

**TECHNICAL REPORT:
A SYNOPTIC SURVEY OF THE
BENTHIC MACROINVERTEBRATES
OF THE
BOCA CIEGA BAY ESTUARINE SYSTEM
(PINELLAS COUNTY, FLORIDA)
OCTOBER 1995**

**STEPHEN A. GRABE & DAVID J. KARLEN
ENVIRONMENTAL PROTECTION COMMISSION
OF HILLSBOROUGH COUNTY
1900 9th AVENUE
TAMPA, FL 33605**

**PREPARED FOR:
TAMPA BAY NATIONAL ESTUARY PROGRAM
111 7th AVENUE SOUTH
ST. PETERSBURG, FL 33701**

ACKNOWLEDGEMENTS

Financial support was provided by the Tampa Bay National Estuary Program (Mr. Richard Eckenrod, Project Manager and Ms. Holly Greening, Project Scientist), Pinellas County's Department of Environmental Management (Mr. Will Davis, Director) and the Environmental Protection Commission of Hillsborough County (Mr. Roger Stewart, Director). Field operations were conducted by Pinellas' Department of Environmental Management: Nancy Page, Sue Myers, Gene Quinn, Pam Leasure, Don Hicks, Lisa Baltus, and Sean Coats; Don Moores served as Project Manager. Maria Martinez, Deborah Plunkett, and Greg Blanchard of Manatee County's Environmental Management Department performed the silt + clay analyses. Benthic samples were sorted by Bryon Chamberlin, Ed Harris, and April Kiraly. David Camp (Crustacea), William Lyons (Mollusca), and Thomas Perkins (Polychaeta) of FDEP's Florida Marine Research Institute verified/corrected our identifications.

**THIS IS TECHNICAL PUBLICATION #02-96
OF THE
TAMPA BAY NATIONAL ESTUARY PROGRAM**

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SECTION 1

INTRODUCTION

A benthic monitoring program has been included in the draft management plan [CCMP] for Tampa Bay, "Charting the Course" (Tampa Bay National Estuary Program [TBNEP] 1996) as a key instrument for assessing the status, or "health" of Tampa Bay's biotic resources as well as a measurement tool to assess the effects of management decisions *vis a vis* toxic contaminants, stormwater runoff, and freshwater inflow (TBNEP 1996).

The benthic monitoring program envisioned for Tampa Bay (VERSAR 1992; Coastal Environmental, Inc. 1994) recommended annual sampling in each of the seven designated segments of Tampa Bay: Old Tampa Bay, Hillsborough Bay, Middle Tampa Bay, Lower Tampa Bay, Terra Ceia Bay, Manatee River, and Boca Ciega Bay. Implementation of the program in 1993, however, saw samples collected from only six of the segments; Boca Ciega Bay was excluded. In 1995, with support from TBNEP, sampling was undertaken in Boca Ciega Bay in accordance with overall objectives of the monitoring program. The results of the 1995 sampling effort are summarized in this report. In the future, these results will be integrated with those of the other bay segments as part of a more comprehensive report.

SECTION 2

METHODS

2.1 STUDY DESIGN

The study design employed was a stratified (by bay segment), random, probability based sampling design (Larsen *et al.* 1994; Coastal Environmental, Inc. 1994). A hexagonal grid was randomly superimposed over the Boca Ciega Bay segment of the Tampa Bay estuarine system. The grid size for Boca Ciega Bay was 4.4 km², or 1,100 acres ("7x7x3"). Within each hexagon, the sampling location is randomly determined, with a known probability of inclusion.

The value of such an approach is that it is possible to determine the extents to which the sample population represents the "true" population (*i.e.*, the Boca Ciega Bay segment of Tampa Bay); it is also possible to estimate the area of each segment, and of the bay as a whole, which is "subnominal" or "healthy".

2.2 FIELD METHODS

All sampling occurred during October 1995 and was conducted by PDEM staff. The methodology for the sample selection process is described in Courtney *et al.* (1993). The locations (Figure 2-1) of the stations sampled are described in Appendix 2-A. Twenty-one stations were sampled.

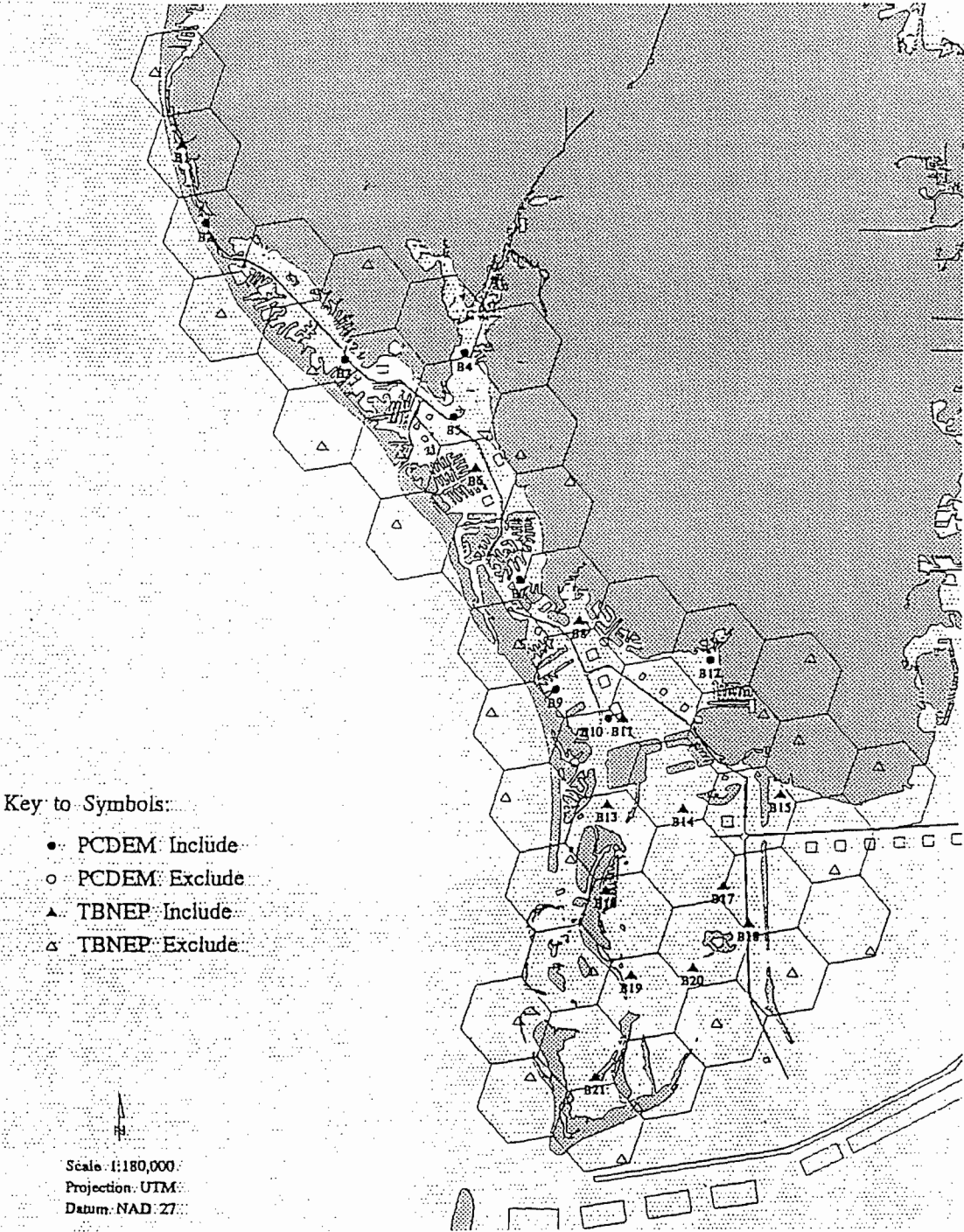
Benthic infauna, hydrographic profiles, diel hydrographic data, and sediments were collected using the standard EMAP techniques adopted by USEPA for the Louisianian Province. This section only summarizes the standard protocols; detailed descriptions are found in Courtney *et al.* (1993).

At each station the coordinates, time, date, and conditions at the station were recorded. The water column profile was then measured with a Hydrolab Surveyor 3 (temperature, dissolved oxygen, pH, and salinity/conductivity). A Hydrolab Recorder was deployed to measure temperature, dissolved oxygen, salinity/conductivity, and pH every 15 minutes over at least 12 hour (through early morning) cycle.

Sediment samples were collected with a 0.04m² stainless steel, Young-modified Van-Veen grab sampler. Two benthic grabs were cored and the depth of the redox potential discontinuity layer [RPD] measured; a sample was retained for sediment grain size analysis (% silt+clay only); the remainder of each grab was then emptied into a plastic bag, a seawater-epsom salt solution was added to relax the animals (Steedman 1976), and the samples were stored on ice. At the end of the day, samples were sieved (500 μ m mesh) and the organisms preserved in a 10% solution of borax-buffered formalin, with Rose Bengal added to stain the organisms.

BENTHIC SAMPLING DESIGN

Boca Ciega Bay, EMAP 7x7x3 Grid



Map Prepared by Coastal Environmental, Inc.

Figure 2-1. Location of benthic sampling stations in Boca Ciega Bay, October 1995.

2.3 LABORATORY METHODS

2.3.1 PHYSICAL ANALYSIS OF SEDIMENT SAMPLES

Particle size is used to describe the physical characteristics of sediments. Because particle size influences both chemical and biological variables, it can be used to normalize chemical concentrations according to sediment characteristics and to account for some of the variability found in biological assemblages. For these samples, only the percent silt+clay (<63 μm) was determined for the particle size samples. Manatee County's Environmental Management Department performed the silt+clay analyses. Sediment samples were homogenized by stirring with a stainless steel spatula. For sandy sediments, an aliquot of approximately 50 g wet weight was removed for analysis. For muddy sediments, approximately 20 g wet weight was removed for analysis.

Five ml of sodium hexametaphosphate (6.2 g/L) and 50 ml of distilled water was added to the sediment and the slurry stirred by a magnetic stirrer. This served to break up sediment aggregates, particularly clays, using the sodium hexametaphosphate as a dispersant. After stirring, the sample was sieved through a 63 μm mesh stainless steel sieve.

The filtrate (<63 μm) was transferred to a graduated cylinder, and distilled water was added to bring the volume to the next highest 50 ml mark. The sample was shaken to suspend sediment particles evenly. Immediately after shaking, 40 ml was removed with a volumetric pipette and placed in a tared evaporating dish. The pipette was rinsed with distilled water, which was also added to the sample dish.

The two fractions (>63 μm and <63 μm) were then dried to a constant weight at 60°C. As a check of the stability of the dry weight measurements, samples were heated for an additional 24 hour period and a randomly selected subsample was re-weighed. The percent silt+clay [%SC] was calculated as:

$$\%SC = [(silt + clay)_g / (sand + silt + clay)_g] \times 100$$

2.3.2 MACROBENTHIC COMMUNITY ASSESSMENT

The fauna of interest are invertebrate macrofauna, defined as those organisms retained on a 500 μm mesh sieve. All fauna retained were identified and enumerated, except organisms generally treated as meiofauna (*e.g.*, ostracods, copepods, and nematodes), plankton (*e.g.*, cladocerans and copepods), fish, aerial insects, and eggs or egg cases. All benthic analyses were conducted by EPCHC staff.

Animals were initially separated from the sediments using sugar (Gonor & Kemp 1978) to increase the density of the water, thereby causing many of the animals to float. These animals were then decanted off. The floatation process was repeated several times for each sample to ensure maximum recovery. The sediments were then searched for any remaining organisms (usually mollusks) under a stereomicroscope. All organisms were identified to the species level whenever possible, or to the lowest practicable taxon.

2.4 QUALITY ASSURANCE AND QUALITY CONTROL

All field and laboratory QA/QC protocols are described in detail in Grabe *et al.* (1995). Laboratory QA/QC results are reported in Appendix 2-B.

2.5 DATA ANALYSES

"Dominance" [D] of taxa within the benthic community was quantified using the geometric mean of (% composition x % occurrence) (Windell 1971). "Dominance" integrates two measures; a third measure which could be incorporated into the measurement, biomass, was not determined. Percent composition is the percentage a particular taxon comprises of the total abundance; frequency of occurrence is the percentage of samples a taxon occurs in.

Species richness (S) of the benthos was defined as the number of species or number of distinct taxa (Pielou 1975). Species diversity was defined as the Shannon-Wiener index (H') (Pielou 1975). Evenness (J) is a measure of how species are distributed and is constrained between 0 and 1.0. Higher J values indicate a more even distribution of species abundances (*i.e.*, species abundances will generally be similar) and lower values indicate more of a "clumped" abundance distribution (*i.e.*, some species will be much more abundant than others). Species richness, diversity, and evenness can be integrated as a Diversity Monitoring Model [DIMO] (Qinghong 1995). This model presents the three parameters in a graphical format, permitting a visual assessment of the relationships between S, H', and J over space (or time).

Three metrics were used to describe the biological communities in Boca Ciega Bay. The first was a modification of the EMAP Louisianian Province Benthic Index was applied to these data (Coastal Environmental, Inc. 1995). The development of the original EMAP index for the Louisianian Province is described in detail in Engle *et al.* (1994) and its subsequent modification is described in Coastal Environmental, Inc. (1995). This index has subsequently been modified to exclude normalization of species diversity (H') by salinity. Direct application of this index to Tampa Bay may be determined to be inadvisable for several reasons. First, the estuaries sampled in Louisianian Province for EMAP tended to have higher %SC than the sampling locations in Tampa Bay. Second, species richness was markedly higher in Tampa Bay than in the other Louisianian Province estuaries. This is in part due to differences in sediment type and, in part, due to the fact that Tampa Bay lies near the juncture of two faunal provinces, the Louisianian and the West Indian. A consequence of this is that H' is generally much higher in Tampa Bay than in the Louisianian Province estuaries.

Standardization of Tampa Bay index scores by Louisianian Province means and standard errors results in Tampa Bay receiving very high Index scores. Comparisons, on a relative basis, within this system are considered appropriate. However, absolute comparisons of Tampa Bay Index scores and the EMAP Louisianian Province appear unwarranted and could lead to erroneous conclusions about the status and integrity of benthic habitats in Tampa Bay. The USEPA will likely be developing an Index for the West Indian Province over the next several years. Such an index will likely be a more valid indicator for Tampa Bay.

Comparison with Index values reported in Coastal Environmental, Inc. (1995) and Grabe *et al.* (1996) is inappropriate as a computer error resulted in lower Index values than actually occurred. A revision of the Coastal Environmental report is currently in preparation (H. Wilson, pers. comm.).

A second approach was to apply a "modified" "biological integrity" standard as per Florida Administrative Code [FAC]. Chapter 62-302 of FAC adopts Shannon-Wiener diversity, H' , as the metric for "biological integrity" for Class II (shellfish harvesting) and III (recreation and propagation of fish and wildlife) waters. To meet the designated use class for that waterbody, H' cannot be less than 75% of that of a suitable reference location (based upon the mean of three replicate samples). To adapt this "standard" to this study design, the "reference" condition was defined as the mean of the three highest values for H' since a more rigorously defined "reference" location could not be defined with this study design.

The third approach was the application of an index developed by the late Dr. Douglas Farrell (FDEP). This (draft) Florida Marine Index (*cf.* Grabe *et al.* 1996), assigns scores to individual species of polychaetes, molluscs, crustaceans, and echinoderms. These scores range from one to five and are based upon responses to different dissolved oxygen regimes. Lower scores indicate more tolerance to low dissolved oxygen and higher scores less tolerance. For each species, the density is multiplied by its score and this product is divided by the density. The composite score of all taxa is the index. As designed, this index is an indicator of organic enrichment. Although specifically developed for the Gulf coast of Florida, a number of common species have not been assigned scores. Although this is one shortcoming of the index, as more data become available, from this program on the distribution of benthic species as a function of dissolved oxygen, the index will become more robust.

Regression and correlation analyses (of transformed variables) (Sokal & Rohlf 1981), were used to examine associations of total benthic abundance, S , H' , J , the EMAP Benthic Index, and the Florida Marine Index vs. salinity, dissolved oxygen, and the percentage of silt + clay (Neter *et al.* 1985). Statistical analyses were carried out with SYSTAT (Wilkinson 1990) software.

SECTION 3

RESULTS & DISCUSSION

3.1. STUDY AREA

Water depths at the sample locations ranged from 0.1 to 2.9 meters (Table 3-1). The seagrass *Thalassia testudinum* (turtlegrass) was observed at four stations (95BCB10, 95BCB12, 95BCB19, and 95BCB21). Bottom water temperatures ranged fairly widely, a function of time of day, cloud cover, and depth of the water column. Water temperatures (Figure 3-1) were lowest at four relatively shallow (0.3-1.5m) sites sampled on cloudy, windy day (Field obs.). Salinity (Figure 3-1) was lowest at Station 95BCB07 (near South Causeway Isles) and was highest at Station 95BCB17 (central Boca Ciega Bay, due south of Indian Key and west of the Sunshine Skyway). Dissolved oxygen also varied widely throughout this bay segment. Concentrations <5 mg/l were measured at stations 95BCB04 (Redington Beach) and 95BCB08 (southwest of Pasadena Golf Course). The highest concentration (11.3 mg/l) was indicative of supersaturated conditions and occurred at station 95BCB10 (north of the Pinellas Bayway). There was no evidence of hypoxia (dissolved oxygen <2.0mg/l). The percentage of silt + clay in the sediments ranged between 2.1 and 25.9% (Table 1); six sites had a silt + clay percentage of >10%. A plot of dissolved oxygen vs. the percent silt + clay (Figure 3-2) did not suggest any clear association. Stations 95BCB08 and 95BCB18 (northeast of Tarpon Key) had the highest percentages of silt + clay. The redox potential discontinuity layer [RPD], a measure of the depth of oxygenated sediment, ranged up to >80mm.

Table 3-1. Summary of physical and hydrographic characteristics of Boca Ciega Bay sample locations, October 1995. Near-bottom samples only. Number of observations=21, except for RPD, where n=17.

Variable	Mean	(range)
Bottom depth (m)	1.5	(0.1-2.9)
Temperature (°C)	27.3	(21.6-28.8)
Salinity (ppt)	30.1	(27.1-34.1)
pH	8.1	(7.8-8.4)
Dissolved oxygen (mg/l)	6.3	(4.2-11.3)
% Silt + clay	7.5	(2.1-25.9)
RPD (mm)	>20	(0->80)

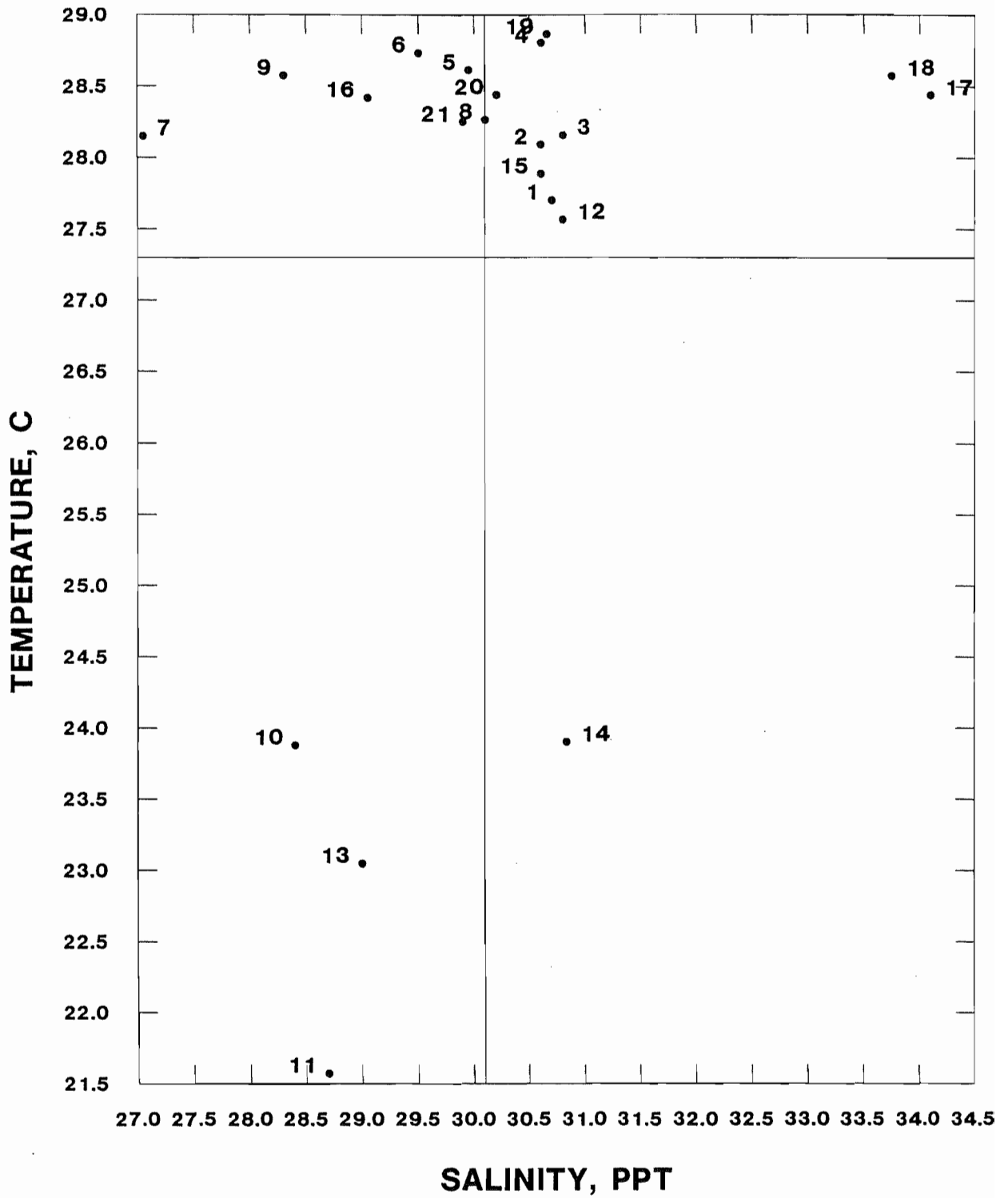


Figure 3-1. Temperature-salinity plot of near-bottom waters from Boca Ciega Bay, October 1995. Lines represent mean values for temperature and salinity. Numbers represent stations.

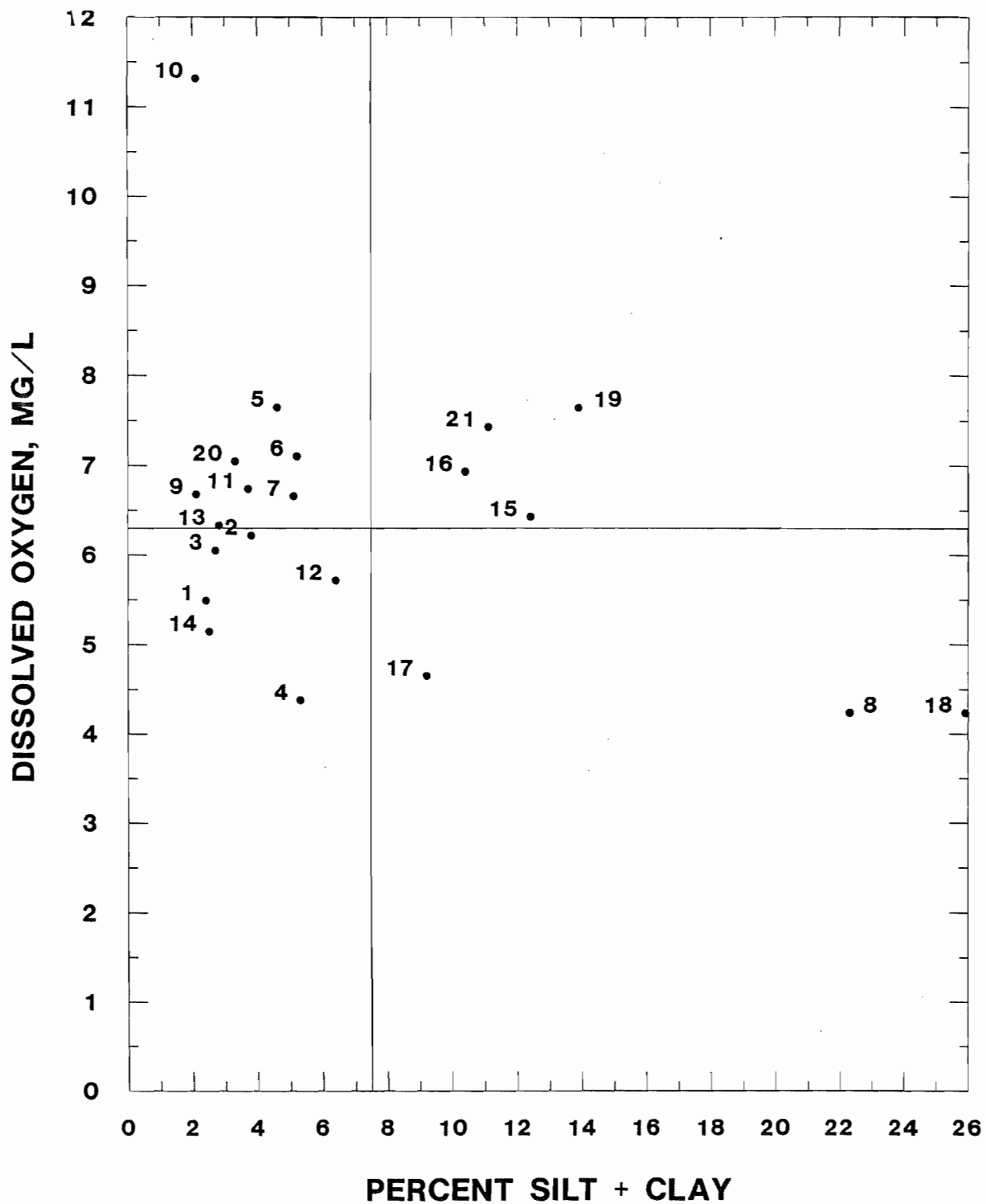


Figure 3-2. Dissolved oxygen vs. percent silt + clay of near-bottom waters from Boca Ciega Bay, October 1995. Lines represent mean values for dissolved oxygen and percent silt + clay. Numbers represent stations.

3.2 BENTHIC MACROINVERTEBRATES

3.2.1 TAXONOMIC COMPOSITION, DOMINANCE, AND ABUNDANCE

At least 324 taxa were identified from the 21 sampling locations (Appendices 3-A, 3-B, & 3-C). This included at least 134 species of polychaete worms, 86 species of molluscs (39 bivalves and 47 gastropods), and 62 species of crustacea (including 35 amphipods). Polychaetes comprised 56% of the total benthic abundance, gastropods 11.2%, bivalves 11.1%, amphipod crustaceans 7.8%, and oligochaete worms 6.9%.

Numerical dominants included a serpulid polychaete, *Spirorbis spirillum*, unidentified oligochaetes, and juveniles of the bivalve *Tellina* spp. (Table 3-2). *Spirorbis spirillum* and the gastropod *Bittium varium* were among the most abundant species overall (Table 3-2), but were found at few of the stations.

Table 3-2. "Dominant" benthic macroinvertebrates in Boca Ciega Bay, St. Petersburg, Florida, October 1995. Dominance = (% composition [%C] x % occurrence [%O])^{0.5}.

Taxon	Density (no./m ²)	%C	%O	Dominance
1. <i>Spirorbis spirillum</i> [P]	3233	31.9	23.8	27.6
2. Oligochaeta- genus undet. [O]	702	6.9	71.4	22.2
3. <i>Tellina</i> spp. [B]	325	3.2	81.0	16.1
4. <i>Monticellina dorsobranchialis</i> [P]	304	3.0	61.9	13.6
5. Onuphidae [P]	188	1.9	47.6	9.4
6. <i>Carazziella hobsonae</i> [P]	196	1.9	38.1	8.6
7. <i>Paraprionospio pinnata</i> [P]	114	1.1	61.9	8.3
8. <i>Parvilucinia multilineata</i> [B]	110	1.1	61.9	8.2
9. <i>Mysella planulata</i> [B]	131	1.3	47.6	7.9
10. <i>Bittium varium</i> [G]	449	4.4	9.5	6.5

B= bivalve; G= gastropod; O= oligochaete worm; P= polychaete worm

Overall density of benthic macroinvertebrates ranged from 0 (95BCB08 located to the west of the Pasadena Golf Course) to >40,000 organisms/m² (95BCB10 in central Boca Ciega Bay and 95BCB19 near Pass-a-Grille Channel) (Figure 3-3). Although the mean density was >10,125/m², only six of the 21 sites had densities greater than the mean. Total abundance was not associated with either salinity ($F_{1,19}=0.59$; $r=0.16$; $p=0.49$) or silt + clay ($F_{1,19}=3.7$; $r=0.41$; $p=0.07$) but was associated with dissolved oxygen ($F_{1,19}=11.7$; $r=0.62$; $p=0.003$) (Figure 3-4). Two of the locations with very high densities were seagrass samples numerically dominated by *Spirorbis spirillum*.

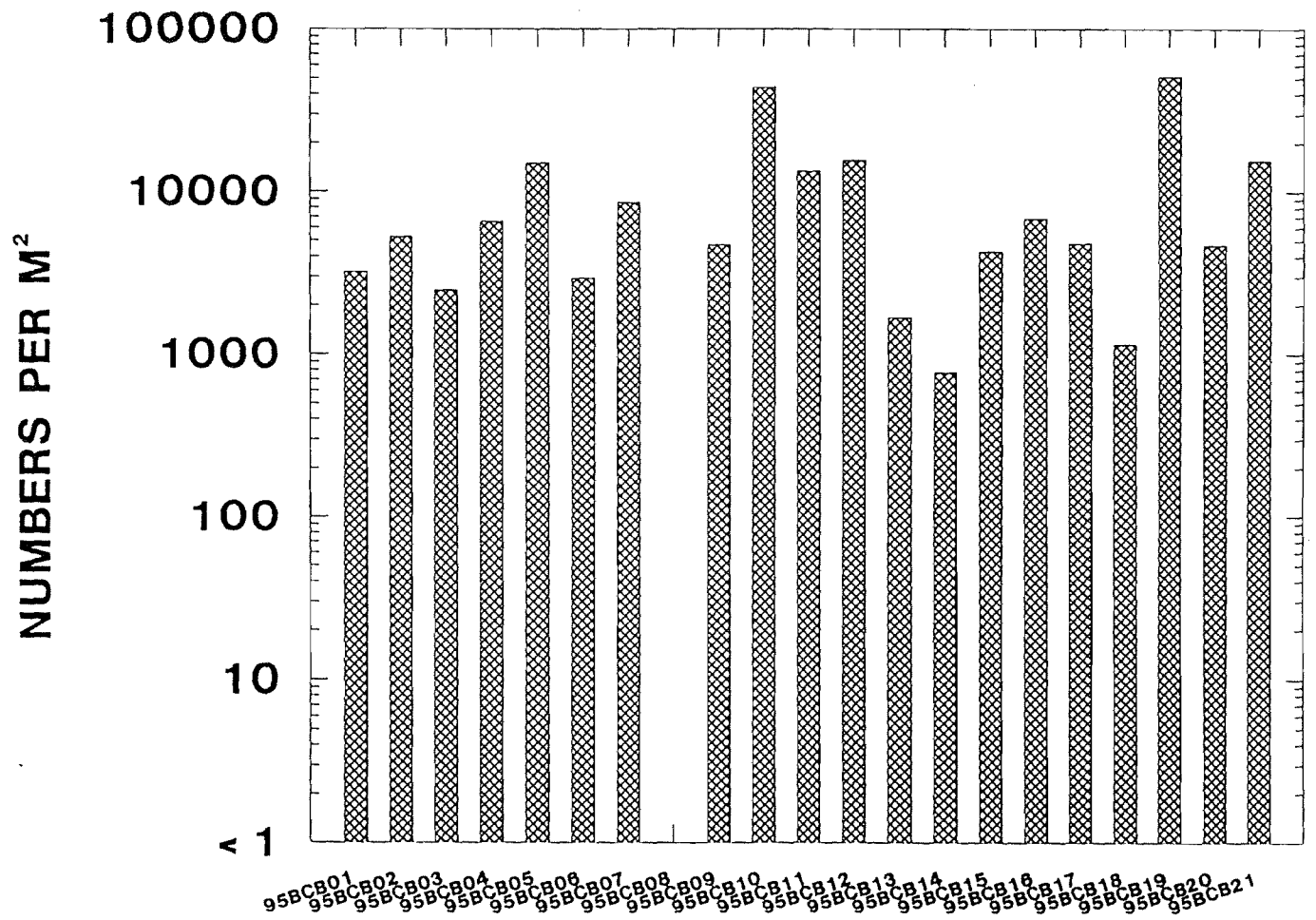


Figure 3-3. Abundance of total benthic macroinvertebrates, by station. Boca Ciega Bay, October 1995.

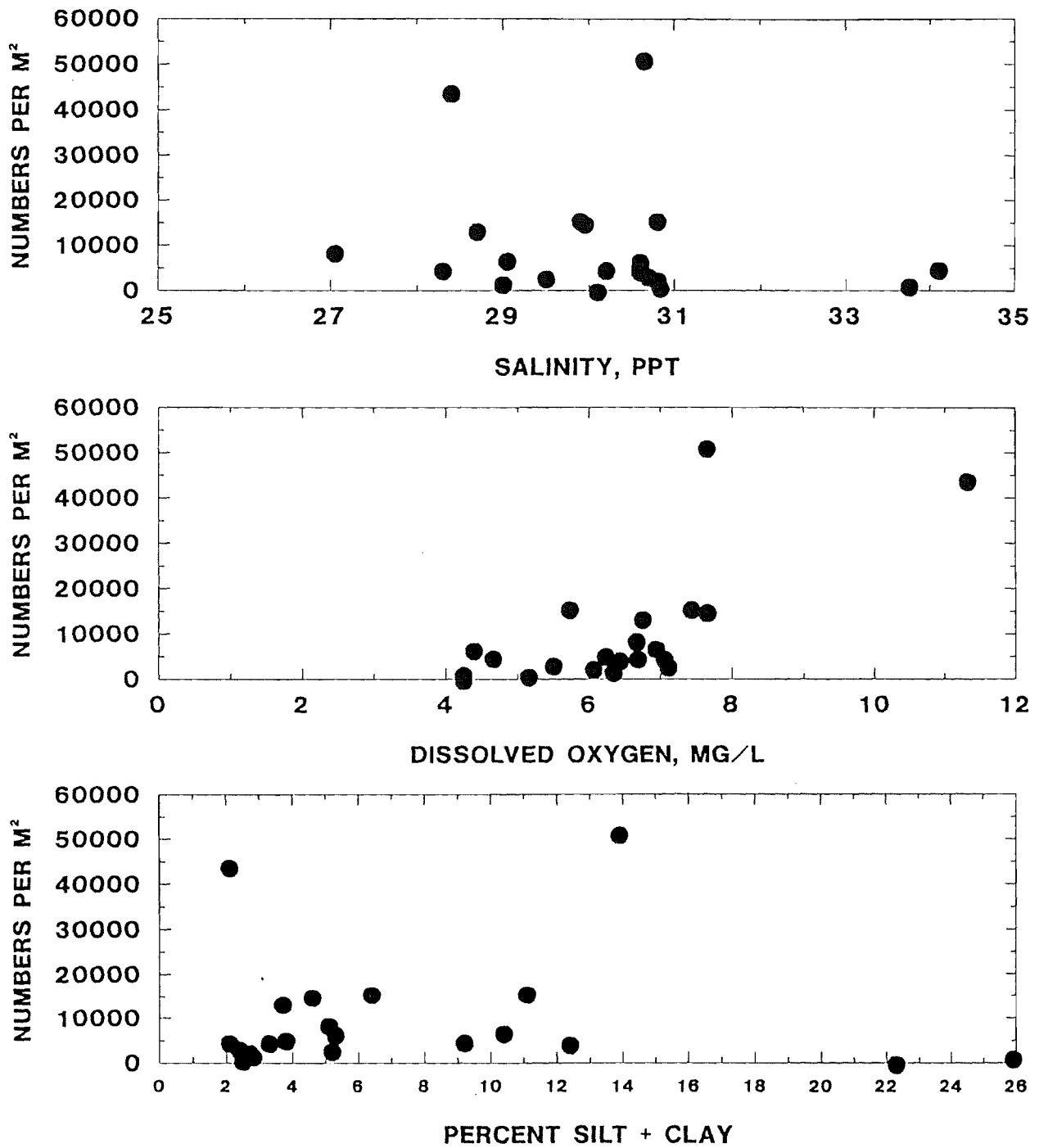


Figure 3-4. Association between total benthic macroinvertebrate abundance vs. salinity (top), dissolved oxygen (middle), and the percentage of silt + clay in the sediments (bottom). Boca Ciega Bay, October 1995.

Spirorbis spirillum is an epiphyte on the seagrass *Thalassia testudinum* (Taylor 1971). It occurred at only four of the 21 stations (Figure 3-5). Thus, its density, expressed as numbers per m², would be affected by the amount of seagrass in the sample. This species was not identified in the 1993 bay-wide survey (Grabe *et al.* 1996).

Oligochaetes occurred at two-thirds of the sites and attained greatest densities at stations 95BCB05 and 95BCB11 (central Boca Ciega Bay) (Figure 3-5). In 1993, oligochaetes were only listed among the dominants in the Terra Ceia Bay (D=19.0) and Lower Tampa Bay (D=10.1) segments (Grabe *et al.* 1996), although the dominance scores were highest in the 1995 Boca Ciega Bay samples. Tubificid oligochaetes, which are predominant in these samples, are generally associated with tolerance to lowered oxygen levels and a preference for finer-grained sediments (Giere & Pfannkuche 1982).

Seven species of *Tellina* were identified from Boca Ciega Bay (Figure 3-6). *Tellina versicolor* was the most abundant species identified, although the overwhelming majority of tellins were juveniles which could not be identified to species. *Tellina* spp. juveniles were most abundant at station 95BCB02 (Indian Shores) and *T. versicolor* was most abundant at stations 95BCB07 and 95BCB17 (South Causeway Isles). The other species were relatively rare. Tellins were not among the dominants in any bay segment during 1993 (Grabe *et al.* 1996). Tellins generally are found inhabiting a wide range of sediment types-- from muds to coarse sand (Britton & Morton 1989). Sediment preference, however, is very likely species specific. As more bay-wide data become available it may be possible to better define environmental preferences of the various species.

Monticellina dorsobranchialis was ranked fourth in dominance and attained maximum density at 95BCB16 (east side of Cabbage Key) (Figure 3-7). This species attained higher dominance scores in the Middle Tampa Bay (D=25.8) and Terra Ceia Bay (D=14.9) segments during 1993 (Grabe *et al.* 1996) than it demonstrated in Boca Ciega Bay during 1995. *Monticellina dorsobranchialis* abundance in Tampa Bay was shown to be negatively associated with RPD depth and positively associated with the percentage of silt + clay in the sediments and several trace metals (Grabe *et al.* 1996).

Onuphid polychaetes (almost wholly brooding juveniles; *Diopatra cuprea* excluded from this grouping) ranked fifth in Dominance in Boca Ciega Bay in 1995, yet were not among the bay-wide dominants in 1993 (Grabe *et al.* 1996). These polychaetes were particularly abundant at stations 95BCB20 and 95BCB11 (Figure 3-7).

3.2.2. NUMBERS OF SPECIES

Numbers of species ranged from 0 (95BCB08) to >80 (95BCB10, 95BCB19, and 95BCB12 in Clam Bayou) (Figure 3-8). The mean number of species per station was 47 and 14% of the stations had <20 taxa. Numbers of species was not associated with salinity ($F_{1,19}=1.159$; $r=0.24$; $p=0.30$), but was associated with dissolved oxygen ($F_{1,19}=11.3$; $r=0.61$; $p=0.003$) and percent silt + clay ($F_{1,19}=4.8$; $r=0.45$; $p=0.04$) (Figure 3-9).

The three stations with the highest number of species were characterized by seagrass, *T. testudinum* (Field and laboratory obs.). The total number of taxa (>324) identified from Boca Ciega Bay was higher than that of any other bay segment surveyed in 1993, save Lower Tampa Bay (368 taxa in 36 samples at 18 stations) (Grabe *et al.* 1996). The mean numbers of taxa per sample, however, was lower than all but the Hillsborough Bay segment.

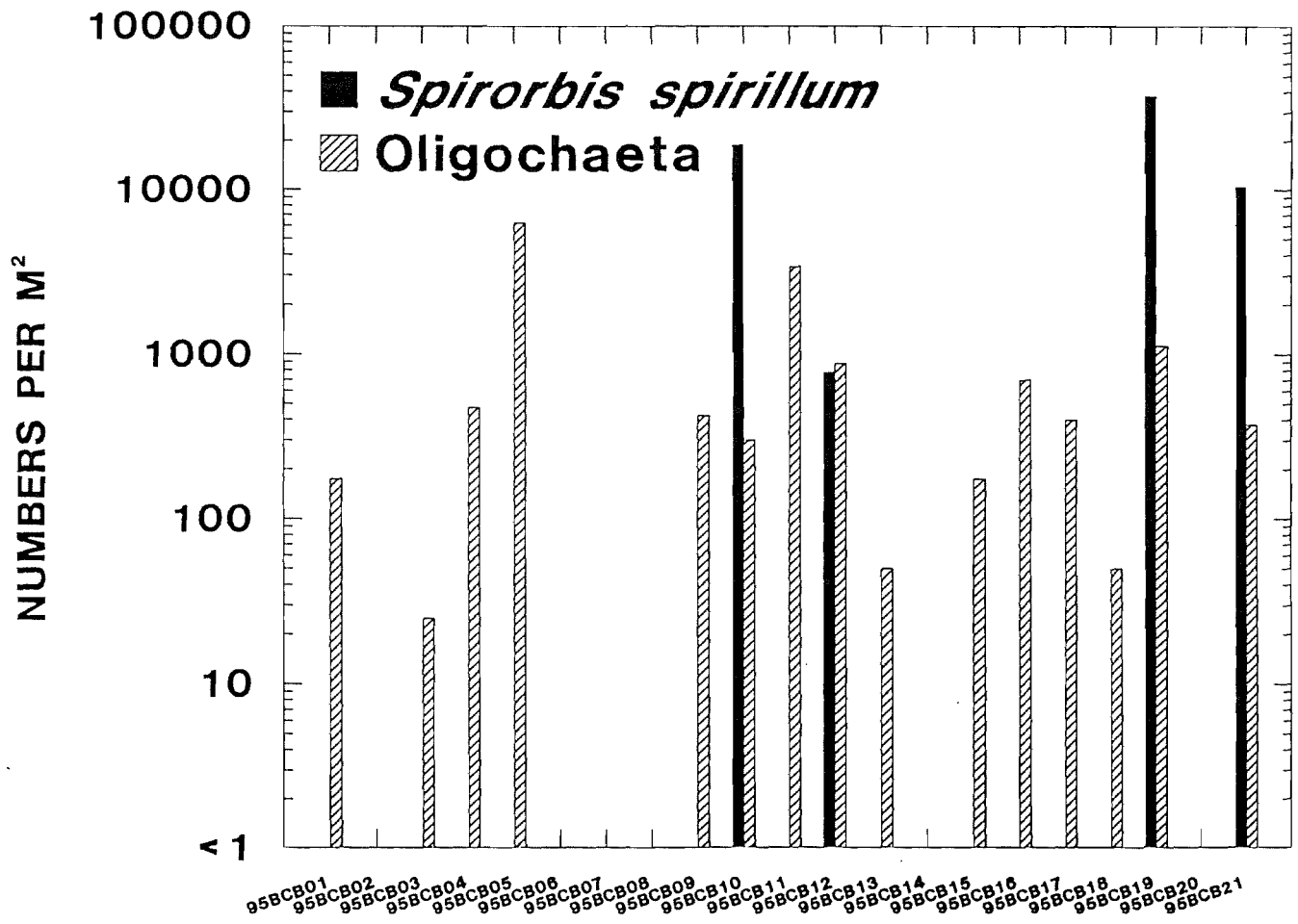


Figure 3-5. Abundance of *Spirorbis spirillum* (Polychaeta, Serpulidae) and Oligochaeta, by station, in Boca Ciega Bay, October 1995.

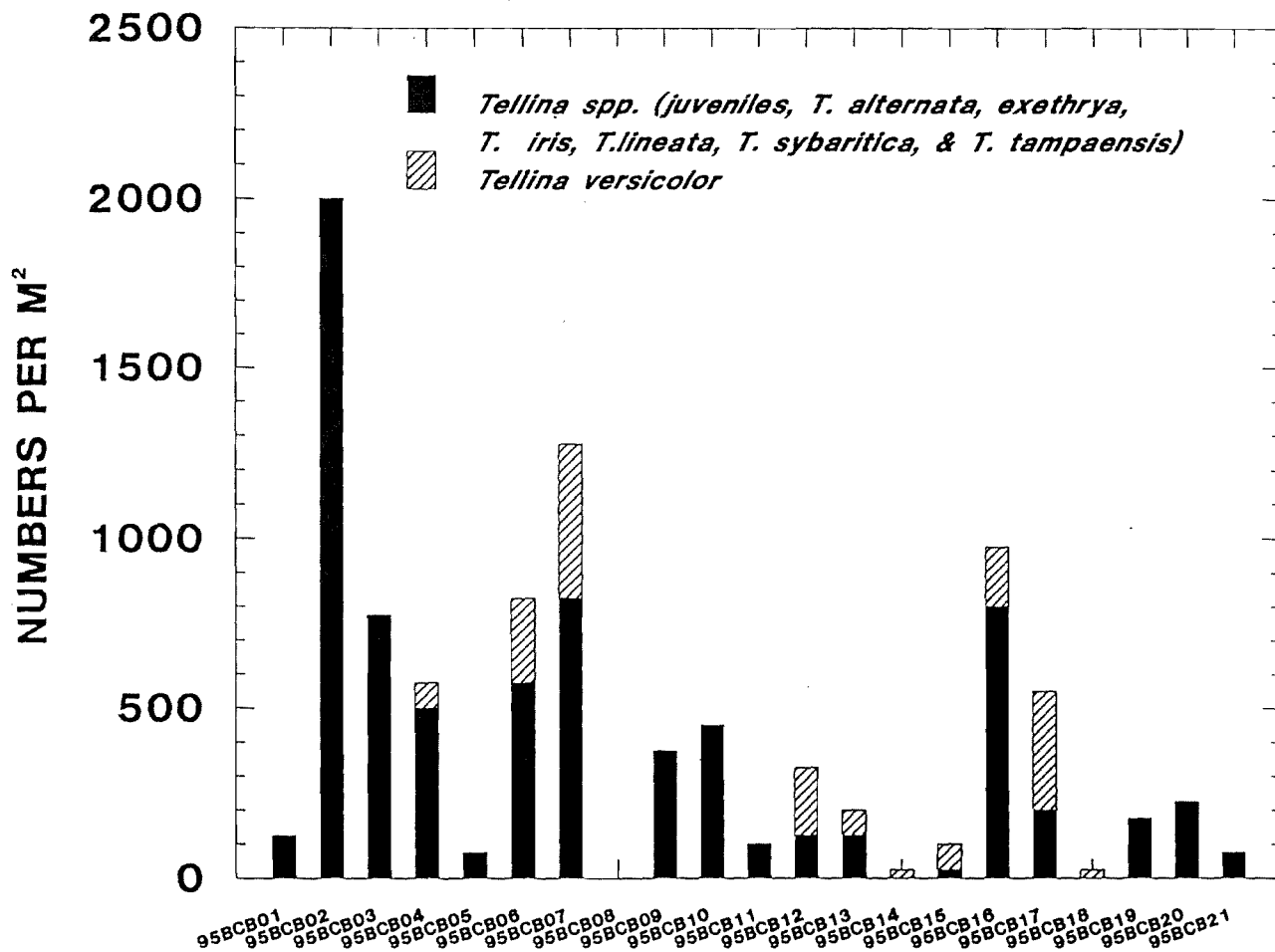


Figure 3-6. Abundance of *Tellina* spp. (Bivalvia, Tellinidae), by station, in Boca Ciega Bay, October 1995.

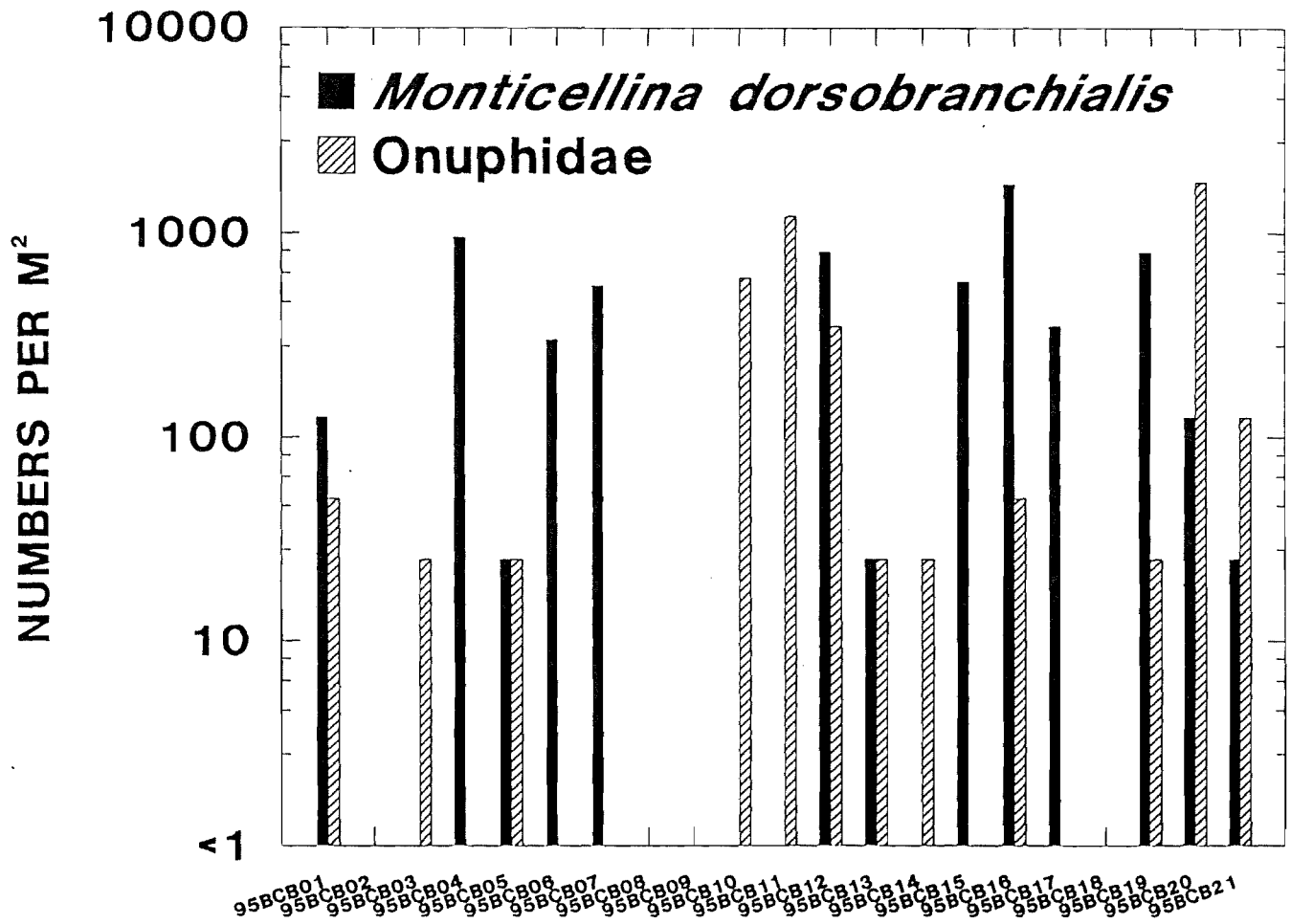


Figure 3-7. Abundance of *Monticellina dorsobranchialis* (Polychaeta, Cirratulidae) and Onuphidae (Polychaeta), by station, in Boca Ciega Bay, October 1995.

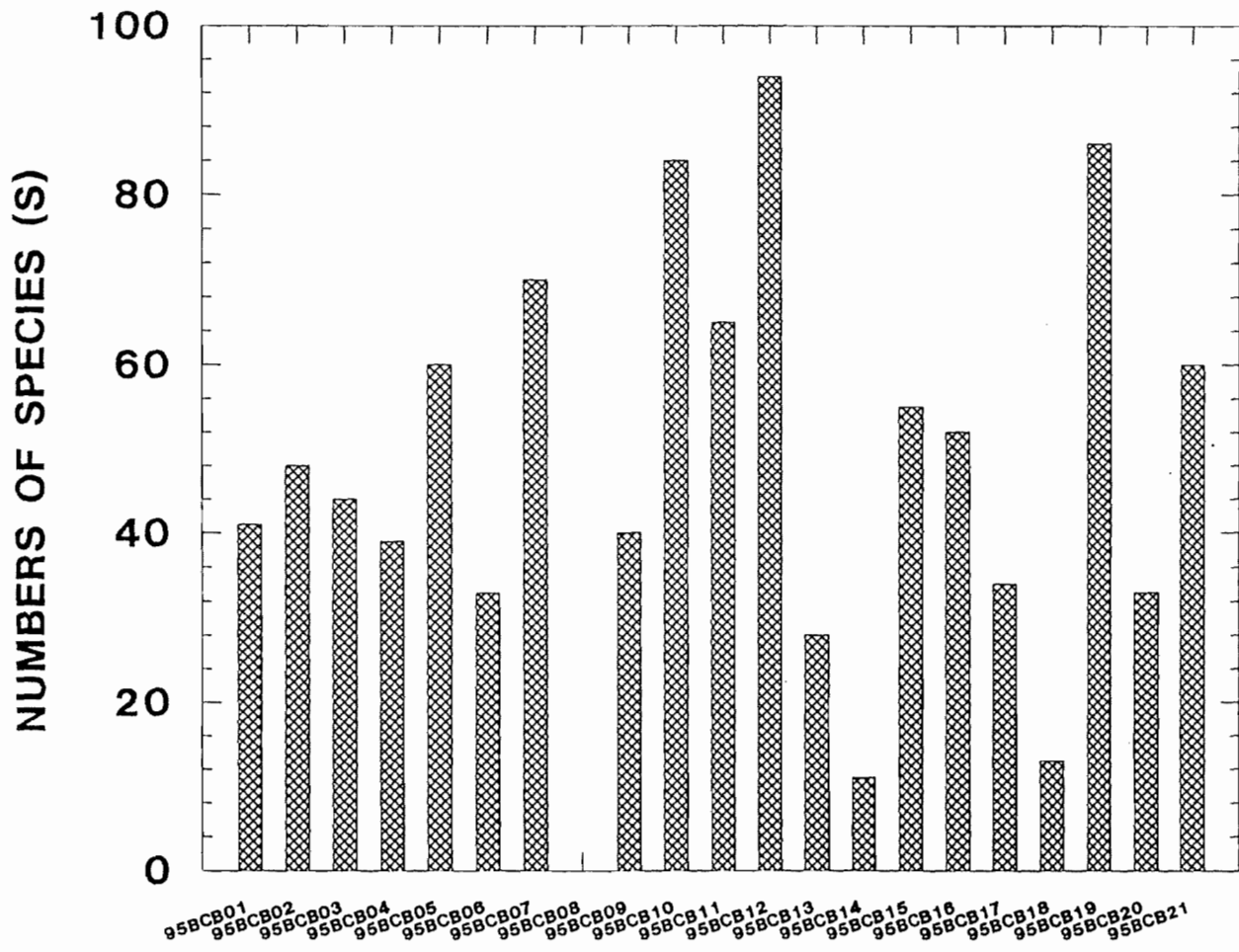


Figure 3-8. Numbers of species, by station. Boca Ciega Bay, October 1995.

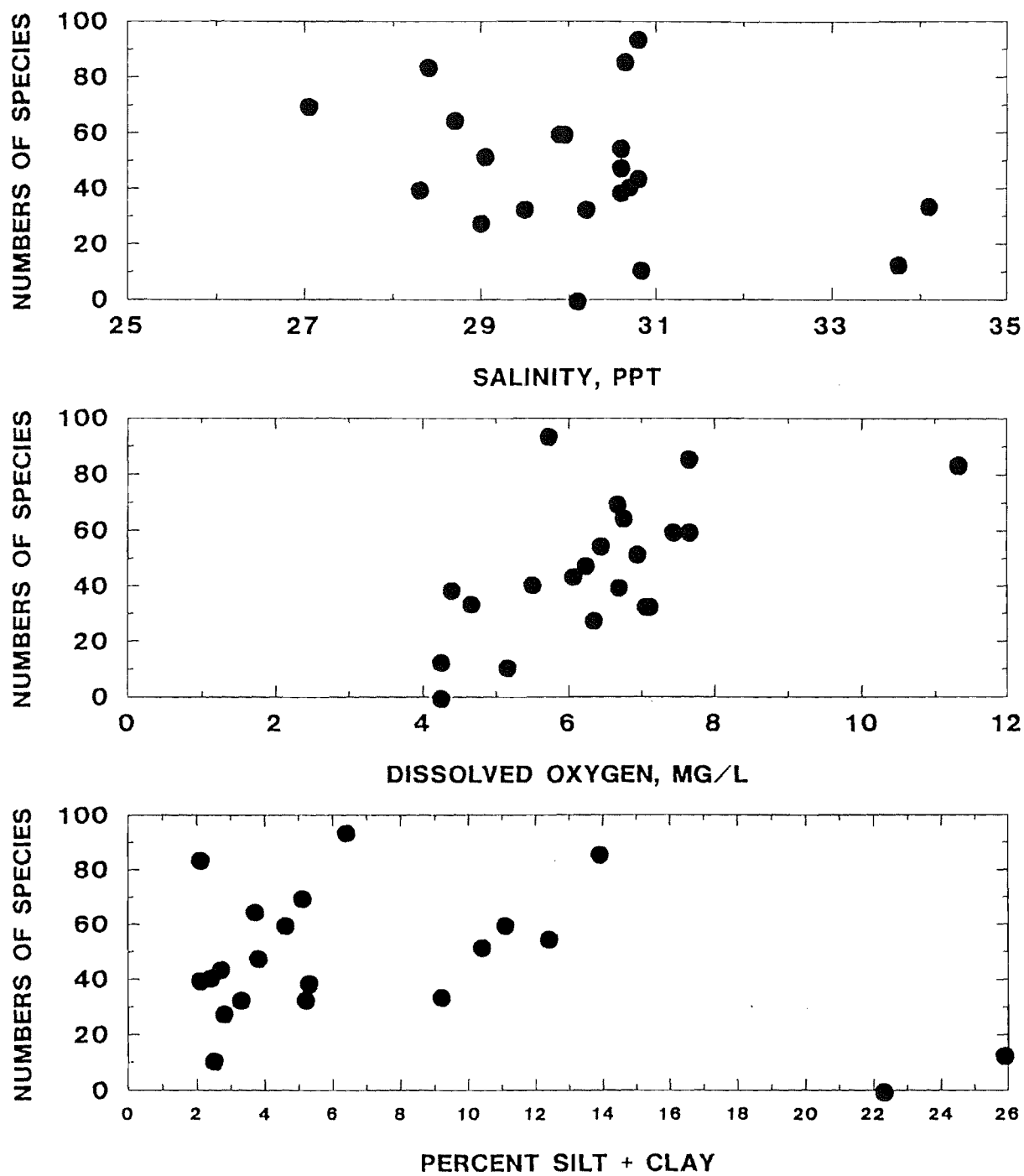


Figure 3-9. Association between numbers of species and salinity (top), dissolved oxygen (middle), and the percentage of silt + clay in the sediments (bottom). Boca Ciega Bay, October 1995.

Rare taxa predominated in the this bay segment. 159 taxa occurred at only single sites; another 58 taxa occurred at two sites. Few taxa were widespread: only seven taxa were found at more than 50% of the stations. The findings that Boca Ciega Bay samples had a relatively small number of species per sample, that few species were widespread, and that more than two-thirds of the taxa were found at two or fewer stations, despite a fairly large number of species overall, suggests that this bay segment is characterized by a wide variety of habitat types, supporting taxa which are stenotopic and/or absolutely rare.

3.2.3. SPECIES DIVERSITY

Species diversity ranged from 0 (95BCB08) to 3.96 (95BCB12) (Figure 3-10). Overall diversity was 3.77, ranking Boca Ciega Bay midway between the six other segments surveyed in 1993 (Grabe *et al.* 1996). Species diversity was associated with percent silt + clay ($F_{1,19}=5.3$; $r=0.47$; $p=0.03$) but not with either salinity ($F_{1,19}=0.3$; $r=0.12$; $p=0.60$) or dissolved oxygen ($F_{1,19}=1.2$; $r=0.25$; $p=0.28$) (Figure 3-11). Diversity was not necessarily higher at stations with large numbers of species, such as seagrass stations (see Section 3.3.5 below).

3.2.4. EVENNESS

Evenness ranged from 0 (95BCB08) to 0.93 (95BCB13 located east of Viva Del Mar Island) (Figure 3-12). Overall evenness was 0.64. Boca Ciega Bay had the same evenness as the Manatee River segment in 1993, which was the lowest of the six segments surveyed (Grabe *et al.* 1996). Evenness was associated with percent silt + clay ($F_{1,19}=4.5$; $r=0.44$; $p=0.05$) and was not associated with either salinity ($F_{1,19}=0.03$; $r=0.04$; $p=0.86$) or dissolved oxygen ($F_{1,19}=0.005$; $r=0.02$; $p=0.94$) (Figure 3-13).

3.2.5. DIVERSITY MODEL FOR BOCA CIEGA BAY

The "DIMO" plot of diversity vs. numbers of species (Figure 3-14) showed that station 95BCB07 and 95BCB15 had the highest combined values and station 95BCB08 was depauperate. "Outliers" of additional interest on this plot were stations 95BCB18 (east of Tarpon Key), 95BCB14 (southwest of Indian Key), 95BCB10, 95BCB21 (western shore of St. Christopher Key), and 95BCB19 (off Cabbage Key, south of Listern Key).

Stations 95BCB18 and 95BCB14 were outliers because they had relatively low scores for both diversity and numbers of taxa. The evenness (or numerical distribution of the species in these samples), represented by the angle of inclination from the origin (Figure 3-14), was above average for the bay segment and similar to the majority of the stations sampled. Stations 95BCB19 and 95BCB21 were characterized by high numbers of species-but low diversity. Consequently, evenness was quite low (<0.5). These two stations were located in seagrass beds, and an overwhelming numerical dominance by the epiphytic *S. spirillum*. In fact, *S. spirillum* accounted for >67% of the community. At Station 95BCB10, where *S. spirillum* comprised 42% of the fauna (density >18,000/m²), diversity and evenness were somewhat higher than at stations 95BCB21 and 95BCB19.

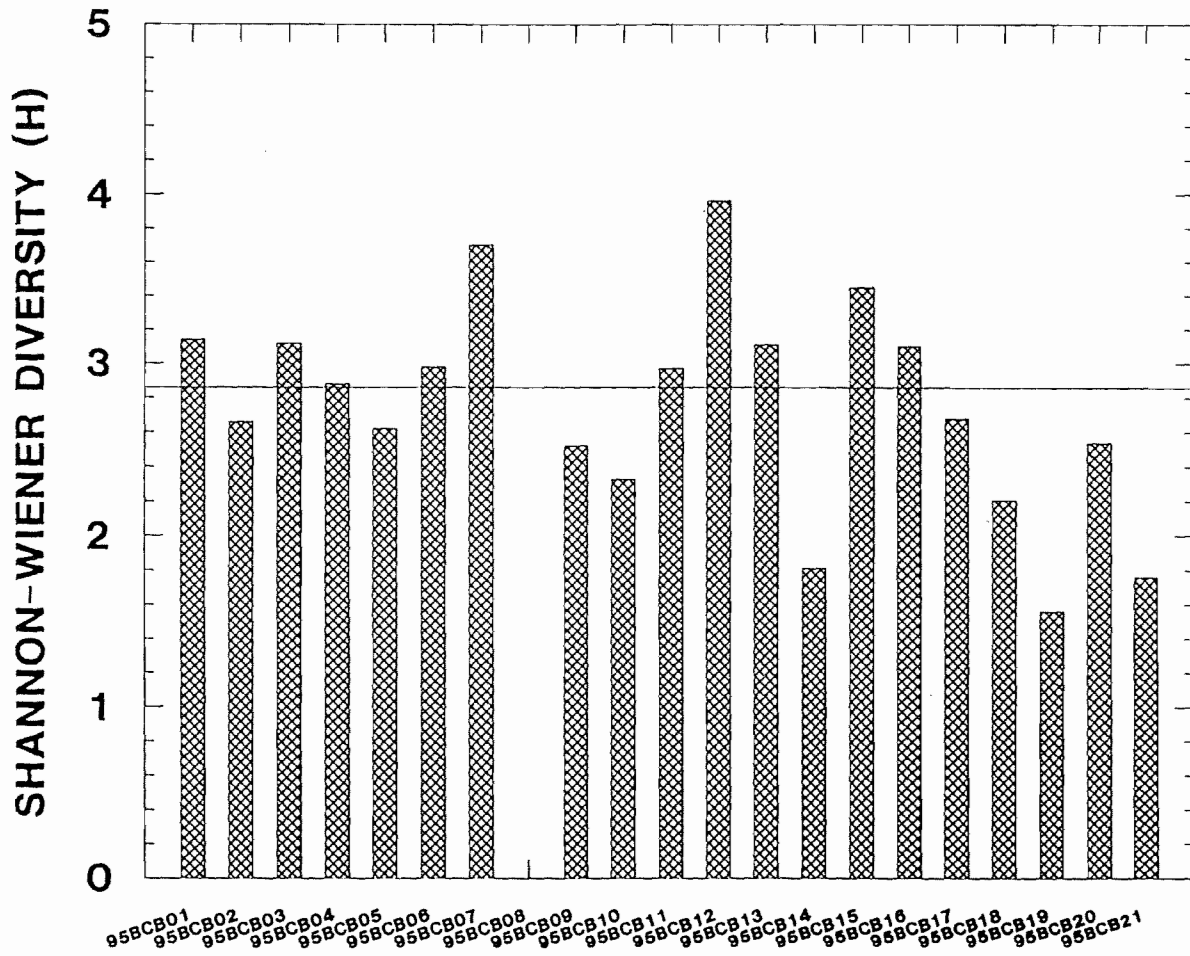


Figure 3-10. Shannon-Wiener diversity, by station. Boca Ciega Bay, October 1995.

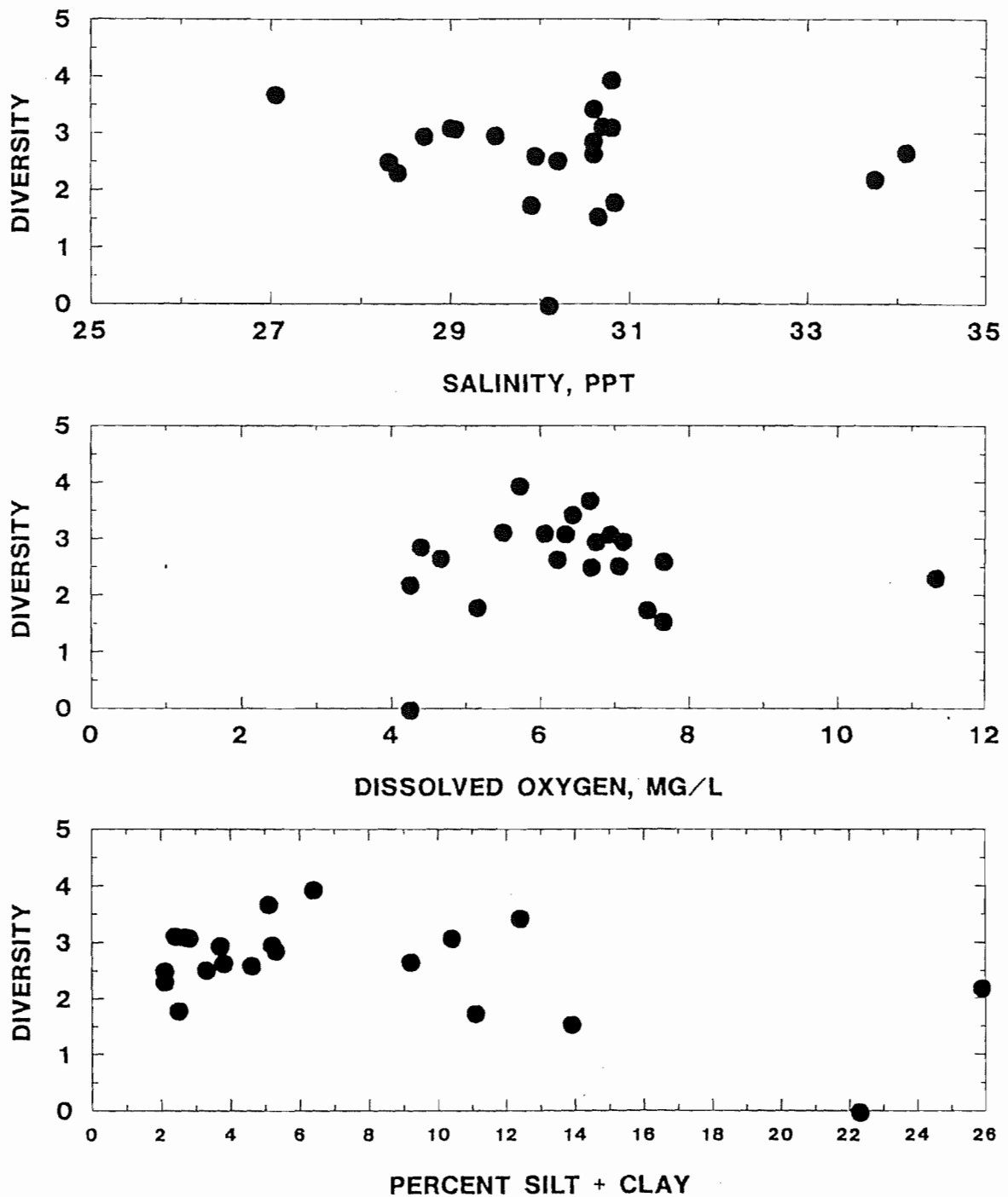


Figure 3-11. Association between Shannon-Wiener diversity and salinity (top), dissolved oxygen (middle), and the percentage of silt + clay in the sediments (bottom). Boca Ciega Bay, October 1995.

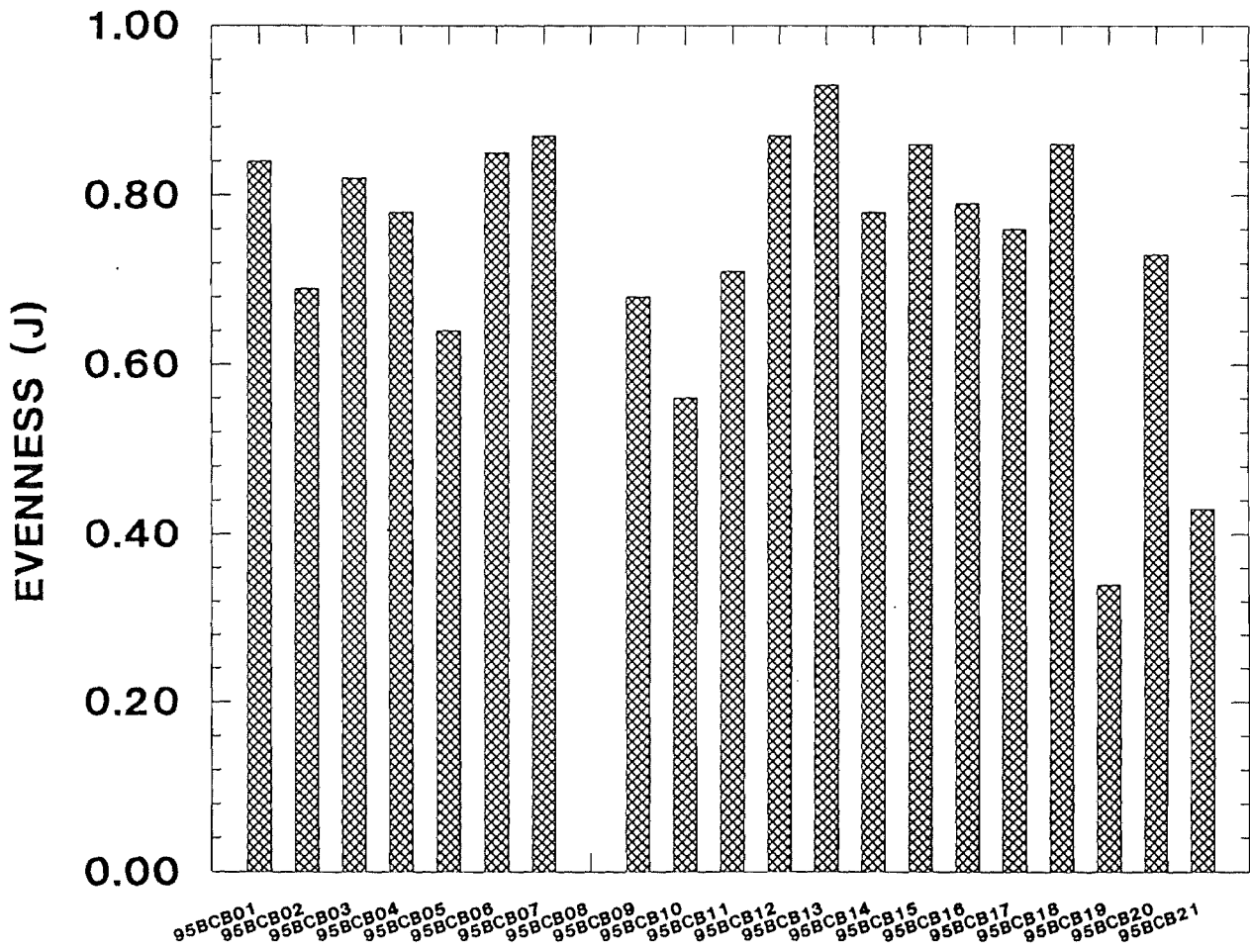


Figure 3-12. Evenness, by station. Boca Ciega Bay, October 1995.

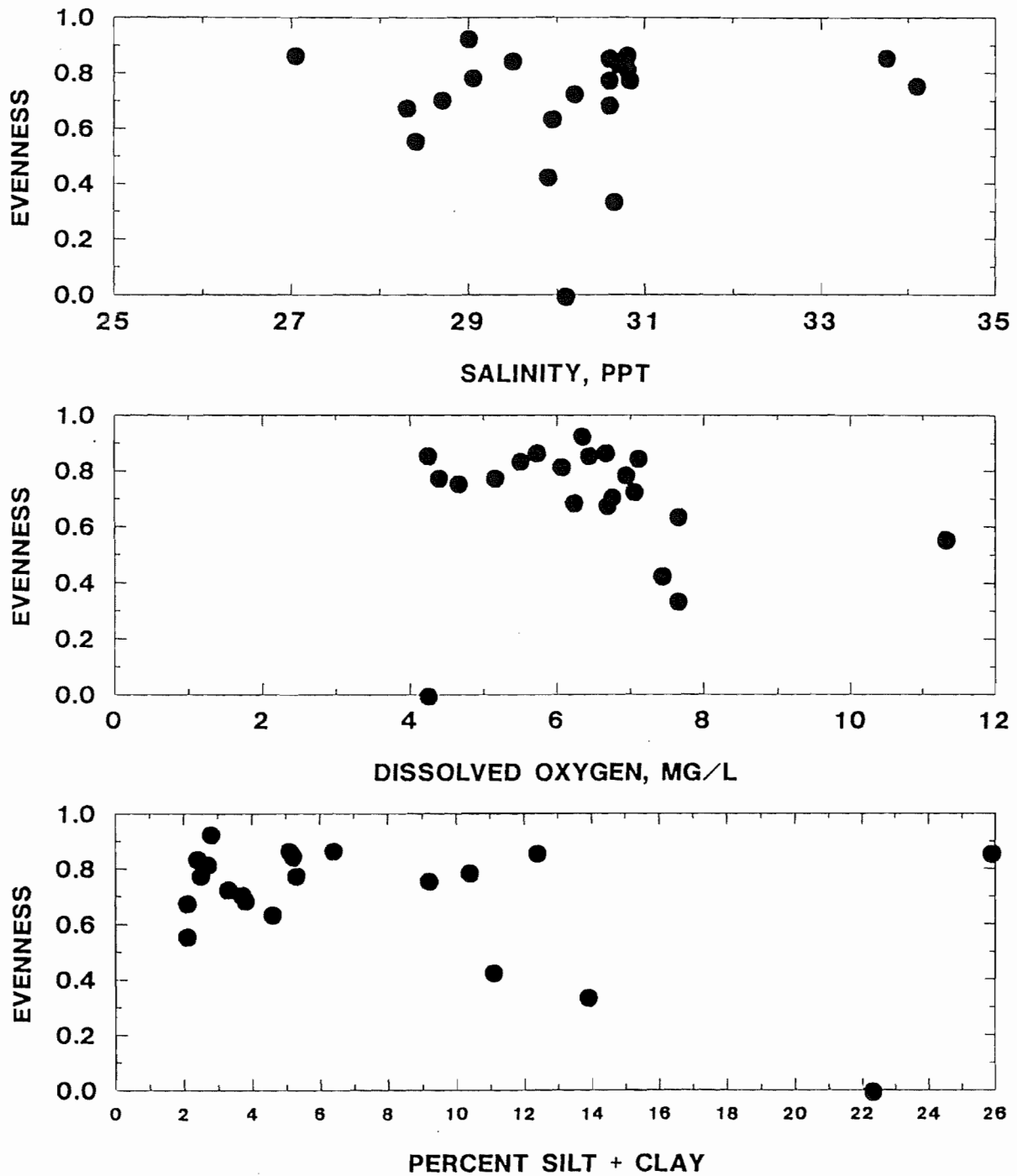


Figure 3-13. Association between evenness and salinity (top), dissolved oxygen (middle), and the percentage of silt + clay in the sediments (bottom). Boca Ciega Bay, October 1995.

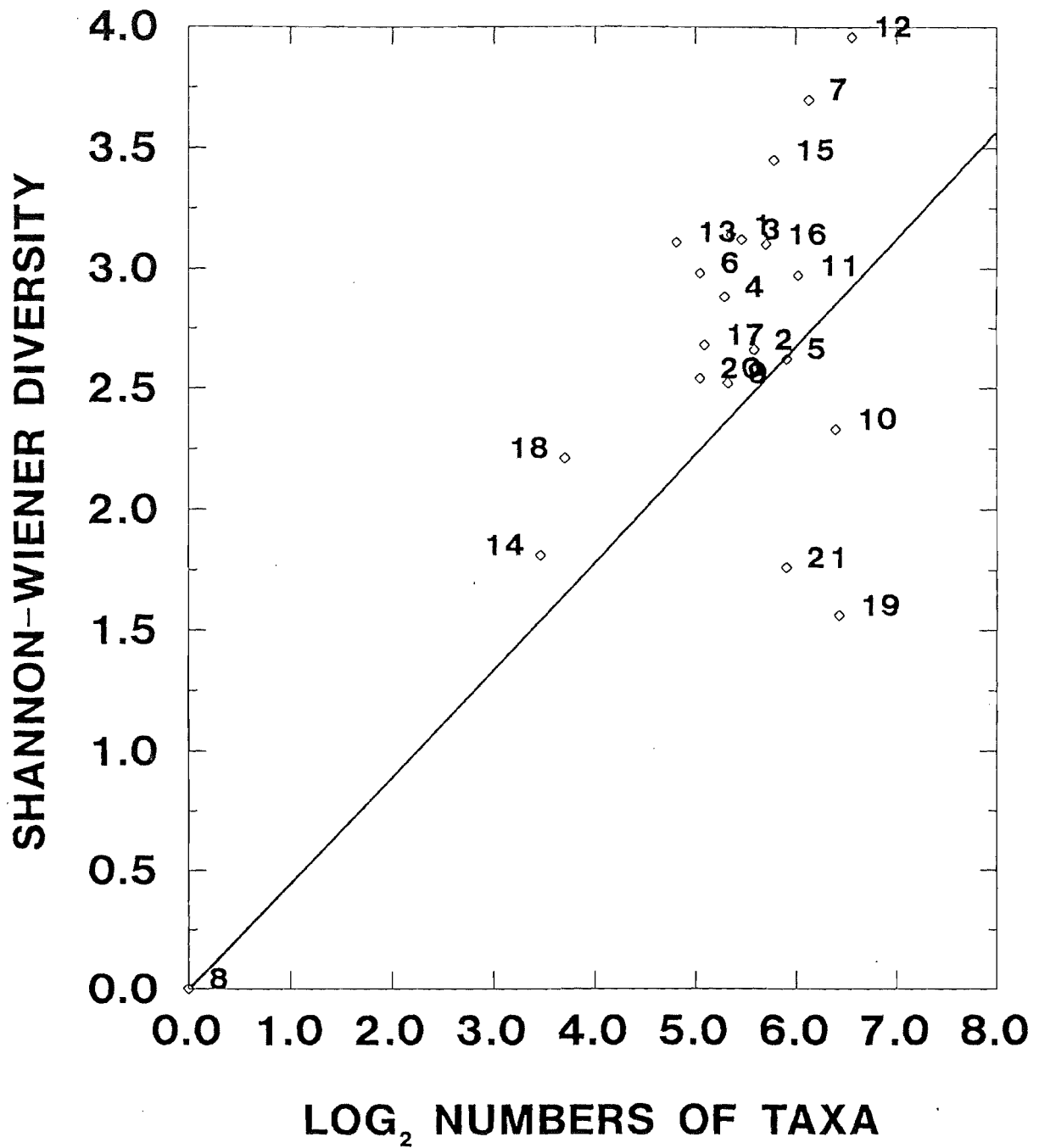


Figure 3-14. "DIMO" plot of diversity vs. numbers of taxa, by station. Boca Ciega Bay, October 1995. Line represents the average evenness for Boca Ciega Bay.

3.2.6. BENTHIC INDEX

The Benthic Index, a modification of EPA's EMAP Index (Engle *et al.* 1994; Coastal Environmental 1995), scores ranged from 0 (95BCB08) to 22.4 (95BCB07 off South Causeway Isles) (Figure 3-15). The high value at 95BCB07 was reflective of relatively high (3.70) diversity and the absence of tubificid oligochaetes--taxa which are considered less "desirable" and whose presence decreases the Index value. Benthic Index scores were associated with the percent of silt + clay ($F_{1,19}=7.1$; $r=0.53$; $p=0.02$), but was not associated with either salinity ($F_{1,19}=0.5$; $r=0.17$; $p=0.47$) or dissolved oxygen ($F_{1,19}=0.08$; $r=0.06$; $p=0.78$) (Figure 3-16). At this stage in the history of the bay-wide benthic monitoring effort it is not feasible to identify a threshold Index value to designate "healthy" from "subnominal" habitats. Such a breakpoint will have to await completion of the four-year baseline cycle and assessment of sediment contamination data (see Recommendations).

3.2.7. "BIOLOGICAL INTEGRITY"

Based upon a broad interpretation of FAC Chapter 62-302, the "reference" condition for biological integrity was considered to be 75% of the mean Shannon-Wiener diversity [H'] of the three highest stations: 3.70. Thus, sites whose H' is ≤ 2.78 are considered not to meet the use standards for Class III (or Class II) waters. As noted above, species diversity was associated with percent silt + clay and not with either salinity or dissolved oxygen (Figure 3-11).

52% of Boca Ciega Bay had an H' of < 2.78 (Figure 3-17); that is, more than half of Boca Ciega Bay would not be in "compliance" with the "biological integrity" standard in FAC. These included the two stations ranked first and second in faunal abundance (Figure 3-3) and second and third in species richness (Figure 3-7): 95BCB19 and 95BCB10 and had below average evenness (Figure 3-12) because of the numerical dominance of the epiphytic polychaete *S. spirillum*.

3.2.8. FLORIDA MARINE INDEX

Overall Florida Marine Index [FMI] scores ranged from 0 (95BCB08) where benthic fauna were absent, to 2.9 at Station 95BCB05 (Figure 3-18). The mean Index score (2.1) was lower than that of any bay segment surveyed in 1993, with the exception of Hillsborough Bay (Grabe *et al.* 1996). Overall, Boca Ciega Bay appears to support a "tolerant" benthic community; *i.e.*, an Index score of 2.1 is indicative of a fauna which can withstand "brief excursions to [bottom dissolved oxygen concentrations of] 1.0-1.5mg/l" (Farrell unpublished). Fifty-two percent of Boca Ciega Bay, supported a fauna which ranged between "tolerant" to "slightly tolerant-sensitive" (Figure 3-18). None of the area sampled corresponded to a fauna which was "sensitive to low concentrations of dissolved oxygen. FMI scores were associated with dissolved oxygen ($F_{1,19}=6.4$; $r=0.50$; $p=0.02$) (Figure 3-19); this is consistent with the intent of the index, which is to reflect tolerance and sensitivity to dissolved oxygen concentrations. The FMI was not associated with either salinity ($F_{1,19}=0.4$; $r=0.14$; $p=0.5$) or the percent silt + clay ($F_{1,19}=3.3$; $r=0.38$; $p=0.09$). One of the weaknesses of this Index, however, is the large number of species, including dominants, for which Index values do not exist. This shortcoming will be corrected over time as more data become available both from this program and other programs along Florida's Gulf coast.

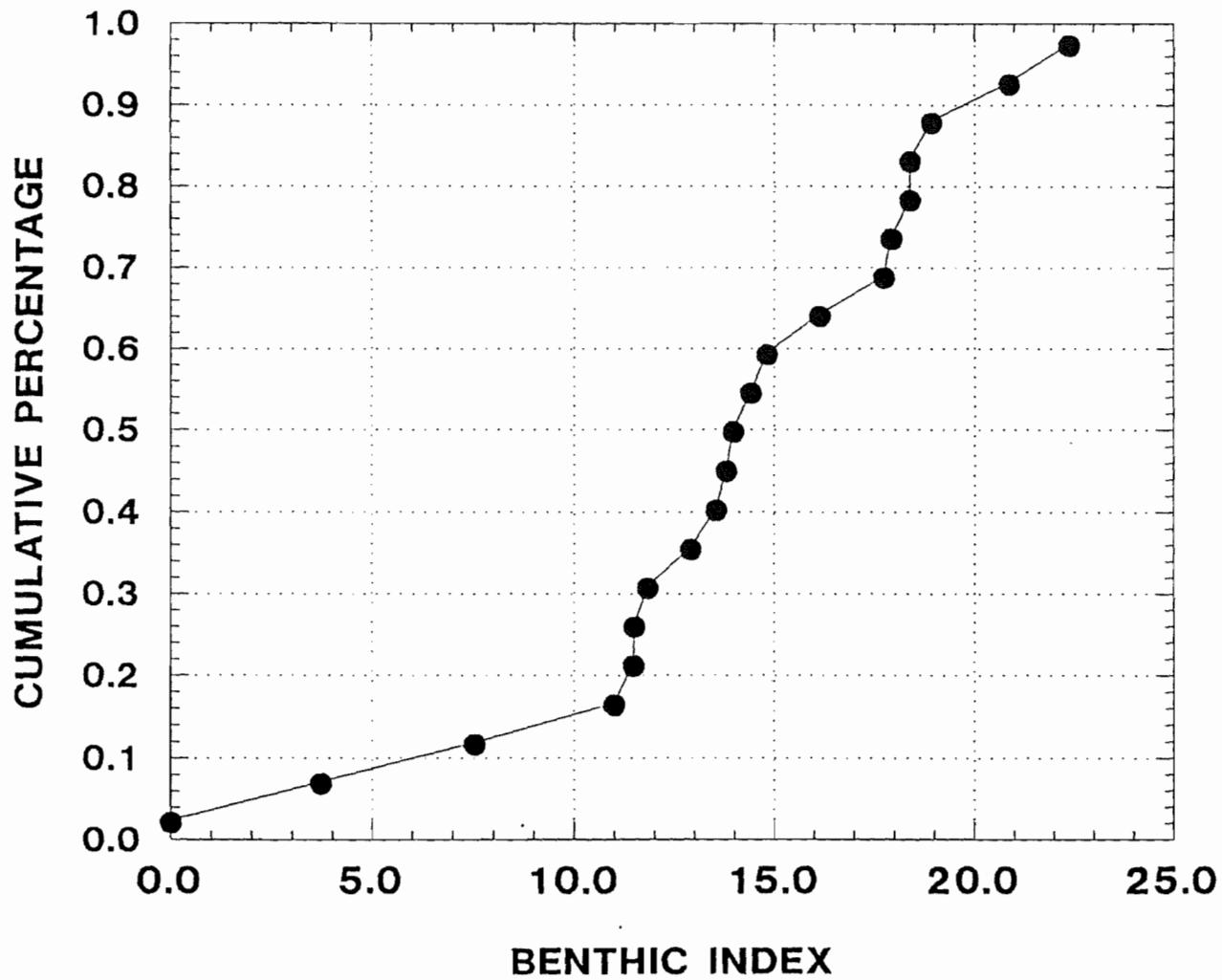


Figure 3-15. Quantile plot of the EMAP Benthic Index. Boca Ciega Bay, October 1995.

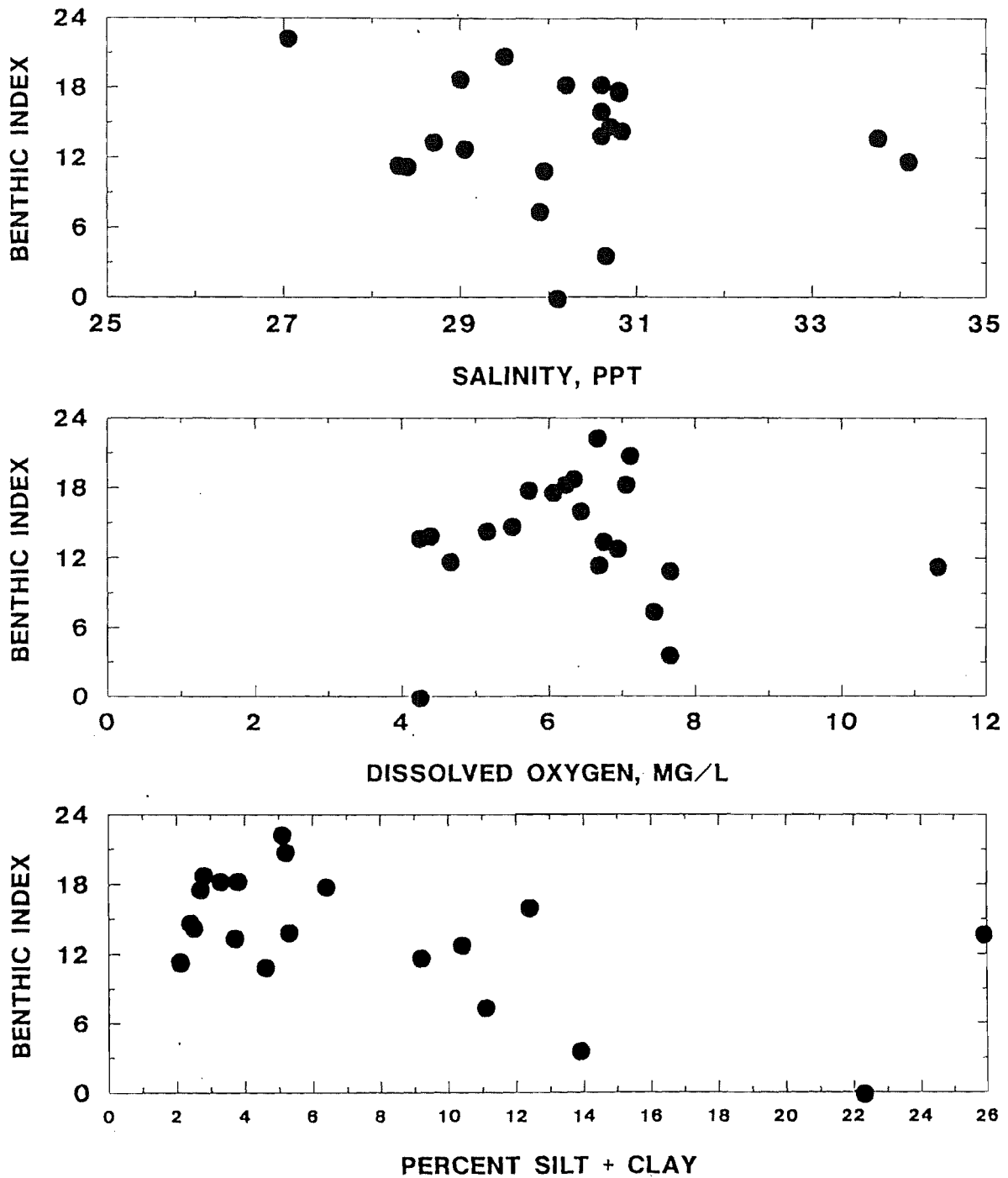


Figure 3-16. Association between the Benthic Index scores and salinity (top), dissolved oxygen (middle), and the percentage of silt + clay in the sediments (bottom). Boca Ciega Bay, October 1995.

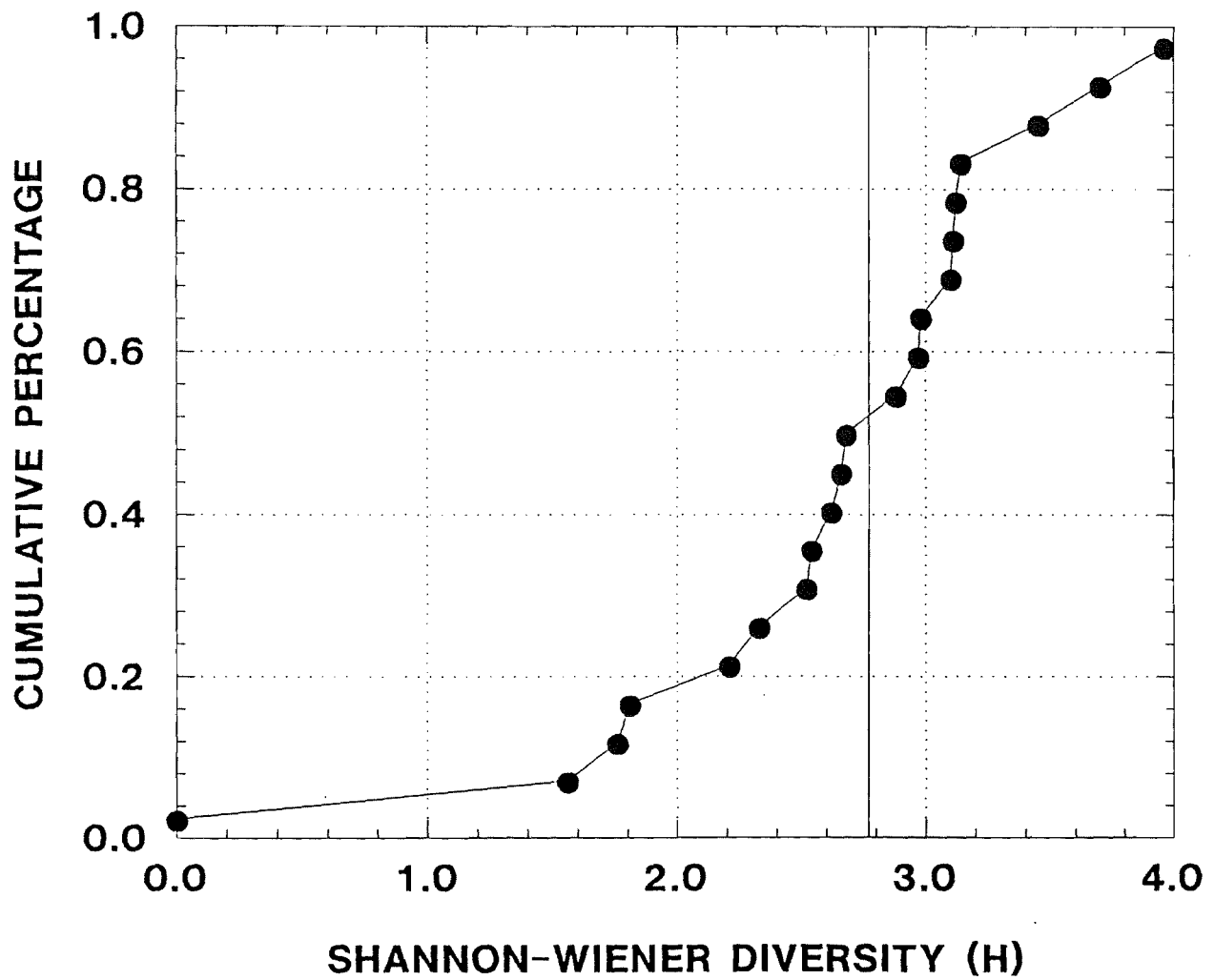


Figure 3-17. Quantile plot of Shannon-Wiener diversity. Boca Ciega Bay, October 1995. Vertical line at 2.77 represents the threshold for compliance with FAC 62-302 for "biological integrity".

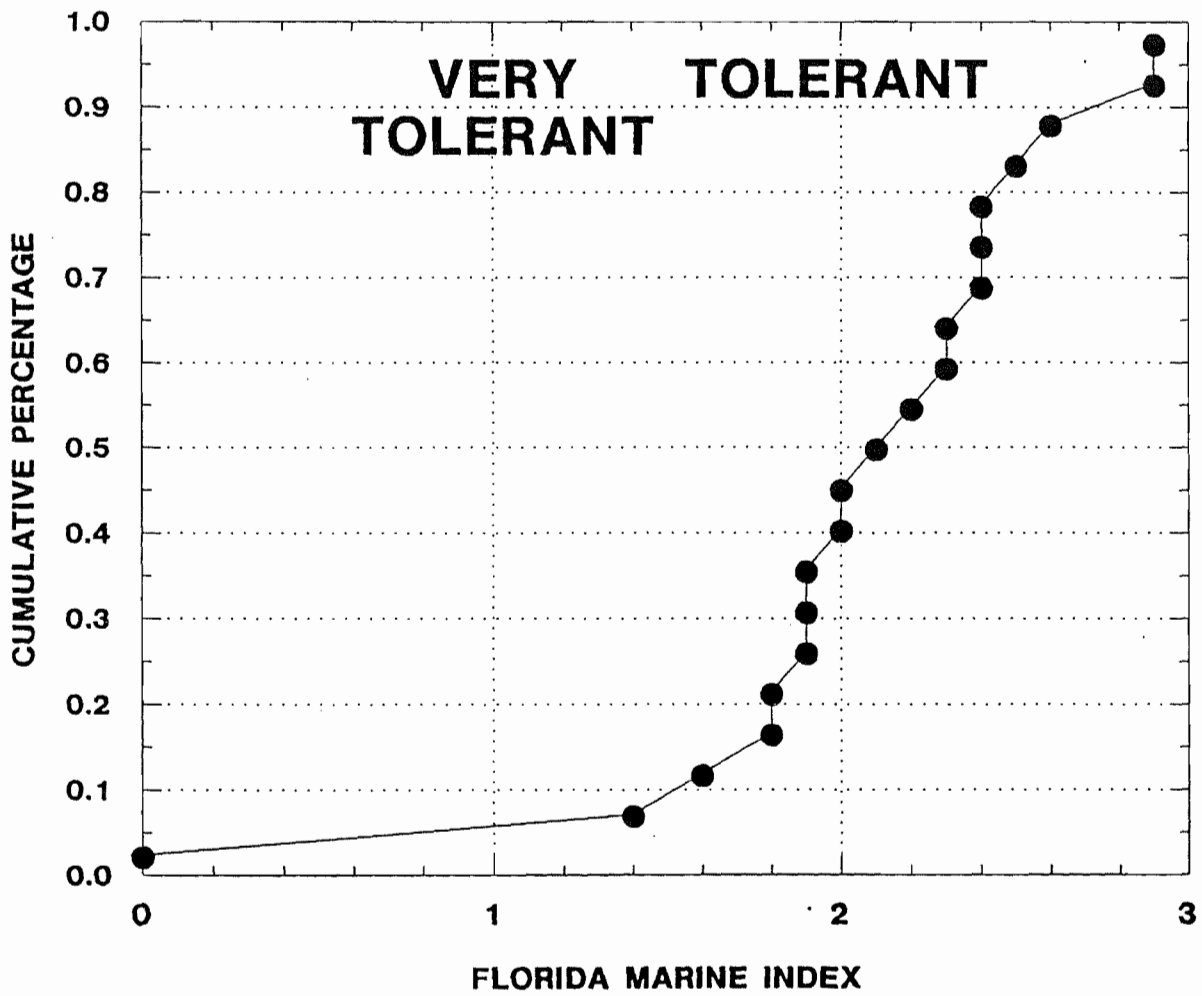


Figure 3-18. Quantile plot of the Florida Marine Index. Boca Ciega Bay, October 1995. Break-points are indicated for communities "verytolerant" to low concentrations of dissolved oxygen (even down to 0.2 mg/l) and "tolerant" to dissolved oxygen concentrations between 1.0-1.5mg/l.

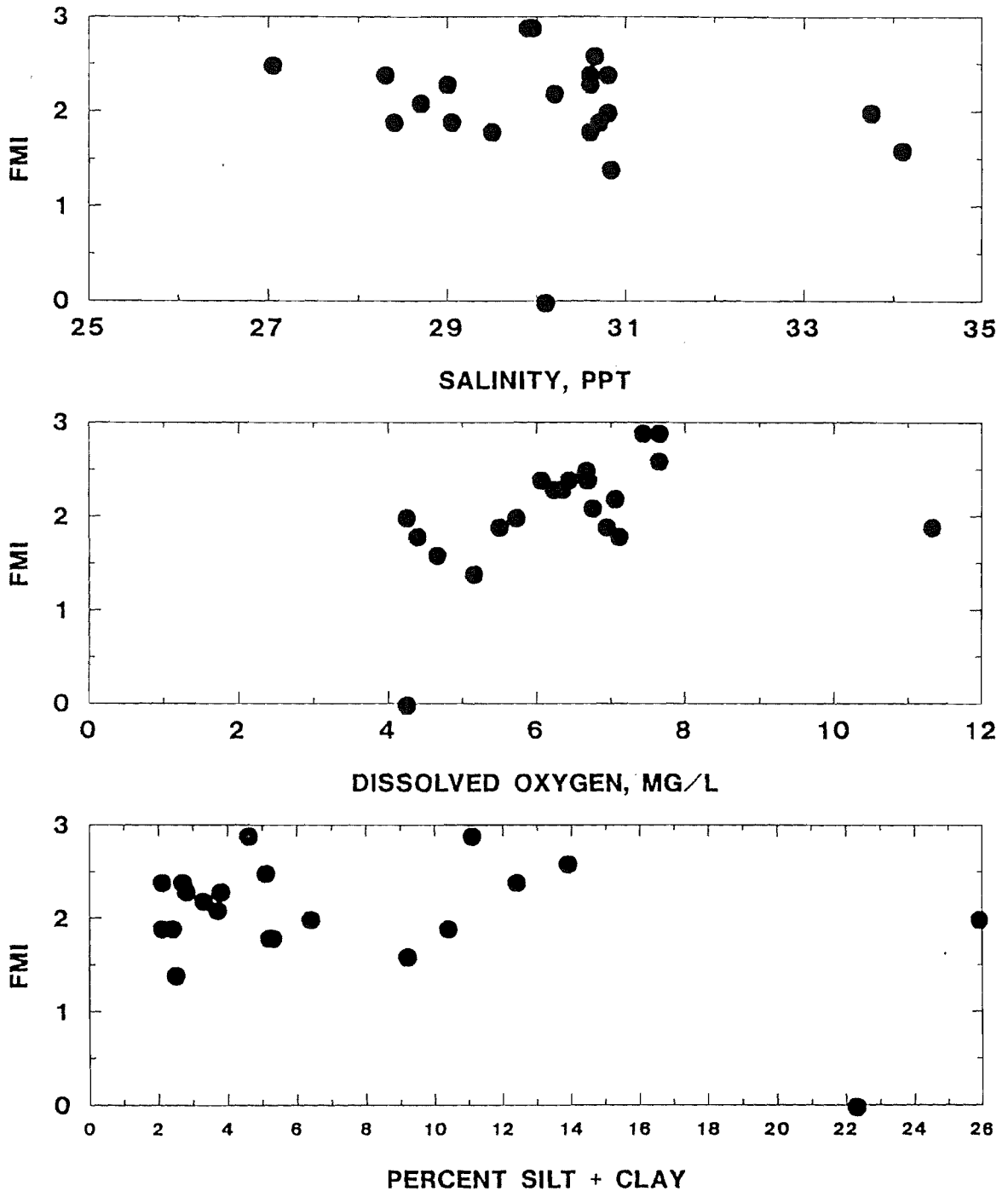


Figure 3-19. Association between the Florida Marine Index scores and salinity (top), dissolved oxygen (middle), and the percentage of silt + clay in the sediments (bottom). Boca Ciega Bay, October 1995.

3.2.8. HISTORICAL COMPARISONS: THE MOLLUSK FAUNA OF 1963-1964 vs. 1995

During 1963-1964 the U.S. Fish & Wildlife Service conducted a comprehensive sampling of molluscs in Boca Ciega Bay (Sykes & Hall 1970). One hundred and seven samples were collected at 31 sites, over an annual cycle. This level of effort was considerably greater than that expended to date with the current sample design. In addition, the sampling protocols were also somewhat different (*e.g.*, 0.7-mm mesh sieve in 1963 vs. 0.5-mm mesh sieve in 1995).

A comparison of the numbers of mollusk species present then vs. now is revealing. First, the 1963-1964 survey produced 158 taxa-- compared with 86 at 21 sites in this current survey. Sixty-three species (32%) were common to both studies--and this included most of the numerical dominants in the 1995 sampling. Twenty-four species (12.4%) were present in the 1995 samples and absent from the 1963-1964 samples. This may be indicative of the finer mesh size employed in the current survey, although other factors have to be considered. The largest fraction, 55.2% (107) species, were species identified during 1963-1964 but absent from the current sampling. While this number may seem large, it must be emphasized that the 1963-1964 survey was a year-round effort, included six times as many samples, and in 1963-1964 samples were taken in habitats which have not yet been sampled under the current program (*e.g.*, *Donax variabilis* from intertidal areas and *Melampus coffeus* from terrestrial sites). A more rigorous comparison between current and historical data will be undertaken in a more comprehensive report for the entire bay.

SECTION 4

SUMMARY

1. Overall, the Boca Ciega Bay segment appears to support a very diverse benthic community. On a per sample basis, however, the average numbers of species was not very high compared to other parts of Tampa Bay. Few species were widespread and more than two-thirds of the species occurred at only one or two sites. Thus, the habitats sampled within Boca Ciega Bay do not appear to be very similar to one another.

2. The benthic community was numerically dominated by polychaete worms (> 50%). Individual species of polychaete worms were ranked among the ten dominant species.

3. Oligochaete worms, which are generally considered to be indicative of nutrient-enriched environments, were ranked second in dominance;

4. Application of three biological metrics supported two quite different conclusions as to the status of Boca Ciega Bay. The Benthic Index, developed after an EPA index, indicated that overall scores are generally higher than for other segments of Tampa Bay sampled during 1993.

In contrast, two other metrics suggested that Boca Ciega Bay's soft-bottom benthic communities were not as "healthy" as other parts of Tampa Bay.

Comparison with "biological integrity" criteria established in Florida Administrative Code suggest that more than half of Boca Ciega Bay might not meet the use standards for Class III waters.

The Florida Marine Index, a metric developed by the late Dr. Douglas Farrell of FDEP, and proposed to EPA, indicates that overall, the fauna of Boca Ciega Bay is "tolerant" of low (1.0-1.5 mg/l) concentrations of dissolved oxygen; the Florida marine index scores were generally lower than for other segments of Tampa Bay studied in 1993.

Discrepancies between these three metrics were noted after the 1993 bay-wide study. Each index merits additional study, and perhaps refinement.

5. Physical factors were shown to affect the benthic community. Dissolved oxygen concentrations were positively associated with total benthic abundance, numbers of species, and the Florida Marine Index. The percentage of silt + clay was negatively associated with numbers of species, diversity, evenness, and the Benthic index. Salinity was not a significant factor in explaining the distribution of any of the variables measured.

SECTION 5

RECOMMENDATIONS

1. At a minimum, the current sampling regimen should remain intact for this segment of Tampa Bay to bring the database for this segment in line with the baywide sampling effort (which commenced in 1993) and conform with the monitoring objectives of the bay-wide management plan (TBNEP 1996). The study design adopted for this monitoring program considers that a four-year effort is needed to describe baseline conditions--after which trends would then be evaluated. Continuation of the current design will strengthen the capability to detect temporal trends during the initial years of the investigation and will increase the power to detect trends both within and between bay segments (Larsen *et al.* 1995).

2. Ideally, efforts should be made to increase the number of samples in this bay segment to correspond more closely to the total number of "hexagons" available in the Boca Ciega Bay segment. Approximately 34 of the 50 hexagons designated would fall into this category. The remaining 16 hexagons do not fall into either Boca Ciega Bay or the intracoastal waters of Pinellas County; they are located in coastal waters, are on land, or fall within areas sampled as part of the Lower Tampa Bay segment.

3. Analysis of sediment contaminants (trace metals and organics) is underway for the four major segments of Tampa Bay. The CCMP (TBNEP 1996) and the Science Advisory Group to the TBNEP (MacDonald 1995) address the importance of identification and tracking of contaminated sediments. What little information is available about sediment contamination in the Boca Ciega Bay segment has shown that, relative to other areas of Tampa Bay and compared to sediment quality assessment guidelines, the sediments in the vicinity of Navarez Park (stations 95BCB05 and 95BCB06 are located closest to Navarez Park) are contaminated by lead, the pesticides DDT, chlordane, dieldrin, and, perhaps, mirex (Long *et al.* 1991). More recently Long *et al.* (1994) showed that sediments in the lower portion of Boca Ciega Bay were toxic in some, but not all, tests. Although sediment chemistry analyses are costly, consideration should be given to identifying a funding source for sediment chemistry to complement and enhance the biological sampling.

4. Sediment grain size analysis could be more comprehensive in order to facilitate understanding of physical factors affecting the distribution of the benthos and to aid in the interpretation of sediment contaminant data. The percentage of silt+clay has been shown to be associated with the distributions of specific organisms and with chemical contaminants in the sediments. Other sedimentary factors (*e.g.*, sorting coefficients) can also explain some of the patterns observed.

SECTION 6

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SECTION 7
APPENDICES

APPENDIX 2-A
COORDINATES OF BENTHIC STATIONS
IN BOCA CIEGA BAY, OCTOBER 1995

Tampa Bay National Estuary Program
 Benthic Survey Sampling Design

19:07 Tuesday, June 29, 1993

Sampling Grid	Pinellas	TBNEP	Longitude	Longitude	Longitude	Latitude	Latitude	Latitude
	County							
	Station	ID	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Boca Ciega Bay	.	B1	82	50	42.000	27	51	43.2000
Boca Ciega Bay	56-1	B2	82	50	16.800	27	50	31.2000
Boca Ciega Bay	57-1	B3	82	47	56.400	27	48	32.4000
Boca Ciega Bay	58-1	B4	82	45	54.000	27	48	39.6000
Boca Ciega Bay	58-2	B5	82	46	4.800	27	47	42.0000
Boca Ciega Bay	.	B6	82	45	39.600	27	46	58.8000
Boca Ciega Bay	59-1	B7	82	44	52.800	27	45	18.0000
Boca Ciega Bay	.	B8	82	43	51.600	27	44	42.0000
Boca Ciega Bay	60-2	B9	82	44	16.800	27	43	40.8000
Boca Ciega Bay	60-4	B10	82	43	22.800	27	43	15.6000
Boca Ciega Bay	.	B11	82	43	8.400	27	43	15.6000
Boca Ciega Bay	59-2	B12	82	41	38.400	27	44	9.6000
Boca Ciega Bay	.	B13	82	43	22.800	27	42	-0.0000
Boca Ciega Bay	.	B14	82	42	3.600	27	41	56.4000
Boca Ciega Bay	.	B15	82	40	26.400	27	42	7.2000
Boca Ciega Bay	.	B16	82	43	22.800	27	40	40.8000
Boca Ciega Bay	.	B17	82	41	24.000	27	40	48.0000
Boca Ciega Bay	.	B18	82	40	58.800	27	40	12.0000
Boca Ciega Bay	.	B19	82	42	54.000	27	39	25.2000
Boca Ciega Bay	.	B20	82	41	52.800	27	39	32.4000
Boca Ciega Bay	.	B21	82	43	30.000	27	37	51.6000

APPENDIX 2-B
SUMMARY OF LABORATORY QUALITY ASSURANCE CHECKS
FOR BENTHIC MACROINVERTEBRATE
SORTING, COUNTS, AND IDENTIFICATIONS

A. SORTING

	Error range	Mean error
Percent error (N=8)	5.1 - 19.3%	9.3%

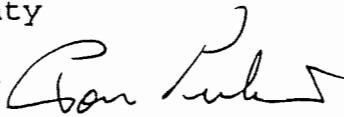
B. COUNTS AND IDENTIFICATIONS

Memorandum

Florida Department of
Environmental Protection

DATE: March 13, 1996

TO: Stephen Grabe, Environmental Protection
Commission of Hillsborough County

FROM: Tom Perkins, Florida Department
of Environmental Protection 

SUBJECT: QA/QC of Polychaete Specimens for Tampa Bay
National Estuary Program Benthic Study

I have examined all of the specimens of Polychaeta provided to me per your letter to me of February 29. Counts are basically excellent and obviously done very carefully. As for correct identifications of the specimens, I found three problem areas, which, in my opinion, can be explained for the most part by David Karlen doing more than he should have done with the specimens at hand. In order to make even a generic identification of Nereididae (the correct spelling), the proboscis must be examined in detail.

This usually requires dissecting the proboscis using microdissecting tools, which David does not have. This also assumes that the animals are large enough to dissect; in many cases they are not, and such animals can only be correctly identified to a group higher than the species level, and usually higher than the genus level. In addition, the shape of the anterior and posterior parapodial lobes and the setation of posterior segments of nereidids must be determined in order to identify closely related genera and subgenera. This cannot be done with incomplete specimens.

The second problem area involves the Maldanidae. Here also, complete specimens are required since the shapes of the prostomium and the pygidium must be determined in order to classify animals to the subfamily level, and a count of the number of segments are needed to make a correct species identification.

The third problem area involves the Cirratulidae, which basically cause problems of correct identification to most biologists. For this group, the segment of origin and number of tentacles on the anterior part of each specimen must be determined as a first step in identifying them. Here, the problem is that the Gordian knot of tentacles and branchiae of anterior segments completely obscures the origin of the tentacles. This problem can be overcome by cutting away the tentacles and branchiae as necessary so the state of this character can be observed. Also because the presence or absence of acicular setae on parapodia is important in correctly

identifying species and in some cases genera, complete specimens are often required because acicular setae are often found only on far posterior segments.

I have discussed these problem areas with David and feel confident that they will be dealt with appropriately.

Attached is a detailed list of the identities and counts of the specimens. For brevity, I have for the most part not used subgeneric names. However, I have used the subgenus Composetia of the nereidid genus Ceratonereis because I believe the former, which does not have an incised prostomium, should be elevated to generic status as a monophyletic group. I have tried to set up this list so it can be put into a data base via an ASCII file. This can be read as follows: voucher no, genus-species, station number, number of specimens, status of the specimens, and comments.

Enclosed are copies of the two papers and copies of my notes on the voucher specimens that I promised to send to David.

Report on examination of Tampa Bay National
Estuary Program Polychaete Specimens

by

Thomas H Perkins

March 12, 1996

Hillsborough County Environmental Protection Commission Specimens

EPC P-54, *Aglaophamus verrilli*, 95-BCB-02, 6, OK

DEP P-54, *Aglaophamus* sp., 95-BCB-07, 8, = *A. verrilli*

EPC P-51, *Scoloplos rubra*, 95-BCB-01, 8, 1 of 9 = EPC P-51(x)
Leitoscoloplos spp.

ECP P-51(x), *Scoloplos rubra*, 95-BCB-01, 1, = *Leitoscoloplos* spp.

DEP P-51, *Scoloplos rubra*, 95-BCB-04, 2, OK

EPC P-49, *Aphelochaeta* sp., 95-BCB-19, 3, = *Cirriformia* sp. 1,
all setae are capillaries.

DEP P-49, *Aphelochaeta* sp., 95-BCB-21, 20, = *Cirriformia* sp. 1

EPC P-50, *Orbina riseri*, 1 specimen, 95-BCB-08, OK

EPC P-40, *Gyptis* sp. A, 95-BCB-10, 1, = *Gyptis pluriseta* Hilbig
(1992), median antenna missing but apparently located dorsally in
the middle of the prostomium - an *Amphiduros* s.s. - but some
question that the latter should be maintained.

EPC P-10, *Polydora ligni*, 95-BCB-05, 8, OK, the correct name for
this species is *P. cornuta* Bosc (1802)

DEP P-10, *Polydora ligni*, 95-BCB-11, 13, OK, correct name is *P.*
cornuta Bosc (1802)

EPC P-39, *Podarke obscura*, 95-BCB-10, 3, OK

DEP P-39, *Podarke obscura*, 95-BCB-13, 1, OK, very nice specimen -
furcate setae 3 per parapodium

EPC P-29, *Podarkeopsis levifuscina*, 95-BCB-04, 4, OK

DEP P-29, *Podarkeopsis levifuscina*, 95-BCB-11, 2, OK

EPC P-09, *Prionospio heterobranchia*, 95-BCB-04, 1, OK

DEP P-09, *Prionospio heterobranchia*, 95-BCB-09, 1, OK

EPC P-17, *Scyphoproctus* sp. A, 95-BCB-11, 1, OK

DEP P-17, *Scyphoproctus* sp. A, 95-BCB-19, 7, OK, pygidium appears
to differ from that described by Jones (1961) for *S. platyproctus*
but otherwise very similar

ECP P-08, *Paraprionospio pinnata*, 95-BCB-04, 2, OK

DEP P-08, *Paraprionospio pinnata*, 95-BCB-04, 26, OK, but 26 vs.
27 specimens - specimens have bulbous gizzard in about setigers
6-10

ECP P-16, *Capitella capitata*, 95-BCB-11, 1, OK, but = *Capitella capitata* complex
DEP P-16, *Capitella capitata*, 95-BCB-12, 2, = *Capitella jonesi*

ECP P-28, *Glycinde solitaria*, 95-BCB-11, 2, OK

ECP P-15, *Spio pettiboneae*, 95-BCB-09, 2, OK

ECP P-27, *Travisia hobsonae*, 95-BCB-09, 1, OK

ECP P-14, *Scoelelepis texana*, 95-BCB-09, 1, OK
DEP P-14, *Scoelelepis texana*, 95-BCB-12, 1, OK

ECP P-26, *Armandia maculata*, 95-BCB-09, 1, OK
DEP P-16, *Armandia maculata*, 95-BCB-10, 6, OK

ECP P-38, *Parahesionia luteola*, 95-BCB-10, 13, OK
DEP P-38, *Parahesionia luteola*, 95-BCB-16, 4, OK, excellent specimens

ECP P-13, *Prionospio perkinsi*, 95-BCB-07, 12, OK

ECP P-04, *Carazziella hobsonae*, 95-BCB-01, 33, OK
DEP P-04, *Carazziella hobsonae*, 95-BCB-04, 46, OK, but 46 vs. 47 specimens

ECP P-25, *Cirriformia* ? sp., 95-BCB-07, 2, = *Cirriformia* spp., anterior ends only so cannot determine species
DEP P-25, *Cirriformia* sp., 95-BCB-04, 3, = *Cirriformia* spp., all anterior fragments so cannot determine species

EPC P-03, *Prionospio pygmaea*, 95-BCB-01, 2, OK
EPC P-03(a), *Prionospio pygmaea*, 95-BCB-09, 27, = 27 vs 28 specimens
DEP P-03, *Prionospio pygmaea*, 95-BCB-02, 2, OK

EPC P-12(a), *Pseudopolydora* sp. A, 95-BCB-17, 2, OK, occipital antenna present - hooded hooks with constriction - caruncle to setiger 7 - setiger 5 special setae 1) paleate and 2) blunt spines with shelf
DEP P-12, *Pseudopolydora* sp. A, 95-BCB-15, 1, OK, specimen with occipital antenna - caruncle extending to about setiger 7
EPC P-12, *Pseudopolydora* sp. A, 95-BCB-06, 1, = ? *Pseudopolydora* sp. B, no occipital antenna - no or inconspicuous caruncle - otherwise same as *Pseudopolydora* sp. A but blunt spines of setiger 5 may not have shelf

EPC P-02, *Streblospio benedicti*, 95-BCB-01, 1, OK, no number of specimens on tag in vial
DEP P-02, *Streblospio benedicti*, 95-BCB-12, 6, OK

EPC P-01, *Mediomastus* spp., 95-BCB-01, 4, OK, no number of specimens on tag in vial

ECP P-11, *Polydora socialis*, 95-BCB-05, 5, OK
EPC P-11(a), *Polydora socialis*, 95-BCB-11, 1, OK
DEP P-11, *Polydora socialis*, 95-BCB-12, 3, OK, no gizzard in one but present in others

ECP P-22, *Armandia agilis*, 95-BCB-02, 2, OK, small - can barely see eyes
DEP P-22, *Armandia agilis*, 95-BCB-03, 1, OK, not a great specimen but has lateral eyes and greater than 30 setigers

ECP P-55, *Poecilochaetus johnsoni*, 95-BCB-07, 1, OK

ECP P-45, *Prionospio multibranchiata*, 95-BCB-10, 7, OK

ECP P-34, *Hypereteone heteropoda*, 95-BCB-09, 1, OK, = *Eteone*, *Eteone* is the preferred genus name at least for now

ECP P-52, *Leitoscoloplos fragilis*, 95-BCB-09, 1, 2 of 3 = ECP P-52(x)
DEP P-52, *Leitoscoloplos fragilis*, 95-BCB-11, 2, = *Leitoscoloplos robustus*
ECP P-52(x), *Leitoscoloplos fragilis*, 95-BCB-09, 2, = *Leitoscoloplos* sp., parapodia without an intercirrus and perhaps *L. foliosus* (which has not been illustrated) which has foliose posterior parapodial lobes much longer than branchiae not present on these specimens

ECP P-44, *Paranaitis polynoides*, 95-BCB-05, 1, OK, correct name is *P. gardineri* Perkins - very nice specimen

ECP P-41, *Glycera americana*, 95-BCB-10, 1, OK

ECP P-32, *Nereiphylla* (*Genetyllis*) sp. A, 95-BCB-05, 1, ?OK, specimen has been dried and I cannot determine genus - *Genetyllis* is a synonym of *Nereiphylla*

ECP P-43, *Phyllodoce* postlarva, 95-BCB-19, 1, = *Autolytus* sp. (*Syllidae*), a reproductive stolon

ECP P-42(a), *Phyllodoce arenae*, 95-BCB-17, 1, OK
ECP P-42, *Phyllodoce arenae*, 95-BCB-12, 1, OK
DEP P-42, *Phyllodoce arenae*, 95-BCB-15, 1, OK, cannot be sure of identity because proboscis not everted

ECP P-45, *Caulleriella* cf. *alata*, 95-BCB-10, 2, OK, 3 eyes - acicular hooks bidentate beginning in first segment in neuropodia and farther back in notopodia

ECP P-48, *Capitella capitata* juv., 95-BCB-19, 1, = *Capitella jonesi*

ECP P-21, *Monticellina dorsobranchialis*, 95-BCB-01, 5, 4 of 9 = ECP P-21(x), all specimens incomplete posteriorly so tough to identify

ECP P-21(x), *Monticellina dorsobranchialis*, 95-BCB-01, 4, =
Aphelochaeta, specimens incomplete and tough to identify
DEP P-21, *Monticellina dorsobranchialis*, 95-BCB-04, 38, OK

ECP P-21(x), *Monticellina dorsobranchialis*, 95-BCB-01, 4, =
Aphelochaeta

ECP P-23, *Caulleriella* cf. *zetlandica*, 95-BCB-07, 9, =
Caulleriella sp. A, bidentate hooks in both notopodia and
neuropodia

ECP P-24, *Chaetozone* sp., 95-BCB-07, 1, = *Cirratulus* sp., small
specimen - unidentate (blunt) spines in notopodia and neuropodia
DEP P-24, *Chaetozone* sp., 95-BCB-03, 1, OK, bitentaculate and
incomplete but last few segments have plain acicular setae

ECP P-59, *Asychis elongatus*, 95-BCB-21, 1, OK, current preferred
name is *Branchioasychis americanus* Hartman

ECP P-57, *Axiothella* sp. A juv, 95-BCB-02, 2, = ? *Axiothella*
mucosa juvenile

DEP P-57, *Axiothella* sp. A juv, 95-BCB-03, 1, = ? *Axiothella*
mucosa juvenile

ECP P-56, *Clymenella* ?*torquata*, 95-BCB-02, 1, = *Axiothella mucosa*
DEP P-56, *Clymenella* ?*torquata*, 95-BCB-03, 1, = ? *Axiothella*
mucosa, an anterior and a posterior end with middle segments
missing

ECP P-58, *Euclymene* sp. A, 95-BCB-20, 1, = ? *Axiothella mucosa*
regenerating anterior and posterior ends

ECP P-53, *Sthenolepis* sp. A, 95-BCB-02, 1, = *Sthenelais* sp., no
elytra remain but see DEP P-53 - has bipinnate setae and other
setae typical of genus

DEP P-53, *Sthenolepis* sp. A, 95-BCB-06, 2, = *Sthenelais* sp., ?
Sthenelais sp. of Day (1973) - anterior elytra with fringe -
posterior elytra with fringe and notch

ECP P-18, *Mediomastus ambiseta*, 95-BCB-16, 3, OK
DEP P-18, *Mediomastus ambiseta*, 95-BCB-17, 3, OK

ECP P-19, *Mediomastus californiensis*, 95-BCB-16, ?OK, saw no
capillaries in posterior segments

DEP P-19, *Mediomastus californiensis*, 95-BCB-10, 2, = *Mediomastus*
spp., specimens incomplete posteriorly so indeterminate to
species

ECP P-05, *Notomastus lobatus*, 95-BCB-02, 1, = *Notomastus*
latericeus

DEP P-05, *Notomastus lobatus*, 95-BCB-19, 1, = *Notomastus*
latericeus

ECP P-07, *Notomastus latericeus*, 95-BCB-03, 1, OK

DEP P-07, *Notomastus latericeus*, 95-BCB-07, 2, OK

ECP P-20, *Notomastus hemipodus*, 95-BCB-17, 1, OK

ECP P-06, *Dasybranchus lumbricoides*, 95-BCB-03, 1, OK, OK I but saw no branchiae

ECP P-47, *Heteromastus filiformis*, 95-BCB-19, 2, OK, perhaps another species - characters of anterior ends do not fully agree with characters illustrated by authors

DEP P-47, *Heteromastus filiformis*, 95-BCB-21, 2, OK, characters of anterior end do not fully agree with descriptions of authors

ECP P-33, *Nereis lamellosa*, 95-BCB-07, 4, OK

ECP P-30, *Nereis succinea*, 95-BCB-05, 1, = Genus A, no paragnaths and no proboscidal papillae seen - long tentacular cirri - ankylose falcigers in notopodia and neuropodia - notopodia with 2 blunt lobes

ECP P-30(a), *Nereis succinea*, 95-BCB-05, 1, = *Nereis falsa*, specimen full of eggs ? of this species

ECP P-30(b), *Nereis succinea*, 95-BCB-05, 7, = *Nereis lamellosa*

ECP P-30(c), *Nereis succinea*, 95-BCB-05, 28, = *Nereis acuminata*

DEP P-30, *Nereis succinea*, 95-BCB-04, 2, = ? *Nereis acuminata*, I cannot confirm because specimens incomplete posteriorly

ECP P-30(d), *Nereis succinea*, 95-BCB-05, 26, = Nereididae, specimens too small to dissect - Nereididae is the correct spelling of the family name

ECP P-31, *Laonereis culveri*, 95-BCB-04, 4, OK

ECP P-37, *Nereis acuminata*, 95-BCB-11, 2, OK, paragnaths present on maxillary and oral rings of specimen I dissected other appears OK too

DEP P-37, *Nereis acuminata*, 95-BCB-12, 1, = *Nereis* spp., anterior fragment too small to dissect to examine proboscis so cannot determine subgenus

ECP P-35, *Nereis falsa*, 95-BCB-11, 14, = *Ceratonereis* (*Compositia*) sp. A, paragnaths on maxillary ring but not on oral ring and prostomium not incised

ECP P-35(a), *Nereis falsa*, 95-BCB-15, 4, = *Nereis lamellosa*, large 1 of 4 = *N. lamellosa* and 3 small ones may be *N. lamellosa* also

ECP P-36, *Websterinereis tridentata*, 95-BCB-11, 14, OK, I see no papillae on the proboscis on the 1 that is everted - most others look the same but I can only guess the species of the two small ones

ECP P-60, Chaetopterus variopedatus, 95-BCB-02, 2, OK, correct
name very likely C. pergamentaceus Cuvier

DEP P-60, Chaetopterus variopedatus, 95-BCB-07, 2, OK, correct
name very likely C. pergamentaceus Cuvier

Report on examination of Tampa Bay National
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by

Thomas H Perkins

April 1, 1996

Voucher no., genus-species, station no., status, comments

EPC P-62, Mooreonuphis sp. A, 95-BCB-11, 37, = Onuphidae spp.
juv., 1 of 38 = ECP P-62x Polydora sp. juv.

ECP P-62x, Mooreonuphis sp. A, 95-BCB-11, 1, = Polydora spp.
juv., ? = P. websteri Hartman

DEP P-62, Mooreonuphis sp. A, 95-BCB-10, 10, = Onuphidae spp.
juv., 1 of 11 = Ophryotrocha sp. DEP P-62y

DEP P-62y, Mooreonuphis sp. A, 95-BCB-10, 1, = Ophryotrocha sp.,
a species with 1 pair of antennae and no palps.

TAMPA BAY NEP 1995-96
QA/QC REPORT: MOLLUSKS

William G. Lyons
Florida Marine Research Institute

31 March 1996

Specimens collected in 1995 from Boca Ceiga Bay
Delivered by David Karlan 3/13/96

TAXON

M(G)-95-001

EPC As: Astyris lunata (Say, 1826); 95-BCB-06; N=3
ID OK, conf. WGL 3/30/96

FMRI As: Astyris lunata (Say, 1826); 95-BCB-10; N=34
ID OK, conf. WGL 3/26/96

M(G)-95-002

EPC As: Crepidula sp. (juv.); 95-BCB-06; N=2
ID OK, conf. WGL 3/30/96

M(G)-95-003

EPC As: Cephalaspidea sp. damaged (?Acteocina sp.);
95-BCB-06; N=2. OK, conf. WGL 3/30/96
= damaged cephalaspideans (probably = Haminoea)

FMRI As: Cephalaspidea sp. (damaged); 95-BCB-19; N=1
= Haminoea cf. succinea (Conrad, 1846)
Det. WGL 3/26/96

M(B)-95-004

EPC As: Laevicardium ?mortoni; 95-BCB-06; N=1
ID OK, = mortoni, conf. WGL 3/30/96

FMRI(1) As: Laevicardium ?mortoni; 95-BCB-10; N=5
ID OK, = mortoni, conf. WGL 3/26/96 N=6, not 5

FMRI(2) As: Laevicardium ?mortoni; 95-BCB-10; N=5
ID OK, = mortoni, conf. WGL 3/26/96

M(B)-95-004(a)

EPC As: Laevicardium mortoni (Conrad, 1830); 95-BCB-04;
N=1. ID OK, conf. WGL 3/30/96

M(G)-95-005

EPC As: Odostomia sp. A; 95-BCB-06; N=2
= Eulimastoma weberi (Morrison, 1965)
Det. WGL 3/30/96

FMRI As: Odostomia sp.; 95-BCB-01; N=3

= Eulimastoma? weberi (Morrison, 1965)
Det. WGL 3/26/96; sp. = weberi, genus looks like
Eulimastoma but lacks "Odostomia" fold

M(B)-95-006

EPC As: Macoma tenta (Say, 1834); 95-BCB-12; N=12
ID OK, conf. WGL 3/30/96

FMRI As: Macoma tenta (Say, 1834); 95-BCB-06; N=4
ID OK, conf. WGL 3/26/96

M(B)-95-007

EPC As: Tagelus divisus (Spengler, 1794); 95-BCB-12; N=3
ID OK, conf. WGL 3/30/96

M(B)-95-008

EPC As: Amygdalum papyrium (Conrad, 1846); 95-BCB-12; N=7
ID OK, conf. WGL 3/30/96

M(B)-95-009

EPC As: Nucula crenulata A. Adams, 1856; 95-BCB-12; N=6
ID OK, conf. WGL 3/30/96

FMRI As: Nucula crenulata A. Adams, 1856; 95-BCB-07; N=22
ID OK, conf. WGL 3/26/96

M(B)-95-010

EPC As: Nuculana acuta (Conrad, 1831); 95-BCB-12; N=4
ID OK, conf. WGL 3/30/96

M(B)-95-011

EPC As: Parvilucina multilineata (Tuomey & Holmes, 1857);
95-BCB-12; N=4. ID OK, conf. WGL 3/30/96

FMRI As: Parvilucina multilineata (Tuomey & Holmes, 1857);
95-BCB-17; N=7. ID OK, conf. WGL 3/26/96

M(B)-95-012

EPC As: Lyonsia hyalina floridana Conrad, 1849; 95-BCB-12;
N=17. ID OK, conf. WGL 3/30/96

FMRI As: Lyonsia hyalina floridana Conrad, 1849; 95-BCB-19;
N=1. ID OK, conf. WGL 3/26/96

M(G)-95-013

EPC As: Eupleura caudata (Say, 1822); 95-BCB-12; N=1
= Eupleura sulcidentata Dall, 1890 Det. WGL 3/30/96

M(B)-95-014

EPC As: Mulinia lateralis (Say, 1822); 95-BCB-12; N=4
ID OK, conf. WGL 3/30/96 N=3, not 4 as marked

M(B)-95-015

EPC As: Mysella planulata (Stimpson, 1851); 95-BCB-12;

N=27. ID OK, conf. WGL 3/30/96

FMRI As: Mysella planulata (Stimpson, 1851); 95-BCB-07;
N=12. ID OK, conf. WGL 3/26/96 N=13, not 12
now in family Lasaeidae, not Leptonidae as marked.

M(G)-95-016

EPC As: Acteon punctostriatus (C. B. Adams, 1840);
95-BCB-12; N=31. sp. ID OK, conf. WGL 3/30/96
= Rictaxis punctostriatus (C. B. Adams, 1840)

M(G)-95-017

EPC As: Acteocina canaliculata (Say, 1822); 95-BCB-12;
N=16. ID OK, conf. WGL 3/30/96 N=14, not 16

FMRI As: Acteocina canaliculata "(C. B. Adams, 1840)";
95-BCB-01; N=2. ID OK, conf. WGL 3/26/96
authority = (Say, 1822), not (C. B. Adams, 1840)

M(B)-95-018

EPC As: Asthenothaerus hemphilli Dall, 1886; 95-BCB-12;
N=10. ID OK, conf. WGL 3/30/96

M(G)-95-019

EPC As: Olivella sp. B; 95-BCB-12; N=8
= Jaspidella blanesi (Ford, 1898) Det. WGL 3/30/96

FMRI As: Olivella sp. B; 95-BCB-03; N=5
= Jaspidella blanesi (Ford, 1898) Det. WGL 3/26/96

M(B)-95-020

EPC As: Sphenia antillensis Dall & Simpson, 1901;
95-BCB-12; N=2. ID OK, conf. WGL 3/30/96

FMRI As: Sphenia antillensis Dall & Simpson, 1901;
95-BCB-16; N=1. ID OK, conf. WGL 3/26/96

M(B)-95-021

EPC As: Cyclinella tenuis (Récluz, 1852); 95-BCB-03;
N=1. ID OK, conf. WGL 3/30/96

EPC As: ?Cyclinella tenuis (Récluz, 1852); 95-BCB-12;
N=3. ID OK, conf. WGL 3/30/96

FMRI As: Cyclinella tenuis (Récluz, 1852); 95-BCB-15;
N=1. ID OK, conf. WGL 3/26/96
[specimen badly damaged]

M(B)-95-022

EPC As: Chione cancellata (Linné, 1767); 95-BCB-12; N=2
ID OK, conf. WGL 3/30/96

FMRI As: Chione cancellata (Linné, 1767); 95-BCB-19; N=1
ID OK, conf. WGL 3/26/96

M(B)-95-023

EPC As: Turbonilla (?Chemnitzia) sp. A; 95-BCB-12; N=1
= Turbonilla (Chemnitzia) cf. dalli Bush, 1899 (juv.)
Det. WGL 3/30/96

FMRI As: Turbonilla (Chemnitzia?) sp. A; 95-BCB-05; N=1
= Turbonilla (Chemnitzia) cf. dalli Bush, 1899 (juv.)
Det. WGL 3/26/96

M(B)-95-024

EPC As: Pitar sp. A; 95-BCB-12; N=1
= Pitar sp. (juvenile); Det. WGL 3/30/96
probably = Pitar simpsoni (Dall, 1895)

M(G)-95-025

EPC As: Crepidula plana Say, 1822; 95-BCB-12; N=1
ID OK, conf. WGL 3/30/96

FMRI As: Crepidula plana Say, 1822; 95-BCB-10; N=8.
ID OK, conf. WGL 3/26/96
Family = Calyptraeidae, not Crepidulidae as marked

M(G)-95-026

EPC As: Haminoea succinea (Conrad, 1846); 95-BCB-12; N=4
ID OK, conf. WGL 3/30/96

M(G)-95-026(a)

EPC As: Haminoea succinea (Conrad, 1846); 95-BCB-04; N=29
ID OK, conf. WGL 3/30/96

M(G)-95-027

EPC As: Caecum sp. damaged; 95-BCB-12; N=3
ID OK, conf. WGL 3/30/96; = small damaged juveniles

M(G)-95-028

EPC As: Gastropoda damaged ?Acteon punctostriatus?;
95-BCB-12; N=2. ID OK, conf. WGL 3/30/96

M(B)-95-029

EPC As:

M(B)-95-029(a)

EPC As:

M(B)-95-030

EPC As: Diplodonta semiaspera (Philippi, 1836); 95-BCB-01;
N=1. ID OK, conf. WGL 3/30/96

FMRI As: Diplodonta semiaspera (Philippi, 1836); 95-BCB-15;
N=10. ID OK, conf. WGL 3/26/96

M(B)-95-030(a)

EPC As: Diplodonta semiaspera (Philippi, 1836); 95-BCB-07;
N=11. ID OK, conf. WGL 3/30/96

- M(B)-95-031
EPC As: Parastarte triquetra (Conrad, 1846); 95-BCB-01; N=1. ID OK, conf. WGL 3/30/96
FMRI As: Parastarte triquetra (Conrad, 1846); 95-BCB-04; N=5. ID OK, conf. WGL 3/26/96
- M(B)-95-032
EPC As: Bivalvia sp. C (?Thraciidae); 95-BCB-01; N=1 = Corbula contracta Say, 1822 Det. WGL 3/31/96
FMRI As: Bivalvia sp. C; 95-BCB-15; N=2 = Corbula contracta Say, 1822 Det. WGL 3/26/96
- M(B)-95-032(a)
EPC As: Bivalvia sp. C (Thraciidae); 95-BCB-07; N=2 = Corbula contracta Say, 1822 Det. WGL 3/31/96
- M(G)-95-033
EPC As: Turbonilla conradi Bush, 1899; 95-BCB-04; N=1 ID OK, conf. WGL 3/31/96
FMRI As: Turbonilla conradi Bush, 1899; 95-BCB-17; N=1 = Turbonilla constricta Bush, 1899 Det. WGL 3/26/96
- M(B)-95-034
EPC As: Anomalocardia auberiana (d'Orbigny, 1842); 95-BCB-04; N=1. ID OK, conf. WGL 3/31/96
- M(B)-95-035
EPC As: Solemya occidentalis Deshayes, 1857; 95-BCB-02; N=5. ID OK, conf. WGL 3/31/96
FMRI As: Solemya occidentalis Deshayes, 1857; 95-BCB-07 N=9. ID OK, conf. WGL 3/26/96
- M(G)-95-036
EPC As: Marginella aureocincta Stearns, 1872; 95-BCB-13; N=1. sp. ID OK, conf. WGL 3/31/96
FMRI As: Marginella aureocincta Stearns, 1872; 95-BCB-11; N=3. sp. ID OK, conf. WGL 3/26/96 = Dentimargo aureocinctus (Stearns, 1872) still family Marginellidae
- M(B)-95-037
EPC As: Abra aequalis (Say, 1822); 95-BCB-15; N=2 ID OK, conf. WGL 3/31/96
FMRI As: Abra aequalis (Say, 1822); 95-BCB-07; N=4 ID OK, conf. WGL 3/26/96
- M(B)-95-038
EPC As: Solen viridis Say, 1821; 95-BCB-15; N=1

= Ensis minor Dall, 1900 Det. WGL 3/31/96

M(G)-95-039

EPC As: Olivella mutica (Say, 1822); 95-BCB-16; N=2
= Olivella pusilla (Marrat, 1871) Det. WGL 3/31/96

M(B)-95-040

EPC As: Anadara transversa (Say, 1822); 95-BCB-"040"; N=1
ID OK, conf. WGL 3/31/96

FMRI As: Anadara transversa (Say, 1822); 95-BCB-05; N=5
ID OK, conf. WGL 3/26/96

M(B)-95-041

EPC As: Tellina alternata Say, 1822; 95-BCB-16; N=1
ID OK, conf. WGL 3/30/96

FMRI As: Tellina alternata Say, 1822; 95-BCB-19; N=1
= Tellina lineata Turton, 1819. Det. WGL 3/26/96

M(G)-95-042

EPC As: ?Vitrinella floridana Pilsbry & McGinty, 1946;
95-BCB-17; N=1. = Teinostoma sp. (juvenile)
Det. WGL 3/31/96

M(G)-95-043

EPC As: Cylichnella (?Acteocina) bidentata (d'Orbigny, 1841);
95-BCB-18; N=1. May be OK; specimen too damaged to
positively identify.

M(G)-95-044

EPC As: Pyramidella crenulata (Holmes, 1859); 95-BCB-20;
N=1. ID OK, conf. WGL 3/31/96

M(G)-95-045

EPC As: Busycon spiratum pyruloides (Say, 1822);
95-BCB-20; N=1. sp. ID OK, conf. WGL 3/30/96
= Busycotypus spiratus pyruloides (Say, 1822)

M(G)-95-046

EPC As: Nassarius vibex (Say, 1822); 95-BCB-09; N=1
ID OK, conf. WGL 3/31/96

FMRI As: Nassarius vibex (Say, 1822); 95-BCB-10; N=3
ID OK, conf. WGL 3/26/96

M(G)-95-047

EPC As: Anachis (Costoanachis) semiplicata Stearns, 1873;
95-BCB-05; N=12. sp. ID OK, conf. WGL 3/31/96

FMRI As: Anachis (Costoanachis) semiplicata Stearns, 1873;
95-BCB-10; N=2. ID OK, conf. WGL 3/26/96
= Costoanachis semiplicata (Stearns, 1873)

- M(G)-95-048
EPC As: Crepidula maculosa Conrad, 1846; 95-BCB-05; N=21
ID OK, conf. WGL 3/31/96
- FMRI As: Crepidula maculosa Conrad, 1846; 95-BCB-10; N=7
ID OK, conf. WGL 3/26/96
Family = Calyptraeidae, not Crepidulidae
- M(G)-95-048(A)
EPC As: Crepidula maculosa Conrad, 1846; 95-BCB-11; N=5
ID OK, conf. WGL 3/31/96
- M(G)-95-049
EPC As: Marginella lavalleeana d'Orbigny, 1842;
95-BCB-05; N=1. sp. ID OK, conf. WGL 3/31/96
- FMRI As: Marginella lavalleeana d'Orbigny, 1842;
95-BCB-11; N=26. sp. ID OK, conf. WGL 3/26/96
= Gibberula lavalleeana (d'Orbigny, 1842),
Family Cystiscidae, no longer Marginellidae
- M(B)-95-050
EPC As: Musculus lateralis (Say, 1822); 95-BCB-05; N=1
ID OK, conf. WGL 3/31/96
- FMRI As: Musculus lateralis (Say, 1822); 95-BCB-10; N=6
ID OK, conf. WGL 3/26/96
- M(G)-95-051
EPC As: Strombiformis hemphilli (Dall, 1884); 95-BCB-07;
N=10. sp. ID OK, conf. WGL 3/26/96
= Microeulima hemphilli (Dall, 1884)
- M(G)-95-052
EPC As: Parvanachis obesa (C. B. Adams, 1845); 95-BCB-07;
N=1. ID OK, conf. WGL 3/26/96
- M(G)-95-053
EPC As: Turbonilla ?incisa Bush, 1899; 95-BCB-07; N=1
= Turbonilla sp., not T. incisa; Det. WGL 3/30/96
very interesting specimen; hang onto it! Maybe we can
learn more about it.
- M(S)-95-054
EPC As: Dentalium (Graptacme) eboreum Conrad, 1846;
95-BCB-07; N=1. ID OK, conf. WGL 3/30/96
= Graptacme eboreum (Conrad, 1846)
- M(G)-95-055
EPC As: Bittium varium (Pfeiffer, 1840); 95-BCB-10; N=376
sp. ID OK, conf. WGL 3/27/96;
= Bittiolium varium (Pfeiffer)
- M(G)-95-056

- EPC As: Caecum nitidum Stimpson, 1851; 95-BCB-10; N=2
ID OK, conf. WGL 3/26/96
- FMRI As: Caecum nitidum Stimpson, 1851; 95-BCB-21; N=1
ID OK, conf. WGL 3/26/96
- M(B)-95-057
EPC As: Brachidontes exustus (Linné, 1758); 95-BCB-10; N=8
ID OK, conf. WGL 3/27/96
- M(G)-95-058
EPC As: Rissoina catesbyana (d'Orbigny, 1982); 95-BCB-10;
N=8. sp. ID OK, conf. WGL 3/26/96
= Schwartziella catesbyana (d'Orbigny, 1842)
- M(G)-95-059
EPC As: Circulus suppressus (Dall, 1889); 95-BCB-10; N=1
sp. ID OK, conf. WGL 3/27/96
= Cyclostremiscus suppressus (Dall, 1889)
- M(G)-95-060
EPC As: Sayella fusca (C. B. Adams, 1839); 95-BCB-10; N=1
= Sayella sp. (juvenile), Det. WGL 3/27/95
- M(B)-95-061
EPC As: Cyrtopleura costata (Linné, 1758); 95-BCB-10; N=1
ID OK, conf. WGL 3/27/96
- M(G)-95-062
EPC As: ?Dotodae [sic] sp.; 95-BCB-10; N=2
= Polyceratidae sp. (juveniles); Det. WGL 3/27/96
- M(G)-95-063
EPC As: ?Stylocheilus sp.; 95-BCB-10; N=2
= Anaspidea, Aplysia sp. or Bursatella sp.
(juveniles); Det. WGL 3/30/96 I know of no records
of Stylocheilus in western Florida.
- M(G)-95-064
EPC As: Pyrgocythara plicosa (C. B. Adams, 1850);
95-BCB-10; N=1. ID OK, conf. WGL 3/26/96
- M(G)-95-065
EPC As: Haminoea elegans (Gray, 1825); 95-BCB-10; N=1
= Haminoea sp. (small juv.); I cannot confirm specific
identity -- WGL 3/30/96
- M(G)-95-066
EPC As: Modulus modulus (Linné, 1758); 95-BCB-11; N=5
ID OK, conf. WGL 3/26/96
- M(G)-95-067
EPC As: Bulla striata Bruguière, 1792; 95-BCB-11; N=1
ID OK, conf. WGL 3/26/96

- FMRI As: Bulla striata Bruguière, 1792; 95-BCB-19; N=4
ID OK, conf. WGL 3/26/96
- M(G)-95-068
EPC As: Cerithium muscarum Say, 1832; 95-BCB-11; N=1
ID OK, conf. WGL 3/26/96
- M(G)-95-069
EPC As: Granulina ovuliformis (d'Orbigny, 1841);
95-BCB-11; N=15.
FMRI As: Granulina ovuliformis (d'Orbigny, 1841);
95-BCB-19; N=12.
Both lots = Granulina hadria (Dall, 1884)
Det. WGL 3/26/96
Family = Cystiscidae, no longer Marginellidae
- M(B)-95-070
EPC As: Tellina (Anqulus) sybaritica Dall, 1881;
95-BCB-11; N=4. 3 specimens ID OK
4th specimen = Tellina lineata Turton, 1819
Det. WGL 3/30/96
- M(G)-95-071
EPC As: Pilsbryspira leucocyma (Dall, 1884); 95-BCB-11;
N=6. ID OK, conf. WGL 3/26/96
FMRI As: Pilsbryspira leucocyma (Dall, 1884); 95-BCB-19;
N=1. ID OK, conf. WGL 3/26/96
- M(G)-95-072
EPC As: ?Kurtziella atrostyla (Tryon, 1884); 95-BCB-11;
N=2. = Stellatoma stellata (Stearns, 1872)
Det. WGL 3/26/96
- M(G)-95-073
EPC As: Olivella ?dealbata; 95-BCB-11; N=1
= Olivella pusilla (Marrat, 1871) Det. WGL 3/26/96
FMRI As: Olivella ?dealbata; 95-BCB-19; N=1
= Olivella pusilla (Marrat, 1871) Det. WGL 3/26/96
- M(B)-95-074
EPC As: Transennella conradina Dall, 1884; 95-BCB-11; N=2
ID OK, conf. WGL 3/30/96
- M(G)-95-075
EPC As: Haminoea antillarum (d'Orbigny, 1841); 95-BCB-19;
N=37. ID OK, conf. WGL 3/26/96
FMRI As: Haminoea antillarum (d'Orbigny, 1841); 95-BCB-21;
N=2. ID OK, conf. WGL 3/26/96

- 1
- M(G)-95-076
EPC As: Crepidula fornicata (Linné, 1758); 95-BCB-19; N=13
ID OK, conf. WGL 3/27/96
- FMRI As: Crepidula fornicata (Linné, 1758); 95-BCB-21; N=16
ID OK, conf. WGL 3/26/96; N=17, not 16 as marked
- M(G)-95-077
EPC As: Turbonilla hemphilli Bush, 1899; 95-BCB-19; N=9
ID OK, conf. WGL 3/27/96
- FMRI As: Turbonilla hemphilli Bush, 1899; 95-BCB-21; N=4
ID OK, conf. WGL 3/26/96
- M(B)-95-078
EPC As: Anomia simplex d'Orbigny, 1842; 95-BCB-19; N=9
ID OK, conf. WGL 3/26/96 N=8, not 9 as marked
- M(B)-95-079
EPC As: Tellidora cristata (Récluz, 1842); 95-BCB-19; N=1
ID OK, conf. WGL 3/26/96
- M(G)-95-080
EPC As: Cantharus ?cancellarius (Conrad, 1846); 95-BCB-19;
N=1. = Hesperisternia multanqula (Philippi, 1848),
[formerly Cantharus multanqulus] Det. WGL 3/26/96
- M(G)-95-081
EPC As: Turbonilla ?interrupta (Totten, 1835); 95-BCB-19;
N=1. = Turbonilla sp. (damaged), not T. interrupta nor
T. incisa (see below). I'm not certain that this is
not a 'dead' shell with a sipunculan -- WGL 3/30/96
- FMRI As: Turbonilla ?interrupta; 95-BCB-21; N=1
= Turbonilla incisa Bush, 1899 Det. WGL 3/26/96
- M(G)-95-082
EPC As: Odostomia sp. A; 95-BCB-19; N=1
= Eulimastoma teres (Bush, 1885), Det. WGL 3/27/96
- M(B)-95-083
EPC As: Barbatia ?candida (Helbling, 1779); 95-BCB-19; N=1
= Anadara transversa (Say, 1822), Det. WGL 3/27/96
- M(B)-95-084
EPC As: Carditamera floridana Conrad, 1838; 95-BCB-21;
N=2. ID OK, conf. WGL 3/26/96
- M(G)-95-085
EPC As: Conus jaspideus stearnsi Conrad, 1869; 95-BCB-21;
N=6. ID OK, conf. WGL 3/26/96
= Conus stearnsi [species level, not subspecies]
- M(G)-95-086

EPC As: Olivella pusilla (Marratt, 1871); 95-BCB-21; N=1
ID OK, conf. WGL 3/27/96

M(B)-95-087

EPC As: Tellina ?exerythra Boss, 1964; 95-BCB-21; N=1
ID OK, conf. WGL 3/30/96
[This Caribbean species is not known in Florida. I
doubt that the specimen is correctly identified, but
it seems to agree with key & species diagnosis]

M(G)-95-088

EPC As: [Order] Sacoglossa sp. A; 95-BCB-10; N=1
= Order Anaspidea, Aplysiidae, probably Aplysia sp.;
very young juvenile. Det. WGL 3/26/96

FMRI As: [Order] Sacoglossa sp. A; 95-BCB-19; N=5
= Order Anaspidea, Aplysiidae, probably Aplysia sp.;
very young juveniles. Det. WGL 3/26/96

M(G)-95-088(a)

EPC As: Sacoglossa sp. A; 95-BCB-21; N=1
= Order Anaspidea, Aplysiidae, probably Aplysia sp.
Vial also contains Sphenia antillensis N=1

No number

EPC As: Olivella ?dealbata; 95-BCB-21; N=2
= Olivella pusilla (Marrat, 1871), Det. WGL 3/27/96

No number

EPC As: Tellina iris Say, 1822; 95-BCB-03; N=1
ID OK, conf. WGL 3/30/96

No number

EPC As: Tellina tampaensis Conrad, 1866; 95-BCB-10; N=5
ID OK, conf. WGL 3/30/96

No number

EPC As: Bivalvia sp. C; 95-BCB-10; N=34
= Corbula contracta Say, 1822 Det. WGL 3/30/96

COMMENTS ON HILLSBOROUGH COUNTY E.C.P. VOUCHER COLLECTION OF CRUSTACEANS FROM TAMPA BAY
 N.E.P. BENTHIC MONITORING PROGRAM -- re-examined by David K. Camp, March 1996.

VIAL NO.	SAMPLE NO.	ORIGINAL ID	MY ID	COMMENTS
D-1	95-BCB-07	Unid. Porcellanidae	Polyonyx gibbesii	
D-2	95-BCB-11-1	Libinia dubia	Same	
D-3	95-BCB-07-1	Pinnixa chaetoptera	Same	
D-4	95-BCB-05	Dyspanopeus texana	Dyspanopeus texanus	Note corrected spelling. ID of adult OK. The 3 juveniles <u>could</u> be something else, however.
D-5	95-BCB-02	Polyonyx gibbesii	Same	
D-6	95-BCB-07-01	Panopeus herbstii?	Panopeus sp. immature ♀	Williams (1983) restricted P. herbstii to the Atlantic Seaboard, exclusive of the Gulf of Mexico. This small specimen, with a length-to-width ratio of 74%, may be P. simpsoni or possibly P. lacustris.
D-7	95-BCB-05	Pitho ?lherminieri	Same	
D-8	95-BCB-05-1	Dyspanopeus texana	D. texanus	Note spelling.
D-9	95-BCB-19	Pagurus sp.	Pagurus maclaughlinae	
D-10	95-BCB-21	Pagurus sp. ?maclaughlinae	Pagurus maclaughlinae	
D-11	95-BCB-02-01	Pinnixa sp.	Pinnixa cf. chaetoptera	Subadult.
D-12	95-BCB-13-1	Pagurus ?maclaughlinae	Pagurus maclaughlinae	

D-13	95-BCB-04	Pinnixa	Pinnixa sp. juv.	
D-14	95-BCB-10-1	Pagurus sp.	Same	The legs on one juvenile are banded like those of <i>P. maclaughlinae</i> . The other juvenile lacks claws and legs, however.
D-15	95-BCB-09-1	Pinnixa	Pinnixa sp. juv.	
D-16	95-BCB-15	?Goneplacidae	Same?	Extremely small juvenile; could be something else.
D-17	95-BCB-10	Automate ?sp. A	Alpheus sp. juvs.	Not an Automate because the major claw does have a molar-like tooth on the dactylus. Not <i>A. heterochaelis</i> , <i>A. angulatus</i> , or <i>A. normanni</i> . Pereopods 2 and 4 have epipods. A rostrum is present. The adrostral furrows are not abruptly delimited. Dactyls of pereopods 3 and 4 are not subspatulate. Merus of the major chela has a distal spine. Identity unknown.
D-18	95-BCB-15	Ambidexter symmetricus	Processa hemphilli	Not Ambidexter because the right pereopod 1 is not chelate.
D-19	95-BCB-07-1	Upogebia sp.	Callianassidae: Callichirinae sp. juv.	Pereopod 1 is chelate, not subchelate. This extremely small juvenile is a Callianassid, not an Upogebiid.
D-20	95-BCB-05	Periclimenes americanus	Same	
D-21	95-BCB-11	Thalassinid - Upogebia	Callianassidae: Callichirinae sp. juv.	P-1 is chelate.
MD-1	Manatee County T-1-94-1	Upogebia affinis PL?	Upogebia sp. PL	Too small to ID with certainty. This is Upogebia.

MD-2	94-MR-32-1	Pinnixa sp.	Pinnixa sp. damaged	The 3rd leg is missing, making ID impossible. This is the same species as the one in vial MD-3.
MD-3	94-MR-23-1	Pinnixa	Pinnixa sp. damaged	The 3rd leg is missing.
MD-4	94-TCB-37-1	Periclimenes longicaudatus	Same	
MD-5	94-MR-23-1	Pagurid	Same	
MD-6	94-MR-26-1	Pinnoth.	Pinnotheridae spp. damaged juvs.	
MD-7	94-TCB-37-1	Alpheus armillatus, 2 specimens	A. normanni - 1 spec. A. angulatus - 1 spec.	A. normanni has subtriangular eye hoods; major claw not notched ventrally. A. angulatus lacks movable spine on P-5 ischium, so this is not A. armillatus, which has a spine.
MD-8	94-TCB-37-1	Processa bermudensis	Ambidexter symmetricus	Both P-1 are chelate.
MD-9	94-TCB-37-1	Xanthidae	Same, sp. juv.	
MD-10	94-TCB-37-1	Panopeus herbstii	Hexapanopeus angustifrons - 1 ♂. ?Hexapanopeus sp. juv. - 1	The gonopod of the larger male corresponds to that of H. angustifrons as depicted by Williams (1984: fig. 331n). The gonopod of the extremely small male is not developed well enough to help reveal the identity with certainty.
MD-11	94-TCB-37-1	?Paguristes hummi?	Paguridae sp. juv. (damaged)	Maxillipeds 3 are widely separated by the sternum. The claws and most legs are missing, however.
I-1	94-MR-23-1	Asellote		Vial not received at FMRI; missing.

A-1	95-BCB-19-1	Deutella incerta	Same	These specimens are better than the GCRL voucher from 1993.
A-2	95-BCB-19-1	Paracaprella ?tenuis	Caprellidae sp.	These are not Paracaprella. In Paracaprella, pereopod 5 is inserted near the posterior end of pereonite 5, not near the middle of the somite as in these specimens. They differ in this respect from the GCRL 1993 voucher of P. tenuis. I am unable to satisfactorily place them in a genus using McCain, 1968.
A-3	95-BCB-10-1	Caprella penantis	Same	Corresponds well with GCRL 1993 voucher and with diagnosis in McCain, 1968.
A-4	95-BCB-12	Corophium cf. baconi	Same?	I have no good descriptive account of this species. The BCB specimen looks like the GCRL 1993 voucher of this species.
A-5	95-BCB-15-1	Corophium tuberculatum	Same	No GCRL 1993 voucher. The BCB specimen lacks long, plumose setae on the anterior margins of segment 2 of pereopods 3 and 4; however, Bousfield states the setae are present on mature adults, so this may be an ontogenetic character.
A-6	95-BCB-21-1	Unid. amphipod (on data sheet) - or - Peracarid unid. (on vial tag)	Unid. amphipod (damaged)	

A-7	95-BCB-10	<i>Cerapus ?cudjoe</i>	Not sure.	These seem very similar to <i>C. cudjoe</i> , but the propodus of male gnathopod 2 has larger tubercles on the posterior margin and the carpus has a sharp medial tooth distal to the larger proximal tooth. The coloring corresponds with that of <i>Cerapus</i> sp. A in the GCRL 1993 voucher set, as does the 4-articulate flagellum of male antenna 1 (the latter shared with <i>C. cudjoe</i> as well). (<i>Cerapus</i> sp. C in the GCRL vouchers has a 2-articulate antenna 1.) I cannot clearly see the peduncular hook on male uropod 1, which is characteristic of <i>C. cudjoe</i> .
A-8	95-BCB-05-1	<i>Cerapus ?tubularis</i>	Same?	No GCRL 1993 voucher. Although these females appear to correspond well with Bousfield's 1973 illustration of <i>C. tubularis</i> , I cannot identify them with certainty.
A-9	95-BCB-19-1	<i>Tethygeneia longleyi</i>	Same?	Two specimens lack a urosome and telson. On the two having urosomes, uropod 3 does not correspond to Shoemaker's (1933: fig. 6) illustration or description. He stated that the rami of U-3 have spines and long, plumose setae. These two specimens have only one ramus remaining on each U-3, and each ramus lacks long, plumose setae. I cannot identify these any further. No GCRL 1993 voucher available.
A-10	95-BCB-05-1	Pontogeneidae	Pontogeneidae sp. (nr. <i>Pontogeneia bartschi</i>)	This specimen seems to be the same as the one in vial 11. They both look very much like the GCRL 1993 voucher of <i>Pontogeneia bartschi</i> , of which I have no descriptive account. I cannot identify these with certainty.

A-11	95-BCB-21-1	?Pontogeneidae	Pontogeneidae sp. (nr. <i>P. bartschi</i>)	See note above.
A-12	95-BCB-19-1	<i>Amphilochus</i> sp. B	Same	Correspond with GCRL 1993 voucher.
A-13	95-BCB-05-1	<i>Ampelisca holmesi</i>	Same	Correspond with GCRL 1993 voucher.
A-14	95-BCB-05-1	<i>Ampelisca abdita</i>	Same	Correspond with GCRL 1993 voucher.
A-15	95-BCB-07-1	<i>Ampelisca</i> sp. C	Same	Corresponds with GCRL 1993 voucher.
A-16	95-BCB-17-1	<i>Ampelisca holmesi</i>		Vial empty. Specimen not received at FMRI.
A-17	95-BCB-10	<i>Paracaprella tenuis</i>	Caprellidae sp.	See remarks for Vial A-2.
A-18	95-BCB-10	<i>Shoemakerella</i> (? <i>nasuta</i>)	<i>Shoemakerella</i> nr. <i>lowryi</i>	No GCRL 1993 voucher. In his unpublished Hourglass manuscript, Lowry reports only <i>S. cubensis</i> from the Gulf of Mexico and Caribbean Sea (with several synonymous records as <i>S. nasuta</i>). His key distinguishes <i>S. cubensis</i> from the Bermudan species <i>S. lowryi</i> by the length:width ratio of the propodus of pereopod 7. That leg is longer in <i>S. lowryi</i> (L:W = 9.5:1) than in <i>S. cubensis</i> (L:W = 5-6:1). On the three BCB specimens that have that article of P-7 intact, the ratio ranges from 8:1 to 10:1. These specimens should be reviewed by Lowry.
A-19	95-BCB-05-1	<i>Shoemakerella</i> sp.	Same	Small specimen hampers ID.
A-20	95-BCB-19	<i>Cymadusa compta</i>		Vial not received at FMRI; missing.
A-21	95-BCB-08-1	<i>Ampithoe longimana</i>	Same	Corresponds with GCRL 1993 voucher.

A-22	95-bcb-19-1	<i>Ampithoe ramondi</i>	<i>Ampithoe</i> sp.	No GCRL 1993 voucher available. Gnathopods 1 & 2 do not correspond to Shoemaker's (1933: fig. 8) illustration of <i>A. ramondi</i> (as <i>A. divisura</i>). In the BCB specimen, the carpus is longer and narrower than the one in his figure; the merus has a posterodistal projection that is lacking in his figure; and the propodus is not as setose, and its palm is shaped differently. Also, Gn-2 is not as setose on this specimen as the one he illustrated.
A-23	95-BCB-01	<i>Globoslembos smithi</i>	<i>Globosolembos smithi</i>	Note corrected spelling.
A-24	95-BCB-10	<i>Bemlos unicornis</i>	Same	No GCRL 1993 voucher.
A-25	95-BCB-05-1	<i>Bemlos unicornis</i>	Same?	ID hampered by their sex and small size.
A-26	95-BCB-10-1	<i>Bemlos unicornis</i>	Same	
A-27	95-BCB-05-1	<i>Bemlos ?setosus</i>	Same?	ID may be OK. No GCRL 1993 voucher.

A-28	95-BCB-05-1	Lembos unifasciatus	Lembos cf. unifasciatus	No GCRL 1993 voucher. If these are L. unifasciatus, they don't correspond well with either subspecies from Florida. Male gnathopod (Gn) 1 looks like that of L. u. reductus (the subspecies Myers reported as being from the central west coast of Florida). However, the spinous process on the peduncle of uropod 1 in these specimens is long, like those of L. u. unifasciatus, which is the subspecies Myers reported as being from "tropical Florida." Gnathopod 1 in the Tampa Bay females do not look like the female Gn-1 shown in Myers, 1977 (Fig. 131). These specimens have a tooth on the posterodistal end of the propodus; there is no such tooth in Myers's figure. I do not know what other species this could be if it is not L. unifasciatus, however.
A-29	95-BCB-10-1	Lembos unifasciatus	Same?	The 3 larger specimens may be L. unifasciatus, but the identity of the 2 smaller specimens is anybody's guess.
MA-1	94-TCB-40-1	Ampelisca sp. C	Same	Corresponds with GCRL 1993 voucher.
MA-2	94-TCB-37-1	Carinobatea ?cuspidata (on data sheet)- or - Eusiroides ?yucatenensis (on vial tag)	Batea cf. catherinensis	Similar to GCRL 1993 voucher. Not cuspidata because there are no spines on the dorsum.
MA-3	95-TCB-22-1	Ampelisca holmesi	Same	

MA-4	94-TCB-37-1	<i>Stenothoe gallensis</i>	<i>Stenothoe</i> sp. B	Probably not <i>S. gallensis</i> , a northern species that was not even found by Bynum & Fox in N. Carolina (does it occur in the Gulf?). This is also not <i>Stenothoe</i> sp. A of the GCRL 1993 voucher set, which has only one marginal spine on the telson, not three.
MA-5	94-MR-27-1	<i>Ampelisca holmesi</i>	Same	One specimen has urosomite 1 shaped differently from other the <i>A. holmesi</i> . Seen laterally, the dorsal margin is very concave (and not from being pinched).
MA-6	94-TCB-37-1	<i>Carinobatea ?cuspidata</i> (on data sheet) - or - <i>Eusiroides ?yucatenensis</i> (on vial tag)	<i>Batea cuspidata</i>	Corresponds well with GCRL 1993 voucher. Barnard & Karaman (1991) synonymized <i>Carinobatea</i> under <i>Batea</i> .
MA-7	94-MR-23-1	<i>Argissa hamatipes</i>	Same	Corresponds with GCRL 1993 voucher.
C-1	95-BCB-12-1	Unid. Cumacea	Same	I cannot identify this incomplete female. If it lacked an independent telson, it would key out to Nannastacidae using Jones (1976: British Cumaceans). If it had a telson, it cannot be keyed out to family using Jones. It does not correspond with any of the GCRL 1993 voucher specimens.
C-2	95-BCB-12-1	<i>Oxyurostylis lecroyae</i>	Same	Corresponds to <i>O.</i> sp. B in GCRL 1993 voucher set, which Sara LeCroy told me (pers. comm.) was <i>O. lecroyae</i> . These specimens correspond well to the description of <i>O. lecroyae</i> .
MC-1	94-MR-27-1	<i>Oxyurostylis lecroyae</i>	Same	See above.

MC-2	94-TCB-43-1	Cyclaspis sp. C	Cannot ID	I do not have LeCroy's key that distinguishes Cyclaspis sp. C. However, the uropods on this very brittle specimen do not seem to correspond to the one remaining uropod on the GCRL 1993 voucher specimen of Cyclaspis sp. C in regard to the spination of the mesial margins of the peduncle and endopod. The 1993 voucher is much more spinose than the TCB specimen appears to be.
O-1 thru MO-2		Various ostracods	Cannot ID	Ostracods are specifically excluded from identification by the 1994 EMAP protocol, because they are considered meiofauna instead of macrofauna (although some are large). I have never assembled ostracod literature and am unable to identify them.

APPENDIX 3
BENTHIC SAMPLE SUMMARY SHEETS

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-01
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 41
 Density of All Species : 3225.00000 /M2
 Total numbers of specimens counted : 129.00000
 Diversity (Hprime -log base e) : 3.13772
 Diversity (Hprime -log base 10) : 1.36270
 Evenness (Hprime/Hmax) : 0.84493
 Evenness (Scaled) : 0.70478
 Simpson's Index : 0.91994

ID	Taxa	Observed	Percentage
374000000000	CLASS ANTHOZOA		
375800000000	Actinaria	75.00000	2.32558
390000000000	PHYLUM PLATYHELMINTHES		
430000009800	Nemertea sp. B	25.00000	0.77519
430000010000	Nemertea sp. J	25.00000	0.77519
500100000000	CLASS POLYCHAETA		
500110000000	FAMILY AMPHINOMIDAE		
500121190200	Podarkeopsis		
	levifuscina	25.00000	0.77519
500122000000	FAMILY PILARGIDAE		
500124030700	Nereis acuminata	25.00000	0.77519
500128010400	Glycinde		
	solitaria	50.00000	1.55039
500129140200	Mooreonuphis sp.		
	A	50.00000	1.55039
500136000000	FAMILY DORVILLEIDAE		
500140005040	Orbinia riseri	25.00000	0.77519
500140030700	Scoloplos rubra	225.00000	6.97674
500140160000	Leitoscoloplos	25.00000	0.77519
500143050700	Prionospio		
	pygmaea	50.00000	1.55039
500143170100	Paraprionospio		
	pinnata	50.00000	1.55039
500143180100	Streblospio		
	benedicti	25.00000	0.77519
500143270600	Carazziella		
	hobsonae	825.00000	25.58140
500144010600	Magelona		
	pettiboneae	25.00000	0.77519
500149000000	FAMILY CHAETOPTERIDAE		
500150030100	?Aphelochaeta		
	sp.	100.00000	3.10078
500150031000	Monticellina		
	dorsobranchialis	125.00000	3.87597
500160000000	FAMILY CAPITELLIDAE		
500160040000	Mediomastus	100.00000	3.10078
500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	175.00000	5.42636
508500000000	PHYLUM MOLLUSCA		
510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801015000	Eulimastoma		
	weberi	75.00000	2.32558
511000000000	ORDER CEPHALASPIDEA		
511001000000	FAMILY ACTEONIDAE		
511001040300	Rictaxis		
	punctostriatus	50.00000	1.55039
511004000000	FAMILY CYLICHNIDAE		
511004010300	Acteocina		
	canaliculata	50.00000	1.55039
530401000000	ORDER ACANTHOCHITONIDA		
530401020000	FAMILY		
	ACANTHOCHITONIDAE		
550000000000	Bivalvia	25.00000	0.77519
550200000000	ORDER NUCULOIDEA		
550202000000	FAMILY NUCULIDAE		
550202021400	Nucula crenulata	75.00000	2.32558
550700000000	ORDER MYTILOIDA		
550701100100	Amygdalum		
	papyrium	25.00000	0.77519

551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	100.00000	3.10078
551505000000	FAMILY UNGULINIDAE		
551505010300	Diplodonta		
	semiaspera	25.00000	0.77519
551510000000	FAMILY LASAEIDAE		
551510011000	Mysella		
	planulata	50.00000	1.55039
551510019900	Mysella sp. A	50.00000	1.55039
551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	125.00000	3.87597
551535000000	FAMILY SEMELIDAE		
551547150300	Chione		
	cancellata	25.00000	0.77519
551547280100	Parastarte		
	triquetra	25.00000	0.77519
551700000000	ORDER MYINA		
551702000000	FAMILY CORBULIDAE		
551702020100	Corbula		
	contracta	25.00000	0.77519
552005000000	FAMILY LYONSIIDAE		
552005020601	Lyonsia hyalina		
	floridana	75.00000	2.32558
552008000000	FAMILY THRACIIDAE		
552008010200	Asthenothaerus		
	hemphilli	25.00000	0.77519
610000000000	CLASS CRUSTACEA		
615400000000	ORDER CUMACEA		
615606000000	FAMILY KALLIAPSEUDIDAE		
615606019900	Kalliapseudes		
	sp. A	100.00000	3.10078
616000000000	ORDER ISOPODA		
616001000000	FAMILY ANTHURIDAE		
616001200100	Amakusanthura		
	magnifica	50.00000	1.55039
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902012300	Ampelisca		
	holmesi	25.00000	0.77519
650000000000	INSECTA		
770001000000	FAMILY PHORONIDAE		
770001020300	Phoronis		
	?architecta	50.00000	1.55039
770001029900	Phoronida sp. B	125.00000	3.87597
850000000000	SUBPHYLUM CEPHALOCHORDATA		
850001000000	FAMILY BRANCHIOSTOMIDAE		
850001010000	Branchiostoma	25.00000	0.77519

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-02
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics			
Number of Species	:		48
Density of All Species	:	5275.00000	/M2
Total numbers of specimens counted	:	211.00000	
Diversity (Hprime -log base e)	:	2.66422	
Diversity (Hprime -log base 10)	:	1.15705	
Evenness (Hprime/Hmax)	:	0.68821	
Evenness (Scaled)	:	0.51394	
Simpson's Index	:	0.82758	

ID	Taxa	Observed	Percentage
390000000000	PHYLUM PLATYHELMINTHES		
390100000099	Turbellaria sp.		
	A	25.00000	0.47393
430000009400	Nemertea sp. F	50.00000	0.94787
430000009600	Nemertea sp. I	25.00000	0.47393
430000009700	Nemertea sp. K	25.00000	0.47393
430000010000	Nemertea sp. J	25.00000	0.47393
500100000000	CLASS POLYCHAETA		
500106039900	Sthenelais sp. A	75.00000	1.42180
500122000000	FAMILY PILARGIDAE		
500122020100	Sigambra		
	tentaculata	25.00000	0.47393
500123030600	Syllis cornuta	50.00000	0.94787
500123070100	Exogone dispar	25.00000	0.47393
500125030300	Aglaophamus		
	verrilli	150.00000	2.84360
500131000000	FAMILY LUMBRINERIDAE		
500131012401	Lumbrineris		
	?verrilli	25.00000	0.47393
500136000000	FAMILY DORVILLEIDAE		
500140030700	Scoloplos rubra	25.00000	0.47393
500143050700	Prionospio		
	pygmaea	50.00000	0.94787
500143051700	Prionospio		
	perkinsi	25.00000	0.47393
500149000000	FAMILY CHAETOPTERIDAE		
500149010100	Chaetopterus		
	pergamentaceus		
	(=variope	50.00000	0.94787
500149030200	Spiochaetopterus		
	costarum	25.00000	0.47393
500154000000	FAMILY FLABELLIGERIDAE		
500158020300	Armandia agilis	50.00000	0.94787
500160030600	Notomastus		
	latericeus	25.00000	0.47393
500163080000	Axiothella	50.00000	0.94787
500163080300	Axiothella		
	mucosa	25.00000	0.47393
500166000000	FAMILY PECTINARIIDAE		
500167210100	Isolda pulchella	25.00000	0.47393
500168000001	Terebellidae sp.		
	A	25.00000	0.47393
508500000000	PHYLUM MOLLUSCA		
510500000000	ORDER NEOGASTROPODA		
510510000000	FAMILY OLIVIDAE		
510510010001	Jaspidella		
	blanesi	50.00000	0.94787
510515000000	FAMILY MARGINELLIDAE		
510515021400	Prunum apicinum	25.00000	0.47393
511000000000	ORDER CEPHALASPIDEA		
511004000000	FAMILY CYLICHNIDAE		
511004010300	Acteocina		
	canaliculata	50.00000	0.94787
511012000000	FAMILY HAMINOEIDAE		
511012010400	Haminoea		
	succinea	125.00000	2.36967

550000000001	Bivalvia sp. 1 (M lat?)	25.00000	0.47393
550000000002	Bivalvia sp 2 (Nucula?)	25.00000	0.47393
550200000000	ORDER NUCULOIDEA		
550202000000	FAMILY NUCULIDAE		
550202021400	Nucula crenulata	25.00000	0.47393
550204000000	FAMILY NUCULANIDAE		
550204020400	Nuculana acuta	25.00000	0.47393
550400000000	ORDER SOLEMYOIDA		
550401000000	FAMILY SOLEMYIDAE		
550401010400	Solemya occidentalis	125.00000	2.36967
551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina multilineata	825.00000	15.63981
551505000000	FAMILY UNGULINIDAE		
551505010300	Diplodonta semiaspera	100.00000	1.89573
551522000000	FAMILY CARDIIDAE		
551522040100	Laevicardium mortoni	100.00000	1.89573
551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	2000.00000	37.91469
551700000000	ORDER MYTINA		
552008000000	FAMILY THRACIIDAE		
552008010200	Asthenothaerus hemphilli	50.00000	0.94787
610000000000	CLASS CRUSTACEA		
615400000000	ORDER CUMACEA		
615606000000	FAMILY KALLIAPSEUDIDAE		
615606019900	Kalliapseudes sp. A	100.00000	1.89573
616000000000	ORDER ISOPODA		
616001000000	FAMILY ANTHURIDAE		
616001200100	Amakusanthura magnifica	25.00000	0.47393
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902010000	Ampelisca	25.00000	0.47393
616902019700	Ampelisca sp. C	50.00000	0.94787
616915000000	FAMILY COROPHIIDAE		
616915030200	Erichthonius brasiliensis	50.00000	0.94787
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella barnardi	250.00000	4.73934
617500000000	ORDER DECAPODA		
618306000000	FAMILY PAGURIDAE		
618312040100	Polyonyx gibbesi	125.00000	2.36967
618905000000	FAMILY GONEPLACIDAE		
618906040500	Pinnixa chaetoptera	125.00000	2.36967
650000000000	INSECTA		
720002000000	FAMILY GOLFINGIIDAE		
720002040100	Phascolion strombi	25.00000	0.47393
810000000000	PHYLUM ECHINODERMATA		
812000000000	Ophiuroidea	25.00000	0.47393
817800000000	ORDER APODIDA		
817801000000	FAMILY SYNAPTIDAE		
817801009500	Synaptidae sp. A	25.00000	0.47393
850000000000	SUBPHYLUM CEPHALOCHORDATA		
850001000000	FAMILY BRANCHIOSTOMIDAE		
850001010000	Branchiostoma	25.00000	0.47393

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-03
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CASSO\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 44
 Density of All Species : 2475.00000 /M2
 Total numbers of specimens counted : 99.00000
 Diversity (Hprime -log base e) : 3.12410
 Diversity (Hprime -log base 10) : 1.35678
 Evenness (Hprime/Hmax) : 0.82557
 Evenness (Scaled) : 0.54975
 Simpson's Index : 0.90167

ID	Taxa	Observed	Percentage
390000000000	PHYLUM PLATYHELMINTHES		
430000009400	Nemertea sp. F	25.00000	1.01010
430000009800	Nemertea sp. B	100.00000	4.04040
430000009900	Nemertea sp. A	25.00000	1.01010
500100000000	CLASS POLYCHAETA		
500100000001	Polychaeta sp. 1	25.00000	1.01010
500122000000	FAMILY PILARGIDAE		
500123250301	Opisthosyllis		
	sp. A	25.00000	1.01010
500129140200	Mooreonuphis sp.		
	A	25.00000	1.01010
500136000000	FAMILY DORVILLEIDAE		
5001410201CF	Aricidea cf.		
	suecica	25.00000	1.01010
500143050700	Prionospio		
	pygmaea	25.00000	1.01010
500143170100	Paraprionospio		
	pinnata	50.00000	2.02020
500149000000	FAMILY CHAETOPTERIDAE		
500149030200	Spiochaetopterus		
	costarum	25.00000	1.01010
500150040000	Chaetozone	25.00000	1.01010
500154000000	FAMILY FLABELLIGERIDAE		
500158020300	Armandia agilis	25.00000	1.01010
500160030600	Notomastus		
	latericeus	25.00000	1.01010
500163000000	Maldanidae	75.00000	3.03030
500163080000	Axiothella	25.00000	1.01010
500163080300	Axiothella		
	mucosa	25.00000	1.01010
500163110700	Dasybranchus		
	lumbricoides	25.00000	1.01010
500164019900	Owenia sp. A	25.00000	1.01010
500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	25.00000	1.01010
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510336000000	FAMILY CAECIDAE		
510336030100	Caecum		
	pulchellum	25.00000	1.01010
510376000000	FAMILY NATICIDAE		
510376020400	Natica pusilla	25.00000	1.01010
510500000000	ORDER NEOGASTROPODA		
510508000000	FAMILY NASSARIIDAE		
510508010200	Nassarius vibex	25.00000	1.01010
510510000000	FAMILY OLIVIDAE		
510510010001	Jaspidella		
	blanesi	125.00000	5.05051
510515000000	FAMILY MARGINELLIDAE		
510515021400	Prunum apicinum	75.00000	3.03030
550200000000	ORDER NUCULOIDEA		
550204000000	FAMILY NUCULANIDAE		
550204020400	Nuculana acuta	50.00000	2.02020
551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	75.00000	3.03030
551510000000	FAMILY LASAEIDAE		
551510011000	Mysella		
	planulata	25.00000	1.01010
551510019900	Mysella sp. A	25.00000	1.01010

551522000000	FAMILY CARDIIDAE		
551522040100	Laevicardium		
	mortoni	25.00000	1.01010
551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	750.00000	30.30303
551531020700	Tellina iris	25.00000	1.01010
551533000000	FAMILY PSAMMOBIIDAE		
551533020200	Tagelus divisus	50.00000	2.02020
551535000000	FAMILY SEMELIDAE		
551547100100	Cyclinella		
	tenuis	25.00000	1.01010
551700000000	ORDER MYIINA		
552005000000	FAMILY LYONSIIDAE		
552005020601	Lyonsia hyalina		
	floridana	25.00000	1.01010
610000000000	CLASS CRUSTACEA		
615400000000	ORDER CUMACEA		
615606000000	FAMILY KALLIAPSEUDIDAE		
615606019900	Kalliapseudes		
	sp. A	75.00000	3.03030
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902012300	Ampelisca		
	holmesi	50.00000	2.02020
616902019700	Ampelisca sp. C	50.00000	2.02020
616906000000	FAMILY AORIDAE		
6169060404CF	Paramicrodeutopus cf.		
	myersi	75.00000	3.03030
616915000000	FAMILY COROPHIIDAE		
616915010200	Cerapus		
	tubularis	25.00000	1.01010
617500000000	ORDER DECAPODA		
618317000000	FAMILY UPOGEBIIDAE		
618399000000	Paguroidea	25.00000	1.01010
650000000000	INSECTA		
720002000000	FAMILY GOLFFINGIIDAE		
720002040100	Phascolion		
	strombi	75.00000	3.03030
810000000000	PHYLUM ECHINODERMATA		
812000000000	Ophiuroidea	25.00000	1.01010
812600000000	ORDER OPHIURIDA		
812902000000	FAMILY OPHIACTIDAE		
812903090400	Amphioplus		
	thrombodes	25.00000	1.01010
815200000000	ORDER CLYPEASTEROIDA		
815504000000	FAMILY MELLITIDAE		
817000000000	Holothuroidea	75.00000	3.03030

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-04
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =with
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics
 Number of Species : 39
 Density of All Species : 6550.00000 /M2
 Total numbers of specimens counted : 262.00000
 Diversity (Hprime -log base e) : 2.87885
 Diversity (Hprime -log base 10) : 1.25027
 Evenness (Hprime/Hmax) : 0.78581
 Evenness (Scaled) : 0.71171
 Simpson's Index : 0.91480

ID	Taxa	Observed	Percentage
374000000000	CLASS ANTHOZOA		
375800000000	Actinaria	100.00000	1.52672
390000000000	PHYLUM PLATYHELMINTHES		
3901000000099	Turbellaria sp.	25.00000	0.38168
	A		
500100000000	CLASS POLYCHAETA		
500102260200	Malmgreniella maccrarya	25.00000	0.38168
500110000000	FAMILY AMPHINOMIDAE		
500121190200	Podarkeopsis levifuscina	100.00000	1.52672
500122000000	FAMILY PILARGIDAE		
500122020100	Sigambra tentaculata	25.00000	0.38168
500124030700	Nereis acuminata	50.00000	0.76336
500124080100	Laeonereis culveri	100.00000	1.52672
500128010400	Glycinde solitaria	150.00000	2.29008
500136000000	FAMILY DORVILLEIDAE		
500136050300	Schistomeringos pectinata	150.00000	2.29008
500140030700	Scoloplos rubra	50.00000	0.76336
500143050300	Prionospio heterobranchia	25.00000	0.38168
500143051700	Prionospio perkinsi	25.00000	0.38168
500143170100	Paraprionospio pinnata	650.00000	9.92366
500143270600	Carazziella hobsonae	1175.00000	17.93893
500144010600	Magelona pettiboneae	125.00000	1.90840
500149000000	FAMILY CHAETOPTERIDAE		
500150031000	Monticellina dorsobranchialis	950.00000	14.50382
500150060000	Cirriiformia	75.00000	1.14504
500160000000	FAMILY CAPITELLIDAE		
500160040000	Mediomastus	25.00000	0.38168
500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	475.00000	7.25191
508500000000	PHYLUM MOLLUSCA		
510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801015000	Eulimastoma weberi	100.00000	1.52672
510801021300	Turbonilla conradi	25.00000	0.38168
511000000000	ORDER CEPHALASPIDEA		
511001000000	FAMILY ACTEONIDAE		
511001040300	Rictaxis punctostriatus	75.00000	1.14504
511004000000	FAMILY CYLICHNIDAE		
511004010300	Acteocina canaliculata	75.00000	1.14504
511012000000	FAMILY HAMINOEIDAE		
511012010400	Haminoea succinea	725.00000	11.06870
550700000000	ORDER MYTILOIDA		
550701100100	Amygdalum papyrium	25.00000	0.38168

551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	25.00000	0.38168
551510000000	FAMILY LASAEIDAE		
551510011000	Mysella		
	planulata	225.00000	3.43511
551522000000	FAMILY CARDIIDAE		
551522040100	Laevicardium		
	mortoni	25.00000	0.38168
551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	175.00000	2.67176
551531020900	Tellina		
	versicolor	75.00000	1.14504
551531021400	Tellina		
	tampaensis	325.00000	4.96183
551533000000	FAMILY PSAMMOBIIDAE		
551533020200	Tagelus divisus	25.00000	0.38168
551535000000	FAMILY SEMELIDAE		
551535020100	Abra aequalis	50.00000	0.76336
551547230100	Anomalocardia		
	auberiana	25.00000	0.38168
551547280100	Parastarte		
	triquetra	125.00000	1.90840
610000000000	CLASS CRUSTACEA		
615400000000	ORDER CUMACEA		
615409000000	FAMILY BODOTRIIDAE		
6154090202CF	Cyclaspis cf.		
	varians	25.00000	0.38168
616900000000	ORDER AMPHIPODA		
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella		
	barnardi	75.00000	1.14504
617500000000	ORDER DECAPODA		
618905000000	FAMILY GONEPLACIDAE		
618906040000	Pinnixa	25.00000	0.38168
810000000000	PHYLUM ECHINODERMATA		
812600000000	ORDER OPHIURIDA		
812902000000	FAMILY OPHIACTIDAE		
812903090400	Amphioplus		
	thrombodes	25.00000	0.38168

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-05
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 60
 Density of All Species : 14975.00000 /M2
 Total numbers of specimens counted : 599.00000
 Diversity (Hprime -log base e) : 2.62060
 Diversity (Hprime -log base 10) : 1.13811
 Evenness (Hprime/Hmax) : 0.64005
 Evenness (Scaled) : 0.56281
 Simpson's Index : 0.81023

ID	Taxa	Observed	Percentage
374000000000	CLASS ANTHOZOA		
367000000002	Thenaria sp. B	25.00000	0.16694
390000000000	PHYLUM PLATYHELMINTHES		
390100000099	Turbellaria sp.		
	A	50.00000	0.33389
430000009800	Nemertea sp. B	25.00000	0.16694
500100000000	CLASS POLYCHAETA		
500110000000	FAMILY AMPHINOMIDAE		
500113100400	Nereiphyllis (Genetyllis) sp. A	25.00000	0.16694
500122000000	FAMILY PILARGIDAE		
500124000000	Nereidae	650.00000	4.34057
500124000001	Nereidae genus A	25.00000	0.16694
500124030700	Nereis acuminata	700.00000	4.67446
500124041400	Nereis falsa	25.00000	0.16694
500124041600	Nereis lamellosa	175.00000	1.16861
500129020100	Diopatra cuprea	50.00000	0.33389
500129140200	Mooreonuphis sp.		
	A	25.00000	0.16694
500131000000	FAMILY LUMBRINERIDAE		
500131012300	Lumbrineris ernesti	25.00000	0.16694
500136000000	FAMILY DORVILLEIDAE		
500143040200	Polydora socialis	125.00000	0.83472
500143041100	Polydora cornuta (=ligni)	200.00000	1.33556
500143050700	Prionospio pygmaea	25.00000	0.16694
500143270600	Carazziella hobsonae	25.00000	0.16694
500149000000	FAMILY CHAETOPTERIDAE		
500150031000	Monticellina dorsobranchialis	25.00000	0.16694
500150040000	Chaetozone	25.00000	0.16694
500158040600	Travisia hobsonae	75.00000	0.50083
500160040000	Mediomastus	25.00000	0.16694
500163100001	Rhodine sp. A	25.00000	0.16694
500165029900	Sabellaria sp. A	950.00000	6.34391
500169000000	FAMILY TRICHOBRANCHIDAE		
500173000000	Serpulidae	400.00000	2.67112
500173150100	Pomatoceros americanus	25.00000	0.16694
500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	6225.00000	41.56928
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510364000000	FAMILY CALYPTRAEDIAE		
510364021000	Crepidula maculosa	525.00000	3.50584
510500000000	ORDER NEOGASTROPODA		
510503000000	FAMILY PYRENIDAE		
510503032800	Costoanachis semiplicata	300.00000	2.00334
510508000000	FAMILY NASSARIIDAE		
510508010200	Nassarius vibex	25.00000	0.16694
510515000000	FAMILY MARGINELLIDAE		
510515020600	Gibberula lavalleenana	25.00000	0.16694
510515021400	Prunum apicinum	25.00000	0.16694

510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801021400	Turbonilla cf.		
	dalli	25.00000	0.16694
530401000000	ORDER ACANTHOCHITONIDA		
530401020000	FAMILY		
	ACANTHOCHITONIDAE		
550000000000	Bivalvia	25.00000	0.16694
550200000000	ORDER NUCULOIDEA		
550202000000	FAMILY NUCULIDAE		
550202021400	Nucula crenulata	25.00000	0.16694
550600000000	ORDER ARCOIDA		
550601000000	FAMILY ARCIDAE		
550601020100	Anadara		
	transversa	125.00000	0.83472
550700000000	ORDER MYTILOIDA		
550701041300	Musculus		
	lateralis	25.00000	0.16694
551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	300.00000	2.00334
551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	75.00000	0.50083
610000000000	CLASS CRUSTACEA		
613100000000	ORDER THORACICA		
613402000000	FAMILY BALANIDAE		
613402012100	Balanus venustus	50.00000	0.33389
616000000000	ORDER ISOPODA		
616101000000	FAMILY CIROLANIDAE		
616102020200	Paracerceis		
	caudata	125.00000	0.83472
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902010000	Ampelisca	25.00000	0.16694
616902010800	Ampelisca abdita	75.00000	0.50083
616902012300	Ampelisca		
	holmesi	125.00000	0.83472
616904000000	FAMILY AMPITHOIDAE		
616904011500	Ampithoe		
	longimana	775.00000	5.17529
616904020100	Cymadusa compta	50.00000	0.33389
616906000000	FAMILY AORIDAE		
616906030300	Globosolembos		
	smithi	125.00000	0.83472
616906030700	Bemlos		
	unifasciatus	200.00000	1.33556
616906031300	Bemlos setosus	150.00000	1.00167
616906160200	Bemlos unicornis	200.00000	1.33556
616915000000	FAMILY COROPHIIDAE		
616915010200	Cerapus		
	tubularis	75.00000	0.50083
616915030200	Erichthonius		
	brasiliensis	525.00000	3.50584
616920000000	FAMILY EUSIRIDAE		
616920121100	Pontogenia		
	bartschi	25.00000	0.16694
616921000000	FAMILY GAMMARIDAE		
616921030100	Elasmopus laevis	700.00000	4.67446
616921100700	Dulichchiella		
	appendiculata	25.00000	0.16694
616933000000	FAMILY LILJEBORGIIDAE		
616934530900	Shoemakerella		
	nr. lowryi	25.00000	0.16694
617101000000	FAMILY CAPRELLIDAE		
617101020200	Deutella incerta	75.00000	0.50083
617500000000	ORDER DECAPODA		
617905000000	FAMILY PASIPHAEIDAE		
617911040100	Periclimenes		
	americanus	25.00000	0.16694
618317000000	FAMILY UPOGEBIIDAE		
618399000000	Paqueroidea	50.00000	0.33389
618701000000	FAMILY MAJIDAE		
618701320100	Pitho		
	lherminieri	25.00000	0.16694
618902000000	FAMILY XANTHIDAE		
618902080100	Panopeus sp.	50.00000	0.33389
618902420200	Dyspanopeus		
	texanus	25.00000	0.16694

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-06
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 33
 Density of All Species : 2925.00000 /M2
 Total numbers of specimens counted : 117.00000
 Diversity (Hprime -log base e) : 2.97610
 Diversity (Hprime -log base 10) : 1.29250
 Evenness (Hprime/Hmax) : 0.85116
 Evenness (Scaled) : 0.73474
 Simpson's Index : 0.92927

ID	Taxa	Observed	Percentage
390000000000	PHYLUM PLATYHELMINTHES		
390100000099	Turbellaria sp.		
	A	25.00000	0.85470
430000009100	Nemertea sp. L	25.00000	0.85470
500100000000	CLASS POLYCHAETA		
500106039900	Sthenelais sp. A	175.00000	5.98291
500136000000	FAMILY DORVILLEIDAE		
500143050700	Prionospio		
	pygmaea	25.00000	0.85470
500143150002	Pseudopolydora		
	sp. B	25.00000	0.85470
500143170100	Paraprionospio		
	pinnata	225.00000	7.69231
500149000000	FAMILY CHAETOPTERIDAE		
500149030200	Spiochaetopterus		
	costarum	25.00000	0.85470
500150031000	Monticellina		
	dorsobranchialis	300.00000	10.25641
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510364000000	FAMILY CALYPTRAEDIAE		
510364020000	Crepidula	50.00000	1.70940
510500000000	ORDER NEOGASTROPODA		
510503000000	FAMILY PYRENIDAE		
510503020700	Astris lunulata	75.00000	2.56410
510508000000	FAMILY NASSARIIDAE		
510508010200	Nassarius vibex	100.00000	3.41880
510510000000	FAMILY OLIVIDAE		
510510010001	Jaspidella		
	blanesi	100.00000	3.41880
510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801015000	Eulimastoma		
	weberi	50.00000	1.70940
510801021300	Turbonilla		
	conradi	25.00000	0.85470
511000000000	ORDER CEPHALASPIDEA		
511012000000	FAMILY HAMINOEIDAE		
511012010000	Haminoea sp.	50.00000	1.70940
550200000000	ORDER NUCULOIDEA		
550202000000	FAMILY NUCULIDAE		
550202021400	Nucula crenulata	50.00000	1.70940
551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	25.00000	0.85470
551505000000	FAMILY UNGULINIDAE		
551505010300	Diplodonta		
	semiaspera	50.00000	1.70940
551510000000	FAMILY LASAEIDAE		
551510019900	Mysella sp. A	200.00000	6.83761
551522000000	FAMILY CARDIIDAE		
551522040100	Laevicardium		
	mortoni	25.00000	0.85470
551529000000	FAMILY SOLENIDAE		
551531012000	Macoma tenta	25.00000	0.85470
551531020000	Tellina spp.	575.00000	19.65812
551531020900	Tellina		
	versicolor	250.00000	8.54701

610000000000	CLASS CRUSTACEA		
615400000000	ORDER CUMACEA		
615409000000	FAMILY BODOTRIIDAE		
6154090202CF	Cyclaspis cf.		
	varians	75.00000	2.56410
616900000000	ORDER AMPHIPODA		
616915000000	FAMILY COROPHIIDAE		
616915030200	Erichthonius		
	brasiliensis	50.00000	1.70940
616926000000	FAMILY PHOTIDAE		
616926090200	Microprotopus		
	shoemakeri	25.00000	0.85470
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella		
	barnardi	75.00000	2.56410
616937000000	FAMILY OEDICEROTIDAE		
616937082300	Monoculodes nyei	25.00000	0.85470
617500000000	ORDER DECAPODA		
618905000000	FAMILY GONEPLACIDAE		
618906040000	Pinnixa	25.00000	0.85470
810000000000	PHYLUM ECHINODERMATA		
812000000000	Ophiuroidea	25.00000	0.85470
812600000000	ORDER OPHIURIDA		
812902000000	FAMILY OPHIACTIDAE		
812903020200	Amphipholis		
	squamata	25.00000	0.85470
820000000000	PHYLUM HEMICHORDATA		
820100000000	Enteropneusta	75.00000	2.56410

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-07
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CASSO\LIST.TXC
 Last Modified =17:37:16 on May 1, 1996

Sample Characteristics

Number of Species : 70
 Density of All Species : 8550.00000 /M2
 Total numbers of specimens counted : 342.00000
 Diversity (Hprime -log base e) : 3.69543
 Diversity (Hprime -log base 10) : 1.60491
 Evenness (Hprime/Hmax) : 0.86982
 Evenness (Scaled) : 0.80872
 Simpson's Index : 0.96647

ID	Taxa	Observed	Percentage
390000000000	PHYLUM PLATYHELMINTHES		
390100000099	Turbellaria sp.		
	A	25.00000	0.29240
430000009400	Nemertea sp. F	25.00000	0.29240
430000009600	Nemertea sp. I	25.00000	0.29240
500100000000	CLASS POLYCHAETA		
500102260200	Malmgreniella		
	macruryae	50.00000	0.58480
500106039900	Sthenelais sp. A	125.00000	1.46199
500110000000	FAMILY AMPHINOMIDAE		
500110049800	Paramphinome sp.		
	B	50.00000	0.58480
500122000000	FAMILY PILARGIDAE		
500122010300	Ancistrosyllis		
	jonesi	25.00000	0.29240
500123000000	Syllidae	25.00000	0.29240
500123040900	Trypanosyllis		
	parvidentata	125.00000	1.46199
500123070100	Exogone dispar	100.00000	1.16959
500123080700	Sphaerosyllis		
	aciculata	75.00000	0.87719
500123310100	Dentatisyllis		
	carolinae	25.00000	0.29240
500124000000	Nereidae	25.00000	0.29240
500124041600	Nereis lamellosa	100.00000	1.16959
500125030300	Aglaophamus		
	verrilli	200.00000	2.33918
500136000000	FAMILY DORVILLEIDAE		
5001360504CF	Schistomeringos		
	cf. rudolphi	100.00000	1.16959
500143040200	Polydora		
	socialis	25.00000	0.29240
500143050700	Prionospio		
	pygmaea	25.00000	0.29240
500143051700	Prionospio		
	perkinsi	350.00000	4.09357
500143170100	Paraprionospio		
	pinnata	125.00000	1.46199
500143270600	Carazziella		
	hobsonae	250.00000	2.92398
500146000000	FAMILY POECILOCHAETIDAE		
500146010100	Poecilochaetus		
	johnsoni	25.00000	0.29240
500149000000	FAMILY CHAETOPTERIDAE		
500149010100	Chaetopterus		
	pergamentaceus		
	(=variope	50.00000	0.58480
500149030200	Spiochaetopterus		
	costarum	125.00000	1.46199
500150010000	Cirratulus sp.	25.00000	0.29240
500150029700	Caulleriella sp.		
	A	225.00000	2.63158
500150031000	Monticellina		
	dorsobranchialis	550.00000	6.43275
500150060000	Cirriiformia	50.00000	0.58480
500150069500	Cirriiformia sp.		
	1	25.00000	0.29240

500158040600	Travisia		
	hobsonae	25.00000	0.29240
500160030600	Notomastus		
	latericeus	50.00000	0.58480
500160040200	Mediomastus		
	californiensis	50.00000	0.58480
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510353000000	FAMILY MELANELLIDAE		
510353020400	Microeulima		
	hemphilli	250.00000	2.92398
510500000000	ORDER NEOGASTROPODA		
510503000000	FAMILY PYRENIDAE		
510503030300	Parvanachis		
	obesa	25.00000	0.29240
510510000000	FAMILY OLIVIDAE		
510510010001	Jaspidella		
	blanesi	375.00000	4.38596
510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801020000	Turbonilla	25.00000	0.29240
550200000000	ORDER NUCULOIDEA		
550202000000	FAMILY NUCULIDAE		
550202021400	Nucula crenulata	550.00000	6.43275
550400000000	ORDER SOLEMYOIDEA		
550401000000	FAMILY SOLEMYIDAE		
550401010400	Solemya		
	occidentalis	225.00000	2.63158
550600000000	ORDER ARCOIDA		
550601000000	FAMILY ARCIDAE		
550601020100	Anadara		
	transversa	25.00000	0.29240
550700000000	ORDER MYTILOIDA		
550701041300	Musculus		
	lateralis	25.00000	0.29240
551500000000	ORDER VENEROIDEA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	400.00000	4.67836
551505000000	FAMILY UNGULINIDAE		
551505010300	Diplodonta		
	semiaspera	275.00000	3.21637
551510000000	FAMILY LASAEIDAE		
551510011000	Mysella		
	planulata	325.00000	3.80117
551522000000	FAMILY CARDIIDAE		
551522040100	Laevicardium		
	mortoni	150.00000	1.75439
551529000000	FAMILY SOLENIDAE		
551531012000	Macoma tenta	100.00000	1.16959
551531020000	Tellina spp.	825.00000	9.64912
551531020900	Tellina		
	versicolor	450.00000	5.26316
551535000000	FAMILY SEMELIDAE		
551535020100	Abra aequalis	100.00000	1.16959
551547150300	Chione		
	cancellata	25.00000	0.29240
551700000000	ORDER MYINA		
551702000000	FAMILY CORBULIDAE		
551702020100	Corbula		
	contracta	50.00000	0.58480
560000000000	CLASS SCAPHOPODA		
560100000000	ORDER DENTALIDA		
560101000000	FAMILY DENTALIIDAE		
560001010400	Graptacme		
	eboreum	25.00000	0.29240
610000000000	CLASS CRUSTACEA		
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902010800	Ampelisca abdita	25.00000	0.29240
616902019700	Ampelisca sp. C	50.00000	0.58480
616906000000	FAMILY AORIDAE		
6169060404CF	Paramicrodeutopus cf.		
	myersi	175.00000	2.04678
616915000000	FAMILY COROPHIIDAE		
616915010200	Cerapus		
	tubularis	50.00000	0.58480
616915030200	Erichthonius		
	brasiliensis	150.00000	1.75439
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella		
	barnardi	100.00000	1.16959

617500000000	ORDER DECAPODA		
617917000000	FAMILY PROCESSIDAE		
617917030100	Ambidexter		
	symmetricus	75.00000	0.87719
618301000000	FAMILY THALASSINIDAE		
618304040001	Callichirinae		
	sp.	25.00000	0.29240
618306000000	FAMILY PAGURIDAE		
618312040100	Polyonyx gibbesi	25.00000	0.29240
618902000000	FAMILY XANTHIDAE		
618902080100	Panopeus sp.	25.00000	0.29240
618905000000	FAMILY GONEPLACIDAE		
618906040000	Pinnixa	50.00000	0.58480
618906040500	Pinnixa		
	chaetoptera	100.00000	1.16959
650000000000	INSECTA		
720002000000	FAMILY GOLFINGIIDAE		
720002040100	Phascolion		
	strombi	25.00000	0.29240
770001000000	FAMILY PHORONIDAE		
770001020300	Phoronis		
	?architecta	25.00000	0.29240
800000000000	PHYLUM BRACHIOPODA		
800200000000	ORDER LINGULIDA		
800201000000	FAMILY LINGULIDAE		
800201010100	Glottidia		
	pyramidata	25.00000	0.29240
810000000000	PHYLUM ECHINODERMATA		
812000000000	Ophiuroidea	50.00000	0.58480
812600000000	ORDER OPHIURIDA		
812902000000	FAMILY OPHIACTIDAE		
812903020200	Amphipholis		
	squamata	175.00000	2.04678
812903120200	Micropholis		
	gracillima	50.00000	0.58480
815200000000	ORDER CLYPEASTEROIDA		
815504000000	FAMILY MELLITIDAE		
817000000000	Holothuroidea	50.00000	0.58480

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-08
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CASS0\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 0
 Density of All Species : 0.00000 /M2
 Total numbers of specimens counted : 0.00000
 Diversity (Hprime -log base e) : 0.00000
 Diversity (Hprime -log base 10) : 0.00000
 Evenness (Hprime/Hmax) : 0.00000
 Evenness (Scaled) : 0.00000
 Simpson's Index : 1.00000

ID	Taxa	Observed	Percentage
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EMPTY SAMPLE

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-TCB-09
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics
 Number of Species : 40
 Density of All Species : 4700.00000 /M2
 Total numbers of specimens counted : 188.00000
 Diversity (Hprime -log base e) : 2.52277
 Diversity (Hprime -log base 10) : 1.09562
 Evenness (Hprime/Hmax) : 0.68389
 Evenness (Scaled) : 0.51780
 Simpson's Index : 0.83337

ID	Taxa	Observed	Percentage
390000000000	PHYLUM PLATYHELMINTHES		
430000009400	Nemertea sp. F	75.00000	1.59574
500100000000	CLASS POLYCHAETA		
500106039900	Sthenelais sp. A	25.00000	0.53191
500110000000	FAMILY AMPHINOMIDAE		
500113020700	Eteone heteropoda	25.00000	0.53191
500122000000	FAMILY PILARGIDAE		
500123000000	Syllidae	25.00000	0.53191
500123090300	Brania wellfleetensis	50.00000	1.06383
500128010400	Glycinde solitaria	75.00000	1.59574
500136000000	FAMILY DORVILLEIDAE		
500140160000	Leitoscoloplos	25.00000	0.53191
500140160300	Leitoscoloplos fragilis	50.00000	1.06383
500141020010	Aricidea (Allia) sp. A	25.00000	0.53191
5001410201CF	Aricidea cf. suecica	50.00000	1.06383
500141022100	Aricidea philbinae	25.00000	0.53191
500141060300	Cirrophorus ?lyra	1700.00000	36.17021
500141060500	Cirrophorus ?branchiatus	25.00000	0.53191
500143050300	Prionospio heterobranchia	25.00000	0.53191
500143050700	Prionospio pygmaea	700.00000	14.89362
500143070600	Spio pettiboneae	50.00000	1.06383
500143200600	Scoelelepis texana	25.00000	0.53191
500158020300	Armandia agilis	25.00000	0.53191
500158020400	Armandia maculata	25.00000	0.53191
500158040600	Travisia hobsonae	25.00000	0.53191
500160040000	Mediomastus	25.00000	0.53191
500200000000	ORDER ARCHANNELIDA		
500300000000	Oligochaeta	425.00000	9.04255
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510376000000	FAMILY NATICIDAE		
510376020400	Natica pusilla	25.00000	0.53191
510500000000	ORDER NEOGASTROPODA		
510508000000	FAMILY NASSARIIDAE		
510508010200	Nassarius vibex	25.00000	0.53191
510515000000	FAMILY MARGINELLIDAE		
510515021400	Prunum apicinum	25.00000	0.53191
551500000000	ORDER VENEROIDA		
551505000000	FAMILY UNGULINIDAE		
551505010300	Diplodonta semiaspera	25.00000	0.53191
551510000000	FAMILY LASAEIDAE		
551510011000	Mysella planulata	25.00000	0.53191
551522000000	FAMILY CARDIIDAE		
551522040100	Laevicardium mortoni	25.00000	0.53191

551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	325.00000	6.91489
551531020700	Tellina iris	50.00000	1.06383
610000000000	CLASS CRUSTACEA		
615400000000	ORDER CUMACEA		
615606000000	FAMILY KALLIAPSEUDIDAE		
615606019900	Kalliapseudes		
	sp. A	25.00000	0.53191
616000000000	ORDER ISOPODA		
616001000000	FAMILY ANTHURIDAE		
616001200100	Amakusanthura		
	magnifica	50.00000	1.06383
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902019700	Ampelisca sp. C	100.00000	2.12766
616921000000	FAMILY GAMMARIDAE		
616922060700	Acanthohaustorius		
	uncinus	125.00000	2.65957
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella		
	barnardi	200.00000	4.25532
616937000000	FAMILY OEDICEROTIDAE		
616937082300	Monoculodes nyei	25.00000	0.53191
617500000000	ORDER DECAPODA		
617917000000	FAMILY PROCESSIDAE		
617917010100	Processa		
	hemphilli	25.00000	0.53191
618905000000	FAMILY GONEPLACIDAE		
618906040000	Pinnixa	25.00000	0.53191
650000000000	INSECTA		
720002000000	FAMILY GOLFINGIIDAE		
720002040100	Phascolion		
	strombi	75.00000	1.59574
850000000000	SUBPHYLUM CEPHALOCHORDATA		
850001000000	FAMILY BRANCHIOSTOMIDAE		
850001010000	Branchiostoma	25.00000	0.53191

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-10
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics
 Number of Species : 84
 Density of All Species : 43925.00000 /M2
 Total numbers of specimens counted : 1757.00000
 Diversity (Hprime -log base e) : 2.33207
 Diversity (Hprime -log base 10) : 1.01281
 Evenness (Hprime/Hmax) : 0.52633
 Evenness (Scaled) : 0.47945
 Simpson's Index : 0.76547

ID	Taxa	Observed	Percentage
374000000000	CLASS ANTHOZOA		
367000000001	Thenaria sp. A	25.00000	0.05692
390000000000	PHYLUM PLATYHELMINTHES		
390100000099	Turbellaria sp.		
	A	125.00000	0.28458
430000009000	Nemertea sp. P	25.00000	0.05692
430000009200	Nemertea sp. M	25.00000	0.05692
430000009400	Nemertea sp. F	25.00000	0.05692
500100000000	CLASS POLYCHAETA		
500110000000	FAMILY AMPHINOMIDAE		
500121010800	Gyptis crypta	50.00000	0.11383
500121011000	Gyptis pluriseta		
	(=sp. A)	25.00000	0.05692
500121070100	Parahesionia		
	luteola	325.00000	0.73990
500121150200	Podarke obscura	75.00000	0.17075
500122000000	FAMILY PILARGIDAE		
500123000001	?Autolytinae	50.00000	0.11383
500123070300	Exogone lourei	50.00000	0.11383
5001240103NR	Ceratoneureis nr.		
	irritabilis	25.00000	0.05692
500127010400	Glycera		
	americana	25.00000	0.05692
500129020100	Diopatra cuprea	75.00000	0.17075
500129140200	Mooreonuphis sp.		
	A	600.00000	1.36596
500136000000	FAMILY DORVILLEIDAE		
500143040200	Polydora		
	socialis	25.00000	0.05692
500143041100	Polydora cornuta		
	(=ligni)	400.00000	0.91064
500143050300	Prionospio		
	heterobranchia	575.00000	1.30905
500143050600	Prionospio		
	steenstrupi	25.00000	0.05692
500143270600	Carazziella		
	hobsonae	25.00000	0.05692
500143050200	Prionospio		
	multibranchiata	175.00000	0.39841
500144010600	Magelona		
	pettiboneae	150.00000	0.34149
500149000000	FAMILY CHAETOPTERIDAE		
500149030200	Spiochaetopterus		
	costarum	50.00000	0.11383
500150020200	Caulleriella cf.		
	alata	50.00000	0.11383
500158020400	Armandia		
	maculata	150.00000	0.34149
500160010100	Capitella		
	capitata	125.00000	0.28458
500160040000	Mediomastus	50.00000	0.11383
500165029900	Sabellaria sp. A	200.00000	0.45532
500166000000	FAMILY PECTINARIIDAE		
500166030200	Pectinaria		
	gouldii	25.00000	0.05692
500167000001	Ampharetidae sp.		
	A	25.00000	0.05692
500169000000	FAMILY TRICHOBRANCHIDAE		
500173000000	Serpulidae	18750.00000	42.68640

500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	300.00000	0.68298
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510320000000	FAMILY RISSOIDAE		
510320050300	Schwartzziella		
	catesbyana	200.00000	0.45532
510323120200	Cyclostremiscus		
	suppressus	25.00000	0.05692
510336000000	FAMILY CAECIDAE		
510336030700	Caecum nitidum	50.00000	0.11383
510346000000	FAMILY CERITHIIDAE		
510346013000	Bittiolium varium	9400.00000	21.40011
510364000000	FAMILY CALYPTRAEDIAE		
510364020700	Crepidula plana	200.00000	0.45532
510364021000	Crepidula		
	maculosa	175.00000	0.39841
510500000000	ORDER NEOGASTROPODA		
510503000000	FAMILY PYRENIDAE		
510503020700	Astris lunulata	850.00000	1.93512
510503032800	Costoanachis		
	semiplicata	50.00000	0.11383
510508000000	FAMILY NASSARIIDAE		
510508010200	Nassarius vibex	75.00000	0.17075
510515000000	FAMILY MARGINELLIDAE		
510515010200	Granulina hadria	25.00000	0.05692
510602180800	Pyrgocythara		
	plicosa	25.00000	0.05692
510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801021400	Turbonilla cf.		
	dalli	25.00000	0.05692
510801030200	Sayella sp.	25.00000	0.05692
511000000000	ORDER CEPHALASPIDEA		
511012000000	FAMILY HAMINOETIDAE		
511012010000	Haminoea sp.	25.00000	0.05692
512402050000	Anaspidea sp.	50.00000	0.11383
513409000001	Polyceratidae		
	sp. (juv)	50.00000	0.11383
512402020000	FAMILY APLYSIIDAE		
512402020100	Aplysia sp.	25.00000	0.05692
550700000000	ORDER MYTILOIDA		
550701041300	Musculus		
	lateralis	150.00000	0.34149
550701090200	Brachidontes		
	exustus	200.00000	0.45532
551500000000	ORDER VENEROIDA		
551510000000	FAMILY LASAEIDAE		
551510011000	Mysella		
	planulata	1275.00000	2.90268
551522000000	FAMILY CARDIIDAE		
551522040100	Laevicardium		
	mortoni	275.00000	0.62607
551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	325.00000	0.73990
551531021400	Tellina		
	tampaensis	125.00000	0.28458
551700000000	ORDER MYINA		
551701000000	FAMILY MYIDAE		
551701040300	Sphenia		
	antillensis	50.00000	0.11383
551702000000	FAMILY CORBULIDAE		
551702020100	Corbula		
	contracta	850.00000	1.93512
551801030100	Cyrtopleura		
	costata	25.00000	0.05692
610000000000	CLASS CRUSTACEA		
613100000000	ORDER THORACICA		
613402000000	FAMILY BALANIDAE		
613402012100	Balanus venustus	25.00000	0.05692
616000000000	ORDER ISOPODA		
616101000000	FAMILY CIROLANIDAE		
616102020200	Paracerceis		
	caudata	50.00000	0.11383
616202000000	FAMILY IDOTEIDAE		
616202060100	Erichsonella		
	attenuata	25.00000	0.05692
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902010800	Ampelisca abdita	25.00000	0.05692
616904000000	FAMILY AMPITHOIDAE		
616904011500	Ampithoe		
	longimana	200.00000	0.45532

616906000000	FAMILY AORIDAE		
616906000001	Aoridae-damaged	125.00000	0.28458
616906030700	Bemlos		
	unifasciatus	200.00000	0.45532
6169060404CF	Paramicrodeutopus cf.		
	myersi	25.00000	0.05692
616906160200	Bemlos unicornis	100.00000	0.22766
616915000000	FAMILY COROPHIIDAE		
616915010300	Cerapus cudjoe	300.00000	0.68298
6169150214CF	Corophium cf.		
	baconi	25.00000	0.05692
616915030200	Erichthonius		
	brasiliensis	475.00000	1.08139
616915090100	Grandidierella		
	bonnieroides	350.00000	0.79681
616920000000	FAMILY EUSIRIDAE		
616920121101	Tethygeneia		
	longleyi	50.00000	0.11383
616921000000	FAMILY GAMMARIDAE		
616921101400	Melita elongata	2625.00000	5.97610
616932000000	FAMILY LEUCOTHOIDAE		
616932010100	Leucothoe		
	spinicarpa	25.00000	0.05692
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella		
	barnardi	25.00000	0.05692
616934530900	Shoemakerella		
	nr. lowryi	925.00000	2.10586
617101000000	FAMILY CAPRELLIDAE		
617010000001	Caprellidae-unid.	50.00000	0.11383
617101020200	Deutella incerta	200.00000	0.45532
617101072700	Caprella		
	penantis	25.00000	0.05692
617500000000	ORDER DECAPODA		
617914000000	FAMILY ALPHEIDAE		
617914010000	Alpheus	100.00000	0.22766
617916000000	FAMILY HIPPOLYTIDAE		
617916060100	Latreutes		
	fucorum	25.00000	0.05692
618306000000	FAMILY PAGURIDAE		
618306020000	Pagurus	50.00000	0.11383
618902000000	FAMILY XANTHIDAE		
618902420200	Dyspanopeus		
	texanus	600.00000	1.36596
810000000000	PHYLUM ECHINODERMATA		
812600000000	ORDER OPHIURIDA		
812705010100	Ophioderma		
	brevispina	125.00000	0.28458

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-11
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics
 Number of Species : 65
 Density of All Species : 13400.00000 /M2
 Total numbers of specimens counted : 536.00000
 Diversity (Hprime -log base e) : 2.97316
 Diversity (Hprime -log base 10) : 1.29123
 Evenness (Hprime/Hmax) : 0.71224
 Evenness (Scaled) : 0.63732
 Simpson's Index : 0.89818

ID	Taxa	Observed	Percentage
390000000000	PHYLUM PLATYHELMINTHES		
390100000000	Turbellaria	25.00000	0.18657
430000009400	Nemertea sp. F	25.00000	0.18657
500100000000	CLASS POLYCHAETA		
500110000000	FAMILY AMPHINOMIDAE		
500121190200	Podarkeopsis		
	levifuscina	50.00000	0.37313
500122000000	FAMILY PILARGIDAE		
500123021200	Pionosyllis sp.		
	D	25.00000	0.18657
500123030200	Syllis gracilis	25.00000	0.18657
500123040900	Trypanosyllis		
	parvidentata	1450.00000	10.82090
500123070100	Exogone dispar	50.00000	0.37313
500123070300	Exogone lourei	100.00000	0.74627
500123081700	Sphaerosyllis		
	longicauda	25.00000	0.18657
500123099900	Brania sp. A	50.00000	0.37313
500124011200	Ceratonereis		
	(?composetia) sp. A	350.00000	2.61194
500124030700	Nereis acuminata	50.00000	0.37313
500124100100	Websternereis		
	tridentata	375.00000	2.79851
500129000000	Onuphidae	25.00000	0.18657
500129020100	Diopatra cuprea	25.00000	0.18657
500129140200	Mooreonuphis sp.		
	A	1175.00000	8.76866
500131000000	FAMILY LUMBRINERIDAE		
500131012300	Lumbrineris		
	ernesti	450.00000	3.35821
500133000000	FAMILY ARABELLIDAE		
500133020001	Arabella		
	multidentata	25.00000	0.18657
500136000000	FAMILY DORVILLEIDAE		
500140010400	Leitoscoloplos		
	robustus	50.00000	0.37313
500143040200	Polydora		
	socialis	25.00000	0.18657
500143041100	Polydora cornuta		
	(=ligni)	325.00000	2.42537
500143050300	Prionospio		
	heterobranchia	125.00000	0.93284
500143050700	Prionospio		
	pygmaea	25.00000	0.18657
500144010600	Magelona		
	pettiboneae	100.00000	0.74627
500160010100	Capitella		
	capitata	25.00000	0.18657
500160160001	Scyphoproctus		
	sp. A	25.00000	0.18657
500163080300	Axiiothella		
	mucosa	1475.00000	11.00746
500166000000	FAMILY PECTINARIIDAE		
500167000001	Ampharetidae sp.		
	A	25.00000	0.18657
500169000000	FAMILY TRICHOBRANCHIDAE		
500170060001	Potamilla sp. A	50.00000	0.37313
500170130001	Fabricia sp. A	100.00000	0.74627
500170190700	Fabriciola		
	trilobata	125.00000	0.93284
500170990000	Fabriciinae	25.00000	0.18657

500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	3375.00000	25.18657
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510343000000	FAMILY MODULIDAE		
510343010100	Modulus modulus	125.00000	0.93284
510346000000	FAMILY CERITHIIDAE		
510346061300	Cerithium		
	muscarum	25.00000	0.18657
510364000000	FAMILY CALYPTRAEDIAE		
510364021000	Crepidula		
	maculosa	125.00000	0.93284
510500000000	ORDER NEOGASTROPODA		
510510000000	FAMILY OLIVIDAE		
510510011000	Olivella pusilla	25.00000	0.18657
510515000000	FAMILY MARGINELLIDAE		
510515010200	Granulina hadria	375.00000	2.79851
510515020300	Dentimargo		
	aureocinctus	75.00000	0.55970
510515020600	Gibberula		
	lavalleenana	650.00000	4.85075
510602140400	Pilsbryspira		
	leucoryana	150.00000	1.11940
510602260100	Stellatoma		
	stellata	50.00000	0.37313
511000000000	ORDER CEPHALASPIDEA		
511011000000	FAMILY BULLIDAE		
511011010100	Bulla striata	25.00000	0.18657
551500000000	ORDER VENEROIDA		
551529000000	FAMILY SOLENIDAE		
551531020800	Tellina lineata	25.00000	0.18657
551531021800	Tellina		
	sybaritica	75.00000	0.55970
551535000000	FAMILY SEMELIDAE		
551547010300	Transennella		
	conradina	50.00000	0.37313
610000000000	CLASS CRUSTACEA		
615400000000	ORDER CUMACEA		
615715000000	FAMILY PSEUDOZEUXIDAE		
615715020000	Leptocheilia	150.00000	1.11940
616000000000	ORDER ISOPODA		
616001000000	FAMILY ANTHURIDAE		
616001200100	Amakusanthura		
	magnifica	50.00000	0.37313
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902010800	Ampelisca abdita	350.00000	2.61194
616904000000	FAMILY AMPITHOIDAE		
616904000001	Ampithoidae-unid.	25.00000	0.18657
616904020100	Cymadusa compta	225.00000	1.67910
616906000000	FAMILY AORIDAE		
616906030800	Bemlos		
	spincarpus	25.00000	0.18657
616906030700	Bemlos		
	unifasciatus	50.00000	0.37313
616906160000	Bemlos	50.00000	0.37313
616915000000	FAMILY COROPHIIDAE		
616915090100	Grandidierella		
	bonnieroides	125.00000	0.93284
616921000000	FAMILY GAMMARIDAE		
616921030100	Elasmopus laevis	100.00000	0.74627
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella		
	barnardi	25.00000	0.18657
616934530900	Shoemakerella		
	nr. lowryi	25.00000	0.18657
617101000000	FAMILY CAPRELLIDAE		
617101020200	Deutella incerta	25.00000	0.18657
617101090100	Paracaprella		
	tenuis	25.00000	0.18657
617500000000	ORDER DECAPODA		
617917000000	FAMILY PROCESSIDAE		
617917010100	Processa		
	hemphilli	25.00000	0.18657
618301000000	FAMILY THALASSINIDAE		
618304040001	Callichirinae		
	sp.	25.00000	0.18657
618701000000	FAMILY MAJIDAE		
618701090100	Libinia dubia	50.00000	0.37313
618902000000	FAMILY XANTHIDAE		
618902080100	Panopeus sp.	25.00000	0.18657
650000000000	INSECTA		
720002000000	FAMILY GOLFINGIIDAE		
720002040100	Phascolion		
	strombi	75.00000	0.55970

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-12
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 94
 Density of All Species : 15600.00000 /M2
 Total numbers of specimens counted : 624.00000
 Diversity (Hprime -log base e) : 3.95873
 Diversity (Hprime -log base 10) : 1.71925
 Evenness (Hprime/Hmax) : 0.87133
 Evenness (Scaled) : 0.83040
 Simpson's Index : 0.97268

ID	Taxa	Observed	Percentage
374000000000	CLASS ANTHOZOA		
375800000010	Actiniaria sp. A	100.00000	0.64103
375800000020	Actiniaria sp. B	400.00000	2.56410
367000000001	Thenaria sp. A	50.00000	0.32051
390000000000	PHYLUM PLATYHELMINTHES		
430000009200	Nemertea sp. M	50.00000	0.32051
430000009400	Nemertea sp. F	150.00000	0.96154
430000009700	Nemertea sp. K	25.00000	0.16026
430000009800	Nemertea sp. B	200.00000	1.28205
500100000000	CLASS POLYCHAETA		
500106039900	Sthenelais sp. A	50.00000	0.32051
500110000000	FAMILY AMPHINOMIDAE		
500113141000	Phyllodoce		
	arenae	25.00000	0.16026
500121190200	Podarkeopsis		
	levifuscina	275.00000	1.76282
500122000000	FAMILY PILARGIDAE		
500123030200	Syllis gracilis	100.00000	0.64103
500123070100	Exogone dispar	25.00000	0.16026
500124030700	Nereis acuminata	25.00000	0.16026
500128010400	Glycinde		
	solitaria	225.00000	1.44231
500129000000	Onuphidae	250.00000	1.60256
500129020100	Diopatra cuprea	100.00000	0.64103
500129140200	Mooreonuphis sp.		
	A	100.00000	0.64103
500131000000	FAMILY LUMBRINERIDAE		
500131012400	Lumbrineris		
	verrilli	175.00000	1.12179
500136000000	FAMILY DORVILLEIDAE		
5001360504CF	Schistomeringos		
	cf. rudolphi	150.00000	0.96154
500140030700	Scoloplos rubra	675.00000	4.32692
500143040200	Polydora		
	socialis	75.00000	0.48077
500143050700	Prionospio		
	pygmaea	25.00000	0.16026
500143051700	Prionospio		
	perkinsi	125.00000	0.80128
500143170100	Paraprionospio		
	pinnata	200.00000	1.28205
500143180100	Streblospio		
	benedicti	150.00000	0.96154
500143200600	Scolecopsis		
	texana	25.00000	0.16026
500143270600	Carazziella		
	hobsonae	50.00000	0.32051
500144010600	Magelona		
	pettiboneae	125.00000	0.80128
500149000000	FAMILY CHAETOPTERIDAE		
500149030200	Spiochaetopterus		
	costarum	50.00000	0.32051
500150020600	Cauleriella		
	zetlandicus	250.00000	1.60256
500150031000	Monticellina		
	dorsobranchialis	800.00000	5.12821
500150040000	Chaetozone	350.00000	2.24359
500150060000	Cirriiformia	275.00000	1.76282

500160000000	FAMILY CAPITELLIDAE		
500160040000	Mediomastus	1200.00000	7.69231
500160040100	Mediomastus		
	ambiseta	250.00000	1.60256
500160040200	Mediomastus		
	californiensis	25.00000	0.16026
500160070100	Capitella jonesi	50.00000	0.32051
500164020200	Myriochele		
	oculata	50.00000	0.32051
500166000000	FAMILY PECTINARIIDAE		
500167210100	Isolda pulchella	25.00000	0.16026
500168200100	Loimia medusa	150.00000	0.96154
500169000000	FAMILY TRICHOBRANCHIDAE		
500170040600	Megalomma		
	pigmentum	100.00000	0.64103
500170080500	Sabella		
	melanostigma	25.00000	0.16026
500170130001	Fabricia sp. A	25.00000	0.16026
500173000000	Serpulidae	775.00000	4.96795
500200000000	ORDER ARCHANNELIDA		
500300000000	Oligochaeta	875.00000	5.60897
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510336000000	FAMILY CAECIDAE		
510336030000	Caecum	75.00000	0.48077
510364000000	FAMILY CALYPTRAEDIAE		
510364020700	Crepidula plana	25.00000	0.16026
510500000000	ORDER NEOGASTROPODA		
510501060200	Eupleura		
	sulcidentata	25.00000	0.16026
510510000000	FAMILY OLIVIDAE		
510510010001	Jaspidella		
	blanesi	200.00000	1.28205
510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801021400	Turbonilla cf.		
	dalli	25.00000	0.16026
511000000000	ORDER CEPHALASPIDEA		
511001000000	FAMILY ACTEONIDAE		
511001040300	Rictaxis		
	punctostriatus	825.00000	5.28846
511004000000	FAMILY CYLICHNIDAE		
511004010300	Acteocina		
	canaliculata	350.00000	2.24359
511012000000	FAMILY HAMINOEIDAE		
511012010400	Haminoea		
	succinea	100.00000	0.64103
550200000000	ORDER NUCULOIDEA		
550202000000	FAMILY NUCULIDAE		
550202021400	Nucula crenulata	150.00000	0.96154
550204000000	FAMILY NUCULANIDAE		
550204020400	Nuculana acuta	100.00000	0.64103
550700000000	ORDER MYTILOIDA		
550701100100	Amygdalum		
	papyrium	175.00000	1.12179
551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	100.00000	0.64103
551510000000	FAMILY LASAEIDAE		
551510011000	Mysella		
	planulata	675.00000	4.32692
551510019900	Mysella sp. A	100.00000	0.64103
551525000000	FAMILY MACTRIDAE		
551525030100	Mulinia		
	lateralis	100.00000	0.64103
551529000000	FAMILY SOLENIDAE		
551531012000	Macoma tenta	300.00000	1.92308
551531020000	Tellina spp.	125.00000	0.80128
551531020900	Tellina		
	versicolor	200.00000	1.28205
551533000000	FAMILY PSAMMOBIIIDAE		
551533020200	Tagelus divisus	75.00000	0.48077
551535000000	FAMILY SEMELIDAE		
551547100100	Cyclinella		
	tenuis	75.00000	0.48077
551547120000	Pitar	25.00000	0.16026
551547150300	Chione		
	cancellata	50.00000	0.32051
551700000000	ORDER MYINA		
551701000000	FAMILY MYIDAE		
551701040300	Sphenia		
	antillensis	50.00000	0.32051
552005000000	FAMILY LYONSIIDAE		
552005020601	Lyonsia hyalina		
	floridana	425.00000	2.72436

552008000000	FAMILY THRACIIDAE		
552008010200	Asthenothaerus		
	hemphilli	250.00000	1.60256
590000000000	CLASS ARACHNIDA		
600000000000	Pycnogonida	25.00000	0.16026
610000000000	CLASS CRUSTACEA		
611103050100	Parasterope		
	pollex	25.00000	0.16026
615400000000	ORDER CUMACEA		
615405000000	FAMILY DIASTYLIDAE		
615405089900	Oxyurostylis		
	lecroyae (=A)	200.00000	1.28205
615408000000	FAMILY NANNASTACIDAE		
615408000001	Nannastacidae		
	sp.	25.00000	0.16026
615409000000	FAMILY BODOTRIIDAE		
6154090202CF	Cyclaspis cf.		
	varians	125.00000	0.80128
615606000000	FAMILY KALLIAPSEUDIDAE		
615606019900	Kalliapseudes		
	sp. A	125.00000	0.80128
616000000000	ORDER ISOPODA		
616001000000	FAMILY ANTHURIDAE		
616001200100	Amakusanthura		
	magnifica	25.00000	0.16026
616202000000	FAMILY IDOTEIDAE		
616202070300	Edotea triloba	50.00000	0.32051
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902012300	Ampelisca		
	holmesi	100.00000	0.64103
616915000000	FAMILY COROPHIIDAE		
616915010000	Cerapus	25.00000	0.16026
6169150214CF	Corophium cf.		
	baconi	25.00000	0.16026
616915030200	Erichthonius		
	brasiliensis	450.00000	2.88462
616937000000	FAMILY OEDICEROTIDAE		
616937082300	Monoculodes nyei	25.00000	0.16026
617101000000	FAMILY CAPRELLIDAE		
617010000010	Caprellidae-unid.	75.00000	0.48077
617500000000	ORDER DECAPODA		
618317000000	FAMILY UPOGEBIIDAE		
618400000000	Brachyura	25.00000	0.16026
650000000000	INSECTA		
770001000000	FAMILY PHORONIDAE		
770001020300	Phoronis		
	?architecta	75.00000	0.48077
810000000000	PHYLUM ECHINODERMATA		
812000000000	Ophiuroidea	100.00000	0.64103
812600000000	ORDER OPHIURIDA		
812902000000	FAMILY OPHIACTIDAE		
812903020200	Amphipholis		
	squamata	50.00000	0.32051
812903060000	Ophiophragmus	25.00000	0.16026
812903060600	Ophiophragmus		
	filograneus	50.00000	0.32051
815200000000	ORDER CLYPEASTEROIDA		
815504000000	FAMILY MELLITIDAE		
817000000000	Holothuroidea	25.00000	0.16026
817203000000	Psolidae sp. A	75.00000	0.48077
817800000000	ORDER APODIDA		
817801000000	FAMILY SYNAPTIDAE		
817801000001	Synaptidae sp.	50.00000	0.32051
817801009500	Synaptidae sp. A	25.00000	0.16026

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-13
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 28
 Density of All Species : 1675.00000 /M2
 Total numbers of specimens counted : 67.00000
 Diversity (Hprime -log base e) : 3.11368
 Diversity (Hprime -log base 10) : 1.35225
 Evenness (Hprime/Hmax) : 0.93442
 Evenness (Scaled) : 0.83567
 Simpson's Index : 0.96201

ID	Taxa	Observed	Percentage
500100000000	CLASS POLYCHAETA		
500110000000	FAMILY AMPHINOMIDAE		
500121150200	Podarke obscura	25.00000	1.49254
500121190200	Podarkeopsis		
	levifuscina	25.00000	1.49254
500122000000	FAMILY PILARGIDAE		
500123090300	Brania		
	wellfleetensis	25.00000	1.49254
500124030700	Nereis acuminata	25.00000	1.49254
500128010400	Glycinde		
	solitaria	125.00000	7.46269
500129000000	Onuphidae	25.00000	1.49254
500136000000	FAMILY DORVILLEIDAE		
500141060300	Cirrophorus		
	?lyra	25.00000	1.49254
500143050700	Prionospio		
	pygmaea	125.00000	7.46269
500143170100	Paraprionospio		
	pinnata	125.00000	7.46269
500143200600	Scoelelepis		
	texana	25.00000	1.49254
500149000000	FAMILY CHAETOPTERIDAE		
500149030200	Spiochaetopterus		
	costarum	100.00000	5.97015
500150031000	Monticellina		
	dorsobranchialis	25.00000	1.49254
500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	50.00000	2.98507
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510376000000	FAMILY NATICIDAE		
510376020400	Natica pusilla	50.00000	2.98507
510500000000	ORDER NEOGASTROPODA		
510515000000	FAMILY MARGINELLIDAE		
510515020300	Dentimargo		
	aureocinctus	25.00000	1.49254
511000000000	ORDER CEPHALASPIDEA		
511004000000	FAMILY CYLICHNIDAE		
511004010300	Acteocina		
	canaliculata	50.00000	2.98507
511012000000	FAMILY HAMINOEIDAE		
511012010400	Haminoea		
	succinea	100.00000	5.97015
551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	50.00000	2.98507
551510000000	FAMILY LASAEIDAE		
551510011000	Mysella		
	planulata	50.00000	2.98507
551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	125.00000	7.46269
551531020900	Tellina		
	versicolor	75.00000	4.47761
610000000000	CLASS CRUSTACEA		
616000000000	ORDER ISOPODA		
616001000000	FAMILY ANTHURIDAE		
616001200100	Amakusanthura		
	magnifica	150.00000	8.95522

616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902012300	Ampelisca		
	holmesi	25.00000	1.49254
616921000000	FAMILY GAMMARIDAE		
616922060700	Acanthohaustorius		
	uncinus	75.00000	4.47761
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella		
	barnardi	25.00000	1.49254
617500000000	ORDER DECAPODA		
617701020100	Trachypenaeus		
	constrictus	25.00000	1.49254
618306000000	FAMILY PAGURIDAE		
618306025100	Pagurus		
	maclaughlinae	25.00000	1.49254
850000000000	SUBPHYLUM CEPHALOCHORDATA		
850001000000	FAMILY BRANCHIOSTOMIDAE		
850001010000	Branchiostoma	100.00000	5.97015

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-14
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CASSO\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species	:	11
Density of All Species	:	775.00000 /M2
Total numbers of specimens counted	:	31.00000
Diversity (Hprime -log base e)	:	1.80592
Diversity (Hprime -log base 10)	:	0.78430
Evenness (Hprime/Hmax)	:	0.75313
Evenness (Scaled)	:	0.42321
Simpson's Index	:	0.76774

ID	Taxa	Observed	Percentage
390000000000	PHYLUM PLATYHELMINTHES		
430000000000	Nemertea	50.00000	6.45161
500100000000	CLASS POLYCHAETA		
500122000000	FAMILY PILARGIDAE		
500128010400	Glycinde		
	solitaria	25.00000	3.22581
500129000000	Onuphidae	25.00000	3.22581
500136000000	FAMILY DORVILLEIDAE		
500143170100	Paraprionospio		
	pinnata	350.00000	45.16129
508500000000	PHYLUM MOLLUSCA		
510500000000	ORDER NEOGASTROPODA		
510515000000	FAMILY MARGINELLIDAE		
510515021400	Prunum apicinum	25.00000	3.22581
510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801021300	Turbonilla		
	conradi	25.00000	3.22581
551500000000	ORDER VENEROIDA		
551529000000	FAMILY SOLENIDAE		
551531020900	Tellina		
	versicolor	25.00000	3.22581
610000000000	CLASS CRUSTACEA		
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902010800	Ampelisca abdita	25.00000	3.22581
616902019700	Ampelisca sp. C	25.00000	3.22581
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella		
	barnardi	150.00000	19.35484
650000000000	INSECTA		
770001000000	FAMILY PHORONIDAE		
770001020300	Phoronis		
	?architecta	50.00000	6.45161

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-15
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 55
 Density of All Species : 4300.00000 /M2
 Total numbers of specimens counted : 172.00000
 Diversity (Hprime -log base e) : 3.44751
 Diversity (Hprime -log base 10) : 1.49723
 Evenness (Hprime/Hmax) : 0.86030
 Evenness (Scaled) : 0.73751
 Simpson's Index : 0.95566

ID	Taxa	Observed	Percentage
370000000000	PHYLUM CNIDARIA		
370000000001	Cnidaria sp. B	25.00000	0.58140
374000000000	CLASS ANTHOZOA		
375800000020	Actiniaria sp. B	25.00000	0.58140
190000000000	PHYLUM PLATYHELMINTHES		
430000009400	Nemertea sp. F	25.00000	0.58140
430000009800	Nemertea sp. B	50.00000	1.16279
500100000000	CLASS POLYCHAETA		
500102260300	Malmgreniella		
	taylori	25.00000	0.58140
500106039900	Sthenelais sp. A	50.00000	1.16279
500110000000	FAMILY AMPHINOMIDAE		
500113141000	Phyllodoce		
	arenae	25.00000	0.58140
500121190200	Podarkeopsis		
	levifuscina	200.00000	4.65116
500122000000	FAMILY PILARGIDAE		
500122010300	Ancistrosyllis		
	jonesi	25.00000	0.58140
	Sigambra		
	tentaculata	50.00000	1.16279
500125030300	Aglaophamus		
	verrilli	25.00000	0.58140
500128010400	Glycinde		
	solitaria	25.00000	0.58140
500131000000	FAMILY LUMBRINERIDAE		
500131012400	Lumbrineris		
	verrilli	50.00000	1.16279
500136000000	FAMILY DORVILLEIDAE		
5001360504CF	Schistomeringos		
	cf. rudolphi	25.00000	0.58140
500143051700	Prionospio		
	perkinsi	250.00000	5.81395
500143150001	Pseudopolydora		
	sp. A	25.00000	0.58140
500143170100	Paraprionospio		
	pinnata	75.00000	1.74419
500143270600	Carazziella		
	hobsonae	325.00000	7.55814
500149000000	FAMILY CHAETOPTERIDAE		
500150020000	Caulleriella	25.00000	0.58140
500150031000	Monticellina		
	dorsobranchialis	575.00000	13.37209
500160000000	FAMILY CAPITELLIDAE		
500160030600	Notomastus		
	latericeus	50.00000	1.16279
500163180000	?Lumbriclymenae		
	(?Praxillura)	25.00000	0.58140
500166000000	FAMILY PECTINARIIDAE		
500166030200	Pectinaria		
	gouldii	25.00000	0.58140
500168160ANR	Lysilla nr. sp.		
	A	25.00000	0.58140
500169000000	FAMILY TRICHOBRANCHIDAE		
500170040600	Megalomma		
	pigmentum	25.00000	0.58140
500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	175.00000	4.06977

508500000000	PHYLUM MOLLUSCA		
530401000000	ORDER ACANTHOCHITONIDA		
530401020000	FAMILY		
	ACANTHOCHITONIDAE		
550000000000	Bivalvia	75.00000	1.74419
550200000000	ORDER NUCULOIDEA		
550202000000	FAMILY NUCULIDAE		
550202021400	Nucula crenulata	25.00000	0.58140
550204000000	FAMILY NUCULANIDAE		
550204020400	Nuculana acuta	75.00000	1.74419
551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	50.00000	1.16279
551505000000	FAMILY UNGULINIDAE		
551505010300	Diplodonta		
	semiaspera	250.00000	5.81395
551510000000	FAMILY LASAEIDAE		
551510011000	Mysella		
	planulata	75.00000	1.74419
551510019900	Mysella sp. A	300.00000	6.97674
551525000000	FAMILY MACTRIDAE		
551525030100	Mulinia		
	lateralis	25.00000	0.58140
551529000000	FAMILY SOLENIDAE		
551529030200	Ensis minor	25.00000	0.58140
551531012000	Macoma tenta	75.00000	1.74419
551531020000	Tellina spp.	25.00000	0.58140
551531020900	Tellina		
	versicolor	75.00000	1.74419
551533000000	FAMILY PSAMMOBIIDAE		
551533020200	Tagelus divisus	25.00000	0.58140
551535000000	FAMILY SEMELIDAE		
551535020100	Abra aequalis	50.00000	1.16279
551547100100	Cyclinella		
	tenuis	25.00000	0.58140
551700000000	ORDER MYINA		
551702000000	FAMILY CORBULIDAE		
551702020100	Corbula		
	contracta	50.00000	1.16279
610000000000	CLASS CRUSTACEA		
613100000000	ORDER THORACICA		
613402000000	FAMILY BALANIDAE		
613402012100	Balanus venustus	25.00000	0.58140
615400000000	ORDER CUMACEA		
615404000000	FAMILY LEUCONIDAE		
615404011000	Leucon		
	americanus	25.00000	0.58140
615405000000	FAMILY DIASTYLIDAE		
615405089900	Oxyurostylis		
	lecroyae (=A)	50.00000	1.16279
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902019700	Ampelisca sp. C	25.00000	0.58140
616915000000	FAMILY COROPHIIDAE		
616915020700	Corophium		
	tuberculatum	25.00000	0.58140
617500000000	ORDER DECAPODA		
617917000000	FAMILY PROCESSIDAE		
617917010100	Processa		
	hemphilli	25.00000	0.58140
618905000000	FAMILY GONEPLACIDAE		
618905000001	Goneplacidae	25.00000	0.58140
618906040000	Pinnixa	25.00000	0.58140
810000000000	PHYLUM ECHINODERMATA		
812000000000	Ophiuroidea	275.00000	6.39535
812600000000	ORDER OPHIURIDA		
812902000000	FAMILY OPHIACTIDAE		
812903000000	Amphiuridae	25.00000	0.58140
8129030117nr	Amphiodia nr.		
	riisei	100.00000	2.32558
812903020600	Amphipholis		
	?subtilis	25.00000	0.58140
812903120200	Micropholis		
	gracillima	200.00000	4.65116

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-16
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 52
 Density of All Species : 6850.00000 /M2
 Total numbers of specimens counted : 274.00000
 Diversity (Hprime -log base e) : 3.10287
 Diversity (Hprime -log base 10) : 1.34756
 Evenness (Hprime/Hmax) : 0.78529
 Evenness (Scaled) : 0.69024
 Simpson's Index : 0.90826

ID	Taxa	Observed	Percentage
374000000000	CLASS ANTHOZOA		
375800000010	Actiniaria sp. A	50.00000	0.72993
375800000020	Actiniaria sp. B	125.00000	1.82482
390000000000	PHYLUM PLATYHELMINTHES		
3901000000098	Turbellaria sp.		
	B	175.00000	2.55474
3901000000099	Turbellaria sp.		
	A	25.00000	0.36496
430000009000	Nemertea sp. P	25.00000	0.36496
430000009700	Nemertea sp. K	25.00000	0.36496
430000009800	Nemertea sp. B	100.00000	1.45985
5001000000000	CLASS POLYCHAETA		
500106039900	Sthenelais sp. A	75.00000	1.09489
5001100000000	FAMILY AMPHINOMIDAE		
500121070100	Parahesionia		
	luteola	100.00000	1.45985
500121190200	Podarkeopsis		
	levifuscina	75.00000	1.09489
5001220000000	FAMILY PILARGIDAE		
500123070300	Exogone lourei	125.00000	1.82482
500124030700	Nereis acuminata	50.00000	0.72993
500124041600	Nereis lamellosa	100.00000	1.45985
500128010400	Glycinde		
	solitaria	200.00000	2.91971
500129020100	Diopatra cuprea	25.00000	0.36496
500129140200	Mooreonuphis sp.		
	A	50.00000	0.72993
5001360000000	FAMILY DORVILLEIDAE		
5001360504CF	Schistomeringos		
	cf. rudolphi	175.00000	2.55474
500140030700	Scoloplos rubra	25.00000	0.36496
500140160300	Leitoscoloplos		
	fragilis	75.00000	1.09489
500141021500	Aricidea lopezi	50.00000	0.72993
500143051700	Prionospio		
	perkinsi	25.00000	0.36496
500143170100	Paraprionospio		
	pinnata	225.00000	3.28467
500143180100	Streblospio		
	benedicti	25.00000	0.36496
5001490000000	FAMILY CHAETOPTERIDAE		
500150031000	Monticellina		
	dorsobranchialis	1725.00000	25.18248
5001600000000	FAMILY CAPITELLIDAE		
500160010100	Capitella		
	capitata	25.00000	0.36496
5001600400000	Mediomastus	175.00000	2.55474
500160040100	Mediomastus		
	ambiseta	125.00000	1.82482
500160040200	Mediomastus		
	californiensis	25.00000	0.36496
5002000000000	ORDER ARCHIANNELIDA		
5003000000000	Oligochaeta	700.00000	10.21898
5085000000000	PHYLUM MOLLUSCA		
5105000000000	ORDER NEOGASTROPODA		
5105100000000	FAMILY OLIVIDAE		
5105100110000	Olivella pusilla	50.00000	0.72993
5108000000000	ORDER PYRAMIDELLOIDA		
5108010000000	FAMILY PYRAMIDELLIDAE		
5108010150000	Eulimastoma		
	weberi	125.00000	1.82482

511000000000	ORDER CEPHALASPIDEA		
511001000000	FAMILY ACTEONIDAE		
511001040300	Rictaxis		
	punctostriatus	75.00000	1.09489
511004000000	FAMILY CYLICHNIDAE		
511004010300	Acteocina		
	canaliculata	100.00000	1.45985
511012000000	FAMILY HAMINOEIDAE		
511012010400	Haminoea		
	succinea	175.00000	2.55474
550600000000	ORDER ARCOIDA		
550601000000	FAMILY ARCIDAE		
550601020100	Anadara		
	transversa	25.00000	0.36496
551500000000	ORDER VENEROIDA		
551510000000	FAMILY LASAEIDAE		
551510011000	Mysella		
	planulata	25.00000	0.36496
551510019900	Mysella sp. A	100.00000	1.45985
551525000000	FAMILY MACTRIDAE		
551525030100	Mulinia		
	lateralis	25.00000	0.36496
551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	750.00000	10.94891
551531020900	Tellina		
	versicolor	175.00000	2.55474
551531021000	Tellina		
	alternata	25.00000	0.36496
551531021400	Tellina		
	tampaensis	25.00000	0.36496
551533000000	FAMILY PSAMMOBIIDAE		
551533020200	Tagelus divisus	50.00000	0.72993
551535000000	FAMILY SEMELIDAE		
551535020100	Abra aequalis	100.00000	1.45985
551700000000	ORDER MYINA		
551701000000	FAMILY MYIDAE		
551701040300	Sphenia		
	antillensis	25.00000	0.36496
610000000000	CLASS CRUSTACEA		
615400000000	ORDER CUMACEA		
615715000000	FAMILY PSEUDOZEUXIDAE		
615715020000	Leptocheilia	25.00000	0.36496
650000000000	INSECTA		
650503010000	Chaoborus sp.	25.00000	0.36496
770001000000	FAMILY PHORONIDAE		
770001020300	Phoronis		
	?architecta	75.00000	1.09489
810000000000	PHYLUM ECHINODERMATA		
812000000000	Ophiuroidea	100.00000	1.45985
812600000000	ORDER OPHIURIDA		
812902000000	FAMILY OPHIACTIDAE		
812903020000	Amphipholis sp.	25.00000	0.36496
812903020200	Amphipholis		
	squamata	25.00000	0.36496
817800000000	ORDER APODIDA		
817801000000	FAMILY SYNAPTIDAE		
817801000001	Synaptidae sp.	25.00000	0.36496

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-17
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 34
 Density of All Species : 4800.00000 /M2
 Total numbers of specimens counted : 192.00000
 Diversity (Hprime -log base e) : 2.68489
 Diversity (Hprime -log base 10) : 1.16603
 Evenness (Hprime/Hmax) : 0.76138
 Evenness (Scaled) : 0.65885
 Simpson's Index : 0.87784

ID	Taxa	Observed	Percentage
390000000000	PHYLUM PLATYHELMINTHES		
390100000099	Turbellaria sp.		
	A	25.00000	0.52083
500100000000	CLASS POLYCHAETA		
500102260300	Malmgreniella		
	taylori	25.00000	0.52083
500110000000	FAMILY AMPHINOMIDAE		
500110049800	Paramphinome sp.		
	B	75.00000	1.56250
500113141000	Phyllodoce		
	arenae	25.00000	0.52083
500121190200	Podarkeopsis		
	levifuscina	50.00000	1.04167
500122000000	FAMILY PILARGIDAE		
500122010600	Ancistrostylis		
	carolinensis	125.00000	2.60417
500122010003	Ancistrostylis		
	sp. C	50.00000	1.04167
500122020100	Sigambra		
	tentaculata	100.00000	2.08333
500136000000	FAMILY DORVILLEIDAE		
5001360504CF	Schistomeringos		
	cf. rudolphi	25.00000	0.52083
500143051700	Prionospio		
	perkinsi	475.00000	9.89583
500143150001	Pseudopolydora		
	sp. A	50.00000	1.04167
500143170100	Paraprionospio		
	pinnata	75.00000	1.56250
500143270600	Carazziella		
	hobsonae	1450.00000	30.20833
500149000000	FAMILY CHAETOPTERIDAE		
500150031000	Monticellina		
	dorsobranchialis	350.00000	7.29167
500160030700	Notomastus		
	hemipodus	25.00000	0.52083
500160040100	Mediomastus		
	ambiseta	75.00000	1.56250
500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	400.00000	8.33333
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510320000000	FAMILY RISSOIDAE		
510323050000	Teinostoma sp.	25.00000	0.52083
510336000000	FAMILY CAECIDAE		
510336030100	Caecum		
	pulchellum	25.00000	0.52083
510500000000	ORDER NEOGASTROPODA		
510510000000	FAMILY OLIVIDAE		
510510010001	Jaspidella		
	blanesi	100.00000	2.08333
510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801022000	Turbonilla		
	constricta	25.00000	0.52083
511000000000	ORDER CEPHALASPIDEA		
511012000000	FAMILY HAMINOEIDAE		
511012010400	Haminoea		
	succinea	175.00000	3.64583

551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	200.00000	4.16667
551510000000	FAMILY LASAEIDAE		
551510019900	Mysella sp. A	25.00000	0.52083
551529000000	FAMILY SOLENIDAE		
551531012000	Macoma tenta	50.00000	1.04167
551531020000	Tellina spp.	200.00000	4.16667
551531020900	Tellina		
	versicolor	350.00000	7.29167
610000000000	CLASS CRUSTACEA		
615400000000	ORDER CUMACEA		
615606000000	FAMILY KALLIAPSEUDIDAE		
615606019900	Kalliapseudes		
	sp. A	25.00000	0.52083
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902012300	Ampelisca		
	holmesi	25.00000	0.52083
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella		
	barnardi	50.00000	1.04167
617500000000	ORDER DECAPODA		
618317000000	FAMILY UPOGEBIIDAE		
618400000000	Brachyura	25.00000	0.52083
618905000000	FAMILY GONEPLACIDAE		
618906040000	Pinnixa	25.00000	0.52083
810000000000	PHYLUM ECHINODERMATA		
812600000000	ORDER OPHIURIDA		
812902000000	FAMILY OPHIACTIDAE		
812903120100	Micropholis atra	50.00000	1.04167
812903120200	Micropholis		
	gracillima	25.00000	0.52083

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-18
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CASSO\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 13
 Density of All Species : 1150.00000 /M2
 Total numbers of specimens counted : 46.00000
 Diversity (Hprime -log base e) : 2.21365
 Diversity (Hprime -log base 10) : 0.96138
 Evenness (Hprime/Hmax) : 0.86304
 Evenness (Scaled) : 0.73837
 Simpson's Index : 0.87053

ID	Taxa	Observed	Percentage
390000000000	PHYLUM PLATYHELMINTHES		
430000009400	Nemertea sp. F	25.00000	2.17391
500100000000	CLASS POLYCHAETA		
500110000000	FAMILY AMPHINOMIDAE		
500110049800	Paramphinome sp.		
	B	125.00000	10.86957
500121190200	Podarkeopsis		
	levifuscina	150.00000	13.04348
500122000000	FAMILY PILARGIDAE		
500122010300	Ancistrostylis		
	jonesi	50.00000	4.34783
500136000000	FAMILY DORVILLEIDAE		
5001360504CF	Schistomeringos		
	cf. rudolphi	100.00000	8.69565
500143170100	Paraprionospio		
	pinnata	75.00000	6.52174
500169000000	FAMILY TRICHOBRANCHIDAE		
500170040600	Megalomma		
	pigmentum	50.00000	4.34783
500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	50.00000	4.34783
508500000000	PHYLUM MOLLUSCA		
511000000000	ORDER CEPHALASPIDEA		
511004000000	FAMILY CYLICHNIDAE		
511004012100	Cyllichnella		
	bidentata	25.00000	2.17391
551500000000	ORDER VENEROIDA		
551529000000	FAMILY SOLENIDAE		
551531012000	Macoma tenta	100.00000	8.69565
551531020900	Tellina		
	versicolor	25.00000	2.17391
610000000000	CLASS CRUSTACEA		
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902010800	Ampelisca abdita	350.00000	30.43478
617500000000	ORDER DECAPODA		
618905000000	FAMILY GONEPLACIDAE		
618906040000	Pinnixa	25.00000	2.17391

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-19
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics
 Number of Species : 86
 Density of All Species : 51150.00000 /M2
 Total numbers of specimens counted : 2046.00000
 Diversity (Hprime -log base e) : 1.55747
 Diversity (Hprime -log base 10) : 0.67640
 Evenness (Hprime/Hmax) : 0.34965
 Evenness (Scaled) : 0.29292
 Simpson's Index : 0.45967

ID	Taxa	Observed	Percentage
374000000000	CLASS ANTHOZOA		
367000000001	Thenaria sp. A	600.00000	1.17302
390000000000	PHYLUM PLATYHELMINTHES		
390100000099	Turbellaria sp.		
	A	100.00000	0.19550
430000009400	Nemertea sp. F	175.00000	0.34213
500100000000	CLASS POLYCHAETA		
500110000000	FAMILY AMPHINOMIDAE		
500121150200	Podarke obscura	50.00000	0.09775
500121190200	Podarkeopsis		
	levifuscina	200.00000	0.39101
500122000000	FAMILY PILARGIDAE		
500123000000	Syllidae	75.00000	0.14663
500123000001	?Autolytinae	25.00000	0.04888
500123020000	Pionosyllis sp.	25.00000	0.04888
500123030600	Syllis cornuta	350.00000	0.68426
500123040000	?Trypanosyllis		
	sp.	25.00000	0.04888
500123050200	Syllis		
	(Typosyllis)		
	armillaris	25.00000	0.04888
5001230515CF	Syllis		
	(Typosyllis) cf. lutea	125.00000	0.24438
500123070001	Exogone sp. A	25.00000	0.04888
500123070100	Exogone dispar	1150.00000	2.24829
500123081100	Sphaerosyllis		
	taylori	75.00000	0.14663
500123099900	Brania sp. A	25.00000	0.04888
500123151000	Syllides		
	floriidanus	50.00000	0.09775
500123250301	Opisthosyllis		
	sp. A	75.00000	0.14663
500123270200	Branchiosyllis		
	exilis	25.00000	0.04888
500123310100	Dentatisyllis		
	carolinae	25.00000	0.04888
500124030700	Nereis acuminata	175.00000	0.34213
500128010400	Glycinde		
	solitaria	25.00000	0.04888
500129020100	Diopatra cuprea	25.00000	0.04888
500129140200	Mooreonuphis sp.		
	A	25.00000	0.04888
500136000000	FAMILY DORVILLEIDAE		
5001360504CF	Schistomerings		
	cf. rudolphi	50.00000	0.09775
500140160300	Leitoscoloplos		
	fragilis	25.00000	0.04888
500143040200	Polydora		
	socialis	25.00000	0.04888
500143041100	Polydora cornuta		
	(=ligni)	1450.00000	2.83480
500143050300	Prionospio		
	heterobranchia	225.00000	0.43988
500149000000	FAMILY CHAETOPTERIDAE		
500150031000	Monticellina		
	dorsobranchialis	800.00000	1.56403
500150040000	Chaetozone	25.00000	0.04888
500150069500	Cirriformia sp.		
	1	75.00000	0.14663

500160000000	FAMILY CAPITELLIDAE		
500160000000	Capitellidae	275.00000	0.53763
500160020100	Heteromastus		
	filiformis	50.00000	0.09775
500160030600	Notomastus		
	latericeus	25.00000	0.04888
500160070100	Capitella jonesi	25.00000	0.04888
500160160000	Scyphoproctus	175.00000	0.34213
500169000000	FAMILY TRICHOBRANCHIDAE		
500170080002	Sabella sp. B	25.00000	0.04888
500173000000	Serpulidae	37500.00000	73.31378
500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	1125.00000	2.19941
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510336000000	FAMILY CAECIDAE		
510336030000	Caecum	50.00000	0.09775
510364000000	FAMILY CALYPTRAEDIAE		
510364020400	Crepidula		
	fornicata	325.00000	0.63539
510500000000	ORDER NEOGASTROPODA		
510503000000	FAMILY PYRENIDAE		
510503020700	Astris lunulata	25.00000	0.04888
510503032800	Costoanachis		
	semiplicata	50.00000	0.09775
510504000000	FAMILY BUCCINIDAE		
510504040100	Hesperisternia		
	multangula	25.00000	0.04888
510508000000	FAMILY NASSARIIDAE		
510508010200	Nassarius vibex	25.00000	0.04888
510510000000	FAMILY OLIVIDAE		
510510011000	Olivella pusilla	25.00000	0.04888
510510010001	Jaspidella		
	blanesi	175.00000	0.34213
510515000000	FAMILY MARGINELLIDAE		
510515010200	Granulina hadria	300.00000	0.58651
510515021400	Prunum apicinum	100.00000	0.19550
510602140400	Pilsbryspira		
	leucoryana	25.00000	0.04888
510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801015100	Eulimastoma		
	teres	25.00000	0.04888
510801020000	Turbonilla	25.00000	0.04888
510801021500	Turbonilla		
	hemphilli	225.00000	0.43988
511000000000	ORDER CEPHALASPIDEA		
511004000000	FAMILY CYLICHNIDAE		
511004010300	Acteocina		
	canaliculata	150.00000	0.29326
511011000000	FAMILY BULLIDAE		
511011010100	Bulla striata	100.00000	0.19550
511012000000	FAMILY HAMINOEIDAE		
511012010000	Haminoea sp.	25.00000	0.04888
511012011100	Haminoea		
	antillarum	925.00000	1.80841
512402020000	FAMILY APLYSIIDAE		
512402020100	Aplysia sp.	125.00000	0.24438
550200000000	ORDER NUCULOIDEA		
550202000000	FAMILY NUCULIDAE		
550202021400	Nucula crenulata	25.00000	0.04888
550600000000	ORDER ARCOIDA		
550601000000	FAMILY ARCIDAE		
550601020100	Anadara		
	transversa	25.00000	0.04888
550700000000	ORDER MYTILOIDA		
550701041300	Musculus		
	lateralis	100.00000	0.19550
550800000000	ORDER PTERIOIDA		
550909000000	FAMILY ANOMIIDAE		
550909020200	Anomia simplex	225.00000	0.43988
551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	75.00000	0.14663
551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	150.00000	0.29326
551531020800	Tellina lineata	25.00000	0.04888
551531040100	Tellidora		
	cristatus	25.00000	0.04888
551535000000	FAMILY SEMELIDAE		
551547150300	Chione		
	cancellata	25.00000	0.04888
551700000000	ORDER MYINA		
552005000000	FAMILY LYONSIIDAE		
552005020601	Lyonsia hyalina		
	floridana	25.00000	0.04888

610000000000	CLASS CRUSTACEA		
613100000000	ORDER THORACICA		
613402000000	FAMILY BALANIDAE		
613402012100	Balanus venustus	25.00000	0.04888
615400000000	ORDER CUMACEA		
615715000000	FAMILY PSEUDOZEUXIDAE		
615715020000	Leptocheilia	150.00000	0.29326
616000000000	ORDER ISOPODA		
616001000000	FAMILY ANTHURIDAE		
616001200100	Amakusanthura magnifica	25.00000	0.04888
616101000000	FAMILY CIROLANIDAE		
616102020200	Paracerceis caudata	75.00000	0.14663
616900000000	ORDER AMPHIPODA		
616903000000	FAMILY AMPHILOCHIDAE		
616903029800	Amphiloachus sp. B	50.00000	0.09775
616904000000	FAMILY AMPITHOIDAE		
616904011500	Ampithoe longimana	200.00000	0.39101
616904012100	Ampithoe ?ramondi	25.00000	0.04888
616904020100	Cymadusa compta	125.00000	0.24438
616906000000	FAMILY AORIDAE		
616906030700	Bemlos unifasciatus	50.00000	0.09775
616920000000	FAMILY EUSIRIDAE		
616920121101	Tethygeneia longleyi	275.00000	0.53763
616921000000	FAMILY GAMMARIDAE		
616921030100	Elasmopus laevis	425.00000	0.83089
617101000000	FAMILY CAPRELLIDAE		
617010000010	Caprellidae-unid. Deutella incerta	175.00000 200.00000	0.34213 0.39101
617101020200	ORDER DECAPODA		
617500000000	FAMILY PAGURIDAE		
618306000000	Pagurus maclaughlinae	25.00000	0.04888
618306025100			
650000000000	INSECTA		
720002000000	FAMILY GOLFIGIIDAE		
720002040100	Phascolion strombi	125.00000	0.24438
810000000000	PHYLUM ECHINODERMATA		
815200000000	ORDER CLYPEASTEROIDA		
815504000000	FAMILY MELLITIDAE		
817203000000	Psolidae sp. A	50.00000	0.09775
840000000000	SUBPHYLUM UROCHORDATA		
840100000000	Ascidiacea	375.00000	0.73314

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-20
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics

Number of Species : 33
 Density of All Species : 4700.00000 /M2
 Total numbers of specimens counted : 188.00000
 Diversity (Hprime -log base e) : 2.54579
 Diversity (Hprime -log base 10) : 1.10562
 Evenness (Hprime/Hmax) : 0.72810
 Evenness (Scaled) : 0.61201
 Simpson's Index : 0.83656

ID	Taxa	Observed	Percentage
390000000000	PHYLUM PLATYHELMINTHES		
390100000099	Turbellaria sp.		
	A	25.00000	0.53191
430000009700	Nemertea sp. K	25.00000	0.53191
500100000000	CLASS POLYCHAETA		
500110000000	FAMILY AMPHINOMIDAE		
500113080300	Paranaitis		
	gardineri		
	(=polynoides)	25.00000	0.53191
500121190200	Podarkeopsis		
	levifuscina	275.00000	5.85106
500122000000	FAMILY PILARGIDAE		
500123090300	Brania		
	wellfleecensis	25.00000	0.53191
500124030700	Nereis acuminata	175.00000	3.72340
500128010400	Glycinde		
	solitaria	50.00000	1.06383
500129140200	Mooreonuphis sp.		
	A	1775.00000	37.76596
500131000000	FAMILY LUMBRINERIDAE		
500131012400	Lumbrineris		
	verrilli	25.00000	0.53191
500136000000	FAMILY DORVILLEIDAE		
500140030700	Scoloplos rubra	50.00000	1.06383
500140160300	Leitoscoloplos		
	fragilis	25.00000	0.53191
5001410201CF	Aricidea cf.		
	suecica	75.00000	1.59574
500143050300	Prionospio		
	heterobranchia	100.00000	2.12766
500143170100	Paraprionospio		
	pinnata	175.00000	3.72340
500143180100	Streblospio		
	benedicti	25.00000	0.53191
500144010600	Magelona		
	pettiboneae	75.00000	1.59574
500149000000	FAMILY CHAETOPTERIDAE		
500150031000	Monticellina		
	dorsobranchialis	125.00000	2.65957
500160000000	FAMILY CAPITELLIDAE		
500163080300	Axiothella		
	mucosa	50.00000	1.06383
508500000000	PHYLUM MOLLUSCA		
510500000000	ORDER NEOGASTROPODA		
510507000000	FAMILY MELONGENIDAE		
510507010801	Busycotypus		
	spiratus pyruloides	25.00000	0.53191
510510000000	FAMILY OLIVIDAE		
510510010001	Jaspidella		
	blanesi	75.00000	1.59574
510515000000	FAMILY MARGINELLIDAE		
510515021400	Prunum apicinum	25.00000	0.53191
510800000000	ORDER PYRAMIDELLOIDA		
510801000000	FAMILY PYRAMIDELLIDAE		
510801021300	Turbonilla		
	conradi	25.00000	0.53191
510801030300	Pyramidella		
	crenulata	25.00000	0.53191

511000000000	ORDER CEPHALASPIDEA		
511004000000	FAMILY CYLICHNIDAE		
511004010300	Acteocina		
	canaliculata	125.00000	2.65957
511004012100	Cyllichnella		
	bidentata	300.00000	6.38298
551500000000	ORDER VENEROIDA		
551501000000	FAMILY LUCINIDAE		
551501010200	Parvilucina		
	multilineata	75.00000	1.59574
551505000000	FAMILY UNGULINIDAE		
551505010300	Diplodonta		
	semiaspera	25.00000	0.53191
551529000000	FAMILY SOLENIDAE		
551531020000	Tellina spp.	225.00000	4.78723
551535000000	FAMILY SEMELIDAE		
551535020100	Abra aequalis	25.00000	0.53191
551547280100	Parastarte		
	triquetra	200.00000	4.25532
610000000000	CLASS CRUSTACEA		
616900000000	ORDER AMPHIPODA		
616902000000	FAMILY AMPELISCIDAE		
616902019700	Ampelisca sp. C	25.00000	0.53191
616926000000	FAMILY PHOTIDAE		
616926090100	Microprotopus		
	raneyi	25.00000	0.53191
616933000000	FAMILY LILJEBORGIIDAE		
616933030100	Listriella		
	barnardi	400.00000	8.51064

1995 BOCA CIEGA BAY BENTHOS

Project =1995 BENTHOS
 Location =BOCA CIEGA BAY
 Date =OCT 95
 Name =95-BCB-21
 Replicate =1
 Size = 0.04000
 Sample Unit =M2
 Catalog =C:\CAS50\LIST.TXC
 Last Modified =17:37:16 on May 1,1996

Sample Characteristics
 Number of Species : 60
 Density of All Species : 15625.00000 /M2
 Total numbers of specimens counted : 625.00000
 Diversity (Hprime -log base e) : 1.75722
 Diversity (Hprime -log base 10) : 0.76315
 Evenness (Hprime/Hmax) : 0.42918
 Evenness (Scaled) : 0.31197
 Simpson's Index : 0.54465

ID	Taxa	Observed	Percentage
374000000000	CLASS ANTHOZOA		
367000000001	Thenaria sp. A	75.00000	0.48000
390000000000	PHYLUM PLATYHELMINTHES		
390100000099	Turbellaria sp.		
	A	25.00000	0.16000
500100000000	CLASS POLYCHAETA		
500110000000	FAMILY AMPHINOMIDAE		
500121150200	Podarke obscura	25.00000	0.16000
500121190200	Podarkeopsis		
	levifuscina	25.00000	0.16000
500122000000	FAMILY PILARGIDAE		
500123010100	Procereae		
	cornuta	25.00000	0.16000
500123040900	Trypanosyllis		
	parvidentata	25.00000	0.16000
500123070300	Exogone lourei	75.00000	0.48000
500124000000	Nereidae	25.00000	0.16000
500129140200	Mooreonuphis sp.		
	A	125.00000	0.80000
500130000000	FAMILY EUNICIDAE		
500130020100	Marphysa		
	?sanguinea	25.00000	0.16000
500136000000	FAMILY DORVILLEIDAE		
500136000001	?Dorvilleidae		
	sp. A	25.00000	0.16000
500140160300	Leitoscoloplos		
	fragilis	25.00000	0.16000
500143041100	Polydora cornuta		
	(=ligni)	75.00000	0.48000
500143050300	Prionospio		
	heterobranchia	75.00000	0.48000
500144010600	Magelona		
	pettiboneae	125.00000	0.80000
500149000000	FAMILY CHAETOPTERIDAE		
500150031000	Monticellina		
	dorsobranchialis	25.00000	0.16000
500150040000	Chaetozone	25.00000	0.16000
500150069500	Cirriiformia sp.		
	1	500.00000	3.20000
500160000000	FAMILY CAPITELLIDAE		
500160020100	Heteromastus		
	filiformis	50.00000	0.32000
500163010300	Branchioasychis		
	americanus	25.00000	0.16000
500166000000	FAMILY PECTINARIIDAE		
500167000001	Ampharetidae sp.		
	A	25.00000	0.16000
500168250400	Streblosoma		
	hartmanae	75.00000	0.48000
500169000000	FAMILY TRICHOBRANCHIDAE		
500170190700	Fabriciola		
	trilobata	75.00000	0.48000
500173000000	Serpulidae	10475.00000	67.04000
500200000000	ORDER ARCHIANNELIDA		
500300000000	Oligochaeta	375.00000	2.40000
508500000000	PHYLUM MOLLUSCA		
510300000000	ORDER MESOGASTROPODA		
510336000000	FAMILY CAECIDAE		
510336030700	Caecum nitidum	25.00000	0.16000
510346000000	FAMILY CERITHIIDAE		
510346013000	Bittiolium varium	25.00000	0.16000
510364000000	FAMILY CALYPTRAEDIAE		