CM-C05
Project 2.16
LZ228

APPLICATION OF SCIENTIFIC DATA TO THE MANAGEMENT OF THE APALACHICOLA OYSTER RESOURCE

by

Robert J. Livingston

CENTER FOR AQUATIC RESEARCH AND RESOURCE MANAGEMENT
FLORIDA STATE UNIVERSITY
DEPARTMENT OF BIOLOGICAL SCIENCE
136B CONRADI
TALLAHASSEE, FL 32306

for

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
THROUGH
DEPARTMENT OF ENVIRONMENTAL REGULATION
OFFICE OF COASTAL ZONE MANAGEMENT
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32301

ATTN: JAMES W. STOUTAMIRE

ds for this project were provided by the Department of Environmental
ulation, Office of Coastal Management, using funds available through the
onal Oceanic and Atmospheric Administration under the Coastal Zone
agement Act of 1972, as amended.

SH
365
.F6
L58
1991

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

APPLICATION OF SCIENTIFIC DATA TO THE MANAGEMENT OF THE APALACHICOLA OYSTER RESOURCE

by

Robert J. Livingston

CENTER FOR AQUATIC RESEARCH AND RESOURCE MANAGEMENT
FLORIDA STATE UNIVERSITY
DEPARTMENT OF BIOLOGICAL SCIENCE
136B CONRADI
TALLAHASSEE, FL 32306

for

U.S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
2234 SOUTH HOBSON AVENUE
CHARLESTON, SC 29405-2413

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
THROUGH
DEPARTMENT OF ENVIRONMENTAL REGULATION
OFFICE OF COASTAL ZONE MANAGEMENT
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32301

ATTN: JAMES W. STOUTAMIRE

SH 365.F6 L58 1991
25920344
AUG 20 1997

Property of CSC Library

ABSTRACT

A study was carried out to determine the relationships of habitat variables and productivity indices with oyster production in the Apalachicola Bay system. The data indicate that the reefs in the eastern portion of the estuary were by far the most productive in terms of larval abundance, oyster numbers per unit area, overall oyster abundance, oyster biomass per unit area, and total oyster biomass. These areas were found to have less variation in salinity in addition to relatively high levels of Chlorophyll a and Total Organic Carbon. The various oyster indicators and the mean size of the oysters were inversely related to NH_3. The data indicate that the complex combination of river flow, salinity, and water currents, together with physiographic features of the bay, determine the oyster distribution and productivity of the Apalachicola system. There was evidence that oyster disease factors, such as *P. marinum*, could also play an important role in the inhibition of oyster productivity and that such disease could be strongly dependent on the salinity relationships in the bay. Although salinity is an important feature in the control of the Apalachicola oyster populations (either directly or indirectly), the data indicate that it is not necessarily a straightforward relationship. The absolute level of salinity, within specific boundaries, could be less important than dynamic changes in such salinity conditions. The statistical analyses indicated that mean oyster numbers were defined best by salinity deviations, temperature, and turbidity whereas the total oyster numbers (which includes both the density and extent of the individual oyster bars) were in some way associated with salinity deviation, chlorophyll a, and Total Organic Carbon. The primary commercial reefs in the bay are in the eastern sections. These reefs are associated with indicators of productivity which means that a combination of different variables have created the conditions for an uneven distribution of oysters in the estuary. The combination of low variation of salinity and relatively high productivity (even after the existing oyster have filtered the water), together with high levels of spatfall and relatively lower infestations of *Perkinsus marinum* appear to contribute to the high oyster productivity in eastern portions of the system. In areas such as East Hole and Cat Point, the lack of differences between the open and closed spat baskets would indicate that low predation on oyster spat could also be a factor in why such areas are so productive. This particular combination of factors could also be related to the geographic position of the oysters in the Cat Point region with no direct influence of river flow (e.g., lower turbidity), distance from the influx of predators (West Pass, Sikes Cut, Indian Pass), and the possible influence of prevailing currents (Livingston, 1984) that could add to the concentrations of chlorophyll a and organic carbon that are needed by the feeding oysters. Both in terms of numbers and biomass of oysters, Cat Point, East Hole, and Platform are by far the most productive bars in the bay system. Further analyses will be carried out with the information generated in this study and the results of previous studies of the Apalachicola River-estuary will be integrated with such findings to determine the relationship of the various factors that contribute to oyster production in the Apalachicola estuary.

PERSONNEL AND ACKNOWLEDGEMENTS

The Center for Aquatic Research and Resource Management was established to conduct research in the environmental sciences with particular attention to the development of techniques, evaluation, planning, and analysis for administrative agencies, private industry, educational institutions, and other groups concerned with or interested in the environment. The Center's activities include original research, the development of environmental impact statements, and the publication of symposia, books, or individual scientific papers on a range of topics.

Principal investigator:	Robert J. Livingston
Administration:	Stephanie Dillon Della Giblon
Data organization and analysis:	Jane Jimeian Glenn C. Woodsum Loretta E. Wolfe
Senior scientists:	Sean E. McGlynn Gary L. Ray Jeffrey G. Holmquist Jutta S. Gegenbach
Field collections/laboratory processing:	Todd Bevis Michael Chasar Robert L. Howell, IV
Laboratory assistants:	Octavio Salcedo Matthew V. Phillips Garth F. Winson, IV Nathan Cramer Monica Ross Keith Burnsed George Menendez Ilse Salcedo Christopher Wills Tiffany Ledson

We would also acknowledge the following people for providing assistance in this study: Mr. C. Futch and Mr. M. Berrigan of the Florida Department of Natural Resources for their help in organizing the project; Mr. W. Miley and Mr. C. Bailey of the Apalachicola National Estuarine Reserve for their help in the field; Dr. S.M. Ray, for his help in setting up the screening methods for *Perkinsus*; Mr. J. W. Stoutamire of the Department of Environmental Regulation for administration of the grant; and the staff of the Department of Biological Science (FSU).

CONTENTS

	Page
ABSTRACT	1
PERSONNEL AND ACKNOWLEDGEMENTS	2
BACKGROUND	4
Introduction Objectives	
METHODS	8
RESULTS	12
Meteorological conditions Physical/chemical conditions in the bay Water temperature Salinity Other variables Nutrients and productivity factors Nutrients (nitrogen and phosphorus) Carbon and chlorophyll a	
OYSTER ANALYSES	15
Oyster larvae Overall changes in oyster numbers Spatfall comparisons Infestation with *Perkinsus marinum* Fishing pressure	
SUMMARY STATISTICAL ANALYSIS	18
HABITAT MAPS	19
REFERENCES	20
APPENDICES	26

Appendix A: Growth histograms of oyster populations in the Apalachicola system.

TABLES

FIGURES

APPLICATION OF SCIENTIFIC DATA TO THE MANAGEMENT OF THE APALACHICOLA OYSTER RESOURCE

BACKGROUND

Introduction

The Apalachicola oyster industry provides over 90% of Florida's oyster catch (Andree, 1983; Livingston, 1983; Livingston and Joyce, 1977). by 1981, the value of the oyster landings approximated $6.5 million, which, with appropriate multipliers, approximates a total sales impact exceeding $11 million for the Apalachicola region (Prochaska and Mulkey, 1983). The oyster industry in the Apalachicola estuary provides almost half of the total income for Franklin County. currently, about 40% of the entire bay system is suitable for oyster growth and 95% of the Apalachicola Bay can support sanitary shellfish production at various times of the year (Whitfield and Beaumariage, 1977). This represents the highest percentage of oyster-growing acreage of all of Florida's estuaries. However, the near destruction of the oyster industry by Hurricane Elena and the subsequent problems with drought, overfishing, pollution and salinity encroachment, have made a thorough investigation of factors controlling oyster productivity a necessity for the adequate management and enhancement of this vital Florida resource.

The Apalachicola oyster industry depends on a unique set of physical-chemical and geographical features, which have been well documented (Whitfield and Beaumariage, 1977; Livingston, 1983). There is a considerable data base concerning various aspects of the life history of the American oyster, *Crassostrea virginica.* Since Galtsoff (1964) published his comprehensive review of this species, numerous studies have been carried out (see Joyce, 1972, for a comprehensive review of the oyster literature up to the early 1970's; more recent reviews have been made by the Louisiana Wildlife and Fisheries Commission [1976], Shumway and Koehn [1982], Sellers and Stanley [1984], Stanley and Sellers, [1986a,b] and Burrel [1986]). It is well known that specific environmental factors influence oyster production (Bahr and Lanier, 1981; Cake, 1983; Chatry et al., 1984). such factors include temperature, salinity, substrate, food, water circulation, disease, competition, predation and pollution. A detailed discussion of such factors if given by the Louisiana Wildlife and Fisheries Commission (1976).

Various studies have been carried out on the Apalachicola oyster beds. Oysters represent an important part of the biota of the Apalachicola estuary. such factors as temperature, rainfall/river flow (and hence salinity), productivity (allochthonous and autochthonous), bottom type, and predation define the life history of oysters in the Apalachicola estuary (Livingston, 1984). Ingle and Dawson (1951, 1952) noted that temperature is rarely limiting and that the spawning season is one of the longest in the U.S. (April through November). The free-swimming larval stage persists for two weeks. Ingle and Dawson (1952) found that oyster growth in Apalachicola Bay is the most rapid in the U.S.

and is continuous throughout the year because of the relatively high year-round temperatures. The reproductive cycle of the Apalachicola Bay oysters has been documented by Hayes and Menzel (1981) and Olquin-Espinoza (1987). It is well-known that successful oyster development depends on an appropriate substrate, such as oyster shells, which can be planted throughout the estuary as cultch to enhance growth.

Oyster bar associations include various organisms that prey on oysters (Menzel et al. 1958, 1966). These include boring sponges, polychaete worms, gastropod mollusks (such as *Thais haemastoma* and *Melongena corona*), crustaceans (*Menippe mercenaria*), and fishes (*Pogonias cromis*). Salinity is the most important limiting factor for oyster populations, but it has been hypothesized that such influence is indirect in that low salinity limits predation by excluding important species such as *Thais* and *Menippe*. during periods of high salinity, oyster predation is enhanced and can be considerable. Experiments have shown that oysters over 50 mm in length are rare in unprotected areas of high salinity relative to oysters shielded from predation by baskets at similar salinities (Menzel et al. 1966).

Oyster bars represent a relatively significant habitat in the estuary, accounting for about 7% of the overall aquatic area (Livingston, 1984). The main concentrations of oysters (*Crassostrea virginica*) lie in St. Vincent Sound and western portions of St. George Sound (Figure 1). Oyster bars, themselves, provide habitat and food for a variety of organisms. The oyster-associated community includes sponges (*Cliona vastifica*), bryozoans (*Membranipora* sp.), flatworms (*Stylochus frontalis*), annelids (*Neanthes succinea*, *Polydora websteri*), various arthropod crustaceans (*Callinectes sapidus*, *Menippe mercenaria*, *Neopanope* spp., *Petrolisthes armatus*), gastropods (*Crepidula plana*, *Melongena corona*, *Thais haemastoma*), and pelecypods (*Brachidontes exustus*, *Chione cancellata*) (Menzel et al. 1966). Fishes include blennies (*Hypsoblennius* spp.), toadfish (*Opsanus beta*), and black drum (*Pogonias cromis*) (Cake, 1983). These organisms use the reef for shelter and/or feeding. Salinity controls oyster bar community organization. when salinities are high, various stenohaline, gulf species are able to move into the oyster-rich areas and feed on the oysters. Low salinity limits such predation by acting as a barrier to those organisms. Species richness and diversity of the oyster-associated populations vary directly with seasonal increases in salinity. During warmer months, extensive oyster mortality in the Apalachicola estuary has been attributed to infection by the pathogen *Perkinsus marinus* (formerly called *Dermocystidium marinum*). Young oysters are unaffected by this disease, although up to 50 percent of adult oysters may be killed annually. The relatively long period of high water temperature in the gulf estuaries contributes to such mortality.

Two conferences have highlighted specific management problems associated with the Apalachicola oyster industry. According to papers given at an oyster conference sponsored by the Florida Sea Grant College (Andree, 1983), questions were raised concerning the following:

1. What is the relationship of oyster size and fishing pressure? Is over fishing a problem, and, if so, what management techniques would be useful to maximize oyster productivity in the estuary?

2. Which areas of the bay system in terms of substrate and water quality) would yield higher oyster productivity through shell planting? Would increased shell planting enhance oyster productivity in the bay?

3. What is the impact of predators on oyster productivity in the bay, and what is the relationship of fresh water flow, salinity, and predation pressure at different times of the year?

4. What is the relationship of oyster productivity and various factors such as rainfall, salinity, and other environmental parameters?

The need was noted for a long-range resource plan for oysters, especially as viewed in concert with other resources in the bay system. According to a subsequent oyster industry workshop (Andree and Miley, 1984), the need for an organized body of scientific information concerning the management of the oyster resource was emphasized by a representative of the newly created Marine Fisheries Commission. Additional questions were raised concerning the timing and extent of oyster harvesting in the Apalachicola system.

Objectives

The overall goal of this project has been to provide scientific information that will lead to improved management and enhanced productivity for the Apalachicola oyster industry. Specific objectives intended to help attain this goal are as follows:

1. To use existing data and expanded field surveys to evaluate the influence of key environmental factors such as salinity on the growth and production of Apalachicola oyster beds. Seasonal changes in specific features of the estuarine habitats have been investigated for the purpose of evaluating time-based trends of such features in oyster-producing portions of the estuary.

2. To determine diagnostic population features such as recruitment, age distribution, and population growth characteristics for analysis of the impact of fishing pressure on different bars in the estuary. Such work has been designed to deal with questions concerning size relationships and the impact of the harvesting of oysters in various portions of the estuary.

3. To develop habitat profiles and habitat suitability models for identification of optimal areas for oyster planting operations (i.e., dropping of oyster shells for production of new oyster bars).

4. To provide information to appropriate user groups for the management of the major oyster-producing areas of the estuary. The information generated from this project can be added to the existing data base for use in management and enhanced productivity of the Apalachicola oyster resource.

METHODS

Preparatory studies were carried out using data and computer programs that have been established over the past eighteen years. Our research team includes a number of people who have worked in the Apalachicola system. We have carried out various population studies over the years and have established a broad literature on the subject area. Preparatory work was carried out in 1989 to establish study sites and research priorities. Detailed procedures for the preliminary analyses have been established and used before with other DER funded projects. These steps were conducted prior to the actual start of the project.

Objective 1: Analysis of the influence of important environmental factors on oyster bed production.

Task 1: Gather monthly field data on seasonal changes in water-quality features.

After station locations were established, monthly collections of field data were taken concerning seasonal changes in important water quality features from January, 1990 through December, 1990. Specific scientific methods used over the long-term research effort in the Apalachicola Bay system have been given in a series of publications (Livingston et al., 1974, 1976, 1977, 1978; Livingston, 1975a, 1976a, b, c, d, 1979a, 1981; Livingston and Duncan, 1979; Livingston and Loucks, 1979; Meeter et al., 1979; White et al., 1979:, and such details will not be reviewed here. A parallel group of publications has outlined various management approaches used in conjunction with the scientific effort (Livingston, 1975b, 1976b-e, 1978, 1979a, b, 1980, 1981, 1982a, b, 1983; Livingston and Joyce, 1977; Livingston and Loucks, 1979; Livingston et al., 1974, 1976,.1977, 1978, 19882;. Livingston et al. (1974) outlined the key features of the tri-river drainage systems. The methods of analysis that related salinity to various biological processes in the Apalachicola estuary is given by Livingston (1979a).

Water samples (surface and bottom) were taken at all fixed stations (Figure 1) with a 1-liter Kemmerer bottle. Temperature and dissolved oxygen were measured with Y.S.I. dissolved oxygen meters. Salinity was determined with a temperature-compensated refractometer calibrated periodically with standard sea-water. Turbidity was taken with a Hach model 2100-A Turbidimeter. Apparent color was analyzed with an American Public Health Association platinum-cobalt standard test. Light penetration was estimated with a standard Secchi disk, and water depth was routinely monitored at each sapling site. The pH was measured with portable pH meters. The date and time, along with appropriate field notes, were recorded at each sampling station.

After a discussion with researchers from the Florida Department of Natural Resources (FDNR), a series of stations were chosen that were

representative of the research effort being carried out by the two groups (FDNR, FSU). In December, 1989, a joint field trip was undertaken to establish common Loran sitings for the stations.

Stations (see Figure 1):

Scorpion
Paradise
North Spur
Little Gulley (Dry Bar)
St. Vincent Bar
Sweet Goodson
Cat Point Bar
Platform
East Hole

The Little Gulley (Fry Bar) station was located with the help of DNR personnel I and represents a major experimental oyster bar for the Florida Department of Natural Resources. We took data at three separate sites in this region of the bay (DB1, DB2, and DB3).

Task 2: Gather/analyze samples for chemical content

To collect other samples for water quality analysis, sterile plastic bags were used. Each collection included at least 100 ml of sample. Sample containers were not filled completely; an air space of at least one-fourth the total volume will be maintained. According to established procedures, samples that were not analyzed immediately were placed on ice or refrigerated (1-4°C) and analyzed within six hours or less. Sterile sample containers were filled below the surface of the water; a sweeping motion was used and the open end of the container was kept in the direction of the sweep. Analyses were performed for ammonia (Standard Methods, 15th edition, Nessler reagent method), nitrate nitrogen (Standard Methods, 14th edition, Brucine method), nitrite nitrogen (Standard Methods, 15th edition, diazotization), and orthophosphate (Standard Methods, 15th edition, ascorbic acid method). A Bausch and Lomb spectronic 2000 spectrophotometer (double beam, 2 nm slit width) was used for all measurements.

Surface and bottom water samples were taken monthly at the above sites from January, 1990 through December, 1990. The following factors were analyzed:

temperature
salinity
dissolved oxygen
water color
turbidity
Secchi

ammonia
nitrate nitrogen

nitrite nitrogen
total nitrogen
orthophosphate
total phosphate
dissolved organic carbon
particulate organic carbon
total organic carbon
chlorophyll a,b,c

In addition to the above-mentioned oyster stations, the water quality factors were also sampled at a series of other stations as listed below (Figure 1):

1-Apalachicola Bay
1a-West Pass
1b-Sikes Cut
1c-Apalachicola Bay (island bridge)
2-mouth of Apalachicola River
4-East Bay (south)
5a-East Bay (east)
A7-mid-Apalachicola Bay
G1-East Point
G3-Green Point east
R3-north Scipio Creek
A1-Apalachicola boat basin
A9-St. George boat basin

These stations were used in previous studies in the Apalachicola Estuary and will be used for comparative purposes.

Methods for determining oyster population characteristics, along with a description of statistical procedures used to identify relationships between environmental parameters and oyster growth pattens, are given below (see Objective 2)

Objective 2: Analysis of diagnostic (oyster) population factors (recruitment, age distribution, population growth characteristics) to evaluate potential effects of fishing pressure.

Task 3: Gather/analyze samples for monitoring oyster population features.

Based on the above considerations, a series of stations was established to monitor oyster population features in areas that are subject to harvesting in comparison with (control)areas that are not harvested. Random samples were taken monthly with standard oyster tongs (16-tooth head, 12-foot handles). The tongs were modified, however, so that the head always opened to a uniform

width (i.e., constant area sampled, regardless of eater depth). Initially, 30 samples per station were collected in various locations to determine statistically how many samples were needed for representative collections. Tonging efficiency was estimated periodically by diving and removal of all oysters from a series of randomly placed quadrats of known area and comparison of the relative harvests.

All oysters were measured to the nearest 1 mm in length. Recent mortality was evaluated according to degree of shell fouling. A condition index will be developed according to the ratio of ash-free dry weight to total weight (flesh plus shell) (see report of workshop of The International Mussel Watch, 1980, for details concerning the calculation and use of this index) (Appendix F, section 3).

Task 4: Gather/analyze oyster larvae data

Estimates of relative densities of oyster larvae were obtained from 30-sec tows of an 80-micrometer plankton net at each monthly station from April;, 1990 through September, 1990. Samples were preserved in 10% buffered formalin. Spatfall estimates were made by setting out baskets of sun-bleached oyster shells (90-130 mm) near the edges of the oyster reefs at the various sampling sites over this time period. Recruitment and growth analysis were thus part of the overall sampling effort.

Objective 3: Analysis of the impact of disease on oyster bars.

Task 5: Gather/analyze disease samples

Samples of oysters taken during the several of the monthly analyses at permanent stations (see Objective 2) were taken to analyze the level of infection by the fungus *Perkinsus marinum.* Five oysters from each of the Oyster Bars were assayed to determine the presence of P. marinum. A portion of the gill was placed in fluid thioglycollate medium with antibiotics to retard bacterial growth. The samples were incubated at room temperature in the dark for one week (Ray, 1952). A portion of the tissue was then placed on a slide, shredded, and stained with Lugol's solution. The appearance of spherical cells (cysts) stained a very dark blue was taken as a positive diagnosis for P. marinum. The characteristic blue color is not due to a reaction of the Iodine with starch, but is probably caused by the presence of a glucoside such as saponarin.

The culture medium was Difco's Thioglycollate (40.5g/L) rehydrated with Instant Ocean (36g/L) and tubed in 10 ml aloquots. Streptomycin and penicillin solutions were added before inoculation to give concentrations of 1000 units per ml. Complete sterility of the medium was not necessary. The antibiotics retarded bacterial growth and the anaerobiosis of the medium suppressed the growth of molds and protozoa. The temperature was maintained between 18 and 25 degrees, above 25 degrees bacterial growth got out of control. We obtained the best results with gill tissue; heart and mantle rarely showed more

than a light infestation. The size of the P. marinum cells after 72 hours of incubation was 90 microns.

Each slide was evaluated as follows (Stewart, 1966):

Negative; no P. marinum cells	N	0.0
Very Light; 1-10 cells per preparation	VL	0.5
Light; 11-100 cells per preparation	L	1.0
Light Moderate; 101-800 cells per preparation	LM	2.0
Moderate; about 100-300 cells per 25 X field	M	3.0
Moderate Heavy; over 300 cells per field	MH	4.0
Heavy; approx. 1000 cells per field	H	5.0

Objective 4: Development of habitat profiles to establish optimal areas for oyster planting with particular application to the ongoing experimental program by the Florida Department of Natural Resources (FDNR) at Dry Bar reef.

Task 6: Evaluate conditions at current experimental site (Dry Bar reef:FDNR) and determine most suitable areas for oyster planting in the Apalachicola estuary.

Established water quality and sediment data (Appendix A), together with new field surveys, were combined with analyses of the productivity studies (Objective 2) to determine which areas in the Apalachicola Bay system are most suitable for oyster planting. As part of this effort, the various field tests (e.g., water quality, oyster population features,oyster larvae: see above for details) were carried out at the experimental sites at Dry Bar reef as a cooperative effort with the current experimental program of the FDNR.

Objective 5: To provide information for management of the Apalachicola oyster resource.

Task 7: Produce written quarterly, interim and final reports

RESULTS

Meteorological conditions

Rainfall conditions prior to the study period (Figure 2) indicate that the period just prior to the 1990 study time was marked by a sustained drought. The Apalachicola and Columbus, Georgia rainfall during the study (Figure 3) was marked by peak falls in February-March (Georgia) and July and September (Apalachicola).This distribution of rain followed that described by Meeter et al.

(1979) with the major winter-spring peak in Georgia and summer-early fall peaks in Florida.

Apalachicola River flow (Figures 4 and 5) indicate that the March rainfall resulted in a major river flow peak. The maximum flow during March was the highest such event in the 20 year period of record. The mean flow in March, in excess of 2000 m^3 sec^{-1}, was the highest over the 20 year period since 1970. The winter flows were generally higher than those that characterized the spring-fall period. From May through October, there were relatively low flows despite the rainfall noted in Florida during this period. Such a pattern is typical (Meeter et al., 1979) as explained by Livingston (1984). The winter river flows broke a drought that existed during the previous two years.

Physical/chemical conditions in the bay

The raw data for the various physical-chemical factors in the Apalachicola estuary are given in Table 1.

Water temperature

Representative analyses of estuarine water temperature are shown in Figure 6. Water temperature peaked during August with slightly higher temperatures in the area around Platform reef compared to the St. Vincent bar. The August temperatures were between 32 and 33 °C. Winter low temperatures were noted during February.

Salinity

Salinity conditions are represented in Figure 7. In general, the salinity levels reflected river flow patterns with the lowest salinities noted during the period from January through April. There were considerable differences noted among the various oyster reef areas. The lowest salinities were noted around Sweet Goodson, , Cat point, Platform, and East Hole. During the summer months, salinities were generally higher in St. Vincent Sound (Scorpion, Paradise) and lower Apalachicola Bay St. (Vincent). Salinity peaks tended to occur during the early summer and fall months although there were different patterns at the various study sites. Differences between surface and bottom levels of salinity also varied on a site to site basis. Areas such as North Spur and Dry Bar had relatively low salinities during the winter and early spring months. The peak salinities for the period of study occurred in June. There was a general decrease in salinity over the ensuing months with another increase in the fall. The bottom salinities were considerably higher than the surface salinities at Dry Bar and North Spur. The seasonal pattern noted at North Spur and Dry Bar was followed in St. Vincent Sound. In eastern portions of Apalachicola Bay and in St, George Sound, there was a different seasonal pattern with the highest levels usually noted during the fall rather than early summer. Areas such as Sweet Goodson, East Hole, and Cat Point had generally lower salinities than the other oyster bars with salinities usually lower than 20 °C.in these areas. The only time that the salinity went above 25°C in

these areas was during the fall. This was in direct contrast to North Spur, Dry Bar, St. Vincent, Scorpion, and Paradise which routinely had salinities above 25 °C during the summer months. Plat form bar also had slightly higher salinities than those areas such as Cat Point, East Hole, and Sweet Goodson. The orientation of such areas relative to the river runoff and the effects of higher salinity from Sikes Cut, West Pass, and Indian Pass probably added to such observed differences in salinity (Livingston, 1984; Livingston, unpublished data).

Other variables

Dissolved oxygen was generally high throughout the bay during all seasons of the year. Dissolved oxygen levels at or below 4 mgl^{-1} occurred at stations 1c (May), East Point Breakwater (August, September), Scipio Boat Basin (September), St. George Boat Basin (May), Dry Bar 1 (June), and Paradise (August). Most of the above areas are known to have reduced water quality due to storm water runoff and marina conditions (Livingston, unpublished data). The oxygen anomaly data generally supported the hypothesis that such levels of D. O. were due to anthropogenous activities.

We attempted to take sediment data from the oyster areas. However, the substrate was such that such samples could not be taken. A critical habitat assessment of the Apalachicola system (Livingston, 1980) gives maps of the various habitats of the estuary. The oyster bar/sediment maps (Figure 7a) The main concentrations of oysters are located in eastern portions of the bay (Cat Point, East Hole). The surrounding substrate here is composed largely of silty sand and shell fragments. East Bay is characterized by silty sand and sandy shell deposits. There is a gradual gradation from silty sand/shell gravel to sand in areas along St. George Island. The necessity of a hard substrate is demonstrated by the fact that for new oyster bars to be established in the bay, shell cultching is necessary.

Nutrients and productivity factors

A detailed list of nutrient/productivity data are given in Table 2. Selected factors that are representative of nutrient conditions and productivity in the bay are given in Figure 8.

Nutrients (nitrogen and phosphorus)

There were station-specific seasonal changes in the nutrient concentrations in the bay. At some stations, nitrogen peaked during winter months (St. Vincent) whereas, at others (Apalachicola boat basin), nitrogen levels peaked during summer months. The highest nitrogen levels were noted in some of the boat basins although relatively high nitrogen levels were noted in areas such as the river mouth (2) and Dry Bar. Such levels are probably related to river flow.

Phosphorus levels were highest during winter river peaks at some stations (East Bay\, River mouth) whereas summer peaks were prevalent at many of the oyster reef stations.

Carbon and chlorophyll a

Chlorophyll a tended to be highest in the various boat basins and areas characterized by stormwater runoff (St. George boat basin, Intracoastal waterway, North Scipio Boat dock, eastern Apalachicola Bay [1c]). Peak levels in such areas were usually noted during the winter. Winter levels of chlorophyll a were also highest at the Cat Point and Platform bars relative to other areas of the bay that are not directly influenced by human activities. Such seasonally high levels of chlorophyll a at the eastern oyster bars were generally higher than the other oyster producing areas of the bay although there was considerable temporal and spatial variability in this factor over the period of study.

The various carbon indicators highest in areas such as the boat basins and, as noted previously in terms of low dissolved oxygen and high chlorophyll a, such regions of the bay were probably affected by human activities. These data are consistent with previous studies of the bay (Livingston, unpublished data). Peak levels of the carbon indicators usually were noted during winter/early spring periods. The various carbon levels were comparable in other portions of the bay. although there were the usual spatial and temporal changes that were distinctive in some portions of the bay.

The data for the last three months of sampling (October-December) are still being work on along with other analyses of the nutrient/organic carbon relationships of the bay. The above analysis should be considered preliminary and will be finalized at a later date. The preliminary analysis does indicate that there are some real differences in the water quality of the bay and that such differences are related to human activities and the location of oysters in the bay.

OYSTER ANALYSES

The regression analysis for the length weight transformations are given in Figure 9. The regression fit was relatively good (r^2=0.8531152). All weight data concerning oyster distributions is based on these findings.

Oyster larvae

The various oyster larvae were categorized according to the following types: equal-eyed, equal-umbone, unequal eyed, unequal umbone, straight-hinged. The data for this analysis are shown in Figure 10. As a general rule, the oyster larvae became abundant in most parts of the bay in May. There was an overwhelmingly increased number of oyster larvae at the eastern stations (Platform, Cat Point, East Hole) relative to other portions of the bay. The lowest numbers of oyster larvae were taken at Dry Bar 3. Low numbers were taken at North Spur, Paradise, Scorpion, Sweet Goodson, and St. Vincent Bar. There

were moderate numbers of larvae at Dry Bar 1. There is no doubt of an enhanced recruitment potential in the eastern oyster areas of the Apalachicola system with Platform and Cat Point bars having a relatively massive recruitment potential.

Overall changes in oyster numbers

The data concerning the overall changes in oyster abundance (all stations combined) is given in Figure 11. As indicated, oyster numbers were highest during the winter months with a general decrease from April through May. There was another increase in June and July followed by a major decrease in August. Based on previous analyses, the reduction in the spring could have been related to fishing pressure and the summer increase represents recruitment values in the early summer. The decrease in August could have been related to a combination of high summer temperatures, disease, and predation. By September, there was evidence of renewed recruitment and/or reductions in the above phenomena. This review is hypothetical although it is likely that these factors are important in the determination of oyster production in the bay. The detailed size changes of the oyster populations are given in Appendix A.

The oyster tong data are reviewed in detail in Table 3. In terms of density (numbers per seven tong sample), Platform was the highest during most of the year followed by East Hole and Cat Point bar. The Dry Bar experimental sites were the next highest in density followed by Scorpion, Sweet Goodson, North Spur, and Paradise, in that order. In general, the eastern oyster reefs were the most densely populated in the bay. Such increased numbers relative to other areas could be associated with the reduced salinities and high chlorophyll values found in this region relative to other parts of the estuary. In terms of time-related density changes (Figure 12), there was considerable variation from station to stations. The numbers at Platform, East Hole, and Cat Point tended to show a pattern The major increases in June at Platform had a pronounced effect on the overall numbers of oysters in the combined analysis. The bars in the western portion of the bay were depauperate by comparison. In terms of relative density (Figure 13), the three eastern bars were responsible for about 50% of the overall afdw biomass of oyster density in the bay. In this case, the three eastern bars were almost equivalent when compared with each other. The reason for this feature of the data lies in the mean sizes of the oysters (Figure 14). The largest oysters in the bay were taken at East Hole followed by Cat Point and Platform. The sizes of oysters at Dry Bar were the next highest. The sizes in the western portion of the bay were the lowest with those at St. Vincent being extremely small. These data are in some ways associated with the salinities in the bay. This association will be examined in more detail below. The general decreases in June and September would reflect periods of recruitment.

Spatfall comparisons

The spatfall data are presented in Figure 15. The data reflect the fact that three replicates at each station were taken in two treatments: baskets that were open to predation (o) and baskets that were closed to the larger predators (c). During mid-June, 1990, there appeared to be spatfall at Platform, St. Vincent, Dry Bar 1 and 2, and Scorpion. By the end of June, with the exception of Platform, there was a general cessation of oyster larvae settings. a situation that was maintained through the 9 August collections. By late August, there was general recruitment increases at Sweet Goodson, East Hole, Dry Bar 2 and 3, and North Spur. In early September, this recruitment continued at Dry Bar 2 and 3, scorpion, and North Spur. By late September, there was scattered recruitment at Sweet Goodson, East Hole, Dry Bar 1, and North Spur. There were thus very different recruitment patterns concerning numbers and timing at the various oyster bars in the bay.

In terms of overall recruitment (Figure 16), the highest numbers of spat were noted at Cat Point followed by Dry Bar 1 and 2, and Paradise. The issue of possible station-specific predation rates on the spatfall of oysters in the bay was analyzed using a one-way ANOVA model (Table 4). There were significant differences in the numbers of spat found between the open and closed treatments at the following stations: Platform and Dry Bar 1,2,3. There were no significant differences in oyster spat numbers between the open and closed baskets at North Spur, Scorpion, East Hole, and Cat Point. These data would indicate that there is no geographic trend in the predation rates on oyster spat in the areas sampled. These results should be qualified in that there were relatively low numbers of spat taken. In this way, we can only use the data as an indication of spatfall predation.

Infestation of *Perkinsus marinum*

The data from the evaluation of infestation levels of *Perkinsus marinum* are presented in Table 5. The lowest infestation rates were noted at Sweet Goodson. Such rates were moderately low at East Hole, Dry Bar 1, and Cat Point. The highest infestation rates were noted at Paradise, Scorpion, North Spur, and Dry Bar 2 and 3. With the exception of Sweet Goodson and Dry Bar 1, which had relatively low to moderate rates throughout, there were mixed numbers at all remaining stations with some form of moderately heavy levels of infestation noted at least once. Dry Bar 3 was the most uniformly infested of the areas analyzed followed closely by moderately heavy infestations at Dry Bar 2 and Scorpion. The levels of infestation were generally dicotomous with the eastern oyster reefs having generally lower rates than the reefs in the western sections of the bay. Dry Bar 1 was an exception to the above generalization.

Fishing pressure

During previous studies of the Apalachicola oyster reefs (Livingston, 1985-86; unpublished data), there was a concerted effort to account for the effects of fishing pressure on the most productive bars. After Hurricane Elena

(fall, 1985), a reporting system was instituted that allowed an accounting of fishing pressure on the reefs. These data have been forwarded to the FSU team by the Florida Department on Natural Resources. However, the current data have not yet been received. As soon as we get the data, we will combine the two studies in an effort to account for the effects of fishing pressure on the oyster bars in the Apalachicola system. This will be carried out in cooperation with the Florida Department of Natural Resources. There is a need for an experimental effort in this regard which we have not been able to carry out because of logistical problems and the lack or resources. As soon as we are able to finish this part of the study, we will present the findings of both studies in an oyster seminar to be given at the headquarters of the Apalachicola National Estuarine Preserve.

SUMMARY STATISTICAL ANALYSIS

The seasonal data were analyzed using summary statistics (Table 6). The oyster data were converted to totals by using area per reef as a factor. Such data were based on conversations with personnel from the Florida Department of Natural History and from computerized analyses using digitized data taken from historical reports, field studies, and conversations with oystermen (Livingston, unpublished data). The final data base for this part of the analysis is given in Table 7. This analysis is considered as preliminary and more analysis will be carried out with other statistical models as soon as the data base is completed.

There are several trends that are apparent in the summarized data (Table 7). In terms of mean numbers and biomass of oysters, the eastern reefs (Cat Point, Platform, East Hole) are the most productive in the bay. Such production is not necessarily dependent solely on the low salinities. In fact, the main factor that is associated with such reefs is the low standard deviation of salinity relative to the other areas of the bay. These three areas are also distinguished by high numbers of larvae and high levels of chlorophyll a and total organic carbon relative to other areas of the Apalachicola estuary.

Statistical analyses (Tables 8 and 9) tend to substantiate these observations. mean oysters numbers and total oyster numbers were inversely correlated with the standard deviation of salinity. Temperature and turbidity were negatively correlated with mean numbers of oysters. Chlorophyll a and POC were positively correlated with total oyster numbers, mean oyster biomass, and total oyster biomass. There were negative correlations of various oyster variables with NH_3. The mean numbers of oyster larvae showed similar relationships with salinity variability, turbidity, and TOC. There were not overt relationships of spatfall numbers with such variables.

The data indicate that the level and type of oyster distribution in the bay is dependant on complex salinity conditions (not simply low salinity) and is associated with specific indicators of primary productivity (Chlorophyll a, TOC). The data indicate that water circulation in the bay, together with the physiographic relationship of the oyster bar distribution to sources of high

salinity water (e.g., the passes), could play a decisive role in the oyster distribution in the bay.

HABITAT MAPS

Habitat maps of those variables that had a statistically significant relationship to key oyster variables (Table 9) are given in Figure 17. These maps are a pictorial view of the data described above. The statistical analyses indicated that mean oyster numbers were defined best by salinity deviations, temperature, and turbidity whereas the total oyster numbers (which includes both the density and extent of the individual oyster bars) were in some way associated with salinity deviation, chlorophyll a, and Total Organic Carbon. The primary commercial reefs in the bay are in the eastern sections. These reefs are associated with indicators of productivity which means that a combination of different variables have created the conditions for an uneven distribution of oysters in the estuary. The combination of low variation of salinity and relatively high productivity (even after the existing oyster have filtered the water), together with high levels of spatfall and relatively lower infestations of *Perkinsus marinum* appear to contribute to the high oyster productivity in eastern portions of the system. In areas such as East Hole and Cat Point, the lack of differences between the open and closed spat baskets would indicate that low predation on oyster spat could also be a factor in why such areas are so productive. This particular combination of factors could also be related to the geographic position of the oysters in the Cat Point region with no direct influence of river flow (e.g., lower turbidity), distance from the influx of predators (West Pass, Sikes Cut, Indian Pass), and the possible influence of prevailing currents (Livingston, 1984) that could add to the concentrations of chlorophyll a and organic carbon that are needed by the feeding oysters. Both in terms of numbers and biomass of oysters, Cat Point, East Hole, and Platform are by far the most productive bars in the bay system. Further analyses will be carried out with the information generated in this study and the results of previous studies of the Apalachicola River-estuary will be integrated with such findings to determine the relationship of the various factors that contribute to oyster production in the Apalachicola estuary. Given an appropriate substrate, the above areas should be capable of producing relatively high numbers of high quality oysters.

We intend to combine the results of the 1985-86 study with the present study to determine, in more detail, the various dynamic processes that contribute to the high oyster production in the Apalachicola system. This analysis will also include the results of various experiments with predation, determinations of the distribution of major oyster predators, and some natural experiments (based on restrictions placed on oystering after Hurricane Elena) with the influence of fishing pressure on the various oyster reefs. Since oystering was selectively introduced on specific reefs during and after an extensive oyster monitoring program, we will have detailed information on how individual oyster reefs reacted to the activation of oystering after a prolonged moratorium. These data, combined with the habitat analyses presented in this report, should give a relatively complete account of the various factors that contribute to the conditions that make the Apalachicola system such a natural producer of oysters. The management implications of such results are obvious.

REFERENCES

American Public health Association. 1975. Standard methods for the examination of water and wastewater. 14th ed. APHA. New York.

American Public Health Association. 1980. Standard methods for the examination of water and wastewater. 15th. ed. APHA. New York.

Andree, S. (ed.) 1983. Apalachicola Oyster Industry: Conference Proceedings. Proceedings of a conference held October 6-7, 1982, in Apalachicola Florida. Sea Grant Project No. A/MAP-1. 85 pp.

Andree, S., and W. Miley. 1984. Summary Report, Big Bend Industry Workshop held March 2, 1984.

Bahr, L.N. and W.P. Lanier. 1981. the ecology of intertidal oyster reefs of the South Atlantic coast: a community profile. U.S. Fish and Wildlife Service, Office of Biological Services, Washington,D.C. FWS/OBS-82/10.57. 37 pp.

Burrell, V.G., Jr. 1986. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Atlantic)--American oyster. U.S. Fish Wildl.Serv.Biol. Rep. 82(11.57). U.S. Army Corps of Engineers TR EL-82-4. 17 pp.

Cake, E.W., Jr. 1983. habitat suitability index models: Gulf of Mexico American oyster. U.S. Dept.Int.Fish Wildl. Serv. FWS/OBS-82/10.57. 37 pp.

Chatry, M., Dugas, R.J. and K.A. Easley, 1983. Optimum salinity regime for oyster production on Louisiana's State Seedgrounds. Contributions in Marine Science 26:81-94.

Galtsoff, P.S. 1964. The American oyster *Crassostrea virginica* (Gmelin) Fishery Bulletin 64:480 pp.

Hayes, P.F., and R.W. Menzel. 1981. The reproductive cycle of early setting *Crassostrea virginica* (Gmelin) in the northern Gulf of Mexico, and its implications for population recruitment. Biol. Bull. 160:80-88.

Ingle, R.M. and C.E. Dawson, Jr. 1951. Variation in salinity and its relation to the Florida Oyster. Salinity Variations in Apalachicola Bay. Proc. Gulf. Carib. Fish. Inst. pp.35-42.

Ingle, R.M., and C.E. Dawson, Jr. 1952. Growth of the American Oyster, *Crassostrea virginica* (Gmelin) in Florida Waters. Bull. Mar. Sci. Gulf and Carib. 2:393-404.

International Mussel Watch, The. 1980. Report of a workshop sponsored by the Environmental Studies Board, Commission on Natural Resources, National Research Council. 248 pp.

Joyce, E.A., Jr. 1972. A partial bibliography of oysters, with annotations. State of Florida Department of Natural Resources. Special Scientific Report No. 34. 846 pp.

Levinton, J.S. 1982. Marine Ecology. Prentice-hall, Inc., New Jersey. 526 pp.

Livingston, R. J. 1975a. Long-term fluctuations of epibenthic fish and invertebrate populations in Apalachicola Bay, Florida. Fish. Bull. 74:311-321.

Livingston, R. J. 1975b. Resource management and estuarine function with application to the Apalachicola drainage system (North Florida, U.S.A.). Office of Water and Hazardous Materials, U.S. Environmental Protection Agency: included in final collection of papers (reviewed and published for submission to the Congress of the United States), Estuarine Pollution Control and Assessment. Vol. 1, 3-17.

Livingston, R. J. 1976a. Diurnal and seasonal fluctuations of organisms in a north Florida estuary. Est. Coastal Mar. Sci. 4:373-400.

Livingston, R. J. 1976b. Avoidance responses of estuarine organisms to storm water runoff and pulp mill effluents. Invited paper, Proceedings of the Third International Estuarine Research Federation Conference, Galveston, Texas. October, 1975. Estuarine Processes I. 507-522.

Livingston, R. J. 1976c. dynamics of organochlorine pesticides in estuarine systems and their effects on estuarine biota. Invited paper, Proceeding of the Third International Estuarine Research Federation Conference, Galveston, Texas. October, 1975. Estuarine Processes I., 507-522.

Livingston, R. J. 1976d. Time as a factor in environmental sampling populations and communities. Invited paper, Symposium on the Biological Monitoring of Water Ecosystems (ed. J. Cairns, Jr.). ASTM STP 607: 212-234.

Livingston, R.J. 1976e. Environmental considerations and the management of barrier islands: St. George Island and the Apalachicola Bay system. In: Barrier Islands and Beaches, Technical Proceedings of the 1976 Barrier Islands Workshop, Annapolis, Maryland, May 17-18, 1976.

Livingston, R.J. 1978. The Apalachicola dilemma: wetlands priorities, developmental stress, and management initiatives. Invited paper, National Wetland Protection Symposium, environmental law Institute and the Fish and Wildlife Service, U.S. Department of the Interior. pp.163-167.

Livingston, R. J. 1979a. Multiple factor interactions and stress in coastal systems: A review of experimental approaches and field implications. In Marine Pollution: Functional Responses. Ed. F. John Vernberg. Academic Press, Inc. New York. pp. 389-413.

Livingston, R. J. 1979b. Research, management and the estuarine sanctuary concept: Where are the ties that bind? Proceedings of the Workshop on the National Estuarine Sanctuary Program, The Georgia Conservancy and The Coastal Society, October, 1979. pp. 50-53.

Livingston, R. J. 1980a. Critical habitat assessment of the Apalachicola estuary and associated coastal areas. Unpublished report. Coastal Plains Regional Commission.

Livingston, R. J. 1980b. The Apalachicola experiment: Research and management. Oceanus 23: 14-21.

Livingston, R. J. 1981. Man's impact on the distribution and abundance of sciaenid fishes. Sixth Annual Marine Recreational Fisheries Symposium, Sciaenides: Territorial Demersal Resources. National Marine Fisheries Service. Houston, Texas.

Livingston, R. J. 1982a. Long-term biological variability and stress in coastal systems. Second US/USSR Symposium: Biological Aspects of Pollutant Effects on Marine Organisms. pp.52-66.

Livingston, R. J. 1982b. Between the idea and reality: An essay on the problems involved in applying scientific data to resource management problems. Working Papers in Science and Technology Studies, eds. A. Donovan and a. L. Berge. Vol.1, no. 1, pp. 31-59.

Livingston, R. J. 1983. Resource Atlas of the Apalachicola Estuary. Florida Sea Grant College.

Livingston, R. J. 1984. Ecology of the Apalachicola Bay system (northeast Gulf of Mexico): an estuarine profile. Prepared for National Coastal Ecosystems Team. U. S. Fish and Wildlife Service, FWS/OBS-8205.

Livingston, R. J., and J. Duncan. 1979. Short- and long-term effects of forestry operations on quarter quality and epibenthic assemblages of a north Florida estuary. Ecological Processes in Coastal and Marine systems, Ed. R. J. Livingston. Plenum Press, New York.

Livingston, R. J., and E. a. Joyce. 1977. Proceedings of the Conference on the Apalachicola Drainage System. Florida Marine Research Publications, Cont. #26. Tallahassee, Florida. 177 pp.

Livingston, R. J., and O. Loucks. 1979. Productivity, trophic interactions, and food web relationships in wetlands and associated systems. Pages 101-119 in Wetland functions and Values: The State of Our Understanding, American Water Resources Association.

Livingston, R. J., R. L. Iverson, R. H. Estabrook, V. E. Keys, and John Taylor, Jr. 1974. Major features of the Apalachicola Bay system: Physiography, biota, and resource management. Florida Scientist 37: 245-271.

Livingston, R. J., G. J. Kobylinski, Frank G. Lewis, III, and Peter F. Sheridan. 1976. Long-term fluctuations of epibenthic fish and invertebrate populations in Apalachicola Bay, Florida. Fishery Bulletin 74: 311-321.

Livingston, R. J., P. S. Sheridan, B. G. McLane, F. G. Lewis, III, and G. G. Kobylinski. 1977. The biota of the Apalachicola Bay system: functional relationships. Florida Department of Natural Resources Marine Research laboratory, Publication # 26.

Livingston, R. J., N. Thompson, and D. Meeter. 1978. Long-term variation of organochlorine residues and assemblages of epibenthic organisms in a shallow north Florida (USA) estuary. Marine Biology 46: 355-372.

Livingston, R. J., D. Alderson, N. Friedman, S. Keller, B. Minor, J. H. Hankinson, Jr., S. Mashburn, and D. Marston. 1982. Review of the Distribution of Trace Metals in the Apalachicola-Chipola Drainage System. A detailed analysis carried out for the River Committee of the Apalachee Regional Planning Council by the Environmental Service Center (Florida Defenders of the Environment) and the Florida Public Interest Research Group.

Louisiana Wildlife and Fisheries Commission. 1976. Barataria Basin: Salinity Changes and Oyster Distribution. Sea Grant Publication No. LSU-T-76-02. 22 pages.

Mahoney, B. M. S., and G. S. Noyes. 1982. Effects of petroleum on feeding and mortality of the American oyster. Arch. Environm. Contam. Toxicol. 11:527-531.

Meeter, D. A., R. J. Livingston, and G. Woodsum. 1979. Short and long-term hydrological cycles of the Apalachicola drainage system with application to Gulf coastal populations. Ecological Processes in Coastal and Marine Systems, Ed. R. J. Livingston. Plenum Press, New York.

Menzel, R. W., N. C. Hulings, and R. R. Hathaway. 1958. Causes of depletion of oysters in St. Vincent bay, Apalachicola, Florida. Proceedings of the National Shellfisheries Association 48:66-71.

Menzel, R. W., N. C. Hulings, and R. R. Hathway. 1966. Oyster abundance in Apalachicola Bay, Florida, in relation to biotic associations influenced by salinity and other factors. Gulf Research Reports 2:73-96.

Nichy, R. E., and R. W. Menzel. 1960. Mortality of intertidal and subtidal oysters in Alligator Harbor, Florida. Proc. Nat. Shellf. Assoc. 51:33-41.

Olguin-Espinoza, I., 1987. The reproductive cycle of the oyster *Crassostra virginica* (Gmelin) in the Apalachicola Bay, Florida. MS Thesis. Department of Oceanography, Florida State University, Tallahassee, Florida.

Pauly D. 1982. A method to estimate the stock-recruitment relationship of shrimps. Trans. Amer. Fish. Soc. 111:13-20.

Prochaska, F. J., and D. Mulkey. 1983. Apalachicola Bay oyster industry: Some economic considerations. In: Apalachicola Oyster Industry: Conference proceedings. Ed., Scott Andree. Florida Sea Grant Report No. 57, pp. 47-52.

Quick, J. A., Jr. and J.. G. Mackin. 1971. Oyster parasitism by *Labyrinthomyxa marina* in Florida. Pap. 13, Fl. Dept. Nat. Res. 55 pp.

Ray, S. M. 1952. A culture technique for the diagnosis of infections with *Dermocystidium marinum* Mackin, Owen, and Collier in oysters. Science 116, pp. 360-361.

Ray, S. M. 1954. Biological studies on *Dermocystidium marinum*. Ric. Inst. Pan., Special Issue. 114 pp.

Russell-Hunter, W. D. 1970. Aquatic Productivity: An Introduction to Some Basic Aspects of Biological Oceanography and Limnology. The Macmillan Company, London. 306 pp.

Sellers, M. A. and J. G. Stanley. 1984. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (North Atlantic)--American oyster. U.S. Fish Wildl. Serv. FWS/OBS-82/11.23. U.S. Army corps of Engineers, TR EL-82-4. 15 pp.

Shumway, S. E., and R. K. Koehn. 1982. Oxygen consumption of the American oyster *Crassostra virginica*. Mar. Ecol. Prog. Ser. 9:59-68.

Stanley, J. G., and M. A. Sellers. 1986a. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Gulf of Mexico)--American oyster. U.S. Fish Wildl. Serv. Biol. Rep. 82(11.64). U.S. Army Corps of Engineers, TR EL-82-4. 25 pp.

Stanley, J. G., and M. A. Sellers. 1986b. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (Mid-

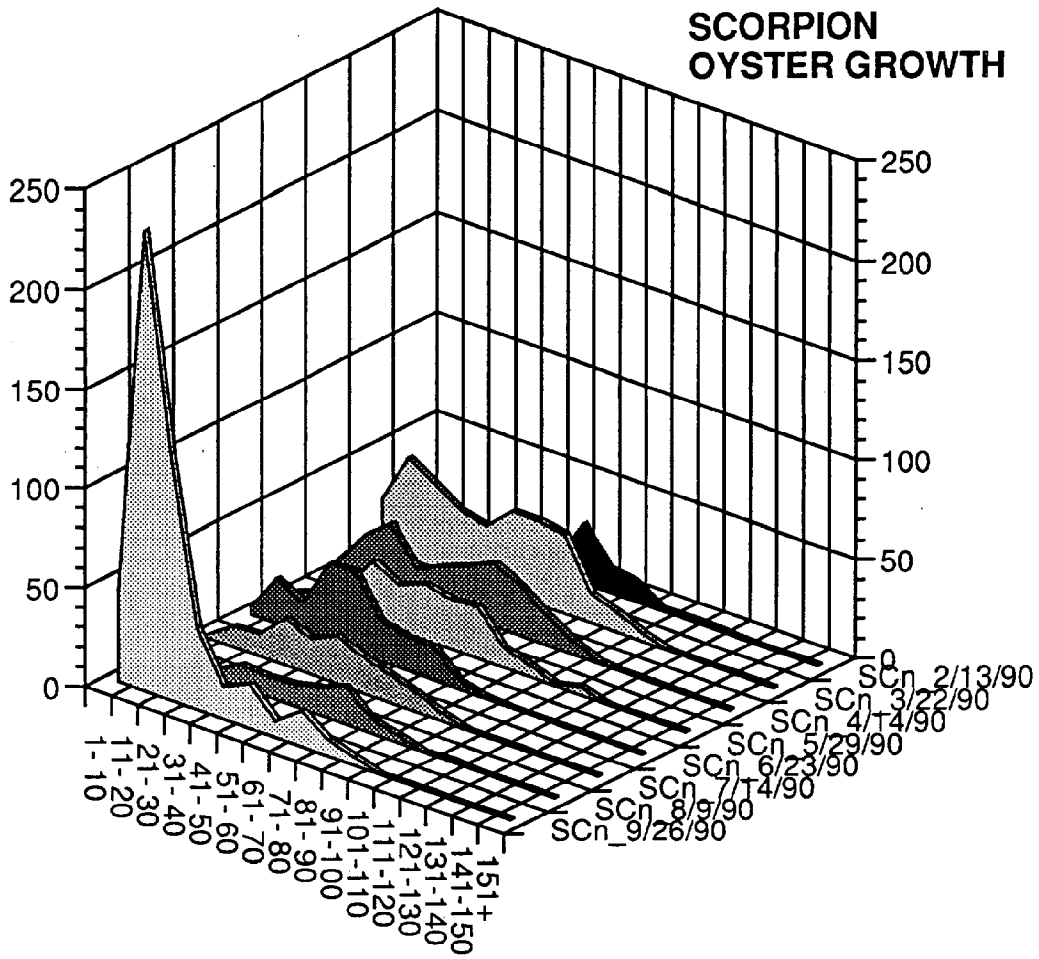
Atlantic)American oyster. U.S. Fish Wildl. Serv. Biol. Rep. 82(11.65). U.S. Army Corps of Engineers, TR EL-82-4. 25 pp.

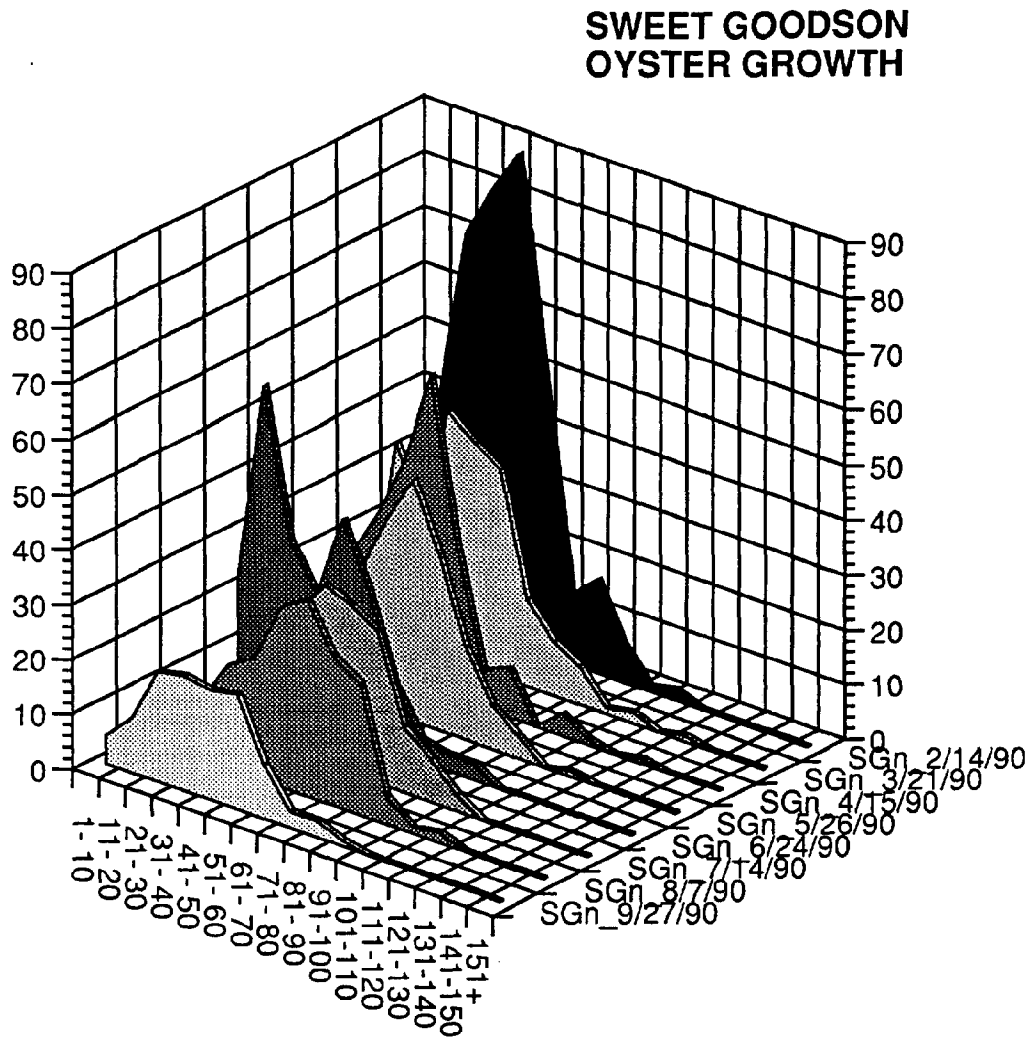
Stewart, V. 1966. *Dermocystidium marinum*, parasite of Oysters. *Salt Water Fisheries* leaflet 5, May 1966.

White, D. C., R. J. Livingston, R. J. Bobbie, and J. S. Nickels. 1979. Effects of surface composition, water column chemistry, and time of exposure on the composition of the detrital microflora and associated macrofauna in Apalachicola Bay, Florida. In, R. J. Livingston, ed., Ecological Processes in Coastal and Marine Systems. Plenum Press, New York. pp. 83-116.

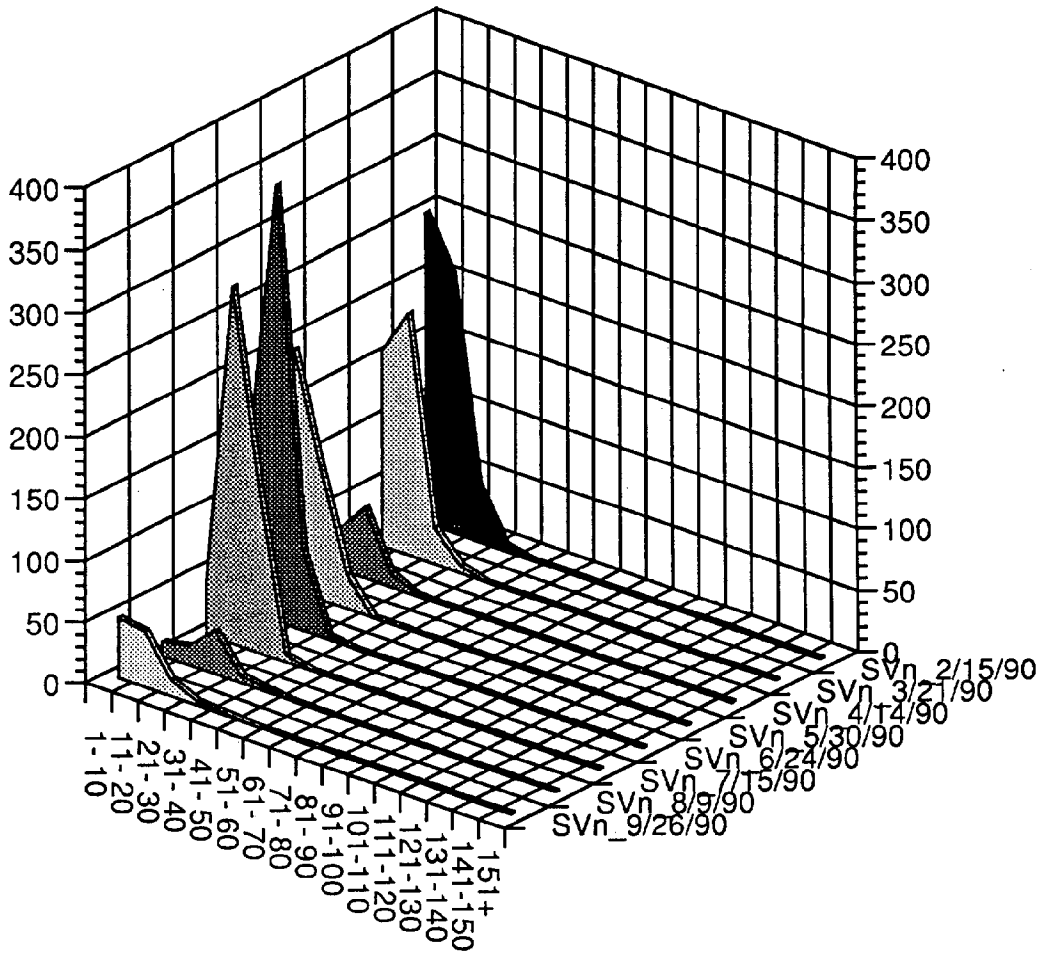
Whitfield, W. K., Jr. and D. S. Beaumariage. 1977. Shellfish management in Apalachicola Bay: past, present, future. Proceedings of the conference on the Apalachicola drainage system, edited by R. J. Livingston and E. A. Joyce, Jr. pp. 130-140. Florida DNR Marine Research Publication No. 26. St. Petersburg, Florida.

APPENDIX A: Data concerning growth frequency analyses of oysters taken in the Apalachicola estuary during the 1990 sampling period.

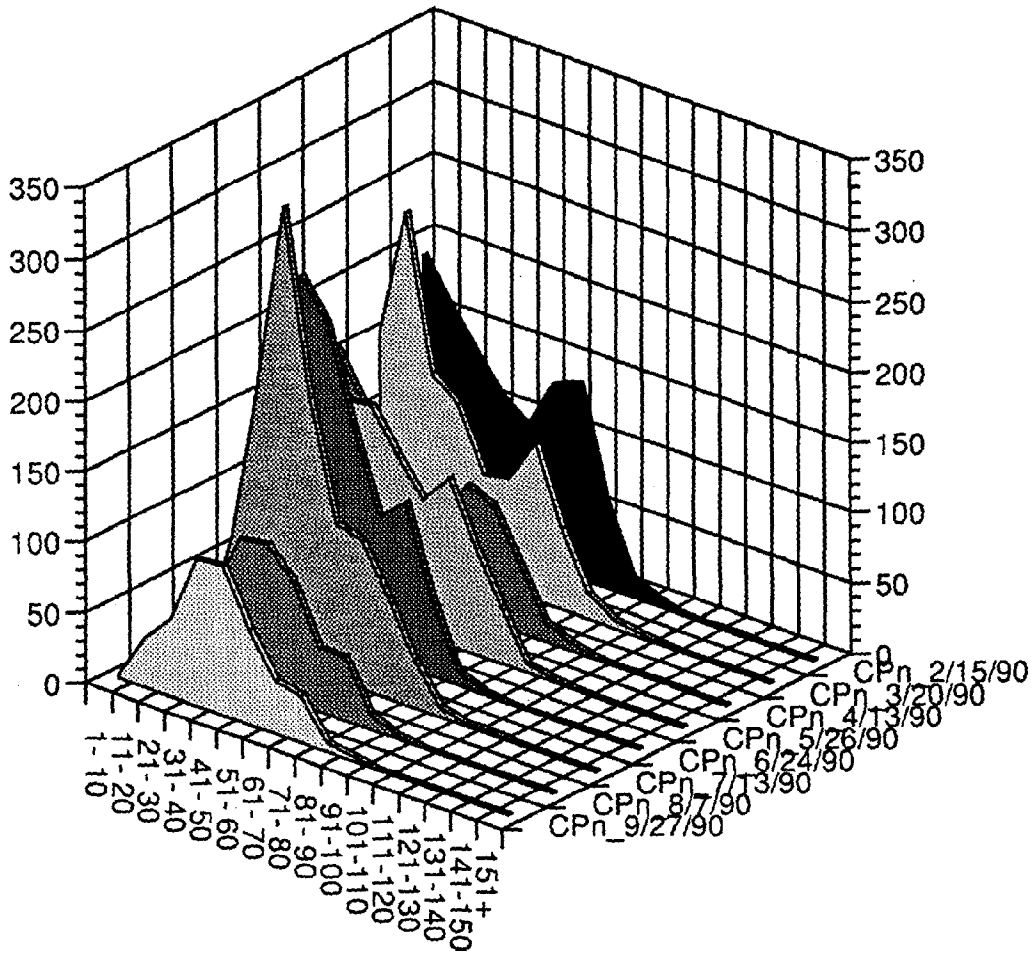

SCORPION
OYSTER GROWTH
250
200
150
100
50
0
1- 10
11- 20
21- 30
31- 40
41- 50
51- 60
61- 70
71- 80
81- 90
91-100
101-110
111-120
121-130
131-140
141-150
151+
SCn_2/13/90
SCn_3/22/90
SCn_4/14/90
SCn_5/29/90
SCn_6/23/90
SCn_7/14/90
SCn_8/9/90
SCn_9/26/90


SWEET GOODSON
OYSTER GROWTH
90
80
70
60
50
40
30
20
10
0
1- 10
11- 20
21- 30
31- 40
41- 50
51- 60
61- 70
71- 80
81- 90
91-100
101-110
111-120
121-130
131-140
141-150
151+
SGn_2/14/90
SGn_3/21/90
SGn_4/15/90
SGn_5/26/90
SGn_6/24/90
SGn_7/14/90
SGn_8/7/90
SGn_9/27/90

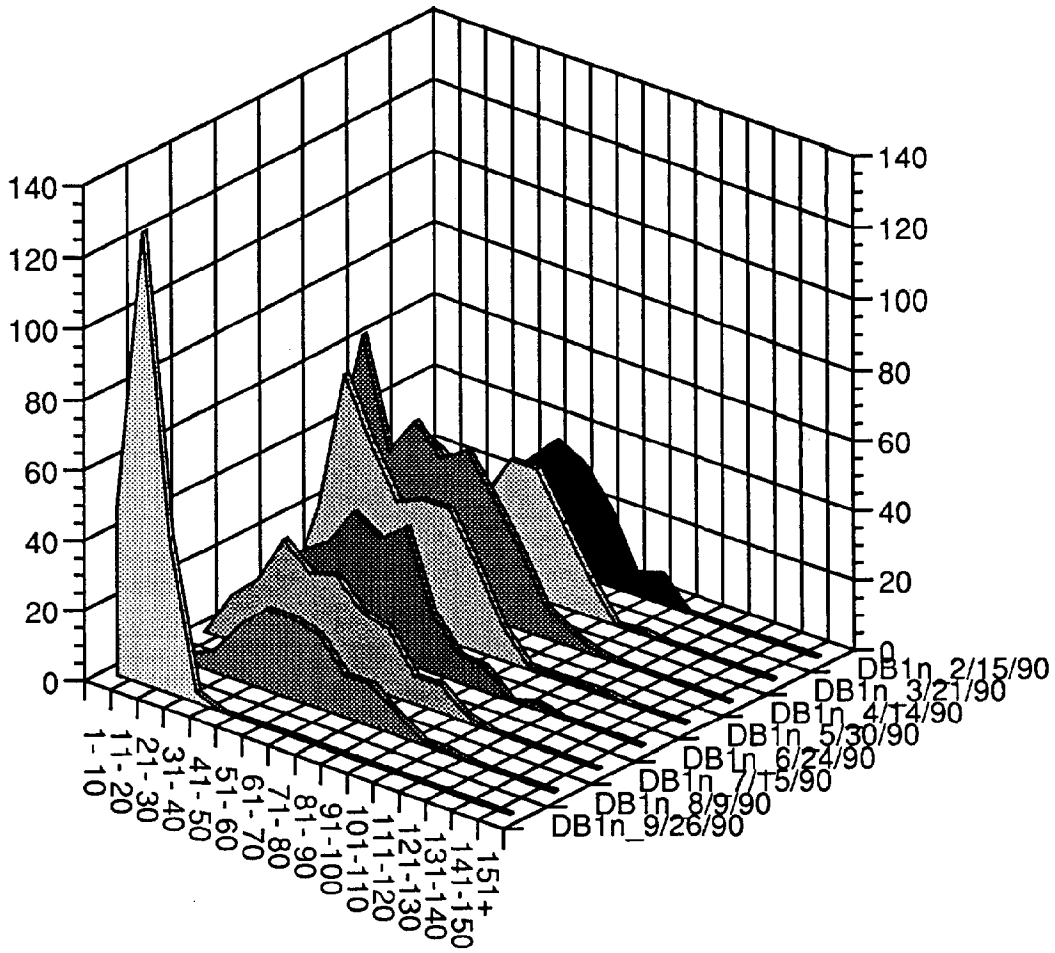
ST. VINCENT
OYSTER GROWTH



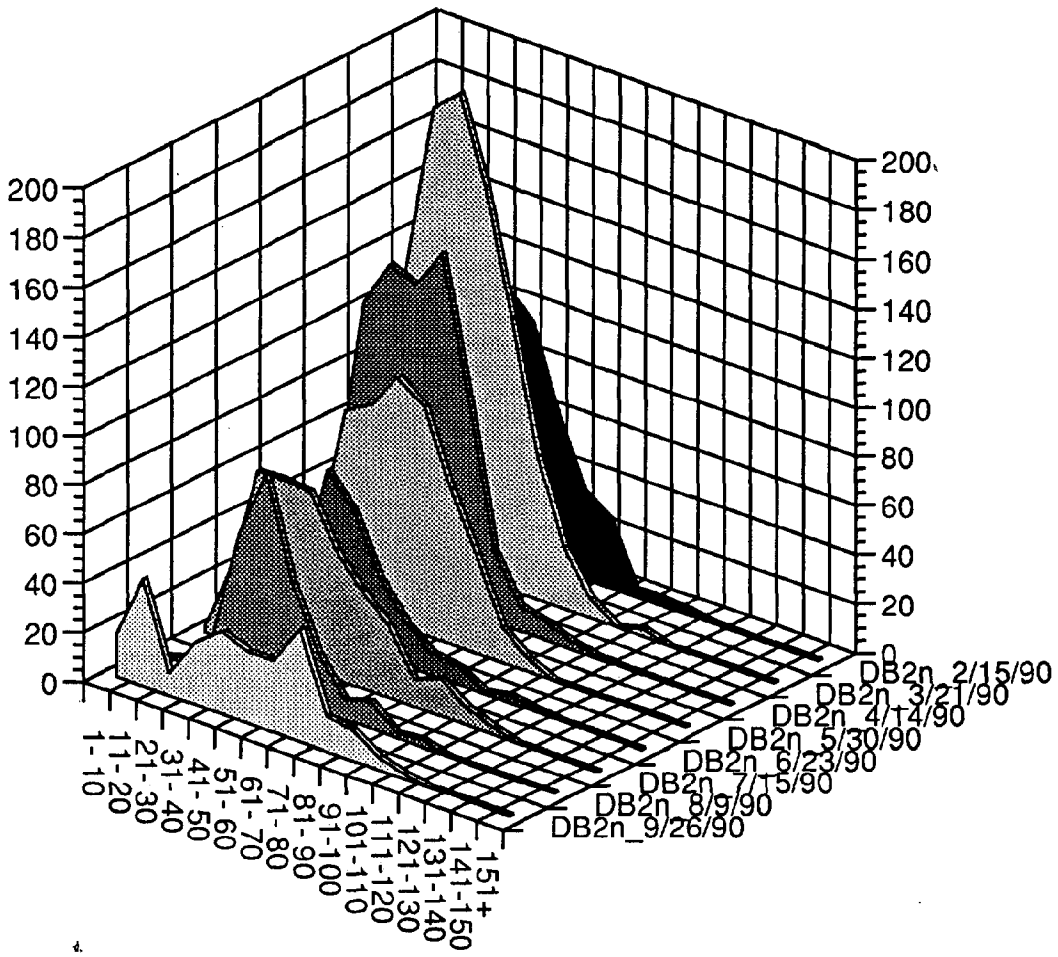
CAT POINT
OYSTER GROWTH



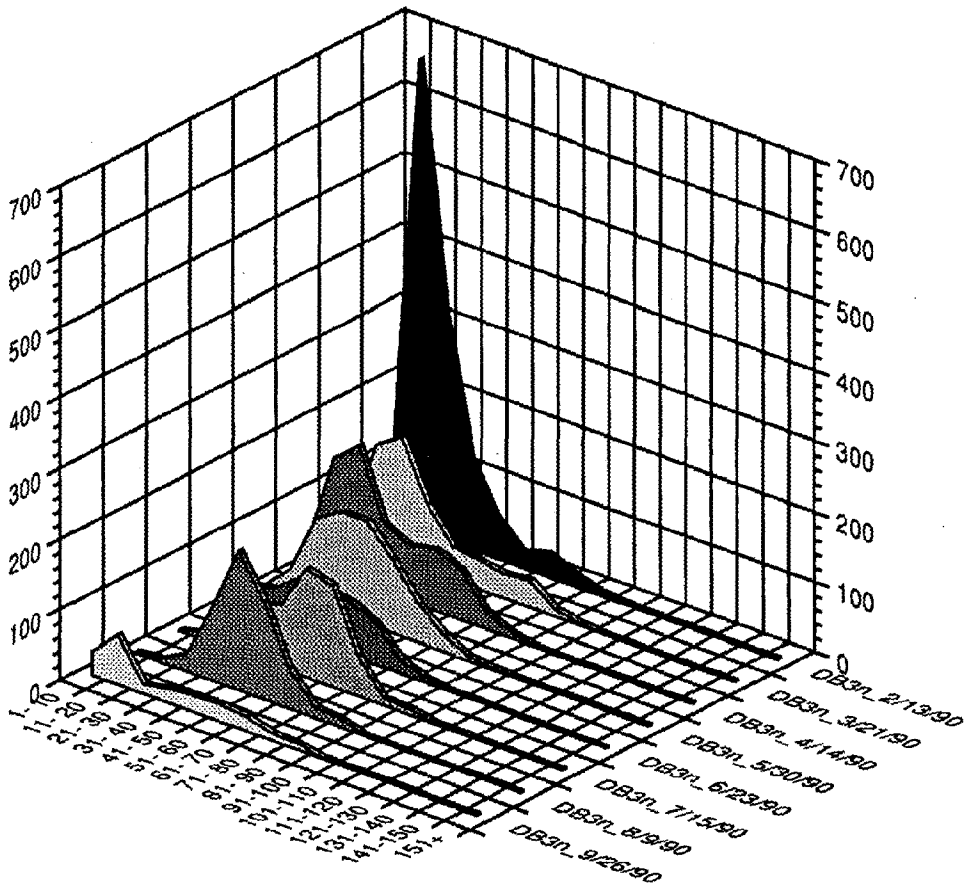
DRY BAR 1
OYSTER GROWTH



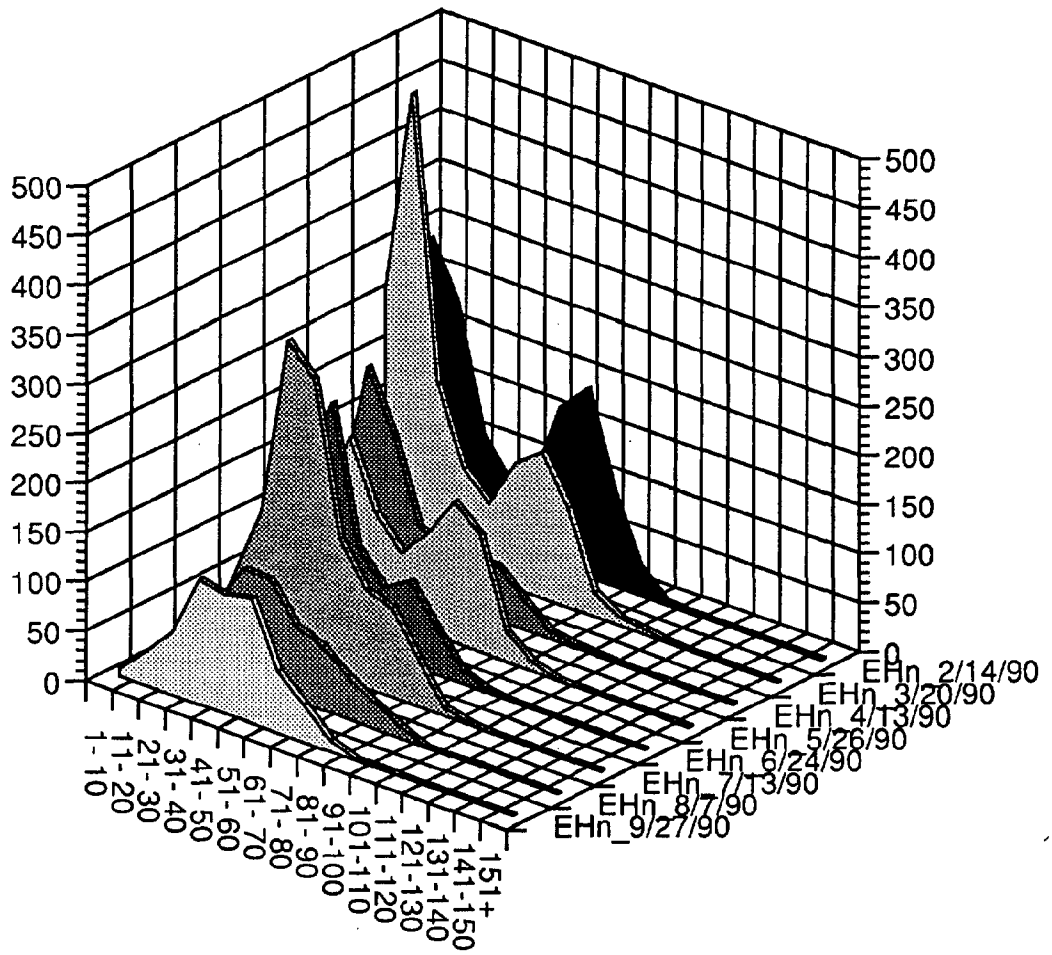
DRY BAR 2
OYSTER GROWTH



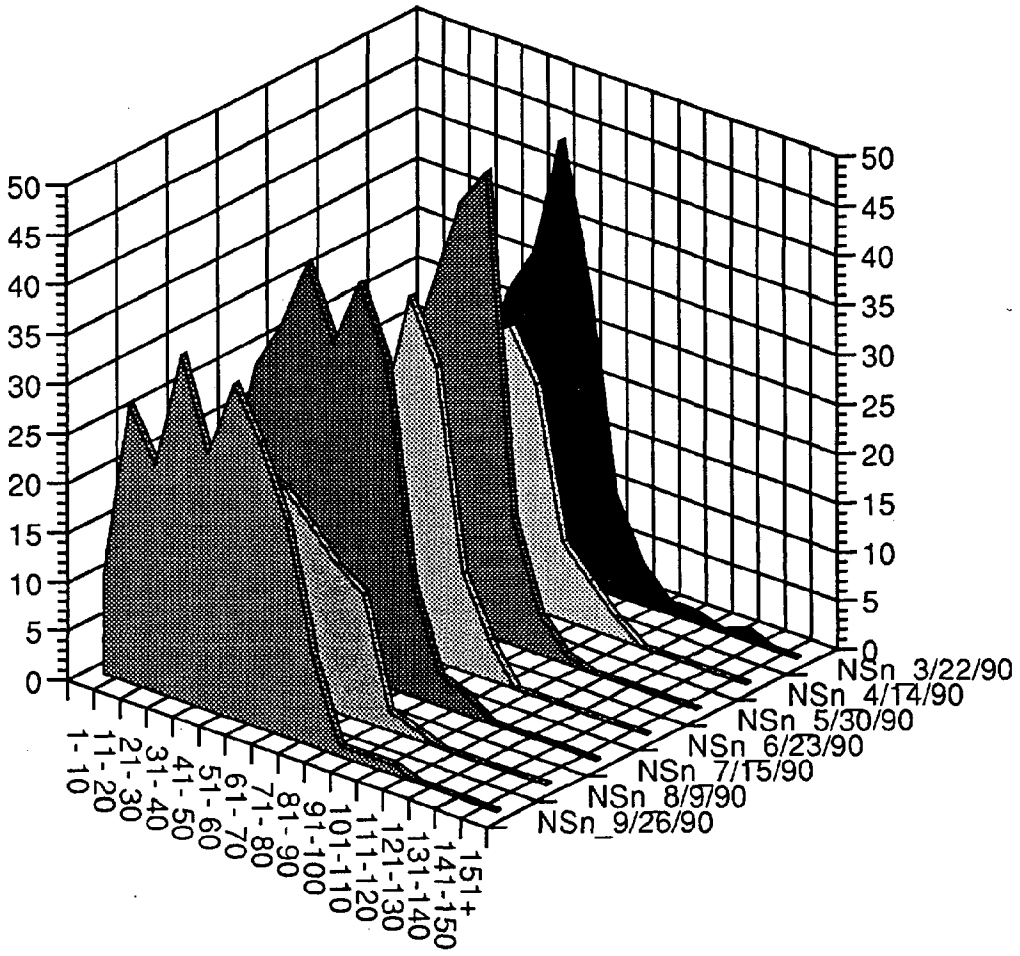
DRY BAR 3
OYSTER GROWTH



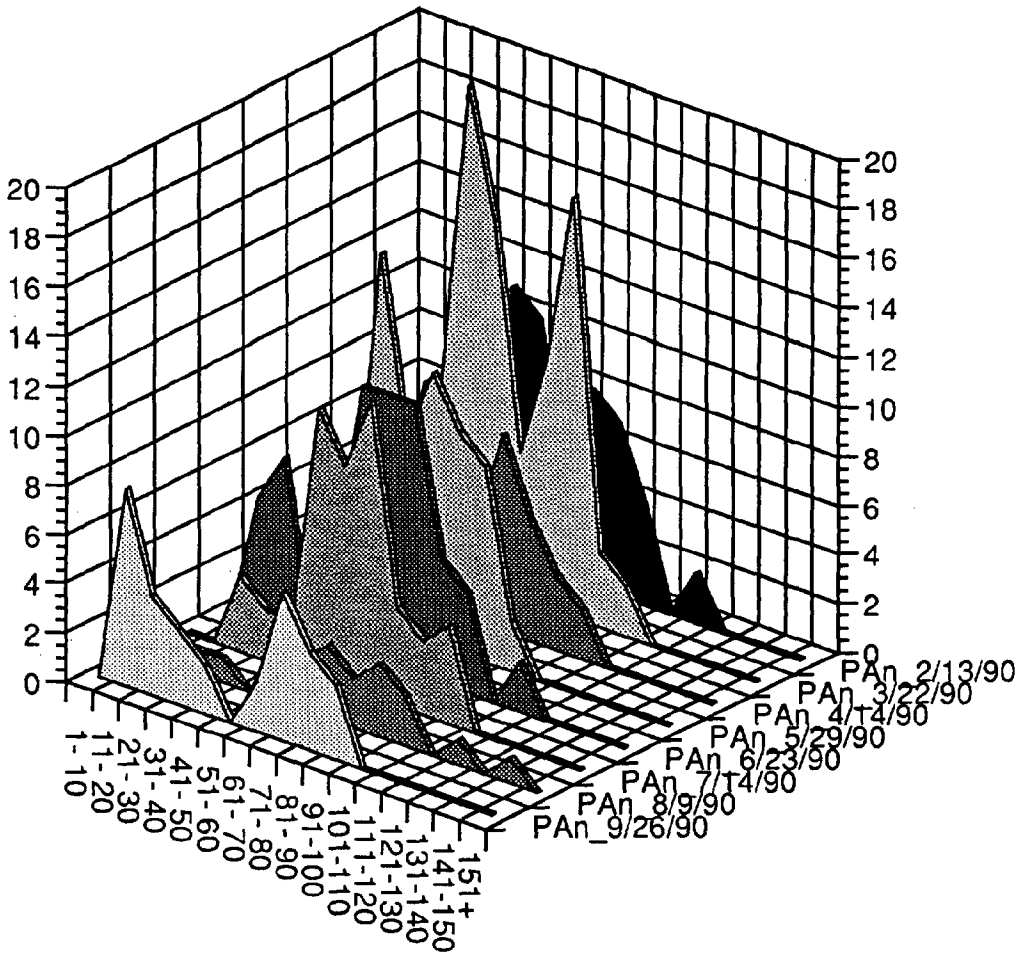
EAST HOLE
OYSTER GROWTH



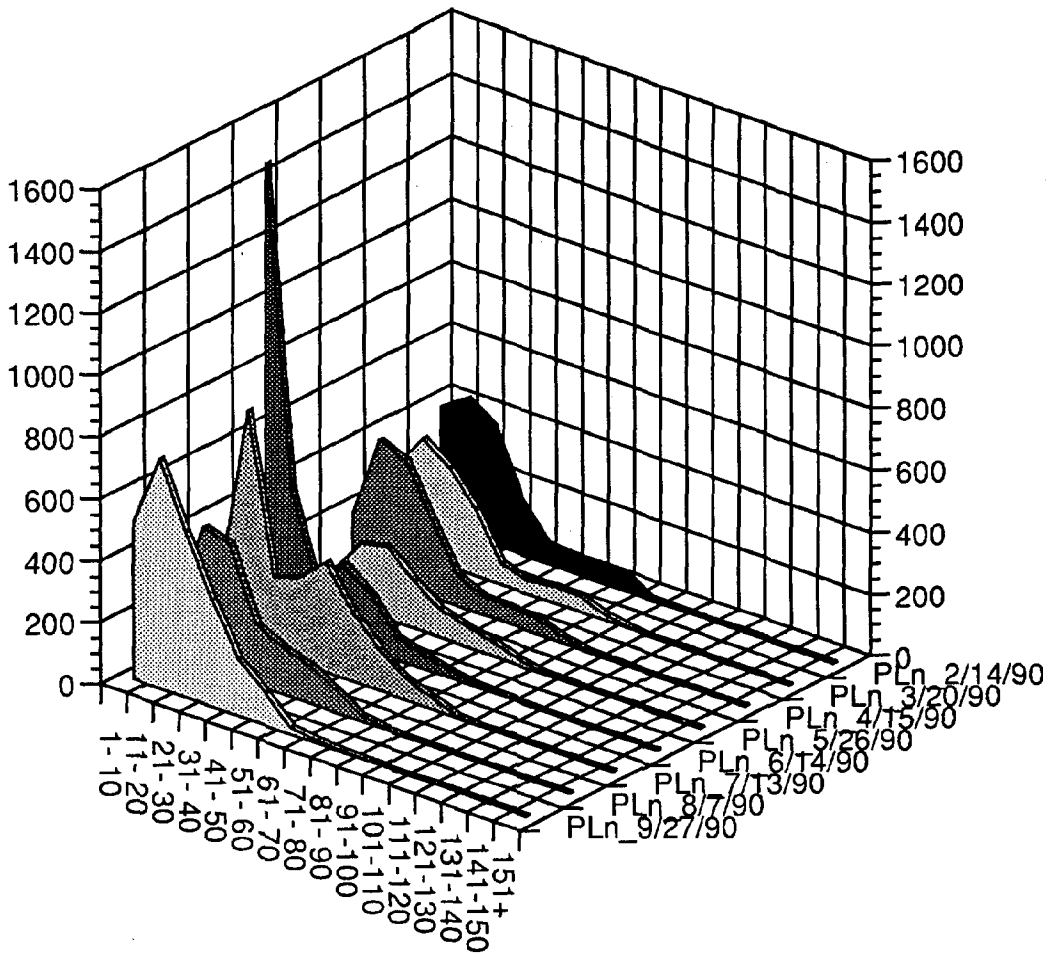
NORTH SPUR
OYSTER GROWTH



PARADISE
OYSTER GROWTH



PLATFORM
OYSTER GROWTH



TABLES

Table 1: Physical/chemical field data taken in the Apalachicola estuary from January, 1990-September, 1990.

Table 2: Laboratory chemical data taken in the Apalachicola estuary from January, 1990-September, 1990.

Table 3: Oyster tong data taken in the Apalachicola estuary from February, 1990-September, 1990.

Table 4: ANOVA analysis run with spat data from open and closed basket with data run taken in the Apalachicola estuary from January, 1990-September, 1990.

Table 5: *P. marinum* infestation data with oysters taken on the various Apalachicola reefs in June, 1990.

Table 6: Summary statistical data for oyster station data.

Table 7: Summary data (mean) concerning the oyster populations and physical-chemical habitat analyses.

Table 8: Correlation matrix of variables taken in the oyster analysis of the Apalachicola system.

Table 9: Regression results (significance = 0.05 or better) of oyster variables vs habitat features.

Label		STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-1	CONDUCTIVITY	TEMPERATURE
1		1	1/29/90-S	1610	S	-0.1	2.7	3800	14.3
2		1	2/28/90-S	1202	S	-0.1	0.9	1100	14.1
3		1	3/22/90-S	755	S	-0.1	2	2400	15.5
4		1	4/14/90-S	904	S	-0.1	3	4000	18.25
5		1	5/30/90-S	1330	S	-0.1	14	23500	26.5
6		1	6/27/90-S	1435	S	-0.1	12	21900	31
7		1	7/25/90-S	1520	S	-0.1	18.4	33000	31.5
8		1	8/23/90-S	730	S	-0.1	20	36000	30
9		1	9/5/90-S	549	S	-0.1	16	30000	31.5
10		1	1/29/90-B	1610	B	-2	7	10000	13.7
11		1	2/28/90-B	1202	B	-2.1	2.5	3800	14
12		1	3/22/90-B	755	B	-1.4	8	11000	16
13		1	4/14/90-B	904	B	-2.2	6.25	9000	18
14		1	5/30/90-B	1330	B	-2	20	33000	26
15		1	6/27/90-B	1435	B	-2.2	12.2	22000	31.1
16		1	7/25/90-B	1520	B	-2.5	19	33000	31
17		1	8/23/90-B	730	B	-2.5	21	37000	30
18		1	9/5/90-B	549	B	-2.5	17	32000	31
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

Table 1: Physical/chemical field data taken in the Apalachicola estuary from January, 1990-September, 1990.

	I	J	K	L	M	N	O	P	Q
Label	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-2	CONDUCTIVITY
1	11.3	1.1	2	1/29/90-S	1630	S	-0.1	0	70
2	8.8	-1.6	2	2/28/90-S	1318	S	-0.1	0	60
3	8.6	-1.4	2	3/22/90-S	714	S	-0.1	0	55
4	9.3	-0.1	2	4/14/90-S	830	S	-0.1	0	500
5	7.9	0.4	2	5/30/90-S	1402	S	-0.1	3	3500
6	7.7	0.6	2	6/27/90-S	1501	S	-0.1	0.9	1500
7	7.6	0.8	2	7/25/90-S	1540	S	-0.1	14	7000
8	8	1.1	2	8/22/90-S	750	S	-0.1	27	27000
9	7.8	0.9	2	9/5/90-S	605	S	-0.1	13	25000
10	9	-1.1	2	1/29/90-B	1630	B	-2.5	0	72
11	8.8	-1.5	2	2/28/90-B	1318	B	-2.9	0	60
12	6.4	-3.2	2	3/22/90-B	714	B	-2.75	0	-9999
13	9	-0.3	2	4/14/90-B	830	B	-2.8	6.5	9500
14	6.3	-1.1	2	5/30/90-B	1402	B	-2.75	13	22000
15	7.6	0.6	2	6/27/90-B	1501	B	-3	6	11500
16	7.4	0.6	2	7/25/90-B	1540	B	-3	11	16000
17	7	0.2	2	8/22/90-B	750	B	-4.5	29	-9999
18	7	0.1	2	9/5/90-B	605	B	-4	19	34000
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

Label	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-4
1	13	10.1	-0.6	4	1/29/90-S	1125	S	-0.1	0
2	14.1	8.4	-2.1	4	2/26/90-S	905	S	-0.1	0
3	15	8.2	-2.1	4	3/22/90-S	1500	S	-0.1	0
4	17.1	8.6	-1.2	4	4/14/90-S	1828	S	-0.1	3.5
5	25.5	7.8	-0.4	4	5/30/90-S	844	S	-0.1	5
6	30.5	7.8	0.2	4	6/27/90-S	744	S	-0.1	6.2
7	31	6.2	-0.8	4	7/25/90-S	920	S	-0.1	13
8	30	6.2	-0.4	4	8/22/90-S	844	S	-0.1	8.5
9	31	8	1	4	9/5/90-S	815	S	-0.1	8
10	13	10.1	-0.6	4	1/29/90-B	1125	B	-1.7	0
11	14.1	8.3	-2.2	4	2/26/90-B	905	B	-1.8	0
12	16	8.2	-1.8	4	3/22/90-B	1500	B	-2	0
13	18	8.4	-0.9	4	4/14/90-B	1828	B	-2	16
14	26	7.2	-0.5	4	5/30/90-B	844	B	-2.5	12
15	30	6	-1.4	4	6/27/90-B	744	B	-2.5	14.1
16	31	5.8	-1.3	4	7/25/90-B	920	B	-2.4	17.2
17	30	5.5	-1	4	8/22/90-B	844	B	-2.5	15
18	31	6.8	0	4	9/5/90-B	815	B	-2.5	20
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

	AA	AB	AC	AD	AE	AF	AG	AH	AI
Label	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE	DEPTH
1	129	12.7	9	-1.8	01A	1/29/90-S	1500	S	-0.1
2	57	12.3	8.2	-2.7	01A	2/28/90-S	905	S	-0.1
3	90	17	7	-2.8	01A	3/22/90-S	900	S	-0.1
4	3500	20	8	-1	01A	4/14/90-S	1046	S	-0.1
5	8000	25	7.9	-0.3	01A	5/30/90-S	1154	S	-0.1
6	11000	28.5	7.2	-0.4	01A	6/27/90-S	1155	S	-0.1
7	22500	29	6.95	-0.3	01A	7/25/90-S	1252	S	-0.1
8	15000	29	6.2	-1.2	01A	8/23/90-S	1000	S	-0.5
9	13500	29	5.6	-1.9	01A	9/5/90-S	243	S	-0.1
10	115	12	9	-2	01A	1/29/90-B	1500	B	-2.7
11	60	12.4	8.1	-2.8	01A	2/28/90-B	905	B	-3.1
12	180	16	6.4	-3.6	01A	3/22/90-B	900	B	-2.1
13	22500	19.2	6.8	-1.7	01A	4/14/90-B	1046	B	-1.5
14	15000	26.5	6.2	-1.4	01A	5/30/90-B	1154	B	-2.5
15	25000	29.8	7	-0.1	01A	6/27/90-B	1155	B	-3
16	30500	30.5	6.3	-0.6	01A	7/25/90-B	1252	B	-3
17	27000	31	5.6	-1.3	01A	9/5/90-B	243	B	-1.5
18	30000	29	5.7	-1.3					
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

Label	SALINITY-1A	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE
1	9	11800	14.6	12.5	2.7	01B	1/29/90-S	1350	S
2	3.1	4400	14.1	9.2	-1.1	01B	2/28/890-S	837	S
3	4	6000	15.5	8.6	-1.3	01B	3/22/90-S	956	S
4	10.2	14000	18.5	8.4	-0.6	01B	4/14/90-S	1130	S
5	18.5	30000	25.5	7.9	0.4	01B	5/30/90-S	1115	S
6	17.1	30000	29	6.8	-0.3	01B	6/27/90-S	1129	S
7	20.5	31200	31	7.1	0.4	01B	7/25/90-S	1225	S
8	28	48000	30	7.6	1	01B	8/22/90-S	156	S
9	20	36000	31.5	8	1.3	01B	9/5/90-S	1102	S
10	17	20000	14	11.8	2.4	01B	1/29/90-B	1350	B
11	18	23000	14.9	8.1	-1.1	01B	2/28/90-B	837	B
12	8.5	12000	16	8.4	-1.1	01B	3/22/90-B	956	B
13	10.5	14100	18.5	8.5	-0.4	01B	4/14/90-B	1130	B
14	21	34000	26	7.4	0.1	01B	5/30/90-B	1115	B
15	18	30500	29.5	6.9	-0.1	01B	6/27/90-B	1129	B
16	23	41000	31	6.9	0.3	01B	7/25/90-B	1225	B
17	22	38000	31	6.5	-0.2	01B	8/22/90-B	156	B
18						01B	9/5/90-B	1102	B
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

	AS	AT	AU	AV	AW	AX	AY	AZ	BA
Label	DEPTH	SALINITY-1B	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE	TIME
1	-0.1	6.5	8700	14.3	12.6	2.6	01C	1/29/90-S	1237
2	-0.1	2.8	3600	14	9	-1.3	01C	2/26/90-S	1000
3	-0.1	3	4000	16	8.6	-1.3	01C	3/22/90-S	1032
4	-0.1	11	15000	19	9.4	0.6	01C	4/14/90-S	1153
5	-0.1	17.5	29000	25	7.4	-0.2	01C	5/30/90-S	1056
6	-0.1	19.2	32500	29.2	7.8	0.8	01C	6/27/90-S	1051
7	-0.1	21.3	37000	30	6.7	-0.1	01C	7/25/90-S	1150
8	-0.1	22	38000	30	6.6	-0.2	01C	8/22/90-S	110
9	-0.1	20	27500	29.5	6.3	-0.6	01C	9/5/90-S	1021
10	-3.5	24	28000	13.7	9	-0.1	01C	1/29/90-B	1237
11	-4	24	29000	14.5	8.2	-0.7	01C	2/26/90-B	1000
12	-3.4	21	27000	17	5.4	-3.3	01C	3/22/90-B	1032
13	-4	22.5	31000	18.9	6.9	-1.4	01C	4/14/90-B	1153
14	-4.5	31	49000	25	5.6	-1.4	01C	5/30/90-B	1056
15	-4.5	27	44100	29	6	-0.7	01C	6/27/90-B	1051
16	-1.8	27	45000	30	6.2	-0.4	01C	7/25/90-B	1150
17	-4	20	36000	30	5.6	-1.3	01C	8/22/90-B	110
18	-4	25	33500	30	5.4	-1.3	01C	9/5/90-B	1021
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

Label	DEPTH CODE	DEPTH	SALINITY-TC	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE
1	S	-0.1	5.6	7500	14.2	11.8	1.7	05A	1/29/90-S
2	S	-0.1	7.3	12000	12.4	9	-1.4	05A	2/26/90-S
3	S	-0.1	2	2500	15	7.6	-2.5	05A	3/22/90-S
4	S	-0.1	13	17500	19.5	8	-0.6	05A	4/14/90-S
5	S	-0.1	18.5	29000	25.5	6.8	-0.7	05A	5/30/90-S
6	S	-0.1	18.5	30000	29.1	5.3	-1.7	05A	6/27/90-S
7	S	-0.1	18.2	31000	30	5	-1.9	05A	7/2590-S
8	S	-0.1	16.8	29900	30	6.5	-0.5	05A	8/22/90-S
9	S	-0.1	26	43000	29	5.8	-1	05A	1/29/90-B
10	B	-4	16	20000	14.2	8.2	-1.3	05A	2/26/90-B
11	B	-2.9	10.4	15000	12.4	8.7	-1.5	05A	3/22/90-B
12	B	-3	14	19000	16	7	-2.2	05A	4/14/90-B
13	B	-3.4	18.5	21100	19	7	-1.4	05A	5/30/90-B
14	B	-4	24.5	38000	25.5	3.8	-3.4	05A	6/27/90-B
15	B	-3.5	20	34000	29	5.7	-1.3	05A	7/25/90-B
16	B	-3.4	19	29500	30	6	-0.9		
17	B	-3.5	16.5	29900	30	6.2	-0.8		
18	B	-3.5	28	43000	29	4.6	-2.1		
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

	BK	BL	BM	BN	BO	BP	BQ	BR	BS
Label	TIME	DEPTH CODE	DEPTH	SALINITY-5A	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION
1	1145	S	-0.1	0	215	14.6	9.3	-1	0A1
2	920	S	-0.1	0.3	435	12	8.7	-2.2	0A1
3	1426	S	-0.1	0	70	17	7.2	-2.6	0A1
4	1840	S	-0.1	1.5	2000	20	8.1	-1.1	0A1
5	857	S	-0.1	4	6000	25	8.2	0	0A1
6	805	S	-0.1	2	3200	27.9	7.1	-0.8	0A1
7	935	S	-0.1	6.8	12000	29.2	7.2	-0.3	0A1
8	909	M	-0.5	6	11000	29.5	5.6	-1.9	0A1
9	1145	B	-0.8	0	228	14.2	9.2	-1.2	0A1
10	920	B	-1	0.7	520	12	8.8	-2.1	0A1
11	1426	B	-1.25	0	75	17	7	-2.8	0A1
12	1840	B	-1.5	1.5	2100	20	8.1	-1.1	0A1
13	857	B	-1.7	4.5	8000	25	7.8	-0.4	0A1
14	805	B	-1.7	5	9000	29	7	-0.6	0A1
15	935	B	-1.7	7	13500	29.5	6.5	-0.9	0A1
16									0A1
17									0A1
18									0A1
19									0A1
20									0A1
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

Label	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-DAT	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL
1	1/29/90-S	1100	S	-0.1	0	68	13.2	8.4	-2.3
2	2/28/90-S	1226	S	-0.1	0	80	15.5	8.8	-1.3
3	3/22/90-S	704	S	-0.1	0	82	15	7.8	-2.5
4	4/14/90-S	823	S	-0.1	0	500	17.5	8.8	-0.9
5	5/30/90-S	1411	S	-0.1	2.5	3200	27	7	-1
6	6/27/90-S	1515	S	-0.1	1.1	1800	31.2	7.6	0.1
7	7/25/90-S	1552	S	-0.1	3.5	6900	31	7.8	0.4
8	8/23/90-S	1112	S	-0.1	4	7000	29	5.7	-1.9
9	9/5/90-S	615	S	-0.1	3	4000	31	7.8	0.4
10	11/28/90-S	1340	S	-0.1	3	3000	19	9.5	0.2
11	1/29/90-B	1100	B	-2	0	133	13	3.4	-7.3
12	2/28/90-B	1226	B	-1.3	0	80	14.2	8.4	-2
13	3/22/90-B	704	B	-1.1	0	80	15	7.6	-2.7
14	4/14/90-B	823	B	-1.5	0	500	17.5	7.8	-1.9
15	5/30/90-B	1411	B	-1.9	8	13000	25.5	6	-1.9
16	6/27/90-B	1515	B	-1.5	1.1	1800	31.1	7.6	0.1
17	7/25/90-B	1552	B	-1.75	4.9	6900	32	8	0.8
18	8/23/90-B	1112	B	-9	5	9000	29	5.3	-2.3
19	9/5/90-B	615	B	-2	12	25000	32	6.3	-0.6
20	11/28/90-B	1340	B	-1.2	2	2500	20	9.5	0.4
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

	CC	CD	CE	CF	CG	CH	CI	CJ	CK
Label	STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-OA7	CONDUCTIVITY	TEMPERATURE	DO
1	OA7	1/29/90-S	1420	S	-0.1	2.8	3500	14.6	11.8
2	OA7	2/28/90-S	1337	S	-0.1	3	4000	15.5	9
3	OA7	3/22/90-S	735	S	-0.1	1	1200	14.5	8.3
4	OA7	4/14/90-S	848	S	-0.1	3.25	5000	18.2	9.6
5	OA7	5/30/90-S	1345	S	-0.1	17	29000	26	8
6	OA7	6/27/90-S	1111	S	-0.1	15.1	26500	29.8	7.2
7	OA7	7/25/90-S	1207	S	-0.1	19	34000	30.5	6.6
8	OA7	8/22/90-S	736	S	-0.1	19	34000	30	6
9	OA7	9/5/90-S	1036	S	-0.1	19	33000	29	5.6
10	OA7	1/29/90-B	1420	B	-2.8	21.5	26000	14	7.3
11	OA7	2/28/90-B	1337	B	-3.1	14	17000	14	7.4
12	OA7	3/22/90-B	735	B	-2.4	17.5	20000	16.5	7.6
13	OA7	4/14/90-B	848	B	-3	19	26000	19	5.9
14	OA7	5/30/90-B	1345	B	-3.5	27.5	44000	26	4.6
15	OA7	6/27/90-B	1111	B	-4.2	26	43000	29	6.4
16	OA7	7/25/90-B	1207	B	-3.3	25	42000	30	6
17	OA7	8/22/90-B	736	B	-4	24	43000	29.5	5.8
18	OA7	9/5/90-B	1036	B	-3.5	24	32000	29	4.2
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

Label	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-0A9	CONDUCTIVITY	TEMPERATURE
1	1.6	0A9	1/29/90-S	1300	S	-0.1	10	13200	16
2	-1	0A9	2/26/90-S	1030	S	-0.1	7.5	9000	12.2
3	-2	0A9	3/22/90-S	1106	S	-0.1	4	7000	16
4	0.2	0A9	4/14/90-S	1210	S	-0.1	19	27000	19
5	0.5	0A9	5/30/90-S	1044	S	-0.1	17	26500	24
6	0.1	0A9	6/27/90-S	949	S	-0.1	18.1	31000	28.2
7	-0.3	0A9	7/25/90-S	1134	S	-0.1	18.3	31800	30
8	-1.4	0A9	8/22/90-S	1210	S	-0.1	15	28000	29
9	-1.4	0A9	9/5/90-S	1001	S	-0.1	27	42000	29
10	-1.9	0A9	1/29/90-B	1300	B	-1.3	11.5	13800	14.8
11	-2.2	0A9	2/26/90-B	1030	B	-1.4	8.2	12900	12.2
12	-1.3	0A9	3/22/90-B	1106	B	-1.6	9	11000	16
13	-2.5	0A9	4/14/90-B	1210	B	-1.9	19.5	27000	19
14	-2.4	0A9	5/30/90-B	1044	B	-2.1	20	32000	25
15	-0.4	0A9	6/27/90-B	949	B	-2	19.1	32000	28.2
16	-0.7	0A9	7/25/90-B	1134	B	-1.9	19	32900	29
17	-0.7	0A9	8/22/90-B	1210	B	-1.5	16.2	28000	29
18	-2.6	0A9	9/5/90-B	1001	B	-1.8	26	42000	29
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

	CU	CV	CW	CX	CY	CZ	DA	DB	DC
Label	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-OG1	CONDUCTIVITY
1	11.2	1.8	OG1	1/22/90-S	1530	S	-0.1	8	18000
2	8.3	-2.1	OG1	2/28/90-S	730	S	-0.1	17	19000
3	8.8	-1	OG1	3/22/90-S	1306	S	-0.1	6	10000
4	7.4	-1	OG1	4/14/90-S	1945	S	-0.1	16.2	23500
5	6.5	-1.3	OG1	5/30/90-S	940	S	-0.1	23	35500
6	5.9	-1.3	OG1	6/27/90-S	1029	S	-0.1	19.2	32500
7	5.6	-1.3	OG1	7/25/90-S	1035	S	-0.1	21	36000
8	5.8	-1.4	OG1	8/22/90-S	1020	S	-0.1	16	30000
9	5.2	-1.5	OG1	9/5/90-S	855	S	-0.1	25	41000
10	11.8	2.2	OG1	1/22/90-B	1530	B	-3	10	-9999
11	9	-1.4	OG1	2/28/90-B	730	B	-2	19	23000
12	9	-0.5	OG1	3/22/890-B	1306	B	-2	12	16000
13	7.5	-0.9	OG1	4/14/90-B	1945	B	-1	18	25000
14	4	-3.5	OG1	5/30/90-B	940	B	-3.2	23	35500
15	5.4	-1.7	OG1	6/27/90-B	1029	B	-2.4	20	33300
16	5.4	-1.6	OG1	7/25/90-B	1035	B	-3	21	36000
17	5.4	-1.7	OG1	8/22/90-B	1020	B	-2.75	19	33000
18	5.2	-1.6	OG1	9/5/90-B	855	B	-3	25	39000
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

Label	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-OG3
1	14.5	10.6	0.7	OG3	1/29/90-S	840	S	-0.1	19
2	13.9	8.5	-1	OG3	1/22/90-S	0	S	-0.1	29
3	18.5	9	-0.2	OR3	1/29/90-S	1615	S	-0.1	0
4	21	7.2	-1	OR3	2/28/90-S	1258	S	-0.1	0
5	25	5.6	-1.8	OR3	3/22/90-S	640	S	-0.1	0
6	28.5	4.8	-2.3	OR3	4/14/90-S	2025	S	-0.1	0
7	30.2	3.9	-2.9	OR3	5/30/90-S	805	S	-0.1	2
8	30	4.8	-2.2	OR3	6/27/90-S	714	S	-0.1	1.8
9	29	3.8	-3	OR3	7/25/90-S	840	S	-0.1	3.9
10	14	10.2	0.3	OR3	8/22/90-S	800	S	-0.1	3
11	14.5	8.5	-0.7	OR3	9/5/90-S	745	S	-0.1	4.5
12	17	7.2	-1.9	OR3	10/29/90-S	757	S	-0.1	5
13	20	6.8	-1.5	OR3	11/28/90-S	1415	S	-0.1	2
14	25	5.2	-2.2	OG3	2/26/90-M	725	M	-0.3	7.5
15	28.9	5.1	-1.9	OG3	3/22/90-M	1701	M	-0.375	17
16	30	4.8	-2	OG3	4/14/90-M	2153	M	-0.2	20.5
17	30	3.8	-3.1	OG3	5/30/90-M	1550	M	-0.2	18
18	29	3.7	-3.1	OG3	6/27/90-M	1829	M	-0.3	24
19				OG3	7/25/90-M	1742	M	-0.45	27.9
20				OG3	1/29/90-B	840	B	-0.7	19
21				OR3	1/22/90-B	1615	B	-2.5	0
22				OR3	2/28/90-B	1258	B	-3	0
23				OR3	3/22/90-B	640	B	-2.5	0
24				OR3	4/14/90-B	2025	B	-1.6	0
25				OR3	5/30/90-B	805	B	-2.5	3
26				OR3	6/27/90-B	714	B	-3	2
27				OR3	7/25/90-B	840	B	-3	4.8
28				OR3	8/22/90-B	800	B	-4	4
29				OR3	9/5/890-B	745	B	-3.7	4.2
30				OR3	10/29/90-B	757	B	-2.8	18
31				OR3	11/28/90-B	1415	B	-3.4	4
32									
33									
34									

	DM	DN	DO	DP	DQ	DR	DS	DT	DU
Label	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE	DEPTH
1	48000	13.8	9.2	-0.2	CP	1/22/90-S	1537	S	-0.1
2	49000	33	7	0.8	CP	2/28/90-S	1420	S	-0.1
3	101	13.8	7.4	-3.1	CP	3/19/90-S	830	S	-0.1
4	100	15.1	7.8	-2.4	CP	3/22/90-S	1327	S	-0.1
5	135	16	7.8	-2.2	CP	4/12/90-S	1525	S	-0.1
6	105	18.9	7.5	-1.9	CP	4/14/90-S	1800	S	-0.1
7	2900	25	6	-2.3	CP	5/25/90-S	1508	S	-0.1
8	2600	29	5.6	-2.1	CP	5/30/90-S	925	S	-0.1
9	6000	30	6.6	-0.9	CP	6/23/90-S	1230	S	-0.1
10	5000	30	4.5	-3	CP	6/27/90-S	844	S	-0.1
11	8000	29	4.2	-3.4	CP	7/12/90-S	1416	S	-0.1
12	8000	18	8.7	-0.6	CP	7/25/90-S	1018	S	-0.1
13	2000	20	9.5	0.4	CP	8/6/90-S	1203	S	-0.1
14	9000	12	8.5	-2	CP	8/22/90-S	1000	S	-0.1
15	22000	22	9	1	CP	9/5/90-S	843	S	-0.1
16	27500	21.5	6	-2	CP	9/26/90-S	1015	S	-0.1
17	30000	29	8.2	1.1	CP	11/28/90-S	929	S	-0.1
18	42500	32	7.8	1.3	CP	1/22/90-B	1537	B	-1.6
19	46500	34	7.4	1.2	CP	2/28/90-B	1420	B	-1.9
20	-9999	13.8	9.2	-0.2	CP	3/19/90-B	830	B	-1.5
21	101	13.5	7.9	-2.7	CP	3/22/90-B	1327	B	-1.7
22	110	14.9	7.7	-2.6	CP	4/12/90-B	1525	B	-1.5
23	130	16	7.6	-2.4	CP	4/14/90-B	1800	B	-1.5
24	100	19	7.6	-1.8	CP	5/25/90-B	1508	B	-2.2
25	3500	25.5	5.6	-2.6	CP	5/30/90-B	925	B	-1.7
26	3050	29.7	5.4	-2.2	CP	6/23/90-B	1230	B	-1.9
27	-9999	30	5.9	-1.6	CP	6/27/90-B	844	B	-2
28	7000	30.2	4.2	-3.3	CP	7/12/90-B	1416	B	-2.2
29	5500	30	4	-3.5	CP	7/25/90-B	1018	B	-1.6
30	27000	20	7.4	-0.9	CP	8/6/90-B	1203	B	-2
31	6500	20	8	-1	CP	8/22/90-B	1000	B	-1.5
32					CP	9/5/90-B	843	B	-2.5
33					CP	9/26/90-B	1015	B	-1.5
34					CP	11/28/90-B	929	B	-1.3

Label	SALINITY-CP	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE
1	8.5	12000	14	9.8	-0.1	DB1	1/22/90-B	1230	B
2	7.5	12000	16	8.8	-0.8	DB1	1/22/90-S	1230	S
3	10	12000	16.9	8.1	-1.2	DB1	11/28/90-B	1120	B
4	10	13000	17	8	-1.2	DB1	11/28/90-S	1120	S
5	15.5	20000	19.5	8.8	0.3	DB1	3/20/90-B	1325	B
6	5	7500	21	8.2	-0.6	DB1	3/20/90-S	1325	S
7	20.5	32500	26.5	7.4	0.1	DB1	3/22/90-B	832	B
8	22.5	35000	26	5.4	-1.9	DB1	3/22/90-S	832	S
9	15	24500	29.5	5.7	-1.4	DB1	4/13/90-B	1605	B
10	20.5	34500	28.8	5.4	-1.6	DB1	4/13/90-S	1605	S
11	14.5	26000	28.5	6.1	-1.2	DB1	4/14/90-B	1028	B
12	21.2	36000	30	5.2	-1.6	DB1	4/14/90-S	1028	S
13	17.8	31000	31.5	6.8	0	DB1	5/29/90-B	1230	B
14	14	26900	30	5.2	-1.9	DB1	5/29/90-S	1230	S
15	26	41000	29	5.6	-1.2	DB1	5/30/90-B	1219	B
16	23	38000	25	6.7	-0.7	DB1	5/30/90-S	1219	S
17	21	31000	21	6.8	-1.2	DB1	6/23/90-B	710	B
18	8.5	-9999	14	10.2	0.3	DB1	6/23/90-S	710	S
19	14.5	20000	15	8.6	-0.8	DB1	6/27/90-B	1250	B
20	11	13000	16.9	8	-1.2	DB1	6/27/90-S	1250	S
21	11	14000	17	8	-1.2	DB1	7/14/90-B	950	B
22	15	20000	19.5	8.8	0.3	DB1	7/14/90-S	950	S
23	19	27000	19.2	6.9	-1.5	DB1	7/25/89-S	1343	S
24	20.5	32500	26.5	7.4	0.1	DB1	7/25/90-B	1343	B
25	22.5	35000	26	5.4	-1.9	DB1	8/23/90-B	140	B
26	15	24500	28.9	5.2	-2	DB1	8/23/90-S	140	S
27	21	35000	28.1	5.4	-1.7	DB1	8/8/90-B	830	B
28	15.5	28000	28.9	5.4	-1.8	DB1	8/8/90-S	830	S
29	21.5	36800	30	5.4	-1.4	DB1	9/25/90-B	255	B
30	20	34000	31	5.2	-1.6	DB1	9/25/90-S	255	S
31	15	27000	30	5	-2.1	DB1	9/5/90-B	312	B
32	24	42000	29	5	-1.8	DB1	9/5/90-S	312	S
33	24	38000	25	6.5	-0.8				
34	21	30500	21.5	6.8	-1.1				

	EE	EF	EG	EH	EI	EJ	EK	EL	EM
Label	DEPTH	SALINITY-DB1	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE	TIME
1	-1	12	-9999	14	5.5	-4.2	EH	1/22/90-S	1415
2	-0.1	2.5	-9999	13.8	9.4	-1	EH	2/28/90-S	810
3	-1.5	20	29000	22	8.8	0.9	EH	3/19/90-S	1105
4	-0.1	19	28000	21.5	9	1	EH	3/22/90-S	1202
5	-1.75	13	18000	16	5.1	-4.2	EH	4/12/90-S	1310
6	-0.1	4.5	6000	15.4	8.9	-1	EH	4/14/90-S	1254
7	-1.75	13	18000	16	5	-4.3	EH	5/25/90-S	1357
8	-0.1	4	5500	15.5	8.8	-1.1	EH	5/30/90-S	1035
9	-2.4	6	8500	18.5	8	-1.2	EH	6/23/90-S	1025
10	-0.1	6	8500	19.9	9	0.1	EH	6/27/90-S	932
11	-1.8	7	10000	18.5	8	-1.1	EH	7/12/90-S	1102
12	-0.1	6	9000	18.3	9.2	0	EH	7/25/90-S	1119
13	-2.2	17.5	28000	26	5.4	-2.1	EH	8/6/90-S	1040
14	-0.1	14.5	23000	25	7.4	-0.3	EH	8/22/90-S	1130
15	-2.2	23	37500	26	3.2	-4	EH	9/5/90-S	939
16	-0.1	8.5	15000	26	7.8	0	EH	9/26/90-S	211
17	-2.1	32	49900	28.1	5	-1.6	EH	11/28/90-S	1021
18	-0.1	31.5	49500	27.9	5.3	-1.4	EH	1/22/90-B	1415
19	-2.1	18	3500	30	6.3	-0.6	EH	2/28/90-B	810
20	-0.1	10.5	1900	30.1	7.6	0.4	EH	3/19/90-B	1105
21	-2	29	48000	28.5	5.6	-1.1	EH	3/22/90-B	1202
22	-0.1	21.5	35000	27	6.5	-0.7	EH	4/12/90-B	1310
23	-0.1	20	36000	31	7.2	0.4	EH	4/14/90-B	1254
24	-1.25	23	38000	31	6.5	-0.1	EH	5/25/90-B	1357
25	-1.5	21	37000	29	6.2	-0.7	EH	5/30/90-B	1035
26	-0.1	22	38000	30	8	1.2	EH	6/23/90-B	1025
27	-2.25	24	40000	30	4.5	-2.2	EH	6/27/90-B	932
28	-0.1	25	39500	31	5.3	-1.3	EH	7/12/90-B	1102
29	-1.9	26	40000	27	4.2	-2.8	EH	7/25/90-B	1119
30	-0.1	18	29000	27	7	-0.3	EH	8/6/90-B	1040
31	-2	20	34500	30	6	-0.9	EH	8/22/90-B	1130
32	-0.1	19	34500	30	6.8	-0.1	EH	9/5/90-B	939
33							EH	9/26/90-B	211
34							EH	11/28/90-B	1021

Label	DEPTH CODE	DEPTH	SALINITY-EH	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE
1	S	-0.1	6	18000	13.5	8.8	-1.4	NS	1/29/90-S
2	S	-0.1	13.5	18000	14.1	9.4	-0.2	NS	11/28/90-S
3	S	-0.1	4.6	6900	16.8	8.2	-1.4	NS	2/28/90-S
4	S	-0.1	4.5	7000	17	8.2	-1.4	NS	3/22/90-S
5	S	-0.1	13	20000	19.5	9.2	0.6	NS	4/13/90-S
6	S	-0.1	16	23000	20	9.8	1.4	NS	4/14/90-S
7	S	-0.1	18.5	29000	26	7.2	-0.2	NS	5/29/90-S
8	S	-0.1	21.5	33000	25.5	6	-1.4	NS	5/30/90-S
9	S	-0.1	17.5	28800	28.4	5.8	-1.4	NS	6/22/90-S
10	S	-0.1	21.2	36000	28.9	5.7	-1.3	NS	6/27/90-S
11	S	-0.1	17.9	31000	28.5	5.1	-2	NS	7/14/90-S
12	S	-0.1	20	34000	30	5.6	-1.3	NS	7/25/90-S
13	S	-0.1	19.2	34000	31	6	-0.8	NS	8/23/90-S
14	S	-0.1	14.5	28000	30	6	-1.1	NS	8/8/90-S
15	S	-0.1	26	43000	30	5.2	-1.4	NS	9/25/90-S
16	S	-0.1	19.5	32000	27	7.8	0.6	NS	9/5/90-S
17	S	-0.1	26	37000	21	8	0.2	NS	1/29/90-B
18	B	-1.4	7	-9999	13.5	8.8	-1.3	NS	11/28/90-B
19	B	-2	18	23000	14.5	8.9	-0.4	NS	2/28/90-B
20	B	-1.75	6	7500	16.9	8.2	-1.3	NS	3/21/90-B
21	B	-1.75	6	7500	17	8.2	-1.3	NS	3/22/90-B
22	B	-2	15	21000	19.5	9.1	0.6	NS	4/13/90-B
23	B	-1.4	19	26100	19.5	7.2	-1.1	NS	4/14/90-B
24	B	-2	19.5	31000	26	6.7	-0.7	NS	5/29/90-B
25	B	-2.1	21.5	33500	25.5	6	-1.4	NS	5/30/90-B
26	B	-1.9	17.5	28800	28.1	5.8	-1.4	NS	6/22/90-B
27	B	-2.4	21.3	35000	28	6	-1.1	NS	6/27/90-B
28	B	-2	19.8	34000	28.9	4.9	-2.1	NS	7/14/90-B
29	B	-2	20	34000	30	5.5	-1.4	NS	7/25/90-B
30	B	-2.3	20	35000	31	5.7	-1.1	NS	8/23/90-B
31	B	-2.5	16	29000	30	5.8	-1.2	NS	8/8/90-B
32	B	-2	26	42800	30	4.2	-2.4	NS	9/25/90-B
33	B	-2.7	20	32500	26.2	7.5	0.2	NS	9/5/90-B
34	B	-1.5	27	37000	21	7.9	0.2		

	EW	EX	EY	EZ	FA	FB	FC	FD	FE
Label	TIME	DEPTH CODE	DEPTH	SALINITY-NS	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION
1	1530	S	-0.1	2.8	3800	14	11.8	1.5	PA
2	1130	S	-0.1	18	27000	21	9	0.9	PA
3	934	S	-0.1	2	2500	14.5	9.1	-1.1	PA
4	814	S	-0.1	4.5	6000	15	9.2	-0.8	PA
5	955	S	-0.1	5	8000	17.9	8.2	-1.2	PA
6	922	S	-0.1	4.2	6000	18.5	8.7	-0.6	PA
7	1733	S	-0.1	15	24500	26.5	8	0.5	PA
8	1235	S	-0.1	11	18500	26	8	0.3	PA
9	711	S	-0.1	30	48500	29.2	5	-1.6	PA
10	1313	S	-0.1	10.5	18900	30	7.7	0.5	PA
11	1400	S	-0.1	23.5	42000	30	7	0.3	PA
12	1411	S	-0.1	21	38000	31	6.4	-0.3	PA
13	0	S	-0.1	22	41000	30	8.3	1.5	PA
14	324	S	-0.1	21.5	41000	32.5	7.2	0.7	PA
15	1230	S	-0.1	18	29000	26.5	7	-0.4	PA
16	343	S	-0.1	17	32000	31	7.3	0.4	PA
17	1530	B	-1.2	6.3	6500	13.7	11.2	1.1	PA
18	1130	B	-2	19	29000	22	8.8	0.9	PA
19	934	B	-2.1	5	8600	14.9	8.8	-1.2	PA
20	855	M	-0.9	1.5	4500	15	9.6	-0.6	PA
21	814	B	-1.2	14	18000	16	5	-4.2	PA
22	955	B	-1.9	5.2	8000	17.9	8.4	-0.9	PA
23	922	B	-2	4.2	6000	18.5	8.7	-0.6	PA
24	1733	B	-2.25	18	28000	26.5	7.6	0.2	PA
25	1235	B	-2.3	23	37500	26	5.8	-1.4	PA
26	711	B	-2.3	30	49000	29.5	4.8	-1.8	PA
27	1313	B	-2	11.5	20000	30	7.6	0.4	PA
28	1400	B	-2	26	34000	28	6.9	0	PA
29	1411	B	-2	23.2	41000	31	6	-0.6	PA
30	0	B	-2	26	45000	30	7.5	0.9	
31	324	B	-2.5	23	41000	33	7.2	0.8	
32	1230	B	-2.7	25	38000	26.5	5.2	-1.9	
33	343	B	-2.5	18	33000	31	7	0.2	
34									

Label	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-PA	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL
1	2/28/90-S	1030	S	-0.1	2	2350	15	9	-1.1
2	3/21/90-S	1140	S	-0.1	4.9	6900	15.1	9.6	-0.3
3	4/13/90-S	1100	S	-0.1	7	10000	19	8	-1
4	4/14/90-S	940	S	-0.1	7	10000	18.2	7.8	-1.4
5	5/28/90-S	1750	S	-0.1	14.5	22000	27	7.4	-0.1
6	5/30/90-S	1255	S	-0.1	19	31000	25	7.5	0
7	6/22/90-S	1051	S	-0.1	32.1	-9999	28.9	5	-1.5
8	6/27/90-S	1338	S	-0.1	16.5	29000	30.5	7.2	0.3
9	7/13/90-S	1630	S	-0.1	27.5	47000	29	6	-0.7
10	8/8/90-S	420	S	-0.1	24.9	45000	33	6.6	0.2
11	8/23/90-S	1244	S	-0.1	23.5	42000	29	6.8	-0.1
12	9/5/90-S	450	S	-0.1	18	32000	31	7.5	0.7
13	11/28/90-S	1205	S	-0.1	14	22000	21	8.8	0.5
14	1/22/90-M	1049	M	-0.5	6	-9999	14	9.2	-0.9
15	7/25/90-M	1432	M	-0.1	25.3	40100	32	5.8	-0.7
16	9/25/90-M	1122	M	-0.5	19	30000	25	6.2	-1.3
17	2/28/90-B	1030	B	-1.8	2.1	2400	15	9	-1.1
18	3/21/90-B	1140	B	-1.4	5.5	7200	15.1	9.6	-0.3
19	4/13/90-B	1100	B	-1.5	7	10000	19	8	-1
20	4/14/90-B	940	B	-1.4	7	10000	18.2	7.8	-1.4
21	5/28/90-B	1750	B	-1.5	15.5	25000	27	6.8	-0.6
22	5/30/90-B	1255	B	-1.5	19.5	32000	25	7.2	-0.3
23	6/22/90-B	1051	B	-1.5	32	-9999	28.9	4.6	-1.9
24	6/27/90-B	1338	B	-1.4	17	30000	30.5	7.2	0.3
25	7/13/90-B	1630	B	-2	28	47000	29	6.1	-0.6
26	8/8/90-B	420	B	-1.5	26	46000	33	6.2	-0.1
27	8/23/90-B	1244	B	-1.5	25	43000	29	3.5	-3.3
28	9/5/90-B	450	B	-2	19	34000	31	7.2	0.4
29	11/28/90-B	1205	B	-1.4	15	23000	21	8.6	0.3
30									
31									
32									
33									
34									

	FO	FP	FQ	FR	FS	FT	FU	FV	FW
Label	STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-PL	CONDUCTIVITY	TEMPERATURE	DO
1	PL	1/22/90-S	1450	S	-0.1	7.5	8000	14.5	10.2
2	PL	2/28/90-S	756	S	-0.1	21	27000	14.9	8.9
3	PL	3/19/90-S	1440	S	-0.1	10.5	12000	16.8	8.3
4	PL	3/22/90-S	1230	S	-0.1	11	13000	17	8.2
5	PL	4/14/90-S	1500	S	-0.1	21	29500	21	7.8
6	PL	5/25/90-S	1142	S	-0.1	20.5	31500	25.3	7.3
7	PL	5/30/90-S	1020	S	-0.1	23	35000	25.5	6.6
8	PL	6/13/90-S	1215	S	-0.1	28	47000	29.5	5.8
9	PL	6/27/90-S	912	S	-0.1	25.1	40500	28.5	5.3
10	PL	7/12/90-S	821	S	-0.1	27	45000	30	5.8
11	PL	7/25/90-S	1058	S	-0.1	20.5	35000	30	6.8
12	PL	8/6/90-S	832	S	-0.1	23	39000	27	5.5
13	PL	8/22/90-S	1057	S	-0.1	16.5	30000	30	6.8
14	PL	9/5/90-S	917	S	-0.3	27	45000	29	6.2
15		1/22/90-B	1450	B	-1.8	17	-9999	14	8.2
16		2/28/90-B	756	B	-2.2	21	27000	14.9	8.7
17	PL	3/19/90-B	1440	B	-1	14	17000	16.7	8.5
18	PL	3/22/90-B	1230	B	-1	14	17000	16	8.4
19	PL	4/14/90-B	1500	B	-1.1	21.5	30000	21	7.8
20	PL	5/25/90-B	1142	B	-1.4	21	33000	25.3	7.2
21	PL	5/30/90-B	1020	B	-1.8	23	34000	25.5	6.4
22	PL	6/13/90-B	1215	B	-1.3	28	47000	29	5.5
23	PL	6/27/90-B	912	B	-1.9	24.5	40000	28.5	5.3
24	PL	7/12/90-B	821	B	-1.9	27.1	45000	30.1	5.8
25	PL	7/25/90-B	1058	B	-1.4	21	35000	30	6.5
26	PL	8/6/90-B	832	B	-1.2	22	38000	31	5.4
27	PL	8/22/90-B	1057	B	-1.5	18	31000	30	6
28	PL	9/26/90-B	1200	B	-0.4	22	39000	26	7.1
29	PL	11/28/86	950	M	-0.5	23	37000	21	8.4
30	PL								
31	PL								
32									
33									
34									

Label	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-SC	CONDUCTIVITY	TEMPERATURE
1	0.3	SC	1/22/90-M	1125	M	-0.15	7	11000	14
2	-0.1	SC	2/28/90-M	1048	M	-0.2	2.9	3800	15.2
3	-1	SC	3/21/90-M	1335	M	-0.375	10.1	13000	16.5
4	-1	SC	4/13/90-M	1140	M	-0.4	7.5	10000	18
5	-0.2	SC	4/14/90-M	951	M	-0.4	10	14000	18.5
6	-0.1	SC	5/28/90-M	1630	M	-0.5	23.5	36000	27
7	-0.7	SC	5/30/90-M	1307	M	-0.5	24	38000	26.5
8	-0.8	SC	6/22/90-M	920	M	-0.5	32.5	49000	28.9
9	-1.5	SC	6/27/90-M	1355	M	-0.45	18.2	3300	31
10	-0.8	SC	7/13/90-M	1455	M	-0.5	25	42000	27
11	-0.1	SC	7/25/90-M	1451	M	-0.1	30	49000	31
12	-1.6	SC	8/8/90-M	457	M	-0.1	29	50000	33.4
13	-0.2	SC	8/23/90-M	1210	M	-0.3	29	47500	28
14	-0.5	SC	9/5/90-M	516	M	-0.5	20	36000	31.5
15	-1.2	SC	9/25/90-M	908	M	-0.5	24	40000	24.5
16	-0.3	SC	11/28/90-M	1230	M	-0.2	21	29500	21
17	-0.6								
18	-0.8								
19	-0.2								
20	-0.2								
21	-0.9								
22	-1.2								
23	-1.6								
24	-0.8								
25	-0.3								
26	-1.3								
27	-0.9								
28	-0.2								
29	0.5								
30									
31									
32									
33									
34									

	GG	GH	GI	GJ	GK	GL	GM	GN	GO
Label	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-SG	CONDUCTIVITY
1	9.6	-0.4	SG	2/28/90-S	1410	S	-0.1	6.5	11000
2	9.2	-0.8	SG	3/20/90-S	840	S	-0.1	6	9000
3	9.8	0.5	SG	3/22/90-S	1348	S	-0.1	6	9000
4	8	-1.2	SG	4/14/90-S	1808	S	-0.1	3.5	5000
5	7.6	-1.4	SG	5/25/90-S	1633	S	-0.1	19.5	31000
6	8.1	1	SG	5/30/90-S	911	S	-0.1	22	34000
7	7	-0.1	SG	6/23/90-S	1423	S	-0.1	14.9	26000
8	4.8	-1.7	SG	6/27/90-S	830	S	-0.1	19.5	33900
9	7.2	0.4	SG	7/13/90-S	1110	S	-0.1	13	22800
10	6.5	-0.5	SG	7/25/90-S	1000	S	-0.1	21	36000
11	6	-0.4	SG	8/6/90-S	200	S	-0.1	18.4	34000
12	7.3	1.1	SG	8/22/90-S	945	S	-0.1	12	22000
13	6.9	0.1	SG	9/26/90-S	910	S	-0.1	21	33000
14	7.5	0.8	SG	11/28/90-S	902	S	-0.1	17	27000
15	6	-1.4	SG	1/22/90-M	1549	M	-0.5	7.2	-9999
16	9.1	1.1	SG	9/5/90-M	830	M	-0.5	25	37000
17			SG	2/28/90-B	1410	B	-1.9	12.1	17500
18			SG	3/20/90-B	840	B	-1.3	8	10000
19			SG	3/22/90-B	1348	B	-1.2	8	10000
20			SG	4/14/90-B	1808	B	-1	3.5	5100
21			SG	5/25/90-B	1633	B	-2.1	20	32000
22			SG	5/30/90-B	911	B	-1.5	22	34000
23			SG	6/23/90-B	1423	B	-1.8	15	26000
24			SG	6/27/90-B	830	B	-1.8	20.1	34000
25			SG	7/13/90-B	1110	B	-1.5	13	22800
26			SG	7/25/90-B	1000	B	-1.6	21.5	36000
27			SG	8/6/90-B	200	B	-1	19	34000
28			SG	8/22/90-B	945	B	-1.25	13.5	25000
29			SG	9/26/90-B	910	B	-1.4	22	35000
30			SG	11/28/90-B	902	B	-1.5	19	28000
31									
32									
33									
34									

Label	TEMPERATURE	DO	OXYGEN ANOMALY	STATION	DATE	TIME	DEPTH CODE	DEPTH	SALINITY-SV
1	17	8.6	-0.8	SV	2/28/90-S	919	S	-0.1	3
2	17.8	8.7	-0.6	SV	3/20/90-S	1040	S	-0.1	4
3	18	8.6	-0.7	SV	3/22/90-S	925	S	-0.1	4
4	20.5	8.2	-0.8	SV	4/13/90-S	1700	S	-0.1	8.9
5	26.5	7.6	0.3	SV	4/14/90-S	1102	S	-0.1	12
6	25.5	6.1	-1.2	SV	5/29/90-S	1005	S	-0.1	16
7	29.9	5.7	-1.4	SV	5/30/90-S	1140	S	-0.1	16
8	28.9	5.2	-1.8	SV	6/23/90-S	827	S	-0.1	32.1
9	28	5.5	-1.9	SV	6/27/90-S	1220	S	-0.1	13.5
10	29.5	5.4	-1.5	SV	7/14/90-S	815	S	-0.1	33
11	32	5.8	-0.9	SV	7/25/90-S	1322	S	-0.1	19
12	30	5.8	-1.4	SV	8/8/90-S	216	S	-0.1	27
13	24.5	7.1	-0.4	SV	8/23/90-S	140	S	-0.1	29
14	21.5	7.3	-0.8	SV	9/5/90-S	222	S	-0.1	22
15	14.5	9.2	-0.7	SV	9/25/90-S	539	S	-0.1	19
16	27	4.8	-2.2	SV	11/28/90-S	1100	S	-0.1	23
17	15	8.8	-0.7	SV	1/22/90-B	1340	M	-0.5	17
18	17.8	8.6	-0.6	SV	2/28/90-B	919	B	-2.7	18
19	18	8.6	-0.6	SV	3/20/90-B	1040	B	-1.1	7.5
20	20.5	8.2	-0.8	SV	3/22/90-B	925	B	-1.1	7.5
21	26.5	7.5	0.2	SV	4/13/90-B	1700	B	-2.1	9.5
22	25.5	6.2	-1.1	SV	4/14/90-B	1102	B	-1.8	19
23	29.1	5.4	-1.8	SV	5/29/90-B	1005	B	-2	19
24	28.5	5.3	-1.7	SV	5/30/90-B	1140	B	-2	25
25	28.2	5.3	-2.1	SV	6/23/90-B	827	B	-1.9	32.1
26	29.3	5.2	-1.7	SV	6/27/90-B	1220	B	-2.5	15
27	32	5.5	-1.2	SV	7/14/90-B	815	B	-1.8	32
28	30.5	4.8	-2.3	SV	7/25/90-B	1322	B	-1.7	23
29	25.3	6.6	-0.8	SV	8/8/90-B	216	B	-2.3	27
30	21.5	7	-1	SV	8/23/90-B	140	B	-2	27
31				SV	9/5/90-B	222	B	-2	21.5
32				SV	9/25/90-B	539	B	-1.6	21
33				SV	11/28/90-B	1100	B	-2.9	22
34									

	GY	GZ	HA	HB	HC	HD	HE	HF	HG
Label	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE	DEPTH
1	3100	14.2	9.4	-0.8	DB2	4/13/90-S	1500	S	-0.1
2	5600	15.4	8.8	-1.1	DB2	5/29/90-S	1403	S	-0.1
3	5500	15.5	8.8	-1.1	DB2	6/22/90-S	1415	S	-0.1
4	12500	19.5	9.1	0.2	DB2	7/14/90-S	1050	S	-0.1
5	17000	19	9.4	0.6	DB2	8/8/90-S	951	S	-0.1
6	25000	24.5	7.2	-0.5	DB2	9/25/90-S	340	S	-0.1
7	27000	25	8.2	0.5	DB2	4/13/90-B	1500	B	-1.6
8	50000	28	5.4	-1.2	DB2	5/29/90-B	1403	B	-1.75
9	23000	29.9	7.4	0.3	DB2	6/22/90-B	1415	B	-2.1
10	-9999	27.5	5.4	-1.3	DB2	7/14/90-B	1050	B	-2.5
11	32800	30.5	6.2	-0.7	DB2	8/8/90-B	951	B	-2
12	48000	32	9	2.6	DB2	9/25/90-B	340	B	-1.8
13	48000	30	7.2	0.7					
14	38500	30	7.3	0.5					
15	32000	26	7.6	0.2					
16	32000	21.5	8.6	0.8					
17	-9999	14.3	8.4	-1					
18	22500	15	8.6	-0.6					
19	10000	15.9	8.7	-0.9					
20	10000	16	8.6	-1					
21	13500	19	9	0.1					
22	25500	19	7.4	-1					
23	30500	25	6.4	-1.1					
24	33000	26	6.5	-0.6					
25	50000	28.3	5.1	-1.5					
26	25100	25.7	7.1	-0.5					
27	-9999	28	5.2	-1.4					
28	41000	30	7	0.2					
29	45000	32	8.8	2.4					
30	47000	30	5.5	-1.1					
31	38000	30	5.2	-1.6					
32	34500	26	7	-0.3					
33	31000	21	7.8	-0.2					
34									

Label	SALINITY-SV	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL	STATION	DATE	TIME	DEPTH CODE
1	6	9000	18	9.4	0.1	DB3	2/28/90-S	1130	S
2	12	20000	26	8	0.3	DB3	4/13/90-S	1330	S
3	31.5	49500	27.9	5.3	-1.4	DB3	5/29/90-S	1555	S
4	21	35000	27	6.1	-1.1	DB3	6/22/90-S	1215	S
5	22	38000	31	5.2	-1.5	DB3	7/14/90-S	1200	S
6	17	39000	27	7.2	-0.2	DB3	8/8/90-S	1039	S
7	6	8500	19	8.6	-0.5	DB3	9/25/90-S	435	S
8	15	23000	26.5	7.6	0.1	DB3	2/28/90-B	1130	B
9	32	49900	28.1	5	-1.6	DB3	4/13/90-B	1330	B
10	30	48000	27	5.9	-0.9	DB3	5/29/90-B	1555	B
11	24	41000	31	4.2	-2.4	DB3	6/22/90-B	1215	B
12	25	40000	26.5	4.4	-2.7	DB3	7/14/90-B	1200	B
13						DB3	8/8/90-B	1039	B
14						DB3	9/25/90-B	435	B
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

	HQ	HR	HS	HT	HU	HV
Label	DEPTH	SALINITY-SV	CONDUCTIVITY	TEMPERATURE	DO	OXYGEN ANOMAL
1	-0.1	1.5	2100	15	9.2	-1
2	-0.1	5.5	8000	19	7.8	-1.3
3	-0.1	5.5	8000	19	8	-1.1
4	-0.1	17	25000	26	8.3	0.8
5	-0.1	14	23000	26	8	0.4
6	-0.1	28.5	46500	28.9	5.3	-1.4
7	-0.1	2	2600	14.5	8.6	-1.6
8	-1.2	16.5	25000	27	7.3	-0.1
9	-1.7	28.5	46500	28.9	5.4	-1.3
10	-1.5	27	34000	28.5	6.3	-0.5
11	-0.1	23	39000	29	6.9	0
12	-1.5	23	40000	31	5	-1.6
13	-1.7	22	38000	31	6.2	-0.5
14	-1.7	18	31000	26	7.2	-0.2
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						

Table 2: Laboratory chemical data taken in the Apalachicola estuary from January, 1990-September, 1990.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	STATION	DATE	DEPTH	COLOR (PTCO)	COLOR (NCAS)	TURBIDITY	CHLOR A	CHLOR B	CHLOR C	NH3	NITRITE	NITRATE	ORTHOPHOSPH
2	1	1/30/90	S	100	24	18	6.3	3.2	1.5	0.035	0.007	0.75	0.024
3	1	1/30/90	B	90	21	20	21.3	0	0	0.058	0.007	0.69	0.017
4	1	2/28/90	S	130	29	18	5.6	0.8	0	0.033	0.005	0.48	0
5	1	2/28/90	B	215	31	50	10.1	2.1	0	0.098	0.01	0.4	0
6	1	3/23/90	S	140	35	28	2.3	0.4	1.9	0.074	0.005	0.52	0.018
7	1	3/23/90	B	140	27	27	2.6	1.5	2.1	0.078	0.003	0.35	0.018
8	1	4/15/90	S	140	28	19	3.5	0.7	0	0.038	0.005	0.34	0.01
9	1	4/15/90	B	120	21	18	4.9	0.5	0.7	0.043	0.008	0.36	0.01
10	1	5/31/90	S	40	17	4	5.1	0.8	0.8	0.035	0.001	0.11	0.015
11	1	5/31/90	B	30	21	8	13	1.4	2.4	0.046	0	0.61	0.015
12	1	6/28/90	S	57	42	7	6.7	1.8	2.3	0.04	0	0.18	0.01
13	1	6/28/90	B	45	37	8	7.9	1.2	2.5	0.047	0	0.11	0.005
14	1	7/26/90	S	30	32	2	0	3.2	3	0.039	0.008	0	0.009
15	1	7/26/90	B	15	38	2	1.6	4.6	4.8	0.039	0	0.04	0.012
16	1	8/24/90	S	40	17	2	9.7	6.9	6	0.056	0.002	0.13	0
17	1	8/24/90	B	30	8	2	4.6	3.5	1.9	0.054	0.003	0.09	0
18	1	9/6/90	S	15	17	2	3.4	0.7	1	0.054	0.004	0.11	0.036
19	1	9/6/90	B	20	11	5	3.3	1.1	2	0.08	0.003	0	0.055
20	2	1/30/90	S	110	30	16	3.5	1.8	4.1	0.061	0.007	0.81	0.038
21	2	1/30/90	B	90	29	15	4.1	0	0	0.088	0.01	0.9	0.034
22	2	2/28/90	S	120	50	19	3.7	0.2	0	0.03	0.008	0.4	0
23	2	2/28/90	B	120	33	21	4.7	0.7	0	0.028	0.01	0.55	0
24	2	3/23/90	S	400	70	70	2.6	1.6	0.7	0.078	0.014	0.67	0.005
25	2	4/15/90	S	150	34	20	2.7	1	0.9	0.053	0.005	0.41	0.015
26	2	4/15/90	B	270	22	50	4.3	3.1	3.4	0.051	0.004	0.27	0.005
27	2	5/31/90	S	50	26	9	6.9	1.1	1.3	0.083	0	2.55	0.023
28	2	5/31/90	B	30	23	6	6.8	0.9	1	0.039	0	1.98	0.023
29	2	6/28/90	S	40	33	8	6	0.9	1.3	0.056	0	2.2	0.005
30	2	6/28/90	B	40	41	10	7.3	1.2	1.5	0.04	0.002	1.82	0.013
31	2	7/26/90	S	45	37	3	0	3.9	4.4	0.056	0	0	0.009
32	2	7/26/90	B	30	31	1	8.7	2	2.4	0.039	0.004	0.15	0.009
33	2	8/23/90	S	30	12	3	0	0.2	0	0.056	0.002	0.18	0
34	2	8/23/90	B	15	13	1	5.2	2.8	0.8	0.056	0.004	0.27	0.003
35	2	9/6/90	S	20	8	4	2.9	2.2	2.9	0.059	0.005	0.38	0.03
36	2	9/6/90	B	30	14	5	4.2	0.7	1.9	0.08	0.004	0.27	0.024
37	4	1/30/90	S	100	29	16	4.7	0	0	0.056	0.02	0.64	0.041
38	4	1/30/90	B	95	29	18	5.5	11.4	13.8	0.067	0.024	0.78	0.048
39	4	2/27/90	S	140	38	26	4.7	0.7	0	0.029	0.011	0.54	0.041
40	4	2/27/90	B	180	31	25	3.8	0	0	0.027	0.015	0.44	0.045
41	4	3/23/90	S	520	60	95	2.6	1.5	1.4	0.083	0.005	0.51	0.005
42	4	3/23/90	B	525	60	90	2.2	2.2	2	0.062	0.021	0.61	0.005
43	4	4/15/90	S	150	30	21	4.4	1.9	3.1	0.045	0.004	0.44	0
44	4	4/15/90	B	250	23	45	2	2.5	3	0.051	0.005	0.15	0.01
45	4	5/31/90	S	40	20	6	4.5	0.7	1.1	0.034	0.002	0.73	0.015
46	4	5/31/90	B	20	32	6	9.3	1.3	1.2	0.039	0	0.61	0.004
47	4	6/28/90	S	25	27	7	5.4	0.7	1.6	0.04	0	0.45	0.008
48	4	6/28/90	B	20	28	7	7.3	1.2	1.9	0.04	0	0.39	0.005
49	4	7/26/90	S	20	28	2	3.8	1.9	1.6	0.039	0	0.15	0.015
50	4	7/26/90	B	20	32	1	5.3	1.6	2.4	0.039	0.012	0	0.024
51	4	8/23/90	S	20	12	1	4.9	2.3	2.3	0.051	0.005	0.22	0
52	4	8/23/90	B	15	14	3	5	0.8	2.2	0.062	0.002	0.2	0
53	4	9/6/90	S	35	13	1	3.2	2.2	1.7	0.057	0.002	0	0.024
54	4	9/6/90	B	20	12	1	5	1.4	1.4	0.083	0.002	0	0.024
55	01A	1/30/90	S	15	19	8	19.7	3.6	2.4	0.044	0.004	0.5	0.02
56	01A	1/30/90	B	30	18	16	18.9	1.8	3	0.088	0.004	0.39	0.02
57	01A	2/28/90	S	60	21	9	4.5	0	0	0	0.007	0.39	0
58	01A	2/28/90	B	80	21	17	7.5	0	0	0	0.003	0.32	0
59	01A	3/23/90	S	117	27	16	1.7	0	0	0.062	0.005	0.34	0.014
60	01A	3/23/90	B	210	34	36	2.8	0	0.1	0.055	0.003	0.27	0.005
61	01A	4/15/90	S	75	21	11	6.9	0	6.9	0.038	0.013	0.27	0.01
62	01A	4/15/90	B	60	21	12	5.9	0.5	7.5	0.043	0.004	0.11	0.025
63	01A	5/31/90	S	20	37	4	4.3	0.8	1.1	0.027	0	0.16	0.008
64	01A	5/31/90	B	30	26	11	7.3	1.2	1.9	0.029	0.002	0.45	0.015
65	01A	6/28/90	S	25	48	7	6.1	1.4	2.2	0.04	0	0.05	0.003
66	01A	6/28/90	B	20	26	14	6.2	1.2	2.3	0.033	0	0.23	0.005
67	01A	7/26/90	S	30	29	1	4.1	1.6	2.8	0.039	0	0	0.009
68	01A	7/26/90	B	25	29	3	5.8	1.8	2.7	0.039	0.012	0	0.009
69	01A	8/24/90	M	30	13	3	1.4	0	0.2	0.054	0.007	0.2	0.024
70	01A	9/6/90	S	45	15	1	2.9	0	0	0.055	0.002	0.15	0.03
71	01A	9/6/90	B	35	17	3	1.9	1.2	0	0.092	0.002	0.31	0.033
72	01B	1/30/90	S	30	20	9	28.7	0	0	0.046	0.002	0.42	0.02
73	01B	1/30/90	B	15	19	5	15.3	0	1	0.061	0	0.33	0.02
74	01B	2/28/90	S	110	27	14	4.1	0	0.2	0	0.001	0.39	0
75	01B	2/28/90	B	15	17	12	3.8	8.4	3.3	0	0	0	0
76	01B	3/23/90	S	145	34	26	0.9	1.9	0.4	0.049	0.007	0.4	0.014
77	01B	3/23/90	B	115	18	24	1.7	4.9	1.8	0.025	0.002	0.06	0.005
78	01B	4/15/90	S	60	27	4	4.9	0.6	0	0.035	0.003	0.17	0.01
79	01B	4/15/90	B	250	19	55	7.8	1	2	0.043	0.004	0.01	0.015
80	01B	5/31/90	S	10	36	3	3.1	0.8	1.7	0.023	0	0.5	0.03
81	01B	5/31/90	B	30	38	6	4	0	1.1	0.031	0	0.5	0.015
82	01B	6/28/90	S	22	28	4	3.4	0.6	1.1	0.02	0	0.36	0.008
83	01B	6/28/90	B	20	34	9	8.1	1.1	2.9	0.028	0	0.41	0.005
84	01B	7/26/90	S	40	22	1	1.6	1	1.4	0	0	0	0.018
85	01B	7/26/90	B	35	24	2	7.3	1.1	3.1	0.028	0	0.08	0.009
86	01B	8/23/90	S	15	13	2	5.7	2.9	1.7	0.054	0.003	0.16	0.017
87	01B	8/23/90	B	25	14	1	3.3	1.3	0.8	0.052	0.004	0.25	0
88	01B	9/6/90	S	30	13	10	8.2	0.2	2.6	0.054	0.002	0.58	0.033
89	01B	9/6/90	B	40	14	5	1.7	0.2	0	0.092	0.003	0.27	0.03
90	01C	1/30/90	S	50	20	13	49.6	1.4	4.8	0.044	0	0.47	0.027
91	01C	1/30/90	B	25	21	9	30.1	2.5	20	0.106	0	0.3	0.02
92	01C	2/27/90	S	80	19	14	6.8	0.3	0	0	0.005	0.05	0.014
93	01C	2/27/90	B	150	17	40	6.8	0.2	0.6	0	0.005	0.01	0.01
94	01C	3/23/90	S	243	39	45	3	0.9	0.1	0.139	0.006	0.36	0.005
95	01C	3/23/90	B	98	21	17	1.9	2.6	0	0.07	0	0.13	0.005

	N	O	P	Q	R	S	T	U	V	W
1	TON	TKN	TN	TOP	TP	POC	TC	IC	DOC	TOC
2	0.948	0.983	1.741	0	0.024	2.95	13.1	4	9.1	12
3	0.324	0.382	1.082	0	0.017	3.21	14	4.2	9.8	13
4	3.185	3.218	3.7	0	0	3.07	13	4.2	8.8	11.9
5	1.872	1.97	2.378	0.032	0.032	3.52	15.1	4.3	10.8	14.3
6	1.313	1.387	1.909	0	0.018	3.01	12.6	4.2	8.4	11.4
7	0.542	0.62	0.972	0.013	0.032	3.35	14.6	4.8	9.8	13.1
8	1.568	1.606	1.948	0.006	0.016	0.89	12.7	4.2	8.5	9.4
9	1.683	1.726	2.091	0.006	0.016	0.8	14	4.3	9.7	10.5
10	0.581	0.617	0.73	0	0.015	0.64	10.9	4	6.9	7.5
11	0.772	0.818	1.432	0	0.015	0.82	11.3	4.2	7.1	7.9
12	1.568	1.607	1.789	0	0.01	0.66	10.1	4.2	5.9	6.6
13	1.062	1.109	1.223	0	0.005	0.35	9.7	4.7	5	5.4
14	1.683	1.722	1.73	0.023	0.032	1.61	12.7	4.7	8	9.6
15	1.568	1.607	1.645	0.035	0.048	1.7	13.6	3.7	9.9	11.6
16	1.744	1.8	1.936	0	0	2.3	12.1	5.2	6.9	9.2
17	1.41	1.464	1.555	0	0	3.05	13.2	4.9	8.3	11.4
18	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
19	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
20	0.452	0.513	1.331	0	0.038	2	12	4	8	10
21	0.679	0.767	1.682	0	0.034	1.42	13	4.3	8.7	10.1
22	0.858	0.888	1.296	0.159	0.159	2.15	12	4.1	7.9	10.1
23	1.1	1.128	1.683	0.016	0.016	1.56	13.1	4.7	8.4	10
24	0.922	1	1.683	0	0.005	2.02	11	3.4	7.6	9.6
25	0.922	0.975	1.386	0	0.015	0.81	12.6	4.6	8	8.8
26	0.858	0.91	1.182	0	0.005	0.71	14.1	4.3	9.8	10.5
27	0.561	0.644	3.19	0	0.023	0.79	10.7	4.3	6.4	7.2
28	0.745	0.784	2.761	0	0.023	0.65	12.1	4.9	7.2	7.9
29	0.542	0.598	2.802	0	0.005	0.51	10.2	4.3	5.9	6.4
30	0.523	0.562	2.38	0	0.013	0.35	10.3	4.3	6	6.4
31	1.361	1.416	1.416	0.007	0.016	1.48	12.6	4.6	8	9.5
32	0.955	0.994	1.148	0.023	0.032	2.08	13.4	4.5	8.9	11
33	0.922	0.978	1.159	0	0	1.59	12.7	5.1	7.6	9.2
34	0.772	0.828	1.101	0	0.003	3.29	12.5	4.9	7.7	11
35	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
36	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
37	0.39	0.445	1.11	0	0.041	2.09	13	3.4	9.6	11.7
38	0.362	0.429	1.229	0	0.048	1.97	12	3.5	8.5	10.5
39	0.881	0.91	1.465	0	0.041	2.06	13.1	4.6	8.5	10.6
40	0.807	0.834	1.286	0	0.045	2.06	10.1	4.5	5.6	7.7
41	0.989	1.072	1.592	0	0.005	2.15	12.8	3.5	9.3	11.5
42	1.025	1.087	1.719	0	0.005	2.1	11.1	3.5	7.6	9.7
43	0.955	1	1.445	0	0	0	13	3.3	9.7	9.7
44	0.922	0.973	1.13	0	0.01	0.72	18	4.2	13.8	14.5
45	0.542	0.576	1.303	0	0.015	0.33	11.2	4.3	6.9	7.2
46	0.438	0.477	1.091	0.012	0.016	0.66	11.3	4.2	7.1	7.8
47	0.487	0.527	0.981	0	0.008	0.96	10.2	4.3	5.9	6.9
48	0.542	0.581	0.968	0.011	0.016	0.51	11.7	4.2	7.5	8
49	0.989	1.028	1.182	0.08	0.095	1.61	13.7	3.7	10	11.6
50	0.829	0.868	0.88	0.039	0.063	1.99	12.6	4.3	8.3	10.3
51	0.858	0.909	1.136	0	0	1.59	12.6	4.7	7.9	9.5
52	0.829	0.891	1.096	0	0	2.21	12.7	4.5	8.2	10.4
53	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
54	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
55	0.608	0.652	1.152	0	0.02	2.1	13.1	5.1	8	10.1
56	0.312	0.4	0.793	0	0.02	2.08	16.3	6.7	9.6	11.7
57	1.14	1.14	1.541	0	0	1.92	12.9	5	7.9	9.8
58	0.858	0.858	1.187	0	0	2.1	18.1	4.8	13.3	15.4
59	0.647	0.709	1.055	0	0.014	2.04	13.2	5	8.2	10.2
60	0.694	0.75	1.023	0	0.005	2.15	17.8	6.1	11.7	13.9
61	0.858	0.896	1.18	0	0.01	0.81	12.7	3.6	9.1	9.9
62	0.561	0.605	0.715	0	0.025	0.65	16	4.2	11.8	12.5
63	0.438	0.465	0.624	0	0.008	0.36	9.7	4.1	5.6	6
64	0.542	0.57	1.025	0	0.015	0.58	12.1	4.2	7.9	8.5
65	0.602	0.642	0.687	0	0.003	0.61	7.6	4.7	2.9	3.5
66	0.487	0.52	0.747	0	0.005	0.58	10.9	4.6	6.3	6.9
67	0.647	0.686	0.686	0.023	0.032	1.63	12.7	5.1	7.6	9.2
68	0.67	0.709	0.721	0.039	0.048	1.93	12.6	4.7	7.9	9.8
69	0.542	0.596	0.8	0	0.024	1.95	13.7	4.7	9	10.9
70	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
71	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
72	0.29	0.336	0.761	0	0.02	1.85	13.1	4.5	8.6	10.4
73	0.336	0.397	0.722	0	0.02	2.07	23	8.9	14.1	16.2
74	1.744	1.744	2.134	0	0	1.79	12.2	4.7	7.5	9.3
75	0.719	0.719	0.719	0	0	2.15	22	4.3	17.7	19.9
76	0.772	0.821	1.229	0.018	0.032	1.92	12.4	4.7	7.7	9.6
77	0.647	0.671	0.731	0.154	0.159	2.15	21.3	8.9	12.4	14.6
78	0.955	0.99	1.159	0	0.01	0.81	14	3.9	10.1	10.9
79	0.523	0.566	0.585	0	0.015	0.74	18.7	3.8	14.9	15.6
80	0.394	0.416	0.916	0	0.03	0.47	10.6	4.9	5.7	6.2
81	0.47	0.501	1.001	0	0.015	0.64	12.2	4.8	7.4	8
82	0.454	0.473	0.837	0	0.008	0.52	9.2	5	4.2	4.7
83	0.354	0.382	0.791	0	0.005	0.41	8.7	5.1	3.6	4
84	0.647	0.647	0.647	0.014	0.032	1.45	12.7	6.1	6.6	8.1
85	0.694	0.722	0.799	0.023	0.032	1.84	12.6	4.7	7.9	9.7
86	0.67	0.724	0.883	0	0.017	1.61	11.8	4.6	7.2	8.8
87	0.67	0.722	0.972	0	0	2.66	12.6	4.3	8.3	11
88	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
89	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
90	0.39	0.434	0.902	0.058	0.085	1.91	12.5	4.1	8.4	10.3
91	0.487	0.593	0.893	0	0.02	1.76	20	7.7	12.3	14.1
92	0.678	0.678	0.728	0	0.014	1.92	12.9	4.2	8.7	10.6
93	0.807	0.807	0.819	0	0.01	1.79	20.1	4.7	15.4	17.2
94	0.602	0.741	1.109	0	0.005	1.92	12.5	4.1	8.4	10.3
95	0.694	0.764	0.896	0	0.005	1.79	19.2	7.6	11.6	13.4

	A	B	C	D	E	F	G	H	I	J	K	L	M
96	01C	4/15/90	S	50	27	15	2.9	0	0.8	0.042	0.004	0.11	0.01
97	01C	4/15/90	B	225	26	39	4	0	0.4	0.061	0.005	0.04	0.01
98	01C	5/31/90	S	40	43	3	3.2	0.3	0.8	0.021	0	0.61	0.026
99	01C	5/31/90	B	50	43	32	6.2	0.8	1.9	0.031	0	0.16	0.023
100	01C	6/28/90	S	20	27	6	6.5	1.3	1.7	0.023	0	0.45	0.015
101	01C	6/28/90	B	15	31	15	7.3	1.1	2.5	0.033	0.003	0.02	0.013
102	01C	7/26/90	S	30	26	2	4.2	0.2	2.1	0.019	0.008	0.07	0.024
103	01C	7/26/90	B	30	29	7	4.2	1.2	1.7	0.028	0	0	0.024
104	01C	8/23/90	S	15	12	2	3	0	0	0.044	0.005	0.18	0
105	01C	8/23/90	B	20	12	2	1.7	0.1	0.6	0.04	0.005	0.22	0
106	01C	9/6/90	S	30	12	7	1.7	0	0.2	0.059	0.002	0.46	0.039
107	01C	9/6/90	B	50	15	1	3.6	1.5	2.4	0.089	0.003	0	0.03
108	05A	1/30/90	M	150	55	24	17.8	1.4	3.2	0.046	0.005	0.31	0.051
109	05A	2/27/90	M	260	39	38	0	0	0	0	0.007	0.34	0.041
110	05A	3/23/90	S	430	60	70	1.3	1	1.3	0.093	0.017	0.43	0.014
111	05A	3/23/90	B	340	60	65	1.4	0	0.3	0.074	0.01	0.65	0.005
112	05A	4/15/90	S	150	39	20	5.9	0.6	0.7	0.038	0.005	0.44	0
113	05A	4/15/90	B	140	30	18	5.6	0.5	0.5	0.05	0.006	0.47	0.01
114	05A	5/31/90	S	50	55	7	10.6	1	1.8	0.024	0	0.05	0.015
115	05A	5/31/90	B	60	41	5	11.1	1.1	1.1	0.031	0	0.09	0.015
116	05A	6/28/90	S	25	38	8	4.1	1.1	2.2	0.023	0.005	0	0.038
117	05A	6/28/90	B	20	29	17	6.9	1.4	1.6	0.028	0	0	0.03
118	05A	7/26/90	S	25	28	1	3.6	1.5	1.8	0.023	0	0.15	0.012
119	05A	7/26/90	B	15	31	1	7.6	1.5	2.9	0.028	0.008	0.18	0.009
120	05A	9/6/90	S	15	13	2	4	0	1.1	0.05	0.009	0.07	0.039
121	05A	9/6/90	B	15	13	1	3	1.3	1.5	0.083	0.005	0.23	0.03
122	0A1	1/30/90	S	80	31	19	3.7	0.6	1	0.051	0.009	0.87	0.048
123	0A1	1/30/90	B	340	31	13	3.9	0	0	0.056	-9999	-9999	0.065
124	0A1	2/28/90	S	90	34	14	13.6	1.2	0	0	0.003	0.43	0
125	0A1	2/28/90	B	90	29	15	13.3	0	0.7	0	0.003	0.52	0
126	0A1	3/23/90	S	240	55	40	2.7	1.4	2.1	0.052	0.005	0.51	0.005
127	0A1	3/23/90	B	250	50	45	7.6	1.3	0	0.049	0.011	0.48	0.014
128	0A1	4/15/90	S	160	34	24	8.6	1.2	0	0.037	0.005	0.51	0.015
129	0A1	4/15/90	B	150	36	23	4.9	0.9	0	0.051	0.004	0.46	0.03
130	0A1	5/31/90	S	40	39	8	5.7	1.6	1.9	0.057	0.001	2.43	0.015
131	0A1	5/31/90	B	20	42	10	12.1	1.3	1.2	0.032	0.002	1.75	0.034
132	0A1	6/28/90	S	23	33	9	7.7	1.4	1.3	0.056	0	2.09	0.048
133	0A1	6/28/90	B	20	160	9	6.9	1.8	1.4	0.033	0	1.52	0.028
134	0A1	7/26/90	S	20	31	1	5.8	1.7	3.4	0.056	0	0.08	0.006
135	0A1	7/26/90	B	25	25	1	4.2	1.2	2.3	0.039	0	0.08	0.009
136	0A1	8/24/90	S	40	17	2	3.9	0	0	0.065	0.003	0.13	0.01
137	0A1	8/24/90	B	15	9	2	3.9	1.4	1.8	0.056	0.003	0.04	0.003
138	0A1	9/6/90	S	10	14	4	6.6	2.3	4.1	0.052	0.002	0	0.024
139	0A1	9/6/90	B	15	12	5	3.7	0.7	0.3	0.08	0.002	0	0.024
140	0A7	1/30/90	S	120	22	15	9	1	0.9	0.051	0.004	0.77	0.027
141	0A7	1/30/90	B	75	18	15	33.8	1.6	3.9	0.044	0.005	0.41	0.024
142	0A7	2/28/90	S	70	23	11	6.4	0	0.7	0	0	0.35	0
143	0A7	2/28/90	B	100	19	30	8.1	0	0	0	0	0.07	0
144	0A7	3/23/90	S	200	44	40	2.9	2.3	1.7	0.03	0.011	0.41	0.023
145	0A7	3/23/90	B	150	26	11	1.7	0.6	1	0.047	0.004	0.12	0.014
146	0A7	4/15/90	S	175	28	23	4.7	0.7	0	0.046	0.009	0.33	0.025
147	0A7	4/15/90	B	110	22	16	8.3	1.3	0.4	0.053	0.008	0.05	0.015
148	0A7	5/31/90	S	60	29	3	3.6	0.5	0.6	0.045	0.002	0.73	0.008
149	0A7	5/31/90	B	20	37	17	12.3	1.1	1.9	0.027	0.001	0.16	0.011
150	0A7	6/28/90	S	20	36	4	3.9	0.9	1.1	0.04	0	0.05	0.013
151	0A7	6/28/90	B	27	33	8	7.3	1.6	1.4	0.04	0	0.23	0.008
152	0A7	7/26/90	S	20	21	1	4.1	2.2	2	0.039	0	0	0.009
153	0A7	7/26/90	B	40	48	3	10.1	2.3	1.8	0.039	0	0.27	0.018
154	0A7	8/23/90	S	20	11	1	2.6	2.4	2.4	0.052	0.004	0.36	0.037
155	0A7	8/23/90	B	15	12	4	2.5	1.2	0.5	0.056	0.003	0.25	0.017
156	0A7	9/6/90	S	30	9	3	3.7	0.6	1	0.055	0.002	0.15	0.024
157	0A7	9/6/90	B	30	10	2	4.7	1.4	2.7	0.073	0.005	0	0.03
158	0A9	1/30/90	S	40	20	6	29.6	0	379.1	0.07	0.004	0.27	0.024
159	0A9	1/30/90	B	40	21	10	50.8	2.9	7.4	0.061	0	0.26	0.031
160	0A9	2/27/90	S	30	18	5	11.3	0.3	2	0	0	0.07	0.007
161	0A9	2/27/90	B	25	25	6	13.3	0	0.7	0	0	0	0.003
162	0A9	3/23/90	S	60	26	8	9.6	0.6	1.4	0.025	0.003	0.23	0.028
163	0A9	3/23/90	B	20	16	6	11	0.9	1.4	0.068	0	0.1	0.005
164	0A9	4/15/90	S	50	27	6	9.3	1	0.9	0.051	0.004	0.06	0.01
165	0A9	4/15/90	B	60	22	8	12	1.2	0.6	0.055	0.003	0.06	0.025
166	0A9	5/31/90	S	30	35	5	3.6	0.5	1	0.046	0	0.16	0.008
167	0A9	5/31/90	B	70	42	10	9.6	1.5	1.5	0.053	0	0.45	0.008
168	0A9	6/28/90	S	22	41	7	11.6	2	2.6	0.04	0	0.05	0.005
169	0A9	6/28/90	B	23	39	13	10.5	1.7	1.5	0.047	0	0.32	0.003
170	0A9	7/26/90	S	30	28	1	3.6	1.5	2.4	0.039	0.004	0.3	0.039
171	0A9	7/26/90	B	30	21	2	2.8	1	1.1	0.039	0.004	0.15	0.048
172	0A9	8/23/90	S	15	11	2	2.5	0.6	1.3	0.056	0.003	0.16	0
173	0A9	8/23/90	B	20	15	6	2.6	2.4	1.7	0.056	0.003	0.09	0.003
174	0A9	9/6/90	S	50	8	7	4.5	1.2	0.5	0.054	0.003	0	0.039
175	0A9	9/6/90	B	40	9	10	3.1	0	0.8	0.073	0.003	0.27	0.042
176	0G1	1/23/90	S	50	19	6	24.6	1.4	5.1	0.058	0.002	0.34	0.02
177	0G1	1/23/90	B	55	19	15	23.5	1.9	5.9	0.061	0	0.35	0.02
178	0G1	2/28/90	S	20	19	4	10	0	0.1	0	0.001	0.02	0
179	0G1	2/28/90	B	30	19	5	7.9	0	0.7	0	0	0	0
180	0G1	3/23/90	S	40	18	7	1.3	1.6	1.9	0.062	0.009	0.2	0.005
181	0G1	3/23/90	B	40	18	7	2.4	1.7	0.9	0.049	0.006	0.2	0.028
182	0G1	4/15/90	S	65	26	5	5.6	1.1	0.3	0.048	0.004	0.19	0.01
183	0G1	4/15/90	B	50	23	6	5.6	1.1	0.3	0.057	0.005	0.11	0.015
184	0G1	5/31/90	S	20	46	6	4.3	0	1.1	0.065	0.002	0.84	0.004
185	0G1	5/31/90	B	70	42	29	12.4	1.6	2.5	0.048	0.014	0.12	0.015
186	0G1	6/28/90	S	40	39	7	5.6	1	1.7	0.056	0	0.7	0.005
187	0G1	6/28/90	B	82	38	22	5	1	1.9	0.04	0	0	0.005
188	0G1	7/26/90	S	55	27	15	4.7	1.9	2.5	0.056	0.012	0.06	0.018
189	0G1	7/26/90	B	50	32	2	7	1.3	2.6	0.039	0.008	0	0.021
190	0G1	8/23/90	S	15	14	3	2.9	3.6	0	0.056	0.002	0.18	0.01

	N	O	P	Q	R	S	T	U	V	W
96	0.8	0.842	0.953	0	0.01	0.81	12.7	2.9	9.8	10.6
97	0.505	0.566	0.607	0	0.01	0.66	20	3.1	16.9	17.6
98	0.38	0.401	1.015	0	0.026	0	8.7	3.9	4.8	4.8
99	0.354	0.385	0.544	0	0.023	0.66	10.9	3.9	7	7.7
100	0.33	0.352	0.807	0	0.015	0.52	6.5	5.1	1.4	1.9
101	0.318	0.351	0.374	0	0.013	0.64	7.8	4.7	3.1	3.7
102	0.581	0.601	0.678	0.039	0.063	1.36	12.6	5.3	7.3	8.7
103	0.602	0.63	0.63	0.055	0.079	2.14	12.7	4.7	8	10.1
104	0.67	0.714	0.896	0	0	2.66	11.9	4.4	7.5	10.2
105	0.624	0.664	0.891	0	0	2.66	12.7	4.5	8.2	10.9
106	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
107	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
108	0.362	0.408	0.723	0	0.051	1.72	13	3.7	9.3	11
109	0.962	0.962	1.312	0.166	0.208	2.04	13.1	5.1	8	10
110	0.694	0.787	1.234	0	0.014	2.06	12.3	3.7	8.6	10.7
111	0.523	0.597	1.26	0	0.005	2.2	9.9	3.6	6.3	8.5
112	0.772	0.81	1.255	0	0	0.76	18.1	3.7	14.4	15.2
113	0.542	0.591	1.072	0	0.01	0.37	21.2	3.2	18	18.4
114	0.394	0.418	0.463	0	0.015	0	8.9	4.1	4.8	4.8
115	0.38	0.411	0.502	0	0.015	0.37	10.3	4.7	5.6	6
116	0.38	0.403	0.408	0	0.038	0.09	10.1	4.2	5.9	6
117	0.354	0.382	0.382	0	0.03	0.35	11.2	4.6	6.6	7
118	0.694	0.717	0.871	0	0.012	1.29	12.9	5.4	7.5	8.8
119	0.624	0.652	0.844	0.007	0.016	2.05	12.7	5.2	7.5	9.5
120	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
121	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
122	0.375	0.426	1.306	0	0.046	1.98	12	4	8	10
123	0.362	0.418	-9999	0	0.065	-9999	15	4.1	10.9	-9999
124	0.8	0.8	1.234	0.063	0.063	1.97	10.9	5.1	5.8	7.8
125	0.955	0.955	1.477	0.095	0.095	2.15	15.1	5.1	10	12.2
126	0.67	0.722	1.24	0	0.005	2.01	11.2	3.9	7.3	9.3
127	0.647	0.696	1.183	0	0.014	2.16	14.4	4.2	10.2	12.4
128	0.719	0.756	1.271	0	0.015	0.92	12.2	3.8	8.4	9.3
129	0.523	0.574	1.043	0	0.03	0.81	21	4.1	16.9	17.7
130	0.438	0.495	2.927	0	0.015	0.4	12.1	4.3	7.8	8.2
131	0.47	0.502	2.252	0	0.034	0.82	10.7	4.2	6.5	7.3
132	0.307	0.363	2.454	0	0.048	0.38	11.3	5.1	6.2	6.6
133	0.38	0.413	1.936	0	0.028	0.01	11.4	3.7	7.7	7.7
134	0.581	0.637	0.714	0	0.006	1.29	13.7	5.1	8.6	9.9
135	0.67	0.709	0.786	0	0.009	1.84	12.6	5.1	7.5	9.3
136	0.694	0.759	0.895	0	0.01	1.95	11.9	5.2	6.7	8.6
137	0.772	0.828	0.874	0	0.003	2.96	13.6	4.7	8.9	11.9
138	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
139	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
140	0.469	0.52	1.295	0	0.027	1.37	14	4	10	11.4
141	0.914	0.958	1.378	0	0.024	2.12	23	8.1	14.9	17
142	0.694	0.694	1.04	0	0	1.47	14.1	4.9	9.2	10.7
143	0.719	0.719	0.794	0	0	2.15	20.1	4.9	15.2	17.4
144	0.8	0.829	1.25	0	0.023	1.39	13.3	4	9.3	10.7
145	0.922	0.968	1.094	0	0.014	2.25	22.2	8.2	14	16.3
146	0.745	0.791	1.133	0	0.025	0.81	12.7	5.1	7.6	8.4
147	0.394	0.447	0.5	0	0.015	0.66	21.7	4.1	17.6	18.3
148	0.354	0.399	1.126	0	0.008	0.32	14	4.3	9.7	10
149	0.394	0.421	0.58	0	0.011	0.79	21	4.1	16.9	17.7
150	0.394	0.433	0.479	0	0.013	0.58	11.5	4.9	6.6	7.2
151	0.33	0.369	0.597	0	0.008	0.5	11.6	5.6	6	6.5
152	0.602	0.641	0.641	0	0.009	1.15	7.3	5.6	1.7	2.8
153	0.647	0.686	0.955	0	0.018	2.05	13.6	5.7	7.9	9.9
154	0.602	0.655	1.018	0	0.037	0.88	10.8	5.1	5.7	6.6
155	0.694	0.75	1	0	0.017	1.46	9.8	4.9	4.9	6.4
156	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
157	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
158	0.524	0.594	0.867	0	0.024	1.59	16	6.7	9.3	10.9
159	0.564	0.626	0.883	0.033	0.064	1.67	25	6.8	18.2	19.9
160	1.146	1.146	1.218	0	0.007	1.7	16.9	5.1	11.8	13.5
161	1.489	1.489	1.469	0	0.003	1.79	33	4.9	28.1	29.9
162	0.719	0.744	0.973	0	0.028	1.66	17.3	6.2	11.1	12.8
163	0.523	0.61	0.707	0	0.005	1.86	30.9	6.8	24.1	26
164	0.542	0.593	0.658	0	0.01	0.79	12.6	4.7	7.9	8.7
165	0.408	0.463	0.528	0	0.025	0.64	18.7	5.1	13.6	14.2
166	0.38	0.426	0.586	0	0.008	0.31	18	3.9	14.1	14.4
167	0.354	0.407	0.862	0	0.008	0	21	4	17	17
168	0.307	0.347	0.392	0	0.005	0.58	11.7	5.7	6	6.6
169	0.307	0.354	0.673	0	0.003	0.45	10.9	5.2	5.7	6.2
170	0.694	0.733	1.041	0	0.039	1.48	12.7	4.9	7.8	9.3
171	0.647	0.686	0.84	0.015	0.063	2.7	12	4.8	7.2	9.9
172	0.581	0.638	0.797	0	0	1.3	10.8	4.7	6.1	7.4
173	0.542	0.598	0.689	0	0.003	0.71	11.9	4.6	7.3	8
174	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
175	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
176	0.324	0.382	0.725	0	0.02	1.48	20	6.3	13.7	15.2
177	0.42	0.481	0.833	0	0.02	1.94	20	6.4	13.6	15.5
178	0.745	0.745	0.771	0	0	1.57	19.2	4.8	14.4	16
179	0.772	0.772	0.772	0	0	1.97	23	4.7	18.3	20.3
180	1.1	1.162	1.367	0	0.005	1.55	18.7	6.3	12.4	14
181	0.745	0.795	1.002	0	0.028	2.15	20	6.6	13.4	15.6
182	0.581	0.629	0.821	0	0.01	0.64	12.4	6.1	6.3	6.9
183	0.542	0.599	0.709	0	0.015	0.66	12.4	3.7	8.7	9.4
184	0.33	0.395	1.236	0	0.004	0.37	18.2	4.3	13.9	14.3
185	0.342	0.39	0.526	0	0.015	0.36	20	4.2	15.8	16.2
186	0.307	0.363	1.068	0	0.005	0.5	10.6	4.3	6.3	6.8
187	0.318	0.358	0.358	0	0.005	0.58	10.7	3.7	7	7.6
188	0.772	0.828	0.905	0	0.018	1.51	12.1	5.7	6.4	7.9
189	0.8	0.839	0.847	0.026	0.048	1.96	21.2	5.3	15.9	17.9
190	0.561	0.617	0.799	0	0.01	1.36	10.7	4.2	6.5	7.9

	A	B	C	D	E	F	G	H	I	J	K	L	M
191	0G1	8/23/90	B	30	16	2	3.8	1.9	1.6	0.056	0.003	0.13	0.007
192	0G1	9/6/90	S	25	14	8	6.5	4.1	5.8	0.052	0.004	0.38	0.03
193	0G1	9/6/90	B	15	12	7	5.5	5	6.3	0.092	0.002	0.77	0.036
194	0G3	1/30/90	M	35	18	6	23.1	0	0	0.056	0	0.27	0.02
195	0G3	2/27/90	M	50	19	17	21.4	0.3	0	0	0.003	0	0.01
196	0G3	3/23/90	M	20	23	7	2.5	0.2	0.9	0.026	0.004	0.05	0.005
197	0G3	4/15/90	M	.820	26	120	7.1	0.3	0	0.043	0.003	0.1	0.015
198	0G3	5/31/90	M	40	39	12	6.5	0.6	1.8	0.031	0.002	0.48	0.015
199	0G3	6/28/90	M	68	29	32	5.8	1.9	2.1	0.028	0	0.27	0.008
200	0G3	7/26/90	M	45	21	1	3.6	1	2	0.028	0	0	0.021
201	0G3	8/23/90	M	35	12	2	2.9	2.2	2.9	0.056	0.002	0.16	0
202	0G3	9/6/90	M	20	13	1	3	1.3	2.1	0.052	0.002	0.15	0.045
203	0R3	1/23/90	S	115	25	13	4.8	0.6	0.6	0.168	0.003	0.64	0.048
204	0R3	1/23/90	B	120	27	15	3.9	1	0.7	0.088	0.004	0.76	0.044
205	0R3	2/28/90	S	100	36	14	5.5	0.4	0	0	0.007	0.44	0
206	0R3	2/28/90	B	130	36	13	4.1	0.3	0.7	0	0.009	0.36	0
207	0R3	3/23/90	S	110	38	13	1.6	1.5	1.3	0.026	0	0.32	0.005
208	0R3	3/23/90	B	110	29	14	2.1	1.7	1.6	0.026	0	0.3	0.005
209	0R3	4/15/90	S	140	34	16	4.6	0.8	0	0.053	0.004	0.36	0.015
210	0R3	4/15/90	B	145	34	19	4.3	0.3	0.3	0.121	0.005	0.43	0.01
211	0R3	5/31/90	S	30	44	8	5.9	0.4	0.7	0.05	0	1.52	0.026
212	0R3	5/31/90	B	30	23	15	16.9	2.6	0.7	0.086	0	0.95	0.019
213	0R3	6/28/90	S	64	49	10	4.4	1.3	1.6	0.04	0	1.18	0.013
214	0R3	6/28/90	B	38	38	10	6.9	1.4	1.6	0.04	0	0.68	0.02
215	0R3	7/26/90	S	55	26	2	6.7	1.5	1.4	0.039	0.012	0.06	0.024
216	0R3	7/26/90	B	20	25	1	1.7	0.6	1	0.079	0.004	0.07	0.021
217	0R3	8/23/90	S	40	14	1	2.5	1.1	1.1	0.08	0	0.09	0
218	0R3	8/23/90	B	60	13	2	4.2	3.9	3.6	0.077	0.002	0.09	0
219	0R3	9/6/90	S	40	12	2	2.7	0	0	0.059	0.003	0.07	0.024
220	0R3	9/6/90	B	25	13	4	3.4	0	0.8	0.105	0.005	0.07	0.027
221	1E	8/23/90	S	40	13	1	2.2	0.8	0.7	-9999	0.004	0.02	0.01
222	1E	8/23/90	B	30	14	1	3.5	1.9	2.8	-9999	0.004	0.16	0.013
223	CP	1/23/90	S	45	23	6	25.2	2	5.9	0.046	0.005	0.38	0.017
224	CP	1/23/90	B	50	21	6	25.7	2.7	6.1	0.051	0.003	0.41	0.031
225	CP	2/28/90	S	50	28	8	6.5	0.5	0	0	0	0.08	0
226	CP	2/28/90	B	50	21	8	4.6	1.8	0.6	0	0.005	0	0
227	CP	3/23/90	S	38	760	8	1	0.1	0	0.026	0.001	0.2	0.018
228	CP	3/23/90	B	45	800	8	3.7	1.1	0.5	0.024	0.002	0.2	0.023
229	CP	4/15/90	S	110	28	14	8.2	0.5	0.1	0.041	0.005	0.13	0.015
230	CP	4/15/90	B	85	25	10	5	1.4	0.8	0.057	0.008	0.08	0.036
231	CP	5/31/90	S	30	19	9	4.7	0.5	1.8	0.053	0.003	0.11	0.008
232	CP	5/31/90	B	20	23	9	3.8	0.4	0.6	0.033	0.003	0.27	0.008
233	CP	6/28/90	S	43	33	15	4.1	0.7	2.3	0.051	0	0.09	0.01
234	CP	6/28/90	B	55	42	18	4.3	0.7	1.5	0.04	0	0.14	0.005
235	CP	7/26/90	S	39	26	6	2.1	1.6	2.8	0.056	0.012	0	0.009
236	CP	7/26/90	B	40	27	1	3.9	1.3	2.4	0.039	0	0	0.018
237	CP	8/23/90	S	40	14	1	3.4	0	0	0.052	0.003	0.36	0.024
238	CP	8/23/90	B	30	12	3	5.7	0	0	0.051	0.003	0.04	0
239	CP	9/6/90	S	30	13	5	4.5	1.2	1.1	0.044	0.003	0.27	0.027
240	CP	9/6/90	B	20	16	6	4.4	2	3.1	0.044	0.003	0.19	0.027
241	DB	6/28/90	S	29	32	5	7.1	1	1.3	0.033	0	1.52	0.008
242	DB	6/28/90	B	45	50	12	24.8	2.7	5.8	0.067	0	0.5	0.005
243	DB	9/6/90	S	30	11	1	4.5	1	2.3	0.044	0.003	0.15	0.036
244	DB	9/6/90	B	20	10	1	6.4	2	3.1	0.044	0.003	0.15	0.03
245	DB1	1/23/90	M	125	21	10	7	1.8	2.4	0.067	0.003	0.55	0.027
246	DB1	3/23/90	S	70	25	13	1.7	0	3.2	0.039	0.009	0.38	0.005
247	DB1	3/23/90	B	53	31	9	1.7	0	0.3	0.049	0.002	0.08	0.005
248	DB1	4/15/90	S	70	22	8	6.3	0.8	0.5	0.035	0.011	0.37	0.01
249	DB1	4/15/90	B	80	22	12	6	0.3	0.4	0.041	0.013	0.51	0.036
250	DB1	5/31/90	S	60	24	7	4.9	0.8	0.9	0.035	0.003	2.09	0.026
251	DB1	5/31/90	B	110	27	25	4.2	0	0.7	0.07	0.007	0.61	0.015
252	DB1	7/26/90	S	5	27	1	3.3	1.5	3.1	0.039	0	0	0.012
253	DB1	7/26/90	B	45	21	3	1.8	1.8	2.2	0.039	0.004	0	0.018
254	DB1	8/24/90	S	25	14	2	2.3	0	0	0.056	0.002	0.13	0.04
255	DB1	8/24/90	B	25	14	1	1.4	0	0	0.056	0.003	0.11	0.017
256	DB3	2/28/90	S	80	31	13	7.4	1.2	0	0	0.011	0.35	0
257	DB3	2/28/90	B	100	31	16	9.8	5.9	5.2	0	0.005	0.45	0
258	BH	1/23/90	S	80	20	9.5	15.2	1.6	3.9	0.07	0.005	0.53	0.014
259	BH	1/23/90	B	90	21	9.5	17.4	3.3	5.5	0.067	0	0.49	0.014
260	BH	2/28/90	S	40	24	5	4.5	0	0	0.025	0.003	0.06	0
261	BH	2/28/90	B	10	19	4	11.9	4.7	1.4	0.02	0.001	0	0
262	BH	3/23/90	S	98	23	18	2	0.2	5.6	0.033	0.005	0.34	0.009
263	BH	3/23/90	B	76	26	18	2.5	0	0	0.035	0.003	0.36	0.005
264	BH	4/15/90	S	50	26	4	4.9	0.1	1.1	0.046	0.005	0.11	0.01
265	BH	4/15/90	B	40	22	5	4.4	0	0.2	0.057	0.005	0.08	0.025
266	BH	5/31/90	S	20	22	7	5.6	0.8	0.6	0.042	0	0.23	0.023
267	BH	5/31/90	B	30	23	7	5.6	1.2	0.5	0.038	0	0.14	0.045
268	BH	6/28/90	S	36	31	11	4.2	1.3	2.1	0.047	0	0.14	0.063
269	BH	6/28/90	B	50	37	12	4.3	0.7	1.5	0.04	0	0.05	0.048
270	BH	7/26/90	S	15	29	1	3.9	0.8	2.6	0.056	0	0.27	0.012
271	BH	7/26/90	B	20	21	2	2.7	1.8	3.2	0.039	0.008	0.38	0.009
272	BH	8/23/90	S	50	12	3	2.8	0	0	0.054	0.006	0.13	0
273	BH	8/23/90	B	30	13	6	3.6	0	0	0.054	0.003	0.16	0.007
274	BH	9/6/90	S	20	9	3	4.7	1.9	2.5	0.045	0.004	0.07	0.03
275	BH	9/6/90	B	20	9	1	3.2	0	0	0.044	0.002	0.04	0.048
276	EHA	8/23/90	S	15	12	4	3.1	0.3	1.2	-9999	0.004	0.13	0.01
277	EHA	8/23/90	B	35	13	2	1.4	0	0.2	-9999	0.003	0.04	0.017
278	GA	8/23/90	S	25	14	6	2.2	0.3	0.9	-9999	0.004	0.22	0
279	GA	8/23/90	B	10	15	4	2.2	0.8	0.7	-9999	0.003	0.16	0.003
280	GB	8/23/90	S	15	12	1	4.4	1.5	2.7	-9999	0.005	0.13	0
281	GB	8/23/90	B	10	11	1	2.5	0.8	0	-9999	0.003	0.04	0
282	GC	8/23/90	S	20	14	1	5.9	4.1	3.6	-9999	0.004	0.16	0.003
283	GC	8/23/90	B	20	17	3	4.6	2.8	3.3	-9999	0.005	0.13	0
284	NS	1/30/90	S	15	21	15	10.7	1.4	3.1	0.049	0.004	0.6	0.027
285	NS	1/30/90	B	17	25	17	11.3	0.2	6.9	0.046	0	0.57	0.106

	N	O	P	Q	R	S	T	U	V	W
191	0.581	0.638	0.774	0	0.007	1.45	10.3	4.2	6.1	7.5
192	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
193	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
194	0.39	0.445	0.71	0	0.02	1.99	25	8.1	16.9	18.9
195	0.678	0.678	0.68	0	0.01	2.15	30	4.7	25.3	27.5
196	0.647	0.673	0.726	0	0.005	2.2	24.9	8.1	16.8	19
197	0.602	0.646	0.745	0	0.015	0.84	30	8.1	21.9	22.7
198	0.38	0.411	0.888	0	0.015	0.4	20	4.3	15.7	16.1
199	0.342	0.37	0.642	0	0.008	0.69	10.6	3.6	7	7.7
200	0.829	0.855	0.856	0	0.021	1.66	23.6	5.1	18.5	20.2
201	0.67	0.725	0.885	0	0	1.16	10.2	4.2	6	7.2
202	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
203	0.452	0.62	1.267	0.037	0.085	1.76	19	5	14	15.8
204	0.679	0.767	1.527	0.019	0.064	2.21	14	6	8	10.2
205	0.67	0.67	1.115	0.032	0.032	1.79	20.2	4.6	15.6	17.4
206	0.745	0.745	1.113	0.016	0.016	2.29	12.1	4.6	7.5	9.8
207	0.602	0.629	0.946	0.011	0.016	1.8	17	4.9	12.1	13.9
208	0.542	0.568	0.865	0.027	0.032	2.28	15	5.9	9.1	11.4
209	0.542	0.595	0.96	0	0.015	0.54	18	8.2	9.8	10.3
210	0.542	0.662	1.097	0	0.01	0.54	16.9	8	8.9	9.4
211	0.38	0.43	1.952	0	0.026	0.37	16	4.2	11.8	12.2
212	0.408	0.494	1.448	0	0.019	0.13	14	3.9	10.1	10.2
213	0.38	0.42	1.601	0	0.013	1	10.5	3.7	6.8	7.8
214	0.38	0.42	1.101	0	0.02	0.69	11.2	3.7	7.5	8.2
215	0.772	0.811	0.888	0	0.024	1.45	20.1	5.1	15	16.5
216	0.694	0.773	0.85	0.074	0.095	2.28	12.6	4.7	7.9	10.2
217	0.694	0.774	0.865	0	0	1.7	10.6	4.2	6.4	8.1
218	0.772	0.849	0.94	0	0	1.36	20.1	4.2	15.9	17.3
219	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
220	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
221	0.438	-9999	-9999	0	0.01	0.76	10.5	4.6	5.9	6.7
222	0.542	-9999	-9999	0	0.013	0.84	10.4	4.3	6.1	6.9
223	0.29	0.336	0.726	0	0.017	1.49	19.1	6	13.1	14.6
224	0.42	0.471	0.886	0.012	0.043	2.25	17.3	6	11.3	13.6
225	0.24	0.24	0.321	0	0	1.49	18.9	4.8	14.1	15.6
226	0.216	0.216	0.221	0.016	0.016	1.3	18	4.7	13.3	14.6
227	0.719	0.745	0.95	0	0.018	1.52	19.1	6.1	13	14.5
228	0.922	0.945	1.15	0	0.023	1.38	17.8	6.3	11.5	12.9
229	0.772	0.812	0.951	0	0.015	0.59	20.1	6	14.1	14.7
230	0.8	0.857	0.945	0	0.036	0.09	24	6.1	17.9	18
231	0.354	0.407	0.521	0	0.008	0	12.4	6.4	6	6
232	0.33	0.363	0.636	0	0.008	0	11.2	6.5	4.7	4.7
233	0.38	0.431	0.521	0.165	0.175	1.71	13.7	5.3	8.4	10.1
234	0.423	0.462	0.599	0.138	0.143	2.44	13.7	6.1	7.6	10
235	1.568	1.624	1.636	0.229	0.238	2.46	14.7	5.9	8.8	11.3
236	0.989	1.028	1.028	0.125	0.143	1.51	13.6	4.9	8.7	10.2
237	0.989	1.042	1.405	0.183	0.206	4.16	14.3	5.1	9.2	13.4
238	0.772	0.822	0.868	0.143	0.143	1.61	15.2	4.8	10.4	12
239	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
240	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
241	0.354	0.387	1.91	0.04	0.048	1.75	12.7	4.3	8.4	10.2
242	0.38	0.447	0.947	0.122	0.127	2.09	13.1	4.2	8.9	11
243	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
244	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
245	0.324	0.391	0.941	0	0.027	1.68	16	5.5	10.5	12.2
246	1.41	1.449	1.839	0.011	0.016	1.75	15.2	5.4	9.8	11.6
247	1.461	1.51	1.589	0	0.005	1.48	19.1	6.8	12.3	13.8
248	1.568	1.603	1.98	0	0.01	0.73	13	5.6	7.4	8.1
249	1.683	1.724	2.25	0	0.036	0.44	14.3	5.7	8.6	9
250	0.394	0.429	2.52	0	0.026	0	15.4	6.7	8.7	8.6
251	0.33	0.4	1.013	0	0.015	0	14.7	5.9	8.8	8.8
252	1.361	1.4	1.4	0.147	0.159	2.82	14.7	5.1	9.6	12.4
253	1.062	1.101	1.105	0.125	0.143	2.64	14.6	5.7	8.9	11.5
254	0.829	0.885	1.021	0	0.04	3.41	15.2	4.3	10.9	14.3
255	0.922	0.978	1.091	0	0.017	2.57	14.6	4.2	10.4	13
256	0.8	0.8	1.161	0.063	0.063	1.7	15.2	5.3	9.9	11.6
257	0.561	0.561	1.015	0	0	1.56	20	6.2	13.8	15.4
258	0.269	0.339	0.877	0	0.014	1.97	13	5.4	7.6	9.6
259	0.362	0.429	0.921	0	0.014	1.65	17	5.4	11.6	13.3
260	0.505	0.529	0.589	0	0	2.15	16	5.1	10.9	13.1
261	0.367	0.387	0.388	0	0	1.54	18.1	4.8	13.3	14.8
262	0.922	0.955	1.298	0.054	0.063	2.14	15.6	5.2	10.4	12.5
263	0.581	0.616	0.982	0	0.005	1.58	17.1	5.1	12	13.6
264	0.719	0.766	0.876	0	0.01	0.88	18.7	6	12.7	13.4
265	0.67	0.727	0.808	0	0.025	0	19.2	6.4	12.8	12.7
266	0.33	0.372	0.599	0	0.023	0.1	12.3	6.7	5.6	5.7
267	0.307	0.345	0.481	0	0.045	0	14.3	6.8	7.5	7.5
268	0.394	0.441	0.577	0.032	0.095	1.67	13.5	6.9	6.6	8.3
269	0.354	0.394	0.439	0.032	0.079	1.99	14.2	4.9	9.3	11.3
270	0.922	0.977	1.246	0.226	0.238	2.64	13.7	5.4	8.3	10.9
271	0.989	1.028	1.413	0.197	0.206	2.4	15	4.9	10.1	12.5
272	1.1	1.154	1.291	0.27	0.27	4.57	14.2	4.9	9.3	13.9
273	0.989	1.043	1.202	0.184	0.19	3.25	14.2	4.8	9.4	12.7
274	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
275	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
276	0.542	-9999	-9999	0	0.01	0.8	12	4.9	7.1	7.9
277	0.454	-9999	-9999	0	0.017	0.82	10.9	4.7	6.2	7
278	0.542	-9999	-9999	0	0	1.11	13	4.2	8.8	9.9
279	0.454	-9999	-9999	0	0.003	1.18	12.4	4.3	8.1	9.3
280	0.542	-9999	-9999	0	0	0.8	10.5	5.2	5.3	6.1
281	0.542	-9999	-9999	0	0	0.86	11	5	6	6.9
282	0.454	-9999	-9999	0	0.003	1.08	10.9	5	5.9	7
283	0.542	-9999	-9999	0	0	1.27	10.7	5.3	5.4	6.7
284	0.29	0.338	0.943	0	0.027	2.26	15	5.5	9.5	11.8
285	0.362	0.408	0.978	0.32	0.426	2.1	14	5.5	8.5	10.6

	A	B	C	D	E	F	G	H	I	J	K	L	M
286	NS	2/28/90	S	90	28	14	5.7	0	0	0	0.007	0.55	0
287	NS	2/28/90	B	90	23	13	6.8	0.8	1.1	0.024	0.003	0.33	0
288	NS	3/23/90	S	50	33	9	2.7	0.3	1.9	0.026	0.003	0.34	0.005
289	NS	3/23/90	B	30	23	9	1.5	0	3	0.028	0.001	0.38	0.014
290	NS	4/15/90	S	120	23	19	5.8	0.5	0.1	0.038	0.01	0.41	0.02
291	NS	4/15/90	B	120	23	20	4.9	0.5	0.7	0.038	0.005	0.46	0.015
292	NS	5/31/90	S	50	23	6	5.6	1.2	0.5	0.038	0	1.07	0.019
293	NS	5/31/90	B	50	20	8	8.3	1.1	1.2	0.038	0	0.18	0.015
294	NS	6/28/90	S	33	34	6	4.6	1.5	2.3	0.04	0	0.8	0.015
295	NS	6/28/90	B	35	36	7	7.9	1.2	2.1	0.04	0	0.09	0.013
296	NS	7/26/90	S	50	20	7	3	1.3	2.1	0.039	0.008	0	0.03
297	NS	7/26/90	B	45	26	2	1.8	1.7	3.5	0.039	0	0	0.012
298	NS	8/24/90	S	20	18	3	0.5	0	0	0.052	0.003	0.18	0.003
299	NS	8/24/90	B	30	15	3	2.5	0	0	0.056	0.003	0.27	0.01
300	NS	9/6/90	S	15	11	4	2.8	0.5	0.7	0.044	0.002	0.27	0.018
301	NS	9/6/90	B	25	14	1	4.3	3.5	3.2	0.044	0	0.23	0.027
302	PA	1/23/90	M	130	23	20	11.9	3.9	6.5	0.16	0.015	0.58	0.027
303	PA	2/28/90	S	70	28	12	7.2	1.1	0	0.021	0.007	0.39	0
304	PA	2/28/90	B	100	26	15	9.5	0.9	0	0.018	0.003	0.47	0
305	PA	3/22/90	S	76	24	16	0.9	1.3	0	0.028	0	0.09	0.014
306	PA	3/22/90	B	35	25	9	0.3	1	0.2	0.026	0.002	0.29	0.014
307	PA	4/15/90	S	100	24	16	2.2	0.7	0.5	0.037	0.007	0.19	0.01
308	PA	4/15/90	B	110	-9999	16	4.2	0.4	0.3	0.053	0.007	0.24	0.01
309	PA	5/31/90	S	40	19	6	4.5	0.4	0.4	0.032	0.002	0.04	0.008
310	PA	5/31/90	B	60	26	15	5.1	0.8	0.4	0.035	0	0.11	0.015
311	PA	6/28/90	S	72	37	19	6.7	1.1	2.5	0.028	0	0	0.013
312	PA	6/28/90	B	94	31	24	5.4	1.1	1.8	0.033	0	0.05	0.005
313	PA	7/26/90	M	10	32	4	1.6	1	2.1	0.033	0.004	0	0.009
314	PA	8/24/90	S	30	12	4	0.9	0	0	0.051	0.005	0.04	0
315	PA	8/24/90	B	50	11	2	0	169.3	0	0.051	0.006	0.22	0.01
316	PA	9/6/90	S	55	15	1	3.3	1.3	0.8	0.047	0.004	0.07	0.018
317	PA	9/6/90	B	30	11	3	3.7	0.6	1	0.044	0.005	0.11	0.027
318	PL	1/23/90	S	65	20	6	16.9	2.2	5	0.035	0	0.45	0.014
319	PL	1/23/90	B	40	19	7	31.3	0	360.1	0.034	0.004	0.27	0.014
320	PL	2/28/90	S	40	27	4	5.2	0	0	0.018	0.009	0	0
321	PL	2/28/90	B	30	19	4	10.2	0	2	0	0.005	0	0
322	PL	3/23/90	S	18	24	6	1	0.1	0	0.031	0.003	0.24	0.005
323	PL	3/23/90	B	28	23	9	0.5	2	1.2	0.025	0.001	0.16	0.005
324	PL	4/15/90	S	50	27	3	5.4	0.9	1.1	0.046	0.005	0.09	0.02
325	PL	4/15/90	B	50	24	4	4.1	0.6	0.4	0.055	0.005	0.01	0.03
326	PL	5/31/90	S	20	24	4	2.4	0.4	1	0.032	0	0.39	0.015
327	PL	5/31/90	B	30	22	8	2.8	0.5	0.9	0.029	0	0.16	0.008
328	PL	6/28/90	S	33	50	7	3	0.7	1.1	0.028	0	0.27	0.008
329	PL	6/28/90	B	11	37	7	3.1	1.3	1.7	0.028	0	0.18	0.005
330	PL	7/26/90	S	50	27	1	1.5	1.9	2.3	0.039	0.004	0.15	0.015
331	PL	7/26/90	B	40	21	2	2.4	1.5	2.2	0.039	0	0	0.009
332	PL	8/23/90	S	20	13	5	6.4	0	0	0.054	0.002	0.13	0.003
333	PL	8/23/90	B	35	17	2	8	0	0	0.051	0.003	0.22	0.017
334	PL	9/6/90	S	40	12	2	4.1	0	0	0.044	0	0.15	0.039
335	PL	9/6/90	B	30	13	1	3.7	0	0.7	0.044	0.002	0.15	0.024
336	SC	1/23/90	M	100	20	12	11.8	2.2	4.8	0.067	0.004	0.29	0.01
337	SC	2/28/90	M	90	21	12	8.1	0	0.1	0	0.011	0.28	0
338	SC	3/22/90	M	34	23	9	1.5	2.3	0	0.033	0.002	0.3	0.005
339	SC	4/15/90	M	105	24	14	9.1	0	0.6	0.038	0.009	0.1	0.015
340	SC	5/31/90	M	30	22	18	8.7	1.5	1.9	0.035	0	0.2	0.026
341	SC	6/28/90	M	83	29	24	7	0.8	1	0.04	0	0.16	0.008
342	SC	7/26/90	M	15	26	20	1.1	0.8	1.7	0.039	0.004	0.07	0.009
343	SC	8/24/90	M	40	17	2	8.8	0	0	0.056	0.008	0.17	0
344	SC	9/6/90	M	65	13	7	3.9	0.4	1.5	0.045	0.011	0.07	0.024
345	SG	1/23/90	M	100	20	12	11	0	4.2	0.097	0.006	0.43	0.031
346	SG	2/28/90	S	45	20	8	5.1	0	0	0.025	0.003	0.17	0
347	SG	2/28/90	B	40	26	7	7.3	0	0	0.02	0.007	0.05	0
348	SG	3/23/90	S	80	28	14	2	0.3	0	0.031	0.003	0.26	0.014
349	SG	3/23/90	B	60	28	15	1	0.1	0.4	0.022	0.003	0.28	0.005
350	SG	4/15/90	S	150	26	22	10.1	2.5	0.6	0.05	0.007	0.31	0.015
351	SG	4/15/90	B	160	27	24	12.4	1.9	0	0.057	0.009	0.44	0.015
352	SG	5/31/90	S	10	25	9	3.4	0.6	0.7	0.053	0.002	0.23	0.015
353	SG	5/31/90	B	30	19	13	6.2	0.8	1.6	0.035	0.003	0.27	0.019
354	SG	6/28/90	S	27	33	11	4.8	1	2.4	0.056	0	0.14	0.003
355	SG	6/28/90	B	30	45	12	4.3	0.7	1.9	0.04	0	0.07	0.005
356	SG	7/26/90	S	35	26	1	2.3	2.5	3	0.056	0.008	0	0.024
357	SG	7/26/90	B	20	24	1	3.1	0.7	2.3	0.039	0	0.08	0.021
358	SG	8/23/90	S	20	12	5	4	0	0	0.08	0.004	0.09	0
359	SG	8/23/90	B	25	14	3	11.3	0	0	0.074	0.002	0.13	0
360	SG	9/6/90	S	35	12	1	3	1.3	1.5	0.044	0.002	0.31	0.039
361	SG	9/6/90	B	40	15	1	4.5	0.6	1.9	0.044	0.002	0.08	0.033
362	SV	1/23/90	M	110	21	7	3.8	1.8	2.8	0.366	0.007	0.52	0.027
363	SV	2/28/90	S	65	28	10	4.4	0.9	0	0.019	0.009	0.24	0
364	SV	2/28/90	B	80	24	10	5.2	0	0	0.022	0	0	0
365	SV	3/23/90	S	110	60	25	0.7	0.1	1.1	0.047	0.003	0.37	0.014
366	SV	3/23/90	B	80	41	17	0	0	0	0.037	0.004	0.51	0.005
367	SV	4/15/90	S	60	20	6	8.7	0.3	0.6	0.034	0.006	0.09	0.02
368	SV	4/15/90	B	80	23	12	11.6	1.1	1.8	0.043	0.01	0.12	0.041
369	SV	5/31/90	S	20	29	3	3.8	0.4	1	0.038	0	0	0.008
370	SV	5/31/90	B	40	23	8	5.1	0.4	1.4	0.038	0	0.18	0.008
371	SV	6/28/90	S	30	42	5	4.4	1.6	1.5	0.04	0	0	0.015
372	SV	6/28/90	B	50	29	9	6.2	1.2	1.1	0.04	0	0.09	0.01
373	SV	7/26/90	S	10	25	1	1.8	1.9	1.6	0.039	0.008	0.07	0.015
374	SV	7/26/90	B	15	26	1	2.5	1	2.4	0.039	0.004	0.07	0.009
375	SV	8/24/90	S	15	9	1	5.5	0	0	0.054	0.004	0.13	0
376	SV	8/24/90	B	20	11	4	1.9	0	0	0.054	0.004	0.13	0.003
377	SV	9/6/90	S	40	14	2	1.7	0.1	0.6	0.044	0.002	0.15	0.042
378	SV	9/6/90	B	30	16	1	2.3	0	0.5	0.044	0.002	0.34	0.024

	N	O	P	Q	R	S	T	U	V	W
286	1.1	1.1	1.655	0	0	2.29	15	5.6	9.4	11.7
287	0.858	0.882	1.212	0	0	2.15	14.7	4.7	10	12.2
288	0.829	0.855	1.201	0	0.005	2.27	14.8	5.6	9.2	11.5
289	0.745	0.773	1.156	0	0.014	2.2	14.4	5.5	8.9	11.1
290	0.8	0.838	1.26	0	0.02	0.66	14.1	5.4	8.7	9.4
291	0.772	0.81	1.279	0	0.015	0.29	14.3	5.7	8.6	8.9
292	0.38	0.418	1.486	0	0.019	0	16.7	6.3	10.4	10.4
293	0.394	0.432	0.613	0	0.015	0	16.3	6.4	9.9	9.9
294	0.38	0.42	1.215	0.033	0.048	1.86	12.1	4.6	7.5	9.4
295	0.33	0.369	0.46	0.019	0.032	2.6	11.6	4.5	7.1	9.7
296	0.922	0.961	0.969	0.176	0.206	2.69	14.9	4.7	10.2	12.9
297	1.1	1.139	1.139	0.178	0.19	2.79	15.1	4.8	10.3	13.1
298	0.772	0.824	1.006	0	0.003	3.39	13.6	4.9	8.7	12.1
299	0.8	0.856	1.129	0.006	0.016	2.3	14.1	4.7	9.4	11.7
300	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
301	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
302	0.375	0.536	1.128	0.122	0.149	2.07	18	5.2	12.8	14.9
303	0.922	0.942	1.335	0	0	2.15	18	4.7	13.3	15.5
304	0.05	0.068	0.542	0.016	0.016	1.33	18	4.8	13.2	14.5
305	0.829	0.857	0.947	0	0.014	1.7	18.9	6.4	12.5	14.2
306	0.8	0.826	1.117	0	0.014	1.3	16.6	5.7	10.9	12.2
307	0.8	0.836	1.03	0	0.01	0.91	14.3	5.9	8.4	9.3
308	0.745	0.798	1.048	0	0.01	0.81	16	5.4	10.6	11.4
309	0.505	0.536	0.582	0	0.008	0	12.2	6.7	5.5	5.5
310	0.38	0.415	0.529	0	0.015	0	13.3	6.6	6.7	6.7
311	0.38	0.408	0.408	0.146	0.159	1.64	14.2	5.7	8.5	10.1
312	0.394	0.427	0.472	0.138	0.143	1.33	13.7	6.1	7.6	8.9
313	1.361	1.394	1.397	0.197	0.206	2.67	15.1	4.7	10.4	13.1
314	0.922	0.972	1.018	0.175	0.175	3.91	13.6	4.7	8.9	12.8
315	0.922	0.972	1.199	0.149	0.159	3.64	12.6	5.2	7.4	11
316	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
317	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
318	0.39	0.425	0.872	0	0.014	1.71	15	5.2	9.8	11.5
319	0.312	0.346	0.616	0	0.014	2.04	18.1	5.4	12.7	14.7
320	0.318	0.336	0.345	0	0	1.72	18.9	4.9	14	15.7
321	0.24	0.24	0.245	0	0	2.15	15.2	4.7	10.5	12.7
322	0.745	0.776	1.016	0	0.005	1.92	18.6	6	12.6	14.5
323	0.647	0.671	0.83	0	0.005	1.92	15.8	5.4	10.4	12.3
324	0.505	0.551	0.65	0	0.02	0.82	18	6.2	11.8	12.6
325	0.542	0.597	0.615	0	0.03	0.79	20.3	4.7	15.6	16.4
326	0.38	0.412	0.798	0	0.015	0.04	12.7	6.1	6.6	6.6
327	0.33	0.359	0.518	0	0.008	0	12.6	6.3	6.3	6.3
328	0.33	0.358	0.63	0.04	0.048	1.78	14.2	5	9.2	11
329	0.38	0.408	0.59	0.058	0.063	1.36	14.2	4.9	9.3	10.7
330	1.1	1.139	1.293	0.207	0.222	2.51	15.1	5.6	9.5	12
331	1.41	1.449	1.449	0.166	0.175	2.85	14.9	6.6	8.3	11.2
332	0.694	0.748	0.885	0	0.003	3.91	14.3	4.6	9.7	13.6
333	0.719	0.77	0.997	0.047	0.063	3.29	14.1	5.1	9	12.3
334	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
335	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
336	0.279	0.346	0.641	0	0.01	1.69	20	6.4	13.6	15.3
337	1.1	1.1	1.395	0	0	1.69	18.9	4.7	14.2	15.9
338	0.694	0.727	1.029	0	0.005	2.16	17.5	5.2	12.3	14.5
339	0.719	0.757	0.868	0	0.015	0.86	16.7	6.1	10.6	11.5
340	0.354	0.389	0.594	0	0.026	0.04	11.2	6.3	4.9	4.9
341	0.542	0.581	0.74	0.008	0.016	1.78	13.6	7.2	6.4	8.2
342	1.181	1.22	1.297	0.213	0.222	2.43	14.6	5.3	9.3	11.7
343	0.829	0.885	1.067	0.016	0.016	4.38	13.7	5.7	8	12.4
344	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
345	0.39	0.486	0.926	0	0.031	1.96	20.1	6.2	13.9	15.9
346	0.248	0.273	0.443	0	0	2.01	18.1	4.7	13.4	15.4
347	0.231	0.251	0.311	0	0	2.2	18.1	4.7	13.4	15.6
348	0.772	0.803	1.07	0.002	0.016	2.15	17.6	6.3	11.3	13.5
349	0.694	0.716	0.996	0	0.005	2.3	17.6	5.6	12	14.3
350	0.745	0.795	1.113	0	0.015	0.92	22	5.7	16.3	17.2
351	0.829	0.886	1.331	0	0.015	1.03	21	5.7	15.3	16.3
352	0.438	0.491	0.718	0	0.015	0.37	11.3	6.3	5	5.4
353	0.408	0.443	0.716	0	0.019	0.39	11.4	6.2	5.2	5.6
354	0.38	0.436	0.573	0.14	0.143	1.95	13.6	5.7	7.9	9.9
355	0.38	0.42	0.488	0.09	0.095	2.46	13.5	4.9	8.6	11.1
356	1.568	1.624	1.632	0.119	0.143	2.64	12.6	5.7	6.9	9.5
357	1.181	1.22	1.297	0.074	0.095	2.73	10.9	4.9	6	8.7
358	0.772	0.852	0.943	0.27	0.27	4.36	14.6	4.7	9.9	14.3
359	0.772	0.846	0.983	0.206	0.206	5.07	14.7	4.6	10.1	15.2
360	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
361	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
362	0.435	0.801	1.326	0	0.027	1.9	15	5.3	9.7	11.6
363	1.1	1.119	1.363	0	0	1.93	14.9	4.3	10.6	12.5
364	0.052	0.074	0.074	0	0	1.51	18	5.2	12.8	14.3
365	0.647	0.693	1.07	0	0.014	1.88	14.7	5.3	9.4	11.3
366	0.581	0.619	1.136	0	0.005	1.45	17.4	6.2	11.2	12.7
367	0.542	0.576	0.675	0	0.02	1.21	14.4	6	8.4	9.6
368	0.542	0.585	0.719	0	0.041	1.31	15.1	6.1	9	10.3
369	0.354	0.392	0.392	0	0.008	0	15.1	6.1	9	8.9
370	0.318	0.356	0.538	0	0.008	0	14.2	6.2	8	8
371	0.394	0.433	0.433	0.159	0.175	1.78	13.2	4.1	9.1	10.9
372	0.33	0.369	0.46	0.133	0.143	2.46	14.1	5.2	8.9	11.4
373	1.181	1.22	1.297	0.048	0.063	2.46	13.7	4.6	9.1	11.6
374	0.647	0.686	0.763	0.181	0.19	2.46	14.9	5.1	9.8	12.3
375	0.772	0.826	0.962	0.016	0.016	5.04	15.1	4.1	11	16
376	0.772	0.826	0.962	0.044	0.048	5.07	14.9	5.1	9.8	14.9
377	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999
378	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999	-9999

Study area: Apalachicola Bay
Data type: Oyster tong data
Abundance summary for species - OYSTER
Number of individuals in seven tong samples

Location	90/02	90/03	90/04	90/05	90/06	90/07	90/08	90/09	TOTAL	MEAN
Platform	1591	1426	1596	954	2622	2317	1624	2459	14589	1824
East Hole	1251	1506	716	843	855	1212	542	580	7505	938
Catpoint Bar	1040	1010	737	855	1083	1117	488	457	6787	848
Dry Bar - Experimental Site #3	1383	641	764	657	443	592	555	224	5259	657
Dry Bar - Experimental Site #2	542	902	684	514	254	418	269	274	3857	482
St. Vincent	510	390	98	329	564	469	74	113	2547	318
Dry Bar - Experimental Site #1	182	250	352	303	217	187	127	222	1840	230
Scorpion Bar (St. Vincent Sound)	111	343	206	179	187	139	89	519	1773	222
Sweet Goodson	401	238	201	186	233	190	186	117	1752	219
North Spur (SE of St. Vincent's Island)	132	204	143	201	183	247	142	227	1479	185
Paradise	46	83	41	56	60	50	19	32	387	48
TOTAL	7189	6993	5538	5077	6701	6938	4115	5224	47775	5972

******** End of Report, species - OYSTER ********

Table 3: Oyster tong data taken in the Apalachicola estuary from February, 1990-September, 1990.

Study area: Apalachicola Bay
Data type: Oyster tong data
Abundance summary for species - OYSTER
Ash free dry wt (to nearest gram) in seven tongs

Location	90/02	90/03	90/04	90/05	90/06	90/07	90/08	90/09	TOTAL	MEAN
East Hole	441	442	180	412	258	490	279	235	2736	342
Catpoint Bar	343	310	254	375	331	431	210	176	2430	304
Platform	226	256	297	293	241	563	274	255	2403	300
Dry Bar - Experimental Site #3	141	165	204	228	168	350	236	71	1562	195
Dry Bar - Experimental Site #2	164	247	179	227	99	225	128	189	1458	182
North Spur (SE of St. Vincent's Island)	94	143	107	162	115	141	86	108	955	119
Dry Bar - Experimental Site #1	116	115	130	143	123	109	96	5	838	105
Scorpion Bar (St. Vincent Sound)	76	187	125	135	74	83	72	87	837	105
Sweet Goodson	119	104	75	112	65	139	159	42	814	102
Paradise	48	75	41	46	54	52	36	23	374	47
St. Vincent	7	6	2	4	10	14	4	3	49	6
TOTAL	1774	2050	1593	2135	1537	2596	1580	1192	14457	1807

******** End of Report, species - OYSTER ********

Study area: Apalachicola Bay
Data type: Oyster tong data
Relative abundance (%) summary for species - OYSTER
Ash free dry wt (to nearest gram) in seven tongs

Location	90/02	90/03	90/04	90/05	90/06	90/07	90/08	90/09	TOTAL
East Hole	24.8	21.5	11.3	19.3	16.8	18.9	17.7	19.7	18.9
Catpoint Bar	19.3	15.1	15.9	17.6	21.5	16.6	13.3	14.7	16.8
Platform	12.7	12.5	18.6	13.7	15.7	21.7	17.4	21.4	16.6
Dry Bar - Experimental Site #3	8.0	8.1	12.8	10.7	10.9	13.5	15.0	5.9	10.8
Dry Bar - Experimental Site #2	9.2	12.0	11.3	10.7	6.4	8.7	8.1	15.9	10.1
North Spur (SE of St. Vincent's Island)	5.3	7.0	6.7	7.6	7.5	5.4	5.4	9.1	6.6
Dry Bar - Experimental Site #1	6.6	5.6	8.2	6.7	8.0	4.2	6.1	.4	5.8
Scorpion Bar (St. Vincent Sound)	4.3	9.1	7.9	6.3	4.8	3.2	4.5	7.3	5.8
Sweet Goodson	6.7	5.1	4.7	5.2	4.2	5.4	10.1	3.5	5.6
Paradise	2.7	3.6	2.6	2.1	3.5	2.0	2.3	2.0	2.6
St. Vincent	.4	.3	.1	.2	.6	.5	.3	.2	.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

******** End of Report, species - OYSTER ********

Study area: Apalachicola Bay
Data type: Oyster tong data
Abundance summary for species - OYSTER
Average size (mm) of individuals in tong collections

Location	90/02	90/03	90/04	90/05	90/06	90/07	90/08	90/09	TOTAL	MEAN
Paradise	68	64	66	63	61	68	81	52	523	65
North Spur (SE of St. Vincent's Island)	57	57	60	62	52	52	53	46	439	55
Scorpion Bar (St. Vincent Sound)	55	47	51	58	44	53	60	26	394	49
Sweet Goodson	39	45	43	55	35	58	63	42	380	48
Dry Bar - Experimental Site #1	56	45	40	46	52	52	60	15	366	46
Dry Bar - Experimental Site #2	39	38	37	48	44	49	50	52	357	45
East Hole	37	33	33	48	39	46	50	46	332	42
Catpoint Bar	37	35	36	46	39	44	47	45	329	41
Dry Bar - Experimental Site #3	23	34	36	43	44	55	50	35	320	40
Platform	24	28	29	40	18	33	30	24	226	28
St. Vincent	12	13	15	11	15	18	22	14	120	15
TOTAL	447	439	446	520	443	528	566	397	3786	473

******** End of Report, species - OYSTER ********

Table 4: ANOVA analysis run with spat data from open and closed basket with data run taken in the Apalachicola estuary from January, 1990-September, 1990.

Source	df	Sum of Squares	Mean Square	F-Value	P-Value
FACTOR	1	304.222	304.222	5.103	.0382
Residual	16	953.778	59.611		

Dependent: PLATFORM SPAT

Means Table
Effect: FACTOR
Dependent: PLATFORM SPAT

	Count	Mean	Std. Dev.	Std. Error
CPL	9	9.111	10.588	3.529
OPL	9	.889	2.667	.889

Fisher's Protected LSD
Effect: FACTOR
Dependent: PLATFORM SPAT
Significance level: .05

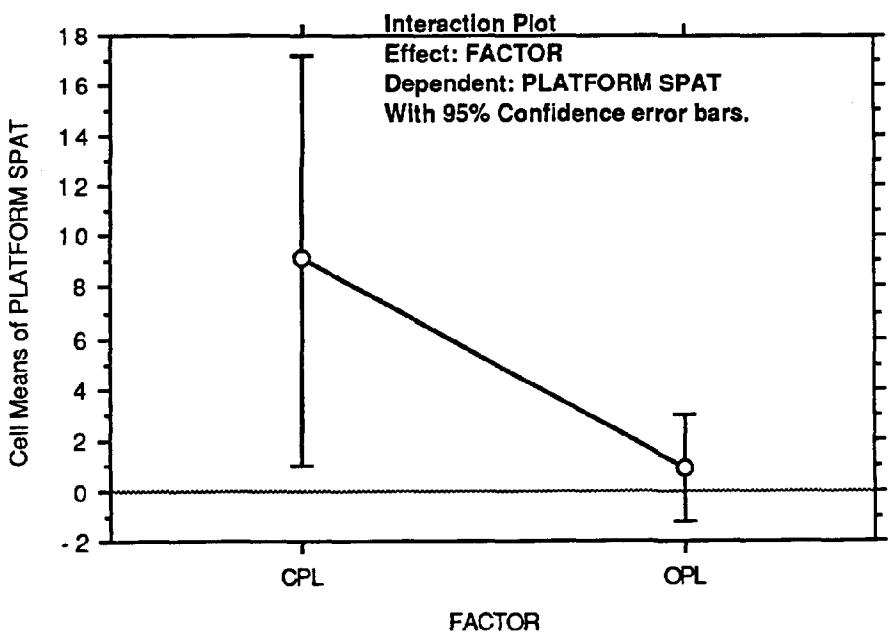
	Vs.	Diff.	Crit. diff.	P-Value	
OPL	CPL	8.222	7.716	.0382	S

S = Significantly different at this level.

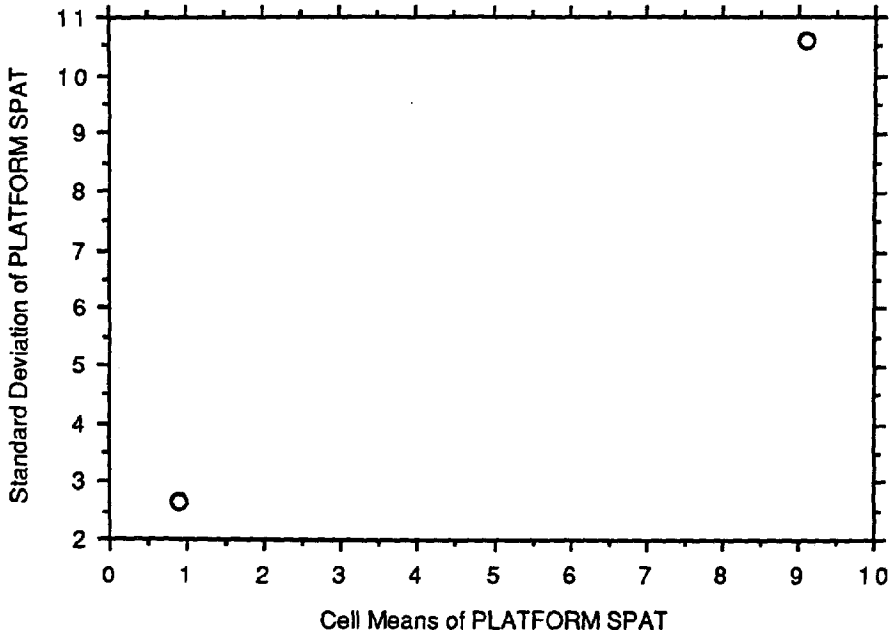
cheffe's S
ffect: FACTOR
epondent: PLATFORM SPAT
ignificance level: .05

	Vs.	Diff.	Crit. diff.	P-Value	
OPL	CPL	8.222	7.716	.0382	S

S = Significantly different at this level.



Scattergram of Cell Means versus Standard Deviation
Effect: FACTOR
Dependent: PLATFORM SPAT



Type III Sums of Squares

Source	df	Sum of Squares	Mean Square	F-Value	P-Value
FACTOR	1	50.021	50.021	5.189	.0274
Residual	46	443.458	9.640		

Dependent: DRYBAR SPAT

Means Table
Effect: FACTOR
Dependent: DRYBAR SPAT

	Count	Mean	Std. Dev.	Std. Error
CD	24	3.750	3.505	.715
CD	24	1.708	2.645	.540

Fisher's Protected LSD
Effect: FACTOR
Dependent: DRYBAR SPAT
Significance level: .05

	Vs.	Diff.	Crit. diff.	P-Value	
CD	CD	2.042	1.804	.0274	S

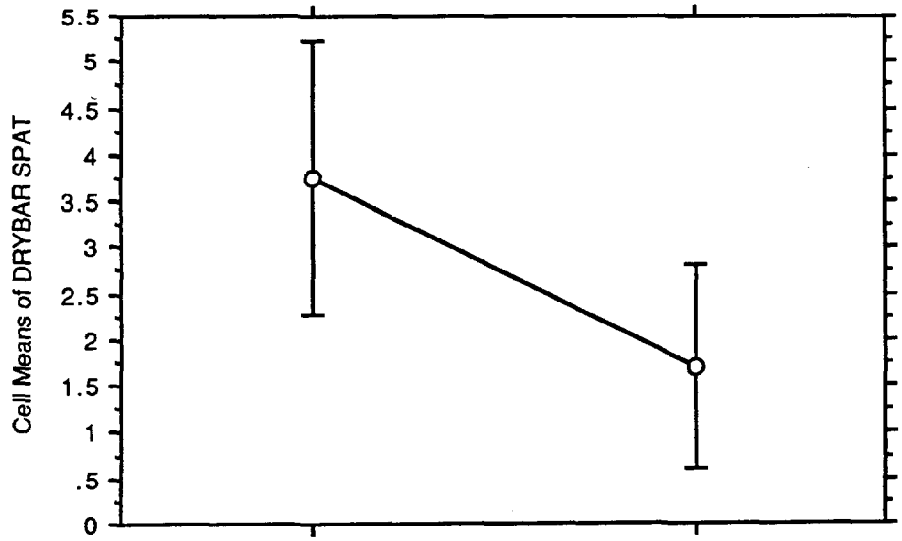
S = Significantly different at this level.

Scheffe's S
Effect: FACTOR
Dependent: DRYBAR SPAT
Significance level: .05

	Vs.	Diff.	Crit. diff.	P-Value	
CD	CD	2.042	1.804	.0274	S

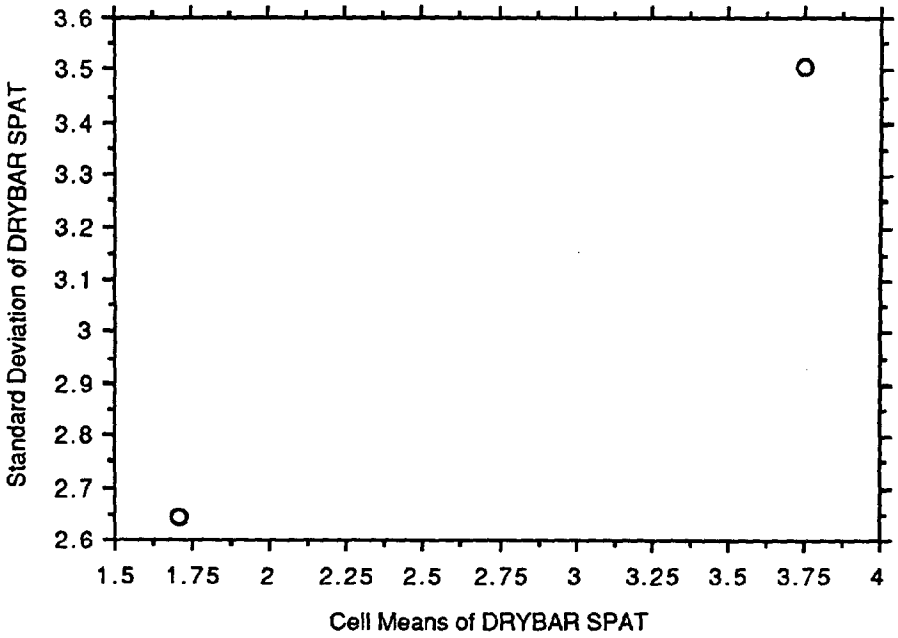
S = Significantly different at this level.

Interaction Plot
Effect: FACTOR
Dependent: DRYBAR SPAT
With 95% Confidence error bars.



FACTOR

Scattergram of Cell Means versus Standard Deviation
Effect: FACTOR
Dependent: DRYBAR SPAT



Type III Sums of Squares

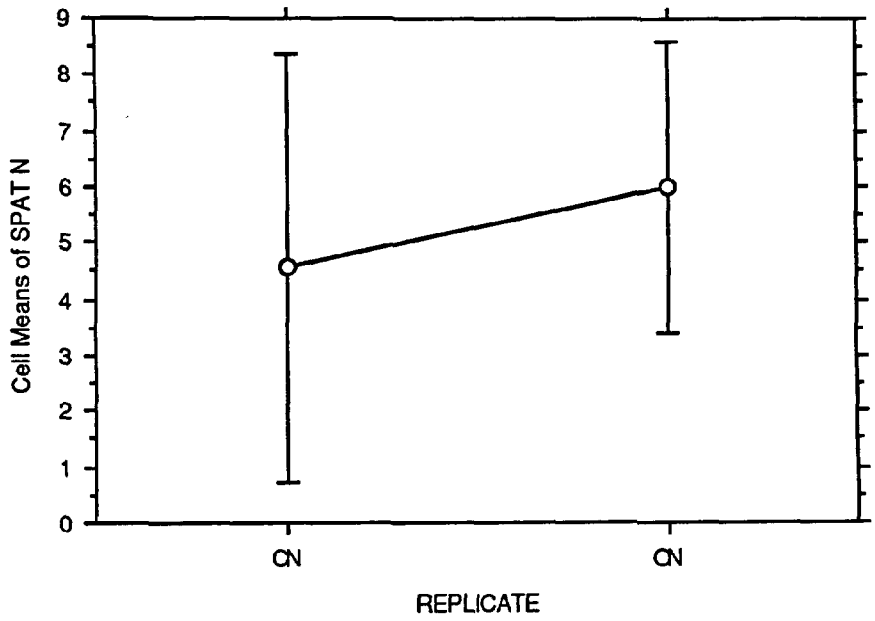
Source	df	Sum of Squares	Mean Square	F-Value	P-Value
REPLICATE	1	9.389	9.389	.521	.4807
Residual	16	288.222	18.014		

Dependent: SPAT N

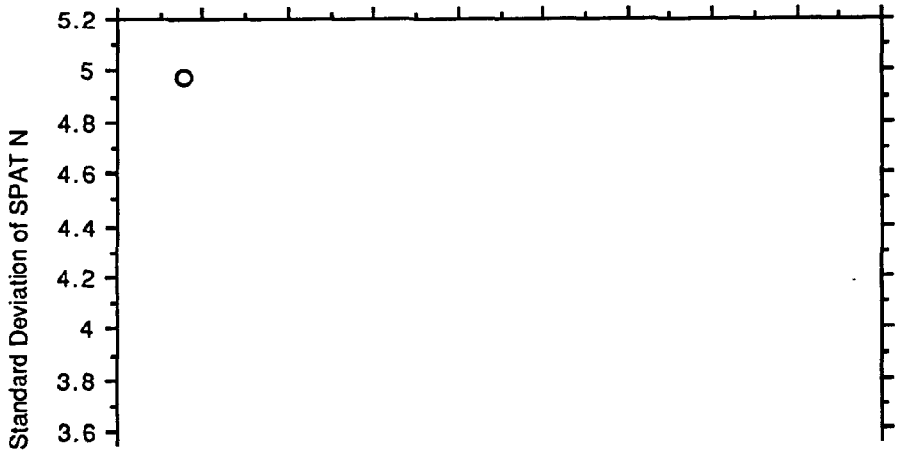
Means Table
Effect: REPLICATE
Dependent: SPAT N

	Count	Mean	Std. Dev.	Std. Error
CN	9	4.556	4.978	1.659
CN	9	6.000	3.354	1.118

Interaction Plot
Effect: REPLICATE
Dependent: SPAT N
With 95% Confidence error bars.



Scattergram of Cell Means versus Standard Deviation
Effect: REPLICATE
Dependent: SPAT N



SCORPION

Type III Sums of Squares

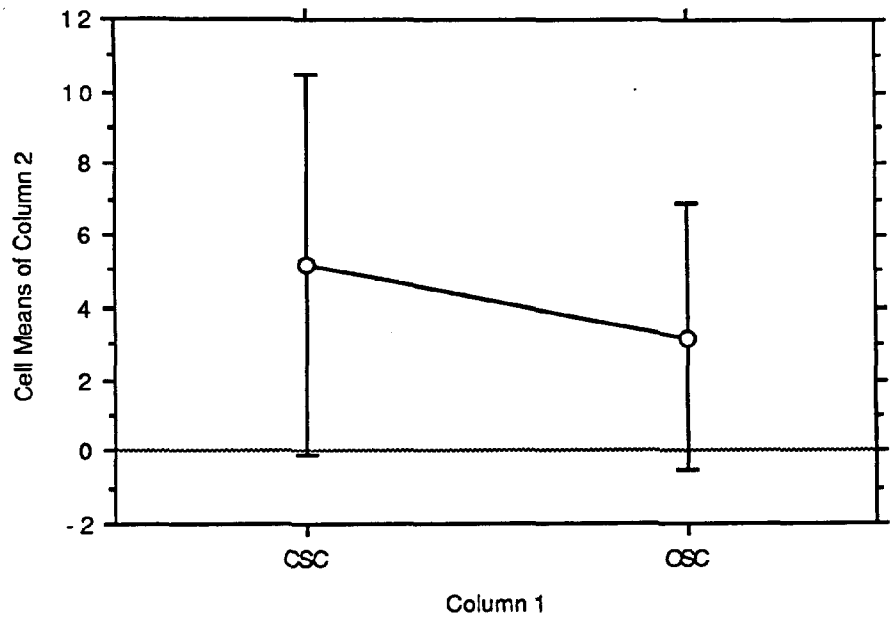
Source	df	Sum of Squares	Mean Square	F-Value	P-Value
Column 1	1	12.000	12.000	.633	.4448
Residual	10	189.667	18.967		

Dependent: Column 2

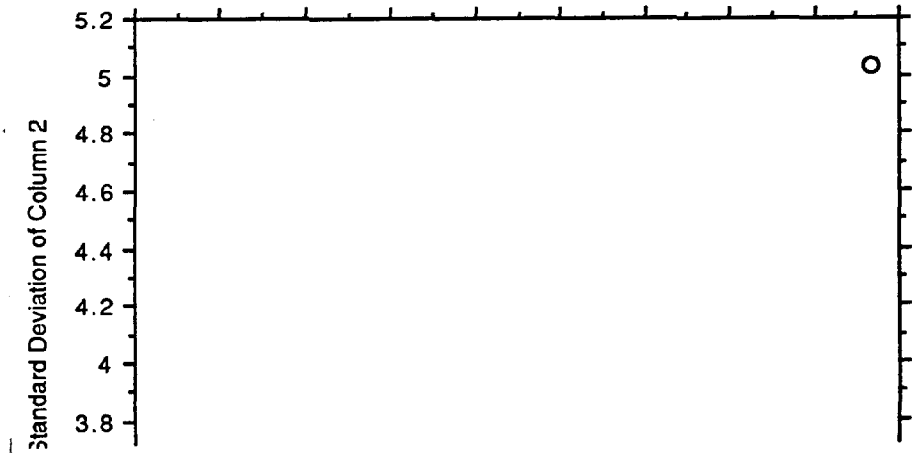
Means Table
Effect: Column 1
Dependent: Column 2

	Count	Mean	Std. Dev.	Std. Error
CSC	6	5.167	5.037	2.056
OSC	6	3.167	3.545	1.447

Interaction Plot
Effect: Column 1
Dependent: Column 2
With 95% Confidence error bars.



Scattergram of Cell Means versus Standard Deviation
Effect: Column 1
Dependent: Column 2



Type III Sums of Squares

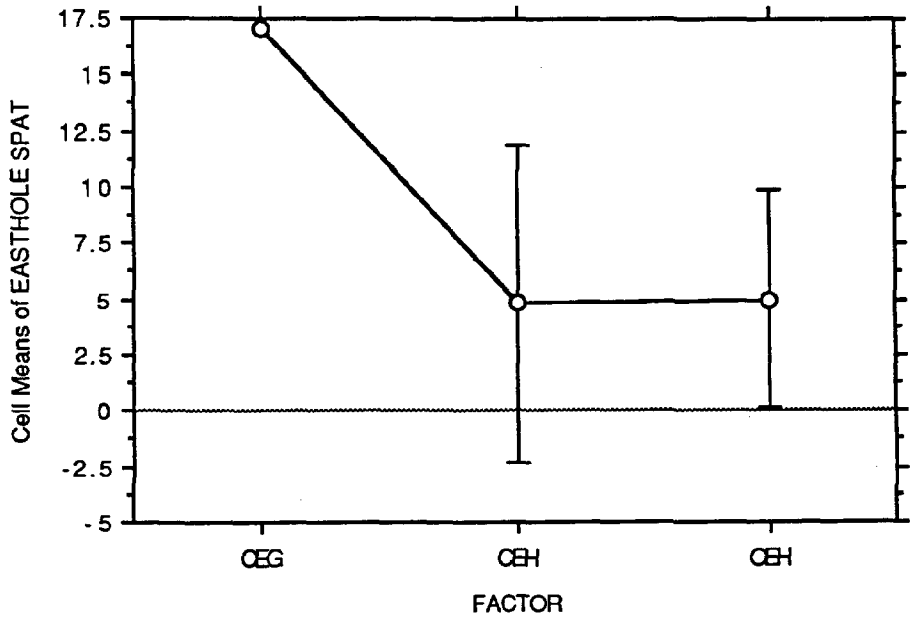
Source	df	Sum of Squares	Mean Square	F-Value	P-Value
FACTOR	2	134.117	67.058	2.506	.1364
Residual	9	240.800	26.756		

Dependent: EASTHOLE SPAT

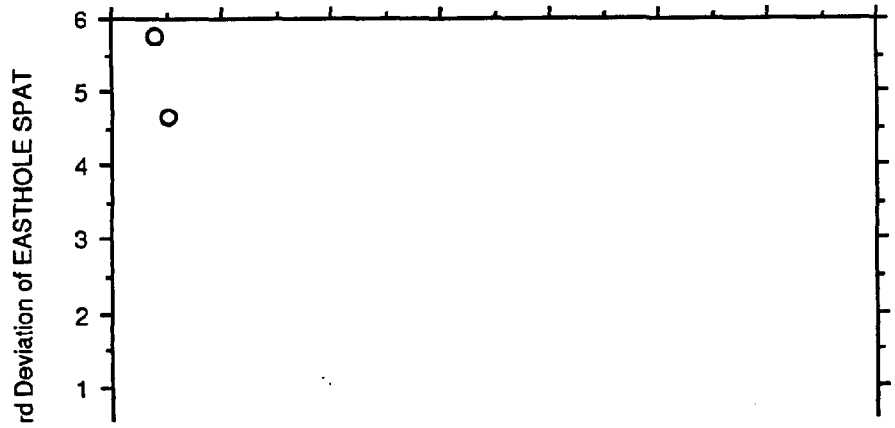
Means Table
Effect: FACTOR
Dependent: EASTHOLE SPAT

	Count	Mean	Std. Dev.	Std. Error
OEG	1	17.000	0.000	0.000
OEH	5	4.800	5.762	2.577
OEH	6	5.000	4.648	1.897

Interaction Plot
Effect: FACTOR
Dependent: EASTHOLE SPAT
With 95% Confidence error bars.



Scattergram of Cell Means versus Standard Deviation
Effect: FACTOR
Dependent: EASTHOLE SPAT



Type III Sums of Squares

Source	df	Sum of Squares	Mean Square	F-Value	P-Value
FACTOR	1	.908	.908	.018	.8943
Residual	20	1002.454	50.123		

Dependent: SPAT #

Means Table
Effect: FACTOR
Dependent: SPAT #

	Count	Mean	Std. Dev.	Std. Error
C	11	7.364	5.450	1.643
O	11	6.957	8.399	2.532

Scheffe's S
Effect: FACTOR
Dependent: SPAT #
Significance level: .05

	V...	Diff.	Crit. diff.	P-Value
O	C	.406	6.297	.8943

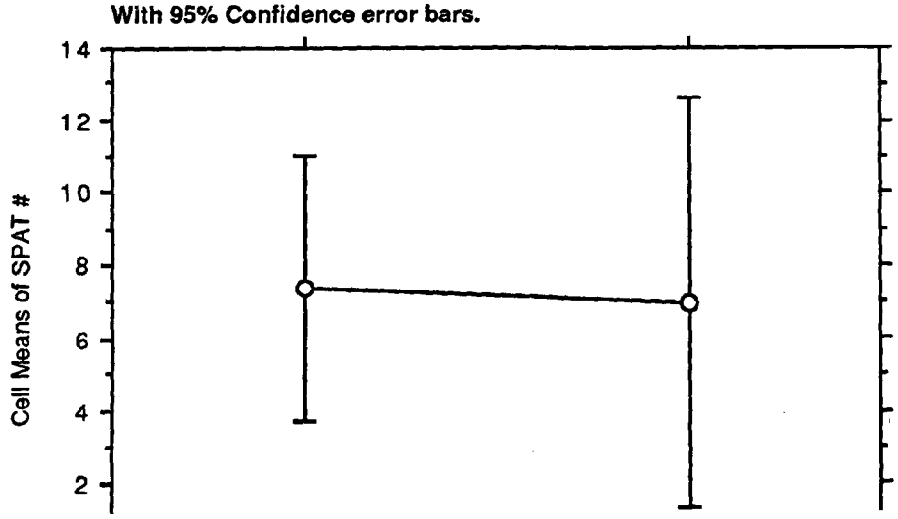
None were significantly different at this level.

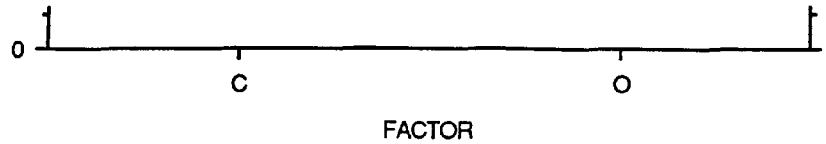
Fisher's Protected LSD
Effect: FACTOR
Dependent: SPAT #
Significance level: .05

	V...	Diff.	Crit. diff.	P-Value
O	C	.406	6.297	.8943

None were significantly different at this level.

Interaction Plot
Effect: FACTOR
Dependent: SPAT #
With 95% Confidence error bars.





Scattergram of Cell Means versus Standard Deviation
Effect: FACTOR
Dependent: SPAT #

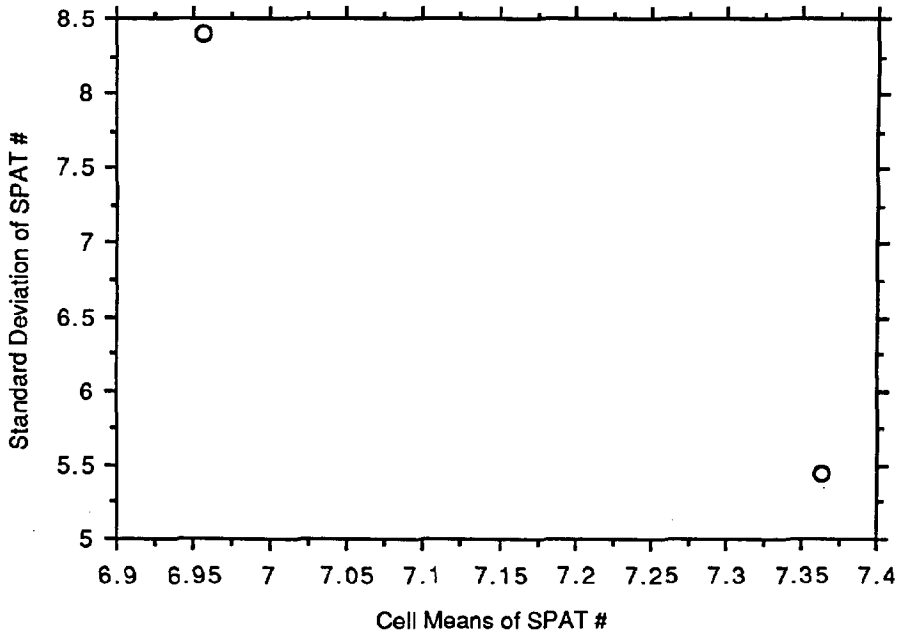


Table 5: *P. marinum* infestation data with oysters taken on the various Apalachicola reefs in June, 1990.

	A	B	C
1	Station	Size (cm)	Infestation (gills)
2	Catpoint	11.5	4.0
3	Catpoint	08.0	3.0
4	Catpoint	09.0	3.0
5	Catpoint	09.7	1.0
6	Catpoint	09.0	2.0
7	East Hole	08.0	1.0
8	East Hole	10.0	1.0
9	East Hole	09.4	2.0
10	East Hole	09.6	0.0
11	East Hole	10.5	4.0
12	North Spur	10.9	2.0
13	North Spur	09.4	1.0
14	North Spur	09.6	4.0
15	North Spur	09.8	4.0
16	North Spur	07.0	4.0
17	Dry Bar #1	10.0	1.0
18	Dry Bar #1	10.5	2.0
19	Dry Bar #1	11.0	1.0
20	Dry Bar #1	09.0	2.0
21	Dry Bar #1	09.2	3.0
22	Dry Bar #2	11.6	4.0
23	Dry Bar #2	12.0	4.0
24	Dry Bar #2	09.8	3.0
25	Dry Bar #2	09.4	4.0
26	Dry Bar #2	08.3	4.0
27	Dry Bar #3	09.5	4.0
28	Dry Bar #3	08.1	4.0
29	Dry Bar #3	08.0	4.0
30	Dry Bar #3	07.5	4.0
31	Dry Bar #3	07.0	4.0
32	Paradise	11.5	4.0
33	Paradise	09.0	3.0
34	Paradise	11.3	1.0
35	Paradise	09.2	4.0
36	Paradise	08.5	4.0
37	Sweet Goodson	10.0	2.0
38	Sweet Goodson	09.6	1.0
39	Sweet Goodson	10.0	1.0
40	Sweet Goodson	08.5	1.0
41	Sweet Goodson	09.1	2.0
42	Scorpion	09.0	4.0
43	Scorpion	06.7	3.0
44	Scorpion	07.0	4.0
45	Scorpion	08.0	4.0
46	Scorpion	07.5	4.0

Table 6: Summary statistical data for oyster station data.

X_1 : CP-SALINITY					
Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
16.8088235	5.508361	.9446761	30.342041	32.7706517	34
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
5	26	21	571.5	10607.53	24

X_2 : CP-TEMPERATURE					
Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
24.0205882	5.7517207	.986412	33.0822906	23.9449617	34
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
14	31.5	17.5	816.7	20709.33	24

X_3 : CP-COLOR (NCAS)					
Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
29.2777778	19.1949919	4.524303	368.4477124	65.561642	18
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
12	80	68	527	21693	40

X_4 : CP-TURBIDITY					
Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
7.8333333	4.46226	1.0517648	19.9117647	56.9650218	18
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
1	18	17	141	1443	40

X_5 : CP-CHLOR A					
Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
6.7111111	6.9885527	1.6472177	48.8398693	104.1340639	18
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
1	25.7	24.7	120.8	1640.98	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_6 : CP-NH3

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0393333	.0171224	.0040358	.0002932	43.5315172	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.057	.057	.708	.032832	40

X_7 : CP-NITRATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.1638889	.1309755	.0308712	.0171546	79.9172392	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.41	.41	2.95	.7751	40

X_8 : CP-ORTHOPHOSPHATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0153333	.011072	.0026097	.0001226	72.2084162	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.036	.036	.276	.006316	40

X_9 : CP-TON

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.6636111	.3583828	.0844716	.1284383	54.0049469	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.216	1.568	1.352	11.945	10.110285	40

X_{10} : CP-TKN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.7036111	.3664841	.0863811	.1343106	52.0861747	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.216	1.624	1.408	12.665	11.194515	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{11} : CP-TN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.8687222	.3754627	.0884974	.1409722	43.2201059	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.221	1.636	1.415	15.637	15.980737	40

X_{12} : CP-TOP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0742778	.0851648	.0200735	.007253	114.6571158	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.229	.229	1.337	.222611	40

X_{13} : CP-TP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0878333	.0840058	.0198004	.007057	95.642251	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.238	.238	1.581	.258833	40

X_{14} : CP-POC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.6538889	1.176541	.2773134	1.3842487	71.1378494	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	4.16	4.16	29.77	72.7685	40

X_{15} : CP-TC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
16.2555556	3.2293183	.7611576	10.4284967	19.8659363	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
11.2	24	12.8	292.6	4933.66	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{16} : CP-IC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.6055556	.6448641	.1519959	.4158497	11.5040172	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.7	6.5	1.8	100.9	572.67	40

X_{17} : CP-DOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
10.65	3.2449508	.7648422	10.5297059	30.4690219	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.7	17.9	13.2	191.7	2220.61	40

X_{18} : CP-TOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
12.3111111	3.2737618	.7716331	10.7175163	26.591928	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.7	18	13.3	221.6	2910.34	40

X_{19} : DB1-SALINITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
17.4224138	8.7262468	1.1458123	76.1473835	50.0863251	58
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1.5	32	30.5	1010.5	21945.75	0

X_{20} : DB1-TEMPERATURE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
24.9103448	5.4607913	.717037	29.820242	21.9217814	58
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
13.8	31	17.2	1444.8	37690.22	0

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{21} : DB1-COLOR (NCAS)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
24.1111111	9.4114379	2.2182972	88.5751634	39.0336134	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
10	50	40	434	11970	40

X_{22} : DB1-TURBIDITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
8.2777778	6.4607918	1.5228232	41.7418301	78.0498332	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	25	24	149	1943	40

X_{23} : DB1-CHLOR A

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.9777778	5.2956759	1.2482028	28.044183	88.5893734	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1.4	24.8	23.4	107.6	1119.96	40

X_{24} : DB1-NH3

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0433889	.0200122	.0047169	.0004005	46.1227978	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.07	.07	.781	.040695	40

X_{25} : DB1-NITRATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.4722222	.5334963	.1257463	.2846183	112.9756868	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	2.09	2.09	8.5	8.8524	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{26} : DB1-ORTHOPHOSPHATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0176111	.0129803	.0030595	.0001685	73.7048979	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.04	.04	.317	.008447	40

X_{27} : DB1-TON

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.8624444	.4737377	.1116611	.2244274	54.9296519	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.324	1.683	1.359	15.524	17.203854	40

X_{28} : DB1-TKN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.9066667	.4698026	.1107335	.2207145	51.8164618	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.387	1.724	1.337	16.32	18.548946	40

X_{29} : DB1-TN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.3886667	.5081924	.1197821	.2582595	36.5957091	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.868	2.52	1.652	24.996	39.101524	40

X_{30} : DB1-TOP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0463333	.0655762	.0154565	.0043002	141.5313223	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.183	.183	.834	.111746	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{31} : DB1-TP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0615556	.063588	.0149878	.0040434	103.3018583	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.206	.206	1.108	.136942	40

X_{32} : DB1-POC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.7816667	1.0925698	.2575212	1.1937088	61.3229088	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	4.16	4.16	32.07	77.4311	40

X_{33} : DB1-TC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
15.1833333	1.845583	.4350081	3.4061765	12.1553214	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
12.7	20	7.3	273.3	4207.51	40

X_{34} : DB1-IC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.35	.7890799	.1859879	.6226471	14.7491567	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.2	6.8	2.6	96.3	525.79	40

X_{35} : DB1-DOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
9.8333333	1.5056755	.3548911	2.2670588	15.3119546	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
7.4	13.8	6.4	177	1779.04	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{36} : DB1-TOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
11.6166667	2.0503228	.4832657	4.2038235	17.6498375	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
8.1	15.4	7.3	209.1	2500.51	40

X_{37} : EH-SALINITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
17.0294118	6.2833368	1.0775834	39.4803209	36.8969689	34
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.5	27	22.5	579	11162.88	24

X_{38} : EH-TEMPERATURE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
23.9058824	5.939694	1.0186491	35.2799643	24.8461608	34
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
13.5	31	17.5	812.8	20594.94	24

X_{39} : EH-COLOR (NCAS)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
21.5	7.3664582	1.7362908	54.2647059	34.2625961	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
9	37	28	387	9243	40

X_{40} : EH-TURBIDITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
7	5.1535253	1.2146976	26.5588235	73.6217907	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	18	17	126	1333.5	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{41} : EH-CHLOR A

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.7444444	4.4044392	1.0381363	19.399085	76.6730234	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
2	17.4	15.4	103.4	923.76	40

X_{42} : EH-NH3

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0451111	.0131278	.0030943	.0001723	29.1010967	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.02	.07	.05	.812	.03956	40

X_{43} : EH-NITRATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.1988889	.1603631	.037798	.0257163	80.6295167	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.53	.53	3.58	1.1492	40

X_{44} : EH-ORTHOPHOSPHATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0201111	.0191707	.0045186	.0003675	95.3240006	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.063	.063	.362	.013528	40

X_{45} : EH-TON

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.6593889	.3075985	.0725017	.0946168	46.6490275	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.269	1.1	.831	11.869	9.434773	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{46} : EH-TKN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.7055	.3100059	.0730691	.0961037	43.9413083	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.339	1.154	.815	12.699	10.592907	40

X_{47} : EH-TN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.9155556	.3415978	.0805154	.1166891	37.3104438	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.388	1.413	1.025	16.48	17.07207	40

X_{48} : EH-TOP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0805	.1061953	.0250305	.0112774	131.919624	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.27	.27	1.449	.308361	40

X_{49} : EH-TP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0965	.1007006	.0237354	.0101406	104.3529884	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.27	.27	1.737	.340011	40

X_{50} : EH-POC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.0083333	1.3485951	.3178669	1.8187088	67.149965	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	4.57	4.57	36.15	103.5193	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{51} : EH-TC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
15.25	2.0074127	.4731517	4.0297059	13.1633622	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
12.3	19.2	6.9	274.5	4254.63	40

X_{52} : EH-IC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.4666667	.7467577	.1760125	.5576471	13.6602018	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.8	6.9	2.1	98.4	547.4	40

X_{53} : EH-DOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
9.7833333	2.1791121	.5136216	4.7485294	22.2737179	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
5.6	13.3	7.7	176.1	1803.57	40

X_{54} : EH-TOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
11.8	2.4831195	.5852769	6.1658824	21.0433854	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
5.7	14.8	9.1	212.4	2611.14	40

X_{55} : NS-SALINITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
15.3	8.8469981	1.5400647	78.269375	57.8235169	33
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1.5	30	28.5	504.9	10229.59	25

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{56} : NS-TEMPERATURE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
24.3363636	6.578555	1.1451794	43.2773864	27.0317913	33
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
13.7	33	19.3	803.1	20929.41	25

X_{57} : NS-COLOR (NCAS)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
23.1111111	6.702843	1.5798753	44.9281046	29.0026862	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
11	36	25	416	10378	40

X_{58} : NS-TURBIDITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
9.0555556	5.9356572	1.3990478	35.2320261	65.5471345	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	20	19	163	2075	40

X_{59} : NS-CHLOR A

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.0388889	3.0675031	.7230174	9.4095752	60.8765772	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.5	11.3	10.8	90.7	616.99	40

X_{60} : NS-NH3

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0377222	.0125314	.0029537	.000157	33.2202021	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.056	.056	.679	.028283	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{61} : NS-NITRATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.3738889	.2739931	.0645808	.0750722	73.28196	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	1.07	1.07	6.73	3.7925	40

X_{62} : NS-ORTHOPHOSPHATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0193889	.0233014	.0054922	.000543	120.1793921	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.106	.106	.349	.015997	40

X_{63} : NS-TON

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.6892222	.2627966	.0619418	.0690621	38.1294472	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.29	1.1	.81	12.406	9.724546	40

X_{64} : NS-TKN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.7279444	.2584398	.0609148	.0667911	35.5026776	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.338	1.139	.801	13.103	10.673705	40

X_{65} : NS-TN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.102	.2741869	.0646265	.0751785	24.8808463	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.46	1.655	1.195	19.836	23.137306	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{66} : NS-TOP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.041	.0895492	.0211069	.0080191	218.4126775	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.32	.32	.738	.166582	40

X_{67} : NS-TP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0586111	.1095972	.0258323	.0120115	186.9904795	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.426	.426	1.055	.266031	40

X_{68} : NS-POC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.9744444	1.0440037	.246074	1.0899438	52.8758221	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	3.39	3.39	35.54	88.7008	40

X_{69} : NS-TC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
14.3555556	1.2229291	.2882472	1.4955556	8.5188559	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
11.6	16.7	5.1	258.4	3734.9	40

X_{70} : NS-IC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.2222222	.57961	.1366154	.3359477	11.0989142	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.5	6.4	1.9	94	496.6	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{71} : NS-DOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
9.1333333	.9042384	.213131	.8176471	9.9004203	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
7.1	10.4	3.3	164.4	1515.42	40

X_{72} : NS-TOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
11.1222222	1.2586433	.2966651	1.584183	11.3164734	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
8.9	13.1	4.2	200.2	2253.6	40

X_{73} : PA-SALINITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
16.5448276	9.0326229	1.677316	81.5882759	54.5948443	29
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
2	32.1	30.1	479.8	10222.68	29

X_{74} : PA-TEMPERATURE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
24.6344828	6.3289175	1.1752505	40.055197	25.6912945	29
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
14	33	19	714.4	18720.42	29

X_{75} : PA-COLOR (NCAS)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
22.75	7.6898201	1.922455	59.1333333	33.8014071	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
11	37	26	364	9168	42

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{76} : PA-TURBIDITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
11.375	7.2652139	1.8163035	52.7833333	63.8700125	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	24	23	182	2862	42

X_{77} : PA-CHLOR A

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.2125	3.3805079	.845127	11.4278333	80.2494445	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	11.9	11.9	67.4	455.34	42

X_{78} : PA-NH3

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0435625	.0328613	.0082153	.0010799	75.4347464	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.018	.16	.142	.697	.046561	42

X_{79} : PA-NITRATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.180625	.1744503	.0436126	.0304329	96.581496	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.58	.58	2.89	.9785	42

X_{80} : PA-ORTHOPHOSPHATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.01125	.0082179	.0020545	.0000675	73.0477041	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.027	.027	.18	.003038	42

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{81} : PA-TON

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.7018125	.325222	.0813055	.1057694	46.3403003	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.05	1.361	1.311	11.229	9.467193	42

X_{82} : PA-TKN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.7456875	.3230684	.0807671	.1043732	43.3248989	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.068	1.394	1.326	11.931	10.462395	42

X_{83} : PA-TN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.9355625	.321964	.080491	.1036608	34.4139453	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.408	1.397	.989	14.969	15.559347	42

X_{84} : PA-TOP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0791875	.0814986	.0203747	.006642	102.9185732	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.197	.197	1.267	.199961	42

X_{85} : PA-TP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.08825	.0811201	.02028	.0065805	91.9207656	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.206	.206	1.412	.223316	42

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{86} : PA-POC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.938125	1.2987698	.3246924	1.6868029	67.0116618	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	3.91	3.91	31.01	85.4033	42

X_{87} : PA-TC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
15.04375	2.2321794	.5580449	4.982625	14.8379189	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
12.2	18.9	6.7	240.7	3695.77	42

X_{88} : PA-IC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.48125	.701635	.1754087	.4922917	12.8006385	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.7	6.7	2	87.7	488.09	42

X_{89} : PA-DOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
9.5625	2.4649206	.6162301	6.0758333	25.776947	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
5.5	13.3	7.8	153	1554.2	42

X_{90} : PA-TOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
11.49375	2.8680932	.7170233	8.2259583	24.9535021	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
5.5	15.5	10	183.9	2237.09	42

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{91} : PL-SALINITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
20.6448276	5.3019933	.9845554	28.111133	25.6819452	29
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
7.5	28	20.5	598.7	13147.17	29

X_{92} : PL-TEMPERATURE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
24.0689655	6.0020891	1.11456	36.0250739	24.9370465	29
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
14	31	17	698	17808.84	29

X_{93} : PL-COLOR (NCAS)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
23.2777778	9.0019969	2.121791	81.0359477	38.6720629	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
12	50	38	419	11131	40

X_{94} : PL-TURBIDITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.5555556	2.4548205	.5786067	6.0261438	53.8863041	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	9	8	82	476	40

X_{95} : PL-CHLOR A

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
6.2222222	7.3660234	1.7361884	54.2583007	118.3825188	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.5	31.3	30.8	112	1619.28	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{96} : PL-NH3

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0351111	.0135164	.0031858	.0001827	38.4960487	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.055	.055	.632	.025296	40

X_{97} : PL-NITRATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.1677778	.1273973	.0300278	.0162301	75.9321499	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.45	.45	3.02	.7826	40

X_{98} : PL-ORTHOPHOSPHATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0128333	.0104502	.0024631	.0001092	81.4298325	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.039	.039	.231	.004821	40

X_{99} : PL-TON

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.5808333	.3029145	.0713976	.0917572	52.1517106	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.24	1.41	1.17	10.455	7.632485	40

X_{100} : PL-TKN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.6168333	.3096057	.0729748	.0958557	50.1927607	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.24	1.449	1.209	11.103	8.478247	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{101} : PL-TN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.7906111	.3034731	.0715293	.0920959	38.3846188	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.245	1.449	1.204	14.231	12.816817	40

X_{102} : PL-TOP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0313889	.0604163	.0142403	.0036501	192.4768314	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.207	.207	.565	.079787	40

X_{103} : PL-TP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0417222	.0617565	.0145561	.0038139	148.0181295	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.222	.222	.751	.096169	40

X_{104} : PL-POC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.0005556	1.1622112	.2739358	1.350735	58.0944247	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	3.91	3.91	36.01	95.0025	40

X_{105} : PL-TC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
15.5777778	2.2293643	.5254662	4.9700654	14.3111834	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
12.6	20.3	7.7	280.4	4452.5	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X 106 : PL-IC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.3555556	.6363704	.1499939	.4049673	11.8824354	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.6	6.6	2	96.4	523.16	40

X 107 : PL-DOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
10.2222222	2.3752537	.5598527	5.6418301	23.2361773	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
6.3	15.6	9.3	184	1976.8	40

X 108 : PL-TOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
12.2222222	2.6253416	.6187989	6.8924183	21.4800673	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
6.3	16.4	10.1	220	2806.06	40

X 109 : SC-SALINITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
19.60625	9.3271267	2.3317817	86.9952917	47.5722112	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
2.9	32.5	29.6	313.7	7455.41	42

X 110 : SC-TEMPERATURE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
24.5	6.3878009	1.5969502	40.804	26.0726566	16
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
14	33.4	19.4	392	10216.06	42

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{111} : SC-COLOR (NCAS)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
22.7777778	7.0891756	1.3643125	50.2564103	31.1232098	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
12	45	33	615	15315	31

X_{112} : SC-TURBIDITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
10.7037037	6.960409	1.3395313	48.4472934	65.0280426	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	24	23	289	4353	31

X_{113} : SC-CHLOR A

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
6.2074074	3.6573347	.7038544	13.3760969	58.9188759	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	12.4	11.4	167.6	1388.14	31

X_{114} : SC-NH3

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.046037	.0201885	.0038853	.0004076	43.8527335	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.097	.097	1.243	.067821	31

X_{115} : SC-NITRITE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0041852	.0034086	.000656	.0000116	81.443302	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.011	.011	.113	.000775	31

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{116} : SC-NITRATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.1951852	.11742	.0225975	.0137875	60.1582717	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.44	.44	5.27	1.3871	31

X_{117} : SC-ORTHOPHOSPHATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0128148	.0112525	.0021655	.0001266	87.8083448	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.039	.039	.346	.007726	31

X_{118} : SC-TON

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.6725185	.3288845	.0632939	.108165	48.9034149	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.231	1.568	1.337	18.158	15.023882	31

X_{119} : SC-TKN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.7213333	.3285813	.0632355	.1079657	45.5519408	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.251	1.624	1.373	19.476	16.855796	31

X_{120} : SC-TN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.9187037	.316245	.0608614	.1000109	34.4229606	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.311	1.632	1.321	24.805	25.388729	31

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{121} : SC-TOP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0603704	.0931406	.0179249	.0086752	154.281921	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.27	.27	1.63	.323958	31

X_{122} : SC-TP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0696296	.0903353	.017385	.0081605	129.7369188	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.27	.27	1.88	.343076	31

X_{123} : SC-POC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.3359259	1.4227067	.2738	2.0240943	60.9054708	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.04	5.07	5.03	63.07	199.9533	31

X_{124} : SC-TC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
15.7888889	3.2532035	.6260793	10.5833333	20.6043856	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
10.9	22	11.1	426.3	7005.97	31

X_{125} : SC-IC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.562963	.7227874	.1391005	.5224217	12.9928497	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.6	7.2	2.6	150.2	849.14	31

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{126} : SC-DOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
10.2259259	3.3232969	.6395688	11.044302	32.4987378	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.9	16.3	11.4	276.1	3110.53	31

X_{127} : SC-TOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
12.5740741	3.5658199	.6862424	12.7150712	28.3585084	27
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.9	17.2	12.3	339.5	4599.49	31

X_{128} : SV-SALINITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
18.9272727	8.6192108	1.500412	74.2907955	45.5385779	33
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
3	33	30	624.6	14199.28	25

X_{129} : SV-TEMPERATURE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
23.930303	5.9219657	1.0308819	35.069678	24.7467227	33
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
14.2	32	17.8	789.7	20019.99	25

X_{130} : SV-COLOR (NCAS)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
25.6666667	12.1848508	2.8719969	148.4705882	47.4734446	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
9	60	51	462	14382	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{131} : SV-TURBIDITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
7.1666667	6.2802211	1.4802623	39.4411765	87.6309914	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	25	24	129	1595	40

X_{132} : SV-CHLOR A

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.0777778	2.8335294	.6678693	8.0288889	69.4870971	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	11.6	11.6	73.4	435.8	40

X_{133} : SV-NH3

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0757778	.1059448	.0249714	.0112243	139.8098534	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.019	.366	.347	1.364	.294174	40

X_{134} : SV-NITRITE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0038889	.0033235	.0007834	.000011	85.461813	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.01	.01	.07	.00046	40

X_{135} : SV-NITRATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.1961111	.1795137	.0423118	.0322252	91.5367237	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.52	.52	3.53	1.2401	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X 136 : SV-ORTHOPHOSPHATE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0148889	.0130108	.0030667	.0001693	87.3860035	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.042	.042	.268	.006868	40

X 137 : SV-TON

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.5914444	.2793076	.0658334	.0780127	47.2246542	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.052	1.181	1.129	10.646	7.622734	40

X 138 : SV-TKN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.6682222	.2800234	.0660022	.0784131	41.9057352	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.074	1.22	1.146	12.028	9.3704	40

X 139 : SV-TN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.8566667	.374663	.0883089	.1403724	43.7349789	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.074	1.363	1.289	15.42	15.59613	40

X 140 : SV-TOP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0356111	.0592067	.0139551	.0035054	166.2589402	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.181	.181	.641	.082419	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{141} : SV-TP

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.0471667	.0594616	.0140152	.0035357	126.0669001	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.19	.19	.849	.100151	40

X_{142} : SV-POC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.3594444	1.6337019	.3850672	2.668982	69.2409581	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	5.07	5.07	42.47	145.5783	40

X_{143} : SV-TC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
14.9833333	1.1288985	.2660839	1.2744118	7.5343613	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
13.2	18	4.8	269.7	4062.67	40

X_{144} : SV-IC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.1888889	.7323523	.1726171	.5363399	14.1138556	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4.1	6.2	2.1	93.4	493.76	40

X_{145} : SV-DOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
9.7944444	1.1613746	.2737386	1.3487908	11.8574827	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
8	12.8	4.8	176.3	1749.69	40

SUMMARY PC DATA-OYSTER STATIONS 1990-STATISTICS

X_{146} : SV-TOC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
12.1555556	2.3175094	.5462422	5.3708497	19.0654336	18
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
8	16	8	218.8	2750.94	40

X_{147} : SG-SALINITY

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
14.9733333	6.3938512	1.1673522	40.8813333	42.7015887	30
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
3.5	25	21.5	449.2	7911.58	28

X_{148} : SG-TEMPERATURE

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
24.6266667	5.3356274	.9741478	28.4689195	21.666056	30
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
14.5	32	17.5	738.8	19019.78	28

OYSTER NUMBERS-STATISTICS

X_6 : SVn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
318.375	198.3668589	70.1332755	3.9349411E4	62.3060413	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
74	564	490	2547	1086347	0

X_7 : DBIn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
230	71.3222065	25.2162079	5.0868571E3	31.009655	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
127	352	225	1840	458808	0

X_8 : SCn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
221.625	142.9674663	50.5466325	2.0439696E4	64.5087271	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
89	519	430	1773	536019	0

X_9 : SGn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
219	82.3129915	29.1020372	6.7754286E3	37.5858409	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
117	401	284	1752	431116	0

X_{10} : NSn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
184.875	42.5119731	15.0302522	1.8072679E3	22.9949821	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
132	247	115	1479	286081	0

OYSTER NUMBERS-STATISTICS

X_{11} : PAn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
48.375	19.2200602	6.7953175	369.4107143	39.7313906	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
19	83	64	387	21307	0

X_{12} : totpln

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
328252.5	1.0417484E5	3.6831369E4	1.085240E10	31.7361918	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
171720	471960	300240	2626020	9.379644E11	0

X_{13} : TOTEHN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
191377.5	7.091319E4	2.5071599E4	5.0286805E9	37.0540894	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
110568	307224	196656	1531020	3.282035E11	0

X_{14} : TOTCPN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
436064.75	1.3537184E5	4.7861174E4	1.832554E10	31.0439773	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
234898	574138	339240	3488518	1.649498E12	0

X_{15} : TOTDB3N

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
113068.5	5.7661019E4	2.0386249E4	3.3247931E9	50.9965364	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
38528	237876	199348	904548	1.255494E11	0

OYSTER NUMBERS-STATISTICS

X_{16} : TOTDB2N

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
82925.5	3.935869E4	1.3915398E4	1.5491065E9	47.4627103	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
43688	155144	111456	663404	6.585685E10	0

X_{17} : TOTSVN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
6367.5	3.9673372E3	1402.665511	1.5739764E7	62.3060413	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1480	11280	9800	50940	434538800	0

X_{18} : TOTDB1N

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
39560	1.226742E4	4.3371878E3	1.5048958E8	31.009655	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
21844	60544	38700	316480	1.357338E10	0

X_{19} : TOTSCN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
42108.75	2.7163819E4	9.6038602E3	7.3787304E8	64.5087271	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
16910	98610	81700	336870	1.935029E10	0

X_{20} : TOTSGN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
21462	8066.673168	2.8519996E3	65071216	37.5858409	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
11466	39298	27832	171696	4140438064	0

OYSTER NUMBERS-STATISTICS

X_1 : PLn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1823.625	578.7491284	204.6187166	3.3495055E5	31.7361918	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
954	2622	1668	14589	28949519	0

X_2 : EHn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
938.125	347.6136762	122.8999938	1.2083527E5	37.0540894	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
542	1506	964	7505	7886475	0

X_3 : CPn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
848.375	263.3693428	93.1151241	6.9363411E4	31.0439773	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
457	1117	660	6787	6243465	0

X_4 : DB3n

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
657.375	335.2384812	118.5247017	1.1238484E5	50.9965364	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
224	1383	1159	5259	4243829	0

X_5 : DB2n

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
482.125	228.8295919	80.9034781	5.2362982E4	47.4627103	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
254	902	648	3857	2226097	0

OYSTER NUMBERS-STATISTICS

X_1 : TOTSVN

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
183065.625	1.1406094E5	4.0326633E4	1.300990E10	62.3060413	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
42550	324300	281750	1464525	3.591735E11	0

OYSTER AFDW-STATISTICS

X_1 : EHn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
341.625	116.1845054	41.0774258	1.3498839E4	34.0093686	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
180	489	309	2733	1028153	0

X_2 : CPn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
303.125	85.5710857	30.2539475	7.3224107E3	28.2296365	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
175	431	256	2425	786335	0

X_3 : PLn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
299.875	108.6586234	38.4166247	1.1806696E4	36.2346389	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
225	562	337	2399	802047	0

X_4 : DB3n

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
194.75	81.6871209	28.8807585	6.6727857E3	41.9446063	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
70	349	279	1558	350130	0

X_5 : DB2n

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
181.75	51.4274801	18.18236	2.6447857E3	28.295725	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
98	247	149	1454	282778	0

OYSTER AFDW-STATISTICS

X_6 : NSn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
119	26.4413097	9.3484147	699.1428571	22.219588	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
85	161	76	952	118182	0

X_7 : DBIn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
104.5	42.9451477	15.1834026	1.8442857E3	41.0958352	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4	143	139	836	100272	0

X_8 : SCn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
104.25	41.1816533	14.5599132	1.6959286E3	39.502785	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
71	187	116	834	98816	0

X_9 : SGn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
101.375	39.5038425	13.9667175	1.5605536E3	38.968032	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
41	159	118	811	93139	0

X_{10} : PAn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
46.25	14.926008	5.2771407	222.7857143	32.2724497	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
23	74	51	370	18672	0

OYSTER AFDW-STATISTICS

X_{11} : SVn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.625	3.9977672	1.4134242	15.9821429	71.0714175	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	13	12	45	365	0

X_{12} : TOTEHWW

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
69691.5	2.3701639E4	8.3797949E3	5.617677E8	34.0093686	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
36720	99756	63036	557532	4.278762E10	0

X_{13} : TOTCPW

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
155806.25	4.3983538E4	1.5550529E4	1.9345516E9	28.2296365	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
89950	221534	131584	1246450	2.077466E11	0

X_{14} : TOTPLW

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
53977.5	1.9558552E4	6.9149924E3	3.8253696E8	36.2346389	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
40500	101160	60660	431820	2.598632E10	0

X_{15} : TPTDB3W

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
33497	1.4050185E4	4.9674905E3	1.9740759E8	41.9446063	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
12040	60028	47988	267976	1.035825E10	0

OYSTER AFDW-STATISTICS

X_{16} : TOTDB2W

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
31261	8.8455266E3	3.1273659E3	7.8243341E7	28.295725	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
16856	42484	25628	250088	8365704352	0

X_{17} : TOTDB1W

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
17974	7386.565411	2.6115452E3	5.4561349E7	41.0958352	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
688	24596	23908	143792	2966446848	0

X_{18} : TOTNSW

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5236	1.1634176E3	411.3302462	1.3535406E6	22.219588	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
3740	7084	3344	41888	228800352	0

X_{19} : TOTSCW

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
19807.5	7.8245141E3	2.7663835E3	6.1223021E7	39.502785	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
13490	35530	22040	158460	3567257600	0

X_{20} : TOTSGW

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
9934.75	3871.376564	1.3687383E3	14987556.5	38.968032	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
4018	15582	11564	79478	894506956	0

OYSTER AFDW-STATISTICS

X_{21} : TOTPAW

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
10730	3.4628339E3	1.2242966E3	1.1991218E7	32.2724497	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
5336	17168	11832	85840	1005001728	0

X_{22} : TOTSVW

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3234.375	2.2987162E3	812.7188922	5.284096E6	71.0714175	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
575	7475	6900	25875	120678125	0

X_{23} : TOTSVWW

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
112.5	79.9553447	28.2684832	6.3928571E3	71.0714175	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
20	260	240	900	146000	0

OYSTER SIZES-STATISTICS

X_1 : PAn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
65.375	8.1405072	2.8781039	66.2678571	12.4520186	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
52	81	29	523	34655	0

X_2 : NSn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
54.875	5.1391356	1.8169588	26.4107143	9.3651673	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
46	62	16	439	24275	0

X_3 : SCn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
49.25	10.7935166	3.8160844	116.5	21.9157697	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
26	60	34	394	20220	0

X_4 : SGn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
47.5	9.9426929	3.5152728	98.8571429	20.9319851	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
35	63	28	380	18742	0

X_5 : DB1n

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
45.75	13.9667974	4.9380086	195.0714286	30.5285188	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
15	60	45	366	18110	0

OYSTER SIZES-STATISTICS

X_6 : DB2n

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
44.625	5.9506902	2.1038867	35.4107143	13.3348801	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
37	52	15	357	16179	0

X_7 : EHn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
41.5	6.8243262	2.4127637	46.5714286	16.4441596	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
33	50	17	332	14104	0

X_8 : CPn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
41.125	4.8825491	1.7262418	23.8392857	11.8724598	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
35	47	12	329	13697	0

X_9 : DB3n

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
40	10.11364	3.5757117	102.2857143	25.2841	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
23	55	32	320	13516	0

X_{10} : PLn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
28.25	6.6062741	2.3356706	43.6428571	23.385041	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
18	40	22	226	6690	0

OYSTER SIZES-STATISTICS

X_{11} : SVn

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
15	3.545621	1.2535663	12.5714286	23.6374736	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
11	22	11	120	1888	0

OYSTERLARVAE MEAN NUMBERS

X_1 : CP TOTAL NUMBERS

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
967.28	2.3336786E3	466.7357122	5.4460556E6	241.261947	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	9421	9421	24182	154096100	3

X_2 : DB1-TOTAL NUMBERS

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
188.9333333	316.534238	81.7287888	1.0019392E5	167.5375289	15
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	909	909	2834	1938152	13

X_3 : DB3-TOTAL NUMBERS

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5	15.8113883	5	250	316.227766	10
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	50	50	50	2500	18

X_4 : EH-TOTAL NUMBERS

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
170.4166667	404.2135592	82.5097473	1.633886E5	237.1913306	24
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	1544	1544	4090	4454942	4

X_5 : NS-TOTAL NUMBERS

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
38.08	71.4743077	14.2948615	5.1085767E3	187.6951359	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	269	269	952	158858	3

OYSTERLARVAE MEAN NUMBERS

X_6 : PA-TOTAL NUMBERS

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
25.12	94.2732376	18.8546475	8.8874433E3	375.2915511	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	468	468	628	229074	3

X_7 : PL-TOTAL NUMBERS

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1314.32	3.6165043E3	723.3008634	1.3079103E7	275.1616286	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	14228	14228	32858	357084410	3

X_8 : SC-TOTAL NUMBERS

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
40.5384615	144.3557358	28.310489	2.0838578E4	356.095743	26
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	714	714	1054	563692	2

X_9 : SG-TOTAL NUMBERS

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
70.64	165.9600554	33.1920111	27542.74	234.9377908	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	586	586	1766	785776	3

X_{10} : SV-TOTAL NUMBERS

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
107.1785714	269.1783181	50.8699206	7.2456967E4	251.1493804	28
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	1007	1007	3001	2277981	0

SPAT OPEN AND CLOSED BASKETS-STATISTICS

X_1 : NSO

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.25	3.2841611	1.1611263	10.7857143	145.9627166	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	8	8	18	116	0

X_2 : NSC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.74125	3.5382257	1.2509517	12.5190411	203.2003271	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	10.3	10.3	13.93	111.8889	0

X_3 : PAO

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
0	0	0	0	•	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	0	0	0	0	0

X_4 : PAC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.1625	.4596194	.1625	.21125	282.8427125	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	1.3	1.3	1.3	1.69	0

X_5 : SCO

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.7875	2.2273864	.7875	4.96125	282.8427125	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	6.3	6.3	6.3	39.69	0

SPAT OPEN AND CLOSED BASKETS-STATISTICS

X_6 : SCC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.2825	3.3687037	1.1910166	11.3481643	262.6669513	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	9.6	9.6	10.26	92.5956	0

X_7 : D1BO

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.245	.4848269	.1714122	.2350571	197.888539	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	1.3	1.3	1.96	2.1256	0

X_8 : D1C

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.37875	.9450085	.334111	.8930411	249.5071956	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	2.7	2.7	3.03	7.3989	0

X_9 : D2O

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.2875	2.7986923	.9894872	7.8326786	217.374159	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	8	8	10.3	68.09	0

X_{10} : D2C

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.17125	1.7527239	.6196815	3.0720411	149.6455838	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	4	4	9.37	32.4789	0

SPAT OPEN AND CLOSED BASKETS-STATISTICS

X_{11} : D3O

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.05	2.3537205	.8321658	5.54	224.1638533	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	6.8	6.8	8.4	47.6	0

X_{12} : D3C

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.875	2.9001232	1.0253484	8.4107143	154.6732347	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	7	7	15	87	0

X_{13} : SVO

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.125	.3535534	.125	.125	282.8427125	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	1	1	1	1	0

X_{14} : SVC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.2875	.8131728	.2875	.66125	282.8427125	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	2.3	2.3	2.3	5.29	0

X_{15} : EHO

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.4125	1.1667262	.4125	1.36125	282.8427125	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	3.3	3.3	3.3	10.89	0

SPAT OPEN AND CLOSED BASKETS-STATISTICS

X_{16} : EHC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.6	1.6970563	.6	2.88	282.8427125	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	4.8	4.8	4.8	23.04	0

X_{17} : PLO

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.37375	.930974	.329149	.8667125	249.0900207	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	2.66	2.66	2.99	7.1845	0

X_{18} : PLC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.4125	5.5642834	1.9672713	30.96125	163.0559245	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	15	15	27.3	309.89	0

X_{19} : CPO

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
0	0	0	0	•	7
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	0	0	0	0	1

X_{20} : CPC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.04125	.1166726	.04125	.0136125	282.8427125	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	.33	.33	.33	.1089	0

SPAT OPEN AND CLOSED BASKETS-STATISTICS

X_{21} : SGO

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.75	2.1213203	.75	4.5	282.8427125	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	6	6	6	36	0

X_{22} : SGC

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.68375	4.497758	1.5901976	20.2298268	267.1274223	8
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
0	12.8	12.8	13.47	164.2889	0

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	STATION	MEAN SALINIT	SAL STAN DEV	MEAN TEMPER	MEAN COLOR	MEAN TURBID	MEAN CHLOR A	MEAN NH3	MEAN NO3	MEAN PO4	MEAN TON	MEAN TKN	MEAN TN	MEAN TOP	
2	CAT POINT	16.8	5.508	24	29.2	7.8	6.7	0.039	0.184	0.015	0.663	0.704	0.869	0.074	
3	DRY BAR 1	17.4	8.726	24.9	24.1	8.2	5.9	0.0433	0.472	0.018	0.862	0.907	1.389	0.046	
4	EAST HOLE	17.029	6.283	23.9	21.5	7	5.7	0.045	0.199	0.02	0.659	0.705	0.916	0.081	
5	NORTH SPUR	15.3	8.647	24.33	23.1	9.1	5	0.038	0.374	0.019	0.689	0.728	1.102	0.041	
6	PARADISE	16.5	9.032	24.6	22.8	11.4	4.2	0.044	0.181	0.011	0.702	0.746	0.936	0.079	
7	PLATFORM	20.644	5.302	24.1	23.3	4.6	6.2	0.035	0.1678	0.013	0.581	0.617	0.791	0.031	
8	SCORPION	19.606	9.327	24.5	22.8	10.7	6	0.046	0.195	0.013	0.673	0.721	0.919	0.06	
9	ST. VINCENT	18.9	8.619	23.9	25.7	7.2	4.1	0.076	0.196	0.015	0.591	0.668	0.857	0.036	
10	SWEET GOODS	15	6.393	24.627	29.2	7.8	6.7	0.039	0.164	0.015	0.663	0.704	0.869	0.074	
11															
12	STATION	MEAN TP	MEAN POC	MEAN TC	MEAN IC	MEAN DOC	MEAN TOC	MEAN OYSTER	TOT. OYSTER N	MEAN DRY AFDW	TOT OYSTER AFDW	MEAN OYSTER	MEAN LARVAE	SPAT NUM.-OPEN	SPAT NUM.-CLOSED
13	CAT POINT	0.088	1.653	16.256	5.605	10.65	12.311	848.4	436064	303.1	155806	41.1	967.3	0	0.041
14	DRY BAR 1	0.016	1.782	15.183	5.35	9.833	11.616	230	39560	104.5	17974	45.8	188.9	0.245	0.379
15	EAST HOLE	0.097	2.008	15.25	5.467	9.783	11.8	938.1	191377	341.6	69692	41.5	170.4	0.413	0.6
16	NORTH SPUR	0.059	1.97	14.356	5.222	9.133	11.122	184.9	18490	119	5236	54.9	38.1	2.25	1.74
17	PARADISE	0.088	1.938	15.044	5.481	9.563	11.494	48.4	11228	46.3	10730	65.4	25.1	0	0.163
18	PLATFORM	0.042	2.001	15.578	5.356	10.222	12.222	1823.6	328248	299.9	53978	28.3	1314.3	0.374	3.41
19	SCORPION	0.07	2.336	15.79	5.56	10.226	11.574	221.6	42108	104.3	19807	49.3	40.5	0.788	1.282
20	ST. VINCENT	0.047	2.359	14.983	5.189	9.794	11.156	318.4	6367	5.6	113	15	107.8	0.125	0.288
21	SWEET GOODS	0.088	1.653	16.256	5.605	10.65	12.311	219	21482	101.4	9935	47.5	70.6	0.75	1.684

Table 7: Summary data (mean) concerning the oyster populations and physical-chemical habitat analyses.

Table 8: Correlation matrix of variables taken in the oyster analysis of the Apalachicola system.

Correlation Matrix for Variables: $X_1 \ldots X_{27}$

	SAL ST...	Sqrt of ...	ln(1+x) ...	Sqrt of ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	
SAL STA...	1								std dev SAL
Sqrt of M...	-.047473	1							SAL
ln(1+x) o...	.4840785	-.294005	1						temp
Sqrt of M...	-.395867	-.331259	-.003954	1					color
ln(1+x) o...	.7505899	-.419228	.5121432	-.107206	1				turb
ln(1+x) o...	-.637017	-.016938	.110091	.397113	-.335788	1			chlorA
ln(1+x) o...	.400962	.2775017	-.338076	.0188892	.0573892	-.65005	1		NH_3
ln(1+x) o...	.4831361	-.224267	.5023724	-.265622	.182987	-.087727	-.091096	1	NO_3
ln(1+x) o...	-.067042	-.383803	-.157768	-.146952	-.163847	.1410447	-.037658	.5784786	PO_4
ln(1+x) o...	.4302783	-.371241	.7634251	-.101403	.4761731	.1005724	-.25604	.7790691	TON
ln(1+x) o...	.5062782	-.336876	.7302363	-.094895	.4980402	.002932	-.099464	.7870447	TKN
ln(1+x) o...	.5171795	-.29516	.6363405	-.223831	.3421089	-.049408	-.120182	.9579537	TN
ln(1+x) o...	-.168263	-.509584	.0804546	.1575633	.4496344	.1966462	-.247962	-.392235	TOP
ln(1+x) o...	-.288719	-.430527	-.284335	.1551771	.2902727	.1007648	-.183844	-.667065	TP
ln(1+x) o...	.5025023	.630782	-.314513	-.567988	.0797954	-.557927	.636554	-.112246	POC
ln(1+x) o...	-.587434	.0947987	.0124089	.6403585	-.178778	.7502588	-.266617	-.57021	TC

Correlation Matrix for Variables: $X_1 \ldots X_{27}$

	SAL ST...	Sqrt of ...	ln(1+x) ...	Sqrt of ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	
ln(1+x) o...	-.366833	-.190283	.2000299	.3641389	.2391648	.6278944	-.471957	-.498009	TC
ln(1+x) o...	-.616661	.1776857	-.04754	.6832689	-.298576	.7372751	-.182992	-.552636	DOC
ln(1+x) o...	-.851752	.0120825	-.047618	.5113434	-.464246	.8211176	-.560506	-.474136	TOC
ln(1+x) o...	-.798205	.4563377	-.656725	.0837406	-.861111	.5419846	-.147134	-.251417	mean N
ln(1+x) o...	-.785644	.2740835	-.380178	.0437151	-.544185	.717299	-.556785	-.228061	tot N
ln(1+x) o...	-.61834	-.074147	-.036824	-.087582	-.282873	.7645421	-.861963	-.019922	mean AFDW
ln(1+x) o...	-.564363	-.030318	.0496275	-.0401	-.136791	.7298797	-.826927	-.108696	tot AFDW
ln(1+x) o...	.1965475	-.557643	.6177477	-.175593	.6191595	.226108	-.720763	.2273657	mean size
ln(1+x) o...	-.804611	.4161859	-.457206	.2865056	-.810661	.534802	-.216913	-.178272	LARVAE
ln(1+x) o...	.2278957	-.309597	.1514202	-.217923	.1186855	.1067495	-.306338	.3660204	spat open
ln(1+x) o...	-.244881	.2269665	.0467962	-.181987	-.456226	.3461891	-.431873	-.050401	spat closed
	SAL SD	SAL	temp	color	turb	ChlorA	NH_3	NO_3	

CORRELATION MATRIX OF TRANSFORMED OYSTER FINAL DATA

Correlation Matrix for Variables: X_1 ... X_{27}

	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	
ln(1+x) o...	1								~~TON~~ NO3
ln(1+x) o...	.3169852	1							~~TKN~~ PO4
ln(1+x) o...	.3219193	.9872982	1						TON
ln(1+x) o...	.4987553	.9225138	.9297315	1					~~TOP~~ TKN
ln(1+x) o...	-.048364	.159097	.1222552	-.163072	1				~~TP~~ TN
ln(1+x) o...	-.113867	-.325402	-.365982	-.551706	.8468642	1			~~POC~~ TP
ln(1+x) o...	-.158091	-.39368	-.302925	-.210022	-.407326	-.190347	1		~~TP~~ POC
ln(1+x) o...	-.360067	-.159101	-.202057	-.440518	.4250284	.3511224	-.415289	1	TC
	PO4	TON	TKN	TN	TOP	TP	POC		

Correlation Matrix for Variables: X_1 ... X_{27}

	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	
ln(1+x) o...	-.31613	.0754437	.0027423	-.288273	.7930823	.6510848	-.46597	.8302228	TC
ln(1+x) o...	-.347518	-.220881	-.251378	-.456932	.2800724	.2318908	-.371259	.9844057	POC
ln(1+x) o...	-.194955	-.157678	-.250801	-.395786	.3584692	.3043506	-.64083	.8635731	TOC
ln(1+x) o...	.263235	-.452114	-.486386	-.373858	-.232992	-.075329	-.04822	.3416524	mean N
ln(1+x) o...	.1312449	-.144076	-.23769	-.23438	.1429883	.148786	-.344189	.4901537	tot N
ln(1+x) o...	.258735	.1120385	-.025074	-.00258	.2951867	.2527623	-.506416	.3584528	mean AFDW
ln(1+x) o...	.053851	.1949175	.0654394	-.014768	.4495438	.3138421	-.537382	.480188	tot AFDW
ln(1+x) o...	.0106796	.5695267	.4659568	.3715822	.5632622	.36789	-.453195	.0175241	mean size
ln(1+x) o...	.050967	-.252337	-.29255	-.245665	-.22913	-.211191	-.308877	.4303584	CARVAR
ln(1+x) o...	.429812	.0151756	-.033092	.2100949	-.267259	-.046024	.1057375	-.364701	SPAT open
ln(1+x) o...	-.028932	-.352215	-.432486	-.223015	-.451492	-.188315	.1029814	.0197705	SPAT closed
	PO4	TON	TKN	TN	TOP	TP	POC	TC	

CORRELATION MATRIX OF TRANSFORMED OYSTER FINAL DATA

Correlation Matrix for Variables: $X_1 \ldots X_{27}$

	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	
ln(1+x) o...	1								EC
ln(1+x) o...	.719225	1							DOC
ln(1+x) o...	.7159703	.8505597	1						TOC
ln(1+x) o...	.0115976	.4225203	.5359011	1					mean num
ln(1+x) o...	.4071521	.4827193	.7134918	.816198	1				tot num
ln(1+x) o...	.4920144	.2917027	.6439238	.529418	.8556566	1			mean AFDW
ln(1+x) o...	.6559654	.3917317	.6953003	.4125966	.8482675	.9473025	1		tot AFDW
ln(1+x) o...	.5040283	-.137378	.095453	-.488183	.0353075	.4804718	.5442161	1	mean size
ln(1+x) o...	.0701523	.5146478	.6467873	.8754397	.8163225	.4827383	.468145	-.425106	mean larva
ln(1+x) o...	-.251025	-.37608	-.301201	-.101388	-.184395	.1708261	-.083398	.2981146	spat open
ln(1+x) o...	-.118535	.0609124	.2083152	.318313	.16417	.3265447	.1122123	-.004361	spat closed
	EC	DOC	TOC	mean num	tot num	mean AFDW	tot AFDW	mean size	

Correlation Matrix for Variables: $X_1 \ldots X_{27}$

	ln(1+x) ...	ln(1+x) ...	ln(1+x) ...	
ln(1+x) of M...	1			larvae
ln(1+x) of S...	-.393678	1		spat open
ln(1+x) of S...	.1083033	.6345925	1	spat closed
	larvae	spat open	spat closed	

Oyster variables vs Habitat features.

	A	B	C	D	E
1	DEPENDENT VARIABLE	INDEPENDENT	R VALUE	P VALUE	SIGN
2					
3	MEAN OYSTER NUMBERS	STAN. DEV. SALINITY	0.8	0.01	NEGATIVE
4		TEMPERATURE	0.66	0.05	NEGATIVE
5		TURBIDITY	0.86	0.003	NEGATIVE
6					
7	TOTAL OYSTER NUMBERS	STAN. DEV. SALINITY	0.79	0.01	NEGATIVE
8		CHLOROPHYLL A	0.77	0.01	POSITIVE
9		TOC	0.71	0.03	POSITIVE
10					
11	MEAN OYSTER AFDW	CHLOROPHYLL A	0.77	0.01	POSITIVE
12		NH3	0.86	0.003	NEGATIVE
13		TOC	0.64	0.05	POSITIVE
14					
15	TOTAL OYSTER AFDW	CHLOROPHYLL A	0.73	0.02	POSITIVE
16		NH3	0.8	0.01	NEGATIVE
17		TOC	0.7	0.04	POSITIVE
18					
19	OYSTER MEAN SIZE	NH3	0.66	0.05	NEGATIVE
20					
21	MEAN NUMBER OF LARVAE	STAN. DEV. SALINITY	0.8	0.009	NEGATIVE
22		TURBIDITY	0.81	0.008	NEGATIVE
23		TOC	0.65	0.05	POSITIVE
24					
25	SPAT # (OPEN)	-	-	-	-
26					
27	SPAT # (CLOSED)	-	-	-	-

FIGURES

Figure 1: Location of the oyster bar stations (January-December, 1990).

Figure 2: Apalachicola and Georgia (Columbus) rainfall patterns (20 year at monthly intervals).

Figure 3: Apalachicola and Georgia (Columbus) rainfall patterns (10 months at monthly intervals).

Figure 4: Apalachicola River flow at Blountstown (mean flow, maximum flow, minimum flow: monthly means) from November, 1970 through October, 1990.

Figure 5: Apalachicola River flow at Blountstown (mean flow, maximum flow, minimum flow: monthly means) from January, 1990 through October, 1990.

Figure 6: Temperature data (°C) at two stations in the Apalachicola estuary from February, 1990 through November, 1990.

Figure 7: Salinity data at stations in the Apalachicola estuary from January, 1990 through November, 1990.

Figure 7a: Habitat maps of sediment distribution and oyster bar distribution.

Figure 8: Chemistry data at stations in the Apalachicola estuary from January, 1990 through November, 1990.

Figure 9: Regression of log oyster ash free dry weight vs log oyster length data based on samples taken from the Apalachicola estuary over the period of study.

Figure 10: Oyster spatfall data taken in the Apalachicola system from February-June, 1990. Mean numbers per sample are given for the various developmental stages.

Figure 11: Total numbers of oysters taken at the various stations in the Apalachicola estuary from February, 1990 through September, 1990.

Figure 12: Numbers of oysters per sample taken at the various stations in the Apalachicola estuary from February, 1990 through November, 1990.

Figure 13: Ash-free dry weight biomass of oysters per sample taken at the various stations in the Apalachicola estuary from February, 1990 through November, 1990.

Figure 14: Mean size of oysters taken at the various stations in the Apalachicola estuary from February, 1990 through November, 990.

Figure 15: Oyster spat data by replicate taken bimonthly in the Apalachicola system from June-September, 1990.

Figure 16: Mean number of oyster spat taken at stations in the Apalachicola estuary in open and closed baskets over the study period.(June-September, 1990).

Figure 17: Habitat maps of variables that have statistical significance (Table 9) with respect to important oyster bar features and characteristics.

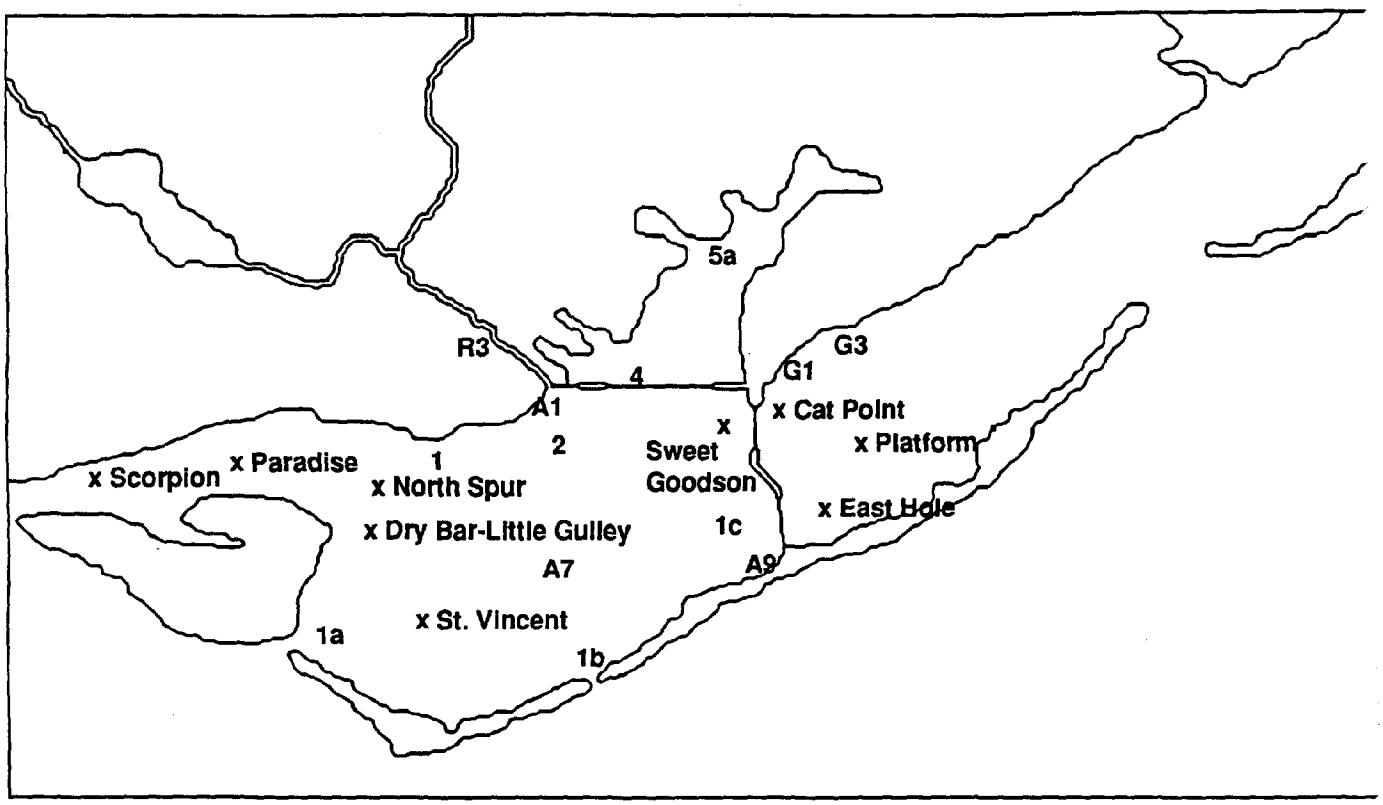


Figure 1: Location of the oyster bar stations (January-December, 1990).

Stat	LocationDescr	Latitude	Longitude
SC	Scorpion Bar, St. Vincent Sound, S of ?	294174	851102
PA	Paradise	294171	850732
DB3	Dry Bar - Experimental Site #3	294097	850347
DB2	Dry Bar - Experimental Site #2	294083	850347
DB1	Dry Bar - Experimental Site #1	294066	850351
SV	St. Vincent	293874	850309
NS	North Spur	294121	850355
SG	Sweet Goodson	294313	845374
CP	Catpoint Bar	294276	845288
PL	Platform	294201	844922
EH	East Hole	294089	845224
001	Apalachicola Bay (White Point)	294150	850075
002	Apalachicola Bay (river mouth)	294266	845868
004	East Bay (East Bay channel, west)	294387	845654
01A	Apalachicola Bay (near West Pass)	293854	850546
01B	Apalachicola Bay (Sikes Cut)	293760	845833
01C	Apalachicola Bay (east)	294083	845403
05A	East Bay (east, marsh)	294695	845379
0A1	Apalachicola Boat Basin		
0A7	Apalachicola River-Bay (intracoastal)	293999	845793
0A9	St. George Boat Basin	293995	845191
0G1	East Point breakwater, Green Point West		
0G3	C.C. Land's @ gas pump, Green Point East		
0R3	Scipio North Boat Dock		

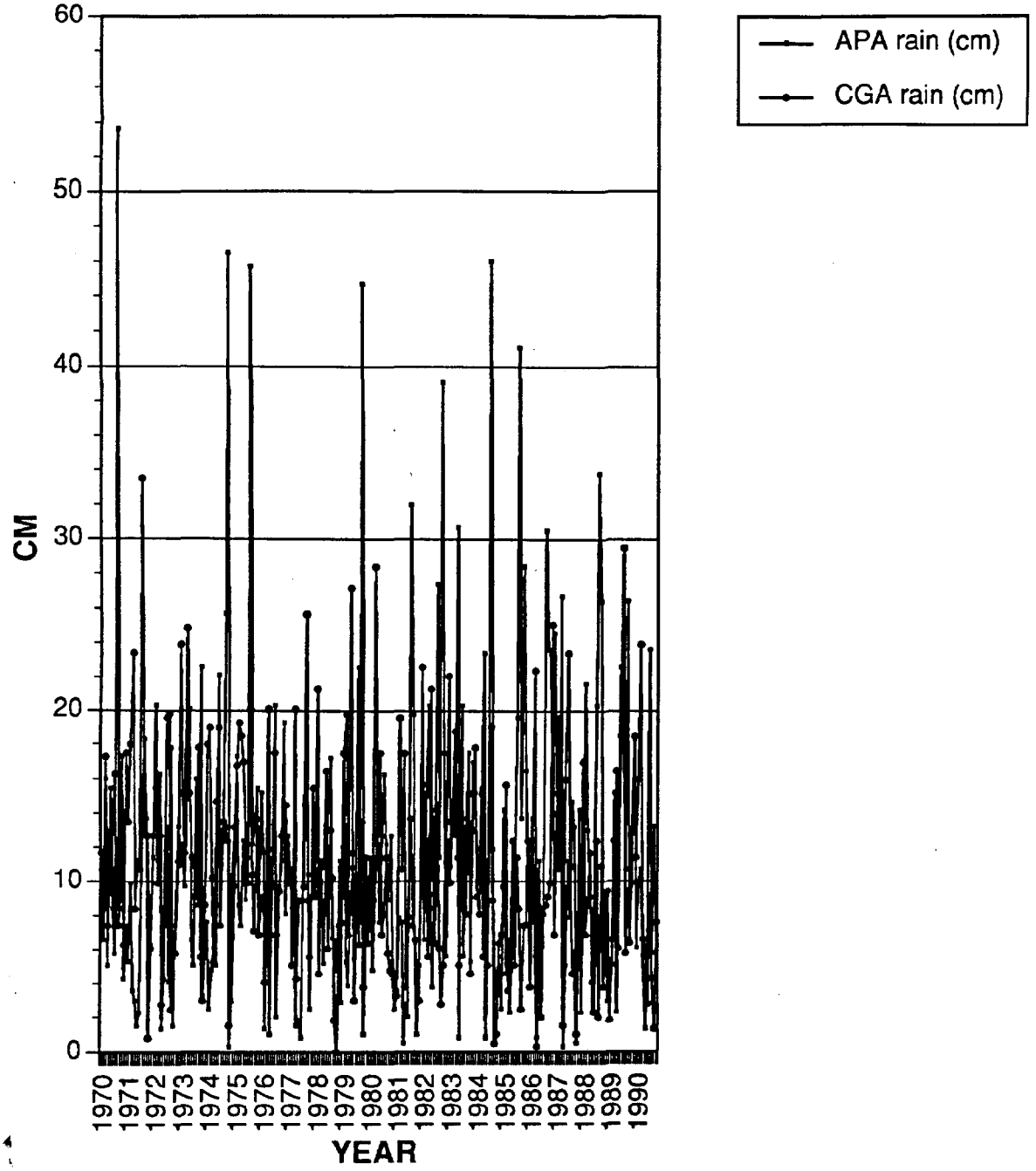


Figure 2: Apalachicola and Georgia (Columbus) rainfall patterns (20 year at monthly intervals).

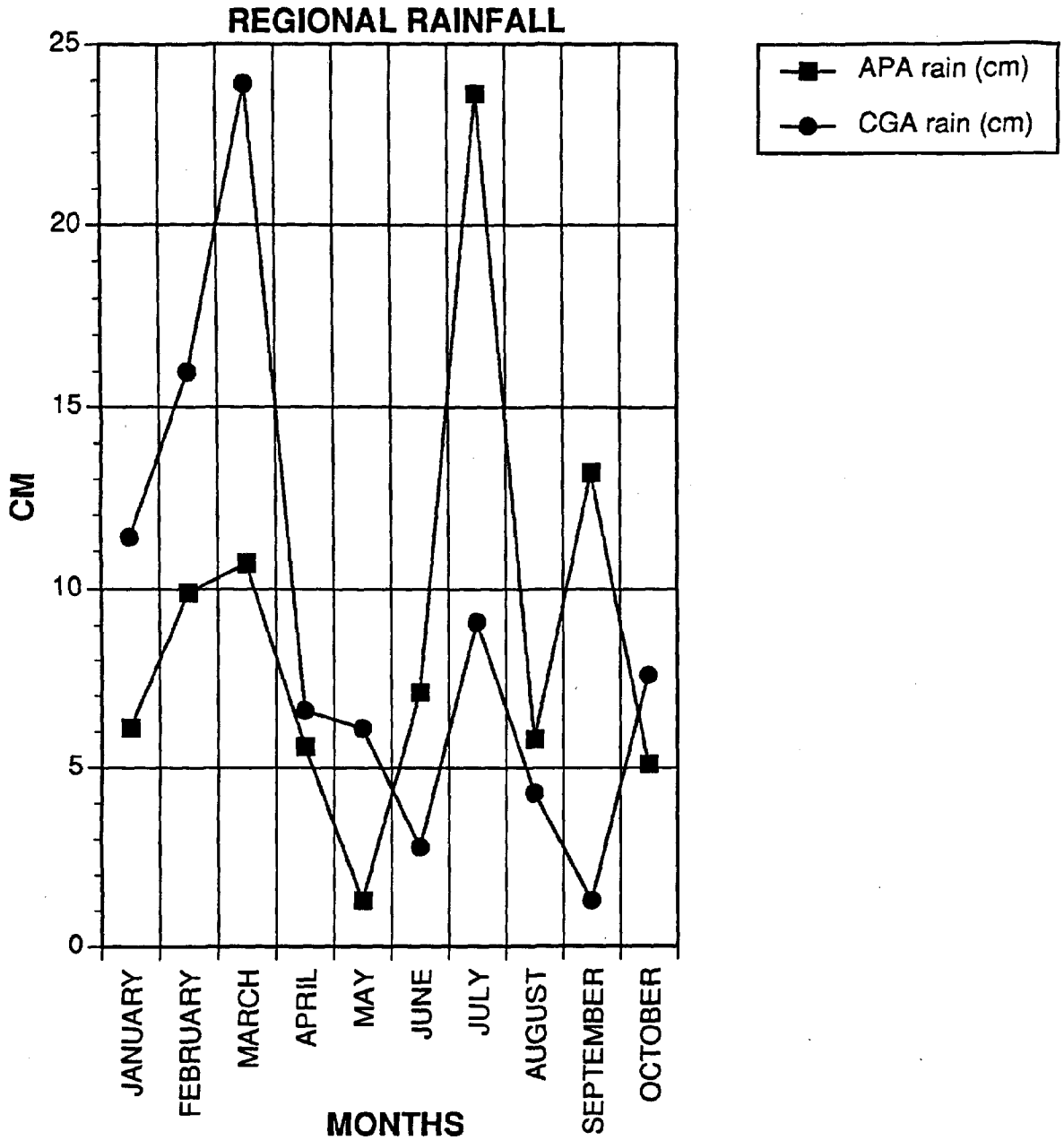


Figure 3: Apalachicola and Georgia (Columbus) rainfall patterns (10 months at monthly intervals).

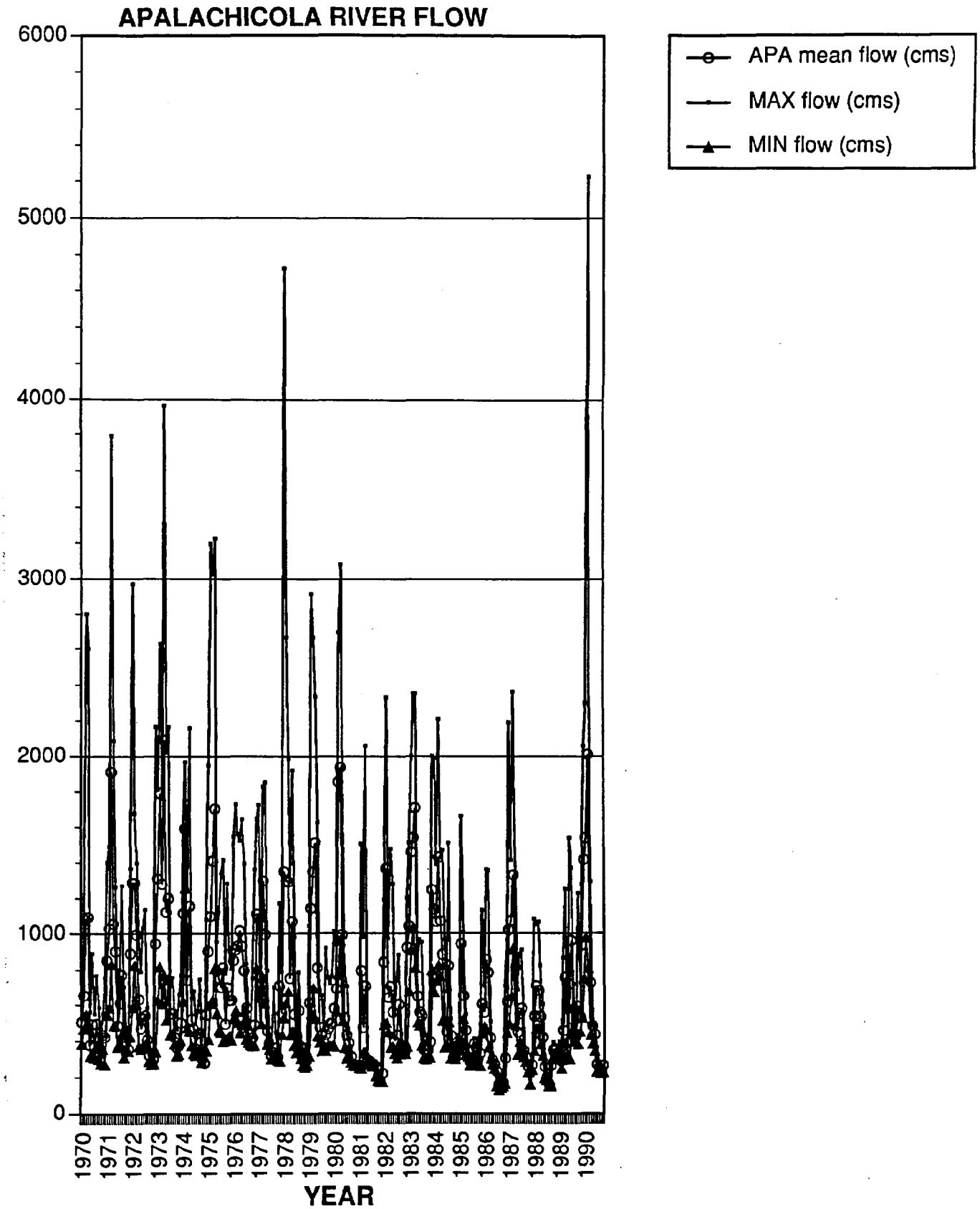


Figure 4: Apalachicola River flow at Blountstown (mean flow, maximum flow, minimum flow: monthly means) from November, 1970 through October, 1990.

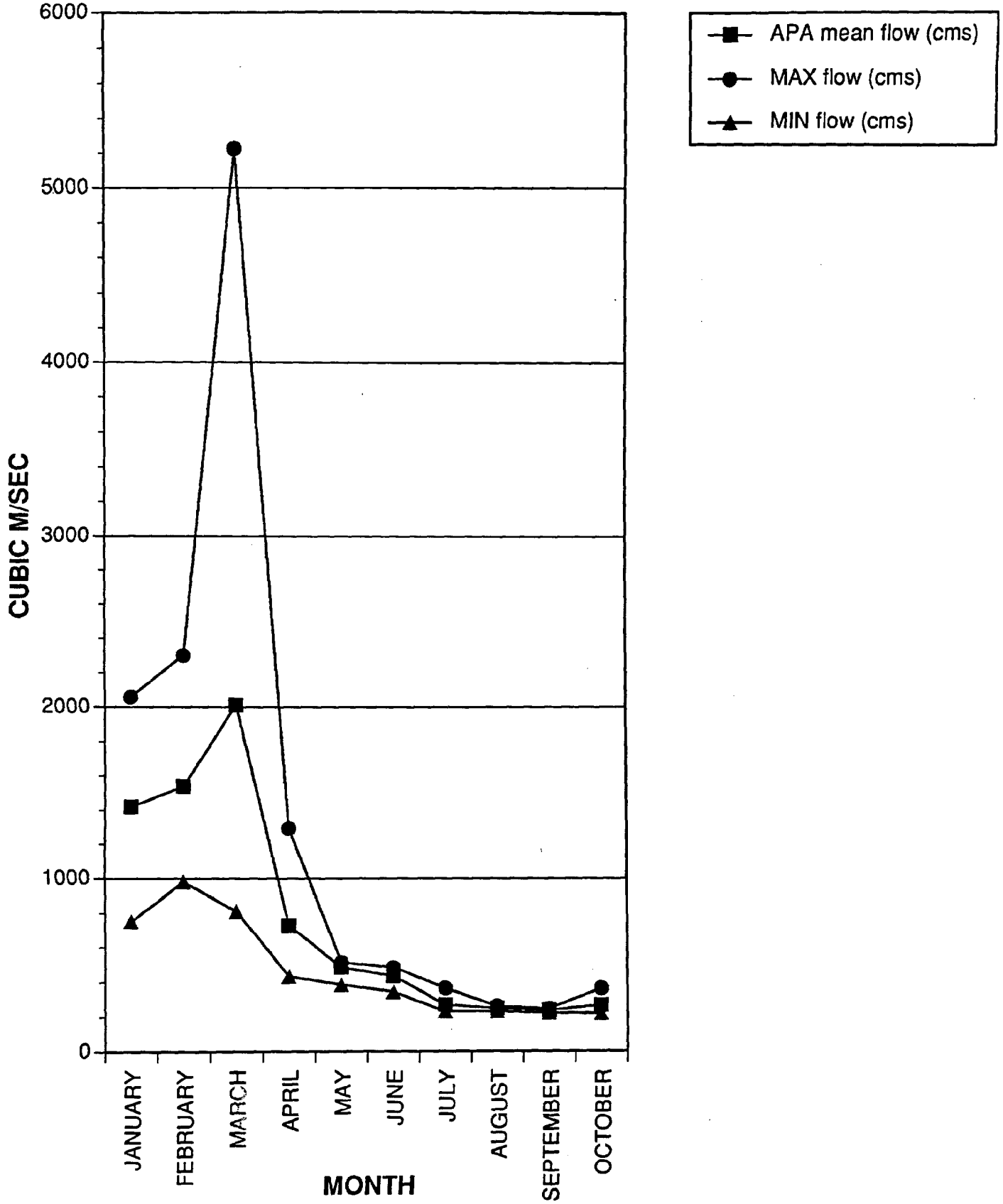


Figure 5: Apalachicola River flow at Blountstown (mean flow, maximum flow, minimum flow: monthly means) from January, 1990 through October, 1990.

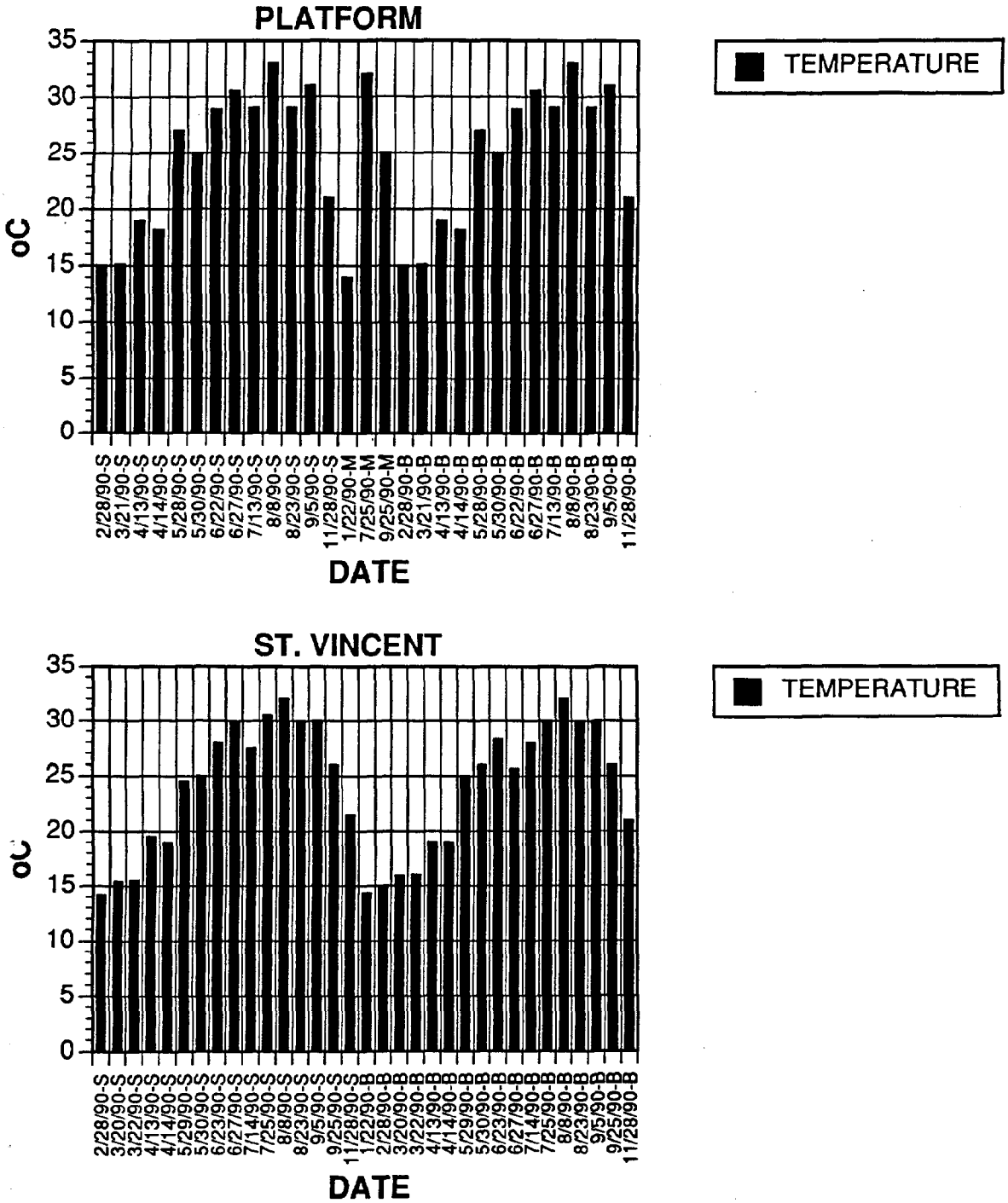
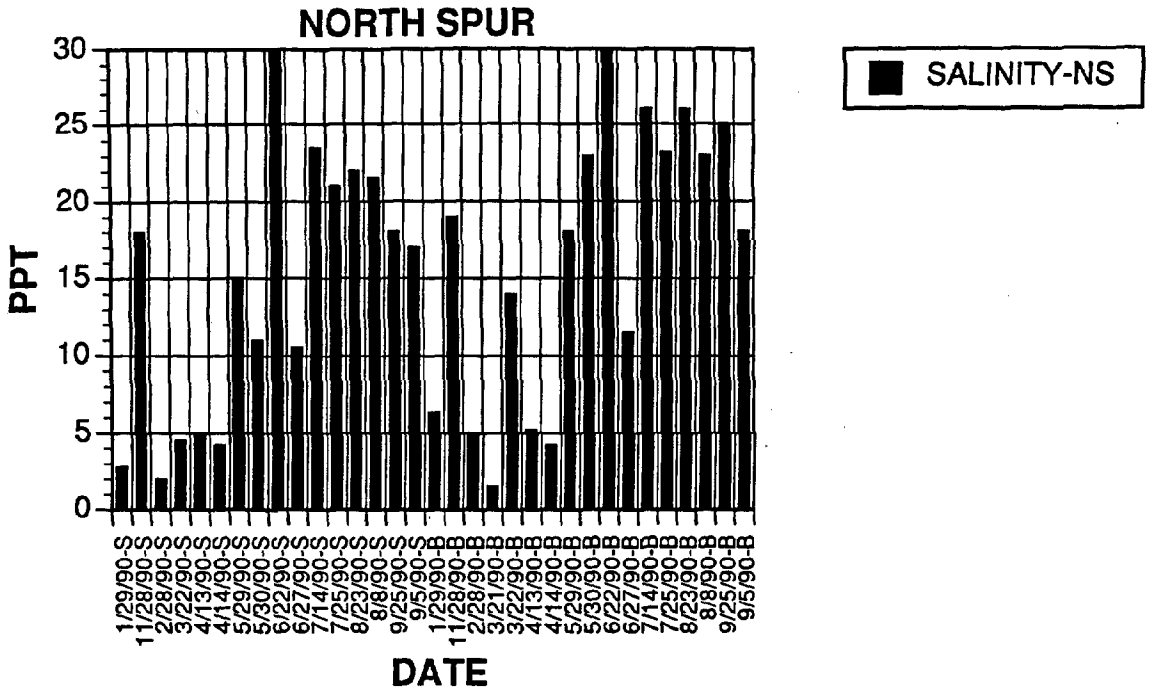


Figure 6: Temperature data (°C) at two stations in the Apalachicola estuary from February, 1990 through November, 1990.



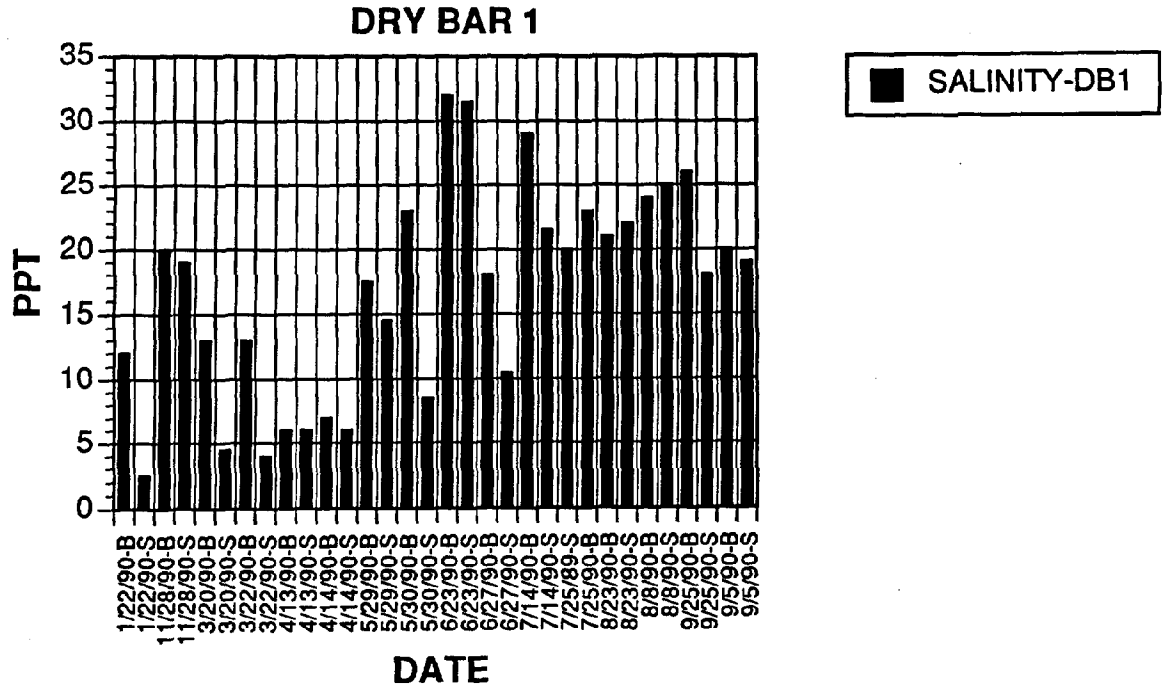
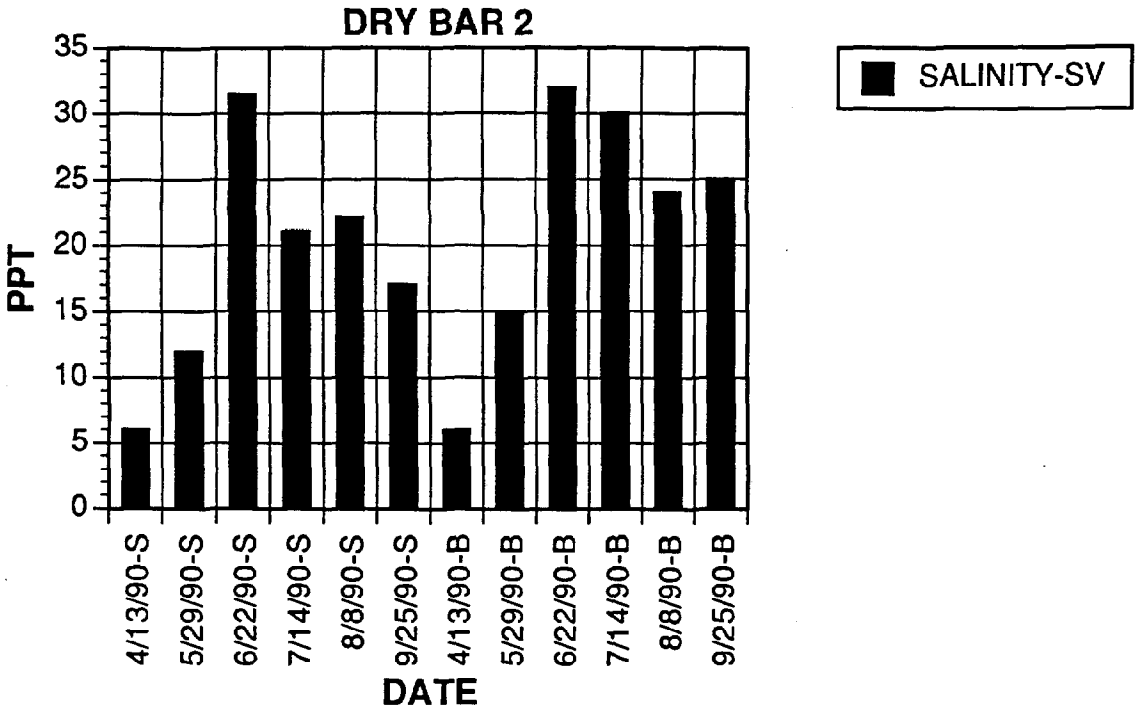
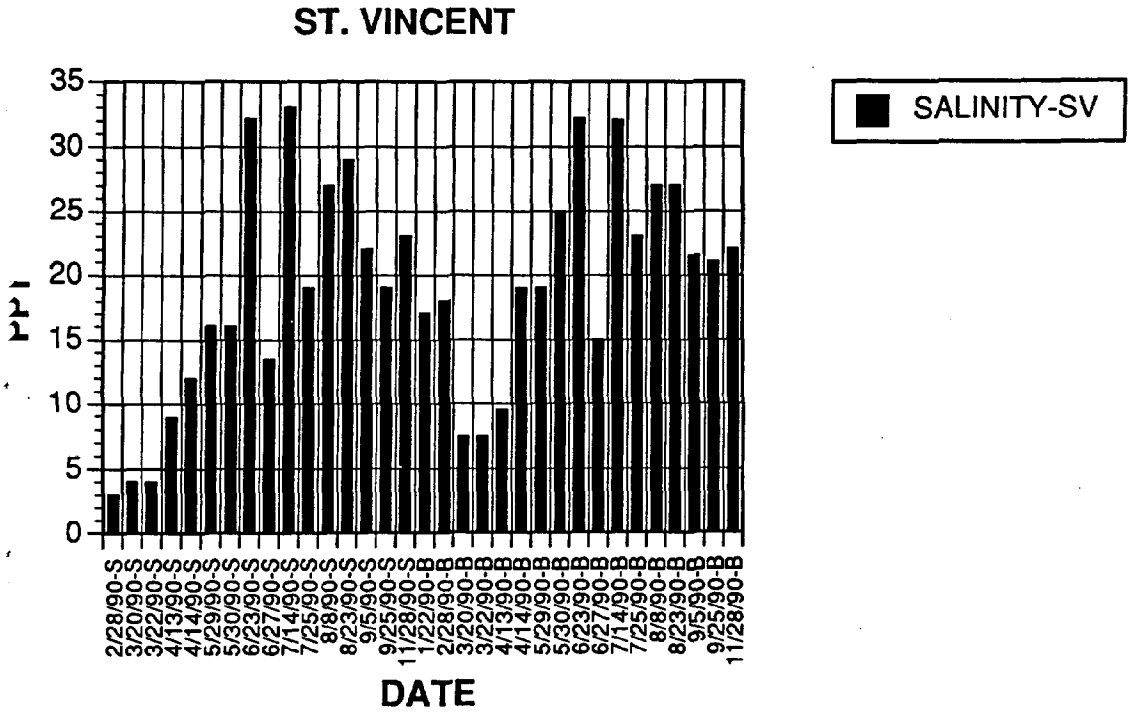
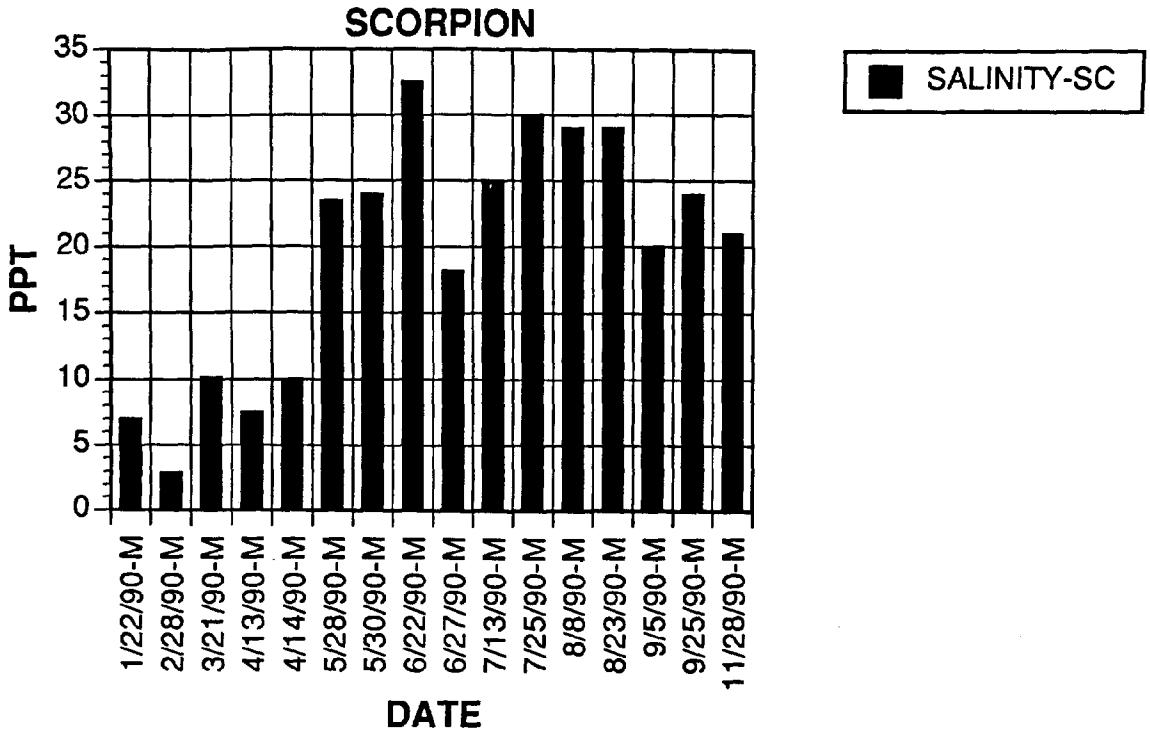
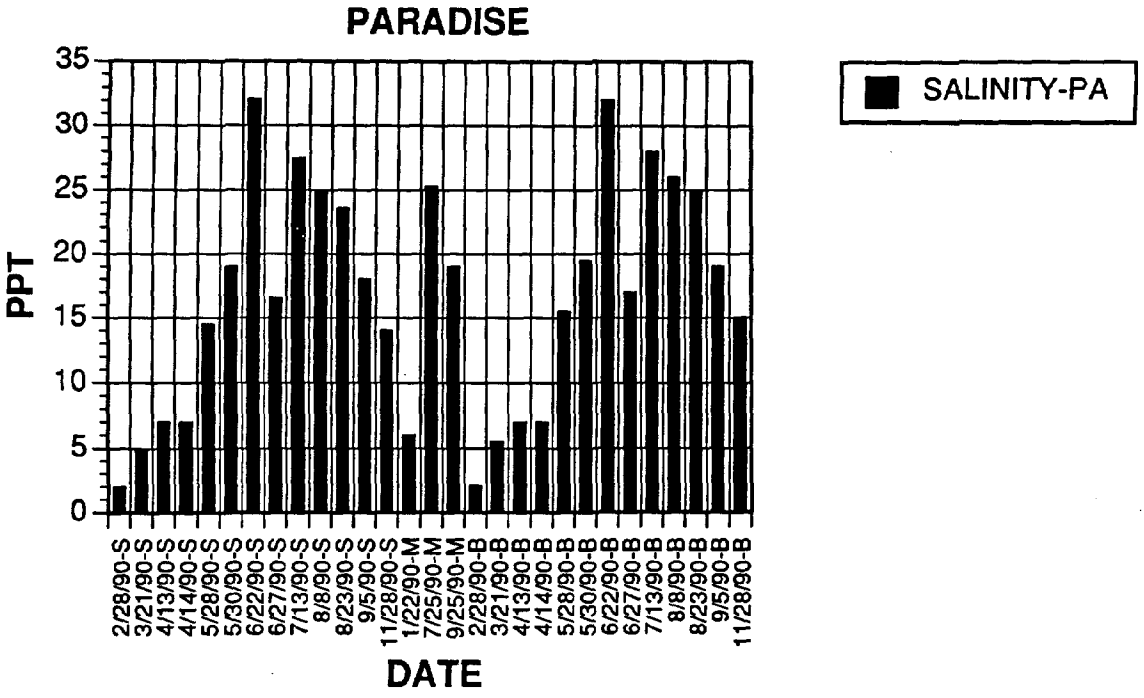


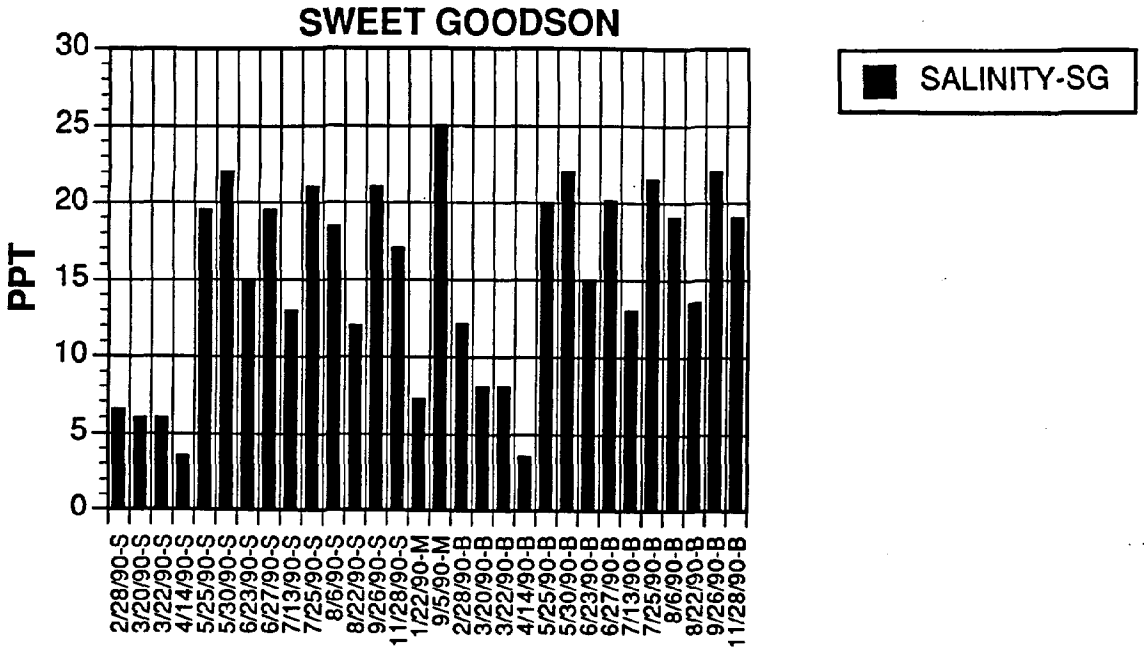
Figure 7: Salinity data at stations in the Apalachicola estuary from January, 1990 through November, 1990.

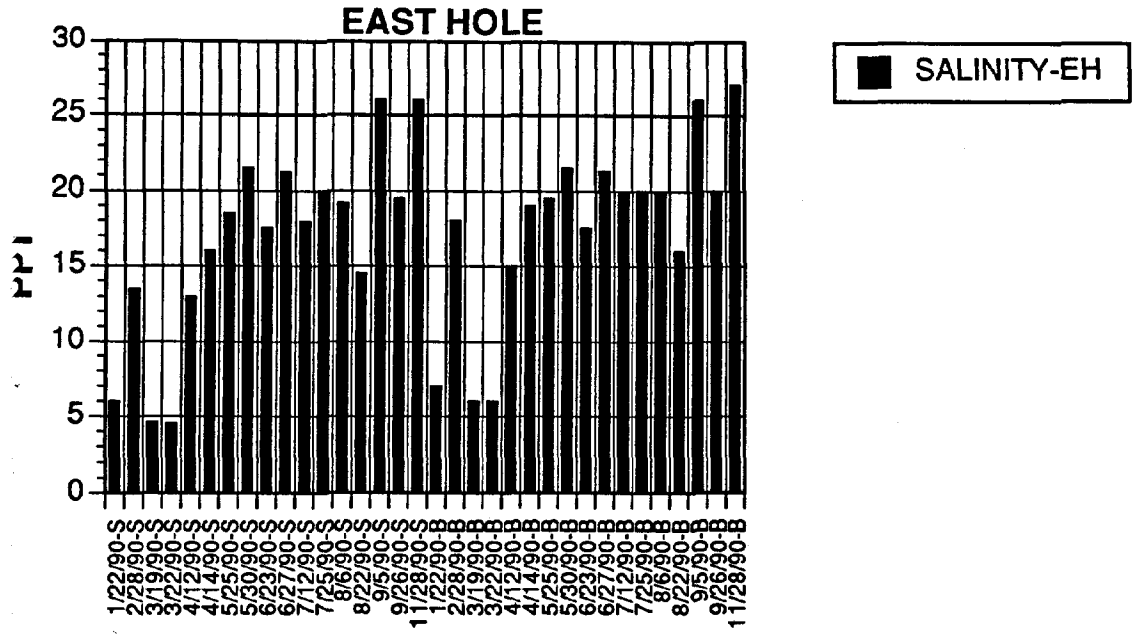

DRY BAR 2
SALINITY-SV
PPT
35
30
25
20
15
10
5
0
4/13/90-S
5/29/90-S
6/22/90-S
7/14/90-S
8/8/90-S
9/25/90-S
4/13/90-B
5/29/90-B
6/22/90-B
7/14/90-B
8/8/90-B
9/25/90-B
DATE

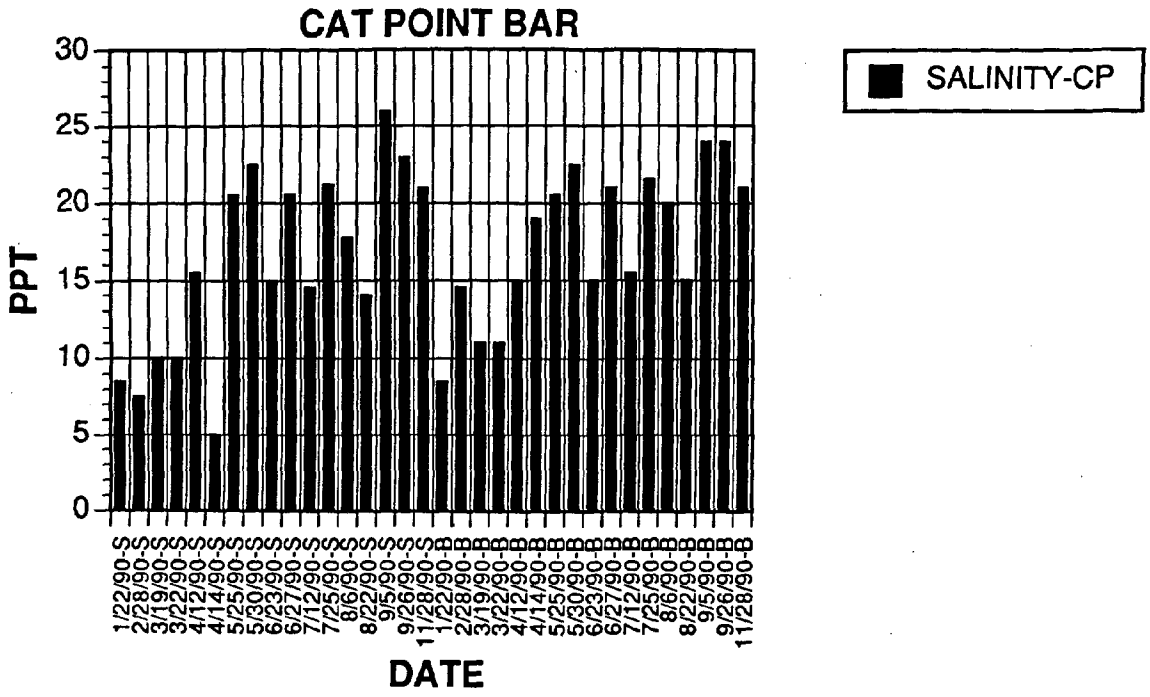

ST. VINCENT
SALINITY-SV
35
30
25
20
15
10
5
0
2/28/90-S
3/20/90-S
3/22/90-S
4/13/90-S
4/14/90-S
5/29/90-S
5/30/90-S
6/23/90-S
6/27/90-S
7/14/90-S
7/25/90-S
8/8/90-S
8/23/90-S
9/5/90-S
9/25/90-S
11/28/90-S
1/22/90-B
2/28/90-B
3/20/90-B
3/22/90-B
4/13/90-B
4/14/90-B
5/29/90-B
5/30/90-B
6/23/90-B
6/27/90-B
7/14/90-B
7/25/90-B
8/8/90-B
8/23/90-B
9/5/90-B
9/25/90-B
11/28/90-B
DATE


SCORPION
PPT
35
30
25
20
15
10
5
0
1/22/90-M
2/28/90-M
3/21/90-M
4/13/90-M
4/14/90-M
5/28/90-M
5/30/90-M
6/22/90-M
6/27/90-M
7/13/90-M
7/25/90-M
8/8/90-M
8/23/90-M
9/5/90-M
9/25/90-M
11/28/90-M
DATE
SALINITY-SC


PARADISE
PPT
35
30
25
20
15
10
5
0
2/28/90-S
3/21/90-S
4/13/90-S
4/14/90-S
5/28/90-S
5/30/90-S
6/22/90-S
6/27/90-S
7/13/90-S
8/8/90-S
8/23/90-S
9/5/90-S
11/28/90-S
1/22/90-M
7/25/90-M
9/25/90-M
2/28/90-B
3/21/90-B
4/13/90-B
4/14/90-B
5/28/90-B
5/30/90-B
6/22/90-B
6/27/90-B
7/13/90-B
8/8/90-B
8/23/90-B
9/5/90-B
11/28/90-B
DATE
SALINITY-PA


SWEET GOODSON
PPT
30
25
20
15
10
5
0
2/28/90-S
3/20/90-S
3/22/90-S
4/14/90-S
5/25/90-S
5/30/90-S
6/23/90-S
6/27/90-S
7/13/90-S
7/25/90-S
8/6/90-S
8/22/90-S
9/26/90-S
11/28/90-S
1/22/90-M
9/5/90-M
2/28/90-B
3/20/90-B
3/22/90-B
4/14/90-B
5/25/90-B
5/30/90-B
6/23/90-B
6/27/90-B
7/13/90-B
7/25/90-B
8/6/90-B
8/22/90-B
9/26/90-B
11/28/90-B
SALINITY-SG


EAST HOLE
30
25
20
15
10
5
0
1/22/90-S
2/28/90-S
3/19/90-S
3/22/90-S
4/12/90-S
4/14/90-S
5/25/90-S
5/30/90-S
6/23/90-S
6/27/90-S
7/12/90-S
7/25/90-S
8/6/90-S
8/22/90-S
9/5/90-S
9/26/90-S
11/28/90-S
1/22/90-B
2/28/90-B
3/19/90-B
3/22/90-B
4/12/90-B
4/14/90-B
5/25/90-B
5/30/90-B
6/23/90-B
6/27/90-B
7/12/90-B
7/25/90-B
8/6/90-B
8/22/90-B
9/5/90-B
9/26/90-B
11/28/90-B
SALINITY-EH


CAT POINT BAR
SALINITY-CP
PPT
DATE
0
5
10
15
20
25
30
1/22/90-S
2/28/90-S
3/19/90-S
3/22/90-S
4/12/90-S
4/14/90-S
5/25/90-S
5/30/90-S
6/23/90-S
6/27/90-S
7/12/90-S
7/25/90-S
8/6/90-S
8/22/90-S
9/5/90-S
9/26/90-S
11/28/90-S
1/22/90-B
2/28/90-B
3/19/90-B
3/22/90-B
4/12/90-B
4/14/90-B
5/25/90-B
5/30/90-B
6/23/90-B
6/27/90-B
7/12/90-B
7/25/90-B
8/6/90-B
8/22/90-B
9/5/90-B
9/26/90-B
11/28/90-B

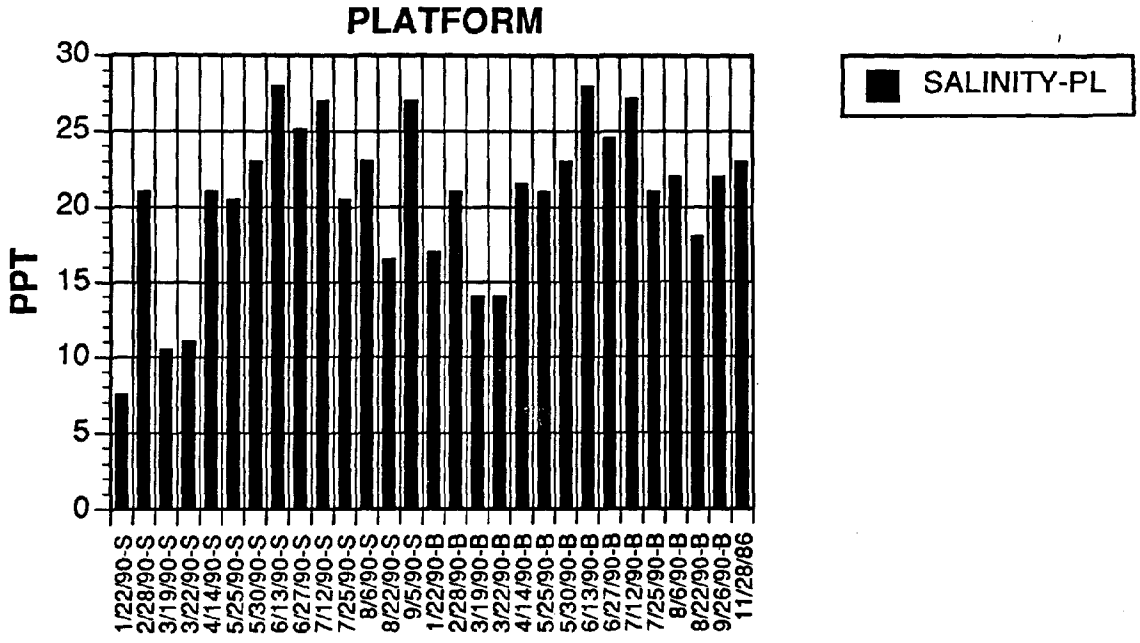
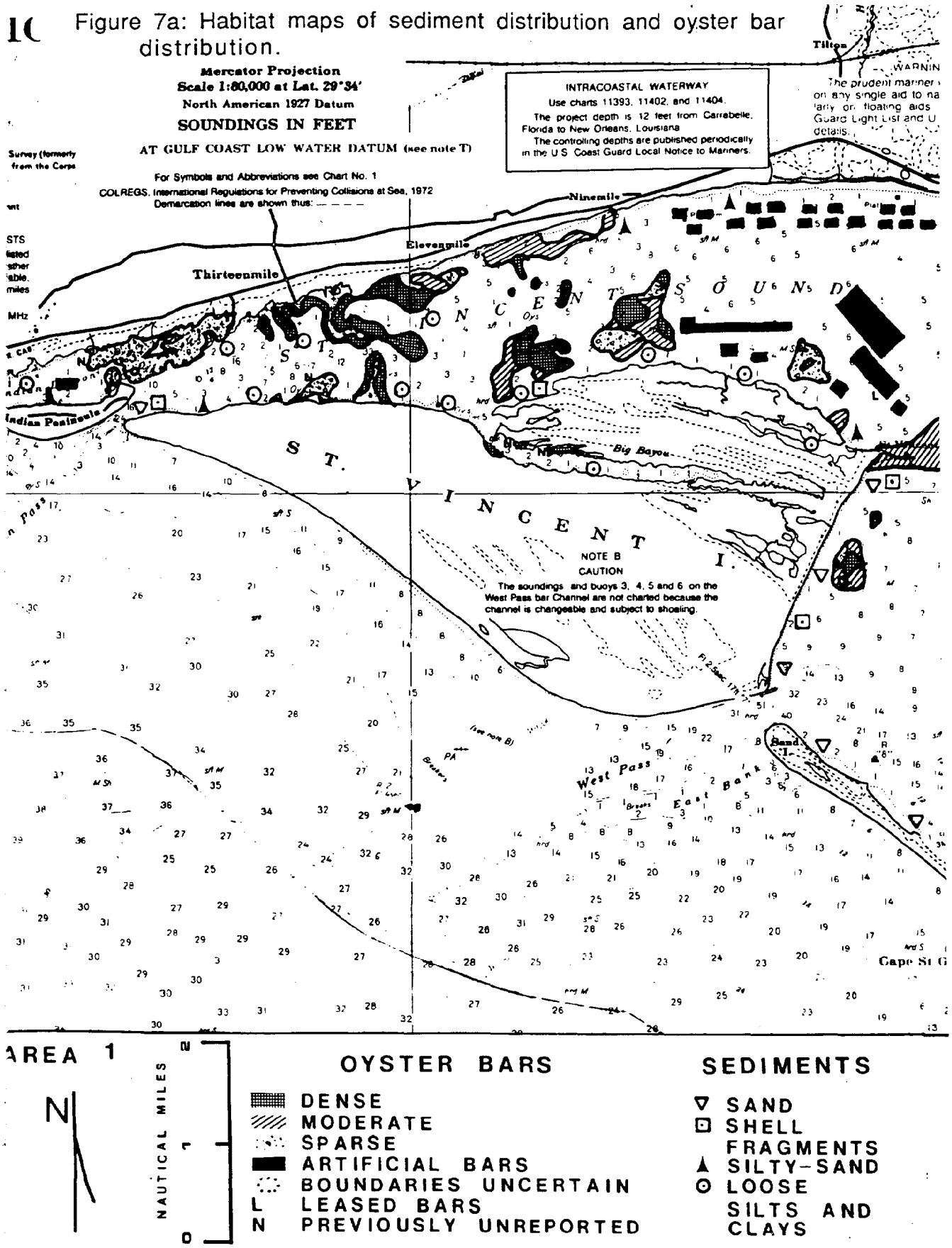
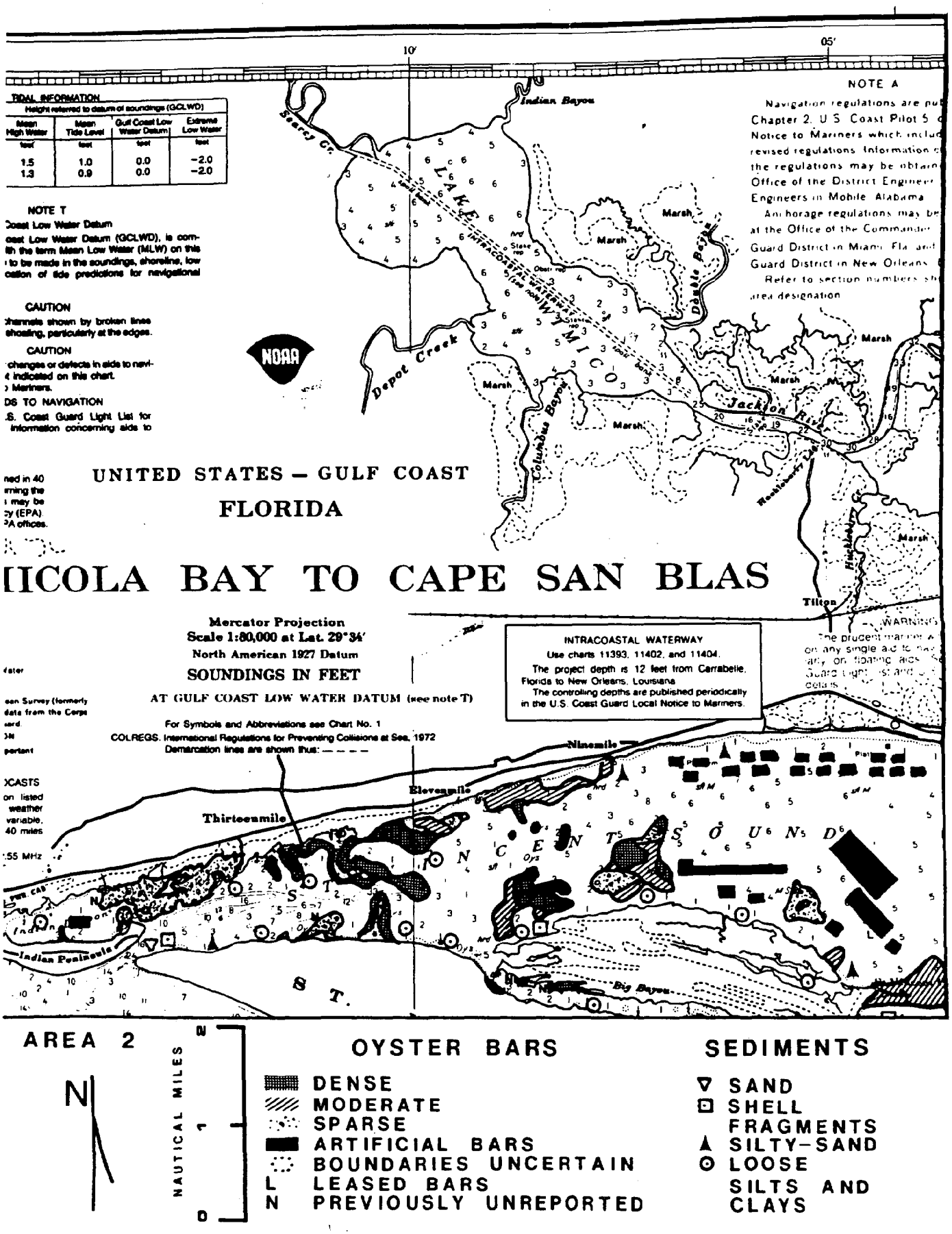
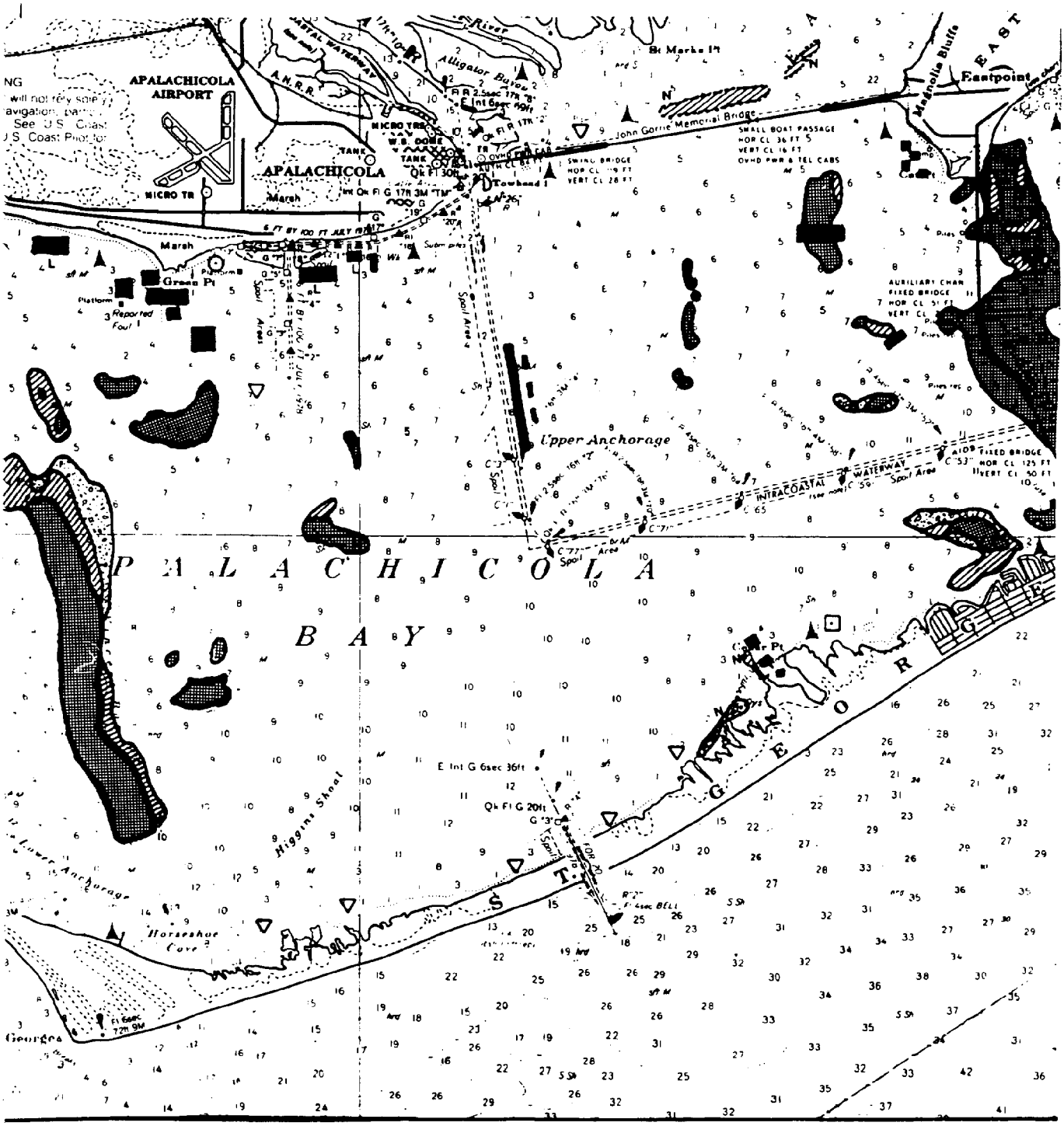

PLATFORM
SALINITY-PL
PPT
0
5
10
15
20
25
30
1/22/90-S
2/28/90-S
3/19/90-S
3/22/90-S
4/14/90-S
5/25/90-S
5/30/90-S
6/13/90-S
6/27/90-S
7/12/90-S
7/25/90-S
8/6/90-S
8/22/90-S
9/5/90-S
1/22/90-B
2/28/90-B
3/19/90-B
3/22/90-B
4/14/90-B
5/25/90-B
5/30/90-B
6/13/90-B
6/27/90-B
7/12/90-B
7/25/90-B
8/6/90-B
8/22/90-B
9/26/90-B
11/28/86

Figure 7a: Habitat maps of sediment distribution and oyster bar distribution.





TIDAL INFORMATION
Height referred to datum of soundings (GCLWD)
Mean High Water | Mean Tide Level | Gulf Coast Low Water Datum | Extreme Low Water
feet | feet | feet | feet
1.5 | 1.0 | 0.0 | −2.0
1.3 | 0.9 | 0.0 | −2.0
NOTE T
Coast Low Water Datum
oast Low Water Datum (GCLWD), is com-
ith the term Mean Low Water (MLW) on this
to be made in the soundings, shoreline, low
cation of tide predictions for navigational
CAUTION
channels shown by broken lines
shoaling, particularly at the edges.
CAUTION
changes or defects in aids to navi-
indicated on this chart.
Mariners.
DS TO NAVIGATION
.S. Coast Guard Light List for
information concerning aids to
NOTE A
Navigation regulations are pu
Chapter 2, U.S. Coast Pilot 5
Notice to Mariners which includ
revised regulations. Information
the regulations may be obtain
Office of the District Engineer
Engineers in Mobile, Alabama
Anchorage regulations may be
at the Office of the Commander
Guard District in Miami, Fla. and
Guard District in New Orleans
Refer to section numbers sh
area designation
NOAA
UNITED STATES — GULF COAST
FLORIDA
ICOLA BAY TO CAPE SAN BLAS
Mercator Projection
Scale 1:80,000 at Lat. 29°34′
North American 1927 Datum
SOUNDINGS IN FEET
AT GULF COAST LOW WATER DATUM (see note T)
For Symbols and Abbreviations see Chart No. 1
COLREGS. International Regulations for Preventing Collisions at Sea, 1972
Demarcation lines are shown thus: — — — —
INTRACOASTAL WATERWAY
Use charts 11393, 11402, and 11404.
The project depth is 12 feet from Carrabelle, Florida to New Orleans, Louisiana
The controlling depths are published periodically in the U.S. Coast Guard Local Notice to Mariners.
Indian Bayou
Searcy Cr.
LAKE WIMICO
INTRACOASTAL WATERWAY
Marsh
Double Bayou
Depot Creek
Columbus Bayou
Jackson River
Huckleberry Cr.
Tilton
Ninemile
Elevenmile
Thirteenmile
INCENT SOUND
Indian Peninsula
Big Bayou
ST.
AREA 2
N
NAUTICAL MILES
OYSTER BARS
DENSE
MODERATE
SPARSE
ARTIFICIAL BARS
BOUNDARIES UNCERTAIN
L LEASED BARS
N PREVIOUSLY UNREPORTED
SEDIMENTS
SAND
SHELL FRAGMENTS
SILTY-SAND
LOOSE
SILTS AND CLAYS



AREA 3

N

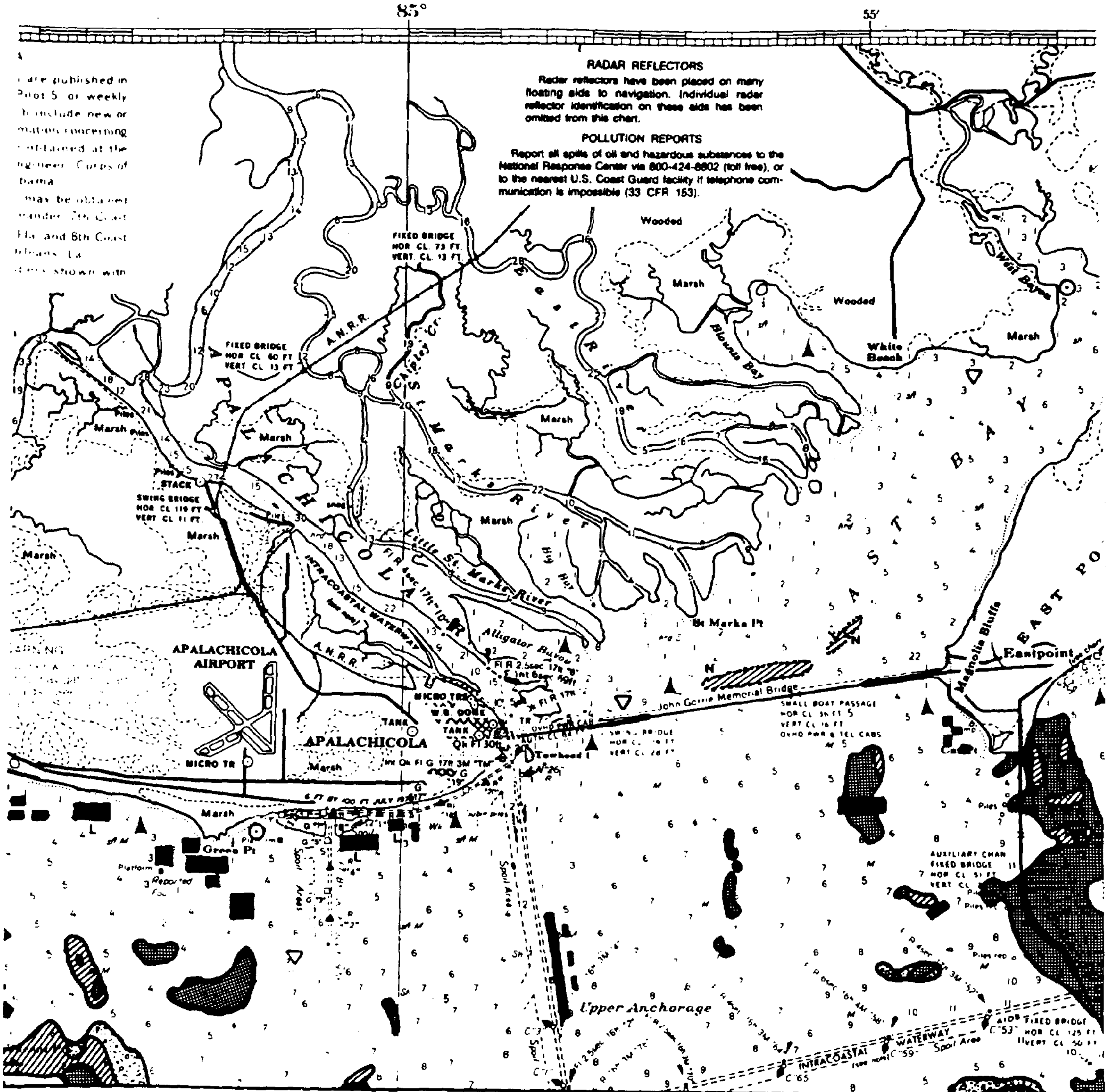
NAUTICAL MILES 0 1 2

OYSTER BARS

- DENSE
- MODERATE
- SPARSE
- ARTIFICIAL BARS
- BOUNDARIES UNCERTAIN
- L LEASED BARS
- N PREVIOUSLY UNREPORTED

SEDIMENTS

- SAND
- SHELL FRAGMENTS
- SILTY-SAND
- LOOSE SILTS AND CLAYS



AREA 4

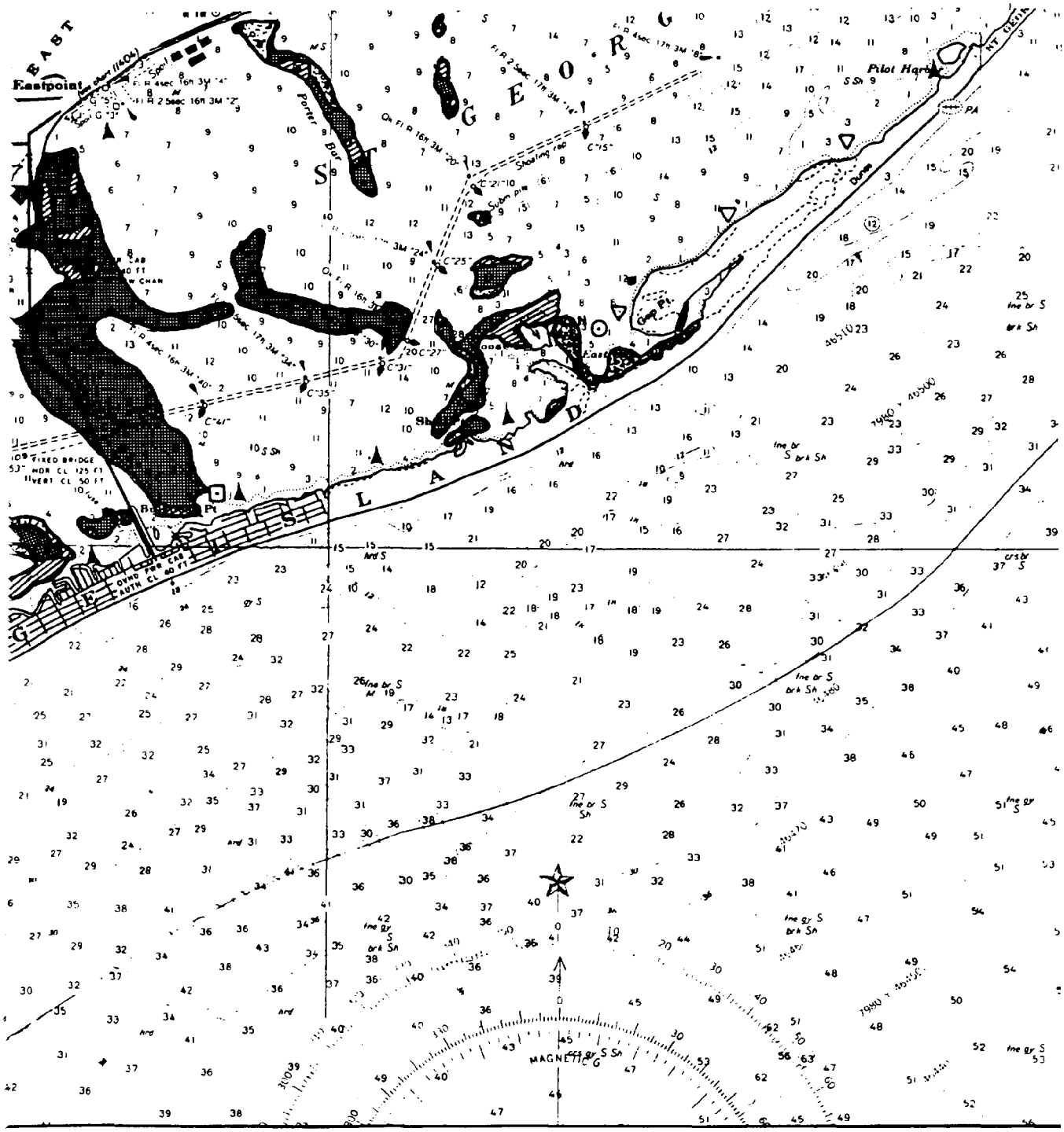
NAUTICAL MILES 0 1 2

OYSTER BARS

- DENSE
- MODERATE
- SPARSE
- ARTIFICIAL BARS
- BOUNDARIES UNCERTAIN
- L LEASED BARS
- N PREVIOUSLY UNREPORTED

SEDIMENTS

- SAND
- SHELL FRAGMENTS
- SILTY-SAND
- LOOSE SILTS AND CLAYS



AREA 5

N

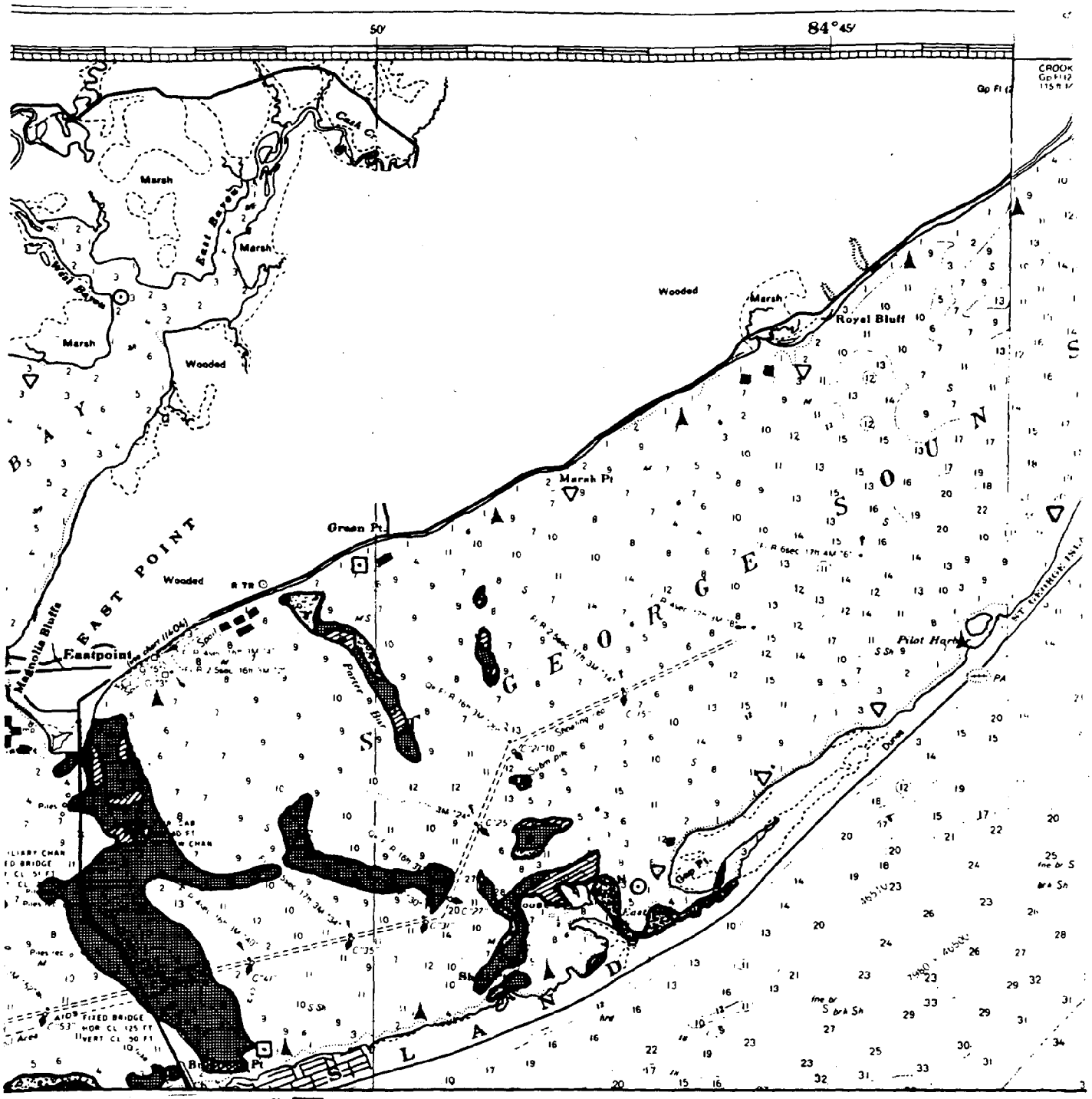
NAUTICAL MILES 2 1 0

OYSTER BARS

- DENSE
- MODERATE
- SPARSE
- ARTIFICIAL BARS
- BOUNDARIES UNCERTAIN
- L LEASED BARS
- N PREVIOUSLY UNREPORTED

SEDIMENTS

- SAND
- SHELL FRAGMENTS
- SILTY-SAND
- LOOSE SILTS AND CLAYS



AREA 6

N

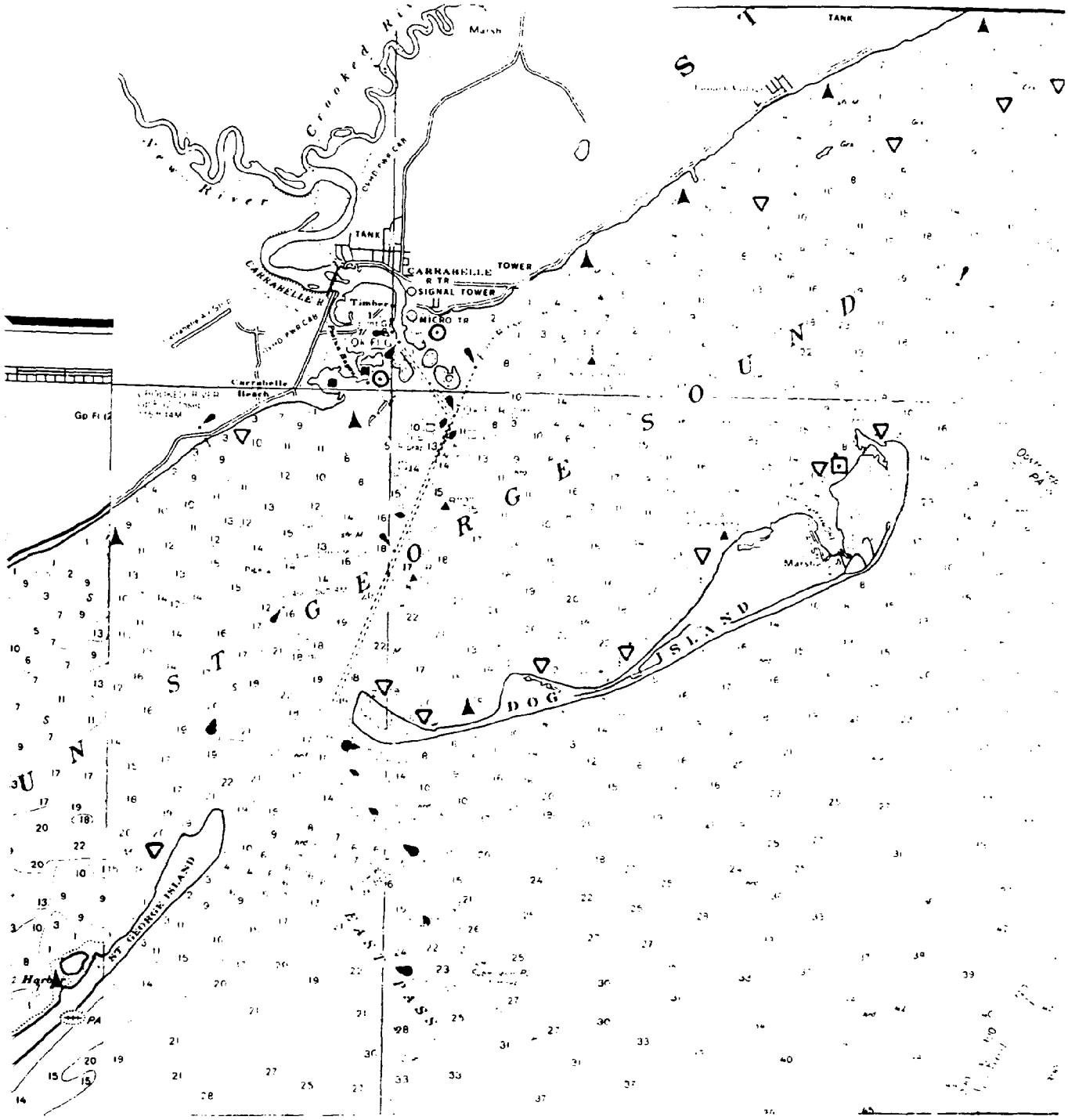
NAUTICAL MILES 0 1 2

OYSTER BARS

- DENSE
- MODERATE
- SPARSE
- ARTIFICIAL BARS
- BOUNDARIES UNCERTAIN
- L LEASED BARS
- N PREVIOUSLY UNREPORTED

SEDIMENTS

- SAND
- SHELL FRAGMENTS
- SILTY-SAND
- LOOSE SILTS AND CLAYS



AREA 7

N

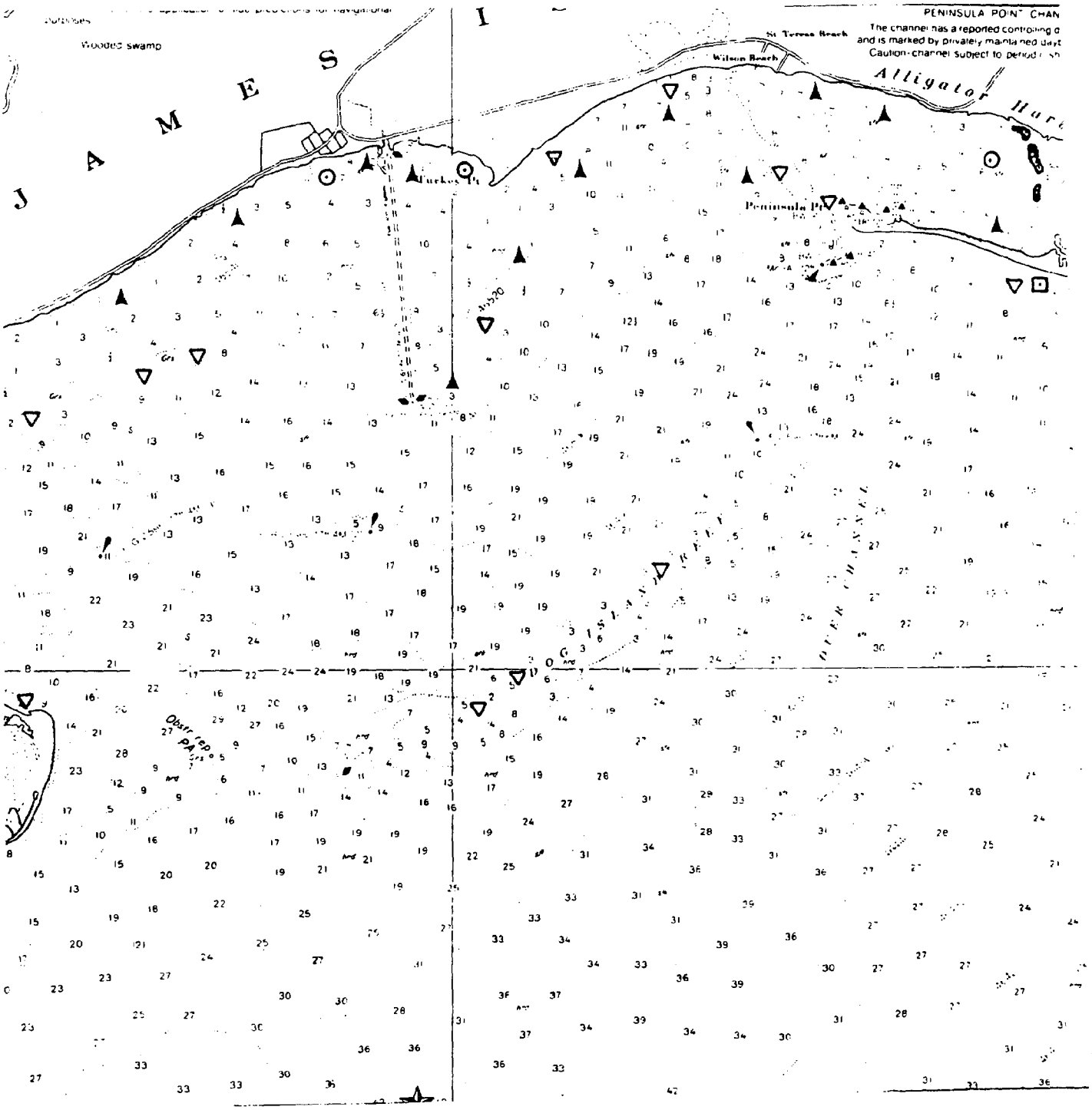
NAUTICAL MILES 0 1 2

OYSTER BARS

- DENSE
- MODERATE
- SPARSE
- ARTIFICIAL BARS
- BOUNDARIES UNCERTAIN
- L LEASED BARS
- N PREVIOUSLY UNREPORTED

SEDIMENTS

- SAND
- SHELL FRAGMENTS
- SILTY-SAND
- LOOSE SILTS AND CLAYS



AREA 8

N

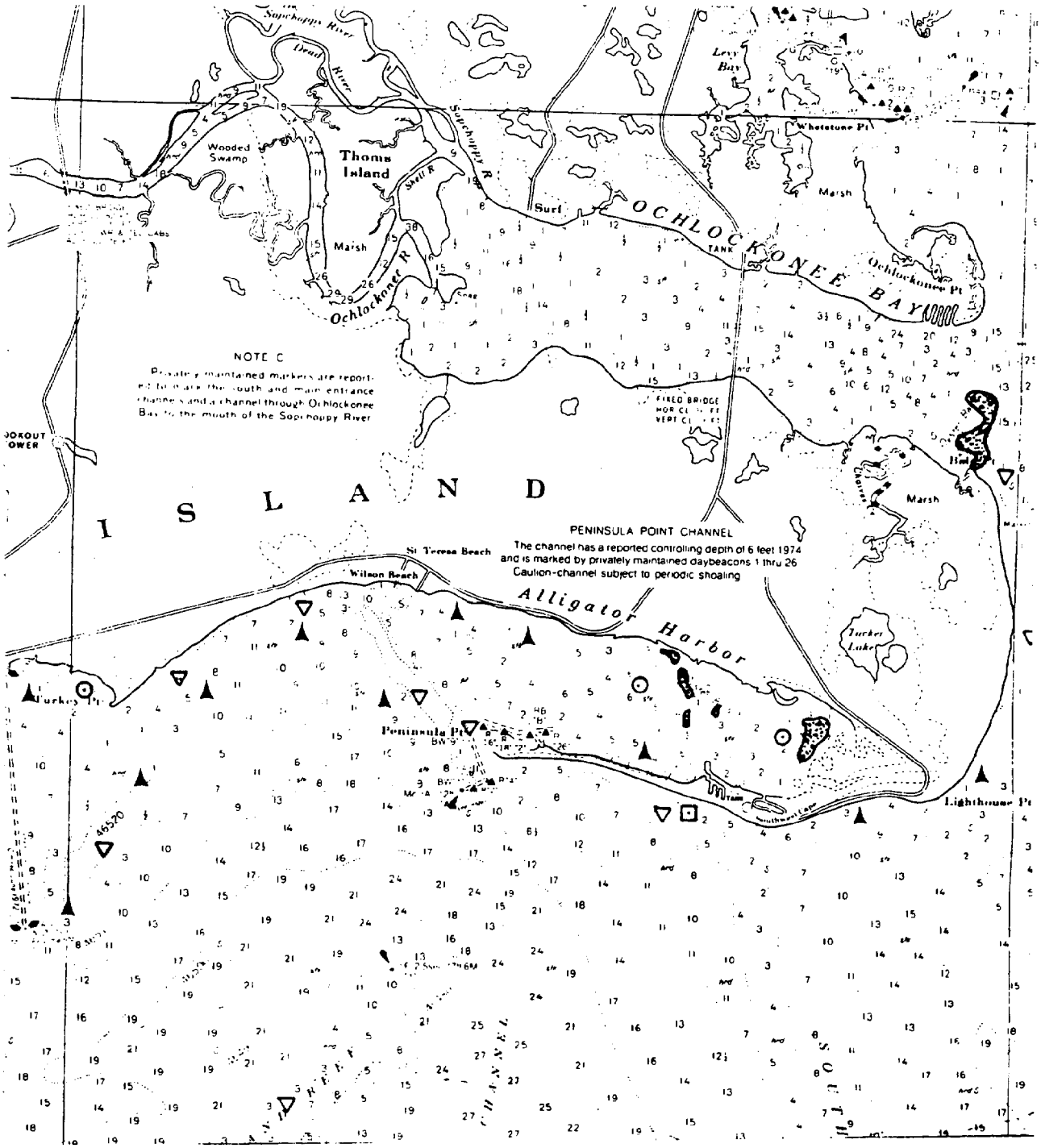
NAUTICAL MILES 0 1 2

OYSTER BARS

- DENSE
- MODERATE
- SPARSE
- ARTIFICIAL BARS
- BOUNDARIES UNCERTAIN
- L LEASED BARS
- N PREVIOUSLY UNREPORTED

SEDIMENTS

- SAND
- SHELL FRAGMENTS
- SILTY-SAND
- LOOSE SILTS AND CLAYS



AREA 9

N

NAUTICAL MILES 2 1 0

OYSTER BARS

- DENSE
- MODERATE
- SPARSE
- ARTIFICIAL BARS
- BOUNDARIES UNCERTAIN
- L LEASED BARS
- N PREVIOUSLY UNREPORTED

SEDIMENTS

- SAND
- SHELL FRAGMENTS
- SILTY-SAND
- LOOSE SILTS AND CLAYS

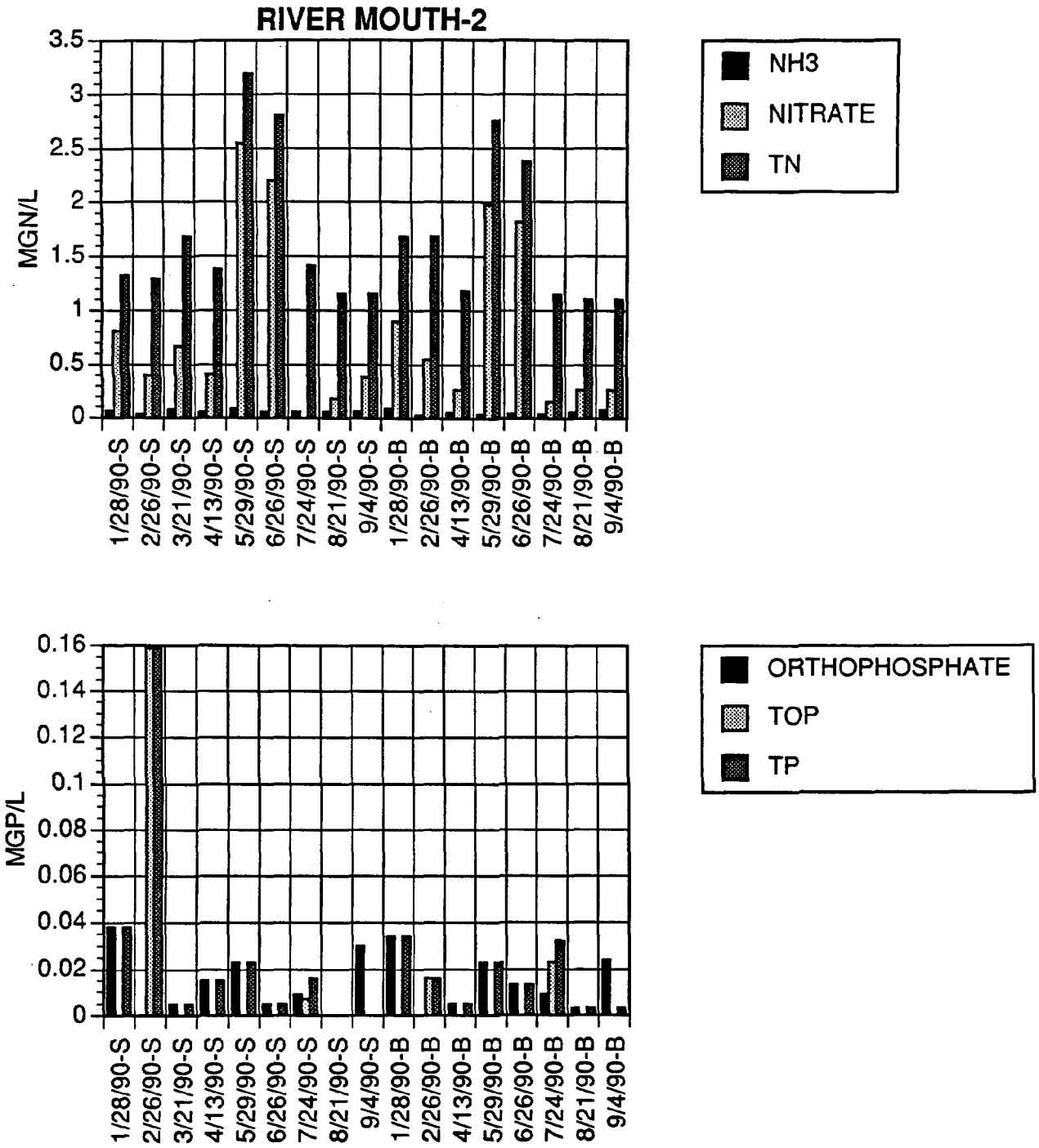
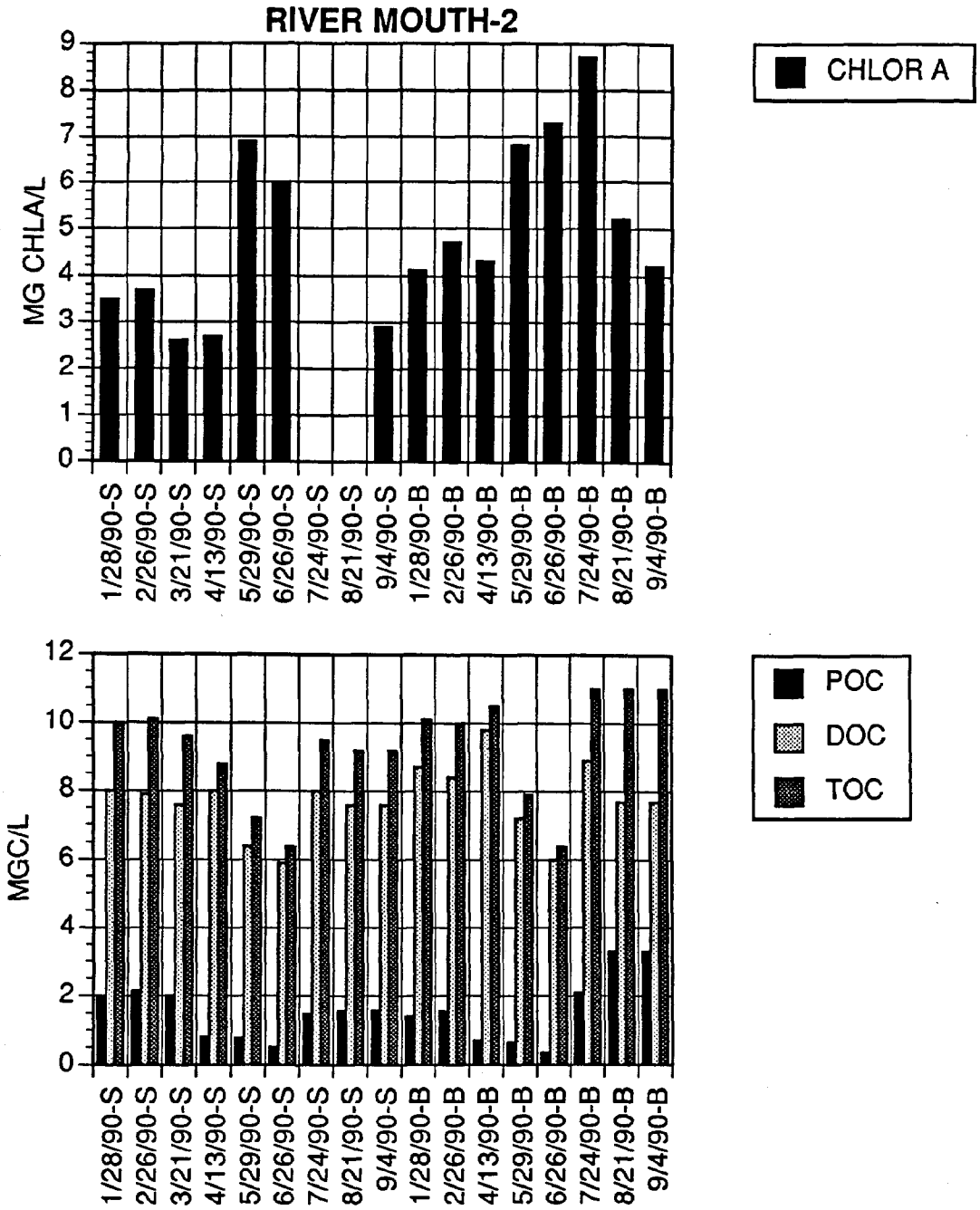
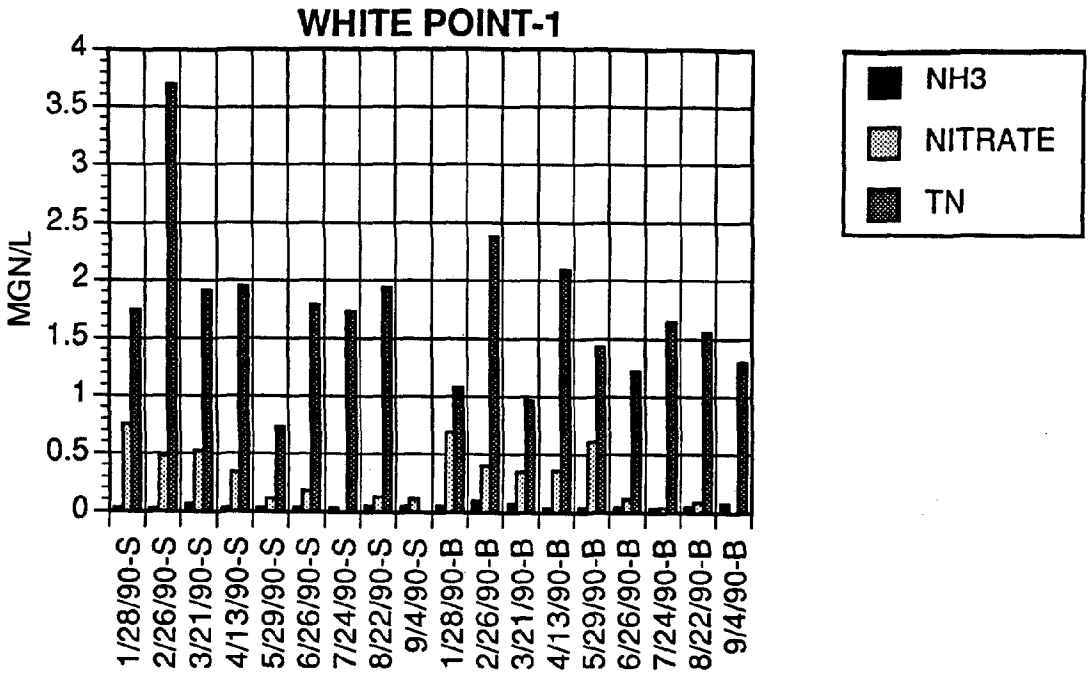
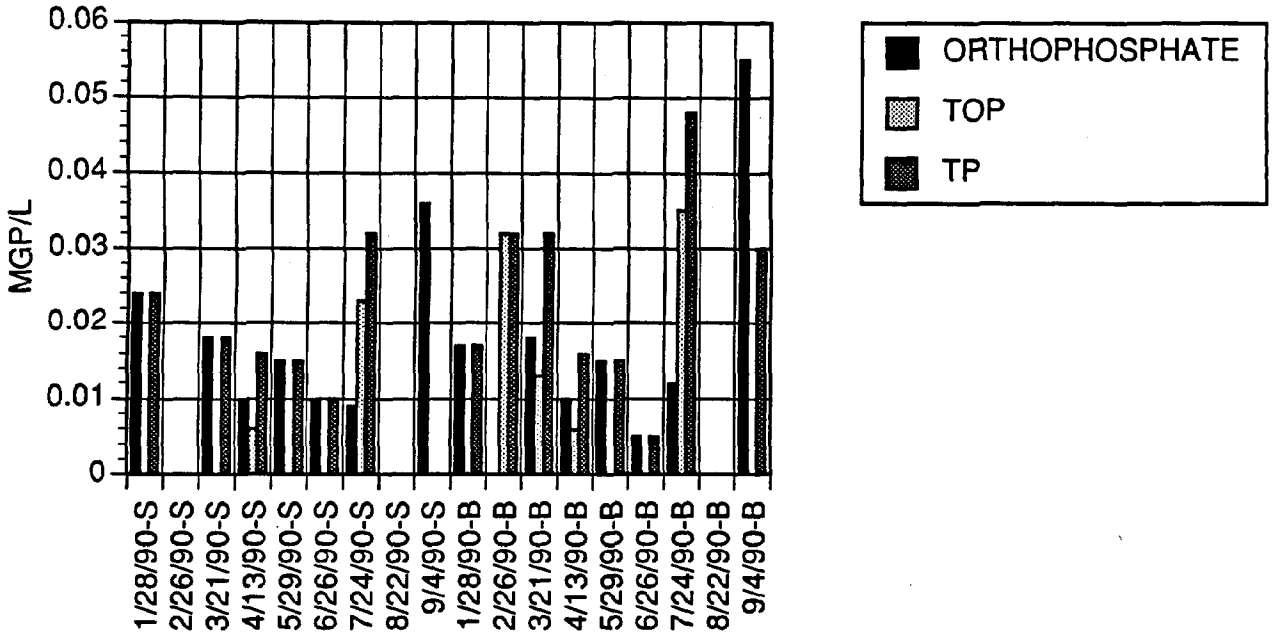
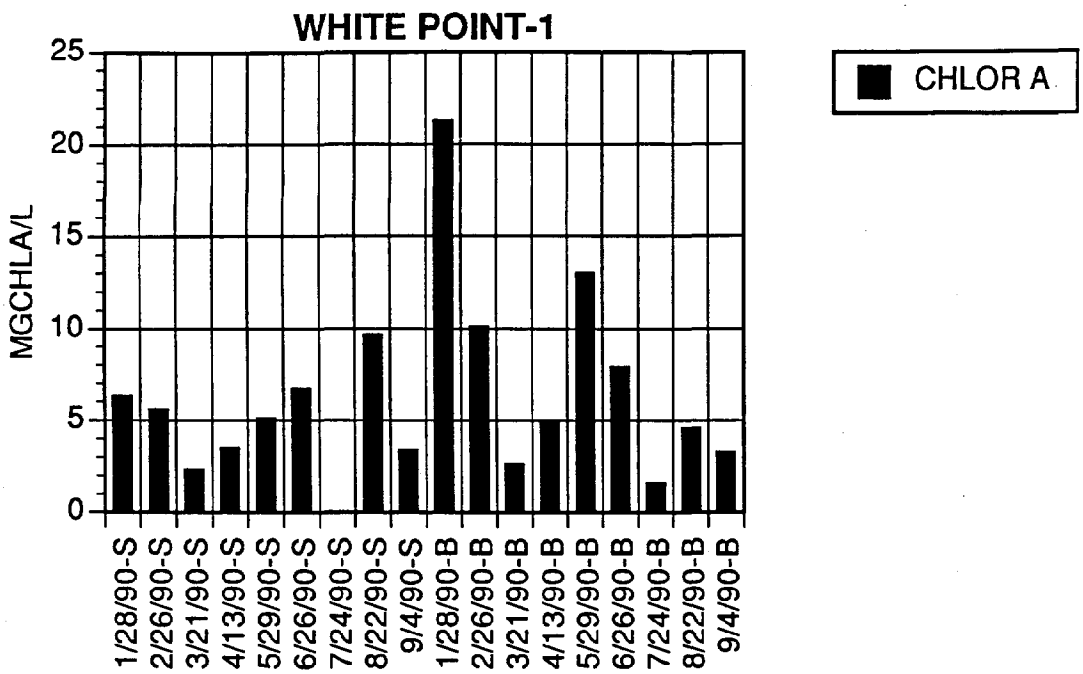


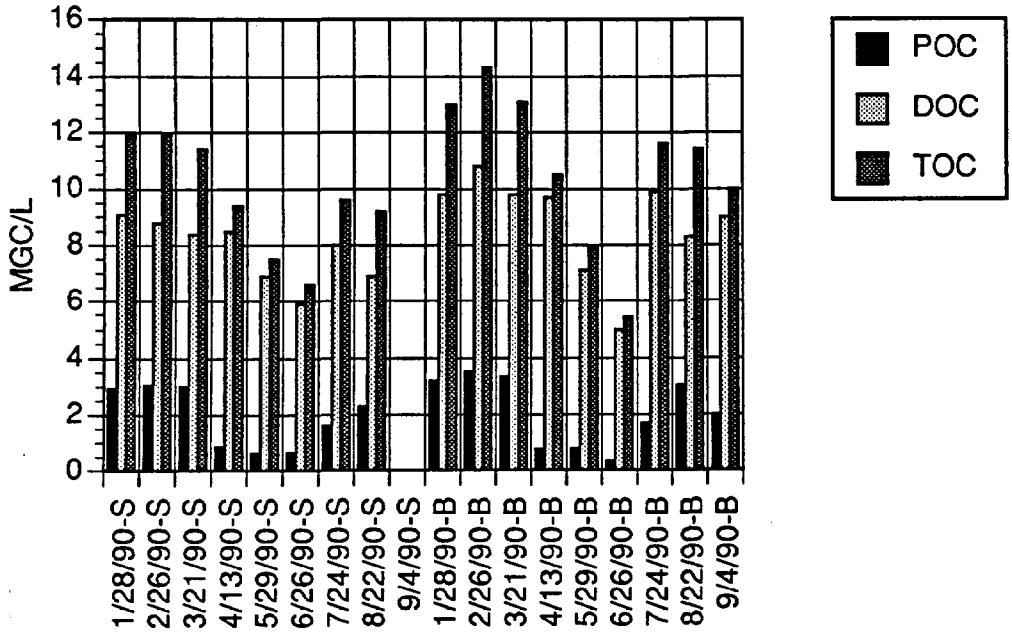
Figure 8: Chemistry data at stations in the Apalachicola estuary from January, 1990 through November, 1990.

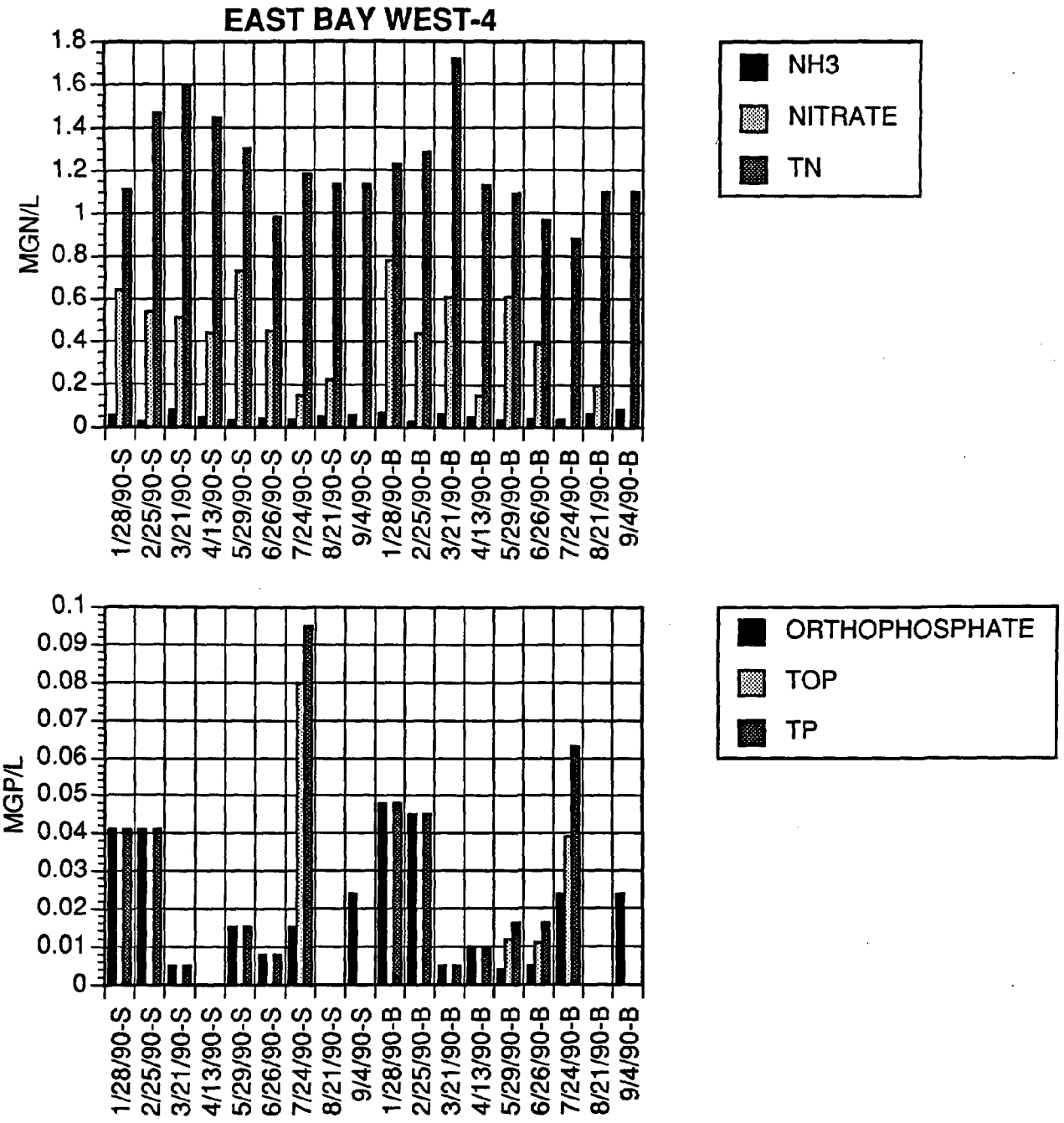

RIVER MOUTH-2
MG CHLA/L
0
1
2
3
4
5
6
7
8
9
CHLOR A
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/28/90-B
2/26/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
MGC/L
0
2
4
6
8
10
12
POC
DOC
TOC

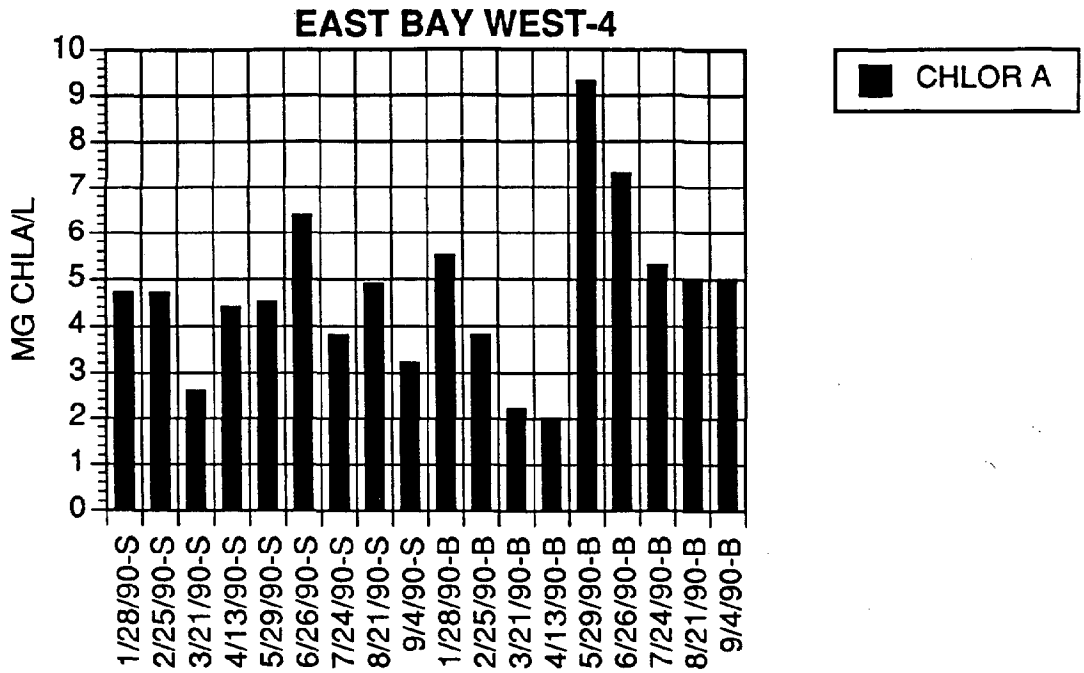

WHITE POINT-1
MGN/L
4
3.5
3
2.5
2
1.5
1
0.5
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
NH3
NITRATE
TN

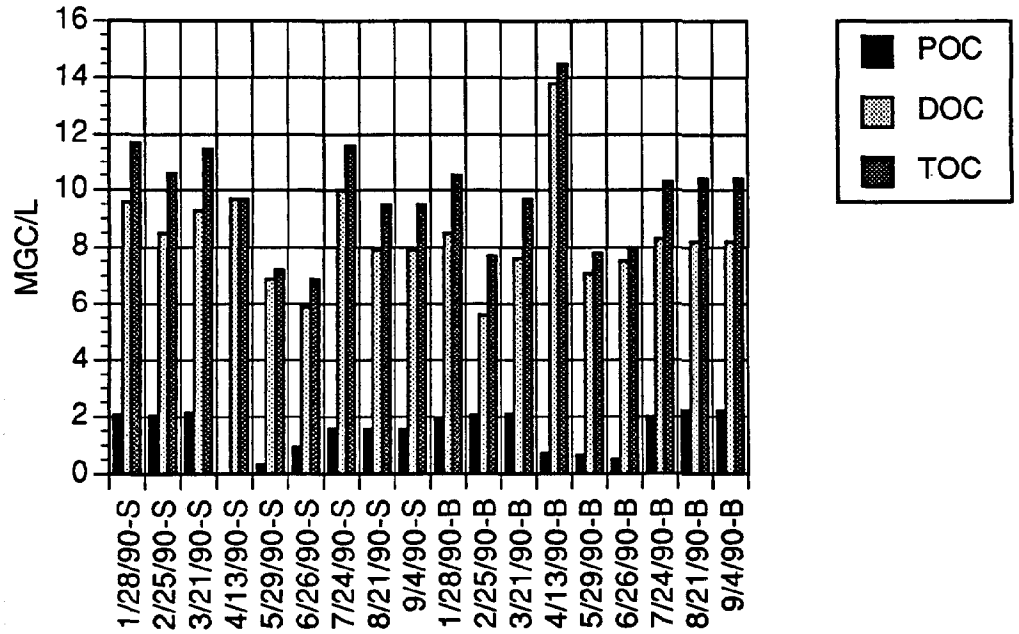

MGP/L
0.06
0.05
0.04
0.03
0.02
0.01
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
ORTHOPHOSPHATE
TOP
TP

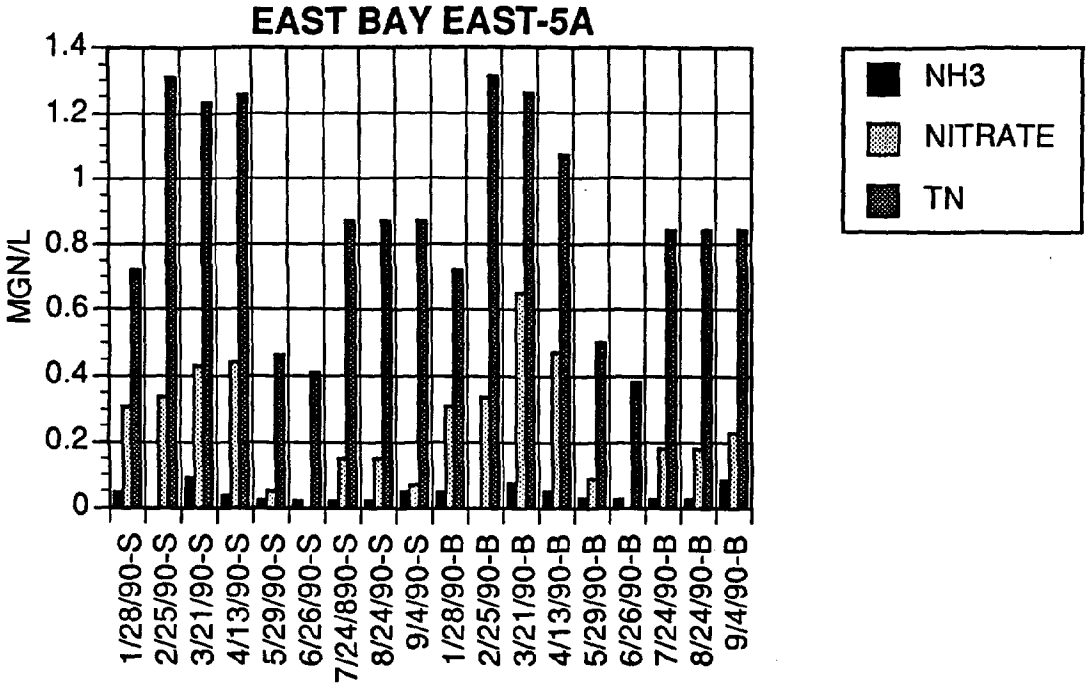

WHITE POINT-1
MGCHLA/L
25
20
15
10
5
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
CHLOR A

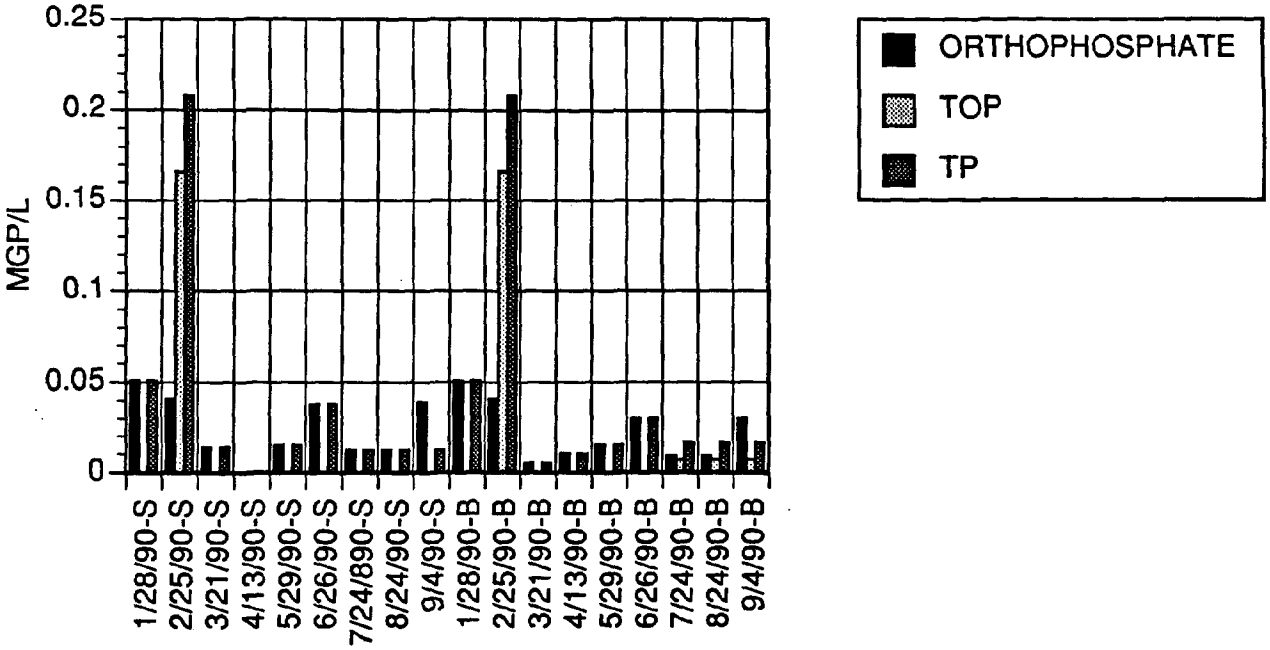

MGC/L
16
14
12
10
8
6
4
2
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
POC
DOC
TOC

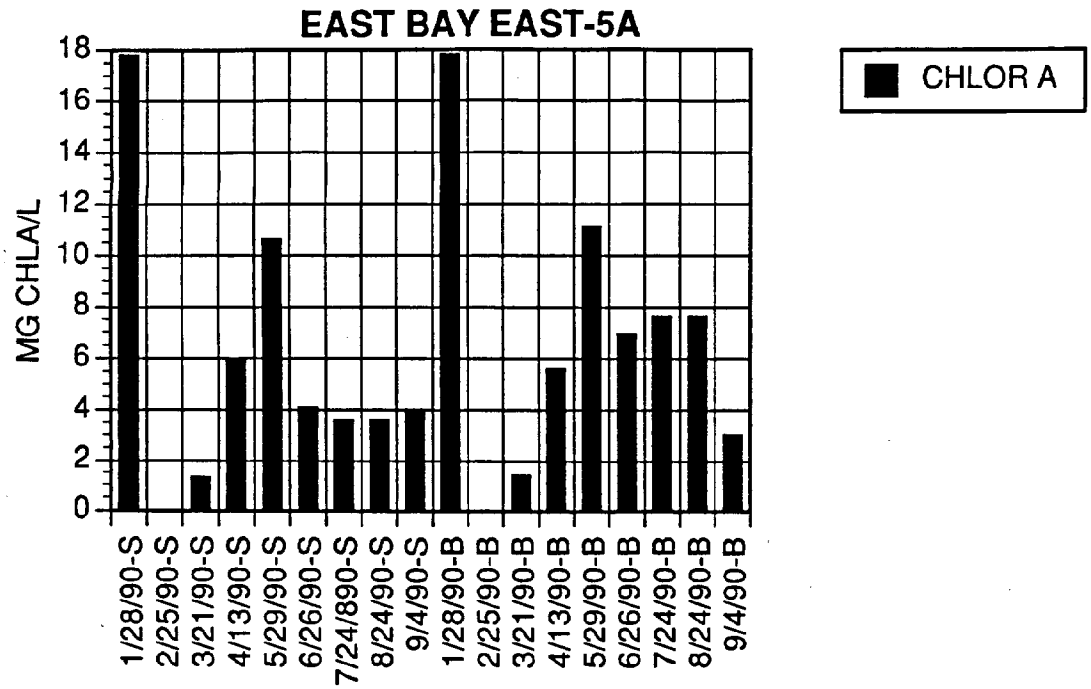

EAST BAY WEST-4
MGN/L
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
NH3
NITRATE
TN
1/28/90-S
2/25/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/28/90-B
2/25/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
MGP/L
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
ORTHOPHOSPHATE
TOP
TP

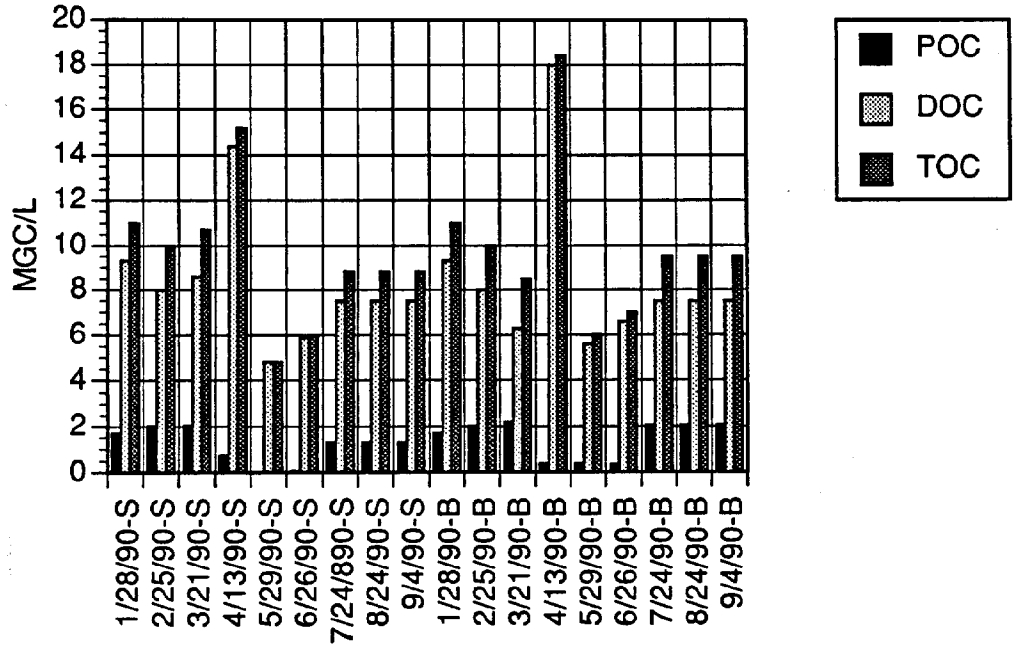

EAST BAY WEST-4
MG CHLA/L
0
1
2
3
4
5
6
7
8
9
10
1/28/90-S
2/25/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/28/90-B
2/25/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
CHLOR A

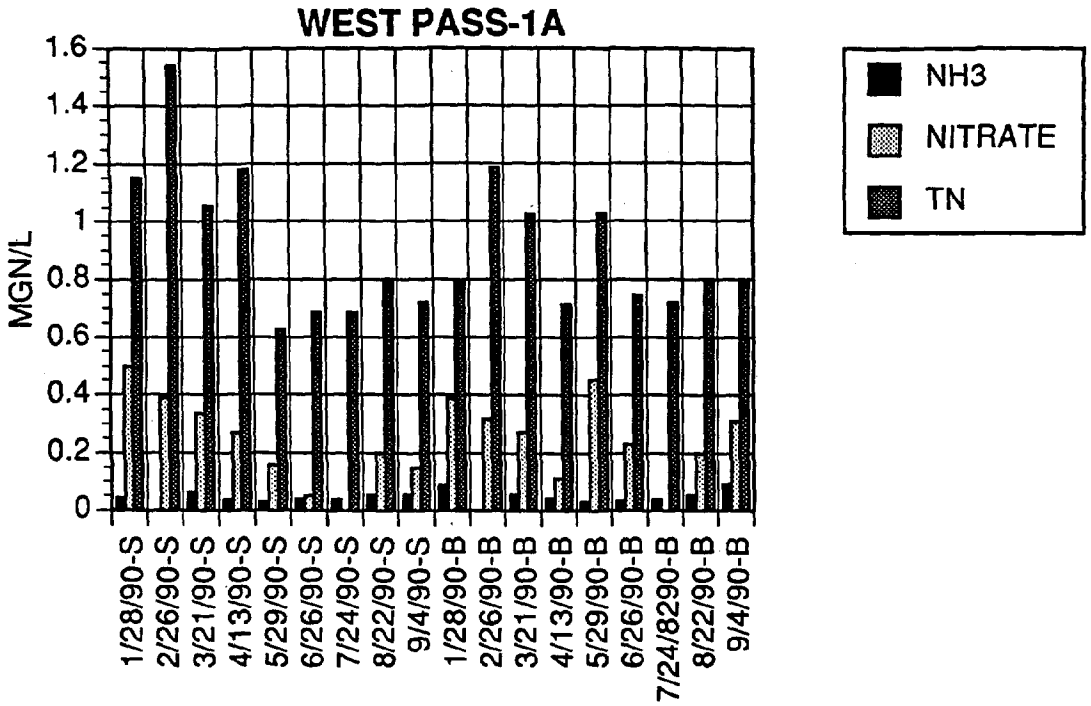

MGC/L
0
2
4
6
8
10
12
14
16
1/28/90-S
2/25/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/28/90-B
2/25/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
POC
DOC
TOC

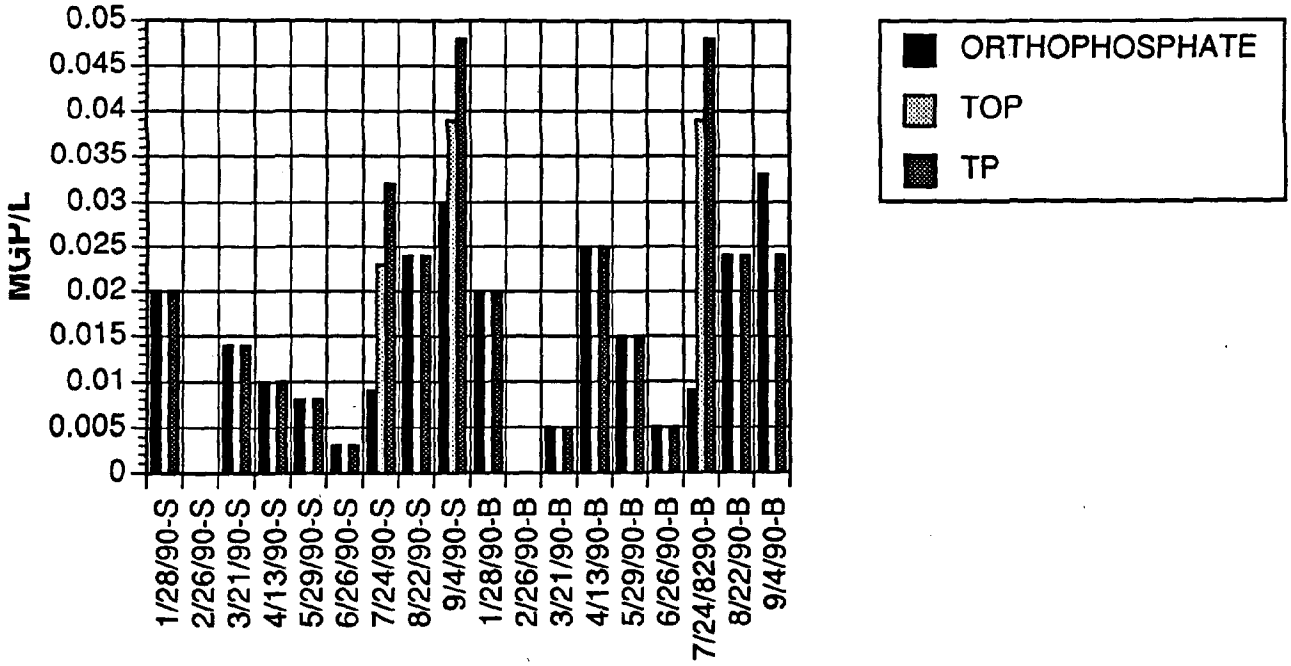

EAST BAY EAST-5A
MGN/L
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/28/90-S
2/25/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/890-S
8/24/90-S
9/4/90-S
1/28/90-B
2/25/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/24/90-B
9/4/90-B
NH3
NITRATE
TN

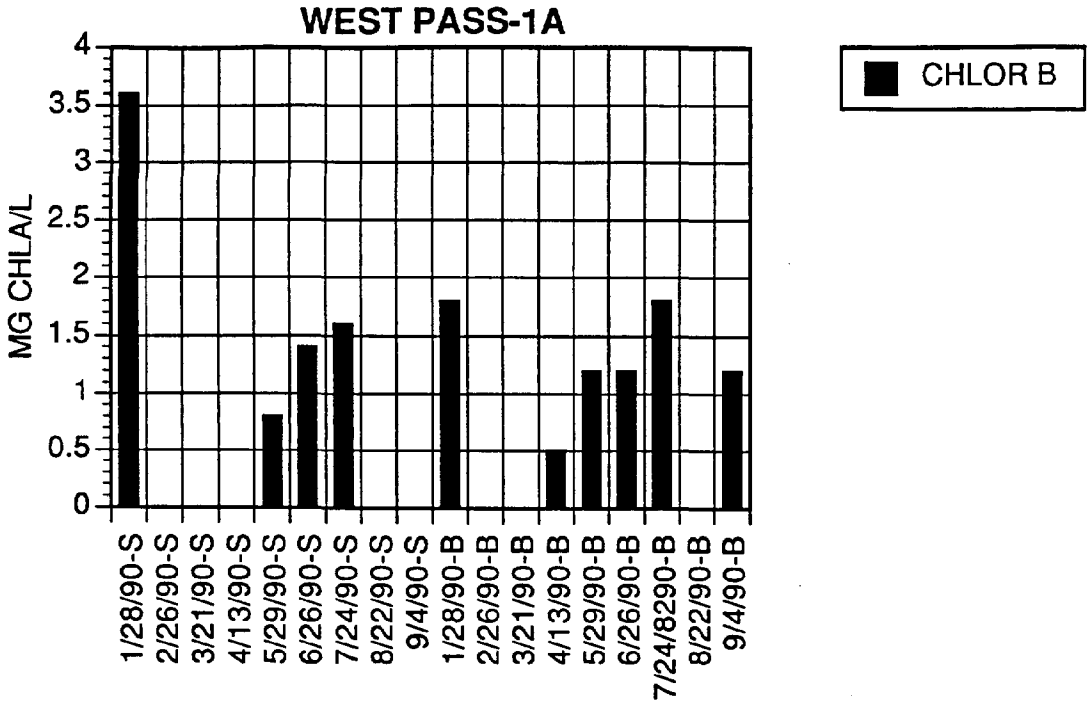

MGP/L
0.25
0.2
0.15
0.1
0.05
0
1/28/90-S
2/25/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/890-S
8/24/90-S
9/4/90-S
1/28/90-B
2/25/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/24/90-B
9/4/90-B
ORTHOPHOSPHATE
TOP
TP

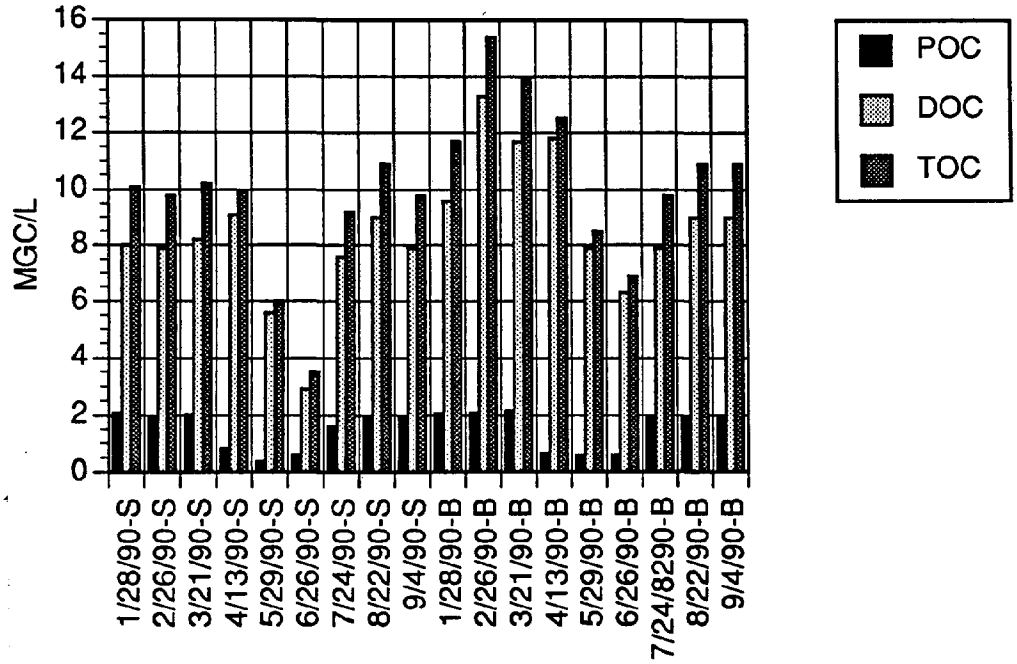

EAST BAY EAST-5A
MG CHLA/L
0
2
4
6
8
10
12
14
16
18
1/28/90-S
2/25/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/890-S
8/24/90-S
9/4/90-S
1/28/90-B
2/25/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/24/90-B
9/4/90-B
CHLOR A

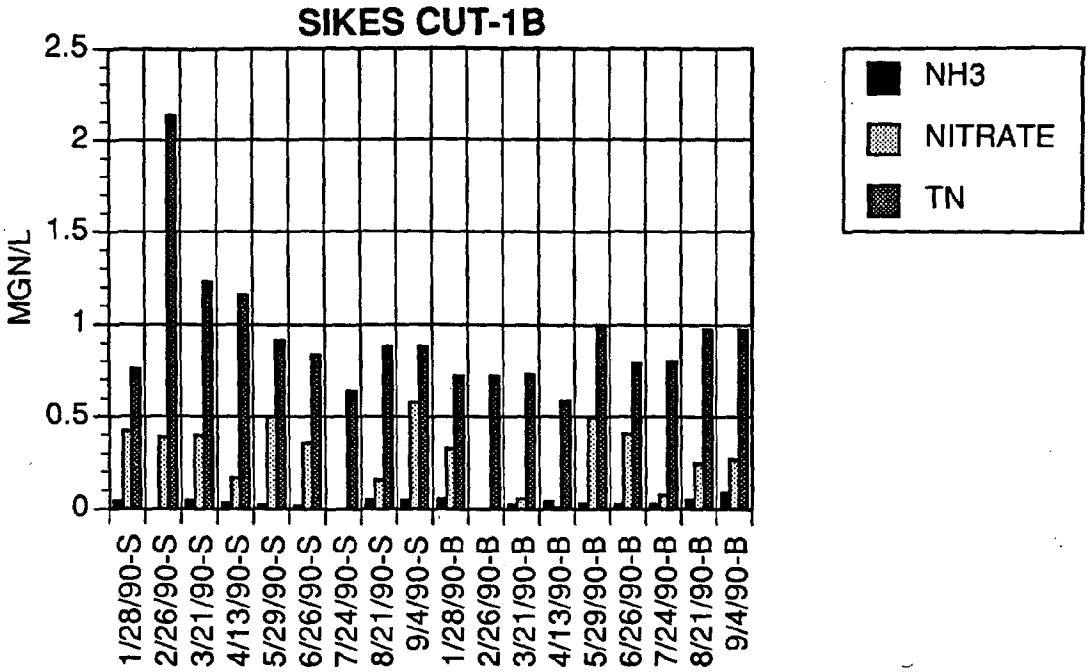

MGC/L
0
2
4
6
8
10
12
14
16
18
20
1/28/90-S
2/25/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/890-S
8/24/90-S
9/4/90-S
1/28/90-B
2/25/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/24/90-B
9/4/90-B
POC
DOC
TOC

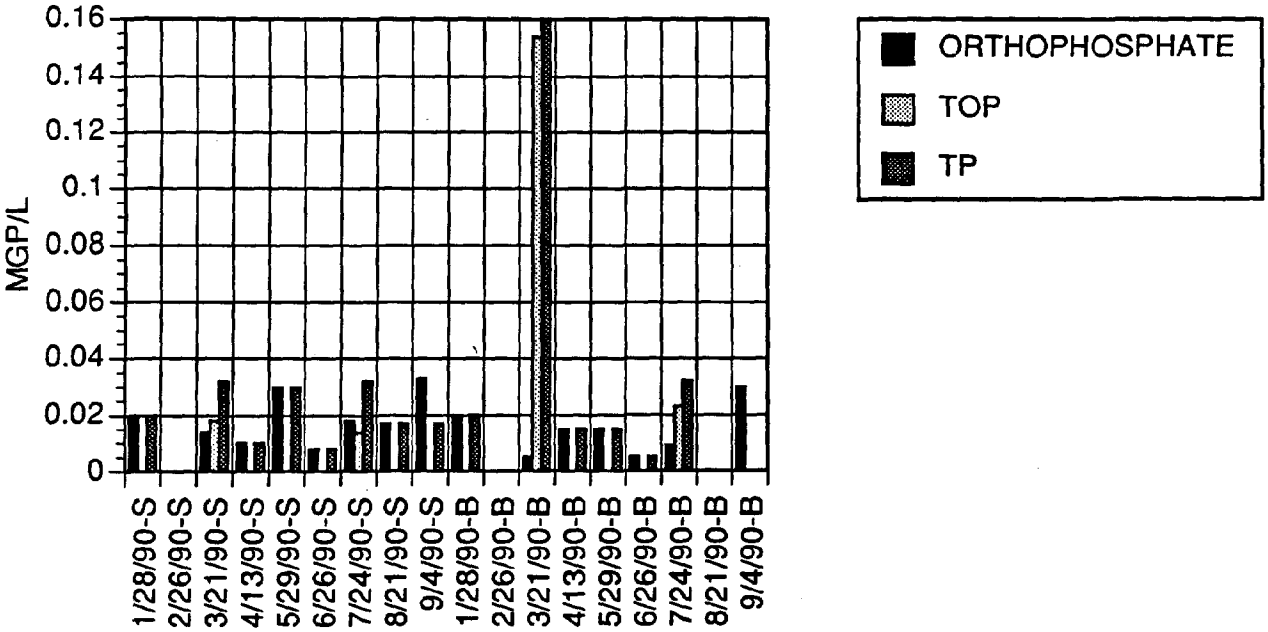

WEST PASS-1A
MGN/L
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/8290-B
8/22/90-B
9/4/90-B
NH3
NITRATE
TN

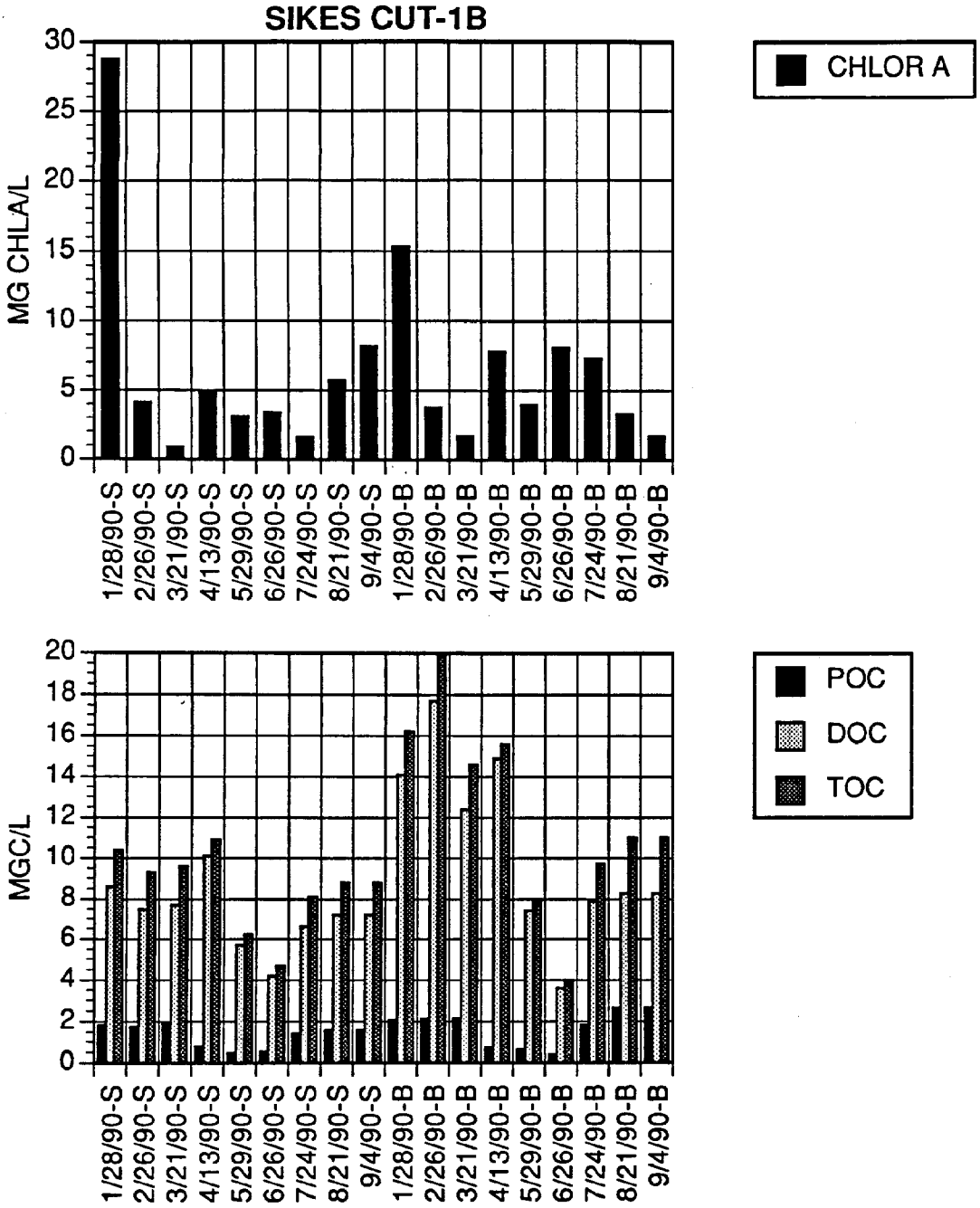

MGP/L
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/8290-B
8/22/90-B
9/4/90-B
ORTHOPHOSPHATE
TOP
TP

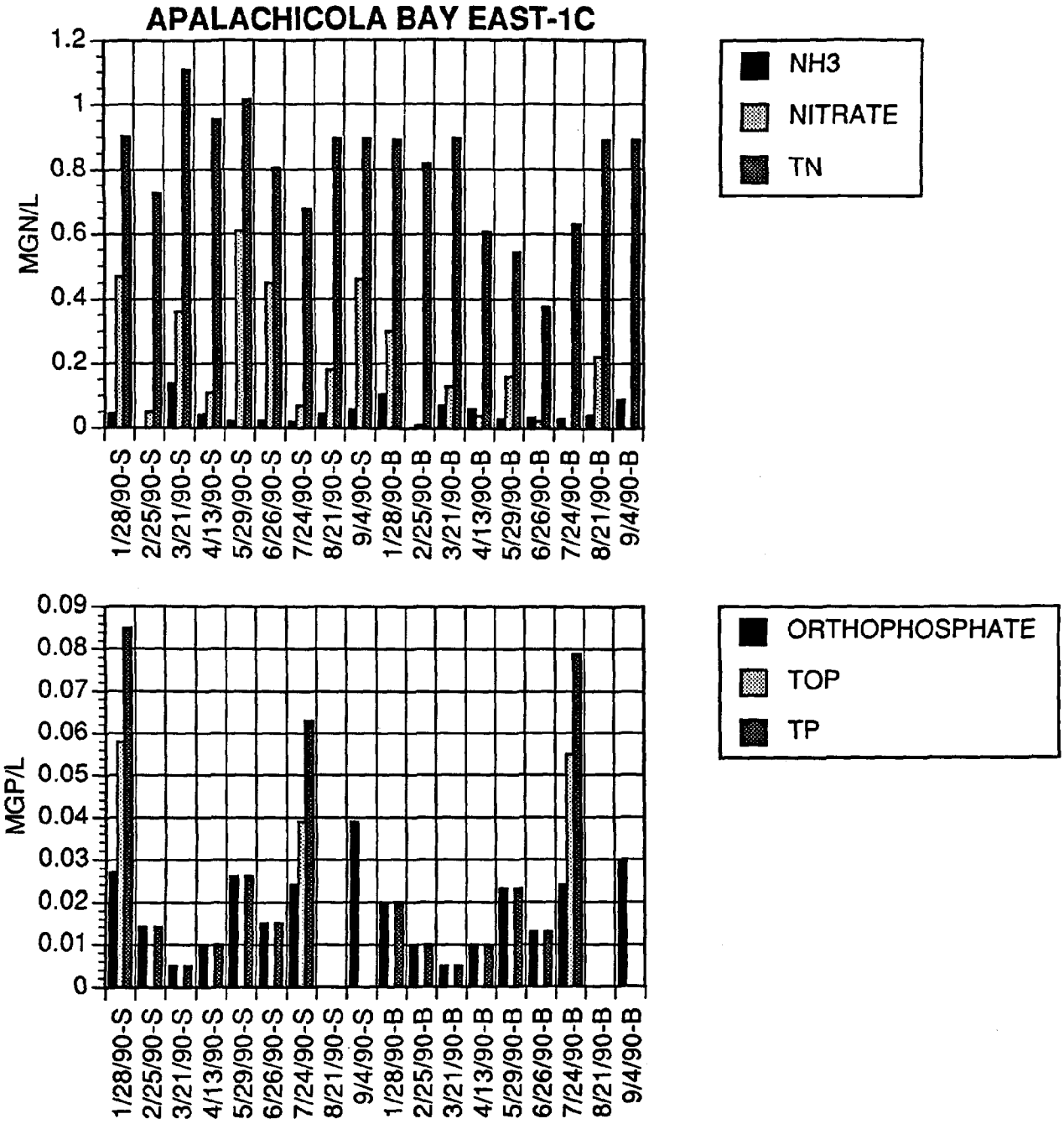

WEST PASS-1A
MG CHLA/L
4
3.5
3
2.5
2
1.5
1
0.5
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/8290-B
8/22/90-B
9/4/90-B
CHLOR B

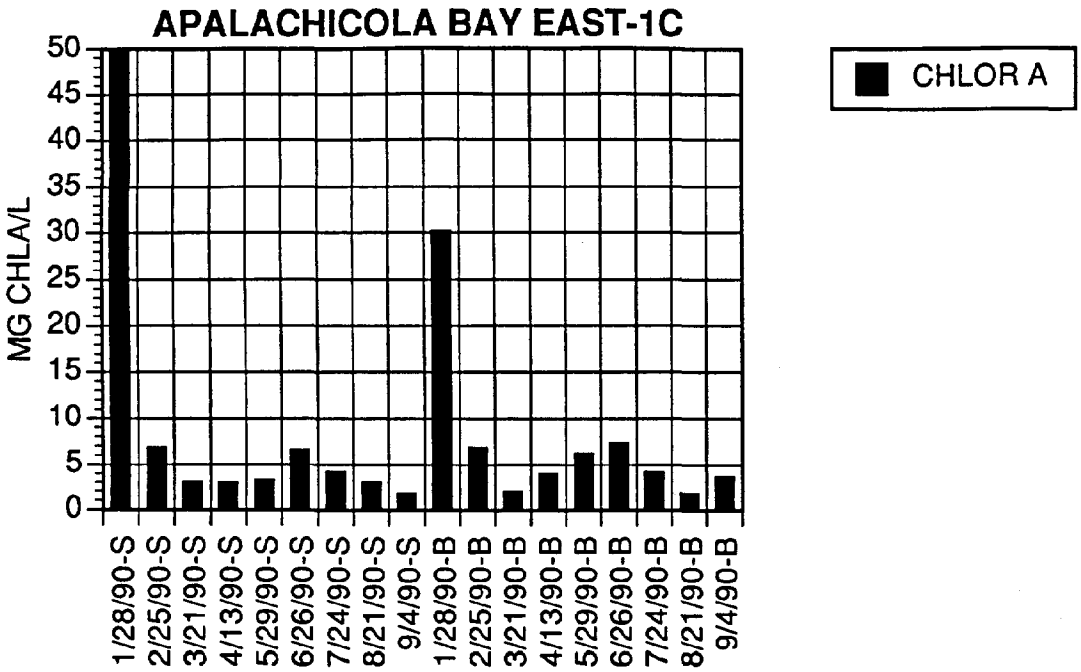

MGC/L
16
14
12
10
8
6
4
2
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/8290-B
8/22/90-B
9/4/90-B
POC
DOC
TOC

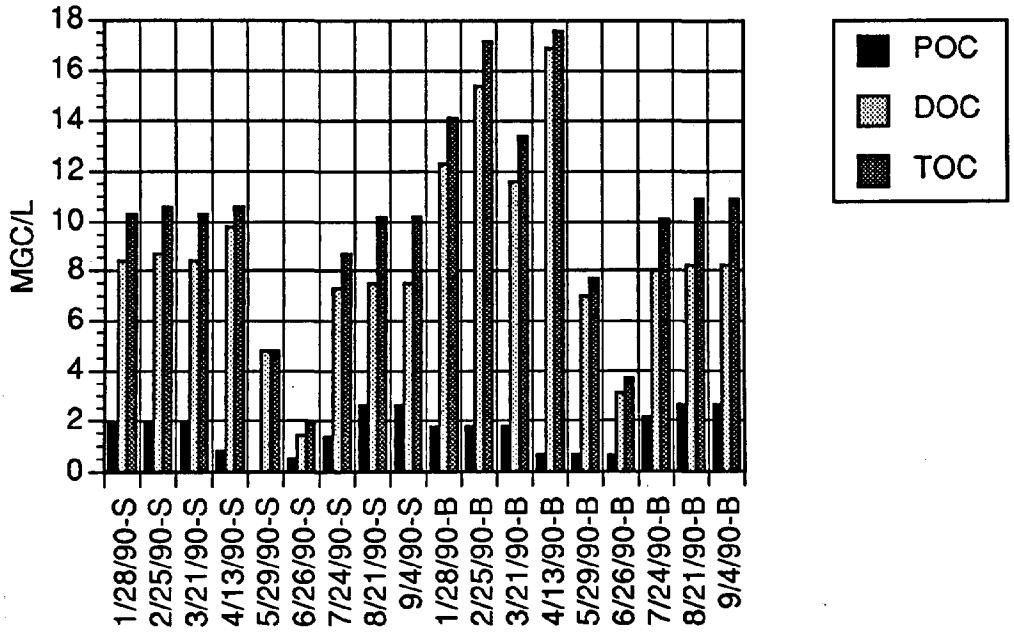

SIKES CUT-1B
MGN/L
2.5
2
1.5
1
0.5
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
NH3
NITRATE
TN

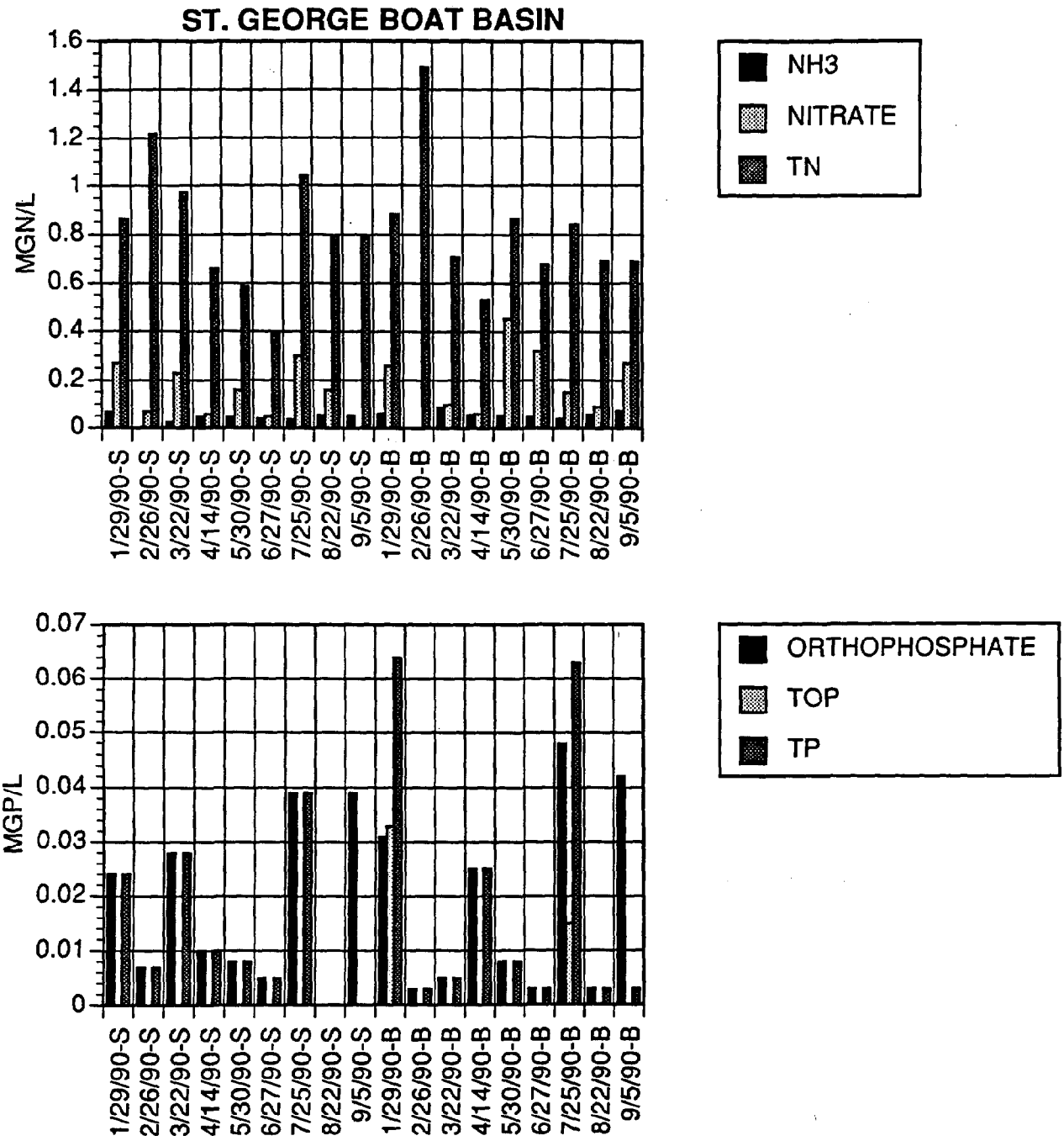

MGP/L
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
ORTHOPHOSPHATE
TOP
TP

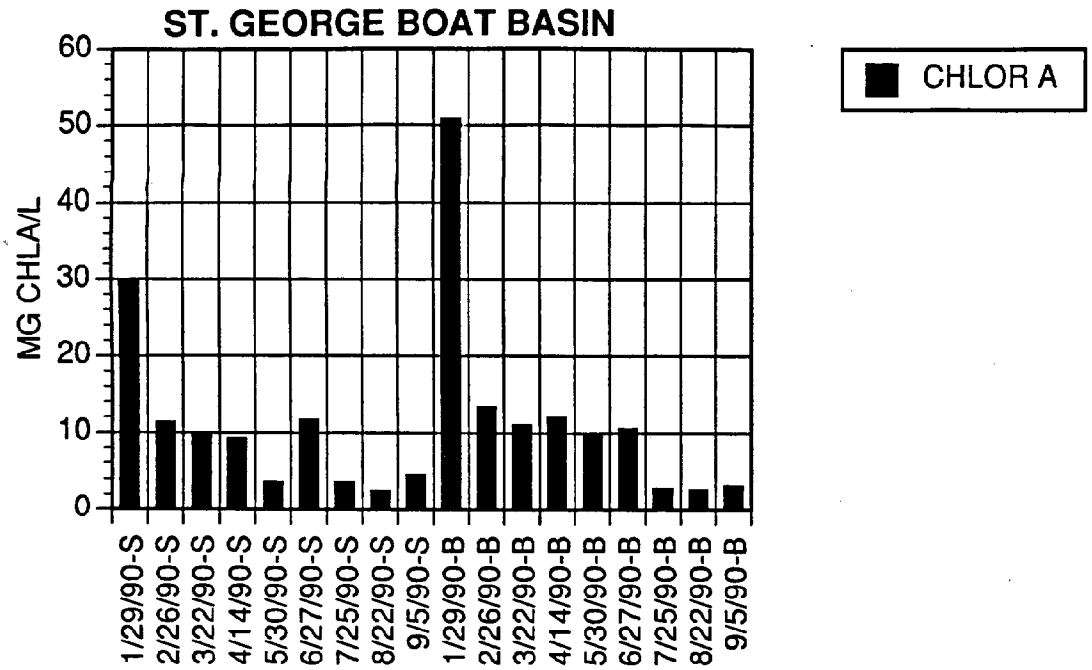

SIKES CUT-1B
MG CHLA/L
30
25
20
15
10
5
0
CHLOR A
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
MGC/L
20
18
16
14
12
10
8
6
4
2
0
POC
DOC
TOC

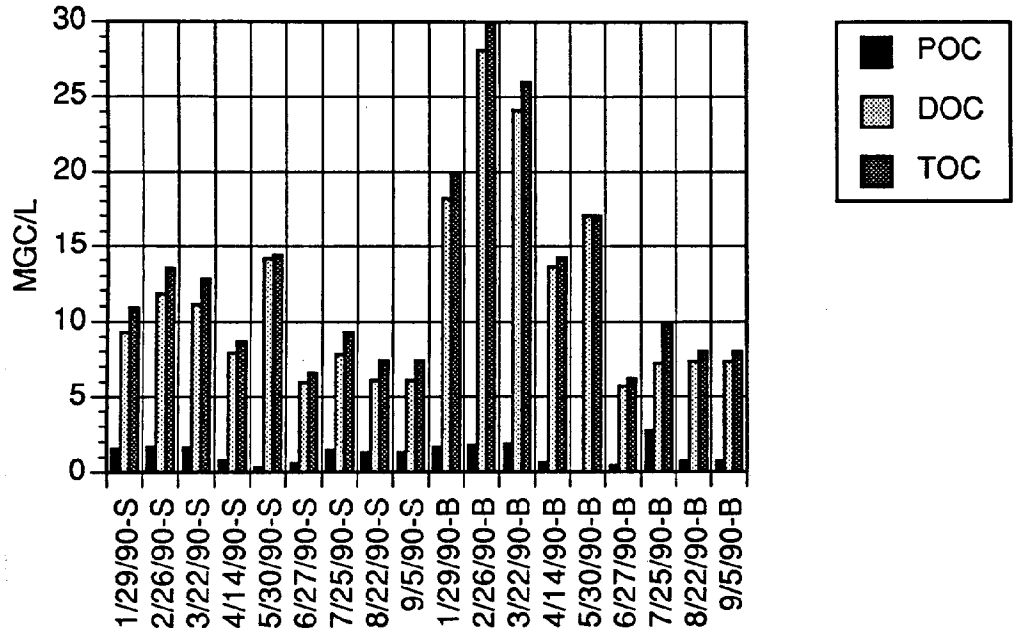

APALACHICOLA BAY EAST-1C
MGN/L
1.2
1
0.8
0.6
0.4
0.2
0
NH3
NITRATE
TN
1/28/90-S
2/25/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/28/90-B
2/25/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
MGP/L
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
ORTHOPHOSPHATE
TOP
TP

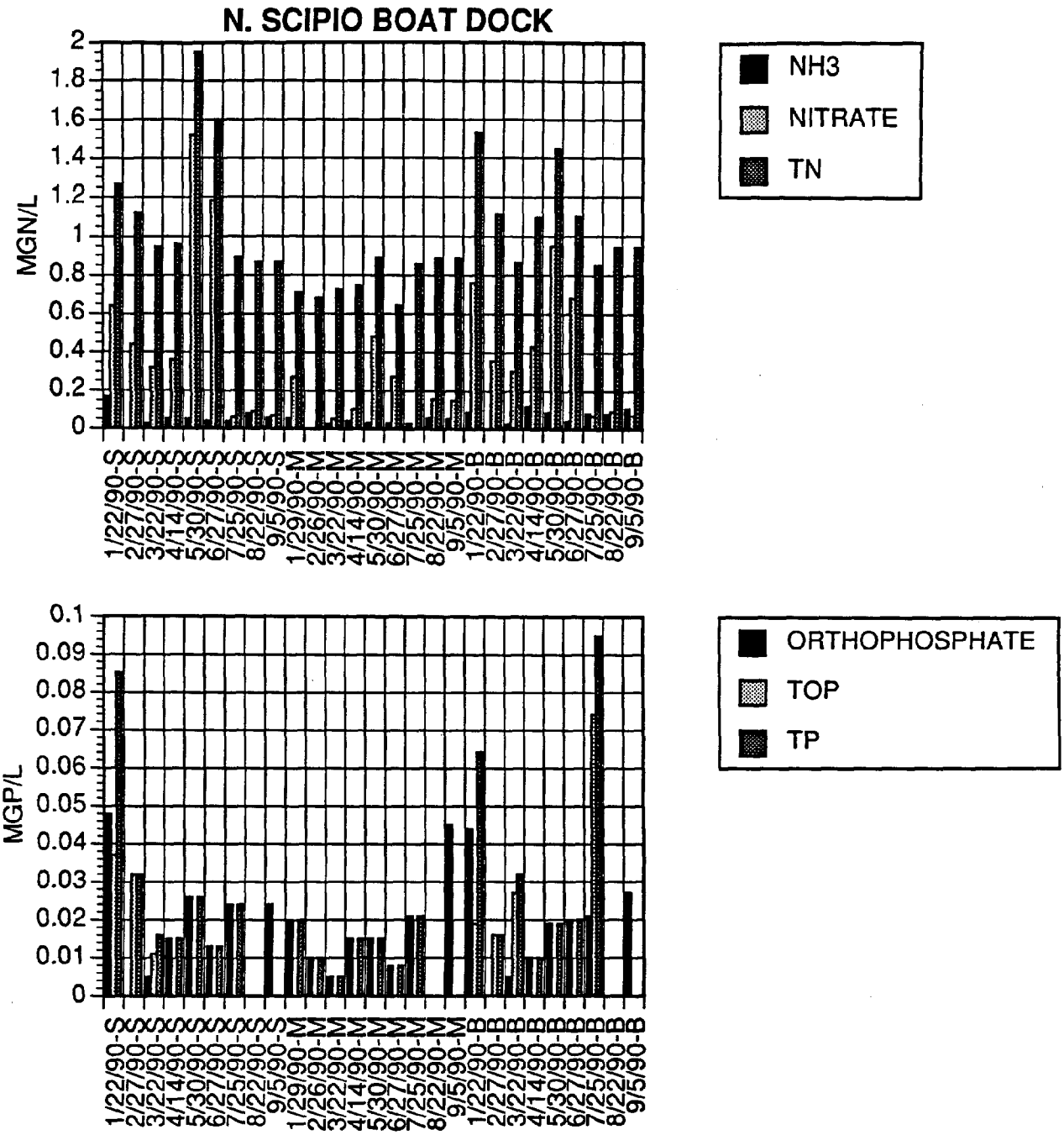

APALACHICOLA BAY EAST-1C
MG CHLA/L
50
45
40
35
30
25
20
15
10
5
0
1/28/90-S
2/25/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/28/90-B
2/25/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
CHLOR A

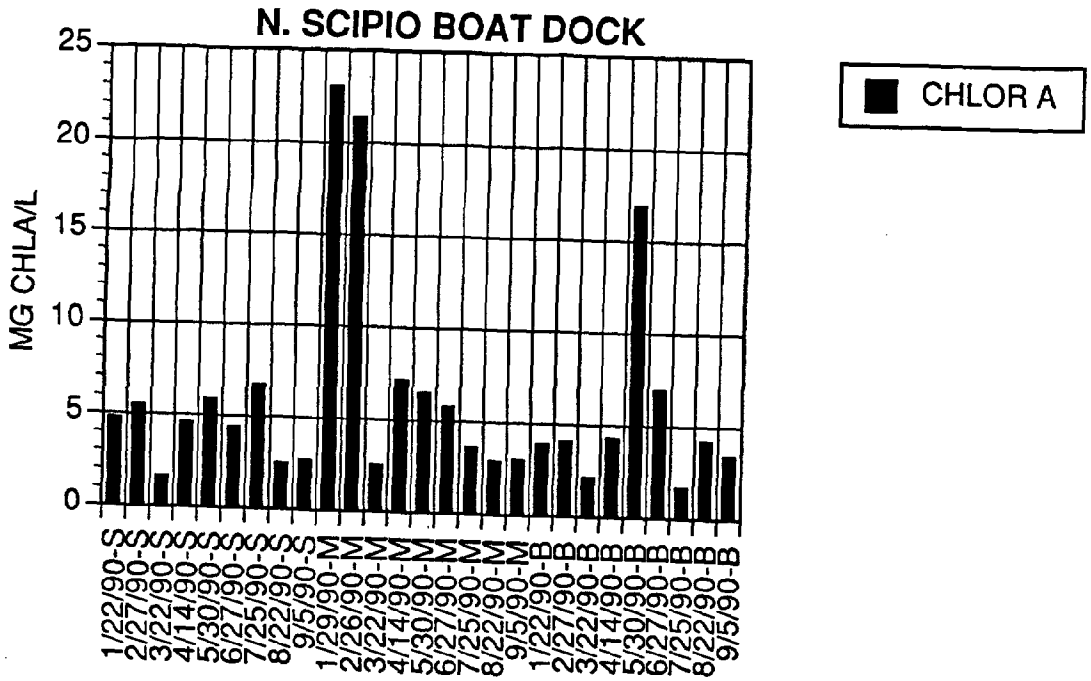

MGC/L
18
16
14
12
10
8
6
4
2
0
1/28/90-S
2/25/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/28/90-B
2/25/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
POC
DOC
TOC

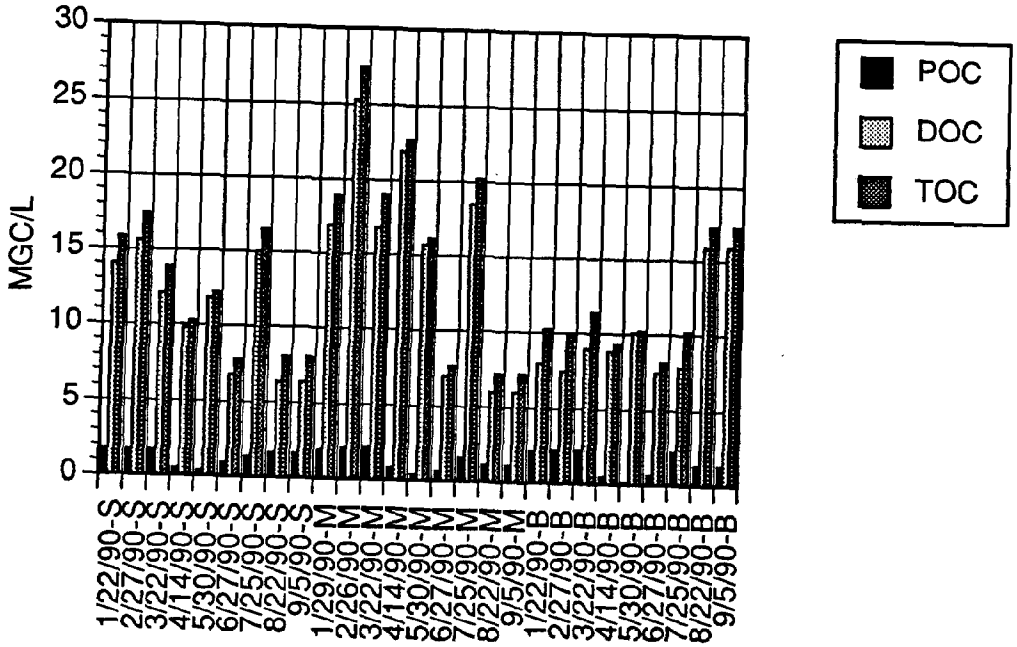

ST. GEORGE BOAT BASIN
MGN/L
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
NH3
NITRATE
TN
1/29/90-S
2/26/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/29/90-B
2/26/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B
MGP/L
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
ORTHOPHOSPHATE
TOP
TP

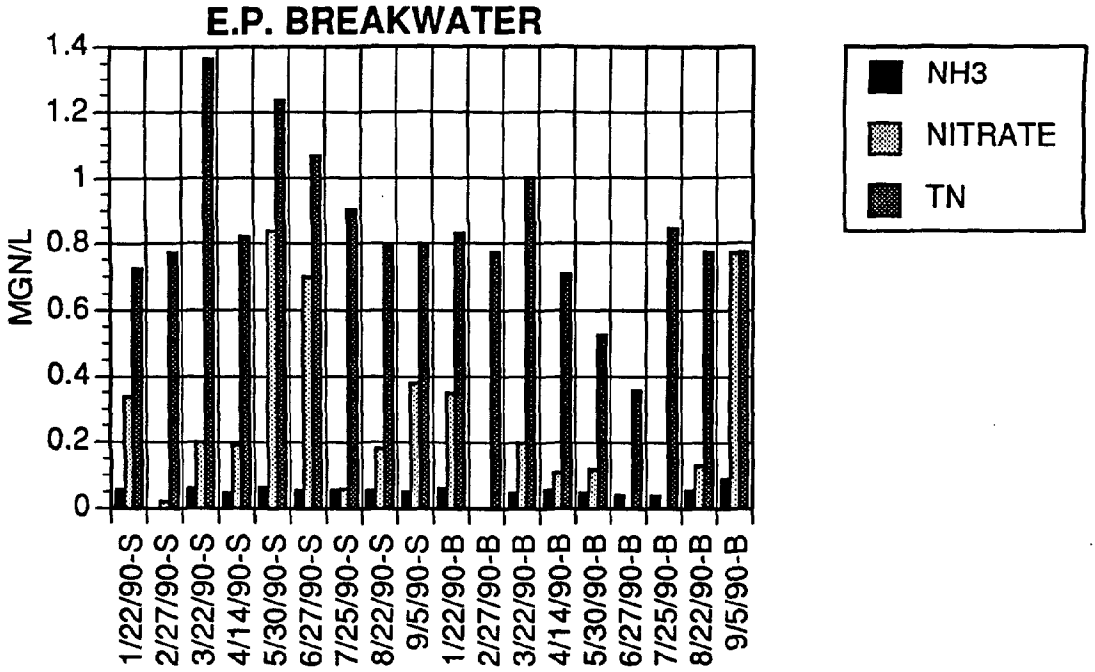

ST. GEORGE BOAT BASIN
MG CHLA/L
60
50
40
30
20
10
0
1/29/90-S
2/26/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/29/90-B
2/26/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B
CHLOR A

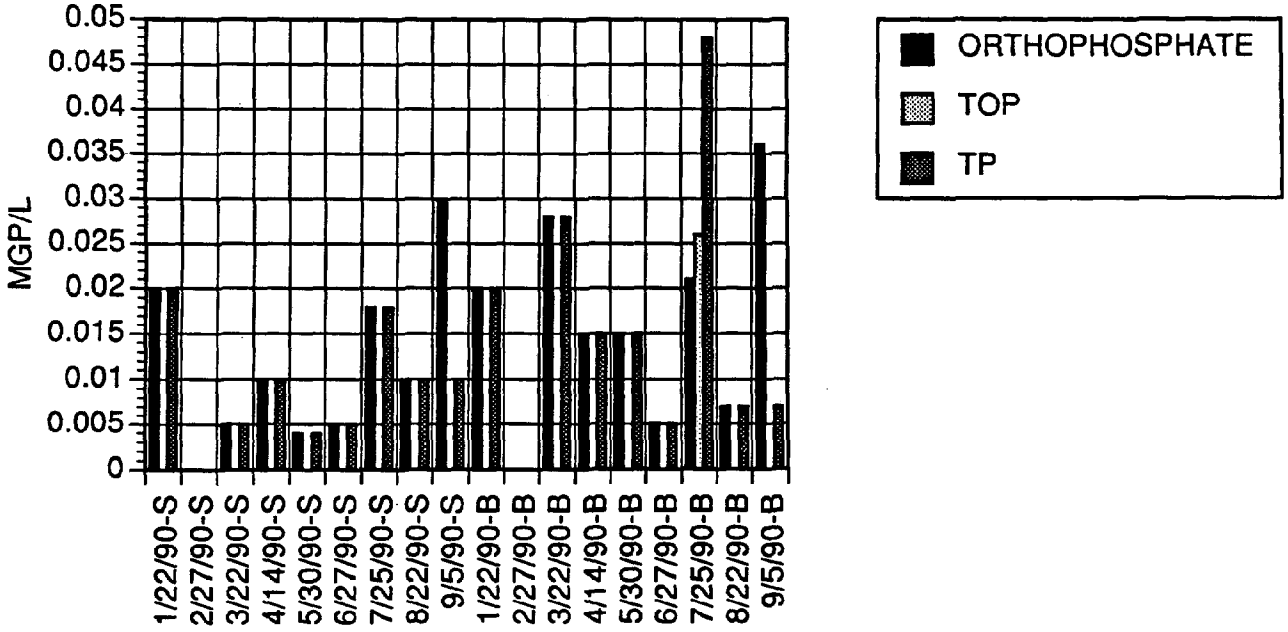

MGC/L
30
25
20
15
10
5
0
1/29/90-S
2/26/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/29/90-B
2/26/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B
POC
DOC
TOC

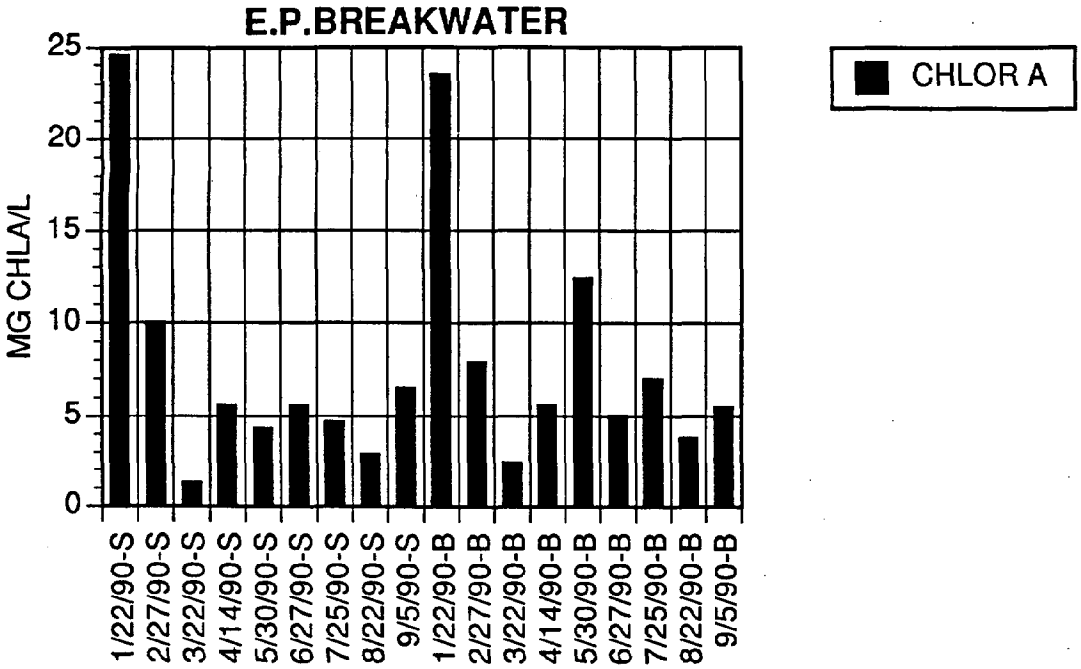

N. SCIPIO BOAT DOCK
MGN/L
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
NH3
NITRATE
TN
1/22/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/29/90-M
2/26/90-M
3/22/90-M
4/14/90-M
5/30/90-M
6/27/90-M
7/25/90-M
8/22/90-M
9/5/90-M
1/22/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B
MGP/L
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
ORTHOPHOSPHATE
TOP
TP

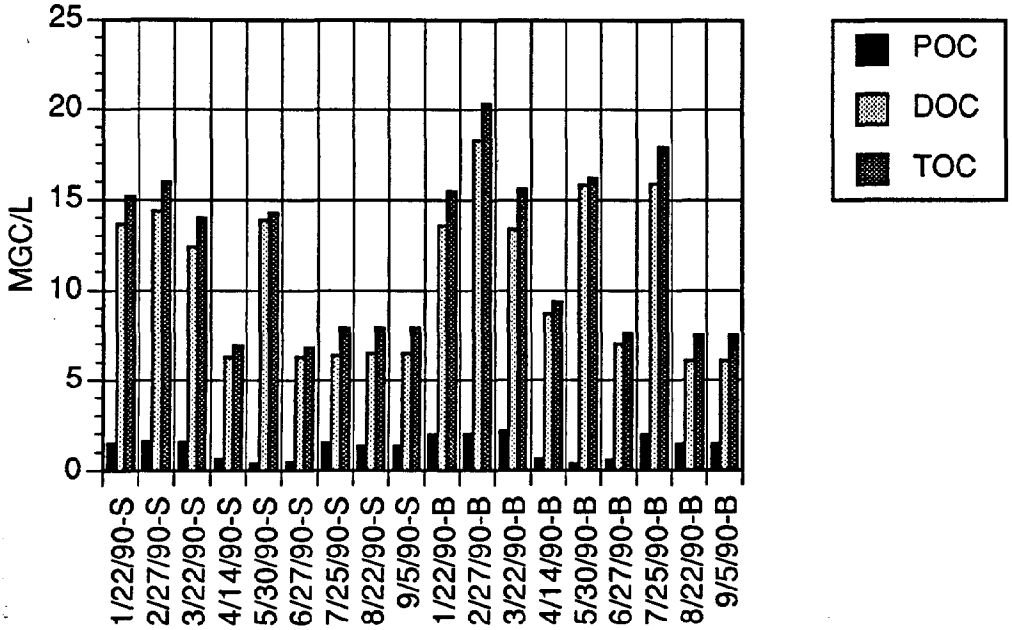

N. SCIPIO BOAT DOCK
MG CHLA/L
25
20
15
10
5
0
CHLOR A
1/22/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/29/90-M
2/26/90-M
3/22/90-M
4/14/90-M
5/30/90-M
6/27/90-M
7/25/90-M
8/22/90-M
9/5/90-M
1/22/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B

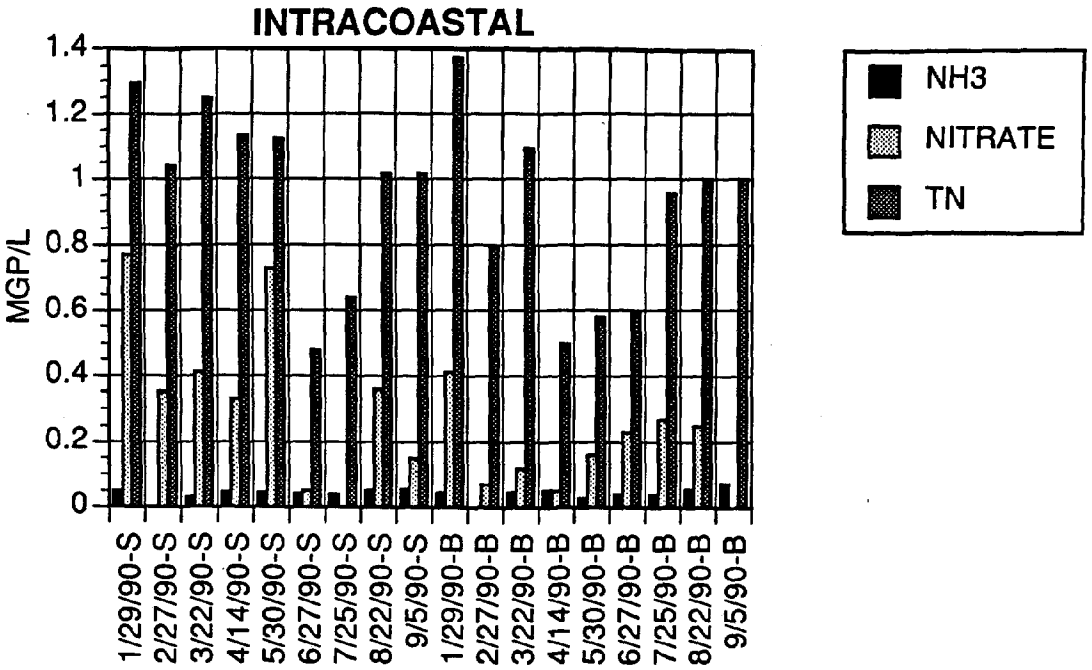

MGC/L
30
25
20
15
10
5
0
POC
DOC
TOC
1/22/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/29/90-M
2/26/90-M
3/22/90-M
4/14/90-M
5/30/90-M
6/27/90-M
7/25/90-M
8/22/90-M
9/5/90-M
1/22/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B

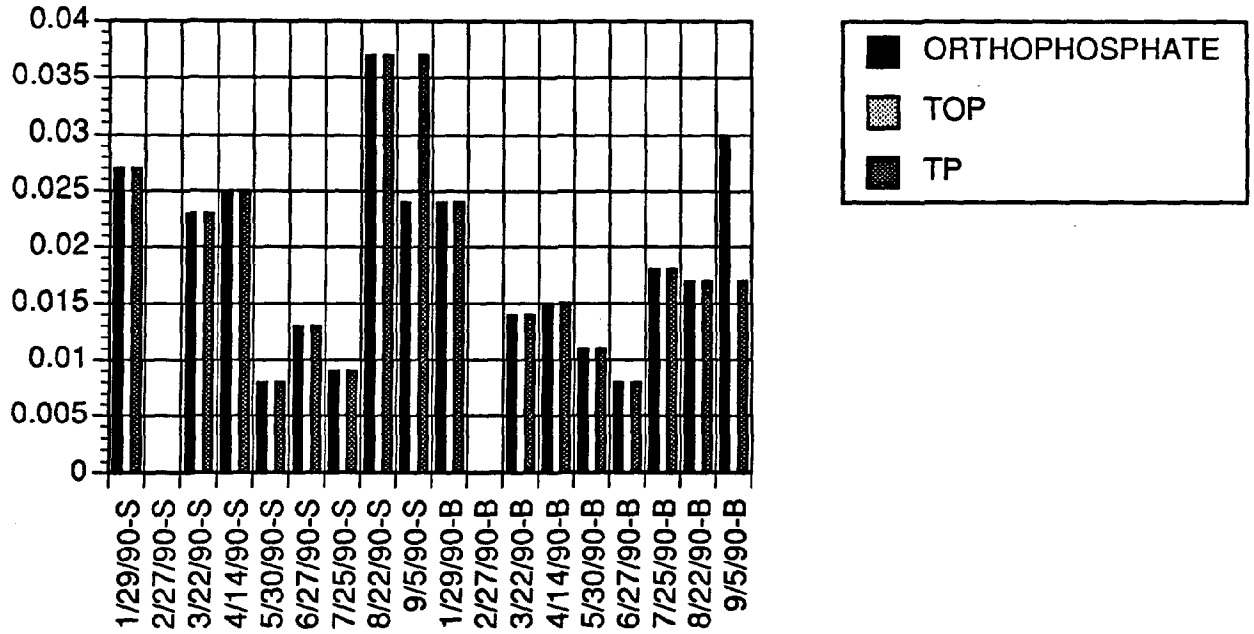

E.P. BREAKWATER
MGN/L
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/22/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/22/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B
NH3
NITRATE
TN

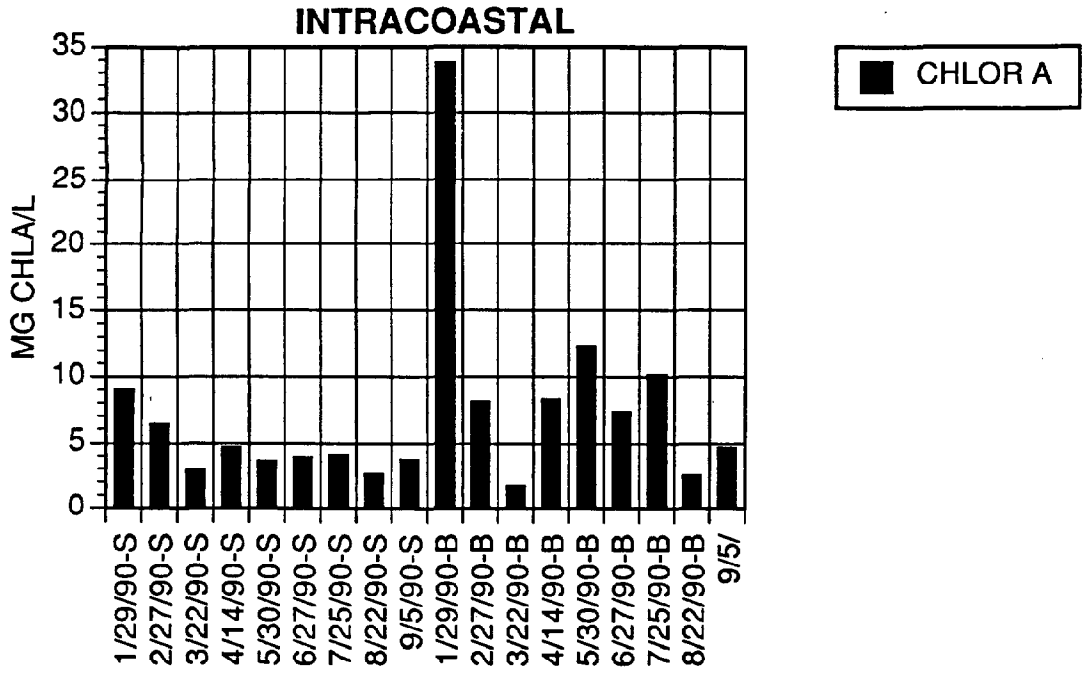

MGP/L
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1/22/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/22/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B
ORTHOPHOSPHATE
TOP
TP

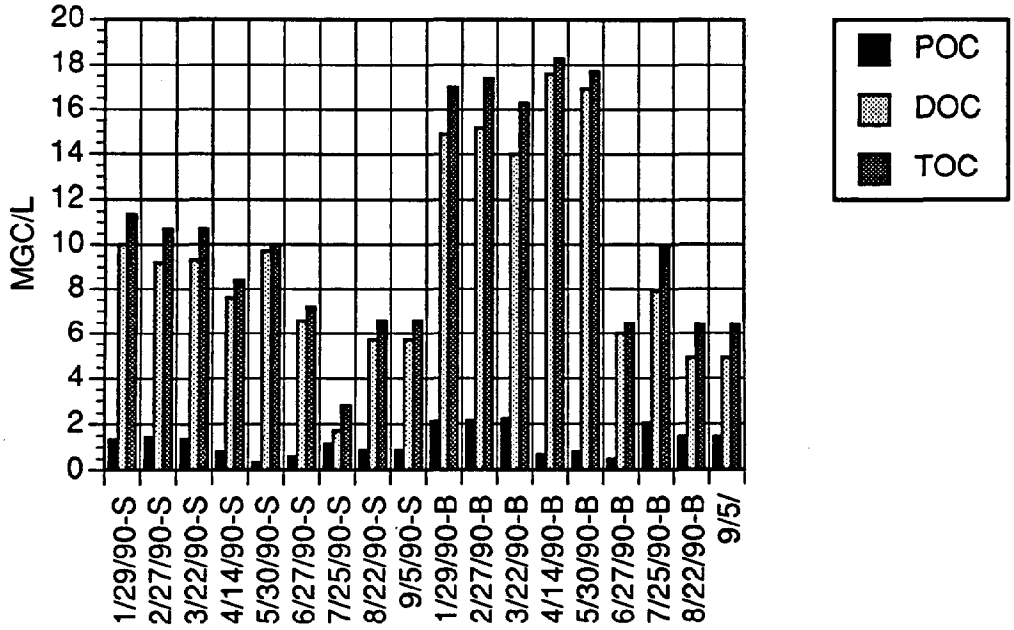

E.P.BREAKWATER
MG CHLA/L
25
20
15
10
5
0
1/22/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/22/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B
CHLOR A

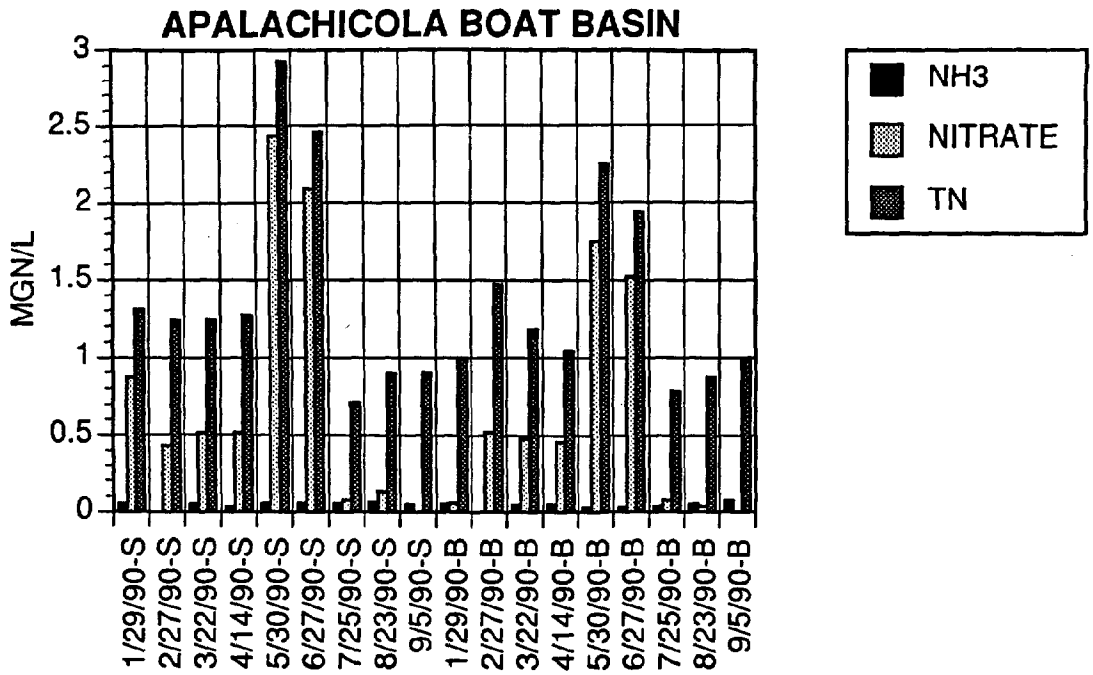

MGC/L
25
20
15
10
5
0
1/22/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/22/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B
POC
DOC
TOC

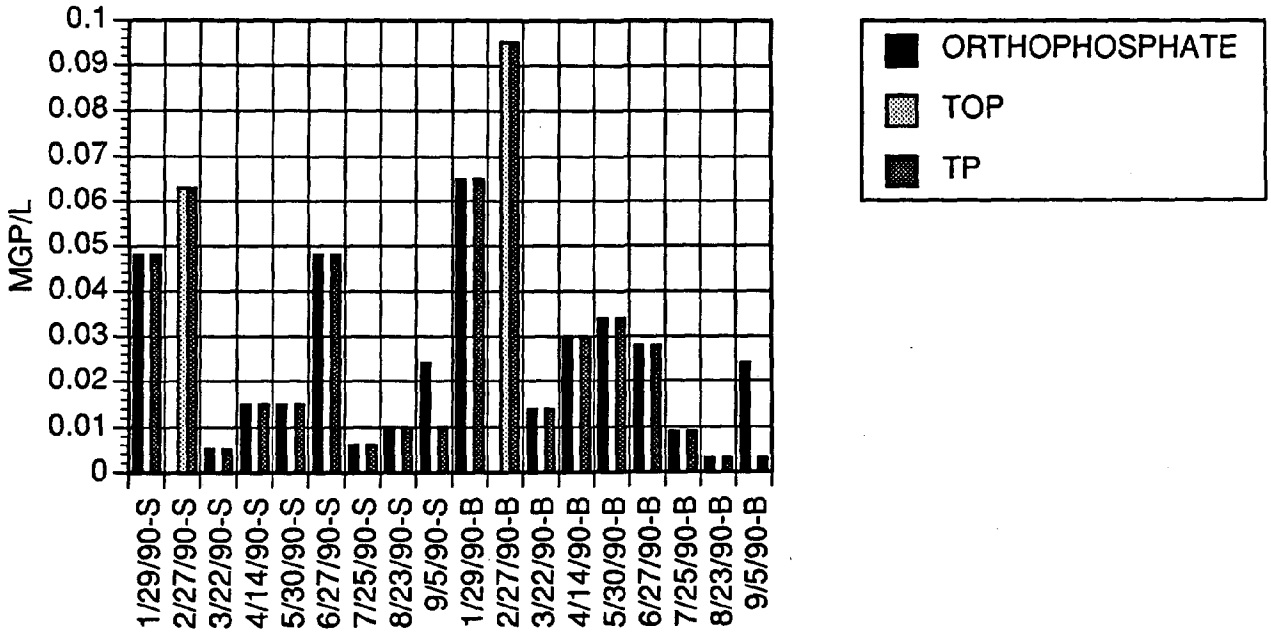

INTRACOASTAL
MGP/L
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/29/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/29/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B
NH3
NITRATE
TN

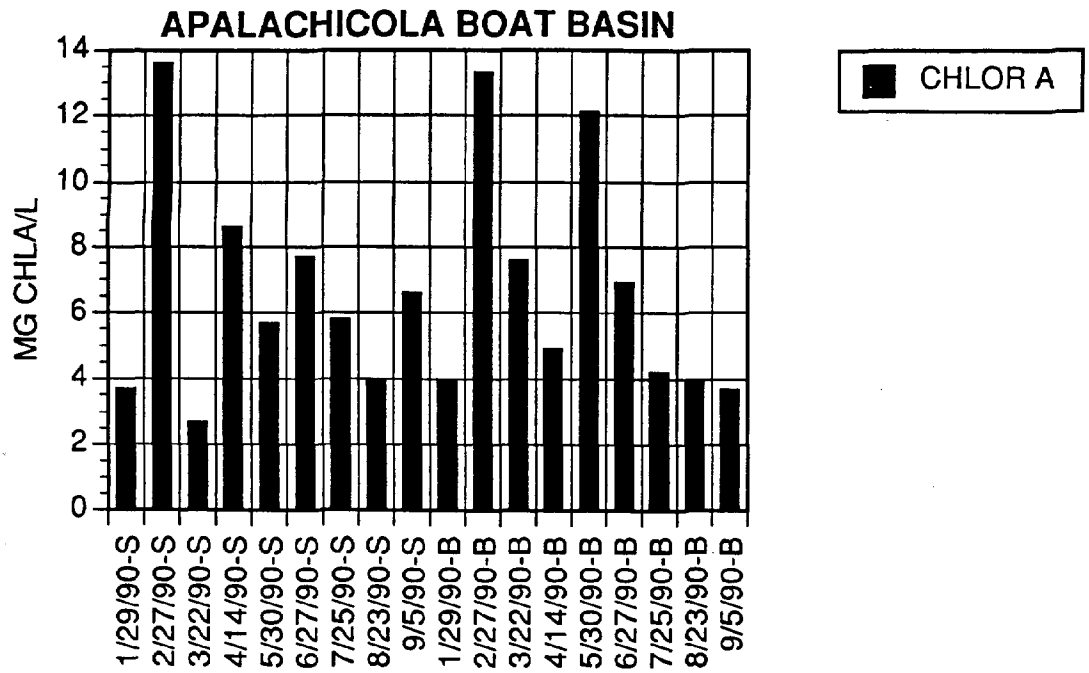

0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1/29/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/29/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/90-B
ORTHOPHOSPHATE
TOP
TP

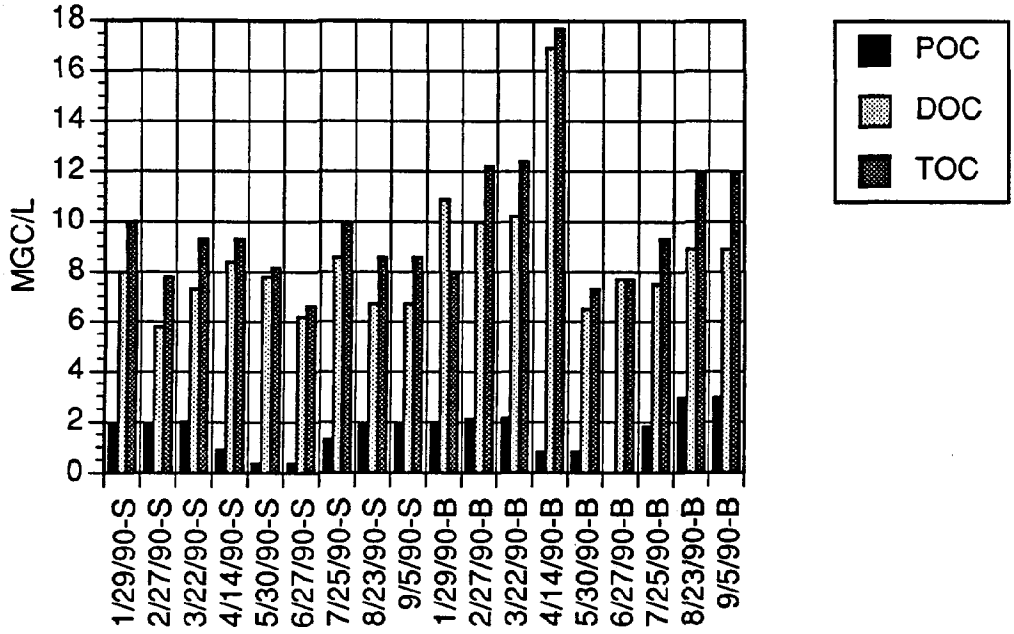

INTRACOASTAL
MG CHLA/L
35
30
25
20
15
10
5
0
1/29/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/29/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/
CHLOR A

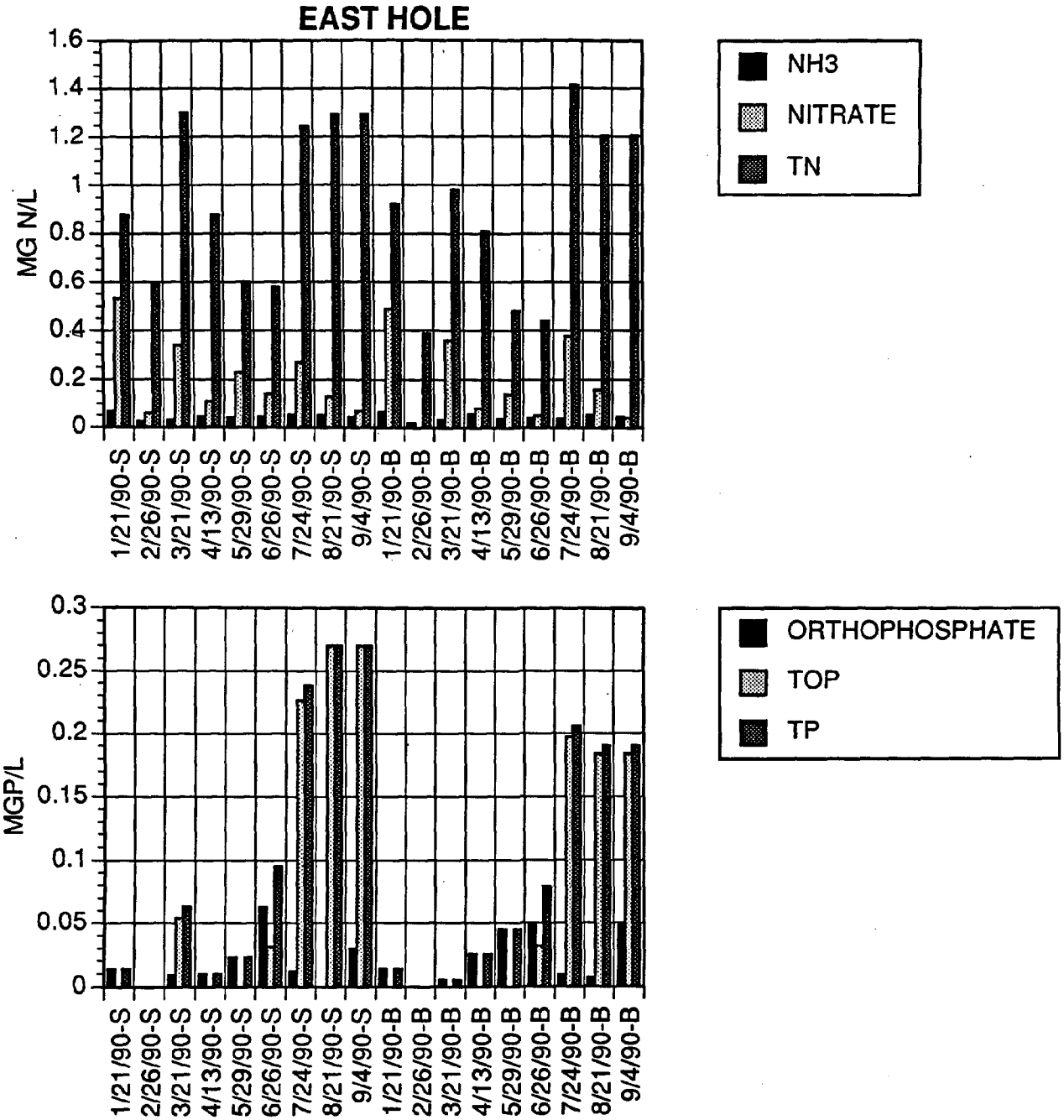

MGC/L
20
18
16
14
12
10
8
6
4
2
0
1/29/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/22/90-S
9/5/90-S
1/29/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/22/90-B
9/5/
POC
DOC
TOC

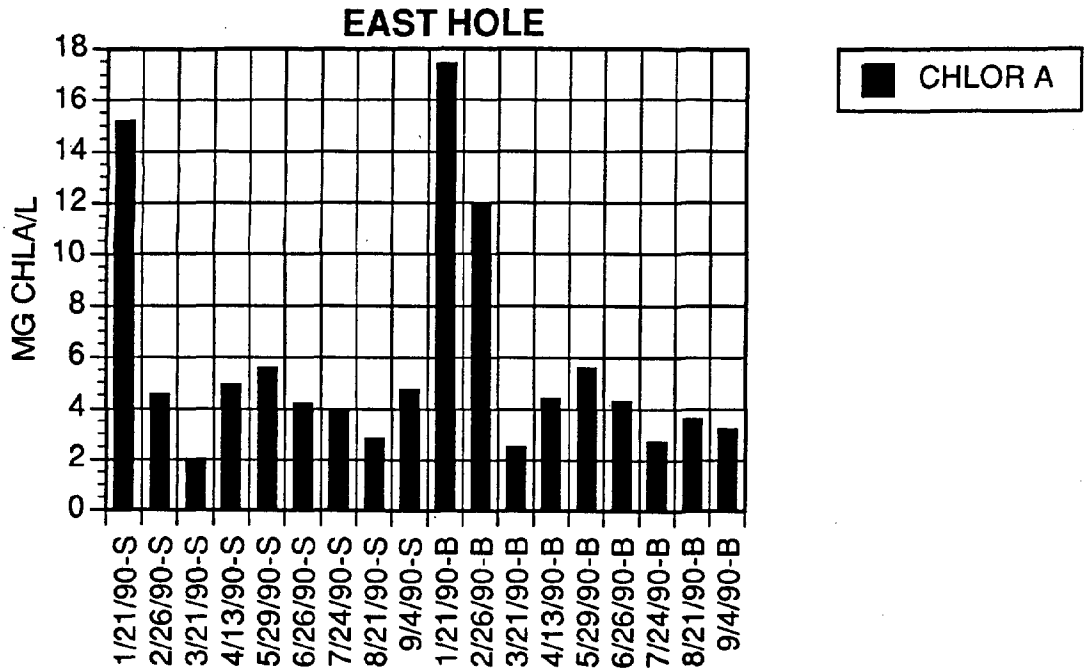

APALACHICOLA BOAT BASIN
MGN/L
3
2.5
2
1.5
1
0.5
0
1/29/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/23/90-S
9/5/90-S
1/29/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/23/90-B
9/5/90-B
NH3
NITRATE
TN

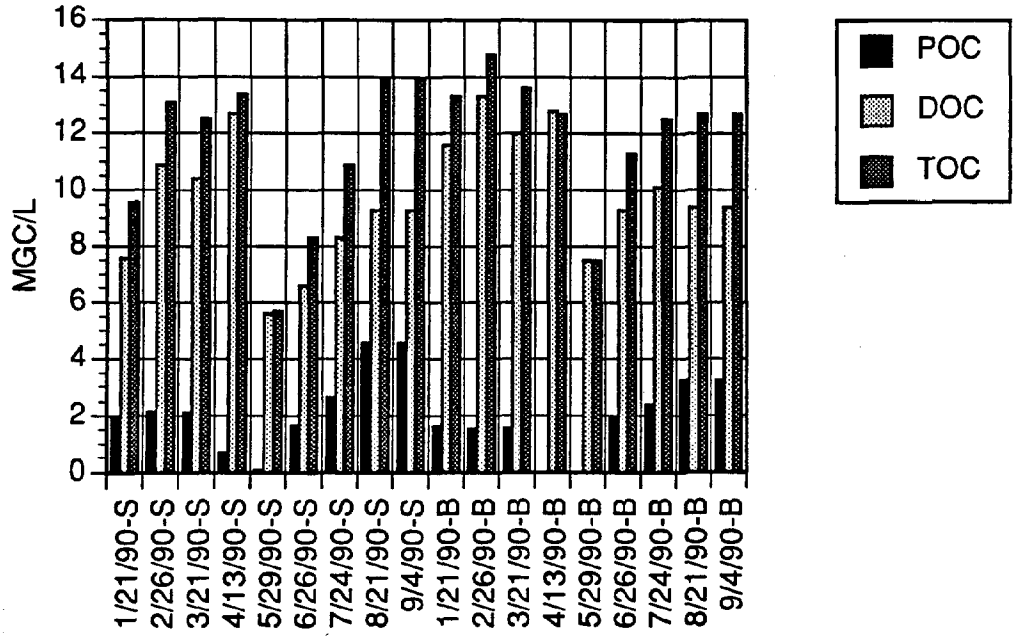

MGP/L
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1/29/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/23/90-S
9/5/90-S
1/29/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/23/90-B
9/5/90-B
ORTHOPHOSPHATE
TOP
TP

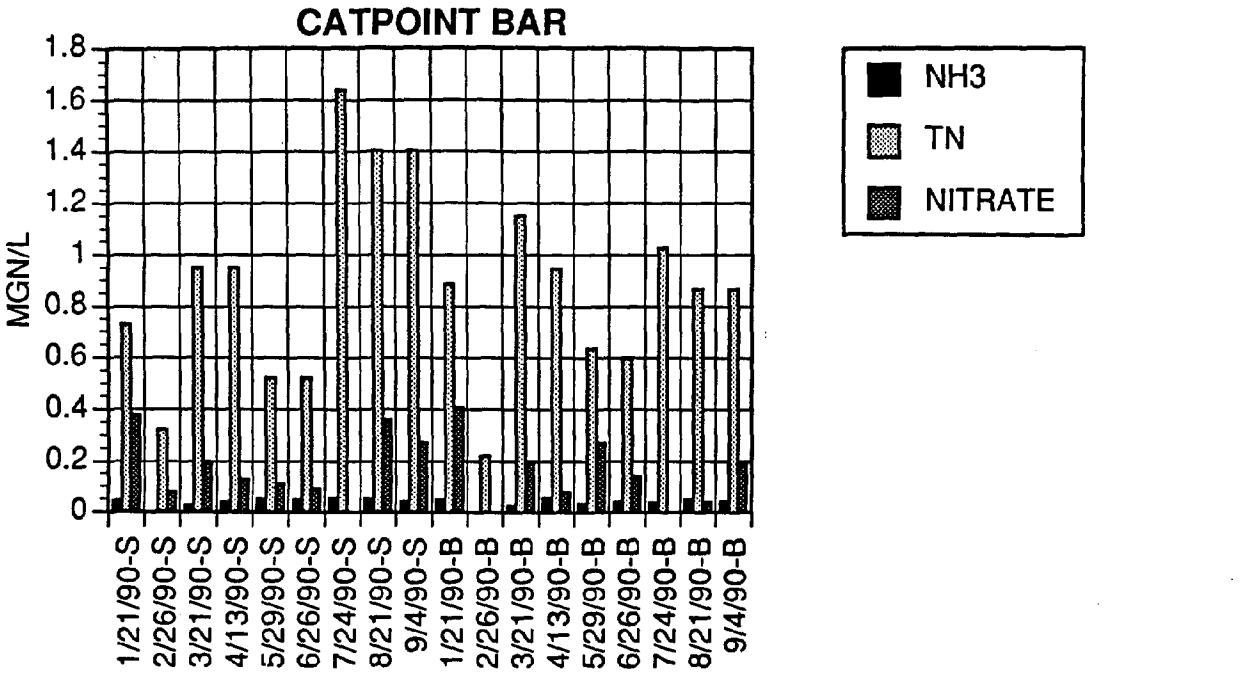

APALACHICOLA BOAT BASIN
MG CHLA/L
0
2
4
6
8
10
12
14
1/29/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/23/90-S
9/5/90-S
1/29/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/23/90-B
9/5/90-B
CHLOR A

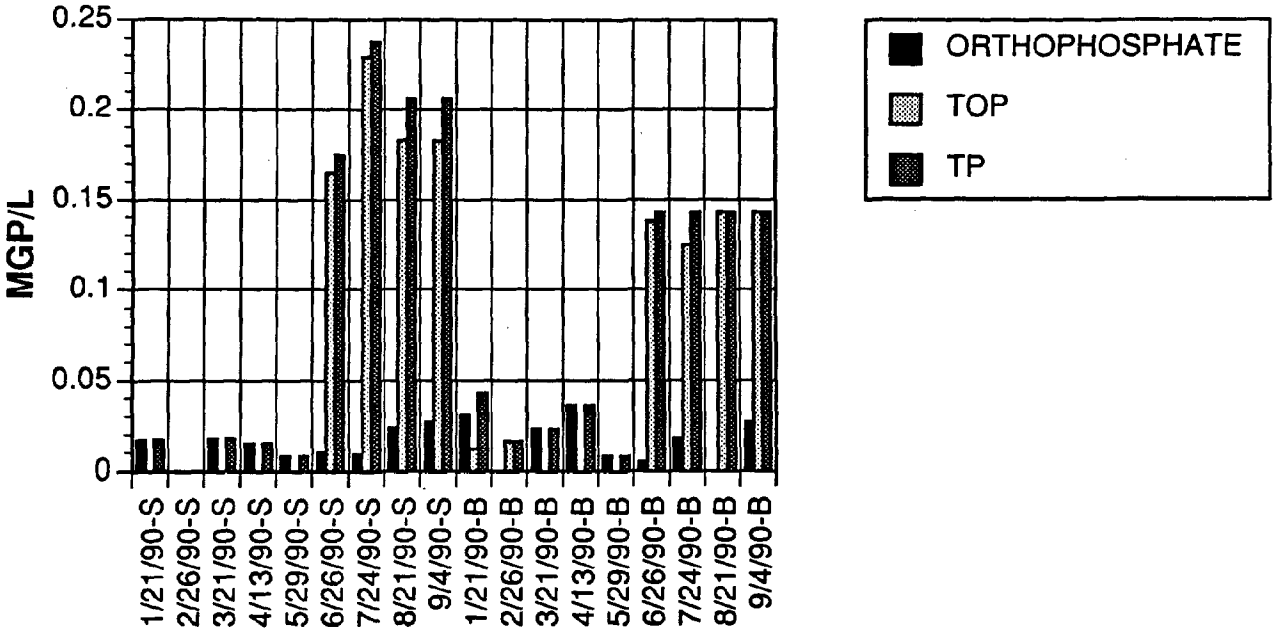

MGC/L
0
2
4
6
8
10
12
14
16
18
1/29/90-S
2/27/90-S
3/22/90-S
4/14/90-S
5/30/90-S
6/27/90-S
7/25/90-S
8/23/90-S
9/5/90-S
1/29/90-B
2/27/90-B
3/22/90-B
4/14/90-B
5/30/90-B
6/27/90-B
7/25/90-B
8/23/90-B
9/5/90-B
POC
DOC
TOC

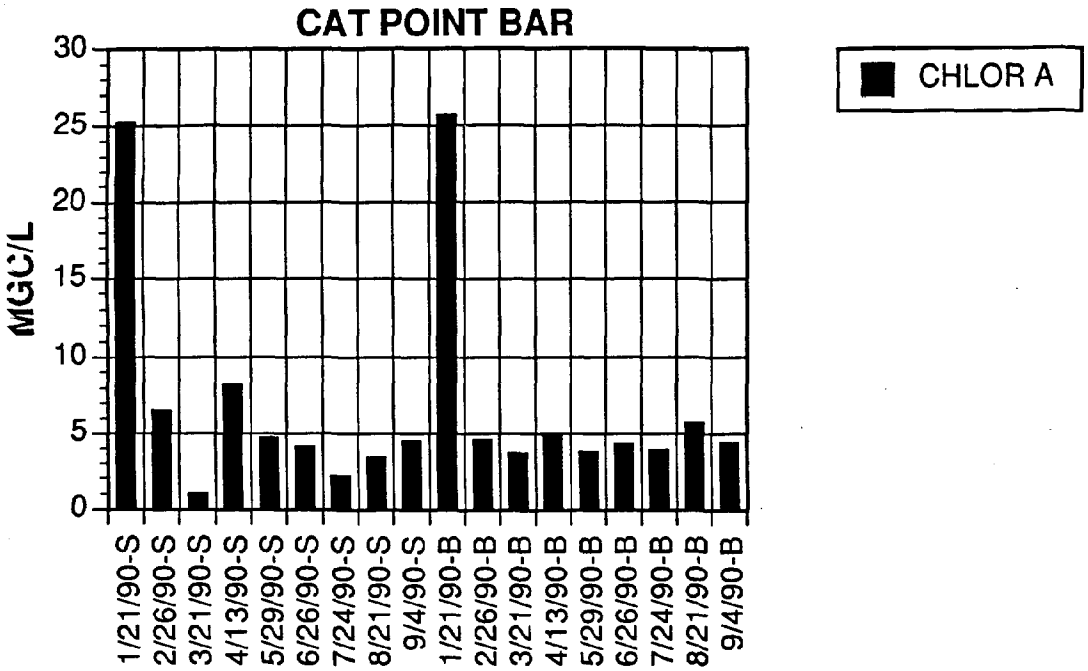

EAST HOLE
MG N/L
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
NH3
NITRATE
TN
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
MGP/L
0.3
0.25
0.2
0.15
0.1
0.05
0
ORTHOPHOSPHATE
TOP
TP

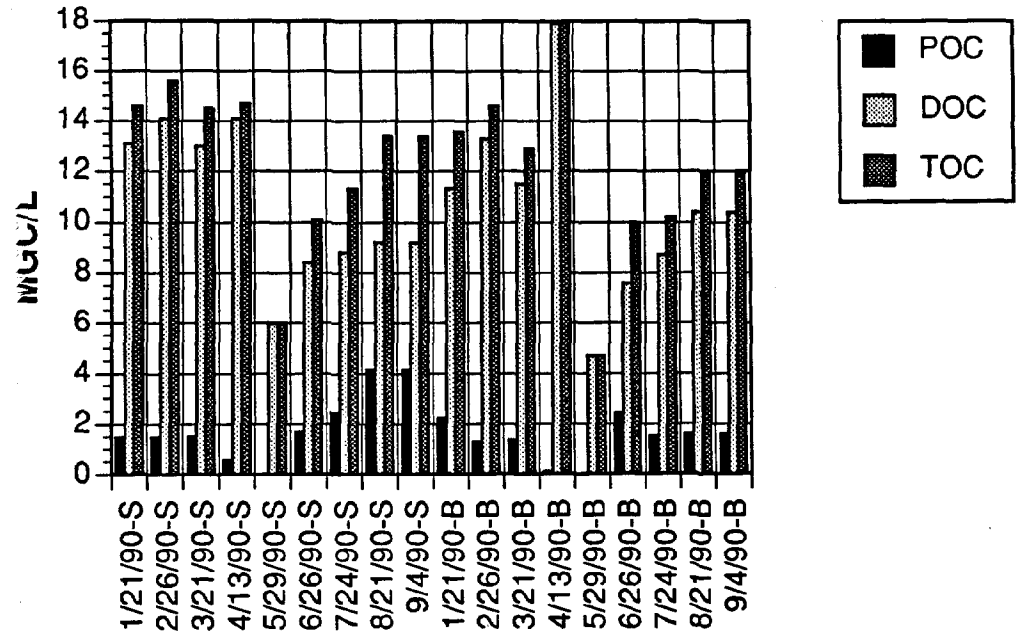

EAST HOLE
MG CHLA/L
0
2
4
6
8
10
12
14
16
18
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
CHLOR A

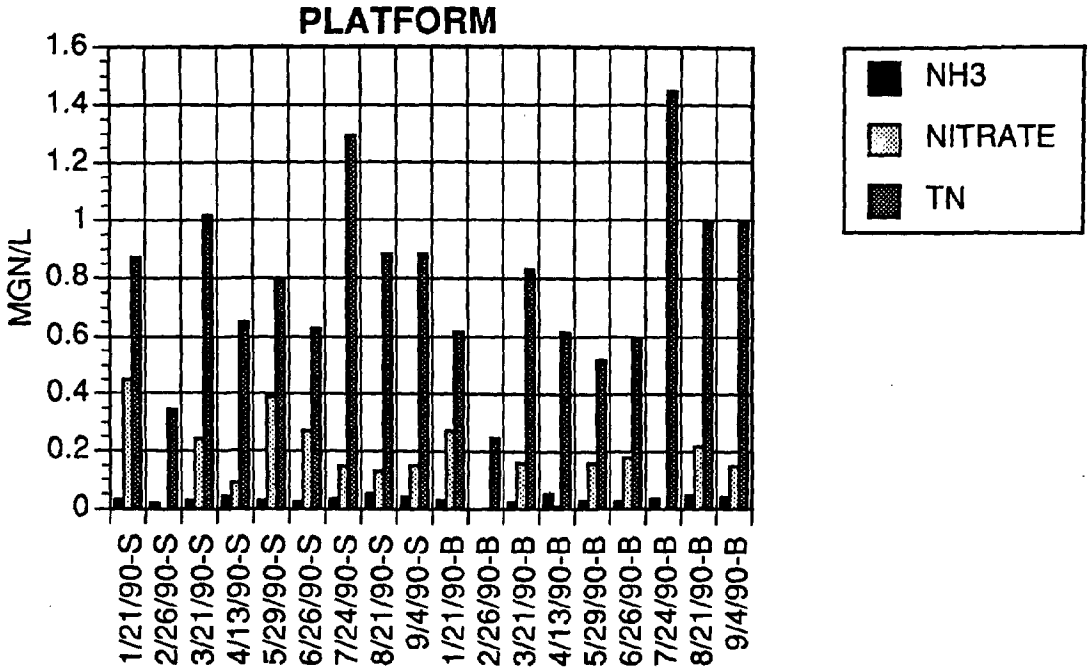

MGC/L
0
2
4
6
8
10
12
14
16
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
POC
DOC
TOC

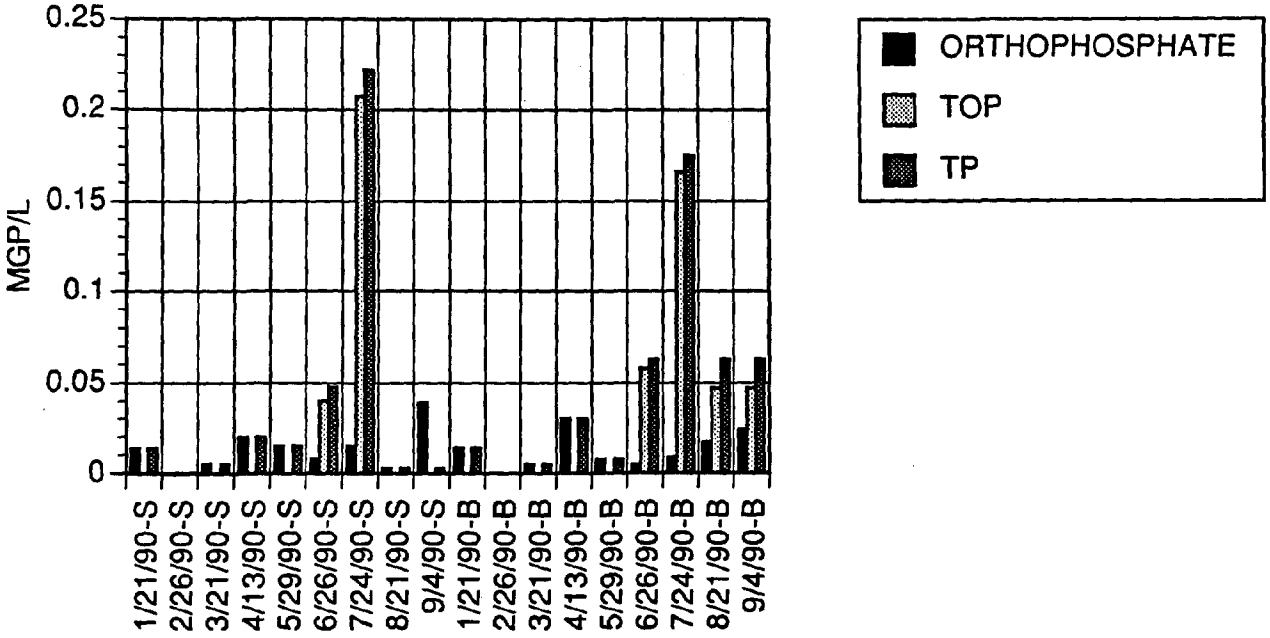

CATPOINT BAR
MGN/L
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
NH3
TN
NITRATE


MGP/L
0.25
0.2
0.15
0.1
0.05
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
ORTHOPHOSPHATE
TOP
TP

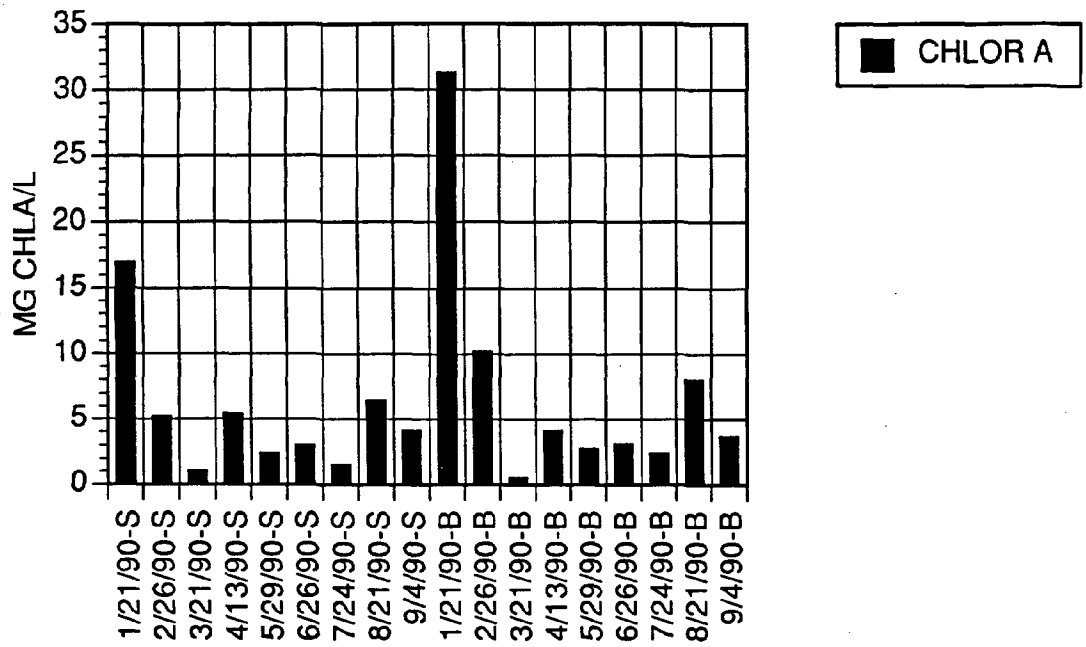

CAT POINT BAR
MGC/L
30
25
20
15
10
5
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
CHLOR A

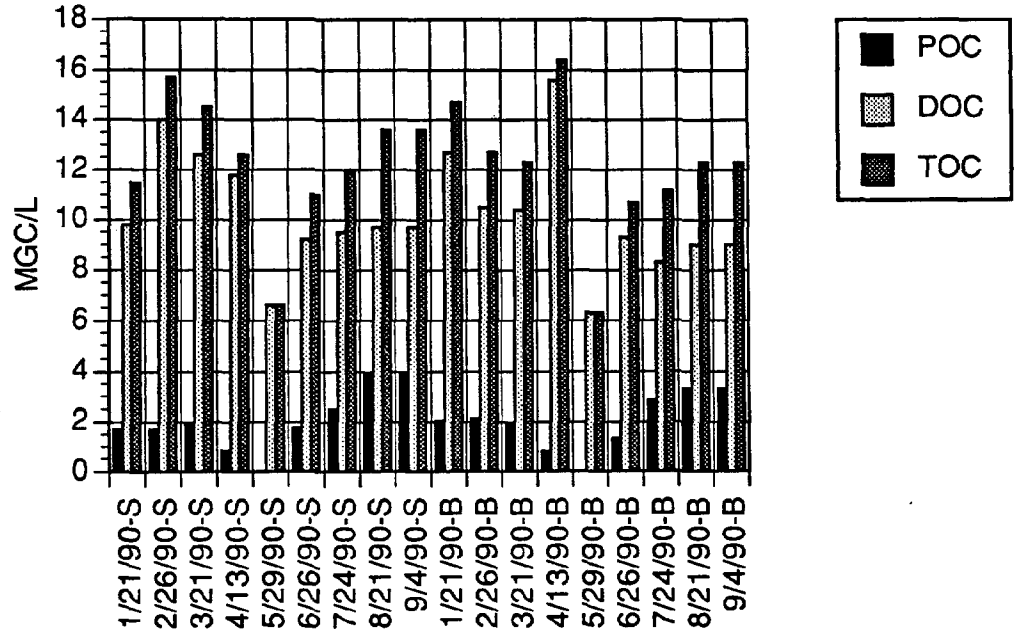

MGC/L
18
16
14
12
10
8
6
4
2
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
POC
DOC
TOC

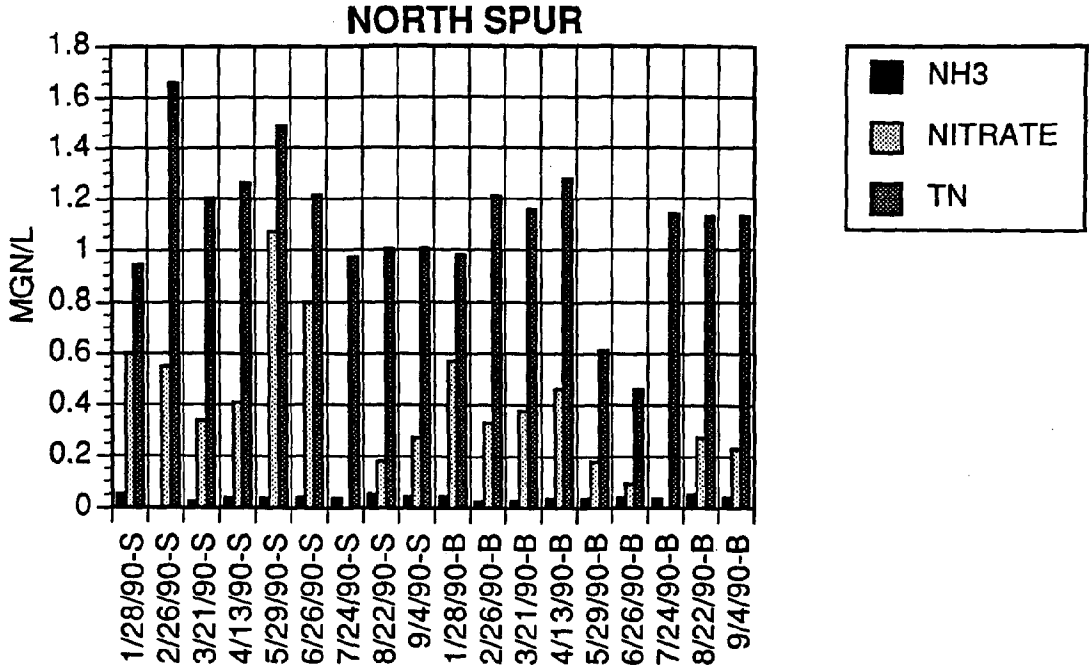

PLATFORM
MGN/L
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
NH3
NITRATE
TN

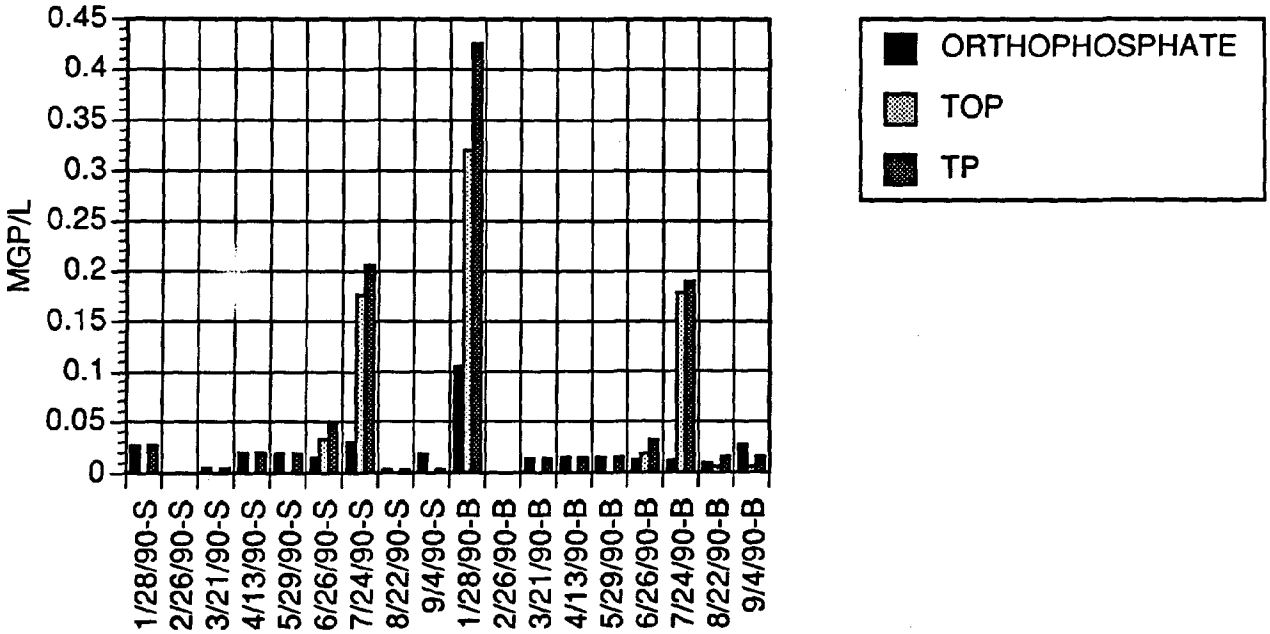

MGP/L
0.25
0.2
0.15
0.1
0.05
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
ORTHOPHOSPHATE
TOP
TP

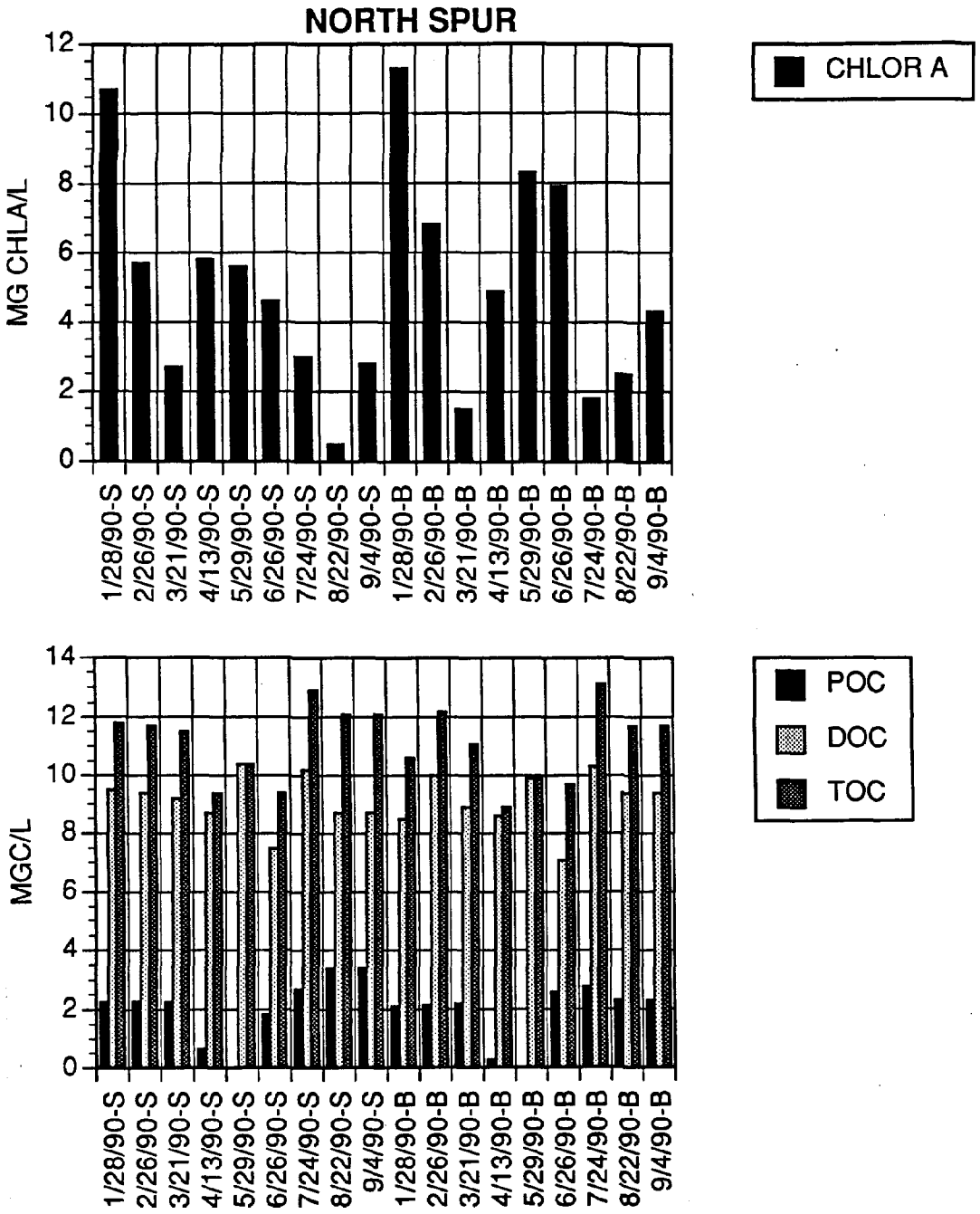
PLATFORM

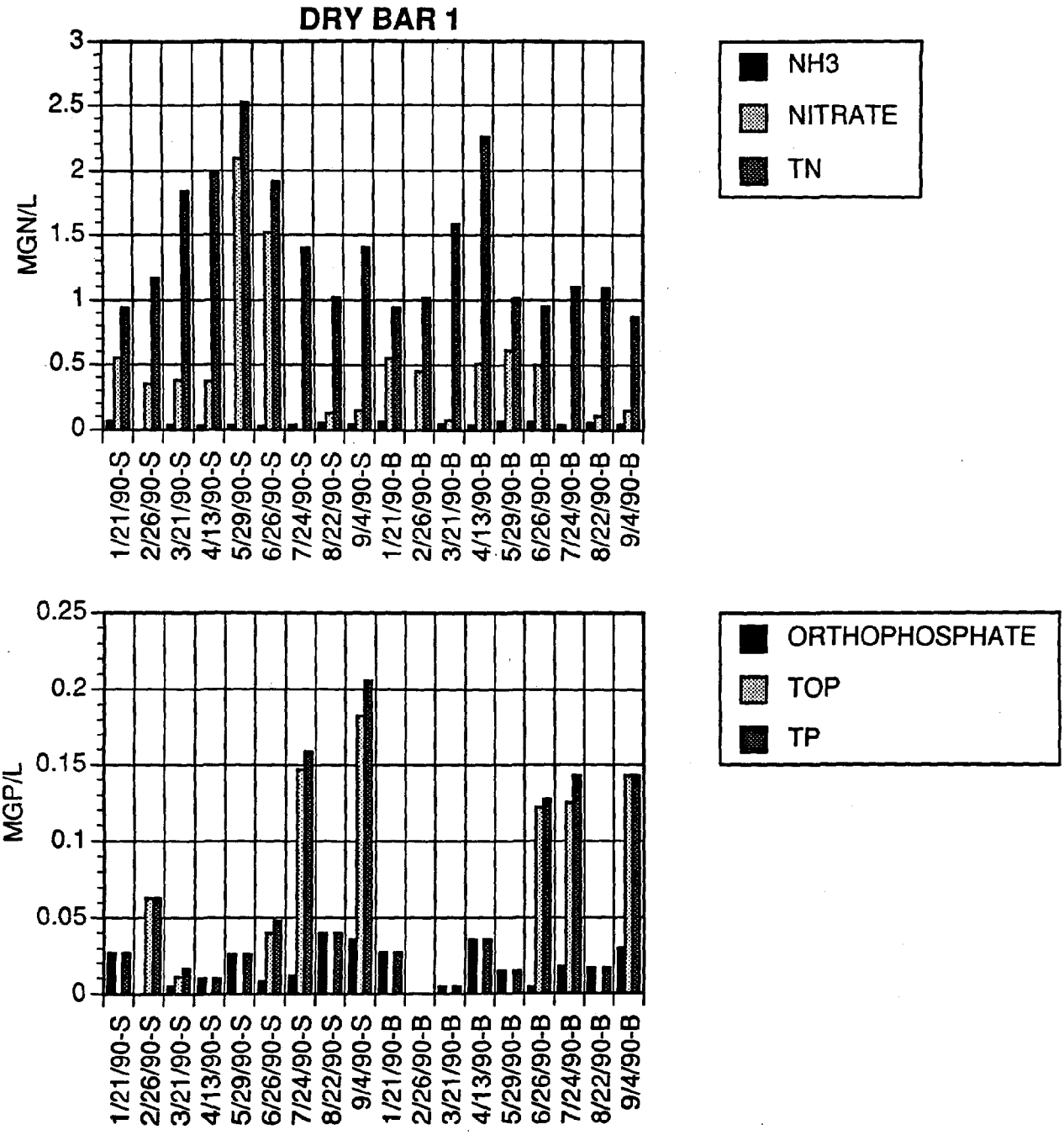

MG CHLA/L
35
30
25
20
15
10
5
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
CHLOR A

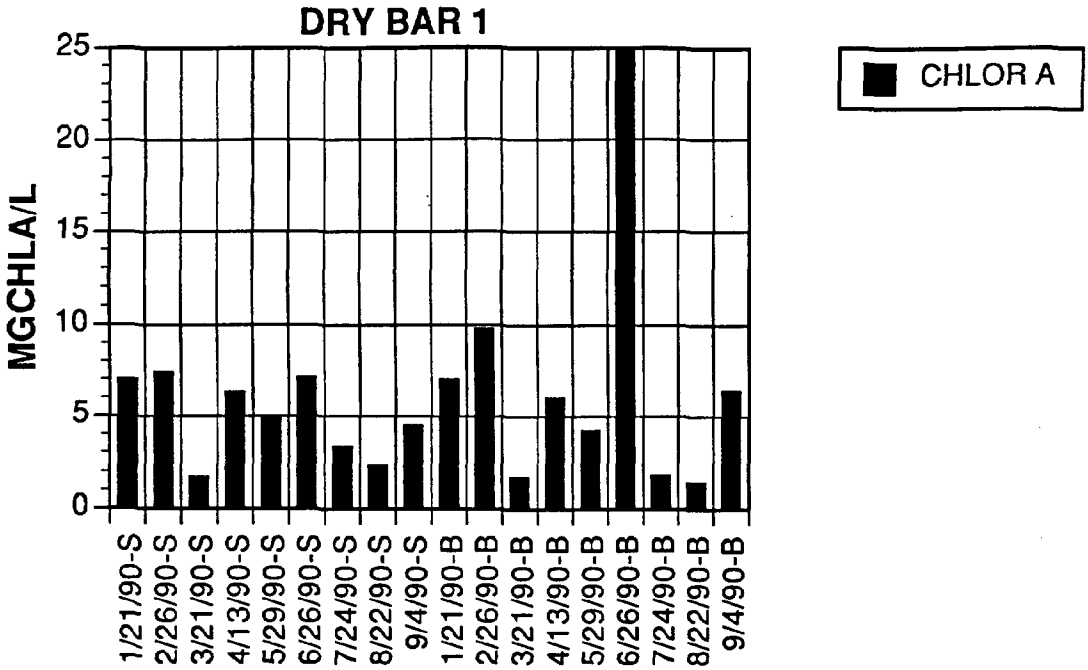

MGC/L
18
16
14
12
10
8
6
4
2
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/21/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/21/90-B
9/4/90-B
POC
DOC
TOC

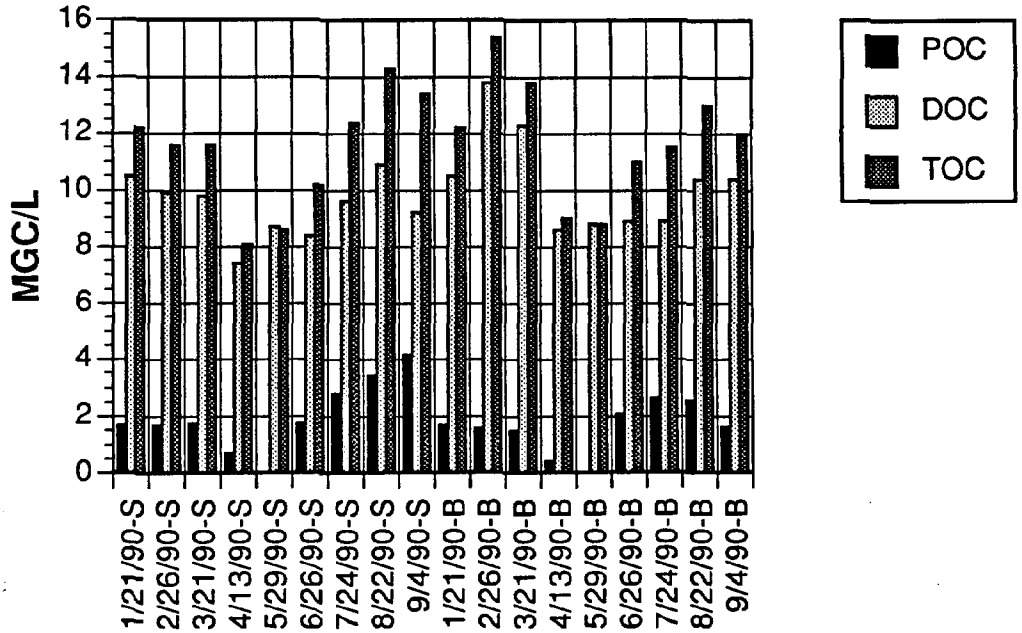

NORTH SPUR
MGN/L
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
NH3
NITRATE
TN

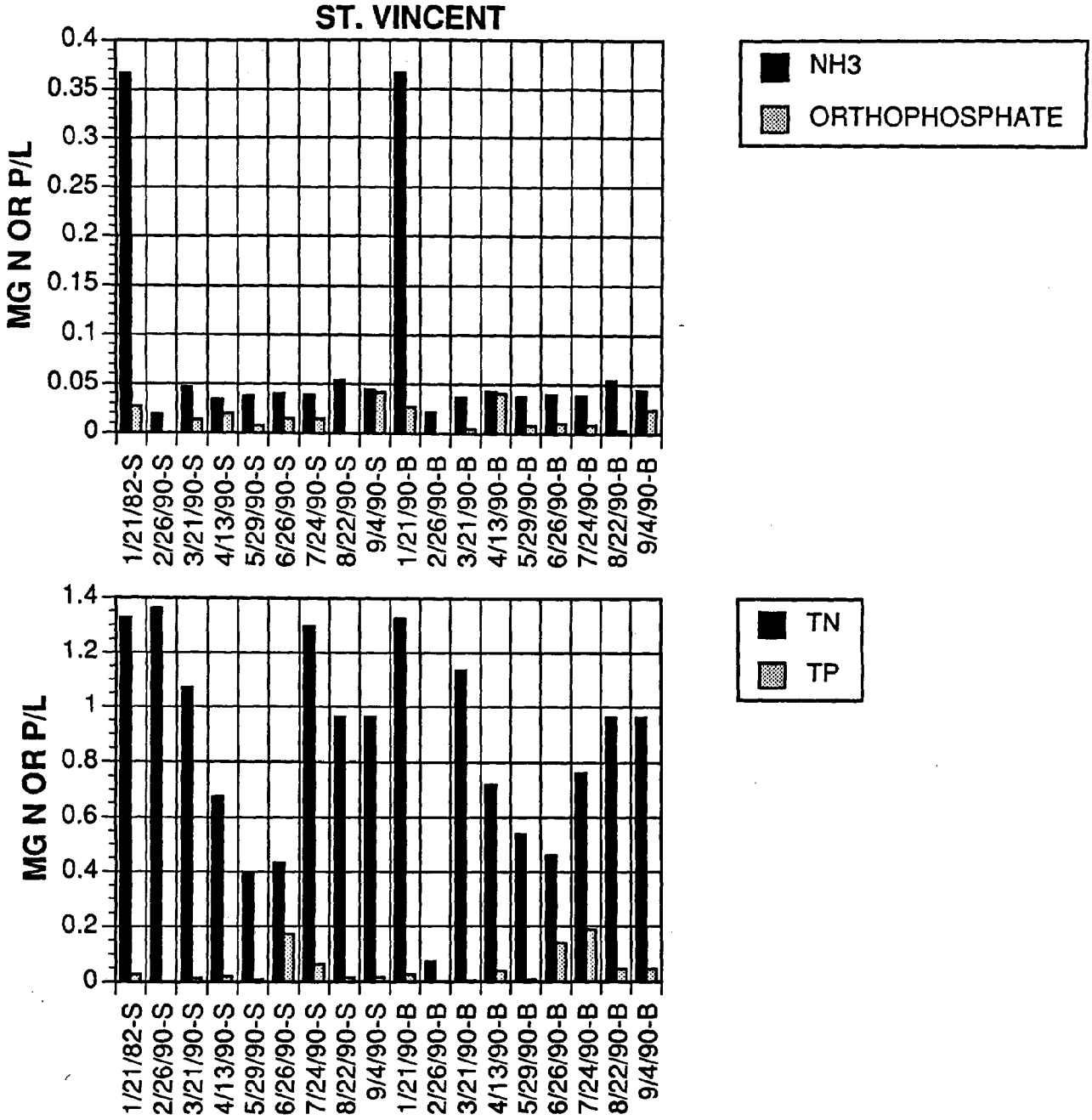

MGP/L
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
ORTHOPHOSPHATE
TOP
TP

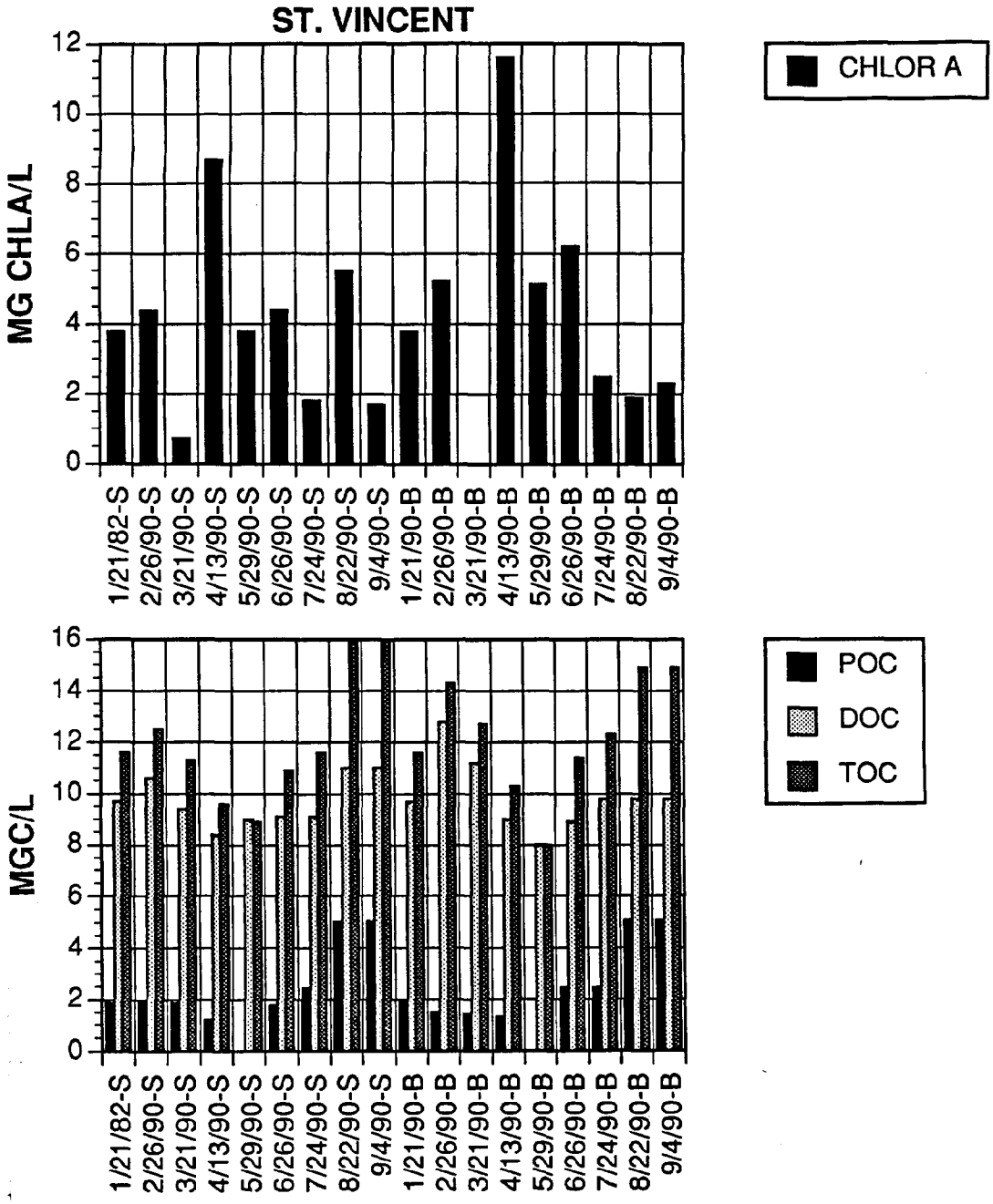

NORTH SPUR
MG CHLA/L
0
2
4
6
8
10
12
CHLOR A
1/28/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/28/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
MGC/L
0
2
4
6
8
10
12
14
POC
DOC
TOC

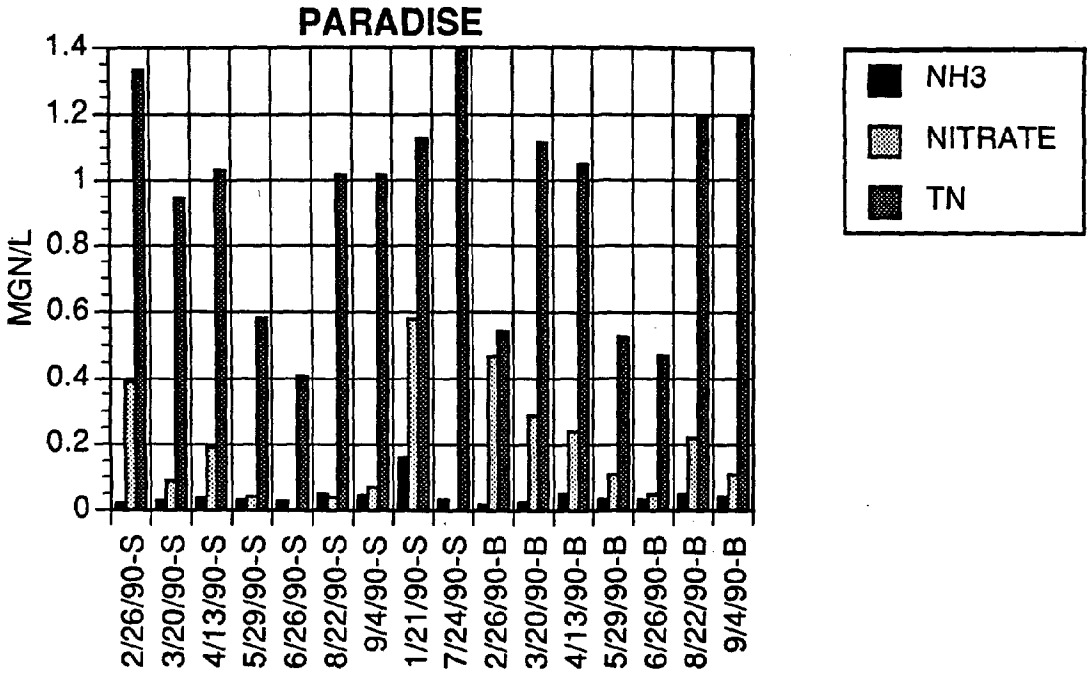

DRY BAR 1
MGN/L
3
2.5
2
1.5
1
0.5
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
NH3
NITRATE
TN
MGP/L
0.25
0.2
0.15
0.1
0.05
0
ORTHOPHOSPHATE
TOP
TP

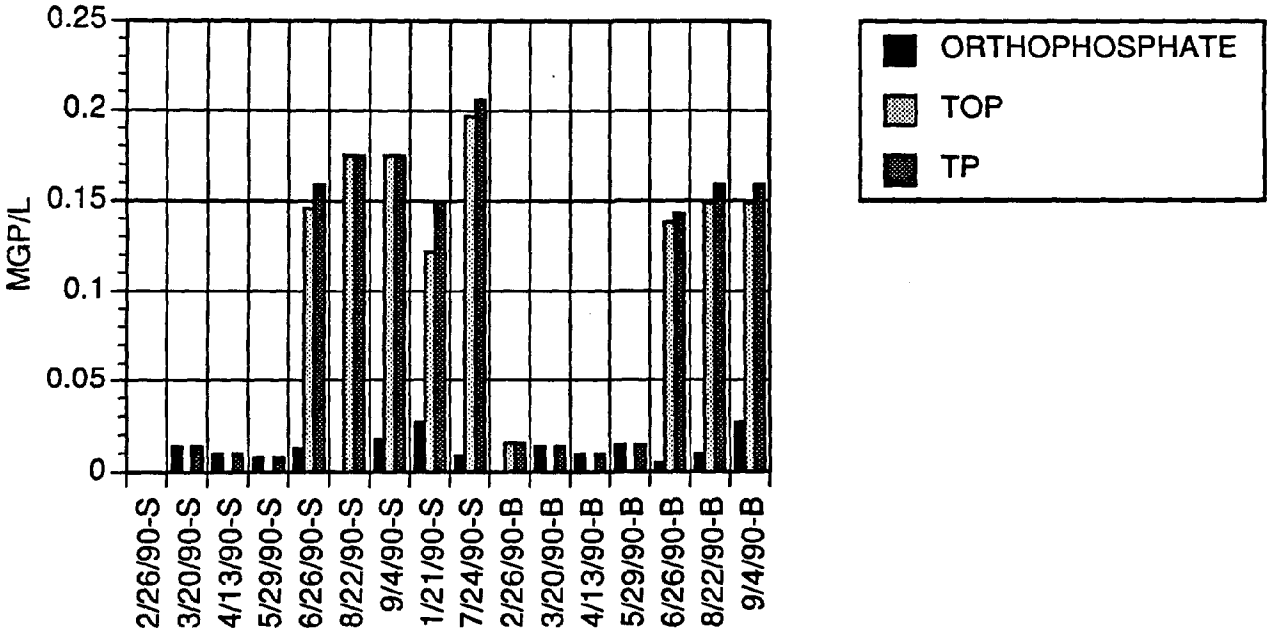

DRY BAR 1
MGCHLA/L
25
20
15
10
5
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
CHLOR A

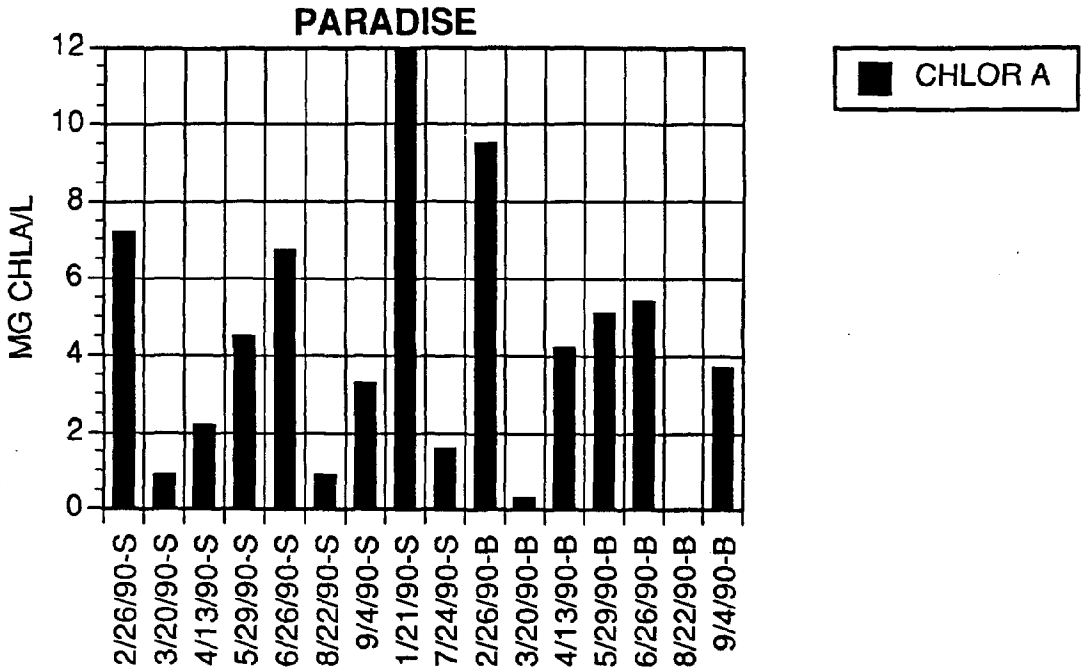

MGC/L
16
14
12
10
8
6
4
2
0
1/21/90-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
POC
DOC
TOC

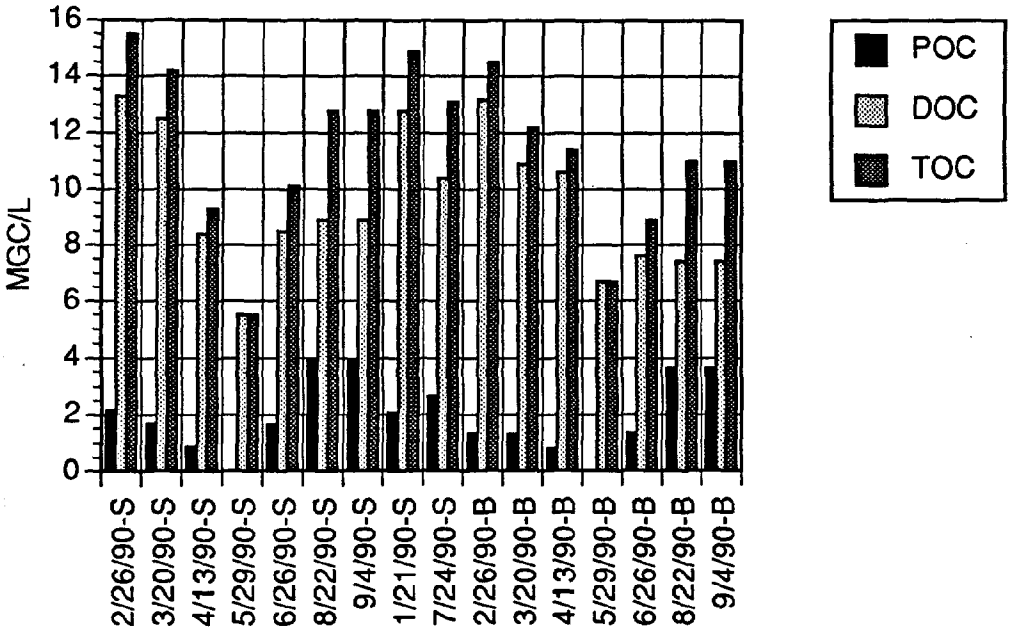

ST. VINCENT
MG N OR P/L
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
NH3
ORTHOPHOSPHATE
1/21/82-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B
MG N OR P/L
1.4
1.2
1
0.8
0.6
0.4
0.2
0
TN
TP

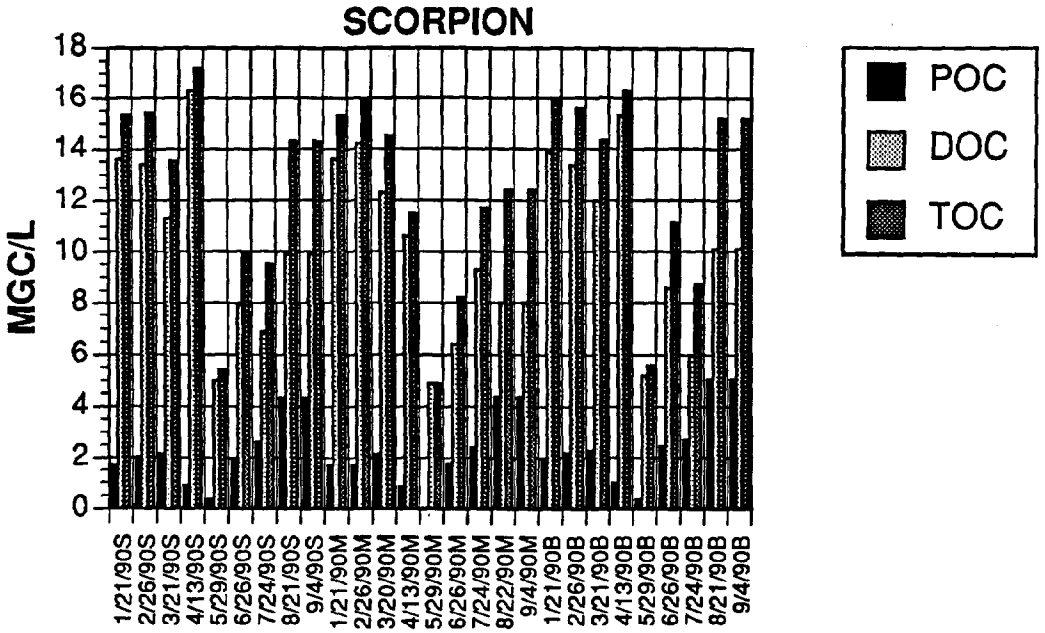

ST. VINCENT
MG CHLA/L
CHLOR A
MGC/L
POC
DOC
TOC
0
2
4
6
8
10
12
14
16
1/21/82-S
2/26/90-S
3/21/90-S
4/13/90-S
5/29/90-S
6/26/90-S
7/24/90-S
8/22/90-S
9/4/90-S
1/21/90-B
2/26/90-B
3/21/90-B
4/13/90-B
5/29/90-B
6/26/90-B
7/24/90-B
8/22/90-B
9/4/90-B

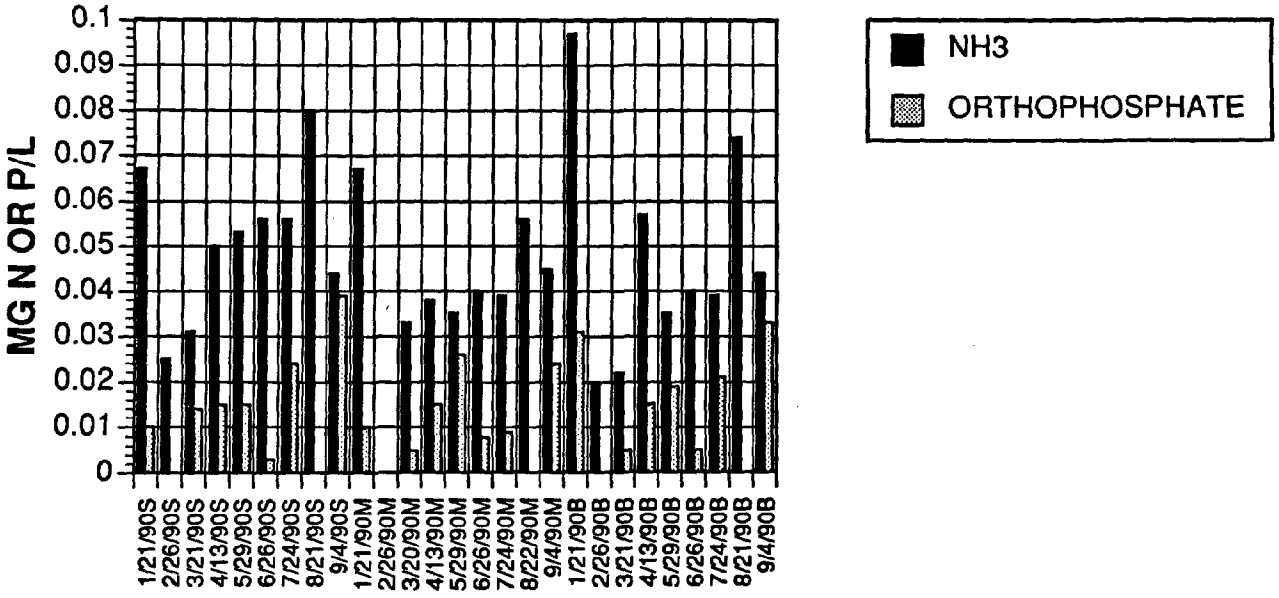

PARADISE
MGN/L
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2/26/90-S
3/20/90-S
4/13/90-S
5/29/90-S
6/26/90-S
8/22/90-S
9/4/90-S
1/21/90-S
7/24/90-S
2/26/90-B
3/20/90-B
4/13/90-B
5/29/90-B
6/26/90-B
8/22/90-B
9/4/90-B
NH3
NITRATE
TN

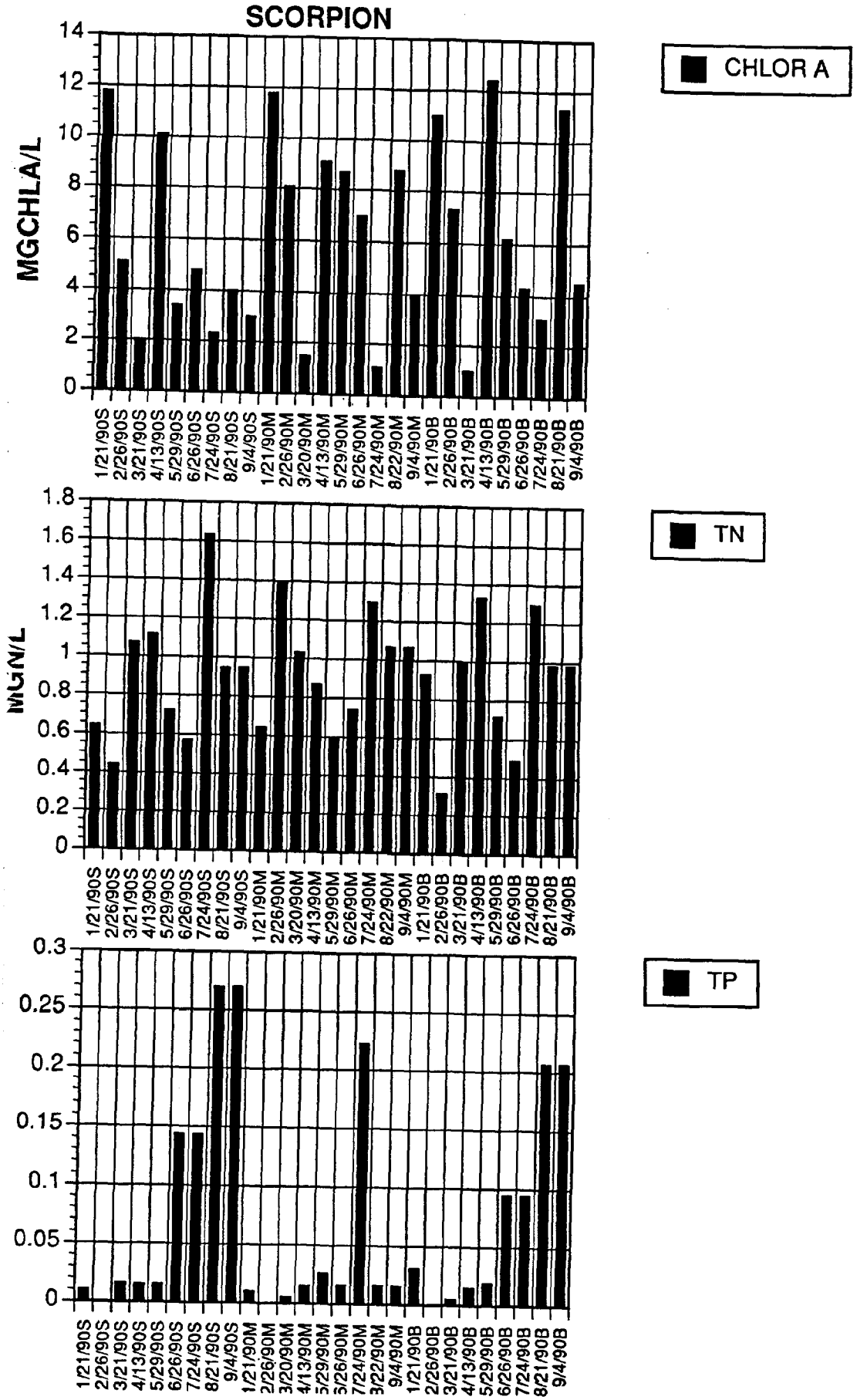

MGP/L
0.25
0.2
0.15
0.1
0.05
0
2/26/90-S
3/20/90-S
4/13/90-S
5/29/90-S
6/26/90-S
8/22/90-S
9/4/90-S
1/21/90-S
7/24/90-S
2/26/90-B
3/20/90-B
4/13/90-B
5/29/90-B
6/26/90-B
8/22/90-B
9/4/90-B
ORTHOPHOSPHATE
TOP
TP


PARADISE
MG CHLA/L
0
2
4
6
8
10
12
2/26/90-S
3/20/90-S
4/13/90-S
5/29/90-S
6/26/90-S
8/22/90-S
9/4/90-S
1/21/90-S
7/24/90-S
2/26/90-B
3/20/90-B
4/13/90-B
5/29/90-B
6/26/90-B
8/22/90-B
9/4/90-B
CHLOR A


MGC/L
0
2
4
6
8
10
12
14
16
2/26/90-S
3/20/90-S
4/13/90-S
5/29/90-S
6/26/90-S
8/22/90-S
9/4/90-S
1/21/90-S
7/24/90-S
2/26/90-B
3/20/90-B
4/13/90-B
5/29/90-B
6/26/90-B
8/22/90-B
9/4/90-B
POC
DOC
TOC


SCORPION
MGC/L
18
16
14
12
10
8
6
4
2
0
1/21/90S
2/26/90S
3/21/90S
4/13/90S
5/29/90S
6/26/90S
7/24/90S
8/21/90S
9/4/90S
1/21/90M
2/26/90M
3/20/90M
4/13/90M
5/29/90M
6/26/90M
7/24/90M
8/22/90M
9/4/90M
1/21/90B
2/26/90B
3/21/90B
4/13/90B
5/29/90B
6/26/90B
7/24/90B
8/21/90B
9/4/90B
POC
DOC
TOC


MG N OR P/L
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1/21/90S
2/26/90S
3/21/90S
4/13/90S
5/29/90S
6/26/90S
7/24/90S
8/21/90S
9/4/90S
1/21/90M
2/26/90M
3/20/90M
4/13/90M
5/29/90M
6/26/90M
7/24/90M
8/22/90M
9/4/90M
1/21/90B
2/26/90B
3/21/90B
4/13/90B
5/29/90B
6/26/90B
7/24/90B
8/21/90B
9/4/90B
NH3
ORTHOPHOSPHATE


SCORPION
MGCHLA/L
CHLOR A
MGN/L
TN
TP
1/21/90S
2/26/90S
3/21/90S
4/13/90S
5/29/90S
6/26/90S
7/24/90S
8/21/90S
9/4/90S
1/21/90M
2/26/90M
3/20/90M
4/13/90M
5/29/90M
6/26/90M
7/24/90M
8/22/90M
9/4/90M
1/21/90B
2/26/90B
3/21/90B
4/13/90B
5/29/90B
6/26/90B
7/24/90B
8/21/90B
9/4/90B

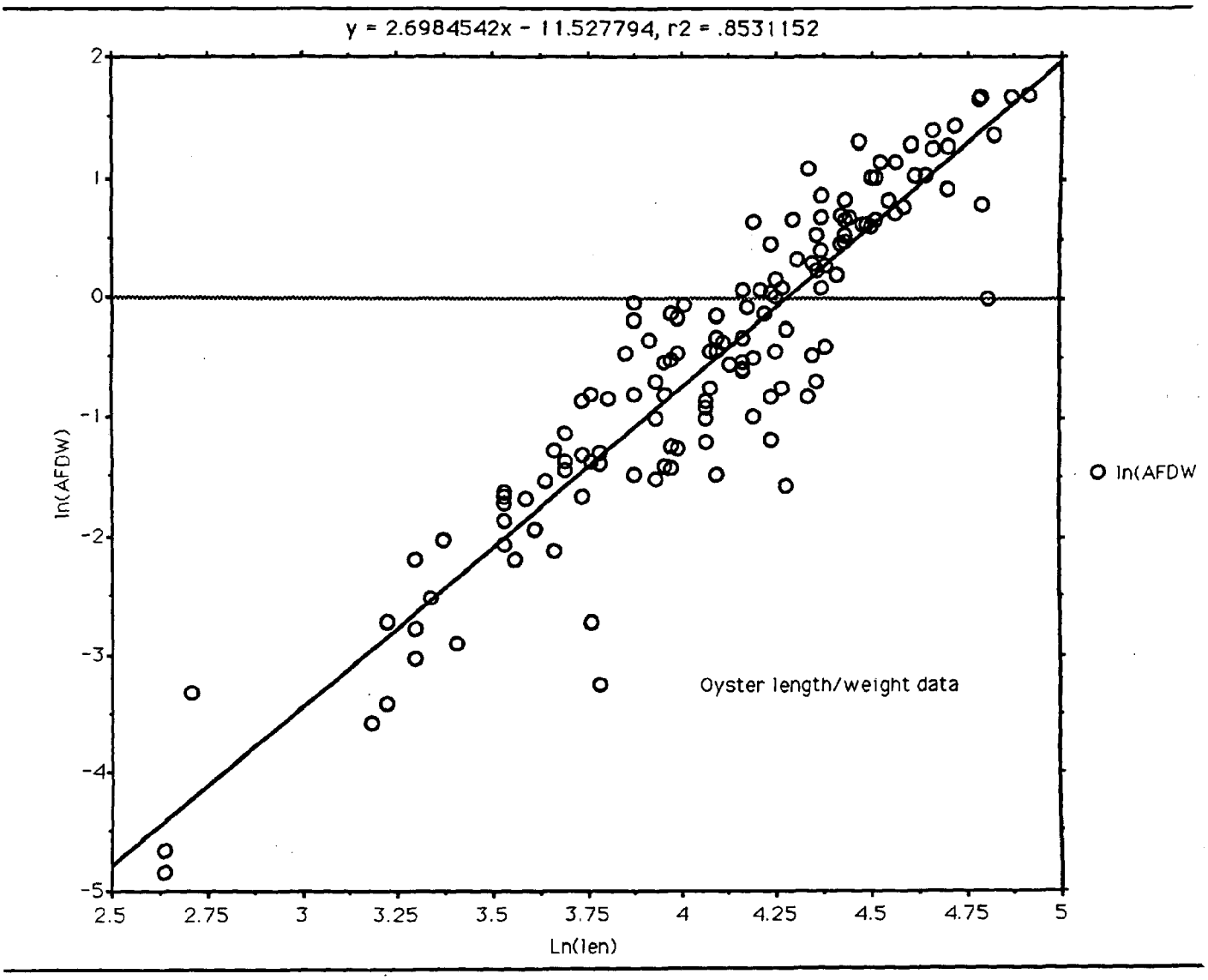


Figure 9: Regression of log oyster ash free dry weight vs log oyster length data based on samples taken from the Apalachicola estuary over the period of study.

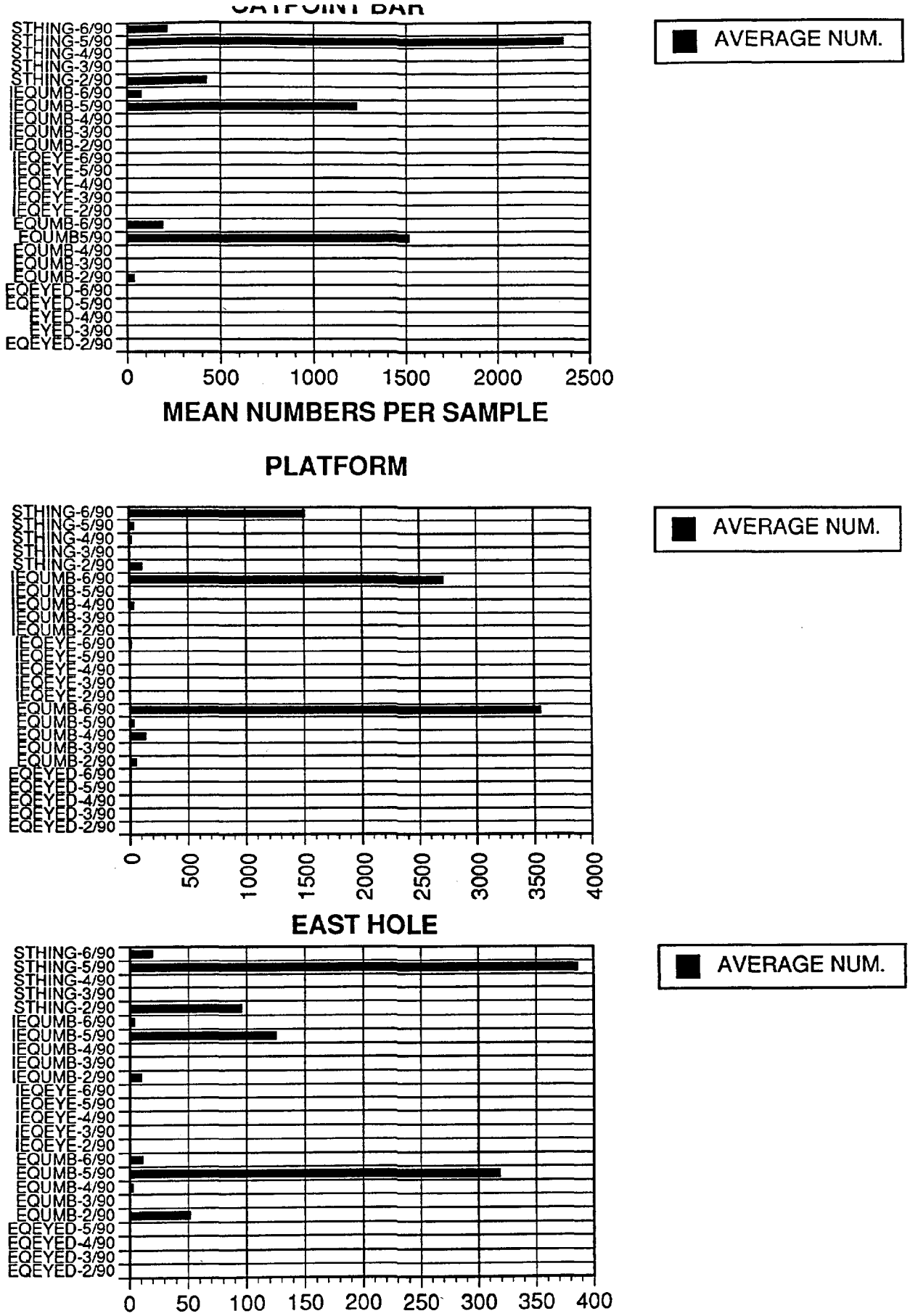
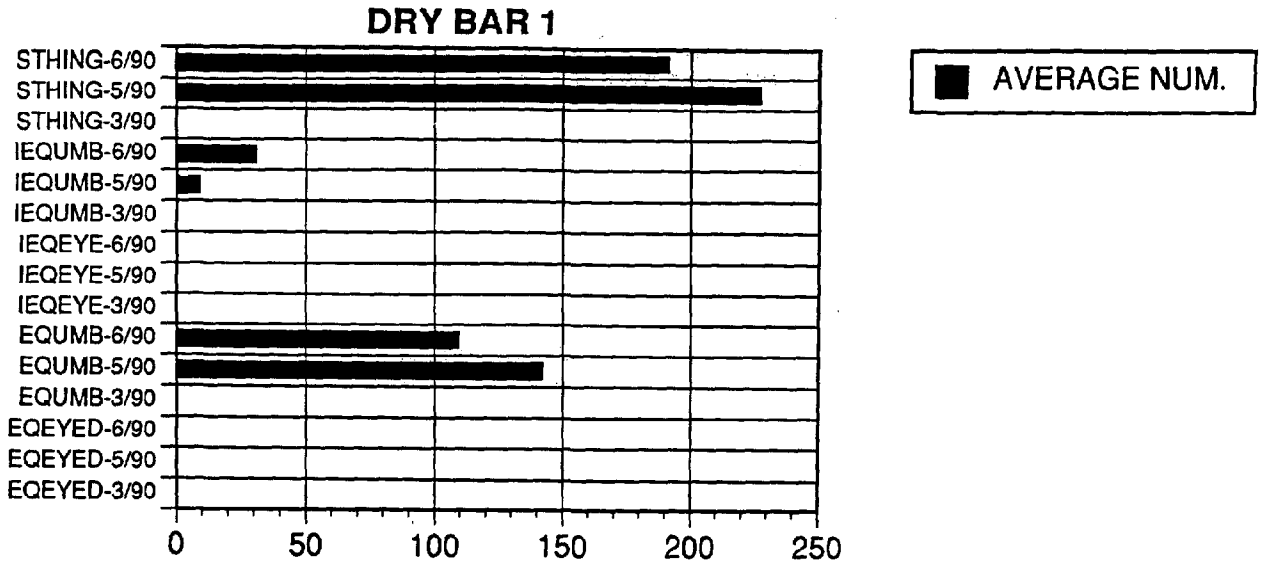
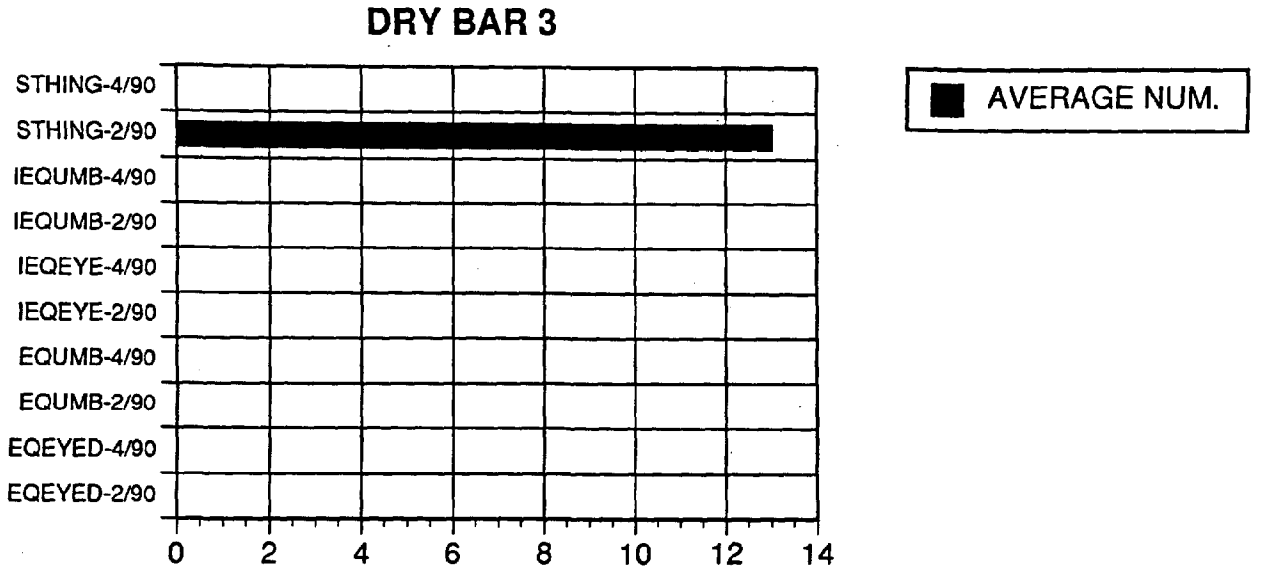
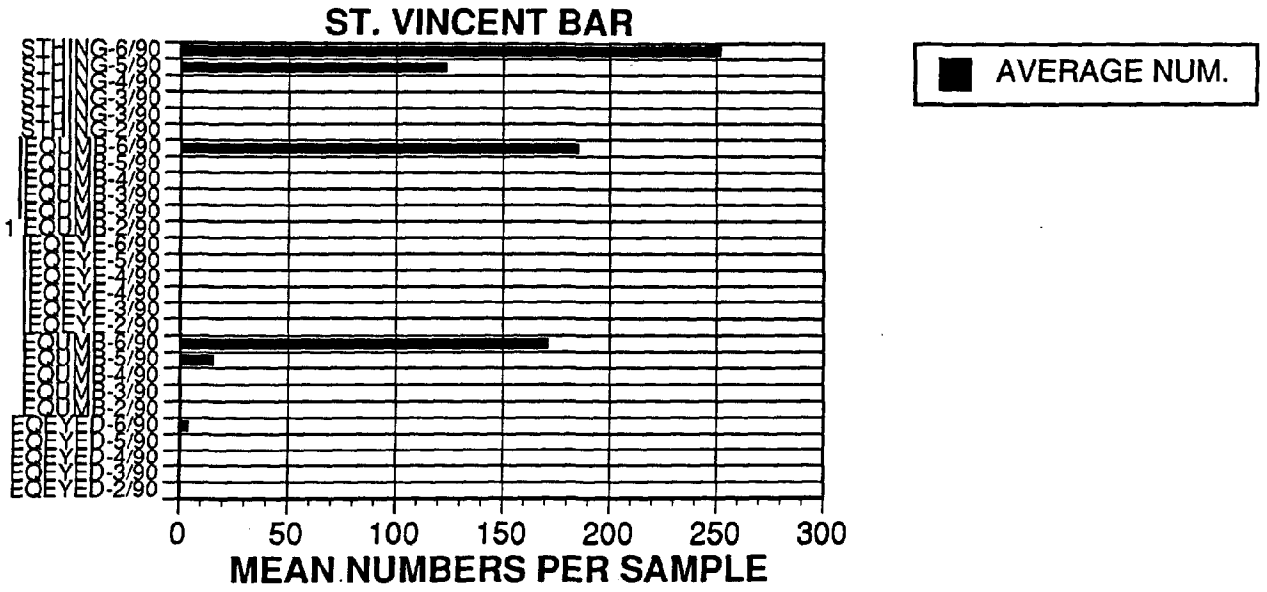


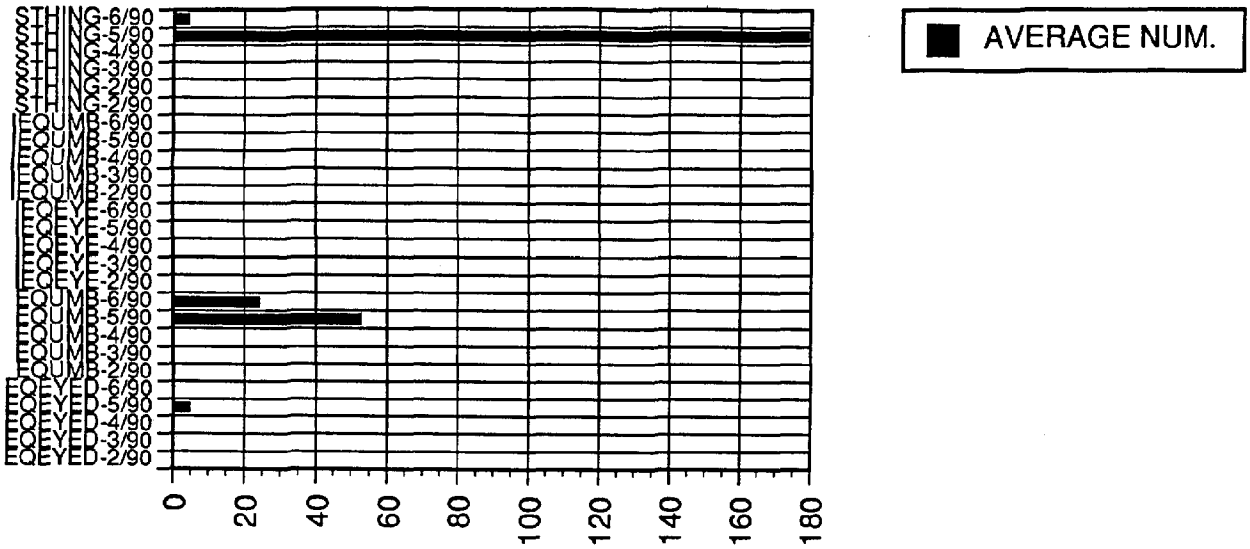
Figure 10: Oyster spatfall data taken in the Apalachicola system from February-June, 1990. Mean numbers per sample are given for the various developmental stages.


DRY BAR 1
STHING-6/90
STHING-5/90
STHING-3/90
IEQUMB-6/90
IEQUMB-5/90
IEQUMB-3/90
IEQEYE-6/90
IEQEYE-5/90
IEQEYE-3/90
EQUMB-6/90
EQUMB-5/90
EQUMB-3/90
EQEYED-6/90
EQEYED-5/90
EQEYED-3/90
0
50
100
150
200
250
AVERAGE NUM.

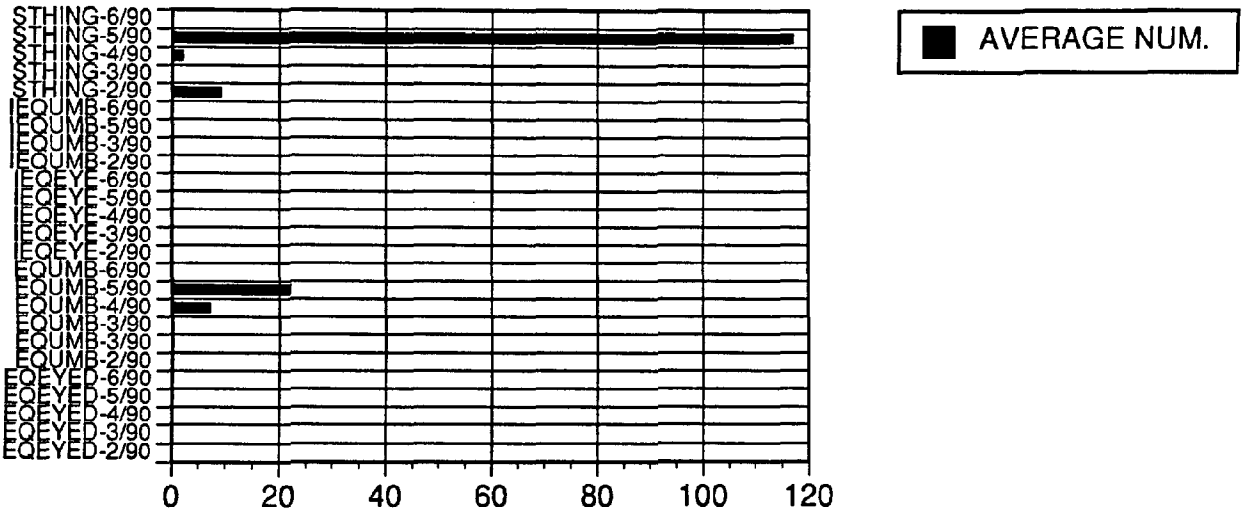

DRY BAR 3
STHING-4/90
STHING-2/90
IEQUMB-4/90
IEQUMB-2/90
IEQEYE-4/90
IEQEYE-2/90
EQUMB-4/90
EQUMB-2/90
EQEYED-4/90
EQEYED-2/90
0
2
4
6
8
10
12
14
AVERAGE NUM.


ST. VINCENT BAR
STHING-6/90
STHING-5/90
STHING-4/90
STHING-3/90
STHING-2/90
IEQUMB-6/90
IEQUMB-5/90
IEQUMB-4/90
IEQUMB-3/90
IEQUMB-2/90
IEQEYE-6/90
IEQEYE-5/90
IEQEYE-4/90
IEQEYE-3/90
IEQEYE-2/90
EQUMB-6/90
EQUMB-5/90
EQUMB-4/90
EQUMB-3/90
EQUMB-2/90
EQEYED-6/90
EQEYED-5/90
EQEYED-4/90
EQEYED-3/90
EQEYED-2/90
0
50
100
150
200
250
300
MEAN NUMBERS PER SAMPLE
AVERAGE NUM.

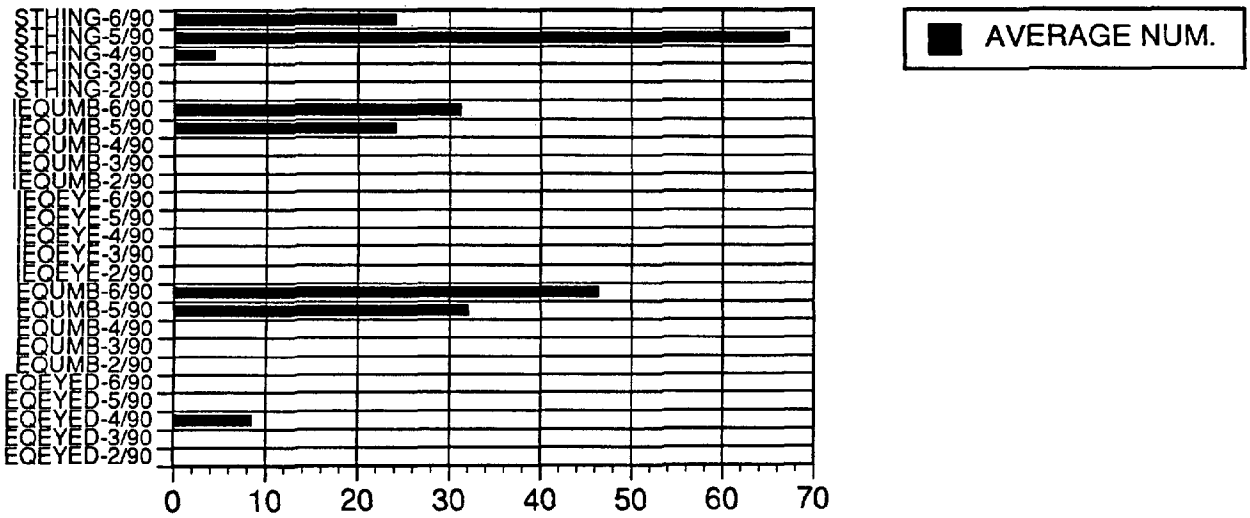
SCORPION

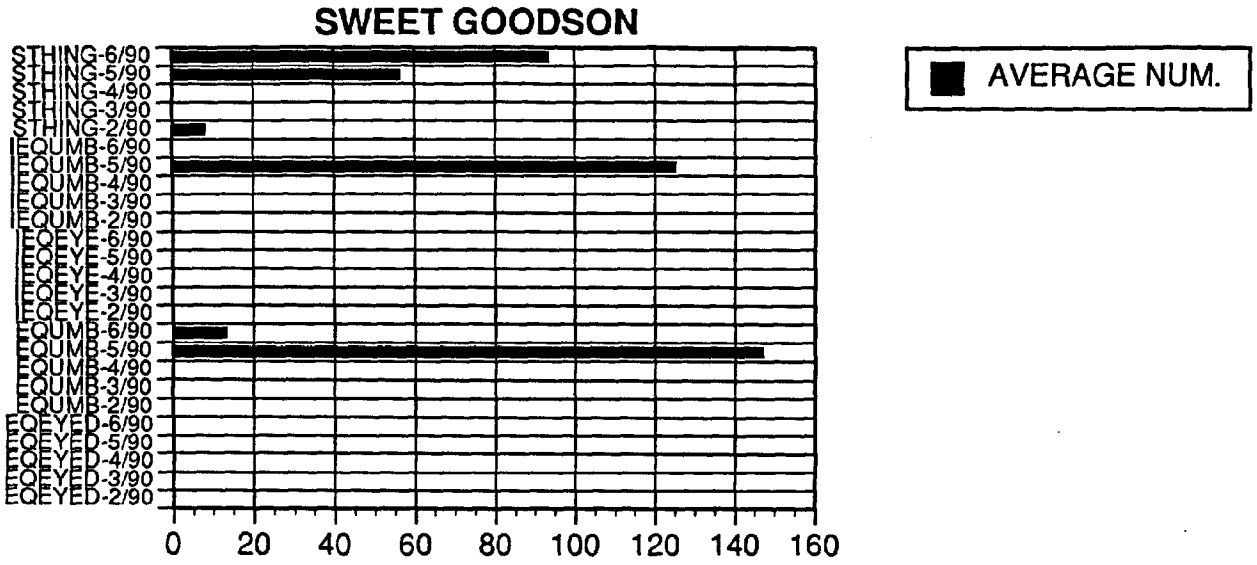


PARADISE



NORTH SPUR




SWEET GOODSON
STHING-6/90
STHING-5/90
STHING-4/90
STHING-3/90
STHING-2/90
EQUMB-6/90
EQUMB-5/90
EQUMB-4/90
EQUMB-3/90
EQUMB-2/90
EQEYE-6/90
EQEYE-5/90
EQEYE-4/90
EQEYE-3/90
EQEYE-2/90
EQUMB-6/90
EQUMB-5/90
EQUMB-4/90
EQUMB-3/90
EQUMB-2/90
EQEYED-6/90
EQEYED-5/90
EQEYED-4/90
EQEYED-3/90
EQEYED-2/90
0
20
40
60
80
100
120
140
160
AVERAGE NUM.

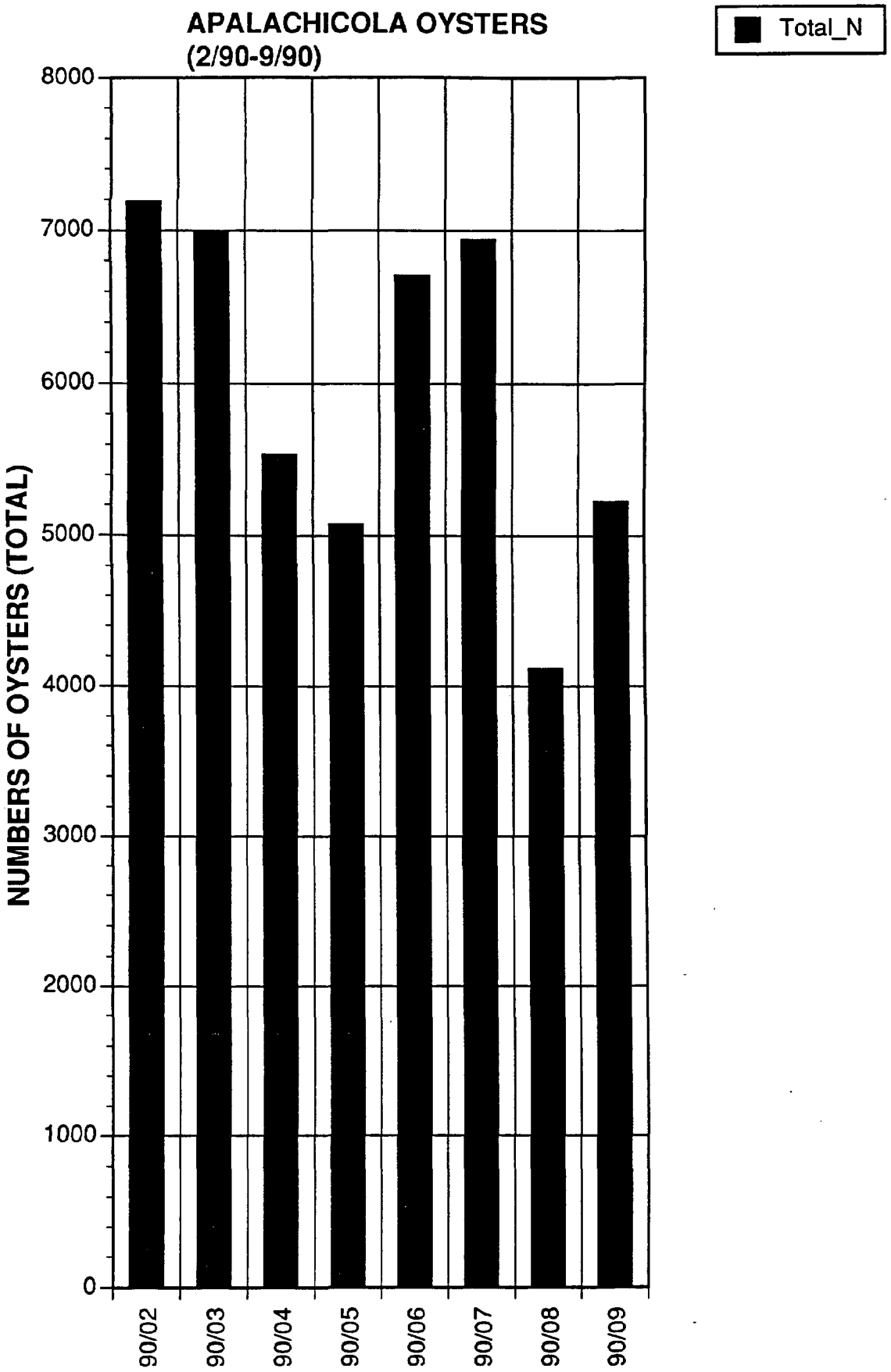


Figure 11: Total numbers of oysters taken at the various stations in the Apalachicola estuary from February, 1990 through September, 1990.

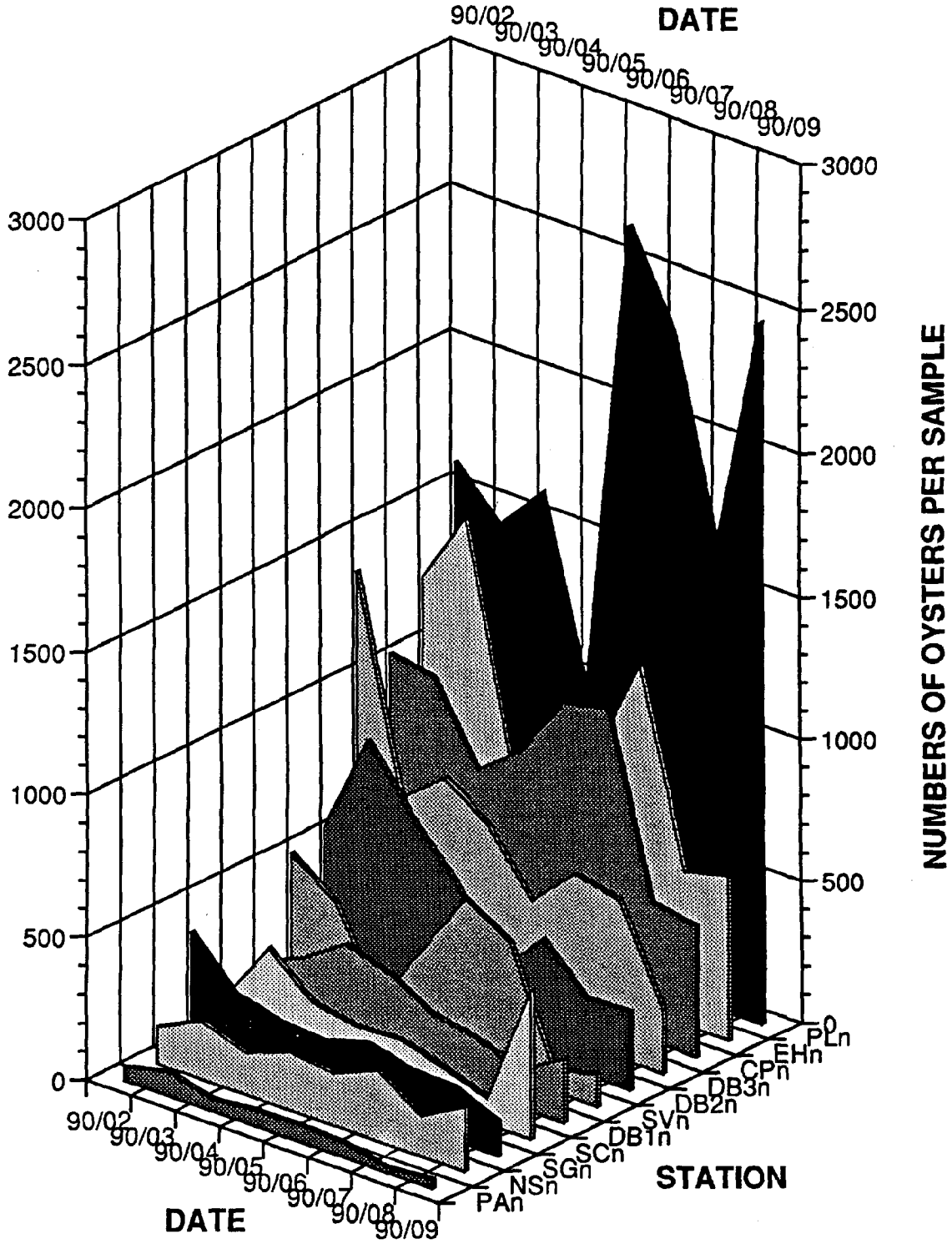


Figure 12: Numbers of oysters per sample taken at the various stations in the Apalachicola estuary from February, 1990 through November, 1990.

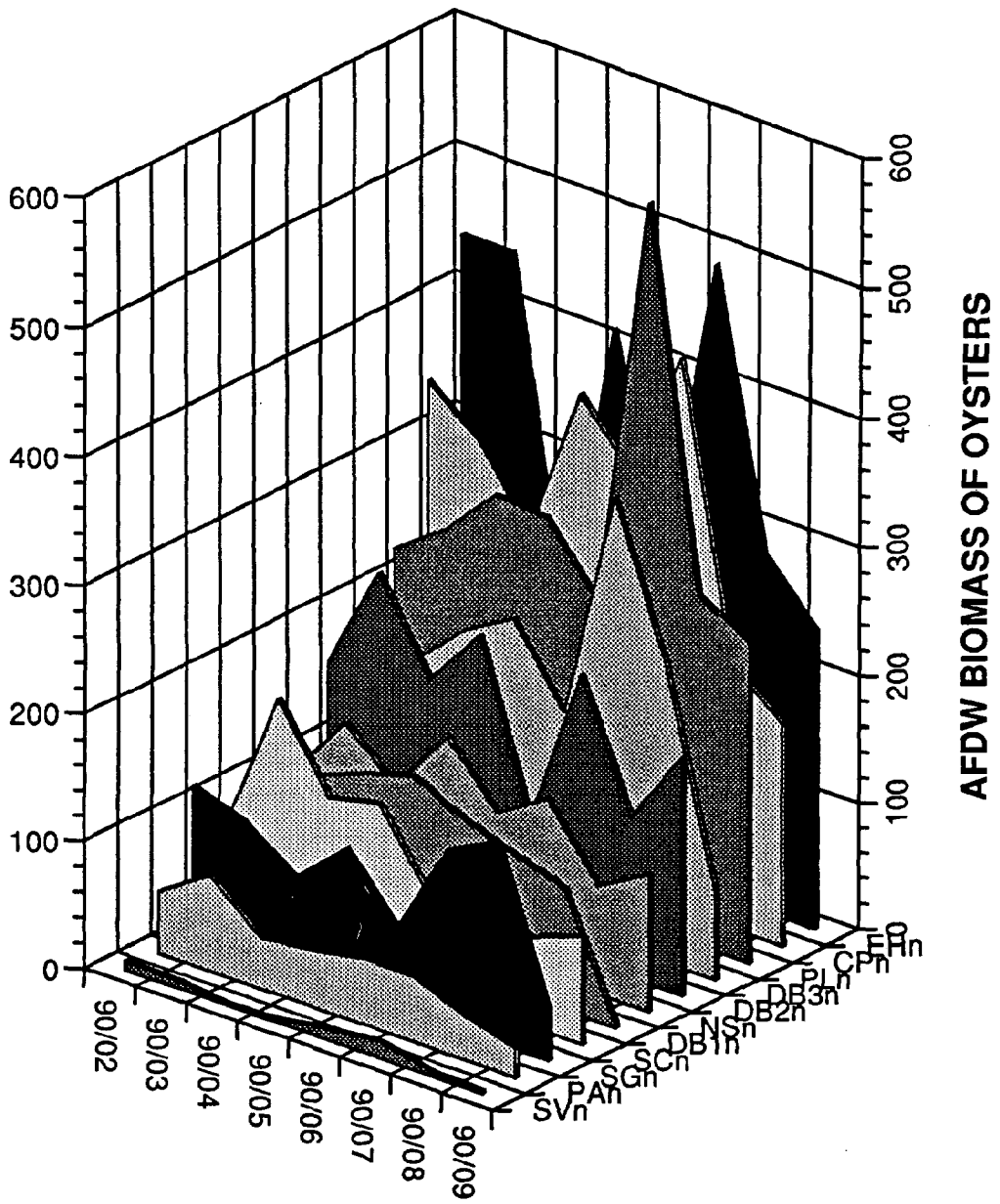


Figure 13: Ash-free dry weight biomass of oysters per sample taken at the various stations in the Apalachicola estuary from February, 1990 through November, 1990.

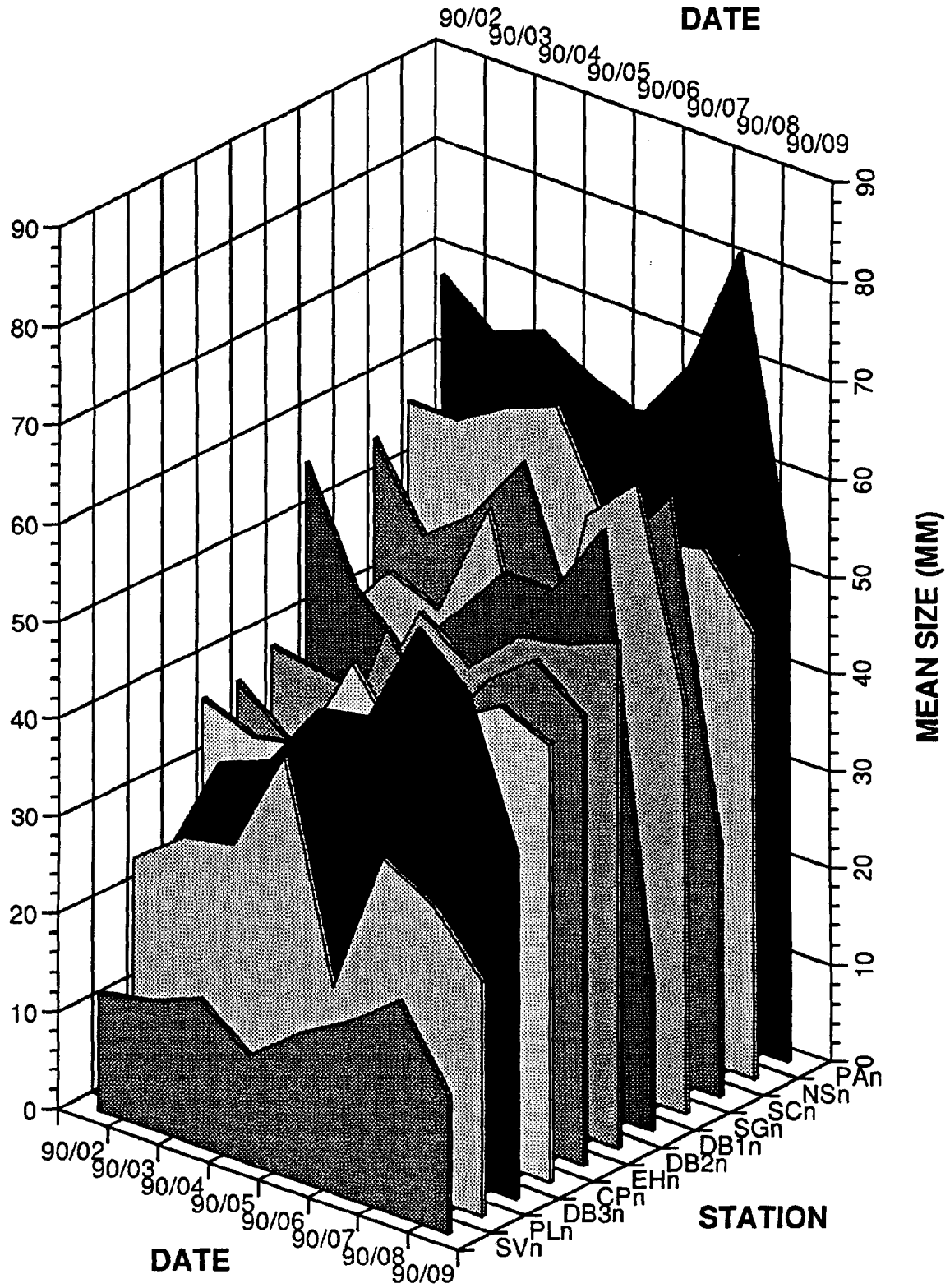
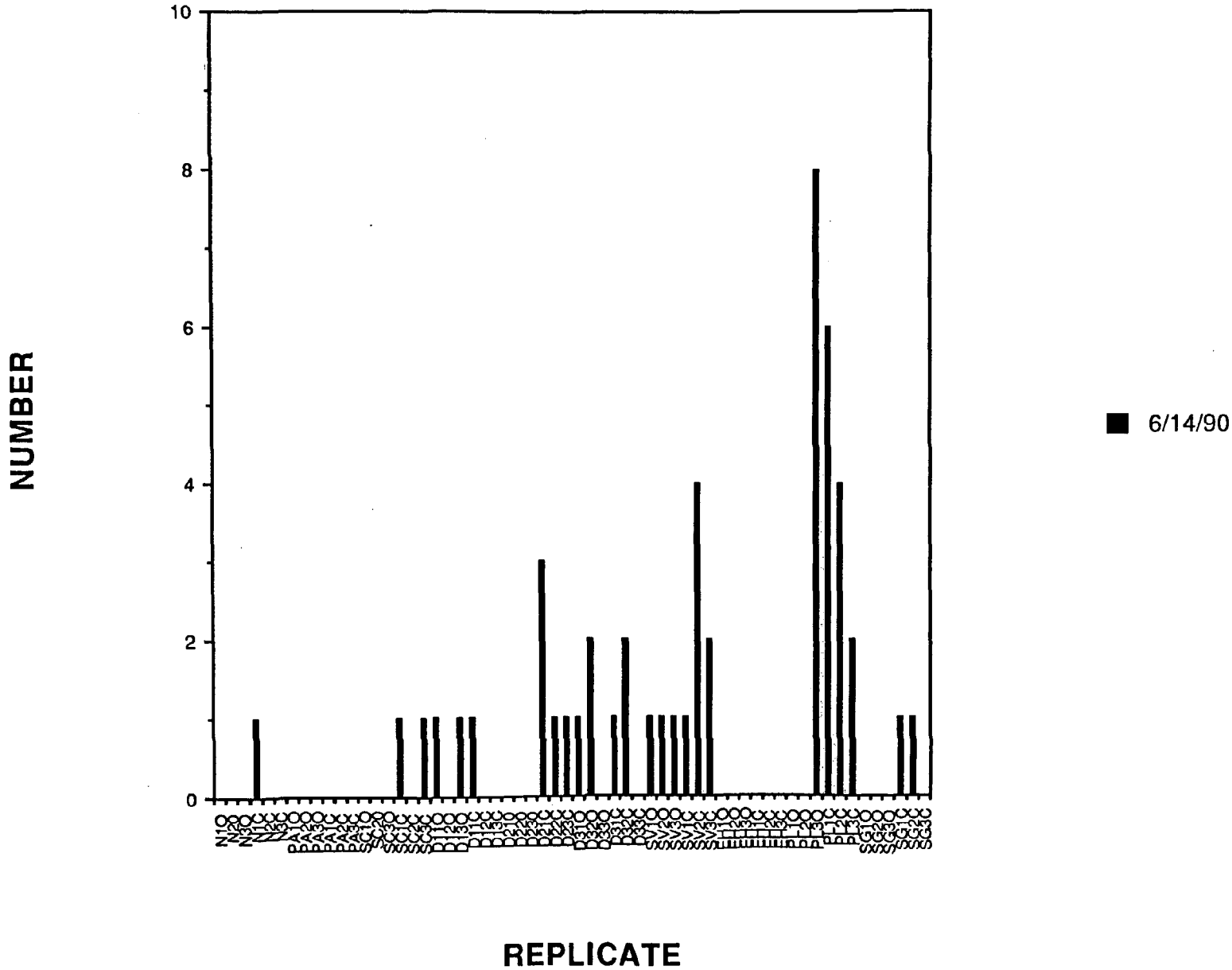
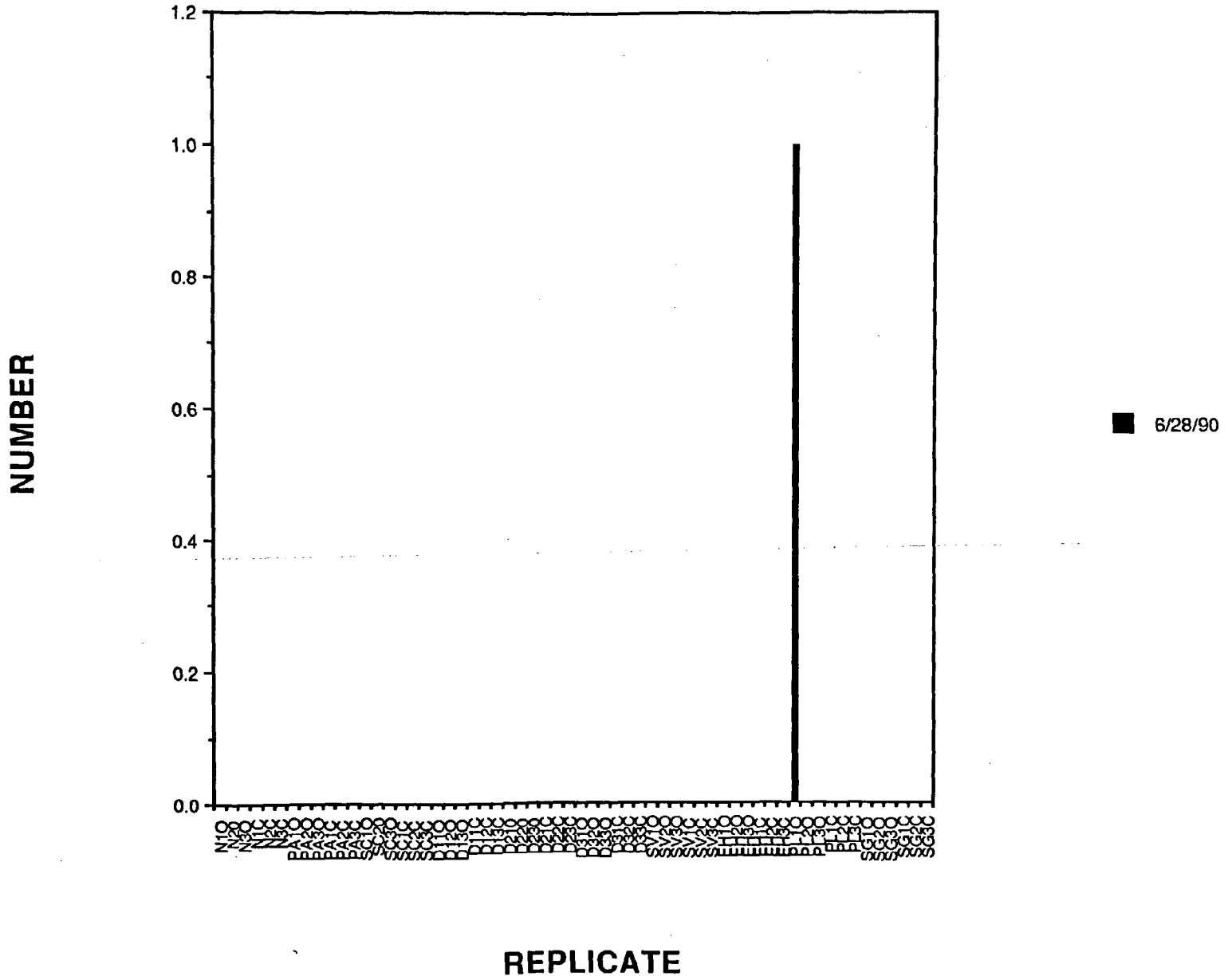


Figure 14: Mean size of oysters taken at the various stations in the Apalachicola estuary from February, 1990 through November, 990.

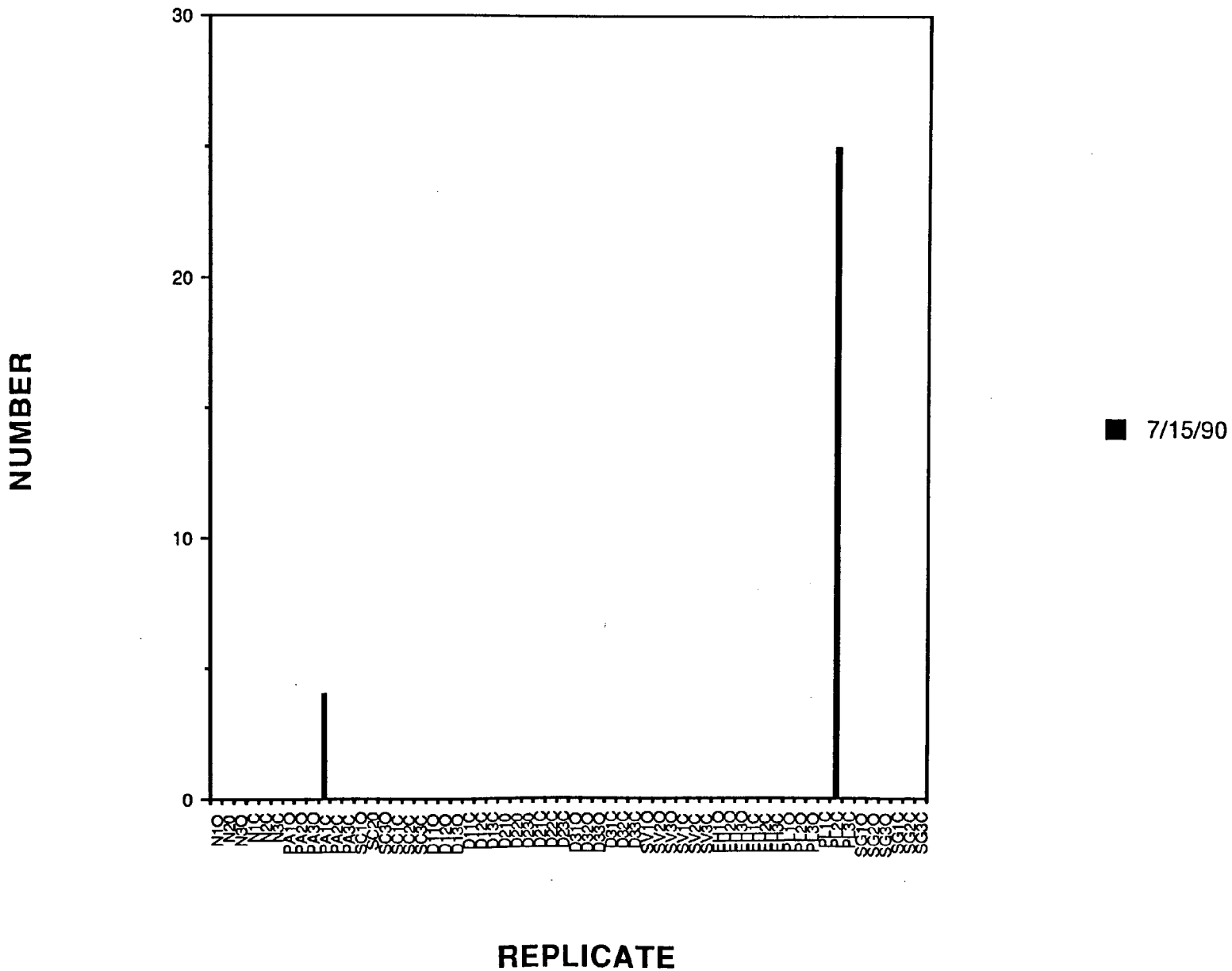
Figure 15: Oyster spat data by replicate taken bimonthly in the Apalachicola system from June-September, 1990.



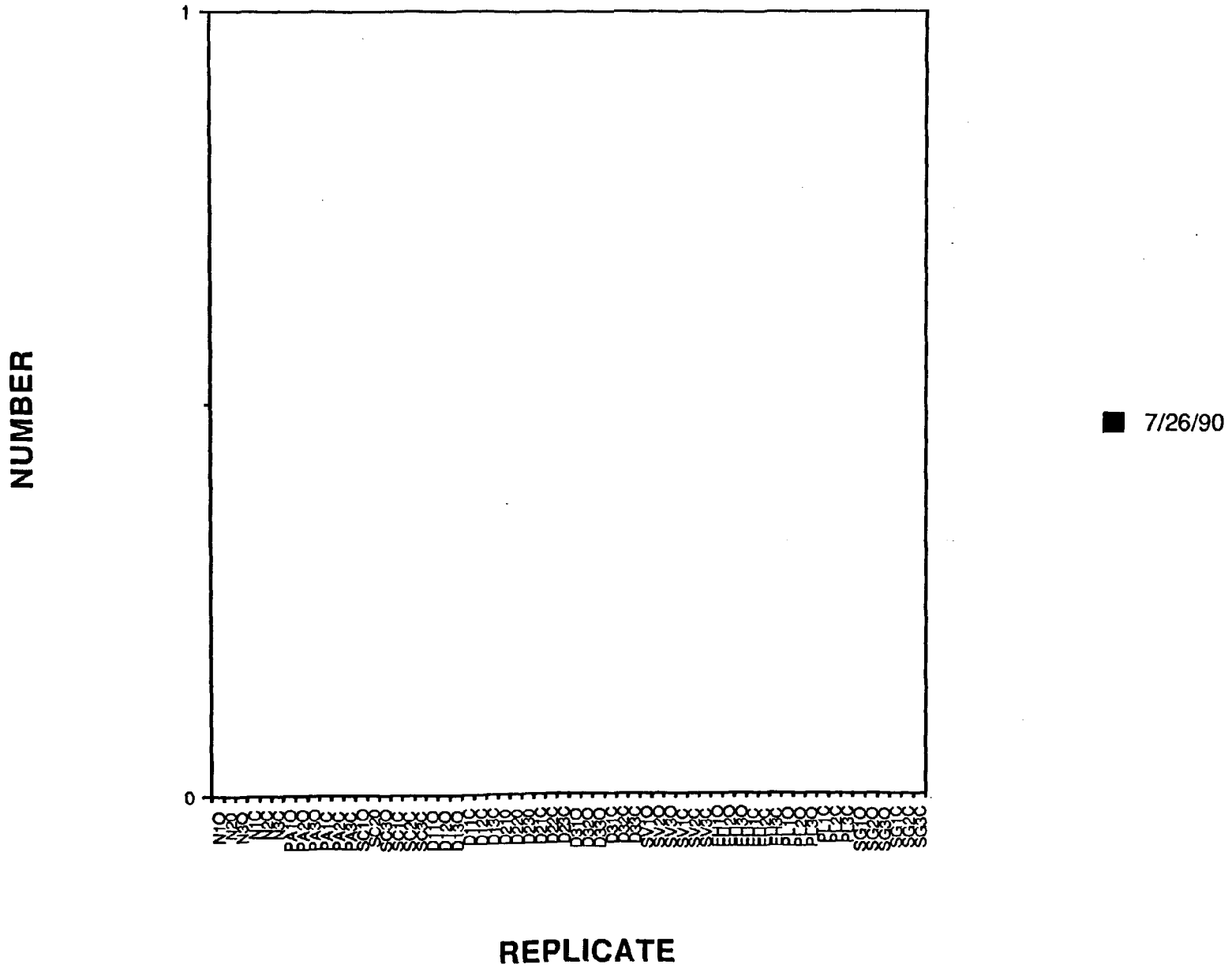
Data from "SPAT 90 CG"



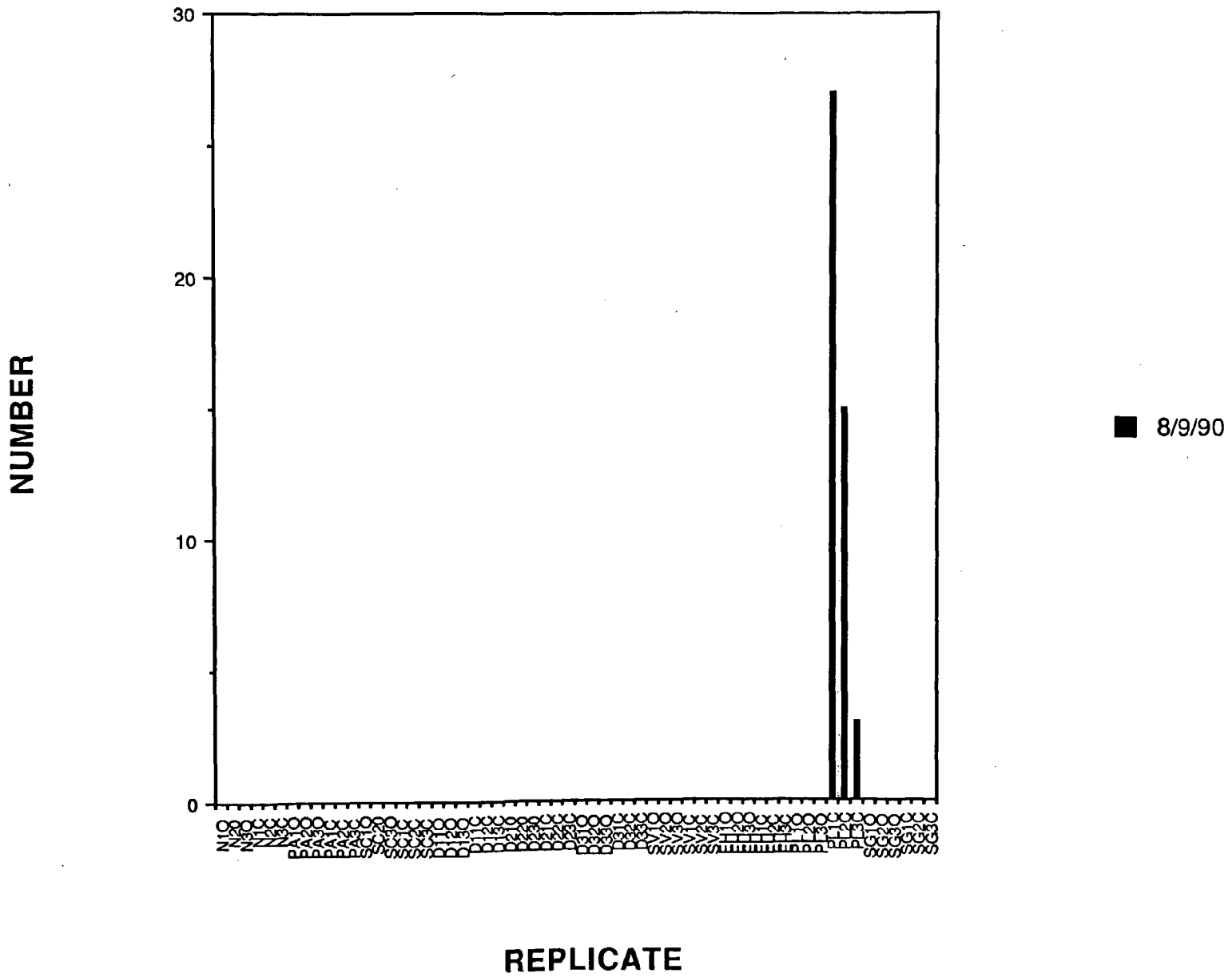
Data from "SPAT 90 CG"



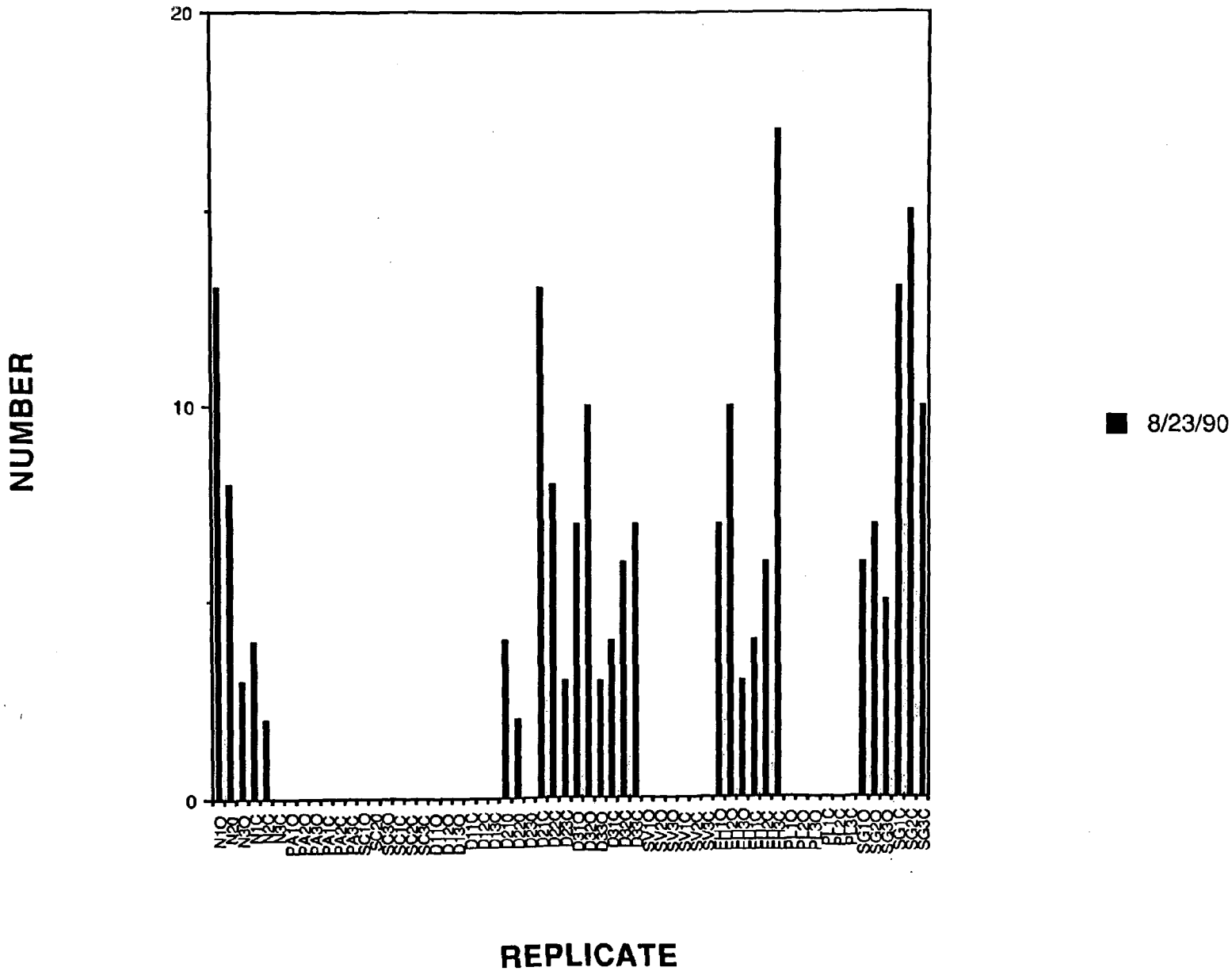
Data from "SPAT 90 CG"



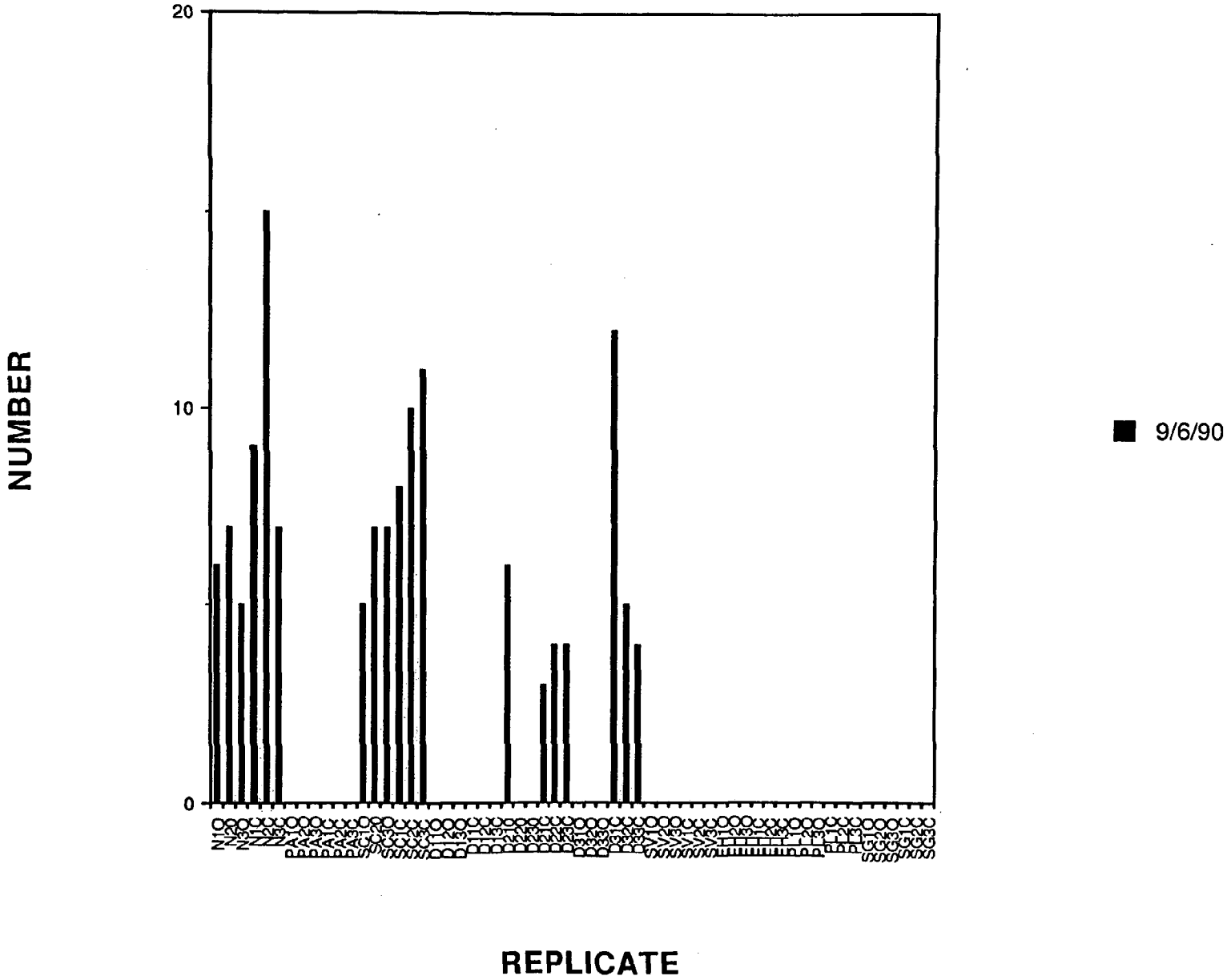
Data from "SPAT 90 CG"



Data from "SPAT 90 CG"



Data from "SPAT 90 CG"



Data from "SPAT 90 CG"

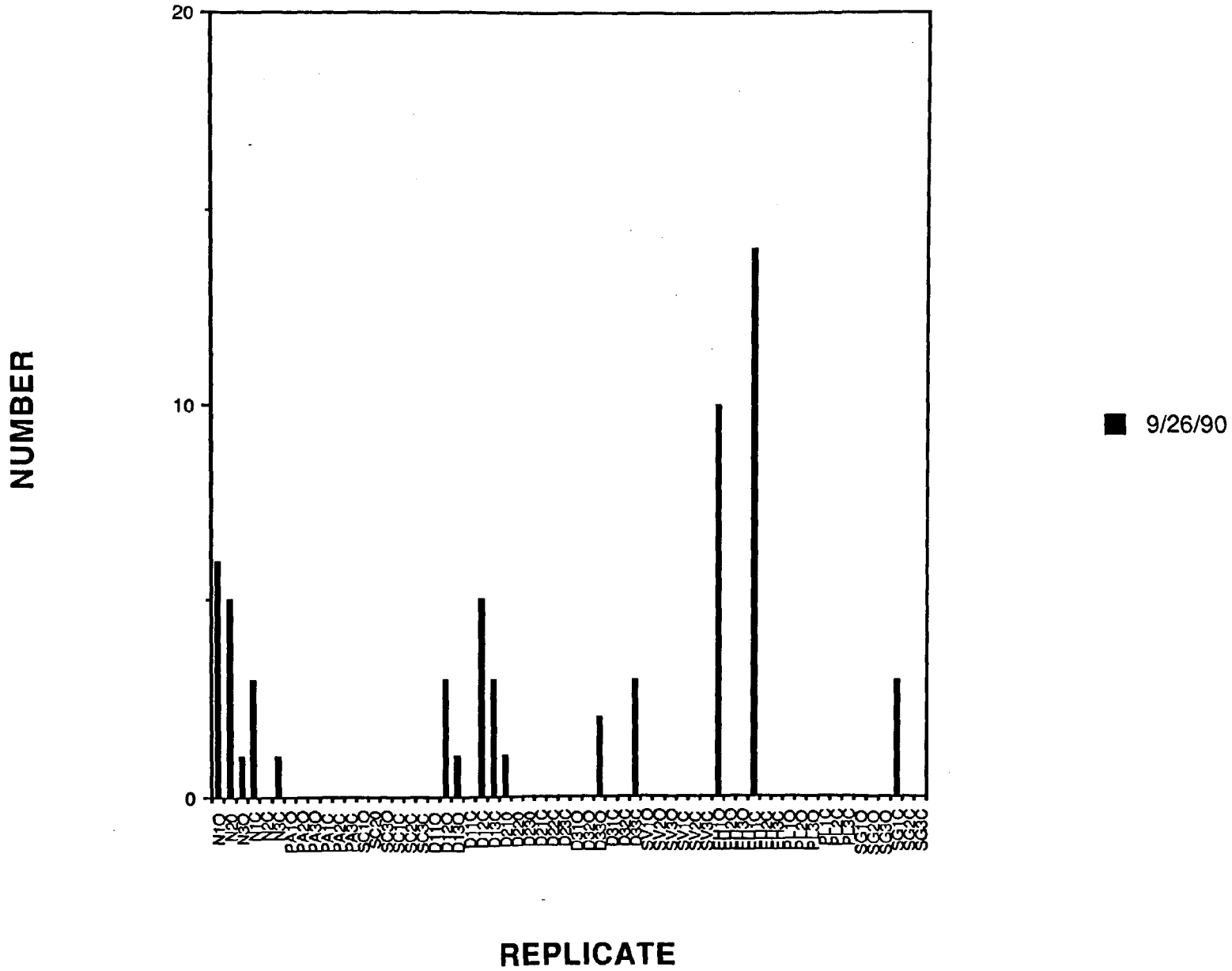


Figure 16: Mean number of oyster spat taken at stations in the Apalachicola estuary in open and closed baskets over the study period.(June-September, 1990).

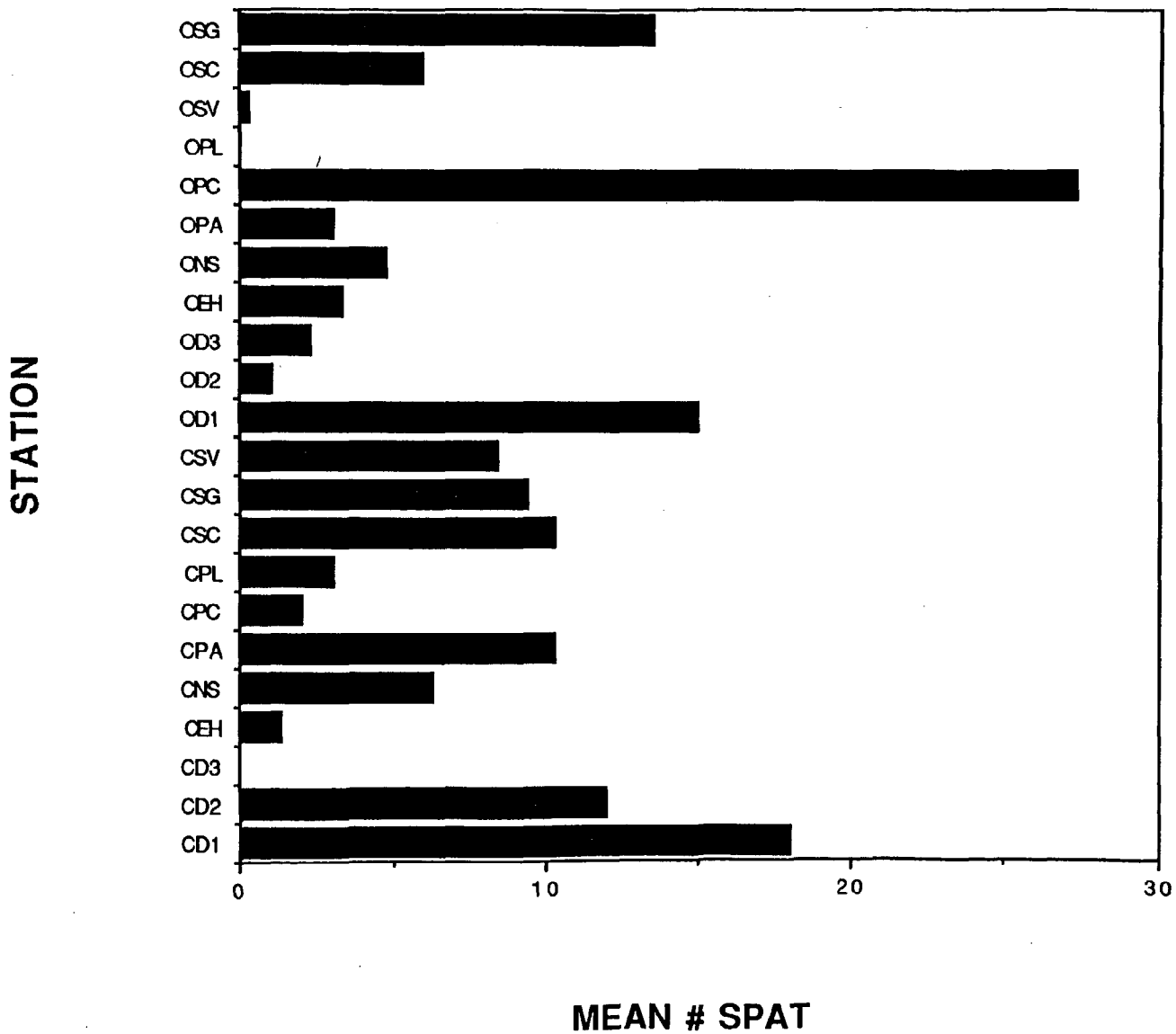
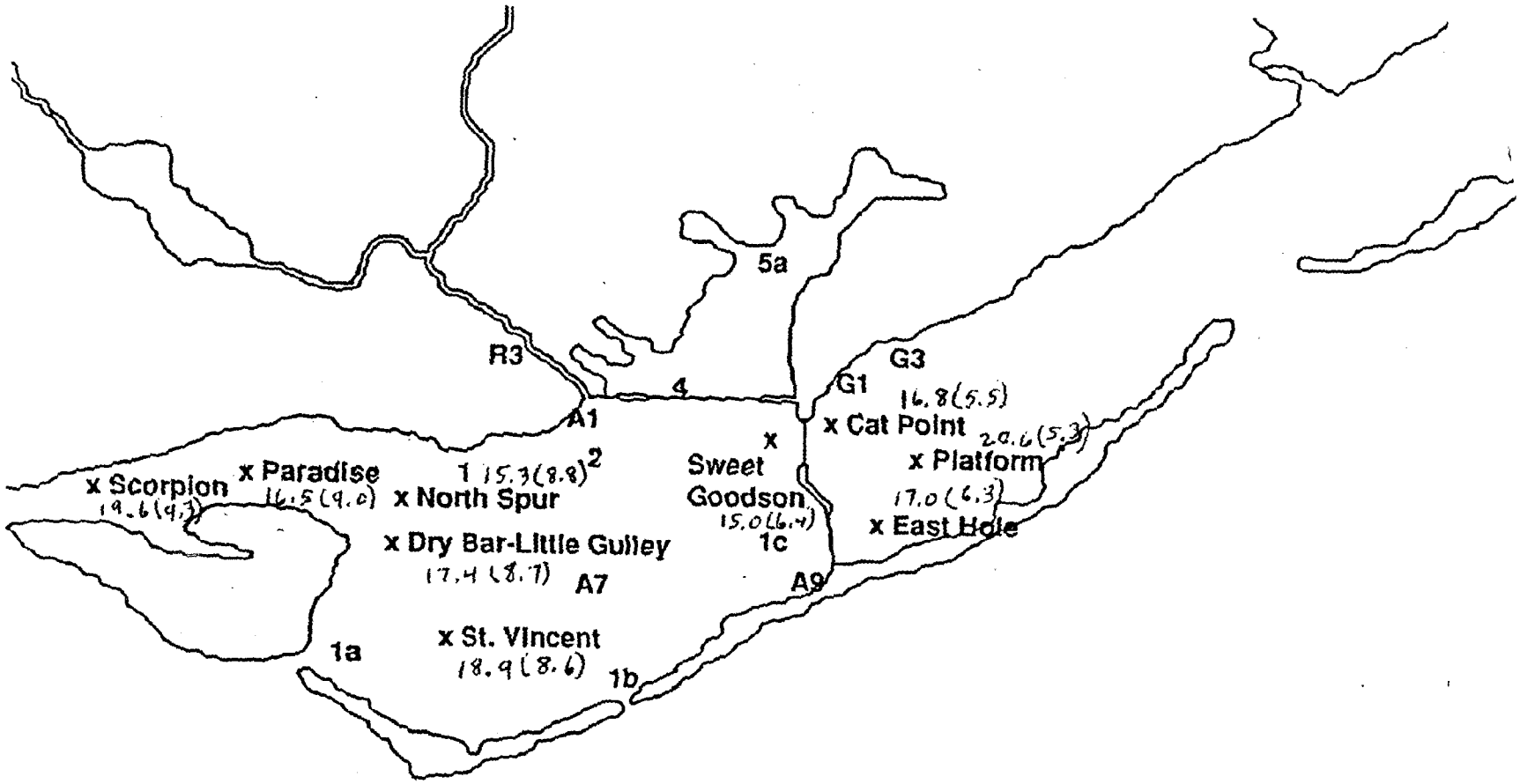
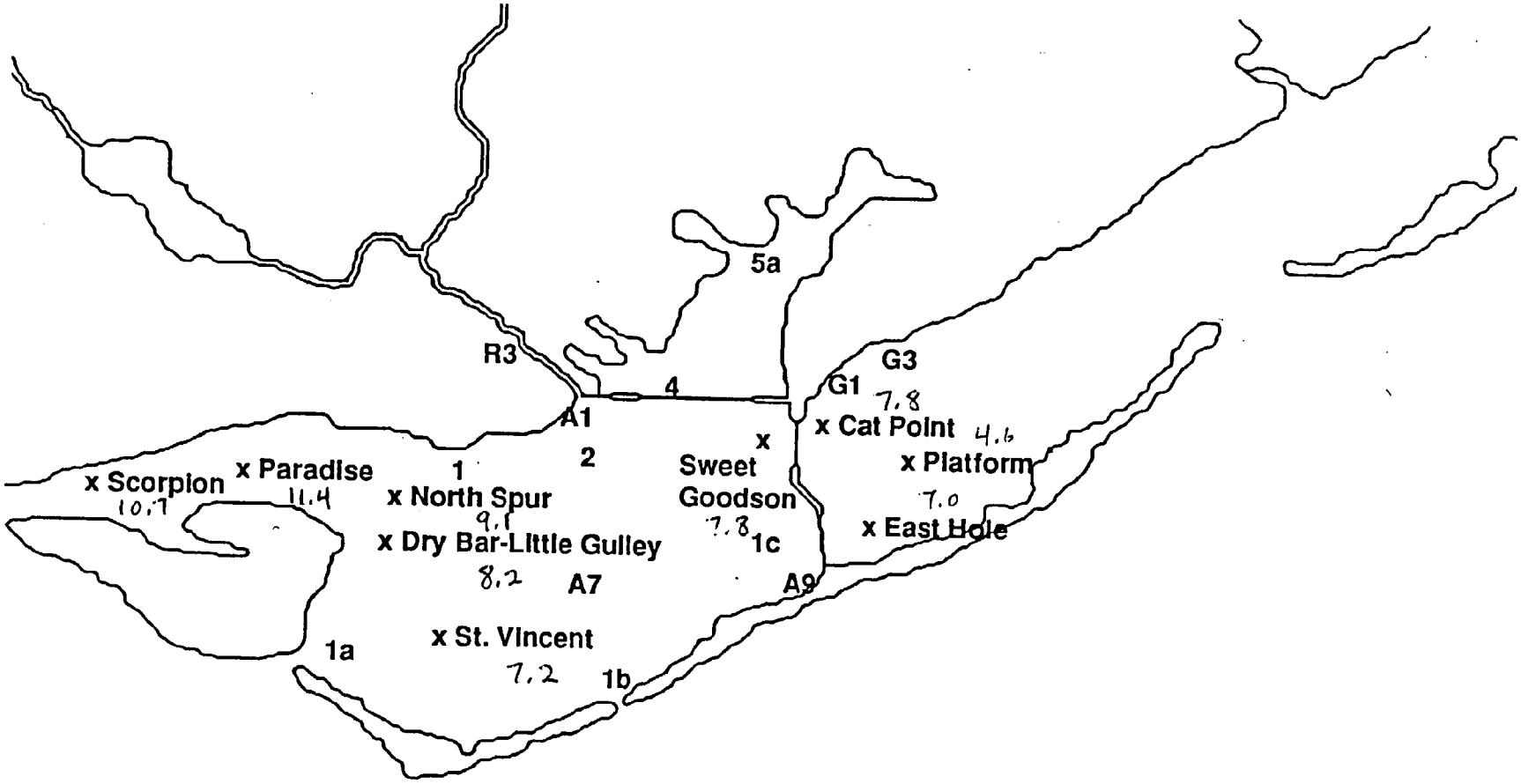


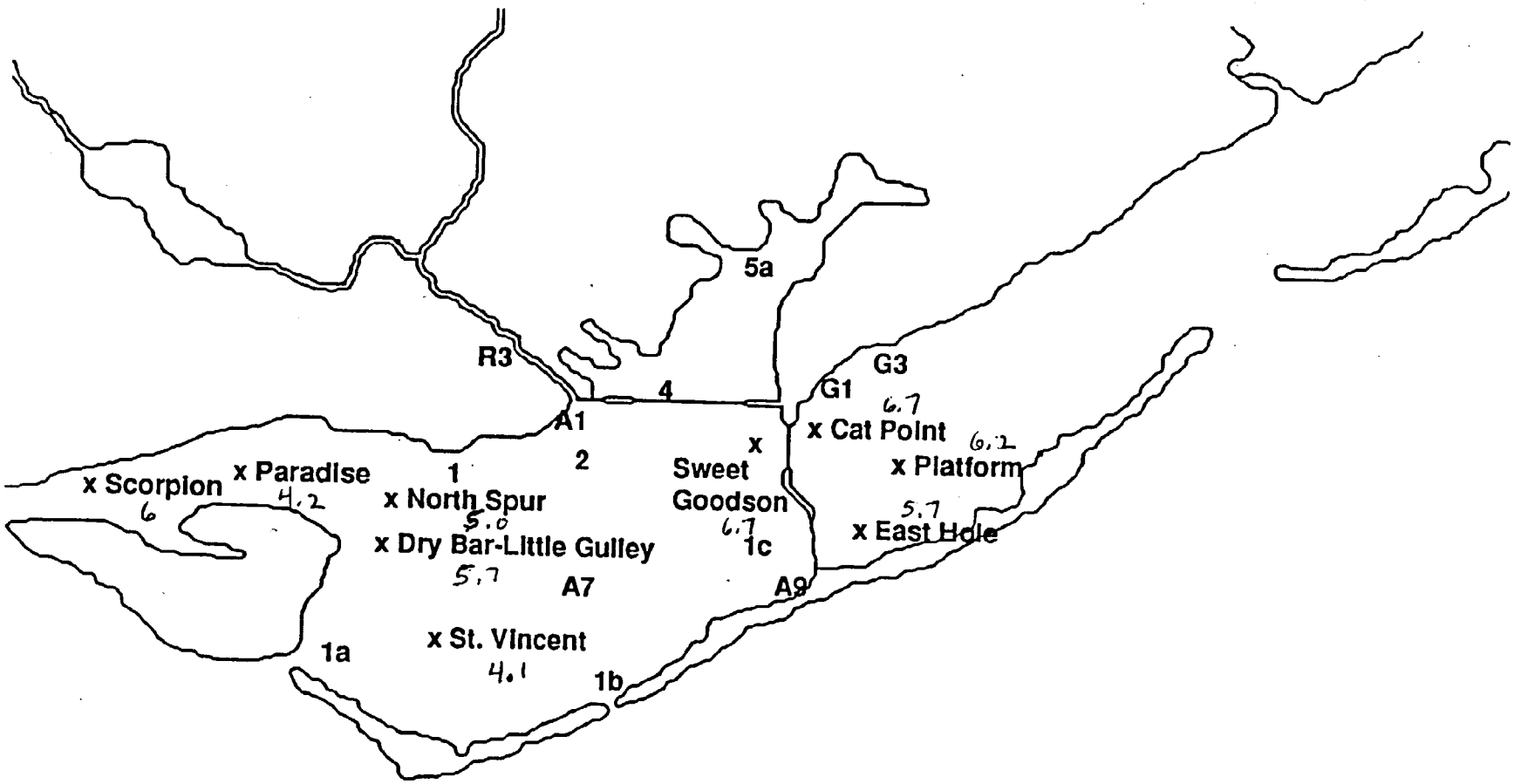
Figure 17: Habitat maps of variables that have statistical significance (Table 9) with respect to important oyster bar features and characteristics.



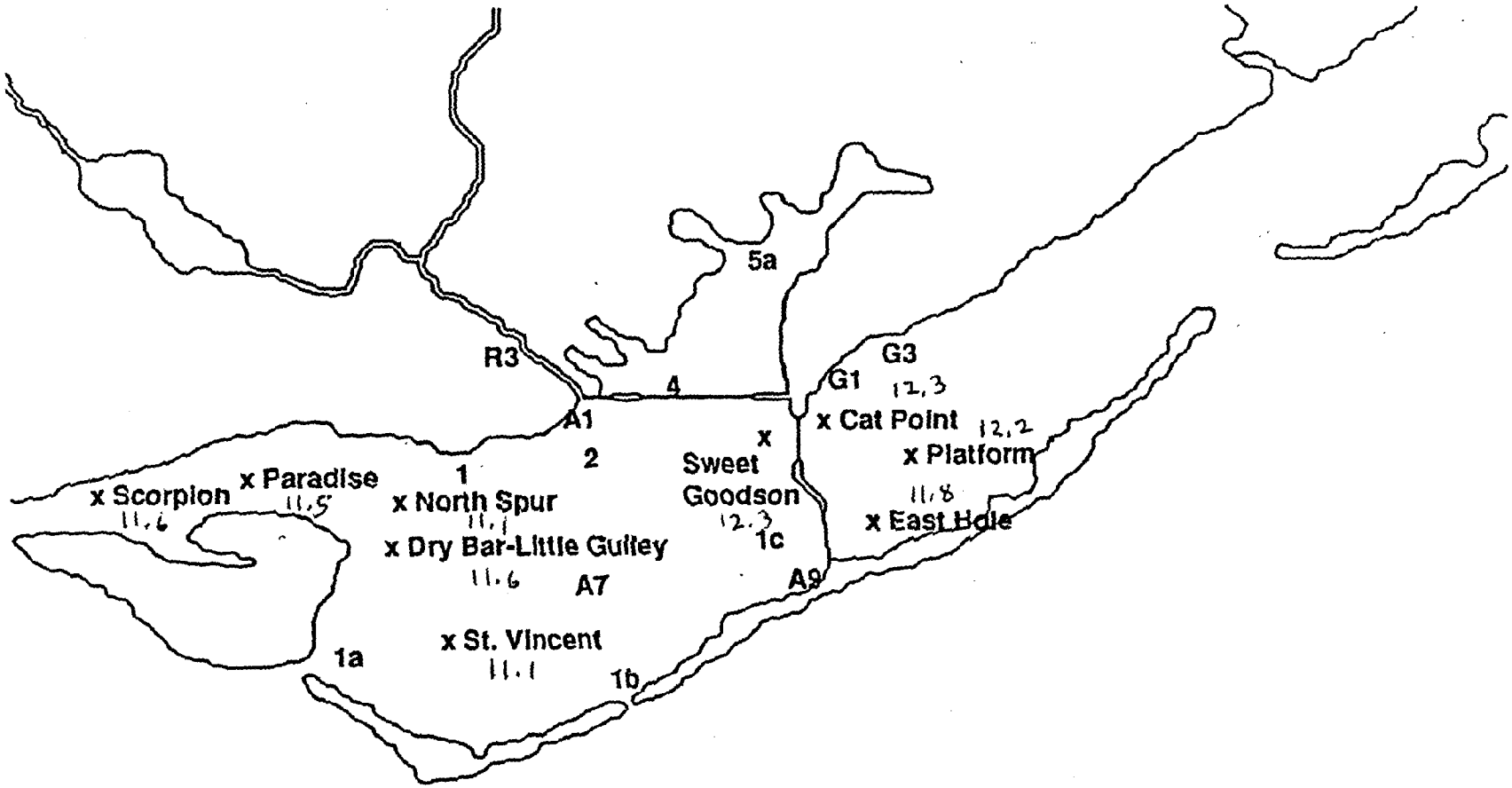
Mean salinity (standard deviation) (ppt) at oyster stations in the Apalachicola estuary.



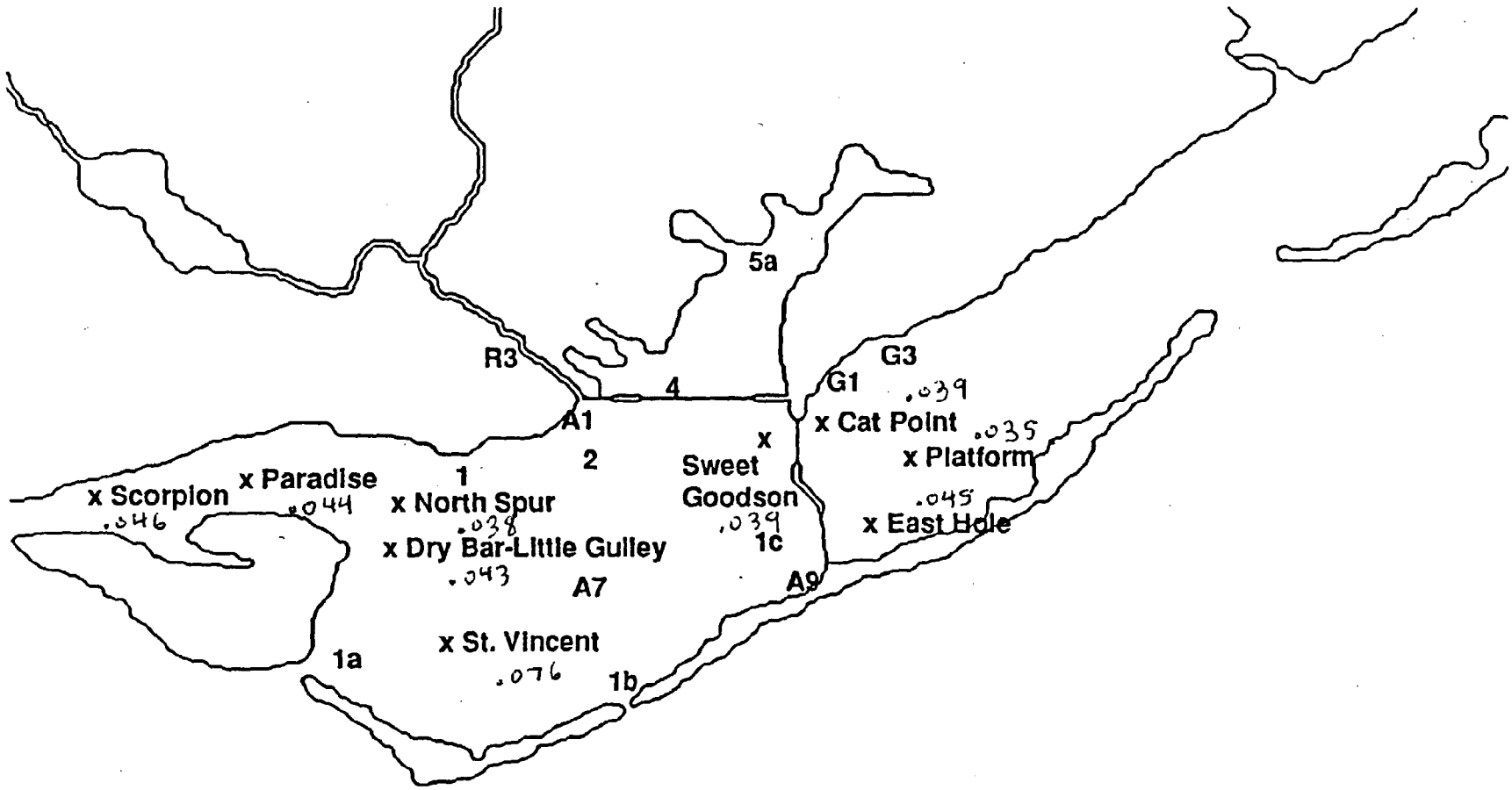
Mean turbidity levels (NTU) at oyster stations in the Apalachicola estuary.



Mean chlorophyll a levels (mg/l) at oyster stations in the Apalachicola estuary.



Mean total organic carbon (mg/l) at oyster stations in the Apalachicola estuary.



Mean ammonia levels (mg/l)at oyster stations in the Apalachicola estuary.

DATE DUE

GAYLORD No. 2333 PRINTED IN U.S.A.

NOAA COASTAL SERVICES CENTER LIBRARY

3 6668 14106 4396