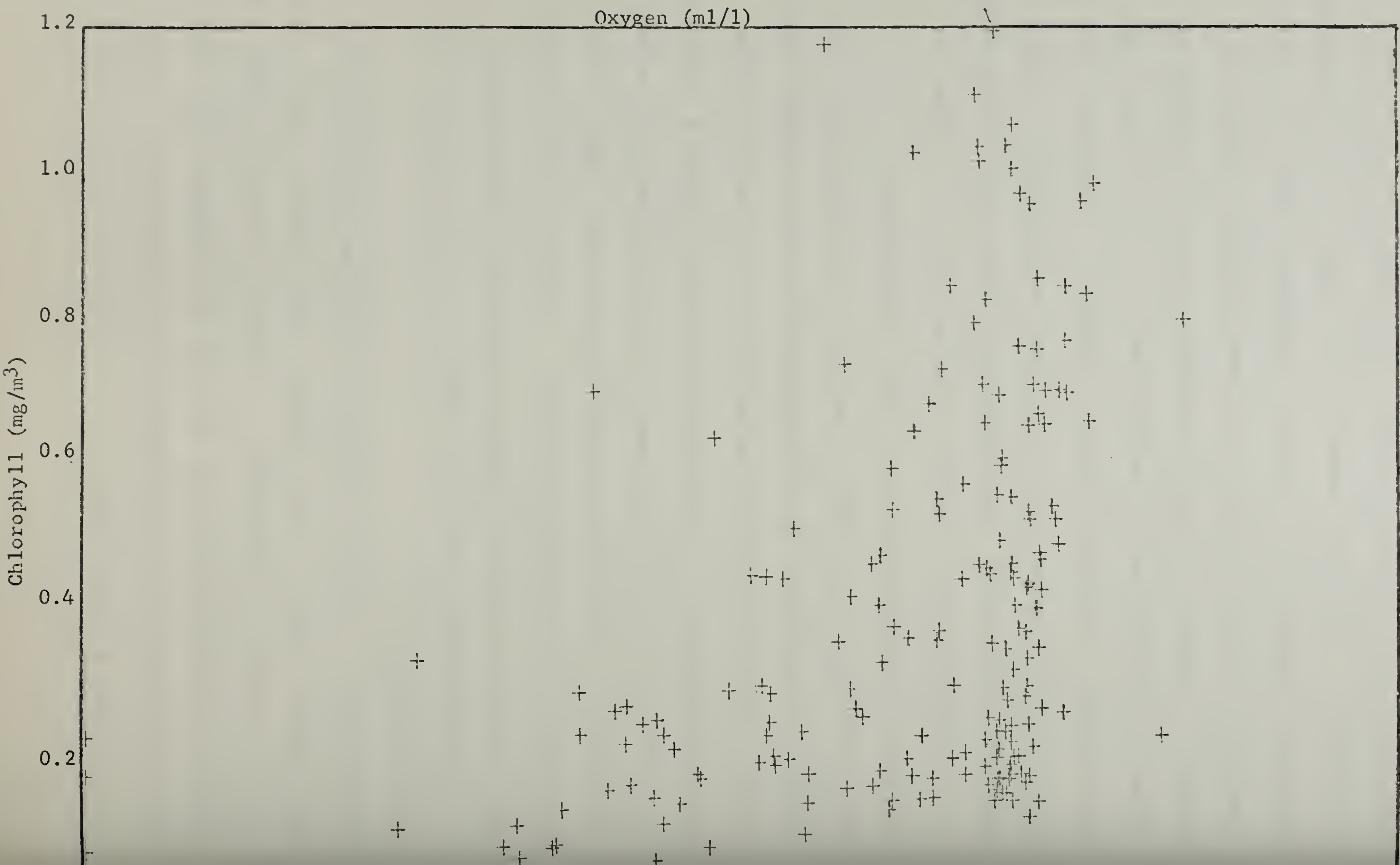


Figure 9. Particle Size Distributions Observed at Station K-9 Off Point Montara, from 0-80 m.


Oxygen (ml/l)
Chlorophyll (mg/m3)
1.2
1.0
0.8
0.6
0.4
0.2

chlorophyll a associated with low oxygen may be a result of the inactivation of chlorophyll a as phaeophytin. One feature occurring both for the May and November 1970 data is the absence of chlorophyll a where dissolved oxygen levels were below 2 ml/l. This suggests that perhaps 2 ml/l is the lower limit of oxygen required to support the production of chlorophyll a.

Beam transmittance as a function of chlorophyll a was also plotted using data from the Monterey Bay area and several of the northern stations. Figure 11 again reveals no apparent correlation between parameters. High values of chlorophyll a can be observed at both high and low values of transmissivity. The indication here is that a knowledge of the concentrations of chlorophyll a is not in itself enough to determine the corresponding value of beam transmittance. That is, factors besides chlorophyll are significant in contributing to light attenuation.

Pytkowicz [10] recorded various slopes in oxygen vs. phosphate plots for a period before upwelling, at the onset of upwelling, and after it had been established. He assumed the changes in slope to be the result of a mixing of water masses characterized by varying amounts of phosphate and oxygen. Figures 12 and 13 represent plots of oxygen as a function of phosphate for the same stations plotted by Shepard, namely, J-1, J-2, K-1 (inshore) and L-1, K-10, I-1 (offshore). The plot reveals that fairly uniform conditions existed at all these stations. Pytkowicz's best fit for his

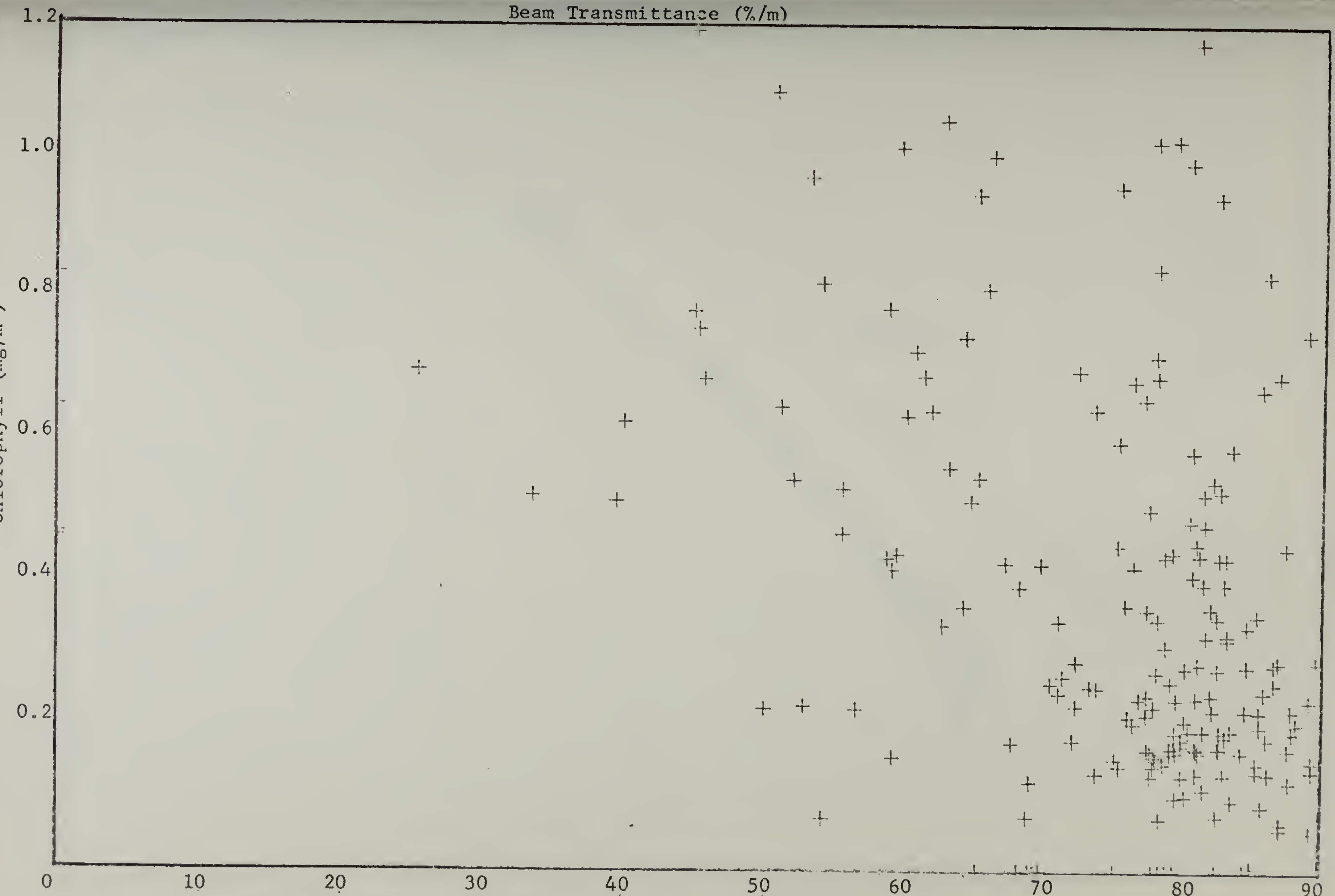


Figure 11. Beam Transmittance as a Function of Chlorophyll a.

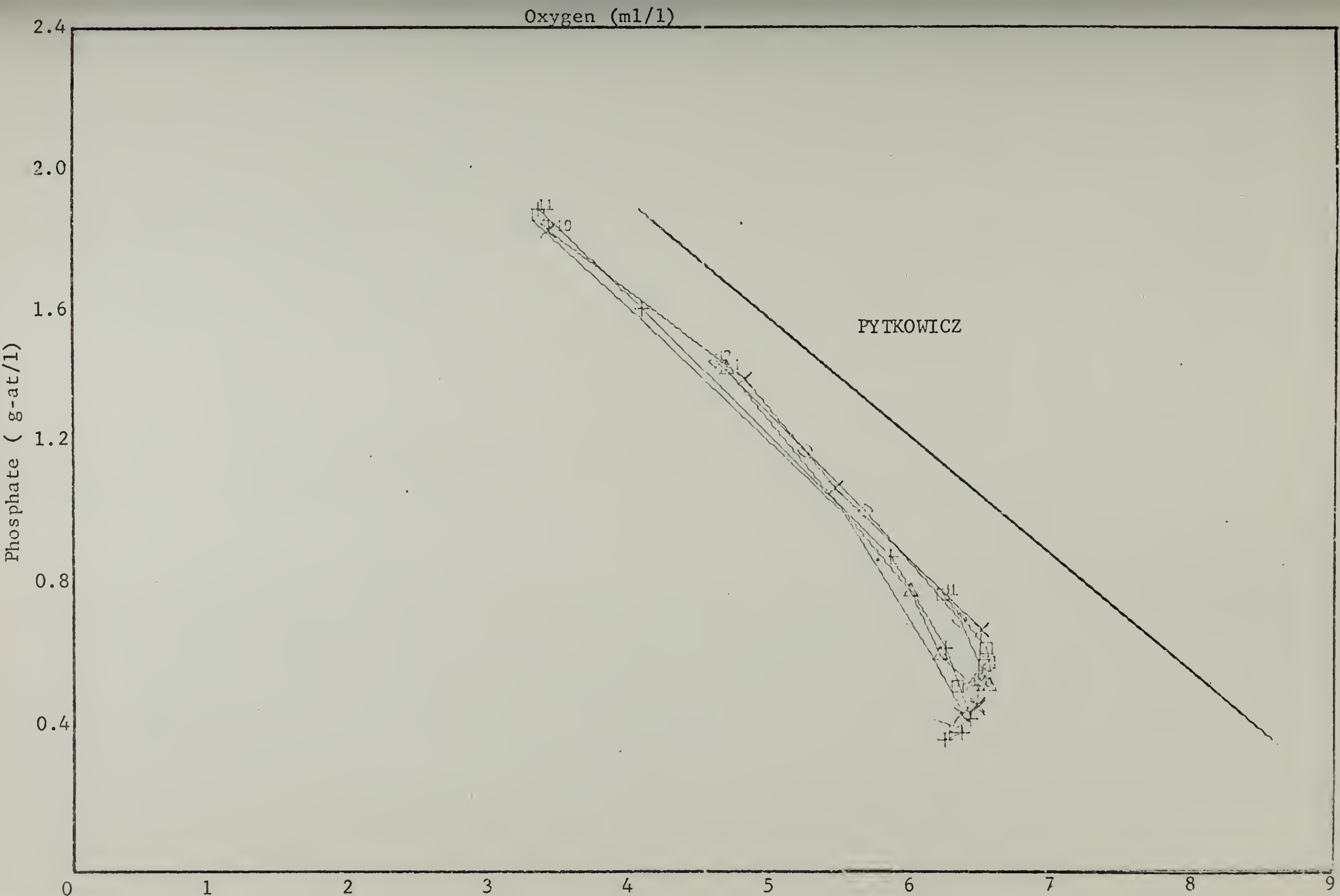


Figure 12. Oxygen as a Function of Phosphate.

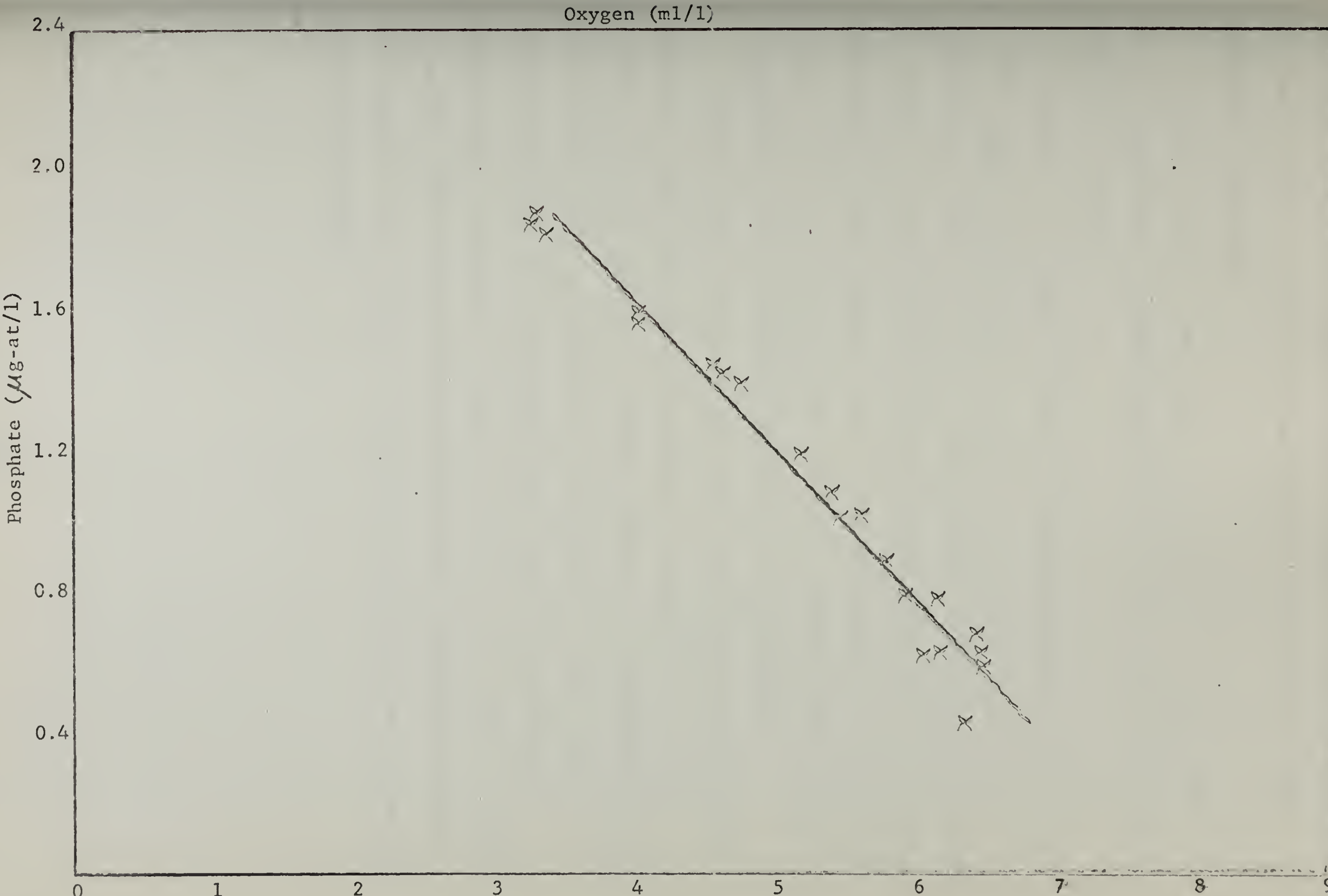


Figure 12. Oxygen as Function of Phosphate

September data for Oregon coastal waters is represented by the heavy line. Figure 13 represents a best fit for the November 1970 data.

Scatter diagrams were also constructed to investigate if a relationship between particulate count and light transmissivity exists.

Figure 14 is a plot of beam transmittance vs. the $\log_{10}$ (total particle count per 2 ml). All data from all the stations in the A, B, K, L, and M station lines were plotted. No simple, linear relationship is apparent from this figure. However, for the narrow range of values observed and plotted, Figure 14 is not unreasonable in that a trend toward lower transmission with increase in counts is indicated.

Figure 15 is a plot of the beam attenuation coefficient (alpha) versus (cumulative particle volume)$^{2/3}$. A poor correlation was exhibited between these two parameters. The plot shows that, in general, low values of alpha (high transmissivity) are associated with low total particle volumes (or projected particle area) per 2 ml sample. With a larger range of beam transmittance and cumulative volume it appears that a better correlation between these parameters could be reached.

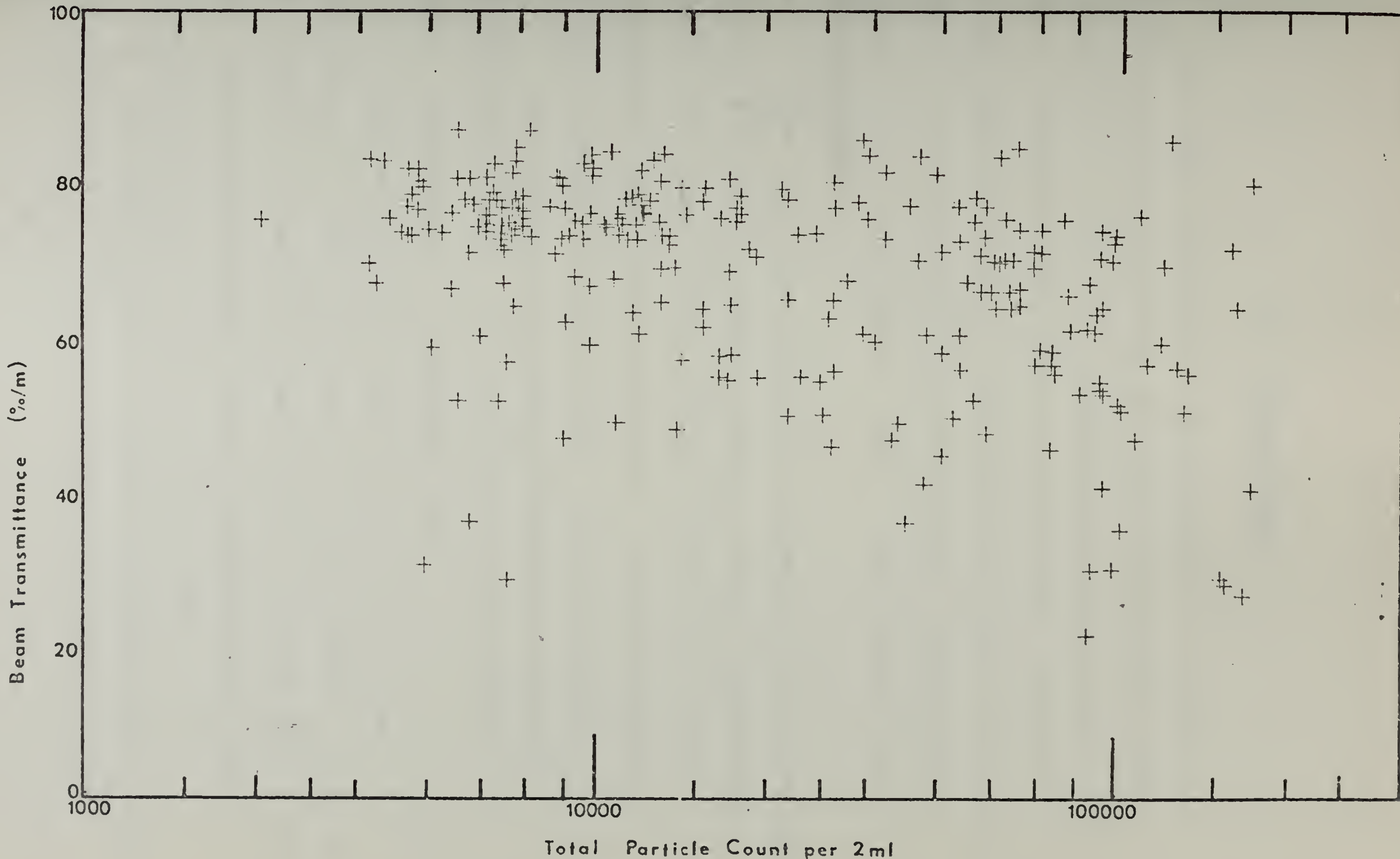


Figure 14. Total Particle Count versus Beam Transmittance.

IV. CONCLUSIONS

This study represents a continuation of a series of surveys being conducted by the Naval Postgraduate School and others off the Central California coastal region. For ease of comparison the analysis of data was approached in a quasi-synoptic manner. This method provides a subjective aid to the understanding of the processes taking place during the oceanic period. From the data presentations it was concluded:

1. The study area during the November 1970 cruise indicates a distinctive offshore region located approximately 15 nmi off Point Montara, which exhibited low surface temperatures and beam transmission, and high values of dissolved oxygen, Coulter counts, and chlorophyll a.

2. The average sea surface temperature during the period 1-6 November 1970 was 13.45°C, approximately 1°C lower than that for 7-14 November 1969.

3. The Monterey Bay area exhibited high values of transmissivity (80 %/m) during the cruise period. This is in contrast to the low values (10 %/m) observed during the May 1969 and 1970 cruises and the slightly lower values observed during the cruise of November 1969.

4. The areas having the highest standing crop in terms of chlorophyll a are located within 5 nmi of the coast.

Offshore all the observed parameters are fairly constant except as noted in (1) above.

5. The spread of particle diameters counted was from 1.59 to 25.4 μ.

6. A poor correlation between cumulative particle volume and the beam attenuation coefficient seems to exist.

7. Most of the surface waters were 100 % saturated with respect to dissolved oxygen. The area off Pt. Montara is supersaturated. Three regions, off Point Año Nuevo, along the axis of the Monterey Canyon, and southwest of the Monterey Peninsula were undersaturated

8. The tidal currents in the vicinity of the entrance to San Francisco Bay definitely affect the variability of the parameters investigated. A similar influence was observed by Shepard.

9. Ocean water having high values of beam transmittance (80 %/m to 90 %/m) and low particle counts was observed at the seaward ends of the station lines at depths of 40 to 65 m. It appears that these stations are influenced by the California Current.

V. SUGGESTIONS FOR FUTURE RESEARCH

There is a continuing need for both raw and processed data for the coastal region between Monterey Bay and San Francisco Bay. The Central California coast is blessed with many natural resources, including a pleasant year-round climate and unlimited recreational facilities. These resources encourage both tourism and rapid population growth. The ever increasing number of people in the area makes it urgent to improve and develop coastal waste disposal facilities. The region includes the Sacramento River system, the largest in the state, and the Salinas River, both of which empty into the sea. With this in mind the following recommendations are made:

Coastal water investigations should be continued to include the Davidson Current period, that is, the period from late November through January.

Values of phaeophytin for the November 1970 cruise should be calculated so that the pigment-to-oxygen ratios may be explained in terms of the inactivation of chlorophyll a as phaeophytin.

Continuous flow determinations of chlorophyll a should be made. This will require the installation of a bubble trap to remove the source of error we experience. These

determinations should be conducted to concur with airborne spectrophotometric analyses.

The density profiles for this period should be examined to determine the effects of advection on the water column. These should be examined further to observe what correlations, if any, between density, beam transmission, and particulate maxima exist.

Finally, enough data is presently available so that an investigation into possible relationships between multiple parameters may be conducted. Several regression and correlation programs are available for use on the IBM 360. These are listed in the IBM Scientific Subroutine Package.

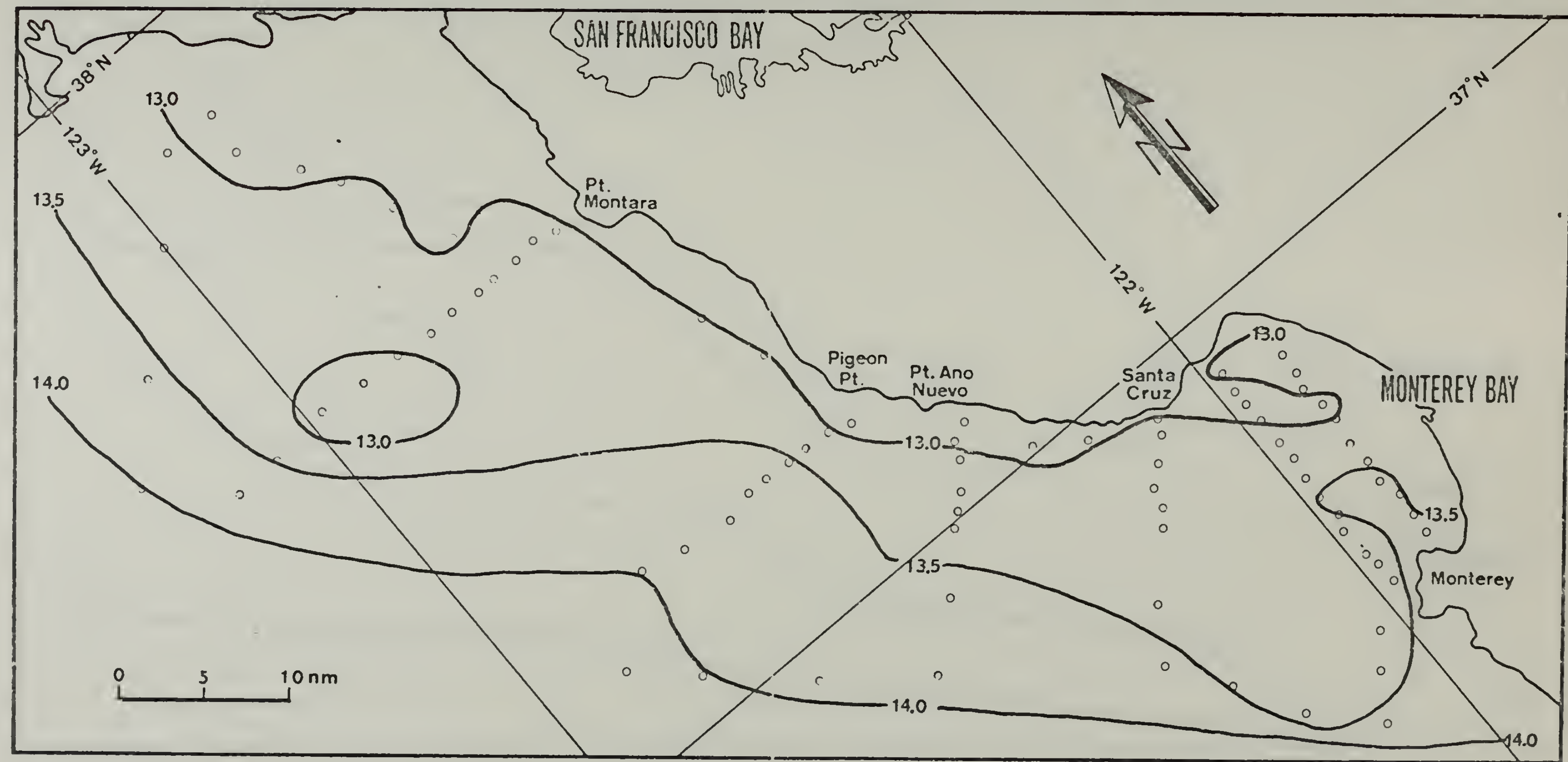


Figure 16. Surface Isotherms (°C)

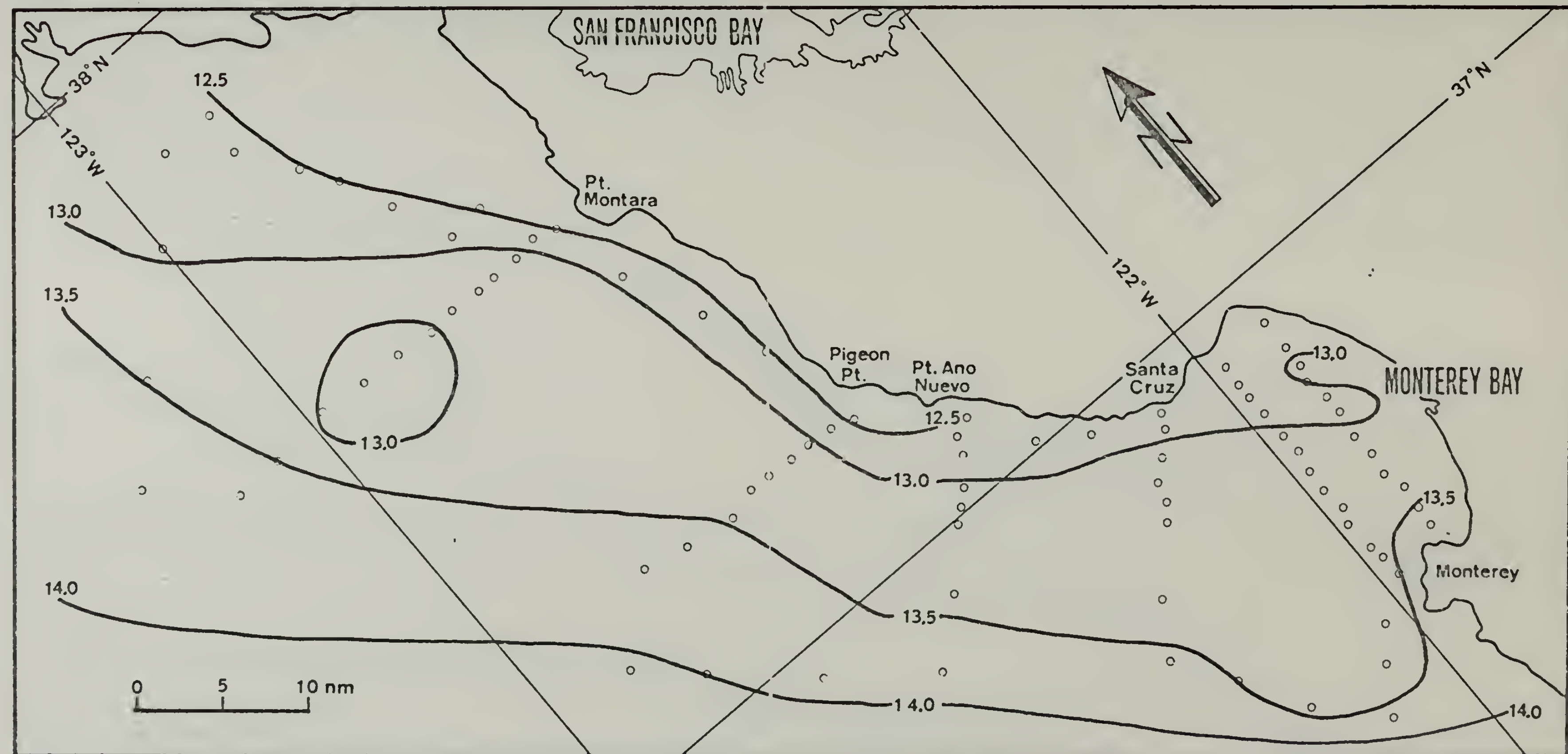


Figure 17. 10 m Isotherms (°C)

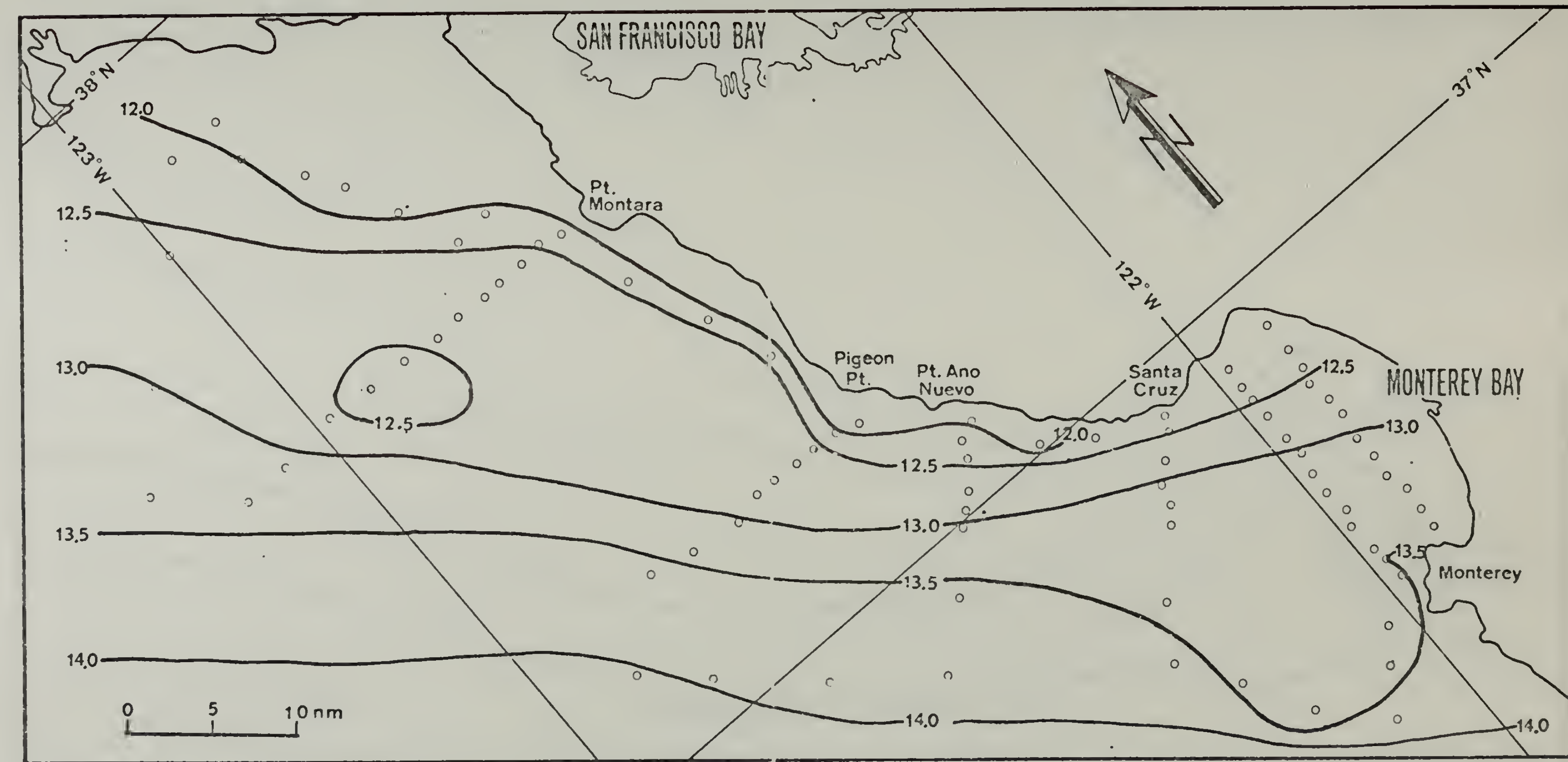


Figure 18. 20 m Isotherms (°C)

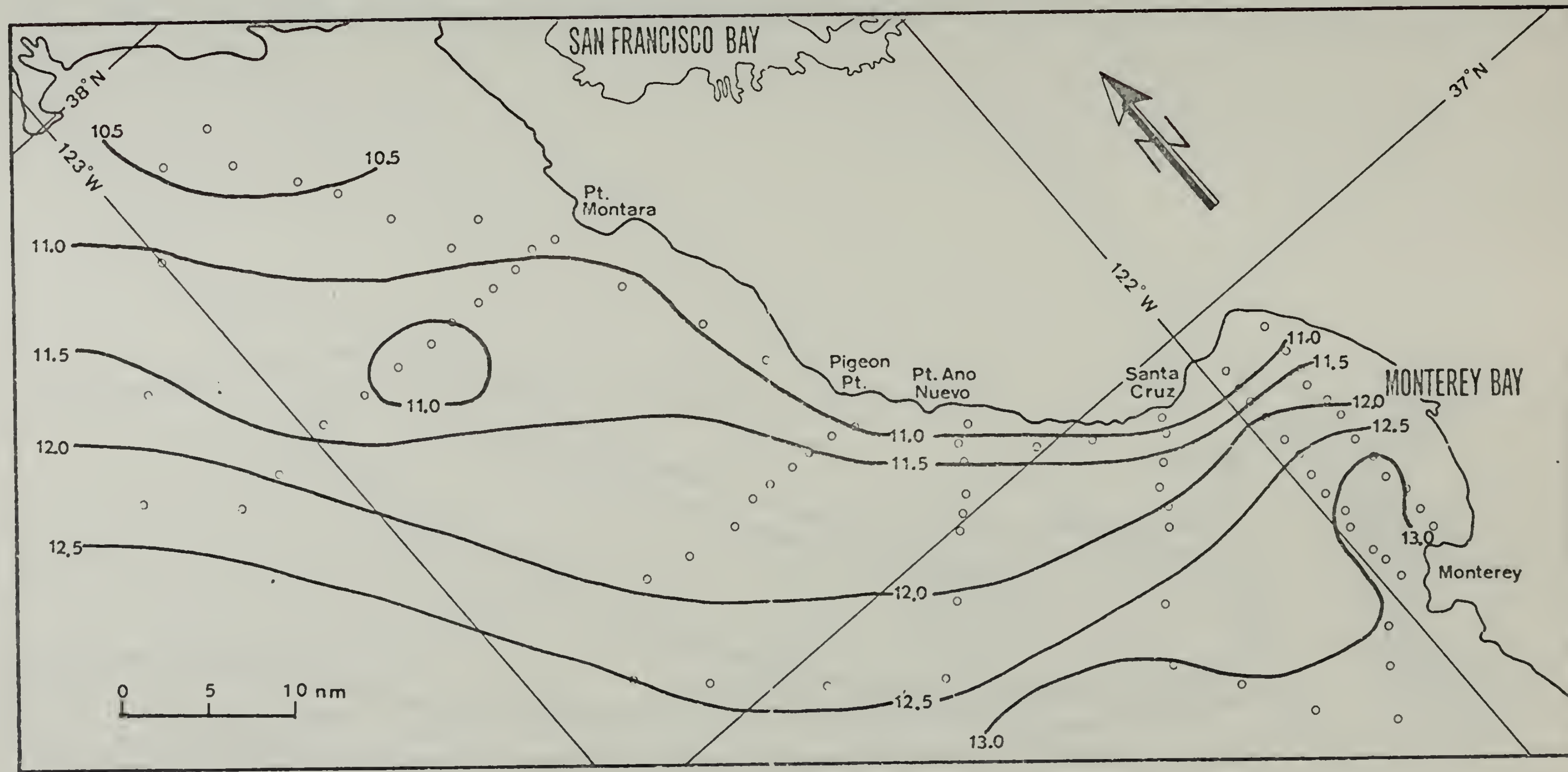


Figure 19. 40 m Isotherms (°C)

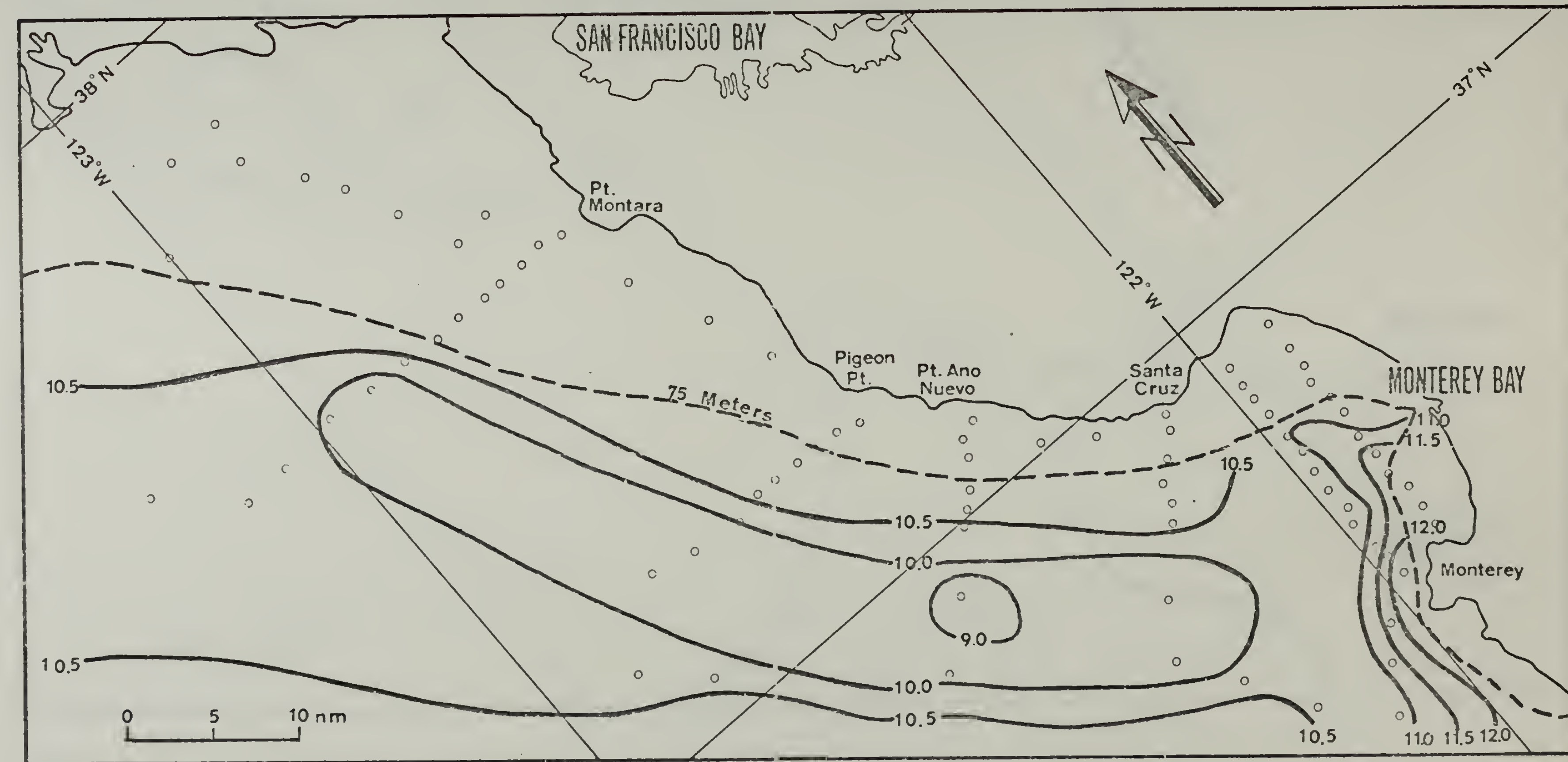


Figure 20. 75 m Isotherms (°C)

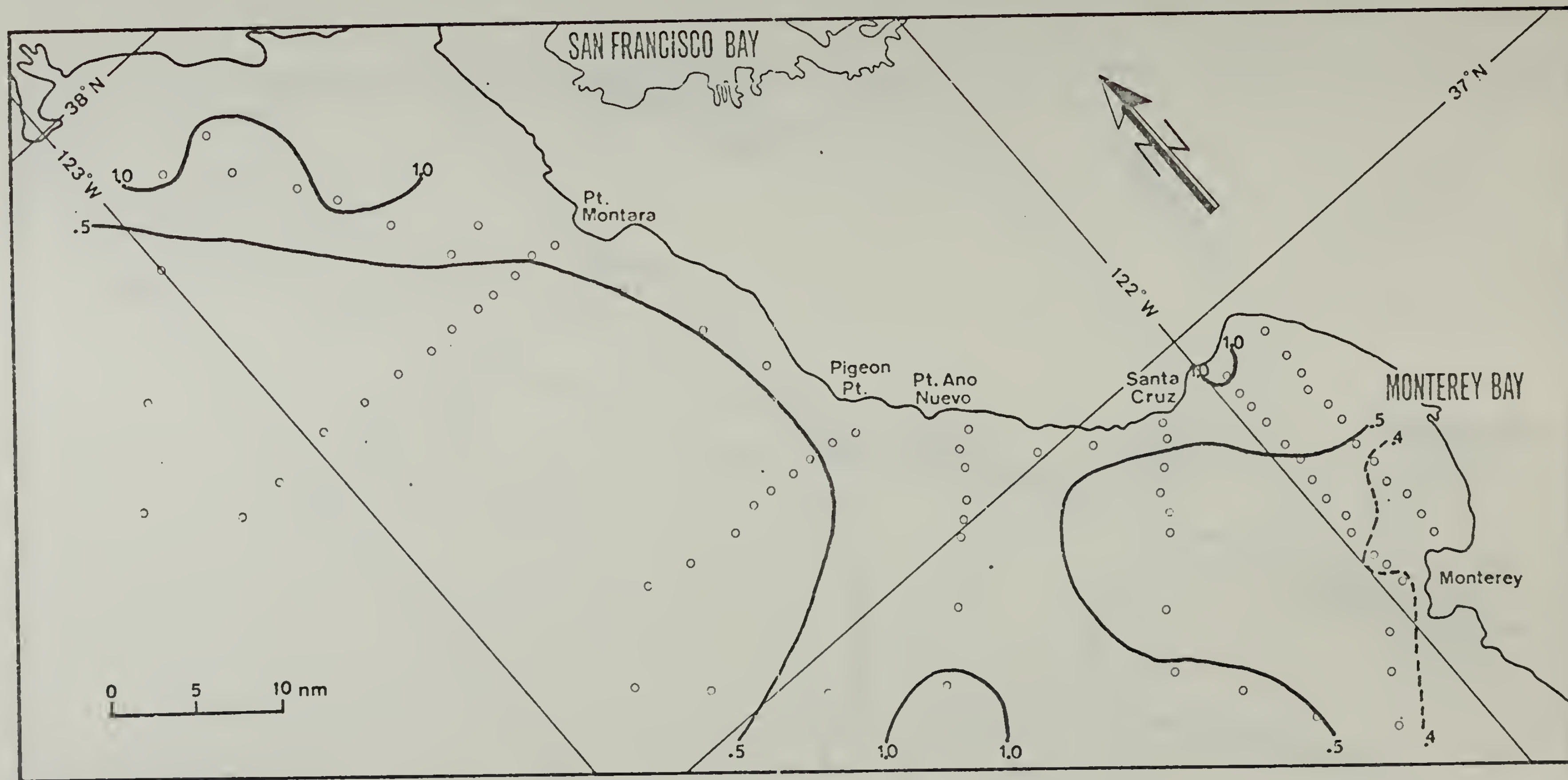


Figure 21. Surface Isopleths of Phosphate (μg-at/l)

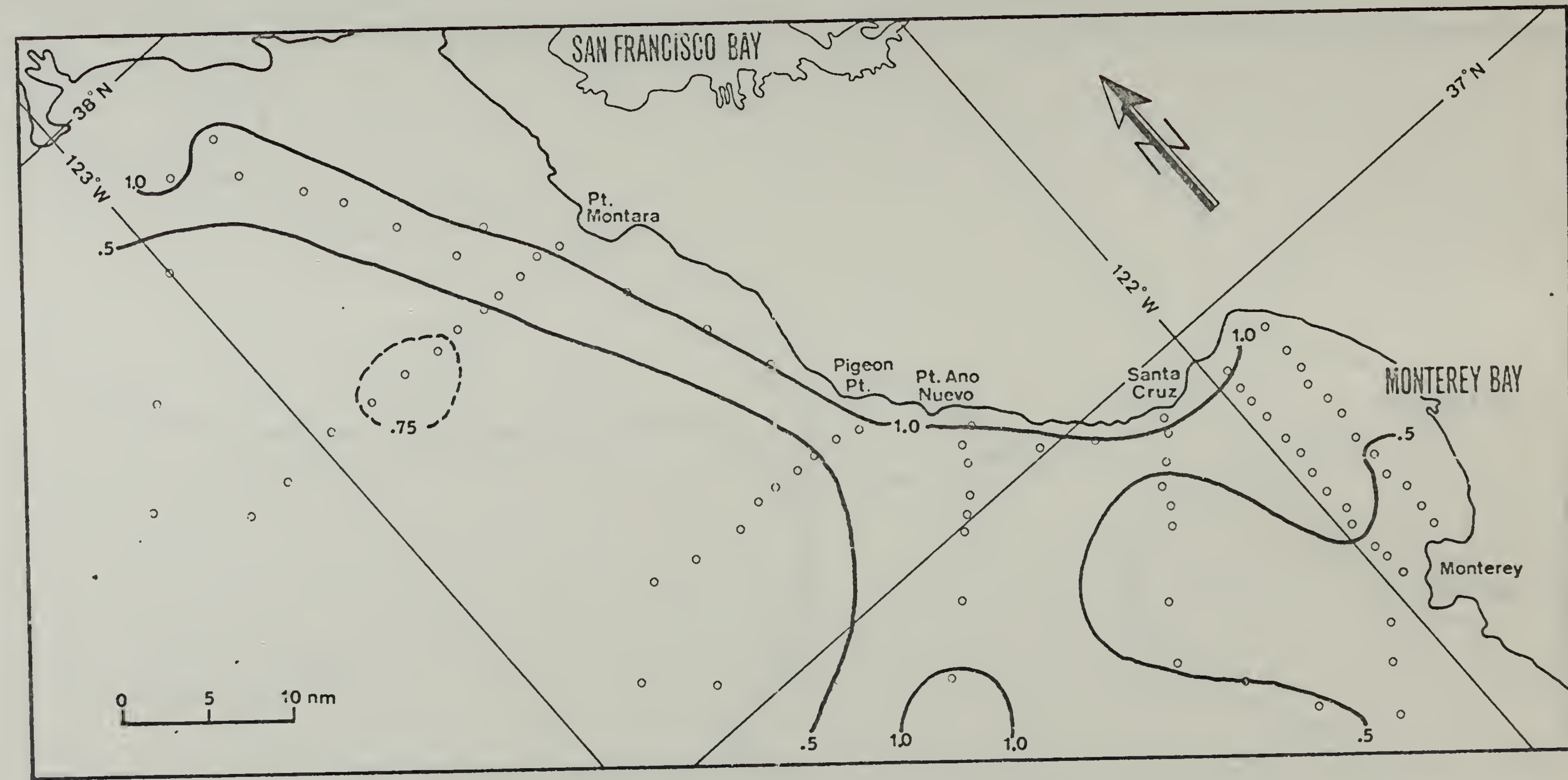


Figure 22. 10 m Isopleths of Phosphate (µg-at/l).

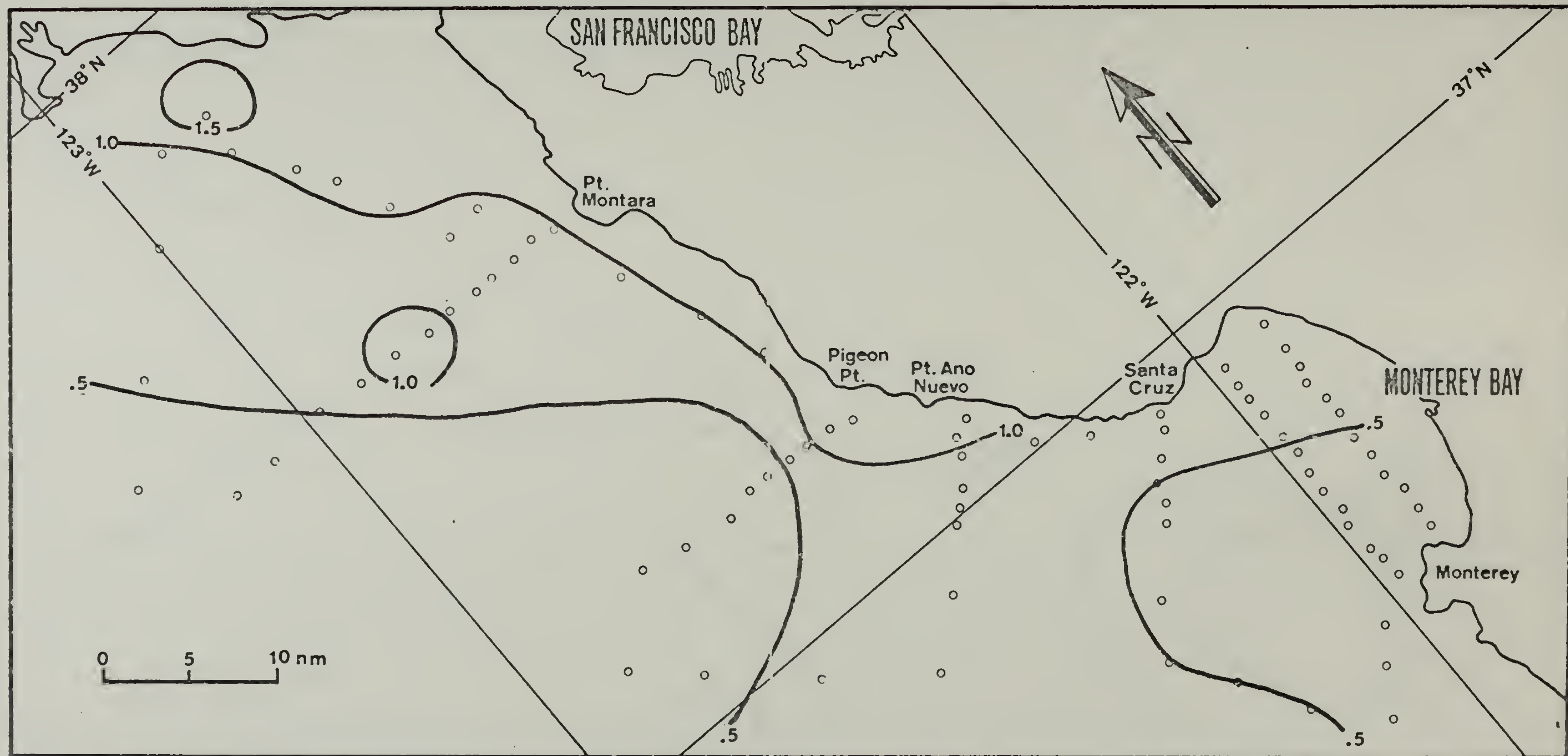


Figure 23. 20 m Isopleths of Phosphate (μg-at/l)

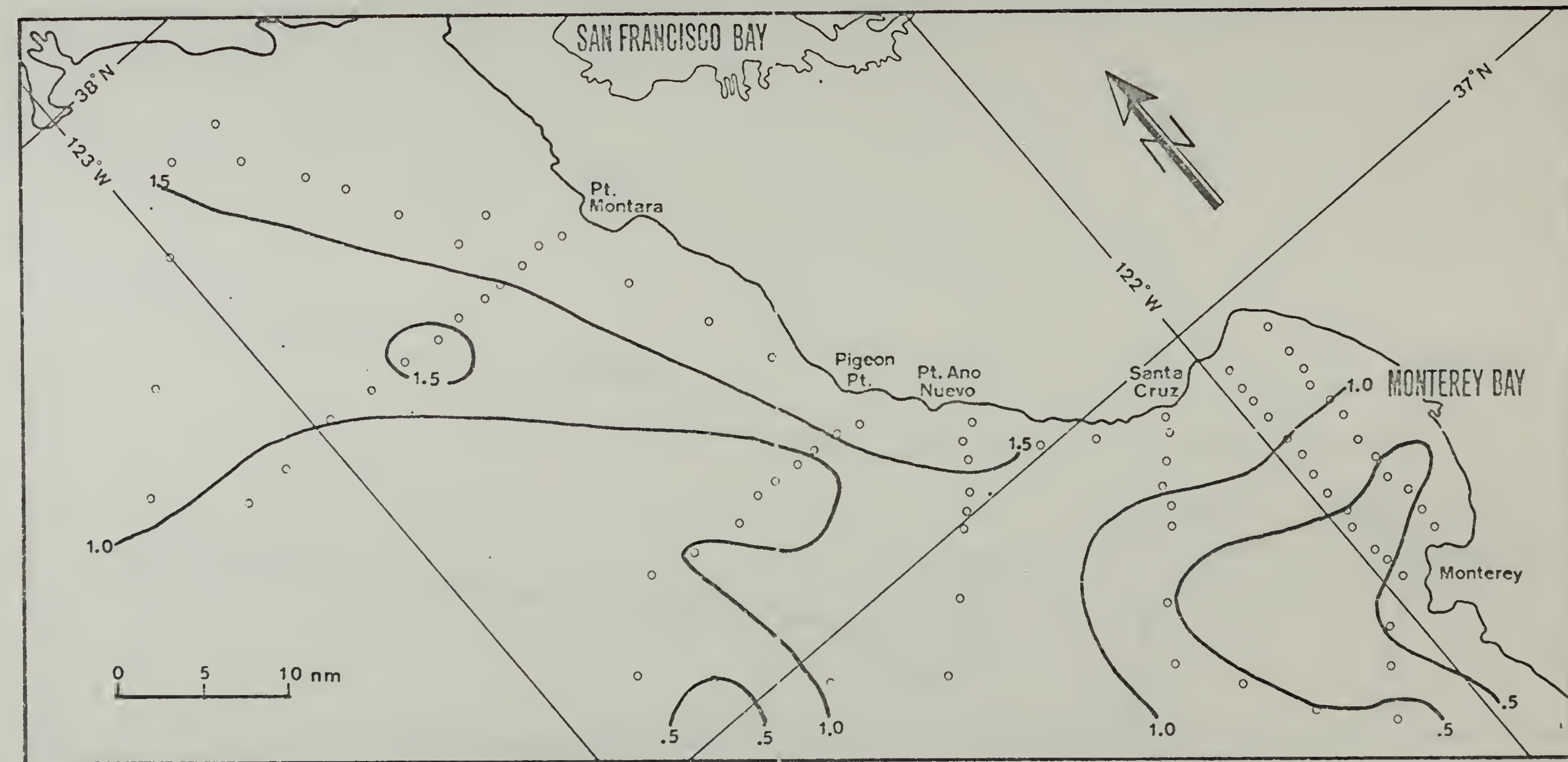


Figure 24. 40 m Isopleths of Phosphate (μg/at/l)

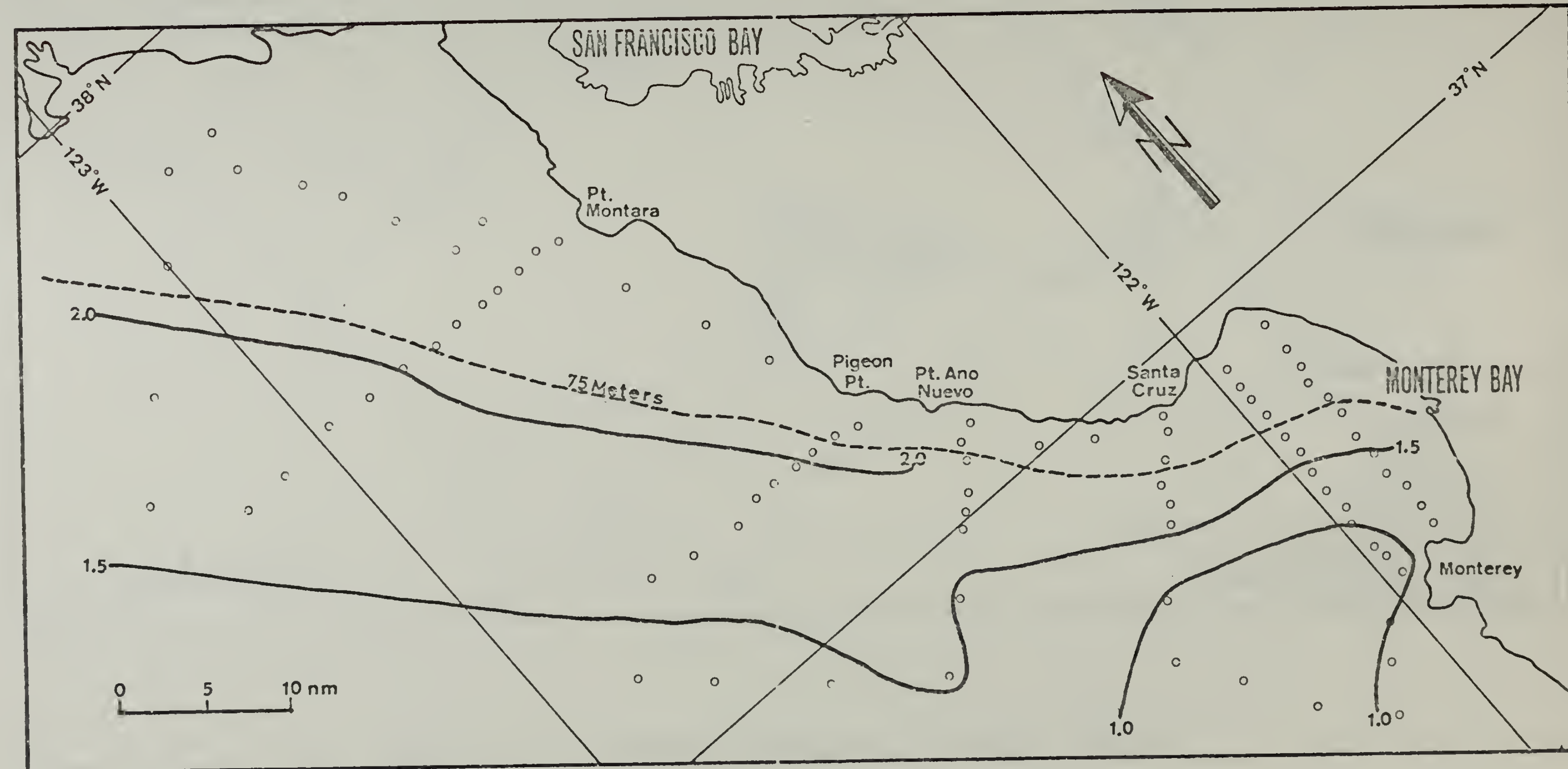


Figure 25. 75 m Isopleths of Phosphate (µg-at/l)

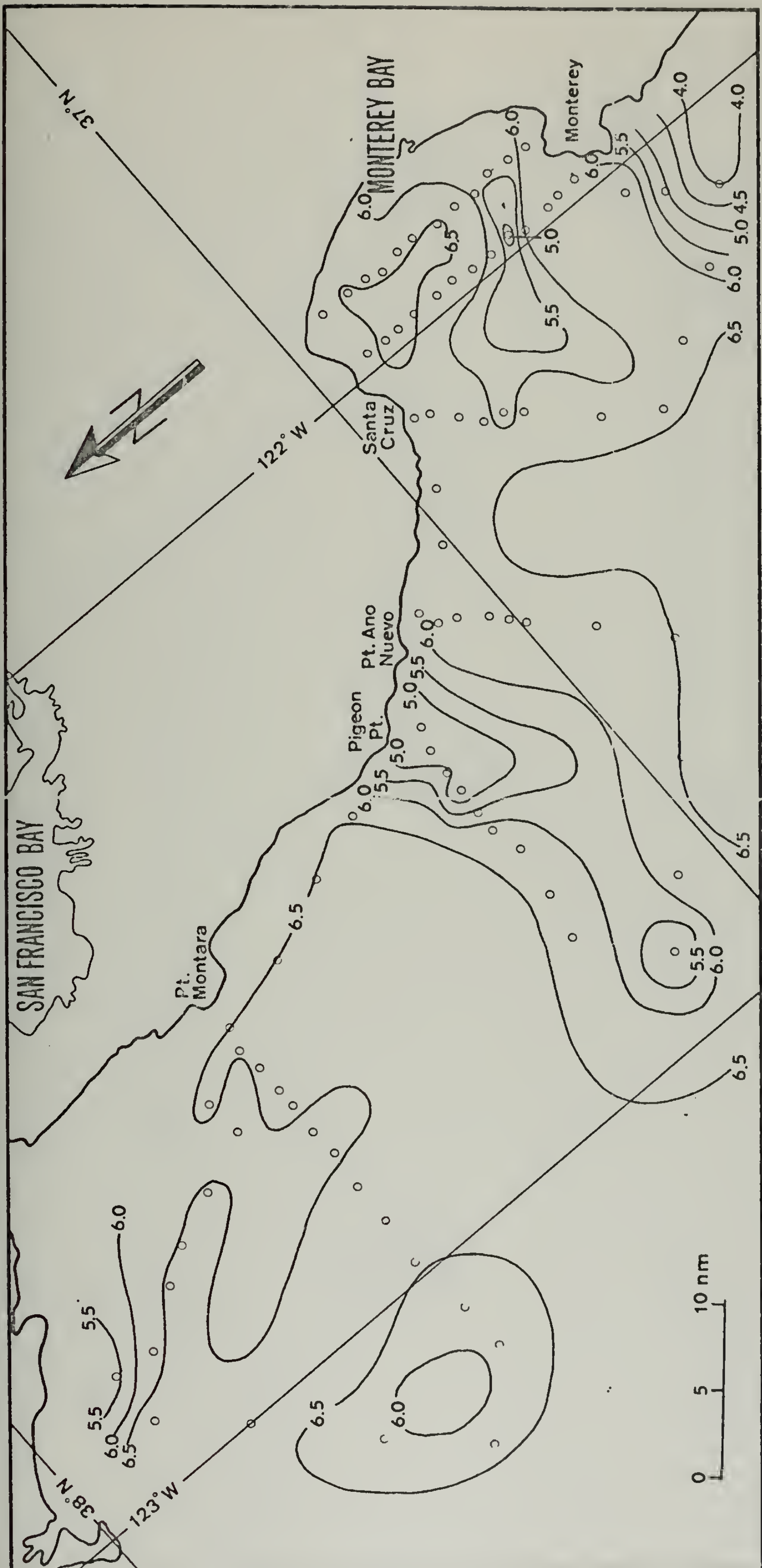


Figure 26. Surface Isopleths of Oxygen (ml/l)

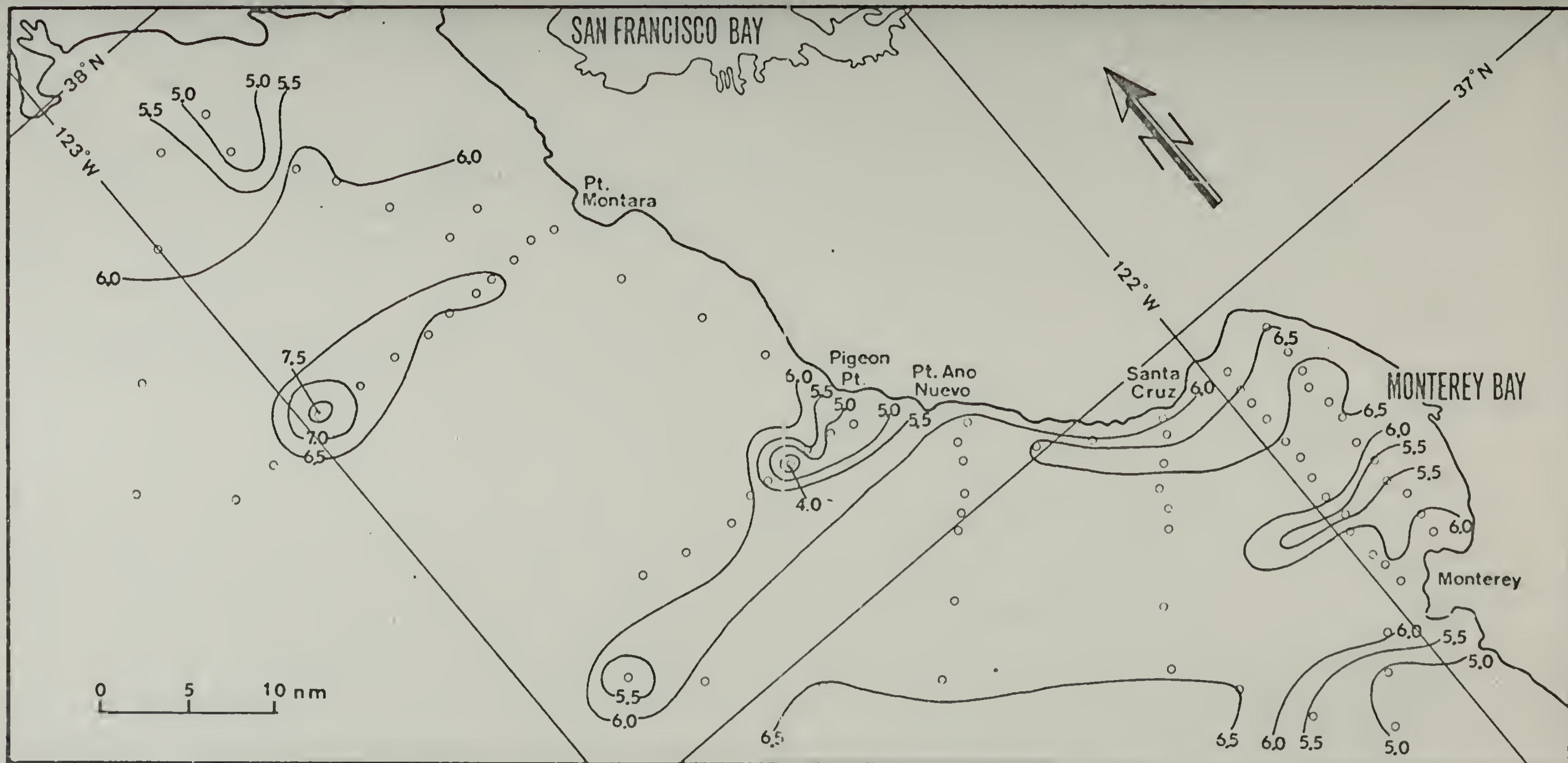


Figure 27. 10 m Isopleths of Oxygen (ml/l)

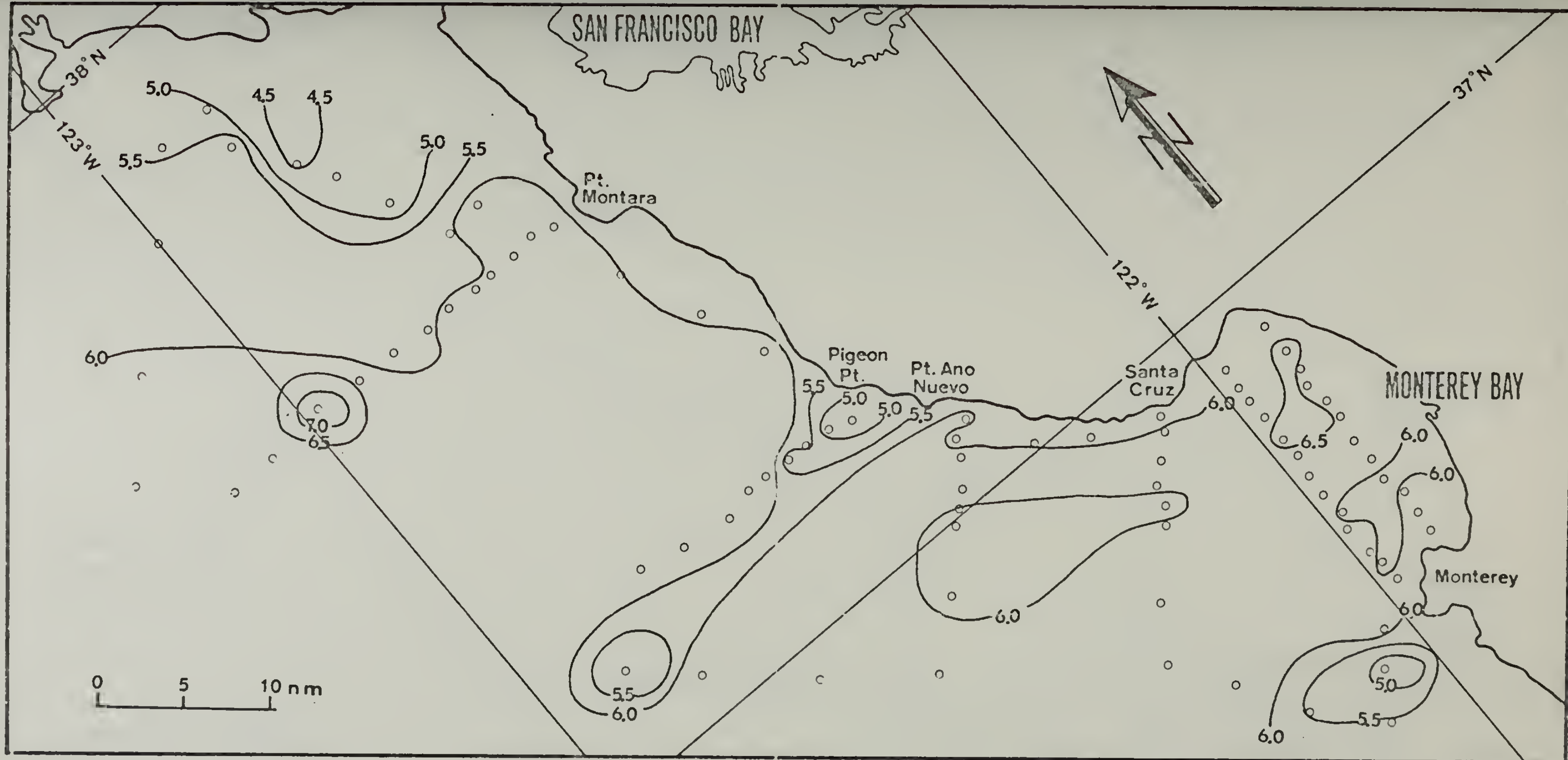


Figure 28. 20 m Isopleths of Oxygen (ml/l)

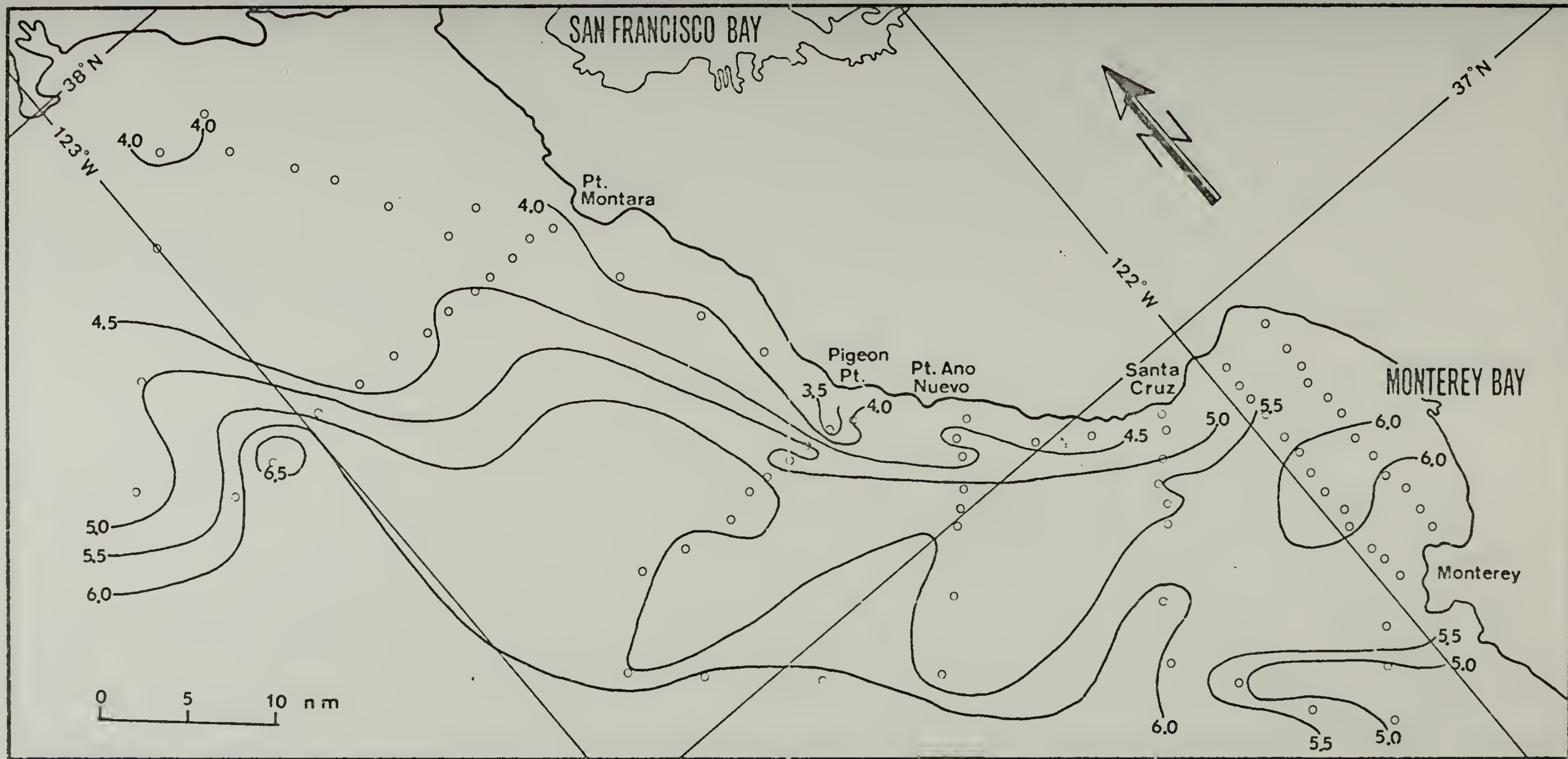


Figure 29. 40 m Isopleths of Oxygen (ml/l)

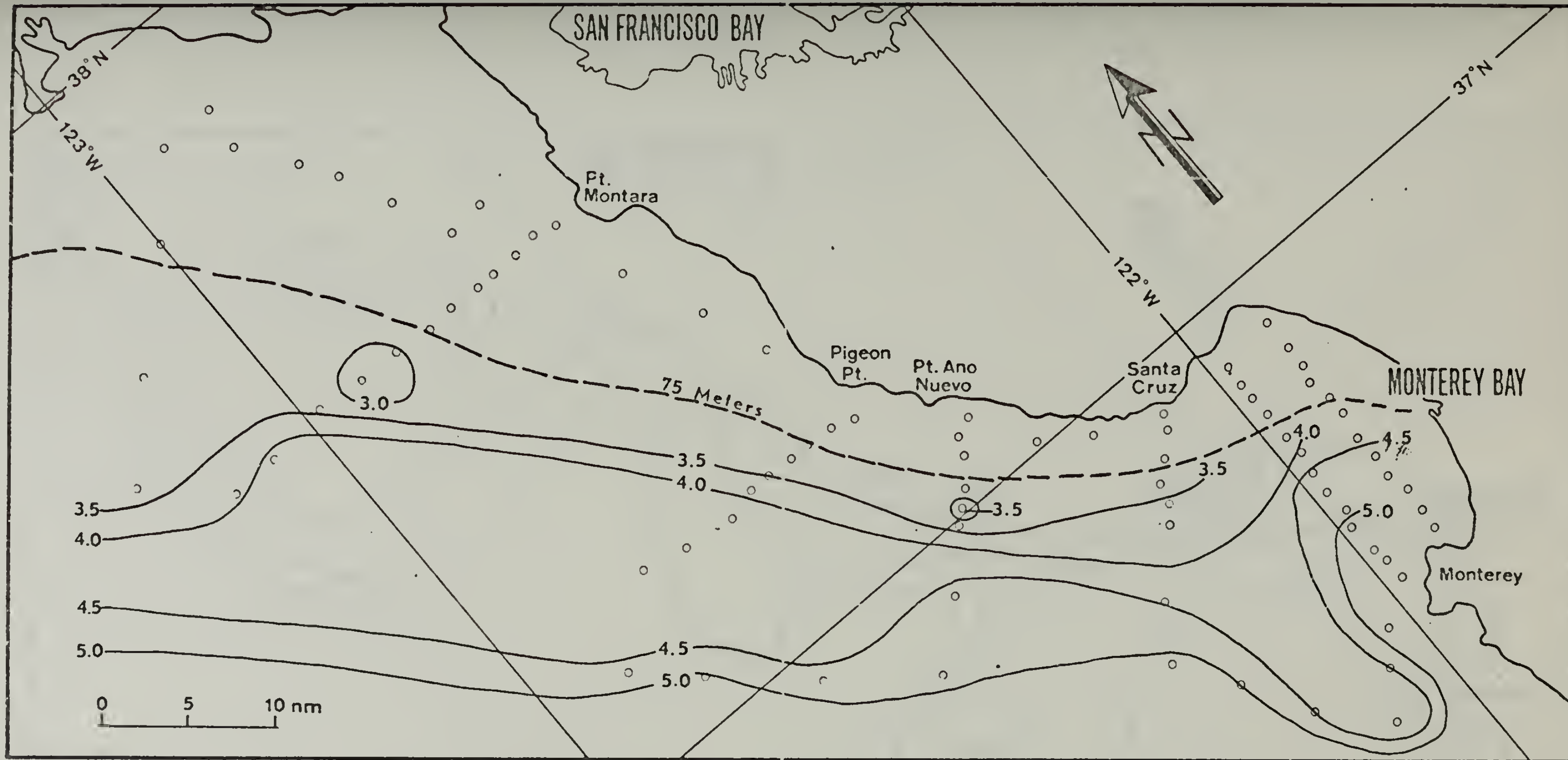


Figure 30. 75 m Isopleths of Oxygen (ml/l)

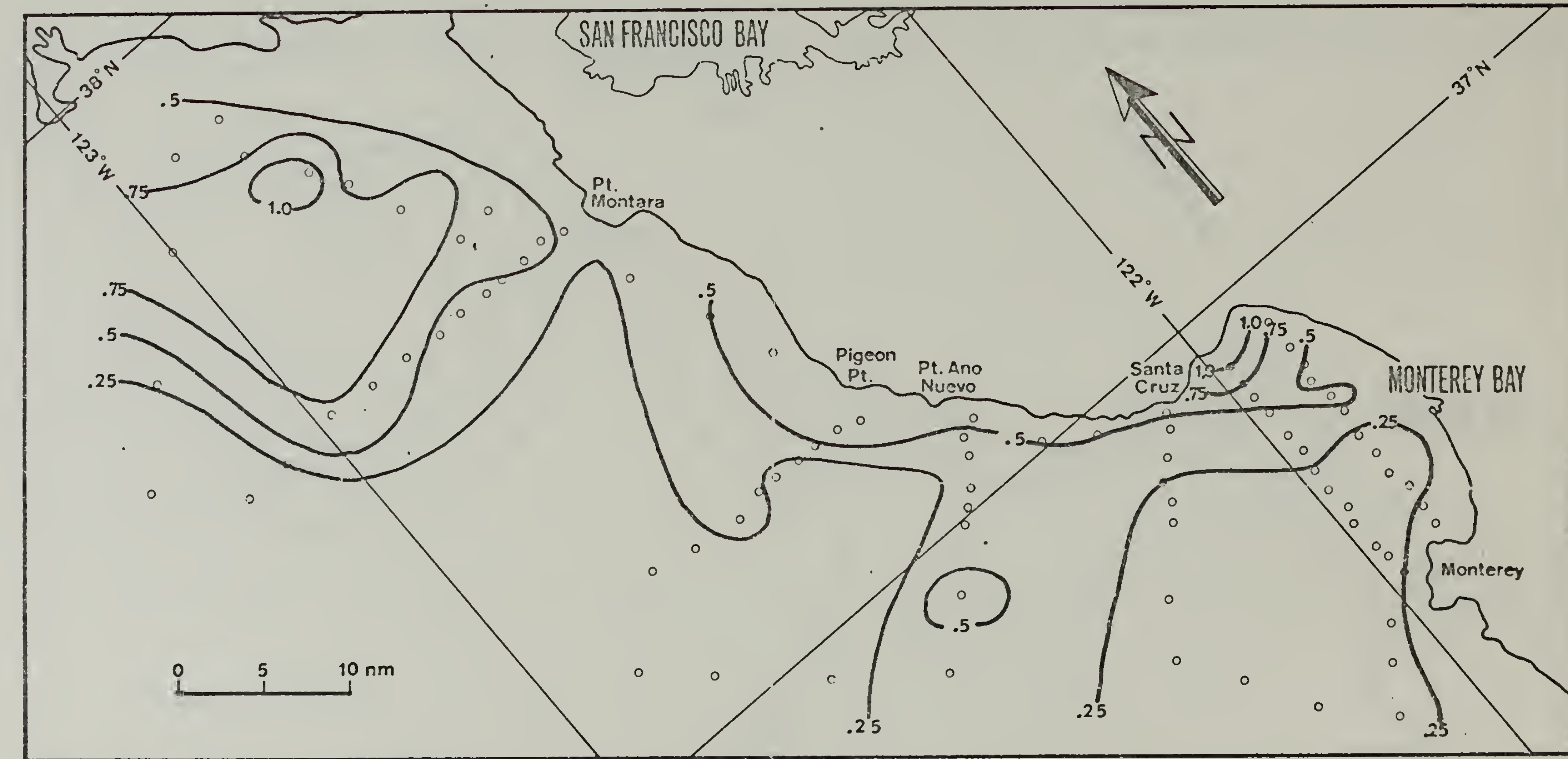


Figure 31. Surface Isopleths of Chlorophyll a (mg/m3)

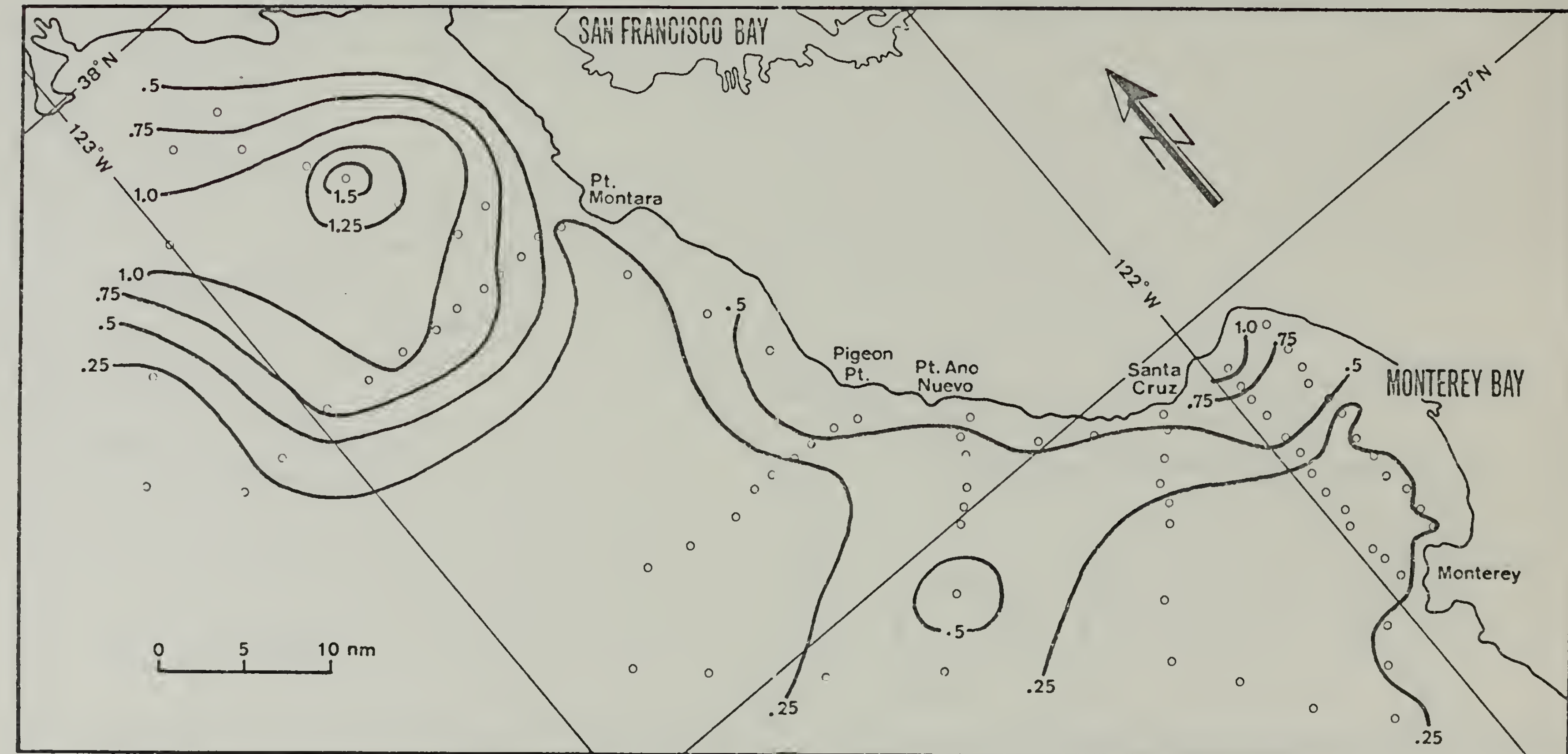


Figure 32. 10 m Isopleths of Chlorophyll a (mg/m^3)

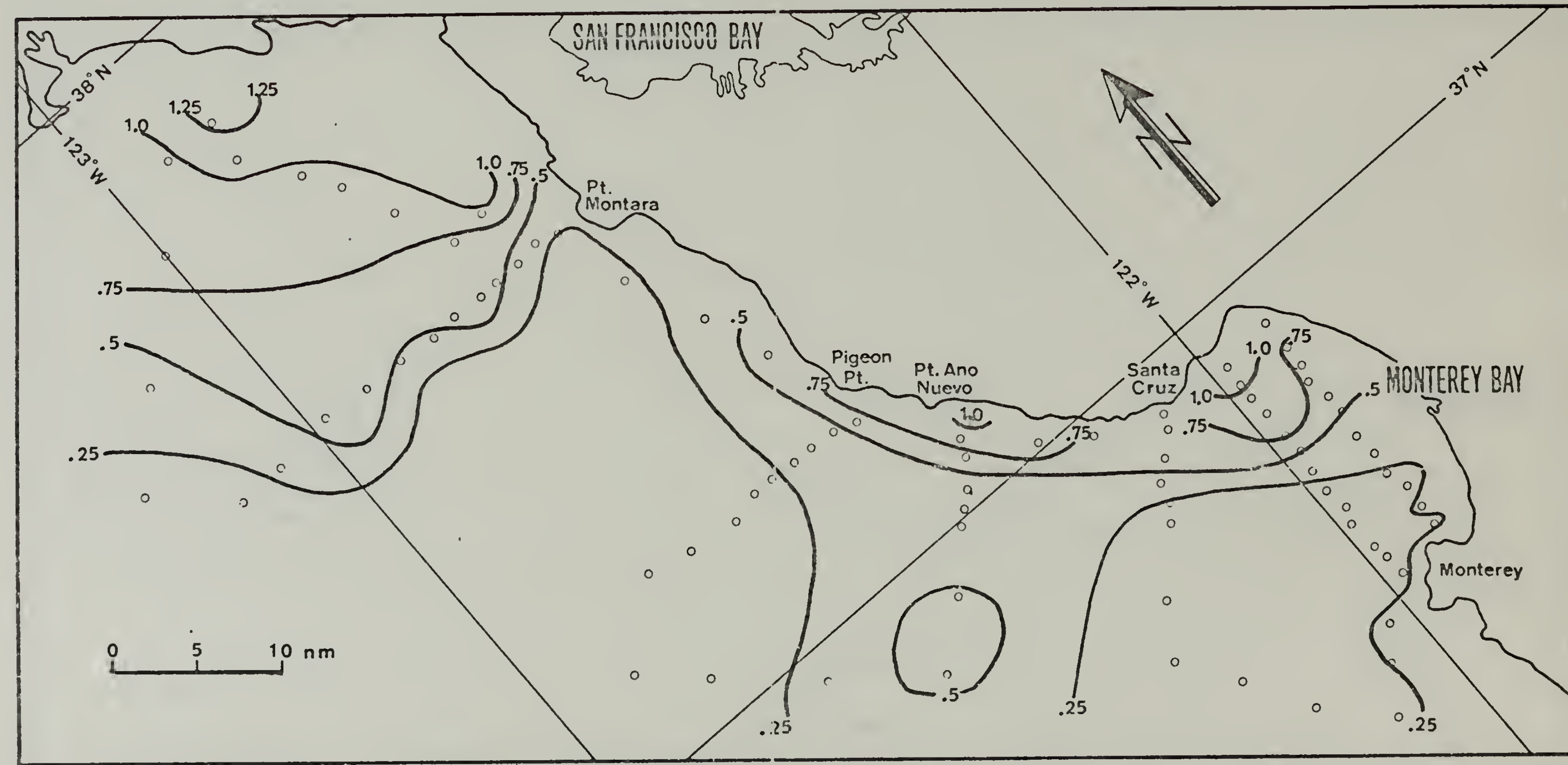


Figure 33. 20 m Isopleths of Chlorophyll a (mg/m^3)

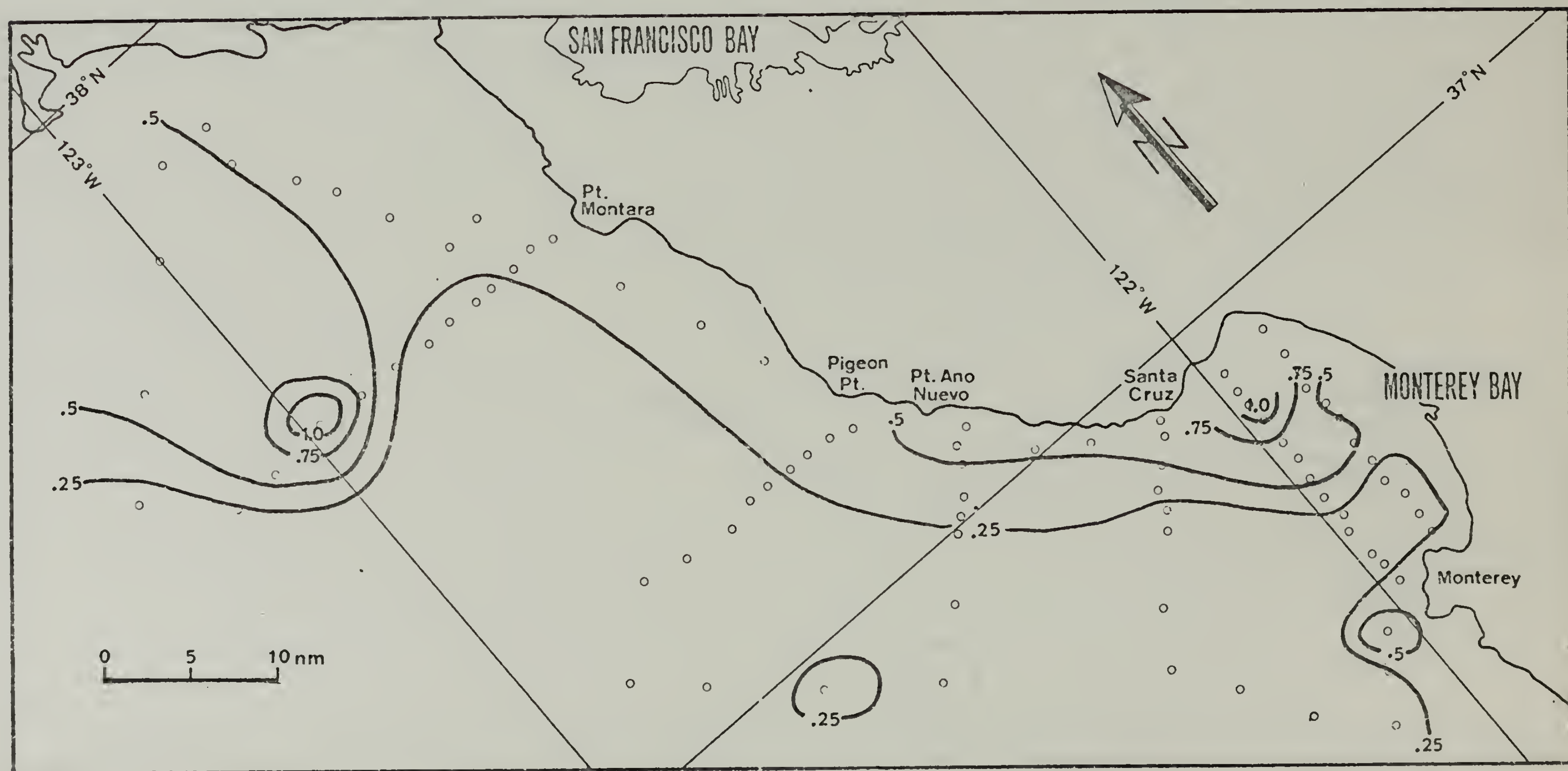


Figure 34. 40 m Isopleths of Chlorophyll a (mg/m^3)

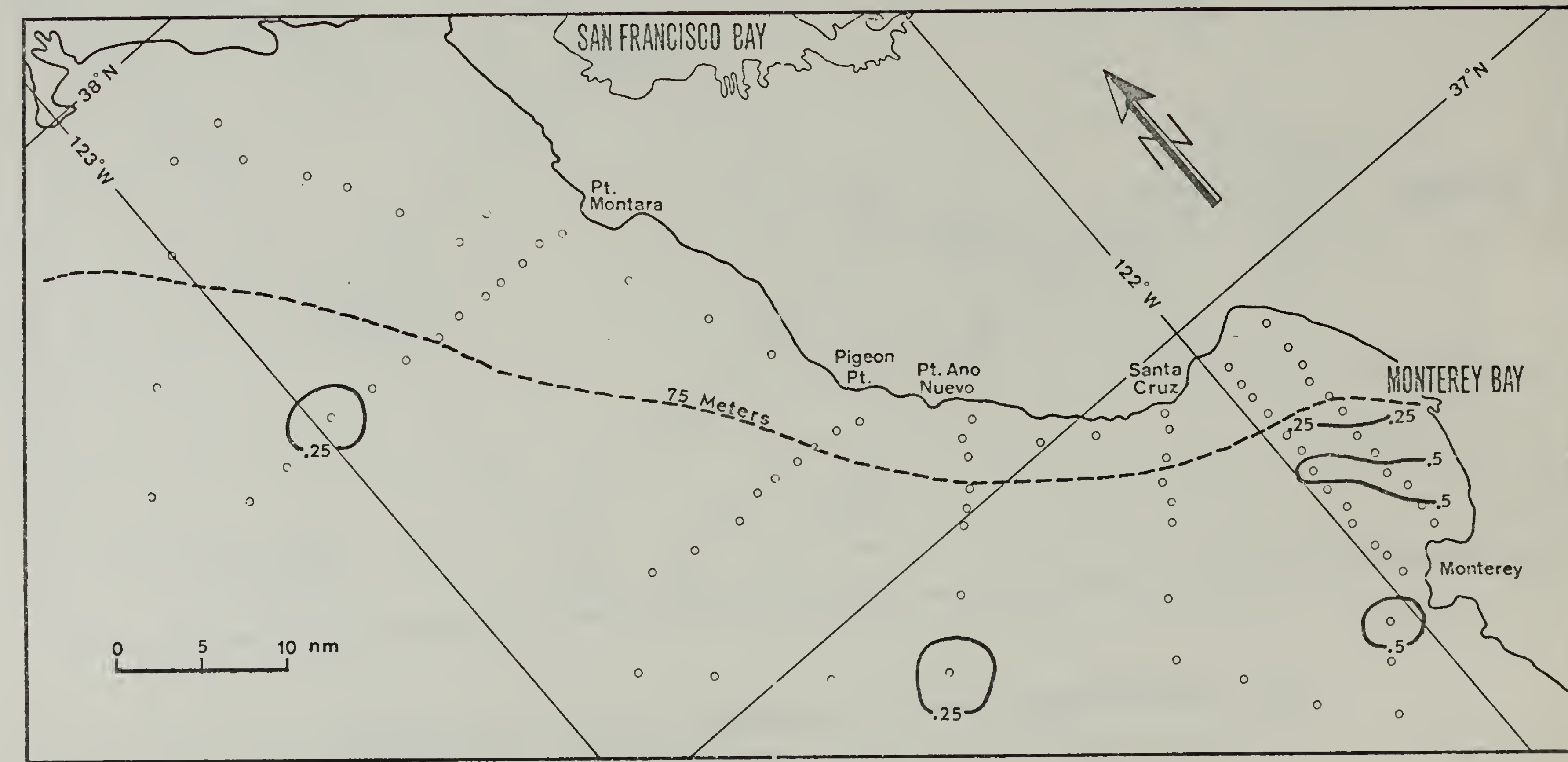


Figure 35. 75 m Isopleths of Chlorophyll a (mg/m^3)

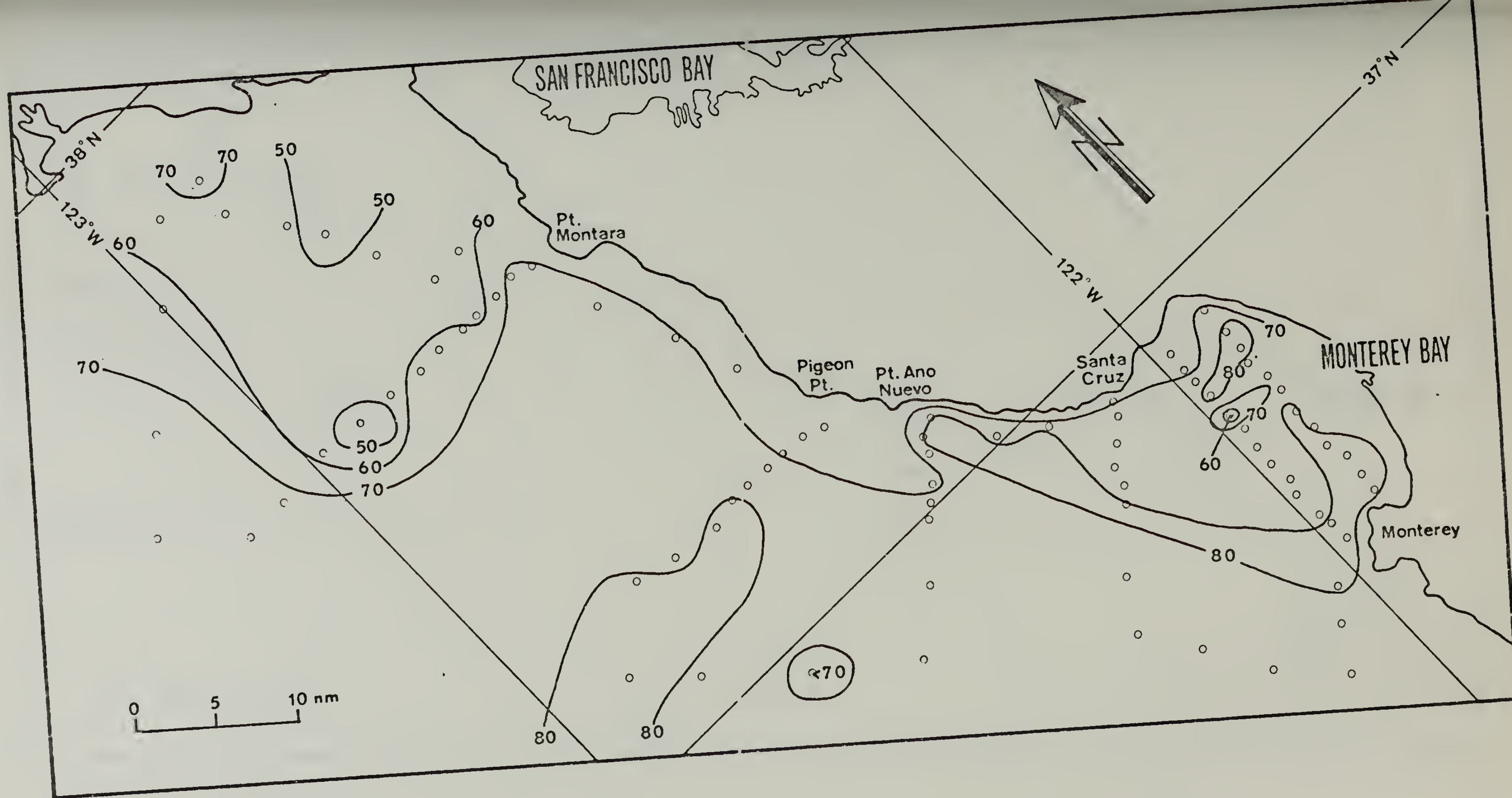


Figure 36. Surface Isopleths of Beam Transmittance (%/m)

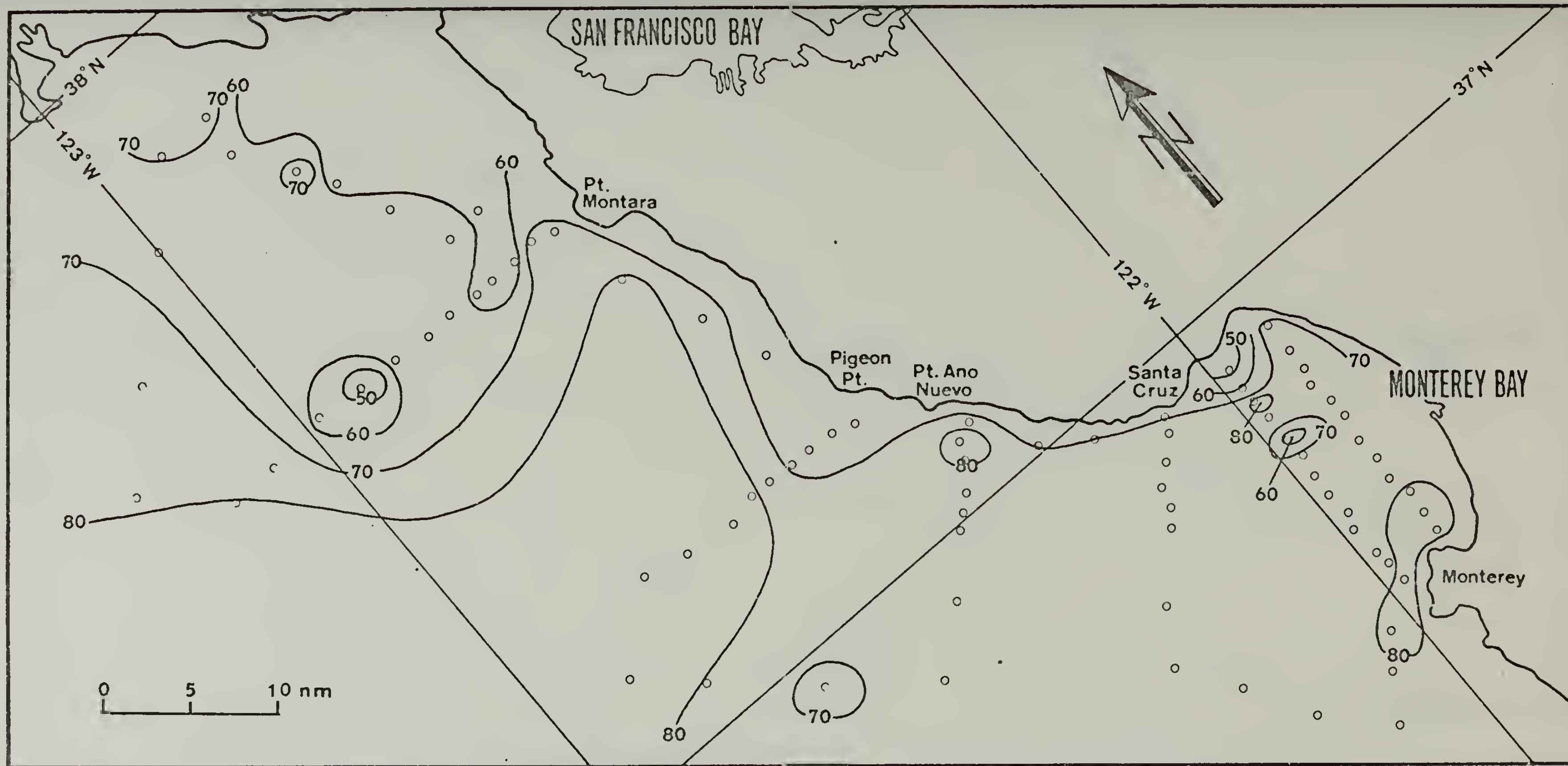


Figure 37. 10 m Isopleths of Beam Transmittance (%/m)

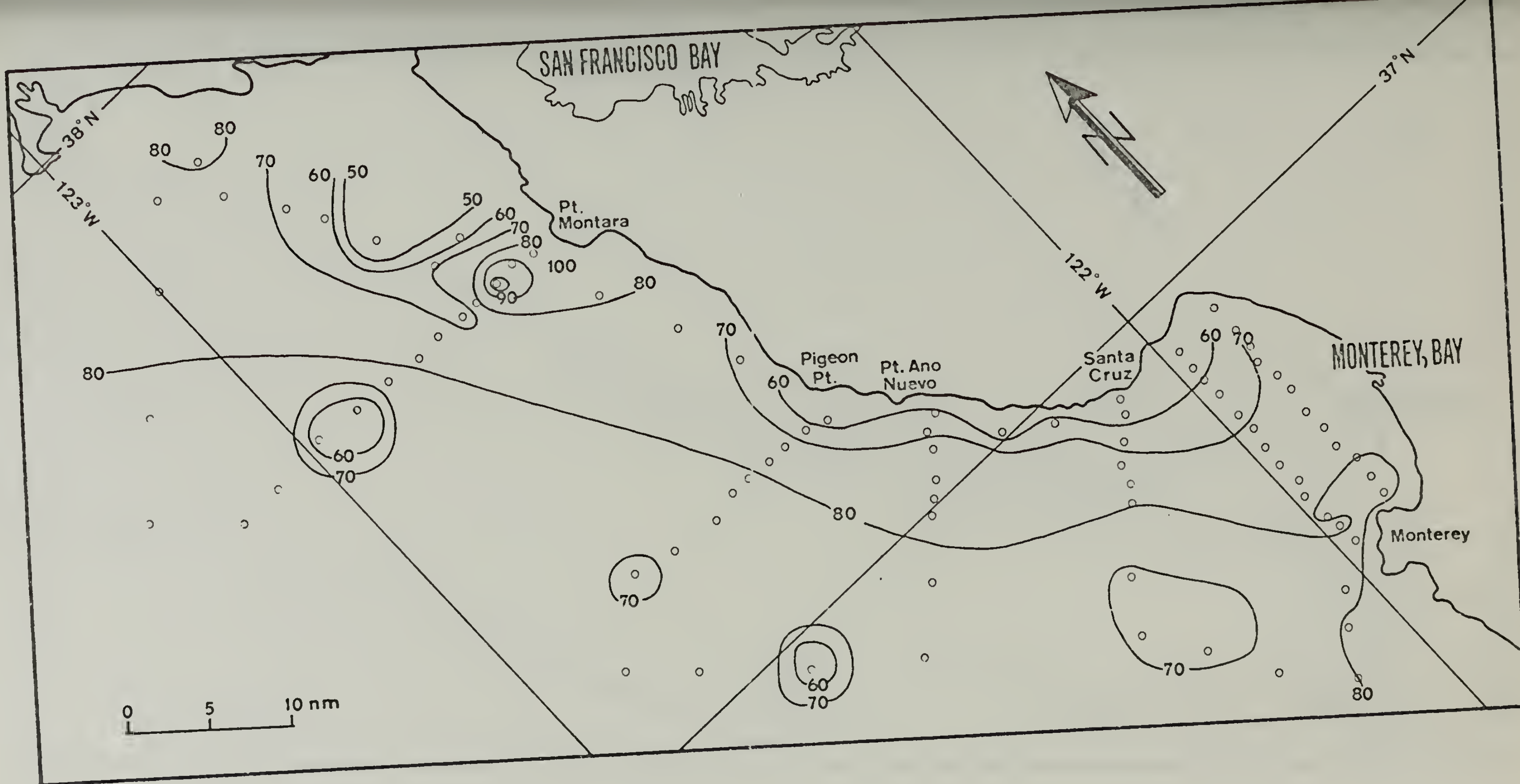


Figure 38. 20 m Isopleths of Beam Transmittance (%/m)

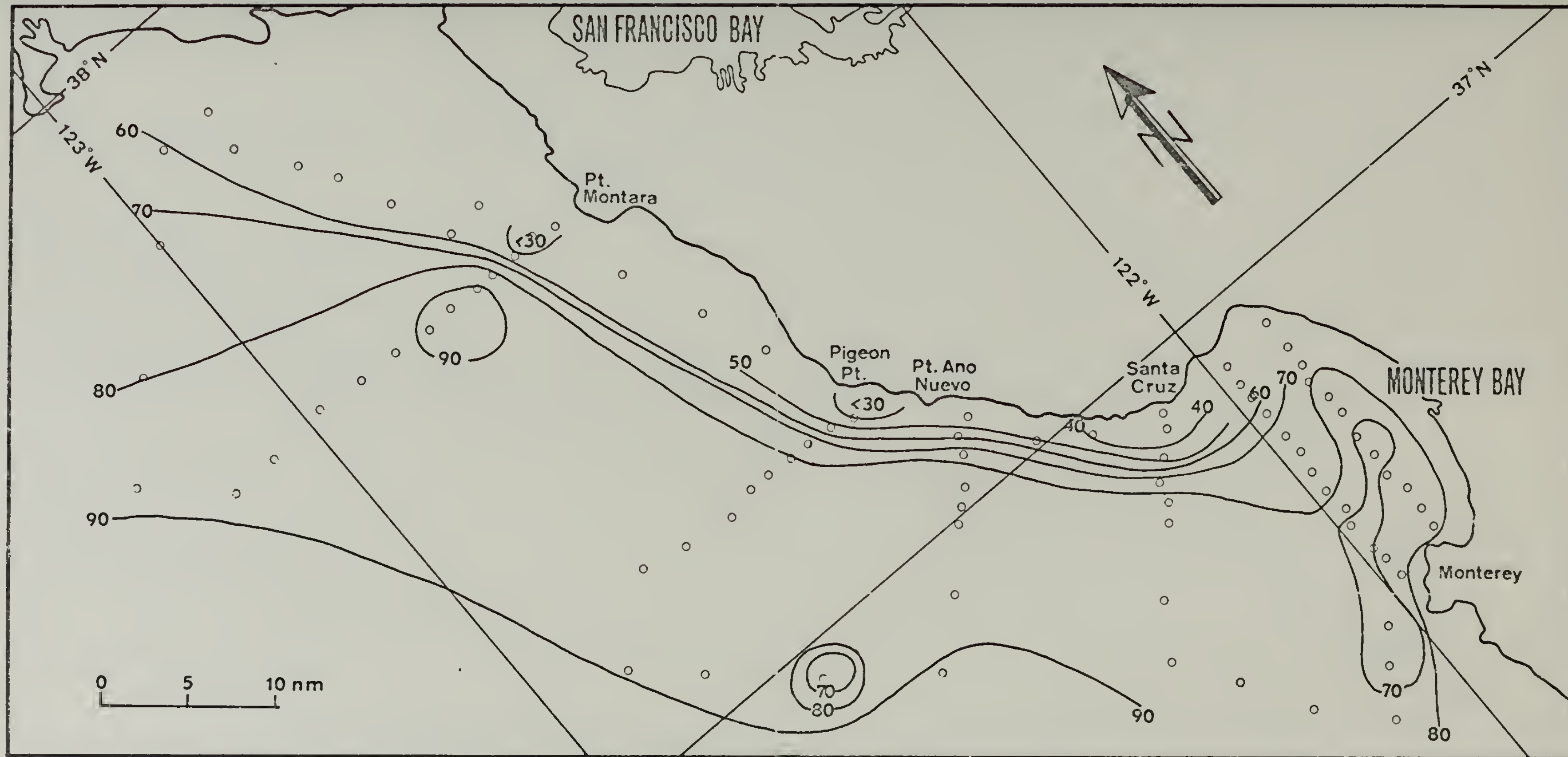


Figure 39. 40 m Isopleths of Beam Transmittance (%/m)

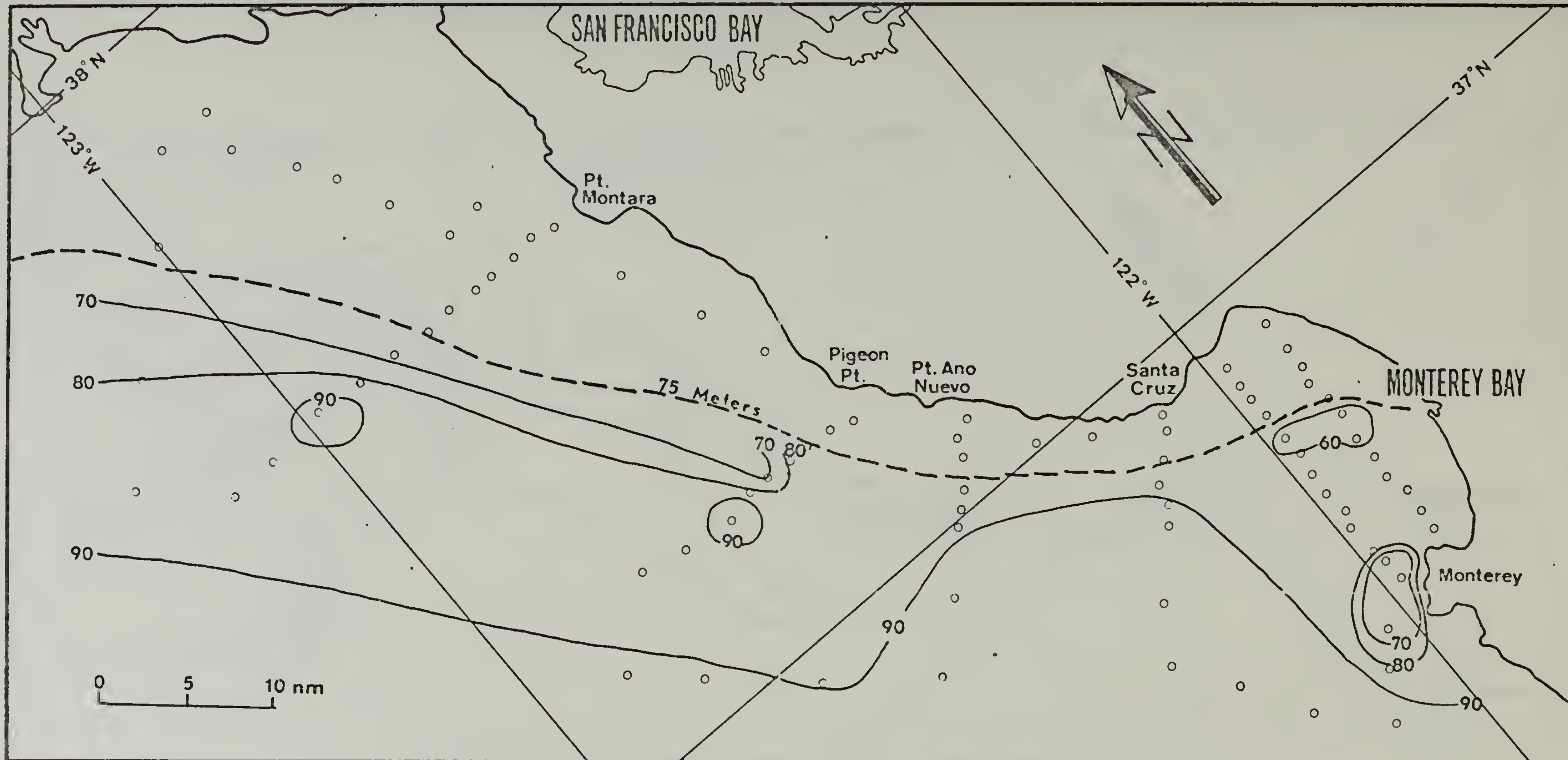


Figure 40. 75 m Isopleths of Beam Transmittance (%/m)

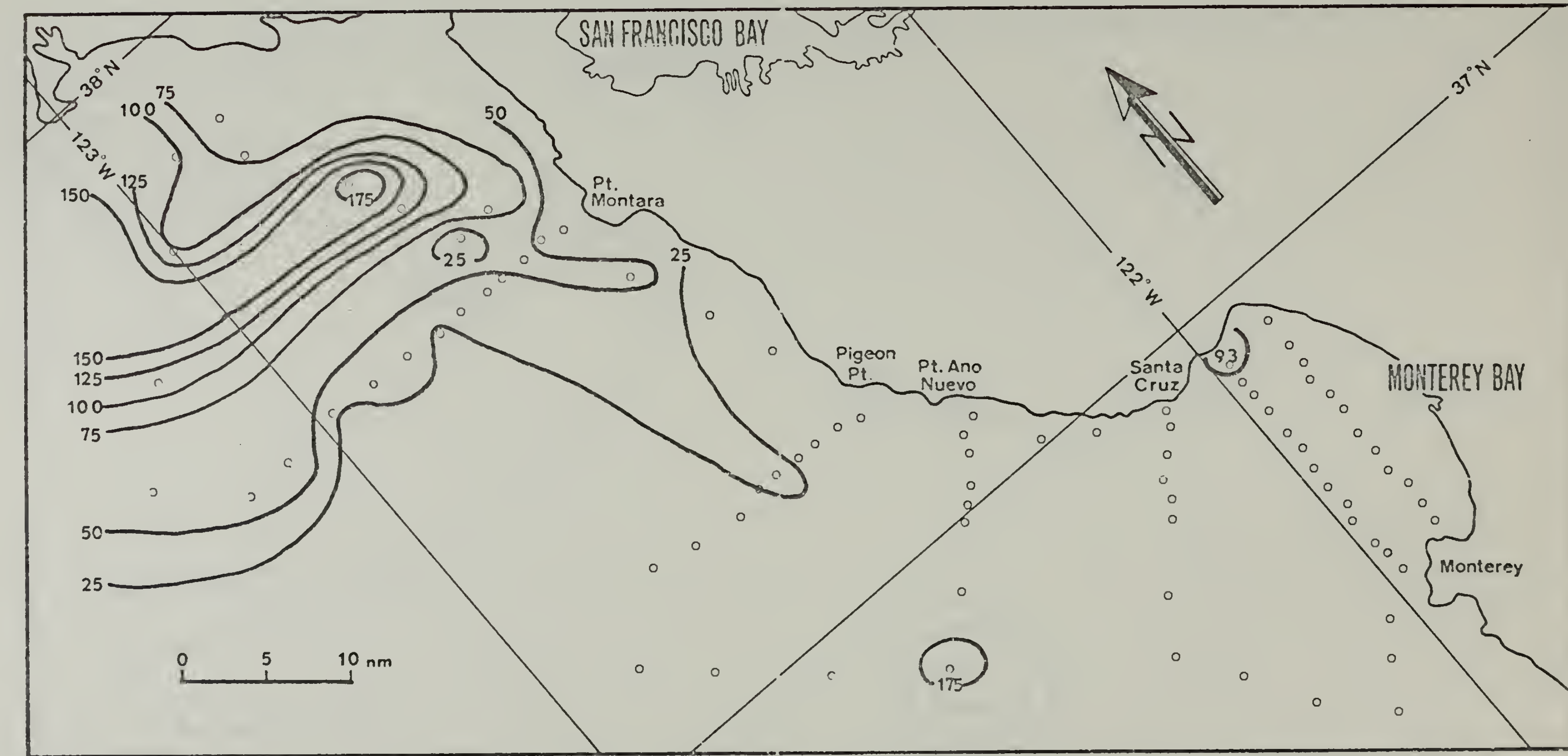


Figure 41. Surface Isopleths of Total Coulter Count (x 10^{-3})

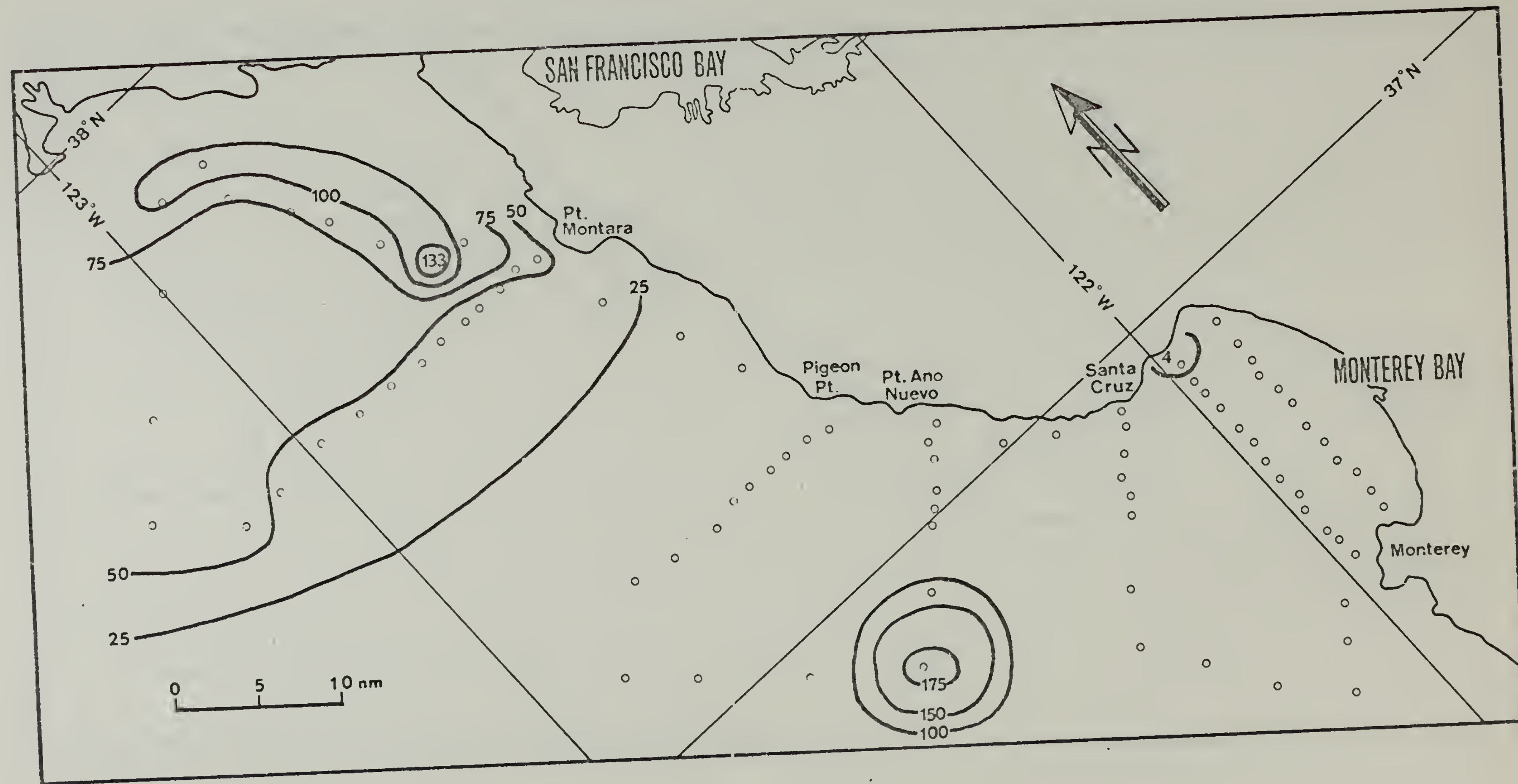


Figure 42. 10 m Isopleths of Total Coulter Count (x 10^{-3})

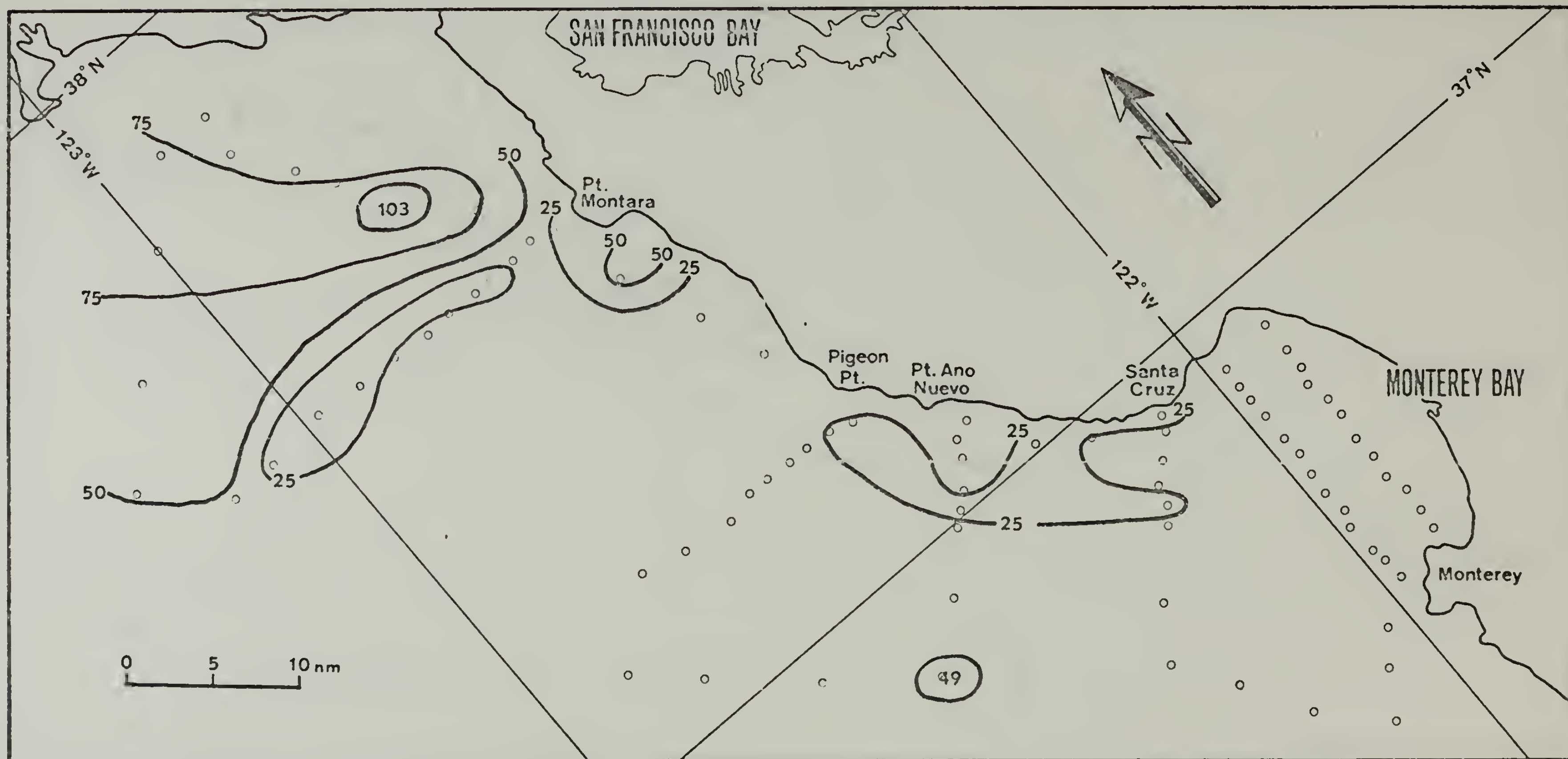


Figure 43. 20 m Isopleths of Total Coulter Count (x 10^{-3})

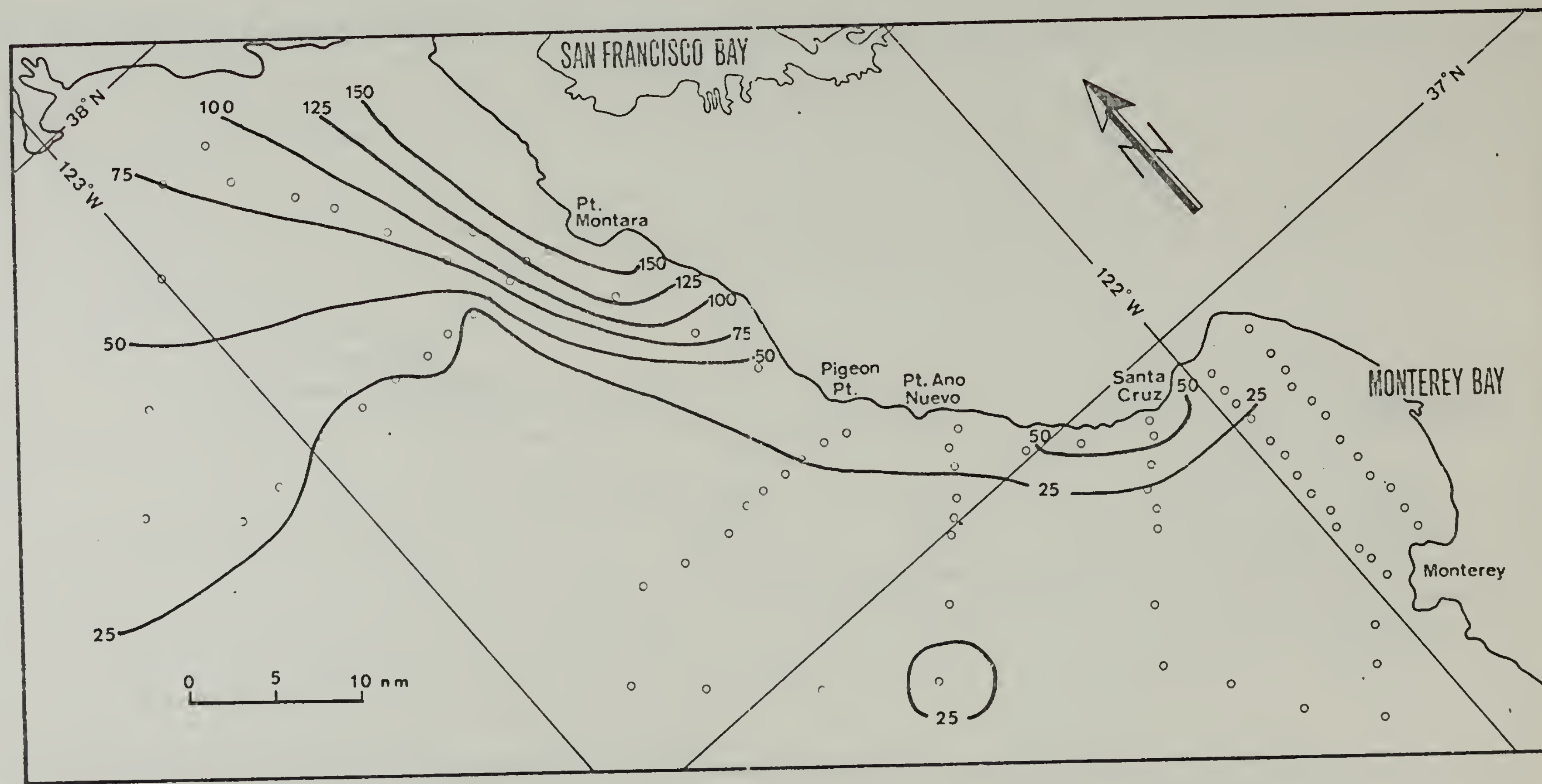


Figure 44. 40 m Isopleths of Total Coulter Count (x 10^{-3})

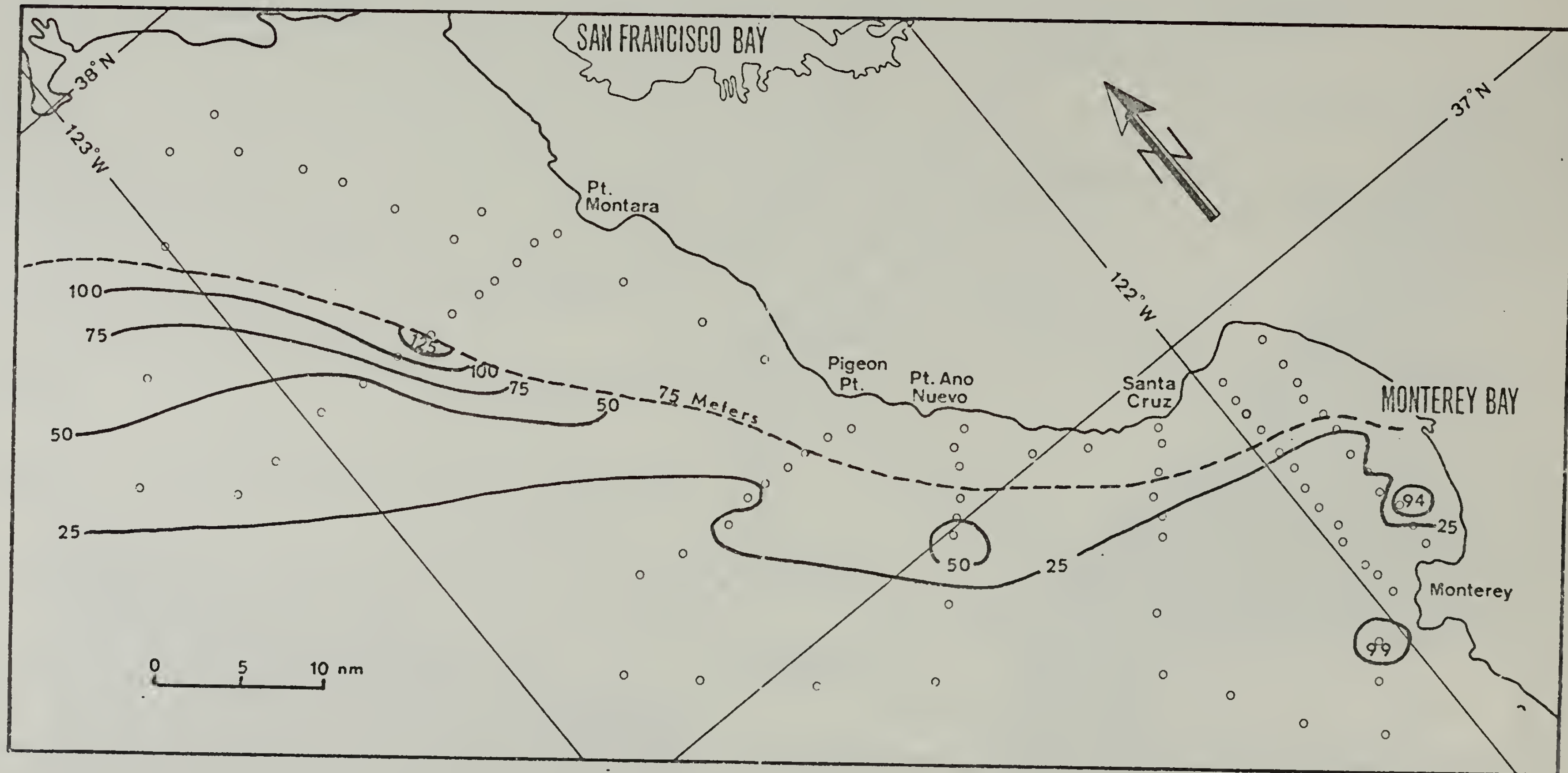


Figure 45. 75 m Isopleths of Total Coulter Count (x 10^{-3})

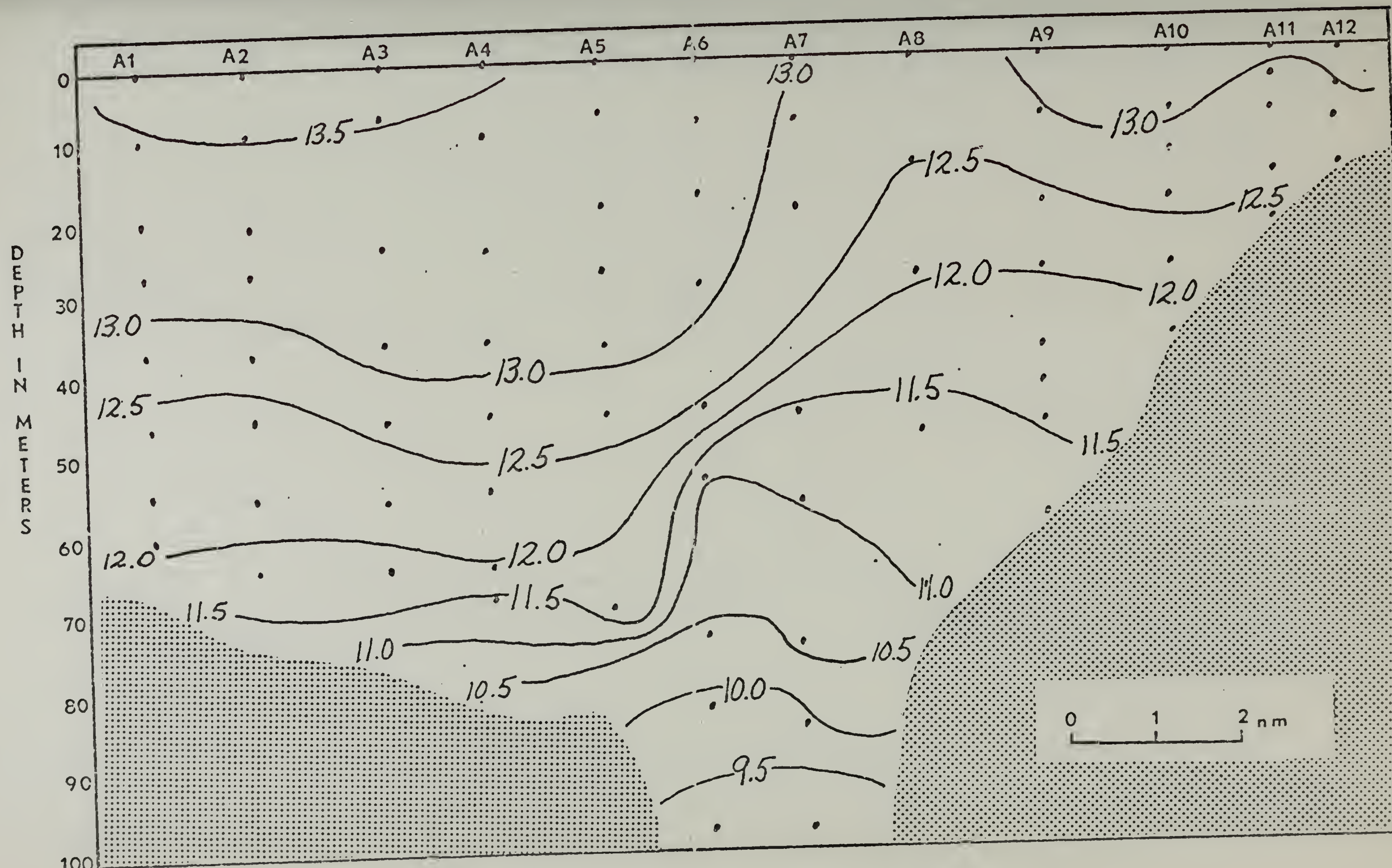


Figure 46. Profile of Tempterature (°C)

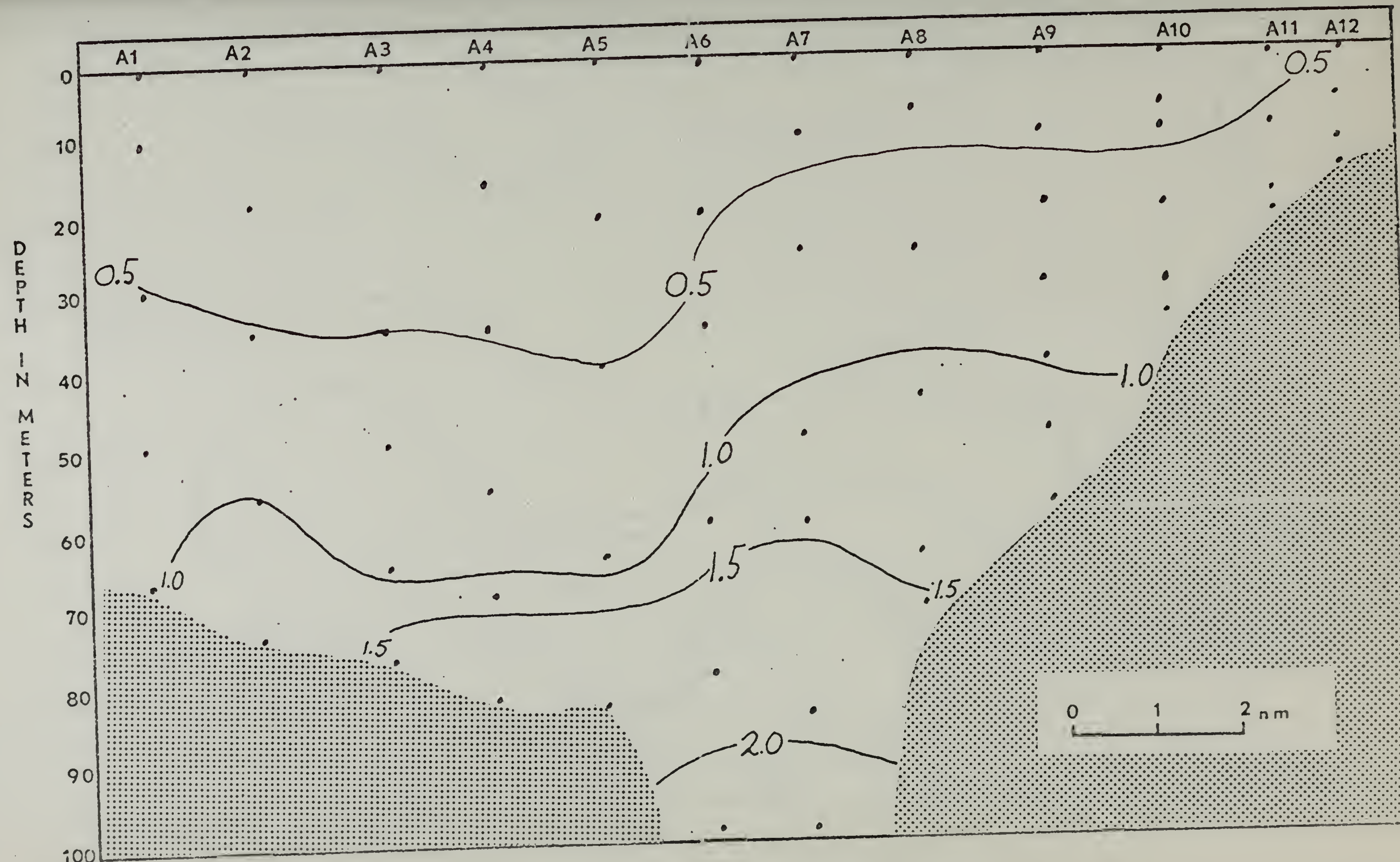


Figure 47. Profile of Phosphate (μg-at/l)

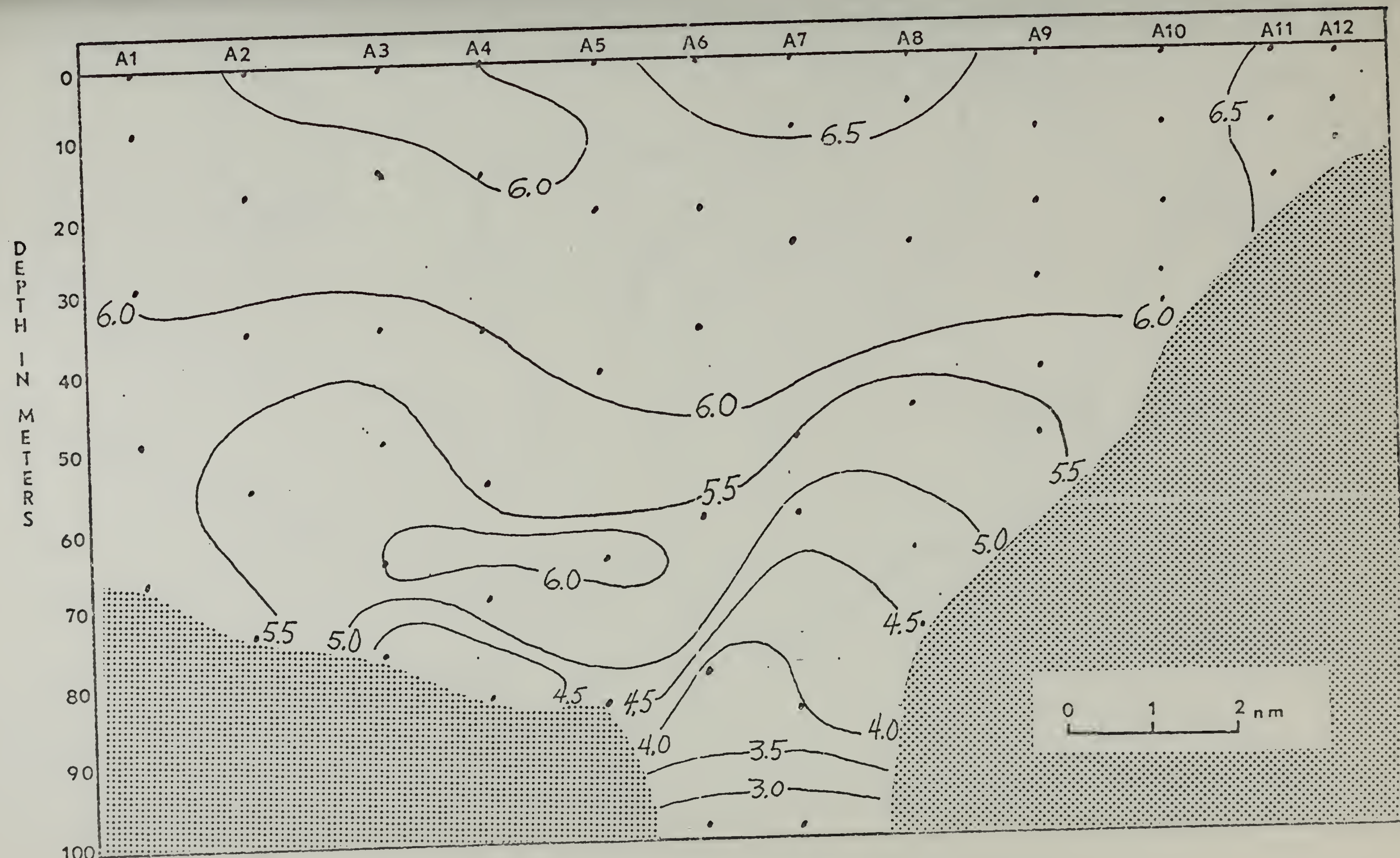


Figure 48. Profile of Oxygen (ml/1)

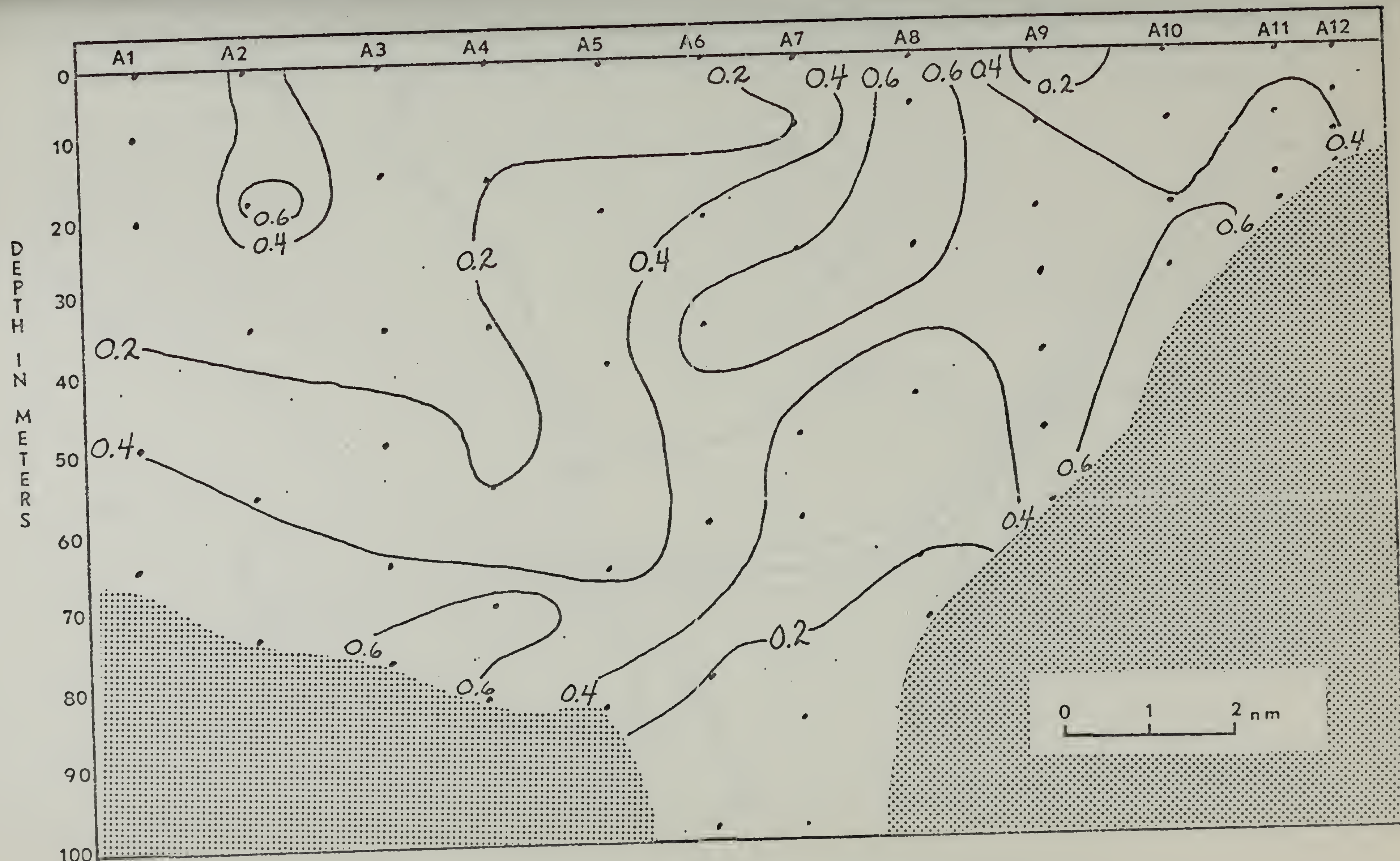


Figure 49. Profile of Chlorophyll (mg/m^3)

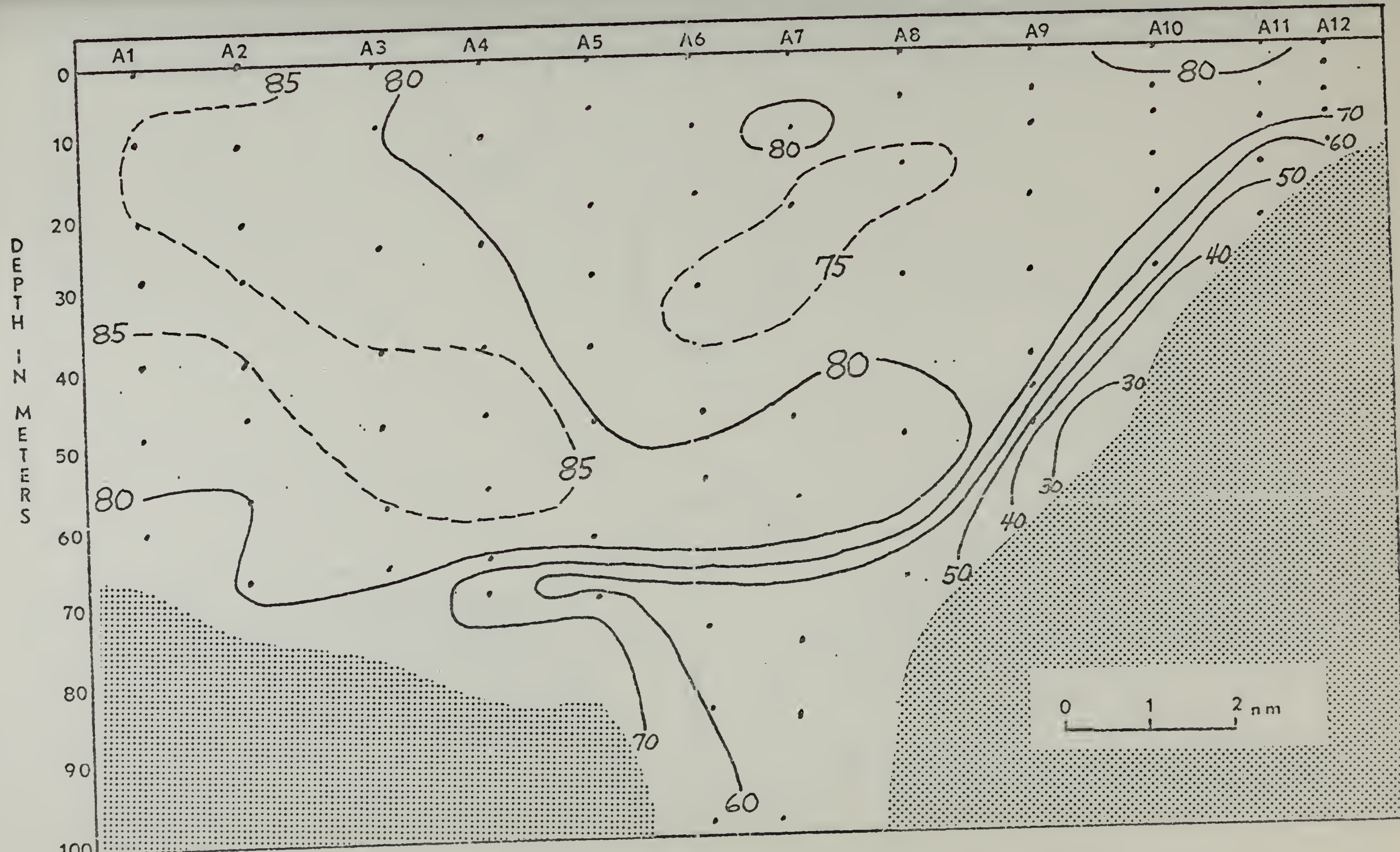


Figure 50. Profile of Beam Transmittance (%/m)

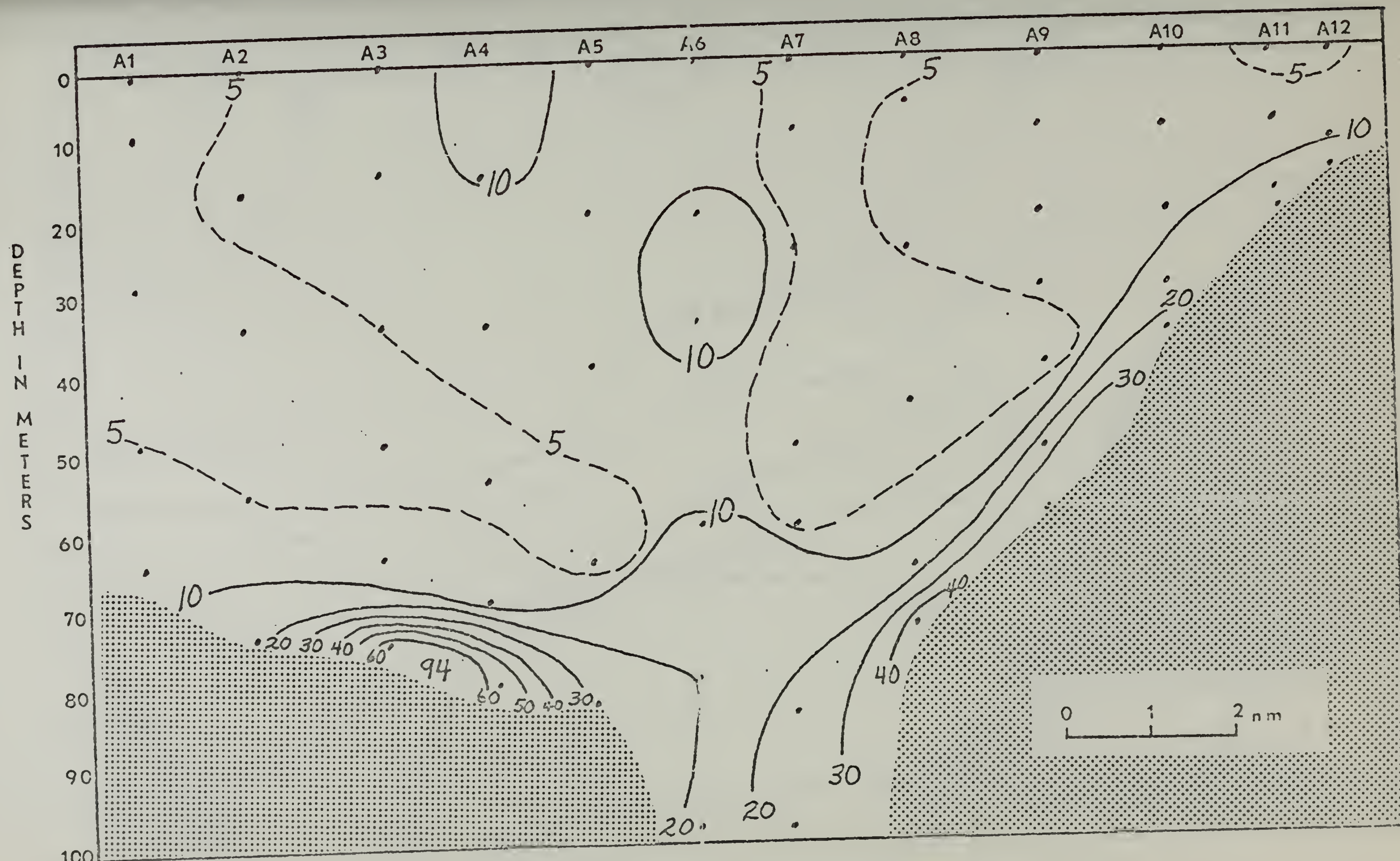


Figure 51. Profile of Total Particle Count (x 10^{-3})

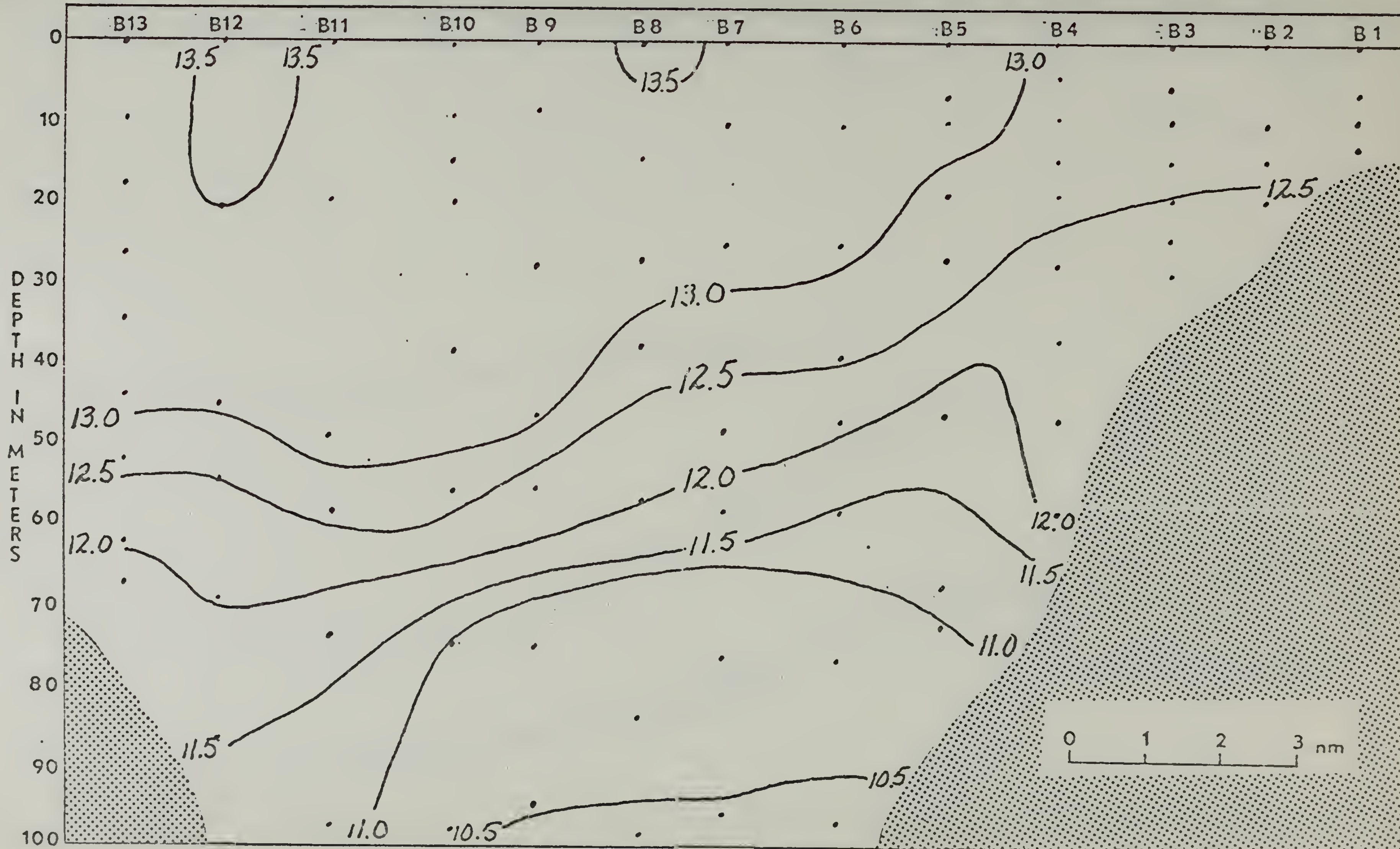


Figure 52. Profile of Temperature (°C)

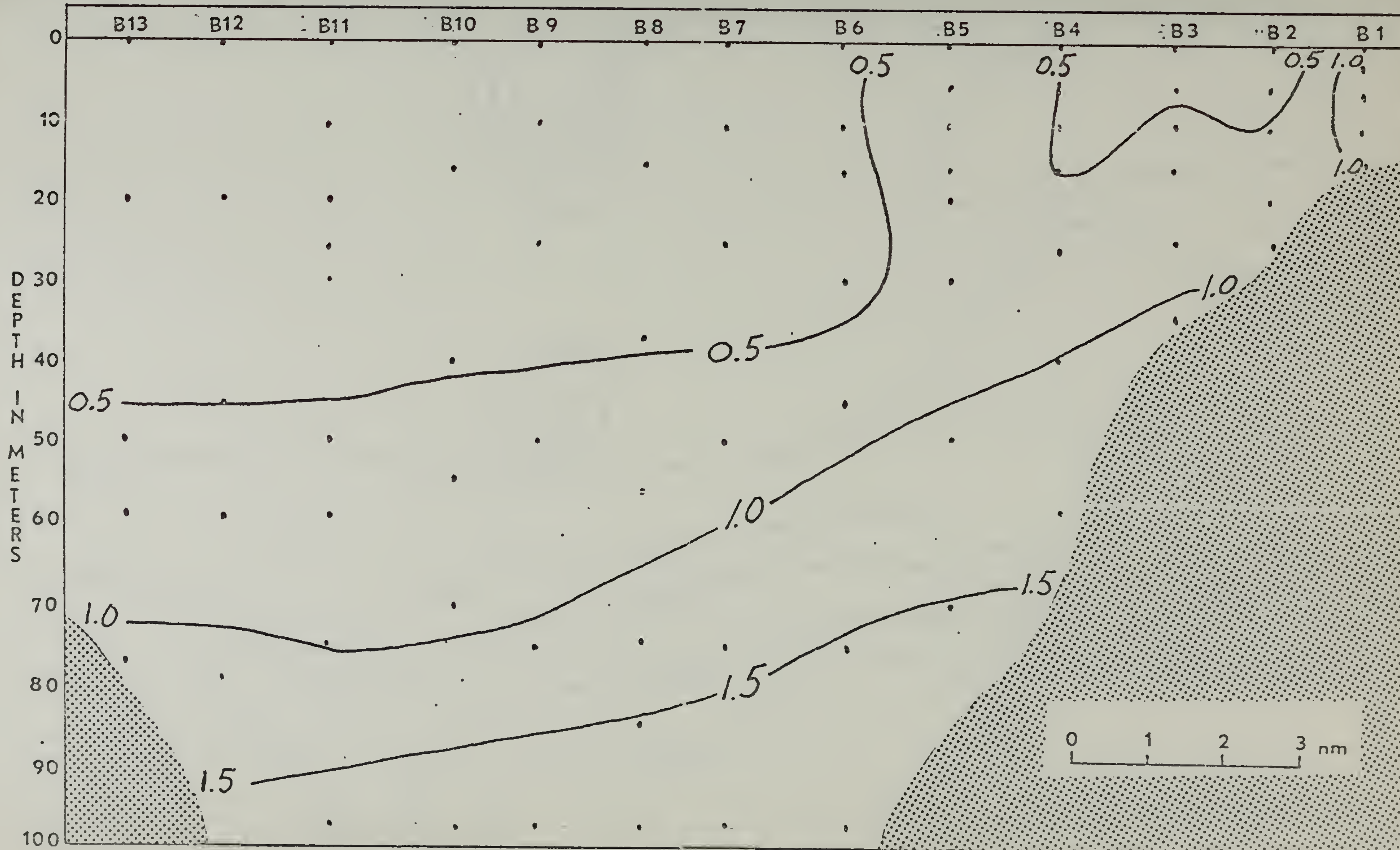


Figure 53. Profile of Phosphate (µg-at/l)

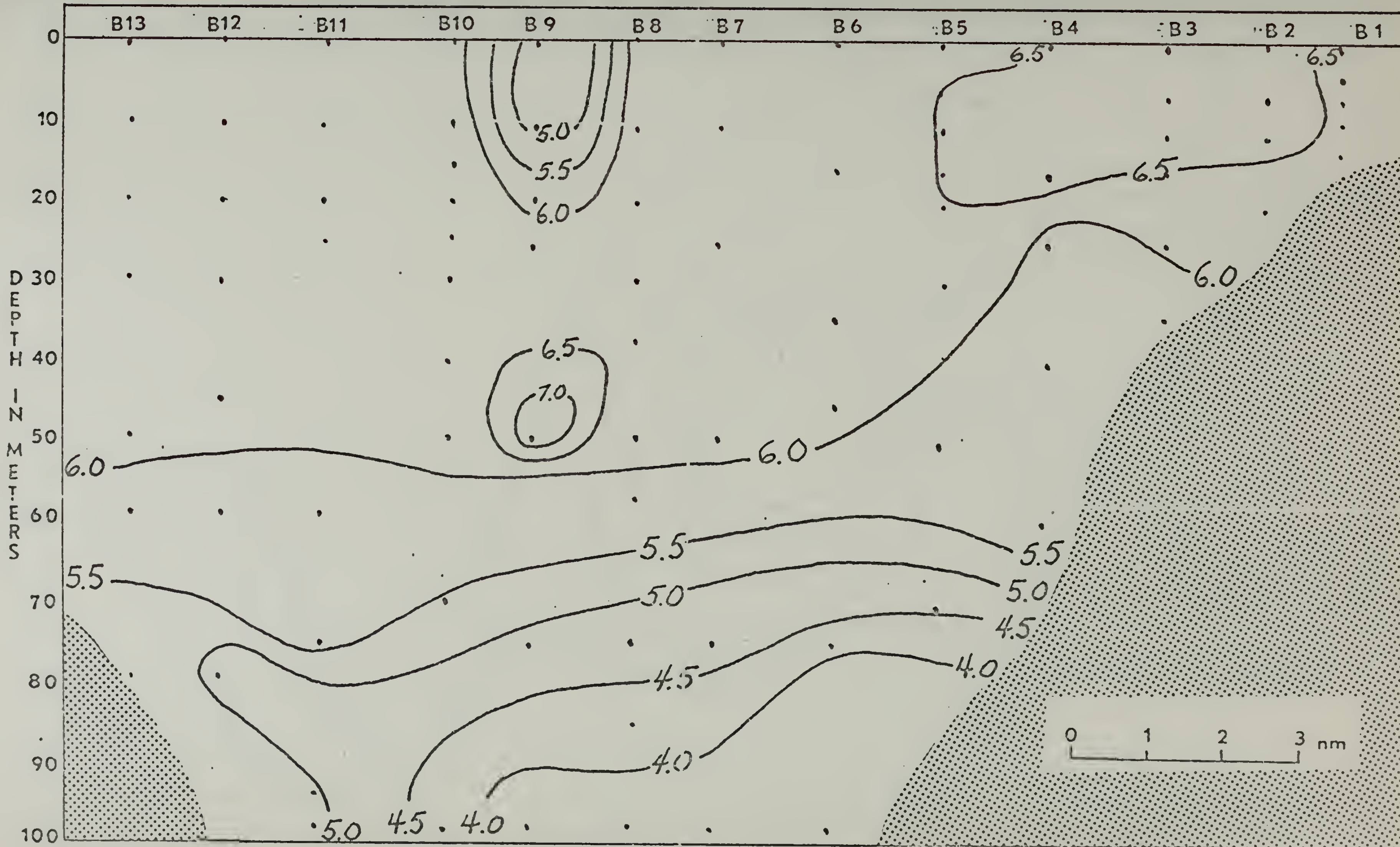


Figure 54. Profile of Oxygen (ml/l)

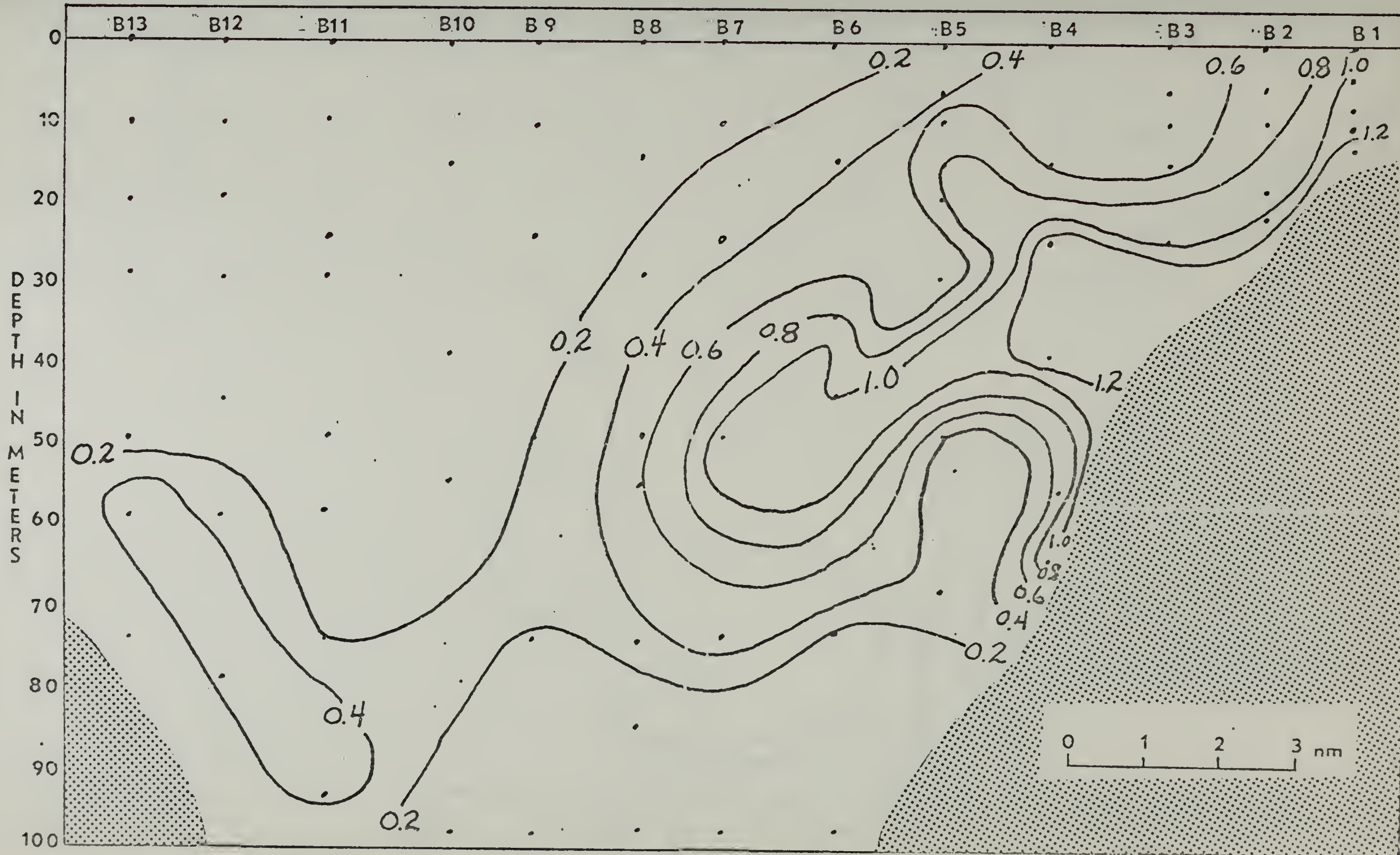


Figure 55. Profile of Chlorophyll a (mg/m^3)

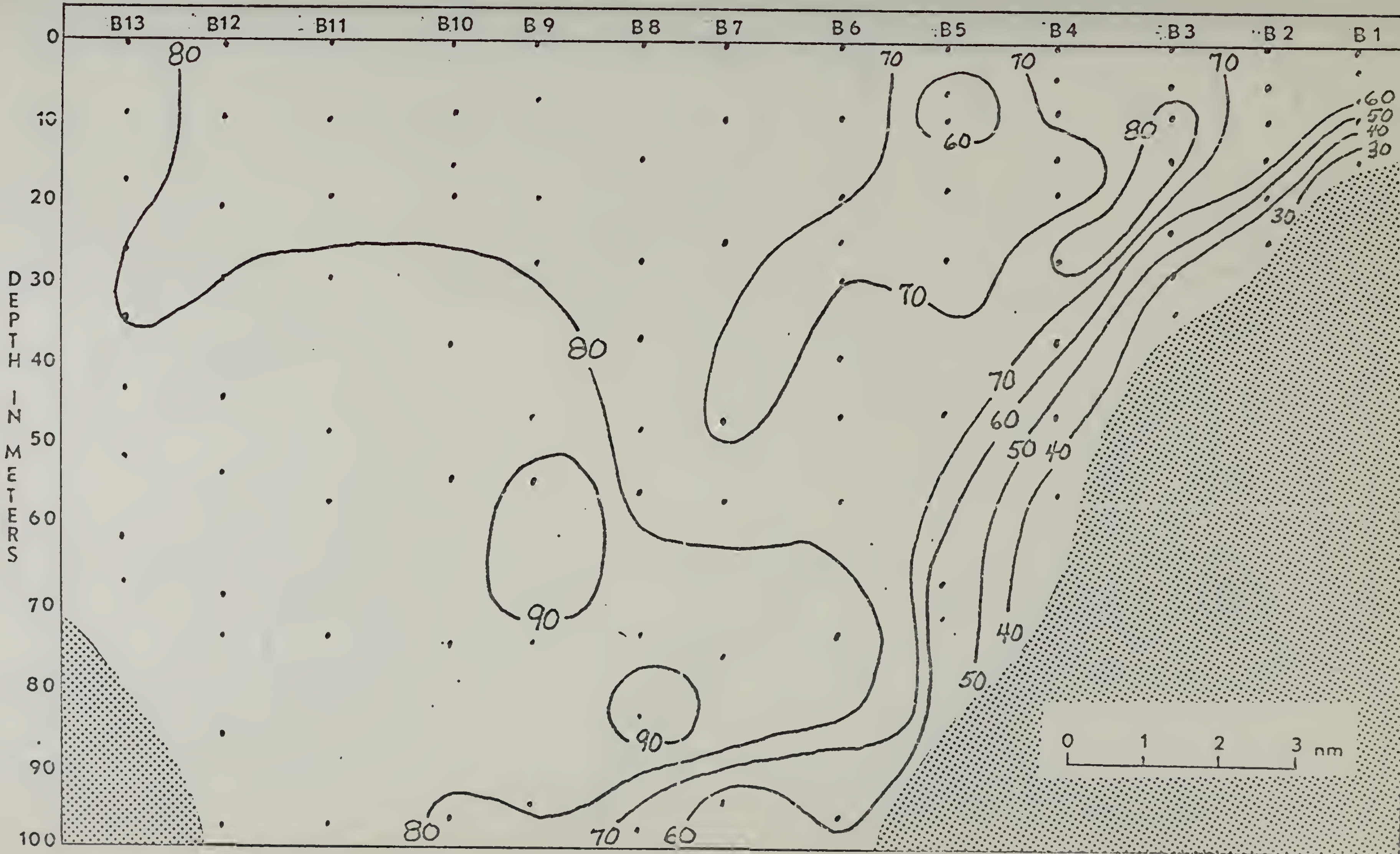


Figure 56. Profile of Beam Transmittance (%/m)

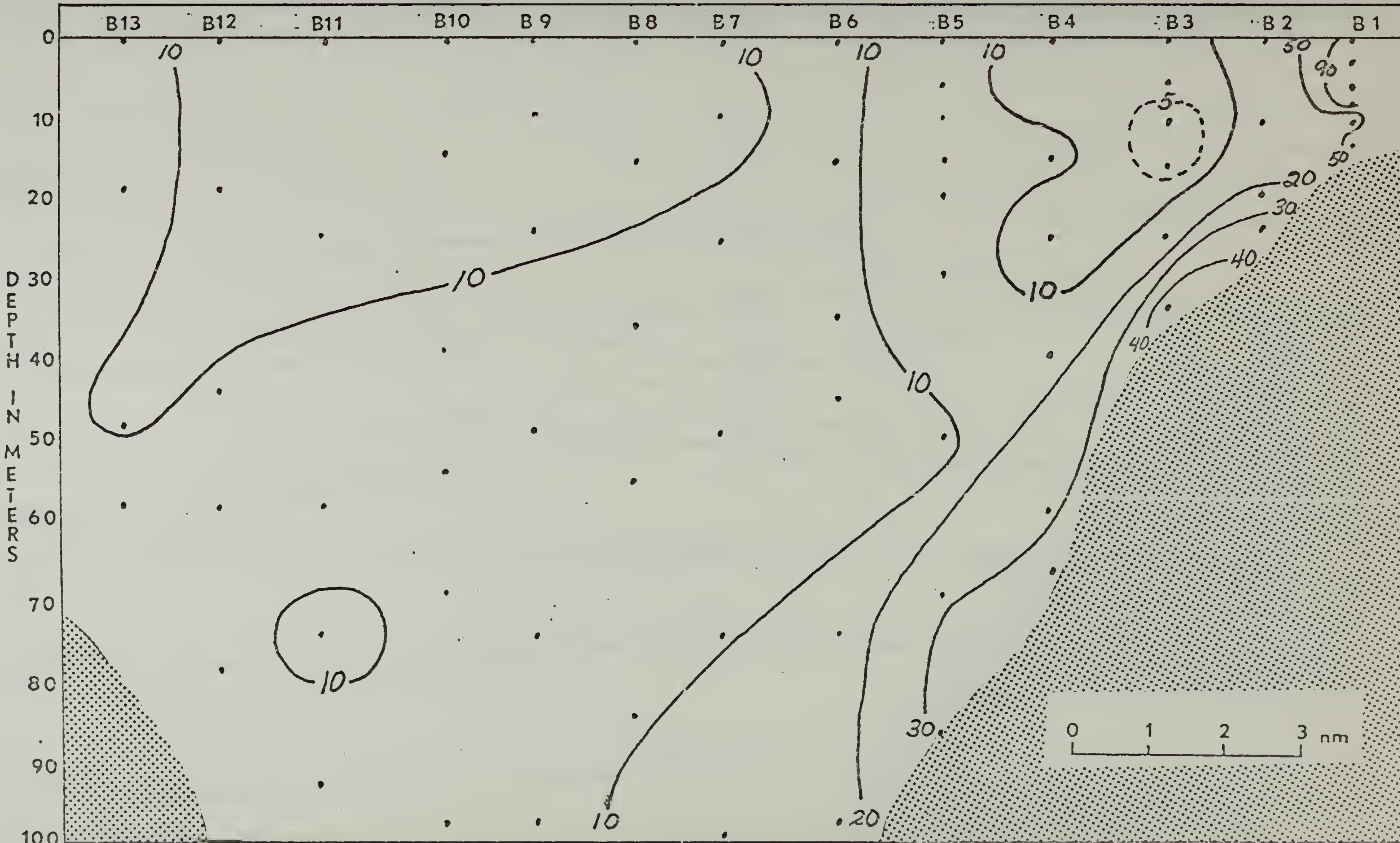


Figure 57. Profile of Total Particle Count (x 10^{-3})

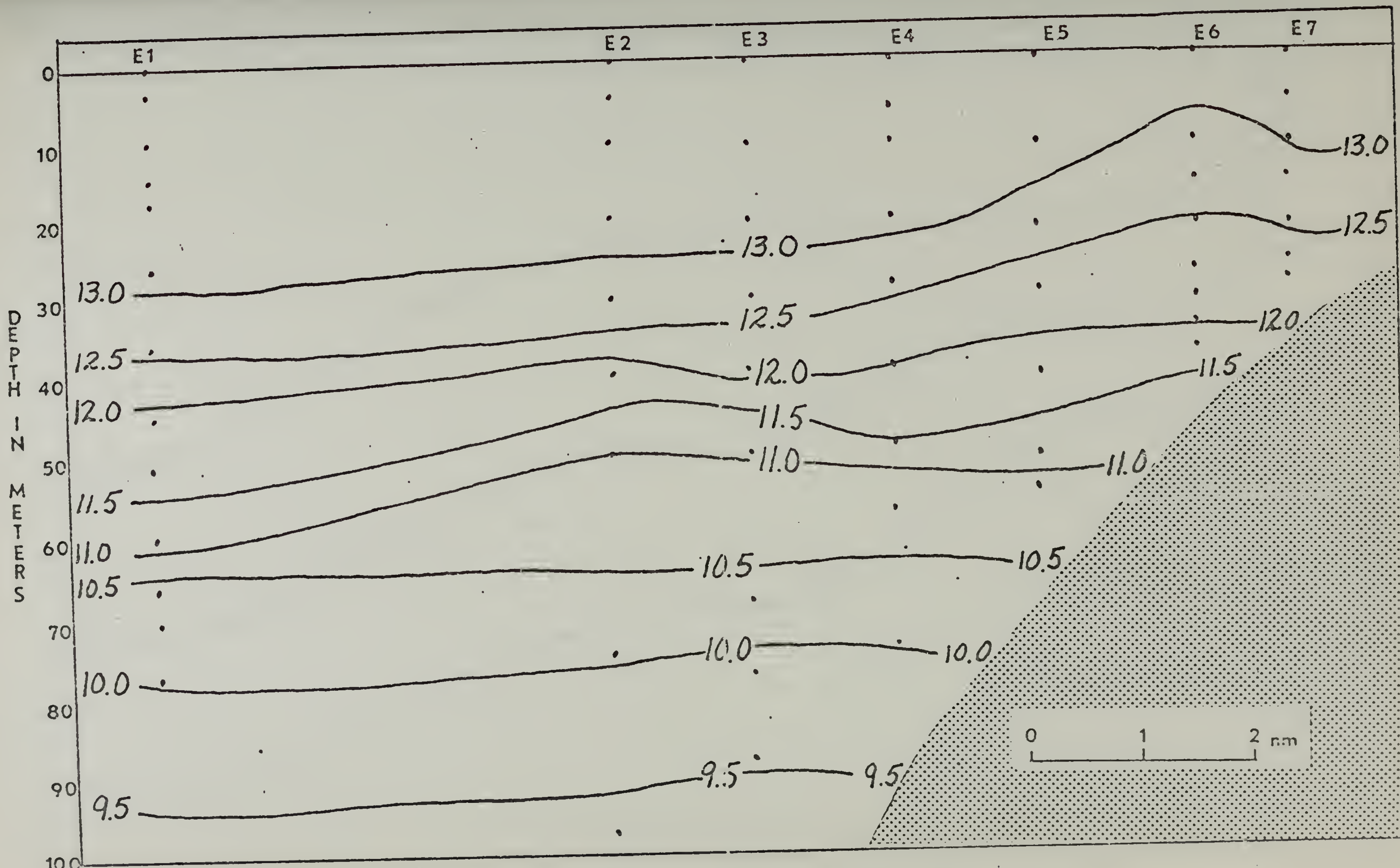


Figure 58. Profile of Temperature (°C)

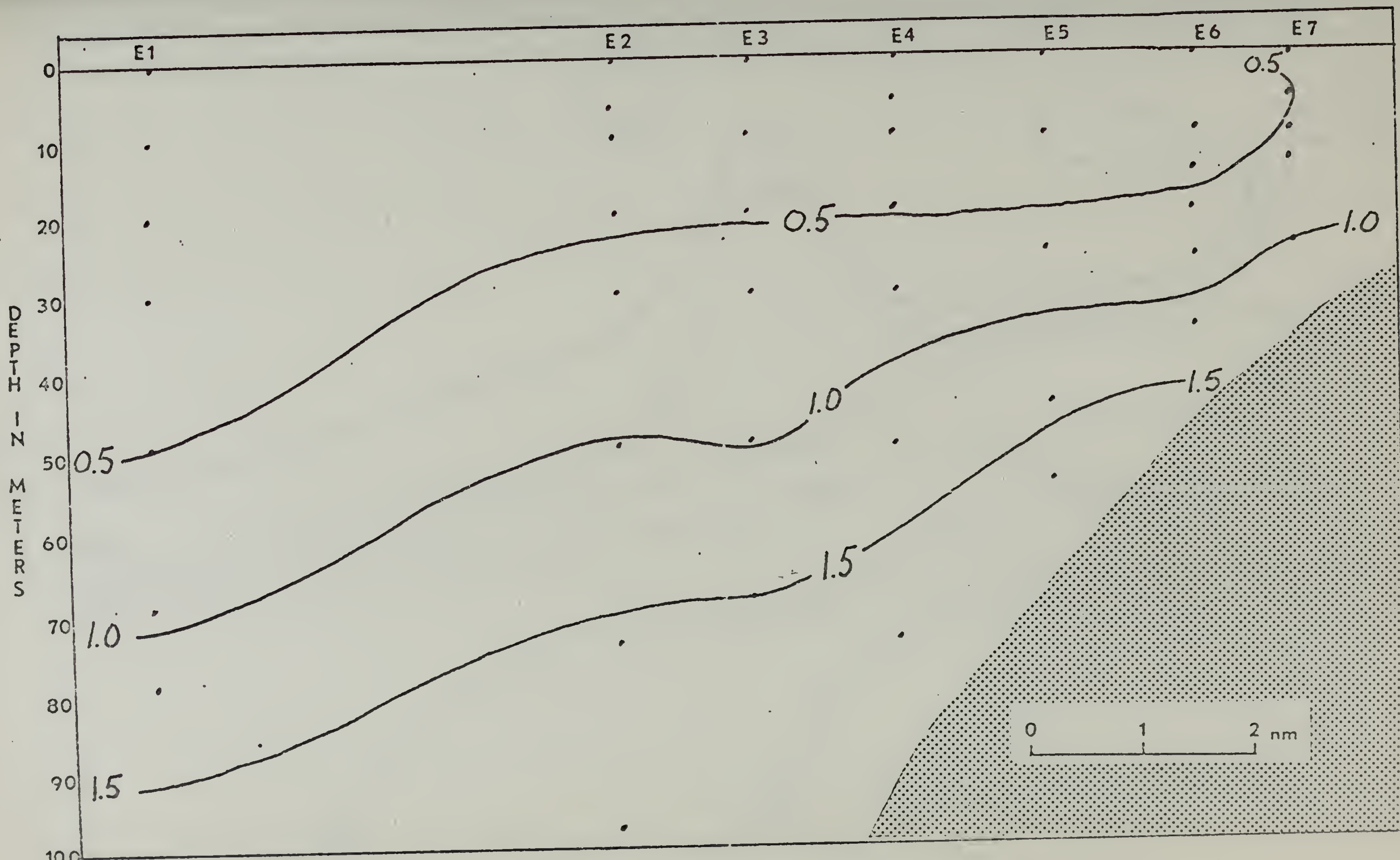


Figure 59. Profile of Phosphate (μg-at/l)

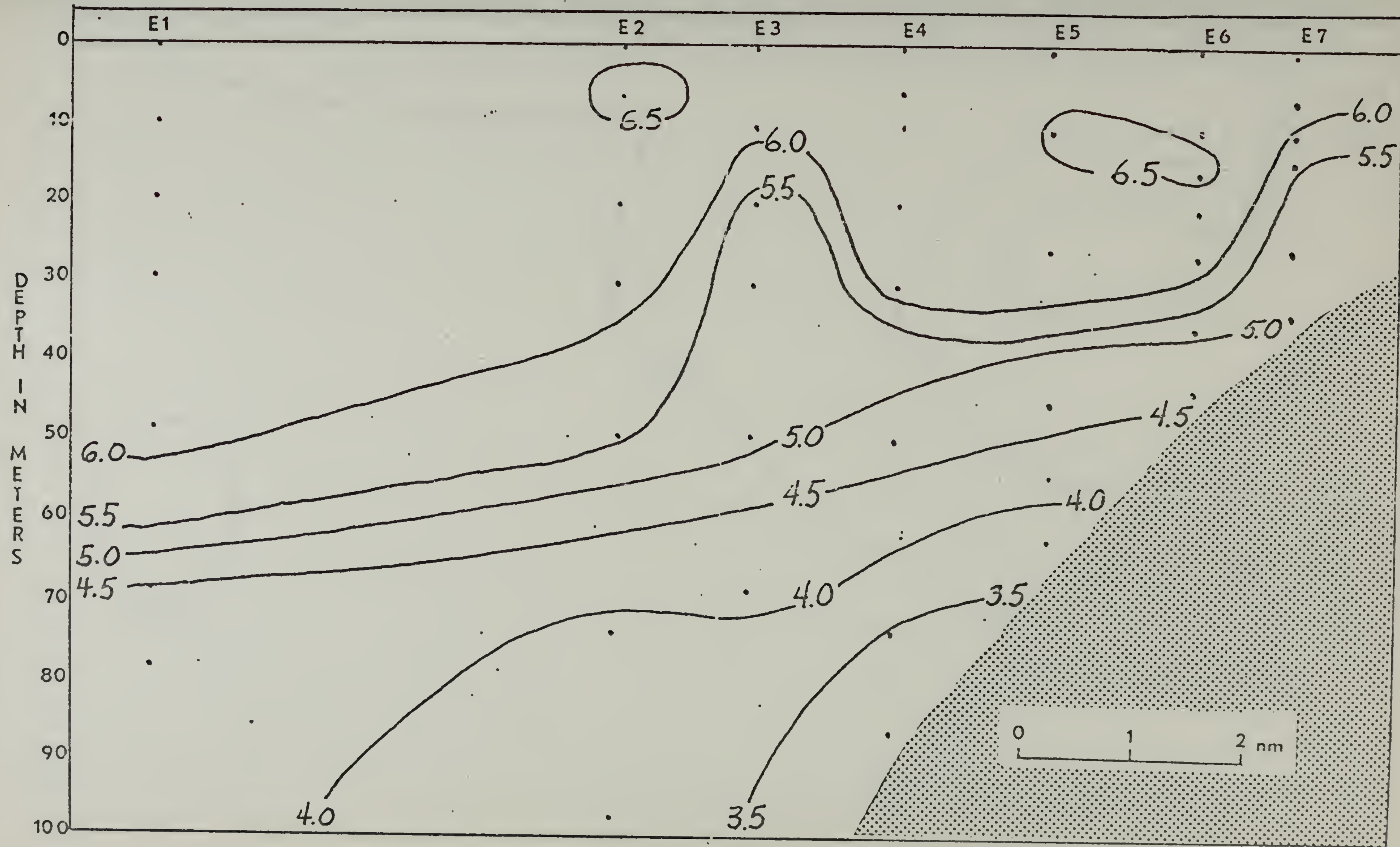


Figure 60. Profile of Oxygen (ml/l)

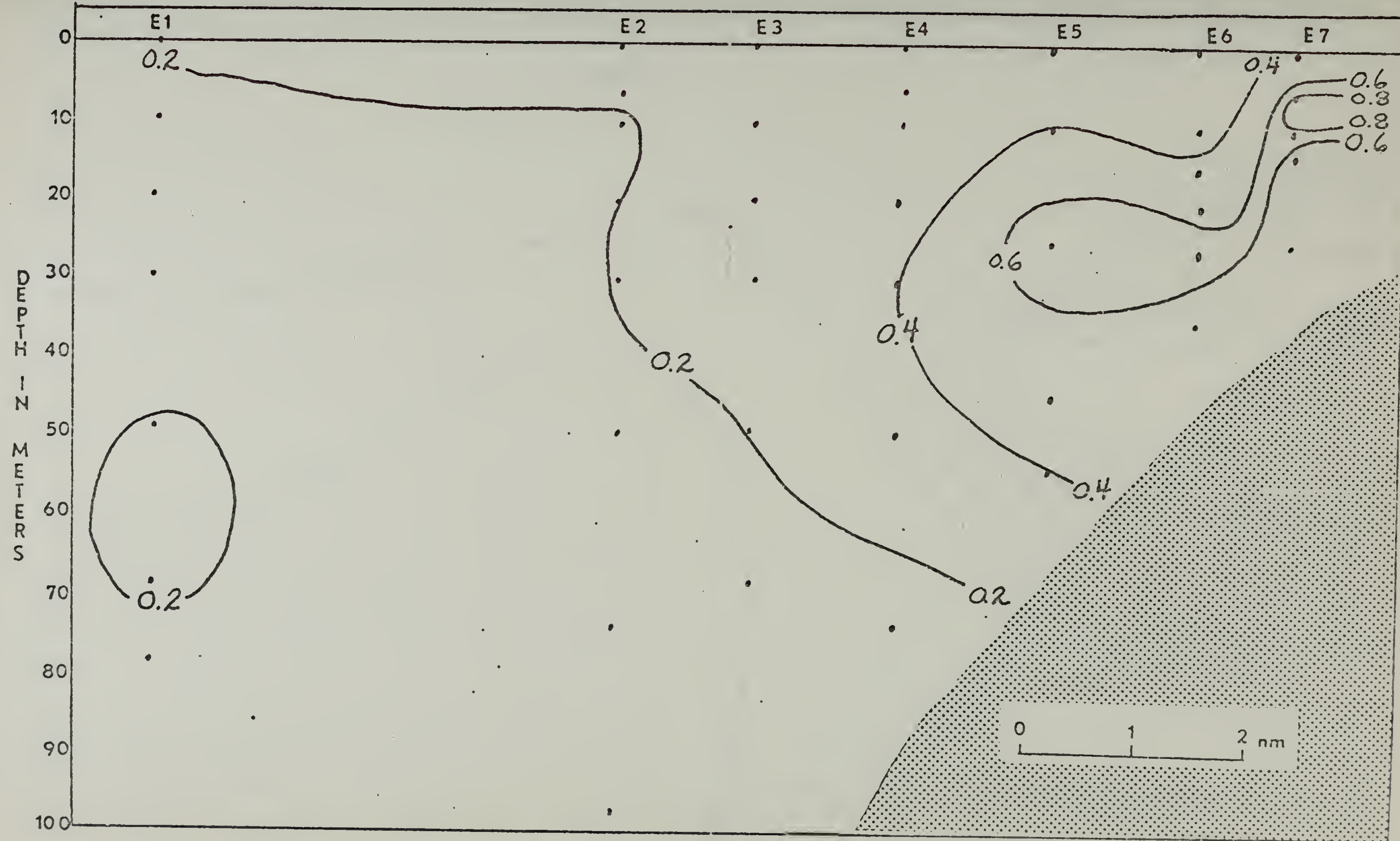


Figure 61. Profile of Chlorophyll (mg/m^3)

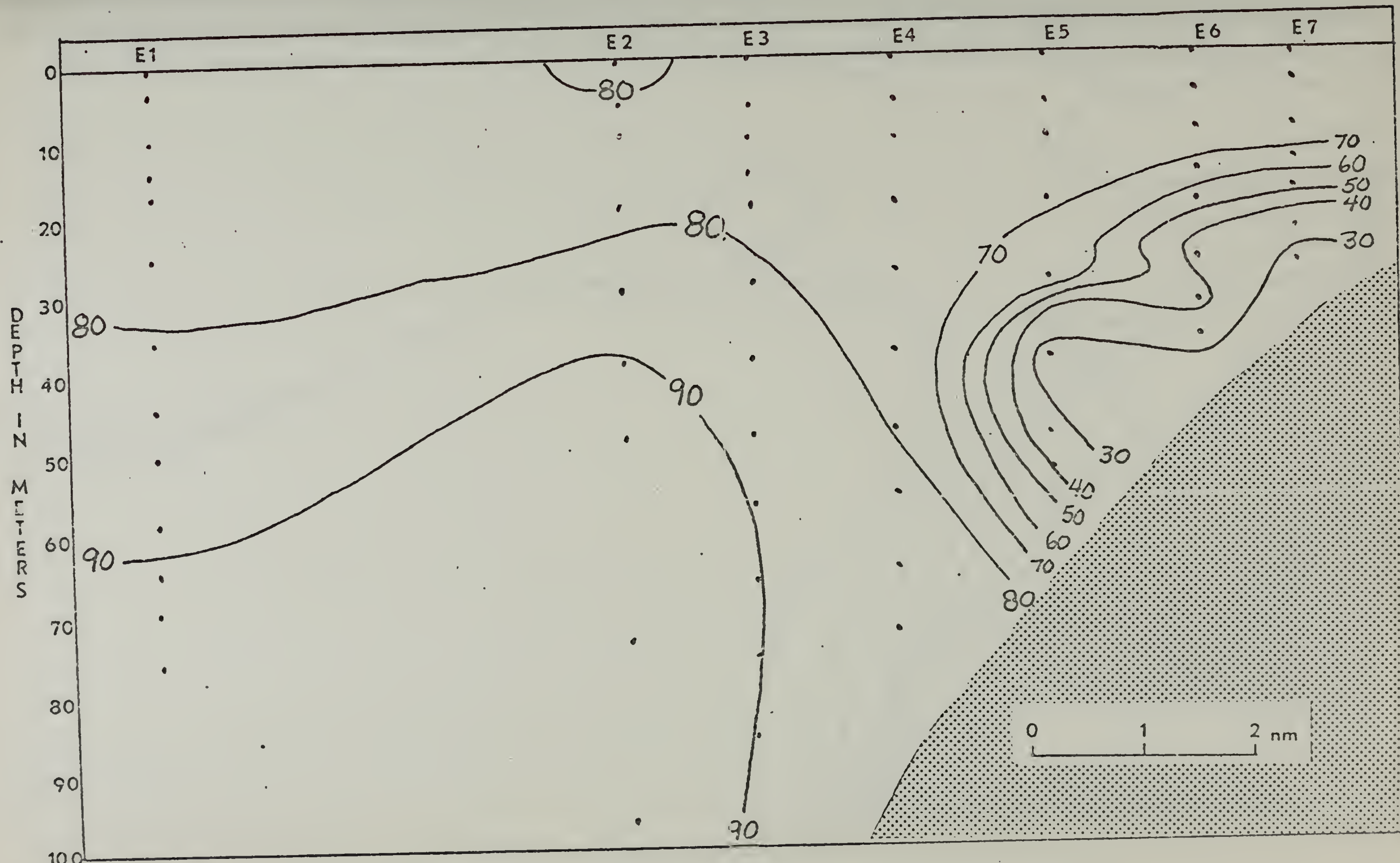


Figure 62. Profile of Beam Transmittance (%/m)

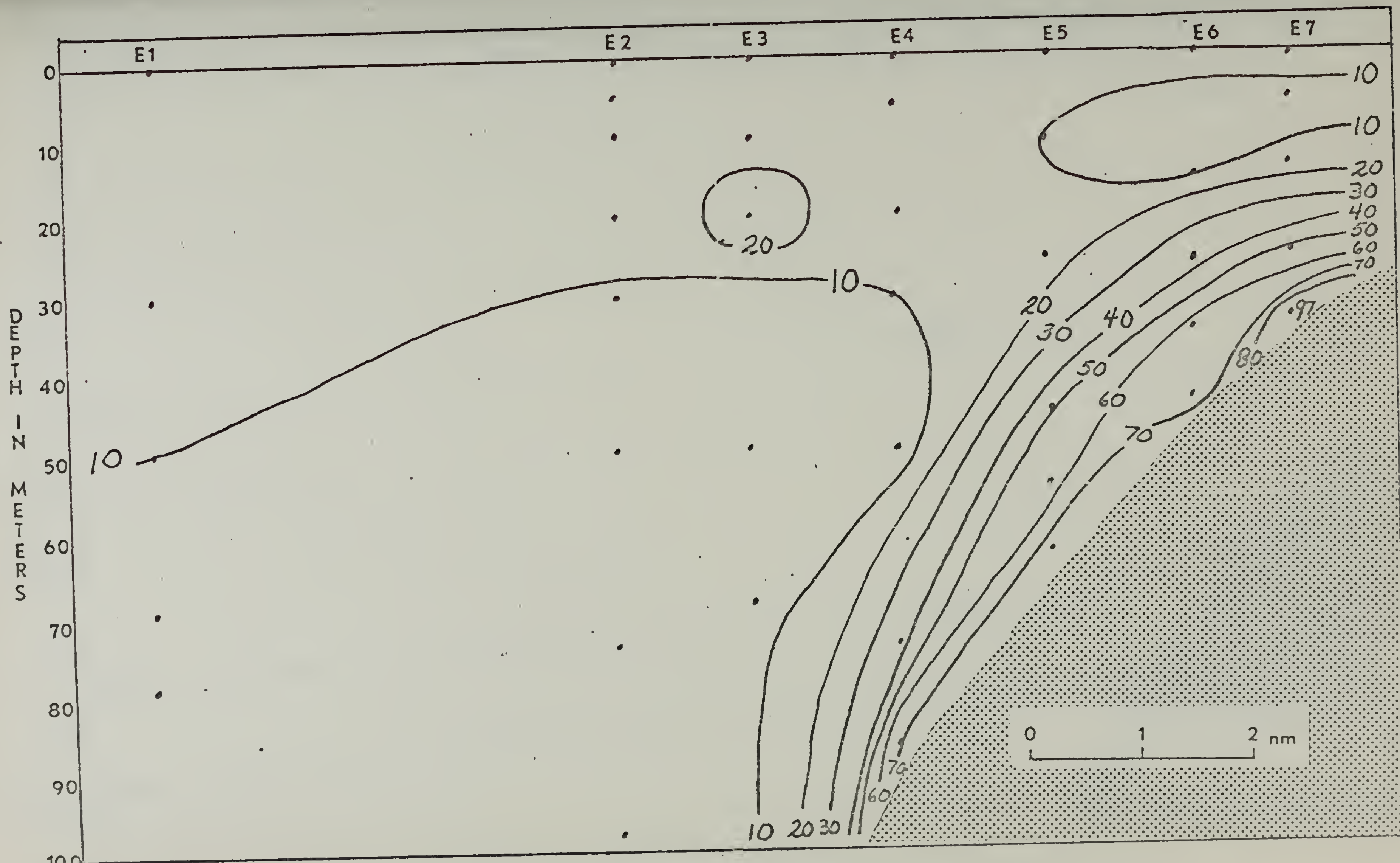


Figure 63. Profile of Total Particle Count (x 10^{-3})

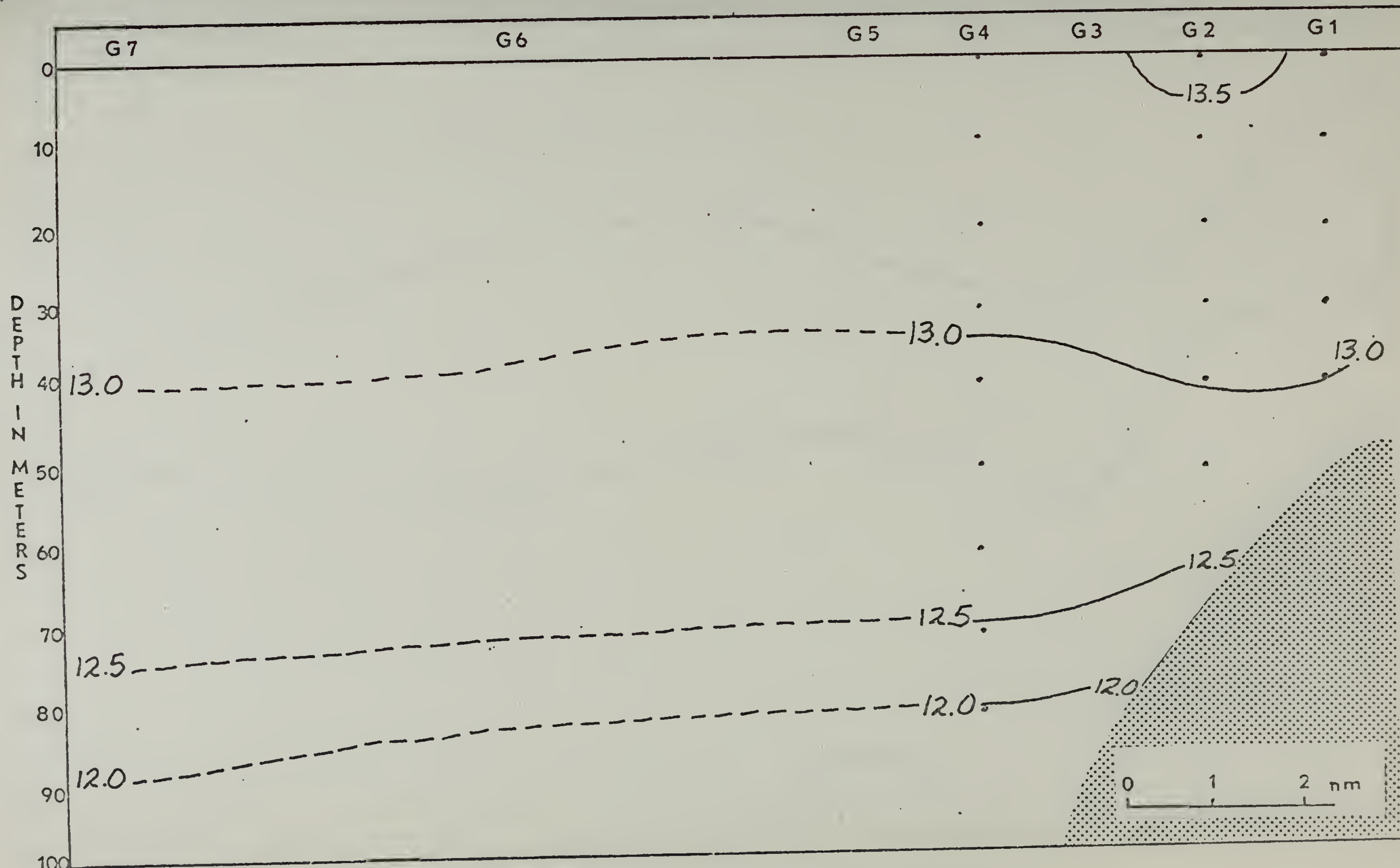


Figure 64. Profile of Temperature (°C)

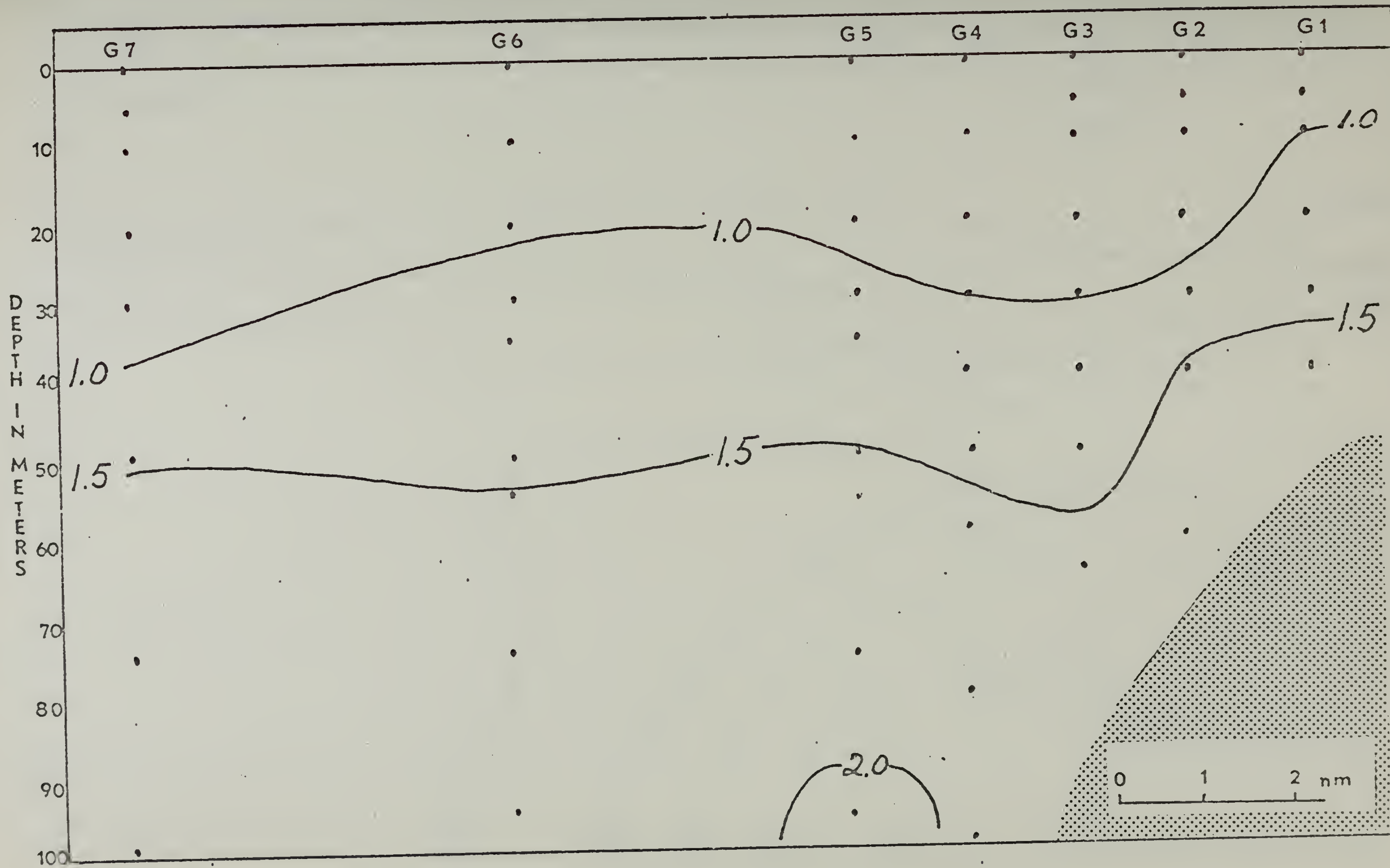


Figure 65. Profile of Phosphate (μg-at/l)

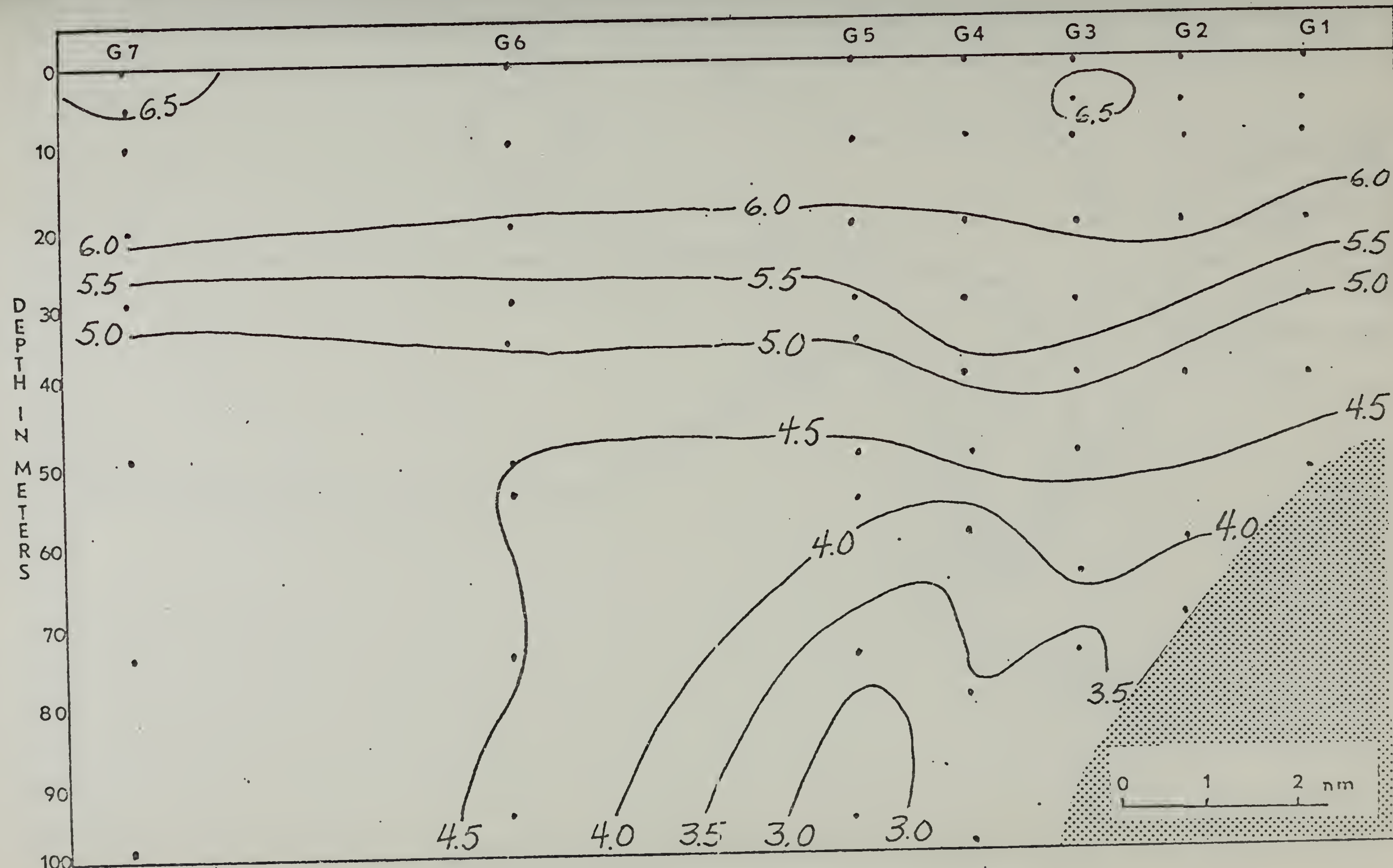


Figure 66. Profile of Oxygen (ml/1)

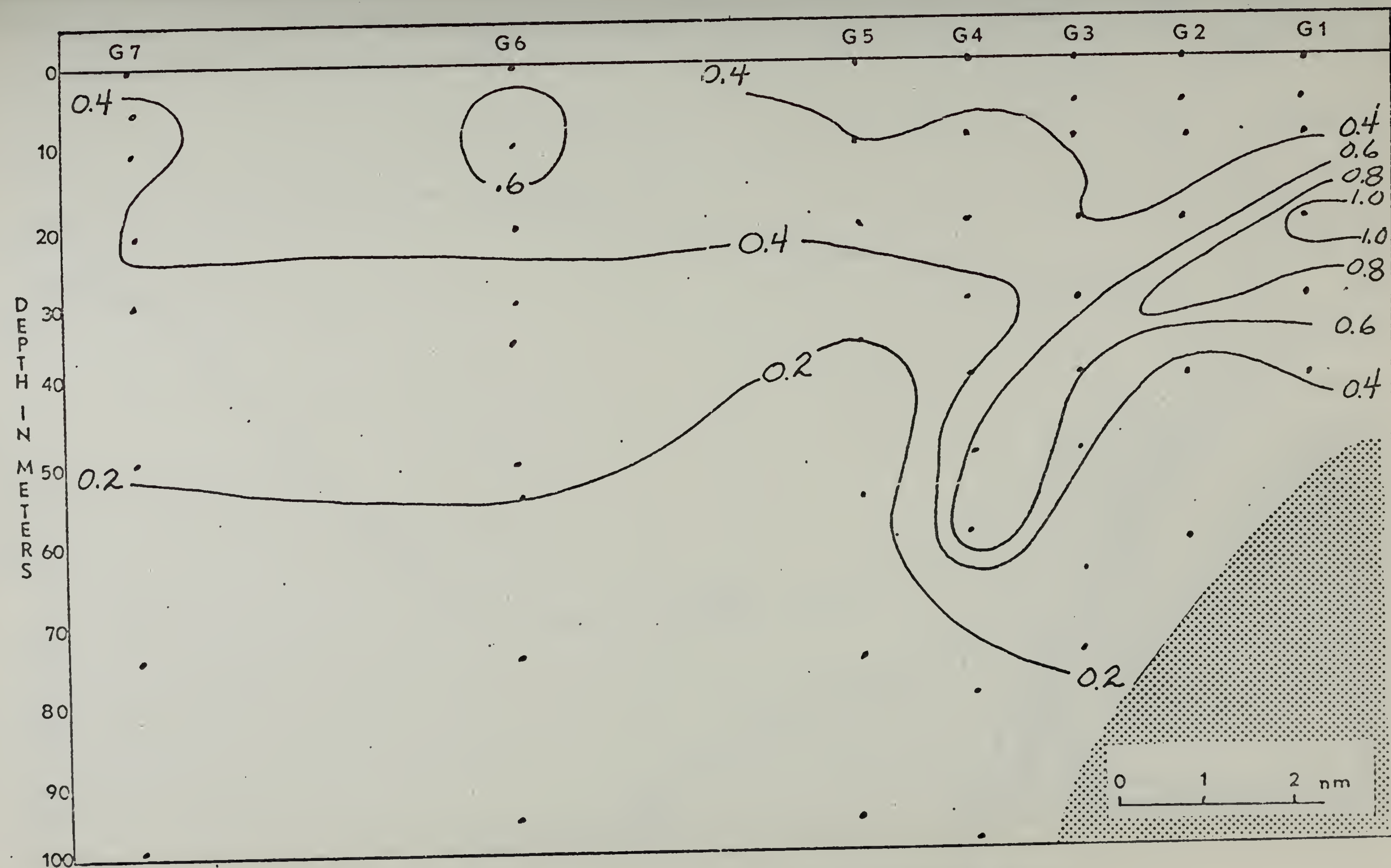


Figure 67. Profile of Chlorophyll (mg/m^3)

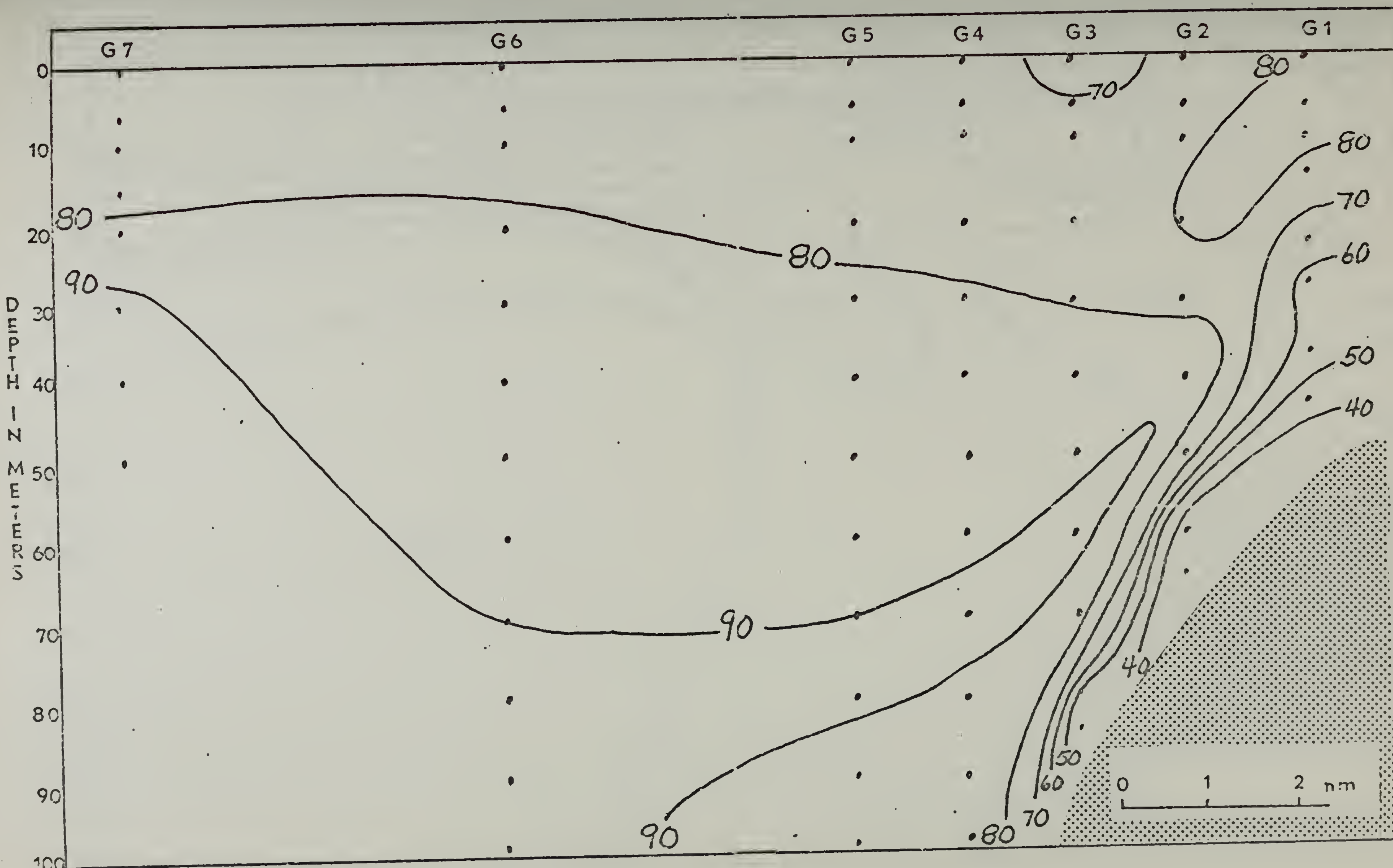


Figure 68. Profile of Eeam Transmittance (%/m)

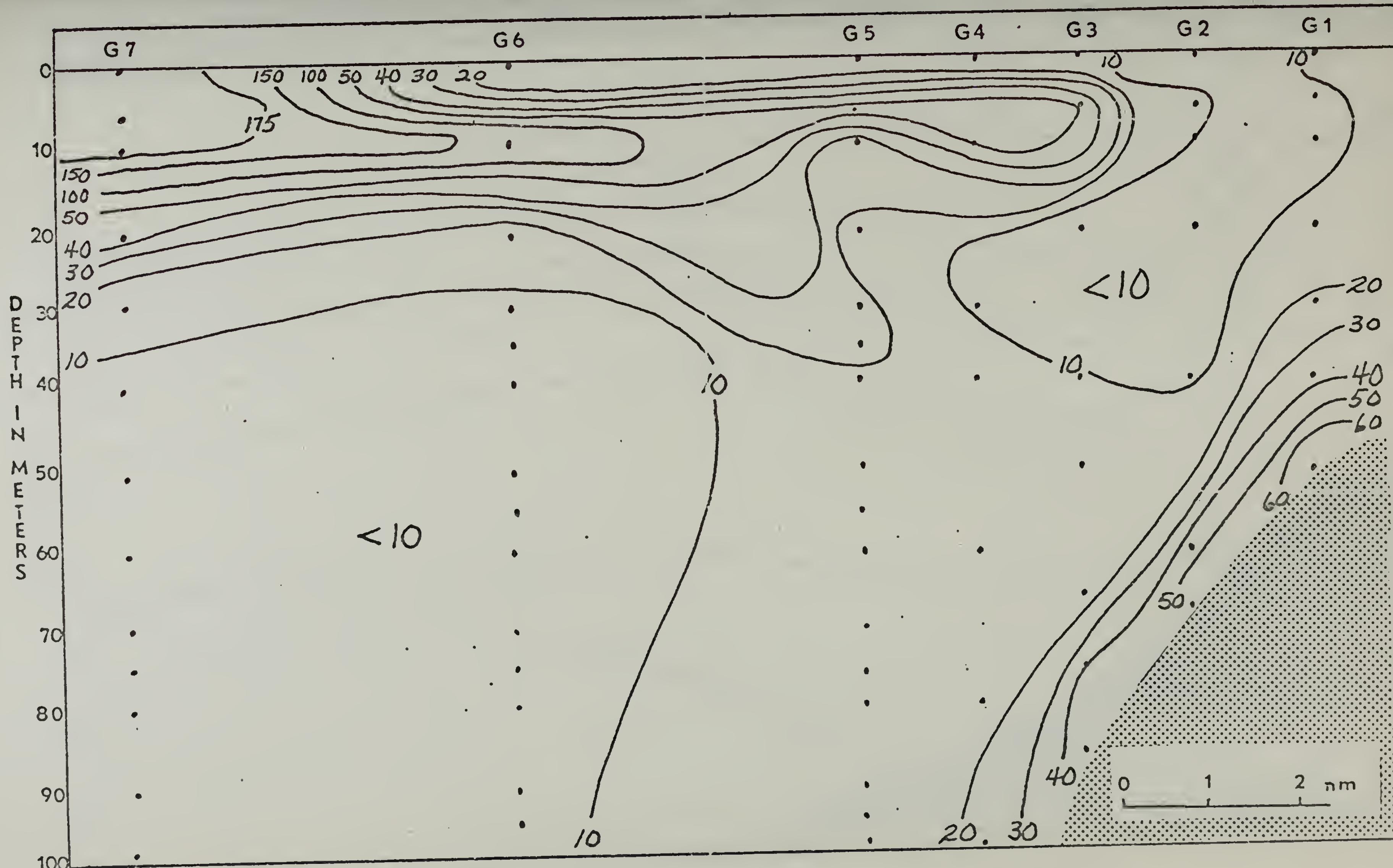


Figure 69. Profile of Total Particle Count ($x\ 10^{-3}$)

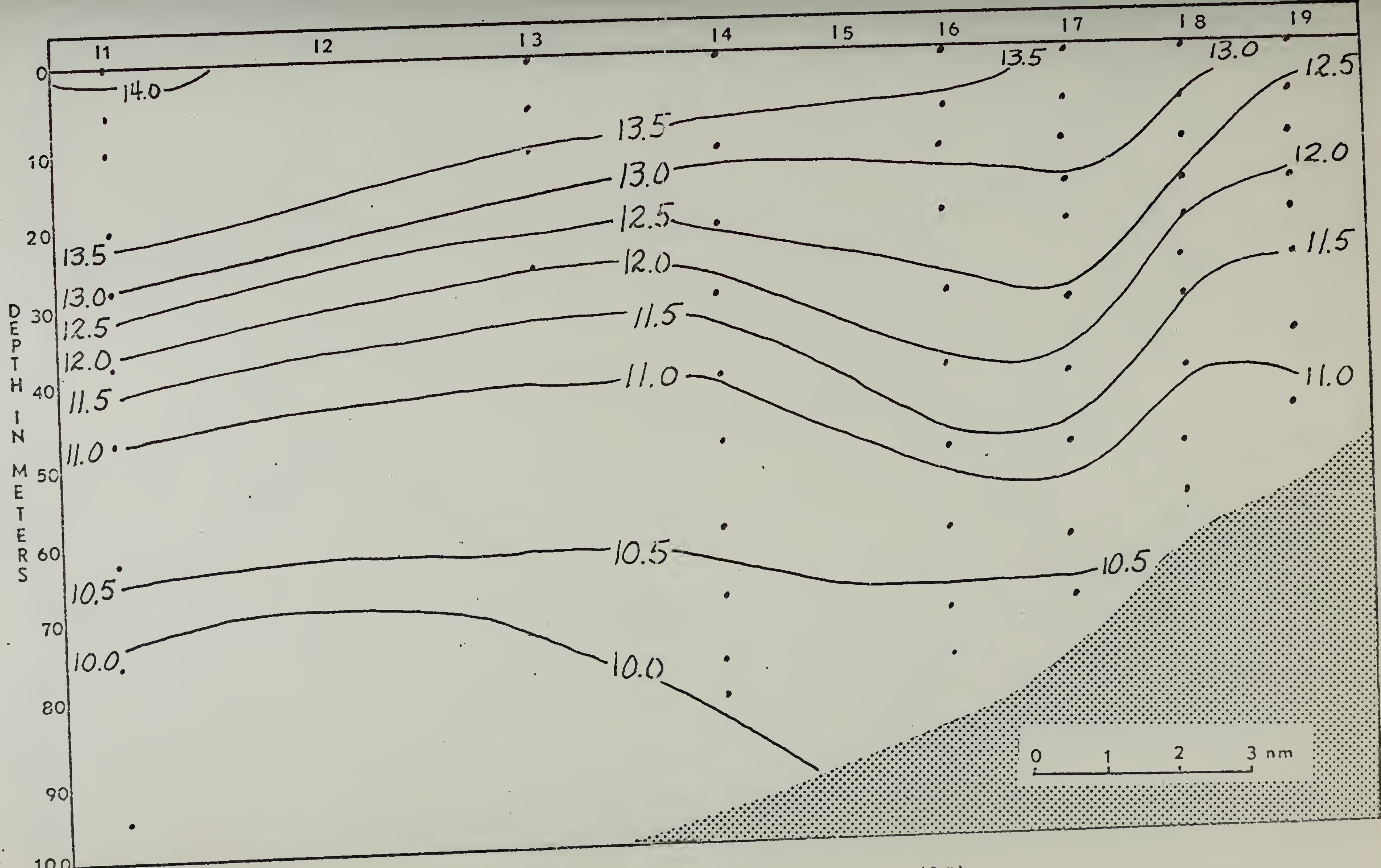


Figure 70. Profile of Temperature (°C)

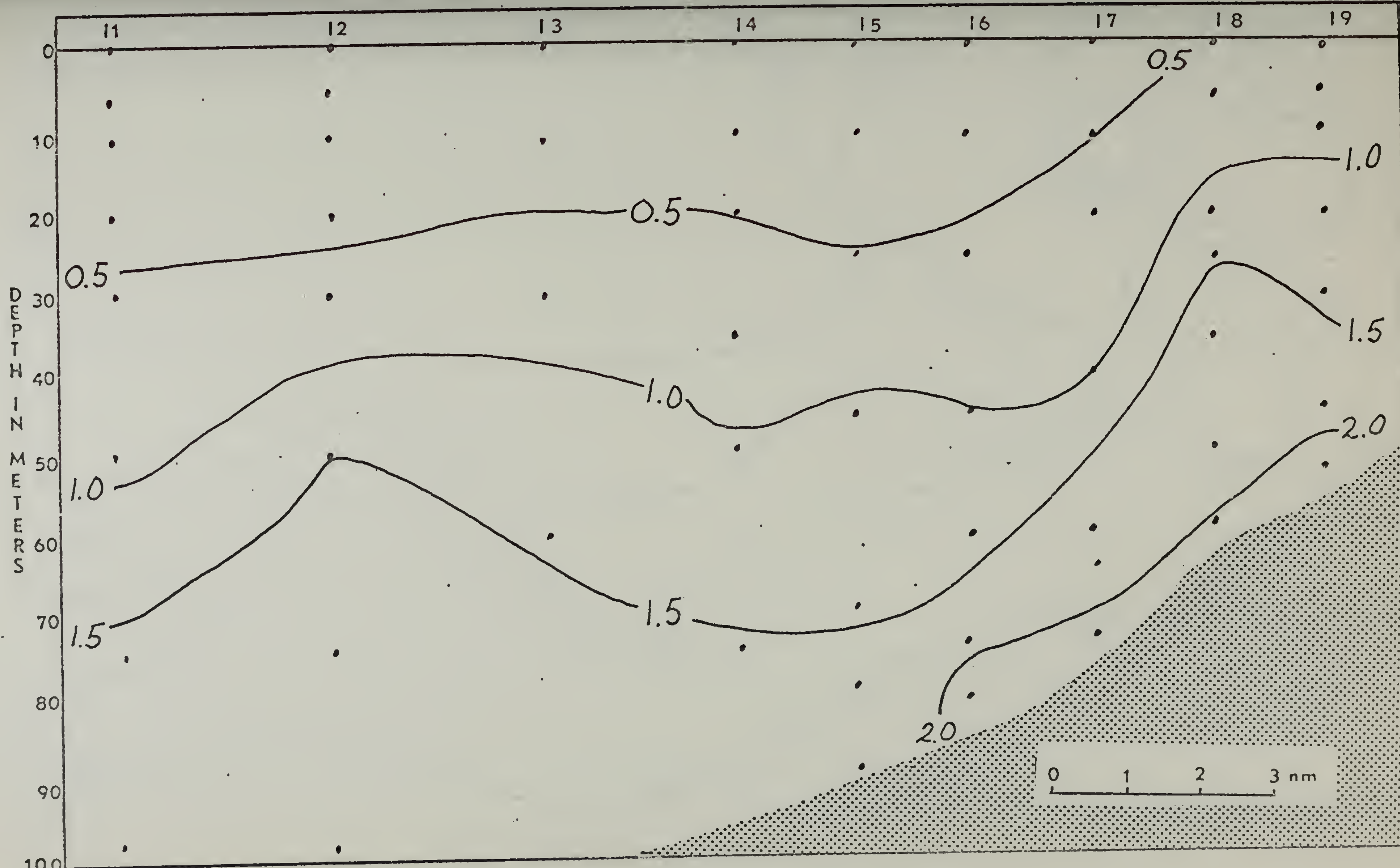


Figure 71. Profile of Phosphate (μg-at/l)

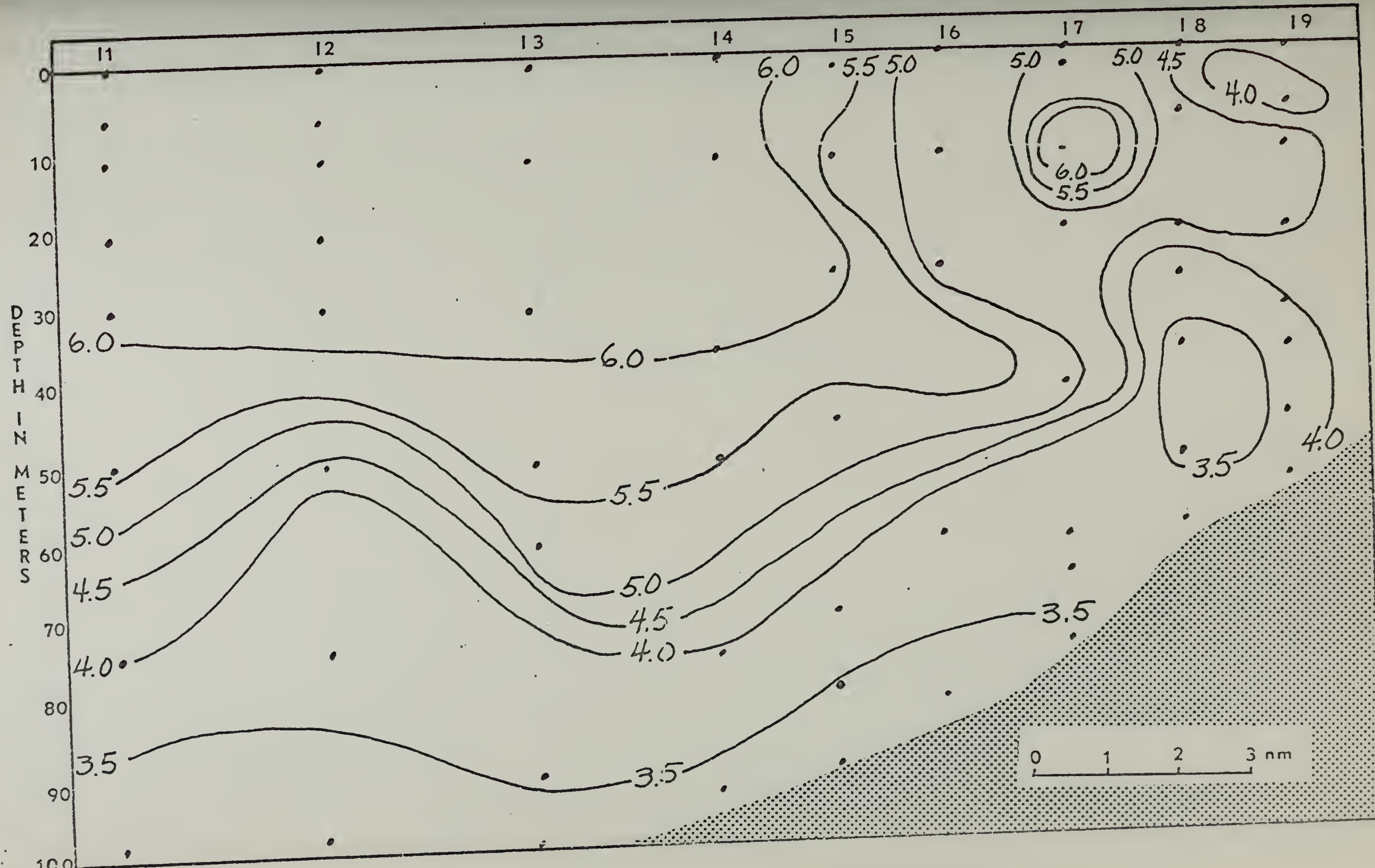


Figure 72. Profile of Oxygen (ml/1)

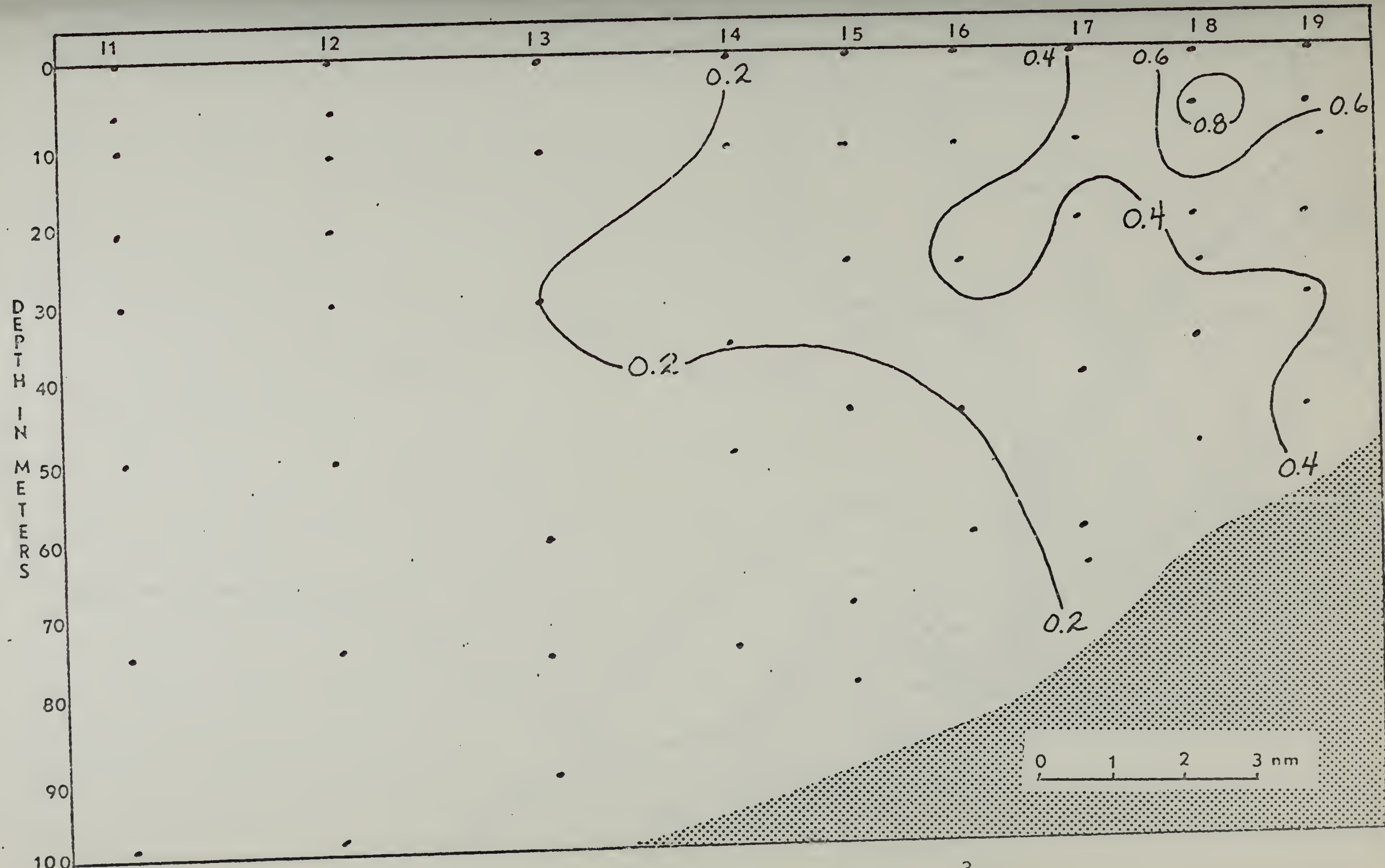


Figure 73. Profile of Chlorophyll (mg/m^3)

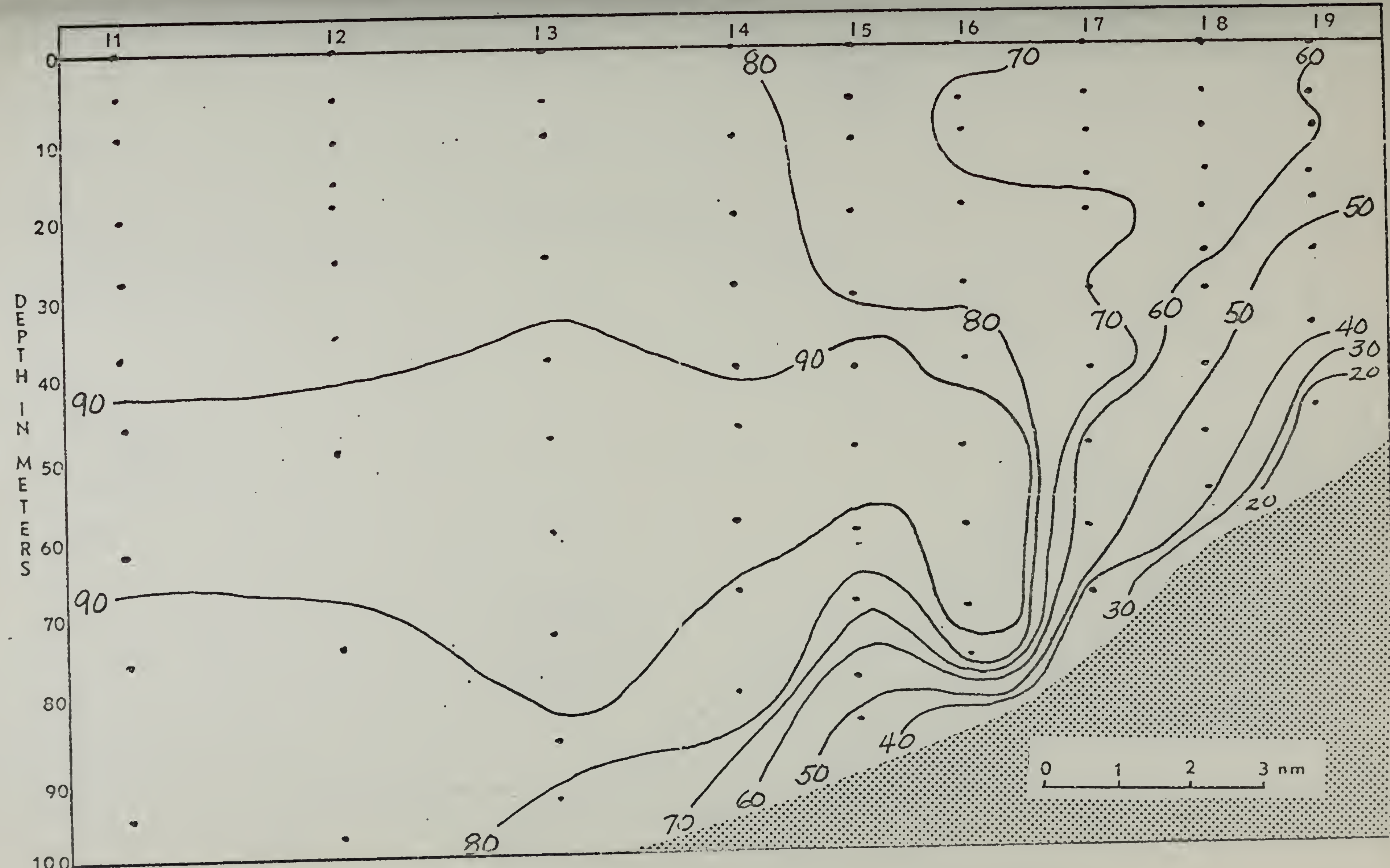


Figure 74. Profile of Beam Transmittance (%/m)

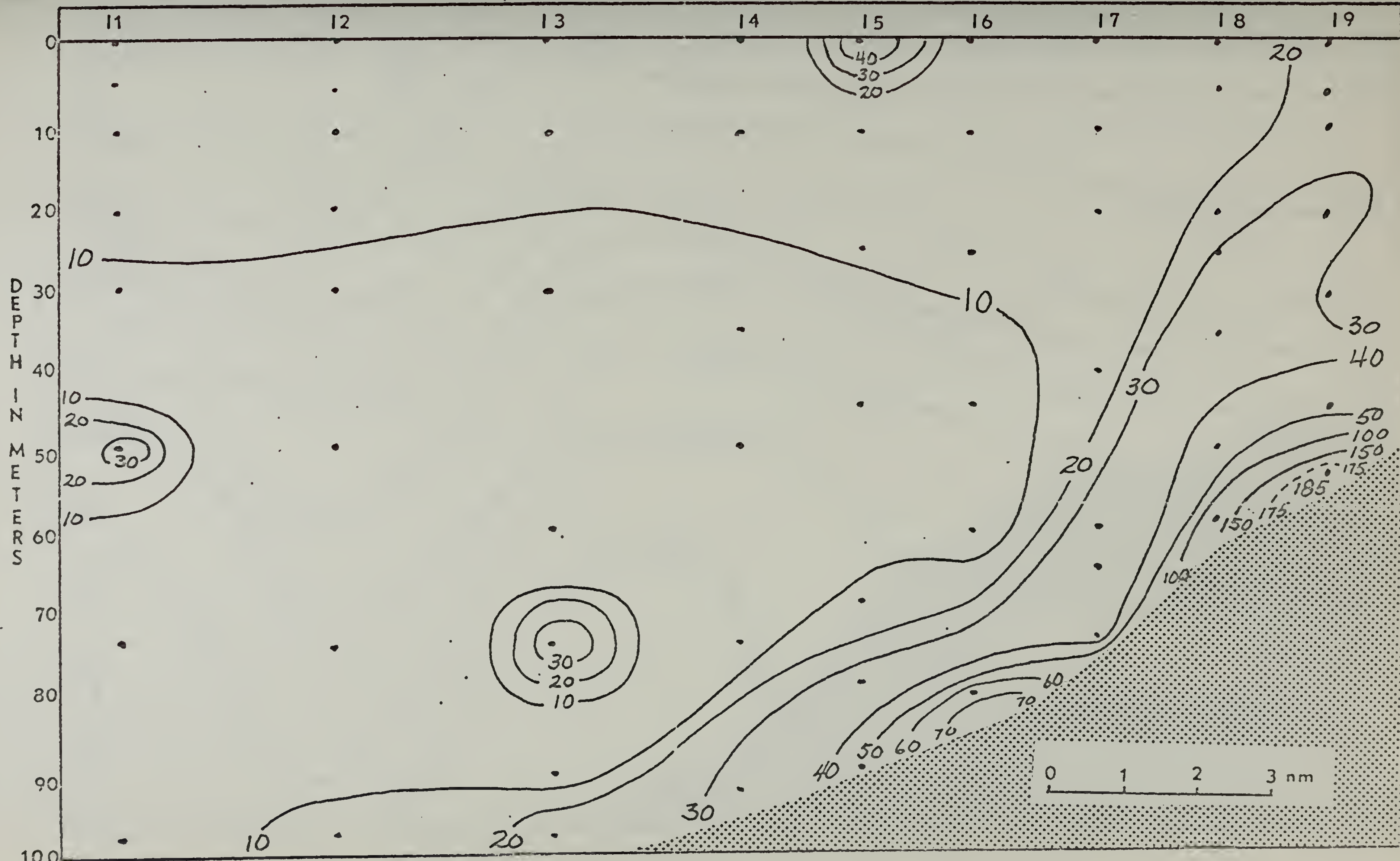


Figure 75. Profile of Total Particle Count (x 10^{-3})

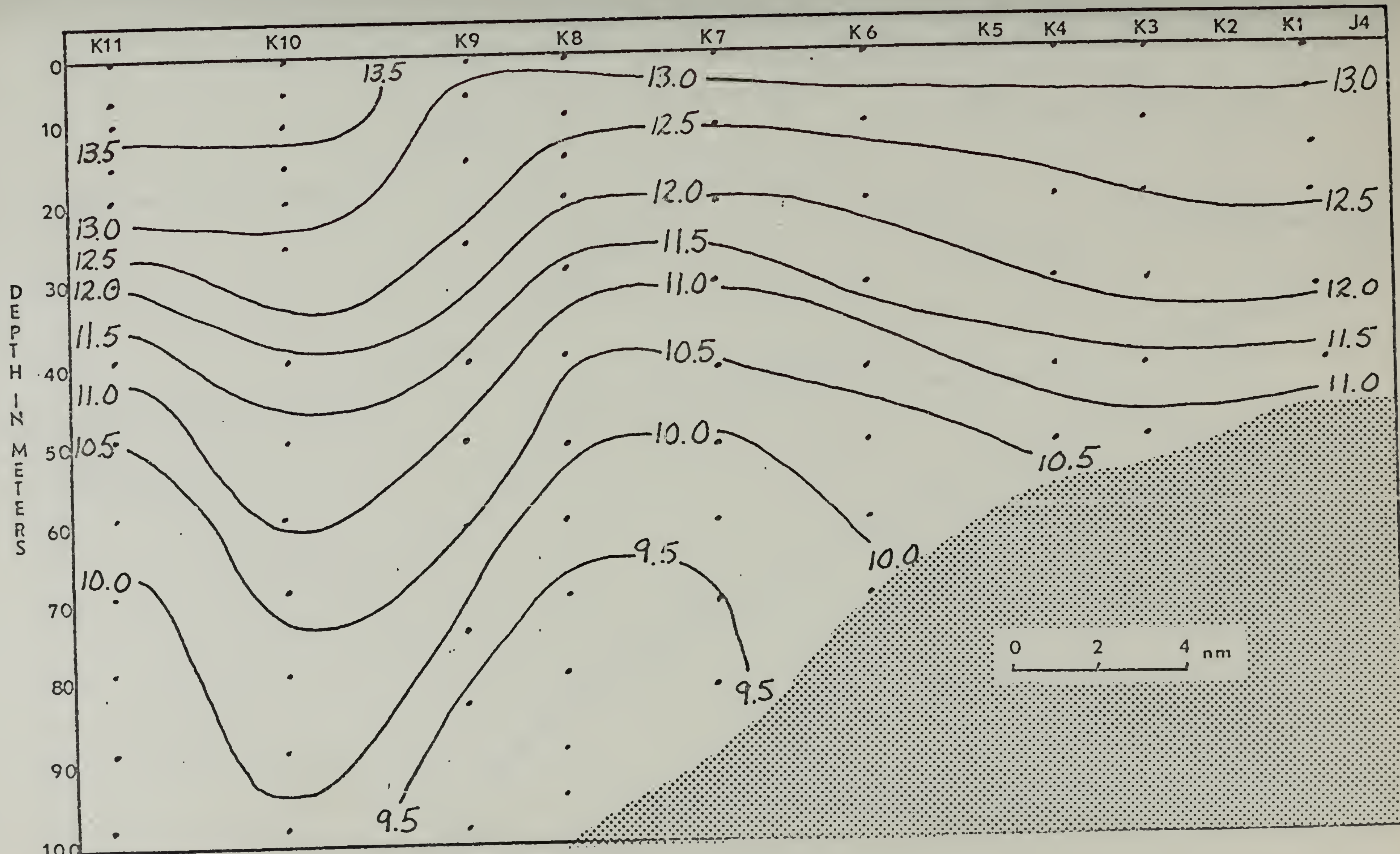


Figure 76. Profile of Temperature (°C)

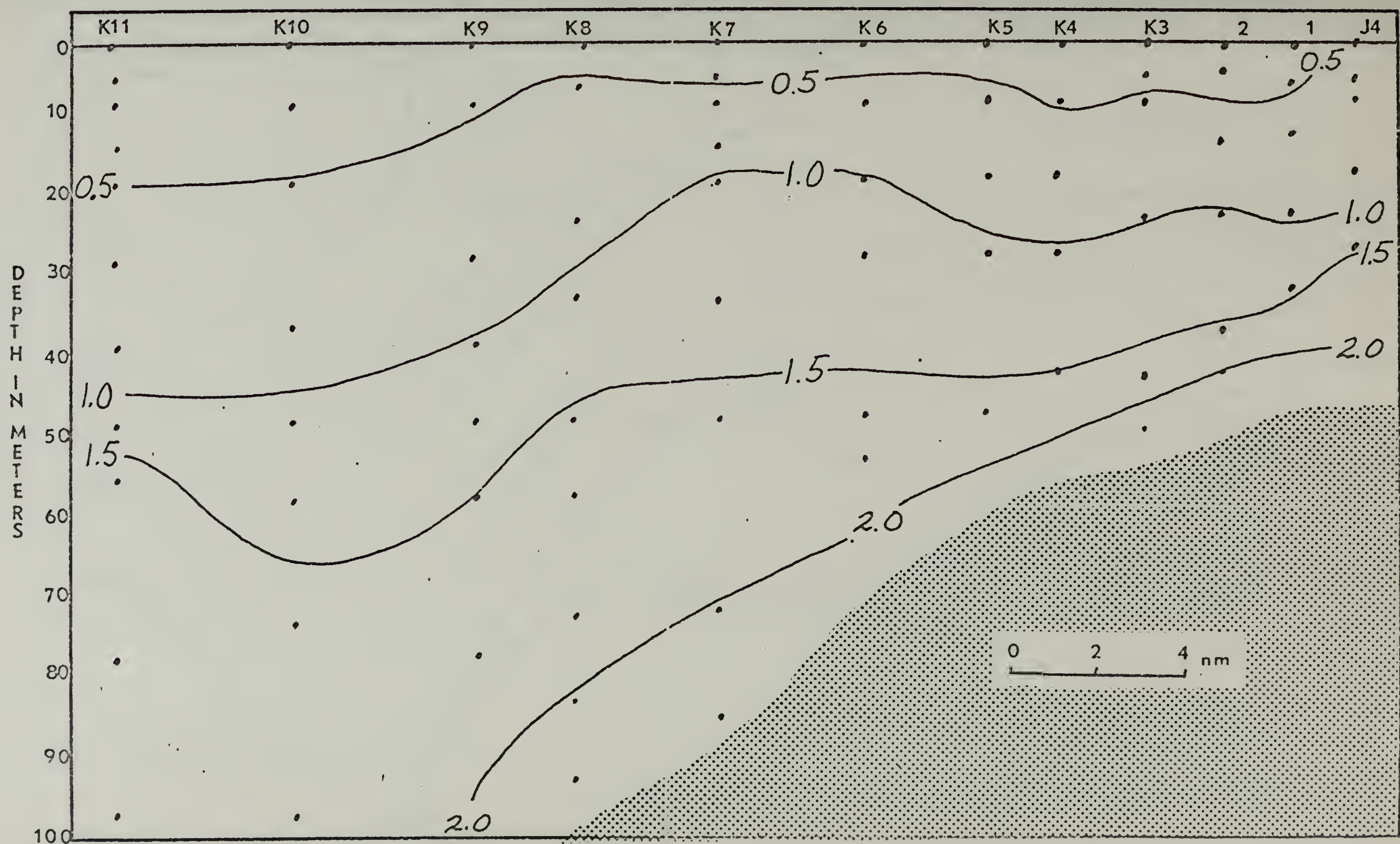


Figure 77. Profile of Phosphate (μg-at/l)

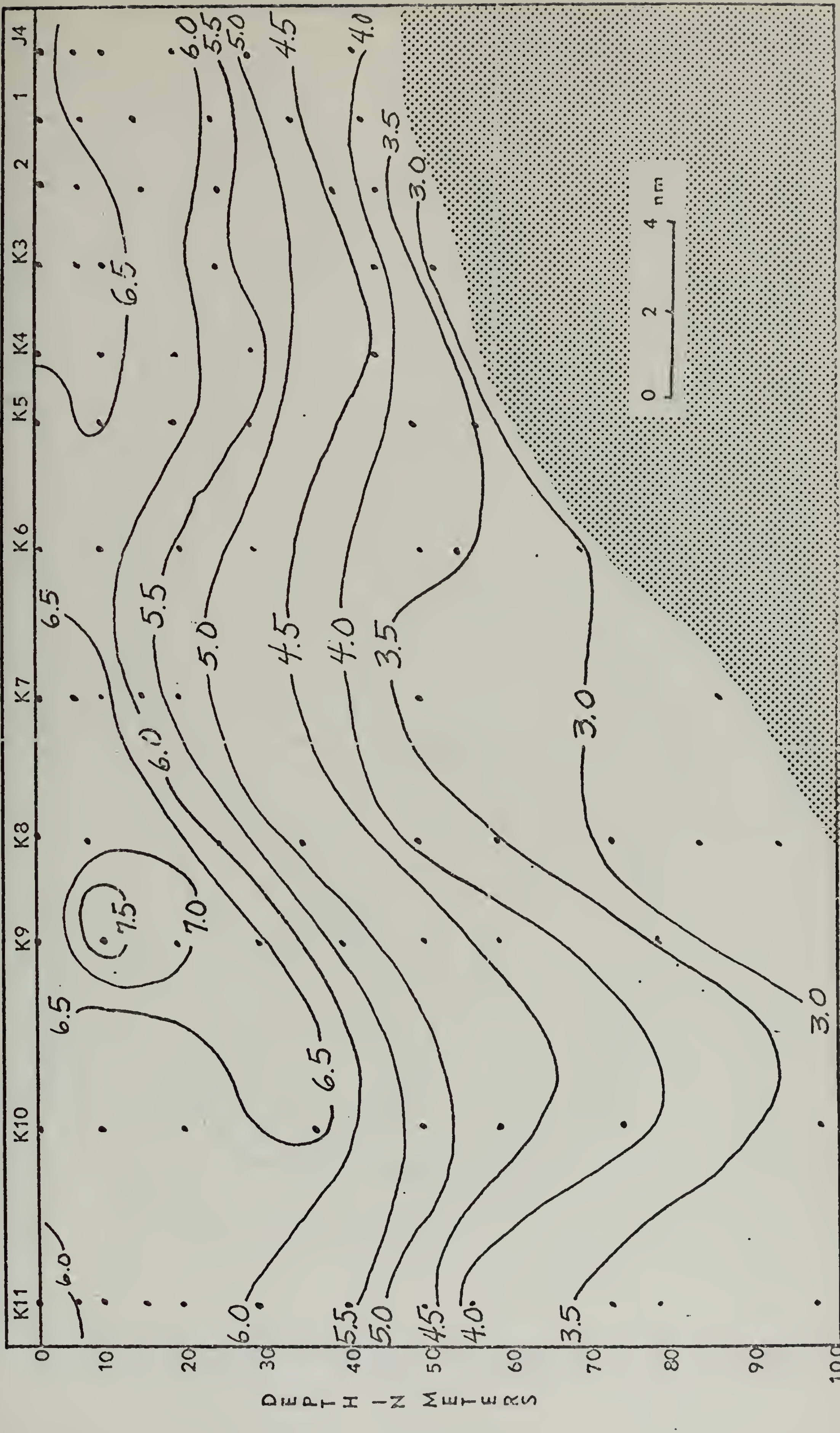


Figure 78. Profile of Oxygen (ml/1)

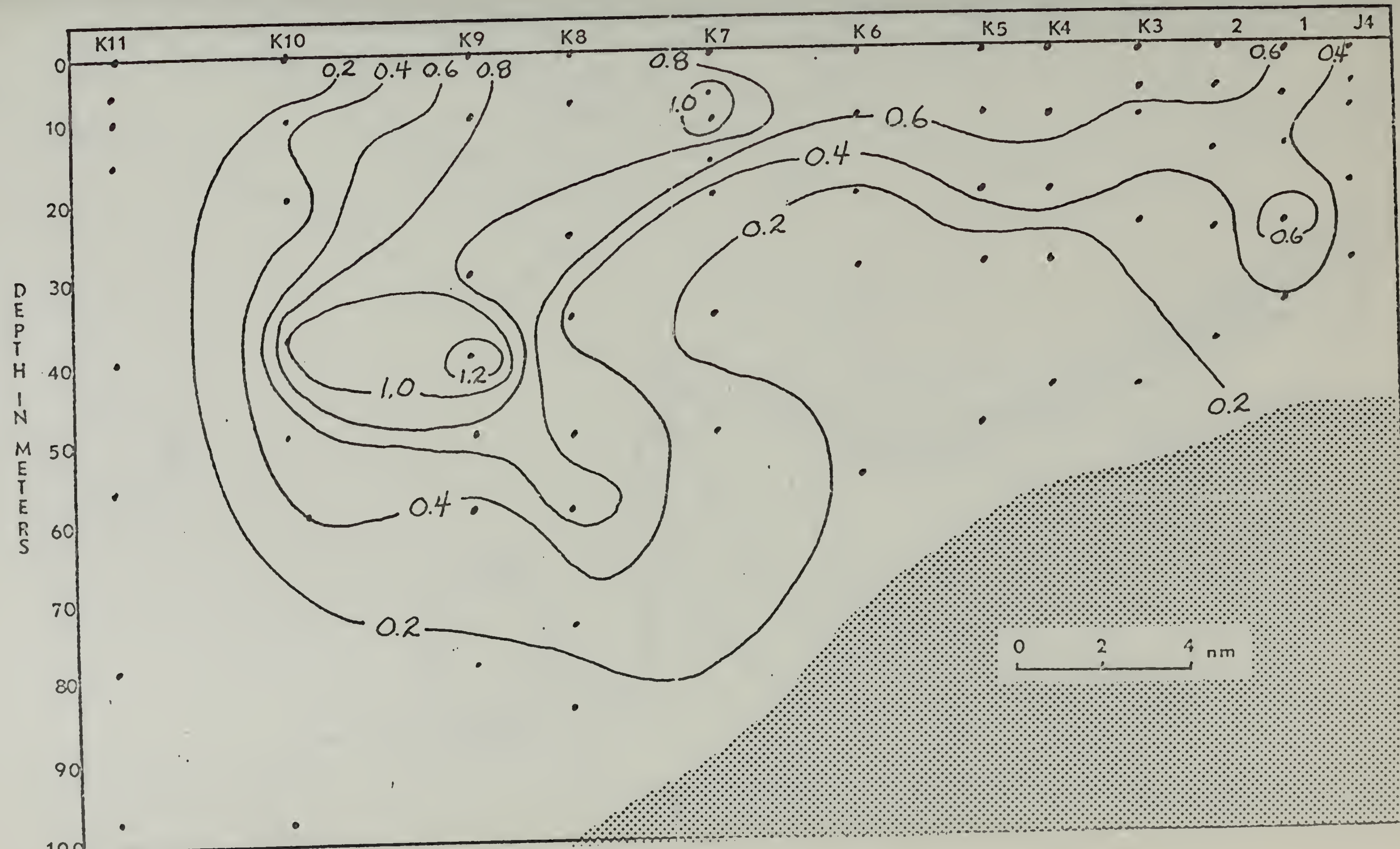


Figure 79. Profile of Chlorophyll (mg/m^3)

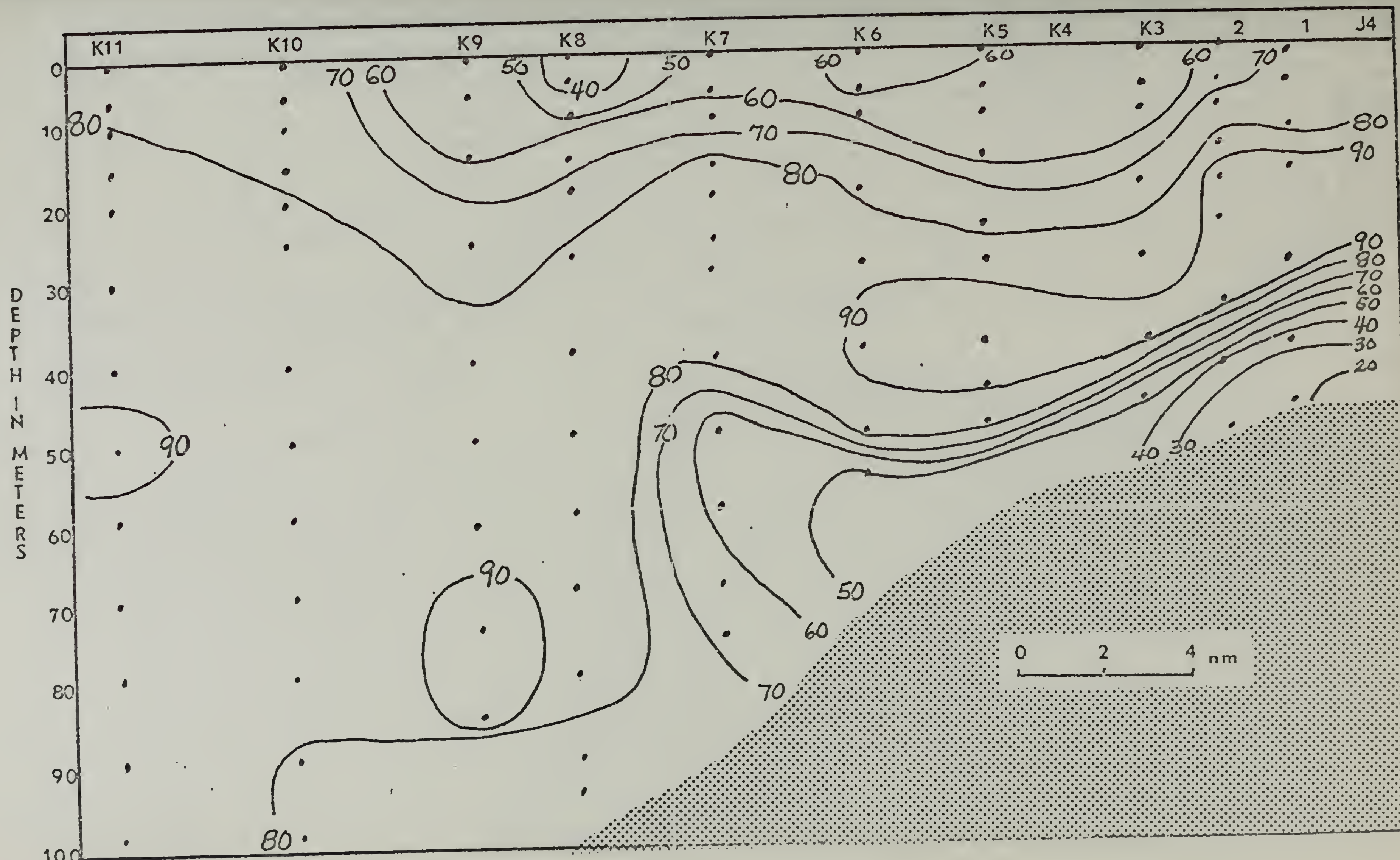


Figure 80. Profile of Beam Transmittance (%/m)

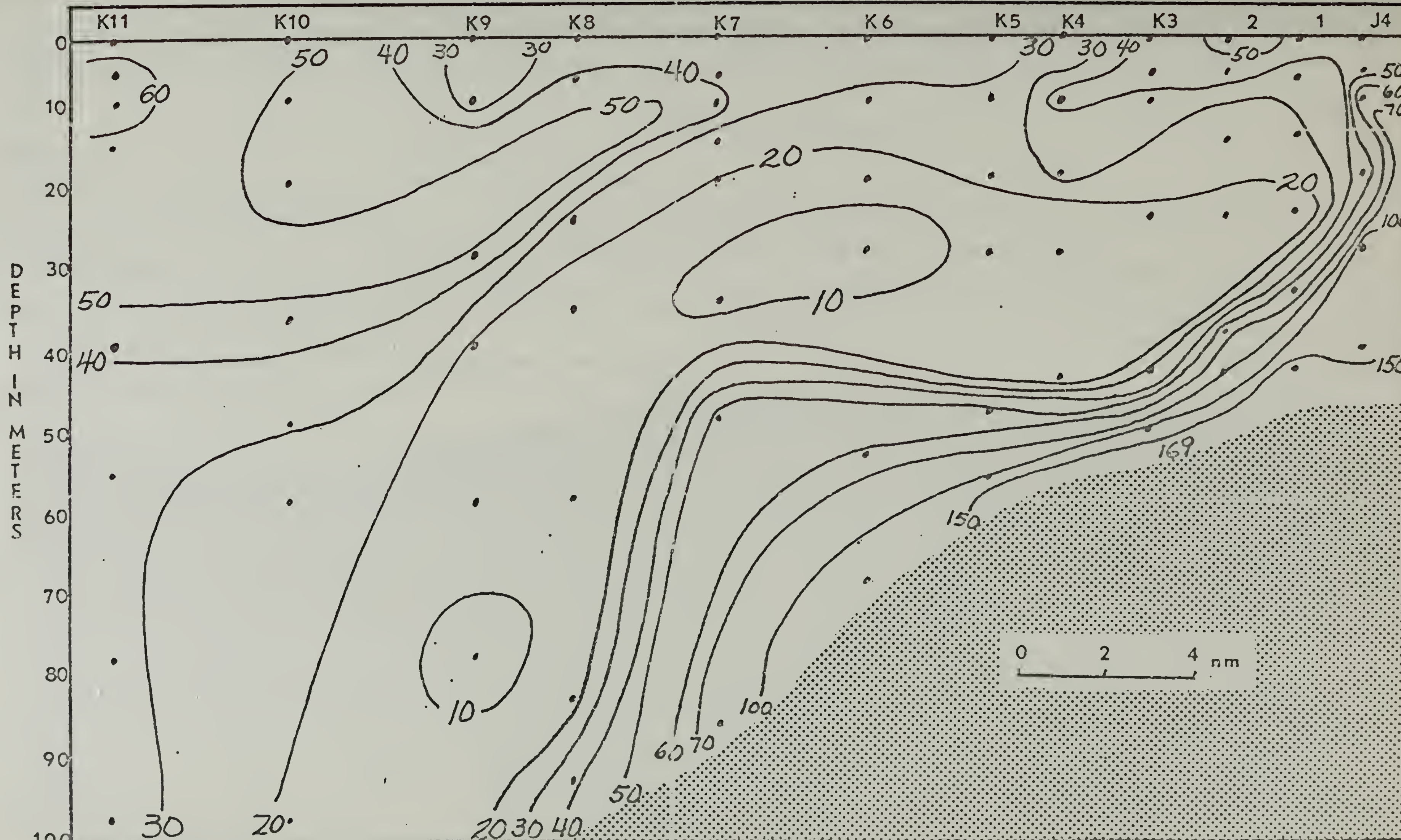


Figure 81. Profile of Total Particle Count (x 10^{-3})

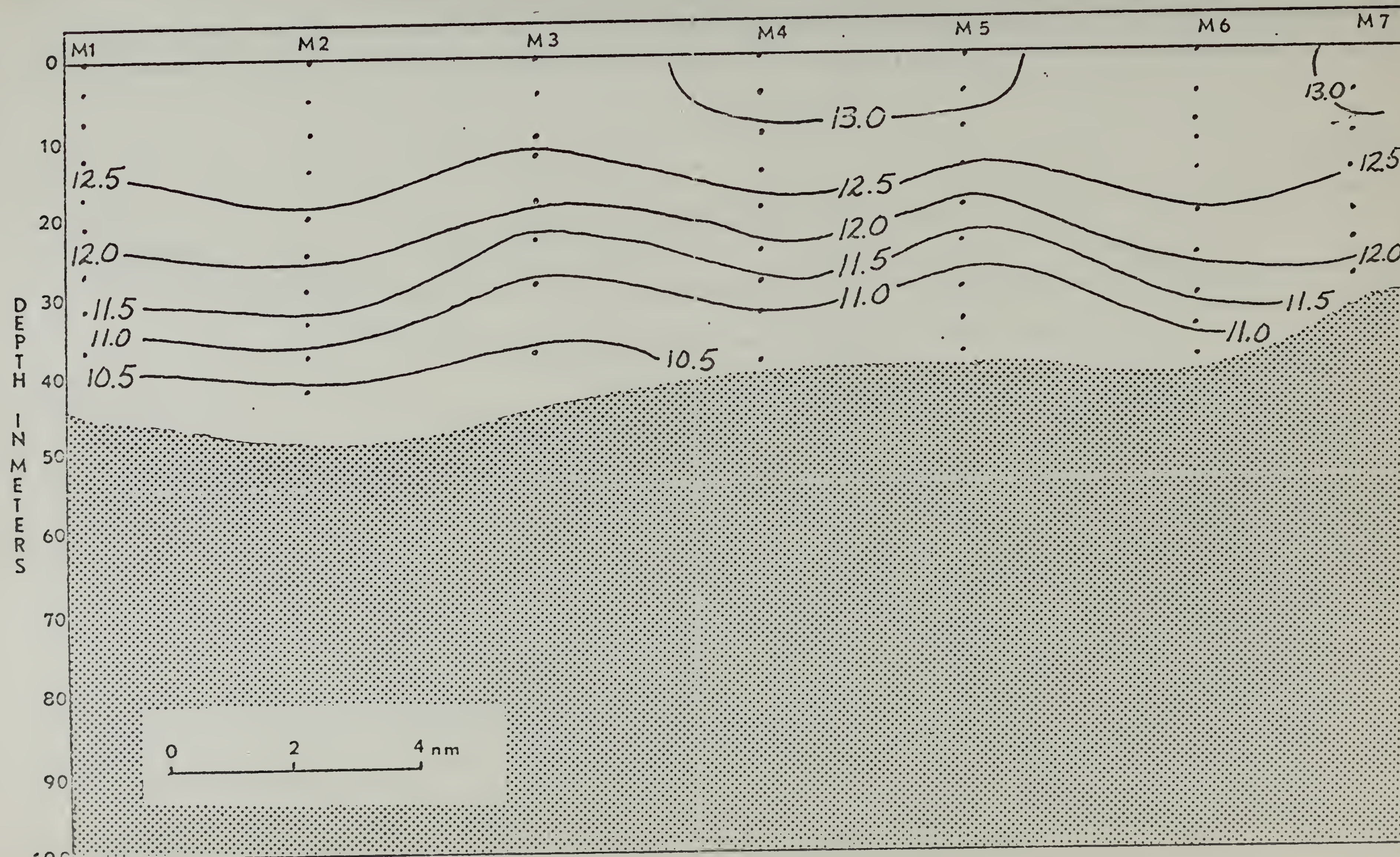


Figure 82. Profile of Temperature (°C)

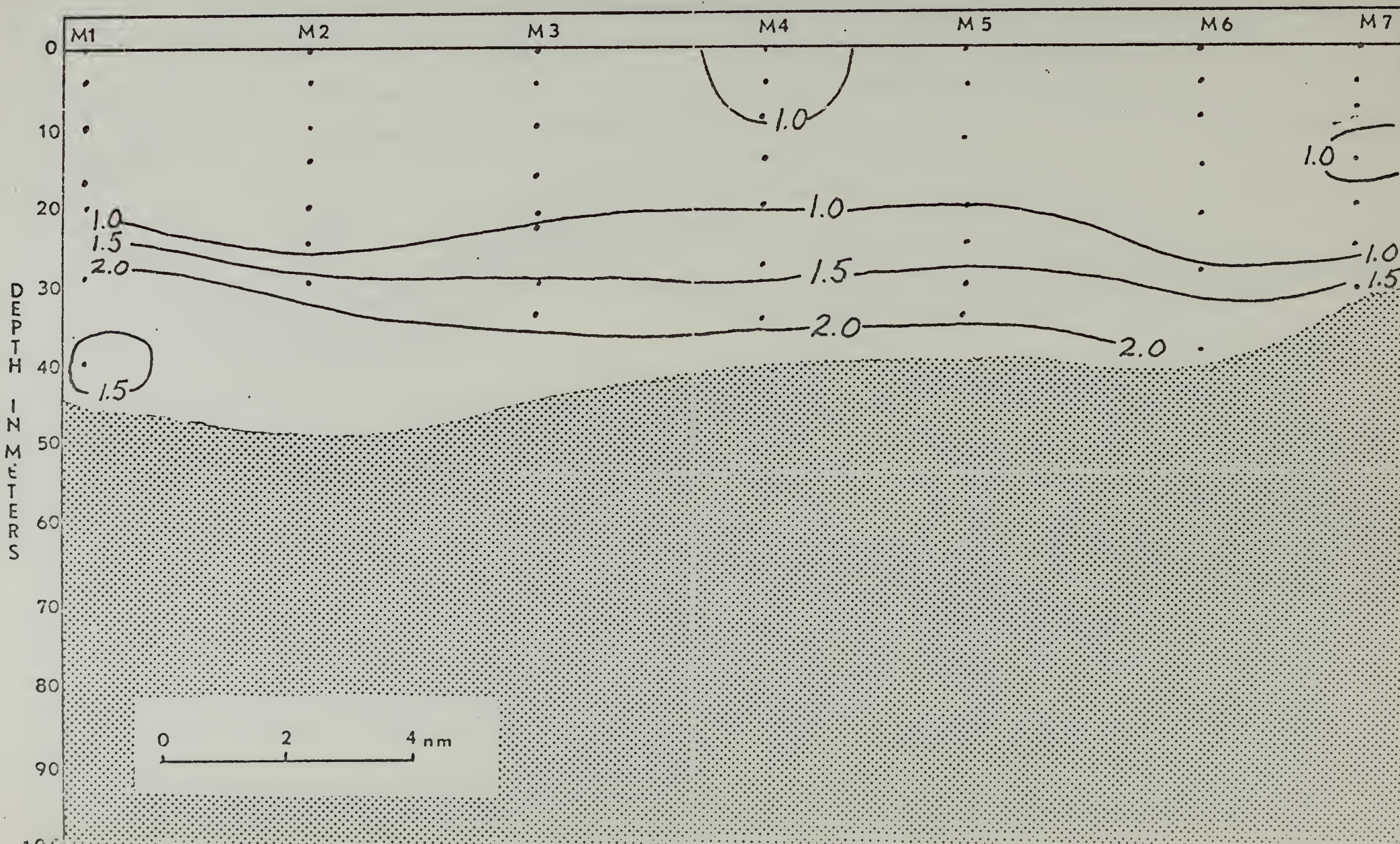


Figure 83. Profile of Phosphate (μg-at/l)

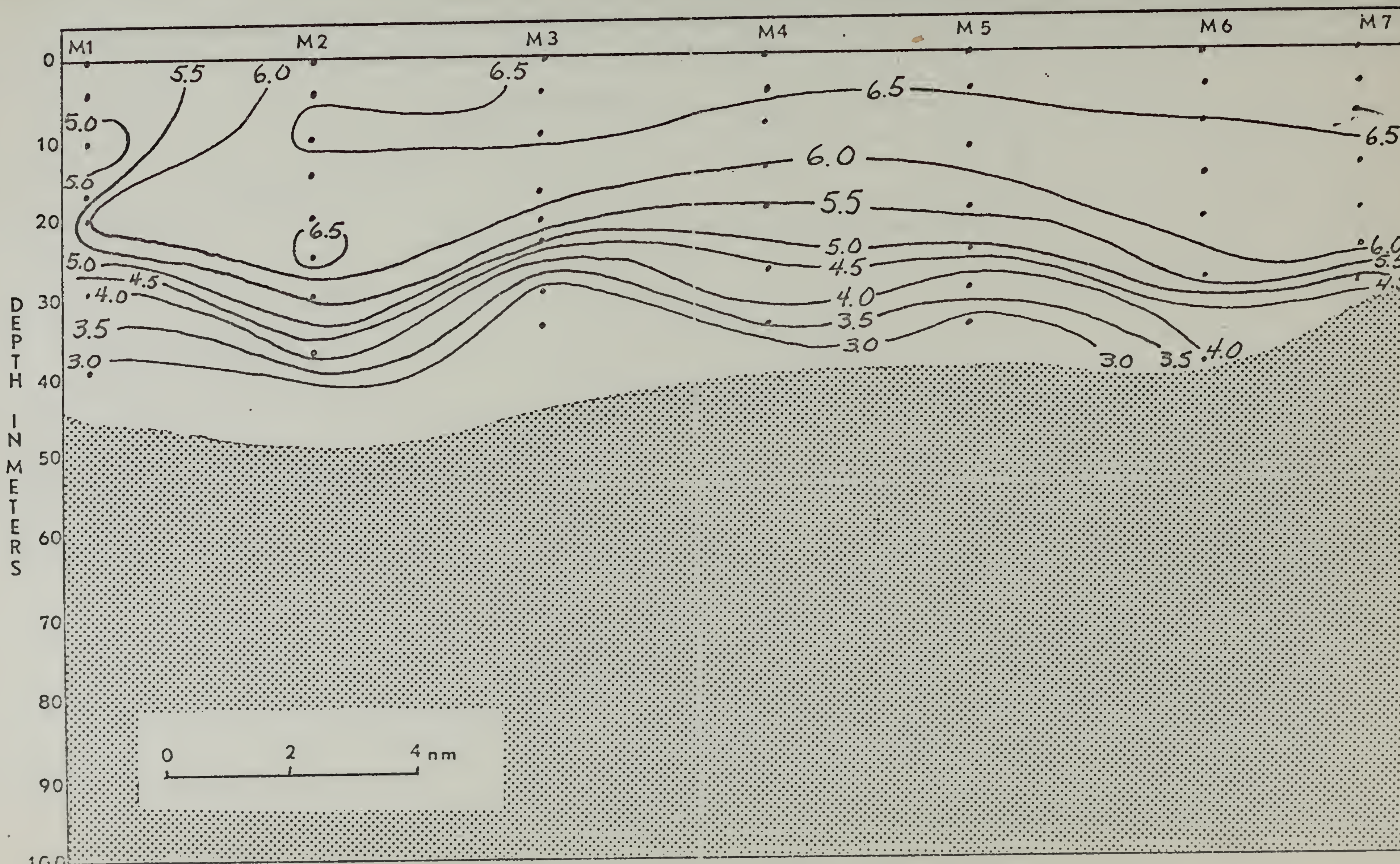


Figure 84. Profile of Oxygen (ml.1)

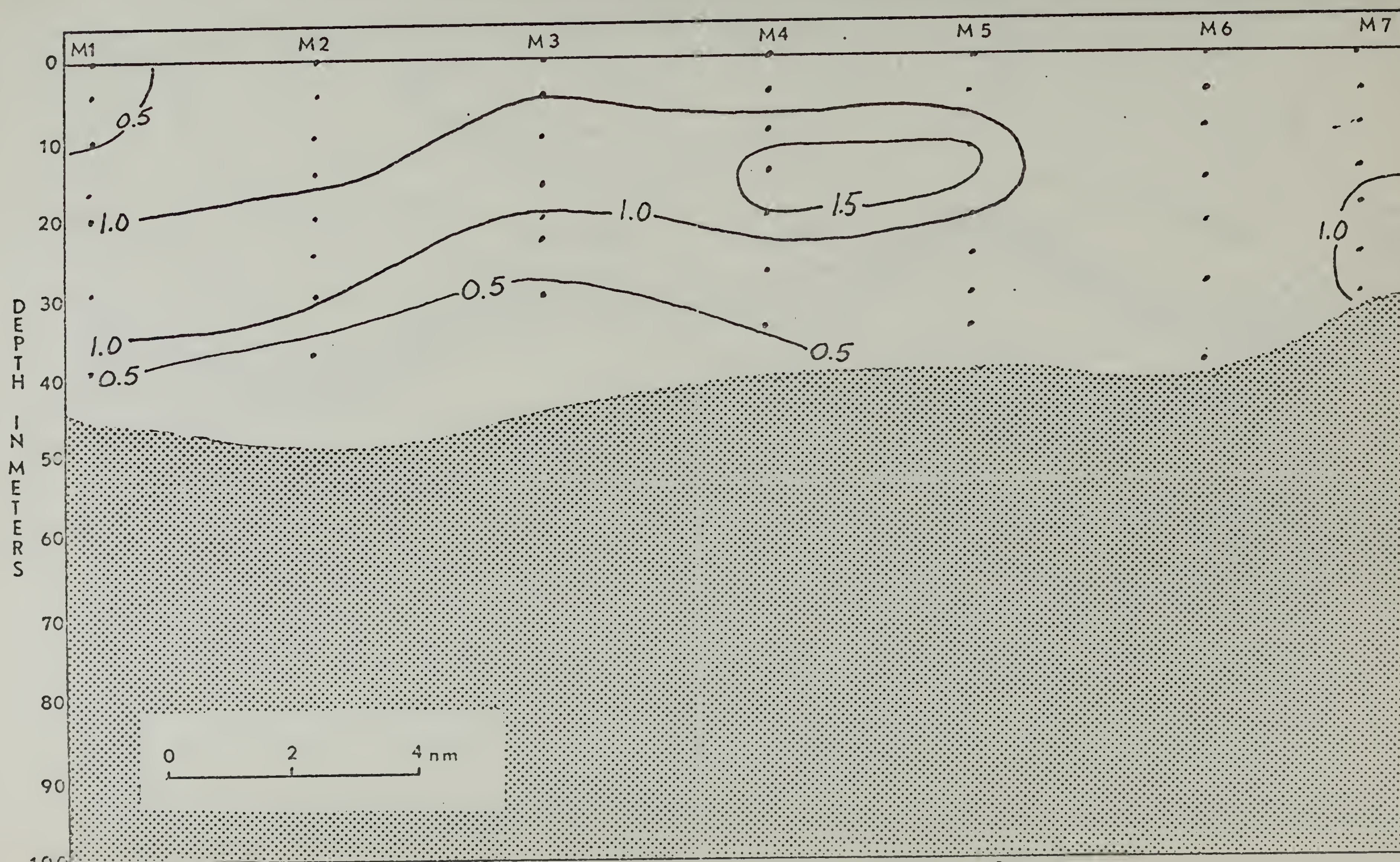


Figure 85. Profile of Chlorophyll ($mg\text{-}m^3$)

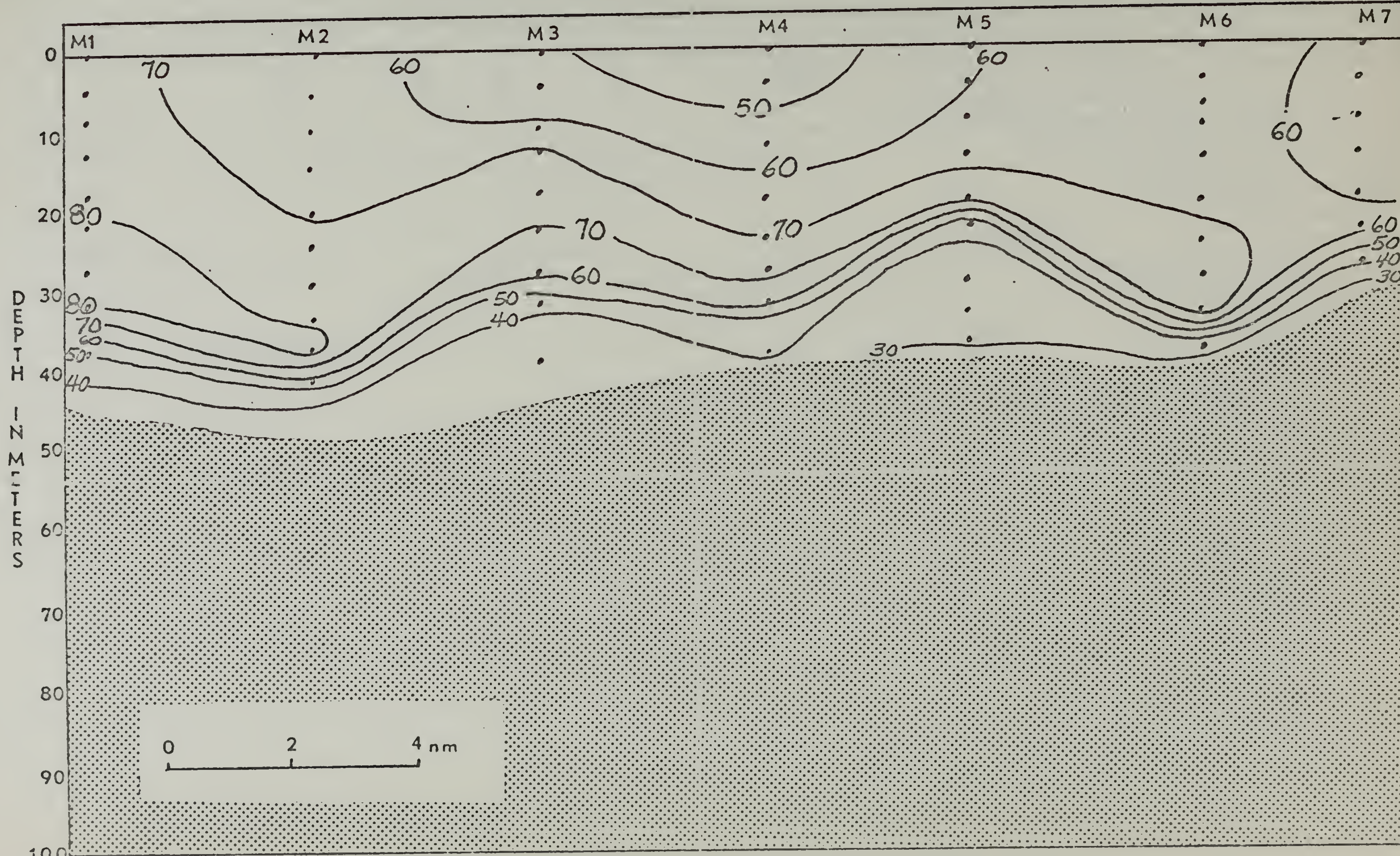


Figure 86. Profile of Beam Transmittance (%/m)

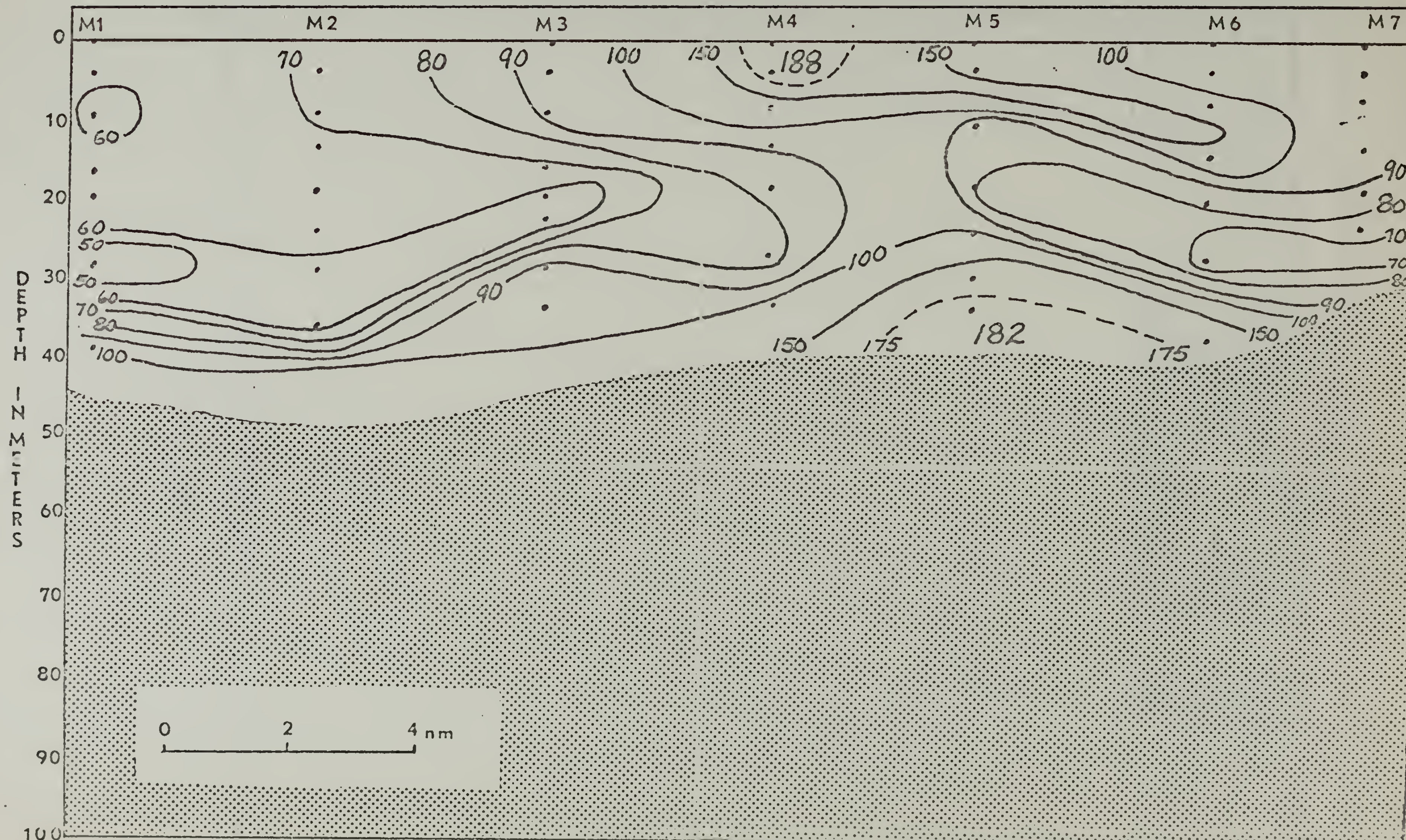
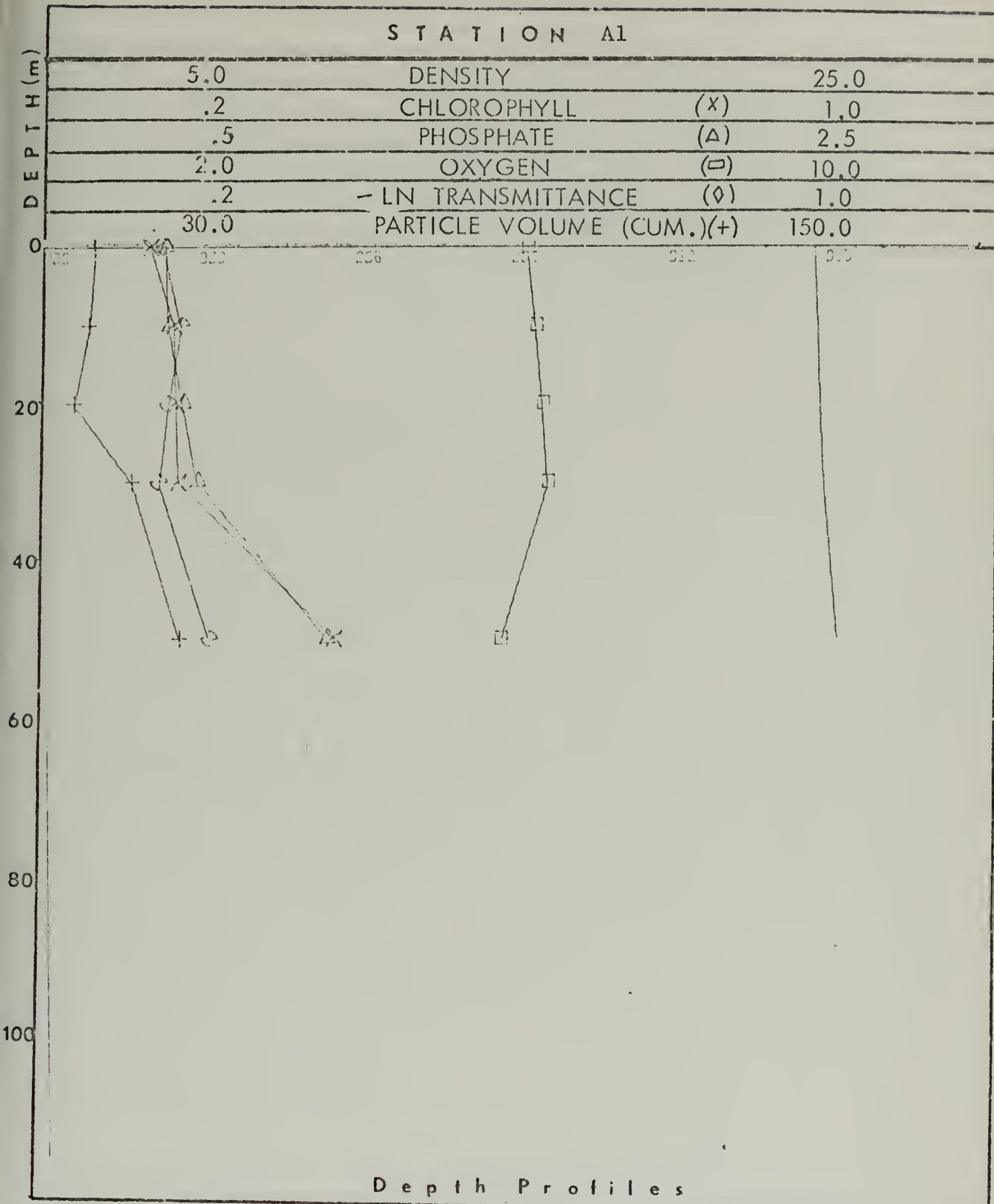


Figure 87. Profile of Total Particle Count (x 10^{-3})



STATION A1
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 88

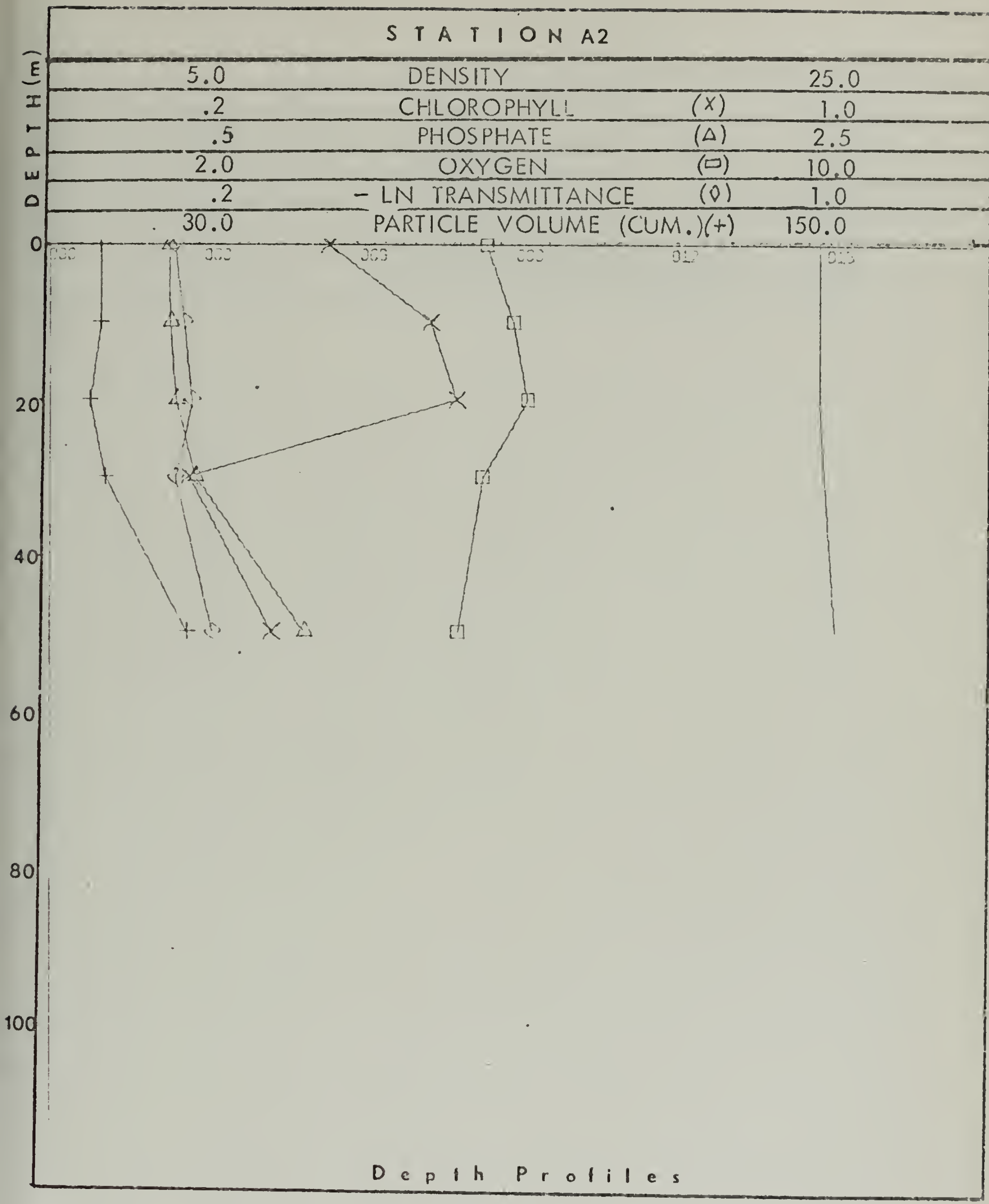

STATION A2
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 89

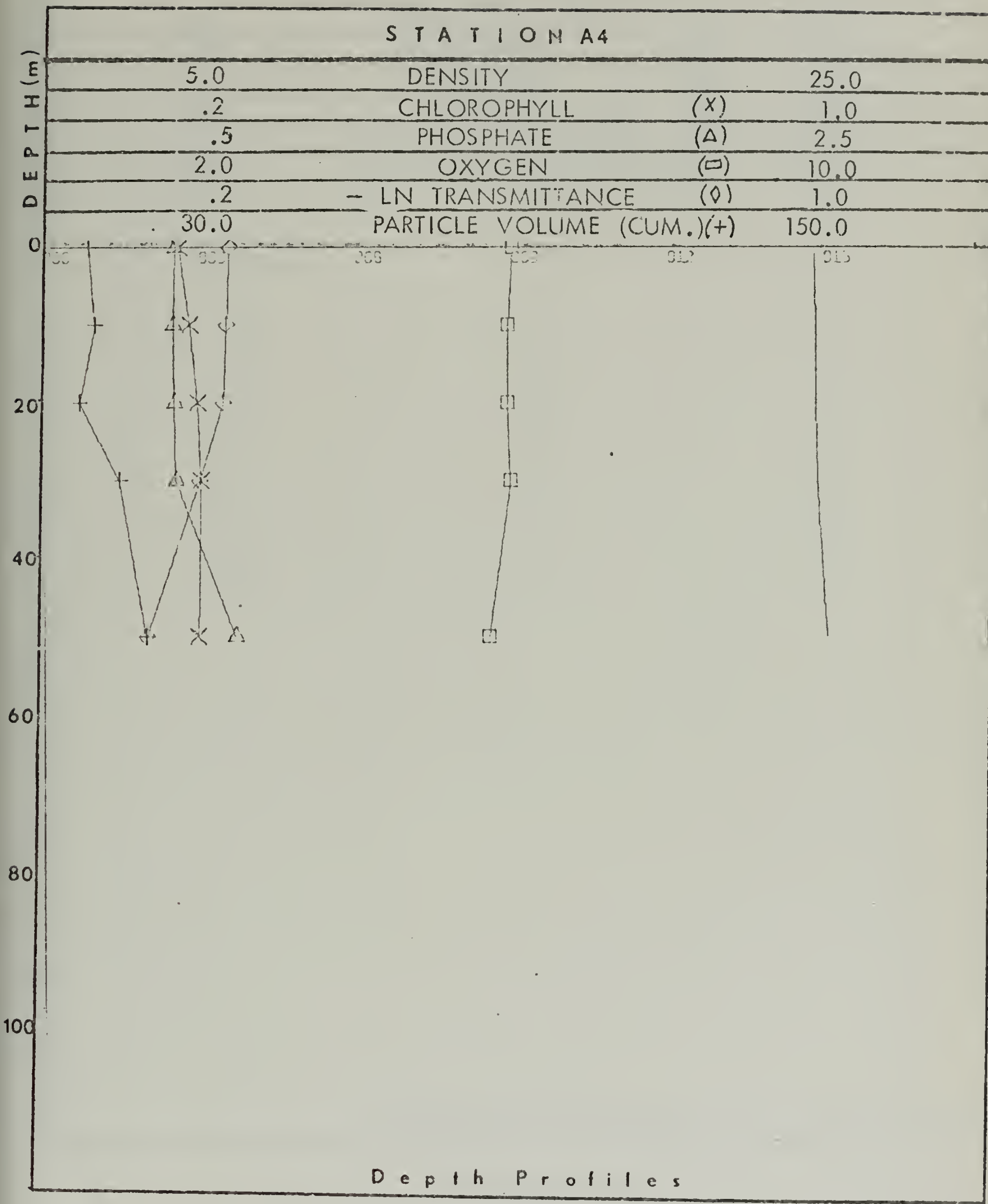
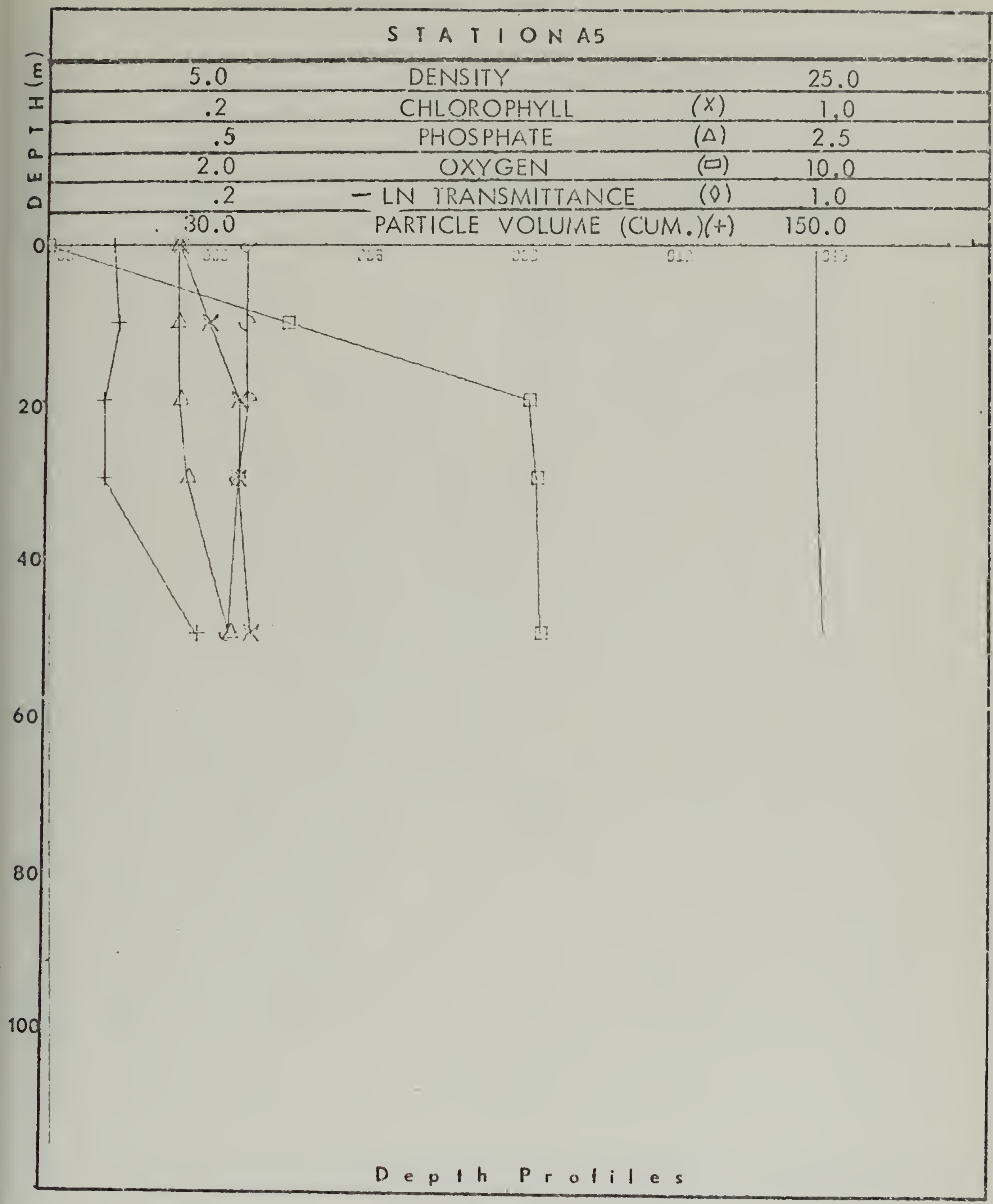

STATION A4
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 90



STATION A5
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 91

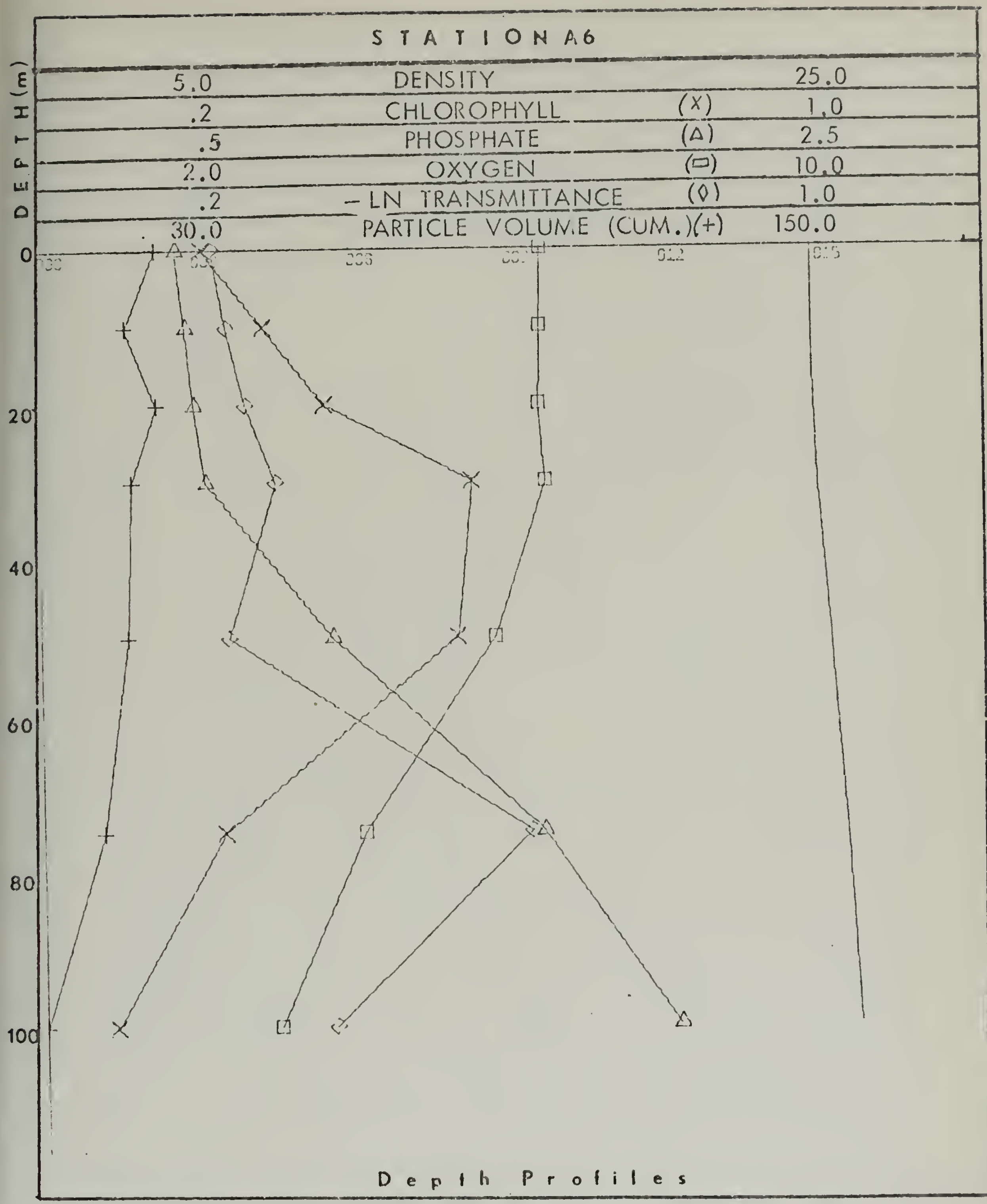
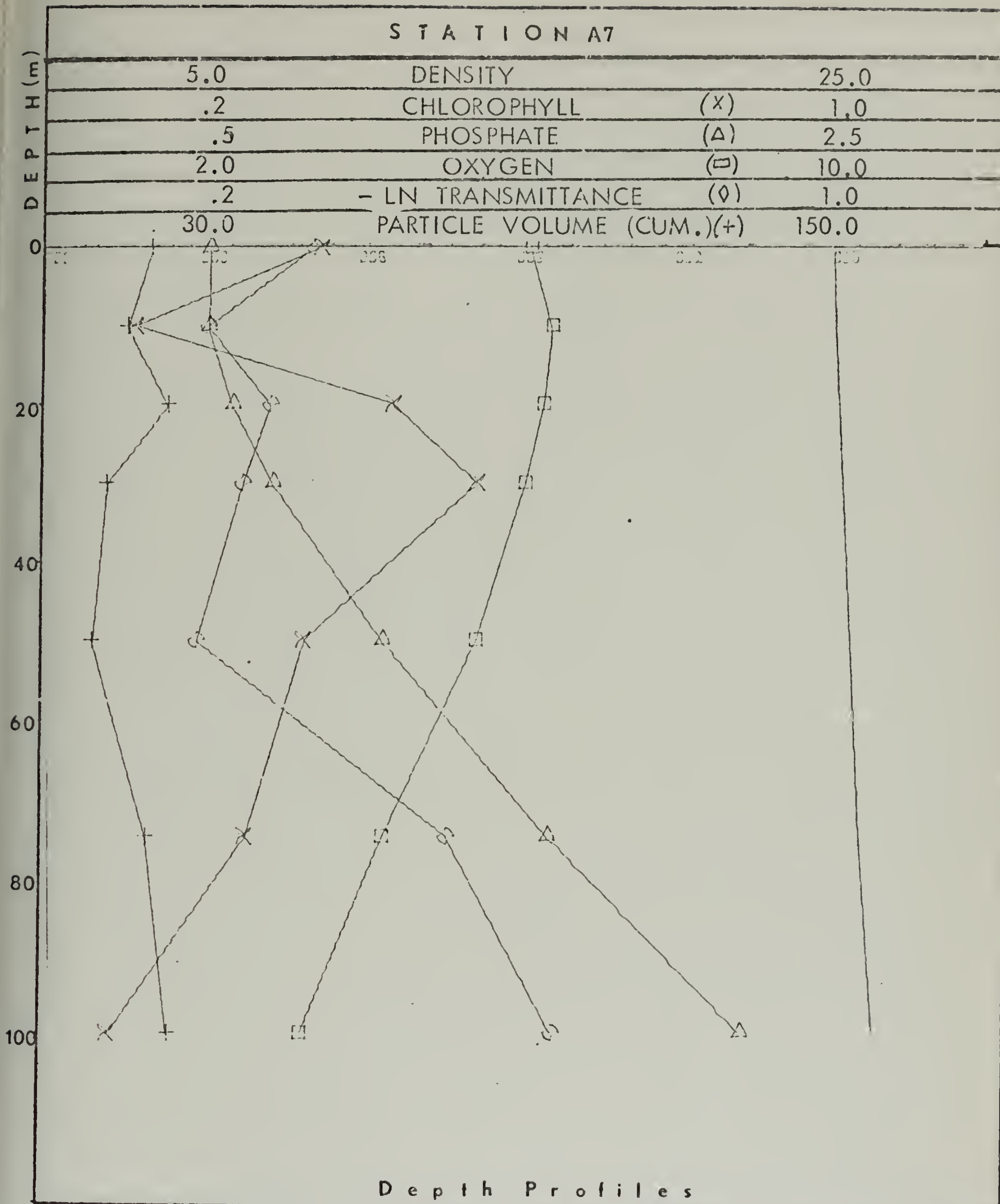

STATION A6
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 92



STATION A7
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 - LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 93

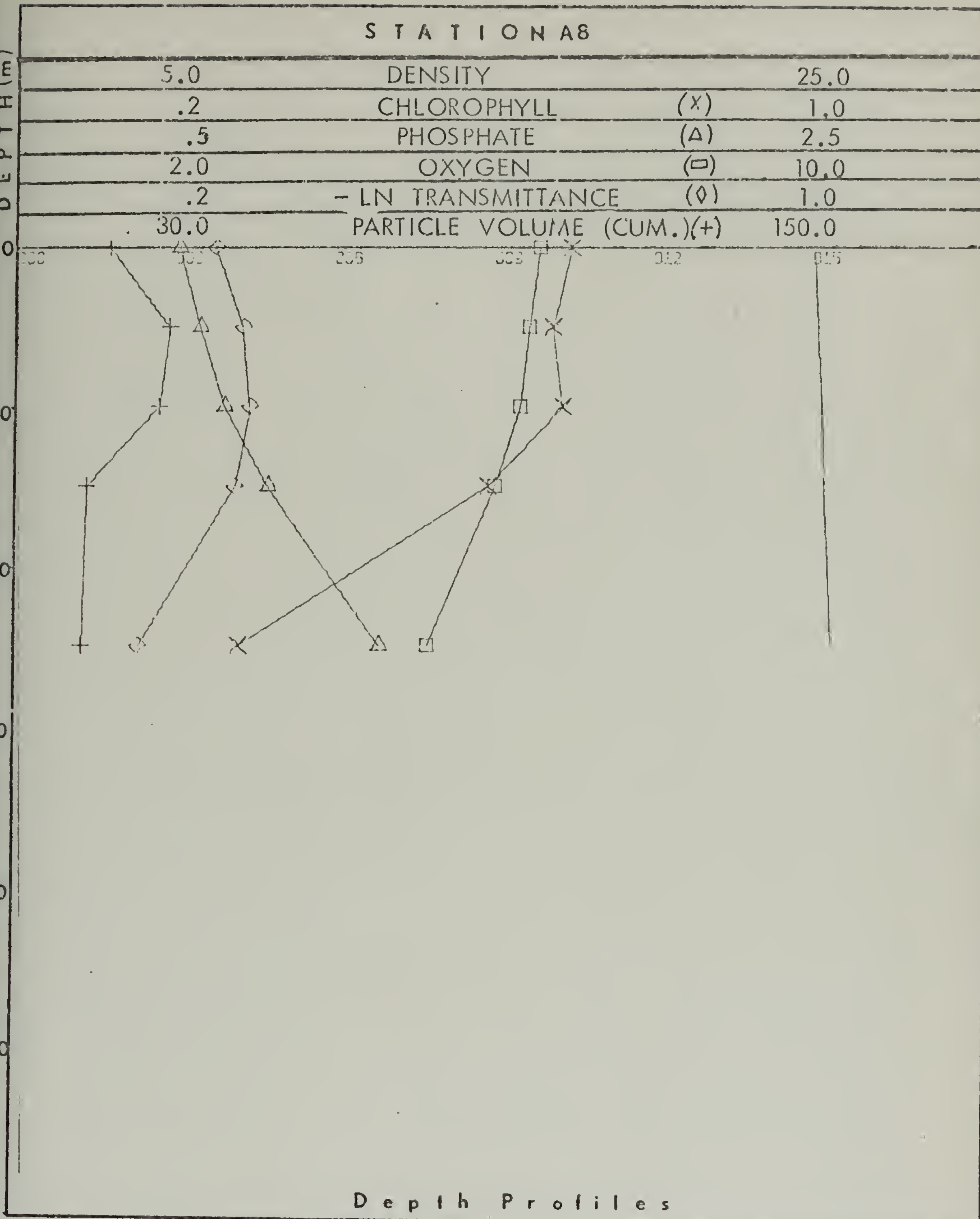

STATION A8
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 94

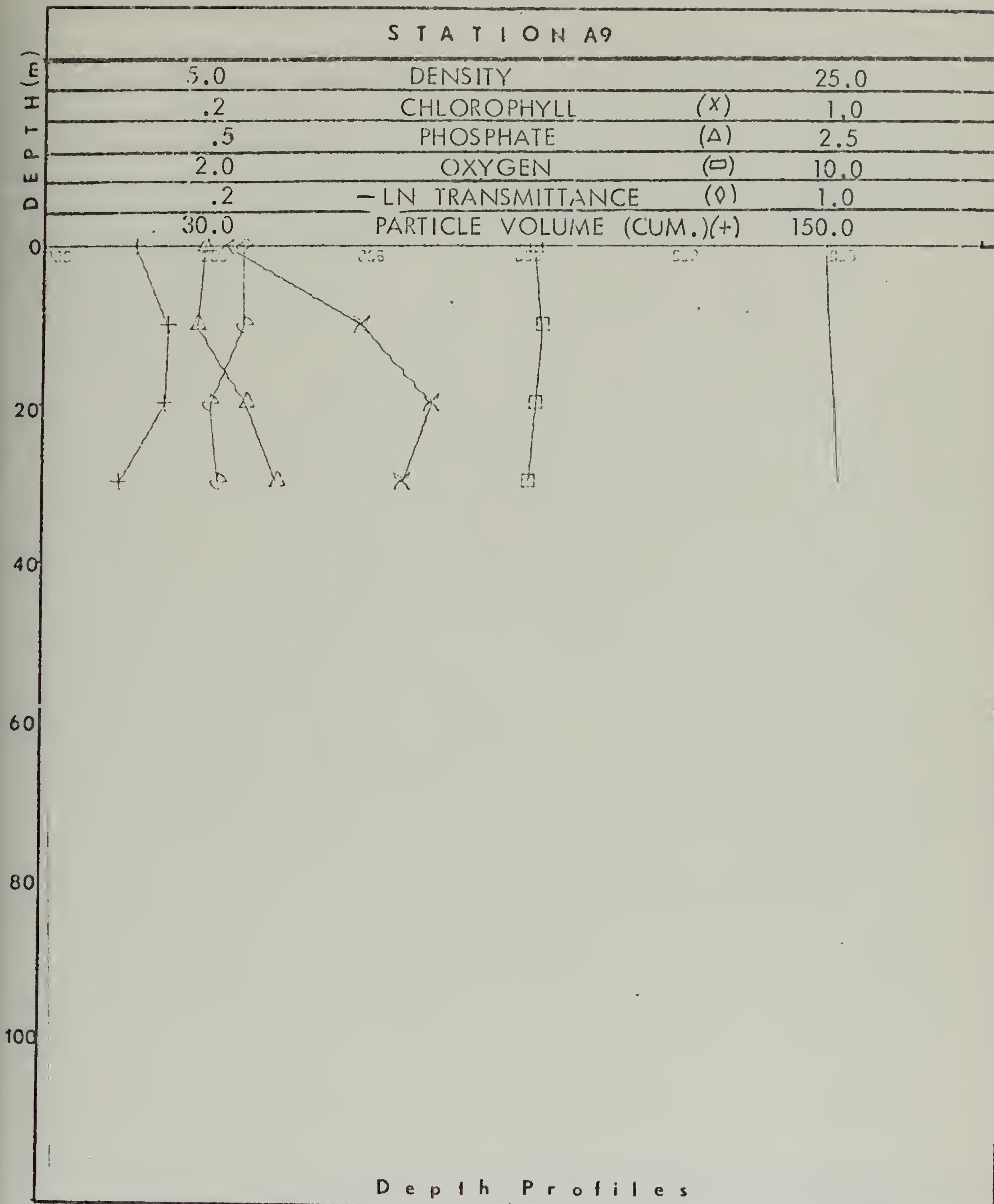
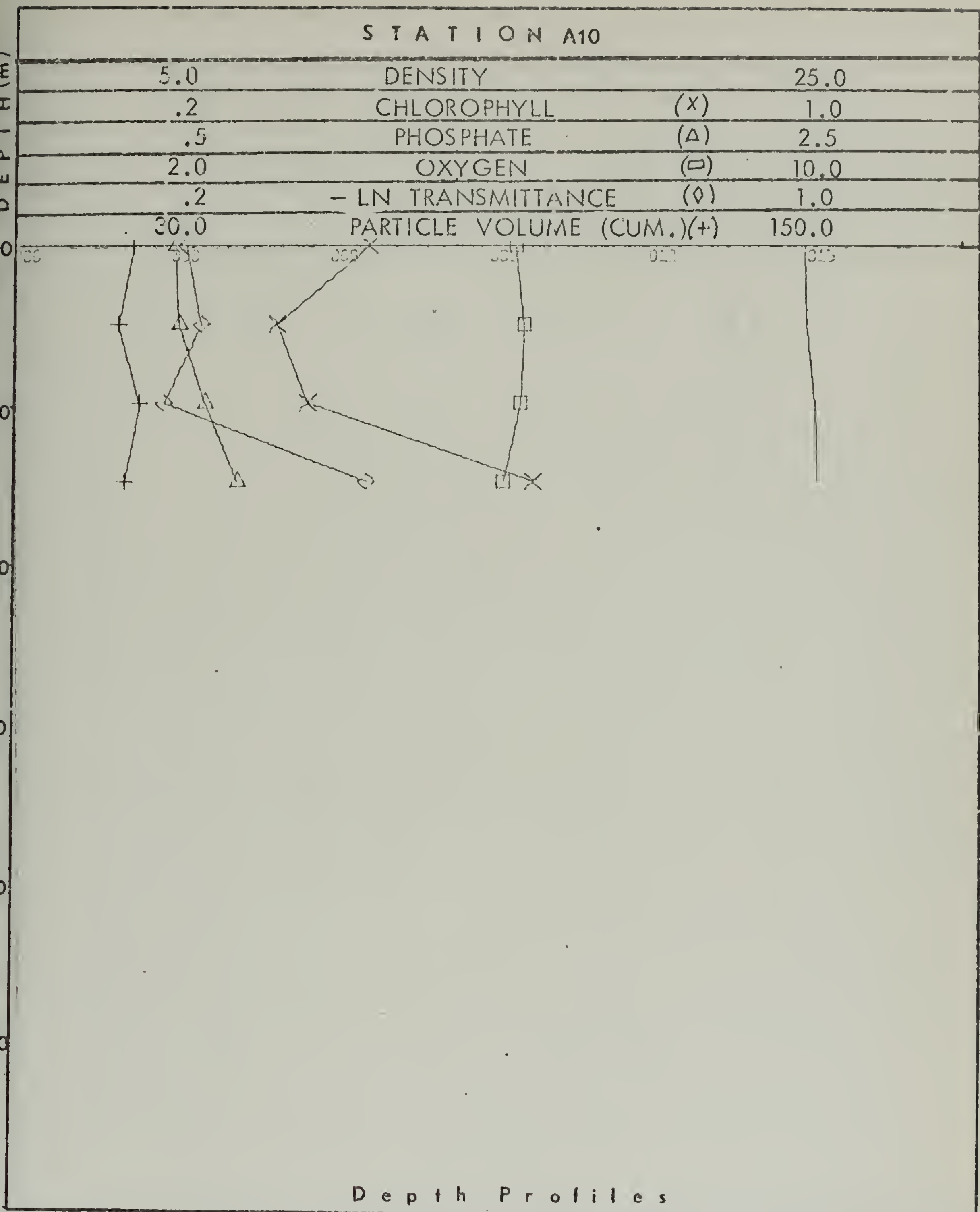

STATION A9
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 95


S T A T I O N A10
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 – LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
D e p t h P r o f i l e s

F I G U R E 96

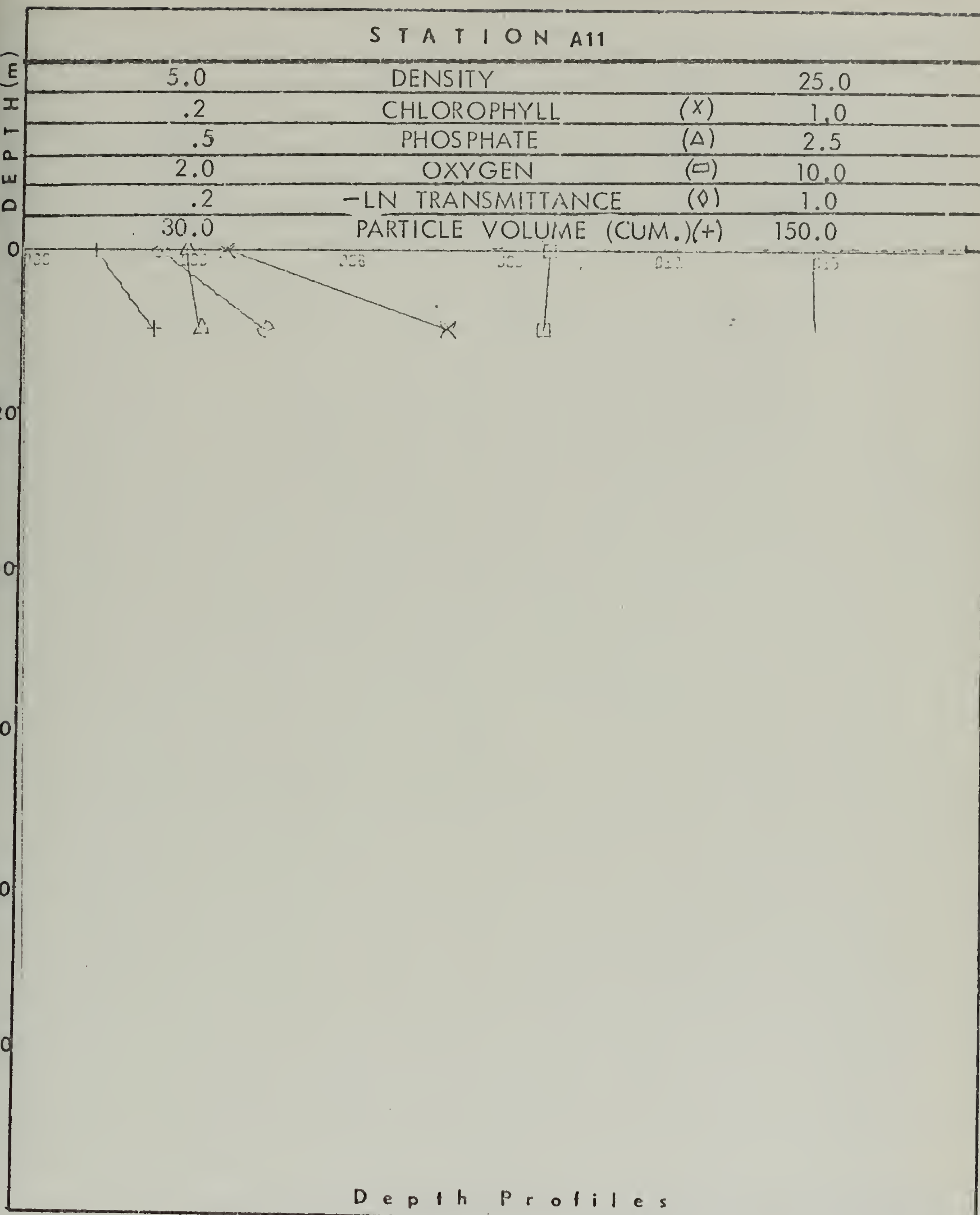

STATION A11
DEPTH (m)
5.0
DENSITY
25.0
.2
CHLOROPHYLL
(X)
1.0
.5
PHOSPHATE
(Δ)
2.5
2.0
OXYGEN
(▭)
10.0
.2
−LN TRANSMITTANCE
(◊)
1.0
30.0
PARTICLE VOLUME (CUM.)(+)
150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 97

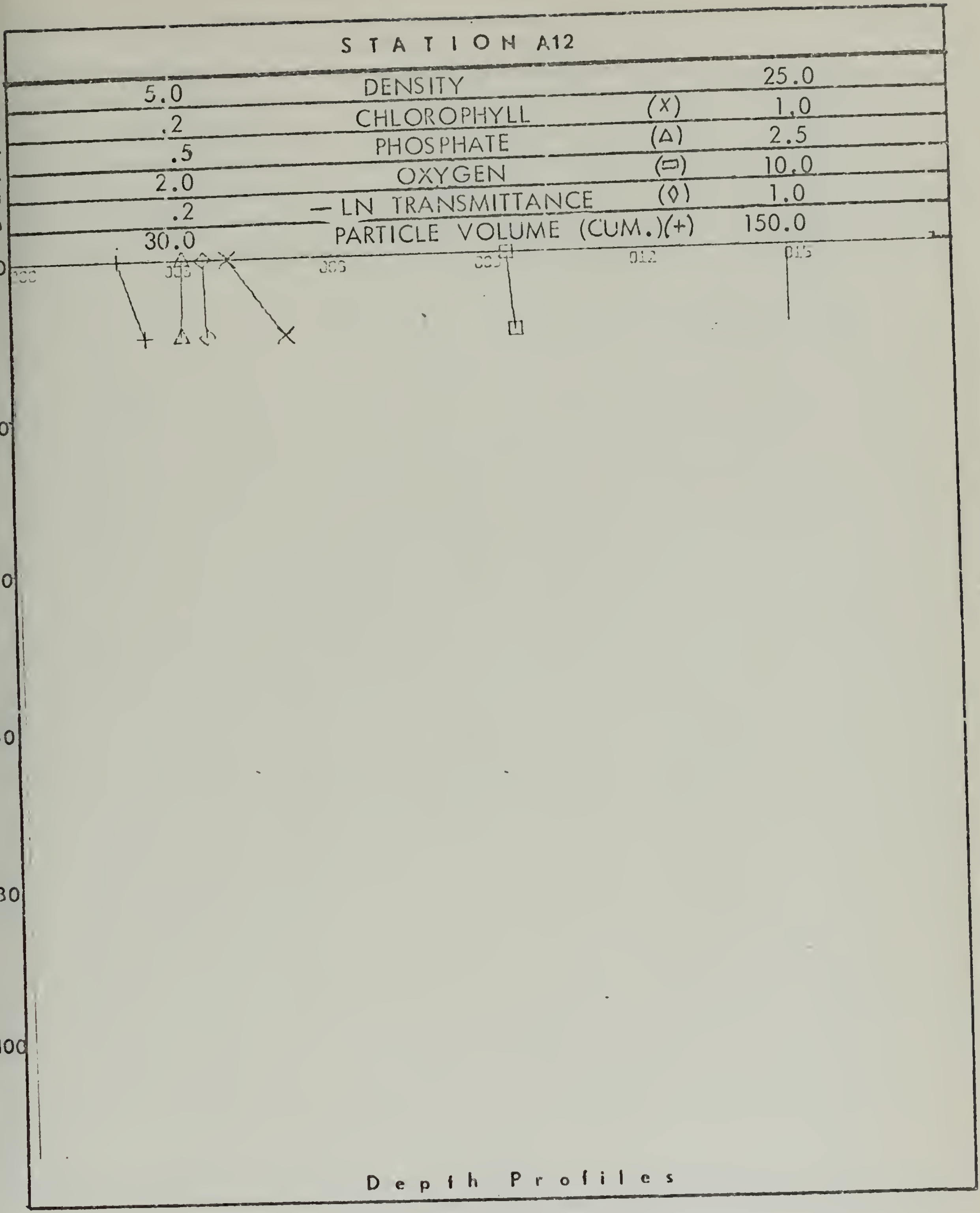
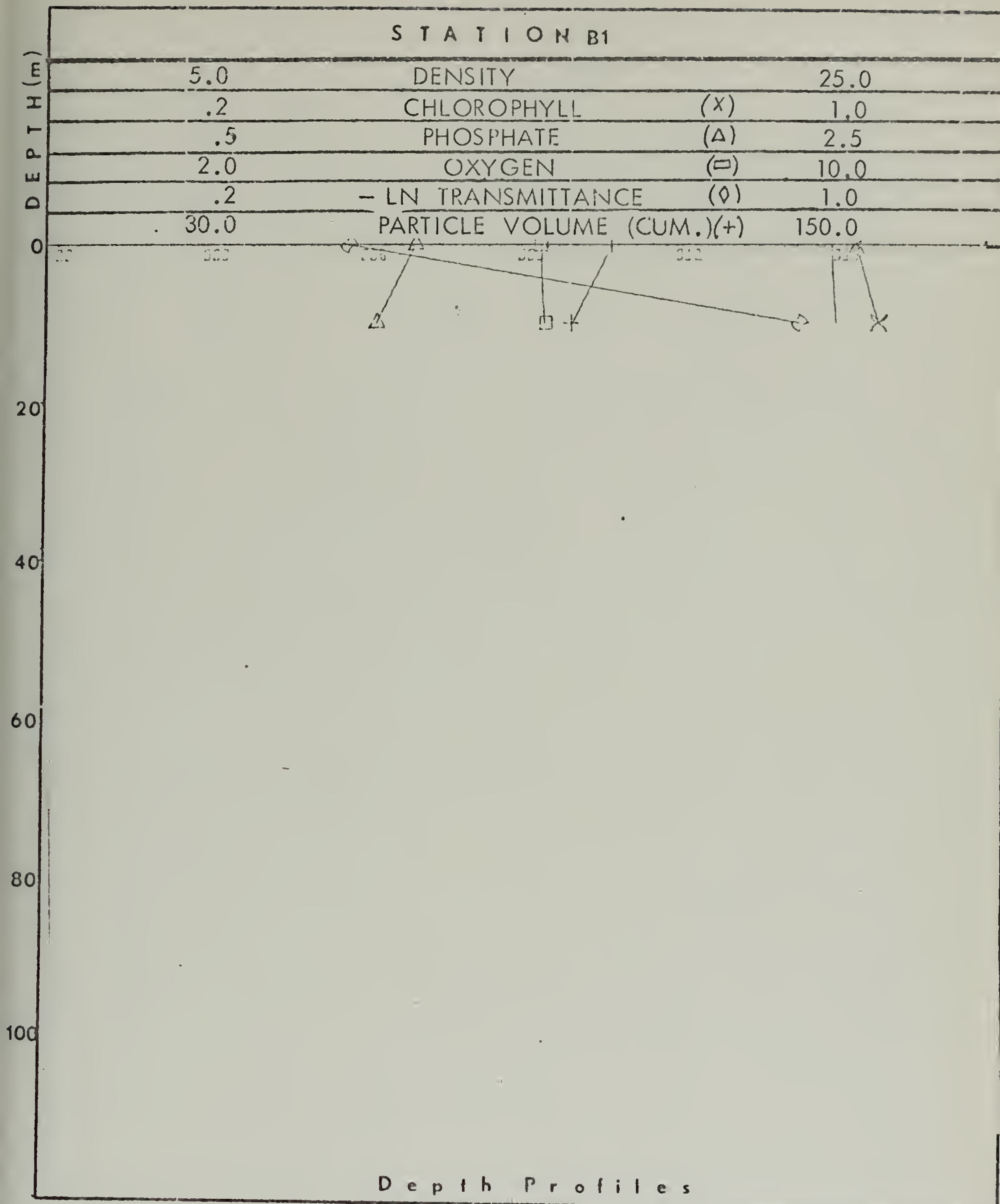

STATION A12
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 — LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 98



STATION B1
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 99

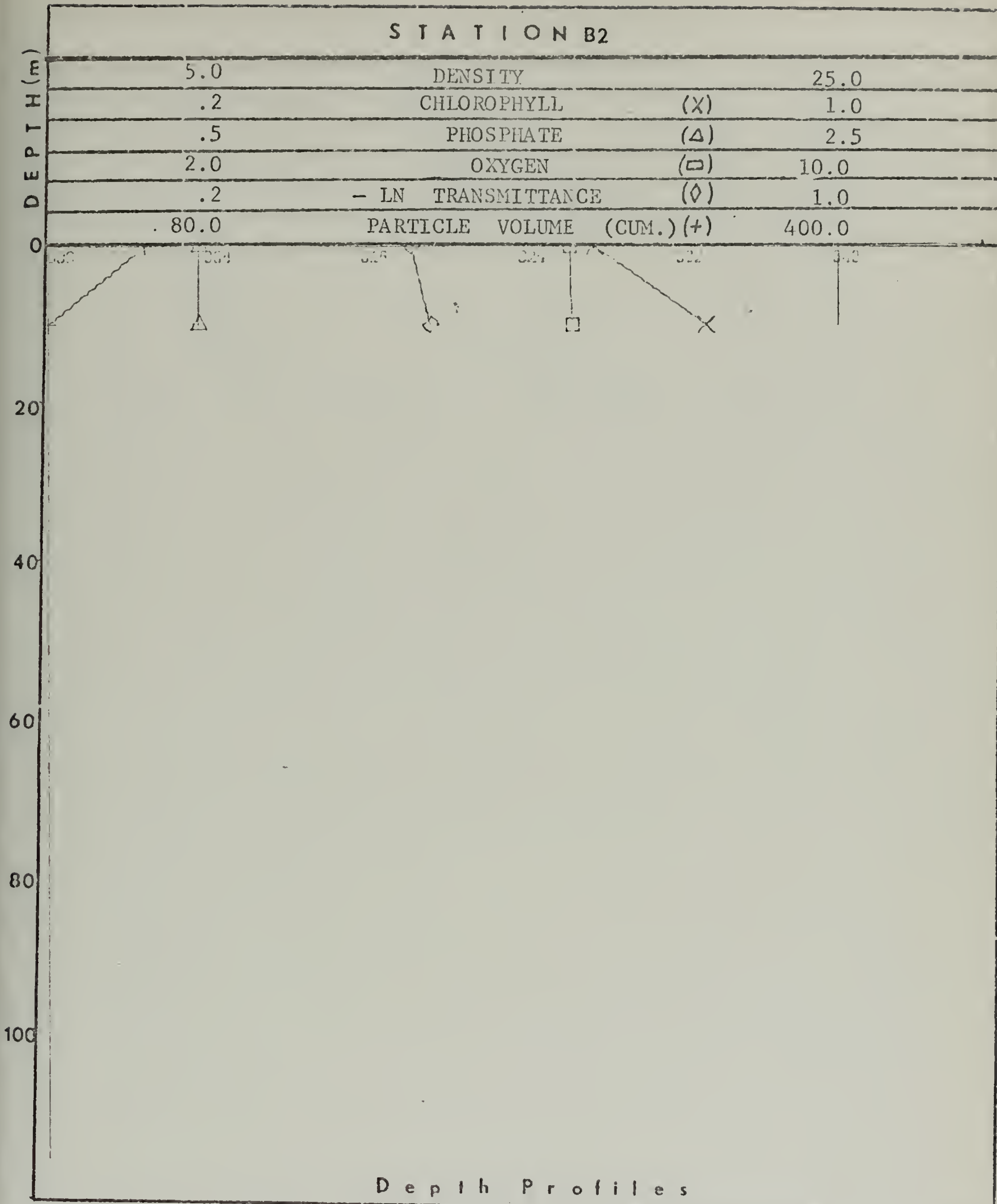

STATION B2
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 – LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 100

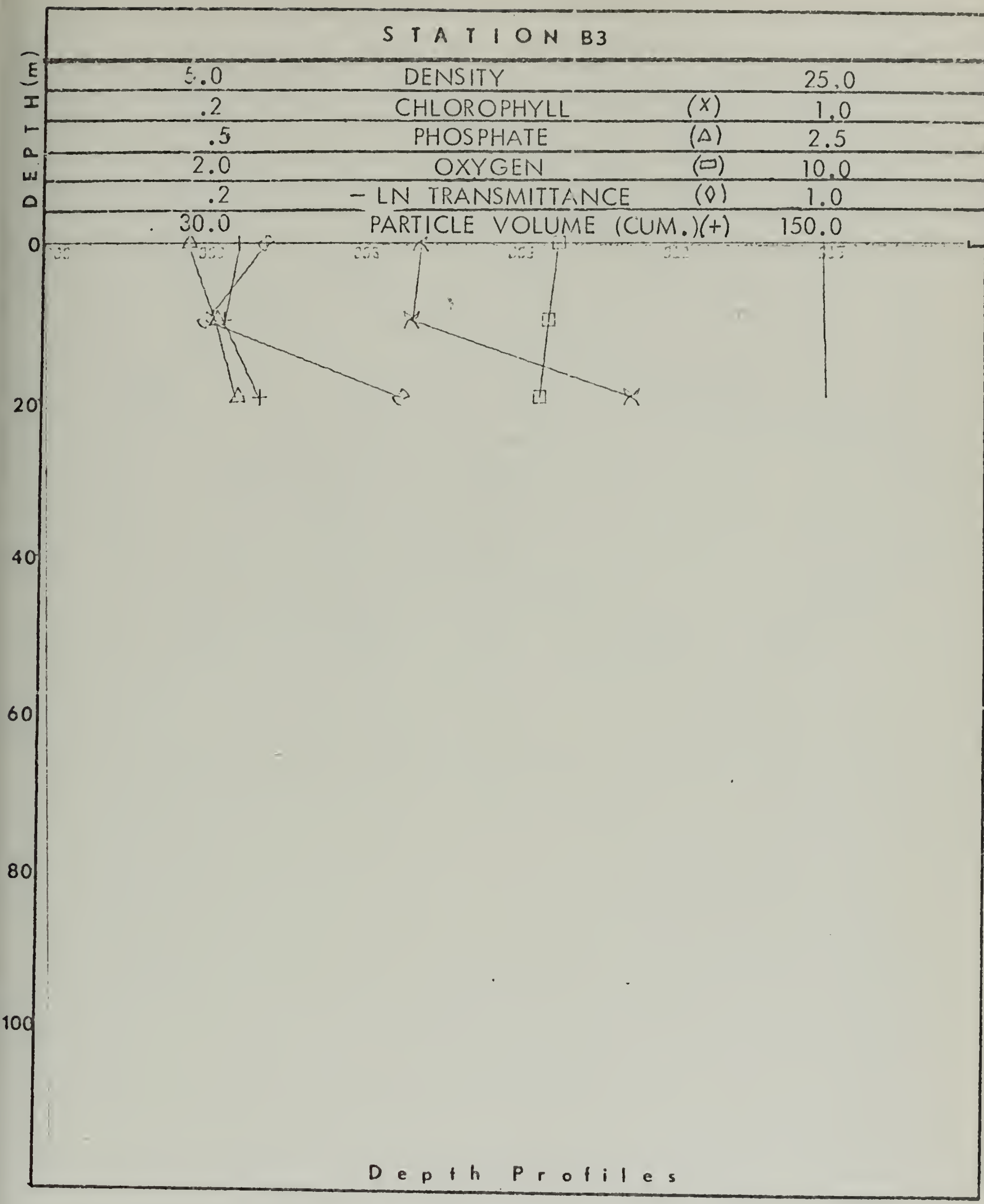

STATION B3
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 101

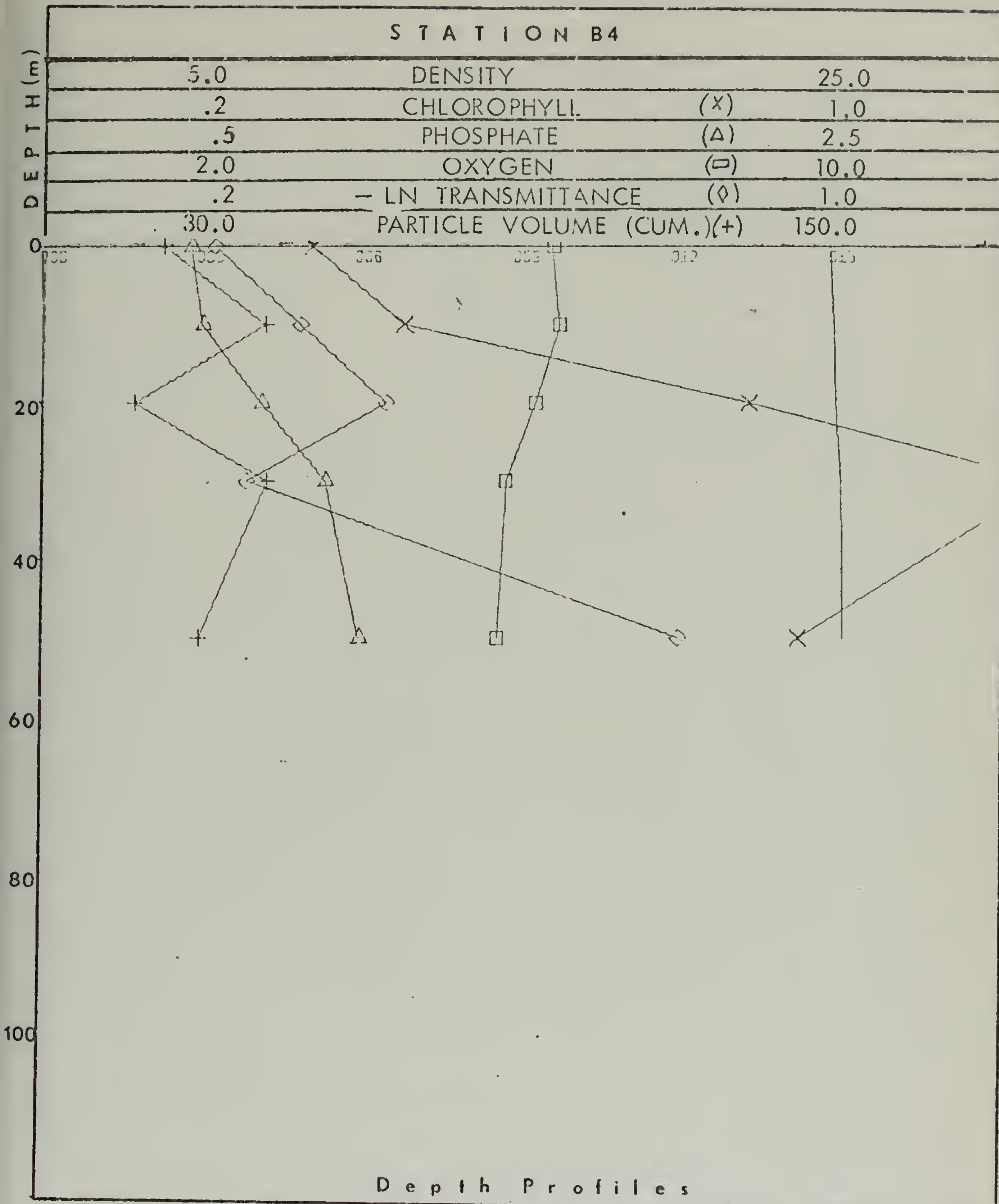

STATION B4
DEPTH(m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 102

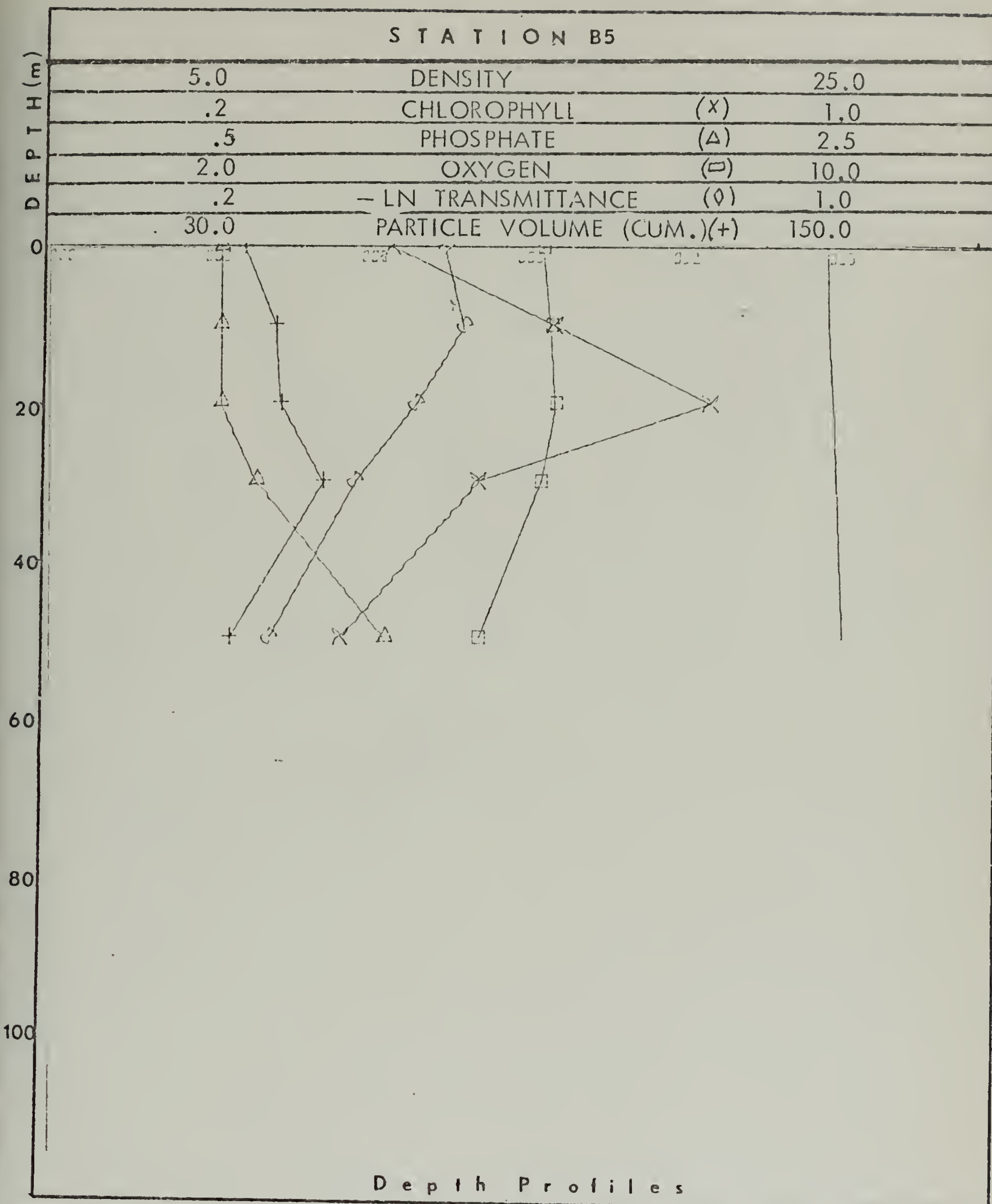

STATION B5
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 103

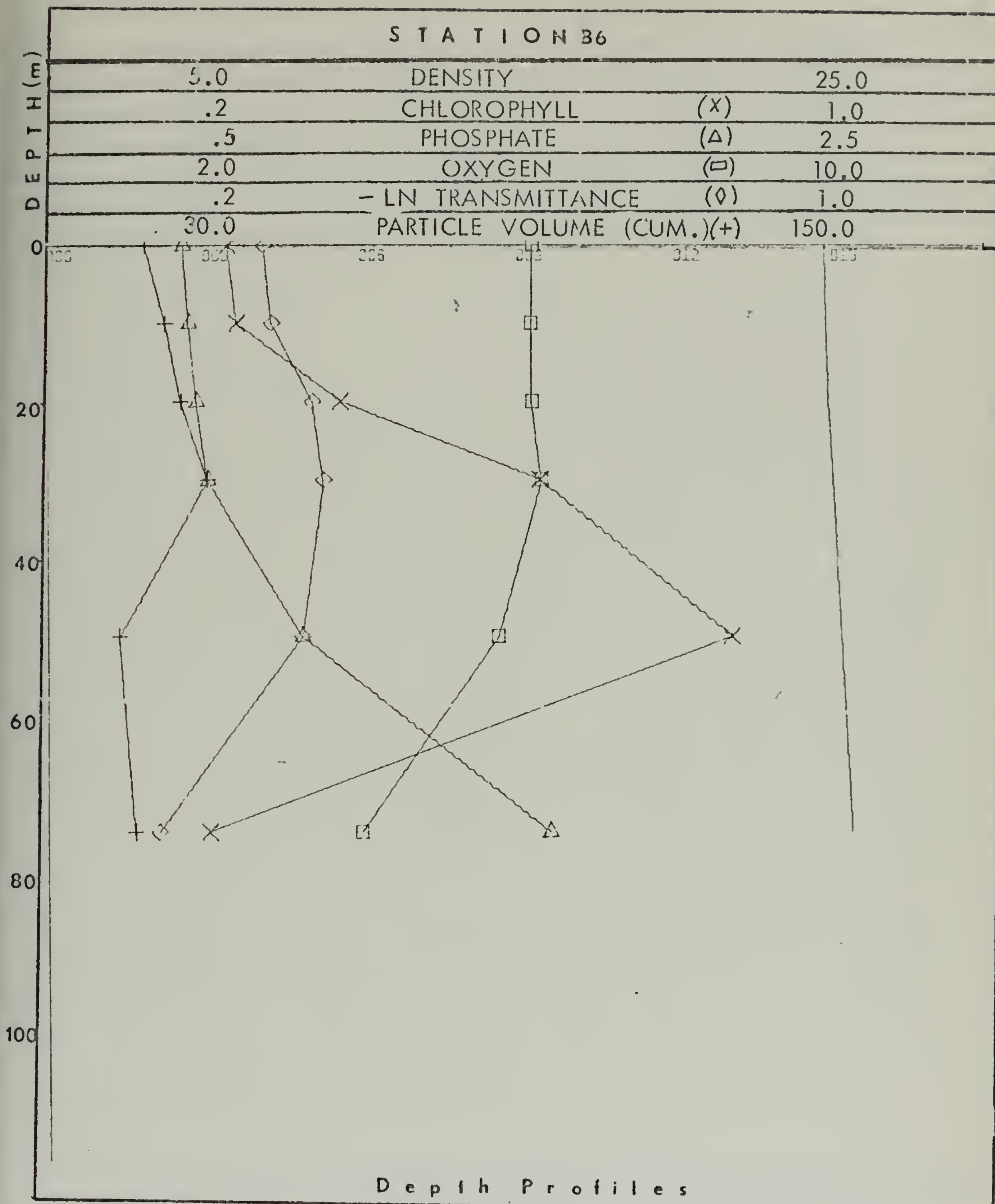

STATION 36
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 104

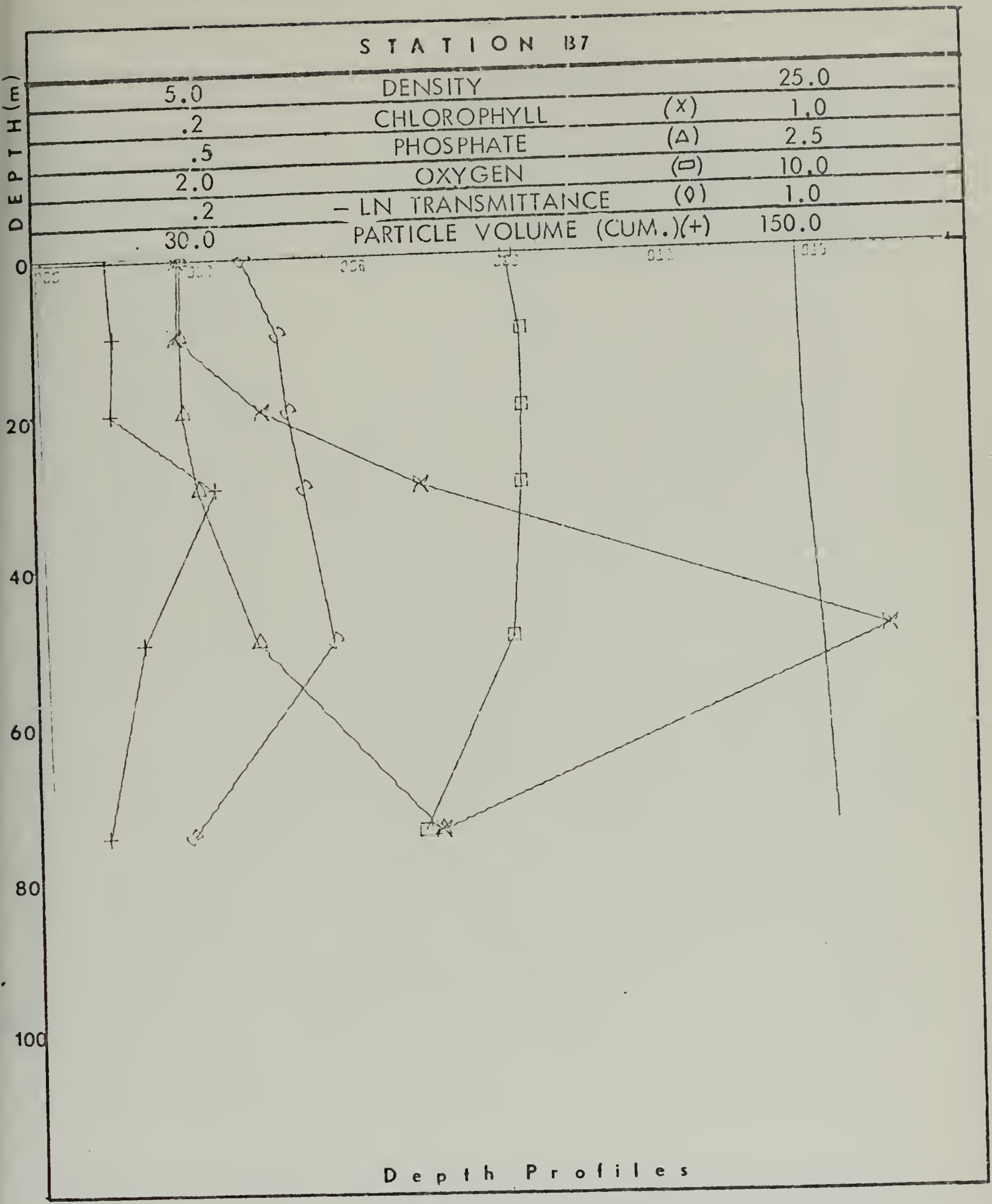

STATION B7
DENSITY 5.0 25.0
CHLOROPHYLL (X) .2 1.0
PHOSPHATE (Δ) .5 2.5
OXYGEN (□) 2.0 10.0
− LN TRANSMITTANCE (◊) .2 1.0
PARTICLE VOLUME (CUM.)(+) 30.0 150.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 105

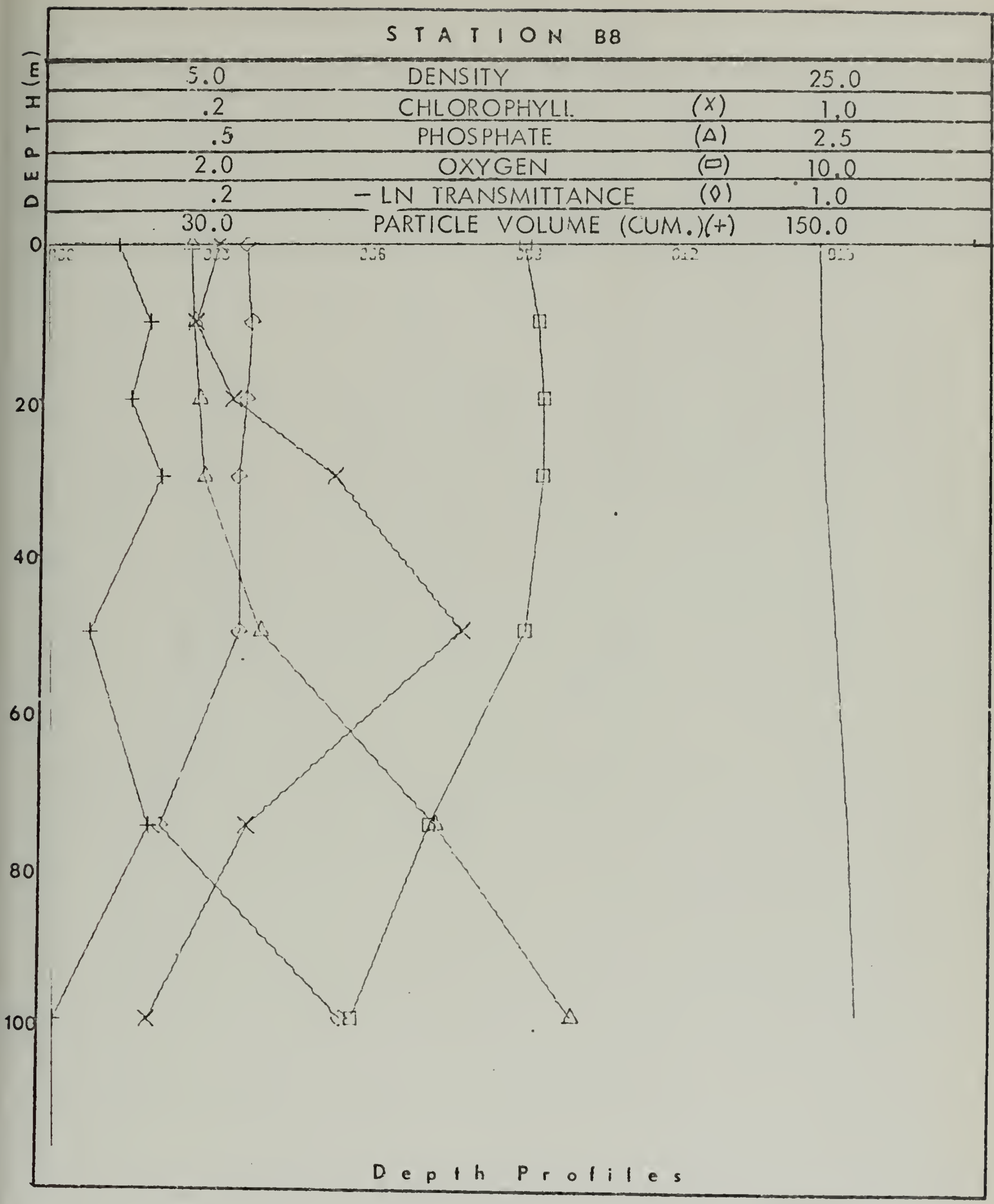

STATION B8
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 106

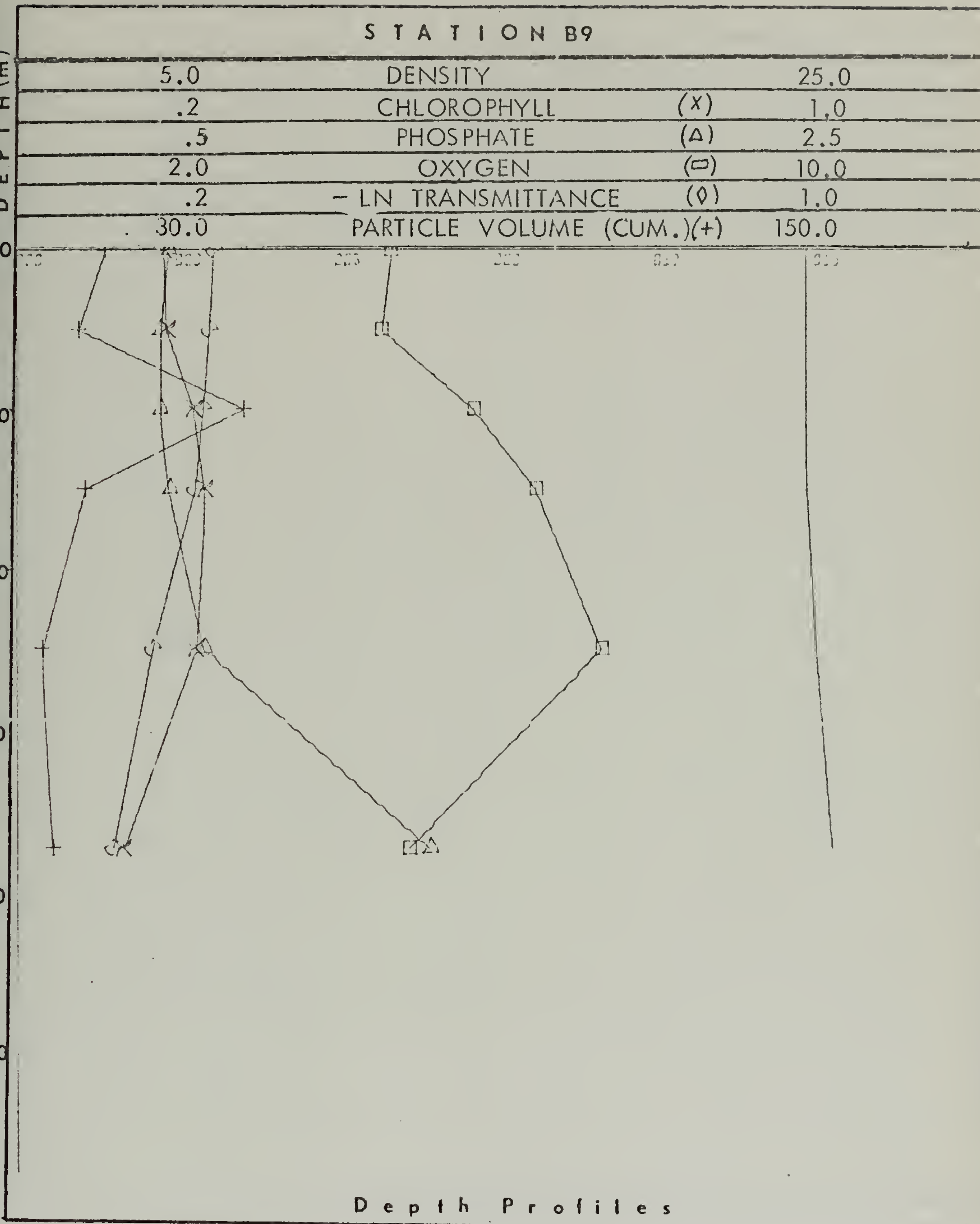
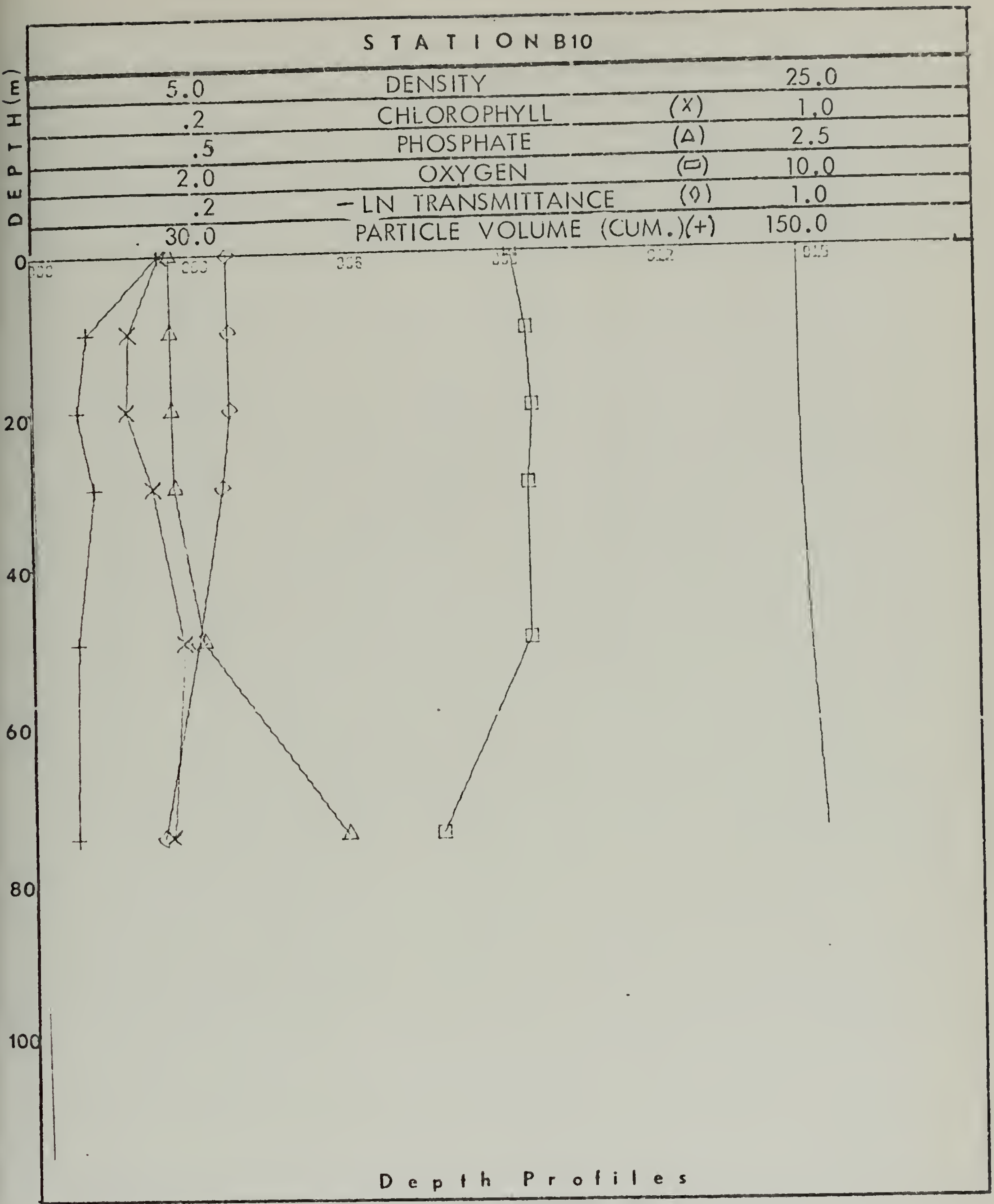

STATION B9
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 107



STATION B10
DEPTH (m)
5.0
DENSITY
25.0
.2
CHLOROPHYLL (X)
1.0
.5
PHOSPHATE (Δ)
2.5
2.0
OXYGEN (▭)
10.0
.2
− LN TRANSMITTANCE (◊)
1.0
30.0
PARTICLE VOLUME (CUM.)(+)
150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 108

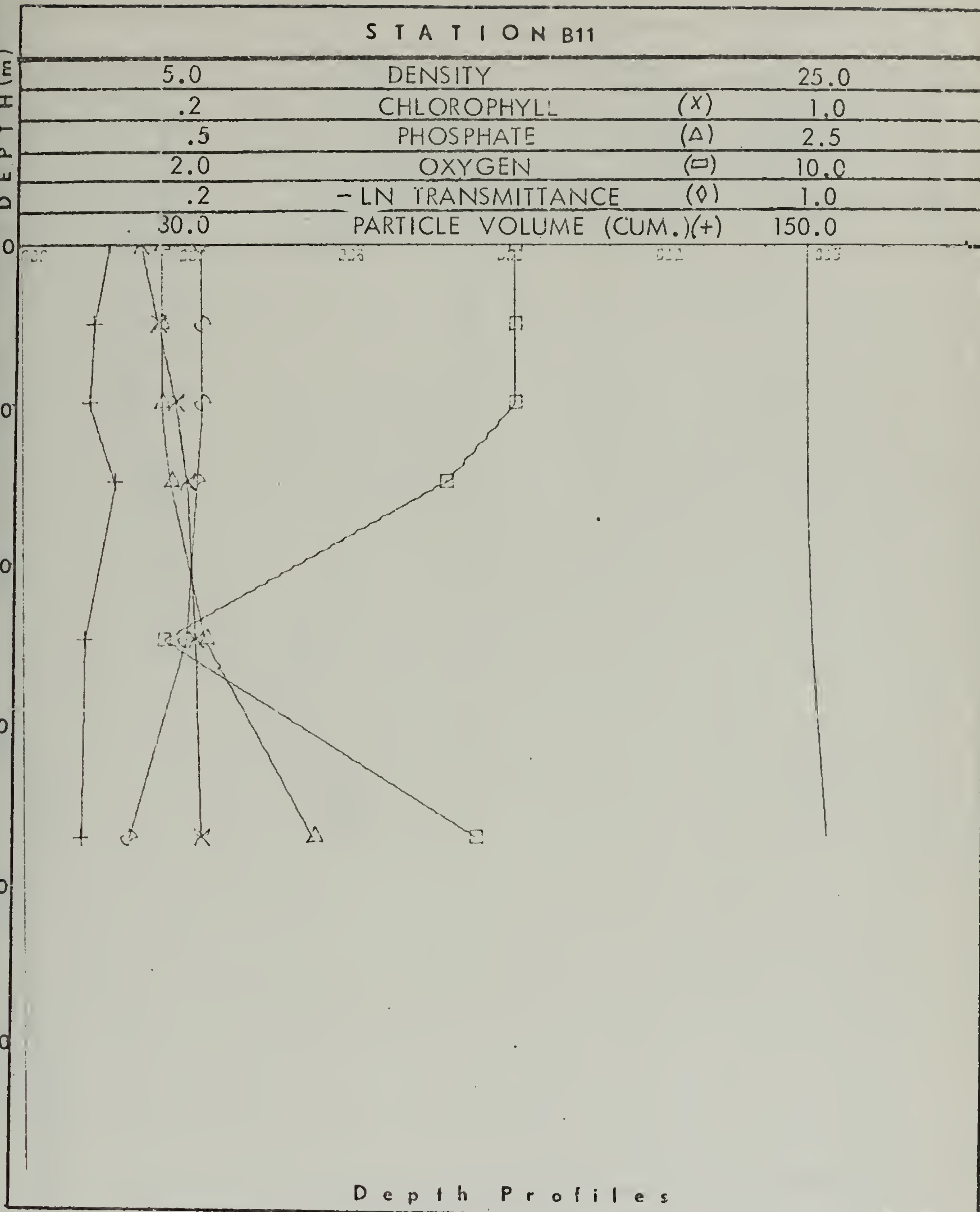

STATION B11
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 −LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 109

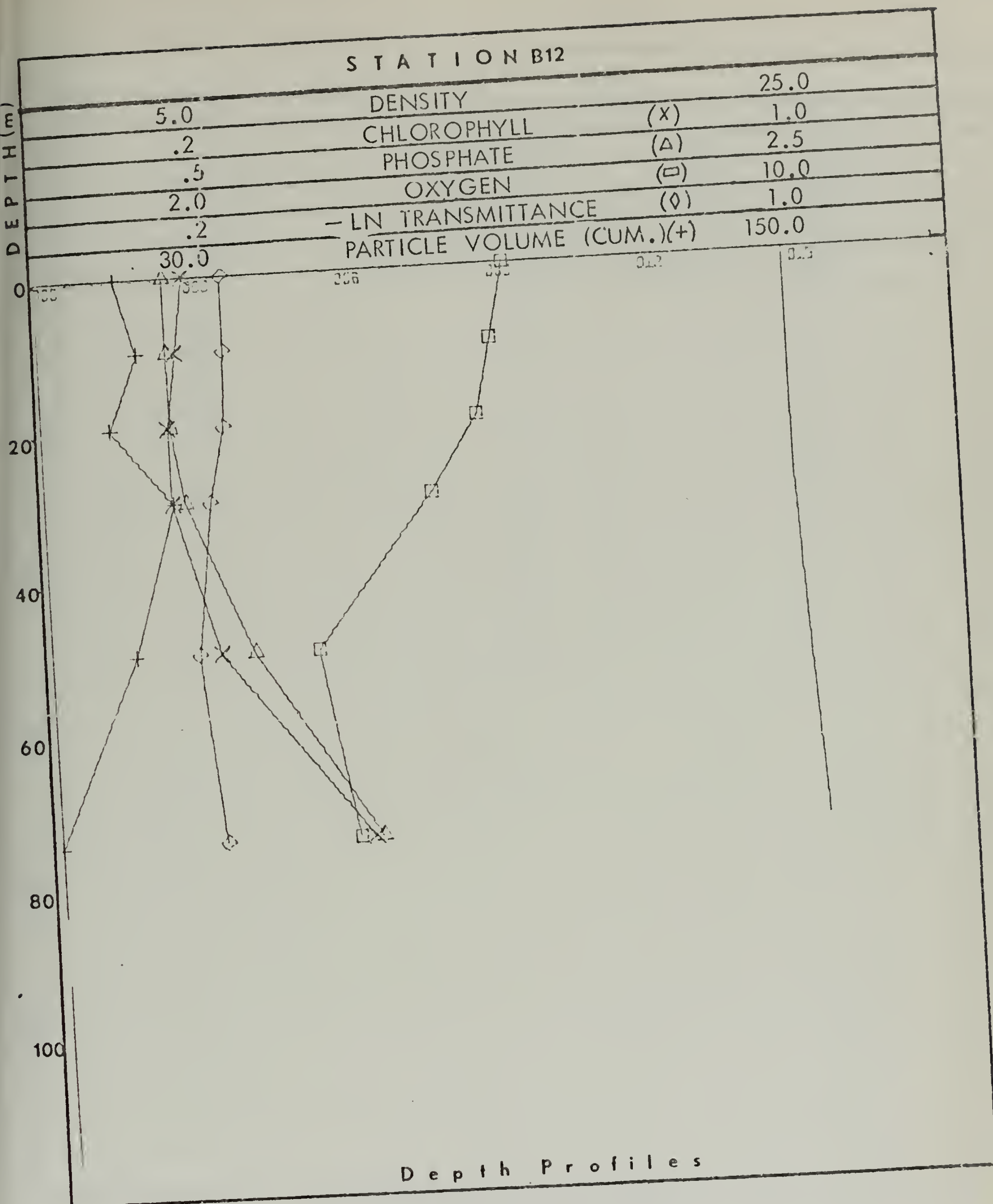

STATION B12
DENSITY 25.0
5.0 CHLOROPHYLL (X) 1.0
.2 PHOSPHATE (Δ) 2.5
.5 OXYGEN (▭) 10.0
2.0 −LN TRANSMITTANCE (◊) 1.0
.2 PARTICLE VOLUME (CUM.)(+) 150.0
30.0
DEPTH(m)
0
20
40
60
80
100
Depth Profiles

FIGURE 110

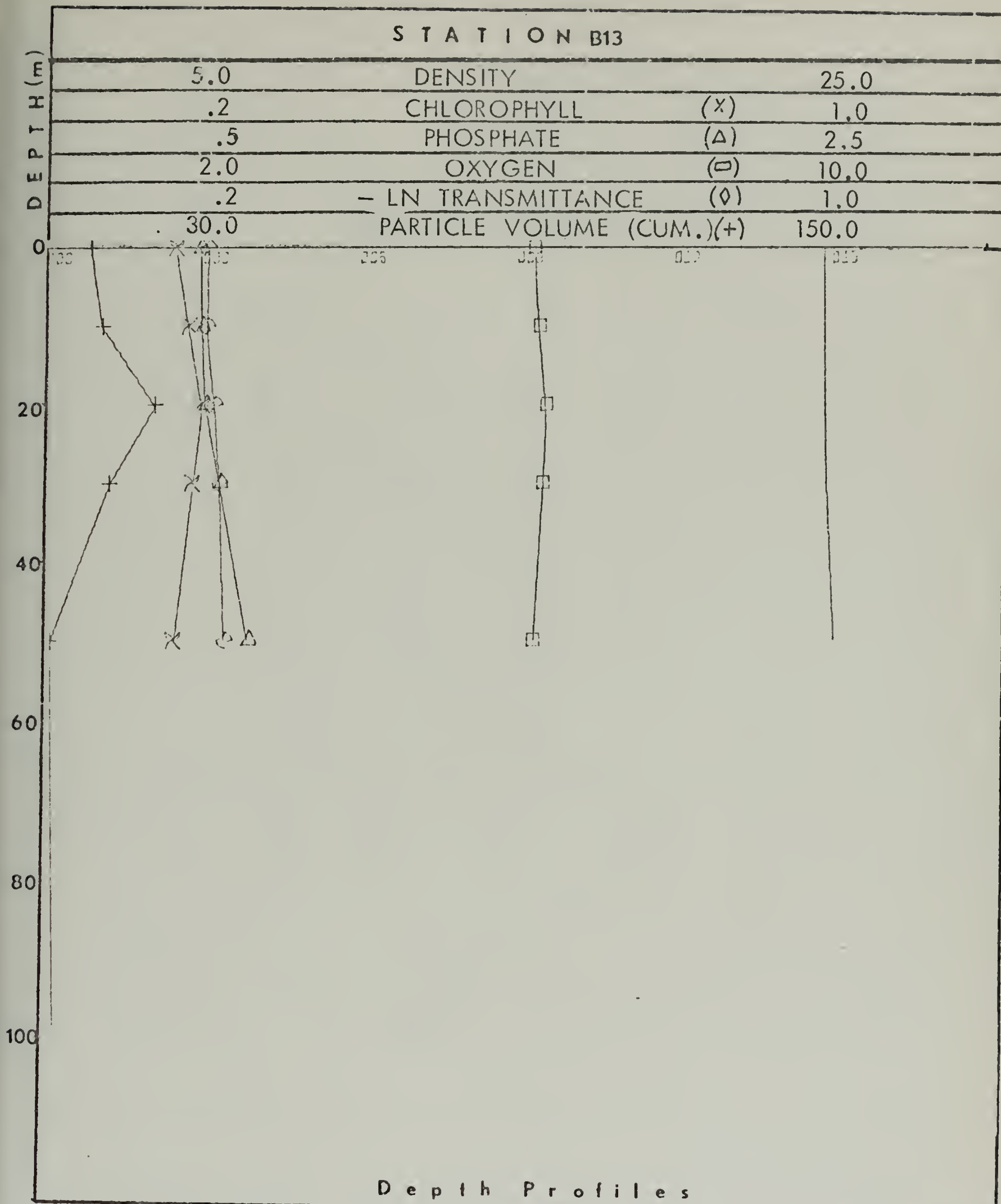
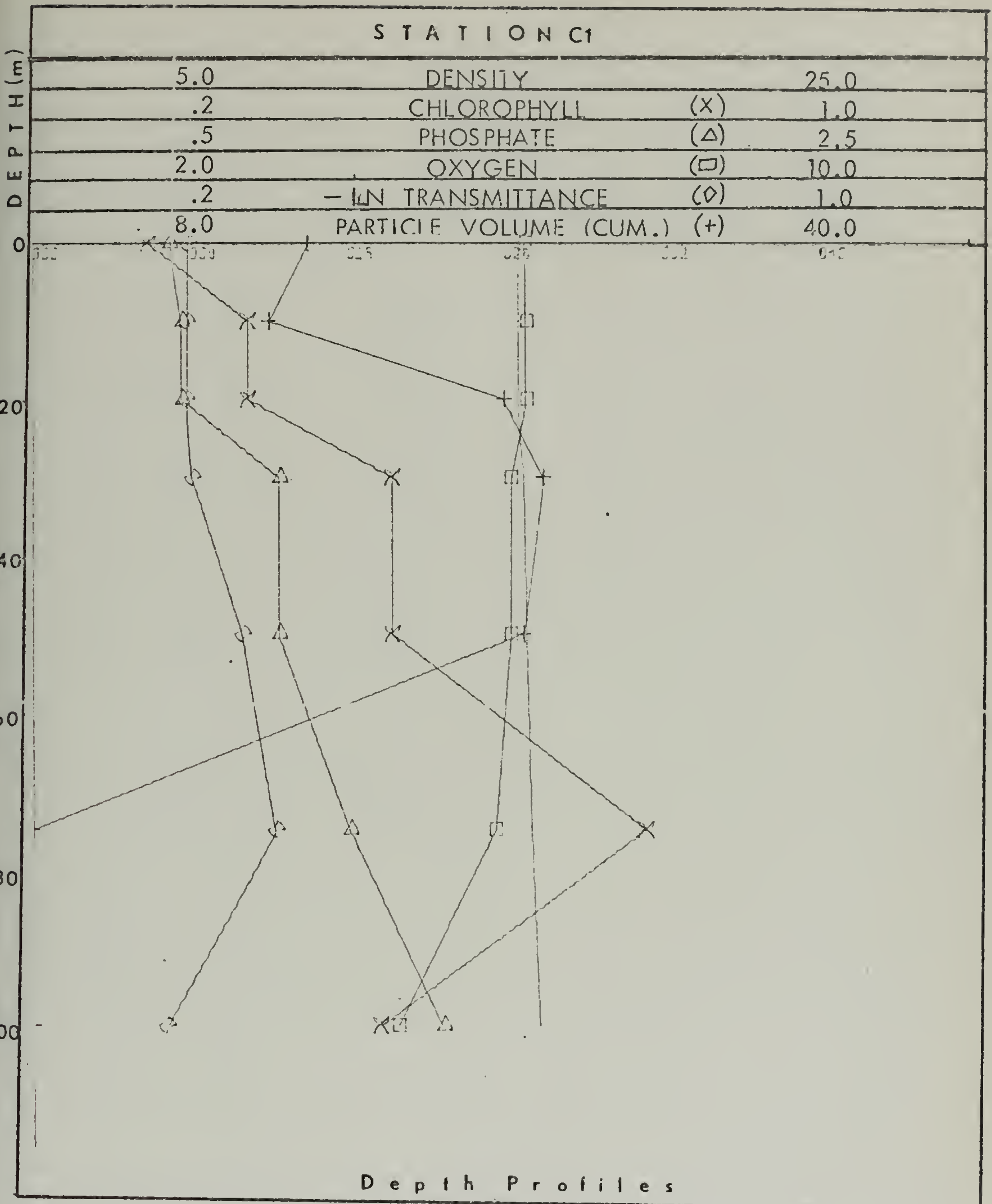

STATION B13
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 – LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 111



STATION C1
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
8.0 PARTICLE VOLUME (CUM.) (+) 40.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 112

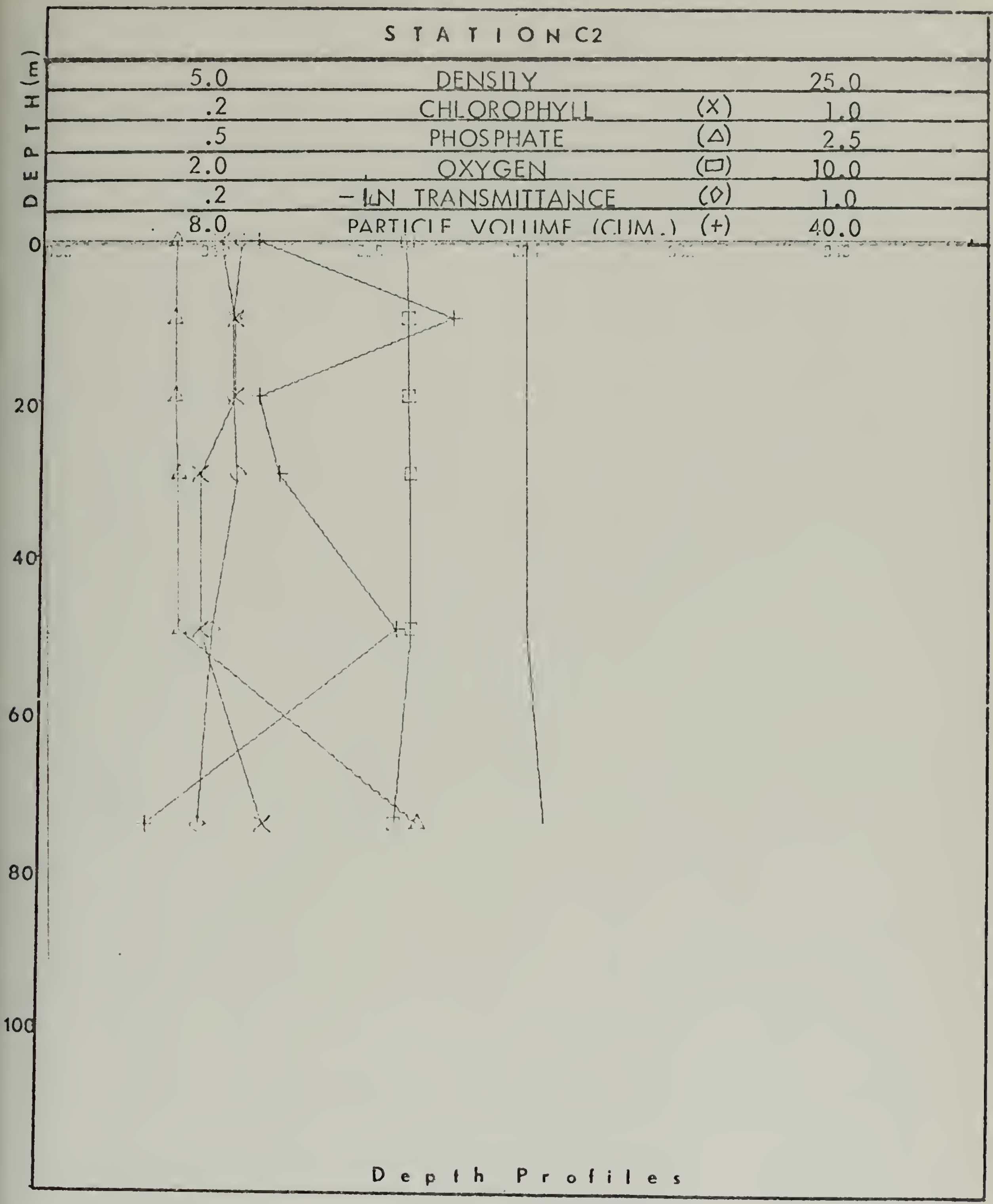

STATION C2
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
8.0 PARTICLE VOLUME (CUM.) (+) 40.0
0
20
40
60
80
100
Depth Profiles

FIGURE 113

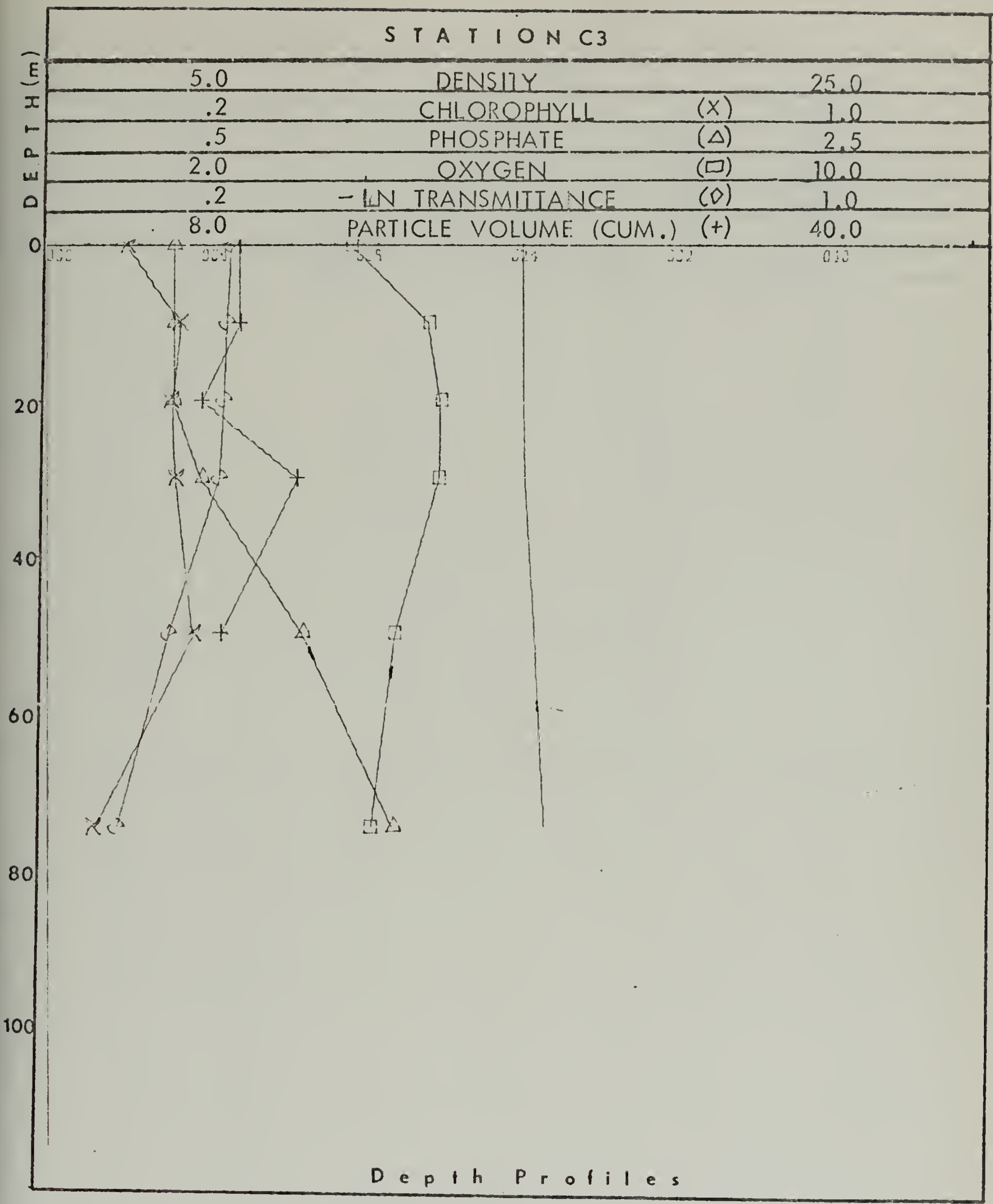

STATION C3
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
8.0 PARTICLE VOLUME (CUM.) (+) 40.0
0
20
40
60
80
100
Depth Profiles

FIGURE 114

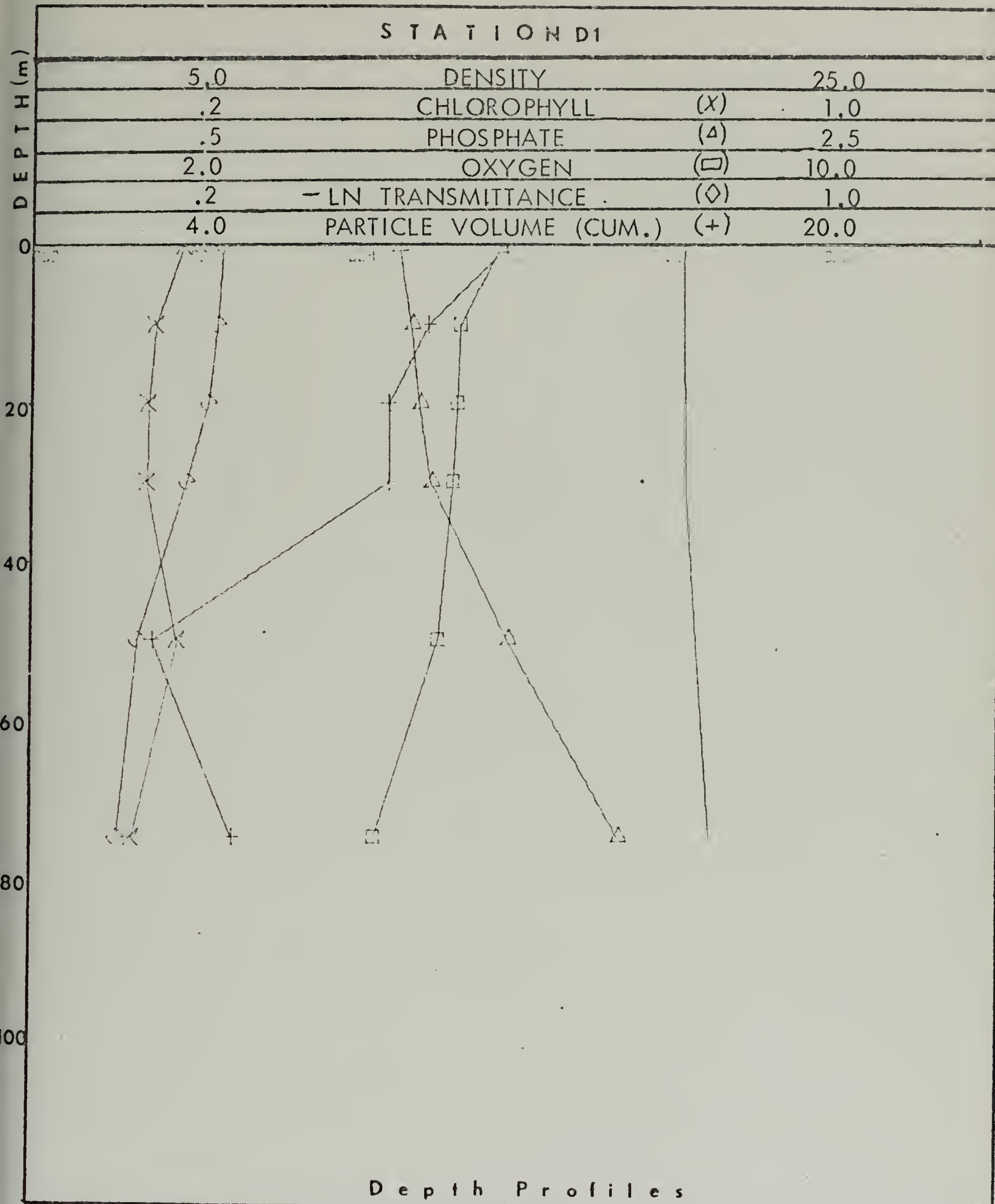
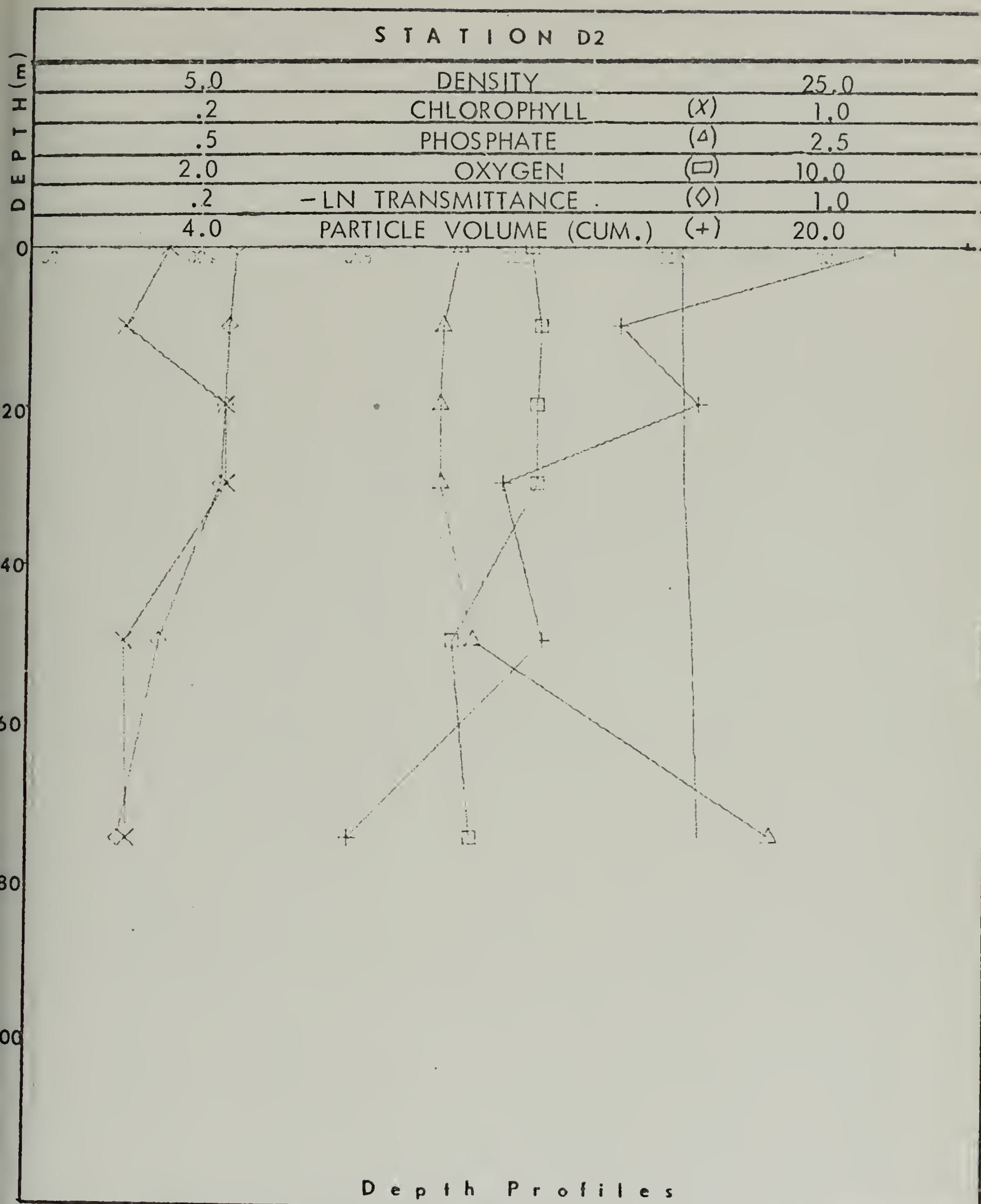

STATION D1
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 −LN TRANSMITTANCE (◊) 1.0
4.0 PARTICLE VOLUME (CUM.) (+) 20.0
0
20
40
60
80
100
Depth Profiles

FIGURE 115



STATION D2
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 −LN TRANSMITTANCE (◇) 1.0
4.0 PARTICLE VOLUME (CUM.) (+) 20.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 116

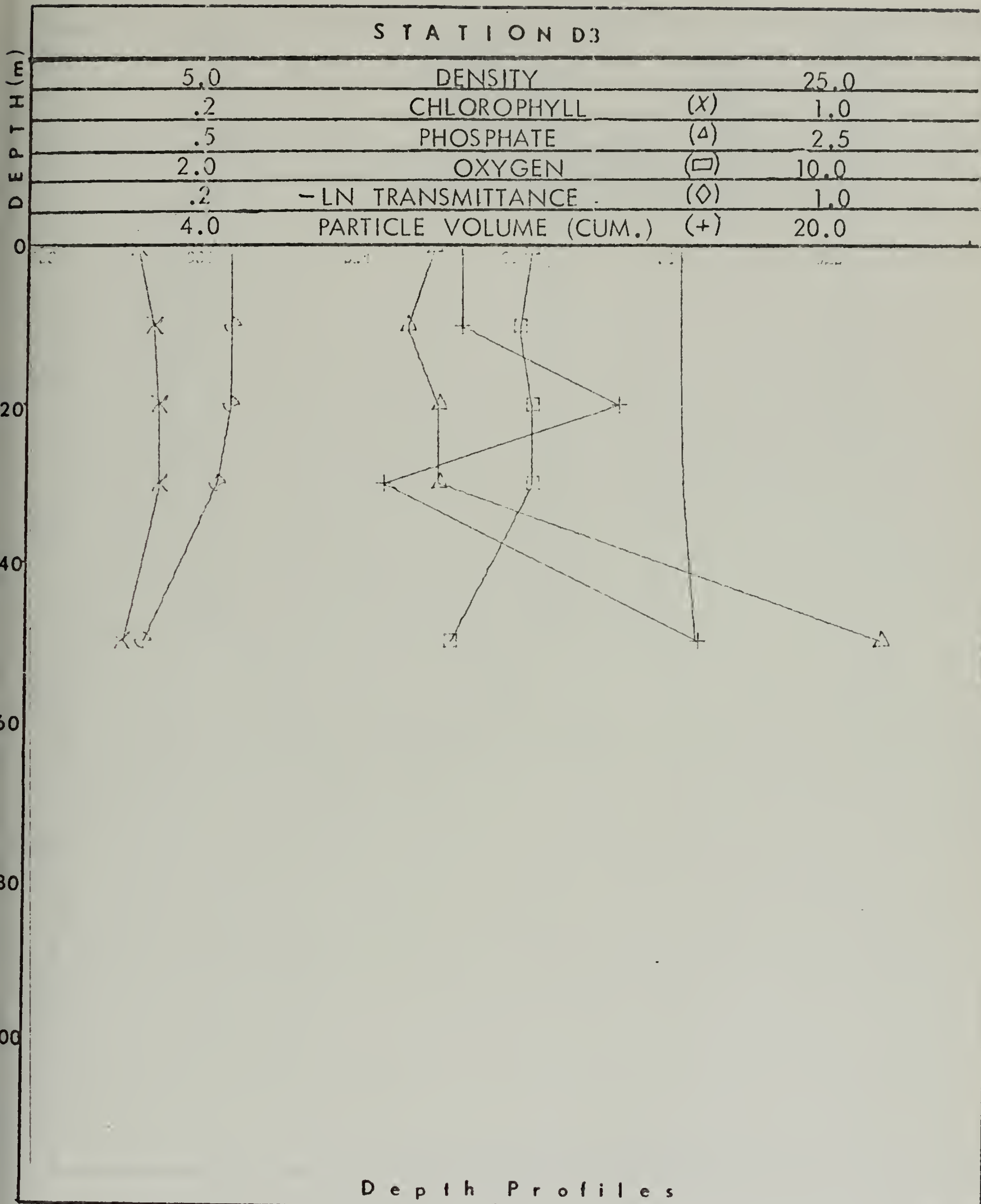
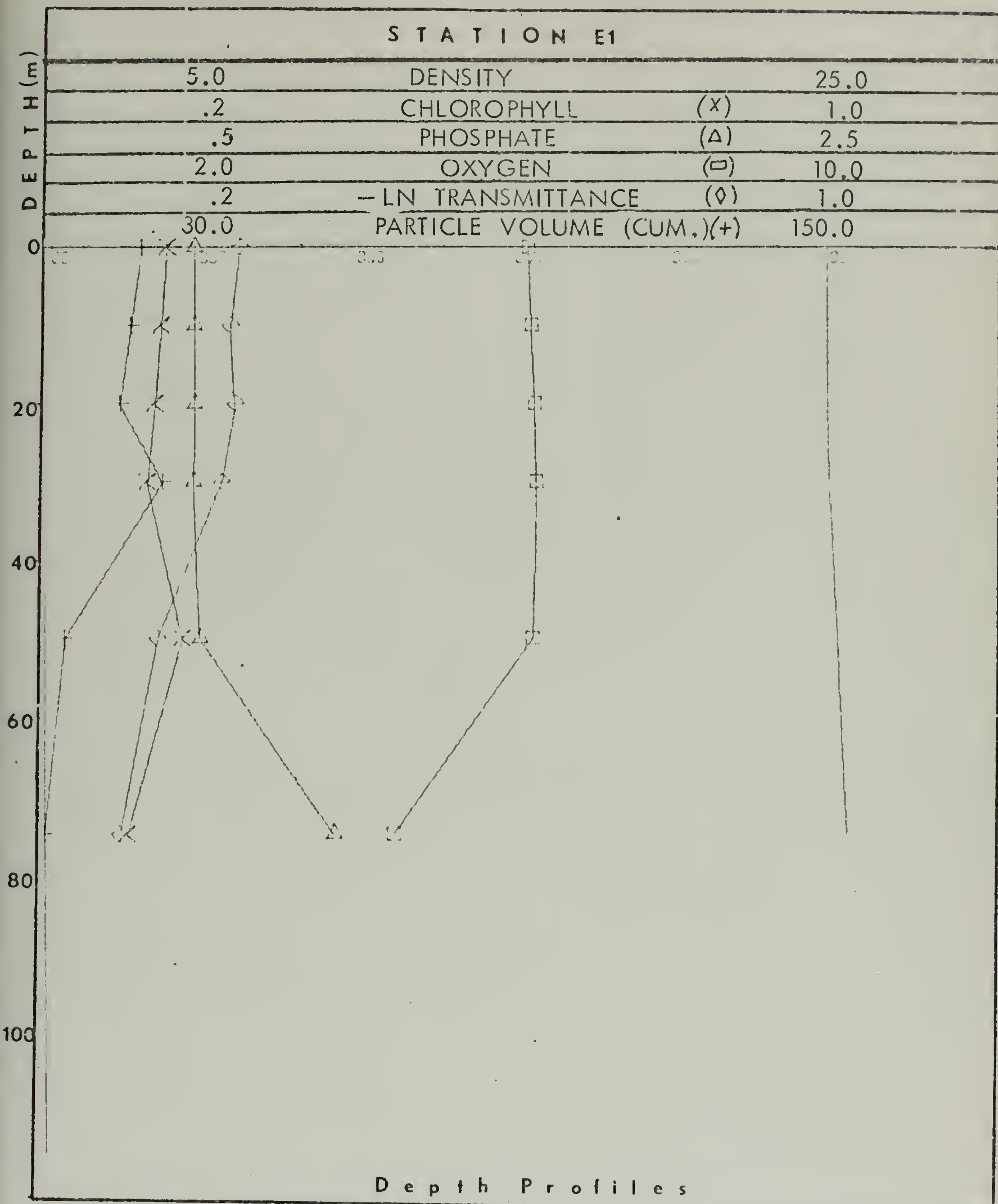

STATION D3
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 −LN TRANSMITTANCE (◇) 1.0
4.0 PARTICLE VOLUME (CUM.) (+) 20.0
DEPTH (m)
0
20
40
Depth Profiles

FIGURE 117



STATION E1
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 −LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 118

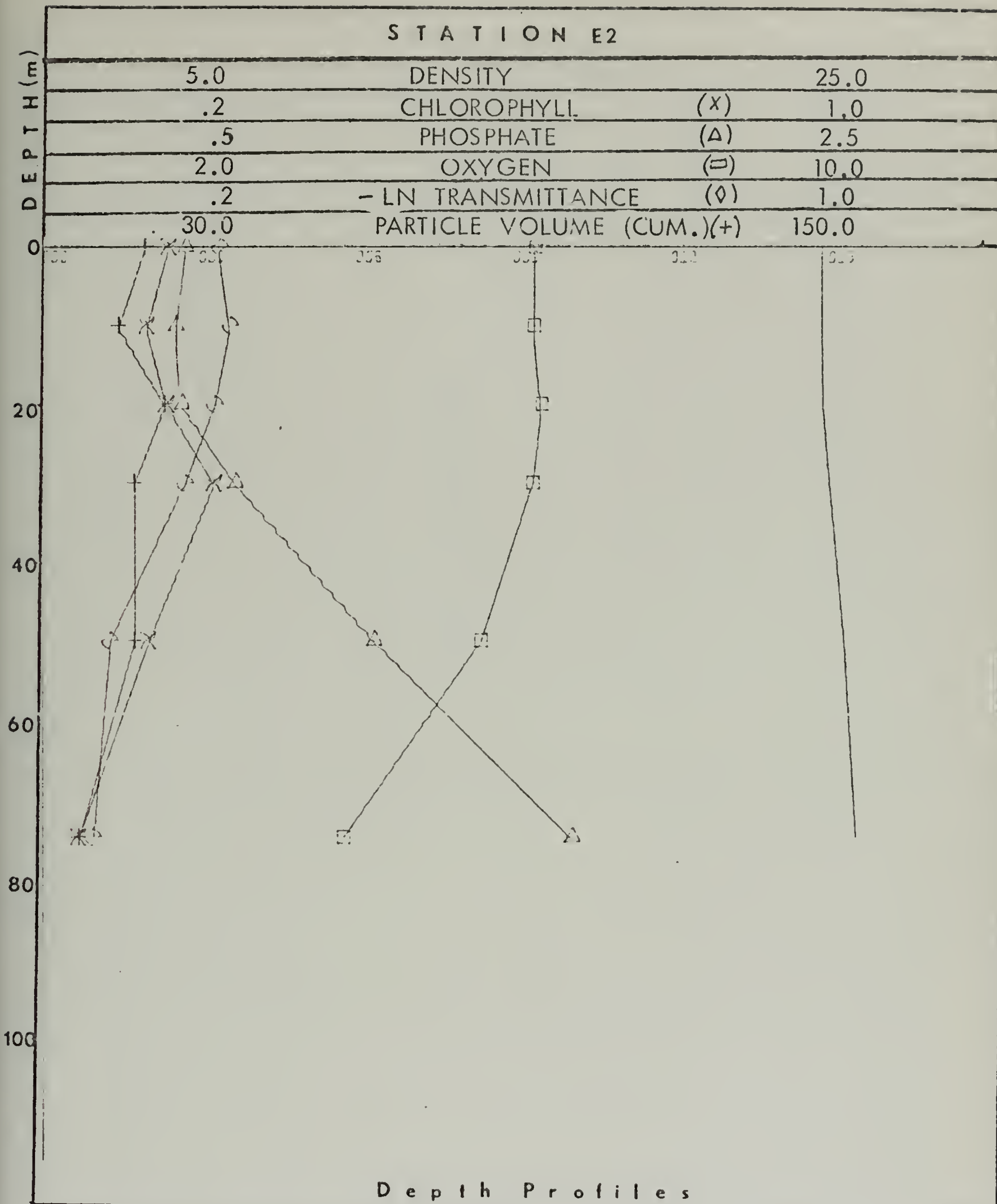
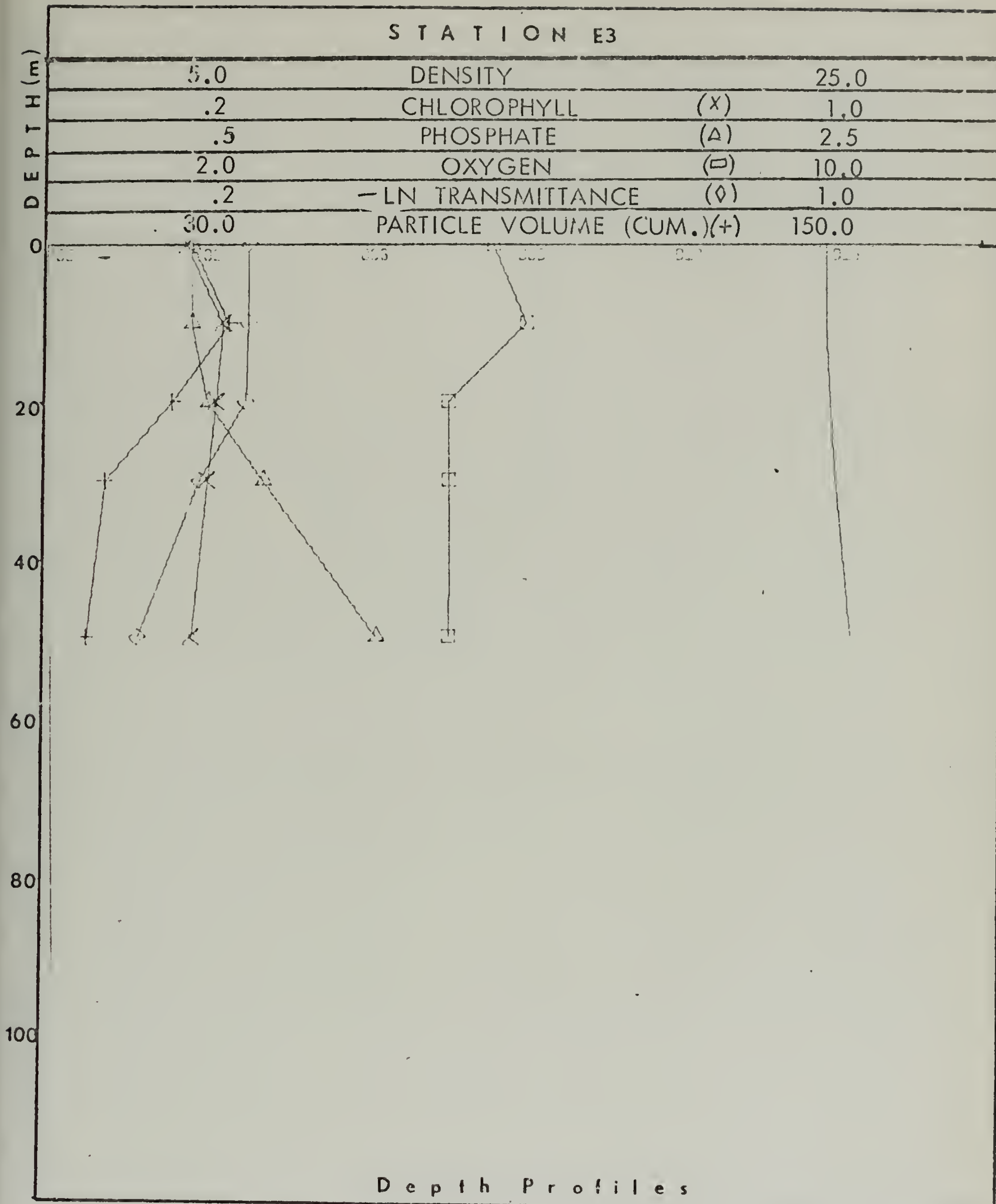

STATION E2
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 119



STATION E3
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 −LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
DEPTH(m)
0
20
40
60
80
100
Depth Profiles

FIGURE 120

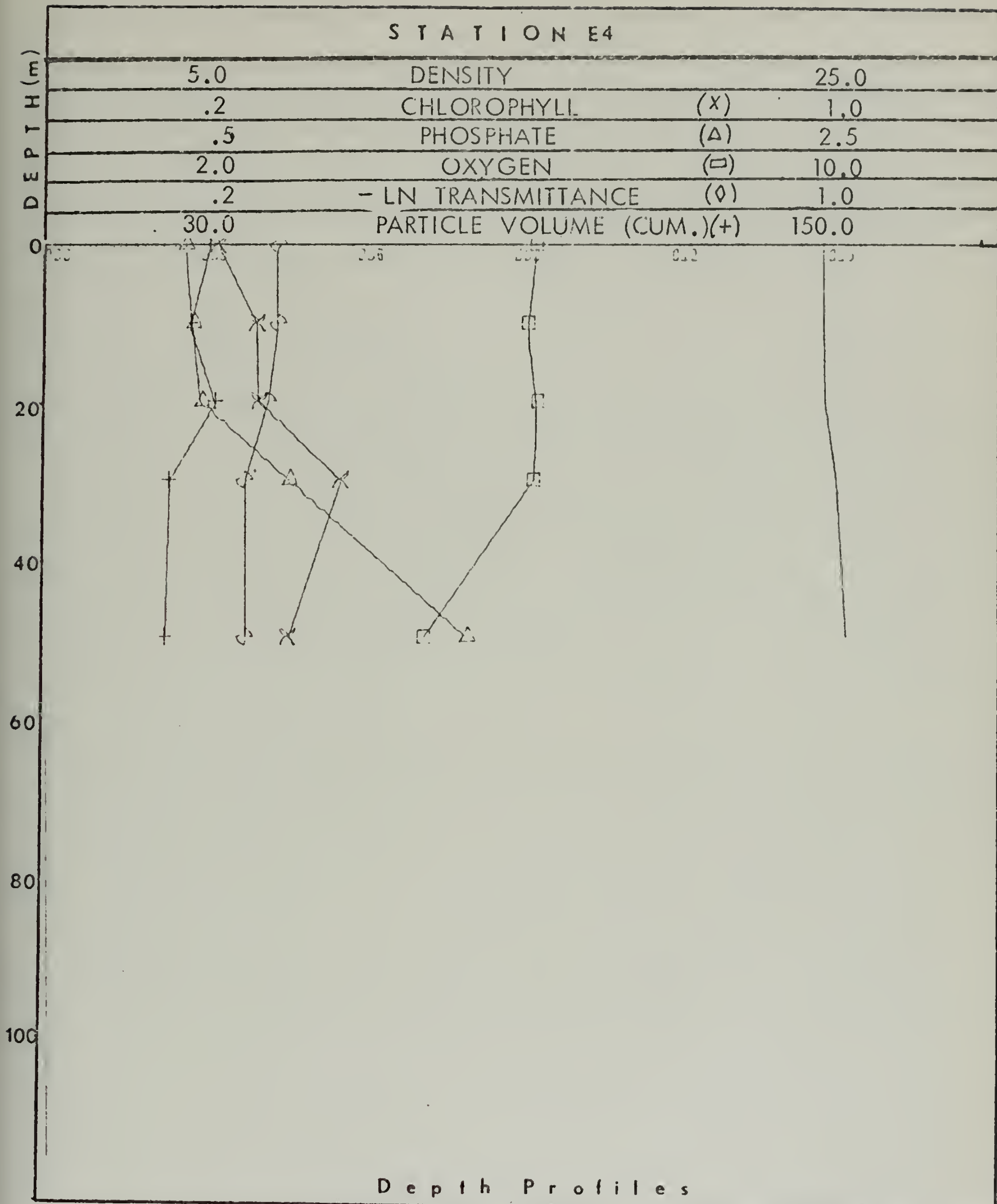

STATION E4
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 121

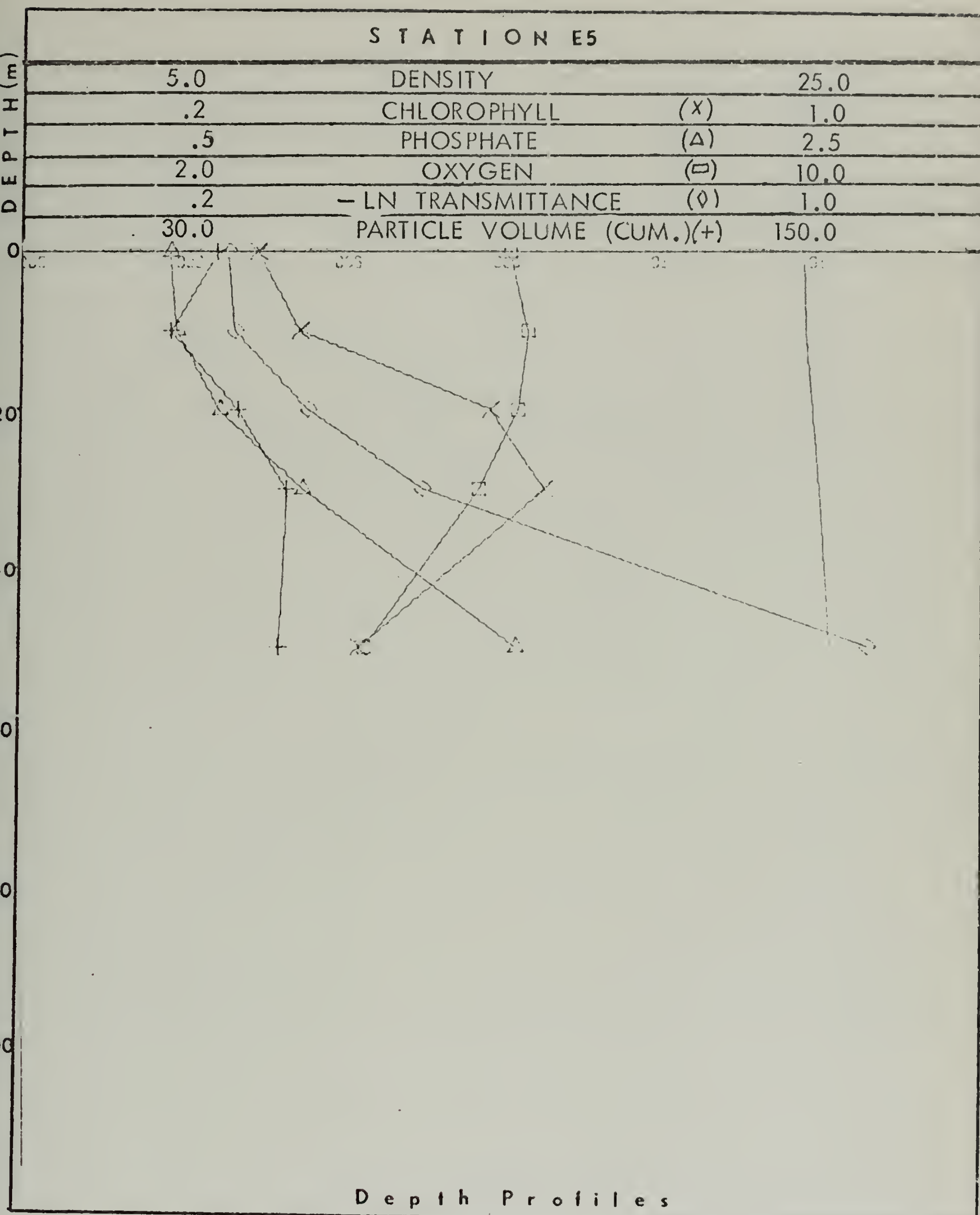
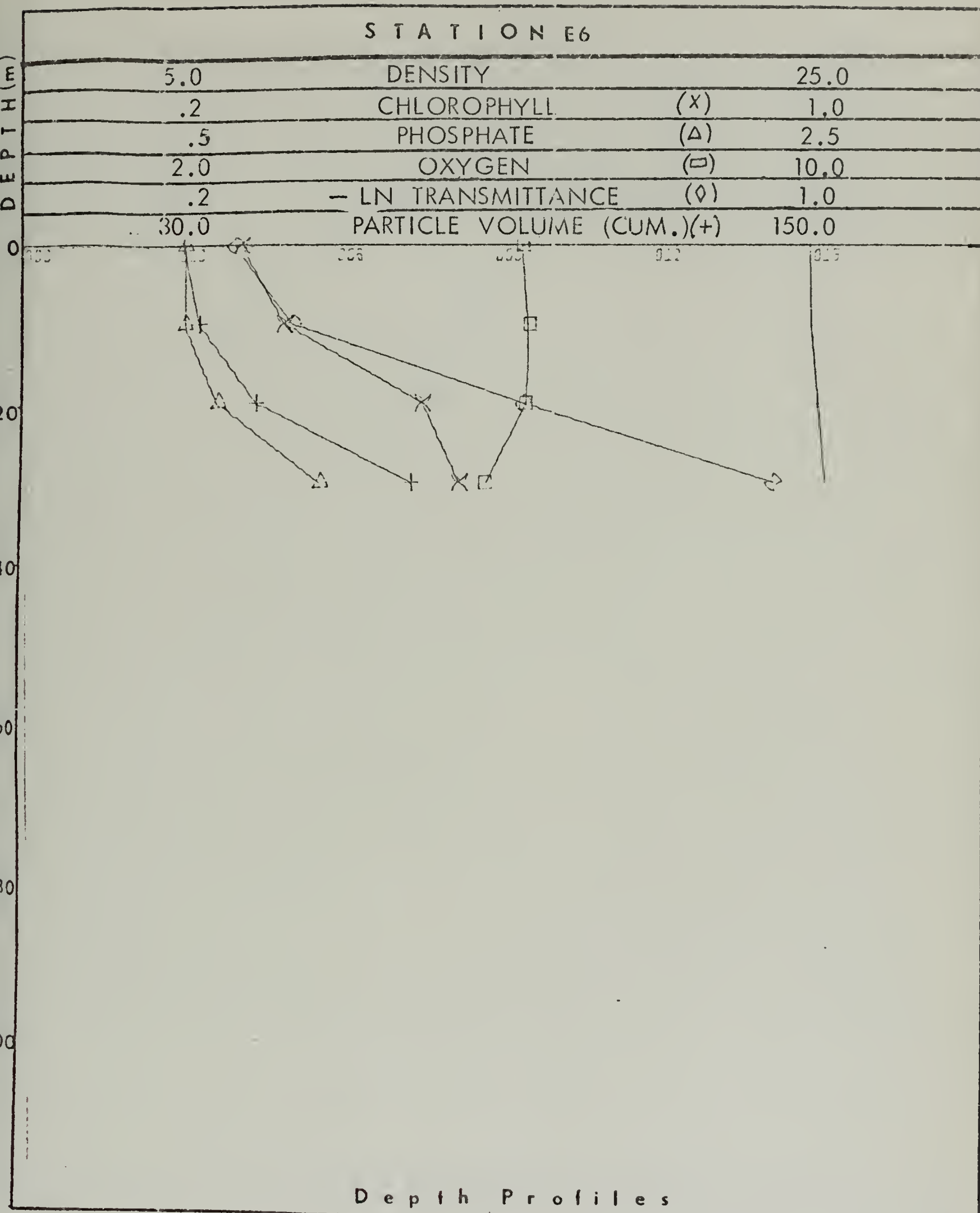

STATION E5
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 122



STATION E6
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 123

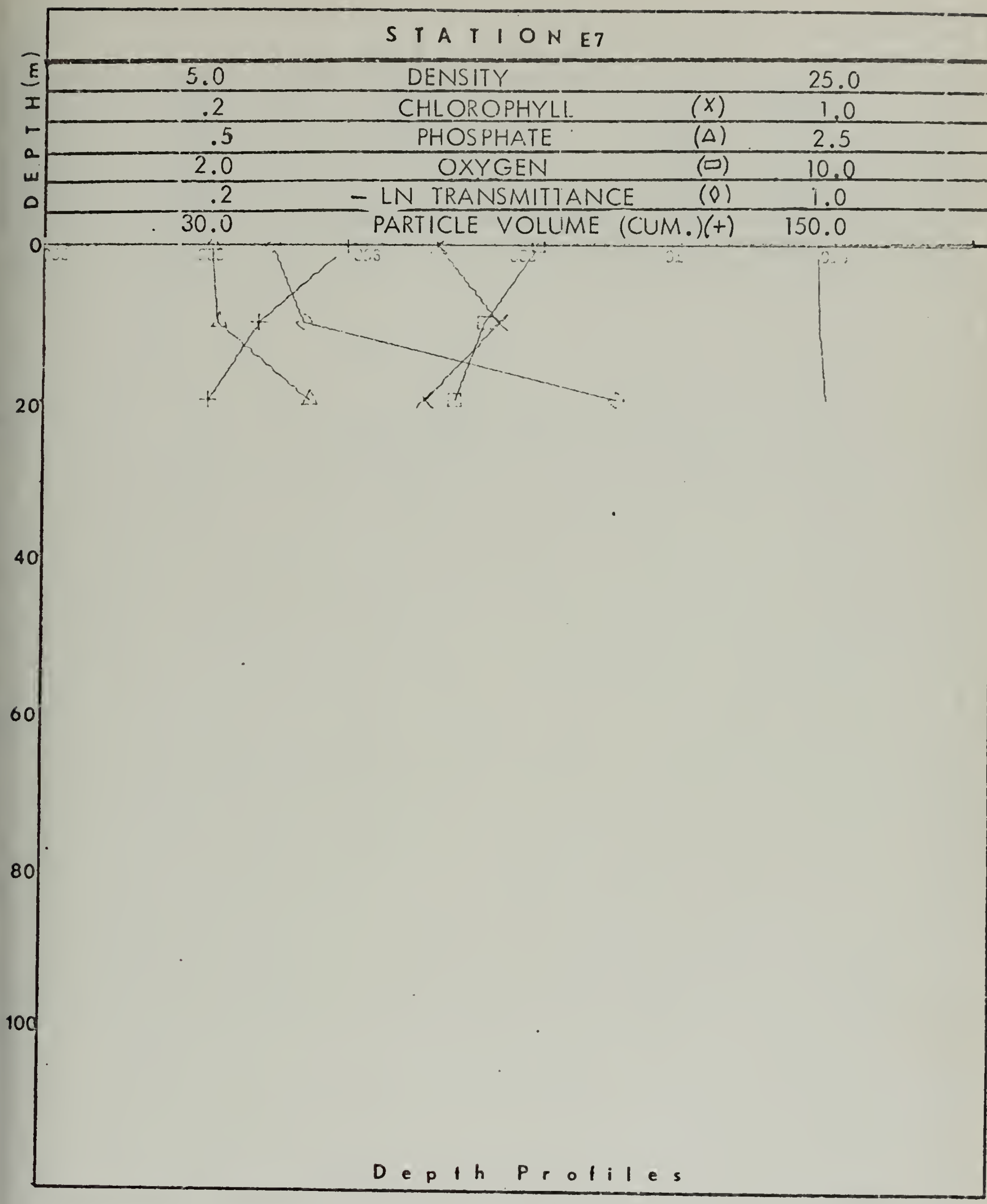

STATION E7
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 – LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 124

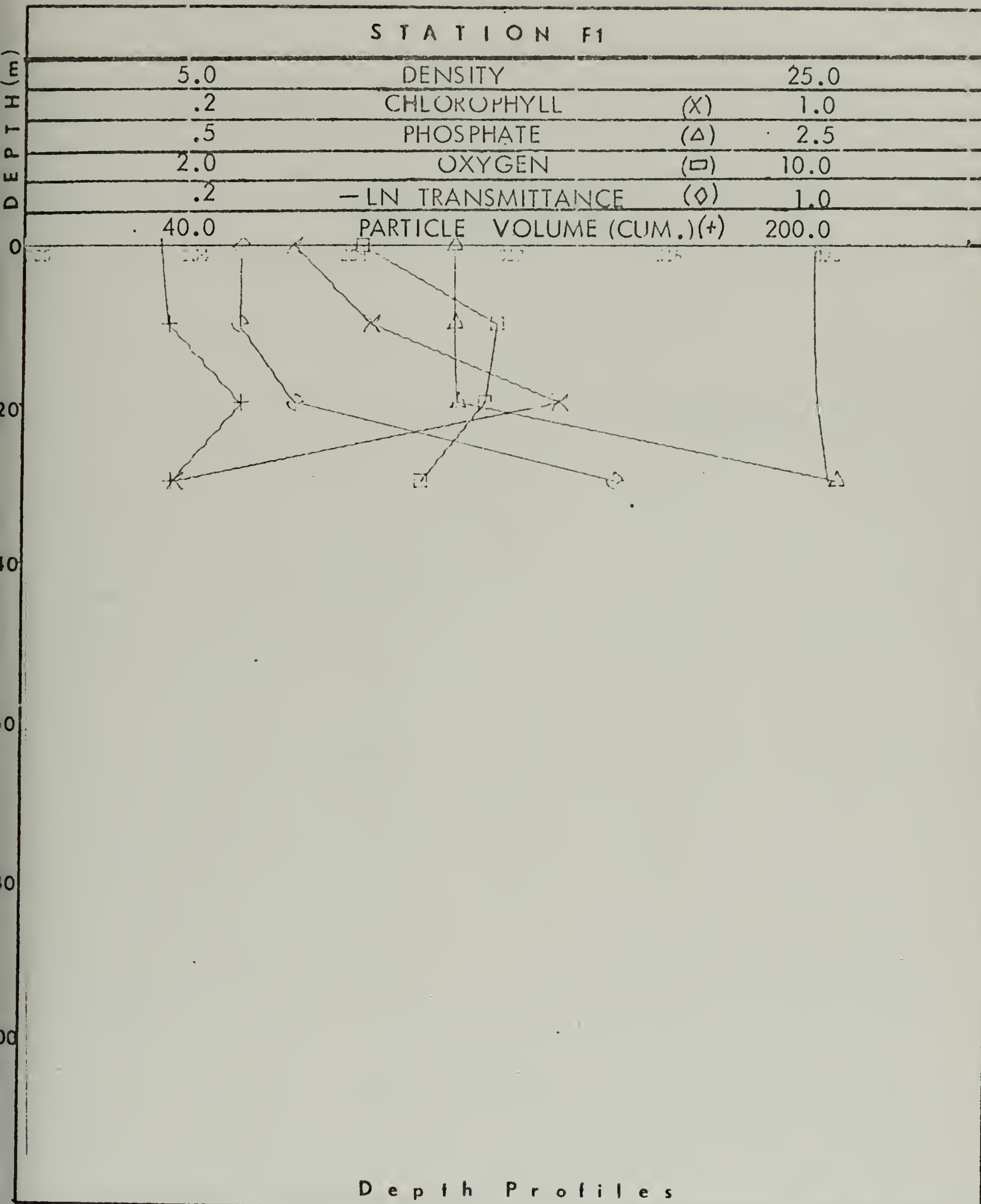

STATION F1
5.0
DENSITY
25.0
.2
CHLOROPHYLL (X)
1.0
.5
PHOSPHATE (△)
2.5
2.0
OXYGEN (▭)
10.0
.2
— LN TRANSMITTANCE (◊)
1.0
40.0
PARTICLE VOLUME (CUM.) (+)
200.0
DEPTH (m)
0
20
40
Depth Profiles

FIGURE 125

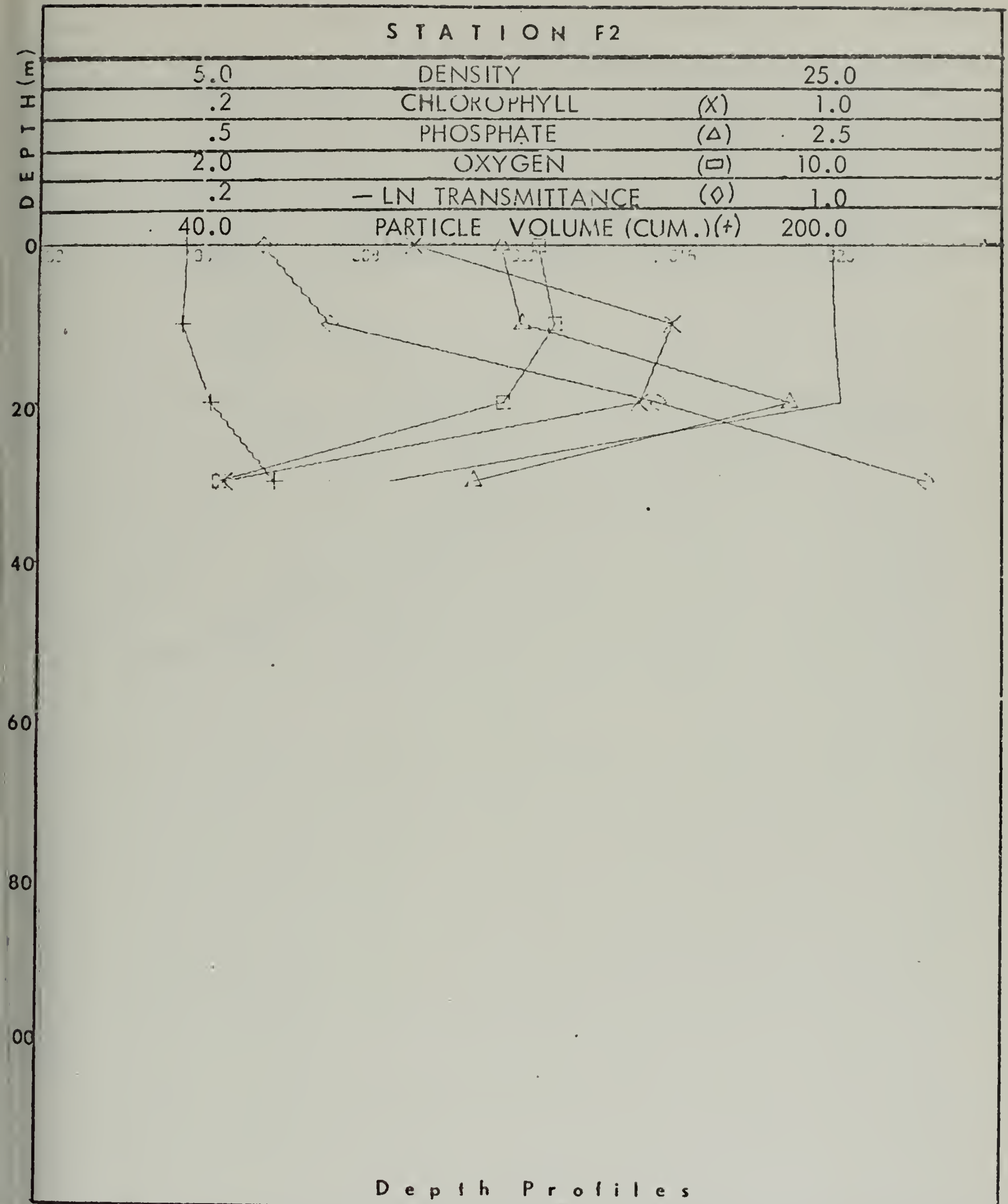

STATION F2
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (▭) 10.0
.2 — LN TRANSMITTANCE (◊) 1.0
40.0 PARTICLE VOLUME (CUM.)(+) 200.0
0
20
40
60
80
00
Depth Profiles

FIGURE 126

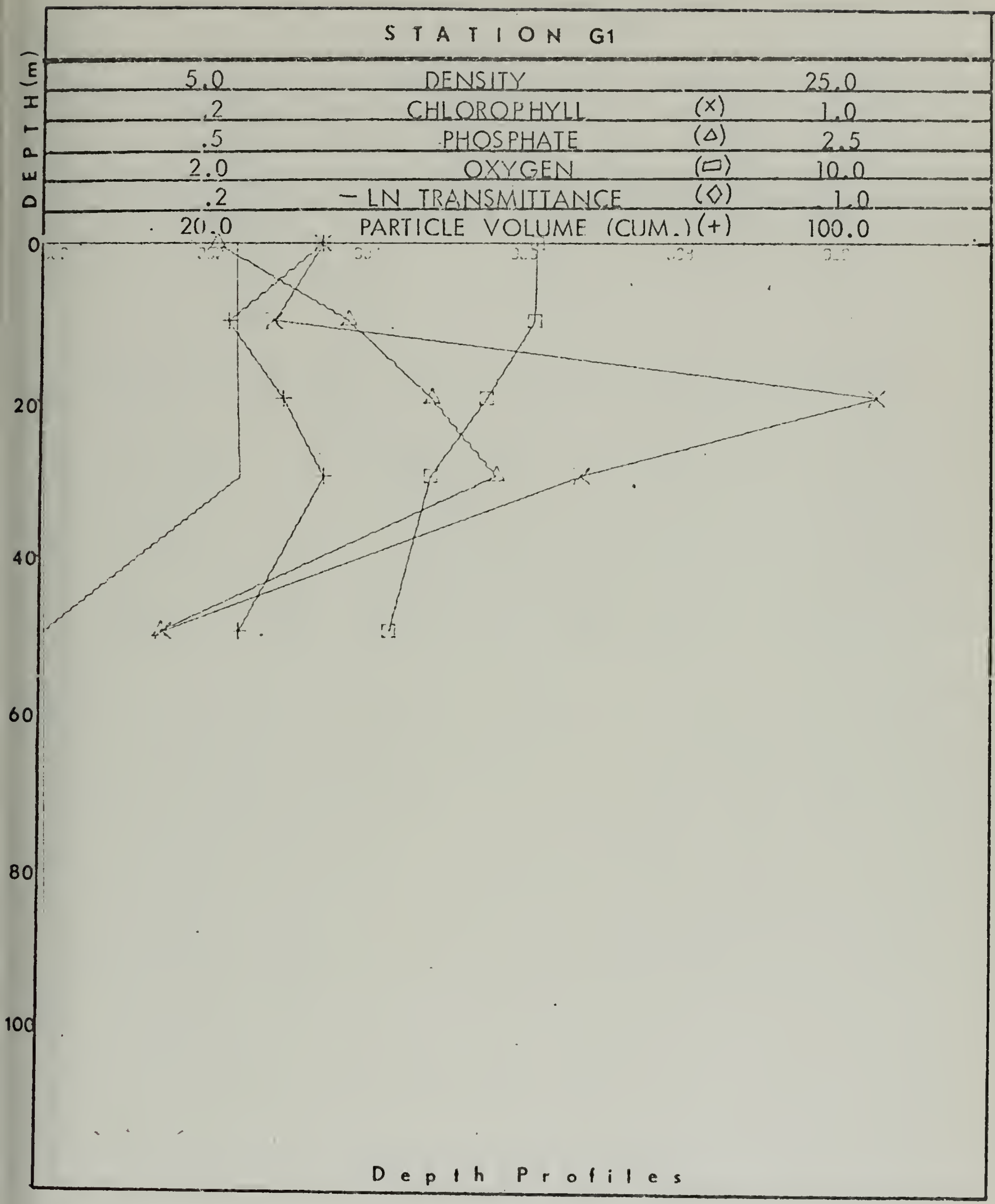

STATION G1
5.0 DENSITY 25.0
.2 CHLOROPHYLL (x) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◇) 1.0
20.0 PARTICLE VOLUME (CUM.)(+) 100.0
DEPTH(m)
0
20
40
60
80
100
Depth Profiles

FIGURE 127

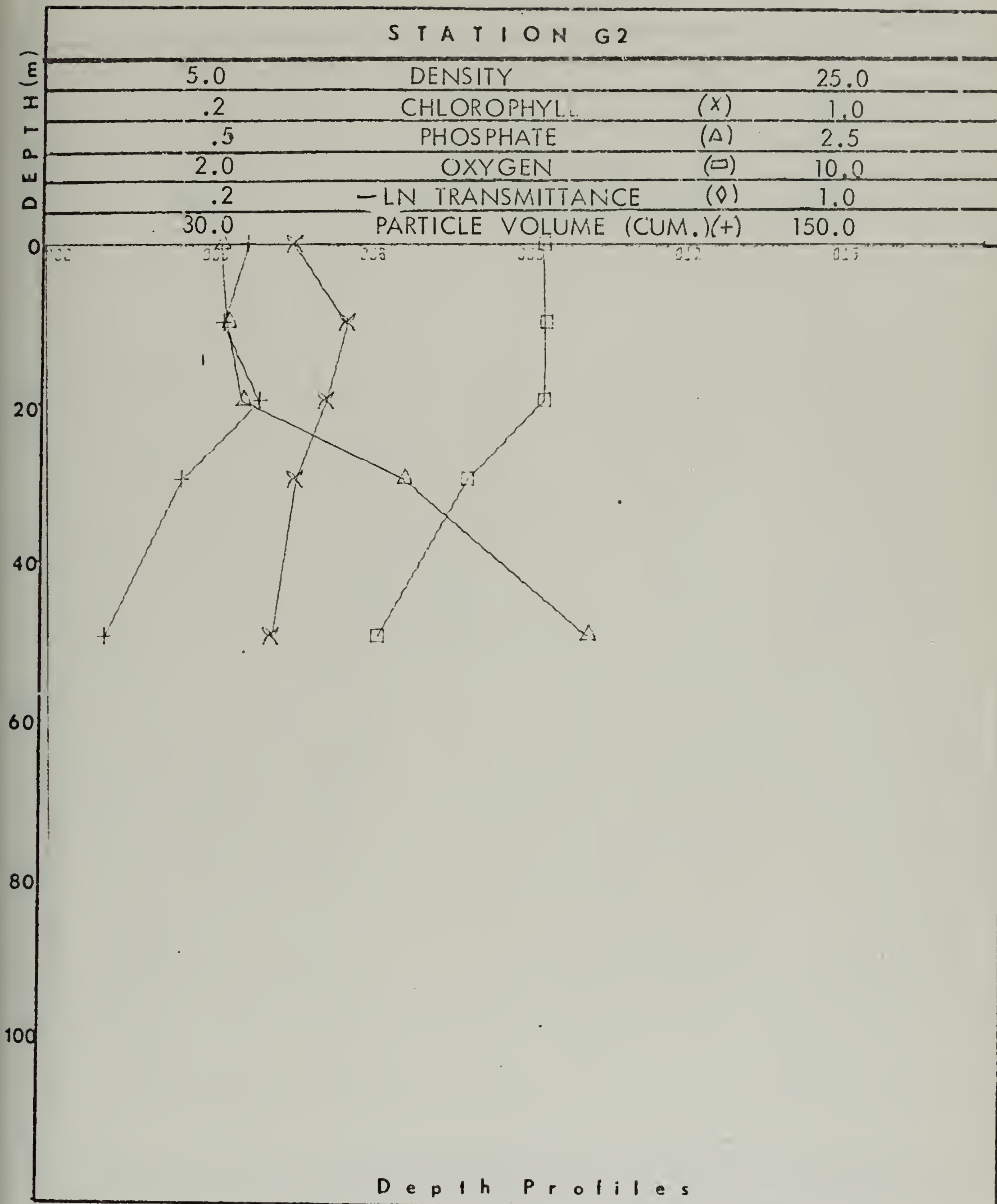

STATION G2
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 −LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 128

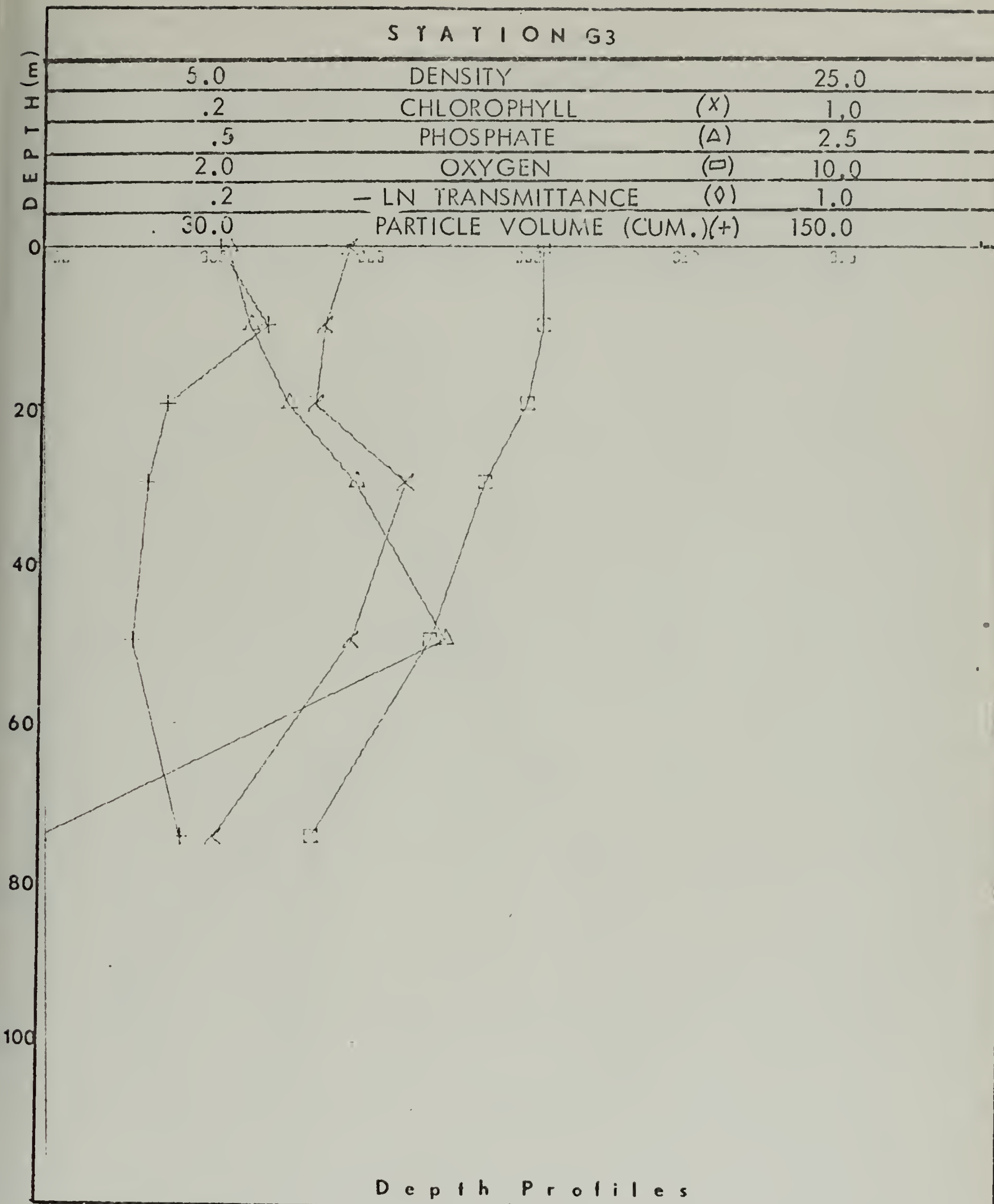

STATION G3
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 129

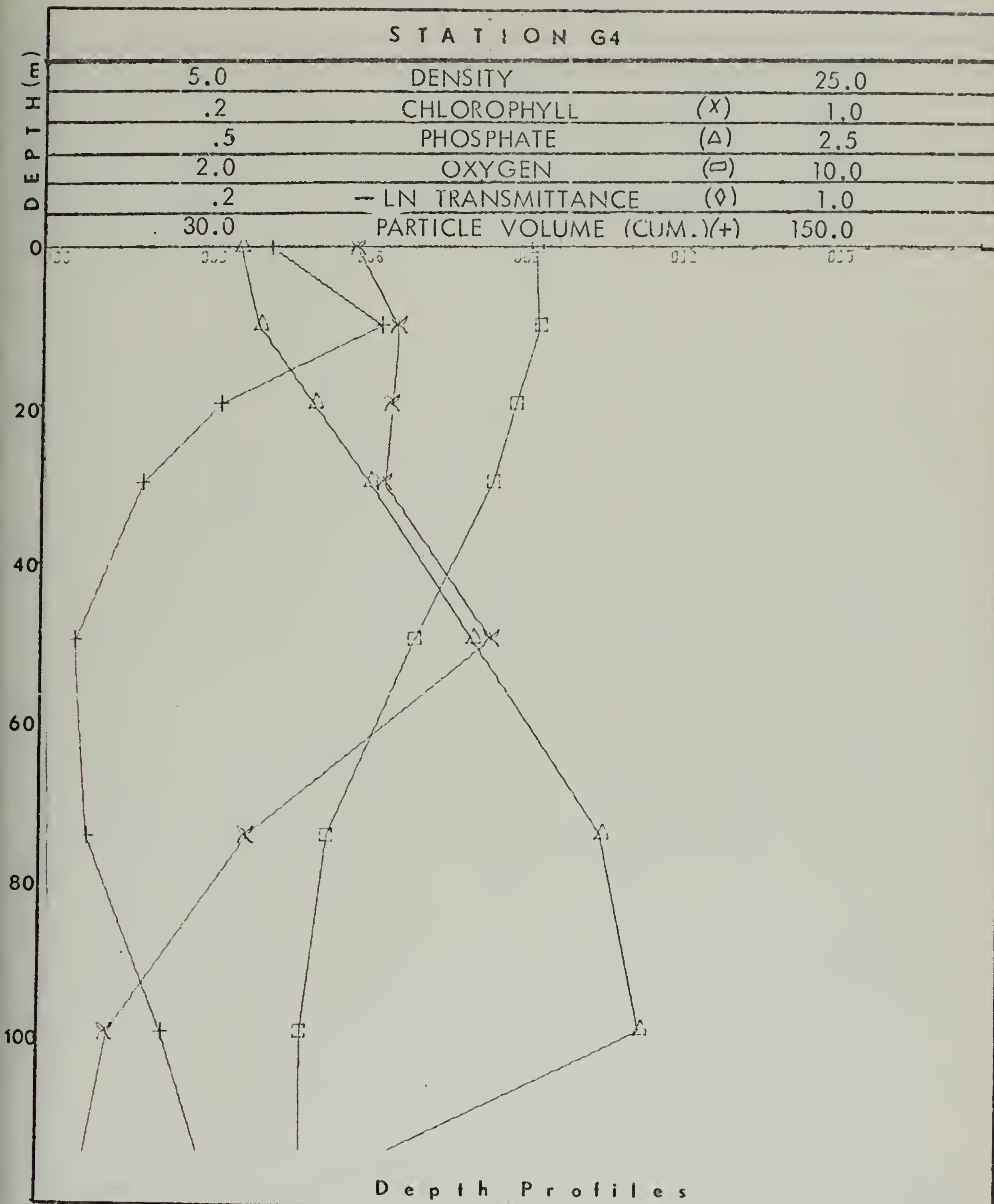

STATION G4
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 — LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
0
20
40
60
80
100
Depth Profiles

FIGURE 130

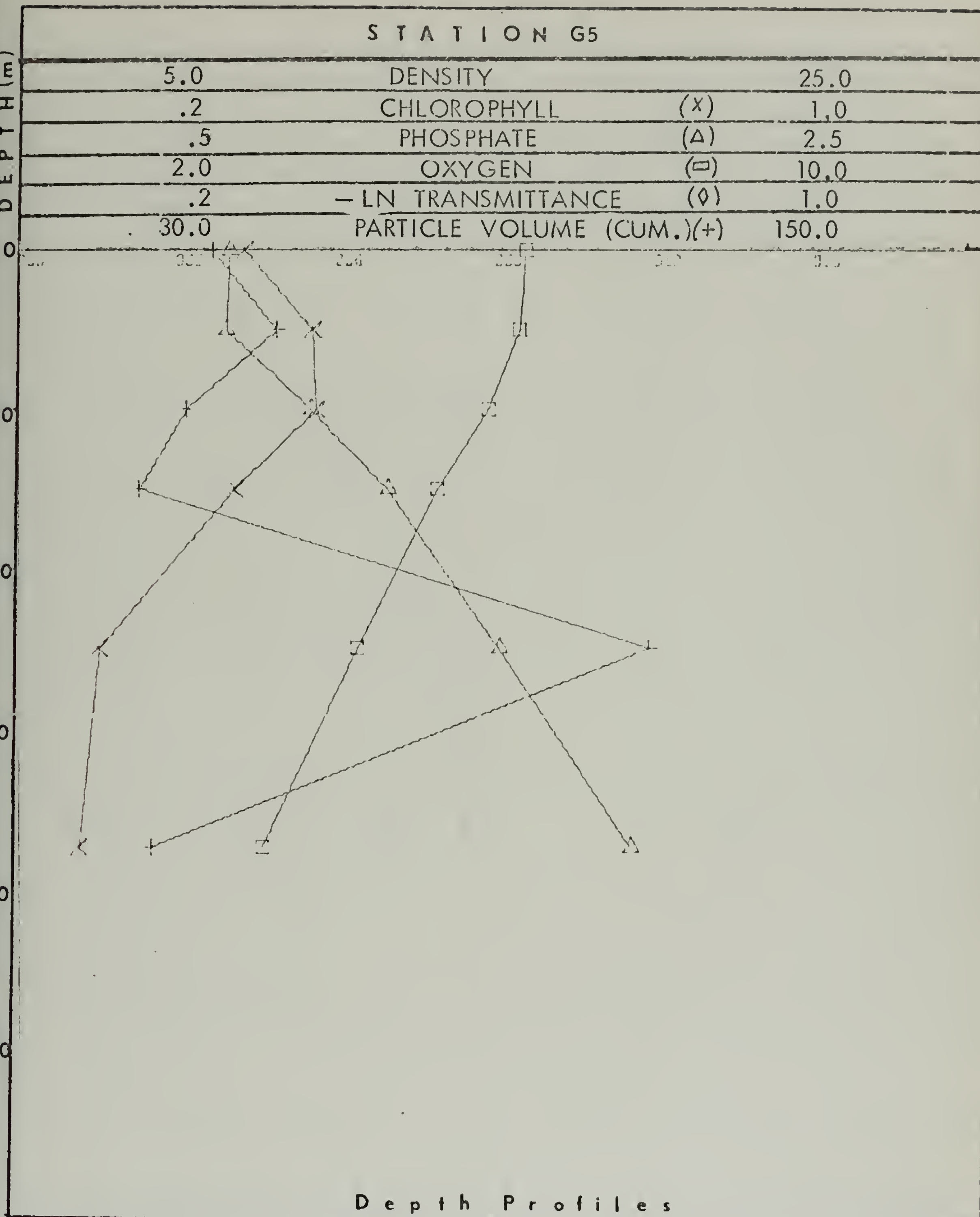
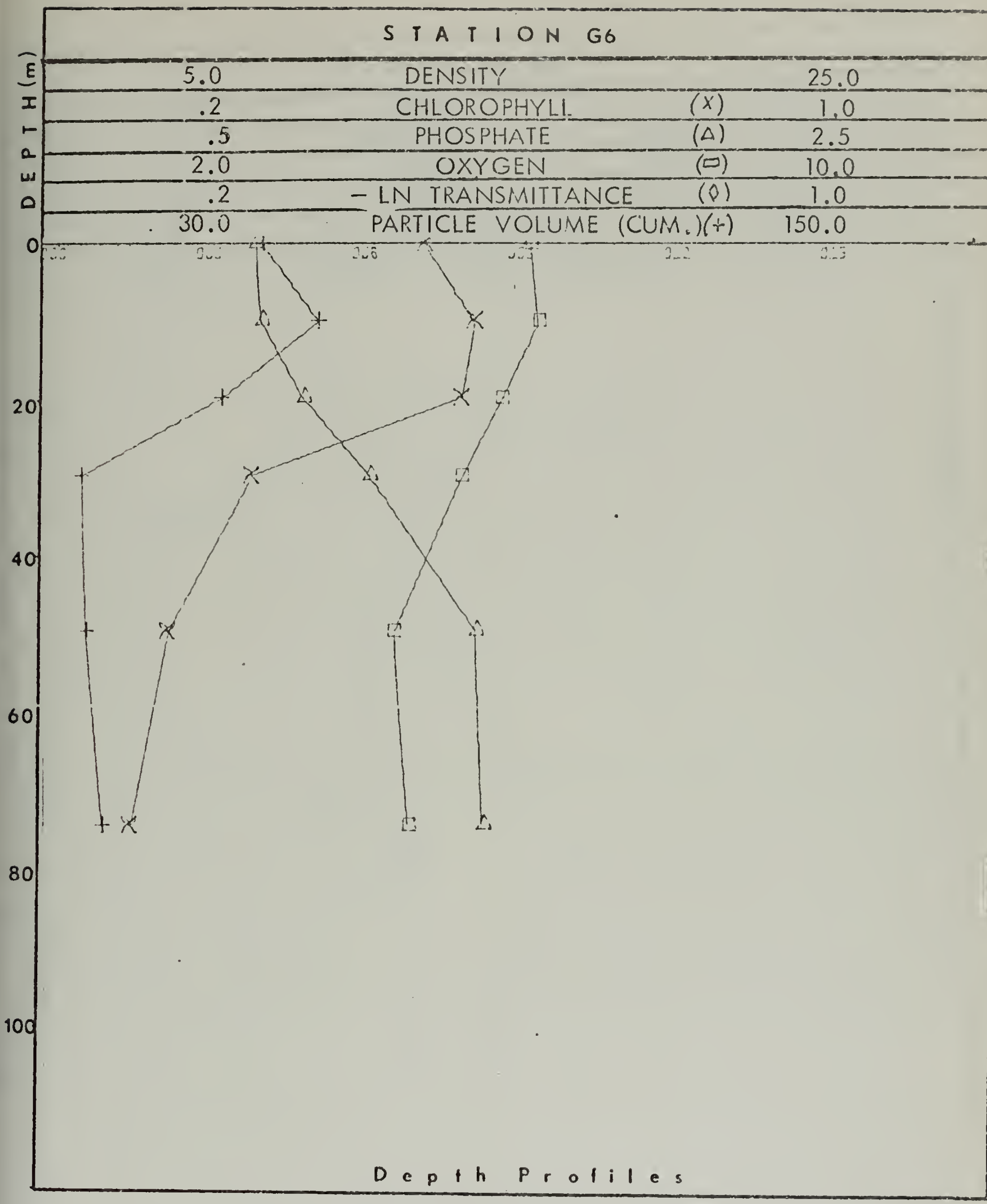

STATION G5
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 131



STATION G6
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
30.0 PARTICLE VOLUME (CUM.)(+) 150.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 132

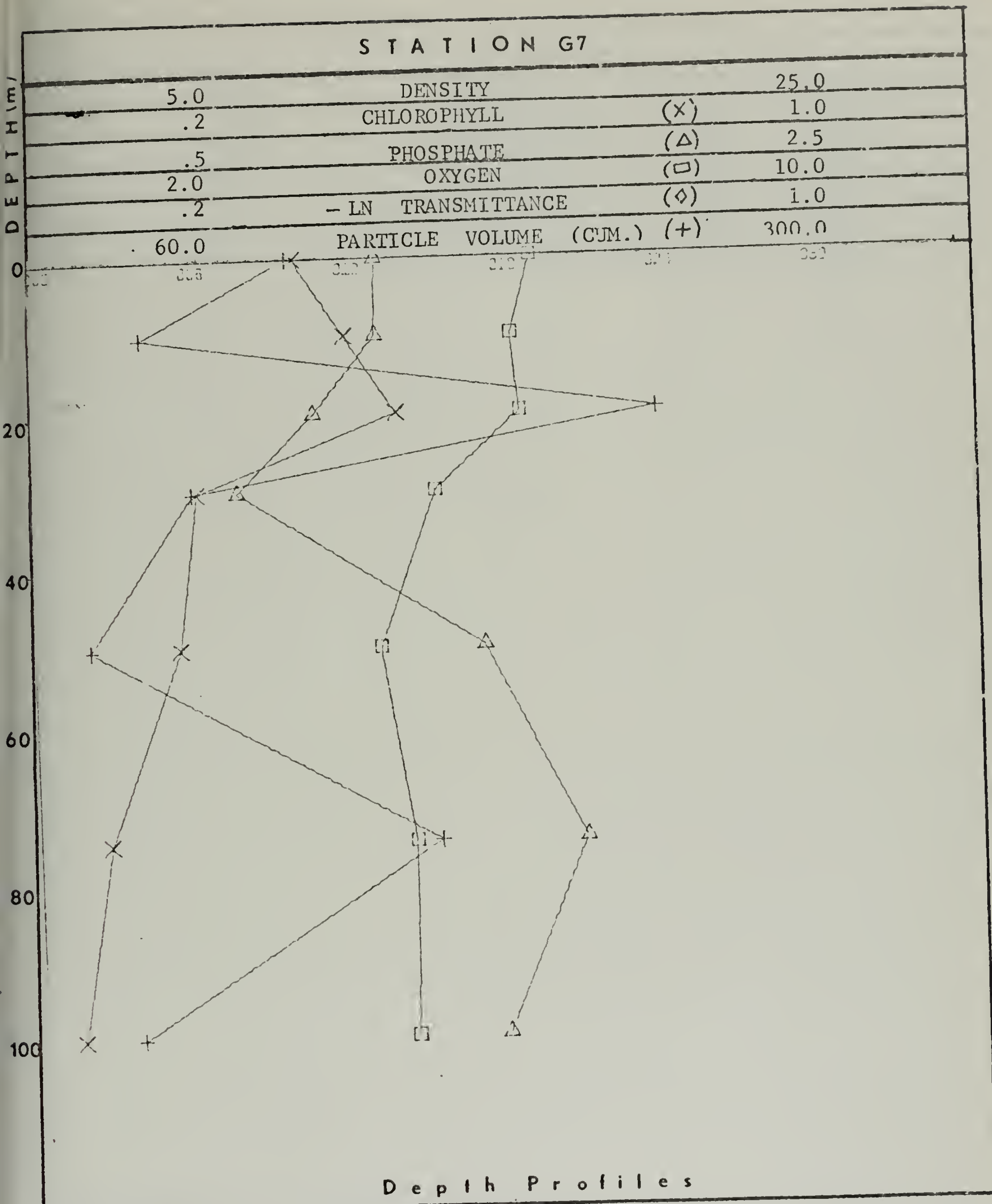

STATION G7
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◇) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 133

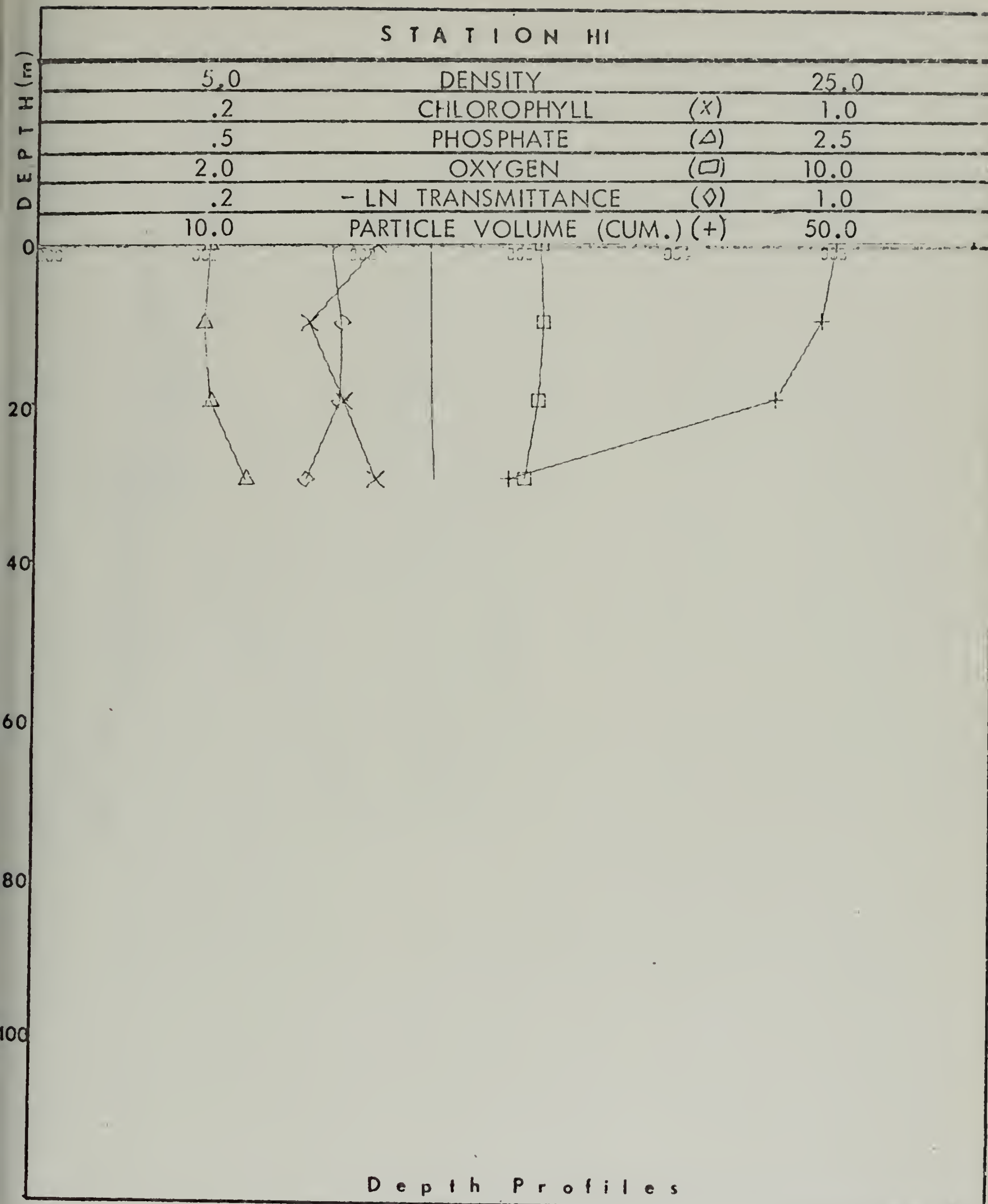

STATION H1
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
10.0 PARTICLE VOLUME (CUM.) (+) 50.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 134

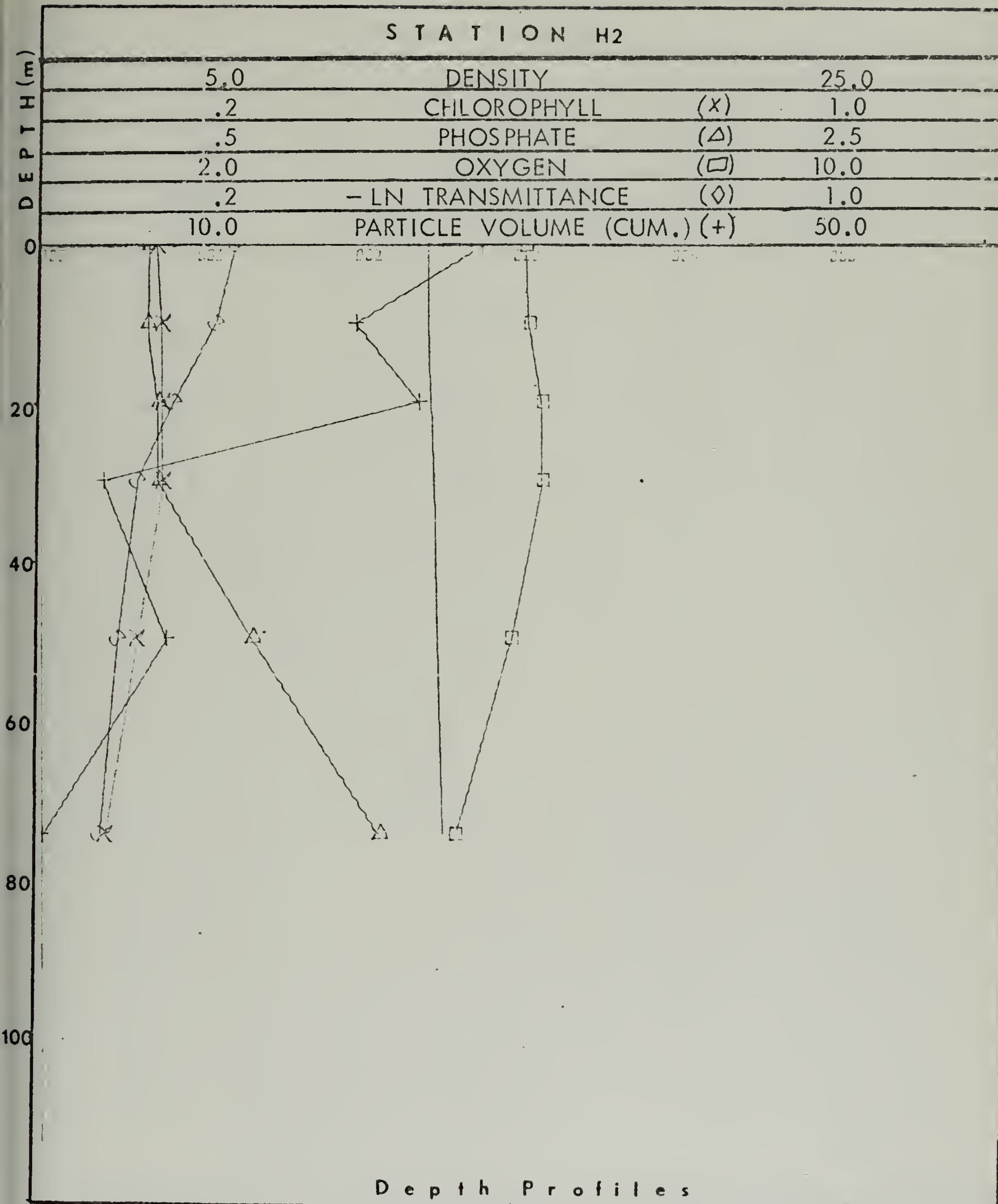
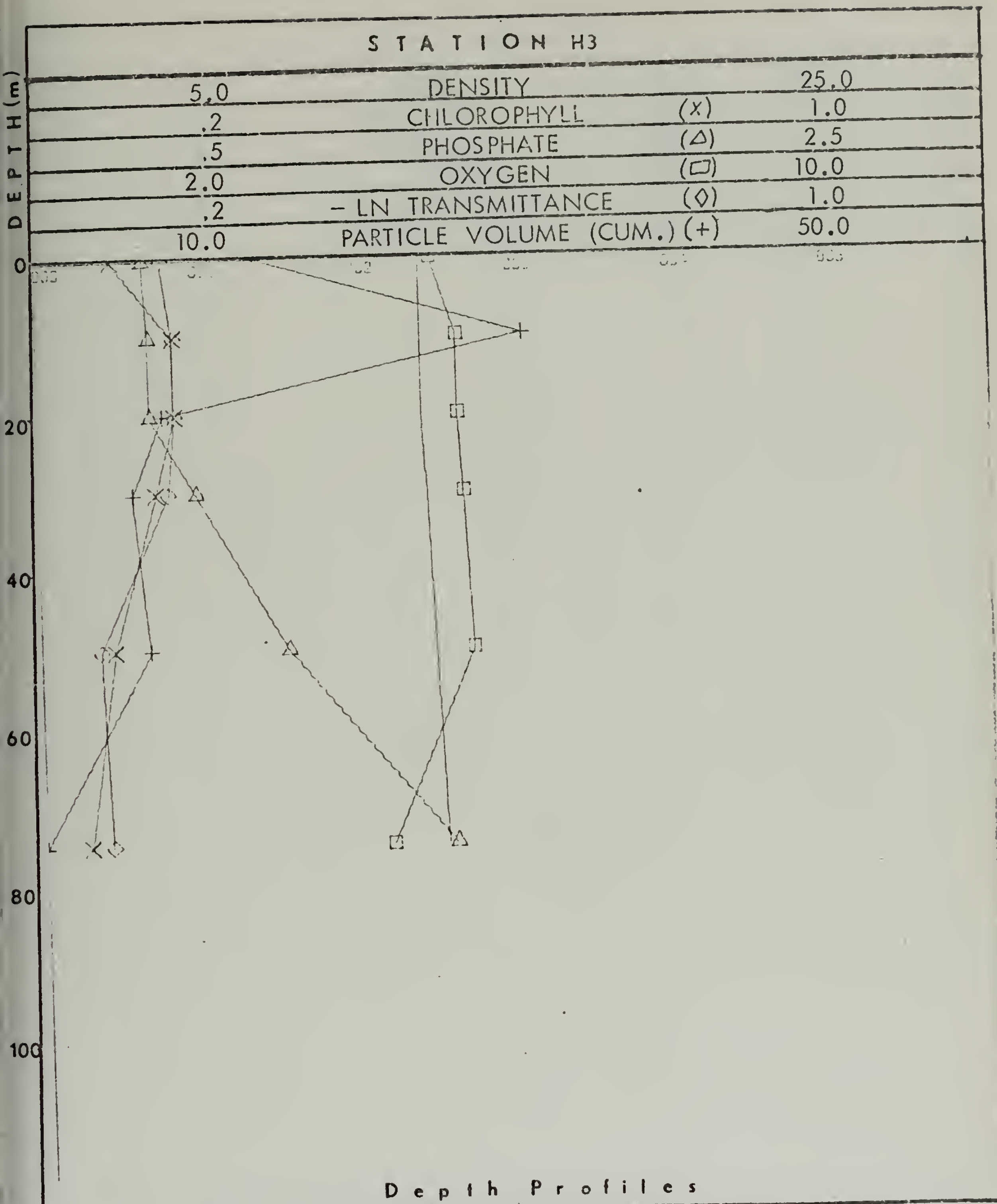

STATION H2
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 – LN TRANSMITTANCE (◊) 1.0
10.0 PARTICLE VOLUME (CUM.) (+) 50.0
0
20
40
60
80
100
Depth Profiles

FIGURE 135



STATION H3
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 – LN TRANSMITTANCE (◊) 1.0
10.0 PARTICLE VOLUME (CUM.) (+) 50.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 136

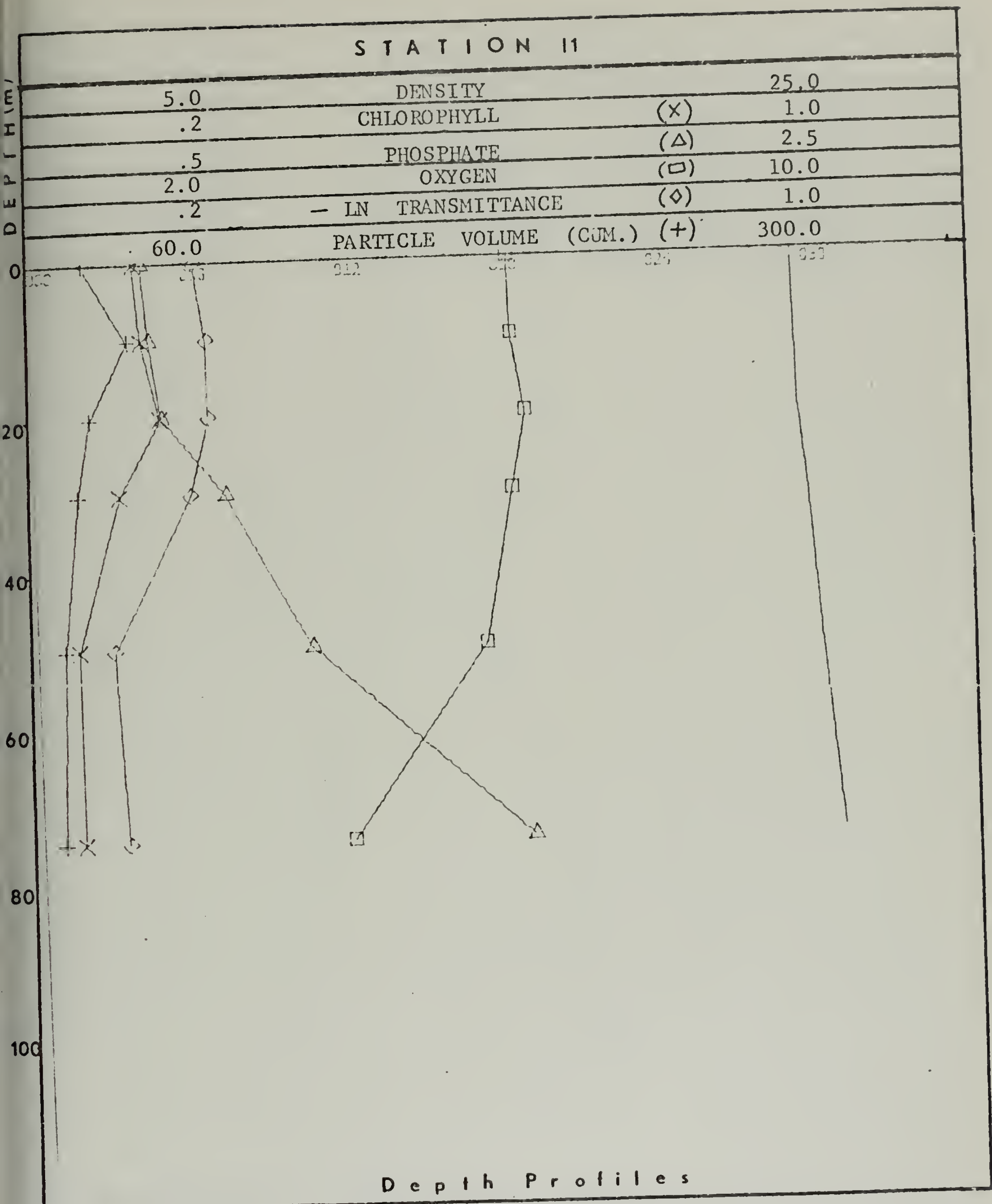
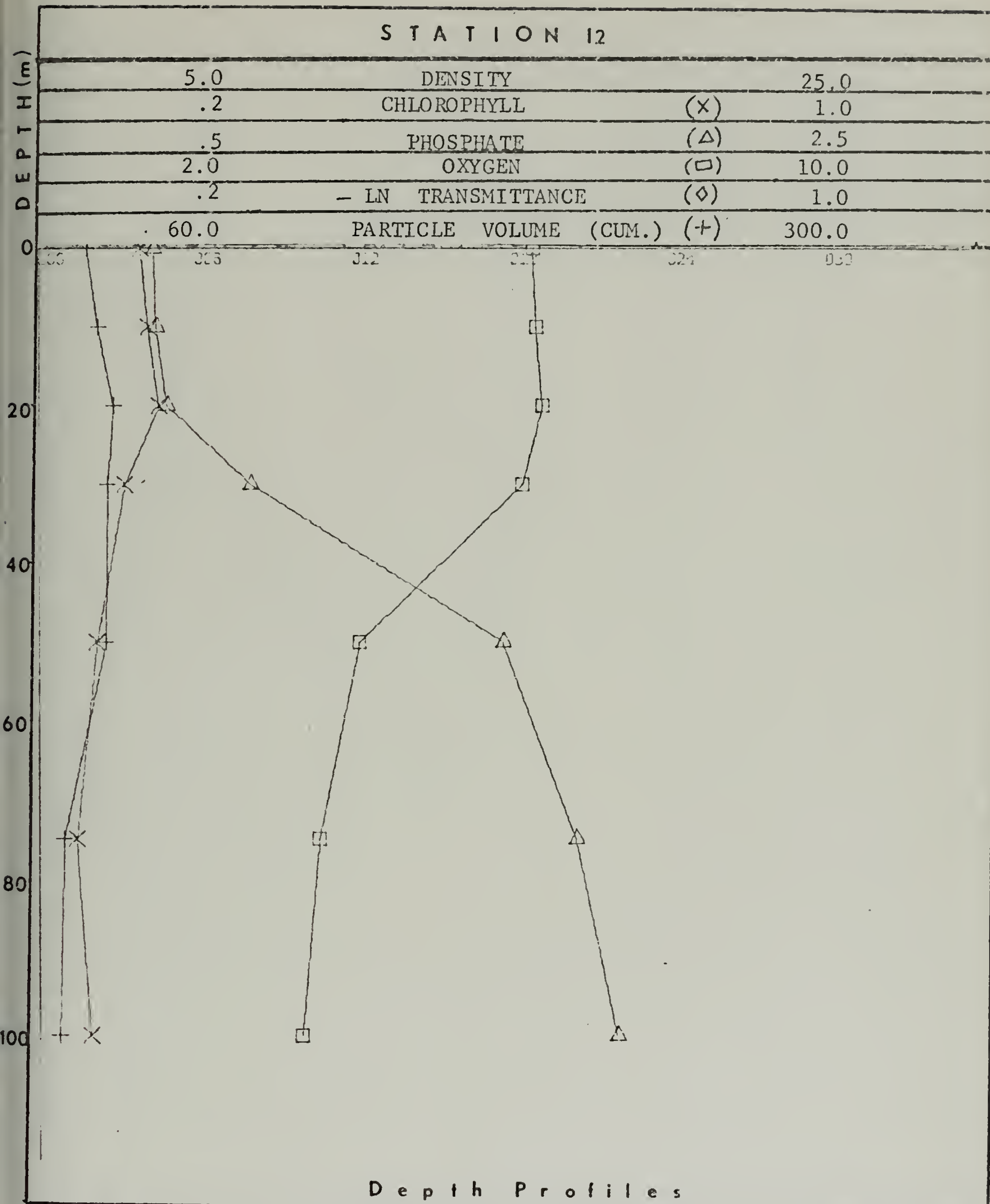

STATION 11
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◇) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
DEPTH (M)
0
20
40
60
80
100
Depth Profiles

FIGURE 137



STATION 12
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 – LN TRANSMITTANCE (◇) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
0
20
40
60
80
100
Depth Profiles

FIGURE 138

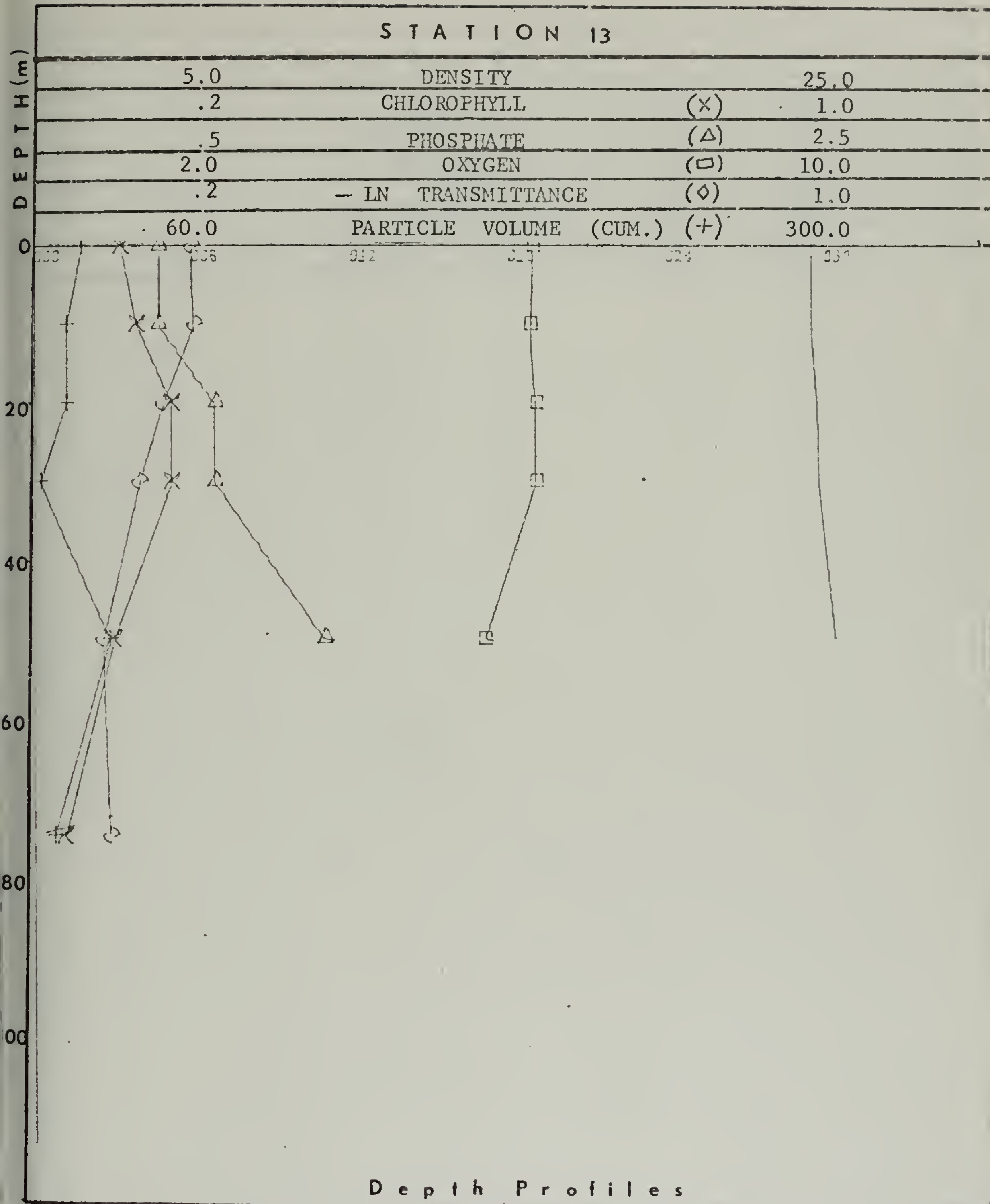

STATION 13
5.0
DENSITY
25.0
.2
CHLOROPHYLL
(×)
1.0
.5
PHOSPHATE
(△)
2.5
2.0
OXYGEN
(▭)
10.0
.2
— LN TRANSMITTANCE
(◇)
1.0
60.0
PARTICLE VOLUME (CUM.)
(+)
300.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 139

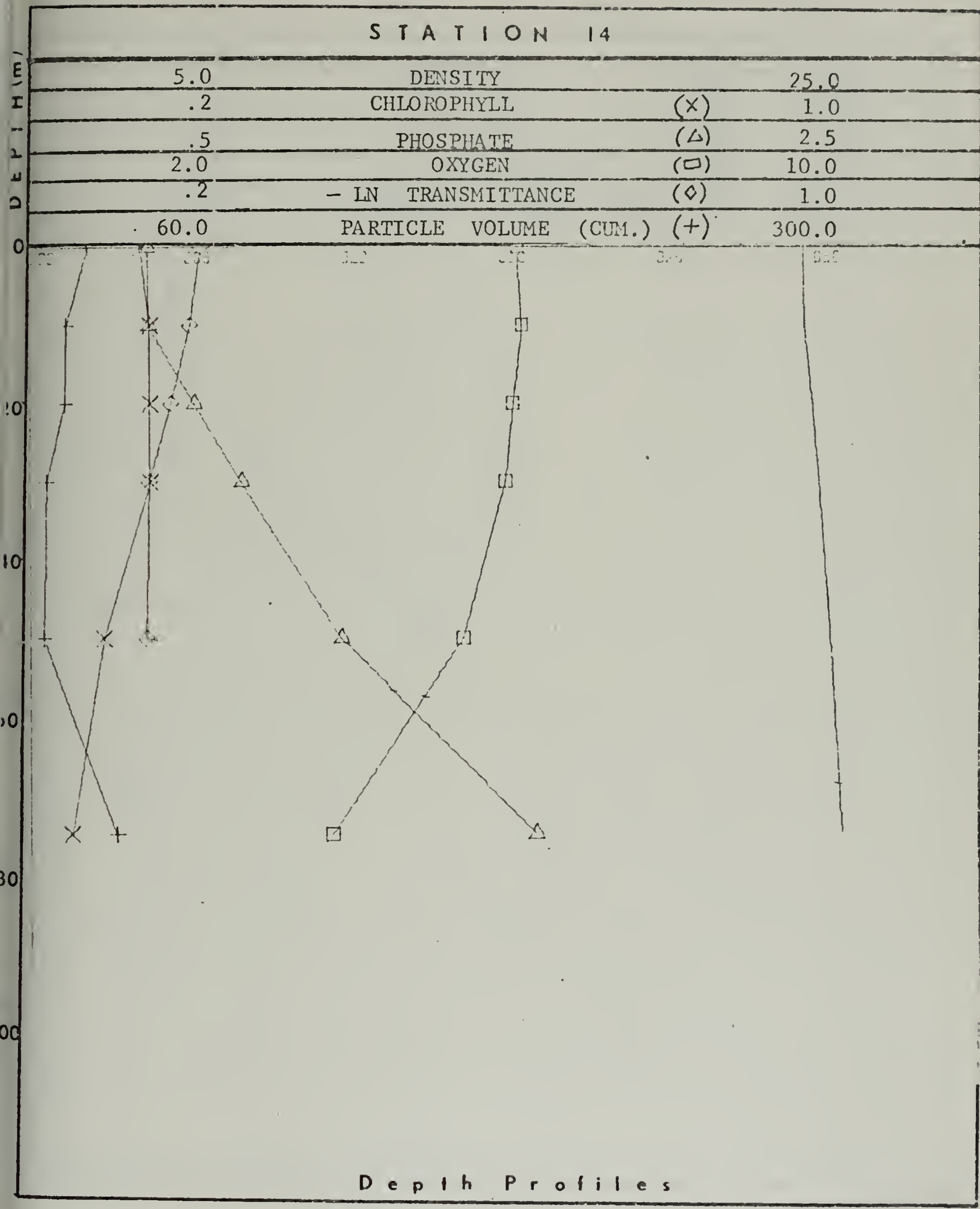

STATION 14
DEPTH (M)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (×) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◇) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
0
10
20
30
40
50
Depth Profiles

FIGURE 140

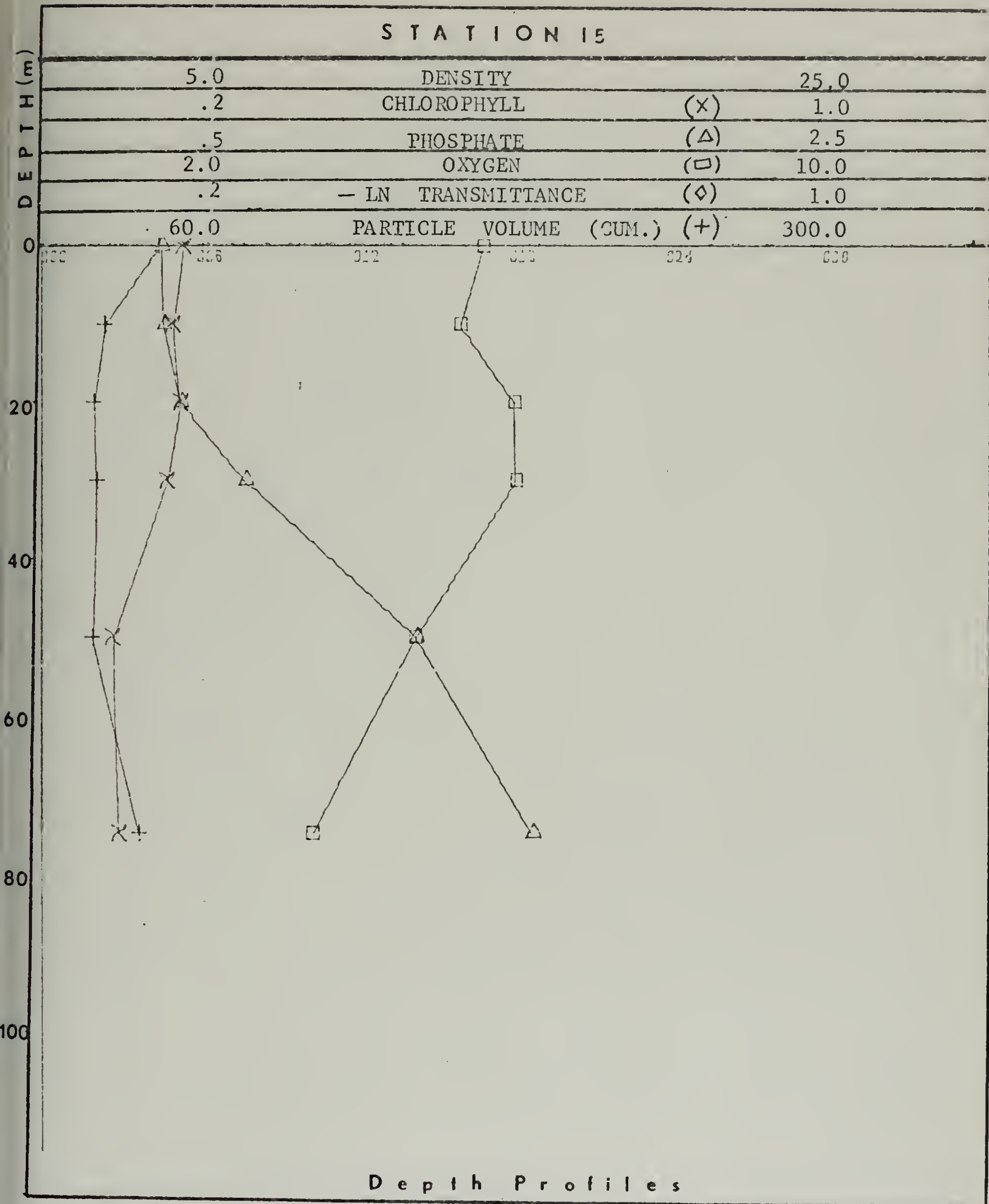

STATION 15
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◇) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
0
20
40
60
80
100
Depth Profiles

FIGURE 141

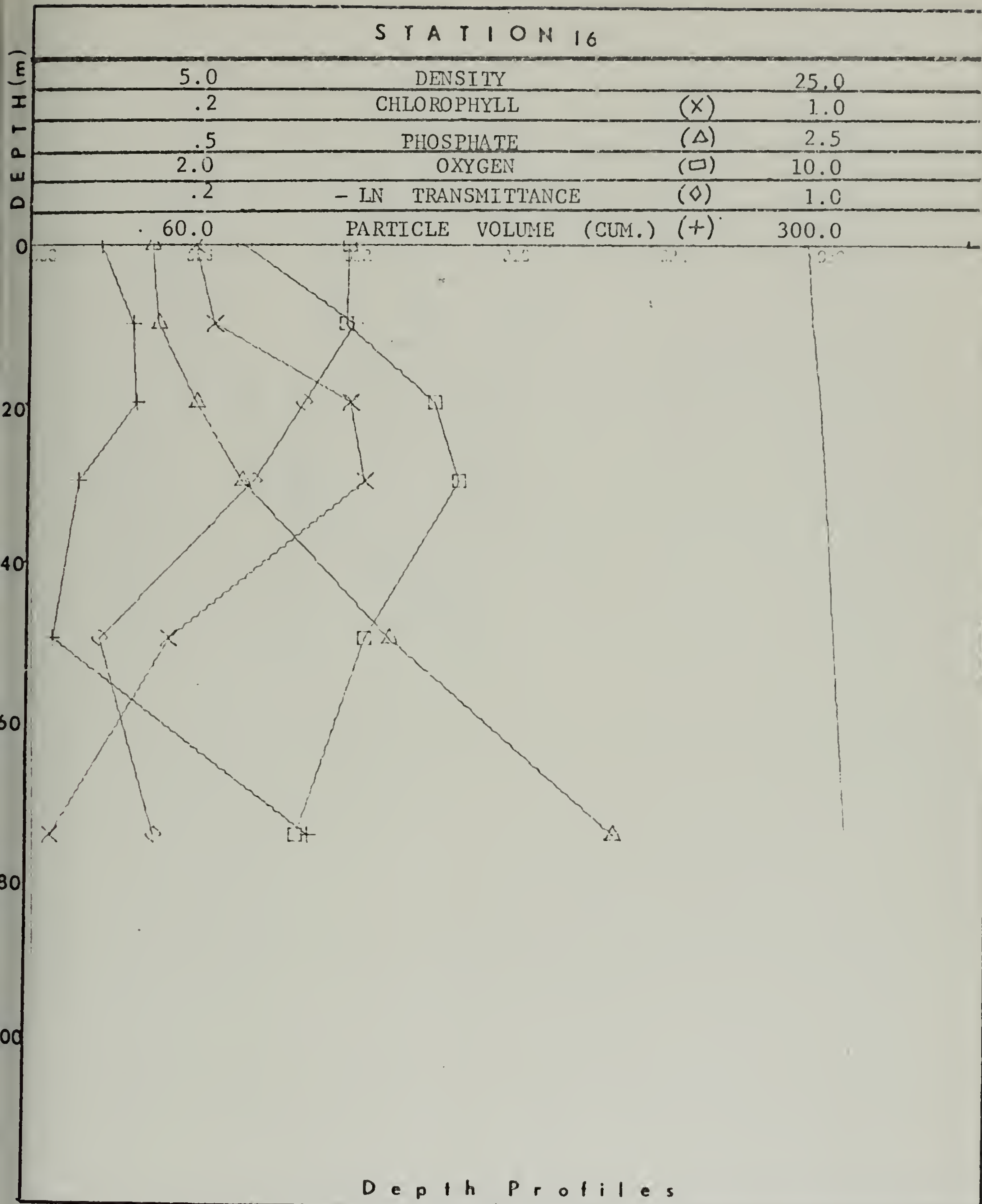

STATION 16
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 – LN TRANSMITTANCE (◊) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
0
20
40
60
80
100
Depth Profiles

FIGURE 142

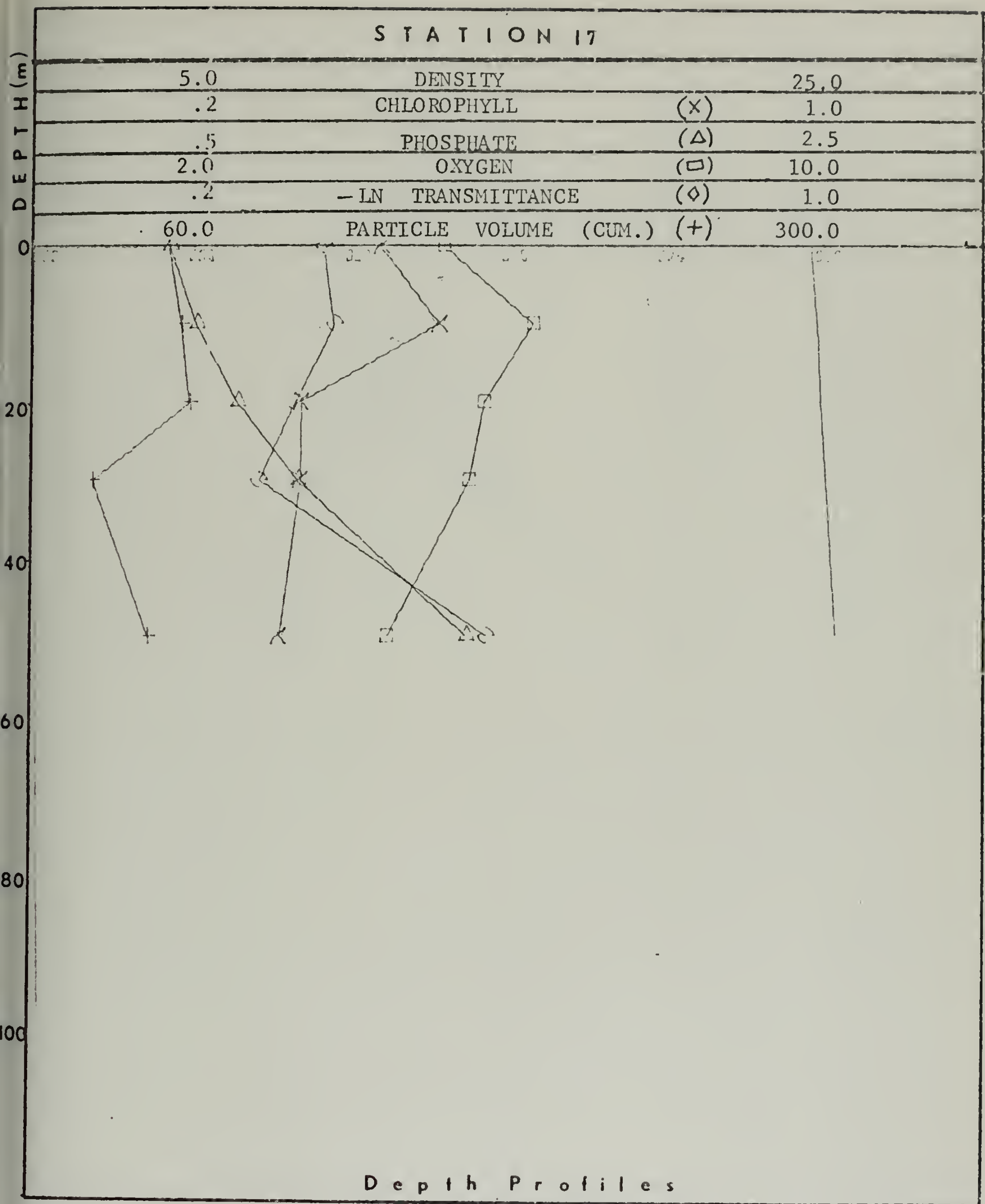

STATION 17
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (▭) 10.0
.2 −LN TRANSMITTANCE (◇) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 143

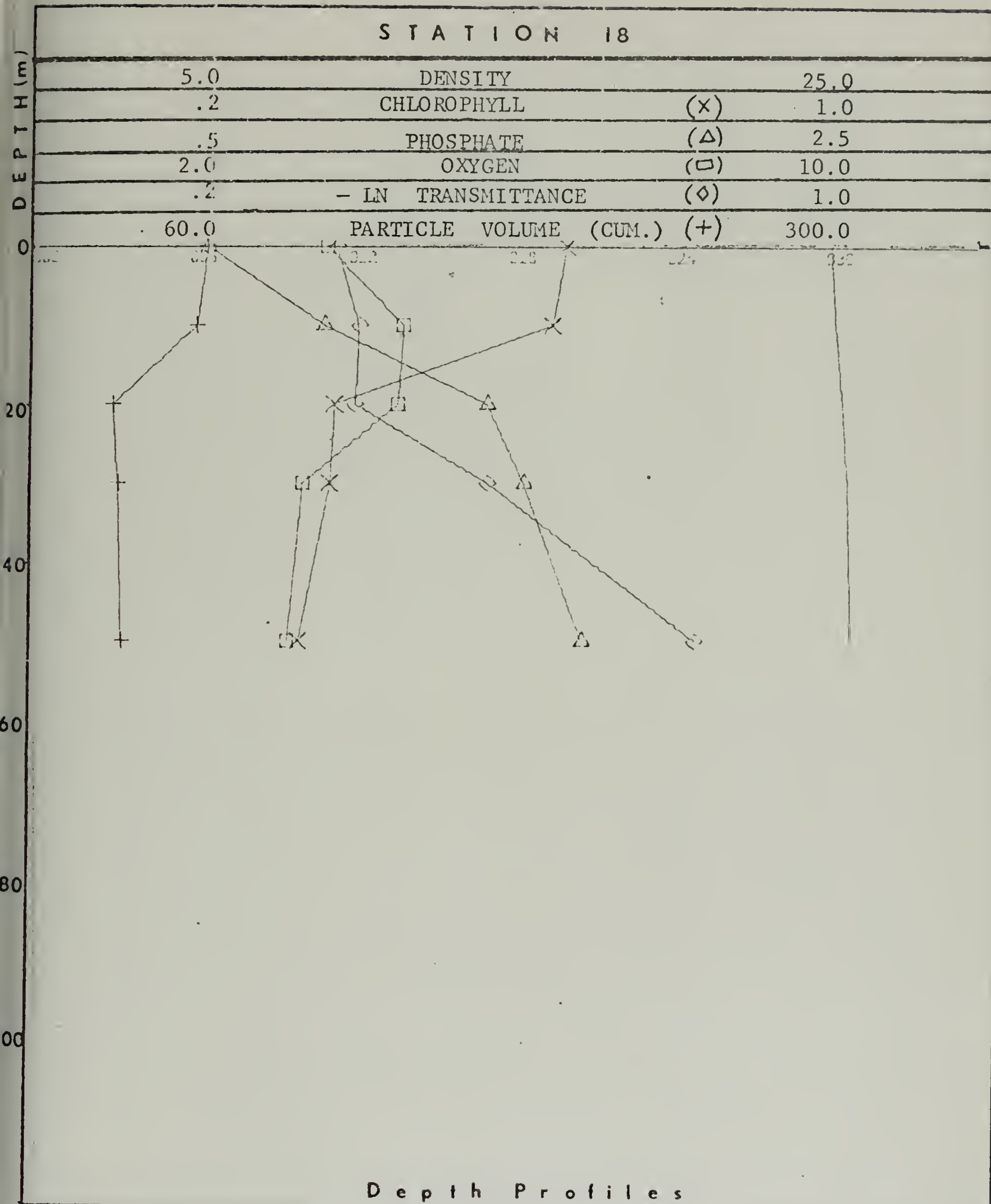
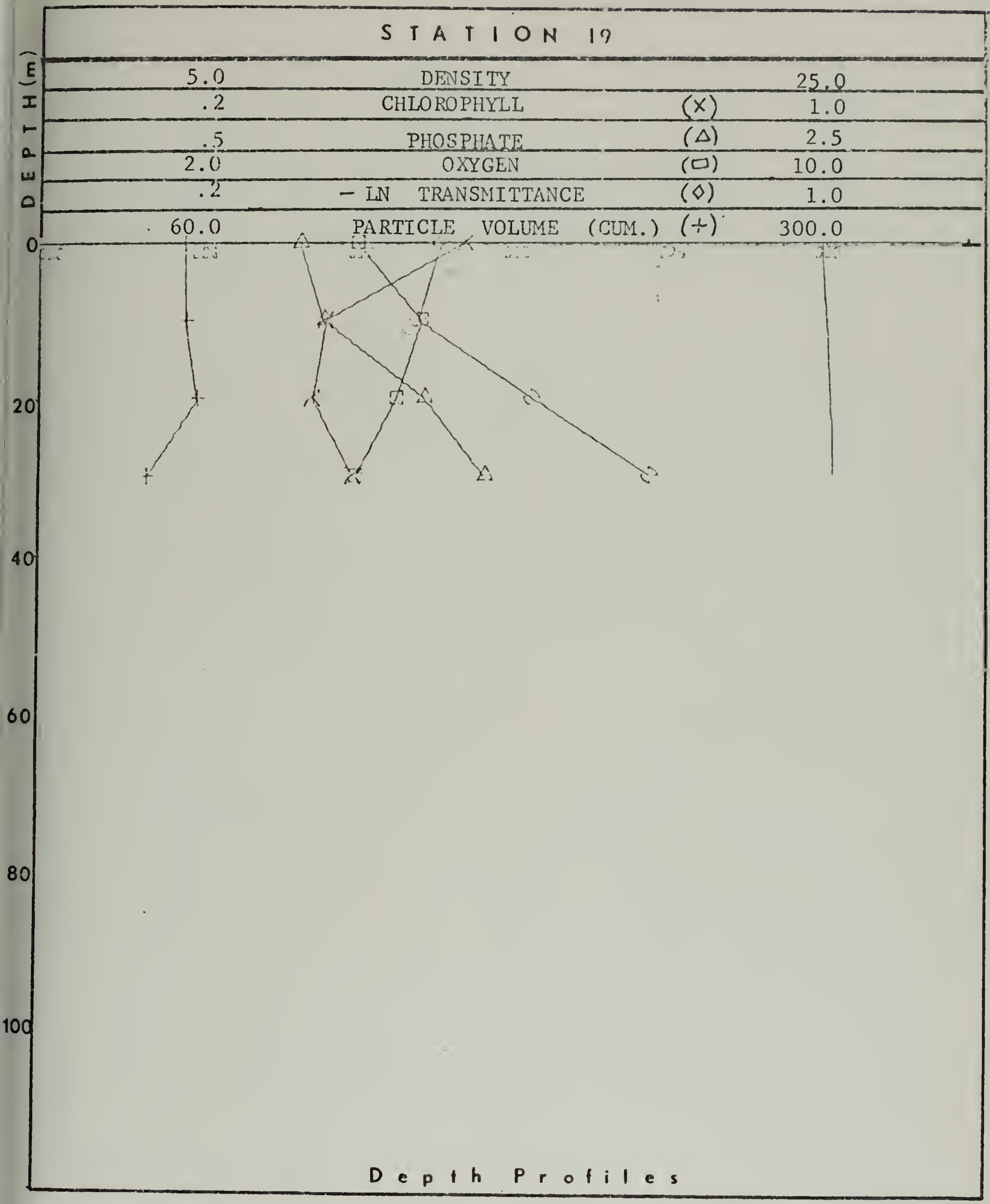

STATION 18
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 - LN TRANSMITTANCE (◇) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
DEPTH(m)
0
20
40
60
80
00
Depth Profiles

FIGURE 144



STATION 19
5.0 DENSITY 25.0
.2 CHLOROPHYLL (×) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◇) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 145

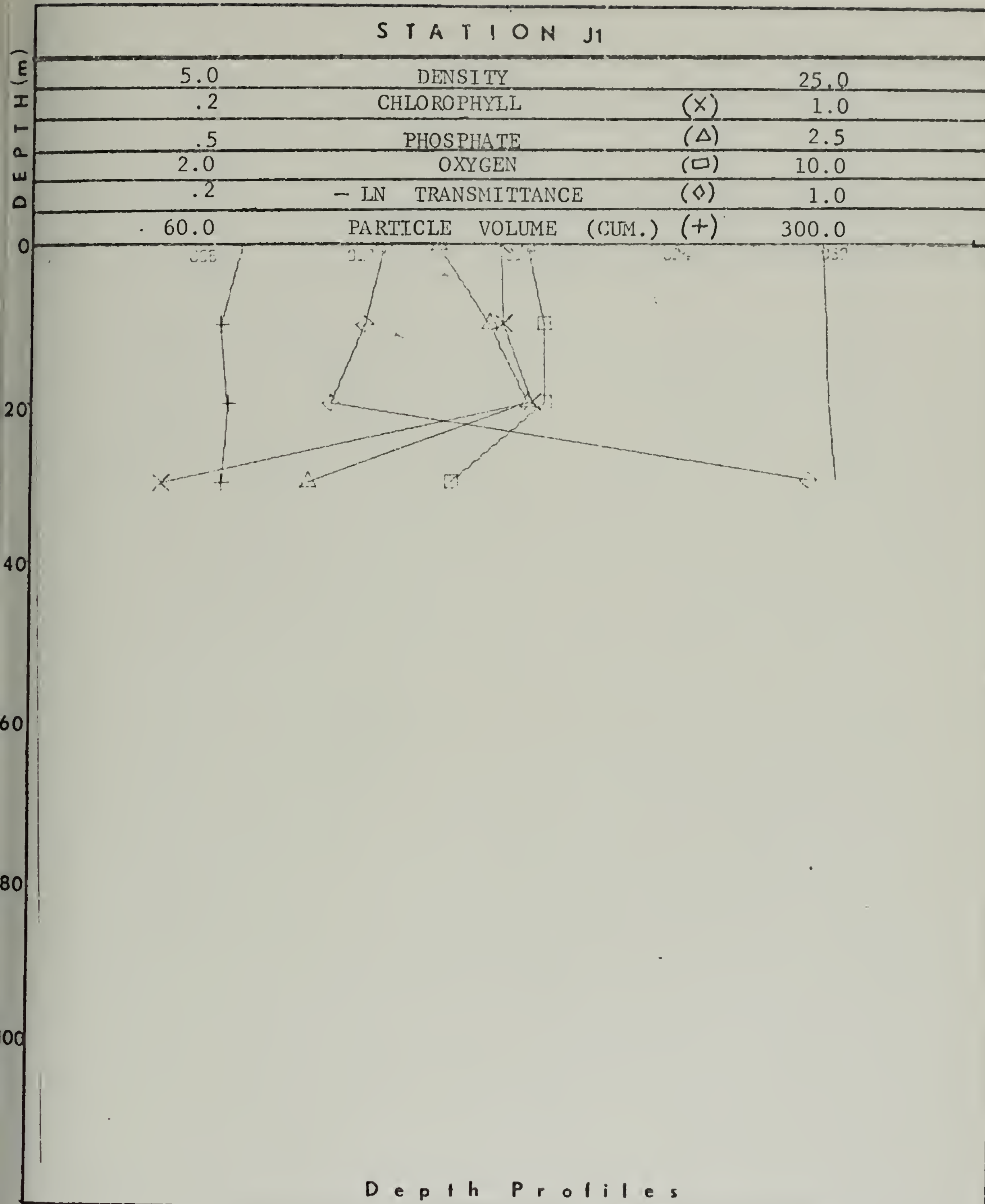

STATION J1
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 146

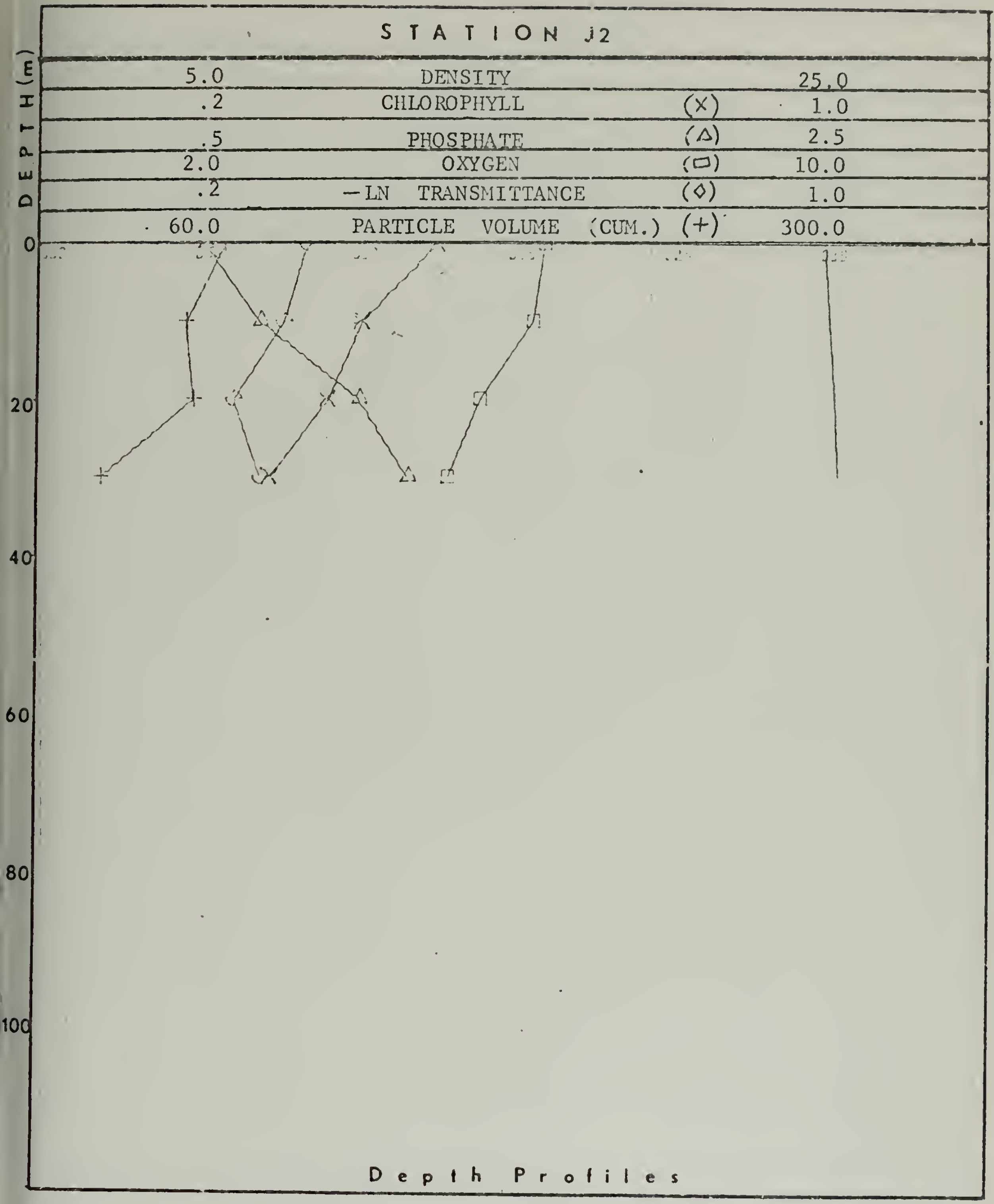

STATION J2
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 −LN TRANSMITTANCE (◊) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 147

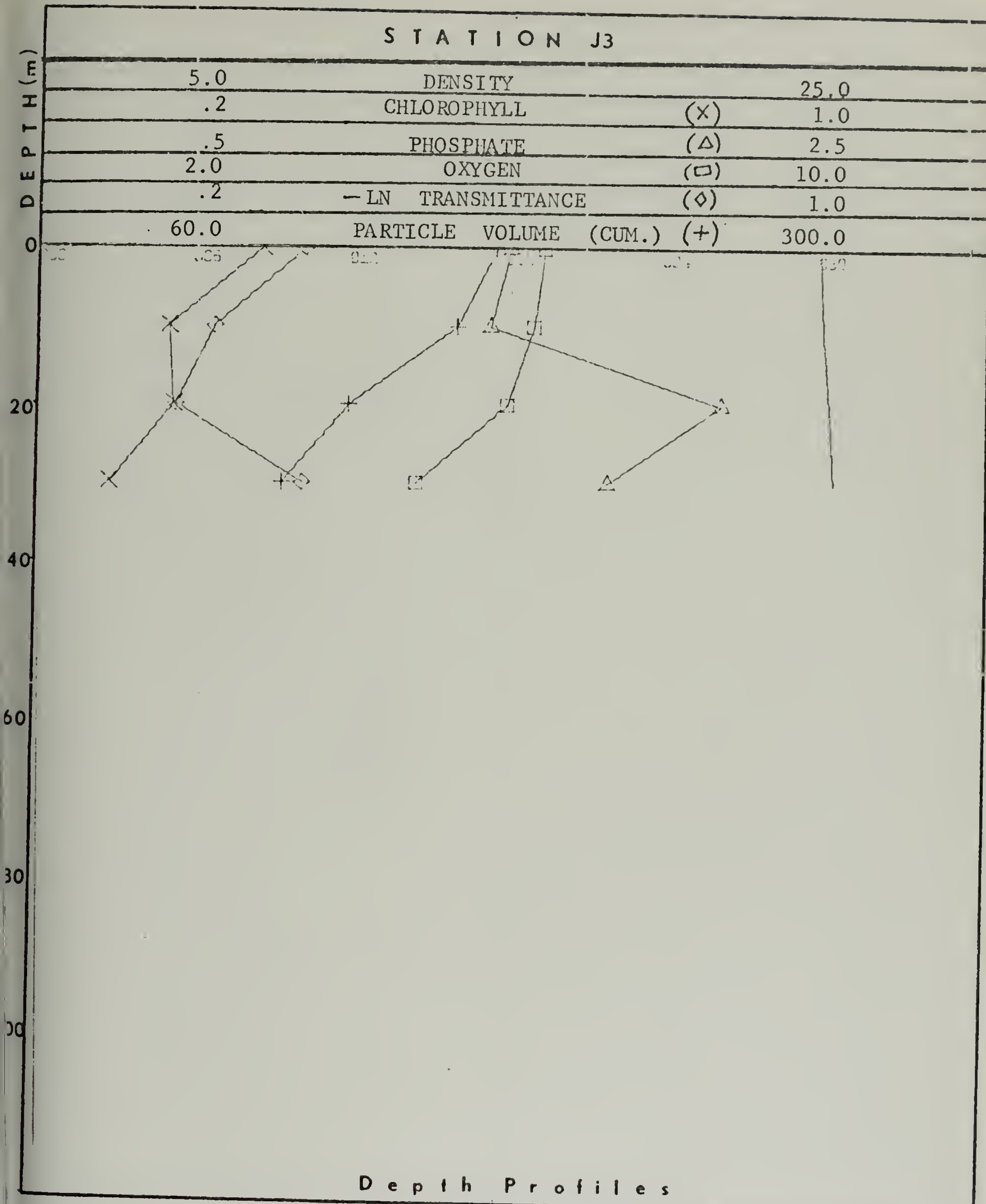

STATION J3
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 −LN TRANSMITTANCE (◇) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
DEPTH (m)
0
20
40
60
Depth Profiles

FIGURE 148

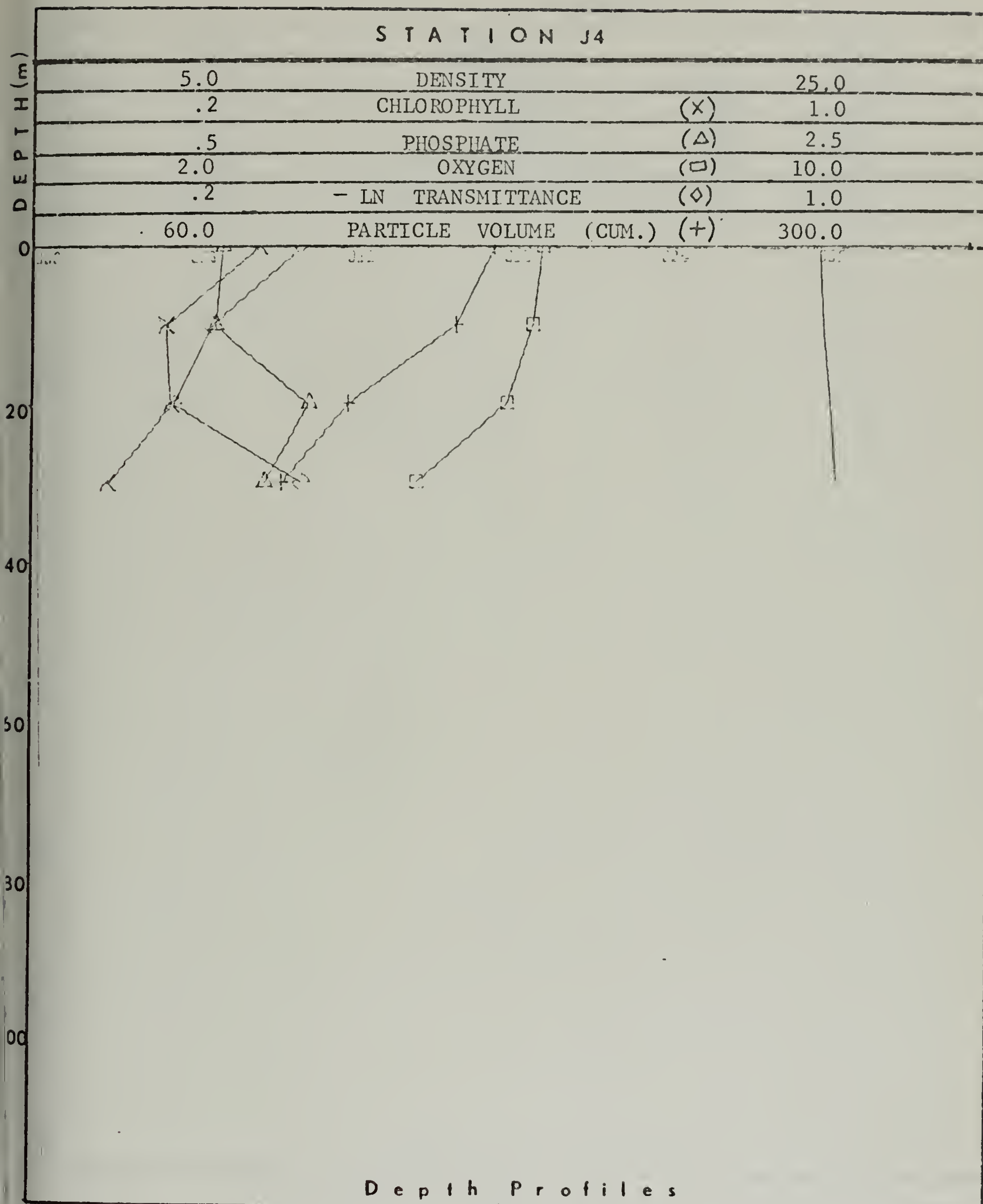

STATION J4
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◇) 1.0
60.0 PARTICLE VOLUME (CUM.) (+) 300.0
DEPTH (m)
0
20
40
Depth Profiles

FIGURE 149

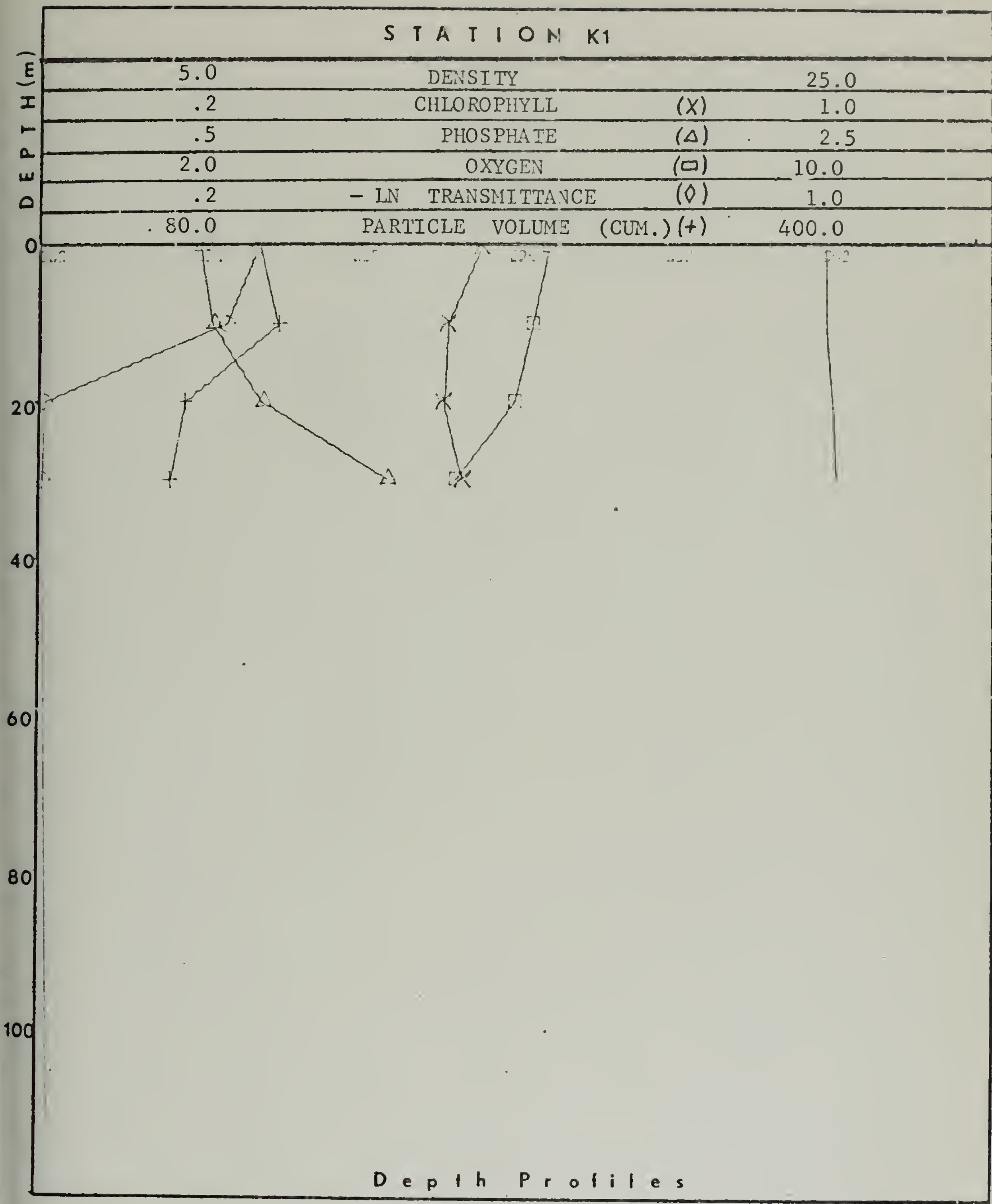
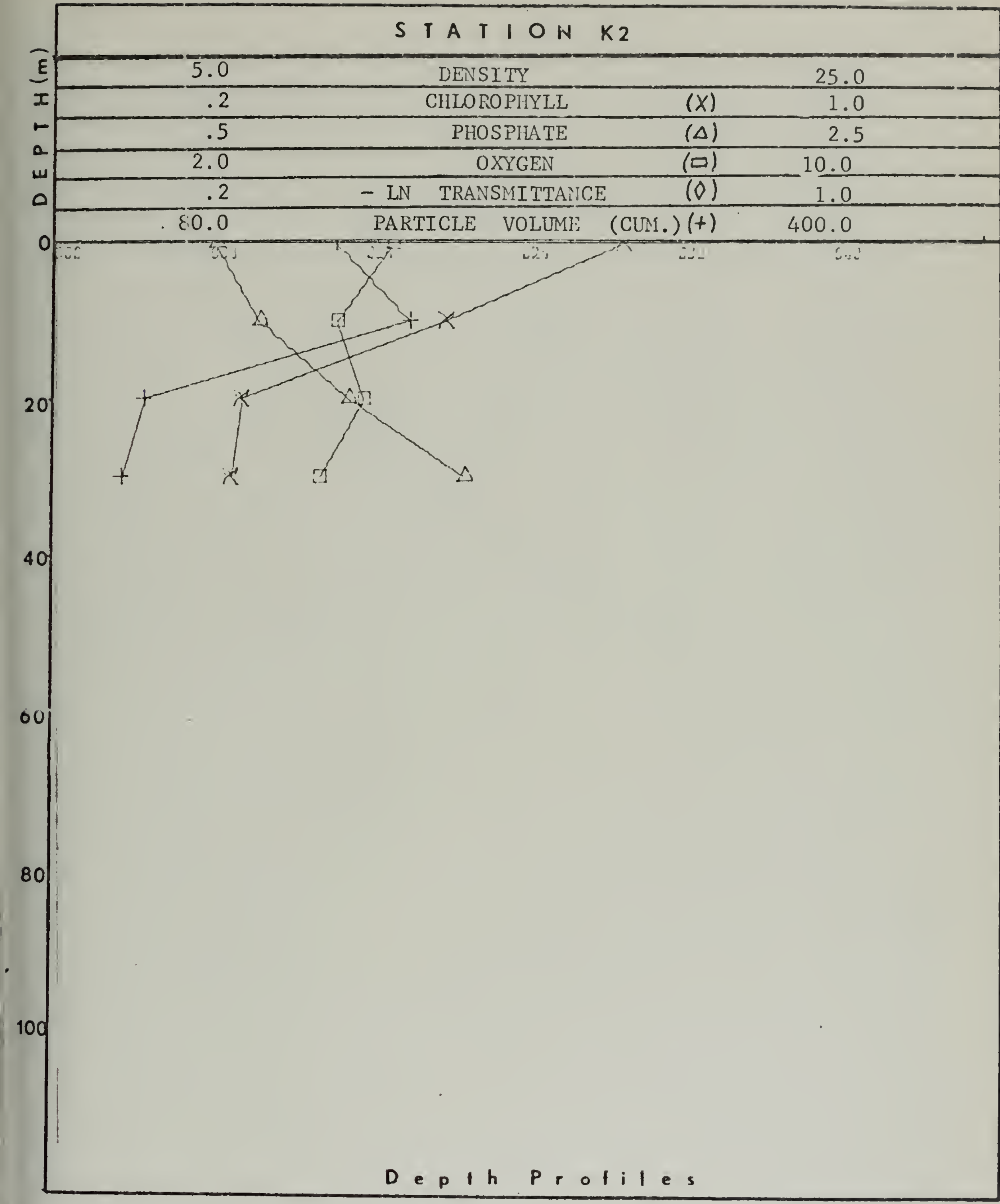

STATION K1
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 150



STATION K2
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 - LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 151

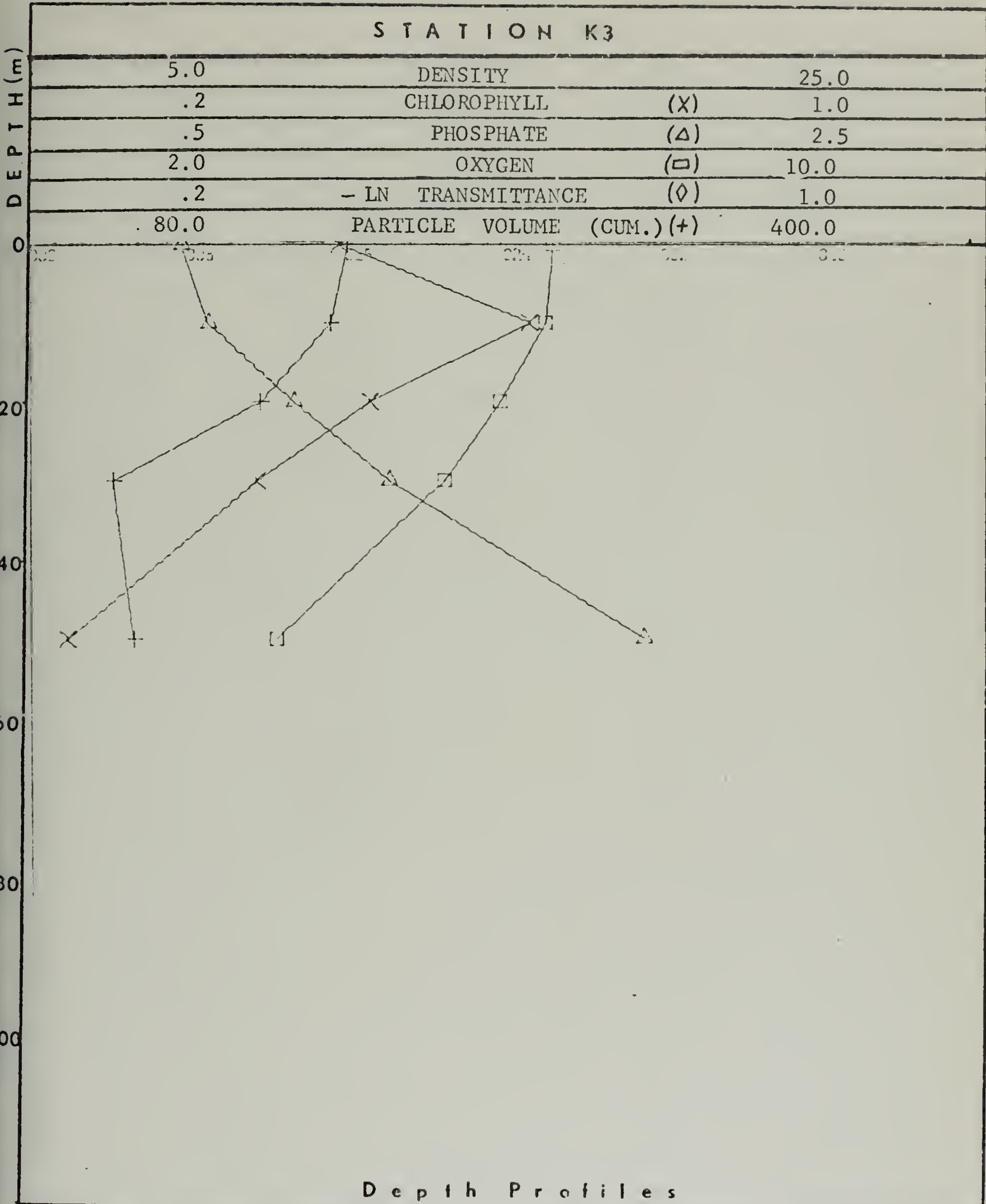

STATION K3
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 – LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 152

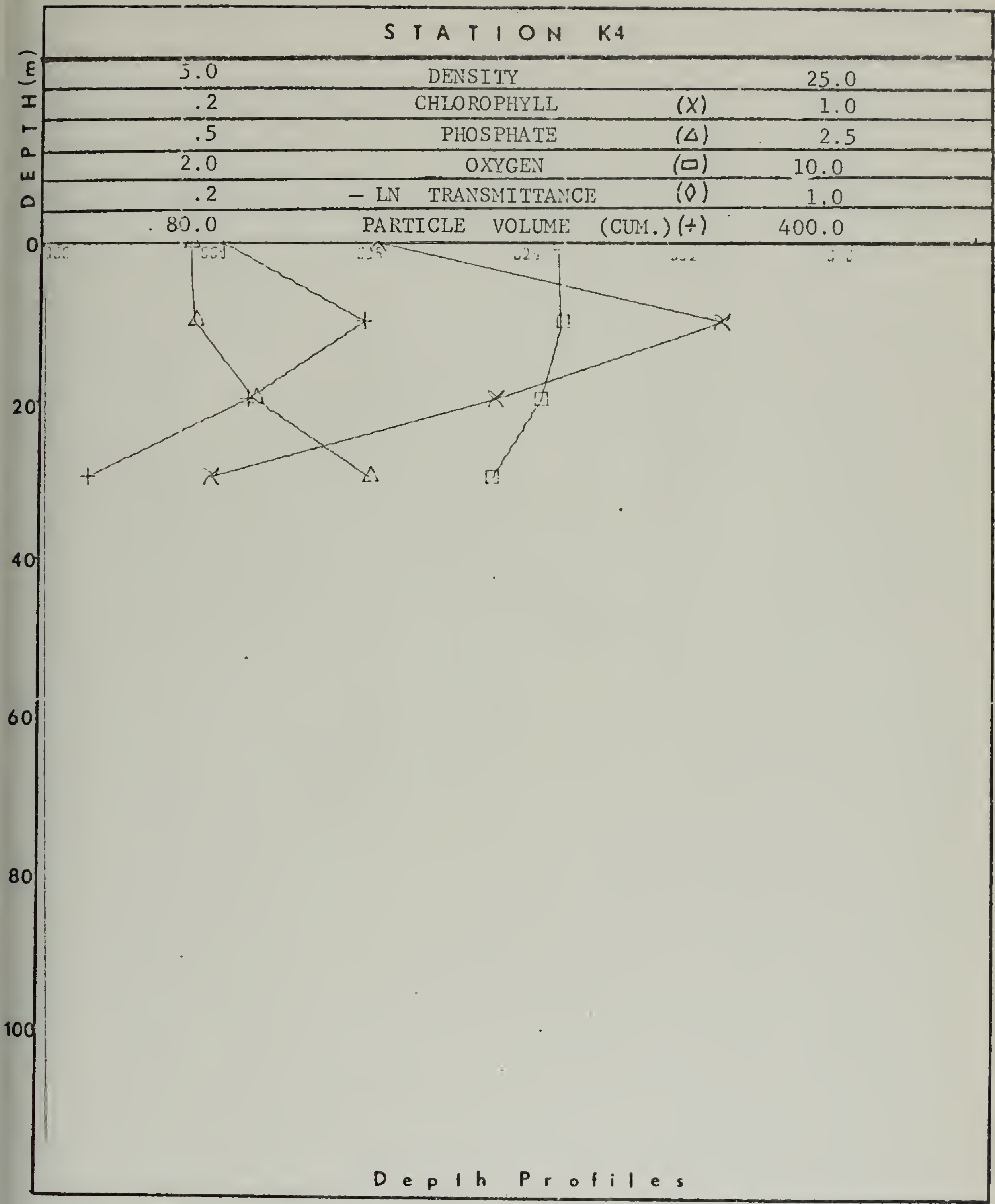

STATION K4
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 – LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 153

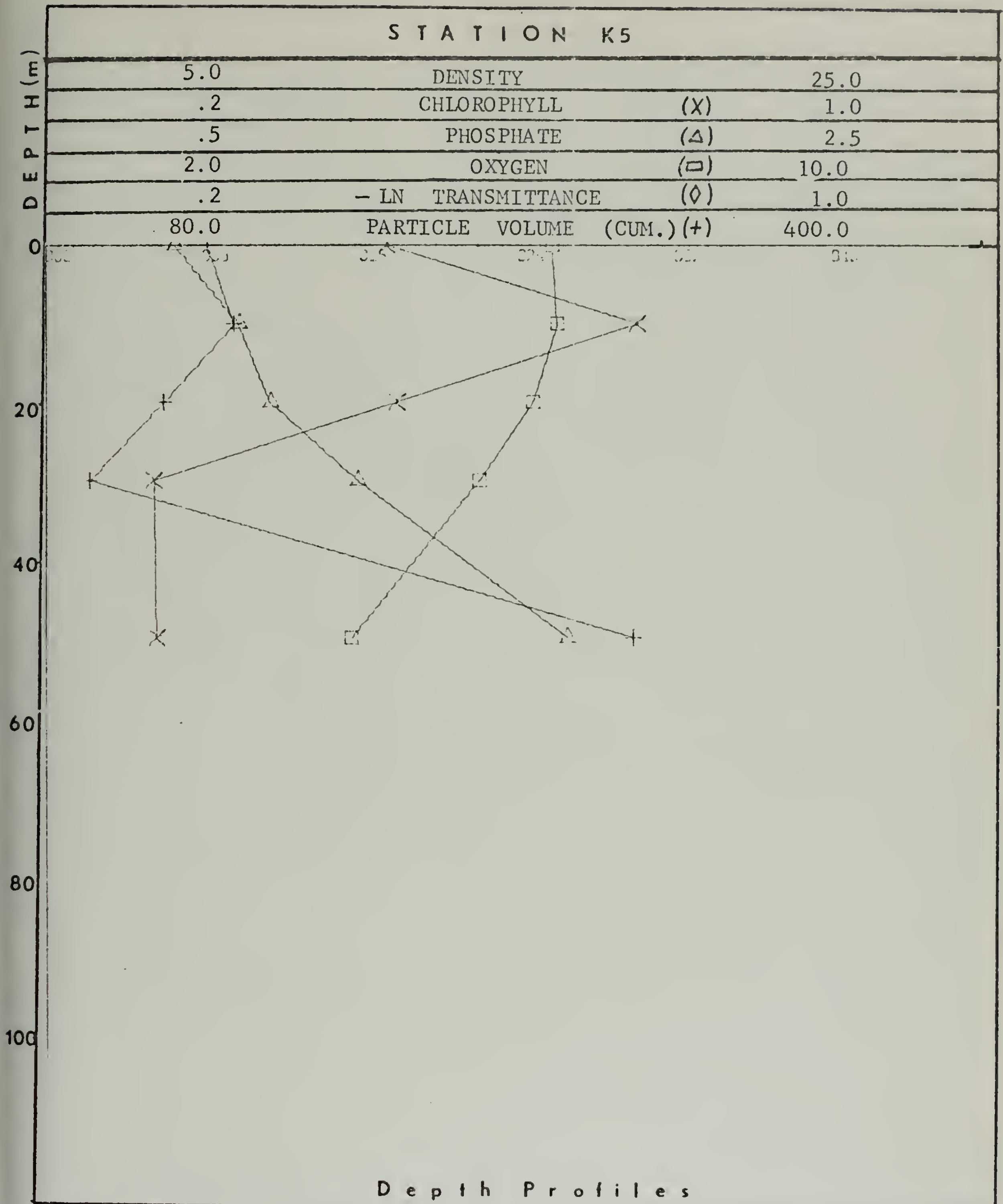

STATION K5
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 154

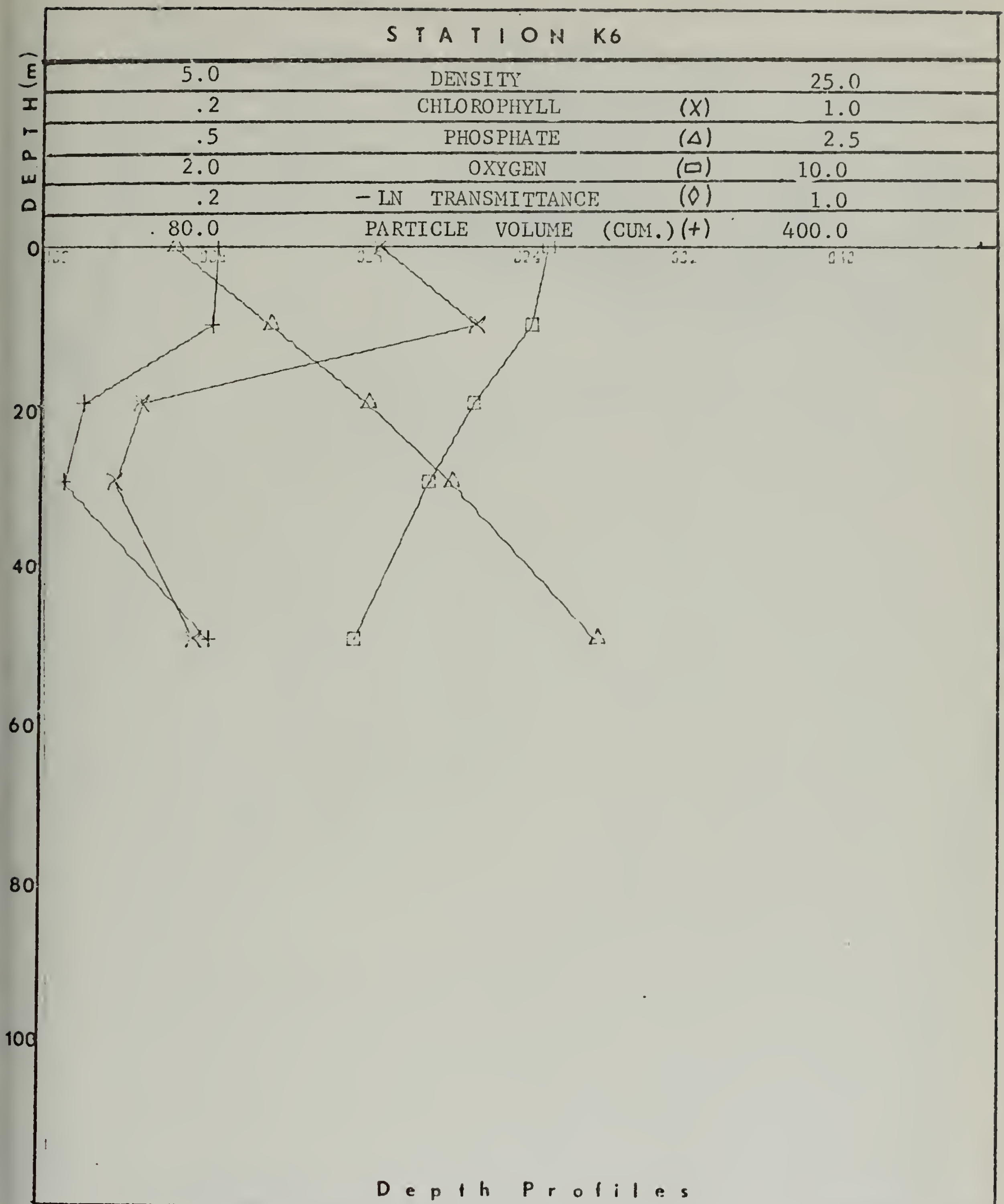
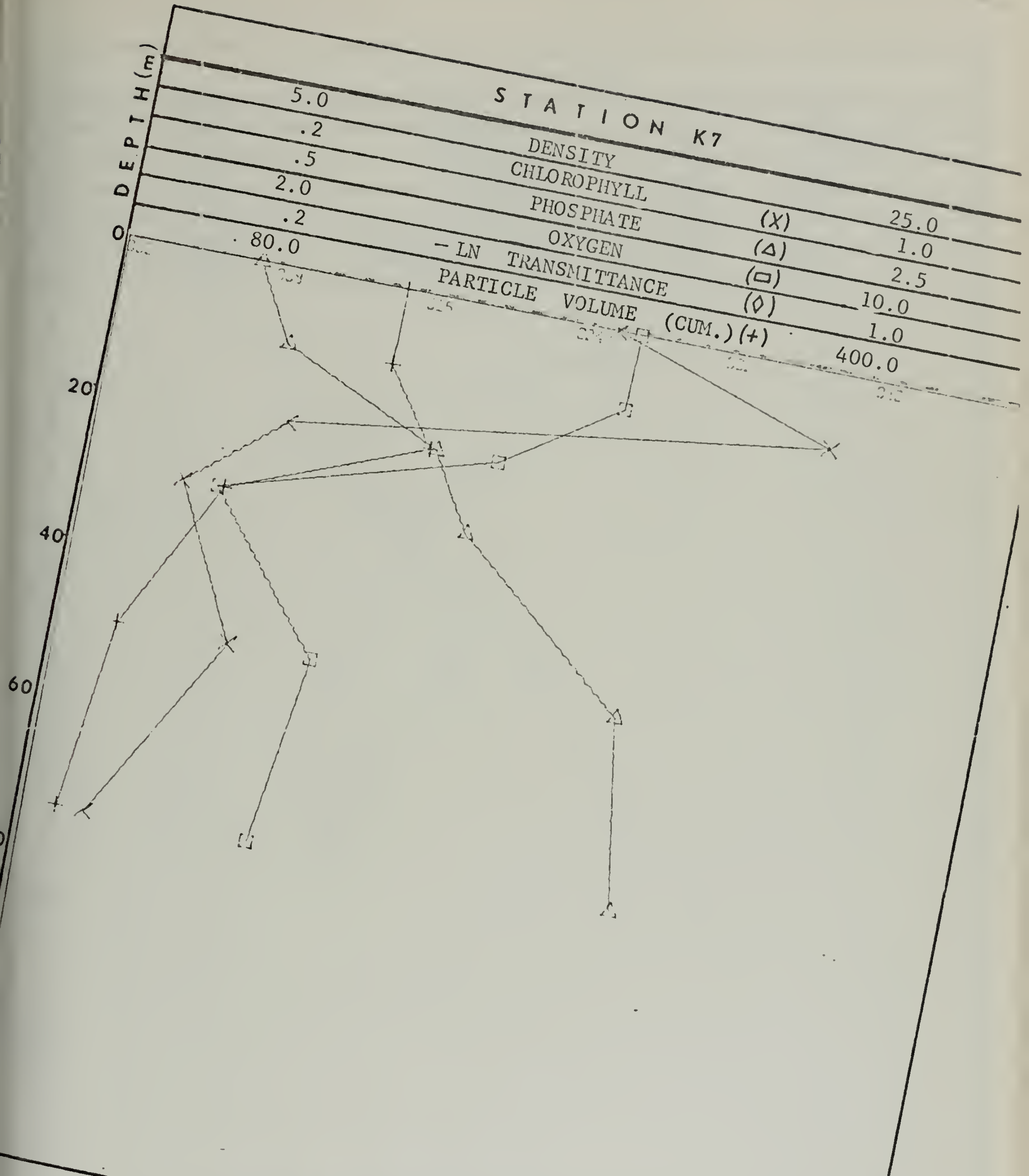
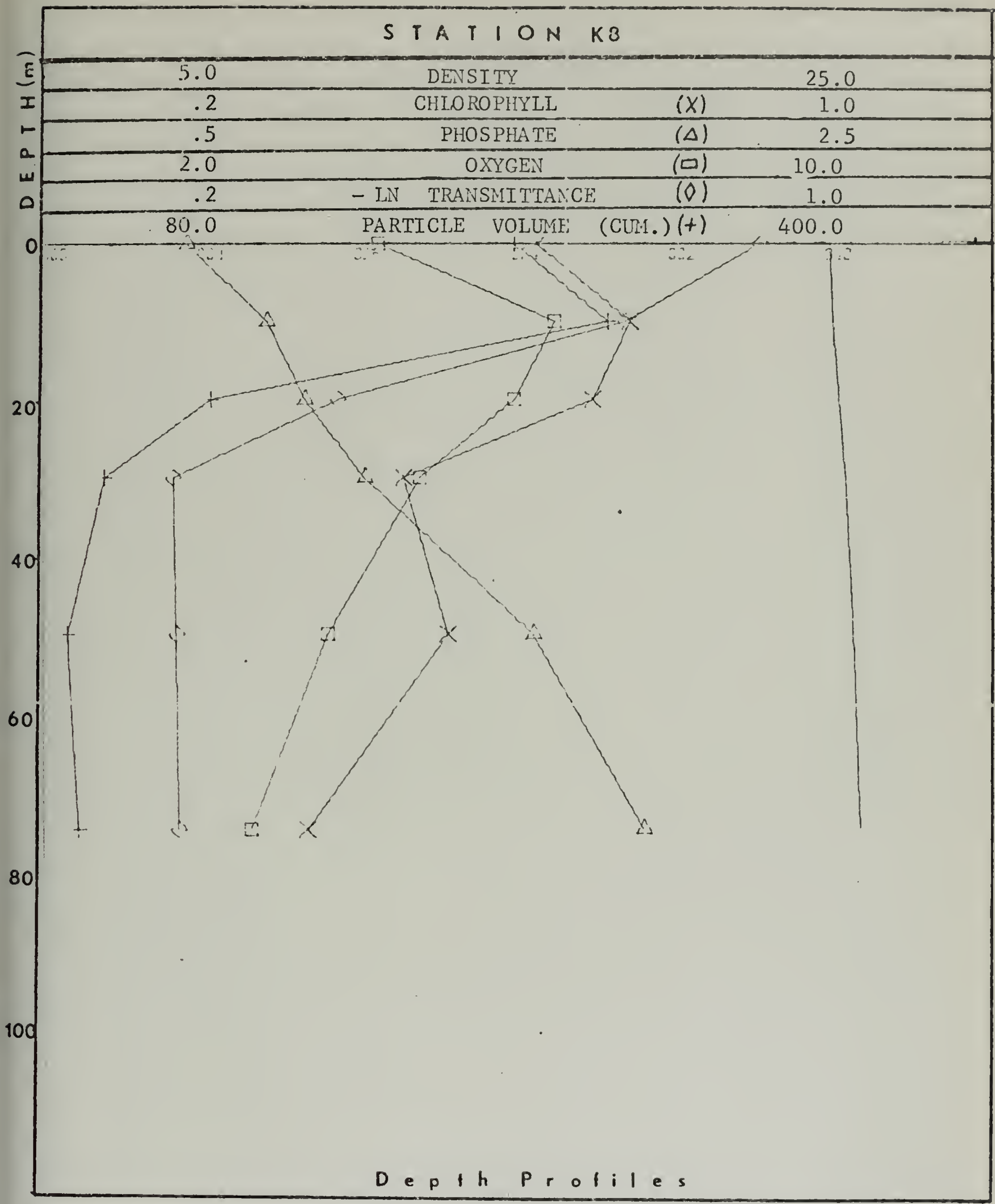

STATION K6
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 155



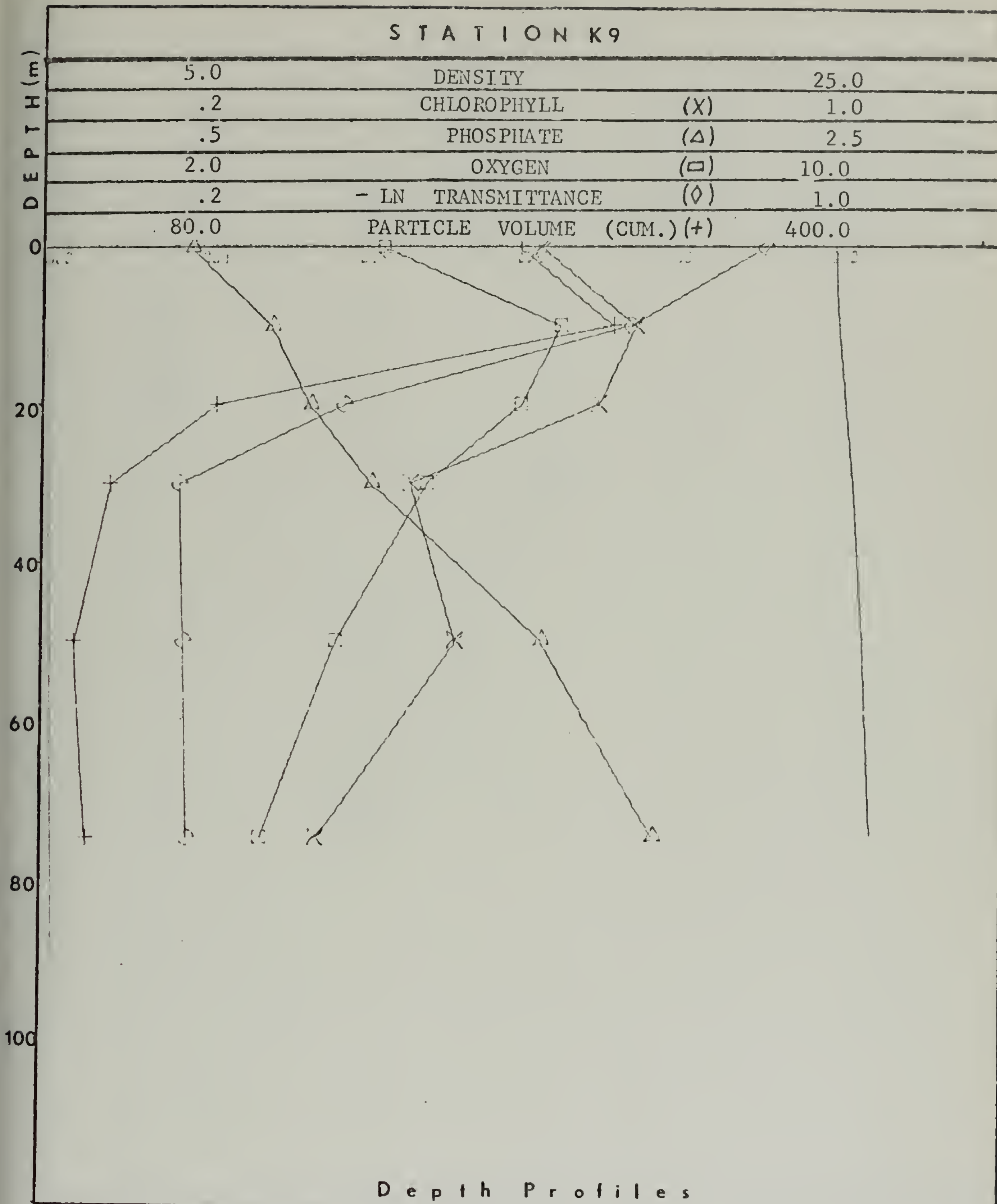
Depth Profiles

FIGURE 156



STATION K8
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 - LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 157



STATION K9
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (△) 2.5
2.0 OXYGEN (□) 10.0
.2 - LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 158

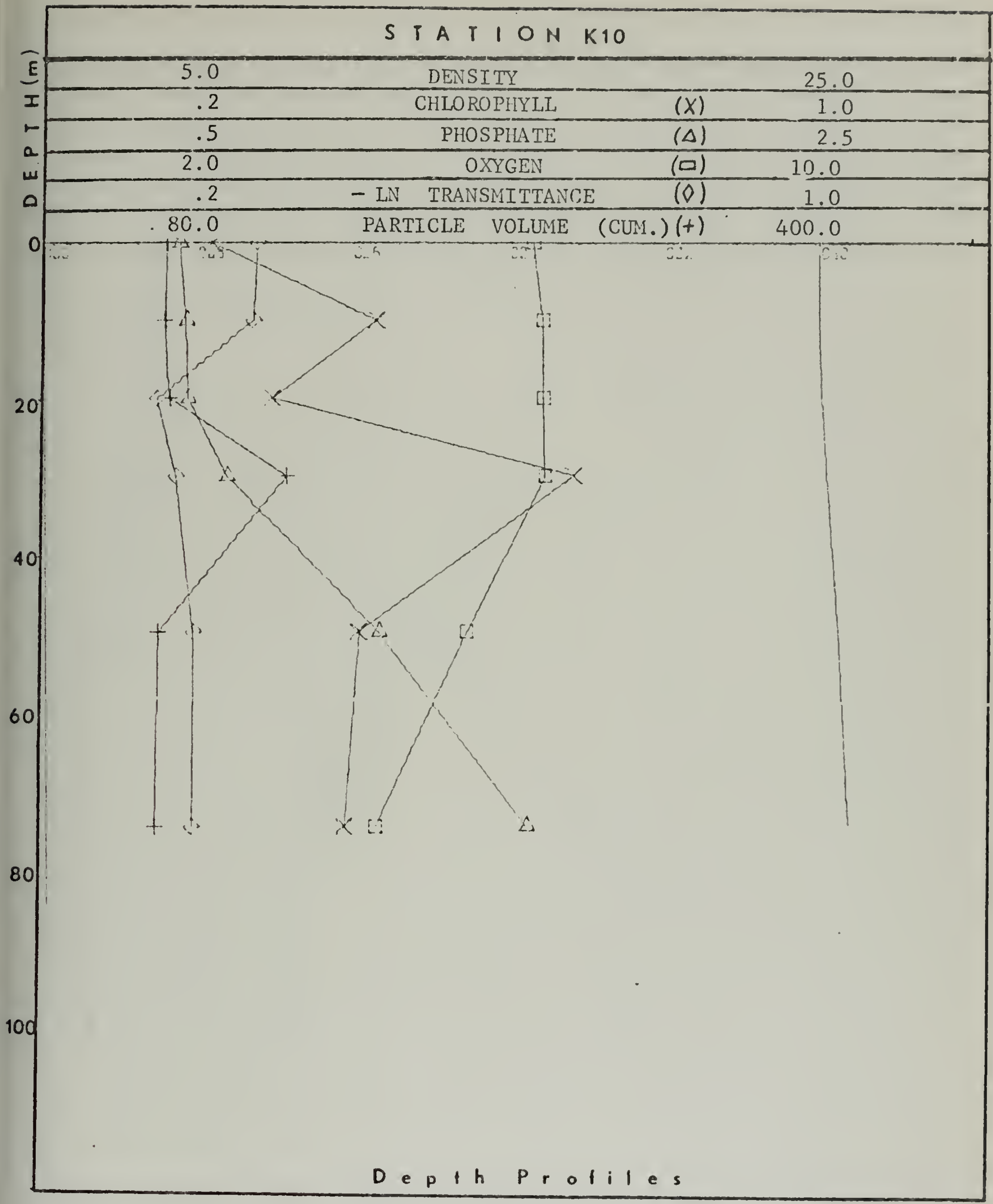

STATION K10
DEPTH(m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 159

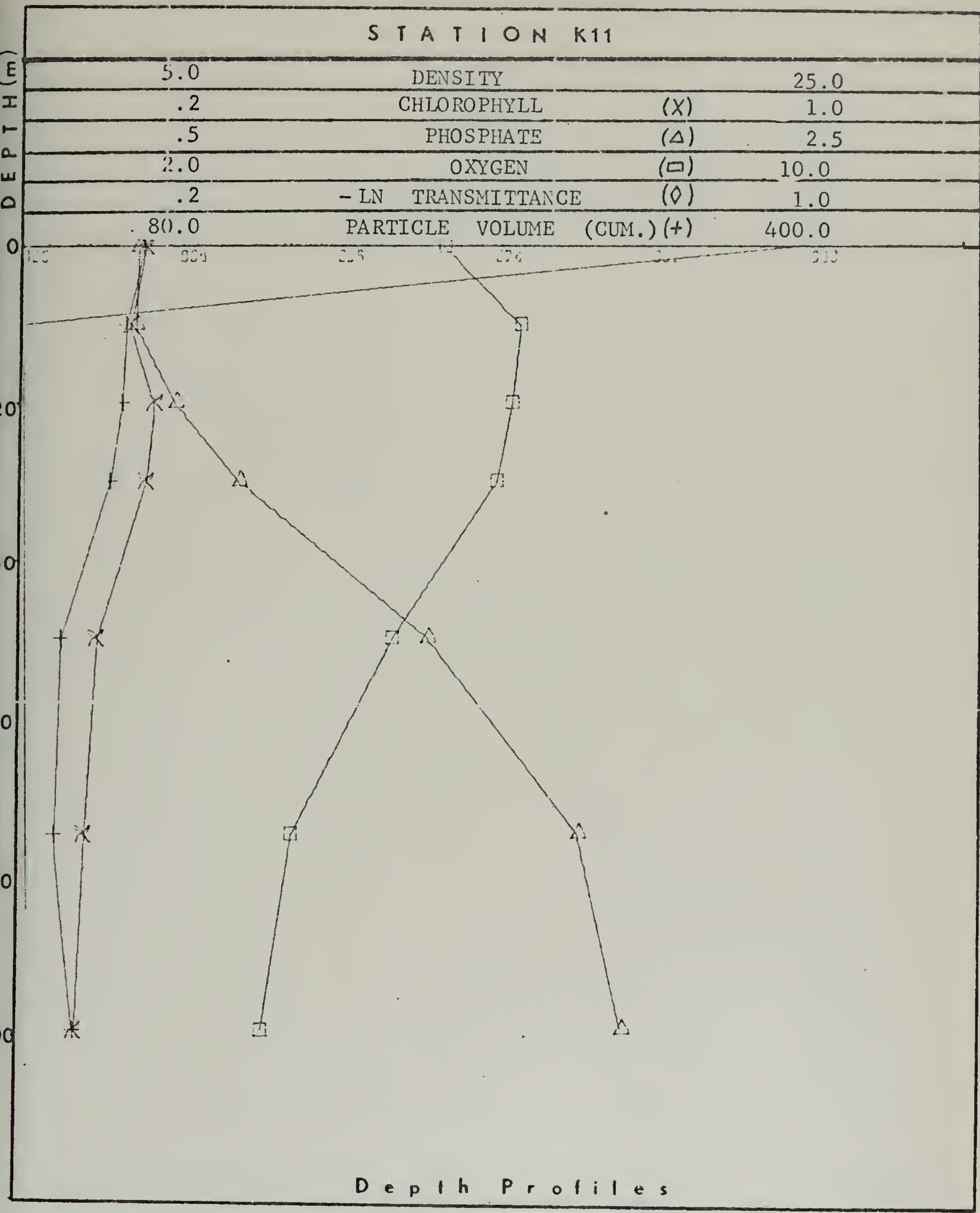

STATION K11
DEPTH (m)
5.0
DENSITY
25.0
.2
CHLOROPHYLL (X)
1.0
.5
PHOSPHATE (Δ)
2.5
2.0
OXYGEN (□)
10.0
.2
- LN TRANSMITTANCE (◊)
1.0
80.0
PARTICLE VOLUME (CUM.) (+)
400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 160

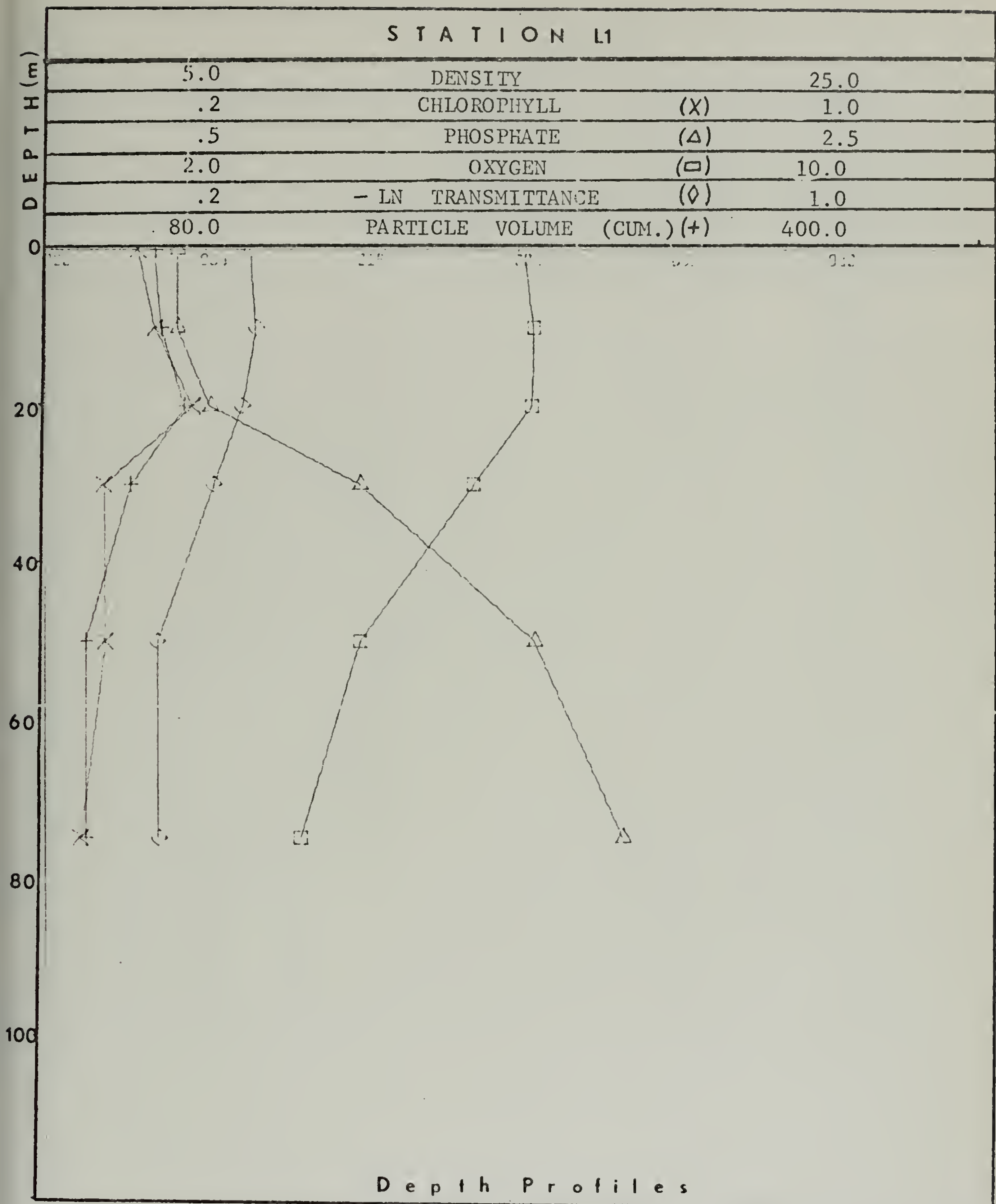

STATION L1
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 – LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 161

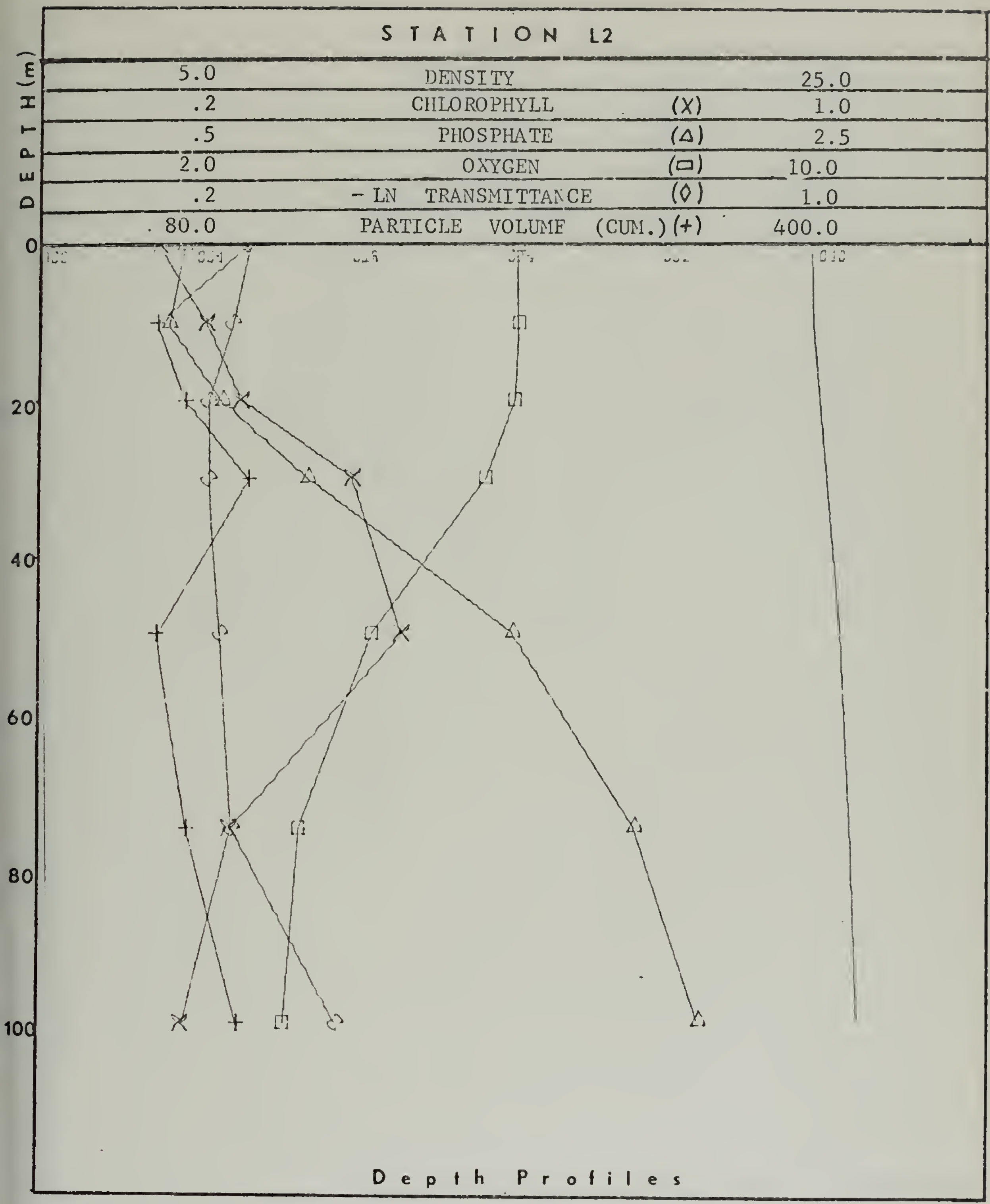

STATION L2
DEPTH(m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 - LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 162

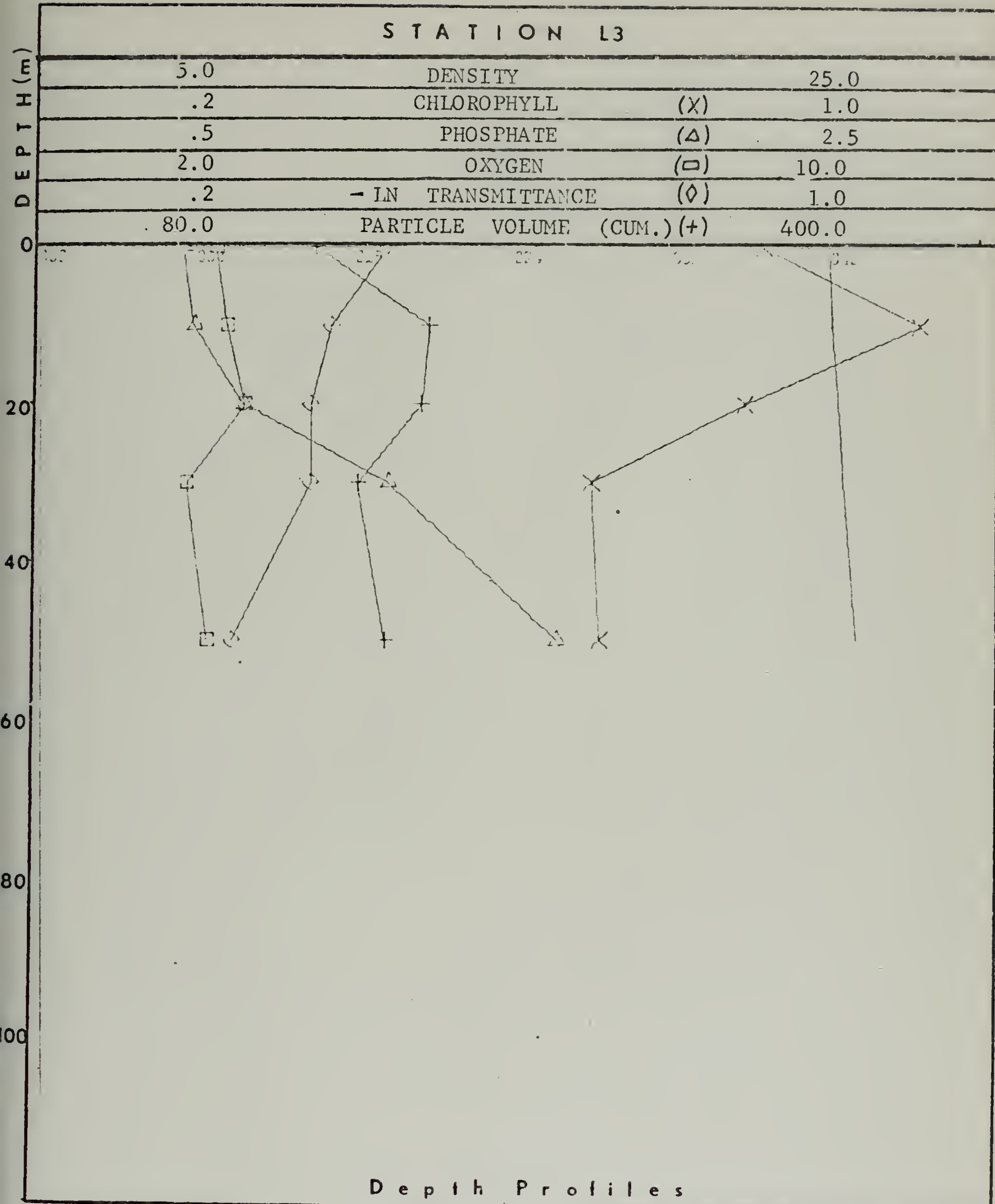

STATION L3
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 163

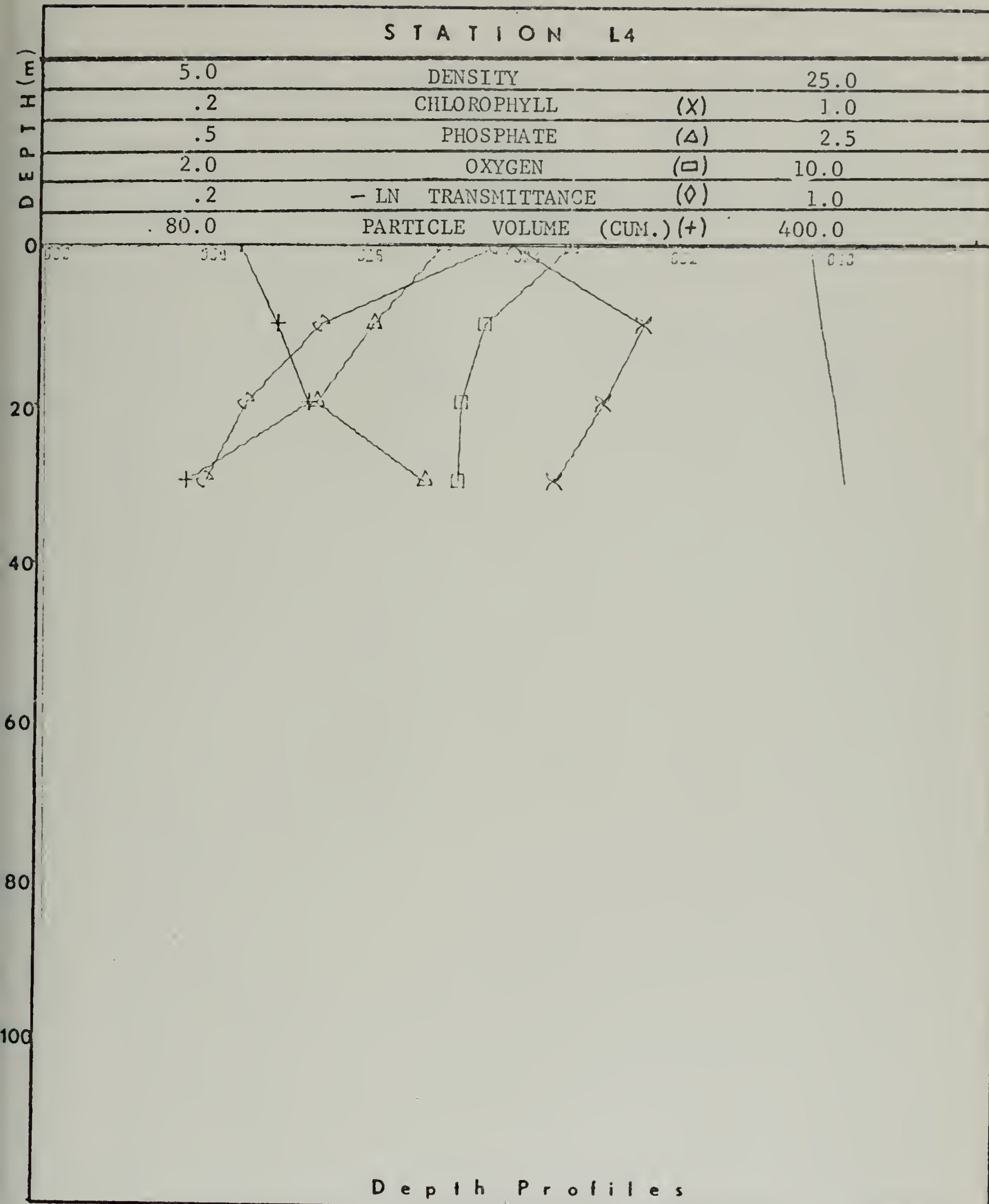
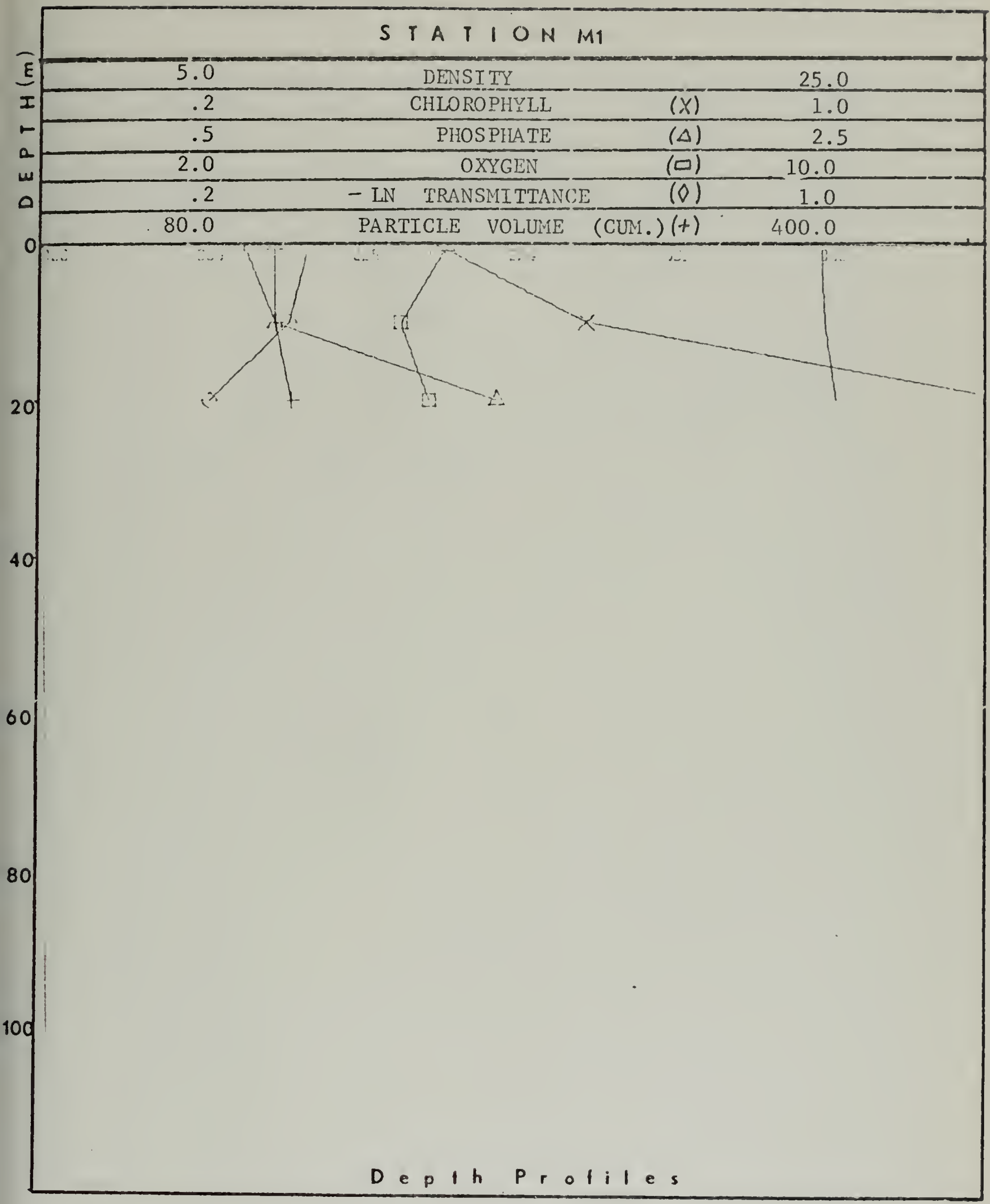

STATION L4
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
DEPTH(m)
0
20
40
60
80
100
Depth Profiles

FIGURE 164



STATION M1
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 165

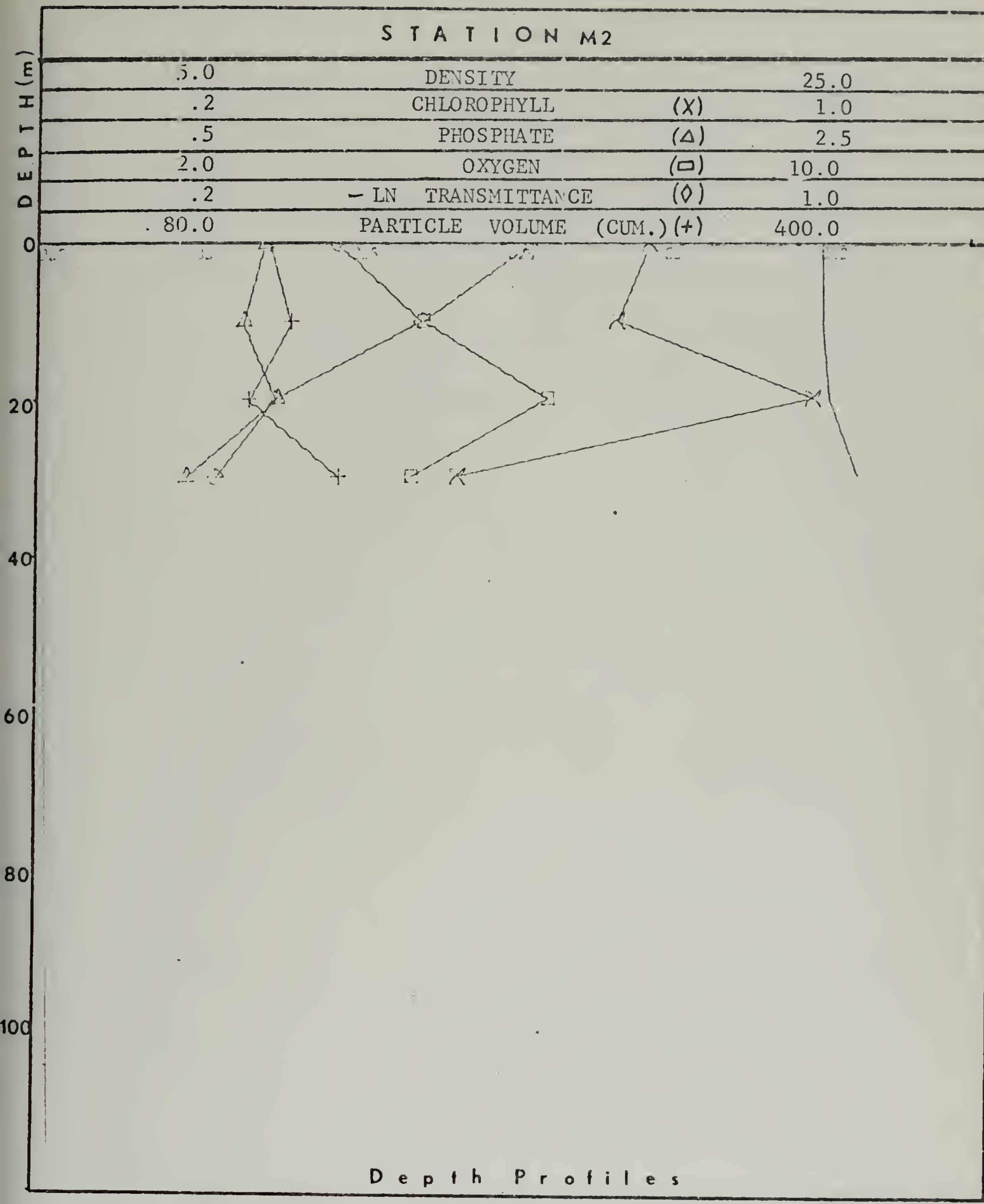

STATION M2
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 166

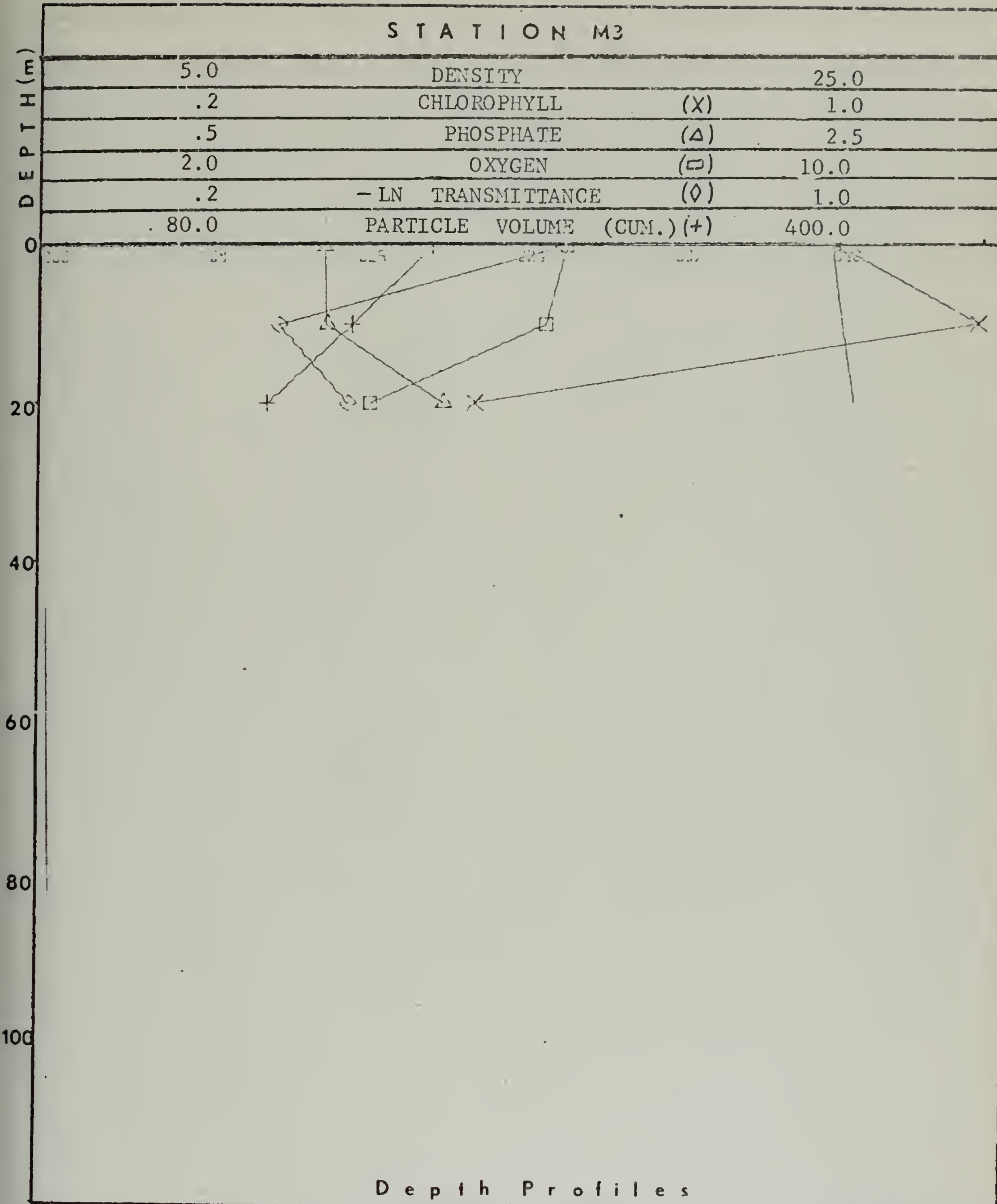

STATION M3
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 167

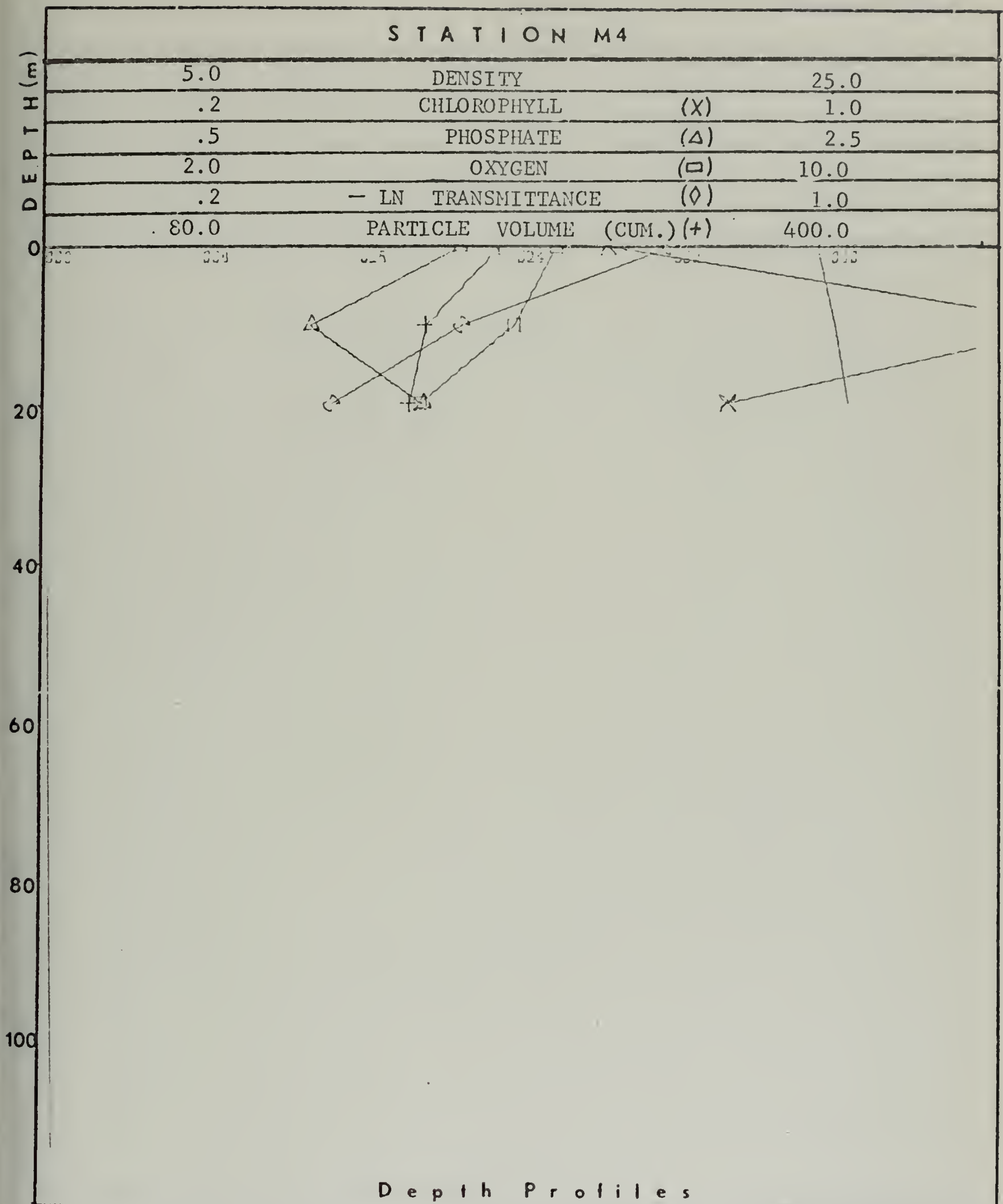

STATION M4
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
DEPTH (m)
0
20
40
60
80
100
Depth Profiles

FIGURE 168

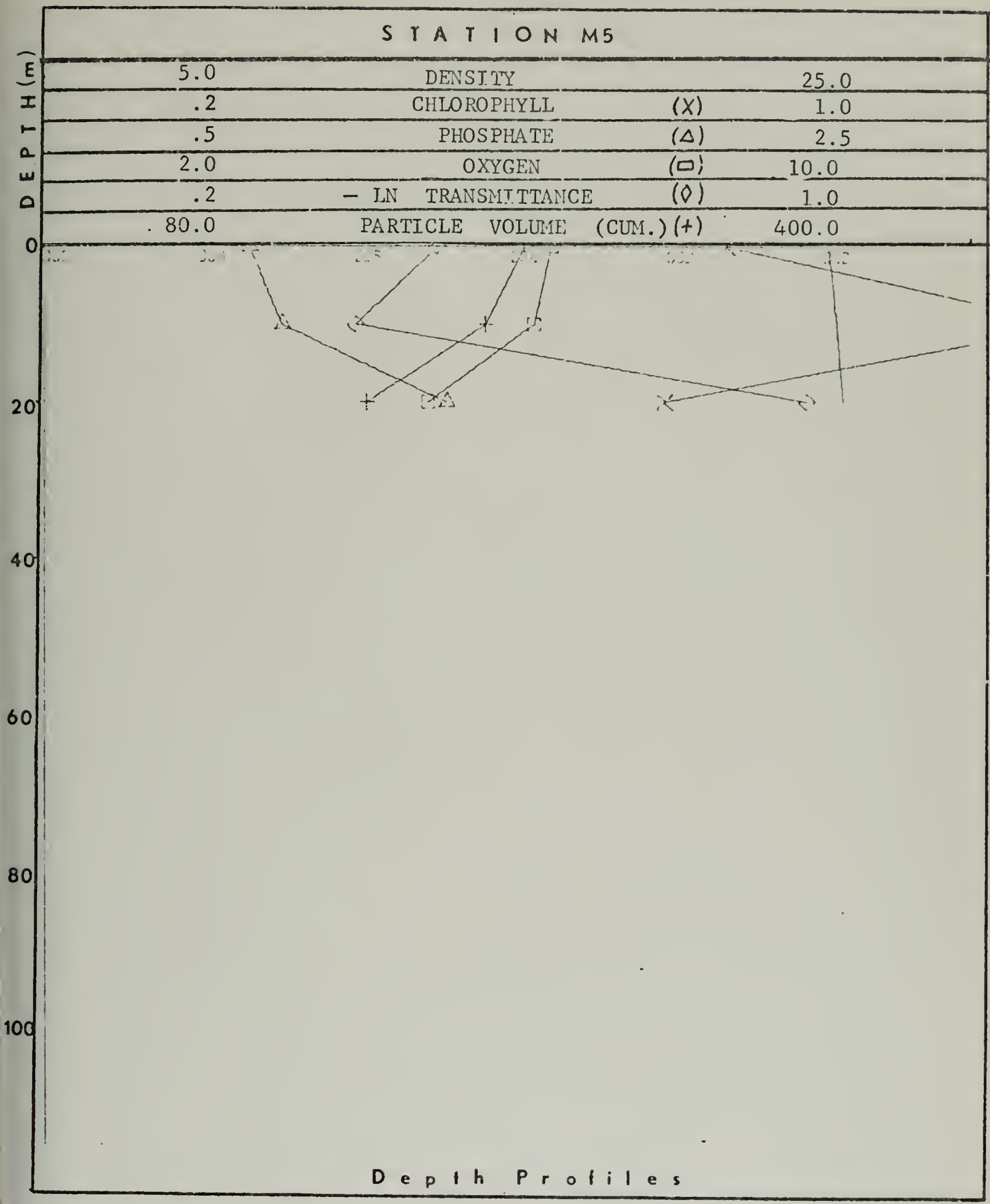

STATION M5
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 169

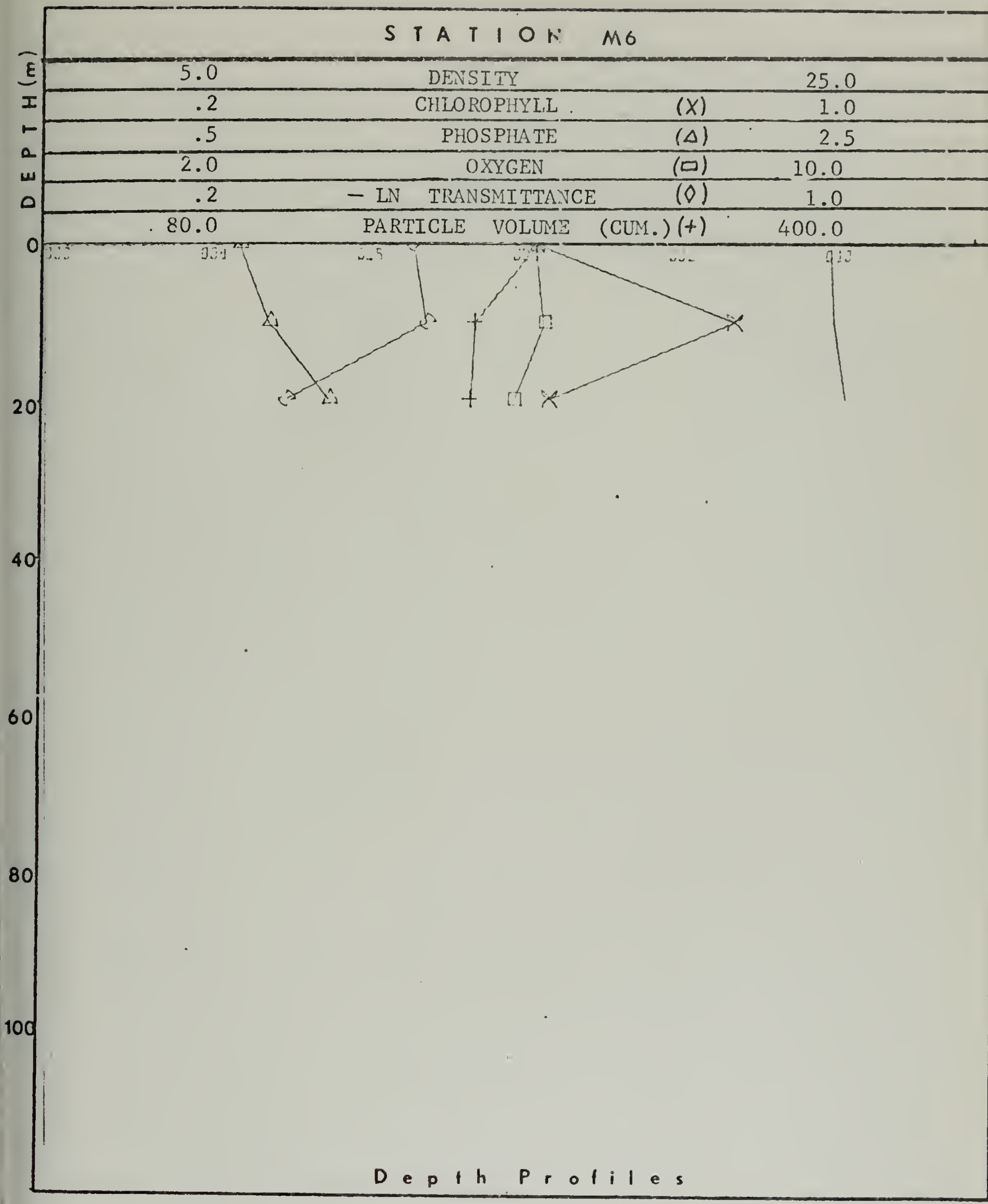
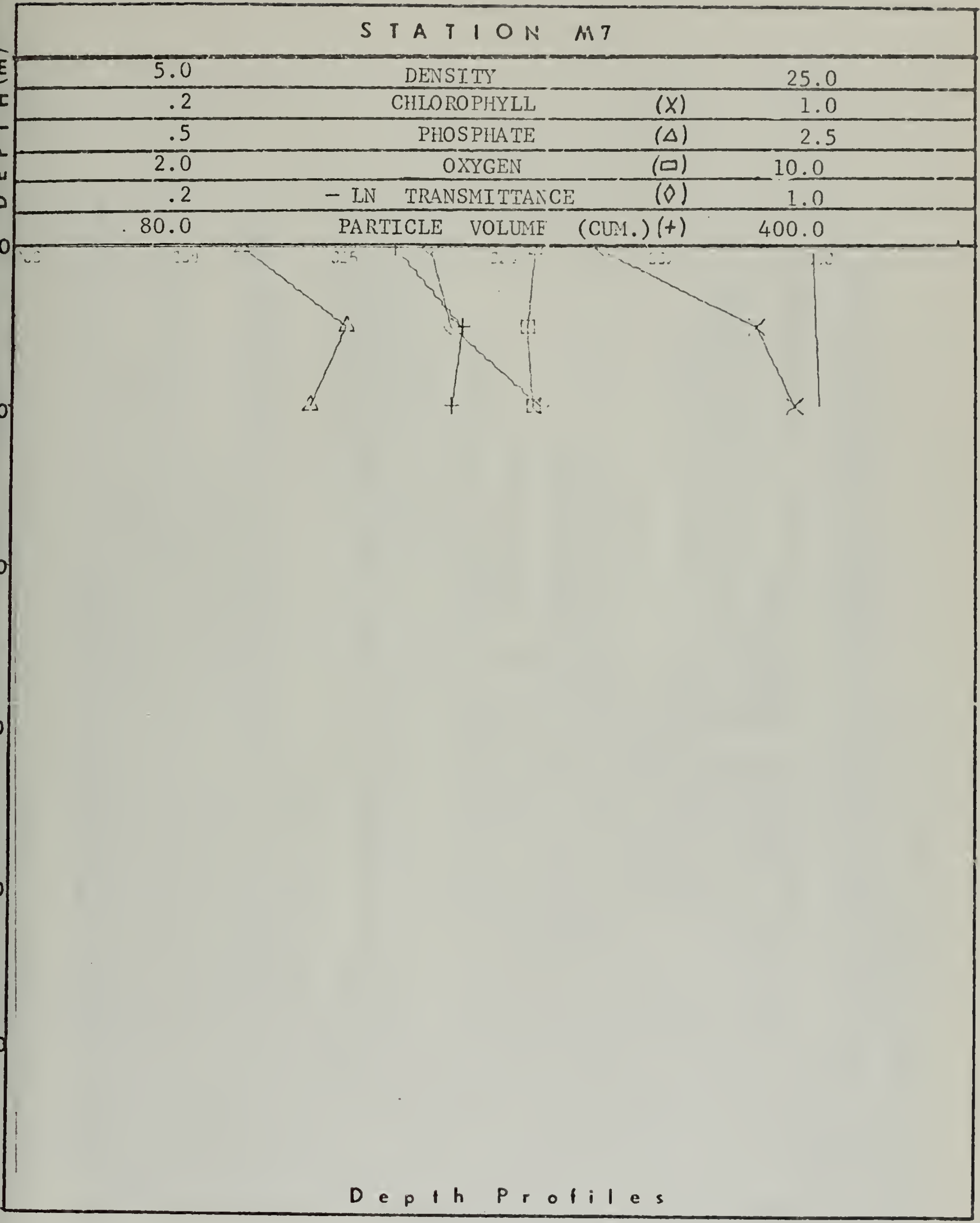

STATION M6
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (□) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 170



STATION M7
DEPTH (m)
5.0 DENSITY 25.0
.2 CHLOROPHYLL (X) 1.0
.5 PHOSPHATE (Δ) 2.5
2.0 OXYGEN (▭) 10.0
.2 − LN TRANSMITTANCE (◊) 1.0
80.0 PARTICLE VOLUME (CUM.) (+) 400.0
0
20
40
60
80
100
Depth Profiles

FIGURE 171

TABLE I

FORTRAN IV COMPUTER PROGRAM FOR DATA ANALYSIS

```
C
C
C
C
C
C     THIS SECTION DEFINES AND INITIALIZES VALUES
        DIMENSION HDG(100,9),CONRA(40,9),STDEP(40),DLTP(40,9),DLSP(40,9),
       *DSALT(40,9),VU(40,9),BF(40,9),RB(9),ODS(40,9),
       *ODC(40,9),ODR(40,9),CSTD(40,9),ODSTD(40,9),SIGT(40,9)
        DIMENSION CUMV(40,9),CUMP(40,9),DPA(40,9),DPB(40,9),DPC(40,9),
       *DPD(40,9),DPE(40,9),DPF(40,9),DPG(40,9),DPH(40,9),DPI(40,9),
       *DPJ(40,9),DPK(40,9),DPL(40,9),DPM(40,9),DPN(40,9)
        DIMENSION ESAL(21   ),EOXY(21   ),XTDEP(21),EPHOS(21   ),
       *ESIGT(21   ),ECHLOR(21   ),EALFHA(21   ),ECUMV(21   ),ETRAN(21   )
        COMMON DEP(40,9),SAL(40,9,2),TEMP(40,9,2),C2(40,9,2),SV(40,9,2),
       *PHOS(40,9,2),TRAN(40,9,2),DER(40,9),CHLOR(40,9,2),VS(40,9)
        INTEGER*4 DEP,DER,STDEP,CUMV
        REAL*4 LABEL/'    '/
        REAL*8 ITIM1(12)
        DATA STDEP/0,10,20,30,50,75,100,150,200,250,300,400,500,13*0/
        DATA HDG,CONRA,DLTP,DLSP,DSALT,VU,BF,ODS,ODC,ODR,CSTD,ODSTD,
       *RB,SIGT/5229*0.0/
C     THE FOLLOWING IS A LISTING OF THE VARIOUS VARIABLES USED IN
C     THIS PROGRAM:
C     DEP IS THE DEPTH AT WHICH THE NANSEN BOTTLES WERE SET
C     TEMP IS THE SV/T/D CAST TEMPERATURE IN DEGREES CENTIGRADE
C     CONRA IS THE CONDUCTIVITY RATIO OF THE SAMPLE
C     DSALT IS THE TEMPERATURE CORRECTION TO THE SALINITY
C     DER IS THE SV/T/D CAST DEPTH IN METERS
C     TRAN IS THE TRANSMISSOMETER VALUE OF TRANSMITTANCE
C     VU IS THE UNKNOWN VOLUME IN THE OXYGEN CALCULATIONS
C     VS IS THE KNOWN VOLUME IN THE OXYGEN CALCULATIONS
C     BF INDICATES THE OXYGEN BOTTLE FACTORS
C     ODS IS THE OBSERVED OPTICAL DENSITY OF THE SAMPLE
C     ODC IS THE VALUE OF THE CELL BLANK
C     ODR IS THE VALUE OF THE REAGENT BLANK
C     CSTD IS THE CONCENTRATION OF PHOSPHATE IN PREPARED STANDARD
C     ODSTD IS THE OPTICAL DENSITY OF THE STANDARD
C     SV IS THE SV/T/D VALUE OF SOUND VELOCITY IN METERS PER SECOND
C     CUMV IS THE CUMULATIVE PARTICLE VOLUME
C     CUMP IS THE CUMULATIVE PARTICLE POPULATION
C     DPA TO DPN ARE THE DIFFERENTIAL POPULATION VALUES FOR CHANNELS
C     0 THROUGH 13
C     CHLOR IS THE VALUE OF CHLOROPHYLL
C     THE FIRST DATA CARD MUST CONTAIN THE NUMBER OF NANSEN STATIONS
C     IN COLUMN 1 AND THE NUMBER OF RAMSAY STATIONS IN COLUMN 2.
C     THEY ARE READ IN HERE
        READ(5,1)NNAN,NRAM,(RB(I),I=1,9)
```

```
    1 FORMAT(I1,I1,9F5.3)
      NN = NNAN+1
      NTOT=NNAN+NRAM
      DO 2 I = 1,2
      DO 2 K = 1,9
      DO 2 J = 1,40
      SAL(J,K,I) = 0.0
      TEMP(J,K,I) = 0.0
      O2(J,K,I) = 0.0
      SV(J,K,I) = 0.0
      PHOS(J,K,I)=0.0
      CHLOR(J,K,I)= 0.0
      TRAN(J,K,I) = 0.0
      DER(J,K) =0
    2 DEP(J,K) = 0
C     THIS SECTION READS NANSEN CAST DATA
   12 DO 30 I = 1,NNAN
      DO 20 J = 1,40
      READ(5,15)DEP(J,I),TEMP(J,I,1),CONRA(J,I),DSALT(J,I),DER(J,I),
     *TRAN(J,I,1),VU(J,I),VS(J,I),BF(J,I),ODS(J,I),ODC(J,I),ODR(J,I),
     *CSTD(J,I),ODSTD(J,I),SV(J,I,1),CUMV(J,I),CUMP(J,I),DPA(J,I),
     *DPB(J,I),DPC(J,I),DPD(J,I),DPE(J,I),DPF(J,I),DPG(J,I),DPH(J,I),
     *DPI(J,I),DPJ(J,I),DPK(J,I),DPL(J,I),DPM(J,I),DPN(J,I),CHLOR(J,I,1)
   15 FORMAT(I5,F5.2,F5.0,F5.3,I5,F5.1,8F5.3,F6.1,/,I3,14F5.1,F6.1,/,
     *F5.3)
      IF(DEP(J,I).LT.90000)GO TO 20
      DEP(J,I) =0
      GO TO 30
   20 CONTINUE
   30 CONTINUE
C     THIS SECTION READS IN HEADING INFORMATION
C     THERE MUST BE EXACTLY 5 CARDS PER STATION. .FILL IN WITH BLANK CARDS
C     IF NECESSARY
      DO 60 I=1,NTOT
   60 READ(5,65)(HDG(J,I),J=1,100)
   65 FORMAT(20A4)
C     AT THIS POINT ALL INPUT DATA HAS BEEN STORED AND THE
C     FOLLOWING CALLS IN THE SUBROUTINES NECESSARY TO PROCESS THE DATA
C
C     THIS SECTION PROCESSES NANSEN DATA
      DO 100 I = 1,NNAN
      CALL SALIN(I,CONRA,DSALT)
      CALL OXY(I,VU,BF,RB)
      CALL PHOSP(I,ODS,ODC,ODR,CSTD,ODSTD)
      CALL SDEPT(I,STDEP,DLTP,DLSP,0)
      CALL RDEPT(I,STDEP,DLTP,DLSP,0)
      CALL SIGMT(I,SIGT)
  100 CONTINUE
```

```
C   THIS SECTION GENERATES PRINTED OUTPUT
      DO 580 J=1,NTOT
      CALL HDING(HDG,J)
      WRITE(6,515)
  515 FORMAT(/,54X,'OBSERVED VALUES (NANSEN CAST)',//,36X,'DEPTH',4X,
     *'SALINITY',5X,'OXYGEN',5X,'PHOSPHATE',5X,'CHLOROPHYLL',3X,
     */,37X,'(M)',6X,'(O/OO)',6X,'(ML/L)',4X,'(MG-ATM/L)',6X,'(MG/M3)',
     *//)
      DO 520 I=1,40
      IF(I.EQ.1)GO TO 520
      IF(DEP(I,J).EQ.0)GO TO 530
  520 WRITE(6,500)DEP(I,J),SAL(I,J,1),O2(I,J,1),PHOS(I,J,1),CHLOR(I,J,1)
  500 FORMAT(36X,I4,F12.3,F11.2,F13.2,F13.3,/)
  530 WRITE(6,516)
  516 FORMAT(/,43X,'OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)',//,
     *42X,'DEPTH',7X,'TEMP',7X,'SO. VEL',7X,'TRANSMITTANCE',/,43X,
     *'(M)',8X,'(C)',8X,'(M/SEC)',10X,'(O/O)',//)
      DO 521 I=1,40
      IF(I.EQ.1)GO TO 521
      IF(VS(I,J).EQ.0.0)GO TO 531
  521 WRITE(6,522)DER(I,J),TEMP(I,J,1),SV(I,J,1),TRAN(I,J,1)
  522 FORMAT(42X,I4,F12.2,F13.1,F16.1,/)
  531 WRITE(6,540)
  540 FORMAT(/,54X,'INTERPOLATED  VALUES',//,36X,'DEPTH',2X,'TEMP',2X,
     *'SO. VEL',1X,'TRANS.',2X,'SAL.',3X,'OXY',1X,'PHOS',1X,'CHLOR',1X,
     *'SIG-T',//)
      DO 561 I=1,40
      IF(I.EQ.1) GO TO 561
      IF(O2(I,J,2).NE.0.0)GO TO 561
      IF(PHOS(I,J,2).NE.0.0)GO TO 561
      IF(CHLOR(I,J,2).NE.0.0)GO TO 561
      GO TO 580
  561 WRITE(6,562)STDEP(I),TEMP(I,J,2),SV(I,J,2),TRAN(I,J,2),SAL(I,J,2),
     *O2(I,J,2),PHOS(I,J,2),CHLOR(I,J,2),SIGT(I,J)
  562 FORMAT(36X,I4,F7.2,F8.1,F7.1,F8.3,F5.2,F5.2,F6.3,F7.2,/)
  580 CONTINUE
      WRITE(6,9521)
 9521 FORMAT('1',25X,'THE EQUIVALENT SPHERICAL DIAMETERS IN MICRONS ARE:
     *',/,40X,'CHANNEL 0 = 32.0',/,40X,'CHANNEL 1 = 25.4',/,40X,'CHANNEL
     * 2 = 20.2',/,40X,'CHANNEL 3 = 16.0',/,40X,'CHANNEL 4 = 12.7',/,
     *40X,'CHANNEL 5 = 10.08',/,40X,'CHANNEL 6 = 8.00',/,40X,'CHANNEL 7
     *= 6.35',/,40X,'CHANNEL 8 = 5.04',/,40X,'CHANNEL 9 = 4.00',/,40X,
     *'CHANNEL 10 = 3.17',/,40X,'CHANNEL 11 = 2.52',/,40X,'CHANNEL 12 =
     *2.00',/,40X,'CHANNEL 13 = 1.59')
      J=0
      DO 560 LL=1,9
      DO 560 NN=1,2
      J=J+1
```

```
      IF(J.GT.NTOT)GO TO 590
      IF(NN.EQ.2)GO TO 9520
  517 WRITE(6,518)
  518 FORMAT('1',//////////,70X,'COUNTS X 10',/,30X,'CUMU-',34X,
     *'CHANNEL NUMBER',/,22X,'CUMU-',3X,'LATIVE',/,15X,'SAMPLE',1X,
     *'LATIVE',2X,'COUNT',5X,'0',5X,'1',5X,'2',5X,'3',5X,'4',5X,'5',
     *6X,'6',5X,'7',5X,'8',5X,'9',4X,'10',4X,'11',4X,'12',5X,'13',/,
     *15X,'DEPTH',2X,'VOLUME',2X,'X 10')
 9520 WRITE(6,524)
  524 FORMAT(/////)
      DO 519 I=1,40
      IF(I.EQ.1)GO TO 519
      IF(DEP(I,J).EQ.0)GO TO 560
  519 WRITE(6,523)DEP(I,J),CUMV(I,J),CUMP(I,J),DPA(I,J),DPB(I,J),
     *DPC(I,J),DPD(I,J),DPE(I,J),DPF(I,J),DPG(I,J),DPH(I,J),DPI(I,J),
     *DPJ(I,J),DPK(I,J),DPL(I,J),DPM(I,J),DPN(I,J)
  523 FORMAT(16X,I3,4X,I3,2F8.1,5F6.1,F7.1,6F6.1,F7.1,/)
  560 CONTINUE
  590 DO 1011 I=1,NTOT
C
C     THIS INSIDE DO LOOP EQUALIZES PARAMETERS INTO AN ARRAY OR ARRAYS
C     SUITABLE FOR THE DRAW PACKAGE.  THAT IS, IT NEGATES THE USE OF
C     MULTIPLE SUBSCRIPTS BY PLACING ALL PARAMETERS INTO ONE ARRAY
C     FROM WHICH THE SUBROUTINE CAN BE CALLED WHEN NEEDED.
C
      DO 1001 J=1,21
      IF(CUMV(J,I).EQ.0)GO TO 1002
      NJ=J
      XTDEP(J)=-STDEP(J)
      ECUMV(J  )=CUMV(J,I)
      ECHLOR(J  )=CHLOR(J,I,2)*125.0
      ESIGT(J  )=SIGT(J,I)*5.0
      EPHOS(J  )=PHOS(J,I,2)*125.0
      EOXY(J  )=O2(J,I,2)*12.5
      ETRAN(J  )=TRAN(J,I,2)*.01
      EALPHA(J  )=-ALOG(ETRAN(J  ))*125.0
      IF (SAL(J,I,2).EQ.0.0) GO TO 1003
      ESAL(J  )=(SAL(J,I,2)-30.0)*2.0
      GO TO 1001
 1003 ESAL(J)=0.0
 1001 CONTINUE
 1002 CONTINUE
      READ(5,1010) ITIM1
 1010 FORMAT(6A8)
C
C   THESE STATEMENTS DRAW CUMULATIVE PARTICLE VOLUME VERSUS DEPTH
      CALL DRAW(NJ,ECUMV,XTDEP,1,2,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
```

```
      CALL DRAW(NJ,ECUMV,XTDEP,2,0,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
C    THIS STATEMENT DRAWS DENSITY VERSUS DEPTH
      CALL DRAW(NJ,ESIGT,XTDEP,2,0,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
C    THESE STATEMENTS DRAW CHLOROPHYLL VERSUS DEPTH
      CALL DRAW(NJ,ECHLOR,XTDEP,2,1,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
      CALL DRAW(NJ,ECHLOR,XTDEP,2,0,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
C    THESE STATEMENTS DRAW OXYGEN VERSUS DEPTH
      CALL DRAW(NJ,EOXY,XTDEP,2,3,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
      CALL DRAW(NJ,EOXY,XTDEP,2,0,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
C    THESE STATEMENTS DRAW PHOSPHATE VERSUS DEPTH
      CALL DRAW(NJ,EPHOS,XTDEP,2,5,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
      CALL DRAW(NJ,EPHCS,XTDEP,2,0,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
C    THESE STATEMENTS DRAW ALPHA=LN TRANSMISSION VERSUS DEPTH
      CALL DRAW(NJ,EALPHA,XTDEP,2,4,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
      CALL DRAW(NJ,EALPHA,XTDEP,3,0,LABEL,ITIM1,25.0,20.0,6,0,2,2,6,6,0,
     *LAST)
 1011 CONTINUE
      STOP
      END


      SUBROUTINE HDING(HDG,I)
      DIMENSION HDG(100,9)
      WRITE(6,10)
   10 FORMAT('1',//)
      WRITE(6,20)(HDG(J,I),J=1,100)
   20 FORMAT(25X,20A4/)
      RETURN
      END


      SUBROUTINE SALIN(I,CONRA,DSALT)
      DIMENSION CONRA(40,9),DSALT(40,9)
      CCMMON DEP(40,9),SAL(40,9,2),TEMP(40,9,2),O2(40,9,2),SV(40,9,2),
     *PHOS(40,9,2),TRAN(40,9,2),DER(40,9),CHLOR(40,9,2),VS(40,9)
      INTEGER*4 DEP,DER,STDEP
      DO 10 J = 1,40
      IF(J.EQ.1)GO TO 7
    5 IF(DEP(J,I).EQ.0)GO TO 20
```

```
   7 VAL=CONRA(J,I)*1.0E-5
  10 SAL(J,I,1) = -.08996+28.2972*VAL+12.80832*(VAL**2)-10.67869*
    1(VAL**3)+5.98624*(VAL**4)-1.32311*(VAL**5)+DSALT(J,I)
  20 RETURN
     END


     SUBROUTINE OXY(I,VU,BF,RBA)
C    THIS SUBROUTINE CALCULATES THE CONCENTRATION OF OXYGEN
C    IN MILLILITERS PER LITER IN THE SAMPLES COLLECTED FROM
C    NANSEN CASTS
     DIMENSION VU(40,9),BF(40,9),RBA(9)
     COMMON DEP(40,9),SAL(40,9,2),TEMP(40,9,2),C2(40,9,2),SV(40,9,2),
    *PHOS(40,9,2),TRAN(40,9,2),DER(40,9),CHLOR(40,9,2),VS(40,9)
     INTEGER*4 DEP,DER,STDEP
     RB=RBA(I)
     DO 10 J = 1,40
     IF(J.EQ.1)GO TO 10
     IF(DEP(J,I).EQ.0)GO TO 20
  10 O2(J,I,1)=(VU(J,I)-RB)*BF(J,I)/(VS(J,I)-RB)
  20 RETURN
     END


     SUBROUTINE PHOSP(I,ODS,ODC,ODR,CSTD,ODSTD)
     DIMENSION ODS(40,9),ODC(40,9),ODR(40,9),CSTD(40,9),ODSTD(40,9)
     COMMON DEP(40,9),SAL(40,9,2),TEMP(40,9,2),O2(40,9,2),SV(40,9,2),
    *PHOS(40,9,2),TRAN(40,9,2),DER(40,9),CHLOR(40,9,2),VS(40,9)
     INTEGER*4 DEP,DER,STDEP
     DO 10 J=1,40
     IF(J.EQ.1)GO TO 15
     IF(DEP(J,I).EQ.0)GO TO 20
  15 FACTOR=CSTD(J,I)/ODSTD(J,I)
  10 PHOS(J,I,1)=(ODS(J,I)-(ODC(J,I)+ODR(J,I)))*FACTOR
  20 RETURN
     END


     SUBROUTINE RDEPT(I,STDEP,DELTP,DELSP,ITAG)
C    DEPTH VALUES
C    THIS SUBROUTINE LINEARLY INTERPOLATES THE RAMSEY DEPTH VALUES
C    OF TEMPERATURE,SOUND VELOCITY AND TRASMITTANCE TO THEIR STANDARD
     DIMENSION STDEP(40),DELTP(40,9),DELSP(40,9),STTP(40),STSP(40)
    *,DDER(40,9),STDP(40)
     COMMON DEP(40,9),SAL(40,9,2),TEMP(40,9,2),O2(40,9,2),SV(40,9,2),
    *PHOS(40,9,2),TRAN(40,9,2),DER(40,9),CHLOR(40,9,2),VS(40,9)
     INTEGER*4 DEP,DER,STDEP
     DO 1001 J=1,40
```

```
      STDP(J)=STDEP(J)
      DO 1001 L=1,9
      DDER(J,L)=DER(J,L)
 1001 CONTINUE
      DO 2 J=1,40
      STTP(J)=0.0
    2 STSP(J)=0.0
      N = 0
      K = 0
      DO 100 J=1,40
      N = N+1
      K = K+1
      IF(J.EQ.1)GO TO 5
      IF(DDER(N,I).EQ.0.0)GO TO 200
    5 IF(DDER(N,I).EQ.STDP(K))GO TO 50
      IF(DDER(N+1,I).NE.STDP(K))GO TO 10
      N = N+1
      GO TO 50
   10 IF(DDER(N,I).GE.STDP(K))GO TO 20
      K = K-1
      GO TO 100
   20 VALU=(STDP(K)-DDER(N-1,I))/(DDER(N,I)-DDER(N-1,I))
      TEMP(K,I,2) = TEMP(N-1,I,1)*(1-VALU)+TEMP(N,I,1)*VALU
      TRAN(K,I,2) = TRAN(N-1,I,1)*(1-VALU)+TRAN(N,I,1)*VALU
      STTP(K) = DELTP(N-1,I)*(1-VALU) + DELTP(N,I)*VALU
      STSP(K) = DELSP(N-1,I)*(1-VALU) + DELSP(N,I)*VALU
      IF(ITAG.EQ.1)GO TO 30
   25 SV(K,I,2) = SV(N-1,I,1)*(1-VALU)+SV(N,I,1)*VALU
   30 IF(DDER(N,I).LT.STDP(K+1))GO TO 100
      K=K+1
      GO TO 20
   50 TEMP(K,I,2) = TEMP(N,I,1)
      TRAN(K,I,2) = TRAN(N,I,1)
      STTP(K) = DELTP(N,I)
      STSP(K) = DELSP(N,I)
      IF(ITAG.EQ.1)GO TO 100
   80 SV(K,I,2)=SV(N,I,1)
  100 CONTINUE
  200 DO 210 K = 1,40
      DELTP(K,I) = STTP(K)
  210 DELSP(K,I) = STSP(K)
      RETURN
      END
```

```
      SUBROUTINE SDEPT(I,STDEP,DELTP,DELSP,ITAG)
C     THIS SUBROUTINE LINEARLY INTERPOLATES THE VALUES OF SALINITY
C     OXYGEN, PHOSPHATE, CHLOROPHYLL AND SIGMA-T TC ARRIVE AT THE
C     STANDARD DEPTH VALUES
      DIMENSION STDEP(40),DELTP(40,9),DELSP(40,9),STTP(40),STSP(40)
     *,DDEP(40,9),STDP(40)
      COMMON DEP(40,9),SAL(40,9,2),TEMP(40,9,2),O2(40,9,2),SV(40,9,2),
     *PHOS(40,9,2),TRAN(40,9,2),DER(40,9),CHLOR(40,9,2),VS(40,9)
      INTEGER*4 DEP,DER,STDEP
      DO 1001 J=1,40
      STDP(J)=STDEP(J)
      DO 1001 L=1,9
      DDEP(J,L)=DEP(J,L)
 1001 CONTINUE
      DO 2 J=1,40
      STTP(J)=0.0
    2 STSP(J)=0.0
      N = 0
      K = 0
      DO 100 J=1,40
      N = N+1
      K = K+1
      IF(J.EQ.1)GO TO 5
      IF(DDEP(N,I).EQ.0.0)GO TO 200
    5 IF(DDEP(N,I).EQ.STDP(K))GO TO 50
      IF(DDEP(N+1,I).NE.STDP(K))GO TO 10
      N = N+1
      GO TO 50
   10 IF(DDEP(N,I).GE.STDP(K))GO TO 20
      K = K-1
      GO TO 100
   20 VALU=(STDP(K)-DDEP(N-1,I))/(DDEP(N,I)-DDEP(N-1,I))
      PHOS(K,I,2)=PHOS(N-1,I,1)*(1-VALU)+PHOS(N,I,1)*VALU
      CHLOR(K,I,2)=CHLOR(N-1,I,1)*(1-VALU)+CHLOR(N,I,1)*VALU
      SAL(K,I,2) = SAL(N-1,I,1)*(1-VALU)+SAL(N,I,1)*VALU
      STTP(K) = DELTP(N-1,I)*(1-VALU) + DELTP(N,I)*VALU
      STSP(K) = DELSP(N-1,I)*(1-VALU) + DELSP(N,I)*VALU
      IF(ITAG.EQ.1)GO TO 30
   25 O2(K,I,2) = O2(N-1,I,1)*(1-VALU)+O2(N,I,1)*VALU
   30 IF(DDEP(N,I).LT.STDP(K+1))GO TO 100
      K=K+1
      GO TO 20
   50 PHOS(K,I,2)=PHOS(N,I,1)
      CHLOR(K,I,2)=CHLOR(N,I,1)
      SAL(K,I,2) = SAL(N,I,1)
      STTP(K) = DELTP(N,I)
      STSP(K) = DELSP(N,I)
      IF(ITAG.EQ.1)GO TO 100
```

```
   80 O2(K,I,2) = O2(N,I,1)
  100 CONTINUE
  200 DO 210 K = 1,40
      DELTP(K,I) = STTP(K)
  210 DELSP(K,I) = STSP(K)
      RETURN
      END


      SUBROUTINE SIGMT(I,SIGT)
C   THIS SUBROUTINE CALCULATES SIGMA-T FROM THE TEMPERATURE AND
C   SALINITY
      DIMENSION VL(8),SIGT(40,9)
      COMMON DEP(40,9),SAL(40,9,2),TEMP(40,9,2),O2(40,9,2),SV(40,9,2),
     *PHOS(40,9,2),TRAN(40,9,2),DER(40,9),CHLOR(40,9,2),VS(40,9)
      INTEGER*4 DEP,DER,STDEP
      REAL*8 VL,SUMT,AT,BT,SIGO
      DATA VL/2236.8396,.098185,.0010843,.09344586,.81487658,.000482496,
     1.000006768,4482.8332/
      DO 20 J = 1,40
      IF(TEMP(J,I,2).EQ.0.0)GO TO 50
   10 SUMT = (-(TEMP(J,I,2)**3)-(TEMP(J,I,2)**2)*275.04+TEMP(J,I,2)*
     1VL(1)-VL(8))/(503.57*(TEMP(J,I,2)+67.26))
      AT = ((TEMP(J,I,2)**2)*(VL(3)*TEMP(J,I,2)-VL(2))+TEMP(J,I,2)*
     14.7867)*.001
      BT =((TEMP(J,I,2)**2)*(.01667*TEMP(J,I,2)-.8164)+18.030*
     1TEMP(J,I,2))*1.0E-6
      SIGO = (SAL(J,I,2)**2)*(VL(7)*SAL(J,I,2)-VL(6))+SAL(J,I,2)*VL(5)
     1-VL(4)
   20 SIGT(J,I)    = SUMT+(1.0-AT)*SIGO+BT*SIGO*SIGO+(1.0-AT)*.1324-BT*
     *.1324*.1324
   50 RETURN
      END
```

TABLE II

STATION DATA: LOCATION, TIME, DATE, DEPTH, WEATHER, SOUND VELOCITY, TEMPERATURE, TRANSMITTANCE, OXYGEN, PHOSPHATE AND CHLOROPHYLL

STATION: A1 DEPTH: 69M DATE 6 NOV 70 TIME: 1015

LAT: 36-39.0N LONG: 121-54.1W WIND: 190 SPEED: 12

AIR TEMP(DRY): 58 BARO: 30.09 CLOUD AMT: 10

HEIGHT(FT): 1000 SEA: 190-1 SWELL: 240-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.965	6.21	0.39	0.140
10	32.967	6.31	0.40	0.169
30	33.084	6.45	0.49	0.173
50	33.450	5.83	0.90	0.371
68	33.479	5.95	0.97	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.93	1500.5	85.7
10	13.42	1500.5	83.8
18	13.30	1500.3	84.8
28	13.08	1499.9	87.0
38	12.63	1498.7	83.7
48	12.38	1498.2	81.5
56	12.20	1497.9	79.5
61	12.17	1497.9	79.1

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.93	1500.5	85.7	32.965	6.21	0.39	0.140	24.65
10	13.42	1500.5	83.8	32.967	6.31	0.40	0.169	24.76
20	13.26	1500.2	85.2	33.025	6.38	0.45	0.171	24.83
30	12.99	1499.7	86.3	33.084	6.45	0.49	0.173	24.93
50	12.33	1498.1	81.0	33.450	5.83	0.90	0.371	25.34

STATION: A2 DEPTH: 76M DATE: 1 NOV 70 TIME: 0920
LAT: 36-40.7N LONG: 121-54.2W WIND: 190 SPEED: 12
AIR TEMP(DRY): 58 BARO: 30.09 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 190-1 SWELL: 240-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.992	5.62	0.39	0.361
18	32.997	6.26	0.40	0.595
35	33.135	5.27	0.50	0.008
57	33.469	5.23	0.97	0.418
75	33.539	5.52	1.22	0.536

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.48	1500.5	84.9
10	13.47	1500.6	84.0
21	13.39	1500.5	83.0
28	13.19	1500.2	85.0
38	12.57	1498.5	84.5
47	12.42	1498.4	81.2
57	12.19	1497.7	80.3
67	11.84	1496.8	82.3

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.48	1500.5	84.9	32.992	5.62	0.39	0.361	24.76
10	13.47	1500.6	84.0	32.994	5.98	0.39	0.491	24.77
20	13.40	1500.5	83.1	33.013	6.14	0.41	0.526	24.80
30	13.07	1499.9	84.9	33.094	5.56	0.47	0.181	24.93
50	12.35	1498.2	80.9	33.363	5.25	0.82	0.288	25.27
75				33.539	5.52	1.22	0.536	

STATION: A3 DEPTH: 78M DATE: 6 NOV 70 TIME: 0835
LAT: 36-42.1N LONG: 121-54.2W WIND: 135 SPEED: 10
AIR TEMP(DRY): 54 BARO: 30.04 CLOUD AMT: 8
HEIGHT(FT): 1500 SEA: 135-1/2 SWELL: 230-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.000	5.65	0.43	0.174
15	32.995	6.34		0.200
35	33.064	5.70	0.46	0.142
50	33.226	5.26	0.59	0.266
65	33.434	5.99	0.89	0.442
77	33.635	4.40	1.83	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.45	1500.4	80.5
8	13.45	1500.6	80.2
24	13.40	1500.7	81.3
38	13.09	1500.1	84.9
48	12.71	1499.1	86.1
58	12.18	1497.6	84.6
67	11.61	1495.6	82.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.45	1500.4	80.5	33.000	5.65	0.43	0.174	24.78
10	13.44	1500.6	80.3	32.997	6.11		0.191	24.77
20	13.41	1500.7	81.0	33.012	6.18		0.185	24.79
30	13.27	1500.4	82.8	33.047	5.86		0.156	24.85
50	12.60	1498.8	85.8	33.226	5.26	0.59	0.266	25.12
75				33.601	4.66	1.67	0.074	

STATION: A4 DEPTH: 87M DATE: 6 NOV 70 TIME: 3745
LAT: 36-43.7N LONG: 121-54.5W WIND: 135 SPEED: 10
AIR TEMP(DRY): 54 BARO: 30.04 CLOUD AMT: 8
HEIGHT(FT): 1500 SEA: 135-1/2 SWELL: 230-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.984	6.00	0.42	0.176
15	32.979	5.92	0.42	0.197
35	33.036	6.00	0.43	0.205
55	33.285	5.61	0.68	0.198
70	33.531	5.19	1.08	0.734
86	33.719	4.21	1.92	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SC. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.60	1500.2	78.8
10	13.35	1500.3	79.0
24	13.32	1500.4	79.5
38	13.18	1500.3	85.0
47	12.72	1499.2	87.7
56	12.15	1497.4	87.4
65	11.96	1497.2	80.3
69	11.52	1495.7	60.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.60	1500.2	78.8	32.984	6.00	0.42	0.176	24.73
10	13.35	1500.3	79.0	32.981	5.95	0.42	0.190	24.78
20	13.33	1500.4	79.4	32.993	5.94	0.42	0.199	24.80
30	13.26	1500.4	81.9	33.021	5.98	0.43	0.203	24.83
50	12.53	1498.6	87.6	33.223	5.71	0.62	0.200	25.13
75				33.590	4.89	1.34	0.505	

STATION: A5 DEPTH: 82M DATE: 6 NOV 70 TIME: 0632
LAT: 36-45.5N LONG: 121-54.4W WIND: 130 SPEED: 10
AIR TEMP(DRY): 53 BARO: 30.01 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 130-1 SWELL:270-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.008	0.0	0.42	0.173
20	33.019	6.24	0.43	0.249
40	33.102	6.44	0.47	0.244
65	33.320	6.26	0.76	0.293
81	33.785	5.07	1.98	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.27	1499.9	77.2
7	13.27	1500.0	77.4
19	13.24	1500.1	77.1
29	13.26	1500.3	78.2
38	13.09	1500.1	79.2
47	12.81	1499.4	79.1
62	11.95	1496.9	80.7
71	11.86	1497.0	69.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.27	1499.9	77.2	33.008	0.0	0.42	0.173	24.82
10	13.26	1500.0	77.3	33.014	3.12	0.42	0.211	24.82
20	13.24	1500.1	77.2	33.019	6.24	0.43	0.249	24.83
30	13.24	1500.3	78.3	33.060	6.34	0.45	0.246	24.86
50	12.64	1498.9	79.4	33.189	6.37	0.59	0.264	25.08
75				33.611	5.52	1.52	0.110	

STATION: A6 DEPTH: 450M DATE: 6 NOV 70 TIME: 0450
LAT: 36-46.6N LONG: 121-54.4W WIND: LIGHT AIRS
AIR TEMP(DRY): 54 BARO: 30.05 CLOUD AMT: 2
HEIGHT(FT): 1500 SEA: CALM SWELL: 270-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.084	6.47	0.45	0.213
20	33.131	6.42	0.50	0.369
35	33.300	6.56	0.56	0.651
60	33.533	5.37	1.20	0.461
80	33.692	3.73	1.75	0.161
105	33.871	2.86	2.12	0.077

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.28	1500.0	79.8
9	13.30	1500.2	78.6
18	13.28	1500.3	77.1
31	13.06	1499.9	73.4
46	12.69	1499.2	76.6
55	11.03	1494.8	80.6
74	10.33	1491.9	52.7
84	9.89	1490.6	59.2
100	9.15	1488.2	68.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.28	1500.0	79.8	33.084	6.47	0.45	0.213	24.88
10	13.30	1500.2	78.4	33.108	6.44	0.48	0.291	24.89
20	13.25	1500.2	76.5	33.131	6.42	0.50	0.369	24.92
30	13.08	1499.9	73.7	33.243	6.52	0.54	0.557	25.04
50	11.95	1497.2	78.4	33.439	5.85	0.94	0.537	25.41
75	10.29	1491.8	53.3	33.652	4.14	1.61	0.236	25.87
100	9.15	1488.2	68.7	33.835	3.03	2.04	0.094	26.20

STATION: A7 DEPTH: 146M DATE: 6 NOV 70 TIME: 0315
LAT: 36-49.6N LONG: 121-54.2W WIND: LIGHT AIRS
AIR TEMP(DRY): 54 BARO: 30.06 CLOUD AMT: 2
HEIGHT(FT): 1500 SEA: CALM SWELL: 27C-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.284	6.19	0.53	0.353
10	33.288	6.45	0.52	0.118
25	33.386	6.26	0.63	0.6C5
50	33.457	5.44	1.07	0.327
60	33.571	4.68	1.40	0.286
85	33.663	3.95	1.71	0.229
100	33.873	3.19	2.19	0.075

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.95	1499.1	70.9
10	12.84	1499.0	81.1
20	12.59	1498.4	75.1
48	11.53	1495.2	82.8
58	11.06	1494.0	82.1
77	10.64	1493.0	57.7
87	10.23	1491.6	50.0
107	9.03	1488.0	54.3

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.95	1499.1	70.9	33.284	6.19	0.53	0.353	25.10
10	12.84	1499.0	81.1	33.288	6.45	0.52	0.118	25.12
20	12.59	1498.4	75.1	33.353	6.33	0.60	0.443	25.22
30	12.21	1497.3	77.8	33.400	6.10	0.72	C.549	25.33
50	11.44	1495.0	82.7	33.457	5.44	1.07	0.327	25.52
75	10.68	1493.1	60.3	33.626	4.24	1.59	0.252	25.78
100	9.45	1489.3	52.8	33.873	3.19	2.19	C.075	26.18

[illegible]

STATION: A8 DEPTH: 73M DATE: 6 NOV 70 TIME: 0230
LAT: 36-49.7N LONG: 121-54.3W WIND: LIGHT AIRS
AIR TEMP(DRY): 54 BARO: 30.06 CLOUD AMT: 2
HEIGHT(FT): 1500 SEA: CALM SWELL: 270-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.231	6.56	0.51	0.697
5	33.308	6.51	0.54	0.666
25	33.389	6.24	0.69	0.691
45	33.408	5.22	1.07	0.292
65	33.523	4.89	1.31	0.234
72	33.564	4.74	1.47	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.84	1498.8	77.8
4	12.84	1498.9	76.9
15	12.48	1498.0	73.8
30	12.23	1497.5	76.1
50	11.31	1494.6	86.0
69	11.13	1494.5	52.9

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.84	1498.8	77.8	33.231	6.56	0.51	0.697	25.08
10	12.64	1498.4	75.2	33.328	6.44	0.58	0.672	25.19
20	12.40	1497.8	74.6	33.369	6.30	0.65	0.685	25.27
30	12.23	1497.5	76.1	33.394	5.98	0.79	0.591	25.32
50	11.31	1494.6	86.0	33.437	5.14	1.13	0.277	25.52

STATION: A9 DEPTH: 59M DATE: 6 NOV 70 TIME: 0130
LAT: 36-51.2N LONG: 121-54.3W WIND: LIGHT AIRS
AIR TEMP(DRY): 54 BARO: 30.06 CLOUD AMT: 2
HEIGHT(FT): 1500 SEA: CALM SWELL: 270-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.150	6.28	0.51	0.234
10	33.175	6.35	0.49	0.405
20	33.331	6.24	0.64	0.493
30	33.352	6.15	0.74	0.456
40	33.358	5.83	0.93	0.530
50	33.474	5.43	1.14	0.473
58		5.50	1.25	0.591

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.18	1499.8	77.5
4	13.13	1499.8	77.9
10	12.96	1499.3	77.5
20	12.64	1498.5	81.0
30	12.34	1497.5	80.1
40	11.56	1495.1	86.9
43	11.67	1495.5	50.5
49	11.96	1496.0	33.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.18	1499.8	77.5	33.150	6.28	0.51	0.234	24.95
10	12.96	1499.3	77.5	33.175	6.35	0.49	0.405	25.01
20	12.64	1498.5	81.0	33.331	6.24	0.64	0.493	25.19
30	12.34	1497.5	80.1	33.352	6.15	0.74	0.456	25.27
50				33.474	5.43	1.14	0.473	

STATION: A10 DEPTH: 36M DATE: 6 NOV 70 TIME: 0040
LAT: 36-52.7N LONG: 121-54.3W WIND: CALM
AIR TEMP(DRY): 54 BARO: 30.10 CLOUD AMT: 10
TYPE: FOG SEA: CALM SWELL: 270-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.134	6.32	0.51	0.450
5	33.130	6.33	0.49	0.318
10	33.136	6.43	0.52	0.334
20	33.323	6.37	0.60	0.372
30	33.397	6.14	0.70	0.654
35	33.401	6.20	0.79	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.14	1499.6	80.3
5	13.14	1499.7	78.9
9	13.12	1499.7	78.4
14	12.70	1499.7	81.0
20	12.45	1497.9	82.8
30	12.40	1497.9	64.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.14	1499.6	80.3	33.134	6.32	0.51	0.450	24.94
10	13.04	1499.7	78.9	33.136	6.43	0.52	0.334	24.96
20	12.45	1497.9	82.8	33.323	6.37	0.60	0.372	25.22
30	12.40	1497.9	64.2	33.397	6.14	0.70	0.654	25.29

STATION: A11 DEPTH: 22M DATE: 6 NOV 70 TIME: 0005
LAT: 36-54.2N LONG: 121-54.3W WIND:CALM
AIR TEMP(DRY): 54 BARO: 30.10 CLOUD AMT: 10
TYPE: FOG SEA: CALM SWELL: 270-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.242	6.68	0.52	0.259
10	33.303	6.60	0.56	0.539
18	33.326	6.52	0.61	0.467
21		6.49	0.65	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.07	1499.5	84.1
5	12.89	1499.0	77.7
10	12.82	1498.9	73.6
17	12.74	1498.8	55.6

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.07	1499.5	84.1	33.242	6.68	0.52	0.259	25.04
10	12.82	1498.9	73.6	33.303	6.60	0.56	0.539	25.14
20					6.50	0.64	0.156	

STATION: A12 DEPTH: 17M DATE: 5 NOV 70 TIME: 2320
LAT: 36-55.7N LONG: 121-54.4W WIND: CALM
AIR TEMP(DRY): 54 BARO: 30.10 CLOUD AMT: 10
TYPE: FOG SEA: CALM SWELL: 270-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.243	6.41	0.55	0.282
6	33.259	6.53	0.53	0.265
12	33.268	6.49	0.56	0.401
15	33.273	6.45	0.63	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (0/0)
0	12.95	1499.1	78.0
3	12.95	1499.2	78.8
6	12.93	1499.2	77.8
0	12.92	1499.1	74.9
12	12.91	1499.2	70.3

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.95	1499.1	78.0	33.243	6.41	0.55	0.282	25.06
10	12.93	1499.2	77.7	33.265	6.50	0.55	0.356	25.08

STATION: B1 DEPTH: 15M DATE: 5 NOV 70 TIME: 2214
LAT: 36-56.3N LONG: 121-59.1W WIND: CALM
AIR TEMP(DRY): 54 BARO: 30.10 CLOUD AMT: 10
TYPE: FOG SEA: CALM SWELL: 270-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.168	6.29	1.17	1.032
3	33.188	6.21	1.18	1.188
6	33.177	6.07	1.12	0.790
8	33.246	6.13	0.84	0.705
10	33.337	6.34	1.05	1.059
14	33.412	6.11	1.17	1.685

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.17	1499.6	68.0
3	13.17	1499.7	68.0
6	13.14	1499.9	79.0
9	12.99	1499.5	45.0
12	12.70	1498.7	25.2
	12.70		

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.17	1499.6	68.0	33.168	6.29	1.17	1.032	24.96
10	12.89	1499.2	38.4	33.337	6.34	1.05	1.059	25.15

STATION: B2 DEPTH: 29M DATE: 5 NOV 70 TIME: 2115
LAT: 36-54.8N LONG: 121-59.1W WIND: CALM
AIR TEMP(DRY): 54 BARO: 30.07 CLOUD AMT: 10
TYPE: FOG SEA: CALM SWELL: 270-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.372	6.66	0.48	0.697
5	33.372	6.71	0.50	0.694
10	33.375	6.70	0.48	0.839
20	33.435	6.39	0.70	0.965
25	33.450	6.10	0.86	1.029

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.84	1498.9	62.8
5	12.81	1498.9	61.3
10	12.80	1498.9	61.3
14	12.77	1499.0	65.3
19	12.47	1497.4	45.8

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.84	1498.9	62.8	33.372	6.66	0.48	0.697	25.19
10	12.80	1498.9	61.3	33.375	6.70	0.48	0.839	25.19
20				33.435	6.39	0.70	0.965	

STATION: B3 DEPTH: 36M DATE: 5 NOV 70 TIME: 2005
LAT: 36-53.4N LONG: 121-59.1W WIND: CALM
AIR TEMP(DRY): 54 BARO: 30.07 CLOUD AMT: 10
TYPE: FOG SEA: CALM SWELL: 270-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.370	6.65	0.47	0.488
5	33.360	6.44	0.47	0.531
10	33.364	6.52	0.56	0.475
15	33.355	6.45	0.57	0.521
25	33.457	6.33	0.67	0.999
35	33.480	5.79	0.97	

OBSERVED VALUES (SV/T/D--TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.93	1499.1	75.0
5	12.89	1499.0	77.7
9	12.71	1498.5	81.2
14	12.46	1498.2	81.1
19	12.47	1498.0	64.9
24	12.44	1498.0	55.5
29	12.34	1497.9	39.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.93	1499.1	75.0	33.370	6.65	0.47	0.488	25.17
10	12.66	1498.4	81.2	33.364	6.52	0.56	0.475	25.21
20	12.46	1498.0	63.0	33.406	6.39	0.62	0.760	25.28
30				33.468	6.06	0.82	0.499	

STATION: 84 DEPTH: 68M DATE: 5 NOV 70 TIME: 1847
LAT: 36-51.6N LONG: 121-59.4W WIND: LIGHT AIRS
AIR TEMP(DRY): 54 BARO: 30.05 CLOUD AMT: 7
HEIGHT(FT): 5000 SEA: RIPPLES SWELL: 215-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.257	6.51	0.48	0.347
15	33.361	6.63	0.54	0.521
25	33.449	5.91	C.87	1.278
40	33.516	5.86	0.96	1.277
60	33.490	5.66	1.06	0.641
66		5.66		1.022

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.84	1498.8	80.0
4	12.83	1498.8	76.8
9	12.78	1498.8	73.5
14	12.77	1498.9	65.2
19	12.77	1499.0	62.5
28	12.22	1497.4	80.1
38	12.07	1497.1	64.7
48	12.09	1497.4	47.8
58	12.10	1497.6	31.9

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.84	1498.8	80.0	33.257	6.51	0.48	0.347	25.10
10	12.78	1498.8	71.8	33.326	6.59	0.52	0.463	25.16
20	12.71	1498.8	64.5	33.405	6.27	0.70	0.899	25.24
30	12.19	1497.3	77.0	33.471	5.90	0.90	1.278	25.39
50	12.09	1497.4	44.6	33.503	5.76	1.01	0.959	25.43

STATION: B5 DEPTH: 86M DATE: 5 NOV 70 TIME: 1710
LAT: 36-50.5N LONG: 121-59.1W WIND: LIGHT AIRS
AIR TEMP(DRY): 54 BARO: 30.05 CLOUD AMT: 7
HEIGHT(FT): 5000 SEA: RIPPLES SWELL: 215-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.213	6.34	0.55	0.441
5	33.242	6.53	0.55	0.425
10	33.272	6.44	0.55	0.649
15	33.285	6.15	0.53	0.821
20	33.316	6.51	0.55	0.849
30	33.407	6.32	0.67	0.551
50	33.490	5.52	1.08	0.376
70	33.577	4.62	1.51	0.296

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.32	1500.2	60.1
7	13.28	1500.2	59.5
10	13.25	1500.0	58.7
19	12.77	1498.9	61.9
27	12.56	1498.5	65.8
48	11.84	1496.2	77.8
69	11.06	1494.6	52.1
73	11.04	1494.2	55.4

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.32	1500.2	60.1	33.213	6.34	0.55	0.441	24.97
10	13.25	1500.0	58.7	33.272	6.44	0.55	0.649	25.03
20	12.74	1498.8	62.4	33.316	6.51	0.55	0.849	25.16
30	12.46	1498.2	67.5	33.407	6.32	0.67	0.551	25.29
50	11.77	1496.0	75.4	33.490	5.52	1.08	0.376	25.48

STATION: B6 DEPTH: 549M DATE: 5 NOV 70 TIME: 1545
LAT: 36-48.9N LONG: 122-59.1W WIND: LIGHT AIRS
AIR TEMP(DRY): 66 BARO: 30.C5 CLOUD AMT: 7
HEIGHT(FT): 3000 SEA: RIPPLES SWELL: 180-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.042	6.22	0.44	0.233
15	33.075	6.16	0.47	0.251
35	33.388	6.38	0.53	0.757
45	33.431	6.11	0.66	1.009
75	33.613	4.02	1.61	0.210
100	33.669	3.62	1.75	0.262

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (0/0)
0	13.31	1500.1	75.6
10	13.28	1500.1	74.9
25	13.08	1499.9	69.2
40	12.64	1498.9	72.1
48	12.25	1497.8	70.9
59	11.52	1496.3	77.7
78	10.75	1493.3	88.4
98	10.38	1492.5	66.1

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.31	1500.1	75.6	33.042	6.22	0.44	0.233	24.84
10	13.28	1500.1	74.9	33.064	6.18	0.46	0.245	24.86
20	13.15	1500.0	71.1	33.153	6.22	0.48	0.377	24.96
30	12.93	1499.6	70.2	33.310	6.33	0.52	0.630	25.12
50	12.12	1497.5	72.1	33.462	5.76	0.82	0.876	25.39
75	10.87	1493.8	86.7	33.613	4.02	1.61	0.210	25.74
100				33.669	3.62	1.75	0.262	

STATION: B7 DEPTH: M DATE: 5 NOV 70 TIME: 1515
LAT: 36-47.2N LONG: 121-58.8W WIND: 270 SPEED: 6
AIR TEMP(DRY): 66 BARO: 30.06 CLOUD AMT: 7
HEIGHT(FT): 3000 SEA: RIPPLES SWELL: 180-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.012	6.14	0.47	0.186
10	33.016	6.31	0.46	0.181
25	33.083	6.28	0.47	0.345
50	33.410	6.08	0.69	1.099
75	33.505	4.84	1.27	0.509
100	33.638	3.81	1.64	0.244

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.42	1500.5	76.2
10	13.29	1500.2	73.0
25	13.18	1500.1	71.9
49	12.29	1498.0	67.5
59	11.88	1496.6	78.0
78	10.82	1493.6	84.2
97	10.47	1492.7	50.8

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.42	1500.5	76.2	33.012	6.14	0.47	0.186	24.79
10	13.29	1500.2	73.0	33.016	6.31	0.46	0.181	24.82
20	13.22	1500.1	72.3	33.061	6.29	0.47	0.290	24.87
30	12.99	1499.7	71.0	33.149	6.24	0.51	0.496	24.98
50	12.25	1497.9	68.5	33.410	6.08	0.69	1.099	25.33
75	10.99	1494.1	83.2	33.505	4.84	1.27	0.509	25.63
100				33.638	3.81	1.64	0.244	

STATION: B8 DEPTH: 805M DATE: 5 NOV 70 TIME: 1245
LAT: 36-45.9N LONG: 121-59.1W WIND: 230 SPEED: 12
AIR TEMP(DRY): 56 BARO: 30.08 CLOUD AMT: 10
HEIGHT(FT): 100C SEA: 200-2 SWELL: 180-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.016	6.14	0.46	0.222
15	33.011	6.39	0.48	0.175
37	33.166	6.32	0.51	0.461
57	33.448	5.99	0.78	0.570
85	33.592	4.26	1.49	0.076
110	33.686	3.57	1.78	0.153

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (0/0)
0	13.45	1500.3	77.3
14	13.27	1500.1	76.6
28	13.17	1500.1	78.5
38	12.78	1499.2	77.1
58	12.00	1497.1	79.1
85	10.74	1493.5	91.4
104	10.43	1492.8	63.1

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.45	1500.3	77.3	33.016	6.14	0.46	0.222	24.79
10	13.32	1500.2	76.8	33.013	6.30	0.47	0.191	24.81
20	13.23	1500.1	77.4	33.047	6.37	0.49	0.240	24.86
30	13.09	1499.9	78.2	33.117	6.34	0.50	0.370	24.94
50	12.31	1497.9	78.3	33.350	6.10	0.68	0.532	25.27
75	11.21	1494.8	86.8	33.541	4.88	1.24	0.252	25.62
100	10.50	1492.9	69.1	33.649	3.85	1.67	0.122	25.83

STATION: B9 DEPTH: 622M DATE: 5 NOV 70 TIME: 1117

LAT: 36-44.2N LONG: 122-59.2W WIND: 230 SPEED: 12

AIR TEMP(DRY): 56 BARO: 30.08 CLOUD AMT: 10

HEIGHT(FT): 1000 SEA: 200-2 SWELL: 180-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.981	4.71	0.48	0.187
10	32.982	4.60	0.45	0.191
25	32.985	6.32	0.45	0.241
50	33.259	7.34	0.59	0.228
75	33.484	4.93	1.30	0.136
100	33.603	4.20	1.56	0.169

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.33	1500.0	78.0
8	13.31	1500.1	78.3
28	13.26	1500.3	79.5
48	13.16	1500.5	82.7
57	11.48	1495.3	89.7
77	10.90	1493.8	88.5
96	10.75	1493.7	87.3

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.33	1500.0	78.0	32.981	4.71	0.48	0.187	24.79
10	13.30	1500.1	78.4	32.982	4.60	0.45	0.191	24.79
20	13.28	1500.2	79.0	32.984	5.75	0.45	0.224	24.80
30	13.25	1500.3	79.8	33.040	6.53	0.48	0.238	24.85
50	12.79	1499.3	84.3	33.259	7.34	0.59	0.228	25.11
75	10.96	1493.9	88.6	33.484	4.93	1.30	0.136	25.62
100				33.603	4.20	1.56	0.169	

STATION: B10 DEPTH: 247M DATE: 5 NOV 70 TIME: 1000
LAT: 36-42.8N LONG: 122-59.1W WIND: 180 SPEED: 22
AIR TEMP(DRY): 57 BARO: 30.C5 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 180-3 SWELL: 180-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.968	6.24	0.45	0.169
15	32.973	6.51	0.45	0.107
40	33.009	6.31	0.46	0.187
55	33.282	6.42	0.58	0.194
70	33.202	5.42	0.86	0.179
100	33.659	4.06	1.64	0.135

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.30	1499.9	77.4
9	13.29	1500.0	77.4
14	13.29	1500.2	77.4
20	13.29	1500.2	77.4
39	13.30	1500.7	79.2
57	12.90	1499.8	82.5
76	10.95	1494.0	85.5
99	10.57	1494.9	77.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.30	1499.9	77.4	32.968	6.24	0.45	0.169	24.78
10	13.29	1500.0	77.4	32.971	6.42	0.45	0.128	24.79
20	13.29	1500.2	77.4	32.980	6.47	0.45	0.123	24.79
30	13.30	1500.5	78.3	32.995	6.39	0.46	0.155	24.80
50	13.06	1500.1	81.2	33.191	6.39	0.54	0.192	25.00
75	11.05	1494.3	85.3	33.278	5.19	0.99	0.172	25.45
100				33.659	4.06	1.64	0.135	

STATION: B11 DEPTH: 109M DATE: 5 NOV 70 TIME: 0855
LAT: 36-41.3N LONG: 122-59.1W WIND: 190 SPEED: 20
AIR TEMP(DRY): 58 BARO: 30.CO CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 190-3 SWELL: 180-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.980	6.22	0.44	0.154
25	32.972	6.23	0.44	0.209
60	33.229		0.64	0.225
75	33.330	5.71	0.92	0.228
95	33.543	5.14	1.28	0.355
108	33.701	3.70	2.15	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.43	1500.3	79.6
20	13.42	1500.7	79.5
50	13.33	1500.9	81.3
59	12.86	1498.8	84.9
74	11.71	1496.0	87.7
99	11.12	1494.9	84.0

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.43	1500.3	79.6	32.980	6.22	0.44	0.154	24.76
10	13.42	1500.5	79.5	32.977	6.23	0.44	0.176	24.76
20	13.42	1500.7	79.5	32.974	6.23	0.44	0.198	24.76
30	13.39	1500.8	80.1	33.009	5.34	0.47	0.211	24.80
50	13.33	1500.9	81.3	33.156	1.78	0.58	0.220	24.92
75	11.69	1496.0	87.6	33.330	5.71	0.92	0.228	25.37
100				33.604	4.59	1.61	0.218	

STATION: B12 DEPTH: 99M DATE: 5 NOV 70 TIME: 0750
LAT: 36-39.8N LONG: 122-59.2W WIND: 190 SPEED: 20
AIR TEMP(DRY): 58 BARO: 30.00 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 190-3 SWELL: 180-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.971	6.22	0.43	0.197
20	32.982	5.78	0.43	0.169
45	33.105	4.18	0.54	0.175
60	33.414	2.27	0.96	0.332
80	33.499	4.55	1.11	0.446

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.46	1500.5	77.9
21	13.45	1500.8	78.5
46	13.13	1500.4	83.2
55	12.52	1498.6	80.8
70	12.05	1497.5	79.4
88	11.50	1496.1	82.3

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.46	1500.5	77.9	32.971	6.22	0.43	0.197	24.75
10	13.46	1500.6	78.2	32.977	6.00	0.43	0.183	24.76
20	13.45	1500.8	78.5	32.982	5.78	0.43	0.169	24.76
30	13.33	1500.7	80.2	33.032	5.14	0.47	0.171	24.82
50	12.86	1499.6	82.1	33.208	3.54	0.68	0.227	25.05
75	11.90	1497.1	80.2	33.478	3.98	1.07	0.417	25.45

STATION: B13 DEPTH: 82M DATE: 5 NOV 70 TIME: 0655
LAT: 36-38.8N LONG: 121-58.7W WIND: 160 SPEED: 30
AIR TEMP(DRY): 50 BARO: 29.95 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 160-5 SWELL: 170-12

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.961	6.23	0.49	0.167
20	32.961	6.37	0.51	0.199
50	33.163	6.16	0.64	0.160
60	33.382	5.81	0.89	0.358
81	33.533	5.35		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.36	1500.2	81.3
9	13.35	1500.3	81.6
18	13.32	1500.4	80.8
27	13.34	1500.6	80.2
35	13.30	1500.7	80.2
44	13.18	1500.4	81.9
53	12.57	1498.7	78.8
63	12.23	1497.9	80.0
67	11.82	1496.8	77.8

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.36	1500.2	81.3	32.961	6.23	0.49	0.167	24.76
10	13.35	1500.3	81.5	32.961	6.30	0.50	0.183	24.77
20	13.32	1500.4	80.7	32.961	6.37	0.51	0.199	24.77
30	13.32	1500.6	80.2	33.029	6.30	0.55	0.186	24.82
50	12.77	1499.3	79.8	33.163	6.16	0.64	0.160	25.04
75				33.490	5.48	0.25	0.102	

STATION: C1 DEPTH: 444M DATE: 5 NOV 70 TIME: 0545
LAT: 36-36.2N LONG: 122-01.7W WIND: 160 SPEED: 30
AIR TEMP(DRY): 50 BARO: 29.95 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 160-5 SWELL: 170-12

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.965	6.26	0.44	0.149
20	32.965	6.29	0.48	0.275
50	33.367	6.10	0.79	0.459
70	33.490	5.91	1.00	0.839
80	33.494	5.85	1.02	0.725
100	33.602	4.65	1.31	0.443

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.30	1499.9	82.0
13	13.30	1500.2	82.1
23	13.30	1500.4	82.1
38	12.99	1499.8	80.7
46	12.73	1499.3	77.5
69	11.95	1497.1	71.2
93	10.65	1492.7	79.3
102	9.97	1491.1	85.6

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.30	1499.9	82.0	32.965	6.26	0.44	0.149	24.78
10	13.30	1500.1	82.1	32.965	6.29	0.48	0.275	24.78
20	13.30	1500.3	82.1	32.965	6.29	0.48	0.275	24.78
30	13.16	1500.1	81.4	33.367	6.10	0.79	0.459	25.12
50	12.59	1498.9	76.4	33.367	6.10	0.79	0.459	25.23
75	11.62	1496.0	73.2	33.492	5.88	1.01	0.782	25.51
100	10.12	1491.5	84.2	33.602	4.65	1.31	0.443	25.86

STATION: C1 DEPTH: 444M DATE: 5 NOV 70 TIME: 0545
LAT: 36-36.2N LONG: 122-01.7W WIND: 160 SPEED: 30
AIR TEMP(DRY): 50 BARO: 29.95 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 160-5 SWELL: 170-12

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.965	6.26	0.44	0.149
20	32.965	6.29	0.48	0.275
50	33.367	6.10	0.79	0.459
70	33.490	5.91	1.00	0.839
80	33.494	5.85	1.02	0.725
100	33.602	4.65	1.31	0.443

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.30	1499.9	82.0
13	13.30	1500.2	82.1
23	13.30	1500.4	82.1
38	12.99	1499.8	80.7
46	12.73	1499.3	77.5
69	11.95	1497.1	71.2
93	10.65	1492.7	79.3
102	9.97	1491.1	85.6

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.30	1499.9	82.0	32.965	6.26	0.44	0.149	24.78
10	13.30	1500.1	82.1	32.965	6.29	0.48	0.275	24.78
20	13.30	1500.3	82.1	32.965	6.29	0.48	0.275	24.78
30	13.16	1500.1	81.4	33.367	6.10	0.79	0.459	25.12
50	12.59	1498.9	76.4	33.367	6.10	0.79	0.459	25.23
75	11.62	1496.0	73.2	33.492	5.88	1.01	0.782	25.51
100	10.12	1491.5	84.2	33.602	4.65	1.31	0.443	25.86

STATION: C2 DEPTH: 823M DATE: 5 NOV 70 TIME: 0437
LAT: 36-34.1N LONG: 122-04.1W WIND: 160 SPEED: 35
AIR TEMP(DRY): 50 BARO: 29.90 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 160-6 SWELL: 170-12

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.927	4.65	0.42	0.227
20	32.936	4.67	0.42	0.245
50	32.961	4.70	0.43	0.200
65	33.280	5.93	0.71	0.296
80	33.578	3.70	1.42	0.267
100	33.604	2.95	1.57	0.106

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.44	1500.4	77.7
4	13.45	1500.5	78.8
14	13.43	1500.6	78.4
23	13.44	1500.8	78.4
37	13.41	1501.0	77.9
54	13.19	1500.7	81.8
64	12.17	1493.7	80.5
79	10.84	1493.7	83.1
94	9.85	1490.2	89.0

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.44	1500.4	77.7	32.927	4.65	0.42	0.227	24.72
10	13.44	1500.6	78.6	32.936	4.67	0.42	0.245	24.73
20	13.44	1500.7	78.4	32.936	4.67	0.42	0.245	24.73
30	13.42	1500.9	78.1	32.961	4.70	0.43	0.200	24.75
50	13.24	1500.8	80.9	32.961	4.70	0.43	0.200	24.79
75	11.19	1493.7	82.4	33.478	4.44	1.19	0.277	25.58
100				33.604	2.95	1.57	0.106	

STATION: C3 DEPTH: 1280M DATE: 5 NOV 70 TIME: 0305
LAT: 36-31.5N LONG: 122-07.4W WIND: 160 SPEED: 35
AIR TEMP(DRY): 50 BARO: 29.90 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 160-6 SWELL: 170-12

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.831	3.95	0.41	0.107
10	32.864	4.94	0.41	0.175
25	32.872	5.20	0.41	0.156
40	33.315	4.80	0.68	0.195
60	33.403	4.18	0.98	0.189
70	33.155	4.22	1.01	0.071
90	33.477	4.03	1.43	0.031

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.56	1500.7	78.8
9	13.55	1500.9	79.2
28	13.49	1501.0	79.9
38	13.27	1500.2	80.6
58	11.66	1496.0	88.8
67	9.47	1487.9	91.4
85	9.37	1488.3	91.7
96	8.69	1486.2	92.4

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.56	1500.7	78.8	32.831	3.95	0.41	0.107	24.62
10	13.55	1500.9	79.2	32.864	4.94	0.41	0.175	24.65
20	13.52	1501.0	79.6	32.869	5.11	0.41	0.162	24.66
30	13.45	1500.8	80.0	33.020	5.07	0.50	0.169	24.79
50	12.30	1497.7	85.5	33.359	4.49	0.83	0.192	25.28
75	9.43	1488.1	91.5	33.236	4.18	1.12	0.061	25.69

STATION: D1 DEPTH: 1737M DATE: 5 NOV 70 TIME: 0100
LAT: 36-35.5N LONG: 122-10.8W WIND: 160 SPEED: 35
AIR TEMP(DRY): 55 BARO: 29.95 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 160-6 SWELL: 170-10

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.920	5.92	0.47	0.193
10	32.916	5.42	0.48	0.157
25	32.909	5.33	0.50	0.142
40	33.126	5.26	0.52	0.151
60	33.372	4.95	0.68	0.215
70	33.431	4.35	0.99	0.154
90	33.415	4.08		0.029

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.16	1499.4	78.5
10	13.15	1499.5	79.0
19	13.04	1499.4	79.9
27	13.03	1499.5	81.1
37	13.23	1501.4	85.2
57	12.23	1497.8	89.2
77	10.26	1491.5	90.3
96	9.37	1488.7	91.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.16	1499.4	78.5	32.920	5.92	0.47	0.193	24.77
10	13.15	1499.5	79.0	32.916	5.42	0.48	0.157	24.77
20	13.04	1499.4	80.0	32.911	5.36	0.49	0.147	24.79
30	13.09	1500.1	82.3	32.981	5.31	0.51	0.145	24.83
50	12.58	1499.1	87.8	33.249	5.11	0.60	0.183	25.14
75	10.46	1492.1	90.2	33.427	4.28	0.74	0.123	25.67

STATION: D2 DEPTH: 1370M DATE: 4 NOV 70 TIME: 2300
LAT: 36-39.2N LONG: 122-14.6W WIND: 160 SPEED: 30
AIR TEMP(DRY): 53 BARO: 29.97 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 160-4 SWELL: 170-9

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHCSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.230	6.38	0.55	0.177
10	33.231	6.51	0.53	0.122
30	33.231	6.45	0.52	0.249
40	33.224	3.58	0.55	0.175
55	33.170	6.24	0.57	0.089
70	33.109	5.84	0.79	0.088
90	33.483	4.72	1.37	0.215

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.50	1501.0	76.8
10	13.45	1500.9	77.6
20	13.41	1501.0	78.1
28	13.27	1500.6	78.1
39	13.03	1499.9	80.4
58	10.60	1491.5	88.7
76	10.42	1492.0	90.0
89	9.41	1488.5	91.9

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.50	1501.0	76.8	33.230	6.38	0.55	0.177	24.94
10	13.45	1500.9	77.6	33.231	6.51	0.53	0.122	24.95
20	13.41	1501.0	78.1	33.231	6.45	0.52	0.249	24.96
30	13.23	1500.5	78.5	33.231	6.45	0.52	0.249	25.00
50	11.62	1495.0	85.2	33.188	5.36	0.56	0.118	25.27
75	10.43	1492.0	89.9	33.203	5.56	0.94	0.120	25.50

STATION: D3 DEPTH: 1262M DATE: 4 NOV 70 TIME: 2100
LAT: 36-43.0N LONG: 122-18.5W WIND: 210 SPEED: 25
AIR TEMP(DRY): 55 BARO: 29.93 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 200-7 SWELL: 190-9

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.243	6.41	0.52	0.142
15	33.243	6.16	0.46	0.171
30	33.251	6.42	0.52	0.167
40	33.341	5.70	0.93	0.179
60	33.397	4.99	1.24	0.059

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.77	1501.8	77.2
9	13.77	1502.1	77.2
18	13.74	1502.1	77.2
27	13.68	1502.1	77.5
46	11.53	1495.4	85.5
64	10.02	1490.4	89.9
76	9.74	1490.0	90.0
82	9.71	1489.7	90.0

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.77	1501.8	77.2	33.243	6.41	0.52	0.142	24.90
10	13.77	1502.1	77.2	33.243	6.25	0.48	C.161	24.90
20	13.73	1502.1	77.3	33.251	6.42	0.52	0.167	24.91
30	13.34	1501.0	78.8	33.251	6.42	0.52	0.167	24.99
50	11.19	1494.3	86.5	33.369	5.34	1.08	0.119	25.49

STATION: E1 DEPTH: 841M DATE: 4 NOV 70 TIME: 1853
LAT: 36-47.4N LONG: 122-14.5W WIND: 170 SPEED: 25
AIR TEMP(DRY): 55 BARO: 29.93 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 170-7 SWELL: 170-10

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.084	6.18	0.48	0.160
30	33.085	6.27	0.48	0.134
50	33.116	6.21	0.50	0.177
70	33.058	4.50	0.69	0.156
80	33.278	4.42	1.16	0.058

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.07	1499.4	77.8
9	13.06	1499.5	78.8
26	13.11	1500.0	78.1
44	11.83	1495.9	85.3
59	11.41	1495.1	88.5
66	10.30	1491.0	90.7
77	9.97	1490.3	90.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.07	1499.4	77.8	33.084	6.18	0.48	0.160	24.92
10	13.06	1499.5	78.8	33.084	6.21	0.48	0.151	24.92
20	13.09	1499.8	78.3	33.085	6.24	0.48	0.143	24.91
30	12.83	1499.1	79.7	33.085	6.27	0.48	0.134	24.97
50	11.66	1495.6	86.6	33.116	6.21	0.50	0.177	25.21
75	10.03	1490.4	90.7	33.168	4.46	0.92	0.107	25.54

STATION: E2 DEPTH: 192M DATE: 4 NOV 70 TIME: 1000
LAT: 36-50.7N LONG: 122-10.6W WIND: 170 SPEED: 25
AIR TEMP(DRY): 54 BARO: 29.98 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 170-2 SWELL: 180-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.049	6.29	0.46	0.163
5	33.061	6.45	0.43	0.178
10	33.061	6.27	0.43	0.135
20	33.068	6.37	0.45	0.162
30	33.256	6.24	0.62	0.221
50	33.348	5.60	1.06	0.137
75	33.629	3.82	1.68	0.047
100	33.777	3.55	1.84	0.044

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.38	1500.3	79.7
4	13.37	1500.3	79.2
9	13.38	1500.4	78.5
19	13.31	1500.0	79.8
30	12.91	1499.5	83.2
49	11.04	1493.6	91.5
74	10.10	1490.8	93.7
98	9.21	1488.3	94.1

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.38	1500.3	79.7	33.049	6.29	0.46	0.163	24.83
10	13.37	1500.4	78.6	33.061	6.27	0.43	0.135	24.84
20	13.27	1500.0	80.1	33.068	6.37	0.45	0.162	24.86
30	12.91	1499.5	83.2	33.256	6.24	0.62	0.221	25.08
50	11.00	1493.5	91.6	33.348	5.60	1.06	0.137	25.51
75	10.06	1490.7	93.7	33.629	3.82	1.68	0.047	25.89
100				33.777	3.55	1.84	0.044	

STATION: E3 DEPTH: 109M DATE: 4 NOV 70 TIME: 1055
LAT: 36-51.9N LONG: 122-09.6W WIND: 170 SPEED: 25
AIR TEMP(DRY): 54 BARO: 29.98 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 170-2 SWELL: 180-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.014	5.69	0.46	0.180
10	33.014	6.12	0.46	0.226
20	33.096	5.11	0.51	0.215
50	33.380	5.10	1.04	0.182
70	33.567	4.05	1.47	0.091

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.21	1499.6	77.2
10	13.21	1499.9	77.3
19	13.12	1499.7	77.2
39	12.27	1497.5	86.8
49	11.19	1493.8	89.3
68	9.88	1490.5	90.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.21	1499.6	77.2	33.014	5.69	0.46	0.180	24.83
10	13.21	1499.9	77.3	33.014	6.12	0.46	0.226	24.83
20	13.08	1499.6	77.7	33.096	5.11	0.51	0.215	24.92
30	12.65	1498.5	82.5	33.190	5.11	0.69	0.204	25.08
50	11.12	1493.6	89.3	33.380	5.10	1.04	0.182	25.51

STATION: E4 DEPTH: 89M DATE: 4 NOV 70 TIME: 1155
LAT: 36-53.2N LONG: 122-08.5W WIND: 170 SPEED: 12
AIR TEMP(DRY): 55 BARO: 29.98 CLOUD AMT: 10
HEIGHT(FT): 100C SEA: 170-2 SWELL: 170-4

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.073	6.30	0.45	0.223
5	33.053	6.36	0.47	0.278
10	33.053	6.16	0.48	0.274
20	33.115	6.29	0.50	0.276
30	33.371	6.23	0.78	0.379
50	33.506	4.83	1.35	0.312
75	33.680	3.45	1.87	0.132
86	33.706	3.34		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.28	1499.9	74.2
5	13.26	1500.0	74.5
10	13.26	1500.0	74.1
19	13.16	1500.0	74.9
28	12.53	1498.2	77.8
48	11.49	1495.2	75.0
57	10.72	1492.8	86.5
73	10.08	1490.4	82.1

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.28	1499.9	74.2	33.073	6.30	0.45	0.223	24.87
10	13.26	1500.0	74.1	33.053	6.16	0.48	0.274	24.85
20	13.09	1499.8	75.2	33.115	6.29	0.50	0.276	24.94
30	12.43	1497.9	77.5	33.371	6.23	0.78	0.379	25.26
50	11.32	1494.7	77.6	33.506	4.83	1.35	0.312	25.58
75				33.680	3.45	1.87	0.132	

STATION: E5 DEPTH: 65M DATE: 4 NOV 70 TIME: 1245
LAT: 36-54.2N LONG: 122-06.8W WIND: 170 SPEED: 12
AIR TEMP(DRY): 55 BARO: 29.98 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 170-2 SWELL: 170-4

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.069	6.24	0.48	0.305
10	33.107	6.46	0.50	0.357
25	33.372	6.24	0.70	0.717
45	33.534	4.57	1.48	0.510
55	33.572	4.15	1.66	0.349
63	33.610	3.89		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.30	1500.0	76.6
10	13.24	1500.0	75.9
29	12.33	1497.7	63.3
39	11.66	1495.7	29.8
49	11.20	1494.3	32.2
53	10.94	1493.4	40.3

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.30	1500.0	76.6	33.069	6.24	0.48	0.305	24.86
10	13.24	1500.0	75.9	33.107	6.46	0.50	0.357	24.90
20	12.76	1498.8	69.3	33.284	6.31	0.64	0.597	25.13
30	12.26	1497.5	59.9	33.412	5.82	0.90	0.665	25.33
50	11.13	1494.1	34.2	33.553	4.36	1.57	0.429	25.65

STATION: E6 DEPTH: 45M DATE: 4 NOV 70 TIME: 1330
LAT: 36-55.5N LONG: 122-05.9W WIND: 170 SPEED: 12
AIR TEMP(DRY): 56 BARO: 29.95 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 170-2 SWELL: 170-4

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.106	6.34	0.52	0.281
15	33.144	6.46	0.52	0.361
25	33.347	6.27	0.73	0.658
35	33.471	5.44	1.15	0.451
43		4.70		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (0/0)
0	13.23	1499.9	76.2
14	12.79	1498.9	68.7
27	12.11	1496.9	34.7
32	12.05	1496.9	41.4
36	11.54	1495.3	35.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.23	1499.9	76.2	33.106	6.34	0.52	0.281	24.90
10	12.92	1499.2	70.8	33.131	6.42	0.52	0.334	24.98
20	12.48	1498.0	53.0	33.246	6.37	0.62	0.509	25.16
30	12.07	1496.9	38.7	33.409	5.86	0.94	0.554	25.36

STATION: E7 DEPTH: 35M DATE: 4 NOV 70 TIME: 1355
LAT: 36-56.4N LONG: 122-05.0W WIND: 170 SPEED: 12
AIR TEMP(DRY): 56 BARO: 29.95 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 170-2 SWELL: 170-4

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.121	6.37	0.55	0.510
5	33.121	6.08	0.53	0.782
12	33.144	5.50	0.58	0.508
25	33.425	5.16	1.02	0.479
33	33.472	4.97		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (0/0)
0	13.13	1499.6	74.3
4	13.08	1499.6	73.7
13	12.98	1499.4	70.2
23	12.41	1498.0	38.3
27	12.02	1496.8	28.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.13	1499.6	74.3	33.121	6.37	0.55	0.510	24.93
10	13.01	1499.5	71.4	33.137	5.67	0.57	0.586	24.97
20	12.58	1498.4	47.9	33.316	5.29	0.86	0.490	25.19
30				33.454	5.04	0.36	0.180	

STATION: F1 DEPTH: 49M DATE: 4 NOV 70 TIME: C839
LAT: 36-57.8N LONG: 122-10.1W WIND: 180 SPEED: 15
AIR TEMP(DRY): 54 BARO: 29.96 CLOUD AMT: 10
HEIGHT(FT): 700 SEA: 165-2 SWELL: 180-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.216	4.30	0.54	0.343
10	33.220	5.98	0.54	0.442
20	33.276	5.83	0.55	0.679
25	33.430	5.35	0.74	
35	33.528	4.67	1.31	0.381
47		3.90	1.76	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.97	1499.1	75.9
6	12.96	1499.2	76.1
11	12.95	1499.2	76.1
15	12.93	1499.2	75.6
20	12.72	1498.7	70.9
25	12.12	1496.9	63.9
29	11.71	1495.5	48.5
39	11.30	1494.5	37.3

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.97	1499.1	75.9	33.216	4.30	0.54	0.343	25.04
10	12.95	1499.2	76.1	33.220	5.98	0.54	0.442	25.05
20	12.72	1498.7	70.9	33.276	5.83	0.55	0.679	25.13
30	11.67	1495.4	47.4	33.479	5.01	1.03		25.49

STATION: F2 DEPTH: 36M DATE: 4 NOV 70 TIME: 0725
LAT: 37-01.0N LONG: 122-14.8W WIND: 180 SPEED: 15
AIR TEMP(DRY): 54 BARO: 29.96 CLOUD AMT: 10
HEIGHT(FT): 700 SEA: 165-2 SWELL: 180-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.322	6.36	0.59	0.477
5	33.324	6.50	0.59	0.615
15	33.367	6.60	0.63	0.990
25	33.522	5.19	1.27	0.533

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.78	1498.6	75.1
5	12.77	1498.7	71.2
9	12.66	1498.5	71.2
14	12.33	1497.4	60.0
19	11.83	1497.4	46.6
24	11.61	1496.1	41.6
30	11.21	1495.3	32.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.78	1498.6	75.1	33.322	6.36	0.59	0.477	25.16
10	12.59	1498.3	69.0	33.346	6.55	0.61	0.802	25.21
20	11.79	1497.1	45.6	33.445	5.89	0.95	0.761	25.44
30	11.21	1495.3	32.5	14.849	2.31	0.55	0.237	11.17

STATION: F3 DEPTH: 63M DATE: 4 NOV 70 TIME: 0630
LAT: 37-043N LONG: 122-17.5W WIND: 165 SPEED: 10
AIR TEMP(DRY): 55 BARO: 29.92 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 165-1 SWELL: 180-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.360	6.42	0.59	0.455
5	33.357	6.39	0.58	0.445
12	33.360	6.46	0.59	0.549
22	33.361	6.38	0.62	0.503
27	33.389	6.31	0.73	0.665
34	33.399	5.84	0.94	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.31	1498.6	80.6
4	12.70	1498.7	80.8
10	12.60	1498.4	79.3
15	12.36	1497.7	68.8
19	12.27	1497.6	66.0
24	12.27	1497.6	63.3
29	12.27	1497.7	49.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.31	1498.6	80.6	33.360	6.42	0.59	0.455	25.08
10	12.60	1498.4	79.3	33.359	6.44	0.58	0.519	25.22
20	12.27	1497.6	65.5	33.361	6.40	0.62	0.512	25.29
30				33.393	6.11	0.82	0.380	

STATION: G1 DEPTH: 56M DATE: 4 NOV 70 TIME: 0530
LAT: 37-C3.0N LONG: 122-19.0W WIND: 165 SPEED: 10
AIR TEMP(DRY): 55 BARO: 29.92 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 165-1 SWELL: 180-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.365	6.35	0.56	0.362
5	33.365	6.40	0.57	0.329
10	33.367	6.30	0.98	0.300
20	33.469	5.68	1.25	1.069
30	33.525	4.97	1.45	0.691
40	33.547	4.94	1.38	0.546
54	33.596	4.22		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.03	1498.6	82.0
4	12.78	1498.6	81.5
10	12.78	1498.7	81.6
18	12.30	1497.5	74.6
28	11.52	1494.9	56.8
37	11.27	1494.3	58.9
	11.21	1494.3	

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.03	1498.6	82.0	33.365	6.35	0.56	0.362	25.14
10	12.78	1498.7	81.6	33.367	6.30	0.98	0.300	25.19
20	12.14	1497.0	71.0	33.469	5.68	1.25	1.069	25.39
30	11.46	1494.8	57.3	33.525	4.97	1.45	0.691	25.56
50				33.582	4.43			

STATION: G2 DEPTH: 75M DATE: 4 NOV 70 TIME: 0425
LAT: 37-02.2N LONG: 122-20.5W WIND: 180 SPEED: 6
AIR TEMP(DRY): 54 BARO: 29.87 CLOUD AMT: 0
HEIGHT(FT): CLEAR SEA: 180-1 SWELL: 180-4

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.345	6.34	0.56	0.320
5	33.345	6.34	0.57	0.427
10	33.346	6.37	0.58	0.385
20	33.373	6.33	0.63	0.357
40	33.580	4.36	1.64	0.278
60	33.629	4.03	1.79	0.294
73	33.637	3.93		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			73.8
			73.8
			74.0
			80.1
			88.5
			37.0
			33.0

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			73.8	33.345	6.34	0.56	0.320	
10				33.346	6.37	0.58	0.385	
20				33.373	6.33	0.63	0.357	
30				33.476	5.34	1.14	0.317	
50				33.604	4.19	1.72	0.286	

STATION: G3 DEPTH: 97M DATE: 4 NOV 70 TIME: 0305
LAT: 37-01.5N LONG: 122-21.7W WIND: 180 SPEED: 6
AIR TEMP(DRY): 54 BARO: 29.87 CLOUD AMT: 0
HEIGHT(FT): CLEAR SEA: 180-1 SWELL: 180-4

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.353	6.36	0.59	0.392
5	33.356	6.47	0.60	0.364
20	33.421	6.15	0.78	0.347
40	33.508	5.06	1.21	0.576
50	33.520	4.90	1.28	0.391
65	33.653	4.10	1.59	0.207
75	33.725	3.38		0.215
95	33.729	3.52		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			62.0
			72.1
			78.6
			81.6
			86.1
			88.2
			48.0
			46.9

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			62.0	33.353	6.36	0.59	0.392	
10				33.377	6.36	0.66	0.358	
20				33.421	6.15	0.78	0.347	
30				33.464	5.61	1.00	0.461	
50				33.520	4.90	1.28	0.391	
75				33.725	3.38		0.215	

STATION: G4 DEPTH: 155M DATE: 4 NOV 70 TIME: 0200

LAT: 37-00.5N LONG: 122-23.1W WIND: 180 SPEED: 6

AIR TEMP(DRY): 54 BARO: 29.88 CLOUD AMT: 3

HEIGHT(FT): 1500 SEA: 180-1 SWELL: 180-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.355	6.32	0.63	0.404
10	33.353	6.34	0.69	0.456
30	33.396	5.73	1.04	0.435
40	33.448	5.54	1.06	0.414
60	33.700	3.87	1.67	0.727
80	33.770	3.46	1.81	0.097
100	33.806	3.22	1.89	0.076
153	33.827	3.16		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			74.3
			74.8
			82.7
			86.1
			91.6
			89.4
			80.7
			74.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			74.3	33.355	6.32	0.63	0.404	
10				33.353	6.34	0.69	0.456	
20				33.374	6.04	0.87	0.445	
30				33.396	5.73	1.04	0.435	
50				33.574	4.70	1.37	0.570	
75				33.752	3.57	1.77	0.254	
100				33.806	3.22	1.89	0.076	
150				33.825	3.16		0.004	

STATION: G5 DEPTH: 155M DATE: 4 NOV 70 TIME: 0045
LAT: 36-59.5N LONG: 122-24.5W WIND: 160 SPEED: 30
AIR TEMP(DRY): 51 BARO: 29.87 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 160-8 SWELL: CONFUSED-10

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.411	6.40	0.67	0.287
10	33.407	6.31	0.66	0.374
20	33.487	5.92	0.92	0.377
35	33.524	4.95	1.28	0.221
55	33.638	4.05	1.59	0.064
75	33.863	3.07	1.92	0.077
95	33.862	2.99	1.96	0.094

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			72.4
			72.2
			74.2
			82.2
			88.8
			90.0
			83.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			72.4	33.411	6.40	0.67	0.287	
10				33.407	6.31	0.66	0.374	
20				33.487	5.92	0.92	0.377	
30				33.512	5.27	1.16	0.273	
50				33.610	4.27	1.51	0.103	
75				33.863	3.07	1.92	0.077	

STATION: G6 DEPTH: 733M DATE: 3 NOV 70 TIME: 2312
LAT: 36-56.3N LONG: 122-32.8W WIND: 150 SPEED: 30
AIR TEMP(DRY): 51 BARO: 29.83 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 150-8 SWELL: CONFUSED-12

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.457	6.31	0.69	0.496
10	33.454	6.42	0.71	0.559
20	33.484	5.94	0.85	0.542
35	33.317	5.13	1.16	0.137
55	33.571	4.34	1.48	0.172
75	33.529	4.71	1.42	0.114
95	33.688	4.38	1.57	0.041

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			72.7
			73.0
			82.5
			89.0
			88.7
			90.2
			90.6

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			72.7	33.457	6.31	0.69	0.496	
10				33.454	6.42	0.71	0.559	
20				33.484	5.94	0.85	0.542	
30				33.373	5.40	1.06	0.272	
50				33.507	4.54	1.40	0.163	
75				33.529	4.71	1.42	0.114	

STATION: G7 DEPTH:1370M DATE: 3 NOV 70 TIME: 2204
LAT: 36-53.3N LONG: 122-32.8W WIND: 150 SPEED: 30
AIR TEMP(DRY): 51 BARO: 29.83 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 150-8 SWELL: CONFUSED-12

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.386	6.51	1.13	0.348
5	33.384	6.46	0.79	0.283
10	33.387	6.22	1.12	0.411
20	33.395	6.33	0.92	0.475
30	33.401	5.21	0.67	0.215
50	33.498	4.46	1.45	0.189
75	33.515	4.84	1.76	0.094
100	33.679	4.79	1.49	0.051

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (0/0)
			71.9
			74.2
			74.2
			82.2
			92.0
			92.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			71.9	33.386	6.51	1.13	0.348	
10				33.387	6.22	1.12	0.411	
20				33.395	6.33	0.92	0.475	
30				33.401	5.21	0.67	0.215	
50				33.498	4.46	1.45	0.189	
75				33.515	4.84	1.76	0.094	
100				33.679	4.79	1.49	0.051	

STATION: H1 DEPTH: 825M DATE: 3 NOV 70 TIME: 1800
LAT: 36-58.3N LONG: 122-41.0W WIND: 140 SPEED: 25
AIR TEMP(DRY): 53 BARO: 29.80 CLOUD AMT: 10
HEIGHT(FT): 1000 SEA: 140-5 SWELL: CONFUSED-7

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.299	6.45	0.56	0.438
10	33.310	6.47	0.54	0.349
25	33.327	6.35	0.57	0.414
35	33.434	6.09	0.77	0.452
50	33.510	5.68	1.02	0.441
75	33.567	4.63	1.43	0.295
100	33.750	3.70	1.86	0.102

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.94	1499.2	68.4
5	12.94	1499.3	68.1
13	12.90	1499.4	67.3
23	12.71	1499.4	68.1
39	11.67	1497.2	74.6
48	11.67	1495.8	74.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.94	1499.2	68.4	33.299	6.45	0.56	0.438	25.11
10	12.91	1499.4	67.6	33.310	6.47	0.54	0.349	25.12
20	12.77	1499.4	67.9	33.321	6.39	0.56	0.392	25.16
30	12.25	1498.4	70.9	33.380	6.22	0.67	0.433	25.30
50				33.510	5.68	1.02	0.441	
75				33.567	4.63	1.43	0.295	
100				33.750	3.70	1.86	0.102	

STATION: H2 DEPTH:1100M DATE: 3 NOV 70 TIME: 1430
LAT: 37-02.7N LONG: 122-48.5W WIND: 140 SPEED: 25
AIR TEMP(DRY): 55 BARO: 29.84 CLOUD AMT: 10
HEIGHT(FT): 50C SEA: 140-3 SWELL: 300-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.938	6.16	0.35	0.151
10	32.939	6.22	0.34	0.157
30	33.005	6.37	0.38	0.158
70	33.290	5.56	0.96	0.087
105	33.724	3.41	1.72	0.051

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SC. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.99	1502.1	78.0
9	13.98	1502.3	79.5
28	12.23	1496.9	88.2
37	11.94	1496.3	89.2
69	10.46	1491.9	92.9
83	10.73	1493.4	93.0
97	10.33	1492.2	90.0

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.99	1502.1	78.0	32.938	6.16	0.35	0.151	24.62
10	13.89	1502.0	80.0	32.939	6.22	0.34	0.157	24.64
20	12.97	1499.2	84.5	33.0C5	6.37	0.38	C.158	24.88
30	12.17	1496.8	88.4	33.0C5	6.37	0.38	0.158	25.03
50	11.34	1494.5	90.7	33.147	5.96	0.67	C.122	25.29
75	10.58	1492.5	92.9	33.352	5.25	1.07	0.C82	25.59
100				33.662	3.71	1.61	0.C56	

STATION: H3 DEPTH: 629M DATE: 3 NOV 70 TIME: 1250
LAT: 37-07.2N LONG: 122-56.6W WIND: 140 SPEED: 20
AIR TEMP(DRY): 55 BARO: 29.94 CLOUD AMT: 10
HEIGHT(FT): 500 SEA: 140-2 SWELL: 300-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.914	5.06	0.35	0.100
20	32.940	5.37	0.36	0.178
60	33.235	5.59	0.94	0.068
85	33.646	3.71	1.57	0.052
105	33.748	3.60	1.77	0.065

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	14.15	1502.6	85.0
20	14.12	1502.8	83.7
35	12.64	1498.5	85.1
48	11.58	1495.0	92.6
69	10.25	1491.2	92.4
86	10.05	1491.0	90.2
98	10.02	1491.2	84.6

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	14.15	1502.6	85.0	32.914	5.06	0.35	0.100	24.57
10	14.12	1502.8	83.7	32.940	5.37	0.36	0.178	24.59
20	14.12	1502.8	83.7	32.940	5.37	0.36	0.178	24.59
30	13.13	1499.9	84.6	33.014	5.43	0.51	0.150	24.85
50	11.45	1494.6	92.6	33.161	5.53	0.79	0.095	25.28
75	10.18	1491.1	91.6	33.481	4.46	1.31	0.058	25.76
100				33.723	3.62	1.72	0.062	

STATION: I1 DEPTH: 120M DATE: 3 NOV 70 TIME: 1020
LAT: 37-11.0N LONG: 122-46.0W WIND: 140 SPEED: 15
AIR TEMP(DRY): 55 BARO: 29.94 CLOUD AMT: 10
HEIGHT(FT): 500 SEA: 140-2 SWELL: 300-4

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.978	6.20	0.37	0.139
5	32.979	6.32	0.39	0.145
10	32.986	6.23	0.39	0.148
20	33.045	6.38	0.43	0.169
30	33.147	6.20	0.63	0.113
50	33.146	5.81	0.89	0.055
75	33.639	4.04	1.59	0.056
100	33.795	3.31	1.87	0.070

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.96	1502.1	80.5
4	13.94	1502.0	81.3
9	13.93	1502.1	79.3
20	13.68	1501.6	79.3
28	13.00	1499.4	80.4
47	10.96	1492.9	90.5
77	9.92	1490.4	89.2
97	9.57	1489.7	82.8

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.96	1502.1	80.5	32.978	6.20	0.37	0.139	24.66
10	13.91	1502.1	79.3	32.986	6.23	0.39	0.148	24.67
20	13.68	1501.6	79.3	33.045	6.38	0.43	0.169	24.76
30	12.79	1498.7	81.5	33.147	6.20	0.63	0.113	25.02
50	10.86	1492.6	90.4	33.146	5.81	0.89	0.055	25.38
75	9.99	1490.6	89.3	33.639	4.04	1.59	0.056	25.91
100				33.795	3.31	1.87	0.070	

STATION: I2 DEPTH: 120M DATE: 3 NOV 70 TIME: 0950

LAT: 37-11.2N LONG: 122-42.8W WIND: 140 SPEED: 15

AIR TEMP(DRY): 55 BARO: 29.94 CLOUD AMT: 10

HEIGHT(FT): 500 SEA: 140-2 SWELL: 300-4

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.913	6.30	0.37	0.132
5	32.911	6.21	0.37	0.154
10	32.911	6.34	0.38	0.141
20	32.976	6.41	0.41	0.155
30	33.123	6.15	0.68	0.112
50	33.595	4.08	1.48	0.076
75	33.701	3.57	1.71	0.050
100	33.756	3.35	1.84	0.068
118	33.820	3.18		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SC. VEL (M/SEC)	TRANSMITTANCE (O/O)
			75.0
			75.0
			75.0
			80.0
			82.2
			89.4
			90.4
			86.3
			86.4

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			75.0	32.913	6.30	0.37	0.132	
10				32.911	6.34	0.38	0.141	
20				32.976	6.41	0.41	0.155	
30				33.123	6.15	0.68	0.112	
50				33.595	4.08	1.48	0.076	
75				33.701	3.57	1.71	0.050	
100				33.756	3.35	1.84	0.068	

STATION: I3 DEPTH: 100M DATE: 3 NOV 70 TIME: 0735
LAT: 37-11.0N LONG: 122-38.0W WIND: 140 SPEED: 15
AIR TEMP(DRY): 52 BARO: 29.94 CLOUD AMT: 10
HEIGHT(FT): 500 SEA: 140-2 SWELL: 240-5

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.902	6.33	0.40	0.114
10	32.909	6.30	0.40	0.133
30	33.060	6.37	0.58	0.178
60	33.279	5.38	1.10	0.065
75	33.465			0.041
90	33.680	3.62		0.061
98	33.760	3.37		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.76	1501.3	81.8
10	13.75	1500.5	81.5
25	13.45	1496.0	86.4
49	12.02	1494.2	91.4
60		1492.5	92.6
87		1490.8	88.9
93		1490.2	78.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.76	1501.3	81.8	32.902	6.33	0.40	0.114	24.64
10	13.75	1500.5	81.5	32.909	6.30	0.40	0.133	24.65
20	13.55	1497.5	84.8	32.985	6.33	0.49	0.155	24.74
30	13.15	1495.6	87.4	33.060	6.37	0.58	0.178	24.88
50	10.93	1494.0	91.5	33.206	5.71	0.92	0.103	25.41
75		1491.6	90.5	33.465			0.041	

STATION: I4 DEPTH: 95M DATE: 3 NOV 70 TIME: 0615
LAT: 37-11.0N LONG: 122-34.6W WIND: 150 SPEED: 12
AIR TEMP(DRY): 51 BARO: 29.95 CLOUD AMT: 10
HEIGHT(FT): 500 SEA: 150-1 SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.943	6.23	0.38	0.146
10	32.948	6.28	0.39	0.158
35	33.210	6.01	0.75	0.158
50	33.250	5.54	1.00	0.098
75	33.625	3.86	1.61	0.055
93	33.746	3.35		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.69	1501.1	80.2
10	13.41	1500.4	81.3
29	11.98	1496.2	85.2
48	10.44	1491.2	92.2
78	10.20	1491.3	
81	10.19	1491.2	83.4

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.69	1501.1	80.2	32.943	6.23	0.38	0.146	24.68
10	13.41	1500.4	81.3	32.948	6.28	0.39	0.158	24.74
20	12.66	1498.2	83.4	33.053	6.17	0.53	0.158	24.97
30	11.90	1495.9	85.6	33.158	6.06	0.68	0.158	25.20
50	10.42	1491.2	86.1	33.250	5.54	1.00	0.098	25.54
75	10.22	1491.3	9.2	33.625	3.86	1.61	0.055	25.86

STATION: 15 DEPTH: 93M DATE: 3 NOV 70 TIME: 0445
LAT: 37-10.6N LONG: 122-33.0W WIND: LIGHT AIRS
AIR TEMP(DRY): 50 BARO: 29.94 CLOUD AMT: 10
HEIGHT(FT): 500 SEA: RIPPLES SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.962	5.67	0.39	0.186
10	32.965	5.38	0.40	0.172
25	33.144	6.42	0.48	0.185
45	33.480	5.11	1.20	0.095
70	33.714	3.50	1.21	0.088
80	33.720	3.46	1.93	0.116
91	33.722	3.33	1.91	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			76.9
			76.6
			78.1
			90.5
			72.0
			55.4
			49.4

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			76.9	32.962	5.67	0.39	0.186	
10				32.965	5.38	0.40	0.172	
20				33.084	6.07	0.45	0.181	
30				33.228	6.09	0.66	0.162	
50				33.527	4.79	1.20	0.094	
75				33.717	3.48	1.57	0.102	

STATION: I6 DEPTH: 84M DATE: 3 NOV 70 TIME: 0350
LAT: 37-10.8N LONG: 122-30.8W WIND: LIGHT AIRS
AIR TEMP(DRY): 50 BARO: 29.94 CLOUD AMT: 10
HEIGHT(FT): 500 SEA: RIPPLES SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.958	4.08	0.39	0.214
10	33.024	4.04	0.41	0.238
25	33.360	5.72	0.59	0.495
45	33.417	4.61	0.95	0.226
60	33.603	3.54	1.54	0.080
82	33.700	3.29	1.99	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.57	1500.8	76.1
9	13.20	1500.1	65.8
29	12.40	1498.0	74.4
50	11.55	1495.4	91.4
60	10.71	1492.7	100.0
78	10.16	1491.3	82.6

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.57	1500.8	76.1	32.958	4.08	0.39	0.214	24.72
10	13.16	1500.0	66.2	33.024	4.04	0.41	0.238	24.85
20	12.76	1498.9	70.5	33.248	5.16	0.53	0.409	25.10
30	12.36	1497.9	75.2	33.374	5.44	0.68	0.428	25.28
50	11.55	1495.4	91.4	33.479	4.25	1.14	0.177	25.51
75	10.25	1491.5	85.5	33.669	3.37	1.85	0.025	25.89

STATION: I7 DEPTH: 77M DATE: 3 NOV 70 TIME: 0300
LAT: 37-10.7N LONG: 122-29.0W WIND: LIGHT AIRS
AIR TEMP(DRY): 49 BARO: 30.00 CLOUD AMT: 10
HEIGHT(FT): 500 SEA: RIPPLES SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.158	5.26	0.44	0.448
10	33.339	6.41	0.53	0.521
20	33.411	5.76	0.66	0.343
40	33.508	5.37	1.04	0.339
60	33.632	3.66	1.72	0.286
65	33.651	3.62	1.82	0.254
75	33.671	3.45	2.18	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.35	1500.5	68.8
10	13.12	1500.3	67.9
20	12.83	1499.1	71.6
40	11.84	1496.3	78.1
50	11.15	1494.1	56.0
61	10.60	1492.5	59.2
70	10.28	1491.6	34.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.35	1500.5	68.8	33.158	5.26	0.44	0.448	24.92
10	13.12	1500.3	67.9	33.339	6.41	0.53	0.521	25.10
20	12.83	1499.1	71.6	33.411	5.76	0.66	0.343	25.22
30	12.33	1497.7	74.8	33.459	5.57	0.85	0.341	25.35
50	11.15	1494.1	56.0	33.570	4.51	1.38	0.312	25.66
75				33.671	3.45	2.18		

STATION: I8 DEPTH: 60M DATE: 3 NOV 70 TIME: 0200
LAT: 37-10.4N LONG: 122-27.0W WIND: LIGHT AIRS
AIR TEMP(DRY): 49 BARO: 30.00 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.388	3.72	0.56	0.673
5	33.440	4.74	0.66	0.792
20	33.579	4.60	1.43	0.381
25	33.594	3.28	1.50	0.457
35	33.614	3.52	1.59	0.293
50	33.637	3.21	1.73	0.336
59	33.654	3.83	2.00	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.05	1499.5	68.1
5	12.94	1499.3	66.0
20	11.81	1495.7	66.6
25	11.45	1494.7	61.0
30	11.25	1494.2	56.4
50	10.73	1492.7	43.5
56	10.70	1492.7	41.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.05	1499.5	68.1	33.388	3.72	0.56	0.673	25.16
10	12.56	1498.1	66.2	33.486	4.69	0.92	0.655	25.33
20	11.81	1495.7	66.6	33.579	4.60	1.43	0.381	25.54
30	11.25	1494.2	56.4	33.604	3.40	1.55	0.375	25.66
50	10.73	1492.7	43.5	33.637	3.21	1.73	0.336	25.78

STATION: I9 DEPTH: 55M DATE: 3 NOV 70 TIME: 0100
LAT: 37-10.5N LONG: 122-25.6W WIND: LIGHT AIRS
AIR TEMP(DRY): 49 BARO: 30.C0 CLOUD AMT: 10
TYPE: FCG SEA: RIPPLES SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.455	4.13	0.85	0.551
5	33.455	3.79	0.84	0.616
10	33.483	4.94	C.92	0.371
20	33.534	4.60	1.24	0.354
30	33.556	4.07	1.43	0.4C5
45	33.584	3.63	1.56	0.477
54	33.612	3.98	2.06	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.61	1498.2	59.5
5	12.25	1497.2	57.2
10	12.12	1496.7	61.3
15	11.81	1495.8	52.5
19	11.61	1495.3	54.1
25	11.47	1495.0	47.2
34	11.37	1494.8	44.4
45	11.13	1494.1	13.8

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.61	1498.2	59.5	33.455	4.13	0.85	0.551	25.29
10	12.12	1496.7	61.3	33.483	4.94	0.92	C.371	25.41
20	11.59	1495.2	52.9	33.534	4.60	1.24	0.354	25.55
30	11.41	1494.9	45.6	33.556	4.07	1.43	0.405	25.60
50				33.599	3.83	1.84	0.212	

STATION: J1 DEPTH: 35M DATE: 2 NOV 70 TIME: 2315
LAT: 37-16.2N LONG: 122-27.4W WIND: LIGHT AIRS
AIR TEMP(DRY): 50 BARO: 30.02 CLOUD AMT: 10
TYPE: FCG SEA: RIPPLES SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.319	6.29	0.52	0.596
5	33.355	6.45	0.54	0.691
10	33.397	6.48	0.58	0.597
15	33.399	6.51	0.59	0.865
20	33.418	6.49	0.63	0.633
25	33.461	6.18	0.78	0.361
34	33.576	4.59		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SC. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.09	1499.6	63.9
3	13.09	1499.7	63.0
7	13.09	1499.7	63.0
10	12.98	1499.5	65.6
16	12.87	1499.3	67.6
20	12.80	1499.1	68.6
25	12.49	1498.1	64.7
30	12.15	1497.5	37.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.09	1499.6	63.9	33.319	6.29	0.52	0.596	25.09
10	12.98	1499.5	65.6	33.397	6.48	0.58	0.597	25.18
20	12.80	1499.1	68.6	33.418	6.49	0.63	0.633	25.23
30	12.15	1497.5	37.5	33.525	5.29	0.35	0.160	25.44

STATION: J2 DEPTH: 40M DATE: 2 NOV 70 TIME: 2145
LAT: 37-21.5N LONG: 122-29.5W WIND: LIGHT AIRS
AIR TEMP(DRY): 50 BARO: 30.02 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.434	6.48	0.53	0.509
5	33.430	6.48	0.55	0.728
10	33.481	6.30	0.71	0.413
20	33.540	5.63	1.02	0.369
30	33.555	5.20	1.18	0.295
35	33.593	4.57	1.44	0.397
39	33.635	4.07		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.04	1499.5	70.9
5	12.98	1499.5	66.9
9	12.61	1498.7	72.3
14	12.37	1497.6	76.2
19	12.16	1496.9	78.0
26	11.81	1495.9	78.2
30	11.65	1495.4	75.3
35	11.57	1495.3	60.3

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.04	1499.5	70.9	33.434	6.48	0.53	0.509	25.19
10	12.56	1498.5	73.1	33.481	6.30	0.71	0.413	25.32
20	12.11	1496.8	78.0	33.540	5.63	1.02	0.369	25.46
30	11.65	1495.4	75.3	33.555	5.20	1.18	0.295	25.55

STATION: J3 DEPTH: 40M DATE: 2 NOV 70 TIME: 2045
LAT: 37-26.6N LONG: 122-31.4W WIND: LIGHT AIRS
AIR TEMP(DRY): 49 BARO: 29.99 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.310	6.49	0.60	0.289
5	33.310	6.46	0.56	0.276
10	33.373	6.34	0.58	0.170
20	33.517	6.02	0.87	0.175
25	33.533	5.40	1.14	0.146
39	33.607	3.87		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.14	1499.9	70.9
5	13.02	1499.4	79.9
10	12.95	1499.4	79.7
15	12.82	1499.0	86.5
20	12.48	1498.1	83.7
24	12.30		64.8
30	11.82	1496.2	71.3
35	11.57	1495.4	67.1

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.14	1499.9	70.9	33.310	6.49	0.60	0.289	25.08
10	12.95	1499.4	79.7	33.373	6.34	0.58	0.170	25.16
20	12.48	1498.1	83.7	33.517	6.02	0.87	0.175	25.37
30	11.82	1496.2	71.3	33.559	4.85	0.73	0.094	25.53

STATION: J4 DEPTH: 45M DATE: 2 NOV 70 TIME: 1830
LAT: 37-31.9N LONG: 122-33.5W WIND: LIGHT AIRS
AIR TEMP(DRY): 49 BARO: 29.99 CLOUD AMT: 10
TYPE: FCG SEA: RIPPLES SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.339	6.60	0.68	0.234
5	33.336	6.39	0.55	0.176
10	33.339	6.30	0.58	0.238
20	33.438	6.16	0.72	0.127
30	33.561	4.75	1.54	0.127
43	33.583	4.15		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
	13.06	1499.6	
		1499.3	

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.06	1499.6		33.339	6.60	0.68	0.234	25.12
10				33.339	6.30	0.58	0.238	
20				33.438	6.16	0.72	0.127	
30				33.561	4.75	1.54	0.127	

STATION: K1 DEPTH: 45M DATE: 2 NOV 70 TIME: 1745
LAT: 37-31.8N LONG: 122-35.0W WIND: LIGHT AIRS
AIR TEMP(DRY): 52 BARO: 29.99 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 240-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.329	6.51	0.52	0.565
7	33.334	6.39	0.52	0.645
14	33.394	6.16	0.61	0.354
25	33.473	5.95	0.79	0.649
35	33.561	4.64	1.42	0.431
44	33.608	3.89		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.02	1499.4	75.5
6	13.02	1499.4	78.0
13	12.97	1499.4	79.3
19	12.45	1497.9	99.4
31	12.16	1497.2	100.0
41	11.02	1493.5	24.9

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.02	1499.4	75.5	33.329	6.51	0.52	0.565	25.12
10	12.99	1499.4	78.7	33.360	6.29	0.56	0.520	25.15
20	12.43	1497.8	99.4	33.437	6.04	0.71	0.515	25.32
30	12.18	1497.3	99.9	33.517	5.29	1.11	0.540	25.42

STATION: K2 DEPTH: 49M DATE: 2 NOV 70 TIME: 1640
LAT: 37-31.4N LONG: 122-37.0W WIND: LIGHT AIRS
AIR TEMP(DRY): 55 BARO: 30.00 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 240-3
RAMSEY MECHANISM INOPERATIVE

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.301	4.35	0.52	0.731
5	33.303	3.31	0.49	0.721
15	33.377	3.96	0.82	0.287
25	33.533	3.99	1.06	0.192
40	33.621	2.20	1.81	0.289
45	33.640	1.84	2.09	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			65.3
			68.6
			71.0
			82.0
			100.0
			100.0

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			65.3	33.301	4.35	0.52	0.731	
10				33.340	3.63	0.66	0.504	
20				33.455	3.97	0.94	0.239	
30				33.562	3.39	1.31	0.224	

STATION: K3 DEPTH: 53M DATE: 2 NOV 70 TIME: 1550
LAT: 37-32.0N LONG: 122-38.9W WIND: LIGHT AIRS
AIR TEMP(DRY): 55 BARO: 30.00 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 240-3
RAMSEY MECHANISM INOPERATIVE

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.246	6.62	0.48	0.393
5	33.282	6.55	0.49	0.607
10	33.317	6.53	0.57	0.633
25	33.411	5.67	0.97	0.329
45	33.611	3.98	1.64	0.170
52	33.650	2.79	2.07	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			54.1
			54.3
			56.5
			73.8
			84.2
			91.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			54.1	33.246	6.62	0.48	0.393	
10				33.317	6.53	0.57	0.633	
20				33.380	5.96	0.84	0.430	
30				33.461	5.25	1.14	0.289	
50				33.639	3.13	1.94	C.049	

STATION: K4 DEPTH: 55M DATE: 2 NOV 70 TIME: 1505
LAT: 37-31.7N LONG: 122-41.0W WIND: LIGHT AIRS
AIR TEMP(DRY): 55 BARO: 30.00 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 240-3
RAMSEY MECHANISM INOPERATIVE

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.154	6.58	0.47	0.429
10	33.281	6.63	0.49	0.868
20	33.330	6.34	0.68	0.580
30	33.408	5.73	1.04	0.216
45	33.561	4.53	1.46	0.089

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			66.8
			59.1
			54.9
			57.0
			74.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			66.8	33.154	6.58	0.47	0.429	
10				33.281	6.63	0.49	0.868	
20				33.330	6.34	0.68	0.580	
30				33.408	5.73	1.04	0.216	

STATION: K5 DEPTH: 60M DATE: 2 NOV 70 TIME: 1420

LAT: 37-32.0N LONG: 122-42.7W WIND: LIGHT AIRS

AIR TEMP(DRY): 55 BARO: 30.02 CLOUD AMT: 10

TYPE: FOG SEA: RIPPLES SWELL: 240-2

RAMSEY MECHANISM INOPERATIVE

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.162	6.44	0.41	0.436
10	33.296	6.51	0.62	0.754
20	33.284	6.18	0.72	0.447
30	33.226	5.50	0.99	0.139
50	33.592	3.89	1.66	0.143
58	33.651	3.54		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			67.1
			64.2
			59.4
			73.6
			88.8
			90.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			67.1	33.162	6.44	0.41	0.436	
10			0.0	33.296	6.51	0.62	0.754	
20			0.0	33.284	6.18	0.72	0.447	
30			0.0	33.226	5.50	0.99	0.139	
50			0.0	33.592	3.89	1.66	0.143	

STATION: K6 DEPTH: 73M DATE: 2 NOV 70 TIME: 1310
LATE: 37-32.0N LONG:122-45.7W WIND: LIGHT AIRS
AIR TEMP(DRY): 58 BARO: 30.04 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 240-2
RAMSEY MECHANISM INOPERATIVE

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.146	6.44	0.42	0.433
10	33.371	6.23	0.73	0.555
20	33.212	5.49	1.04	0.127
30	33.413	4.92	1.30	0.094
55	33.695	3.70	1.87	0.218
73	33.699	3.29		

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			69.6
			65.2
			68.9
			85.3
			89.8
			91.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			69.6	33.146	6.44	0.42	0.433	
10				33.371	6.23	0.73	0.555	
20				33.212	5.49	1.04	0.127	
30				33.413	4.92	1.30	0.094	
50				33.639	3.94	1.76	0.193	

STATION: K7 DEPTH 91M DATE: 2 NOV 70 TIME: 1110
LAT: 37-31.7N LONG: 122-50.4W WIND: LIGHT AIRS
AIR TEMP(DRY): 58 BARO: 30.04 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 240-2
RAMSEY MECHANISM INOPERATIVE

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.262	6.86	0.45	0.656
5	33.286	6.90	0.45	0.980
10	33.386	6.81	0.58	0.955
15	33.460	5.82	0.92	0.549
20	33.449	5.31	1.12	0.253
35	33.407	0.0	1.34	0.069
50	33.724	3.39	1.86	0.229
90		2.77	2.02	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
			51.2
			53.3
			65.0
			81.8
			85.4
			86.5
			56.6
			68.9

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			51.2	33.262	6.86	0.45	0.656	
10				33.386	6.81	0.58	0.955	
20				33.449	5.31	1.12	0.253	
30				33.421	1.77	1.27	0.130	
50				33.724	3.39	1.86	0.229	
75					3.01	1.96	0.086	

STATION: K8 DEPTH: 101M DATE: 2 NOV 70 TIME: 0945
LAT: 37-32.0N LONG: 122-54.3W WIND: LIGHT AIRS
AIR TEMP(DRY): 60 BARO: 30.03 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 240-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.392	4.31	0.47	0.633
7	33.391	6.70	0.69	0.766
25	33.488	5.77	0.90	0.679
35	33.531	3.91	1.16	0.249
60	33.762	3.48	1.84	0.698
85	33.836	2.14	1.97	0.101
95	33.861	2.24	2.01	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.94	1499.3	40.0
9	12.64	1498.6	45.4
28	11.00	1493.2	85.2
39	10.47	1491.6	81.5
60	9.56	1489.0	86.4
81	9.37	1488.7	83.0
94	9.24	1488.5	74.9

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.94	1499.3	40.0	33.392	4.31	0.47	0.633	25.18
10	12.55	1498.3	47.5	33.407	6.54	0.72	0.751	25.27
20	11.69	1495.5	68.4	33.461	6.03	0.84	0.703	25.47
30	10.90	1492.9	84.5	33.510	4.84	1.03	0.464	25.65
50	9.99	1490.2	84.1	33.670	3.65	1.57	0.518	25.94
75	9.42	1488.8	84.0	33.806	2.67	1.92	0.340	26.14

STATION: K9 DEPTH: 210M DATE: 2 NOV 70 TIME: 0845
LAT: 37-32.0N LONG: 122-58.1W WIND: LIGHT AIRS
AIR TEMP(DRY): 51 BARO: 30.02 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 280-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.293	6.85	0.49	0.829
10	33.271	7.50	0.47	0.794
30	33.307	6.48	0.56	0.705
40	33.470	5.06	1.03	1.170
60	33.610	4.40	1.54	0.289
80	33.743	3.26	1.77	0.127

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
1	12.92	1499.3	54.0
14	12.69	1498.5	58.8
26	12.44	1496.5	72.2
40	11.33	1494.5	80.7
50	10.89	1493.3	84.2
61	10.53	1492.3	84.2
102	9.23	1488.6	90.3

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0				32.293	6.85	0.49	0.829	
10	12.76	1498.7	57.3	33.271	7.50	0.47	0.794	
20	12.56	1497.5	65.5	33.289	6.99	0.52	0.749	
30	12.12	1495.9	74.6	33.307	6.48	0.56	0.705	
50	10.89	1493.3	84.2	33.540	4.73	1.28	0.729	
75	10.09	1491.0	86.3	33.710	3.54	1.71	0.167	

STATION: K10 DEPTH: 600M DATE: 2 NOV 70 TIME: 0723
LAT: 37-32.0N LONG: 123-03.6W WIND: LIGHT AIRS
AIR TEMP(DRY): 51 BARO: 30.02 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 280-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.195	6.32	0.44	0.219
10	33.212	6.43	0.46	0.430
20	33.218	6.43	0.47	0.296
37	33.367	6.46	0.68	0.951
50	33.429	5.42	1.08	0.405
60	33.564	4.77	1.39	0.442
100	33.709	3.38	1.81	0.288

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (0/0)
0	13.54	1501.8	75.8
10	13.52	1501.6	76.2
20	13.17	1501.0	86.4
40	11.97	1496.9	82.1
50	11.17	1494.3	82.5
60	11.18	1494.6	82.7
80	10.27	1491.9	82.9
99	9.99	1491.1	79.8

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.54	1501.8	75.8	33.195	6.32	0.44	0.219	24.91
10	13.52	1501.6	76.2	33.212	6.43	0.46	0.430	24.93
20	13.17	1501.0	86.4	33.218	6.43	0.47	0.296	25.00
30	12.57	1498.9	84.2	33.306	6.45	0.59	0.681	25.19
50	11.17	1494.3	82.5	33.429	5.42	1.08	0.405	25.54
75	10.50	1492.6	82.8	33.619	4.25	1.55	0.384	25.81
100				33.709	3.38	1.81	0.288	

STATION: K11 DEPTH: 680M DATE: 2 NOV 70 TIME: 0610
LAT: 37-32.0N LONG: 123-07.7W WIND: LIGHT AIRS
AIR TEMP(DRY): 51 BARO: 29.99 CLOUD AMT: 10
TYPE: FOG SEA: RIPPLES SWELL: 280-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.028	5.38	0.37	0.159
5	33.030	6.29	0.36	0.149
10	33.023	6.33	0.36	0.139
15	33.045	6.32	0.39	0.176
40	33.330	5.79	0.89	0.143
57	33.628	3.90	1.56	0.057
80	33.755	3.22	1.81	0.080
100	33.830	2.97	1.89	0.062

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (0/0)
	13.83	1503.6	74.9
	13.83	1503.7	75.3
	13.69	1503.4	80.6
	13.34	1502.8	82.2
	11.32	1496.0	88.8
	10.15	1491.8	88.7
	9.89	1491.0	82.0
	9.49	1489.9	86.6

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.83	1503.6	74.9	33.028	5.38	0.37	0.159	24.72
10				33.023	6.33	0.36	0.139	
20				33.102	6.22	0.49	0.169	
30				33.216	6.01	0.69	0.156	
50				33.506	4.68	1.28	0.092	
75				33.728	3.37	1.76	0.075	
100				33.830	2.97	1.89	0.062	

STATION: L1 DEPTH: 110M DATE: 2 NOV 70 TIME: C342

LAT: 37-37.5N LONG: 123-15.9W WIND: LIGHT AIRS

AIR TEMP(DRY): 51 BARO: 30.00 CLOUD AMT: 0

HEIGHT(FT): CLEAR SEA: RIPPLES SWELL: 280-2

RAMSEY MECHANISM INOPERATIVE

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.015	6.12	0.43	0.122
5	33.014	6.16	0.41	0.131
15	33.087	6.32	0.45	0.154
25	33.146	6.08	0.62	0.227
50	33.283	5.48	1.01	0.078
75	33.659	4.04	1.56	0.079
100	33.792	3.27	1.84	0.047

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0			76.7
10			76.3
25			78.4
40			84.8
60			88.3
75			86.3
100			85.6

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0			76.7	33.015	6.12	0.43	0.122	
10			76.3	33.050	6.24	0.43	0.142	
20			77.7	33.116	6.20	0.53	0.190	
30			80.5	33.283	5.48	1.01	0.078	
50			86.5	33.659	4.04	1.56	0.079	
75			86.3	33.792	3.27	1.84	0.047	

STATION: L2 DEPTH: 113M DATE: 2 NOV 70 TIME: 0100
LAT: 37-42.4N LONG: 123-07.7W WIND: LIGHT AIRS
AIR TEMP(DRY): 51 BARO: 30.00 CLOUD AMT: 0
HEIGHT(FT): CLEAR SEA: RIPPLES SWELL: 280-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.119	6.16	0.46	0.155
10	33.154	6.14	0.41	0.216
25	33.333	6.05	0.67	0.282
40	33.435	5.01	1.23	0.642
60	33.650	3.46	1.80	0.285
87	33.722	3.11	1.98	0.204
100	33.798	3.05	2.10	0.175

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.57	1501.1	76.4
8	13.56	1501.2	76.9
13	13.31	1500.6	80.1
27	12.59	1498.4	81.1
47	11.22	1494.3	78.2
67	10.11	1491.1	87.1
86	9.64	1489.7	66.6
100	9.21	1488.5	68.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.57	1501.1	76.4	33.119	6.16	0.46	0.155	24.84
10	13.46	1501.0	78.2	33.154	6.14	0.41	0.216	24.89
20	12.95	1499.5	80.6	33.274	6.08	0.58	0.260	25.09
30	12.38	1497.8	80.7	33.367	5.71	0.86	0.402	25.27
50	11.05	1493.8	79.5	33.542	4.24	1.51	0.463	25.65
75	9.91	1490.5	78.5	33.690	3.27	1.90	0.240	25.97
100	9.21	1488.5	68.7	33.798	3.05	2.10	0.175	26.16

STATION: L3 DEPTH: 71M DATE: 1 NOV 70 TIME: 2308
LAT: 37-47.6N LONG: 123-00.4W WIND: 320 SPEED: 8
AIR TEMP(DRY): 53 BARO: 30.05 CLOUD AMT: 2
HEIGHT(FT): 1000 SEA: 320-1 SWELL: 280-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.224	2.26	0.46	0.916
10	33.222	2.38	0.49	1.114
20	33.246	2.62	0.65	0.892
30	33.457	1.86	1.10	0.697
43	33.483	2.56	1.18	1.241
50	33.642	2.13	1.63	0.707
60	33.676	1.71	1.82	0.797
65	33.696	1.51	1.97	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.20	1499.9	64.4
10	12.90	1498.8	69.1
19	12.56	1498.2	74.5
30	11.87	1496.1	70.9
40	11.20	1494.0	74.9
48	10.47	1492.0	80.1
59	10.03	1490.5	71.3
63	9.97	1490.4	54.0

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.20	1499.9	64.4	33.224	2.26	0.46	0.916	25.00
10	12.90	1498.8	69.1	33.222	2.38	0.49	1.114	25.06
20	11.87	1496.1	70.9	33.246	2.62	0.65	0.892	25.27
30	11.87	1496.1	70.9	33.457	1.86	1.10	0.697	25.44
50	10.39	1491.7	78.5	33.642	2.13	1.63	0.707	25.85

STATION: L4 DEPTH: 54M DATE: 1 NOV 70 TIME: 2125
LAT: 37-53.9N LONG: 122-53.2W WIND: 320 SPEED: 8
AIR TEMP(DRY): 54 BARO: 30.C4 CLOUD AMT: 3
HEIGHT(FT): 1000 SEA: 320-1 SWELL 280-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHCSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.588	6.73	1.27	0.602
5	32.588	6.65	1.26	0.627
15	33.257	4.62	0.85	0.9C8
25	33.416	6.03	C.90	0.524
35	33.623	4.54	1.54	0.784
41	33.683	3.61	1.84	0.569
45	33.718	2.08	2.25	0.659
50	33.727	2.61	2.23	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.09	1498.8	56.0
5	13.09	1498.9	55.4
8	12.75	1498.6	67.9
14	12.59	1498.3	74.5
23	11.79	1496.0	78.6
32	10.82	1492.6	82.1
42	10.20	1491.0	60.5
47	10.0C	1490.4	43.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.09	1498.8	56.0	32.588	6.73	1.27	0.602	24.53
10	12.7C	1498.5	7C.1	32.922	5.64	1.05	0.767	24.87
20	12.C6	1496.8	77.2	33.336	5.33	0.87	C.716	25.31
30	11.04	1493.4	81.3	33.519	5.28	1.22	0.654	25.64
50				33.727	2.61	2.23		

STATION: M1 DEPTH: 44M DATE: 1 NOV 70 TIME: 2020
LAT: 37-52.6N LONG: 122-48.5W WIND: 320 SPEED: 8
AIR TEMP(DRY): 54 BARO: 30.04 CLOUD AMT: 8
HEIGHT(FT): 1000 SEA: 320-1 SWELL: 280-2

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.266	5.21	0.75	0.509
5	33.261	4.33	0.77	0.554
12	33.293	4.71	0.74	0.757
15	33.337	6.13	0.75	1.029
25	33.523	3.80	2.16	1.468
35	33.633	2.88	1.51	0.515

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (0/0)
0	12.86	1498.9	70.9
3	12.84	1498.9	70.9
8	12.44	1498.2	71.5
13	12.44	1498.0	74.8
17	11.89	1497.0	80.6
22	10.86	1496.2	80.6
27		1494.5	81.8
32		1492.5	49.0

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.86	1498.9	70.9	33.266	5.21	0.75	0.509	25.10
10	12.44	1498.1	72.8	33.284	4.60	0.75	0.699	25.19
20	11.27	1496.5	80.6	33.430	4.96	1.46	1.248	25.53
30		1493.3	62.1	33.578	3.34	1.84	0.991	

STATION: M2 DEPTH: 47M DATE: 1 NOV 70 TIME: 1911
LAT: 37-49.5N LONG: 122-48.6W WIND: 280 SPEED: 5
AIR TEMP(DRY): 54 BARO: 30.02 CLOUD AMT: 8
HEIGHT(FT): 100C SEA: 290-1 SWELL: 250-3

CBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHCSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.271	6.29	0.72	0.781
5	33.255	6.82	0.75	0.883
10	33.274	4.92	0.65	0.739
15	33.311	6.31	0.69	1.390
20	33.363	6.49	0.76	0.989
25	33.517	5.70	1.61	1.106
32	33.624	4.34		0.303

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.94	1499.2	68.2
5	12.91	1499.1	63.4
10	12.91	1499.1	61.3
16	12.51	1498.0	69.2
20	12.44	1497.8	74.1
25	11.79	1496.1	79.0
29	10.99	1494.6	79.0
33		1493.5	83.3
37		1491.2	52.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.94	1499.2	68.2	33.271	6.29	0.72	0.781	25.09
10	12.91	1499.1	61.3	33.274	4.92	0.65	0.739	25.10
20	12.44	1497.8	74.1	33.363	6.49	0.76	0.989	25.26
30	8.24	1494.3	80.1	33.594	4.73	0.46	0.532	26.16

STATION: M3 DEPTH: 42M DATE: 1 NOV 70 TIME: 1745
LAT: 37-46.0N LONG: 123-46.5W WIND: 280 SPEED: 5
AIR TEMP(DRY): 54 BARO: 30.02 CLOUD AMT: 8
HEIGHT(FT): 1000 SEA: 290-1 SWELL: 250-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.082	6.62	0.89	1.005
5	33.138	6.74	0.89	1.185
12	33.373	6.19	0.90	1.182
15	33.396	5.76	0.94	0.689
17	33.464	4.87	1.08	0.630
25	33.594	2.88	1.57	0.405
30	33.606	2.87	1.64	

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.82	1498.6	51.6
5	12.72	1498.2	63.7
8	12.13	1497.7	70.7
12	12.13	1496.7	77.6
18	11.29	1494.1	68.7
23	10.88	1492.9	67.2
27	10.55	1492.0	37.1
32		1492.0	33.2

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.82	1498.6	51.6	33.082	6.62	0.89	1.005	24.96
10	12.13	1497.2	74.1	33.306	6.35	0.90	1.183	25.27
20	11.13	1493.6	68.1	33.513	4.13	1.26	0.546	25.62
30	4.22	1492.0	34.8	33.606	2.87	1.64		26.68

STATION: M4 DEPTH: 40M DATE: 1 NOV 70 TIME: 1635

LAT: 37-43.5N LONG: 122-44.5W WIND: 260 SPEED: 6

AIR TEMP(DRY): 58 BARO: 30.03 CLOUD AMT: 9

HEIGHT(FT): 1000 SEA: 260-1 SWELL: 250-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	32.736	6.49	1.32	0.718
4	32.919	5.82	1.14	1.076
10	33.310	5.96	0.84	1.566
15	33.398	5.47	1.01	1.515
22	33.560	4.46	1.27	0.612
30	33.618	3.45	1.75	0.550

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.09		45.2
5	12.91		
8	12.73	1497.9	55.4
14	12.31	1497.4	65.8
19	11.50	1496.2	68.8
23	11.04	1495.2	72.1
28		1493.6	60.0
34		1493.2	46.7

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.09		45.2	32.736	6.49	1.32	0.718	24.64
10	12.59	1497.7	58.9	33.310	5.96	0.84	1.566	25.19
20	11.38	1495.9	69.6	33.514	4.75	1.20	0.870	25.57
30		1493.5	55.6	33.618	3.45	1.75	0.550	

STATION: M5 DEPTH: 39M DATE: 1 NOV 70 TIME: 1545

LAT: 37-40.3N LONG: 122-42.0W WIND: 260 SPEED: 6

AIR TEMP(DRY): 58 BARO: 30.03 CLOUD AMT: 9

HEIGHT(FT): 1000 SEA: 260-1 SWELL: 250-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.445	6.51	0.66	0.878
8	33.457	6.44	0.71	1.459
15	33.498	5.93	0.92	1.008
20	33.557	4.94	1.29	0.798
25	33.605	1.87	1.74	0.721
30	33.592	2.14	1.87	0.822

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	13.03	1499.7	60.4
4	12.47	1498.6	61.6
9	11.92	1498.0	66.1
14	11.09	1496.2	70.5
18	10.93	1493.6	39.6
24	10.78	1493.2	33.4
29		1492.8	37.6
32		1492.5	31.1

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	13.03	1499.7	60.4	33.445	6.51	0.66	0.878	25.20
10	11.75	1497.6	67.0	33.468	6.29	0.77	1.330	25.47
20	10.88	1493.5	37.5	33.557	4.94	1.29	0.798	25.69
30		1492.7	35.4	33.592	2.14	1.87	0.822	

STATION: M6 DEPTH: 40M DATE: 1 NOV 70 TIME: 1225
LAT: 37-37.5N LONG: 122-40.2W WIND: 090 SPEED: 6
AIR TEMP(DRY): 66 BARO: 30.08 CLOUD AMT: 6
HEIGHT(FT): 1000 SEA: 090-1 SWELL: 250-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (O/OO)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.430	6.31	0.63	0.631
4	33.416	6.49	0.72	0.597
11	33.450	6.40	0.72	0.933
16	33.469	6.34	0.75	0.641
23	33.539	5.78	1.03	0.652
35	33.598	4.04	1.73	0.608

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (O/O)
0	12.81	1498.9	62.2
3	12.83	1498.9	61.6
5	12.62	1499.1	62.1
10	12.53	1498.6	61.2
15	11.87	1498.2	65.9
20	10.89	1497.3	73.3
25		1495.2	75.2
30		1493.9	71.9
33		1493.0	32.5

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.81	1498.9	62.2	33.430	6.31	0.63	0.631	25.24
10	12.53	1498.6	61.2	33.445	6.41	0.72	0.885	25.30
20	10.89	1497.3	73.3	33.509	6.02	0.91	0.647	25.66
30		1493.9	71.9	33.573	4.77	1.44	0.626	

STATION: M7 DEPTH: 31M DATE: 1 NOV 70 TIME: 1342
LAT: 37-37.5N LONG: 122-36.5W WIND: LIGHT AIR
AIR TEMP(DRY): 58 BARO: 30.C4 CLOUD AMT: 6
HEIGHT(FT): 1000 SEA: 090-1 SWELL: 250-3

OBSERVED VALUES (NANSEN CAST)

DEPTH (M)	SALINITY (0/00)	OXYGEN (ML/L)	PHOSPHATE (MG-ATM/L)	CHLOROPHYLL (MG/M3)
0	33.474	6.57	0.72	0.734
3	33.482	4.37	0.71	0.795
10	33.492	6.47	1.05	0.938
15	33.499	6.43	0.78	1.011
20	33.526	6.55	0.93	0.986
25	33.604	4.37	1.71	1.007

OBSERVED VALUES (SV/T/D-TRANSMISSOMETER CAST)

DEPTH (M)	TEMP (C)	SO. VEL (M/SEC)	TRANSMITTANCE (0/0)
0	12.97	1499.7	59.2
5	12.76	1498.2	58.2
10	12.50	1498.1	57.6
15	12.49	1498.1	57.6
18	12.44	1498.0	63.0
23	11.85	1496.2	34.3

INTERPOLATED VALUES

DEPTH	TEMP	SO. VEL	TRANS.	SAL.	OXY	PHOS	CHLOR	SIG-T
0	12.97	1499.7	59.2	33.474	6.57	0.72	0.734	25.24
10	12.50	1498.1	57.6	33.492	6.47	1.05	C.938	25.34
20	12.2C	1497.3	51.5	33.526	6.55	0.93	C.986	25.43

TABLE III

PARTICLE SIZE DISTRIBUTIONS

Equivalent spherical diameters in microns:

Channel 0	- 32.0
Channel 1	- 25.4
Channel 2	- 20.2
Channel 3	- 16.0
Channel 4	- 12.7
Channel 5	- 10.1
Channel 6	- 8.00
Channel 7	- 6.35
Channel 8	- 5.04
Channel 9	- 4.00
Channel 10	- 3.17
Channel 11	- 2.52
Channel 12	- 2.00
Channel 13	- 1.59

SAMPLE DEPTH	CUMU- LATIVE VOLUME	CUMU- LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION A-1																
0	10	6.3	0.0	0.0	0.1	0.1	0.1	0.5	0.8	1.1	1.4	2.9	5.9	9.2	11.3	30.1
10	9	4.2	0.0	0.0	0.1	0.1	0.1	0.4	0.8	0.9	1.6	2.3	5.6	8.0	9.9	11.9
30	6	3.5	0.0	0.0	0.0	0.0	0.1	0.2	0.6	1.1	1.8	2.2	4.4	7.1	7.2	10.8
50	17	5.3	0.0	0.0	0.1	0.1	0.2	0.6	0.6	2.4	3.0	3.6	6.8	9.6	10.3	15.7
68	26	8.7	0.0	0.1	0.1	0.2	0.3	0.8	1.0	2.5	4.4	5.6	9.1	13.8	18.6	30.1
STATION A-2																
0	10	4.9	0.0	0.0	0.0	0.1	0.2	0.3	0.6	0.9	1.6	3.1	6.5	9.7	12.0	14.4
18	10	5.8	0.0	0.0	0.0	0.1	0.0	0.4	0.8	1.1	2.1	3.8	7.1	11.8	14.5	16.8
35	8	4.1	0.0	0.0	0.0	0.1	0.1	0.3	0.7	1.2	1.8	2.8	5.2	8.4	8.7	11.7
57	11	4.8	0.0	0.0	0.0	0.1	0.2	0.3	0.9	2.0	2.8	3.5	5.9	8.2	9.4	14.4
75	27	15.0	0.0	0.0	0.1	0.2	0.5	0.9	1.6	2.8	5.0	8.3	13.7	22.5	36.2	58.5

SAMPLE DEPTH	CUMULATIVE VOLUME	CUMULATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION A-3																
0	14	9.0	0.0	0.0	0.1	0.1	0.1	0.5	0.9	1.3	2.4	5.1	11.2	19.1	23.2	25.8
15	9	8.0	0.0	0.0	0.0	0.1	0.2	0.2	1.0	1.4	2.1	4.3	9.8	17.7	21.4	21.6
35	10	5.2	0.0	0.1	0.0	0.1	0.1	0.3	0.5	0.9	1.3	2.9	6.0	10.2	11.7	17.7
50	10	4.1	0.0	0.C	0.1	0.1	0.2	C.3	0.9	1.0	1.9	2.3	5.4	7.6	8.5	12.6
65	15	5.9	0.1	0.C	0.0	0.1	0.3	0.4	0.8	1.3	2.2	3.7	6.8	9.8	13.1	20.9
77	162	94.3	0.0	0.2	0.6	1.5	3.1	5.4	10.2	17.7	32.2	56.7	99.8	158.5	218.3	339.3
STATION A-4																
0	9	9.7	0.0	0.0	0.0	0.1	0.1	0.2	0.7	1.2	2.6	5.3	11.9	20.1	25.9	28.7
15	10	9.6	0.0	0.0	0.0	0.1	0.1	0.3	0.8	1.4	2.5	4.9	11.1	20.0	24.8	29.8
35	7	7.8	0.0	0.0	0.0	0.1	0.1	C.1	0.3	1.0	2.2	3.6	9.0	15.8	19.3	26.0
55	15	3.3	0.1	0.C	0.1	0.1	0.2	0.3	0.5	0.7	1.3	1.8	4.4	6.0	7.3	9.9
70	20	6.2	0.0	0.0	0.1	0.3	0.3	C.5	0.8	1.3	2.3	4.0	6.8	10.6	12.8	22.3
86	74	52.9	0.1	0.1	0.2	0.4	0.9	2.1	4.8	10.2	16.5	32.0	55.1	85.2	121.8	199.8

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION A-5																
0	13	8.7	0.0	0.0	0.1	0.1	0.2	0.3	0.9	1.2	2.5	4.3	10.7	17.8	21.9	26.9
20	14	7.9	0.0	0.0	0.1	0.1	0.1	0.3	0.9	1.1	2.5	4.1	10.0	16.5	19.9	23.4
40	11	6.2	0.0	0.0	0.0	0.1	0.2	0.2	0.6	1.2	1.9	3.5	7.7	12.1	13.6	20.1
65	11	4.1	0.0	0.0	0.0	0.1	0.2	0.4	0.6	1.0	1.7	2.2	4.9	7.0	9.3	13.8
81	29	27.5	0.0	0.0	0.1	0.1	0.4	0.9	1.9	3.8	7.7	13.5	25.7	42.0	65.6	113.0
STATION A-6																
0	23	6.6	0.1	0.0	0.2	0.2	0.3	0.6	1.0	1.3	2.0	4.5	9.0	12.9	15.0	19.4
20	17	10.7	0.0	0.0	0.1	0.1	0.2	0.7	1.3	2.1	4.3	8.9	13.2	17.2	23.5	35.4
35	23	12.5	0.0	0.0	0.1	0.2	0.5	0.8	1.4	1.8	3.8	8.0	14.9	22.0	29.0	43.1
60	18	11.4	0.0	0.0	0.1	0.1	0.2	0.6	0.7	1.6	3.0	5.5	10.8	17.9	26.7	46.9
80	17	19.6	0.0	0.0	0.0	0.1	0.1	0.3	0.9	2.3	4.9	9.8	18.1	25.8	48.1	82.3
105	12	17.2	0.0	0.0	0.0	0.0	0.1	0.2	0.5	1.8	4.6	9.0	16.4	27.3	41.4	70.7

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
			COUNTS X 10^{-2} CHANNEL NUMBER													
			STATION A-7													
0	21	3.4	0.1	0.1	0.1	0.2	0.3	0.5	0.8	1.1	1.6	2.8	4.8	6.2	6.8	9.3
10	16	3.9	0.0	0.1	0.1	0.2	0.3	0.6	1.0	1.0	1.7	2.8	4.5	5.7	8.2	12.5
25	24	5.2	0.0	0.1	0.2	0.2	0.5	0.6	0.9	1.2	2.1	3.3	6.1	9.0	10.6	17.2
50	12	4.0	0.0	0.0	0.0	0.1	0.3	0.4	0.7	1.0	1.5	2.7	4.6	6.7	9.0	12.8
60	9	5.1	0.0	0.0	0.1	0.1	0.1	0.2	0.6	0.9	1.6	2.9	4.5	8.2	12.5	19.6
85	19	27.5	0.0	0.0	0.0	0.0	0.2	0.3	1.4	2.5	6.1	13.0	25.6	43.6	68.1	114.0
100	23	26.3	0.0	0.0	0.0	0.1	0.2	0.6	1.6	3.3	7.1	14.6	26.2	41.7	61.8	106.2
			STATION A-8													
0	18	3.8	0.0	0.0	0.1	0.1	0.3	0.7	0.8	0.9	1.7	3.4	4.7	7.0	7.4	10.6
5	29	6.0	0.0	0.1	0.3	0.2	0.4	0.8	1.1	1.5	2.8	4.6	7.4	9.9	11.6	18.8
25	27	6.0	0.0	0.1	0.2	0.4	0.6	0.5	1.0	1.8	2.7	4.2	7.2	9.6	12.5	19.5
45	13	3.9	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.9	1.4	2.3	4.3	6.3	9.1	14.0
65	12	10.3	0.0	0.0	0.1	0.1	0.1	0.3	0.7	1.4	2.7	5.5	9.5	15.8	25.7	41.4
72	56	48.7	0.0	0.1	0.1	0.4	0.7	1.5	3.3	6.4	12.6	24.0	46.1	76.1	117.7	197.7

COUNTS X 10^{-2}
CHANNEL NUMBER

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION A-9																
0	18	8.2	0.0	0.1	0.1	0.1	0.2	0.5	0.7	1.6	3.5	6.2	8.3	12.0	19.3	29.0
10	24	6.0	0.0	0.1	0.1	0.2	0.4	0.6	1.0	1.4	2.4	5.2	8.2	11.1	12.9	16.9
20	23	5.7	0.1	0.1	0.1	0.2	0.5	0.5	0.9	1.3	2.1	3.9	7.1	9.9	12.2	18.4
30	14	5.8	0.0	0.0	0.0	0.1	0.2	0.4	0.9	1.3	2.5	3.8	6.3	8.8	12.8	20.3
40	19	4.3	0.0	0.1	0.1	0.2	0.3	0.4	0.5	1.2	1.7	3.0	4.6	7.1	9.6	14.8
50	30	20.8	0.0	0.0	0.1	0.2	0.4	0.6	1.7	2.9	6.0	11.1	20.9	32.5	48.7	82.8
58	60	32.0	0.1	0.1	0.2	0.3	0.9	1.8	3.4	5.1	10.2	17.8	30.6	45.3	73.9	126.5

n. COUNTS X 10^{-2}
CHANNEL NUMBER

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION A-10																
0	23	5.6	0.1	0.1	0.1	0.1	0.2	0.4	0.7	1.2	2.7	4.8	6.4	9.2	12.2	18.1
5	20	6.4	0.0	0.0	0.1	0.2	0.2	0.6	1.2	1.4	2.9	5.1	7.0	9.3	13.5	22.1
10	24	6.6	0.1	0.1	0.1	0.2	0.3	0.7	1.2	1.8	3.5	5.7	7.9	10.2	13.7	21.3
20	21	5.5	0.1	0.C	0.1	0.2	0.3	C.5	1.1	1.6	2.2	3.1	6.7	9.5	11.8	18.2
30	37	18.2	0.C	0.1	0.1	0.4	0.7	1.0	2.4	3.7	6.6	10.7	18.5	28.6	40.9	68.2
35	52	21.6	0.1	0.1	0.2	0.4	0.6	1.2	2.5	4.8	7.4	13.4	21.5	33.5	49.1	81.7
STATION A-11																
0	14	3.3	0.0	0.1	0.1	0.2	0.3	0.3	0.7	0.8	1.5	2.5	4.1	5.2	6.9	9.9
10	25	6.0	0.1	0.0	0.1	0.2	0.4	0.8	1.2	1.8	2.8	4.1	7.3	9.7	12.1	19.1
18	29	11.8	0.1	0.1	0.1	0.2	0.3	C.8	1.5	2.8	4.4	7.9	12.3	18.3	26.1	42.8
21	60	23.2	0.1	0.1	0.3	0.4	0.7	1.6	2.8	4.8	7.7	13.5	22.6	35.0	53.0	90.2

SAMPLE DEPTH	CUMU-LATIVE VCLUME	CUMU-LATIVE COUNT X 10^{-3}	CCUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION A-12																
0	21	4.6	0.1	0.1	0.1	0.1	0.3	0.7	1.0	1.2	1.9	3.0	5.8	7.5	9.7	14.2
6	26	4.8	0.1	0.1	0.1	0.1	0.4	0.8	1.0	1.3	2.4	3.3	5.2	7.3	10.1	15.7
12	30	6.4	0.1	0.1	0.2	0.3	0.3	0.9	1.2	2.0	2.6	4.2	6.9	10.1	13.6	21.4
15	62	15.2	0.1	0.1	0.5	0.6	0.9	1.9	2.6	4.0	5.9	9.4	15.3	23.1	34.1	53.8

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION B-1																
0	108	93.4	0.1	0.1	0.2	0.4	1.2	2.1	5.2	13.8	33.8	67.6	109.5	160.0	217.7	322.4
3	100	95.3	0.0	0.1	0.2	0.4	C.9	1.8	4.2	12.6	33.0	68.7	110.5	161.7	223.8	335.5
6	99	95.1	0.1	0.1	0.1	0.3	1.0	2.0	4.7	13.2	31.6	65.5	110.9	162.1	224.3	335.5
8	108	89.5	0.1	0.1	0.2	0.5	1.1	2.3	4.7	13.1	31.0	63.5	103.8	150.1	211.0	314.1
10	74	45.0	0.1	0.2	0.3	0.4	1.0	2.1	3.0	6.9	15.9	30.5	48.8	73.6	106.6	161.0
14	163	69.3	0.2	0.2	0.3	1.0	2.6	5.9	11.7	22.0	35.3	51.8	71.8	104.3	151.1	234.7
STATION B-2																
0	50	13.8	0.1	0.2	0.3	0.5	0.8	1.5	1.8	3.2	6.3	8.9	12.6	20.3	32.2	49.8
5	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	43	11.7	0.1	0.1	0.2	0.4	0.8	1.3	1.6	2.5	4.9	7.5	11.8	17.9	26.8	41.5
20	47	19.3	0.1	0.1	0.2	0.6	0.6	0.8	1.2	3.0	5.2	10.1	17.4	28.6	44.9	80.2
25	64	34.6	0.1	0.1	0.3	0.6	1.0	1.3	2.7	5.6	11.1	19.7	34.2	53.1	78.0	137.9

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
			COUNTS X 10^{-2} CHANNEL NUMBER													
STATION B-3																
0	38	6.5	0.1	0.1	0.2	0.5	0.7	0.7	1.1	1.7	3.1	4.5	7.3	9.9	13.5	21.7
5	35	6.3	0.1	0.1	0.2	0.3	0.5	1.1	1.1	1.8	2.8	4.5	6.7	8.9	13.0	22.0
10	42	5.0	0.1	0.2	0.5	0.2	0.3	0.6	0.9	1.5	2.4	3.5	6.2	8.4	9.6	15.6
15	18	5.3	0.0	0.0	0.1	0.2	0.3	0.5	0.8	1.4	2.3	3.5	6.4	9.0	10.6	18.3
25	38	16.3	0.1	0.2	0.2	0.3	0.3	0.8	1.2	2.4	4.6	8.4	15.3	24.9	36.7	67.7
35	94	42.1	0.1	0.3	0.4	1.0	1.5	2.8	4.1	7.3	12.7	21.9	37.5	6C.8	97.8	172.9
STATION B-4																
0	24	4.4	0.0	0.1	0.1	0.2	0.4	0.9	1.2	1.5	2.6	3.3	5.0	6.8	7.7	13.7
15	43	11.3	0.1	0.1	0.2	0.3	0.8	1.0	1.5	2.2	4.5	7.9	13.1	18.3	24.5	38.8
25	18	6.3	0.0	0.0	0.1	0.2	0.3	0.5	0.6	1.0	1.9	3.5	7.1	10.9	13.6	23.7
40	43	16.0	0.2	0.1	0.1	0.2	0.4	0.7	1.1	2.4	4.9	8.1	15.0	24.5	36.3	66.6
60	30	27.7	0.0	0.0	0.1	0.2	0.4	0.6	1.6	3.7	7.3	15.3	26.3	43.5	66.0	111.4
66	0	0.0	0.0	0.0	0.0	C.C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C.0	0.0	0.0

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
								STATION B-5								
0	38	17.1	0.1	0.1	0.2	0.3	0.5	1.0	1.5	2.8	7.7	13.0	20.3	28.4	36.8	58.5
5	44	16.3	0.0	0.2	0.3	0.3	0.6	1.2	1.5	2.9	7.2	12.3	20.8	26.4	36.4	53.1
10	45	16.4	0.1	0.1	0.2	0.4	0.9	1.2	1.6	2.6	7.0	11.7	19.2	26.5	36.3	55.8
15	53	15.2	0.1	0.2	0.4	0.5	0.9	1.2	1.7	3.0	5.8	10.7	17.2	23.4	34.4	52.8
20	35	12.9	0.1	0.1	0.2	0.4	0.5	1.1	1.3	1.9	4.7	8.5	14.6	20.1	31.8	44.0
30	42	13.6	0.1	0.1	0.2	0.6	0.8	1.0	1.6	2.3	4.5	7.6	13.4	20.2	31.9	51.6
50	18	6.1	0.1	0.0	0.1	0.1	0.3	0.3	0.7	0.9	2.2	3.3	6.1	9.9	13.9	23.6
70	25	29.2	0.0	0.0	0.1	0.1	0.3	0.6	1.1	2.7	6.5	13.6	26.4	45.3	71.1	123.8
								STATION B-6								
0	19	8.4	0.0	0.1	0.1	0.1	0.3	0.6	0.9	1.6	3.8	7.3	13.6	16.5	15.7	23.7
15	23	9.0	0.0	0.1	0.1	0.2	0.2	0.8	1.2	1.9	4.0	8.0	12.7	16.3	16.6	27.7
35	26	9.0	0.0	0.1	0.1	0.4	0.6	0.8	1.3	2.0	3.3	5.6	10.2	14.6	19.0	32.5
45	31	8.1	0.0	0.1	0.3	0.3	0.6	0.6	0.9	1.8	2.9	5.4	8.7	12.8	17.0	29.4
75	14	18.6	0.0	0.0	0.1	0.0	0.1	0.3	0.5	1.7	3.6	8.6	16.9	29.8	46.7	78.1
100	17	17.1	0.0	0.0	0.0	0.1	0.2	0.4	0.9	2.1	4.3	8.3	15.5	27.3	41.9	70.3

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT $\times 10^{-3}$	COUNTS $\times 10^{-2}$ CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION B-7																
0	14	10.1	0.0	0.0	0.1	0.1	0.1	0.4	0.7	1.4	3.4	7.5	14.3	19.3	21.1	32.9
10	15	11.0	0.0	0.0	0.0	0.1	0.1	0.5	0.7	1.8	3.7	7.6	13.4	19.7	22.8	39.9
25	14	7.9	0.0	0.0	0.1	0.2	0.3	0.5	0.9	1.5	2.8	6.8	12.4	14.5	16.8	22.0
50	34	8.1	0.1	0.1	0.2	0.4	0.5	C.7	1.2	1.9	3.5	5.3	9.6	13.2	16.4	28.1
75	19	3.9	0.1	0.1	0.1	0.1	0.2	0.5	0.5	C.7	1.4	2.5	4.1	6.9	9.5	12.2
100	11	12.9	0.0	0.0	0.0	0.1	0.1	0.3	0.6	1.5	3.2	5.9	11.6	19.6	30.4	55.6
STATION B-8																
0	14	11.2	0.0	0.0	0.0	0.1	0.1	0.5	0.9	1.4	3.7	8.5	15.8	21.7	23.8	35.9
15	20	11.1	0.0	0.1	0.1	0.1	0.2	0.5	1.0	1.7	3.2	8.4	17.1	22.5	22.7	34.4
37	16	6.8	0.0	0.C	0.1	0.2	0.4	0.5	0.9	1.4	2.8	5.3	8.8	11.9	14.2	21.1
57	22	9.1	0.0	0.1	0.1	0.2	0.3	0.6	1.0	2.0	3.6	6.4	9.6	14.1	20.0	33.3
85	8	4.3	0.0	0.0	0.0	0.1	0.2	C.2	0.4	0.8	1.1	2.3	3.9	6.7	10.9	16.2
110	19	25.2	0.0	0.0	0.0	0.1	0.1	0.2	0.8	1.9	4.6	10.0	21.0	38.3	64.7	110.1

SAMPLE DEPTH	CUMULATIVE VOLUME	CUMULATIVE COUNT $\times 10^{-3}$	COUNTS $\times 10^{-2}$ CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION B-9																
0	17	12.3	0.0	0.0	0.1	0.1	0.2	0.4	0.9	1.5	4.2	8.9	16.5	23.3	26.4	40.6
10	12	10.9	0.0	0.0	0.0	0.1	0.1	0.4	0.7	1.4	3.1	7.2	15.8	22.4	26.3	31.6
25	43	12.6	0.2	0.1	0.2	0.1	0.2	0.6	1.0	2.1	3.7	7.8	16.6	22.9	29.2	41.2
50	13	6.4	0.0	0.0	0.1	0.1	0.3	0.5	0.8	1.3	1.9	4.0	9.5	13.1	13.6	18.9
75	5	4.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.8	1.2	2.0	3.4	6.9	10.8	14.9
100	7	6.9	0.0	0.0	0.0	0.1	0.1	0.2	0.5	1.0	1.7	3.3	5.5	10.6	17.2	28.7

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT $\times 10^{-3}$	COUNTS $\times 10^{-2}$ CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION B-10																
0	25	10.4	0.1	0.1	0.2	0.2	0.1	0.3	0.7	1.3	3.0	6.7	15.3	22.3	25.7	28.3
15	11	10.6	0.0	0.0	0.0	0.1	0.1	0.4	0.6	1.2	2.9	6.7	15.4	22.6	27.0	29.4
40	9	9.1	0.0	0.0	0.0	0.0	0.2	0.3	0.5	1.1	2.5	4.9	11.5	18.6	22.7	28.8
55	12	6.0	0.0	0.0	0.1	0.1	0.1	0.4	0.8	1.1	2.1	3.3	8.0	11.5	12.8	20.0
70	8	3.6	0.0	0.0	0.1	0.1	0.1	0.1	0.5	0.7	1.4	2.3	4.8	6.0	8.7	10.9
100	7	8.4	0.0	0.0	0.0	0.0	0.1	0.2	0.6	1.2	2.2	4.2	7.7	13.4	20.3	34.2
STATION B-11																
0	17	12.4	0.0	0.0	0.1	0.2	0.3	0.6	1.1	1.7	3.1	6.6	15.1	22.4	32.2	41.0
25	14	12.0	0.0	0.0	0.0	0.1	0.2	0.4	0.9	1.5	3.1	6.1	13.7	22.5	29.8	41.3
60	13	5.6	0.0	0.1	0.0	0.1	0.1	0.3	0.5	0.9	1.6	2.9	6.3	9.6	13.3	20.7
75	18	13.7	0.0	0.0	0.1	0.1	0.2	0.7	1.3	2.5	4.5	7.4	12.7	21.6	31.8	54.2
95	12	5.6	0.0	0.0	0.1	0.1	0.2	0.3	0.6	1.1	1.8	3.2	6.0	8.6	12.9	21.0
108	11	5.4	0.0	0.0	0.0	0.1	0.1	0.4	0.6	0.9	1.9	3.4	6.2	8.8	12.1	19.4

SAMPLE DEPTH	CUMU- LATIVE VOLUME	CUMU- LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
			COUNTS X 10^{-2} CHANNEL NUMBER													
			STATION B-12													
0	16	11.8	0.0	0.0	0.1	0.1	0.2	0.5	1.2	2.0	3.0	6.2	14.0	21.9	30.5	38.5
20	20	11.5	0.0	0.0	0.1	0.1	0.3	0.5	1.0	1.6	3.3	6.0	14.9	22.5	27.2	37.5
45	14	6.4	0.0	0.0	0.1	0.1	0.2	0.5	0.8	1.0	2.2	3.3	7.8	11.6	14.6	21.8
60	26	7.5	0.0	0.1	0.1	0.2	0.4	0.5	0.8	1.9	3.1	5.4	9.0	12.6	15.9	24.7
80	17	6.6	0.0	0.0	0.1	0.2	0.4	0.6	0.5	1.3	2.5	3.9	6.9	11.0	14.6	23.9
			STATION B-13													
0	9	6.6	0.0	0.0	0.0	0.0	0.2	0.5	0.8	1.1	1.7	3.2	7.4	12.0	16.6	22.4
20	11	5.6	0.0	0.0	0.0	0.1	0.1	0.4	0.5	0.9	1.7	3.1	6.3	10.1	12.8	19.4
50	21	10.3	0.0	0.0	0.1	0.2	0.4	0.7	1.1	1.5	2.8	5.2	9.3	15.5	24.5	42.1
60	12	5.7	0.0	0.1	0.1	0.0	0.1	0.3	0.5	1.0	2.0	3.1	6.0	9.3	13.3	21.1
81	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION C-1																
0	14	6.3	0.0	0.1	0.0	0.1	0.2	0.4	0.8	1.1	1.6	3.6	7.7	11.9	14.5	20.3
20	12	6.1	0.0	0.0	0.0	0.1	0.1	0.4	0.8	1.0	1.8	3.4	7.6	11.5	14.1	19.7
50	24	7.7	0.0	0.1	0.1	0.2	0.4	0.9	1.4	3.3	3.9	5.7	9.0	11.1	14.1	26.3
70	426	184.5	29.4	14.5	11.4	12.6	16.8	21.4	23.5	19.1	23.0	51.8	410.9	626.7	352.4	232.0
80	25	12.5	0.0	0.0	0.1	0.2	0.4	0.8	1.3	3.8	5.0	8.1	13.9	19.5	25.9	46.6
100	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
STATION C-2																
0	11	11.3	0.0	0.0	0.0	0.1	0.1	0.3	1.0	1.4	2.8	5.9	14.8	22.0	28.8	36.2
20	21	13.9	0.1	0.0	0.0	0.1	0.2	0.3	1.0	1.2	2.8	5.9	15.3	25.0	35.0	52.2
50	11	11.2	0.0	0.0	0.0	0.0	0.2	0.4	0.6	1.2	2.8	6.1	13.6	22.7	27.9	36.5
65	12	6.4	0.0	0.0	0.1	0.1	0.1	0.5	0.8	1.1	2.3	4.3	7.1	11.5	13.7	21.9
80	18	6.0	0.1	0.0	0.1	0.2	0.2	0.3	0.5	0.8	1.6	3.2	5.4	9.7	14.8	22.9
100	5	2.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.6	0.7	1.7	3.0	4.6	8.7

COUNTS X 10^{-2}

CHANNEL NUMBER

STATION C-3

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
0	10	10.2	0.0	0.0	0.1	0.1	0.1	0.2	0.5	0.8	2.0	4.9	11.4	20.0	26.8	35.5
10	10	10.2	0.0	0.0	0.0	0.1	0.1	0.1	0.4	1.1	2.2	4.8	11.5	19.3	26.4	36.6
25	8	9.9	0.0	0.0	0.0	0.1	0.1	0.1	0.5	1.1	2.4	4.5	11.1	20.0	25.2	35.0
40	13	4.9	0.0	0.0	0.1	0.1	0.3	0.3	0.7	1.2	1.7	3.9	6.6	8.5	9.4	16.0
60	9	3.1	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.5	1.0	2.0	3.4	5.4	7.7	10.0
70	185	5.1	0.0	0.1	0.0	0.1	25.6	4.8	1.0	1.0	1.0	1.1	1.8	2.9	4.0	8.2
90	1	1.3	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.6	1.1	1.7	3.2	5.5

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT $\times 10^{-3}$	0	1	2	3	4	5	6	7	8	9	10	11	12	13
			COUNTS $\times 10^{-2}$ CHANNEL NUMBER													
			STATION D-I													
0	12	9.4	0.0	0.0	0.1	0.0	0.1	0.3	0.7	1.0	2.3	4.5	11.6	19.5	24.8	29.5
10	10	9.8	0.0	0.0	0.0	0.1	0.1	0.2	0.6	1.1	2.3	5.3	12.0	19.3	25.6	31.1
25	9	9.9	0.0	0.0	0.0	0.0	0.1	0.2	0.7	1.0	2.4	5.1	12.2	18.4	24.9	34.5
40	9	6.4	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.6	1.4	2.9	6.6	11.5	17.1	22.5
60	3	3.3	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.5	0.7	1.4	3.3	5.2	8.0	13.0
70	5	4.6	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.8	1.3	2.2	4.4	8.4	11.3	17.1
90	3	2.2	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.5	1.0	1.7	3.1	5.3	9.5
			STATION D-2													
0	22	12.4	0.0	0.0	0.1	0.1	0.4	0.9	1.5	2.2	4.1	7.4	13.6	20.5	28.4	44.7
10	15	8.8	0.0	0.0	0.1	0.1	0.2	0.5	0.8	1.7	3.1	6.6	10.4	15.6	20.2	27.5
30	17	8.0	0.0	0.0	0.1	0.1	0.2	0.6	0.9	1.9	3.1	6.2	10.4	12.9	18.5	25.3
40	12	7.9	0.0	0.0	0.1	0.0	0.1	0.5	1.0	1.7	3.2	5.6	9.8	14.0	18.4	24.3
55	13	13.2	0.0	0.0	0.1	0.1	0.1	0.3	1.0	1.6	3.6	6.1	12.7	20.0	31.3	55.0
70	8	3.3	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.5	1.3	2.1	3.7	5.6	6.7	12.2
90	8	2.3	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.4	0.8	1.3	2.1	3.7	5.7	8.2

SAMPLE DEPTH	CUMU-LATIVE VCLUME	CUMU-LATIVE COUNT $\times 10^{-3}$	COUNTS $\times 10^{-2}$ CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION D-3																
0	11	9.0	C.0	0.0	0.0	0.1	0.1	0.3	0.9	1.6	3.3	6.1	10.8	16.5	20.4	30.0
15	11	7.9	C.0	0.0	0.0	0.1	0.1	C.6	0.9	1.5	2.9	5.2	10.3	15.3	18.3	24.0
30	15	9.2	0.0	0.0	0.1	0.1	0.2	C.6	1.0	1.5	3.3	5.7	10.6	16.6	22.6	29.7
40	9	5.4	C.0	0.0	0.0	0.1	0.2	0.4	0.6	1.2	2.C	3.3	6.0	9.0	12.0	19.1
6C	17	5.5	C.0	0.0	0.1	0.2	0.3	C.7	0.9	1.3	2.C	3.6	5.5	8.2	12.8	19.5

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION E-1																
0	19	14.4	0.0	0.0	0.1	0.1	0.3	0.6	1.2	2.4	4.5	8.0	16.5	24.4	32.4	53.6
30	17	11.0	0.0	0.0	0.1	0.2	0.3	0.5	1.0	1.7	3.5	6.7	12.3	19.2	24.6	40.1
50	15	9.9	0.0	0.0	0.1	0.1	0.2	0.4	0.7	1.6	2.7	5.7	11.8	17.5	22.6	35.4
70	23	6.4	0.0	0.0	0.0	0.1	2.2	0.5	0.7	1.1	1.8	3.2	6.7	10.2	13.8	23.5
80	4	4.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.4	0.9	1.4	2.6	5.0	8.1	21.1
STATION E-2																
0	20	13.2	0.0	0.0	0.1	0.1	0.2	0.5	1.3	2.2	4.0	8.8	17.8	24.5	30.3	42.7
5	15	12.9	0.0	0.0	0.1	0.2	0.2	0.3	1.0	1.8	3.5	8.1	16.0	23.7	31.1	43.4
10	24	13.1	0.1	0.0	0.1	0.1	0.2	0.5	1.0	2.0	3.9	8.1	16.6	24.1	30.5	44.1
20	18	13.5	0.0	0.0	0.1	0.1	0.2	0.5	1.2	1.8	4.0	7.9	17.5	24.6	32.8	44.3
30	18	8.0	0.0	0.1	0.1	0.1	0.2	0.3	0.9	1.7	4.0	8.4	10.0	11.1	15.2	27.9
50	7	2.4	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.6	1.3	1.9	4.0	5.9	9.2
75	7	2.9	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.7	0.8	1.8	3.0	4.7	6.2	11.2
100	5	2.6	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.7	1.4	2.1	4.1	6.4	10.8

			COUNTS X 10^{-2} CHANNEL NUMBER													
SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
								STATION E-3								
0	28	13.8	0.1	0.0	0.2	0.1	0.3	0.5	1.1	1.9	4.5	10.1	19.9	26.3	28.8	43.9
10	35	12.7	0.1	0.1	0.1	0.1	0.3	0.8	1.2	1.9	4.1	9.2	16.4	24.0	27.3	39.8
20	24	29.3	0.0	0.0	0.1	0.1	0.2	0.4	1.2	2.4	4.8	10.6	17.4	93.3	111.5	50.9
50	11	3.6	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.7	1.0	2.4	4.0	6.6	7.0	13.7
70	7	3.1	0.0	0.0	0.1	0.0	0.0	0.2	0.4	0.5	1.0	1.7	3.1	5.6	6.6	12.2
								STATION E-4								
0	32	12.2	0.0	0.1	0.2	0.2	0.5	1.1	1.4	2.8	5.3	11.8	18.6	20.3	20.4	38.9
5	28	11.1	0.0	0.1	0.1	0.2	0.5	0.9	1.1	2.3	4.7	10.5	16.1	18.6	19.4	36.8
10	33	11.2	0.1	0.1	0.2	0.2	0.4	1.0	1.3	2.5	4.4	10.6	17.2	17.5	19.2	37.1
20	24	11.6	0.0	0.1	0.1	0.2	0.3	0.9	1.5	2.5	5.0	10.5	18.0	19.4	22.1	35.8
30	23	9.9	0.0	0.1	0.1	0.2	0.4	0.6	0.9	1.8	3.8	7.2	10.2	14.7	21.0	37.8
50	20	9.2	0.0	0.0	0.1	0.1	0.3	0.5	0.8	2.0	3.1	5.2	9.1	14.6	21.3	345.0
75	41	39.1	0.0	0.0	0.1	0.2	0.5	1.1	2.8	5.9	11.1	20.9	37.5	62.3	91.4	156.9
86	80	72.8	0.1	0.0	0.2	0.5	0.8	2.0	4.7	10.1	19.7	39.2	70.1	116.4	170.9	292.8

			COUNTS X 10^{-2} CHANNEL NUMBER													
SAMPLE DEPTH	CUMULATIVE VOLUME	CUMULATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
								STATION E-5								
0	38	10.8	0.1	0.1	0.1	0.2	0.5	1.0	1.4	2.2	5.4	8.9	14.2	17.3	19.7	36.9
10	29	10.0	0.1	0.C	0.1	0.2	0.4	1.4	1.4	2.8	4.7	9.1	16.0	15.2	16.4	31.9
25	42	13.6	0.0	0.0	0.3	0.4	0.6	1.2	1.7	3.3	5.1	10.1	15.1	20.0	28.0	50.0
45	51	51.4	0.0	C.1	0.1	C.2	0.3	1.2	2.9	7.1	15.2	27.3	49.2	80.1	121.4	208.4
55	49	53.3	0.0	0.0	0.1	0.1	0.4	0.8	3.2	7.5	16.6	30.0	52.5	84.1	125.2	212.1
63	106	75.6	0.1	0.1	0.2	0.6	1.3	2.5	5.8	12.8	23.1	42.1	72.8	116.5	175.1	303.0
								STATION E-6								
0	31	9.3	0.1	0.1	0.1	0.2	0.5	1.1	1.2	2.5	4.8	9.5	12.8	13.4	14.C	32.7
15	34	10.0	0.0	0.1	0.2	0.3	0.4	1.6	1.5	2.7	5.1	10.2	13.9	14.7	15.1	34.1
25	45	31.5	0.1	0.1	0.1	C.2	0.4	0.9	2.4	5.0	10.6	17.1	26.6	43.5	66.1	141.6
35	74	64.5	0.0	0.1	0.2	0.3	0.6	1.4	3.9	10.5	20.3	39.7	67.0	103.0	147.6	250.3
43	123	68.1	0.1	0.1	0.4	0.9	2.1	4.3	8.5	16.1	27.0	44.2	68.8	103.6	105.7	254.0

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
								STATION E-7								
0	59	10.6	0.2	0.1	0.4	0.3	1.0	2.0	1.7	3.3	6.1	9.3	12.4	13.5	16.3	39.0
5	42	9.0	0.1	0.1	0.2	0.6	0.7	1.7	1.4	2.6	5.4	8.1	11.5	13.0	14.5	30.0
12	32	12.2	0.1	0.C	0.1	0.2	0.5	1.4	1.7	2.9	5.8	9.1	13.7	18.2	24.2	43.7
25	51	49.7	0.0	0.1	0.1	C.2	0.5	C.8	3.1	7.6	16.1	31.3	52.0	78.6	117.6	189.0
33	154	91.1	0.0	C.1	0.2	C.7	2.0	6.2	14.7	27.7	47.5	71.9	102.2	146.8	194.4	296.6

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
			COUNTS X 10^{-2} CHANNEL NUMBER													
STATION F-1																
0	35	12.1	0.0	0.1	0.2	0.2	0.6	1.2	1.8	2.9	5.1	10.3	15.2	18.4	23.2	41.4
10	37	10.4	0.0	0.2	0.2	0.3	0.5	1.1	1.6	2.3	4.8	9.4	12.7	13.8	19.9	37.1
20	55	9.8	0.1	0.2	0.2	0.5	0.7	1.6	1.6	2.7	4.6	9.0	11.9	13.7	16.2	35.0
25	37	14.7	0.0	0.1	0.2	0.3	0.5	0.9	1.5	3.0	5.4	10.0	16.0	22.2	31.7	55.1
35	41	38.2	0.0	0.0	0.1	0.2	0.3	0.9	2.4	6.2	12.1	22.4	37.8	60.8	88.9	149.5
47	226	89.9	0.1	0.3	1.0	2.2	4.3	8.0	14.8	27.4	41.7	62.3	92.2	135.5	186.8	323.2
STATION F-2																
0	38	9.5	0.1	0.1	0.2	0.5	0.5	1.4	1.7	2.7	4.6	8.6	12.2	13.2	16.8	33.1
5	37	8.5	0.0	0.1	0.2	0.4	0.5	1.3	1.8	2.3	3.7	8.2	11.6	11.4	14.3	29.1
15	44	14.1	0.1	0.1	0.3	0.5	0.5	1.7	2.0	3.2	5.6	9.7	16.0	21.5	27.2	52.5
25	60	43.1	0.1	0.1	0.2	0.4	0.6	1.3	3.0	7.0	13.0	24.0	41.7	67.4	95.5	173.1
34	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SAMPLE DEPTH	CUMU-LATIVE VCLUME	CUMU-LATIVE COUNT $\times 10^{-3}$	CCUNTS $\times 10^{-2}$ CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION F-3																
0	25	8.0	0.0	0.1	0.1	0.3	0.5	1.2	1.3	2.0	2.6	5.8	9.2	11.9	15.7	29.0
5	24	7.2	0.0	0.0	0.1	0.3	0.3	1.3	1.7	2.1	3.C	5.2	8.1	10.2	13.6	25.8
12	22	7.2	0.0	0.0	0.1	0.3	0.4	1.6	1.6	1.9	3.1	5.7	8.8	1C.9	13.6	24.0
22	36	8.6	0.1	0.1	0.2	0.3	0.5	1.7	1.3	2.1	3.7	6.6	10.1	12.0	15.3	32.0
27	47	15.2	C.1	0.1	0.3	0.4	0.6	1.3	1.9	3.5	6.1	11.0	16.4	23.1	31.6	55.7
34	101	54.9	0.0	0.1	0.2	0.6	1.9	4.9	8.6	14.2	21.6	34.4	52.0	83.4	120.2	206.4

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
			COUNTS X 10^{-2} CHANNEL NUMBER													
STATION G-I																
0	36	11.4	0.1	0.1	0.3	0.3	0.4	1.5	1.4	1.9	2.8	6.0	11.8	16.3	23.8	47.6
5	24	7.1	0.0	0.1	0.1	0.2	2.4	1.2	1.3	2.0	3.0	4.8	9.0	9.9	13.7	25.8
10	31	7.1	0.0	0.1	0.2	0.3	0.4	1.2	1.3	1.8	2.8	4.6	8.8	10.5	13.1	25.6
20	36	13.6	0.0	0.1	0.3	0.5	0.4	0.6	1.0	2.4	4.6	8.1	13.8	21.2	28.9	53.8
30	25	20.4	0.0	0.0	0.1	0.2	0.3	0.6	1.3	3.0	6.5	12.5	20.6	33.5	46.9	78.5
40	37	36.8	0.0	0.0	0.1	0.2	0.3	0.9	2.1	5.1	10.0	19.5	35.7	59.2	88.5	146.5
54	100	62.9	0.0	0.1	0.3	0.7	1.7	3.7	7.2	13.8	23.2	37.2	61.1	95.2	142.0	243.2
STATION G-2																
0	39	9.6	0.0	0.1	0.1	0.2	0.4	1.4	1.6	2.7	4.6	9.0	13.1	14.0	16.5	33.8
5	34	10.9	0.0	0.0	0.1	0.3	0.6	1.8	2.1	3.2	5.4	10.6	15.5	15.5	18.2	35.6
10	41	9.5	0.1	0.2	0.2	0.3	0.5	1.6	1.6	2.5	4.2	9.1	13.1	13.4	15.8	33.0
20	26	7.4	0.1	0.1	0.1	0.2	0.3	1.1	1.4	2.1	2.5	5.2	9.8	10.1	13.9	27.4
40	11	3.3	0.0	0.1	0.0	0.1	0.2	0.4	0.6	0.6	1.1	2.0	3.6	5.6	7.3	11.9
60	43	44.5	0.0	0.0	0.1	0.2	0.5	1.0	2.6	6.3	12.5	24.7	42.9	70.2	105.3	178.9
73	76	50.5	0.1	0.1	0.3	0.6	1.1	2.3	5.1	9.5	16.6	29.1	52.0	80.3	113.6	194.2

SAMPLE DEPTH	CUMULATIVE VOLUME	CUMULATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION G-3																
0	34	10.2	0.1	0.1	0.1	0.2	0.5	1.6	1.6	2.5	4.3	9.0	11.9	12.9	16.5	40.6
5	43	50.1	0.1	0.1	0.2	0.4	0.6	1.5	2.0	2.6	4.4	8.6	12.4	14.5	22.3	431.3
20	24	8.5	0.1	0.1	0.1	0.2	0.4	0.8	0.9	1.4	2.7	5.3	9.5	11.8	16.4	35.8
40	20	10.3	0.0	0.1	0.1	0.2	0.3	0.4	1.0	1.8	2.8	4.9	8.8	14.7	21.4	46.4
50	17	10.5	0.0	0.1	0.1	0.1	0.3	0.4	0.8	1.4	2.5	4.7	7.3	13.8	19.0	55.1
65	26	5.0	0.0	0.1	0.1	0.1	0.3	0.2	0.5	0.9	1.5	2.4	4.7	7.4	11.6	20.2
75	39	40.0	0.0	0.0	0.1	0.2	0.5	1.0	2.3	5.3	10.4	19.7	34.8	59.3	89.2	177.0
95	49	46.4	0.1	0.1	0.1	0.2	0.4	1.3	2.9	5.8	11.4	19.5	34.6	59.4	98.5	229.8
STATION G-4																
0	44	17.4	0.1	0.2	0.1	0.3	0.6	1.5	1.5	2.5	5.2	11.4	15.6	16.8	25.0	94.0
10	65	63.3	0.1	0.1	0.2	0.2	0.5	1.5	1.7	2.9	5.0	70.2	26.3	30.2	99.2	395.2
30	34	9.3	0.2	0.1	0.2	0.2	0.2	0.4	0.6	1.2	1.9	4.1	7.6	11.0	16.2	49.2
40	19	11.2	0.0	0.1	0.1	0.2	0.2	0.3	0.7	1.0	2.4	4.1	8.0	12.7	19.3	63.2
60	6	4.3	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.7	0.8	1.8	3.4	6.0	9.6	19.5
80	8	13.2	0.0	0.0	0.0	0.0	0.1	0.2	0.5	1.0	1.8	3.7	7.2	12.0	21.6	83.7
100	22	21.2	0.1	0.0	0.1	0.1	0.1	0.3	0.8	1.8	3.4	7.4	13.2	22.3	38.1	124.5
153	37	44.2	0.0	0.0	0.1	0.3	0.3	1.0	2.0	4.0	8.6	15.5	29.0	48.5	82.3	250.6

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION G-5																
0	37	16.3	0.1	0.1	0.2	0.1	0.5	1.4	1.6	2.2	4.8	9.1	12.3	16.8	23.3	90.8
10	49	25.0	0.1	0.1	0.2	0.4	0.8	1.4	1.7	2.9	4.8	9.3	12.9	17.3	28.2	170.1
20	32	10.5	0.1	0.1	0.2	0.2	0.3	0.7	1.0	1.7	2.7	5.2	8.8	12.4	18.8	53.1
35	23	24.6	0.1	0.1	0.1	0.1	0.2	0.4	0.5	0.8	1.4	2.3	3.9	6.9	12.1	217.6
55	119	15.7	0.0	0.1	0.1	0.1	12.2	6.5	3.5	1.9	4.0	6.5	8.5	11.8	14.4	87.3
75	25	67.4	0.0	0.1	0.0	0.1	0.2	0.3	0.7	1.6	2.9	6.0	10.8	19.2	36.5	596.0
95	17	19.3	0.0	0.0	0.1	0.1	0.2	0.4	1.0	2.4	4.7	8.1	14.5	25.1	39.3	96.9
STATION G-6																
0	43	19.2	0.0	0.2	0.2	0.3	0.7	1.7	1.9	2.1	3.9	7.8	14.0	16.9	24.2	117.8
10	54	145.3	0.1	0.1	0.1	0.3	0.6	1.4	1.8	2.0	3.9	8.3	14.4	19.8	34.2	365.9
20	35	15.0	0.1	0.0	0.2	0.2	0.5	1.0	1.2	2.3	4.0	7.6	14.2	17.9	24.9	76.5
35	8	5.8	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.5	0.8	1.5	2.8	5.0	8.1	38.8
55	9	3.5	0.0	0.1	0.0	0.1	0.1	0.2	0.3	0.5	0.8	1.4	2.5	4.7	6.8	17.7
75	12	2.8	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.6	0.4	1.0	1.7	2.9	5.1	15.2
95	39	5.7	0.3	0.2	0.1	0.0	0.1	0.2	0.2	0.3	0.6	1.1	1.8	3.5	6.9	41.9

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION G-7																
0	101	184.4	0.1	0.2	0.2	0.4	0.7	2.0	2.0	3.4	7.2	75.3	41.4	119.5	969.4	622.3
5	44	50.1	0.0	0.1	0.1	0.4	1.0	2.2	2.1	3.5	7.0	12.1	15.4	19.3	28.3	409.4
10	242	177.5	0.1	0.1	0.2	0.3	0.6	1.6	2.1	194.5	38.2	25.6	75.1	184.9	858.0	394.1
20	63	49.4	0.0	0.1	0.1	0.1	0.2	0.3	0.5	0.7	1.2	2.2	4.9	9.5	402.7	1071.9
30	22	6.9	0.0	0.2	0.1	0.1	0.1	0.4	0.4	0.8	1.2	2.5	4.8	8.3	12.4	37.6
50	155	75.2	0.1	0.1	0.1	0.1	0.2	0.2	28.9	18.1	0.8	1.6	3.8	941.6	287.1	469.4
75	38	18.4	0.1	0.0	0.1	0.3	0.6	1.6	1.9	3.4	7.0	11.1	14.3	20.1	29.6	94.2
100	37	100.9	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.6	1.1	2.4	404.4	286.8	312.9

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION H-I																
0	51	8.7	0.1	0.2	0.2	0.3	1.0	1.4	1.5	3.1	5.7	8.2	10.3	10.3	13.0	31.5
10	50	8.3	0.1	0.1	0.3	0.4	0.9	1.5	1.6	3.1	5.9	8.6	10.5	10.2	11.7	27.9
25	47	9.2	0.1	0.1	0.2	0.3	0.8	1.4	1.7	3.3	6.2	8.8	11.0	10.9	14.8	32.4
35	30	10.6	0.0	0.0	0.2	0.3	0.6	1.0	1.3	2.7	5.1	9.7	13.2	13.5	18.7	39.7
50	38	9.9	0.1	0.1	0.2	0.4	0.5	0.6	1.1	1.9	3.6	6.6	10.1	12.9	20.9	39.7
75	23	6.0	0.1	0.1	0.2	0.2	0.3	0.3	0.6	1.1	1.9	3.4	6.0	9.5	13.7	23.0
100	19	15.9	0.0	0.0	0.1	0.1	0.1	0.3	0.7	2.0	4.1	8.2	13.8	23.3	37.3	69.4
STATION H-2																
0	28	13.5	0.0	0.1	0.1	0.3	0.3	0.7	0.7	1.4	4.1	9.5	18.4	26.9	22.3	50.5
10	20	16.0	0.0	0.0	0.1	0.2	0.3	0.5	0.9	1.8	4.3	11.9	21.4	29.4	27.2	62.4
30	24	12.0	0.1	0.1	0.0	0.1	0.2	0.3	0.6	1.6	3.5	7.8	16.2	20.9	22.6	46.1
70	4	3.9	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.6	1.1	1.8	3.9	5.3	7.4	17.9
105	8	6.7	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.9	2.0	3.7	6.3	10.6	15.8	27.0

COUNTS X 10^{-2}
CHANNEL NUMBER

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION H-3																
0	14	13.7	0.0	0.0	0.1	0.1	0.2	0.3	0.7	1.4	3.2	8.7	18.1	25.0	26.8	52.6
20	31	15.0	0.1	0.1	0.1	0.1	0.2	0.5	0.8	1.7	3.5	8.7	17.1	22.3	27.4	67.6
60	8	3.1	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.5	0.8	1.4	2.8	4.5	5.8	14.4
85	6	3.6	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.6	0.5	1.8	2.9	5.1	7.8	16.0
105	7	9.2	0.0	0.0	0.0	0.0	0.1	0.2	0.4	1.2	2.2	3.6	6.1	11.1	18.7	48.2

SAMPLE DEPTH	CUMU-LATIVE VCLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION I-I																
0	22	13.9	0.1	0.C	0.1	0.1	0.2	0.7	1.0	1.6	3.4	8.9	18.1	26.4	27.9	51.3
5	39	12.7	0.1	0.2	0.2	0.3	0.2	0.6	0.7	1.4	3.4	8.3	16.5	34.3	26.6	44.7
10	23	12.9	0.0	0.1	0.3	0.1	0.2	0.5	0.8	1.7	3.5	8.7	17.6	25.8	26.6	44.2
20	18	13.6	0.0	0.1	0.1	0.0	0.2	0.5	0.9	1.6	3.3	8.3	16.9	21.8	28.7	53.7
30	11	7.7	0.C	0.0	0.0	0.0	0.1	0.3	0.3	0.9	2.1	4.6	7.8	11.6	14.1	34.7
50	9	30.0	0.0	1.0	0.0	1.0	1.0	2.C	2.0	6.0	8.1	1.5	2.5	4.4	6.5	12.9
75	5	3.9	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.6	0.9	2.0	3.0	6.1	9.0	16.3
100	15	7.4	0.0	0.1	0.0	0.0	0.1	C.2	0.6	1.6	2.5	4.3	6.4	11.1	17.2	30.3
STATION I-2																
0	19	17.1	0.0	0.0	0.0	0.1	0.1	C.5	0.9	1.8	4.1	11.8	26.5	39.5	40.9	44.5
5	23	17.6	0.0	0.1	0.1	0.1	0.1	0.5	1.1	1.6	3.9	12.5	25.8	40.1	40.9	49.5
10	29	17.8	0.0	0.C	0.1	0.2	0.5	C.9	1.7	2.7	4.9	12.6	25.9	40.5	40.8	47.4
20	27	12.5	0.1	0.1	0.2	0.1	0.2	0.6	0.8	1.6	3.1	7.2	16.0	24.1	30.8	39.8
30	26	4.3	0.2	0.1	0.1	0.5	0.1	0.2	0.5	C.9	1.5	3.2	4.4	6.0	7.5	18.6
5C	10	4.1	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.6	1.1	2.0	3.6	5.7	9.3	18.2
75	8	5.4	0.0	0.C	0.0	0.1	0.1	C.2	0.3	C.7	1.6	2.7	4.6	7.4	13.8	22.9
100	13	7.6	0.0	0.C	0.1	0.1	0.2	0.3	0.7	1.2	2.6	4.1	7.8	11.3	16.9	30.8
118	29	15.8	0.0	0.1	0.2	0.2	0.3	C.7	1.3	2.9	4.7	8.6	14.9	24.2	36.5	63.9

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION I-3																
0	19	13.0	0.0	0.0	0.1	0.1	0.2	0.4	1.0	1.2	2.8	7.8	17.9	27.2	32.2	39.1
10	13	13.3	0.0	0.0	0.0	0.0	0.1	0.6	0.8	1.5	3.3	8.5	17.4	25.3	30.9	44.2
30	13	8.4	0.0	0.3	0.1	0.0	0.2	0.2	0.6	1.1	2.3	5.3	11.1	13.9	18.7	30.4
60	3	2.9	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.8	1.5	2.8	4.6	6.6	12.3
75	30	33.0	0.0	0.0	0.0	0.0	1.0	1.0	0.4	0.4	1.0	1.8	3.2	5.5	7.2	13.0
90	8	7.3	0.0	0.0	0.1	0.1	0.1	0.2	0.6	0.9	1.9	3.8	6.5	11.3	17.0	30.3
98	28	24.1	0.0	0.0	0.1	0.1	0.4	0.8	1.9	4.3	6.9	13.8	21.7	37.5	56.2	97.2
STATION I-4																
0	23	14.8	0.0	0.1	0.1	0.1	0.2	0.6	1.2	2.1	3.3	9.5	19.6	29.7	36.8	45.2
10	15	14.6	0.0	0.0	0.1	0.1	0.1	0.4	0.9	1.5	3.7	9.5	17.4	27.4	34.9	50.4
35	14	7.8	0.0	0.0	0.1	0.1	0.3	0.4	0.9	1.6	2.7	5.8	10.1	11.8	15.6	28.5
50	7	3.9	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.6	1.7	2.4	4.2	5.4	7.7	16.4
75	6	7.2	0.0	0.0	0.0	0.0	0.1	0.1	0.5	1.0	1.9	3.4	5.9	11.1	17.6	30.3
93	34	30.8	0.0	0.0	0.1	0.2	0.5	0.9	2.4	5.1	9.9	8.1	29.7	49.6	69.9	121.5

SAMPLE DEPTH	CUMU-LATIVE VCLUME	CUMU-LATIVE COUNT X 10^{-3}	CCUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION I-5																
0	46	49.3	0.0	0.0	0.1	0.1	0.3	C.9	1.3	2.3	4.7	16.2	230.1	51.5	77.5	107.9
10	25	16.9	0.0	0.C	0.1	0.1	0.3	C.8	1.7	2.5	5.4	.13.5	23.2	33.2	36.8	51.4
25	21	12.4	0.0	0.0	0.1	0.2	0.4	0.7	1.2	1.9	3.8	1C.4	19.5	22.2	27.6	36.0
45	22	3.3	0.1	0.1	0.1	C.1	C.1	C.3	0.6	0.8	1.4	2.3	4.1	5.1	6.3	11.9
70	20	18.1	0.0	0.1	0.0	0.1	0.1	C.4	1.0	2.5	6.3	1C.9	17.9	27.9	43.4	70.8
80	38	32.2	0.C	0.C	0.1	0.2	C.3	1.1	2.5	6.2	11.9	21.2	33.7	52.3	73.9	118.3
91	60	50.9	0.0	C.C	0.1	0.3	0.8	2.1	4.3	9.3	18.0	32.3	51.3	79.1	116.4	194.5

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION I-6																
0	28	16.2	0.0	0.1	0.1	0.1	0.3	0.8	1.0	2.5	4.6	12.9	23.5	32.7	37.0	46.0
10	40	14.8	0.0	0.1	0.2	0.4	0.6	1.3	1.8	2.4	5.8	13.1	19.7	26.4	31.0	45.5
25	41	12.7	0.0	0.1	0.1	0.4	0.8	1.1	1.8	3.4	7.4	13.9	16.2	15.4	22.7	43.2
45	19	6.9	0.0	0.0	0.1	0.2	0.4	0.7	1.2	2.0	4.0	5.7	6.5	9.0	13.3	24.8
60	9	4.3	0.0	0.1	0.0	0.1	0.1	0.2	0.4	0.8	1.6	3.2	4.1	7.2	9.5	15.4
82	106	68.6	0.1	0.1	0.3	0.6	1.8	3.4	6.8	14.2	25.4	43.6	69.4	109.1	162.9	248.9
STATION I-7																
0	53	13.4	0.1	0.1	0.3	0.4	1.0	1.9	1.8	3.6	7.3	14.3	16.1	19.7	24.6	42.5
10	58	14.5	0.1	0.2	0.2	0.4	1.3	1.9	2.1	3.8	8.6	15.1	16.4	18.1	26.1	50.5
20	61	15.3	0.1	0.3	0.2	0.3	0.7	1.6	2.1	3.3	7.2	3.5	17.5	18.5	28.6	59.3
40	23	12.9	0.0	0.0	0.1	0.3	0.5	0.8	1.2	2.1	4.6	8.7	13.2	18.2	27.6	52.1
60	44	33.0	0.1	0.1	0.1	0.1	0.3	0.8	2.4	6.1	12.1	21.6	33.1	53.7	77.9	122.1
65	33	37.6	0.0	0.0	0.0	0.1	0.3	0.6	2.0	5.7	12.1	22.3	38.1	60.9	91.6	142.1
75	223	33.0	0.0	0.1	0.5	1.5	3.3	8.9	18.3	36.6	62.2	97.4	150.0	212.8	301.3	437.9

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION I-8																
0	67	11.5	0.2	0.1	0.3	0.8	1.1	1.8	1.7	3.5	8.7	12.3	12.4	13.9	18.1	40.0
5	63	17.3	0.1	0.1	0.3	0.4	0.9	1.8	2.1	4.5	11.2	18.7	22.2	24.7	30.4	55.3
20	31	25.8	0.0	0.0	0.1	0.1	0.3	0.5	1.3	4.4	9.3	18.5	29.6	41.7	58.9	93.8
25	33	31.0	0.0	0.0	0.1	0.1	0.3	0.6	1.6	4.8	11.1	21.1	34.0	50.2	72.9	113.2
35	34	36.1	0.0	0.0	0.1	0.1	0.3	0.6	1.9	5.0	11.8	25.1	39.2	58.2	87.0	131.6
50	48	48.1	0.0	0.0	0.0	0.1	0.4	1.2	3.4	8.3	17.3	31.1	50.5	75.2	115.5	177.5
59	101	135.4	0.0	0.2	0.6	1.1	2.4	6.0	12.7	27.7	480.6	82.8	165.8	314.3	283.4	408.7
STATION I-9																
0	58	23.3	0.1	0.1	0.2	0.3	0.6	1.4	2.0	5.3	12.2	20.2	28.7	35.8	45.4	80.6
5	58	27.2	0.1	0.2	0.2	0.3	0.6	1.6	2.1	5.2	11.5	20.8	27.3	94.4	40.9	67.3
10	62	23.3	0.1	0.2	0.3	0.4	0.8	19.0	20.0	4.1	9.6	18.1	27.1	35.4	48.2	86.1
20	42	36.5	0.0	0.0	0.1	0.2	0.4	1.2	2.6	6.8	14.5	25.3	39.0	56.1	83.8	135.4
30	47	29.4	0.1	0.1	0.1	0.2	0.5	1.1	2.5	5.8	12.6	22.1	34.4	46.9	60.6	106.7
45	84	46.8	0.1	0.2	0.3	0.5	0.8	29.1	40.3	9.7	19.5	33.3	51.4	73.6	101.6	170.3
54	350	184.7	0.1	0.3	0.9	2.6	6.0	149.7	280.5	49.7	80.5	125.6	185.5	278.1	461.5	613.5

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION J-1																
0	80	16.5	0.1	0.2	0.4	0.8	1.6	3.2	2.5	4.4	9.7	15.4	17.4	22.8	29.0	57.0
5	72	14.8	0.1	0.2	0.4	0.8	1.2	2.4	2.6	4.2	8.7	14.4	15.7	20.2	25.5	51.9
10	74	14.3	0.2	0.2	0.4	0.5	1.4	2.3	2.7	4.3	8.4	14.9	15.6	18.9	23.4	49.6
15	71	15.1	0.1	0.2	0.6	0.5	1.1	2.4	2.7	4.4	8.6	15.4	17.3	17.6	24.1	56.6
20	41	15.1	0.0	0.1	0.4	0.2	0.6	1.4	2.0	3.6	6.9	13.4	15.3	17.2	28.8	61.3
25	62	15.9	0.1	0.2	0.4	0.5	0.6	1.7	1.7	3.6	6.3	11.5	16.4	21.4	31.1	64.7
34	285	99.3	0.1	0.4	1.2	2.8	5.8	11.7	21.0	32.5	46.3	69.0	101.3	147.1	207.6	346.3
STATION J-2																
0	72	10.9	0.2	0.2	0.3	0.7	1.5	1.9	2.1	4.3	8.3	9.4	12.2	12.9	17.8	36.7
5	57	9.8	0.1	0.1	0.3	0.6	1.2	1.4	1.8	4.3	8.2	9.8	10.4	12.1	15.4	32.3
10	60	16.6	0.1	0.3	0.3	0.4	0.8	1.1	2.2	4.3	8.3	12.3	15.9	20.4	33.5	66.1
20	24	14.3	0.0	0.0	0.1	0.2	0.5	0.7	1.3	3.0	6.4	9.9	15.7	19.5	28.3	57.0
30	35	17.4	0.1	0.1	0.1	0.2	0.5	0.7	1.8	3.4	7.0	11.9	18.9	24.6	35.1	69.9
35	79	55.1	0.0	0.1	0.2	0.5	1.2	2.4	5.5	11.6	20.4	33.7	52.2	77.8	114.9	230.1
39	169	87.8	0.1	0.2	0.6	1.4	3.0	6.4	12.1	20.7	34.3	55.2	89.3	132.0	188.2	334.8

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT $\times 10^{-3}$	COUNTS $\times 10^{-2}$ CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION J-3																
0	176	57.3	0.2	0.5	0.8	1.9	2.8	3.7	7.9	16.5	41.8	36.5	42.2	59.1	104.0	255.3
5	161	38.3	0.2	0.4	1.2	1.9	2.6	3.7	6.6	14.9	17.6	21.2	26.4	33.8	64.4	188.2
10	120	33.6	0.2	0.4	0.4	1.2	1.7	2.7	5.9	12.7	15.6	17.1	20.6	29.6	60.2	168.2
20	94	54.7	0.1	0.3	0.3	0.6	1.3	1.9	4.6	9.9	17.0	31.4	46.8	72.4	126.5	233.8
25	99	65.8	0.1	0.2	0.3	0.5	1.0	2.4	6.0	11.5	21.9	38.0	60.5	90.3	148.8	276.2
39	229	144.8	0.1	0.2	0.7	1.8	3.8	7.6	15.6	29.9	52.8	87.6	140.9	210.8	306.8	589.8
STATION J-4																
0	177	44.5	0.2	0.7	0.9	2.2	2.6	3.7	7.7	15.8	17.1	19.5	24.4	34.3	70.1	245.9
5	136	49.4	0.1	0.4	0.7	1.6	2.6	3.9	7.1	15.8	17.1	20.2	28.4	41.6	77.0	277.2
10	258	72.4	0.2	0.7	1.7	3.5	5.1	6.6	11.7	22.3	27.9	37.2	53.0	76.5	127.2	350.6
20	128	43.4	0.0	0.3	0.6	0.6	2.6	1.1	2.6	5.4	11.5	16.9	23.1	31.2	54.4	90.5
30	237	121.2	0.2	0.3	0.7	2.0	4.3	8.7	16.4	29.8	46.8	73.7	112.3	164.1	247.3	505.3
43	344	148.1	0.2	0.5	1.7	3.1	6.6	11.9	21.6	36.8	55.8	88.6	138.9	204.1	306.1	605.2

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION K-1																
0	114	40.0	0.0	0.3	0.7	1.4	2.2	3.0	6.8	14.2	17.0	19.4	22.0	30.3	61.7	220.8
7	123	34.8	0.1	0.3	0.6	1.7	2.2	2.9	6.1	15.5	16.2	17.3	18.5	25.7	53.2	188.1
14	74	31.4	0.1	0.2	0.3	0.6	0.8	1.4	3.5	10.2	15.3	16.0	19.2	30.8	58.7	156.9
25	66	18.3	0.2	0.2	0.3	0.5	0.7	1.0	2.1	4.3	7.1	9.9	11.2	18.3	40.2	87.1
35	90	67.0	0.1	0.1	0.3	0.5	1.0	2.3	4.8	11.2	20.6	37.6	60.2	94.9	145.1	291.7
44	234	154.2	0.1	0.3	0.5	1.6	3.5	7.4	15.8	30.7	55.9	89.9	147.5	223.7	337.1	627.6
STATION K-2																
0	145	50.6	0.2	0.4	0.8	1.4	2.2	3.3	7.8	15.5	17.6	19.8	22.4	32.0	70.6	311.7
5	183	42.1	0.4	0.6	1.0	1.9	2.5	3.4	7.0	14.1	17.0	17.3	20.3	25.6	57.5	252.9
15	46	18.9	0.1	0.2	0.3	0.4	0.6	0.9	1.8	3.6	7.1	10.6	12.8	18.1	33.9	99.2
25	34	13.1	0.1	0.1	0.2	0.2	0.3	0.4	1.2	2.3	4.2	5.7	8.5	11.7	22.4	74.0
40	95	95.5	0.1	0.0	0.1	0.5	1.1	2.5	6.4	14.9	27.9	50.1	86.0	136.2	202.8	427.6
45	549	25.0	0.3	0.7	1.8	4.8	10.9	22.6	42.0	67.1	99.3	148.6	223.6	323.1	449.3	856.4

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
								STATION K-3								
0	161	43.9	0.3	0.6	1.0	1.6	2.3	2.5	5.1	11.6	14.7	17.4	22.0	29.1	65.8	265.4
5	152	44.7	0.3	0.5	1.0	1.2	1.8	2.8	5.9	12.7	15.7	17.3	21.9	26.4	62.6	276.8
10	117	37.7	0.3	0.2	0.7	0.9	1.4	2.4	4.7	11.2	16.3	18.0	21.6	25.2	55.3	219.2
25	43	16.7	0.2	0.1	0.2	0.1	0.4	0.6	1.2	3.3	6.3	8.5	11.3	13.8	29.0	91.8
45	53	33.3	0.2	0.2	0.1	0.1	0.3	0.8	1.9	4.7	9.2	16.1	28.0	43.5	68.1	159.6
52	300	168.7	0.1	0.3	0.7	2.3	5.5	12.5	22.5	38.1	59.8	98.8	159.3	241.6	359.1	686.1
								STATION K-4								
0	92	31.0	0.2	0.2	0.4	1.1	1.5	2.1	4.4	8.7	12.9	16.0	18.2	21.0	48.7	174.3
10	164	43.4	0.1	0.7	1.2	1.6	2.5	3.5	6.4	13.0	17.4	17.7	18.7	29.2	62.5	259.0
20	104	31.3	0.1	0.3	0.9	1.0	1.1	1.9	3.5	7.8	14.7	18.4	23.3	30.9	57.7	151.7
30	23	18.9	0.0	0.0	0.1	0.2	0.4	0.8	1.7	3.7	5.5	9.2	14.7	25.0	32.7	95.5
45	10	8.7	0.0	0.0	0.0	0.1	0.1	0.2	0.5	1.2	1.9	3.1	6.5	8.3	14.5	51.0

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION K-5																
0	83	26.9	0.1	0.3	0.4	0.9	1.1	2.0	3.4	7.9	12.1	15.2	17.5	19.0	44.9	144.3
10	96	33.2	0.1	0.2	0.5	1.0	1.6	2.8	4.9	9.4	14.4	19.8	21.8	28.9	57.7	168.7
20	60	23.8	0.0	0.2	0.5	0.5	0.7	1.5	2.6	6.1	10.5	13.8	16.5	24.7	44.5	115.9
30	23	13.3	0.1	0.1	0.0	0.1	0.2	0.4	0.8	1.7	2.9	5.2	8.1	12.9	30.6	69.7
50	299	58.2	0.1	0.3	0.7	1.9	5.2	12.2	25.6	44.3	68.3	106.9	161.5	228.2	319.0	607.6
58	25	31.0	0.0	0.0	0.0	0.1	0.2	0.7	2.0	4.9	8.8	15.5	27.3	43.2	68.6	138.9
STATION K-6																
0	90	22.3	0.2	0.4	0.6	0.9	1.0	1.4	2.5	5.4	9.1	11.8	13.2	16.2	37.2	123.0
10	87	31.6	0.1	0.2	0.6	0.9	0.8	1.9	3.5	7.2	11.5	15.9	21.9	29.7	55.1	167.0
20	21	12.5	0.1	0.0	0.0	0.2	0.2	0.4	0.7	1.4	2.2	4.2	7.3	12.4	26.6	69.0
30	11	7.7	0.0	0.0	0.1	0.1	0.1	0.2	0.5	0.8	1.8	3.0	6.1	8.3	15.4	41.2
55	84	63.3	0.0	0.1	0.2	0.4	1.0	2.9	7.0	13.6	22.3	37.0	59.1	88.7	127.0	273.9
73	278	127.6	0.2	0.2	0.7	1.9	5.1	11.1	22.9	39.1	57.4	85.3	127.7	181.6	251.0	492.4

COUNTS X 10^{-2}
CHANNEL NUMBER

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION K-7																
0	149	36.3	0.1	0.7	1.3	1.4	1.6	2.5	4.5	11.3	14.8	17.2	20.2	28.8	56.5	201.8
5	148	37.2	0.3	0.5	0.9	1.1	1.5	2.7	5.0	11.2	14.3	17.4	18.3	24.8	52.9	221.5
10	176	48.9	0.2	0.6	1.4	2.2	2.4	3.1	6.4	13.6	19.8	21.5	24.4	34.2	69.0	290.7
15	74	27.4	0.1	0.2	0.5	0.8	0.8	1.1	2.2	5.8	11.1	15.3	20.7	26.2	45.9	143.0
20	32	16.9	0.0	0.1	0.2	0.3	0.4	0.6	1.1	2.9	5.5	9.1	14.4	16.2	30.4	87.8
35	19	9.1	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.9	1.5	3.5	6.1	9.7	17.7	50.5
50	62	52.5	0.0	0.1	0.2	0.2	0.6	2.0	4.5	9.5	16.4	27.0	45.5	71.4	108.6	239.0
90	129	93.6	0.2	0.2	0.4	0.8	1.4	3.5	6.9	13.3	23.5	42.0	73.3	121.7	197.6	450.6
STATION K-8																
0	242	38.8	0.4	1.2	1.9	2.5	2.5	3.2	5.9	14.3	18.9	18.7	21.5	29.6	59.0	208.9
7	289	42.1	0.6	1.3	2.3	2.9	3.3	4.4	7.1	15.4	19.3	19.9	21.3	30.4	64.4	228.4
25	87	27.2	0.3	0.2	0.3	0.6	0.8	1.6	3.5	8.2	12.5	14.8	18.5	24.8	43.9	141.8
35	32	17.5	0.1	0.1	0.2	0.2	0.4	0.7	1.6	3.6	6.5	9.2	14.7	18.0	30.5	89.3
60	13	11.3	0.0	0.0	0.0	0.1	0.2	0.5	0.9	2.2	2.9	4.8	8.9	13.5	20.0	58.5
85	19	17.9	0.0	0.0	0.0	0.1	0.1	0.7	1.4	2.9	4.9	8.9	14.2	25.0	36.9	84.5
95	56	40.4	0.1	0.1	0.2	0.3	0.8	1.8	3.8	6.6	12.0	20.0	35.0	55.8	87.3	180.7

SAMPLE DEPTH	CUMU-LATIVE VCLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
								STATION K-9								
0	211	22.4	0.9	0.6	1.1	1.9	2.8	2.7	3.8	4.2	6.6	11.0	13.6	18.8	38.4	117.8
10	193	25.9	0.6	0.8	1.0	1.8	2.9	2.9	3.6	4.8	7.0	10.8	14.2	21.4	41.7	145.5
30	195	50.3	0.6	0.9	0.9	1.3	3.1	3.9	4.5	5.3	8.4	13.2	17.0	22.9	48.C	372.9
40	69	17.9	0.1	0.2	0.4	1.0	1.3	2.2	3.5	4.8	5.4	9.0	12.3	15.6	28.8	94.7
60	53	15.2	0.1	0.1	0.3	0.5	0.6	1.0	1.8	2.9	4.6	7.3	11.2	16.2	27.2	78.6
80	21	8.7	0.1	C.1	0.1	0.1	0.3	C.3	0.6	0.9	1.6	3.1	5.1	8.3	12.7	53.6

			COUNTS X 10^{-2} CHANNEL NUMBER													
SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
								STATION K-10								
0	64	53.7	0.1	0.1	0.2	0.7	1.0	1.6	3.3	6.8	13.0	18.6	25.1	24.7	53.8	387.7
10	63	44.8	0.1	0.1	0.2	0.8	1.3	1.7	3.0	6.3	11.8	16.1	21.0	25.2	50.3	309.8
20	65	43.5	0.1	0.1	0.3	0.8	1.3	1.8	3.1	5.5	11.9	16.0	20.2	22.9	43.4	308.0
37	125	48.3	0.2	0.5	0.6	1.1	2.1	3.1	3.6	5.9	11.0	17.0	22.0	30.0	62.5	324.5
50	59	30.5	0.1	0.2	0.3	0.6	0.8	1.4	2.3	3.2	6.0	10.3	15.2	18.0	38.7	207.6
60	56	22.2	0.1	0.2	0.2	0.7	0.9	1.4	2.0	3.0	5.0	7.9	11.8	16.7	33.4	138.8
100	29	17.5	0.0	0.1	0.1	0.1	0.4	0.9	1.9	3.4	5.2	8.7	14.9	23.6	35.5	80.0
								STATION K-11								
0	63	57.0	0.1	0.1	0.1	0.4	1.1	1.6	3.4	7.1	17.2	27.5	39.7	37.4	76.9	357.5
5	53	59.9	0.0	0.1	0.1	0.3	0.8	1.5	2.7	7.1	16.0	25.2	39.7	42.0	85.3	378.4
10	51	59.8	0.0	0.1	0.1	0.3	0.8	1.2	3.1	6.2	15.7	25.6	37.3	36.8	82.2	388.3
15	44	54.6	0.0	0.0	0.1	0.3	0.6	1.3	2.7	5.3	12.8	21.2	30.9	33.5	74.0	362.9
40	19	40.3	0.0	0.0	0.0	0.1	0.2	0.5	1.0	1.8	4.0	5.6	9.1	14.3	50.6	316.2
57	15	31.9	0.0	0.0	0.0	0.1	0.1	0.4	0.8	1.4	2.8	5.0	8.6	14.5	25.3	259.7
80	24	38.9	0.0	0.1	0.0	0.1	0.3	0.8	1.6	3.1	4.2	7.8	13.5	23.4	38.9	295.8
100	47	34.5	0.3	0.1	0.0	0.1	0.2	0.8	1.5	2.0	3.2	5.1	9.7	15.9	26.4	280.3

SAMPLE DEPTH	CUMULATIVE VOLUME	CUMULATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION L-1																
0	57	60.0	0.0	0.1	0.1	0.4	1.0	1.5	3.0	6.0	15.6	23.9	35.2	38.0	84.5	387.9
5	60	57.1	0.1	0.1	0.1	0.4	1.0	1.5	2.8	5.2	13.4	23.4	33.3	33.4	72.3	384.0
15	72	49.9	0.4	0.1	0.2	0.3	0.4	1.0	1.6	2.9	6.8	13.7	18.1	25.4	60.0	368.6
25	44	51.6	0.1	0.1	0.1	0.1	0.4	1.0	2.0	2.1	7.3	14.0	21.5	27.8	84.7	354.5
50	21	31.6	0.1	0.0	0.0	0.1	0.2	0.4	0.9	1.8	3.0	5.2	9.9	15.0	36.7	242.9
75	21	28.8	0.0	0.1	0.1	0.1	0.3	0.6	1.0	1.6	3.2	5.4	9.9	15.0	26.1	225.2
100	24	32.9	0.0	0.0	0.1	0.1	0.3	0.8	1.8	2.6	4.4	7.5	11.9	19.8	31.6	247.8
STATION L-2																
0	107	110.5	0.2	0.2	0.3	1.0	1.3	2.0	3.9	8.6	17.6	27.4	36.4	38.7	99.7	867.6
10	60	63.9	0.1	0.1	0.2	0.4	0.9	1.8	3.2	5.9	12.6	20.6	29.2	27.8	650.1	471.6
25	75	58.6	0.1	0.2	0.3	0.6	0.9	2.2	4.0	7.3	13.4	19.8	31.7	37.5	68.1	400.4
40	107	45.2	0.3	0.3	0.6	0.6	1.3	3.2	4.4	4.5	6.8	11.6	16.1	23.4	46.9	332.0
60	59	49.6	0.2	0.1	0.2	0.3	0.5	1.6	3.1	5.0	8.0	13.8	21.9	35.9	60.3	345.5
87	74	80.9	0.1	0.0	0.1	0.3	1.0	2.4	5.6	10.4	16.9	28.0	47.5	72.9	114.9	508.7
100	99	88.5	0.1	0.1	0.3	0.5	1.2	2.8	6.4	11.2	19.0	32.9	52.5	81.4	129.1	547.5

			COUNTS X 10^{-2} CHANNEL NUMBER													
SAMPLE DEPTH	CUMU-LATIVE VCLUME	CUMU-LATIVE COUNT, X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13

STATION L-3

SAMPLE DEPTH	CUMU-LATIVE VCLUME	CUMU-LATIVE COUNT, X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
0	140	92.8	0.5	0.2	0.7	1.3	1.3	1.7	3.2	4.8	9.6	21.7	31.9	47.4	100.7	702.9
10	197	53.8	1.2	0.3	0.4	1.3	1.5	1.4	2.6	3.5	7.6	15.1	16.3	30.7	61.6	394.9
20	193	98.1	0.7	0.3	0.5	1.9	4.4	3.5	4.0	4.4	7.8	14.8	18.3	32.3	73.2	815.0
30	161	54.3	C.6	0.3	0.6	1.2	2.4	4.5	5.5	55.1	8.1	16.3	21.9	34.9	60.9	380.9
43	175	64.1	C.5	0.4	0.7	1.4	3.4	5.7	7.4	7.C	10.5	19.6	26.2	38.5	72.6	447.5
50	96	47.6	0.2	0.2	0.4	0.7	1.6	2.8	4.3	5.9	7.6	12.3	17.6	24.0	42.2	355.9
60	111	68.3	C.2	0.2	0.4	1.0	1.9	3.0	5.9	7.8	12.2	21.4	31.7	47.1	84.1	465.8
65	462	168.8	0.7	1.2	2.4	4.3	7.3	14.C	24.1	32.6.	46.4	72.1	107.2	159.8	274.6	941.4

COUNTS X 10^{-2}

SAMPLE DEPTH	CUMULATIVE VOLUME	CUMULATIVE COUNT X 10^{-3}	0	1	2	3	4	5	6	7	8	9	10	11	12	13
			CHANNEL NUMBER													
STATION L-4																
0	101	102.7	0.1	0.1	0.3	1.1	1.0	2.2	6.9	13.1	21.7	35.1	40.7	63.5	126.8	713.9
5	120	123.9	0.2	0.2	0.3	1.3	1.0	1.8	5.9	11.6	19.7	33.3	35.4	57.6	133.2	938.1
15	136	99.5	0.5	0.3	0.4	0.9	1.3	2.3	5.6	7.8	8.6	14.5	24.5	53.3	124.8	750.2
25	73	51.9	0.3	0.1	0.3	0.5	0.5	0.7	1.7	2.9	5.9	9.5	14.2	26.4	59.1	396.5
35	66	48.9	0.3	0.1	0.2	0.4	0.5	1.0	1.5	2.6	5.0	9.2	13.4	20.0	47.9	387.8
41	52	74.8	0.1	0.1	0.1	0.3	0.5	1.6	2.5	5.0	9.4	17.2	28.6	44.2	88.1	550.6
45	110	123.2	0.0	0.1	0.1	0.6	1.3	3.2	7.7	15.6	27.9	46.1	75.0	1179.5	195.4	741.6
50	228	173.2	0.2	0.3	0.7	1.6	3.2	7.3	14.7	279.4	43.5	70.6	111.6	173.6	285.4	992.4

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT $\times 10^{-3}$	COUNTS $\times 10^{-2}$ CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION M-I																
0	104	61.2	0.3	0.2	0.4	1.5	1.3	1.6	3.7	5.1	7.5	11.3	14.9	28.7	73.9	461.3
5	120	58.4	0.4	0.4	0.4	1.2	1.2	1.9	3.8	5.5	7.8	12.0	16.1	29.8	69.8	433.6
12	128	70.5	0.5	0.4	0.4	0.8	1.4	1.9	4.2	6.0	7.3	11.9	18.0	38.8	89.8	523.7
15	121	78.2	0.3	0.3	0.4	1.1	1.7	2.9	5.6	8.3	11.2	17.8	25.9	47.8	101.8	557.3
25	73	45.5	0.2	0.2	0.3	0.5	0.7	1.3	2.2	3.4	5.9	9.3	11.9	24.9	52.4	341.6
35	81	101.3	0.1	0.1	0.1	0.3	0.8	1.8	5.0	10.7	20.7	37.0	59.1	95.2	162.2	620.1
STATION M-2																
0	119	70.7	0.3	0.2	0.5	1.3	1.3	2.2	6.0	8.4	11.7	16.6	19.5	34.8	88.5	516.4
5	129	74.6	0.3	0.2	0.4	1.4	1.3	2.9	6.1	9.5	13.9	19.3	25.4	43.8	98.2	523.3
10	107	64.3	0.2	0.3	0.5	0.8	1.1	2.2	5.0	7.7	10.0	14.3	18.3	32.9	73.9	475.9
15	152	68.4	0.5	0.2	0.5	1.4	1.8	3.4	5.5	9.4	13.1	19.7	21.2	38.4	92.5	476.1
20	137	70.9	0.0	0.1	0.4	1.1	1.3	2.3	4.6	8.4	14.7	21.5	28.3	48.5	97.4	479.3
25	76	52.1	0.3	0.2	0.2	0.4	0.7	1.3	3.2	4.6	89.6	12.9	18.6	33.6	65.7	370.3
32	60	56.3	0.2	0.1	0.2	0.2	0.5	1.2	2.4	4.8	8.4	16.4	22.7	36.7	66.0	403.2

SAMPLE DEPTH	CUMU- LATIVE VOLUME	CUMU- LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION M-3																
0	197	0.4	0.6	0.4	0.6	1.7	2.0	3.6	8.1	12.9	20.8	24.0	31.4	60.9	149.0	624.4
5	156	98.6	0.4	0.3	0.5	1.4	1.8	3.7	7.2	11.4	18.8	28.6	37.6	67.4	148.7	658.2
12	113	61.8	0.5	0.2	0.4	0.6	0.9	1.9	4.4	6.5	12.4	189.3	24.8	43.0	84.3	419.3
15	90	57.6	0.2	0.3	0.3	0.5	0.7	1.6	3.6	5.2	10.4	16.2	24.0	44.5	76.3	391.0
17	76	55.4	0.2	0.1	0.3	0.5	0.8	1.7	3.7	6.2	9.2	15.2	25.6	41.4	77.6	371.8
25	86	90.8	0.1	0.1	0.2	0.4	0.9	2.1	5.4	11.4	19.7	32.7	50.6	79.7	138.2	566.2
30	103	91.6	0.2	0.1	0.2	0.5	1.0	2.8	6.4	12.2	22.2	35.5	52.8	82.8	141.5	557.4
STATION M-4																
0	231	187.8	0.5	0.3	0.7	1.2	2.2	6.0	15.9	289.5	41.5	52.0	69.8	133.6	316.3	1210.1
4	193	137.5	0.3	0.3	0.7	1.1	2.0	5.6	13.6	22.8	37.8	47.9	54.0	95.8	227.9	865.0
10	184	90.5	0.5	0.3	0.6	0.9	2.1	5.0	10.5	17.9	27.8	36.5	39.5	62.6	134.4	566.0
15	134	88.5	0.4	0.2	0.5	0.7	1.2	2.1	5.7	9.9	18.3	32.0	38.3	62.8	122.5	590.1
22	99	75.9	0.2	0.2	0.4	0.6	1.1	2.3	4.4	8.6	14.9	26.1	35.2	57.5	110.3	498.0
30	109	109.7	0.2	0.1	0.2	0.5	1.1	3.2	6.5	13.8	22.9	38.5	61.4	102.6	175.3	670.9

SAMPLE DEPTH	CUMULATIVE VOLUME	CUMULATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
STATION M-5																
0	247	138.8	0.4	0.5	1.2	2.2	3.7	7.9	14.3	16.0	18.1	58.5	68.8	116.2	241.4	834.7
8	227	87.5	0.5	0.7	1.7	1.8	1.9	4.1	8.8	11.2	13.2	45.2	48.5	63.1	144.6	529.7
15	166	79.8	0.4	0.3	0.7	1.0	1.3	3.2	7.0	12.7	20.8	61.0	62.0	55.3	147.7	424.3
20	128	103.2	0.2	0.2	0.4	0.6	1.1	2.6	7.1	14.7	27.3	72.2	85.2	96.4	203.9	519.8
25	167	164.1	0.1	0.1	0.2	0.6	1.3	4.5	11.6	25.1	47.2	106.2	143.1	174.9	318.8	808.3
30	202	181.7	0.1	0.2	0.4	1.0	2.0	5.9	149.2	30.0	51.8	112.4	157.9	225.4	344.9	871.5
STATION M-6																
0	252	17.3	0.4	0.5	1.3	2.6	2.6	4.5	11.1	19.2	19.5	54.0	67.5	87.4	317.9	1584.8
4	220	115.8	0.4	0.5	1.0	2.5	2.4	4.3	11.1	16.7	16.1	51.3	60.2	51.9	180.3	758.9
11	218	132.4	0.4	0.5	0.9	1.9	2.2	4.6	11.7	17.6	22.2	60.5	75.5	90.6	225.3	809.9
16	136	81.1	0.2	0.3	0.5	1.0	1.5	2.7	7.1	12.5	15.3	49.3	53.5	43.4	142.6	481.2
23	113	62.0	0.2	0.3	0.6	0.9	1.2	2.1	5.1	9.1	12.8	17.5	24.5	42.3	128.9	374.5
35	148	168.1	0.1	0.1	0.3	0.6	1.2	3.4	10.4	23.3	42.9	72.6	117.9	185.8	322.0	896.2

SAMPLE DEPTH	CUMU-LATIVE VOLUME	CUMU-LATIVE COUNT X 10^{-3}	COUNTS X 10^{-2} CHANNEL NUMBER 0	1	2	3	4	5	6	7	8	9	10	11	12	13
								STATION M-7								
0	192	93.2	0.4	0.4	1.1	1.7	1.9	3.5	8.8	140.4	21.2	29.6	38.6	76.8	208.5	525.2
3	226	92.9	0.6	0.5	1.2	2.5	2.0	4.1	8.7	149.7	21.3	27.6	35.8	78.1	211.3	521.5
10	220	94.6	0.6	0.5	1.1	2.1	2.0	4.3	8.3	14.2	20.8	27.6	43.8	96.9	202.1	521.2
15	175	85.0	0.5	C.4	0.7	1.6	1.5	3.2	6.5	11.8	16.3	20.6	35.1	99.4	180.6	472.3
20	144	74.5	0.2	0.3	1.1	1.3	1.5	C.4	6.3	12.0	4015.C	8020.0	3032.0	5064.0	2169.0	60417.0
25	299	99.9	0.2	0.3	0.7	2.0	4.1	9.9	21.3	41.3	67.4	97.8	148.6	237.5	390.4	977.7

BIBLIOGRAPHY

1. Shepard, A. B., A Comparison of Oceanic Parameters During Upwelling Off the Central Coast of California, M.S. Thesis, Naval Postgraduate School, 1970, 218 p.

2. Baker, R. E., The Comparison of Oceanic Parameters with Light Attenuation in the Waters Between San Francisco Bay and Monterey Bay, California, M.S. Thesis, Naval Postgraduate School, 1970, 206 p.

3. Bolin, R. L. and Abbot, Donald P., "Studies on the Marine Climate and Phytoplankton of the Central Coastal Areas of California, 1954-1960." California Cooperative Fisheries Investigations Progress Report 9, 1 July 1960 to 30 June 1962. 1962.

4. Bolin, Rolf L. and Collaborators, "Hydrographic Data from the Area of the Monterey Submarine Canyon, 1951-1955." Final Report Hopkins Marine Station, Stanford University, Pacific Grove, California. July 30, 1964.

5. Skogsberg, Tage, "Hydrography of Monterey Bay, California Thermal Conditions, 1929-1933." Transactions of the American Philosophical Society, New Series, Vol 29, December 1936.

6. Labyak, P. S., An Oceanographic Survey of the Coastal Waters between San Francisco Bay and Monterey Bay, M.S. Thesis, Naval Postgraduate School, 1969, 317 p.

7. Yeske, L. A. and Waer, R. D., The Correlation of Oceanic Parameters with Light Attenuation in Monterey Bay, California, M.S. Thesis, Naval Postgraduate School, 1968. 144 p.

8. Bassett, C. H. and Furminger, H. C., An Investigation of the Vertical Variation of Light Scattering in Monterey Bay, M.S. Thesis, Naval Postgraduate School, 1965, 88 p.

9. Sverdrup, H. U., Johnson, Martin W., and Fleming, Richard H., The Oceans, Prentice Hall, Englewood, New Jersey, 1942. 1087 p.

10. Pytkowicz, Ricardo, "Oxygen Exchange Rates off the Oregon Coast." Deep Sea Research 11 (3), 381-389, 1964.

11. Bader, Henri, "The Hyberbolic Distribution of Particle Sizes." Journal of Geophysical Research 75 (15), 2822-2830, May 20, 1970.

12. California Cooperative Oceanic Fisheries Investigations, Atlas Number 1, CALCOFI Atlas of 10-meter Temperatures and Salinities, State of California, Department of Fish and Game, Marine Research Committee, July 1963.

13. Margalef, R., "Some Concepts Relative to the Organization of Plankton." Annual Review of Oceanography and Marine Biology, Harold Barnes (editor), Vol. 5, 257-289, 1967.

14. Holm-Hansen, O., et al., "Fluorometric Determination of Chlorophyll." Journal du Conseil Permanant International Pour l'Exploration de la Mer 30 (1), 3-15, 1965.

15. State of California, State Water Quality Control Board, San Francisco Bay-Delta Water Quality Control Program Final Report Task VII-1a, Special Oceanographic Studies, by R. C. Carter, 15 June 1968.

16. Riley, J. P. and Skirrow, G., Chemical Oceanography, Vol. 1, Academic Press, 1965.

INITIAL DISTRIBUTION LIST

		No. Copies
1.	Defense Documentation Center Cameron Station Alexandria, Virginia 22314	2
2.	Library, Code 0212 Naval Postgraduate School Monterey, California 93940	2
3.	Department of Oceanography Naval Postgraduate School Monterey, California 93940	3
4.	Officer in Charge Fleet Numerical Weather Facility Naval Postgraduate School Monterey, California 93940	1
5.	Commanding Officer and Director Naval Undersea Research & Development Center Attn: Code 2230 San Diego, California 92152	1
6.	Director, Naval Research Laboratory Attn: Tech. SErvices Info. Officer Washington, D. C. 20390	1
7.	Office of Naval Research Department of the Navy Washington, D. C. 20360	1
8.	Department of Commerce, ESSA Weather Bureau Washington, D. C. 20235	2
9.	Oceanographer of the Navy The Madison Building 732 N. Washington Street Alexandria, Virginia 22314	1
10.	Commandant (PTP) U.S. Coast Guard Washington, D. C. 20226	2

11. Library 1
USCG Oceanographic Unit
Bldg. 159-E, Navy Yard Annex
Washington, D. C. 20390

12. Commandant (OMS) 1
U.S. Coast Guard
Washington, D. C. 20591

13. MST School 1
U.S. Coast Guard Training Center
Governors Island
New York, New York 10004

14. Department of Oceanography 1
U.S. Coast Guard Academy
New London, Connecticut 06320

15. Commander (OMS) 1
Eastern Area, U.S. Coast Guard
Governors Island
New York, New York 10004

16. Commander (OMS) 1
Western Area, U.S. Coast Guard
630 Sansome Street
San Francisco, California 94126

17. Naval Oceanographic Office 1
Attn: Library
Washington, D. C. 20390

18. National Oceanographic Data Center 3
Washington, D. C. 20390

19. Director, Maury Center of Ocean Sciences 1
Naval Research Laboratory
Washington, D. C. 20390

20. Mr. Roswell W. Austin 1
Visibility Laboratory
Scripps Institution of Oceanography
La Jolla, California 92037

21. Mr. Thomas E. Bailey 1
Central Coastal Regional Water Quality
Control Board
1108 Garden Street
San Luis Obispo, California 93401

22. Captain S. I. Bobczynski 1
Pacific Support Group
Naval Oceanographic Office
San Diego, California 92152

23. Dr. Wayne V. Burt 1
Department of Oceanography
Oregon State University
Corvallis, Oregon 97331

24. Dr. Peyton Cunningham 6
Department of Physics
Naval Postgraduate School
Monterey, California 93940

25. Mr. Fred H. Dierke 1
Regional Water Quality Control Board
364 Fourteenth Street
Oakland, California 94612

26. Dr. Siebert Q. Duntley 1
Visibility Laboratory
Scripps Institution of Oceanography
La Jolla, California 92037

27. Mr. George Eck 1
Naval Air Development Center
Johnsville, Warminster, Pennsylvania 18974

28. Mr. Gary Gilbert 1
Stanford Research Institute
Menlo Park, California 94025

29. Dr. Eugene C. Haderlie 1
Department of Oceanography
Naval Postgraduate School
Monterey, California 93940

30. Dr. R. C. Honey 1
Stanford Research Institute
Menlo Park, California 94025

31. Professor Alexandre Ivanoff 1
Laboratoire d'Oceanographie Physique
de la Faculte des Sciences de Paris
9, Quai Saint-Bernard
Paris (V^{o}), France

32. Dr. N. G. Jerlov 1
Institute for Physical Oceanography
Solvgade 83K
Copenhagen, K, Denmark

33. Mr. Kenneth V. Mackenzie 1
Ocean Sciences Department - Code D503
Naval Undersea Research & Development Center
San Diego Division
San Diego, California 92152

34. Dr. Robert E. Morrison 1
AE1
Office of Environmental Systems
NOAA
6010 Executive Blvd.
Rockville, Maryland 20852

35. Mr. Jerry Norton 1
Oceanography Department
Naval Postgraduate School
Monterey, California 93940

36. Mr. Larry Ott 2
Naval Air Development Center
Johnsville, Warminster, Pennsylvania 18974

37. Mr. Robert Owen 1
U.S. Bureau of Commercial Fisheries
La Jolla, California 92038

38. Dr. John H. Phillips 1
Hopkins Marine Station
Pacific Grove, California 93950

39. Mr. James Reese 1
Ocean Sciences Department - Code D503
Naval Undersea Research & Development Center
San Diego Division
San Diego, California 92152

40. Mr. Thomas J. Shopple 1
Naval Air Development Center
Johnsville, Warminster, Pennsylvania 18974

41. Dr. E. B. Thornton 1
Department of Oceanography
Naval Postgraduate School
Monterey, California 93940

42. Mr. S. P. Tucker 6
Department of Oceanography
Naval Postgraduate School
Monterey, California 93940

43. Mr. B. L. Kolitz 1
Department of Oceanography
Naval Postgraduate School
Monterey, California 93940

44. Mr. John E. Tyler 1
Visibility Laboratory
Scripps Institution of Oceanography
La Jolla, California 92037

45. Mr. Lowell Van Billiard 1
Naval Ships Engineering Center
Prince Georges Center
Hyattsville, Maryland 20782

46. Mr. Raymond Walsh 1
San Francisco Bay Delta Water Quality
Control Program
Resources Building, Room 144
1416 Ninth Street
Sacramento, California 95814

47. Dr. Hasong Pak 1
Department of Oceanography
Oregon State University
Corvallis, Oregon 97931

48. Mr. John Arvesen 1
Mail Stop 234-1
Ames Research Center
Moffett Field, California 94035

49. Mr. Alan Baldridge, Librarian 1
Hopkins Marine Station
Pacific Grove, California 93950

50. Mr. Ted Petzold 1
Visibility Laboratory
Scripps Institution of Oceanography
La Jolla, California 92037

51. Dr. Gary Griggs 1
Division of Natural Sciences - II
University of California, Santa Cruz
Santa Cruz, California 95080

52. Director 1
Moss Landing Marine Laboratories
Moss Landing, California 95039

53. Mrs. Elsie F. DuPre 1
Oceanography Branch, Optical Sciences Division
Naval Research Laboratory
Washington, D. C.

54. Dr. Rudolph W. Preisendorfer 1
Department of Mathematics
Naval Postgraduate School
Monterey, California 93940

55. Mr. W. J. Stachnik 1
Optical Systems
U.S. Navy Underwater Sound Laboratory
Fort Trumbull
New London, Connecticut 0632(

56. Mr. Raymond N. Vranicar 2
Code AIR-370D
Naval Air Systems Command
Washington, D. C. 20360

57. Mr. Irvin H. Gatzke 2
Code AIR-370
Naval Air Systems Command
Washington, D. C. 20360

58. Dr. H. R. Gordon 1
Institute of Marine Sciences
University of Miami
10 Rickenbacher Causeway
Miami, Florida 33149

59. Dr. Robert W. Holmes 1
Marine Sciences Institute
University of California
Santa Barbara, California 93106

60. Dr. Robert Andrews 1
Department of Oceanography
Naval Postgraduate School
Monterey, California 93940

61. Coastal Engineering Branch 1
Planning Division
U.S. Army Engineering Division, South Pacific
630 Sansome Street
San Francisco, California 94111

62. Professor Glenn H. Jung 1
Department of Oceanography
Naval Postgraduate School
Monterey, California 93940

63. LCDR Arthur B. Shepard 1
USCGC Burton Island WAGB-283
P.O. Box 20820
Long Beach, California 90801

64. LCDR Elroy A. Soluri 3
USS Beatty (DD-756)
Fleet Post Office
New York, New York 09501

65. Professor Eugene Traganza 3
Department of Oceanography
Naval Postgraduate School
Monterey, California 93940

66. Department of Oceanography 1
New York State Maritime College
Bronx, New York

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Naval Postgraduate School Monterey, California 93940	2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP

3. REPORT TITLE

A COMPARISON OF OCEANIC PARAMETERS DURING THE OCEANIC PERIOD OFF THE CENTRAL COAST OF CALIFORNIA

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

Master's Thesis; March 1971

5. AUTHOR(S) (First name, middle initial, last name)

Elroy Anthony Soluri, Lieutenant Commander, United States Navy

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
March 1971	369	16

8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO.	
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.	

10. DISTRIBUTION STATEMENT

Approved for public release; distribution unlimited.

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
	Naval Postgraduate School Monterey, California 93940

13. ABSTRACT

A detailed examination of the coastal region between Monterey Bay and San Francisco Bay was conducted from 1 to 6 November 1970. Measurements of temperature, salinity, sound velocity, beam transmittance, Coulter particle size distributions, chlorophyll a, phosphate, and oxygen were obtained at 86 stations from the surface to 100 meters The data collected are presented in the form of contours in horizontal and vertical sections and depth profiles which indicate:

1. a distinctive off-shore region, which exhibited high values of oxygen, chlorophyll a, and particle count and low values of temperature and beam transmittance was present;
2. the areas with the highest standing crop are inshore, within five miles of the coast;
3. a peak in the size distribution of particles did not always occur in the surface layers within the observable range of diameters of from 1.59μ to 32.0μ;
4. a plot of oxygen versus phosphate yielded a slope of

$$-2.4 \frac{\mu\text{g-at/l } PO_4}{\text{ml/l } O_2}$$

5. there appears to be no simple correlation in the scatter of points plotted for chlorophyll a as a function of oxygen; and
6. a plot of chlorophyll a versus beam transmittance indicates similarly that no simple relationship between these parameters exists.

14 KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
BEAM TRANSMISSION						
CENTRAL CALIFORNIA COAST						
CHLOROPHYLL A						
COULTER COUNTER						
LIGHT TRANSMISSIVITY						
LIGHT ATTENUATION						
MONTEREY BAY, CALIFORNIA						
OCEANOGRAPHIC SURVEY						
OXYGEN IN SEA WATER						
PARTICULATE MATTER						
PARTICLE SIZE DISTRIBUTION						
PHOSPHATE						
SOUND VELOCITY						
SUSPENDED MATERIAL						
TEMPERATURE						
TURBIDITY						
OCEANIC PERIOD						
SALINITY						
FORTRAN IV OCEANOGRAPHIC DATA PROCESSING						
OCEANOGRAPHIC DATA PLOTTING						

128160

Thesis
S6654 Soluri
c.1
A comparison of oceanic parameters during the oceanic period off the central coast of California.