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Port Everglades Macroinvertebrate Monitoring: Monitoring of Benthic Macroinvertebrate Assemblages at the Southport Turning Basin and Adjacent Areas of John U. Lloyd State Recreation Area: August 1996 (Including a Summary of Previous Survey Results, 1991-1996)

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**PORT EVERGLADES MACROINVERTEBRATE MONITORING:
MONITORING OF BENTHIC MACROINVERTEBRATE ASSEMBLAGES
AT THE SOUTHPORT TURNING BASIN AND ADJACENT AREAS OF
JOHN U. LLOYD STATE RECREATION AREA: AUGUST 1996
(INCLUDING A SUMMARY OF PREVIOUS SURVEY RESULTS, 1991-1996)**

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A. INTRODUCTION

This report documents the August 1996 monitoring of benthic macroinvertebrate assemblages in the Port Everglades Southport turning basin vicinity and adjacent areas of John U. Lloyd State Recreation Area. This is the eleventh monitoring effort of the series carried out by Nova Southeastern University Oceanographic Center. Samples were taken chiefly during the first two weeks of August although some sampling of crab stations was delayed until late September/early October.

B. METHODOLOGY

Figure 1 illustrates locations of stations occupied for the August 1996 sampling period and the kind of sample (Ponar grab, crab census, or hand collection) taken at each.

Shannon-Weaver Diversity Indices are calculated for each station and, at Ponar grab stations, for each replicate as well using the following equation:

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

where p_i is the relative abundance of species i . H' increases with increasing number of species S . For any given S , H' reaches a maximum value (H'_{\max}) when all values of p are equal ($p_1 = p_2 = p_3 \dots$), and H' equals $\ln S$. Because H' is primarily affected by species number rather than by abundances of common or rare species, or by species of moderate abundance, evenness (J') has also been calculated for each station and replicate using the equation:

$$J' = H'/H'_{\max} = H'/\ln S$$

As a ratio between the diversity index (H') for a given sample and the maximum possible diversity index (H'_{\max}) for the number of species and specimens in that sample, evenness (J') gives an indication of how close the data come to maximum possible diversity.

B.1. Grab Samples

Benthic grab samples are taken according to contract specifications with a 225 cm² grab sampler¹ at stations 1, 8, 8a, 9, 10a, 11, 13a, 14, 17, 18 and 19a, with three replicate samples at each station. All samples are fixed in 5% seawater buffered formalin with rose bengal stain and sieved through a 0.5 mm mesh screen. Organisms and sediment retained on the screen are transferred to 70% ethanol and sorted to most specific distinguishable taxa. Taxa are either identified or sent to recognized experts for identification (Table 10). Nematodes and harpacticoid copepods have not been enumerated or included in diversity calculations. These organisms are normally treated as meiofauna, not macrofauna. The relatively few large specimens retained by a 0.5 mm mesh screen do not accurately reflect their true abundances. Similarly, a small number of planktonic organisms (e.g., calanoid copepods) accidentally collected by the grab sampler have likewise not been included in counts and diversity calculations.

Modifications in sampling and handling protocols instituted during the August 1991 survey to improve sampling accuracy in conformity with contract specifications are described in previous reports and have been maintained. Depths recorded for Ponar stations below may differ from those recorded previously because of tidal variations.

B.2. Crab Collections

Three 1.0-m² replicate quadrats are randomly placed within about 2.0 m of each other at stations 1a, 2, 3, 4, 5, 6, 7, 10, 13, 15 and 16. Within each quadrat, all crab burrows are counted and 10% excavated, and the inhabitants counted and identified in the field or collected and identified in the laboratory, according to contract specifications. Modifications in sampling and handling protocols instituted during the August 1991 survey to improve sampling accuracy in conformity with contract specifications are described in previous reports and have been maintained.

¹ Contract specifications call for a 225 cm³ grab sampler, but this is clearly an error. Such a grab sampler, about 6 cm on a side, was not used by the previous contractor and is not, to our knowledge, manufactured.

B.3 Hand Collections

Hand collections are taken at stations 9, 13, and 17, with three replicates at each station. Each replicate sample covers an area of 0.1m^2 . Justification for this sampling area is discussed in the survey report for August 1991. Organisms identifiable in the field are counted and released. Taxa unidentifiable in the field are collected by hand, with forceps, or by agitating algae-covered rocks in a bag of seawater. Collected specimens are placed in plastic bags with seawater, fixed in 10% buffered seawater formalin in the laboratory, and finally stored in 70% ethanol.

Modifications in sampling and handling protocols instituted during the August 1991 survey to improve sampling accuracy in conformity with contract specifications are described in previous reports and have been maintained.

C. RESULTS

C.1. Ponar Grab Samples

Table 1 lists raw data for all samples by station and by replicate for all groups for the current survey. Table 2 summarizes numbers and percentages of specimens by major taxonomic group. Tables 5a-d summarize numbers of the most abundant species (major taxa) for all surveys carried out by Nova Southeastern University (i.e., August 1991 to August 1996). Table 5a lists the three similar "typical" stations on the west side of the Intracoastal Waterway (stations 1, 3, 8a); table 5b lists the three similar "typical" stations on the east side of the Intracoastal Waterway (stations 13a, 14, 18); table 5c lists "atypical" ICWW stations (9, 10a, 11)(see individual station descriptions below), and table 5d lists the Whiskey Creek stations (17, 19a). Major taxa included in these tables are those species of which at least 25 specimens occur in one station in at least one survey. Table 6a summarizes abundances of major taxonomic groups by station for all surveys. Table 6b summarizes percent occurrence of major taxonomic groups by station for all surveys. Table 7 summarizes organism abundance, richness, diversity and evenness for all surveys.

A total of 14335 specimens was sorted from the 33 grab samples (11 stations with three replicates each), the largest number recorded so far. The previously highest total was 12,294 specimens in January 1994. Total species richness (175) approaches the maximum recorded previously (179 in the August 1992 and January 1993 surveys), although individual 1996

richness values approach or exceed previous maxima only at six stations. For the majority of stations, the high richness values recorded in 1996 have not been observed since January 1994. Two stations, 14 and 17, record richness maxima in the August 1996 survey; the 75 species recorded at the former is the maximum richness at any station in any survey. Eight of the eleven stations exhibit substantial increases in diversity index in both 1996 surveys relative to both 1995 surveys. The exceptions are stations 17 and 19a, at which diversity indices have remained within relatively narrow boundaries over the last several years, and station 10a at which indices have varied seasonally throughout this project (higher in January surveys).

Polychaete worms remain the most abundant group overall in both 1996 surveys (38.2 and 34.1 in January and August, respectively), but have declined from the peak of 58.7% recorded in August 1995. Previous values ranged from 25.1 to 46.1% (Table 6b). Peracarid crustaceans (20.5 and 21.4% in January and August 1996), mollusks (15.0 and 14.7%) and oligochaetes (14.2 and 10.6%) follow (Tables 2, 6b). The most abundant species are the gastropods *Batillaria minima* (611) and *Caecum pulchellum* (1177), the polychaetes *Capitella capitata* (1016) and *Aricidea philbinae* (430), the oligochaete *Pectinodrilus molestus* (513), the ostracode *Peratocytheridea setipunctata* (939), the isopod *Exosphaeroma diminuta* (444) and the tanaidacean *Kalliapseudes aliciae* (2512). *P. molestus*, *E. diminuta*, *B. minima* and *K. aliciae* owe their abundance to a single station (17); *C. capitata* and *P. setipunctata* are common at two stations each (the former at 9 and 10a; the latter at 10a and 19a). *C. pulchellum* occurs in numbers at six stations and *A. philbinae* at four (Table 1).

Overall polychaete richness (57 and 68 species in January and August 1996) is substantially greater than the low recorded in August 1995 (38 species). Amphipods were not completely identified in the January 1996 survey; however, the August 1996 survey includes 9 species, up substantially from the three found in August 1995.

Following is a brief description of results for each station. The quantitative data also appear in Table 7:

Station 1: West side of Intracoastal Waterway (ICWW) at NE corner of Southport Turning Notch. Depth: approx. 3m. Bottom: fine muddy sand with finely divided mangrove detritus and algae-covered rocks. Faunal totals: 660 specimens, 43 species. H': 3.047. J': 0.810.

Polychaetes and oligochaetes dominate in both 1996 surveys, together accounting for 80-90% of organisms (Table 2, 6b). The former remains a relatively less important component of the fauna than during the first two years of surveys (57-86%), but occurs in greater absolute numbers in the 1996 surveys than in any previous year except 1993 (Tables 6a-b). Oligochaetes have chiefly contributed between about 20 and 40% of the fauna here, although their numerical abundance has varied considerably: high in 1993, 1994 and 1996; low in 1991, 1992 and 1994.

The most abundant species are the polychaetes, *Lumbrineris verrilli* and *Cossura soyeri*, the oligochaete *Tubificoides motei* and *Smithsonidrilus hummelincki*. Previously important taxa, the polychaete *Aricidea taylori* and the gastropod, *Caecum pulchellum* are present in smaller numbers. Diversity indices in 1996 are substantially higher than in either 1995 survey.

Station 8: West side of ICWW approximately 30 m north of station 1. Depth: approximately 3m. Bottom: fine muddy sand with finely divided mangrove detritus and scattered hand-sized, algae-covered rocks. Faunal totals: 508 specimens, 54 species. H': 2.959. J': 0.742.

Polychaetes dominate (49.6%), followed by oligochaetes (28.0%). Although numbers of polychaetes have varied seven-fold during the project, they have always contributed substantially to the fauna (~40-80%). Numbers and proportion of oligochaetes has also varied widely, from 16 to 402 specimens, but so has their percentage (6.9 to 48.0%).

The most abundant species are the polychaetes, *Aricidea taylori* and *Lumbrineris verrilli*, the oligochaete *Tubificoides motei*, and the gastropod, *Caecum pulchellum*. All have been consistently abundant here (with a few exceptions) at least since 1992 or 1993. Total abundance and richness are greater in August 1996 than in any survey since 1993 (Table 7). Diversity in both 1996 surveys is greater than since January 1993.

Station 8a: West side of ICWW approximately 50 m north of station 8. Depth and bottom: similar to station 8. Faunal totals: 488 specimens, 46 species. H' 3.003. J' 0.784.

The relative abundance of polychaetes (43.4%) is lower than in any previous survey although absolute numbers are greater than they have been since January 1994. Oligochaetes (34.0%) remain the second most abundant group, as they have been in most preceding surveys. Numbers of oligochaetes are greater in August 1996 than in any previous survey except August 1993 (Tables 2, 6a-b).

The most abundant taxa are again the polychaete, *A. taylori*, and the oligochaete *T. motei*. *A. taylori* has been consistently abundant and *T. motei* at least present in all surveys. The polychaete *Mediomastus californiensis*, previously abundant in the August 1993 and January 1994 surveys, has again appeared in increasing numbers in the last three surveys (Table 5a). The gastropod *C. pulchellum* which declined in numbers from 1994 through 1995 has again increased over both 1996 surveys. Organism abundance has increased continuously over the last four surveys to a level in August 1996 not seen since January 1994. Richness and diversity in both 1996 surveys are also greater than in any survey since January 1994, and the August 1996 diversity index is the maximum recorded at this station (Table 7).

Station 9: East side of ICWW at the SW corner of a mangrove island north of the northern entrance to Whiskey Creek. Depth: approximately 1 m. Bottom: Very firm muddy sand. Faunal totals: 735 specimens, 40 species. H': 2.251. J': 0.610.

Polychaetes are again overwhelmingly dominant (86.0%). The most abundant taxa are the polychaetes, *Capitella capitata* and *Aricidea philbinae* and the ostracode, *Peratocytheridea setipunctata*. The polychaete, *Paraonis fulgens*, abundant from August 1994 through August 1995, almost disappeared in the 1996 surveys. Organism abundance, richness and diversity have all varied widely over the last several years. Relative to previous surveys, the August 1996 values are high for abundance and moderate for richness and diversity (Table 7).

Station 10a: Middle of shallow creek behind Environmental Education Bldg., John U. Lloyd State Recreation Area, east side of ICWW. Depth: approximately 0.1m (exposed at low tide). Bottom: Sandy mud with numerous depressions. Faunal totals: 2531 specimens, 39 species. H': 2.202. J': 0.601.

Peracarid crustaceans again exhibit low relative abundances typical of all preceding August surveys. Although polychaetes dominate the fauna (52.4%), ostracodes again occur in high relative abundance (40.5%), a pattern followed in every August survey save that of 1992 when polychaetes overwhelmingly dominated. However, polychaetes and ostracodes both occur in far greater numbers in August 1996 than in any previous survey at this site.

The most abundant taxa are the polychaetes, *Capitella capitata*, *A. philbinae*, *Leitoscoloplos* spp. and *Sphaerosyllis labyrinthophila*, and the ostracodes *P. setipunctata* and *Cyprideis americana*. *C. capitata*, *A. philbinae* and the podocopan ostracodes have been

consistently important taxa at this station. Organism abundance is greater than in any previous survey. Richness and diversity values are higher than in any preceding August survey, upsetting the previous apparent seasonal variation (Table 7).

Station 11: At north corner of the northern entrance to Whiskey Creek. Depth: approximately 4 m. (A suitable sediment accumulation was again located along the channel wall, rather than at its base.) Bottom: Fine mud among large boulders (riprap). Faunal totals: 364 specimens, 41 species. H': 3.039. J': 0.818.

Polychaetes again approach the numbers recorded during the early stages of this project (and not seen since January 1994). They remain the most important group (45.6%) but do not dominate to as great a degree as in most preceding surveys due to an increase in gastropods (*C. pulchellum*) which account for 24.2% of the fauna (Tables 6a-b). The most abundant other taxon is the polychaete, *Mediomastus californiensis*. Probably because of the difficulty we have experienced in repeatedly sampling the same microhabitat at this station, only *M. californiensis* (perhaps identified as *Mediomastus* sp. in some surveys) has proven a consistently common species here. Organism abundance and richness are higher than in any survey since January 1994. Diversity is higher than in any survey since January 1993.

Station 13a: East side of ICWW opposite the Florida Power & Light discharge canal. Depth: approximately 1.5 m. Bottom: Fine muddy sand with algal turf and algae-covered rocks. Faunal totals: 590 specimens, 49 species. H': 2.958. J': 0.760.

Polychaetes dominate (49.5%) followed by mollusks (23.6%) and oligochaetes (18.3%). Numbers and proportions of these groups have shown no consistent pattern during this project, although total organism numbers have been higher in August than in either preceding or succeeding January since 1993.

The most abundant taxa are the polychaetes *Aricidea philbinae*, *A. taylori* and *Capitella capitata*, and the gastropod, *Caecum pulchellum*. No species has been a consistent dominant at this station, although the gastropod *C. pulchellum* has been at least present in every survey (and *A. philbinae* in all surveys but one), and the oligochaete, *Smithsonidrilus hummelincki*, has occurred in double-digits in every survey beginning in August 1992 (Table 5b). Organism abundance is higher than in any preceding August survey, but also exceeds all January surveys

except those of 1993 and 1996. Species richness and diversity in both 1996 surveys are higher than in any preceding survey except January 1993 (Table 7).

Station 14: East side of ICWW opposite northern margin of Southport Turning Notch. Depth: approximately 1.5 m. Bottom: Fine muddy sand with algal turf and numerous algae-covered rocks. Faunal totals: 990 specimens, 75 species. H': 3.414. J': 0.791.

Polychaetes (61.5%) dominate, followed at a distance by oligochaetes (13.4%). Although only accounting for 11.6% of the fauna, mollusks occur in greater numbers than in any preceding survey. In 1996, peracarids returned to the pattern of seasonal variation (greater numbers in January) recorded from 1991 through 1994 (January 1995 was an exception). Dominant taxa have varied substantially over the last several surveys. Those most abundant in August 1996 are the gastropod *C. pulchellum*, and the polychaetes *Cirriformia* sp. A and *Nematonereis hebes*. Neither worm has ever occurred in numbers here before. *Aricidea philbinae*, a consistent dominant in most preceding surveys, has almost disappeared. However, several other taxa remain consistently common, if not always abundant: the polychaete *Aricidea taylori* and the oligochaete *Smithsonidrilus hummelincki*. The polychaete *Glycera abbranchiata* has consistently occurred in greater numbers in every January survey (Table 5b). Species richness and diversity are greater than in any previous survey, and the 75 species recorded represent the greatest richness observed at any station throughout this project. Total numbers are greater than in any other survey except January 1993 and 1996 (Table 7).

Station 17: Whiskey Creek on a line directly east of station 14. Depth: 0.2 m. Bottom: Coarse shelly sand (incorrectly reported for August 1991 as fine muddy sand) with large shallow depressions and scattered clumps of filamentous algae. Faunal totals: 6432 specimens, 40 species. H': 3.313. J': 0.898.

This station continues to exhibit a fauna that differs strongly from all other stations. Total organism abundance is greater than in any previous survey except that of January 1994. Peracarids again dominate the fauna (45.8%) and occur in greater numbers than in any previous survey here. Mollusks account for 23.4%. The numerical and proportional dominance by polychaetes recorded in August 1995 appears to have been a one-time phenomenon (Tables 6a-b).

The most abundant taxa are the tanaidacean, *Kalliapseudes aliciae* (2497), the gastropods *Caecum pulchellum* (779) and *Batillaria minima* (558), the oligochaete *Pectinodrilus molestus* (513), the isopod *Exosphaeroma diminuta* (434) and the ostracode *Rutiderma darbyi* (429). Two other typical taxa remain in substantial numbers: the polychaetes *Ehlersia cornuta* and *Nematonereis hebes*, and the sipunculan *Aspidosiphon muelleri*. A third species of *Caecum*, *C. textile*, which first appeared in January 1995, now outnumbers *C. imbricatum*. Also, another polychaete, *Exogone dispar*, which occurred in small numbers in a few previous surveys, now is much more common. The abundance of the ostracode, *Peratocytheridea setipunctata*, in the August 1995 survey, appears to have been a one-time phenomenon (Table 5d). Total organism abundance is only slightly lower than the maximum previously recorded here. Species richness has increased over the last four surveys and is now much higher than recorded previously. Diversity indices are higher in 1996 than in 1992, 1993 and 1995 and are about the same as in the peak year of 1994.

Station 18: East side of ICWW opposite Southport Everglades container dock. Depth: approximately 1 m. Bottom: Fine muddy sand with finely divided mangrove detritus, and algae-covered rocks. Faunal totals: 248 specimens, 40 species. H': 3.313. J': 0.898.

Polychaetes (54.8%) dominate the fauna, followed by oligochaetes (15.3%) and mollusks (12.1%). Because total abundance is relatively low and diversity high, no individual taxon dominates the fauna. The most abundant taxa are the polychaete *Lumbrineris verrilli*, the oligochaete *Tubificoides motei*, and the gastropod *C. pulchellum*. The polychaete, *Aricidea philbinae*, present in every survey through January 1996, is absent in August 1996, while *A. taylori* remains present (since January 1992) in modest numbers (Tables 1, 5b). Organism abundance and species richness have varied widely without any pattern at this station. August 1996 values are moderate relative to previous surveys. Diversity, however, is higher than in any survey except that of August 1993 (Table 7).

Station 19a: Whiskey Creek on a line due east of station 18. Depth: 0.2 m. Bottom: Fine peaty mud with some sand and shell debris. Faunal totals: 789 specimens, 51 species. H': 2.811. J': 0.715.

Polychaetes dominate (47.0%), followed by ostracodes (30.4%). The latter occurs in greater numbers than in any previous survey except that of January 1993. Peracarids continue to

reflect generally lower numbers in August than in January surveys, with a peak occurrence in January 1996. The most abundant organisms are the polychaete, *Fabricinuda trilobata*, and the ostracode *Peratocytheridea setipunctata*. This station probably represents the least stable environment of all Ponar sampling sites. No species has been a consistent dominant although the amphipod, *Grandidierella bonnieroides*, has maintained consistently greater numbers in every January survey. Of the few that have occurred in large numbers here, most have done so in fewer than half the surveys. Organism abundances in the 1996 surveys are greater than in any previous, and species richness values are greater than in any other survey except that of January 1993.

C.3. Crab Census

Table 3 lists all crab census data including numbers of burrows, species and specimens, diversity indices and evenness values. Table 8 summarizes crab census data by station (except burrow counts) for all surveys. Station descriptions can be found in previous survey reports. See the map (figure 1) for station locations. The data on numbers of burrows at station 10 was lost for both 1996 surveys. However, in both cases, the number per replicate did not exceed ten and no crabs were collected.

The grapsid, *Sesarma curacaoense*, which used to be the most abundant crab at the seven stations west of the ICWW (north of the Turning Notch), was present in small numbers at five in January 1996, but disappeared completely from all seven in August 1996. It had been declining in numbers here since 1994. *Uca* spp. have also declined here over the last several surveys (no specimens in January 1995; six in August 1995; three in January 1996 and one in August 1996). *Uca rapax* remains in numbers on the east side of the ICWW at stations 15 and 16, while *U. speciosa* has appeared here (station 15) for the first time. The xanthid, *Eurytium limosum*, was last collected at any station in August 1993.

Tree crabs (*Aratus pisonii*) remain in low numbers at several stations on the west side of the ICWW, but they have disappeared in both 1996 surveys from station 16 where they were formerly most abundant.

C.5. Hand Collections

A total of 603 specimens representing 20 taxa was collected at the three hand collection stations. Table 4 lists all raw data, diversity indices and evenness values by station and by replicate. Table 9 summarizes organism abundance, diversity, richness and evenness values by station for all surveys.

The snail, *Batillaria minima*, and the springtail insect, *Anurida maritima*, account for 42.8% and 22.2%, respectively, of all organisms enumerated. Numbers of encrusting sponges and colonial tunicates at station 9 are estimates because it was not possible to determine precisely in all cases whether the small encrusting masses were connected or not. Results are summarized below.

Station 9: Intertidal rubble in a red mangrove fringe protected from heavy wave action by adjacent rip-rap on the southwestern corner of a small island along the east side of the ICWW just north of the northern entrance to Whiskey Creek. Numerous rocks with chiefly red and green algal turf accompanied by some black encrusting cyanobacteria. H' : 1.716. J' : 0.619.

The vermetid gastropod *Petalconchus varians* is again the most abundant organism, outnumbering previously dominant *Batillaria minima* and barnacles (Tables 4, 9). It has increased in numbers almost continuously since August 1991 while barnacles have exhibited a general decline (Table 9). Bivalves have also exhibited a slight increase over the last three surveys. As noted in 1995, the site is closer to the water's edge than it was earlier in the project. A qualitative visual assessment suggests that one or a few red mangrove trees along the edge of the fringe have died. Closer proximity to the Intracoastal Waterway may be responsible for the appearance of substantial numbers of a small encrusting sponge and colonial tunicates (under intertidal rocks) during the last 3-4 surveys. Vermetid gastropods are now noticeably abundant on adjacent large riprap boulders.

Station 13: Intertidal muddy sand with numerous small rocks, pebbles and shells on the north side of Whiskey Creek, about 15m west of the North Ocean Drive bridge; replicates taken 2 m above water line and about 1 m below most seaward mangrove pneumatophores. H' : 1.384. J' : 0.666.

The fauna is dominated by the gastropod, *Batillaria minima* (44%), although numerous small barnacles were found on rocks in one replicate transect.

Station 17: Intertidal, coarse shelly sand and gravel with filamentous green algae, among partly algae-covered red mangrove roots and white mangrove pneumatophores with partly buried rocks, west side of Whiskey Creek, on a line running due east of the north side of the Turning Notch and about 500 m north of the footbridge. Meter transects were taken along the mangrove roots closest to the water's edge. H': 0.555. J': 0.505.

Batillaria minima dominates (82.6%). The red mangrove prop roots adjacent to the shoreline are largely bioeroded above the water line, their hanging ends heavily bored.

D. DISCUSSION

D.1. Grab samples

Total organism abundance has increased over the last four surveys from a project near-low in January 1995 (4474) to a project maximum in August 1996 (14335) (Table 7). This overall increase derives chiefly from the low numbers recorded at seven stations in January 1995, peak abundances (for the four surveys) at six stations in August 1996, and an almost six-fold increase in numbers at station 17 (from 1383 to 6432 specimens).

Overall species richness has increased over the last three surveys; in August 1996, the 175 species recorded approaches the project maximum of 179 collected in August 1992 and January 1993. Seven stations record increases in richness over the last three or four surveys. No distributional pattern exists; stations showing increases are scattered on both sides of the ICWW and in Whiskey Creek. The 75 species found at station 14 in August 1996 represent the maximum richness value recorded during this project.

Diversity indices are greater in both 1996 surveys than in both 1995 surveys at eight stations and have increased progressively over the last four surveys at four stations (8, 8a, 11 and 18). The exceptions are stations 17 and 19a, at which diversity indices have remained within relatively narrow boundaries over the last several years, and station 10a at which indices have varied seasonally throughout this project (higher in January surveys) (Table 7). Station 9 recorded a diversity maximum for the project in January 1996, and stations 8a and 14 had project maxima in August 1996. Diversity indices at stations 1, 8a and 18 in 1996 reached levels not seen since January 1994, and those at station 8, 13a not since January 1993.

Eleven surveys have now been taken by Nova Southeastern University personnel (six August and five January). With few exceptions, no clear patterns are visible. At station 9, polychaetes dominate to a greater degree in August surveys, while ostracodes and peracarid crustaceans tend to occur in greater numbers in January (Tables 6a-b). At station 10a, ostracodes are relatively more abundant in August while peracarids make up a greater proportion of the fauna in January. In other cases, apparent patterns have not been maintained quite throughout the survey period. Thus, at stations 1, 8 and 8a, oligochaetes constitute greater proportions of the fauna in the August surveys from 1991 through 1994, but the pattern has since broken down at stations 1 and 8 and weakened at station 8a (Table 6b). Raw abundance data does not reflect this trend in proportions (Table 6a). At station 17, the polychaete *Ehlersia cornuta* exhibits a pattern of August peaks interrupted by the occurrence of large numbers in the January 1994 survey (Table 5d). A similar pattern for the polychaete *Nematonereis hebes* at the same station breaks down further with a drop in numbers in August 1995, although the pattern resumes in 1996.

The strongest pattern remains the apparent seasonal variation in peracarid crustaceans at several stations, although this pattern is not perfectly consistent either. The cumacean, *Oxyurostylis* sp., the tanaidacean, *Leptochelia rapax*, and the amphipods, *Cerapus* n. sp. and *Grandidierella bonnieroides*, all tend to exhibit January increases in numbers at the shallow creek stations (9, 10a) and, to a lesser extent, the three east ICWW stations (Tables 5b, 5c). They are all almost completely absent from August surveys at station 9. The polychaete, *Glycera abbranchiata*, also tends to occur in larger numbers at ICWW and shallow creek stations in January surveys (Tables 5a-5c).

Tables 5a-d show that some species are consistently important faunal components at different stations in all, or virtually all, surveys so far. If they prove characteristic of their respective sites over a longer term, they may serve as useful environmental indicators. Among these are the polychaetes *Aricidea taylori* at stations 1, 8, and 8a, *A. philbinae* at 9 and 10a, *Mediomastus californiensis* (specimens identified as *Mediomastus* sp. in some surveys are probably also this species; M. Milligan, personal communication) at station 1, *Ehlersia cornuta* and *Nematonereis hebes* at station 17; the tanaidacean, *Kalliapseudes aliciae*, and the gastropod, *Caecum pulchellum*, also at station 17.

A few species have become consistently important since the project began, the oligochaetes, *Tubificoides motei*, at stations 1, 8, 8a and 18 beginning in August 1992; *Smithsonidrilus hummelincki* at stations 13a and 14, and *Thalassodrilides gurwitschi* (sometimes identified as *Thalassodrilides* sp., M. Milligan, personal communication) at station 10a since January 1993; the polychaetes, *Aricidea philbinae* and *A. taylori*, also at stations 13a and 14 since January 1993; the gastropod, *Batillaria minima*, at station 17 since August 1993, and the sipunculan, *Phascolion cryptum*, at station 19a in three of the last four surveys.

Other species are similarly important, but less consistently so: the gastropod, *Caecum imbricatum*, the ostracode, *Rutiderma darbyi*, and the oligochaete *Pectinodrilus molestus*, at station 17; the ostracode, *Cyprideis americana*, at station 10a; the polychaete *Capitella capitata* at stations 9 and 10a. Other frequently common taxa are the polychaete, *Mediomastus californiensis* at stations 8, 8a, 11 and 18, *Lumbrineris verrilli* at 1 and 8, and the gastropod *C. pulchellum* at most ICWW stations. Several of the less consistently common species exhibited peak occurrences as part of the overall organism abundance peaks recorded from August 1992 through January 1994, declined in 1995, but recovered in 1996. Examples include the oligochaetes, *Tubificoides motei* and *Smithsonidrilus hummelincki*, and the polychaete, *Lumbrineris verrilli*, at stations 1, 8, 8a and 18, the oligochaete *Limnodriloides rubicundus* at station 10a, and the isopod, *Exosphaeroma diminuta* at station 17 (Tables 5a-d.). Others, such as the polychaete, *Paraonis fulgens* at station 9, appeared for a while and then declined (Table 5c). As mentioned in previous reports, it is not clear if any of these apparent changes represent post-dredging changes, returns to pre-dredging conditions, or variations un-related to dredging and/or mitigation.

The faunal change noted previously for station 17 in Whiskey Creek remains unchanged: the sipunculan *Aspidosiphon* cf. *muelleri* and the isopod *Exosphaeroma diminuta* appear to have replaced *A. albus* and *E. productatelson*, respectively. However, consultant Marilyn Schotte (Smithsonian Institution) has suggested (personal communication) that the two isopod species may not prove distinguishable. The gastropod *Batillaria minima* also remains abundant at station 17 and may be responsible for the co-occurrence of *A.* cf. *muelleri* which is a more frequent resident of empty gastropod shells than its congener *A. albus*. However, consultants Mary Rice and Julie Piraino (Smithsonian Institution) report (personal communication) that benthic shelf

communities may support as many as six species of *Aspidosiphon*. Thus, *A. albus* and *A. cf. muelleri* may both occur in Whiskey Creek simultaneously although we have not yet found them together at the same time. The other major change at this site is the decline since August 1994 of the gastropod, *C. imbricatum*, and the 1996 appearance and increase of *Caecum textile* (Table 5d). The August 1995 disappearance of the ostracode *Rutiderma darbyi* and its replacement by *Peratocytheridea setipunctata* appears to have been a one-time phenomenon.

Several species previously reported as transients remain so and have not reappeared at their respective sites. Examples include the polychaetes, *Tharyx marioni* at stations 1, 8, 8a and 11 in January 1993; *Lumbrineris testudinum* at stations 1, 8, 9 and 18 in August 1992; *Nematoneris hebes* at station 8 in January 1993; *Laonereis culveri* at station 10a in January 1992; *Leitoscoloplos robustus* at station 14 in January 1993; *Sphaerosyllis longicauda* at stations 13a, 14 and 18 in January 1993; *Branchiomma nigromaculata* at station 11 in August 1991; the nemertine, *Hubrechtella dubia*, at stations 13a and 18 in August 1992; and the ostracode, *Harbansus paucichelatus*, at station 17 in January 1992 (Table 5a-d).

Several other transients have reappeared in numbers after at least year-long absences. Examples include the polychaetes, *Leitoscoloplos robustus* at stations 9 and 10a; *Pseudopolydora* spp. and *Exogone dispar* at stations 13a and 14; the ostracode *Peratocytheridea setipunctata* at station 13a, and the nemertine, *Tubulanus pellucidus* at stations 17 and 19a.

D.2. Crab Censuses

With few exceptions, numbers of ground-dwelling crabs at the seven stations west of the ICWW (north of the Turning Notch) have been greater in August than in January surveys, and have generally declined over the last two years. The August 1996 survey is an exception to the seasonal pattern; only a single ground-dwelling crab was collected at all seven stations. Peak crab abundance values for any of these stations have been recorded no more recently than August 1992 (Table 8).

The fauna at these stations has remained similar throughout most of the project with *Sesarma curacaoense* the dominant taxon followed by *Uca thayeri*, although none of the former was collected in August 1996. Two other species formerly found here repeatedly have been absent for some time: *Uca speciosa* has not been found since the August 1994 survey (and then

only at station 2), and *Eurytium limosum* has not been found at any station here since January 1993.

Tree crab abundances have also gradually declined at these stations, with the peak abundance at any station occurring no more recently than August 1993 (Table 8). After absences over the course of three surveys (January 1994 to January 1995) at stations 6 and 7, however, tree crabs have returned to both sites in two of the last three surveys. Tree crabs were also observed in August 1996 at station 3 for the first time since January 1994.

At stations in John U. Lloyd Park, *Uca pugilator* returned to station 13a in August 1995 and January 1996 after an absence of three surveys. This station was not sampled in August 1996 (graduate students sent to make the collection inadvertently sampled the wrong site; the mistake was not discovered until late autumn--too late to correct the error). *U. rapax* returned to station 15 in January 1995 after an absence of two surveys and has remained present since. The latter species has remained a consistent faunal component at station 16 since at least January 1993. This latter station is the only one exhibiting any increase in crab abundance during this study, with greater numbers occurring in the 1996 surveys.

D.3. Hand Collections

Station 9 continues to maintain a generally typical intertidal fauna although barnacles continue to decline in numbers from 1994 and the vermetid gastropod, *Petalconchus varians*, continues to increase in numbers here as it has throughout the project. It is the most abundant species in the August 1996 survey. Qualitative visual assessments (August 1995 and 1996) indicate that barnacles remain on adjacent riprap but suggest that they are not as abundant as previously, while vermetids have become abundant. The appearance of an unidentified encrusting sponge and a colonial tunicate on the undersides of rocks in the transects over the last 3-4 surveys (Table 9) may be associated with the erosion of the red mangrove fringe at this station. The gastropod, *Batillaria minima*, has declined in numbers over the same period. Since August 1995, fewer prop roots have existed between the sample site and the fringe margin which, in turn, appears perhaps one or two meters further inshore from the line of riprap boulders than previously. One or a few red mangrove trees along the water's edge have died. Otherwise, the 1996 surveys record most of the species found in earlier surveys.

At station 13, the gastropod, *Batillaria minima*, has declined in 1996 from the large numbers recorded in the 1995 surveys although it remains the most common organism. The intertidal springtail insect, *Anurida maritima*, has reappeared in numbers in the August 1996 survey. Both species vary in their distribution along the shore with the changing tide so their numbers counted within the transect areas at any given moment may not accurately reflect population sizes.

At station 17, *B. minima* and *A. maritima* are again the most common organisms. The sporadic appearance of the bivalve, *Isognomon alatus*, here is due to its scattered presence on red mangrove prop roots and their occasional inclusion in randomly placed transects.

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Figure 1. MACROINVERTEBRATE
MONITORING STATIONS

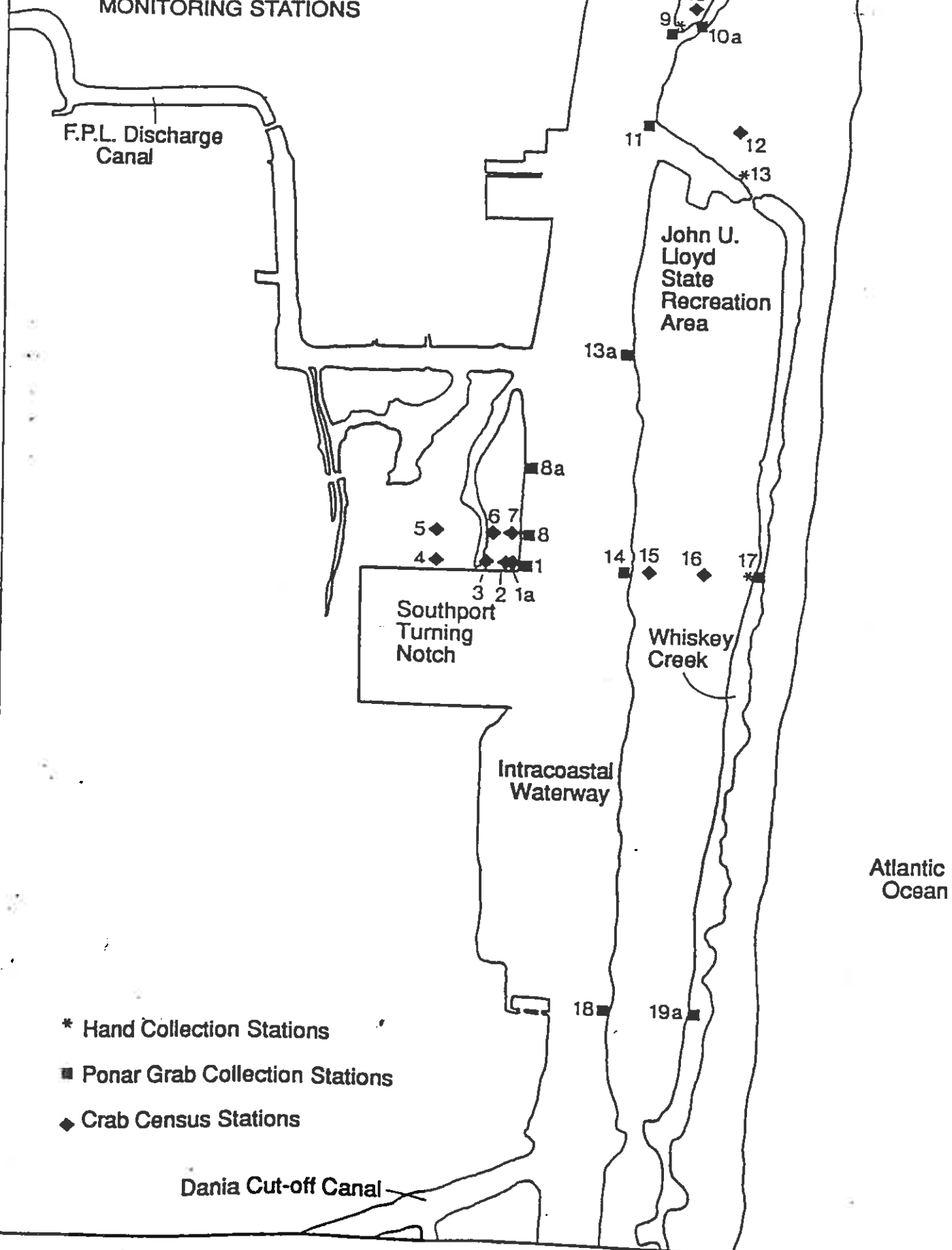


TABLE 1. Grab Collection Stations: raw data, diversity (H') and evenness (J'): August 1996.

REPLICATE	1	2	3	1	2	3	1	8a	2	3	1	2	3	1	10a	2	3	1	11	2	3	1	13a	2	3	1	14	2	3	1	17	2	3	1	18a	2	3	1	19a	2	3	TOT	
TAXON																																											
Phylum CNIDARIA																																											
Order ACTINIARIA																																											
Unidentified actinian	4	22	4	5	2		6		8	2	3		12		3		16		1			5		2			3	3	4	6	2	1	1									115	
Phylum PLATYHELMINTHES																																											
Order KALYPTORHYNCHA																																											
Unidentified kalyptorhynch															12																											12	
Order POLYCLADIDA																																											
Unidentified polyclad																						2																				2	
Order RHABDOCOELA																																											
Unidentified rhabdocoel?															4																											4	
Phylum NEMERTINA																																											
Order PALEONEMERTEA																																											
Family CEPHALOTHRICIDAE																																											
Cephalothricid sp. JLN 114				4										2							1		6	6	3														1		23		
Family CARINOMIDAE																																											
Carinoma tremaphoros								4																																			
Carinomella lactea	4	4	2	3	4	2	2	2						2		2						4	1	4	2										2	2						42	
Family TUBULANIDAE																																											
Tubulanus pellucidus	4	16	4	14	10		6		16					14	4	2		2				7	26	14	10	22	18	4	4	8					1							206	
Unidentified paleonemertine?	4								2																																	6	
Order HETERONEMERTEA																																											
Unidentified heteronemertine				2													2					2	2																			8	
Order HOPLONEMERTEA																																											
Family ZYGONEMERTIDAE																																											
Zygonemertes ?simonae																																											
Hoplonemertine sp. JLN 131				1						2																																	3
Unidentified hoplonemertine		2				2																																				4	
Unidentified nemertine		2																</																									

TABLE 1. Grab Collection Stations: raw data, diversity (H') and evenness (J'): August 1996.

[illegible]

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[illegible]

TABLE 1. Grab Collection Stations: raw data, diversity (H') and evenness (J'): August 1996.

REPLICATE	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	19a	2	3	TOT
TAXON																																			
Infraorder PENAEIDEA																																			
Family PENAEIDAE																																			
<i>Penaeus</i> sp. (juv.)																																			
Infraorder CARIDEA																							2												2
Family ALPHEIDAE																																			
<i>Alpheus armillatus</i>			2					2																2											6
Family HIPPOLYTIDAE																								2											
<i>Periclimenes americanus</i>				2	2				2	2														8											16
Unidentified caridean		2																						4	2										8
Infraorder THALASSINIDEA																																			
Family UPOGEBIIDAE																																			
<i>Upogebia affinis</i>																		2					2											4	
Unidentified thalassinid				1																															1
Infraorder ANOMURA																																			
Family PAGURIDAE																																			
<i>Pagurus</i> sp.																																			
Unidentified paguroid (juv)																					1													1	
Infraorder BRACHYURA																													4						4
Family XANTHIDAE																																			
<i>Neopanope</i> sp.																																			
Unidentified brachyuran																						1	6											7	
Unidentified decapod fragments																2																		2	
Phylum ECHINODERMATA																2	4																		6
Class OPHIUROIDEA																																			
Family AMPHIURIDAE																																			
<i>Amphiodia thrombodes</i>																																			
Unidentified ophiuroid	4																															2			2
Class HOLOTHUROIDEA																								2			1		1	4					18
Unidentified holothuroid																																			
Phylum CHORDATA																																			
Class ASCIDIACEA																																			
Unidentified ascidian				1																															1
UNKNOWN				1									4		1																				7
TOTAL	148	360	152	240	184	84	120	46	322	133	224	378	1504	151	876	108	232	24	254	258	78	196	574	220	1346	2348	2738	92	42	114	290	376	123	14335	
Total # species (by replicate)	17	34	22	45	20	18	19	17	34	22	24	28	28	13	30	27	19	9	35	33	15	45	41	34	24	35	34	14	13	28	33	35	29		
H' (by replicate)	2.548	2.940	2.679	3.061	2.258	2.511	2.399	2.811	2.778	2.317	2.039	2.087	2.019	1.944	1.957	2.945	2.541	2.254	2.832	2.735	2.449	3.277	2.632	3.155	1.867	2.214	2.093	2.605	2.425	3.077	2.656	2.450	2.976		
J' (by replicate)	0.899	0.834	0.867	0.804	0.754	0.869	0.815	0.992	0.788	0.750	0.641	0.626	0.606	0.758	0.575	0.894	0.863	1.026	0.797	0.782	0.904	0.861	0.709	0.895	0.587	0.623	0.594	0.987	0.946	0.923	0.760	0.689	0.884		
Total # species (by station)		43			54			46			40		39		41		49					75				46			40			51			
H' (by station)		3.047			2.959			3.003			2.251		2.202		3.039		2.958					3.414				2.143			3.313			2.811			
J' (by station)		0.810			0.742			0.784			0.610		0.601		0.818		0.760					0.791				0.560			0.898			0.715			

Table 3. Crab census data. *Numbers in parentheses indicate numbers of trees inside 1.0 square meter sampling area. January 1996.

STATION	1a			2			3			4			5			6			7			10			12			13			15			16			TOT
REPLICATE	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3				
CRAB BURROWS	123	135	141	143	110	96	118	103	89	75	73	87	65	43	45	108	82	86	93	62	79	?	?	?							59	62	65	49	87	81	
CRAB CENSUS																																					
Family OCYPODIDAE																																					
Uca rapax																														3		2	3	3	4	15	
Uca thayeri														1																			1			2	
Uca speciosa																														1	1	1				3	
Total # specimens	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	3	3	4	4	20	
Total # species (by station)		0			0			0			0			1			0			0			0			0				2			2				
H' (by station)		0.000			0.000			0.000			0.000			0.000			0.000			0.000			0.000			0.000				0.662			0.305				
J' (by station)		0.000			0.000			0.000			0.000			0.000			0.000			0.000			0.000			0.000				0.954			0.439				
TREE CRAB CENSUS																																					
Family GRAPSIDAE																																					
Aratus pisonii *		0(1)			3(2)			2(1)			0(2)			6(1)			2(1)			0(1)			0(1)							0(1)			0(1)				

Burrow data for station 10 lost. Station 13 sampled at incorrect location, data not shown (see text).

TABLE 4. Hand collection stations: raw data, diversity (H') and evenness (J'). August 1996.

STATION	9			13			17			TOT
REPLICATE	1	2	3	1	2	3	1	2	3	
TAXON										
Phylum PORIFERA										
Unident. encrusting sponge	3	4								7
Phylum ANNELIDA										
Class POLYCHAETA										
Family SERPULIDAE										
Unidentified serpulid	2									2
Phylum MOLLUSCA										
Class GASTROPODA										
Family POTAMIDIDAE										
<i>Batillaria minima</i>	2			22	37	7	52	98	40	258
Family VERMETIDAE										
<i>Petalconchus varians</i>	45	12	25							82
Class BIVALVIA										
Family MYTILIDAE										
<i>Brachidontes exustus</i>	4	1	1	1	1	1				9
Family ISOGNOMONIDAE										
<i>Isognomon alatus</i>	1	1	1			1				4
<i>Isognomon bicolor</i>		2	1							3
Family OSTREIDAE										
<i>Crassostrea virginica</i>					4	5				9
Phylum ARTHROPODA										
Subphylum CRUSTACEA										
Class CIRRIPIEDIA										
Family BALANIDAE										
<i>Balanus</i> sp.						34				34
<i>Balanus</i> sp. (juv.)	1	1			1					3
Family CHTHAMALIDAE										
<i>Chthamalus</i> sp. (juv.)			1							1
Class MALACOSTRACA										
Order AMPHIPODA										
Unidentified amphipod	1		1							2
Order DECAPODA										
Family DIOGENIDAE										
<i>Clibanarius</i> sp.					1					1
Family XANTHIDAE										
Unident. juv. xanthid		1	1							2
Family GRAPSIDAE										
<i>Aratus pisonii</i>		4	1							5
<i>Pachygrapsus transversus</i>			1							1
Family OCYPODIDAE										
<i>Uca</i> sp. (juv.)							3	2	4	9
Subphylum UNIRAMIA										
Class INSECTA										
Order COLLEMBOLA										
Family ANURIDIDAE										
<i>Anurida maritima</i>	25	13	30	14	7	14	8	7	16	134
Subphylum CHELICERATA										
Class ARACHNIDA										
Unidentified acarine			1							1
Phylum CHORDATA										
Class ASCIDIACEA										
Unident. colonial tunicate	7	21	8							36
Total # of specimens	91	60	72	37	51	62	63	107	60	603
Total # species (by replicate)	10	10	12	3	6	6	3	3	3	
H' (by replicate)	1.467	1.768	1.511	0.774	0.936	1.248	0.565	0.333	0.803	
J' (by replicate)	0.637	0.768	0.608	0.705	0.523	0.696	0.515	0.303	0.731	
Total # species (by station)		16			8			3		
H' (by station)		1.716			1.384			0.555		
J' (by station)		0.619			0.666			0.505		

Table 5a. Summary of Major Taxa by Survey: Typical Intracoastal Waterway (ICWW) Stations (1, 8, 8a). 1991-1996.

STATION						1										8											8a						
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
MAJOR TAXON																																	
NEMERTINA																																	
<i>Carinomella lactea</i>	6		2	15	6	4	7		8	3	10	6	2	4	32	8	2		2			9	8		2	8	18	16	2	1	11	3	4
<i>Hubrechtella dubia</i>	10		4										6	7						2					4			6					
<i>Tubulanus pellucidus</i>	4			35	6	1	13	8	10	9	24			4	37	8	16	6	4	4	4	24	2		3	57	16	2	4	5	2	1	22
GASTROPODA																																	
<i>Caecum pulchellum</i>	36			60	4	74	32	50	42	17	30	4	4	8	71	24	28	26	32	20	20	35	10		1	31	32	62	32	11	2	14	36
POLYCHAETA																																	
<i>Leitoscoloplos fragilis</i>																																	
<i>Leitoscoloplos robustus</i>															1																		
<i>Scoloplos rubra</i>			1	6	8					3	8			1													4				1		6
<i>Aricidea cf. catherinae</i>			5			2																											
<i>Aricidea philbiniae</i>	8			59	2		12		36	1	2		4				6	2	42	32	14	2	4	2	1	2	26	4	2	15	12	3	
<i>Aricidea taylori</i>	14	54	13	21	62	49	44	38	29	31	16	56	180	25	34	116	242	86	48	56	66	57	32	4	161	99	108	200	98	62	38	39	68
<i>Prionospio cristata</i>			1	5		4				5			6	2			4				6	5			8		2		2		1	4	2
<i>Prionospio heterobranchia</i>	52			7	16	1					12	8		4	4	12	4	2			6		14		8		8		8				12
<i>Pseudopolydora</i> spp.			1		2	7		2		2		2	2	4	2						2		6	6		2	10	4				1	2
<i>Caulleriella killariensis</i>	6																																
<i>Caulleriella</i> sp. A					34	9	2	2		4			2			10					10	1					14	6			1		
<i>Cirriformia</i> sp. A	4		1	7		28	1			7	8				26							10		6									
<i>Monticellina dorsobranchialis</i>		2	3	6	16		3	2		1	24		2	6		14	10		2	2	2	9		2	2		4	2	6		11	9	
<i>Tharyx marioni</i>				69											69											12							
<i>Capitella capitata</i>	6		1		2	3			1							2				4	2				1			2					
<i>Mediomastus californiensis</i>			62		94	26		16	14	72	30			66		54	22			16	22	12	2	4	13		108	38		1	12	21	30
<i>Mediomastus</i> sp.	86	12		219	6		16					20	16		184	2		10					36	22		61	4						
Unident. capitellid				12											39											8							
<i>Ehlersia cornuta</i>					2									2	10								4		1	2							2
<i>Exogone dispar</i>	4			36	2	3				4	2		2	2	40						4	1				2	4	4					
<i>Sphaerosyllis labyrinthophila</i>																															2	2	
<i>Sphaerosyllis longicauda</i>	4			1											8								2										
<i>Sphaerosyllis riseri</i>	2			10	18	1	4				10		2	1	21	38	4	6				9		2		1	22	12					2
<i>Sphaerosyllis taylori</i>	2			2	6	7					4		8			14	2				4	6	4	2		27	46	8			1	2	
<i>Sphaerosyllis</i> sp.			3												35											21							
<i>Streptosyllis pettiboneae</i>	4										2																2						
<i>Glycera abbranchiata</i>	2		3	20	4	29	2	10	1	15			8	2	11	2	36		2		22	2	2	14		3	2	32		2	2	7	
<i>Glycera</i> sp.													6		1																		
<i>Nematonereis hebes</i>			4	43	2	2									144								2	6		6	4	10					
<i>Lumbrineris testudinum</i>			28											25																			
<i>Lumbrineris verrilli</i>	8			17	74	27	16	4	4	42	78	8			36	42	30	20	4	18	32	92	2			6	60	16	6	2	3	4	42
<i>Bispira melanostigma</i>																											52						
<i>Fabricinuda trilobata</i>	2			4	12					6	2			8	54												12						

Table 5a. Summary of Major Taxa by Survey: Typical Intracoastal Waterway (ICWW) Stations (1, 8, 8a). 1991-1996.

STATION	1											8											8a											
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	
MAJOR TAXON																																		
OLIGOCHAETA																																		
<i>Limnodriloides barnardi</i>					16		2			4				2		6		2	6		2						26		2	6			6	
<i>Limnodriloides rubicundus</i>		6			16	1	4	2	4	3	6				1	26	2	4	2	8	2					1	36	6	2	5	3		2	
<i>Smithsonidrilus hummelincki</i>	76		6	52	56	89	27	14		24	52	72			40	27	58	32	22	10	4	12	20			36	20	120	6	8	7	15	6	22
<i>Tectidrilus bori</i>			3	21	16	7	8	4		27	20			29	10	16	4	2		2	4	1				6	6	12	2	2		1	2	4
<i>Tectidrilus gabriellae</i>			5	28	14	4		12						52	22	70			8							23	13				1			
<i>Tectidrilus squalidus</i>							27		3	13	18							52			32	15							6		4	7	14	
<i>Thalassodrilides gurwitschi</i>																															1			
<i>Thalassodrilides</i> sp.																20																		
<i>Tubificoides bermudae</i>			4	1	2	2	10	2		2				2												2			2					
<i>Tubificoides motei</i>	20		24	72	126	39	61	26	15	92	122	4	4	97	55	222	40	66	6	10	36	98	4	2	46	68	256	34	42	2	27	25	98	
Unident. tubificid	22			21	6	1	7	4	3	4	26	6	10		4		2	6	4	8	6	6	8			4	8	10	2	2	3	2	6	
OSTRACODA																																		
<i>Peratocytheridea setipunctata</i>																					4													
Unident. podocopan																																		
PERACARIDA																																		
<i>Oxyurostylis</i> sp.										1	2										4													
<i>Kalliapseudes aliciae</i>														1	10							2			1									
<i>Leptochelia rapax</i>				1		6									4		2											2						
<i>Xenanthura brevitelson</i>						2		2											2			2				4	2		2	7				
<i>Cerapus</i> n. sp.	2				2											8	2						8				18						2	
<i>Grandidierella bonnieroides</i>	6			12	8	30	1			1	12		12	2	12	4	10					7	4	4		8	2	10				1	4	

TABLE 5b. Summary of major taxa by survey: Typical Intracoastal Waterway (ICWW) stations (13a, 14, 18). 1991-1996.

STATION SURVEY	8/91	1/92	8/92	1/93	8/93	13a 1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	14 1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	18 8/93	1/94	8/94	1/95	8/95	1/96	8/96
MAJOR TAXON																																	
NEMERTINA																																	
Carinomella lactea			7		1		2	6	3	8	4			2	1	3	9	4	2			7			7	3	4	4	11	2	6	16	4
Hubrechtella dubia			13											3										2	25								
Tubulanus pellucidus				1		1	2		3		2				6	2	2	6		2	1	47			2	9	2	15	6	8	4	6	16
GASTROPODA																																	
Caecum pulchellum	7	3	25	27	22	102	14	143	32	260	115	13	6	9	24	24	67	30	12	1	43	92	42	9	14	92	32	170	75	272	7	30	20
POLYCHAETA																																	
Leitoscoloplos fragilis															27	2	1																
Leitoscoloplos robustus															139																		
Scoloplos rubra				2											1	1	1								114	5	13	12	4	2			2
Aricidea cf. catherinae		5	129		12		96											78															
Aricidea philbiniae	76	26	5	127		12	4	112	89	62	49	60	52	2	204	31	100	24	14	165	380	3	12	19	1	25	2	2	4	22	31	2	
Aricidea taylori		2		58	21	17	28	46	16	42	80			12	16	67	22	134	14	30	104	45		7	5	70	15	16	9	24	37	16	10
Prionospio cristata		7		10		9				7			1		14		4				3			2	5	1		2		4	1		
Prionospio heterobranchia	2	1	6	1	6	1	28		9		26	11	5	3	2	20	7	84		13	3	4	6	1	22	3	26	5	6		6	4	
Pseudopolydora spp.	49	1	1	6	18	27				40	28	23	2	3	4	70	32	28			24	2		2	6	31	6	4	2			2	
Cauleriella killariensis				43											60								2			7							
Cauleriella sp. A		1				2	2	14			6		14		1	11	51	16	7		37	15		13	6		8		8			4	
Cirriformia sp. A										8	2					1	12	2			7	139					10		18		24	2	
Monticellina dorsobranchialis			1							2			2	3	6			2	1						48		20		2	1	4	8	
Tharyx marioni				7											6									2	17	8							
Capitella capitata	1	1		1	3	5		4	34	5	45			5	48	6	2			46	120	1		3	1	1	2	6		3	2		
Mediomastus californiensis			33		24	8		32		33	5			8		7	16		3		7	8		1	28		23	41		30		8	12
Mediomastus sp.	2	2		23	9							6	7		13	2		18					2	6		36	7		41				
Unident. capitellid															57																		
Ehlersia cornuta	3	3	1	4		17	4			15	1	1	2		5		17	2				14			4		1	2	2			8	
Exogone dispar	7			20		4				34	16				15		16	2			17	33			2		1	8		6	1		10
Sphaerosyllis labyrinthophila											3											1	4										
Sphaerosyllis longicauda				9											19											34							
Sphaerosyllis riseri				22		2				8	1		1		13	1	2				7	7	4	1		17	11		3	2	2		2
Sphaerosyllis taylori				13		2							1		16	5						2		1		6		2		2			6
Sphaerosyllis sp.		2	67												8		1							1	21			2					
Streptosyllis petitboneae	1	2							1	1	8	4	5	1	33	13	2		1		19	9		3	12	4	2						2
Glycera abranchiata	5	6	1	27	2	102		15	2	52	6	7	10	1	13		102	6	21	1	67	8		15	2		4	24	2	22	2	8	
Glycera sp.		24		5											2									1									
Nematoneis hebes	2			3		2									1							80				22	10	32	6	10		60	6
Lumbrineris testudinum			6												13											96							
Lumbrineris verrilli			1	13	3		2	6	3	36	5	2	9		19	8	9	14	2		12	39	10	21	6		58	15	18	14	12	6	24
Bispira melanostigma						2		4									4					80				12			6				
Fabricinuda trilobata				2	2					1			1		89	1	22				15	5		9	18	2	14	5				2	4

TABLE 5b. Summary of major taxa by survey: Typical Intracoastal Waterway (ICWW) stations (13a, 14, 18). 1991-1996.

STATION SURVEY	8/91	1/92	8/92	1/93	8/93	13a 1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	14 1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	18 8/93	1/94	8/94	1/95	8/95	1/96	8/96	
MAJOR TAXON																																		
OLIGOCHAETA																																		
<i>Limnodriloides barnardi</i>	3	2	20	3	1		2		1	3	9			1	2	2	3	8		1	8	10			1	3	5	7						
<i>Limnodriloides rubicundus</i>			3	20	4	4		2	27	24	32		2	11	3	33	10	2	3	17	15	26				44	8	10			13	18	2	
<i>Smithsonidrilus hummelincki</i>			145	135	10	44	46	61	34	97	18			67	83	9	66	52	28	10	28	24				79	28	49	3	12	11	2	4	
<i>Tectidrilus bori</i>														1	2						2					26	5		13	2	1	2		
<i>Tectidrilus gabriellae</i>														18	5	1										75	26	3	8		10			
<i>Tectidrilus squalidus</i>																		2				15							1		2	6		
<i>Thalassodrilides gurwitschi</i>		3		53			2		25		26		3	2	25	3				10		4			6							2	4	
<i>Thalassodrilides</i> sp.																																		
<i>Tubificoides bermudae</i>		1	2	1									1	8		2					32					15	1		6			3		
<i>Tubificoides motel</i>			4			1	4	3	2			1		39	19	11	16	4	3	1	1	30	8	4	157	89	32	79		36	18	22	28	
Unident. tubificid	8	9	2	48		4	6		19	1	21	2	9	1	7		3	44		3		22	6	11	2	12	3	6	1	2	4	4		
OSTRACODA																																		
<i>Peratocytheridea setipunctata</i>				24					19	16	1				13	70	114		3	9	49	10				19	1				1	116		
Unident. podocopan												44											10	11										
PERACARIDA																																		
<i>Oxyurostylis</i> sp.		5		8		6				6			8	71	22		6		1		6	1			13		6		4					
<i>Kalliapseudes aliciae</i>														3							1													
<i>Leptochelia rapax</i>	71	2	1	1	2				3	13		76	7		3		18				25	6			4		3		13		4		6	
<i>Xenanthura brevitelson</i>														1		1			1	1	2	4			4		43	5			2	1		
<i>Cerapus</i> n. sp.	6	69		6		13				13	1	3	62	2	18	17	5			1	2	3			4		8	5						
<i>Grandidierella bonnieroides</i>	1	21		19	3			8		21			44		34	2	23	2	1		81	2	4	50		28	3	18	20	8	1	12		

Table 5c. Summary of Major Taxa by Survey: atypical ICWW stations (9, 10a, 11). 1991-1996.

STATION	9											10a											11											
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	
MAJOR TAXON																																		
NEMERTINA																																		
<i>Tubulanus pellucidus</i>										6					16						4		6			1					1	2	1	20
GASTROPODA																																		
<i>Caecum pulchellum</i>				1	1	1		1		2				5	2					1		12		14	4	76	111	22		10	7	70		
POLYCHAETA																																		
<i>Leitoscoloplos fragilis</i>	6	16		41	5	2	2		4			65	1																					
<i>Leitoscoloplos robustus</i>			43	97				39	12	6	14				85				2	55	6	69												
<i>Leitoscoloplos</i> sp.				3	11			29	32		39	4					2			71		9												
<i>Aricidea</i> cf. <i>catherinae</i>																16								26	3									
<i>Aricidea philbiniae</i>	42	72	120	53	40	63	19	107	142	38	103	98	253	398	184	84	48	61	23	125	28	235	52			11	10		4		14	3	12	
<i>Aricidea taylori</i>	3		1		8	1		2	2	2	3			5		4	20	16	1	4	10	25				2	1	1		2		4		
<i>Paraonis fulgens</i>					6	8	123	46	89	5	1																							
<i>Prionospio cristata</i>		2		1		2		1		3											2			26	3	19		8	8	13	2	3	2	
<i>Prionospio heterobranchia</i>	20	3	5	5	5	1	1	1	5		15		5		2		2		22				4		2	10	13				4			
<i>Pseudopolydora</i> spp.	26	6	18	8		12		3	5	5	26	3	2	3	8		10			1	4	8	4		1			5						
<i>Caulleriella</i> sp. A		10				1					20		1											1			24	6	12	1	14	2	8	
<i>Monticellina dorsobranchialis</i>			1																					2	35	9	6	5	26	27	18	3	4	
<i>Tharyx marioni</i>																										40								
<i>Tharyx</i> sp.																									19	58			1					
<i>Capitella capitata</i>	21	2	295	189	10			24	453	12	313	4	138	340	255	6	60	38	54	557	78	593				3		3	18	1	2			
<i>Mediomastus californiensis</i>			1								5								2			4				50		73	21	10	24	18	24	46
<i>Mediomastus</i> sp.	3														1								28	16		53	6							
<i>Ehlersia cornuta</i>				1	2															1		4		16	10	2		6				2		
<i>Exogone dispar</i>			8						5	6	2		1		69		8		4	3		4			2		1	2			1			
<i>Sphaerosyllis labyrinthophila</i>									2	1									2	53	2	347												
<i>Sphaerosyllis longicauda</i>													16		32										1	1								
<i>Sphaerosyllis riseri</i>				1				1							1	2	16				4				1	3	1					2		
<i>Sphaerosyllis taylori</i>										3	1				143	4	2				6	9				1	2							
<i>Sphaerosyllis</i> sp.			3									3	6	157												5								
<i>Streptosyllis pettiboneae</i>		5	8	1		1		2	12				26	3	27		10				2								1		1			
<i>Laeonereis culveri</i>		1										3	210																					
<i>Glycera abranchiata</i>	3	57	1	9		48		32	1	81	4	2	8		10	2	20		2	1	28	1	10	2				32	2			13		
<i>Glycera</i> sp.													30													5								
<i>Nematonereis hebes</i>						1									1								2		11	5	4	15	8		26	22		
<i>Lumbrineris testudinum</i>			13												1										7									
<i>Lumbrineris verrilli</i>	7	2		29	7			1	1	30	36								2			4	4		2	1	4	19	5	4	1	4	18	
<i>Ophryotrocha</i> sp. A			66	6	17						2		2		3							13												
<i>Bispira melanostigma</i>																											3							
<i>Branchiomma nigromaculata</i>	4																						42											
OLIGOCHAETA																																		
<i>Limnodriloides rubicundus</i>	12		9	4									6	21	12	46	20		1	11	24	8				3	11			4	4	4		
<i>Smithsonidrilus hummelincki</i>	77		3	3	2					1					2		18						72	72		70	11	18	17		19	4	14	
<i>Tecndrilus bori</i>																										8	11	1		4		2		
<i>Thalassodrilides gurwitschi</i>		2	40	9	7				3	4	6		10		83	12		26		60	58	30		2	2									
<i>Thalassodrilides</i> sp.																	92		40															
<i>Tubificoides bermudae</i>			3																							17				1				
<i>Tubificoides motei</i>				3									1		1	2										76	14	50	9		1	2	2	8
OSTRACODA																																		
<i>Cyprideis americana</i>				3				6	5		1			78	124	134	156	145	5	108		275												
<i>Peraiochytheridea setipunctata</i>			2	61		9		199	115	16	48			87	104	28	56	4	3	171	2	675												
Unidentified podocopan	31	157		2								218	79								3	42												
PERACARIDA																																		
<i>Oxyurostylis</i> sp.		54		29		28		6		51	1		17		16		16				2													
<i>Leptochela rapax</i>		6		7		2		2		6		71	52	1	35		88	53	5	5	20					2					1			
<i>Cerapus</i> n. sp.	14	1		44		6		66		29			104	2	288		402		61	1	140	1												
<i>Grandidierella bonnieroides</i>		36		27		14		6		6		2	79		68		132		29	2	6	8		2			1	2				2		

Table 5d. Summary of Major Taxa by Survey: Non-Intracoastal Waterway Stations (17, 19). 1991-1996.

STATION SURVEY	8/91	1/92	8/92	1/93	8/93	17 1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	19a 1/94	8/94	1/95	8/95	1/96	8/96
MAJOR TAXON																						
NEMERTINA																						
<i>Tubulanus pellucidus</i>	2		2	17				5	2	3	50				85				1	1	2	1
GASTROPODA																						
<i>Batillaria minima</i>					124	174	230	78	74	92	558		2		2	19			6	113	4	15
<i>Caecum pulchellum</i>	190		153	572	594	701	473	57	46	624	779				1				1		4	
<i>Caecum imbricatum</i>	210		170	829	540	1113	448	45	8	33	56											
<i>Caecum textile</i>										5	104											
POLYCHAETA																						
<i>Aricidea philinae</i>												6	3		27	10	19	2	35	34	123	23
<i>Prionospio heterobranchia</i>				1			2		2						3	6	1		5	16	5	14
<i>Monticellina dorsobranchialis</i>															21		38	21	2	61	26	27
<i>Capitella capitata</i>									2	2	1	2	10	194	3		1		10	78	136	61
<i>Ehlersia cornuta</i>	328	18	212	89	415	208	203	46	822	60	312				3	3	3		5	6	6	8
<i>Exogone dispar</i>	14		1				3		10		163						5	3	2	1		32
<i>Sphaerosyllis labyrinthophila</i>																						
<i>Nematonereis hebes</i>	88	28	39	7	256	331	183	138	22	45	109								1		19	3
<i>Bispira melanostigma</i>					2	3					1											
<i>Fabricinuda trilobata</i>				3	1										7	192					169	142
OLIGOCHAETA																						
<i>Limnodriloides barnardi</i>												2	3		3	3	23	1	12		3	
<i>Limnodriloides rubicundus</i>			1									2			1	2	4	20	3	13	10	4
<i>Pectinodrilus molestus</i>			58	44	57	125	124		160	414	513											
<i>Thalassodrilides gurwitschi</i>															12	1		17		35	71	27
<i>Thalassodrilides</i> sp.																	18		30			
SIPUNCULA																						
<i>Aspidosiphon</i> cf. <i>albus</i>	68	328	172	115											1							
<i>Aspidosiphon muelleri</i>					803	875	351	168	112	369	276									2	2	1
<i>Phascolion cryptum</i>									2										22	37	8	53
OSTRACODA																						
<i>Harbansus paucichelatus</i>		78																				
<i>Rutiderma darbyi</i>	46		7	587	502	519	245	65		126	429											24
<i>Cyprideis americana</i>															34		8	1				11
<i>Peratocytheridea setipunctata</i>							2		262	1	6			4	200	66	34		10	14		199
Unidentified podocopan	6											12	29							1		
PERACARIDA																						
<i>Kalliapseudes aliciae</i>	544	578	2161	1138	1182	2089	933	691	364	616	2497		2		6			2	5		25	12
<i>Leptochelia rapax</i>			281	4	1		31	1	28	13	7										79	
<i>Exosphaeroma diminutum</i>						112	282	40	8	72	434											10
<i>Exosphaeroma productitelson</i>	720		218	44	356																	
<i>Cerapus</i> n. sp.		2	122	27	18	94	14	20	2	174	3				1		1				33	
<i>Grandidierella bonnieroides</i>		10				49	2	21	2	3		6	23	10	23	3	16		24	1	29	2

TABLE 6a. Summary of Major Taxonomic Groups by Abundance in Grab Collections, August 1991-August 1996.

STATION	1											8											8a										
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
NEMERTINA	24	0	7	64	22	12	20	10	18	17	42	10	12	21	72	20	20	12	8	8	8	42	10	6	10	71	34	28	12	8	13	10	34
MOLLUSCA	62	2	1	66	8	78	40	50	45	19	32	14	4	8	111	26	32	28	34	20	22	38	12	0	3	31	38	70	52	19	2	16	44
POLYCHAETA	242	74	140	574	452	222	117	82	88	258	266	98	258	226	752	368	376	142	102	126	246	252	120	86	242	246	640	372	136	90	90	102	212
OLIGOCHAETA	74	6	45	200	268	159	150	70	44	181	264	16	22	189	134	402	110	168	36	32	100	142	12	2	119	125	466	66	64	26	57	44	166
SIPUNCULA	0	0	0	0	0	3	1	0	1	0	4	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	2
OSTRACODA	2	0	0	1	0	7	0	0	0	1	0	0	0	0	4	6	6	0	0	0	4	8	0	0	0	7	4	16	0	0	0	0	0
PERACARIDA	10	0	0	22	18	40	5	4	0	4	14	0	14	3	40	12	20	0	2	0	4	12	12	4	9	18	38	22	2	7	0	2	10
OTHERS	8	4	8	24	12	23	6	4	6	9	38	12	8	5	14	4	10	6	4	6	0	14	12	8	3	8	14	26	14	1	12	8	20
TOTAL	422	86	201	951	780	544	339	220	202	489	660	150	320	452	1128	838	574	356	186	194	384	488	178	106	386	506	1236	600	280	152	174	182	488

STATION	13a											14											18										
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
NEMERTINA	0	3	30	11	5	7	16	15	6	18	19	2	5	5	9	7	38	26	6	2	9	62	6	10	48	17	14	37	22	14	10	32	22
MOLLUSCA	8	6	31	42	24	113	16	152	51	282	139	15	9	14	42	37	86	42	21	13	80	115	56	12	22	99	34	174	91	284	12	36	30
POLYCHAETA	156	101	292	412	117	231	180	256	158	377	292	115	127	68	860	306	452	479	66	256	936	609	44	119	474	282	400	262	138	200	99	154	136
OLIGOCHAETA	11	21	180	260	15	55	56	67	108	144	108	3	21	162	136	61	108	112	34	43	86	133	20	34	283	261	83	177	5	64	53	56	38
SIPUNCULA	0	0	0	0	0	0	0	0	1	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	1	0	0
OSTRACODA	0	0	2	24	0	0	0	0	20	26	20	0	45	2	15	72	115	0	4	9	57	15	10	14	2	25	10	10	2	0	1	124	0
PERACARIDA	10	97	10	39	5	23	0	8	3	79	1	10	122	13	90	22	82	10	3	2	157	18	4	86	3	90	31	42	24	18	1	22	2
OTHERS	1	6	18	3	0	8	2	7	3	28	2	4	8	14	19	5	11	10	5	6	37	38	4	2	7	9	20	20	8	14	2	22	20
TOTAL	186	234	563	791	166	437	270	505	350	954	590	149	337	278	1171	510	892	679	139	331	1362	990	144	277	839	783	594	722	290	596	179	446	248

STATION	9											10a											11										
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
NEMERTINA	7	1	11	2	1	3	0	1	1	7	0	0	3	0	21	0	8	0	2	0	8	0	14	6	12	7	9	8	2	2	8	1	28
MOLLUSCA	9	33	17	22	2	4	1	8	14	24	31	8	22	16	22	0	12	6	4	1	12	66	16	2	18	5	77	116	24	1	12	8	88
POLYCHAETA	144	202	598	472	117	148	147	297	768	201	632	182	760	912	832	118	212	129	121	880	180	1326	174	84	221	277	235	172	140	82	102	95	166
OLIGOCHAETA	34	7	59	32	10	0	0	0	3	7	6	0	21	30	101	70	152	31	45	75	82	45	8	18	221	59	77	34	4	28	10	4	36
SIPUNCULA	0	1	0	0	0	0	0	0	0	0	0	0	6	0	21	0	0	0	0	2	0	9	0	0	1	1	0	1	0	0	2	0	2
OSTRACODA	31	158	2	66	0	12	1	205	120	22	52	218	79	166	233	162	214	149	9	282	2	1024	0	0	0	4	2	0	0	0	0	0	10
PERACARIDA	16	101	2	120	0	81	0	91	0	143	8	3	257	3	485	2	660	53	101	9	182	25	2	2	1	3	2	3	2	0	0	4	0
OTHERS	3	0	9	3	0	1	0	1	4	7	6	5	6	3	3	0	6	0	3	1	0	36	8	10	12	5	7	5	10	1	12	11	34
TOTAL	244	503	698	717	130	249	149	603	910	411	735	416	1154	1130	1718	352	1264	368	284	1250	466	2531	222	122	486	361	409	339	182	114	146	123	364

STATION	17											19a											TOT										
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
NEMERTINA	2	16	5	28	0	11	3	5	8	20	111	0	11	1	100	0	4	0	1	2	12	2	75	73	150	402	112	176	113	72	76	142	362
MOLLUSCA	404	0	326	831	1258	1990	1072	180	148	761	1507	0	10	1	13	22	4	22	11	122	13	24	604	100	465	1284	1526	2679	1394	764	440	1273	2114
POLYCHAETA	454	46	278	106	686	559	418	191	864	127	621	12	18	234	282	56	74	16	150	192	577	371	1741	1875	3685	5095	3495	3080	2042	1637	3623	3253	4883
OLIGOCHAETA	12	16	61	44	58	128	126	0	160	414	516	8	7	19	25	8	71	54	48	74	87	62	198	175	1431	1377	1518	1060	770	418	659	1205	1516
SIPUNCULA	328	68	176	115	803	875	351	168	114	369	277	8	5	4	15	34	7	19	22	41	10	54	336	82	181	153	841	886	371	193	162	379	357
OSTRACODA	52	78	7	587	503	519	248	65	262	128	449	12	29	4	253	66	42	1	12	15	1	240	325	403	185	1219	825	941	401	295	709	365	1818
PERACARIDA	570	594	2790	1222	1568	2353	1299	773	408	916	2943	8	32	20	69	4	24	2	44	21	233	32	645	1309	2854	2198	1702	3350	1397	1051	444	1746	3065
OTHERS	0	0	7	24	0	7	2	1	6	25	8	0	0	2	23	2	5	2	4	4	3	4	57	52	88	135	64	122	60	45	64	150	220
TOTAL	1822	818	3650	2957	4876	6442	3519	1383	1970	2760	6432	48	112	285	780	192	231	116	292	471	936	789	3981	4069	9039	11863	10083	12294	6548	4474	6177	8513	14335

TABLE 6b. Summary of Major Taxonomic Groups by Percentage Abundance in Grab Collections, August 1991-August 1996.

STATION	1											8											8a										
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
NEMERTINA	5.7	0.0	3.5	6.7	2.8	2.2	5.9	4.5	8.9	3.5	6.4	6.7	3.8	4.6	6.4	2.4	3.5	3.4	4.3	4.1	2.1	8.3	5.6	5.7	2.6	14.0	2.8	4.7	4.3	5.3	7.5	5.5	7.0
MOLLUSCA	14.7	2.3	0.5	6.9	1.0	14.3	11.8	22.7	22.3	3.9	4.8	9.3	1.3	1.8	9.8	3.1	5.6	7.9	18.3	10.3	5.7	7.5	6.7	0.0	0.8	6.1	3.1	11.7	18.6	12.5	1.1	8.8	9.0
POLYCHAETA	57.3	86.0	69.7	60.4	57.9	40.8	34.5	37.3	43.6	52.8	40.3	65.3	80.6	50.0	66.7	43.9	65.5	39.9	54.8	64.9	64.1	49.6	67.4	81.1	62.7	48.6	51.8	62.0	48.6	59.2	51.7	56.0	43.4
OLIGOCHAETA	17.5	7.0	22.4	21.0	34.4	29.2	44.2	31.8	21.8	37.0	40.0	10.7	6.9	41.8	11.9	48.0	19.2	47.2	19.4	16.5	26.0	28.0	6.7	1.9	30.8	24.7	37.7	11.0	22.9	17.1	32.8	24.2	34.0
SIPUNCULA	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.0	0.5	0.0	0.6	0.0	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.7	0.0	0.0	0.4
OSTRACODA	0.5	0.0	0.0	0.1	0.0	1.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.4	0.7	1.0	0.0	0.0	0.0	1.0	1.6	0.0	0.0	0.0	1.4	0.3	2.7	0.0	0.0	0.0	0.0	0.0
PERACARIDA	2.4	0.0	0.0	2.3	2.3	7.4	1.5	1.8	0.0	0.8	2.1	0.0	4.4	0.7	3.5	1.4	3.5	0.0	1.1	0.0	1.0	2.4	6.7	3.8	2.3	3.6	3.1	3.7	0.7	4.6	0.0	1.1	2.0
OTHERS	1.9	4.7	4.0	2.5	1.5	4.2	1.8	1.8	3.0	1.8	5.8	8.0	2.5	1.1	1.2	0.5	1.7	1.7	2.2	4.1	0.0	2.8	6.7	7.5	0.8	1.6	1.1	4.3	5.0	0.7	6.9	4.4	4.1

STATION	13a											14											18										
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
NEMERTINA	0.0	1.3	5.3	1.4	3.0	1.6	5.9	3.0	1.7	1.9	3.2	1.3	1.5	1.8	0.8	1.4	4.3	3.8	4.3	0.6	0.7	6.3	4.2	3.6	5.7	2.2	2.4	5.1	7.6	2.3	5.6	7.2	8.9
MOLLUSCA	4.3	2.6	5.5	5.3	14.5	25.9	5.9	30.1	14.6	29.6	23.6	10.1	2.7	5.0	3.6	7.3	9.6	6.2	15.1	3.9	5.9	11.6	38.9	4.3	2.6	12.6	5.7	24.1	31.4	47.7	6.7	8.1	12.1
POLYCHAETA	83.9	43.2	51.9	52.1	70.5	52.9	66.7	50.7	45.1	39.5	49.5	77.2	37.7	24.5	73.4	60.0	50.7	70.5	47.5	77.3	68.7	61.5	30.6	43.0	56.5	36.0	67.3	36.3	47.6	33.6	55.3	34.5	54.8
OLIGOCHAETA	5.9	9.0	32.0	32.9	9.0	12.6	20.7	13.3	30.9	15.1	18.3	2.0	6.2	58.3	11.6	12.0	12.1	16.5	24.5	13.0	6.3	13.4	13.9	12.3	33.7	33.3	14.0	24.5	1.7	10.7	29.6	12.6	15.3
SIPUNCULA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.6	0.0	0.0
OSTRACODA	0.0	0.0	0.4	3.0	0.0	0.0	0.0	0.0	5.7	2.7	3.4	0.0	13.4	0.7	1.3	14.1	12.9	0.0	2.9	2.7	4.2	1.5	6.9	5.1	0.2	3.2	1.7	1.4	0.7	0.0	0.6	27.8	0.0
PERACARIDA	5.4	41.5	1.8	4.9	3.0	5.3	0.0	1.6	0.9	8.3	0.2	6.7	36.2	4.7	7.7	4.3	9.2	1.5	2.2	0.6	11.5	1.8	2.8	31.0	0.4	11.5	5.2	5.8	8.3	3.0	0.6	4.9	0.8
OTHERS	0.5	2.6	3.2	0.4	0.0	1.8	0.7	1.4	0.9	2.9	0.3	2.7	2.4	5.0	1.6	1.0	1.2	1.5	3.6	1.8	2.7	3.8	2.8	0.7	0.8	1.1	3.4	2.8	2.8	2.3	1.1	4.9	8.1

STATION	9											10a											11										
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
NEMERTINA	2.9	0.2	1.6	0.3	0.8	1.2	0.0	0.2	0.1	1.7	0.0	0.0	0.3	0.0	1.2	0.0	0.6	0.0	0.7	0.0	1.7	0.0	6.3	4.9	2.5	1.9	2.2	2.4	1.1	1.8	5.5	0.8	7.7
MOLLUSCA	3.7	6.6	2.4	3.1	1.5	1.6	0.7	1.3	1.5	5.8	4.2	1.9	1.9	1.4	1.3	0.0	0.9	1.6	1.4	0.1	2.6	2.6	7.2	1.6	3.7	1.4	18.8	34.2	13.2	0.9	8.2	6.5	24.2
POLYCHAETA	59.0	40.2	85.7	65.8	90.0	59.4	98.7	49.3	84.4	48.9	86.0	43.8	65.9	80.7	48.4	33.5	16.8	35.1	42.5	70.4	38.6	52.4	78.4	68.9	45.5	76.7	57.5	50.7	76.9	71.9	69.9	77.2	45.6
OLIGOCHAETA	13.9	1.4	8.5	4.5	7.7	0.0	0.0	0.0	0.3	1.7	0.8	0.0	1.8	2.7	5.9	19.9	12.0	8.4	16.0	6.0	17.6	1.8	3.6	14.8	45.5	16.3	18.8	10.0	2.2	24.6	6.8	3.3	9.9
SIPUNCULA	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.2	0.0	0.0	0.0	0.0	0.2	0.0	0.4	0.0	0.0	0.2	0.3	0.0	0.3	0.0	0.0	1.4	0.0	0.5
OSTRACODA	12.7	31.4	0.3	9.2	0.0	4.8	0.7	34.0	13.2	5.4	7.1	52.4	6.8	14.7	13.6	46.0	16.9	40.5	3.1	22.6	0.4	40.5	0.0	0.0	0.0	1.1	0.5	0.0	0.0	0.0	0.0	0.0	2.7
PERACARIDA	6.6	20.1	0.3	16.7	0.0	32.5	0.0	15.1	0.0	34.8	1.1	0.7	22.3	0.3	28.2	0.6	52.2	14.4	35.4	0.7	39.1	1.0	0.9	1.6	0.2	0.8	0.5	0.9	1.1	0.0	0.0	3.3	0.0
OTHERS	1.2	0.0	1.3	0.4	0.0	0.4	0.0	0.2	0.4	1.7	0.8	1.2	0.5	0.3	0.2	0.0	0.5	0.0	0.9	0.1	0.0	1.4	3.6	8.2	2.5	1.4	1.7	1.5	5.5	0.9	8.2	8.9	9.3

STATION	17											19a											TOT										
SURVEY	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
NEMERTINA	0.1	2.0	0.1	0.9	0.0	0.2	0.1	0.4	0.4	0.7	1.7	0.0	9.8	0.4	12.8	0.0	1.7	0.0	0.3	0.4	1.3	0.3	1.9	1.8	1.7	3.4	1.1	1.4	1.7	1.6	1.2	1.7	2.5
MOLLUSCA	22.2	0.0	8.9	28.1	25.8	30.9	30.5	13.0	7.5	27.6	23.4	0.0	8.9	0.4	1.7	11.5	1.7	19.0	3.8	25.9	1.4	3.0	15.2	2.5	5.1	10.8	15.1	21.8	21.3	17.1	7.1	15.0	14.7
POLYCHAETA	24.9	5.6	7.6	3.6	14.1	8.7	11.9	13.8	43.9	4.6	9.7	25.0	16.1	82.1	36.2	29.2	32.0	13.8	51.4	40.8	61.6	47.0	43.7	46.1	40.8	42.9	34.7	25.1	31.2	36.6	58.7	38.2	34.1
OLIGOCHAETA	0.7	2.0	1.7	1.5	1.2	2.0	3.6	0.0	8.1	15.0	8.0	16.7	6.3	6.7	3.2	4.2	30.7	46.6	16.4	15.7	9.3	7.9	5.0	4.3	15.8	11.6	15.1	8.6	11.8	9.3	10.7	14.2	10.6
SIPUNCULA	18.0	8.3	4.8	3.9	16.5	13.6	10.0	12.1	5.8	13.4	4.3	16.7	4.5	1.4	1.9	17.7	3.0	16.4	7.5	8.7	1.1	6.8	8.4	2.0	2.0	1.3	8.3	7.2	5.7	4.3	2.6	4.5	2.5
OSTRACODA	2.9	9.5	0.2	19.9	10.3	8.1	7.0	4.7	13.3	4.6	7.0	25.0	25.9	1.4	32.4	34.4	18.2	0.9	4.1	3.2	0.1	30.4	8.2	9.9	2.0	10.3	8.2	7.7	6.1	6.6	11.5	4.3	12.7
PERACARIDA	31.3	72.6	76.4	41.3	32.2	36.5	36.9	55.9	20.7	33.2	45.8	16.7	28.6	7.0	8.8	2.1	10.4	1.7	15.1	4.5	24.9	4.1	16.2	32.2	31.6	18.5	16.9	27.2	21.3	23.5	7.2	20.5	21.4
OTHERS	0.0	0.0	0.2	0.8	0.0	0.1	0.1	0.1	0.3	0.9	0.1	0.0	0.0	0.7	2.9	1.0	2.2	1.7	1.4	0.8	0.3	0.5	1.4	1.3	1.0	1.1	0.6	1.0	0.9	1.0	1.0	1.8	1.5

TABLE 7. Summary of organism abundance, richness, diversity and evenness for all surveys.

		SURVEY										
Station		Aug 91	Jan 92	Aug 92	Jan 93	Aug 93	Jan 94	Aug 94	Jan 95	Aug 95	Jan 96	Aug 96
1	Total # organisms	422	86	201	951	780	544	339	220	202	489	660
	Species Richness	51	10	38	66	58	56	34	28	27	47	43
	Diversity Index	3.162	1.365	2.667	3.105	3.193	3.102	2.868	2.623	2.578	2.95	3.047
	Evenness	0.804	0.593	0.733	0.741	0.786	0.761	0.813	0.787	0.782	0.766	0.81
8	Total # organisms	150	320	452	1128	838	574	356	186	194	384	508
	Species Richness	21	28	52	64	36	36	28	20	17	34	54
	Diversity Index	2.306	2.057	2.974	3.202	2.671	2.433	2.473	2.271	2.283	2.954	2.959
	Evenness	0.757	0.617	0.753	0.77	0.745	0.679	0.742	0.758	0.806	0.838	0.742
8a	Total # organisms	178	106	386	506	1236	600	280	152	174	182	488
	Species Richness	28	23	38	43	50	53	29	24	27	35	46
	Diversity Index	2.808	2.8	2.304	2.839	2.994	2.874	2.469	2.309	2.681	2.849	3.003
	Evenness	0.843	0.893	0.633	0.755	0.765	0.724	0.733	0.727	0.813	0.801	0.784
9	Total # organisms	244	503	698	717	130	249	149	603	910	411	735
	Species Richness	34	36	41	59	21	32	7	30	25	48	40
	Diversity Index	2.868	2.364	2.129	2.808	2.406	2.487	0.637	2.233	1.689	2.94	2.251
	Evenness	0.813	0.66	0.573	0.689	0.79	0.718	0.328	0.657	0.525	0.759	0.61
10a	Total # organisms	416	1154	1130	1718	352	1264	368	284	1250	466	2531
	Species Richness	19	46	23	59	15	38	15	26	26	28	39
	Diversity Index	1.397	2.555	1.712	2.851	1.837	2.507	1.861	2.445	1.884	2.405	2.202
	Evenness	0.474	0.667	0.546	0.699	0.678	0.689	0.687	0.75	0.578	0.722	0.601
11	Total # organisms	222	122	486	361	409	339	182	114	146	123	364
	Species Richness	26	25	72	45	40	47	25	25	21	30	41
	Diversity Index	2.549	2.614	3.326	3.069	2.656	2.87	2.845	2.353	2.677	2.844	3.039
	Evenness	0.782	0.812	0.778	0.806	0.72	0.745	0.884	0.731	0.879	0.836	0.818
13a	Total # organisms	186	234	563	791	166	437	270	505	350	954	590
	Species Richness	23	47	48	57	27	46	26	34	31	58	49
	Diversity Index	1.985	2.823	2.571	3.027	2.76	2.685	2.242	2.361	2.568	2.964	2.958
	Evenness	0.633	0.733	0.664	0.749	0.837	0.701	0.688	0.67	0.748	0.73	0.76
14	Total # organisms	149	337	278	1171	510	892	679	139	331	1362	990
	Species Richness	21	45	51	74	56	68	48	28	27	69	75
	Diversity Index	2.129	2.831	3.204	3.288	3.073	3.261	2.963	2.733	1.899	2.971	3.414
	Evenness	0.699	0.744	0.769	0.764	0.764	0.773	0.765	0.82	0.576	0.702	0.791
17	Total # organisms	1822	818	3650	2957	4876	6442	3519	1383	1970	2760	6432
	Species Richness	21	12	36	26	24	26	32	18	27	33	46
	Diversity Index	1.961	1.139	1.612	1.786	2.139	2.048	2.285	1.786	1.868	2.227	2.143
	Evenness	0.644	0.458	0.45	0.548	0.673	0.629	0.659	0.618	0.567	0.637	0.56
18	Total # organisms	144	277	839	783	594	722	290	596	179	446	248
	Species Richness	24	51	65	54	68	63	36	50	28	44	40
	Diversity Index	2.679	3.282	3.026	3.171	3.438	3.23	2.874	2.529	2.677	2.948	3.313
	Evenness	0.843	0.835	0.725	0.795	0.815	0.78	0.802	0.646	0.803	0.779	0.898
19a	Total # organisms	48	112	285	780	192	231	116	292	471	936	789
	Species Richness	10	21	23	54	21	32	20	33	39	49	51
	Diversity Index	2.109	2.408	1.459	2.601	1.988	2.869	2.401	2.838	2.661	2.838	2.811
	Evenness	0.916	0.791	0.465	0.652	0.654	0.828	0.802	0.812	0.726	0.729	0.715
TOTAL	Total # organisms	3981	4076	9039	11863	10083	12294	6548	4474	6177	8513	14335
	Species Richness	117	140	179	179	140	159	120	114	106	148	175

Table 8. Summary of crab census data for all surveys (August 1991-August 1996).

STATION	1a											2										
SURVEY DATE	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
<i>Sesarma curacaoense</i>	7	4	13		3	2	1		3	2		9	2	13	1	10		6		7	4	
<i>Sesarma ?cinereum</i>																						
<i>Aratus pisonii</i>		2																				
<i>Pachygrapsus transversus</i>																						
<i>Eurytium limosum</i>			1	1								3		1								
Unidentified xanthid					1																	
<i>Uca pugilator</i>																						
<i>Uca pugnax</i>																						
<i>Uca rapax</i>																						
<i>Uca speciosa</i>			1		1												1	1				
<i>Uca thayeri</i>		1	1		2		1			1			1	1		1	1			1		
<i>Uca</i> sp. (juv.)		6	2	4	1		3						5	1								
Unidentified crab																						
Total # specimens	7	13	18	5	8	2	5	0	3	3	0	12	8	16	1	11	2	7	0	8	4	0
Total # species (by station)	1	4	5	2	5	1	3	0	1	2	0	2	3	4	1	2	2	2	0	2	1	0
H' (by station)	0.000	0.916	0.800	0.500	1.494	0.000	0.950	0.000	0.000	0.637	0.000	0.562	1.220	0.689	0.000	0.305	0.693	0.410	0.000	0.377	0.000	0.000
J' (by station)	0.000	0.834	0.497	0.722	1.078	0.000	0.865	0.000	0.000	0.918	0.000	0.811	0.880	0.497	0.000	0.439	1.000	0.592	0.000	0.544	0.000	0.000
TREE CRAB CENSUS	13	9	0	4	1	1	0	0	1	?	0	3	7	0	5	3	0	0	2	3	1	3

STATION	3											4										
SURVEY DATE	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
<i>Sesarma curacaoense</i>	5	1	16		2	1	1		3	1		9	5	12	3	9	1	8		3	1	
<i>Sesarma ?cinereum</i>																						
<i>Aratus pisonii</i>				2		1																
<i>Pachygrapsus transversus</i>																	1					
<i>Eurytium limosum</i>														2		1						
Unidentified xanthid																						
<i>Uca pugilator</i>																						
<i>Uca pugnax</i>																						
<i>Uca rapax</i>																						
<i>Uca speciosa</i>	3				3									3								
<i>Uca thayeri</i>	4		1		2	1	1		1			3		1		1		2		1		
<i>Uca</i> sp. (juv.)		3	1	2						2			3	1	1							
Unidentified crab																						
Total # specimens	12	4	18	4	7	3	2	0	4	3	0	12	8	19	4	11	2	10	0	4	1	0
Total # species (by station)	3	2	3	2	3	3	2	0	2	2	0	2	2	5	2	3	2	2	0	2	1	0
H' (by station)	1.076	0.562	0.426	0.693	0.693	1.100	0.693	0.000	0.562	0.637	0.000	0.562	0.662	0.822	0.562	0.600	0.690	0.500	0.000	0.562	0.000	0.000
J' (by station)	0.981	0.811	0.388	1.000	0.631	1.000	1.000	0.000	0.811	0.918	0.000	0.811	0.954	0.511	0.811	0.546	1.000	0.722	0.000	0.811	0.000	0.000
TREE CRAB CENSUS	4	5	1	1	2	1	0	0	0	0	2	11	4	0	1	4	0	3	0	0	0	0

STATION						5										6						
SURVEY DATE	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
<i>Sesarma curacaoense</i>	12	4	6	4	6		3		1			4		10	3					2		
<i>Sesarma ?cinereum</i>																						
<i>Aratus pisonii</i>		1											1									
<i>Pachygrapsus transversus</i>																						
<i>Eurytium limosum</i>												3				3						
Unidentified xanthid																						
<i>Uca pugilator</i>																						
<i>Uca pugnax</i>																						
<i>Uca rapax</i>																						
<i>Uca speciosa</i>	1																					
<i>Uca thayeri</i>	4		3		5		3		1		1	2				1						
<i>Uca</i> sp. (juv.)	1			1					1					1	3	1	1					
Unidentified crab						2											5					
Total # specimens	18	5	9	5	11	2	6	0	3	0	1	9	1	11	6	5	6	0	0	2	0	0
Total # species (by station)	4	2	2	2	2		2	0	3	0	1	3	1	2	2	3		0	0	1	0	0
H' (by station)	0.926	0.500	0.898	0.500	0.689		0.693	0.000	1.099	0.000	0.000	1.061	0.000	0.305	0.693	0.950		0.000	0.000	0.000	0.000	0.000
J' (by station)	0.668	0.722	0.817	0.722	0.994		1.000	0.000	1.000	0.000	0.000	0.966	0.000	0.439	1.000	0.865		0.000	0.000	0.000	0.000	0.000
TREE CRAB CENSUS	6	7	4	8	2	2	0	1	3	3	6	10	7	2	13	6	0	0	0	7	0	2

Table 8. Summary of crab census data for all surveys (August 1991-August 1996).

STATION						7											10					
SURVEY DATE	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
<i>Sesarma curacaoense</i>	14	1	12	1	4		2		1	1												
<i>Sesarma ?cinereum</i>															1	3						
<i>Aratus pisonii</i>		1			1																	
<i>Pachygrapsus transversus</i>																						
<i>Eurytium limosum</i>		2	1		2										1							
Unidentified xanthid					1																	
<i>Uca pugilator</i>																						
<i>Uca pugnax</i>																						
<i>Uca rapax</i>																		1				
<i>Uca speciosa</i>	2																					
<i>Uca thayeri</i>	1	1	1	1	1				1			3										
<i>Uca</i> sp. (juv.)	1	4					1						3		1		1					
Unidentified crab						6																
Total # specimens	18	9	14	2	9	6	3	0	2	1	0	3	3	0	3	3		2	0	0	0	0
Total # species (by station)	4	5	3	2	5		2	0	2	1	0	1	1	0	3	1		2	0	0	0	0
H' (by station)	0.761	1.427	0.720	0.693	1.183		0.637	0.000	0.693	0.000	0.000	0.000	0.000	0.000	1.099	0.000		0.693	0.000	0.000	0.000	0.000
F' (by station)	0.549	0.887	0.519	1.000	0.735		0.918	0.000	1.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000		1.000	0.000	0.000	0.000	0.000
TREE CRAB CENSUS	8	5	4	8	8	0	0	0	6	2	0	0	0	1	0	0		0	2	0	0	0

STATION						13a										15						
SURVEY DATE	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
<i>Sesarma curacaoense</i>																						
<i>Sesarma ?cinereum</i>																						
<i>Aratus pisonii</i>																						
<i>Pachygrapsus transversus</i>								1														
<i>Eurytium limosum</i>																						
Unidentified xanthid																						
<i>Uca pugilator</i>	4	2	6		5				4	8												
<i>Uca pugnax</i>	6											5										
<i>Uca rapax</i>		2	1				3						2		1	6			1	3	2	5
<i>Uca speciosa</i>																						3
<i>Uca thayeri</i>	3											1										
<i>Uca</i> sp. (juv.)								1							1					1	4	
Unidentified crab																						
Total # specimens	13	4	7	0	5		3	2	4	8		6	2	0	2	6		0	1	4	6	8
Total # species (by station)	3	2	2	0	1		1	2	1	1		2	1	0	2	1		0	1	2	2	2
H' (by station)	1.058	0.693	0.410	0.000	0.000		0.000	0.693	0.000	0.000		0.451	0.000	0.000	0.693	0.000		0.000	0.000	0.562	0.637	0.662
J' (by station)	0.962	1.000	0.592	0.000	0.000		0.000	1.000	0.000	0.000		0.650	0.000	0.000	1.000	0.000		0.000	0.000	0.811	0.918	0.954
TREE CRAB CENSUS	0	0	0	0	0		0	0	0	0		0	0	0	0	0		0	0	5	0	0

STATION						16					
SURVEY DATE	8/91	1/92	8/92	1/93	8/93	1/94	8/94	1/95	8/95	1/96	8/96
<i>Sesarma curacaoense</i>			1				1				
<i>Sesarma ?cinereum</i>											
<i>Aratus pisonii</i>						1				1	
<i>Pachygrapsus transversus</i>											
<i>Eurytium limosum</i>								1			
Unidentified xanthid											
<i>Uca pugilator</i>											
<i>Uca pugnax</i>											
<i>Uca rapax</i>			8?	1	3	1	1	2	1	6	10
<i>Uca speciosa</i>											
<i>Uca thayeri</i>	2							1		1	1
<i>Uca</i> sp. (juv.)		1		1		3		3	1		
Unidentified crab											
Total # specimens	2	1	1	2	3	5	2	7	2	8	11
Total # species (by station)	1	1	2	2	1	3	2	4	2	3	2
H' (by station)	0.000	0.000	0.349	0.693	0.000	0.950	0.693	1.277	0.693	0.736	0.305
J' (by station)	0.000	0.000	0.503	1.000	0.000	0.865	1.000	0.921	1.000	0.670	0.439
TREE CRAB CENSUS	6	1	3	17	13	3	8	5	4	0	0

TABLE 10. List of outside taxonomic experts consulted and their area(s) of expertise.

Dr. Jon F. Norenburg, Smithsonian Institution (Nemertina, Platyhelminthes)

Dr. Donald R. Moore, University of Miami (Mollusca)

Dr. Michael Milligan, Center for Systematics and Taxonomy (Polychaeta and Oligochaeta)

Dr. Julie Piraino, Smithsonian Institution (Sipuncula)

Dr. Mary Rice, Smithsonian Institution (Sipuncula)

Dr. Louis Kornicker, Smithsonian Institution (Ostracoda)

Dr. Rosalie Maddocks, University of Houston (Ostracoda)

Dr. James D. Thomas, Nova Southeastern University (Amphipoda)

Ms. Barbara Maloney, Florida International University (Cumacea).

Dr. Julio Garcia-Gomez, Miami-Dade community College (Decapoda)