

**BISCAYNE BAY AND MANATEE BAY, FLORIDA BENTHIC  
MACROINVERTEBRATE COMMUNITY ASSESSMENT  
DECEMBER 1999**

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## INTRODUCTION

Biscayne Bay and Manatee Bay, Florida were sampled during December 1999. One aspect of this study was benthic community characterization, which was accomplished via sample collection by National Oceanic and Atmospheric Administration (NOAA) personnel and laboratory and data analysis by Barry A. Vittor & Associates, Inc. (BVA).

## METHODS

### *Sample Collection and Handling*

A Young dredge (area = 0.04 m<sup>2</sup>) was used to collect bottom samples at 21 stations in Biscayne Bay and 9 stations in Manatee Bay (Figure 1). Samples were prescreened through 0.5 mm mesh sieves, by NOAA in the field and fixed in 10% formalin. The preserved sample fractions were transported to BVA'S laboratory in Mobile, Alabama.

### *Macroinfaunal Sample Analysis*

In BVA's laboratory, benthic samples were inventoried, rinsed gently through a 0.5 mm mesh sieve to remove preservatives and sediment, stained with Rose Bengal, and stored in 70% isopropanol solution until processing. Sample material (sediment, detritus, organisms) was placed in white enamel trays for sorting under Wild M-5A dissecting microscopes. All macroinvertebrates were carefully removed with forceps and placed in labeled glass vials containing 70% isopropanol. Each vial represented a major taxonomic group (*e.g.* Polychaeta, Mollusca, Arthropoda). All sorted macroinvertebrates were identified to the lowest practical identification level (LPIL), which in most cases was to species level unless the specimen was a juvenile, damaged, or otherwise unidentifiable. The number of individuals of each taxon, excluding fragments, was recorded. A voucher collection was prepared, composed of representative individuals of each species not previously encountered in samples from the region.

## DATA ANALYSIS

All data generated as a result of laboratory analysis of macroinfaunal samples were first coded on data sheets. Enumeration data were entered for each species according to station and replicate. These data were reduced to a data summary report for each station, which included a taxonomic species list and benthic community parameters information. Archive data files of species identification and enumeration were prepared.

The Quality Assurance/Quality Control (QA/QC) reports for the Biscayne and Manatee Bay samples are given in Appendix I. Quality control comments for common LPIL taxa are given in Appendix II.

### *Assemblage Structure*

Several numerical indices were chosen for analysis and interpretation of the macroinfaunal data. Infaunal abundance is reported as the total number of individuals per station and the total number of individuals per square meter (= density). Taxa richness is reported as the total number of taxa represented in a given station collection.

Taxa diversity, which is often related to the ecological stability and environmental "quality" of the benthos, was estimated by the Shannon-Weaver Index (Pielou, 1966), according to the following formula:

$$H' = - \sum_{i=1}^S p_i (\ln p_i)$$

where,  $S$  = the number of taxa in the sample,

$i$  = the  $i$ 'th taxon in the sample, and

$p_i$  = the number of individuals of the  $i$ 'th taxon divided by the total number of individuals in the sample.

Taxa diversity within a given community is dependent upon the number of taxa present (taxa richness) and the distribution of all individuals among those taxa (equitability or evenness). In order to quantify and compare faunal equitability to taxa diversity for a given area, Pielou's Evenness Index  $J'$  (Pielou, 1966) was calculated as  $J' =$

$H'/\ln S$ , where  $\ln S = H'_{\max}$ , or the maximum possible diversity, when all taxa are represented by the same number of individuals; thus,  $J' = H' / H'_{\max}$ .

### **HABITAT CHARACTERISTICS**

Water quality data for the 30 stations are presented in Table 1 and Figures 2 and 3. Bottom salinity ranged from 12.6 ppt to 21.0 ppt for the shoreline Stations 1-5 and between 19 ppt and 35 ppt for the remaining stations in Biscayne Bay (Table 1, Figure 2). Salinity in Manatee Bay was > 20 ppt for all stations (Table 1, Figure 2). Bottom dissolved oxygen data at the Biscayne and Manatee Bay is given in Figure 3.

### **BENTHIC COMMUNITY CHARACTERIZATION**

#### ***Faunal Composition, Abundance, and Community Structure***

Table 2 provides a complete phylogenetic listing for the Biscayne Bay and Manatee Bay stations as well as data on taxa abundance and strata occurrence. Microsoft™ Excel spreadsheets will be provided separately to NOAA including a raw data table containing taxa abundance and density data and all report tables.

A total of 14,051 organisms, representing 392 taxa, were identified from the 30 stations (Table 3). Polychaetes were the most numerous organisms present representing 41.3% of the total assemblage, followed in abundance by malacostracans (23.2%), gastropods (15.6%), and bivalves (11%). Polychaetes represented 31.8% of the total number of taxa followed by bivalves (21.4%), malacostracans (21.1%) and gastropods (15.2%)(Table 3). The percentage abundance of the major taxa at the 30 stations is given in Table 4 and Figure 4.

The dominant taxa collected from the 21 Biscayne Bay stations were the gastropod, *Caecum pulchellum*, the malacostracan, *Hargeria rapax* and the polychaetes, *Exogone rolani* and *Fabricinuda trilobata*, representing 14.8%, 14.2%, 9.1%, and 5.3% of the total number of individuals, respectively (Table 2). *Hargeria rapa* and the annelid family, Tubificidae (LPIL) were the most widely distributed taxa being found at 95% of the stations. The distribution of taxa representing > 10% of the total assemblage at each

station is given in Table 5. Nearshore stations 1-5 in Biscayne Bay were dominated by a more estuarine fauna (Table 5).

The dominant taxon collected from the 9 Manatee Bay stations was the bivalve, *Brachidontes exustus*, representing 46.1% of the total number of individuals (Table 2). Other common taxa included the gastropod, *Caecum pulchellum*, the arthropod, *Grandidierella bonnieroides*, and the annelid family, Tubificidae (LPIL), representing 7.6%, 5.3%, and 5.2% of the total number of individuals. Tubificids were the most widely distributed taxon being found at 100% of the stations. The stations in Manatee Bay were dominated by a more estuarine fauna than all but the most nearshore stations in Biscayne Bay (Tables 2 and 5). For example, tubificid oligochaetes were the dominant taxa at 4 of the 9 stations, while the chironomid, *Clunio* (LPIL) was abundant at 2 of the 9 stations.

Station abundance and taxa data are summarized for the Biscayne Bay and Manatee Bay stations in Table 6. In Biscayne Bay the number of taxa per station ranged from 13 at Station 16 to 96 at Station 7 (Table 6; Figures 6 and 7). Nearshore stations 1-5 had considerably lower taxa richness than the remaining stations in Biscayne Bay (Table 6, Figures 6 and 7). In Manatee Bay the number of taxa per station ranged from 2 at Station 23 to 74 at Station 29 (Table 6, Figures 6 and 7).

Density per station in Biscayne Bay ranged from 1075 organisms·m<sup>2</sup> at Station 2 to 24,725 organisms·m<sup>2</sup> at Station 7 (Table 6; Figures 8 and 9). Densities were generally lower at the nearshore Stations 1-5 (Figures 1). Density per station in Manatee Bay ranged from 150 organisms·m<sup>2</sup> at Station 23 to 74,050 organisms·m<sup>2</sup> at Station 25 (Table 6; Figures 8 and 9).

Taxa diversity and evenness for the Biscayne Bay and Manatee Bay stations are given in Table 6 and Figures 10 and 11. Taxa diversity ( $H'$ ) in Biscayne Bay varied considerably and ranged from 1.62 at Station 1 to 3.65 at Station 20 (Table 6; Figure 10). Diversity was lowest at the nearshore stations 1-5. Taxa evenness ( $J'$ ) in Biscayne Bay



also exhibited considerable variation and ranged from 0.56 at Station 15 to 0.88 at Station 16 (Table 6; Figure 11). Taxa diversity ( $H'$ ) in Manatee Bay also varied considerably and ranged from 0.64 at Station 23 to 3.53 at Station 29 (Table 6; Figure 10). Taxa evenness ( $J'$ ) in Manatee Bay also exhibited variation and ranged from 0.24 at Station 25 to 0.92 at Station 23 (Table 6; Figure 11).

## **LITERATURE CITED**

Pielou, E.C. 1966. The measurement of diversity in different types of biological collections. *Journal of Theoretical Biology* 13:131-144.

Table 1. Summary of station location and water quality data for the Biscayne Bay and Manatee Bay stations, December 1999.

Station	Latitude	Longitude	Depth (m)	Sample Depth	Temp. (C)	Salinity (ppt)	DO (mg/l)
1	N 25° 31' 084"	W 80° 19' 563"	1.83	surface	21.5	7.1	4.61
1	N 25° 31' 084"	W 80° 19' 563"	1.83	bottom	19.1	21.0	6.00
2	N 25° 29' 229"	W 80° 20' 190"	3.66	surface	19.2	16.7	6.09
2	N 25° 29' 229"	W 80° 20' 190"	3.66	bottom	18.4	17.9	6.23
3	N 25° 28' 106"	W 80° 20' 236"	3.66	surface	18.6	17.6	5.01
3	N 25° 28' 106"	W 80° 20' 236"	3.66	bottom	18.2	12.6	4.44
4	N 25° 27' 468"	W 80° 20' 035"	2.29	surface	20.4	16.5	7.09
4	N 25° 27' 468"	W 80° 20' 035"	2.29	bottom	20.3	19.3	6.11
5	N 25° 26' 532"	W 80° 19' 520"	3.66	surface	20.0	17.9	7.60
5	N 25° 26' 532"	W 80° 19' 520"	3.66	bottom	19.8	17.9	7.46
6	N 25° 29' 179"	W 80° 18' 119"	1.83	surface	19.0	28.1	7.29
6	N 25° 29' 179"	W 80° 18' 119"	1.83	bottom	19.1	28.3	7.41
7	N 25° 28' 174"	W 80° 18' 446"	1.83	surface	19.3	24.3	7.81
7	N 25° 28' 174"	W 80° 18' 446"	1.83	bottom	19.3	24.6	7.93
8	N 25° 27' 277"	W 80° 18' 529"	1.52	surface	19.3	19.3	6.40
8	N 25° 27' 277"	W 80° 18' 529"	1.52	bottom	19.5	23.9	9.42
9	N 25° 26' 150"	W 80° 18' 310"	1.83	surface	22.1	23.9	8.05
9	N 25° 26' 150"	W 80° 18' 310"	1.83	bottom	21.1	28.1	8.02
10	N 25° 28' 055"	W 80° 17' 366"	2.13	surface	18.9	29.2	6.16
10	N 25° 28' 055"	W 80° 17' 366"	2.13	bottom	18.8	29.7	6.22
11	N 25° 26' 553"	W 80° 17' 521"	1.68	surface	19.4	29.6	6.50
11	N 25° 26' 553"	W 80° 17' 521"	1.68	bottom	19.3	29.7	6.44
12	N 25° 25' 271"	W 80° 17' 377"	1.37	surface	20.0	27.7	6.53
12	N 25° 25' 271"	W 80° 17' 377"	1.37	bottom	19.8	27.9	6.82
13	N 25° 29' 024"	W 80° 16' 516"	2.44	surface	18.8	31.8	5.93
13	N 25° 29' 024"	W 80° 16' 516"	2.44	bottom	18.8	31.8	6.02
14	N 25° 27' 529"	W 80° 16' 433"	2.44	surface	19.3	31.8	5.93
14	N 25° 27' 529"	W 80° 16' 433"	2.44	bottom	19.2	31.9	5.90
15	N 25° 26' 377"	W 80° 15' 378"	2.29	surface	19.1	32.8	6.05
15	N 25° 26' 377"	W 80° 15' 378"	2.29	bottom	19.1	33.0	5.78
16	N 25° 25' 055"	W 80° 16' 138"	2.13	surface	18.8	30.9	5.94
16	N 25° 25' 055"	W 80° 16' 138"	2.13	bottom	18.8	31.3	6.41
17	N 25° 28' 102"	W 80° 14' 510"	2.44	surface	19.4	34.3	6.02
17	N 25° 28' 102"	W 80° 14' 510"	2.44	bottom	19.5	34.3	5.88
18	N 25° 26' 348"	W 80° 14' 312"	2.44	surface	20.0	33.1	6.06
18	N 25° 26' 348"	W 80° 14' 312"	2.44	bottom	19.9	33.2	5.97
19	N 25° 25' 131"	W 80° 14' 114"	2.74	surface	19.2	34.8	6.08
19	N 25° 25' 131"	W 80° 14' 114"	2.74	bottom	19.1	34.8	5.85
20	N 25° 28' 505"	W 80° 12' 533"	3.35	surface	21.5	34.4	5.81
20	N 25° 28' 505"	W 80° 12' 533"	3.35	bottom	21.5	34.4	5.55
21	N 25° 30' 432"	W 80° 11' 431"	2.13	surface	20.5	33.1	5.59
21	N 25° 30' 432"	W 80° 11' 431"	2.13	bottom	20.5	33.1	5.53
22	N 25° 16' 019"	W 80° 26' 121"	3.66	surface	21.3	12.5	5.57
22	N 25° 16' 019"	W 80° 26' 121"	3.66	bottom	21.1	14.7	5.51
23	N 25° 15' 450"	W 80° 25' 420"	3.66	surface	21.3	13.7	5.11
23	N 25° 15' 450"	W 80° 25' 420"	3.66	bottom	21.0	16.1	5.10

Table 1 continued:

<b>Station</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Depth (m)</b>	<b>Sample Depth</b>	<b>Temp (C)</b>	<b>Salinity (ppt)</b>	<b>D.O. (mg/l)</b>
24	N 25° 15' 187"	W 80° 25' 196"	1.52	surface	20.0	16.8	7.20
24	N 25° 15' 187"	W 80° 25' 196"	1.52	bottom	19.9	16.9	6.16
25	N 25° 14' 287"	W 80° 25' 181"	1.52	surface	19.8	17.8	7.52
25	N 25° 14' 287"	W 80° 25' 181"	1.52	bottom	19.8	18.3	7.39
26	N 25° 15' 151"	W 80° 24' 371"	1.83	surface	20.0	19.0	7.56
26	N 25° 15' 151"	W 80° 24' 371"	1.83	bottom	19.7	19.1	7.35
27	N 25° 14' 308"	W 80° 25' 098"	1.22	surface	20.2	18.7	7.74
27	N 25° 14' 308"	W 80° 25' 098"	1.22	bottom	20.1	18.8	7.16
28	N 25° 14' 460"	W 80° 25' 210"	1.83	surface	20.8	19.1	7.29
28	N 25° 14' 460"	W 80° 25' 210"	1.83	bottom	20.3	19.2	7.32
29	N 25° 14' 031"	W 80° 24' 349"	1.52	surface	21.0	20.0	7.92
29	N 25° 14' 031"	W 80° 24' 349"	1.52	bottom	20.7	20.0	7.02
30	N 25° 13' 109"	W 80° 24' 439"	2.44	surface	21.5	19.3	7.68
30	N 25° 13' 109"	W 80° 24' 439"	2.44	bottom	20.8	19.7	7.53

Table 2. Abundance and distribution of benthic macroinfauna taxa for the Biscayne Bay and Manatee Bay stations, December 1999.

**Biscayne Bay:**

Taxon Name	Phylum	Class	No. of Individuals	% Total	Cumulative %	Station Occurrence	Station % Occurrence
<i>Caecum pulchellum</i>	Mol	Gast	1253	14.83	14.83	16	76
<i>Hargeria rapax</i>	Art	Mala	1198	14.18	29.02	20	95
<i>Exogone rolani</i>	Ann	Poly	769	9.10	38.12	15	71
<i>Fabricinuda trilobata</i>	Ann	Poly	449	5.32	43.44	13	62
Tubificidae (LPIL)	Ann	Olig	364	4.31	47.74	20	95
<i>Exogone lourei</i>	Ann	Poly	320	3.79	51.53	13	62
Sabellidae (LPIL)	Ann	Poly	250	2.96	54.49	11	52
<i>Grandidierella bonnieroides</i>	Art	Mala	225	2.66	57.16	12	57
<i>Polycirrus</i> (LPIL)	Ann	Poly	190	2.25	59.41	1	5
Serpulidae (LPIL)	Ann	Poly	119	1.41	60.81	12	57
<i>Polydora cornuta</i>	Ann	Poly	109	1.29	62.10	2	10
Ampharetidae (LPIL)	Ann	Poly	99	1.17	63.28	5	24
<i>Taylorpholoe hirsuta</i>	Ann	Poly	87	1.03	64.31	9	43
<i>Cumella garrityi</i>	Art	Mala	81	0.96	65.27	15	71
<i>Erichthonius brasiliensis</i>	Art	Mala	81	0.96	66.22	8	38
<i>Syllis cornuta</i>	Ann	Poly	80	0.95	67.17	9	43
<i>Tubulanus</i> (LPIL)	Rhy	Anop	73	0.86	68.04	12	57
<i>Streblospio benedicti</i>	Ann	Poly	68	0.81	68.84	4	19
<i>Laevicardium laevigatum</i>	Mol	Biva	66	0.78	69.62	9	43
Capitellidae (LPIL)	Ann	Poly	64	0.76	70.38	11	52
<i>Kallitapseudes</i> sp. C	Art	Mala	63	0.75	71.13	5	24
<i>Nematoneis hebes</i>	Ann	Poly	63	0.75	71.87	12	57
<i>Sphaerosyllis piriferopsis</i>	Ann	Poly	61	0.72	72.59	11	52
<i>Spio pettiboneae</i>	Ann	Poly	54	0.64	73.23	7	33
Ophiuroidea (LPIL)	Ech	Ophi	53	0.63	73.86	12	57
<i>Caecum imbricatum</i>	Mol	Gast	44	0.52	74.38	7	33
<i>Caecum floridanum</i>	Mol	Gast	42	0.50	74.88	10	48
<i>Ehlersia ferrugina</i>	Ann	Poly	41	0.49	75.36	8	38
Rhynchocoela (LPIL)	Rhy	-	40	0.47	75.84	13	62
<i>Caecum nitidum</i>	Mol	Gast	38	0.45	76.29	11	52
<i>Sipuncula</i> (LPIL)	Sip	-	38	0.45	76.74	7	33
<i>Schistomeringos pectinata</i>	Ann	Poly	36	0.43	77.16	7	33
<i>Haplosyllis spongicola</i>	Ann	Poly	34	0.40	77.57	1	5
Nereididae (LPIL)	Ann	Poly	34	0.40	77.97	8	38
<i>Pettibonella multiuncinata</i>	Ann	Poly	34	0.40	78.37	9	43
Polyplacophora (LPIL)	Mol	Polyp	34	0.40	78.77	9	43
<i>Protodorvillea kefersteini</i>	Ann	Poly	33	0.39	79.16	8	38
Amphiuridae (LPIL)	Ech	Ophi	31	0.37	79.53	8	38
Golfingiidae (LPIL)	Sip	-	31	0.37	79.90	7	33
<i>Lembos</i> (LPIL)	Art	Mala	31	0.37	80.27	8	38
<i>Halmyrapseudes bahamensis</i>	Art	Mala	30	0.36	80.62	3	14
<i>Pagurolangis largoensis</i>	Art	Mala	30	0.36	80.98	7	33
<i>Laeonereis culveri</i>	Ann	Poly	29	0.34	81.32	9	43
<i>Pseudoleptochelia</i> sp. A	Art	Mala	29	0.34	81.66	6	29
<i>Isolda pulchella</i>	Ann	Poly	28	0.33	81.99	11	52
<i>Prionospio</i> (LPIL)	Ann	Poly	28	0.33	82.33	12	57
<i>Monticellina dorsobranchialis</i>	Ann	Poly	25	0.30	82.62	8	38
<i>Mesanthura floridensis</i>	Art	Mala	24	0.28	82.91	5	24
<i>Ampelisca vadorum</i>	Art	Mala	23	0.27	83.18	10	48
<i>Chone</i> (LPIL)	Ann	Poly	23	0.27	83.45	12	57
<i>Nototanais</i> (LPIL)	Art	Mala	23	0.27	83.72	3	14
<i>Cymadusa compta</i>	Art	Mala	22	0.26	83.98	6	29
<i>Glycymeris pectinata</i>	Mol	Biva	22	0.26	84.24	7	33
Oligochaeta (LPIL)	Ann	Olig	22	0.26	84.50	3	14
<i>Syllis</i> (LPIL)	Ann	Poly	21	0.25	84.75	5	24

Table 2 continued:

**Biscayne Bay:**

<b>Taxon Name</b>	<b>Phylum</b>	<b>Class</b>	<b>No. of Individuals</b>	<b>% Total</b>	<b>Cumulative %</b>	<b>Station Occurrence</b>	<b>Station % Occurrence</b>
<i>Cirrophorus lyra</i>	Ann	Poly	20	0.24	84.99	9	43
Lineidae (LPIL)	Rhy	Anop	20	0.24	85.23	10	48
<i>Armandia maculata</i>	Ann	Poly	18	0.21	85.44	7	33
<i>Phascolion strombi</i>	Sip	–	18	0.21	85.65	9	43
<i>Amakusanthura magnifica</i>	Art	Mala	17	0.20	85.85	7	33
<i>Anomalocardia auberiana</i>	Mol	Biva	17	0.20	86.05	4	19
<i>Chione cancellata</i>	Mol	Biva	17	0.20	86.26	10	48
<i>Paramicrodeutopus myersi</i>	Art	Mala	17	0.20	86.46	6	29
<i>Cyclaspis pustulata</i>	Art	Mala	16	0.19	86.65	7	33
<i>Exogone atlantica</i>	Ann	Poly	16	0.19	86.84	7	33
<i>Laevicardium</i> (LPIL)	Mol	Biva	16	0.19	87.02	5	24
<i>Laonice cirrata</i>	Ann	Poly	16	0.19	87.21	5	24
<i>Nereis pelagica</i>	Ann	Poly	16	0.19	87.40	7	33
<i>Tellina iris</i>	Mol	Biva	16	0.19	87.59	9	43
<i>Accalathura crenulata</i>	Art	Mala	15	0.18	87.77	7	33
Actiniaria (LPIL)	Cni	Anth	15	0.18	87.95	8	38
<i>Brachidontes exustus</i>	Mol	Biva	15	0.18	88.13	5	24
Maldanidae (LPIL)	Ann	Poly	15	0.18	88.30	7	33
<i>Paramphinome</i> sp. B	Ann	Poly	14	0.17	88.47	7	33
Cirratulidae (LPIL)	Ann	Poly	13	0.15	88.62	10	48
<i>Leitoscoloplos robustus</i>	Ann	Poly	13	0.15	88.78	2	10
<i>Lioberus castaneus</i>	Mol	Biva	13	0.15	88.93	3	14
Montacutidae (LPIL)	Mol	Biva	13	0.15	89.08	7	33
Syllidae (LPIL)	Ann	Poly	13	0.15	89.24	5	24
<i>Aricidea philbiniae</i>	Ann	Poly	12	0.14	89.38	5	24
<i>Elasmopus</i> sp. C	Art	Mala	12	0.14	89.52	5	24
<i>Glycera americana</i>	Ann	Poly	12	0.14	89.66	3	14
<i>Odostomia laevigata</i>	Mol	Gast	12	0.14	89.81	7	33
<i>Oxyurostylis smithi</i>	Art	Mala	12	0.14	89.95	5	24
Terebellidae (LPIL)	Ann	Poly	12	0.14	90.09	7	33
<i>Nereis panamensis</i>	Ann	Poly	11	0.13	90.22	3	14
<i>Oxyurostylis</i> (LPIL)	Art	Mala	11	0.13	90.35	8	38
<i>Syllis broomensis</i>	Ann	Poly	11	0.13	90.48	5	24
<i>Axiothella</i> sp. A	Ann	Poly	10	0.12	90.60	2	10
<i>Scoletoma impatiens</i>	Ann	Poly	10	0.12	90.72	6	29
<i>Carpias algicola</i>	Art	Mala	9	0.11	90.83	4	19
<i>Deutella incerta</i>	Art	Mala	9	0.11	90.93	4	19
<i>Photis</i> (LPIL)	Art	Mala	9	0.11	91.04	4	19
<i>Pitar fulminatus</i>	Mol	Biva	9	0.11	91.14	7	33
<i>Plesiolembos rectangulatus</i>	Art	Mala	9	0.11	91.25	4	19
<i>Pleuromeris tridentata</i>	Mol	Biva	9	0.11	91.36	3	14
<i>Rictaxis punctostriatus</i>	Mol	Gast	9	0.11	91.46	6	29
Spionidae (LPIL)	Ann	Poly	9	0.11	91.57	7	33
<i>Caulleriella cf. alata</i>	Ann	Poly	8	0.09	91.67	5	24
<i>Cingula floridana</i>	Mol	Gast	8	0.09	91.76	1	5
<i>Corophium</i> sp. Q	Art	Mala	8	0.09	91.86	3	14
<i>Cyclaspis</i> sp. N	Art	Mala	8	0.09	91.95	4	19
<i>Dasybranchus lunulatus</i>	Ann	Poly	8	0.09	92.04	4	19
<i>Exogone</i> (LPIL)	Ann	Poly	8	0.09	92.14	2	10
<i>Fimbriosthenelais minor</i>	Ann	Poly	8	0.09	92.23	7	33
<i>Hydroides dianthus</i>	Ann	Poly	8	0.09	92.33	3	14
<i>Nucula aegeensis</i>	Mol	Biva	8	0.09	92.42	2	10
<i>Paracerceis caudata</i>	Art	Mala	8	0.09	92.52	4	19
<i>Platynereis dumerilli</i>	Ann	Poly	8	0.09	92.61	3	14
<i>Vermiliopsis annulata</i>	Ann	Poly	8	0.09	92.71	4	19
<i>Xenanthura brevitelson</i>	Art	Mala	8	0.09	92.80	3	14
<i>Capitella capitata</i>	Ann	Poly	7	0.08	92.89	3	14

Table 2 continued:

**Biscayne Bay:**

<b>Taxon Name</b>	<b>Phylum</b>	<b>Class</b>	<b>No. of Individuals</b>	<b>% Total</b>	<b>Cumulative %</b>	<b>Station Occurrence</b>	<b>Station % Occurrence</b>
<i>Caulerriella</i> sp. K	Ann	Poly	7	0.08	92.97	5	24
<i>Ceratonereis versipedata</i>	Ann	Poly	7	0.08	93.05	3	14
<i>Cylindrobulla beauii</i>	Mol	Gast	7	0.08	93.13	3	14
<i>Erichsonella attenuata</i>	Art	Mala	7	0.08	93.22	1	5
<i>Limnoria</i> (LPIL)	Art	Mala	7	0.08	93.30	2	10
<i>Lysidice notata</i>	Ann	Poly	7	0.08	93.38	6	29
<i>Marginella lavalleeana</i>	Mol	Gast	7	0.08	93.47	6	29
<i>Mediomastus</i> (LPIL)	Ann	Poly	7	0.08	93.55	7	33
<i>Nereis</i> (LPIL)	Ann	Poly	7	0.08	93.63	3	14
Spirorbidae (LPIL)	Ann	Poly	7	0.08	93.71	1	5
<i>Varohios</i> sp. A	Art	Mala	7	0.08	93.80	3	14
Veneridae (LPIL)	Mol	Biva	7	0.08	93.88	6	29
<i>Aricidea</i> (LPIL)	Ann	Poly	6	0.07	93.95	4	19
Ascidiacea (LPIL)	Cho	Asci	6	0.07	94.02	2	10
<i>Branchiomma nigromaculata</i>	Ann	Poly	6	0.07	94.09	3	14
<i>Capitella jonesi</i>	Ann	Poly	6	0.07	94.16	2	10
<i>Dentimargo aureocincta</i>	Mol	Gast	6	0.07	94.23	4	19
<i>Dulichella appendiculata</i>	Art	Mala	6	0.07	94.31	2	10
<i>Glans dominguensis</i>	Mol	Biva	6	0.07	94.38	1	5
<i>Grubeosyllis rugulosa</i>	Ann	Poly	6	0.07	94.45	3	14
<i>Horoloanthura irpex</i>	Art	Mala	6	0.07	94.52	1	5
<i>Mysella planulata</i>	Mol	Biva	6	0.07	94.59	1	5
<i>Nassarius albus</i>	Mol	Gast	6	0.07	94.66	5	24
<i>Podarkeopsis levifuscina</i>	Ann	Poly	6	0.07	94.73	2	10
<i>Streblosoma hartmanae</i>	Ann	Poly	6	0.07	94.80	4	19
Tellinidae (LPIL)	Mol	Biva	6	0.07	94.87	5	24
<i>Amygdalum sagittatum</i>	Mol	Biva	5	0.06	94.93	3	14
<i>Batea carinata</i>	Art	Mala	5	0.06	94.99	3	14
Gastropoda (LPIL)	Mol	Gast	5	0.06	95.05	2	10
<i>Granulina ovuliformis</i>	Mol	Gast	5	0.06	95.11	3	14
Lumbrineridae (LPIL)	Ann	Poly	5	0.06	95.17	3	14
<i>Olivella dealbata</i>	Mol	Gast	5	0.06	95.23	2	10
<i>Owenia fusiformis</i>	Ann	Poly	5	0.06	95.29	4	19
<i>Parapionosyllis uebelackerae</i>	Ann	Poly	5	0.06	95.35	5	24
<i>Prionospio cristata</i>	Ann	Poly	5	0.06	95.41	3	14
<i>Scoloplos rubra</i>	Ann	Poly	5	0.06	95.47	5	24
<i>Stenoninereis martini</i>	Ann	Poly	5	0.06	95.53	1	5
<i>Syllis danieli</i>	Ann	Poly	5	0.06	95.58	3	14
<i>Turbonilla</i> (LPIL)	Mol	Gast	5	0.06	95.64	2	10
Amphilochidae (LPIL)	Art	Mala	4	0.05	95.69	4	19
Aoridae (LPIL)	Art	Mala	4	0.05	95.74	2	10
Apseudidae (LPIL)	Art	Mala	4	0.05	95.79	2	10
<i>Campylaspis</i> sp. U	Art	Mala	4	0.05	95.83	4	19
<i>Corophium</i> (LPIL)	Art	Mala	4	0.05	95.88	2	10
<i>Cyclaspis varians</i>	Art	Mala	4	0.05	95.93	2	10
<i>Demonax microphthalmus</i>	Ann	Poly	4	0.05	95.97	1	5
Dorvilleidae (LPIL)	Ann	Poly	4	0.05	96.02	3	14
Eunicidae (LPIL)	Ann	Poly	4	0.05	96.07	1	5
Glyceridae (LPIL)	Ann	Poly	4	0.05	96.12	3	14
<i>Glycinde solitaria</i>	Ann	Poly	4	0.05	96.16	3	14
<i>Golfingia</i> (LPIL)	Sip	-	4	0.05	96.21	2	10
<i>Leitoscoloplos</i> (LPIL)	Ann	Poly	4	0.05	96.26	4	19
<i>Lucina radians</i>	Mol	Biva	4	0.05	96.31	2	10
Paguridae (LPIL)	Art	Mala	4	0.05	96.35	4	19
<i>Podarke obscura</i>	Ann	Poly	4	0.05	96.40	2	10
<i>Polypedilum scalaenum</i> group	Art	Inse	4	0.05	96.45	1	5
<i>Schwartziella catesbyana</i>	Mol	Gast	4	0.05	96.50	2	10
<i>Syllides bansei</i>	Ann	Poly	4	0.05	96.54	3	14
<i>Tagelus</i> (LPIL)	Mol	Biva	4	0.05	96.59	2	10

Table 2 continued:

**Biscayne Bay:**

<b>Taxon Name</b>	<b>Phylum</b>	<b>Class</b>	<b>No. of Individuals</b>	<b>% Total</b>	<b>Cumulative %</b>	<b>Station Occurrence</b>	<b>Station % Occurrence</b>
<i>Tellina</i> (LPIL)	Mol	Biva	4	0.05	96.64	3	14
Aclididae (LPIL)	Mol	Gast	3	0.04	96.67	2	10
<i>Acmaea</i> (LPIL)	Mol	Gast	3	0.04	96.71	1	5
<i>Arabella multidentata</i>	Ann	Poly	3	0.04	96.74	3	14
<i>Aricidea cerrutii</i>	Ann	Poly	3	0.04	96.78	3	14
<i>Aricidea finitima</i>	Ann	Poly	3	0.04	96.82	2	10
<i>Bhawania goodei</i>	Ann	Poly	3	0.04	96.85	2	10
<i>Bulla striata</i>	Mol	Gast	3	0.04	96.89	1	5
Cerithiidae (LPIL)	Mol	Gast	3	0.04	96.92	3	14
<i>Cerithium muscarum</i>	Mol	Gast	3	0.04	96.96	2	10
<i>Codakia costata</i>	Mol	Biva	3	0.04	96.99	1	5
<i>Crepidula maculosa</i>	Mol	Gast	3	0.04	97.03	1	5
<i>Crepidula plana</i>	Mol	Gast	3	0.04	97.06	3	14
<i>Glycera</i> sp. D	Ann	Poly	3	0.04	97.10	2	10
<i>Hydroides bispinosa</i>	Ann	Poly	3	0.04	97.14	3	14
<i>Hypereteone heteropoda</i>	Ann	Poly	3	0.04	97.17	2	10
<i>Leucothoe spinicarpa</i>	Art	Mala	3	0.04	97.21	3	14
<i>Ligitiella floridana</i>	Art	Ceph	3	0.04	97.24	1	5
<i>Mediomastus californiensis</i>	Ann	Poly	3	0.04	97.28	2	10
<i>Mesanthura</i> (LPIL)	Art	Mala	3	0.04	97.31	2	10
<i>Metharpinia floridana</i>	Art	Mala	3	0.04	97.35	1	5
<i>Nereiphylla fragilis</i>	Ann	Poly	3	0.04	97.38	2	10
<i>Notomastus latericeus</i>	Ann	Poly	3	0.04	97.42	2	10
<i>Notomastus tenuis</i>	Ann	Poly	3	0.04	97.45	3	14
<i>Odostomia</i> (LPIL)	Mol	Gast	3	0.04	97.49	1	5
<i>Paracaprella tenuis</i>	Art	Mala	3	0.04	97.53	2	10
Pectinidae (LPIL)	Mol	Biva	3	0.04	97.56	2	10
Polynoidae (LPIL)	Ann	Poly	3	0.04	97.60	2	10
<i>Prionospio heterobranchia</i>	Ann	Poly	3	0.04	97.63	3	14
<i>Pseudovermilia occidentalis</i>	Ann	Poly	3	0.04	97.67	1	5
<i>Pyramidella crenulata</i>	Mol	Gast	3	0.04	97.70	2	10
<i>Strombiformis</i> (LPIL)	Mol	Gast	3	0.04	97.74	3	14
<i>Syllis beneliahui</i>	Ann	Poly	3	0.04	97.77	2	10
<i>Syllis lutea</i>	Ann	Poly	3	0.04	97.81	3	14
Turbellaria (LPIL)	Pla	Turb	3	0.04	97.85	2	10
<i>Ampelisca</i> (LPIL)	Art	Mala	2	0.02	97.87	2	10
<i>Amphiodia planispina</i>	Ech	Ophi	2	0.02	97.89	1	5
<i>Ampithoe</i> (LPIL)	Art	Mala	2	0.02	97.92	1	5
<i>Aricidea</i> sp. X	Ann	Poly	2	0.02	97.94	1	5
<i>Aricidea taylora</i>	Ann	Poly	2	0.02	97.96	2	10
<i>Axiothella mucosa</i>	Ann	Poly	2	0.02	97.99	2	10
Bivalvia (LPIL)	Mol	Biva	2	0.02	98.01	2	10
<i>Cerapus benthophilus</i>	Art	Mala	2	0.02	98.03	1	5
<i>Chrysopetalum hernancortezae</i>	Ann	Poly	2	0.02	98.06	2	10
<i>Cirrophorus furcatus</i>	Ann	Poly	2	0.02	98.08	2	10
<i>Crassinella lunulata</i>	Mol	Biva	2	0.02	98.11	1	5
<i>Cubanocuma gutzui</i>	Art	Mala	2	0.02	98.13	2	10
<i>Cyclaspis</i> (LPIL)	Art	Mala	2	0.02	98.15	2	10
<i>Dorvillea sociabilis</i>	Ann	Poly	2	0.02	98.18	1	5
Gammaridae (LPIL)	Art	Mala	2	0.02	98.20	1	5
<i>Hypereteone lightii</i>	Ann	Poly	2	0.02	98.22	1	5
<i>Lepidonotus variabilis</i>	Ann	Poly	2	0.02	98.25	2	10
Leptosynapta (LPIL)	Ech	Holo	2	0.02	98.27	2	10
<i>Listriella</i> sp. G	Art	Mala	2	0.02	98.30	1	5
<i>Loimia medusa</i>	Ann	Poly	2	0.02	98.32	1	5
<i>Lucina</i> (LPIL)	Mol	Biva	2	0.02	98.34	1	5
Lucinidae (LPIL)	Mol	Biva	2	0.02	98.37	1	5
<i>Lysianassa</i> (LPIL)	Art	Mala	2	0.02	98.39	1	5
<i>Malmgreniella maccraryae</i>	Ann	Poly	2	0.02	98.41	1	5



Table 2 continued:

**Biscayne Bay:**

<b>Taxon Name</b>	<b>Phylum</b>	<b>Class</b>	<b>No. of Individuals</b>	<b>% Total</b>	<b>Cumulative %</b>	<b>Station Occurrence</b>	<b>Station % Occurrence</b>
<i>Marginella</i> (LPIL)	Mol	Gast	2	0.02	98.44	2	10
Mytilidae (LPIL)	Mol	Biva	2	0.02	98.46	2	10
<i>Niso</i> (LPIL)	Mol	Gast	2	0.02	98.48	1	5
<i>Odontosyllis enopla</i>	Ann	Poly	2	0.02	98.51	1	5
<i>Olivella</i> (LPIL)	Mol	Gast	2	0.02	98.53	1	5
<i>Olivella bullula</i>	Mol	Gast	2	0.02	98.56	2	10
<i>Ophiactis savignyi</i>	Ech	Ophi	2	0.02	98.58	2	10
<i>Opisthodonta</i> sp. B	Ann	Poly	2	0.02	98.60	1	5
Orbiniidae (LPIL)	Ann	Poly	2	0.02	98.63	2	10
Paratanaidae (LPIL)	Art	Mala	2	0.02	98.65	1	5
<i>Pectinaria gouldii</i>	Ann	Poly	2	0.02	98.67	2	10
<i>Photis</i> sp. J	Art	Mala	2	0.02	98.70	2	10
Phoxocephalidae (LPIL)	Art	Mala	2	0.02	98.72	1	5
Porifera (LPIL)	Por	-	2	0.02	98.75	1	5
<i>Prionospio steenstrupi</i>	Ann	Poly	2	0.02	98.77	2	10
<i>Pusia gemmata</i>	Mol	Gast	2	0.02	98.79	1	5
<i>Scoletoma candida</i>	Ann	Poly	2	0.02	98.82	1	5
<i>Scoloplos</i> (LPIL)	Ann	Poly	2	0.02	98.84	1	5
Semelidae (LPIL)	Mol	Biva	2	0.02	98.86	1	5
Sphaeromatidae (LPIL)	Art	Mala	2	0.02	98.89	2	10
<i>Sphaerosyllis</i> (LPIL)	Ann	Poly	2	0.02	98.91	2	10
<i>Sphaerosyllis aciculata</i>	Ann	Poly	2	0.02	98.93	1	5
<i>Syllis gracilis</i>	Ann	Poly	2	0.02	98.96	1	5
<i>Transennella conradina</i>	Mol	Biva	2	0.02	98.98	2	10
<i>Uromunna reynoldsi</i>	Art	Mala	2	0.02	99.01	1	5
Acmaeidae (LPIL)	Mol	Gast	1	0.01	99.02	1	5
<i>Acteocina candei</i>	Mol	Gast	1	0.01	99.03	1	5
<i>Alpheus</i> (LPIL)	Art	Mala	1	0.01	99.04	1	5
<i>Alvania auberiana</i>	Mol	Gast	1	0.01	99.05	1	5
<i>Americardia media</i>	Mol	Biva	1	0.01	99.06	1	5
<i>Americhelidium americanum</i>	Art	Mala	1	0.01	99.08	1	5
<i>Ampelisca schellenbergi</i>	Art	Mala	1	0.01	99.09	1	5
<i>Amygdalum</i> (LPIL)	Mol	Biva	1	0.01	99.10	1	5
<i>Antalis antillarum</i>	Mol	Scap	1	0.01	99.11	1	5
<i>Bhawania heteroseta</i>	Ann	Poly	1	0.01	99.12	1	5
Branchiostoma (LPIL)	Cho	Lept	1	0.01	99.14	1	5
<i>Branchiosyllis oculata</i>	Ann	Poly	1	0.01	99.15	1	5
Bryozoa (LPIL)	Bry	-	1	0.01	99.16	1	5
Calyptraeidae (LPIL)	Mol	Gast	1	0.01	99.17	1	5
Cardiidae (LPIL)	Mol	Biva	1	0.01	99.18	1	5
<i>Cauleriella</i> (LPIL)	Ann	Poly	1	0.01	99.19	1	5
<i>Ceratonereis</i> (LPIL)	Ann	Poly	1	0.01	99.21	1	5
Cnidaria (LPIL)	Cni	-	1	0.01	99.22	1	5
<i>Conus jaspideus</i>	Mol	Gast	1	0.01	99.23	1	5
<i>Craspedochiton hemphilli</i>	Mol	Polyp	1	0.01	99.24	1	5
<i>Cumella</i> (LPIL)	Art	Mala	1	0.01	99.25	1	5
<i>Cyclaspis unicoloris</i>	Art	Mala	1	0.01	99.27	1	5
<i>Dentatisyllis carolinae</i>	Ann	Poly	1	0.01	99.28	1	5
<i>Diplodonta</i> (LPIL)	Mol	Biva	1	0.01	99.29	1	5
<i>Edotia lyonsi</i>	Art	Mala	1	0.01	99.30	1	5
<i>Eunice unifrons</i>	Ann	Poly	1	0.01	99.31	1	5
<i>Glycera</i> (LPIL)	Ann	Poly	1	0.01	99.33	1	5
<i>Goniada teres</i>	Ann	Poly	1	0.01	99.34	1	5
<i>Grubeosyllis clavata</i>	Ann	Poly	1	0.01	99.35	1	5
<i>Harmothoe imbricata</i>	Ann	Poly	1	0.01	99.36	1	5
<i>Hemitoma emarginata</i>	Mol	Gast	1	0.01	99.37	1	5
Hesionidae (LPIL)	Ann	Poly	1	0.01	99.38	1	5
<i>Latreutes fucorum</i>	Art	Mala	1	0.01	99.40	1	5
<i>Leptocheilia</i> (LPIL)	Art	Mala	1	0.01	99.41	1	5

Table 2 continued:

**Biscayne Bay:**

<b>Taxon Name</b>	<b>Phylum</b>	<b>Class</b>	<b>No. of Individuals</b>	<b>% Total</b>	<b>Cumulative %</b>	<b>Station Occurrence</b>	<b>Station % Occurrence</b>
<i>Leptochelia forresti</i>	Art	Mala	1	0.01	99.42	1	5
<i>Lumbrineris coccinea</i>	Ann	Poly	1	0.01	99.43	1	5
<i>Lysidice</i> (LPIL)	Ann	Poly	1	0.01	99.44	1	5
<i>Maera</i> sp. C	Art	Mala	1	0.01	99.46	1	5
<i>Marginella apicina</i>	Mol	Gast	1	0.01	99.47	1	5
<i>Melinna cristata</i>	Ann	Poly	1	0.01	99.48	1	5
<i>Musculus lateralis</i>	Mol	Biva	1	0.01	99.49	1	5
<i>Nannodiella oxia</i>	Mol	Gast	1	0.01	99.50	1	5
Nematoda (LPIL)	Nem	-	1	0.01	99.51	1	5
<i>Neomegamphopus kalanii</i>	Art	Mala	1	0.01	99.53	1	5
<i>Neritina virginea</i>	Mol	Gast	1	0.01	99.54	1	5
<i>Notomastus</i> (LPIL)	Ann	Poly	1	0.01	99.55	1	5
<i>Notomastus</i> sp. A	Ann	Poly	1	0.01	99.56	1	5
Oeonidae (LPIL)	Ann	Poly	1	0.01	99.57	1	5
Olividae (LPIL)	Mol	Gast	1	0.01	99.59	1	5
Ophiuridae (LPIL)	Ech	Ophi	1	0.01	99.60	1	5
<i>Opisthodonta</i> sp. A	Ann	Poly	1	0.01	99.61	1	5
<i>Ougia tenuidentis</i>	Ann	Poly	1	0.01	99.62	1	5
<i>Oxyrostylis lecrovae</i>	Art	Mala	1	0.01	99.63	1	5
<i>Paguristes</i> (LPIL)	Art	Mala	1	0.01	99.64	1	5
<i>Pagurus</i> (LPIL)	Art	Mala	1	0.01	99.66	1	5
Palaemonidae (LPIL)	Art	Mala	1	0.01	99.67	1	5
<i>Paranebalia belizensis</i>	Art	Mala	1	0.01	99.68	1	5
<i>Phoronis</i> (LPIL)	Pho	-	1	0.01	99.69	1	5
<i>Photis pugnator</i>	Art	Mala	1	0.01	99.70	1	5
<i>Phyllodoce arenae</i>	Ann	Poly	1	0.01	99.72	1	5
Phyllodoceidae (LPIL)	Ann	Poly	1	0.01	99.73	1	5
<i>Pionosyllis spinisetosa</i>	Ann	Poly	1	0.01	99.74	1	5
<i>Piromis roberti</i>	Ann	Poly	1	0.01	99.75	1	5
<i>Pitar</i> (LPIL)	Mol	Biva	1	0.01	99.76	1	5
<i>Plakosyllis quadrioculata</i>	Ann	Poly	1	0.01	99.78	1	5
<i>Polycirrus plumosus</i>	Ann	Poly	1	0.01	99.79	1	5
<i>Potamethus</i> sp. A	Ann	Poly	1	0.01	99.80	1	5
<i>Prionospio multibranchiata</i>	Ann	Poly	1	0.01	99.81	1	5
<i>Protohadzia schoenerae</i>	Art	Mala	1	0.01	99.82	1	5
Pyramidellidae (LPIL)	Mol	Gast	1	0.01	99.83	1	5
<i>Saltipedis</i> (LPIL)	Art	Mala	1	0.01	99.85	1	5
<i>Schistomeringos rudolphi</i>	Ann	Poly	1	0.01	99.86	1	5
<i>Scyphoproctus platyproctus</i>	Ann	Poly	1	0.01	99.87	1	5
<i>Serolis mgrayi</i>	Art	Mala	1	0.01	99.88	1	5
<i>Sphaerosyllis perkinsi</i>	Ann	Poly	1	0.01	99.89	1	5
<i>Synalpheus</i> (LPIL)	Art	Mala	1	0.01	99.91	1	5
<i>Tegula fasciata</i>	Mol	Gast	1	0.01	99.92	1	5
<i>Terebellides parvus</i>	Ann	Poly	1	0.01	99.93	1	5
Terebridae (LPIL)	Mol	Gast	1	0.01	99.94	1	5
Trichobranchidae (LPIL)	Ann	Poly	1	0.01	99.95	1	5
Trochidae (LPIL)	Mol	Gast	1	0.01	99.96	1	5
Turridae (LPIL)	Mol	Gast	1	0.01	99.98	1	5
<i>Volvarina avenacea</i>	Mol	Gast	1	0.01	99.99	1	5
<i>Zebina browniana</i>	Mol	Gast	1	0.01	100.00	1	5

Table 2 continued:

**Manatee Bay:**

<b>Taxon Name</b>	<b>Phylum</b>	<b>Class</b>	<b>No. of Individuals</b>	<b>% Total</b>	<b>Cumulative %</b>	<b>Station Occurrence</b>	<b>Station % Occurrence</b>
<i>Brachidontes exustus</i>	Mol	Biva	2586	46.15	46.15	7	78
<i>Caecum pulchellum</i>	Mol	Gast	426	7.60	53.75	7	78
<i>Grandidierella bonnieroides</i>	Art	Mala	299	5.34	59.08	8	89
Tubificidae (LPIL)	Ann	Olig	290	5.17	64.26	9	100
<i>Clunio</i> (LPIL)	Art	Inse	214	3.82	68.08	4	44
<i>Syllis broomensis</i>	Ann	Poly	178	3.18	71.25	7	78
<i>Elasmopus</i> sp. C	Art	Mala	163	2.91	74.16	4	44
<i>Exogone rolani</i>	Ann	Poly	131	2.34	76.50	7	78
<i>Fabricinuda trilobata</i>	Ann	Poly	100	1.78	78.28	5	56
<i>Cymadusa compta</i>	Art	Mala	96	1.71	80.00	7	78
<i>Shoemakerella cubensis</i>	Art	Mala	83	1.48	81.48	5	56
Polyplacophora (LPIL)	Mol	Polyp	76	1.36	82.83	4	44
<i>Acteocina canaliculata</i>	Mol	Gast	51	0.91	83.74	5	56
<i>Laevicardium laevigatum</i>	Mol	Biva	42	0.75	84.49	6	67
Rhynchocoela (LPIL)	Rhy	-	38	0.68	85.17	7	78
<i>Elasmopus pocillimanus</i>	Art	Mala	29	0.52	85.69	3	33
<i>Tubulanus</i> (LPIL)	Rhy	Anop	28	0.50	86.19	4	44
Cirratulidae (LPIL)	Ann	Poly	26	0.46	86.65	5	56
<i>Cirrophorus lyra</i>	Ann	Poly	26	0.46	87.12	5	56
Amphiuridae (LPIL)	Ech	Ophi	24	0.43	87.54	4	44
<i>Aricidea philbiniae</i>	Ann	Poly	24	0.43	87.97	4	44
<i>Schwartziella catesbyana</i>	Mol	Gast	24	0.43	88.40	1	11
<i>Pectinaria gouldii</i>	Ann	Poly	23	0.41	88.81	5	56
<i>Acuminodeutopus naglei</i>	Art	Mala	22	0.39	89.20	2	22
<i>Ampelisca vadorum</i>	Art	Mala	22	0.39	89.60	5	56
<i>Aricidea</i> sp. X	Ann	Poly	22	0.39	89.99	3	33
<i>Podarke obscura</i>	Ann	Poly	22	0.39	90.38	6	67
<i>Bulla striata</i>	Mol	Gast	21	0.37	90.76	7	78
Actiniaria (LPIL)	Cni	Anth	19	0.34	91.10	5	56
Sabellidae (LPIL)	Ann	Poly	19	0.34	91.43	4	44
Pectinidae (LPIL)	Mol	Biva	18	0.32	91.76	1	11
<i>Batea carinata</i>	Art	Mala	17	0.30	92.06	3	33
<i>Fimbriosthenelais minor</i>	Ann	Poly	17	0.30	92.36	1	11
<i>Taylorphloe hirsuta</i>	Ann	Poly	17	0.30	92.67	2	22
<i>Hydroides dianthus</i>	Ann	Poly	16	0.29	92.95	3	33
<i>Acteocina candeii</i>	Mol	Gast	15	0.27	93.22	2	22
<i>Crepidula maculosa</i>	Mol	Gast	13	0.23	93.45	4	44
<i>Hargeria rapax</i>	Art	Mala	12	0.21	93.67	6	67
<i>Lucina radians</i>	Mol	Biva	12	0.21	93.88	5	56
Nereididae (LPIL)	Ann	Poly	12	0.21	94.09	4	44
<i>Chione cancellata</i>	Mol	Biva	11	0.20	94.29	3	33
<i>Chone</i> (LPIL)	Ann	Poly	10	0.18	94.47	3	33
<i>Lembos</i> (LPIL)	Art	Mala	10	0.18	94.65	3	33
<i>Lyonsia hyalina</i>	Mol	Biva	10	0.18	94.83	4	44
<i>Paracerceis caudata</i>	Art	Mala	10	0.18	95.00	4	44
<i>Exogone lourei</i>	Ann	Poly	9	0.16	95.16	1	11
<i>Glycinde solitaria</i>	Ann	Poly	9	0.16	95.32	4	44
<i>Caecum nitidum</i>	Mol	Gast	8	0.14	95.47	3	33
<i>Chione</i> (LPIL)	Mol	Biva	8	0.14	95.61	1	11
<i>Pleurobranchus</i> (LPIL)	Mol	Gast	8	0.14	95.75	1	11
Montacutidae (LPIL)	Mol	Biva	7	0.12	95.88	2	22
<i>Prionospio heterobranchia</i>	Ann	Poly	7	0.12	96.00	4	44
<i>Syllis beneliahui</i>	Ann	Poly	7	0.12	96.13	1	11
<i>Aricidea taylori</i>	Ann	Poly	6	0.11	96.23	1	11
<i>Dulichella appendiculata</i>	Art	Mala	6	0.11	96.34	1	11
<i>Ehlersia ferrugina</i>	Ann	Poly	6	0.11	96.45	1	11
<i>Ceratonereis singularis</i>	Ann	Poly	5	0.09	96.54	3	33
<i>Cylindrobulla beaulti</i>	Mol	Gast	5	0.09	96.63	3	33
<i>Marginella lavalleana</i>	Mol	Gast	5	0.09	96.72	2	22

Table 2 continued:

**Manatee Bay:**

<b>Taxon Name</b>	<b>Phylum</b>	<b>Class</b>	<b>No. of Individuals</b>	<b>% Total</b>	<b>Cumulative %</b>	<b>Station Occurrence</b>	<b>Station % Occurrence</b>
<i>Podarkeopsis levifuscina</i>	Ann	Poly	5	0.09	96.81	2	22
Serpulidae (LPIL)	Ann	Poly	5	0.09	96.90	3	33
<i>Ceratonereis longicirrata</i>	Ann	Poly	4	0.07	96.97	2	22
Cerithiidae (LPIL)	Mol	Gast	4	0.07	97.04	1	11
<i>Cerithium muscarum</i>	Mol	Gast	4	0.07	97.11	1	11
<i>Haliotinella patinaria</i>	Mol	Gast	4	0.07	97.18	1	11
<i>Leitoscoloplos robustus</i>	Ann	Poly	4	0.07	97.25	3	33
<i>Nereis pelagica</i>	Ann	Poly	4	0.07	97.32	2	22
<i>Oxyurostylis smithi</i>	Art	Mala	4	0.07	97.39	3	33
Tellinidae (LPIL)	Mol	Biva	4	0.07	97.47	1	11
Turbellaria (LPIL)	Pla	Turb	4	0.07	97.54	4	44
Calyptraeidae (LPIL)	Mol	Gast	3	0.05	97.59	1	11
<i>Dentimargo aureocincta</i>	Mol	Gast	3	0.05	97.64	3	33
Diptera (LPIL)	Art	Inse	3	0.05	97.70	1	11
<i>Halmyrapseudes bahamensis</i>	Art	Mala	3	0.05	97.75	2	22
Hydrozoa (LPIL)	Cni	Hydr	3	0.05	97.81	2	22
<i>Laevicardium</i> (LPIL)	Mol	Biva	3	0.05	97.86	1	11
<i>Leitoscoloplos</i> (LPIL)	Ann	Poly	3	0.05	97.91	3	33
Melitidae (LPIL)	Art	Mala	3	0.05	97.97	1	11
<i>Monticellina dorsobranchialis</i>	Ann	Poly	3	0.05	98.02	2	22
<i>Nereis acuminata</i>	Ann	Poly	3	0.05	98.07	2	22
<i>Schistomeringos pectinata</i>	Ann	Poly	3	0.05	98.13	3	33
<i>Teinostoma biscaynense</i>	Mol	Gast	3	0.05	98.18	1	11
<i>Amakusanthura magnifica</i>	Art	Mala	2	0.04	98.22	1	11
<i>Cerapus benthophilus</i>	Art	Mala	2	0.04	98.25	2	22
<i>Cerithium atratum</i>	Mol	Gast	2	0.04	98.29	1	11
<i>Dipolydora socialis</i>	Ann	Poly	2	0.04	98.32	1	11
<i>Erichthonius brasiliensis</i>	Art	Mala	2	0.04	98.36	1	11
<i>Granulina ovuliformis</i>	Mol	Gast	2	0.04	98.39	1	11
Hesionidae (LPIL)	Ann	Poly	2	0.04	98.43	1	11
<i>Leptosynapta</i> (LPIL)	Ech	Holo	2	0.04	98.47	1	11
<i>Lima pellucida</i>	Mol	Biva	2	0.04	98.50	2	22
<i>Lucina multilineata</i>	Mol	Biva	2	0.04	98.54	1	11
<i>Nassarius albus</i>	Mol	Gast	2	0.04	98.57	1	11
<i>Nematonereis hebes</i>	Ann	Poly	2	0.04	98.61	1	11
<i>Nucula aegeensis</i>	Mol	Biva	2	0.04	98.64	1	11
<i>Oxyurostylis</i> (LPIL)	Art	Mala	2	0.04	98.68	1	11
<i>Pagurus</i> (LPIL)	Art	Mala	2	0.04	98.72	1	11
<i>Parahesionia luteola</i>	Ann	Poly	2	0.04	98.75	1	11
<i>Prionospio</i> (LPIL)	Ann	Poly	2	0.04	98.79	2	22
<i>Sipuncula</i> (LPIL)	Sip	-	2	0.04	98.82	2	22
<i>Strombiformis</i> (LPIL)	Mol	Gast	2	0.04	98.86	2	22
<i>Xenanthura brevitelson</i>	Art	Mala	2	0.04	98.89	1	11
<i>Accalathura crenulata</i>	Art	Mala	1	0.02	98.91	1	11
Ampharetidae (LPIL)	Ann	Poly	1	0.02	98.93	1	11
Amphilocheidae (LPIL)	Art	Mala	1	0.02	98.95	1	11
Amphipoda (LPIL)	Art	Mala	1	0.02	98.97	1	11
Ampithoidae (LPIL)	Art	Mala	1	0.02	98.98	1	11
Aoridae (LPIL)	Art	Mala	1	0.02	99.00	1	11
<i>Aricidea catherinae</i>	Ann	Poly	1	0.02	99.02	1	11
<i>Aricidea cerrutii</i>	Ann	Poly	1	0.02	99.04	1	11
<i>Armandia</i> (LPIL)	Ann	Poly	1	0.02	99.05	1	11
<i>Batea catharinensis</i>	Art	Mala	1	0.02	99.07	1	11
Bullidae (LPIL)	Mol	Gast	1	0.02	99.09	1	11
<i>Caecum</i> (LPIL)	Mol	Gast	1	0.02	99.11	1	11
<i>Cardiomya</i> (LPIL)	Mol	Biva	1	0.02	99.13	1	11
<i>Ceradocus</i> (LPIL)	Art	Mala	1	0.02	99.14	1	11
<i>Cerapus</i> (LPIL)	Art	Mala	1	0.02	99.16	1	11
<i>Ceratonereis</i> (LPIL)	Ann	Poly	1	0.02	99.18	1	11
<i>Corophium</i> (LPIL)	Art	Mala	1	0.02	99.20	1	11

Table 2 continued:

**Manatee Bay:**

<b>Taxon Name</b>	<b>Phylum</b>	<b>Class</b>	<b>No. of Individuals</b>	<b>% Total</b>	<b>Cumulative %</b>	<b>Station Occurrence</b>	<b>Station % Occurrence</b>
<i>Cumingia tellinoides</i>	Mol	Biva	1	0.02	99.21	1	11
<i>Elasmopus</i> (LPIL)	Art	Mala	1	0.02	99.23	1	11
<i>Elysia evelinae</i>	Mol	Gast	1	0.02	99.25	1	11
<i>Epitonium echinaticostum</i>	Mol	Gast	1	0.02	99.27	1	11
<i>Erichsonella attenuata</i>	Art	Mala	1	0.02	99.29	1	11
<i>Eupolymnia nebulosa</i>	Ann	Poly	1	0.02	99.30	1	11
<i>Gnathia</i> (LPIL)	Art	Mala	1	0.02	99.32	1	11
Goniadidae (LPIL)	Ann	Poly	1	0.02	99.34	1	11
<i>Haminoea succinea</i>	Mol	Gast	1	0.02	99.36	1	11
<i>Hypereteone heteropoda</i>	Ann	Poly	1	0.02	99.38	1	11
<i>Kalliapseudes</i> sp. C	Art	Mala	1	0.02	99.39	1	11
<i>Laeonereis culveri</i>	Ann	Poly	1	0.02	99.41	1	11
<i>Leptosynapta multigranula</i>	Ech	Holo	1	0.02	99.43	1	11
Maldanidae (LPIL)	Ann	Poly	1	0.02	99.45	1	11
<i>Marphysa</i> (LPIL)	Ann	Poly	1	0.02	99.46	1	11
<i>Melinna maculata</i>	Ann	Poly	1	0.02	99.48	1	11
<i>Microspio maori</i>	Ann	Poly	1	0.02	99.50	1	11
Mytilidae (LPIL)	Mol	Biva	1	0.02	99.52	1	11
<i>Nereis</i> (LPIL)	Ann	Poly	1	0.02	99.54	1	11
<i>Olivella dealbata</i>	Mol	Gast	1	0.02	99.55	1	11
Ophiuroidea (LPIL)	Ech	Ophi	1	0.02	99.57	1	11
Ostracoda (LPIL)	Art	Ostr	1	0.02	99.59	1	11
Paguridae (LPIL)	Art	Mala	1	0.02	99.61	1	11
Pandoridae (LPIL)	Mol	Biva	1	0.02	99.63	1	11
Paraonidae (LPIL)	Ann	Poly	1	0.02	99.64	1	11
<i>Phascolion strombi</i>	Sip	-	1	0.02	99.66	1	11
Philinidae (LPIL)	Mol	Gast	1	0.02	99.68	1	11
Phoxocephalidae (LPIL)	Art	Mala	1	0.02	99.70	1	11
<i>Platynereis dumerilli</i>	Ann	Poly	1	0.02	99.71	1	11
<i>Plesiolembos rectangulatus</i>	Art	Mala	1	0.02	99.73	1	11
Polycirrus (LPIL)	Ann	Poly	1	0.02	99.75	1	11
Porifera (LPIL)	Por	-	1	0.02	99.77	1	11
Psammobiidae (LPIL)	Mol	Biva	1	0.02	99.79	1	11
<i>Rictaxis punctostriatus</i>	Mol	Gast	1	0.02	99.80	1	11
Rissoidae (LPIL)	Mol	Gast	1	0.02	99.82	1	11
Scaphandridae (LPIL)	Mol	Gast	1	0.02	99.84	1	11
Sphaeromatidae (LPIL)	Art	Mala	1	0.02	99.86	1	11
<i>Sphaerosyllis taylori</i>	Ann	Poly	1	0.02	99.88	1	11
<i>Stenothoe gallensis</i>	Art	Mala	1	0.02	99.89	1	11
<i>Streblospio benedicti</i>	Ann	Poly	1	0.02	99.91	1	11
<i>Syllides bansei</i>	Ann	Poly	1	0.02	99.93	1	11
<i>Synaptula hydriformis</i>	Ech	Holo	1	0.02	99.95	1	11
<i>Turbonilla</i> (LPIL)	Mol	Gast	1	0.02	99.96	1	11
Turridae (LPIL)	Mol	Gast	1	0.02	99.98	1	11
Veneridae (LPIL)	Mol	Biva	1	0.02	100.00	1	11

**Taxa Key**

Ann = Annelida	Cni = Cnidaria	Pho = Phoronida
Olig = Oligochaeta	Anth = Anthozoa	Pla = Platyhelminthes
Poly = Polychaeta	Hydr = Hydrozoa	Turb = Turbellaria
Art = Arthropoda	Ech = Echinodermata	Por = Porifera
Ceph = Cephalocarida	Holo = Holothuroidea	Rhy = Rhynchocoela
Inse = Insecta	Ophi = Ophiuroidea	Anop = Anopla
Mala = Malacostraca	Mol = Mollusca	Sip = Sipuncula
Ostr = Ostracoda	Biva = Bivalvia	
Bry = Bryozoa	Gast = Gastropoda	
Cho = Chordata	Polyp = Polyplacophora	
Asci = Ascidiacea	Scap = Scaphopoda	
Lept = Leptocardia	Nem = Nematoda	

Table 3. Summary of overall abundance of major benthic macroinfaunal taxonomic groups for the Biscayne Bay and Manatee Bay stations, December 1999.

<b>Taxa</b>	<b>Total No. Taxa</b>	<b>% Total</b>	<b>Total No. Individuals</b>	<b>% Total</b>
<b>Annelida</b>				
<b>Oligochaeta</b>	2	0.5	676	4.8
<b>Polychaeta</b>	162	41.3	4,473	31.8
<b>Mollusca</b>				
<b>Bivalvia</b>	43	11.0	3,002	21.4
<b>Gastropoda</b>	61	15.6	2,130	15.2
<b>Polyplacophora</b>	2	0.5	111	0.8
<b>Scaphopoda</b>	1	0.3	1	0.0
<b>Arthropoda</b>				
<b>Cephalocarida</b>	1	0.3	3	0.0
<b>Insecta</b>	3	0.8	221	1.6
<b>Malacostraca</b>	91	23.2	2,962	21.1
<b>Ostracoda</b>	1	0.3	1	0.0
<b>Echinodermata</b>				
<b>Holothuroidea</b>	3	0.8	6	0.0
<b>Ophiuroidea</b>	5	1.3	114	0.8
<b>Other Taxa</b>	17	4.3	351	2.5
<b>Total</b>	<b>392</b>		<b>14,051</b>	

Table 4. Summary of abundance of major benthic macroinfaunal taxonomic groups by station for the Biscayne Bay and Manatee Bay stations, December 1999.

Station	Taxa	Total No.		Total No. Individuals	
		Taxa	% of Total	(per 0.04 m <sup>2</sup> )	% of Total
<b>1</b>	Annelida	5	33.3	93	29.2
	Mollusca	6	40.0	14	4.4
	Arthropoda	3	20.0	201	63.0
	Other Taxa	1	6.7	11	3.4
	<b>Total</b>	<b>15</b>		<b>319</b>	
<b>2</b>	Annelida	6	46.2	28	65.1
	Mollusca	3	23.1	6	14.0
	Arthropoda	3	23.1	8	18.6
	Other Taxa	1	7.7	1	2.3
	<b>Total</b>	<b>13</b>		<b>43</b>	
<b>3</b>	Annelida	11	44.0	110	65.1
	Mollusca	4	16.0	13	7.7
	Arthropoda	7	28.0	40	23.7
	Other Taxa	3	12.0	6	3.6
	<b>Total</b>	<b>25</b>		<b>169</b>	
<b>4</b>	Annelida	5	26.3	26	36.1
	Mollusca	6	31.6	17	23.6
	Arthropoda	5	26.3	11	15.3
	Other Taxa	3	15.8	18	25.0
	<b>Total</b>	<b>19</b>		<b>72</b>	
<b>5</b>	Annelida	8	57.1	44	45.8
	Mollusca	1	7.1	2	2.1
	Arthropoda	4	28.6	28	29.2
	Other Taxa	1	7.1	22	22.9
	<b>Total</b>	<b>14</b>		<b>96</b>	
<b>6</b>	Annelida	32	49.2	313	47.9
	Mollusca	12	18.5	77	11.8
	Arthropoda	16	24.6	245	37.5
	Echinodermata	2	3.1	8	1.2
	Other Taxa	3	4.6	10	1.5
	<b>Total</b>	<b>65</b>		<b>653</b>	

Table 4 continued:

Station	Taxa	Total No.		Total No. Individuals (per 0.04 m <sup>2</sup> )	
		Taxa	% of Total	% of Total	% of Total
7	Annelida	46	48.4	493	49.8
	Mollusca	20	21.1	159	16.1
	Arthropoda	24	25.3	330	33.4
	Echinodermata	2	2.1	2	0.2
	Other Taxa	3	3.2	5	0.5
	<b>Total</b>	<b>95</b>		<b>989</b>	
8	Annelida	32	43.2	155	33.1
	Mollusca	14	18.9	105	22.4
	Arthropoda	22	29.7	196	41.9
	Echinodermata	2	2.7	2	0.4
	Other Taxa	4	5.4	10	2.1
	<b>Total</b>	<b>74</b>		<b>468</b>	
9	Annelida	39	51.3	501	64.8
	Mollusca	17	22.4	125	16.2
	Arthropoda	13	17.1	125	16.2
	Echinodermata	2	2.6	9	1.2
	Other Taxa	5	6.6	13	1.7
	<b>Total</b>	<b>76</b>		<b>773</b>	
10	Annelida	39	46.4	325	64.9
	Mollusca	17	20.2	47	9.4
	Arthropoda	20	23.8	116	23.2
	Echinodermata	2	2.4	2	0.4
	Other Taxa	6	7.1	11	2.2
	<b>Total</b>	<b>84</b>		<b>501</b>	
11	Annelida	37	55.2	274	55.7
	Mollusca	12	17.9	134	27.2
	Arthropoda	11	16.4	70	14.2
	Echinodermata	1	1.5	3	0.6
	Other Taxa	6	9.0	11	2.2
	<b>Total</b>	<b>67</b>		<b>492</b>	
12	Annelida	40	51.9	239	38.5
	Mollusca	17	22.1	273	44.0
	Arthropoda	15	19.5	100	16.1
	Echinodermata	1	1.3	1	0.2
	Other Taxa	4	5.2	7	1.1
	<b>Total</b>	<b>77</b>		<b>620</b>	



Table 4 continued:

Station	Taxa	Total No.		Total No. Individuals (per 0.04 m <sup>2</sup> )	
		Taxa	% of Total	% of Total	% of Total
<b>13</b>	Annelida	31	56.4	213	72.9
	Mollusca	12	21.8	50	17.1
	Arthropoda	10	18.2	14	4.8
	Other Taxa	2	3.6	15	5.1
	<b>Total</b>	<b>55</b>		<b>292</b>	
<b>14</b>	Annelida	38	43.2	523	53.8
	Mollusca	20	22.7	315	32.4
	Arthropoda	24	27.3	103	10.6
	Echinodermata	2	2.3	16	1.6
	Other Taxa	4	4.5	16	1.6
<b>Total</b>	<b>88</b>		<b>973</b>		
<b>15</b>	Annelida	22	44.0	69	16.6
	Mollusca	13	26.0	128	30.8
	Arthropoda	10	20.0	199	48.0
	Echinodermata	1	2.0	7	1.7
	Other Taxa	4	8.0	12	2.9
<b>Total</b>	<b>50</b>		<b>415</b>		
<b>16</b>	Annelida	16	45.7	66	69.5
	Mollusca	6	17.1	9	9.5
	Arthropoda	8	22.9	14	14.7
	Echinodermata	1	2.9	2	2.1
	Other Taxa	4	11.4	4	4.2
<b>Total</b>	<b>35</b>		<b>95</b>		
<b>17</b>	Annelida	20	40.0	30	15.8
	Mollusca	10	20.0	80	42.1
	Arthropoda	15	30.0	59	31.1
	Echinodermata	1	2.0	7	3.7
	Other Taxa	4	8.0	14	7.4
<b>Total</b>	<b>50</b>		<b>190</b>		
<b>18</b>	Annelida	30	46.2	102	30.2
	Mollusca	11	16.9	79	23.4
	Arthropoda	16	24.6	112	33.1
	Echinodermata	2	3.1	10	3.0
	Other Taxa	6	9.2	35	10.4
<b>Total</b>	<b>65</b>		<b>338</b>		

Table 4 continued:

Station	Taxa	Total No.		Total No. Individuals	
		Taxa	% of Total	(per 0.04 m <sup>2</sup> )	% of Total
19	Annelida	26	44.8	97	39.1
	Mollusca	17	29.3	108	43.5
	Arthropoda	9	15.5	30	12.1
	Echinodermata	2	3.4	3	1.2
	Other Taxa	4	6.9	10	4.0
	<b>Total</b>	<b>58</b>		<b>248</b>	
20	Annelida	40	47.6	162	61.6
	Mollusca	21	25.0	62	23.6
	Arthropoda	15	17.9	26	9.9
	Echinodermata	2	2.4	2	0.8
	Other Taxa	6	7.1	11	4.2
	<b>Total</b>	<b>84</b>		<b>263</b>	
21	Annelida	53	59.6	240	54.8
	Mollusca	15	16.9	35	8.0
	Arthropoda	14	15.7	133	30.4
	Echinodermata	3	3.4	17	3.9
	Other Taxa	4	4.5	13	3.0
	<b>Total</b>	<b>89</b>		<b>438</b>	
22	Annelida	7	53.8	11	50.0
	Mollusca	3	23.1	5	22.7
	Arthropoda	3	23.1	6	27.3
	<b>Total</b>	<b>13</b>		<b>22</b>	
23	Annelida	2	100.0	5	100.0
	<b>Total</b>	<b>2</b>		<b>5</b>	
24	Annelida	17	41.5	126	47.7
	Mollusca	11	26.8	87	33.0
	Arthropoda	9	22.0	34	12.9
	Echinodermata	1	2.4	1	0.4
	Other Taxa	3	7.3	16	6.1
	<b>Total</b>	<b>41</b>		<b>264</b>	
25	Annelida	17	34.0	199	6.7
	Mollusca	18	36.0	2673	90.2
	Arthropoda	11	22.0	79	2.7
	Other Taxa	4	8.0	11	0.4
	<b>Total</b>	<b>50</b>		<b>2962</b>	

Table 4 continued:

Station	Taxa			Total No.	
		Total No. Taxa	% of Total	Individuals (per 0.04 m <sup>2</sup> )	% of Total
26	Annelida	18	42.9	129	26.5
	Mollusca	10	23.8	81	16.7
	Arthropoda	10	23.8	265	54.5
	Echinodermata	1	2.4	3	0.6
	Other Taxa	3	7.1	8	1.6
	<b>Total</b>	<b>42</b>		<b>486</b>	
27	Annelida	19	35.8	171	37.5
	Mollusca	12	22.6	121	26.5
	Arthropoda	15	28.3	128	28.1
	Echinodermata	2	3.8	4	0.9
	Other Taxa	5	9.4	32	7.0
	<b>Total</b>	<b>53</b>		<b>456</b>	
28	Annelida	15	36.6	99	20.9
	Mollusca	10	24.4	50	10.6
	Arthropoda	11	26.8	317	67.0
	Echinodermata	1	2.4	1	0.2
	Other Taxa	4	9.8	6	1.3
	<b>Total</b>	<b>41</b>		<b>473</b>	
29	Annelida	24	32.4	172	30.9
	Mollusca	25	33.8	222	39.9
	Arthropoda	19	25.7	130	23.4
	Echinodermata	3	4.1	20	3.6
	Other Taxa	3	4.1	12	2.2
	<b>Total</b>	<b>74</b>		<b>556</b>	
30	Annelida	19	38.8	139	36.1
	Mollusca	16	32.7	167	43.4
	Arthropoda	10	20.4	68	17.7
	Other Taxa	4	8.2	11	2.9
	<b>Total</b>	<b>49</b>		<b>385</b>	



Table 6. Summary of benthic macroinfaunal data for the Biscayne Bay and Manatee Bay stations, December 1999.

Station	No. of Taxa	No. of Indvs.	Density (nos/m <sup>2</sup> )	H' Diversity	J' Evenness
<b>Biscayne Bay</b>					
1	15	319	7975	1.62	0.60
2	13	43	1075	2.20	0.86
3	25	169	4225	2.37	0.73
4	19	72	1800	2.43	0.83
5	14	96	2400	1.94	0.73
6	65	653	16325	2.63	0.63
7	96	989	24725	3.19	0.70
8	74	468	11700	2.93	0.68
9	76	773	19325	2.93	0.68
10	84	501	12525	3.26	0.73
11	67	492	12300	2.80	0.67
12	77	620	15500	3.12	0.72
13	55	292	7300	2.78	0.69
14	88	973	24325	2.68	0.60
15	50	415	10375	2.21	0.56
16	35	95	2375	3.13	0.88
17	50	190	4750	2.77	0.71
18	66	338	8450	3.04	0.73
19	58	248	6200	2.97	0.73
20	85	263	6575	3.65	0.82
21	89	438	10950	3.40	0.76
<b>Manatee Bay</b>					
22	13	22	550	2.32	0.91
23	2	6	150	0.64	0.92
24	39	258	6450	2.92	0.80
25	51	2962	74050	0.94	0.24
26	42	486	12150	2.85	0.76
27	53	456	11400	3.12	0.78
28	41	473	11825	2.63	0.71
29	74	556	13900	3.53	0.82
30	49	385	9625	2.68	0.69

Figure 1. Station locations for the Biscayne Bay and Manatee Bay stations, December 1999.

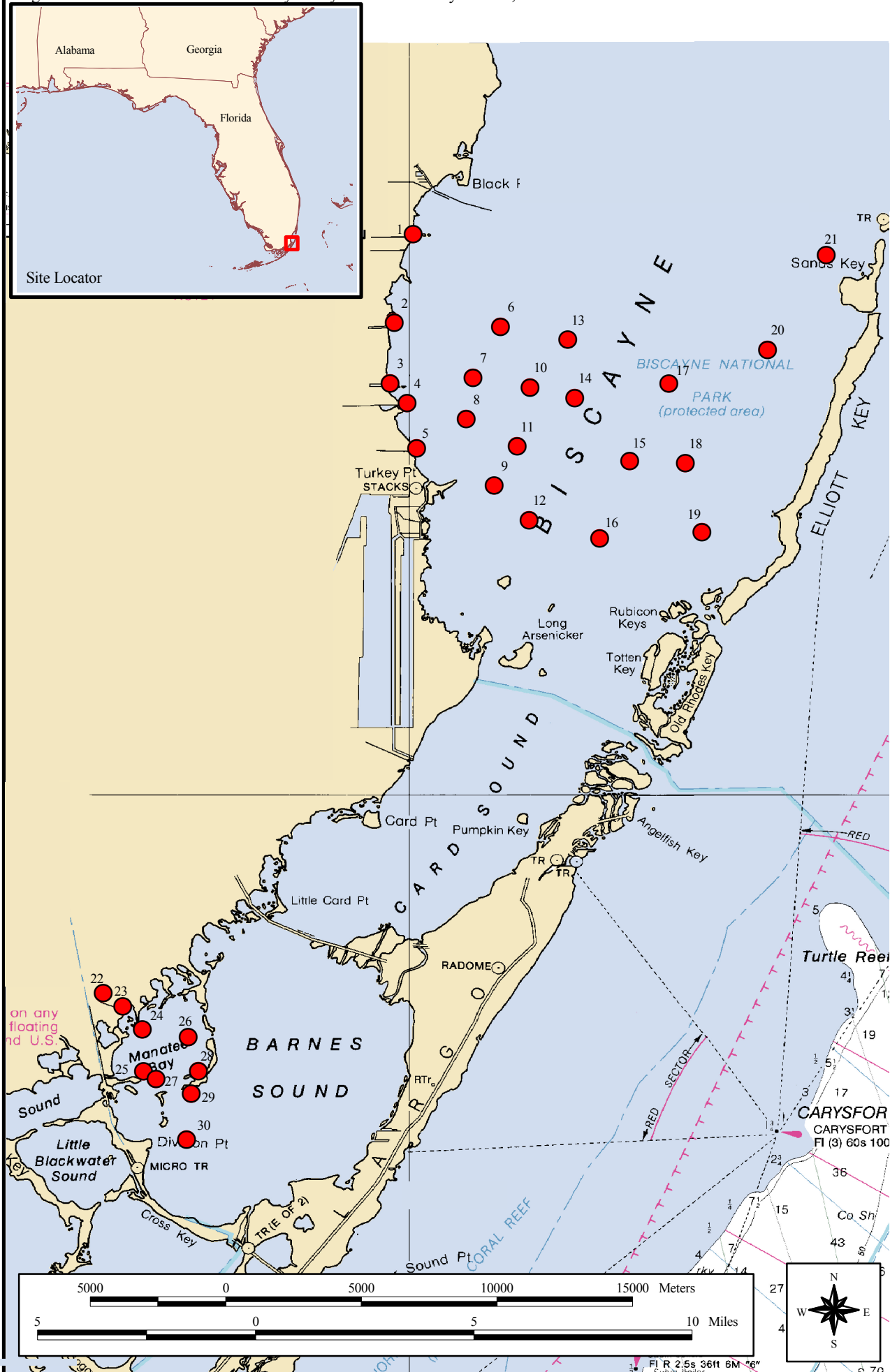


Figure 2. Spatial distribution of salinity data for the Biscayne Bay and Manatee Bay stations, December 1999.

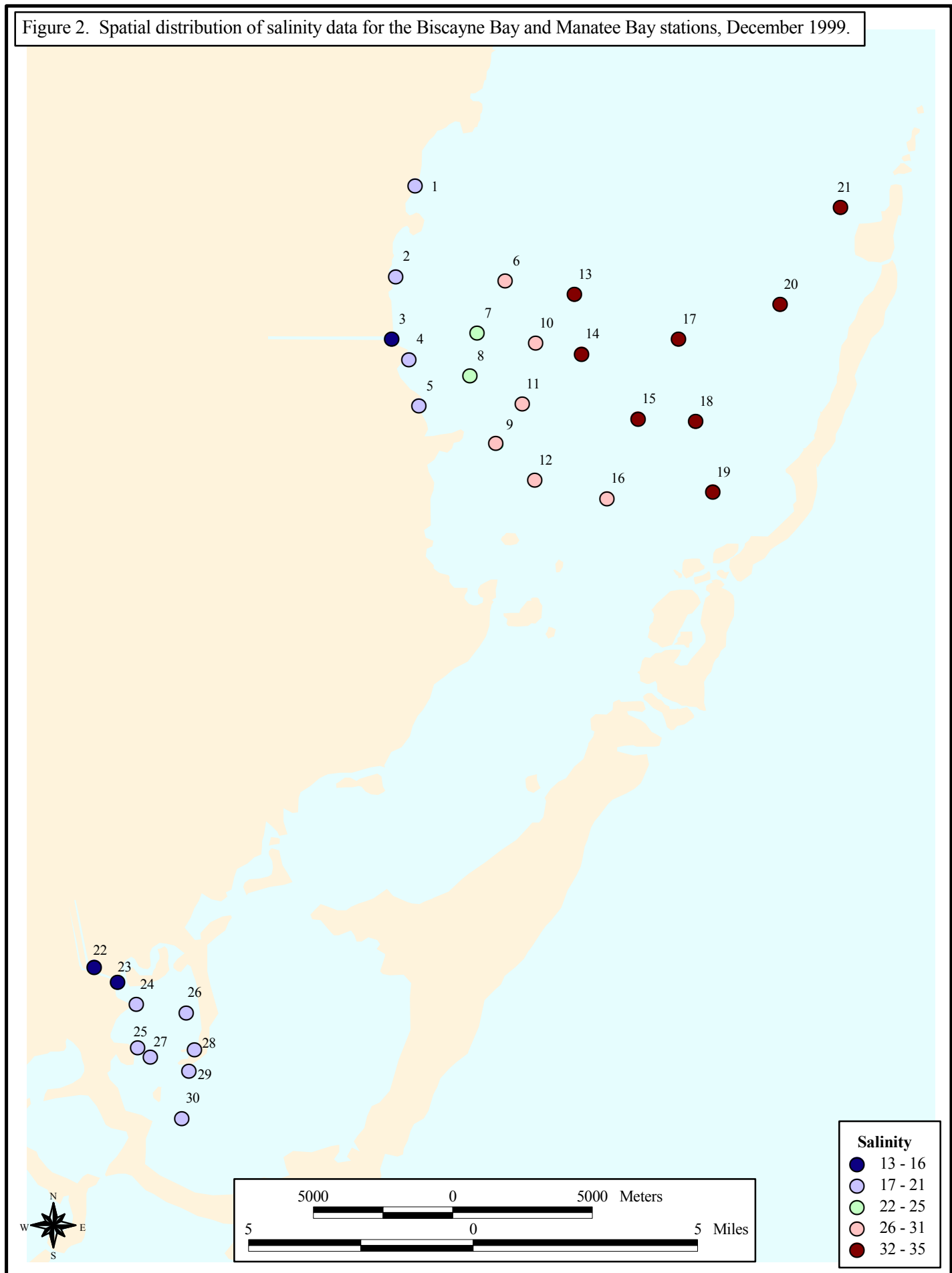


Figure 3. Spatial distribution of bottom dissolved oxygen data for the Biscayne Bay and Manatee Bay stations, December 1999.

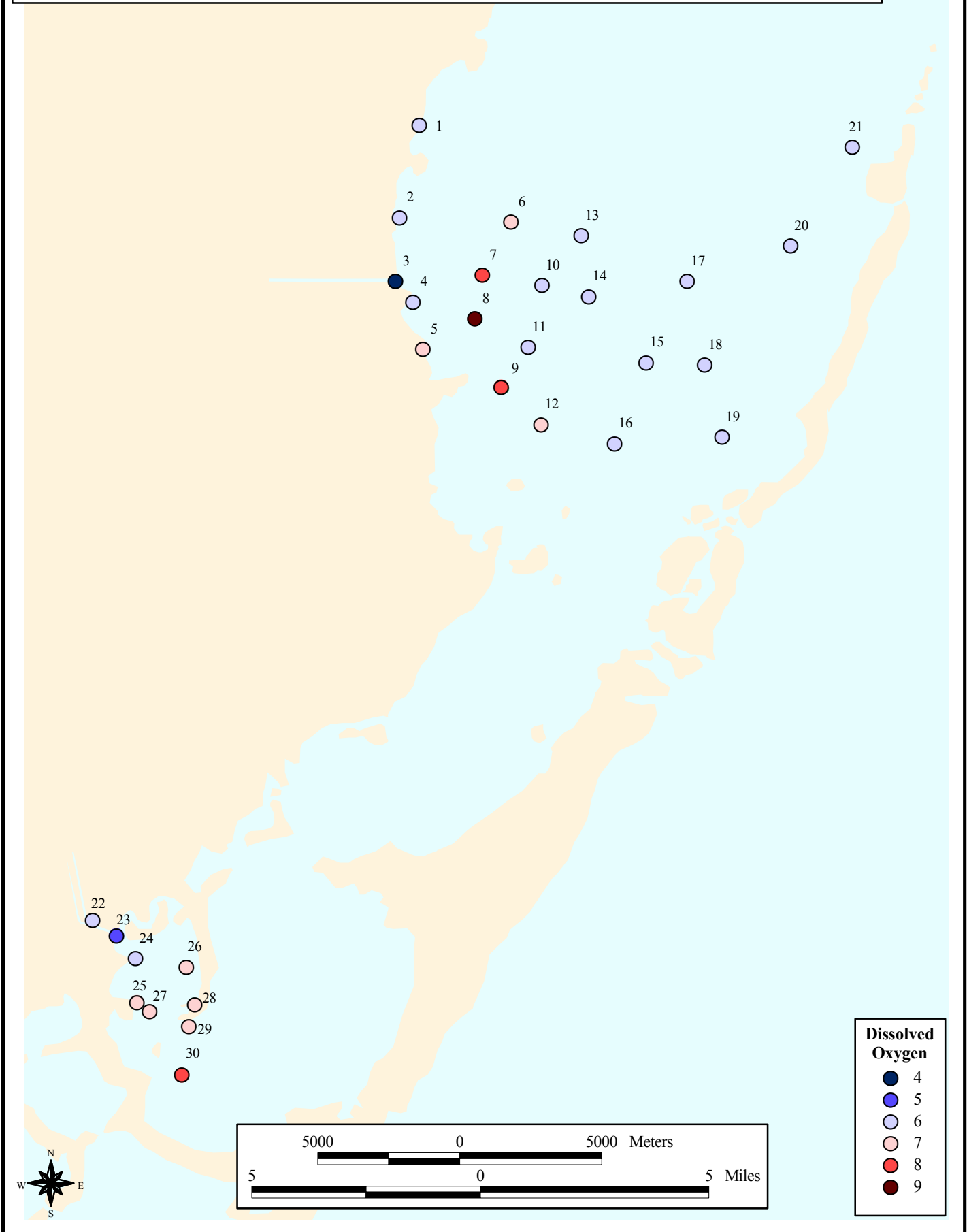




Figure 4. Percent abundance of major taxonomic groups for the Biscayne Bay and Manatee Bay stations, December 1999.

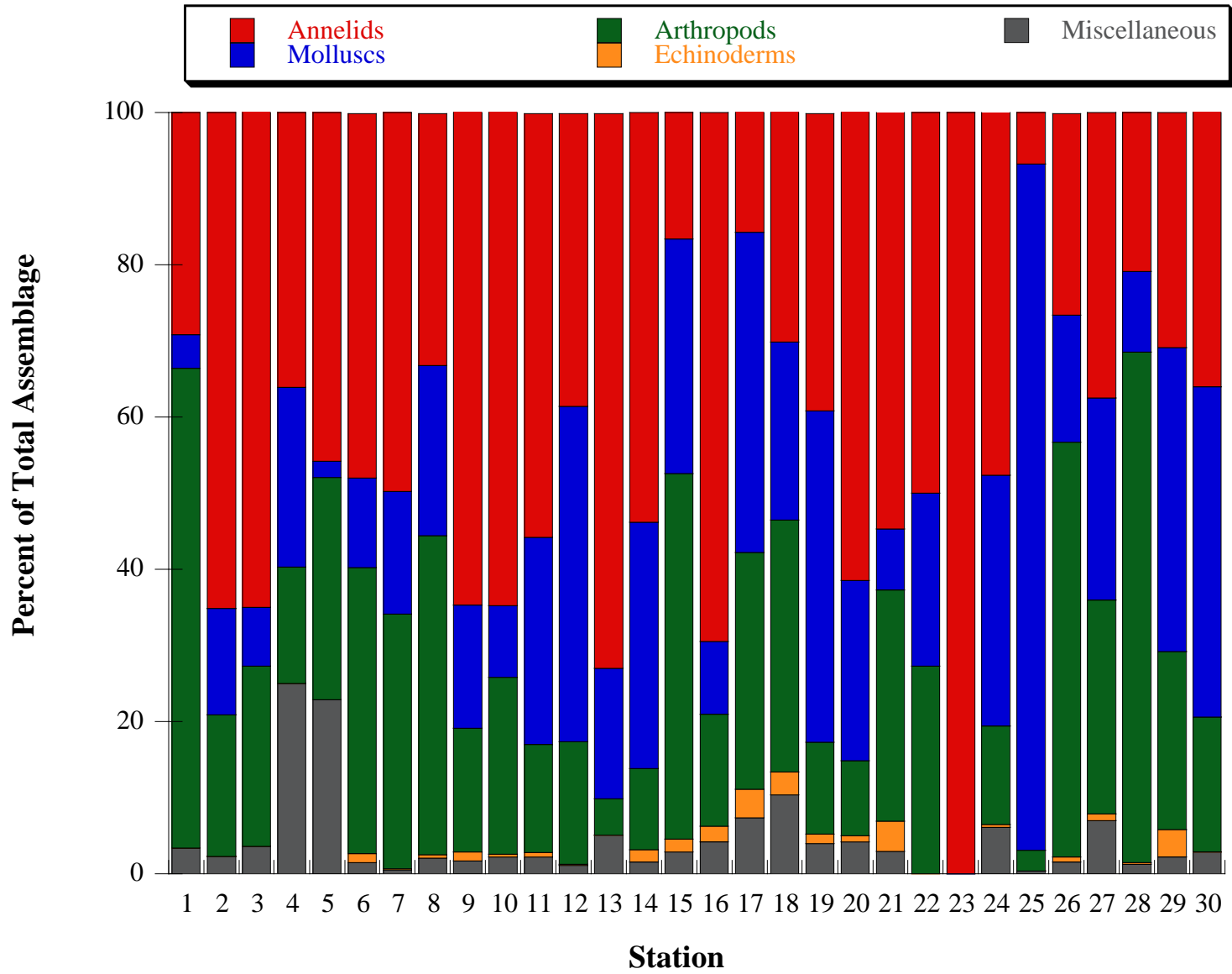


Figure 5. Spatial distribution of major taxonomic groups for the Biscayne Bay and Manatee Bay stations, December 1999.

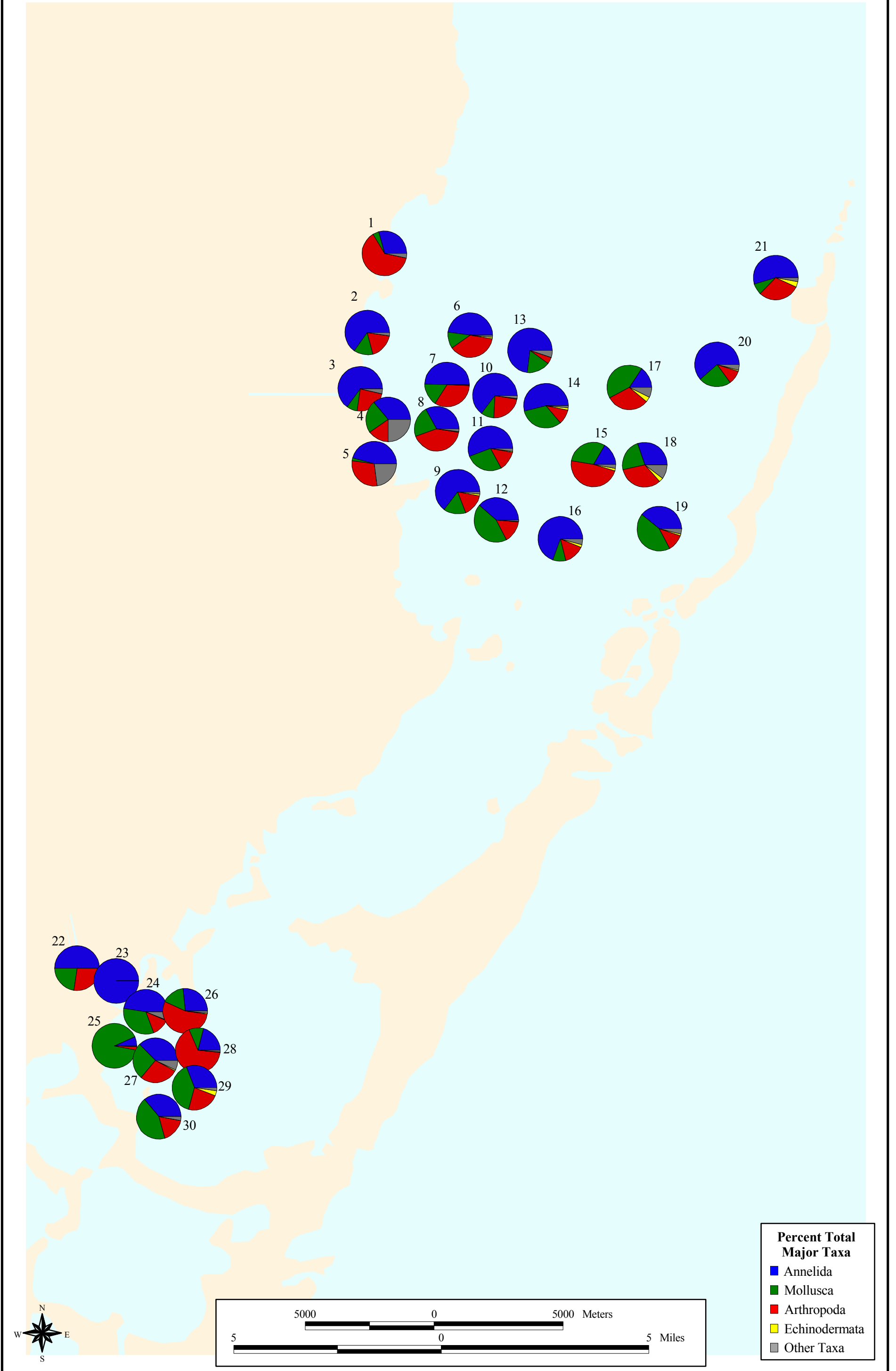


Figure 6. Taxa richness data for the Biscayne Bay and Manatee Bay stations, December 1999.

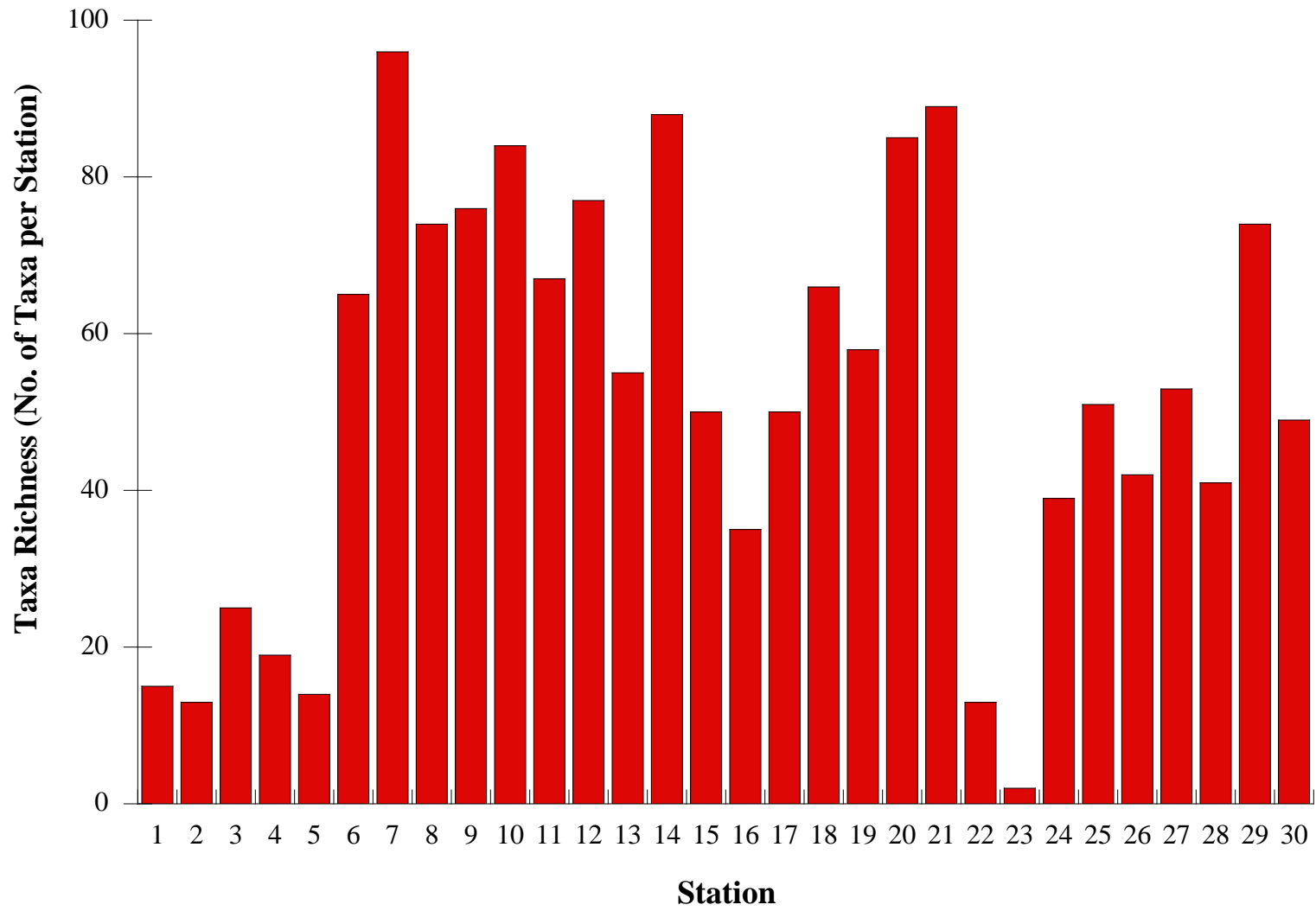


Figure 7. Spatial distribution of taxa richness (number of taxa) for the Biscayne Bay and Manatee Bay stations, December 1999.

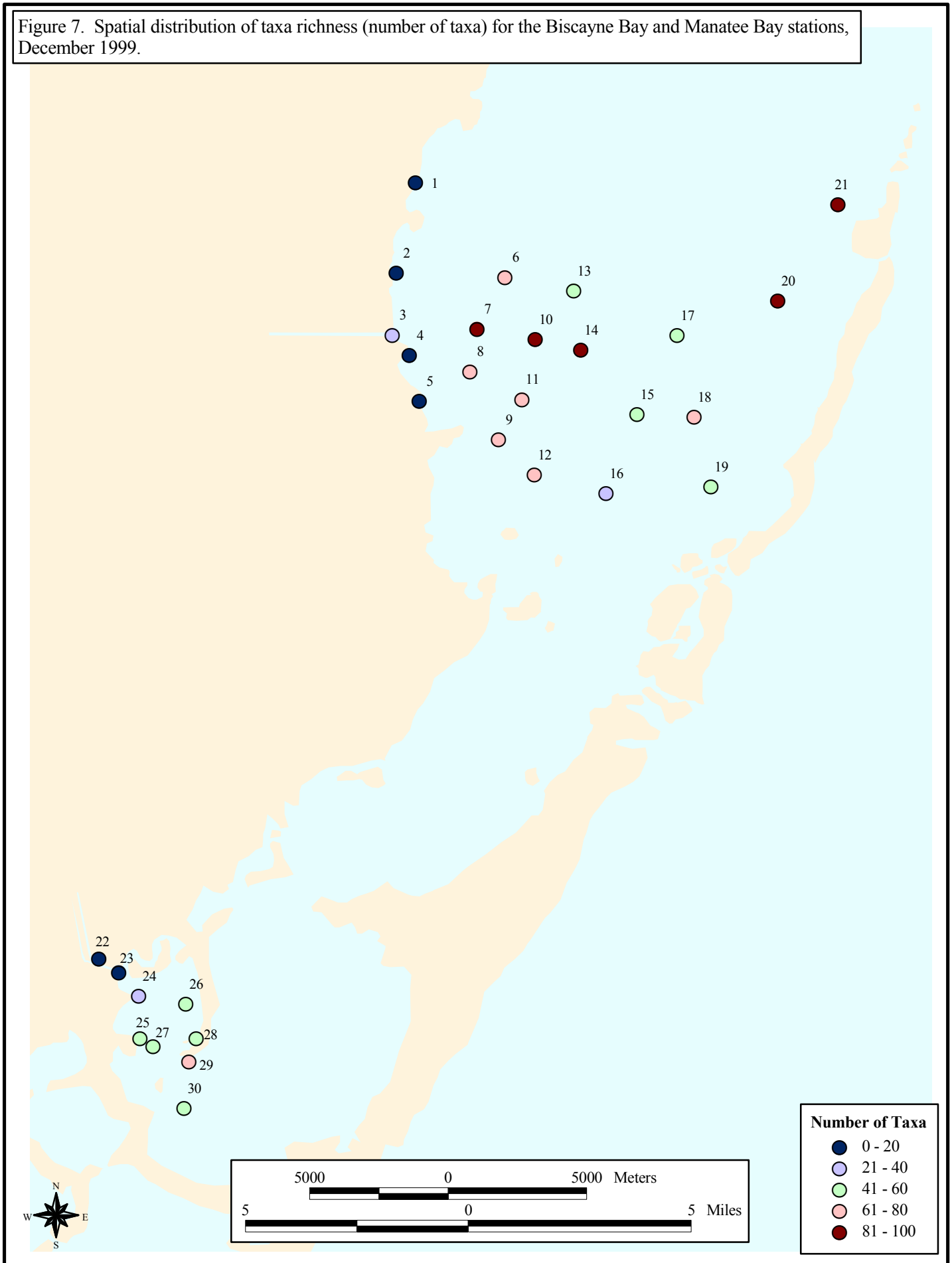


Figure 8. Macroinvertebrate density data for the Biscayne Bay and Manatee Bay stations, December 1999.

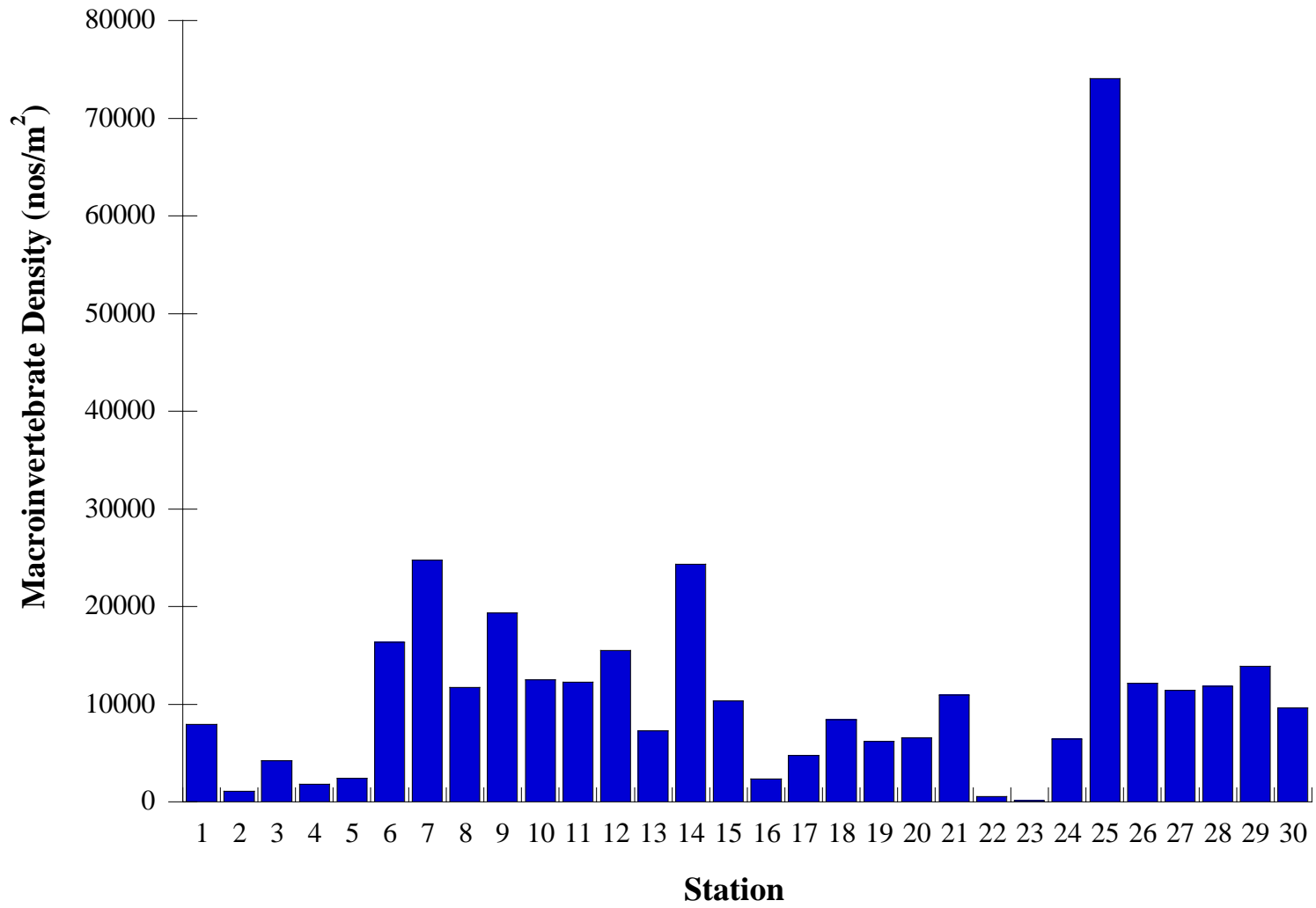


Figure 9. Spatial distribution of macroinvertebrate density for the Biscayne Bay and Manatee Bay stations, December 1999.

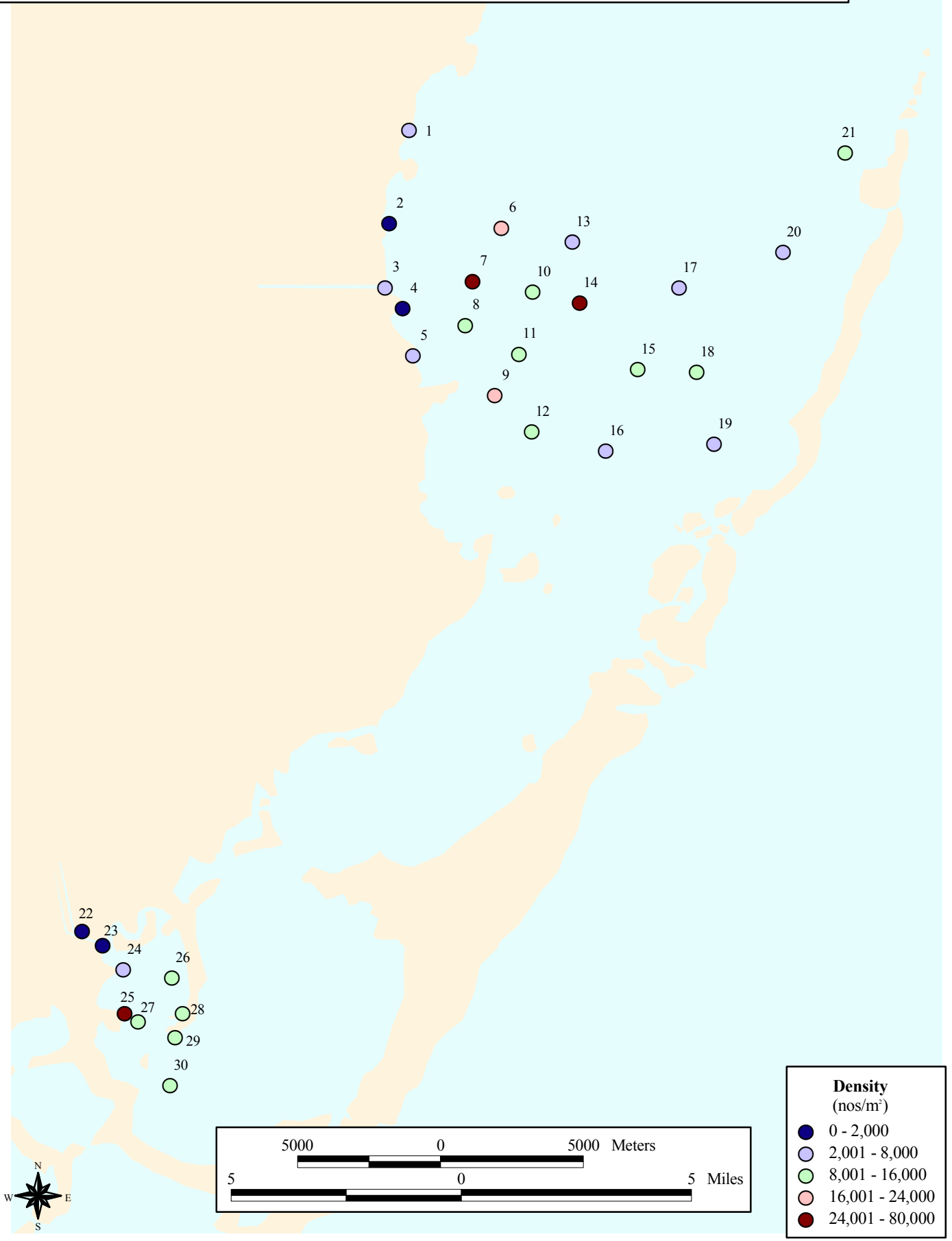


Figure 10. Taxa diversity ( $H'$ ) data for the Biscayne Bay and Manatee Bay stations, December 1999.

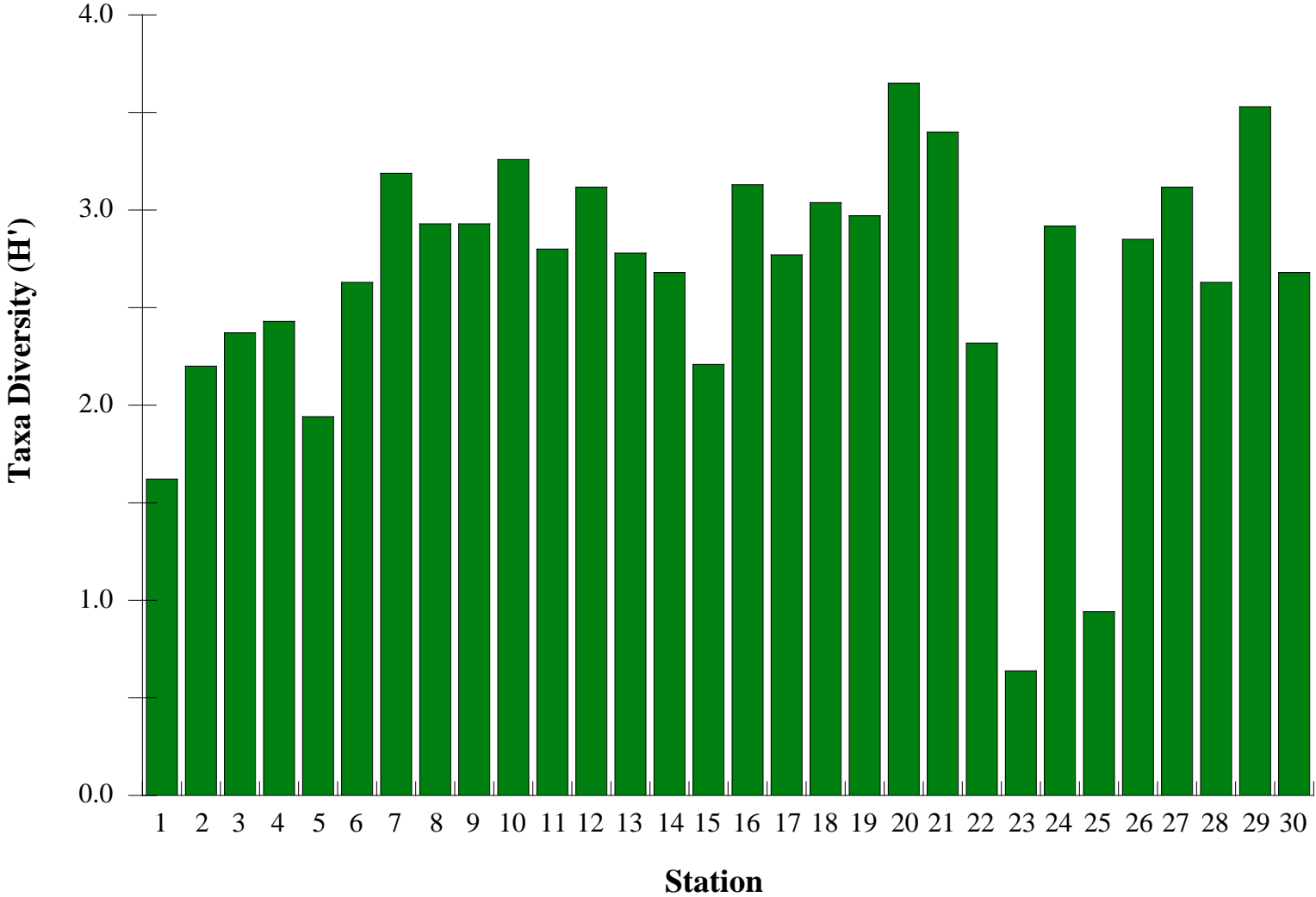
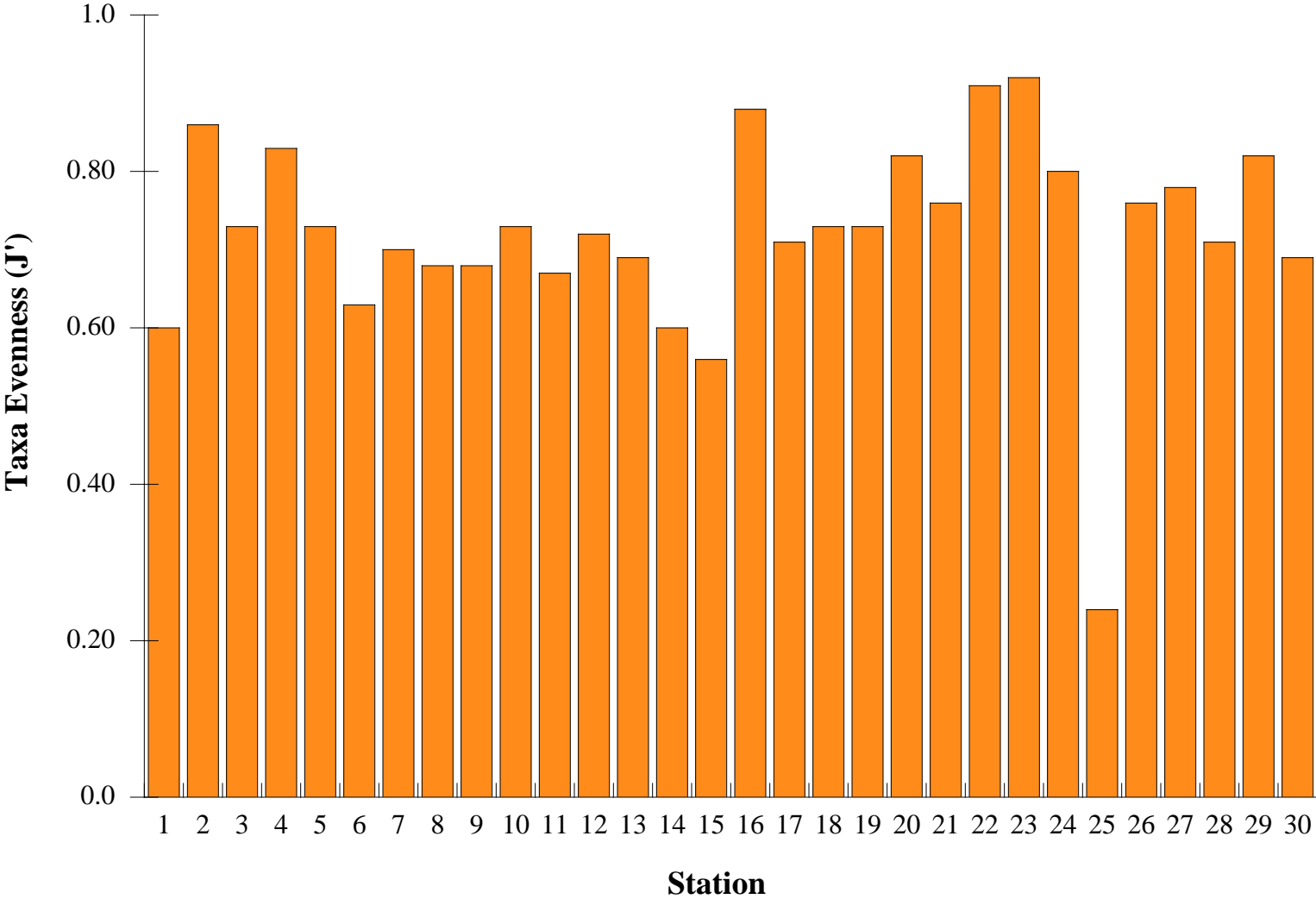


Figure 11. Taxa evenness (J') data for the Biscayne Bay and Manatee Bay stations, December 1999.





# **Appendix I**

## QUALITY CONTROL REWORKS

**Client/Project: NOAA-Biscayne Bay & Manatee Bay, 1999**

**Task Number: DO 2**

<b>Sorting Results:</b>	<b>Sample #</b>	<b>% Accuracy</b>
	16	100%
	12	100%
	23	100%
	4	100%
	22	100%
	2	100%

---

<b>Taxonomy Results:</b>	<b>Sample #</b>	<b>Taxa</b>	<b>% Accuracy</b>
	5	Crust./Moll.	98%
	17	Crust./Moll.	99%
	22	Crust./Moll.	100%
	27	Poly./Misc.	98%
	18	Poly./Misc.	97%
	2	Poly./Misc.	96%
	25	Poly./Misc.	97%

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Description of outstanding issues or deficiencies which may affect data quality: None

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Signature of QA Officer or Reviewer

Date

## QUALITY ASSURANCE STATEMENT

Client/Project **NOAA**

Work Assignment Title **Biscayne Bay and Manatee Bay 1999**

Work Assignment Number

Task Number **DO 2**

Description of Data Set or Deliverable: **30 Benthic macroinvertebrate samples collected  
December 1-6, 1999; Young Dredge grabs.**

Description of audit and review activities: **Judged accuracy rates were well above standard  
levels for sorting and taxonomy. Laboratory QC reports were completed. Copies  
of QC results follow (see attachment.) All taxonomic data were  
entered into computer and printed. This list was checked for accuracy against  
original taxonomic data sheets.**

Description of outstanding issues or deficiencies which may affect data quality: **None**

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Signature of QA Officer or Reviewer

Date

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Signature of Project Manager

Date

## **Appendix II**

Appendix II. LPIL definitions for common taxa collected at the Biscayne Bay and Manatee Bay stations, December 1999.

Taxon Name	Phylum	Class	No. of Individuals	% Total	Cumulative %	Station Occurrence	Station % Occurrence	Defined LPIL's
<i>Brachidontes exustus</i>	Mol	Biva	2601	18.51	18.51	12	40	
<i>Caecum pulchellum</i>	Mol	Gast	1679	11.95	30.46	23	77	
<i>Hargeria rapax</i>	Art	Mala	1210	8.61	39.07	26	87	
<i>Exogone rolandi</i>	Ann	Poly	900	6.41	45.48	22	73	
Tubificidae (LPIL)	Ann	Olig	654	4.65	50.13	29	97	sexually immature
<i>Fabricinuda trilobata</i>	Ann	Poly	549	3.91	54.04	18	60	
<i>Grandidierella bonnieroides</i>	Art	Mala	524	3.73	57.77	20	67	
<i>Exogone lourei</i>	Ann	Poly	329	2.34	60.11	14	47	
Sabellidae (LPIL)	Ann	Poly	269	1.91	62.02	15	50	missing branchial crown
<i>Clumio</i> (LPIL)	Art	Inse	214	1.52	63.55	4	13	genus is lowest identification level
<i>Polycirrus</i> (LPIL)	Ann	Poly	191	1.36	64.91	2	7	specimen damaged
<i>Syllis broomensis</i>	Ann	Poly	189	1.35	66.25	12	40	
<i>Elasmopus</i> sp. C	Art	Mala	175	1.25	67.50	9	30	
Serpulidae (LPIL)	Ann	Poly	124	0.88	68.38	15	50	specimen damaged
<i>Cymadusa compta</i>	Art	Mala	118	0.84	69.22	13	43	
Polylaplacophora (LPIL)	Mol	Polyp	110	0.78	70.00	13	43	immature specimen
<i>Polydora cornuta</i>	Ann	Poly	109	0.78	70.78	2	7	
<i>Laevicardium laevigatum</i>	Mol	Biva	108	0.77	71.55	15	50	
<i>Taylorphloe hirsuta</i>	Ann	Poly	104	0.74	72.29	11	37	
<i>Iubulanus</i> (LPIL)	Rhy	Anop	101	0.72	73.01	16	53	genus is lowest identification level
Ampharetidae (LPIL)	Ann	Poly	100	0.71	73.72	6	20	missing identification characters and/or immature
<i>Erichthonius brasiliensis</i>	Art	Mala	83	0.59	74.31	9	30	
<i>Shoemakerella cubensis</i>	Art	Mala	83	0.59	74.90	5	17	
<i>Cumella garrityi</i>	Art	Mala	81	0.58	75.48	15	50	
<i>Syllis cornuta</i>	Ann	Poly	80	0.57	76.04	9	30	
Rhynchozoela (LPIL)	Rhy	-	78	0.56	76.60	20	67	no identifiable characters
<i>Streblospio benedicti</i>	Ann	Poly	69	0.49	77.09	5	17	
<i>Nematonereis hebes</i>	Ann	Poly	65	0.46	77.55	13	43	
Capitellidae (LPIL)	Ann	Poly	64	0.46	78.01	11	37	immature and/or anterior portion only
<i>Kalltapseudes</i> sp. C	Art	Mala	64	0.46	78.46	6	20	
<i>Sphaerosyllis piriferopsis</i>	Ann	Poly	61	0.43	78.90	11	37	
Amphiuridae (LPIL)	Ech	Ophi	55	0.39	79.29	12	40	immature specimen
Ophiuroidea (LPIL)	Ech	Ophi	54	0.38	79.67	13	43	central disk missing characters
<i>Spio pettiboneae</i>	Ann	Poly	54	0.38	80.06	7	23	
<i>Acteocina canaliculata</i>	Mol	Gast	51	0.36	80.42	5	17	
<i>Ehlersia ferrugina</i>	Ann	Poly	47	0.33	80.76	9	30	
<i>Caecum nitidum</i>	Mol	Gast	46	0.33	81.08	14	47	
<i>Cirrophorus lyra</i>	Ann	Poly	46	0.33	81.41	14	47	
Nereididae (LPIL)	Ann	Poly	46	0.33	81.74	12	40	missing identification characters and/or immature
<i>Ampelisca vadorum</i>	Art	Mala	45	0.32	82.06	15	50	
<i>Caecum imbricatum</i>	Mol	Gast	44	0.31	82.37	7	23	
<i>Caecum floridanum</i>	Mol	Gast	42	0.30	82.67	10	33	
<i>Lembos</i> (LPIL)	Art	Mala	41	0.29	82.96	11	37	need adult male with all appendages
Sipuncula (LPIL)	Sip	-	40	0.28	83.25	9	30	juvenile specimen and/or missing characters
Cirratulidae (LPIL)	Ann	Poly	39	0.28	83.52	15	50	anterior fragment - posterior end needed for ID
<i>Schistomeringos pectinata</i>	Ann	Poly	39	0.28	83.80	10	33	
<i>Aricidea philibinae</i>	Ann	Poly	36	0.26	84.06	9	30	
Actiniaria (LPIL)	Cni	Anth	34	0.24	84.30	13	43	order is lowest identification level